

NORTHWEST HS CAREER TECH RENOVATIONS

10761 PIPPIN RD, CINCINNATI, OH 45231

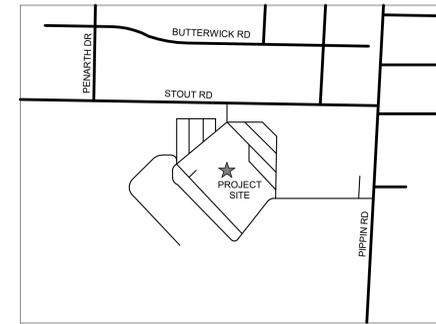


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NTS

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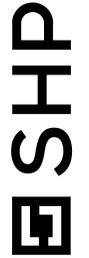
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Expiration Date 12/31/2025



312 PLUM STREET - SUITE 700
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NORTHWEST LOCAL SCHOOL DISTRICT
NORTHWEST HS CAREER TECH RENOVATIONS
10761 PIPPIN RD, CINCINNATI, OH 45231
NORTHWEST LOCAL SCHOOL DISTRICT
3240 BANNING ROAD, CINCINNATI, OH 45239

ISSUANCES

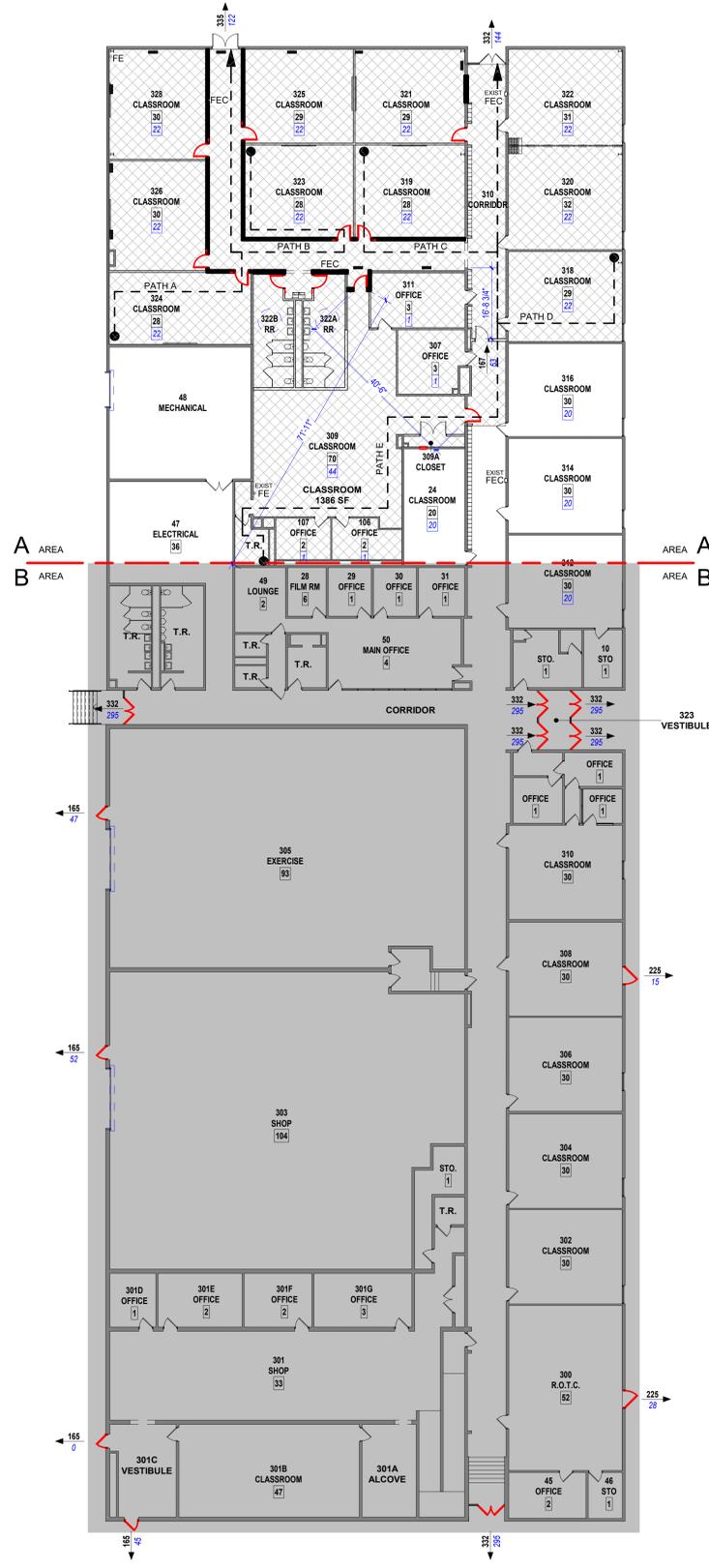
03-17-25 PERMIT SET

TITLE SHEET

DATE 03-17-25

COMM NO. 2024115.05

G001



1 FIRST FLOOR CODE PLAN
G101 1/16" = 1'-0"

PLUMBING FIXTURE REQUIREMENTS

BUILDING OCCUPANTS: 266 OCCUPANTS		M	F
		133	133
Water Closets:			
E	1: 50M 1: 50F -- 266 OCCUPANTS	2.66	2.66
	Required	-	-
	Actual Water Closets Provided	2	3
	Actual Urinals Provided	1	-
	TOTAL PROVIDED	3	3
Lavatories:			
E	1: 50M 1: 50F -- 266 OCCUPANTS	2.66	2.66
	Required	3	3
	TOTAL PROVIDED	3	3
Showers:			
E	Not Required by Code	-	-
	Required	-	-
	TOTAL PROVIDED	0	0
Drinking Fountains:			
E	1: 100 RATIO -- 266 OCCUPANTS	2.66	-
	Required	-	-
	TOTAL PROVIDED	2	-
Service Sinks:			
	Required	1	-
	TOTAL PROVIDED	1	-

This table is in reference only to the hatched area of the building

EGRESS TRAVEL DISTANCE

PATH	DISTANCE
A	100'-0"
B	120'-0"
C	99'-6"
D	104'-2"
E	182'-2"

CODE DATA KEY BUILDING CODE UTILIZED: OBC 2024 OBC 2024

000 EXIT CAPACITY
000 ACTUAL LOAD THRU EXIT
101 DESIGN OCCUPANT LOAD PER OBC TABLE 1004.5 OR MAXIMUM ANTICIPATED OCCUPANT LOAD
XXXX ACTUAL OCCUPANT LOAD - BASED ON ACTUAL OCCUPANTS IN EACH ROOM OR SPACE, USED TO DETERMINE PLUMBING FIXTURE REQUIREMENTS AS PERMITTED IN OBC 2902.1 AND HVAC LOADS AS PERMITTED IN 2019 ASHRAE 62.1, TABLE 6-1

CODE DATA PLAN WALL AND DOOR TAG KEY
SOLID BLACK FILL INDICATES FIRE- OR SMOKE-RESISTANCE RATED CONSTRUCTION

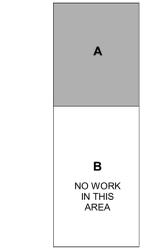
FIRE RESISTANCE RATING (HRS) OR SMOKE (S)
DOOR FIRE RESISTANCE RATING (MIN) OR SMOKE (S)

W = WALL
B = FIRE OR SMOKE BARRIER
P = FIRE OR SMOKE PARTITION

TRAVEL DISTANCE PATH

BUILDING CODE COMPLIANCE INFORMATION

OCCUPANCY CLASSIFICATION [OBC CHAPTER 3]	E - EXISTING, UNCHANGED	
OBC CONSTRUCTION TYPE [OBC CHAPTER 6]	IIB - EXISTING, UNCHANGED	
SPRINKLER SYSTEM [OBC CHAPTER 9]	NS - EXISTING, UNCHANGED	
ALLOWABLE BUILDING HEIGHT [OBC CHAPTER 5]		
Allowable Building Height [OBC Tables 504.3 and 504.4]	55'-0"	2 Stories
EXISTING BUILDING HEIGHT	18'-0"	1 Story
ALLOWABLE BUILDING AREA [OBC CHAPTER 6]		
Tabular Allowable Area Factor [OBC Table 506.2]		14500 SF
Tabular Nonsprinklered Allowable Area [OBC Section 506.3.2]	14500 SF	
Building Perimeter that fronts on a Public Way or Open Space with minimum 20ft of width [OBC Section 506.3.3]	940'-0"	
Total Building Perimeter [OBC Section 506.3]	940'-0"	
Weighted Average Width of Acceptable Public Way [OBC Section 506.3.2]	30'-0"	
Area Factor Increase Due to Frontage [OBC Section 506.3.3]	0.75	10875 SF
Allowable Area per Story		25375 SF
EXISTING AREA PER LARGEST STORY		41565 SF
INTERIOR WALL AND CEILING FINISH REQUIREMENTS [OBC Table 803.13]		
Interior Exit Stairways, Interior Exit Ramps and Exit Passageways	Class B or Better	
Corridors and Enclosure for Exit Access Stairways and Exit Access Ramps	Class B or Better	
Rooms and Enclosed Spaces	Class C or Better	
BUILDING CODE COMPLIANCE NOTES:		
1. AREA OF WORK = 10040 SF.		
2. OCCUPANT LOAD FOR THE BUILDING IS UNCHANGED.		
3. FIRST FLOOR DESIGN OCCUPANCY = 1072. IN THE AFFECTED AREA ACTUAL LOAD IS 222.		
4. CALCULATION BASED ON 2024 OBC.		
5. COMPLIANCE PATH - PRESCRIPTIVE COMPLIANCE METHOD 2024 OBC 503.1.		
6. NEW DOORS, MECHANICAL, PLUMBING AND ELECTRICAL ALTERATIONS COMPLY WITH 2024 OBC.		



KEY PLAN
NTS



NORTHWEST LOCAL SCHOOL DISTRICT
NORTHWEST HS CAREER TECH RENOVATIONS
 10761 PIPPIN RD., CINCINNATI, OH 45231
NORTHWEST LOCAL SCHOOL DISTRICT
 3240 BANNING ROAD, CINCINNATI, OH 45239

ISSUANCES

DATE	DESCRIPTION
03-17-25	PERMIT SET

CODE DATA SHEET

DATE	03-17-25
COMM NO.	2024115.05

G101

DEMOLITION LEGEND

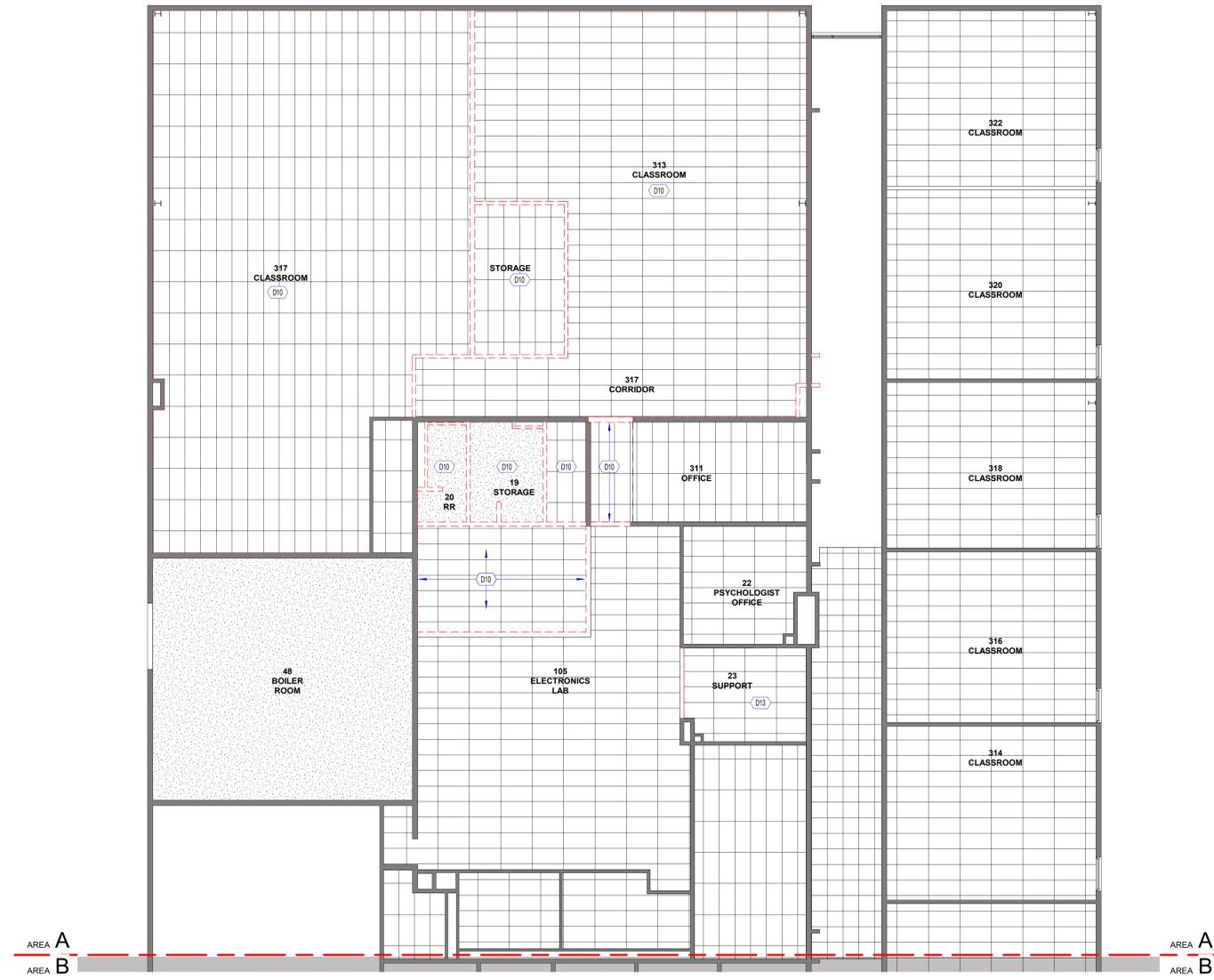
-  NO WORK THIS AREA
-  REMOVE EXISTING CONSTRUCTION
-  EXISTING CONSTRUCTION TO REMAIN
-  REMOVE EXISTING DOOR AND/OR FRAME AS NOTED
-  EXISTING DOOR AND FRAME TO REMAIN

GENERAL NOTES - DEMOLITION PLAN

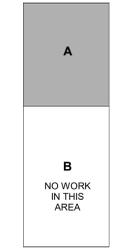
- A. REPAIR EXISTING SURFACES WHERE DEMOLITION HAS OCCURRED FOR NEW CONSTRUCTION. GENERAL TRADES CONTRACTOR SHALL PATCH/REPAIR WALL, FLOOR AND CEILING SURFACES AFFECTED BY DEMOLITION WORK. PATCHING/CUTTING OF EXISTING SURFACES FOR NEW WORK SHALL BE THE RESPONSIBILITY OF THE RESPECTIVE CONTRACTOR PERFORMING THE WORK. ALL REPAIRS SHALL MATCH EXISTING ADJACENT SURFACES IN MATERIAL, FINISH, TEXTURE, ETC. THIS WORK IS TO BE INCLUDED IN BASE BID AND IS NOT TO BE INCLUDED IN THE QUANTITY ALLOWANCE.
- B. UNLESS DIRECTED BY OWNER, ALL MISCELLANEOUS ITEMS ATTACHED TO FLOORS, WALLS, OR CEILINGS ARE TO BE REMOVED THAT INTERFERE WITH INSTALLATION OR ALIGNMENT OF NEW WORK. THIS INCLUDES BUT NOT LIMITED TO: SHELVES, BRACKETS, POSTERS, PAINTINGS, ART OR OTHER DISPLAYS, PROJECTION SCREENS, AND VISUAL DISPLAY BOARDS. OWNER WILL REMOVE ALL LOOSE FURNITURE/APPLIANCES IN ROOMS PRIOR TO THE COMMENCEMENT OF DEMOLITION.
- C. AT ALL EXISTING SURFACES SCHEDULED TO RECEIVE A NEW PAINT FINISH REMOVE ANY EXISTING FASTENERS, BRACKETS, ETC. IN WALLS THAT ARE NOT BEING USED AND PATCH TO MATCH EXISTING ADJACENT SURFACES IN MATERIALS, FINISH, TEXTURE, ETC. PATCH CHIPPED PAINT SURFACES ON PLASTER WALLS TO MATCH ADJACENT SURFACE TEXTURE. SAND CHIPPED EDGES ON WOOD AND METAL SURFACES SMOOTH.
- D. NOT ALL ROOM MATERIAL/FINISH DEMOLITION INDICATED. WHERE NEW MATERIAL/FINISH IS INDICATED IN ROOM FINISH SCHEDULE, REMOVE EXISTING MATERIAL/FINISH INCLUDING FLOOR AND BASE, ADHESIVES/MASTICS, FLOOR SEALERS AND CURING COMPOUNDS, AND FLOOR PAINT WHETHER OR NOT SHOWN TO BE REMOVED ON DEMOLITION FLOOR PLANS.
- E. WHERE FLOOR SLABS TO REMAIN ARE DISCONTINUOUS AT WALLS AND PARTITIONS NOTED TO BE REMOVED, REMOVE WALL/PARTITION TO BELOW FLOOR SLAB AND PATCH SLAB THROUGH OPENING.
- F. WHERE NEW OPENINGS OCCUR WHERE EXISTING WALLS HAVE BEEN REMOVED, FEATHER CEMENT-BASED LINERLAYMENT AT A DISTANCE OF 8 FEET FROM EACH JAMB TO PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING FLOOR FINISHES ON EACH SIDE OF THE OPENING. FLOOR SURFACE SHALL BE FLAT WITHIN 3/16" IN 10 FEET IN ACCORDANCE WITH ASTM F710.
- G. WHERE EXISTING WALL IS REMOVED TO CREATE A NEW OPENING, CMU TO BE REMOVED TO THE NEAREST VERTICAL MASONRY JOINT TO ALLOW FOR TOOTHING IN OF MASONRY.

