

# DTCC Terry Nursing Simulator

PROJECT ADDRESS  
 100 Campus Dr,  
 SET Building 300  
 Dover, DE 19901

OWNER ADDRESS  
 DELAWARE TECHNICAL COMMUNITY COLLEGE  
 100 Campus Drive  
 Dover, DE 19901



**TEVEBAUGH ARCHITECTURE**  
 TWO MILL ROAD, SUITE 210  
 WILMINGTON, DELAWARE 19806  
 (302) 984-1400  
 FAX (302) 984-2957

**MEP ENGINEER**  
 315 S CHAPEL ST, NEWARK, DE 19711

**ARCHITECT**  
**TEVEBAUGH ARCHITECTURE**  
 TWO MILL ROAD, SUITE 210  
 WILMINGTON, DE 19806  
 302.984.1400

**MEP ENGINEER**  
**DEDC**  
 315 S CHAPEL ST, NEWARK, DE  
 19711  
 302.738.7172

SUBMISSION	DATE	SUBMISSION	DATE
1 AAB SUBMISSION	1/06/2025	8	
2 ISSUED FOR BID	02/18/2026	9	
3		10	
4		11	
5		12	
6		13	
7		14	

DRAWING LIST	SHEET NO.	SHEET NAME
GENERAL	CS01	COVER SHEET
ARCHITECTURAL		
	A030	FLOOR AND REFLECTED CEILING PLANS - DEMOLITION
	A060	LIFE SAFETY SECTIONS, CODE ANALYSIS SUMMARY, AND GENERAL NOTES
	A101	GENERAL NOTES
	A201	FLOOR AND REFLECTED CEILING PLANS - NEW CONSTRUCTION
	A601	ELEVATIONS - NEW CONSTRUCTION
	A801	SCHEDULES & DETAILS
	A802	FINISH PLANS, LEGEND, & SCHEDULE
	A802	EQUIPMENT PLAN & SCHEDULE
MECHANICAL		
	MFP001	MECHANICAL - PLUMBING & FIRE PROTECTION - GENERAL NOTES, LEGENDS, & ABBREVIATIONS (1 OF 2)
	MFP002	MECHANICAL - PLUMBING & FIRE PROTECTION - GENERAL NOTES, LEGENDS, & ABBREVIATIONS (2 OF 2)
	M100	MECHANICAL - HVAC - FLOOR PLAN - DEMOLITION AND NEW WORK
	P100	MECHANICAL - PLUMBING & FIRE PROTECTION - GENERAL NOTES, LEGENDS, & ABBREVIATIONS (1 OF 2)
	FP100	MECHANICAL - PLUMBING & FIRE PROTECTION - GENERAL NOTES, LEGENDS, & ABBREVIATIONS (2 OF 2)
	E000	FIRE PROTECTION - SPRINKLER - DEMOLITION AND NEW WORK
	E001	ELECTRICAL NOTES, LEGEND, AND ABBREVIATIONS
	E002	ELECTRICAL SHEET SPECIFICATIONS
	E002	ELECTRICAL SCHEDULES
	ED100	ELECTRICAL POWER AND LIGHTING - DEMOLITION
	E100	ELECTRICAL POWER AND LIGHTING - NEW CONSTRUCTION

**SYMBOLS LEGEND**

NOTE: NOT ALL LEGENDS & SYMBOLS ARE IDENTIFIED ON THIS SHEET. ALSO REFER TO SPECIFIC DRAWINGS

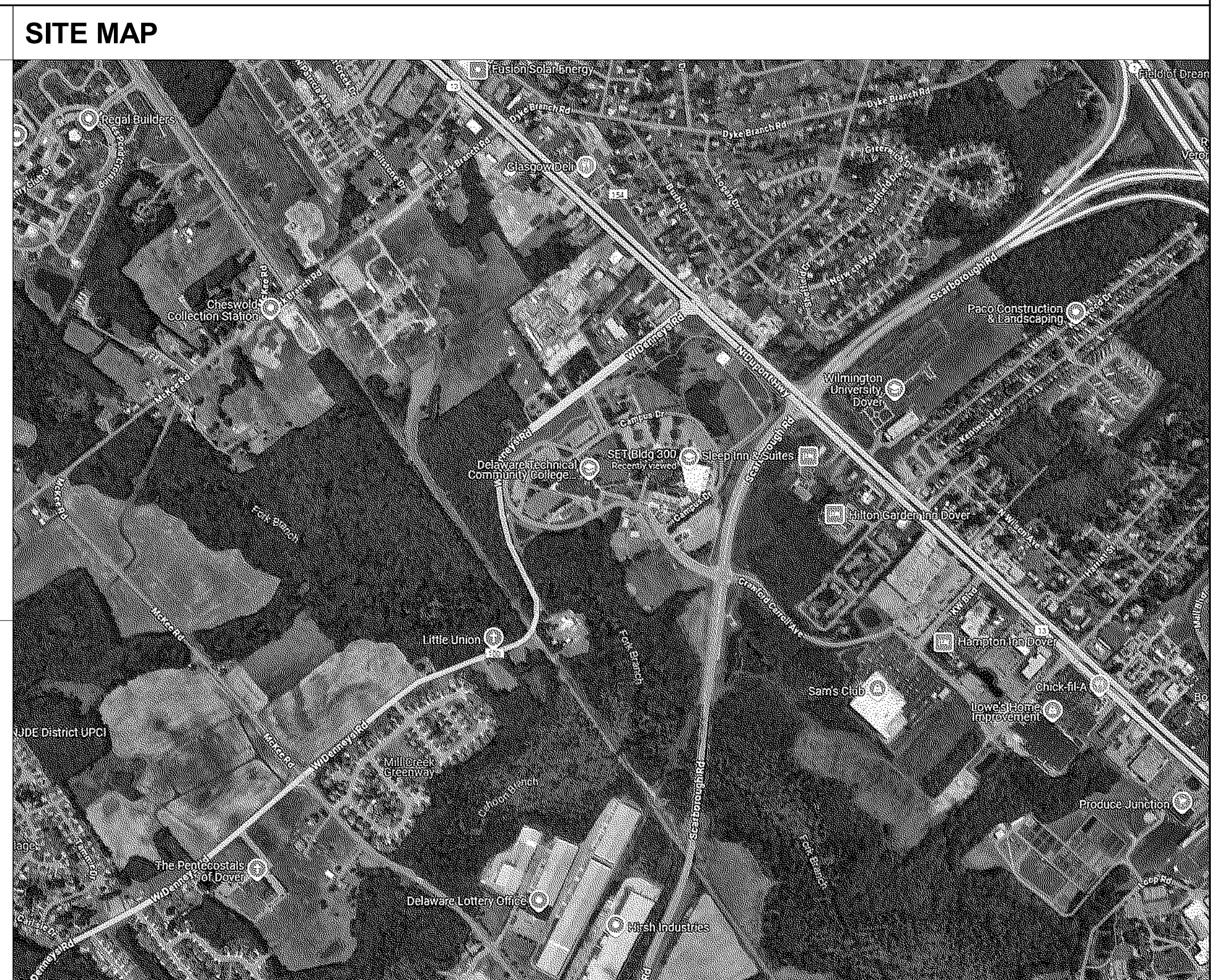
	CW-1	CASEWORK IDENTIFIER
	X	WINDOW & CURTAINWALL IDENTIFIER
	XX	TOILET ACCESSORY IDENTIFIER
	101	DOOR IDENTIFIER
	A###	WALL TYPE IDENTIFIER (SEE PARTITION TYPES FOR ADDITIONAL WALL TYPE IDENTIFIERS)
	11	CEILING TYPE/HEIGHT IDENTIFIER
	PT-1	LIMITS DEFINER
	X	KEYNOTE
	XX	EXTERIOR FINISH

**MATERIAL LEGEND**

	CONCRETE		BATT INSULATION
	CONCRETE MASONRY UNIT		BLOCKING
	RIGID INSULATION		CRUSHED STONE
	GYPSUM WALL BOARD		EARTH
	FINISH WOOD		PLYWOOD
	STEEL		BRICK
	SPRAY FOAM INSULATION		

**PLAN LEGEND**

	NEW PARTITION		1 HR FIRE RATED BARRIER		FIRE EXTINGUISHER CABINET (SEE PROJ. MANUAL FOR TYPES)
	NEW DOOR		2 HR FIRE RATED BARRIER		ELECTRIC WATER COOLER
	EXISTING DOOR		PLAN NORTH		
	EXISTING PARTITION		TRUE NORTH		
	OVERHEAD				



The professional services of the architect are undertaken and performed in the interest of DELAWARE TECHNICAL COMMUNITY COLLEGE. No contractual obligation is assumed by the architect for the benefit of any other person involved in the project.

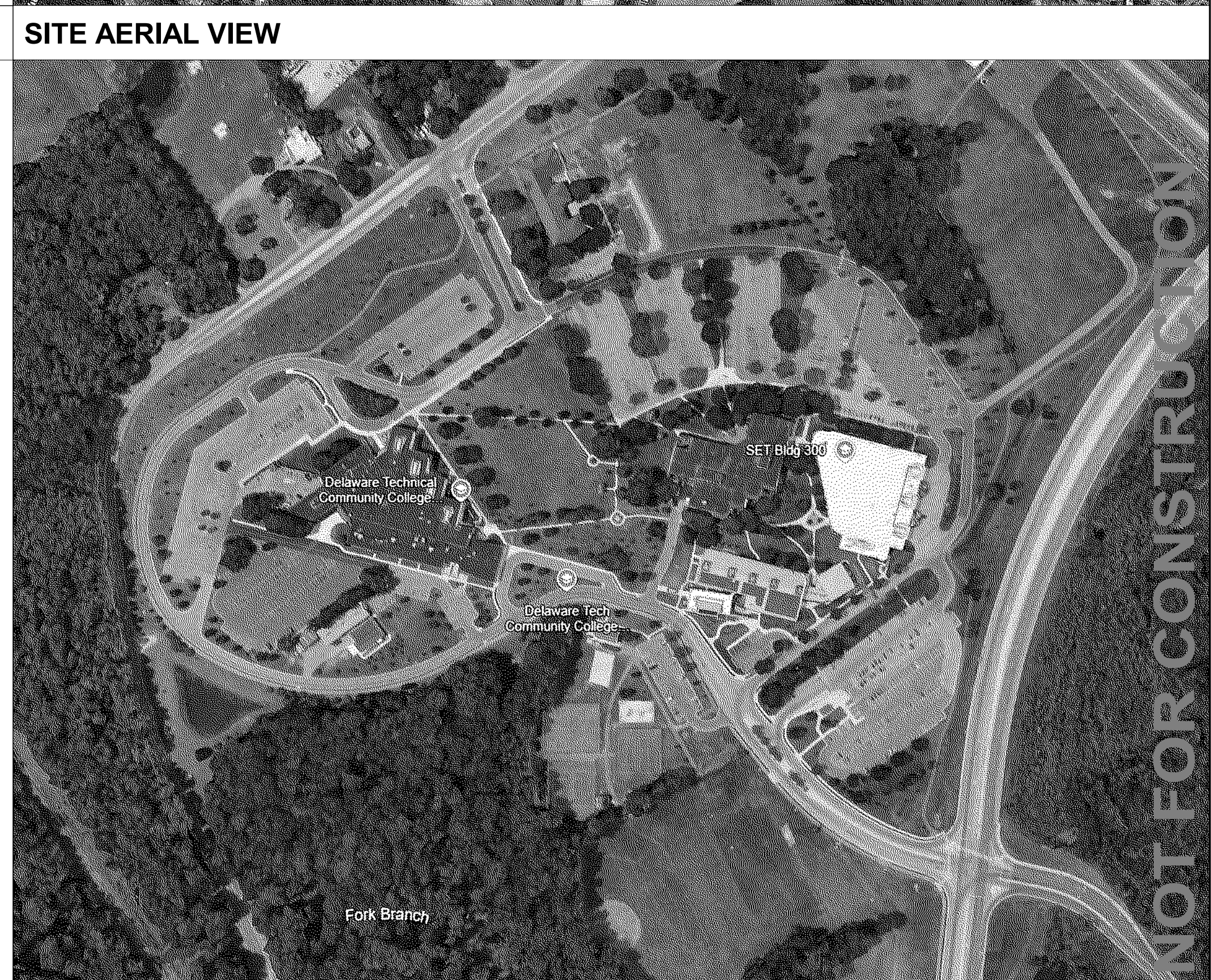
**PROJECT**  
 DTCC Terry Nursing Simulator  
 100 Campus Dr,  
 Dover, DE 19901

**OWNER**  
 DELAWARE TECHNICAL COMMUNITY COLLEGE  
 100 Campus Drive  
 Dover, DE 19901

**COVER SHEET**

**ABBREVIATIONS**

<b>A</b>	ANCHOR BOLT	<b>E</b>	EXHAUST FAN	<b>I</b>	INSIDE DIAMETER	<b>Q</b>	QUARRY TILE
<b>A.B.</b>	ANCHOR BOLT	<b>E.P.</b>	ELECTRIC PANEL	<b>I.C.</b>	INSULATED GLASS	<b>QT</b>	QUARRY TILE
<b>A.F.F.</b>	ABOVE FINISH FLOOR	<b>E.T.R.</b>	EXISTING TO REMAIN	<b>INCL</b>	INCLUDE (D) (ING)	<b>SHT</b>	SHEET
<b>ACT</b>	ACOUSTICAL CEILING TILE	<b>EW.</b>	EACH WAY	<b>INSUL</b>	INSULATION	<b>SPEC</b>	SPECIFICATIONS
<b>ADA</b>	AMERICANS WITH DISABILITIES ACT	<b>EA</b>	EACH	<b>INT</b>	INTERIOR	<b>SQ</b>	SQUARE
<b>ALT</b>	ALTERNATE	<b>EJ/EXP. JT.</b>	EXPANSION JOINT	<b>INV</b>	INVERT	<b>STOR</b>	STORAGE
<b>ALUM</b>	ALUMINUM	<b>ELEC</b>	ELECTRIC	<b>J.C.</b>	JANITOR'S CLOSET	<b>STRUCT</b>	STRUCTURAL SYSTEM
<b>APPROX</b>	APPROXIMATE	<b>ELEV</b>	ELEVATION	<b>JAN</b>	JANITOR	<b>SYST</b>	SYSTEM
<b>ARCH</b>	ARCHITECTURAL	<b>EMER</b>	EMERGENCY	<b>JAN</b>	JANITOR	<b>T&amp;G</b>	TONGUE AND GROOVE
<b>AUTO</b>	AUTOMATIC	<b>EQ</b>	EQUAL	<b>JT</b>	JOINT	<b>TEL</b>	TELEPHONE
<b>B</b>		<b>EQ</b>	EQUAL	<b>JT</b>	JOINT	<b>TEMP</b>	TEMPERED
<b>B.F.F.</b>	BELOW FINISH FLOOR	<b>EQUIP</b>	EQUIPMENT	<b>J</b>	JANITOR	<b>THK</b>	THICKNESS
<b>B.O.</b>	BOTTOM OF	<b>EST</b>	ESTIMATE	<b>JAN</b>	JANITOR	<b>TYP</b>	TYPICAL
<b>B.O.D.</b>	BASIS OF DESIGN	<b>EW</b>	ELECTRIC WATER COOLER	<b>JAN</b>	JANITOR	<b>U.C.</b>	UNDERCUT
<b>BD</b>	BOARD	<b>EW</b>	ELECTRIC WATER COOLER	<b>JT</b>	JOINT	<b>UL</b>	UNDERWRITERS LABORATORY
<b>BLDG</b>	BUILDING	<b>EW</b>	ELECTRIC WATER COOLER	<b>L</b>	LOW POINT	<b>W</b>	WEST/WIDETH
<b>BLK</b>	BLOCK	<b>EXT</b>	EXTERIOR	<b>LAV</b>	LAVATORY	<b>W.</b>	WITH
<b>BM</b>	BEAM	<b>EXP</b>	EXPOSED/EXPANSION	<b>LT</b>	LIGHT	<b>WIN</b>	WITHIN
<b>BRK</b>	BRICK	<b>EXT</b>	EXTERIOR	<b>M</b>	MASONRY OPENING	<b>W/O</b>	WITHOUT
<b>BRNBRG</b>	BEARING	<b>EXT</b>	EXTERIOR	<b>M.O.</b>	MASONRY OPENING	<b>WC</b>	WATER CLOSET
<b>C</b>		<b>EXT</b>	EXTERIOR	<b>M.W.P.</b>	MEMBRANE WATER PROOFING	<b>WD</b>	WOOD
<b>CEILING</b>		<b>F</b>	FLOOR	<b>MACH</b>	MACHINE		
<b>C/JCT</b>	CONTROL JOINT	<b>F.R.</b>	FIRE RATED	<b>MAS</b>	MASONRY		
<b>CL</b>	CENTERLINE	<b>FACP</b>	FIRE ALARM CONTROL PANEL	<b>MAX</b>	MAXIMUM		
<b>CLO</b>	CLOSET	<b>FE</b>	FIRE EXTINGUISHER	<b>MECH</b>	MECHANICAL		
<b>CMU</b>	CONCRETE MASONRY UNIT	<b>FEC</b>	FIRE EXTINGUISHER CABINET	<b>MFR</b>	MANUFACTURER		
<b>COL</b>	COLUMN	<b>FIN</b>	FINISHED	<b>MH</b>	MOUNTING HEIGHT/MAN-HOLE/METAL		
<b>CONC</b>	CONCRETE	<b>FLG</b>	FLASHING	<b>MIN</b>	MINIMUM		
<b>CONST</b>	CONSTRUCTION	<b>FLR</b>	FLOOR	<b>MISC</b>	MISCELLANEOUS		
<b>CONT</b>	CONTINUOUS	<b>FLUOR</b>	FLUORESCENT	<b>MTL</b>	METAL		
<b>CORR</b>	CORRIDOR	<b>FND</b>	FOUNDATION	<b>MULL</b>	MULLION		
<b>CT</b>	CERAMIC TILE	<b>FRT</b>	FIRE-TREATED				
<b>D</b>		<b>FTG</b>	FOOTING				
<b>D</b>	DRAIN	<b>G</b>					
<b>D.P.</b>	DAMP/PROOFING	<b>G</b>					
<b>DEM</b>	DEMOLITION	<b>G.B.</b>	GRAB BARS				
<b>DF</b>	DRINKING FOUNTAIN	<b>G.C.</b>	GENERAL CONTRACTOR				
<b>DIA</b>	DIAMETER	<b>GA</b>	GALVANIZED				
<b>DIM</b>	DIMENSION	<b>GALV</b>	GALVANIZED				
<b>DN</b>	DOWN	<b>GYP BDBWG</b>	GYPSUM WALL BOARD				
<b>DD</b>	DITTO						
<b>DR</b>	DOOR						
<b>DS</b>	DOWNSPOUT						
<b>DTL</b>	DETAIL						
<b>DWG</b>	DRAWING						



**PROJECT STATUS**

**ISSUED FOR**

NO.	DATE	DESCRIPTION
1	01/06/2025	AAB SUBMISSION
2	02/18/2026	ISSUED FOR BID

Date: 1/06/2025  
 Scale: 12" = 1'-0"  
 Drawn: VTV  
 Checked: KMI  
 Approved: Approver  
 Project: 25046

Sheet **CS01**





**DEMOLITION LEGEND**

- EXISTING CONSTRUCTION TO REMAIN
- CONSTRUCTION TO BE REMOVED
- REMOVE DOOR AND FRAME (U.N.O.)  
TURN ALL HARDWARE OVER TO OWNER
- EXISTING DOOR TO REMAIN

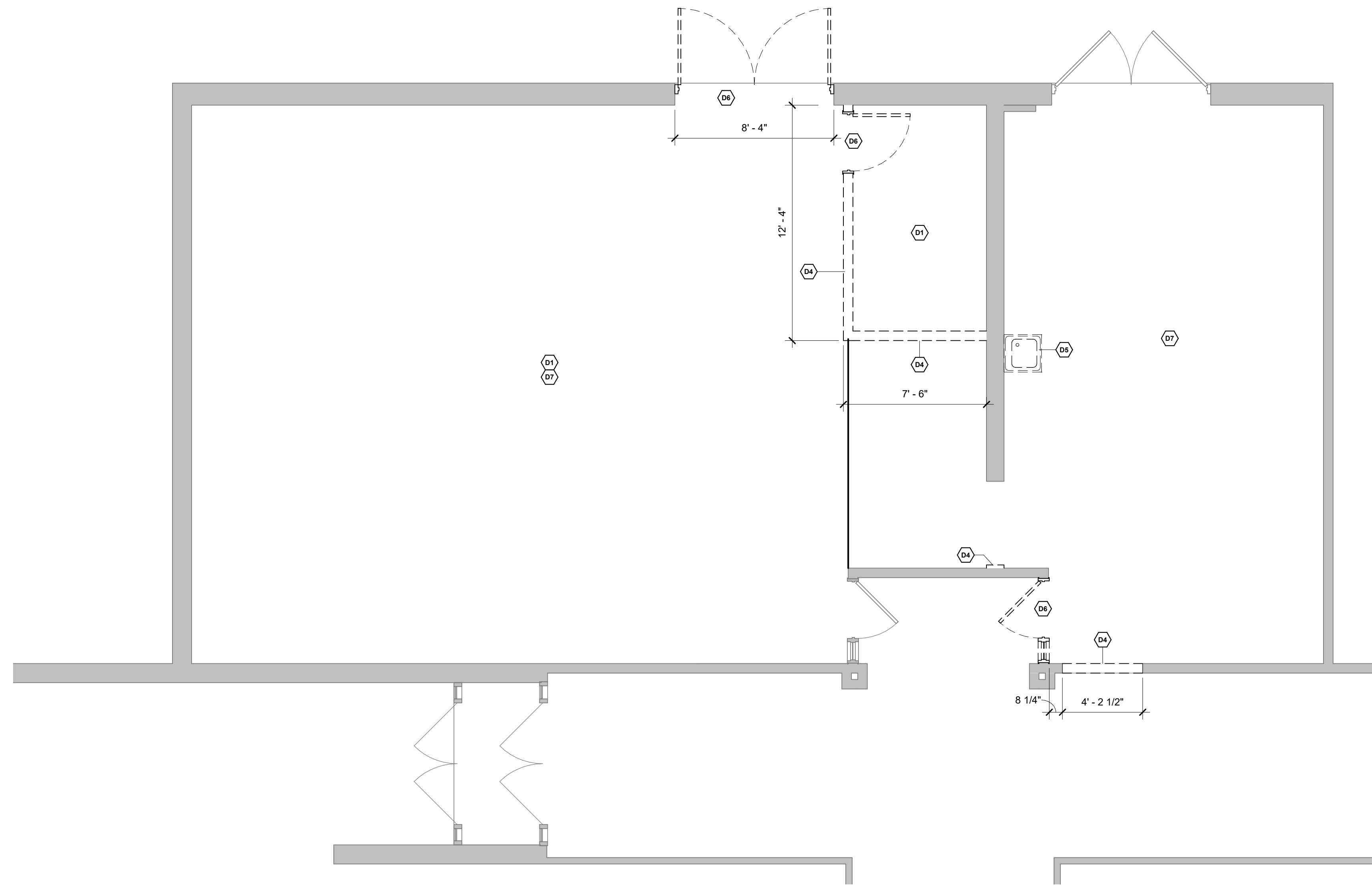
**# DEMOLITION KEY NOTES**

- D1 REMOVE FINISH FLOOR TO SUBFLOOR BELOW. REMOVAL TO INCLUDE ADHESIVES, GROUTING BEDS, WALL BASE, AND PREPARING SUBFLOOR FOR NEW CONSTRUCTION.
- D2 REMOVE ACOUSTICAL CEILING TILE AND GRID, BULKHEADS, AND SOFFITS. COORDINATE REMOVAL WITH OTHER TRADES.
- D3 REMOVE EXISTING LIGHT FIXTURES. COORDINATE WITH MEP.
- D4 REMOVE EXISTING INTERIOR PARTITION. REMOVAL TO INCLUDE MEP WIRING, PIPING, AND DEVICES SERVING FIXTURES IN OR ON THE WALL.
- D5 REMOVE PLUMBING FIXTURE. EXISTING ASSOCIATED PIPING TO REMAIN FOR FUTURE USE. COORDINATE WITH MEP.
- D6 REMOVE DOOR AND ASSOCIATED SIDE LITE IN ITS ENTIRETY. PREP OPENING FOR INFILL OR NEW DOOR SEE A101 FOR MORE DETAIL.
- D7 REMOVE SYSTEMS FURNITURE. BY OWNER.
- D8 REMOVE PROJECTOR AND RETURN TO OWNER.
- D9 REMOVE HOSE PULLY SYSTEM AND RETURN TO OWNER.

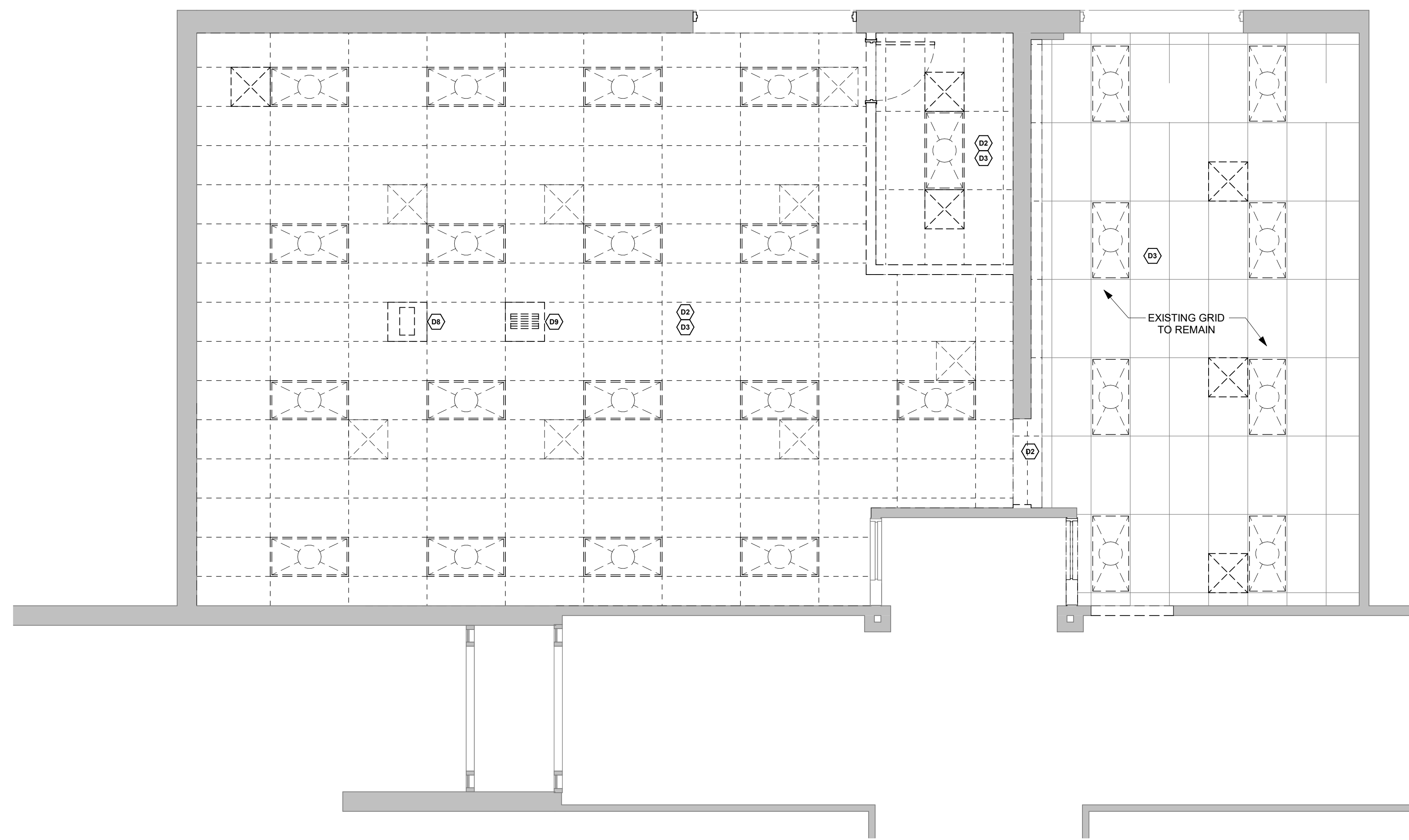
ROOM NAMES AND NUMBERS REFLECT EXISTING CONDITIONS

**DEMOLITION PLAN GENERAL NOTES**

- A. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD AND PROMPTLY NOTIFY THE OWNER AND THE ARCHITECT IN WRITING OF ANY DISCREPANCIES.
- B. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE QUALITY OF WORK FOR ALL SUBCONTRACTORS AND SHALL COORDINATE THE TIMELY COMPLETION OF ALL DEMOLITION WORK. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- C. THE GENERAL CONTRACTOR SHALL REMOVE COMPLETELY FROM THE SITE AND PROPERLY DISPOSE OF ALL DEMOLITION SPOILS AND SHALL MAINTAIN A CLEAN AND SAFE WORK SITE AT ALL TIMES. DUMPSTER LOCATION TO BE COORDINATED WITH THE OWNER AND THE ARCHITECT. THE GENERAL CONTRACTOR SHALL PROPOSE A RECYCLING STRATEGY FOR APPROVAL.
- D. PARTITIONS, WALLS AND OTHER ITEMS TO BE REMOVED ARE SHOWN DASHED. EXCEPT WHERE NOTED OTHERWISE, REMOVE PARTITION OR WALL IN ITS ENTIRETY. FROM FLOOR TO FLOOR OR ROOF STRUCTURE ABOVE. REMOVE ALL EQUIPMENT, FURNISHINGS AND ACCESSORIES ON THE PARTITION OR WALL. EDGES OF WALLS TO REMAIN SHALL BE CLEANLY PREPARED TO ACCEPT NEW CONSTRUCTION. REPAIR AND PATCH EXISTING WALLS OR PARTITIONS TO REMAIN WHERE EXISTING INTERSECTING PARTITIONS, WINDOWS, DOORS, FRAMES, ETC. ARE TO BE REMOVED AND WHERE EXISTING CONSTRUCTION WILL NOT BE COVERED UP WITH NEW CONSTRUCTION. PERFORM DEMOLITION TO EXTENT NECESSARY TO ALLOW FOR NEW CONSTRUCTION.
- E. EXISTING CONSTRUCTION TO REMAIN, INCLUDING BUT NOT LIMITED TO PARTITIONS, FIXTURES, DOORS, FRAMES, ETC. AND SHALL BE PROTECTED FROM COLLATERAL DAMAGE DURING DEMOLITION. DAMAGE TO EXISTING CONSTRUCTION TO REMAIN SHALL BE REPAIRED TO MATCH EXISTING CONDITIONS AT NO ADDITIONAL COST TO THE CLIENT, USING AGENT OR PROFESSIONAL.
- F. PATCH WORK, INFILL, OR REPLACEMENT WORK IS TO MATCH EXISTING CONDITIONS IN TERMS OF MATERIALS, CONSTRUCTION, COLOR, TEXTURE AND PLANE. FINISH TO MATCH ADJACENT EXISTING CONSTRUCTION WHERE EXPOSED TO VIEW (I.E. NOT COVERED UP BY NEW PARTITION OR NEW FURRING SYSTEM). PREPARE SUBSTRATE FOR NEW FINISH WHERE NEW FINISH IS SCHEDULED. AT PLASTER PATCH WORK, BLEND PATCH WITH EXISTING PLASTER CONSTRUCTION TO REMAIN SO THAT THE PLASTER PATCH WORK IS NOT VISUALLY DISTINGUISHABLE AFTER SCHEDULED FINISH (I.E. PAINTING) IS APPLIED. AT MASONRY INFILL, TOOTH-IN INFILL WITH MATCHING MASONRY. AT CONCRETE FLOOR INFILL MATCH ADJACENT CONCRETE FLOOR ELEVATION AND FINISH TEXTURE. SEAL NEW CONCRETE WITH EMBEDDED REINFORCING AND DOWELING. CONTRACTOR IS TO PROVIDE WORK AND INFILL AS REQUIRED.
- G. SALVAGE MATERIAL FOR PATCHING AND INFILLING. SEE PROFESSIONAL'S DRAWINGS FOR NEW WORK OR WHERE SALVAGED MATERIAL IS TO BE REUSED. SALVAGED MATERIAL SHALL BE CLEANED AND STORED IN APPROPRIATE AREAS AWAY FROM THE DEMOLITION OR UNTIL NEEDED.
- H. WHERE FINISHES, ADHESIVES, ETC. ARE TO BE REMOVED FROM EXISTING CONSTRUCTION TO REMAIN (E.G. FLOORS, CEILINGS, WALLS, ETC.), PATCH REMAINING SUBSTRATE FOR NEW FINISH.
- I. FOR ALL EXISTING GYPSUM BOARD WALLS, PREPARE AS NECESSARY TO ALLOW FOR NEW PAINT WORK.
- J. THE GENERAL CONTRACTOR SHALL REFER TO MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR ADDITIONAL DEMOLITION NOTES FOR EQUIPMENT AND SYSTEMS REMOVAL.
- K. THE GENERAL CONTRACTOR TO COORDINATE WITH ASBESTOS ABATEMENT CONTRACTOR FOR SCHEDULE, ACCESS REQUIREMENTS & ANY POSSIBLE CONFLICTS.
- L. THE GENERAL CONTRACTOR TO HANDLE ALL MOLD & MILDEW, AND LEAD WITH APPROPRIATE METHODS PER HOSPITAL REQUIREMENTS.
- M. REMOVE FIRE EXTINGUISHER & ALL RELATED HARDWARE/ACCESSORIES. SURFACES TO BE MADE READY FOR NEW CONSTRUCTION. EXTINGUISHER TO BE TURNED OVER.



