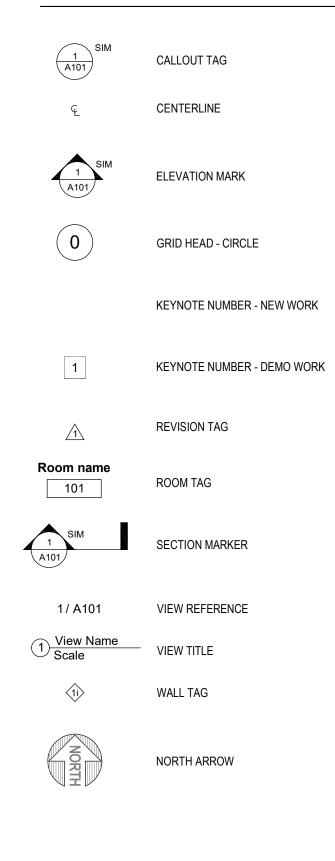
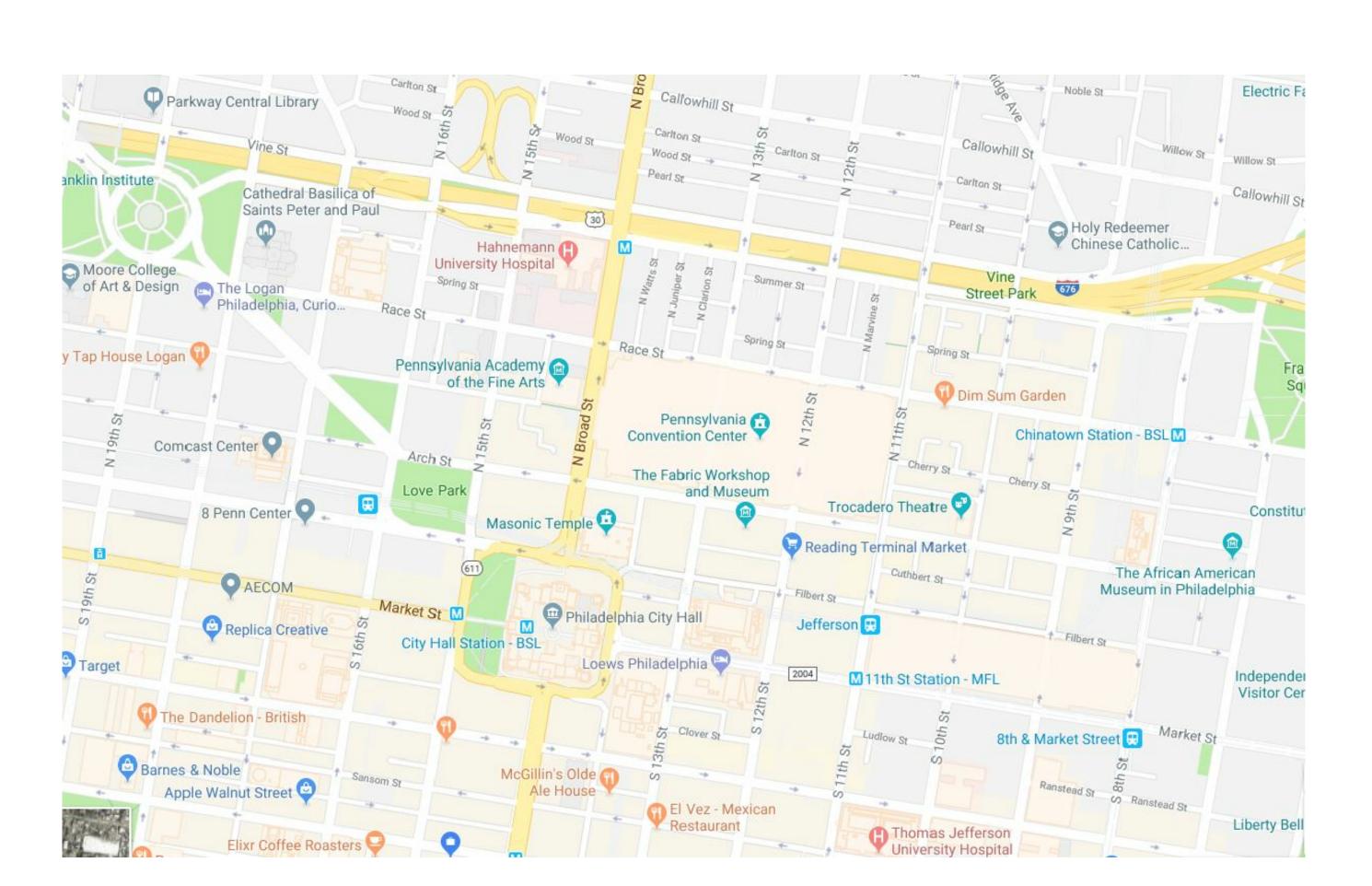
## SYMBOLS



## GENERAL NOTES:

OPERATIONS WITH OWNER.

- 1. ALL WORK TO BE DONE IN ACCORDANCE WITH ALL APPLICABLE CODES, ACCEPTED INDUSTRY STANDARDS AND PENNSYLVANIA CONVENTION CENTER STANDARDS, UNLESS NOTED OTHERWISE.
- VERIFY ALL EXISTING CONDITIONS REQUIREMENTS. REPORT ANY DISCREPANCIES TO ARCHITECT AND OWNER BEFORE PROCEEDING WITH WORK.
- 3. ALL WORK SHALL BE SCHEDULED AND IMPLEMENTED WITH MINIMAL DISRUPTION TO ADJACENT OCCUPIED AREAS. COORDINATE WITH OWNER.
- DAMAGED FINISHED TO "AS-NEW" CONDITION. 5. SCHEDULE ALL SHUTDOWNS THAT AFFECT PUBLIC UTILITIES AND/OR BUILDING
- 6. ALL MEANS OF EGRESS AND LIFE SAFETY ROUTES ARE TO REMAIN ACCESSIBLE DURING CONSTRUCTION FIRE ALARM, FIRE PROTECTION AND SMOKE DETECTION SYSTEMS SHALL REMAIN OPERATIONAL AT ALL TIMES.
- 7. CONTRACTOR SHALL PROVIDE INTERIM LIFE SAFETY SIGNAGE AS REQUIRED TO FACILITATE CONSTRUCTION, AND SHALL COORDINATE THIS WITH OWNER PRIOR TO IMPLEMENTATION.
- 8. PRIOR TO START OF WORK, PROVIDE TEMPORARY PARTITIONS, DUST PROTECTION, TACK MATS, ETC., AS REQUIRED. COORDINATE ALL LOCATIONS WITH ARCHITECT AND OWNER.
- 9. MAINTAIN ACCESS TO EXIT STAIRS AT ALL TIMES; FIRE PROTECTION SYSTEM TO REMAIN OPERATIONAL CONTINUOUSLY THROUGH ALL CONSTRUCTION PHASES.
- 10. THOROUGHLY CLEAN ALL AREAS AND SPACES USED TO ACCESS WORK AREA; AND BROOM CLEAN AT THE END OF EACH WORK DAY.
- 11. ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED IN THE FIELD. THE ARCHITECT SHALL BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES.
- 12. CONTRACTOR SHALL PROVIDE INDUSTRY STANDARD SHOP DRAWINGS, PRODUCT LITERATURE AND PHYSICAL SAMPLES FOR ALL SPECIFIED PRODUCTS. SHOP DRAWINGS SHALL FURTHER DEVELOP THE INFORMATION GIVEN AND NOT BE A COPY OF THE CONTRACT DOCUMENTS. ALL SUBMITTALS MUST BE APPROVED BY ARCHITECT AND OWNER PRIOR TO PURCHASE AND INSTALLATION.
- 13. GC TO COMPLY WITH ALL PRODUCT MANUFACTURER INSTRUCTIONS, SPECIFICATIONS AND RECOMMENDATIONS FOR HANDLING, STORING, SURFACE PREP, INSTALLATION AND CLEANING UNLESS OTHERWISE DIRECTED BY OWNER OR ARCHITECT.
- 14. GC AND SUB CONTRACTORS TO COMPLY WITH ALL TESTING AGENCIES AND ORGANIZATIONS PROVIDING STANDARDS PERTAINING TO THE QUALITY OF THE PRODUCTS AND THEIR INSTALLATION.





- 4. PROTECT EXISTING FINISHES DURING DEMOLITION & CONSTRUCTION; RESTORE ALL

## **DEMOLITION NOTES:**

- 1. REMOVE EXISTING BASEBOARD AND GWB AT WALLS AND CEILING ALCOVE; REPLACE WITH 1/2" A/C PLYWOOD AT WALLS AND GWB AT CEILING. TYP.
- 2. DEMOLITION WORK SHALL BE SCHEDULED AND IMPLEMENTED WITH MINIMAL DISRUPTION TO ADJACENT OCCUPIED AREAS.
- 3. REVIEW ALL ITEMS TO BE DEMOLISHED AND IDENTIFY ALL ITEMS TO BE SALVAGED WITH THE OWNER.
- 4. REMOVE ALL MATERIALS IN A SAFE WORKMANLIKE MANNER AND DISPOSE OF PER ALL APPLICABLE CODES & SAFETY REQUIREMENTS.
- 5. DISPOSE OF PER ALL APPLICABLE CODES & SAFETY REQUIREMENTS OF ALL BUILT-IN AND WALL MOUNTED APPURTENANCES: INTERIOR WINDOW, RECEPTACLES, SWITCHES, THERMOSTATS, SHELVES & WALL STANDARDS, ETC.

## CONSTRUCTION NOTES:

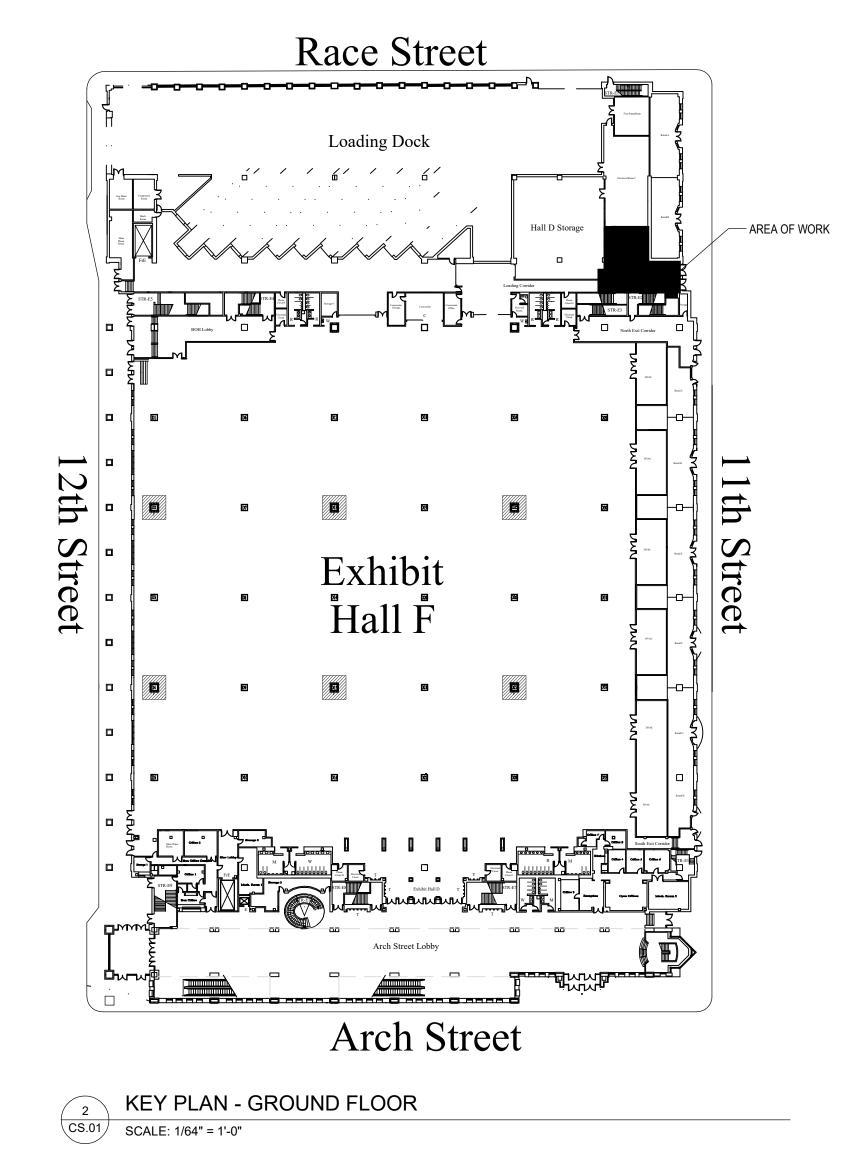
- 1. ALL PENETRATIONS THROUGH FIRE PARTITIONS TO BE SEALED WITH U.L. APPROVED MATERIALS. FIRE SAFE & FIRE SEAL TOP RUNNER OF ALL RATED PARTITIONS TO STEEL FLUTES.
- 2. FIRE DAMPERS SHALL BE RELOCATED/INSTALLED AS REQUIRED BY CODE.
- 3. PATCH ALL AREAS AFFECTED BY DEMOLITION. NEW SURFACES TO MATCH ADJACENT AREAS. RETURN TO CONDITION PRIOR TO START OF WORK ADJACENT AREAS.
- 4. WHERE EXISTING FINISHES ARE TO REMAIN:
  - PATCH/REPLACE DAMAGE, STAINED OR MISSING SECTIONS VINYL COMPOSITION Α. TILE AS REQUIRED.
  - REPLACE DAMAGED, STAINED OR MISSING SECTIONS OF RUBBER.
  - TOUCH UP FINISH OF CEILING GRID; REPLACE DAMAGED SECTIONS. REPLACE DAMAGED, STAINED OR MISSING ACOUSTICAL CEILING TILES. TOUCH UP ANY OTHER FINISHES AS REQUIRED.

## SCOPE OF WORK:

F

- 1. BASE INSTALL FOUR (4) DROP ARM TURNSTILES; THREE (3) TYPICAL AND ONE (1) ADA ACCESSIBLE IN THE LOBBY AS SHOWN ON THE DRAWINGS. TURNSTILES TO BE PEREY TURNSTILES MODEL 151SR DROP ARM TURNSTILES, NO SUBSTITUTIONS WILL BE ACCEPTED.
- 2. ALTERNATE RENOVATE ENTRY PORTION OF ADJACENT OFFICE AREA INCLUDING DEMO OF EXISTING KITCHENETTE THAT PROTRUDES INTO LOBBY AREA. UPDATED LAYOUT INCLUDING NEW FINISHES, MILLWORK, CEILINGS AND LIGHTING AS SHOWN.

	DRAWING LIST		
DWG. NO.	DWG. NAME	PROGRESS REVIEW SET JUNE 25, 2021	100% BID/PERMIT SET AUGUST 13, 2021
ARCHITECT	URAL		1
CS	COVER SHEET	X	Х
G1.01	SPECIFICATIONS AND PROJECT STANDARDS	X	Х
LS1.01	LIFE SAFETY PLAN		Х
A1.01	FLOOR PLANS - DEMOLITION AND NEW WORK	Х	Х
A2.01	REFLECTED CEILING PLANS - DEMOLITION AND NEW WORK	Х	Х
A3.01	MILLWORK DETAILS	Х	Х
MEP ENGIN	EERING		
MCS	MECHANICAL COVER SHEET	Х	X
M1.0	DEMOLITION & NEW WORK PLANS	Х	Х
M2.0	MECHANICAL SCHEDULES AND DETAILS	Х	Х
M2.1	MECHANICAL SCHEDULES AND DETAILS - CONTINUED	Х	Х
M3.0	MECHANICAL SPECIFICATIONS	Х	Х
ECS	ELECTRICAL COVER SHEET	X	Х
E0-01	ELECTRICAL DEMOLITION PLAN	Х	Х
E1-01	ELECTRICAL NEW WORK PLANS	Х	Х
E2-01	ELECTRICAL SCHEDULES AND DETAILS	X	X





## **KELLY MAIELLO** ARCHITECTS 1420 Walnut Street, 15th Floor Philadelphia, PA 19102 www.kmarchitects.com

# Pennsylvania **Convention Center**

Elliott Lewis Labor Entrance 1101 Arch Street Philadelphia, PA 19107



Dimitri J. Ververelli, Inc.

Electrical Engineer 211 N. 13th Street, 9th Floor Philadelphia, PA 19107 215-496-0000

> **BID DOCUMENTS** AUGUST 13, 2021

### GENERAL SPECIFICATIONS:

### SELECTIVE DEMOLITION:

- 1. VERIFY ALL EXISTING CONDITIONS BEFORE BEGINNING WORK AND REPORT ANY EXISTING CONDITIONS THAT DEVIEATE FROM WHAT'S DOCUMENTED IN THE ARCHITECT'S DRAWINGS, OR ANY HAZARDOUS MATERIALS OR CONDITIONS. REPORT ANY DISCREPANCIES TO ARCHITECT AND OWNER BEFORE PROCEEDING WITH WORK.
- 2. INVENTORY AND RECORD THE CONDITION OF ITEMS TO BE REMOVED AND REINSTALLED AND ITEMS TO BE REMOVED AND SALVAGED.
- 3. DEMOLISH AND REMOVE EXISTING CONDITIONS ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION AND AS INDICATED. USE METHODS REQUIRED TO COMPETE THE WORK WITHIN LIMITATIONS OF GOVERNING REGULATIONS. PROCEED WITH SELECTIVE DEMOLITION SYSTEMATICALLY, FROM HIGHER TO LOWER AND NEATLY CUT OPENINGS AND HOLES PLUMB, SQUARE, AND TRUE TO DIMENSIONS REQUIRED.
- 4. DISPOSE OF DEMOLISHED ITEMS AND MATERIALS PROMPTLY BY REMOVING ITEMS FROM PROJECT SITE AND LEGALLY DISPOSE OF THEM IN AN EPA-APPROVED LANDFILL 5. PROTECT CONSTRUCTION INDICATED TO REMAIN AGAINST DAMAGE AND SOILING DURING SELECTIVE DEMOLITION. RESTORE FINISHES TO PATCHED OR REPAIRED AREAS. RETURN ADJACENT AREAS AFFECTED NY DEMOLITION TO CONDITION EXISTING
- BEFORE SELECTIVE DEMOLITION OPERATIONS BEGAN.

### JOINT SEALANTS:

1. PROVIDE JOINT SEALANTS FOR INTERIOR APPLICATIONS THAT ESTABLISH AND MAINTAIN AIRTIGHT AND WATER-RESISTANT CONTINUOUS JOINT SEALS WITHOUT STAINING OR DETERIORATING JOINT SUBSTRATES.

### PLASTIC LAMINATE FACED MILLWORK:

- WHERE CABINETS ARE INDICATED TO FIT TO OTHER CONSTRUCTION, VERIFY DIMENSION OF OTHER CONSTRUCTION BEFORE FABRICATION AND INDICATE MEASUREMENTS ON SHOP DRAWINGS. COORDINATE FABRICATION SCHEDULE WITH CONSTRUCTION PROCESS TO AVOID DELAYING THE WORK.
- 2. DO NOT DELIVER MILLWORK UNTIL PAINTING AND OTHER SIMILAR OPERATIONS THAT COULD DAMAGE WOODWORK HAVE BEEN COMPLETED IN INSTALLATION AREAS.
- 3. COORDINATE SIZES AND LOCATIONS OF FRAMING, BLOCKING, FURRING, REINFORCEMENTS, AND OTHER RELATED UNITS OF WORK SPECIFIED TO ENSURE THAT CABINETS CAN BE SUPPORTED AND INSTALLED AS DIRECTED.

#### HOLLOW METAL DOORS AND FRAMES:

- 1. MANUFACTURE ALL DOORS AND FRAMES OF COMMERCIAL QUALITY COLD ROLLED STEEL PER ASTM-A366 GALVANIZED TO A60 OR G60 MINIMUM COATING WEIGHT STANDARDS PER ASTM-A924. INTERNAL REINFORCING MAY BE MANUFACTURED OF HOT ROLLED PICKLED AND OILED STEEL PER ASTM-A569.
- 2. FABRICATE SUPPORTS AND ANCHORS OF NOT LESS THAN 18-GAUGE SHEET STEEL, GALVANIZED WHERE GALVANIZED FRAMES ARE USED.
- PROVIDE 1-3/4" THICK DOORS OF ANSI A250.8 GRADES AND MODELS. PROVIDE DOOR FACE TYPES AS SHOWN ON THE DRAWINGS. ALL DOORS ARE TO BE STEEL STIFFENED WITH 18 GAUGE RIBS SPACED SIX (6) INCHES ON CENTER. FILL VOIDS BETWEEN RIBS WITH FIBERGLASS BATT INSULATION. FABRICATE ALL DOORS FROM A60 OR G60 ZINC COATED STEEL.
- 4. PROVIDE HOLLOW METAL FRAMES FOR DOORS AND OTHER OPENINGS AS SHOWN ON THE DRAWINGS AND SCHEDULES. CONCEAL FASTENINGS UNLESS OTHERWISE INDICATED. FABRICATE ALL FRAMES FROM A60 OR G60 ZINC COATED STEEL. FABRICATE STEEL DOOR AND FRAME UNITS TO BE RIGID, NEAT IN APPEARANCE, AND FREE FROM DEFECTS, WARP, OR BUCKLE. 5.
- WHERE PRACTICAL, FIT AND ASSEMBLE UNITS IN MANUFACTURER'S PLANT. 6. CLEARANCES: NO MORE THAN 1/8" AT JAMBS AND HEADS EXCEPT BETWEEN NON FIRE RATED PAIRS OF DOORS WHICH MAY BE NO
- MORE THAN 1/4". NOT MORE THAN 3/4" AT THE BOTTOM OF THE DOORS. 7. UNLESS OTHERWISE INDICATED, PROVIDE EXPOSED FASTENERS WITH COUNTERSUNK FLAT OR OVAL HEADS FOR EXPOSED
- SCREWS AND BOLTS. 8. PREPARE DOORS AND FRAMES TO RECEIVE MORTISED AND CONCEALED HARDWARE ACCORDING TO FINAL DOOR HARDWARE
- SCHEDULE AND TEMPLATES PROVIDED BY HARDWARE SUPPLIER. COMPLY WITH APPLICABLE REQUIREMENTS OF ANSI A250.6. 9. LOCATE HARDWARE AS INDICATED ON SHOP DRAWINGS, OR, IF NOT INDICATED, ACCORDING TO THE DOOR AND HARDWARE
- NSTITUTE'S (DHI) "RECOMMENDED LOCATIONS FOR ARCHITECTURAL HARDWARE FOR STANDARD STEEL DOORS AND FRAMES." 10. COMPLY WITH PROVISIONS OF ANSI A250.11 FOR INSTALLATION. SET FRAMES ACCURATELY IN POSITION, PLUMED, ALIGNED, AND BRACED SECURELY UNTIL PERMANENT ANCHORS ARE SET. AFTER WALL CONSTRUCTION IS COMPLETED, REMOVE TEMPORARY BRACES AND SPREADERS, LEAVING SURFACE SMOOTH AND UNDAMAGED. FIT HOLLOW-METAL DOORS ACCURATELY IN FRAMES, WITHIN CLEARANCES SPECIFIED IN ANSI A250.8. INSTALL FIRE RATED DOORS WITH CLEARANCES SPECIFIED IN NFPA 80.

#### FLUSH WOOD DOORS

- 1. DOORS TO BE CUSTOM GRADE A FACES WITH MANUFACTURER'S STANDARD FIVE (5) PLY CONSTRUCTION. RANDOM MATCHED
- ROTARY NATURAL BIRCH VENEER WITH STAIN TO MATCH EXISTING DOORS IN ADJACENT OFFICES. 2. FACTORY FIT DOORS TO SUIT FRAME-OPENING SIZES INDICATED. COMPLY WITH CLEARANCE REQUIREMENTS OF WDMA I.S. 1A-97 FOR FITTING. COMPLY WITH REQUIREMENTS OF NFPA 80 FOR FIRE-RATED DOORS.
- 3. FACTORY MACHINE DOORS FOR MORTISED HARDWARE. LOCATE HARDWARE TO COMPLY WITH DHI-WDHS-3. COMPLY WITH FINAL HARDWARE SCHEDULES, DOOR FRAME SHOP DRAWINGS, DHI A115-W SERIES STANDARDS, AND HARDWARE TEMPLATES.
- 4. EXAMINE INSTALLED DOOR FRAMES BEFORE HANGING DOORS TO VERIFY THAT FRAMES COMPLY WITH INDICATED REQUIREMENTS FOR TYPE, SIZE, LOCATION AND SWING CHARACTERISTICS AND HAVE BEEN INSTALLED WITH PLUMB JAMBS AND LEVEL HEADS. REJECT DOORS WITH DEFECTS.

#### DOOR HARDWARE

- 1. CONDUCT A PRE-INSTALLATION CONFERENCE AT PROJECT SITE TO REVIEW AND VERIFY ALL HARDWARE, KEYING AND LOCK SETS
- BEFORE INSTALLATION. 2. PRIOR TO INSTALLATION OF HARDWARE, EXAMINE DOORS AND FRAMES, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES, LABELED FIRE-RATED DOOR ASSEMBLY CONSTRUCTION, WALL AND FLOOR
- CONSTRUCTION, AND OTHER CONDITIONS AFFECTING PERFORMANCES. 3. ADJUST AND CHECK EACH OPERATING ITEM OF DOOR HARDWARE AND EACH DOOR TO ENSURE PROPER OPERATION OR FUNCTION OF EVERY UNIT. REPLACE UNITS THAT CANNOT BE ADJUSTED TO OPERATE AS INTENDED. ADJUST DOOR CONTROL DEVICES TO COMPENSATE FOR FINAL OPERATION OF HEATING AND VENTILATING EQUIPMENT AND TO COMPLY WITH REFERENCED

#### ACCESSIBILITY REQUIREMENTS. 4. HARDWARE SETS ARE AS FOLLOWS:

- 4.1. HARDWARE SET 1
  - 3 EA HINGE
  - 1 EA ENTRY LOCK
  - 1 EA FLUSH BOLT 1 EA WALL STOP
  - 1 EA DOOR CLOSER
  - 3 EA SILENCERS
  - HARDWARE SET 2 1 EA SLIDING TRACK
- 1 EA HANDLE
- HARDWARE SET 3 4.3.

4.2

#### 3 EA HINGES 1 EA STORE ROOM LOCK

- 1 EA WALL STOP
- 3 EA SILENCERS

### GYPSUM BOARD:

- AFFECTING PERFORMANCE.
- SAGGING OR WARPED.
- - NOT USE U-BEAD.
  - COMPOUND FROM ADJACENT SURFACES.

### ACOUSTIC PANEL CEILINGS:

- OF EXPOSED SUSPENSION SYSTEM.; PRELUDE XL EXPOSED TEE.

- REFLECTED CEILING PLANS.
- MFANS.
- STANDARDS AND PUBLICATIONS.
- HANGERS TO STRUCTURAL MEMBERS.
- POSTINSTALLED ANCHORS.
- MOULDINGS. SCRIBE AND CUT PANELS AT BORDERS AND PENETRATIONS TO PROVIDE A NEAT, PRECISE FIT.

#### SPECIALTY EQUIPMENT

ACCEPTED.

- SURFACE FOR INSTALLATION.

- SPACE AVAILABLE. PROVIDE PEREY TURNSTILES MODEL 151SR/FL DROP ARM TURNSTILES WHERE INDICATED ON PLAN. NO SUBSTITUTIONS WILL BE 5.

					ROOM FINIS	H SCHEDULE			
					WA	ALLS			
ROOM	TAG	BASE	FLOORING	NORTH	EAST	SOUTH	WEST	CEILING	COMM
OPEN OFFICE	01	B-1	CT-1	PT-1	PT-1	PT-1	PT-2	ACT-1	WRAP
ENTRY	02	B-1	CT-1	PT-1	PT-1	PT-1	PT-2	ACT-1	-
CLOSET	03	B-1	CT-1	PT-1	PT-1	PT-1	PT-1	ACT-1	PT-2 OI
OPEN OFFICE	04	B-1	CT-1	PT-1	PT-1	PT-1	PT-2	ACT-1	-
FILING	05	B-1	LVT-1	PT-1	PT-1	PT-1	PT-1	ACT-1	-
KITCHENETTE	06	B-1	LVT-1	PT-1	PT-1	PT-1	PT-2	ACT-1	-
LOBBY - EAST	15	B-2	CT-2	PT-4	PT-4	PT-4	PT-4	ACT-1	-
LOBBY - WEST	16	B-2	CT-2	PT-4	PT-4	PT-4	PT-4	ACT-1	-
			1						

#### 1. STORE MATERIALS INSIDE UNDER OVER AND KEEP THEM DRY AND PROTECTED AGAINST DAMAGE FROM WEATHER, CONDENSATION, DIRECT SUNLIGHT, CONSTRUCTION TRAFFIC, AND OTHER CAUSES. STACK PANELS FLAT TO PREVENT SAGGING. EXAMINE AREAS AND SUBSTRATES, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS AND OTHER CONDITIONS

3. EXAMINE PANELS BEFORE INSTALLATION AND REJECT PANELS THAT ARE WET, MOISTURE DAMAGED, AND MOLD DAMAGED OR INSTALL PANELS WITH FACE SIDE OUT. BUTT PANELS TOGETHER FOR A LIGHT CONTACT AT EDGES AND ENDS WITH NOT MORE THAN 1/16 INCH OF OPEN SPACE BETWEEN PANELS. DO NOT FORCE INTO PLACE. INSTALL TRIM AT THE FOLLOWING LOCATIONS: CORNER BEAD AT OUTSIDE CORNERS, LC-BEAD AT EXPOSED PANEL EDGES, DO

TREAT GYPSUM BOARD JOINTS, INTERIOR ANGLES, EDGE TRIM, PENETRATIONS, FASTENER HEADS, SURFACE DEFECTS, AND ELSEWHERE AS REQUIRED TO PREPARE GYPSUM BOARD SURFACES FOR DECORATION. PROMPTLY REMOVE RESIDUAL JOINT

1. DELIVER ACOUSTIC PANELS, SUSPENSION SYSTEM COMPONENTS, AND ACCESSORIES TO PROJECT SITE IN ORIGINAL, UNOPENED PACKAGES AND STORE THEM IN A FULLY ENCLOSED, CONDITIONED SPACE WHERE THEY WILL BE PROTECTED AGAINST DAMAGE FROM MOISTURE, HUMIDITY, TEMPERATURE EXTREMES, DIRECT SUNLIGHT, SURFACE CONTAMINATION, AND OTHER CAUSES. ENVIRONMENTAL LIMITATIONS: DO NOT INSTALL ACOUSTICAL PANEL CEILINGS UNTIL SPACES ARE ENCLOSED AND WEATHERPROOF, WET WORK IN SPACES IS COMPLETELY DRY, WORK ABOVE CEILINGS IS COMPLETE, AND AMBIENT TEMPERATURE AND HUMIDITY CONDITIONS ARE MAINTAINED AT THE LEVELS INDICATED FOR PROJECT WHEN OCCUPIED FOR ITS INTENDED USE.

BASIS OF DESIGN PRODUCT: ARMSTRONG; CORTEGA, ITEM NO. 703 WHITE WITH ANGLED TEGULAR REVEAL 15/16" TO FIT FLANGE PROVIDE MANUFACTURER'S STANDARD DIRECT-HUNG METAL SUSPENSIONS SYSTEMS OF TYPES, STRUCTURAL CLASSIFICATIONS, AND FINISHES INDICATED THAT COMPLY WITH APPLICABLE REQUIREMENTS IN ASTM C 635.

EXAMINE SUBSTRATES, AREAS, AND CONDITIONS, INCLUDING STRUCTURAL FRAMING TO WHICH ACOUSTICAL PANEL CEILINGS ATTACH TO OR ABUT, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS SPECIFIED IN THIS AND OTHER SECTIONS THAT AFFECT CEILING INSTALLATION AND ANCHORAGE AND WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE OF ACOUSTICAL PANEL CEILING. MEASURE EACH CEILING AREA AND ESTABLISH LAYOUT OF ACOUSTICAL PANELS TO BALANCE BORDER WIDTHS AT OPPOSITE EDGES OF EACH CEILING. AVOID USING LESS-THAN-HALF-WIDTH PANELS AT BORDERS, AND COMPLY WITH LAYOUT SHOWN ON

INSTALL HANGERS PLUMB AND FREE FROM CONTACT WITH INSULATION OR OTHER OBJECTS WITHIN CEILING PLENUM THAT ARE NOT PAR OF SUPPORTING STRUCTURE OR OF CEILING SUSPENSION SYSTEM. SPLAY HANGERS ONLY WHERE REQUIRED TO MISS OBSTRUCTIONS; OFFSET RESULTING HORIZONTAL FORCES BY BRACING, COUNTERSPLAYING, OR OTHER EQUALLY EFFECTIVE

WHERE WIDTH OF DUCTS AND OTHER CONSTRUCTION WITHIN CEILING PLENUM PRODUCES HANGER SPACINGS THAT INTERFERE WITH LOCATION OF HANGERS AT SPACINGS REQUIRED TO SUPPORT STANDARD SUSPENSION SYSTEM MEMBERS, INSTALL SUPPLEMENTAL SUSPENSION MEMBERS AND HANGERS IN FORM OF TRAPEZES OR EQUIVALENT DEVICES, SIZE SUPPLEMENTAL SUSPENSION MEMBERS AND HANGERS TO SUPPORT CEILING LOADS WITHIN PERFORMANCE LIMITS ESTABLISHED BY REFERENCES

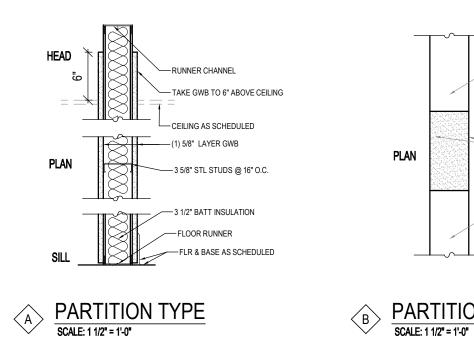
9. DO NOT SUPPORT CEILINGS DIRECTLY FROM PERMANENT METALS FORMS OR FLOOR DECK. FASTEN HANGERS TO CAST-IN-PLACE HANGER INSERTS, POSTINSTALLED MECHANICAL OR ADHESIVE ANCHORS, OR POWER- ACTUATED FASTENERS THAT EXTEND THROUGH FORMS INTO CONCRETE. DO NOT ATTACHED HANGERS TO STEEL DECK TABLS OR STEEL ROOF DECK. ATTACH

10. SPACE HANGERS NOT MORE THAN 48 INCHES O.C. ALONG EACH MEMBER SUPPORTED DIRECTLY FROM HANGERS, UNLESS OTHERWISE INDICATED; PROVIDE HANGERS NOT MORE THAN 8 INCHES FROM ENDS OF EACH MEMBER. 11. SECURE BRACING WIERS TO CEILING SUSPENSION MEMBERS AND TO SUPPORTS WITH A MINIMUM OF FOUR TIGHT TURNS SUSPEND BRACING FROM BUILDING'S STRUCTURAL MEMBERS AS REQUIRED FOR HANGERS, WITHOUT ATTACHING TO PERMANENT METAL FORMS, STEEL DECK, OR STEEL DECK TABS. FASTEN BRACING WIRES INTO CONCRETE WITH CAST-IN-PLACE OR 12. INSTALL ACOUSTICAL PANELS WITH UNDAMAGED EDGES AND FIT ACCURATELY INTO SUSPENSION SYSTEM RUNNERS AND EDGE

EXAMINE ALL SURFACES TO BE IMPACTED BY INSTALLATION OF SPECIALTY PRODUCTS AND ENSURE ALL AREAS ARE CLEAN, FREE

OF EXISTING DEVICES, OBSTRUCTIONS AND ALL MOUNTING OR ATTACHMENT AREAS PROVIDE A SMOOTH, PLUMB AND LEVEL ALL WIRING FOR SPECIALTY ITEMS TO BE FED THROUGH THE WALLS, NO FLOOR CORING IS TO BE DONE FOR THIS SCOPE OF

WORK. IF THIS IS NOT POSSIBLE, DISCUSS OPTIONS WITH OWNER AND ARCHITECT BEFORE PROCEEDING WITH WORK. FIELD VERIFY ALL SITE CONDITIONS FOR SHOP DRAWINGS TO ENSURE ALL SPECIALTY EQUIPMENT IS SIZED ACCORDING TO THE



TYP. NON-RATED PARTITION

## HARDWARE SETS:

- ENTRY LOCK SET WITH TURN BOLT
- SLIDING DOOR TRACK W/ HANDLES
- 3. STORAGE LOCK SET

\* REFER TO SPECIFICATIONS FOR FULL HARDWARE SET \*\* CONSULT WITH USERS TO DETERMINE KEYING

A – FLUSH

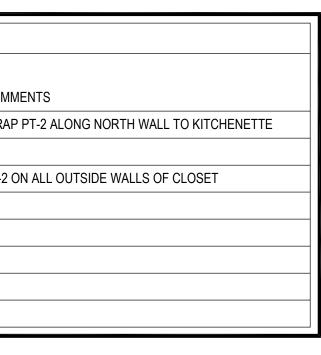
DOOR TYPES

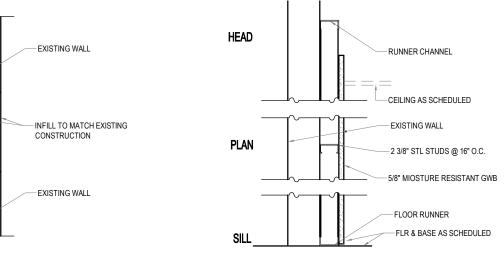
SCALE: 1/4" = 1'-0"

	DOOR SCHEDULE										
	DOORS				FF	RAMES					
TAG	ROOM	HEIGHT	WIDTH	THK	TYPE	MAT	TYPE	MAT	HDWR	FIRE RTG	COMMENT
EX	EXISTING DOORS	EX	EX	EX	EX	EX	EX	EX	EX	-	PAINT EXISTING DOOR AND FRAME
02	ENTRY	7'-0"	3'-0"	1-3/4"	A	HM	A	HM	01	-	-
03	CLOSET	7'-0"	4'-0" PR	1-3/4"	В	WD	В	HM	02	-	-
05	STORAGE ROOM	7'-0"	3'-0"	1-3/4"	A	WD	A	HM	03	-	-

CONTRACTOR TO VERIFY ALL EXISTING DOOR OPENINGS IN FRAMES TO REMAIN BEFORE SUBMITTING SHOP DRAWINGS.

