

Centerpoint Medical Center Suite 320 Timeshare

19550, E 39th St, Suite 322, Independence, Missouri 64057

Bid Set - 06.22.2016



bc DESIGNGROUP

200 NE Missouri Rd, Suite 200
Lee's Summit, MO 64086

913.232.2123

MO Certificate of Authority Number
A-201103790

GENERAL OVERVIEW:

TYPE OF CONSTRUCTION:
TENANT IN-FILL

FACILITY NAME:
CENTERPOINT MEDICAL OFFICE BUILDING

FACILITY ADDRESS:
19600 E 39TH STREET

CITY:
INDEPENDENCE

STATE:
MISSOURI

LOCAL BUILDING INSPECTION DEPARTMENT:
INDEPENDENCE, MISSOURI

ARCHITECT:
bcDESIGNGROUP
200 NE MISSOURI RD, SUITE 200
LEE'S SUMMIT - MISSOURI - 64086

CODES/REGULATIONS UTILIZED TO DESIGN RENOVATION:
2012 INTERNATIONAL BUILDING CODE
2012 INTERNATIONAL MECHANICAL CODE
2012 INTERNATIONAL PLUMBING CODE
2011 NATIONAL ELECTRICAL CODE
AMERICAN WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES

PROJECT DESCRIPTION:

GENERAL OVERVIEW:
TENANT IN-FILL OF SHELL SPACE IN THIRD STORY OF MEDICAL OFFICE BUILDING

OCCUPANCY: USE GROUP B

EXISTING CONSTRUCTION TYPE: TYPE IIB

BUILDING AREA:
EXISTING TOTAL BUILDING AREA: 201,404 GSF
TOTAL IN-FILL AREA: 1378 GSF = BUSINESS OCCUPANCY

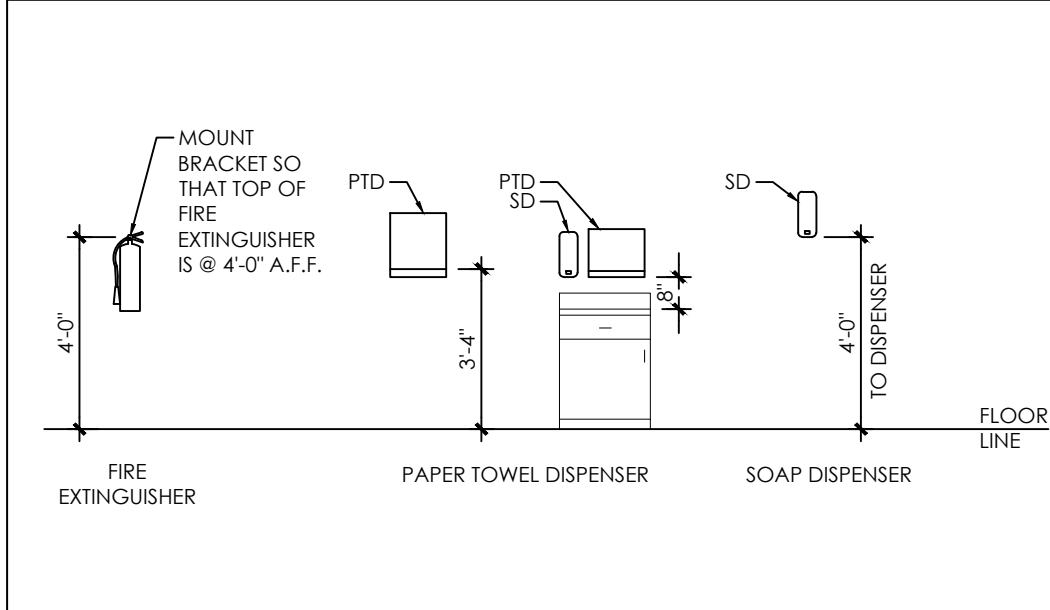
OCCUPANT LOAD:
1378 GSF / 100 SF/PERSON = 14 OCCUPANTS

STRUCTURAL FIRE PROTECTION:

ITEM:	EXISTING:	NEW:
EXTERIOR BEARING WALLS	NOT RATED	NO WORK
INTERIOR BEARING WALLS	NOT RATED	NO WORK
EXTERIOR NON-BEARING WALLS	NOT RATED	NO WORK
STRUCTURAL FRAME	NOT RATED	NO WORK
PERMANENT PARTITIONS	NOT RATED	NO WORK
SHAFT ENCLOSURES	1 HOUR	NO WORK
FLOORS	NOT RATED	NO WORK
ROOF(S)	NOT RATED	NO WORK
EXTERIOR OPENINGS	NOT RATED	NO WORK
STAIRWAY CONSTRUCTION	1 HOUR	NO WORK

14 CODE NOTES

SCALE: NTS

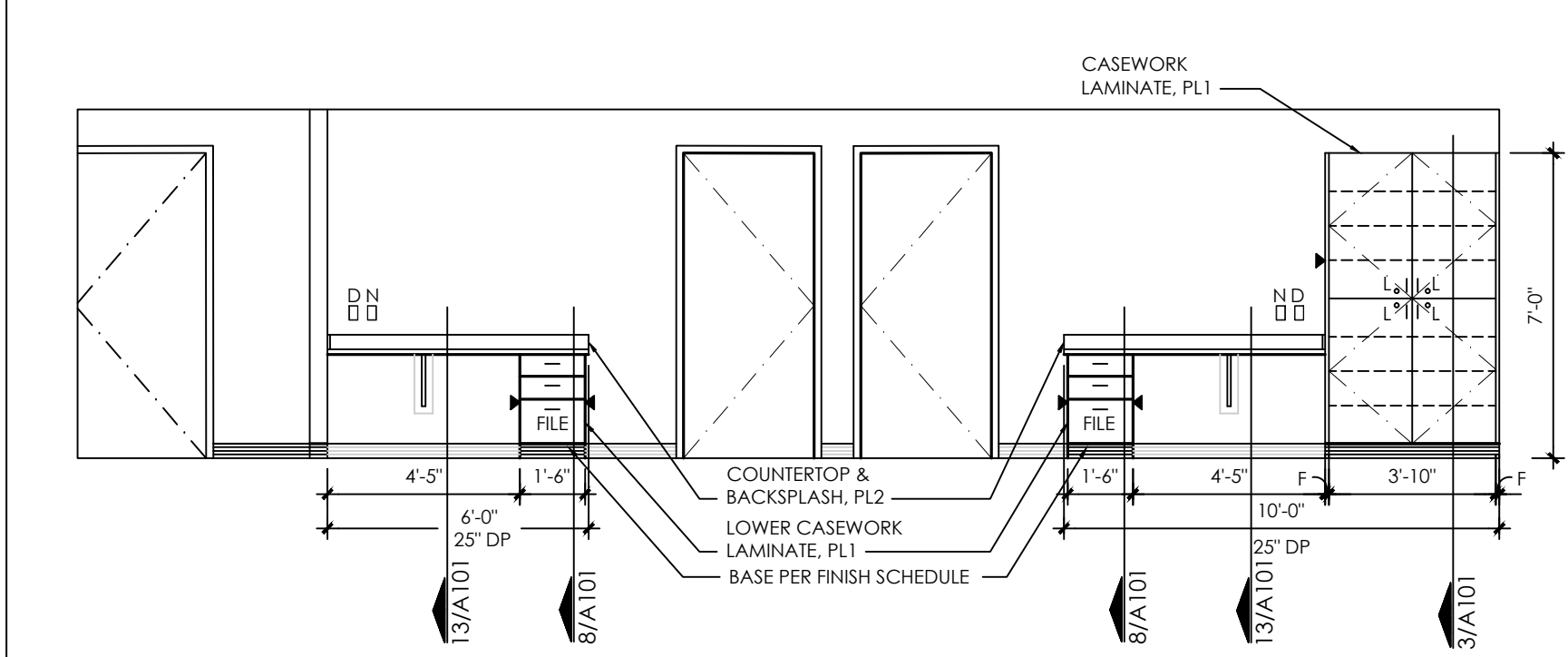


INSTALLATION GUIDELINES NOTES

- CONTRACTOR SHALL REINFORCE WALLS AT LOCATIONS OF TOILET ACCESSORIES WITH METAL OR F.I. WOOD BLOCKING.
- CONTRACTOR SHALL COORDINATE FLUSH VALVES WITH GRAB BARS.
- ALL FLUSH VALVES SHALL BE LOCATED ON OPEN SIDE OF TOILET.
- AT ITEMS SHOWN TO BE RECESSED INTO A FIRE RATED WALL, CONSTRUCT A 5-SIDED BOX AROUND RECESSED ITEM. BOX SHALL BE 5/8" TYPE 'X' GYP. BD. TO MAINTAIN RATING.
- SEE REFERENCED INTERIOR ELEVATIONS FOR ADDITIONAL MOUNTING HEIGHTS.

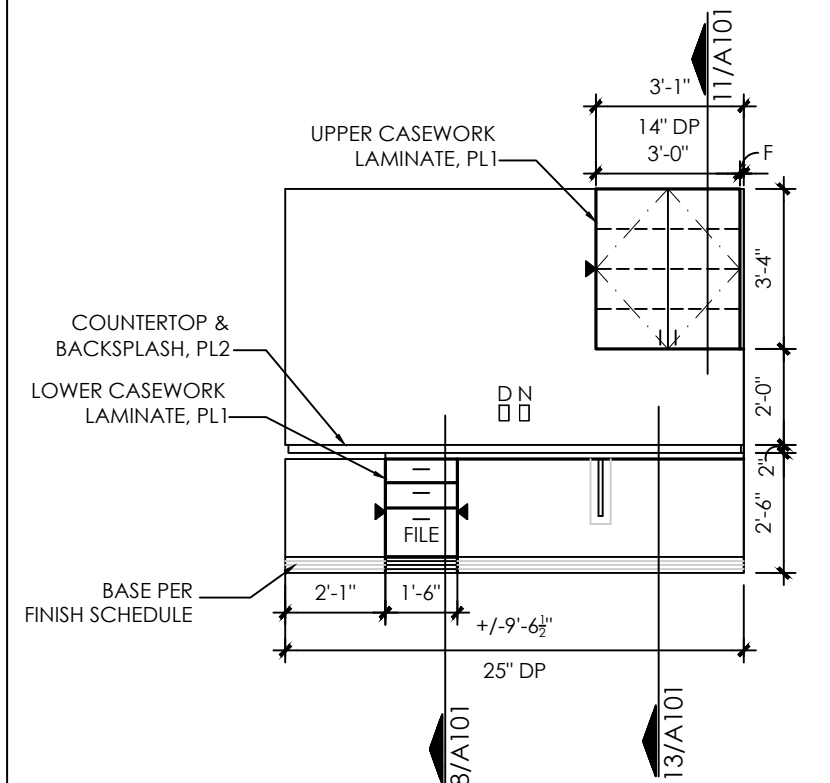
12 INSTALLATION GUIDELINE NOTES

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



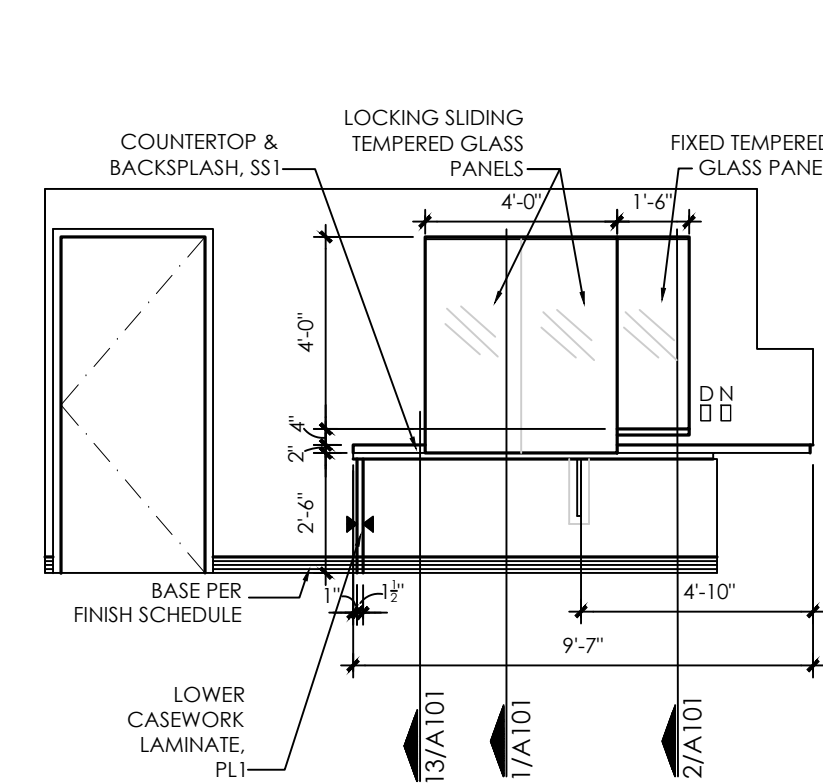
9 ELEVATION

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



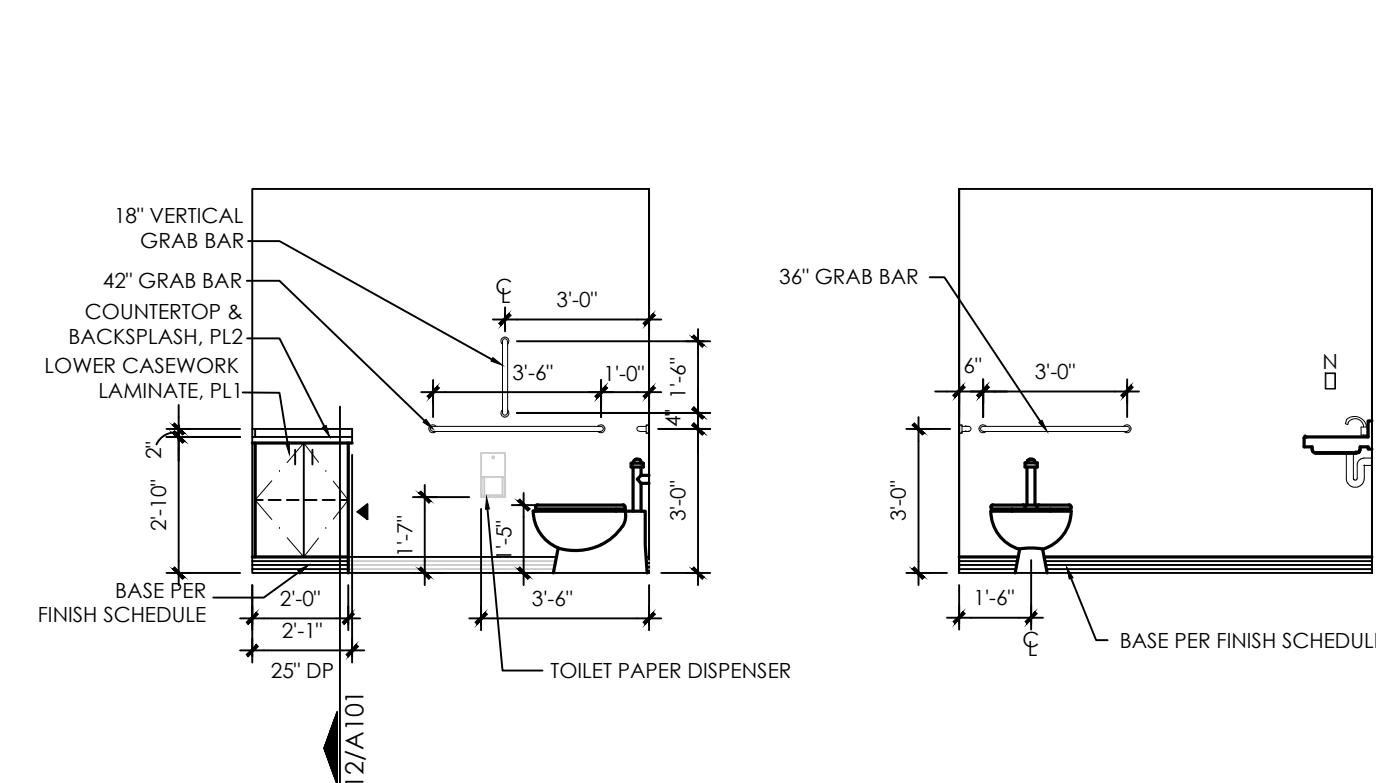
1 ELEVATION

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



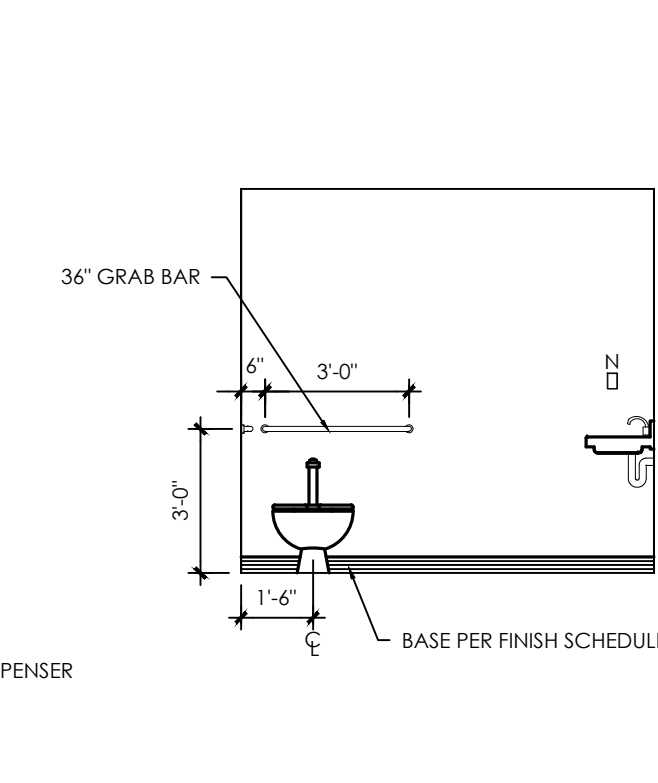
2 ELEVATION

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



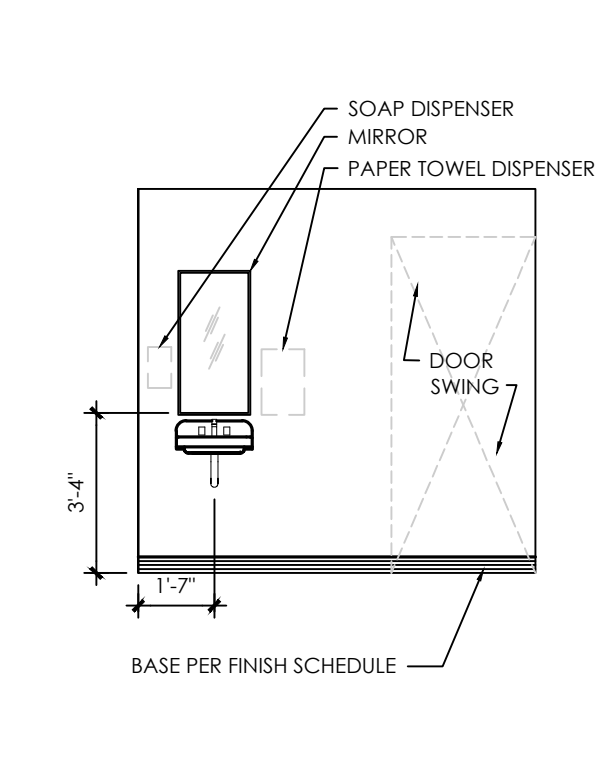
3 ELEVATION

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



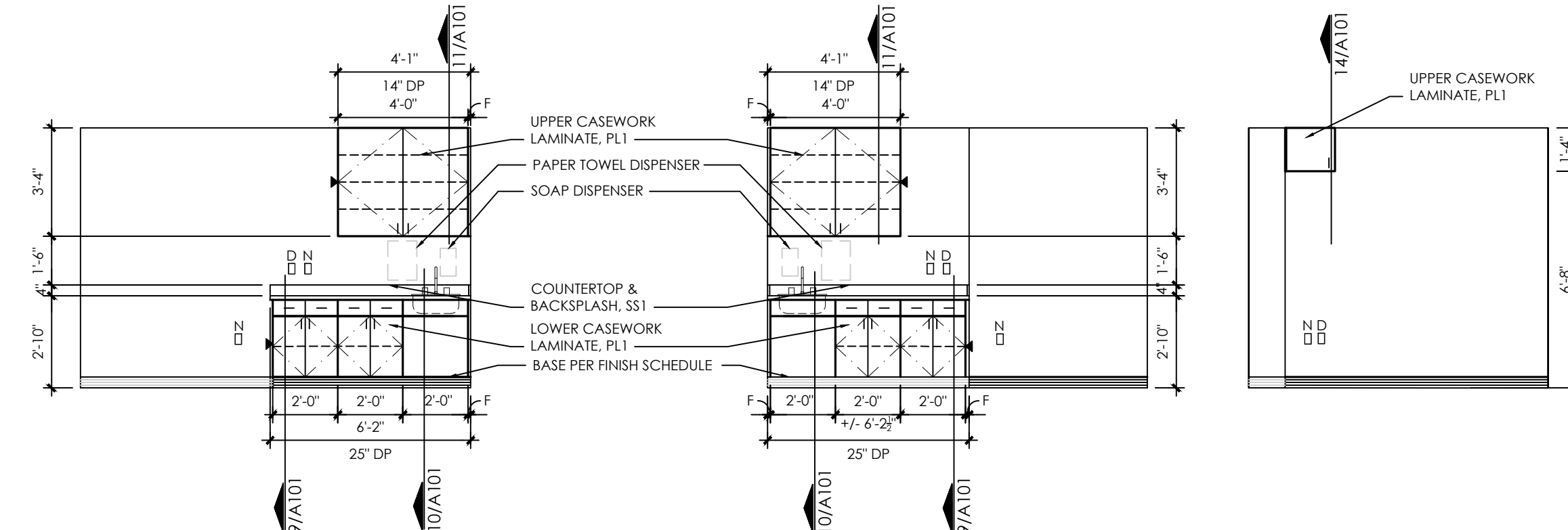
4 ELEVATION

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



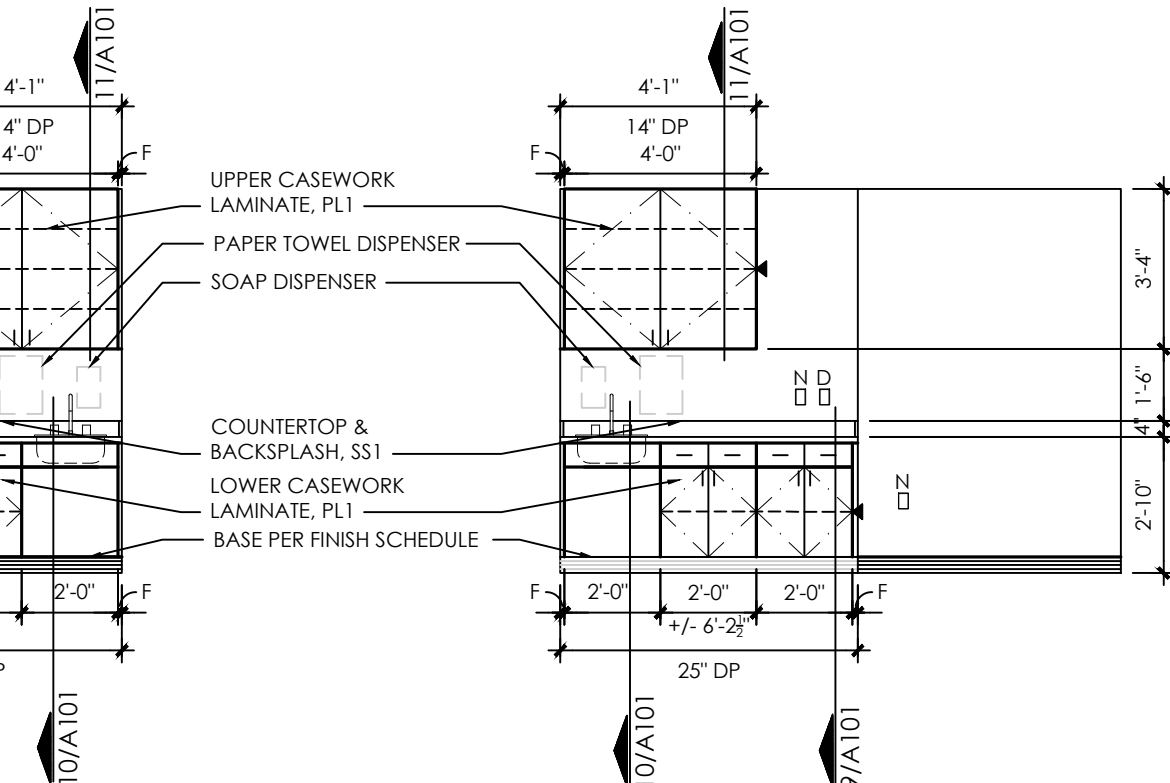
5 ELEVATION

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



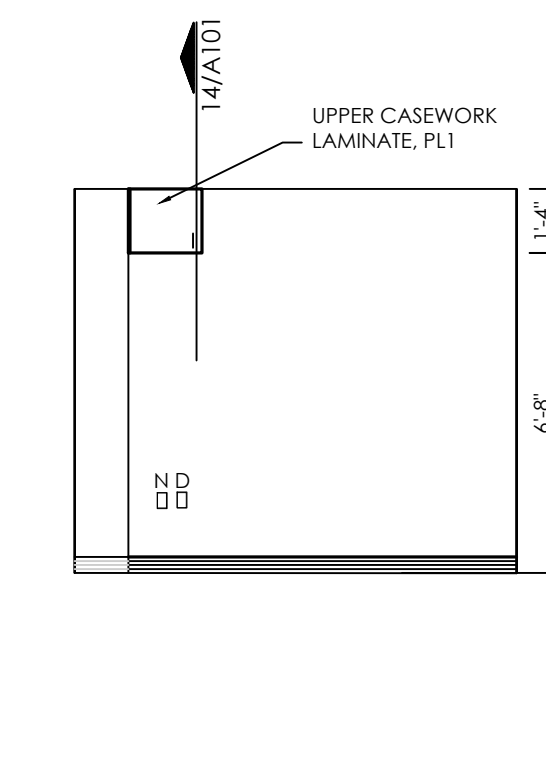
6 ELEVATION

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



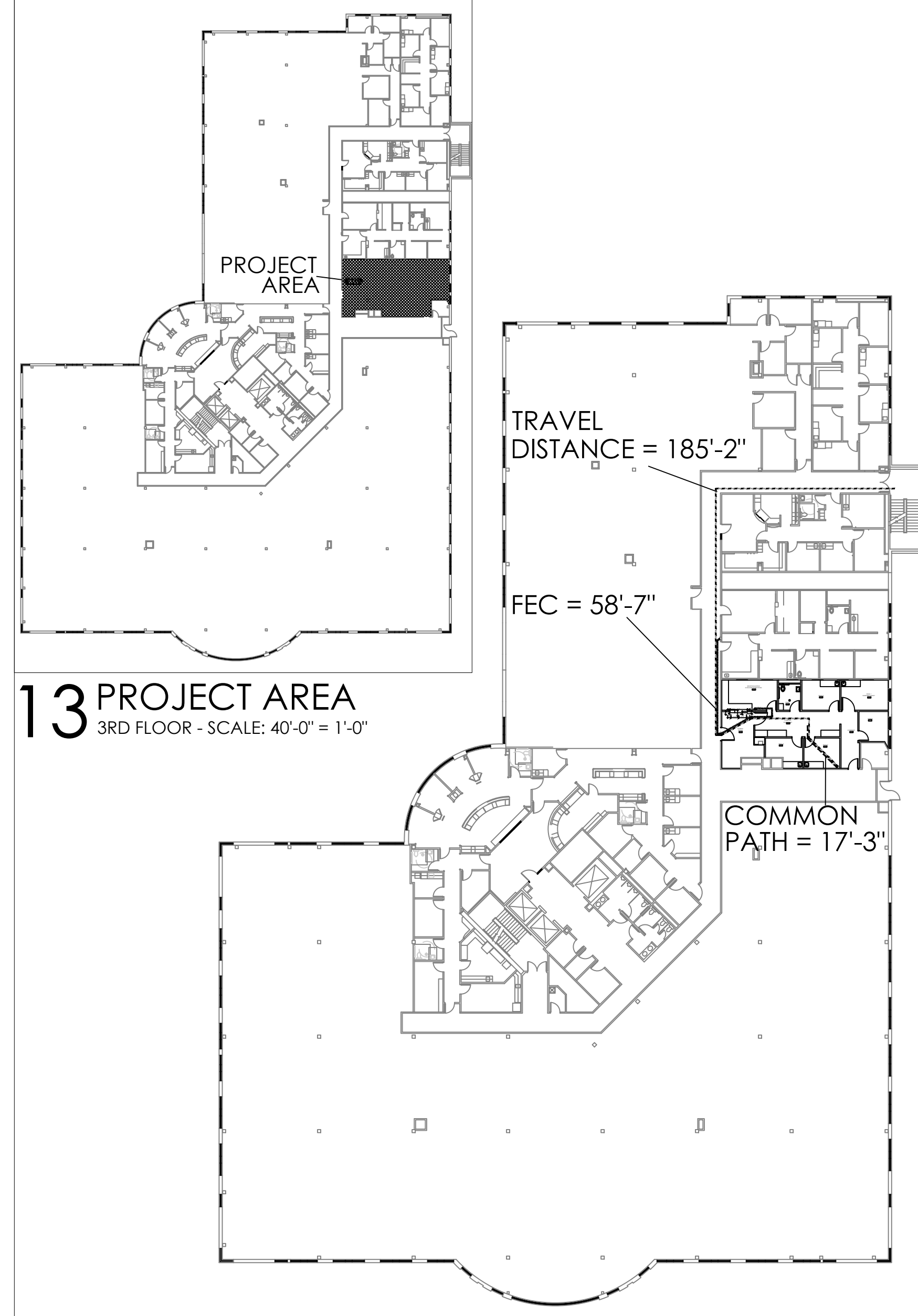
7 ELEVATION

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



8 ELEVATION

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



10 CODE PLAN

SCALE: 1/32" = 1'-0"

GENERAL:

COVER PROJECT INFORMATION, CODE PLAN, ELEVATION, DETAILS

ARCHITECTURAL:

A101 FLOOR AND REFLECTED CEILING PLANS, SECTIONS & DETAILS
A901 PROJECT SPECIFICATIONS

MEP:

ME100 MEP LEGEND
ME200 SCHEDULES AND DETAILS - MECHANICAL AND ELECTRICAL
ME300 SPECIFICATIONS - MECHANICAL AND ELECTRICAL
ME301 SPECIFICATIONS - MECHANICAL AND ELECTRICAL
ME302 SPECIFICATIONS - MECHANICAL AND ELECTRICAL
M100 FLOOR PLANS - MECHANICAL
E100 FLOOR PLANS - ELECTRICAL
E200 SCHEDULES AND DETAILS - ELECTRICAL

INTERIOR ELEV. NOTES:

- RADIUS OUTSIDE CORNER OF ALL COUNTERTOPS 1-1/2" TYPICAL.
- REF SHALL MEAN FINISHED END AT AN EXPOSED CABINET.
- ALL EXPOSED ENDS OF CABINETS TO BE FINISHED, TYP.
- AT ALL CABINET 9'-0" WIDE OR GREATER, SHELVES SHALL BE 1" THICK.
- PROVIDE GROMMETS IN COUNTERTOPS AT EACH COMPUTER EQUIPMENT FOR ACCESS TO OUTLET BELOW. COORDINATE FINAL LOCATION WITH OWNER PRIOR TO INSTALLATION.

INTERIOR ELEV. LEGEND:

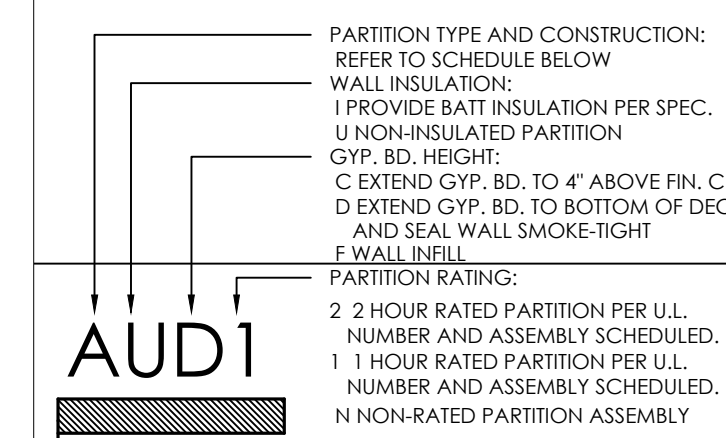
- | | |
|--|----------------------------------|
| | DUPLEX RECEPTACLE - NORMAL POWER |
| | DATA OUTLET, RE: MEP |
| | FINISHED END PANEL |
| | CABINET LOCK |

DRAWING INDEX

- THESE NOTES APPLY EQUALLY TO THE FULL SET OF DOCUMENTS.
- THE NOTES AND SYMBOLS SET DOWN ON THESE DRAWINGS ARE FOR THE GUIDANCE OF ALL TRADES INVOLVED IN THE PROJECT AND MUST BE FOLLOWED TO EXECUTE THE WORK AS INTENDED.
- THE CONTRACTOR SHALL REFER TO THE DRAWINGS FOR DETAILS OF BUILDING CONSTRUCTION TO INSURE SPACE AND SATISFACTORY ARRANGEMENT FOR THEIR WORK. THE VARIOUS DRAWINGS COMPRISING THE SET ARE INTERDEPENDENT AND MUST BE USED JOINTLY AT ALL TIMES. EACH CONTRACTOR SHOULD REFER TO THE GENERAL REQUIREMENTS OF THE CONTRACT. IF DISCREPANCIES OCCUR, CONTACT THE ARCHITECT THRU THE GENERAL CONTRACTOR FOR CLARIFICATION BEFORE PROCEEDING.
- IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITIONS ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
- ALL WORK MUST BE COORDINATED WITH BUILDING MANAGEMENT TO MAINTAIN OPERATION OF THE EXISTING CAMPUS ACTIVITY. ALL WORK THAT AFFECTS CAMPUS ACTIVITIES, INCLUDING UTILITY TIE-INS, ETC. SHALL BE DONE AFTER BUILDING HOURS.
- USE DIMENSIONAL INFORMATION GIVEN. DO NOT SCALE DRAWINGS.
- DIMENSIONS ARE TYPICALLY INDICATED TO THE FINISHED FACE OF WALLS OR PARTITIONS AND CENTER LINES OF COLUMNS UNLESS NOTED OTHERWISE.
- TITLES, CAPTIONS, HEADINGS, ETC., ARE INTENDED FOR GENERAL REFERENCE AND ARE NOT INTENDED TO LIMIT THE WORK REQUIRED IN ANY WAY.
- EACH CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF OTHERS. HE SHALL KEEP HIMSELF INFORMED OF THE PROGRESS AND DETAIL DEVELOPMENT OF THE WORK OF OTHERS AND SHALL BE RESPONSIBLE FOR COORDINATING AND EXPEDITING HIS WORK WITH THAT OF OTHERS SO THAT THE PROGRESS OF THE TOTAL WORK SHALL BE KEPT ON SCHEDULE.
- ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH ALL GOVERNING CODES AND STANDARDS.
- EXISTING CONDITIONS SHOWN HAVE BEEN BASED UPON AVAILABLE DRAWING INFORMATION AND MAY BE AT VARIANCE WITH ACTUAL WORK IN PLACE. THE CONTRACTOR SHALL TAKE ALL NECESSARY FIELD MEASUREMENTS AND FIELD VERIFY ALL CONDITIONS AFFECTING THE EXECUTION OF THE WORK. ANY WORK SHOWN ON THE CONTRACT DOCUMENTS WHICH MAY IMPACT THE PROGRESS OF THE WORK SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IN WRITING FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
- EACH CONTRACTOR AND/OR TRADE FITTING OR PLACING HIS WORK INTO OR ON THE WORK OF OTHERS DOES SO WITH THE UNDERSTANDING THAT THE INSTALLATION OF HIS WORK CONSTITUTES HIS ACCEPTANCE OF THE SUITABILITY OF THE WORK IN PLACE. IF THE WORK OF OTHERS IS NOT ACCEPTABLE, HE SHALL NOTIFY THE GENERAL CONTRACTOR AND SUCH WORK SHALL BE CORRECTED. ANY NEW WORK INSTALLED IN UNSUITABLE EXISTING WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR OR TRADE INSTALLING THE NEW WORK. NO CLAIMS FOR ADDITIONAL COMPENSATION FOR CORRECTING WORK INSTALLED IN UNSUITABLE EXISTING CONDITIONS WILL BE CONSIDERED.

GENERAL NOTES

PARTITION TAGS



TYPE	THICKNESS	PLAN DETAIL	HEAD	SILL	U.L. #
A	4-7/8"	3 5/8" MTL STUDS @ 16" O.C., TYP. REFER TO PART. TAG FOR INSL. 5/8" GYP. BD. EACH SIDE METAL STUDS	ACoustICAL BATT SCHED. CLG.	CONT. FIRE CAULK PER SPEC. BOTH SIDES	N/A
B	3-1/8"	2 1/2" MTL STUDS @ 16" O.C., TYP. REFER TO PART. TAG FOR INSL. 5/8" GYP. BD. ONE SIDE METAL STUDS	ACoustICAL BATT SCHED. CLG.	CONT. FIRE CAULK PER SPEC. THIS SIDES	N/A

PARTITION NOTES

- ALL GYP. BD. ABUTTING OTHER MATERIAL TO BE FINISHED WITH TRIM BEAD AND JOINT COMPOUND.
- ALL WOOD AND PLYWOOD BLOCKING TO BE FIRE TREATED.
- DOOR FRAMES ARE TYPICALLY SHOWN 2" FROM FACE OF PERPENDICULAR WALL UNO.
- ALL FIRE RATED FLOOR AND WALL PENETRATIONS SHALL COMPLY WITH ASTM E-814.
- PARTITIONS TO BE BUILT IN ACCORDANCE WITH PARTITION SCHEDULE AND DESIGN REFERENCE. ALL REFERENCES ARE TO THE LATEST EDITION OF THE GYPSUM ASSOCIATION OR UNDERWRITERS LABORATORIES INC. FIRE RESISTANCE DIRECTORIES.
- PARTITION TYPES ARE GENERAL TO ALL WALL TYPES. REFER TO DETAILS FOR SPECIAL CONDITIONS AND SITE REQUIREMENTS.

