

Board of Education Regular Meeting

Wednesday, April 12, 2017 6:30 PM

East Butler School  
212 South Madison Street  
Brainard, NE 68626-0036

Jan Bostelman: Absent

Mark Janak: Present

Megan Kozisek: Present

Kim TePoel: Present

Marlene Wade: Present

Dan Zysset: Present

1. Call Meeting To Order

2. Roll Call

3. Flag Salute

4. Approve Agenda

Motion to approve the agenda as presented Passed with a motion by Mark Janak and a second by Kim TePoel.

Mark Janak: Yea, Megan Kozisek: Yea, Kim TePoel: Yea, Marlene Wade: Yea, Dan Zysset: Yea

5. Patron's Comments

6. Informational Items

- 6.1. Student Presentation on Parking Lot
- 6.2. Follow Up From Community Meetings
- 6.3. Locker Room Update
- 6.4. Strategic Planning
- 6.5. School Lunch
- 6.6. Before After & School Program
- 6.7. NRCSA update

#### 7. Consent Agenda

Motion to approve the consent agenda as presented Passed with a motion by Dan Zysset and a second by Mark Janak.

Mark Janak: Yea, Megan Kozisek: Yea, Kim TePoel: Yea, Marlene Wade: Yea, Dan Zysset: Yea

- 7.1. Approval of Minutes
- 7.2. Treasurer's Report
- 7.3. New Staff
- 7.4. Approval of graduating class

#### 8. Regular Agenda

##### 8.1. Prague Action

Terminate the rfp Passed with a motion by Dan Zysset and a second by Marlene Wade.

Mark Janak: Yea, Megan Kozisek: Yea, Kim TePoel: Yea, Marlene Wade: Yea, Dan Zysset: Yea

##### 8.2. Principal Compensation

2% increase for principal compensation Passed with a motion by Marlene Wade and a second by Kim TePoel.

Mark Janak: Yea, Megan Kozisek: Yea, Kim TePoel: Yea, Marlene Wade: Yea, Dan Zysset: Yea

##### 8.3. Classified Compensation

##### 8.4. Addition of Striv Activity Sponsor

Approve addition of Striv Activity Sponsor 4% student compensation \$13 a game plus coupon to concession stand Passed with a motion by Marlene Wade and a second by Mark

Janak.

Mark Janak: Yea, Megan Kozisek: Yea, Kim TePoel: Yea, Marlene Wade: Yea, Dan Zysset:  
Yea

8.5. Addition of Full Time Substitute

9. Administrative Comments

Go into closed session to discuss personnel at 8:33 P.M. Passed with a motion by Marlene Wade and a second by Dan Zysset.

Mark Janak: Yea, Megan Kozisek: Yea, Kim TePoel: Yea, Marlene Wade: Yea, Dan Zysset:  
Yea

10. Items for next Meeting

11. Adjournment

Motion to adjourn at 9:30 pm Passed with a motion by Marlene Wade and a second by Dan Zysset.

Mark Janak: Yea, Megan Kozisek: Yea, Kim TePoel: Yea, Marlene Wade: Yea, Dan Zysset:  
Yea



Sam Stecher &lt;sstecher@ebutler.esu7.org&gt;

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## Introduction to Agriculture Class - Parking lot proposal for school board meeting

1 message

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**Lily Hamicksburg** <l1hamicksburg@ebutler.esu7.org>

Tue, Mar 28, 2017 at 11:01 AM

To: Sam Stecher &lt;sstecher@ebutler.esu7.org&gt;

Cc: Shane Hennessy &lt;shennessy@ebutler.esu7.org&gt;, taylor.a.holzfastergmail.com, ashleyneujahr13@gmail.com

Mr. Stecher,

On behalf of the Introduction to Agriculture class, we would like to be put on the agenda for the April 12th school board meeting. Throughout the third and into this fourth quarter, we have been working with two UNL students from the RCAP program. After brainstorming and discussing multiple different project ideas for our community, we've become very passionate about paving the school parking lot. While we realize this will take some time to complete, we've compiled a proposal to give to the school board members of East Butler. Our proposal discusses reasons for why we want to pave the parking lot, fundraising opportunities to raise money, and a potential date that we would like hold the fundraiser.

Please contact Shane Hennessy with any questions or concerns you may have. We look forward to hearing from you.

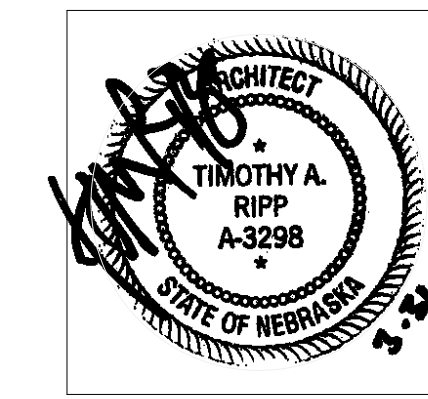
E: [shennessy@ebutler.esu7.org](mailto:shennessy@ebutler.esu7.org)

Sincerely,

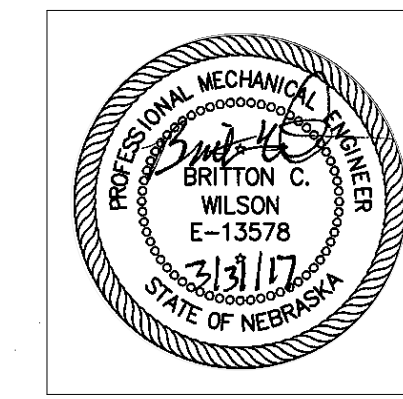
Introduction to Agriculture Class

# East Butler Public Schools Locker Room Renovation

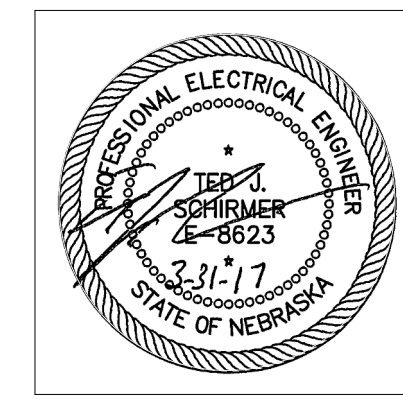
Brainard, NE  
March 31, 2017



ARCHITECT  
(COORDINATING PROFESSIONAL)



MECHANICAL ENGINEER



ELECTRICAL ENGINEER

## GENERAL

- G0.00 Title Sheet & Drawing Index
- G0.01 General Notes, Symbols & Abbreviations

## ARCHITECTURAL

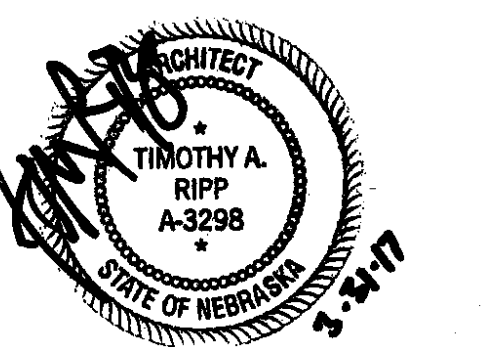
- A1.10 First Floor Plan
- A2.10 Enlarged Restroom Plans, Elevations, Schedule & Details

## MECHANICAL

- M0.00 Mechanical Abbreviations, Symbols & Notes
- M0.01 Mechanical Demolition Plans
- M1.01 First Floor HVAC & Roof Plan
- M2.01 Plumbing Plans
- M2.02 Mechanical Riser Diagrams & Schedules
- M3.01 Fire Suppression Plan

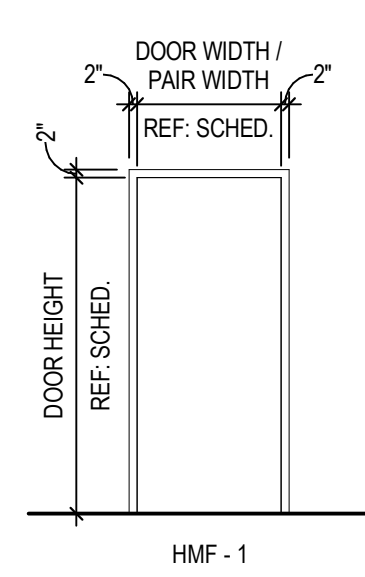
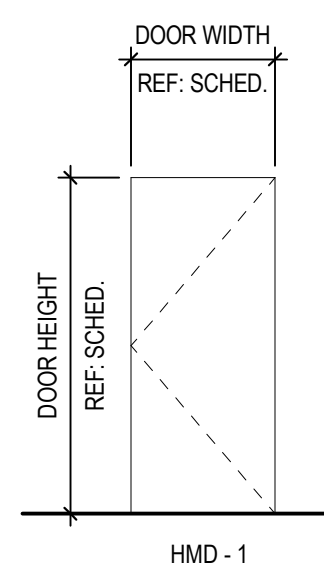
## ELECTRICAL

- E0.00 Electrical Abbreviations, Symbols Legend, General Notes & Light Fixture Schedule
- E0.01 First Floor Electrical Orientation Plan
- E1.11 Partial First Floor Electrical Plans





DOOR SCHEDULE											
DOOR NO.	PAIR	DOOR			FRAME				HARDWARE		REMARKS
169		WIDTH	HEIGHT	TYPE	FINISH	TYPE	FINISH	HEAD	JAMB	SILL	
		3'-0"	7'-0"	HMD-1	PT	HMF-1	PT				



**HOLLOW METAL DOOR TYPES**

SCALE: 1/4" = 1'-0"

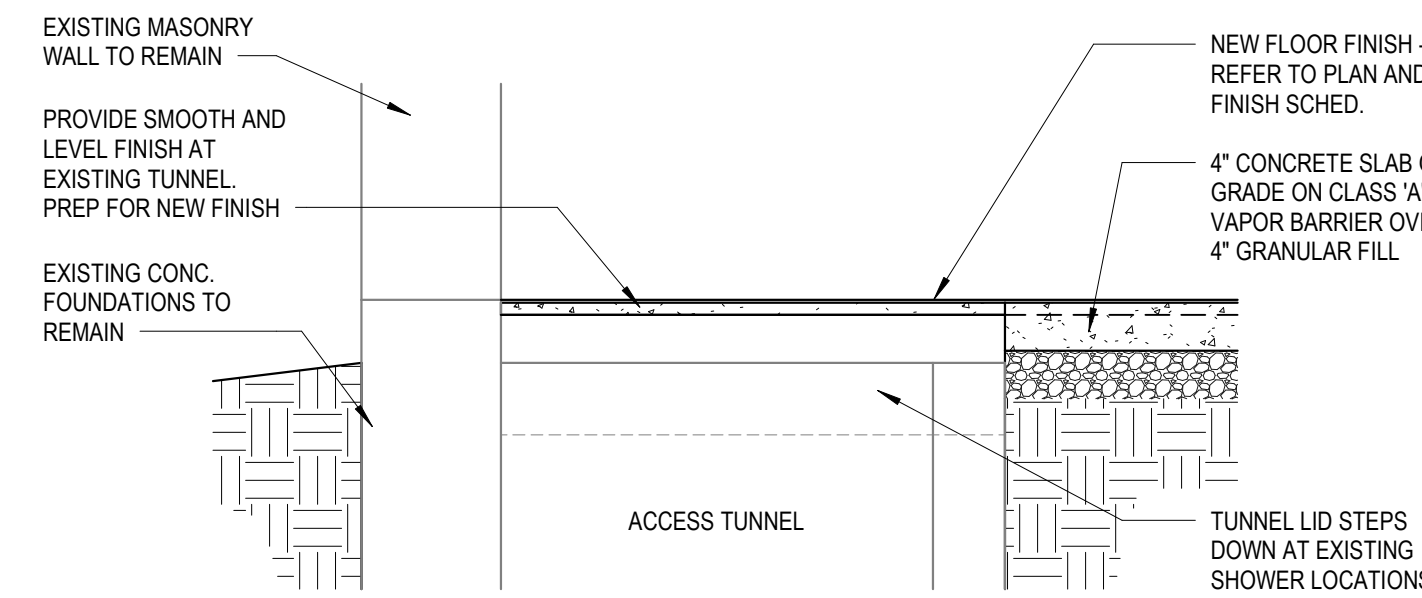
**HOLLOW METAL FRAME TYPES**

SCALE: 1/4" = 1'-0"

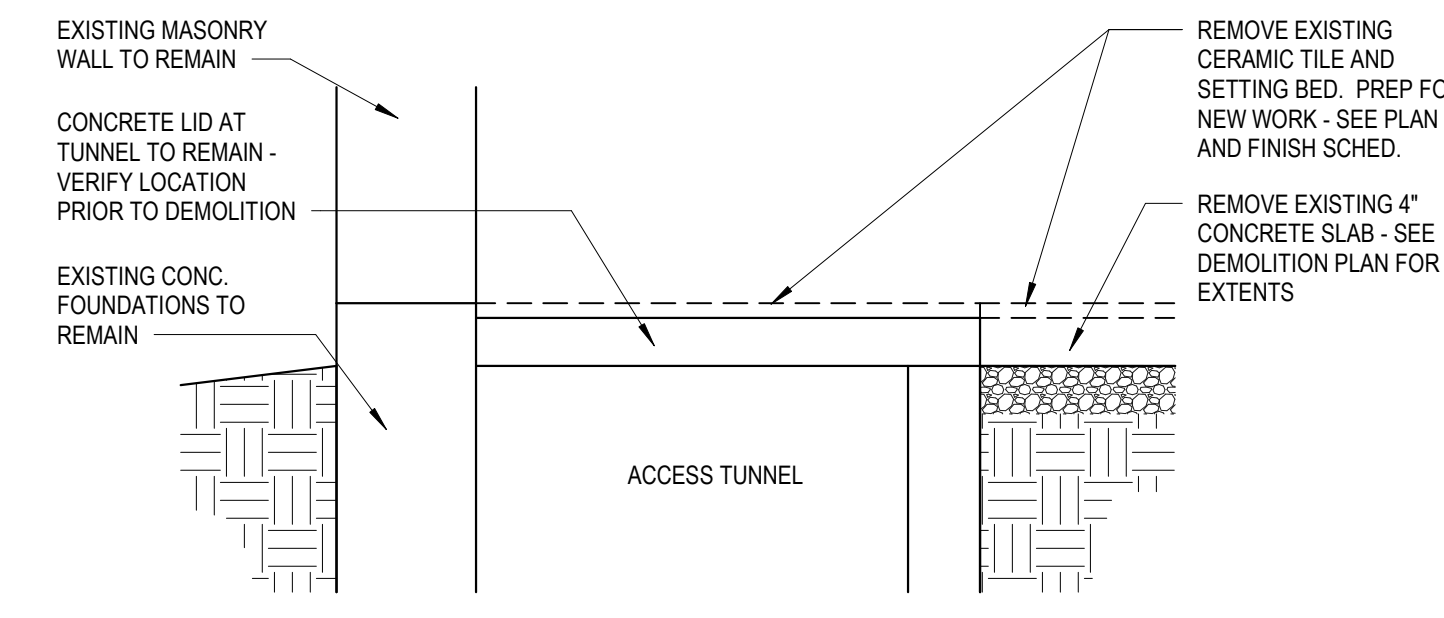
PORCELAIN CERAMIC TILE & BASE		CERAMIC WALL TILE	
PCT-1	MANUFACTURER: CAESAR CONTRACT SOLUTIONS PRODUCT: WIDE SIZE: 60x60cm (24" x 24") COLORWAY: WIDE VAPOUR, NATURALE GROUT: TEC EPOXY 927 LIGHT PEWTER	CT-1	MANUFACTURER: EPOCA CERAMICHE PRODUCT: DESIGN POSITIVE HOME COLOURS SIZE: 8"x20" FIELD TILE COLORWAY: BLANC BRILLANT GROUT: TEC EPOXY 910 BRIGHT WHITE
PCB-1	MANUFACTURER: CAESAR CONTRACT SOLUTIONS PRODUCT: WIDE SIZE: 7.2x60cm (2-13/16" x 23-5/8") BULLNOSE COLORWAY: WIDE VAPOUR, NATURALE GROUT: TEC EPOXY 927 LIGHT PEWTER	CT-2	MANUFACTURER: EPOCA CERAMICHE PRODUCT: DESIGN POSITIVE HOME COLOURS SIZE: 8"x20" FIELD TILE COLORWAY: ROUGE ROUGE 01 GROUT: TEC EPOXY 910 BRIGHT WHITE
PCT-2	MANUFACTURER: AMERICAN OLEAN PRODUCT: UNGLAZED COLORBODY PORCELAIN MOSAICS SIZE: 2" HEXAGON MOSAIC COLORWAY: BISCUIT A13 GROUT: TEC EPOXY 927 LIGHT PEWTER	TPM-1	MANUFACTURER: SCRANTON PRODUCTS/SHINY HIDERS COLOR/TXTURE: GREY/ORANGE PEEL
PAINT		TOILET PARTITION MATERIAL	
PT-1	MANUFACTURER: SHERWIN WILLIAMS HUE: SHOUJI WHITE, SW 7042	TE-1	MANUFACTURER: SCHLUTER SYSTEMS MODEL: RENO RAMP-K FINISH: SATIN ANODIZED ALUMINUM
PT-2	MANUFACTURER: SHERWIN WILLIAMS HUE: FINE WINE, SW 6307 (VERIFY W/ OWNER)	TE-2	MANUFACTURER: SCHLUTER SYSTEMS MODEL: JOLLY FINISH: BRUSHED NICKEL ANODIZED ALUMINUM
PT-3	MANUFACTURER: SHERWIN WILLIAMS HUE: CEILING BRIGHT WHITE, SW 7007		

ROOM NO.	ROOM NAME	FLOOR												REMARK NO.	
		MTL	FIN.	BASE	MTL	FIN.	MTL	FIN.	MTL	FIN.	MTL	FIN.	MTL		FIN.
167	COACH	CONC	EXISTING	PCT-1	EXG.	PT-1	EXG.	PT-1	EXG.	PT-1	EXG.	PT-1	EXG.	PT-3	
169	TRAINING/STORAGE	CONC	EXISTING	PCT-1	EXG.	PT-1	EXG.	PT-1	EXG.	PT-1	EXG.	PT-1	EXG.	PT-3	
170	MEN LOCKER	CONC	EXISTING	PCT-1.2	CMU	PT-1.2	CMU	PT-1.2	CMU	PT-1.2	CMU	PT-1.2	EXG. BRK	PT-3	
171	TLT / SHOWERS	CONC	PCT-1.2	GPDW	CT-1.2PT-1	GPDW	CT-1.2PT-1	GPDW	CT-1.2PT-1	GPDW	CT-1.2PT-1	GPDW	CT-1.2PT-1	GPDW	PT-3
172	TLT / SHOWERS	CONC	PCT-1.2	GPDW	CT-1.2PT-1	GPDW	CT-1.2PT-1	GPDW	CT-1.2PT-1	GPDW	CT-1.2PT-1	GPDW	CT-1.2PT-1	GPDW	PT-3
173	WOMEN LOCKER ROOM	CONC	EXISTING	PCT-1	CMU	PT-1.2	CMU	PT-1.2	CMU	PT-1.2	CMU	PT-1.2	EXG. BRK	PT-3	

TAG	DESCRIPTION	ACTUAL SIZE	RATING	STC
<b>METAL STUD FURRING - (TYPE A)</b>				
A1	7/8" STEEL HAT CHANNELS @ 16" O.C. w/ (1) LAYER - 5/8" TYPE 'X' GPW ON (1) SIDE, PT. PER ROOM FINISH SCHEDULE. EXTEND HAT CHANNELS FROM FLOOR TO STRUCTURE AND GPW TO 6" ABOVE FINISH CEILING.	1 1/2"	NA	NA
A3	3/8" STEEL STUD FURRING @ 16" O.C. w/ (1) LAYER - 5/8" TYPE 'X' GPW ON (1) SIDE, PT. PER ROOM FINISH SCHEDULE. EXTEND STUDS FROM FLOOR TO STRUCTURE AND GPW TO 6" ABOVE FINISH CEILING.	4 1/4"	NA	NA
<b>METAL STUD PARTITION - (TYPE G &amp; H)</b>				
G3	3/8" STEEL STUD FRAMING @ 16" O.C. w/ (1) LAYER - 5/8" TYPE 'X' GPW EACH SIDE, PT. PER ROOM FINISH SCHEDULE. EXTEND ENTIRE ASSEMBLY FROM FLOOR TO STRUCTURE. SEAL AT PERIMETER AND ALL PENETRATIONS.	4 7/8"	NA	NA
H6	6" STEEL STUD FRAMING @ 16" O.C. w/ (1) LAYER - 5/8" TYPE 'X' GPW EACH SIDE, PT. PER ROOM FINISH SCHEDULE. PROVIDE 6" SOUND BATT. INSULATION IN CAVITY. EXTEND ENTIRE ASSEMBLY FROM FLOOR TO STRUCTURE. SEAL AT PERIMETER AND ALL PENETRATIONS.	7 1/4"	NA	MIN. 44-48



**4 SECTION @ TUNNEL NEW**  
SCALE: 3/4" = 1'-0"

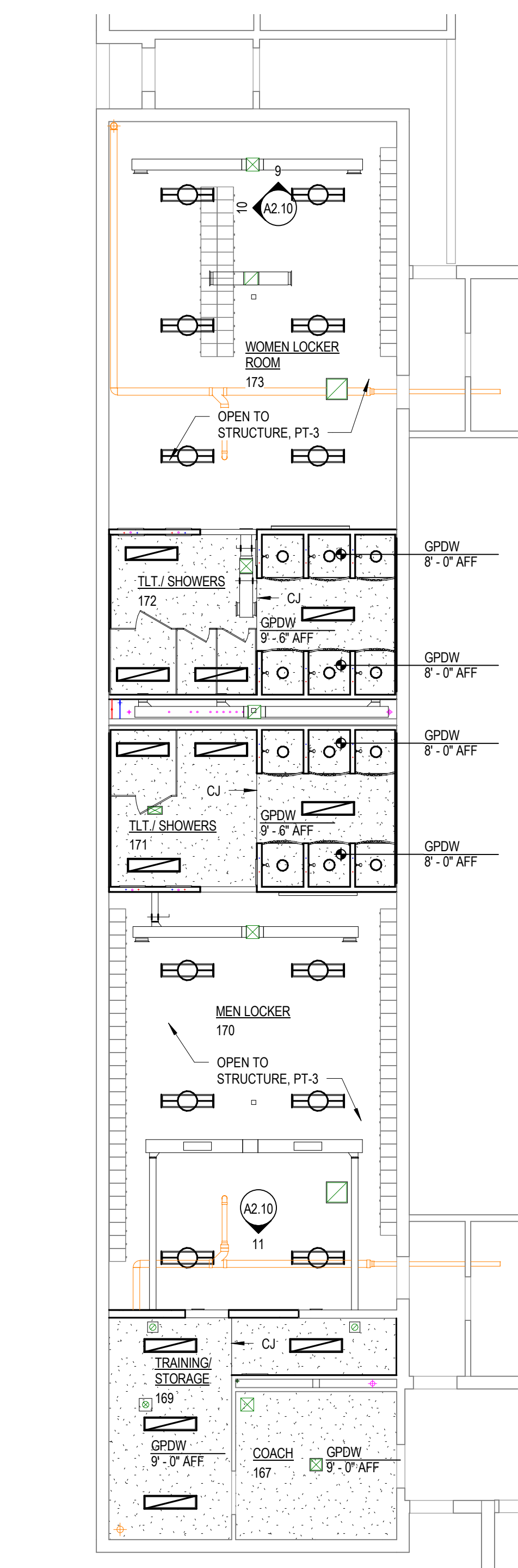


**5 SECTION @ TUNNEL DEMO**  
SCALE: 3/4" = 1'-0"

**GENERAL DEMOLITION NOTES**

- THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL OF ALL SALVAGEABLE ITEMS.
- PROTECT ITEMS NOT BEING REMOVED FROM DAMAGE DURING CONSTRUCTION.
- CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS PRIOR TO BIDDING TO DETERMINE THE TOTAL QUANTITIES AND SCOPE OF WORK THAT IS TO OCCUR AND COORDINATE ANY DISCREPANCIES WITH THE ARCHITECT.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE INSTALLATION OF NEW WORK WITHIN EXISTING CONDITIONS.
- ALL MATERIALS REMOVED AND NOT REUSED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFICALLY DESIGNATED TO REMAIN THE PROPERTY OF THE OWNER.
- ALL WALLS INDICATED TO BE REMOVED SHALL BE REMOVED IN THEIR ENTIRETY INCLUDING ALL ELECTRICAL, OUTLETS, SWITCHES AND CONDUITS, TELEPHONE OUTLETS, WIRING, MECHANICAL PIPING, BASES AND PLUMBING, ETC.
- REMOVE ALL SURFACE MOUNTED OBJECTS IN AREA OF WORK THAT ARE ABANDONED AND NOT INTENDED FOR REUSE. PREPARE SURFACE FOR NEW FINISH.
- COORDINATE ALL DEMOLITION WORK BETWEEN ALL TRADES.
- CONTRACTOR SHALL NOTIFY THE ARCHITECT IF DEMOLITION WORK APPEARS TO AFFECT THE STRUCTURAL INTEGRITY OF THE EXISTING BUILDING BEFORE PROCEEDING.
- SEE ALSO REFLECTED CEILING PLANS, MECHANICAL SHEETS, & ELECTRICAL SHEETS FOR ADDITIONAL DEMOLITION INFORMATION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO EXISTING MATERIALS TO REMAIN RESULTING FROM WORK UNDER THIS CONTRACT, AND SHALL RESTORE SUCH DAMAGE TO ITS ORIGINAL CONDITION.
- BEFORE DEMOLITION BEGINS, CONTRACTOR SHALL CONFER WITH THE LOCAL DEPARTMENT AND/OR BUILDING USERS TO SCHEDULE DISRUPTION OF DAILY ACTIVITIES.
- ALL PRODUCTS AND EQUIPMENT SHALL BE KEPT CLEAN AND SAFE. DISPOSE OF DEBRIS DAILY AND CLEAN AREAS OF WORK UPON COMPLETION.
- CONSTRUCTION AREA SHALL BE KEPT CLEAN AND SAFE. DISPOSE OF DEBRIS DAILY AND CLEAN AREAS OF WORK UPON COMPLETION.
- FINAL CLEANING SHALL INCLUDE THE FOLLOWING:  
A. REMOVE LABELS THAT ARE NOT INTENDED TO BE PERMANENT.  
B. CLEAN ALL TRANSPARENT SURFACES, INCLUDING MIRRORS AND GLASS IN DOORS AND WINDOWS.  
C. CLEAN EXPOSED SURFACES AND INTERIOR HARD-SURFACED FINISHES TO A DUST-FREE CONDITION.
- PURSUANT TO THE FEDERAL OSHA EMPLOYEE RIGHT-TO-KNOW ACT, THE CONTRACTOR IS HEREBY ADVISED THAT A POTENTIAL FOR LEAD HAZARD EXISTS. LEAD PAINT CAN BE PRESENT ON OLDER PAINTED SURFACES. THE CONTRACTOR IS ADVISED THAT HE/SHE IS RESPONSIBLE TO COMPLY WITH THE FEDERAL STANDARDS FOR LEAD PAINT IN THE CONSTRUCTION INDUSTRY THAT WERE ADOPTED IN JUNE OF 1993 BY OSHA CFR 29 PART 1926.62. THESE REGULATIONS REQUIRE THE CONTRACTOR TO DEVELOP WORK STRATEGIES WHEN WORKING WITH LEAD TO MINIMIZE AND PROTECT WORKERS FROM LEAD HAZARDS.
- ASBESTOS ABATEMENT WILL BE PERFORMED UNDER SEPARATE CONTRACT. IF ASBESTOS IS DISCOVERED DURING DEMOLITION, NOTIFY THE ARCHITECT.

**SHEET HISTORY:**  
ISSUED 03/31/2017 CONSTRUCTION DOCUMENTS



**REFLECTED CLG GENERAL NOTES:**

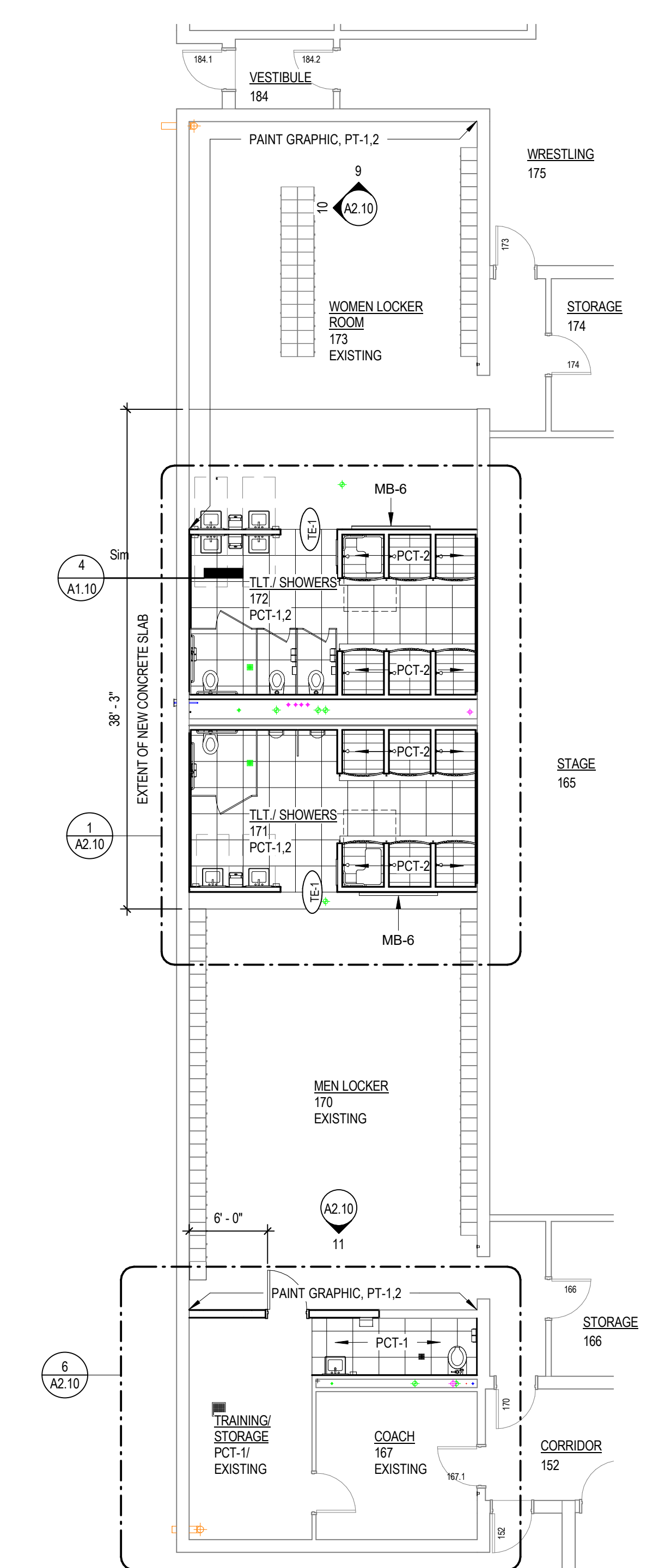
- GPW BULKHEADS SHALL BE FRAMED WITH 25 GAUGE 3/8" STEEL STUDS @ 16" O.C. AND 5/8" TYPE 'X' GPW TO 6" ABOVE FINISH CEILING. BRACE AS REQUIRED.
- LIGHTING FIXTURES AND MECHANICAL DIFFUSERS / GRILLES ARE SHOWN FOR REFERENCE ONLY. SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR EXACT LOCATIONS.
- ELEVATION TAGS ARE IN REFERENCE TO ARCHITECTURAL ELEVATIONS.
- WHERE CEILING ARE EXPOSED TO STRUCTURE ABOVE, PAINT ALL UNFINISHED MATERIALS OVERHEAD INCLUDING, BUT NOT LIMITED TO ROOF BECKING, DUCTS, PIPES, CONDUITS & JUNCTION BOXES; SEE FINISH SHEETS FOR PAINT.
- PROVIDE MOISTURE AND MOLD RESISTANT GYPSUM BOARD ON CEILING AND PAINTED WALL SURFACES.
- PROVIDE CEMENT BOARD BEHIND ALL TILE SURFACES ON 20 ga. STEEL STUDS.

**REFLECTED CLG LEGEND**

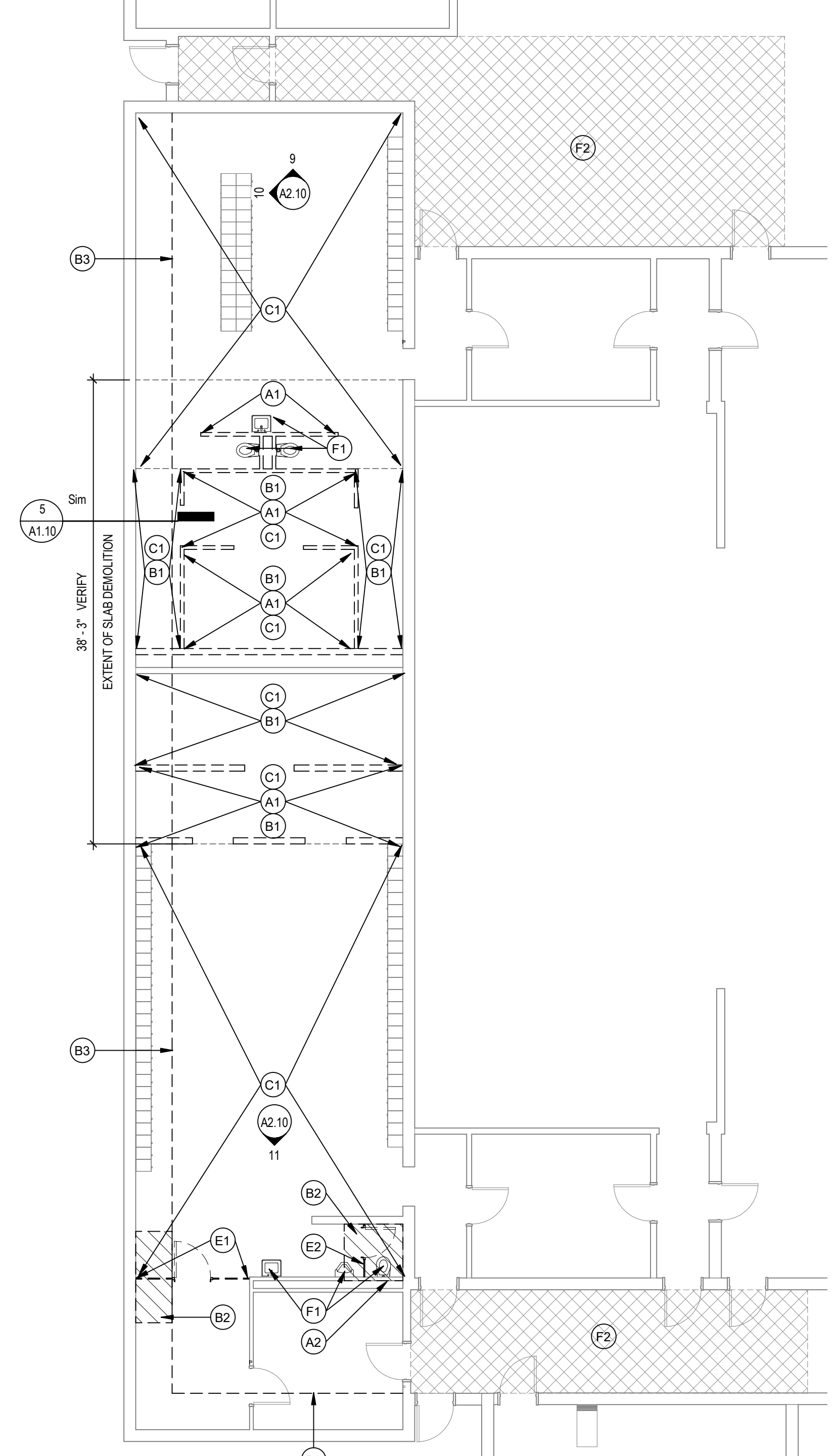
	5/8" SUSPENDED GPW CEILING SYSTEM
	2x2 ACCESS PANEL. REF. SPEC.
	RECESSED & PENDANT MOUNTED LIGHT FIXTURES. REF. ELECTRICAL
	RECESSED DOWNLIGHT, REF. ELECTRICAL
	EXIT SIGNAGE, REF. ELECTRICAL
	RETURN AIR / EXHAUST AIR GRILLE, REF. MECHANICAL
	SUPPLY AIR DIFFUSER, REF. MECHANICAL

**RCP ABBREVIATIONS**

GPW - GYPSUM DRY WALL



**2 FIRST FLOOR PLAN**  
SCALE: 1/8" = 1'-0"



**3 FIRST FLOOR DEMO PLAN**  
SCALE: 1/8" = 1'-0"

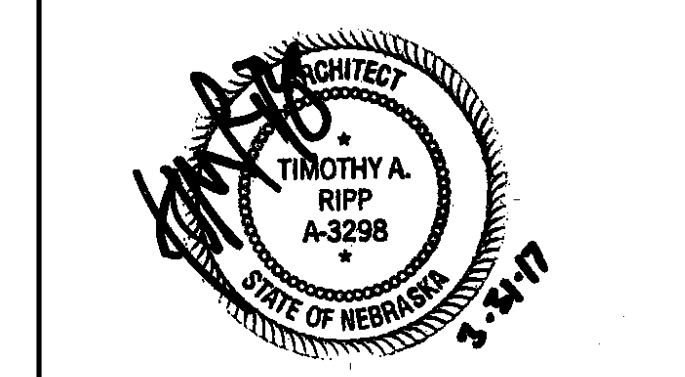
**DEMOLITION KEY NOTES**

<b>1 DEMOLITION KEY NOTES (FLOOR PLANS ONLY)</b>	
<b>A-WALLS</b>	
A1	REMOVE EXISTING WALL PARTITION IN ITS ENTIRETY TO EXTENT SHOWN.
A2	OPEN WALL AS REQ'D FOR NEW CARRIER. COORDINATE EXTENTS WITH PLUMBING CONTRACTOR.
<b>B-FLOOR</b>	
B1	REMOVE EXISTING 4" CONCRETE SLAB, CERAMIC TILE AND FINISH BED, AND WALL BASE TO EXTENTS SHOWN. EXISTING TUNNEL TO REMAIN. VERIFY DEPTH AND LOCATION OF TUNNEL LID PRIOR TO DEMOLITION. PREP AREA FOR NEW CONSTRUCTION. REPAIR WALLS, IF APPLICABLE, TO MATCH EXISTING FINISH OR COORDINATE w/ NEW CONSTRUCTION & INTERIOR FINISHES.
B2	REMOVE EXISTING 4" CONCRETE SLAB, CERAMIC TILE AND FINISH BED, AND WALL BASE FOR NEW PLUMBING INSTALLATION. COORDINATE EXTENT OF FLOOR DEMOLITION AND REPAIR WITH PLUMBING CONTRACTOR.
B3	DASHED LINE INDICATED APPROX. LOCATION OF EXISTING TUNNEL TO REMAIN. VERIFY DEPTH AND LOCATION OF TUNNEL LID PRIOR TO SLAB DEMOLITION.
<b>C-CEILING</b>	
C1	REMOVE EXISTING PLASTER CEILING IN ITS ENTIRETY, INCLUDING BUT NOT LIMITED TO GYP. BD., STUD FRAMING, LIGHT FIXTURES, MECHANICAL DIFFUSERS.
<b>E-FURNISHINGS &amp; EQUIPMENT</b>	
E1	REMOVE CHAIN-LINK FENCE AND GATE IN ITS ENTIRETY.
E2	REMOVE TOILET PARTITION IN ITS ENTIRETY.
<b>F-MISCELLANEOUS</b>	
F1	REMOVE EXISTING PLUMBING FIXTURE IN ITS ENTIRETY. CALL ALL SUPPLY LINES AND SEWER LINES AS CLOSE TO WALL OR FLOOR AS POSSIBLE. REPAIR WALL ADJACENT WALLS, FLOORS AND CEILING AS APPLICABLE, TO MATCH EXISTING FINISH. COORDINATE WITH MECHANICAL.
F2	PROTECT FLOORING AND FINISHES AT ACCESS ROUTES DURING CONSTRUCTION. MAINTAIN ACCESS TO ALL EGRESS ROUTES. (ESPECIALLY TO GYM FLOOR)

**East Butler Public Schools**  
Brainard, NE

TCEP No.: 115-001-17

March 31, 2017



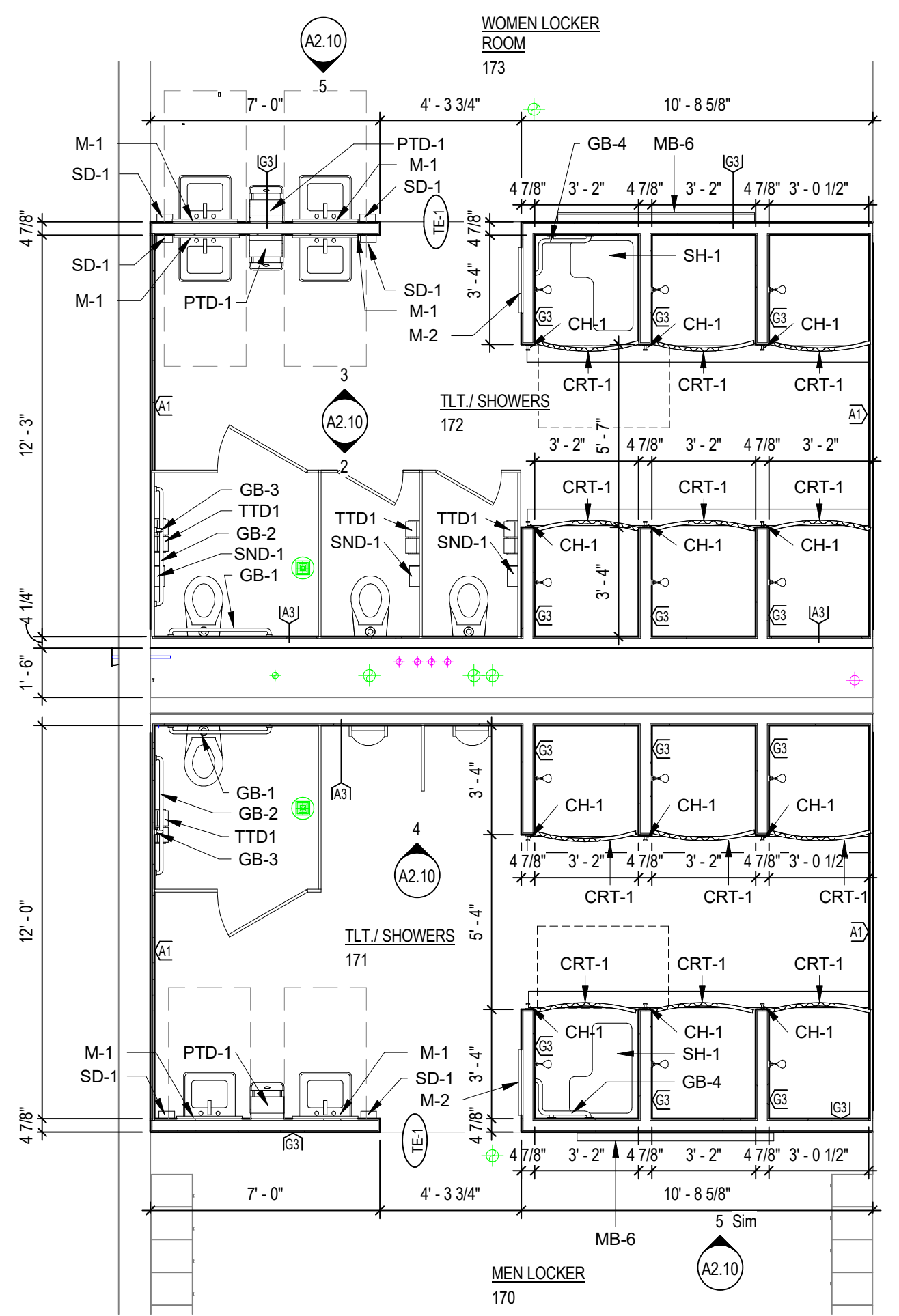
First Floor Plan

**A1.10**

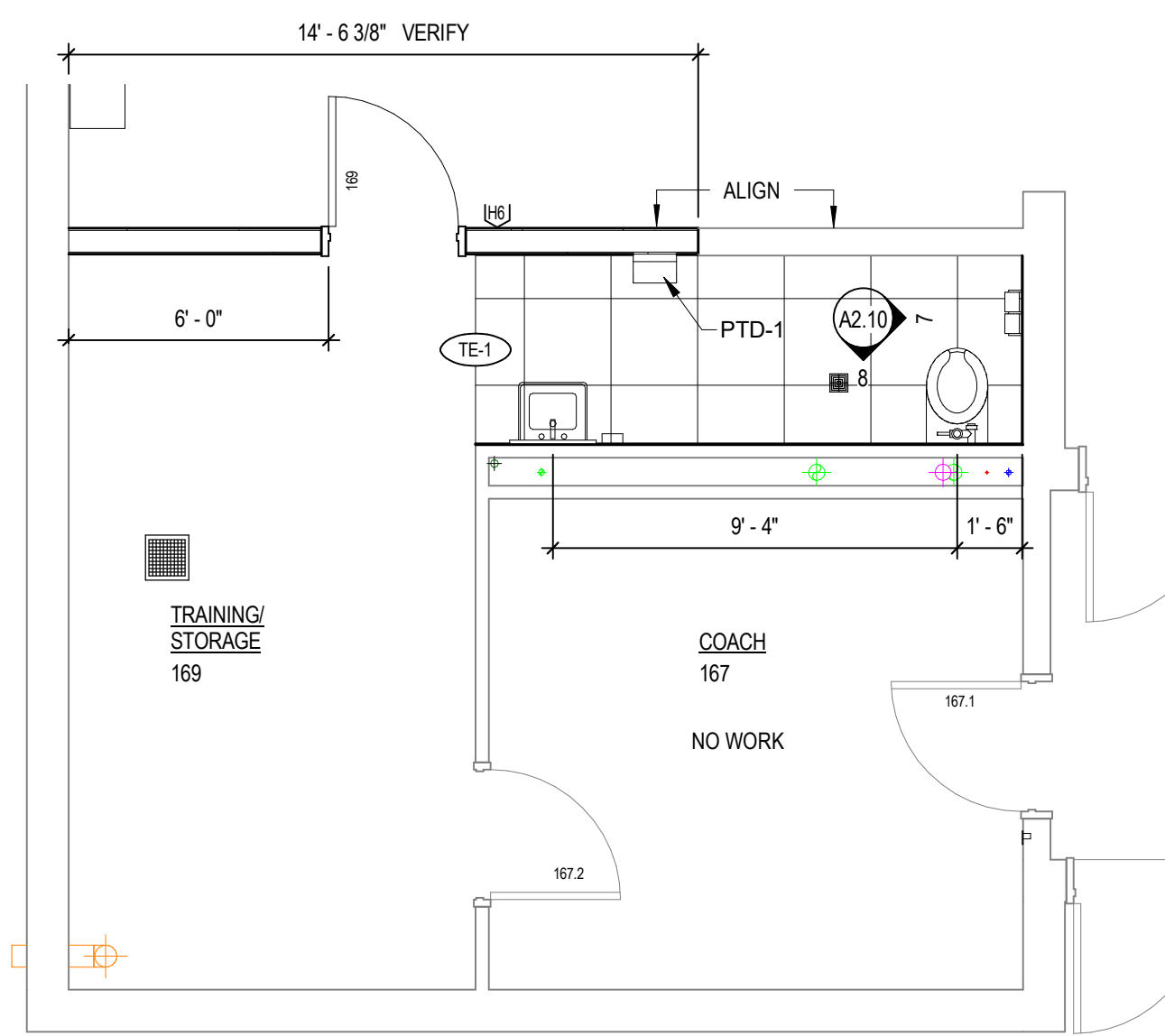
TOILET ACCESSORY SCHEDULE					
ABBR	ACCESSORY	MOUNTING HEIGHT	FURNISHED BY	INSTALLED BY	
CH-1	CLOTHING HOOK - SURFACE MOUNTED	48" A.F.F. TO CENTER LINE	CONTRACTOR	CONTRACTOR	
CRT-1	SHOWER CURTAIN ROD (HEAVY DUTY)	74" A.F.F. TO CENTER OF CURTAIN ROD	CONTRACTOR	CONTRACTOR	
GB-1	GRAB BAR - REAR WALL	36" A.F.F. TO CENTER OF GRAB BAR	CONTRACTOR	CONTRACTOR	
GB-2	GRAB BAR - SIDE WALL	36" A.F.F. TO CENTER OF GRAB BAR	CONTRACTOR	CONTRACTOR	
GB-3	GRAB BAR - VERTICAL	36" FROM REAR WALL TO CENTERLINE, 40" A.F.F. TO BOTTOM	CONTRACTOR	CONTRACTOR	
GB-4	SHOWER GRAB BAR	34" A.F.F. TO CENTER OF GRAB BAR	CONTRACTOR	CONTRACTOR	
M1	2'-0" x 3'-0" MIRROR	40" A.F.F. TO BOTTOM EDGE OF REFLECTIVE SURFACE	CONTRACTOR	CONTRACTOR	
M2	2'-0" x 5'-0" MIRROR	40" A.F.F. TO BOTTOM EDGE OF REFLECTIVE SURFACE	CONTRACTOR	CONTRACTOR	
PTD-1	PAPER TOWEL DISPENSER - SURFACE MOUNTED	48" A.F.F. MAX. TO PAPER TOWEL (VERIFY w/ MFR.)	OWNER	CONTRACTOR	
SD-1	SOAP DISPENSER - SURFACE MOUNTED	40" A.F.F. TO CENTER OF PUSH BUTTON (VERIFY w/ MFR.)	OWNER	CONTRACTOR	
SS-1	FOLDING SHOWER SEAT	17" A.F.F. TO TOP OF SEAT SURFACE (VERIFY w/ MFR.)	CONTRACTOR	CONTRACTOR	
TTD-2	TOILET TISSUE DISPENSER - PARTITION MOUNTED	19" MIN. A.F.F. TO CENTER OF TOILET PAPER ROLL, 36" MAX. FROM BACK WALL (VERIFY w/ MFR.)	OWNER	CONTRACTOR	
WPC-1	WASTE PAPER CONTAINER - FREE STANDING		OWNER	CONTRACTOR	

FIXTURE SCHEDULE		
DESCRIPTION	TYPE	MOUNTING LOCATION
TOILET	STANDARD	17" A.F.F. TO TOP OF SEAT
	ADA*	17" A.F.F. TO TOP OF SEAT
	CHILD (CHD)	15" A.F.F. TO TOP OF SEAT
URINAL	STANDARD	23" A.F.F. TO RIM
	ADA*	15 1/4" A.F.F. TO RIM, VERIFY W/ MFR.
SINK	STANDARD	34" A.F.F. TO RIM
	ADA*	34" A.F.F. TO RIM
	CHILD (CHD)	30" A.F.F. TO RIM
MIRROR	STANDARD	40" A.F.F. TO BOTTOM OF REFLECTIVE SURFACE
	ADA*	40" A.F.F. TO BOTTOM OF REFLECTIVE SURFACE
	BACK BAR	8" TO WALL
GRAB BAR	SIDE BAR	12" TO WALL
	FAMILY RESTROOM	18" MIN. A.F.F. - 27" MAX. A.F.F. TO CENTER OF BARS
PAPER TOWEL DISPENSER	STANDARD	48" A.F.F. TO PAPER TOWEL OPENING
SANITARY NAPKIN DISPOSAL	STANDARD	BELOW GRAB BAR

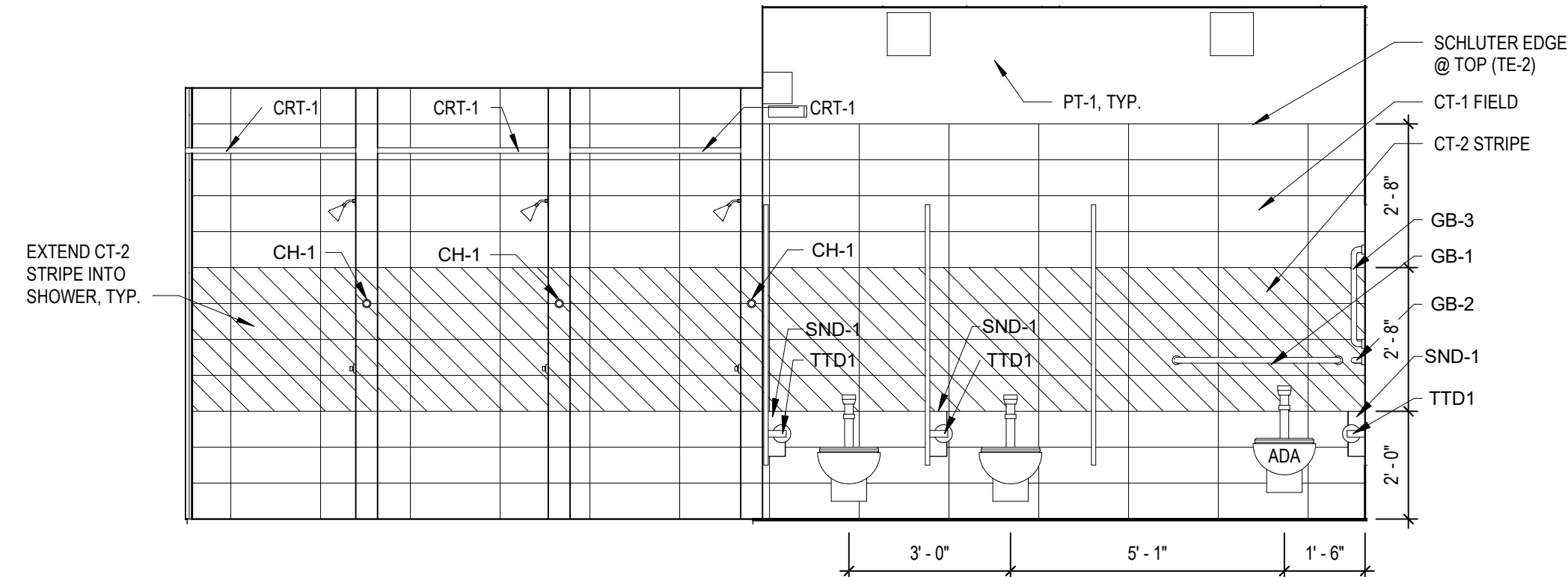
\*TO COMPLY WITH 2010 ADA STANDARDS OF ACCESSIBLE DESIGN



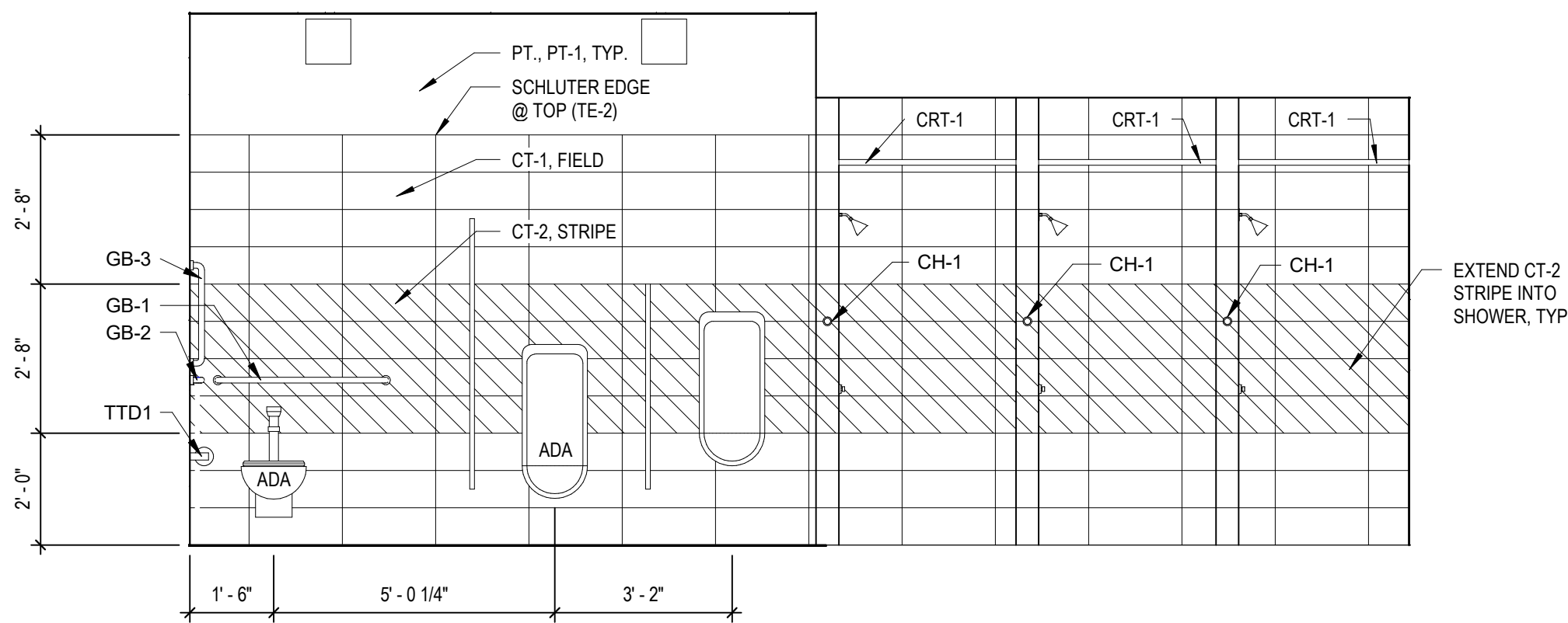
**1 LOCKER ROOM - FLOOR PLAN**  
SCALE: 1/4" = 1'-0"



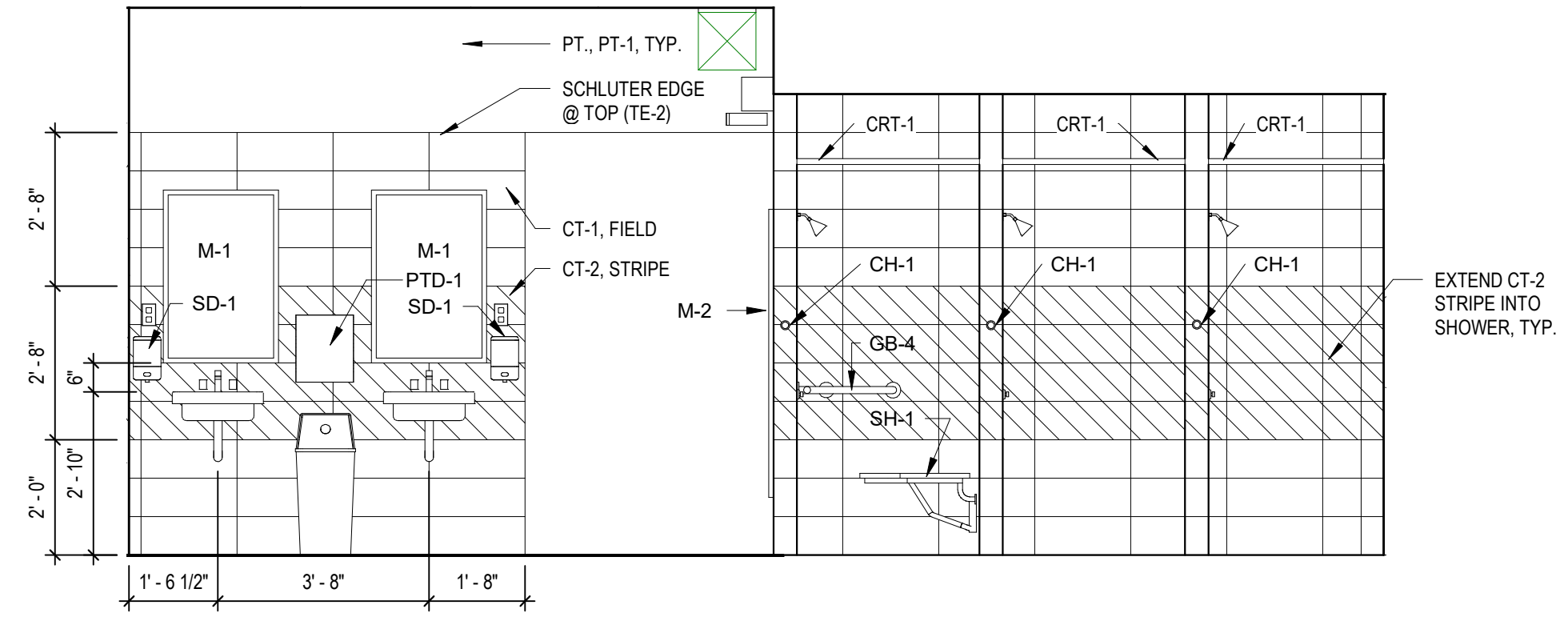
**6 COACH'S OFFICE - ENLARGED PLAN**  
SCALE: 1/4" = 1'-0"



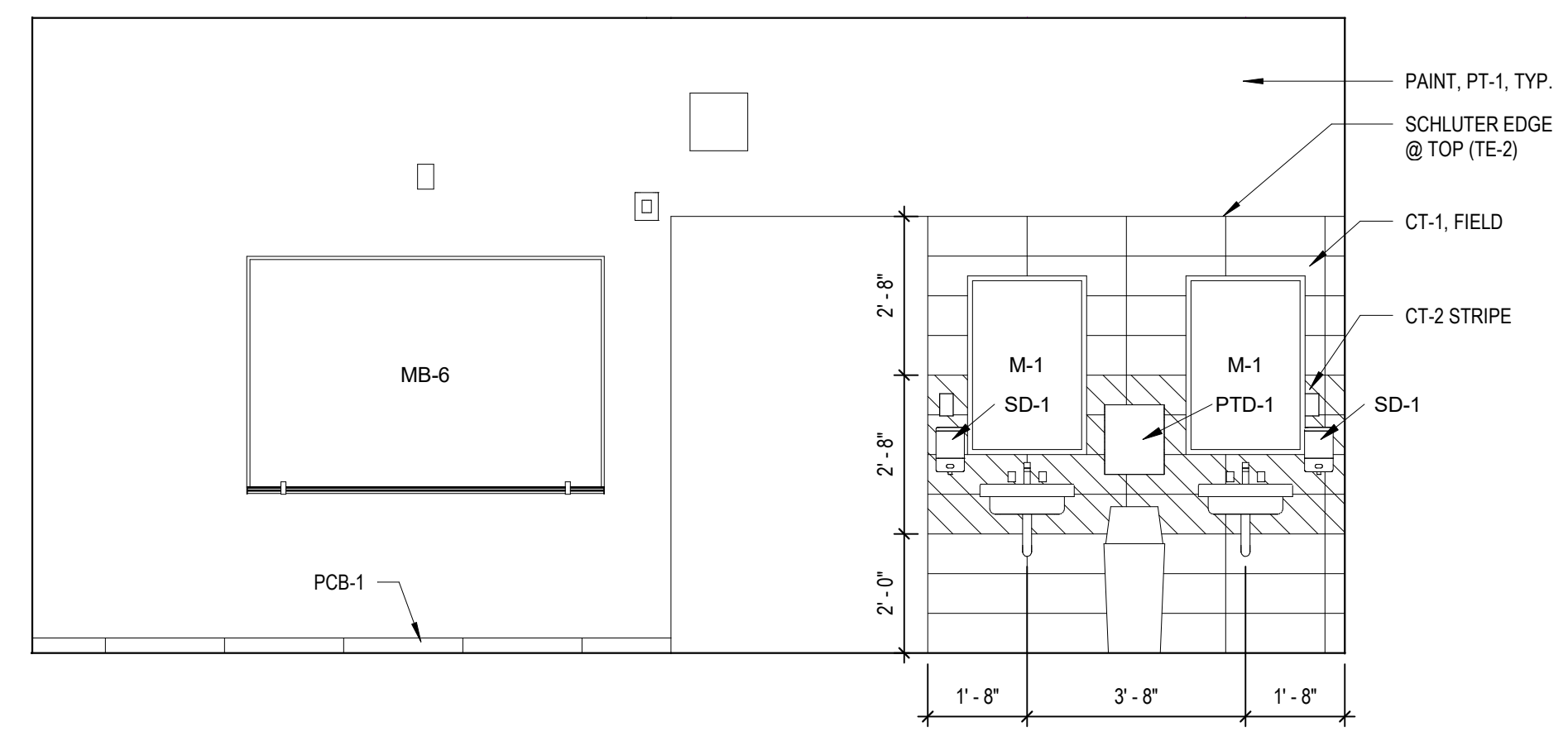
**2 TOILET SHOWERS 172 - SOUTH**  
SCALE: 3/8" = 1'-0"



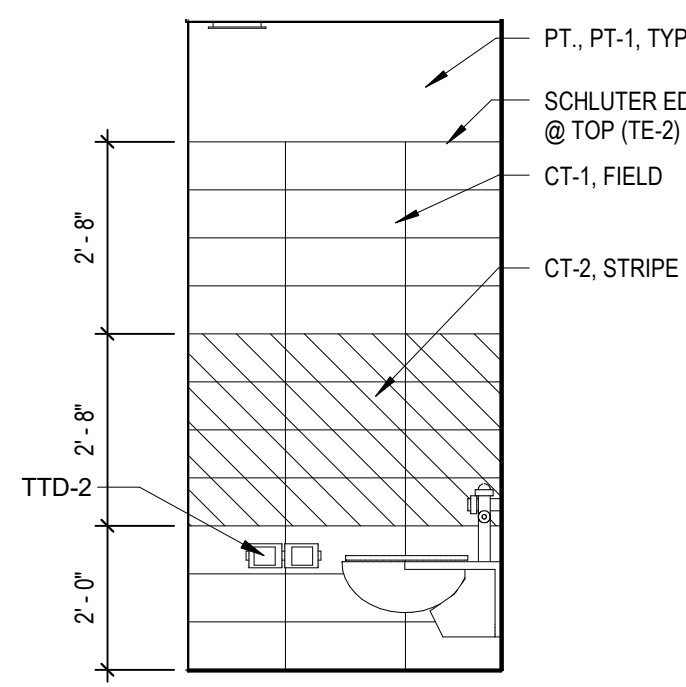
**4 TOILET/ SHOWERS 171 - NORTH**  
SCALE: 3/8" = 1'-0"



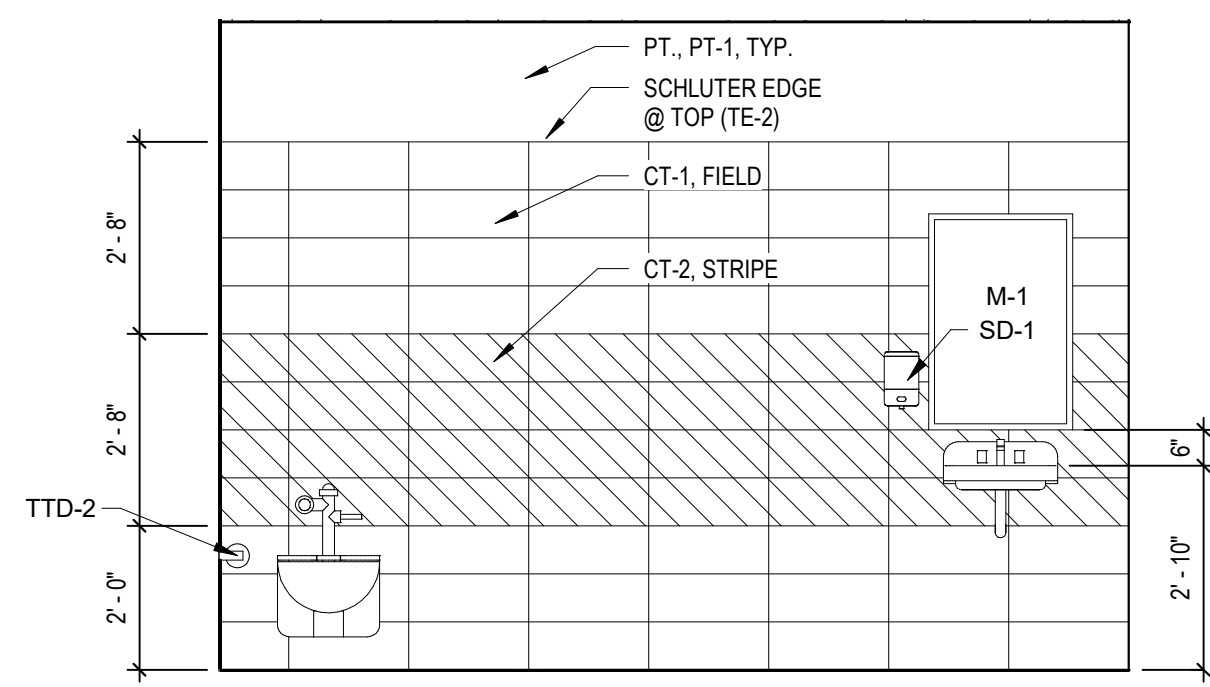
**3 TOILET/ SHOWERS 172 - NORTH**  
SCALE: 3/8" = 1'-0"



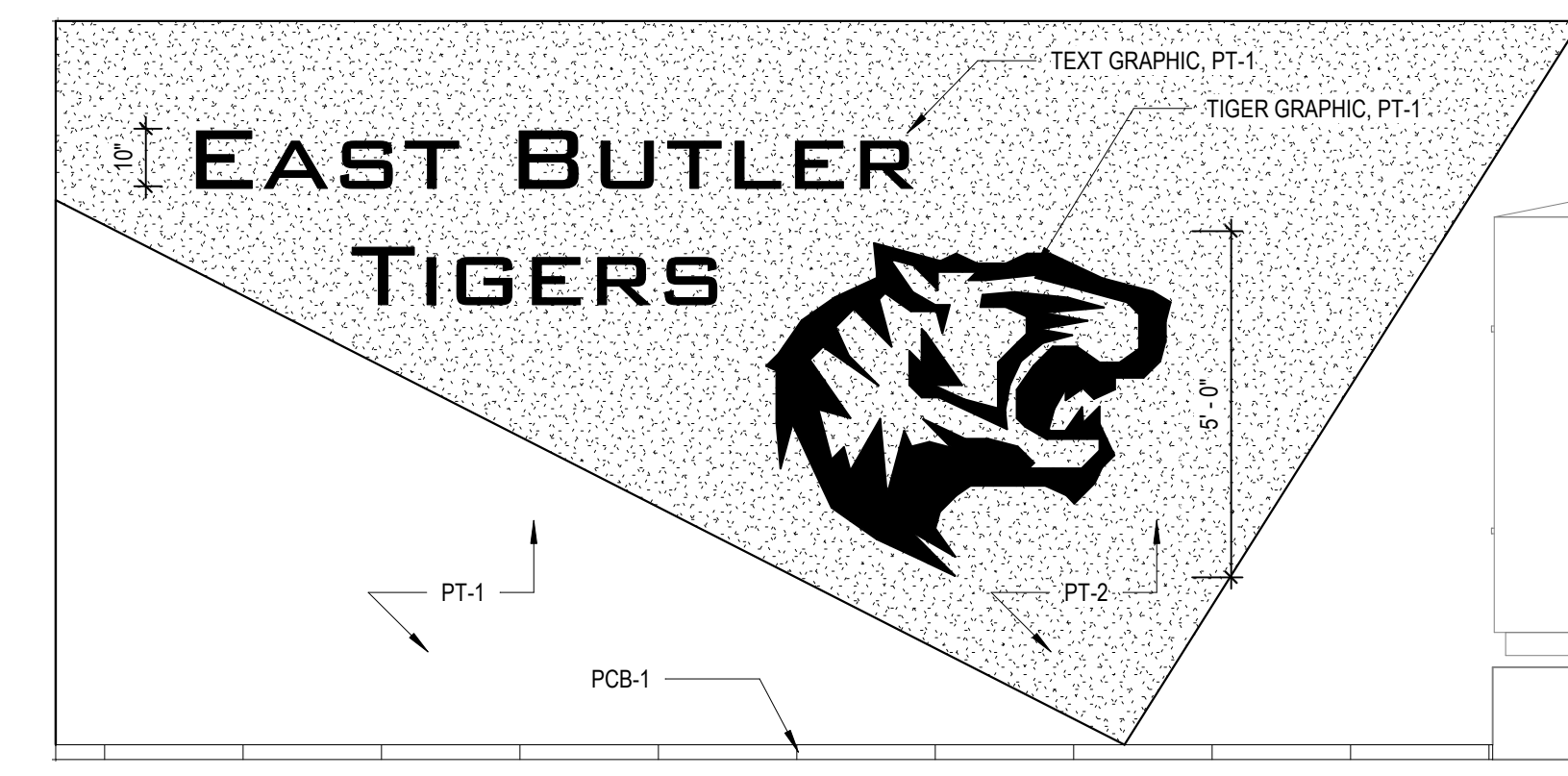
**5 WOMEN'S LOCKER RM. 173 - SOUTH**  
SCALE: 3/8" = 1'-0"



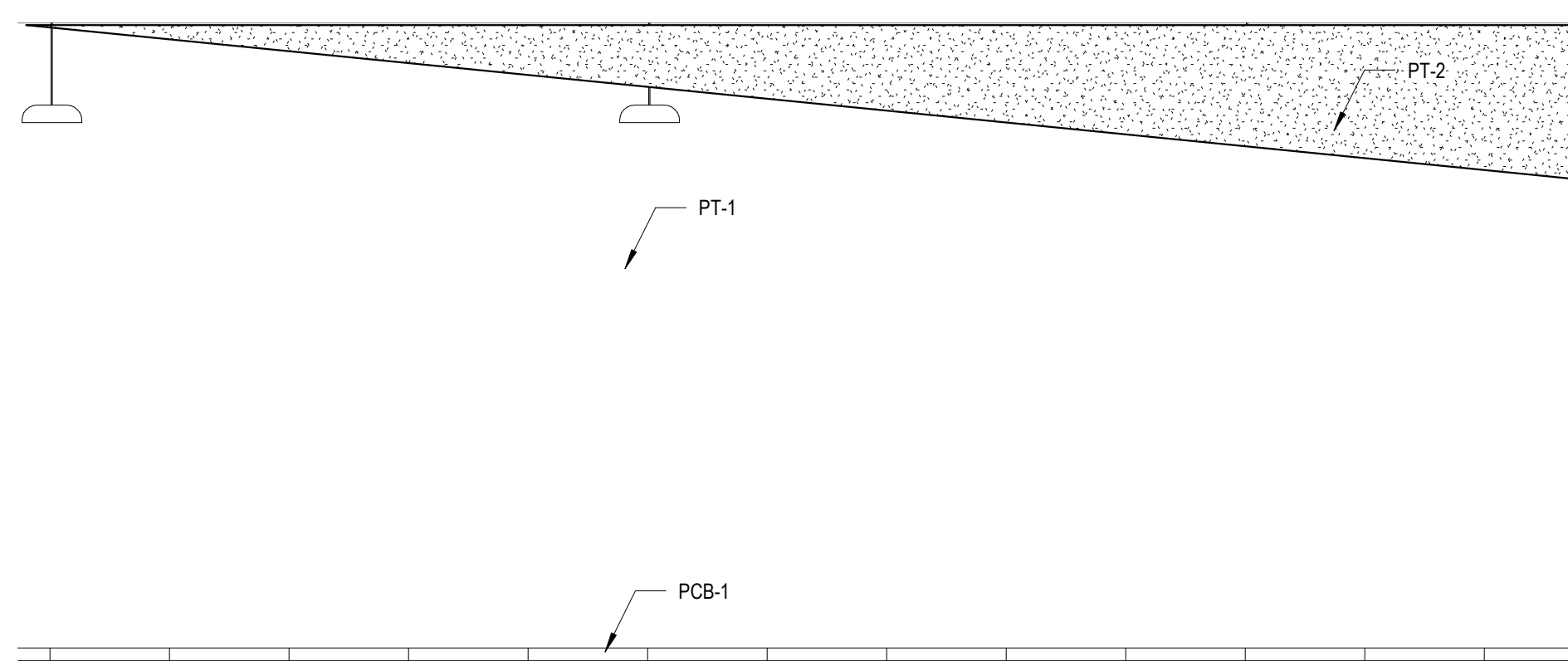
**7 TOILET 168 - EAST**  
SCALE: 3/8" = 1'-0"