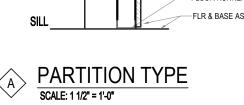
				FINISH SCHEDULE		
TAG	FINISH	MANUFACTURER	MODEL	COLOR	SIZE	COMMENT
PT-1	FIELD PAINT	SHERWIN WILLIAMS	PCCA CUSTOM COLOR	Pt11	-	EGGSHELL
PT-2	ACCENT PAINT	SHERWIN WILLIAMS	PCCA CUSTOM COLOR	Pt10	-	EGGSHELL
PT-3	DOOR FRAME PAINT	SHERWIN WILLIAMS	PCCA CUSTOM COLOR	TO MATCH	-	SEMIGLOSS - MATCH ADJACENT WALL COLOR
PT-4	MATCH FIELD PAINT	SHERWIN WILLIAMS	PCCA CUSTOM COLOR	MATCH EXISTING	-	EGGSHELL - MATCH EXISTING WALL COLOR
B-1	VINYL COVE BASE	ROPPE	PINNACLE - STANDARD	114 LUNAR DUST	4" HIGH	
B-2	VINYL COVE BASE	MATCH EXISTING	MATCH EXISTING	MATCH EXISTING	4" HIGH	PATCH EXISTING IN CORRIDORS AS NEEDED
ACT-1	CEILING TILE	ARMSTRONG	CORTEGA	WHITE	24X48	PRELUDE XL 15/16" EXPOSED TEE WHERE REQUIRED
LVT-1	VINYL FLOORING	ALTRO	LEVINCIA PLUS	PERSIMMON	7" X 48"	-
PL-1	PLASTIC LAMINATE	WILSONART	LEON WEAVE FINISH	5012K-19 MAGNOLIA	-	-
PL-2	PLASTIC LAMINATE	WILSONART	MATTE FINISH	4820-60 CARBON EV	-	-
CT-1	CARPET TILE	J+J FLOORING	TONE	1758 FINALE	24" X 24"	INSTALLED IN PREVIOUS PHASE, INFO PROVIDED FOR PATCHING ONLY
CT-2	WALK-OFF CARPET TILE	J+J FLOORING	RUNWAY II	1423 TOP MODEL	24" X 24"	-



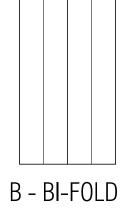


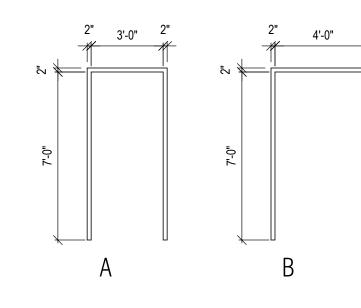


CONSTRUCTION TO MATCH EXISTING PARTITION



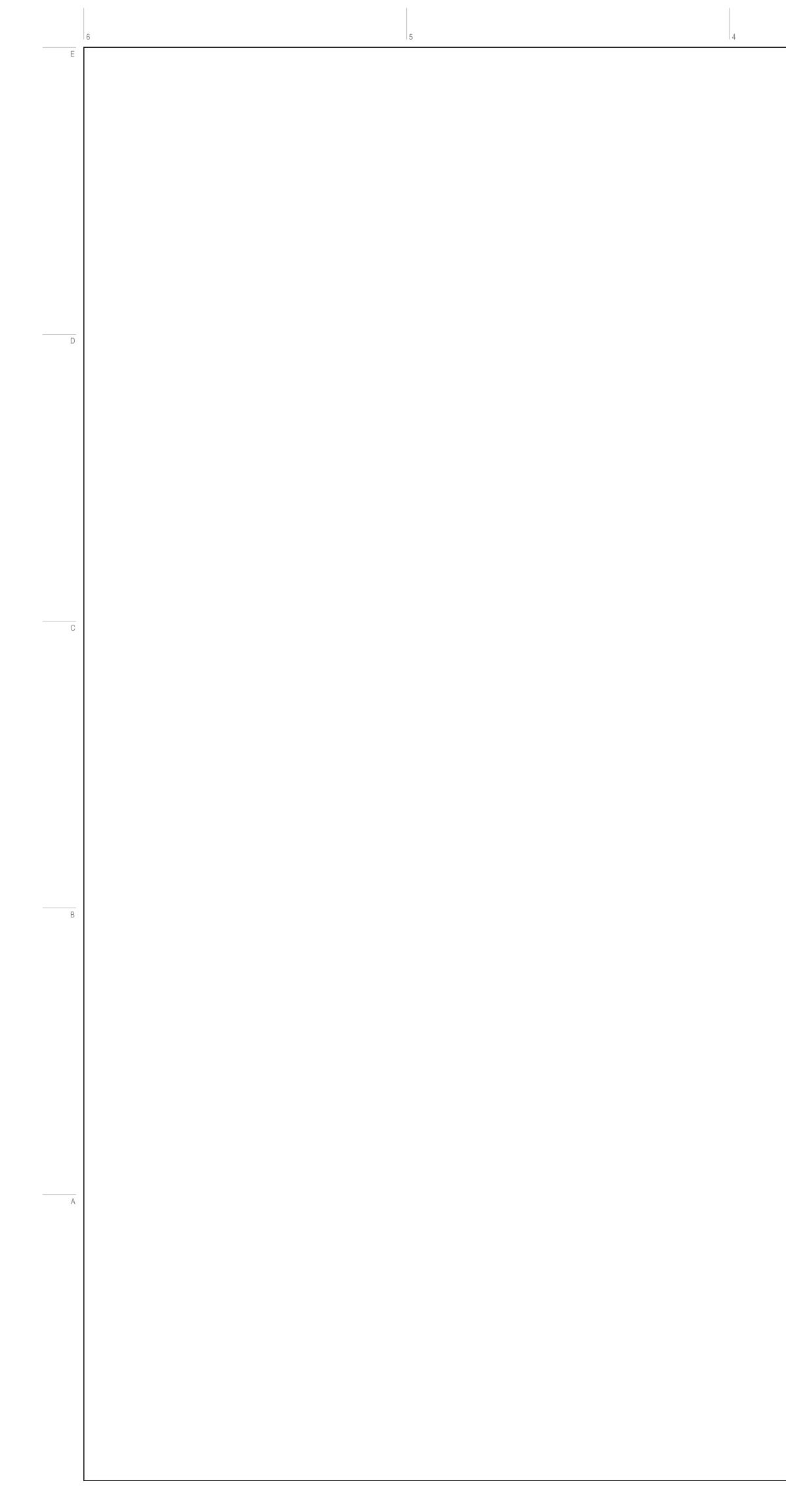
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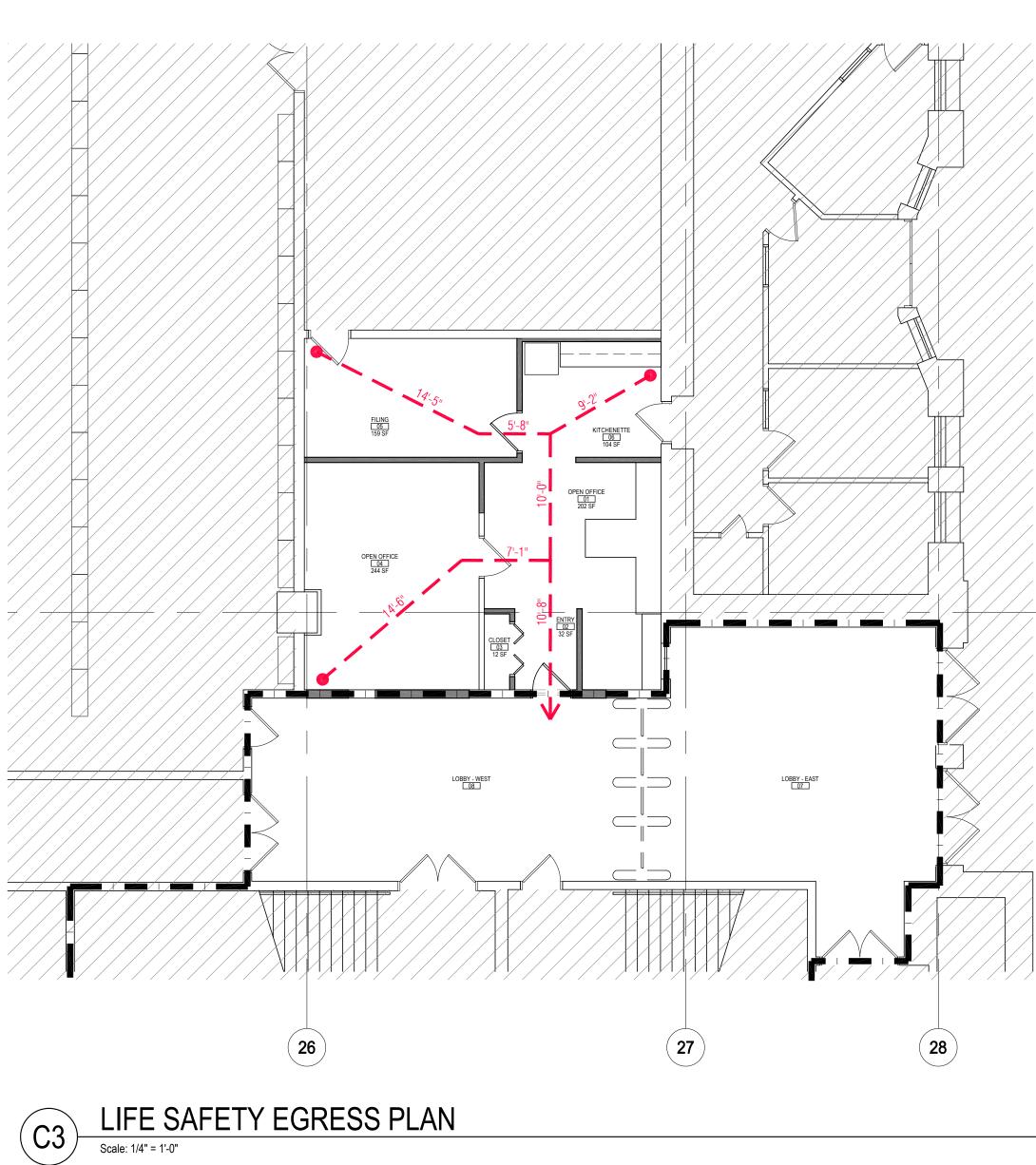




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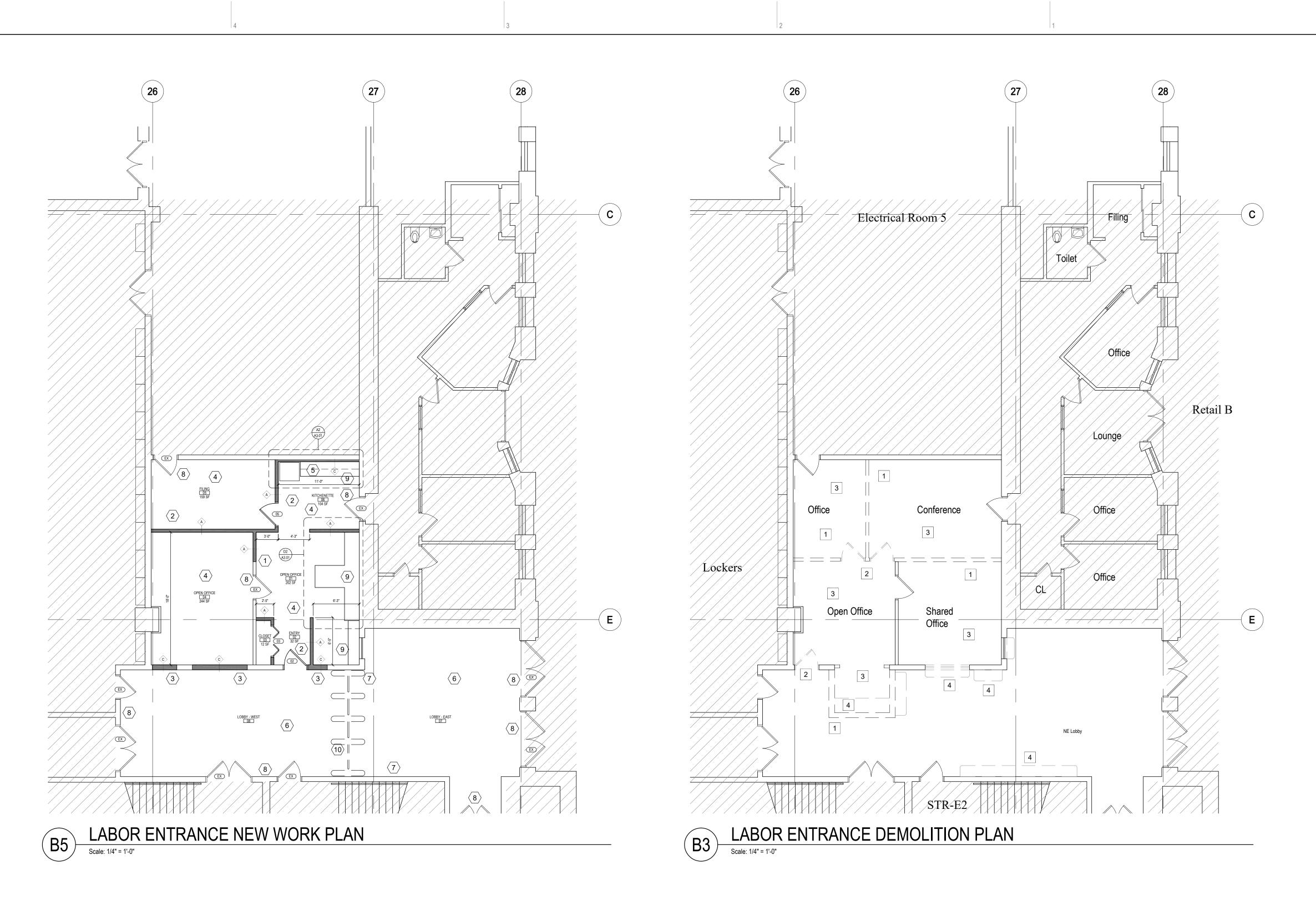
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DEMOLITION KEY NOTES

- 1 REMOVE EXISTING WALL(S) AS SHOWN INCLUDING ALL SWITCHES, FIRE STROBES, ACCESS PANELS, ETC. MAINTAIN CONNECTIONS TO ALL UTILITIES AND COORDINATE WITH MEP DEMO.
- 2 REMOVE EXISTING DOOR AND FRAME. REFER TO DOOR SCHEDULE ON SHEET G1.01 FOR MORE INFO.
- 3 REMOVE ALL FINISHED FLOORING AND WALL BASE FROM AREA OF WORK, INCLUDING ALL ADHESIVE AND SET BED FROM UNDERLAYMENT BELOW AND PREPARE FOR NEW FINISHES.
- 4 REMOVE EXISTING MILLWORK. PATCH WALL TO PREPARE FOR NEW FINISHES.
- 5 REMOVE ALL CEILING TILES, GRID TO REMAIN AND BE CLEANED OF ANY PAINT, STICKERS, RESIDUE, ETC. FOR REUSE. PROVIDE AN ALLOWANCE TO REPLACE UP TO 10% OF GRID THAT IS NOT SALVAGABLE.
- 6 REMOVE EXISTING CEILING TILES, FIXTURES AND GRID IN THEIR ENTIRETY.
- 7 REMOVE ALL EXISTING EXIT SIGNS, REGISTERS AND CEILING MOUNTED DEVICES WITHIN THE SCOPE OF WORK. ALL MECHANCIAL, ELECTRICAL, AND FIRE PROTECTION SYSTEMS AND CONNECTIONS TO REMAIN FOR RECONNECTION. REFER TO MEP DRAWINGS FOR FULL EXTENT OF NEW WORK.

NEW WORK KEY NOTES

- ALIGN NEW STUDS WITH EXISTING WALL TO ALLOW FOR SMOOTH FINISH TRANSITION FROM EXISTING TO NEW WORK.
- 2 INSTALL NEW WALLS AND DOORS AS SHOWN, REFER TO SHEET G1.01 FOR PARTITION TYPES DOOR SCHEDULE.
- (3) INFILL EXISTING OPENING, MATERIALS AND FINISHES TO MATCH ADJACENT WALL FINISH.
- (4) NEW FLOORING AND WALL FINISHES PER FINISH SCHEDULE ON G1.01.
- 5 INSTALL NEW CHASE WALL TO PROVIDE BLOCKING SUPPORT FOR NEW MILLWORK.
- 6 CLEAN EXISTING POLISHED CONCRETE FLOORING TO REMAIN; REMOVE ANY STAINING, INFILL CRACKS AND RESTORE TO A LIKE-NEW FINISH.
- PATCH AND REPAIR ANY BLOCK WALLS WHEREFIXTURES WERE REMOVED.
- CLEAN ALL EXISTING WINDOWS AND DOORS TO REMAIN WITHIN SCOPE OF WORK. REPAIR ANY FRAME, HARDWARE, OR GLAZING THAT IS DAMAGED AND REPAINT DOORS AND FRAMES.
- INSTALL NEW MILLWORK AS SHOWN, REFER TO SHEET A3.01 FOR NEW MILLWORK DIMENSIONS AND FINISHES. CONTRACTOR TO FIELD VERIFY ALL CRITICAL DIMENSIONS AND CONTACT ARCHITECT IF DISCREPANCIES ARE OBSERVED.
- (10) INSTALL NEW TURNSTILE SECURITY DEVICES IN ENTRY AREA AS SHOWN. REFER TO ELECTRICAL DRAWINGS FOR CONNECTION INFORMATION.
- (11) INSTALL NEW ACOUSTIC ARMSTRONG CORTINA 24" X 48" CEILING TILES AND NEW LED LIGTHING IN EXISTING GRID IN AREAS AS SHOWN.
- (12) INSTALL NEW AC'T CEILING WITH GRID AND LIGHTS AS SHOWN.
- (13) INSTALL NEW REGISTERS AND REINSTALL DEVICES DISPLACED FROM REMOVED CEILING TILES. REFER TO MEP DRAWINGS FOR MORE INFORMATION.
- (14) CLEAN AND PAINT ALL GWB CEILINGS AND SOFFITS TO REMAIN; PATCH ANY DAMAGED AREAS.
- $\langle 15 \rangle$  PATCH EXISTING GRID AS NEEDED .



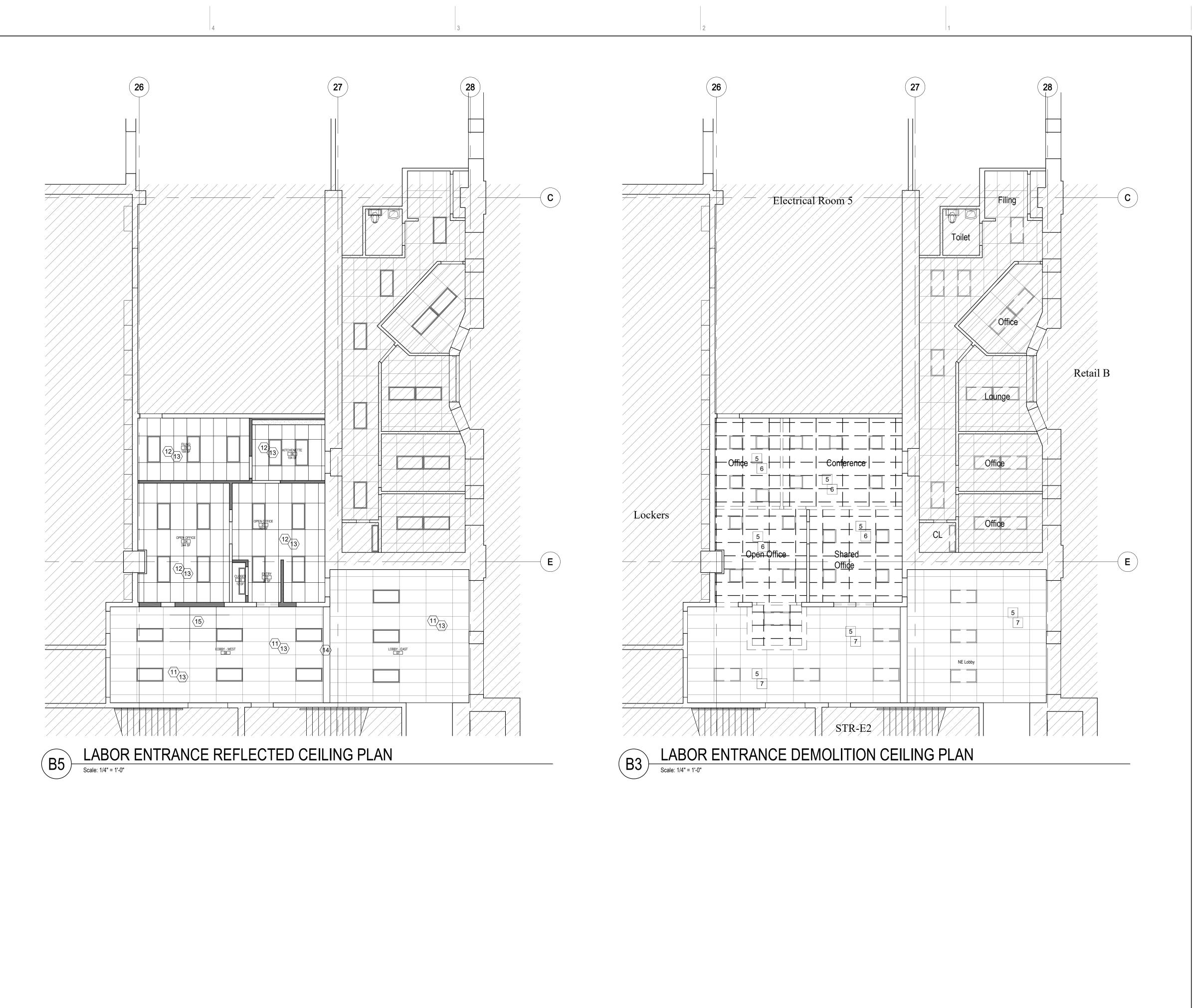
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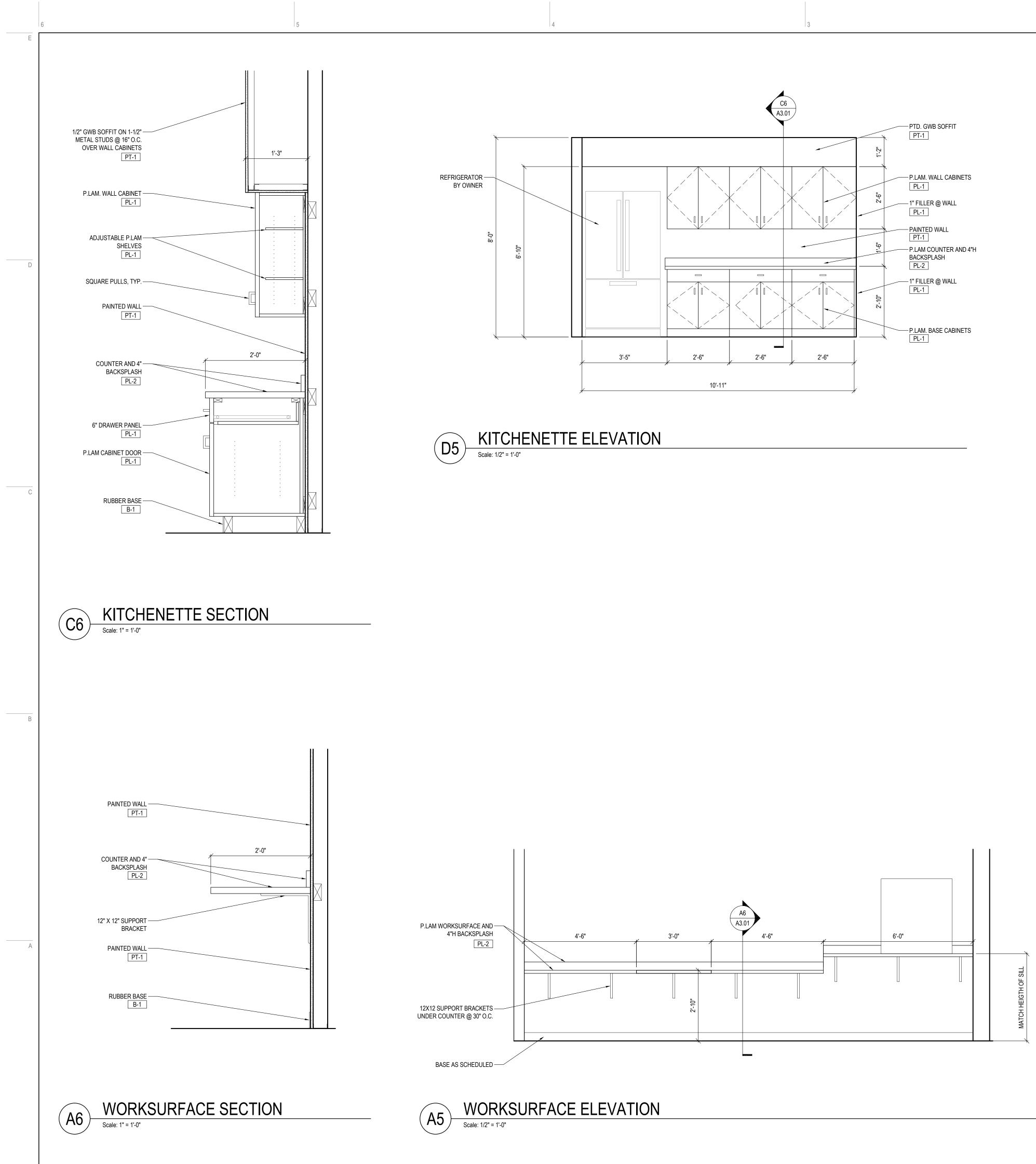
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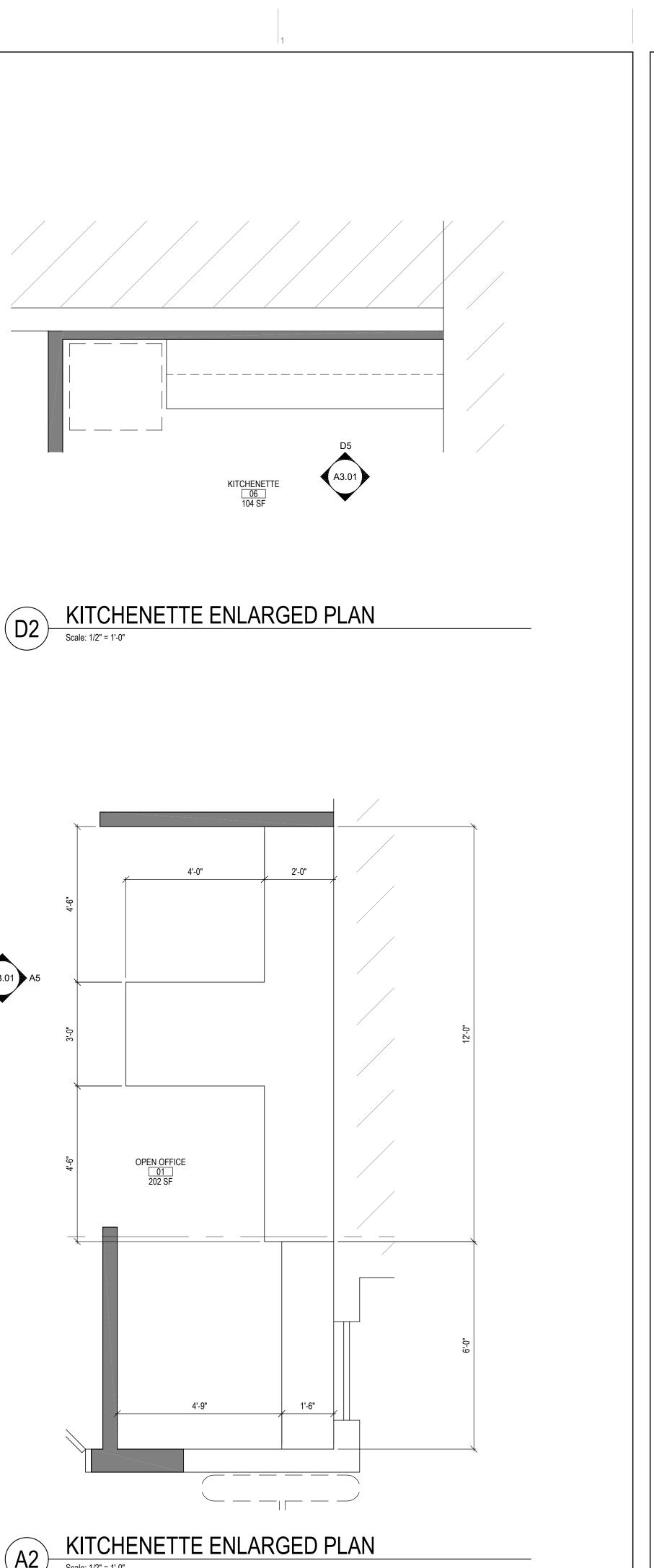
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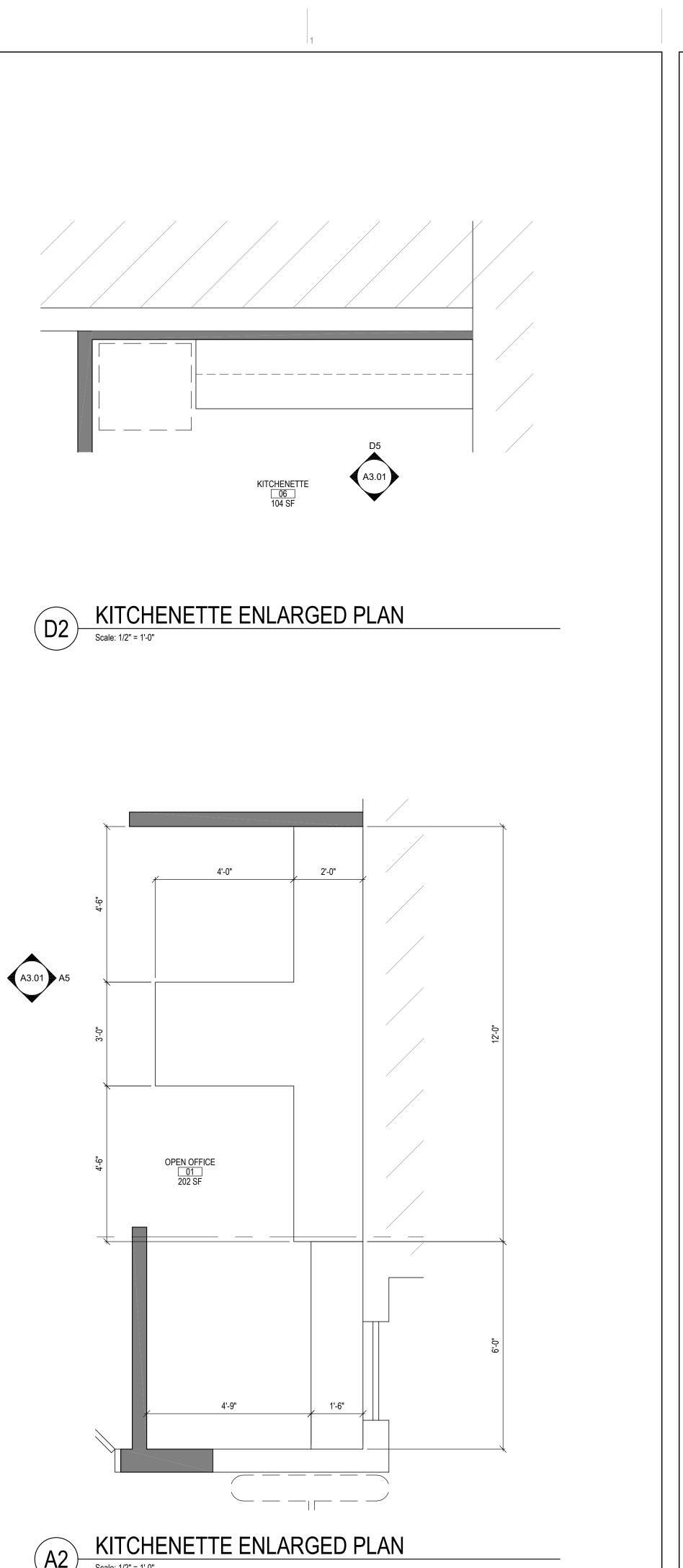
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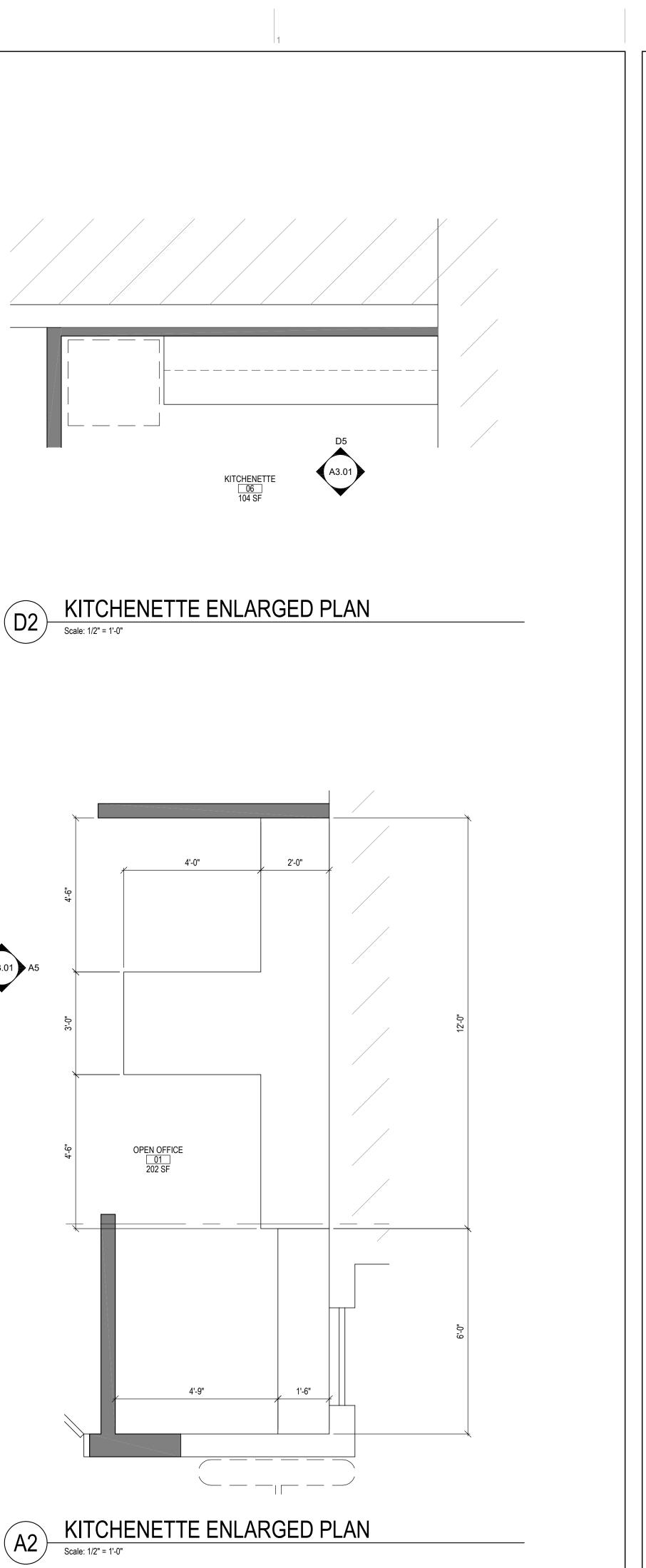