Project Title:
Centerpoint Medical Center
Suite 320 Timeshare
19600 East 39th Street, Suite 320, Independence, Missouri 64057

Kurt M. Broeckelmann, Architect
A-2007007677

Issue Date: 06.22.2016

Revision No 1:

Revision No 2:

Revision No 3:

Revision No 4:

Project Number: 16030.01

COVER
PROJECT INFORMATION,
CODE PLAN, ELEVATION,
DETAILS



bc DESIGNGROUP

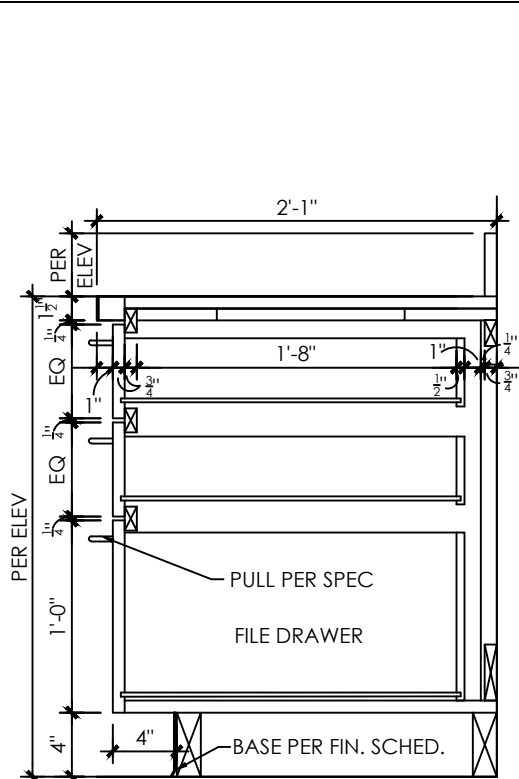
200 NE Missouri Rd, Suite 200
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MO Certificate of Authority Number
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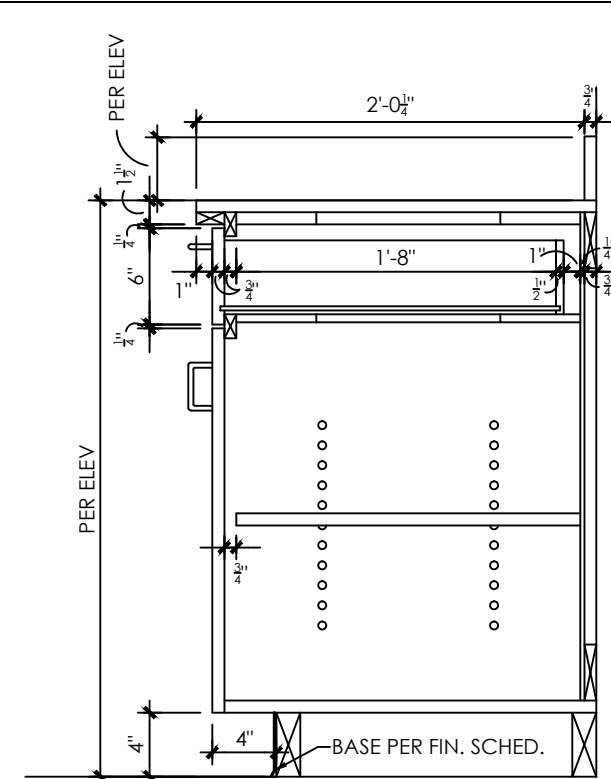
8 SECTION

SCALE: 1" = 1'-0"



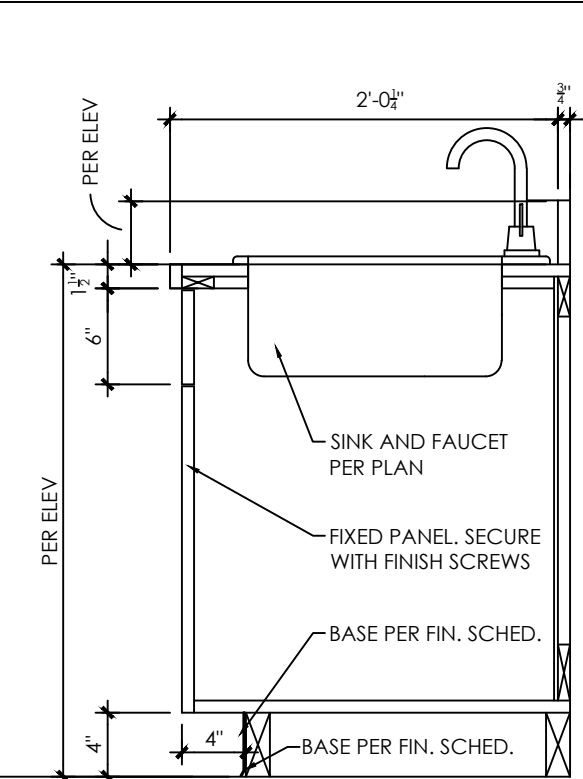
9 SECTION

SCALE: 1" = 1'-0"



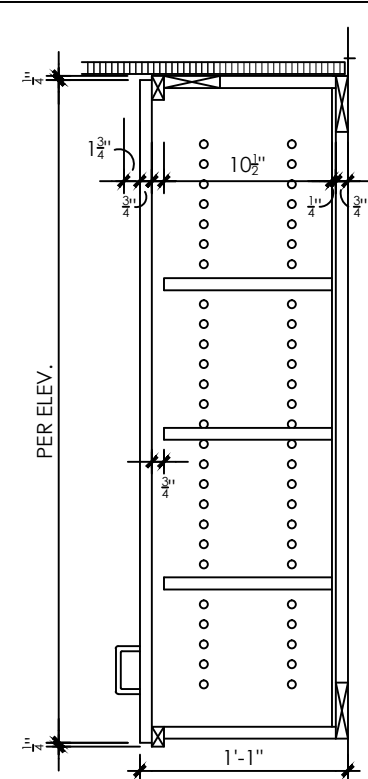
10 SECTION

SCALE: 1" = 1'-0"



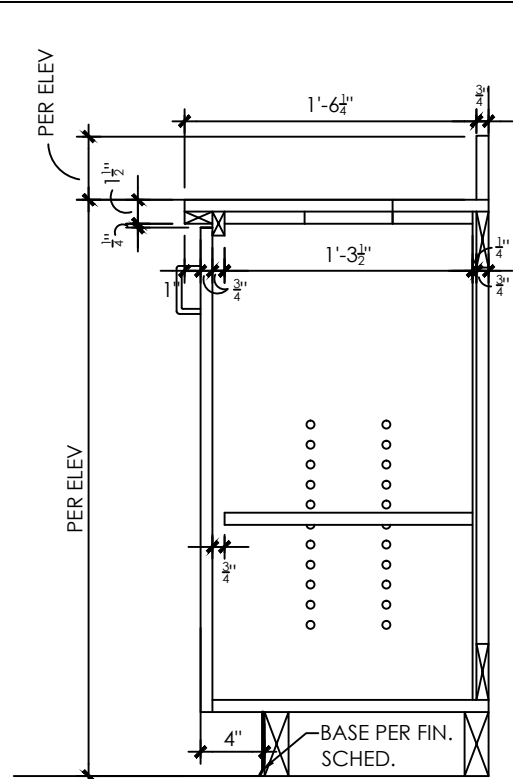
11 SECTION

SCALE: 1" = 1'-0"



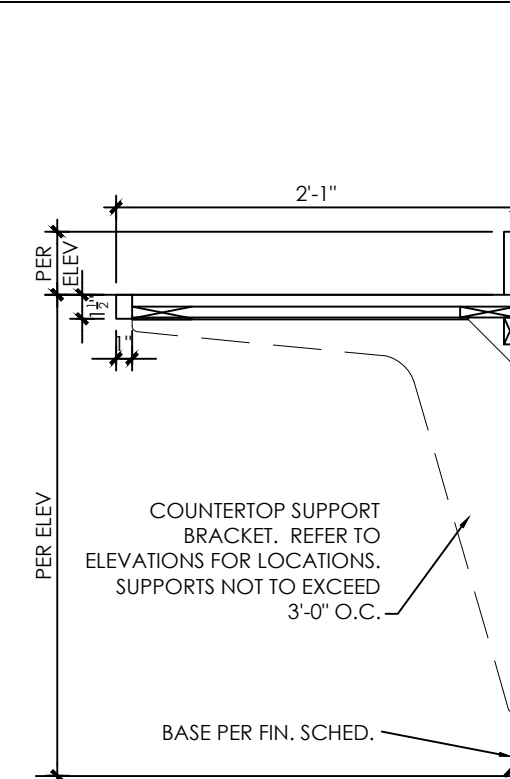
12 SECTION

SCALE: 1" = 1'-0"



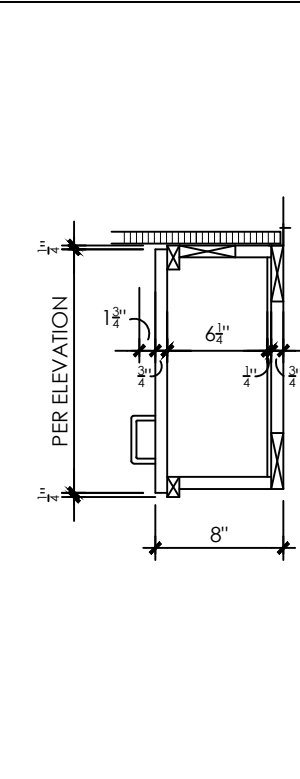
13 SECTION

SCALE: 1" = 1'-0"



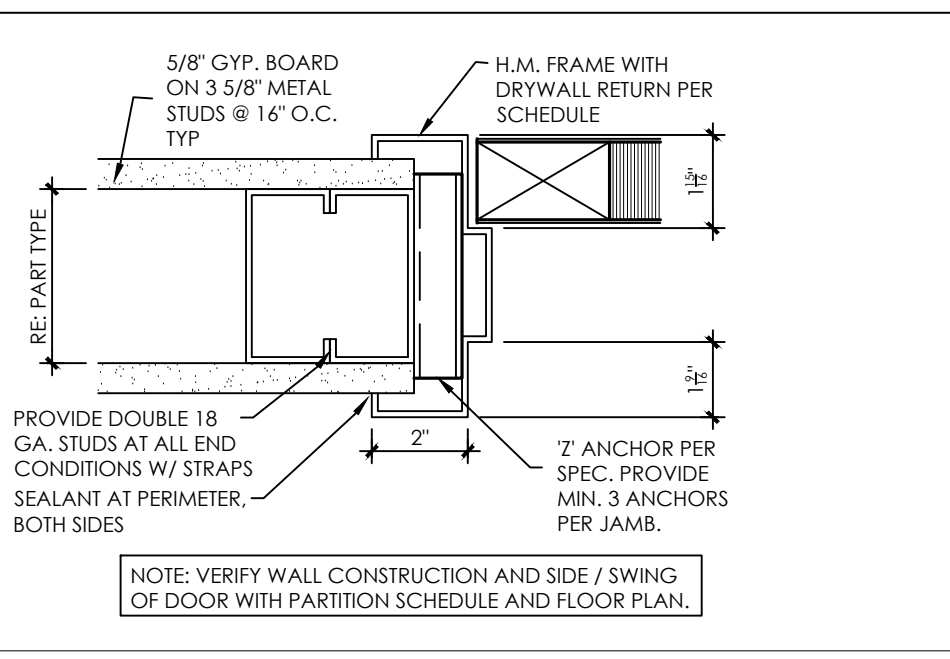
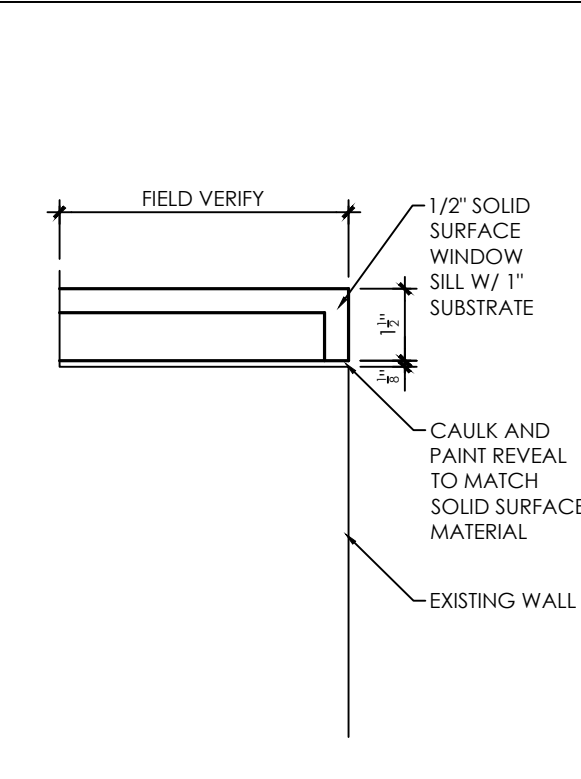
14 SECTION

SCALE: 1" = 1'-0"



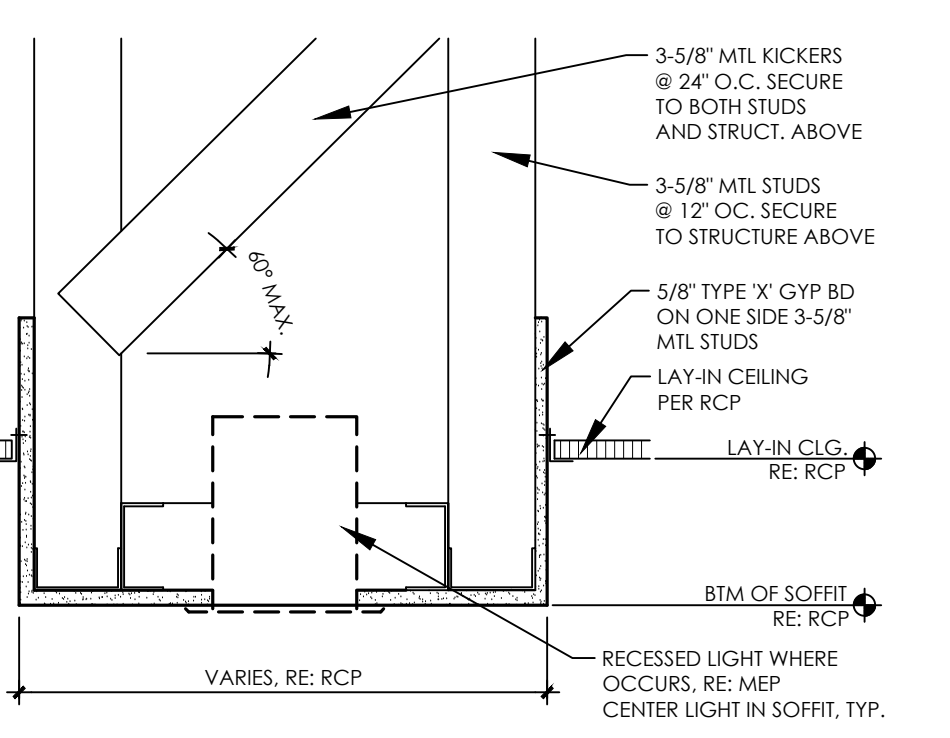
15 DETAIL

SCALE: 3" = 1'-0"



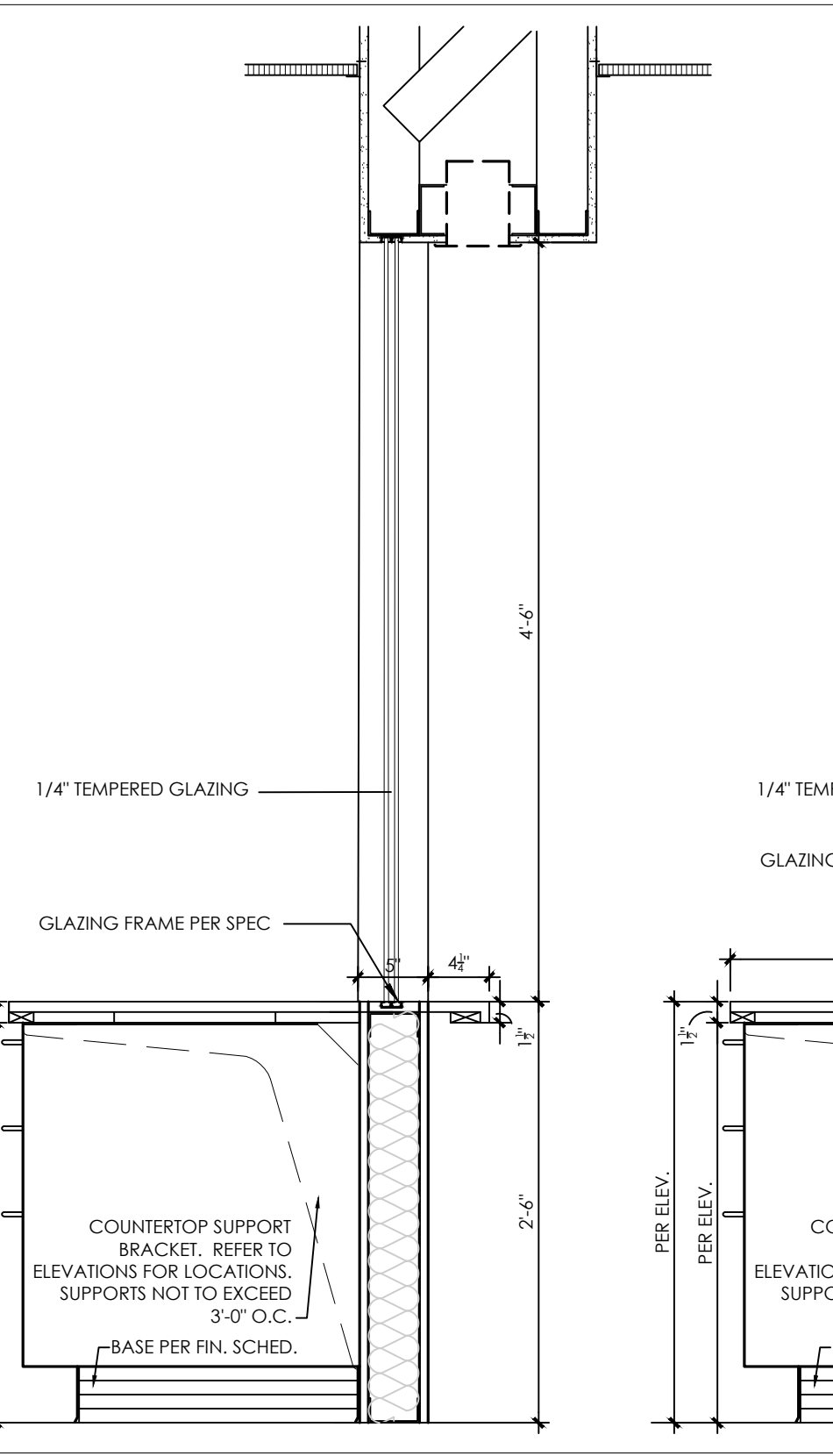
7 DETAIL

SCALE: 3" = 1'-0"



6 DETAIL

SCALE: 1-1/2" = 1'-0"



1 SECTION

SCALE: 1" = 1'-0"

2 SECTION

SCALE: 1" = 1'-0"

3 SECTION

SCALE: 1" = 1'-0"

PLAN LEGEND:

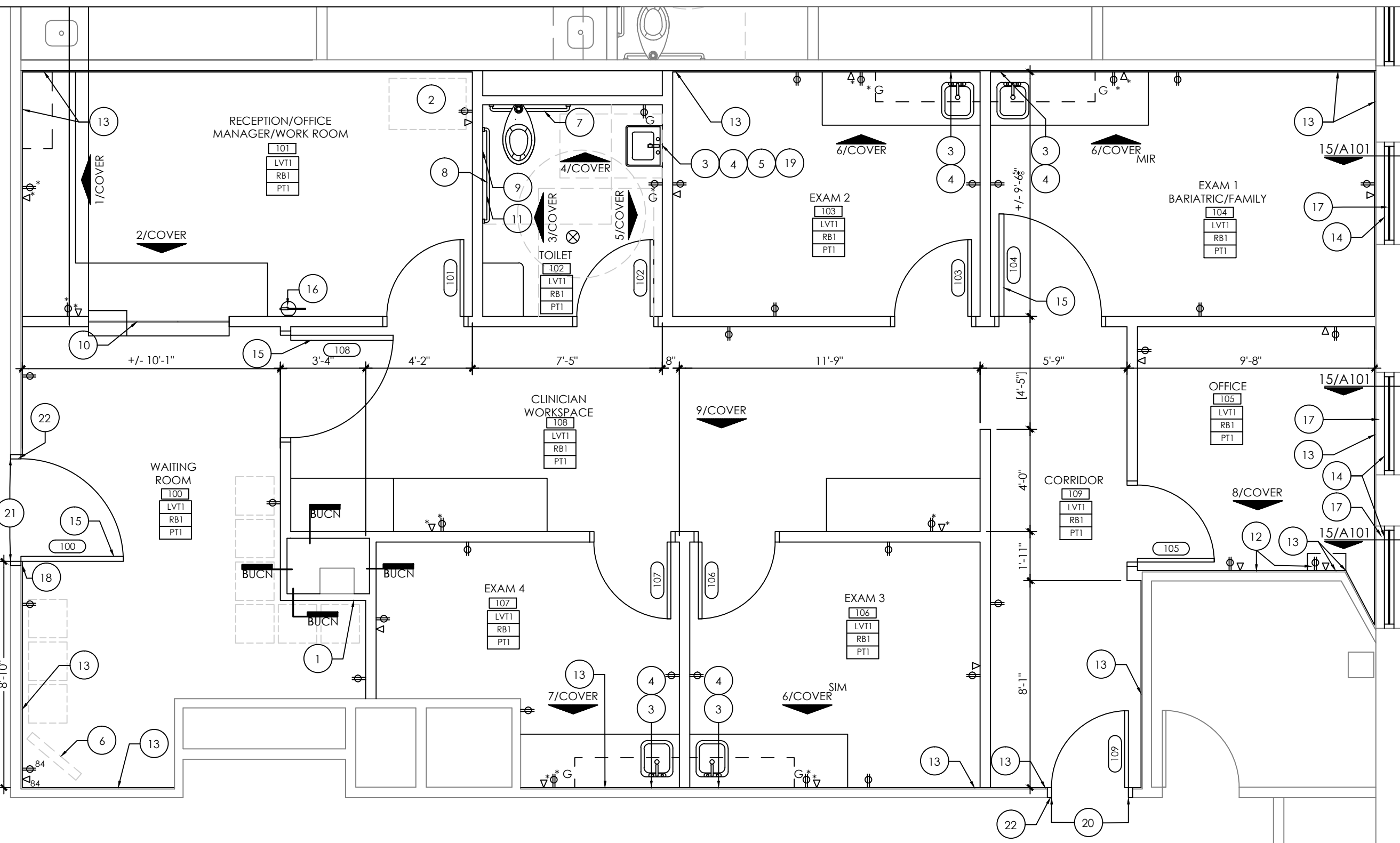
- EXISTING WALL
- NEW WALL
- NEW DOOR
- ELEVATION TAG
- KEYNOTE
- ROOM TAG
- ROOM NAME
- ROOM NUMBER
- TRANSITION STRIP
- DUPLEX OUTLET AT 18" AFF, UNO
- DUPLEX OUTLET ABOVE COUNTERTOP
- GFI OUTLET
- DATA BOX AT 18" AFF, UNO
- DATA BOX ABOVE COUNTERTOP
- OVERFLOW FLOOR DRAIN

PLAN NOTES:

- HOLD FURRING TIGHT TO STRUCTURE
- PRINTER, OFOI
- SOAP DISPENSER
- PAPER TOWEL DISPENSER
- MIRROR
- WALL HUNG TV, OFOI
- 36" GRAB BAR
- 42" GRAB BAR
- TOILET PAPER DISPENSER
- GLASS TRANSACTION WINDOW
- 18" VERTICAL GRAB BAR
- PHONE IN SHALLOW CABINET AND ELECTRIC BOX, RE: MEP
- INSTALL (1) LAYER OF 5/8" TYPE 'X' GYPSUM BOARD AT PERIMETER AND EXTERIOR WALLS
- BLINDS PER SPEC
- 4'-0" x 7'-0" x 1-3/4" SOLID CORE WOOD DOOR PER SPEC
- FIRE EXTINGUISHER AND BRACKET PER SPEC.
- CORIAN CONCRETE WINDOW SILL, S51
- PER FINISH SCHEDULE
- ALT. BID, AUTOMATIC DOOR OPENER, RE: MEP
- AT ALT. BID, SUPPLY ALT. LAVATORY PER MEP
- SWAP EXISTING DOOR OUT FOR NEW DOOR
- DEMO WALL FOR NEW DOOR
- SPLIT STAIN DOOR AND FRAME: EXTERIOR TO MATCH BUILDING STANDARDS, INTERIOR TO MATCH FINISH SCHEDULE

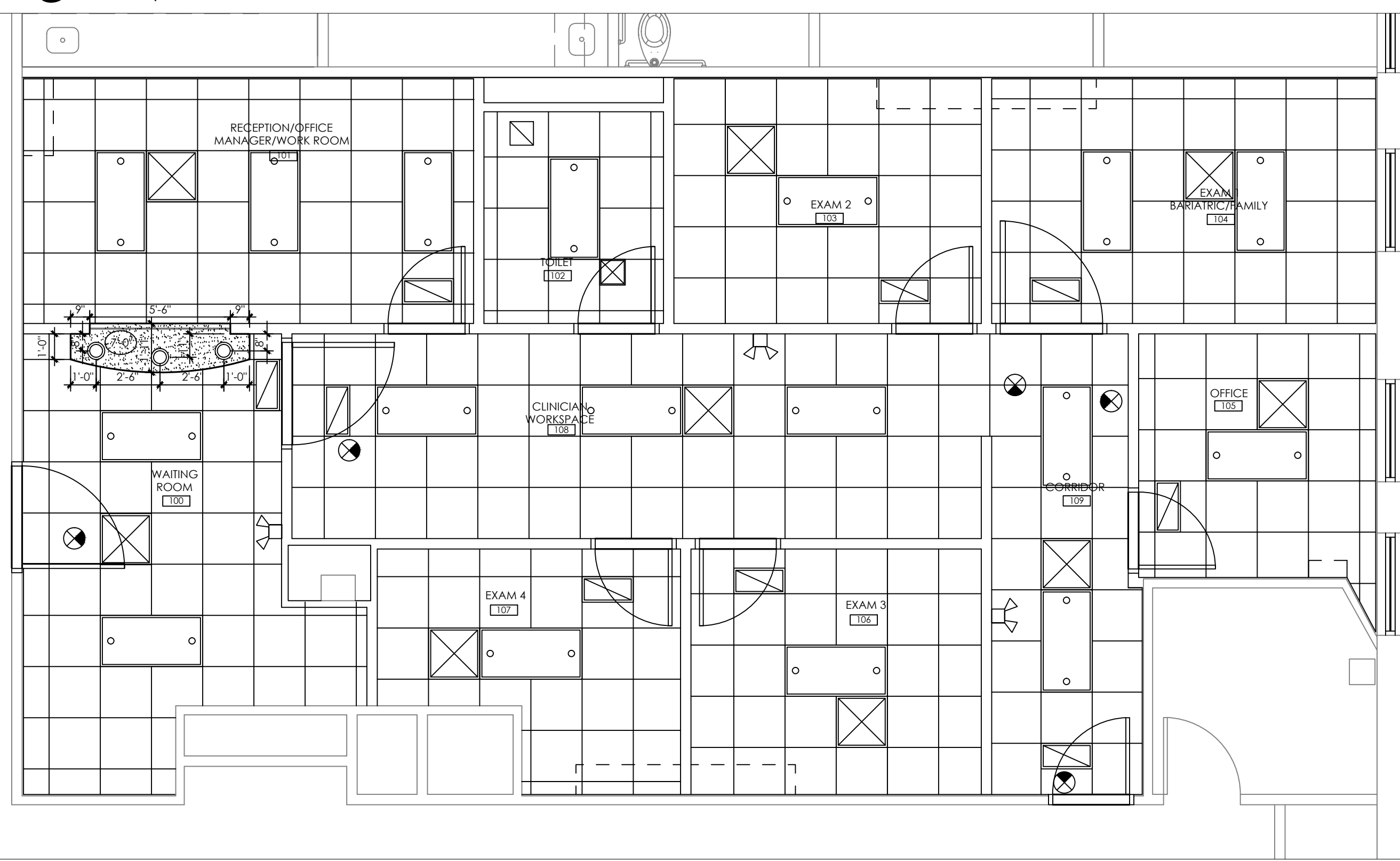
GEN. PLAN NOTES:

- ALL NEW INTERIOR PARTITIONS ARE TO BE 'AIGN' UNLESS NOTED OTHERWISE
- ALL DOORS TO BE 3'-0" x 7'-0" x 1-3/4" SOLID CORE WOOD DOORS PER SPEC, UNLESS NOTED OTHERWISE, RE: 7/A101 FOR TYPICAL FRAME DETAIL.
- ALL DIMENSIONS ARE TO FACE OF FINISHED WALL, GC TO NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO BEGINNING WORK IN THE AFFECTED AREAS.
- ALL MECHANICAL, ELECTRICAL, AND PLUMBING INFORMATION SHOWN ON ARCHITECTURAL DRAWINGS IS FOR GENERAL INFORMATION AND COORDINATION ONLY.
- NOT USED
- DIMENSIONS SHOWN IN BRACKETS ARE CRITICAL AND MUST BE MAINTAINED.
- INSTALL METAL STRIP BLOCKING AT ALL ITEMS SHOWN TO BE MOUNTED TO WALLS, INCLUDING BUT NOT LIMITED TO WALL STOPS, CASEWORK, & GRAB BARS. STRAPS SHALL EXTEND A MINIMUM OF 3 STUDS, TYPICAL.
- PATCH EXISTING VAPOR BARRIER AS NECESSARY AND PROVIDE AND INSTALL (1) LAYER OF 5/8" TYPE 'X' GYPSUM BOARD AT EXTERIOR WALL, EXTEND GYP. BD. TO 10" AFF, TYPICAL. TAPE, SAND AND PREPARE FOR FINISH.



5 FLOOR PLAN

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



4 REFLECTED CEILING PLAN

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

FINISH LEGEND:

- FINISH PLAN NOTE
- FINISHES PER ROOM
- FLOOR FINISH
- WALL BASE
- WALL FINISH
- LUXURY VINYL TILE
- LV11 UPOFLOOR, XPRESSION 1514 CHESTNUT, 7' X 48"
- RUBBER BASE
- R81 JOHNSONITE, CHARCOAL 20
- SOLID SURFACE
- S51 CORIAN, CONCRETE
- HIGH PRESSURE LAMINATE
- PL1 WILSONART, WHITE CYPRESS 7976K
- PL2 WILSONART, PEWTER MESH 4848-38
- PAINT
- P11 SHERWIN WILLIAMS, REPOSE GRAY SW7015 (WALLS)
- P12 SHERWIN WILLIAMS, ROYCROFT PEWTER SW2848 (FRAME)
- P13 SHERWIN WILLIAMS, MINERAL DEPOSIT SW7652 (ACCENT)

FINISH PLAN NOTES:

- NOT USED

GEN. FINISH NOTES:

- WALL FINISHES, AS INDICATED, ARE TO BE FULL HEIGHT (FLOOR TO CEILING) UNLESS NOTED OTHERWISE
- CHANGE OF COLOR SHALL OCCUR AT INSIDE CORNERS. DO NOT CHANGE ON AN OUTSIDE CORNER UNLESS OTHERWISE NOTED.
- THE FOLLOWING ITEMS, EXCEPT WHERE NOTED OTHERWISE, SHALL BE FINISHED TO MATCH ADJACENT COLOR: ELECTRICAL PANELS, AIR GRILLES, LOUVERS, AND ACCESS PANELS.
- PAINT FINISH ON DRYWALL SURFACES TO BE 'SATIN' OR EQUIVALENT FINISH, ALL INTERIOR CAULKING SHALL MATCH ADJACENT SURFACES UNLESS NOTED OTHERWISE.
- ALL TRANSITION STRIP COLORS TO BE SELECTED BY THE INTERIOR DESIGNER. THE FLOORING CONTRACTOR SHALL BE RESPONSIBLE FOR THE SUPPLY AND INSTALLATION OF ALL TRANSITIONS NECESSARY FOR CHANGES IN FLOOR FINISH.
- FLOORING TO REMAIN CLEAN AND PROTECTED UNDER CONSTRUCTION.
- DO NOT USE A SECTION OF RUBBER BASE LESS THAN 48" IN LENGTH UNLESS THE WALL ON WHICH THE BASE OCCURS IS LESS THAN 48".
- WHERE TWO OR MORE FLOORING FINISHES ARE CALLED OUT PER ROOM, SEE THE FLOOR PLAN FOR PATTERN AND CLARIFICATION.
- WHERE TWO OR MORE WALL FINISHES ARE CALLED OUT PER ROOM, SEE THE FLOOR PLAN AND/OR ELEVATIONS FOR CLARIFICATION. ACCENT PAINT COLORS ARE SHOWN ON THE FLOOR PLAN. ALL OTHER WALLS TO BE P11.
- ALL DOOR FRAMES TO BE PAINTED P12.
- ALL DOORS TO BE STAINED TO MATCH LAMINATE PL1 EXCEPT THE OUTSIDE FACE OF DOORS LOCATED IN THE PUBLIC CORRIDOR. FACES OF PUBLIC CORRIDOR DOORS ARE TO BE STAINED TO MATCH BUILDING STANDARD.
- ALL FLOOR FINISH TRANSITIONS ARE TO OCCUR AT THE CENTERLINE OF THE DOOR WHEN THE DOOR IS IN CLOSED POSITION.

RCP LEGEND:

- NEW CEILING TILE & GRID
- GYP. BD. SOFFIT/CEILING
- NEW 2x4 LIGHT
- SUPPLY GRILLE
- RETURN GRILLE
- EXHAUST FAN
- LIGHTED EXIT SIGN
- SECTION TAG
- CEILING HEIGHT
- EMERGENCY LIGHT

GEN. RCP NOTES:

- ALL CEILINGS TO BE 8'-0" UNLESS NOTED OTHERWISE.
- LIGHT FIXTURES, SWITCHING, ETC ARE SHOWN FOR DESIGN INTENT ONLY.
- HVAC SUPPLY DIFFUSERS, RETURN BOOTS, ZONES, ETC ARE SHOWN FOR DESIGN INTENT ONLY.

RCP NOTES:

- NOT USED

Project Title:
 Centropoint Medical Center
Suite 320 Timeshare
 19600 East 39th Street, Suite 320, Independence, Missouri 64057

Kurt M. Broeckelmann, Architect
A-2007007677

Issue Date: 06.22.2016
 Revision No 1:
 Revision No 2:
 Revision No 3:
 Revision No 4:

Project Number: 16030.01

A101
 FLOOR AND REFLECTED
 CEILING PLANS, SECTIONS
 & DETAILS

Specifications for CenterPoint Medical Center Suite 320
06.22.2016

Division 1 – General Requirements and Notes:

- 1.1. General Requirements:**
 - 1.1.1. Documents provided herein by bcDESIGNGROUP, LLC, consist of plans, elevations, details and specifications pertaining to general construction, mechanical, electrical, and plumbing.
 - 1.1.2. Contractor and his Sub-Contractors shall guarantee all work executed under this contract, both as to data, material and workmanship, for a period of twelve (12) months after the date of Substantial Completion, unless otherwise specifically provided for in the contract. Contractor shall replace with new material, including the installation thereof, any or all parts giving indications of defective material, or faulty workmanship during such time. Any replacing or repairing during the guarantee period shall be done at no additional cost to the Tenant, Architect/Designer, and/or Building Management, and shall be done at such time as will not inconvenience building occupants. In addition, any damage to adjacent areas/surfaces caused by faulty materials or workmanship shall also be repaired/replaced in accordance with the conditions listed in this paragraph.
 - 1.1.3. Contractor shall maintain one record copy of all drawings, specifications, addenda, change orders, and shop drawings at the jobsite for the Tenant's use. They shall be in good order and marked currently to record all changes made during construction. Contractor shall furnish Architect/Designer with one set of reproducible AS-BUILT drawings, including Architectural and MEP work, after completion of the work and prior to submission of final pay request.
 - 1.1.4. Contractor shall be responsible for clean up of all trades and removal of all debris. Space shall be left clean and ready for occupancy. Each Sub-Contractor shall be responsible for clean up and removal of debris as related to his/her trade. Spaces shall be left clean and ready for the next trade.
 - 1.1.5. Contractor is responsible for any and all permits, licenses that may be required during the course of the work.
 - 1.1.6. Contractor is responsible for furnishing any/all utilities required for the work. Contractor shall make all necessary and safe connections required for their use and shall restore the connections to their original conditions at the end of the project.
- 1.2. Substitutions:**
 - 1.2.1. Tenant reserves the right to substitute material manufacturers due to availability and/or receipt of all material. The substituted material(s) must be equal in aspects relating to flame spread, combustibility, quality and appearance, in no way shall the substitution affect the intent of the building code for which the building permit was issued.
 - 1.2.2. In the event that an item exceeds that allowed by the project schedule, Contractor is to submit proposed alternate materials/methods that will allow the project to maintain schedule. Contractor shall include a cost associated with the request for substitution and include this with the submittal.
- 1.3. Dimensions:**
 - 1.3.1. Wall construction dimensions are from inside face of outside wall to face of interior wall and from face of wall to face of wall, unless noted otherwise. Contractor to compensate for such when measuring chalk lines. Architect/Designer to review location of chalk lines prior to wall construction.
 - 1.3.2. Electrical outlet dimension are from finish floor to centerline of outlet unless noted otherwise.
- 1.4. Existing Conditions:**
 - 1.4.1. Contractor shall carefully study the construction documents, verify all dimensions, field measurements and conditions, and shall at once refer to Architect/Designer any error, inconsistency or omission he may discover. Contractor shall perform no portion of the work at any time without construction documents, or where required, approved shop drawings, product data or samples for such portion of the work.
- 1.5. Cutting and Patching:**
 - 1.5.1. General:
 - 1.5.1.1. Do not cut-and-patch structural work in a manner resulting in reduction of load-carrying capacity or lead/deflection ratio; submit proposed cutting and patching to Architect/Designer for review prior to proceeding with the work.