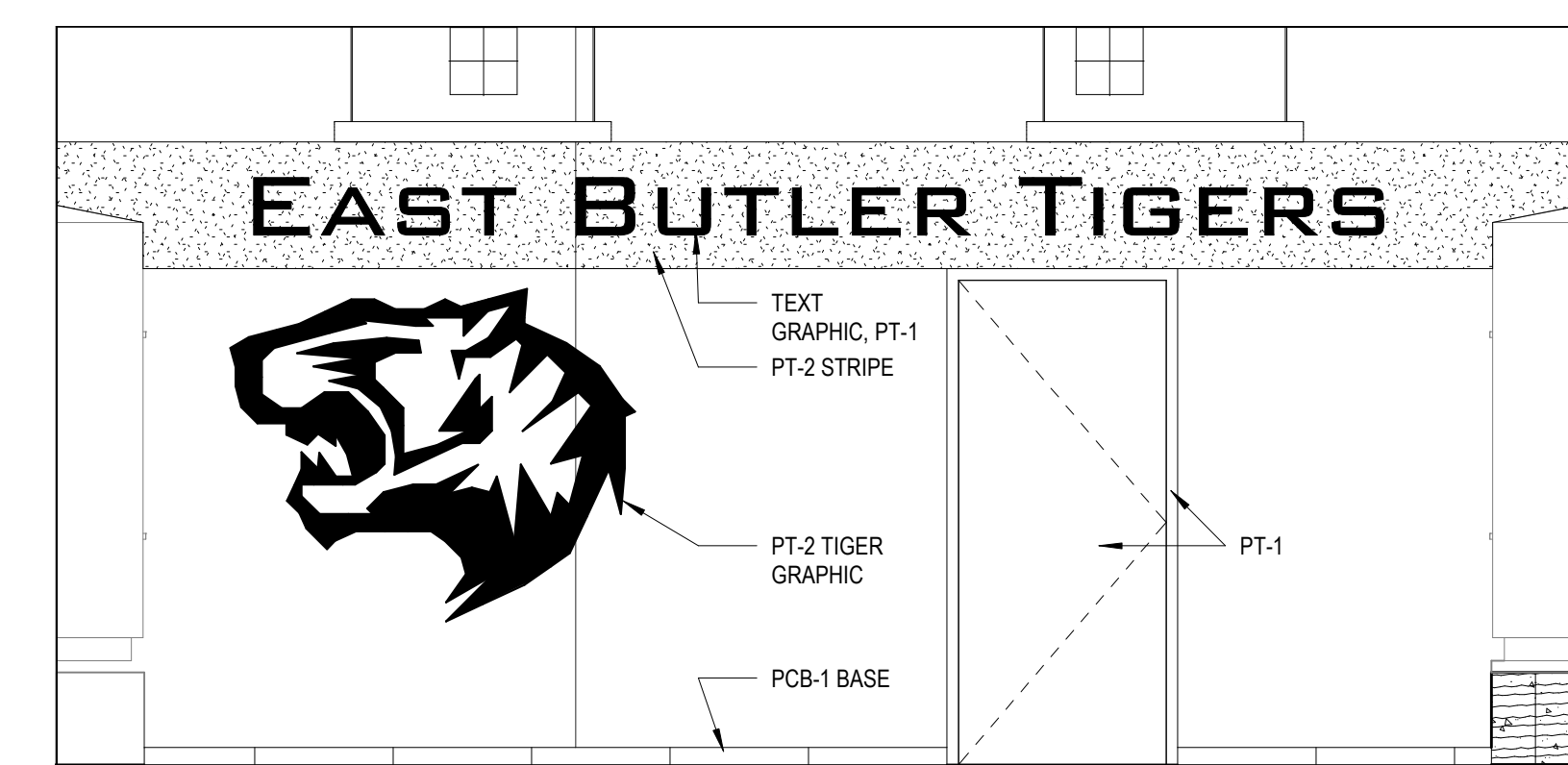
**8 TOILET 168 - SOUTH**  
SCALE: 3/8" = 1'-0"



**9 WOMEN'S LOCKER RM. 173 - NORTH**  
SCALE: 3/8" = 1'-0"



**10 WOMEN'S LOCKER RM. 173 - WEST**  
SCALE: 3/8" = 1'-0"



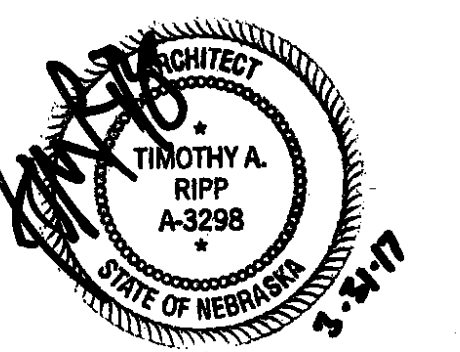
**11 MEN'S LOCKER RM. 170 - SOUTH**  
SCALE: 3/8" = 1'-0"

**SHEET HISTORY:**  
ISSUED 03/31/2017 CONSTRUCTION DOCUMENTS

East Butler Public Schools  
Brainard, NE

TCEP No.: 115-001-17

March 31, 2017



Enlarged Restroom  
Plans, Elevations,  
Schedule & Details

**A2.10**

# MECHANICAL ABBREVIATIONS AND SYMBOLS LEGEND

ABBREVIATIONS		ABBREVIATIONS		PIPING		SHEET METAL		TEMPERATURE CONTROL		FIRE SUPPRESSION	
A	COMPRESSED AIR	OA	OUTSIDE AIR	101	BALL VALVE	126	RECTANGULAR DUCT - FIRST NUMBER INDICATES SIZE SHOWN	XXX	CONTROL POINT	---	SPRINKLER BRANCH WITH HEADS
AD	AREA DRAIN	OAT	OUTSIDE AIR TEMPERATURE	104	GATE VALVE	126	ROUND DUCT	AB	AIR-CHAM-MEASURING STATION	---	SIAMESE CONNECTION
AFF	ABOVE FINISHED FLOOR	OBD	MANUAL OPPOSED BLADE BALANCING DAMPER	105	GLOBE VALVE	126	OVAL DUCT - FIRST NUMBER INDICATES SIZE SHOWN	CB	CARBON DIOXIDE SENSOR	[FHC]	FIRE HOSE CABINET
AI	ANALOG INPUT	PC	PLUMBING CONTRACTOR	106	BUTTERFLY VALVE	126	FLEX DUCT	CD	CONTROL DAMPER	---	FIRE HYDRANT
AO	ANALOG OUTPUT	PIV	POST INDICATOR VALVE	107	BALANCING VALVE	126	TURNING VANES	CE	CONTROL ELEMENT	---	POST INDICATOR VALVE
APD	AIR PRESSURE DROP	PVC	POLY VINYL CHLORIDE	108	CHECK VALVE	126	VACUUM BREAKER BACKFLOW VALVE 0.5-2"	CM	CONTROL MOTOR	---	O.S. & Y. VALVE
AV	ACID VENT	RA	RETURN AIR	109	VACUUM BREAKER BACKFLOW VALVE 0.5-2"	126	PRESSURE REGULATING VALVE	CP	CONTROL POINT	---	FLOW SWITCH
AW	ACID WASTE	RW	PURE WATER	110	STRAINER	126	NEGATIVE PRESSURE DUCT DOWN	CS	CONTROL SENSOR	---	FIRE PROTECTION PIPING
BFP	BACK FLOW PREVENTER	SA	SUPPLY AIR	111	TEMPERATURE GAUGE 3.5" STEM	126	POSITIVE PRESSURE DUCT UP	CT	CONTROL THERMIST		
BHP	BRAKE HORSEPOWER	SAN	SANITARY WASTE PIPING (OUTSIDE BUILDING)	112	PRESSURE GAGE	126	POSITIVE PRESSURE DUCT DOWN	CV	CONTROL VALVE		
BTU	BRITISH THERMAL UNIT	SD	SMOKE DAMPER	113	MOTOR CONTROL VALVE	126	NEGATIVE PRESSURE DUCT UP	CM	CONTROL MOTOR		
CA	COMBUSTION AIR	SP	STATIC PRESSURE	114	MOTOR CONTROL VALVE - 3 WAY	126	NEGATIVE PRESSURE DUCT DOWN	CM	CONTROL MOTOR		
CD	CONDENSATE DRAIN	SS	SUMP PUMP	115	MOTOR CONTROL VALVE - 3 WAY	126	OVAL DUCT UP AND DOWN	CM	CONTROL MOTOR		
CHWR	CHILLED OR HOT WATER RETURN	ST	STEAM TRAP - INVERTED BUCKET	116	MOTOR CONTROL VALVE - 3 WAY	126	MANUAL BALANCING DAMPER	CM	CONTROL MOTOR		
CHWS	CHILLED OR HOT WATER SUPPLY	TD	TOP OF DUCT	117	MOTOR CONTROL VALVE - 3 WAY	126	WALL LOUVER - EQUIP. MARK, SIZE	CM	CONTROL MOTOR		
CI	CAST IRON	TIP	TEMPERATURE/PRESSURE	118	MOTOR CONTROL VALVE	126	MOTORIZED DAMPER - BLADES PARALLEL TO PAGE	CM	CONTROL MOTOR		
CO	CLEAN OUT	TSP	TOTAL STATIC PRESSURE	119	MOTOR CONTROL VALVE	126	PARALLEL OR OPPOSED BLADE MOTORIZED DAMPER BLADES PERPENDICULAR TO PAGE	CM	CONTROL MOTOR		
CPO	CONDENSATE PUMP DISCHARGE	TW	DOMESTIC TEMPERED WATER	120	MOTOR CONTROL VALVE	126	SOLENOID VALVE	CM	CONTROL MOTOR		
CPVC	CHLORINATED POLY VINYL CHLORIDE	TV	VENT	121	MOTOR CONTROL VALVE	126	BASKET STRAINER	CM	CONTROL MOTOR		
CR	CONDENSER WATER RETURN	VTR	VENT THROUGH ROOF	122	MOTOR CONTROL VALVE	126	SANITARY/STORM DRAIN BELOW GRADE OR BELOW FLOOR	CM	CONTROL MOTOR		
CWS	CHILLED WATER SUPPLY	VUF	VENT UNDER FLOOR	123	MOTOR CONTROL VALVE	126	SANITARY WASTE PIPING (INSIDE BUILDING)	CM	CONTROL MOTOR		
CW	DOMESTIC COLD WATER	W	WATER SERVICE PIPING (OUTSIDE BUILDING)	124	MOTOR CONTROL VALVE	126	WET BULB	CM	CONTROL MOTOR		
CWR	CHILLED WATER RETURN	WB	WET BULB	125	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
CWS	CHILLED WATER SUPPLY	WBD	WATER SERVICE PIPING (OUTSIDE BUILDING)	126	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
DB	DRY BULB	WFO	WATER PRESSURE DROP	127	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
DCI	DUCTILE CAST IRON	WPE	WATER PRESSURE DROP	128	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
DI	DIGITAL INPUT	WRE	WATER SERVICE PIPING (OUTSIDE BUILDING)	129	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
DOI	DIGITAL OUTPUT	WRF	WATER SERVICE PIPING (OUTSIDE BUILDING)	130	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
DW	DOMESTIC WATER	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	131	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
DWV	DRAINAGE/WASTE/VENT	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	132	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
EA	EXHAUST AIR	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	133	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
EAI	ENTERING AIR TEMPERATURE	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	134	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
ECS	ELECTRICAL CONTRACTOR	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	135	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
EMCS	ENERGY MANAGEMENT AND CONTROL SYSTEM	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	136	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
ESP	EXTERNAL STATIC PRESSURE	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	137	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
EWT	ENTERING WATER TEMPERATURE	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	138	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
FCO	FLOOR CLEAN OUT	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	139	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
FD	FIRE DAMPER	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	140	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
FD	FLOOR DRAIN	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	141	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
F.E.A.	FUME HOOD EXHAUST AIR	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	142	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
FI	FIRE HYDRANT	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	143	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
FL	FLOW LINE	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	144	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
FOR	FUEL OIL RETURN	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	145	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
FOV	FUEL OIL VENT	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	146	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
FSD	FIRE SMOKE DAMPER	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	147	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
G	GAS	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	148	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
GBD	GRAVITY BACKDRAFT DAMPER	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	149	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
GC	GENERAL CONTRACTOR	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	150	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
GCO	GRADE CLEANOUT	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	151	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
GEA	GENERAL EXHAUST AIR	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	152	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
GPM	GALLONS PER MINUTE	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	153	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
HP	HORSEPOWER	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	154	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
HPR	HIGH PRESSURE STEAM RETURN	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	155	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
HPS	HIGH PRESSURE STEAM SUPPLY	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	156	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
HR	HOUR	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	157	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
HW	DOMESTIC HOT WATER	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	158	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
HW180	DOMESTIC HOT WATER 180 DEG. F. SERVICE	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	159	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
HWC	DOMESTIC HOT WATER CIRCULATION	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	160	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
HW180	DOMESTIC HOT WATER CIRCULATION 180 DEG. F. SERVICE	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	161	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
HW	HOT WATER RETURN	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	162	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
HWS	HOT WATER SUPPLY	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	163	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
IE	INVERT ELEVATION	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	164	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
KEA	KITCHEN EXHAUST AIR	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	165	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
KS	KITCHEN SUPPLIER	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	166	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
KW	KILOWATT	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	167	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LA	LABORATORY AIR	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	168	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LAT	LEAVING AIR TEMPERATURE	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	169	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LAT	LAY IN TILE	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	170	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LOW	LABORATORY COLD WATER	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	171	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LFC	LOOP FIELD CONTRACTOR	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	172	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LFR	LOOP FIELD RETURN	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	173	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LFS	LOOP FIELD SUPPLY	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	174	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LG	LABORATORY GAS	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	175	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LHW	LABORATORY HOT WATER	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	176	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LHWC	LABORATORY HOT WATER RECIRC.	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	177	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LPR	LOW PRESSURE STEAM SUPPLY	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	178	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LPS	LOW PRESSURE STEAM RETURN	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	179	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LV	LABORATORY VACUUM	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	180	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
LWT	LEAVING WATER TEMPERATURE	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	181	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
MA	MIXED AIR	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	182	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
MB	MIXING BOX	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	183	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
MBH	1000 BTUHR	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	184	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
MC	MECHANICAL CONTRACTOR	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	185	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
MCC	MOTOR CONTROL CENTER	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	186	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
MD	MOTORIZED DAMPER	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	187	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
MH	MAN HOLE	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	188	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
MPR	MEDIUM PRESSURE STEAM RETURN	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	189	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
MPS	MEDIUM PRESSURE STEAM SUPPLY	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	190	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
NC	NOISE CRITERIA	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	191	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		
NIC	NOT IN CONTRACT	WTR	WATER SERVICE PIPING (OUTSIDE BUILDING)	192	MOTOR CONTROL VALVE	126	WALL CLEAN OUT	CM	CONTROL MOTOR		

## SCHEMATICS

N.C.	3-WAY AUTOMATIC CONTROL VALVE - NORMALLY OPEN, CLOSED AND COMMON PORTS INDICATED
N.C.	2-WAY AUTOMATIC CONTROL VALVE - NORMALLY CLOSED
N.C.	2-WAY AUTOMATIC CONTROL VALVE - NORMALLY OPEN
N.C.	TEMPERATURE SENSOR/THERMOSTAT
N.C.	AUTOMATIC BUTTERFLY VALVE - NORMALLY CLOSED
N.C.	AUTOMATIC BUTTERFLY VALVE - NORMALLY OPEN
N.C.	AUTOMATIC LINKED BUTTERFLY VALVES - NORMALLY OPEN, CLOSED AND COMMON PORTS INDICATED
N.C.	MANUAL BALL VALVE FOR SHUT-OFF OR BALANCING SERVICE
N.C.	STOP AND WASTE BALL VALVE
N.C.	BALL VALVE WITH PRESSURE TAP
N.C.	BALL VALVE WITH PRESSURE TAP & MEMORY STOP
N.C.	BALL VALVE WITH PRESSURE & TEMPERATURE TAP
N.C.	BALL VALVE WITH PRESSURE & TEMPERATURE TAP & MEMORY STOP
N.C.	MANUAL BALANCING BALL VALVE WITH MEMORY STOP
N.C.	NORMALLY CLOSED MOTORIZED BALL VALVE
N.C.	NORMALLY OPEN MOTORIZED BALL VALVE
N.C.	VALVE BOX
N.C.	AUTOMATIC FLOW CONTROL VALVE WITH PRESSURE & TEMPERATURE TAP
N.C.	MANUAL GATE VALVE
N.C.	MANUAL GLOBE VALVE
N.C.	CALIBRATED BALANCING VALVE
N.C.	MANUAL PLUG VALVE
N.C.	MANUAL BUTTERFLY VALVE
N.C.	WHEEL OPERATED BUTTERFLY VALVE
N.C.	GAGE COCK
N.C.	CHECK VALVE
N.C.	VACUUM BREAKER
N.C.	GAS COCK
N.C.	PRESSURE REGULATING OR REDUCING VALVE - EQUIP. MARK
N.C.	STRAINER WITH BLOWDOWN VALVE
N.C.	STRAINER
N.C.	MANUAL AIR VENT
N.C.	REFRIGERANT SOLENOID VALVE
N.C.	FLANGE CONNECTION
N.C.	UNION
N.C.	SAFETY RELIEF VALVE - EQUIP. MARK

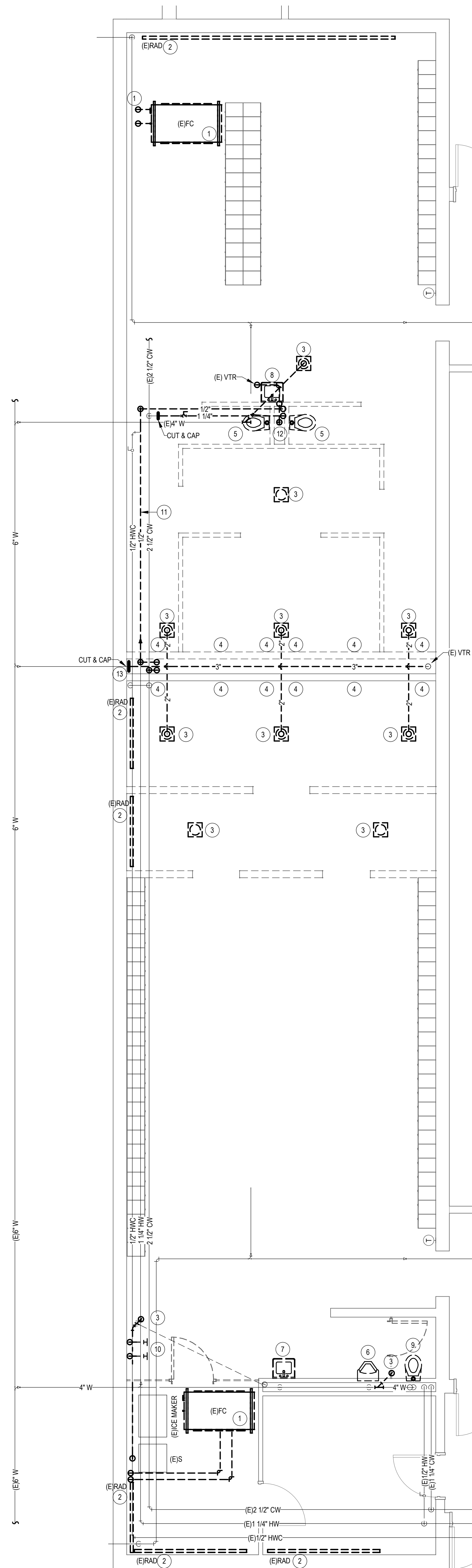
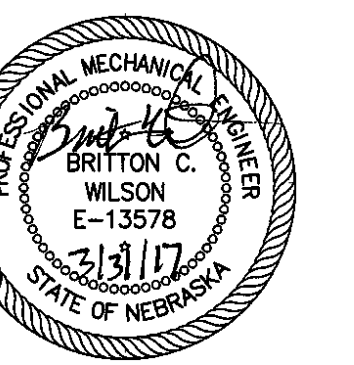
## GENERAL

---	CONNECTION - NEW TO EXISTING
---	PIPE OR ROUND DUCT RISER
---	PIPE OR ROUND DUCT DROP
---	DIRECTION OF FLOW
---	DOWNWARD PIPE OR DUCT PITCH
---	SECTION IDENTIFICATION SECTION NUMBER
---	SECTION IDENTIFICATION SECTION NUMBER SHEET NUMBER
---	DETAIL IDENTIFICATION SECTION NUMBER SHEET NUMBER
---	ELECTRICAL MOTOR
---	ARCHITECTURAL ELEVATION
---	ENGINEER ELEVATION
---	ELECTRICAL PANEL
---	VARIABLE FREQUENCY DRIVE PANEL - EQUIP. MARK
---	EXISTING PIPING, DUCTWORK, EQUIPMENT, ETC.

## GENERAL MECHANICAL NOTES:

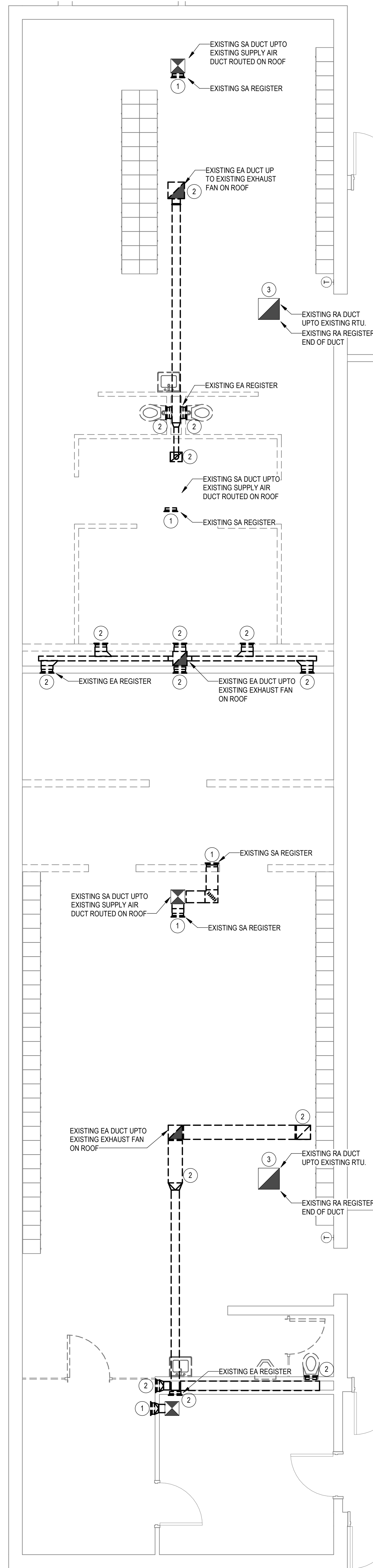
- GENERAL
- 1.1 THESE NOTES SHALL APPLY TO ALL MECHANICAL PLANS.
- 1.2 NOTE THAT THE MECHANICAL PLANS ARE TO A GREAT EXTENT SCHEMATIC IN NATURE AND THAT THE INFORMATION PRESENTED IS EXACT AS COULD BE SECURED. THE CONTRACTOR SHALL OBTAIN EXACT LOCATIONS, MEASUREMENTS, LEVELS, ETC. AT THE SITE AND SHALL SATISFACTORILY ADAPT HIS WORK TO THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- 1.3 THE CONTRACTOR IS RESPONSIBLE FOR PROPER SUPPORT OF ALL EQUIPMENT, PIPING, DUCTWORK, ETC. COORDINATE INSTALLATION OF ALL EQUIPMENT, PIPING, DUCTWORK, ETC. WITH OTHER BUILDING TRADES.
- 1.4 SEE SPECIFICATION SECTIONS 22 05 00 AND 23 05 00 FOR OTHER GENERAL MECHANICAL REQUIREMENTS.
- 1.5 ALL PENETRATIONS THROUGH THE WALLS, FLOORS, OR STRUCTURE OF LABORATORY AREAS, LABORATORY SUPPORT AREAS, AND CORRIDORS SHALL BE SEALED AIRTIGHT TO MAINTAIN PROPER PRESSURE RELATIONSHIPS.
- 1.6 THE LOCATION AND SIZE OF ALL ITEMS SHOWN AS EXISTING WERE OBTAINED FROM PREVIOUS DRAWINGS AND SITE VISITS, AND ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR. ACCURACY OF THE INFORMATION SHOWN IS NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR THE VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO SUBMITTING THE PROJECT BID. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR CHANGES WHICH OCCUR AFTER BIDS ARE SUBMITTED WHICH ARE A RESULT OF EXISTING CONDITIONS. SITE VISITS PRIOR TO SUBMISSION OF BIDS MUST BE FULLY COORDINATED WITH THE OWNER.

2. DUCTWORK
- 2.1 ALL EXPOSED MECHANICAL ITEMS WILL BE FIELD-PAINTED. ALL ITEMS SHALL BE PROPERLY ORDERED AND PREPARED TO ACCEPT PAINT. COORDINATE EXACT REQUIREMENTS WITH PAINTING CONTRACTOR. SEE ARCHITECTURAL AND FINISH DRAWINGS AND SPECIFICATIONS FOR AREAS AND ITEMS THAT WILL BE PAINTED.
- 2.2 ALL SUPPLY AIR DUCT SHALL BE WRAPPED WITH INSULATION UNLESS OTHERWISE NOTED OR SPECIFIED. EXHAUST AIR DUCT SHALL BE LEFT UNINSULATED UNLESS LINER IS EXPLICITLY CALLED OUT.
- 2.3 ALL EXPOSED DUCTWORK SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER FREE FROM ALL VISIBLE DENTS AND KINKS. DUCT RUNS SHALL BE STRAIGHT AND LEVEL.



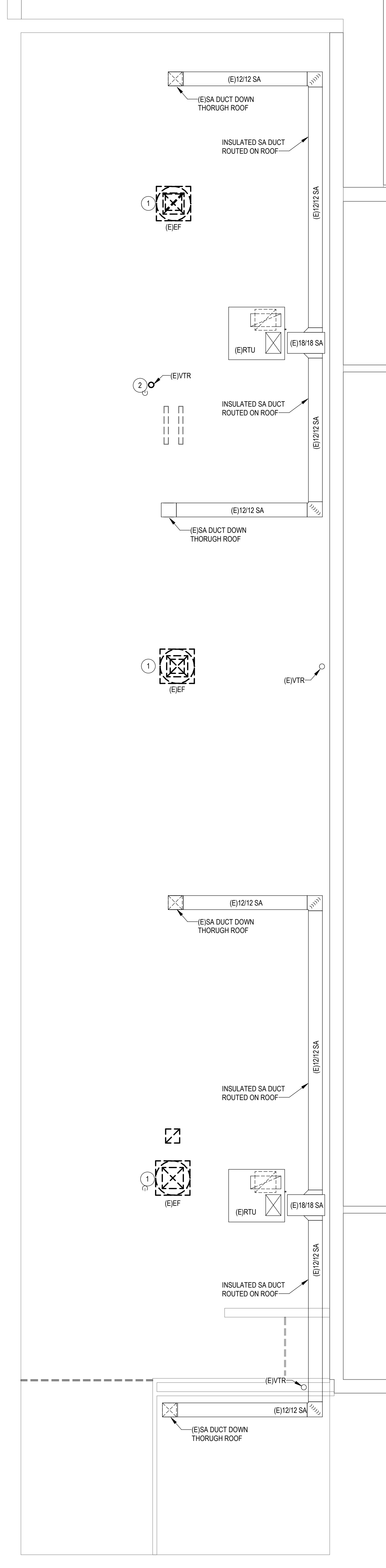
**PLUMBING DEMOLITION NOTES:**

- 1 REMOVE EXISTING CEILING MOUNTED FAN COIL, CONTROLS, PIPING AND ALL ASSOCIATED ACCESSORIES IN ITS ENTIRETY. REMOVE SUPPLY & RETURN HYDRONIC PIPING AND CAP AT HYDRONIC MAINS LOCATED IN TUNNEL BELOW FLOOR. COORDINATE CUTTING AND PATCHING OF FLOOR WITH GENERAL CONTRACTOR.
- 2 REMOVE EXISTING FINNED TUBE HEATER AND ALL ASSOCIATED PIPING, CONTROLS & ACCESSORIES IN THEIR ENTIRETY. CAP PIPING @ MAINS. COORDINATE PATCHING OF WALL & FLOOR WITH GENERAL CONTRACTOR.
- 3 REMOVE EXISTING FLOOR DRAIN AND WASTE PIPING BACK TO THE TUNNEL AND CAP.
- 4 REMOVE EXISTING SHOWER VALVE, HEAD AND ALL CW AND HW PIPING BACK TO THE MAINS IN THE TUNNEL & CAP.
- 5 REMOVE EXISTING FLOOR MOUNTED WATER CLOSET AND FLUSH VALVE. CW PIPING TO BE CAPPED IN THE TUNNEL AND ABANDONED UNDER FLOOR. WASTE TO BE REMOVED TO MAIN AND CAPPED.
- 6 REMOVE URINAL AND FLUSH VALVE. CW AND WASTE TO BE CAPPED IN THE CHASE AT THE MAIN.
- 7 REMOVE EXISTING WALL HUNG LAV AND FAUCET. NEW LAV WILL BE INSTALLED IN THE EXISTING LOCATION WITH A NEW CARRIER.
- 8 REMOVE EXISTING WALL HUNG LAV AND FAUCET. CW & HW PIPING TO BE CAPPED IN THE TUNNEL AND ABANDONED UNDER FLOOR. WASTE TO BE REMOVED TO MAIN AND CAPPED.
- 9 REMOVE EXISTING FLOOR MOUNTED WATER CLOSET & FLUSH VALVE. NEW WATER CLOSET WILL BE INSTALLED WITH A NEW CARRIER. CAP EXISTING WASTE BELOW THE FLOOR.
- 10 REMOVE EXISTING HOSE BIBBS AND PIPING BACK DOWN TO THE TUNNEL AND CAP AT THE MAIN.
- 11 REMOVE EXISTING 3/4\"/>



**MECHANICAL DEMOLITION NOTES:**

- 1 CUT SA DUCT AT ROOF PENETRATION IN A WAY TO FACILITATE RECONNECTION DURING REMODEL PHASE. REMOVE DUCTWORK AND SUPPLY REGISTER DOWN FROM CUT LOCATION.
- 2 REMOVE EXISTING EA DUCT & EXHAUST FAN IN THEIR ENTIRETY. EXISTING ROOF CURB TO REMAIN FOR INSTALLATION OF NEW EXHAUST FAN, ON EXISTING CURB.
- 3 CUT RA DUCT AT ROOF PENETRATION IN A WAY TO FACILITATE RECONNECTION TO DURING REMODEL PHASE. REMOVE DUCTWORK AND RETURN REGISTER DOWN STREAM FROM CUT LOCATION.



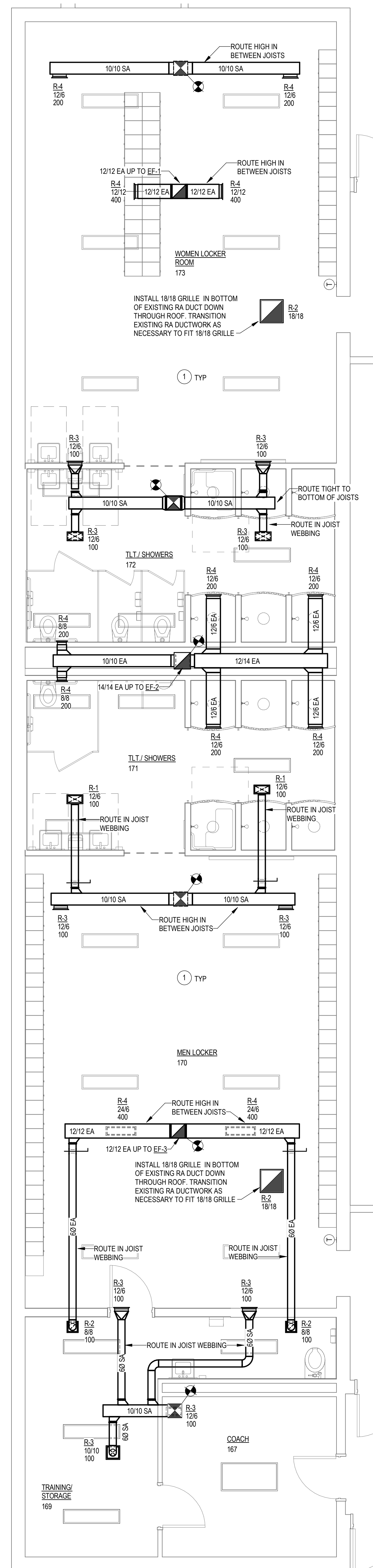
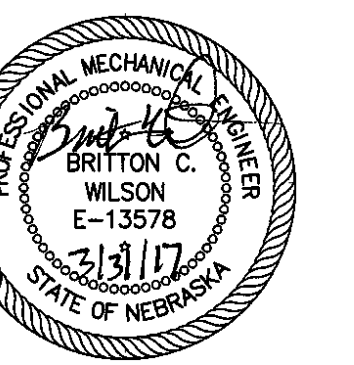
**MECHANICAL ROOF DEMOLITION NOTES:**

- 1 REMOVE EXHAUST FAN AND ALL ACCESSORIES IN ITS ENTIRETY. EXISTING ROOF CURB TO REMAIN FOR INSTALLATION OF NEW EXHAUST FAN.
- 2 REMOVE EXISTING VENT THROUGH ROOF. COORDINATE PATCHING AND REPAIRING OF ROOF WITH GENERAL CONTRACTOR.

**FIRST FLOOR PIPING DEMOLITION PLAN**  
SCALE: 1/4" = 1'-0"

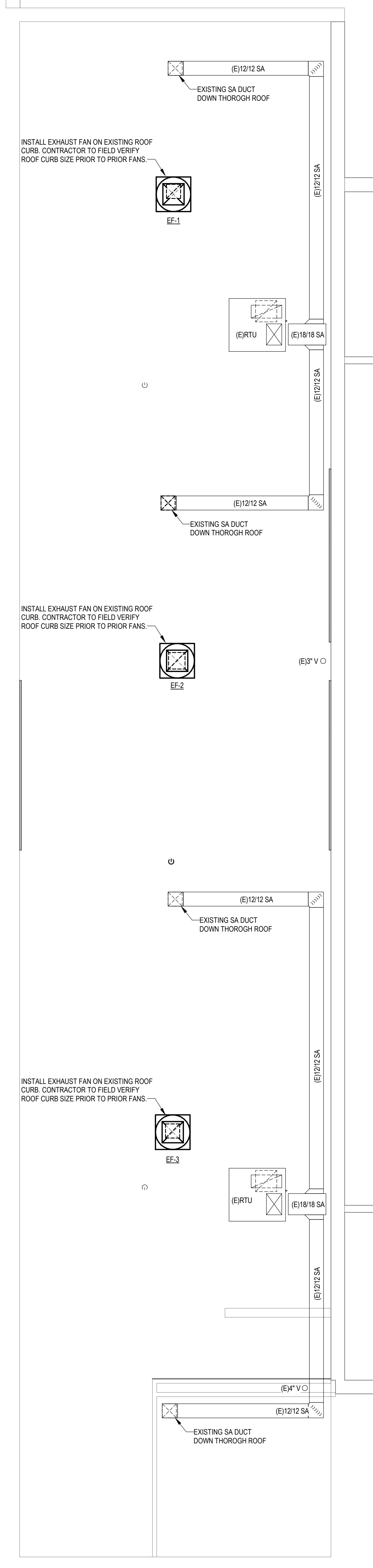
**FIRST FLOOR HVAC DEMOLITION PLAN**  
SCALE: 1/4" = 1'-0"

**MECHANICAL ROOF DEMOLITION PLAN**  
SCALE: 1/4" = 1'-0"



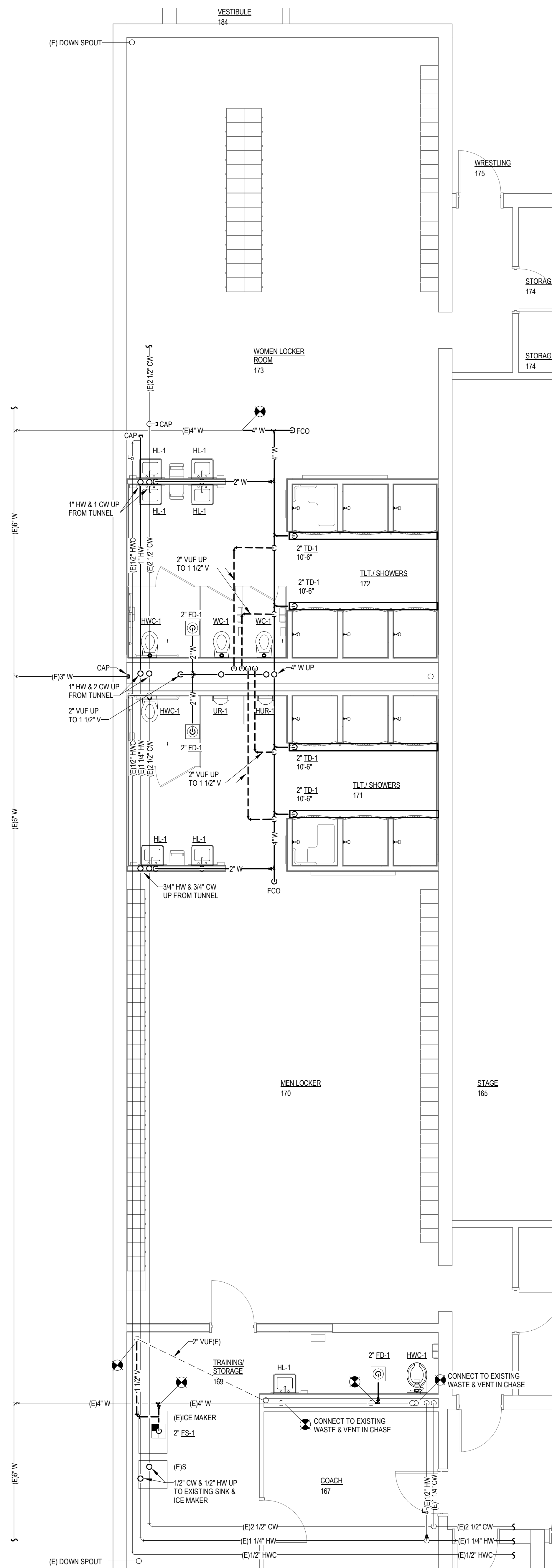
**FIRST FLOOR HVAC PLAN**  
SCALE: 1/4" = 1'-0"

**MECHANICAL NOTES:**  
1 ALL EXPOSED DUCTWORK SHALL BE PAINTED, COORDINATE COLOR WITH ARCHITECT.

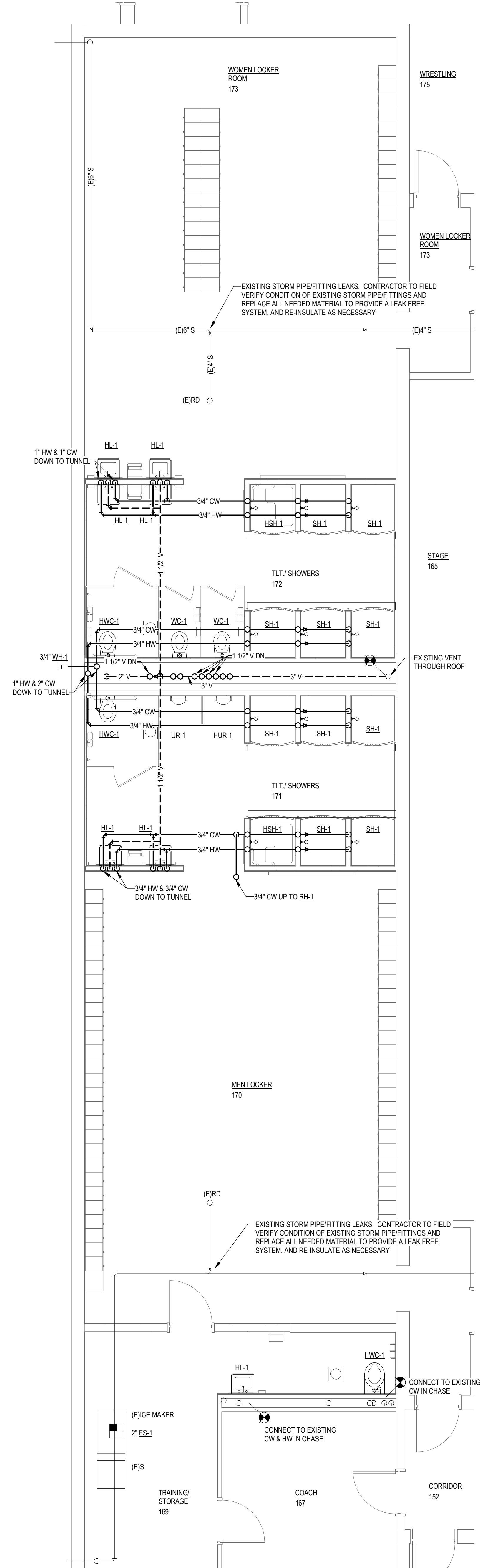


**MECHANICAL ROOF PLAN**  
SCALE: 1/4" = 1'-0"

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**BELOW FLOOR PIPING PLAN**  
SCALE: 1/4" = 1'-0"

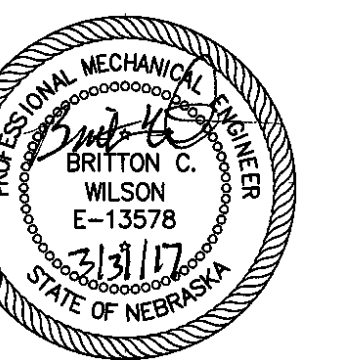


**FIRST FLOOR PIPING PLAN**  
SCALE: 1/4" = 1'-0"

**East Butler Public Schools**  
Brainard, NE

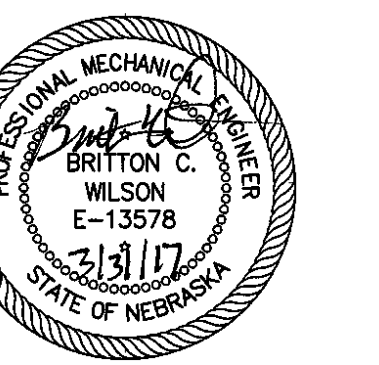
TCEP No.: 115-001-17

March 31, 2017



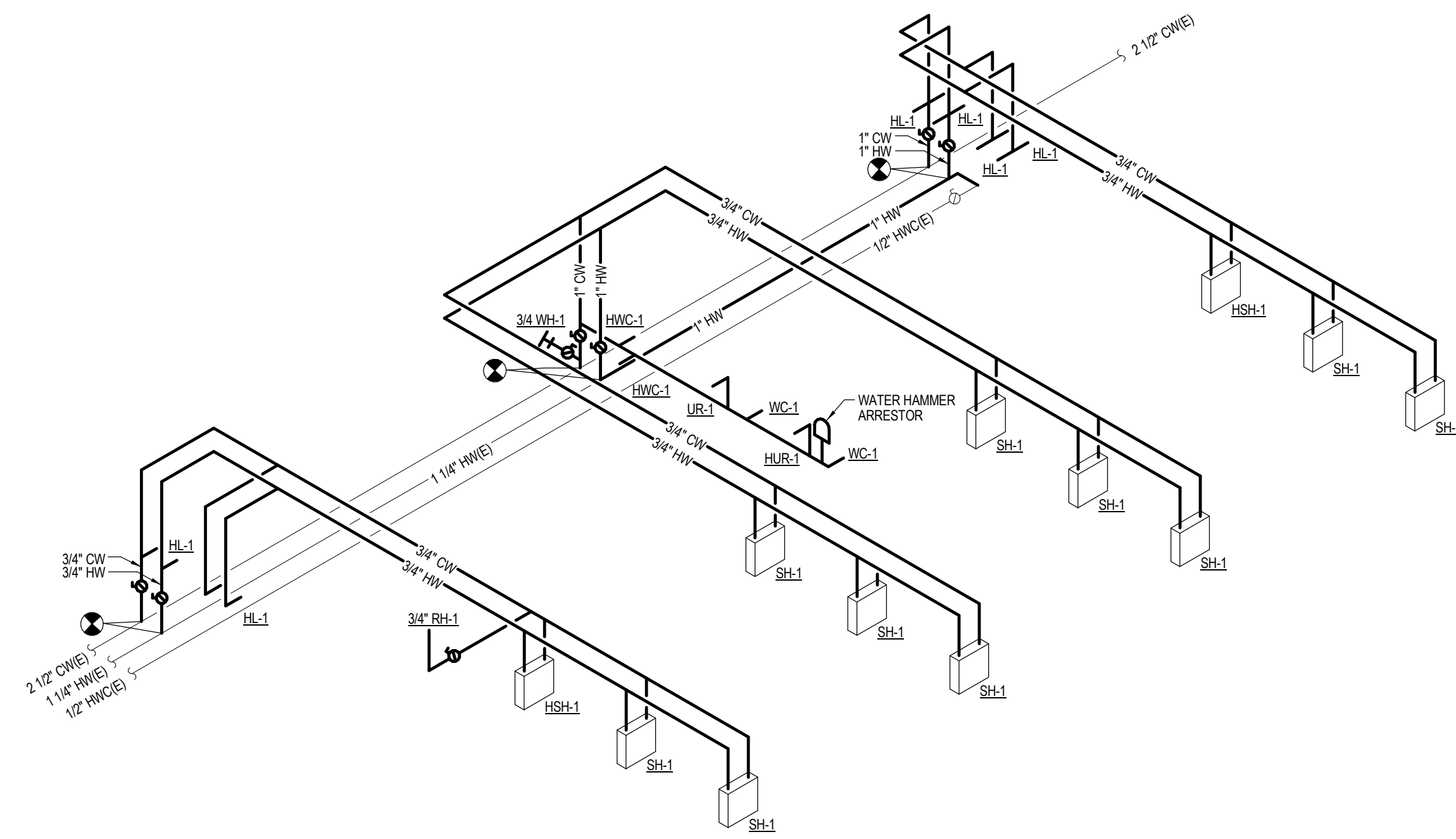
Plumbing Plans

**M2.01**



EXHAUST FAN SCHEDULE		FAN PERFORMANCE DATA						MOTOR DATA				ELECTRICAL DATA			MANUFACTURER OR EQUIVALENT			MODEL			ACCESSORIES		
MARK	SERVES	PRIMARY EXHAUST (CFM)	E.S.P. (IN. W.G.)	FAN RPM	FAN DISCHARGE	IMPELLER DRIVE	MOTOR HP	OPERATING POWER (HP)	MOTOR FLA (AMPS)	VOLTS	PHASE	HZ											
EF-1	WOMEN LOCKER	800	0.50	1323	DOWNBLAST	BELT	1/4	0.15	5.8	115	1	60											
EF-2	TLT / SHOWERS	1,200	0.50	1148	DOWNBLAST	BELT	1/4	0.20	5.8	115	1	60											
EF-3	MEN LOCKER, STORAGE	1,000	0.50	1494	DOWNBLAST	BELT	1/4	0.21	5.8	115	1	60											

ACCESSORIES:  
 1. THERMAL OVERLOADED PROTECTED MOTOR  
 2. MOUNT ON EXISTING ROOF CURB  
 3. HINGED BASE, BELT TENSIONER  
 4. GRAVITY BACKDRAFT DAMPER  
 5. ALUMINUM BIRDSCREEN  
 6. FACTORY MOUNTED DISCONNECT  
 7. PROVIDE WITH FACTORY STARTER  
 8. TIE IN ON/OFF OPERATION WITH OCCUPANCY SENSOR



**DOMESTIC WATER RISER DIAGRAM**

SCALE: NO SCALE

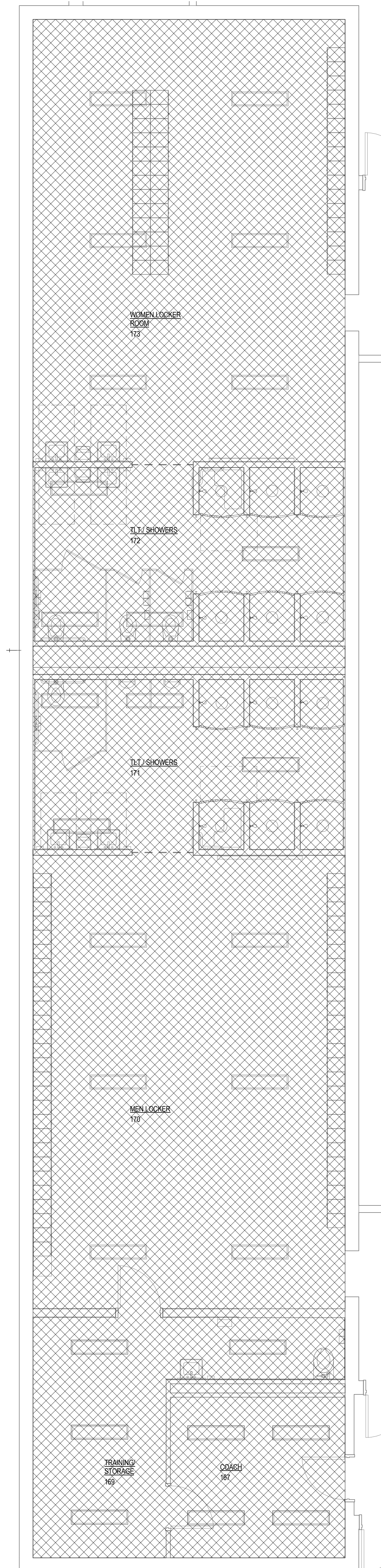
PLUMBING FIXTURE AND EQUIPMENT CONNECTION SCHEDULE		FUNCTION		MANUFACTURER AND MODEL		WASTE	VENT	HW	CW
HL-1	WALL HUNG LAVATORY (HANDICAPPED)	LAVATORY:	KOHLER MODEL K-2005 OR EQUIVALENT 16"x10" BASIN, WHITE VITREOUS CHINA 4" CENTER FAUCET HOLES. MOEN COMMERCIAL MODEL 8413 EQUIVALENT. SOLID BRASS, CHROME PLATED 2-1/2" HANDLE, 4" CENTERSET. MINIMUM 17 GAUGE CHROME PLATED CAST BODY WITH ESCUTCHEON. CHROME PLATED GRID DRAIN LEAD FREE CHROME PLATED LOOSE KEYSTOP VALVES WITH DEEP ESCUTCHEON PLATES. FLOOR MOUNTED CONCEALED ARMS SEE NOTE #2	1-1/2"	1-1/2"				
SH-1	BUILT IN SHOWER	SHOWER:	WILLOUGHBY MODEL CWRS-PB-FA-UBJ OR EQUIVALENT BUILT IN 16 GAUGE TYPE 304 STAINLESS STEEL PANEL WITH RECESSED SOAP DISH, PRESSURE BALANCING VALVE AND UNIVERSAL BALL JOINT SHOWER HEAD. SHOWER HEAD TO BE 72" A.F.F.					1/2"	1/2"
HSH-1	WALL SHOWER (HANDICAPPED)	SHOWER:	WILLOUGHBY MODEL CWBFS-PB-UBJ OR EQUIVALENT. BUILT IN 16 GAUGE TYPE 304 STAINLESS STEEL PANEL WITH RECESSED SOAP DISH, PRESSURE BALANCING VALVE AND UNIVERSAL BALL JOINT SHOWER HEAD. PROVIDE WITH A 48" AND 72" A.F.F. SHOWER HEADS WITH DIVERTER IN LIEU OF HAND SHOWER					1/2"	1/2"
HJR-1	URINAL (HANDICAPPED)	FIXTURE:	KOHLER MODEL K-4904-ET BARDON OR EQUIVALENT WHITE VITREOUS CHINA, INTEGRAL TRAP, 3/4" TOP SPUD, ELONGATED LIP, 1 GAL PER FLUSH. SLOAN ROYAL 186-1 LOW CONSUMPTION OR EQUIVALENT 1 GALLON PER FLUSH, ADA COMPLIANT OPERATING HANDLE. WALL HUNG	2"	1-1/2"				3/4"
HWC-1	WATER CLOSET	FIXTURE:	KOHLER MODEL K-4325 KINGSTON OR EQUIVALENT 1.6 GAL FLUSH WHITE VITREOUS CHINA, WALL HUNG, SIPHON JET WITH 1-1/2" TOP SPUD. SLOAN ROYAL 111, LOW CONSUMPTION OR EQUIVALENT 1.6 GALLON PER FLUSH, ADA COMPLIANT OPERATING HANDLE. WHITE, OPEN FRONT, HEAVY DUTY COMMERCIAL GRADE NO LID ON SEAT. WALL HUNG.	4"	2"				1"
FS-1	FLOOR SINK	DRAIN:	JAY R. SMITH MODEL 3150Y OR EQUIVALENT. CAST IRON BODY WITH FLANGE, 8" DEEP ACID RESISTANT EPOXY INTERIOR. INTEGRAL CLAMPING COLLAR, SEEPAGE OPENINGS, LOOSE SET 3/4" NICKEL BRONZE 12"x12" GRATE, DOME STRAINER, NO HUB CONNECTION.	(SEE PLANS)	(SEE PLANS)				
FD-1	FLOOR DRAIN (FINISHED AREAS)	DRAIN:	JAY R. SMITH MODEL 2005Y OR EQUIVALENT. CAST IRON BODY WITH FLANGE. INTEGRAL REVERSIBLE COLLAR, SEEPAGE OPENINGS, 5" DIA. SATIN NICKEL BRONZE STRAINER, NO HUB CONNECTION.	(SEE PLANS)	(SEE PLANS)				
TD-1	TRENCH DRAIN	DRAIN:	JOSAM PRO PLUS 100 SERIES OR EQUIVALENT. 6" WIDE SLOPED TRENCH DRAIN SYSTEM. PROVIDE WITH SOLID END CAPS, BOTTOM OUTLET, REBATE INSERTS, STAINLESS STEEL EDGE AND SNAP IN CLASS A PERFORATED STAINLESS STEEL GRATE. SEE PLANS FOR TOTAL LENGTH OF EACH TRENCH DRAIN.	(SEE PLANS)	(SEE PLANS)				
WH-1	WALL HYDRANT	HYDRANT:	WOODFORD MODEL B67 FROST PROOF AUTOMATIC DRAINING, BACKFLOW PREVENTER, FROST PROOF HYDRANT WITH ASSE 1052 APPROVED TIVO CHECK BACK FLOW PREVENTER, CHROME FINISH BOX & DOOR, 3/4" HOSE CONNECTION STAINLESS STEEL STEM, LOOSE KEY OPERATING HANDLE. SEE NOTE 3						3/4"
RH-1	ROOF HYDRANT	HYDRANT:	WOODFORD MODEL SRH-MS OR EQUIVALENT. BACKFLOW PREVENTER, NO DRAIN LINE REQUIRED. PROVIDE WITH APPROPRIATE CLAMPING AND BOOTS FOR ROOF CONDITION.						3/4"

REFER TO ARCHITECTURAL INTERIOR ELEVATIONS FOR FIXTURE MOUNTING HEIGHTS OR MOUNT AT MANUFACTURERS RECOMMENDED HEIGHTS.

PLUMBING SCHEDULE NOTES:

- MINIMUM SIZE OF UNDER SLAB VENT SHALL BE 2".
- ALL HANDICAPPED LAVATORIES (HL-#) & ALL CL-1'S SHALL BE INSTALLED WITH P-TRAP AND SUPPLY INSULATION. PROVIDE TRUEBERG MODEL #102 OR EQUAL WITH P-TRAP INSULATION, HOT AND COLD WATER ANGLE VALVE AND SUPPLY INSULATION FABRICATED FROM CLOSED CELL WYNL, 3/16" WALL THICKNESS. \*K" VALUE OF 1.17 (BTU"INHR"FT"2"DEG F).
- CONTRACTOR SHALL VERIFY ALL WALL THICKNESS AND SHALL ORDER APPROPRIATE OPERATING ROD ASSEMBLY.
- SUPPLY STOPS MAY BE ELIMINATED AT THE CONTRACTORS OPTION WHEN PLUMBING FIXTURE IS LOCATED IN A CABINET AND THE FIXTURE HAS SHUT-OFF VALVES TO ISOLATE THE FIXTURE FROM THE OTHER FIXTURES. ESCUTCHEONS MAY BE ELIMINATED WHERE THE SUPPLIES PENETRATE THE BOTTOM OF CASEWORK.

DIFFUSER, REGISTER AND GRILLE SCHEDULE		MAX. P.D. (IN. WG.)	MAX. N.C.	MAXIMUM CFM	MANUFACTURER AND MODEL NUMBER	REMARKS
R-1	REGISTER	0.15	20	SEE PLANS FOR CFM AND SIZE	TITUS 300FL OR EQUIVALENT	3/4" BLADE SPACING, DOUBLE DEFLECTION, ADJUSTABLE BLADES, FRONT BLADES PARALLEL TO LONG DIMENSION ALUMINUM FRAME AND BLADES, CONCEALED SCREW MOUNTING, WHITE FINISH, COORDINATE WITH CEILING / WALL TYPE PRIOR TO ORDERING CONFIRM MANUFACTURER RECOMMENDED INSTALLATION
R-2	REGISTER	-0.1	20	SEE PLANS FOR CFM AND SIZE	TITUS 350FL OR EQUIVALENT	3/4" BLADE SPACING, FIXED SINGLE DEFLECTION AT 35 DEGREE ANGLE, BLADES PARALLEL TO LONG DIMENSION, ALUMINUM FRAME AND BLADES, CONCEALED SCREW MOUNTING, WHITE FINISH, COORDINATE WITH CEILING / WALL TYPE PRIOR TO ORDERING CONFIRM MANUFACTURER RECOMMENDED INSTALLATION
R-3	REGISTER	0.15	20	SEE PLANS FOR CFM AND SIZE	TITUS 300FL OR EQUIVALENT	3/4" BLADE SPACING, DOUBLE DEFLECTION, ADJUSTABLE BLADES, FRONT BLADES PARALLEL TO LONG DIMENSION ALUMINUM FRAME AND BLADES, CONCEALED SCREW MOUNTING, WHITE FINISH, COORDINATE WITH CEILING / WALL TYPE PRIOR TO ORDERING CONFIRM MANUFACTURER RECOMMENDED INSTALLATION PROVIDE WITH INTEGRAL OPPOSED BLADE DAMPER
R-4	REGISTER	-0.1	20	SEE PLANS FOR CFM AND SIZE	TITUS 350FL OR EQUIVALENT	3/4" BLADE SPACING, FIXED SINGLE DEFLECTION AT 35 DEGREE ANGLE, BLADES PARALLEL TO LONG DIMENSION, ALUMINUM FRAME AND BLADES, CONCEALED SCREW MOUNTING, WHITE FINISH, COORDINATE WITH CEILING / WALL TYPE PRIOR TO ORDERING CONFIRM MANUFACTURER RECOMMENDED INSTALLATION PROVIDE WITH INTEGRAL OPPOSED BLADE DAMPER



**GENERAL NOTE:**  
 REROUTE EXISTING SPRINKLER SYSTEM IN HATCHED AREA TO ACCOMMODATE REMODEL. SPRINKLERS TO BE ROUTED IN JOIST SPACE IN EXPOSED AREAS. SPRINKLE AS PER NFPA.  
 PAINT EXPOSED SPRINKLER PIPING TO MATCH STRUCTURE.

**FIRST FLOOR FIRE SUPPRESSION PLAN**  
 SCALE: 1/4" = 1'-0"

**East Butler Public Schools**  
 Brainard, NE

TCEP No.: 115-001-17

March 31, 2017

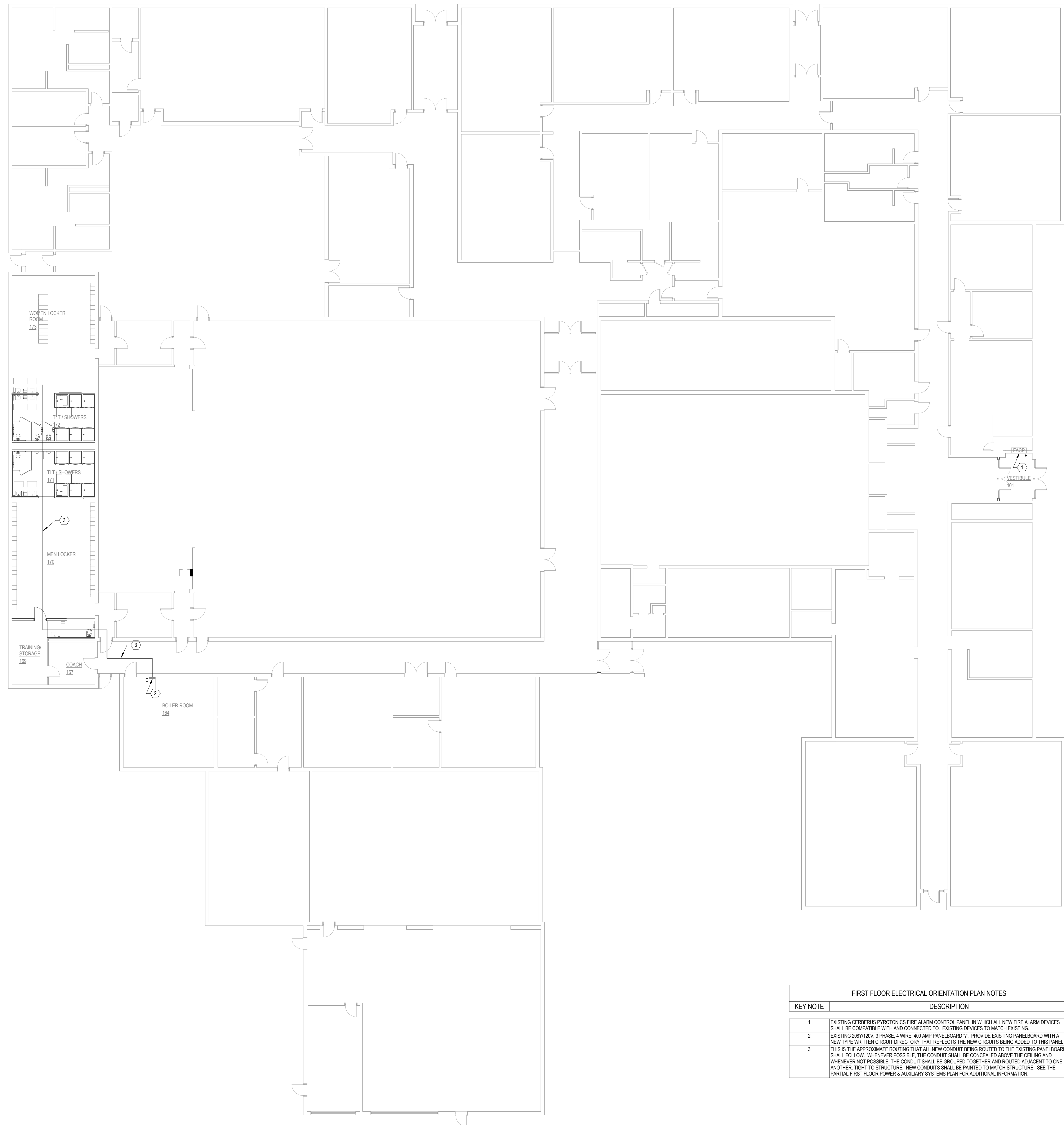


Fire Suppression Plan

**M3.01**

# ELECTRICAL ABBREVIATIONS AND SYMBOLS LEGEND

ABBREVIATIONS	LIGHTING	ELECTRICAL DISTRIBUTION	ELECTRICAL DISTRIBUTION EQUIPMENT	MOTOR CONTROL & MOTOR CONTROL EQUIPMENT	SPECIAL SYSTEMS
AFB ABOVE FINISHED FLOOR	POLE MOUNTED EXTERIOR LIGHT FIXTURE. LETTER INDICATES FIXTURE AND POLE TYPE.	S SINGLE POLE SWITCH	LIGHTING AND APPLIANCE PANEL	MOTOR - HORSEPOWER AS INDICATED ON DRAWINGS	CLOCK AND CLOCK HANGER OUTLET
AFG ABOVE FINISH GRADE	2 X 4 TROFFER RECESSED IN GRID. GRID OR PLASTER CEILING. LETTER NUMBER DENOTES FIXTURE TYPE.	S <sub>2</sub> TWO POLE SWITCH	LIGHTING TRAY PANEL	NON-FUSED DISCONNECT SWITCH, ASSUME 30AMP UNLESS OTHERWISE NOTED.	ELAPSED TIME INDICATOR CLOCK
C CABLE TELEVISION	2 X 4 TROFFER RECESSED IN GRID. GRID OR PLASTER CEILING. WITH EMERGENCY BATTERY AND/OR ON EMERGENCY CIRCUIT. LETTER NUMBER DENOTES FIXTURE TYPE.	S <sub>3</sub> THREE-WAY SWITCH	MOTOR CONTROL CENTER OR SWITCHBOARD	FUSED DISCONNECT SWITCH. FUSE SIZE AS NOTED ON DRAWINGS. ASSUME 30AMP UNLESS OTHERWISE NOTED.	CLOCK MASTER CONTROL
CTV CABLE TELEVISION	1 X 4 TROFFER RECESSED IN GRID. GRID OR PLASTER CEILING. WITH EMERGENCY BATTERY AND/OR ON EMERGENCY CIRCUIT. LETTER NUMBER DENOTES FIXTURE TYPE.	S <sub>4</sub> FOUR WAY SWITCH	POWER PANEL (DISTRIBUTION)	COMBINATION P/VR MAGNETIC MOTOR STARTER WITH HOA SELECTOR SWITCH AND NON-FUSED DISCONNECT SWITCH. ASSUME NEMA SIZE 1 STARTER AND 30AMP SWITCH UNLESS OTHERWISE NOTED.	CLOCK SYSTEM SIGNAL GENERATOR
CTV CLOSED CIRCUIT TELEVISION	1 X 4 TROFFER RECESSED IN GRID. GRID OR PLASTER CEILING. WITH EMERGENCY NIGHT LIGHTING CIRCUIT. LETTER NUMBER DENOTES FIXTURE TYPE.	Sp SINGLE POLE SWITCH WITH PILOT LIGHT	TRANSFORMER	COMBINATION MOTOR STARTER/DISCONNECT PROVIDED BY OTHERS.	CCTV CAMERA
IEI SUBSCRIPT (E) ADJACENT TO ANY DEVICE INDICATES EXISTING	2 X 2 TROFFER WITH EMERGENCY BALLAST AND/OR ON EMERGENCY NIGHT LIGHTING CIRCUIT. LETTER NUMBER DENOTES FIXTURE TYPE.	S <sub>D</sub> DIMMER SWITCH	CIRCUIT BREAKER	COMBINATION MOTOR STARTER/DISCONNECT PROVIDED BY OTHERS. WITH HOA SELECTOR SWITCH AND FUSED DISCONNECT SWITCH. ASSUME NEMA SIZE 1 STARTER AND 30AMP SWITCH UNLESS OTHERWISE NOTED.	CCTV CAMERA OUTLET
(IE) SUBSCRIPT (E) ADJACENT TO ANY DEVICE INDICATES EXISTING TO BE RELOCATED	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	S <sub>M</sub> MOMENTARY CONTACT SWITCH	FUSIBLE SWITCH	COMBINATION P/VR MAGNETIC MOTOR STARTER WITH HOA SELECTOR SWITCH AND FUSED DISCONNECT SWITCH. ASSUME NEMA SIZE 1 STARTER AND 30AMP SWITCH UNLESS OTHERWISE NOTED.	CCTV MONITOR AND OUTLET
EWC ELECTRIC WATER COOLER	2 X 2 TROFFER WITH EMERGENCY BALLAST AND/OR ON EMERGENCY NIGHT LIGHTING CIRCUIT. LETTER NUMBER DENOTES FIXTURE TYPE.	S <sub>T</sub> E THERMAL ELEMENT SWITCH	AUTOMATIC TRANSFER SWITCH	FOUR MAGNETIC MOTOR STARTER WITH HOA SELECTOR SWITCH. ASSUME NEMA SIZE 1 STARTER UNLESS OTHERWISE NOTED.	CCTV MONITOR OUTLET
F SUBSCRIPT (R) ADJACENT TO ANY DEVICE INDICATES FLOOR	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	S <sub>K</sub> KEYED SWITCH	POTENTIAL TRANSFORMER	COMBINATION MOTOR STARTER/DISCONNECT PROVIDED BY OTHERS. WITH HOA SELECTOR SWITCH AND FUSED DISCONNECT SWITCH. ASSUME NEMA SIZE 1 STARTER AND 30AMP SWITCH UNLESS OTHERWISE NOTED.	2 GANG TV OUTLET BOX WITH SINGLE GANG EXTENSION RING FLUSH MOUNTED AT 18" AFF UNLESS OTHERWISE NOTED.
GFI GROUNDED FAULT INTERRUPTER	2 X 2 TROFFER WITH EMERGENCY BALLAST AND/OR ON EMERGENCY NIGHT LIGHTING CIRCUIT. LETTER NUMBER DENOTES FIXTURE TYPE.	S <sub>O</sub> OCCUPANCY SENSING SWITCH (SEE SPECIFICATION)	CURRENT TRANSFORMER	START/STOP PUSH BUTTON	INTERCOM PUBLIC ADDRESS SPEAKER - SURFACE MOUNTED
HI SUBSCRIPT (Y) DENOTES HOSPITAL GRADE	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	180° CEILING MOUNT OCCUPANCY SENSOR. THE UNSHADED AREA INDICATES AMING DIRECTION. SEE THE SPECIFICATION FOR TECHNOLOGY TYPE, MANUFACTURER AND CATALOG NUMBER.	ENGINE GENERATOR	3 POSITION PUSH BUTTON	INTERCOM PUBLIC ADDRESS SPEAKER - WALL MOUNTED
HOA HAND-OFF-AUTO	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	360° CEILING MOUNT OCCUPANCY SENSOR. THE UNSHADED AREA INDICATES AMING DIRECTION. SEE THE SPECIFICATION FOR TECHNOLOGY TYPE, MANUFACTURER AND CATALOG NUMBER.	REMOTE GENERATOR ANNUNCIATOR	METER	CLASS SCHEDULING BELL
NIC NOT IN CONTRACT	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	20A 125V DOUBLE DUPLEX CONVENIENCE OUTLET (NEMA 5 - 20R)	PANEL BOARD TAG. SEE THE CORRESPONDING PANEL BOARD SCHEDULE AND/OR ONE LINE DIAGRAM FOR ADDITIONAL INFORMATION.	FIRE ALARM	PUBLIC ADDRESS HORN
OHV OVERHEAD ELECTRICAL	2 X 2 TROFFER WITH EMERGENCY BALLAST AND/OR ON EMERGENCY NIGHT LIGHTING CIRCUIT. LETTER NUMBER DENOTES FIXTURE TYPE.	20A 125V SIMPLEX OUTLET (NEMA 5 - 20R)			VOLUME CONTROL FOR SPEAKER
OHV OVERHEAD TELECOMMUNICATIONS	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	SPECIAL PURPOSE OUTLET. TYPE AS NOTED ON DRAWINGS.			SOUND DISTRIBUTION RACK
PVC POLYVINYL CHLORIDE	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	SURFACE MOUNTED RACEWAY. TYPE AND NUMBER OF DEVICES AS INDICATED. REFER TO SPECIFICATION.			MICROPHONE
R SUBSCRIPT (R) ADJACENT TO ANY DEVICE INDICATES THE RELOCATED POSITION OF AN EXISTING DEVICE	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	DIGITAL DENOTES CONNECTION TO EQUIPMENT			SECURITY SYSTEM CARD READER AND OUTLET BOX
RGS RIGID GALVANIZED STEEL	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	JUNCTION BOX - CEILING, FLOOR, AND WALL MOUNTING			ELECTRIC DOOR LOCK
TR TAMPER RESISTANT	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	FLOOR BOX			DOOR MONITOR SWITCH
URE UNDERGROUND ELECTRICAL	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	2 GANG TELEPHONE DATA OUTLET BOX WITH SINGLE GANG EXTENSION RING FLUSH MOUNTED AT 18" AFF UNLESS OTHERWISE NOTED.			SECURITY SYSTEM ANNUNCIATOR
UGT UNDERGROUND TELECOMMUNICATIONS	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	TELEPHONE TERMINAL BOARD OR TERMINAL CABINET - SIZE AND TYPE AS INDICATED (ITS BTR TCO)			INTERCOM MASTER - WALL WITH HANDSET
WG WIRE GUARD	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	BRANCH CIRCUIT HOMERUN TO PANEL (NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. NUMBER OF TICK MARKS INDICATES NUMBER OF WIRES) (NUMBER DRAWING MINIMUM UNLESS OTHERWISE NOTED). IF NO TICK MARKS ARE SHOWN, ASSUME 3 NUMBER 12 AWG IN 1/2" CONDUIT			INTERCOM MASTER - DESK WITH HANDSET
WAP WIRELESS ACCESS POINT	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	CONDUIT AND WIRE CONCEALED (NUMBER OF TICK MARKS INDICATES NUMBER OF WIRES (NUMBER 12AWG MINIMUM UNLESS OTHERWISE NOTED). IF NO TICK MARKS ARE SHOWN, ASSUME 3 NUMBER 12 AWG IN 1/2" CONDUIT)			INTERCOM PUSHBUTTON STATION
WP WEATHERPROOF	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	CONDUIT RISER UP			
/// CROSS-HATCHING AND/OR DASHED FIXTURE/DEVICE INDICATES REMOVAL	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	CONDUIT RISER DOWN			
	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	INDICATES BUSH AND CAP			
	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	CONDUIT SEAL FITTING FOR HAZARDOUS AREAS			
	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.	CONDUIT STUBBED UP 6" AFF AND CAPPED			
	2 X 4 SURFACE OR PENDANT MOUNTED FIXTURE. LETTER NUMBER DENOTES FIXTURE TYPE. REFER TO DRAWINGS FOR FIXTURE MOUNTING HEIGHT.				
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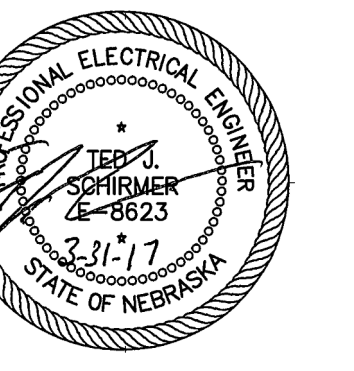
FIRST FLOOR ELECTRICAL ORIENTATION PLAN NOTES	
KEY NOTE	DESCRIPTION
1	EXISTING CERBERUS PYROTONICS FIRE ALARM CONTROL PANEL IN WHICH ALL NEW FIRE ALARM DEVICES SHALL BE COMPATIBLE WITH AND CONNECTED TO. EXISTING DEVICES TO MATCH EXISTING.
2	EXISTING 208Y(120Y, 3 PHASE, 4 WIRE, 400 AMP PANELBOARD 7". PROVIDE EXISTING PANELBOARD WITH A NEW TYPE WRITTEN CIRCUIT DIRECTORY THAT REFLECTS THE NEW CIRCUITS BEING ADDED TO THIS PANEL.
3	THIS IS THE APPROXIMATE ROUTING THAT ALL NEW CONDUIT BEING ROUTED TO THE EXISTING PANELBOARD SHALL FOLLOW. WHENEVER POSSIBLE, THE CONDUIT SHALL BE CONCEALED ABOVE THE CEILING AND WHENEVER NOT POSSIBLE, THE CONDUIT SHALL BE GROUPED TOGETHER AND ROUTED ADJACENT TO ONE ANOTHER, TIGHT TO STRUCTURE. NEW CONDUITS SHALL BE PAINTED TO MATCH STRUCTURE. SEE THE PARTIAL FIRST FLOOR POWER & AUXILIARY SYSTEMS PLAN FOR ADDITIONAL INFORMATION.