KEY NOTES - DEMOLITION PLANS

- D10 DEMO EXISTING CEILING, SUPPORTING BLOCKING AND HARDWARE. PREP FOR SAP CEILING.
- D13 MODIFY EXISTING CEILING TO ACCOMMODATE A NEW WALL.



1 FIRST FLOOR DEMO REFLECTED CEILING PLAN - AREA A
AD401 1/8" = 1'-0"



KEY PLAN
NTS



NORTHWEST LOCAL SCHOOL DISTRICT
NORTHWEST HS CAREER TECH RENOVATIONS
 10761 PIPPIN RD., CINCINNATI, OH 45231
NORTHWEST LOCAL SCHOOL DISTRICT
 3240 BANNING ROAD, CINCINNATI, OH 45239

ISSUANCES

NO.	DATE	DESCRIPTION

FIRST FLOOR DEMO REFLECTED CEILING PLAN

DATE 03-17-25
 COMM NO. 2024115.05

AD401

1.1 GENERAL REQUIREMENTS

- A. DEFINING THE PARTIES ASSOCIATED WITH THIS WORK:
1. OWNER: NORTHWEST LOCAL SCHOOL DISTRICT
2. OWNER ARCHITECT (ARCHITECT): SHP 312 PLUM STREET, SUITE 700 CINCINNATI, OH 45202
3. CONTRACTOR (ODC): TBD
4. SUBCONTRACTOR (ANY SUBCONTRACTOR TO THE ODC): TBD
B. JURISDICTIONS AND CODES: ALL CONSTRUCTION PERFORMED SHALL COMPLY WITH APPLICABLE CODES, ORDINANCES AND STATUTES, INCLUDING BUT NOT LIMITED TO, THE APPLICABLE LOCAL AND STATE BUILDING CODES, NATIONAL ELECTRIC CODE, ASHRAE, THE OWNER'S FIRE INSURANCE UNDERWRITER, ADA-ABA ACCESSIBILITY GUIDELINES, AND ALL OTHER APPLICABLE SAFETY CODES. REFER TO ARCHITECTURAL COVER PAGE FOR APPLICABLE CODES.
C. PERMITS: ZONING AND GENERAL BUILDING PERMITS SHALL BE APPLIED FOR AND SECURED BY SHP. ALL OTHER PERMITS ARE TO BE APPLIED FOR AND SECURED BY THE BUILDING OWNER/DEVELOPER/CONTRACTOR (ODC). PRIOR TO COMMENCEMENT OF CONSTRUCTION, ALL PERMITS SHALL BE OBTAINED IN A PROMINENT PLACE WITHIN THE PREMISES WITH A COPY PROVIDED TO THE TENANT.
D. INSPECTIONS: ODC IS RESPONSIBLE FOR SCHEDULING ANY REQUIRED INSPECTIONS BY AUTHORITIES HAVING JURISDICTION AND PAYING ANY FEES.
F. APPLICABILITY OF STANDARDS: UNLESS THE CONTRACT DOCUMENTS INCLUDE MORE STRINGENT REQUIREMENTS, APPLICABLE CONSTRUCTION INDUSTRY STANDARDS HAVE THE SAME FORCE AND EFFECT AS IF BOUND OR COPIED DIRECTLY INTO THE CONTRACT DOCUMENTS TO THE EXTENT REFERENCED. SUCH STANDARDS ARE MADE A PART OF THE CONTRACT DOCUMENTS BY REFERENCE.
G. IT IS NOT THE INTENT OF THESE DOCUMENTS TO ASSIGN RESPONSIBILITY FOR VARIOUS ASPECTS OF THE WORK TO SPECIFIC SUBCONTRACTORS. THE ODC HAS SOLE RESPONSIBILITY FOR ASSIGNMENT OF THE WORK AND SHALL COORDINATE ALL WORK AND CONTRACT FOR SAME IN WHATEVER MANNER THEY DEEM EXPEDIENT.
H. PRIOR TO SUBMISSION OF COST PROPOSALS OR BIDS, ALL SUBCONTRACTORS SHALL ARRANGE, THROUGH THE ODC, TO VISIT THE SITE OF THE PROPOSED WORK TO FULLY ACQUAINT THEMSELVES WITH THE EXISTING CONDITIONS AFFECTING THEIR WORK. BY SUBMITTING A BID, EACH SUBCONTRACTOR AFFIRMS THAT THEY HAVE CAREFULLY EXAMINED THE SITE AND ALL CONDITIONS AFFECTING THEIR WORK. THE ODC SHALL BE RESPONSIBLE FOR ALL SAFETY RELATED ITEMS FOR THEIR WORK AND WORKERS, INCLUDING BUT NOT LIMITED TO COMPLIANCE WITH FEDERAL, STATE AND LOCAL CODES.
I. THE USE OF THE WORD "PROVIDE", IN CONNECTION WITH ANY ITEM SPECIFIED, IS INTENDED TO MEAN THAT SUCH ITEM SHALL BE FURNISHED AND INSTALLED WITH ALL REQUIRED ACCESSORIES, AND CONNECTED WHERE SO REQUIRED, COMPLETE AND READY FOR INTENDED USE.
J. THE ODC CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY RELATED ITEMS FOR THEIR WORK AND WORKERS, INCLUDING BUT NOT LIMITED TO COMPLIANCE WITH FEDERAL, STATE AND LOCAL CODES.
K. THE USE OF THE WORD "PROVIDE", IN CONNECTION WITH ANY ITEM SPECIFIED, IS INTENDED TO MEAN THAT SUCH ITEM SHALL BE FURNISHED AND INSTALLED WITH ALL REQUIRED ACCESSORIES, AND CONNECTED WHERE SO REQUIRED, COMPLETE AND READY FOR INTENDED USE.

1.2 TEMPORARY UTILITIES AND SUPPORT FACILITIES

- A. UTILITIES, SANITARY FACILITIES, TEMPORARY FIRE PROTECTION, WASTE DISPOSAL, LIFTS AND HOISTS, MATERIAL DELIVERY AND STORAGE, CONTRACTOR PARKING AND ALL OTHER RELATED TEMPORARY UTILITIES, SUPPORT FACILITIES, AND CONTROLS ARE TO BE NEGOTIATED BETWEEN THE SUBCONTRACTOR AND THE ODC.

1.3 GENERAL EXECUTION REQUIREMENTS

- A. EXAMINATION AND ACCEPTANCE OF EXISTING CONDITIONS: THE EXISTENCE AND LOCATION OF UTILITIES AND OTHER CONSTRUCTION INDICATED AS EXISTING ARE NOT GUARANTEED. BEFORE PROCEEDING WITH EACH COMPONENT OF THE WORK, EXAMINE SUBSTRATES, AREAS, AND CONDITIONS FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE.
B. TAKE FIELD MEASUREMENTS AS REQUIRED TO FIT THE WORK PROPERLY. RECHECK MEASUREMENTS BEFORE INSTALLING EACH PRODUCT. WHERE PORTIONS OF THE WORK ARE INDICATED TO FIT TO OTHER CONSTRUCTION, VERIFY DIMENSIONS OF OTHER CONSTRUCTION BY FIELD MEASUREMENTS BEFORE FABRICATION. DO NOT SCALE DRAWINGS.
C. COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND RECOMMENDATIONS FOR INSTALLING PRODUCTS IN APPLICATIONS INTENDED. COMPLETE WORK BY THOSE SKILLED AND FAMILIAR WITH THE MATERIALS TO BE INSTALLED.
D. ATTACHMENT: PROVIDE BLOCKING AND ATTACHMENT PLATES AND ANCHORS AND FASTENERS OF ADEQUATE SIZE AND NUMBER TO SECURELY ANCHOR EACH COMPONENT IN PLACE, ACCURATELY LOCATED AND ALIGNED WITH OTHER PORTIONS OF THE WORK. WHERE SIZE AND TYPE OF ATTACHMENTS ARE NOT INDICATED, VERIFY SIZE AND TYPE REQUIRED FOR LOAD CONDITIONS.

1.4 COORDINATION WITH BUILDING OCCUPANTS

- A. PARTIAL OWNER OCCUPANCY: PORTIONS OF THE BUILDING MAY BE OCCUPIED BY OTHERS DURING THE ENTIRE CONSTRUCTION PERIOD. COOPERATE WITH ALL OTHERS DURING CONSTRUCTION OPERATIONS TO MINIMIZE CONFLICTS AND FACILITATE BUILDING OCCUPANCY AND USAGE. PERFORM THE WORK SO AS NOT TO INTERFERE WITH OTHER ODC'S OPERATIONS.

1.5 CUTTING AND PATCHING

- A. EMPLOY SKILLED WORKERS TO PERFORM CUTTING AND PATCHING. CUT IN-PLACE CONSTRUCTION TO PROVIDE FOR INSTALLATION OF OTHER COMPONENTS OR PERFORMANCE OF OTHER CONSTRUCTION, AND SUBSEQUENTLY PATCH AS REQUIRED TO RESTORE SURFACES TO THEIR ORIGINAL CONDITION.
B. IF SPRAY-APPLIED FIREPROOFING MATERIAL IS ENCOUNTERED, PATCH EXISTING MATERIAL WHERE IT HAS BEEN DAMAGED OR REMOVED DURING THE COURSE OF THIS WORK MATCHING EXISTING PRODUCT AND THICKNESS.
C. PENETRATIONS THROUGH FIRE-RESISTANCE-RATED CONSTRUCTIONS, INCLUDING EMPTY OPENINGS AND OPENINGS CONTAINING PENETRATING ITEMS, SHALL BE FIRESTOPPED WITH FIRESTOP SYSTEMS RECOGNIZED, PUBLISHED RATINGS DETERMINED PER ASTM E 814 OR UL 1479 AND AS APPROVED BY AHJ.
D. FLOOR OUTLETS AND POWER SUPPLY LOCATIONS ARE INDICATED ON DRAWINGS. ODC SHALL SCHEDULE PRE-INSTALLATION CONFERENCE WITH ARCHITECT FOR FINAL REVIEW AND COORDINATION WITH FINAL FURNITURE SELECTIONS AND OTHER EXISTING CONDITIONS PRIOR TO INSTALLATION.

1.6 CLEANING AND PROTECTION

- A. THIS ARTICLE REFERS TO REGULAR CLEANING OPERATIONS CONDUCTED WHILE CONSTRUCTION IS IN PROGRESS.
B. THE ODC, UPON FINAL COMPLETION OF CONSTRUCTION AND JUST PRIOR TO TURNING THE SPACE OVER TO THE TENANT, SHALL EMPLOY EXPERIENCED WORKERS OR PROFESSIONAL CLEANERS FOR FINAL CLEANING. CLEAN EACH SURFACE OR UNIT TO NEW, UNUSED CONDITION.

1.7 STARTING AND ADJUSTING

- A. START EQUIPMENT AND OPERATING COMPONENTS TO CONFIRM PROPER OPERATION. REMOVE MALFUNCTIONING UNITS, REPLACE WITH NEW UNITS, AND RE-TEST. ADJUST EQUIPMENT FOR PROPER OPERATION. ADJUST OPERATING COMPONENTS FOR PROPER OPERATION WITHOUT BINDING.

1.8 CLOSEOUT

- A. PERMITS, LICENSES, AND CERTIFICATES: FOR TENANT'S RECORDS, ODC SHALL SUBMIT COPIES OF PERMITS, LICENSES, CERTIFICATES, INSPECTION REPORTS, RELEASES, JURISDICTIONAL SETTLEMENTS, NOTICES, RECEIPTS FOR FEE PAYMENTS, JUDGMENTS, CORRESPONDENCE, RECORDS, AND SIMILAR DOCUMENTS, ESTABLISHED FOR COMPLIANCE WITH STANDARDS AND REGULATIONS BEARING ON PERFORMANCE OF THE WORK.
B. THE ODC SHALL DELIVER THE FOLLOWING DOCUMENTS TO THE ARCHITECT FOR REVIEW AT THE CLOSE OF THE PROJECT JUST PRIOR TO FINAL PAYMENT:
1. RECORD DRAWINGS, SPECIFICATIONS AND PRODUCT DATA.
2. OPERATION MANUALS FOR SYSTEMS, SUBSYSTEMS, AND EQUIPMENT.
3. WARRANTIES.
4. MAINTENANCE MANUALS FOR THE CARE AND MAINTENANCE OF PRODUCTS, MATERIALS, FINISHES, SYSTEMS AND EQUIPMENT.
5. CERTIFICATE OF SUBSTANTIAL COMPLETION - AIA DOCUMENT G704.
6. CERTIFICATE OF OCCUPANCY ISSUED BY THE AUTHORITY HAVING JURISDICTION.

1.9 STRUCTURAL

- A. ALTERATIONS AND/OR ADDITION OF REINFORCEMENT TO THE BUILDING STRUCTURE TO ACCOMMODATE NEW CONSTRUCTION SHALL BE SUBJECT TO PRIOR WRITTEN APPROVAL OF THE ODC AND THE STRUCTURAL ENGINEER OF RECORD (SER).
B. NO FLOOR CUTTING OR CORING SHALL PROCEED WITHOUT ODC AND SER'S REVIEW AND APPROVAL.
1.10 ROUGH CARPENTRY
A. PROVIDE INTERIOR TYPE A FIRE-RETARDANT TREATED WOOD BLOCKING IN BUILDING INTERIOR, INCLUDING INTERIOR WALLS AND PARTITIONS, AND AS REQUIRED TO SUPPORT FACING MATERIALS, FIXTURES, AND TRIM. PROVIDE PRODUCTS WITH A FLAME SPREAD INDEX OF 25 OR LESS WHEN TESTED ACCORDING TO ASTM E 84, AND WITH NO EVIDENCE OF SIGNIFICANT PROGRESSIVE COMBUSTION WHEN THE TEST IS EXTENDED AN ADDITIONAL 20 MINUTES, AND WITH THE FLAME FRONT NOT EXTENDING MORE THAN 10.5 FEET BEYOND THE CENTERLINE OF THE BURNERS AT ANY TIME DURING THE TEST.
B. PLYWOOD EQUIPMENT BACKING PANELS SHALL BE DOC PS 1, EXPOSURE 1, C-D PLUGGED, FIRE-RETARDANT TREATED, IN THICKNESS INDICATED OR, IF NOT INDICATED, NOT LESS THAN 3/4-INCH NOMINAL THICKNESS, FACTORY SANDED FINISH ON EXPOSED FACE.

1.11 JOINT SEALANTS

- A. ACRYLIC LATEX: ACRYLIC LATEX OR SILICONIZED ACRYLIC LATEX, ASTM C 834, TYPE OP, GRADE N.
1. APPLICATIONS:
a. INTERIOR VERTICAL AND OVERHEAD SURFACES AT PERIMETER OF WALL SURFACES AND FRAMES OF INTERIOR DOORS AND BORROWED LIGHTS.
b. PERIMETER OF GYPSUM BOARD SURFACES WHERE THEY ABUT ANOTHER MATERIAL.
c. PERIMETER JOINTS BETWEEN INTERIOR WALL SURFACES AND COUNTERTOPS, BACKSPASHES, FIXED EQUIPMENT, AND OTHER ELEMENTS TO PRODUCE A FINISHED, CLEANABLE, CRAFTSMAN-LIKE APPEARANCE.
d. ALL OTHER INTERIOR NONTRAFFIC JOINTS NOT INCLUDED OTHERWISE.
2. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:
a. BASF BUILDING SYSTEMS, MASTERSEAL NP 520.
b. BOSTIK, INC., PWC.
c. PECORA CORPORATION, AC-20 +SILICONE.
d. SODIAL USA, SODIACRYL C38.
e. TREMCO INCORPORATED, TREMIFLEX 834.