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## GENERAL NOTES

- ALL OF THE FOLLOWING NOTES ARE GENERAL AND SOME MAY NOT APPLY TO THIS SPECIFIC PROJECT.
- THE SUBMISSION OF A PROPOSAL BY THE CONTRACTOR IS NOTIFICATION THAT THE CONTRACTOR HAS TOTALLY FAMILIARIZED HIMSELF WITH THE CONTRACT DOCUMENTS AND EXISTING SITE CONDITIONS AND HAS AGREED TO PROVIDE THE NECESSARY LABOR AND MATERIAL FOR THE COMPLETE INSTALLATION OF EACH SYSTEM IN A NEAT AND WORKMANLIKE MANNER IN ACCORDANCE WITH ALL AUTHORITIES HAVING JURISDICTION.
- 2. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, SIZES, CLEARANCES AND LOCATIONS PRIOR TO THE START OF CONSTRUCTION AND ADVISE THE ENGINEER AND THE OWNER OF ANY DISCREPANCIES BEFORE PERFORMING THE WORK.
- THE DRAWINGS INDICATE ARRANGEMENTS AND APPROXIMATE SIZES AND RELATIVE LOCATIONS OF PRINCIPLE APPARATUS, EQUIPMENT, DEVICES AND SERVICES TO BE PROVIDED. DRAWINGS ARE DIAGRAMMATIC AND ARE A GRAPHIC REPRESENTATION OF THE CONTRACT REQUIREMENTS TO BEST AVAILABLE STANDARDS AT THE SCALE
- 4. LAYOUT OF EQUIPMENT INDICATED ON THE DRAWINGS SHALL BE CHECKED AND COMPARED AGAINST ALL DRAWINGS AND SPECIFICATIONS OF ALL TRADES AND EXACT LOCATIONS DETERMINED USING APPROVED SHOP DRAWINGS OF SUCH EQUIPMENT. WHERE PHYSICAL INTERFERENCE OCCURS, CONSULT WITH ENGINEER AND PREPARE DATED, DIMENSIONED DRAWINGS COORDINATED WITH ALL OTHER TRADES. OBTAIN WRITTEN APPROVAL OF THE ENGINEER FOR SUCH DRAWINGS AND DISTRIBUTE SAME AS REQUIRED.
- 5. CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER AND ALL OTHER CONTRACTORS. CONTRACTOR SHALL ALSO SCHEDULE HIS WORK IN ACCORDANCE WITH THE CONSTRUCTION SCHEDULE SO THAT ALL OF HIS WORK CAN BE INSTALLED WITHOUT DELAYING THE PROJECT.
- 6. ALL WORK SHALL COMPLY AND BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES, THE UNIFORM CONSTRUCTION CODE STATUTE, THE APPLICABLE INTERNATIONAL CODES (E.G. THE INTERNATIONAL MECHANICAL CODE, THE INTERNATIONAL BUILDING CODE) AS AMENDED AND ADOPTED BY THE LOCAL JURISDICTION, AS WELL AS ALL APPLICABLE STATE AND LOCAL CODES AND REGULATIONS (CURRENT EDITIONS), THE NATIONAL ELECTRIC CODE, BUILDING STANDARDS, NFPA AND ALL OTHER AGENCIES AND AUTHORITIES HAVING JURISDICTION. REFER TO THE CODES AND STANDARDS TABLE FOR VERSIONS OF CODES.
- ANYONE EXCEPT TEMPL CONTRACTOR SHALL SECURE AND PAY ALL FEES AND PERMITS PERTAINING TO THE CONTRACT. GIVE ALL NOTICES, OBTAIN ALL PERMITS, AND PAY ALL GOVERNMENTAL TAXES, FEES, AND COSTS: FILE NECESSARY PLANS AND OBTAIN APPROVALS OF ALL GOVERNMENT DEPARTMENTS HAVING JURISDICTION: OBTAIN CERTIFICATES OF INSPECTION FROM AN NFPA APPROVED AGENCY FOR THE WORK AND DELIVER THE SAME TO THE OWNER WITH REQUEST FOR FINAL PAYMENT.
- 8. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT COMPLIANCE WITH THE MANUFACTURERS' WRITTEN INSTRUCTIONS.
- 9. ANY ITEM DEEMED NECESSARY OR RECOMMENDED, OR REQUIRED BY CODE, BY THIS TRADE CONTRACTOR TO ACHIEVE THE FUNCTION SHOWN, BUT NOT INDICATED HEREIN, SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BIDDING IN WRITTEN "RFI" FORMAT. FAILURE TO IDENTIFY ITEMS DEEMED NECESSARY PRIOR TO BIDDING SHALL INDICATE TO THE ENGINEER AND OWNER THAT SAID ITEMS ARE INCLUDED IN THE
- 10. ANY EXISTING POTENTIALLY HAZARDOUS MATERIALS ENCOUNTERED IN THE COURSE OF THE WORK SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER FOR REMOVAL AND DISPOSAL.
- 11. CONTRACTOR SHALL BE RESPONSIBLE FOR WORKMEN'S IDENTIFICATION AND BADGING, SAFETY AND FIRE PROTECTION, BARRICADES, WARNING SIGNS, TRASH REMOVAL, CUTTING AND PATCHING
- 12. SMOKING AT THE JOB SITE IS NOT ALLOWED.
- 13. ALL WORK AND SCHEDULING TO BE COORDINATED WITH OWNER. CONTRACTOR SHALL SCHEDULE ALL SHUTDOWNS THAT AFFECT UTILITIES AND PORTIONS OF THE BUILDING THAT MUST REMAIN IN OPERATION WITH THE OWNER. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- 14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RIGGING, HANDLING AND PROTECTION OF MATERIALS. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND WITHOUT BLEMISH OR DEFECT.
- 15. CONTRACTOR SHALL PROVIDE LABOR TO RECEIVE, UNLOAD, STORE, PROTECT AND TRANSFER TO POINT OF INSTALLATION OF OWNER FURNISHED ITEMS.
- 16. FLAMMABLE MATERIALS MAY NOT BE STORED OR ALLOWED TO REMAIN OVERNIGHT WITHIN THE BUILDING. THIS INCLUDES, BUT IS NOT LIMITED TO, PAINTS, THINNERS, CLEANING AND RESTORATION PRODUCTS, RAGS OR BRUSHES, AND ANY TOOL THAT IS CAPABLE OF PRODUCING FLAME. SAWDUST, SCRAP LUMBER, SOAKED RAGS, AND OTHER FLAMMABLE CONSTRUCTION DEBRIS MUST BE COLLECTED AT THE END OF EACH DAY AND DISPOSED OF PROPERLY OUTSIDE OF THE BUILDING.
- 17. MAINTAIN SUITABLE FIRE PROTECTION EQUIPMENT AT BUILDING SITE. AT MINIMUM, TYPE ABC FIRE EXTINGUISHERS SHALL BE PROVIDED WHERE WORK IS BEING PERFORMED WITH OPEN FLAME OR USING FLAMMABLE MATERIALS AND AN ADDITIONAL FIRE EXTINGUISHER SHALL BE PROVIDED TO THE WORKER PERFORMING THE WORK. TRAIN ALL WORKERS IN THE USE OF FIRE PROTECTION EQUIPMENT.
- 18. ALL FIRE SAFETY REQUIREMENTS LISTED ABOVE ARE TO BE CONSIDERED MINIMUMS. CONTRACTOR IS RESPONSIBLE FOR TAKING OTHER MEASURES DEEMED NECESSARY BY THE CONTRACTOR TO PROTECT THE BUILDING. 19. CONTRACTOR SHALL SUBMIT SCHEDULE OF SUBMITTALS PRIOR TO SUBMITTING ANY SHOP DRAWINGS. THIS
- SCHEDULE SHALL IDENTIFY ALL PRODUCT DATA. DRAWINGS. ETC TO BE SUBMITTED FOR THIS PROJECT. INCLUDING THE ANTICIPATED DATE OF EACH SUBMISSION. CONTRACTOR SHALL SUBMIT (6) SETS OF SHOP DRAWINGS AND EQUIPMENT CUTS TO THE ENGINEER FOR APPROVAL PRIOR TO PURCHASING EQUIPMENT OR STARTING ANY WORK. CONTRACTOR SHALL SUBMIT (3) PRINTS AND (1) REPRODUCIBLE OF ALL PIPING. DUCTWORK, FIRE PROTECTION, CONDUIT, AND CABLE TRAY FIELD INSTALLATION DRAWINGS FOR EACH SYSTEM TO BE INSTALLED, ANY WORK INSTALLED OR EQUIPMENT PURCHASED PRIOR TO RECEIPT OF ENGINEER-APPROVED SHOP DRAWINGS THAT REQUIRES CHANGES SHALL BE REPLACED AT THE EXPENSE OF THE CONTRACTOR.
- SUBMIT CATALOG INFORMATION, FACTORY ASSEMBLY DRAWINGS AND FIELD INSTALLATION DRAWINGS AS REQUIRED FOR A COMPLETE EXPLANATION AND DESCRIPTION OF ALL ITEMS TO BE PROVIDED. THE CONTRACTOR SHALL REVIEW AND APPROVE ALL SHOP DRAWINGS. NO SUBMISSION WILL BE ACCEPTED WITHOUT THE SIGNED APPROVAL OF THE CONTRACTOR. THE CONTRACTOR SHALL CHECK AND VERIFY ALL FIELD
- 21. INSTALLED SYSTEMS SHALL OPERATE UNDER ALL CONDITIONS OF LOAD WITHOUT SOUND OR VIBRATION THAT IS OBJECTIONABLE TO THE ENGINEER OR OWNER. OBJECTIONABLE SOUND OR VIBRATION CONDITIONS SHALL BE CORRECTED IN AN APPROVED MANNER BY THE CONTRACTOR AT HIS EXPENSE.
- 22. FURNISH ACCESS DOORS AS REQUIRED FOR OPERATION AND MAINTENANCE OF CONCEALED EQUIPMENT, VALVES. CONTROLS. DAMPERS. ETC. ALL ACCESS DOORS SHALL BE COORDINATED WITH THE OWNER AND SHALL MATCH THE FIRE RATING OF THE PENETRATION AS REQUIRED. 23. ALL WORK FURNISHED UNDER THE CONTRACT SHALL BE GUARANTEED AGAINST ANY AND ALL DEFECTS IN
- WORKMANSHIP AND MATERIALS FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE. ANY DEFECTS OF WORKMANSHIP DEVELOPING DURING THIS PERIOD SHALL BE REMEDIED AND ANY DEFECTIVE MATERIAL SHALL BE REPLACED WITHOUT ADDITIONAL COST TO THE OWNER.
- 24. CONTRACTOR SHALL NOTIFY ENGINEER OF ESTIMATED DATE OF COMPLETION OF ROUGH-IN WORK AND DATE OF BOTH WALL AND CEILING INSTALLATION. NOTIFICATION SHALL BE A MINIMUM OF ONE WEEK PRIOR TO DATE TO ENABLE ENGINEER TO SCHEDULE PRELIMINARY PUNCHLIST INSPECTION. CONTRACTOR SHALL SIMILARLY NOTIFY ENGINEER OF COMPLETION OF ALL WORK, INDICATING THE CONTRACTOR IS READY FOR THE ENGINEER TO PERFORM THE FINAL PUNCHLIST INSPECTION.
- 25. UPON COMPLETION OF ALL UNFINISHED OR FAULTY WORK NOTED IN ENGINEER'S FINAL PUNCHLIST. 1 CONTRACTOR SHALL SUBMIT TO THE ENGINEER IN WRITING A LETTER OF COMPLETION CERTIFYING THAT ALL PUNCHLIST ITEMS HAVE BEEN COMPLETED AND ALL AS-BUILT PLANS, MANUALS, ETC. HAVE BEEN SUBMITTED.
- 26. ALL CHANGES MADE BY THE CONTRACTOR WHICH ARE NOT APPROVED BY THE DESIGN ENGINEER SHALL BE DONE AT THE LIABILITY OF THE CONTRACTOR. 27. CONTRACTOR SHALL RESTORE EXISTING SYSTEMS, DEVICES, FINISHES, ETC. DAMAGED OR ALTERED BY WORK
- TO ACCEPTABLE CONDITION AS DETERMINED BY THE OWNER OR ENGINEER. 28. EXISTING WORK THAT IS TO BE REMOVED SHALL BE TURNED OVER TO THE OWNER OR DISPOSED OF AT THE OWNER'S DIRECTION. ALL WORK TO BE DISPOSED OF SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROMPTLY REMOVED FROM THE SITE. ALL EQUIPMENT TO BE TURNED OVER TO THE OWNER
- SHALL BE DELIVERED TO ON SITE CENTRAL RECEIVING LOCATION DESIGNATED BY THE OWNER. 29. PROVIDE ALL NECESSARY REMOVAL OF EXISTING CEILING TILES AND REINSTALLATION OF CEILING TILES OR REPLACEMENT AS NEEDED TO ACCOMPLISH NEW WORK. PERFORM ALL NECESSARY CEILING WORK INCLUDING BUT NOT LIMITED TO REMOVAL, REINSTALLATION AND PROVIDING NEW CEILING TILES, CEILING GRID, T-BARS SUPPORTS, AND ALL APPURTENANCES.
- 30. GENERAL MECHANICAL NOTES PERTAIN TO ALL MECHANICAL DRAWINGS.
- 31. ALL WORK SHALL BE INSTALLED IN A NEAT AND WORKMAN-LIKE MANNER.
- 32. REFERENCE ARCHITECTURAL, ELECTRICAL, PLUMBING AND STRUCTURAL DRAWINGS FOR COORDINATION. 33. PERFORM ALL RIGGING REQUIRED TO COMPLETE ALL WORK UNDER THIS CONTRACT. IF REQUIRED, THE CONTRACTOR SHALL DISASSEMBLE EQUIPMENT OR ITEMS FOR RIGGING AND/OR ACCESS INTO THE BUILDING. AFTER RIGGING IS COMPLETE, THE CONTRACTOR SHALL REASSEMBLE THE EQUIPMENT OR ITEMS.
- 34. THE CONTRACTOR SHALL REVIEW THE SITE AND ALL CLEARANCES TO VERIFY THE NEW EQUIPMENT CAN BE INSTALLED IN THE LOCATION SHOWN ON DRAWINGS. PROVIDE ANY NECESSARY SHIPPING SPLITS ON UNITS TO ALLOW THEM TO BE INSTALLED IN THE LOCATION SHOWN. REMOVE ANY NECESSARY OBSTRUCTIONS TO ALLOW FOR INSTALLATION OF EQUIPMENT AND REPAIR/REPLACE ONCE INSTALLATION IS COMPLETE.
- 36. MECHANICAL CONTRACTOR SHALL COORDINATE RELOCATION OF SPRINKLER AND PIPING WITH SPRINKLER CONTRACTOR AS REQUIRED FOR INSTALLATION OF NEW HVAC EQUIPMENT AND DUCTWORK.

35. PROVIDE MANUFACTURER DESIGNATED CLEARANCES FOR EQUIPMENT MAINTENANCE AND REPAIR

## **GENERAL DEMOLITION NOTES**

- 1. DEMOLITION/RELOCATIONS: EACH TRADE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND
- 2. THE CONTRACTOR SHALL REMOVE ALL WORK AS NOTED ON THE DRAWINGS. WHERE IT IS NOTED TO REMOVE EXISTING EQUIPMENT, DUCTWORK AND PIPING, ALL ASSOCIATED VALVES, FITTINGS, HANGERS, SUPPORTS INSULATION, CONTROLS, ELECTRICAL WORK, AND APPURTENANCES SHALL ALSO BE REMOVED. ADEQUATELY SUPPORT EXISTING DUCTWORK AND PIPING TO REMAIN. PROVIDE TEMPORARY CAPS ON EXISTING PIPIN ENDS/DUCT OPENINGS WHERE SYSTEMS WILL REMAIN IN SERVICE PRIOR TO INSTALLATION OF NEW WORK. CAP AND SEAL EXISTING OPENINGS WHERE NOT REUSED AND PATCH INSULATION TO MATCH EXISTING. THE
- CONTRACTOR SHALL RELOCATE EXISTING WORK AS REQUIRED TO INSTALL NEW WORK. WHERE EXISTING WALLS, FLOORS OR CEILINGS ARE REMOVED, ALL HVAC SHALL BE PROTECTED FROM DAMAGE AND SUPPORTED AS REQUIRED. REPAIR ANY DAMAGE TO EXISTING TO REMAIN EQUIPMENT.
- 4. PRIOR TO DEMOLITION, THE CONTRACTOR SHALL REVIEW WITH THE OWNER ALL MATERIALS TO BE REMOVED. SHOULD THE OWNER OPT TO KEEP ANY MATERIALS, THE CONTRACTOR SHALL REMOVE AND DELIVER THE PARTS TO THE OWNER ON THE SITE WHERE DIRECTED. OTHERWISE, ALL DEMOLISHED OR REMOVED MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR, SHALL BE REMOVED FROM THE SITE, AND BE DISPOSED OF IN A LEGAL MANNER.
- 5. DEMOLITION SHALL INCLUDE REMOVAL OF ALL PARTS AND PIECES IN THEIR ENTIRETY BACK TO THE POINTS INDICATED OR IF NOT INDICATED BACK TO THEIR POINT OF SOURCE. WHERE CONDITIONS PROHIBIT TOTAL REMOVAL OF THE WORK, THE REMAINING PORTION SHALL BE CUT FLUSH WITH THE SURROUNDING SURFACE (CAPPED OR TERMINATED AS NOTED) BE REFINISHED IN AN APPROVED MANNER.
- MAINTAIN EXISTING UTILITIES INDICATED OR WHERE REQUIRED TO REMAIN, KEEP IN SERVICE, AND PROTECT AGAINST DAMAGE DURING DEMOLITION OPERATIONS. DO NOT INTERRUPT EXISTING UTILITIES SERVING OCCUPIED OR USED FACILITIES, EXCEPT WHEN SCHEDULED WITH THE OWNER.
- 7. DO NOT REMOVE EXISTING STRUCTURAL WORK. DO NOT REMOVE OPERATIONAL ELEMENTS AND SAFETY-RELATED COMPONENTS IN A MANNER RESULTING IN A REDUCTION OF CAPACITIES TO PERFORM IN THE MANNER INTENDED OR RESULTING IN DECREASED OPERATIONAL LIFE, INCREASED MAINTENANCE, OR DECREASED
- 8. REMOVALS, DISCONNECTIONS, AND RELOCATIONS SHALL BE PERFORMED BY WORKMEN SKILLED IN THE TRADE INVOLVED AND SHALL BE EMPLOYED BY A CONTRACTOR LICENSED IN THE TRADE INVOLVED. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ACCEPTED TRADE PRACTICES.
- 9. PROVIDE ADEQUATE TEMPORARY SUPPORT FOR WORK TO REMAIN TO PREVENT FAILURE. DO NOT ENDANGER OTHER WORK
- 10. PROTECTION: PROVIDE ADEQUATE PROTECTION WHERE REQUIRED FOR THE PRESENT BUILDING AND ITS CONTENTS. TEMPORARY DUSTPROOF BARRIERS AND BARRICADES SHALL BE ERECTED WHERE REQUIRED FOR PROTECTION OF PERSONNEL, PROTECTION FROM DUST AND DIRT, FOR SECURITY, FIRE AND WEATHER PROTECTIVE REASONS. CONTRACTOR SHALL TAKE EVERY PRECAUTION AGAINST FIRE BY EMPLOYING FIRE DEPARTMENT TYPE HOSES AND PORTABLE FIRE EXTINGUISHERS AS REQUIRED BY OSHA AND/OR THE OWNER'S INSURANCE UNDERWRITER. COMPLY WITH GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
- 11. ALL EXISTING EQUIPMENT REQUIRED TO BE REUSED SHALL BE CLEANED. IN ALL INSTANCES WHERE CONTRACTOR FINDS THAT EXISTING EQUIPMENT IS DEFECTIVE TO THE POINT WHERE IT CANNOT BE PROPERLY RESTORED AND WILL NOT OPERATE PROPERLY, THEY SHALL REPORT THE SPECIFIC INSTRUMENTS OR TO THE DESIGN PROFESSIONAL FOR DIRECTIONS.
- 12. EXTREME CARE SHALL BE EXERCISED FOR ALL EXISTING ITEMS THAT ARE TO REMAIN IN SERVICE UNTIL NEW ITEMS ARE INSTALLED FOR THE SAME SERVICE. ALL SHUTDOWNS OF ANY SYSTEM SHALL BE COORDINATED WITH THE OWNER.
- 13. ALL WORK TO BE DEMOLISHED REQUIRING DISRUPTION TO EXISTING AREAS ON FLOORS ABOVE BELOW, OR ADJACENT TO THE CONTRACT AREA: FACH CONTRACTOR SHALL SCHEDULE EACH DISRUPTION WITH THE OWNER. WHERE DEMOLITION WORK WILL REQUIRE TEMPORARY REMOVAL OF EXISTING PIPING WHICH ARE TO REMAIN. THE OWNER SHALL DIRECT AND DEFINE PROCEDURES. NO WORK SHALL PROCEED WITHOUT OWNER'S AUTHORIZATION.
- 14. REMOVE AND REROUTE BY OFFSETTING AS REQUIRED ANY EXISTING PIPING RISERS, STACKS OR LATERAL PIPING TO REMAIN IN SERVICE AND BECOME EXPOSED DUE TO NEW FLOOR PLAN AND OR NEW CEILING LAYOUT.
- 15. WHERE DRAWINGS INDICATE THE DEMOLITION OF PIPING OR DUCTWORK, THE CONTRACTOR SHALL REMOVE ALL ABANDONED HANGERS AND SUPPORTS. PIPING AND/OR DUCTWORK SHALL BE CAPPED AND INSULATED WITH MATERIALS TO MATCH EXISTING.
- 16. THE CONTRACTOR SHALL REPAIR ALL PENETRATIONS OF ROOFS, WALLS AND FLOORS TO MATCH EXISTING OF WHICH ITEMS HAVE BEEN DEMOLISHED.
- 17. UNLESS NOTED OTHERWISE, THE CONTRACTOR SHALL REMOVE EQUIPMENT PADS/CURBS/ SUPPORTS FOR ALL FLOOR OR ROOF MOUNTED EQUIPMENT INDICATED TO BE REMOVED. REPAIR FLOORS AND ROOFS AS REQUIRED TO MATCH EXISTING. REMOVE HANGERS AND SUPPORTS FOR ALL SUSPENDED EQUIPMENT INDICATED TO BE REMOVED.
- 18. WHERE EQUIPMENT IS INDICATED TO BE REMOVED, THE CONTRACTOR SHALL REMOVE ALL DISCONNECTS DRIVES, STARTERS, CONTACTORS, SWITCHES, CONTROLLERS, SENSORS, ACTUATORS, ETC. REMOVE EQUIPMENT POWER FEED WIRING AND CONDUIT COMPLETE BACK TO DISTRIBUTION PANEL. ALL CONTROLS CONDUIT, WIRING AND/OR PNEUMATIC TUBING SHALL BE REMOVED BACK TO A REASONABLE EXTENT. **GENERAL CONSTRUCTION NOTES**
- ALL OF THE FOLLOWING NOTES ARE GENERAL AND SOME MAY NOT APPLY TO THIS SPECIFIC PROJECT.
- THE CONTRACTOR SHALL SUBMIT DRAWINGS SHOWING COORDINATION OF ALL TRADES, INCLUDING, BUT NOT LIMITED TO: DUCTS, PIPING, CONDUIT, EQUIPMENT, FIXTURES, STRUCTURE, FRAMING AND ANY ITEMS PENETRATING THE CEILING AND ROOF. THE CONTRACTOR SHALL INCUR ALL EXPENSES RELATED TO A LACK OF COORDINATION BETWEEN TRADES.
- SIZES OF ALL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR AND COORDINATED WITH THE DESIGN PROFESSIONAL AND ALL OTHER TRADES. DUCTWORK AND PIPING SHALL BE SET UP AND DOWN AND OFFSET AS REQUIRED TO SUIT FIELD CONDITIONS.
- 3. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL CONTRACT DOCUMENTS RELATED TO THIS PROJECT. THERE MAY BE WORK REQUIRED OF THIS TRADE SHOWN ON OTHER TRADE DRAWINGS. 4. THE CONTRACTOR TO PROVIDE A FUNCTIONAL INSTALLATION AS INTENDED BY THE DESIGN PROFESSIONAL.
- 5. MECHANICAL CONTRACTOR SHALL ENSURE MINIMUM NEC CLEARANCES IN FRONT OF ALL ELECTRICAL PANELS
- 6. ALL FLOOR MOUNTED HVAC EQUIPMENT SHALL BE INSTALLED ON 4" HIGH REINFORCED CONCRET HOUSEKEEPING PADS PROVIDED BY THE G.C. UNLESS NOTED OTHERWISE. HOUSEKEEPING PAD SHALL BE MINIMUM 4" LARGER THAN EQUIPMENT ON ALL SIDES. UNLESS OTHERWISE REQUIRED BY EQUIPMENT MANUFACTURER.
- 7. MECHANICAL SCHEDULES DO NOT NECESSARILY INDICATE EQUIPMENT QUANTITIES.
- 8. MECHANICAL CONTRACTOR SHALL PROVIDE FLEXIBLE CONNECTIONS AT ALL DUCTWORK-TO-EQUIPMENT
- 9. FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-O" FROM POINT OF RIGID DUCT CONNECTION TO AIR TERMINAL THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEVIATIONS FROM THE CONTRACT DRAWINGS THAT ARE NOT APPROVED BY THE DESIGN PROFESSIONAL.
- HUMIDISTATS WITH THE DESIGN PROFESSIONAL AND/OR OWNER.
- 11. MECHANICAL CONTRACTOR SHALL COORDINATE THE EXACT LOCATION, MOUNTING STYLE AND FINISH OF ALL GRILLES, REGISTERS, DIFFUSERS, ETC. WITH THE DESIGN PROFESSIONAL.
- 12. ALL SUSPENDED AND FLOOR MOUNTED EQUIPMENT SHALL BE FURNISHED WITH VIBRATION ISOLATION AS PER MECHANICAL SPECIFICATIONS.
- 13. DUCT MOUNTED SMOKE DETECTORS ARE FURNISHED BY THE ELECTRICAL CONTRACTOR AND INSTALLED BY THE MECHANICAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL CONTROL WIRING FROM THE SMOKE DETECTOR'S ON-BOARD RELAY(S) TO THE EQUIPMENT CONTROLLERS/STARTERS/VFD'S FOR SHUTTING DOWN THE ASSOCIATED MECHANICAL EQUIPMENT AND ACTIVATION OF REQUIRED FIRE/SMOKE DAMPERS. THE SMOKE DETECTOR SHALL BE TIED INTO THE FIRE ALARM SYSTEM AND REMOTE TEST STATIONS BY THE ELECTRICAL CONTRACTOR. THE DUCT DETECTOR SHALL BE SUPPLIED WITH THE APPROPRIATE SAMPLING TUBES TO FIT THE INSTALLATION. COORDINATE INSTALL OF SMOKE DETECTORS WITH ELECTRICAL CONTRACTOR. 14. DUCT SIZES SHOWN ON PLANS REFER TO CLEAR INSIDE DIMENSIONS (CID) UNLESS NOTED OTHERWISE.
- 15. DIELECTRIC COUPLINGS SHALL BE USED WHERE DISSIMILAR METALS ARE JOINED.
- RETURNS/SUPPLIES, DUCTWORK, AIR TERMINALS, ETC.
- MAY NOT NECESSARILY APPEAR ON PLANS. 18. MECHANICAL CONTRACTOR SHALL INSULATE ALL DUCTWORK AND PIPING PER MECHANICAL SPECIFICATIONS,
- UNLESS OTHERWISE NOTED ON PLANS. 19. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SLAB OPENINGS, WALL OPENINGS, ROOF PENETRATIONS, BEAM PENETRATIONS AND CORING AS IT RELATES TO HIS WORK. CONTRACTOR SHALL SUBMIT SIZE AND LOCATION TO
- 20. ALL DUCTWORK AND PIPING PENETRATIONS OF FIRE RATED PARTITIONS, BARRIERS OR WALLS SHALL BE PROTECTED PER THE LATEST INTERNATIONAL MECHANICAL CODE (IMC). PROVIDE FIRE RATED SLEEVES AND SEALANT AS REQUIRED FOR ALL FIRE RATED PIPING PENETRATIONS. PROVIDE "UL" LISTED FIRE DAMPERS FOR ALL DUCTWORK PENETRATIONS OF FIRE RATED SURFACES AS SHOWN ON DRAWINGS. PROVIDE DUCTWORK SLEEVING AND CAULKING PER THE LATEST IMC AT FIRE RATED PENETRATIONS NOT PROTECTED BY A FIRE

THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL.

- 21. PROVIDE P-TRAP OF SUFFICIENT SEAL DEPTH TO OVERCOME UNIT STATIC PRESSURE ON ALL AC CONDENSATE CONNECTIONS. EXTEND AC CONDENSATE PIPING FROM UNIT TO SPILL DIRECTLY INTO NEAREST HUB DRAIN, FLOOR DRAIN, AND/OR EXISTING ROOF DRAIN. SEE SPECIFICATIONS AND AC CONDENSATE DRAIN DETAIL. VERIFY LOCATION IN FIELD.
- 22. CONTRACTOR IS RESPONSIBLE FOR MATCHING PRESSURE RATINGS FOR ALL FLANGES, JOINTS, VALVES EQUIPMENT AND ACCESSORIES REQUIRED FOR PIPING SYSTEMS TO THE PRESSURE CLASS OF THE EXISTING BUILDING SYSTEM
- 23. PROVIDE LABELING OF ALL DEVICES AND EQUIPMENT.
- 24. PROVIDE ACCESS PANELS FOR ALL EQUIPMENT LOCATED ABOVE HARD CEILINGS.
- 25. PROVIDE LINTELS AT ALL RECTANGULAR PENETRATIONS IN MASONRY BY DUCTWORK. PROVIDE SLEEVES FOR
- ROUND DUCTWORK. 26. ALL HOT WORK SHALL BE PERFORMED IN ACCORDANCE WITH NFPA 51B.

## ALL OF THE FOLLOWING NOTES ARE GENERAL AND SOME MAY NOT APPLY TO THIS SPECIFIC PROJECT.

## RELOCATIONS OF SERVICES, EQUIPMENT AND MATERIAL RELATING TO THEIR RESPECTIVE TRADE.

## 2. ALL MECHANICAL DRAWINGS ARE DIAGRAMMATIC AND SHOW DESIGN INTENT ONLY. THE EXACT LOCATION AND

- 10. MECHANICAL CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL WALL MOUNTED THERMOSTATS AND

- 16. PROVIDE INSULATED BLANK-OFF/CAPS PANELS FOR ALL UNUSED PORTIONS OF LOUVERS, EQUIPMENT
- 17. PROVIDE ALL DUCTWORK AND PIPING TRANSITIONS/REDUCERS TO EQUIPMENT, COILS, ETC. AS REQUIRED THAT

## **GENERAL SPECIFICATIONS**

- REFER TO GENERAL NOTES, GENERAL DEMOLITION NOTES AND GENERAL CONSTRUCTION NOTES FOR ADDITIONAL REQUIREMENTS.
- 2. <u>SCOPE OF WORK</u>

1. <u>GENERAL</u>

- A. THE SCOPE OF WORK TO BE PERFORMED UNDER THIS CONTRACT SHALL CONSIST OF FURNISHING ALL LABOR AND FURNISHING AND INSTALLING ALL MATERIAL. EQUIPMENT. AND APPURTENANCES FOR THE MECHANICAL WORK ASSOCIATED WITH THE REVISIONS AS INDICATED ON THE DRAWINGS & SPECIFIED HEREIN. INCLUDING:
- SEALING DUCTWORK AND WALL PENETRATIONS DUCTWORK
- FAN COIL UNIT • CABINET UNIT HEATERS
- INSULATION
- CONTROLS • BALANCING OF AIR AND WATER SYSTEMS
- B. THE CONTRACTOR SHALL SUBMIT A PROPOSED SEQUENCE OF CONSTRUCTION PRIOR TO PERFORMING ANY WORK. THE SEQUENCE OF CONSTRUCTION WILL BE REVIEWED BY THE OWNER FOR THEIR COMMENTS. 3. <u>CONCURRENT WORK BY THE OWNER</u>
- A. THE OWNER RESERVES THE RIGHT TO HAVE OTHER CONTRACTORS PERFORM WORK IN OTHER AREAS OF THE COMPLEX SIMULTANEOUSLY WHILE THIS CONTRACTOR IS ENGAGED TO DO WORK. THIS CONTRACTOR AND THEIR PERSONNEL SHALL COOPERATE AND COORDINATE THE WORK TO BE PERFORMED WITH ALL OTHER CONTRACTORS WITH WHO THEY COMES IN CONTACT. IN NO WAY SHALL THIS CONTRACTOR INTERFERE WITH THE PROGRESS OF THE WORK.
- 4. <u>DEFINITIONS</u>
- THE WORD 'PROVIDE' WHEN USED IN THE SPECIFICATION AND DRAWINGS SHALL MEAN "FURNISH AND INSTALL". 5. <u>VISIT THE SITE</u>
- A. VISIT THE SITE AND VERIFY ALL CONDITIONS BEFORE SUBMITTING A PROPOSAL FOR THE WORK.
- B. THE CONTRACTOR SHALL CAREFULLY EXAMINE ALL DRAWINGS, SPECIFICATIONS, CONTRACT DOCUMENTS, AND THE SITE BEFORE SUBMITTING PROPOSAL FOR THIS WORK. THEY SHALL COMPARE THE SITE WITH DRAWINGS, SPECIFICATIONS, AND CONTRACT DOCUMENTS FOR ALL OTHER BRANCHES OF THE WORK AND INCLUDE IN THEIR BID ALL NECESSARY WORK TO COMPLETE THE INSTALLATION OF THE SYSTEMS DESCRIBED HEREIN.
- 6. COORDINATION
- A. THE SCHEDULING OF ANY WORK AFFECTING EXISTING INSTALLATIONS OR FACILITIES. SHALL BE COORDINATED WITH THE OWNERS' REPRESENTATIVE. SHUT-DOWN OF UTILITIES OR EQUIPMENT AFFECTING OPERATIONS OF ANY EXISTING PART OF THE BUILDING WILL NOT BE PERMITTED EXCEPT AS PROVIDED BELOW. ANY PREMIUM TIME OR ADDITIONAL COST TO COMPLY SHALL BE AT THE EXPENSE OF THE CONTRACTOR AND CONSIDERED TO BE INCLUDED IN THE BID. SHUT-DOWN OF ANY OPERATING FACILITY OR SERVICES INCLUDING PLUMBING, REFRIGERATION, HEATING, AIR CONDITIONING, ELECTRICAL, OR OTHER INSTALLATIONS SHALL BE PRECEDED BY A WRITTEN REQUEST AT LEAST SEVEN CALENDAR DAYS PRIOR TO HE SHUT-DOWN.
- B. ALL REQUIRED SHUT-DOWNS UNLESS OTHERWISE INSTRUCTED, SHALL BE DURING NIGHTS, HOLIDAYS, OR ON WEEKENDS. ANY TESTS WHICH ARE TO BE CARRIED OUT ON THE BUILDING FACILITIES AND ANY CONNECTIONS TO BE MADE IN THE BUILDING FACILITY WHICH WOULD INVOLVE A CHANGE IN THE SYSTEM OR LIABILITY TO THE SYSTEM OR INVOLVE A SHUT-DOWN IN LIGHT OR POWER, THE CONTRACTOR SHALL NOT PROCEED WITH SUCH OPERATIONS UNTIL HE HAS RECEIVED WRITTEN PERMISSION FROM THE OWNER.
- C. FABRICATE AND PREFAB AS MUCH OF THE NEW WORK AS POSSIBLE IN ORDER THAT ANY REQUIRED SHUT-DOWNS WILL BE KEPT AT A MINIMUM. 7. GUARANTEE
- GUARANTEE ALL MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.
- 8. <u>SHOP DRAWINGS</u> SUBMIT TO OWNER, FOR APPROVAL, SHOP DRAWINGS OF ALL EQUIPMENT, MATERIALS, AND ACCESSORIES, INCLUDING:
  - FAN COIL UNIT CABUBET UNIT HEATERS SHEET METAL DUCTWORK
  - AIR TERMINALS DEVICES PIPING
  - INSULATION AUTOMATIC TEMPERATURE CONTROLS BALANCING REPORT
- 9. AS-BUILT DRAWINGS
- THE CONTRACTOR SHALL MAINTAIN AS-BUILT DRAWINGS OF THE WORK PERFORMED. AT THE COMPLETION OF THE INSTALLATION, EACH TRADE WILL INCORPORATE ALL FIELD CHANGES ON THE AUTOCAD DATA BASE AND SUBMIT THREE (3) SETS OF PLOTTED PRINTS & A DATA DISK FOR RECORD PURPOSES. 10. PROTECTION
- A. CONTRACTOR SHALL PROPERLY PROTECT ALL WORK AND EQUIPMENT TO PREVENT OBSTRUCTION, DAMAGE OR LOSS. ALL CONDUIT OPENINGS SHALL BE CLOSED WITH CAPS OR PLUGS DURING INSTALLATION. ALL EQUIPMENT SHALL BE TIGHTLY COVERED WITH APPROVED MATERIAL AND PROTECTED AGAINST DIRT, WATER OR MECHANICAL INJURY. AT FINAL COMPLETION, ALL WORK SHALL BE THOROUGHLY CLEANED AND DELIVERED IN PERFECT, UNBLEMISHED CONDITION.
- B. PROVIDE BARRICADES AND LIGHTS (IF REQUIRED) AROUND ALL WORK AREAS TO PROTECT PEDESTRIAN TRAFFIC AND TO PREVENT UNAUTHORIZED PEDESTRIAN ACCESS. PROTECTION SHALL MEET THE REQUIREMENTS OF THE LOCAL AND STATE REGULATIONS AND GOVERNMENT BODIES.
- C. ALL DAMAGE TO THE BUILDINGS, THEIR MECHANICAL AND ELECTRICAL SYSTEMS OR SURROUNDINGS, RESULTING FROM CONTRACTOR'S FAILURE TO ADEQUATELY PROTECT THE WORK, SHALL BE REPAIRED OR REPLACED AS DIRECTED, AT NO ADDITIONAL COST OWNER, INCLUDING ANY WORK DAMAGED IN ORDER TO MAKE GOOD SUCH DEFECTS.
- 11. DEMOLITION REFER TO GENERAL DEMOLITION NOTES
- 12. <u>RIGGING</u>
  - A. THE CONTRACTOR SHALL PERFORM ALL RIGGING REQUIRED TO COMPLETE ALL WORK UNDER THIS
  - B. THE CONTRACTOR SHALL PROVIDE REQUIRED TEMPORARY SUPPORTS, EQUIPMENT, ETC. REQUIRED FOR THE RIGGING OPERATIONS AND REMOVE SAME AFTER THE RIGGING IS COMPLETED.
  - C. DISCONNECT AND REMOVE ANY PIPING, EQUIPMENT, LIGHT FIXTURES, ETC. REQUIRED TO INSTALL THE NEW WORK AND REINSTALL SAME AFTER THE WORK IS COMPLETED. D. PROTECT ALL FINISHED FLOOR SURFACES DURING THE RIGGING OPERATIONS.