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



**2 REFLECTED CEILING PLAN - DEMOLITION**  
Scale: 1/4" = 1'-0"

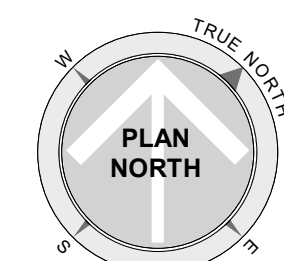
The professional services of the architect are undertaken and performed in the interest of DELAWARE TECHNICAL COMMUNITY COLLEGE. No contractual obligation is assumed by the architect for the benefit of any other person involved in the project.

PROJECT  
DTCC Terry Nursing Simulator  
100 Campus Dr,  
Dover, DE 19901

OWNER  
DELAWARE TECHNICAL COMMUNITY COLLEGE  
100 Campus Drive  
Dover, DE 19901

FLOOR AND REFLECTED CEILING PLANS - DEMOLITION

PROJECT STATUS



ISSUED FOR

NO.	DATE	DESCRIPTION
1	01/06/2025	JAB SUBMISSION
2	02/18/2025	ISSUED FOR BID

Date: 1/06/2025  
Scale: As indicated  
Drawn: VTV  
Checked: KMI  
Approved: Approver  
Project: 25046



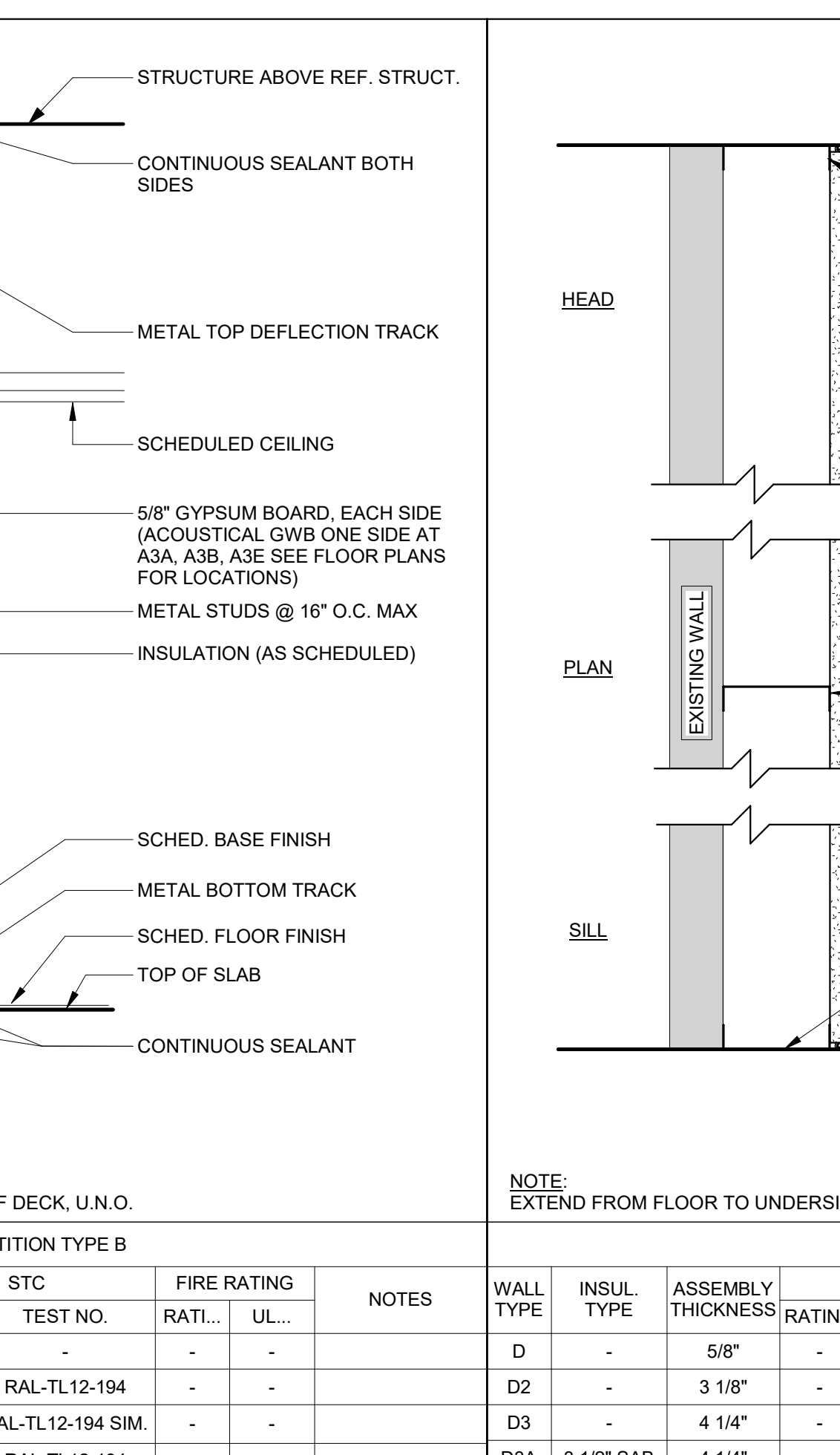
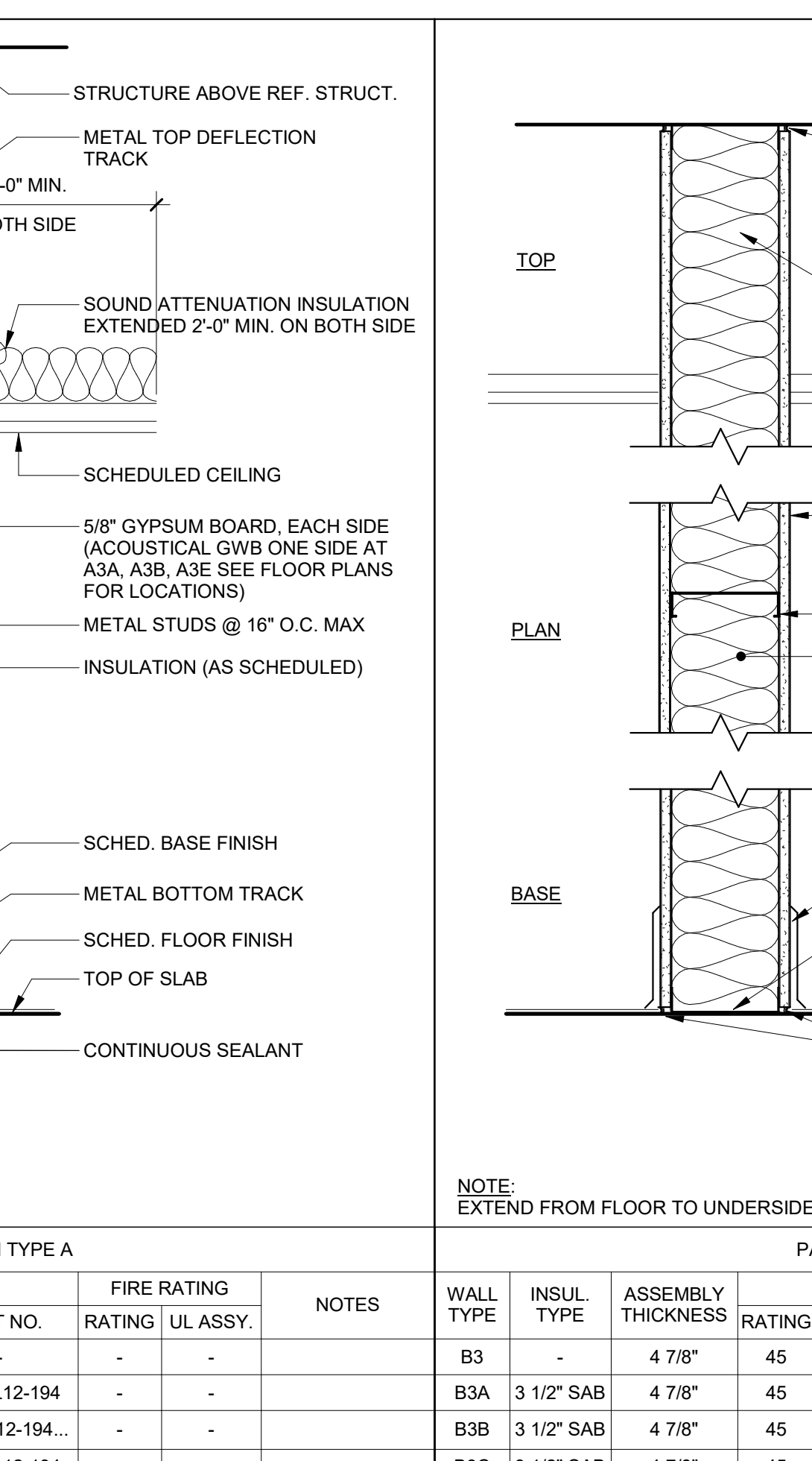
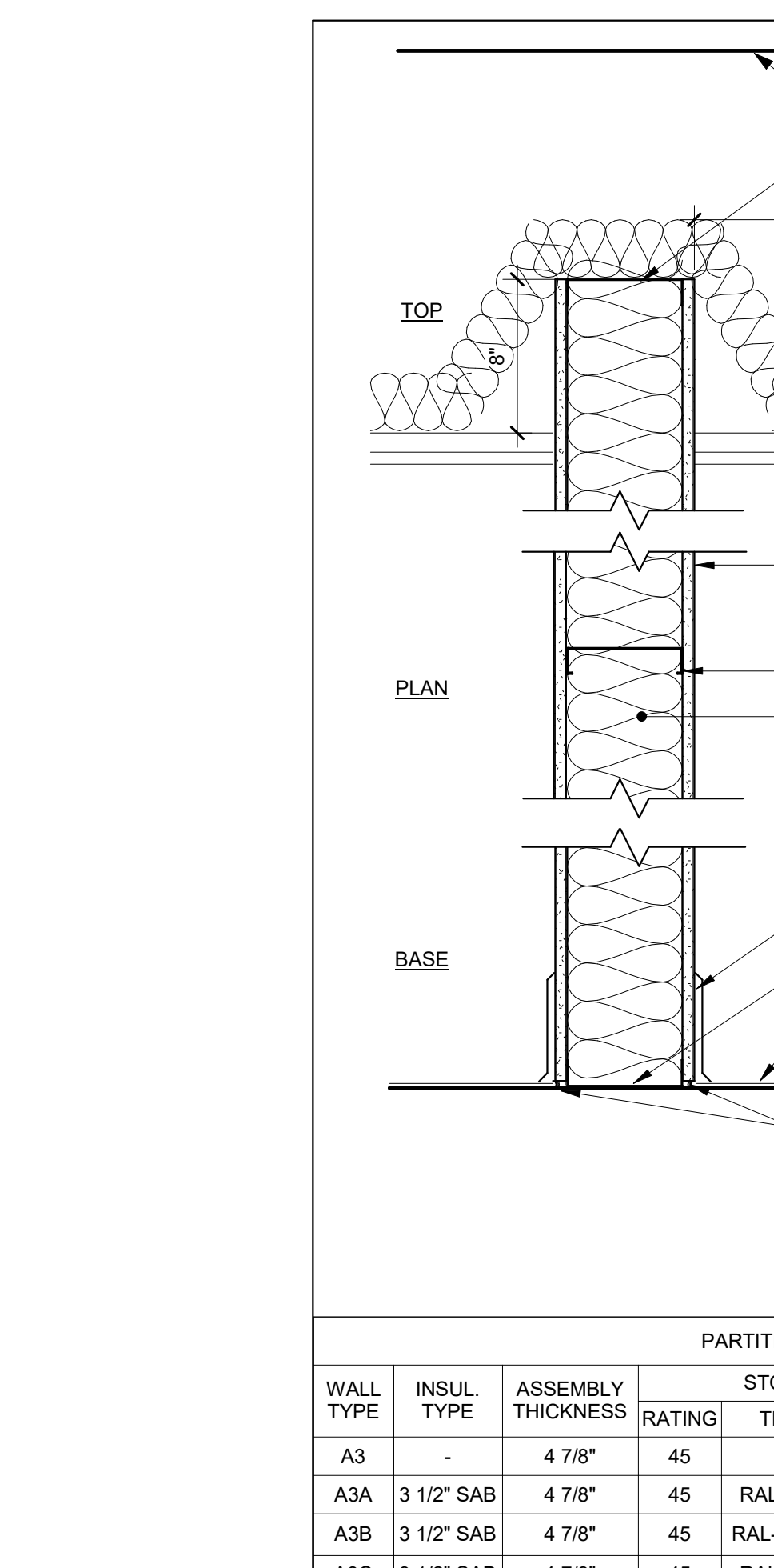
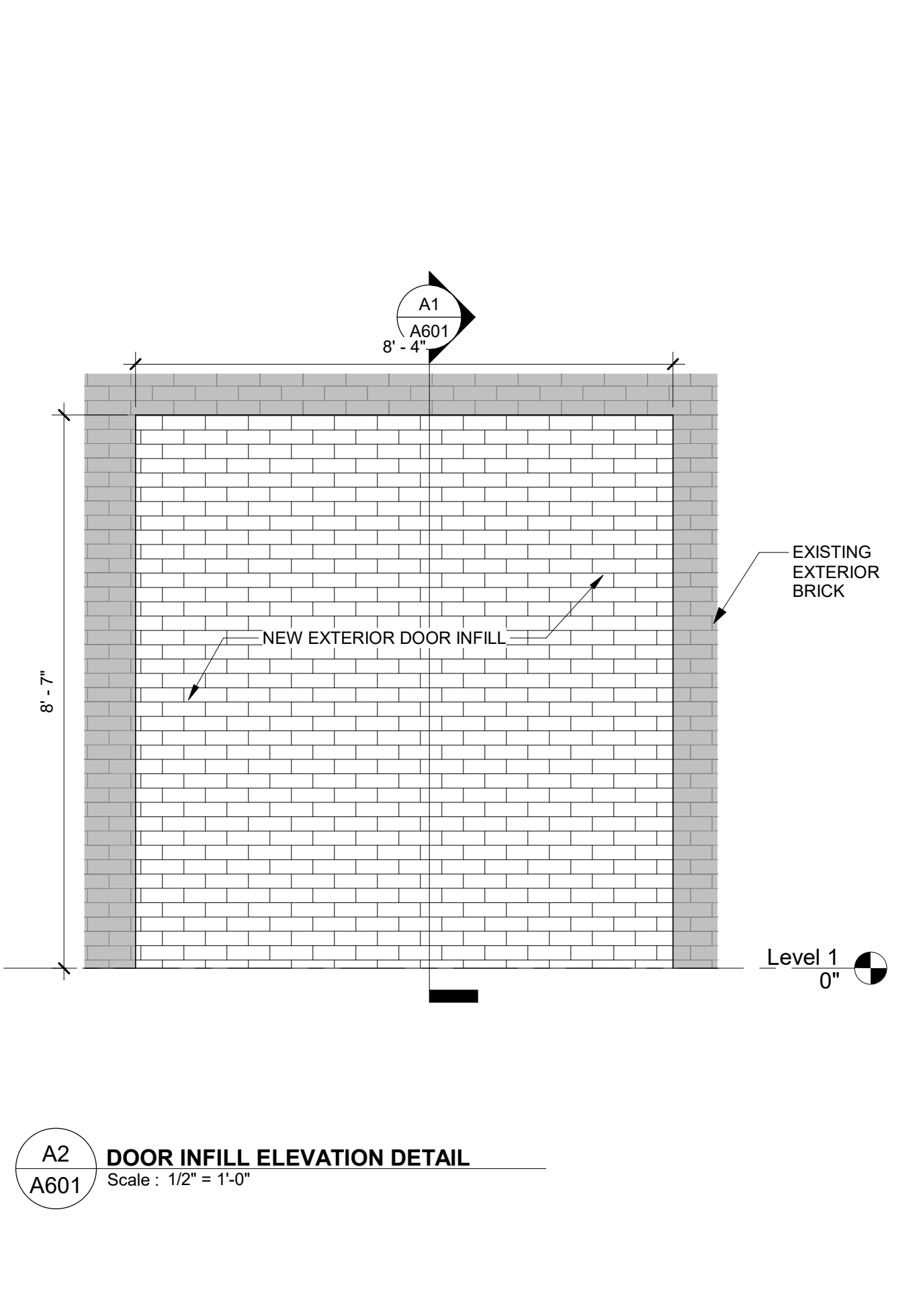
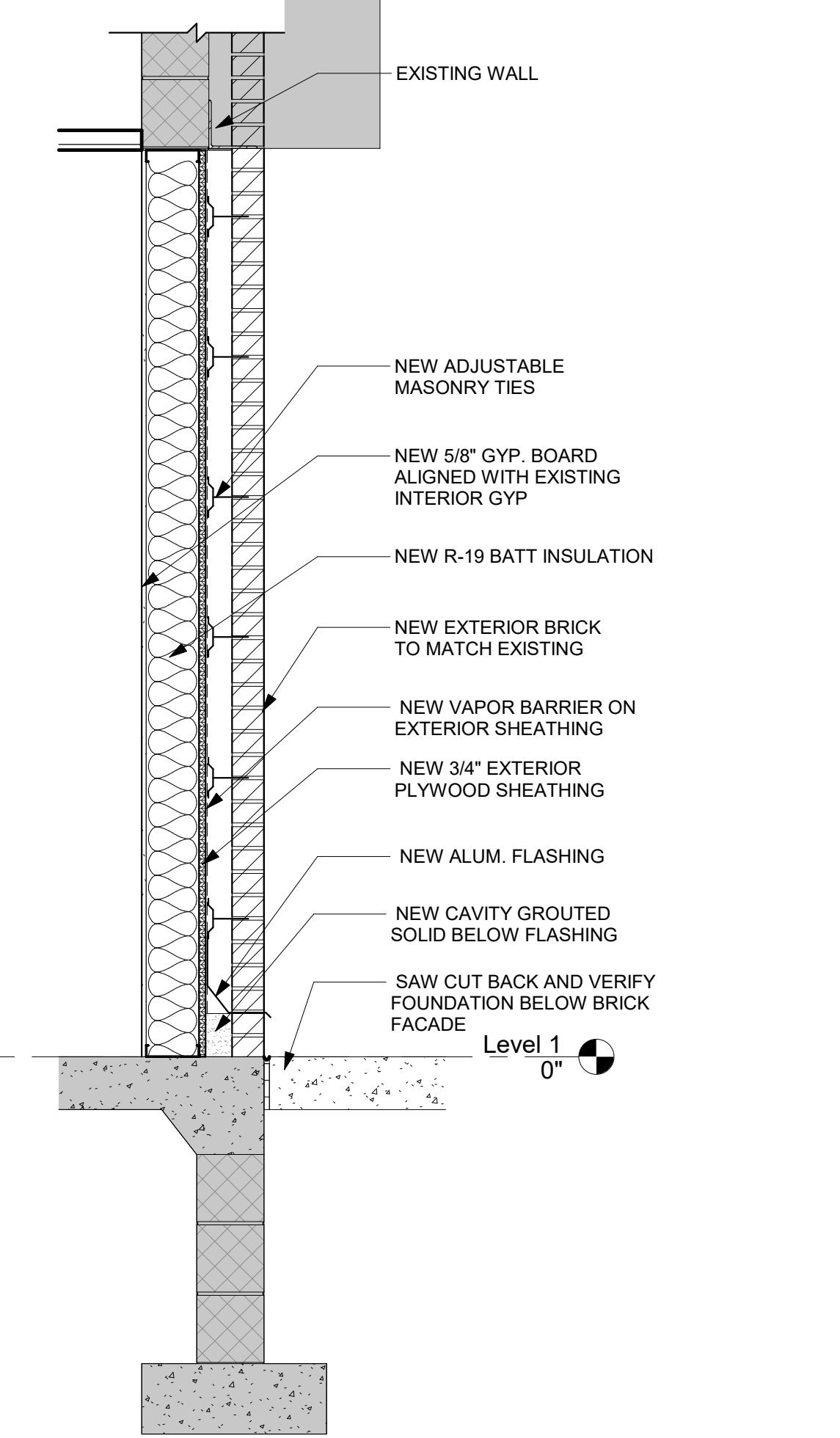
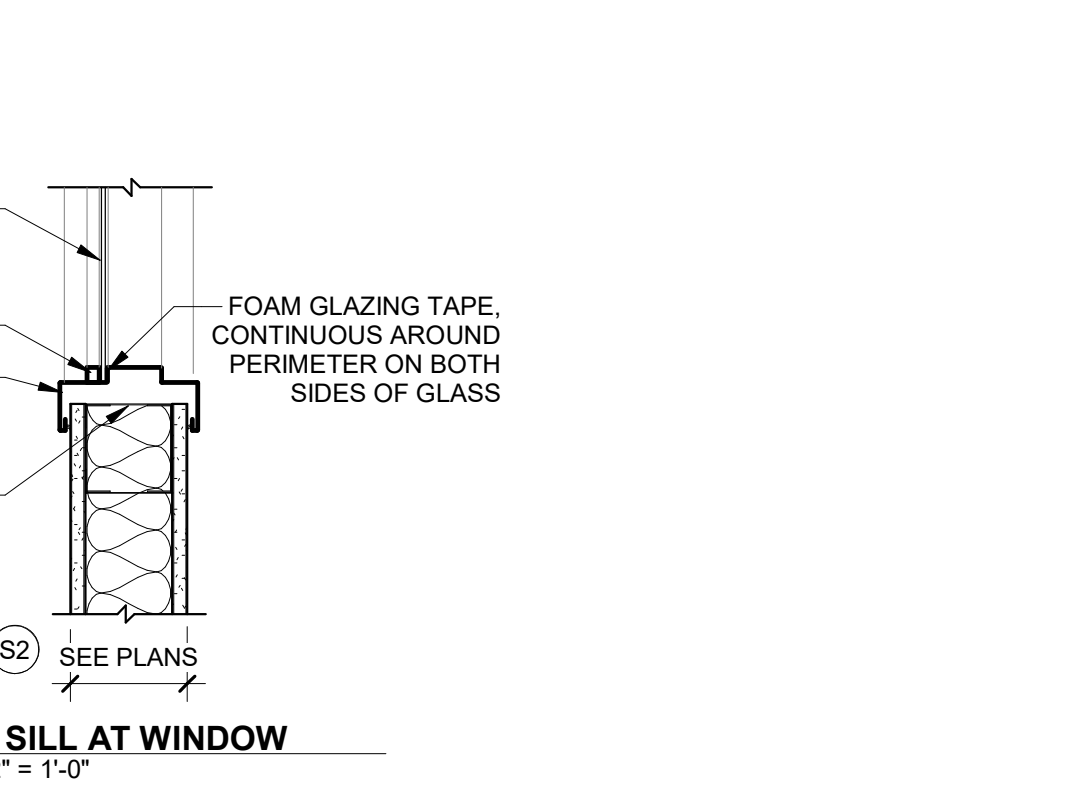
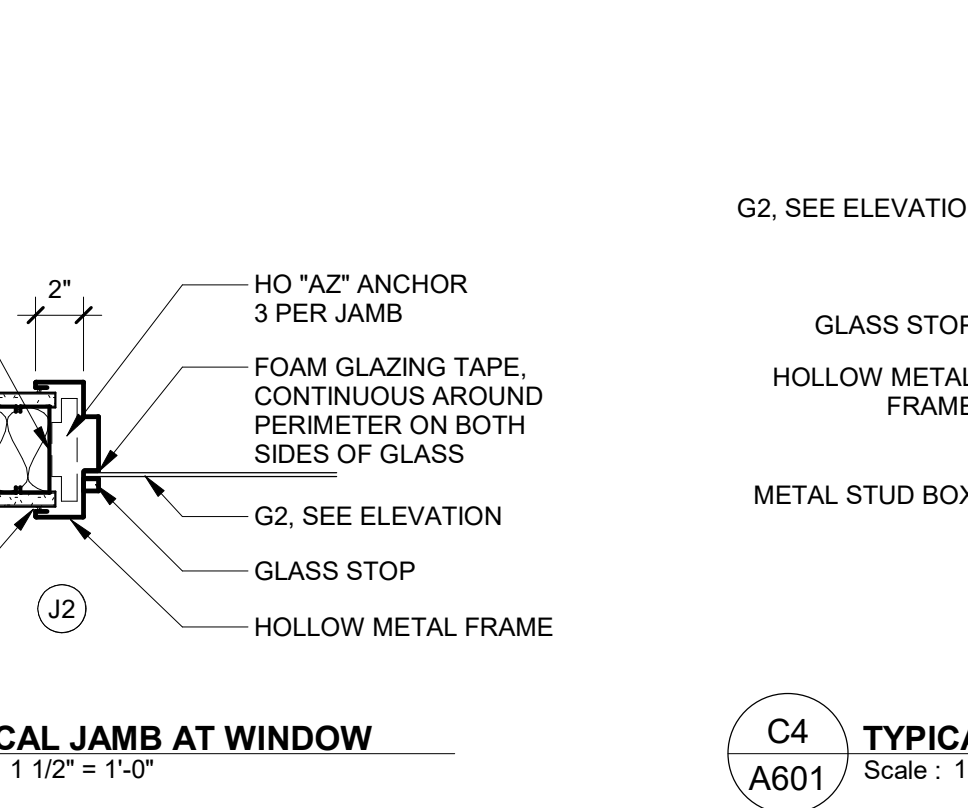
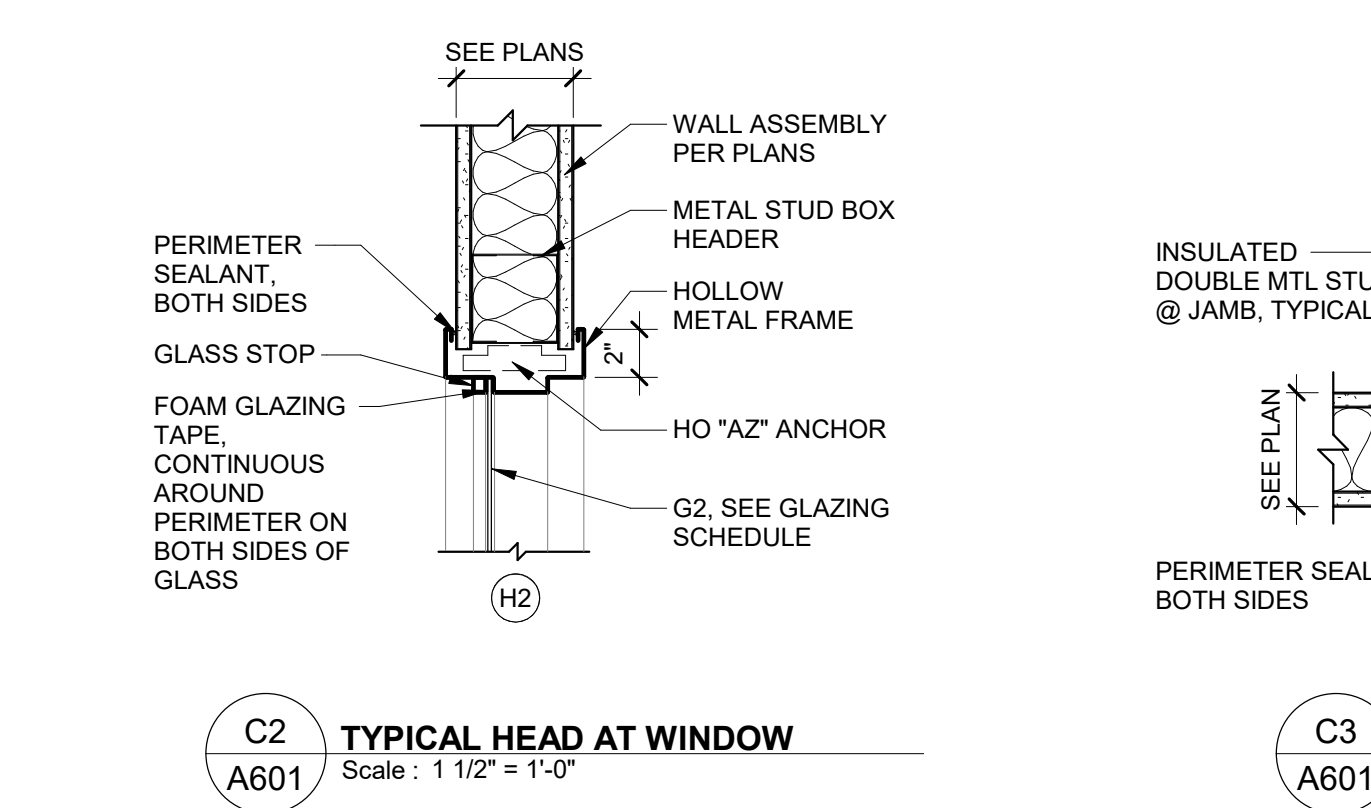
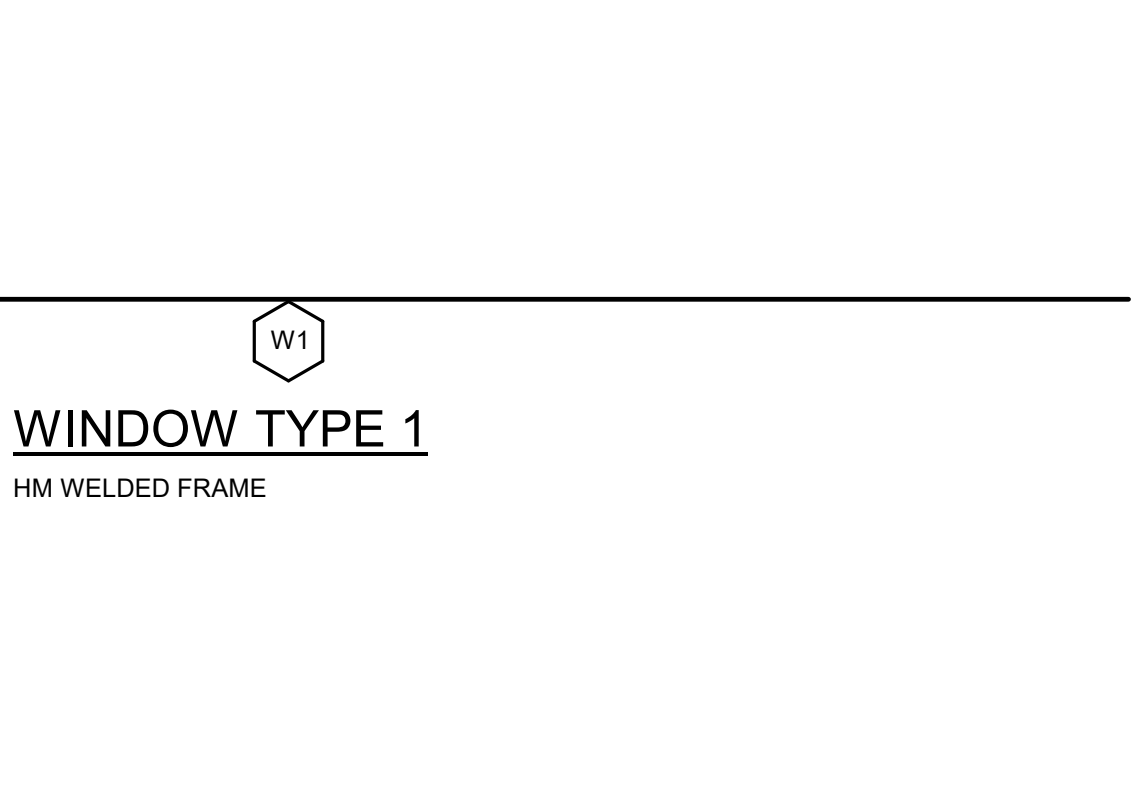
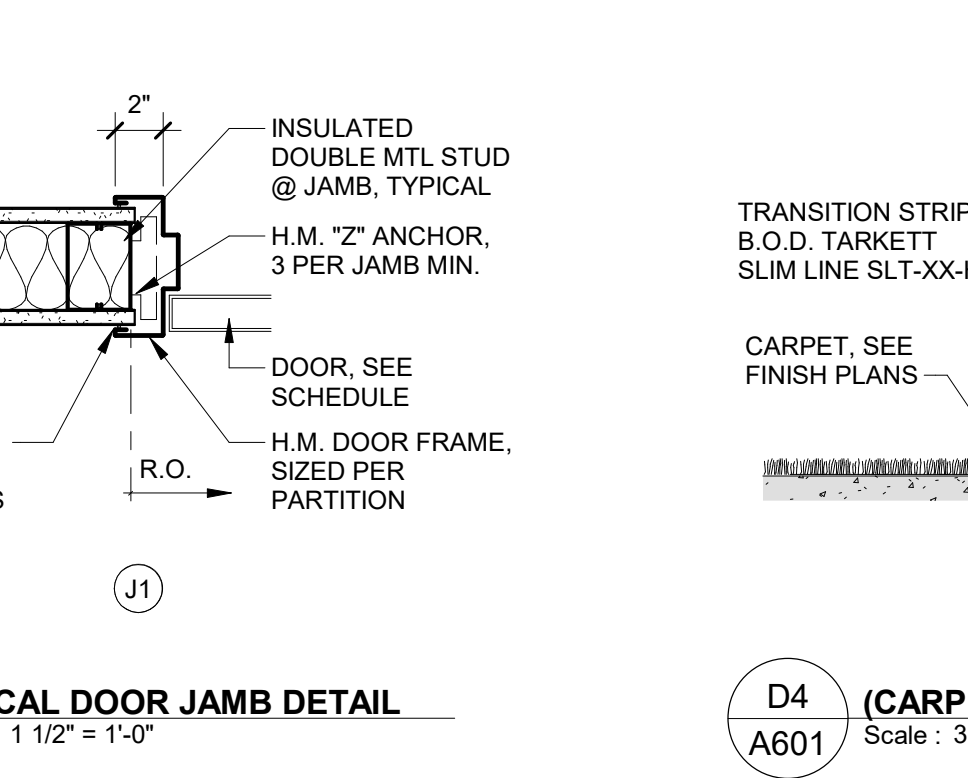
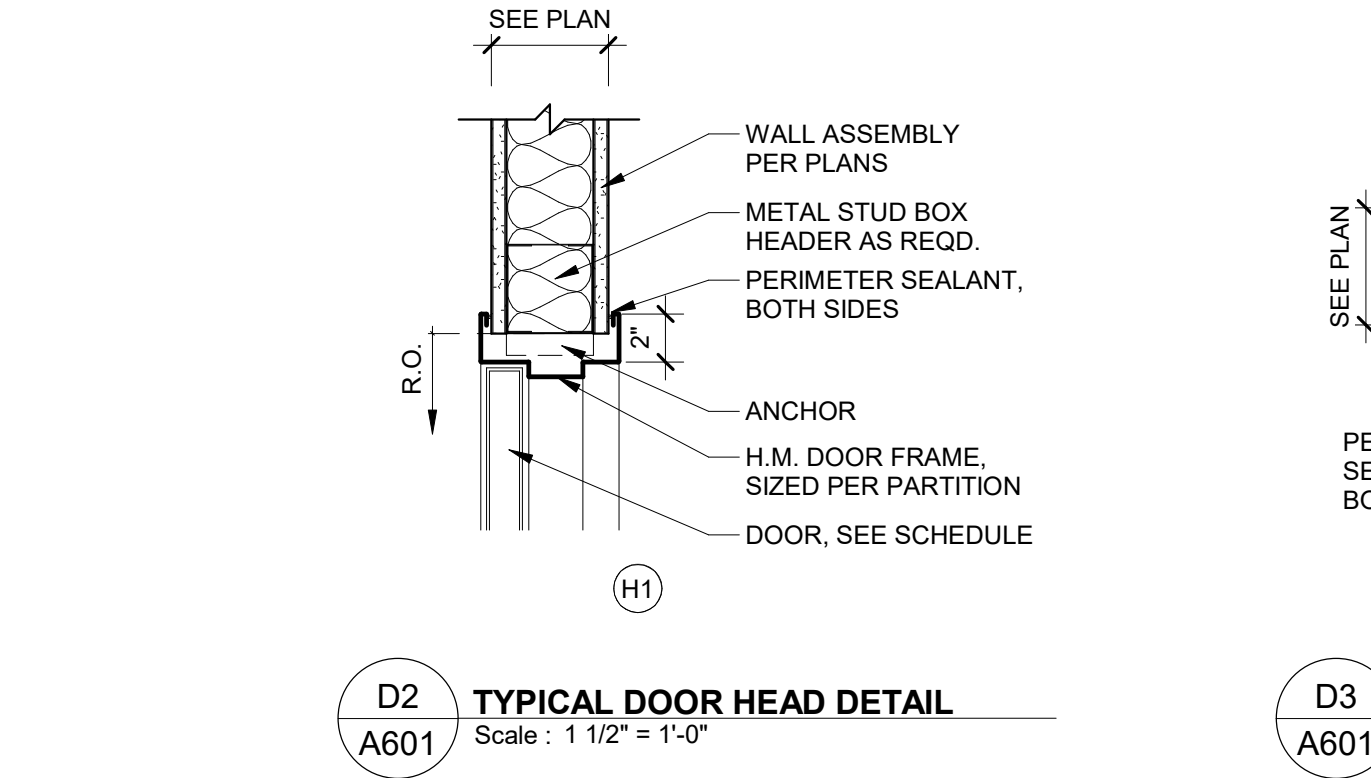
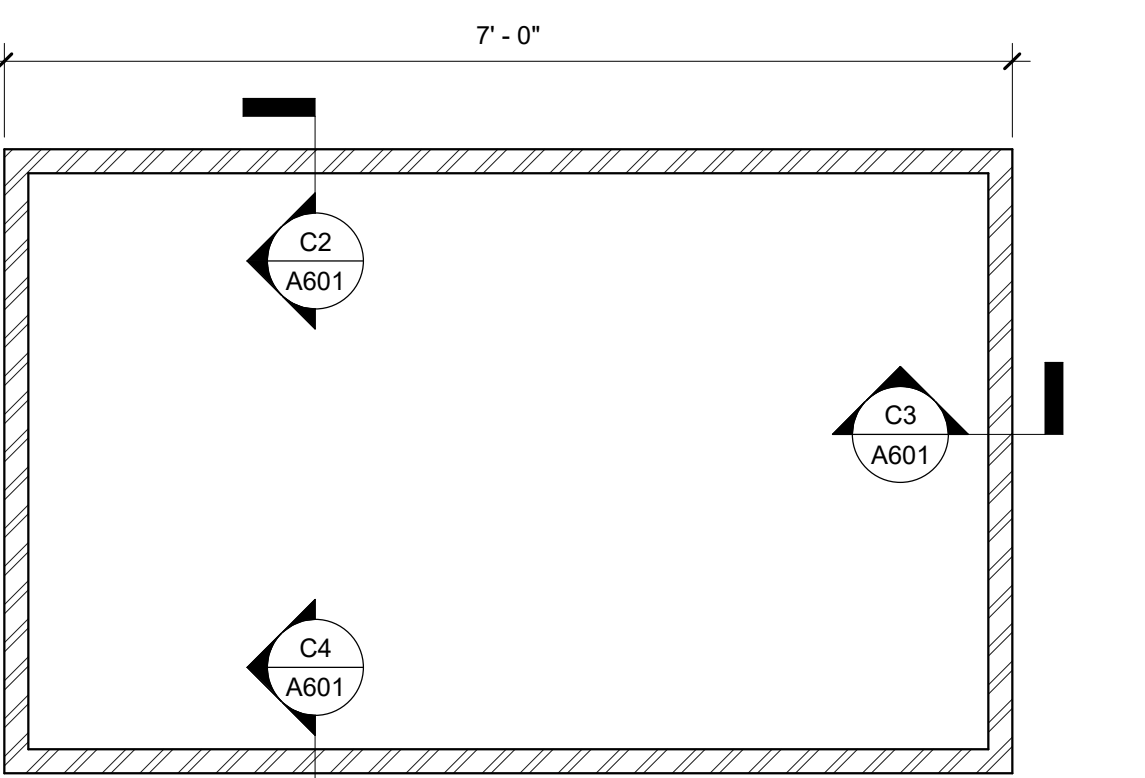
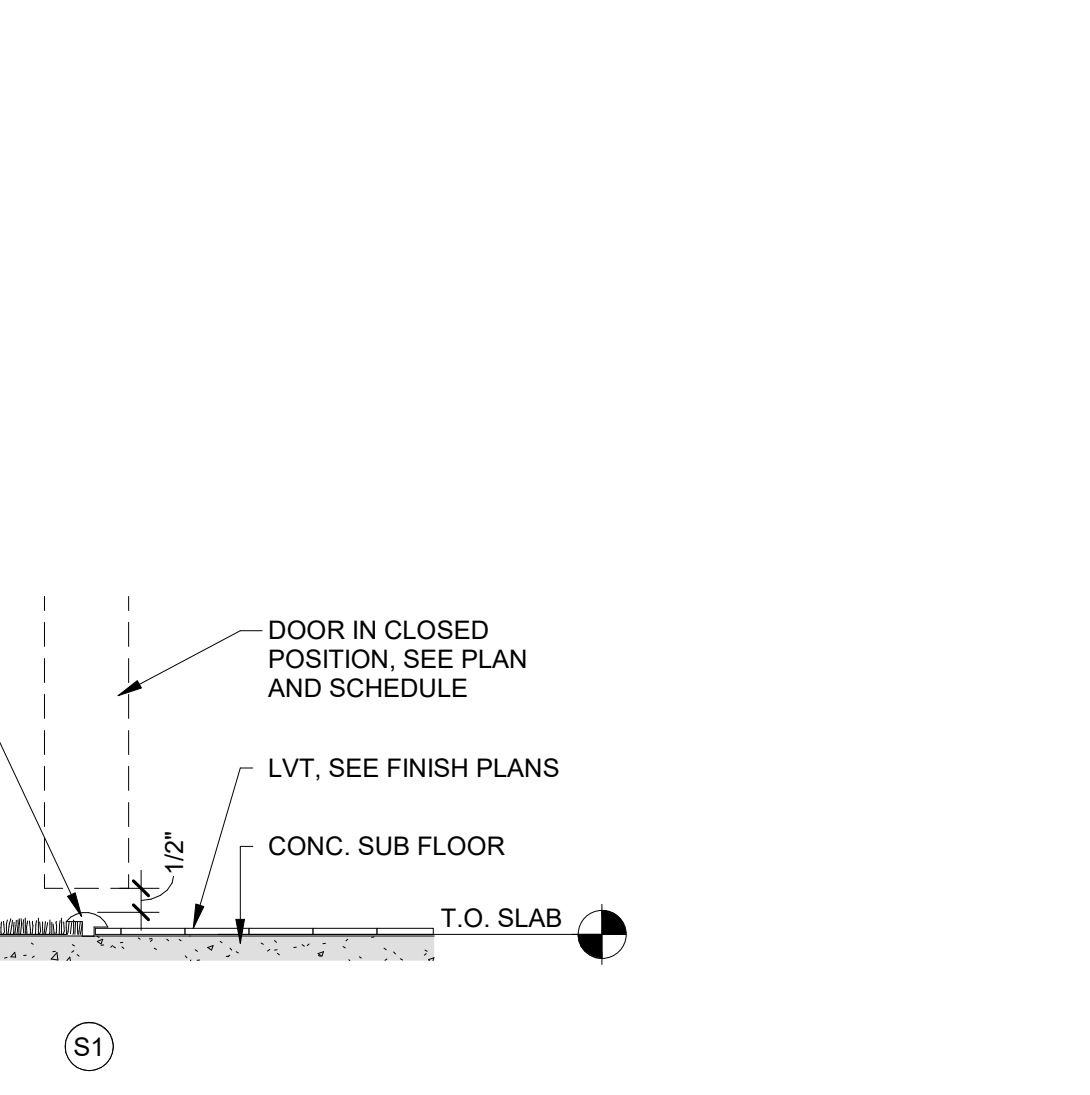
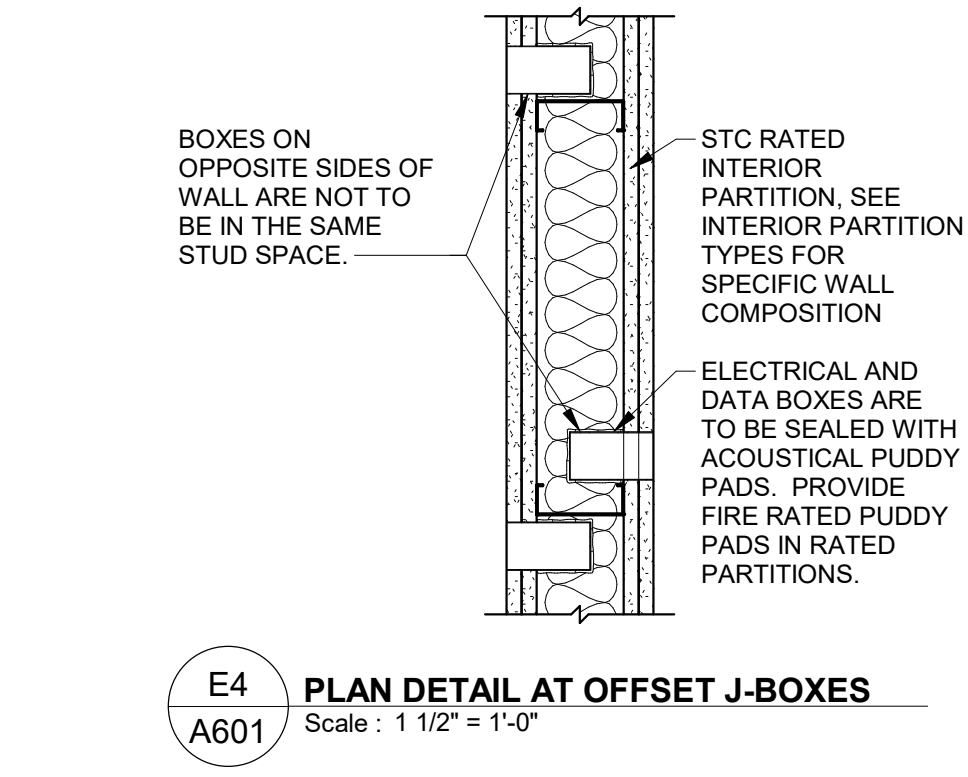
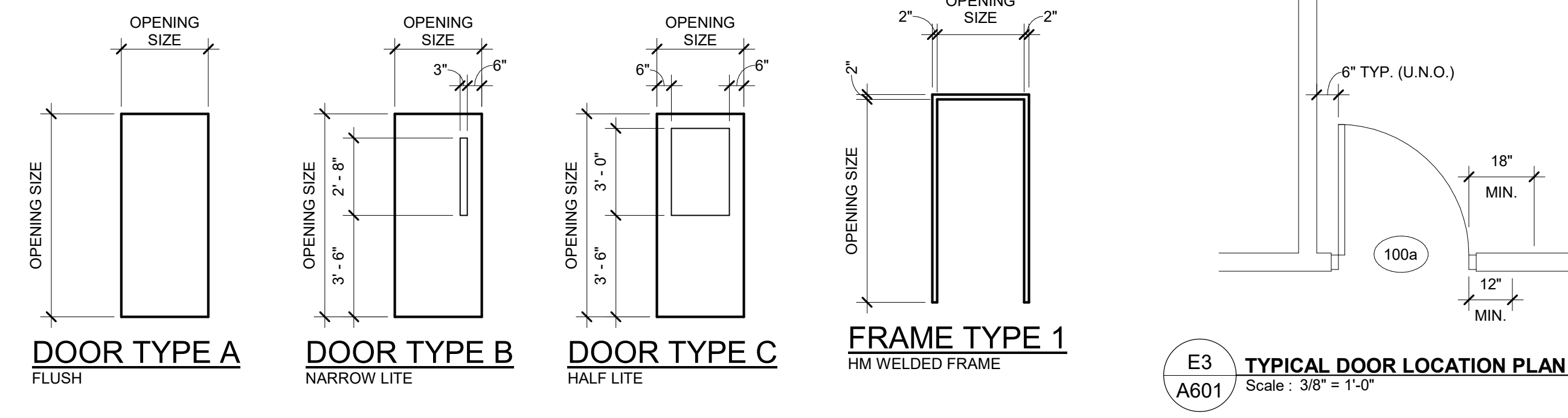
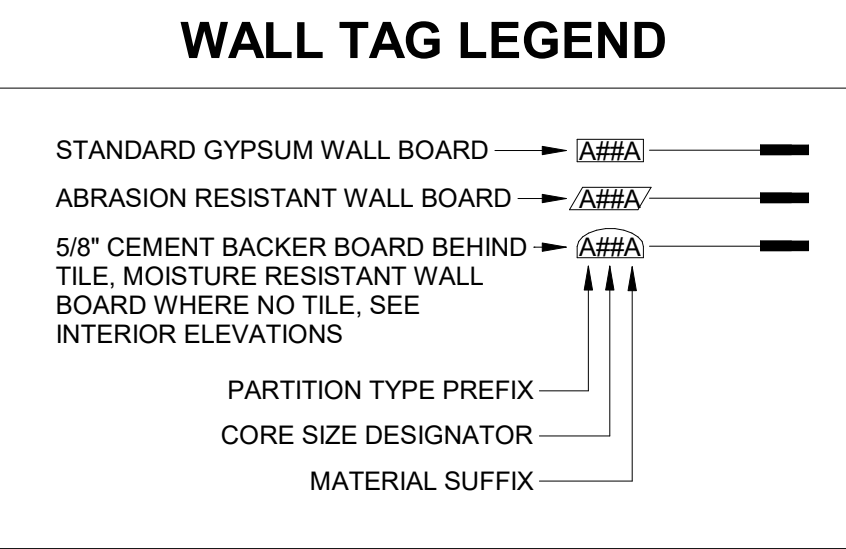


