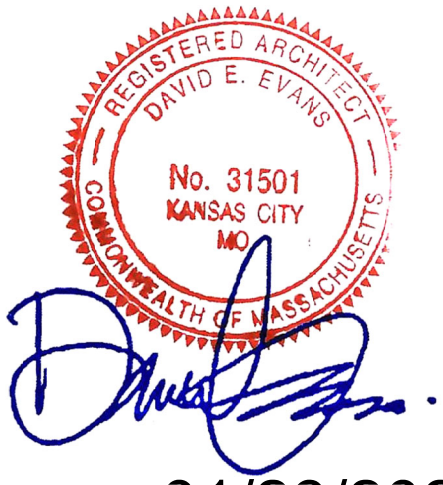


ADDITIONS & RENOVATIONS TO:

LIFESONG CHURCH

65 GILMORE DRIVE

SUTTON, MA 01590



01/29/2021

PROJECT #: 19-793

ISSUE DATE: 01/29/2021

CONSTRUCTION DOCUMENT DRAWINGS



consulting | architecture | developing

5013 N. Washington Street, Gladstone, Missouri 64118
t: 816.931.5600 www.mantelteter.com



CONSULTANTS

ANDREWS SURVEY & ENGINEERING, CIVIL ENGINEER
BOB D. CAMPBELL & COMPANY, STRUCTURAL ENGINEER
MARQUE ENGINEERING, MEP/FP ENGINEERS

104 MENDON STREET, UXBRIDGE, MA 01569
4338 BELLEVIEW ROAD, KANSAS CITY, MO 64111
2230 PARK AVENUE, CINCINNATI, OH 45206

508-316-0452
816-531-4144
513-901-0042

FINISH NOTES

1. INTENT OF THE CONTRACT DOCUMENTS ARE DEFINED FOR INTERIOR FINISHES AS A COMPLETED AND FINISHED AESTHETIC APPEARANCE CONSISTENT WITH THE DETAILS, MATERIALS AND PERFORMANCE DESCRIPTION THAT THEY INFER.
2. PATCH ALL WALLS, FLOORS, CEILINGS, ETC., AS REQUIRED TO RECEIVE SCHEDULED FINISHES AND/OR FOR CONSISTENT UNIFORM APPEARANCE AS ESTABLISHED FROM ADJACENT/OPPOSITE SURFACE TREATMENTS.
3. ALL MATERIALS ARE NOT ALL NOTED BY WORDS. IT IS INTENDED THAT THEY ARE UNDERSTOOD BY THE MATERIAL SYMBOL DRAWN.
4. WHERE A CONDITION IS NOTED "TYPICAL" (TYP) IT IS UNDERSTOOD THAT ALL SIMILAR CONDITIONS ARE TO BE CONSTRUCTED OF THE SAME MATERIALS AND/OR DIMENSION.
5. ALL DIMENSIONS ARE TO THE FACE OF MASONRY, STUDS AND FURRING OR TO THE CENTER LINE OF STRUCTURAL STEEL. SOFFIT/CEILING ELEVATIONS ARE FINISHED DIMENSIONS.
6. SLOPE 1" IN 48" RADIUS AROUND ALL FLOOR DRAINS.
7. ALL EXPOSED INTERIOR CONCRETE BLOCK SHALL BE STACK BOND CONCAVE JOINT. ALL UNEXPOSED CONCRETE BLOCK SHALL BE LAID RUNNING BOND, FLUSH JOINT.
8. ALL FACE BRICK SHALL BE MODULAR SIZE, COMMON WITH CONCAVE JOINTS TO MATCH EXISTING .
9. ALL NEW CONCRETE BLOCK AND BRICK INFILL SHALL BE INSTALLED WITH SIZE, COURSING AND JOINTS CONSISTENT WITH ADJACENT CONSTRUCTION TO MATCH FOR UNIFORM HOMOGENOUS APPEARANCE INCLUDING ALL CUTTING, "TOOTHING" AND TOOLING REQUIRED.
10. FACE BRICK SHALL MATCH EXISTING BUILDING(S).
11. ALL EXTERIOR STEEL SHALL BE GALVANIZED.
12. ALL EXTERIOR LINTELS, LOUVERS, ETC., SHALL BE PRE-FINISHED OR PAINTED TO MATCH THE FINISH COLOR OF THE MATERIAL THEY PENETRATE. SUBMIT SAMPLE FOR ARCHITECT'S APPROVAL.
13. REINFORCE ALL STEEL BAR JOISTS AT PANEL POINTS WHERE SPECIAL LOADING IS APPLIED, SUCH AS FOLDING PARTITION FRAMING.
14. ALL STUD PARTITIONS ARE AT 16" O.C. ABOVE CEILINGS. ABOVE CEILINGS, STUDS MAY BE INSTALLED AT 4'-0" O.C., AND SECURED TO BOTTOM OF STEEL JOIST/ STRUCTURE ABOVE EXCEPT AS NOTED.
15. ALL EXPOSED PIPES, DUCTS, CONDUIT IN FINISHED SPACES SHALL BE ENCLOSED WITH GYPSUM BOARD AND FURRING OR BLOCK CONSTRUCTION AS CONSISTENT WITH ADJACENT CONSTRUCTION INCLUDING THOSE NOT SHOWN ON THE DRAWINGS.
16. FURNISH AND INSTALL SLOD FIRE-RETARDANT TREATED WOOD PENETRATE IN ALL INTERIORS WHERE CONSTRUCTION WHERE STRUCTURAL SUPPORTS ARE REQUIRED FOR VANITIES, SHELVEING, HANDRAILS, GRAB BARS, DOOR WALL STOPS, ETC.
17. ALL PLYWOOD BACKING PANELS SHALL BE FIRE-RETARDANT TREATED WOOD.
18. ALL INTERIOR FINISH MATERIALS SHALL MEET THE CLASS RATINGS REQUIRED BY TABLE 801 OF THE 2012 IBC AS REQUIRED FOR THE OCCUPANCY TYPE AND CONSTRUCTION TYPE SHOWN IN THE CODE SUMMARY ON DRAWINGS SHEET G0.30.
19. REFER TO SPECIFICATIONS FOR FINISH MATERIAL AND INSTALLATION REQUIREMENTS.
20. REFER TO SPECIFICATION SECTION "099900 FINISH SCHEDULE" FOR FINISH MATERIALS AND COLOR SELECTIONS.
21. REFER TO SPECIFICATION SECTION "099100 GENERAL PAINTING" FOR ALL PAINTING, STAINING AND VARNISHING. SUBMIT SAMPLES FOR ARCHITECT'S APPROVAL.
22. ALL INTERIOR WALL GRILLES SHALL BE PRE-FINISHED OR PAINTED TO MATCH SURROUNDING WALL COLOR. VERIFY WITH ARCHITECT PRIOR TO ORDERING.
23. PAINT ALL STEEL RISERS, RAILING AND OTHER EXPOSED STEEL STAIR MEMBERS.
24. CLOSETS, STOREROOMS, ETC. NOT NOTED IN SPECIFICATION SECTION "099900 FINISH SCHEDULE" SHALL BE FINISHED PER THE ROOMS THEY SERVE.
25. RUN ALL WALL FINISHES CONTINUOUS BEHIND ALL CHALK/TACK BOARDS, MIRRORS, SHELVEING, ETC. WALLS BEHIND BASE AND WALL CABINETS MAY BE LEFT UNFINISHED, EXCEPT AS NOTED OTHERWISE.
26. ALL EXPOSED GYPSUM BOARD WALLS, COLUMNS, VERTICAL FACES OF SOFFITS SHALL HAVE A SMOOTH FINISHED SURFACE (RE: SPECIFICATION SECTION 09 2900). ALL BATHROOMS, CLOSETS, STOREROOMS, HORIZONTAL SOFFITS, CEILINGS OR CEILING VES WILL BE FINISHED SMOOTH. CONTRACTOR SHALL SUBMIT SHOP DRAWING ELEVATIONS IDENTIFYING THE LOCATION AND TYPE OF ALL REQUIRED CONTROL AND EXPANSION JOINTS PRIOR TO CONSTRUCTION.
27. ALL RUBBER BASE SHALL BE 4" COVE UNLESS NOTED OTHERWISE.
28. PROVIDE SCHEDULED RUBBER WALL BASE AT CASEWORK TOE KICK LOCATIONS UNLESS NOTED OTHERWISE.
29. PROVIDE FLOOR TRANSITION STRIPS BETWEEN ALL FINISH FLOOR MATERIALS WHERE THEY ABUT DISSIMILAR FLOOR FINISHES. LOCATE TRANSITION STRIPS AT CENTERLINE UNDER DOORS.
30. PAINT ALL INTERIOR HOLLOW METAL DOOR, DOOR LIGHT AND WINDOW FRAMES. PAINTED SPLIT JAMBS WILL BE REQUIRED FOR THIS PROJECT. SUBMIT SAMPLES FOR ARCHITECT'S APPROVAL.
31. STAIN AND VARNISH ALL INTERIOR HARDWOOD DOORS, CABINETS, HANDRAILS, TRIM, ETC. UNLESS NOTED OTHERWISE.
32. COORDINATE SUSPENDED ACOUSTICAL GRID CEILINGS WITH ELECTRICAL CEILING LIGHT FIXTURE LAYOUT - SEE ELECTRICAL AND HVAC PLANS. ALL SUSPENDED ACOUSTICAL GRID CEILINGS SHALL BE CENTERED WITHIN CEILING PERIMETER UNLESS SHOWN OTHERWISE.
33. PROVIDE 3-1/2" UNFACED SOUND BATT INSULATION ABOVE ACOUSTICAL CEILING TILES IN RESTROOMS, TOILET ROOMS AND 2'-0" EACH SIDE OF WALLS BETWEEN CORRIDORS, OFFICES, CLASSROOMS AND RESPECTIVE ADJACENT ROOMS.
34. WHERE ALL DISSIMILAR MATERIALS MEET, USE CAULKED JOINTS. USE METAL EDGES, CORNERS AND STOPS AS REQUIRED ON ALL GYPSUM BOARD UNITS.
35. INSTALL PORTABLE FIRE EXTINGUISHERS (WITH A GROSS WEIGHT NOT EXCEEDING 40 POUNDS) NO MORE THAN 4 FEET ABOVE THE FLOOR TO TOP OF EXTINGUISHER. INSTALL FIRE EXTINGUISHERS WITH A GROSS WEIGHT EXCEEDING 40 POUNDS NO MORE THAN 3.5 FEET ABOVE THE FLOOR TO TOP OF EXTINGUISHER. THE CLEARANCE BETWEEN THE FLOOR AND THE BOTTOM OF INSTALLED PORTABLE EXTINGUISHERS SHALL NOT BE LESS THAN 4 INCHES.
36. PROVIDE WATER REPELLENTS AT ALL EXPOSED MASONRY LOCATIONS AS NOTED IN SPECIFICATION SECTION "071900 WATER REPELLENTS".

SITE NOTES

1. THE OWNER PROVIDED SURVEY INFORMATION IS ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE ENGINEERS & ARCHITECT. THEREFORE THE ARCHITECT CANNOT GUARANTEE THE ACCURACY OF THE SURVEY. THE CONTRACTOR SHALL VERIFY ALL EXISTING GRADES, DIMENSIONS AND/OR UTILITY LINES AS REQUIRED AND REPORT ANY DISCREPANCY TO THE ARCHITECT PRIOR TO PROCEEDING WITH CONSTRUCTION FOR PROPER INTENT AND LOCATION.
2. ALL EXISTING UTILITIES MAY NOT BE SHOWN ON THE SURVEY. GENERAL CONTRACTOR SHALL CONTACT AND COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY THE EXACT LOCATION OF ALL UNDERGROUND AND ABOVE GROUND UTILITY LINES WITH THE COMPANY OWNING THE RESPECTIVE LINES WHETHER SHOWN OR NOT ON THE DRAWINGS. IN ADDITION, GENERAL CONTRACTOR SHALL PROTECT ALL UTILITY LINES (ABOVE & BELOW GROUND) DURING THE ENTIRE CONSTRUCTION PERIOD. UTILITIES DAMAGED THROUGH THE NEGLIGENCE OF THE CONTRACTOR TO VERIFY THE LOCATION OF THE SAME SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS EXPENSE.
3. THE TEST BORINGS AND GEOTECHNICAL REPORT WERE PREPARED FOR THIS BUILDING BY TERRACON CONSULTANTS, INC. (913-492-7777). ALL RECOMMENDATIONS IN GEOTECHNICAL REPORT SHALL BE MADE A PART OF THIS CONTRACT UNLESS NOTED OTHERWISE.
4. THE GENERAL CONTRACTOR SHALL HAVE TESTS PERFORMED FOR ALL SOIL CONDITIONS PRIOR TO CONSTRUCTION, THE GENERAL CONTRACTOR SHALL ESTABLISH THE DEPTH OF FOUNDATIONS FOR THE EXCAVATIONS. GENERAL CONTRACTOR SHALL SUBMIT TO THE ARCHITECT/ENGINEER A TEMPORARY BRACING METHOD TO BE IMPLEMENTED TO PROTECT THE SLOPE OF THE EXCAVATION AND ADJACENT EXISTING STRUCTURES DURING THE CONSTRUCTION OF THE BASEMENT AREAS FOR REVIEW PRIOR TO CONSTRUCTION. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF SUCH METHODS OF PROTECTION OF EXISTING STRUCTURE.
5. ANY EXISTING TREES TO REMAIN SHALL BE ADEQUATELY PROTECTED WITH FENCING AT LEAST 4' HIGH AND 4" FROM THE TREE. TREES WHICH ARE MARKED TO REMAIN AND ARE DAMAGED OR KILLED UP TO ONE YEAR AFTER COMPLETION OF CONSTRUCTION, DUE TO GRADING OR SUPERFICIAL DAMAGE, SHALL BE REPLACED WITH A 4" DIAMETER TREE OF THE SAME SPECIES, OR APPROVED EQUAL BY THE OWNER, AT NO COST TO THE OWNER.
6. STRIP TOP SOIL TO DEPTH OF 6" AND STOCKPILE FOR REDISTRIBUTION AFTER ROUGH GRADING. STOCKPILE TOPSOIL IN SEPARATE LOCALS FROM UNDERLYING SOIL. REDISTRIBUTE TOPSOIL AT DEPTH OF 4" MINIMUM OVER ALL UNPAVED AREAS. IF ADDITIONAL TOPSOIL IS REQUIRED, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ADDITIONAL MATERIAL.
7. SEE CIVIL DRAWINGS FOR GRADING AND DRAINAGE REQUIREMENTS. COORDINATE ALL ITEMS WITH MECHANICAL/ELECTRICAL SITE PLAN REQUIREMENTS. REPORT ALL DISCREPANCIES TO ARCHITECT BEFORE PROCEEDING WITH CONSTRUCTION FOR PROPER INTENT.
8. GRADING SHOWN WILL BE FIELD CHECKED BY THE CIVIL ENGINEER AND OWNER AFTER ROUGH GRADING IS COMPLETED. MINOR CHANGES AS FIELD CONDITIONS DICTATE MAY BE REQUIRED. CONTOUR AND SPOT ELEVATIONS ARE CONTROLS ONLY AND ALL GRADING IS TO BE SMOOTH, FLOWING AND CONTINUOUS FOR POSITIVE DRAINAGE AND VISUAL EFFECT.
9. EXCESS FILL REQUIRED TO OBTAIN CONTROL ELEVATIONS SHALL BE OF APPROVED COMPOSITION AND PLACED PER THE GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
10. COMPACT ALL AREAS TO MAXIMUM DENSITIES AT OPTIMUM SOIL MOISTURE CONTENT AS REQUIRED BY THE GEOTECHNICAL REPORT.
11. REFERENCE CIVIL DRAWINGS FOR CONCRETE SIDEWALK, CURB AND GUTTER DESIGN. ALL NEW CONCRETE SIDEWALKS, CURBS AND/OR GUTTERS SHALL BE INSTALLED AT AN EXISTING JOINT WITH EXPANSION JOINT MATERIAL AND SEALANT TO PROVIDE A SMOOTH TRANSITION BETWEEN NEW AND EXISTING CONSTRUCTION.
12. VERIFY FINISH CURB ELEVATIONS BEFORE INSTALLATION TO ASSURE POSITIVE DRAINAGE AND TO ALIGN WITH EXISTING.
13. VERIFY LOCATION OF ALL PADS FOR UTILITY EQUIPMENT WITH ARCHITECT, AND/OR MECHANICAL ENGINEER. SET ALL PADS ON COMPACTED SUBGRADE AND 4" AB-3 BASE.
14. ALL UNPAVED AREAS DISTURBED SHALL BE SEEDED, SODDED OR MULCHED ON REDISTRIBUTED TOPSOIL (RE: LANDSCAPE DRAWINGS).
15. EXISTING ASPHALT AREAS DAMAGED BY CONSTRUCTION SHALL BE REPAIRED WITH 5" SOLID ASPHALT AT NO COST TO THE OWNER. PRIOR TO START OF CONSTRUCTION, GENERAL CONTRACTOR SHALL DOCUMENT DETERIORATED AREAS TO BE PREPARED PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALL NEW ASPHALT AND PATCHED AREAS SHALL PROVIDE SMOOTH TRANSITION BETWEEN NEW AND EXISTING SURFACES WITHOUT DIPS, HUMPS OR BUMPS.
16. FURNISH AND INSTALL TERMITE CONTROL AS REQUIRED BY THE SPECIFICATIONS.

SITE DEMOLITION NOTES

1. THE GENERAL CONTRACTOR WILL REMOVE ANY AND ALL SIDEWALKS, CURBS, SHRUBBERY, TREES, FENCES, CONCRETE CURBS, ASPHALT AND ANY OTHER ITEMS NOT NOTED TO BE REMOVED BUT REQUIRED TO BE REMOVED TO INSTALL THE NEW CONSTRUCTION.
2. ALL POLES, LINES, METERS, PADS, ETC. TO BE REMOVED OR RELOCATED, SHALL BE MODIFIED BY THE UTILITY OWNING THE ITEM. GENERAL CONTRACTOR WILL BE RESPONSIBLE TO FILL ANY HOLES PER DIVISION 2 IF NOT COMPLETED BY UTILITY, COORDINATE WITH OWNING UTILITY COMPANY.
3. GENERAL CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES TO FIELD VERIFY EXACT LOCATIONS OF UNDERGROUND AND ABOVE GROUND LINES AND COORDINATE WITH UTILITY COMPANY OWNING IT. ANY OWNING THE UTILITY COMPANY SHALL BE RESPONSIBLE TO REQUEST, NOR EXPECT TO RECEIVE, ADDITIONAL PAYMENT FOR WORK RELATED TO VARIATIONS WHICH CAN BE DETERMINED BY EXAMINATION OF THIS INFORMATION, THE BUILDING AND THE SITE BY DATE SET FOR RECEIPT OF BIDS FOR THIS CONTRACT.
4. EXISTING CONDITIONS WERE TAKEN FROM ORIGINAL DRAWINGS & SITE VISITS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING AND PERFORMING ANY WORK. CONTRACTOR SHALL COORDINATE NEW WORK AND DEMOLITION WITH ALL OTHER DISCIPLINES AND EXISTING CONDITIONS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT PRIOR TO STARTING THE WORK.
5. THE INTENT OF THE CONTRACT DOCUMENTS IS TO INCLUDE ALL ITEMS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK BY THE CONTRACTOR. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. SHOULD A CONFLICT OCCUR, THE ARCHITECT WILL DETERMINE THE INTENT OF THE CONTRACT DOCUMENTS TO PROVIDE THE OWNER WITH A COMPLETED AND FUNCTIONAL FACILITY. PERFORMANCE BY THE CONTRACTOR SHALL BE REQUIRED ONLY TO THE EXTENT CONSISTENT WITH THESE CONTRACT DOCUMENTS AND REASONABLY INFERRABLE FROM THEM AS BEING NECESSARY TO PRODUCE THE INTENDED "FINISHED" RESULTS.
6. THE CONTRACTOR SHALL THOROUGHLY REVIEW ALL BID DOCUMENTS TO FULLY COORDINATE ALL ITEMS, INCLUDING THEIR PROPER INSTALLATION, THAT WILL BE UTILIZED ON THIS PROJECT PRIOR TO BID SUBMITTAL. IN THE EVENT THAT ANY AMBIGUITY, DISCREPANCY, ERROR, INCONSISTENCY OR OMISSION IN OR BETWEEN THE BID DOCUMENTS EXIST OR APPEARS TO EXIST, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING PRIOR TO THE BID SUBMITTAL FOR CLARIFICATION. THE CONTRACTOR ACKNOWLEDGES THAT HIS/HER SUBCONTRACTORS, FABRICATORS, & SUPPLIERS HAVE THOROUGHLY REVIEWED ALL BID DOCUMENTS AND REPORTED ANY AMBIGUITY, DISCREPANCY, ERROR, INCONSISTENCY OR OMISSION TO THE ARCHITECT IN WRITING PRIOR TO THE BID SUBMITTAL FOR CLARIFICATION. SHOULD A CLARIFICATION, DECISION, OR INTERPRETATION NOT BE REQUESTED BY THE CONTRACTOR OR RENDERED BY THE ARCHITECT, IT SHALL BE ASSUMED THAT THE CONTRACTOR HAS REVIEWED ALL THE BID DOCUMENTS AND HAS INCLUDED THE MOST COSTLY ITEM OR METHOD IN QUESTION REQUIRED TO RESOLVE THE AMBIGUITY, DISCREPANCY, ERROR, INCONSISTENCY OR OMISSION. ONE DOCUMENT DOES NOT TAKE PRECEDENCE OVER ANOTHER WHEN INTERPRETING A DISCREPANCY.
7. THE CONTRACTOR AND SUBCONTRACTORS SHALL CHECK AND FIELD VERIFY ALL MEASUREMENTS, DIMENSIONS, ELEVATIONS AND ALIGNMENTS, INCLUDING THE EXISTING BUILDING AND SITE, BEFORE PROCEEDING WITH WORK. DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT.
8. CONTRACTOR SHALL NOT SCALE DRAWINGS EXCEPT FOR GENERAL REFERENCES.
9. ALL FLOOR ELEVATIONS AND GRADES SHOWN ARE REFERENCED FROM THE OWNER PROVIDED SURVEY WITH THE INTENT OF ALL FLOORS BETWEEN THE EXISTING BUILDING AND NEW ADDITIONS ALIGNING.
10. WRAP ALL STEEL COLUMNS ENCASED IN MASONRY WITH WP. BUILDING PAPER OR 15 POUND ROOFING FELT.
11. NO PLUMBING SUPPLIES, WASTES, ETC. TO BE LOCATED IN EXTERIOR WALLS EXCEPT PROOF HOSE BIBBS. ALL EXPOSED PIPES, DUCTS, CONDUIT, SHALL BE ENCLOSED WITH GYPSUM BOARD ON FURRING INCLUDING THOSE NOT SHOWN ON THE DRAWINGS.
12. ALL PLUMBING CHASES TO HAVE FULL BATT INSULATION.
13. ALL DRAWINGS AND SPECIFICATIONS ARE PROVIDED AS ONE UNIT. SHOULD A CONFLICT OCCUR, THE ARCHITECT WILL DETERMINE THE INTENT OF THE CORRECT DOCUMENTS TO PROVIDE THE OWNER WITH COMPLETED, FUNCTIONAL FACILITIES WITH A FULLY "FINISHED" APPEARANCE.
14. THESE DRAWINGS ARE FOR THIS SPECIFIC PROJECT AND NO OTHER USE IS AUTHORIZED.

DEMOLITION NOTES

1. THE DEMOLITION WORK REQUIRED IS NOT SPECIFICALLY SHOWN BUT ALL WORK REQUIRED TO COMPLETE THE PROJECT TO A LEVEL INFERRED BY THESE DRAWINGS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
2. THE GENERAL CONTRACTOR IS RESPONSIBLE TO VISIT THE SITE AND EXAMINE THE SITE AND BUILDING TO VERIFY THE EXTENT/QUANTITY OF ALL DEMOLITION WORK INVOLVED TO ACHIEVE COMPLETED NEW CONSTRUCTION.
3. THE OWNER WILL REMOVE (72 HOURS AFTER NOTIFICATION OF WORK IN EACH AREA BY GENERAL CONTRACTOR) ANY ITEMS THEY WISH TO SALVAGE. CONTRACTOR WILL REMOVE FROM THE PROPERTY ALL OTHER ITEMS INCLUDING DOORS, FRAMES/FIXTURES, HARDWARE, ETC. INCLUDING DEMOLISHED WALLS, FLOORING, CEILINGS, ETC. AS REQUIRED TO COMPLETE THE WORK.
4. THE GENERAL CONTRACTOR SHALL PROVIDE APPROPRIATE SAFETY PRECAUTIONS TO INSURE THE SAFETY OF WORKERS, EMPLOYEES AND THE PUBLIC. SEE SPECIFICATIONS ON DEMOLITION WORK INCLUDING SAFETY REQUIREMENTS. ALL NOTES APPLY TO THE ENTIRE PROJECT.
5. IN EXISTING WALLS THAT REMAIN WHICH REQUIRE NEW ELECTRICAL, MECHANICAL OR PLUMBING WORK, THE CONTRACTOR HAS THE OPTION TO REMOVE THE SURFACE OF ONE OR BOTH SIDES AS REQUIRED. NEW WALL FINISHES SHALL BE APPLIED TO MATCH ADJACENT FINISHES TO REMAIN.
6. THE CONTRACTOR HAS THE OPTION OF REMOVING MORE WALLS THAN INDICATED ON THESE DRAWINGS AND REBUILDING NEW WALLS TO THE SAME LOCATION AND MATERIALS AND FINISHES SPECIFIED. ANY ADDITIONAL SHORING REQUIRED SHALL BE CONSIDERED IN THIS OPTION.
7. WHERE INTERIOR LOAD BEARING WALLS ARE TO BE REMOVED, ADEQUATE BRACING SHALL BE IN PLACE PRIOR TO DEMOLITION AND IS TO REMAIN IN PLACE UNTIL NEW STRUCTURAL SUPPORT HAS BEEN INSTALLED TO ACCOMMODATE THESE LOADS.
8. REMOVE ALL ELECTRICAL, MECHANICAL (PHVAC) AND RELATED ITEMS AS REQUIRED TO INSTALL NEW WORK. ALL ABANDONED LINES SHALL BE REMOVED AS PART OF THIS WORK.
9. WHERE FASCIAS, GUTTERS, PARAPETS, ETC. ARE TO BE REMOVED, OR WHERE ROOF PENETRATIONS ARE TO BE MADE, THE CONTRACTOR SHALL PROTECT THE OPENING FROM WEATHER EXPOSURE. ANY DAMAGE CAUSED BY WEATHER EXPOSURE SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.