### 13. CUTTING AND PATCHING

- A. THE CONTRACTOR SHALL PERFORM ANY CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF THE WORK.
- B. ALL HOLES FOR THE NEW PIPING AND CONDUIT SHALL BE CORE BORED.
- C. ALL PATCHING SHALL BE DONE TO MATCH THE ADJOINING SURFACES IN MATERIALS, TEXTURE, AND
- D. THE CONTRACTOR SHALL PATCH AND SEAL ALL WALLS, FLOORS, AND CEILING (DRYWALL, LAY-IN, ETC.) WHERE EXISTING ITEMS SUCH AS PIPING, HANGERS, SUPPORTS, ETC. ARE REMOVED UNDER THIS
- E. CONTRACTOR SHALL LEAVE THEIR WORK AT ALL TIMES IN A SAFE AND CLEAN CONDITION READY FOR 14. SLEEVES
- A. THE CONTRACTOR SHALL PROVIDE SLEEVES FOR ALL NEW PIPING THROUGH WALLS AND FLOORS.
- B. PIPE SLEEVES SHALL BE SCHEDULE 40 STEEL PIPE. SLEEVES SHALL BE ONE INCH (1") LARGER THAN THE DIAMETER OF THE PIPING OR INSULATED PIPING.
- C. SLEEVES THROUGH FLOORS SHALL EXTEND 1" ABOVE THE FINISHED FLOOR SURFACE.

### 15. FIRE RATED SEALANT

- A. UNLESS OTHERWISE INDICATED, THE CONTRACTOR SHALL IN ALL LOCATIONS NEW AND EXISTING CAULK THE SPACE BETWEEN THE SLEEVES AND THE PIPING (INSULATED OR NON-INSULATED) WITH UL APPROVED FIRESTOP SEALANTS AS MANUFACTURED BY HILTI CORPORATION, JOHNS MANVILLE, 3M, OR STI (SPECIFIED TECHNOLOGIES, INC.). SEALANT SHALL BE INTUMESCENT AND TESTED FOR USE IN UL TESTED SYSTEMS FOR FIRE AND SMOKE.
- B. ALL PRODUCTS SHALL BE INSTALLED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S INSTRUCTIONS. SUBMIT CAULK MANUFACTURER'S PRODUCT DATA FOR APPROVAL.

- 16. <u>BOLTS</u>
- 17. WELDING
- PROCEDURE AND FOR 1 HOUR AFTER END OF PROCEDURE.
- 18. MISCELLANEOUS STEEL WORK SUPPORTS FOR PIPING, CLOSED CIRCUIT COOLER, ETC.

- B. SHOULD A CONTRACTOR CHOOSE TO USE ANY COMPONENT OF THE PERMANENT HVAC SYSTEM (I.E.

RATINGS AS SCHEDULED.

OPERATION OF THE EQUIPMENT.

## 20. ELECTRICAL TECHNICAL PROVISIONS FOR MECHANICAL WORK

22. CLEANING AND FINAL CLEANUP

AS DIRECTED.

FURNISHED, OMITTING DUPLICATES.

DUCTS. CONDUITS. AND MANHOLES.

INTERNATIONAL ELECTRICAL CODE

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21. IDENTIFICATION

BOLT STUDS AND NUTS SHALL BE USED FOR ALL FLANGES AND FOR FLANGED EQUIPMENT CONNECTIONS. BOLT-STUDS AND HEX-NUTS SHALL BE MADE OF CARBON STEEL BOLTING ASTM A-325

A. ALL WELDING, SHOP OR FIELD, SHALL BE DONE BY A CERTIFIED LICENSED WELDER FOLLOWING STANDARD PRACTICES ESTABLISHED BY THE AMERICAN WELDING SOCIETY. B. DURING ALL FIELD WELDING A FIRE WATCH SHALL BE MAINTAINED DURING THE ENTIRE WELDING

A. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MISCELLANEOUS STEEL REQUIRED FOR THE INSTALLATION OF THE WORK UNDER THIS CONTRACT. WORK SHALL INCLUDE BUT NOT BE LIMITED TO

B. UNLESS OTHERWISE INDICATED, ALL STRUCTURAL STEEL SHALL BE ASTM-A36 WITH HOT DIPPED GALVANIZED FINISH. WELDS SHALL BE FINISHED WITH TWO (2) COATS OF ZINC RICH PAINT. 19. RESTRICTIONS ON EARLY USE OF HVAC EQUIPMENT

A. THE HVAC EQUIPMENT PROVIDED UNDER THIS CONTRACT SHALL NOT BE OPERATED PRIOR TO THE COMPLETION OF CONSTRUCTION OF THE BUILDING FOR REASONS OTHER THAN TESTING AND BALANCING OF THE SYSTEMS, UNLESS SPECIFICALLY DIRECTED AND/OR APPROVED BY THE OWNER. THIS SPECIFICALLY PROHIBITS USE OF PERMANENT EQUIPMENT FOR THE PURPOSES OF VENTILATING, HEATING AND DEHUMIDIFYING THE BUILDING WHILE UNDER CONSTRUCTION.

CONDENSING UNITS, PUMPS, AIR HANDLERS, AIR CONDITIONERS, ETC.) FOR PURPOSES OTHER THAN STATED ABOVE, THEY SHALL ASSUME FULL RESPONSIBILITY FOR REPLACING OR REPAIRING ANY EQUIPMENT MATERIAL OR FINISHES, DAMAGED AS A RESULT OF THE USE AND PAY ALL COSTS ASSOCIATED WITH THE ACTION REQUIRED TO MAKE THE EQUIPMENT "LIKE NEW" CONDITIONS AT THE END OF THE PROJECT. THIS INCLUDES CLEANING OF DUCTS AND COILS, PROVIDE MERV 9 FILTERS IN THE AIR HANDLING EQUIPMENT DURING OPERATION, REPLACEMENT OF MOTORS, EXTENSION OF WARRANTIES, PAYMENT OF DESIGN PROFESSIONAL FEES REQUIRED TO INVESTIGATE AND ENFORCE THIS REQUIREMENT, AND THE CORRECTION OF ANY OTHER DETRIMENTAL CONDITIONS WHICH IS DETERMINED BY THE DESIGN PROFESSIONALS TO BE RELATED TO THE EARLY USE OF THE EQUIPMENT. PROVIDE FILTERS AT UNIT TURNOVER WITH MERV

C. SHOULD THE EARLY USE OF EQUIPMENT RESULT IN MANUFACTURER'S WARRANTY BEING VOID, THE CONTRACTOR SHALL ASSUME THE COST OF FURNISHING AN EQUIVALENT WARRANTY TO THE OWNER. D. SHOULD FAN MOTORS BE OPERATED DURING CONSTRUCTION, ANY MOTOR DETERMINED BY OWNER OR DESIGN PROFESSIONAL TO BE EXPOSED TO AIRBORNE CONSTRUCTION DUST. SUCH AS GENERATED BY DRYWALL SANDING, SHALL BE INSPECTED BY AN INDEPENDENT 3RD PARTY FOR DAMAGE. THE COSTS OF ALL REQUIRED CORRECTIVE ACTIONS SHALL BE BORNE BY THE CONTRACTOR RESPONSIBLE FOR THE

ALL ELECTRICAL WORK ASSOCIATED WITH THE PROJECT SHALL BE BY ELECTRICAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL COORDINATE REQUIREMENTS AND SCHEDULE WITH THE ELECTRICAL

A. ALL PIPING SYSTEMS SHALL BE LABELED TO COMPLY WITH OSHA AND ANSI/ASME A13.1-2007 COLOR CODE STANDARDS FOR THE IDENTIFICATION OF SYSTEMS.

B. THE MARKING SYSTEM SHALL IDENTIFY THE CONTENTS, SIZE, DIRECTION OF FLOW, AND OPERATING CHARACTERISTICS (I.E. PRESSURE AND/OR TEMPERATURE).

C. ALL VALVES AND CONTROLS SHALL BE LABELED USING PLASTIC I.D. TAGS SECURELY CONNECTED TO THE SPECIFIC ITEM USING BRASS CHAIN OR "S" HOOKS. THE CONTRACTOR SHALL PROVIDE A LIST OF EACH TAGGED ITEM AND ITS FUNCTION AND A VALVE CHART IN THE MAIN MECHANICAL ROOM.

D. ALL EQUIPMENT MUST BE IDENTIFIED USING PHENOLIC NAMEPLATES AND LABELED IN ACCORDANCE WITH THE NOMENCLATURE USED ON THE DRAWINGS AND COMPATIBLE WITH THE MIMS SYSTEM. E. LABELS SHALL BE PUNCHED AND ATTACHED TO EQUIPMENT WITH MECHANICAL FASTENERS.

A. CONTRACTOR SHALL, AT ALL TIMES, KEEP THE PREMISES FREE OF ALL WASTE OR SURPLUS MATERIALS, RUBBISH, AND DEBRIS WHICH IS CAUSED BY THEIR EMPLOYEES OR RESULTING FROM THEIR WORK. ALL AREAS SHALL BE BROOM SWEPT CLEAN AT THE END OF EACH WORK DAY.

B. AFTER ALL EQUIPMENT HAS BEEN INSTALLED, CONTRACTOR SHALL REMOVE ALL STICKERS, RUST STAINS, LABELS, TEMPORARY COVERS, ETC.

C. ALL FOREIGN MATTER SHALL BE BLOWN OUT OR FLUSHED OUT OF ALL DEVICES, CONDUITS, ETC.

D. IDENTIFICATION PLATES ON ALL EQUIPMENT SHALL BE FREE OF PAINT AND SHALL BE POLISHED.

E. CONTRACTOR SHALL CLEAN ALL CONDUIT, TUBING, EQUIPMENT, ETC. AT THE COMPLETION OF THEIR CONTRACT, AND ALL WORK SHALL BE TURNED OVER TO THE OWNER CLEAN AND IN PERFECT CONDITION, READY FOR SATISFACTORY SERVICE.

F. DURING THE PROGRESS OF THE WORK, CONTRACTOR SHALL REMOVE ALL OF THEIR RUBBISH, CRATING AND PACKING MATERIALS, METAL SCRAP, AND ANY AND ALL DEBRIS FROM THE BUILDING, NOT ALLOWING IT TO ACCUMULATE AND CAUSE FIRE AND ACCIDENT HAZARDS.

23. INSTRUCTIONS TO OWNER. OPERATING MANUALS. CATALOGS

A. THE CONTRACTOR SHALL FURNISH THREE SETS OF PRINTED OPERATING INSTRUCTIONS, MAINTENANCE INSTRUCTIONS, MAINTENANCE SERVICE SCHEDULES AND WIRING DIAGRAMS OF ALL CONTROL SYSTEMS. MOUNT AN ADDITIONAL COMPLETE SET OF OPERATING INSTRUCTIONS AND MAINTENANCE SERVICE SCHEDULES IN A METAL FRAME WITH A GLASS FRONT AND LOCATE IT ON THE WALL NEAR THE EQUIPMENT

B. THREE COPIES OF MANUFACTURER'S SPARE PARTS LIST COVERING EACH ITEM OF EQUIPMENT SHALL BE

C. THE CONTRACTOR SHALL FURNISH THREE SETS OF BINDERS INCLUDING ALL CATALOG CUTS AND SHOP DRAWINGS OF EQUIPMENT INSTALLED. ALL SHOP DRAWINGS SHALL BE AS APPROVED BY THE ENGINEER. IN ADDITION. THREE SETS OF RECORD DRAWINGS SHALL BE FURNISHED SHOWING ALL WORK AS ACTUALLY INSTALLED WITH DIMENSIONS FROM FIXED LOCATIONS INCLUDING ANY UNDERGROUND SITE WORK, PIPES,

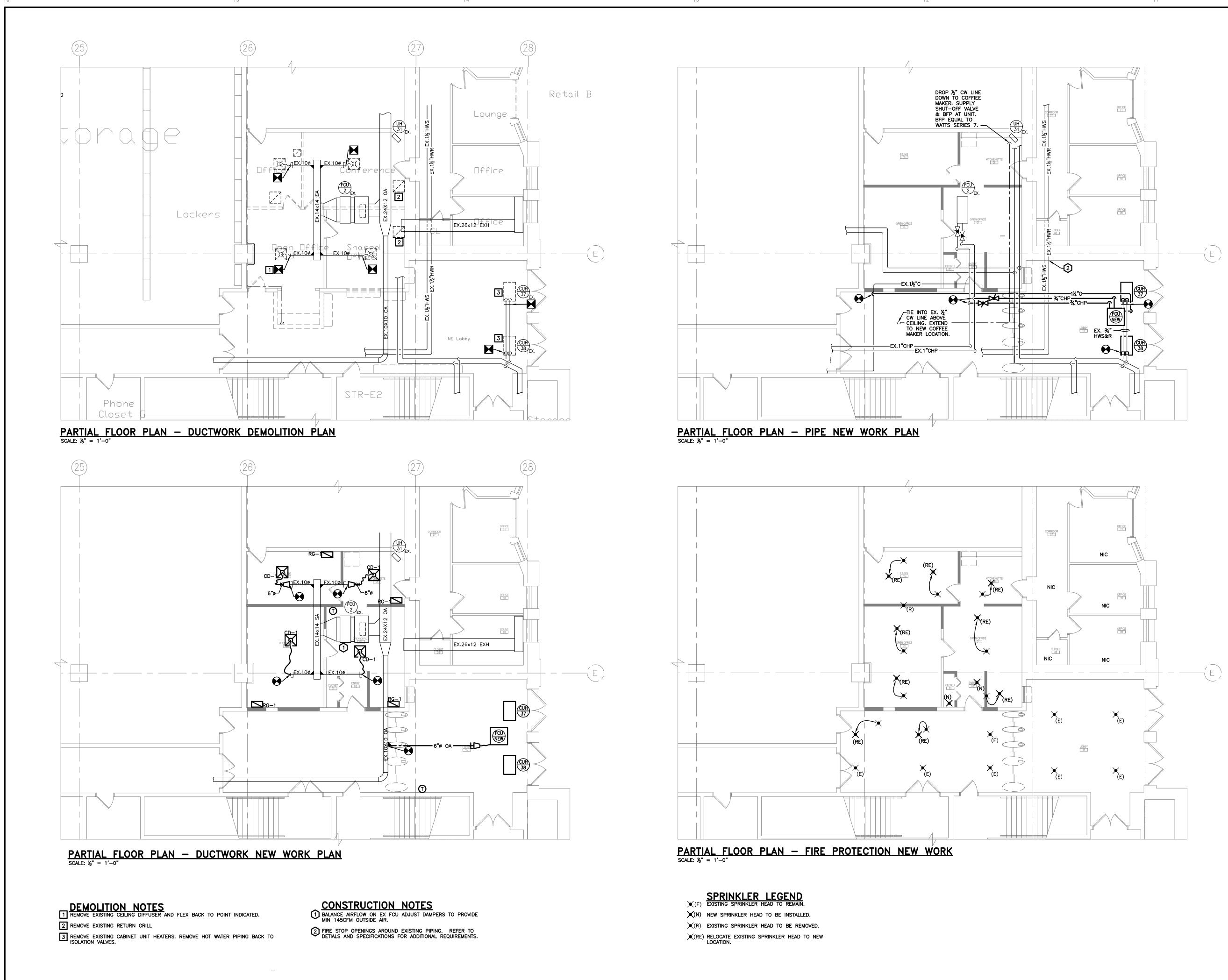
D. THE CONTRACTOR SHALL FURNISH ONE SET OF ALL OF THE ABOVE IN ELECTRONIC FORMAT.

E. THE CONTRACTOR SHALL GIVE INSTRUCTIONS TO THE OWNER'S PERSONNEL WHO WILL OPERATE THE EQUIPMENT. SUCH INSTRUCTION TO COVER A PERIOD OF NOT LESS THAN EIGHT (8) HOURS. EQUIPMENT MANUFACTURER'S REPRESENTATIVES SHALL BE PRESENT DURING THE INSTRUCTION PERIOD. ADDITIONAL TIME, IF REQUIRED, SHALL BE SPENT TO FULLY PREPARE THE OWNER TO OPERATE AND MAINTAIN THE MECHANICAL AND ELECTRICAL SYSTEMS. INSTRUCTION DAYS ARE TO BE SCHEDULED BY THE ENGINEER.

## CODES AND STANDARDS

AL BUILDING CODE 2015 (IBC)	
ONAL PLUMBING CODE 2015	
ONAL FUEL GAS CODE 2015	
NAL MECHANICAL CODE 2015	
2015 / NFPA 70-2014 NATIONAL ELECTRICAL CODE	
NERGY CONSERVATION CODE 2015	
EXISTING BUILDING CODE 2015	
ATIONAL FIRE CODE 2015	

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DIMITRI J. VERVERELLI, INC. CONSULTING ENGINEERS PHILADELPHIA, PENNSYLVANIA
SEAL
SUBMISSION
NO:         ISSUE:         DATE:           1         Review Set         06.24.21           2         100% BID SET         08.13.21
All conditions must be verified by the contractor at the site. Notify the Architect of any discrepancies before proceeding with the work.
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PROJECT NO.: 20230 DJVI: 2114
DATE: AUGUST 13, 2021 SCALE: AS NOTED
DRAWN: ASP/DWG DRAWING TITLE:
MECHANICAL
COVER SHEET
COVER SHEET



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CHILL	ED WATE	R, COND	ENSER WATER,	& HOT \	WATER	(40°F TH	ROUGH 2	210 <b>°</b> F) VA	LVE SC	HEDULE (2"	& SMALLER)
SERVICE	VALVE TYPE	RATING	BODY & BONNET	BALL & STEM	SEAT & PACKING SEALS	LATCH-LOCK LEVER & NUT	DISC HOLDER	DISC	PACKING	BRAND	MODEL OR FIGURE NO.
SHUTOFF	THREADED OR SOLDER ENDS BALL	600 PSI CWP, 150 PSI STEAM	2-PIECE, BRONZE	316 SS EXTENDED STEM & BALL	RPTFE	STAINLESS STEEL	N/A	N/A	N/A	APOLLO VALVES	77C-140 OR 240 (SIZE)-04-10-27 A SERIES
SHUTOFF-GAUGE & INSTRUMENT ISOLATION	THREADED OR SOLDER ENDS BALL	600 PSI CWP, 150 PSI STEAM	2-PIECE, BRONZE	316 SS EXTENDED STEM & BALL	RPTFE	STAINLESS STEEL	N/A	N/A	N/A	APOLLO VALVES	77C-140 OR 240 (SIZE)-04-10-27 A SERIES
SHUTOFF	PRESS END BALL	250 PSI CWP	2-PIECE, BRONZE	316 SS EXTENDED STEM & BALL	RPTFE	STAINLESS STEEL	N/A	N/A	N/A	APOLLO VALVES	77W–140(SIZE)–10 50 SERIES
SHUFOFF-GAUGE & INSTRUMENT ISOLATION	PRESS END BALL	250 PSI CWP	2-PIECE, BRONZE	316 SS EXTENDED STEM & BALL	RPTFE	STAINLESS STEEL	N/A	N/A	N/A	APOLLO VALVES	77W–140(SIZE)–10 50 SERIES
LOW POINT DRAIN & HIGH POINT VENT	THREADED OR SOLDER ENDS BALL	600 PSI CWP, 150 PSI STEAM	2-PIECE, BRONZE	316 SS EXTENDED STEM & BALL	RPTFE	STAINLESS STEEL	N/A	N/A	N/A	APOLLO VALVES	70-140 OR 240 (SIZE)-04-27-HC SERIES
LOW POINT DRAIN & HIGH POINT VENT		250 PSI CWP	2-PIECE, BRONZE	316 SS EXTENDED STEM & BALL	RPTFE	STAINLESS STEEL	N/A	N/A	N/A	APOLLO VALVES	77W-140(SIZE)-04-10-HC SERIES
BALANCING	THREADED OR SOLDER ENDS MANUAL BALANCING	300 PSI	AMETAL	AMETAL	EPDM	N/A	HANDWHEEL	AMETAL	N/A	VICTAULIC TOUR & ANDERSON	TA/IMI SERIES 78K, SERIES 786, SERIES 787

(#)

CARRIER 42WKN20AAMNA

HEAD LOSS (FT WG) CAPACITY ELECTRICAL (MBH) V/PH/HZ & MODEL NO.

HVAC/PLUMBING THERMAL INSULATION SCHEDULE					
DESCRIPTION	INSULATION TYPE	THICKNESS	COVERING/JACKET	HEAT TRACE	
HEATING HOT WATER PIPING	RIGID FIBERGLASS JOHNS MANVILLE MICROLOK	2"	AP-T PLUS	NO	
CHILLED WATER PIPING	RIGID FIBERGLASS JOHNS MANVILLE MICROLOK	1½"	AP-T PLUS	NO	
AC CONDENSATE	RIGID FIBERGLASS JOHNS MANVILLE MICROLOK	1"	AP-T PLUS	NO	
DOMESTIC COLD WATER	RIGID FIBERGLASS JOHNS MANVILLE MICROLOK	1"	AP-T PLUS	NO	
DOMESTIC HOT WATER & HW RETURN	RIGID FIBERGLASS JOHNS MANVILLE MICROLOK	1"	AP-T PLUS	NO	
SUPPLY AIR DUCTWORK	FIBERGLASS WRAP JOHNS MANVILLE MICROLITE TYPE 75	1½"	FSK	N/A	
NOTE:					

PROVIDE LABELS ON OUTER JACKETING OF INSULATION INDICATING FLOW DIRECTION AND TYPE OF PIPING.

FAN SPEED HP (DEG. F)

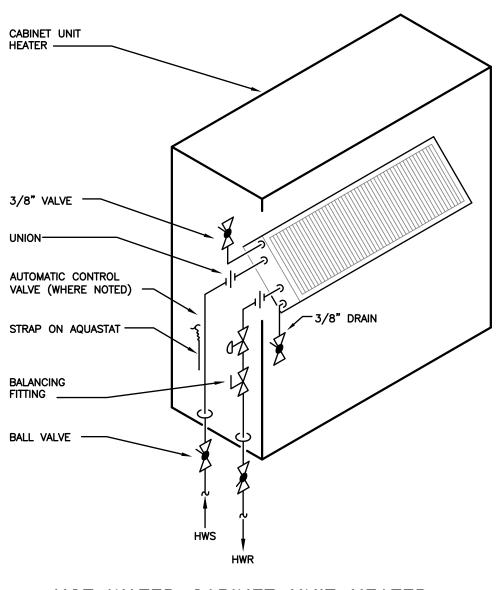
ROOM SERVED (CFM)

NO.

FCU-NEW

	AIR TERMINAL DEVICE
DEVICE	DESCRIPTION
CD-1	TITUS MODEL TMS DIFFUSERS, STEEL CONST SIZE WITH BORDER TYPE FOR LAY IN CEILIN NECK (SIZE AS INDICATED ON DRAWINGS) FI
RG-1	TITUS MODEL PAR RETURN GRILLE, STEEL C PERFORATED FACE, BORDER TYPE FOR LAY- PROVIDE ADDITIONAL CEILING TEES WHEN SIZ TILE, FINISH IN #26 WHITE. SIZE INDICATED
NOTE:	

JAPAN ALL INTERNAL COMPONENTS OF AIR TERMINAL DEVICES

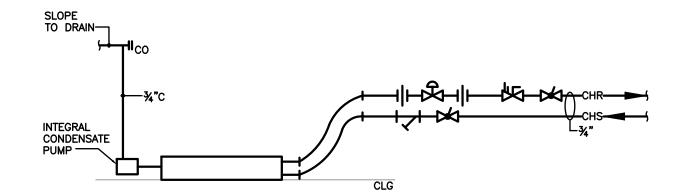


	CABINET UNIT HEATER SCHEDULE									
NO.	ROOM SERVED	CAPACITY (MBH)	CFM	RPM	GPM @ 150°F	COIL PD. (FT. HD.)	MOTOR HP	Motor V/Ph/Hz	TYPE	MANUFACTURER & MODEL NO.
37	37 E 061	14.3	230	HIGH	0.84	0.06	¥15	120/1/60	1 ROW	VULCAN, RC-1200 02
38	37 E 061	14.3	230	HIGH	0.84	0.06	¥15	120/1/60	1 ROW	VULCAN, RC-1200 02

2 PIPE FAN COIL UNIT SCHEDULE (COOLING ONLY)

LOBBY 630 HIGH 1/6 80°F/ 45°F 3.7 2.4 18.6 120/1/60

GPM



FAN COIL PIPING DETAIL

## SEQUENCE OF OPERATIONS

THE DIRECT DIGITAL AUTOMATIC TEMPERATURE CONTROLS SHALL BE THROUGH NEW NETWORK CONTROL UNITS (NCU'S) AND THE EXISTING METASYS FACILITY MANAGEMENT SYSTEM (FMS) BY JOHNSON CONTROLS, INC.

### A. SYSTEM INOPERATIVE

- 1. WHEN THE SYSTEM IS INDEXED TO INOPERATIVE, THE FAN COIL UNIT FANS SHALL STOP AND THE TWO POSITION CHILLED WATER CONTROL VALVE SHALL CLOSE.
- 2. THE FAN COIL UNITS SHALL BE INDEXED TO INOPERATIVE UNDER ANY OF THE FOLLOWING CONDITIONS. • WHEN THE SPACE IS UNOCCUPIED AS DETERMINED BY THE TIMECLOCK ROUTINE.

### B. SYSTEM OPERATIVE

- 1. FCU-NEW
  - a. WHEN THE SYSTEM IS INDEXED TO OPERATIVE, THE FAN SHALL START AND CONTINUE TO OPERATE
- b. ON A RISE IN SPACE TEMPERATURE ABOVE 75 DEGREES F, FAN COIL UNIT, FCU-NEW, THE CONTROL VALVE SHALL OPEN.

N.T.S.

- A. <u>GENERAL</u>

## SCHEDULE

NSTRUCTION, 24x24 MODULE LING APPLICATION, ROUND FINISH IN #26 WHITE. CONSTRUCTION, 3/6" Y-IN CEILING APPLICATION, SIZE IS LESS THAN FULL ON DRAWINGS.

HOT WATER CABINET UNIT HEATER PIPING DIAGRAM

## CABINET UNIT HEATER SEQUENCE OF CONTROL

1. THE DIRECT DIGITAL AUTOMATIC CONTROLS SHALL BE THROUGH NEW NETWORK CONTROL UNITS (NCU) AND THE EXISTING SIEMENS BUILDING AUTOMATION SYSTEM (BAS).
 MONITOR THE SPACE TEMPERATURE THROUGH LOCAL THERMOSTATS, T
 ON A DROP IN PLENUM TEMPERATURE BELOW 70°F, THE HOT WATER ISOLATION VALVE SHALL
 WHEN FACTORY SUPPLIED, STRAP ON AQUASTAT INDICATES WATER TEMPERATURE ABOVE 110°F (ADJUSTABLE) THE UNIT HEATER FAN SHALL START.

DUCTWOR	<u>K</u>
	NEW DUCTWORK
	EXISTING DUCTWORK
	EXISTING DUCTWORK TO BE REMOVED RETURN AIR OR MAKE-UP AIR
<b>→</b> ×	EXHAUST AIR
$\bowtie$	SUPPLY AIR OR OUTSIDE AIR DUCT/DIFFUSER
	RETURN AIR DUCT/ GRILLE
$\overline{\square}$	EXHAUST AIR DUCT/ GRILLE
	CHAMFER CONNECTION WITH VOLUME
	DAMPER BELLMOUTH CONNECTION WITH
Ť	VOLUME DAMPER FLEXIBLE DUCT
	RECTANGLE TO ROUND TRANSITION
	VOLUME DAMPER
<b>_</b>	CAP DUCT
	DIRECTION OF FLOW
\$ \$	BREAK LINE
	CONCENTRIC REDUCER/INCREASER
d	ECCENTRIC REDUCER/INCREASER
	FLEXIBLE CONNECTION
$\neg \Box \neg \neg$	
	-RISE IN DUCT
TAT FD/AD	
	FIRE DAMPER WITH ACCESS DOOR
	DUCTWORK ROOF SUPPORT
<u>/</u>	CONTROL DAMPER
	DAMPER NUMBER
	MOTORIZED CONTROL DAMPER
,	
DEVICES	
	CO2 SENSOR
(DPS)	DIFFERENTIAL PRESSURE SENSOR
(SD)	DUCT MOUNTED SMOKE DETECTOR
(FS)	FLOW SENSOR
	FREEZESTAT
Ē	HUMIDSTAT
<b>PS</b>	PRESSURE GAUGE
GD TS	SMOKE DETECTOR
	THERMOSTAT
MISC DR	AWING SYMBOLS
	CONSTRUCTION NOTE
₩ ₩	DEMOLITION NOTE
<u> </u>	REVISION NOTE
	— Equipment type — Equipment Number
XX	— DETAIL NUMBER — REFERENCED DRAWING
	— Section Number — Referenced Drawing
	POINT OF CONNECTION NEW
	EXTENT OF DEMOLITION
EX.	EXISTING TO REMAIN
(R)	EXISTING TO BE REMOVED
(ER) (F)	EXISTING TO BE RELOCATED
(r) (N)	NEW
ф.	SQUARE FOOT
ø	DIAMETER

## MECHANICAL LEGEND

## <u>PIPING</u>

 $-\square$ 

PUMP

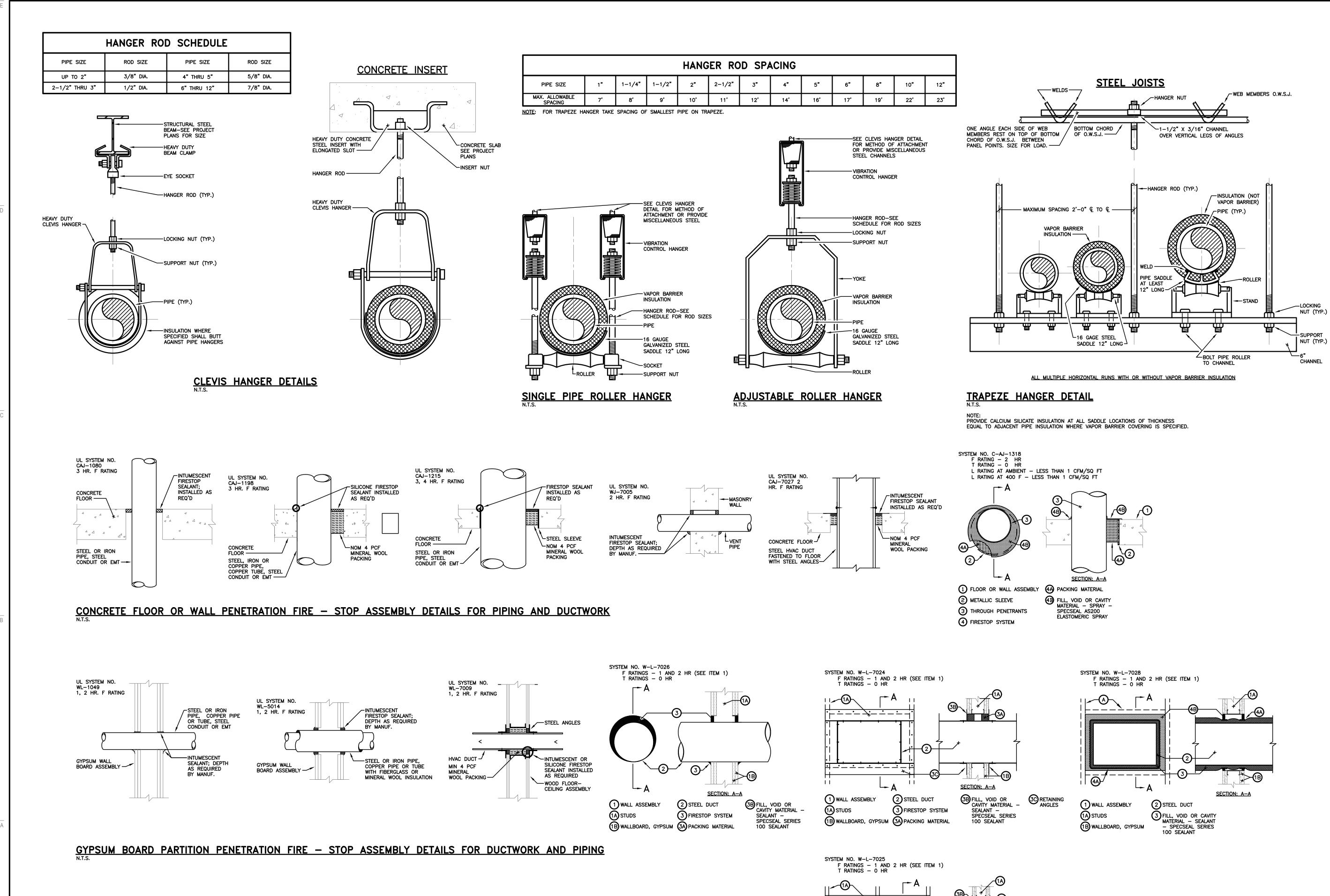
AIR FLOW STATION

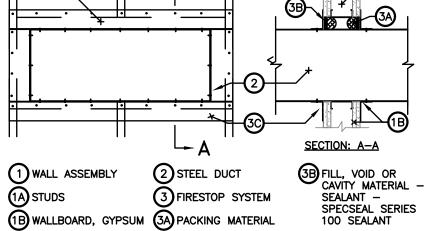
С	CONDENSATE DRAIN
CHS CHR	CHILLED WATER SUPPLY CHILLED WATER RETURN
CWR	CONDENSER WATER RETURN
CWS HWS	CONDENSER WATER SUPPLY HEATING HOT WATER SUPPLY
HWR	HEATING HOT WATER RETURN
LPC	LOW PRESSURE STEAM CONDENSATE
LPS MPS	LOW PRESSURE STEAM MEDIUM PRESSURE STEAM
MPS	MEDIUM PRESSURE STEAM CONDENSATE
R RD	REFRIGERANT REFRIGERANT DISCHARGE
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
STM V	STEAM VENT
	NEW PIPE
	EXISTING PIPE
	EXISTING PIPE TO BE REMOVED
•	
<u> </u>	AIR VENT HIGH CAPACITY
	AIR VENT LOW CAPACITY
	AUTOMATIC CONTROL 2-WAY VALVE
——————————————————————————————————————	AUTOMATIC CONTROL 3-WAY VALVE
_ . <del>ሮ</del> .	
	AUTOMATIC CONTROL BUTTERFLY VALVE
	BALANCING VALVE
	BALL VALVE
/ <b>&gt;</b>	BUTTERFLY VALVE
	CHECK VALVE
Æ	GAS COCK
	GATE VALVE
	GLOBE VALVE
	GLOBE STYLE CHECK VALVE
۸	RELIEF VALVE
.7.	
	TRIPLE DUTY VALVE
	SOLENOID VALVE
	WYE STRAINER W/ BLOWDOWN VALVE
Pij	AND HOSE END CONNECTION
<del></del>	WYE STRAINER
<b>;</b>	BREAK LINE
<b>&gt;</b>	DIRECTION OF FLOW
<u>_</u>	CAP PIPE
	FLANGED CONNECTION
	FLEXIBLE CONNECTION INSERTION PLUG FOR
<u> </u>	TEMPERATURE/PRESSURE GAUGE
<del></del>	PIPE BRANCH OFF BOTTOM
<b></b>	PIPE DROP
o	PIPE RISE
	REDUCER/INCREASER CONCENTRIC
	REDUCER/INCREASER ECCENTRIC
.1.	
	UNION
    	UNION PRESSURE GAUGE W/ ISOLATION VALVE
	PRESSURE GAUGE W/ ISOLATION VALVE
	PRESSURE GAUGE W/ ISOLATION VALVE
	PRESSURE GAUGE W/ ISOLATION VALVE PUMP SUCTION DIFFUSER W/ DRAIN VALVE
	PRESSURE GAUGE W/ ISOLATION VALVE PUMP SUCTION DIFFUSER W/ DRAIN VALVE AND HOSE END CONNECTION
	PRESSURE GAUGE W/ ISOLATION VALVE PUMP SUCTION DIFFUSER W/ DRAIN VALVE
	PRESSURE GAUGE W/ ISOLATION VALVE PUMP SUCTION DIFFUSER W/ DRAIN VALVE AND HOSE END CONNECTION
	PRESSURE GAUGE W/ ISOLATION VALVE PUMP SUCTION DIFFUSER W/ DRAIN VALVE AND HOSE END CONNECTION THERMOMETER W/ THERMOWELL
	PRESSURE GAUGE W/ ISOLATION VALVE PUMP SUCTION DIFFUSER W/ DRAIN VALVE AND HOSE END CONNECTION THERMOMETER W/ THERMOWELL
	PRESSURE GAUGE W/ ISOLATION VALVE PUMP SUCTION DIFFUSER W/ DRAIN VALVE AND HOSE END CONNECTION THERMOMETER W/ THERMOWELL
	PRESSURE GAUGE W/ ISOLATION VALVE PUMP SUCTION DIFFUSER W/ DRAIN VALVE AND HOSE END CONNECTION THERMOMETER W/ THERMOWELL NT VARIABLE AIR VOLUME BOX VARIABLE AIR VOLUME BOX WITH
	PRESSURE GAUGE W/ ISOLATION VALVE PUMP SUCTION DIFFUSER W/ DRAIN VALVE AND HOSE END CONNECTION THERMOMETER W/ THERMOWELL <b>NT</b> VARIABLE AIR VOLUME BOX
	PRESSURE GAUGE W/ ISOLATION VALVE PUMP SUCTION DIFFUSER W/ DRAIN VALVE AND HOSE END CONNECTION THERMOMETER W/ THERMOWELL NT VARIABLE AIR VOLUME BOX VARIABLE AIR VOLUME BOX WITH

AD	ACCESS DOOR
AFCS	AIR FLOW CONTROL STATION
AFF AFS	ABOVE FINISHED FLOOR AIR FLOW MONITOR STATION
AHU	AIR HANDING UNIT
AS	AIR SEPARATOR
ASC BAS	AIR SCOOP BUILDING AUTOMATION SYSTEM
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
btu Btuh	BRITISH THERMAL UNIT BRITISH THERMAL UNIT PER HOUR
C	CONDENSATE DRAIN
CC	COOLING COIL
	CEILING DIFFUSER CUBIC FEET PER MINUTE
CFM CH	COBIC FEET PER MINUTE
CO	CLEAN OUT
CONN	CONNECTION
CSF CU	CHEMICAL SHOT FEEDER
CUH	CABINET UNIT HEATER
CV	COEFFICIENT, VALVE FLOW
CVB	CONSTANT VOLUME BOX
DB	DRY BULB TEMPERATURE
DEG DIA	DEGREES (FAHRENHEIT ) DIAMETER
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EG	EXHAUST GRILLE
elev Er	ELEVATION EXHAUST REGISTER
	ENERGY RECOVERY UNIT
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
EXH	EXHAUST
EXT F	EXPANSION TANK FAHRENHEIT
r FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FMS	FACILITIES MANAGEMENT SYSTEM
FOB FOT	FLAT ON BOTTOM
FPI	FINS PER INCH
FPU	FAN POWERED UNIT
FSD FT	FIRE SMOKE DAMPER
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GPM HP	GALLONS PER MINUTE HORSEPOWER
HZ	HERTZ
IN.WG.	INCHES WATER GAUGE
LAT LD	LEAVING AIR TEMPERATURE
	LOUVER
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSAND BTU PER HOUR
MC MOD	MECHANICAL CONTRACTOR
MUA	MAKE UP AIR
NC	NORMALLY CLOSED
NK NO	NECK NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
	OUTSIDE AIR INTAKE
PH PSI	PHASE POUNDS PER SQUARE INCH
RA	RETURN AIR
RAD	RADIATION
RCVD RF	REMOTE CONTROLLED VOLUME DAMI
RF RG	RETURN FAN RETURN GRILLE
RH	REHEAT COIL
RR	RETURN REGISTER
SA SCD	SOUND ATTENUATOR SMOKE CONTROL DAMPER
SD SD	SMOKE DETECTOR
SF	SUPPLY FAN
SG	SUPPLY GRILLE
SP SR	STATIC PRESSURE SUPPLY REGISTER
TEMP	TEMPORARY
TG	TRANSFER GRILLE
UV V	UNIT VENTILATOR VOLTS
VAV	VARIABLE AIR VOLUME BOX
VD	VOLUME DAMPER
VFD W/	VARIABLE FREQUENCY DRIVE
WB	WET BULB TEMPERATURE

NOTE: THIS IS A GENERAL MECHANICAL LEGEND, ALL SYMBOLS, ABBREVIATIONS AND LINE DESIGNATIONS MAY NOT APPEAR ON THE DRAWINGS. SEE EQUIPMENT SCHEDULES FOR EQUIPMENT DESIGNATIONS.