1.12 DOORS, FRAMES, FINISH HARDWARE, AND GLAZING

- A. WOOD DOORS SHALL MATCH ODC'S BASE BUILDING STANDARDS. UNDERCUT DOORS AS REQUIRED FOR FLOORING FINISHES OR REQUIRED BY HVAC DESIGN. CUT AND TRIM OPENINGS THROUGH DOORS IN FACTORY FINISH DOOR FACES, ALL FOUR EDGES, EDGES OF CUTOUTS, AND MORTISES.
B. HOLLOW METAL DOORS SHALL MATCH ODC'S BASE BUILDING STANDARDS. FABRICATE HARDWARE REINFORCEMENT ACCORDING TO ANSISDI A250.6 WITH REINFORCEMENT PLATES IN SAME MATERIAL AS DOOR FACES. FACTORY PRIME DOORS FOR FIELD PAINTING.
C. HOLLOW METAL FRAMES, SIDELIGHT, AND BORROWED LIGHTS SHALL MATCH ODC'S BASE BUILDING STANDARDS. FABRICATE HARDWARE REINFORCEMENT ACCORDING TO ANSISDI A250.6 WITH REINFORCEMENT PLATES IN SAME MATERIAL AS FRAMES. FACTORY PRIME FRAMES FOR FIELD PAINTING. INSTALL HOLLOW METAL FRAMES TO COMPLY WITH ANSISDI A250.11.
D. ALUMINUM STOREFRONT AND DOORS SHALL MATCH ODC'S BASE BUILDING STANDARDS. FINISH TO BE SELECTED FROM MANUFACTURER'S FULL RANGE TO MATCH EXISTING STOREFRONT.
a. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
1. KAWNEER-AN ALCOA COMPANY.
2. HAWKO WINDOW SYSTEMS, INC.
3. TUBELITE, INC.
4. YKK AP AMERICA, INC.
5. OLDCASTLE BUILDING ENVELOPE.
E. FINISH DOOR HARDWARE SHALL MATCH ODC'S BASE BUILDING STANDARDS. DOOR HARDWARE ON DOORS IN AN ACCESSIBLE ROUTE, SHALL COMPLY WITH THE U.S. ARCHITECTURAL & TRANSPORTATION BARRIERS COMPLIANCE BOARD'S ADA-ABA ACCESSIBILITY GUIDELINES.
F. PROVIDE DOOR HARDWARE SCHEDULE PREPARED BY OR UNDER THE SUPERVISION OF INSTALLER, DETAILING FABRICATION AND ASSEMBLY OF DOOR HARDWARE, AS WELL AS INSTALLATION PROCEDURES AND DIAGRAMS. COORDINATE FINAL DOOR HARDWARE SCHEDULE WITH DOORS, FRAMES, AND RELATED WORK TO ENSURE PROPER SIZE, THICKNESS, HAND, FUNCTION, AND FINISH OF DOOR HARDWARE. PROVIDE KEYING SCHEDULE PER ODC AND TENANT REQUIREMENTS.
G. FLOAT GLASS SHALL COMPLY WITH ASTM C 1036, TYPE I, QUALITY-Q3, CLASS 1 (CLEAR). PROVIDE FULLY TEMPERED GLAZING AT ALL LOCATIONS UNLESS NOTED OTHERWISE.
1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
a. CARDINAL GLASS INDUSTRIES
b. GUARDIAN GLASS
c. VIRACON, INC.
d. VITRO ARCHITECTURAL GLASS.

1.13 NON-STRUCTURAL METAL FRAMING AND GYPSUM BOARD

- A. STEEL STUDS AND RUNNERS SHALL COMPLY WITH ASTM C 645 WITH A MINIMUM BASE-METAL THICKNESS OF 0.027 INCHES (25 GAUGE) UNLESS OTHERWISE INDICATED ON THE DRAWINGS. PROVIDE IN DEPTH INDICATED ON DRAWINGS.
1. TOP RUNNERS ATTACHED TO BOTTOM OF STRUCTURE ABOVE SHALL BE SINGLE LONG-LEG RUNNERS WITH 2-INCH DEEP FLANGES, INSTALLED WITH STUDS FRICTION FIT INTO TOP RUNNER AND WITH CONTINUOUS BRIDGING LOCATED WITHIN 12 INCHES OF THE TOP OF STUDS.
2. PROVIDE FIRESTOP TRACKS AT FIRE-RESISTANCE-RATED ASSEMBLIES MANUFACTURED TO ALLOW PARTITION HEADS TO EXPAND AND CONTRACT WITH MOVEMENT OF STRUCTURE WHILE MAINTAINING CONTINUITY OF RATED ASSEMBLY INDICATED.
3. INSTALL METAL STUD FRAMING ACCORDING TO ASTM C 754 AND COMPLY WITH REQUIREMENTS IN ASTM C 840 THAT APPLY TO FRAMING INSTALLATION.
4. COORDINATE ADDITIONAL STUD LOCATIONS REQUIRED FOR WALL MOUNTED ITEMS. INSTALL SUPPLEMENTARY FRAMING, AND BLOCKING TO SUPPORT FIRE, FIRES, EQUIPMENT SERVICES, HEAVY TRIM, GRAB BARS, TOILET ACCESSORIES, FURNISHINGS, OR SIMILAR CONSTRUCTION.
5. INSTALL BRACINGS AT TERMINATIONS IN ASSEMBLIES AT 48-INCHES ON CENTER MAXIMUM. EXTEND BRACING TO SOLID STRUCTURE OR WALLS.
6. INSTALL TWO STUDS AT EACH DOOR JAMB. SCREW VERTICAL STUDS AT JAMBS TO JAMB ANCHOR CLIPS ON DOOR FRAMES. INSTALL RUNNER TRACK SECTION (FOR CRIPPLE STUDS) AT HEAD AND SECURE TO JAMB STUDS.
7. INSTALL CRIPPLE STUDS AT HEAD ADJACENT TO EACH JAMB STUD, WITH A MINIMUM 1/2-INCH CLEARANCE FROM JAMB STUD TO ALLOW FOR INSTALLATION OF CONTROL JOINT IN FINISHED ASSEMBLY.
8. EXTEND JAMB STUDS THROUGH SUSPENDED CEILINGS AND ATTACH TO UNDERSIDE OF OVERHEAD STRUCTURE WHETHER OR NOT THE CONTIGUOUS WALL EXTENDS TO STRUCTURE ABOVE.
B. PROVIDE 5/8-INCH THICK, TYPE X GYPSUM BOARD COMPLYING WITH ASTM C 1398 WITH LONG EDGES TAPERED AND AS INDICATED ON DRAWING PARTITION TYPES. COMPLY WITH ASTM C 840 FOR INSTALLATION AND FINISHING OF GYPSUM PANELS.
1. FOR FIRE-RESISTANCE-RATED ASSEMBLIES, PROVIDE MATERIALS AND CONSTRUCTION IDENTICAL TO THOSE TESTED IN ASSEMBLY INDICATED ACCORDING TO ASTM E 119 BY AN INDEPENDENT TESTING AGENCY.
2. ON PARTITIONS/WALLS, APPLY GYPSUM PANELS VERTICALLY (PARALLEL TO FRAMING), UNLESS REQUIRED BY FIRE-RESISTANCE-RATED ASSEMBLY, AND MINIMIZE END JOINTS. STAGGER ABUTTING JOINT ENDS NOT LESS THAN ONE FRAMING MEMBER IN ALTERNATE COURSES OF PANELS.
3. INTERIOR TRIM SHALL COMPLY WITH ASTM C 1047 AND SHALL BE GALVANIZED, ALUMINUM-COATED STEEL SHEET OR ROLLED ZINC PLASTIC OR PAPER-FACED GALVANIZED STEEL SHEET IS NOT ACCEPTABLE. PROVIDE CORNERBEAD AT OUTSIDE CORNERS. PROVIDE LC-BEAD AT EXPOSED PANEL EDGES AND WHERE BOARD MEETS A DIFFERENT MATERIAL. PROVIDE CONTROL JOINTS WITH V-SHAPED SLOTS AND REMOVABLE STRIP COVERING SLOT OPENING. LOCATE CONTROL JOINTS WHERE INDICATED ON DRAWINGS OR FIELD DIRECTED BY ARCHITECT BUT NOT AT A SPACING TO EXCEED 30 FEET. L-BEAD AND U-BEAD ARE NOT PERMITTED.
4. PROVIDE SOUND ATTENUATION BLANKETS COMPLYING WITH ASTM C 655, TYPE I (BLANKETS WITHOUT MEMBRANE FACING).
5. PREFILL OPEN JOINTS, ROUNDED OR BEVELED EDGES, AND DAMAGED SURFACE AREAS. APPLY JOINT TAPE OVER GYPSUM BOARD JOINTS, EXCEPT FOR TRIM PRODUCTS SPECIFICALLY INDICATED AS NOT INTENDED TO RECEIVE TAPE. PROVIDE LEVEL 4 FINISH OVER ALL GYPSUM BOARD SURFACES THAT WILL BE EXPOSED TO VIEW AND LEVEL 1 FINISH FOR CEILING PLENUMS AND CONCEALED SPACES.
6. WHERE NEW GYPSUM BOARD PARTITION ABUTS EXISTING WALL CORNERS, REMOVE EXISTING CORNER BEAD AND TAPE/FINISH NEW GYPSUM BOARD FLUSH WITH EXISTING SURFACE.
7. PATCH EXISTING GYPSUM BOARD SURFACES WHERE EXISTING BASE AND ADHESIVE HAS BEEN REMOVED TO PROVIDE A SMOOTH AND UNIFORM SURFACE FOR NEW BASE INSTALLATION.
8. EXISTING GYPSUM BOARD PARTITIONS SHALL BE PATCHED AND REPAIRED AS REQUIRED TO PRODUCE A LEVEL 4 FINISH, REGARDLESS OF EXISTING LEVEL OF FINISH.

1.14 PAINTING

- A. MATERIALS SCHEDULED TO RECEIVE PAINTED FINISHES ARE TO BE FILLED, SANDED AND OTHERWISE PREPARED FOR PRIMING AND FINISHING IN ACCORDANCE WITH THE REFERENCED STANDARDS OR BEST PRACTICES OF THE TRADE WHERE NO REFERENCED STANDARD IS INDICATED. PROVIDE MANUFACTURER'S BEST-QUALITY PAINT MATERIAL OF THE VARIOUS COATING TYPES SPECIFIED THAT ARE FACTORY-FORMULATED AND RECOMMENDED BY MANUFACTURER FOR APPLICATION INDICATED.
1. GYPSUM BOARD CEILINGS AND SOFFITS: ONE COAT LATEX-BASED PRIMER FOR INTERIOR APPLICATIONS AND TWO FINISH COATS FLAT ACRYLIC-EMULSION LATEX INTERIOR PAINT.
2. GYPSUM BOARD WALLS: ONE COAT LATEX-BASED PRIMER FOR INTERIOR APPLICATIONS AND TWO FINISH COATS EGGSHELL ACRYLIC-LATEX INTERIOR ENAMEL. HOLLOW METAL DOORS, FRAMES & BORROWED LIGHTS: TWO FINISH COATS SEMI-GLOSS ACRYLIC-MODIFIED ALKYL INTERIOR ENAMEL OVER FACTORY-PRIMED SURFACES.
3. WOOD DOORS AND TRIM WITH PAINTED FINISH: ONE COAT LATEX-BASED PRIMER FOR INTERIOR APPLICATIONS AND TWO FINISH COATS SEMI-GLOSS ACRYLIC-LATEX INTERIOR ENAMEL. PAINT ALL SIDES OF WOOD TRIM AND SEAL TOP AND BOTTOM EDGE OF DOORS.
4. WOOD DOORS AND TRIM WITH TRANSPARENT FINISH: UNLESS PROVIDED WITH FACTORY FINISH, DOORS PROVIDE STAIN, ONE SEALER COAT AND TWO FINISH COATS OF WATER-BASED POLYURETHANE CLEAR SATIN VARNISH. SEAL FRONT AND BACK OF TRIM AND ALL EDGES OF DOORS.
5. EXISTING SURFACES: SAND PREVIOUSLY PAINTED SURFACES AND PREPARE FOR NEW PAINTED FINISH. PROVIDE BONDING PRIMER FOR SUBSTRATE AS RECOMMENDED BY PAINT MANUFACTURER.
B. MANUFACTURERS
1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
a. BENJAMIN MOORE & CO.
b. PPG ARCHITECTURAL COATINGS.
c. SHERWIN-WILLIAMS COMPANY (THE).

1.15 ACOUSTICAL CEILINGS

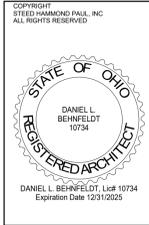
- A. GRID
1. PROVIDE ODC'S STANDARD EXPOSED "TEE", COMMERCIAL QUALITY COLD-ROLLED ELECTRO-GALVANIZED STEEL GRID SYSTEM, COMPLYING WITH ASTM C635 FOR "INTERMEDIATE DUTY SYSTEM". PROVIDE ATTACHMENT DEVICES SIZED FOR FIVE TIMES THE LOAD, DESIGN LOAD INDICATED BY ASTM C635 TABLE 1 FOR DIRECT HUNG. HANGER WIRE: C641, GALVANIZED, SOFT TEMPER, PRE-STRETCHED, CLASS 1 COATING, MINIMUM 12 GAUGE. SIZE WIRE SO THAT STRESS AT THREE-TIMES HANGER DESIGN LOAD GIVEN IN ASTM C635, TABLE 1, DIRECT HUNG, WILL BE LESS THAN THE YIELDSTRESS OF THE WIRE.
B. SUSPENDED ACOUSTICAL CEILING TILE
1. MATCH EXISTING CEILING TILE TYPE AND SIZE UNLESS NOTED OTHERWISE.

1.16 FLOOR FINISHES

- A. PROVIDE RESILIENT COVE BASE COMPLYING WITH ASTM F 1861, VULCANIZED THERMOSET OR THERMOPLASTIC RUBBER, GROUP 1 (SOLID, HOMOGENEOUS), 0.125-INCH THICKNESS, 4-INCH HEIGHT WITH JOB FORMED INSIDE AND OUTSIDE CORNERS.
1. APPLY RESILIENT BASE TO WALLS, COLUMNS, PILASTERS, CASEWORK AND CABINETS IN THE SPACES, AND OTHER PERMANENT FIXTURES IN ROOMS AND AREAS WHERE BASE IS REQUIRED.
2. INSTALL RESILIENT BASE IN LENGTHS AS LONG AS PRACTICABLE WITHOUT GAPS AT SEAMS AND WITH TOPS OF ADJACENT PIECES ALIGNED. DO NOT STRETCH RESILIENT BASE DURING INSTALLATION.
3. TIGHTLY ADHERE RESILIENT BASE TO SUBSTRATE THROUGHOUT LENGTH OF EACH PIECE, WITH BASE IN CONTINUOUS CONTACT WITH HORIZONTAL AND VERTICAL SUBSTRATES.

1.17 FIRE PROTECTION

- A. BUILDING OWNER/DEVELOPER/CONTRACTOR SHALL PROVIDE DESIGN BUILD ENGINEERING AND INSTALLATION BY A FIRE ALARM CONTRACTOR LICENSED IN THE STATE OF OHIO. SUBMIT DESIGN DOCUMENTS TO ARCHITECT FOR COORDINATION AND TO AHJ FOR FIRE ALARM PERMIT.



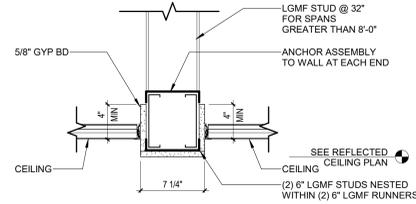
NORTHWEST LOCAL SCHOOL DISTRICT
NORTHWEST HS CAREER TECH RENOVATIONS
10761 PIPPIN RD., CINCINNATI, OH 45231
NORTHWEST LOCAL SCHOOL DISTRICT
3240 BANNING ROAD, CINCINNATI, OH 45239

ISSUANCES table with columns for date and description. Row 1: 04-14-25 BID / PERMIT SET

ARCHITECTURAL SPECIFICATIONS

DATE 03-17-25
COMM NO. 2024115.05

A002



1 SOFFIT DETAIL
A401 1/12" = 1'-0"



2 FIRST FLOOR REFLECTED CEILING PLAN - AREA A
A401 1/8" = 1'-0"

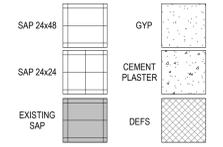
GENERAL NOTES - REFLECTED CEILING PLAN

- A. REPLACE ALL DAMAGED CEILING TILES AND CEILING ACCESSORIES DUE TO NEW WORK.
- B. PAINT ALL GYP BD SOFFITS PT-1 UNLESS NOTED OTHERWISE.
- C. ALL EXPOSED INTERIOR STEEL (LINTELS, ETC) TO BE PAINTED TO MATCH ADJACENT WALL SURFACE UNLESS NOTED OTHERWISE. ALL EXTERIOR STEEL (LINTELS, ETC) TO BE PAINTED TO MATCH FIRST MASONRY COURSE ABOVE LINTEL UNLESS NOTED OTHERWISE.
- D. ALL EXPOSED CEILING STRUCTURE, DECK, DUCTWORK, CONDUIT, HANGERS, ETC. TO BE PAINTED PT-1 UNLESS NOTED OTHERWISE.

KEY NOTES - REFLECTED CEILING PLANS

- C2 SEE SOFFIT DETAIL 1/A401
- C3 MODIFY CEILING IN THIS AREA TO THE EXTENTS SHOWN TO ACCOMMODATE A NEW DOOR
- C4 EXISTING BULKHEAD AND CEILING TO REMAIN

CEILING FINISH LEGEND



ABBREVIATIONS:
SAP SUSPENDED ACOUSTICAL PANEL
DEFS DIRECT-APPLIED EXTERIOR FINISH SYSTEM



NORTHWEST LOCAL SCHOOL DISTRICT
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NORTHWEST LOCAL SCHOOL DISTRICT
 3240 BANNING ROAD, CINCINNATI, OH 45239

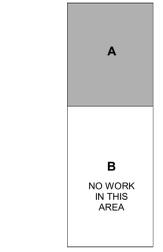
ISSUANCES

NO.	DATE	DESCRIPTION

FIRST FLOOR REFLECTED CEILING PLAN

DATE 03-17-25
COMM NO. 2024115.05

A401



KEY PLAN
NTS



SHP
505 PULASKI STREET, SUITE 200
CINCINNATI, OH 45202-5113-2112

**NORTHWEST LOCAL SCHOOL DISTRICT
NORTHWEST HS CAREER TECH RENOVATIONS
10761 PIPPIN RD., CINCINNATI, OH 45231
NORTHWEST LOCAL SCHOOL DISTRICT
3240 BANNING ROAD, CINCINNATI, OH 45239**

ISSUANCES

1	05-17-25	PERMIT SET
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PLUMBING SCHEDULES AND LEGENDS

COMM NO. 2024115.05

P001

22-LAVATORY SCHEDULE

TYPE LABEL	DESCRIPTION	BASIS OF DESIGN		MOUNTING HEIGHT	SUPPLY CONNECTION SIZES				WASTE CONNECTION SIZES				FAUCET		SUPPLY STOP		DRAIN		P - TRAP		NOTES
		MANUFACTURER	MODEL		COLD WATER	HOT WATER	DRAIN	P - TRAP	WASTE	VENT	MANUFACTURER	MODEL	FLOW RATE	MANUFACTURER	MODEL	MANUFACTURER	MODEL	MANUFACTURER	MODEL		
L-1	LAVATORY / WALL MOUNTED / ADA	ZURN	Z5360	24" TO RIM	1/2"	1/2"	1.5"	1.5"	1.5"	1.5"	SLOAN	EBF-650	0.5 GPM	McGUIRE	H165LK	McGUIRE	155A	McGUIRE	B8902	1	

NOTES
1. MOUNT TMV-5 UNDER LAV. REFER TO DETAIL 3/P001.