GENERAL NOTES

1. EVERY CONTRACTOR, SUBCONTRACTOR, INSTALLER, ETC., SHALL STUDY AND COMPARE THE BIDDING DOCUMENTS WITH EACH OTHER, WITH THE EXISTING BUILDING AND THE ORIGINAL CONSTRUCTION DRAWINGS AVAILABLE FOR REVIEW ON SITE. ALL DRAWINGS, SPECIFICATIONS AND THE EXISTING FACILITY ARE AVAILABLE FOR REVIEW TO ENSURE THAT ALL CONDITIONS, BOTH PROPOSED AND EXISTING, CAN BE COMPARED FOR COMPATIBILITY. SHOULD A CONFLICT, ERROR, INCONSISTENCY OR AMBIGUITY BE DISCOVERED IT IS THE CONTRACTOR'S RESPONSIBILITY TO INFORM THE ARCHITECT IMMEDIATELY. BIDDERS ARE ADVISED THAT "AS-BUILT" CONDITIONS MAY VARY FROM THOSE SHOWN ON THE DRAWINGS. HOWEVER, FROM REVIEW OF ALL THE ITEMS PROVIDED IT SHOULD BE UNDERSTOOD THAT BIDDERS SHALL NOT LATER REQUEST, NOR EXPECT TO RECEIVE, ADDITIONAL PAYMENT FOR WORK RELATED TO VARIATIONS WHICH CAN BE DETERMINED BY EXAMINATION OF THIS INFORMATION, THE BUILDING AND THE SITE BY DATE SET FOR RECEIPT OF BIDS FOR THIS CONTRACT.
2. EXISTING CONDITIONS WERE TAKEN FROM ORIGINAL DRAWINGS & SITE VISITS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING AND PERFORMING ANY WORK. CONTRACTOR SHALL COORDINATE NEW WORK AND DEMOLITION WITH ALL OTHER DISCIPLINES AND EXISTING CONDITIONS. ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT PRIOR TO STARTING THE WORK.
3. THE INTENT OF THE CONTRACT DOCUMENTS IS TO INCLUDE ALL ITEMS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK BY THE CONTRACTOR. THE CONTRACT DOCUMENTS ARE COMPLEMENTARY AND WHAT IS REQUIRED BY ONE SHALL BE AS BINDING AS IF REQUIRED BY ALL. SHOULD A CONFLICT OCCUR, THE ARCHITECT WILL DETERMINE THE INTENT OF THE CONTRACT DOCUMENTS TO PROVIDE THE OWNER WITH A COMPLETED AND FUNCTIONAL FACILITY. PERFORMANCE BY THE CONTRACTOR SHALL BE REQUIRED ONLY TO THE EXTENT CONSISTENT WITH THESE CONTRACT DOCUMENTS AND REASONABLY INFERRABLE FROM THEM AS BEING NECESSARY TO PRODUCE THE INTENDED "FINISHED" RESULTS.
4. THE CONTRACTOR SHALL THOROUGHLY REVIEW ALL BID DOCUMENTS TO FULLY COORDINATE ALL ITEMS, INCLUDING THEIR PROPER INSTALLATION, THAT WILL BE UTILIZED ON THIS PROJECT PRIOR TO BID SUBMITTAL. IN THE EVENT THAT ANY AMBIGUITY, DISCREPANCY, ERROR, INCONSISTENCY OR OMISSION IN OR BETWEEN THE BID DOCUMENTS EXIST OR APPEARS TO EXIST, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING PRIOR TO THE BID SUBMITTAL FOR CLARIFICATION. THE CONTRACTOR ACKNOWLEDGES THAT HIS/HER SUBCONTRACTORS, FABRICATORS, & SUPPLIERS HAVE THOROUGHLY REVIEWED ALL BID DOCUMENTS AND REPORTED ANY AMBIGUITY, DISCREPANCY, ERROR, INCONSISTENCY OR OMISSION TO THE ARCHITECT IN WRITING PRIOR TO THE BID SUBMITTAL FOR CLARIFICATION. SHOULD A CLARIFICATION, DECISION, OR INTERPRETATION NOT BE REQUESTED BY THE CONTRACTOR OR RENDERED BY THE ARCHITECT, IT SHALL BE ASSUMED THAT THE CONTRACTOR HAS REVIEWED ALL THE BID DOCUMENTS AND HAS INCLUDED THE MOST COSTLY ITEM OR METHOD IN QUESTION REQUIRED TO RESOLVE THE AMBIGUITY, DISCREPANCY, ERROR, INCONSISTENCY OR OMISSION. ONE DOCUMENT DOES NOT TAKE PRECEDENCE OVER ANOTHER WHEN INTERPRETING A DISCREPANCY.
5. THE CONTRACTOR AND SUBCONTRACTORS SHALL CHECK AND FIELD VERIFY ALL MEASUREMENTS, DIMENSIONS, ELEVATIONS AND ALIGNMENTS, INCLUDING THE EXISTING BUILDING AND SITE, BEFORE PROCEEDING WITH WORK. DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT.
6. CONTRACTOR SHALL NOT SCALE DRAWINGS EXCEPT FOR GENERAL REFERENCES.
7. ALL FLOOR ELEVATIONS AND GRADES SHOWN ARE REFERENCED FROM THE OWNER PROVIDED SURVEY WITH THE INTENT OF ALL FLOORS BETWEEN THE EXISTING BUILDING AND NEW ADDITIONS ALIGNING.
8. WRAP ALL STEEL COLUMNS ENCASED IN MASONRY WITH WP. BUILDING PAPER OR 15 POUND ROOFING FELT.
9. NO PLUMBING SUPPLIES, WASTES, ETC. TO BE LOCATED IN EXTERIOR WALLS EXCEPT PROOF HOSE BIBBS. ALL EXPOSED PIPES, DUCTS, CONDUIT, SHALL BE ENCLOSED WITH GYPSUM BOARD ON FURRING INCLUDING THOSE NOT SHOWN ON THE DRAWINGS.
10. ALL PLUMBING CHASES TO HAVE FULL BATT INSULATION.
11. ALL DRAWINGS AND SPECIFICATIONS ARE PROVIDED AS ONE UNIT. SHOULD A CONFLICT OCCUR, THE ARCHITECT WILL DETERMINE THE INTENT OF THE CORRECT DOCUMENTS TO PROVIDE THE OWNER WITH COMPLETED, FUNCTIONAL FACILITIES WITH A FULLY "FINISHED" APPEARANCE.
12. THESE DRAWINGS ARE FOR THIS SPECIFIC PROJECT AND NO OTHER USE IS AUTHORIZED.

ADD ALTERNATE (S)

ALL REQUIREMENTS UNDER INSTRUCTIONS TO BIDDERS, GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, DIVISION ONE (1) - GENERAL REQUIREMENTS, TECHNICAL SPECIFICATIONS AND ADDENDA OF THESE SPECIFICATIONS SHALL BE A PART OF THIS SECTION. EACH CONTRACTOR IS RESPONSIBLE TO BE THOROUGHLY FAMILIAR WITH ALL ITS CONTENTS AS TO REQUIREMENTS WHICH AFFECT THIS DIVISION OR SECTION.

CONTRACTOR SHALL STATE IN PROPOSAL THE AMOUNT TO BE ADDED OR DEDUCTED FROM THE BASE BID FOR EACH OF THE FOLLOWING ALTERNATES IF ACCEPTED BY OWNER. ALTERNATES MAY NOT BE TAKEN IN ORDER OF LISTING. IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO MAKE CERTAIN THEIR SUBCONTRACTORS UNDERSTAND THE SCOPE OF EACH ALTERNATE AND TO ASSEMBLE VARIOUS OMISSIONS, SUBSTITUTIONS AND ADDITIONS IN SUCH A MANNER THAT ADDITION FOR EACH ALTERNATE TAKES INTO ACCOUNT ALL ITEMS AFFECTED, INCLUDING ADDITIONAL WORK IN ONE TRADE MADE NECESSARY BY ADDITIONS, DEDUCTIONS OR SUBSTITUTIONS IN ANOTHER. NO CONSIDERATION WILL BE GIVEN TO ANY CLAIM FOR EXTRA MONEY ARISING FROM CONTRACTOR'S FAILURE TO PROPERLY EXTRACT THIS RESPONSIBILITY.

ACCEPTED ALTERNATES ARE IN FULL FORCE AND EFFECT, AS THOUGH INCLUDED ORIGINALLY IN THE BASE BID. EACH MUST BE COMPLETELY INTEGRATED AND COORDINATED WITH ALL RELATED AND SURROUNDING WORK. ALTERNATES MAY OR MAY NOT BE TAKEN IN ORDER. THE BASE BID WITH OWNER ACCEPTED ALTERNATES WILL BE THE CRITERIA TO DETERMINE THE QUALIFIED BIDDER.

ALTERNATE NUMBER ONE (1):

MATERIAL SYMBOL LEGEND

	EARTH
	CONCRETE
	BRICK VENEER
	CONCRETE BLOCK
	GYPSUM BOARD / GROUT / CEMENTITIOUS FIRE PROTECTION
	GLASS-MAT GYP. SHTG. BD.
	MANUFACTURED MASONRY VENEER
	WOOD (ROUGH)
	PLYWOOD
	FINISHED WOOD
	CRUSHED ROCK
	STEEL / METAL
	CAST STONE
	BATT INSULATION
	RIGID INSULATION
	FINISHED STONE / SOLID SURFACE
	CEILING TILE / FIBERBOARD / CEMENTITIOUS ROOF DECK
	NEW STUD WALL
	BLOWN-IN INSULATION
	DEMO WALL / DOOR EXCEPT AS NOTED

NOT ALL MATERIALS ARE INDICATED ON THE SYMBOL LEGEND. THOSE MATERIALS NOT INDICATED ARE INDICATED ON SPECIFIC DETAILS, SECTIONS, OR ELEVATIONS.

NOT ALL SYMBOLS ARE NOTED. WHERE SYMBOLS ARE NOT NOTED, IT IS UNDERSTOOD THAT THE SYMBOL IS THE SAME AS IDENTICAL SYMBOLS NOTED.

DISCLAIMER

I HEREBY SPECIFY THAT THE DOCUMENTS INTENDED TO BE AUTHENTICATED BY MY SEAL ARE LIMITED TO:

BIDDING DOCUMENTS, CONTRACT DOCUMENTS, SPECIFICATION DIVISIONS 1 TO 12, DRAWING SHEETS COVER, G0.20, G0.30 AND A1.00-A7.10, ARCHITECTURAL ONLY.

I HEREBY DISCLAIM ANY RESPONSIBILITY FOR ANY STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, FIRE ALARM, FIRE SUPPRESSION, AUDIO/VISUAL AND THEATRICAL LIGHTING REQUIREMENTS INDICATED HEREIN AND THOSE FOUND IN THE REMAINDER AS BEING THE RESPONSIBILITY OF OTHER DESIGN PROFESSIONALS WHOSE SEALS APPEAR HEREINAFTER.

01/29/2021

mantel teter

WORK BY OWNER

THE FOLLOWING ITEMS ARE NOT INCLUDED AS PART OF THE CONSTRUCTION CONTRACT AS DESCRIBED IN THE PROJECT SPECIFICATIONS, HOWEVER SHOULD BE CONSIDERED FOR COORDINATION PURPOSES. SEE OWNER FOR SPECIFIC REQUIREMENTS AND CONTACTS FOR COORDINATION:

- SECURITY SYSTEMS
- TELEPHONE SYSTEMS
- I.T. NETWORKING SYSTEMS
- TELEVISION CABLE SYSTEMS
- EXHIBIT DISPLAYS
- FURNISHINGS AND EQUIPMENT
- BLINDS, DRAPES, POWER SHADES OR ANY OTHER WINDOW TREATMENTS
- ROOM AND DIRECTIONAL SIGNAGE
- SOAP DISPENSERS
- PAPER TOWEL DISPENSERS
- TRASH CANS
- THEMED SPACE DESIGN ELEMENTS
- AUDIO/VIDEO & THEATRICAL LIGHTING SYSTEMS
- PAINT AND OUTDOOR EQUIPMENT
- THIRD-PARTY BUILDING CODE REQUIRED SPECIAL INSPECTIONS

INDEX OF DRAWINGS

GENERAL	COVER SHEET
G0.10	INDEX OF DRAWINGS / ABBREVIATIONS / MATERIAL LEGEND / NOTES
G0.20	CODE / EGRESS PLAN / NOTES
G0.30	
CIVIL SHEETS	
C1	EXISTING CONDITIONS PLAN
C2	DEMOLITION PLAN
C3	SITE LAYOUT AND UTILITIES PLAN
C4	GRADING AND DRAINAGE PLAN
C5.1	EROSION AND SEDIMENT CONTROL PLAN
C5.2	EROSION AND SEDIMENT CONTROL NOTES & DETAILS
C6.1	CONSTRUCTION DETAILS
C6.2	CONSTRUCTION DETAILS
STRUCTURAL SHEETS	
S1.00	GENERAL NOTES AND LEGEND
S1.10	FOUNDATION PLAN
S1.20	SECTIONS
ARCHITECTURAL SHEETS	
A1.00	FIRST FLOOR DEMOLITION PLAN
A1.10	FIRST FLOOR PLAN
A1.11	FIRST FLOOR DIMENSION PLAN
A1.12	WALL TYPE SCHEDULE / DETAILS / NOTES
A1.20	FIRST FLOOR REFLECTED CEILING PLAN / DETAILS
A1.30	ROOF PLAN / DETAILS
A2.10	EXTERIOR BUILDING ELEVATIONS / DETAILS
A3.10	BUILDING SECTIONS / DETAILS
A4.10	ENLARGED PLANS / INTERIOR ELEVATIONS / DETAILS
A4.11	ENLARGED PLANS / INTERIOR ELEVATIONS / DETAILS
A4.12	ENLARGED PLANS / INTERIOR ELEVATIONS / DETAILS
A6.10	DOOR & FRAME SCHEDULE / WINDOW ELEVATIONS / DOOR ELEVATIONS / NOTES / DETAILS
A7.10	FIRST FLOOR FINISH PLAN

MECHANICAL SHEETS	
M1.0	MECHANICAL FLOOR PLAN
M2.0	MECHANICAL SCHEDULES
M2.1	MECHANICAL DETAILS
M3.0	MECHANICAL SPECIFICATIONS
M4.0	MECHANICAL ENERGY COMPLIANCE
PLUMBING SHEETS	
P1.0	PLUMBING FLOOR PLAN
P2.0	PLUMBING DETAILS
P3.0	PLUMBING SPECIFICATIONS
ELECTRICAL SHEETS	
E0.0	LIGHTING PHOTOMETRY
E1.0	LIGHTING FLOOR PLAN
E1.1	POWER FLOOR PLAN
E2.0	ELECTRICAL SINGLE LINE
E2.1	ELECTRICAL SCHEDULES
E3.0	ELECTRICAL SPECIFICATIONS
E4.0	ELECTRICAL ENERGY COMPLIANCE

FIRE PROTECTION SHEETS	
FP1.0	FIRE PROTECTION FLOOR PLAN

ARCHITECT: DAVID EUGENE EVANS
ARCHITECT LICENSE NO: MA 91501

01/29/2021

MANTEL, TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTEL, TETER ARCHITECTS, P.C.

consulting | architecture | development
5013 N. Washington St., Gladstone, Missouri 64118
t: 816.931.5660
www.mantelteter.com

ADDITIONS & RENOVATIONS TO:

LIFESONG CHURCH

65 GILMORE DRIVE

SUTTON, MA 01590

PROJECT #:

ISSUE DATE:

DRAWN BY:

CHECKED BY:

REVISIONS:

SHEET No.

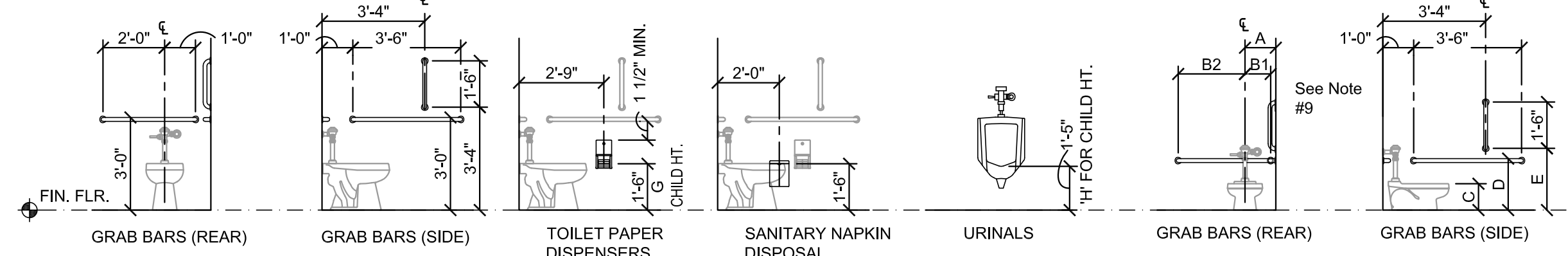
G0.20

INDEX OF DRAWINGS / ABBREVIATIONS/ MATERIALS SYMBOL LEGEND / NOTES

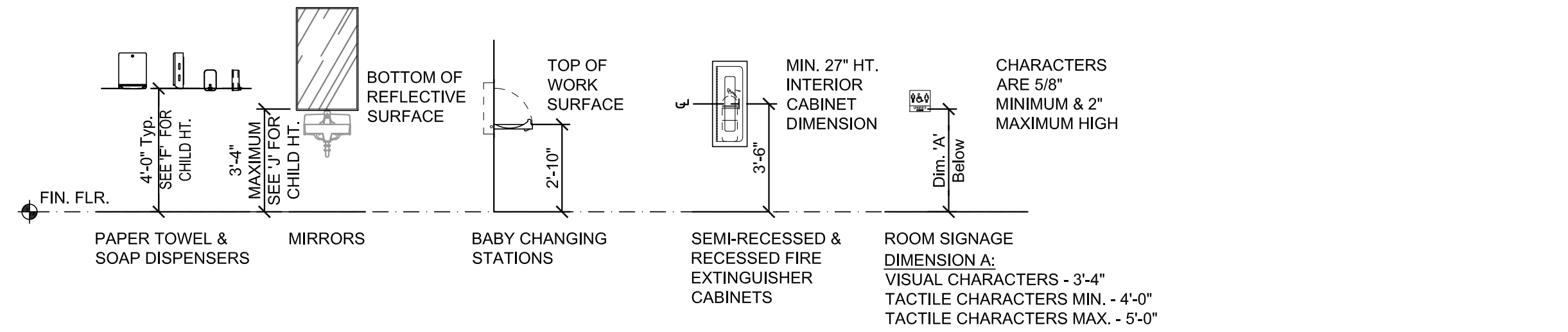
ACCESSIBILITY MOUNTING REQUIREMENTS 1/4" = 1'-0"

- NOTES:
- ALL EXISTING AND NEW ACCESSIBLE RESTROOMS SHALL COMPLY WITH APPLICABLE ACCESSIBILITY REQUIREMENTS AS A CONDITION OF RECEIVING A CERTIFICATE OF OCCUPANCY. REQUIREMENTS INCLUDE PLUMBING FIXTURE TYPE, PLUMBING FIXTURE CLEARANCES, PLUMBING FIXTURE HEIGHTS, COUNTERTOP HEIGHTS, TOILET COMPARTMENT CLEARANCES, GRAB BAR TYPE/LOCATION AND ACCESSORY HEIGHTS/LOCATIONS.
 - TYPICAL ACCESSORY MOUNTING REQUIREMENTS HAVE BEEN INCLUDED FOR THE CONVENIENCE OF THE CONTRACTOR. THE GENERAL CONTRACTOR SHALL CONFIRM ALL ACCESSIBILITY MOUNTING HEIGHTS WITH APPLICABLE CODES PRIOR TO INSTALLATION.
 - SYMBOLS SHOWN DO NOT REPRESENT ACTUAL OR ALL ACCESSORIES AND PLUMBING FIXTURES TO BE INSTALLED.
 - DIMENSIONS SHOWN ARE FOR SURFACE-MOUNTED ACCESSORIES. SEE CURRENT ANSI 117.1 FOR RECESSED MODEL DIMENSIONS.
 - SEE CURRENT ANSI 117.1 FOR ANY ACCESSORIES TO BE LOCATED ABOVE THE GRAB BARS (NOT SHOWN).
 - DIMENSIONS SHOWN ARE FOR UNOBSTRUCTED REACH. SEE CURRENT ANSI 117.1 FOR OBSTRUCTED REACH DIMENSIONS.
 - DIMENSIONS ARE TO DISPENSERS AND DISPOSALS ACCESSORY'S "OPERABLE PART" SUCH AS DISPENSING MECHANISM, START BUTTONS, COIN SLOTS OR DISPENSER/DISPOSAL OPENINGS.
 - THE REAR GRAB BAR AT CHILDREN'S RESTROOMS MAY BE SPLIT OR SHIFTED TO THE OPEN SIDE TO ACCOMMODATE THE REQUIRED LOCATION OF THE FLUSH CONTROL VALVES.
 - LETTER DESIGNATED DIMENSIONS (CHILD HEIGHTS) SHALL REFER TO "ADVISORY SPECIFICATIONS FOR WATER CLOSETS SERVING CHILDREN AGES 3-12" TABLE UNLESS NOTED OTHERWISE.

RESTROOM FIXTURE - ADULTS



OTHER ACCESSORIES



Advisory Specifications for Water Closets Serving Children

Dimension	Ages 3 & 4	Ages 5-8	Ages 9-12
A (Toilet Centerline)	1'-0"	1'-2"	1'-6"
B1 (Horiz. Grab Bar)	10"	1'-0"	1'-0"
B2 (Horiz. Grab Bar)	2'-2"	2'-0"	2'-0"
C (Toilet Seat Ht.)	1'-0"	1'-3"	1'-5"
D (Grab Bar Ht.)	1'-8"	2'-0"	2'-3"
E (Vert. Grab Bar Ht.)	2'-0"	2'-4"	2'-8"
F (Other Disp. Ht.)	3'-0"	3'-4"	3'-8"
G (Toilet Disp. Ht.)	1'-2"	1'-2"	1'-6"
H (Urinal Ht.)	1'-0"	1'-3"	1'-5"
J (Mirror Ht.)	2'-6"	3'-1"	3'-1"

* A PARALLEL APPROACH MUST BE ACCOMMODATED.
** AGE 5 IS PERMITTED TO BE AT AGES 3 & 4 HEIGHT. 2'-0" KNEE HEIGHT CLEARANCE PERMITTED.
*** 2'-0" KNEE HEIGHT CLEARANCE PERMITTED.



COMcheck Software Version COMcheckWeb
Envelope Compliance Certificate

Project Information

Energy Code: 2015 IECC
Project Title: Addition to & Renovations for: Lifesong Church
Location: Sutton, Massachusetts
Climate Zone: 5a
Project Type: Addition
Vertical Glazing / Wall Area: 7%

Construction Site: Owner/Agent: Designer/Contractor:

Building Area	Floor Area
1-Religious Building : Nonresidential	9900

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor ^(a)
Roof: Metal Building, Screw Down, Single Insulation Layer without Thermal Blocks, [Bldg. Use 1 - Religious Building]	9900	0.0	34.5	0.028	0.035
Floor: Unheated Slab-On-Grade, Horizontal with vertical 2 ft., [Bldg. Use 1 - Religious Building] (c)	280	---	10.0	0.700	0.540
NORTH Ext. Wall: Metal Building Wall, Single Layer Mineral Fiber (in cavity, thermal block at girt), [Bldg. Use 1 - Religious Building]	2640	19.0	15.0	0.048	0.052
Window: Metal Frame with Thermal Break: Fixed, Perf. Specs.: Product ID 451T, SHGC 0.25, [Bldg. Use 1 - Religious Building] (b)	225	---	---	0.410	0.380
EAST Ext. Wall: Metal Building Wall, Single Layer Mineral Fiber (in cavity, thermal block at girt), [Bldg. Use 1 - Religious Building]	975	19.0	15.0	0.048	0.052
Door: Perf. Specs.: Product ID 451T, SHGC 0.25, [Bldg. Use 1 - Religious Building] (b)	42	---	---	0.800	0.770
WEST Ext. Wall: Metal Building Wall, Single Layer Mineral Fiber (in cavity, thermal block at girt), [Bldg. Use 1 - Religious Building]	975	19.0	15.0	0.048	0.052
Window: Metal Frame with Thermal Break: Fixed, Perf. Specs.: Product ID 451T, SHGC 0.25, [Bldg. Use 1 - Religious Building] (b)	24	---	---	0.410	0.380
Door: Perf. Specs.: Product ID 451T, SHGC 0.25, [Bldg. Use 1 - Religious Building] (b)	42	---	---	0.800	0.770

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
(b) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.
(c) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.