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- 6.1.1.2. Construction standards outlined in the specifications and indicated on the drawings shall be considered the minimum acceptable standards.
- 6.1.2. Casework Body:
 - 6.1.2.1. Materials: Top, bottom, back and sides to be ¾" thick, 47 pounds per cubic foot density, premium grade particleboard with a 4 mil vinyl veneered surface on all closed cabinets, unless noted otherwise on drawings.
 - 6.1.2.2. Construction: Sides, top and bottom fastened securely with glue, staples and 1 ¾" no. 8 screws. All cabinets to have solid tops. Back panels to be rabbeted into body sides and secured with glue, staples and screws insuring absolute rigid and secure cabinet joining.
- 6.1.3. Casework Drawers:
 - 6.1.3.1. Materials: Sides, backs, and secondary fronts shall be ½" solid hardwood assembled melamine finish. Bottom shall be ¼" melamine.
 - 6.1.3.2. Construction: Sides, back and secondary fronts shall be glued and stapled dovetail construction. Bottoms shall be let into drawer sides and secured with glue and staples.
 - 6.1.3.3. The MEPLA and/or pre-manufactured drawer systems are not acceptable.
 - 6.1.3.4. Full height drawer sides on files drawers is absolutely mandatory – pre-manufactured file inserts are not acceptable.
- 6.1.4. Cabinet Shelves and Interior Partitions:
 - 6.1.4.1. Materials: Cabinet shelves shall be 1" thick particleboard with 4 mil vinyl laminate, white in color. All sides shall be finished. Interior partitions shall be ¾" thick particleboard with 4 mil vinyl laminate. Finish all exposed surfaces. Provide interior center divider partition in cabinets exceeding 36" in width.
 - 6.1.4.2. Support: Cabinet shelves shall be supported by removable pins, as specified elsewhere. Pins shall be on 1-1/4" centers within the sides of the casework body.
- 6.1.5. Drawer Fronts and Cabinet Doors:
 - 6.1.5.1. Materials: Fronts and doors shall be ¾" thick industrial grade particleboard with laminate as specified, unless noted otherwise on the drawings.
- 6.1.6. Countertops and Backsplashes:
 - 6.1.6.1. Materials: 1 ½" thick industrial premium grade particleboard countertop with ¾" thick industrial premium grade particleboard backsplash and returns, or ½" red oak quarter round as indicated on the drawings.
- 6.2. Laminates:**
 - 6.2.1. General:
 - 6.2.1.1. All exposed vertical surfaces shall be finished with high-pressure plastic laminate to meet or exceed NEMA standards for vertical grade high-pressure laminate.
 - 6.2.1.2. Refer to finish schedule for manufacturers and color of laminates.
 - 6.2.2. Vertical Surfaces:
 - 6.2.2.1. Materials: Vertical grade high pressure plastic laminate to be nominal .030" thick and have a matte finish.
 - 6.2.3. Horizontal Surfaces:
 - 6.2.3.1. Materials: Horizontal grade high pressure plastic laminate to be a nominal .050" thick
 - 6.2.4. Cabinet Interiors:
 - 6.2.4.1. Materials: Interior surfaces shall be a factory laminated 4 mil vinyl cabinet liner, color to be white at all non exposed surfaces.
- 6.3. Cabinet Hardware:**
 - 6.3.1. Cabinet Pulls: Amerock #P979-26
 - 6.3.2. Shelf Clips: White Blum nylon with steel pin, #340040.
 - 6.3.3. Cover Caps: Blum #320410 or #320020, White.
 - 6.3.3.1. Install on all exposed head inside cabinets and shelving units.
 - 6.3.4. Grommets: 2" round TG series as manufactured by Doug Mockett and Co.
 - 6.3.4.1. Install in countertops at locations of outlets below countertops and as indicated on the drawings.
 - 6.3.4.2. Allow one grommet at groups of outlets or one per single outlet.
 - 6.3.5. Cabinet Locks: Best SL Series Deadbolt
 - 6.3.5.1. Coordinate keying of cabinet locks with Tenant prior installing locks in cabinets.
 - 6.3.6. Drawer Slides: Slide-mounted, positive in-stop, full extension, silenced in and out stops, steel, ball bearing, both front and rear nylon rollers. Provide on all drawers located on the inside of cabinets as listed below:
 - 6.3.6.1. File Drawers and Box Drawers: Accuride C4437 – 175lb heavy-duty full extension file drawer. Anti-rack system on units 36" and wider.
 - 6.3.6.2. Box Drawers (15" and less in width): Accuride C3037 – 100lb capacity full extension.

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- 8.4.2. Set AN – Passage Set (Non-Rated)
- 8.4.2.1. Doors: 300B, 30S, 310B
- 8.4.2.2. Passage style latchset with lever handle: 1-1/2 pair hinges; one pair hinge pin stops; silencers.
- 8.4.3. Set BN – Privacy Set (Non-Rated)
- 8.4.3.1. Doors: 30A, 30B
- 8.4.3.2. Privacy lockset with lever handle: 1-1/2 pair hinges; one pair hinge pin stops; silencers.
- 8.4.4. Set CN – Entry Set (Non-Rated)
- 8.4.4.1. Doors: 300A, 310A
- 8.4.4.2. Entry lockset to match building standards: 1-1/2 pair hinges; one wall stop; silencers

Division 9 - Finishes:

- 9.1. General:**
 - 9.1.1. All room finishes shall have a flame spread rating II, 76-200, except hall and/or corridors shall be class II, 26-75.
- 9.2. Metal Studs and Runners:**
 - 9.2.1. Steelbenders, USG or approved equal.
 - 9.2.2. Studs shall be of the size indicated on the drawings and of gauge recommended by manufacturer. Minimum gauge of metal studs shall be 25.
 - 9.2.3. Stud spacing shall be a maximum of 16" OC, unless noted otherwise on the drawings.
 - 9.2.4. At doorjamb, provide minimum 20 gauge double studs.
- 9.3. Gypsum Board and Accessories:**
 - 9.3.1. Walls: 5/8" tapered edge Fire Code (Type 'X') in compliance with GA-216 and as indicated on the drawings.
 - 9.3.2. Wet Locations / Tile Backer: 5/8" tapered edge Fire Code (Type 'X') in compliance with ASTM C630 and as indicated on the drawings.
 - 9.3.3. Accessories: Provide all necessary accoutrements, i.e. trim beads, control joint beads, etc. in accordance with manufacturers' literature and industry standards.
 - 9.3.4. Sealants and Caulking: Provide required sealants and caulking, including fire safing and fire caulking, in accordance with manufacturers' literature, industry standards, and code requirements.
- 9.4. Acoustical Ceiling:**
 - 9.4.1. Ceiling Grid:
 - 9.4.1.1. Chicago Metallic: 200 snap grid series, 15/16" wide exposed tees, intermediate duty, or equal.
 - 9.4.1.2. Color shall be white.
 - 9.4.1.3. Refer to drawings for size and layout.
 - 9.4.2. Ceiling Tiles:
 - 9.4.2.1. Type I; 2'x2' acoustical regular edge class A model #8223. USG Astro Climate Plus White; Square edge #8221. Color shall be white.
 - 9.4.2.2. Provide 1 box of each file used in the work for tenant's future use.
- 9.5. Floor Coverings:**
 - 9.5.1. General:
 - 9.5.1.1. Install all floor coverings in accordance with manufacturer's recommendations.
 - 9.5.2. Carpet: Refer to finish schedule for types and locations.
 - 9.5.3. VCT: Refer to finish schedule for types and locations.
 - 9.5.4. Vinyl and/or Rubber Base: Refer to finish schedule for types and locations.
 - 9.5.5. Vinyl Reducing Strips: Refer to drawings for locations and finish schedule for manufacturers and colors. No metal strips will be allowed.
 - 9.6. Wall Coverings:**
 - 9.6.1. General:
 - 9.6.1.1. Install all wall coverings in accordance with manufacturer's recommendations.
 - 9.6.1.2. All paint is to be applied using rollers and/or brushes. No air or spray/latex paint to occur on walls.
 - 9.6.2. Paint and Stain: Shall be manufactured by Sherman Williams, Pittsburgh, Glidden or approved equal.
 - 9.6.2.1. Gypsum walls are to receive the following:
 - 9.6.2.1.1. One coat latex primer
 - 9.6.2.1.2. Two coats latex stippled eggshell finish
 - 9.6.2.2. Metal trim is to receive the following:
 - 9.6.2.2.1. One coat enamel undercoat
 - 9.6.2.2.2. Two coats enamel eggshell finish.
 - 9.6.2.3. Wood Doors are to receive the following:
 - 9.6.2.3.1. 2 coats stain, color as approved by Architect/Designer. (Submit samples showing stain color and finish per Paragraph 1.3.5.3.)

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- 15.4.1. Existing forced air units and exhaust fans may be reused by Mechanical Sub-Contractor.
- 15.5. Sound Boots:**
 - 15.5.1. Furnish and install insulated sound boots on all return air grilles.
- 15.6. Plumbing Fixtures:**
 - 15.6.1. General: Refer to drawings for locations and quantities of plumbing fixtures and refer to schedule below for identification of various fixtures.
 - 15.6.2. Type "LI" Wall hung Lavatory:
 - 15.6.2.1. Kohler K-2054 vitreous china with Elkay LK-4415 single lever faucet, offset grid drain with Dearborn Brass semi-cast P-Trap #507, supplies with stops and Zum Manufacturing concealed arm support #Z-1231. Provide Trueborn handi Lav-guard insulation kit #102 white in color with 3-piece interlocking trap assembly and 2-piece interlocking valve assembly (fasteners shall be nylon type supplied with kit).
 - 15.6.3. Type "SI" Sink:
 - 15.6.3.1. Elkay Pacemaker Stratite single compartment 15"x17½" sink #PSR1517 with Elkay faucet LK-230-S-BH-5 with 5" wrist blade handles. Provide #11 Dearborn strainer and Dearborn Brass 1 ½" semi-cast P-Trap 510 and #2720SCW Dearborn supplies with stops.
 - 15.6.4. Type "HWC" Toilet:
 - 15.6.4.1. Kohler K-3427 floor-mounted tank-type, 1.6 gallons per flush toilet with Sloan Flush Mate Valve, elongated 18" high bowl meeting ADA requirements for wheelchair access, with Centioco 500cc white open front less cover and chrome supply with stop.
 - 15.7. Miscellaneous Plumbing:**
 - 15.7.1. General:
 - 15.7.1.1. All plumbing is to be done in accordance with applicable codes and designed by Plumbing Sub-Contractor.
 - 15.7.2. Selt and Waste Piping:
 - 15.7.2.1. Cast iron soil pipe and fittings.
 - 15.7.3. Vent Piping:
 - 15.7.3.1. Below Floor: Cast iron pipe and fittings.
 - 15.7.3.2. Above Floor: 2" and smaller shall be galvanized steel pipe with galvanized malleable iron screwed fitting or same as waste piping.
 - 15.7.3.3. Above Floor: 3" and larger, same as waste piping.
 - 15.7.4. Cast Iron Joints:
 - 15.7.4.1. Caulked with oakum and lead free material, Ty-Seal or No-Hub where allowed by code.
 - 15.7.5. Cleanouts:
 - 15.7.5.1. As required at base of each stack or riser and at each change in direction.
 - 15.7.5.2. All cleanouts to be wall mounted with chrome coverplates unless authorized by Architect/Designer in advance.
 - 15.7.6. Water Piping:
 - 15.7.6.1. Type L hand drawn copper tubing. Sweat joints with lead free solder and securely anchor with adequate provisions for expansion and contraction. Hot and cold supply lines to have air chambers to every fixture to prevent air hammers.
 - 15.7.7. Valves:
 - 15.7.7.1. Valves shall be provided at each fixture and at the water service entering the suite.
 - 15.7.8. Insulation:
 - 15.7.8.1. Owens Corning ½" fiberglass section pipe covering with universal vapor barrier jacket for cold water. Seal all joints on cold water insulation to maintain vapor barrier.
 - 15.7.9. Floor Drain:
 - 15.7.9.1. Jay R Smith #2010-A with Nikolay Type A strainer.

Division 16 - Electrical:

- 16.1. General:**
 - 16.1.1. Coordinate design and installation of this section with Building Management.
 - 16.1.2. Mechanical Sub-Contractor is responsible for any electrical connections required to make his equipment operational, including temperature controls.
 - 16.1.3. Electrical Design and Shop Drawings shall be approved by Building Management prior to start of work.
 - 16.1.4. All outlets near sinks and/or lavatories shall be GFI as required by applicable codes, regardless of indication on drawings.
 - 16.1.5. Electrical Sub-Contractor is responsible for verifying voltages of all existing items scheduled to be re-used as well as verifying available voltage for new items.

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- 1.5.1.2. Do not cut-and-patch work which is exposed on the exterior or in occupied spaces of building, in a manner resulting in reduction of visual qualities or resulting in substantial evidence of cut-and-patch work, both as judged solely by Architect/Designer.
- 1.5.2. Except as specifically noted on drawings, provide materials for cutting and patching which will result in equal-or-better work than work being cut and patched; in terms of performance characteristics and including visual effect where applicable. Use materials identical with original materials where feasible and where recognized that satisfactory results can be produced thereby.
- 1.5.3. Provide adequate temporary shoring and bracing where required to prevent failure. Do not endanger other work.
- 1.5.4. Restore exposed finished of patched areas and, where necessary, extend finish restoration onto retained work adjoining, in a manner that will eliminate evidence of patching.

Division 2 – Site Work:

- 2.1. Site Usage:**
 - 2.1.1. Building Entry shall be the north entry, contingent upon final approval by Building Management.
 - 2.1.2. Dumpster location shall be to the north of the building, adjacent to the existing dumpster surrounds.
 - 2.1.3. Contractor is allowed to use Elevator #3, with the prior approval of Building Management. Contractor will be responsible for protecting the elevator from damage.
- 2.1.4. All loud and/or disruptive construction activities, including core drilling and utility tie-ins, shall occur before 7am and after 8pm.
- 2.1.5. The space directly below the project area is occupied by an Orthopedic practice that closes early on Fridays. Access to this space must be after hours and coordinated in advance with Building Management.
- 2.1.6. Contractor shall be responsible for protection of public ways, drives, landscape, etc. Contractor shall review on-site conditions with Architect/Designer and Building Management prior to beginning work. Architect/Designer or Building Management shall make final determination of any/all corrective measures required upon completion of work. Corrective measures deemed required shall be a prerequisite to final payment.
- 2.2. Selective Demolition:**
 - 2.2.1. Refer to drawings for general scope of demolition.
 - 2.2.2. Contractor shall be responsible for removing any/all existing items which conflicts with the intent of the new construction.
 - 2.2.3. Job Conditions:
 - 2.2.3.1. Neither Tenant nor Architect/Designer assume any responsibility for actual condition(s) of items or structures scheduled to be demolished.
 - 2.2.4. Damage:
 - 2.2.4.1. Contractor shall promptly repair any damage caused by the work to areas shown to remain. This shall be done at Contractor's expense.
 - 2.2.5. Utility Services:
 - 2.2.5.1. All utility shutdowns shall be coordinated with Building Management no less than 48 hours in advance of shutdown. No unauthorized shutdowns are to occur.

Division 3 – Concrete:

- 3.1. Materials:**
 - 3.1.1. All concrete used to patch floor slab(s) shall be 4000psi concrete.

Division 4 – Masonry (Not Used)

Division 5 – Metals (Not Used)

Division 6 – Wood and Plastic:

- 6.1. Casework Construction:**
 - 6.1.1. General:
 - 6.1.1.1. Furnish all labor, materials, and equipment necessary to fabricate and install the casework, tops, and backsplashes as indicated on the drawings.

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- 6.3.7. File Hangers: 1/8" x 1" aluminum bars rabbeted in drawers for use with "Pendaflex" hanging files at all drawers noted to receive file hangers.
- 6.3.7.1. Casework manufacturer to verify that files are deep enough to provide clear glide of hanging files with plastic insert tabs on top. Files are to hang in drawer without dragging on bottom of drawer and without plastic tab markers dragging on top of the drawer.
- 6.3.8. Hinges: Stanley HT1592, Chrome.
 - 6.3.8.1. Hinges shall be heavy duty, five knuckle, 2 ½" institutional type hinge, "insert design", mill ground, hospital tip, tight pin feature with all edges eased and min .088" thick tempered steel. Hinges shall accommodate 13/16" thick laminated door and allow 270-degree swing.
 - 6.3.8.2. Each hinge shall have a minimum of seven screws (#8, 5/6" FHMS) to assure positive door action and alignment.
 - 6.3.8.3. One pair of hinges to 48" door over height.
 - 6.3.8.4. One and a half pair to doors over 48" in height.

Division 7 – Thermal and Moisture Protection:

- 7.1. Vapor Barrier:**
 - 7.1.1. General: In the event that selective demolition includes any portion of an exterior wall, Contractor shall provide and install a new 8 mil poly vapor barrier along the inside face of the exterior wall studs at demolished wall areas. Said vapor barrier shall be taped to the existing one to provide a continuous barrier.

Division 8 – Doors and Windows:

- 8.1. Steel Door Frames:**
 - 8.1.1. Steelcraft DW16-4 or approved equal in sizes indicated on the drawings.
 - 8.1.2. Install in accordance with manufacturer's recommendations and requirements.
- 8.2. Wood Doors:**
 - 8.2.1. Weyerhaeuser or Marshfield 1 ¾" Flush Solid Core, premium grade plain slices white maple veneer with matching stiles in sizes indicated on the drawings.
 - 8.2.2. Refer to finish schedule for stain finish of wood doors. Corridor faces of corridor doors to be espresso 42-95 to match building standards.
- 8.3. Hardware:**
 - 8.3.1. Refer to Section 8.4 for Hardware Schedule.
 - 8.3.2. Lock/Latch sets: Schlage, Lever style D series with #626/26D finish.
 - 8.3.2.1. Keying:
 - 8.3.2.1.1. Key interior suite doors per Tenant's requirements. Key exterior entrance doors per Building Managements requirements. Contact Greg's Lock and Key for building standard information.
 - 8.3.2.1.2. Provide 2 keys per lock, minimum.
 - 8.3.3. Hinges: McKinney T4B3786/T4B95 (swing clear) or Stanley FBB199 4"x¼", .190 gauge.
 - 8.3.3.1. Provide 4 hinges on door 4'-0" and wider.
 - 8.3.4. Pivots: Rixon #998
 - 8.3.5. Wall Door Stops: Rockwood 409
 - 8.3.6. Door Closers: LCN 1460 and 1460DO and 4110 LCN Delayed Action.
 - 8.3.7. Hinge Pin Stops: Ives #69
 - 8.3.8. Pocket Doors: Hager Pocket Door Kit #9630 with combo pull and privacy lock.
 - 8.3.9. Silencers: Ives #20 or Trimco 1229A
 - 8.3.10. Automatic Flush Bolt: Rockwood #557-26D
 - 8.3.11. Automatic Hold Open: Rixon Low Profile #990.
 - 8.3.12. Panic Level Device: Von Duprin 9927L-F.
 - 8.3.13. Kickplate: .020 thick stainless steel, 24" high x width of door.
 - 8.3.14. Sash: National Guard 5050.
- 8.4. Hardware Schedule:**
 - 8.4.1. General:
 - 8.4.1.1. Contractor to verify function of each door and provide any other necessary hardware required for proper operation and code compliance.
 - 8.4.1.2. Provide an allowance of \$500.00 for any miscellaneous hardware required for door operation/code compliance not listed in the schedule below.

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- 9.6.2.3.1. 2 coats stain, color as approved by Architect/Designer. (Submit samples showing stain color and finish per Paragraph 1.3.5.3.)

Division 10 - Specialties:

- 10.1. Miscellaneous Construction Specialties:**
 - 10.1.1. General:
 - 10.1.1.1. Refer to drawings for quantities and locations of various specialties.
 - 10.1.1.2. Provide an allowance of \$750.00 for the purchase of miscellaneous specialties and signage throughout the suite.
 - 10.1.2. Sliding Window Track: K&V Model #P1092AN04.
- 10.2. Toilet Accessories:**
 - 10.2.1. General:
 - 10.2.1.1. Refer to drawings for quantities and locations of various accessories.
 - 10.2.2. Paper Towel Dispensers: Bobrick B-2621. No substitutions.
 - 10.2.3. Toilet Paper Dispensers: Bobrick B-2721. No substitutions.
 - 10.2.4. Soap Dispensers: Bobrick B-2112. No substitutions.
 - 10.2.5. Mirrors: Bobrick B-2908 24"x36" tempered glass mirror with satin finished stainless steel angled frame.
 - 10.2.6. Grab Bars: Bobrick B-6206 Series satin finish stainless steel grab bars secured with concealed mounts. Provide and install Bobrick Series 2562 or 2572 anchor systems for support and safety.

Division 11 - Equipment (Not Used)

Division 12 – Furnishings:

- 12.1. Window Blinds:**
 - 12.1.1. Materials: Blinds shall be Horizontal Ball Gray Down #405.
 - 12.1.1.1. Refer to drawings for location of all window blinds.

Division 13 – Special Construction: (Not Used)