22-WATER CLOSET SCHEDULE

TYPE LABEL	DESCRIPTION	BASIS OF DESIGN		MOUNTING HEIGHT	COLD WATER CONNECTION				WASTE CONNECTION SIZES				FLUSH VALVE		MISC. ACCESSORY	
		MANUFACTURER	MODEL		COLD WATER CONNECTION	DRAIN	P - TRAP	WASTE	VENT	MANUFACTURER	MODEL	FLUSH RATE	MANUFACTURER	MODEL		
WC-1	WATER CLOSET / WALL MOUNT / AUTOMATIC BATTERY FLUSH VALVE	ZURN	Z5615	15" TO RIM	1"	4"	4"	2"	SLOAN	111 SMO	1.6 GPF	OLSONITE	95C			
WC-2	WATER CLOSET / WALL MOUNT / AUTOMATIC BATTERY FLUSH VALVE / ADA	ZURN	Z5615	17" TO RIM	1"	4"	4"	2"	SLOAN	111 SMO	1.6 GPF	OLSONITE	95C			

22-ELECTRIC WATER COOLER AND DRINKING FOUNTAIN SCHEDULE

TYPE LABEL	DESCRIPTION	BASIS OF DESIGN		MOUNTING HEIGHT	COLD WATER CONNECTION				WASTE CONNECTION SIZES				SUPPLY STOP		P-TRAP	
		MANUFACTURER	MODEL		COLD WATER CONNECTION	DRAIN	P - TRAP	WASTE	VENT	MANUFACTURER	MODEL	MANUFACTURER	MODEL			
EW-C-1	WATER COOLER / WALL HUNG / ADA / BI-LEVEL / BOTTLE FILLER	ELKAY	LZSTLGBWSLK	36" / 42" TO BUBBLER	1/2"	1.5"	1.5"	1.5"	1.5"	McGUIRE	H165LK	McGUIRE	B8902			

22-JRINAL SCHEDULE

TYPE LABEL	DESCRIPTION	BASIS OF DESIGN		MOUNTING HEIGHT	COLD WATER CONNECTION				FLUSH VALVE		
		MANUFACTURER	MODEL		COLD WATER CONNECTION	DRAIN	P - TRAP	WASTE	VENT	MANUFACTURER	MODEL
UR-2	URINAL / WALL MOUNT / AUTOMATIC BATTERY FLUSH VALVE / ADA	ZURN	Z5750	17" TO LIP	3/4"	2"	2"	1.5"	SLOAN	186 SMO	.5 GPF

22-CONNECTION BOX SCHEDULE

TYPE LABEL	DESCRIPTION	BASIS OF DESIGN		MOUNTING HEIGHT	SUPPLY CONNECTION SIZES	
		MANUFACTURER	MODEL		COLD	HOT
HB-1	HOSE BIBB IN BOX	ZURN	Z1330	18" TO BOTTOM OF BOX	3/4"	-

22-THERMOSTATIC MIXING VALVE SCHEDULE

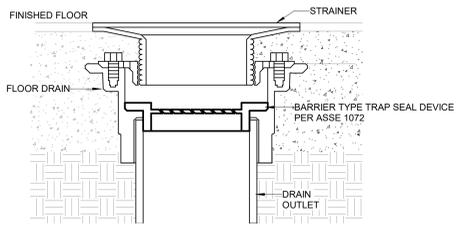
TYPE LABEL	DESCRIPTION	BASIS OF DESIGN		ASSE #	MINIMUM FLOW	FLOW @ 10 PSI DROP	CONNECTION SIZES		NOTES
		MANUFACTURER	MODEL				INLET	OUTLET	
TMV-5	POINT-OF-USE MIXING VALVE	BRADLEY	S59-4000	1070	35 GPM	2.5 GPM	1/2"	1/2"	1

NOTES
1. TMV-5 MOUNTED UNDER SINKS AND LAVS. REFER TO DETAIL 3/P001.

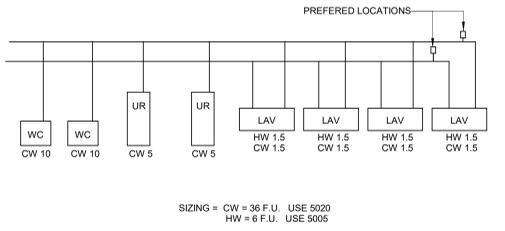
22-DRAINAGE FIXTURE SCHEDULE

TYPE LABEL	DESCRIPTION	BASIS OF DESIGN		CONNECTION SIZES		NOTES
		MANUFACTURER	MODEL	DRAIN	P - TRAP	
FD-1	FLOOR DRAIN	ZURN	ZN415-6B	3"	3"	1

NOTES
1. REFER TO FLOOR PLANS FOR ALL P-TRAP AND DRAIN SIZES.



1 BARRIER TYPE TRAP SEAL
P001

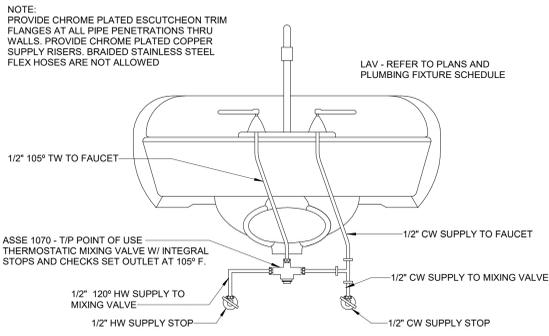


SIZING = CW = 36 F.U. USE 5020
HW = 6 F.U. USE 5055

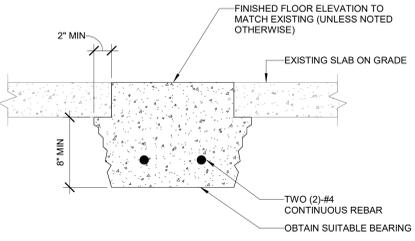
PDI SYMBOLS	A	B	C	D	E	F
FIXTURE UNIT RATING	1 - 11	12 - 32	33 - 60	61 - 113	114 - 155	156 - 330
HYDROTROL	5005	5010	5020	5030	5040	5050

NOTE: CONTRACTORS SHALL USE THE SIZING DATA PROVIDED WITH THE PRODUCT PURCHASED. EXAMPLE BASED ON J.R. SMITH HYDROTROL UP TO 20'-0".

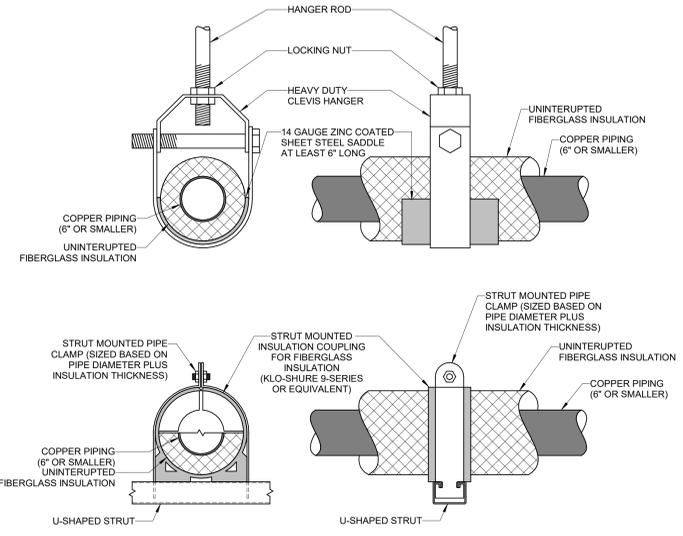
2 WATER HAMMER ARRESTOR SCHEDULE
P001



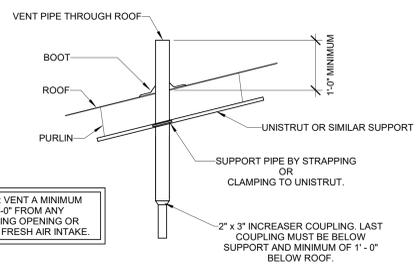
3 POINT OF USE MIXING VALVE
P001



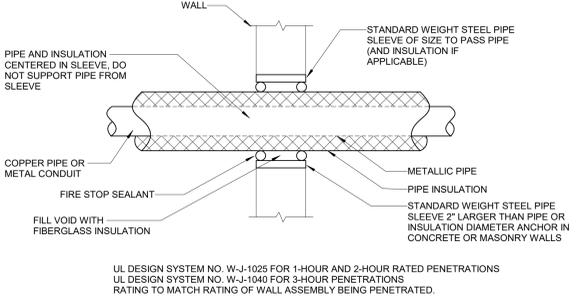
4 SLAB REPAIR & INFILL (TYPICAL)
P001



7 PIPE HANGER (6" AND SMALLER)
P001



5 VENT THROUGH ROOF DETAIL
P001



6 PIPE PENETRATION THROUGH FIRE RATED WALL
P001

SYMBOLS AND ABBREVIATIONS LEGEND
(THERE MAY BE SYMBOLS LISTED IN THIS LEGEND THAT ARE NOT USED IN THIS SET OF DRAWINGS)

PIPE TAG LEGEND

4" - C

ABBR	DESCRIPTION
C	DOMESTIC COLD WATER
H	DOMESTIC HOT WATER
G	NATURAL GAS
HR	HOT WATER RECIRCULATION
S	SANITARY
V	VENT

	BALL VALVE
	BUTTERFLY VALVE
	PLUG VALVE
	CIRCUIT BALANCING VALVE
	PIPE CONTINUES
FCO	FLOOR CLEANOUT
GCO	GRADE CLEANOUT
FD-#	FLOOR DRAIN
	PIPE TURNING UP
	PIPE TURNING DOWN
	POINT OF CONNECTION
	KEYNOTE NOTE
	FIRE-RATED WALL

23-MECHANICAL/ELECTRICAL COORDINATION SCHEDULE													
MARK	SPECIFICATION SECTION	STARTING MEANS				DISCONNECTING MEANS				ELECTRICAL			
		TYPE	PROVIDED BY	INSTALLED BY	LOCATION	TYPE	PROVIDED BY	INSTALLED BY	LOCATION	VOLTS	POLES	AMPS	MCCP
EF-1	Div. 23	N/A	N/A	N/A	N/A	DISCONNECT SWITCH	Div. 23	Div. 23	INTEGRAL TO UNIT	480 V	3	3.0 A	15.0 A
VV-24	Div. 23	CONTROL PANEL	Div. 23	Div. 23	INTEGRAL TO UNIT	DISCONNECT SWITCH	Div. 23	Div. 23	INTEGRAL TO UNIT	480 V	3	4.8 A	25.0 A
VV-106	Div. 23	CONTROL PANEL	Div. 23	Div. 23	INTEGRAL TO UNIT	DISCONNECT SWITCH	Div. 23	Div. 23	INTEGRAL TO UNIT	480 V	3	4.8 A	25.0 A
VV-309	Div. 23	CONTROL PANEL	Div. 23	Div. 23	INTEGRAL TO UNIT	DISCONNECT SWITCH	Div. 23	Div. 23	INTEGRAL TO UNIT	480 V	3	9.6 A	15.0 A
VV-311	Div. 23	CONTROL PANEL	Div. 23	Div. 23	INTEGRAL TO UNIT	DISCONNECT SWITCH	Div. 23	Div. 23	INTEGRAL TO UNIT	480 V	3	2.4 A	15.0 A
VV-319	Div. 23	CONTROL PANEL	Div. 23	Div. 23	INTEGRAL TO UNIT	DISCONNECT SWITCH	Div. 23	Div. 23	INTEGRAL TO UNIT	480 V	3	4.8 A	25.0 A
VV-321	Div. 23	CONTROL PANEL	Div. 23	Div. 23	INTEGRAL TO UNIT	DISCONNECT SWITCH	Div. 23	Div. 23	INTEGRAL TO UNIT	480 V	3	4.8 A	25.0 A
VV-323	Div. 23	CONTROL PANEL	Div. 23	Div. 23	INTEGRAL TO UNIT	DISCONNECT SWITCH	Div. 23	Div. 23	INTEGRAL TO UNIT	480 V	3	4.8 A	25.0 A
VV-324	Div. 23	CONTROL PANEL	Div. 23	Div. 23	INTEGRAL TO UNIT	DISCONNECT SWITCH	Div. 23	Div. 23	INTEGRAL TO UNIT	480 V	3	4.8 A	25.0 A
VV-325	Div. 23	CONTROL PANEL	Div. 23	Div. 23	INTEGRAL TO UNIT	DISCONNECT SWITCH	Div. 23	Div. 23	INTEGRAL TO UNIT	480 V	3	5.4 A	25.0 A
VV-326	Div. 23	CONTROL PANEL	Div. 23	Div. 23	INTEGRAL TO UNIT	DISCONNECT SWITCH	Div. 23	Div. 23	INTEGRAL TO UNIT	480 V	3	4.8 A	25.0 A
VV-328	Div. 23	CONTROL PANEL	Div. 23	Div. 23	INTEGRAL TO UNIT	DISCONNECT SWITCH	Div. 23	Div. 23	INTEGRAL TO UNIT	480 V	3	4.8 A	25.0 A

23-EXHAUST FAN SCHEDULE														
MARK	MANUFACTURER	MODEL	SERVICE	LOCATION	TYPE	AIRFLOW	EXHAUST FAN		ELECTRICAL CHARACTERISTICS					
							EXTERNAL STATIC PRESSURE	RPM	HP	AMPS	MCCP	Ø	VOLTAGE	NOTES
EF-1	GREENHECK	G-680-E	ROOF			300 CFM	0.50 in-wg	1683	0.1	1.9 A	15.0 A	1	115 V	1

- NOTES:
- FAN IS CONTROLLED BY BAS. SEE CONTROL SCHEMATICS AND SEQUENCES. (GENERAL ROOM EXHAUST)

23-VARIABLE AIR VOLUME ELECTRIC BOX SCHEDULE (End of your selections run these selections by rep. VAV MAX heating capacity varies with the voltage and phase.)															
MARK	MANUFACTURER	MODEL	CONTROL	INLET SIZE	MINIMUM CFM	MAXIMUM CFM	HEATING CFM	EXTRA HEATING AIRFLOW	APPLIED HEATING LOAD	HEATER SIZE	ELECTRIC HEAT		VOLTS	PHASE	NOTES
											ENTERING	LEAVING			
VV-24	PRICE	SDV5000	SCR	8"	132	440	220 CFM	0 CFM	2.1 kW	2.5 kW	55	85	480 V	3	ALL
VV-106	PRICE	SDV5000	SCR	8"	60	200	100 CFM	0 CFM	0.9 kW	1.0 kW	55	85	480 V	3	ALL
VV-309	PRICE	SDV5000	SCR	8"	420	1400	700 CFM	100 CFM	7.6 kW	8.0 kW	55	85	480 V	3	ALL
VV-311	PRICE	SDV5000	SCR	4"	60	200	100 CFM	75 CFM	1.7 kW	2.0 kW	55	85	480 V	3	ALL
VV-319	PRICE	SDV5000	SCR	8"	180	600	300 CFM	100 CFM	3.8 kW	4.0 kW	55	85	480 V	3	ALL
VV-321	PRICE	SDV5000	SCR	8"	210	700	350 CFM	100 CFM	4.3 kW	4.5 kW	55	85	480 V	3	ALL
VV-323	PRICE	SDV5000	SCR	8"	210	700	350 CFM	100 CFM	4.3 kW	4.5 kW	55	85	480 V	3	ALL
VV-324	PRICE	SDV5000	SCR	8"	180	600	300 CFM	100 CFM	3.8 kW	4.0 kW	55	85	480 V	3	ALL
VV-325	PRICE	SDV5000	SCR	8"	210	700	350 CFM	100 CFM	4.3 kW	4.5 kW	55	85	480 V	3	ALL
VV-326	PRICE	SDV5000	SCR	8"	180	600	300 CFM	100 CFM	3.8 kW	4.0 kW	55	85	480 V	3	ALL
VV-328	PRICE	SDV5000	SCR	8"	180	600	300 CFM	100 CFM	3.8 kW	4.0 kW	55	85	480 V	3	ALL
Grand total: 11											40.3 kW	42.5 kW			

- NOTES:
- PROVIDE DISCONNECT SWITCH INTEGRAL TO VAV BOX.
 - PROVIDE HEATER CAPACITY PER LIST KW, NOT MAXIMUM AVAILABLE FOR THE VAV BOX.
 - PROVIDE WITH SCR CONTROL.
 - UL LISTED ASSEMBLIES.
 - THE RECOMMENDED LIMIT OF 48 AMPS MAY BE EXCEEDED. THIS REQUIRES SUPPLEMENTAL FUSING TO MEET NEC CODE REQUIREMENTS. CONTACT YOUR LOCAL PRICE REPRESENTATIVE FOR FURTHER DETAILS.
 - MAXIMUM KW LIMITATIONS IS THE LESSER OF COIL SELECTION CHART
 - MINIMUM AIR FLOW REQUIREMENTS OF 70 CFM/KW.
 - FOR PRICE VAV BOXES AS BASIS OF DESIGN, THE HEATER SIZE WILL REFLECT THE ROUNDED UP APPLIED HEATING LOAD IN 0.5 KW INCREMENTS.
 - FOR TRANE VAV BOXES AS BASIS OF DESIGN, MAKE SURE TO CHANGE HEATER SIZES LARGER THAN 8 KW TO BE ROUNDED UP IN 1 KW INCREMENTS.
 - MINIMUM KW: STAGED CONTROL, SINGLE PHASE = 0.5 KW PER STAGE. STAGED CONTROL, THREE PHASE = 1.5 KW.
 - SCR CONTROL, SINGLE PHASE = 0.5 KW. SCR CONTROL, THREE PHASE = 1.5 KW.