Envelope PASSES: Design 4% better than code

Envelope Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2015 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

David Evans, AIA - President
Name - Title Signature Date January 29, 2021

CODE SUMMARY

APPLICABLE CODES

APPLICABLE CODE:
2018 INTERNATIONAL BUILDING CODE W/ MA AMENDMENTS
2017 NATIONAL ELECTRICAL CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL FIRE CODE
2018 INTERNATIONAL ENERGY CONSERVATION CODE
2018 INTERNATIONAL FUEL GAS CODE
ICC A117.1-2009 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES

BUILDING

OCCUPANCY TYPE: A-3, B, E (NON-SEPARATED)

CONSTRUCTION TYPE: II-B (NON-COMBUSTIBLE / NON-RATED)

BASIC ALLOWABLE AREA (TABLE 503): 9,500 S.F.

EXISTING BUILDING AREA: 20,030 S.F.

NEW BUILDING AREA: 9,900 S.F.

ACTUAL BUILDING AREA: 29,930 S.F.

ALLOWABLE BUILDING HEIGHT (TABLE 503): 55'-0" / 2-STORIES

ACTUAL BUILDING HEIGHT: 22'-0" / 1-STORY

AREA MODIFICATIONS:

$$I_f = 100 \left[\frac{F}{P} - 0.25 \right] \frac{W}{30}$$

$$I_f = 100 \left[\frac{775'-0"}{775'-0"} - 0.25 \right] 1 = 75\%$$

75% INCREASE = 7,125 S.F.

AUTOMATIC SPRINKLER SYSTEM INCREASE: 28,500 S.F. (300%)

TOTAL ALLOWABLE AREA: 9,500 S.F. + 7,125 S.F. + 28,500 S.F. = 45,125 S.F. (PER FLOOR)

FIRE PROTECTION OF COMPONENTS (TABLE 601)

STRUCTURAL FRAME:	0-HOUR
BEARING WALLS	
EXTERIOR:	0-HOUR
INTERIOR:	0-HOUR
NONBEARING WALLS & PARTITIONS	
EXTERIOR:	0-HOUR
INTERIOR:	0-HOUR
SHAFT ENCLOSURES:	0-HOUR
FLOOR CONSTRUCTION:	0-HOUR
ROOF CONSTRUCTION:	0-HOUR

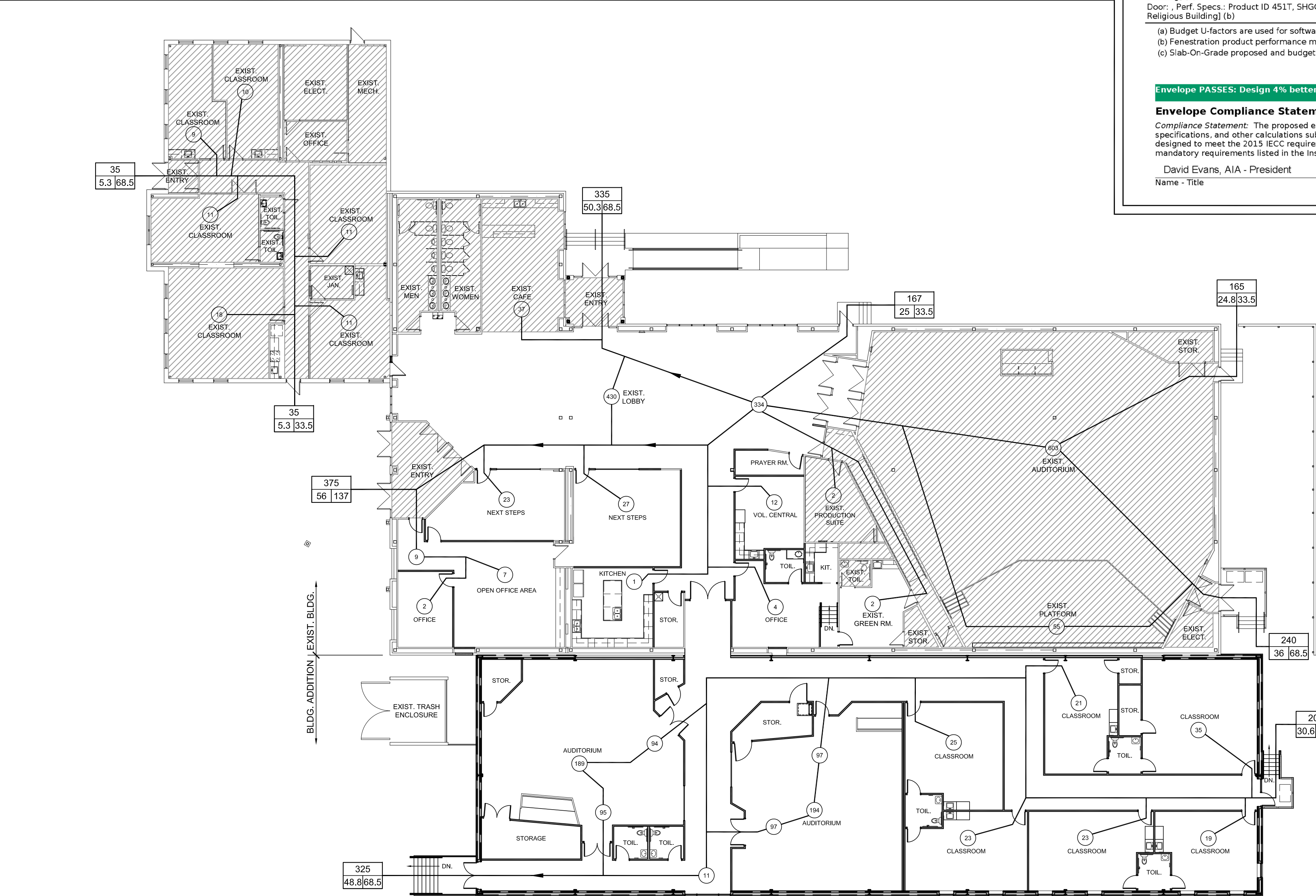
PLUMBING FIXTURE CALCULATIONS

TOTAL BUILDING OCCUPANT LOAD = 1,880
MALE OCCUPANCY: 940 / 2 = 940
FEMALE OCCUPANCY: 940 / 2 = 940

PLUMBING FIXTURE TYPE	REQUIRED	PROVIDED
WATER CLOSETS - MALE	1 PER 150 = 7	11
WATER CLOSETS - FEMALE	1 PER 75 = 13	14
LAVATORIES - MALE	1 PER 200 = 5	12
LAVATORIES - FEMALE	1 PER 200 = 5	12
DRINKING FOUNTAINS	1 PER 1000 = 2	2
SERVICE SINK	1	2

GENERAL CODE SUMMARY NOTES:

- BUILDING IS EQUIPPED WITH A FIRE ALARM SYSTEM. APPROPRIATE MODIFICATIONS WILL BE MADE TO THE EXISTING FIRE ALARM SYSTEM IN RENOVATED AREAS. A FIRE ALARM SYSTEM SHALL BE INSTALLED THROUGHOUT.
- FIRE SPRINKLER DRAWINGS WILL BE A DEFERRED PERMIT REVIEW SUBMITTAL. PER TABLE 1017.1 CORRIDORS IN THE BUILDING ARE NON-RATED DUE TO THE AUTOMATIC SPRINKLER SYSTEM.
- THE PROPOSED ALTERATIONS DO NOT CONSTITUTE A CHANGE IN USE OR OCCUPANCY CLASSIFICATION.
- THE PROPOSED ALTERATIONS TO THE BUILDING ARE CLASSIFIED BY THE EXISTING BUILDING CODE AS LEVEL 1 AND LEVEL 2 ALTERATIONS. LEVEL 2 ALTERATIONS INCLUDE THE RECONFIGURATION OF SPACE, THE ADDITION OR ELIMINATION OF ANY DOOR OR WINDOW, THE RECONFIGURATION OR EXTENSION OF ANY SYSTEM, OR THE INSTALLATION OF ANY ADDITIONAL EQUIPMENT.
- THE PROPOSED ALTERATIONS DO NOT ALTER THE BUILDING IN SUCH A WAY THAT THE BUILDING BECOMES LESS SAFE THAN ITS EXISTING CONDITION.
- ALTERATIONS SHALL BE DONE IN A MANNER THAT MAINTAINS THE LEVEL OF FIRE PROTECTION PROVIDED.
- REPAIRS SHALL BE DONE IN A MANNER THAT MAINTAINS THE LEVEL OF PROTECTION PROVIDED FOR THE MEANS OF EGRESS.



CODE / EGRESS PLAN
3/32" = 1'-0"

CODE / EGRESS PLAN LEGEND

OL	= OCCUPANT LOAD OF GIVEN SPACE/SPLIT EXIT LOAD ALONG PATH OF EGRESS
OL	ACTUAL EXIT LOAD
RE	EGRESS PROVIDED
EP	REQUIRED EGRESS

- GENERAL CODE / EGRESS PLAN NOTES
- THIS PLAN IS INTENDED FOR THE CONVENIENCE OF THE CODE OFFICIAL AND FIRE MARSHALL. IT DOCUMENTS THE MAJOR LIFE SAFETY AND EGRESS FEATURES OF THIS PROJECT, INCLUDING EXIT FLOW AND FIRE SEPARATION.
 - REFER TO MECHANICAL DRAWINGS FOR FIRE DAMPER LOCATIONS.
 - REFER TO FIRE ALARM DRAWINGS FOR FIRE ALARM SYSTEM AND REQUIREMENTS.
 - REFER TO FIRE PROTECTION SPECIFICATIONS FOR STANDPIPE AND AUTOMATIC FIRE SPRINKLER SYSTEM.



ARCHITECT: DAVID EUGENE EVANS
ARCHITECT LICENSE NO: MA 31501

MANTLET TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTLET TETER ARCHITECTS, P.C.



ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY: JTE/BN
CHECKED BY: DEE

REVIEWS:

SHEET No.
G0.30
CODE/EGRESS PLAN /
FIRE-RATED ASSEMBLIES /
NOTES

GENERAL NOTES - STRUCTURAL

1. General Information

- A. The contractor shall verify dimensions and conditions before construction and notify the engineer of any discrepancies, inconsistencies, or difficulties affecting the work before proceeding.
- B. The contractor shall coordinate all disciplines, verifying size and location of all openings, whether shown on structural drawings or not, as called for on architectural, mechanical, or electrical drawings. In the case of work in an existing building the contractor shall scan existing structure to locate all rebar in the area of the new core/opening using ground penetrating radar and notify the engineer of record for review prior to coring/cutting. Conflicts, inconsistencies, or other difficulties affecting structural work shall be called to the architect or engineer's attention for direction before proceeding.
- C. All design and construction work for this project shall conform to the requirements of the following governing design codes:
- 1.) International Building Code (IBC 2018) as amended by the city of Sutton, MA.
 - 2.) Minimum Design Loads for Buildings and Other Structures (ASCE7-10)
 - 3.) Specification for Structural Steel Buildings (AISC 360-10)
Member Design Basis is Allowable Stress Design (ASD)
Connection Design Basis is Allowable Stress Design (ASD)
 - 4.) Structural Welding Code (AWS D1.3-98)
 - 5.) Building Code Requirements for Structural Concrete (ACI 318-11)
 - 6.) Building Code Requirements for Masonry Structures (ACI 530-11/TMS 402-11)
 - 7.) North American Specification for the Design of Cold-Formed Steel Structural Members (AISI S100-07/S1-1)
 - 8.) National Design Specification (NDS) for Wood Constriction with 2012 Supplements (ANSI/AWC NDS-2012)
 - 9.) Special Design Provisions for Wind and Seismic (AWC SDPWS-2008)
- D. These drawings are for this specific project and no other use is authorized.

2. Structural Load Design Criteria

- A. Roof Live = 30 psf; Roof Dead = 25 psf
- B. Snow: Pg = 20 psf, Pf =14psf, Is = 1.0, Ce = 1.0, Ct = 1.0, Drift per ASCE/SEI 7
- C. Lateral Loads:
- 1.) Wind: V = 115 mph, Exposure C
Occupancy [Risk] Category II, Iw=1.0 GCpi=+/-0.18
Design wind pressures to be used for the design of exterior component and cladding materials on the designated zones of wall and roof surfaces shall be per section 30.7 and Table 30.7-2 of ASCE/SEI 7. Tabulated pressures shall be multiplied by effective area reduction factors, exposure adjustment factors, and topographic factors where applicable
 - 2.) Seismic: Ss =0.111, S1 = 0.064
Occupancy [Risk] Category II, Ie=1.0,
Site Classification C; Sds = 0.089; Sd1 = 0.072
Seismic Design Category B
- D. This project is designed to resist the most critical effects resulting from the load combinations of section 1605.3 of the International Building Code.

3. Concrete

- A. All concrete for foundations (walls, grade beams, footings and piers) shall develop minimum ultimate compressive design strength of 3500 psi in 28 days, but not less than 500 pounds of cement shall be used per cubic yard of concrete regardless of strengths obtained, not over 6 gallons of water per 100 pounds of cement and not over 4 inches of slump.
- B. All concrete for interior flatwork (**without floor covering**) shall develop minimum ultimate compressive design strength of 4000 psi in 28 days, but not less than 525 pounds of cement shall be used per cubic yard of concrete regardless of strengths obtained, not over 5.75 gallons of water per 100 pounds of cement and not over 4 inches of slump. Concrete mix shop drawing shall contain testing data proving concrete design mix shrinkage is less than 0.034% at 28 days when tested according to ASTM C157 (air drying method only).
- C. All concrete for interior flatwork (**with floor covering**) shall develop minimum ultimate compressive design strength of 4000 psi in 28 days, but not less than 540 pounds of cement shall be used per cubic yard of concrete regardless of strengths obtained, not over 5.40 gallons of water per 100 pounds of cement and not over 4 inches of slump. Concrete mix shop drawing shall contain testing data proving concrete design mix shrinkage is less than 0.034% at 28 days when tested according to ASTM C157 (air drying method only).
- D. All concrete for exterior flatwork shall have a minimum design compressive strength of 4500 psi in 28 days, with not less than 560 pounds of cement per cubic yard of concrete, not over 5 gallons of water per 100 pounds of cement, with 6% +/- 1% air entrainment, and a maximum of 4 inches of slump.
- E. All concrete for columns shall develop a minimum ultimate compressive design strength of 4000 psi in 28 days, but not less than 560 pounds of cement shall be used per cubic yard of concrete regardless of strengths obtained, not over 5 gallons of water per 100 pounds of cement and not over 4 inches of slump. The preceding minimum mix requirements may have water-reducing admixtures conforming to ASTM C494 added to the mix at manufacturer's dosage rates for improved workability.
- G. The preceding minimum mix requirements may have up to 15% maximum of the cement content replaced with an approved ASTM C618 Class C fly ash, provided the total minimum cementitious content is not reduced.
- H. The use of fly ash is NOT permitted.
- I. Combined aggregate (coarse plus fine) for all concrete shall be well graded from coarsest to finest with no more than 18 percent and not less than 8 percent retained on an individual sieve, except that less than 8 percent may be retained on coarsest sieve and on No. 50 and finer sieves. Submit this gradation report with the concrete mix design shop drawings.

3. Concrete (continued)

- J. All interior concrete slabs on grade shall be placed over 15 mil, Class A Vapor Barrier per ASTM E1745 with less than 0.01 perms, tested after mandatory conditioning. All joints shall be lapped and sealed per manufacturer's recommendations. All penetrations, as well as damaged vapor barrier material shall also be sealed per manufacturer's recommendation prior to concrete placement. Install barrier per manufacturer recommended details at all discontinuous edges (at interior columns, exterior edge of slab, etc.) to ensure terms of warranty are followed. The vapor barrier shall be placed over free-draining granular material as prescribed by the project soils report.
- K. Basement foundation walls shall be braced at the base and top of wall by the contractor until the slab on grade at the base and the floor framing/slab at the top of wall is complete and the concrete has achieved 75% of the design strength. The contractor is responsible for engineering and design of the wall bracing, if required.
- L. All concrete is reinforced concrete unless specifically called out as unreinforced. Reinforce all concrete not otherwise shown with same steel as in similar sections or areas. Any details not shown shall be detailed per ACI 315 and meet requirements of ACI 318, current editions.
- M. Control joints in dirt formed slab to be as shown on plans. Where not shown, limit controlled areas to not more than 144 square feet, or 12 feet on any side. Slab panel side ratio shall not exceed 1 1/2 to 1.
- N. Contractor shall verify that all concrete inserts, reinforcing and embedded items are correctly located and rigidly secured prior to concrete placement.
- O. Construction joints in beams, slabs, and grade beams shall occur at midspan (middle third) unless noted otherwise. Provide 2 x 4 horizontal keys at construction joints for shear transfer.
- P. No aluminum items shall be embedded in any concrete.

4. Reinforcing Steel

- A. All reinforcing steel shall conform to the requirements of ASTM A615 or A706 grade 60 steel. Welded plain wire fabric shall be supplied in sheets and conform to the requirements of ASTM A185.
- B. Clear minimum coverage of concrete over reinforcing steel shall be as follows:
- 1.) Concrete placed against earth: 3"
 - 2.) Formed concrete against earth: 2"
 - 3.) Slabs: 1"
 - 4.) Beams or Columns: 1-1/2"
 - 5.) Other: 2"
- All coverage shall be nominal bar diameter minimum.
- C. All dowels shall be the same size and spacing as adjoining main bars (splice lap 48 bar diameters or 24" minimum unless noted otherwise).
- D. At corners of all walls, beams, and grade beams supply corner bars (minimum 2'-0" in each direction or 48 bar diameters) in outside face of wall, matching size and spacing of horizontal bars. Where there are no vertical bars in outside face of wall, supply 3 - #4 vertical support bars for corner bars.
- E. Bars marked continuous and all vertical steel shall be lapped 48 bar diameters (2'-0" minimum) at splices and embedments, unless shown otherwise. Splice top bars near midspan and splice bottom bars over supports, unless noted otherwise.
- F. At all holes in concrete walls and slabs, add 2 - #5 bars (opening dimension plus 96 diameters long) at each of four sides and add 2 - #5 x 5'-0" diagonally at each of four corners of hole. Openings in 8" thick walls are reinforced similar, but with 1 - #5 instead of 2 - #5, respectively.
- G. Unless otherwise covered on architectural plans or specifications, vertical control joints in concrete wall shall be spaced at a maximum of 20'-0" on center and coordinated with the architect. Every other horizontal wall reinforcing bar shall be discontinuous at control joints except heavy top and bottom bars unless noted otherwise. Provide base seal waterstop style number 772 (by Greenstreak Inc. or approved equal) on dirt face side of wall at all walls below grade.
- H. Accessories shall be as specified in latest edition of the ACI Detailing Handbook and the concrete Reinforcing Steel Institute Design Handbook. Maximum accessory spacing shall be 4'-0" on center, and all accessories on exposed surfaces are to have plastic coated feet.
- I. All slabs and stairs not shown otherwise shall be 6" thick with #4 bars at 12" on center each way. All exterior porches and stoops not otherwise detailed may be constructed in any standard manner, solid or hollow, but must be reinforced with #4 bars at 12" on center each way minimum. Porches shall be doweled to adjacent walls or grade beams with #4 bars at 12" on center, hooked or embedded 48 diameters into both members. Slope porches 1/8" per foot for drainage unless noted otherwise.
- J. Allow 2 tons of reinforcing bars #4 or larger to be used as directed in the field for special conditions by the engineer of record (labor for placing same to be included).

5. Post Installed Anchors

- A. Post-installed anchors shall be used only where specified on the drawings unless approved in writing by the engineer of record. See drawings for anchor diameter, spacing and embedment. Performance values of the anchors shall be obtained for specified products using appropriate design procedures and/or standards as required by the governing building code. Anchors installed in concrete shall have an ICC-ES Evaluation Service Report. Special inspection is required for all post installed anchors. The contractor shall coordinate an on-site meeting with the post installed anchor manufacturer field representative to educate the construction team on the anchor installation guidelines and requirements.
- B. Mechanical anchors used in cracked and uncracked concrete shall have been tested and qualified for use in accordance with ACI 355.2 and ICC-ES AC193. All anchors shall be installed per the anchor manufacturer's written instructions.
- C. Adhesive anchors used in cracked and uncracked concrete shall have been tested and qualified for use in accordance with ICC-ES AC308. All anchors shall be installed per the anchor manufacturer's written instructions.
- D. Mechanical anchors used in solid grouted masonry shall have been tested and qualified for use in accordance with ICC-ES AC01. All anchors shall be installed per the anchor manufacturer's written instructions.
- E. Adhesive anchors used in solid grouted masonry shall have been tested and qualified for use in accordance with ICC-ES AC58. All anchors shall be installed per the anchor manufacturer's written instructions.
- F. Anchors used in hollow concrete masonry shall have been tested and qualified in accordance with ICC-ES AC106 or ICC-ES AC58 as appropriate. All anchors shall be installed per the anchor manufacturer's written instructions with appropriate screen tubes used for adhesives.

6. Foundations

- A. Spread footings, grade beams, and retaining walls are designed to bear on engineered fill or undisturbed soil capable of safely sustaining 2,500 psf.
- B. Retaining structures are designed for a lateral load of 50 pcf equivalent fluid pressure.
- C. Contractor shall provide for dewatering at excavations from either surface water or seepage.
- D. All foundation excavations shall be inspected by a qualified soil engineer, approved by the architect and/or structural engineer, prior to placement of steel or concrete. This inspection shall be at the owner's expense.
- E. All concrete in the structural portion retaining the backfill shall have attained its design strength prior to being backfilled.
- F. Moisture content in soils beneath building locations should not be allowed to change after footing excavations and after grading for slabs on grade are completed. If subgrade materials become desiccated or softened by water or other conditions, recompact materials to the density and water content specified for engineered fill. Do not place concrete on frozen ground.

7. Shop Drawing Review

- A. Bob D. Campbell and Company, Inc. will review the General Contractor's (GC) shop drawings and related submittals (as indicated below) with respect to the ability of the detailed work, when complete, to be a properly functioning integral element of the overall structural system designed by Bob D. Campbell and Company, Inc.
- B. Prior to submittal of a shop drawing or any related material to Bob D. Campbell and Company, Inc., the GC shall:
- 1.) Review each submission for conformance with the means, methods, techniques, sequences and operations of construction and safety precautions and programs incidental thereto, all of which are the sole responsibility of the GC.
 - 2.) Review and approve each submission.
 - 3.) Stamp each submission as approved.
- C. Bob D. Campbell and Company, Inc. shall assume that no submission comprises a variation unless the GC advises Bob D. Campbell and Company, Inc. with written documentation.
- D. Bob D. Campbell and Company, Inc. shall review shop drawings and related materials with comments provided that each submission has met the above requirements. Bob D. Campbell and Company, Inc. shall return without comment unrequired material or submissions without GC approval stamp.
- E. Shop drawings and related material (if any) required are indicated below. Should Bob D. Campbell and Company, Inc. require more than ten (10) working days to perform the review, Bob D. Campbell and Company, Inc. shall so notify the GC.
- 1.) Concrete mix designs and material certificates including admixtures and compounds applied to the concrete after placement.
 - 2.) Reinforcing steel shop drawings including erection drawings and bending details. Bar list will not be reviewed for correct quantities.
 - 3.) Construction and control joint plans and/or elevations.
 - 4.) Structural steel shop drawings including erection drawings and piece details. Include joist, decking and connector submittals. Include miscellaneous framing specified on the structural drawings, but do not submit framing specified on non-structural drawings for Bob D. Campbell and Company, Inc. review.
 - 5.) Structural steel connection design calculations submitted concurrently with structural steel shop drawings.
 - 6.) Miscellaneous anchors shown on the structural drawings.
 - 7.) Light gage truss design calculations and detailed erection and fabrication drawings.

8. Statement of Structural Special Inspections

- A. The structural design for this project is based on completion of special inspections during construction in accordance with section 1704 of the International Building Code. The owner shall employ one or more qualified special inspectors to provide the required special inspections.
- B. The special inspector shall furnish inspection reports to the building official, owner, architect and structural engineer, and any other designated person.
- C. All discrepancies shall be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the proper design authority, building official and structural engineer.
- D. The special inspector shall submit a final signed report stating that the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable workmanship provisions of the building code.
- E. The following inspections and tests are required with the frequency (continuous or periodic) as defined within the referenced section or standard listed below. The General Contractor shall provide notification to the inspector when items requiring inspection are ready to be inspected and provide access for those inspections.
- 1.) Shop Fabrication - structural steel and steel bar joist per Section 1704.2.5 unless AISC certified shop
 - 2.) Steel Construction per Section 1705.2 and the quality assurance requirements of AISC 341 Chapter J (as referenced by AISC 360)
 - 3.) Cold-Formed Steel Deck per Section 1705.2.2 and the quality assurance requirements of SDI QA/QC.
 - 4.) Concrete Construction per Section 1705.3 and Table 1705.3
 - a. Reinforcing Steel Placement
 - b. Cast in Place Anchors
 - c. Post Installed Anchors
 - d. Design Mix Verification
 - e. Concrete Sampling and Testing
 - f. Concrete Placement
 - g. Concrete Curing
 - 5.) Verification of Soils per Table 1705.6.

9. Copyright and Disclaimer

- A. All drawings in the structural set (S-series drawings) are the copyrighted work of Bob D. Campbell and company, Inc. These drawings may not be photographed, traced, or copies in any manner without the written permission of Bob D. Campbell and Company, Inc. Exception: Original drawings may be printed for distribution to the owner, architect, and general contractor for coordination, bidding, and construction. Subcontractors may not reproduce these drawings for any purpose or in any manner.
- B. I, Michael J. Falbe, P.E., registered engineer and a representative of Bob D. Campbell and Company, Inc., do hereby accept professional responsibility as required by the professional registration laws of this state for the structural design drawings consisting of S-series drawings. I hereby disclaim responsibility for all other drawings in the construction document package, they being the responsibility of other design professionals whose seals and signed statements may appear elsewhere in the construction document package.