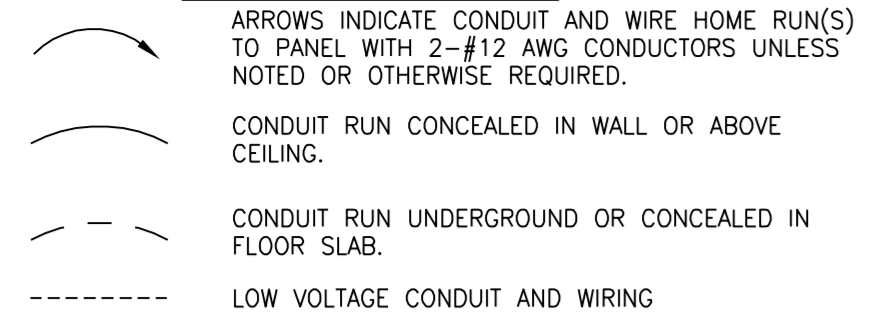
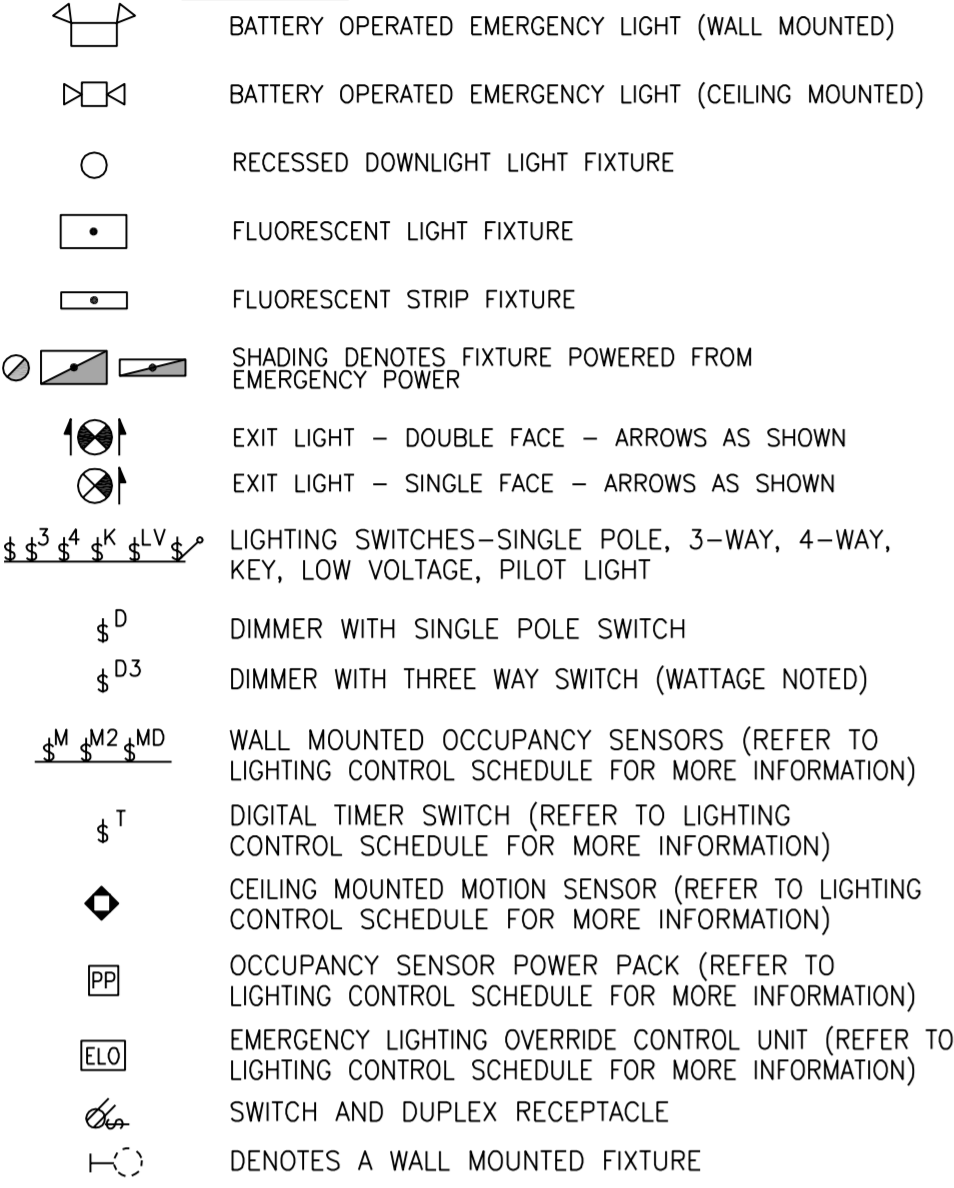
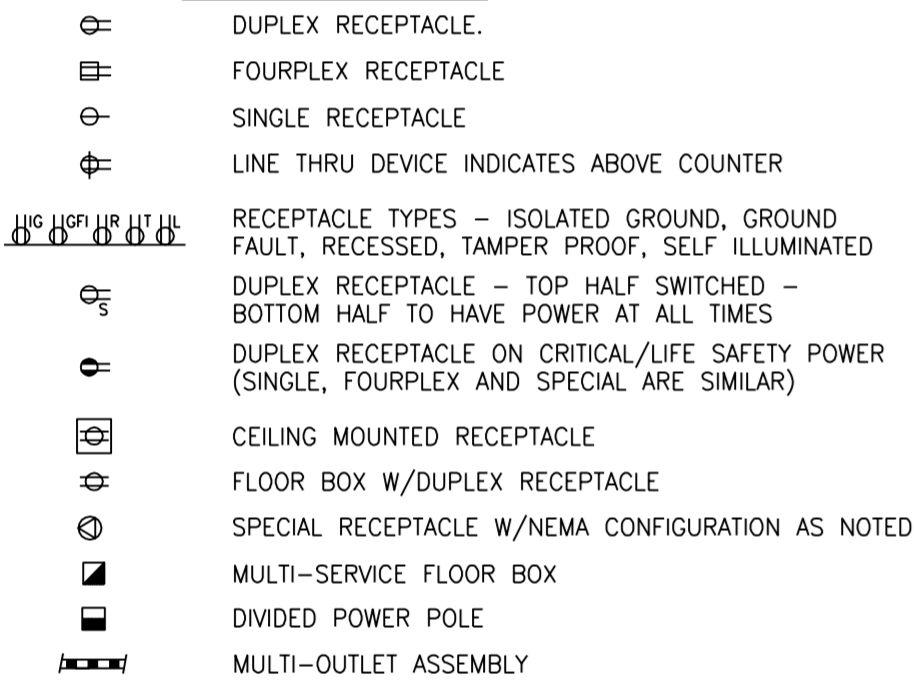
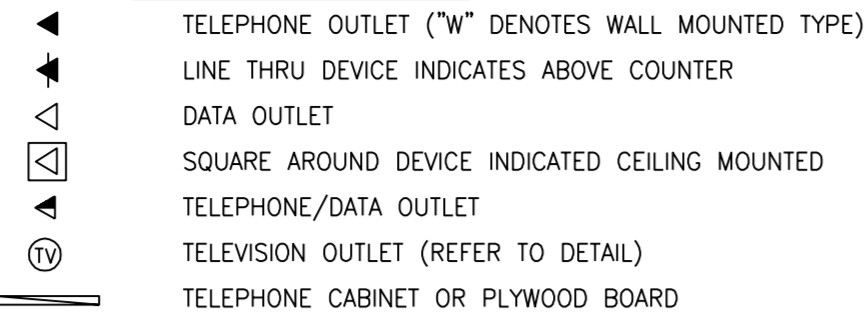
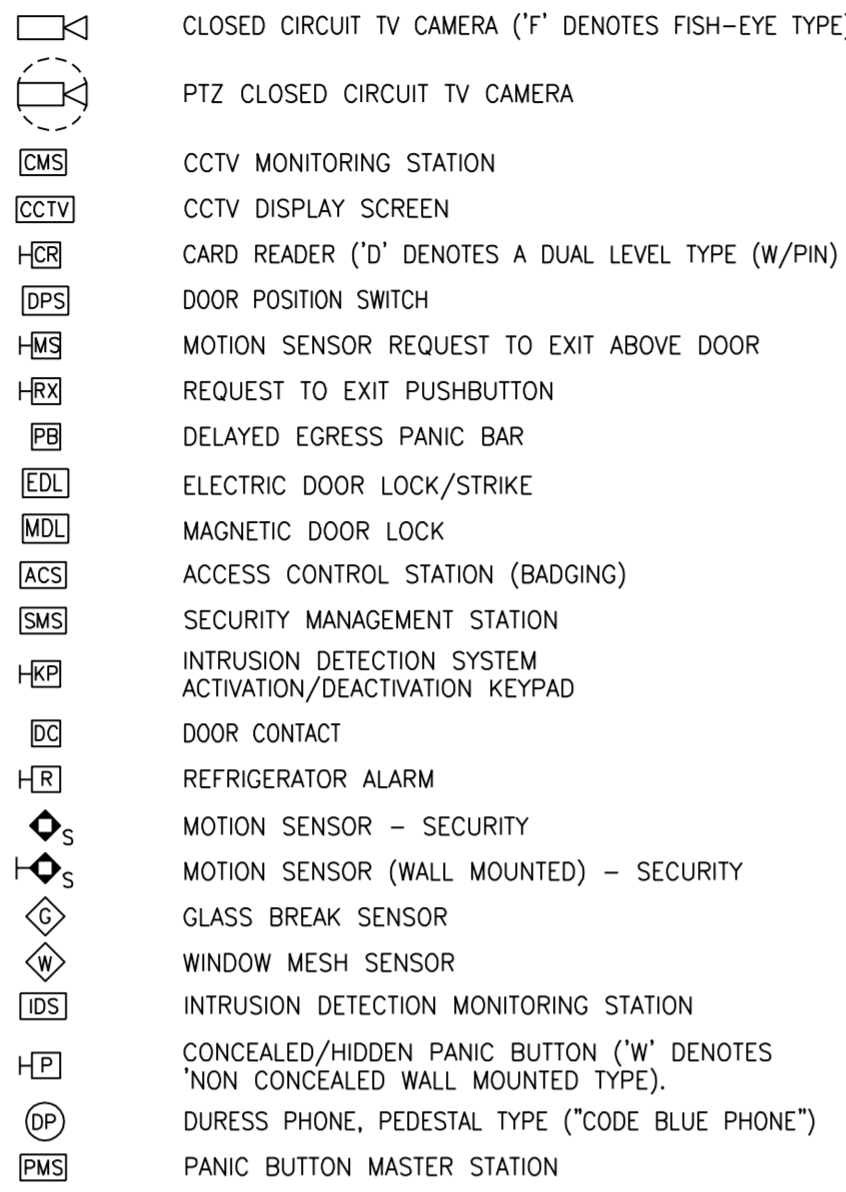
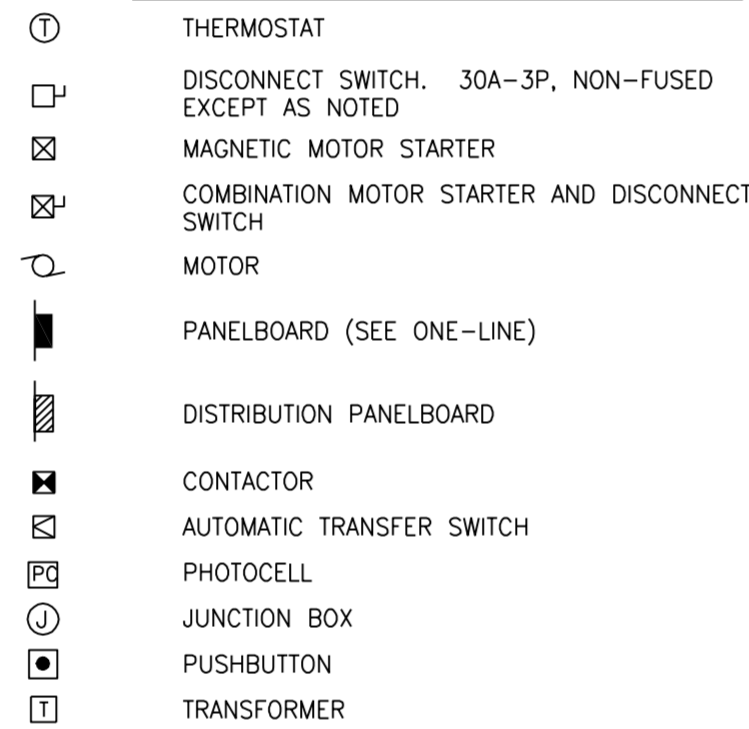
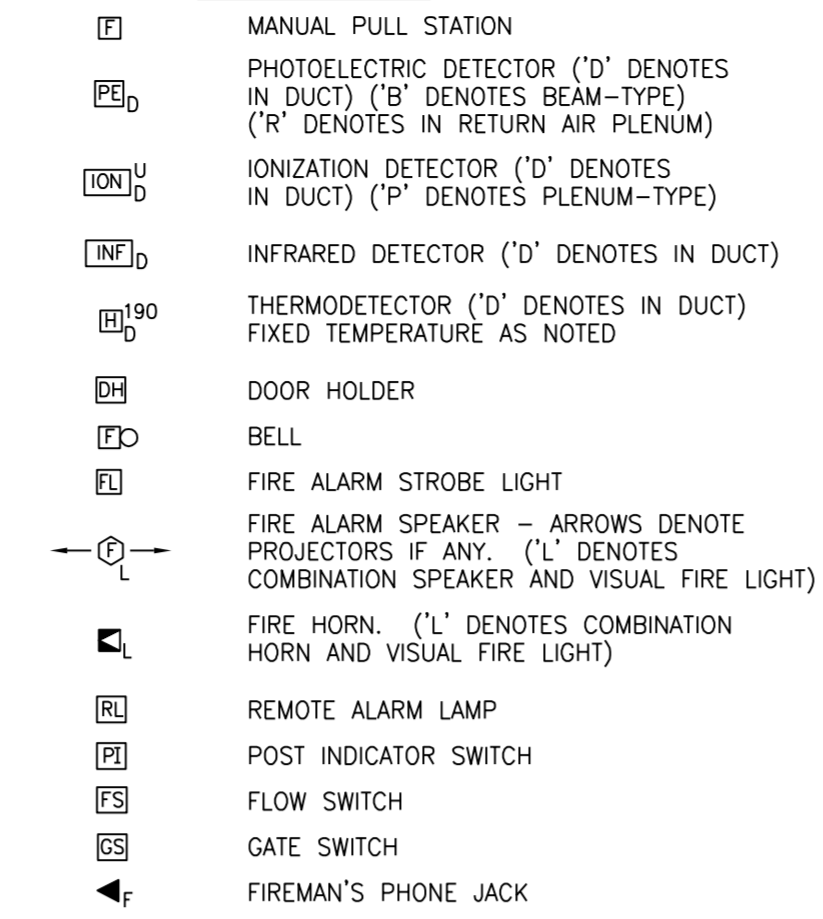
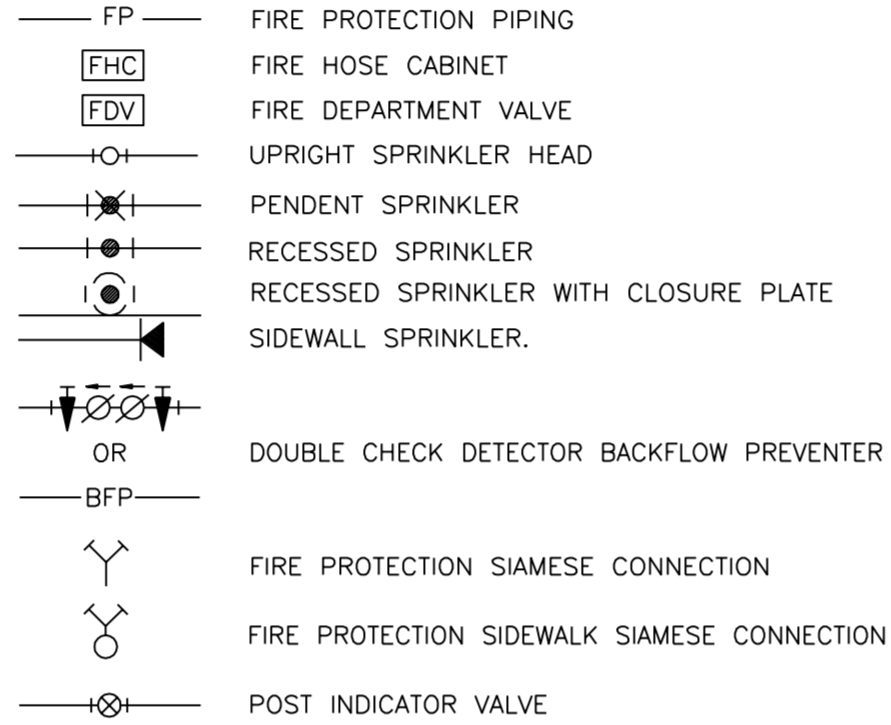
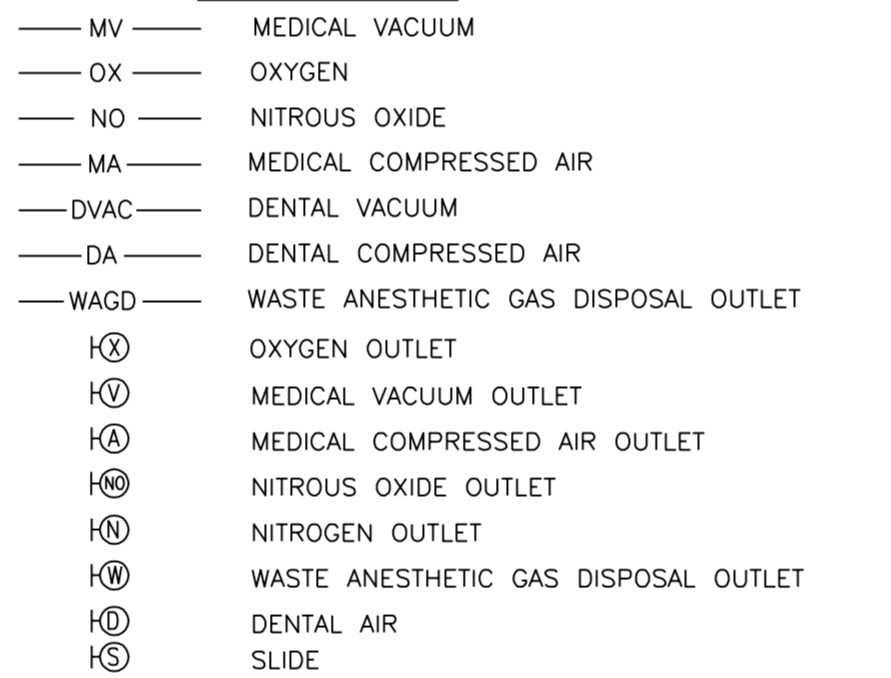
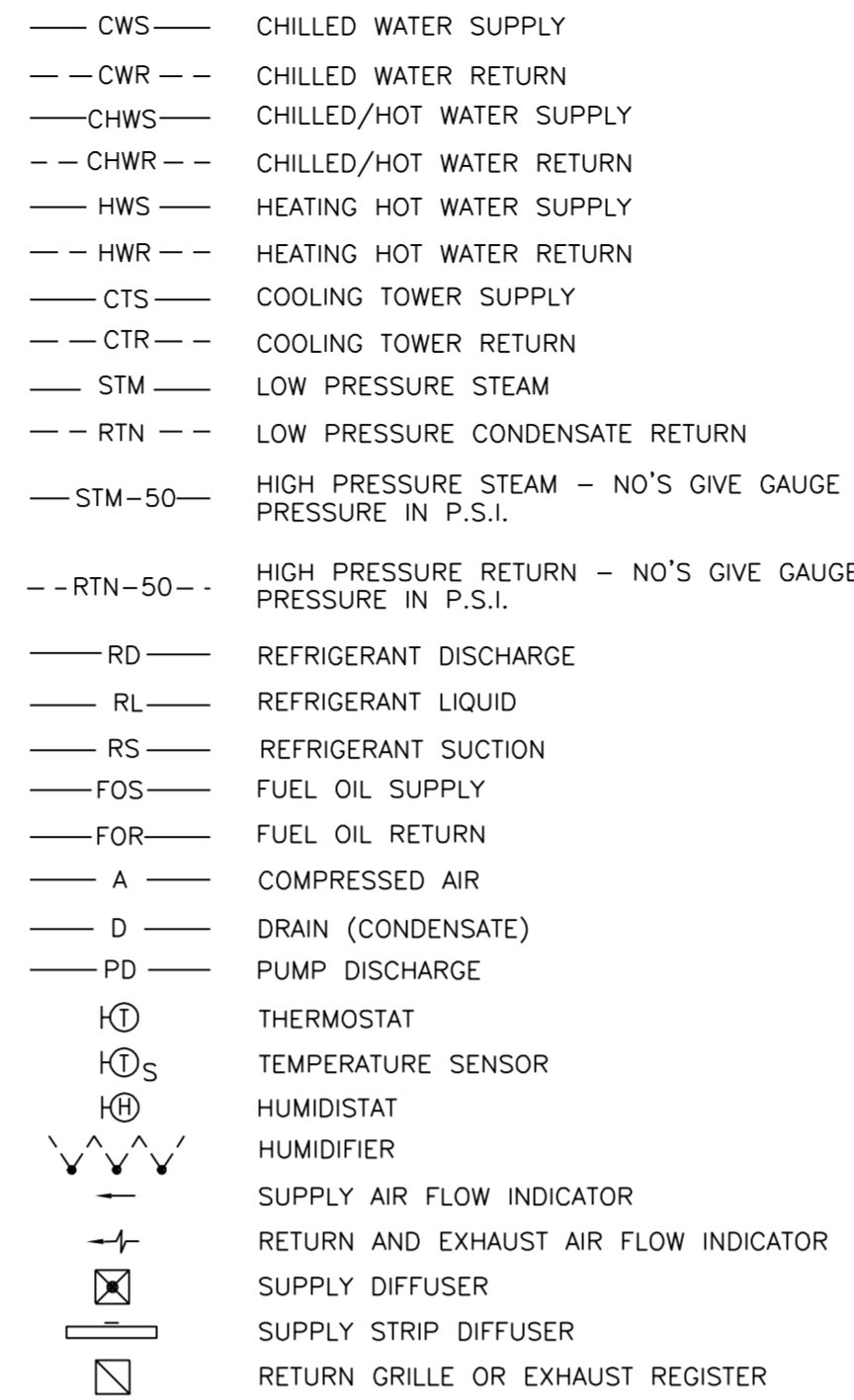
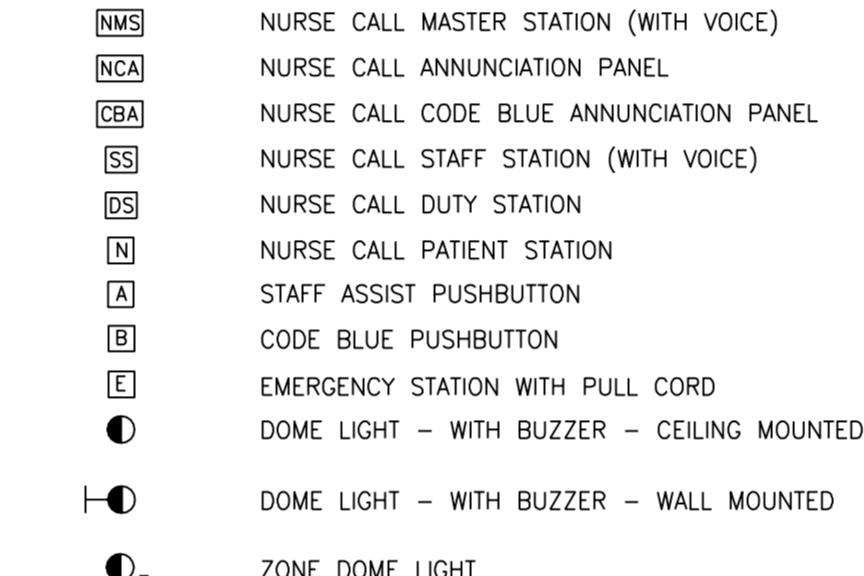
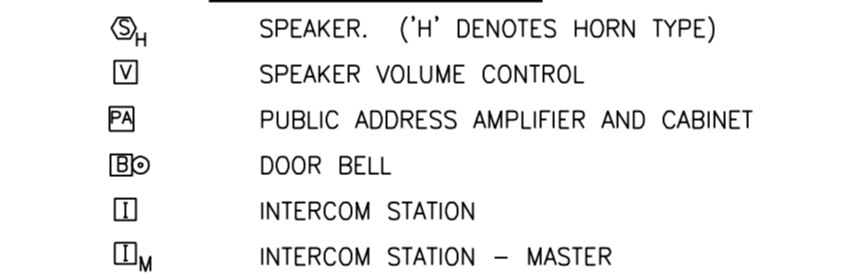
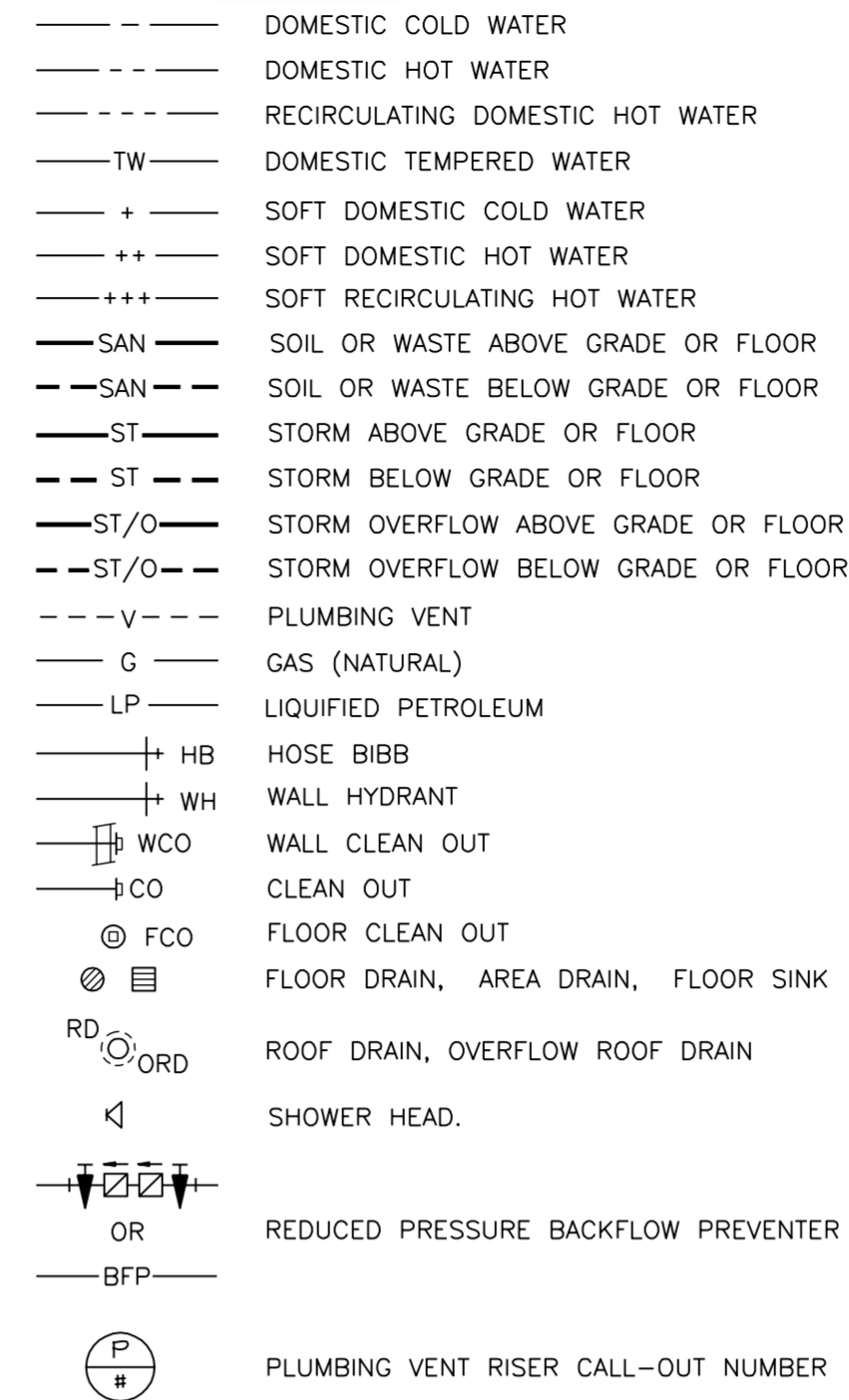
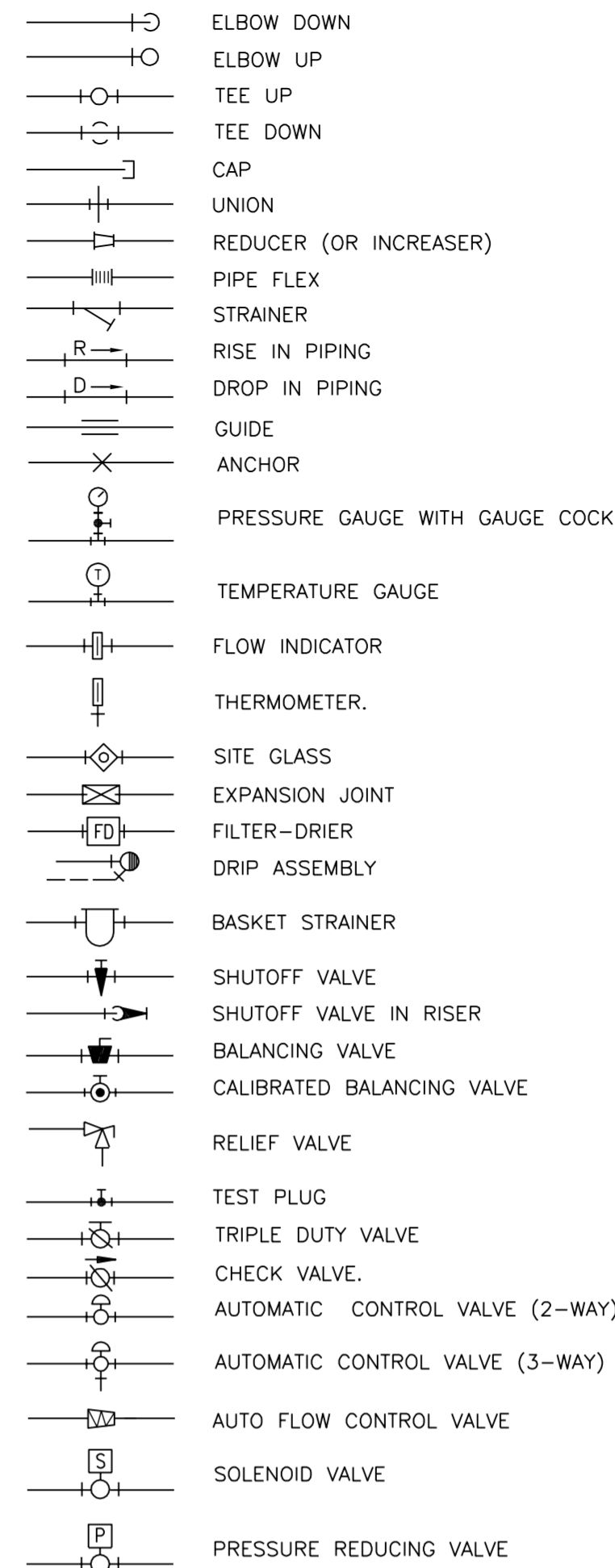
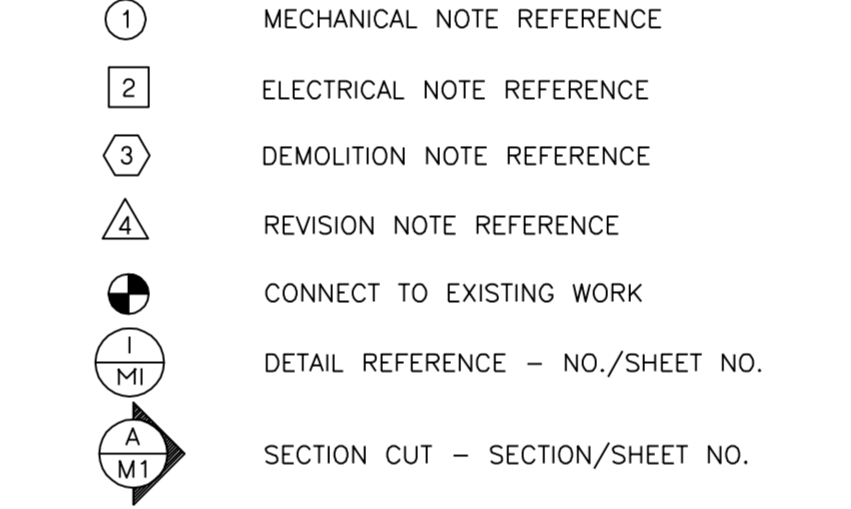
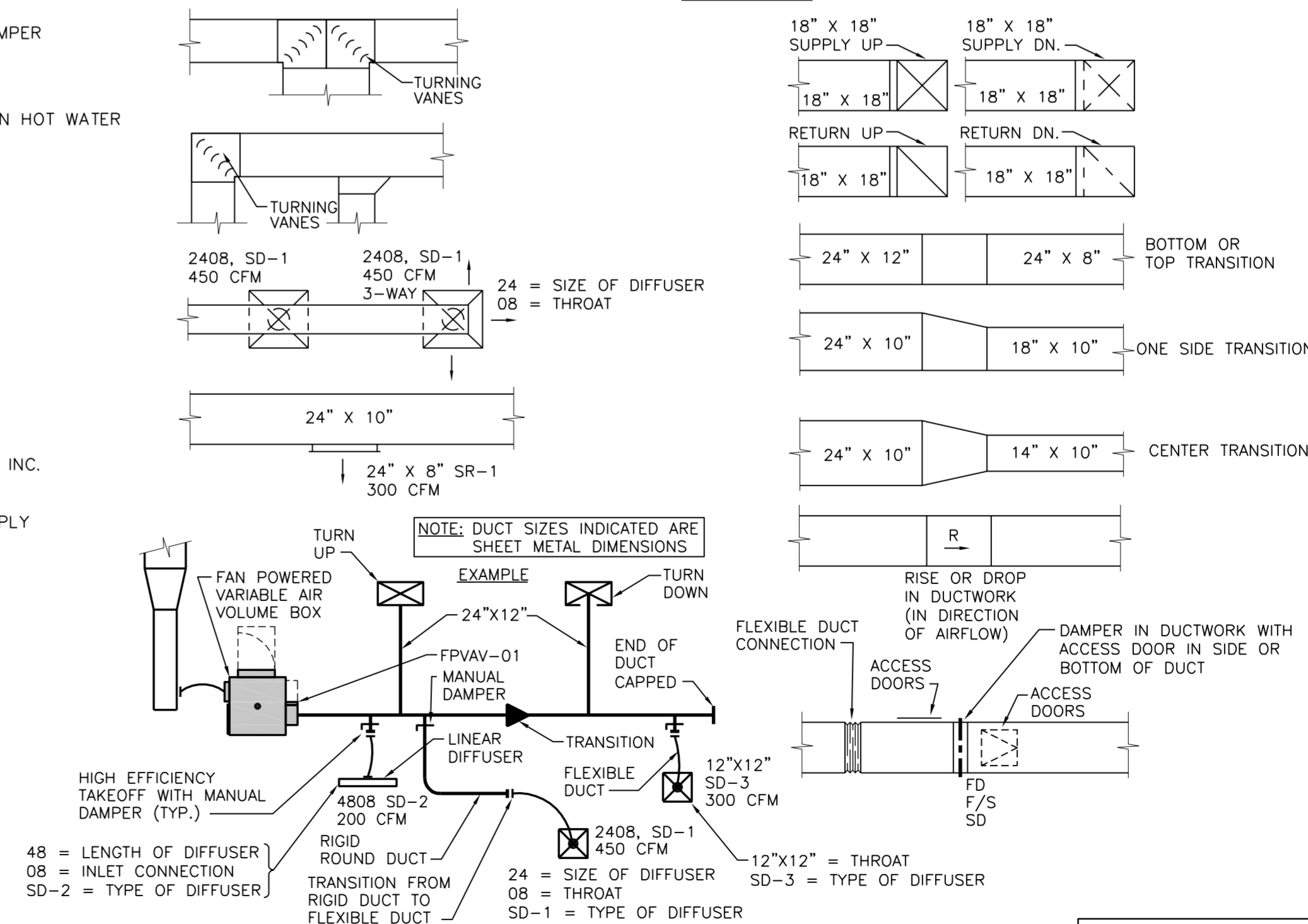
Division 14 – Conveying Systems: (Not Used)

Division 15 – Mechanical:

- 15.1. General:**
 - 15.1.1. Coordinate design and installation of this section with Building Management.
 - 15.1.2. Sub-Meters are required for each suite per Building Management. Each sub-meter needs to be tied into the EMS system by Thermal Components (816-607-6200). Coordinate this standard requirement with Building Management.
 - 15.1.3. PI Group (P13.529.5200) must provide an air balance test upon completion of construction.
 - 15.1.4. Mechanical Sub-Contractor is responsible for any electrical connections required to make his equipment operational, including temperature controls.
 - 15.1.5. Mechanical Design and Shop Drawings shall be approved by Building Management prior to start of work. Contractor shall schedule a review of the system design through Architect/Designer.
- 15.2. Fire Protection:**
 - 15.2.1. All penetrations through a fire rated assembly are to be fire stopped and/or fire damped per applicable codes and UL listed systems. The integrity of new and existing rated assemblies is to be maintained at all times during the performance of the work.
 - 15.2.2. Consolidated Fire Protection is the approved fire sprinkler system vendor.
 - 15.2.3. Consolidated Fire Protection is the approved vendor for the fire alarm system.
- 15.3. Zones:**
 - 15.3.1. Each room shall have at least 1 supply diffuser and 1 return air grille. All existing zones to be reused and identified in the shop drawing submittal. Zones shall be reviewed and approved by Tenant and Building Management prior to the start of the work.
 - 15.3.2. All thermostat locations to be reviewed and approved by the Tenant prior to starting the work.
- 15.4. Existing System Re-Use:**

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- 16.2. Fire Protection**
 - 16.2.1. All penetrations through a fire rated assembly are to be fire stopped per applicable codes and UL listed systems. The integrity of new and existing rated assemblies is to be maintained at all times during the performance of the work.
- 16.3. Light Fixtures:**
 - 16.3.1. Electrical Sub-Contractor shall verify that lighting, when installed, meets minimum code required lighting levels.
 - 16.3.2. 2x4 fluorescent light fixture: Williams 50G-S24-332-S12125-EB3-UNV or equal.
 - 16.3.2.1. Fixture shall have prismatic lens, electronic ballast, T8 lamps, be energy efficient and shall be white.
 - 16.3.3. Non-Dimmable Fluorescent Recessed down light: Williams PV60-142T-CS-EB1-UNV or equal.
 - 16.3.4. Exit Light: White Lithonia LQMSW2R with battery backup.
 - 16.3.5. Emergency Light: White Dual-Life EZ-2 with battery backup.
 - 16.3.6. Under Cabinet Light: Alcco "Little Inch" HP100/200.
 - 16.3.7. Fire Alarm Horn/Strobe: General Signals Edwards 2400 Series.
 - 16.3.7.1. Verify horn/strobes will coordinate with existing building fire alarm system and mount to meet ADA requirements.
- 16.4. Receptacles, Switches, and Coverplates:**
 - 16.4.1. General:
 - 16.4.1.1. Any switch or outlet not specified shall be Pass and Seymour "Spec Grade".
 - 16.4.2. Color of receptacles, switches and coverplates to be white.
 - 16.4.3. Receptacles: Pass and Seymour #GS-62 safety type and/or Pass and Seymour #1591-F-1 ground fault interrupt type.
 - 16.4.4. Switches: Pass and Seymour #15AC-1 Single Pole and/or Pass and Seymour #15AC3-1 Three Way.
- 16.5. Miscellaneous Electrical:**
 - 16.5.1. All electrical conductors are to be installed in metal raceways/conduits unless otherwise noted. Raceways and conduits shall be in accordance to applicable codes.
 - 16.5.2. Conductors shall be soft drawn copper with conductivity of 98% of that of pure copper. Wire and cable for feeders, sub-feeders, motor circuits and high ambient location shall be type THW. All other branch circuit wiring shall be THW or THHN.
 - 16.5.3. Ground all electrical apparatus in accordance with applicable codes. Use solderless pressure type conductors and provide bonding jumper inside all flexible conduit.
- 16.6. Panelboards and Circuit Breakers:**
 - 16.6.1. General:
 - 16.6.1.1. Upon completion of the project, Electrical Sub-Contractor shall be required to provide typewritten schedule of all circuits in index cardholder of all panelboards used for the work.
 - 16.6.2. Existing Panelboards:
 - 16.6.2.1. Electrical Sub-Contractor is required to use any existing panelboards located in the suite.
 - 16.6.3. New Panelboards:
 - 16.6.3.1. New panelboards shall be General Electric, Square D, or I.T.E.
 - 16.6.3.2. New panelboards shall be located and installed by Electrical Sub-Contractor in quantity and type as required for the load as designed. Location shall be in accordance with applicable codes and subject to approval by Architect/Designer.
 - 16.6.3.3. New panelboards shall be recessed-type.
 - 16.6.4. Circuit Breakers:
 - 16.6.4.1. All breakers to have positive 'trip' indicators.
 - 16.6.4.2. All breakers shall be 'switch duty rated'.
- 16.7. Telephone and Data:**
 - 16.7.1. At all locations indicated on the drawings to receive a 'phone/data outlet' Contractor to furnish and install j-boxes with blank coverplates and ¾" rigid conduit extending to above the ceiling with a 90-degree bend. Said conduit shall contain a 'pull string' for Tenant's vendor's use.

CONDUIT AND WIRE**LIGHTING****WIRING DEVICES****COMMUNICATIONS****SECURITY****POWER DEVICE AND CONTROLS****FIRE ALARM****FIRE PROTECTION****MEDICAL GAS****HVAC****HOSPITAL****PUBLIC ADDRESS****PLUMBING****PIPING****GENERAL****DUCTWORK**

A	AMPS, AIR (COMPRESSED)	DX	DIRECT EXPANSION	HTR	HEATER	MUAF	MAKE UP AIR FAN	SD	SUPPLY DIFFUSER, SMOKE DAMPER
A/C	AIR CONDITIONING	EAT	ENTERING AIR TEMPERATURE	HVU	HEATING AND VENTILATING UNIT	MV	MIXING VALVE	SDCW	SOFT DOMESTIC COLD WATER
AD	AREA DRAIN, ACCESS DOOR	EC	ELECTRICAL CONTRACTOR	HW	DOMESTIC HOT WATER	N	NITROGEN	SDHW	SOFT DOMESTIC HOT WATER
AFC	ABOVE FINISH CEILING	EC	EMPTY CONDUIT	HWR	HOT WATER RETURN	N/A	NOT APPLICABLE	SDRHW	SOFT DOMESTIC RECIRCULATION HOT WATER
AFG	ABOVE FINISH GRADE	EF	EXHAUST FAN	HWS	HOT WATER SUPPLY	N/C	NORMALLY CLOSED	SF	SQUARE FEET
AHU	AIR HANDLING UNIT	EM	INDICATES EMERGENCY CIRCUIT	IE	INVERT ELEVATION	N/O	NORMALLY OPEN	SP	STATIC PRESSURE
BD	BACKDRAFT DAMPER, BLOWDOWN	EPO	EMERGENCY POWER OFF	IG	ISOLATED GROUND	NF	INDICATES NON-FUSED DEVICE	SR	SUPPLY REGISTER
BFP	BACKFLOW PREVENTER	ER	EXHAUST REGISTER	KCMIL	1000 CIRCULAR MILS	NIC	NOT IN CONTRACT	ST	STORM
BKR	BREAKER	ETR	EXISTING TO REMAIN	KV	KILOVOLT	NL	NIGHT LIGHT	ST/O	STORM OVERFLOW
BOD	BOTTOM OF DUCT	EWB	ENTERING WET BULB	KVA	KILOVOLT AMPS	NO	NITROUS OXIDE	STM	LOW PRESSURE STEAM
BOP	BOTTOM OF PIPE	EWC	ELECTRIC WATER COOLER	KW	KILOWATT	OA	OUTSIDE AIR	SWBD	SWITCHBOARD
BOS	BOTTOM OF STRUCTURE	EXH	EXHAUST	KWH	KILOWATT HOUR	ORD	OVERFLOW ROOF DRAIN	TSTAT	THERMOSTAT
BTH	BRITISH THERMAL UNIT	F/S	COMBINATION FIRE AND SMOKE DAMPER	LAT	LEAVING AIR TEMPERATURE	OX	OXYGEN	TW	TEMPERED WATER
C	CONDUIT	FACP	FIRE ALARM CONTROL PANEL	LDB	LEAVING DRY BULB	PD	PUMP DISCHARGE	UFC	UNIT FAN CABINET
CATV	CABLE TELEVISION SYSTEM	FCO	FLOOR CLEANOUT	LP	LIQUIFIED PETROLEUM	PH	PHASE	UH	UNIT HEATER
CCTV	CLOSED CIRCUIT TELEVISION	FCU	FAN COIL UNIT	LRA	LOCKED ROTOR AMPS	PIV	POST INDICATOR VALVE	UL	UNDERWRITERS LABORATORIES INC. UNLESS NOTED OTHERWISE
CFM	CUBIC FEET PER MINUTE	FD	FIRE DAMPER, FLOOR DRAIN	LV	LOW VOLTAGE	PNL	PANEL	UNO	UNLESS NOTED OTHERWISE
CHWR	CHILLED/HOT WATER RETURN	FLA	FULL LOAD AMPS	LWB	LEAVING WET BULB	PRV	PRESSURE REDUCING VALVE	UPS	UNINTERRUPTIBLE POWER SUPPLY
CHWS	CHILLED/HOT WATER SUPPLY	FLR	FLOOR	LWT	LEAVING WATER TEMPERATURE	QTY	QUANTITY	V	VENT PIPE
CKT	CIRCUIT	FOR	FUEL OIL RETURN	MA	MEDICAL AIR	RD	REFRIGERANT DISCHARGE, ROOF DRAIN	VAC	MEDICAL VACUUM
CO	CLEANOUT	FOS	FUEL OIL SUPPLY	MBH	1000 BTU PER HOUR	REV	REVISION	VAV	VARIABLE AIR VOLUME
CTR	COOLING TOWER RETURN	FP	FIRE PROTECTION	MC	MECHANICAL CONTRACTOR	RG	RETURN GRILLE	VD	VOLUME DAMPER
CTS	COOLING TOWER SUPPLY	FS	FLOOR SINK	MCA	MINIMUM CIRCUIT AMPACITY	RH	RELATIVE HUMIDITY	VTR	VENT THROUGH ROOF
CU	COPPER, CONDENSING UNIT	G	GAS (NATURAL)	MCC	MOTOR CONTROL CENTER	RHW	DOMESTIC RECIRCULATION HOT WATER	W	WIRE
CUH	CABINET UNIT HEATER	GCO	GRADE CLEANOUT	MCD	MOTORIZED DAMPER	RL	REFRIGERANT LIQUID	W/	WITH
CW	DOMESTIC COLD WATER	GFI	GROUND FAULT CIRCUIT INTERRUPTER	MDP	MAIN DISTRIBUTION PANEL	RLA	RUNNING LOAD AMPS	W/O	WITHOUT
CWR	CHILLED WATER RETURN	GND	GROUND	MFR	MANUFACTURER	RPM	REVOLUTIONS PER MINUTE	WB	WET BULB
CWS	CHILLED WATER SUPPLY	GPM	GALLONS PER MINUTE	MH	MANHOLE	RS	REFRIGERANT SUCTION	WCO	WALL CLEANOUT
DDC	DIRECT DIGITAL CONTROL	HO	HOSE BIBB	MLO	MAIN LUGS ONLY	RTN	LOW PRESSURE CONDENSATE RETURN	WH	WALL HYDRANT
DD	DECK DRAIN	HOA	HAND OFF AUTOMATIC	MTD	MOUNTED	RTU	ROOF TOP UNIT	WP	WEATHERPROOF
DN	DOWN	HTG	HEATING	MU	MAKE UP	SA	SUPPLY AIR	XFMR	TRANSFORMER
DPR	DAMPER					SAN	SANITARY	XP	EXPLOSION PROOF

MECHANICAL AND ELECTRICAL SYMBOLS AND ABBREVIATIONS

SOME SYMBOLS AND ABBREVIATIONS ON THIS LEGEND MAY NOT BE USED. REFER TO FLOOR PLANS FOR ALL SYMBOLS AND ABBREVIATIONS.



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Project Title:
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19600 East 39th Street, Suite 320, Independence, Missouri 64057

Philip R. Placek, Engineer
EN 027287

Issue Date: 06.21.2016
Revision No 1:
Revision No 2:
Revision No 3:
Revision No 4:

Project Number: 16030.01

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ME100
MEP LEGEND

PROJECT NAME: Centerpoint Med Center Suite 320 Timeshare
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LAST CORRECTION BY: Tuesday, June 14, 2016 2:41:41 PM
PLOTTER BY: Charley Bosty
DATE: Tuesday, June 21, 2016 4:03:38 PM



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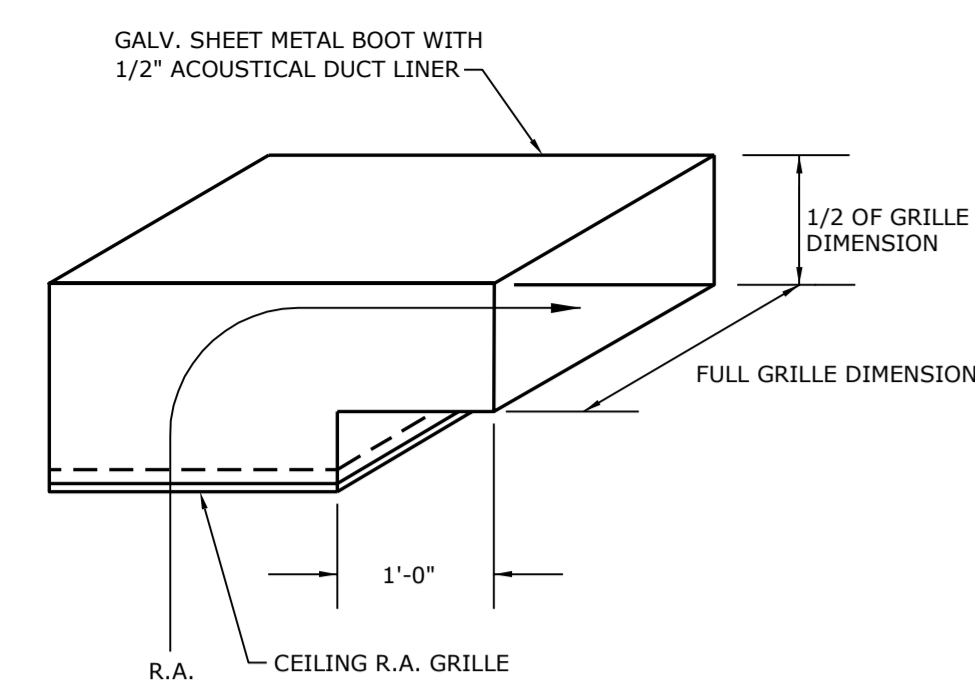
Project Team:
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PLUMBING FIXTURE SCHEDULE

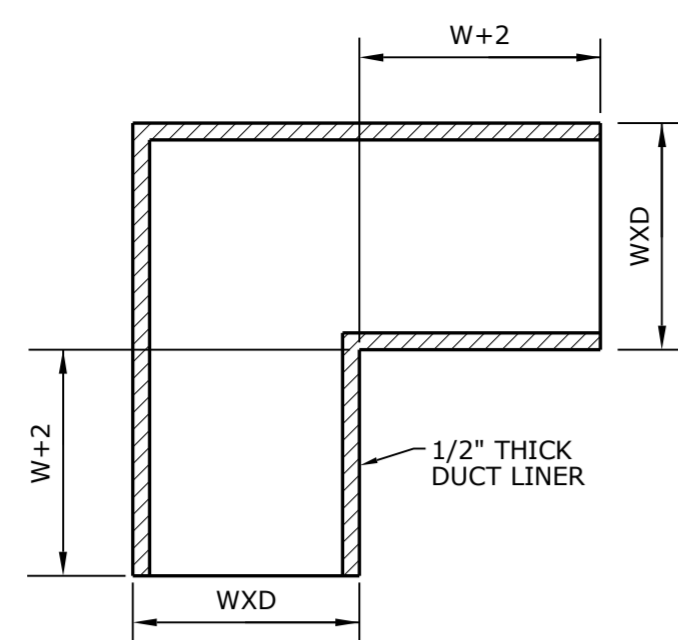
MARK	MANUFACTURER/ MODEL	DESCRIPTION	MANUFACTURER/ MODEL	FITTINGS		PIPING CONNECTIONS			
				DESCRIPTION	NOTES	CW	HW	SAN	VENT
WC-1	SLOAN ST-2009	ADA COMPLIANT WATER CLOSET, WHITE VITREOUS CHINA, ELONGATED RIM, FLOOR MOUNTED, TOP SPUD, WITH OPEN FRONT SEAT.	SLOAN 8113	WATER CLOSET FLUSH VALVE, SENSOR OPERATED, BATTERY POWERED, ADJUSTABLE TAILPIECE, BRASS BODY, POLISHED CHROME FINISH, 1.6 GALLON PER FLUSH.	3	1-1/4"	-	4"	2"
L-1	SLOAN SS-3103	LAVATORY, WALL MOUNTED, ADA COMPLIANT, 20x18 DIMENSIONS, WHITE VITREOUS CHINA, SINGLE HOLE, FRONT OVERFLOW, WITH MOUNTING HARDWARE AND CARRIER TO SUIT APPLICATION.	SLOAN EBF615	LAVATORY FAUCET, SENSOR OPERATED, BATTERY POWERED, CHROME PLATED BRASS BODY, 0.5 GPM MAX, WITH BELOW DECK THERMOSTATIC MIXING VALVE.	1,3,4	1/2"	1/2"	1-1/2"	1"
L-1 ALT	--	LAVATORY/CABINET FIXTURE, BASIN INTEGRAL TO COUNTERTOP, SELECTED BY ARCHITECT/OOWNER.	SLOAN EBF615	LAVATORY FAUCET, SENSOR OPERATED, BATTERY POWERED, CHROME PLATED BRASS BODY, 0.5 GPM MAX, WITH BELOW DECK THERMOSTATIC MIXING VALVE.	1,3,4	1/2"	1/2"	1-1/2"	1"
S-1	ELKAY LR1517	SINGLE BOWL SINK, 18 GAUGE STAINLESS STEEL, FULLY SPRAYED FOR SOUND, 12x12x7.5 BOWL DIMENSIONS, CENTER DRAIN.	CHICAGO FAUCETS 895	SINK FAUCET, 4" CENTERS, 5-1/4" GOOSENECK SPOUT, RIGID/SWING, BRASS BODY, POLISHED CHROME FINISH, WRISTBLADE HANDLES, 2.2 GPM MAX.	2,4	1/2"	1/2"	2"	1-1/2"

NOTES:

1. PROVIDE CHROME PLATED BRASS TAILPIECE AND GRID DRAIN.
2. PROVIDE CHROME PLATED BRASS P-TRAP.
3. PROVIDE LOOSE KEY STOPS AND FLEXIBLE RISERS.
4. INSULATE EXPOSED TAILPIECE, P-TRAP, AND WATER RISERS. COVER TAILPIECE, P-TRAP, AND ANY EXPOSED WASTE AND VENT PIPING WITH CHROME COVER. REFER TO SPECIFICATIONS FOR INSULATION METHODS.