23-AIR DEVICE SCHEDULE												
MARK	BASIS OF DESIGN	MANUFACTURER	MODEL	DIFFUSER TYPE	MAXIMUM AIRFLOW	MAXIMUM PRESSURE DROP	MAXIMUM SOUND	BLADE SPACING	DIFFUSER PATTERN	CONNECTION SIZE (INCH)	FACE SIZE (INCH)	NOTES
SD-1	PRICE	SPD	SQUARE PLAQUE DIFFUSER	110 CFM	0.020 in-wg	15	N/A	0	60	24x24		
SD-2	PRICE	SPD	SQUARE PLAQUE DIFFUSER	235 CFM	0.050 in-wg	15	N/A	0	80	24x24		
SD-3	PRICE	SPD	SQUARE PLAQUE DIFFUSER	420 CFM	0.110 in-wg	21	N/A	0	100	24x24		
SD-4	PRICE	SPD	SQUARE PLAQUE DIFFUSER	625 CFM	0.166 in-wg	25	N/A	0	120	24x24		

23-HVAC SHEET LIST	
SHEET NUMBER	SHEET NAME
M001	MECHANICAL SCHEDULES AND LEGENDS
M002	VENTILATION CALCULATION
M100	FIRST FLOOR HVAC DEMOLITION PLAN
M100	DUCTWORK PLAN
M300	CONTROL SCHEMATICS - AIRSIDE
M301	MECHANICAL SPECIFICATION

ABBREVIATIONS			
ACU	AIR CONDITIONING UNIT	LL	LOW LIMIT
ACH	AIR CHANGES PER HOUR	LON	LOCAL OPERATING NETWORK
AFUE	ANNUAL FUEL EFFICIENCY RATIO	LP	LOW PRESSURE
AHU	AIR HANDLING UNIT	LRA	LOCKED ROTOR AMPS
AI	ANALOG INPUT	LWB	LEAVING WET BULB TEMPERATURE
AD	ANALOG OUTPUT	LWT	LEAVING WATER TEMPERATURE
B	BOILER	MA	MEASUREMENT AND VERIFICATION
BACNET	COMMUNICATION PROTOCOL FOR BUILDING AUTOMATION NETWORKS	MA	MIXED AIR
BAS	BUILDING AUTOMATION SYSTEM	MAT	MIXED AIR TEMPERATURE
BI	BINARY INPUT	MCC	MOTOR CONTROL CENTER
BO	BINARY OUTPUT	MZ	MAKE-UP AIR UNIT
BTU	BRITISH THERMAL UNIT	NC	NORMALLY CLOSED
BTUH	BRITISH THERMAL UNITS / HOUR	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CAV	CONSTANT AIR VOLUME	NO	NORMALLY OPEN
CD	COOLING DEGREE DAYS	NPSH	NET POSITIVE SUCTION HEAD
CFC	CHLOROFLUOROCARBON	OA	OUTSIDE AIR
CFM	CUBIC FEET PER MINUTE	OAP	OUTSIDE AIR PERCENTAGE
CH	CHILLER	OAT	OUTSIDE AIR TEMPERATURE
CHW	CHILLED WATER	OOP	OPEN DRIP PROOF
CHWP	CHILLED WATER PUMP	OPW	OPERATOR WORK STATION
CHWR	CHILLED WATER RETURN	PC	PERFORMANCE CONTRACTING
CHWRT	CHILLED WATER RETURN TEMPERATURE	PE	PROFESSIONAL ENGINEER
CHWS	CHILLED WATER SUPPLY TEMPERATURE	PH	PRE-HEAT
CHWST	CHILLED WATER SUPPLY TEMPERATURE	PID	PROPORTIONAL INTEGRAL DERIVATIVE
COP	COEFFICIENT OF PERFORMANCE	PRV	PRESSURE RELIEF VALVE
CRAC	COMPUTER ROOM AIR CONDITIONER	PRV	PRESSURE REDUCING VALVE
CT	COOLING TOWER	PTAC	PACKAGED TERMINAL AIR CONDITIONER
CV	CONSTANT VOLUME	RA	RETURN AIR
CWP	CONDENSER WATER PUMP	RF	RETURN FAN
CWR	CONDENSER WATER RETURN	RH	REHEAT
CWRT	CONDENSER WATER RETURN TEMPERATURE	RH	REHEAT
CWS	CONDENSER WATER SUPPLY	RH	RELATIVE HUMIDITY
CWST	CONDENSER WATER SUPPLY TEMPERATURE	RM	REVOLUTIONS PER MINUTE
DAT	DISCHARGE AIR TEMPERATURE	RTD	RESISTANCE TEMPERATURE DETECTOR
DB	DRY BULB	RTU	ROOF TOP UNIT
DOV	DEMAND CONTROLLED VENTILATION	SURV	SUPPLY FAN
DHC	DIRECT DIGITAL CONTROL	SAT	SUPPLY AIR TEMPERATURE
DD	DUCT HEATER	SEER	SEASONAL ENERGY EFFICIENCY RATIO
DH	DIFFERENTIAL PRESSURE	SHR	SUPPLY AIR TEMPERATURE
DX	DIRECT EXPANSION	SP	SENSIBLE HEAT RATIO
EAT	ENTERING AIR TEMPERATURE	SP	SET POINT
ECM	ELECTRONICALLY COMMUTATED MOTOR	SP	STATIC PRESSURE
EED	ELECTRIC DUCT HEATER	T	THERMOSTAT
EEH	ENERGY EFFICIENCY RATIO	TEV	THERMOSTATIC EXPANSION VALVE
EH	ELECTRIC HEATER	TIME	TIME OF DAY
EMS	ENERGY MANAGEMENT SYSTEM	TXV	THERMOSTATIC EXPANSION VALVE
ESCO	ENERGY SERVICE COMPANY	UH	UNIT HEATER
EUC	ELECTRIC UNIT HEATER	UL	UL LISTED
EWT	ENTERING WATER TEMPERATURE	UV	UNIT VENTILATOR
FCU	FAN COIL UNIT	VAV	VARIABLE AIR VOLUME
FCL	FULL LOAD AMPS	VFD	VARIABLE FREQUENCY DRIVE
FMS	FACILITY MANAGEMENT SYSTEM	VSD	VARIABLE SPEED DRIVE
FFM	FEET PER MINUTE	VSP	VARIABLE SPEED PUMPING
FW	FEED WATER	WB	WET BULB
GPM	GALLONS PER MINUTE	WC	WATER COLUMN
GUI	GRAPHICAL USER INTERFACE	YTD	YEAR TO DATE
HCFC	HYDROCHLOROFUROCARBON		
HEPA	HIGH EFFICIENCY PARTICULATE ARRESTING		
HFC	HYDROFLUOROCARBON		
HHWP	HEATING HOT WATER PUMP		
HHWR	HEATING HOT WATER RETURN		
HRWS	HEATING HOT WATER SUPPLY		
HL	HIGH LIMIT		
HR	HEAT RECOVERY		
HRU	HEAT RECOVERY UNIT		
HRV	HEAT RECOVERY VENTILATOR		
HSFP	HEATING SEASONAL PERFORMANCE FACTOR		
HVAC	HEATING VENTILATION AND AIR CONDITIONING		
HWP	HOT WATER PUMP		
HWR	HOT WATER RETURN		
HWS	HOT WATER SUPPLY		
HWRT	HOT WATER RETURN TEMPERATURE		
HWST	HOT WATER SUPPLY TEMPERATURE		
HX	HEAT EXCHANGER		
IAQ	INDOOR AIR QUALITY		
IR	INFRARED		
LAV	LEAVING AIR TEMPERATURE		
LHT	LOWEST HEATING VALVE		

SYMBOLS AND ABBREVIATIONS LEGEND
(THAT ARE NOT USED IN THIS SET OF DRAWINGS)

PIPING SYMBOLS	DESCRIPTION
HHWS	HEATING HOT WATER SUPPLY PIPING
HHWR	HEATING HOT WATER RETURN PIPING
CHWS	CHILLER WATER SUPPLY PIPING
CHWR	CHILLER WATER RETURN PIPING
CWS	CONDENSER WATER SUPPLY PIPING
CWR	CONDENSER WATER RETURN PIPING
GLS	GEO-THERMAL LOOP SUPPLY PIPING
GLR	GEO-THERMAL LOOP RETURN PIPING
COND	CONDENSATE DRAIN PIPING
RS/L	REFRIGERANT SUCTION/LIQUID PIPING
IF	BALL VALVE
IF	BUTTERFLY VALVE
IF	PLUG VALVE
IF	CIRCUIT BALANCING VALVE
IF	CHECK VALVE
PRV-#	PRESSURE REDUCING VALVE
IF	3-WAY VALVE
IF	MOTORIZED CONTROL VALVE
IF	MOTORIZED 3-WAY CONTROL VALVE
IF	SOLENOID VALVE
IF	STRainer
IF	PIPE CONTINUATION
IF	POINT OF REMOVAL/CONNECTION
IF	KEYNOTE NOTE

DUCTWORK SYMBOLS	
IF	LINEAR DIFFUSER
IF	SUPPLY DIFFUSER
IF	RETURN GRILLE
IF	EXHAUST GRILLE
IF	VAV BOX (WITH CLEARANCE BOX SHOWN)
IF	BALANCING DAMPER
IF	BACKDRAFT DAMPER
IF	SMOKE DAMPER
IF	FIRE DAMPER
IF	MOTORIZED CONTROL DAMPER
IF	INTERNALLY LINED DUCTWORK
IF	FABRIC DUCTWORK
IF	FLEXIBLE DUCTWORK

CONTROL SYMBOLS	
IF	THERMOSTAT
IF	TEMPERATURE SENSOR
IF	CARBON DIOXIDE SENSOR
IF	HUMIDITY SENSOR
IF	VOC SENSOR
IF	COMBINATION THERMOSTAT / HUMIDITY SENSOR
IF	CARBON MONOXIDE SENSOR

GENERAL PROJECT NOTES

- DRAWINGS ARE SCHEMATIC IN NATURE AND SHOW DESIGN INTENT. IF CHANGES ARE MADE DUE TO DIFFERING FIELD CONDITIONS, SUGGESTED CHANGES ARE TO BE SUBMITTED TO ARCHITECT FOR APPROVAL PRIOR TO CHANGES BEING MADE.
- REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE-RATED WALLS.
- REPAIR ANY WORK DAMAGED AS A RESULT OF WORK BY THIS CONTRACT. CONTRACTOR SHALL BE RESPONSIBLE TO SECURE AND PAY FOR ALL MATERIALS, LABOR, LICENSES, PERMITS, INSPECTIONS, FEES, FINALS, CLEANUP, AND QUALITY OF WORKMANSHIP AND MATERIALS REQUIRED TO PERFORM WORK DESCRIBED IN CONTRACT.
- CONTRACTOR SHALL VERIFY AND SATISFY THAT ALL EQUIPMENT FURNISHED WILL PROPERLY FIT IN THE SPACE PROVIDED, THAT IT WILL FUNCTION PROPERLY, AND THAT ALL PARTS OF EQUIPMENT REQUIRING SERVICE ARE READILY ACCESSIBLE IN COMPLIANCE WITH THE MECHANICAL CODE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL CUTTING AND PATCHING OF WALLS, FLOORS, AND ROOFS REQUIRED FOR DEMOLITION OF EXISTING AND INSTALLATION OF NEW HVAC COMPONENTS. ALL OPENINGS IN WALLS, FLOORS OR CEILINGS SHALL BE PROPERLY SEALED.
- ALL WORK SHALL BE PERFORMED AND INSTALLED PER THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL CODES, LAWS, REGULATIONS, INSPECTION AGENCIES, UTILITY COMPANIES AND OTHER AUTHORITIES HAVING JURISDICTION.
- CONTRACTOR SHALL REVIEW EACH SUBMITTAL AND CHECK FOR COORDINATION WITH OTHER WORK OF THE CONTRACT AND FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR ANY CHANGES TO PRICE AND SCHEDULE AFFECTING ANY TRADE RESULTING FROM USE OF NON-BASIS OF DESIGN EQUIPMENT.
- EQUIPMENT SCHEDULES SHOW BASIS OF DESIGN.
- ON RENOVATIONS, MECHANICAL CONTRACTOR TO DEMOLISH AND REMOVE ALL MECHANICAL EQUIPMENT, DUCTWORK, SUPPORTS, CONTROLS, PIPING, ETC. NOT REUSED IN THE FINAL DESIGN.
- OUTDOOR DESIGN CONDITIONS: SUMMER: 91 DB, 73 WB, WINTER: 6 DB.
- GENERAL ROOM DESIGN CONDITIONS: SUMMER: 75 DB, 30-60% RH, WINTER: 70 DB.
- ALL EQUIPMENT AND COMPONENTS INSTALLED IN AN AIR PLENUM SHALL BE PLENUM RATED.
- ON ONE-FOR-ONE EQUIPMENT REPLACEMENT PROJECTS, CONTRACTOR SHALL VERIFY THAT EQUIPMENT BEING INSTALLED AT THAT LOCATION IS SIMILAR IN SIZE TO EQUIPMENT PREVIOUSLY IN THAT LOCATION.
- COORDINATE LOCATIONS OF ALL HVAC EQUIPMENT AND ACCESSORIES WITH OTHER TRADES.
- LOCATE WALL OPENINGS FOR DUCTS, GRILLES, AIR TRANSFER OPENINGS, PIPING, ETC. CENTERED BETWEEN FRAMING MEMBERS WHEN POSSIBLE.
- FOR ALL ROOF-MOUNTED MECHANICAL EQUIPMENT, THE CONTRACTOR SHALL PROVIDE THE CURB, CUT THE ROOF OPENING, AND PROVIDE ROOFING AND ROOF FLASHINGS AROUND CURB SO THAT ROOF WARRANTY IS MAINTAINED. ALL ROOF PENETRATIONS SHALL BE COORDINATED WITH ALL TRADES. TOPS OF ROOF CURBS SHALL BE 12" ABOVE TOP LAYER OF ROOF INSULATION OR MEMBRANE AND SUPPORTED ON STRUCTURE UNLESS NOTED OTHERWISE.
- ALL TRANSFER AIR DUCTS SHALL HAVE INTERIOR DUCT LINING. REFER TO THE SPECIFICATIONS FOR DUCT LINING REQUIREMENTS.
- ALL DUCT FITTINGS SHALL BE LO-LOSS FITTINGS. ROUND TAPS INTO SQUARE DUCT SHALL BE CONICAL OR BELLMOUTH. SQUARE ELBOWS AND SQUARE OR RECTANGULAR SPLITTERS SHALL USE TURNING VANES. NON-SQUARE ELBOWS SHALL HAVE A MINIMUM RADIUS OF 1.5 TIMES THE RADIUS OF THE DUCT. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- WHEN PENETRATING A NON-FIRE RATED WALL OR FLOOR WITH DUCTWORK OR PIPING, SEAL ANNUAL SPACES BETWEEN WALL/FLOOR AND MECHANICAL MATERIALS WITH NON-COMBUSTIBLE FIBERGLASS INSULATION AND JOINT SEALANTS APPROPRIATE FOR SIZE AND DEPTH AND SOUND ATTENUATION CONSIDERATION. REFER TO ARCHITECTURAL SPECIFICATIONS FOR NON-FIRE RATED JOINT SEALANTS.
- ALL FLOOR MOUNTED MECHANICAL EQUIPMENT SHALL BE INSTALLED ON A CONCRETE EQUIPMENT PAD.
- BALANCE AIR HANDLING UNIT MINIMUM OUTSIDE AIR TO THE OUTSIDE AIRFLOWS INDICATED ON THE VENTILATION SCHEDULE.
- LOCATE ALL TEMPERATURE, PRESSURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UP AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR ACCURACY. WHEN ABOVE A GYPSUM CEILING, PROVIDE HARD DUCT CONNECTION AT AIR DEVICE AND USE SHEETMETAL SCREWS AND DUCT SEALANT. DO NOT USE FLEX OR WIRE TIE AT FINAL AIR DEVICE CONNECTION WHEN ABOVE A HARD CEILING.
- THE USE OF FLEXIBLE DUCTWORK SHALL BE LIMITED TO AIR DEVICE CONNECTIONS AND BE A MAXIMUM OF 60" IN LENGTH.
- ALL 90° ELBOWS SHALL BE SHEET METAL.
- TURNING VANES SHALL BE INSTALLED IN ALL MITERED SUPPLY DUCT TURNS. MAINTAIN REQUIRED CLEARANCES FROM EXHAUST AND VENT LOCATIONS TO OUTSIDE AIR INTAKE AND OPERABLE DOORS & WINDOWS.