**FIRST FLOOR ELECTRICAL ORIENTATION PLAN**  
SCALE: 3/32" = 1'-0"

**East Butler Public Schools**  
Brainard, NE

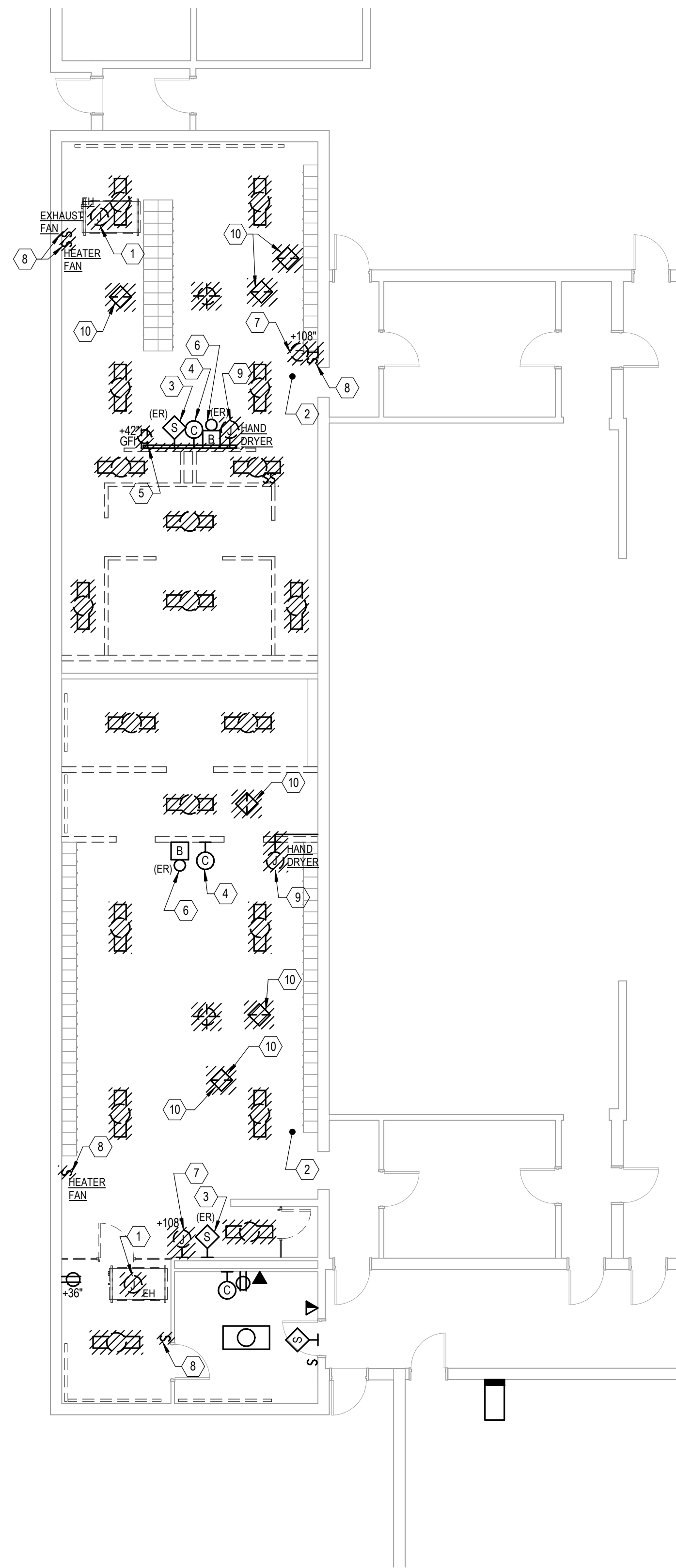
TCEP No.: 115-001-17

March 31, 2017



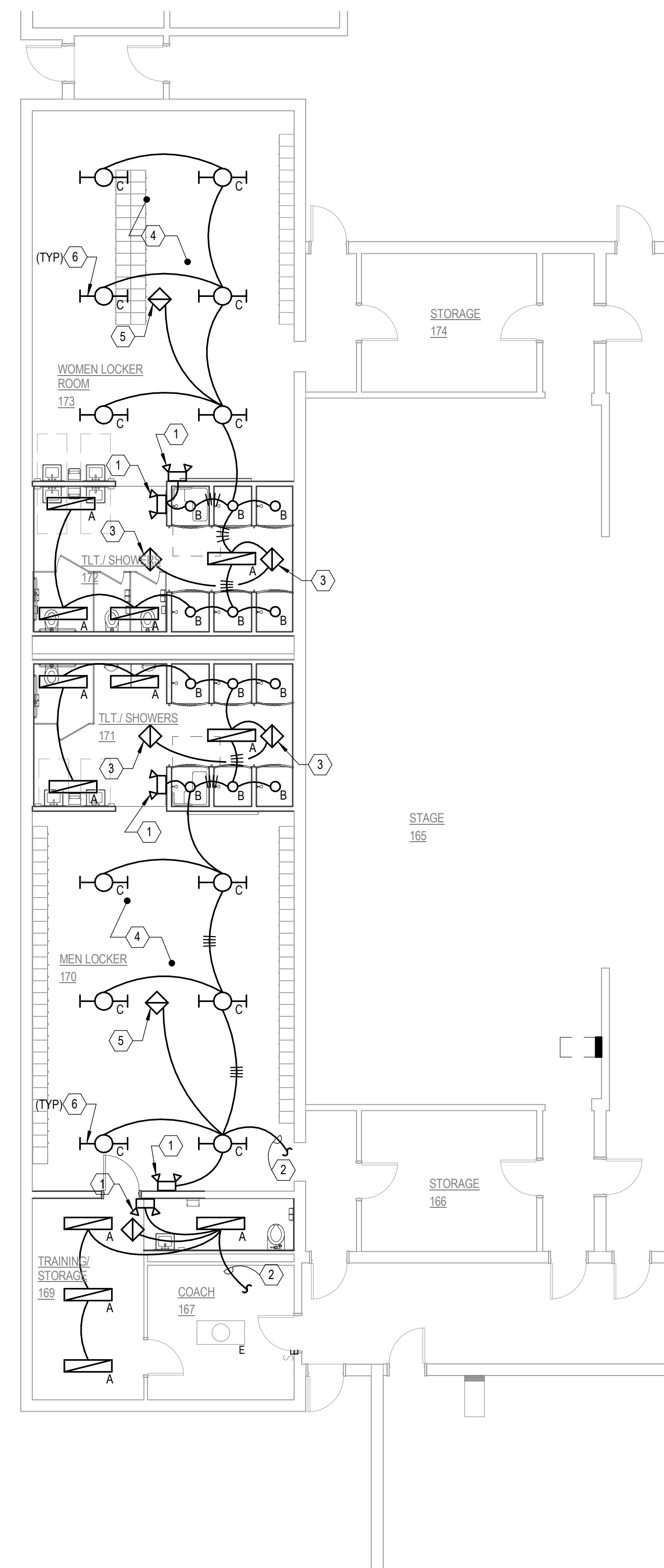
First Floor Electrical  
Orientation Plan

**E0.01**



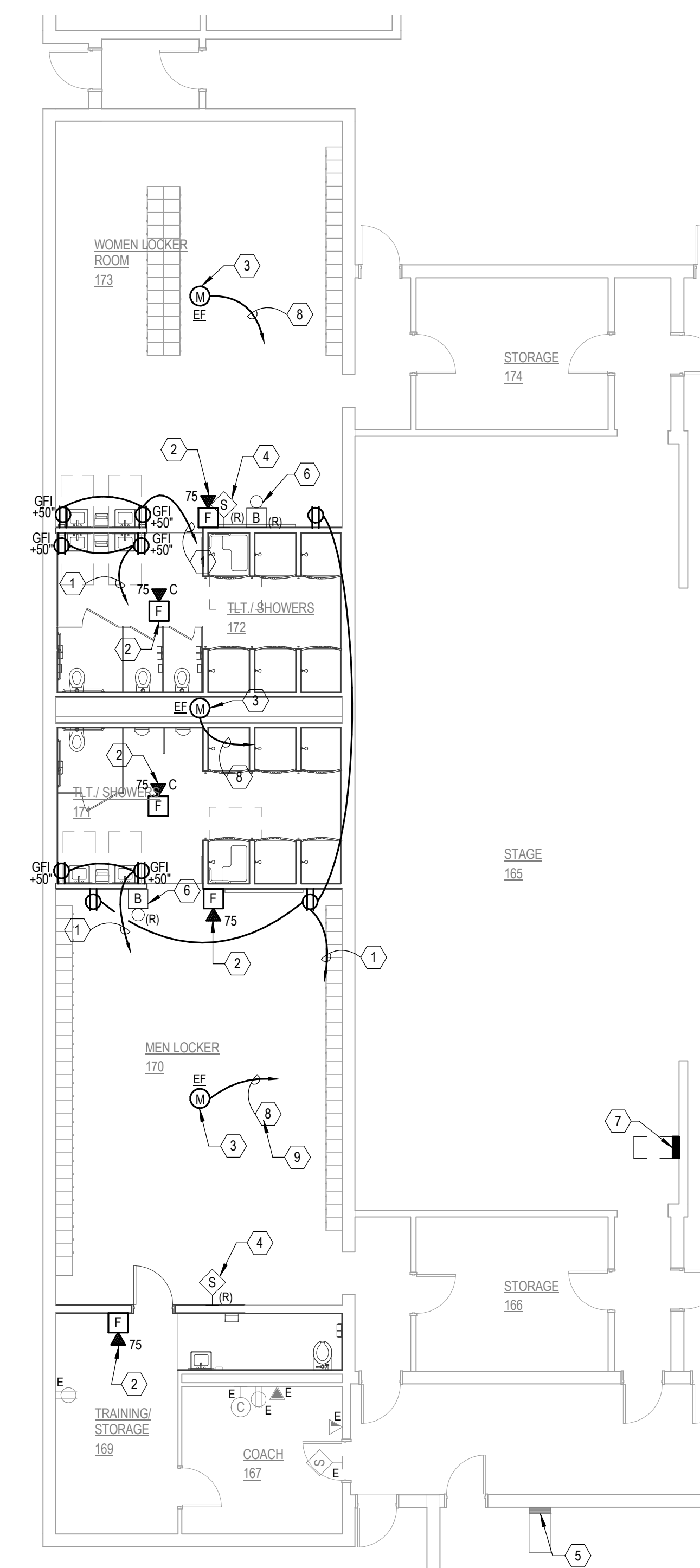
**PARTIAL FIRST FLOOR ELECTRICAL DEMOLITION PLAN**  
 SCALE: 1/8" = 1'-0"

PARTIAL FIRST FLOOR ELECTRICAL DEMOLITION PLAN NOTES	
KEY NOTE	DESCRIPTION
1	EXISTING CONNECTION TO INDICATED MECHANICAL EQUIPMENT TO BE REMOVED. REMOVE ALL ASSOCIATED EXPOSED CONDUIT AND ALL WIRING BACK TO PANELBOARD. CONTRACTOR MAY ABANDON CONDUIT CONCEALED IN WALLS. COORDINATE DETAILS WITH THE MECHANICAL CONTRACTOR.
2	EXISTING CONDUIT EXPOSED BELOW CEILING IN THIS AREA THAT IS REMAINING SERVING ROOF TOP HVAC EQUIPMENT AND EXHAUST FANS SHALL BE REROUTED TO INSIDE THE WEBBING OF THE STRUCTURE ABOVE, ROUTED AS TIGHT TO THE STRUCTURE AS POSSIBLE. EXTEND CONDUIT AND WIRING AS NECESSARY FOR THIS INSTALLATION.
3	EXISTING PAGING SPEAKER TO BE RELOCATED. SEE THE PARTIAL FIRST FLOOR POWER & AUXILIARY SYSTEMS PLAN FOR LOCATION OF RELOCATED SPEAKER.
4	EXISTING WALL MOUNTED CLOCK TO BE REMOVED AND TURNED OVER TO THE OWNER.
5	EXISTING PULLMOLD WITH 5 SIMPLEX RECEPTACLES TO BE REMOVED.
6	EXISTING GLASS SCHEDULING BELL TO BE RELOCATED. SEE THE PARTIAL FIRST FLOOR POWER & AUXILIARY SYSTEMS PLAN FOR NEW LOCATION OF RELOCATED DEVICE.
7	EXISTING PULLBOX IN WHICH CONDUITS INDICATED IN PLAN NOTE NUMBER TWO ARE ROUTED TO. PULLBOX SHALL BE RAISED AND RELOCATED TO A LOCATION IN THE STRUCTURAL JOIST SPACE. EXTEND CONDUITS AND WIRING AS INDICATED IN PLAN NOTE NUMBER TWO AS NECESSARY.
8	EXISTING SWITCH TO BE REMOVED. REMOVE ALL ASSOCIATED WIRING AND INSTALL A BLANK STAINLESS STEEL FACEPLATE.
9	EXISTING HAND DRYER TO BE REMOVED. REMOVE ASSOCIATED CONCEALED CONDUIT AND ALL WIRING BACK TO PANELBOARD.
10	EXISTING OCCUPANCY SENSOR AND WIRING TO BE REMOVED.



**PARTIAL FIRST FLOOR LIGHTING PLAN**  
 SCALE: 1/8" = 1'-0"

PARTIAL FIRST FLOOR LIGHTING PLAN NOTES	
KEY NOTE	DESCRIPTION
1	CONNECT EMERGENCY FIXTURE TO THE UNSWITCHED HOT CONDUCTOR OF THE CIRCUIT INDICATED.
2	CONNECT LIGHTING CIRCUIT TO THE EXISTING LIGHTING CIRCUIT THAT SERVED LIGHTING IN THIS AREA.
3	CONNECT OCCUPANCY SENSORS IN PARALLEL IF INDICATED CIRCUITED TOGETHER SO THAT WHEN ONE OCCUPANCY SENSOR IS ACTIVATED, THE OTHER OCCUPANCY SENSOR IS ALSO ACTIVATED AND THE LIGHTS WITHIN THAT AREA ARE TURNED ON/STAY ON.
4	ALL NEW OR EXISTING CONDUIT BEING ROUTED IN THE 'OPEN TO STRUCTURE' AREAS OF CONSTRUCTION SHALL BE ROUTED TIGHT TO STRUCTURE AND PAINTED TO MATCH THE STRUCTURE COLOR.
5	MOUNT OCCUPANCY SENSOR SO THE BOTTOM OF THE OCCUPANCY SENSOR IS EVEN WITH THE BOTTOM OF THE LOWEST STRUCTURAL MEMBER IN THE AREA. IF NECESSARY, PENDANT MOUNT SENSOR FROM AND PAINT MOUNT STEM AND BOX TO MATCH STRUCTURE COLOR.
6	LIGHT FIXTURE SHALL BE MOUNTED CENTERED IN THE STRUCTURAL JOIST SPACE AND SO THE BOTTOM OF THE FIXTURE IS EVEN WITH THE BOTTOM OF THE STRUCTURE. TYPICAL OF ALL TYPE 'C' FIXTURES.



**PARTIAL FIRST FLOOR POWER & AUXILIARY SYSTEMS PLAN**  
 SCALE: 1/8" = 1'-0"

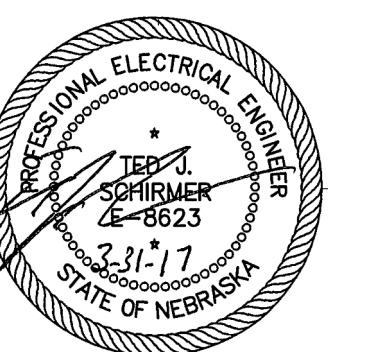
PARTIAL FIRST FLOOR POWER & AUXILIARY SYSTEMS PLAN NOTES	
KEY NOTE	DESCRIPTION
1	ROUTE CIRCUIT TO A NEW 1P20 AMP CIRCUIT BREAKER IN THE EXISTING PANELBOARD '7'. NEW CIRCUIT BREAKER SHALL NOT VOID THE UL LISTING OR FAULT CURRENT RATING OF THE EXISTING PANELBOARD.
2	FIRE ALARM HORN TO MATCH EXISTING AND BE COMPATIBLE WITH THE EXISTING FIRE ALARM SYSTEM.
3	NEW EXHAUST FANS WILL REPLACE THE EXISTING THREE EXHAUST FANS ON THE ROOF.
4	EXISTING PAGING SPEAKER TO BE RELOCATED TO THE LOCATION INDICATED. SPEAKER SHALL BE MOUNTED SO CENTER OF SPEAKER IS 8'-0" AFF. EXTEND CABLING TO SPEAKER AS NECESSARY.
5	EXISTING 208Y120V, 3 PHASE, 4 WIRE, 400 AMP PANELBOARD '7'. PROVIDE EXISTING PANELBOARD WITH A NEW TYPE WRITTEN CIRCUIT DIRECTORY THAT REFLECTS THE NEW CIRCUITS BEING ADDED TO THIS PANEL.
6	EXISTING GLASS SCHEDULING BELL TO BE RELOCATED TO THE LOCATION INDICATED. EXTEND CONDUIT AND WIRING AS NECESSARY.
7	EXISTING 208Y120V, 3 PHASE, 4 WIRE, PANELBOARD 'STAGE'. PROVIDE EXISTING PANELBOARD WITH A NEW TYPE WRITTEN CIRCUIT DIRECTORY THAT REFLECTS THE NEW CIRCUITS BEING ADDED TO THIS PANEL.
8	ROUTE CIRCUIT TO A NEW 1P15 AMP CIRCUIT BREAKER IN THE EXISTING PANELBOARD 'STAGE'. NEW CIRCUIT BREAKER SHALL NOT VOID THE UL LISTING OR FAULT CURRENT RATING OF THE EXISTING PANELBOARD. CONTRACTOR MAY UTILIZE THE EXISTING CONDUITS THAT FED THE EXISTING EXHAUST FANS IF THE CONDUIT DOES NOT HAVE TO BE RELOCATED TIGHT TO STRUCTURE. AS NOTED ON THE ELECTRICAL DEMOLITION PLAN. ALL NEW WIRING SHALL BE INSTALLED BACK TO THE PANELBOARD.
9	EACH EXHAUST FAN SHALL BE CONNECTED TO AN AUXILIARY RELAY PROVIDED WITH THE OCCUPANCY SENSOR USED TO CONTROL THE LIGHTS IN THOSE AREAS SO THAT THE FANS ONLY RUN WHEN OCCUPANCY IS DETECTED AND THE LIGHTS ARE ON. THE CENTER EXHAUST FAN SHALL BE CONNECTED TO THE OCCUPANCY SENSORS IN BOTH THE TOILET 172 AND TOILET 171 AREAS. CONTRACTOR SHALL PROVIDE ALL NECESSARY LOW VOLTAGE WIRING TO THE EXHAUST FANS FOR A COMPLETE INSTALLATION. COORDINATE CONNECTION DETAILS WITH THE MECHANICAL CONTRACTOR.

**SHEET HISTORY:**  
 ISSUED 03/31/2017 CONSTRUCTION DOCUMENTS

**East Butler Public Schools**  
 Brainard, NE

TCEP No.: 115-001-17

March 31, 2017



Partial First Floor  
 Electrical Plans

**E1.11**

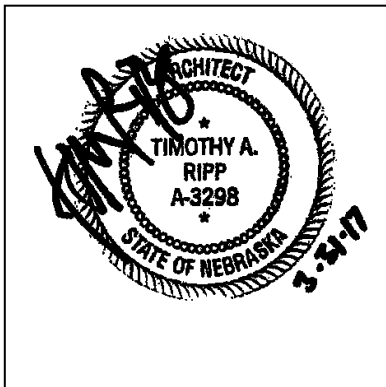


## PROJECT MANUAL

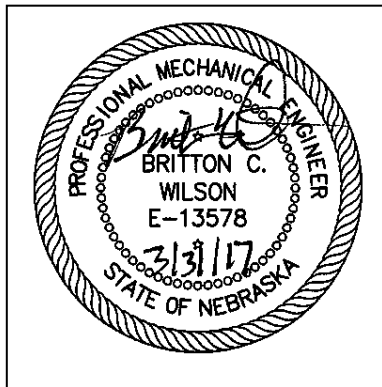
East Butler Public Schools  
Locker Room Renovation  
Brainard, Nebraska

March 31, 2017

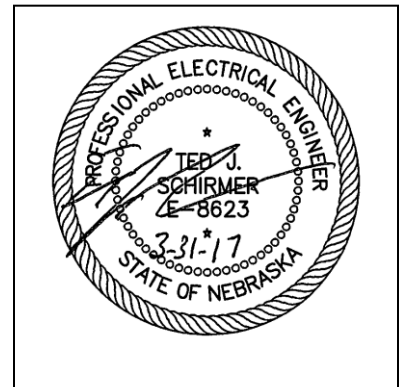
TCEP Project No.: 115-001-17



Architect  
(Coordinating Professional)



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Electrical Engineer

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TCEP No.: 115-001-17

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- Exhibit 1 – Instructions to Bidders
- Exhibit 6 – Job Site Security Requirements, Contractor/Subcontractor/Supplier Criminal Records Certification, Criminal Records Directive, Certified Worker List
- AIA Document A107
- 00 42 00 Bid Form

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- 01 21 00 Allowances
- 01 25 00 Substitution Procedures
- 01 26 00 Contract Modification Procedures
- 01 29 00 Payment Procedures
- 01 31 00 Project Management and Coordination
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- 26 00 00 Electrical Work

END OF SECTION 00 00 03

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## DOCUMENT 00 11 13 - ADVERTISEMENT FOR BIDS

### 1.1 PROJECT INFORMATION

- A. Notice to Bidders: Qualified bidders may submit bids for project as described in this Document. Submit bids according to the Instructions to Bidders.
- B. Project Identification: East Butler Public Schools – Locker Room Renovation.
  - 1. Project Location: 212 South Madison Street, Brainard, NE 68626.
- C. Owner: Butler County School District 12-0502.
  - 1. Owner's Representative: Sam Stecher, East Butler Public Schools, 212 South Madison Street, Brainard, NE 68626. 402-545-2081.
- D. Architect: The Clark Enersen Partners. 1010 Lincoln Mall, Suite 200, Lincoln, NE 68508.
- E. Project Description: The Work of the Project involves all construction indicated on the drawings and specifications, included but not limited to the following: Construction of walls, floors, mechanical systems, electrical systems, interior finishes and associated work for the renovation of East Butler High School building.

### 1.2 BID SUBMITTAL AND OPENING

- A. Owner will receive sealed lump bids until the bid time and date at the location given below. Owner will consider bids prepared in compliance with the Instructions to Bidders issued by Owner, and delivered as follows:
  - 1. Bid Date: April 27, 2017.
  - 2. Bid Time: 2:00 p.m., local time. Any bids received after the closing time will be returned unopened.
  - 3. Location: Butler County School District Offices, 212 South Madison St., Brainard, NE 68626.
- B. Bids will be thereafter publicly opened and read aloud.

### 1.3 BID SECURITY

- A. Bid security in the form of either surety bond or certified check payable to the Owner shall be submitted with each bid in the amount of 5 percent of the bid amount. No bids may be withdrawn for a period of 30 days after opening of bids. Owner reserves the right to reject any and all bids and to waive informalities and irregularities.



TCEP No.: 115-001-17

#### 1.4 PREBID MEETING

- A. Prebid Meeting: A Prebid meeting for all bidders will be held at East Butler Public Schools building on April 11, 2017 at 4:00 p.m., local time. Prospective bidders are invited to attend.
1. Bidders' Questions: Architect will provide responses to bidders' questions at Pre-Bid Conference by Addendum.

#### 1.5 DOCUMENTS

- A. PDF Documents: Register and obtain by emailing [planroom@clarkenersen.com](mailto:planroom@clarkenersen.com). Only complete sets of documents will be issued.

1. **Printed plan sets are available for purchase at the bidder's expense. For information on obtaining printed sets contact the Clark Enersen Partners at 402-477-9291 or email: [planroom@clarkenersen.com](mailto:planroom@clarkenersen.com).**

- B. Viewing Procurement and Contracting Documents: Examine at the locations below:

1. Lincoln Builder's Bureau, 5910 South 58<sup>th</sup> Street, Lincoln, NE 68516.
2. F.W. Dodge Corporation, 2507 Ingersoll Avenue, Des Moines, IA 50312.
3. Omaha Builder's Exchange, 4255 South 94<sup>th</sup>, Omaha, NE 68127.
4. Grand Island Plan Service, 309 West 2<sup>nd</sup> Street, Grand Island, NE 68801.
5. Kearney Builder's Bureau, 1007 2<sup>nd</sup> Avenue, Kearney, NE 68847.
6. Hastings Builder's Bureau, 301 South Burlington Avenue, Hastings, NE 68901.
7. Central Nebraska Plan Service, 4006 West Redwood Road, North Platte, NE 69103.
8. Sioux City Construction League, 3900 Stadium Drive, Sioux City, IA 51106.
9. Reed Construction Data, 30 Technology Parkway South, Suite 100, Norcross, GA 30092.

- C. Plan Room Website

1. [www.clarkenersen.com/plan-room](http://www.clarkenersen.com/plan-room). Click on project title to view/download the following:
  - a. Plan Holders List
  - b. Addenda
    - 1) Registered plan holders will still automatically receive Addenda via email.

#### 1.6 TIME OF COMPLETION

- A. Successful bidder shall begin the Work on receipt of the Notice to Proceed and shall complete the Work within the Contract Time.

TCEP No.: 115-001-17

**1.7 BIDDER'S QUALIFICATIONS**

- A. Bidders must be properly licensed under the laws governing their respective trades and be able to obtain insurance and bonds required for the Work. A Performance Bond, separate Labor and Material Payment Bond, and Insurance in a form acceptable to Owner will be required of the successful Bidder.

END OF DOCUMENT 00 11 13

**Exhibit 1**

**Project Manual –Instructions to Bidders**

**Exhibit "1"**

**Project Manual – Instructions to Bidders**

**BUTLER COUNTY SCHOOL DISTRICT 12-0502, A/K/A EAST BUTLER PUBLIC SCHOOLS -  
CONSTRUCTION OF RENOVATIONS TO THE LOCKER ROOMS OF THE EAST BUTLER HIGH  
SCHOOL BUILDING, 212 SOUTH MADISON STREET, BRAINARD, NEBRASKA**

**INSTRUCTIONS TO BIDDERS**

Preamble: The East Butler Public Schools' mission is to provide all children with educational opportunity in a safe learning environment. As part of the construction project for which bids are being requested, the Board of Education requires all bidders to comply with the following provisions.

A. Equal Opportunity: East Butler Public Schools is an equal opportunity employer and actively recruits a well-qualified and diverse staff including minority applicants, and does not discriminate against any employee or applicant for employment, and/or any contractor or subcontractor by reason of race, color, national origin, religion, marital status, sex, age, disability or sexual orientation. Bidder agrees, by signing this proposal, to actively continue and implement this policy throughout any awarded project or contract.

B. Exclusion of Persons with Disqualifying Criminal History: East Butler Public Schools requires that the contractor will not assign any "covered employee" with a "disqualifying criminal history", as that term is defined in paragraph 19.6 of the AIA A107, General Conditions of Contract for Construction, to work on the Project. Bidder agrees, by signing this proposal, to cooperate in obtaining any additional authorization or consent necessary to assure compliance with this requirement; to actively continue and implement this policy throughout any awarded project or contract period and to require implementation of this policy by any subcontractors and/or agents involved by the Bidder in the performance of any awarded project or contract.

C. Verification of Immigration Status: The federal immigration verification system will be utilized to determine the work eligibility status of new employees physically performing services on the Project within the State of Nebraska.

**Bidding Requirements**

**1. Definitions**

A. Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Invitation to Bid, Instructions to Bidders, the Bid Form, the Project Manual, and other sample Bidding and contract forms. The proposed Contract Documents consist of the Form of Agreement between the Owner, Project

Architect and Subcontractor, Conditions of the Contract (General, Supplementary and Other Conditions), Drawings, Specifications, and all Addenda issued prior to execution of the Contract.

B. Definitions set forth in the General Conditions of Contract for Construction – Project Architect at Risk Construction Delivery Method, or in other Contract Documents, are applicable to the Bidding Documents.

C. Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract, which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

D. A Bid is a complete and properly signed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents. A bid bond payable to East Butler Public Schools, for 5% of the bid amount, is required.

E. The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or deleted for sums stated in Alternate Bids and Unit Prices. The total bid includes the base bid, cost for performance and payment bonds and discovery allowance, if applicable.

F. An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents and the Specifications, is accepted.

G. A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment or labor as described in the Bidding Documents.

H. A Bidder is a person or entity that submits a Bid.

I. A Sub-Bidder is a person or entity that submits a Bid to a Bidder for materials or labor for a portion of the Work.

## 2. Bidder's Representations

A. Each Bidder by making his Bid represents that:

1. The Bidder has read and understands the Bidding Documents and his Bid is made in accordance therewith.

2. The Bidder has visited the site, has familiarized himself with the local conditions under which the Work is to be performed, and has correlated his observation with the requirements of the proposed Contract Documents.

3. The Bid is based upon the materials, systems, and equipment required by the Bidding Documents without exception.

4. The Bidder will not later request and will not later expect to receive additional payment for work related to conditions which can be determined by examination of the site and the Bidding Documents.

### 3. Bidding Documents

A. Bidding Documents will be distributed by the Project Architect, The Clark Enersen Partners. Bidding Documents in PDF format may be obtained by contacting The Clark Enersen Partners at 402-477-9291 or by emailing [planroom@clarkenersen.com](mailto:planroom@clarkenersen.com). Only complete sets of documents will be issued. Printed plan sets are available for purchase at the Contractor's expense by contacting The Clark Enersen Partners 402-477-9291.

B. Bidders shall use complete sets of Bidding Documents in preparing Bids. The Owner, the Project Architect, or the Architect do not assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

C. The Owner or the Architect in making copies of the Bidding Documents available on the above terms do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant for any other use.

D. Plans, specifications, and addenda will also be on file for the use of Subcontractors and material suppliers as shown on the Invitation to Bid.

### 4. Interpretations and Substitutions

A. Bidders and Sub-Bidders shall promptly notify the Project Architect of any ambiguity, inconsistency, or error, which they may discover upon examination of the Bidding Documents or of the site and local conditions.

B. Bidders and Sub-Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which must reach the Project Architect at least four (4) business days prior to the date for receipt of Bids. All questions are to be directed to Mr. Tim Ripp, Architect, AIA, at The Clark Enersen Partners at 402-477-9291 or by emailing [tim.ripp@clarkenersen.com](mailto:tim.ripp@clarkenersen.com).

C. Reference in the specifications to any product, material, type, or form of construction shall establish a minimum standard of quality and shall not be construed as limiting competition. Reference to standard specifications for basic materials shall not be modified for any substitutions proposed. Proposed substitutions shall be submitted by the Bidder to the Architect in writing no later than four (4) business days prior to Bid Date. A copy of the substitution request must also be given to Mr. Tim Ripp, Architect, AIA, at The Clark

Enersen Partners. The submittal shall clearly describe the substitution for which approval is requested, including all data necessary to demonstrate acceptability. A statement setting forth the changes in other materials, equipment, or other portions of Work, including changes in the work of other contracts that incorporation of the proposed substitution would require shall be included in the submittal. The burden of proof of the merit of the proposed substitution is on the Bidder. Substituted equipment, material, product, etc. shall be rejected, if upon the review of the shop drawings, they are found to be in non-compliance with the specifications of the work. When a substituted equipment, material, product, etc. requires a change in the assembly, connection, hookup, etc. of another trade, the Bidder shall be responsible for the entire cost of all other changes required to make the substituted equipment, material, product, etc. a complete and operable system. All acceptable substitutions will be approved in Addenda prior to Bid Date. Bidders shall not rely upon approval made in any other manner. Requests for substitutions other than as qualified above will not be considered.

D. No substitutions will be allowed subsequent to the Contract Award unless specifically provided for in the Contract Documents.

E. All interpretations, corrections, or changes of the Bidding Documents will be made by Addendum. Interpretations, corrections, or changes made in any other manner will not be binding and Bidders shall not rely upon them.

## 5. Addenda

A. Notification of Addenda will be made to all that are known to have received a complete set of Bidding Documents. Addenda may be obtained from the office of the Project Architect.

B. No Addenda will be issued later than two (2) business days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

C. Each Bidder shall ascertain, prior to submitting his Bid, that he has received all Addenda issued and shall acknowledge their receipt on the Bid Form.

D. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

## 6. Form and Style of Bids

A. Bids shall be submitted on the Bid Form provided without modification, alteration, or reservation and with each space properly filled in by typewriter or manually in ink. Bids not in this form will be subject to rejection.

B. Bids may be hand delivered in an opaque, sealed envelope as follows:

East Butler Public Schools, 212 South Madison Street, Brainard, Nebraska 68626-0036  
Attention: Office of the Superintendent of Schools

Bids may also be sent by mail and shall be enclosed in a separate envelope addressed as stated above with the notation "Sealed Bid Enclosed" on the face thereof. Bids sent by mail must be received by the Business Office no later than bid time. Bids received after the set bid time will not be opened.

C. Bid shall state the total lump sum price to do all Work described in the Bid Documents under a single contract. The total bid shall include the base bid, the cost for the performance and payment bonds and the discovery allowance, if applicable. Dollar amounts shall be stated in both words and figures, and in case of discrepancy between the two, the amount written in words shall govern.

D. Bidder shall bid all Alternate and Unit Prices requested on the Bid Form. The Bid for Alternate and Unit Prices described in the Bidding Documents shall include all overhead, profit, and the cost of all changes required from Base Bid conditions in order to incorporate such Work described.

E. Oral, total telegraphic or telephonic Bids are invalid and will not receive consideration.

F. Each Bid shall be executed and signed (with name and title typed below the signature) by and in the name of the Bidder.

1. If signed by an Attorney-In-Fact, there shall be attached to the Bid a Power of Attorney evidencing authority to sign the Bid, dated and executed by all partners of the firm.

2. Bids from a corporation shall have the correct corporate name thereon and the signature of an authorized officer of the corporation manually written below corporate name followed by words "By \_\_\_\_\_," Title of office held by the person signing for the corporation shall appear below the signature of the officer.

3. Bids from an individual doing business under a firm name shall be signed in the name of the individual doing business under the proper firm name.

#### 7. Modification or Withdrawal of Bid

A. Bids may not be withdrawn, modified, or canceled for a period of forty-five (45) calendar days following time and date finally designated for the receipt of Bids.

B. Prior to the time and date finally designated for receipt of Bids, any Bid submitted may be modified or withdrawn by notice to the Party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature and shall be in accordance with the following provisions.

1. Any such written request must be contained in a sealed envelope, which is plainly marked "Modification of Bid on (project title and bid date)."

2. Telegraphic or telefax modifications must be received prior to the Bid opening time.

3. Telegraphic or telefax modifications must be followed by a written notice from the Bidder, mailed and postmarked prior to Bid opening time, confirming the contents of such telegraphic or telefax modifications.

#### 8. Consideration of Bids and Contract Award

A. Bids will not be accepted after the actual time and date established for receipt of Bids. Bidders shall assume full responsibility for timely delivery at the location designated for receipt of Bids. Bids will be publicly opened and read aloud.

B. Owner shall have the right to reject any or all Bids and further to waive all informalities in bidding when deemed in the Owner's best interest.

C. In awarding the contract, the Owner may take into consideration the Bidder's skill, facilities, capacity, experience, responsibility, previous work record and financial standing and the necessity of prompt and efficient completion of work herein described. Inability of any Bidder to meet the requirements mentioned above may be cause for rejection of the Bid.

D. Bids shall not be withdrawn for a period of forty-five (45) calendar days immediately following the actual date of Bid opening and the Project Architect shall give written notice of the award to the successful Bidder.

E. Bidder to whom award of Contract is made shall execute an Agreement with the Owner and Project Architect within seven (7) days after written notice of Contract Award.

F. The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided for in the Bidding Documents.

G. It is the intent of the Owner to award a contract to the lowest responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive informalities or irregularities in a Bid received and to accept the Bid, which in the Owner's judgment is in the Owner's own best interest.

H. The Project Architect, together with the Architect, may interview the apparent low Bidders before contracts are awarded. The interview will enable the Project Architect or Architect to ask the Bidder questions about materials, labor, duration, scope of work, the Contract Documents, or the Bidder's AIA 305.

I. In submitting a Bid, Bidder hereby acknowledges that Contracts shall be awarded to the lowest responsible Bidders for all necessary work to complete the Project provided; however, Owner reserves the right to reject any and all Bids.

## 9. Post Bid Information

A. The Project Architect will prepare and forward three (3) original drafts of the Contractor Agreement to the successful Bidder. Bidder shall return properly executed drafts of these Documents, together with required evidence of insurance and Performance and Payment Bonds to the Project Architect within seven (7) calendar days.

B. If the successful Bidder is doing business in the State of Nebraska under a fictitious name, he shall furnish at no cost to the Owner, if requested, a properly certified copy of his current Certificate of Registration of Fictitious Name from the State of Nebraska, and such certificate shall remain on file with the Owner. No contract will be executed by the Owner until the Bidder furnishes such certificate unless there already is on file with the Owner such a current certificate during the period of time for which such current certificate remains in effect.

C. Any successful Bidder, which is a corporation organized in a state other than Nebraska shall furnish, at its cost, to the Owner a properly certified copy of its current Certificate of Authority and License to do business in the State of Nebraska. No contract will be executed by the Owner until the Bidder furnishes such certificate unless there already is on file with the Owner such a current certificate, in which event no additional certificate is required.

D. Any successful Bidder which is a corporation organized in the State of Nebraska shall furnish at its own cost to the Owner, if requested, a Certificate of Good Standing issued by the Secretary of State; such certificate to remain on file with the Owner.

## 10. Submittals

A. The Bidder shall, within seven (7) calendar days of notification of selection for the award of a Contract for the Work, submit the following information to the Project Architect:

1. A designation of the Work to be performed by the Bidder with his own forces.

2. The proprietary names and suppliers of principal items or systems of materials and equipment proposed for the Work.

3. A list of names of the Subcontractors or other persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

B. The Bidder will be required to establish to the satisfaction of the Architect, Project Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

C. Prior to the award of the Contract, the Project Architect will notify the Bidder in writing if either the Owner, Project Architect or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner, Project Architect or Architect has reasonable objections to a proposed person or entity, the Bidder may, at the Bidder's option:

1. Withdraw the Bid; or

2. Submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover the difference in cost occasioned by such substitution.

3. The Owner may accept the adjusted Bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, Bid security will not be forfeited.

D. Persons and entities proposed by the Bidder and to whom the Owner, Project Architect and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

## 11. Bond Requirements

A. The Bidder shall furnish the following surety bonds:

1. Performance Bond – To cover the faithful performance of the Contract.

2. Labor and Material Payment Bond – To insure payment of all obligations arising under the Contract.

B. The cost for furnishing such bonds shall be included in each Bid.

C. Bonds shall be written by a surety acceptable to the Owner and Project Architect.

D. The Bidder shall deliver the required bonds to the Project Architect no later than the date of execution of the contract. If the Work is to be commenced prior thereto in

response to a letter of intent, the Bidder shall, prior to commencement of the work, submit evidence satisfactory to the Project Architect that such bonds will be furnished and delivered in accordance with this Subparagraph D.

E. Unless otherwise provided, the bonds shall be written on AIA Documents A311, Performance Bond and Payment Bond, as amended and modified. Bonds shall be written in the full amount of the Contract Sum and list the Owner and Project Architect as dual obligees.

F. The bonds shall be dated on or after the date of Contract.

G. The Bidder shall require the Attorney-In-Fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the Power of Attorney.

## 12. Form of Agreement between Owner and Time of Contract Completion

A. The Agreement for the Work will be written on the form of agreement included in the Bidding Documents.

B. Contract Completion shall be pursuant to the Milestone Schedule provided by the Project Architect.

C. Each successful Bidder shall coordinate its Work with the work of other Contractors through the Project Architect. Each successful Bidder shall schedule their work in compliance with the construction Milestone Schedule and perform their Work within the specified construction time envelope.

**Exhibit 6**

**Job Site Security Requirements  
Criminal Records Directive  
Criminal Record Disclosure  
Criminal Record Certification  
Certified Worker List**

**Exhibit "6"**

**Job Site Security Requirements**

**BUTLER COUNTY SCHOOL DISTRICT 12-0502, A/K/A EAST BUTLER PUBLIC SCHOOLS  
East Butler High School, - Locker Room Renovation  
212 South Madison Street, Brainard, Nebraska**

**Project Identification: East Butler Public Schools – Locker Room Renovation.**

**Project Location: 212 South Madison Street, Brainard, NE 68626.**

**Project Description: The Work of the Project involves all construction indicated on the drawings and specifications, included but not limited to the following: Construction of walls, floors, mechanical systems, electrical systems, interior finishes and associated work for the renovation of East Butler High School building. (Hereinafter referred to as "the Project").**

**JOB SITE SECURITY REQUIREMENTS**

The East Butler Public Schools – AIA A107, Standard for of Agreement between Owner and Contractor for Project of Limited Scope provides as follows:

**§ 19.6 CRIMINAL HISTORY CHECKS**

§ 19.6.1 Contractor shall obtain all criminal history information regarding its "covered employees", as defined below. Before beginning any Work on the Project, Contractor, and all subcontractors and suppliers, will provide written certification to the Owner that Contractor has complied with the statutory requirements as of that date. Upon request by Owner, Contractor will provide, in writing, updated certifications and the names and any other requested information regarding covered employees, so that the Owner may obtain criminal history record information on the covered employees. Contractor shall assume all expenses associated with obtaining the initial criminal history record information and the Owner shall be responsible for expenses associated with any subsequent request. Contractor shall include similar criminal history check provisions in all contracts with subcontractors and suppliers.

§ 19.6.2 Contractor will not assign any "covered employee" with a "disqualifying criminal history", as those terms are defined below, to work on the Project. If Contractor receives information that a covered employee has a reported disqualifying criminal history, then Contractor will immediately remove the covered employee from the Project and notify the Owner in writing within three (3) business days. If the Owner objects to the assignment of any covered employee on the basis of the covered employee's criminal history record information, then Contractor agrees to discontinue using that covered employee to provide services on Owner's Project.

§ 19.6.3 For the purposes of this Section, "covered employees" means employees, agents or subcontractors of Contractor who has or will have continuing duties related to the services to be performed on Owner's Project and has or will have direct contact with Owner's students. The Owner will decide what constitutes direct contact with Owner's students. "Disqualifying criminal history" means any conviction or other criminal history of the following offenses: a felony offense under Nebraska Criminal Code Article 3 Offenses Against The Person; an offense for which a defendant is required to register as a sex offender under the Nebraska Sex Offender Registration Act, Neb. Rev. Stat. §§ 29-4001 et seq.

§ 19.6.4 The Contractor shall establish a school building construction site security protocol which shall include providing all employees of the contractors, employees of sub-contractors to the contractors, and other project related personnel with a "Project" badge or sticker created by the Contractor; each badge or sticker shall have a unique identifier number. This unique identifier number must be logged by the Contractor's Site Superintendent or

Project Manager so as to associate each individual's name and company with the number on the badge. A copy of the log shall be kept at all times in the office of the Contractor's Site Superintendent and must be submitted to the East Butler Public Schools Superintendent's office at the end of each week. If wearing the Contractor-provided "Project" badge is not desirable and will interfere with the work being performed by that individual, the Contractor shall provide a sticker with the necessary information for identification for affected personnel, which shall include the unique number on the identification. This sticker may be affixed to the individual worker's hard hats. All means of identification other than what is provided by the Contractor must be approved by the Contractor's on-site Superintendent or Project Manager prior to implementation by the contractor. Identification must be visible at all times. Personnel failing to comply with the job-site security requirements may be required by the Contractor or East Butler Public Schools' personnel to leave the job-site.

#### Job-Site Security Protocol:

1. Prior to performing any work or entering on the Project site, all contractors and subcontractors, and suppliers and materialmen shall sign a "Contractor/Supplier Criminal Records Certification," a copy of which is attached hereto, certifying that such contractor shall not assign to work on the East Butler Public Schools building project an employee having a criminal record as defined by the School District/Owner's policy, regulations, practices or directives, including but not limited to any of the following: (a) a felony; (b) rape, including statutory rape, or any other sexual assault; (c) sexual conduct with a minor of any kind; (d) abuse of a minor or child of any kind; (e) endangerment of a child or debauching a minor; (f) public indecency; (g) prostitution, pandering, or keeping a place of prostitution; (h) assault or battery; (i) kidnapping, false imprisonment or abduction; (j) child pornography; or (k) any offense in which a minor was a victim or a witness. Such certification shall remain on file at all times during the contractor's presence on the site.

2. The Contractor shall establish a school building construction site security protocol which shall include providing all employees of the contractors, employees of sub-contractors to the contractors, and other project related personnel with a "Project" badge or sticker created by the Contractor; each badge or sticker shall have a unique identifier number. This unique identifier number must be logged by the Contractor's Site Superintendent or Owner's Representative so as to associate each individual's name and company with the number on the badge. A copy of the log shall be kept at all times in the office of the Contractor's Site Superintendent and must be submitted to the East Butler Public Schools Superintendent's Office at the end of each week. If wearing the Contractor-provided "Project" badge is not desirable and will interfere with the work being performed by that individual, the Contractor shall provide a sticker with the necessary information for identification for affected personnel, which shall include the unique number on the identification. This sticker may be affixed to the individual worker's hard hats. All means of identification other than what is provided by the Contractor must be approved by the Contractor's on-site Superintendent or Owner's Representative prior to implementation by the contractor. Identification must be visible at all times. Personnel failing to comply with the job-site security requirements may be required by the Contractor or East Butler Public Schools' personnel to leave the job-site.

3. A copy of the list of properly certified works and other personnel authorized to be on the work site shall be provided by each contractor to the Owner's Representative for the Project and kept in the on-site offices.

## East Butler Public Schools

### Contractor/Subcontractor/Supplier Criminal Records Certification

Our firm hereby certifies and agrees not to knowingly assign or knowingly allow any individual or agent to do any work at the East Butler Public Schools on the project for the East Butler High School, - Locker Room Renovation, 212 South Madison Street, Brainard, Nebraska, or other locations under the Contract entered into between our firm and the East Butler Public Schools who has a criminal record of a serious nature as defined by East Butler Public Schools policy, regulations, practices or directives, and as expressed in the "East Butler Public Schools – Criminal Records Directive". A list of individual workers complying with this Directive is attached.

Our firm authorizes, gives consent, and agrees to periodically certify same to East Butler Public Schools. Our firm further authorizes, gives consent, and agrees to cooperate in obtaining any additional authorization or consent necessary, to assure compliance with this requirement, and to immediately reassign and remove any individual or agent from the work site who the firm learns is not in full compliance with the requirements of this Certification.

Dated this \_\_\_\_ day of \_\_\_\_\_, 2017.

\_\_\_\_\_  
Name of Contract Vendor

By:

\_\_\_\_\_  
An Authorized Official

# East Butler Public Schools

## Criminal Records Directive

(a) Definitions

1. "Crimes of a Serious Nature."

a. Convictions for certain crimes, no matter when committed, will constitute "crimes of a serious nature." These crimes include convictions for the following: (i) a felony involving murder, manslaughter, personal injury to another, assault, battery, other use of a weapon of any kind or manner; (ii) a felony involving rape, including statutory rape, or any other sexual assault; (iii) a felony or misdemeanor involving sexual conduct with a minor of any kind; (iv) a felony or misdemeanor involving abuse of a minor or child of any kind; (v) a felony or misdemeanor involving endangerment of a child or debauching a minor; (vi) a felony or misdemeanor kidnapping, false imprisonment or abduction; or (vii) a felony or misdemeanor for child pornography.

b. Convictions for the following crimes committed in the 7 years prior to when the employee is to work at the site of an awarded project will constitute "crimes of a serious nature:" (i) a felony involving the theft of money or property of a value of more than \$1,000; (ii) a felony involving prostitution, pandering, or keeping a place of prostitution; (iii) a felony involving public indecency; (iv) a felony for drug possession or sales; and (v) a felony for DUI.

2. "Site of an Awarded Project" shall be defined to include the location of the physical work to be completed on the project where it is expected that minors under the age of 16 will be present on a regular basis during the completion of the contractors' scope of the work. The Site of an Awarded Project shall not include a Contractor's, Subcontractor's, or Supplier's home office.

(b) To help prevent any individuals or agents who have committed crimes of a serious nature from working at the site of an awarded project, the Contractor shall:

1. Require that each of its employees who are to work at the Site of an Awarded Project to complete the "Criminal Record Disclosure" prior to when the employee is to begin work at the Site of an Awarded Project.

Unless the Contractor has actual or constructive knowledge that an employee omitted information or misrepresented information in completing the Criminal Record Disclosure, the Contractor shall not be liable for damages incurred as a direct or indirect result of such omission or misrepresentation.

2. Include this provision in each of its subcontracts and require that each of its Subcontractors' employees complete the Criminal Record Disclosure prior to when the Subcontractor's employee is to begin work at Site of an Awarded Project.

Unless the Contractor or Subcontractor has actual or constructive knowledge that an employee omitted information or misrepresented information in completing the Criminal Record Disclosure, neither the Contractor nor the Subcontractor shall be liable for damages incurred as a direct or indirect result of such omission or misrepresentation.

3. Include this provision in each of its Supplier agreements where supplies are to be delivered to the Site of an Awarded Project by the Supplier and require that each of such Suppliers' employees complete the Criminal Record Disclosure prior to when the Supplier's employee is to deliver the supplies to the Site of an Awarded Project.

Unless the Contractor or Supplier has actual or constructive knowledge that an employee omitted information or misrepresented information in completing the Criminal Record Disclosure, neither the Contractor nor the Supplier shall be liable for damages incurred as a direct or indirect result of such omission or misrepresentation.

4. Upon receipt of the names of the questionnaire for each employee, the Contractor, Subcontractor or Supplier shall conduct a search on the Nebraska State Patrol - Sex-Offender Registry website, <http://www.nsp.state.ne.us/SOR/find.cfm>, to confirm such employee is not listed thereon.
5. In the event that the Project Architect, Contractor, Subcontractor, Supplier or School District determine that an employee has a record of crimes of a serious nature to immediately reassign and remove any individual or agent from the work site who is not in full compliance with the requirements of this paragraph.

# East Butler Public Schools

## Certified Worker List

Firm Name: \_\_\_\_\_ Date: \_\_\_\_\_  
Contractor/Subcontractor/Supplier

Worker Name	Years with Firm	General Job Description
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

# CRIMINAL RECORD DISCLOSURE

PLEASE PRINT

*This disclosure must be updated within 7 days of any NEW charges or convictions.*

Name \_\_\_\_\_  
Last First Middle

Address \_\_\_\_\_  
Street City State Zip Code

Telephone Number (\_\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_ Social Security Number \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_  
Area Code

*I understand the purpose of this document is to disclose to my employer any criminal events in my personal history that may preclude me from working on selected jobsites that contractually prohibit workers with a criminal record of a serious nature. I acknowledge the information provided is true and accurate. It is understood and agreed upon that any misrepresentation by me in this document will be sufficient cause for dismissal.*

1. Have you ever been convicted of a felony? .....  Yes  No  
*A conviction will not necessarily disqualify you from your current employment, but it may limit your ability to participate on specific projects. If yes, please attach a separate sheet detailing the nature of offense and terms of sentencing.*
2. Have you been charged or convicted of any of the following crimes: (include date of any incident)  
Rape, including statutory rape? .....  Yes  No  
Sexual assault? .....  Yes  No  
Sexual conduct of any kind with a minor? .....  Yes  No  
Abuse of any kind of a minor or child? .....  Yes  No  
Endangerment of a child or debauching a minor? .....  Yes  No  
Public indecency? .....  Yes  No  
Prostitution, pandering, or keeping a place of prostitution? .....  Yes  No  
Assault or battery? .....  Yes  No  
Kidnapping, false imprisonment or abduction? .....  Yes  No  
Child pornography? .....  Yes  No  
Any offense in which a minor was a victim? .....  Yes  No

*If you answered yes to any of the above, please attach a separate sheet detailing the charge or conviction, including where the charge or conviction occurred, when the events giving rise to the event occurred, and any other information that you would like us to know about the charge or conviction.*

3. Are you now, or have you ever been, listed as a Registered Sex Offender in any State? .....  Yes  No
4. Are you currently on probation or work release? .....  Yes  No  
*If yes, for what charge and how long a duration? \_\_\_\_\_*
5. On a separate sheet, please identify each city, county, and state in which you have lived for more than three months and the approximate dates in which you lived in each location.

*I hereby attest this information and the information attached to be true and accurate.*

Signature of Employee \_\_\_\_\_ Date \_\_\_\_/\_\_\_\_/\_\_\_\_



**AIA**<sup>®</sup>

# Document A107™ – 2007

## Standard Form of Agreement Between Owner and Contractor for a Project of Limited Scope

**AGREEMENT** made as of the \_\_\_ day of May in the year 2017.  
*(In words, indicate day, month and year.)*

**BETWEEN** the Owner:  
*(Name, legal status, address and other information)*

Butler County School District 12-0502, a/k/a East Butler School District, a political subdivision of the State of Nebraska  
212 South Madison Street  
Box 36  
Brainard, NE 68626-0036  
Phone - (402) 545-2081; Fax - (402) 545-2023  
(Hereinafter referred to as "Owner" or "School District").

and the Contractor:  
*(Name, legal status, address and other information)*

[Insert Name of Contractor]  
(Hereinafter referred to as "Contractor").

for the following Project:  
*(Name, location and detailed description)*

Project Identification: East Butler Public Schools – Locker Room Renovation.  
Project Location: 212 South Madison Street, Brainard, NE 68626.  
Project Description: The Work of the Project involves all construction indicated on the drawings and specifications, included but not limited to the following: Construction of walls, floors, mechanical systems, electrical systems, interior finishes and associated work for the renovation of East Butler High School building.  
(Hereinafter referred to as "the Project").

The Architect/Engineer:  
*(Name, legal status, address and other information)*

The Clark Enersen Partners  
1010 Lincoln Mall  
Suite 200  
Lincoln, NE 68508-2883  
Telephone Number (402) 477-9291  
(Hereinafter referred to as "Architect").

The Owner and Contractor agree as follows.

**ADDITIONS AND DELETIONS:**

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

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### ARTICLE 1 THE WORK OF THIS CONTRACT

The Contractor shall execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

### ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

*(Insert the date of commencement, if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)*

The date of commencement of the Work shall be the first business day after the Contractor receives a written Notice to Proceed issued by the Owner. The notice to proceed shall not be issued by the Owner until the Agreement has

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User Notes:

(827803479)

been signed by the Contractor, approved by the Owner's Board of Education, signed by the Owner's authorized representative, and Owner and Architect have received all required payment and performance bonds and certificates of insurance as required under Article 17.

§ 2.2 The Contract Time shall be measured from the date of commencement.

§ 2.3 The Contractor shall achieve Substantial Completion of the entire Work not later than .  
(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

Portion of Work	Substantial Completion Date
Locker Room Renovation	August 1, 2017

, subject to adjustments of this Contract Time as provided in the Contract Documents.

(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

Not applicable.

### ARTICLE 3 CONTRACT SUM

§ 3.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:

(Check the appropriate box.)

- Stipulated Sum, in accordance with Section 3.2 below
- Cost of the Work plus the Contractor's Fee, in accordance with Section 3.3 below
- Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 3.4 below

(Based on the selection above, complete Section 3.2, 3.3 or 3.4 below.)

§ 3.2 The Stipulated Sum shall be **[INSERT DOLLAR AMOUNT] DOLLARS (\$\_\_\_\_\_ .00)**, subject to additions and deductions as provided in the Contract Documents.

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)None

(Table deleted)

(Paragraphs deleted)

(Table deleted)

(Paragraphs deleted)

§ 3.3 Unit prices, if any:

(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price Per Unit (\$0.00)
None at this time.		

(Paragraphs deleted)

(Table deleted)

(Paragraphs deleted)

(Table deleted)

(Paragraphs deleted)

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## ARTICLE 4 PAYMENTS

### § 4.1 PROGRESS PAYMENTS

§ 4.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 4.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

Not applicable.

§ 4.1.3 Provided that an Application for Payment is received by the Architect not later than the 25th day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the last day of the following month. If an Application for Payment is received by the Architect after the date fixed above, payment shall be made by the Owner not later than THIRTY (30) days after the review and action on Applications for Payment by the Board of Education of the Owner at a regular meeting held pursuant to Neb. Rev. Stat. §79-554, R.R.S. *(Federal, state or local laws may require payment within a certain period of time.)*

Notwithstanding the provisions of § 4.1.3, to allow sufficient time for review and action on Applications for Payment by the Board of Education of the Owner at a regular meeting held pursuant to Neb. Rev. Stat. §79-554, R.R.S., the "receipt by the owner or the owner's representative of a payment request made pursuant to the contract" under Neb. Rev. Stat. §45-1203, R. R. S. shall be deemed to occur at the regular meeting of the Board of Education of the Owner immediately following the receipt of the Application for Payment by the Architect.

§ 4.1.4 **Progress Payments:** The amount of each progress payment for amounts not in dispute for work performed in accordance with the provisions in the applicable contract shall be computed as follows:

§ 4.1.4.1 Progress payments shall be made on the basis of that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage as set forth in paragraph 4.1.4.2 (Completed Work).

§ 4.1.4.2 The retainage amount deducted from each progress payment shall be that portion of the Contract Sum properly allocable to Completed Work in the amount of ten percent (10%) of the Completed Work for the first fifty percent (50%) of the Contract Sum, and in the amount of five percent (5%) of the Completed Work for the last fifty percent (50%) of the Contract Sum.

§ 4.1.5 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

*(Insert rate of interest agreed upon, if any.)*

Pursuant to Neb. Rev. Stat. §45-1205, R. R. S. interest due under this section shall accrue until such amount is paid, beginning on the day following the payment due date at the rate of **one percent per month** or a pro rata fraction thereof on the unpaid balance. Interest is due under this section only after the person charged the interest has been notified of the provisions of this section by the Contractor.

### § 4.2 FINAL PAYMENT

§ 4.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, less the credit amount, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 18.2, and to satisfy other requirements, if any, which extend beyond final payment;
- .2 the contractor has submitted a final accounting for the Cost of the Work, where payment is on the basis of the Cost of the Work with or without a guaranteed maximum price; and
- .3 a final Certificate for Payment has been issued by the Architect.

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§ 4.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

Not applicable.

## ARTICLE 5 DISPUTE RESOLUTION

### § 5.1 BINDING DISPUTE RESOLUTION

For any claim subject to, but not resolved by, mediation pursuant to Section 21.3, the method of binding dispute resolution shall be as follows:

*(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, claims will be resolved in a court of competent jurisdiction.)*

Arbitration pursuant to Section 21.4 of this Agreement

Litigation in a court of competent jurisdiction

Other *(Specify)*

## ARTICLE 6 ENUMERATION OF CONTRACT DOCUMENTS

§ 6.1 The Contract Documents are defined in Article 7 and, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 6.1.1 The Agreement is this executed AIA Document A107–2007, Standard Form of Agreement Between Owner and Contractor for a Project of Limited Scope.

Project Manual - Instructions to Bidders, Exhibit 1.

§ 6.1.2 The Supplementary and other Conditions of the Contract:

*(Table deleted)*

None.

§ 6.1.3 The Specifications:

*(Either list the Specifications here or refer to an exhibit attached to this Agreement.)*

See Exhibit 2.

Section	Title	Date	Pages
Exhibit 2			

§ 6.1.4 The Drawings:

*(Either list the Drawings here or refer to an exhibit attached to this Agreement.)*

See Exhibit 3.

Number	Title	Date
Exhibit 3		

§ 6.1.5 The Addenda, if any: None.

*(Table deleted)*

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are enumerated in this Article 6.

§ 6.1.6 Additional documents, if any, forming part of the Contract Documents:

*(Paragraphs deleted)*

.1 Other documents:

*(List here any additional documents that are intended to form part of the Contract Documents.)*

a. Contractor's Payment and Performance Bond, Exhibit 4

b. Contractor's Certificate of Insurance, Exhibit 5

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## **ARTICLE 7 GENERAL PROVISIONS**

### **§ 7.1 THE CONTRACT DOCUMENTS**

The Contract Documents are enumerated in Article 6 and consist of this Agreement (including, if applicable, Supplementary and other Conditions of the Contract), Drawings, Specifications, Addenda issued prior to the execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

### **§ 7.2 THE CONTRACT**

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between any persons or entities other than the Owner and the Contractor.

### **§ 7.3 THE WORK**

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

### **§ 7.4 INSTRUMENTS OF SERVICE**

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

### **§ 7.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE**

**§ 7.5.1** The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

**§ 7.5.2** The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

### **§ 7.6 TRANSMISSION OF DATA IN DIGITAL FORM**

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmission, unless otherwise provided in the Agreement or in the Contract Documents.

## **ARTICLE 8 OWNER**

### **§ 8.1 INFORMATION AND SERVICES REQUIRED OF THE OWNER**

**§ 8.1.1** The Owner shall furnish all necessary surveys and a legal description of the site.

§ 8.1.2 The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 8.1.3 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 9.6.1, the Owner shall secure and pay for other necessary approvals, easements, assessments and charges required for the construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

#### § 8.2 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents, or repeatedly fails to carry out the Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order is eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

#### § 8.3 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner, without prejudice to any other remedy the Owner may have, may correct such deficiencies and may deduct the reasonable cost thereof, including Owner's expenses and compensation for the Architect's services made necessary thereby, from the payment then or thereafter due the Contractor.

### ARTICLE 9 CONTRACTOR

#### § 9.1 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 9.1.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 9.1.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 8.1.1, shall take field measurements of any existing conditions related to that portion of the Work and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies, or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents.

§ 9.1.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

#### § 9.2 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 9.2.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters.

§ 9.2.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.

### § 9.3 LABOR AND MATERIALS

§ 9.3.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, transportation, and other facilities and services necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 9.3.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

§ 9.3.3 The Contractor may make a substitution only with the consent of the Owner, after evaluation by the Architect and in accordance with a Modification.

### § 9.4 WARRANTY

§ 9.4.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation or normal wear and tear under normal usage.

### § 9.5 TAXES

Owner is an exempt entity under the tax laws of the State of Nebraska. The Owner represents that this Project is eligible for exemption from the State Sales Tax on tangible personal property and material incorporated in the Project, provided that the Contractor fulfills the requirements of Neb. Rev. Stat. § 77-2704.15. For the purpose of establishing exemption, it is understood and agreed that the Contractor may be required to segregate materials and labor costs at the time a Contract is awarded. Contractor will accept Purchase Agent Appointment and Exempt Sales Certificate forms from the Owner. Contractor shall obtain Resale Certificates from Contractor's suppliers. Failure of Contractor or any Sub-Contractor to obtain Resale Certificates from their suppliers shall make the Contractor or Sub-Contractor responsible for absorbing the tax, without compensation from Owner. Contractor shall pay all necessary local, county and state taxes, income tax, compensation tax, social security and withholding payments as required by law. CONTRACTOR HEREBY RELEASES, INDEMNIFIES, AND HOLDS HARMLESS OWNER FROM ANY AND ALL CLAIMS AND DEMANDS MADE AS A RESULT OF THE FAILURE OF CONTRACTOR OR ANY SUBCONTRACTOR TO COMPLY WITH THE PROVISIONS OF ANY OR ALL SUCH LAWS AND REGULATIONS, provided that Owner provides Contractor with a timely submission of required tax exemption documents.

### § 9.6 PERMITS, FEES, NOTICES, AND COMPLIANCE WITH LAWS

§ 9.6.1 Unless otherwise provided in the Contract Documents, the Owner shall secure and pay for the building permit, special development fees and water resource fees for the City of Brainard, Nebraska, and special assessment fees required by the serving utility companies. Unless otherwise provided in the Contract Documents, the Contractor shall pay for all other permits, fees, licenses and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 9.6.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

### § 9.7 ALLOWANCES

The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. The Owner shall select materials and equipment under allowances with reasonable promptness. Allowance amounts shall include the costs to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade

discounts. Allowance amounts shall not include the Contractor's costs for unloading and handling at the site, labor, installation, overhead, and profit.

#### **§ 9.8 CONTRACTOR'S CONSTRUCTION SCHEDULES**

**§ 9.8.1** The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

**§ 9.8.2** The Contractor shall perform the Work in general accordance with the most recent schedule submitted to the Owner and Architect.

#### **§ 9.9 SUBMITTALS**

**§ 9.9.1** The Contractor shall review for compliance with the Contract Documents and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in coordination with the Contractor's construction schedule and in such sequence as to allow the Architect reasonable time for review. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them; (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so; and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. The Work shall be in accordance with approved submittals.

**§ 9.9.2** Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents.

#### **§ 9.10 USE OF SITE**

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

#### **§ 9.11 CUTTING AND PATCHING**

The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

#### **§ 9.12 CLEANING UP**

The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus material from and about the Project.

#### **§ 9.13 ROYALTIES, PATENTS AND COPYRIGHTS**

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

#### **§ 9.14 ACCESS TO WORK**

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

#### **§ 9.15 INDEMNIFICATION**

**§ 9.15.1** To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the

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Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Notwithstanding the foregoing, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants and agents and employees of any of them from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from the Contractor's failure to comply with Section 19.7, Criminal History Checks, and from any bodily injury, sickness, disease or death caused by any non-"covered employee" who performs work on the Project Site. The indemnification obligations in this Section 9.15.1 shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 9.15.1.

**§ 9.15.2** In claims against any person or entity indemnified under this Section 9.15 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 9.15.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

## **ARTICLE 10 ARCHITECT**

**§ 10.1** The Architect will provide administration of the Contract and will be an Owner's representative during construction, until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner, with Owner's consent, unless otherwise modified in writing in accordance with other provisions of the Contract.

**§ 10.2** The Architect will visit the site at intervals appropriate to the stage of the construction to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general, if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

**§ 10.3** On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

**§ 10.4** Based on the Architect's evaluations of the Work and of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

**§ 10.5** The Architect has authority to reject Work that does not conform to the Contract Documents and to require inspection or testing of the Work.

**§ 10.6** The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

**§ 10.7** The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect will make initial decisions on all claims, disputes and other matters in question between the Owner and Contractor but will not be liable for results of any interpretations or decisions rendered in good faith.

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§ 10.8 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 10.9 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

#### **ARTICLE 11 SUBCONTRACTORS**

§ 11.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site.

§ 11.2 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of the Subcontractors or suppliers for each of the principal portions of the Work. The Contractor shall not contract with any Subcontractor or supplier to whom the Owner or Architect has made reasonable written objection within ten days after receipt of the Contractor's list of Subcontractors and suppliers. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 11.3 Contracts between the Contractor and Subcontractors shall (1) require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by the Contract Documents, assumes toward the Owner and Architect, and (2) allow the Subcontractor the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Contract Documents, has against the Owner.

#### **ARTICLE 12 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

§ 12.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under conditions of the contract identical or substantially similar to these, including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such claim as provided in Article 21.

§ 12.2 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's activities with theirs as required by the Contract Documents.

§ 12.3 The Owner shall be reimbursed by the Contractor for costs incurred by the Owner which are payable to a separate contractor because of delays, improperly timed activities or defective construction of the Contractor. The Owner shall be responsible to the Contractor for costs incurred by the Contractor because of delays, improperly timed activities, damage to the Work or defective construction of a separate contractor.

#### **ARTICLE 13 CHANGES IN THE WORK**

§ 13.1 By appropriate Modification, changes in the Work may be accomplished after execution of the Contract. The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, with the Contract Sum and Contract Time being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Owner, Contractor and Architect, or by written Construction Change Directive signed by the Owner and Architect.

§ 13.2 Adjustments in the Contract Sum and Contract Time resulting from a change in the Work shall be determined by mutual agreement of the parties or, in the case of a Construction Change Directive signed only by the Owner and Architect, by the Contractor's cost of labor, material, equipment, and reasonable overhead and profit, unless the parties agree on another method for determining the cost or credit. Pending final determination of the total cost of a Construction Change Directive, the Contractor may request payment for Work completed pursuant to the

Construction Change Directive. The Architect will make an interim determination of the amount of payment due for purposes of certifying the Contractor's monthly Application for Payment. When the Owner and Contractor agree on adjustments to the Contract Sum and Contract Time arising from a Construction Change Directive, the Architect will prepare a Change Order.

§ 13.3 The Architect will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

§ 13.4 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be equitably adjusted as mutually agreed between the Owner and Contractor; provided that the Contractor provides notice to the Owner and Architect promptly and before conditions are disturbed.

#### ARTICLE 14 TIME

§ 14.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 14.2 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 14.3 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 14.4 The date of Substantial Completion is the date certified by the Architect in accordance with Section 15.4.3.

§ 14.5 If the Contractor is delayed at any time in the commencement or progress of the Work by changes ordered in the Work, by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions not reasonably anticipatable, unavoidable casualties or any causes beyond the Contractor's control, or by other causes which the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine, subject to the provisions of Article 21.

#### ARTICLE 15 PAYMENTS AND COMPLETION

##### § 15.1 APPLICATIONS FOR PAYMENT

§ 15.1.1 Where the Contract is based on a Stipulated Sum or the Cost of the Work with a Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values, allocating the entire Contract Sum to the various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used in reviewing the Contractor's Applications for Payment.

§ 15.1.2 With each Application for Payment where the Contract Sum is based upon the Cost of the Work, or the Cost of the Work with a Guaranteed Maximum Price, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner to demonstrate that cash disbursements already made by the Contractor on account of the Cost of the Work equal or exceed (1) progress payments already received by the Contractor, less (2) that portion of those payments attributable to the Contractor's Fee; plus (3) payrolls for the period covered by the present Application for Payment.

§ 15.1.3 Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

§ 15.1.4 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or other encumbrances adverse to the Owner's interests.

## § 15.2 CERTIFICATES FOR PAYMENT

§ 15.2.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 15.2.3.

§ 15.2.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluations of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 15.2.3 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 15.2.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 15.2.1. If the Contractor and the Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 9.2.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a separate contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 15.2.4 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

## § 15.3 PROGRESS PAYMENTS

§ 15.3.1 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to sub-subcontractors in similar manner.

§ 15.3.2 Neither the Owner nor Architect shall have an obligation to pay or see to the payment of money to a Subcontractor except as may otherwise be required by law.

§ 15.3.3 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

#### § 15.4 SUBSTANTIAL COMPLETION

§ 15.4.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 15.4.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 15.4.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. When the Architect determines that the Work or designated portion thereof is substantially complete, the Architect will issue a Certificate of Substantial Completion which shall establish the date of Substantial Completion, establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 15.4.4 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

#### § 15.5 FINAL COMPLETION AND FINAL PAYMENT

§ 15.5.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions stated in Section 15.5.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 15.5.2 Final payment shall not become due until the Contractor has delivered to the Owner a complete release of all liens arising out of this Contract or receipts in full covering all labor, materials and equipment for which a lien could be filed, or a bond satisfactory to the Owner to indemnify the Owner against such lien, an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work have been paid or otherwise satisfied, and consent of surety to final payment. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including costs and reasonable attorneys' fees. Before final payment can be made, Department of Labor Division of Employment Form No. 16, Certificate of Contribution Status, must be received from the State of Nebraska Department of Labor certifying that the Contractor and each of its Subcontractors have paid all contributions and interest due to and including the calendar quarter immediately preceding the date of Substantial Completion.

§ 15.5.3 The making of final payment shall constitute a waiver of claims by the Owner except those arising from

- .1 liens, claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

§ 15.5.4 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

## ARTICLE 16 PROTECTION OF PERSONS AND PROPERTY

### § 16.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons and property and their protection from damage, injury or loss. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, a Subcontractor, a sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 16.1.2 and 16.1.3, except for damage or loss attributable to acts or omissions of the Owner or Architect or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 9.15.

### § 16.2 HAZARDOUS MATERIALS

§ 16.2.1 The Contractor is responsible for compliance with the requirements of the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents, and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shutdown, delay and start-up.

*(Paragraphs deleted)*

§ 16.2.2 The Contractor shall provide written certification that no materials used in the Work contain lead or asbestos materials in them in excess of amounts allowed by federal, state or local standards, laws, codes, rules and regulations; the Federal Environmental Protection Agency (EPA) standards; and/or the Federal Occupational Safety and Health Administration (OSHA) standards, whichever is most restrictive. The Contractor shall provide this written certification as part of submittals under the Section in the Project Manual related to Contract Closeout.

## ARTICLE 17 INSURANCE AND BONDS

§ 17.1 The Contractor shall purchase from, and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, insurance for protection from claims under workers' compensation acts and other employee benefit acts which are applicable, claims for damages because of bodily injury, including death, and claims for damages, other than to the Work itself, to property which may arise out of or result from the Contractor's operations and completed operations under the Contract, whether such operations be by the Contractor or by a Subcontractor or anyone directly or indirectly employed by any of them. This insurance shall be written for not less than limits of liability specified below or required by law, whichever coverage is greater, and shall include contractual liability insurance applicable to the Contractor's obligations under Section 9.15. Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. To the extent commercially available, each policy shall contain a provision that the policy will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. The Contractor shall cause

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the commercial liability coverage required by the Contract Documents to include: (1) the Owner, the Architect and the Architect's Consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

*(Paragraphs deleted)*

**§ 17.2. CONTRACTOR'S LEVEL OF INSURANCE COVERAGE**

**§ 17.2.1 WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY**

Workers' Compensation:	Nebraska Statutory Limit
Employer's Liability:	Annual Limits Per Insured (minimum)
Bodily Injury by Accident:	\$1,000,000
Bodily Injury by Disease - policy limit:	\$1,000,000
Bodily Injury by Disease - each employee:	\$1,000,000

- .1 Each contractor and each subcontractor shall provide a blanket waiver of subrogation.
- .2 Contractor and each Subcontractor issued a separate policy.

**§ 17.2.2 AUTOMOBILE LIABILITY**

Combined single limit of \$1,000,000 per occurrence.

**§ 17.2.3 COMMERCIAL GENERAL LIABILITY**

	Annual Limits of Liability (minimum)
General Aggregate:	\$2,000,000
Products/Completed Operations Aggregate:	\$2,000,000
Personal/Advertising Injury Aggregate:	\$2,000,000
Each Occurrence Limit:	\$1,000,000

- .1 Occurrence form
- .2 Coverage extensions to include:
  - (i) The Contractor shall maintain completed operations coverage for three (3) years following issuance of the certificate of substantial completion for the Project.
  - (ii) Blanket waiver of subrogation
  - (iii) Blanket additional insured
- .3 Excludes: Asbestos, Nuclear Energy, Engineers/Architect's E&O, Pollution

**§ 17.2.4 EXCESS LIABILITY**

Each Occurrence:	\$2,000,000 (minimum)
Annual Aggregate:	\$2,000,000 (minimum)

- .1 Occurrence form
- .2 Coverage extensions to include:
  - (i) The Contractor shall maintain completed operations coverage for three (3) years following issuance of the certificate of substantial completion for the Project
  - (ii) Blanket additional insured
- .3 Excludes: Asbestos, Nuclear Energy, Engineers/Architect's E&O, Pollution

**§ 17.3 OWNER'S LIABILITY INSURANCE**

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

*(Paragraphs deleted)*

**§ 17.4 PROPERTY INSURANCE**

**§ 17.4.1** The Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance on an "all-risk" or equivalent policy form, including builder's risk, in the amount of the initial Cost of the Work, plus the value of subsequent modifications and cost of materials supplied and installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise

provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 15.5 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 17.4.1 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and sub-subcontractors in the Project.

§ 17.4.2 The Owner shall file a copy of each policy with the Contractor before an exposure to loss may occur. Each policy shall contain a provision that the policy will not be cancelled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 17.4.3 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 12, if any, and any of their subcontractors, sub-subcontractors, agents and employees for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to Section 17.4 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 12, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 17.4.4 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their sub-subcontractors in similar manner.

#### § 17.5 PERFORMANCE BOND AND PAYMENT BOND

§ 17.5.1 The Contractor shall furnish, as required by Neb. Rev. Stat. § 52-118, bonds covering payment of obligations arising under the Contract with minimum Best Rating "A". Bonds may be obtained through the Contractor's usual source and the cost thereof shall be included in the Contract Sum. The amount of the payment bond shall be equal to one hundred percent (100%) of the Contract Sum.

§ 17.5.2 The Contractor shall deliver the required bonds to the Owner not later than five (5) business days after execution of the Contract by the Owner. All bonds will be reviewed by the Architect for compliance with the Contract Documents. In the event that the Architect has any questions concerning the sufficiency of the bonds, the bonds will be referred to the Owner or the Owner's Representative with Architect's recommendation.

§ 17.5.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

#### ARTICLE 18 CORRECTION OF WORK

§ 18.1 The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense, unless compensable under Section A.2.7.3 in Exhibit A, Determination of the Cost of the Work.

§ 18.2 In addition to the Contractor's obligations under Section 9.4, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 15.4.3, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct

it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty.

**§ 18.3** If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 8.3.

**§ 18.4** The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

**§ 18.5** The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Article 18.

## **ARTICLE 19 MISCELLANEOUS PROVISIONS**

### **§ 19.1 ASSIGNMENT OF CONTRACT**

Neither party to the Contract shall assign the Contract without written consent of the other, except that the Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

### **§ 19.2 GOVERNING LAW**

The Contract shall be governed by the law of the State of Nebraska.

### **§ 19.3 TESTS AND INSPECTIONS**

Tests, inspections and approvals of portions of the Work required by the Contract Documents or by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating the costs to the Contractor.