KMA			
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MECHANICAL SCHEDULES & DETAILS			
M2.0			





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DUCTWORK	SPECIFICATIONS

### 1. SUBMITTALS

- A. THE CONTRACTOR SHALL TAKE NOTE THAT DUE TO THE LIMITED SPACE AVAILABLE SURROUNDING CERTAIN AREAS OF WORK, CLOSE COORDINATION OF THE WORK IS AN ABSOLUTE NECESSITY. THE CONTRACTOR SHALL SUBMIT DOUBLE-LINE DETAILED SHOP DRAWINGS IN  $3/8^{\circ} = 1^{\circ} - 0^{\circ}$  SCALE. PROPERLY IDENTIFYING FACH DUCT SECTION IN THE SEQUENCE TO BE ASSEMBLED IN THE FIELD INDICATING ALL TURNS IN DIRECTION OR ELEVATION. CLEARANCES WITH PIPING, BUILDING STRUCTURE, EQUIPMENT SUPPORTS, LIGHT FIXTURES, ETC. SHOP DRAWINGS SHALL ALSO ACKNOWLEDGE PIPING AND PIPE INSULATION, DUCT SUPPORTS, AND STANDING SEAMS OF DUCTWORK. WHERE DUCT SECTIONS CROSS STANDING SEAMS OR FLANGES OF OTHER DUCTWORK OR EXTERNAL REINFORCEMENTS. THEY SHALL BE COORDINATED IN A MANNER TO AVOID UNNECESSARILY LOWERING THE LEVEL OF NEW DUCTWORK TO A LEVEL UNACCEPTABLE TO THE PROFESSIONAL.
- B. THE CONTRACTOR SHALL SUBMIT SHOP STANDARDS TO THE PROFESSIONAL FOR REVIEW. SUBMITTAL SHALL INCLUDE SHEET METAL ACCESSORIES AND COMPONENTS AS SPECIFIED HEREIN.
- 2. SHEET METAL DUCTWORK
- A. ALL SHEET METAL WORK SHALL BE CONSTRUCTED OF STANDARD GAUGES OF GALVANIZED STEEL OR STAINLESS STEEL SHEETS WITH BRACING, REINFORCEMENT AND CONSTRUCTION DETAILS IN ACCORDANCE WITH THE LATEST ASHRAE HANDBOOK AND SMACNA "HVAC DUCT CONSTRUCTION STANDARDS", LATEST FDITION
- B. EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC DUTY OF THE SYSTEM AND THE SPECIFIC DUCT PRESSURE CLASSIFICATION AS SCHEDULED FOR THE PROJECT. WHERE NO SPECIFIC DUCT PRESSURE CLASS DESIGNATIONS ARE PROVIDED BY THE DESIGNER THE 2" STATIC PRESSURE CLASS IS THE BASIS OF COMPLIANCE WITH THESE STANDARDS REGARDLESS OF THE VELOCITY WITHIN THE
- C. ALL DUCTWORK SHALL BE SEALED PER SMACNA DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE MANUAL WITH A SEAL CLASS AND LEAKAGE CLASS AS SCHEDULED. SEALANTS SHALL BE SILICONE BASED. WATER BASED SEALANTS ARE NOT
- PROVIDE ALL DUCTWORK OFFSETS AS REQUIRED TO INSTALL DUCT SYSTEMS. WHERE DUCTWORK IS TO BE TIGHT TO STRUCTURE OR OTHER OBSTRUCTIONS, CONSTRUCT WITH FLAT SEAMS.
- E. DUCTWORK SHALL BE ADEQUATELY SUPPORTED BY RODS, BANDS OR OTHER METHODS APPROVED BY ENGINEER.
- F. ALL DUCTWORK DIMENSIONS ARE CLEAR AIR PASSAGE, UNLESS NOTED OTHERWISE
- G. SPLITS SHALL BE PROPORTIONAL BY AIRFLOW.
- H. FOR CHAMFERED FITTINGS FROM RECTANGULAR DUCT TO ROUND BRANCH DUCTS, PROVIDE DUCTMATE HIGH EFFICIENCY TAKEOFFS, WITH SEALED JOINTS. PROVIDE TAPERED HIGH EFFICIENCY TAKEOFFS WHERE RECTANGULAR DUCT HEIGHT IS NOT SUFFICIENT FOR STANDARD HIGH EFFICIENCY TAKEOFFS. PROVIDE TAKEOFFS WITH DAMPERS WHERE INDICATED.
- I. UNLESS NOTED OTHERWISE, PROVIDE AIRFOIL BLADE TURNING VANES ON ALL SQUARE ELBOWS. VANES AND VANE SUPPORTS SHALL BE INSTALLED WITH LEADING AND TRAILING EDGES PARALLEL TO DUCT SIDES. VANES AND SUPPORTS SHALL BE H-E-P, TURNING VANES AND RAILS BY AERO/DYNE COMPANY OR EQUAL BY DUCTMATE, L.C. WARD, OR APPROVED EQUAL. NO MITERED ELBOWS WITHOUT TURNING VANES SHALL BE ALLOWED UNLESS NOTED ON THE DRAWINGS.
- J. EXCEPT WHERE SQUARE ELBOWS ARE INDICATED ON THE DRAWINGS, BENDS IN LOW AND MEDIUM PRESSURE DUCTS SHALL BE MADE WITH A CENTER LINE RADIUS NOT LESS THAN 1-1/2 TIMES THE WIDTH OF THE DUCT. IF, BECAUSE OF STRUCTURAL OF OTHER LIMITATIONS, THE CENTER LINE RADIUS MUST BE LESS THAN 1-1/2 THE DUCT WIDTH, INTERIOR GUIDE VANES SHALL BE PROVIDED. ALL SQUARE ELBOWS SHALL BE CONSTRUCTED WITH LOW LOSS, SINGLE THICKNESS EXTENDED TRAILING EDGE INTERIOR GUIDE VANES.
- K. WHERE DUCTS OR FLUES ARE REDUCED OR INCREASED IN SIZE, THE SLOPE OF THE TAPERED SIDE SHALL NOT EXCEED 1 IN 5 AND MINIMUM LENGTH SHALL BE NOT LESS THAN 2 FEET. ATTENTION IS CALLED TO THIS REQUIREMENT PARTICULARLY WITH REGARD TO DUCTS CONNECTING TO SUPPLY AIR GRILLES.
- PROVISION SHALL BE MADE FOR THE INSTALLATION OF TEMPERATURE CONTROL SYSTEM DAMPERS SPECIFIED ELSEWHERE IN THE SPECIFICATION. DUCTS AND CASINGS SHALL BE REINFORCED WHERE NECESSARY FOR THE INSTALLATION OF CONTROL DEVICES, HERMOMETERS, AND SIMILAR EQUIPMENT, WHETHER FURNISHED UNDER THIS OR OTHER
- 3. FLEXIBLE DUCTWORK SHALL BE THERMAFLEX M-KC AS MANUFACTURED BY FLEXIBLE TECHNOLOGIES. FLEXIBLE DUCTWORK SHALL BE RATED FOR 10" POSITIVE AND 2 NEGATIVE STATIC PRESSURES. FLEXIBLE DUCTWORK SHALL NOT BE PERMITTED TO PENETRATE WALLS. PROVIDE GALVANIZED DUCT AT WALL PENETRATIONS AND SEAL AND SAFE WALL PENETRATIONS. MAXIMUM LENGTH ON FLEXIBLE DUCTWORK SHALL BE 8'-0". ALL FLEXIBLE DUCTWORK ELBOWS INCLUDING FLEX DUCT CONNECTIONS TO GRILLES AND DIFFUSERS SHALL BE REINFORCED WITH FLEXFLOW ELBOW SUPPORTS FOR REDUCED PRESSURE LOSSES.
- 4. AIR TERMINAL DEVICES SHALL BE AS SCHEDULED ON THE DRAWINGS BY TITUS OR EQUAL BY TUTTLE AND BAILEY. KRUEGER. OR PRICE.
- 5. BALANCING DAMPER
- A. MODEL NUMBERS ARE BASED ON DURO DYNE AND RUSKIN TO ESTABLISH TYPE AND QUALITY UNLESS OTHERWISE NOTED.
- B. BALANCING DAMPERS SHALL BE INSTALLED IN DUCTS IN ALL BRANCHES FROM MAINS AND RISERS, AND IN THE BRANCHES TO OUTLET AND INLET GRILLE OPENINGS. VOLUME DAMPERS IN DIFFUSER NECKS ARE SPECIFIED WITH THE DIFFUSERS ELSEWHERE IN THE SPECIFICATION. EXCEPT WHERE LOCATED CLOSE BEHIND GRILLES OR FIRE DAMPERS AND EXCEPT WHERE OTHER DAMPERS ARE SPECIFIED, VOLUME DAMPERS IN DUCTS 12 INCHES OR LESS IN DEPTH SHALL BE SINGLE LEAF TYPE. DAMPERS IN DUCTS HAVING A DEPTH MORE THAN 12 INCHES AND DAMPERS LOCATED CLOSE BEHIND GRILLES AND FIRE DAMPERS SHALL BE MULTIPLE OPPOSED BLADE TYPE. BLADES OF MULTIPLE DAMPERS SHALL BE OF WIDTHS TO SUIT THE SPACE LIMITATIONS, BUT NOT MORE THAN 6 INCHES WIDE. EXCEPT AS OTHERWISE SPECIFIED HEREIN, DAMPERS SHALL HAVE EXTERNAL ADJUSTING QUADRANTS. WHERE DUCTS ARE INSULATED, THE QUADRANTS SHALL BE BLOCKED OUT ON ZINC-COATED STEEL SUPPORT FINISHING FLUSH WITH INSULATION.
- C. THE DRAWINGS DO NOT ALWAYS INDICATE THE VOLUME DAMPERS; THEY SHALL BE INSTALLED IN ALL LOCATIONS REQUIRED AS SPECIFIED ABOVE. SPLITTER TYPE VOLUME DAMPERS SHALL NOT BE USED. ALL VOLUME DAMPERS SHALL BE CONSTRUCTED OF ZINC-COATED STEEL TWO GAUGE NUMBERS HEAVIER THAN THE DUCT IN WHICH THEY ARE INSTALLED AND SHALL BE REINFORCED FOR STIFFNESS SO AS TO BE FREE OF NOISE AND VIBRATION IF IN ANY POSITION. DAMPERS SHALL BE RIGIDLY AND PERMANENTLY ATTACHED TO THEIR SHAFTS.
- 6. ACCESS DOORS
- A. ACCESS DOORS SHALL BE INSTALLED IN DUCTS AND WHERE REQUIRED FOR ACCESS TO FIRE DAMPERS, FANS, REHEAT COILS, AND WHERE INDICATED. ACCESS DOORS SHALL BE SIZES AS LISTED ON DRAWINGS AND SHALL BE COMPLETE WITH HINGES, GASKETS, AND TIGHT CLOSING LATCHES. B. ACCESS DOORS 24 INCHES X 24 INCHES AND SMALLER SHALL BE OF A CONSTRUCTION AND THICKNESS THAT MATCH THE DUCTWORK WITH A GASKET
- a. CAM ACCESS DOORS 16 INCHES AND UNDER SHALL HAVE TWO LOCKS AND
- DOORS OVER 16 INCHES SHALL HAVE FOUR LOCKS. b. HINGED DOORS SHALL HAVE A CONTINUOUS PIANO TYPE HINGE. DOORS 16 INCHES AND BELOW SHALL HAVE ONE LOCK AND DOORS OVER 16 INCHES SHALL HAVE TWO LOCKS.
- c. DOUBLE SKIN ACCESS DOORS SHALL HAVE BEEN TESTED TO 8 INCHES W.G. AND SHALL HAVE 1 INCH THICK FIBERGLASS. DOORS SHALL BE RATED FOR DUCT SYSTEM THEY ARE INSTALLED IN BUT NOT LESS THAN THE SYSTEM FAN STATIC PRESSURE.

## **PIPING SPECIFICATIONS**

- A. REFER TO THE PIPING MATERIALS SCHEDULE FOR PIPING MATERIALS FOR SPECIFIC SYSTEMS.
- B. COPPER PIPING 2 INCHES AND SMALLER SHALL BE HARD DRAWN TYPE SEAMLESS COPPER TUBING PER ASTM B88. FITTINGS SHALL BE WROUGHT COPPER, PER ANSI B16.22.
- C. FITTINGS FOR COPPER PIPING SHALL BE MADE OF THE SAME WALL THICKNESS AND OF THE SAME MATERIAL AS THE PIPE TO WHICH THEY ARE ATTACHED. FITTINGS SHALL BE MADE FROM PURE COPPER MILL PRODUCTS PER ASTM B75 ALLOY C12200 MEETING DESIGN STANDARDS ANSI B16.22 AND MSS-SP-104 FITTINGS SHALL BE RATED FOR AN INTERNAL WORKING PRESSURE OF 250 PSI AT 200 DEGREES F. FITTINGS IN COPPER TUBING SHALL BE WROUGHT COPPER SOLDER JOINT FITTINGS OR PROPRESS PRESSURE FITTING SYSTEM AS MANUFACTURED BY VIEGA AS FOLLOWS: 1) COPPER TUBING SHALL CONFORM TO ASTM B75 OR ASTM 88.
- 2) COPPER AND COPPER ALLOY FITTINGS SHALL CONFORM TO MATERIAL REQUIREMENTS OF ASME B16.18 OR ASME B16.22 AND PERFORMANCE CRITERIA OF IAPMO PS117. 3) SOLDER METAL SHALL CONFORM TO THE REQUIREMENTS OF ASTM B32.
- SOLDERING FLUXES SHALL CONFORM TO ASTM B813. 4) PIPE THREADS SHALL CONFORM TO ASME B1.20.1. 5) HANGERS AND SUPPORTS SHALL CONFORM TO MSS-SP-58.
- D. FOR WORK IN OCCUPIED SPACES ONLY, PROPRESS, PRESSURE FITTING SYSTEM AS MANUFACTURED BY VIEGA SHALL BE PERMITTED. SEALING ELEMENTS FOR PRESS FITTINGS SHALL BE EPDM. SEALING ELEMENTS SHALL BE FACTORY INSTALLED OR AN ALTERNATIVE SUPPLIED BY FITTING MANUFACTURER. PRESS END SHALL HAVE SC (SMART CONNECT) FEATURE DESIGN (LEAKAGE PATH). IN PRO PRESS ½ INCH TO 2 INCH DIMENSIONS, THE SMART CONNECT FEATURE SHALL ASSURE LEAKAGE OF LIQUIDS FROM INSIDE THE SYSTEM PAST THE SEALING ELEMENT OF AN UNPRESSED CONNECTION. THE FUNCTION OF THIS FEATURE SHALL BE TO PROVIDE THE INSTALLER QUICK AND EASY IDENTIFICATION OF CONNECTIONS WHICH HAVE NOT BEEN PRESSED PRIOR TO PUTTING THE SYSTEM INTO OPERATION.
- E. STEEL PIPING SHALL BE PER ANSI/ASME B31.1 CODE FOR PRESSURE PIPING, ASTM A-106 OR A-53 GRADE B, AND DIMENSION STANDARDS OF ANSI B36.10, SCHEDULE 40 ERW CARBON STEEL
- F. FITTINGS FOR STEEL PIPING 2 INCH AND SMALLER SHALL BE SCREWED OR WELDED TYPE. FITTINGS FOR STEEL PIPING 2-1/2 INCH AND ABOVE SHALL BE WELDED OR FLANGED TYPE AND SHALL BE SHORT OR LONG PATTERN SEAMLESS BUTT WFIDED FITTINGS OF THE SAME WALL THICKNESS AND OF THE SAME MATERIAL AS THE PIPE TO WHICH THEY ARE ATTACHED. STEEL FITTINGS SHALL HAVE PRESSURE RATINGS (PSI) AS INDICATED OR AS REQUIRED TO MEET SYSTEM OPERATING PRESSURES.
- 1) SCREWED FITTINGS SHALL BE MALLEABLE CARBON STEEL: 150 LB. CLASS. BLACK, AND IN ACCORDANCE WITH ANSI B16.3, ANSI B1.20.1 AND ASTM A126 CLASS B. 2) ALL SCREWED CONNECTIONS SHALL BE ASSEMBLED WITH LUBRICANT APPLIED
- TO THE MALE THREADS ONLY. 3) FLANGED FITTINGS SHALL BE CAST IRON, SHORT BODY, CLASS 125 OR 250, BLACK AND IN ACCORDANCE WITH ANSI B16.1. GASKETS SHALL BE FULL
- FACE 1/8 INCH MINIMUM THICKNESS AS HERE-IN-AFTER SPECIFIED. 4) ALL FLANGE BOLTING SHALL BE ASTM A307 GRADE B HEAVY HEX BOLTS AND STUD BOLTS WITH ASTM A563 GRADE A HEAVY HEX NUTS. BOLT AND STUD LENGTH SHALL BE IN ACCORDANCE WITH ASME B16.5, TABLE 8. ALL BOLT THREADS SHALL BE LUBRICATED WITH ANTI-SEIZE THREAD COMPOUND. NEITHER STUDS NOR THREADED ROD SHALL BE USED. 5) ALL SLIP-ON FLANGES SHALL BE BACK-WELDED.
- 6) WELD FITTINGS SHALL BE FORGED STEEL SCHEDULE 40 UP TO 10 INCHES. BLACK. CLASS 150, AND IN ACCORDANCE WITH ANSI B16.9, ANSI B16.25, ASTM A234, ANSI B16.5 , OR ANSI B16.11.
- G. ALL WELDING, SHOP AND FIELD, SHALL BE DONE BY A CERTIFIED LICENSED WELDER FOLLOWING STANDARD PRACTICES ESTABLISHED BY THE AMERICAN WELDING SOCIETY DURING ALL FIELD WELDING A FIRE WATCH SHALL BE MAINTAINED
- H. WHERE CONNECTIONS ARE MADE BETWEEN STEEL PIPING OR FERROUS EQUIPMENT AND COPPER TUBING. PROVIDE A DIELECTRIC WATERWAY OR FLANGE WITH A GASKET OF INERT AND DI-ELECTRIC MATERIAL, TEFLON OR APPROVED FQUAL.
- a. DIELECTRIC WATERWAYS SHALL BE RATED AT 210 DEGREES F AT 250 PSI CONFORMING TO ANSI B16.39. PIPE THREADS SHALL CONFORM TO ANSI
- b. FLANGED FITTINGS SHALL BE RATED AT 175 PSI CONFORMING TO ANSI B16.42 (IRON) OR B16.24 (BRONZE). BOLTS SHALL BE PROVIDED WITH BOLT INSULATORS. FOR PRESSURE ABOVE 175 PSI THE CONTRACTOR SHALL PROVIDE 250 PSI FLANGES TO MATCH PIPING MATERIAL, WITH DI-ELECTRIC GASKET AND BOLT INSULATORS.
- c. FITTINGS SHALL BE CERTIFIED TO WITHSTAND A MINIMUM OF 600 VOLTS ON A DRY LINE WITH NO FLASHOVER.
- DRAWINGS DO NOT INDICATE ALL PIPING OFFSETS THAT MAY BE REQUIRED. NO PIPING, VALVES, JOINTS, OR FITTINGS SHALL BE ERECTED OVER ANY MOTORS, PANEL BOARDS. OR OTHER ELECTRICAL EQUIPMENT.
- J. UNLESS OTHERWISE INDICATED, PROVIDE MANUAL AIR VENTS IN ALL HIGH POINTS OF THE NEW PIPING AND DRAIN VALVES AT ALL LOW POINTS. VENTS AND DRAINS SHALL CONSIST OF A BALL VALVE AND  $\frac{3}{4}$ " HOSE ADAPTER/CAP.
- K. WHEN CONNECTIONS ARE MADE TO EXISTING SYSTEMS PROVIDE ALL REQUIRED PIPING MODIFICATIONS, ADAPTERS, ETC.
- L. MISCELLANEOUS EXISTING PIPING WHICH IS REVISED SHALL BE DONE WITH MATERIALS THAT MATCH THE EXISTING.
- M. UNIONS FOR COPPER TUBING SHALL BE ANSI 125 LB. PATTERN, ALL BRONZE GROUND JOINT UNIONS WITH ENDS FOR SOLDERED JOINTS.
- N. PRESSURE TEST ALL EXISTING PIPING AND RISERS TO BE REUSED. REPAIR AND REPLACE AS NEEDED.
- O. ALL PIPING INSULATION SHALL BE AS SCHEDULED OR SPECIFIED.
- P. SPECIALITIES, AND APPURTENANCES FOR HYDRONIC SYSTEMS SHALL BE AS SCHEDULED OR SPECIFIED.
- Q. THE PIPE SYSTEMS UNLESS OTHERWISE INDICATED, SHALL NOT PITCH LESS THAN INDICATED ON THE SCHEDULE:
- VALVES
- A. VALVES FOR THE VARIOUS PIPING SYSTEMS SHALL BE AN APPROVED EQUAL TO THE MANUFACTURER AND FIGURE NUMBERS SCHEDULED.
- 3. FLEXIBLE CONNECTIONS
- A. FLEXIBLE CONNECTIONS IN STEEL PIPING SHALL BE METRAFLEX TYPE MLP FLEXIBLE CONNECTION (OR APPROVED EQUAL) WITH TYPE 321 STAINLESS STEEL INNER CORRUGATED HOSE, TYPE 304 OUTER BRAID, ASA 150# FLANGED ENDS AND MINIMUM WORKING PRESSURE OF 200 PSI.
- 6. HANGERS
- D. SUPPORT COMPONENTS SHALL CONFORM TO MANUFACTURER'S STANDARDIZATION SOCIETY SPECIFICATIONS SP-58.
- E. PIPE HANGERS SHALL BE LOCATED NEAR OR AT CHANGES IN PIPING DIRECTION AND CONCENTRATED LOADS. ALL HANGERS SHALL BE CLEVIS TYPE AND ARE TO HAVE VERTICAL ADJUSTMENTS FOR MAINTAINING THE PITCH OF PIPING.
- F. HANGER ROD SIZES SHALL BE AS FOLLOWS:

<u>PIPE_SIZE</u>	MIN. HANGER ROD DIAMETER
1-1/2 inches and smaller	3/8 INCH
2 THROUGH 3 INCHES	1/2 INCH
4 THROUGH 5 INCHES	5/8 INCH
6 INCHES	7/8 INCH

## G. HANGER SPACING SHALL BE AS FOLLOWS:

MIN. HANGER SPACING <u>PIPE SIZE</u>

1-1/2 INCHES AND SMALLER NOT OVER 6 FEET 2 THROUGH 6 INCHES NOT OVER 10 FEET

- H. HANGERS AND SUPPORTS SHALL BE THE FOLLOWING GRINNEL NUMBERS AND ON INSULATED PIPING SHALL BE SIZED TO FIT OUTSIDE INSULATION COVERING:
- 1) FIG. 260 HANGER FOR INSULATED COPPER AND STEEL PIPING AND UNINSULATED STEEL PIPING

2) FIG. 191 PIPE SUPPORT WITH ADJUSTABLE PIPE STANCHION SADDLE WITH U-BOLT

7. GASKETS

- A. ALL GASKETS SHALL BE RING-TYPE OF 1/16" THICK NON-ASBESTOS SHEET MATERIAL SUITABLE FOR THE TEMPERATURES AND PRESSURES OF THE SERVICE INVOLVED
- B. GASKETS SHALL NOT BE REUSED OR REPAIRED IN ANY WAY. THEY SHALL BE REPLACED IF: 1) THEY ARE DAMAGED DURING INSTALLATION.
- 2) IF A FITTING MUST BE DISASSEMBLED AFTER IT HAS BEEN TIGHTENED. 3) IF THERE IS ANY LEAKAGE DURING A PRESSURE TEST (IF THE FITTING ITSELF IS SCORED OR DAMAGED, IT SHALL BE REPLACED),
- C. GASKET CEMENTS OR SEALERS SHALL NOT BE USED.
- 23. CLEANING AND TESTING
- A. TEST ALL NEW PIPING AT 1-1/2 TIMES THE SYSTEM'S OPERATING PRESSURE WITH A MINIMUM 150# HYDROSTATIC TEST WHICH SHALL HOLD TIGHT FOR A PERIOD OF TWO (2) HOURS. ALL LEAKS SHALL BE REPAIRED WITH NEW MATERIALS AND THEN RETESTED. SUBMIT TEST RECORDS FOR REVIEW.
- B. CLEAN AND FLUSH MODIFIED SECTIONS OF PIPING IN ACCORDANCE WITH RECOMMENDATIONS OF WATER TREATMENT CONTRACTOR. CLEAN AND REPLACE STRAINER SCREENS.
- C. FILL MODIFIED SECTIONS OF PIPING AND INTRODUCE WATER TREATMENT AS RECOMMENDED BY WATER TREATMENT CONTRACTOR.
- 8. IDENTIFICATION
- A. PROVIDE IDENTIFICATION AND FLOW ARROWS ON ALL NEW AND EXISTING PIPING. PIPE IDENTIFICATION SHALL BE BY SETON NAMEPLATE CORPORATION OR BRADY USA, INC. AND MANUFACTURED ON PRESSURE SENSITIVE VINYL SHEETS WITH SCREEN PRINTED LETTERS. COLORING SHALL BE PER ASME COLOR CODE.
- B. ALL EXISTING PIPING IN MECHANICAL ROOM SHALL BE PROVIDED WITH NEW LABELS ON OUTER JACKETING OF INSULATION INDICATING FLOW DIRECTION AND TYPE OF PIPING WHERE LABELING IS CURRENTLY MISSING (FIELD VERIFY LOCATIONS).
- C. PROVIDE DESCRIPTIVE ENGRAVED 1/16" THICK PLASTIC-LAMINATED LABEL WITH BLACK FACE AND WHITE LETTERS ON ALL EQUIPMENT BEING ADDED OR MODIFIED AND ON ALL NEW CIRCUIT BREAKERS.
- D. LABELS SHALL BE PUNCHED AND ATTACHED TO EQUIPMENT WITH MECHANICAL FASTENERS.
- 9. VALVE TAGS
- A. PROVIDE FOR EACH VALVE A 2" DIAMETER BRASS VALVE TAG ATTACHED TO THE VALVE WITH A BRASS HOOK AND JACK CHAIN. IDENTIFY EACH VALVE AND ADD SAME TO THE EXISTING VALVE CHARTS OR PROVIDE A NEW VALVE CHART WITH ALL VALVE DATA (VALVE NUMBER, SERVICE, SIZE, AND LOCATION).

### AUTOMATIC TEMPERATURE CONTROLS SPECIFICATIONS 1. AUTOMATIC TEMPERATURE CONTROLS

- A. PRE-QUALIFIED BAS CONTRACTORS SHALL BE AS FOLLOWS: SIEMENS BUILDING TECHNOLOGIES 1450 UNION MEETING RD. BLUE BELL, PA 19422 847-215-1050
- B. AUTOMATIC TEMPERATURE CONTROLS (ATC) SHALL BE AN EXTENSION OF THE EXISTING SYSTEM.
- THE SCOPE OF WORK SHALL INCLUDE CONTROLLERS, TEMPERATURE TRANSMITTERS, PRESSURE SWITCHES, CONTROL VALVES AND ALL WORK NECESSARY TO CONNECT THE NEW WORK TO THE EXISTING SYSTEM AND PROVIDE FEEDBACK TO THE NEW EQUIPMENT. THE WORK SHALL ALSO INCLUDE PROGRAMMING THE CENTRAL SYSTEM AND GENERATING GRAPHICS AS REQUIRED TO RECOGNIZE AND COMMUNICATE WITH THE NEW DEVICES. REFERENCE ALL CONTROL DIAGRAMS, SEQUENCE OF CONTROL, AND DEVICE SCHEDULES FOR FULL EXTENT OF ATC SCOPE OF WORK.
- D. SEQUENCE OF CONTROL SHALL BE AS INDICATED ON THE DRAWINGS.
- E. PERFORM ALL ELECTRICAL WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE. INDOOR CONTROL WIRING SHALL BE INSTALLED IN EMT. OUTDOOR CONTROL WIRING SHALL BE INSTALLED IN RIGID ALUMINUM CONDUIT. PROVIDE ALL LOW VOLTAGE CONTROL TRANSFORMERS.
- F. EXISTING SAFETY CONTROLS SHALL REMAIN.
- G. SUBMIT COMPLETE AUTOMATIC TEMPERATURE CONTROL INSTALLATION SHOP DRAWINGS FOR REVIEW.

DUCTWORK	<b>SCHE</b>	DULE		
SYSTEM	MATERIAL	PRESSUR E CLASS	SEAL CLAS S	LEAK CLAS S
SUPPLY DUCTWORK	GALVANIZED	2"	A	6
OUTSIDE AIR	GALVANIZED	-2*	Α	6

PIPING MATERIALS SCHEDULE SYSTEM SIZE RANGE PIPING SLOPE AC CONDENSATE ALL SIZES COPPER 1" IN 8'

SCHEDU	LE
AIRFLOW	HYDRONIC
YES	YES
NO	YES
NO	YES
	YES

## FAN COIL UINT SPECIFICATIONS

- . PROVIDE INDOOR, DOWNWARD DISCHARGE 2 IN-CEILING FAN COIL. UNITS SHALL COME COMPLETE WITH COOLING COIL, FAN, FAN MOTOR, PIPING CONNECTORS, ELECTRICAL CONTROLS, CONDENSATE PUMP, AND HANGING BRACKETS.
- 2. FAN SHALL BE A CENTRIFUGAL, DIRECT-DRIVE BLOWER TYPE WITH AIR INTAKE IN CENTER OF THE UNIT AND DISCHARGE ON THE PERIMETER. AIR LOUVERS SHALL BE ADJUSTABLE FOR 2, 3 OR 4-WAY DISCHARGE. AIR OUTLET VANES SHALL BE FULLY INSULATED ALUMINUM TO PREVENT CONDENSATION FROM FORMING. VANES SHALL BE MANUALLY ADJUSTABLE ON UNIT SIZES 08,12, BUT SHALL BE DRIVEN BY AN ELECTRIC MOTOR FOR UNIT SIZES 18-36.
- 3. STANDARD BASE UNIT SHALL BE EQUIPPED WITH A COOLING COIL FOR INSTALLATION IN A 2-PIPE SYSTEM. COILS SHALL HAVE 1/2-IN. COPPER TUBES, ALUMINUM FINS BONDED TO THE TUBES BY MECHANICAL EXPANSION, AND A WORKING PRESSURE OF 325 PSIG. EACH COIL SHALL HAVE A MANUAL AIR VENT ON UPPER CONNECTION, A DRAIN PORT ON THE LOWER CONNECTION.
- 4. MOTOR SHALL BE ENCLOSED AND WITH THERMAL OVERLOAD PROTECTION, SEALED FOR LIFE LUBRICATED BEARINGS, AND EXTERNAL ROTOR ALLOWING GOOD HEAT DISSIPATION. FAN MOTOR SHALL BE 3-SPEED.
- 5. CONTROLS SHALL BE 24-V, AND SHALL BE EASILY OPERATED BY THE USER FROM A WALL-MOUNTED THERMOSTAT. A NORMALLY CLOSED FLOAT CONTROL SHALL BE IN THE CONDENSATE SUMP TO SHUT UNIT DOWN IN CASE OF PUMP MALFUNCTION.
- 6. ALARM INTERLOCK RELAY SHALL INCLUDE A RELAY FOR UNIT FAILURE NOTIFICATION. NORMALLY OPEN/NORMALLY CLOSED CONTACTS ARE AVAILABLE FOR FIELD CONNECTION
- 7. UNIT SHALL HAVE A FILTER TRACK WITH FACTORY-SUPPLIED CLEANABLE FILTERS.
- 8. SPECIAL FEATURES:
- A. FRESH AIR INTAKE KIT: THE FRESH AIR INTAKE KIT SHALL INCLUDE DUCT COLLARS FOR CONNECTION TO THE UNIT. B. THERMOSTAT: THE THERMOSTAT SHALL BE COMMERCIAL GRADE TO CONTROL UNIT OPERATION AND SHALL PROVIDE SINGLE SPEED FAN CAPABILITY. AUTOMATIC
- CHANGEOVER FROM COOLING OR HEATING SHALL BE PROVIDED (4-PIPE SYSTEMS ONLY). C. MOTORIZED VALVE ACCESSORY: THE MOTORIZED VALVE SHALL BE A
- TWO-POSITION, SPRING RETURN TWO OR THREE-WAY VALVE. D. MICROPROCESSOR CONTROL: THE MICROPROCESSOR CONTROL SHALL INCLUDE A
- CUSTOM DESIGNED MICROPROCESSOR FITTED TO THE CASSETTE TO ENABLE ROOM CONDITIONS TO BE MAINTAINED AT A USER DEFINED SET POINT. E. DISCONNECT SWITCH: THE NON-FUSED DISCONNECT SWITCH SHALL BE FACTORY MOUNTED ON THE EXTERIOR OF THE CONTROL PANEL AND SIZED FOR THE FULL LOAD AMPERAGE OF THE UNIT.