CONTROL SCHEMATIC LEGEND

SYMBOL	DEFINITION
	MOTORIZED 3-WAY VALVE
	MOTORIZED 2-WAY VALVE
	PIPE TEMPERATURE SENSOR
	DIFFERENTIAL PRESSURE SENSOR
	AVERAGING TEMPERATURE SENSOR
	POINT TEMPERATURE SENSOR
	VARIABLE FREQUENCY DRIVE (VFD)
	ZONE TEMPERATURE SENSOR
	ZONE VOC SENSOR
	ZONE CO2 SENSOR
	ZONE HUMIDITY SENSOR
	DUCT-MOUNTED AIRFLOW MONITORING STATION
	FAN-MOUNTED AIRFLOW MONITORING STATION
	COIL (HEATING/COOLING)
	DUCT CONTINUATION
	DUCT MOUNTED SMOKE DETECTOR
	FAN - SUPPLY / RETURN / EXHAUST
	FILTER WITH DIFFERENTIAL PRESSURE SENSOR
	FREEZE-STAT
	HUMIDITY SENSOR
	MOTORIZED DAMPER - PARALLEL BLADES
	MOTORIZED DAMPER - OPPOSED BLADES
	PLENUM SENSOR

MULTIZONE AHU CONTROL SEQUENCE

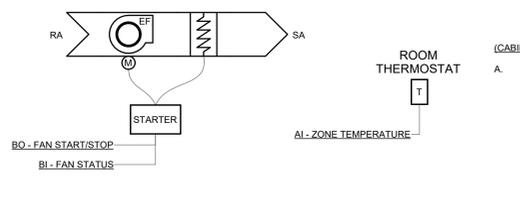
- RUN CONDITIONS: THE SUPPLY FAN SHALL RUN ANYTIME THE AIR HANDLER IS IN OCCUPIED MODE AS DETERMINED BY THE ADJUSTABLE TIME SCHEDULE, OPTIMAL START, PUSHBUTTON OVERRIDE, OR DURING UNOCCUPIED HEATING/COOLING.
- ZONE OPTIMAL START: THE UNIT SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING START-UP. THIS ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM-UP OR COOL-DOWN PERIOD WHILE STILL ACHIEVING COMFORT CONDITIONS BY THE START OF SCHEDULED OCCUPIED PERIOD. UNIT SHALL GO INTO NORMAL OCCUPIED MODE PER AIR HANDLER OCCUPANCY SCHEDULE.
- MORNING WARM-UP: IF 75% OF ASSOCIATED SPACES ARE IN HEATING MODE DURING OPTIMAL START PERIOD, THE UNIT SHALL GO INTO MORNING WARM-UP AS DIRECTED BY THE ZONE OPTIMAL START. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED. THE SUPPLY AIR TEMPERATURE SHALL BE SET TO 75 DEG F (ADJ.). THE SUPPLY FAN SHALL MODULATE PER SEQUENCE POINT F. ONCE THE ASSOCIATED SPACE TEMPERATURES ARE SATISFIED THE UNIT SHALL GO INTO NORMAL OCCUPIED MODE.
- MORNING COOL-DOWN: IF 75% OF ASSOCIATED SPACES ARE IN COOLING MODE DURING OPTIMAL START PERIOD, THE UNIT SHALL GO INTO MORNING COOL-DOWN AS DIRECTED BY THE ZONE OPTIMAL START. THE OUTSIDE AIR DAMPER SHALL REMAIN CLOSED DURING THIS OPERATION UNLESS ECONOMIZER IS ENABLED. THE SUPPLY AIR DRY BULB TEMPERATURE SHALL BE SET TO 55 DEG F (ADJ.). THE SUPPLY FAN SHALL MODULATE PER SEQUENCE POINT F. ONCE THE ASSOCIATED SPACE TEMPERATURES ARE SATISFIED THE UNIT SHALL GO INTO NORMAL OCCUPIED MODE.
- FREEZE PROTECTION: THE FAN SHALL SHUT DOWN AND THE CONTROLLER SHALL GENERATE A FREEZE-STAT ALARM UPON DETECTING TEMPERATURE LESS THAN 40 DEG F DIRECTLY UPSTREAM OF THE COOLING COIL. THE COOLING AND HEATING COIL VALVES SHALL OPEN TO 100% (ADJ.). THE OUTDOOR AIR DAMPER SHALL CLOSE.
- SUPPLY FAN: THE SUPPLY FAN SHALL MODULATE TO MAINTAIN DUCT STATIC PRESSURE SETPOINT OF 0.7 IN. W.G. (ADJ.) ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN TO SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A 10 MINUTE (ADJ.) MINIMUM RUNTIME. ALARMS SHALL BE PROVIDED AS FOLLOWS:
 - SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
 - SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
 - SUPPLY FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
 - SUPPLY FAN STATIC PRESSURE SETPOINT RESET: EVERY 5 MINUTES DUCT STATIC PRESSURE SETPOINT SHALL BE REDUCED IN 0.05" W.G. INCREMENTS UNTIL ONE TERMINAL UNIT IS 100% OPEN. IF ANY TERMINAL UNIT IS 100% OPEN AND ITS AIRFLOW MEASURING STATION IS NOT SATISFIED, DUCT STATIC PRESSURE SETPOINT SHALL BE INCREASED IN 0.05" W.G. INCREMENTS EVERY 5 MINUTES UNTIL ALL TERMINAL UNIT AIRFLOW MEASURING STATIONS ARE SATISFIED.
- SUPPLY TEMPERATURE CONTROL: THE SUPPLY AIR TEMPERATURE SHALL BE CONTROLLED AND RESET AS INDICATED BELOW.
 - NORMAL SUPPLY AIR DRY BULB TEMPERATURE SHALL BE 55.0 DEG F (ADJ.).
 - IF RETURN AIR RELATIVE HUMIDITY IS LESS THAN 50%, SUPPLY AIR TEMPERATURE MAY RESET LINEARLY FROM 55 DEG F TO 60 DEG F AS OUTSIDE AIR TEMPERATURE FALLS FROM 60 DEG F (ADJ.) TO 10 DEG F (ADJ.).
- HEATING/COOLING COIL CAPACITY: THE COIL CAPACITY SHALL MODULATE (NEVER SIMULTANEOUSLY) TO MAINTAIN SUPPLY AIR TEMPERATURE DRY BULB SETPOINT BASED ON BELOW:
 - THE COOLING SHALL BE ENABLED WHENEVER:
 - SUPPLY AIR TEMPERATURE IS ABOVE THE SUPPLY AIR DRY BULB TEMPERATURE SETPOINT.
 - AND THE SUPPLY FAN STATUS IS ON.
 - HEATING SHALL BE ENABLED WHENEVER:
 - SUPPLY AIR TEMPERATURE IS BELOW THE SUPPLY AIR DRY BULB TEMPERATURE SETPOINT.
 - AND THE SUPPLY FAN STATUS IS ON.
- DEHUMIDIFICATION MODE CONTROL / COOLING COIL: IF RELATIVE HUMIDITY REACHES 60%, THE UNIT SHALL GO INTO DEHUMIDIFICATION MODE. THE COOLING COIL DISCHARGE AIR TEMPERATURE SETPOINT SHALL BE RESET TO 52°F (ADJ.) DURING DEHUMIDIFICATION.
- CONTROL DAMPERS: THE OUTDOOR DAMPERS SHALL OPEN WHEN AIR HANDLING UNIT IS IN OCCUPIED MODE. THE OUTDOOR AIR DAMPER SHALL MODULATE TO MAINTAIN OUTDOOR AIRFLOW SHOWN ON DRAWINGS.
- ECONOMIZER MODE (OCCUPIED OR UNOCCUPIED):
 - IF OUTSIDE AIR TEMPERATURE IS BETWEEN 65 DEG F AND 55 DEG F, UNIT SHALL BE 100% OUTSIDE AIR.
 - IF OUTSIDE AIR TEMPERATURE IS LESS THAN 55 DEG F, UNIT SHALL MODULATE OUTDOOR AIR DAMPER TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT. WHEN UNIT MODULATES OUTDOOR AIR PERCENTAGE TO MINIMUM, UNIT SHALL COME OUT OF ECONOMIZER MODE.
- UNOCCUPIED MODE: UNIT SHALL REMAIN OFF IF ASSOCIATED SPACES ARE WITHIN UNOCCUPIED TEMPERATURE AND HUMIDITY SETPOINTS. IF AT LEAST TWO SPACES FALL OUTSIDE UNOCCUPIED SPACE TEMPERATURE AND HUMIDITY SETPOINTS:
 - OUTSIDE AIR DAMPER SHALL REMAIN CLOSED.
 - SUPPLY FAN SHALL START AND MODULATE PER SEQUENCE POINTS F.
 - THE COIL CAPACITY SHALL MODULATE PER SEQUENCE POINTS H AND I.
- RETURN AIR SMOKE DETECTOR: THE CONTROLLER SHALL SHUT DOWN THE AIR HANDLING UNIT UPON DETECTION OF SMOKE IN THE RETURN DUCT. SEND CRITICAL ALARM TO FIRE ALARM SYSTEM.

SPACE SETPOINTS

SPACE TYPE	OCCUPIED		UNOCCUPIED		RELATIVE HUMIDITY MAXIMUM		
	HEATING	COOLING	HEATING	COOLING	OCCUPIED	UNOCCUPIED	SUMMER UNOCCUPIED
TECHNOLOGY ROOM	65	70	65	70	50%	60%	65%
ELECTRICAL ROOM	N/A	80	N/A	80	50%	60%	65%
VESTIBULES	60	85	60	85	N/A	N/A	N/A
ALL OTHER	70	75	65	80	50%	60%	65%

NOTE:
1. PROVIDE DOOR SWITCH FOR EXTERIOR DOORS. IF DOOR IS OPEN VESTIBULE DEADBAND SHALL BE 55F - 90F.

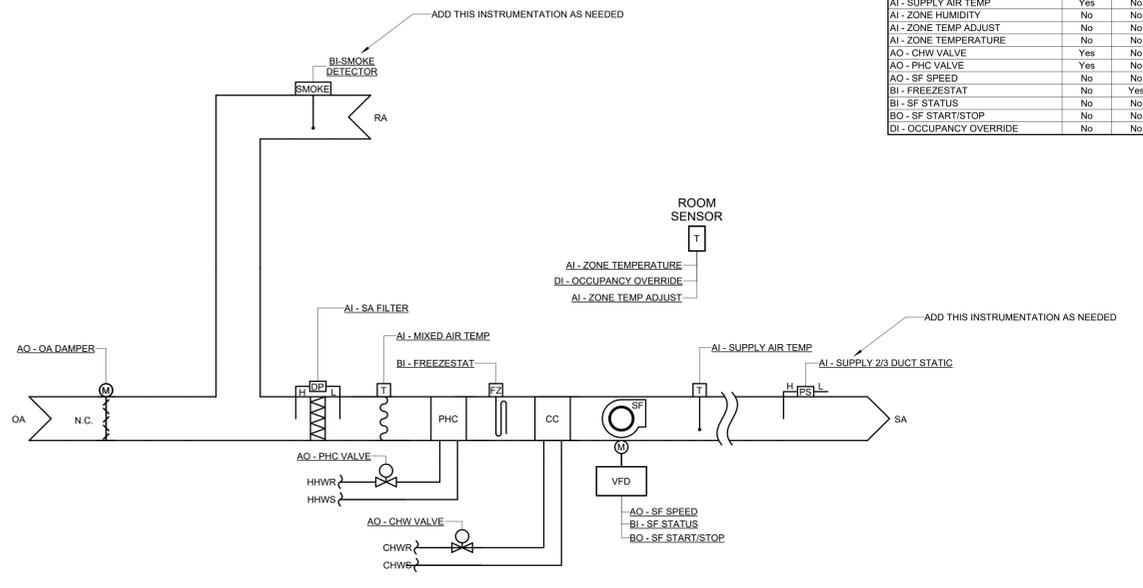
3 (CABINET) HEATER CONTROL SCHEMATIC



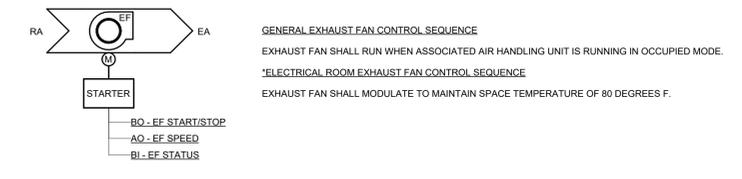
(CABINET) HEATER CONTROL SEQUENCE

- HEATER SHALL RUN WHEN SPACE IS BELOW SETPOINT AND OUTSIDE AIR TEMPERATURE IS BELOW 45 DEG F.

1 SINGLE ZONE AHU CONTROL SCHEMATIC



4 EXHAUST FAN CONTROL SCHEMATIC

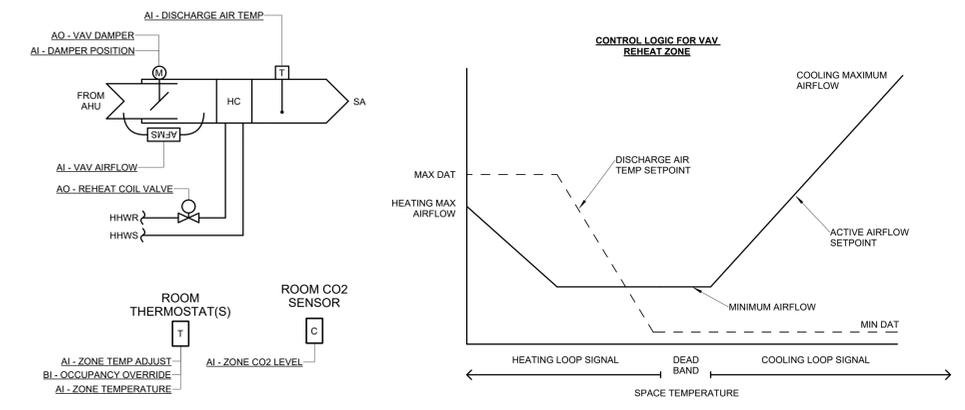


GENERAL EXHAUST FAN CONTROL SEQUENCE

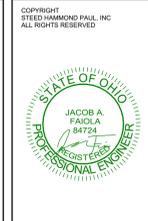
- EXHAUST FAN SHALL RUN WHEN ASSOCIATED AIR HANDLING UNIT IS RUNNING IN OCCUPIED MODE.
- ELECTRICAL ROOM EXHAUST FAN CONTROL SEQUENCE: EXHAUST FAN SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE OF 80 DEGREES F.

VAV BOX CONTROL SEQUENCE

- OCCUPIED MODE:
 - NORMAL: BOX SHALL SUPPLY MINIMUM FLOW IF SPACE CONDITIONING IS SATISFIED.
 - COOLING MODE: AVAILABLE WHEN UNIT IS IN NORMAL OCCUPIED MODE AND SPACE TEMPERATURE IS ABOVE THE COOLING SETPOINT.
 - AS SPACE TEMPERATURE RISES ABOVE THE COOLING SETPOINT THE AIRFLOW SHALL RISE LINEARLY TO IT MAXIMUM AIRFLOW AS DESIGNATED ON THE DRAWINGS.
 - THE REHEAT HOT WATER VALVE SHALL BE COMPLETELY CLOSED.
 - HEATING MODE: AVAILABLE WHEN UNIT IS IN NORMAL OCCUPIED MODE AND SPACE TEMPERATURE IS BELOW THE HEATING SET POINT.
 - FIRST STAGE: MODULATE THE HYDRONIC REHEAT COIL CONTROL VALVE UPWARD TO LEAVING AIR TEMPERATURE AS SCHEDULED ON DRAWINGS.
 - SECOND STAGE: MODULATE AIRFLOW UPWARD TO HEATING CFM ON VAV BOX SCHEDULE. MODULATE THE HYDRONIC REHEAT COIL CONTROL VALVE TO MAINTAIN A LEAVING AIR TEMPERATURE AS SCHEDULED ON DRAWINGS.
- UNOCCUPIED MODE:
 - OCCUPANCY OVERRIDE BUTTON SHALL ALLOW FOR UNIT TO RETURN TO OCCUPIED SET POINTS FOR 60 MINUTES.
 - IF SPACE TEMPERATURE DROPS BELOW THE SET POINT THE BOX SHALL SEND A CALL FOR HEAT TO THE AHU AND THE HEAT PLANT. THE BOX SHALL SUPPLY MAXIMUM AIRFLOW AND THE REHEAT VALVE SHALL GO TO 100% OPEN. ONCE THE SPACE TEMPERATURE RISES ABOVE 65 DEG F (ADJ.) THE CALL FOR HEAT SHALL REMOVE AND THE BOX DAMPER SHALL CLOSE.
 - IF THE SPACE TEMPERATURE RISES ABOVE THE SET POINT THE BOX SHALL SEND A CALL FOR COOLING TO THE AHU. THE BOX SHALL SUPPLY MAXIMUM AIRFLOW. ONCE THE SPACE TEMPERATURE DROPS BELOW 80 DEG F (ADJ.) THE CALL FOR COOLING WILL REMOVE AND THE BOX DAMPER SHALL CLOSE.
- MORNING WARM-UP/COOL-DOWN MODE:
 - IF SPACE TEMPERATURE IS OUTSIDE OF ITS OCCUPIED SET POINT THE BOX SHALL SUPPLY MAXIMUM AIRFLOW.
 - IF SPACE TEMPERATURE IS BELOW ITS OCCUPIED HEATING SET POINT AND HOT WATER IS AVAILABLE OPEN THE REHEAT COIL VALVE TO 100% OPEN.
- UPON POWER FAILURE DAMPER SHALL REMAIN IN LAST CONTROLLED POSITION.
- MULTIPLE THERMOSTATS: FOR VAV BOXES SERVING MULTIPLE THERMOSTATS, VAV BOX SHALL RESPOND TO THE AVERAGE OF ASSOCIATED THERMOSTATS. ALL INDIVIDUAL CONTROL POINTS FOR EACH THERMOSTAT SHALL BE DISPLAYED ON USER INTERFACE. IN ADDITION TO AVERAGE TEMPERATURE READING.
- CO2 SENSOR: FOR VAV BOXES WITH CO2 SENSORS, SPACE CO2 LEVEL SHALL BE SAMPLED EVERY FIFTEEN MINUTES. VAV BOX MINIMUM CFM SETPOINT SHALL BE INCREASED BY 25% IF SPACE CO2 LEVEL IS ABOVE CO2 SETPOINT (1,100 PPM ADJ., DIFFERENTIAL 100 PPM ADJ.) VAV BOX MINIMUM CFM SETPOINT SHALL BE DECREASED BY 25% IF SPACE CO2 LEVEL IS BELOW CO2 SETPOINT BY THE SETPOINT DIFFERENTIAL.