DOOR SCHEDULE															
NUMBER	OPENING			DOOR				FRAME				DETAIL			
	WIDTH	HEIGHT	A	TYPE	DOOR MATERIAL	FINISH	GLAZING TYPE	FIRE RATING	TYPE	MATERIAL	FINISH	HEAD	JAMB	SILL	HARDWARE SET
1	4'-0"	7'-0"	A	WD	WD				1	HM		H1	J1		SET #01
2	3'-0"	7'-0"	B	WD	WD				1	HM		H1	J1		SET #02
3	4'-0"	7'-0"	C	WD	WD				1	HM		H1	J1		SET #03
4	4'-0"	7'-0"	C	WD	WD				1	HM		H1	J1		SET #04
5	3'-0"	7'-0"	B	WD	WD				1	HM		H1	J1		SET #03
6	3'-0"	7'-0"	B	WD	WD				1	HM		H1	J1		SET #04

GLAZING SCHEDULE	
G-1	1/4" CLEAR TEMPER GLASS
G-2	1/4" ONE WAY TEMPER GLASS
G-3	3M™ FASARA-GLASS FINISHES FABRIC

Hardware Sets			
<b>Set #01 - Equipment</b>			
Doors: 1			
3	Butt Hinge	FBB168 5" x 4.5"	26D ST
1	Storeroom Lockset	45H-0N16H	626 BE
1	Wall Bumper	K0050 10" x 2" LDW B4E-Heavy CSK	630 TR
3	Silencer	1270CX	630 TR
3	Silencer	1229B	GREY TR
<b>Set #02 - Observation</b>			
Doors: 2			
3	Butt Hinge	FBB179 4.5" x 4.5"	26D ST
1	Passage Lockset	45H-0N16H	626 BE
1	Kickplate	K0050 10" x 2" LDW B4E-Heavy CSK	630 TR
1	Wall Bumper	1270CX	626 TR
3	Silencer	1229B	GREY TR
<b>Set #03 - Sim / Exam Room</b>			
Doors: 3, 4, 6			
3	Butt Hinge	FBB168 5" x 4.5"	26D ST
1	Passage Lockset	45H-0N16H	626 BE
1	Kickplate	K0050 10" x 2" LDW B4E-Heavy CSK	630 TR
1	Wall Bumper	1270CX	626 TR
3	Silencer	1229B	GREY TR
<b>Set #04 - Observation / Debrief</b>			
Doors: 5, 7			
3	Butt Hinge	FBB179 4.5" x 4.5"	26D ST
1	Passage Lockset	45H-0N16H	626 BE
1	Kickplate	K0050 10" x 2" LDW B4E-Heavy CSK	630 TR
1	Overhead Stop	9020 Series	630 AB
3	Silencer	1229B	GREY TR

- GENERAL NOTES:**
- AC = ALUMINUM ANODIZED
  - AL = ALUMINUM ANODIZED
  - EAC = ENHANCED ACOUSTICAL
  - HM = HOLLOW METAL
  - PT = PAINTED
  - SPT = SHOP PAINTED / PRE-FINISHED
  - STD = STAINED
  - STD = STANDARD ARCHITECT TO SELECT FROM MANUF. FULL RANGE OF COLORS
  - TBS = TBS
- INTERIOR DOORS SHOULD REQUIRE NO MORE THAN 5 LBS. OF FORCE TO OPEN.
  - OPENING FORCE FOR EXTERIOR DOORS SHOULD REQUIRE NO MORE THAN 8.5-10 LBS. OF FORCE TO OPEN.
  - FIRE RATING TO MEET OR EXCEED RATING OF DOOR. ALL GLAZING IN FIRE-RATED DOORS TO BE FIRE GLASS COMPLYING WITH ANSI IMPACT REQUIREMENTS.
  - ALL CLOSERS TO HAVE CLOSING SPECS SET 90° - 12" - 5 SECONDS MIN.
  - ALL DOOR HARDWARE TO BE MOUNTED A MIN. OF 34 INCHES ABOVE FINISHED FLOOR AND A MAXIMUM OF 48 INCHES ABOVE FINISHED FLOOR. ALL DOOR OPERATING DEVICES (OTHER THAN PANIC HARDWARE) TO BE LEVER OPERATED.
  - ALL THRESHOLDS TO BE 1/2" MAX. HEIGHT, BEVELED 1:2 SLOPE. ALL GLASS IN DOORS AND WITHIN 24" OF A DOOR TO BE TEMPERED SAFETY GLASS (T) U.N.O.



ISSUED FOR													
NO.	DATE	DESCRIPTION											
1	01/06/2025	JAB SUBMISSION											
2	02/18/2025	ISSUED FOR BID											

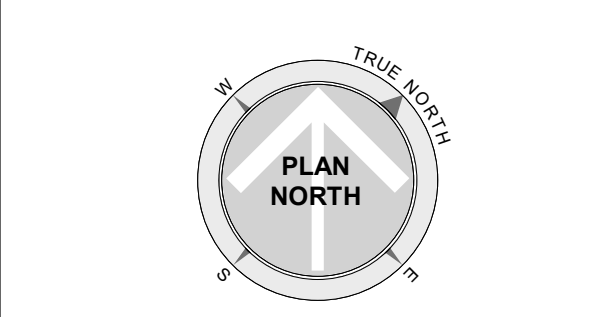
The professional services of the architect are undertaken and performed in the interest of DELAWARE TECHNICAL COMMUNITY COLLEGE. No contractual obligation is assumed by the architect for the benefit of any other person involved in the project.

**PROJECT**  
DTCC Terry Nursing Simulator  
100 Campus Dr.  
Dover, DE 19901

**OWNER**  
DELAWARE TECHNICAL COMMUNITY COLLEGE  
100 Campus Drive  
Dover, DE 19901

**SCHEDULES & DETAILS**

**PROJECT STATUS**



**ISSUED FOR**

NO.	DATE	DESCRIPTION
1	01/06/2025	JAB SUBMISSION
2	02/18/2025	ISSUED FOR BID

Date: 1/06/2025  
Scale: As indicated  
Drawn: VTV  
Checked: KMI  
Approved: Approver  
Project: 25046



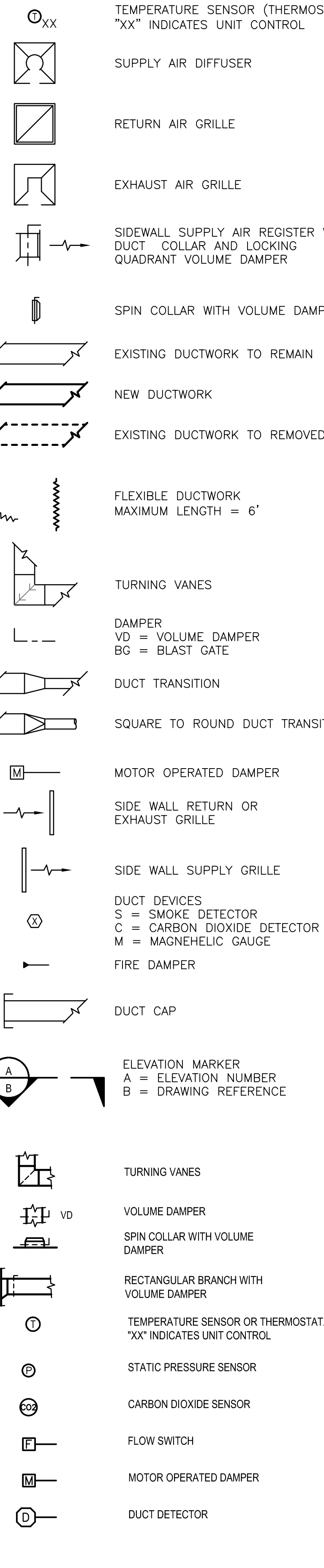




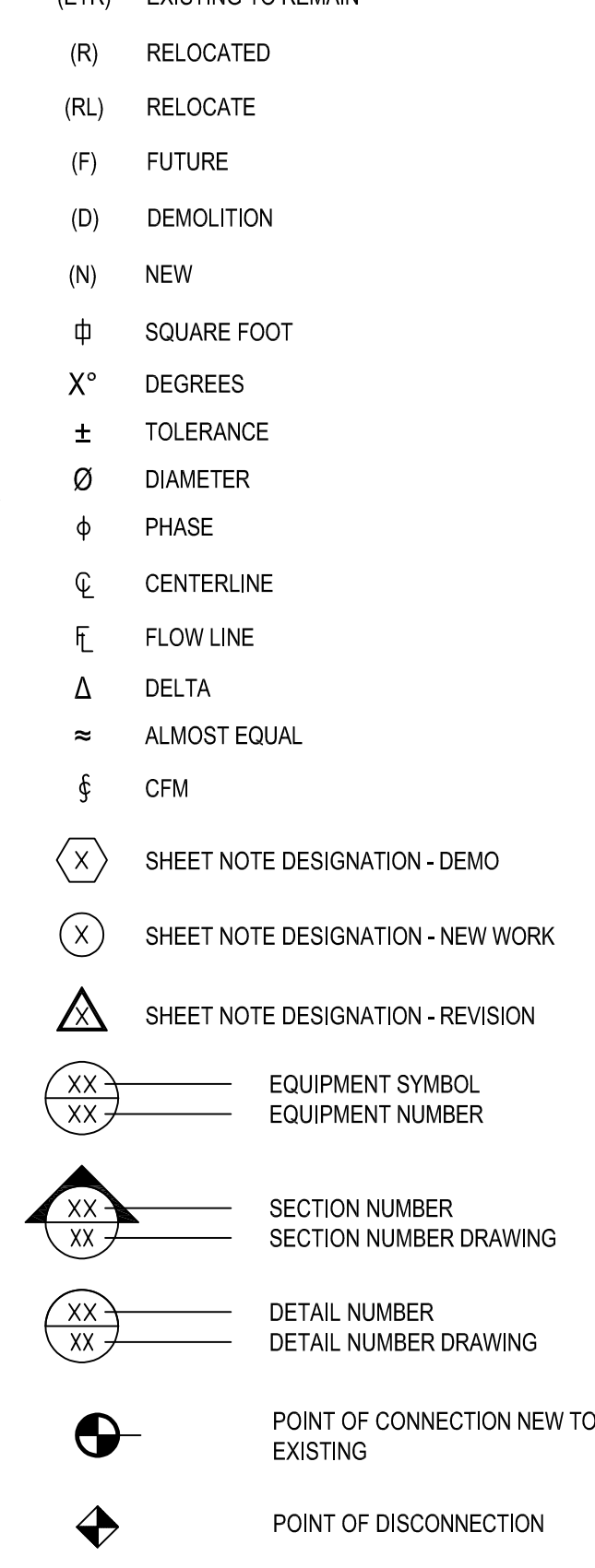
**ABBREVIATIONS:**  
(NOT ALL ABBREVIATIONS ARE USED)