STRUCTURAL ENGINEER: Michael J. Falbe
ENGINEER LICENSE NO. 46879



ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: _____ 19-793
ISSUE DATE: _____ 01/29/2021
DRAWN BY: _____
CHECKED BY: _____
REVISIONS:

SHEET No.

\$1.00
GENERAL NOTES

FOOTING SCHEDULE		
FOOTING TYPE	FOOTING SIZE	REINFORCING (EA WAY TOP&BOT.)
(6)O	6'-0"x6'-0"x1'-6"	(7) #5
(8)O	8'-0"x8'-0"x3'-0"	(9) #6

NOTE:
1.) ALL FOOTINGS ARE TO BE CENTERED UNDER COLUMNS (UNO.)
2.) ALL FOOTINGS ARE TO BE PLACED MONOLITHICALLY WITH FOOTINGS

PILASTER SCHEDULE				
TYPE	SIZE	VERTICAL REINFORCING	TIES	SHAPE
(P1)	24"x18"	(8) #7	(2) #3@12"o/c	1
(P2)	24"x24"	(8) #8	(2) #3@12"o/c	2

PILASTER SHAPE (NOT TO SCALE)	
1	2

NOTE: ANY OR ALL SAVED JOINTS MAY BE FORMED PER SECTION 2/52.00 AT CONTRACTOR'S OPTION

1/4" SAVED JT. WHERE SHOWN ON PLAN. DEPTH EQUALS 1/3 OF SLAB THICKNESS CUT WITHIN 12 HRS OF PLACING CONC. (FILL JT W/ SEALANT PER SPECS)

EL. T/C PER PLAN

WVF PER PLAN

VAPOR BARRIER PER GEN. NOTES

DRAINAGE FILL

LOW VOLUME CHANGE MATERIAL PER GEOTECHNICAL REPORT

TYPICAL SAVED JOINT NOTED 'SJ' ON PLAN

SECTION 1
3/4" = 1'-0" S1.10

WVF DISCONT. AT CONST. JOINT

EL. T/C PER PLAN

PREFORMED KEYED CONST. JOINT WITH TOOLED EDGE ONE SIDE (FILL JOINT W/ SEALANT PER SPECS)

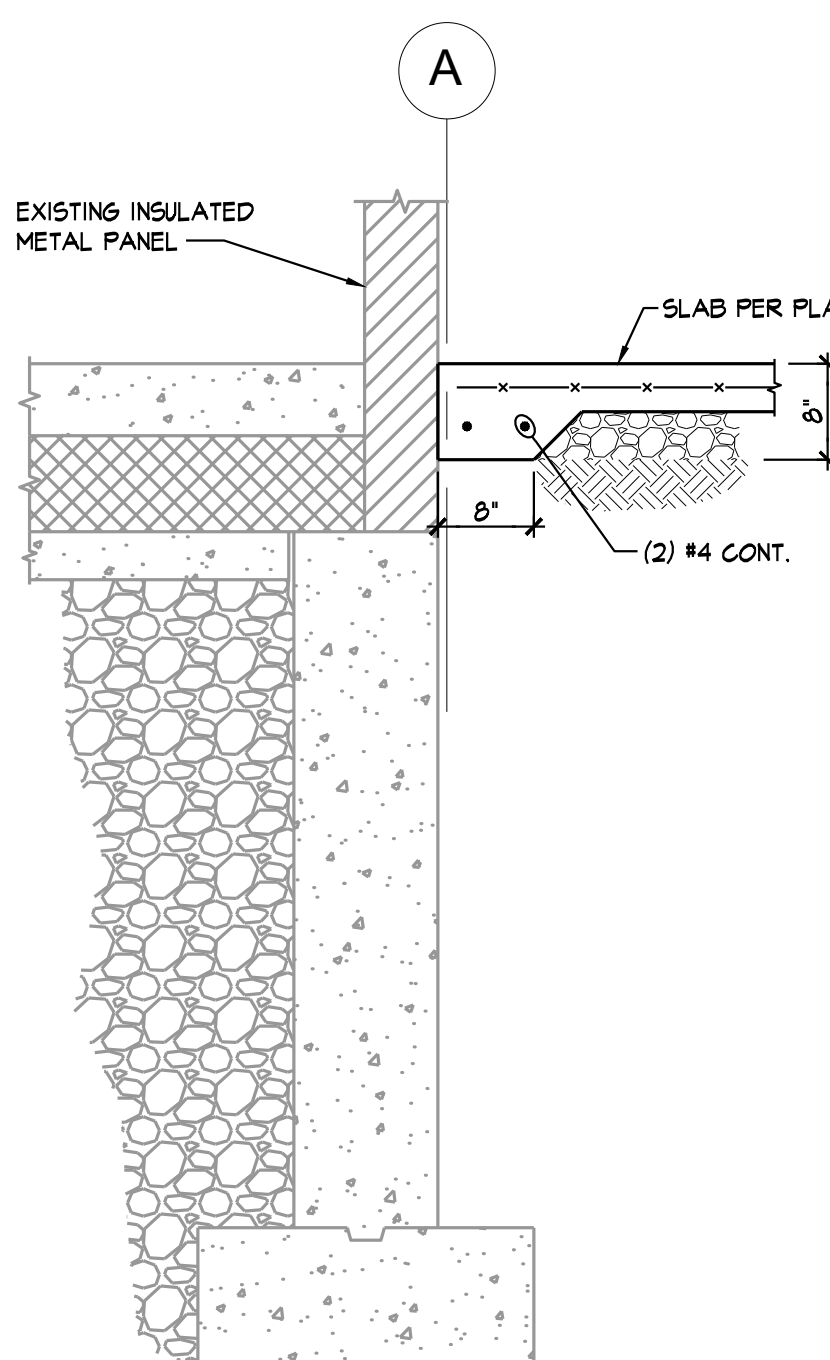
WVF PER PLAN

VAPOR BARRIER PER GEN. NOTES

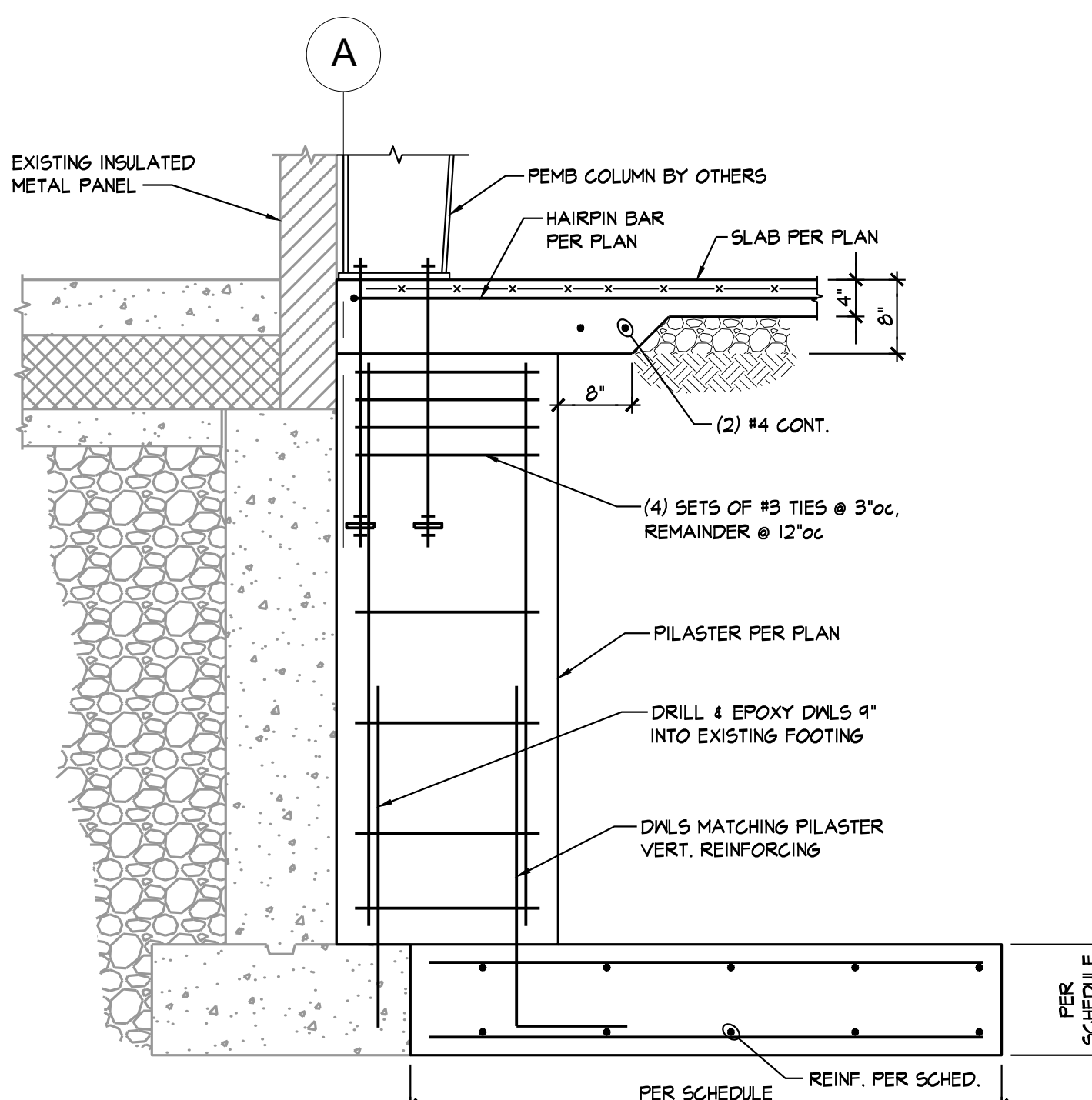
DRAINAGE FILL (MAINTAIN FULL DEPTH) LOW VOLUME CHANGE MATERIAL PER GEOTECHNICAL REPORT

TYP. CONST. JT. (C-J)

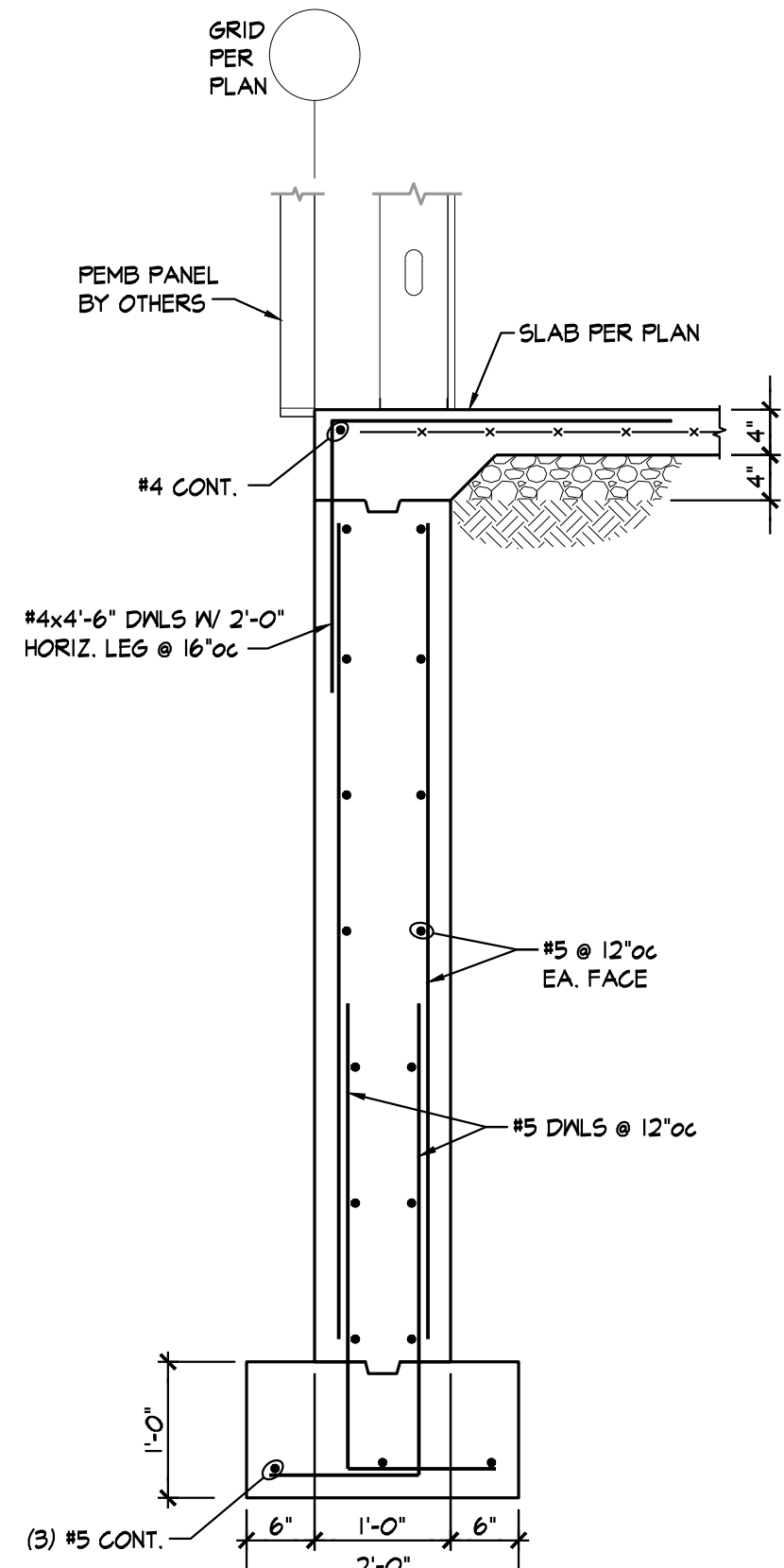
SECTION 2
3/4" = 1'-0" S1.10



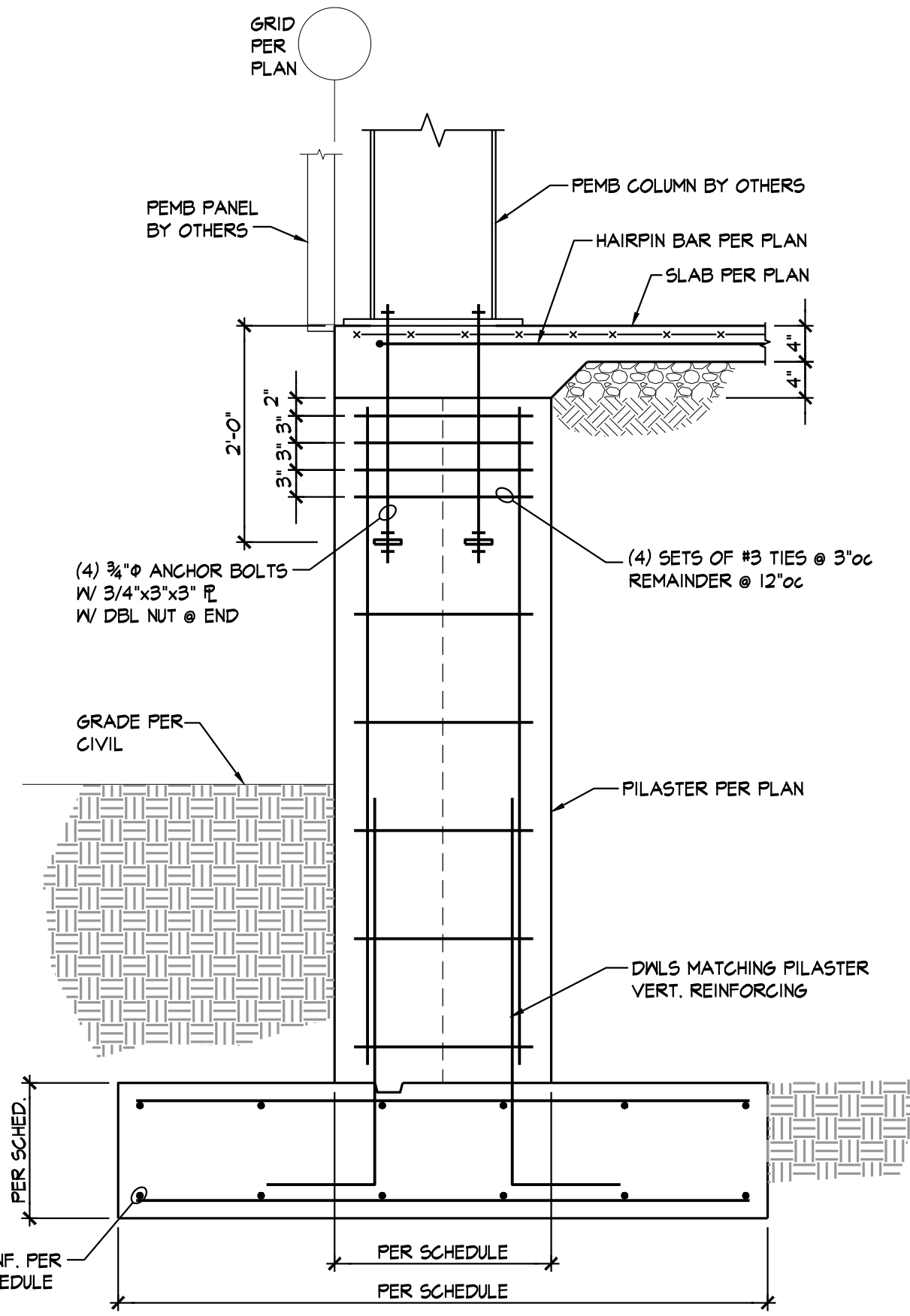
SECTION 3
3/4" = 1'-0" S1.10



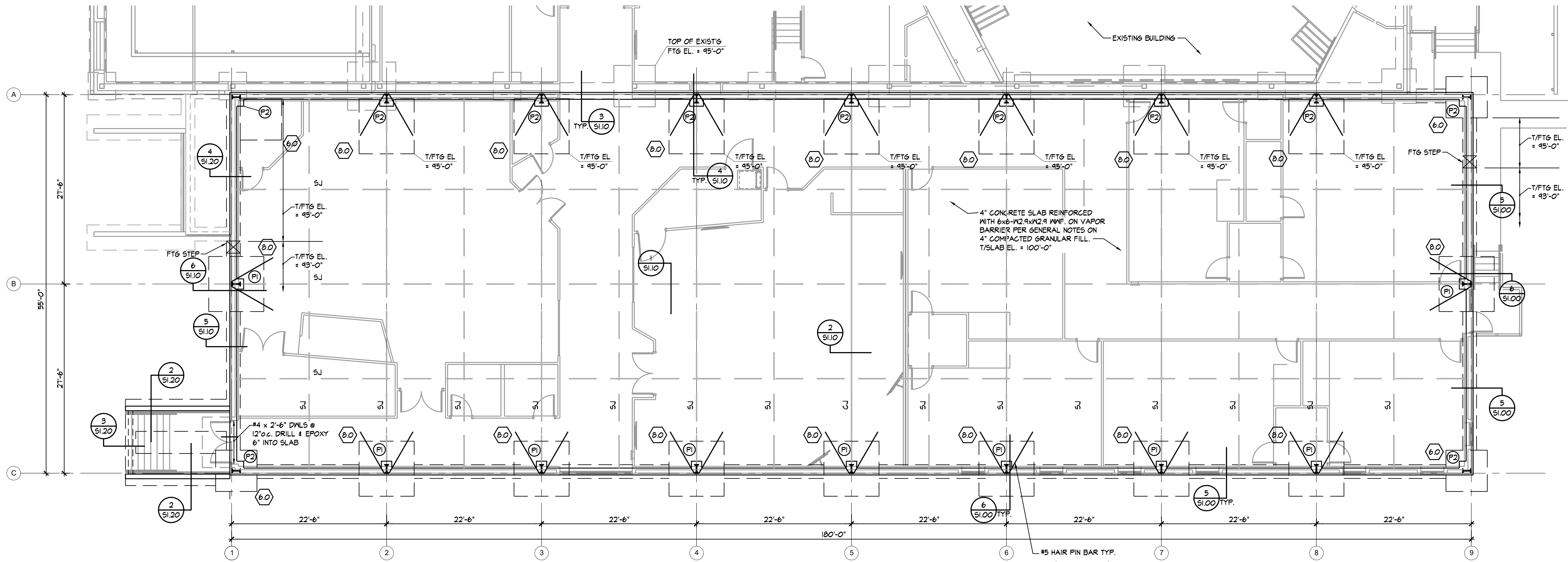
SECTION 4
3/4" = 1'-0" S1.10



SECTION 5
3/4" = 1'-0" S1.10

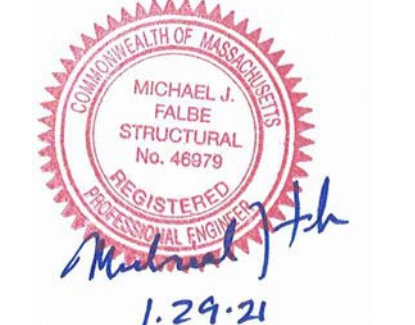
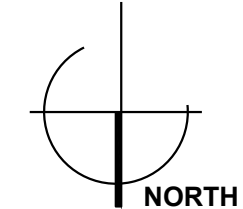


SECTION 6
3/4" = 1'-0" S1.10



NOTES:
1. REFER TO GENERAL NOTES AND LEGEND ON SHEET S1.00.
2. TOP OF FOOTING ELEVATION 45'-0" U.N.O.

NOTE: FOUNDATION PLAN IS PRELIMINARY ONLY. NO CONSTRUCTION IS TO BEGIN UNTIL BOB D. CAMPBELL & CO HAS REVIEWED FINAL PRE-ENGINEERED METAL BUILDING DRAWINGS/REACTIONS AND VERIFIED FOUNDATION DESIGN.