## **CABINET UNIT HEATER SPECIFICATIONS**

- 1. ALL CABINETS WILL BE CONSTRUCTED WITH 18-GAUGE COLD ROLLED STEEL, SIDE PANELS AND TOP. THE FRONT PANEL SHALL BE FURNISHED IN 16-GAUGE COLD ROLLED STEEL. IT SHALL HAVE  $1/2^{\circ}$ , 1-1/2 POUND INSULATION WITH ONE SIDE NEOPRENE COATED IN FRONT OF COIL. THE INTERNAL CABINET SHALL BE FURNISHED IN 18-GAUGE GALVANIZED STEEL. ADEQUATE WORK AREA FOR INSTALLATION OF CONTROL VALVES OR ELECTRICAL EQUIPMENT SHALL BE PROVIDED ON BOTH SIDES OF THE INTERNAL CABINET. THE CABINET SHALL BE COATED WITH POWDER COATED BAKED ENAMEL, COLOR SELECTED FROM STANDARD.
- 2. RECESSED UNITS ALL RECESSED UNITS SHALL BE SUPPLIED WITH A "WALL SEAL" ASSEMBLY. THIS ASSEMBLY SHALL PROVIDE PROTECTION TO THE WALL OR CEILING CONSTRUCTION MATERIAL. THE "WALL SEAL" SHALL BE SUPPLIED IN A BAKED ENAMEL, COLOR BE SELECTED FROM STANDARD.
- 3. CEILING MOUNT OR RECESSED UNITS ALL "C" AND "RC" UNITS SHALL BE SUPPLIED WITH A HINGED FRONT PANEL. THE MULTIPLE HINGES SHALL PROVIDE FULL SWING THROUGH 90°. A SAFETY CHAIN SHALL BE PROVIDED AS STANDARD TO PREVENT THE FACE PANEL FROM SWINGING FULLY OPEN ACCIDENTALLY. THIS CHAIN SHALL EASILY DETACHED TO ALLOW FULL ACCESS FOR SERVICING. SPEED CONTROL SWITCH SHALL BE SHIPPED WITH WIRING DIAGRAM FOR INSTALLATION.
- 4. FILTERS ALL FILTERS SUPPLIED AS STANDARD SHALL BE REUSABLE ALUMINUM MEDIA WITH A 69% ARRESTANCE LEVEL. FILTERS SHALL BE SLIDE IN TYPE WHICH ARE LOCKED INTO POSITION WITH A COTTER PIN.
- . FANS FAN WHEELS SHALL BE CENTRIFUGAL, FORWARD CURVED, DOUBLE WIDTH OF ELECTRO GALVANNEAL STEEL FOR PSC MOTORS. FAN HOUSINGS SHALL BE OF FORMED GALVANIZED SHEET METAL.
- 6. COILS STANDARD ONE ROW THE DURABLE MECHANICALLY BONDED COPPER/ ALUMINUM COIL PRESENTS THE BEST OF TODAY'S HYDRONIC HEATING TECHNOLOGY. ALL ELEMENT ASSEMBLIES ARE SUBMERSION TESTED AT FACTORY AT 250 PSI AND ARE RATED AT A WORKING PRESSURE OF 300 PSI. ALL UNITS ARE DESIGNED SO THAT FIELD MODIFICATIONS CAN BE MADE TO REVERSE THE COIL POSITION IF REQUIRED.
- 7. MOTORS STANDARD PSC MOTORS SHALL HAVE INTEGRAL THERMAL PROTECTION AND START AT 78% OF RATED VOLTAGE.
- 9. OPTION 23 SERVICE SWITCH DPST PROVIDES A HANDY MEANS OF DISCONNECTING BOTH HOT AND NEUTRAL POWER LINES.
- 10. OPTION 30 1/2" FOIL FACED FIBERGLASS INSULATION FRONT PANEL (COIL AREA ONLY).
- 11. OPTION 125 AQUASTAT CONTROL STRAP-ON AQUASTAT KEEPS BLOWER(S) OFF UNTIL RETURN WATER TEMPERATURE REACHES SETPOINT (ADJUSTABLE FROM 100-240°F).
- 12. OPTION 126A & B WALL SEAL FOR RECESSED INSTALLATION, EITHER FULLY OR 2-1/4" PARTIAL. MODELS WHERE FULL RECESS WOULD INTERFERE WITH INLET AND/ OR OUTLET AIRFLOW MAY BE RECESSED 2-1/4". SEE SCHEDULE BELOW. NOTE: WALL SEAL KITS ARE FURNISHED WITH MODELS RC, RW AND RWI. KITS MUST BE ORDERED UNDER THIS OPTION NUMBER FOR ALL OTHER MODEL

### FIRE PROTECTION NOTES AND SPECIFICATIONS 1. REFER TO PLUMBING GENERAL NOTES AND SPECIFICATIONS FOR ADDITIONAL

- REQUIREMENTS. 2. ALL FIRE PROTECTION WORK SHALL COMPLY WITH ALL REQUIREMENTS OF THE
- LATEST EDITION OF NFPA-13 AND ALL LOCAL CODE REQUIREMENTS.
- 3. THE FIRE PROTECTION CONTRACTOR SHALL REVIEW ALL CONTRACT DOCUMENTS RELATED TO THIS PROJECT. THESE FIRE PROTECTION DOCUMENTS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE SCOPE OF THE PROJECT
- 4. THE COMPLETE FIRE PROTECTION SYSTEM SHALL BE HYDRAULICALLY DESIGNED AND INSTALLED THROUGHOUT THE ENTIRE PROJECT AREA IN ACCORDANCE WITH APPLICABLE NFPA STANDARDS, LOCAL AUTHORITY HAVING JURISDICTION AS WELL AS ANY OWNER REQUIREMENTS. DESIGN DENSITIES ARE AS FOLLOWS: LIGHT HAZARD .10 GPM PER SO, FT, OVER THE MOST REMOTE 1500 SQ, FT, AREA INCLUDING A 250 GPM HOSE STREAM ALLOWANCE, ORDINARY HAZARD .15 GPM PER SQ. FT. OVER THE MOST REMOTE 2500 SQ. FT. AREA INCLUDING 250 GPM HOSE STREAM ALLOWANCE.
- 5. ALL HYDRAULIC CALCULATIONS SHALL BE PROVIDED WITH A 10 PSI SAFETY FACTOR. 6. SPRINKLER SHOP DRAWINGS, HYDRAULIC CALCULATIONS AND PRODUCT DATA SHALL SUBMITTED FOR APPROVAL PRIOR TO BEGINNING WORK. NO WORK SHALL COMMENCE UNTIL APPROVAL FROM THE ENGINEER, AUTHORITY HAVING JURISDICTION AND OWNER'S INSURANCE CARRIER HAVE BEEN OBTAINED. ALL SPRINKLER SUBMITTALS SHALL FOLLOW NFPA-13 REQUIREMENTS STATED IN CHAPTER 23-PLANS AND CALCULATIONS. REVIEW OF CONTRACTOR'S SPRINKLER SUBMITTALS BY THE ENGINEER SHALL BE IN STRICT COMPLIANCE TO CHAPTER 23 REQUIREMENTS. SPRINKLER CONTRACTOR SHALL SUBMIT APPROVED PLANS AND CALCULATIONS FROM THE AUTHORITY HAVING JURISDICTION AND OWNER'S INSURANCE CARRIER TO THE ENGINEER PRIOR TO ENGINEER'S FINAL SUBMITTAL APPROVAL. NO
- 7. ALL FIRE PROTECTION EQUIPMENT. PIPING AND RELATED ITEMS SHALL BE SPECIFICALLY LISTED FOR FIRE PROTECTION SERVICE AS WELL AS FM APPROVED.

VARIATIONS OF THE ABOVE REQUIREMENTS WILL BE ENTERTAINED.

- 8. THE FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE FIRE PROTECTION WORK WITH THE CONTRACT DOCUMENTS FOR THE GENERAL CONSTRUCTION, MECHANICAL AND ELECTRICAL TRADES.
- 9. THE FIRE PROTECTION CONTRACTOR SHALL COORDINATE ALL WORK EFFORTS THROUGH THE GENERAL CONTRACTOR IN ACCORDANCE WITH AN APPROVED PROJECT SCHEDULE.
- 10. FIRE PROTECTION/SPRINKLER WATER SUPPLY PIPING SHALL NOT BE ROUTED OVER ELECTRICAL PANELS AND/OR ELECTRICAL EQUIPMENT.
- 11. ALL FIRE PROTECTION SYSTEM DRAINS AND TEST CONNECTIONS SHALL DISCHARG OUTSIDE OF THE BUILDING WITH A SPLASH BLOCK, UNLESS INDICATED OTHERWISE.
- 12. FIRE PROTECTION CONTRACTOR SHALL OBTAIN, FROM THE GENERAL CONTRACTOR, A SET OF MECHANICAL DESIGN DRAWINGS AND SPECIFICATIONS FOR LOCATIONS OF EQUIPMENT AND DUCTWORK WHICH MAY REQUIRE SPRINKLER HEADS ABOVE AND BELOW. FIRE PROTECTION CONTRACTOR SHALL OBTAIN A SET OF ARCHITECTURAL DRAWINGS FOR INCORPORATION OF ALL CEILING DEVICES AND CEILING HEIGHT CHANGES INTO THE SPRINKLER SHOP DRAWINGS.
- 13. ISOLATE, DRAIN AND REFILL EXISTING PIPING SYSTEM AS REQUIRED TO ACCOMMODATE NEW SYSTEM INSTALLATION.
- 14. SCHEDULE ALL SHUTDOWNS THAT AFFECT UTILITIES AND PORTIONS OF THE BUILDING THAT MUST REMAIN IN OPERATION WITH THE OWNER, OWNER'S INSURANCE COMPANY AND THE LOCAL FIRE DEPARTMENT.
- 15. FIRE PROTECTION CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL CONTRACT DOCUMENTS RELATED TO THIS PROJECT. THERE MAY BE WORK REQUIRED OF THIS TRADE SHOWN ON OTHER TRADE DRAWINGS.
- 16. ALL EXISTING AND NEW SPRINKLER PIPING AND HEADS SHALL BE REVISED AND OR INSTALLED AS NOT TO INTERFERE WITH EXISTING OR NEW ABOVE CEILING IMPROVEMENTS. ALL EXISTING AND NEW SPRINKLER PIPING SHALL BE AT ELEVATIONS TO COINCIDE WITH CEILING HEIGHTS AS PER THE ARCHITECTURAL DRAWINGS.

## <u>LIFE SAFETY NOTES</u>

TEMPORARY SPRINKLER PROTECTION IS REQUIRED IN OPEN CEILING AREAS UNDER CONSTRUCTION OR UNDER ANY OTHER CONSTRUCTION SITUATION IN WHICH CEILING SPRINKLER PROTECTION CANNOT BE MAINTAINED DURING THE CONSTRUCTION PERIOD.

WHERE TEMPORARY SPRINKLER PROTECTION IS REQUIRED, THE SPRINKLER INSTALLER SHALL REMOVE PENDENT HEADS AND DROPS AND INSTALL 1" SPRIGS OFF THE SAME OUTLETS WITH UPRIGHT HEADS FOR TEMPORARY PROTECTION DURING THE CONSTRUCTION PERIOD. HYDRAULIC CALCULATIONS SHALL BE BASED ON NFPA REQUIREMENTS.

### BALANCING AND ADJUSTING OF THE HYDRONIC AND AIR SYSTEMS

- . PERFORM ALL AIR AND HYDRONIC BALANCING FOR THE SYSTEMS AND/OR AREAS
- LISTED IN THE BALANCING SCHEDULE. 2. ALL WORK SHALL BE PERFORMED BY SKILLED MECHANICS UNDER THE DIRECTION AND SUPERVISION OF THE CONTRACTOR FOR BALANCING AND ADJUSTING WHICH SHALL BE AN INDEPENDENT, CERTIFIED NEBB OR AABC CERTIFIED COMPANY NOT AFFILIATED WITH THE MECHANICAL CONTRACTOR
- 3. PERMANENTLY MARK SETTINGS OF VALVES, DAMPERS, AND OTHER ADJUSTMENT DEVICES ALLOWING SETTINGS TO BE RESTORED. SET AND LOCK MEMORY STOPS. 4. AIR SYSTEMS:
- A. MAKE AIR QUANTITY MEASUREMENTS IN MAIN DUCTS BY PITOT TUBE TRAVERSE OF ENTIRE CROSS SECTIONAL AREA OF DUCT.
- B. MEASURE AIR QUANTITIES AT AIR INLETS AND OUTLETS. C. ADJUST DISTRIBUTION SYSTEM TO OBTAIN UNIFORM SPACE TEMPERATURES FREE FROM OBJECTIONABLE DRAFTS.
- D. USE VOLUME CONTROL DEVICES TO REGULATE AIR QUANTITIES ONLY TO EXTENT ADJUSTMENTS DO NOT CREATE OBJECTIONABLE AIR MOTION OR SOUND LEVELS.
- EFFECT VOLUME CONTROL BY USING VOLUME DAMPERS LOCATED IN DUCTS. E. VARY TOTAL SYSTEM AIR QUANTITIES BY ADJUSTMENT OF FAN SPEEDS. PROVIDE SHEAVE DRIVE CHANGES TO VARY FAN SPEED. VARY BRANCH AIR QUANTITIES BY
- DAMPER REGULATION. F. PROVIDE SYSTEM SCHEMATIC WITH REQUIRED AND ACTUAL AIR QUANTITIES RECORDED AT EACH OUTLET OR INLET.
- G. MEASURE STATIC AIR PRESSURE CONDITIONS ON AIR SUPPLY UNITS, INCLUDING FILTER AND COIL PRESSURE DROPS, AND TOTAL PRESSURE ACROSS FAN. MAKE ALLOWANCES FOR 50 PERCENT LOADING OF FILTERS. H. ADJUST OUTSIDE AIR AUTOMATIC DAMPERS, OUTSIDE AIR, RETURN AIR, AND
- EXHAUST DAMPERS FOR DESIGN CONDITIONS. 6. HYDRONIC SYSTEMS:
- A. ADJUST WATER SYSTEMS, AFTER AIR BALANCING, TO OBTAIN DESIGN QUANTITIES. B. ADJUST HYDRONIC DISTRIBUTION SYSTEMS BY MEANS OF BALANCING COCKS, VALVES, AND FITTINGS. DO NOT USE SERVICE OR SHUT-OFF VALVES FOR BALANCING UNLESS INDEXED FOR BALANCE POINT.
- C. TEST PUMPS AND ADJUST FLOW. RECORD THE FOLLOWING ON PUMPS REPORT SHEETS: (A) SUCTION AND DISCHARGE PRESSURE, (B) RUNNING AMPS AND BRAKE HORSEPOWER OF PUMP MOTOR UNDER FULL FLOW AND NO FLOW CONDITIONS, (C) PRESSURE DROP ACROSS PUMP IN FEET OF WATER AND TOTAL GPM PUMP IS HANDLING UNDER FULL FLOW CONDITIONS. D. WHERE AVAILABLE PUMP CAPACITY IS LESS THAN TOTAL FLOW REQUIREMENTS OR
- INDIVIDUAL SYSTEM PARTS, PROPORTIONAL BALANCING MUST BE PERFORMED. CONTRACTOR SHALL AFTER PERFORMING THE TAB PROCEDURES PLUG PIPING WATER IGHT. PATCH DUCTWORK AIR TIGHT AND PATCH INSULATION AND RE-ESTABLISH NTEGRITY OF THE VAPOR BARRIER. MATERIALS USED SHALL BE IDENTICAL TO HOSE REMOVED, CUT OR DRILLED.
- 8. BALANCING CONTRACTOR SHALL SUBMIT EQUIPMENT CALIBRATION REPORTS OF EQUIPMENT USED DURING BALANCING TO CERTIFY ACCURACY OF MEASUREMENTS. CALIBRATIONS REPORTS SHALL BE SUBMITTED WITH BALANCING REPORT.
- 9. SUBMIT A REPORT INDICATING ALL FINAL CONDITIONS.

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			LECTRICAL LEGEND		
MISC. I	DRAWING SYMBOLS	VOICE	/DATA/AV	POWER	
Ø	CONSTRUCTION NOTE	$\mathbf{\nabla}$	DATA BACKBOX – 4" SQUARE W/ RING	<i>∕</i> ₩	SAME CIRCUIT/SWITCHED SEPARATELY
#	DEMOLITION NOTE	▽	AUDIO/VISUAL BACKBOX - 4" SQUARE W/ RING	<b>/#</b>	NO. OF HASH MARKS DENOTES NO. OF
()	DIAGRAM/DETAIL NOTE		CABLE TV JACK - WALL MOUNTED	$\frown$	CIRCUIT HOMERUN
E01A	KITCHEN EQUIPMENT TAG		CELLULAR TELECOMMUNICATIONS ANTENNA	<u> </u>	LOW VOLTAGE WIRING
$\bigwedge$	REVISION TAG	WAP	WIRELESS ACCESS POINT		EMERGENCY BRANCH CIRCUIT
(XX)	- EQUIPMENT TYPE	Ţ∨ ¶ v	FLAT SCREEN TV WALL BOX	VD	DENOTES VOICE/DATA HOMERUN
	- EQUIPMENT NUMBER	FB#	FLOOR BOX (# DENOTES TYPE)		DENOTES ISOLATED GROUND
ABBRE	/IATIONS				EXISTING BRANCH CIRCUIT PANELBOARD
A	AMPS		VIDEO PROJECTOR CEILING MOUNTING KIT	$\sim$	MOTOR CONNECTION
ACT	ABOVE COUNTER TOP				DISCONNECT SWITCH
AF AS	AMP FRAME OR FUSE AMP SETTING	<u>SWITCI</u>	HING	ъ. Ф	FUSED DISCONNECT SWITCH
AT		S	STANDARD LIGHT SWITCH		MOTOR STARTER
ATC ATS	AUTOMATIC TEMPERATURE CONTROLS AUTOMATIC TRANSFER SWITCH	S <sub>3</sub>	3-WAY LIGHT SWITCH	⊠r	COMBINATION MOTOR STARTER
BAS BCT	BUILDING AUTOMATION SYSTEM BELOW COUNTER TOP	S4	4-WAY LIGHT SWITCH		ENCLOSED CIRCUIT BREAKER
CB	CIRCUIT BREAKER	SLV	LOW VOLTAGE MOMENTARY SWITCH	EWH	ELECTRIC WATER HEATER
C CI	CONDUIT CIRCUIT INTEGRITY CABLE IN CONDUIT	SHD	HARD-WIRED/WIRELESS DIMMER SWITCH	VFD	VARIABLE FREQUENCY DRIVE
СКТ	CIRCUIT	Shf	HARD-WIRED/WIRELESS FAN SWITCH	SPD	SURGE PROTECTION DEVICE
CS CT	COMBINATION MOTOR STARTER CABLE TRAY	SM	MOTOR DISCONNECT SWITCH	EHC	ELECTRIC HEATING COIL
DDBP	DUPLEX DOMESTIC BOOSTER PUMP	Sps	MOTORIZED PROJECTION SCREEN SWITCH	Œ	HEAT TRACE JUNCTION BOX
DIST DML	DISTRIBUTION DOUBLE MAIN LUGS	SP Sat	PILOT LIGHT SWITCH (ILLUM. WHEN LOAD ON)	0	HEAT TRACE THERMOSTAT
DRP	DOMESTIC RECIRCULATING PUMP	SBE Swip	BOILER "EMERGENCY OFF" SWITCH	EHD	ELECTRIC HAND DRYER
DS E	DISCONNECT SWITCH EMERGENCY	Swd Sws	WIRELESS DIMMER SWITCH WIRELESS 2-BUTTON LIGHT SWITCH	ECM	ELECTRONICALLY COMMUTATED MOTOR
EC	ELECTRICAL CONTRACTOR	Sws Swt	WIRELESS 2-BUTTON LIGHT SWITCH	TP Tec	
EF EHH	EXHAUST FAN ELECTRIC HANDHOLE	Swf	WIRELESS 2-BUTTON APPLIANCE SWITCH	TSC a	TURNSTILE CONTROLLER/POWER SUPPLY
ЕМН	ELECTRIC MANHOLE	Sw⊧ Shs	HARD-WIRED/WIRELESS SWITCH	R ()**	FRACTIONAL HP MOTOR RELAY JUNCTION BOX TAGS (**)
EMT ERV	ELECTRICAL METALLIC TUBING ENERGY RECOVERY VENTILATOR	S S cs	COMPANION HARD-WIRED SWITCH (3/4-WAY)	"UH"=UN	NIT HEATER "FCU"=FAN COIL UN
ESN	LUTRON ENERGY SAVER NODE	SD1	0-10V DIMMER SWITCH-LUTRON	"WF"=WA	AS FIRE PLACE "CL"=ADA CHAIR LIF ITER FEATURE "FV"=FLUSH VALVE
EWC EX	ELECTRIC WATER COOLER EXISTING	SD2	ELV DIMMER SWITCH-LUTRON	"MP"=M	RBAGE DISPOSAL "TPS"=TRAP PRIMER DTORIZED PARTITION "CUH"=CABINET UNIT
FCC FDR	FIRE COMMAND CENTER FEEDER	S <sub>D3</sub>	MLV DIMMER SWITCH-LUTRON	"FH"=FU	AN POWERED UNIT "FVT"=FLUSH VALVE ME HOOD "SC"=SERVICE CARRI MAKEUP MIRROR "CWL"=CASEWORK LI
FPLP	POWER LIMITED FIRE ALARM PLENUM	SEF	EXHAUST FAN SWITCH	"GWL"=G	DIALEOP MIRROR CWL =CASEWORR LI BREEN WALL LIGHTING "WDU"=WASHDOWN U DINDENSATE PUMP "TS"=TURNSTILE
FTL GFCI	FEED THRU LUGS GROUND FAULT CIRCUIT INTERRUPTER	PRL	WIRELESS LIGHT FIXTURE RELAY MODULE		INDENSAIL FOMP IS FIORNSTILE
GND	GROUND FAULT CIRCOTT INTERROFTER GROUND	PRD	WIRELESS LIGHT FIXTURE DIMMING MODULE	RECEP	TACLES/DEVICES
GRS GWH	GALVANIZED RIGID STEEL CONDUIT GAS WATER HEATER	PRF	WIRELESS FAN RELAY MODULE	• <u>••</u> ••	RECEPTACLE TAGS (**)
HP	HORSEPOWER	DL	DAYLIGHT SENSOR	"MW"=MI	CROWAVE "REF"=REFRIGERATOR
LV MAU	LOW VOLTAGE MAKE-UP AIR UNIT	QS	WIRELESS SENSOR REPEATER MODULE	"CP"=CC	BOVE COUNTER "H"=HORIZONTAL MTI DNDENSATE PUMP "DW"=DISHWASHER
MCC	MOTOR CONTROL CENTER	PC	PHOTOCELL	"LAV"=L4	CATHERPROOF     "SM"=SURFACE MTD       AVATORY REC     "EWC"=WATER COOLE
MPS NAC	MOTORIZED PROJECTION SCREEN NOTIFICATION APPLIANCE CIRCUIT	INV	EMERGENCY LIGHTING INVERTER	"AVR"=A	ENDING MACHINE "CWM"=CASEWORK M UDIO/VISUAL RACK "VDR"=VOICE/DATA F
N/E	NORMAL/EMERGENCY	NWK	LIGHTING CONTROL AV INTERFACE MODULE	"RWP"=F	INDER COUNTER REF "FH"=FUME HOOD RECESSED WP IN USE "SWP"=SURFACE WP
NF NIC	NON-FUSED NOT-IN-CONTRACT	GRX	GRAPHIC EYE		CUUM PUMP "LTG"=LIGHTING RECI E MACHINE "SPD"=SURGE PROTE
NTS	NOT TO SCALE	ESN	0-10V DIMMING CONTROL PANEL		SPECIAL NEMA DEVICE TAGS (**)
QS RAL	LUTRON QUANTUM SYSTEM RIGID ALUMINUM CONDUIT	4B	4-BUTTON LIGHTING CONTROL STATION LIGHTING CONTROL TRANSFER SWITCH		-20R (208V.,10, 20A, STRAIGHT BLADE) 14-30R (120/208V.,10, 30A, TWIST LOCK)
SLC	SIGNALING LINE CIRCUIT	LCTS	RIB, LVS, BODINE, OR HUBBELL EQUAL	SR3- L	5–20R (120V.,1ø, 20A, TWIST LOCK) 4–50R (120/240V.,1ø, 50A. STRAIGHT BLAI
TOS TP	TOP OF STAIR TWISTED PAIR			(**E) DE	ENOTES CONNECTION TO EMERGENCY SOURC
TPS	TRAP PRIMING STATION		NG FIXTURES	P	GFCI DUPLEX RECEPTACLE
TSP UON	TWISTED SHIELDED PAIR UNLESS OTHERWISE NOTED		2X4 LED RECESSED FIXTURE	φ	DUPLEX RECEPTACLE
V	VOLTS		2X4 LED EMERGENCY FIXTURE	•	DOUBLE DUPLEX RECEPTACLE (QUAD)
VD VF	VOICE/DATA VENTILATION FAN		2X2 LED RECESSED FIXTURE / EMERGENCY	•	DOUBLE DUPLEX GFCI RECEPTACLE
(VIF)	VERIFY IN FIELD		TRACK LIGHTING FIXTURE	<b>₽</b>	USB + QUAD RECEPTACLE
WP XFMR	WEATHERPROOF TRANSFORMER		TRACK LIGHTING FIXTURE	<b>₽</b>	USB + DUPLEX RECEPTACLE
+42	DENOTES MOUNTING HEIGHT IN INCHES		LINEAR LED FIXIORE	<b>₽</b>	EMERGENCY POWER DUPLEX RECEPTACL
(RE) (E)	DENOTES "RELOCATED EXISTING" DENOTES "EXISTING TO REMAIN"		LINEAR EMERGENCY LIGHTING SECTION	<b>⊕</b> # <sup>+48</sup>	EMERGENCY POWER QUAD RECEPTACLE
(R)	DENOTES "REMOVE EXISTING"	-00-	DECORATIVE LIGHT FIXTURE		CEILING MOUNT DEVICE - NEMA 5-20R
(ER) (N)	DENOTES "EXISTING TO BE RELOCATED" DENOTES "NEW"	$\bigcirc \bigcirc $	LED EXIT SIGN		CEILING MOUNT DEVICE - NEMA X-XXX
 			EMERGENCY LIGHTING REMOTE/BATTERY		CORD REEL TYPE 'A, B, C, ETC.'
<u>VACAN(</u>	<u>CY SENSORS</u>		CONCEALED EMERGENCY LIGHT		WIREMOLD SURFACE RACEWAY PREWIRED WIREMOLD ALA3800-GBA (18'
SVD	VACANCY SENSOR SWITCH W/ 0-10V DIMMING	000	EMERGENCY RECESSED DOWNLIGHT		
Sv	VACANCY SENSOR SWITCH		WALL SCONCE FIXTURES	<u>FIRE</u> A	LARM
M <sub>A/B/C</sub>	DUAL TECH HARDWIRED SENSOR - CEILING MTD "A" = 500 SQFT / 180 DEGREE			SD	FIRE ALARM SMOKE DETECTOR
	"B" = 1000 SQFT / 180 DEGREE	SECUR	ITY SYSTEMS	Ð	FIRE ALARM HEAT DETECTOR
_	"C" = 2000 SQFT / 360 DEGREE		SECURITY SYSTEM CAMERA	Ē	FIRE ALARM MANUAL PULL STATION
PP	OCCUPANCY SENSOR POWER PACK RELAY	SEC / KP	SECURITY SYSTEM PANEL / KEY PAD		FIRE ALARM SPEAKER/STROBE
SP	OCCUPANCY SENSOR SLAVE PACK RELAY	ML / REX	MAGNETIC LOCK / REQUEST TO EXIT		FIRE ALARM STROBE
M <sub>***</sub>	WIRELESS VACANCY SENSORS "WC" = CEILING MOUNT SENSOR - 360"	CR / E	CARD READER / ELECTRIC STRIKE	SD <sub>SB</sub>	FIRE ALARM SMOKE DETECTOR W/ SOUNDER BASE
	"WH" = WALL MOUNT - HALLWAY SENSOR "KW" = CORNER MOUNT SENSOR - 90°	ER	EMERGENCY DOOR RELEASE	SD	DUCT MOUNTED SMOKE DETECTOR
	"WW" = WALL MOUNT SENSOR - 180"	PS	POWER SUPPLY	СМ	FIRE ALARM CONTROL/RELAY MODULE
SYSTEN	IS FURNITURE/SEATING		DOOR CONTACT / MOTION DETECTOR	RTS	REMOTE TEST STATION
	HARD-WIRED FEED TO SYSTEMS FURNITURE		SECURITY SYSTEM ALARM HORN/STROBE	ММ	FIRE ALARM MONITORING MODULE
	"W = WALL MTD / C = CEILING MTD"		DOOR RELEASE CONTROL		ELEVATOR RECALL SMOKE DETECTOR
P	POWER POLE "LETTER DENOTES TYPE"		VIDEO INTERCOM MASTER / REMOTE STATION		CARBON MONOXIDE DETECTOR
	CONDUIT STUB WITH POWER WHIP TO SEATING	• / •	ADA DOOR STATION / MOTORIZED DOOR MTR	0	SPEAKER/STROBE - CEILING MTD
(P) (M)		<b>~</b>		-	
(P) (W)	WALL BOX WITH POWER WHIP TO SEATING	Sĸ	MOTORIZED DOOR KEY SWITCH OPERATOR	Ø	CEILING MOUNTED STROBE
-	WALL BOX WITH POWER WHIP TO SEATING	Sĸ	MOTORIZED DOOR KEY SWITCH OPERATOR	0	CEILING MOUNTED SPEAKER
_	WALL BOX WITH POWER WHIP TO SEATING	Sĸ	MOTORIZED DOOR KEY SWITCH OPERATOR	Ø	