RETURN AIR BOOT DETAIL
NO SCALE



AIR TRANSFER BOOT DETAIL
NOT TO SCALE

PIPE INSULATION SCHEDULE - PLUMBING

SERVICE	PIPE SIZE	INSULATION
DOMESTIC COLD WATER	1/2" - 2"	1/2" FIBERGLASS, ASJ
	2-1/2" AND LARGER	1" FIBERGLASS, ASJ
DOMESTIC HOT WATER	ALL	1" FIBERGLASS, ASJ, (OR 1" FLEXIBLE CLOSED CELL ELASTOMERIC)
EXPOSED FIXTURE WASTETRAPS AND DOMESTIC HOT WATER AT HANDICAPPED ACCESSIBLE SINKS AND LAVATORIES	ALL	TRUBRO LAV AGUARD MOLDED PROTECTIVE PIPE COVER OVER 1/2" FIBERGLASS INSULATION

GRILLE, REGISTER & DIFFUSER SCHEDULE

PLAN MARK	MANUFACTURER	SERVICE	MOUNT TYPE	VOLUME DAMPER	MATERIAL	COLOR	REMARKS
SD-1	TITUS OMNI	SUPPLY	LAY-IN	YES	STEEL	WHITE	---
RG-1	TITUS 355RL	RETURN	LAY-IN	NO	STEEL	WHITE	NOTE 1

NOTE 1: PROVIDE CONCEALED FASTENING WITHOUT EXPOSED SCREWS.

WATER HEATER - ELECTRIC

DESIGNATION	WH-1
MANUFACTURER	AO SMITH
MODEL	EJCS-20
CAPACITY (GALLONS)	19
RECOVERY @ 90°F RISE (GPH)	11
OUTLET TEMP. (°F)	120
ELEMENTS (NO.)	1
TOTAL INPUT (KW)	2500
VOLTS/PHASE	120/1
PANEL & CIRCUIT	
WIRE & CONDUIT	
OVERCURRENT DEVICE	25A-1P CB
DISCONNECT	30A NF
REFERENCE DRAWING/DETAIL	M101
REMARKS	1

NOTES:

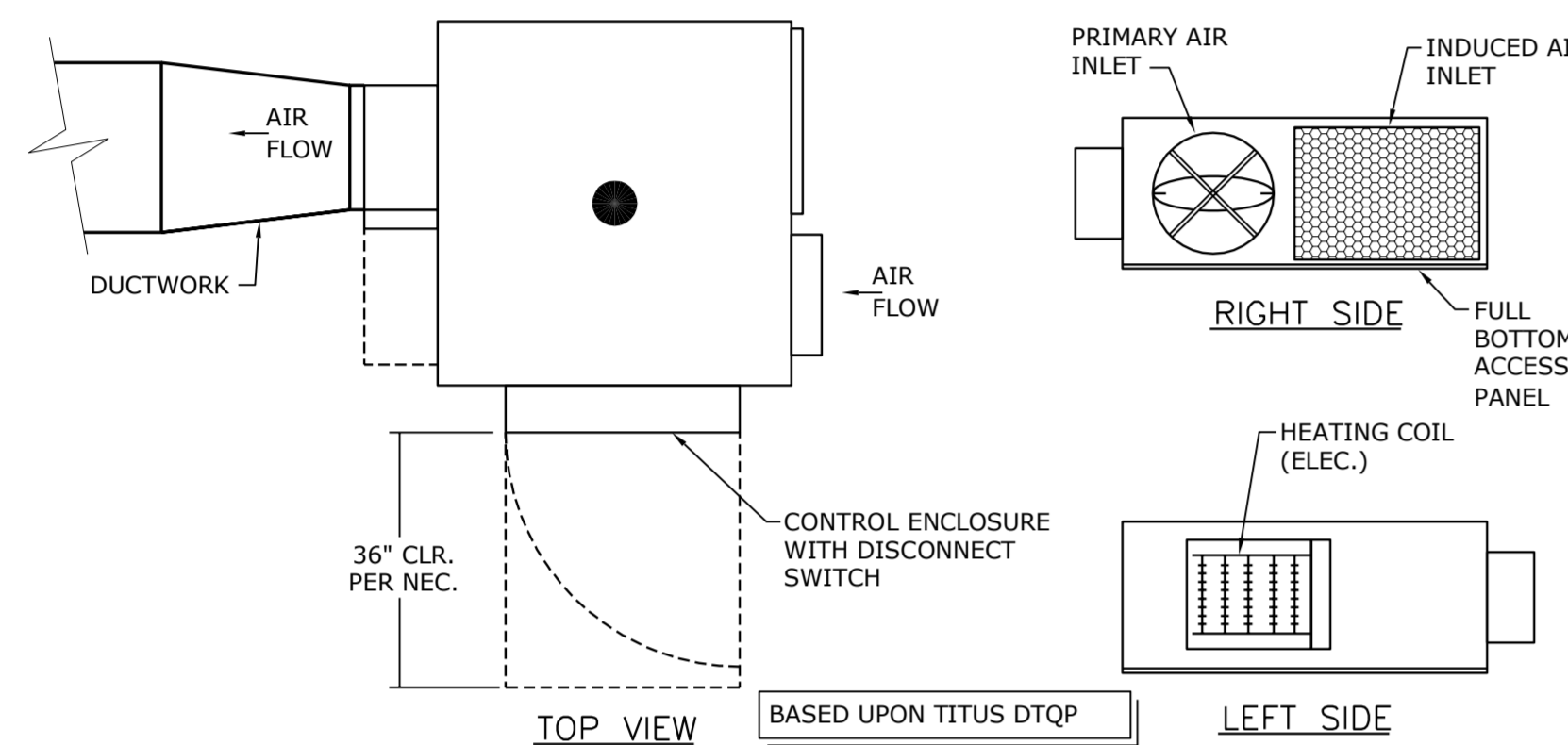
- 1: PROVIDE WITH WATTS SERIES WDS WATER DETECTOR SHUTOFF OR EQUAL. PROVIDE SOLENOID VALVE FOR WATER SHUTOFF AND CONTACTOR AS REQUIRED TO SHUT OFF POWER TO WATER HEATER.

FAN TERMINAL UNIT SCHEDULE (CONT)

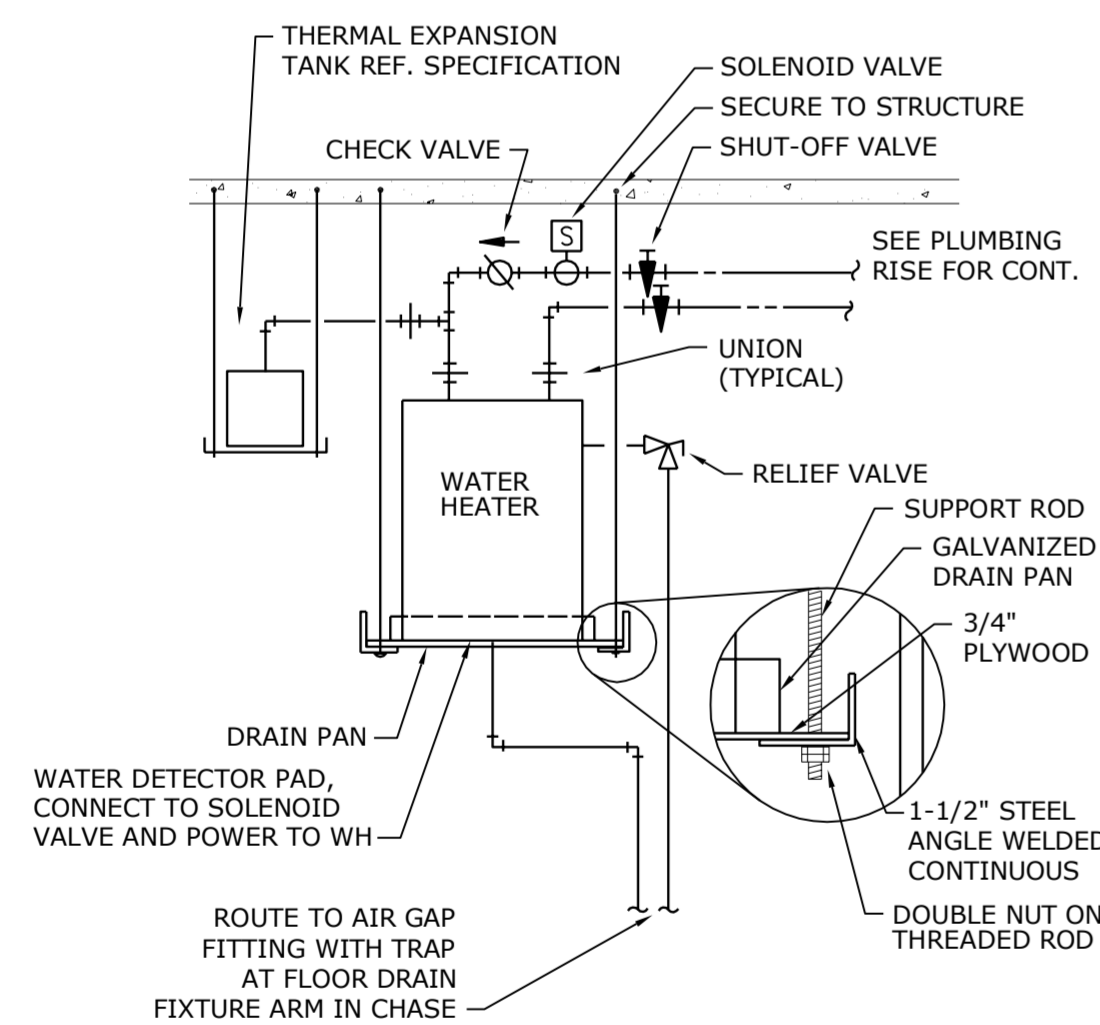
DESIGNATION	FPVAV-1	FPVAV-2	FPVAV-3
MANUFACTURER	TITUS	TITUS	TITUS
MODEL-UNIT SIZE	DTQP-2	DTQP-2	DTQP-2
INLET	8	8	8
FAN HP	1/6	1/6	1/6
COOLING CFM	450	525	400
HEATING CFM	200	250	250
FILTER SIZE (LxW INCHES)	19x17	19x17	19x17
E.S.P. (IN. WG)	0.5	0.5	0.5
ENT. AIR TEMP (°F)	55	55	55
LVG. AIR TEMP (°F)	95	95	95
HEATING ELEMENT (KW MIN)	2.5	3	3
CONTROL STEPS	2	2	2
VOLTAGE/PHASE	120/1	120/1	120/1
PANEL & CIRCUIT	LP320-17	LP320-19	LP320-21
WIRE & CONDUIT	(2)#10,#10G,1/2"C.	(2)#8,#10G,3/4"C.	(2)#8,#10G,3/4"C.
OVERCURRENT DEVICE	30A-1P CB	35A-1P CB	35A-1P CB
CONTROL	THERMOSTAT	THERMOSTAT	THERMOSTAT
REFERENCE DRAWING/DETAIL			
REMARKS	1,2	1,2	1,2

NOTES:

- 1: FURNISH AND INSTALL WITH 1" FILTER.
- 2: UNIT LOCATIONS AND MOUNTING SHALL BE FIELD COORDINATED PRIOR TO INSTALLATION TO ALLOW EASY ACCESS TO FILTER FOR MAINTENANCE AND CHANGING.



TYPICAL FPVAV TERMINAL
SCALE : 1/2" = 1'-0" (ELECTRIC HEAT)



SUSPENDED WATER HEATER DETAIL
NOT TO SCALE

Project Title:

Centerpoint Medical Center

Suite 320 Timeshare

19600 East 39th Street, Suite 320, Independence, Missouri 64057

Philip R. Placek, Engineer
EN 027287

Issue Date: 06.21.2016

Revision No 1:

Revision No 2:

Revision No 3:

Revision No 4:

Project Number: 16030.01



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project number 1621200

ME200

SCHEDULES AND DETAILS -
MECHANICAL AND ELECTRICAL

Centerpoint Med Center Suite 320 Timeshare
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PROJECT NAME:
AUTOCAD FILE LOCATION:
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PART 1 - GENERAL REQUIREMENTS - ELECTRICAL

1.1 SUMMARY OF WORK

- A. THE CONTRACT DOCUMENTS REQUIRE THE FURNISHING AND INSTALLING OF COMPLETE FUNCTIONING ELECTRICAL SYSTEMS, AND EACH ELEMENT THEREOF, AS SPECIFIED OR INDICATED IN THE CONTRACT DOCUMENTS OR REASONABLY INFERRED, TO COMPLETELY CONSTRUCT AND LEAVE READY FOR OPERATION THE SYSTEMS AS SHOWN ON THE DRAWINGS AND HEREIN DESCRIBED, INCLUDING EVERY ARTICLE, DEVICE OR ACCESSORY, WHETHER OR NOT SPECIFICALLY CALLED FOR BY ITEM. ELEMENTS OF THE WORK INCLUDE MATERIALS, LABOR, SUPERVISION, SUPPLIES, EQUIPMENT, TRANSPORTATION, AND UTILITIES.
B. SPECIFICATIONS AND DRAWINGS ARE COMPLEMENTARY AND WHAT IS CALLED FOR IN ONE SHALL BE AS BINDING AS IF CALLED FOR BY BOTH.
C. ALL WORK PERFORMED UNDER THIS SECTION SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER BY EXPERIENCED MECHANICS OF THE PROPER TRADE.

1.2 COORDINATION, MEASUREMENTS AND LAYOUTS

- A. THE CONTRACTOR SHALL INSPECT THE SITE WHERE THIS WORK IS TO BE PERFORMED AND FULLY FAMILIARIZE HIMSELF WITH ALL CONDITIONS RELATED TO THIS PROJECT.
B. THE CONTRACTOR SHALL EMPLOY A COMPETENT FOREMAN ON THE JOB TO SEE THAT WORK IS DONE IN ACCORDANCE WITH THE BEST PRACTICES AND IN A SATISFACTORY AND WORKMANLIKE MANNER. THE FOREMAN SHALL KEEP INFORMED AS TO THE WORK OF OTHER TRADES ENGAGED IN THE CONSTRUCTION OF THE PROJECT, AND SHALL EXECUTE HIS WORK IN SUCH A MANNER AS NOT TO INTERFERE WITH OR DELAY THE WORK OF OTHER TRADES.
C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION. WHERE LOCAL CONDITIONS NECESSITATE A REARRANGEMENT, THE CONTRACTOR SHALL PREPARE, AND SUBMIT FOR APPROVAL, DRAWINGS OF THE PROPOSED REARRANGEMENT. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, AND ACCESSORIES THAT MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING ALL OF HIS WORK AND SHALL ARRANGE SUCH WORK ACCORDINGLY, FURNISHING SUCH OFFSETS, FITTINGS AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWINGS SHALL NOT BE SCALED TO DETERMINE DIMENSION.

1.3 PERMITS AND FEES

- A. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND LICENSES AND SHALL MAKE ALL DEPOSITS AND PAY ALL FEES REQUIRED FOR THE PERFORMANCE OF WORK UNDER THIS SECTION, OTHER THAN THOSE DEPOSITS OR FEES WHICH ARE FULLY REFUNDABLE TO THE OWNER.

1.4 SUBMITTALS, MATERIALS AND EQUIPMENT

- A. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE SPECIFIED HEREIN, FREE FROM DEFECTS AND OF THE BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE.
B. AS SOON AS POSSIBLE AFTER THE AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT FOR REVIEW SIX COPIES OF SHOP DRAWINGS FOR ALL EQUIPMENT TO BE FURNISHED FOR THIS PROJECT. SUBMITTALS SHALL INCLUDE MANUFACTURER'S NAME, MODEL NUMBER, DESCRIPTIVE ENGINEERING DATA AND ALL NECESSARY INFORMATION AS TO FINISH, MATERIAL GAUGES AND ACCESSORIES. AFTER SUCH SHOP DRAWINGS ARE PROCESSED, THREE COPIES WILL BE RETURNED TO THE CONTRACTOR. THE CONTRACTOR SHALL, UPON RECEIPT OF REVIEWED SHOP DRAWINGS PROCEED WITH THE PROCUREMENT AND INSTALLATION OF SUCH EQUIPMENT.

1.5 CODES, LAWS, AND STANDARDS

- A. ALL WORK SHALL BE INSTALLED IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE, THE NATIONAL BOARD OF FIRE UNDERWRITERS, THE NATIONAL ELECTRICAL SAFETY CODE, AND ALL GOVERNING CODES, APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES OR STATUTES OF REGULATORY BODIES HAVING JURISDICTION. THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH SAID LAWS, REGULATIONS, ORDINANCES, STATUTES OR CODES, WITHOUT INCREASED COST TO THE OWNER. ANY POINT IN QUESTION SHALL BE REFERRED TO THE ENGINEER FOR APPROVAL. WORK INDICATED ON THE DOCUMENTS THAT IS IN EXCESS OF CODE REQUIREMENTS SHALL NOT BE REDUCED IN QUALITY AND/OR QUANTITY.
B. COMPLY WITH RULES AND REGULATIONS OF PUBLIC UTILITIES AND MUNICIPAL DEPARTMENTS AFFECTED BY CONNECTIONS OF SERVICES.

1.6 RECORD DOCUMENTS

- A. THIS CONTRACTOR SHALL PREPARE A COMPLETE "AS-BUILT" SET OF DRAWINGS INCORPORATING ALL CHANGES MADE DURING CONSTRUCTION. LOCATION OF UNDERGROUND CONDUIT SHALL BE LOCATED BY DIMENSION FROM COLUMN LINES.
B. THIS CONTRACTOR SHALL PREPARE AND SUBMIT TO THE OWNER'S REPRESENTATIVE FIVE BOUND SETS OF OPERATING AND MAINTENANCE MANUALS INCLUDING FINAL COPIES OF EQUIPMENT SHOP DRAWINGS, MANUFACTURER'S LITERATURE FOR ALL EQUIPMENT INSTALLED ON THE PROJECT SHOWING ALL DETAILS OF EQUIPMENT, REPLACEMENT PART DATA AND MAINTENANCE AND OPERATING INSTRUCTIONS. MANUALS SHALL INCLUDE COPIES OF ALL EQUIPMENT WARRANTIES.

1.7 GUARANTEES AND WARRANTIES

- A. THE CONTRACTOR SHALL GUARANTEE COMPLETE SYSTEM OPERATION AND THAT THE MATERIAL AND EQUIPMENT FURNISHED AND INSTALLED WILL BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS AND WILL GIVE SATISFACTORY SERVICE UNDER THE SPECIFIED OPERATING CONDITIONS. THE CONTRACTOR AGREES TO REPLACE, WITHOUT EXPENSE TO THE OWNER, ANY PART OF THE APPARATUS WHICH PROVES OR BECOMES DEFECTIVE WITHIN ONE YEAR AFTER THE SYSTEM IS ACCEPTED. NO EQUIPMENT WARRANTY OR GUARANTEE SHALL START UNTIL THE TIME OF BUILDING ACCEPTANCE.
B. ALL WARRANTIES ISSUED BY EQUIPMENT MANUFACTURERS SHALL BE FILLED OUT IN THE OWNER'S NAME AND GIVEN TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF WORK PERFORMED UNDER THIS SECTION.

1.8 FINAL INSPECTION

- A. AFTER COMPLETION OF THE ENTIRE PROJECT THE CONTRACTOR SHALL REQUEST FINAL INSPECTION OF THIS PROJECT IN WRITTEN FORM ADDRESSED TO THE ARCHITECT ALONG WITH A STATEMENT TO THE EFFECT THAT ALL INSTALLATIONS HAVE BEEN COMPLETED, CHECKED, ADJUSTED AND BALANCED IN ACCORDANCE WITH REQUIREMENTS OF THIS PROJECT. UPON RECEIPT OF WRITTEN NOTIFICATION OF COMPLETION AND REQUEST FOR FINAL INSPECTION THE ENGINEER WILL PERFORM A FINAL INSPECTION OF THIS WORK AND, IF ALL INSTALLATIONS ARE AS REPRESENTED BY THE CONTRACTOR, THE ENGINEER WILL SUBMIT WRITTEN RECOMMENDATION OF ACCEPTANCE.

1.9 CLEANING

- A. DIRT AND REFUSE RESULTING FROM THE PERFORMANCE OF THE WORK SHALL BE REMOVED TO KEEP THE PREMISES REASONABLY CLEAN AT ALL TIMES.
B. AFTER COMPLETION OF THE WORK DESCRIBED IN THIS SPECIFICATION AND SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED SURFACES AND EQUIPMENT, REMOVE ALL DIRT, DEBRIS, CRATING, CARTONS, ETC., AND LEAVE ALL INSTALLATIONS FINISHED AND READY FOR OPERATION.

1.10 OPENINGS AND SLEEVES

- A. IN FIRE RATED WALLS: CAULKING SHALL BE A PURE CERAMIC FIBER MADE OF ALUMINA-SILICA, "CERAFIBER-FS" BY JOHNS-MANVILLE. SEALANT SHALL BE GUN GRADE. AN ACRYLIC 2-PART GUN APPLIED, FIRE RETARDANT ELASTIC SEALANT, "DYMERIC" BY TREMCO OR EQUAL BY PERMATITE NO. 1113FR.
1. LIMIT THE SIZE OF THE SPACE BETWEEN THE WALL OR FLOOR AND THE OUTSIDE OF THE PIPE OR DUCT TO 1 INCH MAXIMUM. THIS SPACE IS SUFFICIENT TO ALLOW SOME MOVEMENT OF THE PIPES OR DUCT WITHOUT CRACKING THE CAULKING OR SEALANT.
2. FOR OPENINGS IN WALLS, THE CAULKING SHALL BE APPLIED TO A MINIMUM OF 3 INCH TOTAL DEPTH. SEALANT SHALL THEN BE APPLIED ON BOTH SIDES OF THE WALL OPENING A MINIMUM OF 1/2 INCH IN DEPTH, FINISHED FLUSH WITH THE WALL. D.
B. FOR OPENINGS IN FLOORS, THE CAULKING SHALL BE APPLIED FROM THE UPPER SIDE TO A MINIMUM OF 3 INCH TOTAL DEPTH RECESSED 1/2 INCH BELOW THE FINISHED FLOOR. THIS 1/2 INCH RECESS SHALL THEN BE FILLED WITH SEALANT TO FLUSH WITH FINISHED FLOOR.

1.11 CUTTING AND PATCHING

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CUTTING OF WALLS, FLOORS, CEILINGS AND ROOFS REQUIRED FOR PERFORMANCE OF HIS WORK.
B. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT PERMISSION FROM THE ARCHITECT.
C. PATCH ALL OPENINGS TO MATCH ADJACENT CONSTRUCTION IN BOTH MATERIAL AND FINISH.
D. ALL CUTTING OF EXISTING CONCRETE FLOORS/SLABS ON GRADE IN THE INTERIOR OF THE BUILDING SHALL BE PERFORMED BY "SAW CUTTING" AND SHALL BE PERFORMED BY THIS CONTRACTOR.

1.12 DEMOLITION AND NEW WORK

- A. THE CONTRACTOR SHALL DO ALL DEMOLITION, ALTERATIONS AND REWORK INDICATED AND/OR REQUIRED TO MAINTAIN THE OPERATION OF ALL EXISTING ELECTRICAL SYSTEMS AND TO INTEGRATE THE NEW SYSTEMS IN THE RENOVATED BUILDING AS REQUIRED. THE CONTRACTOR SHALL INCLUDE ALL WORK WHICH MAY BE REQUIRED TO ALTERATIONS AND DEMOLITION WORK. THIS SHALL INCLUDE ALL REMOVAL, RELOCATION AND REWORKING OF WIRE AND CONDUIT, OUTLET BOXES, JUNCTION BOXES, ETC. EXISTING SYSTEMS AND NEW SYSTEMS SHALL BE COMPLETELY INTEGRATED AS INTENDED AND AS INDICATED ON THE PLANS AND IN THE SPECIFICATIONS.
B. THE CONTRACTOR SHALL REMOVE FROM THE PREMISES AND DISPOSE OF PROPERLY ALL EXISTING MATERIAL AND EQUIPMENT WHICH NO LONGER SERVES A PURPOSE IN ALTERED AREAS. THE CONTRACTOR SHALL REMOVE CONNECTIONS TO EQUIPMENT BACK TO PANEL OR JUNCTION BOX. MAINTAIN CIRCUIT CONNECTIVITY. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL MAINTAIN SERVICES TO ALL EXISTING AREAS REQUIRING SUCH SERVICES. THE CONTRACTOR SHALL REROUTE AS REQUIRED SUCH SERVICES WHERE ARE DISRUPTED DUE TO ARCHITECTURAL CHANGES IN THE EXISTING STRUCTURE. ANY EQUIPMENT WHICH IS DESIGNATED TO BE REUSED AND WHICH IS DAMAGED IN THE PROCESS SHALL BE REPLACED BY THE CONTRACTOR WITH NEW EQUIPMENT OF LIKE KIND AT NO COST TO THE OWNER.

1.13 INTERRUPTION OF SERVICES

- A. THE CONTRACTOR SHALL SCHEDULE ANY SERVICE INTERRUPTIONS TO THE EXISTING BUILDING WITH THE OWNER'S REPRESENTATIVE. SUCH INTERRUPTIONS SHALL BE PLANNED SO AS TO BE AT TIMES TO CAUSE THE LEAST INCONVENIENCE AND INTERRUPTION TO THE FACILITY'S SCHEDULE.

1.14 EXISTING CONDITIONS

ALL EXISTING CONDITIONS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS FOR THIS PROJECT HAVE BEEN DETERMINED FROM AVAILABLE DRAWINGS AND FIELD INVESTIGATIONS. CONTRACTORS MAKING PROPOSALS FOR THIS WORK SHALL INVESTIGATE ALL EXISTING CONDITIONS AND BASE THEIR PROPOSALS ON THEIR OBSERVATIONS TO PROVIDE COMPLETE AND FUNCTIONING INSTALLATIONS IN ACCORDANCE WITH THE INTENT OF THE DRAWING AND SPECIFICATIONS FOR THIS PROJECT AND ALL APPLICABLE GOVERNING CODES, RULES, REGULATIONS AND ORDINANCES. FAILURE TO DETERMINE EXISTING CONDITIONS WHICH CAUSE ADDITIONAL WORK WILL NOT CONSTITUTE GROUNDS FOR ADDITIONAL COMPENSATION.

PART 2 - ELECTRICAL

2.1 GENERAL REQUIREMENTS

- A. SEE PART 1 FOR GENERAL REQUIREMENTS.

2.2 IDENTIFICATION OF SWITCHES AND APPARATUS

- A. ALL CABINETS, SAFETY SWITCHES, AND OTHER APPARATUS USED FOR OPERATION AND CONTROL OF CIRCUITS, APPLIANCES, AND EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY IDENTIFIED BY MEANS OF ENGRAVED PLASTIC PLATES EITHER BLACK WITH WHITE LETTERS OR WHITE WITH BLACK LETTERS.

2.3 GROUNDING

- A. ALL CONDUCTORS, MOTOR FRAMES, RACEWAYS, CABINETS, ETC., THAT REQUIRE GROUNDING SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE, THOSE OF THE SERVING UTILITY AND LOCAL AUTHORITIES HAVING JURISDICTION.

2.4 SAFETY SWITCHES

- A. SAFETY SWITCHES, AS MANUFACTURED BY GENERAL ELECTRIC, CROUSE-HINDS, CUTLER-HAMMER, SQUARE D, SIEMENS, OR APPROVED EQUAL, SHALL BE FURNISHED AND INSTALLED (WHERE NOT FURNISHED BY OTHERS) WHEREVER SHOWN ON THE DRAWINGS SPECIFIED, OR REQUIRED BY THE NATIONAL ELECTRICAL CODE.
B. SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE, UNDERWRITERS' LABORATORIES SHORT CIRCUIT LABELED FOR AT LEAST 100 AMPERES WITH CLASS R REJECTION FUSEHOLDERS SO AS TO COMPLY WITH NEC 100-9. SWITCHES INSIDE OF BUILDING SHALL BE FURNISHED IN NEMA 1 GENERAL PURPOSE ENCLOSURES. SWITCHES OUTSIDE OF BUILDING SHALL BE FURNISHED IN NEMA 3R ENCLOSURES UNLESS OTHERWISE SPECIFIED.
C. EACH MOTOR SHALL BE PROVIDED WITH A DISCONNECTING MEANS IN ACCORDANCE WITH REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

2.5 FUSES

- A. THIS CONTRACTOR SHALL FURNISH AND INSTALL CARTRIDGE AND PLUG TYPE FUSES AS MANUFACTURED BY THE BUSSMAN MANUFACTURING COMPANY, GOULD/SHAWMUT, CEFCO, OR APPROVED EQUAL, IN ALL FUSIBLE EQUIPMENT. TIME-DELAY TRIGNONIC OR FUSETRON FUSES, UL CLASS RK5, SHALL BE INSTALLED ON ALL MOTOR CIRCUITS. NON TIME-DELAY AMP-TRAP (AZK OR A6K) OR BUSSMAN LIMITRON (KTN OR KTS), UL CLASS RK1 SHALL BE INSTALLED ON CIRCUITS FEEDING PANELBOARDS. ALL OTHER CIRCUITS SHALL BE PROTECTED BY FAULT-TRAP, UL CLASS RK5, FUSES OR APPROVED EQUAL. CLASS K FUSES ARE NOT ACCEPTABLE.

2.6 CONDUIT

- A. ALL ELECTRICAL WIRING, INCLUDING LOW VOLTAGE WIRING, SHALL BE INSTALLED IN CONDUIT AS HEREIN SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 3/4 INCH NOMINAL SIZE SHALL BE USED BELOW GRADE; NO LESS THAN 1/2 INCH NOMINAL SIZE SHALL BE USED ABOVE GRADE.
B. UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 EPC-40-PVC. ALL CONDUITS SHALL BE INSTALLED WITH MINIMUM 24 INCH COVER.
C. CONDUIT INSTALLED IN CONCRETE SLABS OR ABOVE GROUND SHALL BE GALVANIZED RIGID STEEL OR EPC-40-PVC.
D. WHEN PVC CONDUITS PENETRATE CONCRETE FLOOR CONSTRUCTION, CONTRACTOR SHALL USE RIGID STEEL OR IMC ELBOWS AND EXTENSION. PVC CONDUIT/FITTINGS SHALL NOT BE PERMITTED TO BE EXPOSED ABOVE THE FLOOR.
E. THINWALL TUBING SHALL BE E.M.T.
F. ALL FITTINGS SHALL BE OF THE COMPRESSION TYPE AND WATERTIGHT FOR UNDERGROUND AND IN SLAB LOCATIONS. COMPRESSION OR SCREWED FITTINGS FOR INDOOR.
G. CONDUIT FOR INTERIOR WIRING, IN GENERAL, SHALL BE THINWALL TUBING UNLESS OTHERWISE NOTED.
H. RACEWAYS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND FITTING TO FITTING. A RUN OF CONDUIT BETWEEN OUTLETS OR FITTINGS SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF FOUR QUARTER-BENDS INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE OUTLET OR FITTING. THE RADIUS OF BENDS SHALL NEVER BE SHORTER THAN THAT OF THE CORRESPONDING TRADE ELBOW. THE SYSTEM SHALL BE COMPLETE WITH OUTLETS, DISTRIBUTION BOXES, ETC., SMOOTH INSIDE AND MECHANICALLY SECURE IN PLACE. APPROVED STRAPS, HANGERS, OR SUPPORTS SHALL BE USED TO SECURE CONDUITS IN PLACE. CONDUITS SHALL, IN GENERAL, BE SUPPORTED AT INTERVALS NOT EXCEEDING 10'-0" AND WITHIN 3'-0" OF EACH OUTLET BOX, JUNCTION BOX, CABINET OR FITTING.
1. CONDUITS SHALL BE PROTECTED DURING CONSTRUCTION; PLUG AND KEEP CLEAN AND DRY. CONDUIT ENDS SHALL BE BUTTED IN CENTERS OF COUPLINGS. NO CRACKS OR FLATTENED SECTIONS WILL BE PERMITTED AT BENDS OR ELSEWHERE. ALL ENDS OF CONDUIT SHALL BE REAMED TO REMOVE ROUGH EDGES. RUNNING THREADS WILL NOT BE PERMITTED.
J. CONDUITS SHALL BE CONCEALED WITHIN THE WALLS, CEILINGS, AND FLOORS WHERE POSSIBLE AND UNLESS OTHERWISE NOTED. EXPOSED CONDUIT SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES WITH THE BUILDING LINES.

2.7 WIRE AND CABLE

- A. WIRE AND CABLE SHALL BE COPPER.
B. ALL CONDUCTORS SHALL BE COPPER.
C. NO. 10 AWG AND SMALLER CONDUCTORS SHALL BE SOLID WITH TYPE THHN INSULATION AND NO. 8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED WITH TYPE THHN INSULATION EXCEPT THAT CONDUCTORS WITHIN 3 INCHES OF LIGHT FIXTURE BALLASTS SHALL HAVE RHH, THHN, OR EQUAL INSULATION RATED FOR 90 DEGREES C. APPLICATION.

2.8 LOCATIONS OF OUTLETS AND EQUIPMENT

- A. ELECTRICAL OUTLETS AND EQUIPMENT ARE SO LOCATED ON THE DRAWINGS TO SHOW INTENT OF DESIGN. MINOR VARIATIONS IN THESE LOCATIONS MAY BE MADE BY THIS CONTRACTOR TO COMPLY WITH STRUCTURAL AND OTHER REQUIREMENTS AS DETERMINED IN THE COURSE OF CONSTRUCTION. IT SHALL BE THE DUTY OF THIS CONTRACTOR TO TAKE HIS OWN MEASUREMENTS AND BE RESPONSIBLE FOR SAME. THIS CONTRACTOR SHALL ALSO REVIEW THE ARCHITECTURAL DRAWINGS AND THOSE DRAWINGS USED BY OTHER CONTRACTORS IN ORDER TO DETERMINE EXACT LOCATIONS FOR ELECTRICAL OUTLETS AND EQUIPMENT. DO NOT SCALE DRAWINGS FOR OUTLET LOCATIONS.

Table with 4 columns: ITEM, EQUIPMENT MOUNTING HEIGHT, FLOOR TO, MOUNTING. Rows include: INTERIOR RECEPTACLES (BOTTOM, 16"), EXTERIOR RECEPTACLES (CENTERLINE, 24"), TELEPHONE OUTLETS (BOTTOM, 16"), SWITCHES (TOP, 48"), RECEPTACLES ABOVE COUNTERS: CENTERLINE 10 INCHES ABOVE COUNTER AND HORIZONTAL.

2.9 WALL PLATES

- A. GROUPS OF SWITCHES, OUTLETS OR SWITCH AND OUTLET COMBINATIONS SHALL BE MOUNTED UNDER ONE GANG-PLATE.
B. WALL PLATES SHALL FIT AND COVER PROPERLY THE DEVICE AND WALL OPENING. NO OPEN OR UNFINISHED SURFACES SHALL SHOW AFTER INSTALLATION OF THE WALL PLATES.
C. WALL PLATES SHALL BE SET VERTICAL AND SHALL FINISH FLUSH WITH ALL SURROUNDING SURFACES.
D. WALL PLATES FOR ALL DEVICES AND TELEPHONE OUTLETS SHALL MATCH THE EXISTING DEVICES.

2.10 WIRING DEVICES

- A. SINGLE-POLE WALL TUMBLER SWITCHES FOR GENERAL USE SHALL BE SPECIFICATION GRADE HUBBELL NO. 1121, OR APPROVED EQUAL, MECHANICALLY SILENT TYPE WITH PLASTIC HANDLES, RATED 20 AMPERES AC, 120/277 VOLTS. GENERAL USE SWITCHES INDICATED ON PLANS AS DOUBLE POLE, 3-WAY, 4-WAY OR LOCK TYPE WITH KEY GUIDE SHALL BE THE SAME SERIES AS THE SINGLE-POLE SWITCHES. DEVICE COLOR SHALL MATCH EXISTING.
B. CONVENIENCE OUTLETS IN FINISHED SPACES SHALL BE SPECIFICATION GRADE HUBBELL NO. 5362, OR APPROVED EQUAL, DUPLEX GROUNDING TYPE RECEPTACLES RATED 20 AMPERES AC, 120 VOLT. DEVICE COLOR SHALL MATCH EXISTING.
C. RECEPTACLES DESIGNATED WITH GROUND FAULT PROTECTION SHALL BE HUBBELL NO. GF-5362, OR APPROVED EQUAL, 120 VOLT, 20 AMP GROUND FAULT INTERRUPTER TYPE. DEVICE COLOR SHALL MATCH EXISTING.

2.11 TELEPHONE

- A. FURNISH AND INSTALL TELEPHONE OUTLETS AS NOTED ON THE DRAWINGS WITH 3/4 INCH CONDUIT TO ABOVE LAY-IN CEILINGS WITH END BUSHINGS.
B. PROVIDE PULL WIRES IN ALL TELEPHONE CONDUITS.
C. FURNISH AND INSTALL COVER PLATES SUITABLE FOR USE WITH THE EQUIPMENT TO BE CONNECTED.

2.12 PANELBOARDS

- A. PANELBOARDS SHALL BE GENERAL ELECTRIC, SQUARE D, OR SIEMENS ITE CIRCUIT BREAKER TYPES, WITH CIRCUIT BREAKERS AS NOTED IN THE SCHEDULE ON THE DRAWINGS.
B. PANELBOARDS SHALL BE EQUIVALENT TO SQUARE D TYPE NQDD, 120/208 VOLT, WITH BOLTED BREAKERS, NEMA RATED FOR THE AVAILABLE FAULT CURRENT.
C. FURNISH AND INSTALL A TYPEWRITTEN DIRECTORY FOR EACH PANELBOARD, SHOWING THE FUNCTION OF EACH BREAKER.