### **§ 19.4 COMMENCEMENT OF STATUTORY LIMITATION PERIOD**

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the period specified by applicable law.

### **§ 19.5 EQUAL OPPORTUNITY IN EMPLOYMENT**

**§ 19.5.1** The Contractor and any subcontractors shall not discriminate against any employee or applicant for employment to be employed in the performance of the Agreement, with respect to hire, tenure, terms, conditions or privileges of employment, because of sex, disability, race, color, religion, veteran status, national or ethnic origin, age, marital status, pregnancy, childbirth or related medical condition, or other protected status, as prohibited by the Nebraska Fair Employment Practice Act or federal law. The Contractor agrees to post in conspicuous places available to employees and applicants, notices setting forth the Contractor's nondiscrimination policies. The Contractor and the Contractor's Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to sex, disability, race, color, religion, veteran status, national or ethnic origin, age, marital status, pregnancy, childbirth or related medical condition, or other protected status.

**§ 19.5.2** The Contractor hereby warrants and represents that it is in compliance with said Act. Any failure to so comply during the performance of this Agreement shall be a material breach of the Agreement. The Contractor by execution of this agreement certifies that the Contractor is an equal opportunity employer and actively recruits a

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well-qualified and diverse staff including minority applicants as well as historically underutilized business subcontractors, and does not discriminate against any employee or applicant for employment or subcontractor by reason of sex, disability, race, color, religion, veteran status, national or ethnic origin, age, marital status, pregnancy, childbirth or related medical condition, or other protected status. By execution of this agreement, the Contractor agrees to actively continue and implement this policy throughout any awarded project.

#### **§ 19.6 CRIMINAL HISTORY CHECKS**

**§ 19.6.1** Contractor shall obtain all criminal history information regarding its "covered employees", as defined below. Before beginning any Work on the Project, Contractor, and all subcontractors and suppliers, will provide written certification to the Owner that Contractor has complied with the statutory requirements as of that date. Upon request by Owner, Contractor will provide, in writing, updated certifications and the names and any other requested information regarding covered employees, so that the Owner may obtain criminal history record information on the covered employees. Contractor shall assume all expenses associated with obtaining the initial criminal history record information and the Owner shall be responsible for expenses associated with any subsequent request. Contractor shall include similar criminal history check provisions in all contracts with subcontractors and suppliers.

**§ 19.6.2** Contractor will not assign any "covered employee" with a "disqualifying criminal history", as those terms are defined below, to work on the Project. If Contractor receives information that a covered employee has a reported disqualifying criminal history, then Contractor will immediately remove the covered employee from the Project and notify the Owner in writing within three (3) business days. If the Owner objects to the assignment of any covered employee on the basis of the covered employee's criminal history record information, then Contractor agrees to discontinue using that covered employee to provide services on Owner's Project.

**§ 19.6.3** For the purposes of this Section, "covered employees" means employees, agents or subcontractors of Contractor who has or will have continuing duties related to the services to be performed on Owner's Project and has or will have direct contact with Owner's students. The Owner will decide what constitutes direct contact with Owner's students. "Disqualifying criminal history" means any conviction or other criminal history of the following offenses: a felony offense under Nebraska Criminal Code Article 3 Offenses Against The Person; an offense for which a defendant is required to register as a sex offender under the Nebraska Sex Offender Registration Act, Neb. Rev. Stat. §§ 29-4001 et seq.

**§ 19.6.4** The Contractor shall establish a school building construction site security protocol which shall include providing all employees of the contractors, employees of sub-contractors to the contractors, and other project related personnel with a "Project" badge or sticker created by the Contractor; each badge or sticker shall have a unique identifier number. This unique identifier number must be logged by the Contractor's Site Superintendent or Project Manager so as to associate each individual's name and company with the number on the badge. A copy of the log shall be kept at all times in the office of the Contractor's Site Superintendent and must be submitted to the Brainard Public Schools' Superintendent's office at the end of each week. If wearing the Contractor-provided "Project" badge is not desirable and will interfere with the work being performed by that individual, the Contractor shall provide a sticker with the necessary information for identification for affected personnel, which shall include the unique number on the identification. This sticker may be affixed to the individual worker's hard hats. All means of identification other than what is provided by the Contractor must be approved by the Contractor's on-site Superintendent or Project Manager prior to implementation by the contractor. Identification must be visible at all times. Personnel failing to comply with the job-site security requirements may be required by the Contractor or Brainard Public Schools' personnel to leave the job-site.

#### **§ 19.7 CONTRIBUTIONS UNDER NEBRASKA EMPLOYMENT SECURITY LAW**

The Contractor and all Subcontractors engaged to perform any part of the Work shall make payment to the Unemployment Compensation Fund of the State of Nebraska of all contributions and interest due under the provisions of the Employment Security Law, Neb. Rev. Stat. §§ 48-601, et seq. (Reissue 1988), as amended, on wages paid to individuals employed in the performance of the Contract; and before final payment shall be made of the final three percent (3%) of this Contract, the Contractor shall secure and file with the Owner, and cause any Subcontractor to secure and file with the Owner, written clearance from the Commissioner of the Department of Labor of the State of Nebraska, certifying that all payments then due of contributions or interest which may have arisen under this Contract have been made by the Contractor or any Subcontractor to the Unemployment Compensation Fund.

## § 19.8 VERIFICATION OF IMMIGRATION STATUS

§ 19.8.1 The Contractor agrees to use the federal immigration verification system to determine the work eligibility status of new employees physically performing services on the Project within the State of Nebraska. The federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee. This requirement applies to all Subcontractors of the Contractor. The Contractor shall, by written agreement, require compliance with the federal immigration verification system by all Subcontractors. If the Contractor is an individual or sole proprietorship, the following applies:

- .1 The Contractor must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at [www.das.state.ne.us](http://www.das.state.ne.us).
- .2 If the Contractor indicates on such attestation form that he or she is a qualified alien, the Contractor agrees to provide the US Citizenship and Immigration Services documentation required to verify the Contractor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.
- .3 The Contractor understands and agrees that lawful presence in the United States is required and the Contractor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. §4-108.

## § 19.9 SOVEREIGN IMMUNITY

By entering into this Agreement, Owner does not waive any of its immunities from suit and/or liability, except as otherwise specifically provided herein and as specifically authorized by law.

## ARTICLE 20 TERMINATION OF THE CONTRACT

### § 20.1 TERMINATION BY THE CONTRACTOR

If the Architect fails to certify payment as provided in Section 15.2.1 for a period of 30 days through no fault of the Contractor, or if the Owner fails to make payment as provided in Section 4.1.3 for a period of 30 days, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

### § 20.2 TERMINATION BY THE OWNER FOR CAUSE

§ 20.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 20.2.2 When any of the above reasons exists, the Owner, upon certification by the Architect that sufficient cause exists to justify such action, may, without prejudice to any other remedy the Owner may have and after giving the Contractor seven days' written notice, terminate the Contract and take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever reasonable method the Owner may deem expedient. Upon request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 20.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 20.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

*(Paragraph deleted)*

### § 20.3 TERMINATION BY THE OWNER FOR CONVENIENCE

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

**ARTICLE 21 CLAIMS AND DISPUTES**

§ 21.1 Claims, disputes and other matters in question arising out of or relating to this Contract, including those alleging an error or omission by the Architect but excluding those arising under Section 16.2, shall be referred initially to the Architect for decision. Such matters, except those waived as provided for in Section 21.8 and Sections 15.5.3 and 15.5.4, shall, after initial decision by the Architect or 30 days after submission of the matter to the Architect, be subject to mediation as a condition precedent to binding dispute resolution.

§ 21.2 If a claim, dispute or other matter in question relates to or is the subject of a mechanic’s lien, the party asserting such matter may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 21.3 The parties shall endeavor to resolve their disputes by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with their Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to this Agreement, and filed with the person or entity administering the mediation. The request may be made concurrently with the binding dispute resolution but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

**§ 21.4 NO ARBITRATION**

Notwithstanding anything to the contrary in the Contract Documents or in any document forming a part hereof, there shall be no mandatory arbitration for any dispute arising hereunder.

**§ 21.5 CLAIMS FOR CONSEQUENTIAL DAMAGES**

The Contractor and Owner waive claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party’s termination in accordance with Article 20.

This Agreement entered into as of the day and year first written above.

**Butler County School District 12-0502, a/k/a  
East Butler Public School District**

**[Insert Name of Contractor]**

\_\_\_\_\_  
*OWNER (Signature)*

\_\_\_\_\_  
*CONTRACTOR (Signature)*

**Megan Kozisek, President, Board of Education,  
East Butler Public School District**  
\_\_\_\_\_  
*(Printed name and title)*

\_\_\_\_\_, Title  
*(Printed name and title)*

*(Table deleted)(Paragraphs deleted)*

# **Additions and Deletions Report for** **AIA<sup>®</sup> Document A107<sup>™</sup> – 2007**

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 13:51:33 on 03/30/2017.

## **PAGE 1**

**AGREEMENT** made as of the \_\_\_ day of May in the year 2017.

...

Butler County School District 12-0502, a/k/a East Butler School District, a political subdivision of the State of Nebraska  
212 South Madison Street  
Box 36  
Brainard, NE 68626-0036  
Phone - (402) 545-2081; Fax - (402) 545-2023  
(Hereinafter referred to as "Owner" or "School District").

...

[Insert Name of Contractor]  
(Hereinafter referred to as "Contractor").

...

Project Identification: East Butler Public Schools – Locker Room Renovation.  
Project Location: 212 South Madison Street, Brainard, NE 68626.  
Project Description: The Work of the Project involves all construction indicated on the drawings and specifications, included but not limited to the following: Construction of walls, floors, mechanical systems, electrical systems, interior finishes and associated work for the renovation of East Butler High School building.  
(Hereinafter referred to as "the Project").

The ~~Architect:~~ Architect/Engineer:

...

The Clark Enersen Partners  
1010 Lincoln Mall  
Suite 200  
Lincoln, NE 68508-2883  
Telephone Number (402) 477-9291  
(Hereinafter referred to as "Architect").

## **PAGE 2**

**EXHIBIT A — DETERMINATION OF THE COST OF THE WORK**

...

The date of commencement of the Work shall be the first business day after the Contractor receives a written Notice to Proceed issued by the Owner. The notice to proceed shall not be issued by the Owner until the Agreement has been signed by the Contractor, approved by the Owner’s Board of Education, signed by the Owner’s authorized representative, and Owner and Architect have received all required payment and performance bonds and certificates of insurance as required under Article 17.

**PAGE 3**

§ 2.3 The Contractor shall achieve Substantial Completion of the entire Work not later than (—) days from the date of commencement, or as follows:

...

Locker Room Renovation August 1, 2017

...

Not applicable.

...

[  ] Stipulated Sum, in accordance with Section 3.2 below

...

§ 3.2 The Stipulated Sum shall be (\$—), **[INSERT DOLLAR AMOUNT] DOLLARS (\$\_\_\_\_\_ .00)**, subject to additions and deductions as provided in the Contract Documents.

*(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)None*

§ 3.2.1 The Stipulated Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

*(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)*

§ 3.2.2 Unit prices, if any:

*(Identify and state the unit price, and state the quantity limitations, if any, to which the unit price will be applicable.)*

Item	Units and Limitations	Price Per Unit (\$0.00)
------	-----------------------	-------------------------

§ 3.2.3 Allowances included in the stipulated sum, if any:

*(Identify allowance and state exclusions, if any, from the allowance price.)*

Item	Allowance
------	-----------

§ 3.3 ~~COST OF THE WORK PLUS CONTRACTOR’S FEE~~ Unit prices, if any:

*(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)*

<u>Item</u>	<u>Units and Limitations</u>	<u>Price Per Unit (\$0.00)</u>
<u>None at this time.</u>		

~~§ 3.3.1 The Cost of the Work is as defined in Exhibit A, Determination of the Cost of the Work.~~

~~§ 3.3.2 The Contractor's Fee:~~

~~(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)~~

~~§ 3.4 COST OF THE WORK PLUS CONTRACTOR'S FEE WITH A GUARANTEED MAXIMUM PRICE~~

~~§ 3.4.1 The Cost of the Work is as defined in Exhibit A, Determination of the Cost of the Work.~~

~~§ 3.4.2 The Contractor's Fee:~~

~~(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)~~

~~§ 3.4.3 GUARANTEED MAXIMUM PRICE~~

~~§ 3.4.3.1 The sum of the Cost of the Work and the Contractor's Fee is guaranteed by the Contractor not to exceed (\$ —), subject to additions and deductions by changes in the Work as provided in the Contract Documents. Such maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.~~

~~(Insert specific provisions if the Contractor is to participate in any savings.)~~

~~§ 3.4.3.2 The Guaranteed Maximum Price is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:~~

~~§ 3.4.3.3 Unit Prices, if any:~~

~~(Identify and state the unit price, and state the quantity limitations, if any, to which the unit price will be applicable.)~~

<u>Item</u>	<u>Units and Limitations</u>	<u>Price Per Unit (\$0.00)</u>
-------------	------------------------------	--------------------------------

~~§ 3.4.3.4 Allowances included in the Guaranteed Maximum Price, if any:~~

~~(Identify and state the amounts of any allowances, and state whether they include labor, materials, or both.)~~

<u>Item</u>	<u>Allowance</u>
-------------	------------------

~~§ 3.4.3.5 Assumptions, if any, on which the Guaranteed Maximum Price is based:~~

PAGE 4

Not applicable.

**§ 4.1.3** Provided that an Application for Payment is received by the Architect not later than the 25th day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the last day of the following month. If an Application for Payment is received by the Architect after the date fixed above, payment shall be made by the Owner not later than (—) days after the Architect receives the Application for Payment. THIRTY (30) days after the review and action on Applications for Payment by the Board of Education of the Owner at a regular meeting held pursuant to Neb. Rev. Stat. §79-554, R.R.S.

*(Federal, state or local laws may require payment within a certain period of time.)*

Notwithstanding the provisions of § 4.1.3, to allow sufficient time for review and action on Applications for Payment by the Board of Education of the Owner at a regular meeting held pursuant to Neb. Rev. Stat. §79-554, R.R.S., the "receipt by the owner or the owner's representative of a payment request made pursuant to the contract" under Neb. Rev. Stat. §45-1203, R. R. S. shall be deemed to occur at the regular meeting of the Board of Education of the Owner immediately following the receipt of the Application for Payment by the Architect.

**§ 4.1.4** ~~Retainage, if any, shall be withheld as follows:~~ **Progress Payments:** The amount of each progress payment for amounts not in dispute for work performed in accordance with the provisions in the applicable contract shall be computed as follows:

**§ 4.1.4.1** Progress payments shall be made on the basis of that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage as set forth in paragraph 4.1.4.2 (Completed Work).

**§ 4.1.4.2** The retainage amount deducted from each progress payment shall be that portion of the Contract Sum properly allocable to Completed Work in the amount of ten percent (10%) of the Completed Work for the first fifty percent (50%) of the Contract Sum, and in the amount of five percent (5%) of the Completed Work for the last fifty percent (50%) of the Contract Sum.

...

%—Pursuant to Neb. Rev. Stat. §45-1205, R. R. S. interest due under this section shall accrue until such amount is paid, beginning on the day following the payment due date at the rate of **one percent per month** or a pro rata fraction thereof on the unpaid balance. Interest is due under this section only after the person charged the interest has been notified of the provisions of this section by the Contractor.

...

**§ 4.2.1** Final payment, constituting the entire unpaid balance of the Contract Sum, less the credit amount, shall be made by the Owner to the Contractor when

**PAGE 5**

Not applicable.

...

[  ] Litigation in a court of competent jurisdiction

...

Project Manual - Instructions to Bidders, Exhibit 1.

**§ 6.1.2** The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
----------	-------	------	-------

None.

...

See Exhibit 2.

...

Exhibit 2

...

See Exhibit 3.

...

Exhibit 3

§ 6.1.5 The Addenda, if any: None.

**Number**

**Date**

**Pages**

...

~~.1 Exhibit A, Determination of the Cost of the Work, if applicable.~~

~~.2 AIA Document E201™ 2007, Digital Data Protocol Exhibit, if completed, or the following:~~

~~.3~~

~~.1 Other documents:~~

...

~~a. Contractor's Payment and Performance Bond, Exhibit 4~~

~~b. Contractor's Certificate of Insurance, Exhibit 5~~

~~c. Job Site Security Requirements, Exhibit 6~~

**PAGE 8**

§ 9.3.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, ~~water, heat, utilities,~~ transportation, and other facilities and services necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

...

~~The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation or normal wear and tear under normal usage.~~ § 9.4.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for

damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation or normal wear and tear under normal usage.

...

The Contractor shall pay sales, consumer, use and other similar taxes that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. Owner is an exempt entity under the tax laws of the State of Nebraska. The Owner represents that this Project is eligible for exemption from the State Sales Tax on tangible personal property and material incorporated in the Project, provided that the Contractor fulfills the requirements of Neb. Rev. Stat. § 77-2704.15. For the purpose of establishing exemption, it is understood and agreed that the Contractor may be required to segregate materials and labor costs at the time a Contract is awarded. Contractor will accept Purchase Agent Appointment and Exempt Sales Certificate forms from the Owner. Contractor shall obtain Resale Certificates from Contractor's suppliers. Failure of Contractor or any Sub-Contractor to obtain Resale Certificates from their suppliers shall make the Contractor or Sub-Contractor responsible for absorbing the tax, without compensation from Owner. Contractor shall pay all necessary local, county and state taxes, income tax, compensation tax, social security and withholding payments as required by law. CONTRACTOR HEREBY RELEASES, INDEMNIFIES, AND HOLDS HARMLESS OWNER FROM ANY AND ALL CLAIMS AND DEMANDS MADE AS A RESULT OF THE FAILURE OF CONTRACTOR OR ANY SUBCONTRACTOR TO COMPLY WITH THE PROVISIONS OF ANY OR ALL SUCH LAWS AND REGULATIONS, provided that Owner provides Contractor with a timely submission of required tax exemption documents.

...

§ 9.6.1 Unless otherwise provided in the Contract Documents, the Contractor-Owner shall secure and pay for the building permit as well as permit, special development fees and water resource fees for the City of Brainard, Nebraska, and special assessment fees required by the serving utility companies. Unless otherwise provided in the Contract Documents, the Contractor shall pay for all other permits, fees, licenses and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

## PAGE 9

§ 9.15.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. ~~Such obligation~~ Notwithstanding the foregoing, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants and agents and employees of any of them from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from the Contractor's failure to comply with Section 19.7, Criminal History Checks, and from any bodily injury, sickness, disease or death caused by any non-"covered employee" who performs work on the Project Site. The indemnification obligations in this Section 9.15.1 shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 9.15.1.

## PAGE 10

§ 10.1 The Architect will provide administration of the Contract and will be an Owner's representative during construction, until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, Owner, with Owner's consent, unless otherwise modified in writing in accordance with other provisions of the Contract.

## PAGE 14

**§ 15.5.2** Final payment shall not become due until the Contractor has delivered to the Owner a complete release of all liens arising out of this Contract or receipts in full covering all labor, materials and equipment for which a lien could be filed, or a bond satisfactory to the Owner to indemnify the Owner against such ~~lien~~, an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work have been paid or otherwise satisfied, and consent of surety to final payment. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including costs and reasonable attorneys' fees. Before final payment can be made, Department of Labor Division of Employment Form No. 16, Certificate of Contribution Status, must be received from the State of Nebraska Department of Labor certifying that the Contractor and each of its Subcontractors have paid all contributions and interest due to and including the calendar quarter immediately preceding the date of Substantial Completion.

PAGE 15

**§ 16.2.2** ~~To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area, if in fact, the material or substance presents the risk of bodily injury or death as described in Section 16.2.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.~~

**§ 16.2.3** ~~If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.~~

**§ 16.2.2** The Contractor shall provide written certification that no materials used in the Work contain lead or asbestos materials in them in excess of amounts allowed by federal, state or local standards, laws, codes, rules and regulations; the Federal Environmental Protection Agency (EPA) standards; and/or the Federal Occupational Safety and Health Administration (OSHA) standards, whichever is most restrictive. The Contractor shall provide this written certification as part of submittals under the Section in the Project Manual related to Contract Closeout.

**§ 17.1** The Contractor shall purchase from, and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, insurance for protection from claims under workers' compensation acts and other employee benefit acts which are applicable, claims for damages because of bodily injury, including death, and claims for damages, other than to the Work itself, to property which may arise out of or result from the Contractor's operations and completed operations under the Contract, whether such operations be by the Contractor or by a Subcontractor or anyone directly or indirectly employed by any of them. This insurance shall be written for not less than limits of liability specified ~~in the Contract Documents below~~ or required by law, whichever coverage is greater, and shall include contractual liability insurance applicable to the Contractor's obligations under Section 9.15. Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. ~~Each~~ To the extent commercially available, each policy shall contain a provision that the policy will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. The Contractor shall cause the commercial liability coverage required by the Contract Documents to include: (1) the Owner, the Architect and the Architect's Consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

#### **§ 17.2 OWNER'S LIABILITY INSURANCE**

~~The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.~~

#### **§ 17.2. CONTRACTOR'S LEVEL OF INSURANCE COVERAGE**

##### **§ 17.2.1 WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY**

Workers' Compensation:	Nebraska Statutory Limit
Employer's Liability:	Annual Limits Per Insured (minimum)
Bodily Injury by Accident:	\$1,000,000
Bodily Injury by Disease - policy limit:	\$1,000,000
Bodily Injury by Disease - each employee:	\$1,000,000

- .1 Each contractor and each subcontractor shall provide a blanket waiver of subrogation.
- .2 Contractor and each Subcontractor issued a separate policy.

**§ 17.2.2 AUTOMOBILE LIABILITY**

Combined single limit of \$1,000,000 per occurrence.

**§ 17.2.3 COMMERCIAL GENERAL LIABILITY**

	Annual Limits of Liability (minimum)
General Aggregate:	\$2,000,000
Products/Completed Operations Aggregate:	\$2,000,000
Personal/Advertising Injury Aggregate:	\$2,000,000
Each Occurrence Limit:	\$1,000,000

- .1 Occurrence form
- .2 Coverage extensions to include:
  - (i) The Contractor shall maintain completed operations coverage for three (3) years following issuance of the certificate of substantial completion for the Project.
  - (ii) Blanket waiver of subrogation
  - (iii) Blanket additional insured
- .3 Excludes: Asbestos, Nuclear Energy, Engineers/Architect's E&O, Pollution

**§ 17.2.4 EXCESS LIABILITY**

Each Occurrence:	\$2,000,000 (minimum)
Annual Aggregate:	\$2,000,000 (minimum)

- .1 Occurrence form
- .2 Coverage extensions to include:
  - (i) The Contractor shall maintain completed operations coverage for three (3) years following issuance of the certificate of substantial completion for the Project
  - (ii) Blanket additional insured
- .3 Excludes: Asbestos, Nuclear Energy, Engineers/Architect's E&O, Pollution

**§ 17.3 PROPERTY INSURANCE/OWNER'S LIABILITY INSURANCE**

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

**§ 17.3.1** Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance on an "all risk" or equivalent policy form, including builder's risk, in the amount of the initial Contract Sum, plus the value of subsequent modifications and cost of materials supplied and installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 15.5 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 17.3.1 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and sub-subcontractors in the Project.

**§ 17.3.2** The Owner shall file a copy of each policy with the Contractor before an exposure to loss may occur. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

**§ 17.3.3** The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate

contractors described in Article 12, if any, and any of their subcontractors, sub-subcontractors, agents and employees for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to Section 17.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 12, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

~~§ 17.3.4 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their sub-subcontractors in similar manner.~~

#### **§ 17.4 PERFORMANCE BOND AND PAYMENT BONDPROPERTY INSURANCE**

~~§ 17.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract, purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance on an "all-risk" or equivalent policy form, including builder's risk, in the amount of the initial Cost of the Work, plus the value of subsequent modifications and cost of materials supplied and installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 15.5 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 17.4.1 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and sub-subcontractors in the Project.~~

~~§ 17.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished. The Owner shall file a copy of each policy with the Contractor before an exposure to loss may occur. Each policy shall contain a provision that the policy will not be cancelled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.~~

~~§ 17.4.3 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 12, if any, and any of their subcontractors, sub-subcontractors, agents and employees for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to Section 17.4 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 12, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.~~

~~§ 17.4.4 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their sub-subcontractors in similar manner.~~

## **§ 17.5 PERFORMANCE BOND AND PAYMENT BOND**

**§ 17.5.1** The Contractor shall furnish, as required by Neb. Rev. Stat. § 52-118, bonds covering payment of obligations arising under the Contract with minimum Best Rating "A". Bonds may be obtained through the Contractor's usual source and the cost thereof shall be included in the Contract Sum. The amount of the payment bond shall be equal to one hundred percent (100%) of the Contract Sum.

**§ 17.5.2** The Contractor shall deliver the required bonds to the Owner not later than five (5) business days after execution of the Contract by the Owner. All bonds will be reviewed by the Architect for compliance with the Contract Documents. In the event that the Architect has any questions concerning the sufficiency of the bonds, the bonds will be referred to the Owner or the Owner's Representative with Architect's recommendation.

**§ 17.5.3** Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

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The Contract shall be governed by the law of the place where the Project is located, except, that if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 21.4:State of Nebraska.

...

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 19.4:law.

## **§ 19.5 EQUAL OPPORTUNITY IN EMPLOYMENT**

**§ 19.5.1** The Contractor and any subcontractors shall not discriminate against any employee or applicant for employment to be employed in the performance of the Agreement, with respect to hire, tenure, terms, conditions or privileges of employment, because of sex, disability, race, color, religion, veteran status, national or ethnic origin, age, marital status, pregnancy, childbirth or related medical condition, or other protected status, as prohibited by the Nebraska Fair Employment Practice Act or federal law. The Contractor agrees to post in conspicuous places available to employees and applicants, notices setting forth the Contractor's nondiscrimination policies. The Contractor and the Contractor's Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to sex, disability, race, color, religion, veteran status, national or ethnic origin, age, marital status, pregnancy, childbirth or related medical condition, or other protected status.

**§ 19.5.2** The Contractor hereby warrants and represents that it is in compliance with said Act. Any failure to so comply during the performance of this Agreement shall be a material breach of the Agreement. The Contractor by execution of this agreement certifies that the Contractor is an equal opportunity employer and actively recruits a well-qualified and diverse staff including minority applicants as well as historically underutilized business subcontractors, and does not discriminate against any employee or applicant for employment or subcontractor by reason of sex, disability, race, color, religion, veteran status, national or ethnic origin, age, marital status, pregnancy, childbirth or related medical condition, or other protected status. By execution of this agreement, the Contractor agrees to actively continue and implement this policy throughout any awarded project.

## **§ 19.6 CRIMINAL HISTORY CHECKS**

**§ 19.6.1** Contractor shall obtain all criminal history information regarding its "covered employees", as defined below. Before beginning any Work on the Project, Contractor, and all subcontractors and suppliers, will provide written certification to the Owner that Contractor has complied with the statutory requirements as of that date. Upon request by Owner, Contractor will provide, in writing, updated certifications and the names and any other requested information regarding covered employees, so that the Owner may obtain criminal history record information on the

covered employees. Contractor shall assume all expenses associated with obtaining the initial criminal history record information and the Owner shall be responsible for expenses associated with any subsequent request. Contractor shall include similar criminal history check provisions in all contracts with subcontractors and suppliers.

§ 19.6.2 Contractor will not assign any "covered employee" with a "disqualifying criminal history", as those terms are defined below, to work on the Project. If Contractor receives information that a covered employee has a reported disqualifying criminal history, then Contractor will immediately remove the covered employee from the Project and notify the Owner in writing within three (3) business days. If the Owner objects to the assignment of any covered employee on the basis of the covered employee's criminal history record information, then Contractor agrees to discontinue using that covered employee to provide services on Owner's Project.

§ 19.6.3 For the purposes of this Section, "covered employees" means employees, agents or subcontractors of Contractor who has or will have continuing duties related to the services to be performed on Owner's Project and has or will have direct contact with Owner's students. The Owner will decide what constitutes direct contact with Owner's students. "Disqualifying criminal history" means any conviction or other criminal history of the following offenses: a felony offense under Nebraska Criminal Code Article 3 Offenses Against The Person; an offense for which a defendant is required to register as a sex offender under the Nebraska Sex Offender Registration Act, Neb. Rev. Stat. §§ 29-4001 et seq.

§ 19.6.4 The Contractor shall establish a school building construction site security protocol which shall include providing all employees of the contractors, employees of sub-contractors to the contractors, and other project related personnel with a "Project" badge or sticker created by the Contractor; each badge or sticker shall have a unique identifier number. This unique identifier number must be logged by the Contractor's Site Superintendent or Project Manager so as to associate each individual's name and company with the number on the badge. A copy of the log shall be kept at all times in the office of the Contractor's Site Superintendent and must be submitted to the Brainard Public Schools' Superintendent's office at the end of each week. If wearing the Contractor-provided "Project" badge is not desirable and will interfere with the work being performed by that individual, the Contractor shall provide a sticker with the necessary information for identification for affected personnel, which shall include the unique number on the identification. This sticker may be affixed to the individual worker's hard hats. All means of identification other than what is provided by the Contractor must be approved by the Contractor's on-site Superintendent or Project Manager prior to implementation by the contractor. Identification must be visible at all times. Personnel failing to comply with the job-site security requirements may be required by the Contractor or Brainard Public Schools' personnel to leave the job-site.

#### **§ 19.7 CONTRIBUTIONS UNDER NEBRASKA EMPLOYMENT SECURITY LAW**

The Contractor and all Subcontractors engaged to perform any part of the Work shall make payment to the Unemployment Compensation Fund of the State of Nebraska of all contributions and interest due under the provisions of the Employment Security Law, Neb. Rev. Stat. §§ 48-601, et seq. (Reissue 1988), as amended, on wages paid to individuals employed in the performance of the Contract; and before final payment shall be made of the final three percent (3%) of this Contract, the Contractor shall secure and file with the Owner, and cause any Subcontractor to secure and file with the Owner, written clearance from the Commissioner of the Department of Labor of the State of Nebraska, certifying that all payments then due of contributions or interest which may have arisen under this Contract have been made by the Contractor or any Subcontractor to the Unemployment Compensation Fund.

#### **§ 19.8 VERIFICATION OF IMMIGRATION STATUS**

§ 19.8.1 The Contractor agrees to use the federal immigration verification system to determine the work eligibility status of new employees physically performing services on the Project within the State of Nebraska. The federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-Verify Program, or an equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility status of a newly hired employee. This requirement applies to all Subcontractors of the Contractor. The Contractor shall, by written agreement, require compliance with the federal immigration verification system by all Subcontractors. If the Contractor is an individual or sole proprietorship, the following applies:

- .1 The Contractor must complete the United States Citizenship Attestation Form, available on the Department of Administrative Services website at [www.das.state.ne.us](http://www.das.state.ne.us).

- .2 If the Contractor indicates on such attestation form that he or she is a qualified alien, the Contractor agrees to provide the US Citizenship and Immigration Services documentation required to verify the Contractor's lawful presence in the United States using the Systematic Alien Verification for Entitlements (SAVE) Program.
- .3 The Contractor understands and agrees that lawful presence in the United States is required and the Contractor may be disqualified or the contract terminated if such lawful presence cannot be verified as required by Neb. Rev. Stat. §4-108.

#### **§ 19.9 SOVEREIGN IMMUNITY**

By entering into this Agreement, Owner does not waive any of its immunities from suit and/or liability, except as otherwise specifically provided herein and as specifically authorized by law.

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~~§ 20.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.~~

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~~§ 21.4 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any claim, subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association, in accordance with the Construction Industry Arbitration Rules in effect on the date of this Agreement. Demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.~~**NO ARBITRATION**

Notwithstanding anything to the contrary in the Contract Documents or in any document forming a part hereof, there shall be no mandatory arbitration for any dispute arising hereunder.

~~§ 21.5 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation; (2) the arbitrations to be consolidated substantially involve common questions of law or fact; and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).~~**CLAIMS FOR CONSEQUENTIAL DAMAGES**

The Contractor and Owner waive claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 20.

This Agreement entered into as of the day and year first written above.

**Butler County School District 12-0502, a/k/a  
East Butler Public School District**

**[Insert Name of Contractor]**

\_\_\_\_\_  
*OWNER (Signature)*

\_\_\_\_\_  
*CONTRACTOR (Signature)*

**Megan Kozisek, President, Board of Education,  
East Butler Public School District**  
*(Printed name and title)*

\_\_\_\_\_  
*, Title  
(Printed name and title)*

~~§ 21.6~~ Any party to an arbitration may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a Claim not described in the written Consent.

~~§ 21.7~~ The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

~~§ 21.8 CLAIMS FOR CONSEQUENTIAL DAMAGES~~

~~The Contractor and Owner waive claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes~~

- ~~.1 — damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and~~
- ~~.2 — damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.~~

~~This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 20. Nothing contained in this Section 21.8 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.~~

This Agreement entered into as of the day and year first written above.

\_\_\_\_\_  
*OWNER (Signature)*

\_\_\_\_\_  
*CONTRACTOR (Signature)*

\_\_\_\_\_  
*(Printed name and title)*

\_\_\_\_\_  
*(Printed name and title)*

## **Certification of Document's Authenticity**

**AIA® Document D401™ – 2003**

I, Rex R. Schultze, hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 13:51:33 on 03/30/2017 under Order No. 8740817023\_1 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A107™ – 2007, Standard Form of Agreement Between Owner and Contractor for a Project of Limited Scope, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

---

*(Signed)*

---

*(Title)*

---

*(Dated)*

TCEP No.: 115-001-17

**SECTION 00 42 00 - BID FORM**

BID PROPOSAL FOR CONTRACT FOR  
EAST BUTLER PUBLIC SCHOOLS  
LOCKER ROOM RENOVATION  
BRAINARD, NEBRASKA

Date: \_\_\_\_\_

Submitted To: \_\_\_\_\_

Submitted By: \_\_\_\_\_

Addenda Received: \_\_\_\_\_

The undersigned, having examined the plans, project manuals and related documents, and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies to do the work in accordance with the Contract Documents and terms and condition described below:

Recognizing that time will be of the essence, the undersigned proposes, upon execution of the Agreement Between Owner and Contractor or upon receipt of notice to proceed from the Owner (whichever comes first), to immediately start the Work of the Contract. The Agreement Between Owner and Contractor will be executed as soon as possible after the opening and award of bids. The undersigned proposes to bring the work to a state of Substantial Completion by August 1, 2017.

Markup percentage for all changes in the work shall not exceed 10%. This shall include all overhead and profit associated with each change. See Section 01 26 00, "Contract Modification Procedures", for administrative and procedural requirements for handling and processing contract modification. See Section 01 21 00, "Allowances" for exceptions to this requirement.

Execution of Agreement: The undersigned will, within fourteen (14) days of receipt of notice of acceptance of this proposal, enter into agreement with the Owner on the Owner's agreement form and will deliver the required Performance Bond and Labor and Materials Payment Bond.

**TOTAL PRICE:** The undersigned proposes to perform the Work shown/described in the bidding documents for the sum of:

\_\_\_\_\_ Dollars (\$\_\_\_\_\_).



TCEP No.: 115-001-17

Respectfully Submitted,

---

(Signature)

---

(Company)

---

(Business Address)

---

(Telephone Number)

(Seal, if by a Corporation)

END OF SECTION 00 42 00

TCEP No.: 115-001-17

## **SECTION 01 10 00 - SUMMARY**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:

- 1. Project information.
- 2. Work covered by Contract Documents.
- 3. Work by Owner.
- 4. Access to site.
- 5. Coordination with occupants.
- 6. Work restrictions.
- 7. Specification and drawing conventions.
- 8. Miscellaneous provisions.

- B. Related Requirements:

- 1. Section 01 50 00 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

#### **1.3 PROJECT INFORMATION**

- A. Project Identification: East Butler Public Schools – Locker Room Renovation.

- 1. Project Location: 212 South Madison Street, Brainard, NE 68626.

- B. Owner: Butler County School District 12-0502.

- 1. Owner's Representative: Sam Stecher, East Butler Public Schools, 212 South Madison Street, Brainard, NE 68626. 402-545-2081.

- C. Architect: The Clark Enersen Partners. 1010 Lincoln Mall, Suite 200, Lincoln, NE 68508.

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#### 1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:
  - 1. Project Description: The Work of the Project involves all construction indicated on the drawings and specifications, included but not limited to the following: Construction of walls, floors, mechanical systems, electrical systems, interior finishes and associated work for the renovation of East Butler High School building.
- B. Type of Contract:
  - 1. Project will be constructed under a single prime contract.

#### 1.5 WORK BY OWNER

- A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.
- B. Concurrent Work: Owner retains the right to perform construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.

#### 1.6 WORK UNDER SEPARATE CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

#### 1.7 ACCESS TO SITE

- A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
  - 1. Limits: Confine construction operations to areas indicated on drawings.
  - 2. Driveways, Walkways and Entrances: Keep driveways, loading areas and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
    - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.

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- b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

## 1.8 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Owner will occupy site and existing building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
  - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
  - 2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

## 1.9 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
  - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building during school year to before or after school periods, coordinate with Owner.
  - 1. Weekend Hours: No limitations, coordinate with Owner.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
  - 1. Notify Architect and Owner not less than 72 hours in advance of proposed utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
  - 1. Notify Architect and Owner not less than 72 hours in advance of proposed disruptive operations.

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- E. Nonsmoking Building: Smoking is not permitted within the building or within **25 feet (8 m)** of entrances, operable windows, or outdoor-air intakes.
- F. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

#### 1.10 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
  - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

### **PART 2 - PRODUCTS (Not Used)**

### **PART 3 - EXECUTION (Not Used)**

END OF SECTION 01 10 00

TCEP No.: 115-001-17

## **SECTION 01 21 00 - ALLOWANCES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements governing allowances.
  - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
  - 1. Contingency allowances.

#### **1.3 ACTION SUBMITTALS**

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

#### **1.4 COORDINATION**

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

#### **1.5 CONTINGENCY ALLOWANCES**

- A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, insurance, equipment rental, and similar costs.

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- C. Contingency Fund Deduct Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins. **This amount shall be included as part of the bid.**
  - 1. Additional Contractor related costs, overhead and profit **will not be allowed** as Contingency Fund Deduct Orders are issued.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

## 1.6 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
  - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
  - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
  - 3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
  - 4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.
  - 1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
  - 2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

ALLOWANCES

01 21 00-2



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### 3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

### 3.3 SCHEDULE OF ALLOWANCES

- A. **Allowance No. 1: Contingency Allowance: Include the sum of \$5,000.**

END OF SECTION 01 21 00

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## **SECTION 01 25 00 - SUBSTITUTION PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for substitutions.

#### **1.3 DEFINITIONS**

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
  - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
  - 2. The following are not considered to be requests for substitutions:
    - a. Substitutions requested during the bidding period, and accepted by Addendum prior to award of the Contract, are included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.
    - b. Revisions to the Contract Documents requested by the Owner or Architect.
    - c. Specified options of products and construction methods included in the Contract Documents.
    - d. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

#### **1.4 ACTION SUBMITTALS**

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
  - 1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.

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- b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
  - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
  - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
  - e. Samples, where applicable or requested.
  - f. Certificates and qualification data, where applicable or requested.
  - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
  - h. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
  - i. Cost information, including a proposal of change, if any, in the Contract Sum.
  - j. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
  - k. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven (7) days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within fourteen (14) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.

## 1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

## 1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

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## **PART 2 - PRODUCTS**

### **2.1 SUBSTITUTIONS**

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
    - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    - b. Substitution request is fully documented and properly submitted.
    - c. Requested substitution will not adversely affect Contractor's construction schedule.
    - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
    - e. Requested substitution is compatible with other portions of the Work.
    - f. Requested substitution has been coordinated with other portions of the Work.
    - g. Requested substitution provides specified warranty.
    - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
    - i. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.
    - j. The specified product or method of construction cannot be provided in a manner that is compatible with other materials and where the Contractor certifies that the substitution will overcome the incompatibility.
- B. Substitutions for Convenience: Not allowed.

## **PART 3 - EXECUTION (Not Used)**

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## **SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
  - 1. Section 01 25 00 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

#### **1.3 MINOR CHANGES IN THE WORK**

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710 "Architect's Supplemental Instructions."

#### **1.4 PROPOSAL REQUESTS**

- A. Architect/Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum and/or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
  - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
  - 2. Within fourteen (14) days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and The Contract Time necessary to execute the change.
    - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

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- c. Include costs of labor and supervision directly attributable to the change.
  - d. Mark-up percentage for all changes in the work shall not exceed 10%.
  - e. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  - f. Quotation Form: Use form acceptable to Architect.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
  2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
  3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
  4. Include costs of labor and supervision directly attributable to the change.
  5. Mark-up percentage for all changes in the work shall not exceed 10%.
  6. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
  7. Comply with requirements in Section 01 25 00 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
  8. Proposal Request Form: Use form acceptable to Architect.

#### 1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Section 01 21 00 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
- B. Contingency Fund: The Architect will record changes to the Contingency Fund on a Contingency Fund Adjustment form prepared by the Architect.

#### 1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on a Change Order Form prepared by the Architect.

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## 1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
  - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
  - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

## **PART 2 - PRODUCTS (Not Used)**

## **PART 3 - EXECUTION (Not Used)**

END OF SECTION 01 26 00

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## **SECTION 01 29 00 - PAYMENT PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

#### **1.3 DEFINITIONS**

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

#### **1.4 SCHEDULE OF VALUES**

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
  - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
    - a. Application for Payment forms with continuation sheets.
    - b. Submittal schedule.
    - c. Items required to be indicated as separate activities in Contractor's construction schedule.
  - 2. Submit the schedule of values to Architect at earliest possible date, but no later than seven (7) days before the date scheduled for submittal of initial Applications for Payment.
  - 3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
  - 4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.

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5. Subschedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide subschedules showing values coordinated with the scope of each design services contract as described in Section 01 10 00 "Summary."

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:
  - a. Project name and location.
  - b. Name of Architect.
  - c. Architect's project number.
  - d. Contractor's name and address.
  - e. Date of submittal.
2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
  - a. Related Specification Section or Division.
  - b. Description of the Work.
  - c. Name of subcontractor.
  - d. Name of manufacturer or fabricator.
  - e. Name of supplier.
  - f. Change Orders (numbers) that affect value.
  - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
    - 1) Labor.
    - 2) Materials.
    - 3) Equipment.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five (5) percent of the Contract Sum.
  - a. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five (5) percent of the Contract Sum and subcontract amount.
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
  - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.

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7. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
9. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
10. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
  - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
11. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

#### 1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
  1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
  2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
  3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
  4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

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- E. **Stored Materials:** Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
  2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
  3. Provide summary documentation for stored materials indicating the following:
    - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- F. **Transmittal:** Submit three (3) signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. within 24 hours. One copy shall include waivers of lien and similar attachments if required.
- G. **Waivers of Mechanic's Lien:** With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
  2. When an application shows completion of an item, submit conditional final or full waivers.
  3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
  4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
  5. **Waiver Forms:** Submit executed waivers of lien on forms, acceptable to Owner.
- H. **Initial Application for Payment:** Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
  2. Schedule of values.
  3. Contractor's construction schedule (preliminary if not final).
  4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
  5. Copies of building permits.
  6. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
  7. Certificates of insurance and insurance policies.
  8. Performance and payment bonds.

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9. Data needed to acquire Owner's insurance.
  - I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
    1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
    2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
    3. Occupancy permits and similar approvals.
    4. Application for reduction of retainage, and consent of surety.
    5. Advice on shifting insurance coverage.
    6. List of incomplete Work of Substantial Completion.
  - J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
    1. Evidence of completion of Project closeout requirements.
    2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
    3. Updated final statement, accounting for final changes to the Contract Sum.
    4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
    5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
    6. AIA Document G707, "Consent of Surety to Final Payment."
    7. Evidence that claims have been settled.
    8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
    9. Final liquidated damages settlement statement.
    10. Completion of items specified for completion after Substantial Completion.
    11. Proof that taxes, fees and similar obligations have been paid.
    12. Removal of temporary facilities and services.
    13. Removal of surplus materials, rubbish and similar elements.

**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

END OF SECTION 01 29 00

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## **SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
  - 1. General coordination procedures.
  - 2. Coordination drawings.
  - 3. Requests for Information (RFIs).
  - 4. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.
- C. Related Requirements:
  - 1. Section 01 73 00 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
  - 2. Section 01 77 00 "Closeout Procedures" for coordinating closeout of the Contract.

#### **1.3 DEFINITIONS**

- A. RFI: Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

#### **1.4 INFORMATIONAL SUBMITTALS**

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
  - 1. Name, address, and telephone number of entity performing subcontract or supplying products.
  - 2. Number and title of related Specification Section(s) covered by subcontract.
  - 3. Drawing number and detail references, as appropriate, covered by subcontract.

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- B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
  - 1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

## 1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
  - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
  - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
  - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.
- C. Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.
- D. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
  - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- E. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
  - 1. Preparation of Contractor's construction schedule.
  - 2. Preparation of the schedule of values.
  - 3. Installation and removal of temporary facilities and controls.
  - 4. Delivery and processing of submittals.
  - 5. Progress meetings.
  - 6. Preinstallation conferences.
  - 7. Project closeout activities.

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8. Startup and adjustment of systems.

- F. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

1.6 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in a form acceptable to the Architect.
1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
  2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
  2. Project number.
  3. Date.
  4. Name of Contractor.
  5. Name of Architect.
  6. RFI number, numbered sequentially.
  7. RFI subject.
  8. Specification Section number and title and related paragraphs, as appropriate.
  9. Drawing number and detail references, as appropriate.
  10. Field dimensions and conditions, as appropriate.
  11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
  12. Contractor's signature.
  13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

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- C. Architect's Action: Architect will review each RFI, determine action required and respond. Allow seven working days for Architect's response for each RFI.
1. The following Contractor-generated RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for approval of Contractor's means and methods.
    - d. Requests for coordination information already indicated in the Contract Documents.
    - e. Requests for adjustments in the Contract Time or the Contract Sum.
    - f. Incomplete RFIs or inaccurately prepared RFIs.
  2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
  3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 01 26 00 "Contract Modification Procedures."
    - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- D. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Prepare log in accordance with regular progress meetings.
1. Project name.
  2. Name and address of Contractor.
  3. Name and address of Architect.
  4. RFI number including RFIs that were returned without action or withdrawn.
  5. RFI description.
  6. Date the RFI was submitted.
  7. Date Architect's response was received.

## 1.7 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
  2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
  3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned including Owner, and Architect, within 5 days of the meeting.

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- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction at a time convenient to Owner and Architect but no later than 15 days after execution of the Agreement.
1. Conduct the conference to review responsibilities and personnel assignments.
  2. Attendees: Authorized representatives of Owner Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Discuss items of significance that could affect progress, including the following:
    - a. Tentative construction schedule.
    - b. Phasing.
    - c. Critical work sequencing and long-lead items.
    - d. Designation of key personnel and their duties.
    - e. Lines of communications.
    - f. Procedures for processing field decisions and Change Orders.
    - g. Procedures for RFIs.
    - h. Procedures for testing and inspecting.
    - i. Procedures for processing Applications for Payment.
    - j. Distribution of the Contract Documents.
    - k. Submittal procedures.
    - l. Preparation of record documents.
    - m. Use of the premises and existing building.
    - n. Work restrictions.
    - o. Working hours.
    - p. Owner's occupancy requirements.
    - q. Responsibility for temporary facilities and controls.
    - r. Procedures for moisture and mold control.
    - s. Procedures for disruptions and shutdowns.
    - t. Construction waste management and recycling.
    - u. Parking availability.
    - v. Office, work, and storage areas.
    - w. Equipment deliveries and priorities.
    - x. First aid.
    - y. Security.
    - z. Progress cleaning.
  4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

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- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, of scheduled meeting dates.
  2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
    - a. Contract Documents.
    - b. Options.
    - c. Related RFIs.
    - d. Related Change Orders.
    - e. Purchases.
    - f. Deliveries.
    - g. Submittals.
    - h. Review of mockups.
    - i. Possible conflicts.
    - j. Compatibility requirements.
    - k. Time schedules.
    - l. Weather limitations.
    - m. Manufacturer's written instructions.
    - n. Warranty requirements.
    - o. Compatibility of materials.
    - p. Acceptability of substrates.
    - q. Temporary facilities and controls.
    - r. Space and access limitations.
    - s. Regulations of authorities having jurisdiction.
    - t. Testing and inspecting requirements.
    - u. Installation procedures.
    - v. Coordination with other work.
    - w. Required performance results.
    - x. Protection of adjacent work.
    - y. Protection of construction and personnel.
  3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
  4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
  5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Progress Meetings: Conduct progress meetings at regular intervals to be determined.
1. Coordinate dates of meetings with preparation of payment requests.

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2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
  - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
    - 1) Review schedule for next period.
  - b. Review present and future needs of each entity present, including the following:
    - 1) Interface requirements.
    - 2) Sequence of operations.
    - 3) Resolution of BIM component conflicts.
    - 4) Status of submittals.
    - 5) Deliveries.
    - 6) Off-site fabrication.
    - 7) Access.
    - 8) Site utilization.
    - 9) Temporary facilities and controls.
    - 10) Progress cleaning.
    - 11) Quality and work standards.
    - 12) Status of correction of deficient items.
    - 13) Field observations.
    - 14) Status of RFIs.
    - 15) Status of proposal requests.
    - 16) Pending changes.
    - 17) Status of Change Orders.
    - 18) Pending claims and disputes.
    - 19) Documentation of information for payment requests.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
  - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

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**PART 2 - PRODUCTS (Not Used)**

**PART 3 - EXECUTION (Not Used)**

END OF SECTION 01 31 00

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## **SECTION 01 33 00 - SUBMITTAL PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Requirements:
  - 1. Section 01 29 00 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
  - 2. Section 01 78 23 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
  - 3. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
  - 4. Section 01 79 00 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

#### **1.3 ACTION SUBMITTALS**

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
  - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
  - 2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
  - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
    - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

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4. Format: Arrange the following information in a tabular format:
  - a. Scheduled date for first submittal.
  - b. Specification Section number and title.
  - c. Submittal category: Action; informational.
  - d. Name of subcontractor.
  - e. Description of the Work covered.
  - f. Scheduled date for Architect's final release or approval.
  - g. Scheduled date of fabrication.
  - h. Scheduled dates for purchasing.
  - i. Scheduled dates for installation.
  - j. Activity or event number.

#### 1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
  1. Organize and submit by Specification Section number.
  2. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  3. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
  4. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
  5. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- B. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
  1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required.
  2. Resubmittal Review: Allow 15 days for review of each resubmittal.
- A. Electronic Submittals: **(Submittal Exchange may be used at Contractor's Option and Expense)** Identify and incorporate information in each electronic submittal file as follows:
  1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
  2. Name file with specification section, including revision identifier.

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3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
  4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Architect containing the following information:
    - a. Project name.
    - b. Date.
    - c. Name and address of Architect.
    - d. Name of Construction Manager.
    - e. Name of Contractor.
    - f. Name of firm or entity that prepared submittal.
    - g. Names of subcontractor, manufacturer, and supplier.
    - h. Category and type of submittal.
    - i. Submittal purpose and description.
    - j. Specification Section number and title.
    - k. Specification paragraph number or drawing designation and generic name for each of multiple items.
    - l. Drawing number and detail references, as appropriate.
    - m. Location(s) where product is to be installed, as appropriate.
    - n. Related physical samples submitted directly.
    - o. Indication of full or partial submittal.
    - p. Transmittal number.
    - q. Submittal and transmittal distribution record.
    - r. Other necessary identification.
    - s. Remarks.
- B. Options: Identify options requiring selection by Architect.
- C. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
  2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

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## **PART 2 - PRODUCTS**

### **2.1 SUBMITTAL PROCEDURES**

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Submit electronic submittals via email as PDF electronic files.
    - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
  2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
    - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
    - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's catalog cuts.
    - b. Manufacturer's product specifications.
    - c. Standard color charts.
    - d. Statement of compliance with specified referenced standards.
    - e. Testing by recognized testing agency.
    - f. Application of testing agency labels and seals.
    - g. Notation of coordination requirements.
    - h. Availability and delivery time information.
  4. For equipment, include the following in addition to the above, as applicable:
    - a. Wiring diagrams showing factory-installed wiring.
    - b. Printed performance curves.
    - c. Operational range diagrams.
    - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
  5. Submit Product Data before or concurrent with Samples.

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- C. **Shop Drawings:** Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. **Preparation:** Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Identification of products.
    - b. Schedules.
    - c. Compliance with specified standards.
    - d. Notation of coordination requirements.
    - e. Notation of dimensions established by field measurement.
    - f. Relationship and attachment to adjoining construction clearly indicated.
    - g. Seal and signature of professional engineer if specified.
- D. **Samples:** Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. **Identification:** Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of applicable Specification Section.
    - e. Specification paragraph number and generic name of each item.
  3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
  4. **Disposition:** Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  5. **Samples for Initial Selection:** Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. **Number of Samples:** Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

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6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
  - a. Number of Samples: Submit three sets of Samples.
    - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated. Refer to individual sections for detailed requirements.
    - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
  1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
  2. Manufacturer and product name, and model number if applicable.
  3. Number and name of room or space.
  4. Location within room or space.
- F. Coordination Drawing Submittals: Comply with requirements specified in Section 01 31 00 "Project Management and Coordination."
- G. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01 29 00 "Payment Procedures."
- H. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01 40 00 "Quality Requirements."
- I. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 01 77 00 "Closeout Procedures."
- J. Maintenance Data: Comply with requirements specified in Section 017823 "Operation and Maintenance Data."
- K. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

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- L. **Welding Certificates:** Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- M. **Installer Certificates:** Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- N. **Manufacturer Certificates:** Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- O. **Product Certificates:** Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- P. **Material Certificates:** Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- Q. **Material Test Reports:** Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- R. **Product Test Reports:** Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- S. **Research Reports:** Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
  - 1. Name of evaluation organization.
  - 2. Date of evaluation.
  - 3. Time period when report is in effect.
  - 4. Product and manufacturers' names.
  - 5. Description of product.
  - 6. Test procedures and results.
  - 7. Limitations of use.
- T. **Preconstruction Test Reports:** Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- U. **Compatibility Test Reports:** Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

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- V. **Field Test Reports:** Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- W. **Design Data:** Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

### **PART 3 - EXECUTION**

#### **3.1 CONTRACTOR'S REVIEW**

- A. **Action and Informational Submittals:** Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. **Project Closeout and Maintenance Material Submittals:** See requirements in Section 01 77 00 "Closeout Procedures."
- C. **Approval Stamp:** Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

#### **3.2 ARCHITECT'S ACTION**

- A. **Submittals:** Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- B. **Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.**
- C. **Submittals not required by the Contract Documents may be returned by the Architect without action.**

END OF SECTION 01 33 00

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## **SECTION 01 40 00 - QUALITY REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
  - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
  - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
  - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
  - 4. Specific test and inspection requirements are not specified in this Section.

#### **1.3 DEFINITIONS**

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.

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- C. Mockups: Full-size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.
1. Laboratory Mockups: Full-size physical assemblies constructed at testing facility to verify performance characteristics.
  2. Integrated Exterior Mockups: Mockups of the exterior envelope erected separately from the building but on Project site, consisting of multiple products, assemblies, and subassemblies.
  3. Room Mockups: Mockups of typical interior spaces complete with wall, floor, and ceiling finishes, doors, windows, millwork, casework, specialties, furnishings and equipment, and lighting.
- D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- F. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- G. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- I. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- J. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

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#### 1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

#### 1.5 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data : For Contractor's quality-control personnel.
- C. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- D. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
  - 1. Specification Section number and title.
  - 2. Entity responsible for performing tests and inspections.
  - 3. Description of test and inspection.
  - 4. Identification of applicable standards.
  - 5. Identification of test and inspection methods.
  - 6. Number of tests and inspections required.
  - 7. Time schedule or time span for tests and inspections.
  - 8. Requirements for obtaining samples.
  - 9. Unique characteristics of each quality-control service.

#### 1.6 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.

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- B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
  - 1. Project quality-control manager may also serve as Project superintendent.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
  - 1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
  - 2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."
  - 3. Owner-performed tests and inspections indicated in the Contract Documents.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

## 1.7 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
  - 1. Date of issue.
  - 2. Project title and number.
  - 3. Name, address, and telephone number of testing agency.
  - 4. Dates and locations of samples and tests or inspections.
  - 5. Names of individuals making tests and inspections.
  - 6. Description of the Work and test and inspection method.
  - 7. Identification of product and Specification Section.
  - 8. Complete test or inspection data.
  - 9. Test and inspection results and an interpretation of test results.
  - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.

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11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. **Manufacturer's Technical Representative's Field Reports:** Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. **Factory-Authorized Service Representative's Reports:** Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

D. **Permits, Licenses, and Certificates:** For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

## 1.8 QUALITY ASSURANCE

- A. **General:** Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. **Manufacturer Qualifications:** A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. **Fabricator Qualifications:** A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

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- D. **Installer Qualifications:** A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. **Professional Engineer Qualifications:** A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. **Specialists:** Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
  - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. **Manufacturer's Technical Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- H. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. **Mockups:** Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
  - 1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
  - 2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
  - 3. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed during the construction at Project.
  - 4. Demonstrate the proposed range of aesthetic effects and workmanship.
  - 5. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
    - a. Allow seven days for initial review and each re-review of each mockup.
  - 6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
  - 7. Demolish and remove mockups when directed unless otherwise indicated.

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## 1.9 QUALITY CONTROL

- A. **Owner Responsibilities:** Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
  2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.
  3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. **Contractor Responsibilities:** Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
  2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
  3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
  4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
  5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
  6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. **Manufacturer's Field Services:** Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00 "Submittal Procedures."
- D. **Manufacturer's Technical Services:** Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. **Retesting/Reinspecting:** Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

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- F. **Testing Agency Responsibilities:** Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
  2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
  3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
  4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
  5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
  6. Do not perform any duties of Contractor.
- G. **Associated Services:** Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
  2. Incidental labor and facilities necessary to facilitate tests and inspections.
  3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
  4. Facilities for storage and field curing of test samples.
  5. Delivery of samples to testing agencies.
  6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
  7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. **Coordination:** Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. **Schedule of Tests and Inspections:** Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. **Distribution:** Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

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## 1.10 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviews the completeness and adequacy of those procedures to perform the Work.
  2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
  3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
  4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
  5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
  6. Retesting and reinspecting corrected work.

## PART 2 - PRODUCTS (Not Used)

## PART 3 - EXECUTION

### 3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
  2. Description of the Work tested or inspected.
  3. Date test or inspection results were transmitted to Architect.
  4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

### 3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 73 00 "Execution."

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- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

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## **SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
  - 1. Section 01 10 00 "Summary" for work restrictions and limitations on utility interruptions.

#### **1.3 USE CHARGES**

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

#### **1.4 INFORMATIONAL SUBMITTALS**

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

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- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- D. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.
  - 1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
  - 2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
  - 3. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
- E. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
  - 1. Locations of dust-control partitions at each phase of work.
  - 2. HVAC system isolation schematic drawing.
  - 3. Location of proposed air-filtration system discharge.
  - 4. Waste handling procedures.
  - 5. Other dust-control measures.

## 1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with requirements of Authority Having Jurisdiction.

## 1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures.

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## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized-steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top rails.
- B. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil (0.25-mm) minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.
- C. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches (914 by 1624 mm).
- D. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

### **2.2 TEMPORARY FACILITIES**

- A. Field Offices, General: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

### **2.3 EQUIPMENT**

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
  - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
  - 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV or 8 at each return-air grille in system and remove at end of construction and clean HVAC system as required in Section 01 77 00 "Closeout Procedures".
    - a. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.
- C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

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### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION, GENERAL**

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
  - 1. Locate facilities to limit site disturbance as specified in Section 01 10 00 "Summary."
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

#### **3.2 TEMPORARY UTILITY INSTALLATION**

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
  - 2. Obtain easements to bring temporary utilities to the site.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
  - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.
- D. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
  - 1. Prior to commencing work, isolate the HVAC system in area where work is to be performed according to coordination drawings.
    - a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
    - b. Maintain negative air pressure within work area using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.

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2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
  3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.
- E. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.
- F. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
- G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
  2. Install lighting for Project identification sign.
- H. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install one telephone line for each field office.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
  2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas as indicated on Drawings.
1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.

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- C. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
  - 1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
  - 2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to Section 31 200 0 "Earth Moving."
  - 3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
- D. Traffic Controls: Comply with requirements of authorities having jurisdiction.
  - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
  - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- E. Parking: Provide temporary parking areas for construction personnel.
- F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
  - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
  - 2. Remove snow and ice as required to minimize accumulations.
- G. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.
- H. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
  - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
  - 1. Comply with work restrictions specified in Section 01 10 00 "Summary."

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- C. Temporary Erosion and Sedimentation Control: Comply with requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 31 25 00 "Erosion and Sedimentation Control".
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- F. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.
- G. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
  - 1. Extent of Fence: As indicated on Drawings.
  - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel.
- H. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
  - 1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- I. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- J. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- K. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
  - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

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- L. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner from fumes and noise.
  - 1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
  - 2. Construct dustproof partitions with two layers of 6-mil (0.14-mm) polyethylene sheet on each side. Cover floor with two layers of 6-mil (0.14-mm) polyethylene sheet, extending sheets 18 inches (460 mm) up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant-treated plywood.
    - a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches (1219 mm) between doors. Maintain water-dampened foot mats in vestibule.
  - 3. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
  - 4. Insulate partitions to control noise transmission to occupied areas.
  - 5. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
  - 6. Protect air-handling equipment.
  - 7. Provide walk-off mats at each entrance through temporary partition.
- M. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
  - 1. Prohibit smoking in construction areas.
  - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
  - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
  - 4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.
- N. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere as required to maintain a neat and orderly site.
- O. Hazardous Wastes: Hazardous wastes shall be separated, stored, and disposed of according to local regulations.
- P. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

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### 3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
  
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
  - 1. Protect porous materials from water damage.
  - 2. Protect stored and installed material from flowing or standing water.
  - 3. Keep porous and organic materials from coming into prolonged contact with concrete.
  - 4. Remove standing water from decks.
  - 5. Keep deck openings covered or dammed.
  
- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
  - 1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
  - 2. Keep interior spaces reasonably clean and protected from water damage.
  - 3. Periodically collect and remove waste containing cellulose or other organic matter.
  - 4. Discard or replace water-damaged material.
  - 5. Do not install material that is wet.
  - 6. Discard, replace, or clean stored or installed material that begins to grow mold.
  - 7. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.
  
- D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
  - 1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
  - 2. Use permanent HVAC system to control humidity.
  - 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
    - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective.
    - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
    - c. Remove materials that can not be completely restored to their manufactured moisture level within 48 hours.

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### 3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
  - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
  - 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
  - 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 77 00 "Closeout Procedures."

END OF SECTION 01 50 00

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## **SECTION 01 73 00 - EXECUTION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Cutting and patching.
5. Progress cleaning.
6. Starting and adjusting.
7. Protection of installed construction.

- B. Related Requirements:

1. Section 01 10 00 "Summary" for limits on use of Project site.
2. Section 01 33 00 "Submittal Procedures" for submitting surveys.
3. Section 01 77 00 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
4. Section 02 41 19 "Selective Demolition" for demolition and removal of selected portions of the building.

#### **1.3 DEFINITIONS**

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

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#### 1.4 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
  
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
  - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
    - a. Primary operational systems and equipment.
    - b. Fire separation assemblies.
    - c. Air or smoke barriers.
    - d. Fire-suppression systems.
    - e. Mechanical systems piping and ducts.
    - f. Control systems.
    - g. Communication systems.
    - h. Fire-detection and -alarm systems.
    - i. Conveying systems.
    - j. Electrical wiring systems.
    - k. Operating systems of special construction.
  - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
    - a. Water, moisture, or vapor barriers.
    - b. Membranes and flashings.
    - c. Exterior curtain-wall construction.
    - d. Sprayed fire-resistive material.
    - e. Equipment supports.
    - f. Piping, ductwork, vessels, and equipment.
    - g. Noise- and vibration-control elements and systems.
  - 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

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- C. **Manufacturer's Installation Instructions:** Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. **General:** Comply with requirements specified in other Sections.
- B. **In-Place Materials:** Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. **Existing Conditions:** The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
  - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
  - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. **Examination and Acceptance of Conditions:** Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance.
  - 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  - 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  - 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

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- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 01 31 00 "Project Management and Coordination."

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
  - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  - 2. Establish limits on use of Project site.
  - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 4. Inform installers of lines and levels to which they must comply.
  - 5. Check the location, level and plumb, of every major element as the Work progresses.
  - 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
  - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

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- D. **Building Lines and Levels:** Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

### 3.4 FIELD ENGINEERING

- A. **Identification:** Owner will identify existing benchmarks, control points, and property corners.
- B. **Reference Points:** Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
  - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
  - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. **Benchmarks:** Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
  - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
  - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
  - 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

### 3.5 INSTALLATION

- A. **General:** Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

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- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  - 2. Allow for building movement, including thermal expansion and contraction.
  - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
  - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.

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- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 10 00 "Summary."
- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas. Coordinate with utility provider if utility is to be abandoned.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
  - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
  - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
  - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
  - 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
  - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
  - 6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
  - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.

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3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
  4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

### 3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
  3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Use containers intended for holding waste materials of type to be stored.
  4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
  2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

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- D. **Installed Work:** Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. **Concealed Spaces:** Remove debris from concealed spaces before enclosing the space.
- F. **Exposed Surfaces in Finished Areas:** Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. **Waste Disposal:** Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 50 00 "Temporary Facilities and Controls".
- H. **During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.**
- I. **Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.**
- J. **Limiting Exposures:** Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.8 STARTING AND ADJUSTING

- A. **Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.**
- B. **Adjust equipment for proper operation. Adjust operating components for proper operation without binding.**
- C. **Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.**

### 3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. **Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.**
- B. **Comply with manufacturer's written instructions for temperature and relative humidity.**

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- C. Clean and protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage or deterioration at Substantial Completion.
- D. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.
- E. Limiting Exposures: Supervise construction operations to assure that not part of the construction, completed or in progress is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to the following:
  - 1. Excessive static or dynamic loading.
  - 2. Excessively high or low temperatures.
  - 3. Excessively high or low humidity.
  - 4. Water or ice.
  - 5. Solvents.
  - 6. Chemicals.
  - 7. Light.
  - 8. Puncture.
  - 9. Abrasion.
  - 10. Heavy traffic.
  - 11. Soiling, staining, corrosion.
  - 12. Rodent and insect infestation.
  - 13. Electrical current.
  - 14. Improper lubrication.
  - 15. Unusual wear or other misuse.
  - 16. Contact between incompatible materials.
  - 17. Misalignment.
  - 18. Excessive weathering.
  - 19. Unprotected storage.
  - 20. Improper shipping or handling.
  - 21. Theft.
  - 22. Vandalism.

END OF SECTION 01 73 00

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## **SECTION 01 77 00 - CLOSEOUT PROCEDURES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.
- B. Related Requirements:
  - 1. Section 01 73 00 "Execution" for progress cleaning of Project site.
  - 2. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 3. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
  - 4. Section 01 79 00 "Demonstration and Training" for requirements for instructing Owner's personnel.

#### **1.3 CLOSEOUT SUBMITTALS**

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

#### **1.4 MAINTENANCE MATERIAL SUBMITTALS**

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

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## 1.5 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
  
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
  - 1. In the Application for Payment that first follows the date of Substantial Completion, show supporting documentation for completion and a statement showing an accounting of changes to the Contract Sum.
    - a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
  - 2. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
  - 3. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
  - 4. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
  - 5. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
  - 6. Submit test/adjust/balance records.
  - 7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
  
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
  - 1. Advise Owner of pending insurance changeover requirements.
  - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
  - 3. Complete startup and testing of systems and equipment.
  - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
  - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 01 79 00 "Demonstration and Training."
  - 6. Advise Owner of changeover in heat and other utilities.
  - 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.

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8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements, including touchup painting.
10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

## 1.6 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 01 29 00 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

## 1.7 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties as indicated in individual sections for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

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- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
  - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive **8-1/2-by-11-inch (215-by-280-mm)** paper.
  - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
  - 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

## **PART 2 - PRODUCTS**

### **2.1 MATERIALS**

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

## **PART 3 - EXECUTION**

### **3.1 FINAL CLEANING**

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

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- B. **Cleaning:** Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - e. Remove snow and ice to provide safe access to building.
    - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    - h. Sweep concrete floors broom clean in unoccupied spaces.
    - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
    - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
    - k. Remove labels that are not permanent.
    - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
    - m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
    - n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
    - o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
      - 1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report on completion of cleaning.
    - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
    - q. Leave Project clean and ready for occupancy.
- C. **Pest Control:** Comply with pest control requirements in Section 01 50 00 "Temporary Facilities and Controls." Prepare written report.

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### 3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
  
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
  - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
  - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
    - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
  - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
  - 4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 01 77 00

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## **SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation and maintenance documentation directory.
  - 2. Operation manuals for systems, subsystems, and equipment.
  - 3. Product maintenance manuals.
  - 4. Systems and equipment maintenance manuals.
- B. Related Requirements:
  - 1. Section 01 33 00 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

#### **1.3 CLOSEOUT SUBMITTALS**

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
  - 1. Architect will comment on whether content of operations and maintenance submittals are acceptable.
  - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
  - 1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Architect.
    - a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
    - b. Enable inserted reviewer comments on draft submittals.

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- C. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
  - 1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

## **PART 2 - PRODUCTS**

### **2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY**

- A. Directory: Prepare a single, comprehensive directory of emergency, operation, and maintenance data and materials, listing items and their location to facilitate ready access to desired information. Include a section in the directory for each of the following:
  - 1. List of documents.
  - 2. List of systems.
  - 3. List of equipment.
  - 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

### **2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS**

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
  - 1. Title page.
  - 2. Table of contents.
  - 3. Manual contents.

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- B. Title Page: Include the following information:
1. Subject matter included in manual.
  2. Name and address of Project.
  3. Name and address of Owner.
  4. Date of submittal.
  5. Name and contact information for Contractor.
  6. Name and contact information for Construction Manager.
  7. Name and contact information for Architect.
  8. Name and contact information for Commissioning Authority.
  9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
  10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
  2. File Names and Bookmarks: Enable bookmarking of individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

## 2.3 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
  2. Performance and design criteria if Contractor has delegated design responsibility.
  3. Operating standards.

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4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

## 2.4 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

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- B. **Source Information:** List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. **Product Information:** Include the following, as applicable:
  - 1. Product name and model number.
  - 2. Manufacturer's name.
  - 3. Color, pattern, and texture.
  - 4. Material and chemical composition.
  - 5. Reordering information for specially manufactured products.
- D. **Maintenance Procedures:** Include manufacturer's written recommendations and the following:
  - 1. Inspection procedures.
  - 2. Types of cleaning agents to be used and methods of cleaning.
  - 3. List of cleaning agents and methods of cleaning detrimental to product.
  - 4. Schedule for routine cleaning and maintenance.
  - 5. Repair instructions.
- E. **Repair Materials and Sources:** Include lists of materials and local sources of materials and related services.
- F. **Warranties and Bonds:** Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
  - 1. Include procedures to follow and required notifications for warranty claims.

## 2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. **Content:** For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. **Source Information:** List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. **Manufacturers' Maintenance Documentation:** Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
  - 1. Standard maintenance instructions and bulletins.

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2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
  3. Identification and nomenclature of parts and components.
  4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
  2. Troubleshooting guide.
  3. Precautions against improper maintenance.
  4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  5. Aligning, adjusting, and checking instructions.
  6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
  2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

### **PART 3 - EXECUTION**

#### **3.1 MANUAL PREPARATION**

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

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- C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
  - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
  - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
  
- D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
  
- E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
  - 1. Do not use original project record documents as part of operation and maintenance manuals.
  - 2. Comply with requirements of newly prepared record Drawings in Section 01 78 39 "Project Record Documents."
  
- F. Comply with Section 01 77 00 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 78 23

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## **SECTION 01 78 39 - PROJECT RECORD DOCUMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for project record documents, including the following:
  - 1. Record Drawings.
  - 2. Record Specifications.
  - 3. Record Product Data.
  - 4. Miscellaneous record submittals.
- B. Related Requirements:
  - 1. Section 01 77 00 "Closeout Procedures" for general closeout procedures.
  - 2. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.

#### **1.3 CLOSEOUT SUBMITTALS**

- A. Submit record documents to the Architect for the Owner's records within 30 calendar days of Substantial Completion, without any mitigating circumstances. Failure to submit all required documents listed herein within this timeframe shall result in the 5% project retainage being held until such time that documents are provided in their entirety.
- B. Record Drawings: Comply with the following:
  - a. Final Submittal:
    - 1) Submit one paper-copy set(s) of marked-up record prints.
      - a) Submit one clean, undamaged set of Contract Drawings and Shop Drawings with all Addendums and contract modifications posted.
    - 2) Submit record digital data files in PDF format.
    - 3) Plot each drawing file, whether or not changes and additional information were recorded.

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- C. Record Specifications: Submit one paper copy and annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- D. Record Product Data: Submit one paper copy and annotated PDF electronic files and directories of each submittal.
  - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- E. Record Samples: Meet at the site with the Architect and the Owner's personnel to determine which of the submitted samples are to be transmitted to the Owner for record purposes.

## **PART 2 - PRODUCTS**

### **2.1 RECORD DRAWINGS**

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
  - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
    - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    - b. Accurately record information in an acceptable drawing technique.
    - c. Record data as soon as possible after obtaining it.
    - d. Record and check the markup before enclosing concealed installations.
    - e. Cross-reference record prints to corresponding archive photographic documentation.
  - 2. Content: Types of items requiring marking include, but are not limited to, the following:
    - a. Dimensional changes to Drawings.
    - b. Revisions to details shown on Drawings.
    - c. Depths of foundations below first floor.
    - d. Locations and depths of underground utilities.
    - e. Revisions to routing of piping and conduits.
    - f. Revisions to electrical circuitry.
    - g. Actual equipment locations.
    - h. Duct size and routing.
    - i. Locations of concealed internal utilities.
    - j. Changes made by Change Order or Construction Change Directive.
    - k. Changes made following Architect's written orders.
    - l. Details not on the original Contract Drawings.
    - m. Field records for variable and concealed conditions.
    - n. Record information on the Work that is shown only schematically.

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3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark important additional information that was either shown schematically or omitted from original Drawings.
5. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
  1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
  3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
  4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
  5. Note related Change Orders, record Product Data, and record Drawings where applicable.
- B. Format: Submit record Specifications as annotated PDF electronic file and paper copy.

## 2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
  1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
  2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
  3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product Data as annotated PDF electronic file and paper copy.
  1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

## 2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

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- B. Format: Submit miscellaneous record submittals as PDF electronic file and paper copy.
  - 1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

### **PART 3 - EXECUTION**

#### **3.1 RECORDING AND MAINTENANCE**

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 01 78 39

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## **SECTION 01 79 00 - DEMONSTRATION AND TRAINING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
  - 1. Demonstration of operation of systems, subsystems, and equipment.
  - 2. Training in operation and maintenance of systems, subsystems, and equipment.
  - 3. Demonstration and training video recordings.

#### **1.3 INFORMATIONAL SUBMITTALS**

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
- B. Attendance Record: For each training module, submit list of participants and length of instruction time.
- C. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

#### **1.4 CLOSEOUT SUBMITTALS**

- A. Demonstration and Training Video Recordings: Submit two copies within seven days of end of each training module.
  - 1. Identification: On each copy, provide an applied label with the following information:
    - a. Name of Project.
    - b. Name and address of videographer.
    - c. Name of Architect.
    - d. Name of Construction Manager.
    - e. Name of Contractor.

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- f. Date of video recording.
2. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
3. At completion of training, submit complete training manual(s) for Owner's use in PDF electronic file format on compact disc.

## 1.5 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 01 40 00 "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
  1. Inspect and discuss locations and other facilities required for instruction.
  2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
  3. Review required content of instruction.
  4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

## 1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

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## **PART 2 - PRODUCTS**

### **2.1 INSTRUCTION PROGRAM**

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
  - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
    - a. System, subsystem, and equipment descriptions.
    - b. Performance and design criteria if Contractor is delegated design responsibility.
    - c. Operating standards.
    - d. Regulatory requirements.
    - e. Equipment function.
    - f. Operating characteristics.
    - g. Limiting conditions.
    - h. Performance curves.
  - 2. Documentation: Review the following items in detail:
    - a. Operations manuals.
    - b. Maintenance manuals.
    - c. Project record documents.
    - d. Identification systems.
    - e. Warranties and bonds.
    - f. Maintenance service agreements and similar continuing commitments.
  - 3. Emergencies: Include the following, as applicable:
    - a. Instructions on meaning of warnings, trouble indications, and error messages.
    - b. Instructions on stopping.
    - c. Shutdown instructions for each type of emergency.
    - d. Operating instructions for conditions outside of normal operating limits.
    - e. Sequences for electric or electronic systems.
    - f. Special operating instructions and procedures.
  - 4. Operations: Include the following, as applicable:
    - a. Startup procedures.
    - b. Equipment or system break-in procedures.
    - c. Routine and normal operating instructions.
    - d. Regulation and control procedures.
    - e. Control sequences.