	3	
	<b>GENERAL ELECTRICAL SPECIFICATIONS</b> 1. ALL WORK SHALL COMPLY AND BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES, THE	GENER
	LATEST UNIFORM CONSTRUCTION CODE STATUTE, THE INTERNATIONAL CODES AS AMENDED AND ADOPTED BY PENNSYLVANIA, REGULATIONS, LOCAL CODES, THE NATIONAL ELECTRIC CODE, PCCA	SHALL B
ARATELY	BUILDING STANDARDS, NFPA, AND ALL OTHER AGENCIES HAVING JURISDICTION. OBTAIN ALL REQUIRED PERMITS AND PAY ALL REQUIRED FEES.	2. ALL LUG BASED O
S NO. OF CIRCUITS	<ol> <li>ALL ELECTRICAL EQUIPMENT, MATERIALS, DEVICES, AND APPLIANCES SHALL BE LABELED AND LISTED BY A CERTIFIED TESTING LABORATORY.</li> </ol>	3. ALL CIRC CONDUCT
	3. PROVIDE COMPLETE ELECTRICAL SYSTEMS AS INDICATED ON DRAWINGS AND SPECIFIED HEREIN. "PROVIDE" SHALL MEAN "FURNISH AND INSTALL". "OWNER" SHALL MEAN "THE PENNSYLVANIA	4. BRANCH
	CONVENTION CENTER AUTHORITY (PCCA)" OR THEIR REPRESENTATIVE. "DESIGN TEAM AND/OR ENGINEER" SHALL MEAN "DIMITRI J. VERVERELLI, INC." OR THEIR REPRESENTATIVE.	5. ALL JUN 6. ALL DEV
	4. REFERENCE ARCHITECTURAL AND MECHANICAL DRAWINGS FOR COORDINATION AND OTHER WORK.	NUMBER(
UN	5. PROVIDE ALL MATERIALS AND LABOR FOR THE COMPLETE ELECTRICAL WORK AS SHOWN ON THE DRAWINGS AND AS SPECIFIED. ANY APPLIANCE, DEVICE OR WORK INCIDENTAL OR NECESSARY TO MAKE THE WORK COMPLETE SHALL BE PROVIDED WITHOUT ADDITIONAL EXPENSE TO THE OWNER.	7. ALL BRA WALLS A
NELBOARD	6. GIVE ALL NOTICES, OBTAIN ALL PERMITS AND PAY ALL GOVERNMENTAL TAXES, FEES AND COSTS;	8. ALL OUT PLATES.
BOARD	FILE NECESSARY PLANS AND OBTAIN APPROVALS OF ALL GOVERNMENTAL DEPARTMENTS AND PUBLIC UTILITIES HAVING JURISDICTION; OBTAIN CERTIFICATES OF INSPECTION FROM AN NFPA APPROVED AGENCY FOR THE WORK AND DELIVER SAME TO THE OWNER WITH REQUEST FOR FINAL PAYMENT.	FIXTURES SHALL B
	7. VISIT THE SITE AND VERIFY ALL MEASUREMENTS AND FIELD CONDITIONS AFFECTING THE WORK, PRIOR TO SUBMITTING BID. IN SUBMITTING THE BID THE CONTRACTOR VERIFIES AND ASSERTS THAT	9. METAL C ABOVE A
	HE HAS VISITED THE SITE AND NO ADDITIONAL COST TO THE OWNER WILL BE INCURRED DUE TO THE CONTRACTOR'S FAILURE TO VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING HIS BID. ANY	TIME SHA HANGERS
	DISCREPANCIES BETWEEN THE DRAWINGS AND FIELD CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER.	10. ALL ELE
۶	8. WORK SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER BY SKILLED MECHANICS USING THE BEST TRADE METHODS.	11. GROUNDI 12. ANY EQU
	9. SUBMIT SHOP DRAWINGS ACCORDING TO THE GENERAL CONDITIONS AND OBTAIN APPROVAL BEFORE PURCHASE OR INSTALLATION OF WORK.	13. SHARED
	10. COORDINATE ALL RIGGING ACTIVITIES AND POWER SHUTDOWNS WITH THE OWNER'S REPRESENTATIVE AND OTHER TRADES. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL STAGING, RIGGING, HOISTING AND SERVICES NECESSARY FOR THE ERECTION AND DELIVERY OF THE ELECTRICAL	FOR EAC 14. WIRE AN NOTED. \ MINIMUM
	EQUIPMENT INTO THE BUILDING. 11. PRIOR TO FINAL ACCEPTANCE OF THE WORK SUBMIT A WRITTEN STATEMENT TO THE ARCHITECT	(MOTORS
	GUARANTEEING ALL EQUIPMENT AND WORK FOR ONE (1) YEAR FROM DATE OF ACCEPTANCE.	15. ALL RAC 16. MC CABL
	12. LOCAL SWITCHES – HEAVY DUTY, SPECIFICATION GRADE, FLUSH TUMBLER, COLOR AS SELECTED BY ARCHITECT, QUIET OPERATION, 20A. 120/277V., SINGLE, 2–POLE, 3 OR 4 WAY AS REQUIRED. PROVIDE WEATHER-PROOF SWITCHES WHERE SHOWN.	APPROVE WIRE.
	13. DUPLEX RECEPTACLES – LEVITON EXTRA HEAVY DUTY, GROUNDING TYPE, 20 AMP, 125V. COLOR SHALL BE AS SELECTED BY ARCHITECT.	17. INTERIOR • FEED
MOTOR	14. DUPLEX USB CHARGER RECEPTACLES: DECORA TAMPER-RESISTANT, GROUNDING TYPE, 20 AMP,	BRAN CABL
	125V., 3.6A DC, LEVITON T5832. COLOR SHALL BE AS SELECTED BY ARCHITECT. 15. GFCI RECEPTACLES SHALL BE LEVITON #G5362 OR EQUAL.	LIGH • VOIC WALL
ER SUPPLY	" 16. DEVICE PLATES – 302 STAINLESS STEEL, SINGLE OR MULTI-GANG TO MATCH DEVICE.	<ul> <li>SECU AND</li> </ul>
r	17. DIMMERS - REFERENCE THE ELECTRICAL LEGEND AND DETAILS FOR TYPES AND MODEL NUMBERS.	• FIRE 18. EXTERIOF
N COIL UNIT	18. OCCUPANCY SENSORS – REFERENCE THE ELECTRICAL LEGEND AND DETAILS FOR TYPES AND MODEL NUMBERS.	<ul><li>FEED</li><li>PVC</li></ul>
SH VALVE AP PRIMER STATION	19. DEVICE LOCATIONS SHOWN ON DRAWINGS ARE DIAGRAMMATIC, COORDINATE EXACT LOCATION AND MOUNTING HEIGHT IN FIELD PRIOR TO ROUGH IN.	ALUN • PVC CONI
ABINET UNIT HEATER USH VALVE XFMR RVICE CARRIER	20. NOTE THAT CONSTRUCTION IS TO BE PERFORMED IN EXISTING FACILITIES AND THAT THE DRAWINGS GENERALLY SHOW ONLY NEW WORK THAT IS REQUIRED. THE DRAWINGS DO NOT SHOW IN DETAIL	RIGIE     CORE
ASEWORK LIGHT ASHDOWN UNIT INSTILE	HOW THE NEW WORK IS TO BE INSTALLED BECAUSE UNKNOWN OBSTRUCTIONS TO ITS INSTALLATION MAY BE DISCLOSED AS THE WORK PROGRESSES. PERFORM THE WORK INDICATED, AND PERFORM SUCH ADDITIONAL WORK AS MAY BE REQUIRED BUT IS NOT SPECIFICALLY SHOWN. PERFORM THIS WORK IN SUCH A MANNER AS TO OVERCOME ALL OBSTRUCTIONS AND DIFFICULTIES THAT ARE ENCOUNTERED AT NO ADDITIONAL EXPENSE TO THE OWNER.	PVC 19. EXTERIOF • FEED • BRAN
	21. NEW AND EXISTING WIRING PASSING THROUGH FIRE RATED PARTITIONS, FLOORS, AND CEILINGS:	20. USE LIQI
	CAULK THE SPACE BETWEEN THE OPENING AND SLEEVE OR WIRING/CONDUIT AND THE SPACE BETWEEN THE SLEEVE AND WIRING/CONDUIT WITH U.L. APPROVED FIRESTOP PRODUCT AS MANUFACTURED BY HILTI, 3M, OR STI TO OBTAIN A U.L. LISTED FIRE RATED ASSEMBLY. ALL	21. PROVIDE CONDUC
FRIGERATOR	PRODUCTS SHALL BE INSTALLED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S INSTRUCTIONS. ALL EXISTING PENETRATIONS SHALL BE SEALED WITH A U.L. FIRE RATED ASSEMBLY.	22. FIELD CO REGISTER
ZONTAL MTD HWASHER	22. CONTRACTOR SHALL PROPERLY PROTECT ALL WORK AND EQUIPMENT TO PREVENT OBSTRUCTION, DAMAGE, OR LOSS. ALL CONDUIT OPENINGS SHALL BE CLOSED WITH CAPS OR PLUGS DURING	23. COORDIN
RFACE MTD ATER COOLER ASEWORK MOUNTED	INSTALLATION. ALL EQUIPMENT SHALL BE TIGHTLY COVERED WITH APPROVED MATERIAL AND PROTECTED AGAINST DIRT, WATER, OR MECHANICAL INJURY. AT FINAL COMPLETION, ALL WORK SHALL BE THOROUGHLY CLEANED AND DELIVERED IN PERFECT, UNBLEMISHED CONDITION.	24. WHERE ( CEILING
DICE/DATA RACK NE HOOD JRFACE WP IN USE SHTING RECEPTACLE	23. PROVIDE BARRICADES AND LIGHTS (IF REQUIRED) AROUND ALL WORK AREAS TO PROTECT PEDESTRIAN TRAFFIC AND TO PREVENT UNAUTHORIZED PEDESTRIAN ACCESS. PROTECTION SHALL MEET THE REQUIREMENTS OF THE LOCAL AND STATE REGULATIONS AND GOVERNMENT BODIES.	FIXTURES 25. ALL EXP CONDUIT
JRGE PROTECTION	24. ALL DAMAGE TO THE BUILDING, MECHANICAL, PLUMBING, AND ELECTRICAL SYSTEMS OR	26. PROVIDE
<u>(**)</u> BLADE)	SURROUNDINGS, RESULTING FROM CONTRACTOR'S FAILURE TO ADEQUATELY PROTECT THE WORK SHALL BE REPAIRED OR REPLACED AS DIRECTED, AT NO ADDITIONAL COST TO THE OWNER, INCLUDING ANY WORK DAMAGED IN ORDER TO MAKE GOOD SUCH DEFECTS.	(OR AS AND QU/
WIST LOCK) OCK)	25. ALL EQUIPMENT AND MATERIALS REMOVED AND NOT WANTED BY OWNER SHALL BECOME PROPERTY	27. PROVIDE DRAWING
RAIGHT BLADE) ENCY SOURCE	OF THE CONTRACTOR AND SHALL BE REMOVED IMMEDIATELY FROM THE SITE. 26. SEAL AND PATCH ALL REMAINING HOLES, OPENINGS, ETC. TO MATCH THE ADJOINING SURFACES IN	28. Contrac Location
	MATERIALS, TEXTURES, AND FINISHES.	ARCHITE
	27. ANY EXISTING POTENTIALLY HAZARDOUS MATERIALS ENCOUNTERED IN THE COURSE OF THE WORK SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER FOR REMOVAL AND DISPOSAL.	DEVICES.
E (QUAD)	28. SMOKING AT THE JOB SITE IS NOT ALLOWED. FLAMMABLE MATERIALS MAY NOT BE STORED OR ALLOWED TO REMAIN OVERNIGHT WITHIN THE BUILDING. THIS INCLUDES, BUT IS NOT LIMITED TO, PAINTS, THINNERS, CLEANING AND RESTORATION PRODUCTS, RAGS OR BRUSHES, AND ANY TOOL	30. FOR SMA CONTACT MECH/AT
PTACLE	THAT IS CAPABLE OF PRODUCING FLAME. SAWDUST, SCRAP LUMBER, SOAKED RAGS, AND OTHER FLAMMABLE CONSTRUCTION DEBRIS MUST BE COLLECTED AT THE END OF EACH DAY AND DISPOSED	31. COORDIN
	OF PROPERLY OUTSIDE OF THE BUILDING. 29. MAINTAIN SUITABLE FIRE PROTECTION EQUIPMENT AT BUILDING SITE. AT MINIMUM, TYPE ABC FIRE	AND IT . TO BE N
RECEPTACLE	EXTINGUISHERS SHALL BE PROVIDED WHERE WORK IS BEING PERFORMED WITH OPEN FLAME OR USING FLAMMABLE MATERIALS AND AN ADDITIONAL FIRE EXTINGUISHER SHALL BE PROVIDED TO THE WORKER PERFORMING THE WORK. TRAIN ALL WORKERS IN THE USE OF FIRE PROTECTION	32. CIRCUIT
ECEPTACLE	EQUIPMENT. ALL FIRE SAFETY REQUIREMENTS LISTED ABOVE ARE TO BE CONSIDERED MINIMUM. CONTRACTOR IS RESPONSIBLE FOR TAKING OTHER MEASURES DEEMED NECESSARY BY THE	<u>SECUR</u>
EMA 5-20R	CONTRACTOR TO PROTECT THE BUILDING. 30. THE CONTRACTOR SHALL MAINTAIN AS-BUILT DRAWINGS OF THE WORK PERFORMED. AT THE	1. CONTRAC DOOR PO EQUIPME
EMA X-XXX	COMPLETION OF THE INSTALLATION, EACH TRADE WILL INCORPORATE ALL FIELD CHANGES ON THE AUTOCAD DATA BASE AND SUBMIT THREE (3) SETS OF PLOTTED PRINTS & A DATA DISK FOR	SECURIT
ETC.'	RECORD PURPOSES. NO WALLS OR CEILINGS SHALL BE CLOSED PRIOR TO SITE OBSERVATION AND REVIEW BY THE OWNER.	2. COORDIN BIDDING. FUNCTIOI
D-GBA (18"O.C.)	TELECOMMUNICATIONS NOTES	3. PROVIDE
	1. CONTRACTOR SHALL PROVIDE ALL TELECOMMINUCATIONS SYSTEM COMPONENTS SUCH JACKS, CABLING, CONDUIT, BACKBOXES, RACEWAYS, ETC. IN THE BID PROPOSAL. PROVIDE A COMPLETE	CONTROL CONTROL
	TURNKEY TELECOMMUNICATIONS SYSTEM TO MATCH THE FACILITIES EXISTING SYSTEM. 2. COORDINATE ALL EQUIPMENT AND DEVICES WITH THE OWNERS'S TELECOMMUNICATIONS DEPARTMENT	4. PROVIDE 5. ALL WIRI
R	PRIOR TO BIDDING. INCLUDE ALL REQUIRED WORK IN THE BID PROPOSAL FOR A COMPLETE FULLY FUNCTIONAL SYSTEM ACCEPTABLE TO THE OWNER.	6. ALL EXP
ΓΑΤΙΟΝ	<ol> <li>ALL CABLING SHALL BE CAT-6E 4-PAIR UTP WITH RJ-45 JACKS.OBSERVE ALL MANUFACTURER INSTALLATION GUIDELINES INCLUDING; TERMINATION POSITION/JACKET REMOVAL, BEND RADIUS FOR</li> </ol>	7. PROVIDE AN ACCE
E	UTP, AND RECOMMENDED PULLING TENSIONS.	ALLOW F
	4. INSTALLATION SHALL COMPLY WITH ANSI/TIA/EIA 568C TELECOMMUNICATIONS CABLING STANDARD, COMMERCIAL BUILDINGS. TEST ALL COPPER UTP CABLES UTILIZING A PERMANENT LINK TEST WITH A LEVEL III CABLE TESTER, PROVIDE TEST RESULTS TO OWNER.	8. PROVIDE SPACE F
R	5. PROVIDE ALL CABLING BACK TO LOCATION DETERMINED BY OWNER. MAKE ALL TERMINATIONS.	9. ALL LOW
	6. ALL WIRING IN AREAS WITHOUT CEILINGS SHALL BE INSTALLED IN CONDUIT.	EXPOSED
MODULE	<ol> <li>ALL EXPOSED WIRING SHALL BE INSTALLED IN CONDUIT.</li> <li>8. CONTRACTOR SHALL PROVIDE ALL RACEWAYS, BOXES, CABLING, DEVICES, TERMINATIONS, PATCH</li> </ol>	10. ALL SEC CONTROL
DULE	PANELS, RACKS, GROUNDING, TESTING, ETC. IN THEIR BID PROPOSAL. PROVIDE BACKBOXES AND CONDUIT PATHWAYS FOR ALL INFORMATION TECHNOLOGY SYSTEM DEVICES AND WIRING.	11. COORDIN ROUGH-
TECTOR	9. WHERE CABLING PASSES THROUGH NEW OR EXISTING WALLS, PROVIDE STI EZPATH 44+ SERIES FIRE RATED PRE-MANUFACTURED CABLE PATHWAYS COMPLETE WITH BRACKETS AND RADIUS	12. COORDIN PRIOR TO
R	CONTROL MODULE. 10. FOR EACH WALL MOUNTED COMMUNICATION JACK PROVIDE A 4"x4"x2.125" BOX WITH SINGLE GANG	13. PROVIDE
MTD	TILE RING, AND (1) 1-1/4" CONDUIT EXTENDED TO AN ACCESSIBLE LOCATION ABOVE CEILING. COORDINATE EXACT LOCATION WITH ARCHITECT AND OWNER.	SECURIT TRANSFO CONDUIT
	11. COORDINATE ALL DEVICE LOCATIONS WITH THE FURNITURE LAYOUT. RECEPTACLES AND IT JACKS SHALL BE MOUNTED IN THE OPEN AREA/LEG SPACE BENEATH THE DESK. DEVICES TO BE MOUNTED	14. DEVICES, AND PLA
UIT POWER SUPPLY	8" ON CENTER.	AND PLA

- EMT FIXED TO THE TOP OF THE BOX (TYPICAL) AND TURNING OUT A MINIMUM OF 6 INCHES ABOVE THE NEAREST ACCESSIBLE CEILING LEVEL.
- 13. BOTH OPEN ENDS OF THE EMT SHALL BE FURNISHED WITH A 1-1/4 INCH DIAMETER SET SCREW CONNECTOR AND THREADED NYLON BUSHING.
- 14. EACH LENGTH OF EMT SHALL BE FURNISHED WITH A PULL STRING EXTENDING AT LEAST

## RAL WIRING METHODS

- NDUCTOR INSULATION SHALL BE 90°C THHN/THWN. ALL FEEDERS AND BRANCH CIRCU BE COPPER. S SHALL BE U.L. LISTED FOR USE WITH COPPER OR ALUMINUM CABLE WHOSE AMP/
- ON 75°C CONDUCTOR TEMPERATURE RATING.
- CUITS TO BE 2#12, 1#12GND., UNLESS OTHERWISE NOTED. PROVIDE #10 AWG TORS FOR ALL 120V., 20A BRANCH CIRCUITS EXCEEDING 90 FEET IN LENGTH.
- CIRCUITS ARE DIAGRAMMATIC AND DO NOT REPRESENT ACTUAL PLACEMENT OF COND
- NCTION BOX AND DEVICE COVER PLATES SHALL IDENTIFY CIRCUIT NUMBERS.
- VICES SHALL HAVE ADHESIVE LABELS ATTACHED TO FACEPLATE IDENTIFYING CIRCUIT
- ANCH CIRCUIT WIRING IN FINISHED AREAS IS TO BE INSTALLED CONCEALED IN FLOORS AND CEILINGS.
- TLET BOXES SHALL BE 4 INCH SQUARE GALVANIZED PRESSED STEEL WITH RAISED CO BOXES FOR SINGLE DEVICES MAY BE 2" x 4" SINGLE SIZES. BOXES FOR LIGHTING S SHALL 4" OCTAGON TYPE. EXTERIOR AND SURFACE MOUNT EXPOSED INTERIOR BOX BE CAST METAL WITH THREADED HUBS. PROVIDE SHALLOW BOXES IN FURRED-OUT W
- CLAD CABLE (MC) AND CONDUIT SHALL BE SUPPORTED FROM THE BUILDING CONSTRU AT INTERVALS NOT GREATER THAN 6'-0" AND WITHIN 12" OF A DEVICE BACKBOX. AT ALL 'MC' CABLE OR CONDUIT BE SUPPORTED FROM FIXTURE HANGERS, CEILING GRID S OR HVAC SUPPORTS. 'MC' CABLE SHALL NOT LAY ON TOP OF THE CEILING SYSTEM
- CTRICAL CIRCUITS SHALL BE RATED FOR NO LESS THAN 20 AMPERES.
- DING SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE ARTICLE
- UIPMENT REQUIRING MORE THAN 15 AMPERES SHALL BE ON ITS OWN DEDICATED CIR NEUTRALS FOR BRANCH CIRCUITS WILL NOT BE PERMITTED. PROVIDE DEDICATED NEW
- CH BRANCH CIRCUIT. ND CABLE SHALL BE COPPER, 600 VOLT INSULATION TYPE THHN, UNLESS OTHERWISE WIRE SIZES #10 AND SMALLER SHALL BE SOLID, #8 AND LARGER SHALL BE STRAND I SIZE WIRE SHALL BE #12AWG.\_BRANCH CIRCUITS CONNECTED TO VIBRATING EQUIPM
- S, AHU'S, FCU'S, CU'S ETC.) SHALL BE STRANDED. CEWAYS SHALL BE U.L. APPROVED. MINIMUM SIZE CONDUIT AND EMT SHALL BE  $\frac{34}{7}$
- BLE SHALL BE GALVANIZED SPIRAL STEEL ASSEMBLY WITH THHN WIRES INCLUDED, OR /ED FITTINGS AND COUPLINGS BY AFC CO. CABLE SHALL HAVE GREEN INSULATED GRO

WIRING METHODS

- DERS ELECTRICAL METALLIC TUBING (EMT). ANCH CIRCUITS - ELECTRICAL METALLIC TUBING (EMT) WHERE EXPOSED AND METAL ILE (MC) WHERE CONCEALED IN WALLS AND MAXIMUM 8' ABOVE ACCESSIBLE CEILINGS
- CE/DATA/VIDEO ELECTRICAL METALLIC TUBING (EMT), WHERE EXPOSED OR CONCEAL
- LS AND FLOORS. USE SURFACE RACEWAY WHERE INDICATED ON THE DRAWINGS. URITY - ELECTRICAL METALLIC TUBING (EMT), WHERE EXPOSED OR CONCEALED IN WA
- ) FLOORS. USE SURFACE RACEWAY WHERE INDICATED ON THE DRAWINGS. E ALARM – ELECTRICAL METALLIC TUBING (EMT)
- R WIRING BELOW GRADE DERS/BRANCH CIRCUITS – SCHEDULE 40 NON-METALLIC CONDUIT (PVC).
- TRANSITION TO ABOVE GRADE/SLAB RIGID STEEL GALVANIZED CONDUIT OR RIGID MINUM CONDUIT.
- TRANSITION TO INSIDE BUILDING RIGID STEEL GALVANIZED CONDUIT OR RIGID ALUI IDUIT
- D ALUMINUM CONDUIT IN CONTACT WITH SOIL OR CONCRETE SHALL HAVE SUPPLEMEN ROSION PROTECTION (BITUMASTIC PAINT, TAPE WRAPS APPROVED FOR THE PURPOSE, COATED CONDUIT.)
- R WIRING ABOVE GRADE
- DERS RIGID ALUMINUM CONDUIT. NCH CIRCUITS - RIGID ALUMINUM CONDUIT.
- UID-TIGHT FLEXIBLE CONDUIT TO ALL EXTERIOR VIBRATING EQUIPMENT AND PUMP M
- CONDUCTOR PIG-TAIL REDUCERS OR OVERSIZED LUGS TO COMPENSATE FOR INCREA TOR SIZE DUE TO VOLTAGE DROP.
- OORDINATE LOCATION OF ALL CEILING MOUNTED DEVICES WITH LIGHT FIXTURES AND ERS AND GRILLES.
- NATE ALL DEVICE LOCATIONS WITH THE FURNITURE LAYOUT.
- CEILING MOUNTED OCCUPANCY SENSORS ARE SHOWN LOCATED IN AREAS WITHOUT FI (ATC, ETC.), THE SENSOR SHALL BE PENDANT MOUNTED AT HEIGHT OF THE LIGHT
- POSED LOW VOLTAGE WIRING FOR THE LIGHTING CONTROL SYSTEM TO BE INSTALLED
- BRANCH CIRCUITS TO EACH VAV BOX FROM LOCAL UNSWITCHED NORMAL POWER S SHOWN ON THE DRAWINGS). REFERENCE MECHANICAL DRAWINGS FOR EXACT LOCATIO IANTITIES.
- E ALL CODE REQUIRED DUCT MOUNTED SMOKE DETECTORS. REFERENCE MECHANICAL GS FOR LOCATIONS.
- CTOR SHALL ATTEND A MANDATORY FIELD MEETING TO COORDINATE THE THE EXACT NS AND HEIGHTS OF FURNITURE, EQUIPMENT, AND DEVICES WITH THE OWNER AND/OI CT PRIOR TO ROUGH-IN.
- BRANCH CIRCUITS TO ALL OF THE AUTOMATIC TEMPERATURE CONTROL PANELS AND
- MALL FRACTIONAL HP MOTORS PROVIDE LOCAL DISCONNECT SWITCH AND CONTROL TOR TO INTERFACE WITH THE ATC SYSTEM U.O.N. COORDINATE CONTROL VOLTAGE WITH TC CONTRACTOR.
- NATE ALL DEVICE LOCATIONS WITH THE FURNITURE AND CASEWORK LAYOUT. RECEPTAC JACKS SHALL BE MOUNTED IN THE OPEN AREA/LEG SPACE BENEATH THE DESK. DEV MOUNTED 8" ON CENTER.

ALL EXIT SIGNS INTO LOCAL 277V NORMAL/EMERGENCY NIGHT LIGHT CIRCUIT.

## RITY SYSTEM NOTES

- CTOR SHALL PROVIDE ALL SECURITY SYSTEM DEVICES SUCH AS CAMERAS, CARD REAL POSITION SWITCHES, MAGLOCKS, ETC., INCLUDING ALL RACEWAYS, BOXES, BRANCH CIRC IENT, DEVICES, CABLING, ETC. IN THE BID PROPOSAL. PROVIDE A COMPLETE TURNKEY SYSTEM TO MATCH THE FACILITIES EXISTING SYSTEM.
- INATE ALL EQUIPMENT AND DEVICES WITH THE OWNERS'S SECURITY DEPARTMENT PRIOR G. INCLUDE ALL REQUIRED WORK IN THE BID PROPOSAL FOR A COMPLETE FULLY ONAL SYSTEM ACCEPTABLE TO THE OWNER.
- CARD READERS MOUNTED IN THE NEW TURNSTILES. PROVIDE COMMUNICATION AND BETWEEN TURNSTILE CONTROLLERS, CARD READERS, AND THE BUILDING'S SECURITY PANELS.
- E ALL CABLING BACK TO LOCATION DETERMINED BY OWNER. MAKE ALL TERMINATIONS.
- RING IN AREAS WITHOUT CEILINGS SHALL BE INSTALLED IN CONDUIT.
- POSED WIRING SHALL BE INSTALLED IN CONDUIT.
- E 4"x4"x2.5" ABOVE CEILING BACKBOX AND EMPTY CONDUIT WITH PULL STRING TO A ESSIBLE CEILING SPACE FOR ALL SECURITY SYSTEM CAMERAS SHOWN ON THE DRAWI OR A RELOCATION DISTANCE OF 20 FEET. EXACT LOCATIONS TO BE REVIEWED BY T PRIOR TO ROUGH-IN.
- E RECESSED BACKBOX AND CONDUIT WITH PULL STRING TO ABOVE AN ACCESSIBLE CI FOR ALL SECURITY DEVICES, INCLUDING EACH ACCESS KEY PAD, ALARM CONTROL KEY TO EXIT DEVICE, REMOTE RELEASE STATION, DOOR BELL BUTTON, ETC.
- V VOLTAGE WIRING TO BE CONCEALED IN THE DOOR FRAMES. THERE SHALL BE NO D CONDUIT OR RACEWAYS IN FINISHED SPACES.
- CURITY SYSTEM CABLING, JACKS, DEVICES, POWER SUPPLIES, CAMERAS, RECORDERS, LLERS, MOUNTING SYSTEMS, ETC. SHALL BE PROVIDED BY THE ELECTRICAL CONTRACT
- NATE LOCATION OF SECURITY SYSTEM POWER SUPPLY RECEPTACLE WITH OWNER PRIO -IN. ALLOW FOR A RELOCATION DISTANCE OF 20'.
- NATE LOCATION AND MOUNTING HEIGHTS OF ALL SECURITY SYSTEM DEVICES WITH OWN TO ROUGH-IN. ALLOW FOR A RELOCATION DISTANCE OF 20'.
- HARDWIRED CONNECTION TO THE SECURITY SYSTEM POWER SUPPLY AND DOOR Y/LOCKING SYSTEM. WHERE ABOVE CEILING POWER SUPPLIES ARE PLUG-IN LOW VOL DRMERS, PROVIDE RECEPTACLE WITH BACKBOX MOUNTED INSIDE METAL ENCLOSURE V T CONNECTION TO THE LOW VOLTAGE SYSTEM.
- CONDUIT/EMT, AND JUNCTION BOX CONFIGURATIONS AND LOCATIONS SHOWN IN ELE AN ARE CONCEPTUAL REPRESENTATIONS ONLY.
- NDUIT/EMT SHALL BE MINIMUM 3/4" WITH PULL STRING AND NYLON BUSHINGS AT EA FITTING.
- 16. PROVIDE CONDUIT/EMT FROM EACH DEVICE AND BACKBOX TO AN ACCESSIBLE CEILING SPACE 17. DEVICE BACKBOX SIZES SHALL BE COORDINATED WITH THE OWNER'S SECURITY DEPARTMENT
- TO ROUGH-IN. 18. CONDUITS FROM ADJACENT DEVICES SHALL TERMINATE IN A LOCAL SECURITY JUNCTION BOX. JUNCTION BOX SHALL BE HOFFMAN 12"x12"x4" MINIMUM WITH HINGED COVER.
- 19. INSTALL NO MORE THAN EQUIVALENT OF TWO 90 DEGREE BENDS BETWEEN BOXES.

- 12. ALL RECESSED AND SURFACE MOUNTED BOXES SHALL BE FURNISHED WITH 1-1/4 INCH DIAMETER
- 18-INCHES BEYOND EACH OPEN END OF EMT.

CUITS	<b>GENERAL FIRE ALARM NOTES</b> 1. THIS SPECIFICATION DESCRIBES AN EXTENSION OF THE EXISTING FIRE ALARM SYSTEM FOR THE LIMITED RENOVATED AREAS OF THE EXISTING BUILDING. MANUFACTURER: SIEMENS	
IPACITY IS	2. THE SYSTEM SHALL BE IN FULL COMPLIANCE WITH NATIONAL AND LOCAL CODES.	
	3. THE SYSTEM SHALL INCLUDE ALL REQUIRED HARDWARE, RACEWAYS, INTERCONNECTING WIRING AND SOFTWARE TO ACCOMPLISH THE REQUIREMENTS OF THIS SPECIFICATION AND THE CONTRACT DRAWINGS, WHETHER OR NOT SPECIFICALLY ITEMIZED HEREIN.	
ONDUIT.	4. ALL EQUIPMENT FURNISHED SHALL BE NEW AND THE LATEST STATE OF THE ART PRODUCTS OF A SINGLE MANUFACTURER, ENGAGED IN THE MANUFACTURING AND SALE OF FIRE DETECTION DEVICES FOR OVER TEN YEARS, UNLESS OTHERWISE NOTED TO REUSE EXISTING.	<b>KELLY MAIELLO</b> ARCHITECTS 1420 Walnut Street, 15th Floor Philadelphia, PA 19102
	5. THE SYSTEM AS SPECIFIED SHALL BE SUPPLIED, INSTALLED, TESTED AND APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION, AND TURNED OVER TO THE OWNER IN AN OPERATIONAL CONDITION.	www.kmarchitects.com
ORS,	6. PROVIDE AUDIBLE ALARMS IN ALL AREAS THROUGHOUT THE RENOVATED SPACE. THE AUDIBLE ALARM NOTIFICATION DEVICES SHALL PROVIDE A SOUND PRESSURE LEVEL OF 15 DBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL OR 5 DBA ABOVE THE MAXIMUM SOUND LEVEL HAVING A	ELLIOTT LEWIS LABOR
COVER IG BOXES	DURATION OF AT LEAST 60 SECONDS, WHICHEVER IS GREATER, IN EVERY SPACE WITHIN THE RENOVATED AREA. MINIMUM SOUND PRESSURE LEVEL SHALL BE 70 DBA, EXCEPT FOR MECHANICAL EQUIPMENT ROOMS WHICH SHALL BE MINIMUM 90 DBA.	ENTRANCE 1101 ARCH STREET
WALLS.	<ol> <li>THE CONTRACTOR SHALL INCLUDE IN HIS WORK, WITHOUT EXTRA COST TO THE OWNER, ANY LABOR, MATERIALS, SERVICES, APPARATUS, DRAWINGS, IN ADDITION TO CONTRACT DOCUMENTS, IN</li> </ol>	PHILADELPHIA, PA 19147
AT NO RID TEM.	ORDER TO MEET THE FUNCTIONAL INTENT AND COMPLY WITH ALL APPLICABLE CODES, LAWS, ORDINANCES, RULES AND REGULATIONS, WHETHER OR NOT INDICATED IN THE CONSTRUCTION DOCUMENTS.	Pennsylvania Convention Conter
CLE 250.	8. PROVIDE STROBES RATED 15/30/60/75 CD UNLESS OTHERWISE NOTED. SELECTION OF CANDELA RATINGS ARE THE RESPONSIBILITY OF THE FIRE ALARM VENDOR AND CONTRACTOR. THE CANDELA RATING OF EXISTING DEVICES BEING RE-USED SHALL BE REVIEWED AND VERIFIED FOR THE LAYOUT	<b>Convention Center</b> PHILADELPHIA
CIRCUIT.	SHOWN ON THE DRAWINGS. PROVIDE NEW ADDITIONAL DEVICES OR MODIFY LAYOUT AS REQUIRED TO MEET APPLICABLE CODES AND STANDARDS.	AN CTILITY MANAGED FACILITY
NEUTRAL	9. STROBES SHALL BE MOUNTED 80" ABOVE FINISH FLOOR OR 6" BELOW CEILING, WHICH EVER IS LOWER.	Dimitri J. Ververelli, Inc.
ISE ANDED. IPMENT	10. MANUAL PULL STATIONS SHALL BE MOUNTED A MINIMUM 42" ABOVE FINISHED FLOOR AND A MAXIMUM OF 48" ABOVE FINISHED FLOOR TO CENTER OF DEVICE.	MEP Engineer 211 N. 13th Street, 9th Floor
	11. ALL SMOKE DETECTORS SHALL BE MOUNTED A SUFFICIENT DISTANCE AWAY FROM SOURCES OF MIST AND STEAM.	Philadelphia, PA 19107 Phone: 215-496-0000 dgilbert@djvinc.com
OR WITH GROUND	<ol> <li>FIELD COORDINATE LOCATION OF ALL CEILING MOUNTED DEVICES WITH LIGHT FIXTURES AND HVAC REGISTERS AND GRILLES.</li> <li>ALL FIRE ALARM CABLE SHALL BE SOLID COPPER CABLE INSTALLED IN EMT.</li> </ol>	
	14. THE CONTRACTOR IS RESPONSIBLE FOR SIZING ALL WIRE AND CABLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, NFPA, AND VOLTAGE DROP.	
. CLAD NGS TO	15. PROVIDE CODE REQUIRED SIGNAGE AT EACH FIRE ALARM PULL STATION.	
EALED IN WALLS	<ol> <li>PROVIDE ADDITIONAL POWER SUPPLIES, AMPLIFIERS, AND CONTROL HARDWARE AS REQUIRED FOR A COMPLETE FUNCTIONAL SYSTEM INTEGRATED WITH THE EXISTING BUILDING SYSTEM.</li> <li>SYSTEMS MUST BE REOTECTED AND MAINTAINED DURING DEMOLITION AND CONSTRUCTION</li> </ol>	
	<ol> <li>SYSTEMS MUST BE PROTECTED AND MAINTAINED DURING DEMOLITION AND CONSTRUCTION.</li> <li>THE ELECTRICAL CONTRACTOR SHALL INCLUDE IN HIS BID PROPOSAL ALL COSTS INCURRED BY THE FIRE ALARM VENDOR AND FOR ALL EQUIPMENT AND DEVICES.</li> </ol>	
D	19. FURNISH BATTERY CALCULATIONS AND DRAWINGS FOR THE NEW SYSTEM.	
	20. ALL SMOKE DETECTORS SHALL BE PHOTOELECTRIC TYPE. 21. PROVIDE ACCESSIBLE WALL MOUNTED TEST/STATUS STATIONS FOR ALL NEW AND DUCT MOUNTED	
IENTARY SE, OR	SMOKE DETECTORS. 22. ALL DUCT MOUNTED SMOKE DETECTORS CONCEALED ABOVE ACCESSIBLE CEILINGS SHALL HAVE THEIR LOCATION IDENTIFIED ON THE CEILING GRID.	
	23. LABEL ALL FIELD DEVICES, I.E. DETECTORS AND MODULES, WITH A PRINTED DEVICE ADDRESS.	
MOTORS.	24. ALL MANUAL PULL STATIONS SHALL HAVE METALLIC CONSTRUCTION. 25. CONDUIT COMPRESSION CONNECTORS AND COUPLINGS ARE TO BE INSULATED STEEL.	
REASED	WIRING DEVICE LOCATION & COORDINATION	
D HVAC	1. THIS CONTRACTOR SHALL EXAMINE ALL ARCHITECTURAL AND INTERIOR DESIGN DRAWINGS, ELEVATIONS, AND DETAILS BEFORE LOCATING OUTLETS. OUTLETS SHALL BE PLACED AS REQUIRED TO HARMONIZE WITH MOLDINGS, PANELS, ETC. OUTLET LOCATIONS SHALL NOT BE OBTAINED FROM	
FINISHED	SCALE DIMENSIONS ON ELECTRICAL DRAWINGS BUT FROM MEASUREMENTS ON ARCHITECTURAL PLANS AND/OR DETAILS. 2. IF AN OUTLET IS INSTALLED BY THIS CONTRACTOR IN SUCH A LOCATION AS TO BE OUT OF	
D IN	PROPER RELATION TO BEAMS, WALLS, OR OTHER DETAILS OF THE BUILDING, ITS LOCATION SHALL BE CORRECTED BY, AND AT THE EXPENSE OF THIS CONTRACTOR, AT THE DIRECTION OF THE DESIGN PROFESSIONAL.	
SOURCE TIONS	<ol> <li>VERIFY OUTLET BOXES ARE INSTALLED AT PROPER HEIGHT.</li> <li>VERIFY WALL OPENINGS ARE NEATLY CUT AND COMPLETELY COVERED BY WALL PLATES.</li> </ol>	
L	<ol> <li>VERIFY BRANCH CIRCUIT WIRING INSTALLATION IS COMPLETED, TESTED, AND READY FOR CONNECTION TO WIRING DEVICES.</li> <li>TAKE STEPS TO INSURE THAT DEVICES AND THEIR BOXES ARE PROTECTED. DO NOT PLACE WALL</li> </ol>	
T /OR	FINISH MATERIALS OVER DEVICE BOXES AND DO NOT CUT HOLES FOR BOXES WITH ROUTERS THAT ARE GUIDED BY RIDING AGAINST OUTSIDE OF THE BOXES. 7. KEEP OUTLET BOXES FREE OF PLASTER, DRYWALL JOINT COMPOUND, MORTAR, CEMENT,	SEAL
ND	CONCRETE, DUST, PAINT, AND OTHER MATERIAL THAT MAY CONTAMINATE THE RACEWAY SYSTEM, CONDUCTORS, AND CABLES. 8. INSTALL WIRING DEVICES AFTER ALL WALL PREPARATION, INCLUDING PAINTING, IS COMPLETE.	
WITH THE	<ol> <li>INSPECT EACH WIRING DEVICE FOR DEFECTS. OPERATE EACH WALL SWITCH WITH CIRCUIT ENERGIZED AND VERIFY PROPER OPERATION. VERIFY EACH RECEPTACLE DEVICE IS ENERGIZED. TEST EACH RECEPTACLE DEVICE FOR PROPER POLARITY. TEST EACH GFCI RECEPTACLE DEVICE</li> </ol>	
TACLES	FOR PROPER OPERATION. ADJUST DEVICES AND WALL PLATES TO BE FLUSH AND LEVEL.	SUBMISSION
DEVICES	GENERAL FIRESTOPPING NOTES 1. CONTRACTOR SHALL FIRE STOP AND SEAL ALL EXISTING OPENINGS AND ALL NEW OPENINGS FESTILITING FROM THE FLECTRICAL WORK INDIVIDUAL PROPERSINGS AND ALL NEW OPENINGS	NO: ISSUE: DATE:
	RESULTING FROM THE ELECTRICAL WORK. INDIVIDUAL ROOMS/AREAS SHALL BE SEALED AIR-TIGHT FOR BALANCING THE HVAC AIR DISTRIBUTION SYSTEM. 2. CLEAN SUBSTRATE SURFACES OF DIRT, DUST, GREASE, OIL, LOOSE MATERIAL, OR OTHER MATTER	1         Review Set         06.24.21           2         100% BID SET         08.13.21
EADERS, CIRCUITS,	AFFECTING BOND OF FIRESTOPPING MATERIAL. REMOVE INCOMPATIBLE MATERIALS AFFECTING BOND. PROVIDE BACKING MATERIALS TO ARREST LIQUID MATERIAL LEAKAGE.	
ey Rior to	3. PROVIDE MATERIAL AT FIRE RATED CONSTRUCTION PERIMETERS/OPENINGS AND AT LOCATIONS CONTAINING PENETRATING SLEEVES, PIPING, DUCTWORK, CONDUIT AND OTHER ITEMS. APPLY PRIMER WHERE RECOMMENDED BY MANUFACTURER FOR TYPE OF FIRESTOPPING MATERIAL AND SUBSTRATE INVOLVED, AND AS REQUIRED FOR COMPLIANCE WITH REQUIRED FIRE RATINGS.	
D RITY	4. APPLY FIRESTOPPING MATERIAL IN SUFFICIENT THICKNESS TO ACHIEVE REQUIRED FIRE AND SMOKE RATING. COMPRESS FIBERED MATERIAL TO MAXIMUM 40 PERCENT OF ITS UNCOMPRESSED SIZE. PLACE FOAMED MATERIAL IN LAYERS TO ENSURE HOMOGENOUS DENSITY, FILLING CAVITIES AND SPACES. PLACE SEALANT TO COMPLETELY SEAL JUNCTIONS WITH ADJACENT DISSIMILAR MATERIALS. PLACE INTUMESCENT COATING IN SUFFICIENT COATS TO ACHIEVE RATING REQUIRED.	
IS.	AUDIO/VISUAL SYSTEM NOTES 1. ALL AUDIO/VISUAL CABLING AND DEVICES WILL BE FURNISHED AND INSTALLED BY OTHERS. CONTRACTOR TO PROVIDE ALL BACKBOXES AND CONDUIT PATHWAYS.	All conditions must be used a to the sector of
ABOVE WINGS.	2. FOR EACH AUDIO/VISUAL JACK PROVIDE A 4"x4"x2.125" BOX WITH TILE RING, AND (1) 1-1/4" CONDUIT EXTENDED TO AN ACCESSIBLE LOCATION ABOVE CEILING. COORDINATE EXACT LOCATION WITH ARCHITECT AND OWNER. COORDINATE TILE RING TYPE WITH OWNER.	All conditions must be verified by the contractor at the site. Notify the Architect of any discrepancies before proceeding with the work.
THE	<ul> <li>3. IN THE EVENT OF CONFLICTING PROVISIONS BETWEEN THE ELECTRICAL CONSTRUCTION DOCUMENTS, THE AUDIO/VISUAL CONSTRUCTION DOCUMENTS, OR THE OWNER'S REQUIREMENTS, THE MORE</li> </ul>	DO NOT SCALE DRAWINGS.
KEY PAD,	STRINGENT WILL APPLY AT NO ADDITIONAL COST. 4. COORDINATE LOCATION AND MOUNTING HEIGHTS OF ALL AUDIO/VISUAL SYSTEM DEVICES WITH THE	© 2021 Kelly Maiello Inc.
)	DESIGN PROFESSIONAL PRIOR TO ROUGH-IN. 5. DEVICES, CONDUIT/EMT, AND JUNCTION BOX CONFIGURATIONS AND LOCATIONS SHOWN IN ELEVATION AND PLAN ARE CONSERTING DEPRESENTATIONS ONLY CONTRACTOR SHOWN IN ELEVATION	PROJECT NO.: 20230 DJVI: 2114
s, Actor. RIOR TO	AND PLAN ARE CONCEPTUAL REPRESENTATIONS ONLY. CONTRACTOR SHALL COORDINATE WITH THE OWNER'S AUDIO/VISUAL CONTRACTOR PRIOR TO ROUGH-IN. 6. ALL CONDUIT/EMT SHALL BE PROVIDED WITH PULL STRING AND NYLON BUSHINGS AT EACH FITTING.	DATE: AUGUST 13, 2021 SCALE: AS NOTED
DWNER	7. DEVICE BACKBOX SIZES SHALL BE COORDINATED WITH THE OWNER'S AUDIO/VISUAL CONTRACTOR.	DRAWN: JCB/JCB
	CODES AND STANDARDS	DRAWING TITLE:
E WITH ELEVATION	INTERNATIONAL BUILDING CODE 2015 (IBC) INTERNATIONAL PLUMBING CODE 2015	ELECTRICAL
EACH	INTERNATIONAL FUEL GAS CODE 2015 INTERNATIONAL MECHANICAL CODE 2015 INTERNATIONAL ELECTRICAL CODE 2015 / NFPA 70-2014 NATIONAL ELECTRICAL CODE	COVER SHEET
ACE.	INTERNATIONAL ENERGY CONSERVATION CODE 2015 INTERNATIONAL EXISTING BUILDING CODE 2015	
IT PRIOR	INTERNATIONAL FIRE CODE 2015	DRAWING NUMBER:
DX.		ECS

## ELECTRICAL DEMOLITION NOTES

- 1 REMOVE EXISTING FIRE ALARM DEVICE AND PROVIDE NEW AS SHOWN.
- 2 REMOVE EXISTING LIGHTING FIXTURE AND LOCAL CONTROL DEVICES. EXISTING BRANCH CIRCUIT TO REMAIN AND BE RE-USED FOR THE NEW WORK.
- 3 REMOVE EXISTING RECEPTACLE(S). EXISTING BRANCH CIRCUIT TO BE RE-USED FOR THE NEW WORK AS APPLICABLE. PROVIDE NEW CIRCUITS WHERE SHOWN.
- 4 REMOVE EXISTING VOICE/DATA (AND A/V) JACK(S). REMOVE CABLING BACK TO SOURCE.
- 5 EXISTING CELLULAR TELECOMMUNICATIONS ANTENNA TO REMAIN. REMOVE AND RE-INSTALL FOR NEW CEILING CONSTRUCTION.
- 6 REMOVE EXISTING CARD READER AND WIRING BACK TO SOURCE. PROVIDE NEW WHERE SHOWN.