2.13 LIGHTING FIXTURES

- A. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL LIGHTING FIXTURES AND LAMPS AS INDICATED ON THE DRAWINGS AND HEREIN DESCRIBED. MATERIAL, EQUIPMENT, OR SERVICES NECESSARY TO COMPLETE THE INSTALLATION OF THESE FIXTURES, BUT NOT SPECIFICALLY MENTIONED, SHALL BE FURNISHED AS THOUGH SPECIFIED. ALL FIXTURES AND LAMPS SHALL BE PROPERLY CLEANED AND ADJUSTED AFTER INSTALLATION.
B. ALL ADJUSTABLE LIGHTING FIXTURES SHALL BE CAREFULLY POSITIONED BY THIS CONTRACTOR IN THE PRESENCE OF THE ARCHITECT OR HIS REPRESENTATIVE.
C. LAMPS SHALL BE AS MANUFACTURED BY GENERAL ELECTRIC, SYLVANIA OR PHILLIPS.
D. BALLASTS SHALL BE AS NOTED IN FIXTURE SCHEDULE. BALLASTS IN FIXTURES DESIGNATED FOR EMERGENCY LIGHTING MUST BE COMPATIBLE WITH THE EMERGENCY UNIT USED WITH MINIMUM LEAKAGE.
E. THIS CONTRACTOR SHALL FURNISH AND INSTALL FIXTURES HEREIN SPECIFIED OR AS SHOWN ON THE DRAWINGS.
F. LIGHT FIXTURES SHALL BE SUPPORTED FROM ROOF STRUCTURE PER UBC 47-18.
G. GENERAL CONTRACTOR SHALL PROVIDE ALL FIRE-RATED ENCLOSURES FOR LIGHT FIXTURES INSTALLED IN FIRE-RATED CEILINGS.

2.14 IDENTIFICATION OF EQUIPMENT

- A. ALL SERVICE ENTRANCE EQUIPMENT, DISCONNECT SWITCHES, PANELBOARDS, RELAYS, MOTOR STARTERS, CONTACTORS, TELEPHONE TERMINAL CABINETS, TV EQUIPMENT AND RISER JUNCTION BOXES, AND OTHER ELECTRICAL EQUIPMENT UNDER THIS CONTRACT, SHALL BE PROVIDED WITH PROPER IDENTIFICATION. IDENTIFICATION SHALL BE BY THE USE OF ENGRAVED COLOR CODED PLASTIC NAMEPLATES WITH WHITE LETTERING SCREWED TO THE COVER OF THE EQUIPMENT. USE OF EMBOSSED PLASTIC "TAPE" LABELS AS PREPARED BY "TYPEWRITER" TYPE EQUIPMENT SHALL NOT BE USED. COLOR CODING SHALL BE AS FOLLOWS:
1. EQUIPMENT CONNECTED TO A NORMAL POWER SOURCE SHALL BE BLACK WITH WHITE LETTERS.

2.15 FIRE ALARM SYSTEM

- A. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL EQUIPMENT, WIRE, CONDUIT AND ENGINEERING SERVICES NECESSARY TO INSURE A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM AS DESCRIBED HEREIN AND AS SHOWN ON THE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL MATERIAL AND EQUIPMENT COMPATIBLE TO THE SYSTEM SUPPLIED. ANY EQUIPMENT NOT SPECIFICALLY MENTIONED IN THIS SPECIFICATION OR NOT SHOWN ON THE DRAWINGS BUT REQUIRED FOR THE PROPER OPERATION OF THE FIRE ALARM SYSTEM SHALL BE FURNISHED AND INSTALLED.
B. ALL EQUIPMENT AND COMPLETED INSTALLATION SHALL BE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE, NFPA, LOCAL CODES, THESE SPECIFICATIONS AND AUTHORITIES HAVING JURISDICTION WITH THE STRICTER REQUIREMENTS GOVERNING IN CASE OF POSSIBLE VARIANCES. ALL COMPONENTS OF THE SYSTEM SHALL BE STANDARD OF THE MANUFACTURER, LISTED BY UNDERWRITERS' LABORATORIES, INC. AND BEAR THEIR MARK.
C. THE FIRE ALARM EQUIPMENT SHALL MATCH THE EXISTING BUILDING FIRE ALARM SYSTEM IN MANUFACTURER AND TYPE. FIELD VERIFY EXISTING CONDITIONS.
D. ACTUATION OF ANY MANUAL OR AUTOMATIC INITIATING DEVICE SHALL CAUSE THE FOLLOWING:
1. ALL AUDIBLE INDICATING DEVICES TO SOUND.
2. VISUAL INDICATING DEVICES TO FLASH.
E. FIRE ALARM AUDIBLE/VISUAL UNITS SHALL BE FLUSH-MOUNTED COMBINATION HORN AND FLASHING LIGHT. HORN SHALL BE RED VIBRATING TYPE OPERATING AT 24VDC. THE FLASHING LIGHT SHALL BE XENON STROBE AND OPERATE AT GREATER THAN 1000 CANDLEPOWER. THE UNIT SHALL FLASH AT APPROXIMATELY TWO FLASHES PER SECOND. A FLASH RATE OF GREATER THAN TWO FLASHES PER SECOND IS NOT ACCEPTABLE. BOTH THE HORN AND STROBE SHALL OPERATE ON 24VDC SUPPLIED FROM THE CONTROL PANEL.
F. POWER LIMITED CIRCUIT CABLES SHALL BE UL LISTED AND AS MANUFACTURED BY GE, WEST PENN OR BELDON. CONDUCTORS SHALL BE SOLID GAUGES #18 (FOR PULL STATIONS AND SMOKE DETECTOR) AND #16 FOR HORNS, LIGHTS AND DOOR HOLDERS). CABLES SHALL BE TWISTED PAIRS TO REDUCE SUSCEPTIBILITY TO TRANSIENT NOISE. ALL FIRE ALARM WIRING SHALL BE INSTALLED IN CONDUIT UNLESS NOTED OTHERWISE.



bcDESIGNGROUP

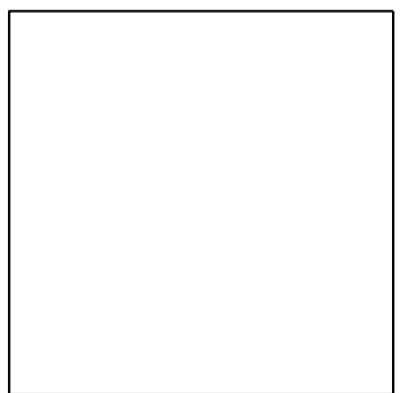
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Issue Date: 06.21.2016

Revision No 1:

Revision No 2:

Revision No 3:

Revision No 4:

Project Number: 16030.01



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ME300
SPECIFICATIONS -
MECHANICAL AND ELECTRICAL

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PLOTED BY: Charies Bocky
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TIME: Tuesday, June 21, 2016 4:06:23 PM

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 PLOTTED BY: CHARLES BOCKY
 DATE: JUNE 21, 2016 4:09:56 PM
 TIME: TUESDAY, JUNE 21, 2016 4:09:56 PM

PART 1 - GENERAL REQUIREMENTS - HVAC, PLUMBING, AND FIRE PROTECTION

1.1 SUMMARY OF WORK

- A. THE CONTRACT DOCUMENTS REQUIRE THE FURNISHING AND INSTALLING OF COMPLETE FUNCTIONING MECHANICAL SYSTEMS, AND EACH ELEMENT THEREOF, AS SPECIFIED OR INDICATED IN THE CONTRACT DOCUMENTS OR REASONABLY INFERRED, TO COMPLETELY CONSTRUCT AND LEAVE READY FOR OPERATION THE SYSTEMS AS SHOWN ON THE DRAWINGS AND HEREIN DESCRIBED, INCLUDING EVERY ARTICLE, DEVICE OR ACCESSORY, WHETHER OR NOT SPECIFICALLY CALLED FOR BY ITEM. ELEMENTS OF THE WORK INCLUDE MATERIALS, LABOR, SUPERVISION, SUPPLIES, EQUIPMENT, TRANSPORTATION, AND UTILITIES.
 - B. SPECIFICATIONS AND DRAWINGS ARE COMPLEMENTARY AND WHAT IS CALLED FOR IN ONE SHALL BE AS BINDING AS IF CALLED FOR BY BOTH.
 - C. ALL WORK PERFORMED UNDER THIS SECTION SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER BY EXPERIENCED MECHANICS OF THE PROPER TRADE.
- 1.2 COORDINATION, MEASUREMENTS AND LAYOUTS**
- A. THE CONTRACTOR SHALL INSPECT THE SITE WHERE THIS WORK IS TO BE PERFORMED AND FULLY FAMILIARIZE HIMSELF WITH ALL CONDITIONS RELATED TO THIS PROJECT.
 - B. THE CONTRACTOR SHALL EMPLOY A COMPETENT FOREMAN ON THE JOB TO SEE THAT WORK IS DONE IN ACCORDANCE WITH THE BEST PRACTICES AND IN A SATISFACTORY AND WORKMANLIKE MANNER. THE FOREMAN SHALL KEEP INFORMED AS TO THE WORK OF OTHER TRADES ENGAGED IN THE CONSTRUCTION OF THE PROJECT, AND SHALL EXECUTE HIS WORK IN SUCH A MANNER AS NOT TO INTERFERE WITH OR DELAY THE WORK OF OTHER TRADES.
 - C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION. WHERE CONDITIONS NECESSITATE A REARRANGEMENT, THE CONTRACTOR IN FACTOR SHALL PREPARE, AND SUBMIT FOR APPROVAL, DRAWINGS OF THE PROPOSED REARRANGEMENT. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, AND ACCESSORIES THAT MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING ALL OF HIS WORK AND SHALL ARRANGE SUCH WORK ACCORDINGLY, FURNISHING SUCH OFFSETS, FITTINGS AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWINGS SHALL NOT BE SCALED TO DETERMINE DIMENSION.

1.3 PERMITS AND FEES

- A. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND LICENSES AND SHALL MAKE ALL DEPOSITS AND PAY ALL FEES REQUIRED FOR THE PERFORMANCE OF WORK UNDER THIS SECTION, OTHER THAN THOSE DEPOSITS OR FEES WHICH ARE FULLY REFUNDABLE TO THE OWNER.

1.4 SUBMITTALS, MATERIALS AND EQUIPMENT

- A. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE SPECIFIED HEREIN. FREE FROM DEFECTS AND OF THE BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE.
- B. AS SOON AS POSSIBLE AFTER THE AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT FOR REVIEW SIX COPIES OF SHOP DRAWINGS FOR ALL EQUIPMENT TO BE FURNISHED FOR THIS PROJECT. SUBMITTALS SHALL INCLUDE MANUFACTURER'S NAME, MODEL NUMBER, DESCRIPTIVE ENGINEERING DATA AND ALL NECESSARY INFORMATION AS TO FINISH, MATERIAL GAUGES AND ACCESSORIES. AFTER SUCH SHOP DRAWINGS ARE PROCESSED, THREE COPIES WILL BE RETURNED TO THE CONTRACTOR. THE CONTRACTOR SHALL, UPON RECEIPT OF REVIEWED SHOP DRAWINGS PROCEED WITH THE PROCUREMENT AND INSTALLATION OF SUCH EQUIPMENT.

1.5 CODES, LAWS, AND STANDARDS

- A. ALL WORK SHALL BE INSTALLED IN COMPLIANCE WITH ALL GOVERNING CODES, APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES OR STATUTES OF REGULATORY BODIES HAVING JURISDICTION. THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH SAID LAWS, REGULATIONS, ORDINANCES, STATUTES OR CODES, WITHOUT INCREASED COST TO THE OWNER. ANY POINT IN QUESTION SHALL BE REFERRED TO THE ENGINEER FOR APPROVAL. WORK INDICATED ON THE DOCUMENTS THAT IS IN EXCESS OF CODE REQUIREMENTS SHALL NOT BE REDUCED IN QUALITY AND/OR QUANTITY.
- B. COMPLY WITH RULES AND REGULATIONS OF PUBLIC UTILITIES AND MUNICIPAL DEPARTMENTS AFFECTED BY CONNECTIONS OF SERVICES.

1.6 RECORD DOCUMENTS

- A. THIS CONTRACTOR SHALL PREPARE A COMPLETE "AS-BUILT" SET OF DRAWINGS INCORPORATING ALL CHANGES MADE DURING CONSTRUCTION. LOCATION OF UNDERGROUND PIPING SHALL BE LOCATED BY DIMENSION FROM COLUMN LINES.
- B. THIS CONTRACTOR SHALL PREPARE AND SUBMIT TO THE OWNER'S REPRESENTATIVE FIVE BOUND SETS OF OPERATING AND MAINTENANCE MANUALS INCLUDING FINAL COPIES OF EQUIPMENT SHOP DRAWINGS, MANUFACTURER'S LITERATURE FOR ALL EQUIPMENT INSTALLED ON THE PROJECT SHOWING ALL DETAILS OF EQUIPMENT, REPLACEMENT PART DATA AND MAINTENANCE AND OPERATING INSTRUCTIONS. MANUALS SHALL INCLUDE COPIES OF ALL EQUIPMENT WARRANTIES.

1.7 GUARANTEES AND WARRANTIES

- A. THE CONTRACTOR SHALL GUARANTEE COMPLETE SYSTEM OPERATION AND THAT THE MATERIAL AND EQUIPMENT FURNISHED AND INSTALLED WILL BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS AND WILL GIVE SATISFACTORY SERVICE UNDER THE SPECIFIED OPERATING CONDITIONS. THE CONTRACTOR AGREES TO REPLACE, WITHOUT EXPENSE TO THE OWNER, ANY PART OF THE APPARATUS WHICH PROVES OR BECOMES DEFECTIVE WITHIN ONE YEAR AFTER THE SYSTEM IS ACCEPTED. NO EQUIPMENT WARRANTY OR GUARANTEE SHALL START UNTIL THE TIME OF BUILDING ACCEPTANCE.
- B. ALL WARRANTIES ISSUED BY EQUIPMENT MANUFACTURERS SHALL BE FILLED OUT IN THE OWNER'S NAME AND GIVEN TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF WORK PERFORMED UNDER THIS SECTION.

1.8 FINAL INSPECTION

- A. AFTER COMPLETION OF THE ENTIRE PROJECT THE CONTRACTOR SHALL REQUEST FINAL INSPECTION OF THIS PROJECT IN WRITTEN FORM ADDRESSED TO THE ARCHITECT ALONG WITH A STATEMENT TO THE EFFECT THAT ALL INSTALLATIONS HAVE BEEN COMPLETED, CHECKED, ADJUSTED AND BALANCED IN ACCORDANCE WITH REQUIREMENTS OF THIS PROJECT. UPON RECEIPT OF WRITTEN NOTIFICATION OF COMPLETION AND REQUEST FOR FINAL INSPECTION THE ENGINEER WILL PERFORM A FINAL INSPECTION OF THIS WORK AND, IF ALL INSTALLATIONS ARE AS REPRESENTED BY THE CONTRACTOR, THE ENGINEER WILL SUBMIT WRITTEN RECOMMENDATION OF ACCEPTANCE.

1.9 CLEANING

- A. DIRT AND REFUSE RESULTING FROM THE PERFORMANCE OF THE WORK SHALL BE REMOVED TO KEEP THE PREMISES REASONABLY CLEAN AT ALL TIMES.
- B. AFTER COMPLETION OF THE WORK DESCRIBED IN THIS SPECIFICATION AND SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED SURFACES AND EQUIPMENT, REMOVE ALL DIRT, DEBRIS, CRATING, CARTONS, ETC., AND LEAVE ALL INSTALLATIONS FINISHED AND READY FOR OPERATION.

1.10 OPENINGS AND SLEEVES

- A. ALL PIPING THROUGH FLOORS SHALL BE PROVIDED WITH SCHEDULE 40 GALVANIZED STEEL PIPE SLEEVES, EXTENDING 1 INCH ABOVE THE FLOOR.
- B. IN FIRE RATED WALLS: CAULKING SHALL BE A PURE CERAMIC FIBER MADE OF ALUMINA-SILICA, "CERAFIBER-FS" BY JOHNS-MANVILLE. SEALANT SHALL BE GUN GRADE. AN ACRYLIC 2-PART GUN APPLIED, FIRE RETARDANT ELASTIC SEALANT, "DYMERIC" BY TREMCO OR EQUAL BY PERMATTITE NO. 1113FR.
 1. LIMIT THE SIZE OF THE SPACE BETWEEN THE WALL OR FLOOR AND THE OUTSIDE OF THE PIPE OR DUCT TO 1 INCH MAXIMUM. THIS SPACE IS SUFFICIENT TO ALLOW SOME MOVEMENT OF THE PIPES OR DUCT WITHOUT CRACKING THE CAULKING OR SEALANT.
2. FOR OPENINGS IN WALLS, THE CAULKING SHALL BE APPLIED TO A MINIMUM OF 3 INCH TOTAL DEPTH. SEALANT SHALL THEN BE APPLIED ON BOTH SIDES OF THE WALL OPENING A MINIMUM OF 1/2 INCH IN DEPTH, FINISHED FLUSH WITH THE WALL. D.
- C. FOR OPENINGS IN FLOORS, THE CAULKING SHALL BE APPLIED FROM THE UPPER SIDE TO A MINIMUM OF 3 INCH TOTAL DEPTH RECESSED 1/2 INCH BELOW THE FINISHED FLOOR. THIS 1/2 INCH RECESS SHALL THEN BE FILLED WITH SEALANT TO FLUSH WITH FINISHED FLOOR.

1.11 CUTTING AND PATCHING

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CUTTING OF WALLS, FLOORS, CEILINGS AND ROOFS REQUIRED FOR PERFORMANCE OF HIS WORK.
- B. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT PERMISSION FROM THE ARCHITECT.
- C. PATCH ALL OPENINGS TO MATCH ADJACENT CONSTRUCTION IN BOTH MATERIAL AND FINISH.
- D. ALL CUTTING OF EXISTING CONCRETE FLOORS/SLABS ON GRADE IN THE INTERIOR OF THE BUILDING SHALL BE PERFORMED BY "SAW CUTTING" AND SHALL BE PERFORMED BY THIS CONTRACTOR.

1.12 DEMOLITION AND NEW WORK

- A. THE CONTRACTOR SHALL DO ALL DEMOLITION, ALTERATIONS AND REWORK INDICATED AND/OR REQUIRED TO MAINTAIN THE OPERATION OF ALL EXISTING HVAC SYSTEMS AND TO INTEGRATE THE NEW SYSTEMS INTO THE RENOVATED BUILDING AS REQUIRED. THE CONTRACTOR SHALL INCLUDE ALL WORK WHICH MAY BE REQUIRED TO ALTERATIONS AND DEMOLITION WORK. THIS SHALL INCLUDE ALL REMOVAL, RELOCATION AND REWORKING OF PIPING, ITEMS OF HVAC EQUIPMENT, ETC. EXISTING SYSTEMS AND NEW SYSTEMS SHALL BE COMPLETELY INTEGRATED AS INTENDED AND AS INDICATED ON THE PLANS AND IN THE SPECIFICATIONS.
- B. THE CONTRACTOR SHALL REMOVE FROM THE PREMISES AND DISPOSE OF PROPERLY ALL EXISTING MATERIAL AND EQUIPMENT WHICH NO LONGER SERVES A PURPOSE IN ALTERED AREAS. THE CONTRACTOR SHALL REMOVE UNUSED DUCTWORK AND PIPING. REMOVE PIPING CONNECTED TO EQUIPMENT BACK TO MAIN AND CAP. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL MAINTAIN SERVICES TO ALL EXISTING AREAS REQUIRING SUCH SERVICES. THE CONTRACTOR SHALL REROUTE AS REQUIRED SUCH SERVICES WHERE ARE DISRUPTED DUE TO ARCHITECTURAL CHANGES IN THE EXISTING STRUCTURE. ANY EQUIPMENT WHICH IS DESIGNATED TO BE REUSED AND WHICH IS DAMAGED IN THE PROCESS SHALL BE REPLACED BY THE CONTRACTOR WITH NEW EQUIPMENT OF LIKE KIND AT NO COST TO THE OWNER.

1.13 INTERRUPTION OF SERVICES

- A. THE CONTRACTOR SHALL SCHEDULE ANY SERVICE INTERRUPTIONS TO THE EXISTING BUILDING WITH THE OWNER'S REPRESENTATIVE. SUCH INTERRUPTIONS SHALL BE PLANNED SO AS TO BE AT TIMES TO CAUSE THE LEAST INCONVENIENCE AND INTERRUPTION TO THE FACILITY'S SCHEDULE.

1.14 EXISTING CONDITIONS

ALL EXISTING CONDITIONS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS FOR THIS PROJECT HAVE BEEN DETERMINED FROM AVAILABLE DRAWINGS AND FIELD INVESTIGATIONS. THE CONTRACTOR SHALL INVESTIGATE ALL EXISTING CONDITIONS AND BASE THEIR PROPOSALS ON THEIR OBSERVATIONS TO PROVIDE COMPLETE AND FUNCTIONING INSTALLATIONS IN ACCORDANCE WITH THE INTENT OF THE DRAWING AND SPECIFICATIONS FOR THIS PROJECT AND ALL APPLICABLE GOVERNING CODES, RULES, REGULATIONS AND ORDINANCES. FAILURE TO DETERMINE EXISTING CONDITIONS WHICH CAUSE ADDITIONAL WORK WILL NOT CONSTITUTE GROUNDS FOR ADDITIONAL COMPENSATION.

PART 2 - HEATING, VENTILATING AND AIR CONDITIONING

2.1 GENERAL REQUIREMENTS

- A. SEE PART 1 FOR GENERAL REQUIREMENTS.

2.2 FILTERS

- A. THE CONTRACTOR SHALL ONLY RUN ALL AIR HANDLING UNITS IN THE BUILDING DURING THE TESTING PERIOD PRIOR TO COMPLETION OF THE WORK. UNITS SHALL NOT BE RUN WITHOUT FILTERS IN PLACE.
- B. FILTERS SHALL BE AS MANUFACTURED BY AMERICAN AIR FILTER, CAMFIL FARR OR CAMBRIDGE.

2.3 FLEXIBLE CONNECTORS

- A. THE CONTRACTOR SHALL INSTALL FLEXIBLE DUCT CONNECTIONS BETWEEN EACH PIECE OF EQUIPMENT HAVING A FAN, AND ITS SHEET METAL SUPPLY AND RETURN DUCTWORK CONNECTIONS, WHICH, WHEN COMPLETED SHALL BE AIRTIGHT.
- B. CONNECTORS SHALL PROVIDE A MINIMUM OF 2 INCHES BETWEEN METAL TO INSURE AGAINST TRANSMISSION OF VIBRATION FROM THE FAN UNIT TO THE DUCTWORK.

2.4 MOTORS AND STARTERS

- A. ALL ELECTRIC MOTORS SHALL BE FURNISHED FOR OPERATION ON ELECTRICAL SERVICES AS DESIGNATED AND SHALL HAVE STARTING TORQUE CHARACTERISTICS SUITABLE FOR THE EQUIPMENT SERVED, ANY CHANGES TO THE ELECTRICAL WIRING DUE TO EQUIPMENT BEING FURNISHED, OTHER THAN THAT SPECIFIED, IS THE RESPONSIBILITY OF THE CONTRACTOR.
- B. ACROSS-THE-LINE MANUAL STARTERS AND MAGNETIC STARTERS SHALL BE CUTLER-HAMMER PRODUCTS OR APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED, OF SIZES REQUIRED FOR THE MOTOR HORSEPOWER AND PHASE SERVED. STARTERS LOCATED IN EQUIPMENT AREAS AND UNFINISHED SPACES MAY BE CHROMIUM PLATED ESCUTCHEON PLATES. PLATES SHALL BE LARGE ENOUGH TO COMPLETELY CLOSE THE HOLES AROUND THE PIPES AND SHALL BE ROUND, NOT LESS THAN 1-1/2" LARGER THAN THE DIAMETER OF THE PIPE. PLATES SHALL BE SECURELY FASTENED IN PLACE.
- C. THE MECHANICAL CONTRACTOR SHALL FURNISH TO THE ELECTRICAL CONTRACTOR ALL STARTERS AND STARTER OVERLOADS, ALL NECESSARY WIRING DIAGRAMS AND INSTRUCTIONS TO FACILITATE THE INSTALLATION OF POWER AND CONTROL WIRING TO ALL EQUIPMENT.

2.5 SHEET METAL DUCTWORK

- A. SHEET METAL DUCTS AND CONNECTIONS SHALL BE CONSTRUCTED OF G90 GALVANIZED SHEETS OF MILD STEEL. THE DUCTS SHALL BE CONSTRUCTED TO THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA) 2" W.G. PRESSURE CLASS STANDARDS. NO DUCT SHALL BE CONSTRUCTED WITH LESS THAN 24 GAUGE METAL. LOCAL CODES REQUIRING HEAVIER GAUGES SHALL GOVERN. ALL DUCTS SHALL BE SEALED TO SMACNA "B" CLASSIFICATION.
- B. DUCT SECTIONS SHALL BE JOINED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION AND REQUIREMENTS OF THE BUILDING CODE HAVING JURISDICTION.
- C. DUCT DIMENSIONS SHOWN ARE SHEET METAL DIMENSIONS AND DO NOT NEED TO BE ADJUSTED FOR INSULATION/LINING.
- D. CURVED ELBOWS SHALL BE CONSTRUCTED WITH INSIDE RADIUS NOT LESS THAN THE DUCT WIDTH IN THE SAME PLANE. SQUARE ELBOWS SHALL HAVE TURNING VANES. TURNING VANES SHALL BE DESIGNED IN ACCORDANCE WITH ASHRAE RECOMMENDATIONS. MANUFACTURED VANES SHALL BE BY TITUS OR APPROVED EQUAL.
- E. CROSSBREAK ALL DUCTWORK SURFACES OVER 18 INCHES IN WIDTH.
- F. FULL AREAS SHALL BE MAINTAINED IN TRANSITIONS WHERE A CHANGE IN THE CONFIGURATION OF THE DUCT OCCURS. ALL TAPERING JOINTS SHALL BE REDUCED GRADUALLY.
- G. JOINTS IN DUCTS SHALL BE MADE PRACTICALLY AIRTIGHT AND ANY OPEN CORNER SHALL BE NEATLY PATCHED AND SOLDERED TIGHT. DUCT TAPE WILL NOT BE ACCEPTED AS A JOINT PATCH. LOW PRESSURE SYSTEM DUCT LEAKAGE SHALL NOT EXCEED 2%.
- H. CONCEALED ROUND DUCTS SHALL BE CONSTRUCTED TO SMACNA 2" W.G. STANDARDS WITH GROOVED LONGITUDINAL SEAMS AND SLEEVED TYPE TRANSVERSE JOINTS.
- I. EXPOSED ROUND DUCTS SHALL BE CONSTRUCTED TO SMACNA 10" W.G. STANDARDS, SPIRAL LOCK SEAM DUCT AND FITTINGS.

2.6 DUCT LINER

- A. ALL RECTANGULAR OUTSIDE AIR INTAKE, SUPPLY, RETURN AND TRANSFER AIR DUCTWORK SHALL BE LINED WITH 1/2" THICK 2 LB. DENSITY CERTAINTED TOUGH GARD DUCT LINER OR EQUAL FROM MANVILLE, KNAUF INSULATION, OR OWENS CORNING UNLESS NOTED OTHERWISE ON THE DRAWINGS. ALL DUCT LINER IS TO COMPLY AND BE INSTALLED IN ACCORDANCE TO NAIMA FIBROUS GLASS DUCT LINER STANDARD AND SMACNA.

2.7 FLEXIBLE DUCT

- A. FLEXIBLE DUCTS SHALL BE UL181 CLASS THERMAFLEX M-KE, OR APPROVED EQUAL, SHALL NOT BE LONGER THAN 8 FEET AND SHALL NOT HAVE ANY AIR FLOW OBSTRUCTION.

2.8 DUCTWORK SUPPORTS

- A. ALL HORIZONTAL DUCTS SHALL BE SUPPORTED WITH HANGERS SPACED NOT MORE THAN 8'-0" APART. HANGERS FOR DUCTS SMALLER THAN 31 INCHES SHALL CONSIST OF 22 GAUGE GALVANIZED STEEL STRAPS SECURELY FASTENED TO THE DUCT AND THE BUILDING CONSTRUCTION. DUCTS OVER 31 INCHES IN WIDTH SHALL BE HUNG WITH 1/4 INCH STEEL ANGLE ON THE BOTTOM OF THE DUCT SUPPORTED WITH STEEL RODS OF APPROPRIATE SIZE SECURELY FASTENED TO THE BUILDING STRUCTURE. ALL SUPPORTS TO MEET SMACNA STANDARDS.

2.9 DUCTWORK INSULATION

- A. ALL CONCEALED ROUND DUCTS SHALL BE INSULATED WITH 1-1/2 INCH THICK, 1 POUND PER CUBIC FOOT DENSITY, CERTAIN-TEED DUCT WRAP INSULATION FACED ON ONE SIDE WITH .002 INCH ALUMINUM FOIL WITH A 2 INCH TAB, OR EQUAL PRODUCTS BY MANVILLE, KNAUF INSULATION, OR OWENS CORNING UNLESS NOTED OTHERWISE ON THE DRAWINGS. INSULATION SHALL BE APPLIED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- B. ALL INSULATION SHALL BE UL LISTED; FLAME SPREAD/FUEL CONTRIBUTED/SMOKE DEVELOPED RATING OF 25/50/50 OR LESS IN ACCORDANCE WITH ASTM E84, NFPA 255 AND UL 723.

2.10 GRILLES, REGISTERS, DIFFUSERS AND LOUVERS

- A. FURNISH AND INSTALL ALL GRILLES, REGISTERS, DIFFUSERS AND LOUVERS AS SHOWN AND DESCRIBED ON THE DRAWINGS OR COMPARABLE PRODUCTS OF TITUS OR PRICE.
- B. THE CONTRACTOR SHALL INFORM THE GENERAL CONTRACTOR OF THE REQUIREMENTS FOR OPENING SIZES AND FRAMING FOR ALL EQUIPMENT AND SHALL COORDINATE THE INSTALLATION OF ALL SUCH EQUIPMENT WITH THE STRUCTURAL REQUIREMENTS OF THIS PROJECT.

2.11 OPERATING AND MAINTENANCE MANUALS

- A. THE EQUIPMENT MANUFACTURER SHALL FURNISH THE OWNER TWO BOUND SETS OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL SYSTEMS.

2.12 START-UP/TESTING, ADJUSTING, BALANCING

- A. THE CONTRACTOR SHALL COMPLETE ALL EQUIPMENT INSTALLATIONS, CHECK ALL CONTROL WIRING, START UP AND ADJUST ALL EQUIPMENT AND PLACE ALL SYSTEMS IN OPERATION.
- B. AFTER COMPLETION AND START-UP OF ALL SYSTEMS THE CONTRACTOR SHALL ARRANGE FOR TESTING, ADJUSTING AND BALANCING OF ALL AIR SYSTEMS.
- C. TESTING, ADJUSTING AND BALANCING OF ALL AIR SYSTEMS SHALL BE PERFORMED IN COMPLETE ACCORDANCE WITH NEBB OR SMACNA STANDARDS.
- D. UPON COMPLETION OF TESTING, ADJUSTING AND BALANCING, A COMPLETE REPORT OF ALL FINDINGS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE OF THIS PROJECT. THREE COPIES OF THE REPORT SHALL BE PROVIDED.

2.13 DAMPERS

- A. VOLUME BALANCING DAMPERS SHALL BE RUSKIN CD-35/CDR-25 OR APPROVED EQUAL. THE DAMPERS SHALL BE CONSTRUCTED OF 16 GAUGE GALVANIZED STEEL, 6 INCH WIDE OPPOSED BLADES AND THE LINKAGE CONCEALED IN FRAME.
- B. FIRE DAMPERS SHALL BE PROVIDED WHERE SHOWN ON THE DRAWINGS AND ELSEWHERE AS REQUIRED BY AUTHORITIES HAVING JURISDICTION AND SHALL BE RUSKIN TYPE IBD2, STYLE B, OR COMPARABLE PRODUCTS OF VENT PRODUCTIONS INC., CURTAIN TYPE HAVING 100% FREE AREA WITH 212 DEGREES F. FUSIBLE LINK APPROVED FOR USE IN PARTITIONS WITH TWO HOUR RATING UNLESS OTHERWISE NOTED. ACCESS PANELS SHALL BE PROVIDED IN DUCTS AND IN THE STRUCTURE FOR ALL FIRE DAMPERS. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S STANDARDS.

2.14 PAINTING: (SEE ARCHITECTURAL SECTION "PAINTING")

- A. PAINTING, EXCEPT AS SPECIFIED HEREIN, SHALL BE DONE BY OTHERS.
- B. EQUIPMENT WHICH HAS DAMAGED FINISH SHALL BE REPAINTED TO MATCH THE ORIGINAL FACTORY FINISH.
- C. ALL EXPOSED FERROUS METAL FURNISHED UNDER THIS CONTRACT, SUCH AS HANGERS, STRUTS, STRUCTURAL STEEL, ETC., SHALL BE GIVEN ONE COAT OF TNEMEC GRAY PRIMER.

PART 3 - PLUMBING

3.1 GENERAL REQUIREMENTS

- A. SEE PART 1 FOR GENERAL REQUIREMENTS.

3.2 TRAPS

- A. ALL FLOOR DRAINS AND FIXTURES WITH WASTE CONNECTIONS SHALL BE SEPARATELY TRAPPED WITH A WATER SEALED TRAP PLACED AS CLOSE TO THE FIXTURE OR DRAIN AS POSSIBLE. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TRAPS REQUIRED INCLUDING TRAPS NOT FURNISHED IN COMBINATION WITH FIXTURES AND EQUIPMENT. ALL EXPOSED TRAPS IN FINISHED SPACES SHALL BE CHROMIUM PLATED BRASS. PIPING TRAPS AND RUNNING TRAPS WHERE REQUIRED.
- B. IN LIEU OF DEEP SEAT TRAPS, FLOOR DRAINS CAN BE PROVIDED WITH PROSET SYSTEMS TRAP GUARD OR EQUAL.

3.3 PIPING INSTALLATION

- A. ENDS OF PIPE SHALL BE REAMED AND ALL BURRS REMOVED BEFORE INSTALLATION. PIPING SHALL BE CUT ACCURATELY TO MEASUREMENTS TAKEN ON THE JOB AND SHALL BE INSTALLED WITH AMPLE CLEARANCE FOR INSTALLATION OF COVERINGS.
- B. PIPING PASSING THROUGH WALLS OR FLOOR SHALL BE RUN FREE, USING PIPE SLEEVES AND SHALL NOT BE GROUDED IN PLACE. SLEEVES FOR PIPING TO BE INSULATED SHALL BE SIZED TO ALLOW FOR INSULATION THICKNESS. PIPING SHALL BE INSTALLED CONCEALED IN FINISHED ROOMS AND WHEREVER POSSIBLE, EXPOSED PIPES, WHERE PASSING THROUGH FLOORS, FINISHED WALL, OR FINISHED CEILINGS SHALL BE FITTED WITH GOOD BRASS, BRASS OR DUCTILE IRON TRAPS AND RUNNING TRAPS WHERE REQUIRED TO COMPLETELY CLOSE THE HOLES AROUND THE PIPES AND SHALL BE ROUND, NOT LESS THAN 1-1/2" LARGER THAN THE DIAMETER OF THE PIPE. PLATES SHALL BE SECURELY FASTENED IN PLACE.
- C. AT LEAST ONE PIPE UNION SHALL BE INSTALLED ADJACENT TO ALL VALVES THAT ARE SCREWED. HOT AND COLD SUPPLIES TO EACH FIXTURE AND WATER HEATER SHALL BE VALVED SEPARATELY AT THE FIXTURE. ALL SUPPLY PIPES TERMINATING AT VALVES OR FIXTURES SHALL BE PROVIDED WITH A WATER HAMMER ARRESTOR OF SUFFICIENT CAPACITY TO PREVENT WATER HAMMER.
- D. ALL HOT AND COLD WATER BRANCH LINES SHALL BE VALVED IN AN ACCESSIBLE LOCATION.
- E. ALL HOT AND COLD WATER PIPING SHALL BE ARRANGED TO DRAIN THE LOWEST POINT AND DRAIN VALVES WITH HOSE THREADS SHALL BE PROVIDED SO THAT THE ENTIRE SYSTEM CAN BE EMPTIED.

3.4 PIPING JOINTS

- A. THREADED JOINTS SHALL BE CUT FULL AND CLEAN, WITH NOT MORE THAN THREE THREADS EXPOSED BEYOND FITTINGS. JOINTS SHALL BE MADE UP TIGHT WITH GRAPHITE BASE PIPE JOINT COMPOUND APPLIED TO MALE THREADS ONLY. EXPOSED THREADS OF FERROUS PIPE SHALL BE PAINTED WITH ACID-RESISTING PAINT AFTER PIPING HAS BEEN TESTED AND PROVEN TIGHT. NO CAULKING, LAMP WICK OR OTHER MATERIAL WILL BE ALLOWED FOR CORRECTION OF DEFECTIVE JOINTS.
- B. SWEAT OR SOLDERED JOINTS IN COPPER WATER PIPING SHALL BE MADE BY THE APPROPRIATE USE OF APPROVED BRASS WATER FITTINGS PROPERLY SWEATED OR SOLDERED TOGETHER. FLARED JOINTS WHERE SPECIFIED FOR SOFT COPPER TUBING SHALL BE MADE WITH FITTINGS MEETING APPROVED STANDARDS. SURFACES TO BE SOLDERED OR SWEAT SHALL BE CLEANED BRIGHT, PROPERLY FLUXED WITH APPROVED NONCORROSIVE PASTE TYPE FLUX AND MADE WITH 95-5 OR 94-6 SOLDER. THE USE OF SELF-CLEANING FLUXES, 50-50 SOLDER OR PASTE TYPE SOLDER IS PROHIBITED. FLARED JOINTS SHALL BE MADE BY EXPANDING THE TUBE WITH A PROPER FLARING TOOL. ALL TUBES SHALL BE PROPERLY REAMED.
- C. JOINTS IN BELL AND SPIGOT CAST IRON SOIL PIPE SHALL BE OF SOFT PIG LEAD AND OAKUM WITH LEAD NOT LESS THAN 1" DEEP, AND INSTALLED IN ONE POUR OR TYLER TY-SEAL GASKETS UNDERGROUND ONLY.
- D. JOINTS FOR NO-HUB PIPE SHALL BE NEOPRENE WITH STAINLESS STEEL BANDS.
- E. JOINTS FOR PLASTIC PIPE, WHEN PERMITTED, SHALL BE SOLVENT WELDED IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS.