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- f. Safety procedures.
  - g. Instructions on stopping.
  - h. Normal shutdown instructions.
  - i. Operating procedures for emergencies.
  - j. Operating procedures for system, subsystem, or equipment failure.
  - k. Seasonal and weekend operating instructions.
  - l. Required sequences for electric or electronic systems.
  - m. Special operating instructions and procedures.
5. Adjustments: Include the following:
- a. Alignments.
  - b. Checking adjustments.
  - c. Noise and vibration adjustments.
  - d. Economy and efficiency adjustments.
6. Troubleshooting: Include the following:
- a. Diagnostic instructions.
  - b. Test and inspection procedures.
7. Maintenance: Include the following:
- a. Inspection procedures.
  - b. Types of cleaning agents to be used and methods of cleaning.
  - c. List of cleaning agents and methods of cleaning detrimental to product.
  - d. Procedures for routine cleaning
  - e. Procedures for preventive maintenance.
  - f. Procedures for routine maintenance.
  - g. Instruction on use of special tools.
8. Repairs: Include the following:
- a. Diagnosis instructions.
  - b. Repair instructions.
  - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
  - d. Instructions for identifying parts and components.
  - e. Review of spare parts needed for operation and maintenance.

## **PART 3 - EXECUTION**

### **3.1 PREPARATION**

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 01 78 23 "Operation and Maintenance Data."

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- B. Set up instructional equipment at instruction location.

### 3.2 INSTRUCTION

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
  - 1. Architect will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
  - 2. Owner will furnish an instructor to describe Owner's operational philosophy.
  - 3. Owner will furnish Contractor with names and positions of participants.
- B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
  - 1. Schedule training with Owner with at least seven days' advance notice.
- C. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- D. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

### 3.3 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
  - 1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Video: Provide minimum 640 x 480 video resolution converted to format file type acceptable to Owner, on electronic media.
  - 1. Electronic Media: Read-only format compact disc acceptable to Owner, with commercial-grade graphic label.
  - 2. File Hierarchy: Organize folder structure and file locations according to project manual table of contents. Provide complete screen-based menu.
  - 3. File Names: Utilize file names based upon name of equipment generally described in video segment, as identified in Project specifications.

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4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the Equipment Demonstration and Training DVD that describes the following for each Contractor involved on the Project, arranged according to Project table of contents:
  - a. Name of Contractor/Installer.
  - b. Business address.
  - c. Business phone number.
  - d. Point of contact.
  - e. E-mail address.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
  1. Film training session(s) in segments not to exceed 15 minutes.
    - a. Produce segments to present a single significant piece of equipment per segment.
    - b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
    - c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
  1. Furnish additional portable lighting as required.
- E. Narration: Describe scenes on video recording by audio narration by microphone while video recording is recorded. Include description of items being viewed.
- F. Transcript: Provide a transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.
- G. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

END OF SECTION 01 79 00

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## **SECTION 02 41 19 - SELECTIVE DEMOLITION**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Demolition and removal of selected portions of building or structure.
  - 2. Salvage of existing items to be reused or recycled.
- B. Related Requirements:
  - 1. Section 01 10 00 "Summary" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.

#### **1.3 DEFINITIONS**

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

#### **1.4 MATERIALS OWNERSHIP**

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

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- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
  - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

#### 1.5 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.
  - 1. Inspect and discuss condition of construction to be selectively demolished.
  - 2. Review structural load limitations of existing structure.
  - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
  - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
  - 5. Review areas where existing construction is to remain and requires protection.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For refrigerant recovery technician.
- B. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- C. Schedule of Selective Demolition Activities: Indicate the following:
  - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
  - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
  - 3. Coordination for shutoff, capping, and continuation of utility services.
  - 4. Use of elevator and stairs.
  - 5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- D. Predemolition Photographs or Video: Submit before Work begins.
- E. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

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## 1.7 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

## 1.8 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
  - 1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. Maintain fire-protection facilities in service during selective demolition operations.

## 1.9 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties. Notify warrantor before proceeding.
- B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

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## **PART 2 - PRODUCTS**

### **2.1 PERFORMANCE REQUIREMENTS**

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.
- C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.
  - 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.

### **3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS**

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
  - 1. Owner will arrange to shut off indicated services/systems when requested by Contractor.

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2. Arrange to shut off indicated utilities with utility companies.
  3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
  4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
    - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
    - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.
- C. Refrigerant: Remove refrigerant from mechanical equipment to be selectively demolished according to 40 CFR 82 and regulations of authorities having jurisdiction.

### 3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  4. Cover and protect furniture, furnishings, and equipment that have not been removed.
  5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01 50 00 "Temporary Facilities and Controls."

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- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
  - 1. Strengthen or add new supports when required during progress of selective demolition.

### 3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
  - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  - 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
  - 5. Maintain adequate ventilation when using cutting torches.
  - 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  - 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  - 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
  - 9. Dispose of demolished items and materials promptly.
- B. Removed and Salvaged Items:
  - 1. Store items in a secure area until delivery to Owner.
  - 2. Transport items to Owner's storage area designated by Owner.
  - 3. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
  - 1. Clean and repair items to functional condition adequate for intended reuse.
  - 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
  - 3. Protect items from damage during transport and storage.

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4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

### 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least **3/4 inch (19 mm)** at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.
- B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, then remove concrete between saw cuts.
- C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, then remove masonry between saw cuts.
- D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- E. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings."
- F. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight. See Section "" for new roofing requirements.
  1. Remove existing roofing system to the extent indicated in the drawings.

### 3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them.
  1. Do not allow demolished materials to accumulate on-site.
  2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
  3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.

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- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

### 3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19

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## **SECTION 07 92 00 - JOINT SEALANTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Mildew-resistant joint sealants.
  - 2. Latex joint sealants.
- B. Related Requirements:

#### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each joint-sealant product.
- B. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

#### **1.4 INFORMATIONAL SUBMITTALS**

- A. Product Test Reports: For each kind of joint sealant, for tests performed by manufacturer and witnessed by a qualified testing agency.
- B. Sample Warranties: For special warranties.

#### **1.5 QUALITY ASSURANCE**

- A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
- B. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

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## 1.6 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
  2. When joint substrates are wet.
  3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

## 1.7 WARRANTY

- A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
  2. Disintegration of joint substrates from causes exceeding design specifications.
  3. Mechanical damage caused by individuals, tools, or other outside agents.
  4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

## PART 2 - PRODUCTS

### 2.1 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

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- B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following:
  - 1. Sealants and sealant primers for nonporous substrates shall have a VOC content of 250 g/L or less.
  - 2. Sealants and sealant primers for nonporous substrates shall have a VOC content of 775 g/L or less.
- C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.
- D. Manufacturers: Subject to compliance with requirements, provide products from one of the following:
  - 1. Pecora Corp.
  - 2. Sonneborn Building Products Div., ChemRex, Inc.
  - 3. GE
  - 4. Bostic
  - 5. BASF
  - 6. Sika
  - 7. Or equal, if and as specifically approved by Architect by Addendum during bidding period.

## 2.2 MILDEW-RESISTANT JOINT SEALANTS

- A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.
- B. Silicone, Mildew Resistant, Neutral Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.
  - 1. **Products:** Subject to compliance with requirements, provide the following:
    - a. **Pecora Corporation**; 898NST.

## 2.3 LATEX JOINT SEALANTS

- A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
  - 1. **Products:** Subject to compliance with requirements, provide the following:
    - a. **Pecora Corporation**; AC-20.

## 2.4 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

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- B. Cylindrical Sealant Backings: ASTM C 1330. As approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

## 2.5 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
  - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

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2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
    - a. Concrete.
    - b. Masonry.
    - c. Unglazed surfaces of ceramic tile.
    - d. Exterior insulation and finish systems.
  3. Remove laitance and form-release agents from concrete.
  4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
    - a. Metal.
    - b. Glass.
    - c. Porcelain enamel.
    - d. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  1. Do not leave gaps between ends of sealant backings.
  2. Do not stretch, twist, puncture, or tear sealant backings.
  3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.

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- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  - 1. Place sealants so they directly contact and fully wet joint substrates.
  - 2. Completely fill recesses in each joint configuration.
  - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
  - 1. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.
  - 2. Provide flush joint profile at locations indicated on Drawings according to Figure 8B in ASTM C 1193.

### 3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

### 3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

### 3.6 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.
  - 1. Joint Locations:
    - a. Control and expansion joints on exposed interior surfaces of exterior walls.
    - b. Tile control and expansion joints.
    - c. Vertical joints on exposed surfaces of unit masonry concrete walls and partitions.
    - d. Joints on underside of plant-precast structural concrete.
    - e. All vertical interior urethane resisting joints.

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2. Joint Sealant: Silicone, NS, 25, NT.
  3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement.
1. Joint Locations:
    - a. All interior joints not otherwise indicated.
  2. Joint Sealant: Acrylic latex.
  3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- C. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Locations:
    - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
    - b. Tile control and expansion joints where indicated.
  2. Joint Sealant: Silicone, mildew resistant.
  3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 07 92 00

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## **SECTION 08 11 13 - STANDARD STEEL DOORS AND FRAMES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.
  - 1. See Division 1 "Supplementary Conditions", if included, for requirements relating to interpretation of the drawings and specifications.

#### **1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Products manufactured in accordance with SDI Recommended Standards:
    - a. Doors: Seamless, hollow or composite construction standard steel doors for interior and exterior locations.
    - b. Frames: Pressed steel frames for doors, transoms, sidelights, and other interior and exterior openings of following type:
      - 1) Full welded unit type with corners mitered, reinforced, and welded full depth and width of frame.
    - c. Assemblies: Provide standard steel door and frame assemblies as required for the following:
      - 1) Labeled and fire rated.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. See Section 08 14 16 "Flush Wood Doors" for wood doors.
  - 2. See Section 08 71 00 "Finish Hardware" for door hardware.
  - 3. See Section 08 80 00 "Glass and Glazing" for glass and glazing.
  - 4. See Section 09 91 00 "Painting" for painting primed doors and frames.

#### **1.3 SUBMITTALS**

- A. Product data for each type of door and frame specified.

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- B. Shop drawings showing fabrication and installation of standard steel doors and frames. Provide schedule using same reference numbers as on contract drawings.

#### 1.4 QUALITY ASSURANCE

- A. Provide doors and frames by the same manufacturer.
- B. Provide doors and frames complying with Steel Door Institute "Recommended Specifications Standard Steel Doors and Frames" ANSI/SDI-100.
- C. Fire-Rated Door Assemblies: Units that comply with NFPA 80, are identical to door and frame assemblies tested for fire-test-response characteristics per ASTM E 152, and are labeled and listed by UL, Warnock Hersey, or another testing and inspecting agency acceptable to authorities having jurisdiction.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection as required.
- B. Inspect doors and frames upon delivery for damage. Minor damages may be repaired provided refinished items are equal in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.
- C. Store doors and frames at building site under cover. Place units on blocking and provide air circulation in and around stacked doors.

### **PART 2 - PRODUCTS**

#### 2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide standard steel doors and frames by one of the following:
  - 1. CECO
  - 2. Curries Company.
  - 3. Republic Builders Products.
  - 4. Steelcraft Manufacturing Co.

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## 2.2 MATERIALS

- A. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569 and ASTM A 568.
- B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.
- C. Galvanized Steel Sheets: Zinc-coated carbon steel sheets of commercial quality, ASTM A 526, or drawing quality, ASTM A 642, hot dipped galvanized, ASTM A 525, with A60 or G60 coating, mill phosphatized.
- D. Supports and Anchors: 18-gage sheet steel; galvanized with galvanized frames.
- E. Inserts, Bolts, and Fasteners: Manufacturer's standard units. Where items are to be built into exterior walls, hot-dip galvanize, ASTM A 153.
- F. Shop Applied Primer: Apply after fabrication. Rust-inhibitive enamel or paint, ANSI A224.1.

## 2.3 DOORS

- A. Provide metal doors of types and styles indicated on drawings or schedules.
  - 1. Interior Doors: ANSI/SDI-100, Grade II, heavy-duty, Model 2, minimum 18-gage cold-rolled sheet steel faces.
- B. Provide openings in doors for glazing, louvers or other panels where indicated. Provide non-removable glazing stops on outside of exterior doors and on secure side of interior doors. Glazing stops shall be minimum 20 gage steel.

## 2.4 FRAMES

- A. Provide metal frames for doors, sidelights and other openings, of types and styles as shown on drawings and schedules. Conceal fastenings. Fabricate frames with mitered and coped corners. Weld entire unit.
  - 1. Frame Type: 16-gauge cold-rolled steel at interior.
- B. Door Silencers: Except on weatherstripped frames, drill stops to receive 3 silencers on strike jambs of single-door frames and 2 silencers on heads of double-door frames.

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## 2.5 FABRICATION

- A. Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory-assembled before shipment, to assure proper assembly at project site. Comply with ANSI/SDI-100 requirements.
- B. Clearances: For non-fire-rated doors, not more than 1/8 inch at jambs and heads except between pairs of doors not more than 1/4 inch. Not more than 3/4 inch at bottom. See NFPA 80 for clearances at rated doors.
- C. Tolerances: Comply with SDI 117 "Manufacturing Tolerances Standard Steel Doors and Frames."
- D. Fabricate exterior doors, panels, and frames from galvanized sheet steel in accordance with SDI-112. Close top and bottom edges of exterior doors as integral part of door construction or by addition of minimum 16-gage inverted steel channels.
- E. Exposed Fasteners: Provide countersunk flat heads for exposed screws and bolts.
- F. Thermal-Rated (Insulating) Assemblies: At exterior locations, ASTM C 236 or ASTM C 976 on fully operable door assemblies, with U factor of 0.41 or better.
- G. Hardware Preparation: Prepare doors and frames to receive mortised and concealed hardware in accordance with final Door Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A115 Series Specifications for door and frame preparation for hardware.
- H. Reinforce doors and frames to receive surface-applied hardware. Drilling and tapping for surface-applied hardware may be done at project site.
- I. Locate hardware as indicated on final shop drawings or, if not indicated, in accordance with "Recommended Locations for Builder's Hardware on Standard Steel Doors and Frames," published by Door and Hardware Institute.
- J. Shop Painting: Clean, treat, and paint exposed surfaces of steel door and frame units, including galvanized surfaces. Apply shop coat of prime paint to provide a uniformly finished surface ready to receive finish paint.
  - 1. Clean steel surfaces of mill scale, rust, oil, grease, dirt and other foreign materials before application of paint.

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- K. Glazing Stops: Minimum 20-gauge steel or .040-inch-thick aluminum.
  - 1. Provide non-removable stops on outside of exterior doors and on secure side of interior doors for glass, louvers, and other panels in doors.
  - 2. Provide screw applied removable glazing beads on inside of glass, louvers, and other panels in doors.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

- A. Placing Frames: Comply with provisions of SDI-105 "Recommended Erection Instructions For Steel Frames," and ANSI/DHI A115-IG Installation Guide for Doors and Hardware unless otherwise indicated.
  - 1. Except for frames located at existing concrete, masonry or drywall installations, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces undamaged.
  - 2. Attach frames to metal stud framing with not less than 3 anchor clips at each jamb and to masonry construction with not less than 3 anchors per jamb.
  - 3. Jamb members shall be filled with batt insulation.
  - 4. Install fire-rated frames in accordance with NFPA Standard No. 80.
- B. Door Installation: Fit hollow metal doors accurately in frames, within clearances specified in ANSI/SDI-100.
  - 1. Install fire-rated doors in accordance with NFPA Standard No. 80.

#### **3.2 ADJUST AND CLEAN**

- A. Prime Coat Touch-up: Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.
- B. Final Adjustments: Check and readjust operating hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

END OF SECTION 08 11 13

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## **SECTION 08 71 00 – FINISH HARDWARE**

### **1. GENERAL**

#### **1.1 SUMMARY**

A. Section Includes:

1. Door Hardware.

B. Related Sections:

1. Section 08 11 13 - Metal Doors and Frames.

#### **1.2 REFERENCES**

A. Use date of standard in effect as of Bid date.

B. American National Standards Institute – ANSI 156.18 – Materials and Finishes.

C. ICC/ANSI A117.1 - 1998 – Specifications for making buildings and facilities usable by physically handicapped people.

D. ADA – Americans with Disabilities Act of

E. BHMA – Builders Hardware Manufacturers Association

F. DHI – Door and Hardware Institute

G. NFPA – National Fire Protection Association

1. NFPA 80 – Fire Doors and Windows
2. NFPA 101 – Life Safety Code
3. NFPA 105 – Smoke and Draft Control Door Assemblies
4. NFPA 252 – Fire Tests of Door Assemblies

H. UL – Underwriters Laboratories

1. UL10B – Fire Tests of Door Assemblies as amended to incorporate positive pressure testing.
2. UL 305 – Panic Hardware

I. WHI – Warnock Hersey Incorporated

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- J. Local applicable codes
- K. SDI – Steel Door Institute
- L. AWI – Architectural Woodwork Institute
- M. NAAMM – National Association of Architectural Metal Manufacturers

### 1.3 SUBMITTALS AND SUBSTITUTIONS

- A. SUBMITTALS: Submit PDF copies of schedule per Division 1. Organize vertically formatted schedule into “Hardware Sets” with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:
  - 1. Type, style, function, size, quantity and finish of hardware items.
  - 2. Use BHMA Finish codes per ANSI A156.18.
  - 3. Name, part number and manufacturer of each item.
  - 4. Fastenings and other pertinent information.
  - 5. Location of hardware set coordinated with floor plans and door schedule.
  - 6. Explanation of abbreviations, symbols, and codes contained in schedule.
  - 7. Mounting locations for hardware.
  - 8. Door and frame sizes, materials and degrees of swing.
  - 9. List of manufacturers used and their nearest representative with address and phone number.
  - 10. Catalog cuts.
  - 11. Manufacturer’s technical data and installation instructions for electronic hardware.
  - 12. Date of jobsite visit.
- B. Bid and submit manufacturer’s updated/improved item if scheduled item is discontinued.
- C. Make substitution requests in accordance with Division 1. Include product data and indicate benefit to the Project. Furnish operating samples on request.
  - 1. Items listed with no substitute manufacturers have been requested by Owner to meet existing standard.
- D. Furnish as-built/as-installed schedule with closeout documents, manufacturers’ installation, adjustment and maintenance information, and supplier’s final inspection report.

### 1.4 QUALITY ASSURANCE

- A. Qualifications:
  - 1. Hardware supplier: direct factory contract supplier who employs a

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2. Certified Architectural Hardware Consultant (AHC), available at reasonable times during course Work for project hardware consultation to Owner, Architect and Contractor. (This does not include DBA suppliers).

a. Responsible for detailing, scheduling and ordering of finish hardware.

B. Hardware: New, free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.

C. Exit Doors: Operable from inside with single motion without the use of a key or special knowledge or effort.

D. Fire-Rated Openings: NFPA 80 compliant. Hardware UL10C / UBC Standard 7-2 (positive pressure) compliant for given type/size opening and degree of label. Provide proper latching hardware, non-flaming door closers, approved-bearing hinges, and resilient seals. Coordinate with wood door section for required intumescent seals. Furnish openings complete.

E. Furnish hardware items required to complete the work in accordance with specified performance level and design intent, complying with manufacturers' instructions.

1. **Where scheduled item is now obsolete, bid and furnish manufacturer's updated item at no additional cost to Owner.**

F. Pre-Installation Meetings: Initiate and conduct with supplier, installer and related trades, coordinate materials and techniques, and sequence complex hardware items and systems installation. Include manufacturers' representatives of locks, panic hardware and door closers in the meetings. Convene at least one week prior to commencement of related work.

#### 1.5 DELIVERY, STORAGE AND HANDLING

A. Delivery: coordinate delivery to appropriate locations (shop or field).

1. Permanent keys and cores: secured delivery direct to Owner's representative.
2. Hardware for aluminum door manufacture direct to supplier excluding power supplies, electrical boards and actuators

B. Acceptance at Site: Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.

C. Storage: Provide securely locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, dust, excessive heat and cold, etc.

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## 1.6 PROJECT CONDITIONS

- A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical as the same operation and quality as type specified, subject to Architect's approval.
- B. Prior to submittal, carefully inspect existing conditions to verify finish hardware required to complete Work, including sizes, quantities, existing hardware scheduled for re-use, and sill condition material. If conflict between the specified/scheduled hardware and existing conditions, submit request for direction from Architect. Include date of jobsite visit in the submittal.
  - 1. Submittals prepared without thorough jobsite visit by qualified hardware expert will be rejected as non-compliant.

## 1.7 SEQUENCING AND COORDINATION

- A. Reinforce walls for wall-mounted hardware.
- B. Coordinate finish floor materials and floor-mounted hardware.
- C. Conduit and raceways as needed for electrical, electronic and electro-pneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.
- D. Furnish manufacturer templates to door and frame fabricators.
  - 1. Ensure proper blocking in wood doors to support wood screws for panic hardware and door closers.
  - 2. Ensure proper reinforcement in aluminum doors, aluminum frames, metal doors and frames to support machine screws for panic hardware and door closers.
- E. Use hardware consultant to check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.

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## 1.8 WARRANTY

A. Part of respective manufacturers' regular terms of sale. Provide manufacturers' warranties:

- |                    |  |
|--------------------|--|
| 1. Locksets:       | ND series Seven years.                         |
| 2. Exit Devices:   | Three years mechanical, one year electrical.   |
| 3. Closers:        | Thirty years mechanical, two years electrical. |
| 4. Butt Hinges     | Lifetime.                                      |
| 5. Other Hardware: | One year.                                      |

## 1.9 COMMISSIONING

- A. Conduct these tests three weeks prior to request for certificate of substantial completion
- B. Test door hardware operation with climate control system and stairwell pressurization system both at rest and while in full operation.
- C. Test electrical, electronic and electro-pneumatic hardware systems for satisfactory operation.
- D. Test hardware interfaced with fire/life-safety system for proper operation and release.

## 2. PRODUCTS

### 2.1 MANUFACTURERS

A. Listed Acceptable Alternate Manufacturers: Submit for review products with equivalent function and features of scheduled products.

<u>ITEM:</u>	<u>MANUFACTURER:</u>	<u>ACCEPTABLE SUB:</u>
Hinges	(IVE) Ives	McKinney, Stanley
Key System	(SCH) Schlage Primus	No Substitution
Locks	(SCH) Schlage	No Substitution
Closers	(LCN) LCN	No Substitution
Stops & Holders –	(IVE) Ives	Rockwood, Trimco
Overhead Stops	(GLY) Glynn-Johnson	ABH, Sargent

### 2.2 HINGING METHODS

A. Note: drawings typically depict doors at 90 degrees, doors will actually swing to maximum allowable. Use wide-throw conventional or continuous hinges as needed up to 8 inches in width to allow door to stand parallel to wall for true 180-degree opening. Advise architect if 8-inch width is insufficient.

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- B. Conventional Hinges: Steel or stainless steel pins and concealed bearings. Hinge open widths minimum, but of sufficient throw to permit maximum door swing.
1. Three hinges per leaf to 7 foot, 6 inch height. Add one for each additional 30 inches in height, or any fraction thereof.
  2. Extra heavy weight hinges on doors over 3 foot, 5 inches in width.
  3. Extra-heavy weight hinges on doors with panic hardware or fire exit devices.
  4. Out swinging exterior doors: non-ferrous with non-removable (NRP) pins.
  5. Non-ferrous material exteriors and at doors subject to corrosive atmospheric conditions.
  6. Provide shims and shimming instructions for proper door adjustment.

## 2.3 LOCKSETS, LATCHSETS, DEADBOLTS

- A. Extra Heavy Duty Cylindrical Locks and Latches: as scheduled.
1. Chassis: cylindrical design, corrosion-resistant plated cold-rolled steel, through-bolted.
  2. Locking Spindle: stainless steel, interlocking design.
  3. Latch Retractors: forged steel. Balance of inner parts: corrosion-resistant plated steel, or stainless steel.
  4. Backset: 2-3/4" typically, more or less as needed to accommodate frame, door or other hardware.
  5. Lever Trim: accessible design, independent operation, spring-cage supported, minimum 2" clearance from lever mid-point to door face.
  6. Strikes: 16 gage curved steel, bronze or brass with 1" deep box construction, lips of sufficient length to clear trim and protect clothing.
  7. Lock Series and Design: Schlage ND series, "Rhodes" and L series 06A/06N design.
  8. Certifications:
    - a. ANSI A156.2, 1994, Series 4000, Grade 1.
    - b. UL listed for A label and lesser class single doors up to 4ft x 8ft.
  9. Accepted substitutions: Schlage No Substitutions

## 2.4 OTHER HARDWARE

- A. Door Stops: Provide stops to protect walls, casework or other hardware.
1. Unless otherwise noted in Hardware Sets, provide wall type with appropriate fasteners. Where wall type cannot be used, provide floor type. If neither can be used, provide overhead type.
  2. Locate overhead stops for maximum possible opening. Consult with Owner for furniture locations. Minimum: 90deg stop / 95deg deadstop. Note degree of opening in submittal.
- B. Silencers: Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Omit where adhesive mounted seal occurs. Leave no unfilled/uncovered pre-punched silencer holes.

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## 2.5 FINISH

- A. Generally BHMA 626 Satin Chromium.
  - 1. Areas using BHMA 626 to have push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise noted.
- B. Door closers: factory powder coated to match other hardware, unless otherwise noted.

## 2.6 KEYING REQUIREMENTS

- A. Key System: Schlage Primus or Everest Primus high-security utility-patented keyway where specified, interchangeable core where specified. Key blanks available only from factory-direct sources, not available from after-market keyblank manufacturers. Initiate and conduct meetings(s) with Owner to determine system keyway(s), keybow styles, structure. Furnish Owner's written approval of the system.
  - 1. Primus match owners existing system.
  - 2. Ship all cylinders direct to owner.
  - 3. Supply all cylinders less keys O bitted.
  - 4. Keying is by owner.
- B. Key Cylinders: furnish 6-pin solid brass construction.
- C. Permanent keys: use secured shipment direct from point of origination to Owner.
  - 1. For estimate: 2 keys per cylinder round up to the nearest 100 delivered separate from the cylinders direct to owner.

## 3. EXECUTION

### 3.1 INSTALLATION

- A. Install hardware per manufacturer's instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation. Remove and reinstall or replace work deemed defective by Architect.
  - 1. Gaskets: install jamb-applied gaskets before closers, overhead stops, rim strikes, etc; fasten hardware over and through these seals. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.
  - 2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.
  - 3. Use manufacturers' fasteners furnished with hardware items, or submit Request for Substitution with Architect.
  - 4. Replace fasteners damaged by power-driven tools.

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- B. Locate floor stops no more that 4 inches from walls and not within paths of travel. See paragraph 2.2 regarding hinge widths, door should be well clear of point of wall reveal. Point of door contact no closer to the hinge edge than half the door width. Where situation is questionable or difficult, contact Architect for direction.
- C. Locate overhead stops for minimum 90 degrees and maximum allowable degree of swing.
- D. Drill pilot holes for fasteners in wood doors and/or frames.
- E. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to Owner items not scheduled for reuse.

### 3.2 ADJUSTING

- A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.
  - 1. Hardware damaged by improper installation or adjustment methods to be repaired or replaced to Owner's satisfaction.
  - 2. Adjust doors to fully latch with no more than 1 pound of pressure.
  - 3. Adjust delayed-action closers on fire-rated doors to fully close from fully-opened position in no more than 10 seconds.
- B. Inspection: Use hardware supplier. Include supplier's report with closeout documents.
- C. Follow-up inspection: Installer to provide letter of agreement to Owner that approximately 6 months after substantial completion, installer will visit Project with representatives of the manufacturers of the locking devices and door closers to accomplish following:
  - 1. Re-adjust hardware.
  - 2. Evaluate maintenance procedures and recommend changes or additions, and instruct Owner's personnel.
  - 3. Identify items that have deteriorated or failed.
  - 4. Submit written report identifying problems and likely future problems.

### 3.3 DEMONSTRATION

- A. Demonstrate electrical, electronic and pneumatic hardware systems, including adjustment and maintenance procedures.

### 3.4 PROTECTION / CLEANING

- A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.
- B. Clean adjacent wall, frame and door surfaces soiled from installation/reinstallation process.

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### 3.5 SCHEDULE OF FINISH HARDWARE

A. See door schedule in drawings for hardware set assignments.

B. Manufacturers and their abbreviations used in this schedule:

1. GLY Glynn-Johnson Hardware
2. IVE H. B. Ives
3. LCN LCN Closers
4. SCH Schlage Lock Company
5. SCE Schlage Lock Electronics
6. VON Von Duprin
7. NGP National Guard Products

HW SET: 1

EACH TO HAVE:

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND94LD RHO	626	SCH
1	EA	ND SERIES CYLINDER	20-765	626	SCH
1	EA	WALL STOP	WS407CCV	630	IVE

END OF SECTION 08 71 00

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## **SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING**

### **PART 1 - GENERAL**

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

- 1. Non-load-bearing steel framing systems for interior gypsum board assemblies.
- 2. Suspension systems for interior gypsum ceilings, soffits, and grid systems.

- B. Related Requirements:

- 1. Section 05 40 00 "Cold-Formed Metal Framing" for exterior and interior load-bearing and exterior non-load-bearing wall studs; floor joists; roof rafters and ceiling joists; and roof trusses.

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

### **PART 2 - PRODUCTS**

#### 2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

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## 2.2 FRAMING SYSTEMS

- A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- B. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
  - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
  - 2. Protective Coating: ASTM A 653/A 653M, G40, hot-dip galvanized unless otherwise indicated.
- C. Studs and Runners: ASTM C 645.
  - 1. Steel Studs and Runners:
    - a. Minimum Base-Metal Thickness, unless otherwise indicated:
      - 1) Framing behind standard panels: 0.0269" inches
      - 2) Framing behind impact resistant panels: 0.0329" inches
      - 3) Framing behind tile backer panels: 0.0329 inches
    - b. Depth: 3-5/8 inches.
- D. Slip-Type Head Joints: Where indicated, provide the following:
  - 1. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
- E. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
- F. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
  - 1. Minimum Base Metal Thickness: 0.027 inches
- G. Cold-Rolled Channel Bridging: Steel, 0.053-inch minimum base-metal thickness, with minimum 1/2-inch- wide flanges.
  - 1. Depth: 1-1/2 inches
  - 2. Clip Angel: Not less than 1-1/2 inches by 1-1/2 inches, 0.068 inches thick, galvanized steel.
- H. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
  - 1. Minimum Base-Metal Thickness: 0.033 inch.
  - 2. Depth: As indicated on Drawings.

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- I. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum uncoated-metal thickness of 0.018 inch, and depth required to fit insulation thickness indicated.

## 2.3 SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter wire, or double strand of 0.048-inch- diameter wire.
- B. Hanger Attachments to Concrete:
  1. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.
- C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.
- D. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.053 inch and minimum 1/2-inch- wide flanges.
  1. Depth: 1-1/2 inches.
- E. Furring Channels (Furring Members):
  1. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.
    - a. Minimum Base-Metal Thickness: As indicated on Drawings.
- F. Grid Suspension System for Gypsum Board Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
  1. **Products:** Subject to compliance with requirements, provide one of the following:
    - a. [Armstrong World Industries, Inc.; Drywall Grid Systems.](#)
    - b. [Chicago Metallic Corporation; Drywall Grid System.](#)
    - c. [USG Corporation; Drywall Suspension System.](#)
    - d. Or equal if and as specifically approved by Architect by Addendum during the bidding period.

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## 2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
  - 1. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide one of the following:
  - 1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.
  - 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
  - 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.
- B. Coordination with Sprayed Fire-Resistive Materials:
  - 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.

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2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

### 3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
  1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- C. Install bracing at terminations in assemblies.
- D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

### 3.4 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  1. Single-Layer Application: 16 inches o.c. unless otherwise indicated.
  2. Multilayer Application: 16 inches o.c. unless otherwise indicated.
  3. Tile Backing Panels: 16 inches o.c. unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
  1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.

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2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
    - a. Install two studs at each jamb unless otherwise indicated.
    - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
    - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
  3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
  4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
    - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
  5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
  6. Curved Partitions:
    - a. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
    - b. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6 inches o.c.
- E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

### 3.5 INSTALLING SUSPENSION SYSTEMS

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
  1. Hangers: 48 inches o.c.
  2. Carrying Channels (Main Runners): 48 inches o.c.
  3. Furring Channels (Furring Members): 16 inches o.c.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

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C. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
  - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
5. Do not attach hangers to steel roof deck.
6. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
7. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
8. Do not connect or suspend steel framing from ducts, pipes, or conduit.

D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.

E. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

F. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 09 22 16

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## **SECTION 09 29 00 - GYPSUM DRYWALL**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
  - 1. See Division 1 "Supplementary Conditions", if included, for requirements relating to interpretation of the drawings and specifications.

#### **1.2 SUMMARY**

- A. This Section includes the following types of gypsum board construction:
  - 1. Gypsum board screw-attached to steel framing and furring members.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
  - 1. See Section 07 92 00 "Joint Sealants" for acoustical sealant.
  - 2. See Section 09 22 16 "Non-Structural Metal Framing".

#### **1.3 SUBMITTALS**

- A. Product data from manufacturers for each type of product specified.

#### **1.4 QUALITY ASSURANCE**

- A. Fire-Resistance Ratings: ASTM E 119.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver materials in original packages bearing identification of manufacturer. Store inside under cover and keep protected against damage.

#### **1.6 PROJECT CONDITIONS**

- A. Establish and maintain environmental conditions to comply with ASTM C 840.

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## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
1. Domtar Gypsum Co.
  2. Gold Bond Building Products Div., National Gypsum Co.
  3. United States Gypsum Co.
  4. BPB America Inc.

### 2.2 GYPSUM BOARD

- A. Gypsum Wallboard: ASTM C 36, and as follows:
1. Type: Type X typical
    - a. **Moisture and mold resistant drywall (equal to USG Sheetrock Brand Mold Tough) shall be used in potential wet locations such as mechanical rooms and for walls of all rooms from floor level to 48" above finished floor at all locations where finished floor elevation is below surrounding grade on any side of the building. This shall include basements, walk-out basements or other areas where exterior grade elevation is above finished floor level.**
      - 1) The fire resistance rating of the wall assembly shall be maintained with that indicated on the drawings.
  2. Edges: Tapered.
  3. Thickness: 5/8 inch walls, unless otherwise indicated.

### 2.3 TILE BACKING PANELS

- A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.
1. Cementitious Backer Units: ANSI A118.9. Proprietary backing units with glass fiber mesh reinforcing and water resistant coating on both faces. Provide at shower areas and elsewhere as indicated:
    - a. Products: Subject to compliance with requirements, provide one of the following:
      - 1) FinPan, Inc.; Util-A-Crete Concrete Backer Board.
      - 2) United States Gypsum Co.; DUROCK Cement Board.

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- b. Thickness: **5/8 inch.**

## 2.4 TRIM ACCESSORIES

- A. Accessories for Interior Installation: Cornerbead, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below:
  - 1. Material: Formed metal or plastic, with metal complying with the following requirement:
    - a. Steel sheet zinc coated by hot-dip process or rolled zinc.
  - 2. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:
    - a. Cornerbead on outside corners, unless otherwise indicated.
    - b. LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim, unless otherwise indicated.
    - c. L-bead with face flange only; face flange formed to receive joint compound. Use L-bead where indicated.
    - d. U-bead with face and back flanges; face flange formed to be left without application of joint compound. Use U-bead where indicated.
    - e. One-piece control joint formed with V-shaped slot and removable strip covering slot opening.
  - 3. Accessory for Curved Edges: Cornerbead formed of metal, plastic, or metal combined with plastic, with either notched or flexible flanges that are bendable to curvature radius.
- B. Aluminum Accessories: Where indicated, provide manufacturer's standard extruded-aluminum accessories of profile indicated complying with the following requirements:
  - 1. Aluminum Alloy: Alloy and temper recommended by aluminum producer and finisher for type of finish indicated and with not less than the strength and durability properties of aluminum extrusions complying with ASTM B 221 (ASTM B 221M) for alloy and temper 6063-T5.
    - a. Class II, Clear Anodic Finish: AA-C12C22A31 (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating with a minimum thickness of 0.01 mm).
  - 2. Manufacturer: Subject to compliance with requirements, provide aluminum accessories by one of the following:
    - a. Fry Reglet Corp.
    - b. Gordon, Inc.
    - c. MM Systems, Inc.
    - d. Pittcon Industries, Inc.

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## 2.5 GYPSUM BOARD JOINT TREATMENT MATERIALS

- A. General: ASTM C 475, ASTM C 840.
- B. Joint Tape: Paper reinforcing tape, unless otherwise indicated.
- C. Drying-Type Joint Compounds: Factory-prepackaged, ready-mixed, vinyl-based:
  - 1. Taping compound formulated for embedding tape and for first coat over fasteners and flanges of corner beads and edge trim.
  - 2. Topping compound formulated for fill (second) and finish (third) coats.

## 2.6 JOINT COMPOUND FOR TILE BACKING PANELS

- A. Cementitious Backer Units: As recommended by backer unit manufacturer.
  - 1. Tile Backer Tape: Per manufacturer recommendations, USG Durock Tile Backer Tape or equal.
  - 2. Joint Material: Per manufacturer recommendations, TEC TripleFlex Waterproofing material or TEC Waterproofing and Crack Defense Membrane or approved equal.  
**(Gypsum board joint compound shall not be allowed behind wall tile)**

## 2.7 MISCELLANEOUS MATERIALS

- A. Gypsum Board Screws: ASTM C 1002.
- B. **Acoustical Sealant: See Section 07 92 00 Joint Sealants for requirements and extent required.**
  - 1. **To be installed by drywall subcontractor in concealed locations and by sealant subcontractor in exposed locations.**
- C. Sound Attenuation Blankets: Unfaced mineral fiber insulation complying with ASTM C 665 for Type I.

## PART 3 - EXECUTION

### 3.1 APPLICATION OF GYPSUM BOARD

- A. General: ASTM C 840. Install boards in manner which minimizes the number of end-butt joints and with face side out. Butt boards for a light contact at edges; do not force into place. Space fasteners in gypsum boards in accordance with referenced application and finishing standard and manufacturer's recommendations.

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- B. Locate joints over supports. Do not place tapered edges against cut edges. Stagger vertical joints.
- C. Form control joints and expansion joints at locations indicated, or as follows:
  - 1. Install control joints according to ASTM C 840 and manufacturer's recommendations and in specific locations approved by Architect for visual effect.
  - 2. **If control joints are not shown on the drawings they shall be located at a maximum of 30 feet o.c. Coordinate exact location with Architect prior to installation.**
  - 3. **Provide control joints off of both upper corners, both sides of the wall, of all hollow metal and aluminum door and window frames. Extend from top of frame to above ceiling.**
- D. Isolate perimeter of non-load-bearing drywall partitions at structural abutments. Provide ¼ inch to ½ inch space and trim edge with "U" bead edge trim. Seal joints with acoustical sealant.
- E. Where sound-rated drywall construction is indicated, seal construction at perimeters, openings and penetrations with a continuous bead of acoustical sealant. Comply with ASTM C 919 and manufacturer's recommendations and close off sound-flanking paths around or through construction.

### 3.2 FINISHING OF GYPSUM BOARD

- A. General: ASTM C 840. Apply joint treatment at gypsum board joints; flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects and elsewhere as required to prepare work for finishing.
- B. Prefill open joints and beveled edges using setting-type joint compound.
- C. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.
- D. Finish interior gypsum wallboard by applying the following joint compounds in 3 coats, and sand between coats and after last coat:
  - 1. Embedding and First Coat: Ready-mix drying-type taping compound.
  - 2. Fill (Second) Coat: Ready-mix drying-type topping compound.
  - 3. Finish (Third) Coat: Ready-mix drying-type topping compound.
- E. Level 5 Finish: In lieu of a glaze coating for level 5 finish, install spray applied coating equal to Sheetrock Brand Primer-Surfacer Tuff-Hide. Prepare wall as recommended by manufacturer for installation of this coating.
  - 1. Coverage 100-125ft per gallon when applied at 15-20 wet mills.
- F. Partial Finishing: Omit second and third coat on concealed drywall construction.

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- G. Glass-Mat Gypsum Sheathing Board: Finish according to manufacturer's written instructions for use as exposed soffit board.
- H. Cementitious Backer Units: Finish according to manufacturer's written instructions.

### 3.3 INSTALLING TRIM ACCESSORIES

- A. General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.
- B. Install cornerbead at external corners.
- C. Install edge trim where edge of gypsum panels would otherwise be exposed. Provide edge trim type with face flange formed to receive joint compound, except where other types are indicated.
  - 1. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
  - 2. Install L-bead where edge trim can only be installed after gypsum panels are installed.
  - 3. Install U-bead where indicated.
  - 4. Install aluminum trim and other accessories where indicated.

### 3.4 PROTECTION

- A. Provide final protection and maintain conditions which ensure gypsum drywall being without damage or deterioration at time of Substantial Completion.

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## **SECTION 09 30 00 - TILE**

### **1. GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

#### **1.2 SUMMARY**

- A. Section Includes:
  - 1. Glazed Ceramic Wall Tile
  - 2. Ceramic Mosaic Tile
  - 3. Porcelain Ceramic Tile
  - 4. Crack Isolation Membrane.
  - 5. Waterproof Membrane.
  - 6. Mechanical Edge Leveling System.

#### **1.3 SUBMITTALS**

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
- C. Samples for Initial Selection: For each type of tile and grout indicated. Include Samples of accessories involving color selection.
- D. Samples for Verification:
  - 1. Full-size units of each type and composition of tile and for each color and finish required.
  - 2. Full-size units of each type of trim and accessory for each color and finish required.
  - 3. Metal edge strips in 6-inch (150-mm) lengths.
- E. Qualification Data: For qualified Installer.
- F. Material Test Reports: For each tile-setting and -grouting product.
- G. Care and maintenance data for each tile, grout, and sealer product specified.

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#### 1.4 QUALITY ASSURANCE

- A. Source Limitations for Tile: Obtain tile of each color or finish from one source or producer.
  - 1. Obtain tile of each type and color or finish from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from one manufacturer and each aggregate from one source or producer.
- C. Source Limitations for Other Products: Obtain each of the following products specified in this Section from a single manufacturer for each product:
  - 1. Crack Isolation Membrane.
  - 2. Waterproof Membrane.
  - 3. Joint Sealants.
  - 4. Cementitious Backer Units.
  - 5. Metal Edge Strips.
- D. Pre-installation Conference: Conduct conference at Project site.
  - 1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.
- E. Installer Qualifications: Engage an experienced Installer who has completed tile installations similar to that indicated for Project.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements in ANSI A137.1 for labeling tile packages
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.
- D. Store liquid materials in unopened containers and protected from freezing.
- E. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

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## 1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.
1. Maintain temperatures at 50 deg F or more for 7 days after completion unless otherwise indicated by grout and mortar manufacturers.

## 1.7 EXTRA MATERIALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.
  2. Grout: Furnish quantity of grout equal to 3 percent of amount installed for each type, composition, and color indicated.

## 2. PRODUCTS

### 2.1 TILE PRODUCTS

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
1. Provide tile complying with Standard grade requirements unless otherwise indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCNA installation methods specified in tile installation schedules, and other requirements specified.
- C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.
- D. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.
1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

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- E. **Factory-Applied Temporary Protective Coating:** Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by pre-coating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces.
- F. **Provide tile trim and accessories that match color and finish of adjoining tile.**
- G. **Manufacturers:** Provide tile by Manufacturer listed below. Other equivalent products may be accepted if and as specifically approved by Architect by Addendum during bidding period.
1. **Glazed Ceramic Tile.**
    - a. **Glazed Wall Tile:** Epoca Ceramiche Tile [Sales Rep- Katie Wheeler, RBC Tile & Stone, (402) 331-0665].
      - 1) CT-1, Design Positive Home Colours, 8" x 20" tiles, EP12/820, Color—Blanc Brilliant (White).
        - a) Grout/Color: TEC Specialty Products (H.B. Fuller)—AccuColor EFX 100% Solids Epoxy Grout. Color—Bright White, 910.
      - 2) CT-2, Design Positive Home Colours, 8" x 20" tiles, EP30/820, Color—Rouge Rouge, 01 (Red).
        - a) Grout/Color: TEC Specialty Products (H.B. Fuller)—AccuColor EFX 100% Solids Epoxy Grout. Color—Bright White, 910.
  2. **Ceramic Mosaic Tile.**
    - a. **Ceramic Mosaic Tile:** American Olean Tile Company [Sales Rep- Katie Wheeler, RBC Tile & Stone, (402) 331-0665].
      - 1) PCT-2, Ceramic Mosaics, Unpolished Finish, 2" hexagon mosaic tiles, Color – Biscuit, A13.
        - a) Grout/Color: TEC Specialty Products (H.B. Fuller)—AccuColor EFX 100% Solids Epoxy Grout. Color—Light Pewter, 927.
  3. **Porcelain Ceramic Tile.**
    - a. **Porcelain Ceramic Tile:** Ceramiche Caesar Tile—Caesar Contract Solutions [Sales Rep- Katie Wheeler, RBC Tile & Stone, (402) 331-0665].
      - 1) PCT-1, Wide, 24" x 24" (60cm x 60cm) Porcelain Ceramic Tile, Color—Wide Vapour, Naturele.

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- a) Grout/Color: TEC Specialty Products (H.B. Fuller)—AccuColor EFX 100% Solids Epoxy Grout. Color—Light Pewter, 927.
- 2) PCB-1, Wide, 2-13/16" x 23-5/8" (7.2cm x 60cm) Porcelain Ceramic Tile, Color—Wide Vapour, Naturale.
  - a) Grout/Color: TEC Specialty Products (H.B. Fuller)—AccuColor EFX 100% Solids Epoxy Grout. Color—Light Pewter, 927.

## 2.2 TILE PRODUCTS

- A. ANSI Standard for Ceramic Tile: ANSI A137.1. Provide tile complying with "Standard Grade" requirements unless otherwise indicated.
- B. Provide tile trim and accessories that match color and finish of adjoining tile.

## 2.3 CRACK ISOLATION MEMBRANES

- A. General: **Provide products that comply with ANSI A118.12 and the descriptions in this Article.** (At all floor and wall tiled surfaces except in Shower Areas.)
- B. Crack Isolation Membrane: Manufacturer's standard proprietary product consisting of either 1-part liquid-applied urethane in a consistency suitable for trowel application or a high solids acrylic latex additive and a cement based powder or a liquid applied acrylic polyurethane dispersion or a fabric-reinforced sheet membrane.
  1. **Install at all floor locations (except shower areas) to receive tile products full-spread** or as needed over movement, construction, cold joints, and saw-cut joints, not to include expansion joints. Movement joints, construction joints, cold joints, and saw-cut joints shall be caulked prior to applying a membrane over these joints. Install over all non-structural surface cracking.
  2. **Install at all wall locations (except shower areas) to receive tile products full-spread.**
- C. **Crack Isolation Membranes—Typical Tiled Surfaces:** Subject to compliance with requirements, provide one of the following under all tile and stone:
  1. Bostik Findley—GoldPlus™ Membrane.
  2. LATICRETE International Inc—HydroBan Waterproof/Crack Isolation Membrane (full coverage).
  3. MAPEI Corporation—Mapelastic Aqua Defense.
  4. MAPEI Corporation—Mapeguard 2 Premium Crack Isolation and Sound Reduction Sheet Membrane.
  5. MAPEI Corporation—Mapelastic 315 (IAPMO certification).
  6. Noble Company—NobleSeal TS (chlorinated polyethylene with spun polyester waterproof/crack-isolation sheet membrane).

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7. Noble Company—NobleSeal CIS (chlorinated polyethelene with spun polyester crack-isolation sheet membrane).
8. Schluter-Systems L.P. —DITRA membrane.
9. TEC Specialty Products (H.B. Fuller) —Triple Flex, TA-324.
10. TEC Specialty Products (H.B. Fuller)—Hydraflex.
11. TEC Specialty Products (H.B. Fuller)—Waterproof & Crack Prevention Membrane.
12. Other equivalent products may be accepted if and as specifically approved by Architect by Addendum during bidding period.

## 2.4 WATERPROOF MEMBRANES

A. General: **Provide products that comply with ANSI A118.10 and the descriptions in this Article.**

1. Waterproofing Membrane: Manufacturer's standard proprietary product consisting of either 1-part liquid-applied urethane in a consistency suitable for trowel application or a high solids acrylic latex additive and a cement based powder or a liquid applied acrylic polyurethane dispersion or a fabric-reinforced sheet membrane.
2. Install at all restroom floor locations to receive tile products.
3. Install at all floor locations (except shower areas) to receive tile products.
4. Install at all shower wall and floor locations to receive tile products.

B. **Waterproof Membranes—Typical Tiled Surfaces:** Subject to compliance with requirements, provide one of the following under all tile:

1. Bostik Findley—Hydroment Ultra-Set Advanced.
2. LATICRETE International Inc—HydroBan Waterproof/Crack Isolation Membrane (full coverage).
3. MAPEI Corporation—Mapelastic Aqua Defense.
4. MAPEI Corporation—Mapelastic HPG elastomeric membrane.
5. MAPEI Corporation—Mapelastic 315 (IAPMO certification).
6. Noble Company—NobleSeal TS (chlorinated polyethelene with spun polyester waterproof sheet membrane).
7. Noble Company—NobleDeck (chlorinated polyethelene with spun polyester waterproof sheet membrane for exterior application).
8. Schluter-Systems L.P. —DITRA membrane.
9. TEC Specialty Products (H.B. Fuller)—Waterproof & Crack Prevention Membrane.
10. TEC Specialty Products (H.B. Fuller)—Hydraflex.
11. Other equivalent products may be accepted if and as specifically approved by Architect by Addendum during bidding period.

## 2.5 ACCESSORIES

A. Metal Edge Accessories: For glazed ceramic tile walls, provide Schluter-Systems L.P. metal accessories (edge finishes) as noted below. Note that model numbers listed on drawings shall override if listed differently.

1. Outside Corners—Glazed Ceramic Wall Tile to Glazed Ceramic Wall Tile: Model Schluter-JOLLY, A 60 AT. Verify height required.

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- a. Material/Finish: Aluminum, finish—Satin Nickel as selected by Architect from manufacturers standards unless otherwise indicated on drawings.
  2. Note that tile installer shall provide and install transition strips for all locations listed above.
  3. **Note that leveling compound shall be added over all transition strip sections where required to flush-out two adjacent materials. Extent and type of leveling compound shall be as required for different floor finishes used.**
- B. Metal Edge Accessories: For top edge of partial-height tiled walls to paint and outside corners of partial-height glazed ceramic tile walls, provide Schluter-Systems L.P. metal accessories (edge finishes) as noted below. Note that model numbers listed on drawings shall override if listed differently.
1. Outside Corners and Top Edge of Partial Height Tiled Walls—Glazed Ceramic Wall Tile to Paint: Model Schluter-JOLLY, A 60 AT. Verify height required.
    - a. Material/Finish: Aluminum, finish—Satin Nickel as selected by Architect from manufacturers standards unless otherwise indicated on drawings.
    2. Note that tile installer shall provide and install transition strips for all locations listed above.
    3. **Note that leveling compound shall be added over all transition strip sections where required to flush-out two adjacent materials. Extent and type of leveling compound shall be as required for different floor finishes used.**
- C. Metal Transition Edges: For connection to all tile, provide Schluter-Systems L.P. metal transition edges as noted below or otherwise indicated on drawings. Note that model numbers listed on drawings shall override if listed differently.
1. Porcelain Ceramic Tile to Porcelain Ceramic (Mosaic) Tile—Float floor substrate to achieve a flat horizontal plane between PCT-1 and PCT-2.
  2. Porcelain Ceramic Tile to Concrete—Model Reno-RAMP, AERP 100 B65 (Aluminum). Verify height required.
  3. Material/Finish: Aluminum as selected by Architect from manufacturers standards unless otherwise indicated on drawings.
  4. Note that tile installer shall provide and install transition strips for all locations listed above.
  5. **Note that leveling compound shall be added over all transition strip sections where required to flush-out two adjacent materials. Extent and type of leveling compound shall be as required for different floor finishes used.**
- D. **Mechanical Edge Leveling System for PCT-1 Floor Tiles**, large body porcelain floor tile applications: Provide MLT™ Mechanical Lippage Tuning System (including Cap, Tool Kit, Plate, and Strap) as recommended by tile manufacturer to prevent lippage, Typ. <http://www.mltsystem.com>

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## 2.6 SETTING MATERIALS

A. Adhesive Product: Provide products to comply with ANSI A136.1.

1. **Interior Wall Tiles—Typical Walls (Thinset)**: 12" x 12" and larger, including weight up to 6 lbs. per square foot:
  - a. Bostik Findley—Big Tile and Stone. Color—911 White. (Interior/Exterior Use.)
  - b. LATICRETE International Inc—4-XLT. Color—White.
  - c. LATICRETE International Inc—254 Platinum Thinset. Color—White.
  - d. MAPEI Corporation—Ultralite™ lightweight cement mortar.
  - e. TEC Specialty Products (H.B. Fuller)—Ultimate Large Tile Mortar. Color—White.
  - f. TEC Specialty Products (H.B. Fuller)—Medium Bed mortar, #3N1® Performance Mortar. Color—White.
  - g. Other equivalent products may be accepted if and as specifically approved by Architect by Addendum during bidding period.

B. Latex-Portland Cement Modified Mortar: ANSI A118.4. Product includes Latex Additive: Dry Polymer or Latex Acrylic additive.

1. **Interior Wall Tile installed over waterproof membranes—Shower Area Walls (Medium Bed Mortar)**: Large format wall tile weighing up to 6 lbs. per square foot:
  - a. Bostik Findley—Stonewall. Large Body Non-Sag Mortar Interior/Exterior
  - b. LATICRETE International Inc—4-XLT. Color—White.
  - c. LATICRETE International Inc—254 Premium Thinset. Color—White.
  - d. MAPEI Corporation—UltraFlex 2 Polymer Modified thinset mortar (Interior).
  - e. MAPEI Corporation—Ultralite Non-Sag mortar (Interior).
  - f. MAPEI Corporation—Kerabond/Keralastic System (Exterior).
  - g. TEC Specialty Products (H.B. Fuller)—SuperFlex™ Premium Latex Modified Thin Set Mortar. Color—White (Interior).
  - h. TEC Specialty Products (H.B. Fuller)—Medium Bed mortar, #3N1® Performance Mortar. Color—White.
  - i. TEC Specialty Products (H B Fuller)—Ultimate Large Tile Mortar. Color—White.
  - j. Other equivalent products may be accepted if and as specifically approved by Architect by Addendum during bidding period.
2. **Floor Tiles—Shower Area Floors**
  - a. Bostik Findley—Hydroment "PM". Polymer Modified. 917. Color—Gray.
  - b. LATICRETE International Inc—4-XLT. Color—Gray.
  - c. LATICRETE International Inc—254 Premium Thinset—Gray.
  - d. MAPEI Corporation—UltraFlex 2.
  - e. MAPEI Corporation—UltraContact.
  - f. TEC Specialty Products (H.B. Fuller)—Fortiflex 2 Mortar. Color—Gray.
  - g. TEC Specialty Products (H.B. Fuller)—Full Flex TA 390, ProGrade Latex Modified Thin Set Mortar. Color—Gray.

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- h. Other equivalent products may be accepted if and as specifically approved by Architect by Addendum during bidding period.

3. **Floor Tiles—Typical Floors over Crack Isolation Membrane (Medium Bed Mortar):**

- a. Bostik Findley—Big Tile and Stone 966.
- b. LATICRETE International Inc—254 Platinum—Gray.
- c. MAPEI Corporation—Mapelastic UltraFlex LFT mortar
- d. TEC Specialty Products (H.B. Fuller)—Ultimate Large Tile Mortar. Color—Gray.
- e. TEC Specialty Products (H.B. Fuller)—3N1® Performance Mortar. Color—Gray.
- f. TEC Specialty Products (H.B. Fuller)—1Flex® Crack Isolation Mortar. Color—Gray.
- g. Other equivalent products may be accepted if and as specifically approved by Architect by Addendum during bidding period.

2.7 GROUTING MATERIALS

- A. Chemical-Resistant Epoxy Grout: ANSI A118.3 (For tile in locker rooms, restrooms, showers, kitchens, food prep areas, and mop sink walls.)

1. **Interior Walls & Floors:**

- a. Bostik Findley—Hydroment EzPoxy™ Grout and Mortar 100% Solids Epoxy.
- b. Laticrete—Latapoxy® 2000 IG Industrial 100% Solids Epoxy Grout.
- c. MAPEI Corporation—Kerapoxy water cleanable 100% Solids Epoxy Grout.
- d. TEC Specialty Products (H.B. Fuller)—AccuColor EFX 100% Solids Epoxy Grout, #TA-440.
- e. Color—As selected by Architect from manufacturer's standards or as listed in subparagraphs above.
- f. Other equivalent products may be accepted if and as specifically approved by Architect by Addendum during bidding period.

2.8 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with requirements of referenced standards and manufacturer's instructions.

3. **EXECUTION**

3.1 EXAMINATION

- A. Examine areas where tile will be installed for conditions affecting performance. Verify that substrates for setting tile are firm, dry, clean, and free from films and curing compounds.

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B. **Concrete Slab, either on-grade or above-grade.**

1. **Mechanical abrasion with a carborundum disk followed by a clear water wash is recommended.** Refer to TCNA (Tile Council of North America) handbook, method TR712.

C. Verify that installation of items located in or behind tile has been completed before installing tile.

3.2 INSTALLATION, GENERAL

A. ANSI Tile Installation Standard: ANSI 108 and TCNA methods indicated in TCNA "Handbook for Ceramic Tile Installation."

B. Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

C. Accurately form intersections and returns. Cut and drill tile without marring surfaces. Carefully grind cut edges abutting trim, finish, or built-in items. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations.

D. Jointing Pattern: Lay tile in grid pattern and provide uniform joint widths. Align joints when adjoining tiles and trim are same size. **Center tile fields in both directions in each space or wall area, from center marks established with principal walls so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths at perimeter that equal less than one-half of a tile. Install tiles square with room axis, unless otherwise indicated.**

1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets.

E. Lay out tile wainscots to next full tile beyond dimensions indicated.

F. Joints: Locate expansion, contraction and isolation joints during installation. Do not saw cut joints after installation of tiles. If location of joints is not indicated, provide joints as recommended by referenced tile standards.

G. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.

1. Locate joints in tile surfaces directly above joints in concrete substrates, but in no instance shall joint spacing exceed 25' in any interior direction. Coordinate location with Architect. Consult architect for joint placement on interior placements in direct sunlight or moisture and on exterior installations. See TCNA (Tile Council of North America) 2012 – EJ171-12 detail – ANSI 3.4.

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2. Prepare joints and apply sealants to comply with requirements of Division 7 Section "Joint Sealants."
3. Install a sealant joint at all interior corners where tile occurs on adjacent walls. See Section 07 92 00 "Joint Sealants" for sealant type required.

### 3.3 WATERPROOFING MEMBRANE INSTALLATION

- A. Install membrane to comply with Manufacturer's written instructions to produce a waterproof membrane of uniform thickness bonded securely to substrate. Install any surface prep and primer products as required by manufacturer to improve installation of membrane.
- B. Do not install tile until membrane has cured and been tested to determine that it is watertight.

### 3.4 INSTALLATION METHODS

- A. Install tile to comply with TCNA requirements indicated below:
  1. Interior Walls—Cement Backer Board: W244C-15.
  2. Interior Walls—Masonry: W211-15.
  3. Interior Floors—Over Crack Isolation Membrane: F125-FULL-15.
  4. Interior Floors—Over Waterproof Membrane: F122-15.

### 3.5 CLEANING AND PROTECTION

- A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile.
- B. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but no sooner than 14 days after installation.
- C. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.
- D. Provide final protection and maintain conditions in a manner that insures that tile is without damage or deterioration at time of Substantial Completion.

END OF SECTION 09 30 00

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## **SECTION 09 91 23 - INTERIOR PAINTING**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. Section includes surface preparation and the application of paint systems on interior substrates.
  - 1. Concrete masonry units (CMU).
  - 2. Steel.
  - 3. Gypsum board.
- B. Related Sections:
  - 1. Division 03 Section "Cast-In-Place Concrete" for concrete sealing requirements.
  - 2. Division 05 Sections for shop priming of metal substrates with primers specified in this Section.
  - 3. Division 06 Sections for shop priming carpentry with primers specified in this Section.
  - 4. Division 08 Sections for factory priming windows and doors with primers specified in this Section.
  - 5. Section 09 96 00 "High-Performance Coatings".

#### **1.3 ACTION SUBMITTALS**

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
  - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
  - 2. Step coats on Samples to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.
- C. Product List: For each product indicated, include the following:
  - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.

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#### 1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials from the same product run that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Paint: 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

#### 1.5 QUALITY ASSURANCE

- A. Mock-ups: Apply mock-ups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
    - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
    - b. Other Items: Architect will designate items or areas required.
  - 2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mock-ups of additional colors selected by Architect at no added cost to Owner.
  - 3. Approval of mock-ups does not constitute approval of deviations from the Contract Documents contained in mock-ups unless Architect specifically approves such deviations in writing.
  - 4. Subject to compliance with requirements, approved mock-ups may become part of the completed Work if undisturbed at time of Substantial Completion.
- B. Material Quality: Provide the manufacturer's best quality trade sale paint material of the various coating types specified.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, unopened packages and containers bearing manufacturer's name and label.
- B. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

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## 1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

## PART 2 - PRODUCTS

### 2.1 PAINT, GENERAL

- A. Material Compatibility:
  - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- B. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
  - 1. Flat Paints and Coatings: 50 g/L.
  - 2. Nonflat Paints and Coatings: 150 g/L.
  - 3. Dry-Fog Coatings: 400 g/L.
  - 4. Primers, Sealers, and Undercoaters: 200 g/L.
  - 5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
  - 6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
  - 7. Pretreatment Wash Primers: 420 g/L.
- C. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
  - 1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
  - 2. Restricted Components: Paints and coatings shall not contain any of the following:
    - a. Acrolein.
    - b. Acrylonitrile.
    - c. Antimony.
    - d. Benzene.

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- e. Butyl benzyl phthalate.
- f. Cadmium.
- g. Di (2-ethylhexyl) phthalate.
- h. Di-n-butyl phthalate.
- i. Di-n-octyl phthalate.
- j. 1,2-dichlorobenzene.
- k. Diethyl phthalate.
- l. Dimethyl phthalate.
- m. Ethylbenzene.
- n. Formaldehyde.
- o. Hexavalent chromium.
- p. Isophorone.
- q. Lead.
- r. Mercury.
- s. Methyl ethyl ketone.
- t. Methyl isobutyl ketone.
- u. Methylene chloride.
- v. Naphthalene.
- w. Toluene (methylbenzene)
- x. 1,1,1-trichloroethane.
- y. Vinyl chloride.

D. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers".

E. **Colors: As indicated on drawings.**

## 2.2 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

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### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Concrete: 12 percent.
  - 2. Masonry (Clay and CMU): 12 percent.
  - 3. Gypsum Board: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
  - 1. Application of coating indicates acceptance of surfaces and conditions.

#### **3.2 PREPARATION**

- A. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- B. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and re-prime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- C. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- D. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.

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- E. **Steel Substrates:** Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.
- F. **Shop-Primed Steel Substrates:** Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- G. **Gypsum Board Substrates:** Do not begin paint application until finishing compound is dry and sanded smooth.

### 3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
  - 1. Use applicators and techniques suited for paint and substrate indicated.
  - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable in writing to topcoat manufacturers.
  - 6. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures are in place and all areas as specified herein. Extend paint finishes in these areas as required. If color is not designated, the Architect will select from standard colors.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance. Ensure that edges, corners, crevices, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces. Recoat primed and sealed surfaces where evidence of unsealed areas in first coat appears.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Allow sufficient time between successive coats to permit proper drying.
- F. **Completed Work:** Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not in compliance with specified requirements.
- G. Painting includes field painting exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment including all mechanical equipment and materials.

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- H. Painting is not required on prefinished items, finished metal surfaces, concealed surfaces, operating parts, and labels. Painting is required on all new items included in the work.
- I. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, nonspecular black paint. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
- J. Finish doors on tops, bottoms and side edges same as faces.
- K. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
  - 1. Paint the following work where exposed in occupied spaces:
    - a. Equipment, including panelboards.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
    - h. Other items as directed by Architect.
  - 2. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

### 3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
  - 1. Contractor shall touch up and restore painted surfaces damaged by testing.
  - 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

### 3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

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- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.
- E. Provide “wet paint” signs to protect newly painted finishes.

### 3.6 INTERIOR PAINT SCHEDULE

<b><u>LOCATION</u></b>	<b><u>SHEEN</u></b>	<b><u>PAINT SYSTEM</u></b>
Interior CMU	Semi-Gloss	CMU-21-EXISTING
Interior Ferrous Metal	Semi-Gloss	FM-41
Interior Gypsum Drywall / Plaster	Semi-Gloss	GDW-41

### 3.7 INTERIOR PAINTING SYSTEMS

- A. System CMU-21 for application on Existing Previously Painted Interior CMU—EXISTING:
  - 1. Semi-Gloss Latex Enamel Finish: 2 coats over primed surface with total dry film thickness not less than 3.5 mils excluding adhesion primer.
  - 2. High Performance Latex Adhesion Primer: Heavy Duty latex adhesion primer used for priming textured interior concrete masonry block before application of top coats:
    - a. DV: OmniPrep Interior Universal Primer, #DU-1523
    - b. P & L: Concrete and Stucco Primer Z6300.
    - c. PPG Paints: PermaCrete Masonry Sealer, 4-809 Series.
    - d. S-W: ProBlock Latex Primer, B51 Series.
    - e. S-W: Loxon Masonry Primer, A24W8300.
  - 3. Interior Semi-Gloss Odorless Latex Enamel: 2 coats of Low odor, semi-gloss, enamel for use over a primer on concrete and masonry.
    - a. DV: Zero Plus 0 VOC Interior Latex, #DF-0664.
    - b. DV: “Health-Kote” Low Odor Interior Semi-Gloss Latex, DS-1591 (0 VOC).
    - c. P & L: Red Seal Supreme Latex Semi-Gloss Z2500 series.
    - d. PPG Paints: Wonder-Tones™ Interior Latex Semi-Gloss #DRN3949 / #DRN3951 / #DRN3953 Series.
    - e. PPG Paints: Speedhide 6-4500 Zero VOC Interior Latex Semi-Gloss.
    - f. PPG Paints: “Pure Performance” Interior Latex Semi-Gloss Enamel, 9-500 Series.
    - g. S-W: ProMar 200 Zero VOC Semi-Gloss, B31 Series.
    - h. S-W: “Harmony” Interior Latex Semi-Gloss, B10 Series.

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B. System FM-41 for application on Interior Ferrous Metal:

1. Semi-Gloss Waterborne Enamel Finish: 2 coats over primer with total dry film thickness not less than 2.5 mils.
2. Acrylic, Rust-Inhibiting Primer: Quick-drying, rust-inhibiting primer for priming ferrous metal on the interior under waterborne semi-gloss enamels. **If interior ferrous metal is shop-primed, contractor shall provide data pages of shop primer for review and approval by Architect to affirm that the shop primer is rust-inhibitive, is designed to accept top coat(s), and the instructions to prep the surface.**
  - a. DV: Vers-Acryl 200 Acrylic Maintenance Primer/Finish.
  - b. Kwal: Accu-Guard WB Rust-Inhibitive DTM Acrylic Primer, 5821.
  - c. Moore: SSHP Acrylic Metal Primer, P04.
  - d. P & L: Steel Tech Acrylic Prime or Finish, Z190 Series.
  - e. PPG Paints: Pitt-Tech Int/Ext Industrial DTM Primer/Finish Enamel, 90-712 Series.
  - f. S-W: Pro-Cryl Universal Metal Primer, B66 W 310.
3. Interior Enamel Undercoat: Ready-mixed enamel for use as an undercoat over a primer on ferrous metal under interior semi-gloss waterborne enamel.
  - a. DV: Vers-Acryl 222 Acrylic Maintenance Semi-Gloss.
  - b. Kwal: Embassy WB Acrylic Semi-Gloss Enamel, 3800.
  - c. Moore: DTM Semi-Gloss Acrylic Enamel, P29.
  - d. P & L: Accolade Interior Latex Semi-Gloss, RZ4100 Series.
  - e. PPG Paints: Pitt-Tech Int/Ext Semi-Gloss DTM Industrial Enamel, 90-1210 Series.
  - f. SW: Pro Industrial DTM Acrylic Interior/Exterior Semi-Gloss, #B66 Series.
  - g. S-W: DTM Waterborne Semi-Gloss Acrylic, B66 Series.
4. Exterior Waterborne Semi-Gloss Enamel for use over a primer and undercoat on interior ferrous surfaces.
  - a. DV: Vers-Acryl 222 Acrylic Maintenance Semi-Gloss.
  - b. Kwal: Embassy WB Acrylic Semi-Gloss Enamel, 3800.
  - c. Moore: DTM Semi-Gloss Acrylic Enamel, P29.
  - d. P & L: Accolade Interior Latex Semi-Gloss, RZ4100 Series.
  - e. PPG Paints: Pitt-Tech Int/Ext Semi-Gloss DTM Industrial Enamel, 90-1210 Series.
  - f. SW: Pro Industrial DTM Acrylic Interior/Exterior Semi-Gloss, #B66 Series.
  - g. S-W: DTM Waterborne Semi-Gloss Acrylic, B66 Series.

C. System GDW-41 for application on Interior Gypsum Drywall / Plaster—Typical Walls & Ceilings

1. Semi-Gloss Latex Finish: 2 finish coats over primer.

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2. Latex-Based Interior White Primer: Latex-based primer coating used on interior gypsum drywall under a flat latex paint.
  - a. DV: "Health-Kote" Low Odor Primer/Flat Finish, DF-1591.
  - b. Kwal: "Envirokote" Primer, 08300.
  - c. Moore: "Pristine ECO-Spec" Primer, 231.
  - d. P & L: Pro-Hide Gold Interior Low Odor Latex Primer, Z9165.
  - e. PPG Paints: "Pure Performance" Interior Latex Primer, 9-900 Series.
  - f. S-W: ProMar® 200 Zero VOC Interior Latex Primer, B28 Series.
  - g. S-W: "Harmony" Interior Latex Primer, B11W900.
  
3. Semi-Gloss Latex Finish:
  - a. DV: "Health-Kote" Low Odor Interior Latex Semi-Gloss, DS-1591.
  - b. Kwal: Envirokote Semi Gloss, 3310.
  - c. Moore: Super Hide Zero Latex Semi-Gloss, 358.
  - d. P & L: Pro-Hide Gold Interior Low Odor Latex Semi-gloss, Z9300 Series.
  - e. PPG Paints: Wonder-Tones™ Interior Latex Semi-Gloss #DRN3949 / #DRN3951 / #DRN3953 Series.
  - f. PPG Paints: "Pure Performance" Latex Semi-Gloss Enamel, 9-500 Series.
  - g. S-W: ProMar® 200 Zero VOC Semi-Gloss, B31 Series.
  - h. S-W: "Harmony" Interior Latex Semi-Gloss, B10 Series.

END OF SECTION 09 91 23

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## SECTION 09 96 00 – HIGH-PERFORMANCE COATINGS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes surface preparation and the application of high-performance coating systems.
  - 1. Interior Substrates:
    - a. Concrete surfaces.
    - b. Steel.
    - c. Galvanized metal.
    - d. Wood.
- B. Related Requirements:
  - 1. Division 05 sections for shop priming of structural steel with primers specified in this Section.
  - 2. Section 09 91 23 "Interior Painting".

#### 1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
  - 1. Indicate VOC content.
- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of coating system and each color and gloss of topcoat indicated.
  - 1. Submit Samples on rigid backing, 8 inches (200 mm) square.
  - 2. Label each Sample for location and application area.
- D. Product List: Cross-reference to coating system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

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#### 1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Coatings: 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

#### 1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who employs only persons trained and approved by special coatings manufacturer for applying special coatings systems indicated.
  - 1. Qualifications of installers for special coatings system shall not be less than five years of experience installing specified items. Special coatings installer shall be manufacturer approved and have performed at least ten similar installations.
- B. Single-Source Responsibility: Provide primers and undercoat material produced by the same manufacturer as the finish coats for each type of coating. Use only thinners recommended by the manufacturer and only within recommended limits.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
  - 1. Maintain containers in clean condition, free of foreign materials and residue.
  - 2. Remove rags and waste from storage areas daily.

#### 1.7 FIELD CONDITIONS

- A. Apply coatings only when temperature of surfaces to be coated and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply coatings when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

### PART 2 - PRODUCTS

#### 2.1 HIGH-PERFORMANCE COATINGS, GENERAL

- A. Material Compatibility:
  - 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

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2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
3. Products shall be of same manufacturer for each coat in a coating system.

## 2.2 SOURCE QUALITY CONTROL

- A. Testing of Coating Materials: Owner reserves the right to invoke the following procedure:
1. Owner will engage the services of a qualified testing agency to sample coating materials. Contractor will be notified in advance and may be present when samples are taken. If coating materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
  2. Testing agency will perform tests for compliance with product requirements.
  3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove non-complying coating materials from Project site, pay for testing, and recoat surfaces coated with rejected materials. Contractor will be required to remove rejected materials from previously coated surfaces if, on recoating with complying materials, the two coatings are incompatible.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
1. Concrete: 12 percent.
  2. Wood: 15 percent.
- C. Verify compatibility with and suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- D. Proceed with coating application only after unsatisfactory conditions have been corrected.
1. Application of coating indicates acceptance of surfaces and conditions.
- E. Notify the Architect of problems anticipated using the coatings specified over substrates primed by others.

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### 3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations applicable to substrates and coating systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of coatings, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and re-prime substrate with compatible primers or apply tie coat as required to produce coating systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
- E. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.
- F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces. **ALKYD PRIMERS ARE NOT PERMITTED ON HIGH-PERFORMANCE-COATED SURFACES, Typ.**
- G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied coatings. **ALKYD PRIMERS ARE NOT PERMITTED ON HIGH-PERFORMANCE-COATED SURFACES, Typ.**
- H. Aluminum Substrates: Remove loose surface oxidation.
- I. Wood Substrates:
  - 1. Scrape and clean knots. Before applying primer, apply coat of knot sealer that is recommended in writing by topcoat manufacturer for coating system indicated.
  - 2. Sand surfaces that will be exposed to view and dust off.
  - 3. Prime edges, ends, faces, undersides, and backsides of wood.
  - 4. After priming, fill holes and imperfections in the finish surfaces with filler that is recommended in writing by topcoat manufacturer for coating system indicated. Sand smooth when dried.

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### 3.3 APPLICATION

- A. **Provide finish coats compatible with the primers used.**
- B. Apply high-performance coatings according to manufacturer's written instructions and recommendations.
  - 1. Use applicators and techniques suited for coating and substrate indicated.
  - 2. Coat surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, coat surfaces behind permanently fixed equipment or furniture with prime coat only.
  - 3. Coat backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
    - a. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convector covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
  - 4. Do not apply coatings over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- D. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.
- E. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.
- F. The number of coats and film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Where sanding is required, according to the manufacturer's directions, sand between applications to produce a smooth, even surface.

### 3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test coatings for dry film thickness.
  - 1. Contractor shall touch up and restore coated surfaces damaged by testing.
  - 2. If test results show that dry film thickness of applied coating does not comply with coating manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with coating manufacturer's written recommendations.

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### 3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from coating operation. Correct damage to work of other trades by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.
- E. Provide "Wet Paint" signs to protect newly coated finishes.
- F. Refer to the drawings, room finish schedules and notes for paint requirements. Architect shall approve all "match adjacent surfaces" colors before painting begins.