5 VAV BOX CONTROL SCHEMATIC



NORTHWEST LOCAL SCHOOL DISTRICT
 NORTHWEST HS CAREER TECH RENOVATIONS
 10761 PIPPIN RD., CINCINNATI, OH 45231
 NORTHWEST LOCAL SCHOOL DISTRICT
 3240 BANNING ROAD, CINCINNATI, OH 45239

ISSUANCES

1	03-17-25 PERMIT SET
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CONTROL SCHEMATICS - AIRSIDE

COMM NO. 2024115.05

M300

SECTION 230500 - COMMON WORK RESULTS FOR HVAC

PART 1 - GENERAL

1.1 SUMMARY
A. Section Includes:
1. Piping materials and installation instructions common to most piping systems.

2. Sleeves.
3. Escutcheons.
4. Equipment installation requirements common to equipment sections.

5. Supports and anchorages.
1.2 SUBMITTALS
A. Welding certificates.
B. Quality Assurance
1. Steel Support/Welding: Qualify processes and operators according to AWS D1.1, "Structural Welding Code-Steel."

2. Steel Pipe Welding: Qualify processes and operators according to ASME Boiler and Pressure Vessel Code: Section IX, "Welding and Brazing Qualifications."
1. Comply with provisions in ASME B31 Series, "Code for Pressure Piping."

2. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.
3. Electronic Characteristics for HVAC Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing by connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

PART 2 - PRODUCTS
2.1 SLEEVES
A. Galvanized-Steel Sheet: 0.0230-inch minimum thickness; round, tube closed with welded longitudinal joint.

1. Steel Pipe: ASTM A 53, Type F, Grade B, Schedule 40, galvanized, plain ends.
2. Cast-Iron Tee or Branch: Cast-iron equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

3. Cast-Iron Tee or Branch: Cast-iron equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
4. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for members.

5. Undersize Clamp: Clamping ring with set screws.
2.2 ESCUTCHEONS
A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

1. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.
2. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.

1. Finish: Polished chrome-plated.
PART 3 - EXECUTION
3.1 PIPING SYSTEMS - COMMON REQUIREMENTS
A. Drawings, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump jacking, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

1. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.
2. Install piping intended to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

3. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.
4. Install piping to permit valve servicing.
5. Install piping at indicated slopes.
6. Install piping free of sags and bends.

7. Install fittings for changes in direction and branch connections.
8. Install piping to allow application of insulation.
9. Select system components with pressure rating equal to or greater than system operating pressure.

10. Seal penetrations for penetrations of walls, ceilings, and floors.
11. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.
12. Above-ground, Exterior-Wall Pipe Penetrations: Seal penetrations using sleeves and mechanical sleeve seals. Select sleeve size to allow for 1/4-inch annular clear space between sleeve and pipe for installing mechanical sleeve seals.

1. Install steel pipe for sleeves smaller than 6 inches in diameter.
2. Install cast-iron "wall pipes" for sleeves 6 inches and larger in diameter.

3. Annular seal: Design and specify seal type and number of sealing elements required for pipe material and size. Position pipe in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pipe and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

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N. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.
O. Insulated Piping:
1. Attach clamps and spacers to piping.

a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.

c. Do not exceed pipe stress limits allowed by ASME B31.9 for building services piping.
2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.

a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is insulated.
3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.

a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is insulated.
b. Shield Dimensions for Pipes: Not less than the following:
1. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.

2. NPS 4 to NPS 8: 18 inches long and 0.06 inch thick.
3. NPS 8 to NPS 14: 24 inches long and 0.075 inch thick.
4. NPS 14 to NPS 24: 24 inches long and 0.105 inch thick.

5. Pipes NPS 8 and Larger: Include reinforced calcium-silicate-insulation inserts of length at least as long as protective shield.
6. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.

3.2 EQUIPMENT
A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.
B. Provide lateral bracing, to prevent swaying, for equipment supports.

3.3 HANGER ADJUSTMENTS
A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.
B. Trim excess length of continuous-thread hanger and support rods to 1/2-inch.

3.4 PAINTING
A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply touchup by brush or spray to provide a minimum dry film thickness of 2.0 mils.
3.5 HANGER AND SUPPORT SCHEDULE
A. Specific hanger and support requirements are in Sections specifying piping systems and equipment.

1. Comply with MSS SP-58 for pipe-hanger sections and applications that are not specified in piping system Sections.
2. Use hangers and supports with G90 galvanized metallic coatings for piping and equipment that will not have field-applied finish.
3. Use nonferrous coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

4. Apply carbon-steel pipe to galvanized steel pipe hangers and attachments for general service applications.
5. Use padded hangers for piping that is subject to scratching.
6. Use 360° formed thermal-hanger shield inserts for insulated piping and tubing.

7. Verify that cleaning and adjusting are complete.
8. Verify that clean and adjusting are complete.
9. Disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.

6. Adjust belt tension.
7. Adjust damper linkages for proper damper operation.
8. Verify lubrication for bearings and other moving parts.

9. Verify that manual and automatic volume control and fire and smoke dampers in connected ductwork systems are in fully open position.
10. Shut unit down and reconnect automatic temperature-control operators.

11. Remove and replace malfunctioning units and reset as specified above.
B. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

C. Prepare test and inspection reports.
3.4 ADJUSTING
A. Adjust damper linkages for proper damper operation.
B. Adjust belt tension.
C. Comply with requirements in Division 23 Section "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing procedures.

D. Replace fan and motor pulleys as required to achieve design airflow.
END OF SECTION 23423
SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC
PART 1 - GENERAL
1.1 SUMMARY
A. Section Includes:
1. Single-wall rectangular ducts and fittings.

2. Single-wall round ducts and fittings.
3. Sheet metal materials.
4. Sealants and gaskets.
5. Hangers and supports.

1.3 PERFORMANCE REQUIREMENTS
A. Fabrication: Duct fabrication and applications that are not specified in piping system Sections.
B. Structural Performance: Duct fabrication and applications that are not specified in piping system Sections.
C. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.
1.4 ACTION SUBMITTALS
A. Product Data: For each type of the following products:
1. Adhesives.

2. Sealing gaskets.
B. Delegated-Design Submittal:
1. Sheet metal thicknesses.
2. Joint and sealant details and spacing.
3. Reinforcement details and spacing.
4. Materials, fabrication, assembly, and spacing of hangers and supports.

1.5 QUALITY ASSURANCE
A. Welding Qualifications: Qualify procedures and personnel according to the following:
1. AWS D1.1: D1.1M, "Structural Welding Code - Steel," for hangers and supports.
2. AWS D9.1M: D9.1, "Structural Welding Code - Aluminum," for aluminum supports.
3. AWS D9.1MD: 9.1, "Sheet Metal Welding Code," for duct joint and seam welding.

B. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5.5 - "Systems and Equipment" and Section 7 - "Construction and System Start-up."
C. ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1, Section 6.4.4 - "HVAC System Construction and Installation."

PART 2 - PRODUCTS
2.1 SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS
A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise specified.
B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-1, "Rectangular Duct/Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Duct/Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

D. Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 4, "Fittings and Other Construction," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.2 SINGLE-WALL ROUND DUCTS AND FITTINGS
A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 3, "Round, Oval, and Flexible Duct," based on indicated static-pressure class unless otherwise indicated.
B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-3, "Round Duct/Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-4, "Round Duct/Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

D. Tees and Laterals: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-6, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.3 SHEET METAL MATERIALS
A. General Material Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.
B. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.

C. Galvanized Coating Designation: G90.
2. Finishes for Surfaces Exposed to View: Mill phosphatized.

C. Reinforcement Straps and Plates: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.
1. Where black and galvanized shapes and plates are used to reinforce aluminum ducts, isolate the different metals with butyl rubber, neoprene, or EPDM gasket material.

2. The Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.
D. SEALANT AND GASKETS
A. General Sealant and Gasket Requirements: Surface-bound characteristics for sealants and gaskets shall be a maximum flame-spread index of 25 and a smoke-developed index of 50 when tested according to UL 723, certified by an NRTL.

B. Two-Part Tape Sealing System:
1. Tape: Woven cotton fiber impregnated with mineral gypsum and modified acrylic/epoxy activator to react exothermically with moisture to form a hard, durable, airtight seal.
2. Tape Width: 4 inches.

3. Sealant: Modified styrene acrylic.
4. Water resistant.
5. Mold and mildew resistant.
6. Maximum Static-Pressure Class: 10-inch w/g, positive and negative.

7. Hygroscopic systems are clean, clear, and free of air.
8. Service Temperature: Minus 40 to plus 200 deg F.
9. Substrate: Compatible with galvanized

LIGHTING FIXTURE SCHEDULE

GENERAL NOTES:
A. REFER TO LIGHTING CONTROL SCHEMATICS AND LIGHTING CIRCUIT SCHEDULES ON E501 SERIES DRAWINGS.
B. ALL FIXTURES MARKED 'ED' ARE EXISTING TO BE DEMOLISHED. VERIFY SERVING PANEL AND CIRCUIT NUMBER PRIOR TO DISCONNECTION. REMOVE LIGHTING BRANCH CIRCUITING ABOVE FINISHED CEILING. MAINTAIN HOME RUN CONDUIT FOR CONNECTION TO NEW FIXTURES.
C. ALL FIXTURES MARKED 'ER' ARE EXISTING TO REMAIN. FIXTURES SHALL BE CLEANED AND RELAMPED.
D. ALL FIXTURES MARKED 'ERL' ARE EXISTING TO BE RELOCATED. FIXTURES SHALL BE CLEANED AND RELAMPED.

Table with columns: FIXTURE TYPE, FIXTURE BASIS OF DESIGN, ALTERNATE MANUFACTURERS, FIXTURE DESCRIPTION, LAMP, LIGHT DISTRIBUTION, MIN LUMEN OUTPUT, COLOR TEMPERATURE, DRIVER, VOLTAGE, MAX WATTAGE, MOUNTING METHOD, TYPE COMMENTS. Includes rows for A30, A31, E10, E11, F20, X23.

26-POWERED EQUIPMENT SCHEDULE

GENERAL NOTES:
A. COORDINATE ALL ELECTRICAL REQUIREMENTS, INCLUDING ROUGH-IN LOCATION, CONNECTION TYPE, AND POWER REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
B. WIRING TERMINATIONS TO EQUIPMENT SHALL BE DONE PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
C. LOCATIONS OF DEVICES SHOWN ON DRAWINGS ARE SCHEMATIC IN NATURE. COORDINATE LOCATIONS WITH EQUIPMENT INSTALLER.
D. BRANCH WIRING TO EQUIPMENT SHALL BE COPPER.
E. CONNECTIONS, LOCAL DISCONNECTS, STARTERS, AND VDPS SHALL BE COORDINATED WITH MECHANICAL AND PLUMBING CONTRACTORS TO ENSURE ACCESS AND WORKING CLEARANCE IS MAINTAINED PER NEC.

Table with columns: EQUIPMENT TYPE, MARK, DESCRIPTION, STARTING MEANS (TYPE, PROVIDED BY, INSTALLED BY, LOCATION), DISCONNECTING MEANS (TYPE, PROVIDED BY, INSTALLED BY, LOCATION), ELECTRICAL (VOLTS, POLES, AMPS, MOPP, PANEL, CIRCUIT), WIRING NOTES. Includes rows for DIV. 23 and DIV. 26.

WIRING METHODS SCHEDULE

Table with columns: APPLICATION, LOCATION, ALLOWABLE CONDUIT AND RACEWAY TYPE, OUTLET BOXES, CONDUIT BODIES, ENCLOSURE TYPE, FASTENERS/SUPPORTS, CONDUIT AND RACEWAY NOTES. Includes rows for INTERIOR APPLICATIONS (CONCEALED, EXPOSED) and EXTERIOR APPLICATIONS (BELOW GRADE, ABOVE GRADE).

NOTES:
A) UNFINISHED SPACES INCLUDE DEDICATED MECHANICAL, ELECTRICAL, TECHNOLOGY ROOMS ONLY. UNLESS OTHERWISE INDICATED ON DRAWINGS, TREAT ALL OTHER SPACES AS FINISHED SPACES.
B) COORDINATE ROUTING OF SURFACE RACEWAY SUCH THAT VERTICAL RUNS ARE MINIMIZED, AND RACEWAY DOES NOT RUN BEHIND PERMANENTLY-INSTALLED CASEWORK OR FURNITURE.

CONDUCTOR AND CONDUIT COLOR CODING

Table with columns: APPLICATION, COLOR. Lists colors for PHASE A, B, C conductors, NEUTRAL, GROUND, and CONTROL conductors.

ABBREVIATIONS:
CA CAST ALUMINIUM
EMT ELECTRICAL METALLIC TUBING
FMC FLEXIBLE METALLIC CONDUIT
GALV GALVANIZED
GMI GALVANIZED MALLEABLE IRON
IMC INTERMEDIATE METAL CONDUIT
LMFC LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT
MC METAL CLAD CABLE
PVC POLYVINYL CHLORIDE, SCHEDULE 40
RNC RIGID NONMETALLIC CONDUIT
RSC RIGID STEEL CONDUIT
SM SHEET METAL
ZP ZINC PLATED

FIRE ALARM LEGEND

Table with columns: FIRE ALARM SYSTEM NOTES, CONTROL EQUIPMENT, NOTIFICATION APPLIANCES, INITIATING DEVICES. Includes symbols for ceiling/wall mounted devices, control equipment types, and notification/initialiating devices.

LIGHTING CONTROL SYMBOL LEGEND

Table with columns: OCCUPANCY/VACANCY SENSOR, SENSOR TYPES, WALL CONTROL STATION, CONTROL STATION TYPES. Includes symbols for occupancy sensors, wall control stations, and control station types.

DRAFTING SYMBOL LEGEND

Table with columns: SYMBOL, DESCRIPTION. Includes symbols for drawing key notes, detail callouts, and sheet numbers.

26-ELECTRICAL SHEET LIST

Table with columns: SHEET NUMBER, SHEET NAME. Lists sheets E001 through E801 and their corresponding titles.

LIGHTING FIXTURE LEGEND

Table with columns: SYMBOL, DESCRIPTION, SYMBOL, DESCRIPTION. Includes symbols for recessed troffers, linear pendants, dual head emergency fixtures, and exit signs.

LIGHTING FIXTURE TAGS:
1. CAPITAL LETTER WITH NUMBER DENOTES FIXTURE TYPE - REFER TO LIGHTING FIXTURE SCHEDULE
2. SMALL LETTER DENOTES SWITCH/LEG RELAY NUMBER - REFER TO E100 SERIES SHEETS FOR TYPICAL ROOM LAYOUTS.
EMERGENCY LIGHTING FIXTURES:
1. FIXTURES DENOTED WITH GRAY FILLED IN AREA SHALL PROVIDE EMERGENCY LIGHTING UPON LOSS OF NORMAL POWER.
2. FIXTURES DENOTED BY 'NL' SHALL PROVIDE NORMAL-POWER EGRESS LIGHTING.
3. EXIT SIGN:
- SHADED AREA DENOTES FACE
- ARROW DENOTES ARROW DIRECTION
- WHEN ON WALL, MOUNT NO HIGHER THAN 6" ABOVE TOP OF NEAREST DOORWAY

MECHANICAL CONTROLS LEGEND

Table with columns: SYMBOL, DESCRIPTION. Lists symbols for HVAC control devices, carbon dioxide sensors, humidity sensors, and other mechanical controls.

ACCESS CONTROL SYMBOL LEGEND

Table with columns: SYMBOL, DESCRIPTION, MOUNTING HEIGHT. Includes symbols for credential readers, door position switches, and electronic latches.

TECHNOLOGY SYMBOL LEGEND

Table with columns: SYMBOL, DESCRIPTION, MOUNTING HEIGHT. Includes symbols for data drops, projectors, and electronic latches.

ALL TECHNOLOGY LOCATIONS TO BE VERIFIED WITH OWNER PRIOR TO ROUGH-IN

Table with columns: SYMBOL, DESCRIPTION, MOUNTING HEIGHT. Includes symbols for projectors and electronic latches.

WIRING DEVICE LEGEND

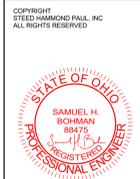
Table with columns: SYMBOL, DESCRIPTION, MOUNTING HEIGHT. Includes symbols for duplex outlets, power supply for electrified hardware, ground fault protectors, and receptacles.