ABV	ABOVE	KW	KILOWATT
AD	ACCESS DOOR		
AF	ACCESS DOOR		
AFMS	AIR FLOW MONITORING STATION		
AHU	AIR HANDLING UNIT		
AI	ANALOG INPUT		
AO	ANALOG OUTPUT		
AP	ACCESS PANEL		
APD	AIR PRESSURE DROP		
AS	AIR SEPARATOR		
AVG	AVERAGE		
AWT	AVERAGE WATER TEMPERATURE		
B	BOILER		
BAS	BUILDING AUTOMATION SYSTEM		
BD	BACK DRAFT DAMPER		
BHP	BRAKE HORSEPOWER		
BFP	BACKFLOW PREVENTER		
BLW	BELOW		
BOO	BOTTOM OF DUCT		
BOP	BOTTOM OF PIPE		
BOS	BOTTOM OF STEEL		
BT	BUFFER TANK		
BTUH	BRITISH THERMAL UNIT PER HOUR		
BYP	BYPASS		
C	CONDUIT OR CONDENSATE		
CAP	CAPACITY		
CAV	CONSTANT AIR VOLUME		
CC	COILING COIL		
CD	CEILING DIFFUSER OR CONDENSATE DRAIN		
CFM	CUBIC FEET PER MINUTE		
CH	CHILLER		
CHP	CEILING HEAT PUMP		
CHWR	CHILLED WATER RETURN		
CHWS	CHILLED WATER SUPPLY		
CLG	CEILING		
CP	CONDENSATE PUMP		
CO	CLEAN OUT		
CU	CONDENSING UNIT		
CUH	CABINET VOLUME HEATER		
CV	CONSTANT VOLUME OR CONTROL VALVE		
CVB	CONSTANT VOLUME BOX		
CW	COLD WATER (DOMESTIC)		
CWP	CONDENSER WATER PUMP		
CWR	CONDENSER WATER RETURN		
CWS	CONDENSER WATER SUPPLY		
DB	DRY BULB		
DCW	DOMESTIC COLD WATER		
DHW	DOMESTIC HOT WATER		
DHWR	DOMESTIC HOT WATER RETURN		
DI	DIGITAL INPUT		
DIA	DIAMETER		
DO	DIGITAL OUTPUT		
DN	DOWN		
DWG	DRAWING		
DX	DIRECT EXPANSION		
EA	EXHAUST AIR		
EAT	ENTERING AIR TEMPERATURE		
EC	ELECTRICAL CONTRACTOR		
EDH	ELECTRIC DUCT HEATER		
EER	ENERGY EFFICIENCY RATIO		
EF	EXHAUST FAN		
EG	EXHAUST GRILLE		
EL	EXHAUST LOUVER		
ELEC	ELECTRICAL		
ENT	ENTERING		
EQUIP	EQUIPMENT		
ER	EXHAUST REGISTER		
ESP	EXTERNAL STATIC PRESSURE		
ET	EXPANSION TANK		
EW	ELECTRIC UNIT HEATER		
EWT	ENTERING WATER TEMPERATURE		
EXH	EXHAUST		
EXP	EXPANSION		
F	DEGREES FAHRENHEIT		
FCU	FAN COIL UNIT		
FLA	FLOOR DRAIN OR FIRE DAMPER		
FLD	FULL LOAD AMPS		
FLR	FLOOR		
FM	FLOW METER		
FPM	FEET PER MINUTE		
FPS	FEET PER SECOND		
FS	FLOW SWITCH		
FSD	FIRE SMOKE DAMPER COMBO		
FT	FEET OR FLASH TANK		
FT/WG	FEET WATER GAUGE		
FV	FACE VELOCITY		
G	GAS		
GAL	GALLON		
GC	GENERAL CONTRACTOR		
GP	GALLONS PER MINUTE		
HC	HEATING COIL		
HHWS	HEATING HOT WATER SUPPLY		
HHWR	HEATING HOT WATER RETURN		
HORIZ	HORIZONTAL		
HP	HORSEPOWER OR HEAT PUMP		
HR	HOURLY		
HWC	HOT WATER COIL		
H	HEIGHT		
HVAC	HEATING, VENTILATION & AIR CONDITIONING		
HW	HOT WATER		
HWP	HOT WATER PUMP		
HWR	HOT WATER RETURN		
HWS	HOT WATER SUPPLY		
Hz	HERTZ		
ID	INSIDE DIAMETER		
IL	INTAKE LOUVER		
IN	INCH		
IN/WG	INCHES WATER GAUGE		
INT	INTERIOR		
I/O	INPUT/OUTPUT		
IPS	INTERNATIONAL PIPE STANDARD		
L	LOUVER OR LENGTH		
LAT	LEAVING AIR TEMPERATURE		
LB	POUNDS		
LB/HR	POUNDS PER HOUR		
LD	LINEAR DIFFUSER		
LRA	LOCKED ROTOR AMPS		
LVG	LEAVING		
LWT	LEAVING WATER TEMPERATURE		
MAX	MAXIMUM		
MBH	1000 BTU PER HOUR		
MC	MECHANICAL CONTRACTOR		
MCA	MAXIMUM CIRCUIT AMPACITY		
MCC	MOTOR CONTROL CENTER		
MCH	MECHANICAL		
MIN	MINIMUM		
MISC	MISCELLANEOUS		
MOP	MAXIMUM OVERCURRENT PROTECTION		
MOD	MOTOR OPERATED DAMPER		
NC	NORMALLY CLOSED OR NOISE CRITERIA		
NIC	NOT IN CONTRACT		
NO	NORMALLY OPEN		
NTS	NOT TO SCALE		
OA	OUTSIDE AIR		
OAI	OUTSIDE AIR INTAKE		
OD	OUTSIDE DIAMETER		
P	PUMP		
PC	PLUMBING CONTRACTOR		
PD	PRESSURE DROP		
PH	PHASE		
PLMB	PLUMBING		
PPM	PARTS PER MILLION		
PRV	PRESSURE REDUCING VALVE		
PSF	POUND PER SQUARE FOOT		
PSIA	POUNDS PER SQUARE INCH ABSOLUTE		
PSIG	POUNDS PER SQUARE INCH GAUGE		
PVC	POLYVINYL CHLORIDE		
QTY	QUANTITY		
R	REFRIGERANT		
RA	RELIEF AIR		
RAV	RELIEF AIR VENT		
RCP	REFLECTED CEILING PLAN		
RD	ROOF DRAIN		
RE	RELIEF AIR		
RE	RELOCATED		
RF	RETURN AIR FAN		
RG	RETURN AIR GRILLE		
RH	RELATIVE HUMIDITY		
RHC	REHEAT COIL		
RL	RAIN LEADER		
RLA	RUNNING LOAD AMPS		
RPM	REVOLUTIONS PER MINUTE		
RR	RETURN AIR REGISTER		
RTAHU	ROOF TOP AIR HANDLER UNIT		
RTU	ROOFTOP UNIT		
RV	RELIEF VALVE		
SA	SUPPLY AIR		
SAN/S	SANITARY		
SC	SERVICE CLEARANCE		
SCCR	SHORT-CIRCUIT CURRENT RATING		
SD	SMOKE DAMPER		
SEC	SECONDS		
SF	SUPPLY AIR FAN		
SG	SUPPLY AIR GRILLE		
SMD	SMOKE DETECTOR		
SP	STATIC PRESSURE		
SQ	SQUARE		
SQFT	SQUARE FEET		
SR	SUPPLY AIR REGISTER		
SRD	SAFETY RELIEF VALVE DISCHARGE		
SRV	SAFETY RELIEF VALVE		
TD	TRANSFER AIR DUCT		
TDH	TOTAL DYNAMIC HEAD		
TEMP	TEMPERATURE		
TEMP	TEMPERATURE		
TOD	TOP OF DUCT		
TOP	TOP OF PIPE		
TOS	TOP OF STEEL		
TP	TOTAL PRESSURE		
TS	TEMPERATURE SENSOR		
TSP	TOTAL STATIC PRESSURE		
TYP	TYPICAL		
UC	UNDERCUT		
UH	UNIT HEATER		
UNO	UNLESS NOTED OTHERWISE		
UV	UNIT VENTILATOR		
V	VENT OR VOLTS		
VA	VOLT AMPERE		
VAV	VARIABLE AIR VOLUME		
VD	VOLUME DAMPER		
VEL	VELOCITY		
VFD	VARIABLE FREQUENCY DRIVE		
VP	VELOCITY PRESSURE		
VTR	VENT THRU ROOF		
W	WIDTH		
W	WITH		
W/O	WITHOUT		
W/D	WASHER/DRYER		
WB	WET BULB		
WC	WATER COLUMN		
WG	WATER GAUGE		
WH	WATER HEATER		
WMS	WIRE MESH SCREEN		
WSHP	WATER SOURCE HEAT PUMP		

**HVAC LEGEND:**  
(NOT ALL ABBREVIATIONS ARE USED)



**SHEET SYMBOLS**



**MECHANICAL SPECIFICATIONS**

**BASIC MECHANICAL REQUIREMENTS**

**GENERAL**

- GENERAL NOTES, SYMBOLS, LIST AND DETAILS ARE APPLICABLE TO ALL MECHANICAL DRAWINGS LABELED "M".
- THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK, MATERIALS AND LABOR TO PROVIDE COMPLETE AND WORKING MECHANICAL SYSTEMS WHETHER SPECIFIED OR IMPLIED.
- THE ENTIRE MECHANICAL INSTALLATION SHALL CONFORM TO THE LOCAL, CODE, STATE LAWS, INC., BPC, IBC, EFC, NFPA, NFPA, AND ALL OTHER GOVERNING AUTHORITIES.
- THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, INSPECTIONS AND APPROVALS AS REQUIRED.
- DO NOT SCALE THE DRAWINGS FOR EXACT DIMENSIONS. VERIFY ALL FIGURES, CONDITIONS, DIMENSIONS, ETC. AT THE JOB SITE.
- CONTRACTOR SHALL GUARANTEE THE COMPLETE INSTALLATION AGAINST DEFECTS IN THE WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF THE FINAL ACCEPTANCE. THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ALL DEFECTIVE MATERIAL AND PARTS REQUIRED TO BE CHANGED (EXCLUDING DEFECTS TRACEABLE TO PROPER MAINTENANCE OR UNLACUSUS DESTRUCTION OR ACTS OF GOD AFTER THE SYSTEM HAS BEEN ACCEPTED BY THE OWNER).
- THE CONTRACTORS SHALL COORDINATE WITH ALL OTHER TRADES TO PREVENT INTERFERENCE BETWEEN BEAMS, STRUCTURES, PIPING, LIGHTING, FIGURES, ETC.
- ALL MECHANICAL EQUIPMENT SHALL BE LOCATED AT A MINIMUM FLOOR ELEVATION OF 10.0 MSL OR EQUAL. PROVIDE ALL NECESSARY STRUCTURES.
- ALL MATERIALS USED IN CONSTRUCTION SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS, A SMOKE DEVELOPMENT RATING OF 50 OR LESS, AND FUEL CONTRIBUTED RATING F 25 OR LESS. ALL MATERIALS SHALL BE "SELF-EXTINGUISHING".
- ALL PIPING CONDUIT AND DUCT PENETRATIONS OF FIRE RATED BUILDINGS CONSTRUCTION SHALL BE SLEEVED AND SEALED WITH A FIRE BARRIER MATERIAL EQUAL TO 3M "PENETRATION SEALING SYSTEM" REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATING OF BUILDING CONSTRUCTION.
- INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS.
- CONTRACTOR SHALL PROVIDE THREE (3) COMPLETE SETS OF BOUND OPERATING AND MAINTENANCE INSTRUCTIONS. CONTRACTOR SHALL INSTRUCT THE OWNER OF THE AGENT WITH REGARD TO THE PROPER USE OF THE SYSTEM UNIT. SUCH INSTRUCTIONS COMPLETE TO THE OWNERS SATISFACTION. OPERATOR AND MAINTENANCE MANUAL SHALL INCLUDE A VALVE SCHEDULE IF VALVES ARE INSTALLED AS PART OF THE NEW WORK.
- MECHANICAL CONTRACTOR SHALL LABEL ALL NEW MECHANICAL EQUIPMENT, PIPING AND VALVES (INDOORS AND OUTDOORS) IN A PERMANENT MANNER. MECHANICAL PIPING SHALL BE LABELED WITH SELF-ADHESIVE PIPE MARKERS EQUAL TO MARKING SERVICES INC. SERIES 860-86 MARKERS. COMPLY WITH ASME A13.1 FOR LETTERING SIZE, LENGTH OF COLOR FIELD, COLORS, AND VIEWING ANGLE OF IDENTIFICATION. DIRECTION OF FLOW SHALL BE IDENTIFIED WITH ARROW FLOW DIRECTION. ARROW TAPE VALVES SHALL BE IDENTIFIED WITH BRASS VALVE TAGS ATTACHED WITH SOLID BRASS CHAINS AND "T" HOLES. VALVE TAGS SHALL BE COORDINATED WITH VALVE SCHEDULE PROVIDED IN OPERATION AND MAINTENANCE MANUAL. MECHANICAL EQUIPMENT SHALL BE LABELED WITH ENGRAVED PLASTIC TAGS WITH MOUNTING HOLES AND STAINLESS STEEL SCREWS. ALL LABELING SHALL HAVE HIGH CONTRAST BETWEEN LETTER AND BACKGROUND COLORS AND SHALL BE LOCATED FOR EASY VISIBILITY.
- ALL MECHANICAL EQUIPMENT AND APPLIANCES INSTALLED SHALL BEAR THE LABEL OF AN APPROVED AGENCY.
- THE ENTIRE MECHANICAL INSTALLATION SHALL BE MADE IN ACCORDANCE WITH THE 2018 INTERNATIONAL MECHANICAL CODE AND ANY SUPPLEMENTS.
- PROVIDE VIBRATION ISOLATION MOUNTINGS FOR ALL MOTOR OPERATED EQUIPMENT AND AS RECOMMENDED BY THE MANUFACTURER.
- ALL EXTERIOR WALL OPENINGS SHALL BE SLEEVED, PROPERLY CALKED AND SEALED WITH A HIGH QUALITY SEALANT TO PREVENT INFILTRATION OF MOISTURE AND OUTSIDE AIR.
- MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR WHO SHALL PROVIDE POWER WIRING TO ALL MECHANICAL EQUIPMENT. MECHANICAL CONTRACTOR SHALL FURNISH LOOSE MOTOR STARTERS AND DISCONNECT SWITCHES FOR INSTALLATION AND WIRING BY THE ELECTRICAL CONTRACTOR. MECHANICAL CONTRACTOR SHALL PROVIDE ALL CONTROL AND INTERLOCK WIRING AND ALL THERMOSTATS AND ACCESSORIES.
- PROVIDE BALANCING OF ALL AIR SYSTEMS PER AISC OR NEBS STANDARDS. SUBMIT TEST DATA AND DEMONSTRATE IN FIELD. INCLUDE SOUND TESTS AS MAY BE REQUIRED.
- PROVIDE BALANCING OF ALL WATER SYSTEMS PER AISC OR NEBS STANDARDS. SUBMIT TEST DATA AND DEMONSTRATE IN THE FIELD.
- SUBMIT 3/8" SCALE SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION. COORDINATE WITH ALL TRADES.

**EXHAUST FANS**  
A. EXHAUST FANS  
B. GRILLES, REGISTERS, DIFFUSERS  
C. DUCTWORK AND ACCESSORIES  
D. PIPING  
E. INSULATION

**INSULATION**

DUCTWORK INSULATION

- ALL NEW SHEET METAL DUCTWORK SHALL BE WRAPPED WITH 1-1/2" THICK FIBERGLASS DUCT INSULATION HAVING AN INSTALLED R-VALUE OF 4.5, A THERMAL CONDUCTIVITY OF .27 AT MEAN TEMPERATURE OF 75°F, AND A DENSITY OF 1.0 PCF. INSULATION SHALL BE JOHNS-MANVILLE "MICROLITE" OR APPROVED EQUAL.

**DUCTWORK**

- UNLESS OTHERWISE NOTED, ALL DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL G0 GRADE PER SMACNA. ALL DUCTS CONSTRUCTED OF CONSTRUCTED STEEL SHEET METAL SHALL HAVE MINIMUM GAGE THICKNESS AS FOLLOWS:

DIAMETER (IN.)	GAGE
THROUGH 12	26
13 - 18	24
19 - 24	22
25 - 36	20
37 - 52	18

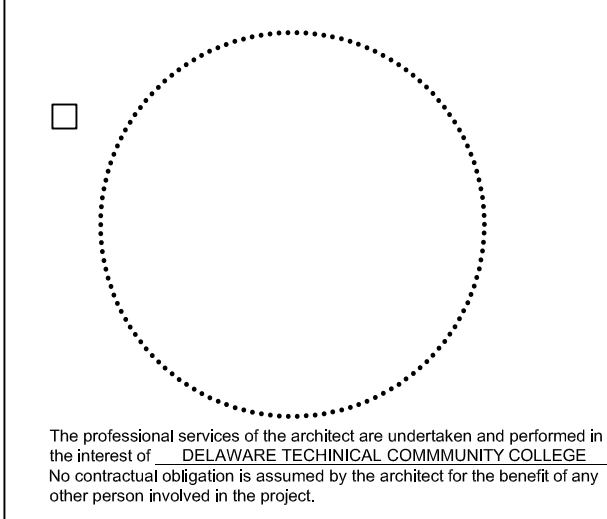
- UNLESS OTHERWISE NOTED, ALL DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL G0 GRADE PER SMACNA. ALL DUCTS CONSTRUCTED OF GALVANIZED STEEL SHEET METAL SHALL HAVE MINIMUM GAGE THICKNESS AS FOLLOWS:
- ALL DUCTWORK SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED PER SMACNA STANDARDS.
- DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR DIMENSIONS.
- COORDINATE LOCATION OF DUCTWORK, PIPING, AND DIFFUSERS WITH ALL OTHER TRADES.
- ALL DUCTWORK AND PIPING ABOVE CEILING AND IN AREAS WITHOUT CEILINGS SHALL BE INSTALLED AS HIGH AS POSSIBLE.
- PROVIDE VOLUME DAMPERS AT ALL DUCT BRANCHES AND RUNOUTS. PROVIDE OPPOSED BLADE VOLUME DAMPERS AT ALL REGISTERS, GRILLES AND DIFFUSER NECKS IN SUPPLY, RETURN AND EXHAUST DUCTWORK WHETHER SHOWN ON DRAWINGS OR NOT.
- PROVIDE AT MINIMUM 10 GAUGE STEEL SLEEVES FOR ALL DUCT PENETRATIONS THROUGH FIRE RATED WALLS, FLOORS AND PARTITIONS. PROVIDE PIPE SLEEVES FOR ALL MECHANICAL PIPING PENETRATING THROUGH FIRE RATED WALLS, FLOORS AND PARTITIONS. SEAL ALL ANNULAR SPACE BETWEEN SLEEVES AND DUCTWORK OR PIPING WITH A FIRE BARRIER MATERIAL EQUAL TO 3M "PENETRATION SEALING SYSTEM".
- THE INSIDE OF ALL DUCTWORK VISIBLE THROUGH A GRILLE OR DIFFUSER SHALL BE PAINTED FLAT BLACK.
- ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN FURRED CHASES OR SUSPENDED CEILING.
- SUPPORTS FOR DUCTS SHALL BE INSTALLED AT INTERVALS OF NOT MORE THAN 10 FEET.
- FLEXIBLE DUCTWORK SHALL BE THERMA-FLEX "MACK" AND SHALL HAVE EXTERNAL INSULATION WITH VAPOR BARRIER JACKETING. FLEXIBLE DUCTWORK SHALL BE CONNECTED TO BRANCHES AND MAINS USING CONICAL FITTINGS AND SHALL NOT EXCEED 10'-0" IN LENGTH INCLUDING ONE ELBOW. FLEXIBLE DUCTWORK SHALL NOT BE USED AS RETURN AIR OR EXHAUST DUCTWORK.
- ALL DUCTWORK SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED PER SMACNA STANDARDS AND FOR PRESSURES OF 2" E.S.P. SEAL ALL LONGITUDINAL SEAMS AND TRANSVERSE JOINTS WITH FIREPROOF SEALANT FOR AIR-TIGHT APPLICATION.
- COORDINATE ALL ROOF PENETRATIONS WITH WORK OF OTHER TRADES AND WITH FLASHING REQUIREMENTS.

**PIPING INSULATION**

- PRIOR TO INSULATING, PIPING SHALL BE HYDROSTATICALLY TESTED AT 100 PSIG WITH NO LOSS OF PRESSURE FOR THREE HOURS.
- INSULATION SHALL CARRY THROUGH ALL WALL AND FLOOR PENETRATIONS AND PIPE HANGERS.
- PROVIDE GALVANIZED METAL SHIELDS FORMED TO FIT THE INSULATION BETWEEN HANGERS AND FINISHED INSULATION.
- EXCEPT AS OTHERWISE NOTED, INSULATE THE FOLLOWING WITH JOHNS-MANVILLE "MICROLITE" #P INSULATION (PROVIDE ZEPHON PVC FITTING COVERS) THICKNESS AS SPECIFIED:  
  
HEATING HOT WATER PIPING (1-1/2" THICK)
- INSULATION SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- INSULATION MUST BE FIRE RATED FOR FLAME SPREAD OF 25 OR LESS AND SMOKE DEVELOPED OF 50 OR LESS.
- ALL VALVES, INCLUDING BUT NOT LIMITED TO STRAINERS, AUTOFLOW VALVES, CIRCUIT SETTERS, BALL VALVES, BALANCING VALVES AND COMBINATION VALVES, ETC., IN CHILLED WATER AND HEATING HOT WATER SYSTEMS, SHALL BE INSULATED WITH A FACTORY FABRICATED REMOVABLE AND REUSABLE COVER. INSULATION SHALL HAVE A MINIMUM K-FACTOR OF 0.26 USING FIBERGLASS BLANKET. FLAME AND SMOKE SPREAD SHALL BE 25/50 PER ASTM E-84. OUTER JACKET SHALL BE MADE OF MATERIAL EQUAL TO DUPONT-TYCHEMA "OC" OVERLAPPING AND COMPLETELY COVERING THE INSULATION WITH SEAMS JOINED BY TABS MADE FROM HOEK AND LOOP FASTENERS (VELCRO). BUTT ENDS SHALL HAVE SEAM-IN-PLACE ELASTIC. OUTER JACKET SHALL OVERLAP ADJOINING SECTIONS OF PIPE INSULATION. INSTALLATION SHALL NOT REQUIRE THE USE OF ANY SPECIAL HAND TOOLS. MANUFACTURERS: NO SWEAT VALVE WRAPS, INC., OR APPROVED EQUAL.

**HYDRONIC PIPING**

- PIPING SHALL BE RIGIDLY SUPPORTED AT INTERVALS OF NOT MORE THAN 10 FEET.
- PIPE PASSING THROUGH EXTERIOR WALLS SHALL BE SLEEVED AND PROPERLY SEALED.
- CONTRACTOR TO PROVIDE MANUAL AIR VENTS AT ALL HIGH POINTS IN ALL MODIFIED OR NEW PIPING SYSTEMS.
- INSULATION SHALL CARRY THROUGH ALL WALL PENETRATIONS AND PIPE HANGERS.
- ALL PIPING CONDUCTING LIQUIDS SHALL BE INSTALLED ON "WARM" SIDE OF BUILDING INSULATION. PROVIDE FOR COMPLETE DRAINAGE AT ACCESSIBLE LOW POINTS WITH HOSE END DRAIN VALVES.
- PROVIDE DIELECTRIC UNIONS IN PIPING WHERE DISSIMILAR METALS ARE JOINED TOGETHER.
- THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND DUE TO THE SMALL SCALE OF THE DRAWINGS IT IS NOT POSSIBLE TO INDICATE ALL FITTINGS, VALVES, VENT PIPING AND SPECIALTIES REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING COMPLETE OPERATING SYSTEMS AND SHALL FURNISH ALL NECESSARY FITTINGS AND SPECIALTIES WHETHER INDICATED OR NOT.
- THE SIZE OF ALL PIPING SHALL BE AS SHOWN ON THE DRAWINGS, OR WHERE NOT SHOWN, AS REQUIRED.
- CHANGE OF PIPE SIZES ON HORIZONTAL RUNS SHALL BE MADE WITH ECCENTRIC REDUCERS WITH TOP OF PIPE LEVEL.
- PROVIDE A MINIMUM THREE (3) ELBOW SWING FOR ALL PIPE TAKE-OFFS.
- PROVIDE BALANCING COCKS AT SYSTEM LOOP RETURNS AND AT RETURN RISERS. PROVIDE SHUT-OFF VALVES AT SYSTEM LOOP SUPPLIES AND SUPPLY RISERS.
- MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE AND PROVIDE EXPANSION COMPENSATION FOR ALL MECHANICAL PIPING SYSTEMS AS NECESSARY TO PREVENT STRESSING ON ALL MECHANICAL PIPING. PROVIDE EXPANSION JOINTS ONLY WHERE EXPANSION LOOPS ARE DIMENSIONALLY IMPRACTICAL. PROVIDE AT MINIMUM TWO (2) PIPE GUIDES ON EACH END OF EXPANSION LOOPS OR JOINTS. PROVIDE ACCESS TO ALL EXPANSION JOINTS.
- PRESSURE DROP THROUGH ALL COIL CONTROL VALVES SHALL NOT EXCEED 5 PSIG.
- PROVIDE VALVE WITH HOSE END ON ALL LOW POINTS OF PIPING SYSTEM.
- PRIOR TO INSULATING, PIPING SHALL HYDROSTATICALLY TESTED AT 100 PSIG WITH NO LOSS OF PRESSURE FOR 3 HOURS.
- PROVIDE GALVANIZED METAL SHIELDS FORMED TO FIT THE INSULATION BETWEEN HANGERS AND FINISHED INSULATION.
- VALVE AND ACCESSORIES:
  - GATE (COPPER TUBING): NIBCO SCOTT S-111.
  - BALL (COPPER TUBING): NIBCO SCOTT T-560-Y.
  - GLOBE AND ANGLE: NIBCO SCOTT - 211.
  - COMBINATION SHUT-OFF AND BALANCING: ARMSTRONG "CIRCUIT BALANCING" CRV-1. FURNISH A PORTABLE DIFFERENTIAL PRESSURE METER WITH HOSES TO BE USED DURING BALANCING OF SYSTEMS.
- ALL COPPER PIPING SHALL BE JOINED USING 95-TIN/ANTIMONY SOLDER.
- ALL VALVES SHALL BE OF THE APPROVED TYPE, AND COMPATIBLE WITH THE TYPE OF PIPING MATERIAL INSTALLED IN THE SYSTEM.
- FLEXIBLE CONNECTORS, EXPANSION AND VIBRATION CONTROL DEVICES AND FITTINGS SHALL BE OF AN APPROVED TYPE.
- SCREWED FITTINGS SHALL BE 125 POUNDS, BLACK MALLEABLE IRON, STANDARD WEIGHT, STOCKHAM, GRINDEL, OR CRANE IN ACCORDANCE WITH ASTM-197.
- ALL SUPPLY AND RETURN RUNOUTS SHALL BE 3/4" UNLESS NOTED OTHERWISE.
- HEATING/CHILLED WATER PIPING: TYPE "L" HARD DRAWN COPPER UP TO 2-1/2" DIAMETER AND SCHEDULE 40 BLACK STEEL FOR 3" DIAMETER AND LARGER.
- ALL DOWNFEEED BRANCHES, CONNECTORS, UNIT HEATERS AND HEAT TRANSFER COILS SHALL HAVE DRAIN COCKS INSTALLED AT LOWEST POINT.
- ALL UPFEEED RISERS SHALL BE MADE WITH TOP CONNECTIONS AT MAINS. ALL DOWNFEEED RISERS SHALL BE MADE WITH BOTTOM CONNECTIONS AT MAIN.
- ALL HORIZONTAL LINES SHALL BE RUN LEVEL WITHOUT POCKETS. WHERE VERTICAL DROP IN DIRECTION OF FLOW.
- ARROWS ON SUPPLY AND RETURN LINES INDICATE DIRECTION OF FLOW.
- WATER PIPE CONNECTIONS TO AIR HEATING AND COOLING COILS SHALL BE MADE SO THERE WILL BE COUNTER FLOW BETWEEN WATER AND AIR.

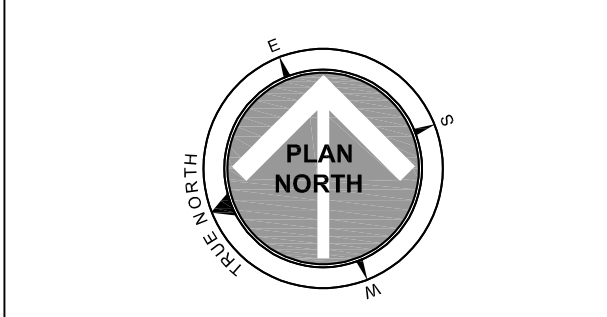


PROJECT  
**DTCC Terry Nursing Simulator**  
100 Campus Dr.  
Dover, DE 19901

OWNER  
**DELAWARE TECHNICAL COMMUNITY COLLEGE**  
100 Campus Drive  
Dover, DE 19904

**MECHANICAL, PLUMBING, & FIRE PROTECTION - GENERAL NOTES, LEGENDS, & ABBREVIATIONS. (1 OF 2)**

PROJECT STATUS



ISSUED FOR

NO.	DATE	DESCRIPTION
0	11/07/2021	100% CD SUBMISSION
1	02/02/2022	ADD SUBMISSION
2	02/18/2022	ISSUED FOR BID

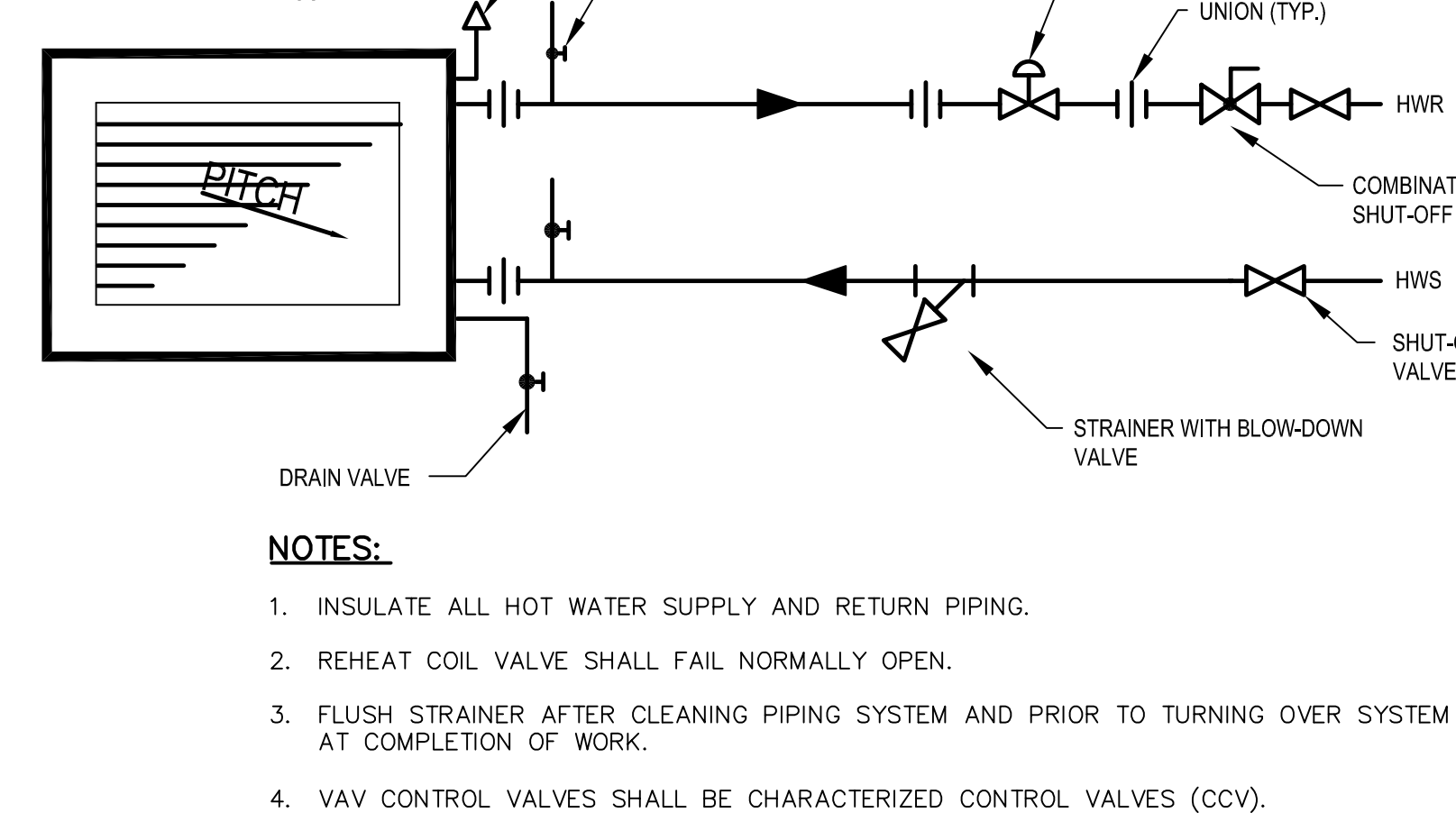
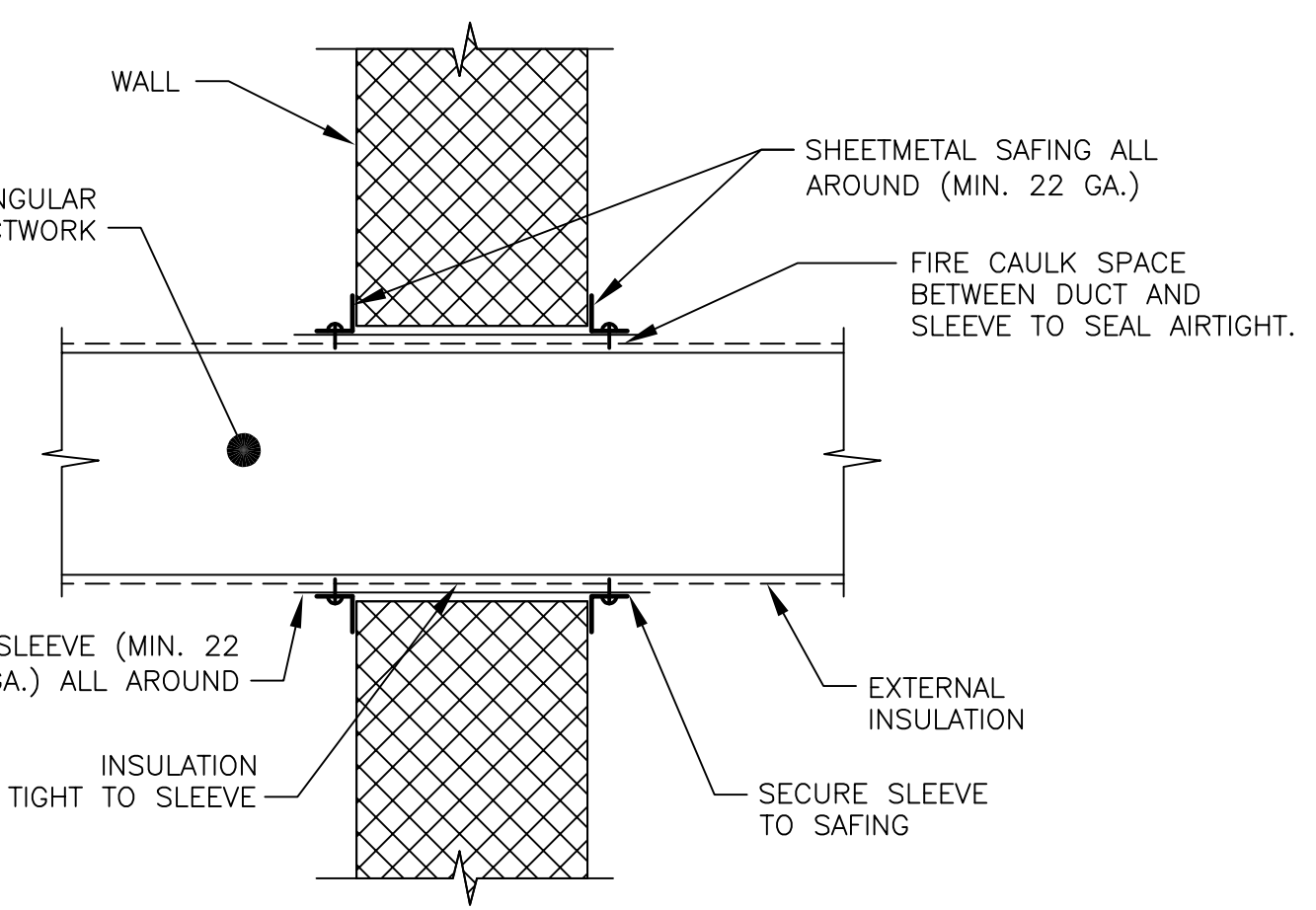
Date: 8/20/2025  
Scale: As Indicated  
Drawn: JVV  
Checked: AA  
Approved: JBF  
Project: 25P278