### 3.6 HIGH-PERFORMANCE COATINGS, GENERAL

- A. Material Compatibility.
  - 1. Provide materials for use within each coating system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
  - 2. Provide products of same manufacturer for each coat in a coating system.
- B. VOC Content of Field-Applied Interior Paints and Coatings: Provide products that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
  - 1. Flat Paints, Coatings, and Primers: VOC content of not more than 50 g/L.
  - 2. Nonflat Paints, Coatings, and Primers: VOC content of not more than 150 g/L.
  - 3. Flat Interior Topcoat Paints: VOC content of not more than 50 g/L.
  - 4. Nonflat Interior Topcoat Paints: VOC content of not more than 150 g/L.
  - 5. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
  - 6. Primers, Sealers, and Undercoaters: VOC content of not more than 200 g/L,
  - 7. Zinc-Rich Industrial Maintenance Primers: VOC content of not more than 340 g/L.
  - 8. Pre-Treatment Wash Primers: VOC content of not more than 420 g/L.

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- C. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing 1 or more benzene rings).
  2. Restricted Components: Paints and coatings shall not contain any of the following:
    - a. Acrolein.
    - b. Acrylonitrile.
    - c. Antimony.
    - d. Benzene.
    - e. Butyl benzyl phthalate.
    - f. Cadmium.
    - g. Di (2-ethylhexyl) phthalate.
    - h. Di-n-butyl phthalate.
    - i. Di-n-octyl phthalate.
    - j. 1,2-dichlorobenzene.
    - k. Diethyl phthalate.
    - l. Dimethyl phthalate.
    - m. Ethylbenzene.
    - n. Formaldehyde.
    - o. Hexavalent chromium.
    - p. Isophorone.
    - q. Lead.
    - r. Mercury.
    - s. Methyl ethyl ketone.
    - t. Methyl isobutyl ketone.
    - u. Methylene chloride.
    - v. Naphthalene.
    - w. Toluene (methylbenzene).
    - x. 1,1,1-trichloroethane.
    - y. Vinyl chloride.
- D. Colors: As indicated on drawings or as selected by Architect from manufacturer's full range.
- E. HIGH-PERFORMANCE COATINGS SCHEDULE

<u>LOCATION</u>	<u>SHEEN</u>	<u>COATINGS SYSTEM</u>
Interior Exposed Structural Ceilings	Epoxy	ESC-31—MODIFIED

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### 3.7 INTERIOR HIGH-PERFORMANCE COATING SYSTEMS

#### A. System ESC-31 for application on Interior Exposed Structural Ceilings--MODIFIED:

1. Urethane Finish: 1 coat over primer with total dry film thickness, between 8.0 and 10.0 dry mils thickness per coat or as noted below.
2. Synthetic, Rust-Inhibiting Primer for non-primed surfaces: Quick-drying, rust-inhibiting primer for priming interior galvanized metal and ferrous metal under polyamide epoxy coating. **Galvanized Metal—Brush-off Blast in accordance with SSPC SP-16 “Commercial Blast Cleaning” before applying primer. Ferrous Metal—Abrasive Blast in accordance with SSPC SP-6 “Commercial Blast Cleaning” before applying primer.**
  - a. PPG Paints: Amerlock 2 Fast Dry, Surface-Tolerant, High Solids Epoxy Coating.
  - b. SW: Acrolon® 218 High-Solids Polyurethane—Semi-Gloss, B67W00651 (4 – 6 mils).
  - c. SW: Acrolon® Ultra—Semi-Gloss (2 – 3 mils).
  - d. Tnemec: ChemBuild, Series 135 at 3 to 4 dry mils.
  - e. Or equal, if and as specifically approved by Architect by Addendum during bidding period.
3. Interior Polyamide Epoxy Finish Coating for use over a primer on interior galvanized metal and ferrous ceiling surfaces: Color—White:
  - a. PPG Paints: Durethane® DTM 95-3300 Series.
  - b. SW: Acrolon® 218 High-Solids Polyurethane—Semi-Gloss, B67W00651 (4 – 6 mils).
  - c. SW: Acrolon® Ultra—Semi-Gloss (2 – 3 mils).
  - d. Tnemec: Tneme-Fascure, Series 161HS.
  - e. Or equal, if and as specifically approved by Architect by Addendum during bidding period.

END OF SECTION 09 96 00

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## **SECTION 10 11 00 - VISUAL DISPLAY SURFACES**

### **1. GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

#### **1.2 SUMMARY**

- A. This Section includes the following types of visual display boards:
  - 1. Magnetic medium-gloss markerboards (for liquid chalk).
- B. See Section 06 10 00 "Rough Carpentry" for wood blocking and grounds.

#### **1.3 SUBMITTALS**

- A. Product data for each type of product indicated.
- B. Samples for initial selection of color, pattern, and texture:
  - 1. Markerboards: Manufacturer's color charts consisting of actual samples of dry-erase finish for markerboards.
  - 2. Map & Display Rail System: Manufacturer's color charts consisting of actual samples of tackable cork surface materials.
  - 3. Accessories: Samples of each finish type and color.

#### **1.4 PROJECT CONDITIONS**

- A. Field Measurements: Take field measurements prior to fabrication to ensure proper fitting. Coordinate fabrication with construction to avoid delay.
  - 1. Allow for trimming and fitting wherever taking field measurements before fabrication might delay the Work.

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## 2. PRODUCTS

### 2.1 MANUFACTURERS

A. Markerboard Manufacturers: Subject to compliance with requirements, provide products of one of the following:

1. Claridge Products and Equipment, Inc., Harrison, Arkansas, Model 24 LCS-217-M.
  - a. Sales Rep: Vicki Wagner, (515) 289-2511, [pcrdsmia@aol.com](mailto:pcrdsmia@aol.com).
  - b. Sales Rep: University Publishing, 1700 W. O Street, Suite B, Lincoln, NE 68528, (402) 474-7300, Fax: (402) 474-7329.
2. Or equal, if and as specifically approved by Architect by Addendum during Bidding Period.

### 2.2 MATERIALS

A. Aluminum-Framed Markerboards: Claridge Products and Equipment, Inc., factory-built, Series 4, Type A Markerboard with top attachment method (a screw through map rail) and bottom angle clips at 2" oc.. Provide scrim backed ferrous powdered vinyl bonded with a white vinyl and capped with a dry-erase film.

1. Face Sheet: To be 24 gauge LCS-217-M. Color: # LCS<sup>3</sup> White No. 100 (low-sheen finish).
2. Core Material: To be 7/16" MDF.
3. Panel Backing: To be Moisture Barrier backing.
4. Laminations: Shall be hot-type neoprene contact adhesive applied to both surfaces automatically. Each substrate to have a minimum of 80% covering with 1.5 - 2.0 dry mils of adhesive. Panel components shall have uniform pressure applied mechanically over the entire area. Laminations shall be made by face sheet manufacturer.
5. **Note that all markerboards shall be magnetic.**
6. Marker Board Tray/Trough: Screw-On Chalktray, 263.
7. Frame: 5/8" Perimeter Trim.
8. Frame Finish: Satin anodized aluminum.
9. Tack Rail: Provide continuous cork tack rail approximately 1 inch wide.
  - a. Map (Tack) Rail Cork Color: Smoke, 1111.

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## 2.3 ACCESSORIES

1. Miscellaneous Accessories: Include one LCS 775 Dry Erase Kit for each marker board surface and include one LCS683 Claridge White Board Cleaner per room where markerboards are shown.

## 3. EXECUTION

### 3.1 INSTALLATION

- A. Install units in locations and at mounting heights indicated and in accordance with the manufacturer's instructions. Keep perimeter lines straight, plumb, and level. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for a complete installation.

### 3.2 ADJUST AND CLEAN

- A. Verify that accessories required for each unit have been properly installed and that operating units function properly.
- B. Clean units in accordance with the manufacturer's instructions. Break in units only as recommended by the manufacturer.

END OF SECTION 10 11 00

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## **SECTION 10 21 13 - TOILET AND SHOWER COMPARTMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
  - 1. See Division 1 "Supplementary Conditions", if included, for requirements relating to interpretation of the drawings.

#### **1.2 SUMMARY**

- A. This Section includes toilet compartments and screens as follows:
  - 1. Type: Solid plastic, polymer resin.
  - 2. Compartment Style: Overhead braced and floor anchored.
  - 3. Screen Style: Wall hung.
- B. Related Sections include the following:
  - 1. Division 10 "Toilet and Bath Accessories" for toilet paper holders, grab bars, purse shelves, and similar accessories.

#### **1.3 SUBMITTALS**

- A. Product Data: For each type and style of toilet compartment and screen specified. Include details of construction relative to materials, fabrication, and installation. Include details of anchors, hardware, and fastenings.
- B. Shop Drawings: For fabrication and installation of toilet compartment and screen assemblies. Include plans, elevations, sections, details, and attachments to other work.
  - 1. Show locations of reinforcement and cutouts for compartment-mounted toilet accessories.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of sections of actual units showing the full range of colors, textures, and patterns available for each type of compartment or screen indicated.

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#### 1.4 QUALITY ASSURANCE

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication to ensure proper fitting of work.
- B. Coordination: Furnish inserts and anchorages which must be built into other work for installation of toilet compartments and related items.

#### 1.5 PROJECT CONDITIONS

- A. Field Measurements: Verify dimensions in areas of installation by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
  - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating units without field measurements. Coordinate supports, adjacent construction, and fixture locations to ensure actual dimensions correspond to established dimensions.

### **PART 2 - PRODUCTS**

#### 2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Compression Polymers Group, Comtec Industries, Series 200 or approved equal.
  - 2. Santana Solid Plastic Products
  - 3. Ampco Products
  - 4. Legacy Polymer Products Inc.
  - 5. Other, if and as specifically approved by Bid Bulletin during bidding period.

#### 2.2 MATERIALS

- A. General: Provide materials that have been selected for surface flatness and smoothness. Exposed surfaces that exhibit pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections on finished units are unacceptable.
- B. Concealed Anchorage Reinforcement: 12 gauge, galvanized steel sheet.
- C. Concealed Tapping Reinforcement: 14 gauge, galvanized steel sheet.

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- D. Solid Plastic, Polymer Resin: High density polyethylene (HDPE) with homogenous color throughout. Provide material not less than 1 inch (25 mm) thick with seamless construction and eased edges in color and pattern as follows:
  - 1. Colors and Patterns: Two colors and patterns in each room as selected by Architect from manufacturers full range of colors and patterns.
- E. Pilaster Shoes and Sleeves (Caps): ASTM A 666, Type 302 or 304 stainless steel, not less than 0.0312 inch (0.8 mm) thick and 3 inches (75 mm) high, finished to match hardware.
- F. Full-Height (Continuous) Brackets: manufacturer's standard design for attaching panels and screens to walls and pilasters of the following material:
  - 1. Material: Stainless steel.
- G. Hardware and Accessories: Manufacturers standard design, heavy duty operating hardware and accessories of the following material:
  - 1. Material: Stainless steel
- H. Anchorages and Fasteners: Manufacturers standard exposed fasteners of stainless steel, finished to match hardware, with theft-resistant type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use hot-dip galvanized or other rust-resistant, protective-coated steel.
- I. Heat-Sink Strip: Manufacturers standard continuous, extruded aluminum strip in manufacturers standard finish.
- J. Head Rails: Hollow stainless steel tube, 1x1x5/8" size, with anti-grip strips and cast socket wall brackets.

## 2.3 FABRICATION

- A. General: Provide standard doors, panels, screens, and pilasters fabricated for compartment system. Provide units with cutouts and drilled holes to receive compartment-mounted hardware, accessories, and grab bars, as indicated.
  - 1. Provide internal reinforcement in metal units for compartment-mounted hardware, accessories, and grab bars, as indicated.
- B. Solid Plastic, Polymer Resin Compartments and Screens: Provide aluminum heat-sink strips at exposed bottom edges of HDPE units to prevent burning.

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- C. Overhead-Braced-and-Floor-Anchored Compartments: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, fasteners, and anchors at pilasters to suit floor conditions. Make provisions for setting and securing continuous head rail at top of each pilaster. Provide shoes at pilasters to conceal supports and leveling mechanism.
- D. Wall-Hung Screens: Provide units in sizes indicated of same construction and finish as compartment panels, unless otherwise indicated.
  - 1. Provide screens with integral full-height flanges for attachment to wall.
- E. Doors: Unless otherwise indicated, provide 24-inch- (610-mm-) wide in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide out-swinging doors with a minimum 32-inch- (813-mm-) wide clear opening for compartments indicated to be handicapped accessible.
- F. Hardware: Furnish hardware for each compartment to comply with ANSI A117.1 for handicapped accessibility and as follows:
  - 1. Hinges: Manufacturer's standard self-closing type that can be adjusted to hold door open at any angle up to 90 degrees. **Door hinges to be gravity, continuous, and stainless steel.**
  - 2. Latch and Keeper: Manufacturer's standard surface-mounted latch unit with combination rubber-faced door strike and keeper designed for emergency access. Provide units that comply with accessibility requirements of authorities having jurisdiction at compartments indicated to be handicapped accessible. (slide type required)
  - 3. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent door from hitting compartment-mounted accessories. (one per compartment, mounted on door)
  - 4. Door Bumper: Manufacturer's standard rubber-tipped bumpers at out-swinging doors or entrance screen doors.
  - 5. Door Pull: Manufacturer's standard unit that complies with accessibility requirements of authorities having jurisdiction at out-swinging doors. Provide units on both sides of doors at compartments indicated to be handicapped accessible.

## 2.4 FINISH

- A. Comtec Industries/Santana Products Color: As selected by Architect from manufacturer's full range of colors.

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### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION**

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, plumb, and level. Provide clearances of not more than 1/2 inch (13 mm) between pilasters and panels and not more than 1 inch (25 mm) between panels and walls. Secure units in position with manufacturer's recommended anchoring devices.
  - 1. Secure panels to walls and panels with continuous hinge, secure to wall at approximately 8" intervals. Locate wall brackets so holes for wall anchors occur in masonry or tile joints. Align brackets at pilasters with brackets at walls.
- B. Overhead-Braced-and-Floor-Anchored Compartments: Secure pilasters to floor and level, plumb, and tighten. Secure continuous head rail to each pilaster with not less than 2 fasteners. Hang doors and adjust so tops of doors are parallel with overhead brace when doors are in closed position.
- C. Screens: Attach with anchoring devices according to manufacturer's written instructions and to suit supporting structure. Set units level and plumb and to resist lateral impact.

#### **3.2 ADJUSTING AND CLEANING**

- A. Hardware Adjustment: Adjust and lubricate hardware according to manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors and swing doors in entrance screens to return to fully closed position.
- B. Provide final protection and maintain conditions that ensure toilet compartments and screens are without damage or deterioration at the time of Substantial Completion.
- C. Clean exposed surfaces of partition systems using materials and methods recommended by manufacturer, and provide protection as necessary to prevent damage during remainder of construction period.

END OF SECTION 10 21 13

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## **SECTION 10 28 00 - TOILET AND BATH ACCESSORIES**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
  - 1. See Section 00 73 00 "Supplementary Conditions", if included, for requirements relating to interpretation of the drawings and specifications.

#### **1.2 SUMMARY**

- A. This Section includes the following:
  - 1. Toilet accessory items.

#### **1.3 SUBMITTALS**

- A. Product Data for each toilet accessory item specified, including details of construction relative to materials, dimensions, gages, profiles, method of mounting, specified options, and finishes.
- B. Schedule: Indicating types, quantities, sizes, and installation locations (by room) for each toilet accessory item to be provided for project.
- C. Setting Drawings: Where cutouts are required in other work, provide templates, substrate preparation instructions, and directions for preparing cutouts and for installation of anchorage devices.

#### **1.4 QUALITY ASSURANCE**

- A. Inserts and Anchorages: Furnish inserts and anchoring devices that must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.

#### **1.5 PROJECT CONDITIONS**

- A. Coordination: Coordinate accessory locations, installation, and sequencing with other work to avoid interference and to assure proper installation, operation, adjustment, cleaning, and servicing of toilet accessory items.

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## 1.6 WARRANTY

- A. Special Project Warranty: Provide manufacturer's written 5-year warranty against silver spoilage of mirrors, agreeing to replace any mirrors that develop visible defects within warranty period.

## PART 2 - PRODUCTS

### 2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide toilet accessories by one of the following:
  - 1. A & J Washroom Accessories.
  - 2. American Specialties
  - 3. Bobrick Washroom Equipment, Inc.
  - 4. Bradley Corporation.
  - 5. General Accessory Manufacturing Co.

### 2.2 MATERIALS, GENERAL

- A. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 22-gage (.034-inch) minimum thickness, unless otherwise indicated.
- B. Brass: Leaded and unleaded, flat products, ASTM B 19; rods, shapes, forgings, and flat products with finished edges, ASTM B 16, Castings, ASTM B-30.
- C. Sheet Steel: Cold-rolled, commercial quality ASTM A 366, 20-gage (.040-inch) minimum, unless otherwise indicated. Surface preparation and metal pretreatment as required for applied finish.
- D. Galvanized Steel Sheet: ASTM A 527, G60.
- E. Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B 456, Type SC 2.
- F. Mirror Glass: Nominal 6.0 mm (0.23 inch) thick, conforming to ASTM C 1036, Type I, Class 1, Quality q2, and with silvering, electro-plated copper coating, and protective organic coating.
- G. Galvanized Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.
- H. Fasteners: Screws, bolts, and other devices of same material as accessory unit or of galvanized steel where concealed.

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- I. Keys: Unless otherwise indicated, provide universal keys for access to toilet accessory units requiring internal access for servicing, resupply, etc. Provide minimum of six (6) keys to Owner's representative.

## 2.3 TOILET/BATHROOM ACCESSORIES

- A. Provide toilet/bathroom accessories as indicated in schedule on drawings.

## 2.4 FABRICATION

- A. General: Only a maximum 1-1/2-inch diameter, unobtrusive stamped logo of manufacturer, as approved by Architect, is permitted on exposed face of toilet or bath accessory units. On either interior surface not exposed to view or back surface, provide additional identification by means of either a printed, waterproof label or a stamped nameplate, indicating manufacturer's name and product model number.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install toilet accessory units in accordance with manufacturer's instructions, using fasteners appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations at heights indicated.
- B. Secure mirrors to walls in concealed, tamperproof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated, in accordance with manufacturer's instructions for type of substrate involved.
- C. Unless otherwise indicated install toilet accessories to meet the following ADA guidelines:
  1. Mount toilet/bathroom accessories as indicated in schedule on drawings.
  2. Grab Bars at Toilets 36" AFF to centerline of bar.

### 3.2 ADJUSTING AND CLEANING

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.
- B. Clean and polish all exposed surfaces in strict accordance with manufacturer's recommendations after removing temporary labels and protective coatings.

END OF SECTION 10 28 00

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## **SECTION 22 05 00 - BASIC PLUMBING REQUIREMENTS**

### **1. GENERAL**

#### **1.1 SECTION INCLUDES**

- A. This section describes Basic Mechanical Requirements required to provide for a complete installation of all mechanical systems for this project. This section shall apply to all other Division 22 specification sections as well as all work shown on the drawings.
- B. It is the intent of the Mechanical Division of the Specifications that all mechanical work specified herein be coordinated as required with the work of all other Divisions of the Specifications and Drawings so that all installations operate as designed.
- C. All systems shall be completely assembled, tested, adjusted and demonstrated to be ready for operation to the satisfaction of the Owner's representative.
- D. The Contractor shall note that, in some cases, piping as shown on the Drawings provide general location and routing information only. The Contractor shall be responsible for providing interference-free systems with proper clearance to facilities and equipment.
- E. Where the word "provide" is used, it shall mean "furnish and install" unless otherwise noted or specified.
- F. Note that the words "mechanical" and "plumbing" are used interchangeably throughout the Division 22 and 23 specification sections.

#### **1.2 RELATED SECTIONS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work of this section and all other sections of Division 22.

#### **1.3 DESCRIPTION OF WORK**

- A. The work included under this section consists of providing all labor, materials, supervision, and construction procedures necessary for the installation of the complete plumbing systems required by these specifications and/or shown on the drawings of the contract.
- B. The Contract Drawings are shown in part diagrammatic intended to convey the scope of work, indicating the intended general arrangement of equipment, piping, ductwork, etc.

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#### 1.4 QUESTIONS OF INTERPRETATION

- A. If questions arise during the bidding process regarding the meaning of any portion of the contract documents, the prospective bidder shall submit the questions to the Architect/Engineer for clarification. Any definitive interpretation or clarification of the contract documents will be published by addenda, properly issued to each person holding documents, prior to the bid date. Verbal interpretation or explanation not issued in the form of an addendum shall not be considered part of the bidding documents. When submitting questions for clarification, adequate time for issuance and delivery of addenda must be allowed.
- B. The Architect/Engineer shall be the sole judge regarding interpretations of conflicts within contract documents.

#### 1.5 CONTRACT DOCUMENT DISCREPANCIES

- A. If any ambiguities should appear in the contract documents, the Contractor shall request clarification from the Architect/Engineer before proceeding with the work. If the Contractor fails to make such request, no excuse will thereafter be entertained for failure to carry out the work in a manner satisfactory to the Architect/Engineer. Should a conflict occur within the contract documents, the Contractor is deemed to have estimated the more expensive way of doing the work unless a written clarification from the Architect/Engineer was requested and obtained before submission of bid.
- B. The Contractor acknowledges and understands that the Contract Documents are a two-dimensional representation of three-dimensional objects. This representation may include imperfect data, interpreted codes, utility guidelines, three-dimensional conflicts, and required field coordination items. Such deficiencies should be identified prior to ordering material and starting installation. The Contractor agrees to carefully study and compare the individual Contract Documents and report at once in writing to the Architect/Engineer any deficiencies the Contractor may discover. The Contractor further agrees to require each subcontractor to likewise study the documents and report at once any deficiencies discovered.
- C. The Contractor shall follow the drawings in laying out work and verify clearances for the installation of the materials and equipment based on the dimensions of actual equipment furnished. Whenever a question exists as to the exact intended location of materials or equipment, obtain instructions from the Architect/Engineer before proceeding with the work.
- D. If there is a conflict between manufacturer's recommendations and the Contract Documents, the manufacturer's recommendations shall govern with no additional cost to the Owner.

#### 1.6 PERMITS

- A. The Contractors shall familiarize themselves with all requirements regarding all permits, fees, etc., and shall comply with them. All permits, licenses, inspections and arrangements required for the work shall be obtained by the Contractor at his expense.

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- B. All utilities shall be installed in accordance with the local rules and regulations and all charges shall be paid by the Contractor.

#### 1.7 QUALITY ASSURANCE

- A. Installers shall have at least 2 years of successful installation experience on projects with mechanical installation work similar to that required by the project. All equipment and materials shall be installed in a neat and workmanlike manner and shall be aligned, leveled, and adjusted for satisfactory operation, unless noted otherwise in other mechanical sections.
- B. Manufacturer of equipment and materials must be regularly engaged in the manufacture of the specified equipment and material with similar construction and capacities and whose products have been in satisfactory use in similar service for not less than five (5) years, unless noted otherwise in other Mechanical Sections.
- C. Qualify welding processes and operators for structural steel according to AWS D1.1. "Structural Welding Code - Steel.
- D. Quality welding processes and operators for piping according to ASME "Boiler and Pressure Vessel Code," Section IX, "Welding and Brazing Qualifications."
- E. Comply with provisions of ASME B31 Series "Code for Pressure Piping", including all addenda.
- F. Contractor signed welder certificate(s) shall be submitted. Certify that each welder has passed AWS qualification tests for the welding processes involved and that certification is current. A record shall be maintained on the job site showing the date and results of qualification tests for each welder employed on the job. One certified copy of the qualification test for each welder so employed shall be furnished to the Owner's representative.
- G. For all the refrigerant work/service required by this project, all refrigerant technicians shall be EPA/ASHRAE 34 certified for corresponding classification type I, II, III and/or IV.

#### 1.8 REFERENCES

- A. The design, manufacture, testing, and method of installation of all equipment and materials furnished under the requirements of this specification shall conform to the following as applicable:
  - 1. Safety and Health Regulations for Construction.
  - 2. Occupational Safety and Health Standards, National Consensus Standards and Established Federal Standards.
  - 3. ABMA - American Boiler Manufacturers Association.
  - 4. ACCA - Air Conditioning Contractors of America.
  - 5. ACGIH - American Conference of Governmental Industrial Hygienists.
  - 6. ADC - Air Diffusion Council.
  - 7. AGA - American Gas Association.
  - 8. AIHA - American Industrial Hygiene Association.
  - 9. AMCA - Air Movement and Control Association.
  - 10. ANSI - American National Standards Institute.

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11. ARI - Air-Conditioning and Refrigeration Institute.
12. ASA - Acoustical Society of American.
13. ASHRAE - American Society of Heating, Refrigerating, and Air-Conditioning Engineers.
14. ASME - The American Society of Mechanical Engineers.
15. ASTM - American Society of Testing and Materials.
16. CAGI - Compressed Air and Gas Institute.
17. CTI - Cooling Tower Institute.
18. EJMA - Expansion Joint Manufacturers Association.
19. ETL - Engineering Tests Laboratory.
20. HEI - Heat Exchange Institute.
21. HI - Hydraulic Institute.
22. HYD I - Hydronics Institute.
23. ICBO - International Conference of Building Officials.
24. ICC – International Code Council.
25. NEBB - National Environmental Balancing Bureau.
26. NEC - National Electrical Code.
27. NEMA - National Electrical Manufacturers Association.
28. NFPA - National Fire Protection Association.
29. NSF - National Sanitation Foundation.
30. SAE - Society of Automatic Engineers.
31. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association.
32. TEMA - Tubular Exchanger Manufacturers Association.
33. UL - Underwriters Laboratories, Inc.
34. International Plumbing Code.
35. International Mechanical Code.
36. Other governing, state, and local codes that apply.

#### 1.9 SUBMITTALS

- A. General: Follow the procedures specified in Division 1 Sections "General Conditions" and "Special Conditions".
- B. The Architect/Engineer's review of submittals, including any corrections or comments made on the shop drawings during the review process, do not relieve Contractor from compliance with requirements of the Contract Documents. The review is only a review of general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. The Contractor is responsible for confirming and correlating all quantities and dimensions; selecting fabrication process and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner. The Contractor shall not be relieved from responsibility for errors or omissions in the shop drawings, product data or samples by the Architect/Engineer's review of those drawings.
- C. No portion of the work requiring submission of a shop drawing, product data or sample shall be commenced until the submittal has been reviewed by the Architect/Engineer. All such portions of the work shall be in accordance with reviewed submittals and the associated manufacturer recommendations.

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- D. Shop drawings shall include the minimum following information as applies. Additional specific information required is outlined in other Plumbing Sections.
1. All equipment items shall be marked with the same item number as used on drawings or schedules.
  2. Certified performance and data with system operating conditions indicated. All coil, heat exchanger, and pump performance data shall be computer generated.
  3. Product Data: Submit manufacturer's technical product data, including rated capacities of selected model clearly indicating size, weights (shipping, installed, and operating), furnished specialties and accessories; and installation and start-up instructions.
  4. Shop Drawings: Submit manufacturer's assembly-type shop drawings indicating dimensions, weight loading, required clearances, and methods of assembly of components.
  5. Wiring Diagrams: Submit manufacturer's electrical requirements for power supply wiring to electrical equipment. Submit manufacturer's ladder-type wiring diagrams for interlock and control wiring required for final installation of electrical equipment and controls. Clearly differentiate between portions of wiring that are factory-installed and portions to be field-installed.
  6. Maintenance Data: Submit maintenance data and parts list for each plumbing equipment, control and accessory; including "troubleshooting" maintenance guide. Include this data, product data, shop drawings, and wiring diagrams in maintenance manual; in accordance with requirements of Division 1.
- E. Provide separate shop drawing submittals for the following items.:

1. Section 22 05 00:

Submittal Requirement:	Date Submitted:
Plumbing permits	
EPA/ASHRAE 34 refrigeration certification	
Welding certificates	
Warranties	
As-built documents	
Pipe pressure test logs	
Operation and maintenance manuals	
Close-out / walk-through documentation	

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2. Section 22 05 53:

Submittal Requirement:	Date Submitted:
Mechanical and plumbing identification materials	
Valve schedule	

3. Section 22 07 19:

Submittal Requirement:	Date Submitted:
Pipe insulation materials and insulation schedule	

4. Section 22 10 00:

Submittal Requirement:	Date Submitted:
Plumbing piping material and fitting schedule	
Plumbing valves	
Plumbing pipe accessories	
Plumbing hydrostatic test report(s)	
Domestic water sample test report(s)	

5. Section 22 11 19:

Submittal Requirement:	Date Submitted:
Plumbing specialties, cleanouts, plumbing fixture carriers, etc.	

6. Section 22 40 00:

Submittal Requirement:	Date Submitted:
Plumbing fixtures and accessories	

1.10 SUBSTITUTIONS

- A. All proposals shall be based on providing and installing the materials or items of equipment as shown on the Contract Documents. The Contractor's options in selecting materials and equipment are limited by requirements of the Contract Documents and governing regulations. They are not controlled by industry traditions or procedures experienced by the Contractor on previous construction projects.

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- B. Where the terms "or equivalent" is used, the Contractor may substitute alternate equipment, materials, etc. subject to review by the Architect/Engineer and the Owner's representative during the submittal phase of the project.
- C. Where the term "or approved equivalent" is used, the Contractor may not substitute alternate equipment, materials, etc. unless obtaining written approval from the Architect/Engineer at least ten (10) days before the bid date. Notifications of any such approvals by the Architect/Engineer shall only be made in writing by Addendum.
- D. Where the term "no equivalent" is used, the Contractor must provide the specified or scheduled equipment, materials, etc.
- E. Proposed substitutions will be judged on the basis of quality, capacity, performance, features, physical size, and appearance. The reputation of the manufacturer, delivery time requirements, and the availability of repair or replacement parts may also be considered.
- F. The Architect/Engineer shall be the sole and final judge as to the suitability of substitution items.
- G. If a substitution is approved, the Contractor shall bear the total cost of all changes due to substitution. These costs may include additional compensation to the Architect/Engineer for redesign and evaluation services, increased cost of work by the Owner or other Contractors, and similar considerations.
  - 1. If an approved substitution differs from the specified item in terms of power requirements, dimensions, capacities, and ratings, the associated plumbing and electrical services, circuit breakers, conduit, motors, bases, and equipment spaces are to be increased accordingly, but all recommended manufacturer clearances, etc., are to be maintained within the allotted mechanical spaces. No additional costs will be approved for these modifications. If minimum energy ratings or efficiencies of the equipment are specified, the equipment must meet the design requirements and commissioning requirements.

#### 1.11 WARRANTY

- A. Refer to the General Conditions section of this Specification for general warranty requirements and information. Additional warranty requirements are specified in subsequent Plumbing Sections.

#### 1.12 CLOSE OUT AND OPERATION INSTRUCTIONS

- A. Operate each system and item of equipment in a test run of appropriate duration, but no less than 7 days, to demonstrate sustained, satisfactory performance. Adjust and correct operations as required for proper performance.
- B. Any system placed in temporary operation for testing or for the convenience of the Contractor during construction shall be properly maintained and operated by the Contractor.
- C. All systems shall be protected against freezing, flooding, corrosion or other forms of damage prior to acceptance by the Owner.

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- D. Material or equipment damaged, shown to be defective or not in accordance with the Specifications shall be repaired or replaced to the satisfaction of the Owner's representative.
- E. All tests shall be made after notification to and in the presence of the Owner's representative.
- F. Before starting up any system, each piece of equipment comprising any part of the system shall be checked for proper lubrication and any other condition which may cause damage to the equipment or endanger personnel.
- G. After systems have been demonstrated to be satisfactory for 7 consecutive days and ready for permanent operation, all permanent pipe line strainers shall be cleaned, valve and packings properly adjusted, lubrication checked and replenished if required. Temporary piping, etc. shall be removed and openings restored in a permanent manner acceptable to the Owner's representative.
- H. Conduct a walk-through instruction seminar for the Owner's personnel pertaining to the continued operation and maintenance of mechanical equipment and systems. Explain the identification system, maintenance requirements, operational diagrams, temperature control provisions, sequencing requirements, security, safety, efficiency and similar features of the systems. Walk through must be documented as to those attending and subjects covered. Walk through document(s) shall be signed and dated by the contractor's representative and the owner's representative.
- I. At the time of substantial project completion, turn over the prime responsibility for operation of the mechanical equipment and systems to the Owner's operating personnel. Until the time of final acceptance, provide full time operating personnel, who are completely familiar with the work, to consult with and continue training the Owner's personnel.
  - 1. If any systems are operated prior to substantial completion, the contractor shall perform all necessary preventative maintenance according to all manufacturer recommendations.

#### 1.13 AS-BUILT DOCUMENTS

- A. Prepare as-built documents in accordance with the requirements in Division 1 Section "PROJECT CLOSEOUT." In addition to the requirements specified in above, indicate the following installed conditions:
  - 1. The Mechanical Contractor shall provide the Owner with as-built drawings for ductwork mains and branches, size and location, for both exterior and interior; locations of dampers and other control devices; filters, boxes, and terminal units and indicate all devices requiring periodic maintenance or repair, such as control power transformers, LACS panels/routers, field controllers, duct static pressure sensors, piping pressure sensors, etc.
  - 2. All mechanical systems as described in the Specifications and/or shown on the drawings.
  - 3. Mains and branches of piping systems, with valves and control devices located and numbered, concealed unions located, and with items requiring maintenance located (i.e., traps, strainers, expansion compensators, tanks, etc.). Valve location diagrams, complete with valve tag chart. Refer to Division 22 Section "Plumbing Identification." Indicate actual inverts and horizontal locations of underground piping.

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4. Equipment/material locations (exposed and concealed), dimensioned from prominent building lines.

#### 1.14 MAINTENANCE MANUALS

- A. Prepare maintenance manuals in accordance with Division 1 Section "PROJECT CLOSEOUT." In addition to the requirements specified in Division 1, include the following information for equipment items:
  1. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
  2. Manufacturer's printed operating procedures to include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; and summer and winter operating instructions.
  3. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.
  4. Servicing instructions and lubrication charts and schedules.
- B. Provide electronic copies, preferably in Adobe Acrobat Portable Document Format (pdf), of all maintenance manuals to Temperature Control Contractor for use in EMCS front-end system. Provide data in file types compatible with EMCS.

## 2. PRODUCTS (NOT APPLICABLE).

## 3. EXECUTION

### 3.1 JOBSITE SAFETY

- A. Neither the professional activities of the Architect/Engineer, nor the presence of the Architect/Engineer or his or her employees and subconsultants at a construction site, shall relieve the Contractor and other entity of their obligations, duties and responsibilities including, but not limited to, construction means, methods, sequence, techniques or procedures necessary for performing, superintending or coordinating all portions of the work of construction in accordance with the contract documents and any health or safety precautions required by any regulatory agencies. The Architect/Engineer and his or her personnel have no authority to exercise any control over any construction contractor or other entity or their employees in connection with their work or any health or safety precautions. The Contractor is solely responsible for jobsite safety.

### 3.2 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.
- B. Store and handle material and equipment in compliance with manufacturers' recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

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- C. Use proper lifting equipment where size/weight requires handling by such means.
- D. Comply with manufacturer's rigging and moving instructions for unloading material and equipment, and moving them to final location.
- E. Equipment requiring disassembly for access purposes shall be disassembled and reassembled as required for movement into the final location following manufacturer's written instructions.
- F. Deliver material and equipment as a factory-assembled unit to the extent allowable by shipping limitations, with protective crating and covering.
- G. Mechanical Contractor shall schedule deliveries so as to minimize space and time requirements for storage of materials and equipment on site.
- H. All piping is to be protected while stored for installation. Pipe ends are to be provided with pipe plugs, plastic wrap taped ends or pipe ends crimped closed. No exceptions. Piping found open will be tagged and prior to being installed by the contractor shall be cleaned, inspected by the owner representative and cleaning approved by the owner. Any pipe that has been installed without being approved by the owner shall be removed for visual inspection by the owner representative.
- I. Any material that is damaged during delivery, storage, handling, or installation shall be brought to the attention of the Architect/Engineer for review of its acceptability in the project.
  - 1. The Architect/Engineer shall be the sole and final judge as to the suitability of damaged items.

### 3.3 ROUGH-IN

- A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.
- B. Refer to equipment specifications in Divisions 2 through 26 for rough-in requirements.

### 3.4 COORDINATION

- A. All mechanical rooms shall be constructed to maintain a minimum 4'-0" wide x 7'-6" high clearance between mechanical equipment and accessories. All trades shall coordinate work to provide this space.
- B. Sequence, coordinate, and integrate installations of plumbing materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.
- C. Coordinate the work with the work of the different trades so that:
  - 1. Interferences between mechanical, plumbing, fire protection, electrical, architectural, and structural work, including existing services, will be avoided.

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2. Within the limits indicated on the drawings, the maximum practicable space for operation, maintenance repair, removal and testing of plumbing and other equipment will be provided.
  3. All Contractors shall establish utility elevations prior to fabrication and shall coordinate their material and equipment with other trades. When a conflict arises, priority is as follows:
    - a. Light fixtures.
    - b. Gravity flow piping, including steam and condensate.
    - c. Equipment requiring access, including terminal units, fire/smoke dampers, and piping valves.
    - d. Ductwork.
    - e. Electrical busduct.
    - f. Electrical cable trays, including access space.
    - g. Piping (hydronic and plumbing).
    - h. Sprinkler/standpipe piping.
    - i. Electrical conduits and wireway.
  4. Pipes, ducts, and similar items, shall be kept as close as possible to ceiling, walls, and columns, to take up a minimum amount of space. Pipes, ducts, and similar items shall be located so that they will not interfere with the intended use of other equipment.
- D. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components as they are constructed.
- E. Furnish and install, without additional expense to the Owner, all offsets, fittings and similar items necessary in order to accomplish the requirements of coordination.

### 3.5 PLUMBING INSTALLATIONS

- A. All dimensions and clearances affecting the installation of work shall be verified in the field in relation to established datum, to building openings and to the work of other trades.
- B. The location of all equipment and systems shall be coordinated to preclude interferences with other construction.
- C. Should interferences occur which will necessitate deviations from layout or dimensions shown on the Drawings, the Architect/Engineer and the Owner's representative shall be notified and any changes approved before proceeding with the work.
- D. Arrange for chases, slots, and openings in other building components during progress of construction to allow for mechanical installations.
- E. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum possible headroom.
- F. Coordinate connection of mechanical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.

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- G. Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect/Engineer.
- H. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
- I. Install mechanical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations. Extend grease fittings to an accessible location.
- J. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.

### 3.6 ACCESSIBILITY

- A. All work shall be installed so as to be accessible for operation, maintenance and repair with particular attention given to locating valves, controls and equipment requiring periodic lubrication, cleaning, adjusting or servicing of any kind.

### 3.7 LUBRICATION AND TOOLS

- A. Provide a fresh charge of lubricant in accordance with manufacturer's recommendations to all equipment requiring lubrication prior to start-up and maintain lubrication as required until acceptance by Owner.
- B. Provide for each piece of equipment any special tools and a list of such tools required for the operation or adjustment of the equipment and turn over to the Owner's representative prior to final acceptance of the equipment.

### 3.8 START-UP

#### A. PIPING SYSTEMS PRESSURE TESTING

1. The following personnel in the order listed shall be considered acceptable witnesses of all piping pressure testing:
  - a. Local Authority Having Jurisdiction
  - b. Owner's Representative
  - c. Mechanical Engineer / Architect
2. Removal of pressure charge and associated drain down shall also be witnessed.
3. Mechanical contractor shall provide a minimum of 24-hour notice to at least one of the above listed parties before commencing any piping systems pressure test.

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4. Pressure gauge requirements: Provide recently calibrated gauge with 4" face and a range such that test pressure is between 50% and 100% of gauge range. For example, a gauge with a 15 psig range is acceptable for a 10 psig pressure test, whereas a gauge with a 30 psig range is unacceptable in this application. Gauge resolution shall be suitable for type of testing, system size and test media. Gauge shall have been recently calibrated.
5. All piping pressurizing equipment (i.e., air compressor) shall be disconnected before test is commenced and shall remain disconnected for the entire duration of the test.
6. Entire system shall be properly vented before test is commenced.
7. For specific piping pressure testing requirements and procedures, see applicable piping systems specification sections. At minimum, however, pipe systems should be tested at the following pressures and all installed components must be rated at this pressure at the actual operating temperature:
  - a. Domestic water (cold, hot, and recirc) 150 psig
  - b. Storm drainage 12 psig
  - c. Sanitary waste and vent 12 psig
  - d. Sanitary forced main 150 psig
  - e. Natural gas 12 psig
8. Submit a completed "Pipe Pressure Test Log" provided at the end of this Section for each pressure test before final project closeout. Test log shall also be included in operation and maintenance manuals. Use multiple forms if necessary.

### 3.9 GENERAL CONTRACTOR - MECHANICAL EXTENT OF WORK

#### A. Access Panels

1. Furnish and install panels for access to valves and dampers and similar items where no other means of access, such as readily removable, sectional ceiling is shown or specified.
2. The plans indicate the location of all anticipated access panels. The Division 22 Contractor shall make every effort to locate all material and equipment requiring service and maintenance above accessible ceilings or utilize the indicated access panels. Material and equipment requiring service and maintenance that is shown above inaccessible ceilings shall be relocated to accessible or exposed areas whenever possible. When these items are located in exposed areas, the Division 22 Contractor is to verify with the Architect/Engineer that the installation will not affect the aesthetics of the building. However, when it is not possible to locate these items in accessible or exposed areas due to the configuration of the actual installation of the mechanical and other trade systems or aesthetic reasons, additional access panels shall be provided. The contractor shall be equitably compensated for the additional access panels.

#### B. Cutting and Patching

1. General: Perform cutting and patching in accordance with Division 1 Section "CUTTING AND PATCHING." In addition to the requirements specified in Division 1, the following requirements apply:
2. The Division 22 Contractor shall coordinate all cutting and patching of holes, in existing building and new construction which are required for the passage of mechanical work.

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3. Division 22 Contractor is to notify the General Contractor prior to submitting his bid, the number, size and location of all cutting and patching requirements. The Division 22 Contractor shall be liable for all associated costs of cutting and patching for mechanical work upon failure to notify the General Contractor prior to bid submission.
4. Under no circumstances shall any structural members, load-bearing walls or footings be cut without first obtaining written permission from the Engineer.
5. Cut, channel, chase and core drill floors, walls, partitions, ceilings, and other surfaces necessary for mechanical installations. Perform cutting by skilled mechanics of the trades involved.
6. Patching of concrete openings shall be filled with grout and finished smooth with the adjacent surface.
7. All below-grade openings for pipe shall be sealed with interlocking synthetic rubber line assembly, Link-Seal by Thunderline Corporation or equal.
8. Repair cut surfaces to match adjacent surfaces.
9. Perform cutting, fitting, and patching of mechanical equipment and materials required to:
  - a. Uncover work to provide for installation of ill-timed work.
  - b. Remove and replace defective work.
  - c. Remove and replace work not conforming to requirements of the Contract Documents.
  - d. Remove samples of installed Work as specified for testing.
  - e. Install equipment and materials in existing structures.
  - f. Upon written instructions from the Architect, uncover and restore Work to provide for Architect/Engineer observation of concealed Work.

C. Excavation and Backfilling

1. Division 22 Contractor shall perform all excavation and backfilling necessary to install the required mechanical work. Coordinate the work with other excavating and backfilling work in the same area.
2. Except as indicated otherwise, comply with the applicable sections in Division 2 of these specifications, excavation filling and backfilling (for structures) to 5' outside the building line, and exterior utilities sections for beyond 5' from the building line.
3. Trenching: Trench width shall be no more than required for shoring, bracing and performance of the work. All necessary shoring and bracing shall be installed to insure worker safety, proper installation of mechanical work, and protection of adjacent structures. Provide all dewatering as required. Depth shall not exceed that required to achieve the specified depth of cover and overdig will be permitted for bedding material only. All trenches shall be open cut from the surface.
4. Bedding: All work shall be properly bedded whether on virgin soil or on granular bedding as specified. All granular bedding shall be laid on undisturbed soil. PVC and copper piping shall have a 4" crushed stone bed conforming to specification for granular material in Division 2. If rock is encountered, excavate to a point 4" below installed bottom elevation of piping and provide bedding as called for above.
5. Haunching: Haunching shall be brought up on both sides of the pipe for a distance of 1/3 the pipe diameter and shall be of the same material used for bedding.
6. Backfill: Backfilling shall not begin until installation has been tested for leaks.
7. Final Backfill shall be as follows:
  - a. Outside Building Under Paved Areas: Granular material specified in Division 31.

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- b. Outside Building and Not Under Paved Areas: Clean soil free of vegetable matter and foreign material or crushed limestone. In planted areas backfill to a point 6" below finished grade. Owner will provide topsoil to finished grade.
8. Placement: Place all granular material in lifts of 12" maximum compacted to 100% of maximum dry density as determined as ASTM D698. Place soil in 6" lifts compacted to 95% of maximum density as determined by ASTM D698. Do not place any backfill until excavations have been cleaned of all water, debris and loose or soft soil.
9. Protection: At least 72 hours prior to excavating, for each phase, Contractor shall contact the Owner's Representative to arrange for utility locates in the construction area.
10. Contractor shall provide temporary supports for all underground utilities crossing an excavation.
11. Provide all required barricades, fencing, signs, lights, etc. as necessary for the protection of the workers and of the general public.
12. Excess Material: All excess earth and other material resulting from the excavation shall be removed from site daily by the Contractor.
13. Landscape work, pavement, flooring and similar exposed finish work that is disturbed or damaged by excavation shall be repaired and restored to their original condition by the Mechanical Contractor.

#### D. Concrete Bases

1. Minimum 4" high concrete housekeeping pads shall be provided under all floor-mounted plumbing equipment, regardless of whether explicitly shown on the Drawings. Concrete inertia pads with spring isolators shall be provided for all base-mounted pumps and air compressors installed on any floors which are not slab-on-grade. Inertia pads and isolators shall be sized by the equipment manufacturer if specific information is not provided in the Contract Documents.
2. Contractor shall verify, prior to submitting his bid, the number, size and location of all plumbing equipment bases.
3. Construct concrete equipment bases a minimum 4 inches larger in both directions than supported unit. Follow supported equipment manufacturer's setting templates for anchor bolt and tie locations. Use 3000 psi, 28-day compressive strength concrete, reinforcement and forms as specified in Division 3 Section "Cast-In-Place Concrete." Coordinate final equipment base size with General Contractor.
4. All equipment shall be mechanically fastened to concrete bases.

#### E. Roof curbs, roof support for mechanical equipment and roof penetrations.

1. Verify, prior to submitting bid, the number, size, and location of all roof curb and roof supports and the location of all roof penetrations. Provide all roof deck-mounted equipment, pipe supports, and pipe penetrations. Cut roof deck for pipe and duct penetrations, unless noted otherwise. Provide all roof covering/membrane mounted equipment and pipe supports and roof drains, unless noted otherwise.
2. Contractor shall be liable for all associated costs to install the roof curbs, roof supports and roof penetrations not shown on the roof plan or added after the roof system has been installed. Coordinate with the General Contractor prior to construction the number size and location of all roof penetrations.

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3. All roof curbs, supports, and rails shall be sized to keep equipment a minimum of 18" above the roof insulation membrane in order to limit snow accumulation at or near equipment.

F. Painting

1. Field paint plumbing equipment and materials in specified areas as noted on the plumbing plans, plumbing schedules and in the specifications. Where items are to be painted, provide materials in these areas that are suitable for accepting paint. Clean and prepare the materials as necessary prior to painting, including removal of sharp edges. At minimum, items in these areas shall be painted:
  - a. Exposed items in areas other than mechanical rooms. Paint color shall match the adjacent surfaces (i.e. walls, ceilings, etc.) and shall follow the patterns of any adjacent accent colors.
  - b. Concealed field-fabricated bare iron or steel items required for installation of work under this Division. Remove rough or sharp edges prior to painting.
  - c. Exterior items which are not factory-painted. Paint color shall be selected by Architect.
2. Paint all items in accordance with Division 09 sections.

3.10 ELECTRICAL-PLUMBING EXTENT OF WORK

- A. The responsibility of work specified under Division 22 and 26 is clarified under, Section 22 05 13, "Electrical Requirements for Plumbing Equipment. Division 22 Contractor is to coordinate all electrical requirements prior to ordering powered plumbing equipment.

END OF SECTION 22 05 00

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## **SECTION 22 05 29 – HANGERS AND SUPPORTS FOR PLUMBING SYSTEM**

### **1. GENERAL**

#### 1.1 SECTION INCLUDES

- A. Pipe and equipment hangers, supports, anchors, saddles and shields.
- B. Equipment curbs.
- C. Sleeves and seals.
- D. Mechanical sleeve seals.
- E. Flashing and sealing equipment and pipe stacks.
- F. Sealants, firestop insulation, putty and compounds.

#### 1.2 REFERENCES

- A. ANSI/ASME B31.1 – Power Piping.
- B. ANSI/AMSE B31.9 – Building Services Piping.
- C. MSS SP-58 – Pipe Hangers and Supports – Materials, Design, and Manufacture.
- D. MSS SP-69 – Pipe Hangers and Supports – Selection and Application.
- E. MSS SP-89 – Pipe Hangers and Supports – Fabrication and Installation Practices.

#### 1.3 REFERENCE SECTION 22 05 00 FOR THE FOLLOWING

- A. References
- B. Submittals
- C. Quality Assurance
- D. Delivery, storage and handling

### **2. PRODUCTS**

#### 2.1 PIPE HANGERS AND SUPPORTS

- A. Water, Sanitary Waste, Vent, Storm Drainage:
  - 1. Conform to International Plumbing Code, MSS SP58, MSS SP69 and MSS SP89, as applicable.

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B. Carbon-Steel Pipe Hangers and Supports:

1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.
2. Galvanized Metallic Coatings: Pregalvanized or hot dipped.
3. Nonmetallic Coatings: Plastic coating, jacket, or liner.
4. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.
5. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel.

C. Copper Pipe Hangers:

1. Description: MSS SP-58, Types 1 through 58, copper-coated-steel, factory-fabricated components.
2. Hanger Rods: Continuous-thread rod, nuts, and washer made of copper-coated steel.

2.2 TRAPEZE PIPE HANGERS

- A. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural carbon-steel shapes with MSS SP-58 carbon-steel hanger rods, nuts, saddles, and U-bolts.

2.3 METAL FRAMING SYSTEMS

A. MFMA Manufacturer Metal Framing Systems:

1. Description: Shop- or field-fabricated pipe-support assembly for supporting multiple parallel pipes.
2. Standard: MFMA-4.
3. Channels: Continuous slotted steel channel with inturred lips.
4. Channel Nuts: Formed or stamped steel nuts or other devices designed to fit into channel slot and, when tightened, prevent slipping along channel.
5. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel.

2.4 THERMAL-HANGER SHIELD INSERTS

- A. Insulation-Insert Material for Cold Piping: ASTM C 552, Type II cellular glass with 100-psig minimum compressive strength or ASTM C 591, Type VI, Grade 1 polyisocyanurate with 125-psig minimum compressive strength and vapor barrier.
- B. Insulation-Insert Material for Hot Piping: ASTM C 552, Type II cellular glass with 100-psig minimum compressive strength or ASTM C 591, Type VI, Grade 1 polyisocyanurate with 125-psig minimum compressive strength.
- C. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.
- D. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.
- E. Insert Length: Extend 2 inches beyond sheet metal shield for piping operating below ambient air temperature.

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## 2.5 FASTENER SYSTEMS

- A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.
- B. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel anchors, for use in hardened portland cement concrete; with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

## 2.6 PIPE STANDS

- A. General Requirements for Pipe Stands: Shop- or field-fabricated assemblies made of manufactured corrosion-resistant components to support roof-mounted piping.
- B. Compact Pipe Stand: One-piece plastic unit with integral-rod roller, pipe clamps, or V-shaped cradle to support pipe, for roof installation without membrane penetration.
- C. Low-Type, Single-Pipe Stand: One-piece plastic base unit with plastic roller, for roof installation without membrane penetration.
- D. High-Type, Single-Pipe Stand:
  - 1. Description: Assembly of base, vertical and horizontal members, and pipe support, for roof installation without membrane penetration.
  - 2. Base: Plastic.
  - 3. Vertical Members: Two or more cadmium-plated-steel or stainless-steel, continuous-thread rods.
  - 4. Horizontal Member: Cadmium-plated-steel or stainless-steel rod with plastic or stainless-steel, roller-type pipe support.
- E. High-Type, Multiple-Pipe Stand:
  - 1. Description: Assembly of bases, vertical and horizontal members, and pipe supports, for roof installation without membrane penetration.
  - 2. Bases: One or more; plastic.
  - 3. Vertical Members: Two or more protective-coated-steel channels.
  - 4. Horizontal Member: Protective-coated-steel channel.
  - 5. Pipe Supports: Galvanized-steel, clevis-type pipe hangers.
- F. Curb-Mounted-Type Pipe Stands: Shop- or field-fabricated pipe supports made from structural-steel shapes, continuous-thread rods, and rollers, for mounting on permanent stationary roof curb.

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## 2.7 EQUIPMENT SUPPORTS

- A. Description: Welded, shop- or field-fabricated equipment support made from structural carbon-steel shapes.

## 2.8 MISCELLANEOUS MATERIALS

- A. Structural Steel: ASTM A 36/A 36M, carbon-steel plates, shapes, and bars; black and galvanized.
- B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.
  - 1. Properties: Nonstaining, noncorrosive, and nongaseous.
  - 2. Design Mix: 5000-psi, 28-day compressive strength

## 2.9 EQUIPMENT ROOF CURBS

- A. Fabrication: Welded 18 gage galvanized steel shell and base, mitered 3 inch cant, variable step to match roof insulation, 1-1/2 inch thick insulation, factory installed wood nailer. Minimum 18 inch height above top of insulation (not the roof structure).

## 2.10 EQUIPMENT ROOF SUPPORTS

- A. Fabrication: Welded 18 gage galvanized steel shell and base, mitered 3 inch cant, variable step to match roof insulation, 1-1/2 inch thick insulation, factory installed wood nailer. Minimum 18 inch height above top of insulation (not the roof structure).

## 2.11 SLEEVES

- A. Sleeves for Pipes Through Rated Floors and Walls: Schedule 40 steel pipe.
- B. Sleeves for Pipes Through Non-fire Rated Floors: 18 gage galvanized steel.
- C. Sleeves for Pipes Through Non-fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage galvanized steel.

## 2.12 SEALANTS, FIRESTOP INSULATION, PUTTY, AND COMPOUNDS

- A. Firestopping Insulation: Glass fiber type, non-combustible, UL listed.
- B. Firestop Putty: Non-hardening, non shrinking, UL listed.
- C. Firestop Compounds: Cementitious material , non-shrinking, UL listed.
- D. Sealants:
  - 1. Non fire/smoke rated partitions: Acrylic or silicone based caulking.
  - 2. Fire/smoke rated partitions: Silicone based caulking, UL listed.

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## 2.13 FLASHING

- A. Metal Flashing: 26 gage galvanized steel.
- B. Metal Counterflashing: 22 gage galvanized steel.
- C. Lead Flashing:
  - 1. Waterproofing: 5 lb/sq ft sheet lead
  - 2. Soundproofing: 1 lb/sq ft sheet lead.
- D. Flexible Flashing: 47 mil thick sheet buty; compatible with roofing.
- E. Caps: Steel, 22 gage minimum; 16 gage at fire resistant elements.

## 2.14 MECHANICAL SEALS

- A. Mechanical Seals: Modular mechanical type, consisting of interlocking EPDM synthetic rubber links shaped to continuously fill annular space between pipe and sleeve, connected with type 316 stainless steel bolts and reinforced plastic polymer pressure plates which cause rubber sealing elements to expand when tightened, providing a watertight and gas-tight seal and electrical insulation. Provide Advance Products & Systems Model Innerlynx or equivalent.
  - 1. Provide high-temperature silicone links rated for 400 Deg. F for steam and condensate applications.
  - 2. A sleeve shall be provided for each mechanical seal.
    - a. Thermoplastic sleeves: Sleeve shall have smooth walls and shall be made of molded non-metallic high density polyethylene (HDPE) with an integral solid water stop, Advance Products & Systems Model PWS or equivalent.
    - b. Steel sleeves: Sleeve shall have smooth walls, shall be made of Schedule 40 steel with an integral welded solid water stop, and shall have corrosion-resistant coating, Advance Products & Systems Model GWS or equivalent.

## 3. EXECUTION

### 3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.

### 3.2 HANGER AND SUPPORT INSTALLATION

- A. General
  - 1. Reference applicable codes for maximum support spacing; see Section 220500. Additional supports shall be provided at other locations as specified in this Section.
  - 2. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
  - 3. Place hangers within 12 inches of each horizontal elbow.

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4. Use hangers with 1-1/2 inch minimum vertical adjustment.
  5. Support horizontal cast iron pipe adjacent to each hub, with 5 feet maximum spacing between hangers.
  6. Support grooved pipe adjacent to each joint and at other locations per manufacturer recommendations.
  7. Support vertical piping at every floor. Support vertical cast iron pipe at each floor at hub.
  8. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.
  9. Support riser piping independently of connected horizontal piping.
  10. Provide copper plated hangers and supports for non-insulated copper pipe.
  11. Design hangers for pipe movement without disengagement of supported pipe.
  12. Adjust hangers to distribute loads equally on attachments and to achieve specified pipe slopes.
  13. Support piping adjacent to large pipe accessories such as valves, air separators, traps, etc. Provide additional supports as recommended by accessory manufacturer.
  14. Independently support valves 16" and larger.
  15. Install all hangers, supports, and accessories that shall be attached to structural steel prior to the application of structural steel fireproofing. Repair fireproofing if damaged during remainder of project.
  16. Saddles, Shields and Inserts
    - a. Install protection saddles MSS Type 39 where insulation without vapor barrier is indicated. Fill interior voids with segments of insulation that match adjoining pipe insulation.
    - b. Install protective shields MSS Type 40 on cold piping that has vapor barrier. Shields shall span an arc of 180 degrees (360 degrees on trapeze hangers with U-bolt clamps).
    - c. Pipes 8 inches and larger shall use thermal-hanger shield inserts.
    - d. Insert materials shall be at least as long as the protective shield.
    - e. Provide manufacturer-recommended saddles, inserts, and/or shields where cellular foam insulation is used. The removal of sections of cellular foam insulation for the purpose of pipe support is not acceptable.
  17. Install pipe hanger within 12" of each storm pipe riser.
- B. Metal Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from the building structure.
- C. Metal Trapeze Pipe-Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping, and support together on field-fabricated trapeze pipe hangers.
1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified for individual pipe hangers.
  2. Field fabricate from ASTM A 36/A 36M, carbon-steel shapes selected for loads being supported. Weld steel according to AWS D1.1/D1.1M.

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- D. Metal Framing System Installation: Arrange for grouping of parallel runs of piping, and support together on field-assembled metal framing systems.
- E. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.
- F. Fastener System Installation:
  - 1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
  - 2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
- G. Pipe Stand Installation:
  - 1. Pipe Stand Types except Curb-Mounted Type: Assemble components and mount on smooth roof surface. Do not penetrate roof membrane.
  - 2. Curb-Mounted-Type Pipe Stands: Assemble components or fabricate pipe stand and mount on permanent, stationary roof curb.
- H. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.
- I. Equipment Support Installation: Fabricate from welded-structural-steel shapes.
- J. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
- K. Install lateral bracing with pipe hangers and supports to prevent swaying.
- L. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.
- M. Load Distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.
- N. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.
- O. Insulated Piping:
  - 1. Attach clamps and spacers to piping.
    - a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.

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- b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
  - c. Do not exceed pipe stress limits allowed by ASME B31.9 for building services piping.
2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.
  3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.
  4. Shield Dimensions for Pipe: Not less than the following:
    - a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.
    - b. NPS 4: 12 inches long and 0.06 inch thick.
    - c. NPS 5 and NPS 6: 18 inches long and 0.06 inch thick.
    - d. NPS 8 to NPS 14: 24 inches long and 0.075 inch thick.
    - e. NPS 16 to NPS 24: 24 inches long and 0.105 inch thick.
    - f. Pipes NPS 8 and Larger: Include wood or reinforced calcium-silicate-insulation inserts of length at least as long as protective shield.
    - g. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.

### 3.3 HANGER AND SUPPORT SCHEDULE

- A. Comply with MSS SP-69 for pipe-hanger selections and applications that are not specified in piping system Sections.
- B. Use hangers and supports with galvanized metallic coatings for piping and equipment that will not have field-applied finish.
- C. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.
- D. Use carbon-steel pipe hangers and supports, metal trapeze pipe hangers, and metal framing systems and attachments for general service applications.
  1. Use copper-plated pipe hangers and copper or stainless-steel attachments for copper piping and tubing.
- E. Use padded hangers for piping that is subject to scratching.
- F. Use thermal-hanger shield inserts for insulated piping and tubing.
- G. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
  1. Pipe Hangers
    - a. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated, stationary pipes NPS 1/2 to NPS 30.

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- b. Pipe Hangers (MSS Type 5): For suspension of pipes NPS 1/2 to NPS 4, to allow off-center closure for hanger installation before pipe erection.
- c. Adjustable, Swivel Split- or Solid-Ring Hangers (MSS Type 6): For suspension of noninsulated, stationary pipes NPS 3/4 to NPS 8.
- d. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
- e. Adjustable, Swivel-Ring Band Hangers (MSS Type 10): For suspension of noninsulated, stationary pipes NPS 1/2 to NPS 8.
- f. Extension Hinged or Two-Bolt Split Pipe Clamps (MSS Type 12): For suspension of noninsulated, stationary pipes NPS 3/8 to NPS 3.
- g. U-Bolts (MSS Type 24): For support of heavy pipes NPS 1/2 to NPS 30.
- h. Single-Pipe Rolls (MSS Type 41): For suspension of pipes NPS 1 to NPS 30, from two rods if longitudinal movement caused by expansion and contraction might occur.
- i. Adjustable Roller Hangers (MSS Type 43): For suspension of pipes NPS 2-1/2 to NPS 24, from single rod if horizontal movement caused by expansion and contraction might occur.
- j. Vee Bottom Clevis Hanger: For suspension of flexible plastic piping, Cooper B-Line B3106 or equivalent. Include plastic pipe support channel, Cooper B-Line B3106V.

## 2. Pipe Clamps

- a. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes NPS 3/4 to NPS 36, requiring clamp flexibility and up to 4 inches of insulation.
- b. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes NPS 1/2 to NPS 24 if little or no insulation is required.
- c. Wall or Ceiling Mounted Pipe Strap/Clamp (MSS Type 26): For support of insulated pipes not subject to expansion or contraction.

## 3. Pipe Supports

- a. Pipe Saddle Supports (MSS Type 36): For support of pipes NPS 4 to NPS 36, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate.
- b. Pipe Stanchion Saddles (MSS Type 37): For support of pipes NPS 4 to NPS 36, with steel-pipe base stanchion support and cast-iron floor flange or carbon-steel plate, and with U-bolt to retain pipe.
- c. Adjustable Pipe Saddle Supports (MSS Type 38): For stanchion-type support for pipes NPS 2-1/2 to NPS 36 if vertical adjustment is required, with steel-pipe base stanchion support and cast-iron floor flange.
- d. Pipe Rollers (MSS Type 44): For support of pipes NPS 2 to NPS 42 if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary.
- e. Pipe Roll and Plate Units (MSS Type 45): For support of pipes NPS 2 to NPS 24 if small horizontal movement caused by expansion and contraction might occur and vertical adjustment is not necessary.

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- f. Adjustable Pipe Roll and Base Units (MSS Type 46): For support of pipes NPS 2 to NPS 30 if vertical and lateral adjustment during installation might be required in addition to expansion and contraction.
  
- H. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
  - 1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers NPS 3/4 to NPS 24.
  - 2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers NPS 3/4 to NPS 24 if longer ends are required for riser clamps.
  
- I. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
  - 1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
  - 2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.
  - 3. Swivel Turnbuckles (MSS Type 15): For use with MSS Type 11, split pipe rings.
  - 4. Malleable-Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.
  - 5. Steel Weldless Eye Nuts (MSS Type 17): For 120 to 450 deg F piping installations.
  
- J. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
  - 1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
  - 2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joint construction, to attach to top flange of structural shape.
  - 3. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
  - 4. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
  - 5. C-Clamps (MSS Type 23): For structural shapes. Shall only be connected to bottom joist chord if weight is 200 lbs or less.
  - 6. Steel-Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads. Shall only be connected to bottom joist chord if weight is 200 lbs or less.
  - 7. Linked-Steel Clamps with Eye Nuts (MSS Type 29): For attaching to bottom of steel I-beams for heavy loads, with link extensions. Shall only be connected to bottom joist chord if weight is 200 lbs or less.
  - 8. Malleable-Beam Clamps with Extension Pieces (MSS Type 30): For attaching to structural steel. Shall only be connected to bottom joist chord if weight is 200 lbs or less.

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9. Welded-Steel Brackets: For support of pipes from below or for suspending from above by using clip and rod. Use one of the following for indicated loads:
    - a. Light (MSS Type 31): 750 lb.
    - b. Medium (MSS Type 32): 1500 lb.
    - c. Heavy (MSS Type 33): 3000 lb.
  10. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.
- K. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Steel-Pipe-Covering Protection Saddles (MSS Type 39): For protection of pipe insulation; depth of saddle to be larger than insulation thickness. Fill interior voids with insulation that matches adjoining insulation.
  2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
  3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.
- L. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:
1. Restraint-Control Devices (MSS Type 47): Where indicated to control piping movement.
  2. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches.
  3. Spring-Cushion Roll Hangers (MSS Type 49): For equipping Type 41, roll hanger with springs.
  4. Spring Sway Braces (MSS Type 50): To retard sway, shock, vibration, or thermal expansion in piping systems.
  5. Variable-Spring Hangers (MSS Type 51): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from hanger.
  6. Variable-Spring Base Supports (MSS Type 52): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from base support.
  7. Variable-Spring Trapeze Hangers (MSS Type 53): Preset to indicated load and limit variability factor to 25 percent to allow expansion and contraction of piping system from trapeze support.
  8. Constant Supports: For critical piping stress and if necessary to avoid transfer of stress from one support to another support, critical terminal, or connected equipment. Include auxiliary stops for erection, hydrostatic test, and load-adjustment capability. These supports include the following types:
    - a. Horizontal (MSS Type 54): Mounted horizontally.
    - b. Vertical (MSS Type 55): Mounted vertically.
    - c. Trapeze (MSS Type 56): Two vertical-type supports and one trapeze member.
- M. Comply with MSS SP-69 for trapeze pipe-hanger selections.
- N. Comply with MFMA-103 for metal framing system selections.

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- O. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

### 3.4 EQUIPMENT SUPPORTS

- A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.
- B. Grouting: Place grout under supports for equipment and make bearing surface smooth.
- C. Provide lateral bracing, to prevent swaying, for equipment supports.

### 3.5 METAL FABRICATIONS

- A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports.
- B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.
- C. Field Welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work; and with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. Finish welds at exposed connections so no roughness shows after finishing and so contours of welded surfaces match adjacent contours.

### 3.6 ADJUSTING

- A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.
- B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

### 3.7 INSTALLATION OF ANCHORS

- A. Install anchors at proper locations to prevent stresses from exceeding those permitted by ASME B31.9 and to prevent transfer of loading and stresses to connected equipment.
- B. Fabricate and install anchors by welding steel shapes, plates, and bars to piping and to structure. Comply with ASME B31.9 and with AWS Standards D1.1.
- C. Where expansion compensators are indicated, install anchors in accordance with expansion unit manufacturer's written instructions to control movement to compensators.

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- D. Anchor Spacings: Where not otherwise indicated, install anchors at ends of principal pipe runs, at intermediate points in pipe runs between expansion loops and bends. Make provisions for preset of anchors as required to accommodate both expansion and contraction of piping.

### 3.8 EQUIPMENT ROOF CURBS

- A. Provide a equipment roof curb for each roof-mounted equipment item that does not have integral equipment curb that would extend the bottom of the equipment a minimum of 18" above the roof insulation. Coordinate location of roof supports with equipment manufacturer.
- B. Provide all necessary sealants and flashing required for a waterproof installation. Coordinate with roof manufacturer and other trades.

### 3.9 EQUIPMENT ROOF SUPPORTS

- A. Provide a minimum of two equipment roof supports for each roof-mounted equipment item that does not have integral equipment rails that would extend the bottom of the equipment a minimum of 24" above the roof insulation. Coordinate location of roof supports with equipment manufacturer.
- B. Provide all necessary sealants and flashing required for a waterproof installation. Coordinate with roof manufacturer and other trades.

### 3.10 SLEEVES

- A. Provide pipe sleeves at all fire/smoke rated partitions, exterior wall penetrations and wall penetrations into exposed areas. Pipe sleeves are not required for penetrations through non-rated concealed partitions.
- B. At the Contractor's option, pipe sleeves may be omitted if the wall or floor is core drilled.
- C. Set sleeves in position in formwork. Provide reinforcing around sleeves.
- D. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.
- E. Sleeves through floors shall extend a minimum 2" above finish floor level.
- F. Where piping penetrates non-rated floor, ceiling, or wall, close off space between pipe and adjacent work with urethane rod stock and caulk air tight.
- G. Where piping penetrates rated floor, ceiling, or wall, close off space between pipe with appropriate fire rated sealant, insulation, putty or compound.
- H. Install chrome plated steel escutcheons on piping at finished surfaces.
- I. Waste, vent and storm pipe penetrations through the concrete floor slab shall be encased in the poured concrete slab.

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- J. PVC pipe casing around cold and hot water and gas piping shall be encased in poured concrete when penetrating the floor slab. Seal the opening between the piping and PVC casing with putty or rigid polyisocyanurate insulation plug and seal with caulking.

### 3.11 FLASHING

- A. Provide flexible flashing and metal counterflashing where piping penetrate weather or waterproofed walls and floors.
- B. Flash floor drains in floors with topping over finished areas with lead, 10 inches clear on sides with minimum 36 x 36 inch sheet size. Fasten flashing to drain clamp device.
- C. Seal floor, shower, mop sink, etc. drains watertight to adjacent materials.
- D. Adjust storm collars tight to pipe with bolts; caulk around top edge. Use storm collars above roof jacks. Screw vertical flange section to face of curb.

### 3.12 MECHANICAL SEALS

- A. Provide mechanical seals and sleeves through exterior wall and floor penetrations, and in 3-hour or higher fire rated partitions.

END OF SECTION 22 05 29

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## **SECTION 22 05 53 – IDENTIFICATION FOR PLUMBING PIPING**

### **1. GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Nameplates.
- B. Tags.
- C. Pipe Markers.
- D. Ceiling Tacks/Stickers.

#### **1.2 REFERENCE SECTION 22 05 00 FOR THE FOLLOWING GUIDELINES**

- A. References
- B. Related Sections
- C. Submittals
- D. Quality Assurance

#### **1.3 PROJECT RECORD DOCUMENTS**

- A. Record actual locations of tagged valves.

### **2. PRODUCTS**

#### **2.1 NAMEPLATES**

- A. Equipment Mark Nameplates: Laminated three-layer plastic with engraved black letters (matching equipment mark indicated on drawings) on light contrasting background color, with minimum 3/4 inch high letters.
- B. Equipment Nameplates: Factory-applied permanent nameplate indicating the manufacturer's name, model, serial number, temperature and pressure design, and any other data necessary to conform with specified requirements. On equipment installed outdoors, nameplate shall be stamped steel or engrave plastic.

#### **2.2 TAGS**

- A. Plastic Tags: Laminated two-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inch diameter or square with 1/4" top line and 1/2" bottom line.

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- B. Chart: Typewritten list that is plastic laminated and mounted in mechanical room. Valve list is to coordinate with mechanical piping schematics if provided on plans.
- C. Pipe Schematics: Valve numbers are to be labeled on Architectural/ Engineer schematic drawings, plastic laminated and mount schematic in mechanical room.

### 2.3 PIPE MARKERS

- A. Color: Conform to ASME A13.1.
- B. Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings; minimum information indicating flow direction arrow and identification of fluid being conveyed.
- C. Underground Plastic Pipe Markers: Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service. Provide tape with printing which most accurately indicates the type of service of buried pipe.
- D. CEILING TACKS/STICKERS
- E. Description: ½" self adhesive color coded stickers.
- F. Color code as follows:
  - 1. Yellow - HVAC equipment
  - 2. Red - Fire dampers/smoke dampers
  - 3. Green - Plumbing valves
  - 4. Blue - Heating/cooling valves

## 3. EXECUTION

### 3.1 PREPARATION

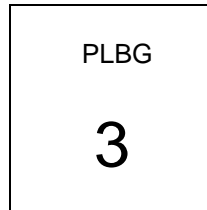
- A. Degrease and clean surfaces to receive adhesive for identification materials.

### 3.2 INSTALLATION

- A. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.
- B. Install tags with corrosion resistant chain.
- C. Install plastic tape pipe and duct markers in accordance with manufacturer's instructions. Directional arrow tape shall be overlapped to ensure proper adhesion and no peeling of tape in future.
- D. Identify with tags:
  - 1. VALVES

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2. Tags or nameplates for valves are to be provided with two labels, first label shall be PLBG, second label shall be the identification number, i.e.
- 3.



- E. Identify valves in main and branch piping with tags. Note that pipe kits serving equipment that are identified with a tag or nameplate are not required to be tagged.
- F. Identify piping, concealed or exposed, with plastic tape pipe markers. Identify service, flow direction, and pressure when applicable, i.e. low pressure steam, high pressure steam. Install in clear view from floor and align with axis of piping. Locate identification not to exceed 15 feet on straight runs including risers and drops, more often in congested areas, adjacent to each valve and tee, at each side of penetration of structure or enclosure, and at each obstruction. Provide a minimum one label per pipe per room. Where pipes are racked, install pipe markers on each pipe in the same location to aid in differentiating each pipe in the rack.
- G. Install underground plastic pipe markers 6 to 8 inches below finished grade, directly above buried pipe.
  1. Provide 14 gauge electrical tracer wire above all underground pipe (plastic or other type of utility piping).
- H. Provide ceiling stickers or machine generated labels to locate valves other piping materials above T-bar type panel ceilings. Locate ceiling sticker on the ceiling grid closest to equipment. Label each sticker with the device located above the ceiling, i.e. HP-room #, etc.

END OF SECTION 22 05 53

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## **SECTION 22 07 19 – PLUMBING PIPING INSULATION**

### **1. GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Piping insulation.
- B. Jackets and accessories.

#### **1.2 REFERENCE SECTION 22 05 00 FOR THE FOLLOWING GUIDELINES**

- A. References
- B. Submittals
- C. Delivery, Storage and Handling

#### **1.3 QUALITY ASSURANCE**

- A. See Section 22 05 00.
- B. Materials: Flame spread/smoke developed rating of 25/50 or less in accordance with ASTM E84, NFPA 255, and UL 723.

#### **1.4 ENVIRONMENTAL REQUIREMENTS**

- A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.
- B. Maintain temperature during and after installation for minimum period of 24 hours.

### **2. PRODUCTS**

#### **2.1 GLASS FIBER**

- A. Insulation: ASTM C547; rigid molded, noncombustible.
  - 1. 'K' ('ksi') value: ASTM C335, 0.24 at 75 degrees F.
  - 2. Minimum Service Temperature: -20 degrees F.
  - 3. Maximum Service Temperature: 300 degrees F
  - 4. Maximum Moisture Absorption: 0.2 percent by volume.

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**B. Vapor Barrier Jacket**

1. ASTM C921, White kraft paper reinforced with glass fiber yarn and bonded to aluminized film.
2. Moisture Vapor Transmission: ASTM E96; 0.02 perm inches.
3. Secure with self sealing longitudinal laps and butt strips.
4. Secure with outward clinch expanding staples and vapor barrier mastic.

C. Tie Wire: 18 gage stainless steel with twisted ends on maximum 12 inch centers.

D. Vapor Barrier Lap Adhesive: compatible with insulation.

E. Insulating Cement/Mastic: ASTM C195; hydraulic setting on mineral wool.

F. Fibrous Glass Fabric: Cloth, untreated; 9 oz/sq yd weight with 1.0 lb/cu ft density blanket.

G. Indoor Vapor Barrier Finish: Vinyl emulsion type acrylic, compatible with insulation, white color.

**2.2 JACKETS**

**A. PVC Plastic**

1. Jacket: ASTM C921, One piece molded type fitting covers and sheet material, white color.
  - a. Minimum Service Temperature: -40 degrees F.
  - b. Maximum Service Temperature: 150 degrees F.
  - c. Moisture Vapor Transmission: ASTM E96; 0.002 perm inches.
  - d. Maximum Flame Spread: ASTM E84; 25.
  - e. Maximum Smoke Developed: ASTM E84; 50.
  - f. Thickness: 20 mil.
  - g. Connections: Brush on welding adhesive or pressure sensitive color matching vinyl tape.
2. Covering Adhesive Mastic: Compatible with insulation.