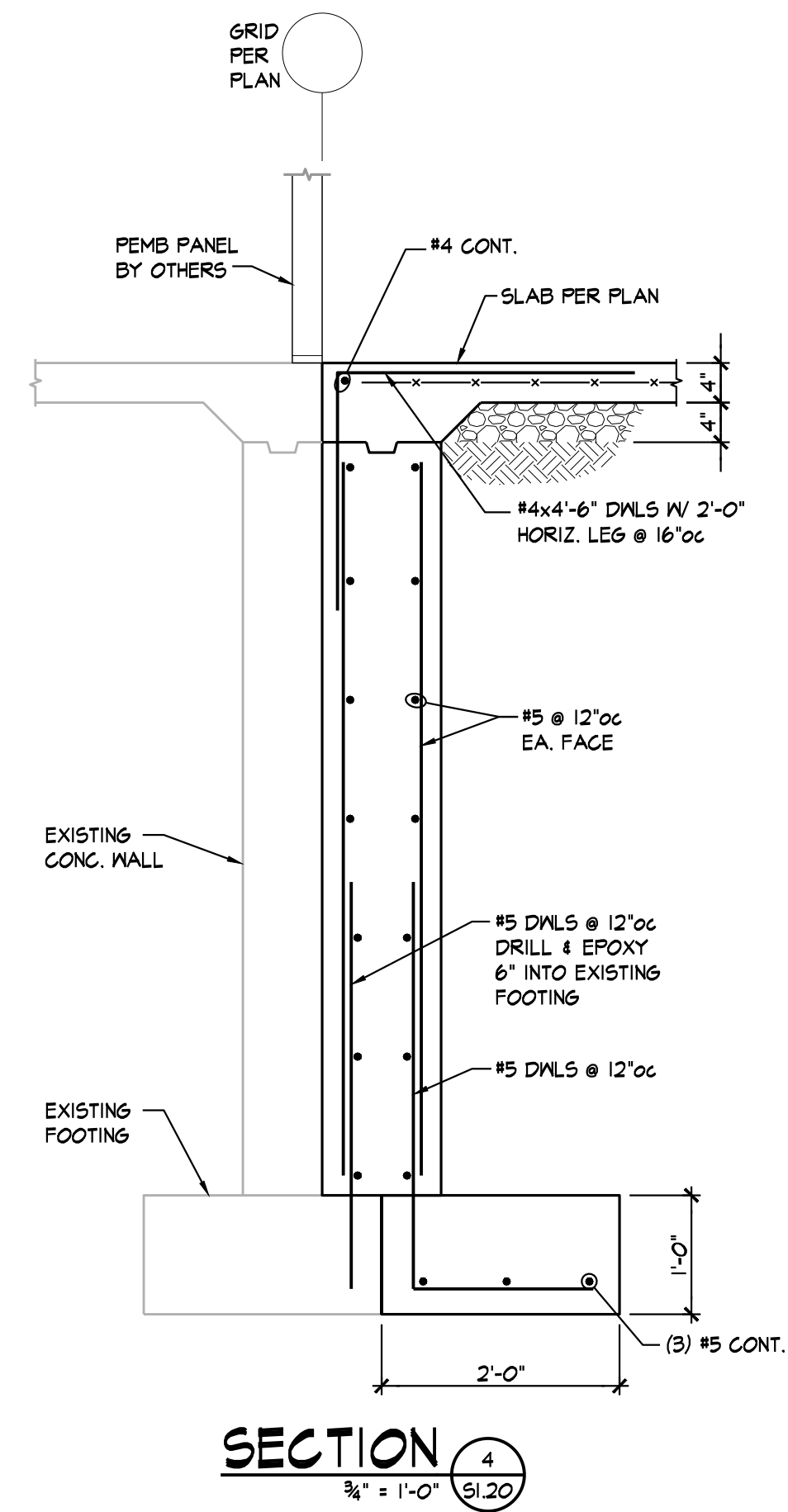
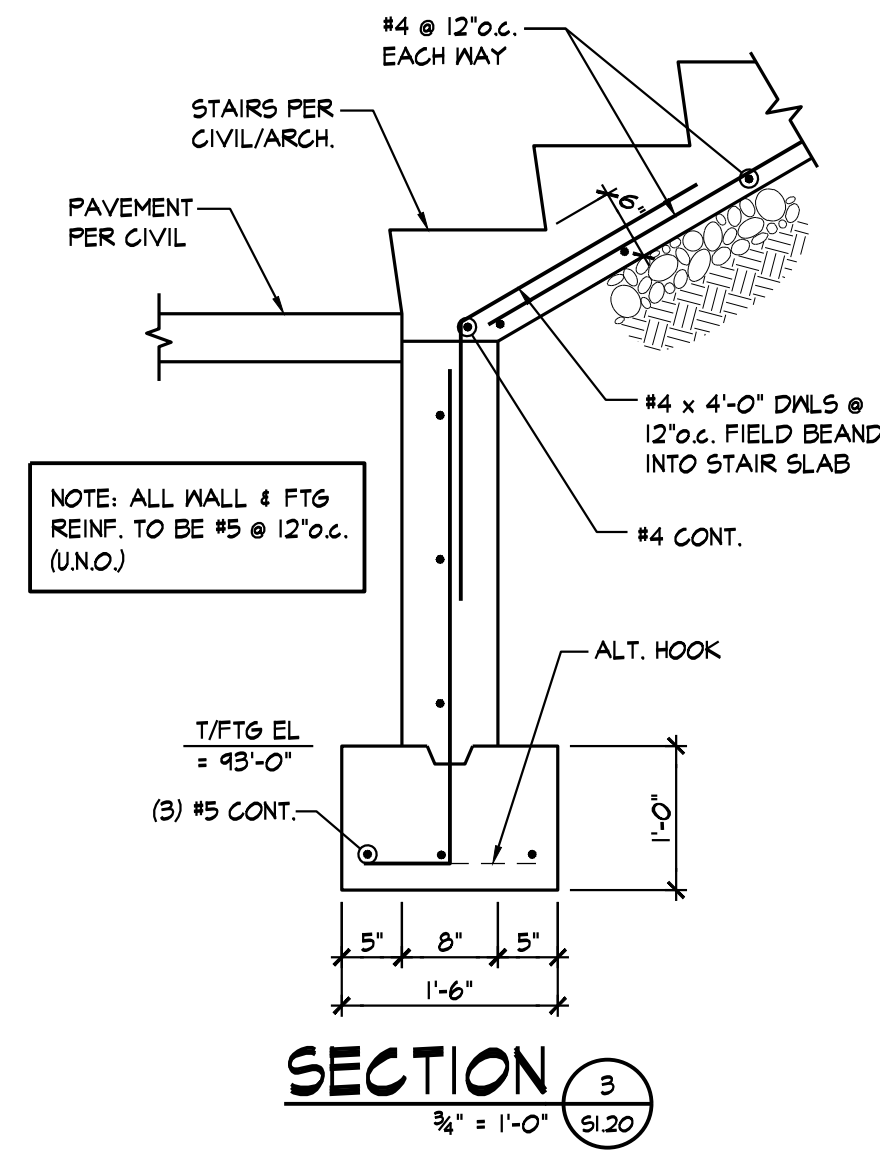
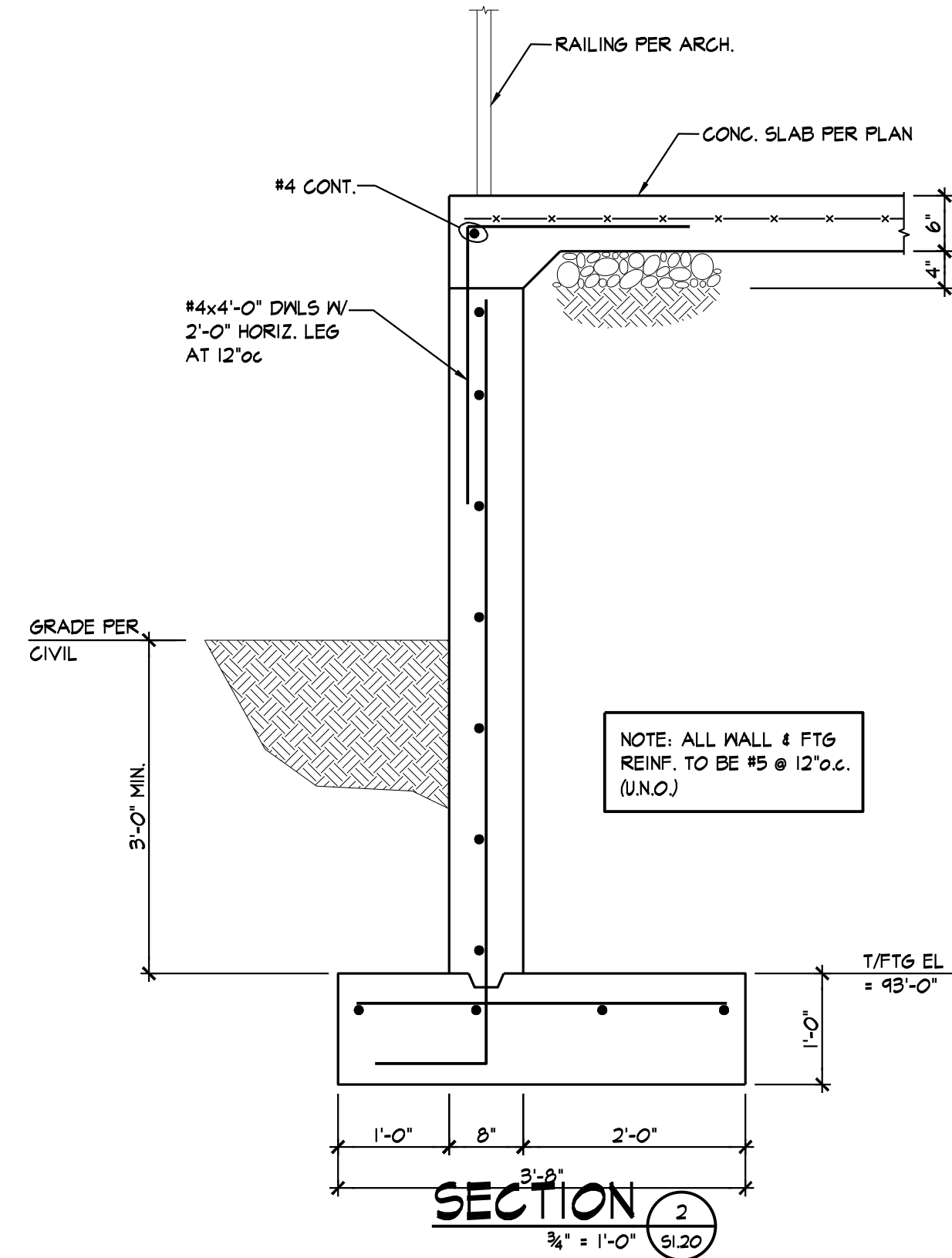
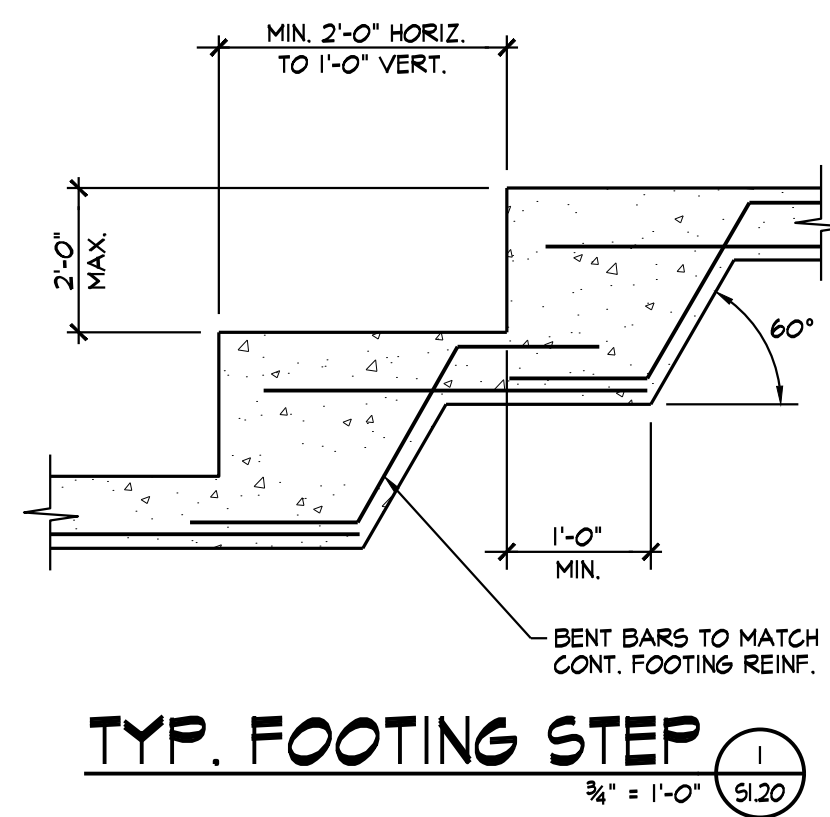
STRUCTURAL ENGINEER: Michael J. Falbe
ENGINEER LICENSE NO.: 46879

mantel teter
consulting | architecture | developing
909 Walnut Street, Suite 5104 | Kansas City, Missouri 64108
tel: 816.531.5800 | www.mantelteter.com

BOB D. CAMPBELL & CO.
Structural Engineers Since 1957
4338 Bellevue Ave. 816.531.4144
Kansas City, MO 64111 www.bdc-engr.com

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY:
CHECKED BY:
REVISIONS:



STRUCTURAL ENGINEER: Michael J. Falbe
 ENGINEER LICENSE NO.: 46079

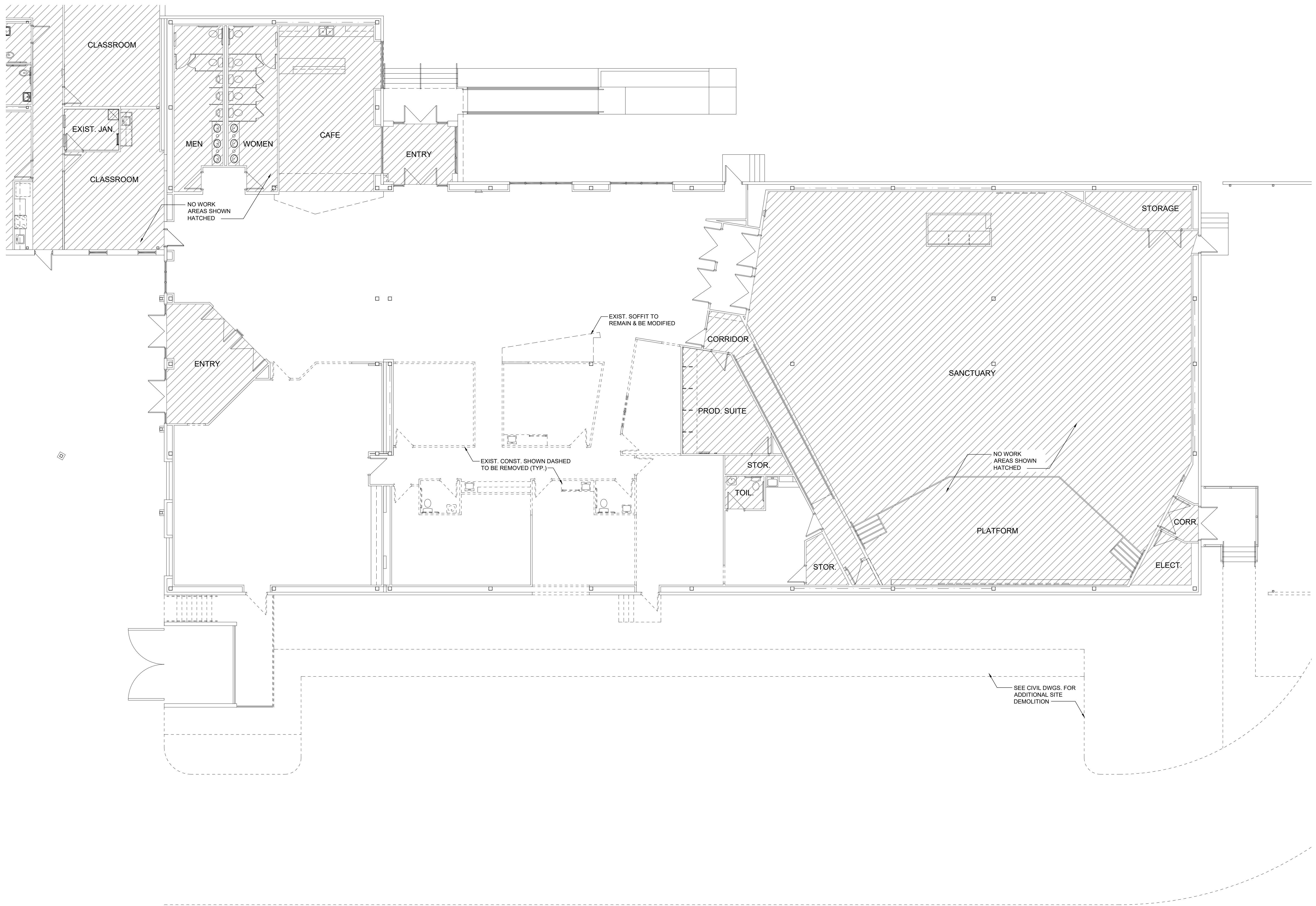
mantel teter
 consulting | architecture | developing
 909 Walnut Street, Suite 5104 | Kansas City, Missouri 64108
 tel: 816.531.5200 | www.mantelteter.com

BOB D. CAMPBELL & CO.
 Structural Engineers Since 1957
 4338 Belleview Ave. 816.531.4144
 Kansas City, MO 64111 www.bdc-engrs.com

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
 65 GILMORE DRIVE
 SUTTON, MA 01590

PROJECT #: 19-793
 ISSUE DATE: 01/29/2021
 DRAWN BY: _____
 CHECKED BY: _____
 REVISIONS:

SHEET No.
S1.20
 SECTIONS



REGISTERED ARCHITECT
DAVID E. EVANS
No. 31501
KANSAS CITY
MO.
01/29/2021
ARCHITECT: DAVID EUGENE EVANS
ARCHITECT LICENSE NO: MA 31501

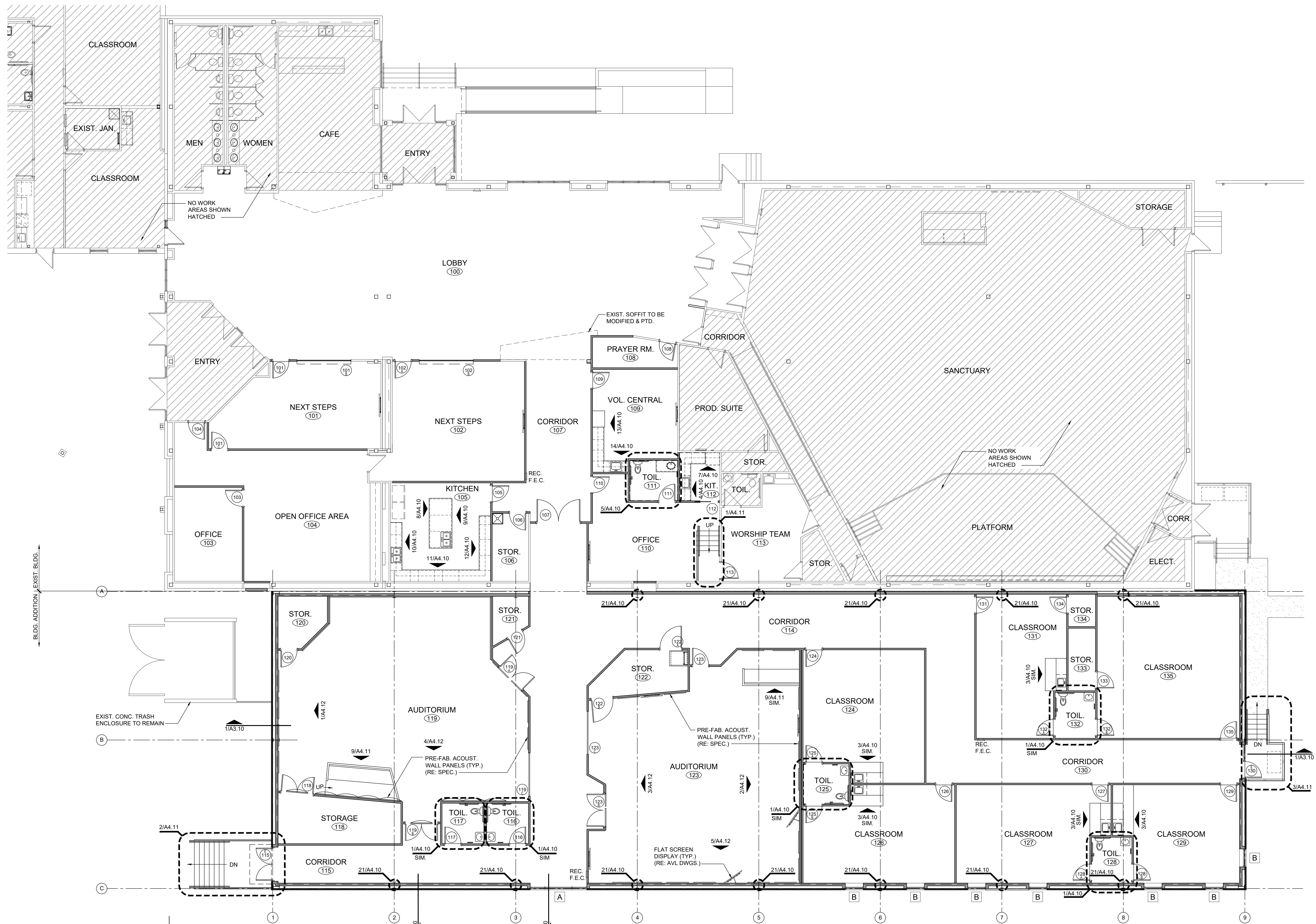
MANTTEL TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTTEL TETER ARCHITECTS, P.C.

 **mantel teter**
consulting | architecture | developing
5013 N. Washington St., Gladstone, Missouri 64118
t: 816.931.5600 www.mantelteter.com

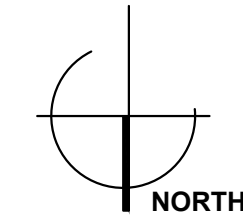
ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY: JTE/BNA
CHECKED BY: DEE
REVISIONS:

SHEET No.
A1.00
FIRST FLOOR DEMOLITION
PLAN



1 FIRST FLOOR PLAN
1/8" = 1'-0"



GENERAL FLOOR PLAN NOTES:
1. FINISH FLOOR ELEVATION 100'-0" = USGS DATUM 422'-51" (RE: CIVIL DRAWINGS).
2. HOLD BACK SLAB EDGE AT ALL EXTERIOR DOOR LOCATIONS.

REGISTERED ARCHITECT
DAVID E. EVANS
No. 31501
KANSAS CITY
MO.
01/29/2021
ARCHITECT: DAVID EUGENE EVANS
ARCHITECT LICENSE NO: MA 31501

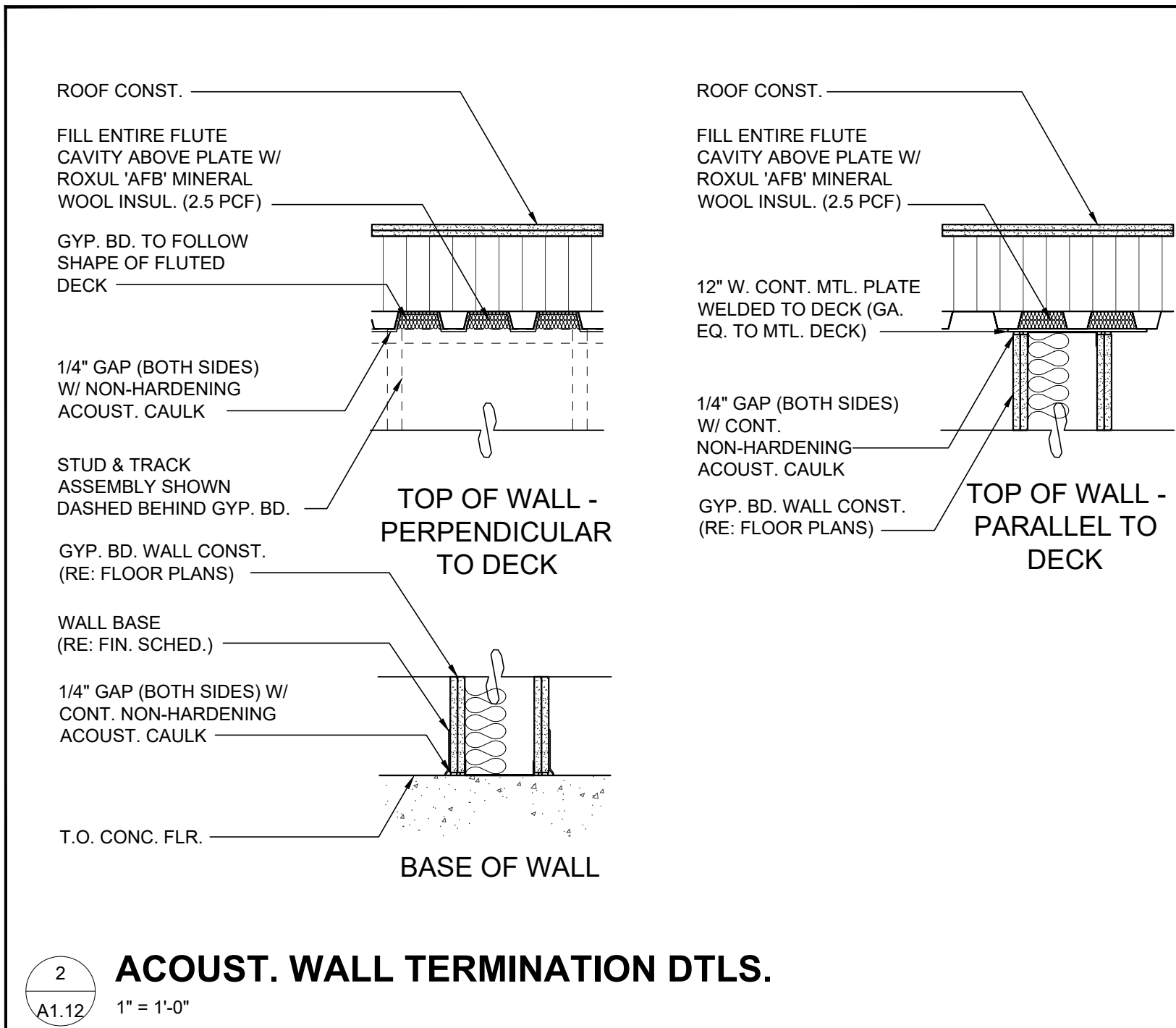
MANTTEL TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTTEL TETER ARCHITECTS, P.C.

mantel teter
consulting | architecture | developing
5013 N. Washington St., Gladstone, Missouri 64118
t: 816.931.5600 www.mantelteter.com