**1 TYPICAL DUCT WALL PENETRATION DETAIL**  
Scale: NONE

**2 TYPICAL HOT WATER COIL 2-WAY CONTROL VALVE DETAIL**  
Scale: NONE

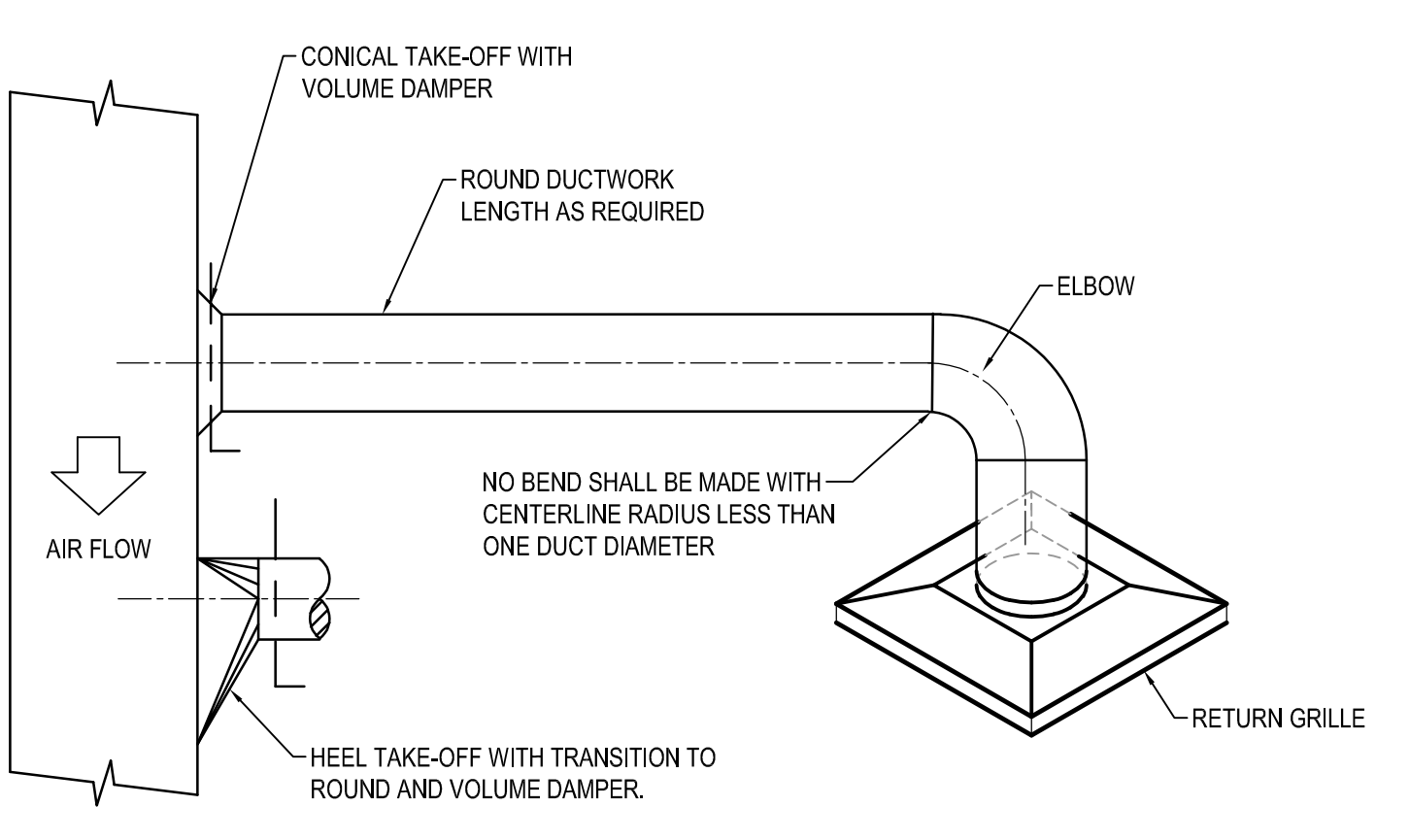
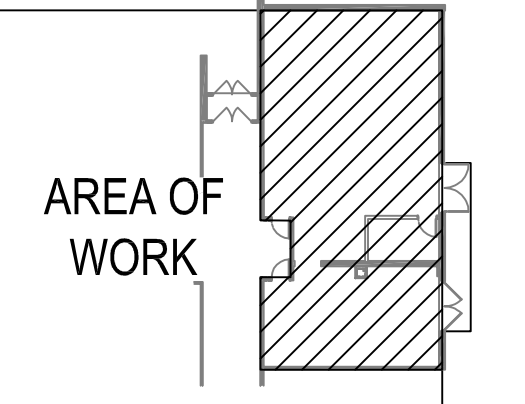
**3 OVERALL BUILDING - AREA OF WORK**  
Scale: 1/32" = 1'-0"

**5 TYPICAL SUPPLY DUCTWORK DETAIL**  
Scale: NONE



**NOTES:**

- INSULATE ALL HOT WATER SUPPLY AND RETURN PIPING.
- REHEAT COIL VALVE SHALL FAIL NORMALLY OPEN.
- FLUSH STRAINER AFTER CLEANING PIPING SYSTEM AND PRIOR TO TURNING OVER SYSTEM AT COMPLETION OF WORK.
- VAV CONTROL VALVES SHALL BE CHARACTERIZED CONTROL VALVES (CCV).



# PLUMBING SPECIFICATIONS

### PIPING SPECIFICATIONS (CONTD)

#### PIPE HANGERS:

SUPPORT PIPING IN ACCORDANCE WITH MSS SP-98.

PIPE HANGERS SHALL BE SIZED TO CLEAR THE OUTSIDE DIAMETER OF THE PIPE INSULATED OR UNINSULATED PIPE. SADDLES SHALL BE PROVIDED FOR UNINSULATED PIPE.

HANGERS FOR BARE COPPER TUBING OF ALL SIZES SHALL BE FGM FIG. 307 COPPER PLATED STEEL BAND HANGERS OR FGM FIG. 304 COPPER PLATED STEEL CLEVIS HANGERS.

HANGERS FOR UNINSULATED PIPE AND TUBING OF ALL MATERIALS 2" SIZE AND SMALLER SHALL BE FGM FIG. 105 LIGHT DUTY STEEL CLEVIS HANGERS. HANGERS FOR PIPES 2.12" AND LARGER SHALL BE FGM FIG. 230 HANGERS SHALL BE SIZED TO ACCOMMODATE PIPE INSULATION PROVIDE SECTIONS OF HIGH DENSITY PIPE INSULATION AT HANGER POINTS.

PROVIDE TRAPEZOIDAL HANGERS FOR PIPE AND TUBING. FOR MULTIPLE PIPE RUNS, INSULATION SHALL BE CONTINUOUS THROUGH HANGER. ISOLATE NON-FERROUS PIPING FROM HANGER WITH NYLON/BONE SLEEVES.

ALL PIPING SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE BY HANGERS, BRACKETS OR FABRICATED SUPPORTS. EACH SUPPORT POINT SHALL BE OF ADEQUATE STRENGTH TO CARRY THE LOADED PIPING PLUS 200% OVERLOAD. PRODUCTS SUCH AS UNSTRUCTURED FRAME SYSTEMS MAY BE USED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S ALLOWABLE LOAD TABLES AND INSTALLATION INSTRUCTIONS.

HANGERS, BRACKETS AND FABRICATED SUPPORTS SHALL BE METALLURGICALLY COMPATIBLE WITH THE BUILDING STRUCTURE AND THE MATERIAL OF THE PIPING SYSTEM DESIGN.

#### PIPE SLEEVES:

HOLES REQUIRED IN FLOORS FOR PIPING SHALL BE CORED/DRILLED. PROVIDE SCHEDULE 40 STEEL PIPE SLEEVES FOR PIPES PASSING THROUGH THE NEW FLOOR SLAB. DIAMETER OF SLEEVES SHALL BE TWO INCHES LARGER THAN THE BARE OR UNINSULATED PIPE. SELECT LENGTH OF SLEEVE SO THEY EXTEND 3 INCHES ABOVE THE TOP OF FLOOR.

FABRICATE SLEEVES FOR PIPE PASSING THROUGH INTERIOR WALLS AND PARTITIONS FROM GALVANIZED SHEET STEEL. SLEEVE GALL SHALL BE 1/8" DIAMETER OF SLEEVE SHALL BE 1 INCH LARGER THAN THE DIAMETER OF THE BARE OR UNINSULATED PIPE.

AFTER PIPE HAS BEEN INSTALLED AND INSULATED WHERE REQUIRED, FILL ANIMAL SPACES USING MINERAL WOOL AND SEALED AT BOTH ENDS WITH FOSTERS #544. THE REQUIREMENT SHALL APPLY FOR BOTH NEW AND EXISTING PENETRATIONS WITHIN THE CONTRACT LIMITS FOR NON-FERROUS CONSTRUCTION.

#### IDENTIFICATION OF PIPING SYSTEMS:

PIPE IDENTIFICATION SHALL BE CONSISTENT WITH ANSI A13.1 SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS. ALL EXPOSED PIPING THROUGHOUT THE BUILDING AND ALL PIPING INSTALLED WITH ACCESSIBLE SHIFTS AND PIPE TRUNCATIONS SHALL HAVE A LEGIBLE MARKING OF THE SOURCE. TOGETHER WITH ARROWS INDICATING THE DIRECTION OF FLOW. CHARACTERS TO BE AS HEREIN LISTED AND NOT LESS THAN 1/2" HIGH WHERE THE PIPES ARE 10" OR MORE ABOVE THE FLOOR. LEGIBLE MARKINGS SHALL BE PLACED EQUIDISTANT TO EACH CHANGE OF DIRECTION, TURN, BRANCH, RISER CONNECTION AT EACH VALVE, AND EVERY 2' OF PIPE RUN. MARKERS, ARROWS AND BANDING TAPE TO BE VISIBLE FROM LEVEL.

#### SIZE OF LEGEND:

OUTSIDE DIAMETER PIPE COVERING	LENGTH OF COLUMN/BIELD	SIZE OF LETTERS
1/4" - 3/8"	6"	1/4"
3/4" - 1 1/2"	12"	1/2"
1 1/2" - 2"	18"	3/4"
2 1/4" - 4"	24"	1"

#### VALVE IDENTIFICATION:

EACH VALVE CONTROLLING MAINS, RISERS AND BRANCHES, BUT NOT INDIVIDUAL SHUT-OFF OR LOCAL CONTROL VALVES ON TRUNKS AND EQUIPMENT SHALL BE IDENTIFIED WITH CODE LETTERS FOR IDENTIFYING VALVE TYPE, SIZE AND SERVICE. ALSO INCLUDE LINE AND NUMBER FOR THESE VALVE COMPONENTS SO IDENTIFIED ON THE DRAWINGS. TAG MATERIAL SHALL BE SHEET METAL, ENGRAVED WITH THE ABOVE REQUIRED INFORMATION AND PERMANENTLY ATTACHED TO THE VALVE WITH THREADING. DO NOT TAG TO OBSTRUCT THE OPERATION OR ACCESS TO THE VALVE.

#### PIPING SYSTEMS TESTING, CLEANING, FLUSHING AND SYSTEMS:

DOMESTIC WATER PIPING - UPON COMPLETION OF THE RIGID-IN ALL HOT, HOT WATER RETURN, TEMPERED WATER AND COLD WATER PIPING SYSTEMS, SHALL BE TESTED AT A HYDROSTATIC PRESSURE OF 1 1/2 TIMES THE ACTUAL WATER PRESSURE FOR NOT LESS THAN 30 MINUTES.

ALL VALVES SHALL BE FULL OPEN POSITION DURING THE TEST. DO NOT INCLUDE ANY COMPONENTS/GAUGES, RELIEF VALVES, INSTRUMENTATION, AND LINE FETS AS PART OF THE TESTS THAT ARE NOT RELATED FOR THE TESTING PRESSURE.

PREPARE TEST RECORDS OF INSPECTION AND ALL TESTS PERFORMED. INDICATE WHICH PORTIONS OF THE PIPING SYSTEM ARE IN ACCORDANCE WITH THESE SPECIFICATIONS. SERIAL DOCUMENT TEST PROCEDURES, INSTRUMENTS AND MEDIA USED, AND TEST PRESSURES. BEFORE REQUESTING FINAL APPROVAL OF PIPING INSTALLATION, SUBMIT COPIES OF "TEST RECORDS FOR OWNERS APPROVAL."

#### CLEANING & FLUSHING:

FOLLOWING THE COMPLETION OF THE SYSTEM TESTS, ALL PARTS OF THE INSTALLATION SHALL BE THOROUGHLY CLEANED AND INSPECTED BY THE CONTRACTOR INSTALLING THE SYSTEM. ALL EQUIPMENT, PIPING, VALVES AND FITTINGS SHALL BE CLEANED OF GREASE, METAL CUTTINGS AND SLUDGE WHICH MAY HAVE ACCUMULATED BY OPERATION OF THE SYSTEM OR STOPPAGE OR DISCONTINUATION OR OTHER DAMAGE TO PARTS OF THE BUILDING. FLUSH, BRUSH OR FLOWBROOMS DUE TO THE INSTALLERS FAILURE TO PROPERLY CLEAN THE PIPING SYSTEMS SHALL BE REPAIRED WITHOUT COST TO THE OWNER. CLEANING OF SYSTEMS SHALL BE PERFORMED IN A MANNER NOT RESULTING IN DAMAGE TO OTHER PIPING OR PLUMBING EQUIPMENT AT THE COMPLETION OF THE WORK EACH SYSTEM SHALL BE ADJUSTED FOR QUIET OPERATION. AUTOMATIC CONTROL DEVICES SHALL BE ADJUSTED FOR PROPER OPERATION.

DOMESTIC WATER PIPING SYSTEMS - AFTER COMPLETION OF ALL WORK IN EACH SECTION OF THE VARIOUS WATER PIPING SYSTEMS AND PRIOR TO TESTING, FLUSH ALL PIPING TO REMOVE FOREIGN MATERIAL, AND TO THOROUGHLY CLEAN THE SYSTEM. FLUSHING SHALL BE CONTINUED UNTIL THE WATER LEAVING THE SYSTEM IS CLEAN AND ACCEPTABLE TO THE OWNER, BUT IN NO CASE SHALL THE FLUSHING BE PERFORMED FOR LESS THAN 15 MINUTES. ENSURE THAT ADEQUATE QUANTITIES OF WATER ARE AVAILABLE TO PRODUCE A FLUSHING VELOCITY OF NOT LESS THAN 2 FPS (0.6m/s). USE DOMESTIC COLD WATER TO FLUSH DOMESTIC COLD WATER AND DOMESTIC HOT WATER PIPING.

#### STERILIZATION OF DOMESTIC WATER PIPING:

PURGE NEW PIPING SYSTEMS BEFORE USING. USE FLUSHING AND DISINFECTING PROCEDURES DESCRIBED IN EITHER ANSI A91.1 OR ANSI A91.2 OR AS DESCRIBED BELOW:

FLUSH PIPING SYSTEM WITH CLEAN POTABLE WATER UNTIL WATER LEAVING THE SYSTEM IS CLEAR AT OUTLET, BUT IN NO CASE SHALL THE FLUSHING BE PERFORMED FOR LESS THAN 10 MINUTES.

FILL AND ISOLATE SYSTEM IN ACCORDANCE TO EITHER OF THE FOLLOWING: FILL SYSTEM OR PART THEREOF WITH WATER CHLORINE SOLUTION WITH AT LEAST 50 PPM OF CHLORINE. ISOLATE WITH VALVES AND ALLOW TO STAND FOR 24 HOURS. FILL SYSTEM OR PART THEREOF WITH WATER CHLORINE SOLUTION WITH AT LEAST 200 PPM OF CHLORINE. ISOLATE AND ALLOW TO STAND FOR 3 HOURS.

FLUSH SYSTEM WITH CLEAN POTABLE WATER UNTIL NO CHLORINE IS IN WATER COMING FROM SYSTEM AFTER THE STANDING TIME.

SUBMIT WATER SAMPLES IN STERILE BOTTLES TO TESTING LABORATORY SELECTED BY OWNER. REPEAT PROCEDURE IF BIOLOGICAL EXAMINATION SHOWS CONTAMINATION.

PREPARE AND SUBMIT REPORTS OF FLUSHING AND DISINFECTING ACTIVITIES TO OWNER.

#### FINAL OPERATION AND INSTALLATION:

UPON COMPLETION OF THE CONTRACT, THE CONTRACTOR SHALL PROVIDE THE OWNER WITH THREE (3) COMPLETE SETS OF MANUFACTURER'S OPERATING, MAINTENANCE AND PREVENTIVE MAINTENANCE INSTRUCTIONS (IN BOUND BOOK FORM INCLUDING PARTS LISTS) AND COMPLETE PREVENTIVE MAINTENANCE INFORMATION INCLUDING EQUIPMENT NUMBERS AND DESCRIPTIONS. THE OPERATING AND MAINTENANCE MANUALS SHALL INCLUDE ELECTRONIC FILES IN PDF FORMAT OF ALL MATERIALS ORGANIZED IN A SIMILAR DIRECTORY STRUCTURE AS THE HARD COPY. OPERATING STAFF PERSONNEL SHALL BE INSTRUCTED IN PROPER OPERATING AND SERVICE REQUIREMENTS OF THE SYSTEMS AND EQUIPMENT. THE REQUIREMENT IS IN ADDITION TO THE OPERATION TEST SPECIFIED HEREIN.

THE CONTRACTOR SHALL, UPON COMPLETION OF THE WORK, SUBMIT A SET OF RECORD DRAWINGS SHOWING ALL CHANGES FROM THE CONTRACT DRAWINGS MADE DURING THE INSTALLATION AND SHOWING DIMENSIONS/LOCATIONS OF BURIED OR CONCEALED PIPING.

### GENERAL PLUMBING NOTES

- PERFORM ALL WORK IN ACCORDANCE WITH SPECIFICATIONS, INTERNATIONAL PLUMBING CODE AND STATE AND/OR LOCAL AUTHORITY HAVING JURISDICTION.
- ALL MATERIALS UTILIZED TO CONSTRUCT THE DOMESTIC WATER SYSTEM SHALL BE "LEAD FREE" ACCORDING TO THE "REDUCTION OF LEAD IN DRINKING WATER ACT," EFFECTIVE JANUARY 4, 2014. MATERIALS SHALL INCLUDE, BUT ARE NOT LIMITED TO PIPING, VALVES, JOINTING MATERIALS, FITTINGS, FIXTURES, ETC.
- ALL DIMENSIONS AND CLEARANCES SHALL BE VERIFIED AT THE JOB SITE BEFORE INSTALLATION OF ANY WORK OR ORDERING ANY MATERIAL. CONTRACTOR SHALL NOT SCALE DRAWING. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF HIS WORK WITH ALL OTHER TRADES AND OWNER.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL FEES, PERMITS AND INSPECTIONS.
- COORDINATE FAUCET INLETS WITH SUPPLIES AND FIXTURE HOLES AND OUTLET WITH SHOUT AND FIXTURE RECEPTOR.
- ALL SINKS AND FAUCETS, TRAPS, TAILPIECE, RISERS, VALVES, ETC. ARE FURNISHED AND INSTALLED BY P.C. GO TO OUT-LET OPENINGS IN COUNTERTOPS.
- PROVIDE LOCAL SHUT-OFF VALVES IN WATER SUPPLY LINES TO ALL PLUMBING FIXTURES.
- CONTRACTOR SHALL CUT AND PATCH EXISTING CONCRETE FLOOR SLAB AS REQUIRED FOR INSTALLATION OF NEW SANITARY PIPING AND EQUIPMENT.
- CONTRACTOR SHALL PATCH AND REPAIR ANY DAMAGE CAUSED BY HIM DURING THE PROGRESS OF HIS WORK TO THE SATISFACTION OF THE OWNER.
- PROVIDE SCAFFOLDING, LADDERS AND OTHER EQUIPMENT REQUIRED FOR INSTALLATION OF EQUIPMENT AND MATERIALS INCLUDING PROTECTIVE FEATURES AS REQUIRED BY CODES AND TRADE ASSOCIATION'S RECOMMENDATIONS.
- DRAWINGS ARE DIAGNOSTIC ONLY AND ARE INTENDED TO CONVEY THE SCOPE OF WORK REQUIRED. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL PIPING, CONTROLS, FITTINGS AND ACCESSORIES REQUIRED FOR COMPLETE AND OPERABLE SYSTEMS.
- CONTRACTOR SHALL MAINTAIN ALL CLEARANCES AROUND EQUIPMENT AND PIPING AS REQUIRED BY EQUIPMENT MANUFACTURER, NEC, OSHA, NFPA AND ALL APPLICABLE CODES.
- THE TERM "PROVIDE" SHALL MEAN TO "FURNISH AND INSTALL." THE TERM "FURNISH" WHEN USED SEPARATELY, SHALL MEAN TO OBTAIN AND DELIVER TO THE POINT OF INSTALLATION ON THE JOB. THE TERM "INSTALL" WHEN USED SEPARATELY, SHALL MEAN TO PROVIDE ALL MATERIAL, EQUIPMENT AND APPURTENANCES REQUIRED TO COMPLETE, SET IN FINAL POSITION, CONNECT AND COMPLETELY INTEGRATE INTO THE APPLICABLE SYSTEM INCLUDING ALL LOOSE MATERIAL AND EQUIPMENT AND PROVIDING ALL ELECTRICAL, DISCONNECTS AND MECHANICAL, SHUT-OFFS AND STARTUPS AND TESTS. THE TERM "FINAL CONNECTIONS" WHEN USED SEPARATELY, SHALL MEAN TO PROVIDE ALL MATERIAL, EQUIPMENT APPURTENANCES AND ELECTRICAL, DISCONNECTS AND MECHANICAL, SHUT-OFFS REQUIRED TO SUPPLY SERVICE TO EQUIPMENT FURNISHED AND SET IN PLACE BY OTHERS.
- MANUFACTURERS AND MODEL NUMBERS INDICATED ON THE DRAWINGS ARE INTENDED TO ESTABLISH A STANDARD OF QUALITY. EXCEPT WHERE INDICATED, CONTRACTOR MAY PROPOSE OTHER MANUFACTURERS. CONTRACTOR SHALL SUBMIT ALL NECESSARY DOCUMENTATION TO VERIFY THAT THE PROPOSED SUBSTITUTION IS EQUAL TO, OR BETTER THAN, THE STANDARD OF QUALITY. THE SUBSTITUTION MANAGER RESERVES THE RIGHT TO REJECT ANY AND ALL CONTRACTOR PROPOSED SUBSTITUTIONS. SUBCONTRACTOR IS RESPONSIBLE FOR MAINTAINING CLEARANCES AND CAPACITIES SHOWN IN THE EVENT AN APPROVED SUBSTITUTION WILL REQUIRE REVISIONS OR ADDITION TO THE CONTRACTUAL REQUIREMENTS. THE CONTRACTOR MUST BEAR ALL ASSOCIATED COSTS AT CHANGE TO THE CONTRACT. SHALL.
- IF ANY DISCREPANCIES EXIST BETWEEN DRAWINGS AND SPECIFICATIONS REFER SAME TO THE CONSTRUCTION MANAGER TO RESOLVE DIFFERENCES.
- THE PLUMBING CONTRACTOR MUST VISIT THE SITE AND NOTE ALL EXISTING CONDITIONS AS WELL AS CONDITIONS TO BE MET PRIOR TO BID SUBMISSION. DRAWINGS MAY NOT CONVEY TRUE EXISTING CONDITIONS. LACK OF A THOROUGH UNDERSTANDING OF THE PROJECT SCOPE AND CONDITIONS SHALL NOT CONSTITUTE A DEFENSE FOR OMISSIONS, NOR FOR A REQUEST FOR COSTLY COMPENSATION.
- IT IS CRITICAL THAT THE PLUMBING CONTRACTOR FIELD VERIFY ALL EXISTING INVERT ELEVATIONS. IF ANY CONFLICTS EXIST BETWEEN THE NEW PLUMBING SYSTEMS AND THE EXISTING SYSTEMS, THEY SHOULD BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND THE ENGINEER.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW THESE PLANS AND SPECIFICATIONS, AS WELL AS THE RELATED HVAC, ELECTRICAL, AND ARCHITECTURAL DRAWINGS TO BECOME FAMILIAR WITH THE FULL PROJECT SCOPE. DURING THE COURSE OF CONSTRUCTION IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO WORK CLOSELY WITH ALL ACCOMPANYING CONTRACTORS IN ORDER TO ENSURE A COORDINATED INSTALLATION.
- ANY DISCREPANCIES OR INADEQUACIES WITHIN THESE BID DOCUMENTS OR BETWEEN THESE BID DOCUMENTS AND THE RELATED HVAC, ELECTRICAL, AND ARCHITECTURAL DRAWINGS OR BETWEEN THESE BID DOCUMENTS AND FIELD CONDITIONS MUST BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER PRIOR TO BID SUBMISSION.
- REFER TO PLUMBING FIXTURE SCHEDULES FOR INDIVIDUAL FIXTURE PIPE SIZES NOT LISTED ON DRAWINGS.
- THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING AND PATCHING AS REQUIRED FOR THE INSTALLATION OF HIS WORK.
- THE LAYDOWN SPACE SHALL BE AS SPECIFIED BY THE OWNERS PROJECT MANAGER AT THE START OF THE PROJECT.
- THE CONTRACTOR IS RESPONSIBLE FOR KEEPING THE JOB SITE CLEAN EACH DAY. ALL TRASH, TOOLS, EQUIPMENT, SUPPLIES, ETC. SHALL BE REMOVED AND THE AREA CLEANED AT THE END OF EACH WORK SHIFT AT A MINIMUM. STAIRWAYS, PASSAGEWAYS AND EMERGENCY EXITS ARE TO BE KEPT OPEN AND FREE OF OBSTRUCTIONS AT ALL TIMES. DISPOSAL OF DEBRIS SHALL BE THE CONTRACTORS RESPONSIBILITY AS DETERMINED BY THE PROJECT MANAGER.
- THE CONTRACTOR SHALL SUBMIT ELECTRONIC SHOP DRAWINGS IN PDF FORMAT FOR MATERIALS AND EQUIPMENT FOR REVIEW. PURCHASES OF OR INSTALLATION OF MATERIALS OR SYSTEM PARTS SHALL NOT PROCEED UNTIL REVIEWED SHOP DRAWINGS ARE RETURNED TO THE SUBMITTING CONTRACTOR. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS IN A TIMELY MANNER TO ALLOW TEN (10) WORKING DAYS FOR REVIEW, STARTING FROM THE DATE OF RECEIPT BY THE ENGINEER.
- THE CONTRACTOR SHALL SUBMIT REQUESTS FOR INFORMATION IN A TIMELY MANNER TO ALLOW FIVE (5) WORKING DAYS FOR RESPONSE, STARTING FROM THE DATE OF RECEIPT BY THE ENGINEER.
- THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF TURN-OVER TO THE OWNER.

### GENERAL PIPING NOTES

- PIPING MATERIALS SHALL BE DELIVERED IN A CLEAN AND PROTECTED CONDITION. END SEALS OF PIPE, FLANGE FACE COVERS AND SIMILAR PROTECTION SHALL NOT BE REMOVED UNTIL NECESSARY FOR FABRICATION OR ERECTION. CARE SHALL BE EXERCISED IN THE PREPARATION AND PRE-ASSEMBLED PIPING TO PREVENT CONTAMINATION BY GREASE, MOISTURE, OR FOREIGN WATER AND TO AVOID PHYSICAL DAMAGE.
- COORDINATE INSTALLATION OF PIPING AND EQUIPMENT TO AVOID PASSAGE OVER ELECTRICAL PANELS, THROUGH ELECTRICAL CLOSETS AND THE AREA IN COMPLIANCE WITH CODES. COMBUSTIBLE PIPING SHALL NOT BE RUN THROUGH RETURN AIR FLENUMS.
- ALL PIPING IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN FURRED OUT CHASER, WALLS OR CONCEALED ABOVE SUSPENDED CEILING UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL PROVIDE STAINLESS STEEL ESCUTCHEON PLATES AT ALL PIPING PENETRATIONS OF FLOORS, WALLS AND CEILING.
- PROVIDE WATER HAMMER ARRESTORS ON ALL PIPING CONTAINING QUICK CLOSING VALVES, SIZE IN ACCORDANCE WITH PDI WH-2011 STANDARDS.
- COPPER TUBING SIZES ARE GIVEN AS NOMINAL SIZES UNLESS OTHERWISE NOTED. STAINLESS STEEL TUBING SIZES ARE GIVEN AS TUBING OUTSIDE DIAMETER UNLESS OTHERWISE NOTED.
- INSTALL ALL DRAINAGE PIPING AT THE FOLLOWING MINIMUM SLOPES:
  - A. PIPING 2 INCHES AND SMALLER - 1/4" INCH PER FOOT (1%)
  - B. PIPING 3 INCHES AND LARGER - 1/8" INCH PER FOOT (1%)
- VENT PIPING SHALL SLOPE 1/8" INCH PER FOOT (1%) DOWN TOWARD VERTICAL FIXTURE VENT OR VENT STACK.
- ALL SANITARY PIPING BELOW GRADE SHALL BE A MINIMUM OF 2" UNLESS NOTED OTHERWISE.
- INSULATE ALL ABOVE GRADE WATER PIPING.
- ALL EXPOSED PIPING BELOW RISERS AND LAVATORIES SHALL BE COMPLETELY INSULATED PER THE ACCESSIBILITY CODE AND AIAA REQUIREMENTS.
- PROVIDE SLEEVES AND SLEEVE SEALS FOR PIPING PENETRATIONS OF WALLS AND FLOORS. PROVIDE NECESSARY CUTTING AND PATCHING. PROVIDE PRESTOPPING AT ALL FIRE RATED WALLS AND FLOORS. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION OF RATED WALLS AND FLOORS.
- CONTRACTOR SHALL PROVIDE ALL STEEL SUPPORTS, HANGERS, FRAMING AND ACCESSORIES REQUIRED FOR PIPING AND EQUIPMENT SUPPORTS. ALL PIPING SHALL BE PROPERLY ANCHORED AND INSTALLED WITH SUFFICIENT FLEXIBILITY TO ALLOW FOR THERMAL EXPANSION AND CONTRACTION.
- ALL PIPING SHALL BE CLEANED, REMOVED ALL RUST AND DEBRIS PRIOR TO INSTALLATION.
- ALL PIPING SHALL BE PURGED OF ALL CONTAMINANTS PRIOR TO EQUIPMENT START-UP AND TESTING.
- ALL PIPING LOCATED IN RETURN AIR FLENUMS SHALL BE LISTED FOR USE IN RETURN AIR FLENUMS AND IN COMPLIANCE WITH MSHA 132. REGULATORY REQUIREMENTS WITH A FLAME RATED RATING OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS AND BE RATED FOR INSTALLATION IN AN AIR FLENUM.
- ALL NON-FLENUM RATED PIPING WHEN INSTALLED IN A RETURN AIR FLENUM SHALL BE WRAPPED WITH AN APPROVED FIRE BARRIER PIPING WRAP.