**3. EXECUTION**

**3.1 EXAMINATION**

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean, foreign material removed, and dry.

**3.2 INSTALLATION**

- A. Install materials in accordance with manufacturer's instructions.

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- B. On exposed piping, locate insulation and cover seams in least visible locations. For cellular foam insulation tape ALL visible seams with tape matching insulation color.
- C. Insulated pipes conveying fluids below ambient temperature:
  - 1. Provide vapor barrier jackets, factory applied or field applied.
  - 2. Insulate fittings, joints, flanges, unions strainers, flexible connectors and valves with molded insulation of like material and thickness as adjacent pipe. PVC or aluminum covers are required in all exposed locations as in mechanical rooms.
  - 3. Finish with glass cloth and vapor barrier adhesive.
  - 4. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations.
  - 5. Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints.
- D. For insulated pipes conveying fluids above ambient temperature:
  - 1. Provide standard jackets, with or without vapor barrier, factory applied or field applied.
  - 2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. PVC covers are required in all exposed locations as in mechanical rooms.
  - 3. Finish with glass cloth and adhesive.
  - 4. For hot piping conveying fluids, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.
- E. Inserts and Shields:
  - 1. Refer to Section 22 05 29 for additional information.
  - 2. Application: Piping 1 inch diameter or larger.
  - 3. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.
  - 4. Insert Location: Between support shield and piping and under the finish jacket.
  - 5. Insert Configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.
  - 6. Insert Material: ASTM C640 cork, hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.
  - 7. Provide inserts and/or shields per manufacturer recommendations for cellular foam insulation applications in order to maintain continuous insulation throughout the pipe system. The removal of sections of cellular foam insulation to accommodate pipe supports is not acceptable. Manufacturer products specifically designed for supporting insulation and maintaining the integrity of the insulation system at pipe hanger locations, such Armaflex Armafix Insulation Pipe Hangers, are acceptable.
- F. Finish insulation at supports, protrusions, and interruptions.
- G. For pipe exposed in finished spaces below 8 feet above finished floor or below the ceiling, finish with PVC jacket and PVC fitting covers.
- H. All valves in insulated systems shall have valve stem extensions. Insulation installer shall notify the contractor and Owner if valves without stem extensions are encountered. All valves without stem extensions in areas where stem extensions are required shall be replaced.
- I. Provide PVC jackets on all fittings and changes of direction.

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- J. Provide insulation clearance and access to valves and fittings in hangers and from structure and other equipment. Insulation shall be continuous through all hangers and supports. Refer to Section 22 05 29.

### 3.3 TOLERANCE

- A. Substituted insulation materials, where allowed, shall provide thermal resistance within 10 percent at normal conditions, as materials indicated.

### 3.4 INSULATION SCHEDULE

- A. Plumbing Systems:

<u>PIPING SYSTEM:</u>	<u>PIPE SIZE:</u>	<u>THICKNESS:</u>
Hot Water and Hot Water Recirc Systems	1-1/4" & smaller	1"
Hot Water and Hot Water Recirc Systems	1-1/2" & larger	1-1/2"
Cold Water Systems	All sizes	1"
Roof Drain Bodies	All sizes	1"
Roof Drainage Systems Above Grade	All sizes	1"
Plumbing Vents Within 20' of Exterior	All sizes	1"

END OF SECTION 22 07 19

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## **SECTION 22 10 00 - PLUMBING PIPING**

### **1. GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Pipe and pipe fittings.
- B. Valves.
- C. Sanitary waste and vent piping system.
- D. Water piping system.
- E. Storm water piping system.

#### **1.2 REFERENCES**

- A. See Section 22 05 00.

#### **1.3 SUBMITTALS**

- A. See Section 22 05 00.

#### **1.4 PROJECT RECORD DOCUMENTS**

- A. Record actual locations of valves.

#### **1.5 OPERATION AND MAINTENANCE DATA**

- A. Reference Section 22 05 00.

#### **1.6 QUALITY ASSURANCE**

- A. See Section 22 05 00.
- B. Valves: Manufacturer's name and pressure rating marked on valve body.

#### **1.7 DELIVERY, STORAGE AND HANDLING**

- A. See Section 22 05 00.

#### **1.8 REGULATORY REQUIREMENTS**

- A. Perform Work in accordance with International Plumbing Code.

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**1.9 ENVIRONMENTAL REQUIREMENTS**

- A. Do not install underground piping when bedding is wet or frozen.

**1.10 EXTRA MATERIALS**

- A. Provide two repacking kits for each size valve.

**2. PRODUCTS**

**2.1 SANITARY WASTE AND VENT PIPING, BURIED WITHIN 5 FEET OF BUILDING**

- A. Cast Iron Pipe: hub-and-spigot, ASTM A74, CISPI HS74 and NSF Trademark, service weight.
  - 1. Fittings: Cast iron, ASTM A74, CISPI HS74 and IAMPO listed, service weight.
  - 2. Joints: ASTM C564, CISPI HSN neoprene gasket system.

**2.2 SANITARY WASTE AND VENT PIPING, ABOVE GRADE**

- A. Cast Iron Pipe: ASTM A888, CISPI 301 and IAMPO listed, hubless.
  - 1. Fittings: Cast iron, ASTM A888, CISPI 301 and NSF Trademark.
  - 2. Joints: Heavy-duty coupling with neoprene gaskets, corrugated stainless steel shield, and stainless steel 4-band (4" and smaller) or 6-band (5" and larger) clamp-and-shield assemblies. Coupling shall meet ASTM C1540, ASTM C564, and FM 1680 Class 1.

**2.3 STORM DRAIN PIPING, ABOVE GRADE**

- A. Cast Iron Pipe: ASTM A888, CISPI 301 and IAMPO listed, hubless.
  - 1. Fittings: Cast iron, ASTM A888, CISPI 301 and NSF Trademark.
  - 2. Joints: Heavy-duty coupling with neoprene gaskets, corrugated stainless steel shield, and stainless steel 4-band (4" and smaller) or 6-band (5" and larger) clamp-and-shield assemblies. Coupling shall meet ASTM C1540, ASTM C564, and FM 1680 Class 1.
    - a. Extra heavy duty couplings shall be used at all roof drain connections and all storm joints downstream of the roof drain to a point 10'-0" downstream or for the next two couplings, whichever is the greater distance. Roof drains shall have a hanger within 12" of the roof drain.

**2.4 WATER PIPING, ABOVE GRADE**

- A. Copper Tubing: ASTM B88, Type L, hard drawn.
  - 1. Solder and Brazed Joints:
    - a. Fittings: ASME B16.18, cast bronze, or ASME B16.22, wrought copper and bronze.

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- b. Joints: Lead Free, ASTM B32, Alloy B solder, for piping smaller than 2". AWS A5.8, BCuP-5 silver braze, for piping 2" and larger.

## 2.5 FLANGES, UNIONS, AND COUPLINGS

### A. Pipe Size 2 Inches and Under:

- 1. Ferrous pipe: 150 psig malleable iron threaded unions.
- 2. Copper tube and pipe: 150 psig bronze unions with soldered joints.

### B. Pipe Size Over 2 Inches:

- 1. Ferrous pipe: 150 psig forged steel slip-on flanges; 1/16 inch thick preformed neoprene gaskets.
- 2. Copper tube and pipe: 150 psig slip-on bronze flanges; 1/16 inch thick preformed neoprene gaskets.

- C. Dielectric Connections: Where connecting ferrous and non-ferrous piping materials, use "ClearFlow" pipe nipples to separate pipe systems. Dielectric unions are not acceptable.

## 2.6 SWING CHECK VALVES

- A. Up to and including 2 Inches: Bronze swing disc, 125 psig working pressure.
- B. Over 2 Inches: Cast iron body, bronze trim, swing disc, renewable disc and seat, flanged ends.

## 2.7 BALL VALVES

- A. Up to and including 3 inches: Bronze two piece body, chrome plated steel full-port ball, teflon seats and stuffing box ring, lever handle.

## 2.8 GATE VALVES

- A. Over 3 Inches: Iron body, bronze trim, rising stem, handwheel, OS&Y, single wedge, flanged ends. Class 125, MSS SP-70.

## 2.9 STRAINERS

- A. Size 2 inch and Under: Screwed bronze body for 250 psig working pressure, Y pattern with 20-mesh stainless steel perforated screen.
- B. Size 2-1/2 inch and larger: Flanged cast iron body for 175 psig working pressure, Y pattern with 3/64 inch stainless steel perforated screen.

## 2.10 CALIBRATED BALANCE VALVES

- A. Pre-Set Balance Feature. Valves to be designed to allow Installing Contractor to pre-set balance points for proportional system balance prior to system start-up in accordance with scheduled flow rates.

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- B. Valve Design and Construction. All valves shall have a calibrated orifice or venturi section, two 1/4" threaded pressure tap ports with integral seals, and memory stop to retain the set position. Valves should be rated for 125 psig working pressure and 250 Deg. F maximum operating temperature.
- C. Valves shall be selected based on flowrate, not on pipe size dimensions.
- D. Preformed Insulation. All vales to be provided with molded insulation to permit access for balance and read-out.

## 2.11 DRAIN VALVES

- A. Equipped with hose adaptor fitting.

## 3. EXECUTION

### 3.1 EXAMINATION

- A. Verify that excavations are to required grade, dry, and not over-excavated.

### 3.2 PREPARATION

- A. Ream pipe and tube ends. Remove burrs.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

### 3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Route piping in orderly manner and maintain gradient.
- D. Install piping to conserve building space and not interfere with use of space.
- E. Group piping whenever practical at common elevations.
- F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- G. Vent pipes shall extend minimum 12" above finish roof line.
- H. Provide clearance for installation of insulation and access to valves and fittings.
- I. Provide access where valves and fittings are not exposed.

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- J. Establish elevations of buried water piping outside the building to ensure not less than 5 ft of cover.
- K. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- L. Provide support for utility meters in accordance with requirements of utility companies.
- M. Prepare pipe, fittings, supports, and accessories not prefinished, ready for finish painting. Refer to Section 09 91 00.
- N. Excavate in accordance with other Sections for work of this Section.
- O. Backfill in accordance with other Sections for work of this Section.
- P. Install bell and spigot pipe with bell end upstream.
- Q. Install valves with stems upright or horizontal, not inverted.
- R. Install ball valve on each branch line within 3' of main.
- S. Install isolation valves for each restroom group.

### 3.4 APPLICATION

- A. Use grooved mechanical couplings/joints and fasteners only in accessible locations.
- B. Use mechanical couplings/joints on laboratory waste and vent system in accessible locations under laboratory benches only.
- C. Install unions downstream of valves and at equipment or apparatus connections.
- D. Install gate or ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- E. Install ball valves for throttling, bypass, or manual flow control services.
- F. Provide spring loaded check valves on discharge of water pumps.
- G. Provide plug valves in natural gas systems for shut-off service.
- H. Provide flow control valves in water recirculating systems where indicated.

### 3.5 ERECTION TOLERANCES

- A. Establish invert elevations, slopes for drainage to 1/8 inch per foot minimum. Maintain gradients.

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### 3.6 PLUMBING PIPING PRESSURE TESTING

- A. Submit copy of Pipe Pressure Test Log provided in section 22 05 00 for each section of piping tested. Refer to International Plumbing Code for general pipe pressure testing requirements (i.e., test pressure gauges, inspections, etc.).
- B. Leave uncovered and unconcealed all new, altered, extended, or replaced piping until it has been tested and approved. Expose all such work for testing that has been covered or concealed before it has been tested and approved.
- C. Test for leaks and defects all new plumbing piping systems and parts of existing systems, which have been altered, extended or repaired. Test in accordance with the local authority having jurisdiction. In the absence of a locally published and enforced test procedure, testing shall be accomplished as follows:
  - 1. Waste, Vent and Storm Piping Systems.
    - a. Test in accordance with International Plumbing Code. Test pressure shall be a minimum of 10' of head with no loss of pressure for a minimum of 4 hours.
    - b. After traps are installed and filled, perform smoke test or odor test to ensure proper trap installation and sealing.
  - 2. Water Piping Systems.
    - a. Test in accordance with international Plumbing Code. Test pressure shall be a minimum of 1.5 times operating pressure with no loss of pressure for a minimum of 4 hours.
    - b. Verify that hot water is produced at all plumbing fixtures shown to be supplied with hot water.
- D. Repair all leaks and defects using new materials and retest all plumbing systems until satisfactory results are obtained.

### 3.7 DISINFECTION OF DOMESTIC WATER PIPING SYSTEMS

- A. After domestic water system has been pressure tested and flushed, entire system (including distribution system to building) shall be cleaned and disinfected per AWWA C651. Note that procedures shall require two (2) consecutive sets of acceptable samples taken at least 24 hours apart.
- B. Take samples no sooner than 24 hours after flushing, from outlets and from water entry per AWWA 651, and analyze in accordance with AWWA C651.
- C. Samples shall be subject to bacteriological testing by a recognized 3<sup>rd</sup> party testing agency. Send test reports to Nebraska Department of Health Laboratory for review. If unsatisfactory bacteriological results are found, the system shall be disinfected and retested again until satisfactory results are obtained.

END OF SECTION 22 10 00

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## **SECTION 22 11 19 - PLUMBING SPECIALTIES**

### **1. GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Cleanouts.
- B. Installation requirements of other plumbing specialties scheduled in Plumbing Fixture Schedule.

#### **1.2 REFERENCES**

- A. Reference Section 22 05 00.

#### **1.3 SUBMITTALS**

- A. Reference Section 22 05 00.

#### **1.4 QUALITY ASSURANCE**

- A. Reference Section 22 05 00.

#### **1.5 DELIVERY, STORAGE AND HANDLING**

- A. Reference Section 22 05 00.

#### **1.6 PROJECT RECORD DOCUMENTS**

- A. Reference Section 22 05 00.

#### **1.7 OPERATION AND MAINTENANCE DATA**

- A. Reference Section 22 05 00.

### **2. PRODUCTS**

#### **2.1 CLEANOUTS**

- A. Exterior Surfaced Areas: Round or Square cast nickel bronze access frame and non-skid cover.
- B. Interior Finished Floor Areas: cast iron body and frame, nickel bronze top to accommodate the following floor finishes as required:
  - 1. Exposed rim type with recess to receive tarrazzo or resilient floor finish.
  - 2. Exposed finish type with standard mill finish.
  - 3. Exposed flush type with standard scored or abrasive finish.
  - 4. Concealed undercarpet flush type with mill finish and carpet marker.

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- C. Interior Finished Wall Areas: Line type with cast iron body and round gasket cover and round stainless steel access cover secured with machine screw.
- D. Interior Unfinished Accessible Areas: Calked or threaded type.

## 2.2 WATER HAMMER ARRESTERS

- A. Standard: ASSE 1010 or PDI-WH 201.
- B. Type: Metal bellows or copper tube with piston.
- C. Size: ASSE 1010, Sizes AA and A through F or PDI-WH 201, Sizes A through F. Size per manufacturer recommendations.

## 2.3 OTHER SPECIALTIES

- A. Refer to Plumbing Fixture Schedule for required product information.

## 3. EXECUTION

### 3.1 PREPARATION

- A. Coordinate cutting and forming of roof and floor construction to receive drains to required invert elevations.

### 3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.
- C. Encase exterior cleanouts in concrete flush with grade.
- D. Install water hammer arrestors complete with accessible isolation valve according to PDI-WH 201 and as shown on drawings.
- E. Provide final certification for all testable backflow preventers, after installation, by certified cross connection device tester. Submit copy of successful tests.
- F. Set grates of drains flush with finished floor, unless otherwise indicated.
- G. Position floor drains for easy access and maintenance.
- H. Install floor-drain flashing collar or flange so no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.

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### 3.3 TESTING

- A. Test and certify all backflow preventers for proper operation. Testing agent shall be Grade VI Water Operator.
  - 1. Test shall be completed within 30 days of installation or Substantial Completion, whichever is later.

END OF SECTION 22 11 19

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## **SECTION 22 40 00 - PLUMBING FIXTURES**

### **1. GENERAL**

#### 1.1 SECTION INCLUDES

- A. Installation requirements of plumbing fixtures scheduled in Plumbing Fixture Schedule.
- B. Plumbing fixture carriers.

#### 1.2 REFERENCE SECTION 22 05 00 FOR THE FOLLOWING

- A. References
- B. Submittals
- C. Quality Assurance
- D. Delivery, Storage and Handling

#### 1.3 FIELD MEASUREMENTS

- A. Verify that field measurements are as indicated on shop drawings and instructed by the manufacturer.
- B. Confirm that millwork is constructed with adequate provision for the installation of countertop lavatories and sinks.

### **2. PRODUCTS**

#### 2.1 PLUMBING FIXTURES

- A. Refer to Plumbing Fixture Schedule for all required product information.

#### 2.2 PLUMBING FIXTURE CARRIERS

- A. All wall mounted fixtures such as urinals, water closets, lavatories, drinking fountains, electric water coolers, etc. shall be installed with compatible carriers. All carriers shall be commercial or industrial grade and shall be suitable for the fixture served, space available and building construction. All carriers shall extend to the floor and be anchored into the slab.
- B. Water closet carriers shall be standard duty type, rated for a minimum of 500 lbs.

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### **3. EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.
- B. Verify that electric power is available and of the correct characteristics.

#### **3.2 PREPARATION**

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.

#### **3.3 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install each fixture with trap with 2 slip joints, easily removable for servicing and cleaning.
- C. Provide chrome plated rigid or flexible supplies to fixtures with stops, reducers, and escutcheons.
- D. Install components level and plumb.
- E. Install and secure fixtures in place with scheduled wall supports or wall carriers and bolts.
- F. Seal fixtures to wall and floor surfaces with sealant, color to match fixture.

#### **3.4 WATER CLOSET INSTALLATION**

- A. Water Closet Installation:
  - 1. Install level and plumb according to roughing-in drawings.
  - 2. Install accessible, wall-mounted water closets at mounting height for handicapped/elderly, according to ICC/ANSI A117.1. Coordinate exact locations with drawings.
  - 3. Where installing piping adjacent to water closets, allow space for service and maintenance.
- B. Support Installation:
  - 1. Use carrier supports with waste-fitting assembly and seal.
  - 2. Install wall-mounted, back-outlet water-closet supports with waste-fitting assembly and waste-fitting seals; and affix to building substrate.
  - 3. If distance from finished wall to face of carrier exceeds 7" auxiliary supports shall be installed on each side of carrier.

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C. Flushometer Valve Installation:

1. Install flushometer valve, water-supply fitting on each supply to each water closet.
2. Attach supply piping to supports or substrate within pipe spaces behind fixtures.

D. Install toilet seats on water closets.

E. Wall Flange and Escutcheon Installation:

1. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations and within cabinets and millwork.
2. Install deep-pattern escutcheons if required to conceal protruding fittings.

F. Joint Sealing:

1. Seal joints between water closets and walls and floors using sanitary-type, one-part, mildew-resistant silicone sealant.
2. Match sealant color to water-closet color.

### 3.5 URINAL INSTALLATION

A. Urinal Installation:

1. Install urinals level and plumb according to roughing-in drawings.
2. Install wall-hung, back-outlet urinals onto waste fitting seals and attached to supports.
3. Install accessible, wall-mounted urinals at mounting height for the handicapped/elderly, according to ICC/ANSI A117.1. Coordinate exact locations with drawings.

B. Support Installation:

1. Install supports, affixed to building substrate, for wall-hung urinals.
2. Use off-floor carriers with waste fitting and seal for back-outlet urinals.
3. Use chair-type carrier supports with rectangular steel uprights for accessible urinals.

C. Flushometer Valve Installation:

1. Install flushometer-valve water-supply fitting on each supply to each urinal.
2. Attach supply piping to supports or substrate within pipe spaces behind fixtures.

D. Wall Flange and Escutcheon Installation:

1. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations.
2. Install deep-pattern escutcheons if required to conceal protruding fittings.

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E. Joint Sealing:

1. Seal joints between urinals and walls and floors using sanitary-type, one-part, mildew-resistant silicone sealant. Leave bottom joint between urinal and wall unsealed.
2. Match sealant color to urinal color.

3.6 LAVATORY AND SINK INSTALLATION

- A. Install lavatories and sinks level and plumb according to roughing-in drawings.
- B. Install supports, affixed to building substrate, for wall-mounted lavatories and sinks.
- C. Install accessible wall-mounted lavatories at handicapped/elderly mounting height for people with disabilities or the elderly, according to ICC/ANSI A117.1. Coordinate exact locations with drawings.
- D. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings.
- E. Seal joints between lavatories/sinks, counters, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color.
- F. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible lavatories and sinks.
- G. Install water-supply piping with stop on each supply to each faucet.
  1. Exception: Use ball, gate, or globe valves if supply stops are not specified with lavatory/sink.
  2. Install stops in locations where they can be easily reached for operation.

3.7 INTERFACE WITH OTHER PRODUCTS

- A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.

3.8 ADJUSTING

- A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.
- B. Operate and adjust water closets and controls. Replace damaged and malfunctioning water closets, fittings, and controls.
- C. Adjust water pressure at flushometer valves to produce proper flow.

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### 3.9 CLEANING

- A. Directly prior to project turnover, clean plumbing fixtures and fittings with manufacturers' recommended cleaning methods and materials.
- B. Install protective covering for installed water closets, urinals, and fittings.
- C. Do not allow use of plumbing fixtures for use during construction unless approved in writing by Owner.

END OF SECTION 22 40 00

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## **SECTION 23 05 00 – BASIC HVAC REQUIREMENTS**

### **1. GENERAL**

#### **1.1 SECTION INCLUDES**

- A. This section describes Basic Mechanical Requirements required to provide for a complete installation of all mechanical systems for this project. This section shall apply to all other Division 23 specification sections as well as all work shown on the drawings.
- B. It is the intent of the Mechanical Division of the Specifications that all mechanical work specified herein be coordinated as required with the work of all other Divisions of the Specifications and Drawings so that all installations operate as designed.
- C. All systems shall be completely assembled, tested, adjusted and demonstrated to be ready for operation to the satisfaction of the Owner's representative.
- D. The Contractor shall note that, in some cases, piping as shown on the Drawings provide general location and routing information only. The Contractor shall be responsible for providing interference-free systems with proper clearance to facilities and equipment.
- E. Where the word "provide" is used, it shall mean "furnish and install" unless otherwise noted or specified.
- F. Note that the words "mechanical" and "plumbing" are used interchangeably throughout the Division 22 and 23 specification sections.

#### **1.2 RELATED SECTIONS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 specification sections, apply to work of this section and all other sections of Division 23.

#### **1.3 DESCRIPTION OF WORK**

- A. The work included under this section consists of providing all labor, materials, supervision, and construction procedures necessary for the installation of the complete mechanical systems required by these specifications and/or shown on the drawings of the contract.
- B. The Contract Drawings are shown in part diagrammatic intended to convey the scope of work, indicating the intended general arrangement of equipment, piping, ductwork, etc.

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#### 1.4 QUESTIONS OF INTERPRETATION

- A. If questions arise during the bidding process regarding the meaning of any portion of the contract documents, the prospective bidder shall submit the questions to the Architect/Engineer for clarification. Any definitive interpretation or clarification of the contract documents will be published by addenda, properly issued to each person holding documents, prior to the bid date. Verbal interpretation or explanation not issued in the form of an addendum shall not be considered part of the bidding documents. When submitting questions for clarification, adequate time for issuance and delivery of addenda must be allowed.
- B. The Architect/Engineer shall be the sole judge regarding interpretations of conflicts within contract documents.

#### 1.5 CONTRACT DOCUMENT DISCREPANCIES

- A. If any ambiguities should appear in the contract documents, the Contractor shall request clarification from the Architect/Engineer before proceeding with the work. If the Contractor fails to make such request, no excuse will thereafter be entertained for failure to carry out the work in a manner satisfactory to the Architect/Engineer. Should a conflict occur within the contract documents, the Contractor is deemed to have estimated the more expensive way of doing the work unless a written clarification from the Architect/Engineer was requested and obtained before submission of bid.
- B. The Contractor acknowledges and understands that the Contract Documents are a two-dimensional representation of three-dimensional objects. This representation may include imperfect data, interpreted codes, utility guidelines, three-dimensional conflicts, and required field coordination items. Such deficiencies should be identified prior to ordering material and starting installation. The Contractor agrees to carefully study and compare the individual Contract Documents and report at once in writing to the Architect/Engineer any deficiencies the Contractor may discover. The Contractor further agrees to require each subcontractor to likewise study the documents and report at once any deficiencies discovered.
- C. The Contractor shall follow the drawings in laying out work and verify clearances for the installation of the materials and equipment based on the dimensions of actual equipment furnished. Whenever a question exists as to the exact intended location of materials or equipment, obtain instructions from the Architect/Engineer before proceeding with the work.
- D. If there is a conflict between manufacturer's recommendations and the Contract Documents, the manufacturer's recommendations shall govern with no additional cost to the Owner.

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## 1.6 PERMITS

- A. The Contractors shall familiarize themselves with all requirements regarding all permits, fees, etc., and shall comply with them. All permits, licenses, inspections and arrangements required for the work shall be obtained by the Contractor at his expense.
- B. All utilities shall be installed in accordance with the local rules and regulations and all charges shall be paid by the Contractor.

## 1.7 QUALITY ASSURANCE

- A. Installers shall have at least 2 years of successful installation experience on projects with mechanical installation work similar to that required by the project. All equipment and materials shall be installed in a neat and workmanlike manner and shall be aligned, leveled, and adjusted for satisfactory operation, unless noted otherwise in other mechanical sections.
- B. Manufacturer of equipment and materials must be regularly engaged in the manufacture of the specified equipment and material with similar construction and capacities and whose products have been in satisfactory use in similar service for not less than five (5) years, unless noted otherwise in other Mechanical Sections.
- C. Qualify welding processes and operators for structural steel according to AWS D1.1. "Structural Welding Code - Steel.
- D. Quality welding processes and operators for piping according to ASME "Boiler and Pressure Vessel Code," Section IX, "Welding and Brazing Qualifications."
- E. Comply with provisions of ASME B31 Series "Code for Pressure Piping", including all addenda.
- F. Contractor signed welder certificate(s) shall be submitted. Certify that each welder has passed AWS qualification tests for the welding processes involved and that certification is current. A record shall be maintained on the job site showing the date and results of qualification tests for each welder employed on the job. One certified copy of the qualification test for each welder so employed shall be furnished to the Owner's representative.
- G. For all the refrigerant work/service required by this project, all refrigerant technicians shall be EPA/ASHRAE 34 certified for corresponding classification type I, II, III and/or IV.

## 1.8 REFERENCES

- A. The design, manufacture, testing, and method of installation of all equipment and materials furnished under the requirements of this specification shall conform to the following as applicable:
  - 1. Safety and Health Regulations for Construction.

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2. Occupational Safety and Health Standards, National Consensus Standards and Established Federal Standards.
3. ABMA - American Boiler Manufacturers Association.
4. ACCA - Air Conditioning Contractors of America.
5. ACGIH - American Conference of Governmental Industrial Hygienists.
6. ADC - Air Diffusion Council.
7. AGA - American Gas Association.
8. AIHA - American Industrial Hygiene Association.
9. AMCA - Air Movement and Control Association.
10. ANSI - American National Standards Institute.
11. ARI - Air-Conditioning and Refrigeration Institute.
12. ASA - Acoustical Society of American.
13. ASHRAE - American Society of Heating, Refrigerating, and Air-Conditioning Engineers.
14. ASME - The American Society of Mechanical Engineers.
15. ASTM - American Society of Testing and Materials.
16. CAGI - Compressed Air and Gas Institute.
17. CTI - Cooling Tower Institute.
18. EJMA - Expansion Joint Manufacturers Association.
19. ETL - Engineering Tests Laboratory.
20. HEI - Heat Exchange Institute.
21. HI - Hydraulic Institute.
22. HYD I - Hydronics Institute.
23. ICBO - International Conference of Building Officials.
24. ICC – International Code Council.
25. NEBB - National Environmental Balancing Bureau.
26. NEC - National Electrical Code.
27. NEMA - National Electrical Manufacturers Association.
28. NFPA - National Fire Protection Association.
29. NSF - National Sanitation Foundation.
30. SAE - Society of Automatic Engineers.
31. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association.
32. TEMA - Tubular Exchanger Manufacturers Association.
33. UL - Underwriters Laboratories, Inc.
34. international Plumbing Code.
35. International Mechanical Code.
36. Other governing, state, and local codes that apply.

## 1.9 SUBMITTALS

- A. General: Follow the procedures specified in Division 1 Sections "General Conditions" and "Special Conditions".

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- B. The Architect/Engineer's review of submittals, including any corrections or comments made on the shop drawings during the review process, do not relieve Contractor from compliance with requirements of the Contract Documents. The review is only a review of general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. The Contractor is responsible for confirming and correlating all quantities and dimensions; selecting fabrication process and techniques of construction; coordinating his work with that of all other trades; and performing his work in a safe and satisfactory manner. The Contractor shall not be relieved from responsibility for errors or omissions in the shop drawings, product data or samples by the Architect/Engineer's review of those drawings.
- C. No portion of the work requiring submission of a shop drawing, product data or sample shall be commenced until the submittal has been reviewed by the Architect/Engineer. All such portions of the work shall be in accordance with reviewed submittals and the associated manufacturer recommendations.
- D. Shop drawings shall include the minimum following information as applies. Additional specific information required is outlined in other Mechanical Sections.
1. All equipment items shall be marked with the same item number as used on drawings or schedules.
  2. Certified performance and data with system operating conditions indicated. All coil, fan, energy recovery, terminal unit, sound attenuation, and pump performance data shall be computer generated.
  3. Product Data: Submit manufacturer's technical product data, including rated capacities of selected model clearly indicating size, weights (shipping, installed, and operating), furnished specialties and accessories; and installation and start-up instructions.
  4. Shop Drawings: Submit manufacturer's assembly-type shop drawings indicating dimensions, weight loading, required clearances, and methods of assembly of components.
  5. Wiring Diagrams: Submit manufacturer's electrical requirements for power supply wiring to electrical equipment. Submit manufacturer's ladder-type wiring diagrams for interlock and control wiring required for final installation of electrical equipment and controls. Clearly differentiate between portions of wiring that are factory-installed and portions to be field-installed.
  6. Maintenance Data: Submit maintenance data and parts list for each mechanical equipment, control and accessory; including "troubleshooting" maintenance guide. Include this data, product data, shop drawings, and wiring diagrams in maintenance manual; in accordance with requirements of Division 1.

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E. Provide separate shop drawing submittals for the following items:

1. Section 23 05 00:

Submittal Requirement	Date Submitted
HVAC permits	
HVAC licenses	
EPA/ASHRAE 34 refrigeration certification for type I, II, III&/or IV service	
Welding certificates	
Warranties	
As-Built documents	
Piping pressure testing log	
Operation and maintenance manuals	
Close out / walk through documentation	
Owner training documentation	

2. Section 23 05 53:

Submittal Requirement	Date Submitted
HVAC identification materials	

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3. Section 23 05 93:

Submittal Requirement	Date Submitted
Pre-balancing conference meeting notes	
Pre-balancing field deficiency report	
TAB draft report	
Final TAB report	

4. Section 23 07 00:

Submittal Requirement	Date Submitted
Ductwork insulation materials and insulation schedule	

5. Section 23 31 13:

Submittal Requirement	Date Submitted
Ductwork material and schedule	
Flexible ductwork	
High pressure manufactured ductwork fitting material and fitting list	
Low pressure manufactured duct fittings	
Ductwork hangers, sealants, tapes, etc.	
Ductwork connection system	
Owner approval of ductwork cleaning	

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6. Section 23 31 16:

Submittal Requirement	Date Submitted
All scheduled dampers	
Flexible duct connections	
Duct access doors	
Duct test hole plugs	
Volume control dampers	

7. Section 23 37 13:

Submittal Requirement	Date Submitted
All scheduled diffuser, registers and grilles	
All scheduled ventilators and vents	

1.10 SUBSTITUTIONS

- A. All proposals shall be based on providing and installing the materials or items of equipment as shown on the Contract Documents. The Contractor's options in selecting materials and equipment are limited by requirements of the Contract Documents and governing regulations. They are not controlled by industry traditions or procedures experienced by the Contractor on previous construction projects.
- B. Where the terms "or equivalent" is used, the Contractor may substitute alternate equipment, materials, etc. subject to review by the Architect/Engineer and the Owner's representative during the submittal phase of the project.
- C. Where the term "or approved equivalent" is used, the Contractor may not substitute alternate equipment, materials, etc. unless obtaining written approval from the Architect/Engineer at least ten (10) days before the bid date. Notifications of any such approvals by the Architect/Engineer shall only be made in writing by Addendum.
- D. Where the term "no equivalent" is used, the Contractor must provide the specified or scheduled equipment, materials, etc.



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- E. Proposed substitutions will be judged on the basis of quality, capacity, performance, features, physical size, and appearance. The reputation of the manufacturer, delivery time requirements, and the availability of repair or replacement parts may also be considered.
- F. The Architect/Engineer shall be the sole and final judge as to the suitability of substitution items.
- G. If a substitution is approved, the Contractor shall bear the total cost of all changes due to substitution. These costs may include additional compensation to the Architect/Engineer for redesign and evaluation services, increased cost of work by the Owner or other Contractors, and similar considerations.
  - 1. If an approved substitution differs from the specified item in terms of power requirements, dimensions, capacities, and ratings, the associated mechanical and electrical services, circuit breakers, conduit, motors, bases, and equipment spaces are to be increased accordingly, but all recommended manufacturer clearances, etc., are to be maintained within the allotted mechanical spaces. No additional costs will be approved for these modifications. If minimum energy ratings or efficiencies of the equipment are specified, the equipment must meet the design requirements and commissioning requirements.

#### 1.11 WARRANTY

- A. Refer to the General Conditions section of this Specification for general warranty requirements and information. Additional warranty requirements are specified in subsequent Mechanical Sections.

#### 1.12 CLOSE OUT AND OPERATION INSTRUCTIONS

- A. Operate each system and item of equipment in a test run of appropriate duration, but no less than 7 days, to demonstrate sustained, satisfactory performance. Adjust and correct operations as required for proper performance.
- B. Systems shall not be used for temporary operation during construction without written approval from the Architect/Engineer. If approved and used during construction, all systems must be properly maintained and operated according to manufacturer recommendations. Immediately prior to turnover to the Owner, the contractor shall perform all necessary preventative maintenance according to all manufacturer recommendations, including, but not limited to, filter replacement, strainer cleaning, belt adjustment, etc.
- C. Any system placed in temporary operation for testing during construction shall be properly maintained and operated by the Contractor.
- D. All systems shall be protected against freezing, flooding, corrosion or other forms of damage prior to acceptance by the Owner.
- E. Material or equipment damaged, shown to be defective or not in accordance with the Specifications shall be repaired or replaced to the satisfaction of the Owner's representative.

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- F. All tests shall be made after notification to and in the presence of the Owner's representative.
- G. Before starting up any system, each piece of equipment comprising any part of the system shall be checked for proper lubrication and any other condition which may cause damage to the equipment or endanger personnel.
- H. After systems have been demonstrated to be satisfactory for 7 consecutive days and ready for permanent operation, all permanent pipe line strainers shall be cleaned, valve and packings properly adjusted, lubrication checked and replenished if required. Temporary piping, etc. shall be removed and openings restored in a permanent manner acceptable to the Owner's representative.
- I. Conduct a walk-through instruction seminar for the Owner's personnel pertaining to the continued operation and maintenance of mechanical equipment and systems. Explain the identification system, maintenance requirements, operational diagrams, temperature control provisions, sequencing requirements, security, safety, efficiency and similar features of the systems. Walk-through must be documented as to those attending and subjects covered. Walk-through document(s) shall be signed and dated by the contractor's representative and the owner's representative.
- J. At the time of substantial project completion, turn over the prime responsibility for operation of the mechanical equipment and systems to the Owner's operating personnel. Until the time of final acceptance, provide full time operating personnel, who are completely familiar with the work, to consult with and continue training the Owner's personnel.
  - 1. If any systems are operated prior to substantial completion, the contractor shall perform all necessary preventative maintenance according to all manufacturer recommendations.

#### 1.13 AS-BUILT DOCUMENTS

- A. Prepare as-built documents in accordance with the requirements in Division 1 Section "PROJECT CLOSEOUT." In addition to the requirements specified in above, indicate the following installed conditions:
  - 1. The Mechanical Contractor shall provide the Owner with as-built drawings for ductwork mains and branches, size and location, for both exterior and interior; locations of dampers and other control devices; filters, boxes, and terminal units and indicate all devices requiring periodic maintenance or repair.
  - 2. All mechanical systems as described in the Specifications and/or shown on the drawings.
  - 3. Mains and branches of piping systems, with valves and control devices located and numbered, concealed unions located, and with items requiring maintenance located (i.e., traps, strainers, expansion compensators, tanks, etc.). Valve location diagrams, complete with valve tag chart. Refer to Division 23 Section "Mechanical Identification." Indicate actual inverts and horizontal locations of underground piping.
  - 4. Equipment/material locations (exposed and concealed), dimensioned from prominent building lines.

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## 1.14 MAINTENANCE MANUALS

- A. Per International Energy Code, paragraphs 803.3.8 and 803.3.8.3, Prior to the issuance of a certificate of occupancy, the mechanical contractor shall submit a minimum of one week before the request for building certificate of occupancy operating and maintenance manuals. The manuals shall include at a minimum the following.
1. Equipment capacity (input and output) and required maintenance actions.
  2. Equipment operation and maintenance manuals.
  3. HVAC system control maintenance and maintenance and calibration information, including wiring diagrams, schematics, control sequence descriptions. Desired or field determined set points shall be permanently recorded on control drawings, at control devices or, for digital control systems, in programming comments.
  4. Complete written narrative .of how each system is intended to operate.
- B. Prepare maintenance manuals in accordance with Division 1 Section "PROJECT CLOSEOUT." In addition, any sub-system that the contractor is requesting for inclusion as substantial shall provide the O & M manuals for those sub-systems prior to issuance of the substantial completion for those sub-systems.
- C. In addition to the requirements specified in Division 1, include the following information for equipment items:
1. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
  2. Manufacturer's printed operating procedures to include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; and summer and winter operating instructions.
  3. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.
  4. Servicing instructions and lubrication charts and schedules.

## 2. PRODUCTS

### 2.1 MATERIALS

- A. Unless otherwise specified, all materials and equipment shall be new, unused, and undamaged. Materials and equipment shall be the current designs and models of manufacturers regularly engaged in their production.

### 2.2 MATERIALS AND EQUIPMENT FURNISHED BY OTHERS

- A. Where materials and equipment are indicated as furnished by others and installed or connected under this contract, it shall be the Contractor's responsibility to verify installation details and requirements and make all necessary accommodations.

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### 2.3 QUANTITY OF SPECIFIED ITEMS REQUIRED

- A. Wherever in the Contract Documents an item, device, or piece of equipment is referred to in the singular number, such reference shall apply to as many such articles as are shown on the drawings or required to complete the installation.

## 3. EXECUTION

### 3.1 JOBSITE SAFETY

- A. Neither the professional activities of the Architect/Engineer, nor the presence of the Architect/Engineer or his or her employees and subconsultants at a construction site, shall relieve the Contractor and other entity of their obligations, duties and responsibilities including, but not limited to, construction means, methods, sequence, techniques or procedures necessary for performing, superintending or coordinating all portions of the work of construction in accordance with the contract documents and any health or safety precautions required by any regulatory agencies. The Architect/Engineer and his or her personnel have no authority to exercise any control over any construction contractor or other entity or their employees in connection with their work or any health or safety precautions. The Contractor is solely responsible for jobsite safety.

### 3.2 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.
- B. Store and handle material and equipment in compliance with manufacturers' recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.
- C. Use proper lifting equipment where size/weight requires handling by such means.
- D. Comply with manufacturer's rigging and moving instructions for unloading material and equipment, and moving them to final location.
- E. Equipment requiring disassembly for access purposes shall be disassembled and reassembled as required for movement into the final location following manufacturer's written instructions.
- F. Deliver material and equipment as a factory-assembled unit to the extent allowable by shipping limitations, with protective crating and covering.
- G. Mechanical Contractor shall schedule deliveries so as to minimize space and time requirements for storage of materials and equipment on site.

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- H. All piping is to be protected while stored for installation. Pipe ends are to be provided with pipe plugs, plastic wrap taped ends or pipe ends crimped closed. No exceptions. Piping found open will be tagged and prior to being installed by the contractor shall be cleaned, inspected by the owner representative and cleaning approved by the owner. Any pipe that has been installed without being approved by the owner shall be removed for visual inspection by the owner representative.
- I. Any material that is damaged during delivery, storage, handling, or installation shall be brought to the attention of the Architect/Engineer for review of its acceptability in the project.
  - 1. The Architect/Engineer shall be the sole and final judge as to the suitability of damaged items.

### 3.3 ROUGH-IN

- A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.
- B. Refer to equipment specifications in Divisions 2 through 33 for rough-in requirements.

### 3.4 COORDINATION

- A. All mechanical rooms shall be constructed to maintain a minimum 3'-6" wide x 7'-6" high clearance between mechanical equipment and accessories. All trades shall coordinate work to provide this space.
- B. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the building.
- C. Coordinate the work with the work of the different trades so that:
  - 1. Interferences between mechanical, plumbing, fire protection, electrical, architectural, and structural work, including existing services, will be avoided.
  - 2. Within the limits indicated on the drawings, the maximum practicable space for operation, maintenance repair, removal and testing of mechanical and other equipment will be provided.
  - 3. All Contractors shall establish utility elevations prior to fabrication and shall coordinate their material and equipment with other trades. When a conflict arises, priority is as follows:
    - a. Light fixtures.
    - b. Gravity flow piping, including steam and condensate.

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- c. Equipment requiring access, including terminal units, fire/smoke dampers, and piping valves.
  - d. Ductwork.
  - e. Electrical busduct.
  - f. Electrical cable trays, including access space.
  - g. Piping (hydronic and plumbing).
  - h. Sprinkler/standpipe piping.
  - i. Electrical conduits and wireway.
4. Pipes, ducts, and similar items, shall be kept as close as possible to ceiling, walls, and columns, to take up a minimum amount of space. Pipes, ducts, and similar items shall be located so that they will not interfere with the intended use of other equipment.
- D. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components as they are constructed.
- E. Furnish and install, without additional expense to the Owner, all offsets, fittings and similar items necessary in order to accomplish the requirements of coordination.

### 3.5 MECHANICAL INSTALLATIONS

- A. Verify all dimensions by field measurements.
- B. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for mechanical installations.
- C. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
- D. Coordinate connection of mechanical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.
- E. Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect/Engineer.
- F. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
- G. Install mechanical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations. Extend grease fittings to an accessible location.

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- H. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.
- I. Coordinate and the required electrical services and associated voltage, amps, phase etc. for all equipment and the associated factory and field installed control and power devices as required for complete and operable systems.

### 3.6 ACCESSIBILITY

- A. All work shall be installed so as to be accessible for operation, maintenance and repair with particular attention given to locating valves, controls and equipment requiring periodic lubrication, cleaning, adjusting or servicing of any kind.

### 3.7 LUBRICATION AND TOOLS

- A. Provide a fresh charge of lubricant in accordance with manufacturer's recommendations to all equipment requiring lubrication prior to start-up and maintain lubrication as required until acceptance by Owner.
  - 1. List lubricant type/weight of lubricant during last service prior to start/up on each unit so that owner can use same lubricant type as previously used by contractor.
- B. Provide for each piece of equipment any special tools and a list of such tools required for the operation or adjustment of the equipment and turn over to the Owner's representative prior to final acceptance of the equipment.

### 3.8 GENERAL CONTRACTOR - MECHANICAL EXTENT OF WORK

- A. Access Panels
  - 1. Furnish and install panels for access to valves and dampers and similar items where no other means of access, such as readily removable, sectional ceiling is shown or specified.
  - 2. The plans indicate the location of all anticipated access panels. The Division 23 Contractor shall make every effort to locate all material and equipment requiring service and maintenance above accessible ceilings or utilize the indicated access panels. Material and equipment requiring service and maintenance that is shown above inaccessible ceilings shall be relocated to accessible or exposed areas whenever possible. When these items are located in exposed areas, the Division 23 Contractor is to verify with the Architect/Engineer that the installation will not affect the aesthetics of the building. However, when it is not possible to locate these items in accessible or exposed areas due to the configuration of the actual installation of the mechanical and other trade systems or aesthetic reasons, additional access panels shall be provided. The contractor shall be equitably compensated for the additional access panels.

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## B. Cutting and Patching

1. General: Perform cutting and patching in accordance with Division 1 Section "CUTTING AND PATCHING." In addition to the requirements specified in Division 1, the following requirements apply:
2. The Division 23 Contractor shall coordinate all cutting and patching of holes, in existing building and new construction which are required for the passage of mechanical work.
3. Division 23 Contractor is to notify the General Contractor prior to submitting his bid, the number, size and location of all cutting and patching requirements. The Division 23 Contractor shall be liable for all associated costs of cutting and patching for mechanical work upon failure to notify the General Contractor prior to bid submission.
4. Under no circumstances shall any structural members, load-bearing walls or footings be cut without first obtaining written permission from the Engineer.
5. Cut, channel, chase and core drill floors, walls, partitions, ceilings, and other surfaces necessary for mechanical installations. Perform cutting by skilled mechanics of the trades involved.
6. Patching of concrete openings shall be filled with grout and finished smooth with the adjacent surface.
7. All below-grade openings for pipe shall be sealed with interlocking synthetic rubber line assembly, Link-Seal by Thunderline Corporation or equal.
8. Repair cut surfaces to match adjacent surfaces.
9. Perform cutting, fitting, and patching of mechanical equipment and materials required to:
  - a. Uncover work to provide for installation of ill-timed work.
  - b. Remove and replace defective work.
  - c. Remove and replace work not conforming to requirements of the Contract Documents.
  - d. Remove samples of installed Work as specified for testing.
  - e. Install equipment and materials in existing structures.
  - f. Upon written instructions from the Architect, uncover and restore Work to provide for Architect/Engineer observation of concealed Work.

## C. Excavation and Backfilling

1. Division 23 Contractor shall perform all excavation and backfilling necessary to install the required mechanical work. Coordinate the work with other excavating and backfilling work in the same area.
2. Except as indicated otherwise, comply with the applicable sections in Division 2 of these specifications, excavation filling and backfilling (for structures) to 5' outside the building line, and exterior utilities sections for beyond 5' from the building line.
3. Trenching: Trench width shall be no more than required for shoring, bracing and performance of the work. All necessary shoring and bracing shall be installed to insure worker safety, proper installation of mechanical work, and protection of adjacent structures. Provide all dewatering as required. Depth shall not exceed that required to achieve the specified depth of cover and overdig will be permitted for bedding material only. All trenches shall be open cut from the surface.

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4. **Bedding:** All work shall be properly bedded whether on virgin soil or on granular bedding as specified. All granular bedding shall be laid on undisturbed soil. PVC and copper piping shall have a 4" crushed stone bed conforming to specification for granular material in Division 2. If rock is encountered, excavate to a point 4" below installed bottom elevation of piping and provide bedding as called for above.
5. **Haunching:** Haunching shall be brought up on both sides of the pipe for a distance of 1/3 the pipe diameter and shall be of the same material used for bedding.
6. **Backfill:** Backfilling shall not begin until installation has been tested for leaks.
7. **Final Backfill shall be as follows:**
  - a. **Outside Building Under Paved Areas:** Granular material specified in Division 2.
  - b. **Outside Building and Not Under Paved Areas:** Clean soil free of vegetable matter and foreign material or crushed limestone. In planted areas backfill to a point 6" below finished grade. Owner will provide topsoil to finished grade.
8. **Placement:** Place all granular material in lifts of 12" maximum compacted to 100% of maximum dry density as determined as ASTM D698. Place soil in 6" lifts compacted to 95% of maximum density as determined by ASTM D698. Do not place any backfill until excavations have been cleaned of all water, debris and loose or soft soil.
9. **Protection:** At least 72 hours prior to excavating, for each phase, Contractor shall contact the Owner's Representative to arrange for utility locates in the construction area.
10. Contractor shall provide temporary supports for all underground utilities crossing an excavation.
11. Provide all required barricades, fencing, signs, lights, etc. as necessary for the protection of the workers and of the general public.
12. **Excess Material:** All excess earth and other material resulting from the excavation shall be removed from site daily by the Contractor.
13. Landscape work, pavement, flooring and similar exposed finish work that is disturbed or damaged by excavation shall be repaired and restored to their original condition by the Mechanical Contractor.

#### D. Concrete Bases

1. Minimum 4" high concrete housekeeping pads shall be provided under all floor-mounted mechanical equipment, regardless of whether explicitly shown on the Drawings. Concrete inertia pads with spring isolators shall be provided for all base-mounted pumps and air compressors installed on any floors which are not slab-on-grade. Inertia pads and isolators shall be sized by the equipment manufacturer if specific information is not provided in the Contract Documents.
2. Contractor shall verify, prior to submitting his bid, the number, size and location of all mechanical equipment bases.
3. Construct concrete equipment bases a minimum 4 inches larger in both directions than supported unit. Follow supported equipment manufacturer's setting templates for anchor bolt and tie locations. Use 3000 psi, 28-day compressive strength concrete, reinforcement and forms as specified in Division 3 Section "Cast-In-Place Concrete." Coordinate final equipment base size with General Contractor.
4. All equipment shall be mechanically fastened to concrete bases.

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E. Roof curbs, roof support for mechanical equipment and roof penetrations.

1. Verify, prior to submitting bid, the number, size, and location of all roof curb and roof supports and the location of all roof penetrations. Provide all roof deck-mounted equipment, pipe supports, and pipe penetrations. Cut roof deck for pipe and duct penetrations, unless noted otherwise. Provide all roof covering/membrane mounted equipment and pipe supports and roof drains, unless noted otherwise.
2. Contractor shall be liable for all associated costs to install the roof curbs, roof supports and roof penetrations not shown on the roof plan or added after the roof system has been installed. Coordinate with the General Contractor prior to construction the number size and location of all roof penetrations.
3. All roof curbs, supports, and rails shall be sized to keep equipment a minimum of 18" above the roof insulation membrane in order to limit snow accumulation at or near equipment.

F. Painting

1. Field paint mechanical equipment and materials in specified areas as noted on the mechanical plans, mechanical schedules and in the specifications. Where items are to be painted, provide materials in these areas that are suitable for accepting paint. Clean and prepare the materials as necessary prior to painting, including removal of sharp edges. At minimum, items in these areas shall be painted:
  - a. Exposed items in remodel. color shall match the adjacent surfaces (i.e. walls, ceilings, etc.) and shall follow the patterns of any adjacent accent colors.
  - b. Concealed field-fabricated bare iron or steel items required for installation of work under this Division. Remove rough or sharp edges prior to painting.
  - c. Exposed field-fabricated bare iron or steel items required for installation of work under this Division. Remove rough or sharp edges prior to painting.
  - d. Exterior items which are not factory-painted. Paint color shall be selected by Architect.
2. Paint all items in accordance with Division 09 sections.

3.9 ELECTRICAL-MECHANICAL EXTENT OF WORK

- A. The responsibility of work specified under Division 23 and 26 are clarified under, Section 23 05 13. Mechanical Contractor is to coordinate all electrical requirements prior to ordering powered mechanical equipment.

END OF SECTION 23 05 00

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## **SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING**

### **1. GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Testing, adjustment, and balancing (TAB) of air systems.
- B. TAB of hydronic systems.
- C. Measurement of final operating condition of HVAC systems.

#### **1.2 RELATED SECTIONS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications, apply to work of this section.

#### **1.3 REFERENCES**

- A. AABC - National Standards for Total System Balance.
- B. ASHRAE 111 - Practices for Measurement, Testing, Adjusting, and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems.
- C. NEBB - Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems.
- D. SMACNA - HVAC Systems Testing, Adjusting, and Balancing.

#### **1.4 SUBMITTALS**

- A. Submit name of adjusting and balancing agency for approval within 90 days after award of Contract.
- B. Field Reports: Indicate deficiencies in systems that would prevent proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
- C. Prior to commencing work, submit report forms or outlines indicating adjusting, balancing, and equipment data required.
- D. Submit draft copies of report for review prior to final acceptance of Project. Provide final copies for Architect/Engineer and for inclusion in operating and maintenance manuals.

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- E. Provide reports in letter size, soft cover or 3-ring binder manuals, complete with index page and indexing tabs, with cover identification at front and side. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat locations.
- F. Test Reports: Indicate data on of the following forms:
  - 1. AABC National Standards for Total System Balance forms.
  - 2. Forms prepared following ASHRAE 111.
  - 3. NEBB forms.

#### 1.5 PROJECT RECORD DOCUMENTS

- A. Record actual locations of all sensors, flow measuring stations, balancing valves and rough setting.

#### 1.6 QUALITY ASSURANCE

- 1. Perform total system balance in accordance with one of the following:
- 2. AABC National Standards for Field Measurement and Instrumentation, Total System Balance.
- 3. NEBB Procedural Standards for Testing, Balancing and Adjusting of Environmental Systems.

#### 1.7 QUALIFICATIONS

- A. Perform Work under supervision of AABC Certified Test and Balance Engineer or NEBB Certified Testing, Balancing and Adjusting Supervisor.

#### 1.8 ON SITE PRE-BALANCING CONFERENCE

- A. Convene prior to commencing work of this section. At a minimum, the attendees shall include the Architect/Engineer and representatives of the installers of all HVAC systems, including temperature controls. The objective of this meeting is final coordination and verification of system operation and readiness for work of this section.
- B. No balance reports shall be accepted nor final payment made unless such conference occurs and is fully documented as to those attending and subjects covered.

#### 1.9 SEQUENCING

- A. See Section 230500.
- B. Sequence work to commence after completion of systems and schedule completion of work before Substantial Completion of Project.

TESTING, ADJUSTING AND BALANCING

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1.10 SCHEDULING

- A. See Section 23 05 00.

**2. PRODUCTS (NOT USED)**

**3. EXECUTION**

3.1 EXAMINATION

- A. Before commencing work and prior to convening the pre-balancing conference, the TAB agency shall coordinate with the appropriate mechanical contractors that the following conditions have been met:

1. Systems are started and operating in a safe and normal condition.
2. Temperature control systems are installed complete and operable.
3. Proper thermal overload protection is in place for electrical equipment.
4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
5. Duct systems are clean of debris.
6. Fans are rotating correctly.
7. Fire and volume dampers are in place and open.
8. Air coil fins are cleaned and combed.
9. Access doors are closed and duct end caps are in place.
10. Air outlets are installed and connected.
11. Hydronic systems are flushed, filled, and vented.
12. Pumps are rotating correctly.
13. Proper strainer baskets are clean and in place.
14. Service and balance valves are open.

- B. Submit field reports at the pre-balancing conference. Report ALL defects and deficiencies noted during performance of services which prevent system balance.

- C. Beginning of work means acceptance of existing conditions.

3.2 PREPARATION

- A. Provide instruments required for testing, adjusting, and balancing operations. Make instruments available to Architect/Engineer to facilitate spot checks during testing.

- B. Provide additional balancing devices as required.

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### 3.3 INSTALLATION TOLERANCES

- A. Air Handling Systems: Adjust to within +5 to 10 percent of design for supply systems, return and exhaust systems.
- B. Air Outlets in Negatively Pressurized Spaces: Adjust total to within 0 to -5 percent of design to space.
- C. Air Inlets in Negatively Pressurized Spaces: Adjust total to within 0 to +5 percent of design from space.
- D. Air Outlets in Positively Pressurized Spaces: Adjust total to within 0 to +5 percent of design to space.
- E. Air Inlets in Positively Pressurized Spaces: Adjust total to within 0 to -5 percent of design from space.
- F. Air Outlets in Non-Pressurized Spaces: Adjust total to within 0 to +10 percent of design to space.
- G. Air Inlets in Non-Pressurized Spaces: Adjust total to within 0 to -10 percent of design from space.
- H. Hydronic Systems: Adjust to within +0 to 10 percent of design.

### 3.4 ADJUSTING

- A. Ensure recorded data represents actual measured or observed conditions.
- B. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.
- C. After adjustment, take measurements to verify balance has not been disrupted or that such disruption has been rectified.
- D. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

### 3.5 AIR SYSTEM PROCEDURE

- A. Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities at site altitude.
- B. Make air quantity measurements in ducts by traverse of entire cross sectional area of duct.

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- C. Measure air quantities at air inlets and outlets.
- D. Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.
- E. Use volume control devices to regulate air quantities only to extend that adjustments do not create objectionable air motion or sound levels. Effect volume control by dampers.
- F. Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.
- G. Provide system schematic with required and actual air quantities recorded at each outlet or inlet.
- H. Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters.
- I. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions.
- J. Where modulating dampers are provided, take measurements and balance at extreme conditions. Balance variable volume systems at maximum air flow rate, full cooling, and at minimum air flow rate, full heating.
- K. For variable air volume system powered units set volume controller to air flow setting indicated. Confirm connections properly made and confirm proper operation for automatic variable air volume temperature control.

### 3.6 SCHEDULES

- A. Equipment Requiring Testing, Adjusting, and Balancing
  - 1. All new exhaust fans, diffusers, registers and grilles, existing roof top units
- B. Report Forms
  - 1. Title Page:
    - a. Name of Testing, Adjusting, and Balancing Agency
    - b. Address of Testing, Adjusting, and Balancing Agency
    - c. Telephone number of Testing, Adjusting, and Balancing Agency
    - d. Project name
    - e. Project location
    - f. Project Architect
    - g. Project Engineer
    - h. Project Contractor
    - i. Project altitude

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- j. Report date
  - k. Design versus final performance
  - l. Notable characteristics of system
  - m. Description of systems operation sequence
  - n. Summary of outdoor and exhaust flows.
  - o. Nomenclature used throughout report
  - p. Test conditions
2. Instrument List:
- a. Instrument
  - b. Manufacturer
  - c. Model number
  - d. Serial number
  - e. Range
  - f. Calibration date
3. Electric Motors:
- a. Manufacturer
  - b. Model/Frame
  - c. HP/BHP
  - d. Phase, voltage, amperage; nameplate, actual, no load
  - e. RPM
  - f. Service factor
  - g. Starter size, rating, heater elements
  - h. Sheave Make/Size/Bore
4. V-Belt Drive:
- a. Identification/location
  - b. Required driven RPM
  - c. Driven sheave, diameter and RPM
  - d. Belt, size and quantity
  - e. Motor sheave diameter and RPM
  - f. Center to center distance, maximum, minimum, and actual
5. Air Moving Equipment
- a. Location
  - b. Manufacturer
  - c. Model number
  - d. Serial number
  - e. Arrangement/Class/Discharge
  - f. Air flow, specified and actual
  - g. Return air flow, specified and actual
  - h. Outside air flow, specified and actual
  - i. Total static pressure (total external), specified and actual

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- j. Inlet pressure
- k. Discharge pressure
- l. Sheave Make/Size/Bore
- m. Number of Belts/Make/Size
- n. Fan RPM
- o. Return Air/Outside Air Data:
- p. Identification/location
- q. Design air flow
- r. Actual air flow
- s. Design return air flow
- t. Actual return air flow
- u. Design outside air flow
- v. Actual outside air flow
- w. Return air temperature
- x. Outside air temperature
- y. Required mixed air temperature
- z. Actual mixed air temperature
- aa. Design outside/return air ratio
- bb. Actual outside/return air ratio

6. Exhaust Fan Data:

- a. Location
- b. Manufacturer
- c. Model number
- d. Serial number
- e. Air flow, specified and actual
- f. Total static pressure (total external), specified and actual
- g. Inlet pressure
- h. Discharge pressure
- i. Sheave Make/Size/Bore
- j. Number of Belts/Make/Size
- k. Fan RPM

7. Duct Traverse:

- a. System zone/branch
- b. Duct size
- c. Area
- d. Design velocity
- e. Design air flow
- f. Test velocity
- g. Test air flow
- h. Duct static pressure
- i. Air temperature
- j. Air correction factor

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8. Air Distribution Test Sheet:
  - a. Air terminal number
  - b. Room number/location
  - c. Terminal type
  - d. Terminal size
  - e. Area factor
  - f. Design velocity
  - g. Design air flow
  - h. Test (final) velocity
  - i. Test (final) air flow
  - j. Percent of design air flow

END OF SECTION 23 05 93

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## **SECTION 23 07 13 - DUCTWORK INSULATION**

### **1. GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Ductwork insulation.
- B. Insulation jackets.

#### **1.2 REFERENCE SECTION 23 05 00 FOR THE FOLLOWING:**

- A. References
- B. Submittals
- C. Delivery, Storage, and Handling

#### **1.3 QUALITY ASSURANCE**

- A. Materials: Flame spread/smoke developed rating of 25/50 or less.

#### **1.4 QUALIFICATIONS**

- A. Applicator: Company specializing in performing the work of this section with minimum three years experience.

#### **1.5 ENVIRONMENTAL REQUIREMENTS**

- A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.
- B. Maintain temperature during and after installation as recommended by the manufacturer.

### **2. PRODUCTS**

#### **2.1 GLASS FIBER, FLEXIBLE**

- A. Insulation: ASTM C553; flexible, noncombustible blanket.
  - 1. 'K' value: ASTM C518, 0.30 at 75 degrees F.
  - 2. Maximum service temperature: 250 degrees F.
  - 3. Maximum moisture absorption: less than 3 percent by volume.
  - 4. Density: .75 lb/cu ft.

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B. Vapor Barrier Jacket

C. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film.

1. Moisture vapor transmission: ASTM E96; 0.02 perm maximum.
2. Secure with pressure sensitive tape.

D. Vapor Barrier Tape

1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.

E. Tie Wire: Annealed steel, 16 gage (1.5 mm).

2.2 EXTERIOR DUCT INSULATION

A. Laminated Cellular Foam; closed cell foam insulation with metal covering.

1. 'K' ('ksi') Value: ASTM C177 or C518; 0.25 at 75 degrees F.
2. Minimum Service Temperature: -297 degrees F.
3. Maximum Service Temperature: 180 degrees F.
4. Maximum Moisture Absorption: ASTM D209; 0.2 percent by volume.
5. Moisture Vapor Transmission: ASTM E96; 0.05 perm-inches.
6. Connection: Waterproof vapor barrier adhesive.
7. Armaflex Armatuff Sheet Insulation or equivalent.
8. Exterior jacketing to be Alumaguard or equal.

3. EXECUTION

3.1 EXAMINATION

- A. Verify that ductwork has been tested before applying insulation materials.
- B. Verify that surfaces are clean, foreign material removed, and dry.

3.2 INSTALLATION

- A. Install materials in accordance with manufacturer's instructions.
- B. Continue insulation through walls, sleeves, hangers, and other duct penetrations.
- C. Insulate entire system including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints.

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- D. Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match jacket.
- E. Secure insulation without vapor barrier with staples, tape, or wires.
- F. Install without sag on underside of ductwork. Use adhesive or mechanical fasteners where necessary to prevent sagging. Lift ductwork off trapeze hangers and insert spacers.
- G. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive.
- H. Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.
- I. Do not overtighten and/or compress flexible glass fiber duct insulation.
- J. Duct Liner Application:
  - 1. Adhere insulation with adhesive for 100 percent coverage.
  - 2. Secure insulation with mechanical liner fasteners. Refer to SMACNA Standards for spacing.
  - 3. Seal and smooth joints.
  - 4. Seal liner surface penetrations with adhesive.
  - 5. Duct dimensions indicated are net inside dimensions required for air flow. Increase duct size to allow for insulation thickness.
- K. On all exterior ductwork, install metal jackets with a minimum 2-inch overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Secure jacket with stainless steel bands 12" o.c. and at end joints.

3.3 DUCTWORK INSULATION SCHEDULE

Ductwork Application:	Type:	Thickness:	Vapor Barrier Required (Y/N):
Concealed SA Ductwork	Flexible	2"	Y
Exposed SA in Occupied Areas	None required unless shown on plans		
Rectangular RA Duct	None required unless shown on plans		
EA Ducts	None required unless shown on plans		

- 1. Wrap all exterior ducts with caulked aluminum jacket with seams located at bottom of horizontal duct runs.
- 2. Exterior ductwork to have a minimum R-8 insulation installed

END OF SECTION 23 07 13



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## **SECTION 23 31 13 - DUCTWORK**

### **1. GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Metal ductwork.

#### **1.2 REFERENCES**

- A. See Section 23 05 00.

#### **1.3 PERFORMANCE REQUIREMENTS**

- A. No variation of duct configuration or sizes shall be permitted except by written permission.

#### **1.4 SUBMITTALS**

- A. See Section 23 05 00.

#### **1.5 PROJECT RECORD DOCUMENTS**

- A. Record actual locations of ducts and duct fittings. Record changes in fitting location and type. Show additional fittings used.

#### **1.6 QUALITY ASSURANCE**

- A. Perform Work in accordance with the following standards:
  - 1. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.
  - 2. NFPA 90B - Installation of Warm Air Heating and Air Conditioning Systems.
  - 3. SMACNA – 2006 HVAC Duct Construction Standards - Metal and Flexible.
  - 4. SMACNA - Round Industrial Duct Construction Standards
  - 5. International Mechanical Code.

#### **1.7 QUALIFICATIONS**

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.
- B. Installer: Company specializing in performing the work of this section with minimum five years experience.

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## 1.8 ENVIRONMENTAL REQUIREMENTS

- A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.
- B. Maintain temperatures during and after installation of duct sealants.

## 2. PRODUCTS

### 2.1 MATERIALS

- A. Galvanized Steel Ducts: ASTM A525, ASTM A527 or ASTM A-653 G-90 galvanized steel sheet, lock-forming quality, having G90 zinc coating of in conformance with ASTM A90. Provide mill-phosphatized finish for surfaces of ducts exposed to view.
  - 1. Painted duct is to be galvaneal or paint grip. Paint grip shall be ASTM A-653 A60 sheet metal. Refer to specification section 230500 for location where ductwork is to be painted.
- B. Stainless Steel Ducts: ASTM A 480/A 480M, Type 304 sheet form with No. 1 finish for surfaces of ducts exposed to view, and Type 304 sheet form with No. 1 finish for concealed ducts.
- C. Aluminum Ducts: ASTM B-316; aluminum sheet, alloy 3003-H14. Aluminum connectors and bar stock Alloy 6061-T6 or equivalent strength.
- D. Round Steel single and double wall Spiral Ducts shall exceed ASHRAE and SMACNA Class 3 leakage tests.
- E. Round single wall spiral duct shall be ASTM A-653 G-90 galvanized steel.
- F. Round single wall spiral duct that is to be painted shall be ASTM A-653 A60 paint grip. Refer to specification section 230500 for locations where ductwork is to be painted.
- G. Flexible Ducts:
  - 1. UL 181, Class 1, mechanically-locked spun nylon fabric supported by helically wound spring steel wire; fiberglass insulation; fire retardant polyethylene vapor barrier film.
  - 2. Pressure Rating: 6 inches WG positive, 5.0 inches WG negative (through 16" diameter), 1.0' WG negative (18" to 20").
  - 3. Maximum Velocity: 5500 fpm.
  - 4. Temperature Range: -20 degrees F to 250 degrees F.

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5. Minimum Sound Attenuation Performance (Insertion Loss in dB of 12' Length of 12" Round Duct):

a.	63 Hz Octave Band:	13
b.	125 Hz Octave Band:	37
c.	250 Hz Octave Band:	31
d.	500 Hz Octave Band:	34
e.	1 kHz Octave Band:	37
f.	2 kHz Octave Band:	47
g.	4 kHz Octave Band:	34

6. Manufacturer: Flexmaster Type 6B or equivalent.

H. Fasteners: Rivets, bolts, or sheet metal screws.

I. Sealant: ASTM E84 and UL rated, NFPA 90A and 90B approved. Non-hardening, water resistant, fire resistive, compatible with mating materials; and rated for all pressure duct systems. Fabric and metal backed duct tapes are not acceptable.

J. Hanger Rod: ASTM A36; steel or galvanized, threaded.

## 2.2 MANUFACTURED DUCTWORK AND FITTINGS

A. Manufacture in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, latest edition, and as indicated. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.

B. Round Ducts: Round spiral lockseam duct with light reinforcing corrugations; fittings manufactured of at least two gages heavier metal than duct. Transverse joints for 10" diameter and above round ducts with 2" static pressure and above shall be equivalent to "Ductmate-Spiralmate" as indicated in SMACNA tables. Joints shall be minimum 2" insertion length for joint connections. Transverse joints for smaller than 10" diameter round ducts with 2" static pressure and above shall be equivalent to "Ductmate-quick sleeve" as indicated in SMACNA tables.

C. Double Solid Wall Galvanized Round Steel Ducts: Outer shell ASTM A-60 paint grip steel with solid inner shell ASTM A-653 G-90 galvanized steel. Insulation shall be 1" 1 1/2 pound density per cubic foot that comply with NFPA 90A and NFPA 90B, NAIMA Standard AHC-101, ASTM C 1071 Type 1, thermal conductance "C" of 0.28 and resistance "R" of 3.6 per ASTM C177 with mean temperature of 75°F.

D. Construct T's, bends, and elbows with SMACNA HVAC Duct Construction Standards-Metal and Flexible, 1985 edition and radius of not less than 1-1/2 times width of duct on centerline. Where mitered round elbows are used or indicated, provide single wall air foil turning vanes.

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### **3. EXECUTION**

#### **3.1 GENERAL**

- A. Unless otherwise noted, all ductwork to be constructed from galvanized steel.
- B. Install in accordance with manufacturer's instructions; SMACNA HVAC Duct Connection Standards-Metal and Flexible, latest edition, and International Mechanical Code Requirements.
- C. Seal ducts in accordance with SMACNA HVAC Duct Construction Standards-Metal and Flexible, latest edition.
- D. Duct sizes are inside clear dimensions. For lined ducts, maintain sizes inside lining.
- E. Provide openings in ductwork where required to accommodate temperature sensors and controllers.
- F. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
- G. Use double nuts and lock washers on threaded rod supports.
- H. Vertical ducts shall be supported at each floor.
- I. Cover all exposed fiberglass insulation with duct tape.
- J. During construction provide temporary closures of metal or tape polyethylene on open ductwork to prevent construction dust from entering ductwork system.
- K. Connect flexible ducts to metal ducts with nylon bands.
- L. Duct transition from round to rectangular and vice versa shall be made with rectangular to round duct transition fitting.
- M. Provide flange-type joint at transverse joints or seal as specified. All transverse joints shall be inspected by the owner representative prior to insulating ductwork.
- N. Air terminal take-offs from rectangular main ducts shall be lo-loss 45°F take-offs or as shown on the drawings, extractors are not allowed.
- O. Diffusers and register take-offs from rectangular duct mains shall be lo-loss 45° fittings, with integral balancing damper that is provided with stand-off bracket and quadrant lock or as shown on the drawings. Extractors are not allowed.

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- P. Exhaust grille/register branch duct connections to rectangular mains shall be lo-loss 45° entry fittings with integral balancing damper.

### 3.2 INSTALLATION OF 2" AND GREATER PRESSURE CLASS DUCTWORK (POSITIVE OR NEGATIVE PRESSURE)

- A. All round duct elbows installed shall be die-formed, gored, pleated or mitered. Minimum bend radius of die-formed, gored or pleated elbows shall be 1.5 times the duct diameter
- B. All mitered elbows shall be equipped with single width turning vanes.
- C. On round ducts, provide 45 deg lo-loss wye tee or saddle take-offs as indicated on plans. Straight taps are not acceptable unless specifically noted as acceptable.
- D. All diverging flow fittings shall be constructed such that no excess material projects from the body into the branch tap entrance.

### 3.3 INSTALLATION OF 1" AND LESS PRESSURE CLASS DUCTWORK (POSITIVE OR NEGATIVE PRESSURE)

- A. All round duct elbows installed shall be of the adjustable, die-formed, gored, pleated or mitered type. All adjustable elbows shall be sealed after installation.
- B. All mitered elbows shall be equipped with turning single width vanes.
- C. Provide round duct of the longitudinal lockseam type. Seams and joints shall be sealed after installation.
- D. Connect ceiling diffusers to low pressure ducts with adjustable elbow at duct and short length of flexible duct held in place with nylon strap. Do not use flexible duct to change direction unless flex-flow elbow fitting is provided. The flexible duct shall be limited to 36" with hard bend elbow and 60" with a flex-flow elbow.

### 3.4 INSTALLATION OF EXPOSED DUCTWORK

- A. Protect ducts exposed in finished spaces from being dented, scratched, or damaged.
- B. Trim duct sealants flush with metal. Create a smooth and uniform exposed bead. Do not use two-part tape sealing system.
- C. Grind welds to provide smooth surface free of burrs, sharp edges, and weld splatter. When welding stainless steel with a No. 3 or 4 finish, grind the welds flush, polish the exposed welds, and treat the welds to remove discoloration caused by welding.
- D. Maintain consistency, symmetry, and uniformity in the arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.

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- E. Repair or replace damaged sections and finished work that does not comply with these requirements.

### 3.5 CLEANING

- A. Roof Top Units shall not be used temporary building conditioning without the written permission from the owner and the mechanical engineer. Open ductwork that has been installed shall be protected during the duration of the project with polyethylene plastic and duct tape over the open ends. Uninstalled ductwork shall be protected from construction dust by coving the uninstalled ductwork with polyethylene plastic. Prior to installing ductwork the inside of the ductwork shall be wiped down or vacuumed.
- B. If visible contaminants are evident through visual inspection, those portions of the system where contaminants are visible shall be cleaned to the Owner's satisfaction.

### 3.6 FILTER REPLACEMENT

- A. All air filters shall be replaced with new prior to balancing but not until the distribution system is cleaned.

### 3.7 SCHEDULES

#### A. DUCTWORK PRESSURE CLASS SCHEDULE

1	2	3	4	5	6	7	8
Duct System	Material	Longitudinal Joints	Transverse Joints	Pressure Class	Sealant Class	Leakage	Additional Notes
<b>Roof Tops</b>							
Rectangular SA duct downstream of RTUs	Galv. Steel	3A or 3D	4D	+2"	A or E		8B
		3A or 3D	4A	+2"			
Round SA duct downstream of RTUs	Galv. Steel	3B, 3E	4B	+2"	C or B		8B
			4B	+2"			
Rectangular RA duct upstream of RTUs	Galv. Steel	3A or 3D	4D	-2"	A or E		8B
		3A or 3D	4A	-2"			
<b>Exhaust Ducts</b>							
Rectangular EA duct upstream of Fans	Galv. Steel	3A or 3D	4D	-2"	A or E		8B
		3A or 3D	4A	-2"			
Round EA duct upstream of Fans	Galv. Steel	3B or 3E	4B	-2"	C or B		8B
			4B	-2"			

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1. DUCTWORK SCHEDULE NOTES:

- 3A: Pittsburg lock. Refer to 2006 SMACNA.
- 3B: Spiral lockseam.
- 3C: Snaplock
- 3D: Button punch snap lock. Refer to Figure 1-5, 2006 SMACNA
- 3E: Welded
  
- 4A: Ductmate '25' or '35' or TDC.
- 4B: 0-24" major axis diameter: Interior slip coupling with crimp end fastened to duct with sealing compound applied continuously around joint before assembling and after fastening. 26" major axis diameter and up: Spiralmate flanged duct connection system.
- 4C: 10" and large round ducts Ductmate Spiralmate, smaller than 10" diameter ducts Ductmate Quick Sleeve or Sheet Metal connectors E-Z Flange Jr. with Barrel Clamp, field cut set.
  
- 4D: Duct with the larger dimension less than 24"-any standard transverse joint as shown in 2006 SMACNA is acceptable.
- 4E: Welded

6: Seal class is defined by the following table

<u>Seal Class</u>	<u>Sealing Required</u>
A	All transverse joints, longitudinal seams, and ductwork penetrations. Pressure sensitive tape shall not be used as a primary sealant on metal ducts.
B	All transverse joints and longitudinal seams. Pressure sensitive tape shall not be used as a primary sealant on metal ducts.
C	Transverse joints only.
D	Longitudinal Joint Only (transverse joints are to be gasketed)
E	Longitudinal Joint Only (transverse joints are to be gasketed), and ductwork penetrations.