GENERAL NOTES: - APPLIES TO ALL ELECTRICAL DRAWINGS

- A. EC SHALL BE RESPONSIBLE TO INSTALL A SWITCH BOX AND 3/4" CONDUIT TO ABOVE THE CEILING IN EACH ROOM FOR TEMPERATURE CONTROL, THERMOSTAT. REFER TO THE MECHANICAL DRAWINGS FOR LOCATIONS OF THESE DEVICES.
B. EC MAY COMBINE MULTIPLE CIRCUITS INTO HOME RUNS. NO MORE THAN 3 CIRCUITS SHALL BE IN EACH HOME RUN CONDUIT, AND THE WIRE MUST BE DERATED IN ACCORDANCE WITH NEC. THESE CIRCUITS SHALL BE REQUIRED TO BE ON SEPARATE PHASES (A, B, C).
C. EC SHALL UPSIZE WIRE IN LONG RUNS ACCORDING TO THE WIRE SIZING TABLE SHOWN BELOW:
D. WHERE ELECTRICAL LOAD ON A CIRCUIT IS OVER 20 AMPERES, EACH CIRCUIT SHALL BE RUN IN A SEPARATE CONDUIT TO THE PANELBOARD.
E. EACH BRANCH CIRCUIT SHALL BE PROVIDED WITH A DEDICATED NEUTRAL. EC SHALL NOT SHARE NEUTRALS FOR MULTI-WIRE BRANCH CIRCUITS.
F. ALL VAV BOXES, EXHAUST FANS, MOTORS, MISC. HVAC EQUIPMENT, APPLIANCES, ETC. INDICATED ON THESE DRAWINGS SHALL HAVE A MOTOR RATED SWITCH LOCATED NEAR THE MOTOR FOR SERVICING. PROVIDE DISCONNECTING MEANS AS REQUIRED BY THE NEC.
G. EMERGENCY CIRCUITS SHALL BE INSTALLED IN A SEPARATE CONDUIT SYSTEM.
H. ALL PANELBOARDS SHALL BE INSTALLED 72" AFF TO THE TOP OF THE PANEL. PROVIDE 10% SPARE CONDUITS (MINIMUM OF 4) TO ABOVE THE CEILING FOR FUTURE.
I. ALL DATA OUTLETS REQUIRE A MINIMUM OF 1" CONDUIT STUB TO ABOVE CEILING. PROVIDE A 3-1/2" DEEP BOX MINIMUM FOR ALL DATA OUTLETS.
J. HEIGHT DIMENSIONS SHOWN ON THIS PLAN ARE MEASURED FROM THE BOTTOM OF THE DEVICE. HORIZONTAL DIMENSIONS ARE MEASURED TO THE CENTER OF THE DEVICE OR GROUP OF DEVICES WHICH THE DIMENSION PERTAINS TO.
K. GROUPINGS OF DEVICES LOCATED ON THE SAME WALL AT THE SAME ELEVATION SHALL BE PLACED SO THAT THE HORIZONTAL DISTANCE BETWEEN DEVICES IS NO GREATER THAN 4". PROVIDE ADDITIONAL SUPPORTS AS REQUIRED.
L. FOR LIGHT FIXTURE MOUNTING DETAILS, SEE LIGHTING FIXTURE SCHEDULE, ON SHEET E001.
M. CONTRACTOR SHALL REVIEW EACH SUBMITTAL AND CHECK FOR COORDINATION WITH OTHER WORK OF THE CONTRACT AND FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR IS RESPONSIBLE FOR ANY CHANGES TO PRICE AND SCHEDULE AFFECTING ANY TRADE RESULTING FROM USE OF NON-BASIS OF DESIGN EQUIPMENT.

WIRE SIZING CHART

Table with columns: RUN LENGTH, CIRCUIT BREAKER. Lists wire sizes for different run lengths and breaker ratings.



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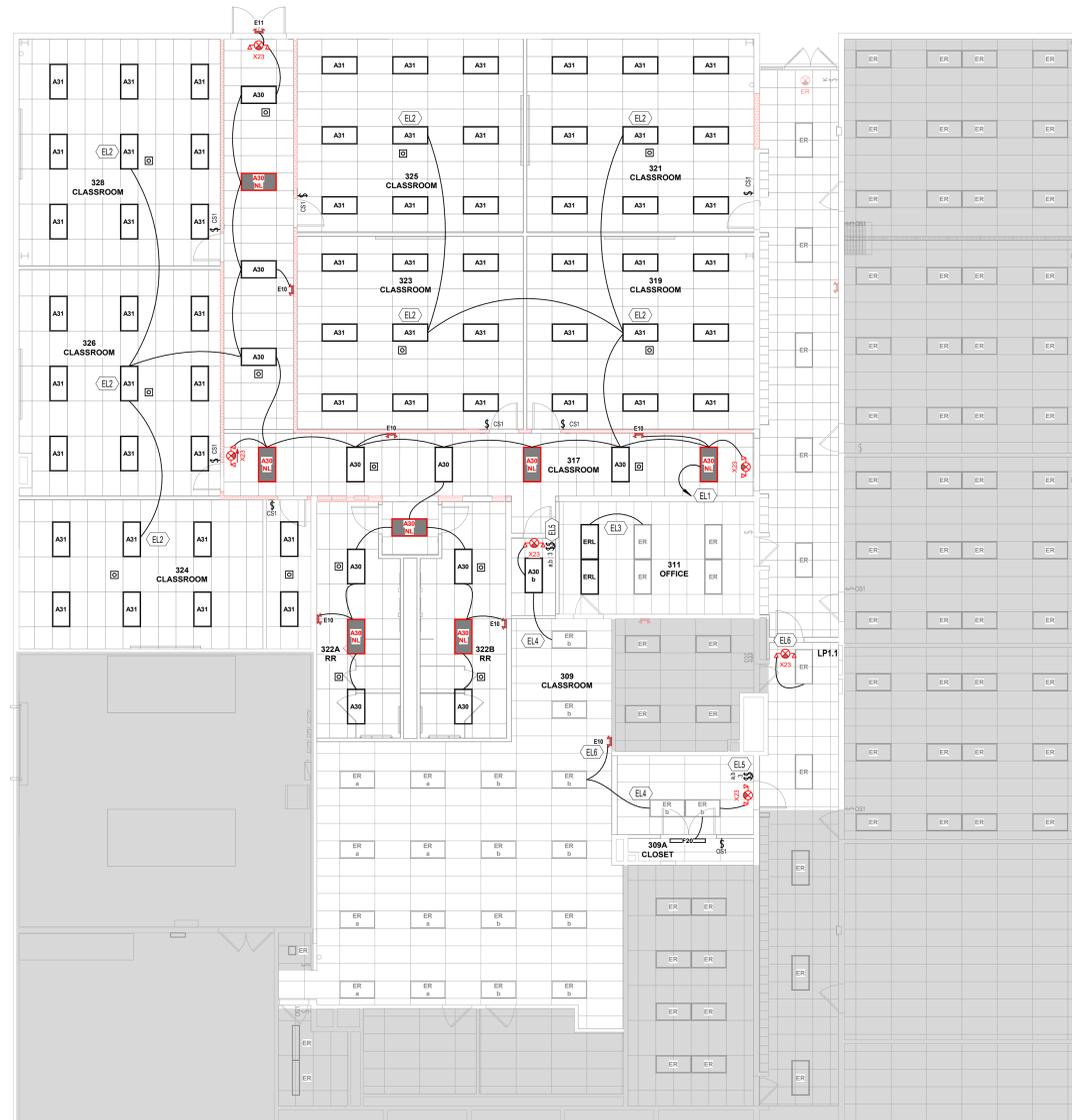
ISSUANCES

Table with columns: NO., DATE, DESCRIPTION. Includes one entry for 03-17-25 PERMIT SET.

ELECTRICAL LEGENDS

COMM NO. 2024115.05

E001



1 FIRST FLOOR LIGHTING PLAN - AREA A
E101 1/8" = 1'-0"

GENERAL LIGHTING NOTES:

- A. EXIT SIGNS SHALL BE CONNECTED AHEAD OF ALL SWITCHING. LIGHT FIXTURES DENOTED BY "NL" SHALL PROVIDE NORMAL POWER EGRESS LIGHTING AND EMERGENCY LIGHTING UPON LOSS OF NORMAL POWER. REFER TO E510 SERIES DRAWINGS FOR CONTROL DETAILS.
- B. POWER FOR EXIT SIGNS MOUNTED AT LOCATIONS WITH GLAZING, SUCH AS CURTAINWALLS OR STOREFRONT, SHALL BE CONCEALED THROUGH THE MULLION.
- C. REFER TO E110 SERIES DRAWINGS FOR DAYLIGHT RESPONSIVE LIGHTING CONTROL REQUIREMENTS.
- D. REFER TO E510 SERIES DRAWINGS FOR LIGHTING CONTROL DETAILS AND SEQUENCE OF OPERATIONS.

KEYNOTES

- EL1 UTILIZE EXISTING 20A LIGHTING CIRCUIT TO PANEL "LP1.1" MADE AVAILABLE THROUGH DEMOLITION.
- EL2 EXTEND WIRING TO ALL FIXTURES WITHIN ROOM AND WIRE THROUGH LOCAL LIGHTING CONTROLS. REFER TO SHEET E501 FOR ADDITIONAL LIGHTING CONTROL DETAILS.
- EL3 MAINTAIN EXISTING CIRCUIT FROM RELOCATED LIGHT FIXTURES. EXTEND WIRING FROM EXISTING FIXTURES AND LOCAL CONTROLS WITHIN ROOM AS REQUIRED.
- EL4 EXTEND WIRING TO ALL FIXTURES WITHIN ROOM AND WIRE THROUGH NEW LOCAL LIGHTING CONTROLS. ALL LIGHT FIXTURES IN ROOM SHALL BE CONTROLLED TOGETHER.
- EL5 MAINTAIN EXISTING LIGHTING CONTROL OPERATION WITH NEW 3 WAY SWITCHING.
- EL6 EXTEND WIRING TO FIXTURES WITHIN ROOM AND WIRE AHEAD OF SWITCHING.



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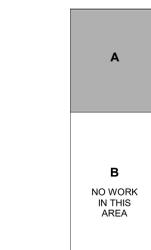
ISSUANCES

1 05-17-25 PERMIT SET

FIRST FLOOR
 LIGHTING
 PLAN - AREA A

COMM NO. 2024115.05

E101

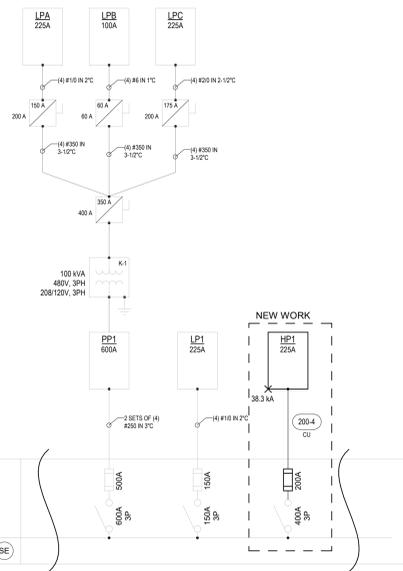


KEY PLAN
 NTS

SINGLE LINE DIAGRAM SYMBOL LEGEND	
GENERAL NOTES:	OPTIONS AND ABBREVIATIONS:
1. SYMBOLS IN THIS LEGEND MAY NOT ALL APPEAR IN THE DRAWINGS.	2N 200% NEUTRAL
2. NOT ALL EQUIPMENT OPTIONS AND REQUIREMENTS ARE INDICATED ON THE SINGLE LINE DIAGRAM.	FTL FEED THRU LUGS
3. REFER TO DIV. 26 SPECIFICATION SECTIONS FOR DETAILED REQUIREMENTS FOR ELECTRICAL DISTRIBUTION INFRASTRUCTURE.	GF GROUND FAULT PROTECTION
4. INFORMATION ABOUT EXISTING EQUIPMENT IS BASED ON EXISTING DRAWINGS AND FIELD OBSERVATIONS.	PLP PHASE LOSS PROTECTION
5. EXISTING FEEDER CONDUCTORS ARE ASSUMED TO BE COPPER.	SE SERVICE ENTRY RATED
6. ALL EQUIPMENT OUTSIDE OF "NEW WORK" SCOPE BOXES IS FOR REFERENCE ONLY.	SM INTEGRAL MAINS SUBMETERING
	SPD INTEGRAL SURGE PROTECTION DEVICE
	ST SHUNT TRIP MAIN BREAKER
	UM UTILITY METERING
GENERIC SYMBOLS	
CIRCUIT BREAKER TRIP RATING NUMBER OF POLES	SWITCH SWITCH RATING NUMBER OF POLES
CALCULATED FAULT CURRENT POINT	FUSE TRIP RATING
ELECTRICAL METER	EQUIPMENT GROUND
ELECTRIC MOTOR	ELECTRIC GENERATOR
FEEDER SYMBOL	
REFER TO FEEDER SCHEDULE FOR DETAILS	
CONDUCTOR MATERIAL	FEEDER NOTES
CU COPPER	2HR FEEDER SHALL BE 2HR FIRE RATED BY MEANS OF ENCASEMENT IN A MINIMUM OF 2" CONCRETE
AL ALUMINUM	ER EXISTING FEEDER TO BE DEMOLISHED
	UG UNDERGROUND
SPECIFIC EQUIPMENT	
SWITCHBOARD / DISTRIBUTION PANELBOARD	PANELBOARD
OPTIONAL CT CABINET AND UTILITY CO. METERING	MAIN BREAKER RATING
EQUIPMENT NAME, RATING, AND VOLTAGE SYSTEM	BUS/ENCLOSURE RATING
DISTRIBUTION TRANSFORMER	DISCONNECT SWITCH
NAME	FUSE RATING (IF OMITTED, UNIT IS NON-FUSED)
POWER RATING	NAME
PRIMARY VOLTAGE	RATING
SECONDARY VOLTAGE	

FEEDER SCHEDULE						
FEEDER TAG	CONDUCTOR MATERIAL	PARALLEL SETS	FEEDER CONDUCTORS QTY	FEEDER CONDUCTORS SIZE	EGC SIZE	CONDUIT SIZE
200-4	CU	1	4	#3/0	#6	2"

'PP1' PANEL LOAD CALCULATIONS	'LP1.1' PANEL LOAD CALCULATIONS
ELECTRICAL DISTRIBUTION EQUIPMENT AND FEEDERS ARE EXISTING TO REMAIN. PROJECT SCOPE IS LIMITED TO BRANCH CIRCUIT MODIFICATIONS. NO ADDITIONAL LOAD IS BEING ADDED TO THE EXISTING PANELBOARD.	ELECTRICAL DISTRIBUTION EQUIPMENT AND FEEDERS ARE EXISTING TO REMAIN. PROJECT SCOPE IS LIMITED TO BRANCH CIRCUIT MODIFICATIONS. NO ADDITIONAL LOAD IS BEING ADDED TO THE EXISTING PANELBOARD.
POWER	LIGHTING
LOAD REMOVED BY DEMOLITION	LOAD REMOVED BY DEMOLITION
(140) PLUGMOLD -12,600 W	NEW LOADS
(12) DUPLEX -2,340 W	
(22) FLOOR DUPLEX -3,960 W	
(5) QUAD -1,800 W	
NEW LOADS	
	CALCULATED NET LOAD:
CALCULATED NET LOAD:	-16,500 W
CALCULATED NET LOAD:	-17,080 W



1 SINGLE LINE DIAGRAM
E601

ELECTRICAL SERVICE CALCULATIONS	
MODIFICATIONS TO AN EXISTING SERVICE	
EXISTING BUILDING LOADS	
PEAK 12-MONTH DEMAND	147.2 kW
ADD 25% (PER NEC 220.87)	36.8 kW
TOTAL EXISTING DEMAND LOAD:	184.0 kW
NEW LOADS	
PANELBOARD 'HP1'	42.1 kW
TOTAL NEW CALCULATED LOAD:	42.1 kW
TOTAL CALCULATED LOAD:	226.1 kW
	272A @ 480V / 3PH
	EXISTING 3000A SERVICE IS SUFFICIENT

Panelboard: HP1												
Location: ELECTRICAL 47				Volts: 480Y/277 V				A.I.C. Rating: 42,000				
Supply From: MAIN SWITCHGEAR				Phases: 3				Mains Type: MLO				
Mounting: Wall Mounted				Wires: 4				Panel Rating: 225.0 A				
Enclosure: NEMA 1												
CKT	Circuit Description	Device Notes	Trip	Poles	A	B	C	Poles	Trip	Device Notes	Circuit Description	CKT
1	M - VV-106.309			15	3	3004	2672				M - VV-323.328	2
3												4
5												6
7	M - VV-24.311.319			15	3	2838	2672				M - VV-324.326	8
9												10
11												12
13	M - VV-321.325			15	3	2838	0				Spare	14
15											Spare	16
17											Spare	18
19												20
21												22
23												24
25												26
27												28
29												30
					Total Load:		14023 VA	14023 VA	14023 VA			
					Total Amps:		50.6 A	50.6 A	50.6 A			
DESCRIPTION ABBREVIATION LEGEND:		DEVICE NOTES LEGEND:		Panel Totals								
L = LIGHTS		GFI = GFI BREAKER, IF UNAVAILABLE SUBSTITUTE WITH GFI RELAY MODULE		Total Conn. Load: 42068 VA								
R = RECEPTACLES		LOD = LOCK ON/OFF DEVICE		Total Est. Demand: 42068 VA								
M = MECHANICAL EQUIPMENT		SPD = SURGE PROTECTION DEVICE		Total Conn. Current: 50.6 A								
P = PLUMBING EQUIPMENT		BM = BRANCH CIRCUIT LEVEL METERING		Total Est. Demand Current: 50.6 A								
Notes:												



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ISSUANCES	
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ELECTRICAL SINGLE LINE DIAGRAM

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