### PIPE SPECIFICATIONS

#### SANITARY (58M & 1/2) UP PIPING (BELOW GRADE):

ASTM D2665, DWV, SCHEDULE 40, SOLID-WALL, PVC PIPE, PVC SOCKET FITTINGS, AND SOLVENT-CEMENT JOINTS.

PROVIDE CLEANOUTS WITH NICKEL BRONZE TOPS IN FLOORS WITH DUO-COAST-RIP-BODY. COORDINATE CLEANOUT TYPE WITH FLOORING MATERIAL.

#### SANITARY (58M & 1/2) UP PIPING (ABOVE GRADE):

ASTM D2665, DWV, SCHEDULE 40, SOLID-WALL, PVC PIPE, PVC SOCKET FITTINGS, AND SOLVENT-CEMENT JOINTS.

PROVIDE CLEANOUTS IN WALLS WITH STAINLESS STEEL ACCESS COVER.

PROVIDE 3/4" FIRE BARRIER PLENUM WRAP 5M, OR EQUIVALENT, ON NON-PLENUM RATED PIPING LOCATED WITH RETURN AIR FLENUMS.

#### DOMESTIC COLD WATER (CWL), HOT WATER (HWL), HOT WATER RETURN (HWRT), TEMPERED WATER (TW) AND SOFT WATER (SW) PIPING (ABOVE GRADE):

PIPE:

- 3" AND SMALLER - TYPE 1 HARD DRAWN BEAMLESS COPPER, ASTM B88.
- 3" AND SMALLER - WROUGHT COPPER WITH SOLDER JOINTS. SOLDERED ENDS WITH LEAD-FREE 96.5 % TIN/ANTIMONY SOLDER. PERFORM SOLDERING STRICTLY ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS ON CLEANING AND FLUORING OF JOINTS.
- 3" AND SMALLER - WROUGHT COPPER PRESSURE SEAL-JOINT FITTINGS WITH EPDM O-RINGS IN EACH END. MINIMUM 200 PSIG WORKING PRESSURE RATINGS AT 250 DEG. F.

SHUT-OFF VALVES:

- 3" AND SMALLER - 400 WOOD 190 RWP. BRONZE BALL VALVES. ONE PIECE OR TWO PIECE SERVICEABLE IN LINE. FULL PORT. BRONZE TRIM. CHROME PLATED BRASS BALL. BLOW-OUT PROOF STEM. PIPE SEALS. SOLDER OR THREADED ENDS FOR COPPER PIPING.
- 3" AND SMALLER - 200 PSIG WORKING PRESSURE, 600 PSI CHW DWP BODY DESIGN WORKING PRESSURE. BRONZE TWO PIECE BODY. SERVICEABLE IN LINE. FULL PORT. BLOW-OUT PROOF STEM. PIPE SEALS. LEAD FREE. PRESS. RING FOR COPPER PIPING.

WHERE STEEL PIPING AND COPPER PIPE ARE JOINED TOGETHER, USE DIELECTRIC FITTING AND UNIONS.

PIPE:

FITTINGS:

WROUGHT COPPER PRESSURE SEAL-JOINT FITTINGS WITH EPDM O-RINGS IN EACH END. MINIMUM 200 PSIG WORKING PRESSURE RATING AT 250 DEG. F.

#### DIELECTRIC UNIONS:

WHERE STEEL OR STAINLESS STEEL PIPING AND COPPER PIPE ARE JOINED TOGETHER, USE DIELECTRIC UNIONS.

- 2" AND SMALLER - FEMALE IRON PIPE THREAD TO COPPER SOLDER JOINT. EPICOTE #2 GASKET, 290 LBS., -210 DEG. F., EPIC DSALES, INC. MODEL 0004.
- TERLOK TAPE SHALL BE USED ON ALL MALE PIPE THREAD JOINTS. PIPE COPE WILL NOT BE PERMITTED.
- 2 1/2" AND LARGER - FLANGED IRON WELD-NUT TO COPPER SOLDER JOINT. EPICOTE #2 GASKET, 290 LBS., -210 DEG. F., EPICON SALES, INC. MODEL FX, OR VICORQUEL COPPER CONNECTION.

#### PIPE INSULATION:

UNLESS OTHERWISE SPECIFIED HEREIN, ALL INSULATION, JACKETS, FACING AND ADHESIVE USED TO ADHERE JACKET OR FACING TO INSULATION INCLUDING FITTING INSULATION AND BUTT STRIPS, SHALL HAVE A COMPOSITE NON-COMBUSTIBLE FIRE AND SMOKE HAZARD SYSTEM RATING AND LABEL AS TESTED BY ASTM E814, NFPA 25 AND UL 720 NOT EXCEEDING FLAME SPREAD 25, FUEL CONTRIBUTED 50, SMOKE DEVELOPED 20, ACCESSORIES SUCH AS ADHESIVES, MASTIC, CEMENTS, TAPES AND CLOTH SHALL HAVE SAME RATINGS.

FIBERGLASS - 4 PLY DENSITY. MAXIMUM THERMAL CONDUCTIVITY 1/4" BETA UNR-472-F1 OF 0.24 AT 75° F MEAN TEMPERATURE. WITH FACTORY APPLIED ALL PURPOSE POLYURETHANE BONDED JACKET HAVING A VAPOR PROOF PRESSURE SENSITIVE 1/8" INCH WIDE LAP FOR LONGITUDINAL SEAL. EACH CIRCULAR PIECE SHALL BE HINGED CONSTRUCTION. PROVIDE 2 INCH WIDE VAPOR PROOF PRESSURE-SENSITIVE SEALING TAPE WITH RELEASE PAPER FOR CIRCULAR JOINTS. MICRO-LOCK 600" WITH APT-JACKET BY MANVILLE.

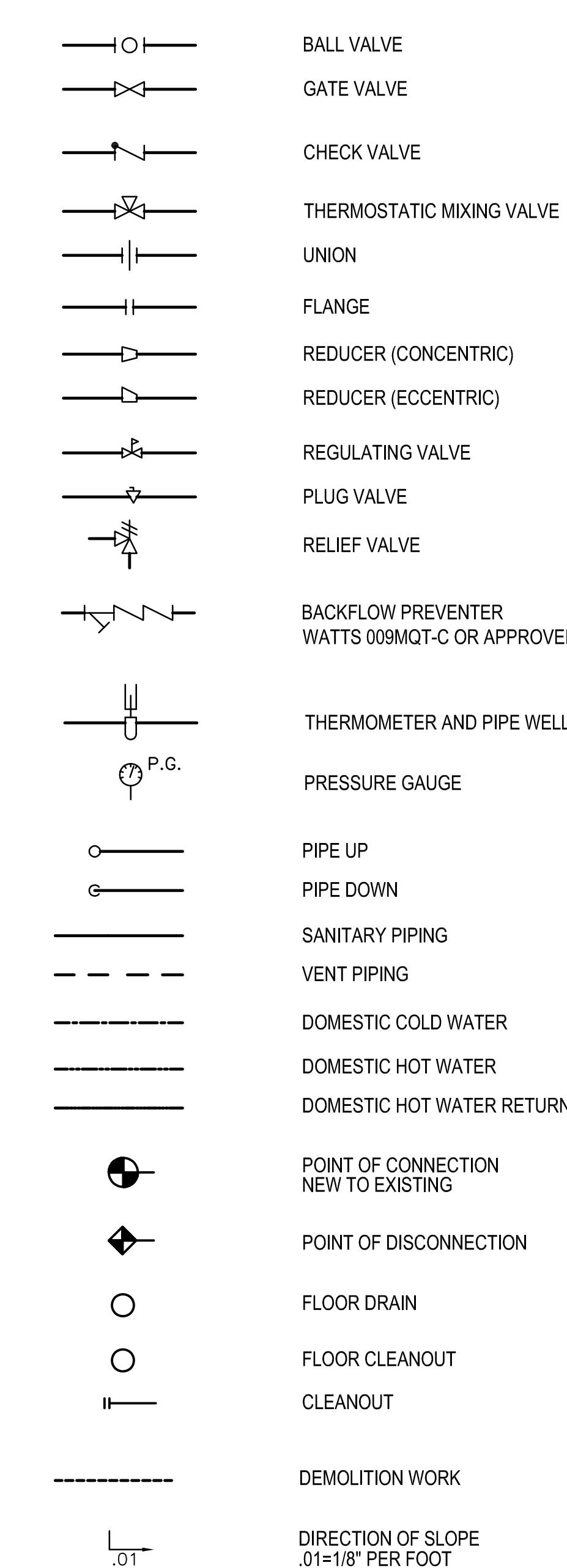
PRE-MOULDED FITTINGS - POLY VINYL CHLORIDE (PVC), 15 MILS THICK, CONFORMING TO PS 1-P-S-55. PROVIDE 2 LAYER PRE-CUT INSULATION SHEETS MATCHED TO PIPE INSULATOR VAPOR BARRIER, MASTIC ADHESIVES AND TAPES. PVC COVERS SHALL BE "TESTED" BY SCHUELER.

FITTING INSULATION INSULATE FITTINGS, FLANGES, VALVES BODIES AND ALL PIPELINE APPURTENANCES WITH ZEPHEN, INC. PREMOULDED 255R RATED FITTING COVERS.

ALL DOMESTIC WATER PIPING SHALL BE INSULATED WITH 1.5" FIBERGLASS INSULATION. INSULATION SHALL HAVE VAPOR BARRIER JACKET. PIPING JOINT ON PIPING EXPOSED TO VIEW EXCEPT IN MECHANICAL ROOM.

INSULATE STORM DRAIN PIPING FROM ROOF DRAIN TO FIRST FLOOR, AND NEW WORK, (TO SLAB IF ACCESSIBLE/FEASIBLE).

# PLUMBING LEGEND



The professional services of the architect are undertaken and performed in the interest of the client. THE ARCHITECT, ENGINEER, AND CONTRACTOR ASSUME NO LIABILITY FOR THE ACTIONS OF ANY OTHER PERSONS ENGAGED IN THE PROJECT.

PROJECT

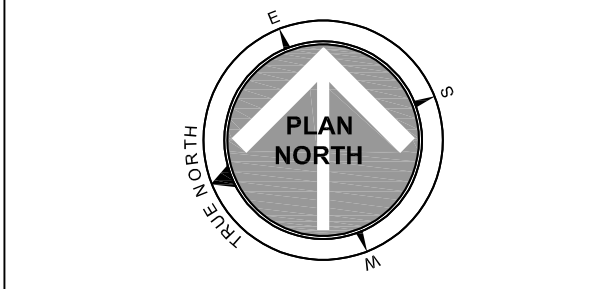
- DTCC Terry Nursing Simulator**  
100 Campus Dr,  
Dover, DE 19901

OWNER

- DELAWARE TECHNICAL COMMUNITY COLLEGE**  
100 Campus Drive  
Dover, DE 19904

**MECHANICAL, PLUMBING, & FIRE PROTECTION - GENERAL NOTES, LEGENDS, & ABBREVIATIONS. (2 OF 2)**

PROJECT STATUS



ISSUED FOR

NO.	DATE	DESCRIPTION
0	11/07/2010	100% CD SUBMISSION
1	01/06/2011	100% CD SUBMISSION
2	02/18/2011	ISSUED FOR BID

Date: 8/20/2025  
Scale: As indicated  
Drawn: JVV  
Checked: AA  
Approved: JWF  
Project: 25P276

**GENERAL NOTES:**

- SEE DRAWING MPF000 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.
- TEMPORARILY REMOVE EXISTING SPRINKLER HEADS AND PIPING WHERE NECESSARY TO DEMO EXISTING DUCTWORK AND CEILINGS. RE-INSTALL SPRINKLER HEAD AND CONNECTED PIPING AFTER NEW DUCTWORK IS INSTALLED.
- GRILLES, REGISTERS, AND DIFFUSERS SHALL BE SAVED FOR RE-USE IN NEW WORK.
- OWNER HAS FIRST RIGHT OF REFUSAL FOR ALL EQUIPMENT REMAINING EQUIP AT THE CONCLUSION OF THE PROJECT.

**SHEET NOTES:**

- ALL HYDRONIC PIPING NOT SHOWN ON DRAWINGS. EXTEND HYDRONIC PIPING TO RELOCATED VAVS AS REQUIRED.
- DRYER EXHAUST DUCTS FOR CLOTHES SHALL TERMINATE ON THE OUTSIDE OF THE BUILDING AND SHALL BE EQUIPPED WITH A BACKDRAFT DAMPER. SCREENS SHALL NOT BE INSTALLED AT THE DUCT TERMINATION. DUCTS SHALL NOT BE CONNECTED OR INSTALLED WITH SHEET METAL SCREWS OR OTHER FASTENERS THAT WILL OBSTRUCT THE EXHAUST FLOW.

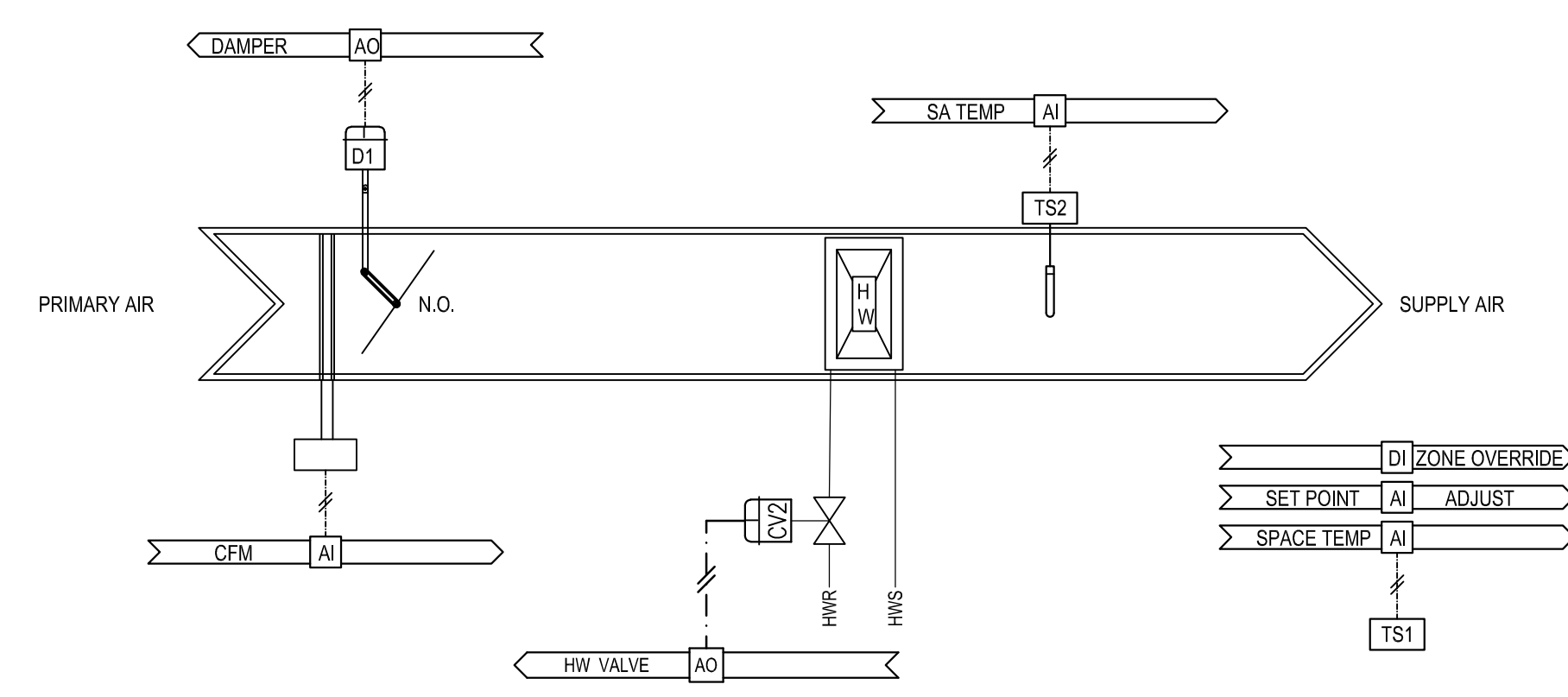
**CONTROL NOTES:**

- RELOCATE AND INSTALL EXISTING T'STATS AS SPECIFIED. STROKE VAV'S AND HOT WATER COIL VALVES, AND WORK WITH BALANCER TO SET DAMPER POSITIONS.
- NEW VAV PROGRAM CONTROLS SHALL MATCH EXISTING VAV CONTROL OPERATIONS.
- NEW VAV BOX SHALL TIE INTO THE EXISTING BAS SYSTEM.

**BALANCER SCOPE:**

- BALANCE NEW EXISTING VAV-1 AND VAV-13 AS FOLLOWS:
  - BALANCE VAV-13 FROM 500 CFM MAX AND 299 CFM MIN WITH A HEATING AIRFLOW OF 498 CFM. TO 450 CFM MAX AND 150 CFM MIN WITH A HEATING AIRFLOW OF 150 CFM.
  - BALANCE VAV-1 FROM 1140 CFM MAX AND 498 CFM MIN WITH A HEATING AIRFLOW OF 898 CFM. TO 1000 CFM MAX AND 300 CFM MIN WITH A HEATING AIRFLOW OF 300 CFM.
- BALANCE NEW VAV(S) PER SCHEDULED AIRFLOW(S).

POINT DESCRIPTOR	POINT TYPE				COMMENTS
	DI	AI	DO	AO	
ZONE TEMPERATURE	*	*	*	*	ALARM 3°F ABOVE & BELOW SETPOINT; CRITICAL ALARM < 50°F;
ZONE SETPOINT ADJUST	*	*	*	*	
ZONE OVERRIDE	*	*	*	*	
HW REHEAT VALVE	*	*	*	*	
SUPPLY AIR TEMPERATURE	*	*	*	*	
PRIMARY AIR DAMPER	*	*	*	*	
PRIMARY AIR FLOW (CFM)	*	*	*	*	



**SEQUENCE OF OPERATION:**

**VAV BOXES (VAV-#):**  
 CONTROL FOR ALL NEW VAV BOXES SHALL BE PRESSURE INDEPENDENT WITH MINIMUM AND MAXIMUM FLOW SETPOINTS, SCHEDULED OCCUPANCY WITH OPTIMUM PREOCCUPANCY AND OCCUPANCY OVERRIDE.

**SPACE TEMPERATURE CONTROL:**

THREE SET POINTS SHALL APPLY. NORMAL (72°F ADJ.), SETBACK HEATING (60°F ADJ.), AND SETBACK COOLING (80°F). THESE THREE VALUES SHALL BE THE ONLY VALUES CHANGED BY THE OPERATOR TO ADJUST SPACE TEMPERATURES. ALL OTHER DEAD BANDS, DIFFERENTIALS, ETC. SHALL BE CALCULATED IN THE PROGRAM LOGIC (UNLESS ANOTHER MEANS IS PROVIDED TO PROHIBIT OVERLAP OF THE HEATING AND COOLING SET POINTS SUCH AS FUNCTION BLOCK TEMPLATES THAT RESTRICT THE SET POINT INPUT). DURING THE NORMAL PERIODS, SEPARATE HEATING AND COOLING SET POINTS SHALL BE CALCULATED.

- NORMAL SPACE COOLING SET POINT: SHALL BE THE NORMAL SPACE TEMPERATURE PLUS 2°F (ADJ.)
- NORMAL SPACE HEATING SET POINT: SHALL BE THE NORMAL SPACE TEMPERATURE MINUS 2°F (ADJ.)

**VAV ZONE DAMPER:**

ZONE DAMPER SHALL MODULATE TO MAINTAIN ZONE VOLUME SET POINT. ALL BAS DAMPER PID LOOPS SHALL BE ADJUSTED TO MINIMIZE DAMPER ACTUATOR DRIVE TIME TO EXTEND ACTUATOR MEAN TIME BEFORE FAILURE (MTBF) WHILE MEETING SET POINT REQUIREMENTS. ZONE VOLUME SET POINT SHALL BE RESET BETWEEN MAXIMUM AND MINIMUM VOLUME SETTINGS TO MAINTAIN SPACE TEMPERATURE COOLING SET POINT WITH A 2°F (ADJ.) RESET RANGE. ZONE VOLUME SET POINT SHALL GO TO THE HEATING VOLUME SET POINT WHENEVER THE SPACE TEMPERATURE FALLS BELOW THE HEATING SPACE TEMPERATURE SET POINT.

- COOLING MINIMUM VOLUME SET POINT SHALL BE AS SCHEDULED ON THE DRAWINGS DURING THE OCCUPIED PERIOD AND SHALL BE SET TO ZERO OTHERWISE.
- HEATING VOLUME SET POINT: WHENEVER HEATING IS REQUESTED FROM THE BOX IN ANY PERIOD, THE HEATING VOLUME SHALL BE SET TO AN ADJUSTABLE HEATING SET POINT AIRFLOW.

**HYDRONIC REHEAT:**

N.O. ZONE REHEAT COIL VALVE SHALL MODULATE IN A PI LOOP TO MAINTAIN SPACE TEMPERATURE HEATING SET POINT AS DEFINED ABOVE WITH A 2°F THROTTLING RANGE. VALVE SHALL BE CLOSED WHENEVER THE PARENT AH IS OFF.

**HEATING REQUEST:**

THIS TERMINAL SHALL ISSUE A "HEATING REQUEST" AS FOLLOWS:

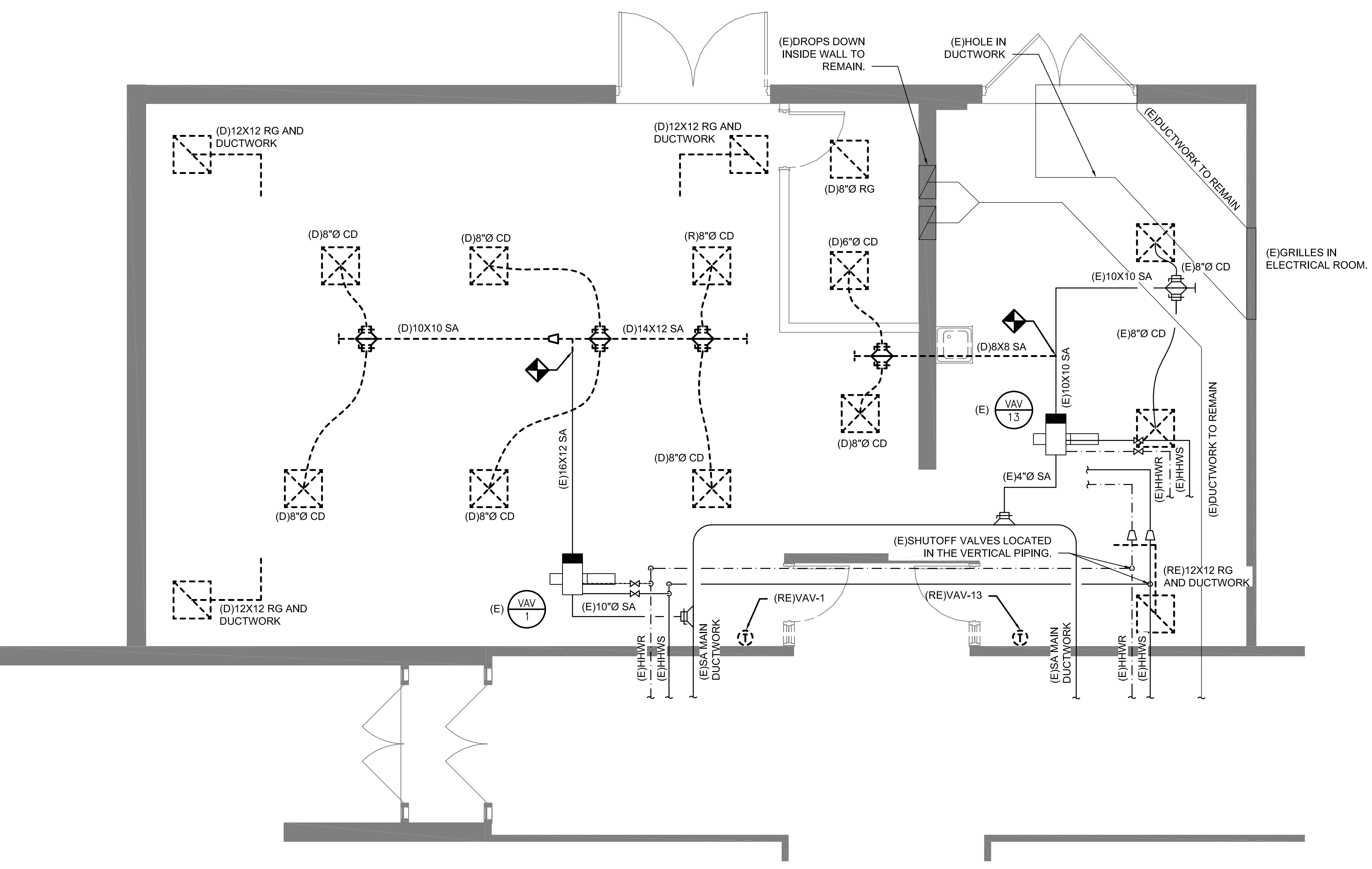
- WHENEVER THE REHEAT OUTPUT IS AT 100% OR
  - WHENEVER THE SPACE TEMPERATURE FALLS BELOW THE THROTTLING RANGE OF THE HEATING LOOP
- COOLING REQUEST: THIS TERMINAL SHALL ISSUE A "COOLING REQUEST" AS FOLLOWS:
- WHENEVER THE ZONE DAMPER OUTPUT IS AT 100% (FULL COOLING), OR WHENEVER THE SPACE TEMPERATURE RISES ABOVE THE THROTTLING RANGE OF THE COOLING LOOP.

**COOLING REQUEST:**

THIS TERMINAL SHALL ISSUE A "COOLING REQUEST" AS FOLLOWS:

- WHENEVER THE ZONE DAMPER OUTPUT IS AT 100% (FULL COOLING), OR
- WHENEVER THE SPACE TEMPERATURE RISES ABOVE THE THROTTLING RANGE OF THE COOLING LOOP.

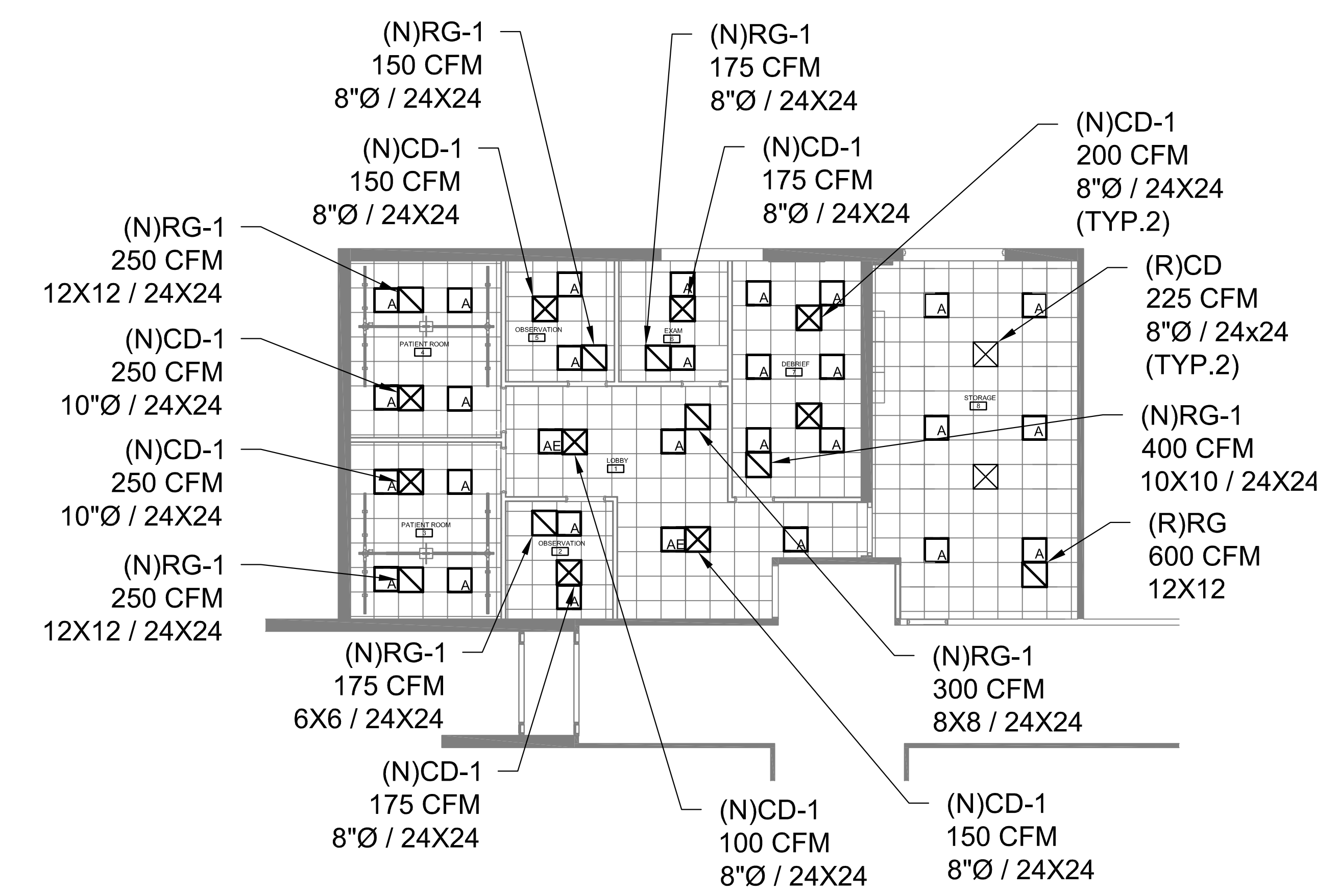
**3 MECHANICAL - VAV CONTROLS**  
 Scale: 1/8" = 1'-0"



**1 MECHANICAL - HVAC - FLOOR PLAN - DEMOLITION**  
 Scale: 1/4" = 1'-0"

MARK	MANUFACTURER	MODEL NUMBER	INLET SIZE (IN)	EXISTING AIRFLOW (CFM)			NEW AIRFLOW (CFM)			HOT WATER HEATING COIL			OPERATING WEIGHT (LBS)	COMMENTS					
				MAX	MIN	HT.G.	MAX	MIN	HT.G.	EAT DB (F)	LAT DB (F)	CAP (MBH)			EWT (F)	LWT (F)	GPM	PD (IN. WG.)	# OF ROWS
(E)VAV-13	-	-	4	600	299	498	450	150	150	55	95.0	6.5	180.0	148.8	0.6	-	-	-	1-4
(E)VAV-1	-	-	10	1140	498	898	1000	300	300	55	95.0	13.0	180.0	141.5	1.3	-	-	-	1-4
(N)VAV-A	PRICE	SDV	10	-	-	-	700	225	225	55	95.0	9.7	180.0	145.6	1.0	0.3	2	28	ALL

- NOTES:**
- MAXIMUM DIFFERENTIAL PRESSURE FOR VAV BOXES AT MAX DESIGN AIRFLOW SHALL NOT EXCEED 0.5" IN. W.C. (INCLUDING HEATING IN COIL)
  - MAXIMUM HOT WATER COIL PRESSURE DROP FOR VAV BOXES SHALL NOT EXCEED 3 FEET.
  - PROVIDE HOT WATER COIL VAV BOXES WITH MINIMUM OF 2-ROWS.
  - VAV SHALL BE PROVIDED WITH A CONTROL ENCLOSURE. BAS CONTRACTOR TO PROVIDE A CONTROLLER RATED AT 24V.
  - PROVIDE NEW VAV WITH HOSE KIT AND CONTROL VALVE.
  - COORDINATE NAMING SCHEME OF NEW VAV WITH OWNER PRIOR TO LABELING.