## **GENERAL DEMOLITION NOTES**

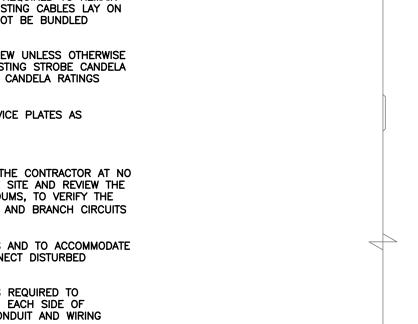
- 1. REMOVE CIRCUITS NOT REQUIRED IN THE AREA OF WORK BACK TO SOURCE OF POWER INCLUDING ALL HANGERS, SUPPORTS, CONDUITS, JUNCTION BOXES, ETC. ALL FEEDERS, CONDUIT, CIRCUITS, WIRING, AND CABLING PASSING THROUGH AREA OF WORK WHICH SERVES OTHER AREAS OF THE BUILDING SHALL BE RETAINED. RELOCATE AND RECONNECT AS REQUIRED FOR THE NEW CONSTRUCTION.
- 2. EXISTING POWER, LIGHTING, AND LOW VOLTAGE CIRCUITS BEYOND CONTRACT LIMITS SHALL REMAIN IN SERVICE. RECIRCUIT AND SWITCH AS REQUIRED.
- 3. CONTRACTOR SHALL BUNDLE AND SUPPORT ALL EXISTING VOICE/DATA, FIRE ALARM, SECURITY, CONTROL, ETC. CABLES REQUIRED TO REMAIN IN SERVICE, THAT WILL BE CONCEALED ABOVE NEW CEILINGS. AT NO TIME SHALL EXISTING CABLES LAY ON THE CEILING SYSTEM.
- 4. CONTRACTOR SHALL BUNDLE AND SUPPORT ALL EXISTING METAL CLAD (MC) CABLES REQUIRED TO REMAIN IN SERVICE, THAT WILL BE CONCEALED ABOVE NEW CEILINGS. AT NO TIME SHALL EXISTING CABLES LAY ON THE NEW OR EXISTING CEILING SYSTEM. POWER AND LOW VOLTAGE CABLES SHALL NOT BE BUNDLED TOGETHER. CABLE SHALL NOT BE SUPPORTED FROM THE SPRINKLER PIPING.
- 5. ALL EXISTING FIRE ALARM DEVICES IN THE AREA OF WORK TO BE REPLACED WITH NEW UNLESS OTHERWISE NOTED TO REMAIN OR BE RELOCATED. RELOCATE AND PROVIDE NEW AS SHOWN. EXISTING STROBE CANDELA RATING SHALL BE CHANGED TO COMPENSATE FOR THE NEW LOCATIONS. NEW DEVICE CANDELA RATINGS SHALL BE BASED ON THE NEW LAYOUT AND ROOM CONFIGURATION/SIZE.
- 6. REMOVE ALL COVER PLATES AT EXISTING TO REMAIN DEVICES AND PROVIDE NEW DEVICE PLATES AS SPECIFIED. PROVIDE BOX EXTENSIONS AS REQUIRED.
- 7. REMOVE ALL ABANDONED WIRING AND CABLING FROM ABOVE ALL CEILINGS. 8. ALL WORK ON THE DRAWINGS AND IN THE SPECIFICATIONS SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL, PRIOR TO BIDDING, VISIT THE SITE AND REVIEW THE COMPLETE SET OF CONSTRUCTION DOCUMENTS FOR EACH TRADE, INCLUDING ADDENDUMS, TO VERIFY THE
- THAT MUST BE RELOCATED AND INCLUDE THIS COST IN THE BID PROPOSAL. 9. REMOVE AND/OR RELOCATE EXISTING EQUIPMENT AS REQUIRED BY THE RENOVATIONS AND TO ACCOMMODATE THE NEW MECHANICAL AND PLUMBING EQUIPMENT, PIPING, AND DUCTWORK. RECONNECT DISTURBED EQUIPMENT AND PLACE IN OPERATING CONDITION.
- 10. WHERE PARTS OF THE EXISTING WIRING SYSTEM ARE DISRUPTED, REWORK WIRING AS REQUIRED TO RE-ENERGIZE LOADS THAT ARE TO REMAIN IN OPERATION. CUT THE STRUCTURE ON EACH SIDE OF OUTLETS TO BE REMOVED, REMOVE EXISTING CONDUIT AND WIRING, PROVIDE NEW CONDUIT AND WIRING BETWEEN REMAINING OUTLETS, MAKE FINAL CONNECTIONS, AND PATCH STRUCTURE.
- 11. WHERE OUTLETS ARE CUT OFF FROM AN EXISTING FEED, RE-FEED THEM FROM ANOTHER DIRECTION IF POSSIBLE, AND PROVIDE NEW CONDUIT AND WIRE IF NECESSARY.
- 12. REMOVE AND/OR RELOCATE EXISTING FEEDER AND BRANCH CIRCUIT WIRING AND CONDUIT AS REQUIRED BY THE RENOVATIONS AND TO ACCOMMODATE THE NEW MECHANICAL AND PLUMBING EQUIPMENT, PIPING, AND DUCTWORK. RECONNECT DISTURBED FACILITIES AND PLACE IN OPERATING CONDITION.
- 13. REMOVE CIRCUITS NOT REQUIRED IN THE RENOVATED AREA BACK TO SOURCE OF POWER INCLUDING ALL HANGERS, SUPPORTS, CONDUITS, JUNCTION BOXES, ETC. ALL FEEDERS, CONDUIT, CIRCUITS, WIRING, AND CABLING PASSING THROUGH RENOVATED AREA WHICH SERVES OTHER AREAS OF THE BUILDING SHALL BE RETAINED. RELOCATE AND RECONNECT AS REQUIRED FOR THE NEW CONSTRUCTION.
- 14. REMOVE EXISTING CONDUIT AND WIRING WHERE NO LONGER REQUIRED, AND REMOVE THEM WHERE THEY INTERFERE WITH NEW CONSTRUCTION.
- 15. PROMPTLY REMOVE USED MATERIAL FROM THE SITE IF IT IS NO LONGER REQUIRED. WHERE INDICATED, DELIVER USED MATERIAL TO THE OWNER WHERE DIRECTED ON THE SITE.
- 16. EXISTING CONDUIT ALREADY INSTALLED IN THE STRUCTURE MAY BE REUSED IF IT IS IN GOOD CONDITION.

## EXISTING BRANCH CIRCUITS

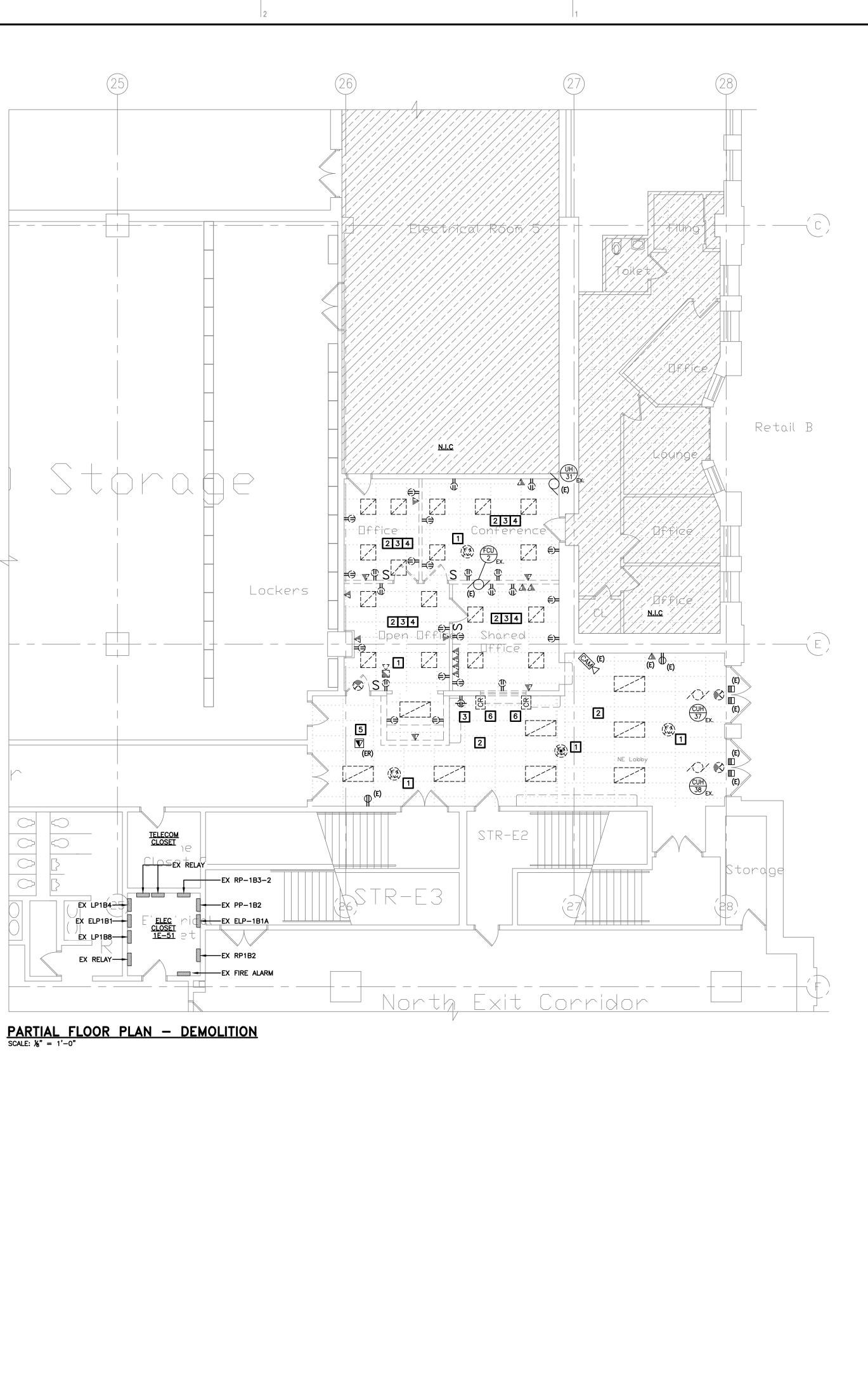
- 1. CONTRACTOR SHALL METER THE LOAD ON EACH EXISTING LIGHTING CIRCUIT AND VERIFY WHICH CIRCUITS HAVE CAPACITY FOR THE NEW FIXTURE LOAD. NEW LIGHT FIXTURES AND DEVICES SHALL BE TIED INTO THE AVAILABLE CIRCUIT THAT HAS SPARE CAPACITY AT THE EXISTING PANEL, UNLESS OTHERWISE SHOWN TO BE DEDICATED. CONTRACTOR TO TRACE-OUT ALL EXISTING CIRCUITS AND DEVICES.
- 2. BRANCH CIRCUIT NUMBERS WERE DERIVED FROM EXISTING PANEL SCHEDULES AND SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL TRACE OUT EXISTING CIRCUITS, FIELD VERIFY SOURCE, AND PROVIDE NEW TYPED PANEL SCHEDULES INDICATING NEW AND EXISTING CIRCUITS.

## CUTTING AND PATCHING

- ALL CUTTING AND PATCHING SHALL BE PERFORMED BY THE CONTRACTOR. ALL HOLES SHALL BE CORE BORED. ALL FLOORS, BLACKTOP, WALKS, CURBS, ETC. SHALL BE SAW CUT. PROVIDE ALL CUTTING AND PATCHING REQUIRED FOR WORK PERFORMED UNDER THIS CONTRACT. NO HOLES MAY BE CUT OR DRILLED IN STRUCTURAL MEMBERS WITHOUT PRIOR APPROVAL OF OWNER'S REPRESENTATIVE. CUTTING SHALL BE DONE BY MECHANICS SKILLED IN THEIR RESPECTIVE TRADES.
- 2. CONTRACTOR SHALL PATCH WALLS WHERE EXISTING DEVICES HAVE BEEN REMOVED. MATCH EXISTING FINISH AND TEXTURE.
- 3. NO CUTTING THAT MAY IMPAIR THE STRENGTH OF THE BUILDING CONSTRUCTION SHALL BE DONE. NO HOLES MAY BE DRILLED IN OR ATTACHMENTS WELDED TO THE BEAMS OR OTHER STRUCTURAL MEMBERS WITHOUT PRIOR APPROVAL FROM THE OWNER'S REPRESENTATIVE. ALL WORK SHALL BE DONE BY MECHANICS SKILLED IN THEIR TRADE.
- 4. ALL PATCHING SHALL BE DONE IN A MANNER TO MATCH APPEARANCES AND QUALITY OF EXISTING SURFACES.
- 5. UNLESS OTHERWISE INDICATED, THE CONTRACTOR SHALL PATCH AND SEAL ALL WALLS, FLOORS, CEILINGS (DRYWALL, PLASTER, LAY-IN CEILINGS, ETC.) SOFFITS, ETC. WHERE EXISTING ITEMS SUCH AS CONDUIT, RACEWAYS. HANGERS, SUPPORTS, ETC. ARE REMOVED OR NEW WORK IS INSTALLED UNDER THIS CONTRACT. AL PATCHING SHALL BE PERFORMED WITH EQUIVALENT MATERIALS AND FINISHES AND SHALL MATCH ADJOINING SURFACES IN BOTH TEXTURE AND FINISH.
- 6. REMOVE AND REPLACE EXISTING CEILING SYSTEM TILES AND GRIDS AS REQUIRED TO INSTALL THE NEW WORK. REPAIR AS NECESSARY AND USE NEW GRIDS AND TILES TO MATCH THE EXISTING.

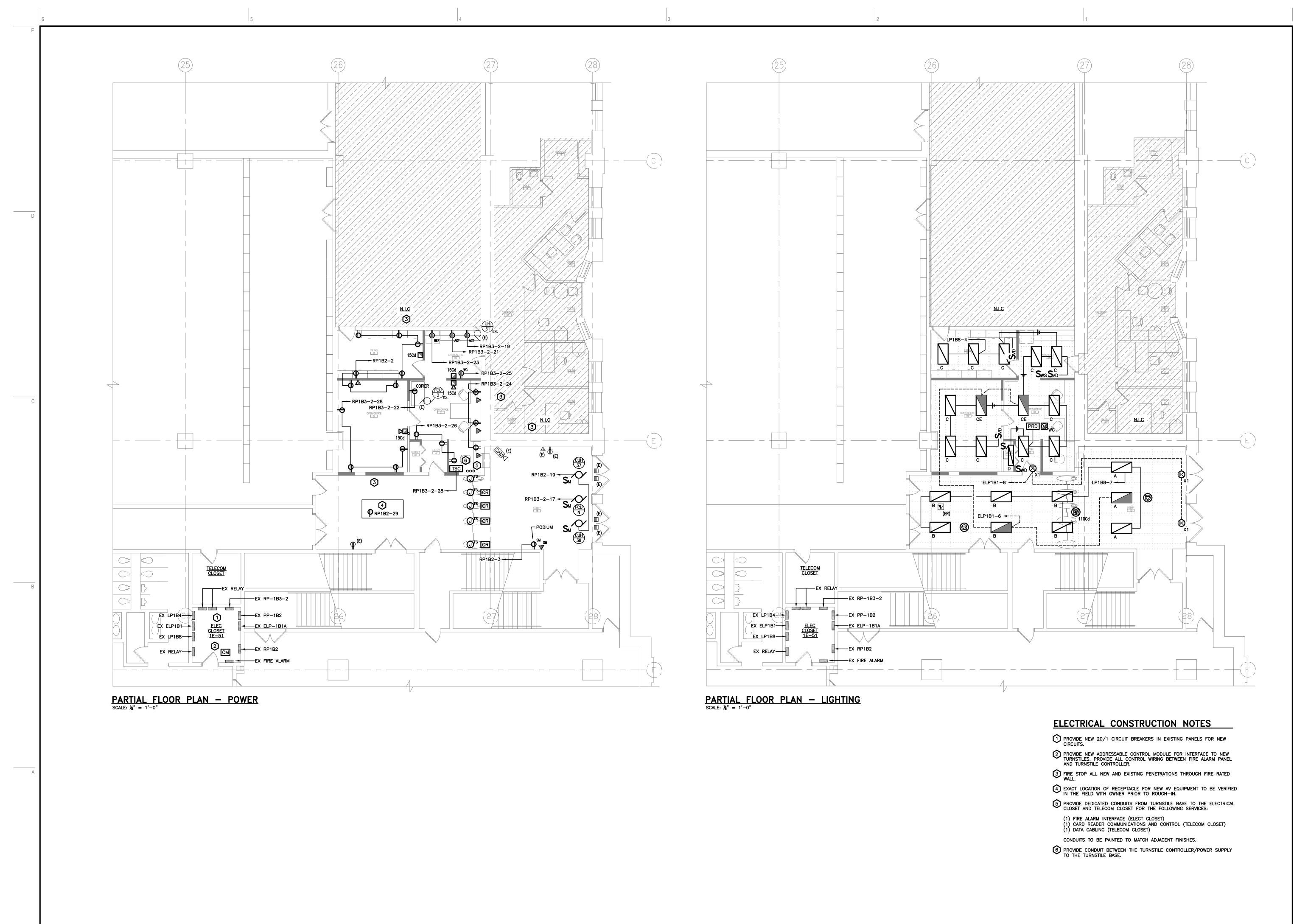


EXTENT OF EQUIPMENT, DEVICES, LIGHT FIXTURES, FEEDERS, JUNCTION/PULL BOXES, AND BRANCH CIRCUITS



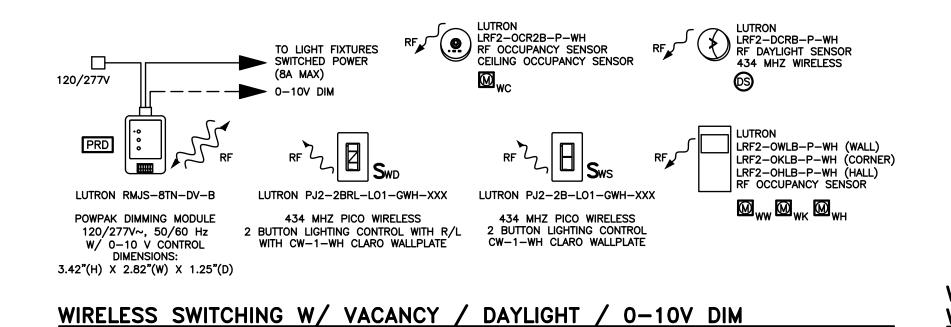
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ELECTRICAL DEMOLITION PLAN
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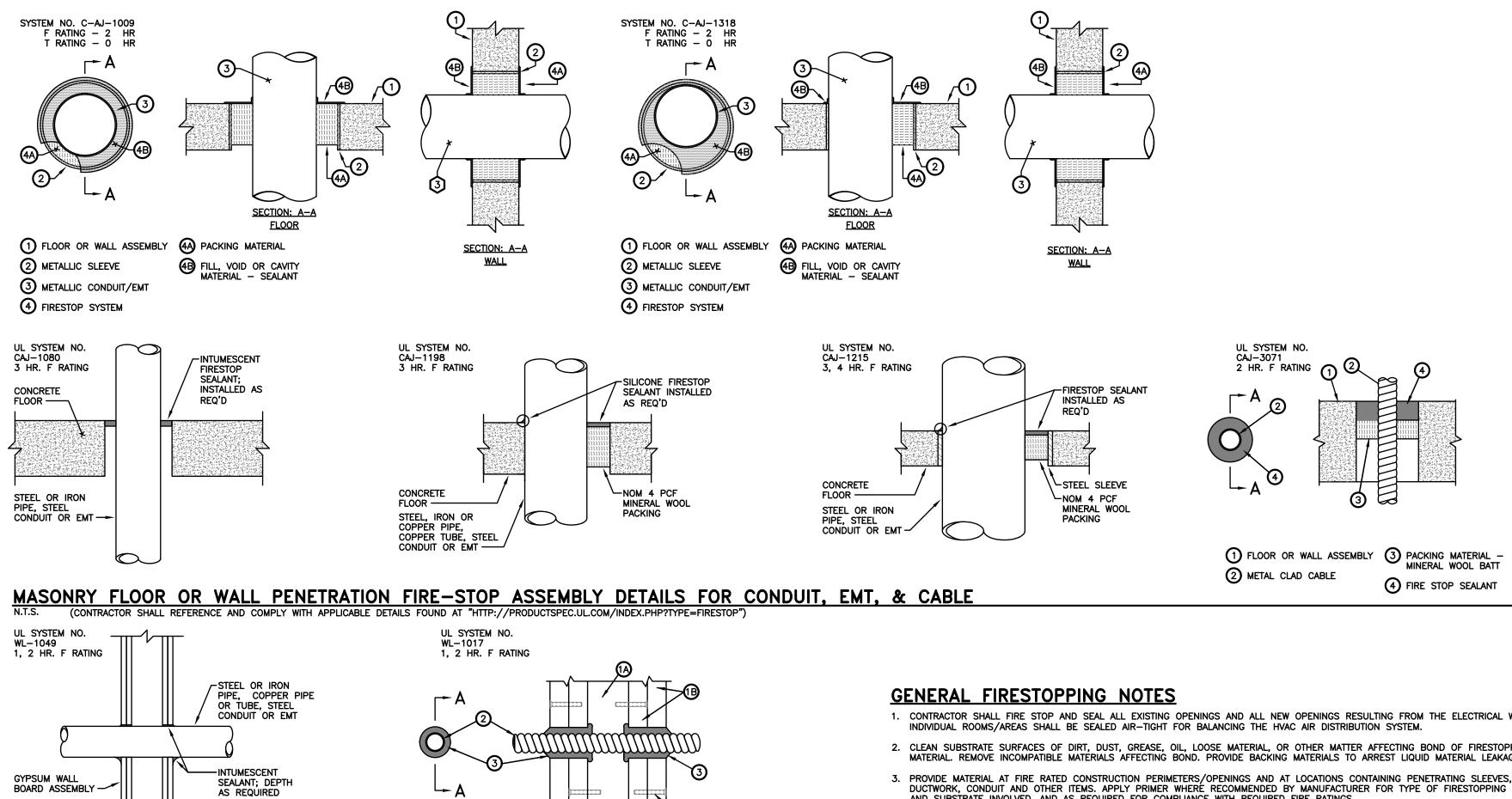


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	LIGHTING FIXTURE SCHEDULE										
TYPE	DESCRIPTION	MOUNTING TYPE	CEILING TYPE	MOUNTING HEIGHT	VOLTS	LAMP TYPE	SYSTEM WATTS	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN CATALOG NO.	CONTROL	NOTES
A	2x4 EDGE LIT LED FLAT PANEL	RECESSED	ATC	CEILING	120/277	LED 5024 LUMENS 3500K / 80 CRI	50	COLUMBIA	CFP24-55/41/3435	NA	FIELD SELECTABLE LUMENS
в	2x4 EDGE LIT LED FLAT PANEL	RECESSED	ATC	CEILING	120/277	LED 3197 LUMENS 3500K / 80 CRI	30	COLUMBIA	CFP24-55/41/3435	NA	FIELD SELECTABLE LUMENS
с	2x4 LED ARCHITECTURAL TROFFER	RECESSED	ATC	CEILING	120/277	LED 4570 LUMENS 3500K / 80 CRI	30	COLUMBIA	LCAT24-35LWG-R-ED-U	0-10V	-
CE	2x4 LED ARCHITECTURAL TROFFER WITH UL924 EMERGENCY LIGHTING RELAY FOR 0-10V DIMMING	RECESSED	ATC	CEILING	120/277	LED 4570 LUMENS 3500K / 80 CRI	30	COLUMBIA	LCAT24-35LWG-R-ED-U-DTS	0-10V	EMERGENCY BYPASS RELAY
D	LED UTILITY LIGHT	SURFACE	GYPSUM BOARD	ABOVE CLOSET DOOR	120/277	LED 3507 LUMENS 4000K / 80 CRI	30	COLUMBIA	CNW4-3540	NA	-
X1	SINGLE FACE CAST ALUMINUM LED EXIT SIGN WITH BRUSHED ALUMINUM FACE, BLACK BODY, & GREEN LETTERING	RECESSED	ATC	CEILING	120/277	LED	3.5	DUAL-LITE	SE-S-G-BN-E-I	NA	-



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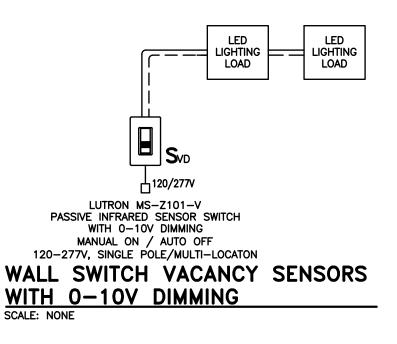


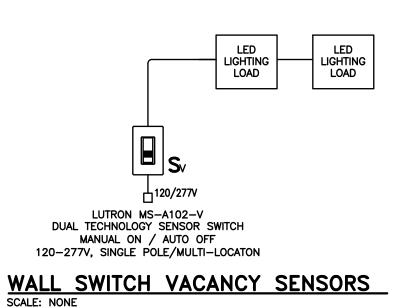
2 FLEXIBLE METAL CONDUIT OR METAL CLAD CABLE (A) WALL STUDS 3 FIRE STOP SEALANT 1B 5/8 GYPSUM - 48" WIDE **1** FASTENERS

GYPSUM BOARD PARTITION PENETRATION FIRE-STOP ASSEMBLY DETAILS FOR CONDUIT, EMT, & CABLE N.T.S. (CONTRACTOR SHALL REFERENCE AND COMPLY WITH APPLICABLE DETAILS FOUND AT "HTTP://PRODUCTSPEC.UL.COM/INDEX.PHP?TYPE=FIRESTOP")

(1) WALL ASSEMBLY

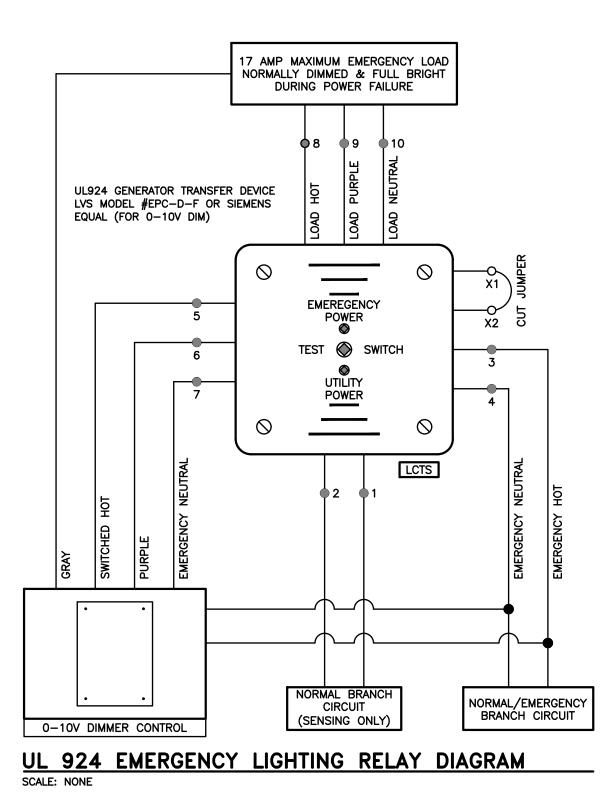
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- 1. CONTRACTOR SHALL FIRE STOP AND SEAL ALL EXISTING OPENINGS AND ALL NEW OPENINGS RESULTING FROM THE ELECTRICAL WORK.
- 2. CLEAN SUBSTRATE SURFACES OF DIRT, DUST, GREASE, OIL, LOOSE MATERIAL, OR OTHER MATTER AFFECTING BOND OF FIRESTOPPING MATERIAL. REMOVE INCOMPATIBLE MATERIALS AFFECTING BOND. PROVIDE BACKING MATERIALS TO ARREST LIQUID MATERIAL LEAKAGE.
- 3. PROVIDE MATERIAL AT FIRE RATED CONSTRUCTION PERIMETERS/OPENINGS AND AT LOCATIONS CONTAINING PENETRATING SLEEVES, PIPING, DUCTWORK, CONDUIT AND OTHER ITEMS. APPLY PRIMER WHERE RECOMMENDED BY MANUFACTURER FOR TYPE OF FIRESTOPPING MATERIAL AND SUBSTRATE INVOLVED, AND AS REQUIRED FOR COMPLIANCE WITH REQUIRED FIRE RATINGS.
- 4. APPLY FIRESTOPPING MATERIAL IN SUFFICIENT THICKNESS TO ACHIEVE REQUIRED FIRE AND SMOKE RATING. COMPRESS FIBERED MATERIAL TO MAXIMUM 40 PERCENT OF ITS UNCOMPRESSED SIZE. PLACE FOAMED MATERIAL IN LAYERS TO ENSURE HOMOGENOUS DENSITY, FILLING CAVITIES AND SPACES. PLACE SEALANT TO COMPLETELY SEAL JUNCTIONS WITH ADJACENT DISSIMILAR MATERIALS. PLACE INTUMESCENT COATING IN SUFFICIENT COATS TO ACHIEVE RATING REQUIRED.

ELECTRICAL DEVICE	MOUNTING HEIGHT SCHEDULE
DEVICE	MOUNTING HEIGHT
LIGHT SWITCHES, WALL MOUNTED OCCUPANCY SENSORS	44" TO CENTERLINE OF BOX.
WALL MOUNTED EXIT SIGNS	90" CENTERLINE OF SIGN OR CENTERED IN WALL AREA BETWEEN TOP OF DOOR AND CEILING.
PENDANT MOUNTED FIXTURES	REFERENCE FIXTURE SCHEDULE
RECEPTACLES	16" TO BOTTOM OF BOX U.O.N.
RECEPTACLES - ABOVE COUNTER	42" TO BOTTOM OF BOX U.O.N.
RECEPTACLES - REFRIGERATORS/VENDING	54" TO BOTTOM OF BOX U.O.N.
SPECIAL OUTLETS OR RECEPTACLES	16" TO BOTTOM OF BOX OR AS NOTED ON DRAWINGS.
VOICE/DATA OUTLETS	16" TO BOTTOM OF BOX. EXCEPTION: 44" MAXIMUM TO TOP ABOVE COUNTERS WHICH ARE 20"-25"D
TELEPHONE OUTLETS - WALL TYPE	54" TO DIAL CENTER (NON-ACCESSIBLE). 48" TO HIGHEST OPERABLE PART (ACCESSIBLE).
FIRE ALARM MANUAL PULL STATIONS	MINIMUM 42" ABOVE FINISHED FLOOR AND A MAXIMUM OF 4 ABOVE FINISHED FLOOR TO CENTER OF DEVICE NOT MORE THAN 5'-0" FROM EXIT
FIRE ALARM HORNS, BELLS, STROBES, ETC.	STROBES SHALL BE MOUNTED SUCH THAT THE ENTIRE LENS NOT LESS THAN 80" AND NOT GREATER THAN 96" ABOVE FINISH FLOOR OR 6" BELOW CEILING, WHICH EVER IS LOWE
WALL MOUNTED REMOTE INDICATOR LIGHT FOR DUCT MOUNTED SMOKE DETECTORS	80" TO CENTERLINE OF DEVICE OR 6" BELOW CEILING, WHICHEVER IS LOWER.
INTERCOM STATION	48" TO CENTERLINE OF BOX.
THERMOSTATS	54" TO HIGHEST OPERABLE PART (SIDE ACCESS) 48" TO HIGHEST OPERABLE PART (FORWARD ACCESS).
TEMPERATURE/HUMIDITY SENSORS	60" TO CENTERLINE OF BOX.
STARTERS AND DISCONNECT SWITCHES	5'-0" TO CENTERLINE FROM FINISHED FLOOR.
PANELBOARDS	6'-6" TO TOP CIRCUIT BREAKER (MAXIMUM)
MOTION DETECTORS, CAMERAS, AND GLASS BREAK DETECTORS	COORDINATE WITH SECURITY SYSTEMS VENDOR/MANUFACTURE
TELEVISION AND CABLE TV OUTLETS	16" TO BOTTOM OF BOX. U.O.N.
NOT VARY. ALL DIMENSIONS SHALL BE CO	FINISHED FLOOR AND, UNLESS NOTED OTHERWISE, AND SHALL DORDINATED WITH ARCHITECTURAL DETAILS AND MAY BE IRAL REQUIREMENTS AS LONG AS NO CODE RESTRICTION IS
2. OUTLETS INSTALLED LOWER THAN 15" AFF VIOLATION OF ADA.	F (FORWARD REACH) AND 9" AFF (SIDE REACH) ARE IN
3 FXIT SIGNS SHALL NOT BE INSTALLED SO	THAT IT BLOCKS FIRE ALARM VISUAL DEVICES.



3. EXIT SIGNS SHALL NOT BE INSTALLED SO THAT IT BLOCKS FIRE ALARM VISUAL DEVICES.

4. CONTRACTOR SHALL COORDINATE ALL THE ABOVE MOUNTING HEIGHTS WITH THOSE SHOWN ON THE ARCHITECTURAL PLANS PRIOR TO ROUGH-IN.

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DRAWING TITLE:
ELECTRICAL SCHEDULES & DETAILS
DRAWING NUMBER:
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