3.5 DOMESTIC HOT AND COLD WATER PIPING

- A. ALL DOMESTIC HOT AND COLD WATER PIPING WITHIN THE BUILDING SHALL BE COPPER. UNDERGROUND WATER SERVICE OUTSIDE OF THE BUILDING MAY BE TYPE "K" SOFT TEMPER COPPER OR DUCTILE IRON OR CAST IRON PIPE WITH SUPER BELL-TITE, MECHANICAL OR FLANGED JOINTS.
- B. COPPER PIPING INSTALLED UNDERGROUND SHALL BE SOFT TEMPER TYPE "K" AND INSTALLED WITHOUT JOINTS.
- C. ALL OTHER COPPER PIPING SHALL BE HARD TEMPER TYPE "L". ALL COPPER PIPING SHALL CONFORM TO ASTM-B-88 REQUIREMENTS. SERVICE PIPING OF CAST IRON OR DUCTILE IRON PIPE SHALL CONFORM TO USASI, AWWA AND FEDERAL SPECIFICATIONS.
- D. FITTINGS FOR USE WITH TYPE "K" AND "L" COPPER PIPING SHALL BE WROUGHT COPPER SOLDER-JOINT. UNIONS SHALL BE GROUND JOINT TYPE AND SHALL BE INSTALLED WHERE NECESSARY TO PROVIDE EASE OF DISCONNECTION OF THE PIPING SYSTEM. PRESS FITTINGS FOR COPPER WATER PIPING ARE ACCEPTABLE WHERE PERMITTED BY GOVERNING CODES.
- E. WHEN A CONNECTION BETWEEN COPPER PIPE AND FERROUS PIPE IS NECESSARY, SAID CONNECTION SHALL BE MADE BY USING BRASS CONVERTER FITTING.
- F. DRAINS INDICATED ON THE DRAWINGS AND AT LOW POINTS IN CONNECTION WITH THE HOT AND COLD WATER DISTRIBUTION SYSTEM SHALL CONSIST OF 1/2" FAUCET WITH HOSE THREADS. DRAINS SHALL BE INSTALLED AT LOW POINTS IN THE HOT AND COLD WATER PIPING AND ALL PIPING SHALL GRADE TO DRAIN.

3.6 VALVES FOR DOMESTIC WATER

- A. FOR PIPING 1/2" - 2": MILWAUKEE BA-150 BALL VALE, BRONZE, TEFLON SEATS AND PACKING, 400 LBS W.O.G., SOLDER END.
- B. FOR PIPING 2-1/2" AND LARGER: MILWAUKEE ML224E BUTTERFLY VALVE, FULL LUG BODY, EPDM SEATS, STAINLESS STEEL DISC, LEVER OPERATOR.

3.7 CROSS CONNECTIONS AND INTERCONNECTIONS

- A. NO INSTALLATION SHALL BE MADE OF PLUMBING FIXTURE, DEVICE OR PIPING THAT WILL PROVIDE A CROSS CONNECTION OR INTERCONNECTION BETWEEN A DISTRIBUTING WATER SUPPLY FOR DRINKING OR DOMESTIC PURPOSES AND A POLLUTED SUPPLY SUCH AS A DRAINAGE SYSTEM OR A SOIL OR WASTE PIPE THAT WILL PERMIT OR MAKE POSSIBLE A BACKFLOW OF SEWAGE, POLLUTED WATER OR WASTE INTO THE WATER SUPPLY SYSTEM.

3.8 SOIL, WASTE, DRAIN AND VENT PIPING

- A. UNDERGROUND SOIL, WASTE, DRAIN AND VENT PIPE AND FITTINGS, THROUGHOUT THE BUILDING BELOW THE BASE SLAB TO THE LOCATIONS NOTED OUTSIDE OF THE BUILDING, SHALL BE COATED HUB-AND- SPIGOT SERVICE WEIGHT CAST IRON. SCHEDULE 40 PVC SOLID PLASTIC PIPE MAY BE USED WHERE PERMITTED BY GOVERNING CODES. NO-HUB PIPE WILL NOT BE PERMITTED UNDERGROUND.

- B. SOIL, WASTE, DRAIN, VENT PIPE, AND FITTINGS ABOVE GROUND INSIDE OF THE BUILDING SHALL BE SERVICE WEIGHT HUB-AND- SPIGOT OR NO-HUB CAST IRON PIPE. SCHEDULE 40 PVC SOLID PLASTIC PIPE MAY BE USED WHERE PERMITTED BY GOVERNING CODES. PVC PIPING RUN IN RETURN AIR PLenums SPACE SHALL BE INSTALLED WITH A 1 HOUR RATED COVERING OVER ALL PIPE, FITTINGS AND VALVES.
- C. CHANGES IN PIPE SIZE ON SOIL, WASTE, AND DRAIN LINES SHALL BE MADE WITH REDUCING FITTINGS. CHANGES IN DIRECTION IN DRAINAGE PIPING SHALL BE MADE BY THE APPROPRIATE USE OF 45 DEGREE Y'S, LONG OR SHORT SWEEP QUARTER BENDS, SIXTH, EIGHTH, OR SIXTEENTH BENDS, OR BY A COMBINATION OF THESE OR EQUIVALENT FITTINGS. SINGLE AND DOUBLE SANITARY TEES AND SHORT QUARTER BENDS MAY BE USED IN DRAINAGE LINES ONLY WHERE THE DIRECTION OF FLOW IS FROM THE HORIZONTAL TO THE VERTICAL. QUARTER BENDS MAY BE USED IN SOIL AND WASTE LINES ON THE DISCHARGE FROM WATER CLOSETS IN SLAB ON GRADE AREAS.
- D. SEWER LINES SHALL BE LOCATED IN GENERAL AS SHOWN ON THE DRAWINGS. THE EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR IN SUCH A MANNER AS TO MAINTAIN PROPER CLEARANCES AND SUFFICIENT SLOPE TO INSURE DRAINAGE.
- E. HORIZONTAL SOIL, WASTE, AND DRAIN PIPES SHALL BE GIVEN A GRADE OF NOT LESS THAN 1/4" PER FOOT FOR SIZES UP TO 3" UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR APPROVED IN WRITING BY THE ENGINEER. HORIZONTAL SOIL, WASTE, AND DRAIN PIPES SHALL BE GIVEN A GRADE OF NOT LESS THAN 1/8" PER FOOT FOR SIZES 4" AND LARGER WHEN FIRST APPROVED BY THE ADMINISTRATIVE AUTHORITY.

- F. VENT STACKS SHALL BE EXTENDED FULL SIZE THROUGH THE ROOF AND FLASHED WITH 4 POUND LEAD SHEETS TURNED DOWN INTO THE STACK AT LEAST 2" AND EXTENDED 12" IN ALL DIRECTIONS FROM THE PIPE AT THE ROOF LINE. VENTS THROUGH ROOF SHALL NOT BE LESS THAN 3". PVC PIPING SHALL NOT BE USED FOR VENT PIPING THROUGH THE ROOF.
- G. WHERE APPLICABLE FOR THE ROOFING SYSTEM USED, PROVIDE FLASHING VIA PLEATED EPDM CONE IN LIEU OF LEAD.
- H. VENTS SHALL BE AIR AND WATER TIGHT.
- I. VENT CONNECTIONS SHALL BE INSTALLED ON ALL FIXTURES AND EQUIPMENT CONNECTED TO SOIL AND WASTE SYSTEMS AND ALL FLOOR DRAINS SHALL BE VENTED OR CONNECTED TO A VENTED LINE AS SHOWN ON THE DRAWINGS AND AS REQUIRED BY CODE.
- J. ALL VENT STACKS IN OR AT OUTSIDE WALLS SHALL BE OFFSET 1'-6" MINIMUM FROM OUTSIDE WALLS BEFORE GOING THROUGH THE ROOF, TO FACILITATE FLASHING.
- K. RISERS SHALL BE INSTALLED ABSOLUTELY PLUMB AND STRAIGHT. BRANCHES SHALL BE RUN IN STRAIGHT LINES AND PITCH UNIFORMLY TO MAINS.
- L. RISERS, BRANCHES AND MAINS SHALL BE CONCEALED IN THE CONSTRUCTION EXCEPT WHERE SHOWN OTHERWISE. BRANCHES FOR CLOSETS SHALL BE FINISHED AT THE WALL LINE WITH PROPER FLANGE TO RECEIVE THE FIXTURE WHEN SET, AND THEY SHALL BE TRUE AND LEVEL SO THAT CLOSET BASKET WILL HAVE FULL BEARING ON THE WALL.
- M. ALL SOIL AND VENT STACKS SHALL OFFSET WHERE REQUIRED TO MISS OBSTRUCTIONS AND AS REQUIRED TO CLEAR FLOOR BEAMS AND SPANDREL BEAMS AT FLOOR LINES AND HUG WALL CONSTRUCTION ABOVE FLOOR.
- N. PROHIBITED FITTINGS, THE DRILLING AND TAPPING OF BUILDING DRAINS, SOIL, WASTE OR VENT PIPE AND THE USE OF SADDLE HUBS OR BANDS IS PROHIBITED. ANY FITTING OR CONNECTION WHICH HAS AN ENLARGEMENT, CHANGE IN SIZE OR REDUCED STRENGTH, SHOULDER OR REDUCTION OF THE PIPE AREA THAT OFFERS AN OBSTRUCTION TO THE FLOW IS PROHIBITED.
- O. PROHIBITED CONNECTIONS, NO FIXTURES, DEVICES OR CONSTRUCTION SHALL BE INSTALLED WHICH WOULD ALLOW A BACKFLOW CONNECTION BETWEEN A DISTRIBUTION SYSTEM OF WATER FOR DRINKING AND DOMESTIC PURPOSES TO THE DRAINAGE SYSTEM, SOIL OR WASTE PIPING SO AS TO PERMIT OR MAKE POSSIBLE THE BACKFLOW OF SEWAGE OR WASTE INTO THE WATER SYSTEM.

3.9 INSULATION

- A. ALL COLD WATER PIPING SHALL BE INSULATED WITH CERTAIN-TEED 1/2" THICK GLASS FIBER PIPE INSULATION IN MOLDED SECTIONS WITH FACTORY APPLIED ALL SERVICE VAPOR BARRIER JACKET OR APPROVED EQUAL. THE END JOINT STRIPS AND OVERLAP SEAMS SHALL BE SEALED WITH A VAPOR BARRIER MASTIC AND STAPLED WITH OUTWARD CLINCHING STAPLES SPACED NOT TO EXCEED 4" CENTERS. STAPLES AND SEAMS SHALL BE SEALED WITH A COAT OF VAPOR BARRIER MASTIC. JOINTS SHALL BE COVERED BY JOINT TAPE.
- B. ALL DOMESTIC HOT WATER PIPING SHALL BE INSULATED WITH 1" THICK CERTAIN-TEED GLASS FIBER PIPE INSULATION IN MOLDED SECTIONS WITH FACTORY APPLIED ALL SERVICE JACKET OR APPROVED EQUAL. THIS INSULATION SHALL BE CLOSELY BUTTED TOGETHER AND SECURED BY JOINT TAPE MATCHING THE INSULATION COVER.
- C. ALL PIPING SURFACES TO BE INSULATED SHALL BE CLEAN AND DRY AND PIPING SHALL HAVE BEEN TESTED AND APPROVED BEFORE THE INSULATION IS APPLIED.
- D. ALL VALVES, CHAMBERS OR DEVICES SHALL BE INSULATED WITH CERTAIN-TEED GLASS FIBER PIPE INSULATION, OR APPROVED EQUAL. INSULATION SHALL BE SECURELY HELD IN PLACE AND COVERED WITH ZESTON PRE-MOLDED PVC FITTING COVERS. FITTING COVERS MAY BE PROVIDED WITH FIBERGLASS INSULATION INSERTS.
- E. HORIZONTAL ROOF DRAIN PIPING AND ROOF DRAIN BODIES SHALL BE INSULATED WITH 1" THICK CERTAIN-TEED GLASS FIBER PIPE INSULATION IN MOLDED SECTIONS WITH FACTORY APPLIED ALL SERVICE



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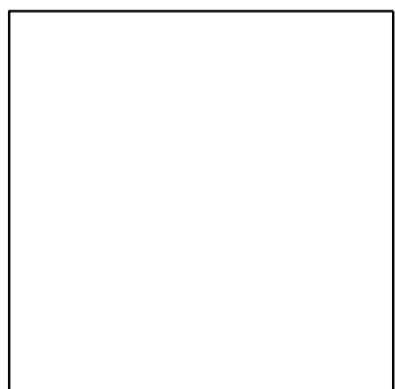
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Issue Date: 06.21.2016

Revision No 1:

Revision No 2:

Revision No 3:

Revision No 4:

Project Number: 16030.01

ME302

SPECIFICATIONS -
MECHANICAL AND ELECTRICAL



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SYSTEM IS MADE TIGHT.

C. THE WATER SYSTEM TEST PROCEDURE SHALL CONSIST OF CHARGING THE ENTIRE SYSTEM TO OPERATING PRESSURE AND THEN ISOLATING THE SYSTEM FROM ITS SOURCE. THE SYSTEM SHALL REMAIN CLOSED FOR A PERIOD OF 24 HOURS WITH NO FIXTURE BEING USED. THE PRESSURE DIFFERENTIAL FOR THIS 24-HOUR PERIOD SHALL NOT EXCEED 5 PSIG.

D. THE INSPECTION AUTHORITY HAVING JURISDICTION AND THE ARCHITECT SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO PERFORMANCE OF ALL TESTS SO THAT THE TESTS MAY BE WITNESSED IF DEEMED NECESSARY.

E. ALL PLUMBING FIXTURES AND ACCESSORIES SHALL BE TESTED, ADJUSTED AND MADE FREE OF LEAKS.

F. NATURAL GAS SYSTEMS SHALL BE TESTED WITH COMPRESSED AIR PER THE LOCAL PLUMBING CODE REQUIREMENTS.

3.13 WATER SYSTEM FLUSHING AND STERILIZATION

A. IMMEDIATELY UPON COMPLETION OF THE NEW WATER DISTRIBUTION SYSTEM AND PRIOR TO PLACING THIS SYSTEM IN SERVICE, THE ENTIRE NEW SYSTEM SHALL BE FLUSHED AND STERILIZED.

B. THIS SYSTEM SHALL BE FILLED WITH WATER SLOWLY AND CAREFULLY SO THAT AIR MAY READILY ESCAPE THROUGH OPEN DRAINS AND FIXTURE VALVES. ALL DRAINS AND FIXTURE VALVES SHALL BE OPENED, STARTING WITH VALVES NEAREST THE WATER SERVICE ENTRY, AND WATER RUN UNTIL IT HAS RUN CLEAR FROM ALL OUTLETS FOR NOT LESS THAN 10 MINUTES.

C. AFTER THIS ENTIRE WATER SYSTEM HAS BEEN THOROUGHLY FLUSHED, THE CONTRACTOR SHALL STERILIZE THE ENTIRE SYSTEM AS REQUIRED BY LOCAL CODES AND THE STATE BOARD OF HEALTH. IN THE EVENT THAT LOCAL CODES OR THE STATE BOARD OF HEALTH DO NOT HAVE SPECIFIC REQUIREMENTS FOR WATER SYSTEM STERILIZATION, THE FOLLOWING PROCEDURE SHALL BE EMPLOYED:

1. A CHLORINE WATER MIXTURE OF A CHLORINE BEARING COMPOUND SUCH AS HIGH TEST CALCIUM HYPOCHLORITE OR SODIUM HYPOCHLORITE SHALL BE INTRODUCED INTO THE SYSTEM AT THE BEGINNING OF THE BUILDING WATER SERVICE.

2. IF A CHLORINE GAS WATER MIXTURE IS USED, IT SHALL BE FED INTO THE SYSTEM BY MEANS OF A SOLUTION FEED CHLORINATOR DEVICE WHICH MUST BE EQUIPPED WITH MEANS FOR PREVENTING THE BACKFLOW OF WATER INTO THE CHLORINE CYLINDER.

3. IF CHLORINE BEARING COMPOUND SUCH AS A HIGH TEST CALCIUM HYPOCHLORITE OR SODIUM HYPOCHLORITE IS USED, THE POWDER SHALL FIRST BE MADE INTO A PASTE AND THEN THINNED TO APPROXIMATELY 1% CHLORINE SOLUTION (10,000 PPM).

4. THE RATE OF CHLORINE MIXTURES FLOW INTO THE SYSTEM SHALL BE PROPORTIONED TO THE RATE OF WATER ENTERING THE PIPE SO THAT A CHLORINE DOSE OF NOT LESS THAN 10 PPM WILL BE PRODUCED THROUGHOUT THE SYSTEM. THIS SOLUTION SHALL BE RETAINED IN THE SYSTEM FOR NOT LESS THAN 24 HOURS AND SHALL PRODUCE NOT LESS THAN 10 PPM OF CHLORINE AT THE END OF THE RETENTION PERIOD.

5. THE SYSTEM BEING STERILIZED SHALL BE ISOLATED FROM THE WATER SUPPLY SOURCE SO AS TO POSITIVELY ASSURE THAT TREATED WATER WILL NOT BACKFLOW INTO THE SUPPLY LINE. SYSTEM STERILIZATION SHALL BE PERFORMED IN COOPERATION WITH THE SERVING UTILITY AND SHALL COMPLY IN ALL RESPECTS WITH THEIR REQUIREMENTS.

6. AFTER STERILIZATION IS COMPLETED THE ENTIRE SYSTEM SHALL BE FLUSHED AND TESTED. TEST RESULTS SHALL BE SUBMITTED TO THE AUTHORITIES HAVING JURISDICTION FOR REVIEW PRIOR TO ACCEPTANCE OF THIS PROJECT.

3.14 ACCESS DOORS

A. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE ARCHITECTURAL PLANS/SPECIFICATIONS AND ADVISING THE GENERAL CONTRACTOR PRIOR TO BIDDING OF THE NEED FOR ACCESS DOORS IN SHEETROCK OR PLASTERED CEILINGS AND WALLS AND ALL OTHER LOCATIONS WHERE ACCESS IS REQUIRED FOR PLUMBING COMPONENTS.

B. ACCESS DOORS SHALL BE FLUSH-MOUNTED OF A STYLE SPECIFICALLY SUITED FOR THE TYPE OF CONSTRUCTION IN WHICH THEY ARE TO BE USED, AND SIZES AND COLORS SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL. IN AREAS WHERE THERE ARE REMOVABLE CEILINGS, ACCESS DOORS MAY BE OMITTED, PROVIDED CEILING PANELS USED FOR ACCESS ARE CLEARLY MARKED. THE TYPE OF ACCESS DOOR USED SHALL BE MILCOR, OR AN APPROVED EQUAL.

C. ACCESS DOORS SHALL BE FURNISHED BY THE PLUMBING CONTRACTOR FOR INSTALLATION BY THE GENERAL CONTRACTOR.

D. IN THE EVENT THAT THE PLUMBING CONTRACTOR FAILS TO ADVISE THE GENERAL CONTRACTOR OF REQUIRED ACCESS DOORS PRIOR TO BIDDING, THE COST TO FURNISH AND INSTALL ACCESS DOORS SHALL BE THE RESPONSIBILITY OF THE PLUMBING CONTRACTOR.

3.15 PLUMBING FIXTURES

A. ALL FIXTURES SHOWN OR SCHEDULED ON THE DRAWINGS SHALL BE FURNISHED AND INSTALLED, SET FIRM AND TRUE, CONNECTED TO ALL REQUIRED PIPING SERVICES, THOROUGHLY CLEANED, AND LEFT READY FOR USE.

B. ALL EXPOSED FITTINGS AND PIPING AT THE FIXTURES SHALL BE CHROME PLATED. SUPPLY PIPING SHALL BE VALVED AT EACH FIXTURE.

C. ALL CHINA FIXTURES SHALL BE NEW, OF THE BEST GRADE VITREOUS WARE, WITHOUT PIT HOLES OR BLEMISHES, AND THE OUTLINES SHALL BE GENERALLY TRUE. ALL FIXTURES OF THE SAME TYPE SHALL BE OF ONE MANUFACTURER THROUGHOUT THE ENTIRE INSTALLATION. THE ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT WHICH, IN HIS OPINION, IS FAULTY. ALL FIXTURES AND FLANGES ON SOIL PIPE SHALL BE MADE ABSOLUTELY GASTIGHT AND WATERTIGHT. RUBBER GASKETS OR PUTTY WILL NOT BE PERMITTED FOR THIS CONNECTION. CLOSET BOLTS SHALL BE STAINLESS STEEL AND NOT LESS THAN 1/4" IN DIAMETER AND SHALL BE EQUIPPED WITH CHROMIUM PLATED NUTS AND WASHERS. FIXTURES WITH OUTLET FLANGES SHALL BE SET AT THE PROPER DISTANCE FROM FLOOR OR WALL TO MAKE A FIRST CLASS JOINT WITH THE CLOSET SETTING COMPOUND OR GASKET AND THE FIXTURES USED.

D. PLUMBING FIXTURES SHALL BE AS SPECIFIED, OR EQUIVALENT PRODUCTS MANUFACTURED BY ELJER, CRANE, OR AMERICAN STANDARD. ALL WATER CLOSETS, LAVATORIES, URINALS AND SINKS SHALL BE PRODUCTS OF ONE MANUFACTURER. FIXTURES SHALL BE INSTALLED COMPLETE WITH ALL NECESSARY ACCESSORIES AND TRIM. INSTALLATION OF COUNTERTOP SINKS SHALL BE COORDINATED WITH THE COUNTERTOP SUPPLIER.

E. DRAINS AND ACCESSORIES SHALL BE AS SPECIFIED OR EQUIVALENT PRODUCTS OF WADE, JAY R. SMITH, OR JOSAM.

F. INSULATE EXPOSED LAVATORY "P" TRAP ON ADA LISTED FIXTURES WITH PLUMBEREX TRAP GEAR OR EQUAL.

3.16 PAINTING (SEE ARCHITECTURAL SECTION "PAINTING")

A. PAINTING, EXCEPT AS SPECIFIED HEREIN, SHALL BE DONE BY OTHERS.

B. EQUIPMENT WHICH HAS DAMAGED FINISH SHALL BE REPAINTED TO MATCH THE ORIGINAL FACTORY FINISH.

C. ALL EXPOSED FERROUS METAL FURNISHED UNDER THIS CONTRACT, SUCH AS HANGERS, STRUTS, STRUCTURAL STEEL, ETC. SHALL BE GIVEN ONE COAT OF TNECMEC GRAY PRIMER.

PART 4 - FIRE PROTECTION

4.1 GENERAL REQUIREMENTS

A. SEE PART 1 FOR GENERAL REQUIREMENTS.

4.2 SUMMARY

A. THIS SECTION INCLUDES MODIFICATION AND EXTENSION OF THE EXISTING WET PIPE FIRE-SUPPRESSION SYSTEM INSIDE THE BUILDING.

4.3 SYSTEM DESCRIPTION

A. NEW AUTOMATIC SPRINKLERS WILL BE ATTACHED TO OR EXTENDED FROM EXISTING PIPING CONTAINING WATER AND THAT IS CONNECTED TO WATER SUPPLY. THE SYSTEM MODIFICATIONS SHALL BE IN COMPLIANCE WITH NFPA PAMPHLET 13, "STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS", AND ALL CODES AND STANDARDS REFERENCED.

4.4 PERFORMANCE REQUIREMENTS

A. FIRE-SUPPRESSION SPRINKLER SYSTEM DESIGN FOR THE PROJECT AREA SHALL BE SUBMITTED TO AND APPROVED BY THE AUTHORITIES HAVING JURISDICTION.

B. FIRE PROTECTION SYSTEM SHALL BE DESIGNED UNDER THE FOLLOWING APPLICABLE STANDARDS:

1. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
2. INTERNATIONAL FIRE CODE AND ALL REFERENCED MATERIAL.
3. REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
4. REQUIREMENTS OF THE OWNER'S INSURING AGENCY.

C. SPRINKLER HEAD SPACING, PIPE SIZING AND FLOW CALCULATION SHALL BE HYDRAULICALLY CALCULATED IN ACCORDANCE WITH NFPA STANDARD 13. CALCULATIONS SHALL INCLUDE OUTSIDE AND INSIDE HOSE REQUIREMENTS.

1. MARGIN OF SAFETY FOR AVAILABLE WATER FLOW AND PRESSURE: 10 PERCENT IN EXCESS OF BASE REQUIREMENTS, INCLUDING LOSSES THROUGH WATER-SERVICE PIPING, VALVES, AND BACKFLOW PREVENTERS.

2. SPRINKLER OCCUPANCY HAZARD CLASSIFICATIONS: AS INDICATED OR AS REQUIRED BY NFPA 13.
3. MINIMUM DENSITY FOR AUTOMATIC-SPRINKLER PIPING DESIGN: AS INDICATED OR AS REQUIRED BY NFPA 13.

4. MAXIMUM PROTECTION AREA PER SPRINKLER: AS INDICATED OR AS REQUIRED BY NFPA 13.

5. A HAZEN AND WILLIAMS COEFFICIENT "C" OF 120 SHALL BE USED FOR ALL ABOVE GRADE PIPING AND ANY EXISTING UNDERGROUND PIPING. A COEFFICIENT "C" OF 140 MAY BE USED FOR NEW UNDERGROUND SERVICE ENTRANCE PIPING.

4.5 SUBMITTALS

A. INSTALLATION OF SPRINKLER SYSTEM PIPING SHALL NOT PROCEED UNTIL APPROVED SUBMITTALS ARE RECEIVED BY THE INSTALLER. SUBMITTALS SHALL INCLUDE THE FOLLOWING:

1. SPRINKLER PIPING SYSTEM LAYOUT DRAWINGS AND HYDRAULIC CALCULATIONS. ALL WORKING DRAWINGS SHALL BE PREPARED ACCORDING TO NFPA 13 AND BE STAMPED BY A CERTIFIED FIRE PROTECTION ENGINEER. THE SUBMITTALS SHALL HAVE BEEN APPROVED BY AUTHORITIES HAVING JURISDICTION, INCLUDING HYDRAULIC CALCULATIONS.
2. APPROVED SPRINKLER EQUIPMENT AND ACCESSORIES.

4.6 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: INSTALLER'S RESPONSIBILITIES INCLUDE DESIGNING, FABRICATING, AND INSTALLING FIRE-SUPPRESSION SYSTEMS AND PROVIDING PROFESSIONAL ENGINEERING SERVICES NEEDED TO ASSUME ENGINEERING RESPONSIBILITY. CALCULATIONS SHALL BE BASED ON RESULTS OF FIRE-HYDRANT FLOW TEST.

1. ENGINEERING RESPONSIBILITY: PREPARATION OF WORKING PLANS, CALCULATIONS, AND FIELD TEST REPORTS BY A QUALIFIED PROFESSIONAL ENGINEER.

B. NFPA STANDARDS: FIRE-SUPPRESSION-SYSTEM EQUIPMENT, SPECIALTIES, ACCESSORIES, INSTALLATION, AND TESTING SHALL COMPLY WITH THE FOLLOWING:

1. NFPA 13, "INSTALLATION OF SPRINKLER SYSTEMS."

4.7 MANUFACTURERS

A. THE FOLLOWING REQUIREMENTS APPLY TO PRODUCT SELECTION:

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH PROJECT REQUIREMENTS, ALL PRODUCTS AND MATERIAL SHALL BE LISTED IN FM APPROVAL GUIDE AND IN UL PUBLICATIONS FOR THE SERVICE.

4.8 FIRE PROTECTION PIPE AND FITTINGS

A. 2" AND SMALLER: THREADED-END, STANDARD-WEIGHT STEEL PIPE: ASTM A 53/A 53M, ASTM A 135, OR ASTM A 795, WITH FACTORY- OR FIELD-FORMED THREADED ENDS.

1. MALLEABLE-IRON THREADED FITTINGS: ASME B16.3.
2. STEEL THREADED PIPE NIPPLES: ASTM A 733, MADE OF ASTM A 53/A 53M OR ASTM A 106, SCHEDULE 40, SEAMLESS STEEL PIPE. INCLUDE ENDS MATCHING JOINING METHOD.
3. STEEL THREADED COUPLINGS: ASTM A 865.

B. 2-1/2" AND LARGER* STANDARD WEIGHT STEEL PIPE: ASTM A 53/A 53M, ASTM A 135, OR ASTM A 795, WITH WELDED OR ROLL/CUT GROOVE ENDS.

1. STANDARD WEIGHT WELDING FITTINGS OR STANDARD WEIGHT FITTINGS WITH GROOVED JOINTS.

C. HANGERS FOR FIRE PROTECTION PIPING SHALL BE AS FOLLOWS:

1. ANVIL FIGURE 69 GALVANIZED CARBON STEEL ADJUSTABLE SWIVEL RING HANGER. UL/FM.

D. HANGER AND SUPPORT SPACING SHALL BE AS FOLLOWS:

1. 8 FEET FOR PIPING 1" AND SMALLER.
2. 10 FEET FOR PIPING 1-1/4" THROUGH 3".
3. 12 FEET FOR PIPING 4" AND LARGER.

4.9 SPRINKLER HEADS

A. SPRINKLER HEADS SHALL BE BY CENTRAL OR EQUIVALENT GRINNELL, STAR, VIKING OR RELIABLE. THE STYLES SHALL BE AS FOLLOWS:

1. AREAS WITH FINISHED CEILINGS: CENTRAL SPRINKLER MODEL "A", RECESSED AUTOMATIC SPRINKLER, POLISHED CHROME FINISH, ADJUSTABLE 2-PIECE ESCUTCHEON.
2. AREAS WITH FINISHED CEILINGS: CENTRAL SPRINKLER MODEL "76A", ADJUSTABLE FLUSH CONCEALED AUTOMATIC SPRINKLER, COVER PLATE WITH FLAT WHITE FINISH.
3. AREAS WITHOUT CEILINGS: CENTRAL SPRINKLER MODEL "A", PENDANT AUTOMATIC SPRINKLER, ROUGH BRONZE FINISH.
4. AREAS WITHOUT CEILINGS: CENTRAL SPRINKLER MODEL "A", UPRIGHT AUTOMATIC SPRINKLER, ROUGH BRONZE FINISH.
5. AREAS PROTECTED WITH SIDEWALL SPRINKLERS: CENTRAL SPRINKLER MODEL "H", HORIZONTAL SIDEWALL SPRINKLER, POLISHED CHROME FINISH.

B. SPRINKLER HEADS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION GUIDE.

C. SPRINKLER HEADS SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE CENTERS OF CEILING TILES WITHOUT THE USE OF SWING JOINTS.

D. SPRINKLER HEADS SHALL BE LOCATED IN THE CENTER OF CEILING TILES WITH A TOLERANCE OF +/- 2 INCHES. SPRINKLER HEADS SHALL BE INSTALLED WITH SWING JOINTS TO LOCATE HEADS.

4.10 PIPING INSTALLATION

A. LOCATIONS AND ARRANGEMENTS: INSTALL PER NFPA 13 REQUIREMENTS AND AS INDICATED ON DRAWINGS.

B. HANGERS AND SUPPORTS: COMPLY WITH NFPA 13 FOR HANGER MATERIALS.

1. INSTALL SPRINKLER SYSTEM PIPING ACCORDING TO NFPA 13.

4.11 FIELD QUALITY CONTROL

A. PERFORM THE FOLLOWING FIELD TESTS AND INSPECTIONS AND PREPARE TEST REPORTS:

1. LEAK TEST: AFTER INSTALLATION, CHARGE SYSTEM AND TEST FOR LEAKS. REPAIR LEAKS AND RETEST UNTIL NO LEAKS EXIST.

B. REPORT TEST RESULTS PROMPTLY AND IN WRITING TO ARCHITECT AND AUTHORITIES HAVING JURISDICTION.

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TIME: Tuesday, June 21, 2016 4:07:17 PM



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Issue Date: 06.21.2016
Revision No 1:
Revision No 2:
Revision No 3:
Revision No 4:

Project Number: 16030.01

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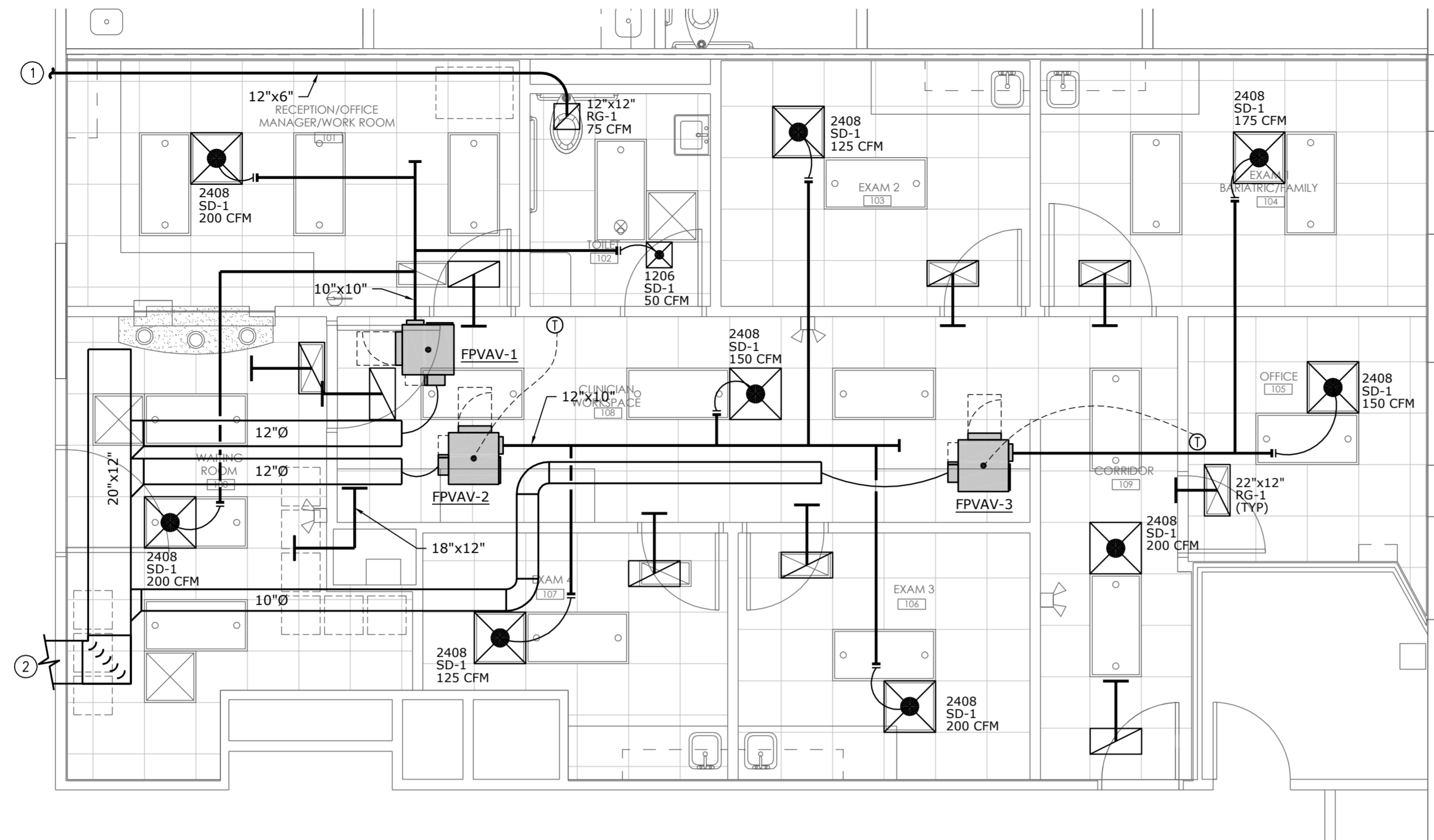
FLOOR PLANS - MECHANICAL

GENERAL NOTES:

1. ALL RETURN GRILLES SHALL BE 22"x10" RG-1 WITH RETURN BOOT PER DETAIL UNLESS NOTED OTHERWISE.

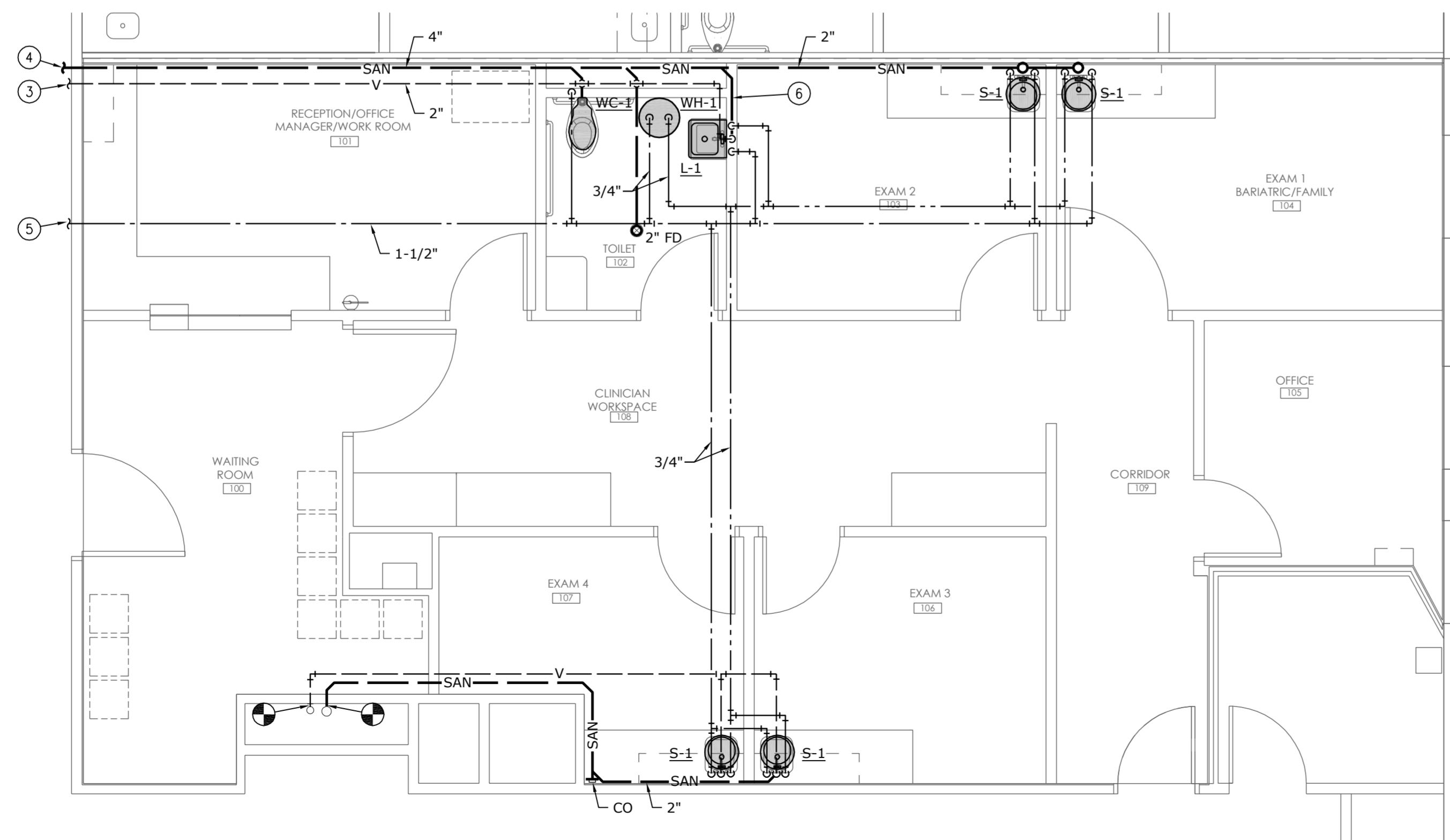
PLAN NOTES:

1. EXTEND TO EXISTING TOILET EXHAUST RISER STUB OUT AT COLUMN L9, APPROXIMATELY 50' AWAY. FIELD VERIFY EXISTING CONDITIONS.
2. EXTEND AND CONNECT TO EXISTING SUPPLY DUCT MAIN, APPROXIMATELY 15' AWAY. FIELD VERIFY EXISTING CONDITIONS.
3. EXTEND AND CONNECT TO EXISTING VENT STACK AT COLUMN L9. FIELD VERIFY EXACT LOCATION.
4. EXTEND AND CONNECT TO EXISTING SANITARY STACK AT COLUMN L9. FIELD VERIFY EXACT LOCATION.
5. EXTEND AND CONNECT TO EXISTING VALVED AND CAPPED DOMESTIC WATER LINE AT COLUMN L9. FIELD VERIFY EXACT LOCATION.
6. WATER HEATER LOCATED ABOVE ACCESSIBLE CEILING. REFER TO DETAIL.