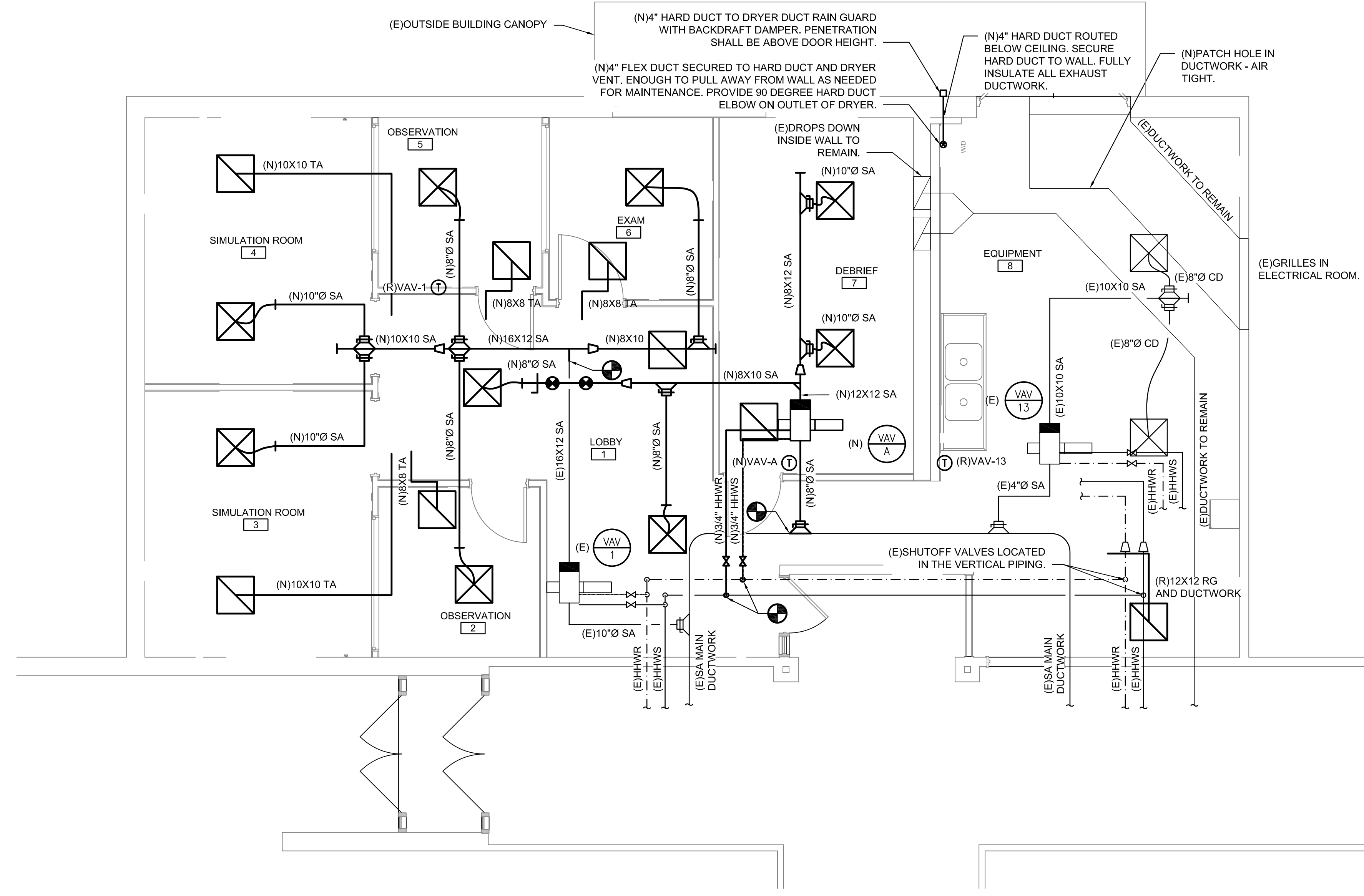


**DIFFUSERS & GRILLES SCHEDULE**

RG-1 CEILING PERFORATED FACE RETURN AIR DIFFUSER EQUAL TO USAIRE MODEL 7550R, ALUMINUM OR STEEL CONSTRUCTION. BORDER TYPE SHALL BE LAY-IN OR SURFACE MOUNTED AS REQUIRED. FINISH SHALL BE BAKED ON ACRYLIC PAINT, COLOR AS SELECTED BY ARCHITECT. FACE SIZE TO 24x24 UNLESS OTHERWISE NOTED ON DRAWINGS. NECK SIZE AS NOTED ON PLANS.

CD-1 CEILING SQUARE PLAQUE FACE SUPPLY AIR DIFFUSER EQUAL TO USAIRE MODEL 4750-6, ALUMINUM OR STEEL CONSTRUCTION. BORDER TYPE SHALL BE LAY-IN OR SURFACE MOUNTED AS REQUIRED. FINISH SHALL BE BAKED ON ACRYLIC PAINT, COLOR AS SELECTED BY ARCHITECT. FACE SIZE TO 24x24 UNLESS OTHERWISE NOTED ON DRAWINGS. NECK SIZE AS NOTED ON PLANS.

**4 MECHANICAL - HVAC - REFLECTED CEILING PLAN - NEW WORK**  
 Scale: 1/8" = 1'-0"



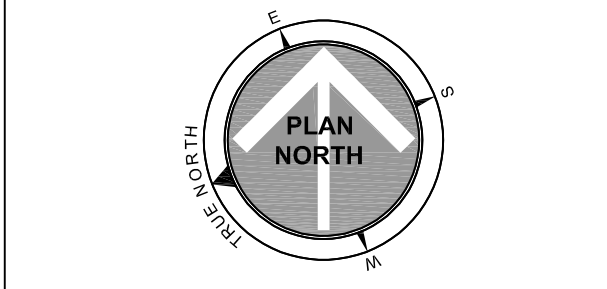
**2 MECHANICAL - HVAC - FLOOR PLAN - NEW WORK**  
 Scale: 1/4" = 1'-0"

PROJECT  
**DTCC Terry Nursing Simulator**  
 100 Campus Dr.  
 Dover, DE 19901

OWNER  
**DELAWARE TECHNICAL COMMUNITY COLLEGE**  
 100 Campus Drive  
 Dover, DE 19904

**MECHANICAL - HVAC - FLOOR PLAN - DEMOLITION AND NEW WORK**

PROJECT STATUS



ISSUED FOR

NO.	DATE	DESCRIPTION
0	11/07/2011	100% CD SUBMISSION
1	01/06/2012	ASB SUBMISSION
2	02/18/2012	ISSUED FOR BID

Date: 8/20/2025  
 Scale: As Indicated  
 Drawn: JVV  
 Checked: JA  
 Approved: JRF  
 Project: 25P276





**GENERAL NOTES:**

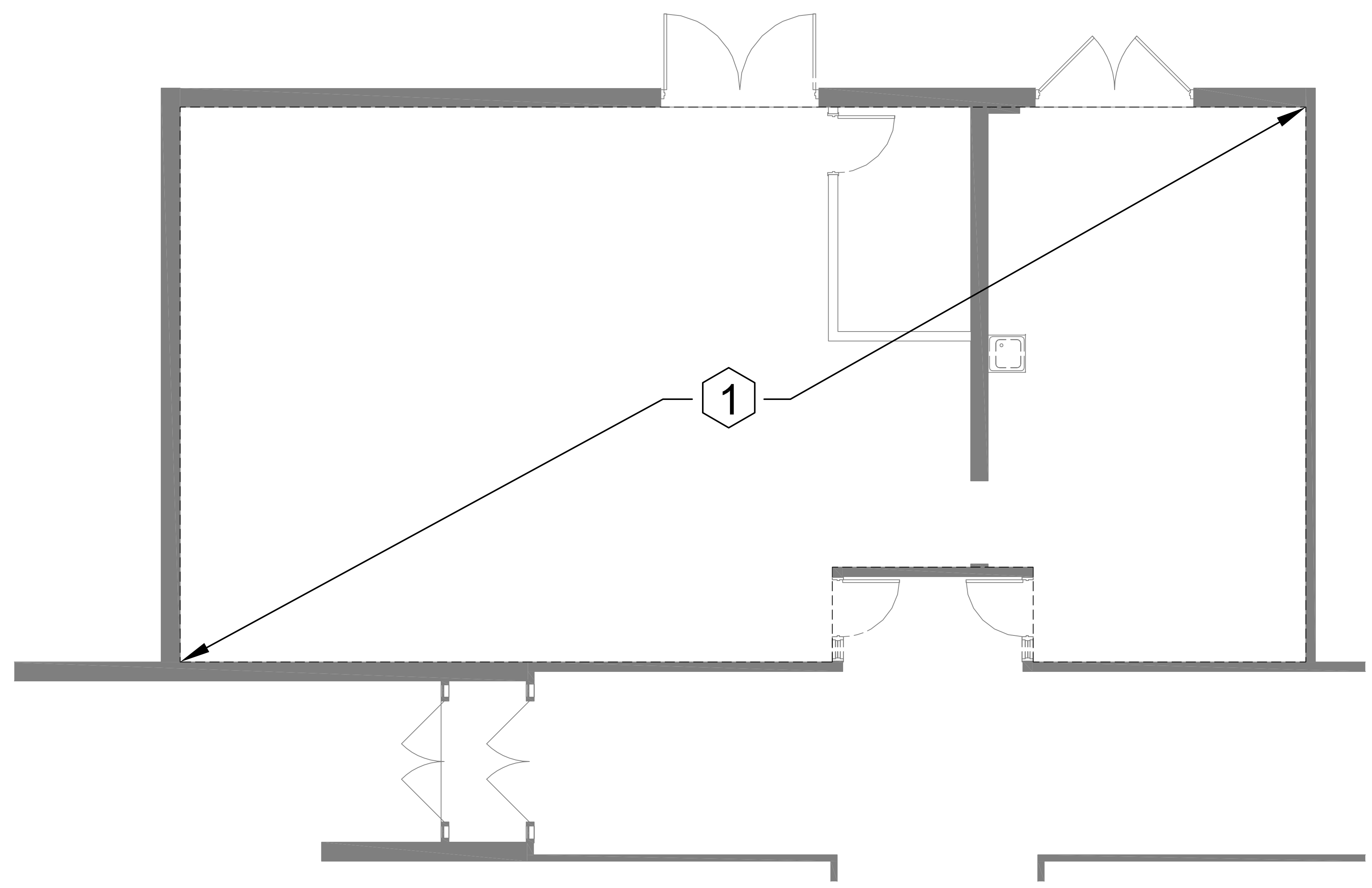
- SEE DRAWING MPF001 & MPF002 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.

**KEY NOTES:**

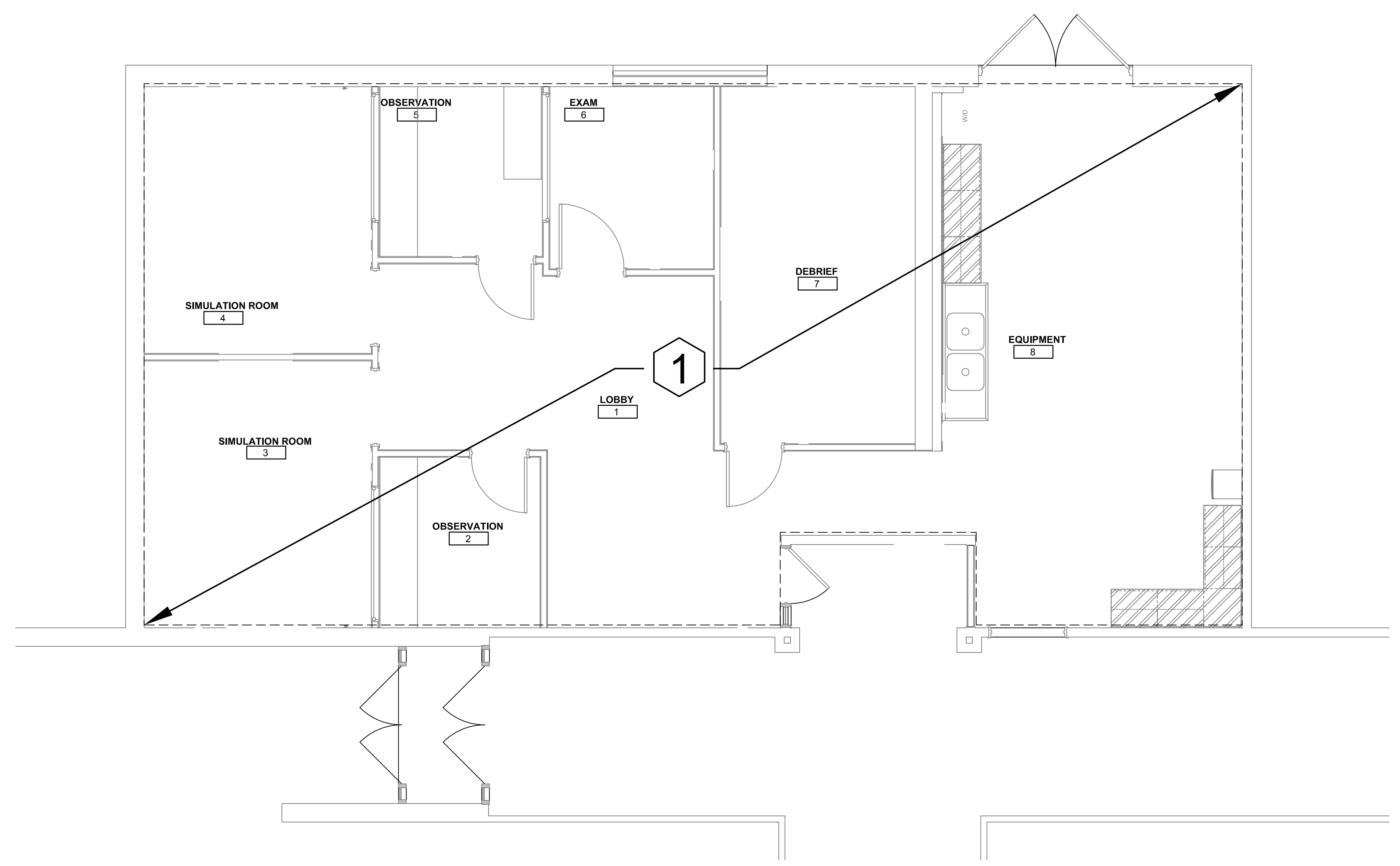
- EXISTING CEILING ARE BEING REMOVED AND REPLACED. PROVIDE SPRINKLER HEADS FOR NEW ARCHITECTURAL LAYOUT. THIS SPRINKLER SYSTEM SHALL BE DESIGNED FOR LIGHT HAZARD

**FIRE PROTECTION SPECIFICATIONS**

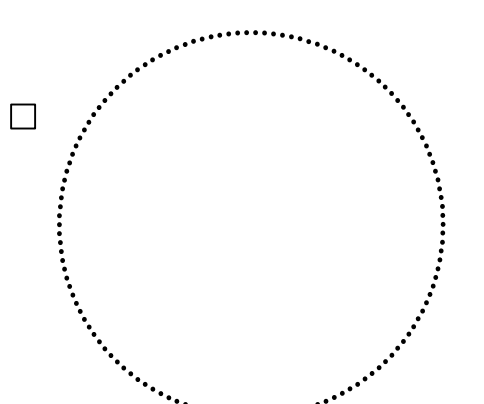
- THIS DRAWING IS INTENDED TO SHOW APPROXIMATE AND RELATIVE LOCATIONS OF MATERIALS AND EQUIPMENT. PROVIDE ALL SUCH PIPING, FITTINGS, VALVES AND SPECIALTIES REQUIRED IN SUCH CASES TO INSURE A COMPLETE AND PROPERLY OPERATING INSTALLATION IN ACCORDANCE WITH CODES AND WITHOUT EXTRA COST TO OWNER.
- CONTRACTOR SHALL PROVIDE AND PAY ALL FEES AND PERMITS.
- CONTRACTOR SHALL VISIT THE JOB SITE AND OBSERVE ALL EXISTING CONDITIONS.
- FURNISH AND INSTALL PIPE, SPRINKLER HEADS, EQUIPMENT, ETC., REQUIRED FOR THE PROPER FUNCTIONING OF THE WORK INDICATED ON THE PLAN.
- ALL WORK DONE AND ALL EQUIPMENT AND MATERIALS USED AND ALL TESTS SHALL BE DONE TO MEET THE APPROVAL OF THE INSURER AS WELL AS LOCAL AUTHORITIES HAVING JURISDICTION.
- ALL PIPING TO BE SCH 40 GALVANIZED STEEL WITH SCREWED OR FLANGED JOINTS; ALL FITTINGS TO BE CAST IRON TO PSI W.P.F. APPROVED TYPE.
- FOR SCREWED JOINTS, APPLY NON-CORROSIIVE, NON-HARDENING TEFLON TAPE OR SUITABLE COMPOUND TO MALE THREADS ONLY. CAULKING AND PACKING OF THREADS IS PROHIBITED.
- PIPING SHALL BE ASTM A133 OR A135 BLACK STEEL. PIPING 2" & LARGER SHALL BE SCHEDULE 10, PIPING 2" & SMALLER SHALL BE SCHEDULE 40. PIPE JOINTS SHALL BE ROLL OR CUT GROOVED. THREADED OR FLANGED SCHEDULE 10 PIPE SHALL NOT BE CUT GROOVED OR THREADED. GROOVED FITTINGS SHALL BE ASTM A538 DUCTILE IRON WITH EDPM GASKETS. THREADED OR FLANGED FITTINGS SHALL BE ASTM A197 MALLEABLE IRON WITH THREADS CONFORMING TO ANSI B1.20.1. PIPE & FITTINGS SHALL BE PRESSURE RATED FOR MINIMUM 175 PSIG. ALL MATERIALS SHALL BE U.L. LISTED OR FM APPROVED FOR USE IN FIRE PROTECTION SYSTEMS. GROOVED FITTINGS SHALL BE TORQUED PER MANUFACTURER'S SPECIFICATIONS. CONTRACTOR SHALL RECORD ALL TORQUING OPERATIONS WHEN TORQUING IS REQUIRED. ALL DRY SYSTEMS SHALL BE GALVANIZED.
- PIPE SHALL BE SUPPORTED IN ACCORDANCE WITH MSS-SP-58, CLASS B, U.L. LISTED. HANGERS SHALL BE FEE AND MASON, GRINNELL CRANE, WITCH.
- ALL SPRINKLERS ARE TO BE U.L. LISTED AND/OR F.M. APPROVED.
- CONTRACTOR SHALL PREPARE SHOP DRAWINGS AND HYDRAULIC CALCULATION, AT HIS OWN EXPENSE, SIGNED AND SEALED BY A QUALIFIED ENGINEER, LICENSED IN THE STATE OF DELAWARE. CALCULATIONS AND SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW TO THE ENGINEER AND APPROVING AUTHORITIES PRIOR TO PERFORMANCE OF ANY WORK. SYSTEM TO BE CALCULATED FOR ORDINARY HAZARD GROUP 1 CLASSIFICATION.
- ALL WORK SHALL BE INSPECTED BY THE INSURER AND ANY LOCAL AUTHORITIES HAVING JURISDICTION. CERTIFIED COPIES OF THESE APPROVALS SHALL BE DELIVERED TO THE OWNER BEFORE FINAL PAYMENT. ALL TESTS SHALL BE WITNESSED BY OWNER'S REPRESENTATIVE. ALL TESTS SHALL CONFORM TO THE REQUIREMENTS OF NFPA 13.
- THE FIRE PROTECTION CONTRACTOR SHALL FURNISH AND INSTALL A FLOW AND TAMPER SWITCH VALVE FOR ALL ZONES AS REQUIRED BY CODE. THE FIRE ALARM CONTRACTOR SHALL FURNISH AND INSTALL WIRING TO THE BUILDING'S FIRE ALARM SYSTEM FROM ALL FIRE PROTECTION DEVICES.



**1 FIRE PROTECTION - SPRINKLER - FLOOR PLAN - DEMOLITION**  
Scale: 1/4" = 1'-0"



**2 FIRE PROTECTION - SPRINKLER - FLOOR PLAN - NEW WORK**  
Scale: 1/4" = 1'-0"



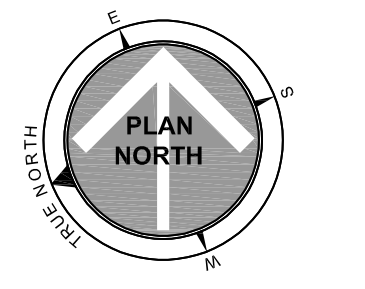
The professional services of the architect are undertaken and performed in the interest of... DELAWARE TECHNICAL COMMUNITY COLLEGE. No contractual obligation is assumed by the architect for the benefit of any other person involved in the project.

**PROJECT**  
 **DTCC Terry Nursing Simulator**  
100 Campus Dr.  
Dover, DE 19901

**OWNER**  
 **DELAWARE TECHNICAL COMMUNITY COLLEGE**  
100 Campus Drive  
Dover, DE 19904

**FIRE PROTECTOIN - SPRINKLER - DEMOLITION & NEW WORK**

**PROJECT STATUS**



**ISSUED FOR**

NO.	DATE	DESCRIPTION
0	11/07/25	100% CD SUBMISSION
1	10/18/25	42% SUBMISSION
2	10/18/25	ISSUED FOR BID

Date: 8/20/2025  
Scale: As Indicated  
Drawn: JWV  
Checked: AA  
Approved: JRF  
Project: 25P276





**ELECTRICAL GENERAL NOTES**

**GENERAL NOTES**

**A. CONTRACT PERFORMANCE**

1. EXECUTE THE WORK IN THE BEST AND MOST THOROUGH MANNER & TO THE SATISFACTION OF THE CONSULTING ENGINEERS, WHO WILL JOINTLY INTERPRET THE MEANING OF THE DRAWINGS AND SPECIFICATIONS AND SHALL HAVE THE POWER TO RECTIFY ANY WORK OR MATERIALS WHICH, IN THEIR JUDGMENT, ARE NOT IN FULL ACCORDANCE THEREWITH.

2. EXCEPT FOR CHANGES AS MAYBE SPECIFICALLY APPROVED BY THE CONSULTING ENGINEERS, IN ACCORDANCE WITH ALTERNATES OF OPTIONS STATED HEREINAFTER, ALL WORK MUST BE IN FULL ACCORDANCE WITH THE INTENT OF THE PLANS AND SPECIFICATIONS, COMPLETE IN EVERY WAY AND READY FOR SATISFACTORY AND EFFICIENT OPERATION WHEN DELIVERED TO THE OWNER.

3. WHERE DISAGREEMENTS OCCUR BETWEEN THE PLANS AND THE SPECIFICATIONS, OR WITHIN EITHER DOCUMENT ITSELF, THE ITEM OR ARRANGEMENT OF BETTER QUALITY, GREATER QUANTITY OR HIGHER COST SHALL BE INCLUDED IN THE BASE BID.

4. THE DRAWINGS SHOW VARIOUS CONDUIT AND PIPING SYSTEMS SCHEMATICALLY. CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY JUNCTION BOXES, PULL BOXES, SUPPORT AND ACCESSORIES TO MEET APPLICABLE CODES, BUILDING STANDARDS AND FULFILL CONTRACT DOCUMENTS. NO ADDED COMPENSATION WILL BE PERMITTED FOR VARIATIONS DUE TO FIELD CONDITIONS.

5. THE CONTRACTOR COVENANTS AND AGREES THAT HE AND HIS SUBCONTRACTORS AND HIS AND THEIR AGENTS, SERVANTS AND EMPLOYEES WILL PROVIDE AND MAINTAIN A SAFE PLACE TO WORK AND THAT HE AND THEY WILL COMPLY WITH ALL LAWS AND REGULATIONS OF ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION THEREOF AND THE CONTRACTOR AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS THE CONSULTING ENGINEER, ARCHITECT AND OWNER FROM AND AGAINST ANY LIABILITY, LOSS, DAMAGE OR EXPENSE, INCLUDING ATTORNEY'S FEES ARISING FROM FAILURE OR ALLEGED FAILURE ON THE PART OF THE CONTRACTOR, HIS SUBCONTRACTORS AND HIS AND THEIR AGENTS, SERVANTS AND EMPLOYEES TO PROVIDE AND MAINTAIN A SAFE PLACE TO WORK OR TO COMPLY WITH ALL LAWS AND REGULATIONS OF ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION THEREOF.

6. THE CONTRACTOR AND EACH SUBCONTRACTOR COVENANTS AND AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS THE CONSULTING ENGINEER, ARCHITECT AND OWNER FROM AND AGAINST ANY LIABILITY, LOSS, DAMAGE OR EXPENSE, INCLUDING ATTORNEY'S FEES ARISING FROM A FAILURE OR ALLEGED FAILURE ON THE PART OF THE CONTRACTOR, HIS SUBCONTRACTORS AND HIS AND THEIR AGENTS, SERVANTS AND EMPLOYEES TO PROVIDE AND MAINTAIN A SAFE PLACE TO WORK OR TO COMPLY WITH ALL LAWS AND REGULATIONS OF ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION THEREOF.

7. THE CONTRACTOR AGREES THAT ANY CONTROVERSY OR DISPUTE TO WHICH THE CONTRACTOR, THE ARCHITECT, AND THE CONSULTING ENGINEERS ARE PARTIES SHALL BE SUBMITTED TO ARBITRATION FOR DECISION IN ACCORDANCE WITH THE RULES OF SUCH ASSOCIATION FOR CONSTRUCTION INDUSTRY DISPUTES. ALL SUBCONTRACTORS LIKEWISE AGREE TO SUBMIT TO SUCH ARBITRATION ANY DISPUTE BETWEEN OR AMONG THEM, THE CONTRACTOR, THE ARCHITECT AND THE CONSULTING ENGINEERS, AND THE CONTRACTOR AGREES TO MAKE AVAILABLE TO THE CONSULTING ENGINEERS ON DEMAND SIGNED COPIES OF THE CONTRACT BETWEEN THE OWNER AND THE CONTRACTOR AND BETWEEN THE CONTRACTOR AND HIS SUBCONTRACTORS, THE CONTRACTOR AND EACH SUBCONTRACTOR AND THAT BY SUBMITTING A BID WHICH IS ACCEPTED, THIS PARAGRAPH SHALL BE DEEMED A WRITTEN AGREEMENT TO SUBMIT ANY CONTROVERSY THEREAFTER ARISING TO ARBITRATION.

8. ALL WORK SHALL BE DONE IN CONFORMANCE WITH ALL GOVERNING CODES, INCLUDING AMENDMENTS, BULLETINS, ETC., AS WELL AS STANDARDS OF INSTALLATION AND EQUIPMENT ESTABLISHED FOR THE BUILDINGS, AND REQUIREMENTS OF THE OWNER.

9. OBTAIN ALL NECESSARY PERMITS AND APPROVAL FROM GOVERNING AUTHORITIES AND FILE ALL NECESSARY FORMS. PAY ALL INSPECTION FEES.

10. COORDINATE SCHEDULING OF ALL WORK TO BE PERFORMED WITH OWNER AND/OR HIS AGENT AND INCLUDE ALL NECESSARY PREMIUM TIME REQUIRED FOR SHUTDOWNS, WORK IN OCCUPIED AREAS, ETC.

11. ALL AREAS ASSOCIATED WITH WORK TO BE PERFORMED SHALL BE EXAMINED PRIOR TO BID SUBMISSION. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR CONDITIONS FOUND DURING INSTALLATION.

12. BEFORE COMMENCING WORK, EXAMINE ALL ADJOINING WORK ON WHICH THIS WORK IS IN ANY WAY DEPENDENT FOR PERFECT WORKMANSHIP ACCORDING TO THE INTENT OF THIS SPECIFICATION, AND REPORT TO THE CONSTRUCTION MANAGER ANY CONDITION WHICH PREVENTS PERFORMANCE OF FIRST-CLASS WORK. NO "WAIVER OF RESPONSIBILITY" FOR INCOMPLETE, INADEQUATE OR DEFECTIVE ADJOINING WORK WILL BE CONSIDERED UNLESS NOTICE HAS BEEN FILED BEFORE SUBMITTAL OF A PROPOSAL.

13. COORDINATE ALL WORK WITH OTHER TRADES TO ENSURE INSTALLATION IS MADE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

14. FURNISH ADEQUATE LIABILITY INSURANCE AND BONDING AS REQUIRED BY OWNER.

15. INCLUDE ALL LABOR, MATERIALS, AND APPURTENANCES REQUIRED FOR THE FURNISHING, INSTALLING AND TESTING OF ALL WORK COMPLETE AND MAKE READY FOR OPERATION IN A MANNER SATISFACTORY TO THE ARCHITECT AND CONSULTING ENGINEER, ALL WORK SHOWN ON DRAWINGS AND SPECIFIED HEREIN.

16. ALL WORK SHALL BE GUARANTEED FOR TWO (2) FULL YEAR FROM THE DATE WHEN THE OWNER HAS ISSUED A "CERTIFICATE OF SUBSTANTIAL COMPLETION".

**B. INSTALLATION PROCEDURE**

1. THIS CONTRACTOR'S WORK SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING: FURNISHING AND INSTALLATION OF ALL ELECTRICAL WORK, INCLUDING ELECTRICAL AND COMMUNICATIONS OUTLETS IN WALLS AND FLOOR, LIGHTING FIXTURES WITH LAMPS, SWITCHES, DIMMERS, EMERGENCY BATTERY UNITS, ETC., AND ASSOCIATED BRANCH CIRCUIT WIRING, DISCONNECT SWITCH SPECIAL RECEPTACLES, ETC. ALL SPECIAL EQUIPMENT, SUCH AS FANS, AIR CONDITION UNITS, COPIERS, ETC., WILL BE FURNISHED BY OTHERS (U.O.N.), WHERE EQUIPMENT REQUIRES PERMANENT CONNECTIONS SHALL BE PROVIDED WITH APPROPRIATE DISCONNECTING MEANS.

2. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL WORK SHOWN N DRAWINGS WITH OTHER TRADES TO ASSURE THAT ALL SYSTEMS ARE COMPLETE AND OPERATIONAL. THIS CONTRACTOR SHALL COORDINATE ALL EQUIPMENT LOCATIONS AND CONDUIT RUNS SUPPLIED AND/OR INSTALLED UNDER THIS SECTION TO AVOID CONFLICTS OR OBSTRUCTIONS TO OTHER TRADES. THIS CONTRACTOR SHALL PROVIDE ALL NECESSARY PULL BOXES, VERTICAL SUPPORT BOXES, AND CONDUIT OFFSETS REQUIRED TO ACCOMPLISH THE ABOVE NOTED COORDINATION AT NO ADDITIONAL COST TO THE OWNER. WHETHER OR NOT INDICATED ON PLANS, ALL VERTICAL SUPPORT BOXES, PULL BOXES, ETC., SHALL BE INSTALLED WHERE REQUIRED TO FACILITATE PULLS AND AT CODE REQUIRED INTERVALS, AT A MINIMUM

3. CONDUIT RUNS INDICATED ON PLAN ARE FOR REFERENCE ONLY. EXACT LOCATIONS AND ELEVATION SHALL BE DETERMINED AFTER COORDINATION WITH OTHER TRADES. THIS CONTRACTOR SHALL SUPPLY, AS PART OF THEIR SHOP DRAWING SUBMISSION, THE EXACT LOCATION OF ALL CEILING MOUNTED EQUIPMENT AND CONDUIT RUNS INCLUDING PROPOSED LOCATIONS AND MEANS OF SUPPORT AS WELL AS THE EXPECTED LOAD CONCENTRATION AT THE POINTS OF ATTACHMENT. THE ABOVE NOTED INFORMATION SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER BEFORE ANY WORK IS TO COMMENCE.

4. FURNISH AND INSTALL ALL NECESSARY CABLE SUPPORT BOXES, PULL BOXES AND CONDUIT SUPPORTS, WHERE NOTED AND AS REQUIRED BY APPLICABLE CODES. ALL LOW TENSION (COMMUNICATIONS, SECURITY, A/V, ETC.) CONDUIT, FIRE ALARM CONDUIT, ETC., WHICH HAVE RUNS IN EXCESS OF 100 FEET IN LENGTH AND/OR CONTAINING BENDS IN EXCESS OF 180 DEGREES SHALL BE PROVIDED WITH A PULLBOX. ALL PULLBOXES SHALL BE LABELED FOR THEIR INTENDED USE. DECALS SHALL BE PROVIDED TO INDICATE VOLTAGE LEVEL. FOR FIRE ALARM SYSTEM BOXES SHALL BE PAINTED RED, AND ALL WIRE AND CABLE PROVIDED UNDER THIS SECTION SHALL BE TAGGED (WITH FEEDER OR BRANCH CIRCUIT DESIGNATION) AT ALL BOXES. WHERE CONDUIT BENDS ARE REQUIRED IN COMMUNICATIONS RACEWAYS: PULL BOXES FOR COMMUNICATION RACEWAYS WILL BE PROVIDED IN STRAIGHT PULLS ONLY. LABEL EACH RACEWAY (PER TECHNOLOGY DEPT. REQUIREMENTS) EVERY 50 FEET HORIZONTALLY AND ON EACH FLOOR VERTICALLY. SUBMIT LABELING SYSTEM FOR REVIEW.