- 7: "Leakage" refers to allowable leakage class as defined by SMACNA 2006 HVAC Air Duct L Test Manual
  
- 8A: Field/Shop weld quarter round wall sleeve to match profile of L-5, Weld with filler rod of similar material as the metal that is being welded. Coat welded joint with protective cold galvanized paint to prevent corrosion of welded and surrounding galvanized surfaces.
- 8B: Refer to specification section 230500 for location where exposed ductwork will be painted. Coordinate painting of ductwork with the general contractor.
- 8C: Field welded ductwork is to be welded with filler rod similar metal as being welded.

END OF SECTION 23 31 13

DUCTWORK

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## **SECTION 23 34 23 - POWER VENTILATORS**

### **1. GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Roof exhausters

#### **1.2 REFERENCES**

- A. See Section 23 05 00 REFERENCES
- B. ACGIH - Industrial Ventilation, A Manual of Recommended Practice.
- C. NFPA 664

#### **1.3 SUBMITTALS**

- A. See Section 23 05 00.
- B. Product Data: Provide data on fans and accessories including fan curves with specified operating point clearly plotted, sound power levels at rated capacity, and electrical characteristics and connection requirements.
- C. Manufacturer's Installation Instructions.

#### **1.4 OPERATION AND MAINTENANCE DATA**

- A. See Section 23 05 00.

### **2. PRODUCTS**

#### **2.1 DOWNBLAST CENTRIFUGAL ROOF EXHAUSTERS**

- A. Product Requirements:
  - 1. Performance Ratings: Conform to AMCA 210 and bear the AMCA Certified Rating Seal.
  - 2. Sound Ratings: AMCA 301, tested to AMCA 300, and bear AMCA Certified Sound Rating Seal.

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- B. **Direct Drive Downblast:** Spun aluminum exhaust fans shall be direct drive type. The fan wheel shall be centrifugal backward inclined, constructed of aluminum and shall include a wheel cone carefully matched to the inlet cone for precise running tolerances. Wheels shall be statically and dynamically balanced. The fan housing shall be constructed of heavy gauge aluminum with a rigid internal support structure and a birdscreen. Motors shall be mounted out of the airstream on vibration isolators. Fresh air for motor cooling shall be drawn into the motor compartment through a large space between the fan shroud and the motor cover. Motors shall be readily accessible for maintenance. A disconnect switch shall be factory installed and wired from the fan motor to a junction box within the motor compartment. A conduit chase shall be provided through the curb cap to the motor compartment for ease of electrical wiring. All fans shall bear the AMCA Certified Ratings Seal for sound and air performance. Each fan shall bear a permanently affixed manufacturer's engraved metal nameplate containing the model number and individual serial number for future identification.
- C. **Roof Curb:** 18 inch high self flashing of galvanized steel with continuously welded seams, one inch insulation and factory installed nailer strip and curb seal.
- D. **Electrical Characteristics and Components** as scheduled.
  - 1. **Motor:** Refer to Section 23 05 13. Thermal overload, NEMA 1 toggle mounted and wired disconnect switch, ball bearing motors and drive shall be isolated on shock mounts.
  - 2. **Wiring Terminations:** Provide terminal lugs to match branch circuit conductor quantities, sizes, and materials indicated. Enclose terminal lugs in terminal box sized to NFPA 70.
  - 3. **Disconnect Switch:** Factory wired, non-fusible.
- E. **Backdraft Damper:** motorized type, aluminum multiple blade construction, blade and jamb seals, nylon bearings.
- F. UL/cUL 705 rated.
- G. Refer to exhaust fan schedule for required accessories and performance criteria.

### **3. EXECUTION**

#### **3.1 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Install power ventilators level and plumb.
- C. Secure roof-mounted fans to roof curbs with cadmium-plated hardware.
- D. Install units with clearances for service and maintenance.

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**E. The air handling units, exhaust fans, and other HVAC airside equipment shall not be used for temporary building conditioning without the written permission from the Owner and Architect/Engineer.**

1. If unit is approved for operation prior to substantial completion, contractor is fully responsible for all preventative maintenance. Preventative maintenance to be completed per all manufacturer recommendations. In addition, contractor is fully responsible for all cleaning of the systems to the satisfaction of the Owner and Architect/Engineer.

**3.2 CONNECTIONS**

- A. Duct installation and connection requirements are specified in other Division 23 Sections. Drawings indicate general arrangement of ducts and duct accessories. Make final duct connections with flexible connectors. Flexible connectors are specified in Division 23 Section "Air Duct Accessories."
- B. Install ducts adjacent to power ventilators to allow service and maintenance.
- C. Ground equipment according to Division 26 sections.

**3.3 FIELD QUALITY CONTROL**

- A. Tests and Inspections:
  1. Verify that shipping, blocking, and bracing are removed.
  2. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.
  3. Verify that cleaning and adjusting are complete.
  4. Disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.
  5. Adjust belt tension.
  6. Adjust damper linkages for proper damper operation.
  7. Verify lubrication for bearings and other moving parts.
  8. Verify that manual and automatic volume control and fire and smoke dampers in connected ductwork systems are in fully open position.
  9. Disable automatic temperature-control operators, energize motor and adjust fan to indicated rpm, and measure and record motor voltage and amperage.
  10. Shut unit down and reconnect automatic temperature-control operators.
  11. Remove and replace malfunctioning units and retest as specified above.
- B. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Prepare test and inspection reports.

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### 3.4 ADJUSTING

- A. Adjust damper linkages for proper damper operation.
- B. Adjust belt tension.
- C. Replace fan and motor pulleys as required to achieve design airflow.
- D. Lubricate bearings.

END OF SECTION 23 34 23

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## **SECTION 23 37 00 – AIR OUTLET AND INLETS**

### **1. GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Diffusers.
- B. Registers/grilles.

#### **1.2 REFERENCES**

- A. See Section 23 05 00.

#### **1.3 SUBMITTALS**

- A. See Section 23 05 00.

#### **1.4 PROJECT RECORD DOCUMENTS**

- A. See Section 23 05 00.

#### **1.5 QUALITY ASSURANCE**

- A. Test and rate air outlet and inlet performance in accordance with ADC Equipment Test Code 1062 and ASHRAE 70.
- B. Test and rate louver performance in accordance with AMCA 500.

#### **1.6 QUALIFICATIONS**

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five (5) years documented experience.

### **2. PRODUCTS**

#### **2.1 CEILING DIFFUSERS**

- A. General: Except as otherwise indicated, provide manufacturer's standard ceiling air diffusers where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation.

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- B. **Performance:** Provide ceiling air diffusers that have, as minimum, temperature and velocity traverses, throw and drop, and noise criteria ratings for each size device as listed in manufacturer's current data.
- C. **Ceiling Compatibility:** Provide diffusers with border styles that are compatible with adjacent ceiling systems, and that are specifically manufactured to fit into ceiling module with accurate fit and adequate support. Refer to general construction drawings and specifications for types of ceiling systems which will contain each type of ceiling air diffuser.
- D. **Types:** Provide ceiling diffusers of type, capacity, and with accessories and finishes as listed on diffuser schedule.

## 2.2 WALL REGISTERS AND GRILLES

- A. **General:** Except as otherwise indicated, provide manufacturer's standard wall registers and grilles where shown; of size, shape, capacity and type indicated; constructed of materials and components as indicated, and as required for complete installation.
- B. **Performance:** Provide wall registers and grilles that have, as minimum, temperature and velocity traverses, throw and drop, and noise criteria ratings for each size device and listed in manufacturer's current data.
- C. **Wall Compatibility:** Provide registers and grilles with border styles that are compatible with adjacent wall systems, and that are specifically manufactured to fit into wall construction with accurate fit and adequate support. Refer to general construction drawings and specifications for types of wall construction which will contain each type of wall register and grille.
- D. **Types:** Provide wall registers and grilles of type, capacity, and with accessories and finishes as listed on register and grille schedule.

## 3. EXECUTION

### 3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement.
- C. Install diffusers to ductwork with adjustable elbow and flex duct or with flexible duct using a flex flow duct fitting. All connections shall be air tight.
- D. Provide balancing dampers on duct take-off to supply air diffusers, exhaust grilles, and supply air/return air/exhaust registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly unless the register or grille is directly mounted on an exposed duct main.

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- E. Paint ductwork visible behind air outlets and inlets matte black.

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## **SECTION 26 00 00 - ELECTRICAL WORK**

### **1. GENERAL**

#### **1.1 RELATED DOCUMENTS**

- A. The General Conditions and Supplementary Conditions are applicable to all contracts for the project.

#### **1.2 DESCRIPTION OF WORK**

- A. The work included under this Section consists of providing all work, supervision, and construction procedures necessary for the installation of the complete electrical systems required by these specifications and/or shown on the drawings of the contract.
- B. Install and connect all appliances and equipment as specified and indicated for this project, in accordance with the manufacturer's instructions and recommendations. Furnish and install complete electric connections and devices as recommended by the manufacturer or required for proper operation.

#### **1.3 ACCESS TO EQUIPMENT**

- A. Starters, switches, receptacles, pull boxes, etc., shall be located to provide for easy access for operations, repair and maintenance; if concealed, access doors shall be provided.

### **2. SHOP DRAWINGS**

2.1 The Contractor shall furnish shop drawing portfolios and proper transmittal forms for all materials, equipment, and lighting fixtures to be incorporated in the work, in accordance with the General Conditions, Supplementary Conditions, and all other applicable Conditions.

2.2 Shop drawings on component items forming a system or that are interrelated shall be submitted at one time as a single submittal in order to demonstrate that the items have been properly coordinated and will function properly as a system. A notation shall be made on each shop drawing submitted as to the items specific use, either by a particular type number referenced on the drawings or in the specifications, or by a reference to the applicable paragraph of the specifications or by a description of its specific location. The shop drawings shall be organized and bound into sets with each set collated.

2.3 The Architect/Engineer shall have the final authority as to whether the fixture is equal to the specified item. The proposed substitution may also be rejected for the aesthetic value if felt necessary or desirable. In the event the proposed substitutions described are rejected, the Contractor shall furnish the specified item.

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### **3. CODES AND STANDARDS**

- 3.1 The electrical work shall be in accordance with all applicable state and local codes, building ordinances and the N.E.C. The electrical work shall merit the approval of the state and local enforcing authorities.

### **4. PERMITS AND FEES**

- 4.1 The Contractor shall pay for all permits and/or fees required for the work.

### **5. MATERIALS AND WORKMANSHIP**

- 5.1 All materials shall be new and of the quality specified. Materials shall be standard products of manufacturer's regularly engaged in the production of such equipment and shall be the manufacturer's latest standard design. Electrical material and equipment used in the work shall meet the requirements as specified under paragraph three of this section, CODES AND STANDARDS.

- 5.2 All work installed under this Division of the Specifications shall be first class and complete in both effectiveness and appearance, whether finally concealed or exposed, and shall be executed by experienced mechanics.

### **6. INSTALLATION METHODS**

- 6.1 Conductors shall be installed in concealed raceways except as shown or specified on the Contract Documents. Exposed conduits and wires shall be installed parallel or perpendicular to all building surfaces. Conduits and wires in the space above ceilings shall be supported adequately and not laid on the top of ceiling systems. All conduits and wires installed above ceilings shall be considered exposed.

- 6.2 Electrical conduits shall not be hung on hangers with any other service foreign to the electrical systems, nor shall they be attached to other foreign services.

- 6.3 The lighting and power branch circuit conductors shall be installed in separate raceway systems unless specifically shown or noted otherwise.

- 6.4 Equipment Bases. Provide concrete equipment bases for all floor mounted equipment furnished under the contract. Concrete bases shall be 3-1/2" high unless noted otherwise and shall extend 3-inches on all sides of the unit. Trowel all edges at a 45 degree angle. This work shall be done under Division 3 of the specifications. Bases shall be provided for switchboards, motor control centers, transformers and all other floor mounted equipment.

- 6.5 Outlet Box Locations. Outlet boxes shall be located so they are not placed back-to-back in the same wall in order to limit sound transmission from room to room.

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## 6.6 PROTECTION FROM WEATHER

- A. Raceway stub ups shall be capped or otherwise protected from moisture and debris until such time that the conductors are pulled. Conductors shall not be installed in raceways until the building is protected from the weather, all concrete and plastering is completed and raceways in which moisture has collected have been swabbed or blown out.

## 6.7 ELECTRICAL ROOM COORDINATION

- A. Where a number of electrical panels and/or related electrical items are shown, the Electrical Contractor shall coordinate the physical sizes with his equipment suppliers to ensure that there is adequate space for the items shown to be installed in those areas and that all Code required clearances are maintained.
- B. The Contractor shall rearrange the equipment layout to achieve full use of the available space prior to installing conduit stub ups. Where a conflict or rearrangement exists, the Contractor shall submit a proposed revised layout of the area to the Architect.

## 6.8 WIRING - NUMBER OF WIRES REQUIRED

- A. The number of wires for lighting and receptacle branch circuits is not shown on the drawings. The number of wires in any circuit shall be determined in accordance with the National Electrical Code, and wiring shall be provided to perform all functions of the devices being installed. Additionally, wires shall be provided as required by the contract documents, i.e. equipment grounds, etc. Provide the number of wires required for a complete and workable system.

## 6.9 PAINTING, FINISHING

- A. Painting of electrical work exposed in occupied spaces, except mechanical and electrical machine rooms and maintenance/service spaces; and work exposed on the exterior is specified and performed under other divisions of these specifications.
- B. Factory finishes, shop priming, and special protective coatings are specified in the individual equipment specification sections.
- C. Where factory finishes are provided on equipment and no additional field painting is specified, all marred or damaged surfaces shall be touched up or refinished so as to leave a smooth, uniform finish at the time of final inspection.

## 6.10 SLEEVES

- A. Sleeves shall be used to accommodate conduit or tubing where conduit or tubing passes through concrete walls or slabs.

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- B. All sleeves through floors and walls shall be black iron pipe, flush with walls or finished floors; and of sizes to accommodate the raceways shown. Sleeves through outside walls above grade shall be caulked with approved caulking compound. Sleeves shall not be required through on grade slabs.
- C. Install manufactured floor and thruwall seals, similar to Type "FSK" as manufactured by O.Z. Electric Manufacturing Company.

#### 6.11 CABLE AND CONDUIT SEALS

- A. Seals shall be provided around conduits and cables which penetrate smoke walls, fire walls, and floors. Nelson Flameseal system shall be used to seal penetrations of electrical cables and conduits.
- B. Materials used shall be as follows:
  - 1. Flameseal putty.
  - 2. Ceramic fiber insulation.
  - 3. Ceramic fiber board shall be required to provide rigid support on large oversized openings. Board shall be rigid and able to withstand temperatures in excess of 2000 degrees F.
  - 4. Accessory hardware shall be required on oversized openings.
- C. Follow manufacturer's instructions in selecting the type of seals and accessories. Also follow the manufacturers instructions on installation of the cable and conduit seals.
- D. Equal quality equipment by OZ Gedney and 3M shall be acceptable.

#### 6.12 ACCESS PANELS

- A. Furnish and install panels for access to junction boxes and similar items where no other means of access, such as a readily removable, sectional ceiling is shown or specified.
- B. Panels shall not be less than 12-inches by 16-inches in size. Larger panels shall be furnished where required. Panels in tile or other similar patterned ceilings shall have dimensions corresponding to the tile or pattern module.
- C. Access panels shall be flush type and of all steel construction, with No. 16 gauge wall or ceiling frame for masonry or plaster and a No. 14 gauge panel door. Doors shall be secured with concealed hinges and flush locks of either the cylinder type or approved, positive acting, screwdriver operated type. Doors for wall panels may be secured with suitable clips and countersunk screws. Panels shall be painted with a rust-inhibitive primer at the factory.

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## **7. WORK IN EXISTING BUILDING**

- 7.1 Where drawings indicate work to be done in the existing building, the Contractor shall carefully examine such areas to determine the nature and extent of work involved before submitting his bid. The Contractor shall be responsible for all damage to existing items and utilities due to the progress of his work, and shall repair all such items or replace same to an approved condition at his own expense.

## **8. REMOVAL WORK**

- 8.1 All existing devices shown with cross-hatching and/or so noted shall be removed, relocated, remain or shall be abandoned as noted on the drawings.
- A. Devices shall be completely removed from walls that are also shown to be removed. Devices shown to be removed on drywall or plaster type walls that are to remain shall have the wall surface patched to match the existing. Flush type devices shown to be removed on concrete or brick type walls that are to remain shall have the device removed and shall be provided with a blank cover plate.
- B. Conduits shall be completely removed from walls that are also shown to be removed. Conduits may be abandoned in walls that are to remain. All conduits and boxes that are surface mounted and no longer require active circuits shall be removed.
- C. The conductors for the devices shown to be removed shall be disconnected and removed back to the panel or back to the next device shown to remain as required by the actual existing circuiting. Continuity of circuiting shall be maintained for the existing devices shown to remain. Circuiting shall be extended from new or existing circuits as shown or as required.
- D. See the Architectural Drawings for wall removal and types.

## **9. EXISTING MATERIAL**

- 9.1 Refer to the Supplementary Conditions Section of this specification for the disposition of all salvageable material.

## **10. ELECTRICAL-MECHANICAL EXTENT OF WORK**

- 10.1 The responsibility of work specified under Division 15 and 16 is clarified under Section 15030, Electrical Requirements for Mechanical Equipment. Said Section 15030 is incorporated herein by reference.

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## 11. CUTTING AND PATCHING

- 11.1 The Contractor shall be responsible for all cutting and patching of holes in the building which are required for the electrical work. Cutting, patching and painting shall conform to the requirements of the General Conditions of this specification.
- 11.2 Cutting of structural framing, walls, floors, decks and other members intended to withstand stress is not permitted.
- 11.3 All patching shall be finished and painted to match existing.

## 12. COORDINATION

- 12.1 Coordinate the locations and purchasing of equipment between other trades to ensure proper interfacement and placement of equipment requiring electrical power.
- 12.2 Coordinate other work of the different trades so that:
- A. Interference's between mechanical, electrical, architectural, and structural work, including existing services, is avoided.
  - B. Within the limits indicated on the drawings, the maximum practicable space for operation, repair, removal and testing of electrical, and other equipment will be provided.
  - C. Pipe, conduits, ducts, and similar items, shall be kept as close as possible to ceilings, walls, columns, to take up a minimum amount of space. Pipes, conduits, ducts, and similar items shall be located so that they will not interfere with the intended use of other equipment.

## 13. OUTLET BOXES, PULL BOXES AND CONDUIT FITTINGS

- 13.1 Furnish and install outlet boxes, pull boxes, and conduit fittings as described below. Catalog numbers shown are Appleton Electric Company. Equal materials by Steel City, O.Z., and Raco, are acceptable.
- 13.2 OUTLET BOXES
- A. Lighting Boxes (concealed) - No. 40-3/4
  - B. Lighting Boxes (concrete) - OCR Series
  - C. Lighting Boxes (exposed) - 4S-3/4 or 40-3/4

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- D. Flush Switches, Receptacles - Telephone and Flush Junction Boxes cannot Plaster Ring as required) No. 4S-3/4 (with box covers or No. 225) where extension or plaster ring be used. (Provide Extension Ring or
  - E. Weatherproof type Switch, Receptacle and Telephone Boxes (exposed) FS Series w/FS cover and neoprene gasket.
  - F. Switch, Receptacle and Telephone-Boxes (exposed) 4S-3/4 with 8360 or 8370 Series raised surface cover.
- 13.3 Where space is limited, No. 4CS-3/4 handy boxes may be used for switch, receptacle and telephone outlets with specific approval only.
- 13.4 Extension and plaster rings shall be installed as required by the NEC.
- 13.5 Outlet boxes shall comply with the National Electrical Code in regard to the allowable fill.
- 13.6 PULL BOXES
- A. Pull boxes shall be fabricated of code gauge galvanized sheet metal and shall be sized in accordance with National Electrical Code requirements, or as shown on the drawings. Provide removable cover on the largest access side of the box. In-line conduit pull boxes may be O.Z., Type PBW, or equal.

#### 14. RACEWAYS AND FITTINGS

- 14.1 Steel Conduit. Rigid steel conduit, intermediate conduit and electric metallic tubing shall be hot dipped, galvanized as manufactured by Youngston Sheet and Tube Company, National Electric or equal.
- 14.2 Raceways shall be installed concealed. Wiremold shall be used only after Owner's approval. Wiremold shall be painted to match walls, or in accordance with the Architects' direction.
- 14.3 Joints. All threaded joints shall be made up wrench-tight and rain-tight. Compression joints shall be made up mechanically secure and snug so as to take continuous current-carrying electrical contacts.
- 14.4 Provide marking of conduit and junction boxes to indicate which distribution system they are serving. Concealed junction boxes shall be legibly marked with a magic marker to indicate the panel and circuit number that junction box serves.

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## **15. CONDUCTORS**

- 15.1 All conductors shall be 600 volt and shall be copper with THW or THHN insulation. No wire shall be smaller than No. 12.
- 15.2 All wires shall be installed in conduit.
- 15.3 Conductors shall be continuous from outlet to outlet and no splices shall be made except within outlet or junction boxes. Junction boxes may be used where required.

## **16. GROUNDING**

- 16.1 Green ground conductor shall be installed in each conduit.
- 16.2 Grounding and bonding of electrical circuit and equipment shall be accomplished as set forth in the NEC.
- 16.3 Ground HVAC ductwork and equipment to the C.O. equipment ground. (Not C.O. ground window). Use No. 6 insulated conductor.

## **17. SAFETY SWITCHES**

- 17.1 Furnish and install heavy duty type safety switches having the electrical characteristics, ratings and modifications shown on the drawings. All switches shall have:
  - A. NEMA 1 general purpose (indoor) enclosures unless otherwise noted;
  - B. Handle that is padlockable in "OFF" position;
  - C. Non-teasible, positive quick-make, quick-break mechanism;
  - D. UL approved and shall bear the UL label;
  - E. All fusible switches shall have Class R fuse rejection clips.

## **18. MOTOR STARTERS**

- 18.1 Provide magnetic starters for three phase motors. Motor starters for equipment rated less than 50 H.P. shall be full voltage non-reversing across the line magnetic type rated in accordance with NEMA standard sizes and horsepower ratings. Minimum size magnetic starter shall not be less than NEMA size one.

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- 18.2 Motors for equipment rated with 50 H.P. or larger shall be operated by reduced voltage starters. Reduced voltage starters shall be of the star delta type with closed transition.
- 18.3 Motor starters shall be furnished with the following options:
- A. Hand-Off-Auto selector switch unless otherwise noted. An On-Off selector switch or push button station shall be provided where required.
  - B. Contacts: 2 normally open. 2  
normally closed.
  - C. Control transformer; primary and secondary fuses.
  - D. Red running light with push to test.
  - E. On delay relay; adjustable 0-30 seconds.

## 19. MANUFACTURERS

- 19.1 Panelboards, safety switches, motor controllers, and lock-out pushbuttons manufactured by Westinghouse, Square D, ITE, Gould, or General Electric are acceptable. All major components shall be of the same manufacturer.

## 20. LIGHT FIXTURES

- 20.1 Furnish and install all light fixtures as shown on the drawings.
- 20.2 All lighting fixtures and their electrical components shall bear the UL label.
- 20.3 Standard plaster frames shall be provided for all recessed lighting fixtures installed in plaster or drywall finished walls or ceilings. Coordinate with architectural drawings.
- 20.4 All recessed fluorescent fixture lenses shall be prismatic panel clear acrylic KSH-12 for 2' x 4' fixtures; minimum 1/8" thick.
- 20.5 Undercabinet and undercounter light fixtures shall be installed with 3/8" deep x 2" x 4" wood spacers painted black to provide an air space between fixture and top of millwork.

## 21. WIRING DEVICES

- 21.1 All wiring devices shall be suitable for intended purpose and shall be UL listed.

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- A. All outlets shall be located as shown on the drawings except that where practicable, outlets shall be located in center of panels or trim or otherwise symmetrically located to conform with existing structural layout. Outlets incorrectly installed shall be corrected. Damaged items or damaged finishes shall be repaired or replaced at no expense to the Owner.
- B. Outlets shall be set plumb or horizontal and shall extend to the finished surface of the walls, ceiling or floor, as the case may be, without projecting beyond same.
- C. Receptacles, switches, etc., shown on wood trim, cases or other fixtures shall be installed symmetrically; and, where necessary, shall be set with the long dimensions of the plate horizontal, or ganged in tandem.
- D. Where dimmer switches are shown adjacent to standard switches, both shall be installed in separate back boxes with adequate space between so that neither coverplate requires cutting.
- E. Where devices are shown near wall openings, coordinate location if corner guards are to be installed so that coverplates do not require cutting.
- F. Where shown on the drawings, furnish and install wiring devices indicated by the symbols. Wiring devices shall be products of Pass & Seymour, or equal. Catalog numbers shown below are Pass & Seymour hard use specification grade. Equal devices manufactured by Hubbell, Leviton, or General Electric shall be acceptable.
- G. Switches. Branch circuit switches shall be flush tumbler (rocker) type as follows:
- |                           |                          |
|---------------------------|--------------------------|
| Single Pole               | 20AC1 Series - Gray      |
| Single Pole SW With Pilot | 20-AC1-RPL Series – Gray |
- H. Occupancy Sensors/Switches
1. Wall Mounted Line Voltage Dual Technology Occupancy Sensing Switches (1-button):  
Watt Stopper type DW-100-G-120/277–Gray with time delay set at 15 minutes.
  2. Ceiling Mounted Line Voltage Dual Technology Occupancy Sensing Switches: Watt Stopper type DT-300 – White with time delay set at 15 minutes with a Watt Stopper UNV power pack. Mount power pack above the accessible ceiling or in wall behind sensor. Provide all necessary wiring between power pack and occupancy sensor.
- I. Receptacles. All receptacles shall be side and back wired, self-grounding of the type indicated as follows:
- |  |   |
|--|---|
| Duplex Convenience Receptacles<br>20A-125V (Grounding Type)  | 26352 Series - Gray                                 |
| Weatherproof Duplex Receptacles<br>15A-125V (Grounding Type) | 26352 Series - Gray with<br>Weatherproof F.S. Plate |

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Weatherproof Duplex GFI  
Receptacle 20A-125 Volt

2091-F with 4511 (horizontal) or 4512  
(vertical) weatherproof wall plate

Plates.

Furnish and install wall plates for all wiring devices. Plates for flush devices shall be Sierra Smooth 430S/S line satin finished stainless steel (or Pass and Seymour "RP" Series high impact thermoplastic, and shall be gray in color). Oversize plates are not acceptable. Weatherproof switch plates shall be Crouse-Hinds DS185 type. Where switches and/or receptacles are shown adjacent to each other, provide a common cover plate for each group of devices.

## 22. MOUNTING HEIGHTS

22.1 Mounting heights to center of box and above finished floor for the below-named items shall be as follows, unless otherwise shown. All other device mounting heights shall be as shown on the drawings.

A.	Flush tumbler switches	48"
B.	Switches in concrete block	46"
C.	Switches over wainscot	6" above 48" wainscot
D.	Convenience outlets	18" mounted vertically with ground prong slot at bottom
E.	Safety switches	54"
F.	Motor controllers	54"
G.	Panelboards to top	72"
H.	Telephone outlets	18"
I.	Telephone outlets (pay and wall type)	44"
J.	Bracket lights (120 volt)	84"
K.	Clock outlets 8' ceiling	84"
	9' ceiling	96"

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L.	Receptacles above counters	6" above counters mounted (horizontally)-(vertically)
M.	Convenience outlets in mechanical, electrical, janitor, and elevator machine rooms	48"
N.	Telephone panels	72" to top
O.	Exterior W.P. convenience outlets	24" above grade mounted (horizontally)- (vertically)
P.	Capacitors furnished by Mechanical	36" minimum
Q.	Lock-out push button	36" minimum
R.	Fire alarm pull station	48"
S.	Fire alarm horn, bell, chime or light	84"

22.2 Contractor shall check all equipment layouts and verify exact mounting heights.

### 23. NAMEPLATES

23.1 Nameplates shall be provided for all items such as panelboards, cabinets, motor controllers (starters), safety switches, separately enclosed circuit breakers, individual breakers and controllers in switchboards and motor control centers, control devices and other significant equipment.

- A. Nameplates shall be 1" x 2-1/2" laminated black phenolic resin with a white core with engraved lettering, a minimum of 3/16-inch high. Manufacturers factory installed nameplates shall be acceptable provided all information is furnished.
- B. Nameplates shall identify the equipment item that the device is serving and also from where the device is being fed from.

### 24. PROTECTION

24.1 Protection of existing equipment and facilities shall be provided and coordinated with the Owner.

### 25. OUTAGES

25.1 All outages shall be scheduled and approved by the Owner. Contractor shall submit in writing a document indicating the times of day and duration of all electrical outages.

TCEP No.: 115-001-17

**26. ASBESTOS**

26.1 If asbestos is encountered or suspected during the course of work, stop all work and notify the Architect/Engineer immediately.

**27. AS-BUILT DRAWINGS**

27.1 Contractor shall provide the Owner as-built drawings for all systems including electrical and special systems described in specifications. This shall consist of all drawings, wiring schematics, and diagrams for the fire alarm, telephone and data systems, as well as, any change to the systems shown on the drawings.

END OF SECTION 26 00 00

Board of Education Regular Meeting  
March 08, 2017 6:30 PM  
East Butler School - Brainard

1. Call Meeting To Order at 6:30 P.M.

2. Roll Call: Present Board Members: Jan Bostelman, Mark Janak, Megan Kozisek, Kim TePoel, Marlene Wade and Dan Zysset. Also present: Mr. Sam Stecher, Superintendent, Mr. Michael Eldridge, Secondary Principal, and Mr. Shawn Bilstoft, Elementary Principal.

3. Flag Salute

4. Approve Agenda

Motion Passed: Motion to approve the agenda as presented passed with a motion by Jan Bostelman and a second by Mark Janak.

Jan Bostelman	Yes
Mark Janak	Yes
Megan Kozisek	Yes
Kim TePoel	Yes
Marlene Wade	Yes
Dan Zysset	Yes

5. Patron's Comments - Patrons shared comments regarding the patron meeting.

6. Informational Items included: Time Card Program and Budget Update.

7. Consent Agenda

7.a. Approval of Minutes

7.b. Treasurer's Report

7.c. Approve Joni Ringdahl as a member of the East Butler Foundation Board.

7.d. Approve changes to the foundation bylaws, being the addition of "for principal" after superintendent in Article 6, Item C. and then changing Article 6, Second Sentence which will state now "...will consist of five board" (instead of six.)

7.e. Resignation of Nancy Schulz

7.f. Approve Karen Sheldon as a Paraprofessional hire

Motion Passed: Motion to approve the consent agenda as presented passed with a motion by Marlene Wade and a second by Jan Bostelman.

Jan Bostelman	Yes
Mark Janak	Yes
Megan Kozisek	Yes
Kim TePoel	Yes
Marlene Wade	Yes
Dan Zysset	Yes

## 8. Regular Agenda

### 8.a. Calendar

Motion Passed: To adopt the 5th 2017-18 calendar as presented passed with a motion by Kim TePoel and a second by Jan Bostelman.

Jan Bostelman	Yes
Mark Janak	Yes
Megan Kozisek	Yes
Kim TePoel	Yes
Marlene Wade	Yes
Dan Zysset	Yes

8.b. Further Review of Prague purchase proposals - No Action

### 8.c. Demolition Cost Estimation

A motion was made by Marlene Wade, seconded by Dan Zysset to approve Gana Construction for \$1,000.00 estimation. Kim TePoel amended the motion from: "approve Gana construction for \$1,000.00 estimation" to: "approve Gana construction for

\$1,000.00 estimation with deadline of April 12, 2017" seconded by Jan Bostelman.

Jan Bostelman	Yes
Mark Janak	Yes
Megan Kozisek	Yes
Kim TePoel	Yes
Marlene Wade	Yes
Dan Zysset	Yes

Motion Passed: To approve Gana construction for \$1,000.00 estimation with deadline of April 12, 2017 passed with a motion by Kim TePoel and a second by Jan Bostelman.

Jan Bostelman	Yes
Mark Janak	Yes
Megan Kozisek	Yes
Kim TePoel	Yes
Marlene Wade	Yes
Dan Zysset	Yes

#### 8.d. Nurse

Motion Passed: Seek applications for a nurse for 17-18 with stipulations stated passed with a motion by Kim TePoel and a second by Marlene Wade.

Jan Bostelman	Yes
Mark Janak	Yes
Megan Kozisek	Yes
Kim TePoel	Yes
Marlene Wade	Yes
Dan Zysset	Yes

#### 8.e. Mowing Bids

Motion Failed: A motion was made by Dan Zysset to approve mowing bid of Lawn Express Care. The motion failed due to the lack of a second.

Motion Passed: Approve mowing bid of Kriegler Lawn & Landscape for Brainard/Dwight \$265 & Prague \$75 passed with a motion by Marlene Wade and a second by Jan Bostelman.

Jan Bostelman	Yes
Mark Janak	Yes
Megan Kozisek	No
Kim TePoel	Yes
Marlene Wade	Yes
Dan Zysset	Yes

9. Administrative Comments

9.a. School lunch

9.b. NRCSA

10. Items for next Meeting:Principal Compensation; Full Time Substitute; Time Clock Proposal; NRCSA; Clark Enerson Update; and Estimation Cost for Prague.

11. Adjournment

Motion Passed: Motion to adjourn at 7:43 p.m. passed with a motion by Marlene Wade and a second by Jan Bostelman.

Jan Bostelman	Yes
Mark Janak	Yes
Megan Kozisek	Yes
Kim TePoel	Yes
Marlene Wade	Yes
Dan Zysset	Yes

The next meeting will be April 12, 2017 at 6:30 P.M. in the Brainard Library.

Kim Fuehrer  
Recording Secretary

BALANCES MARCH 1-31, 2017 FOR APRIL BOARD MEETING				
		March	March	MONTH END
	BEG. BALANCE	RECEIPTS	EXPENDITURE	BALANCE
<b>HOT LUNCH</b>	\$16,401.24	\$20,086.46	\$15,882.66	\$20,605.04
<b>ACTIVITIES</b>				
Academic Decathalon	\$967.50	\$500.00		\$1,467.50
Ag Projects	\$1,206.35			\$1,206.35
Annual	\$11,937.05	\$80.00		\$12,017.05
Athletic	\$11,568.26	\$7,425.94	\$13,646.08	\$5,348.12
Box Tops for Educ	\$4,445.37		\$42.20	\$4,403.17
Cheerleaders	\$1,221.80			\$1,221.80
Class 2017	\$784.57	\$520.25		\$1,304.82
Class 2018	\$1,949.40	\$1,122.00	\$550.32	\$2,521.08
Class 2019	\$1,860.07			\$1,860.07
Close Up	\$16,720.79	\$7,280.60	\$200.00	\$23,801.39
College Access Grant	\$2,409.47		\$517.34	\$1,892.13
Concessions	\$1,375.21	\$1,108.11	\$2,140.43	\$342.89
Dance Team	\$279.51			\$279.51
Drama	\$613.88			\$613.88
Drug Free Program	\$395.49			\$395.49
FBLA	\$607.74	\$10.00		\$617.74
FCCLA	\$1,564.91		\$817.32	\$747.59
FFA	\$11,274.60	\$6,414.49	\$1,594.85	\$16,094.24
FFA GREENHOUSE	\$6,479.61			\$6,479.61
Laptop Initiative	\$13,262.89	\$35.00		\$13,297.89
Letterclub	\$1,938.13			\$1,938.13
Miscellaneous	\$0.00			\$0.00
Music	\$625.54		\$15.98	\$609.56
Nat'l Honor Society	\$739.96			\$739.96
Speech	\$17.76			\$17.76
Student Council	\$412.42			\$412.42
Tiger Stripes	\$253.85		\$15.00	\$238.85
WR Spirit Leaders	\$193.11			\$193.11
<b>TOTALS</b>	<b>\$95,105.24</b>	<b>\$24,496.39</b>	<b>\$19,539.52</b>	<b>\$100,062.11</b>
<b>ACTIVITY FUND CERTIFICATE OF DEPOSIT</b>				
<b>DATE PURCHASED/NUMBER</b>	<b>NAME/AMOUNT</b>	<b>RATE</b>	<b>BALANCE</b>	<b>MATURITY</b>
9-3-91 #1013527	FFA Gilt Chain	0.15%	\$1,639.22	9/3/17
	\$800.00			

BILLS APRIL 12, 2017				
Certified Staff	\$220,822.11	Gross Salary		
Classified Staff	\$69,206.07	Gross Salary		
First Nebraska Bank	\$21,677.01	FICA (District share)		
Nebraska School Retirement	\$27,989.53	Retirement(Dist share)		
Blue Cross Blue Shield	\$44,934.92	Insurance		
Blue Cross Blue Shield	\$4,915.24	Insurance (ACA)		
SUB TOTAL OF PAYROLL	\$389,544.88			
Amazon	\$29.32	Preschool		
Amazon	\$163.19	Preschool books		
Amazon	\$1,183.11	Projector/supply		
Awarding You	\$232.50	Staff awards		
Awards & Engraving	\$12.75	School Board plates		
B J Hardware	\$194.57	Maintenance supply		
Barb Kadlec	\$203.04	Mileage		
Boystown	\$2,631.88	Feb education		
Bretford Mfg Inc	\$312.83	Computer cart timer		
Butler Co Clinic	\$300.00	Bus physicals(RH/GP)		
Butler Public Power	\$678.37	Electricity		
Canon Financial Service	\$849.00	Copiers payment		

Canon Solutions America	\$547.43	Contract	
Central Ne Rehab	\$3,612.60	Sped service	
Chapters Books & Gifts	\$23.98	Library books	
Chem Tech	\$120.54	Prague-March/April	
Columbus Telegram	\$248.62	Legals/Ads	
Consolidated Plastics	\$393.00	Mat for kitchen	
Crescent Electric	\$140.32	Electrical	
CTF Service	\$1,425.01	Fleet maintenance	
Culligan of Columbus	\$176.00	Contract/Water	
		softener service call	
Dale's Food Pride	\$154.31	PS snak/TT ice cream	
Darlene Kucera	\$13.78	Mileage	
David City Public Schoo	\$791.44	Our share insurance (SH)	
Denise Lemke	\$10.00	Gas van	
Diana Christensen	\$6.98	Reimburse sped	
Didier's Grocery	\$232.66	FCS	
EB Kitchen	\$127.20	PT Conf cookies	
EB Foundation Scholar	\$50.00	Eldridge/Zajac	
		memorial	
Electronic Sound	\$345.00	Intercom service	
ESU # 7	\$195.59	Registration/Network	
		support/Production	
ESU # 7	\$16,142.01	Sped service	

ESU # 7		\$716.88	DL network charge
Electronic Systems		\$331.00	Fire alarm inspect
First Natl Bank Omaha		\$439.16	Bd rooms/meal NRCSA
First Natl Bank Omaha		\$37.30	Interview Team meal
First Ne Bank Ins Group		\$108,151.00	School Ins package
Four Corners Hlth Dept		\$2,407.50	Feb nurse
Frontier Coop Co		\$7,850.21	gas/diesel/propane/ water softener salt
Glynlyon, Inc		\$3,000.00	Odysseyware license
Hartman Auto Repair		\$129.48	Van tire
Hermitage Art		\$79.29	Programs
Holiday Inn Express		\$299.90	Bd rooms NRCSA
Home Depot		\$526.45	Tool box
HyVee Food Store		\$115.66	Presentation/mileage
Interstate Battery		\$227.70	Thermostat batteries
JW Pepper		\$711.62	High school music
JJ & Zak		\$224.00	Books for SIP team
Jenn Nantkes		\$627.86	Vision
Jodi Chapek		\$70.07	Reimburse books
Josten's		\$178.08	Diplomas
Karen Sheldon		\$58.30	Mileage

Kathy Pelan	\$140.45	Mileage	
Kuhlman & Kratochvil	\$435.00	Processing	
Lincoln Winnelson	\$244.54	Faucet	
Lonnie Piitz	\$34.56	Mileage	
Madison Nat'l Life Ins	\$674.85	Disability insurance	
Matheson Tri Gas Inc	\$681.22	Welding supply	
Midwest Door & Hardware	\$209.78	Door closer	
Midwest Technology	\$85.59	17-18 supply	
Ne Air Filters	\$853.84	Brainard filters	
N A S B	\$3,754.00	Dues	
N C E C B V I	\$7,250.00	Tuition	
Northeast NE Telephone	\$69.44	Mar/Apr Prague	
N W E A	\$3,887.50	Web based MAP	
Nicholcon & Assoc	\$237.50	Drug tests	
Northside Inc	\$37.20	Propane for grill out	
Oliva Audio Visual	\$258.25	Computer repair	
Omaha World Herald	\$58.59	Sub for library	
Omaha World Herald	\$701.00	Teacher ad	
Otis Elevator	\$228.12	Service Apr to June	
Quill Corp	\$35.86	17-18 supply	
Rehmer Auto Parts	\$25.08	Maintenance	
Sandy Bongers	\$47.70	Mileage	

Schmitt Music	\$23.00	Flute repair		
School Spec Supply	\$397.68	17-18 supply/SPED supply		
Seward Co Independent	\$529.90	Ads		
Star Digital Print	\$267.92	Stationery		
Supply Works	\$1,229.85	Janitor supply		
Taylor Pollock	\$58.58	Reimburse faucet		
US Postal Service	\$1,179.40	Stamped envelopes		
USA Clean	\$164.12	Auto scrubber parts		
Verizon Wirless	\$37.57	Cell		
Village of Brainard	\$8,463.83	Utilities		
Village of Prague	\$753.52	Utilities		
Wage Works	\$120.00	Fee		
Wahoo Newspaper	\$123.25	Legals		
Walmart Community	\$316.27	Acad pep rally/Sped supply/Music supply		
Waste Connections	\$642.56	Garbage		
Windstream Ne Inc	\$1,809.47	2081/2092/2445/ internet		
SUB TOTAL OF BILLS	\$193,795.48			
GRAND TOTAL P/R & BILLS	\$583,340.36		xx	

GENERAL FUND COMPARISON AND UPDATE				
	15 RECEIPTS	16 RECEIPTS	15 EXPENDITURES	16 EXPENDITURES
SEPT .08	\$932,822.86	\$1,064,102.77	\$439,762.27	\$480,291.69
OCT .17	\$341,746.44	\$370,575.84	\$474,535.51	\$478,948.70
NOV .25	\$91,117.33	\$83,201.62	\$447,160.16	\$495,580.14
DEC .33	\$106,846.12	\$88,068.56	\$598,142.86	\$449,070.08
JAN .42	\$1,069,972.38	\$952,272.11	\$438,621.24	\$488,179.42
FEB .50	\$509,384.05	\$496,280.39	\$428,145.57	\$434,383.71
MAR .58	\$211,458.01	\$221,923.53	\$432,439.34	\$477,029.30
APR .67	\$228,573.03		\$556,650.16	
MAY .75	\$1,445,716.88		\$412,072.65	
JUNE .83	\$525,765.70		\$445,437.02	
JULY .92	\$68,477.27		\$425,737.21	
AUG 1.00	\$146,572.07		\$445,287.37	
TOTAL	\$5,678,452.14	\$3,276,424.82	\$5,543,991.36	\$3,303,483.04
2015-16 Beginning Cash Balance \$1,982,494.97				
2016-17 Beginning Cash Balance \$2,030,181.44				
2015 denotes the 2015-16 school year				
2016 denotes the 2016-17 school year				

**EAST BUTLER PUBLIC SCHOOLS INVESTMENTS  
AS OF APRIL 1, 2017 For Bd Mtg April 12, 2017**

**GENERAL FUND**

<u>NUMBER</u>	<u>TERM</u>	<u>MATURITY</u>	<u>AMOUNT</u>	<u>RATE</u>	
1026029	12 month	4/5/17	\$510.61	0.25%	McAuliffePrize
3212	24 month	10/1/18	\$384,422.29	0.85%	(At Prague)
1024535	9 month	8/15/17	\$165,841.12	0.20%	
1024295	12 month FLEX	7/13/17	<u>\$465,409.00</u>	0.25%	
			\$1,016,183.02		
41-513	Checking		<u>\$2,033,584.75</u>	0.05%	
<b>TOTAL</b>			\$3,049,767.77		

**DEPRECIATION RESERVE/VEHICLE REPLACEMENT FUND**

602837			\$166,624.92	0.16%	
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**QUALIFIED CAPITAL IMPROVEMENT PURPOSE UNDERTAKING FUND (QC-PUF)**

1507069			\$383,731.30	0.05%	
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**BUILDING FUND**

1041-718	Checking		\$1,140,286.82	0.05%	
1024870	12 mo FLEX	6/10/17	\$221,737.55	0.25%	

**EMPLOYEE BENEFIT FUND**

1505565	Checking		\$3,488.44	0.05%	
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**STUDENT FEE FUND**

1502837	Checking		\$22,008.66		
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**PLEGDED SECURITIES**

FIRST NEBRASKA BANK	1/31/21	\$400,000.00	Cusip 912828B58
FIRST NEBRASKA BANK	3/8/19	\$150,000.00	Cusip 313378QK0
FIRST NEBRASKA BANK	5/30/19	\$500,000.00	Cusip 3137EADG1
FIRST NEBRASKA BANK	11/30/2019	\$200,000.00	Cusip 912828UB4
FIRST NEBRASKA BANK	12/31/2020	\$150,000.00	Cusip 912828A83
FIRST NEBRASKA BANK	6/30/2020	\$200,000.00	Cusip 912828VJ6
FIRST NEBRASKA BANK	3/8/19	\$500,000.00	Cusip 3133782M2
FIRST NEBRASKA BANK	9/14/18	\$500,000.00	Cusip 313375K48
FIRST NEBRASKA BANK	9/14/18	\$250,000.00	Cusip 313375K48
FIRST NEBRASKA BANK	9/14/18	\$500,000.00	Cusip 313375K48
FIRST NEBRASKA BANK	4/30/20	\$200,000.00	Cusip 912828VA5
FIRST NEBRASKA BANK	9/30/21	\$500,000.00	Cusip 912828F21
FIRST NEBRASKA BANK	9/30/20	\$500,000.00	Cusip 912828VZ0
FIRST NEBRASKA BANK	2/19/19	\$100,000.00	Cusip 3135G0ZA4

SUB-TOTAL \$4,650,000.00

BANK OF PRAGUE	12/15/2023	\$57,000.00	Cusip 12354RAZ0
BANK OF PRAGUE	1/15/2023	\$85,000.00	Cusip 123529EQ8

SUB -TOTAL \$142,000.00

TOTAL PLEDGED \$4,792,000.00

PAID IN MARCH 2017				
<b>PRE-APPROVED BILLS (GENERAL FUND)</b>				
LaMar's Donuts & Coffee			Donuts for tchrs for	Check # 23853
1601 Q Street			Ne Teacher	
Lincoln, Ne 68508		\$113.88	Recognition Day	
Walmart Community			PL Day-Healthy	Check # 23854
PO Box 530934			brunch	
Atlanta,GA 30353-0934		\$114.85		
First National Bank Omaha			AASA Natl Conf	Check # 23855
PO Box 2818			in New Orleans	
Omaha, Ne 68103		\$908.57	and NETA Omaha	
TOTAL		\$1,137.30		
<b>PRE-APPROVED BILLS (DEPRECIATION FUND)</b>				
NONE				
TOTAL		\$0.00		

REVENUE REPORT THROUGH 4-1-17			
% of year completed this month 59%			
	Amount	Received	
Category	Budgeted	To Date	
1110 Property Taxes	\$4,868,201.00	\$2,824,598.79	
1115 Carline	\$4,000.00	\$492.78	
1120 Public Power District-Sales Tax	\$7,000.00	\$4,008.58	
1125 Motor Vehicle Taxes	\$205,000.00	\$138,372.51	
1270 Pre-School Tuition	\$10,000.00	\$4,090.00	
1410 Interest	\$0.00	\$1,181.18	
1610 Local License Fees	\$5,000.00	\$1,780.00	
1910 Other Local Receipts	\$2,500.00	\$0.00	
1991 Receipts from Other Districts	\$0.00	\$0.00	
2110 County Fines/Licenses	\$10,000.00	\$15,463.83	
2210 ESU Receipts	\$10,000.00	\$51,304.90	
3110 State Aid	-\$122.00	\$0.00	
3120 SPED Programs/School Age	\$250,000.00	\$155,520.00	
3125 SPED Transportation/School Age	\$0.00	\$3,714.00	
3130 Homestead Exemption	\$0.00	\$7,044.54	
3135 St of Ne High Ability Learner	\$2,000.00	\$0.00	
3165 SPED - Below Age Five	\$0.00		
3180 Pro Rate Motor Vehicle	\$11,000.00	\$2,369.70	
3200 State Apportionment	\$57,000.00	\$54,358.62	
3300 In-Lieu-of-School Land Tax	\$0.00	\$0.00	
3500 State Categorical Grants	\$0.00	\$0.00	
3512 Dist. Ed. Incentive	\$0.00	\$0.00	
4200 Title I	\$30,000.00	\$0.00	
4300 TITLE VI (REAP)	\$20,000.00	\$0.00	
4310 Title II-A	\$0.00	\$0.00	
4320 Title V Grants	\$0.00	\$0.00	
4400 Special Education (Birth to Age 5)	\$0.00	\$0.00	
4402 Pre-School Transportation	\$0.00	\$0.00	
4404 SPED IDEA	\$123,000.00	\$0.00	
4406 IDEA	\$0.00	\$0.00	
4410 SPED IDEA	\$0.00	\$0.00	
4411 CEIS	\$0.00	\$0.00	
4412 IDEA NONPUBLIC	\$0.00	\$0.00	
4450 Medicaid in Schools	\$0.00	\$0.00	
4455 Medicaid Administrative Outreach	\$0.00	\$4,040.80	
5400 Sale of Property	\$0.00	\$0.00	
5690 Other Non Revenue Receipts	\$0.00	\$8,084.59	
TOTAL	\$5,614,579.00	\$3,276,424.82	58.36%





BUDGET CATEGORY SUMMARY					
MARCH, 2017					
% OF YEAR COMPLETED THIS MONTH 59%					
CATEGORY	BUDGETED	MARCH EXPENDITURES	YEAR TO DATE	BALANCE	
Instruction	\$2,886,503.00	\$245,044.02	\$1,732,106.31	\$1,154,396.69	
SPED (School Age)	\$768,803.00	\$71,639.96	\$522,187.72	\$246,615.28	
Distance Learning	\$3,000.00	\$0.00	\$0.00	\$3,000.00	
Guidance Services	\$105,449.00	\$8,134.47	\$55,643.31	\$49,805.69	
Safety/Security	\$125,284.00	\$0.00	\$0.00	\$125,284.00	
Other Pupil Support	\$30,217.00	\$1,135.71	\$7,613.55	\$22,603.45	
Library	\$94,295.00	\$6,884.27	\$52,775.88	\$41,519.12	
Board of Education	\$55,940.00	\$10,094.25	\$54,416.89	\$1,523.11	
Exec Admin Service	\$175,659.00	\$15,644.92	\$102,461.77	\$73,197.23	
Office of Principal	\$252,172.00	\$20,396.34	\$144,452.57	\$107,719.43	
Business Support	\$258,089.00	\$17,423.33	\$153,440.88	\$104,648.12	
Operation of Plant	\$389,926.00	\$45,938.19	\$213,729.12	\$176,196.88	
Maintenance of Plant	\$68,953.00	\$2,641.29	\$44,728.27	\$24,224.73	
Pupil Transportation	\$176,278.00	\$25,186.59	\$128,595.87	\$47,682.13	
SPED Transportation	\$1,000.00	\$350.46	\$2,036.29	(\$1,036.29)	
TITLE I Part A(4200)	\$94,961.00	\$4,364.65	\$30,557.03	\$64,403.97	
Title I Accountability(4210)	\$0.00	\$2,150.85	\$2,150.85	(\$2,150.85)	
High Ability (4301)	\$0.00	\$0.00	\$0.00	\$0.00	
PreSchool Handicap 4404	\$0.00	\$0.00	\$0.00	\$0.00	
IDEA (4406)	\$0.00	\$0.00	\$0.00	\$0.00	
SPED IDEA (4410)	\$0.00	\$0.00	\$0.00	\$0.00	
Medicaid Admin Outreach	\$0.00	\$0.00	\$0.00	\$0.00	
Transfers	\$130,000.00	\$0.00	\$32,500.00	\$97,500.00	
<b>TOTALS</b>	<b>\$5,616,529.00</b>	<b>\$477,029.30</b>	<b>\$3,279,396.31</b>	<b>\$2,337,132.69</b>	
				58.39%	
				Budget Expended	

**Submitted By:**  
**Adam Root**  
**11020 Northloch Court**  
**Waverly, NE 68462**

**Date:** 3/27/2017  
**Bid to:** East Butler Public Schools  
**Attn:** Sam Stecher  
**Email:** [sstecher@ebutler.esu7.org](mailto:sstecher@ebutler.esu7.org)  
**Project:** **Prague School Demolition**  
**Scope:** Building Demolition

**Listed below is a detailed scope of the items included in the estimate and breakdown of cost.**

- 1 Abandon the sewer and water service to the building to be demolished.
- 2 Abandon and disconnect any and all utilities that tie into the portion of the building to remain.
- 3 Install 6 ft tall temporary chain link fence around the entire school to secure the site.
- 4 Remove & properly dispose of the following asbestos containing materials  
3190 SF of floor tile ad mastic  
150 LF of piping insulation above the 3rd floor ceiling (attic area)  
10 mudded pipe fittings in the shop area  
250 SF of transite board in the boiler room area  
756 SF of sprayed ceiling in the second floor hallway
- 5 Demolish and remove by hand any portion of the building that is connected to the portion of the building to remain.
- 6 Remove, haul off and dispose of existing building.
- 7 Remove, haul off and dispose of basement walls.
- 8 Remove, haul off and dispose of footings and foundations.
- 9 Provide water & dust control during demolition process
- 10 Pay all landfill fees associated with the disposal of all demolition debris.
- 11 Haul in, place & compact clay soil from offsite to fill in the hole from the lower level demolition.
- 12 Haul in and place a 6 inch layer of topsoil across the disturbed area.
- 13 Grade site to provide positive drainage and match the existing surround grades.
- 14 Seed the disturbed area.

**Budget Estimate: \$ 299,760**

**Pricing Breakdown**

1 Sewer & Water Abandonments	\$	5,000
2 Hand Demolition of Adjoining Walls & Protective Measures	\$	20,000
3 Equipment for Building Demolition	\$	46,590
4 Haul off of Demolition Debris	\$	53,927
5 Landfill Fees	\$	57,318
6 Disconnection of Utilities Between Buildings	\$	17,500
7 Asbestos Abatement	\$	15,000
8 Dust Control	\$	10,751.50
9 Haul in Dirt and Fill in Lower Level Hole	\$	63,673.56
10 Chain Link Fencing	\$	5,000.00
11 Fine Grading & Seeding	\$	5,000.00

**Total: \$ 299,760**

Respectfully,



**Adam Root**

district	compensation
Dundy County-Stratton	100350
Morrill	99000
Tri County	91419
Franklin	87020
Burwell	85000
EAST BUTLER	83626
High Plains Community	82799
Heartland	74366
	<b>87947.5</b>

district	compensation
Tri County	106046
Burwell	97490
Heartland	94432
High Plains Community	94429
EAST BUTLER	91539
Franklin	85990
Dundy County-Stratton	82000
Morrill	86474
	92300

# CRC Classified Salary Comparisons

School	Custodians			Kitchen	
	FTE	Wages	Benefits	FTE	Wages
<b>B-D 2016-2017</b>	1 FTE	\$15.95	sgle hlth/dental	2 FTE	\$12.65
updated 3/6/2017 will set new rates in June	3 FTE	\$15.70	EE&Sp hlth/dntl		
<b>Dorchester 16-17 Rates</b>	2	\$19.75	single Hlth	3	\$14.75
will update for 17-18 in April		\$17.35	n/a	asst	\$12.30
				0.5	\$10.15
<b>Cross County (updated 3-14-17)</b>	Head Main	\$65,700	Full Insur.	4.5 FTE	10.35-14.50
	4	13.50-16.00	Single hlth/dental		
<b>East Butler</b>	4	10.73-22.46	single hlth/dental	3.5	9.29-14.69
Updated 4-11-16			FTE only		
<b>E/M for 2016-17</b>	Ex-1	\$26.70	full ins	Exeter	\$19.25
updated 3/3/17	1	\$13.75	Single ins	Exeter	\$10.25
	0.3	\$10.00	no ins	Exeter	\$10.00
	M-0.5	\$14.33	single ins	Mill-0.5	\$14.33
<b>Giltner (2017-18)</b>	head	\$23.25	No Ins.	head	\$15.25
<b>Hampton (2015-16)</b>	1	\$2,550.00	Single Ins.	1	\$14.00
	0.5	\$14.50	No Ins.	0.5	\$14.50
<b>High Plains (2016-17 wages)</b>	3 (40hrs)	\$12.36	full insur.	3.5 FTE	11.33-13.60
	1 (35hrs)	\$12.00	1/2 insur.		
<b>McCool (2016-17)</b>	2	\$12.96-\$13.21	No insur.	2	\$12.46
1 @ Salary \$3,713 per month		\$52,152.00	fam hlth	1 Head Cook @ \$15.20 No	
<b>Meridian</b>	1	\$19.81	Em&Sp H&D	1	\$13.75
	1	\$12.00	Em&Sp H&D	1	\$9.52
	3 summer	\$9.75	none	0.25	\$9.56
<b>Nebraska Lutheran</b>	1	\$18.50	none	1 head	\$15.00
	0.5	\$12.00	none	1	\$12.50
				1	\$11.50
<b>Osceola (16-17 wages)</b>	1	\$18.80	Emp&Sp	1	\$14.55
	1	\$14.00	Emp/Child	1	\$10.65
	1	\$16.00	Emp&Sp	2	\$9.65
<b>Shelby-Rising City (16-17)</b>	Head 1.0	\$52,000	Full Single or Cash in-lieu	1 Head	\$16.93
	Cust. 1.0	\$16.53	Employee Only	1 RC	\$11.25

	<b>Cust. 1.0</b>	<b>\$12.25</b>	<b>Employee Only</b>	<b>1 Asst</b>	<b>\$10.78</b>
				<b>1 Asst</b>	<b>\$10.50</b>
				<b>Asst0.5</b>	<b>\$10.50</b>
<b>Shickley</b>	<b>2.5</b>	<b>\$15/hr</b>	<b>none/none</b>	<b>3</b>	<b>13.11/11.28/10.0</b>

NL updated 1/23/16

BD updated 3/27/15

HPC updated Jan. '16

E/M updated 3/3/17

Meridian updated 3/26/14

Shelby-RC updated 3/2/17

Osceola updated 3-1-17

Shickley updated 3/15/16

McCool checked 3/2/2017

Cross County updated 3/14/17

Hampton updated 2015-16

Giltner updated 3/6/17

Dorchester updated 2/27/17

Benefits	Paras			Bus Drivers		Secretaries
	FTE	Wages	Benefits	FTE	wage/route	FTE
fam hlth/dn	7.5	\$11.90		5	27.60/route	1
	0.5	\$11.55			15.45/activity hr	1
				1	13.10 head of transport w/sgl insurance	1
no ins	5	\$12.15	n/a	2		2
no ins		\$11.90	n/a		\$21.50/ hr 4 hrs. guaranteed/day 8.65 down time activity	1
no ins		\$11.90	n/a			1
		\$11.80	n/a			
Single insurance/dental for head cook	14	11.00-17.25	none		No bus drivers	1 Bookkeeper
						3 Secretaries
n/a	10	10.00-13.82	n/a	7	1,183.47/Mo 10.00 hour/act. trip	3.5
no ins	Ex-2	12.25/10.75	None		Contract all bussing	Ex-Bkkper
no ins	Mil	\$11.60	None			Ex-0.6 FTE
no ins			None			Mill
single ins						
none	7	\$13.25	none	3	per route/\$10 per hour act	1
Single Ins.	3	\$9.75-\$11.00	No Ins.	2	\$57/a day AM/PM Route	1
No Ins.					\$11/hour activity driving	
1/2 sing. In.	8 (37.5hrs)	10.71-14.22	1/2 sing. In.	4	\$62 per day	1 (40hrs)
	1 (22.5hrs)	\$13.13	1/2 sing. Insur		11/hr activity route	2 (10 mo)
No Insur	9	12.46-13.71	No Insur	5	\$62.30/day two routes	3
Insur					\$11.30	
none	1	\$10.97	none		\$33.95/route	1
none	1	\$10.97	none	3	(2 routes per day)	1
none	1	\$10.28	none		\$12.75/hr activity	1
	1	\$9.53	none		\$29.11/SPED route	
			none	1	(1 route per day)	
none	none			none	drives bus, no compens	1
none					no routes, just activities	1
none						
None	1	\$12.65	None	3	\$62/day route	2 part time
None	9	\$10-\$10.75	None		\$34/activity trip \$.20/overage miles	1
None					\$9.00 wait/clean time	Bookkeeper
None	14	9.50 to 10.50	None		Director / \$15.00-Hour	Bookkeeper
None	Yearly increase based on CPI usually 3-5%				Route / \$20-Hour	HS

None	1:1 Para gets \$1/Hour added to their base rate			Activities / \$12.75-Hour		MS
None	FTE's= Title 1.0; SPED 5.0; PK 1.0					EL
None	Class Red. 4.5; 1:1 SPED 2.5					
Hd-emp & sp	2	\$11.44-10.00	none	4	\$25/route	1

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<b>Wages</b>	<b>Benefits</b>
\$18.90	sgl hlth/dental
\$15.80	
\$12.30	
\$18.00/hr	single hlth
\$14.25/hr	10 month
\$24.00	Single ins./dental
13.50-15.25	None
12.06-18.10	single hlth dental
	FTE only
\$25.00	Full ins
NA	none
\$9.30	none
\$15.25	full family
\$11.75	Family Ins.
*Family Ins.	
\$14.83	1/2 sin. Ins.
11.23/13.70	
\$16.31	sin. Ins.
\$13.41	Em H&D
\$13.85	none
\$13.44	none
\$14.50	none
\$15.50	none
12.00-12.90	None
\$13.60	Single
\$16.40	Emp&Sp
\$19.80	None
\$17.65	Employee

<b>\$17.25</b>	<b>Employee</b>
<b>\$15.51</b>	<b>None</b>
<b>\$16.64</b>	<b>full sin.</b>

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# Elementary Principal Report

## April Board Meeting



### I. Kindergarten Information/Preschool Projections

- A. Tentative Kindergarten enrollment numbers
  - 1. Brainard-13 Students
  - 2. Dwight-9 Students
- B. Kindergarten Round-up
  - 1. A total of 20 students were represented at Kindergarten Round-up held on March 10 in both schools.
  - 2. The Kindergarten teachers and I shared information with parents about expectations for the upcoming year.
- C. Preschool Projections:
  - 1. There are currently 20 students registered for preschool in Brainard. (14 In-District/6 Non-District)
  - 2. Information will be sent to registered parents in the upcoming week about Preschool Round-up.

### II. Before and After School Program

- A. A survey was sent to elementary parents on March 20 on the weekly email. The survey included the following information and questions.
  - 1. East Butler Public School is considering adding a before and after school program to our services. The program would provide supervision for student-age children from 7:00-8:00 A.M. and 3:30-5:00 P.M. with a capacity of 20 students. This survey will provide additional information to our school.
  - 2. Questions:
    - A. What school location does your student(s) currently attend?
    - B. Would you be interested in taking part in this program?
    - C. Comments
- B. The school received 35 responses with the survey. 23 Responses from the Brainard school were collected and 12 responses from Dwight.
  - 1. 60% stated they were interested in taking part in this program, while 40% were not interested.
  - 2. Comments were varied with some stating that this would be an excellent program addition and the need would far exceed 20 students. A few mentioned they would use it on a part-time basis. Some had additional questions about the program.

### III. NeSA Testing

- A. Grade 3-6 students started Nebraska State Accountability (NeSA) testing April 4-5 with the Reading test. The addition of student laptops has made it possible to administer the assessments in the room for students in grades 5-6.
- B. A representative from the Nebraska Department of Education will be visiting Dwight on April 19 or 20 to complete a requirement for observation of testing security and consistent administration practices.
- C. NeSA schedule:
  - April 11-12 NeSA Math Gr. 3-6
  - April 19-20 NeSA Science Gr. 5

### IV. Textbook Adoption Rotation

- A. The elementary curriculum committee consisting of Mrs. Dozler, Mrs. Topil, Mrs. Raiter, Mrs. Vandenberg, and I met on March 13 to discuss a rotation for adopting textbooks.
- B. The year indicates the first year it will be utilized in the classroom.
  - 1. 2017-2018 Science textbook research/adoption
  - 2. 2018-2019 Science
  - 3. 2019-2020 Social Studies
  - 4. 2020-2021 Reading/LA
  - 5. 2021-2022 Math

To: East Butler Public Schools Board of Education  
From: Michael Eldridge, Secondary Principal  
Date: April 12, 2017  
Re: Secondary Principal's Report

**I. New Language Arts Instructor**

- a. Mr. Stecher and I interviewed four candidates for the Language Arts position. All of the applicants that we received were strong and qualified.
- b. The position was offered to Paige Miskie, and she accepted.
  - i. Ms. Miskie is currently student teaching at Millard North Middle School.
  - ii. Ms. Miskie has also agreed to be our Speech coach and Cheerleading sponsor.
  - iii. She will be attending the cheerleading tryouts on April 12th, as an opportunity to meet some of the students and help with selecting the cheer squad.

**II. Honor Awards Night**

- a. Honors Awards Night will be May 9th at 6:30pm in the High School Gym.
- b. Once again we will be inviting those that give local scholarships, to have the opportunity to present their scholarship to the student at the Honors Awards Night.
- c. I have attached last year's program to show what awards were given out.
- d. Is the board wanting to serve ice cream again?

**III. Spring Testing - Reminder**

- a. March 21-22 NeSA Reading (Grades 7 & 8) - **COMPLETED**
- b. April 4-5 NeSA Math (Grades 8) - **COMPLETED**
- c. April 11-12 NeSA Science (Grades 7, 8)
- d. April 19 ACT Test (Grade 11)
- e. April 24-28 NWEA Testing (Grades K-11)
- f. May 3 ACT Makeup Test Date (Grade 11)

**IV. Graduation**

- a. Graduation will take place on Saturday, May 13th @ 2:00pm.
- b. We will need a few board members to present diplomas to the students. Perhaps, the board officers?
- c. I have attached a copy of the graduating class for your approval.

**CASI BULLETIN WEEKEND**

**May 10, 2016 - 6:30 P.M.**

Welcome.....Mr. Michael Eldridge

Pledge of Allegiance.....Kevin Sousek – Student Council President

Semester A Honor Roll.....Mr. Michael Eldridge

Perfect Attendance Awards

Omaha World Herald All-Academic Awards

Lincoln Journal Star Class Acts

Most Improved Senior GPA

Believe in You Principal's Award

American Citizenship Award

President's Education Awards Program

US Presidential Scholar Program

Articulation Awards

Scholarships Presentation:

Mari Pesek Math & Science.....Tom & Gretchen Pesek

Brainard American Legion & Auxiliary

Rejda Post #273.....Jim Polivka & Dave Foster

Prague American Legion Post #254.....Larry Mach

Malmo American Legion Post #232.....James Sousek, Sr.

Abby Kubik Memorial.....Kyle & Kristine German

Brainard Community Club.....Brenda Janak

East Butler Education Association.....Deanna Ebmeier

East Butler Foundation.....Darell Aerts

East Butler Foundation Brick Sales

East Butler Foundation Dean R. Rolfsmeier Memorial

East Butler Foundation Golf Scramble Fundraiser

East Butler Foundation Video Scholarship

Ted Aerts Memorial

Wake Foundation

Arthur J. & Virginia M. Hoffbauer Memorial.....Duane Hoffbauer,  
Art Jr. & Joan Hoffbauer, Al & Karen Hoffbauer,  
Debra (Hoffbauer) Novacek, & Brenda (Hoffbauer) Grunich

First Nebraska Bank – Brainard Branch.....Doreen Kastl

Dennis Romshak Memorial FFA.....Shane Hennessy

Don Maxson Memorial FFA Alumni

Frontier Coop Summer Work Program & Scholarship.....Linne Vavrina  
Jon Brabec

Army Reserve/National Scholar Athlete Award.....Josey Huffman

Education First (EF) Global Education Excellence Award.....Janetta Rogers

Ag Ed Awards.....Mr. Shane Hennessy

Art Awards.....Mrs. Deanna Ebmeier

Butler County Arts Council Fine Arts.....Allen Covault & Anna Nolan

Our Weekly Literary Society Award

Computer Award.....Mr. Doug McGee

Spanish Awards.....Miss Courtney Johnson

Drama Awards

English Award.....Mrs. Nancy Schulz

Speech Award.....Ms. Karmen Widick

National Honor Society

Family and Consumer Science Awards.....Mrs. Sandy Bongers

Math Award.....Mr. Doug Glasshoff

UNL Math Participants.....Mr. Aaron Christensen

Music Awards.....Mr. Randy Fuehrer

Business Awards

Physical Fitness Awards.....Mr. Greg Jande

NSAA Believers & Achievers Award.....Mr. Dave Struebing

Science Awards.....Mr. Gary McGrath

Science Awards.....Mr. Andrew Wood

Quiz Bowl Awards

Social Studies Awards.....Mr. Kevin Behne

Geography Bee.....Mr. Dale Nielsen

Blood Donors

Staff Recognition.....Mr. Michael Eldridge

East Butler Foundation.....Video Presentation

Senior Recognition.....Slide Presentation

## **Master Schedule 17-18**

### **I. Master Schedule**

A. I have attached a tentative copy of our Master Schedule for the 2017-2018 School year.

1. New Additions to the Master Schedule.

- a) Technical Math - geared more towards a student that would be going into a technical trade. (welding, etc)
- b) Blueprinting/Cutting (Welding) - required class that would lead towards certification.
- c) Oxygen/Acetylene (Welding) - required class that would lead towards certification.
- d) Ag Entrepreneurship - class that would focus on Ag business.
- e) Small Engines - this was a request by our students, and we have tried to get this placed into the schedule.
- f) Habitudes 7 - this will be a class for our 7th graders that will focus on leadership and character.
- g) Marching Band - always has been offered, but students will now be able to get credit for their time in the mornings - Zero Hour.
- h) Choir - has not been in the schedule in recent years, it will now be on the schedule, and students will be able to receive credit Zero Hour

### **B. Dual Credit**

1. Courses that have been submitted for request or have been approved. (CCC)

- a) Calculus - Submitted
- b) Pre-Calc - Approved
- c) Trigonometry - Approved
- d) Technical Math - Submitted
- e) Medical Terminology - Approved
- f) Blue Printing/Cutting (Welding) - Submitted
- g) Oxygen/Acetylene (Welding) - Submitted
- h) Advance Biology - Submitted

2. I am also working out the details on the possibility of offering a scholarship/tuition opportunity to help a student pay for the college credit. With the potential of the student getting college credit at no cost to them.

- a) As a district we would need to set a minimum requirement that the student needs to meet in order for their college credits to be paid for.

(1) Many school districts do this for their students.

### **C. Welding - A Pathway to Certification**

1. In order for our students to be able to get certified in Production Welding, we have to create a 2 year plan. Below is the way we are setting the pathway up.

- a) Year 1 - Required Courses
  - (1) Blueprinting/Cutting - Semester 1
  - (2) Oxygen/Acetylene - Semester 2
- b) Year 2 - Required Courses
  - (1) Mig Welding - Semester 1
  - (2) Arc Welding - Semester 2

Teacher	0 7:15-8:00	1 8:00-8:46	2	3	4	5	SH (M-Th)	6	7	8	Tiger Time (Friday)
Behne 109		Study Skills Sociology	World Hist. 8	Social Stud. 7	World Hist. 8	Social Stud 7	Lunch/8th	World Hist. 9	World Hist. 9	Prep	7th Grade
Bongers 112		Adv. Cloth Nutr. Scien.	Housing Child Dev.	PREP	FCS 1	Adv. Foods Fam. Rel.	10th/Lunch	FCS 1	Child Dev. Adv. Foods	Leadership 8 FCS7	9th Grade
Christensen 203		Prep	Geometry	Algebra 2	Calculus (DC)	Pre Algebra	11th/Lunch	Algebra 2	Geometry	Tech Math (DC) Tech Math (DC)	10th Grade
Ebmeier 201		Draw 1 Draw 2	PREP	Elementary	Elementary	Sculpture Painting	Lunch/Elem	Adv. Art	Art 1	Art 7	Elementary
Fuehrer 119/204	Marching B Choir	Band	Band 7	PREP	Intro Business	Personal Finance	10th/Lunch	Acct. 1	Personal Finance	Bus. Lead. Bus. Law	9th Grade
Glasshoff 150		Math 7	Algebra 1	Pre-Calc. (DC) Trig. (DC)	Pre-Calc. (DC) Trig. (DC)	Algebra 1	Lunch/7th	Math 7	PREP	Col Alg. (DC) Col Alg (DC)	8th Grade
Hennessy 118	Blue Printing/Cutting Welding (DC)	Woods	Horticulture	Intro AG	AG Bus/Mark Woods	Lunch/9th	Ag Entrep	Prep	AG 8 Small Engine	12th Grade	
	Oxygen/Acetylene Welding (DC)	Animal Scien.	Nursery/Lan.								
Hines 119		Elementary Music	Elementary Music	Elementary Music	Elementary Music	Elementary Music	Lunch	Elementary Music	JH Music	Elementary Music	Elementary Music
Jahde GYM/WT		PREP	WT Train.	PE 1	WT Train.	WT Train.	Lunch Supervision	WT Train.	AD	Habitudes 7 Health 8	10th Grade
Johnson 205		Spanish 1	Spanish 2	Spanish 2	Spanish 1	Spanish 3	Lunch/9th	AP Spanish	PREP	Spanish 3	12th Grade
Kavan LIBRARY		Library	Library	Library	Library	Library	Library	Library	Library	Library	Library
McGee 202		TECH	Intro Comp 7	PREP	HTML C++	Basic Prog. Adv. Basic	TECH	TECH	TECH	TECH	TECH
McGrath 110		Biology	PREP	Science 7	Biology	General Science	Lunch/7th	Science 7	Advanced Biology	General Science	8th Grade
Miskie 206		English 8	English 1	English 1	English 7	English 7	Lunch/8th	English 8	PREP	Speech Speech	7th Grade
Nielsen 207		Psychology	American History 10	Govt. Economics	American History 11	PREP Psychology	12th/Lunch	American History 11	American History 10	Govt. Economics	11th Grade
		PREP									
Slimmerman		Guidance	Guidance	Guidance Careers 8	Guidance	Guidance	Lunch	Careers 8 Guidance	Guidance	Guidance	Guidance
Struebing GYM		PREP	AD	Elementary PE	Elementary PE	Elementary PE	Elementary PE	Elementary PE	JH PE	Health Health	Elementary PE
Svoboda 126		Elementary	Elementary	Reading 8 Elementary	Elementary	Elementary	Lunch	Elementary Reading 8	Elementary	Elementary	Elementary
Widick 111		English 2	CP English 4	CP English 3	English 2	English 4	11th/Lunch	Journalism 1 & 2	English 3	Prep	10th Grade
Witzel 127		Resource	Resource	Resource	Resource	Resource	Lunch/SH	Resource	Resource	Resource	Resource
Wood 151		PREP	Science 8	Physics	Science 8	Academic Decathlon	12th/Lunch	Medical T. (DC) Science App	Chemistry	Applied Chemistry	11th Grade
Zajac 126		Elementary	Elementary	Elementary	Elementary	Reading 7	Elementary	Reading 7	Elementary	Elementary	Elementary

To: East Butler Board of Directors

The following students upon completion of course requirements and obligation as specified in School Board Policy are eligible for graduation on May 13, 2017.

Jarod Aerts	Zebadiah Barta
Catherine Benes	Samantha Bordovsky
Addie Brecka	Dalton Brester
Severiano Castro Ferro (Cert. of Atten.)	Amber Cooper
Maddieson Gibson	Jannes Hein (Cert. of Atten.)
Kristin Johnson	Dawson Kouma
Taylor Martin	Shelby Miller
Karissa Mullen	Emilie Nilsen (Cert. of Atten.)
Ross Novotny	Skylar Paseka
Charles Polacek	Audrey Rezac
Lauren Rezac	Macie Rouselle
Skylar Sinica	Courtney Spatz
Robin Stanek	Brittany Timoney
Kailey Urban	Andrew Zysset

The East Butler Staff wishes them well on their future plans.

Sincerely,



Michael Eldridge  
Secondary Principal