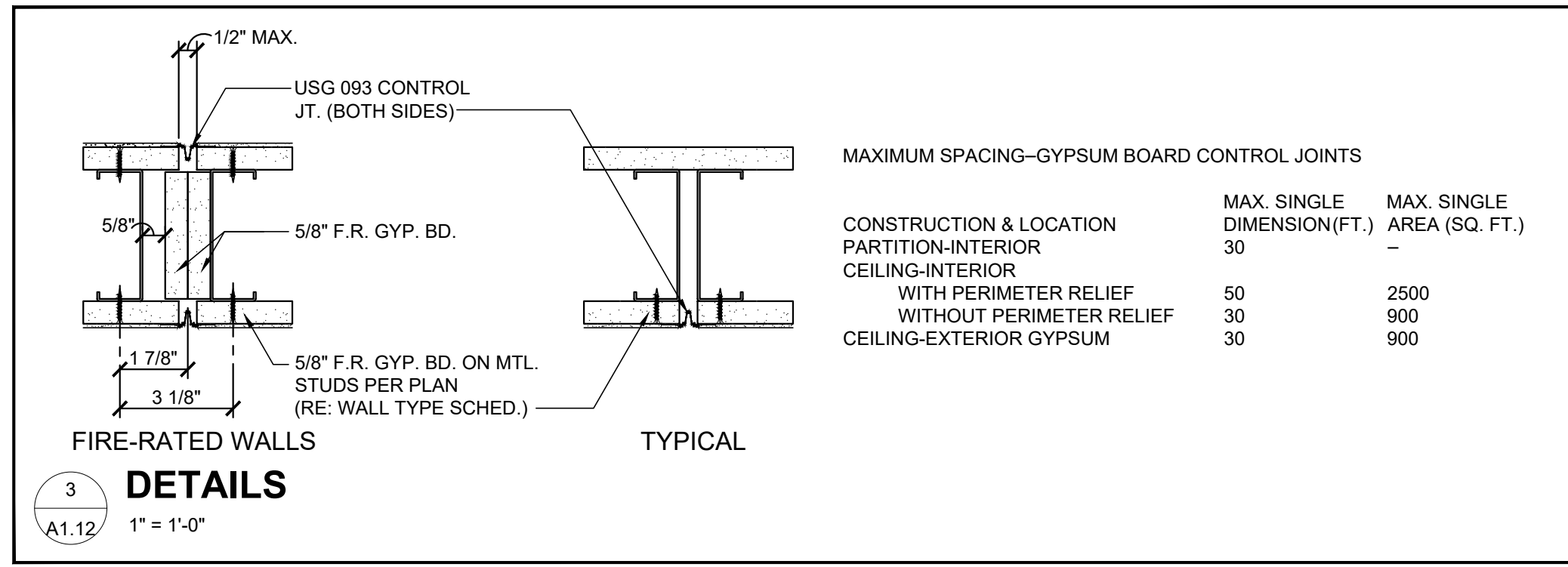
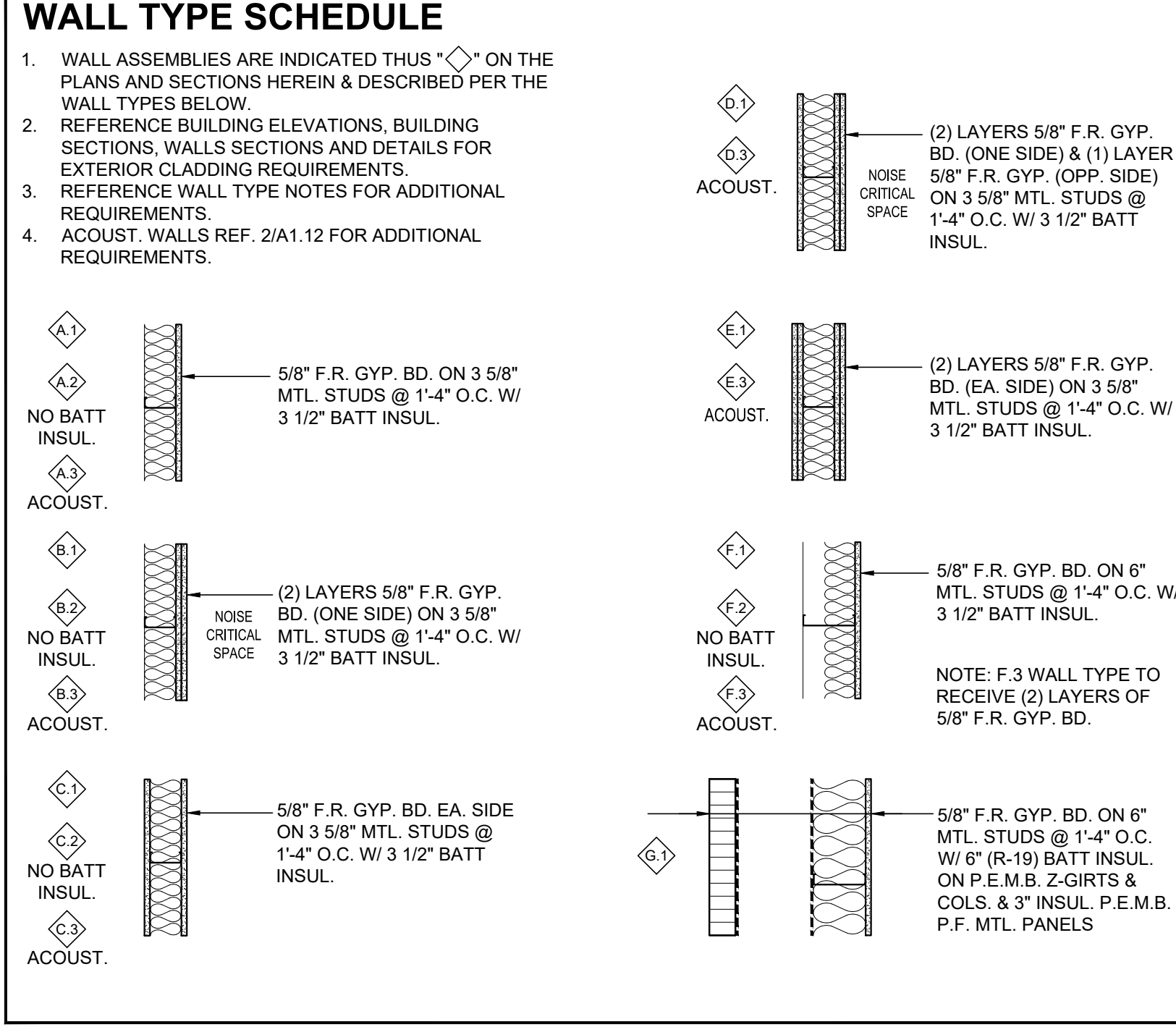
ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY: JTE/BN
CHECKED BY: DEE
REVISIONS:

SHEET No.
A1.10
FIRST FLOOR PLAN



- ### WALL TYPE NOTES
- ALL STUD WALLS TO BE PLACED @ 1'-4" O.C. UNLESS NOTED OTHERWISE. SEE STRUCTURAL DRAWINGS FOR STUD SPACING OF SPECIFIC WALLS.
 - ALL NON-STRUCTURAL STUD WALLS AND SOFFIT SUPPORTS TO RUN TO THE UNDERSIDE OF DRYWALL CEILING, STRUCTURE OR ROOF DECK ABOVE. STRUCTURAL WALLS SHALL TERMINATE PER STRUCTURAL DRAWINGS.
 - ALL NON-STRUCTURAL INTERIOR STUD WALLS SHALL BE OF APPROPRIATE GAUGE TO SPAN UNBRACED LENGTHS INDICATED ON THE DRAWINGS USING THE STUD WIDTHS INDICATED ON THE FLOOR PLANS AND WALL TYPE SCHEDULE.
 - ALL WOOD BACKING AND BLOCKING LOCATED WITHIN OPEN RETURN AIR PLENUMS SHALL BE EITHER FIRE-RETARDANT TREATED WOOD OR CONCEALED THROUGH THE USE OF GYPSUM BOARD.
 - ALL INTERIOR WALLS SHALL BE INSULATED WITH UNFACED FIBERGLASS BATT INSULATION.
 - KRAFT-FACED BATT INSULATION AT EXPOSED LOCATIONS INCLUDING RETURN AIR PLENUM SPACES & EXTERIOR WALLS SHALL BE CONCEALED BY GYPSUM BOARD OR USE FSK-25 FOIL-FACED BATT INSULATION.
 - ALL WALL TILE AND CEILING TILE LOCATIONS SHALL HAVE A TILE BACKING PANEL SUBSTRATE.
 - WALLS NOTED AS "ACOUSTICAL WALLS" AND NEW WALLS IN AREAS WITH EXPOSED STRUCTURE CEILINGS SHALL CONTINUE FROM THE FLOOR SLAB TO THE FLOOR/CEILING ASSEMBLY, ROOF/CEILING ASSEMBLY OR ROOF DECK ABOVE.
 - WALLS NOTED AS "ACOUSTICAL WALLS" AND NEW WALLS IN AREAS WITH EXPOSED STRUCTURE CEILINGS SHALL BE SEALED TIGHT ON ALL SIDES TO ADJACENT CONSTRUCTION WITH ACOUSTICAL CAULK. (RE: DETAIL 2/A1.12 FOR ACOUSTICAL WALL TERMINATION DETAILS).
 - EXISTING GYPSUM BOARD WALLS IN AREAS WITH EXPOSED STRUCTURE CEILINGS SHALL BE EXTENDED TO THE FLOOR OR ROOF DECK ABOVE AND SEALED TIGHT TO ADJACENT CONSTRUCTION WITH ACOUSTICAL CAULK.
 - ALL PENETRATIONS THROUGH "ACOUSTICAL WALLS" WALLS IN AREAS WITH EXPOSED STRUCTURE CEILINGS AND WALLS BETWEEN CLASSROOMS SHALL BE STRUCTURALLY INDEPENDENT & SEALED TIGHT WITH APPROVED ACOUSTICAL CAULK INCLUDING ALL TERMINATIONS AND CONNECTION JOINTS.
 - WALLS BETWEEN CLASSROOMS SHALL CONTINUE FROM THE FLOOR SLAB TO 6" ABOVE THE FINISHED CEILING, UNLESS NOTED OTHERWISE.
 - PROVIDE 3.5" SOUND BATT INSULATION ABOVE ALL ACOUSTICAL CEILINGS.
 - THE GYPSUM BOARD FINISH LAYER IN AUDITORIUM 119 & 123 AND CLASSROOM 135 SHALL BE 5/8" FIRE-RATED IMPACT PENETRATION RESISTANT TYPE GYPSUM BOARD UP TO 10'-0" A.F.F.



01/29/2021

ARCHITECT: DAVID EUGENE EVANS
ARCHITECT LICENSE NO: MA 31501

MANTEL TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTEL TETER ARCHITECTS, P.C.

mantel teter
consulting | architecture | developing
5013 N. Washington St., Gladstone, Missouri 64118
t: 816.931.5600 www.mantelteter.com

ADDITIONS & RENOVATIONS TO:

LIFESONG CHURCH

65 GILMORE DRIVE
SUTTON, MA 01590

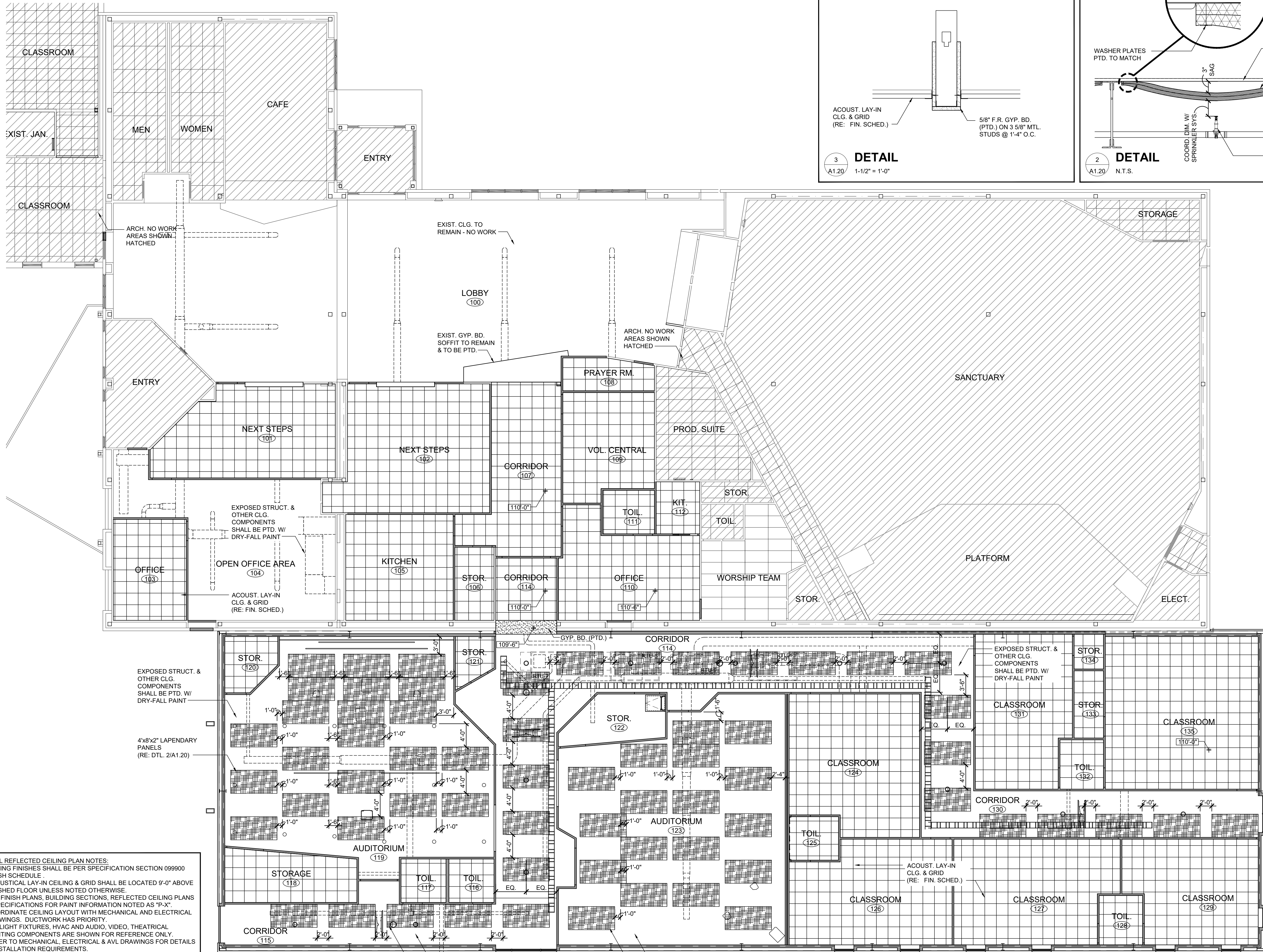
PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY: JTE/BNA
CHECKED BY: DEE

REVISIONS:

NO.	DESCRIPTION

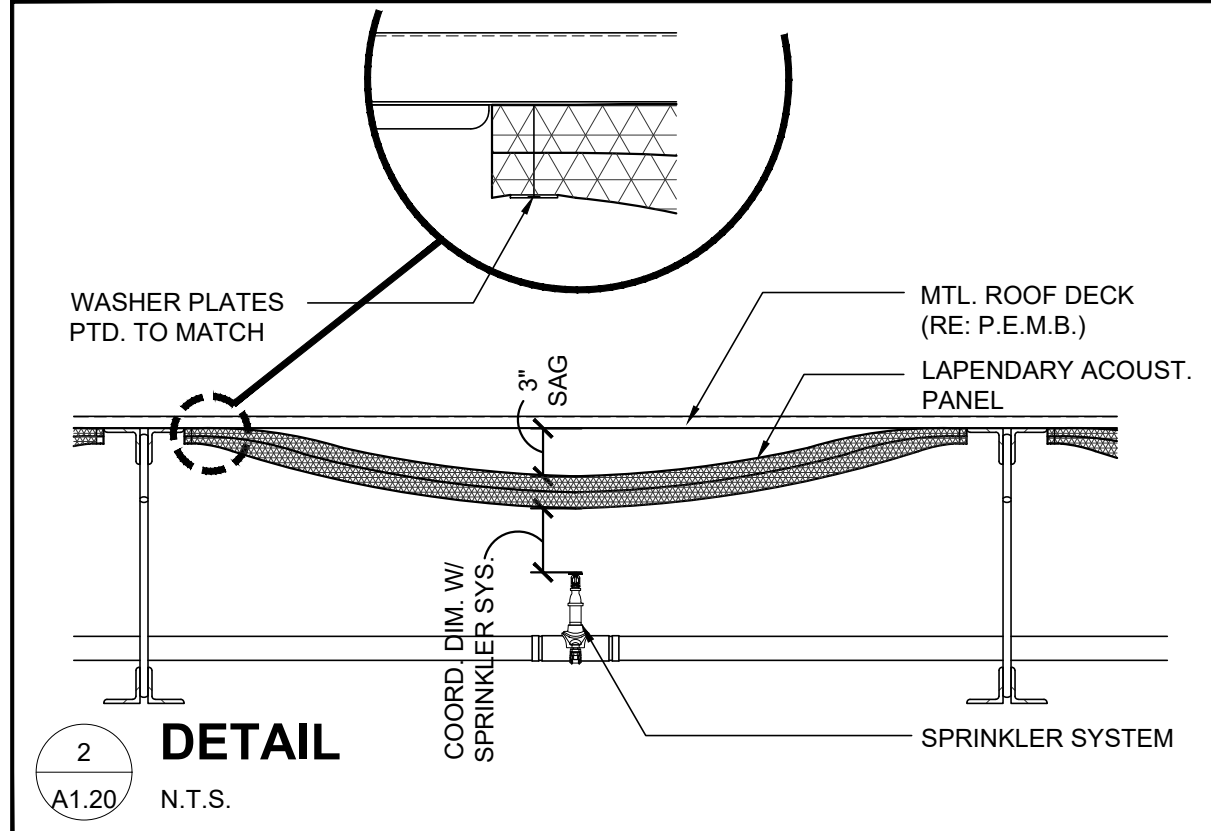
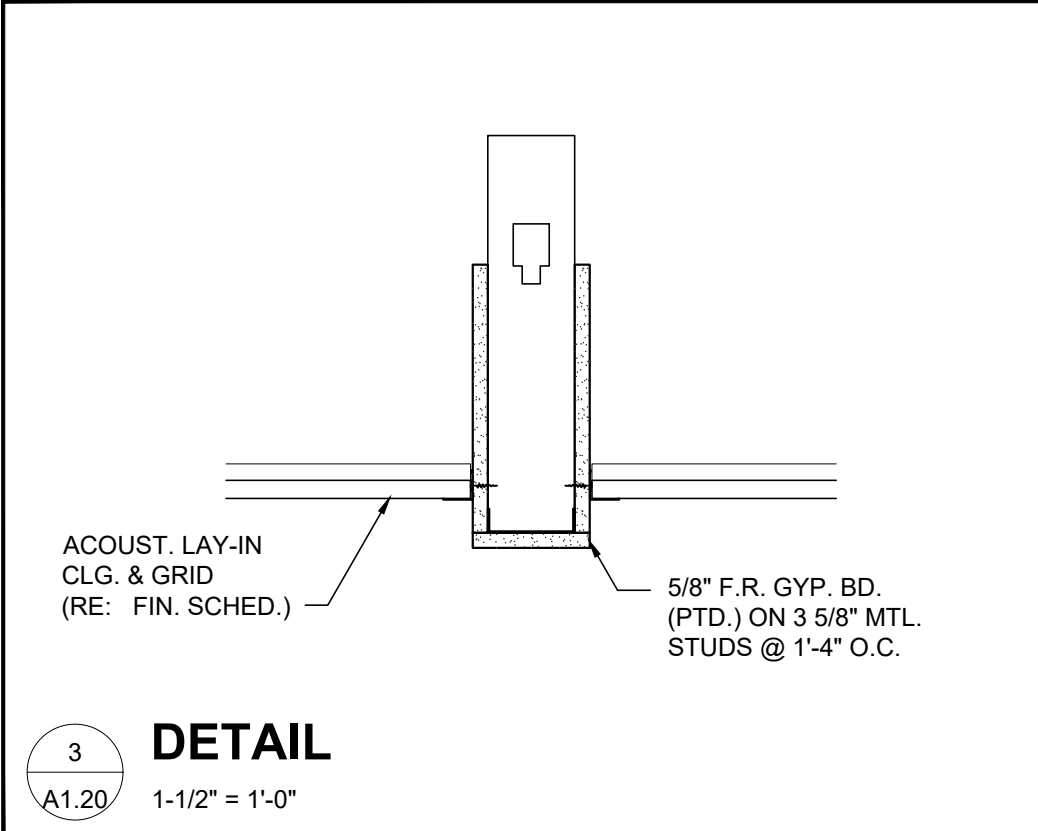
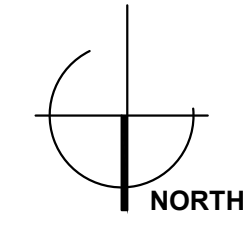
SHEET No. **A1.12**

WALL TYPE SCHED. / NOTES / DETAILS



- GENERAL REFLECTED CEILING PLAN NOTES:
1. CEILING FINISHES SHALL BE PER SPECIFICATION SECTION 099900 FINISH SCHEDULE.
 2. ACOUSTICAL LAY-IN CEILING & GRID SHALL BE LOCATED 9'-0" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE.
 3. SEE FINISH PLANS, BUILDING SECTIONS, REFLECTED CEILING PLANS & SPECIFICATIONS FOR PAINT INFORMATION NOTED AS "P-X".
 4. COORDINATE CEILING LAYOUT WITH MECHANICAL AND ELECTRICAL DRAWINGS. DUCTWORK HAS PRIORITY.
 5. ALL LIGHT FIXTURES, HVAC AND AUDIO, VIDEO, THEATRICAL LIGHTING COMPONENTS ARE SHOWN FOR REFERENCE ONLY. REFER TO MECHANICAL, ELECTRICAL & AVL DRAWINGS FOR DETAILS & INSTALLATION REQUIREMENTS.

1 FIRST FLOOR REFLECTED CEILING PLAN
A1.20 1/8" = 1'-0"



REGISTERED ARCHITECT
DAVID E. EVANS
No. 31501
KANSAS CITY
MO.
01/29/2021

ARCHITECT: DAVID EUGENE EVANS
ARCHITECT LICENSE NO.: MA 31501

MANTLET TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTLET TETER ARCHITECTS, P.C.

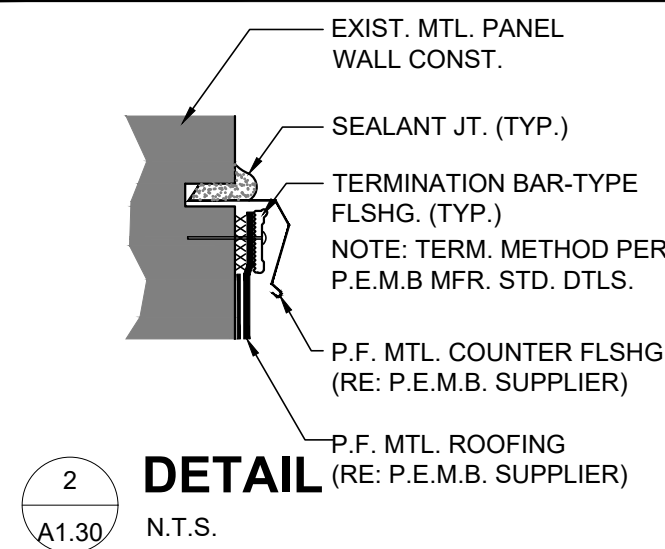
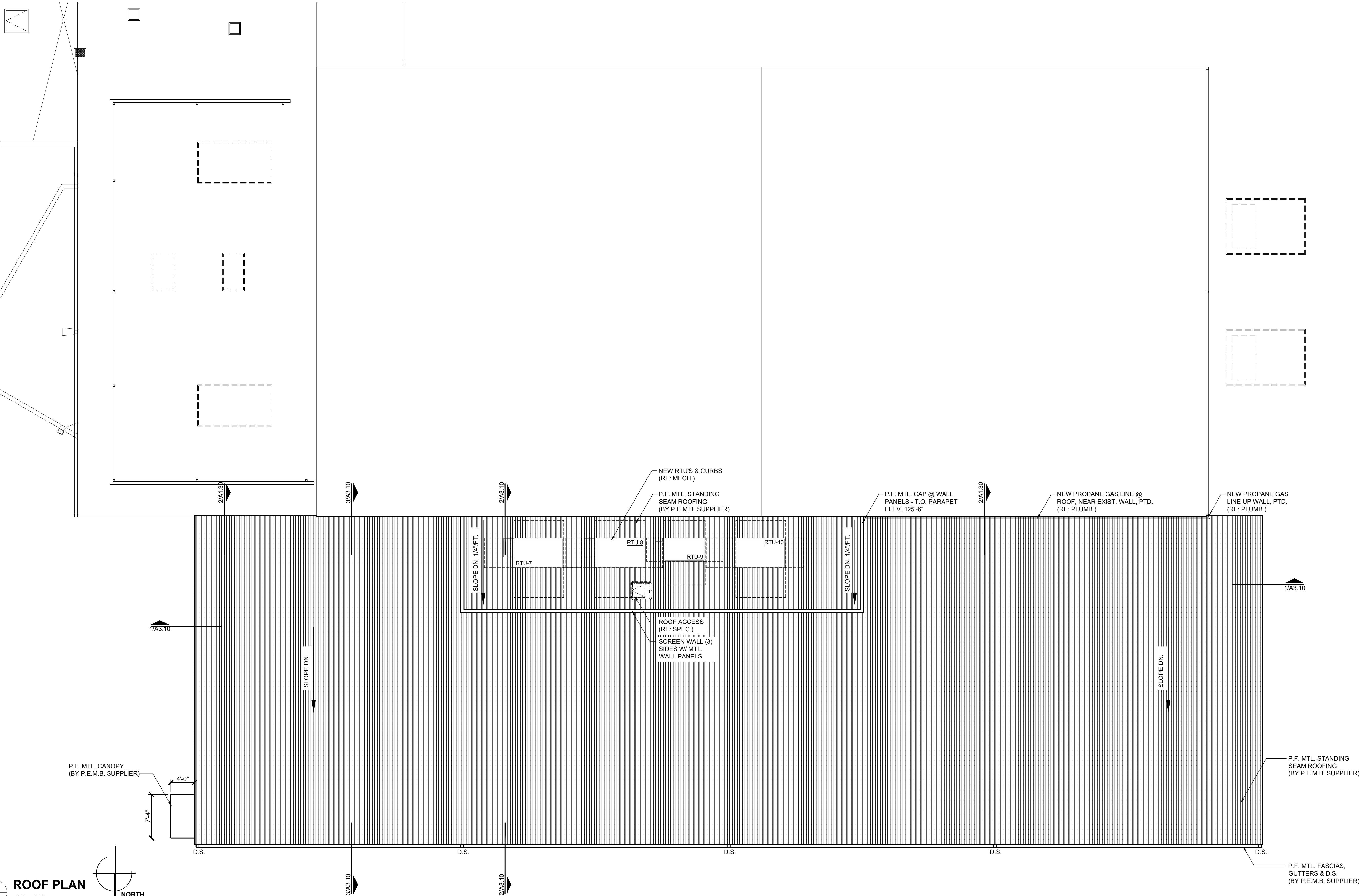
mantlet teter

consulting | architecture | developing
5013 N. Washington St., Gladstone, Missouri 64118
t: 816.931.5600
www.mantletteter.com

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY: JTE/BNA
CHECKED BY: DEE
REVISIONS:

SHEET No.
A1.20
FIRST FLOOR REFLECTED
CEILING PLAN / DETAILS



- GENERAL ROOF PLAN NOTES:**
1. ALL SHEET METAL WORK SHALL COMPLY WITH RECOMMENDED SMACNA DETAILS.
 2. ALL GUTTERS SHALL BE DESIGNED BY P.E.M.B. SUPPLIER & SHALL MATCH EXISTING GUTTER STYLE.
 3. ALL DOWNSPOUTS SHALL BE DESIGNED BY P.E.M.B. SUPPLIER & SHALL MATCH EXISTING DOWNSPOUT STYLE.
 4. LOCATE DOWNSPOUTS AS SHOWN ON THE DRAWINGS. SEE ELEVATION DWGS.
 5. ALL DOWNSPOUTS SHALL CONNECT INTO PVC BOOTS & PIPE. SEE CIVIL DWGS. FOR CONNECTION & CONTINUATION.
 6. ALL ROOF PENETRATIONS SHALL BE SEALED & FLASHED PER MANUFACTURER'S REQUIREMENTS.
 7. ALL ROOF PENETRATIONS SHALL BE PAINTED TO MATCH THE COLOR OF THE ROOFING MATERIAL THEY PENETRATE. VERIFY COLOR WITH ARCHITECT.
 8. ALL EXPOSED GAS PIPING SHALL BE PTD. TO MATCH EITHER WALL COLOR AND/OR ROOF COLOR. VERIFY COLOR WITH ARCHITECT.