5. UNLESS SPECIFICALLY APPROVED, NO WIRES SHALL BE PULLED IN UNTIL THE CONDUIT SYSTEM IS COMPLETED. NO GREASE OR OIL SHALL BE USED TO FACILITATE THE PULLING OF WIRES; ONLY APPROVED PULLING COMPOUND SHALL BE USED. ALL WIRES SHALL BE CONTINUOUS BETWEEN OUTLET AND OUTLET, OR FROM PANELBOARD TO THE FIRST OUTLET. JOINTS THAT BECOME NECESSARY IN A CIRCUIT WORK AT THE OUTLETS SHALL BE MADE WITH APPROVED PRESSURE CONNECTORS. ALL JOINTS SHALL BE COVERED WITH AN INSULATION EQUAL TO THAT ON THE CONDUCTORS. APPROVED PRESSURE CONNECTORS, IDEAL MOUNTS, SCOTCH-LOCK, BUCHANAN, OR AS APPROVED, SHALL BE USED.

6. EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES, SWITCHES, WALL OUTLETS, ETC., SHALL BE IN ACCORDANCE WITH ARCHITECTURAL DRAWINGS.

7. NO ELECTRICAL CONNECTIONS SHALL BE MADE TO, OR WORK PERFORMED ON, ENERGIZED EQUIPMENT.

8. FINAL CONNECTIONS TO EQUIPMENT SHALL BE MADE ACCORDING TO VENDOR APPROVED SHOP DRAWINGS.

9. VERIFY ELECTRICAL REQUIREMENTS OF ALL NEW EQUIPMENT TO BE USED. ALL SPECIAL PURPOSE OUTLETS INDICATED ON PLAN SHALL BE VERIFIED WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION, TO ENSURE PROPER WIRING AND COMPATIBILITY WITH ATTACHMENT PLUGS OR JUNCTION BOXES THAT MAY BE FURNISHED AS AN INTEGRAL PART OF THE EQUIPMENT.

10. COORDINATE ALL LOCATIONS AND HEIGHTS OF STUB-UPS AND OUTLETS IN FIELD WITH VENDORS AND/OR FURNITURE MANUFACTURERS' APPROVED SHOP DRAWINGS. ALL RECEPTACLES ARE TO BE ACCESSIBLE.

11. ALL ELECTRICAL SHALL BE ACCESSIBLE BELOW COUNTERS OR BEHIND EQUIPMENT. CONTRACTOR SHALL COORDINATE EXACT LOCATION OF EQUIPMENT RECEPTACLES WITH EQUIPMENT MANUFACTURER'S REQUIREMENTS AND THE LOCAL INSPECTOR.

12. ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECTS FOR ALL EQUIPMENT AND LOCATION WITH THE ELECTRICAL INSPECTOR, VENDORS APPROVED SHOP DRAWING AND FINAL EQUIPMENT LOCATIONS.

13. ELECTRICAL CONTRACTOR SHALL VERIFY PHASE LOAD BALANCING ON POWER PANELS UPON COMPLETION OF THE ELECTRICAL INSTALLATION. INCLUDE RE-DISTRIBUTION OF CIRCUITS WITHIN PANELS TO BALANCE WITHIN A 10% WINDOW (+/-5%).

14. ALL CONDUIT AND CABLE "HOMERUNS" SHALL CONSIST OF A SINGLE CIRCUIT PER CIRCUIT OR FEEDERS SERVED BY AN OVERCURRENT PROTECTIVE (OCP) DEVICE IN EXCESS OF 20 AMPERES, SINGLE POLE, WHERE WIRE AND CONDUIT BRANCH CIRCUITS SHARE A CONDUIT HOMERUN, OCP LESS THAN OR EQUAL TO 20 AMPERES (SINGLE POLE). THERE SHALL BE A MAXIMUM OF THREE CIRCUITS COMBINED IN A RACEWAY TO THE PANELBOARD, UNLESS OTHERWISE NOTED. ALL CONDUCTORS SHALL BE DERATED PER NATIONAL ELECTRICAL CODE (LATEST VERSION), COMBINING OF MULTIPLE HOMERUNS (MORE THAN THREE) IN A SING CONDUIT SHALL NOT BE PERMITTED.

15. ALL CONDUIT SHOWN FOR INDOOR WORK SHALL BE EMT (¾" MINIMUM) WITH SET-SCREW TYPE COUPLINGS UNLESS OTHERWISE NOTED.

16. PROVIDED IBC CONDUIT WITH THREADED COUPLINGS WHERE REQUIRED BY CODE.

17. TYPE MC CABLE MAY BE UTILIZED FOR BRANCH LIGHTING AND RECEPTACLE CIRCUITRY, WHERE PERMITTED BY CODE AND PROVIDED THAT:

- a. IT IS NOT LOCATED WITHIN VIEW, ALL EXPOSED RACEWAYS MUST BE IN CONDUIT.
- b. CONTAINS AN INSULATED GROUND WIRE.
- c. CONDUIT IS RUN TO THE FIRST DEVICE DOWN-LINE OF THE PANEL (I.E. RECEPTACLE, LIGHT FIXTURE, ETC.)

18. SPICE BOXES MOUNTED ADJACENT TO THE ELECTRICAL CLOSET SHALL NOT BE PERMITTED TO CONVERT FROM A CONDUIT HOMERUN TO TYPE MC CABLE.

19. INCLUDE ALL LABOR, MATERIALS, AND APPLICATIONS REQUIRED FOR THE FURNISHING, INSTALLING AND TESTING OF ALL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, IN A MANNER SATISFACTORY TO THE ARCHITECT.

20. WHERE CONDUITS, CABLE TRAY OR OTHER ELECTRICAL EQUIPMENT PENETRATE FIRE OR SMOKE RATED WALLS, PARTITIONS, FLOOR SLABS, ETC., THE SPACE BETWEEN THE SLEEVE OR CUTOUT AND THE ELECTRICAL EQUIPMENT SHALL BE CAULKED WITH A UL LISTED, INTUMESCENT TYPE, APPROVED FIRESTOP SYSTEM. SPACE BETWEEN THE SLEEVE OR CUTOUT AND THE ELECTRICAL EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR CONDUIT SIZE AND DAMPING MATERIAL THICKNESS FOR THE TYPE OF RATED CONSTRUCTION FOR WHICH THE SYSTEM IS TO BE USED. THE TYPE OF SYSTEM SHALL BE AS MANUFACTURED BY AN FIR PROTECTION SYSTEMS OR AS APPROVED. SEE ARCHITECTURAL DRAWINGS FOR FIRE RATING OF WALLS AND FLOORS.

21. ARCHITECT'S AND/OR ENGINEER'S REVIEW

1. SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO THE START OF ANY WORK. ANY WORK OR EQUIPMENT INSTALLED PRIOR TO REVIEW OF SHOP DRAWINGS AND FOUND TO BE UNACCEPTABLE SHALL BE REMOVED AND MODIFIED AT THE CONTRACTOR'S SOLE EXPENSE INCLUDING ANY RESULTANT SCHEDULING DELAYS EXPERIENCED BY ANY TRADE.

2. THE ARCHITECT AND/OR ENGINEER WILL REVIEW SHOP DRAWINGS AND SAMPLES FOR CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND THE INFORMATION CONTAINED IN THE CONTRACT DOCUMENTS. THE ARCHITECT'S AND/OR ENGINEER'S REVIEW OF SHOP DRAWINGS AND SAMPLES IS ONLY FOR THE CONVENIENCE OF THE OWNER IN FOLLOWING THE WORK AND DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE ARCHITECT'S AND/OR ENGINEER'S REVIEW SHALL NOT BE CONSTRUED AS A COMPLETE OR DETAILED CHECK OF THE WORK SUBMITTED, NOR SHALL IT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR ERRORS OF ANY SORT IN THE SHOP DRAWINGS AND SAMPLES, OR FROM THE NECESSITY OF FURNISHING ANY WORK REQUIRED BY THE CONTRACT DOCUMENTS WHICH MAY HAVE BEEN OMITTED FROM SHOP DRAWING SUBMITTALS.

3. THE REVIEW OF A SEPARATE ITEM SHALL NOT INDICATE REVIEW OF THE COMPLETE ASSEMBLY IN WHICH IT FUNCTIONS. NOTHING IN THE ARCHITECT'S AND/OR ENGINEER'S REVIEW OF SHOP DRAWINGS AND SAMPLES SHALL BE CONSIDERED AS AUTHORIZING:

- a. A DEPARTURE FROM CONTRACT DOCUMENTS OR SPECIFICATIONS, OR,
- b. ADDITIONAL COST TO THE OWNER, OR,
- c. INCREASED TIME FOR COMPLETION OF THE WORK.

4. NO PART OF THE WORK SHALL BE IN THE FABRICATION SHOP OR IN THE FIELD UNTIL THE ARCHITECT AND/OR ENGINEER HAS REVIEWED THE SHOP DRAWINGS AND SAMPLES FOR THAT PORTION OF THE WORK. THEREAFTER, THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE INDICATED STATUS OF THE REVIEWED SHOP DRAWING.

5. SAMPLES SHALL BE SUBMITTED FOR REVIEW WHEN REQUESTED BY THE ARCHITECT AND/OR ENGINEER.

6. TWO WEEKS AFTER AWARD OF CONTRACT SUBMIT A SHOP DRAWING LOG FOR REVIEW WITH SUBMITTAL DATES AND SUBMITTAL TYPE.

7. PROVIDE OPERATIONS AND MAINTENANCE MANUALS FOR ALL EQUIPMENT AND MATERIALS.

**D. RECORD DRAWINGS**

1. PREPARE AND FURNISH TO OWNER "AS BUILT" PLANS FOR ALL WORK INSTALLED. PROVIDE CAD DRAWINGS AND CAD FILES ON A COMPACT DISC COMPLETED IN THE LATEST VERSION OF AUTOCAD. ALL DRAWINGS SHALL BE IN A STYLE COMMENSURATE WITH THE ENGINEERING DESIGN. THE ENGINEERING DESIGN CAD DRAWINGS OR BACKGROUNDS WILL BE FURNISHED FOR USE TO THIS CONTRACTOR FOR THE PURPOSE OF THIS SUBMISSION (SUBMIT A CAD INDEMNIFICATION AGREEMENT).

2. UPON CONSTRUCTION, KEEP AN ACCURATE RECORD OF ALL DEVIATIONS BETWEEN THE WORK AS SHOWN ON DRAWINGS AND THAT WHICH IS ACTUALLY INSTALLED. THIS RECORD SET OF PRINTS SHALL BE KEPT AT THE JOB SITE FOR INSPECTION.

3. UPON COMPLETION OF INSTALLATION, SUBMIT ONE SET OF BLACK AND WHITE PRINTS OF THESE "AS-BUILT" RECORD DRAWINGS TO THE CONSULTING ENGINEER FOR REVIEW. AFTER REVIEW BY THE CONSULTING ENGINEER, MAKE NECESSARY CHANGES TO THESE PRINTS AND THEN DELIVER THEM TO THE OWNER FOR RECORD. FINAL PAYMENT WILL BE WITHHELD UNTIL COMPLETION OF "AS-BUILT" DRAWINGS.

4. "AS-BUILT" DRAWINGS SHALL CONTAIN EXACT ROUTING AND ELEVATIONS OF ALL CONDUIT BANKS, ACTUAL PANELBOARD CIRCUIT BREAKER POLE POSITIONS USED FOR EACH CIRCUIT, AND EXACT LOCATION OF ALL EQUIPMENT, ALL DIMENSIONS SHALL BE REFERENCED TO BUILDING STRUCTURE CENTERLINES.

**E. EQUIPMENT SPECIFICATIONS**

1. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, UL LISTED AND SHALL CONFORM TO ANY ADDITIONAL LABELING, TESTING AND CONSTRUCTION REQUIREMENTS ESTABLISHED BY THE GOVERNING AUTHORITIES. SAME SHALL BE GUARANTEED FOR 1 YEAR SUBSEQUENT TO FINAL ACCEPTANCE.

2. ALL EQUIPMENT (ELECTRICAL AND MECHANICAL) SHALL BE SPECIFIED TO HAVE VOLTAGE RATINGS COMPATIBLE WITH THE PROVISIONS OF ANSI C84.

3. ALL CONDUITS FOR LIGHTING AND POWER SYSTEMS SHALL BE ¾" (MINIMUM).

4. INTERMEDIATE METAL CONDUIT SHALL BE USED WHERE SUBJECTED TO ANY WATER OR MOISTURE CONDITIONS, OR WHERE BURIED IN SLAB.

5. PROVIDE CONDUIT EXPANSION FITTINGS TOGETHER WITH BONDING JUMPER AND SUITABLE SLEEVES WHERE REQUIRED. CONDUIT EXPANSION FITTING SHALL BE INSTALLED IN EACH CONDUIT RUN WHEREVER IT CROSSES AN ARCHITECTURAL JOINT IN THE STRUCTURE. THE EXPANSION FITTING SHALL BE INSTALLED ON ONE SIDE OF THE JOINT WITH ITS SLIDING SLEEVE END FLUSH WITH THE AND WITH A LENGTH OF BONDING JUMPER IN THE EXPANSION JOINT EQUAL TO AT LEAST THREE TIMES THE NORMAL WIDTH OF THE JOINT.

6. ALL 15A OR 20A, SINGLE POLE, 120 VOLT OR 208 VOLT BRANCH CIRCUIT BREAKERS SHALL BE PROVIDED WITH #10 MINIMUM AWG WIRE FOR ITS ENTIRE LENGTH.

7. JUNCTION OR PULL BOXES SHALL BE FURNISHED AND INSTALLED WHERE INDICATED ON PLANS AND WHEREVER ELSE SUCH A BOX MAY BE NECESSARY TO FACILITATE INSTALLATION OR CONFORM TO CODE REQUIREMENTS. COORDINATE LOCATIONS OF SAME WITH ARCHITECT FOR ACCESSIBILITY AND AESTHETIC CONSIDERATIONS. GENERALLY, JUNCTION BOXES AND PULL BOXES SHALL BE INSTALLED EVERY 100 FEET IN CONDUIT HORIZONTAL RUNS AND SHALL NOT BE EXPOSED IN FINISHED SPACES. ALL CABLES WITHIN PULL BOXES SHALL BE PROPERLY TAGGED FOR IDENTIFICATION. LABEL ALL CONDUITS WITH FEEDER DESIGNATION AT ENTRY AND EXIT TO THE BOX.

8. INSULATING BUSHING OR INSULATING THROATS SHALL BE INSTALLED ON ALL FITTINGS.

9. FOR AREAS OF PUBLIC ASSEMBLY (SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS), BRANCH CIRCUITS FOR LIGHTING AND POWER SHALL BE RIGID GALVANIZED STEEL, AND SHALL BE SEPARATED FROM THE NORMAL LIGHTING AND POWER CIRCUITRY. BRANCH CIRCUITS FOR EMERGENCY EGRESS AND EXIT LIGHTING SHALL BE DEDICATED.

**F. PANELBOARDS**

1. ALL PANELBOARDS SHALL BE OF THE ENCLOSED TYPE, FLUSH OR SURFACE MOUNTED, AS REQUIRED, IN CODE GAUGE STEEL CABINETS, WITH STEEL TRIM, CONCEALED HINGED DOORS AND FLUSH TYPE LOCKS. ALL KEYSHALL BE PROVIDED DUAL CONCEALED HINGED DOORS (DOOR-IN-DOOR CONSTRUCTION) WITH TWO KEYSHALL LATCHES, AND WITHOUT BOLT OR SCREWS ON THE NON-HINGED SIDE OF THE DOORS WHERE INDICATED ON DOCUMENTS (SEE ARCHITECTURAL DRAWINGS).

2. ALL BUSES, INCLUDING NEUTRAL, SHALL BE ELECTRICAL GRADE HARD-DRAWN COPPER AND SIZED IN CONFORMANCE WITH NEMA STANDARDS. BUSES SHALL BE ARRANGED FOR SEQUENCE PHASING AND LOADS SHALL BE BALANCED AS EQUALLY AS POSSIBLE AMONGST THE THREE PHASES.

3. PANELBOARDS SHALL BE EQUIPPED WITH QUICK-MAKE, QUICK-BREAK FUSED SWITCHES OR BOLT-ON MOLDED CASE CIRCUIT BREAKERS, OF VOLTAGE REQUIRED, AND OF SIZE AND NUMBER OF POLES INDICATED ON THE SCHEDULES.

4. A TYPE WRITTEN DIRECTORY OF 5 INCHES X 8 INCHES WITH METAL FRAME AND LEXAN FACE SHALL BE PROVIDED ON THE INSIDE OF THE DOOR OF EACH CABINET, INDICATING THE LOAD SERVED BY EACH CIRCUIT. UTILIZE ARCHITECTURAL DRAWINGS TO INDICATE ROOM NAMES AND NUMBERS OF ALL EQUIPMENTS SERVED. (E.G. 1. RECEPT; ROOMS27-202, 203, 205, 207).

5. POWER, LIGHTING AND UTILITY PANELS FOR 120/208 VOLTS SHALL BE BOLT-ON CIRCUIT BREAKER TYPE UNLESS OTHERWISE NOTED. SINGLE POLE BRANCHES SHALL BE BOLT-ON TYPE OF AT LEAST 10,000 AMPERES RMS SYMMETRICAL INTERPRETING CAPACITY (OR AS INDICATED ON THE DRAWINGS). MULTIPLE POLE BREAKERS SHALL BE COMMON TRIP, OF THE CAPACITY AND NUMBER OF POLES AS INDICATED IN SCHEDULES. PANELBOARDS SHALL BE EQUIPPED WITH 200K SOLID NEUTRAL BAR AND CONTAIN THE NUMBER OF POLES, OVERCURRENT DEVICES AND BUSED SPACES AS SPECIFIED IN SCHEDULE. PANELBOARDS SHALL INCLUDE A SEPARATE GROUND BUS ISOLATED FROM THE CASING. FUSIBLE TYPE PANELS SHALL CONFORM TO REQUIREMENTS OF ABOVE PARAGRAPH.

6. PROVIDE ISOLATED GROUND BUSES ON STAND-OFF ISOLATORS WHERE INDICATED ON SCHEDULES.

7. PROVIDE NEW CIRCUIT BREAKERS IN PANELS AS REQUIRED TO MEET THE SCHEDULES OR CIRCUIT DESIGN INTENT.

8. GUTTER SPACE SHALL BE INCREASED WHEN CONTAINING FEEDER TAPS.

9. PROVIDE WIRE TROUGHS WHERE ACCESS TO THE FLOOR SYSTEM IS REQUIRED.

10. WHERE SPACE LIMITATIONS REQUIRED REDUCED PANEL WIDTH, PROVIDE VERTICAL (SINGLE ROW) BREAKER TYPE PANELS AS PART OF THE INITIAL SCOPED PRICE.

11. ALL PANEL BUS BARS SHALL CONSIST OF A MINIMUM 1/8 INCH DEPTH COPPER BUS.

12. PROVIDE SHUNT TRIP BREAK CIRCUIT BREAKERS FOR ALL PANELS TO BE CONTROLLED BY BREAK GLASS STATIONS, ANSUL SYSTEMS(IN KITCHENS OR SERVICES) ETC.

13. PROVIDE ONE TYPE BRANCH CIRCUIT BREAKERS FOR ALL CIRCUITS SERVING KITCHEN HEAT TRACING CIRCUITS, WATTI CIRCUITS, FREEZE PROTECTION CIRCUITS, WINDOW WASHING CIRCUITS, OUTDOOR CIRCUITS, ETC. AND AS REQUIRED BY CODE.

**G. FUSES**

1. ALL FUSES SHALL BE OF THE SAME MANUFACTURER, BUSSMAN, OR AS APPROVED, AND SHALL BE INSTALLED, AS REQUIRED, IN ALL CUTOUTS, PANELS AND SAFETY SWITCHES.

2. UNLESS OTHERWISE NOTED, FUSES SHALL BE BUSSMAN TYPE LPN, LPS OR KR-P-C

**H. SECONDARY TRANSFORMERS**

1. PROVIDE DRY TYPE 100K NON-LINER, NON-SINUSOIDAL TRANSFORMERS OF QUANTITY AND KVA RATING AS SHOWN ON DOCUMENTS, 3ø, 480 VOLT-DELTA-208Y/120 VOLT, 3ø, 4 W, FURNISHED W/ TWO 2-1/2 23K TAPS ABOVE AND FOUR 2-1/2% BELOW NORMAL 480V PRIMARY FOR TRANSFORMERS. THE NEUTRAL OF THE TRANSFORMERS SHALL BE BROUGHT UP TO A LUG AND BOLT INSIDE OF CASE SO THAT THE NEUTRAL CAN BE GROUNDED EXTERNALLY. ALL REQUIREMENTS SHALL BE IN ACCORDANCE WITH UL 1561 AND UL 506.

2. TRANSFORMERS SHALL BE SPECIFICALLY DESIGNED TO SUPPLY RATED CURRENT WHEN LOADED WITH NONLINEAR LOADS AND MEET THE MINIMUM REQUIREMENTS OF EPACT2005 DEPARTMENT OF ENERGY'S STANDARD LEVEL 3 (CSL-3).

3. A COPPER ELECTRONIC SHIELD SHALL BE INSERTED BETWEEN THE PRIMARY AND SECONDARY WINDINGS TO ATTENUATE HIGH FREQUENCY HARMONICS.

4. THE SECONDARY NEUTRAL SHALL BE TWICE THE AMPACITY OF THE SECONDARY PHASE CONDUCTORS, AND THE PRIMARY WINDING CONDUCTOR SHALL BE OF SUFFICIENT SIZE OR GAGE TO LIMIT THE TEMPERATURE RISE TO ITS RATED VALUE, EVEN WITH THE CIRCULATING 3RD HARMONIC CURRENT.

5. THE TRANSFORMER SHALL UTILIZE AN INSULATION SYSTEM THAT HAS BEEN PROPERLY TEMPERATURE CLASSIFIED AND LISTED BY UL. TRANSFORMERS SHALL HAVE A 220 CLASSIFICATION AND A 150 DEGREE CELSIUS WINDING TEMPERATURE RISE AT FULL LOAD.

6. ALL TRANSFORMERS SHALL HAVE VIBRATION ISOLATORS THAT ISOLATE THE CASE FROM THE CORE AND COIL ASSEMBLY. TRANSFORMERS SHALL BE CAPABLE OF SUPPORTING ALL LOADS AND BEING PROPERLY INDICATED ON THE DRAWINGS. TRANSFORMERS SHALL BE TRAPEZE MOUNTED U.O.N.

7. VIBRATION ISOLATORS EQUAL TO MASON INDUSTRIES TYPE HD AND TYPE CD FOR TRAPEZE AND FLOOR MOUNTING RESPECTIVELY, SHALL BE INSTALLED BETWEEN CASE AND TRAPEZE OR FLOOR.

8. PROVIDE COPPER GROUND CONDUCTOR, WITH EXOTHERMIC (CADWELD OR AS APPROVED) TO BUILDING STEEL WHERE STEEL IS PROVIDED. SIZE OF GROUND SHALL BE CODE MINIMUM OR AS INDICATED ON THE DRAWINGS. ALL CABLES WITHIN PULL BOXES SHALL BE PROPERLY TAGGED FOR IDENTIFICATION. A MINIMUM 24 INCH LENGTH OF FLEXIBLE METAL CONDUIT WITH GROUND BUSHING. ALL CONDUCTORS SHALL BE IN CONDUIT.

9. ALL CONNECTIONS TO THE TRANSFORMER SHALL BE MADE WITH TWO BOLT, LONG BARREL COMPRESSION FITTINGS.

**I. GENERAL**

1. OUTLET BOXES SHALL BE TYPE CODE GAUGE GALVANIZED STAMPED STEEL, 4 INCH SQUARE BY 1-1/2 INCHES DEEP FOR POWER AND 4 INCHES SQUARE BY 2-1/2 INCHES DEEP FOR COMMUNICATION, FIRMLY ANCHORED IN PLACE. BOX VOLUME SHALL BE AS REQUIRED BY GOVERNING CODES WITH EXTENSION COLLARS MOUNTED WITHIN 1/8 INCH OF OUTER SURFACE. WHERE OUTLET BOXES ARE SHOWN FOR FLUSH MOUNTED DEVICES, A SINGLE GANG PLASTER RING SHALL BE PROVIDED, AND MOUNTED WITH 1/8 INCH OF OUTER SURFACE.

2. DISCONNECT SWITCHES SHALL BE QMOB FUSIBLE OR NONFUSIBLE WITH CURRENT AND VOLTAGE RATINGS AS INDICATED ON PLANS. SWITCHES SHALL BE HORSEPOWER RATED, ENCLOSED TYPE, SUITABLE FOR PADLOCKING IN OPEN POSITION.

3. HORSEPOWER RATED THERMAL SWITCHES (BRYANT OR AS APPROVED) SHALL BE USED FOR ALL MOTOR CIRCUITS. ELECTRICAL CONTRACTOR SHALL INSTALL WHERE APPLICABLE TOGGLE SWITCHES FOR USE AS DISCONNECTED. THESE SWITCHES SHALL BE "T" RATED FOR RESISTANCE LOADS AND "M" RATED FOR MOTOR LOADS.

4. STANDARD DUPLEX CONVENIENCE RECEPTACLES SHALL BE SPECIFICATION GRADE NEMA 5-15R, 5-20R, 2 POLE, 3 WIRE, GROUNDED, 15 OR 20 AMPERE RATED FOR DEVICES SHOWN ON A 15 OR 20 AMPERE CIRCUIT (RESPECTIVELY). PROVIDE DEVICES RATED TO THE ELECTRICAL EQUIPMENT SHALL BE SIZED IN ACCORDANCE WITH THE GROUND FAULT TYPE SHALL BE USED WHERE REQUIRED BY GOVERNING CODES INCLUDING ALL DEVICES SHOWN TO BE WITHIN SIX FEET OF A SINK/WATER.

5. SWITCHES SHALL BE FLUSH, SPECIFICATION GRADE, QUIET TUMBLER TYPE, GROUNDED, BEHIND COMMON PLATE WITH BARRIERED BACK BOX WHERE REQUIRED BY CODE FOR INSTALLED CIRCUITS GREATER THAN 250 VOLTS. SINGLE POLE SWITCHES SHALL BE 20 AMPERES, 277 VOLT.

6. DEVICE TYPES, MANUFACTURES AND COLORS SHALL BE SPECIFIED BY THE ARCHITECT. IF NO SPECIFICATION HAS BEEN PROVIDED, THIS CONTRACTOR SHALL OBTAIN ALL INFORMATION REGARDING THE ABOVE FROM THE ARCHITECT PRIOR TO THE SUBMISSION OF BID, OR SHALL INCLUDE THE ABILITY TO FURNISH ANY MANUFACTURER SELECTED BY THE ARCHITECT DURING THE SHOP DRAWING SUBMISSION PHASE.

7. DEVICE PLATES SHALL BE AS INDICATED ON THE ARCHITECTURAL DRAWINGS. COORDINATE EXACT COLOR WITH ARCHITECT.

8. ALL CABLES SHALL BE COPPER WITH THWN OR THHN INSULATION FOR HORIZONTAL APPLICATIONS AND XXHW FOR VERTICAL APPLICATIONS (I.E. WHEN PASSING THROUGH A CABLE SUPPORT BOX), EMPLOYED AT THE 75% CODE RATED AMPACITY. NO SMALLER THAN No.12 AWG SHALL BE USED UNLESS SPECIFICALLY NOTED ON PLANS. COLOR CODING SHALL CONFORM TO CODE REQUIREMENTS. DERATE ALL CABLES PER LATEST VERSION OF THE NATIONAL ELECTRICAL CODE.

9. ALL CONDUCTORS #10 AND SMALLER SHALL BE SOLID COPPER CONDUCTORS. ALL CONDUCTORS #8 AND LARGER SHALL BE STRANDED COPPER.

10. ALL CABLING FURNISHED FOR INSTALLATION EXPOSED (NOT IN AN ENCLOSED RACEWAY) IN AN AIR PLENUM CEILING OR FLOOR SHALL BE PROVIDED FOR USE BY GOVERNING AUTHORITIES, AND SHALL CONFORM TO UL 910 WITH A MINIMUM OF 125 DEGREES CELSIUS RATED JACKED.

11. ALL SUPPLIED LUGS FOR EQUIPMENT REQUIRING HARD-WIRED CONNECTIONS, ETC. SHALL BE DOUBLE INDENT, 2 BOLT HOLE, LONG BARREL AND COMPRESSION TYPE. PROVIDE DOUBLE INDENT "HEXAGONAL" COMPRESSION DIES AND TOOL (T & B, BURNLY OR AS REVIEWED). MECHANICAL LUGS, SINGLE INDENT COMPRESSION TOOLS AND UNIVERSAL DIES SHALL NOT BE PERMITTED. ALL COMPRESSION TOOLS AND DIES SHALL BE MANUFACTURED BY THE CONDUCTOR VENDOR.

12. ALL SUPPLIED IN-LINE SPINCE CONNECTORS, "T" CONNECTORS, ETC., SHALL BE DOUBLE INDENT (PER CONDUCTOR), LONG BARREL AND COMPRESSION TYPE. PROVIDE DOUBLE INDENT "HEXAGONAL" COMPRESSION DIES AND TOOL (T & B, BURNLY OR AS REVIEWED). MECHANICAL CONNECTORS, SINGLE INDENT COMPRESSION TOOLS AND UNIVERSAL DIES SHALL NOT BE PERMITTED. ALL COMPRESSION TOOLS AND DIES SHALL BE MANUFACTURED BY THE CONDUCTOR VENDOR.

13. PROVIDE LOCAL DISCONNECTS FOR ALL MOTORS, HARD-WIRED PANTRY/KITCHEN EQUIPMENT AND HOT WATER HEATERS, WHETHER OR NOT SHOWN ON PLAN. DISCONNECTS SHALL BE SIZED PER THE OVERCURRENT PROTECTION AND LOCATED PER THE ENGINEER AND ARCHITECT.

14. PROVIDE A 120 VOLT DEDICATED CIRCUIT FOR EACH CONDENSATE PUMP FOR ALL C.A. UNITS. COORDINATE WITH THE ENGINEER, THE PANEL AND BREAKER POSITION, PRIOR TO INSTALLATION.

15. ALL EQUIPMENT MATERIALS SHALL BE NEW, UL LISTED AND SHALL CONFORM TO ANY ADDITIONAL LABELING, TESTING AND CONSTRUCTION REQUIREMENTS ESTABLISHED BY THE GOVERNING AUTHORITIES. SAME SHALL BE GUARANTEED FOR 1 YEAR SUBSEQUENT TO FINAL ACCEPTANCE.

16. ALL EQUIPMENT (ELECTRICAL AND MECHANICAL) SHALL BE SPECIFIED TO HAVE VOLTAGE RATINGS COMPATIBLE WITH THE PROVISIONS OF ANSI C84.

17. ALL WORK SHALL BE IN CONDUIT.

18. DISCONNECTS FOR INCOMING SERVICE SHALL BE SERVICE RATED.

**J. KITCHEN NOTES**

1. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL STUB-UP LOCATIONS AND HEIGHTS, MOUNTING HEIGHTS AND DIMENSIONS, OUTLET LOCATIONS IN FIELD WITH VENDOR'S APPROVED SHOP DRAWINGS.

2. ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO EQUIPMENT PER VENDOR'S APPROVED SHOP DRAWINGS.

3. COVER PLATES FOR ALL OUTLETS, JUNCTION BOXES, ETC. MOUNTED ABOVE COUNTERTOPS SHALL BE GASKETED AND STAINLESS STEEL.

4. APPROVED TYPE HIGH TEMPERATURE WIRE SHALL BE USED FOR CONNECTION TO HOOD LIGHTING, RANGES, HOT PLATES, ETC.

5. ELECTRICAL CONTRACTOR SHALL COORDINATE RECEPTACLE TYPES REQUIRED WITH PLUGS SUPPLIED WITH EQUIPMENT.</