FLOOR PLAN - HVAC

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



FLOOR PLAN - PLUMBING

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



PROJECT NAME: Centerpoint Med Center Suite 320 Timeshare
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Issue Date: 06.21.2016
Revision No 1:
Revision No 2:
Revision No 3:
Revision No 4:

Project Number: 16030.01

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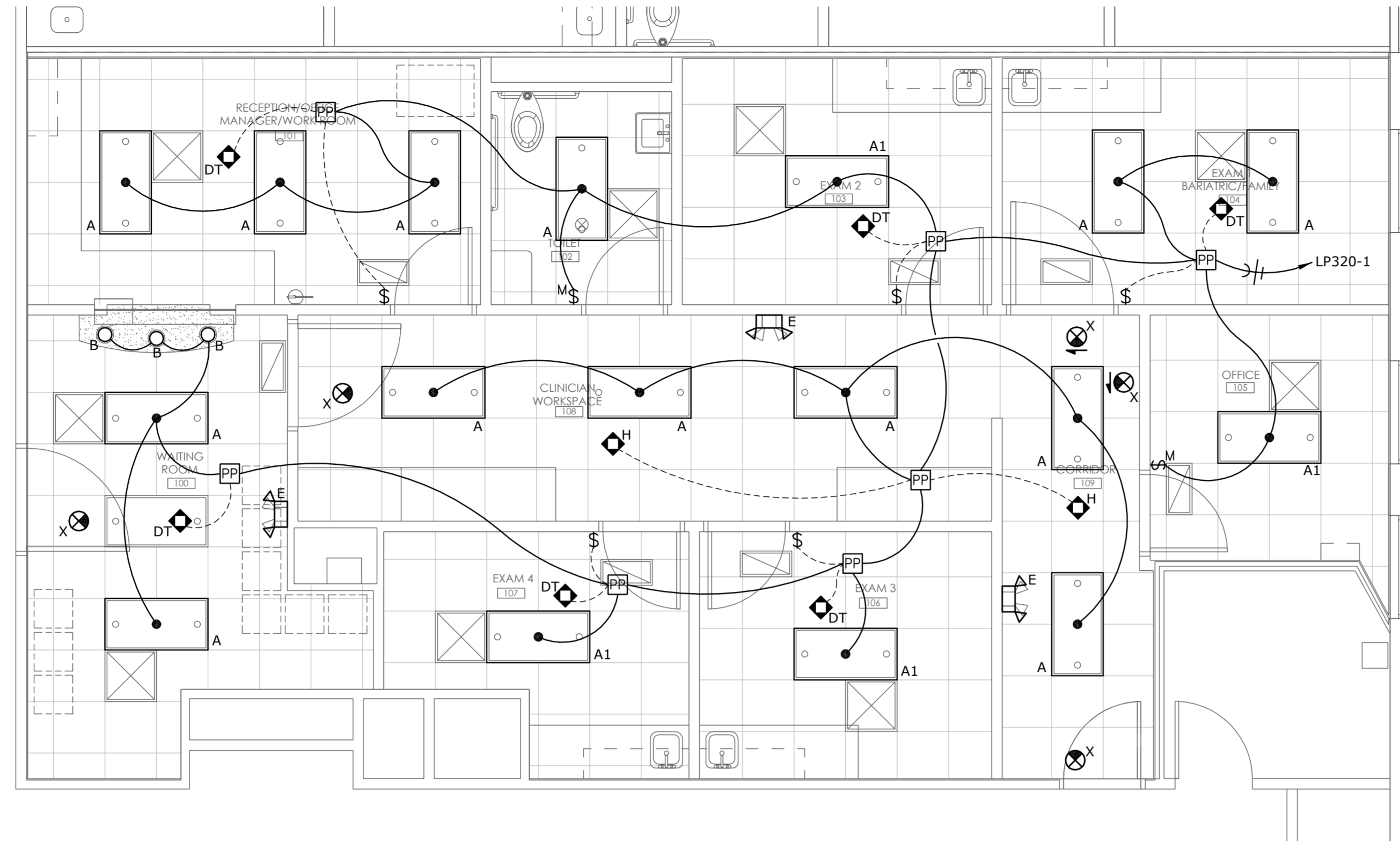
FLOOR PLANS - ELECTRICAL

GENERAL NOTES:

1. CIRCUIT ALL EMERGENCY AND EXIT FIXTURES WITH AN UNSWITCHED HOT CONDUCTOR.

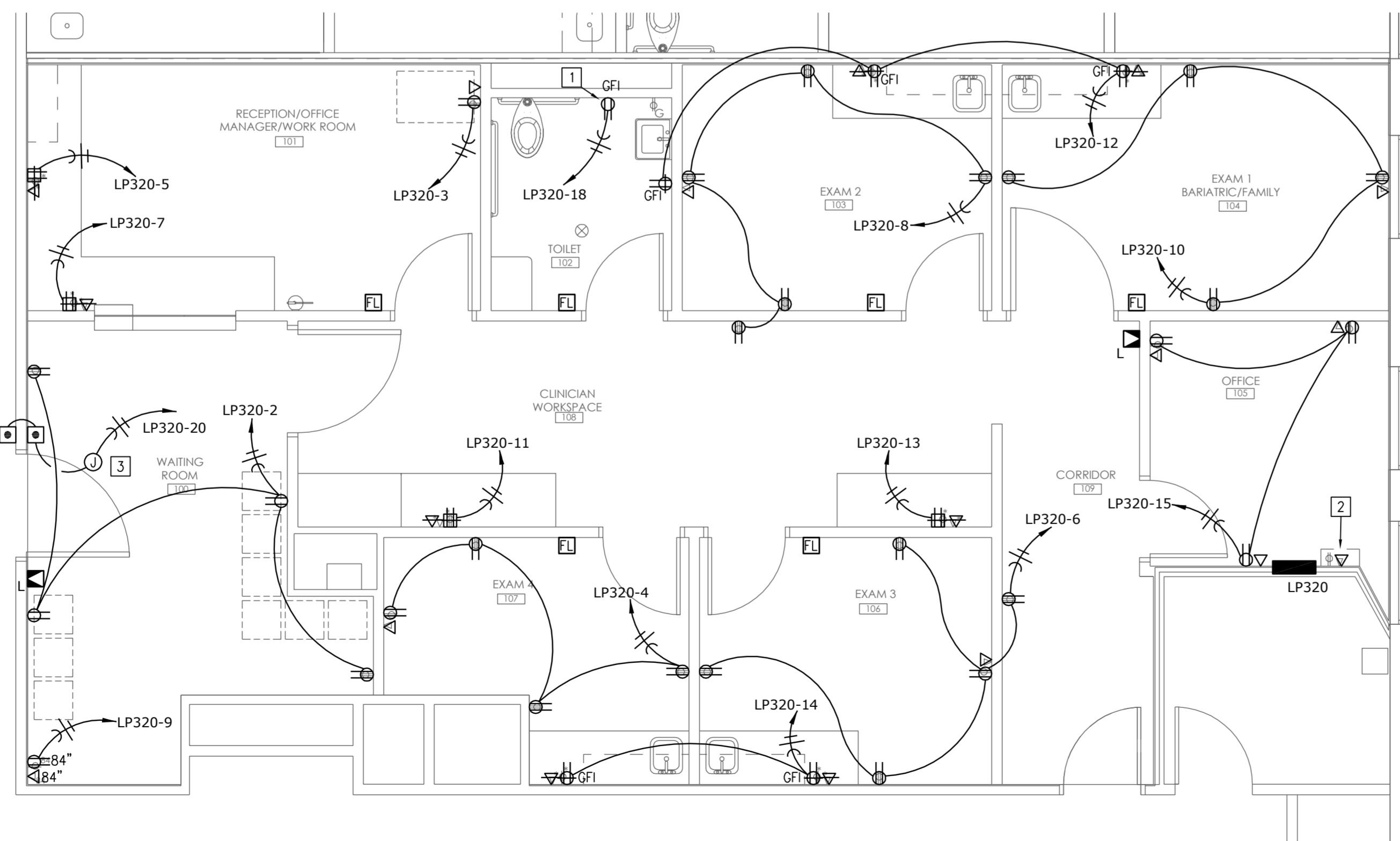
PLAN NOTES:

1. RECEPTACLE MOUNTED ABOVE CEILING FOR WATER DETECTOR SHUTOFF SYSTEM.
2. TENANT PHONE/DATA DEMARCATION POINT WITHIN CABINET. COORDINATE EXACT REQUIREMENTS WITH BUILDING TELEDATA SERVICE.
3. ALTERNATE BID: PROVIDE POWER, CABLING, AND INFRASTRUCTURE FOR ADA DOOR HARDWARE. COORDINATE EXACT REQUIREMENTS WITH ARCHITECT.



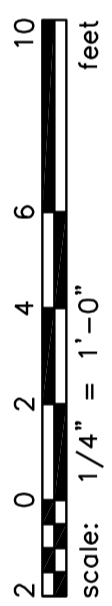
FLOOR PLAN - LIGHTING

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



FLOOR PLAN - POWER

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



PROJECT NAME: Centerpoint Med Center Suite 320 Timeshare
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PLOTED BY: Charies Body Tuesday, June 21, 2016 4:07:45 PM



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INTERIOR LIGHTING CONTROL EQUIPMENT LEGEND

SYMBOL	FUNCTION	MOUNTING	ROOM SERVED (TYP)	WATTSTOPPER MODEL #	NOTES
◇ _{DT}	MOTION SENSOR	CEILING	EXAM RMS, WAITING RM, RECEPTION	WATTSTOPPER DT-300 (CEILING)	NOTE 1
◇ _H	MOTION SENSOR	CEILING	CLINICIAN WORKSPACE, CORRIDOR	WATTSTOPPER WT-2250	NOTE 4
◇ _M	MOTION SENSOR	WALL SWITCH	OFFICE, RESTROOM	WATTSTOPPER PW-100	NOTE 3
◇	MOMENTARY CONTACT SWITCH	WALL SWITCH	----	RE: SPECS	NOTE 2
PP	POWER PACK	----	----	WATTSTOPPER BZ-50	NOTE 5

GENERAL NOTES: THE MANUFACTURERS AND MODELS LISTED ARE THE BASIS OF DESIGN, ALL PRODUCT SUBSTITUTIONS SUBMITTED MUST BE APPROVED AS EQUAL. REFER TO DRAWINGS FOR QUANTITIES.

NOTE 1: PROVIDE "B" SERIES POWER PACKS AS REQUIRED IN EACH SPACE. PROVIDE 8'-0" OF EXCESS CONTROL WIRING, COILED AND TIED, BETWEEN CEILING MOUNTED OCCUPANCY SENSORS AND CORRESPONDING POWER PACKS AT EACH SENSOR LOCATION.

NOTE 2: LOW VOLTAGE MANUAL ON/OVERRIDE SWITCH FOR MOTION SENSORS, REFER TO OCCUPANCY SENSOR WIRING DIAGRAM FOR CIRCUITING/LOCATION OF SWITCH. OVERRIDE SWITCH TO TURN OFF LIGHTS ONLY, NOT OCCUPANCY SENSOR.

NOTE 3: PASSIVE INFRARED-SINGLE RELAY WALL MOUNT-LINE VOLTAGE.

NOTE 4: ULTRASONIC CEILING MOUNTED HALLWAY - 90 LF COVERAGE. PROVIDE "B" SERIES POWER PANELS AS REQUIRED IN EACH SPACE. PROVIDE 8'-0" OF EXCESS CONTROL WIRING, COILED AND TIED, BETWEEN CEILING MOUNTED OCCUPANCY SENSORS AND CORRESPONDING POWER PACKS AT EACH SENSOR LOCATION.

NOTE 5: LOCATE DEVICE ABOVE ACCESSIBLE CEILING, LOCATIONS SHOWN ON DRAWINGS ARE SCHEMATIC.

LIGHTING CONTROL SEQUENCE OF OPERATIONS

OFFICE, RESTROOM:
LINE VOLTAGE MOTION SENSOR/WALL SWITCH COMBINATION DEVICE SHALL BE MANUAL ON AND AUTOMATIC (VACANCY) OFF AFTER 15 MINUTE TIME DELAY. SENSOR SENSITIVITY AND AUTOMATIC OFF DELAY TIME SHALL BE ADJUSTABLE.

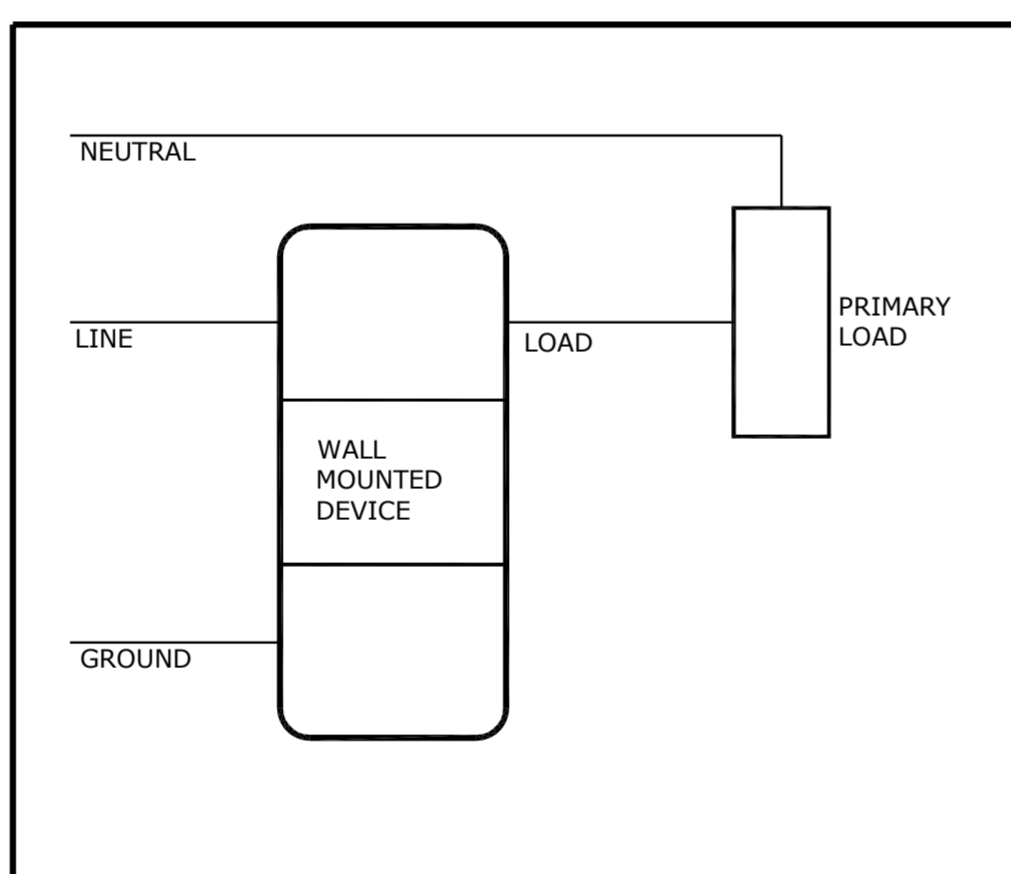
WAITING ROOM, CLINICIAN WORKSPACE, CORRIDOR:
CEILING MOUNTED SENSORS FOR LIGHTING CONTROL TO BE AUTOMATIC (OCCUPANCY) ON AND AUTOMATIC (OCCUPANCY) OFF AFTER 15 MINUTE TIME DELAY. THESE AREAS TYPICALLY INCLUDE PATH OF EMERGENCY EGRESS. SENSOR SENSITIVITY AND AUTOMATIC OFF TIME DELAY SHALL BE ADJUSTABLE.

EXAM ROOMS, RECEPTION AREA:
CEILING MOUNTED SENSORS SHALL BE MANUAL ON AND AUTOMATIC (VACANCY) OFF AFTER 30 MINUTE TIME DELAY. MOMENTARY CONTACT WALL SWITCHES SHALL TURN FIXTURES ON AND OFF. SENSOR SENSITIVITY AND AUTOMATIC OFF DELAY TIME SHALL BE ADJUSTABLE.

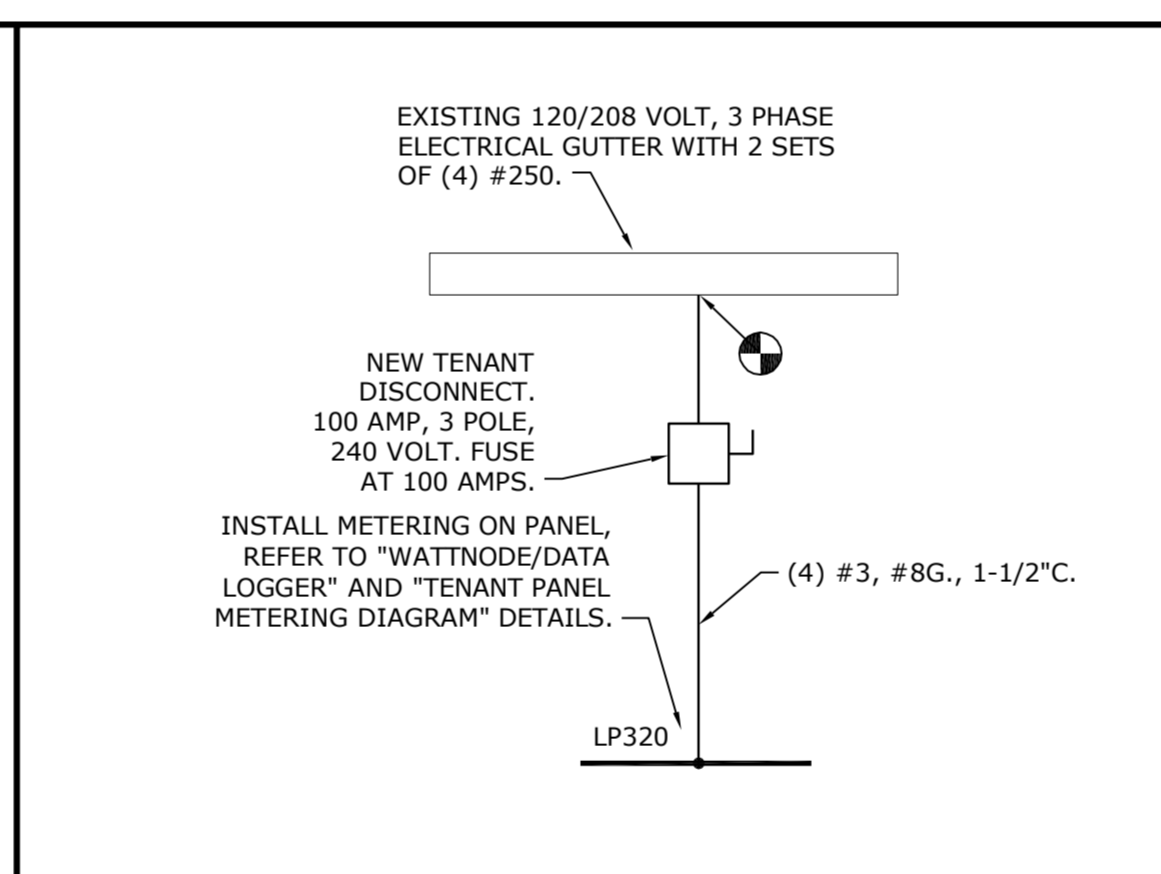
CIRCUIT DESCRIPTION		POLES	AMPS	CKT NO	CKT NO	AMPS	POLES	CIRCUIT DESCRIPTION
LIGHTING	COPIER	1	20	1	2	20	1	WAITING ROOM RECEIPT
RECEPTION COUNTER	RECEPTION COUNTER	1	20	3	4	20	1	EXAM 4 RECEIPT
WAITING TV	RECEPTION COUNTER	1	20	5	6	20	1	EXAM 3 RECEIPT
WORKSPACE COUNTER	RECEPTION COUNTER	1	20	7	8	20	1	EXAM 2 RECEIPT
WORKSPACE COUNTER	RECEPTION COUNTER	1	20	9	10	20	1	EXAM 1 RECEIPT
OFFICE RECEIPT	RECEPTION COUNTER	1	20	11	12	20	1	EXAM 1/2 GFI RECEIPT
FPVAV-1	RECEPTION COUNTER	1	20	13	14	20	1	EXAM 3/4 GFI RECEIPT
FPVAV-2	RECEPTION COUNTER	1	20	15	16	25	1	WH-1
FPVAV-3	RECEPTION COUNTER	1	30	17	18	20	1	WATER DETECTOR SHUTOFF
SPARE	RECEPTION COUNTER	1	35	19	20	20	1	ADA DOOR HARDWARE - ALT
SPARE	RECEPTION COUNTER	1	35	21	22	20	1	SPARE
SPARE	RECEPTION COUNTER	1	20	23	24	20	1	SPARE
SPARE	RECEPTION COUNTER	1	20	25	26			PREPARED SPACE
SPARE	RECEPTION COUNTER	1	20	27	28			PREPARED SPACE
SPARE	RECEPTION COUNTER	1	20	29	30			PREPARED SPACE

LIGHT FIXTURE SCHEDULE

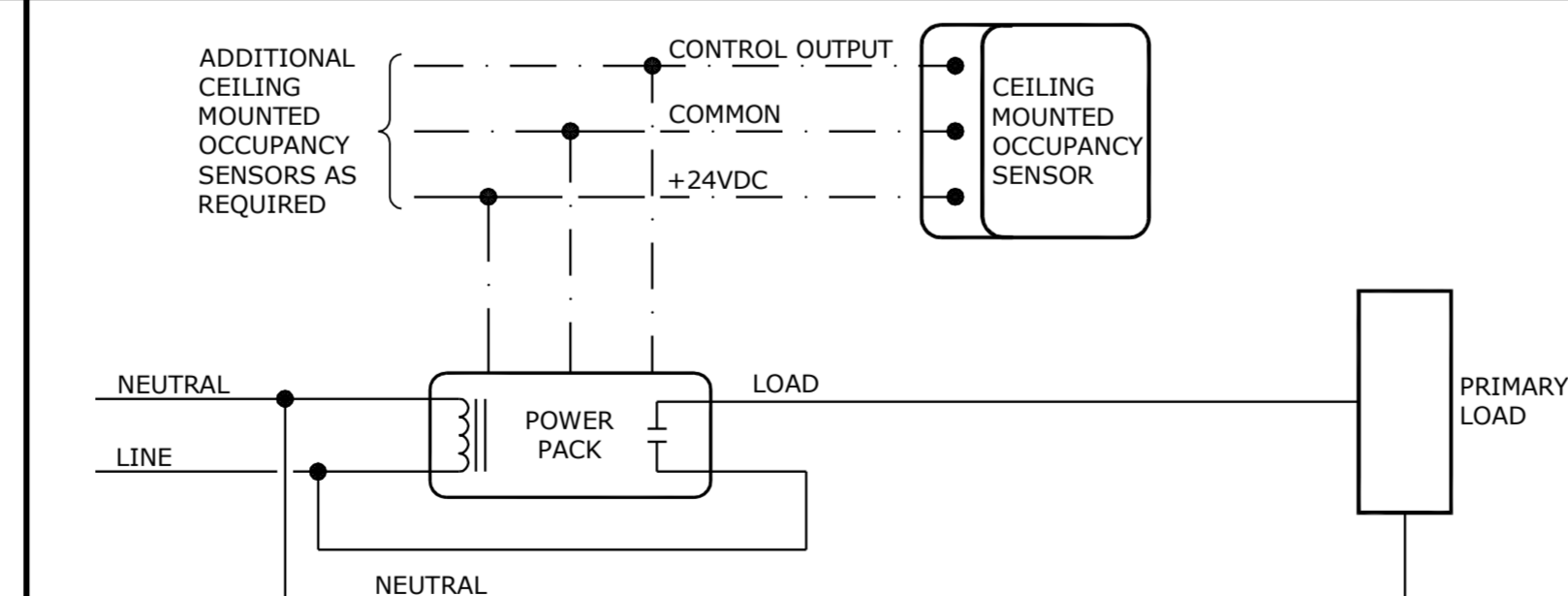
TYPE	DESCRIPTION	MOUNTING	SOURCE	COLOR TEMP	LAMP	VOLTS	BASIS OF DESIGN	V-A
A	2x4 RECESSED LED TROFFER. PRISMATIC ACRYLIC LENS. STEEL HOUSING, PAINT AFTER FABRICATION, INTEGRAL DRIVER.	RECESSED	LED	3500	3200 LUMENS	120	COOPER 24GRLED SERIES COLUMBIA LT SERIES PHILIPS 2TG SERIES	27
A1	SAME AS TYPE A BUT 4200 LUMENS	RECESSED	LED	3500	4200 LUMENS	120	COOPER 24GRLED SERIES COLUMBIA LT SERIES PHILIPS 2TG SERIES	37
A1 ALT	2x4 RECESSED LED TROFFER. DIRECT/INDIRECT. CENTER BASKET. STEEL HOUSING, PAINT AFTER FABRICATION, INTEGRAL DRIVER	RECESSED	LED	3500	3200 4200 LUMENS	120	WILLIAMS LT SERIES CREE ZR SERIES PHILIPS ARIOSO SERIES	29
B	4" RECESSED LED DOWNLIGHT. ALUMINUM REFLECTOR, MEDIUM BEAM, ALUMINUM HEAT SINK, INTEGRAL DRIVER.	RECESSED	LED	3500	1500 LUMENS	120	WILLIAMS L45 SERIES PRESOLITE LF4 SERIES PHILIPS CALCULITE SERIES	19
E	EMERGENCY EGRESS LIGHT. THERMOPLASTIC HOUSING, ADJUSTABLE MR16 LAMP HEADS, INTEGRAL 90 MINUTE BATTERY.	SURFACE	LED	--	--	120	DUAL LITE LZ SERIES PHILIPS CAX SERIES WILLIAMS MR SERIES	3
X	EXIT SIGN. THERMOPLASTIC HOUSING, RED LETTERS, CHEVRONS AS INDICATED ON PLANS, INTEGRAL 90 MINUTE BATTERY.	SURFACE	LED	--	--	120	DUAL LITE LX SERIES COOPER LPX SERIES PHILIPS CXX SERIES	--



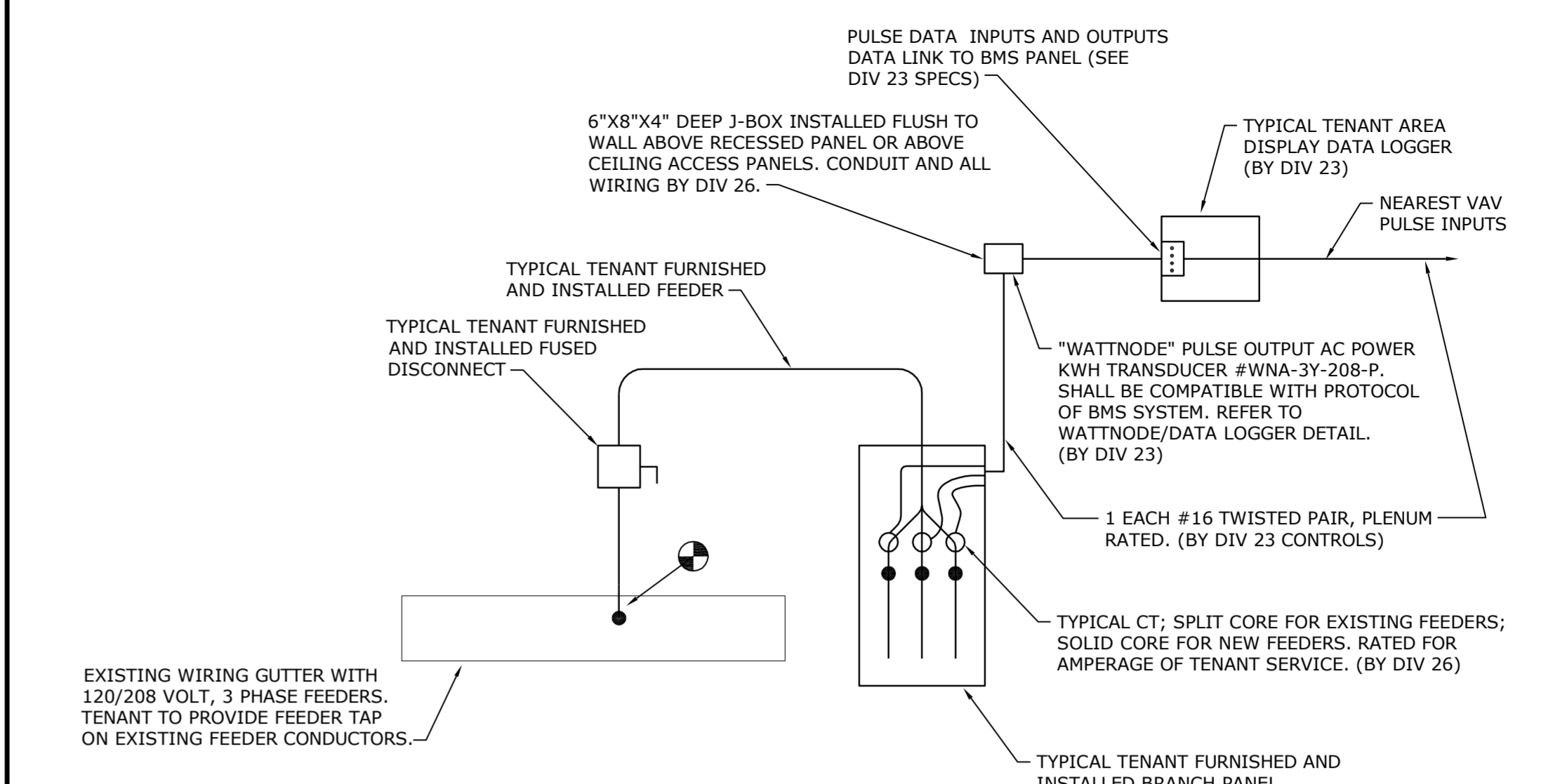
LINE VOLTAGE OCCUPANCY SENSOR WIRING DIAGRAM
NOT TO SCALE



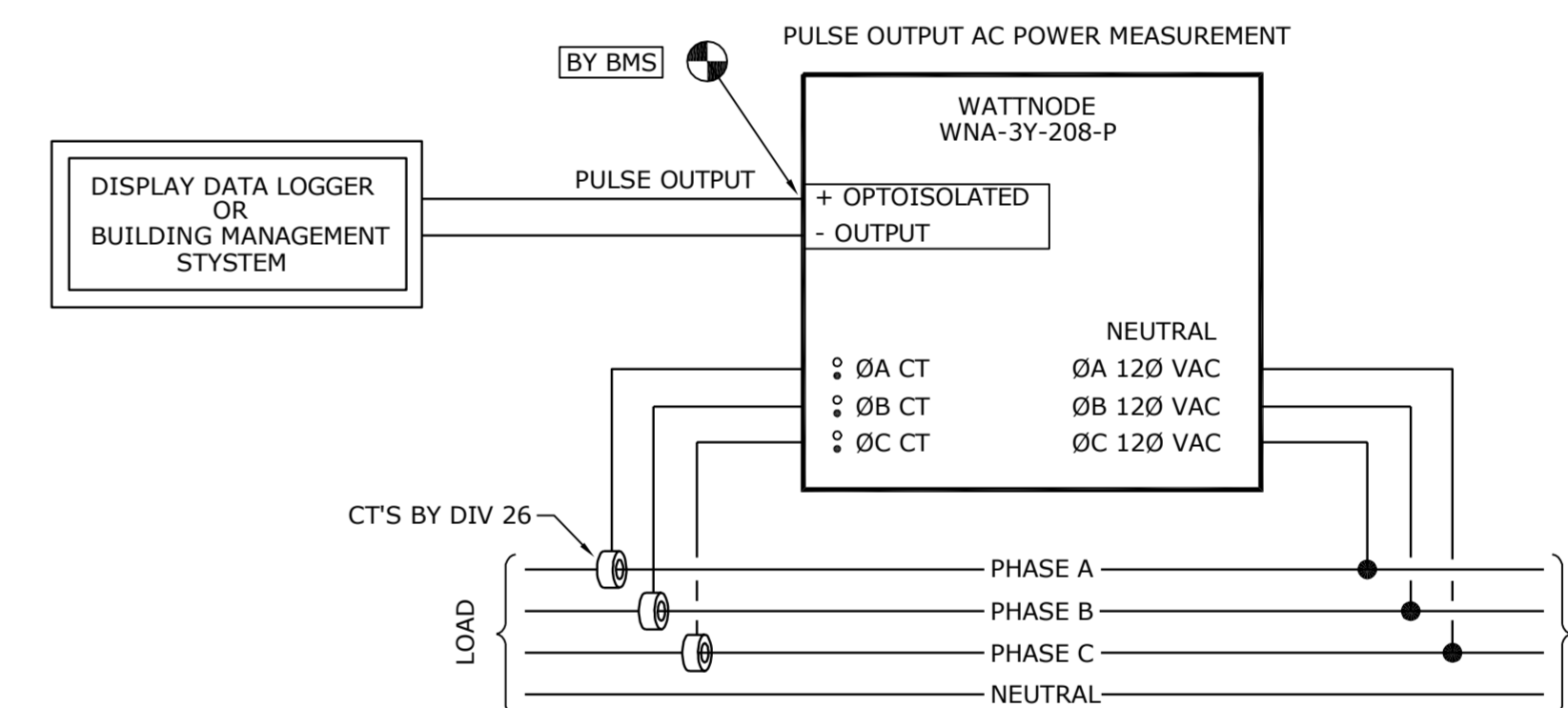
ELECTRICAL ONE-LINE DIAGRAM
NOT TO SCALE



LOW VOLTAGE OCCUPANCY SENSOR WIRING DIAGRAM
NOT TO SCALE



TENANT PANEL METERING DIAGRAM
SCALE: NO SCALE



SEQUENCE OF CONTROLS:

- * 1 DATA LOGGER PER TENANT COMPATIBLE TO SHELL BUILDING SYSTEM.
- * EACH TENANT WILL HAVE 1 ELECTRICAL BRANCH PANEL.
- * WATTNODE SENDS OUT A PULSE SIGNAL THAT REPRESENTS A KW USED. THE DATA LOGGER RECEIVES THE PULSE SIGNAL AND ACCUMULATES THE KW'S CONSUMED. DATA MUST BE COMPATIBLE WITH BUILDING MANAGEMENT SYSTEM (BMS). BMS RECEIVES ACCUMULATED KW AND PRODUCES A MONTHLY REPORT FOR EACH TENANT FOR MONTHLY BILLING STATEMENTS.
- * BUILDING SHELL CONTRACTOR MUST HAVE COMPATIBLE SOFTWARE TO PRODUCE FUTURE T.F. BILLING STATEMENTS FROM DATA LOGGERS.
- * FIELD VERIFY EXISTING CONDITIONS. MATCH BUILDING STANDARD FOR SUBMETERING.

WATTNODE/DATA LOGGER DETAIL
SCALE: NO SCALE



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Issue Date: 06.21.2016

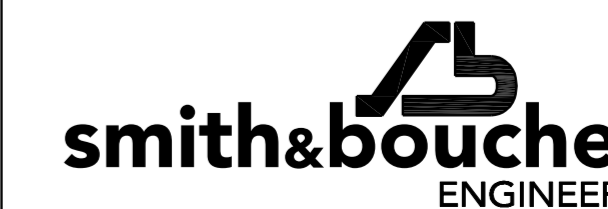
Revision No 1:

Revision No 2:

Revision No 3:

Revision No 4:

Project Number: 16030.01



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SCHEDULES AND DETAILS -
ELECTRICAL