01/29/2021

ARCHITECT: DAVID EUGENE EVANS
ARCHITECT LICENSE NO: MA 31501

MANTTEL TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTTEL TETER ARCHITECTS, P.C.

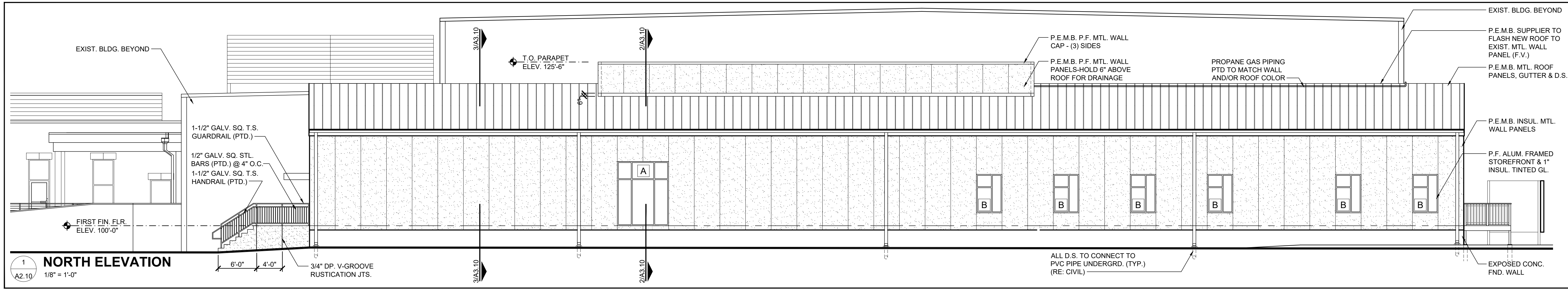
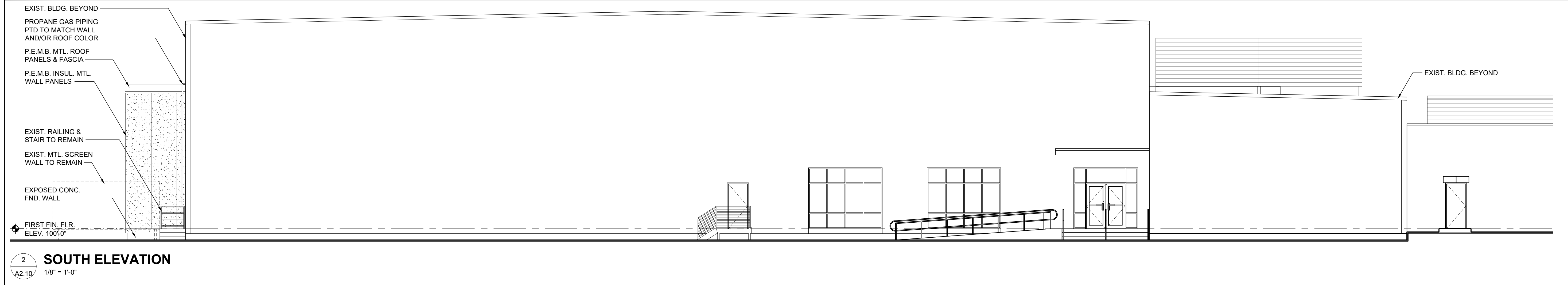
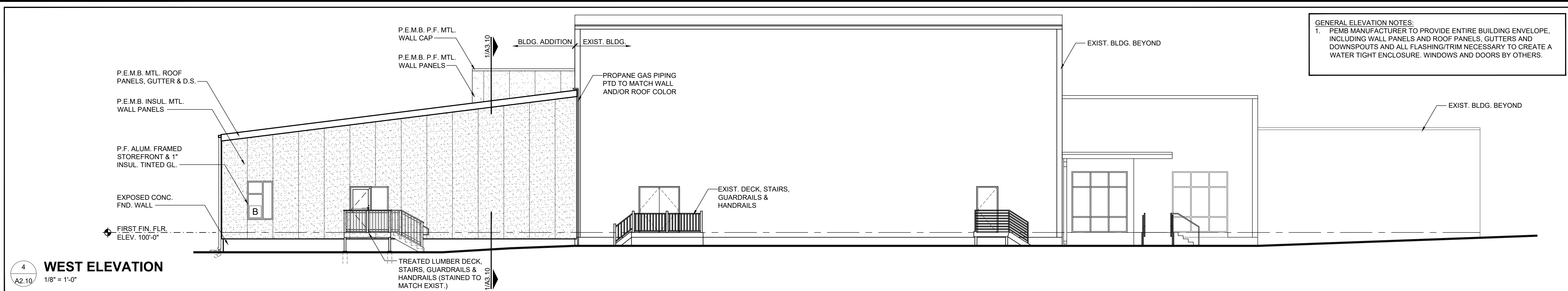
mantel teter
consulting | architecture | developing
5013 N. Washington St., Gladstone, Missouri 64118
t: 816.931.5600 www.mantelteter.com

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY: JTE/BNA
CHECKED BY: DEE

REVISIONS:

SHEET No.
A1.30
ROOF PLAN / DETAILS



GENERAL ELEVATION NOTES:
1. PEMB MANUFACTURER TO PROVIDE ENTIRE BUILDING ENVELOPE, INCLUDING WALL PANELS AND ROOF PANELS, GUTTERS AND DOWNSPOUTS AND ALL FLASHING/TRIM NECESSARY TO CREATE A WATER TIGHT ENCLOSURE. WINDOWS AND DOORS BY OTHERS.

REGISTERED ARCHITECT
DAVID E. EVANS
No. 31501
KANSAS CITY
MO.
01/29/2021

ARCHITECT: DAVID EUGENE EVANS
ARCHITECT LICENSE NO: MA 31501

MANTTEL TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTTEL TETER ARCHITECTS, P.C.

mantel teter
consulting | architecture | developing

5013 N. Washington St., Gladstone, Missouri 64118
t: 816.931.5600
www.mantelteter.com

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY: JTE/BNA
CHECKED BY: DEE
REVISIONS:

SHEET No.
A2.10
EXTERIOR BUILDING
ELEVATIONS / DETAILS

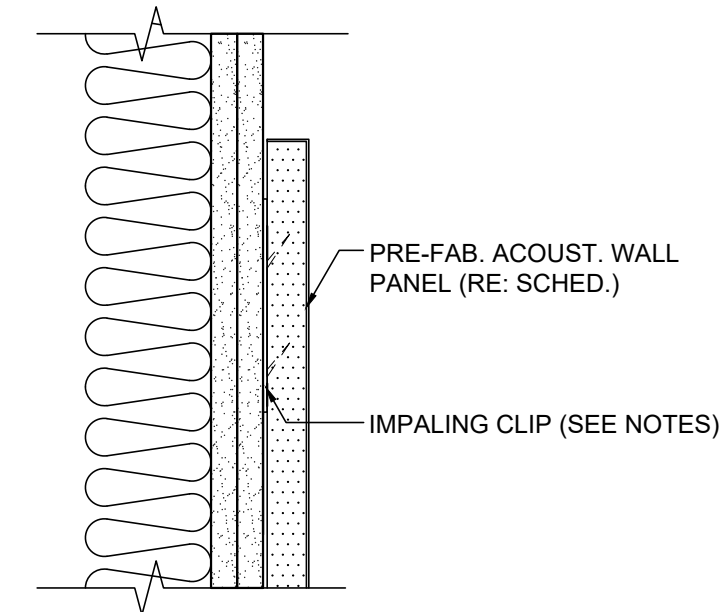
GENERAL BUILDING SECTION NOTES:

1. REFERENCE DETAIL 4/A3.10 FOR PRE-FABRICATED ACOUSTICAL WALL PANEL AND WALL MOUNTED DIFFUSER TYPES, SIZES ATTACHMENT DETAILS AND NOTES.
2. REFERENCE FINISH PLANS, BUILDING SECTIONS AND SPECIFICATIONS FOR GENERAL FINISH PLAN NOTES AND WALL PAINT DESIGNATIONS "P-X".
3. REFER TO AVLA DRAWINGS FOR FINAL LOCATIONS, SIZES, AND WALL POSITION.

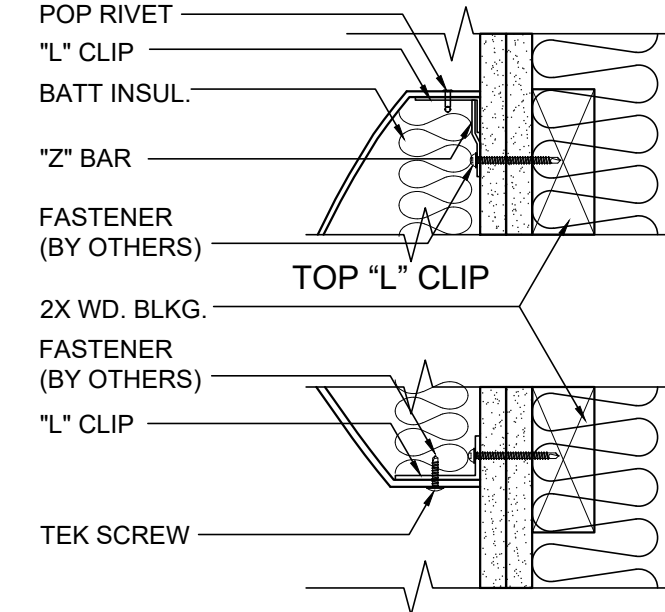
ACOUSTICAL PANEL SCHEDULE

PANEL	ATTACHMENT DTL.	TYPE (RE: SPEC.)	SIZE
A1	A	NOT USED	N/A
A2	A	NOT USED	N/A
A3	A	PRE-FAB. WALL PANEL	4'-0"x8'-0"
A4	A	PRE-FAB. WALL PANEL	4'-0"x4'-0"
A5	A	NOT USED	N/A
B1	B	PRE-FAB. BARREL DIFFUSER	4'-0"x4'-0"

ATTACHMENT DTL. - A



ATTACHMENT DTL. - B



IMPALING CLIP NOTES:

1. FASTEN AFN-IMPALING CLIPS TO THE WALL 48" O.C. WITH THE POINTS FACING UP. NOTE: IF PANEL DIMENSION IS LESS THAN 48", SPACE CLIPS EVENLY.
2. ATTACH PANELS BY PRESSING DOWN TOWARD THE WALL SO POINTS IMBED FIRMLY IN THE BACK OF THE PANEL.
3. USE THE FOLLOWING GUIDE TO DETERMINE THE NUMBER OF AF-IMPALING CLIPS TO BE USED PER PANEL:

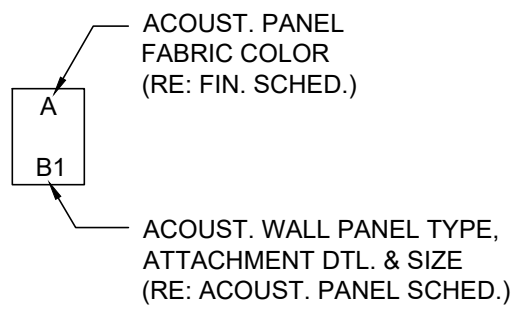
PANEL SIZE*	NUMBER OF CLIPS
LESS THAN 8 SF	2
GREATER THAN 8 SF	4
GREATER THAN 16 SF	6
GREATER THAN 32 SF	8

*HORIZONTAL PANELS GREATER THAN 4' WIDE AND LESS THAN 8 SF USE 3 CLIPS.

4. DUE TO VARIATIONS IN FIBERGLASS THICKNESS, SOME SHIMMING MAY BE REQUIRED TO ALIGN THE PANEL EDGES.

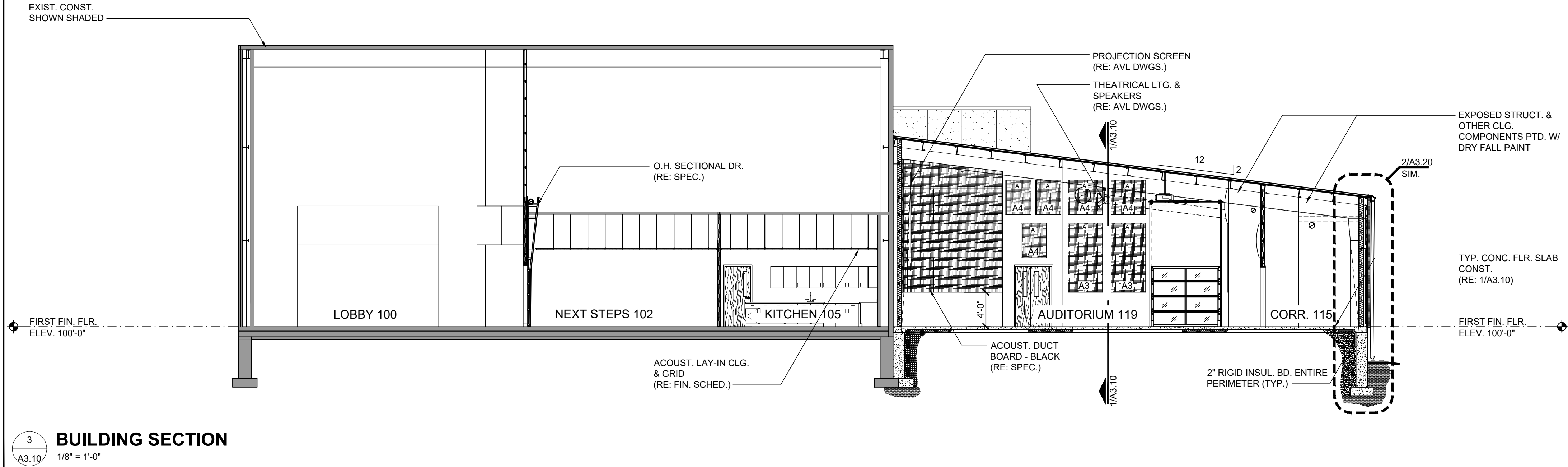
WALL DIFFUSER NOTES

1. REVIEW THE DRAWINGS AND DETAILS BEFORE BEGINNING ASSEMBLY. NOTE INSTALLATION CALLS FOR VERTICALLY HUNG DIFFUSERS (RE: DRAWINGS).
2. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR MOUNTING DIFFUSERS TO THE WALL.
3. L CLIPS SHOULD BE 1/8" INSIDE THE EXTERIOR EDGE OF THE DIFFUSER.
4. THE EXTERIOR EDGE OF THE DIFFUSER SHOULD OVERLAP AND HIDE THE BOTTOM AND SIDE L CLIPS.
5. ATTACH Z-BARS FOR TOP CLIPS TO THE WALL USING APPROPRIATE FASTENERS (FASTENERS ARE NOT INCLUDED).
6. ALLOW 1" MINIMUM CLEARANCE ABOVE THE TOP OF EACH Z-BAR FOR CLIP ATTACHMENT.
7. ATTACH THE DIFFUSER TO THE SIDE AND BOTTOM L CLIPS WITH #8 X 3/4" TEK SCREW (BY SUPPLIER).

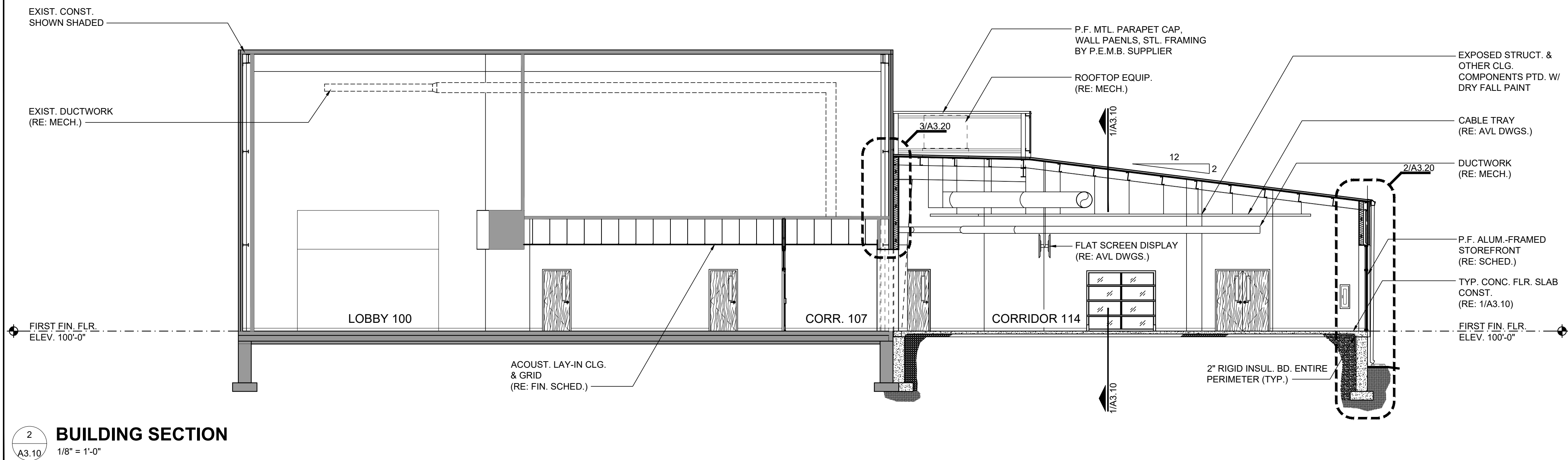


DETAIL

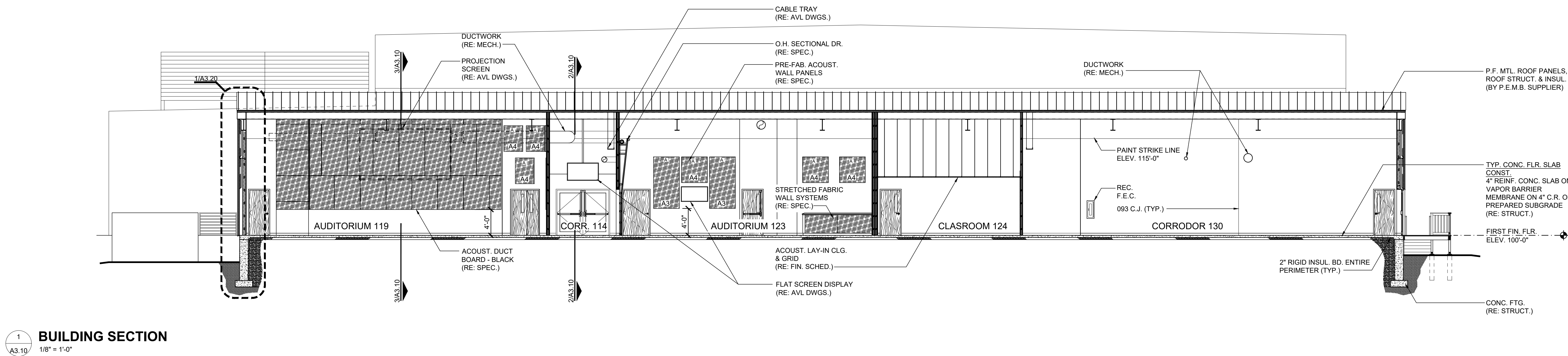
4
A3.10 N.T.S.



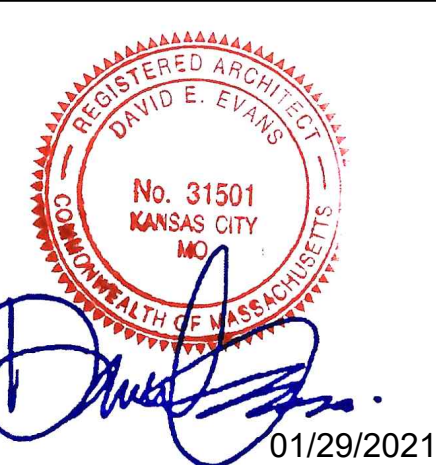
3
A3.10
BUILDING SECTION
1/8" = 1'-0"



2
A3.10
BUILDING SECTION
1/8" = 1'-0"



1
A3.10
BUILDING SECTION
1/8" = 1'-0"



ARCHITECT: DAVID EUGENE EVANS
ARCHITECT LICENSE NO: MA 31501

MANTLET TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTLET TETER ARCHITECTS, P.C.

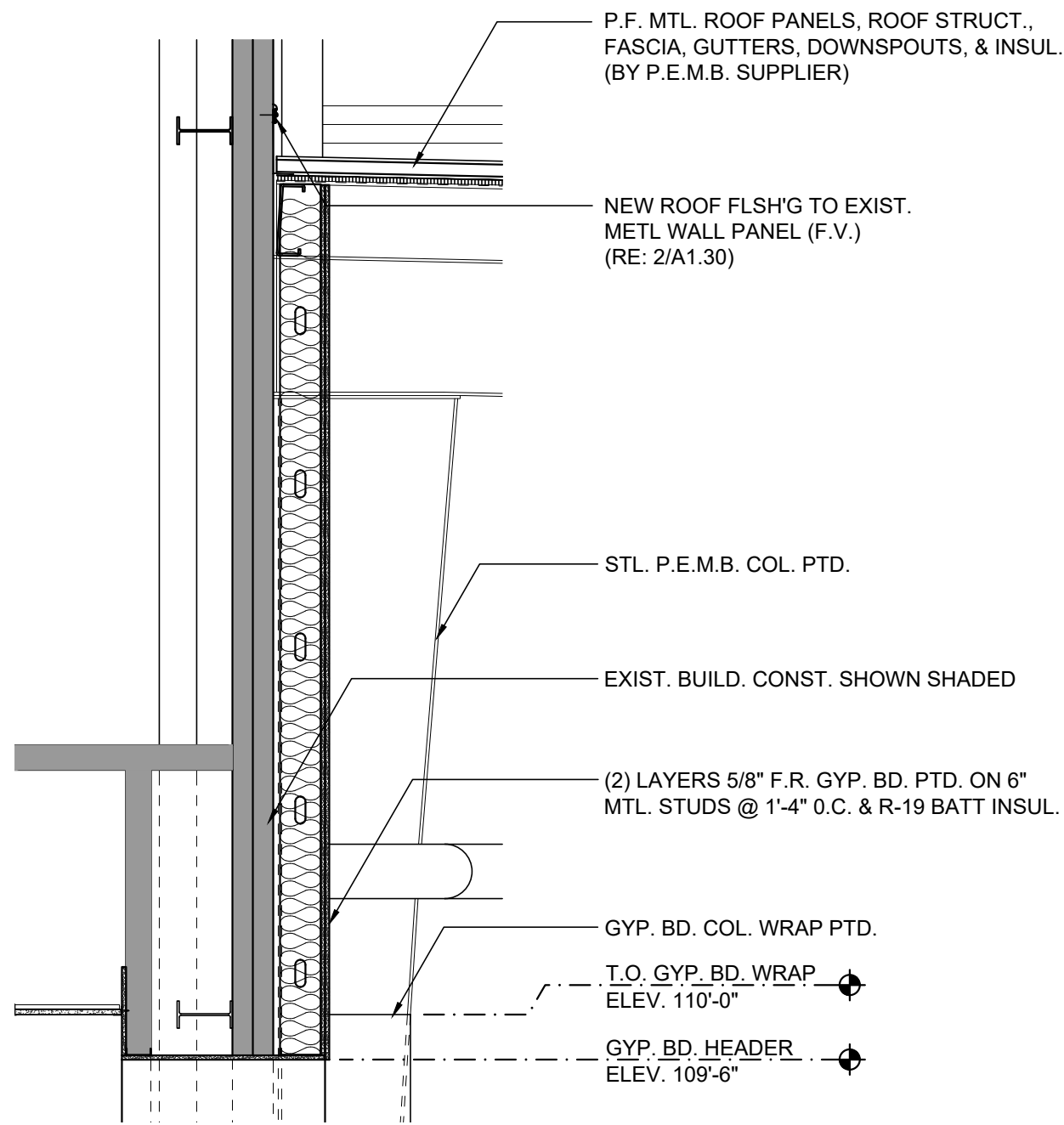
mantlet teter
consulting | architecture | developing
5013 N. Washington St., Gladstone, Missouri 64118
t: 816.931.5600 www.mantletteter.com

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

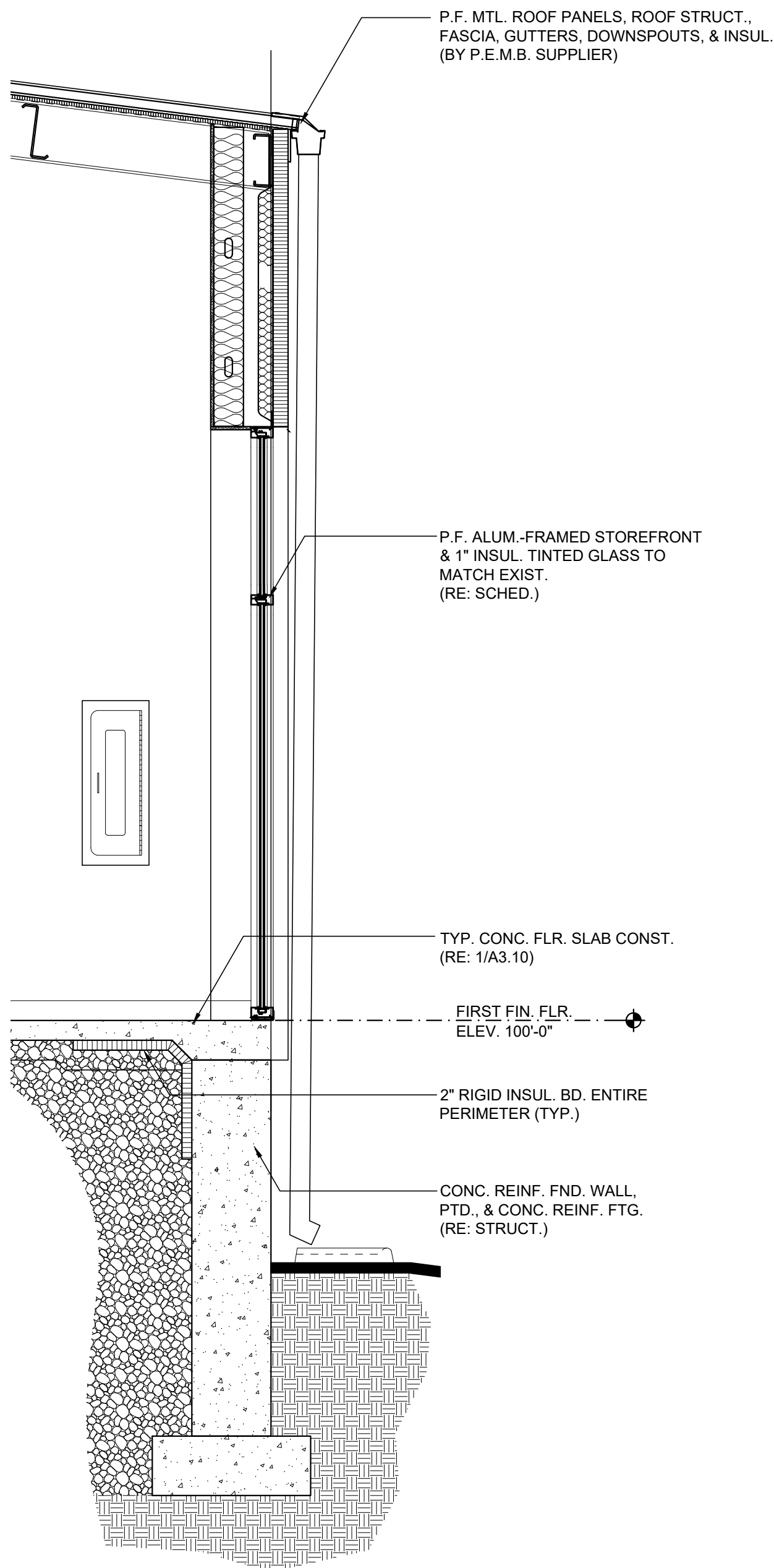
PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY: JTE/BNA
CHECKED BY: DEE

REVISIONS:

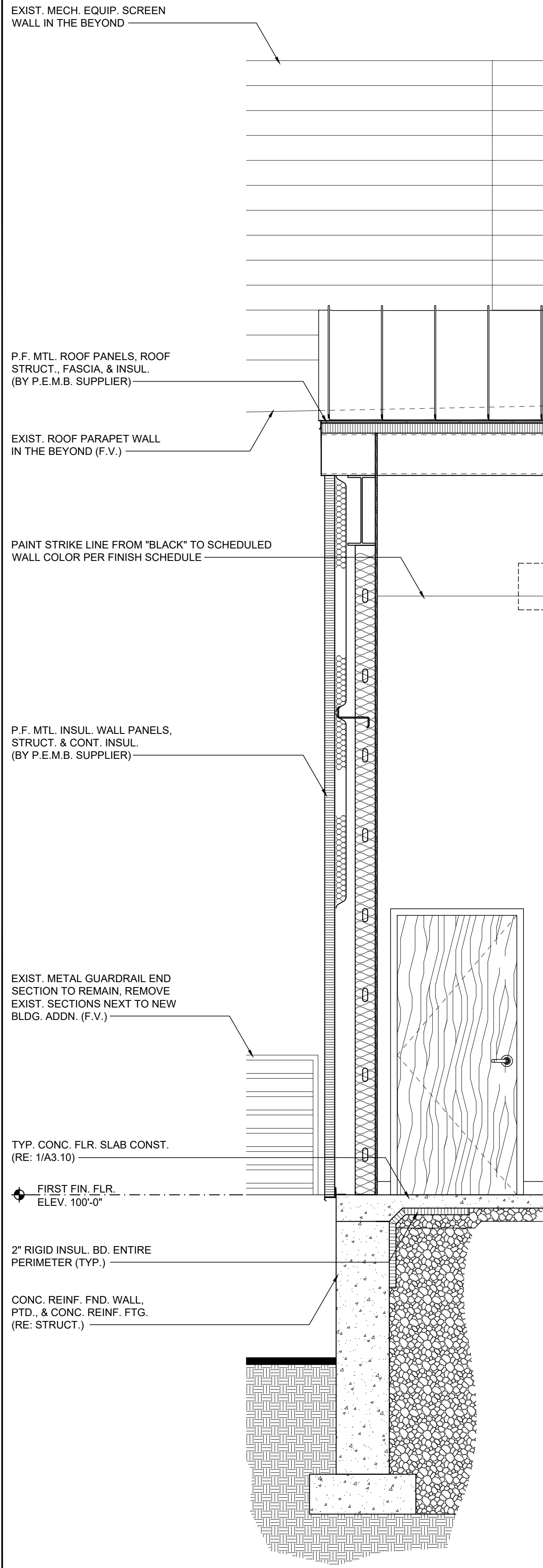
SHEET No.
A3.10
BUILDING SECTIONS /
DETAILS



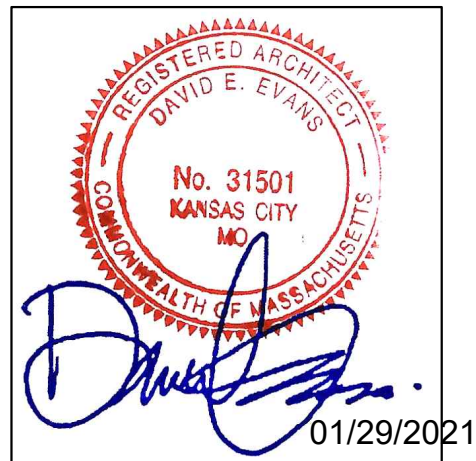
3
A3.20
WALL SECTION
1/2" = 1'-0"



2
A3.20
WALL SECTION
1/2" = 1'-0"



1
A3.20
WALL SECTION
1/2" = 1'-0"



ARCHITECT: DAVID EUGENE EVANS
ARCHITECT LICENSE NO.: MA 31501

MANTEL TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTEL TETER ARCHITECTS, P.C.

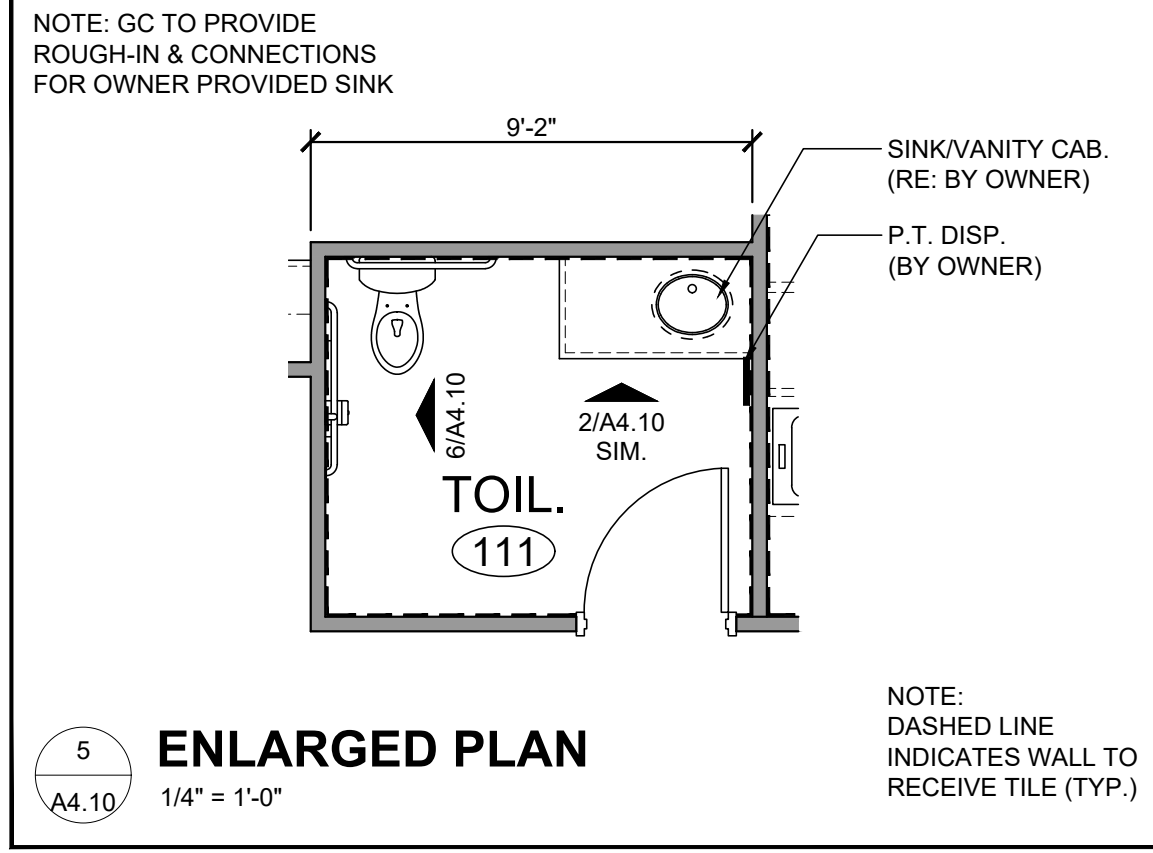
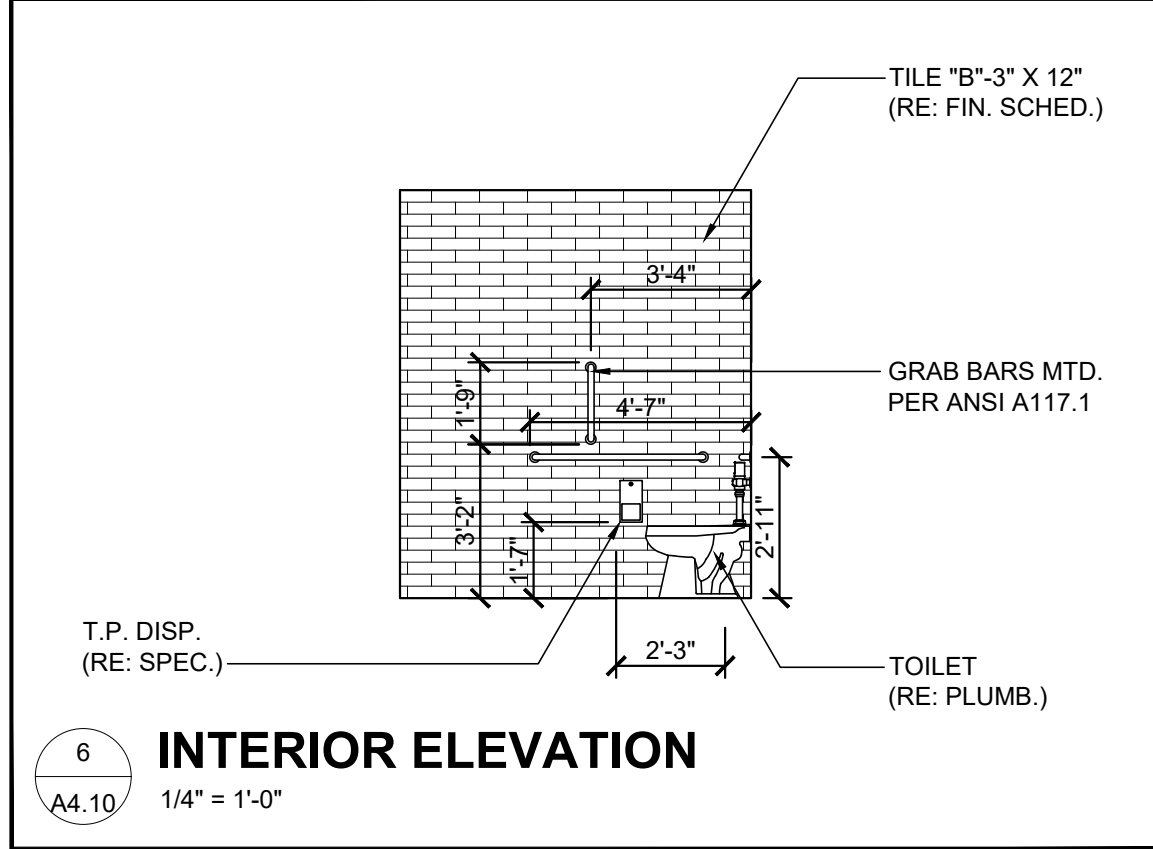
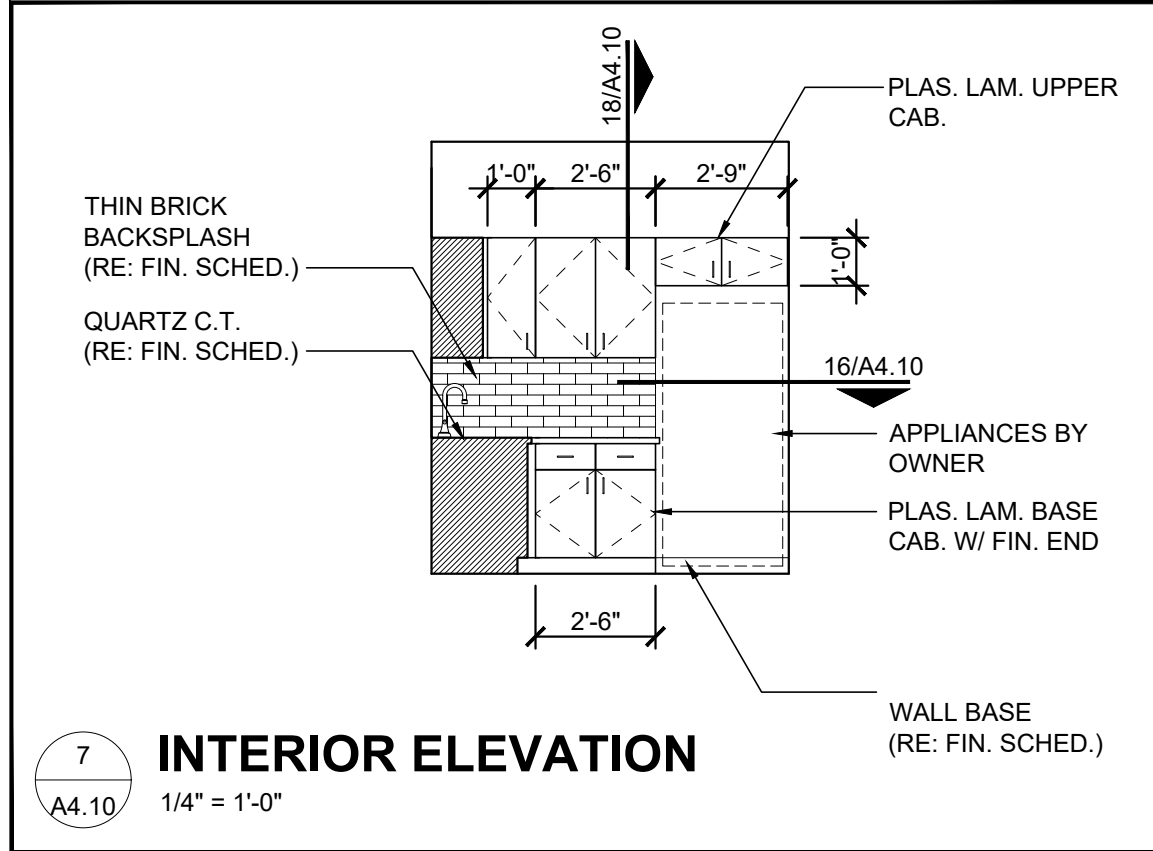
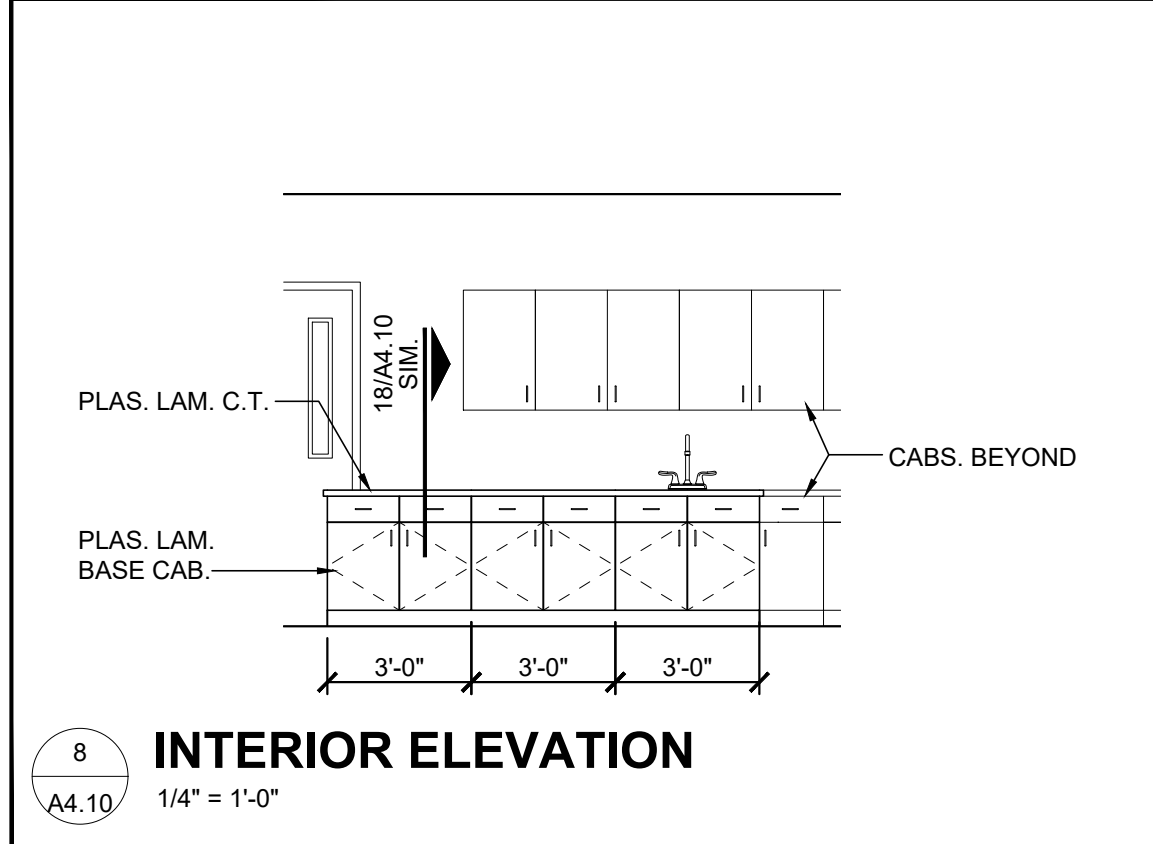
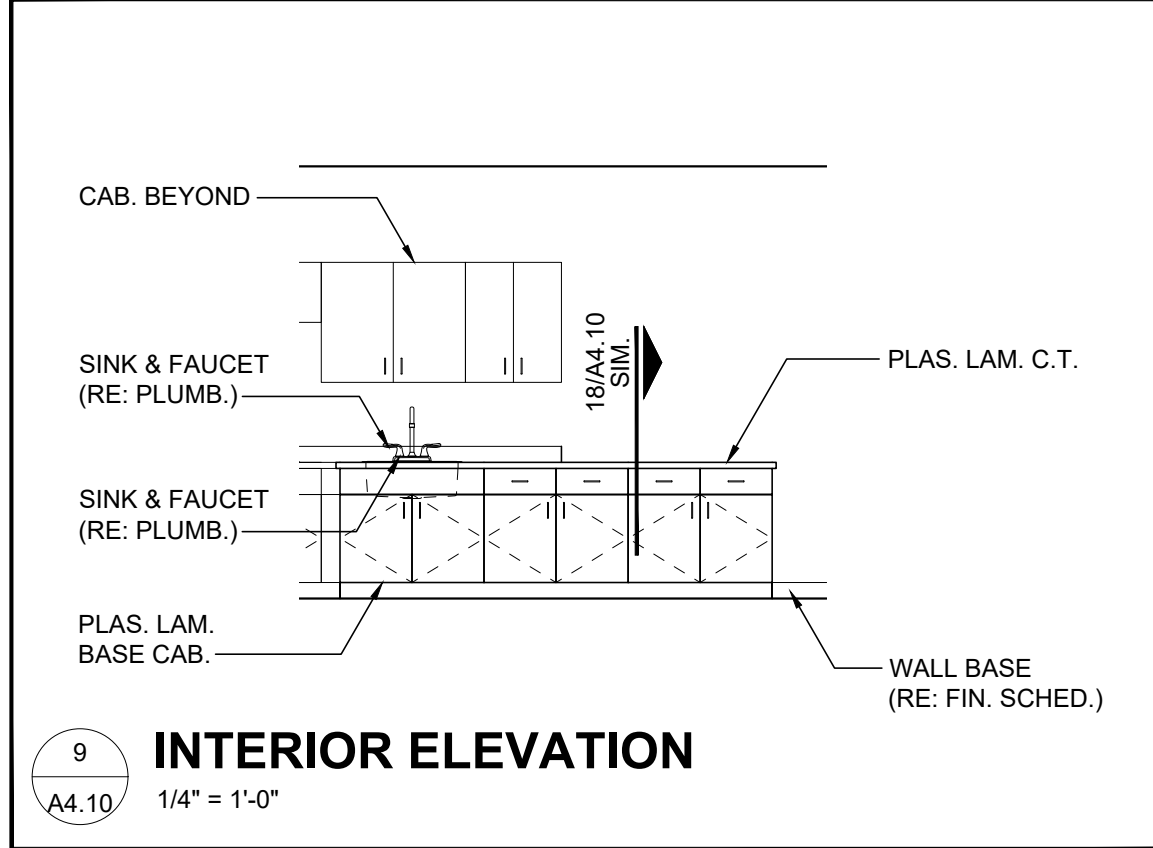
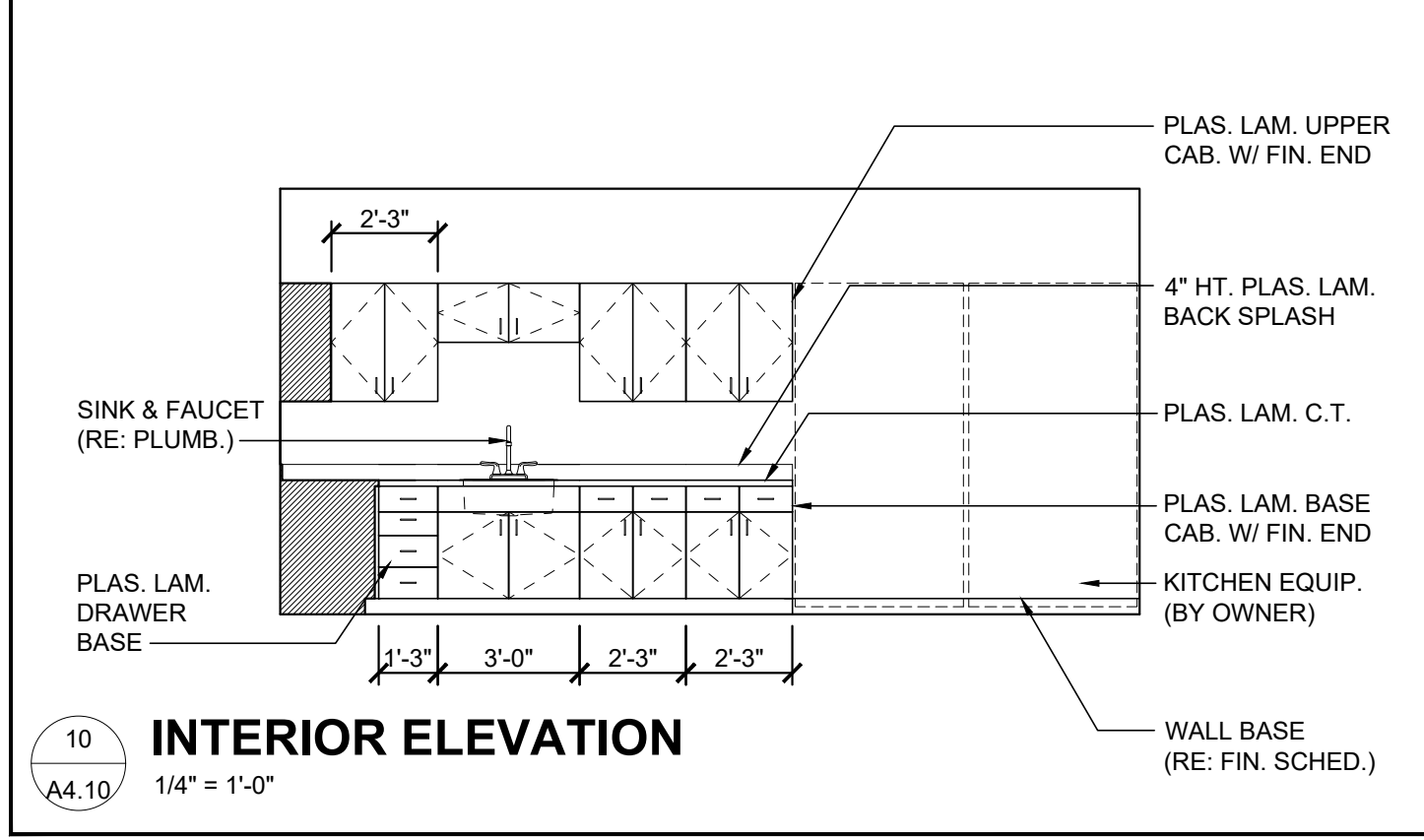
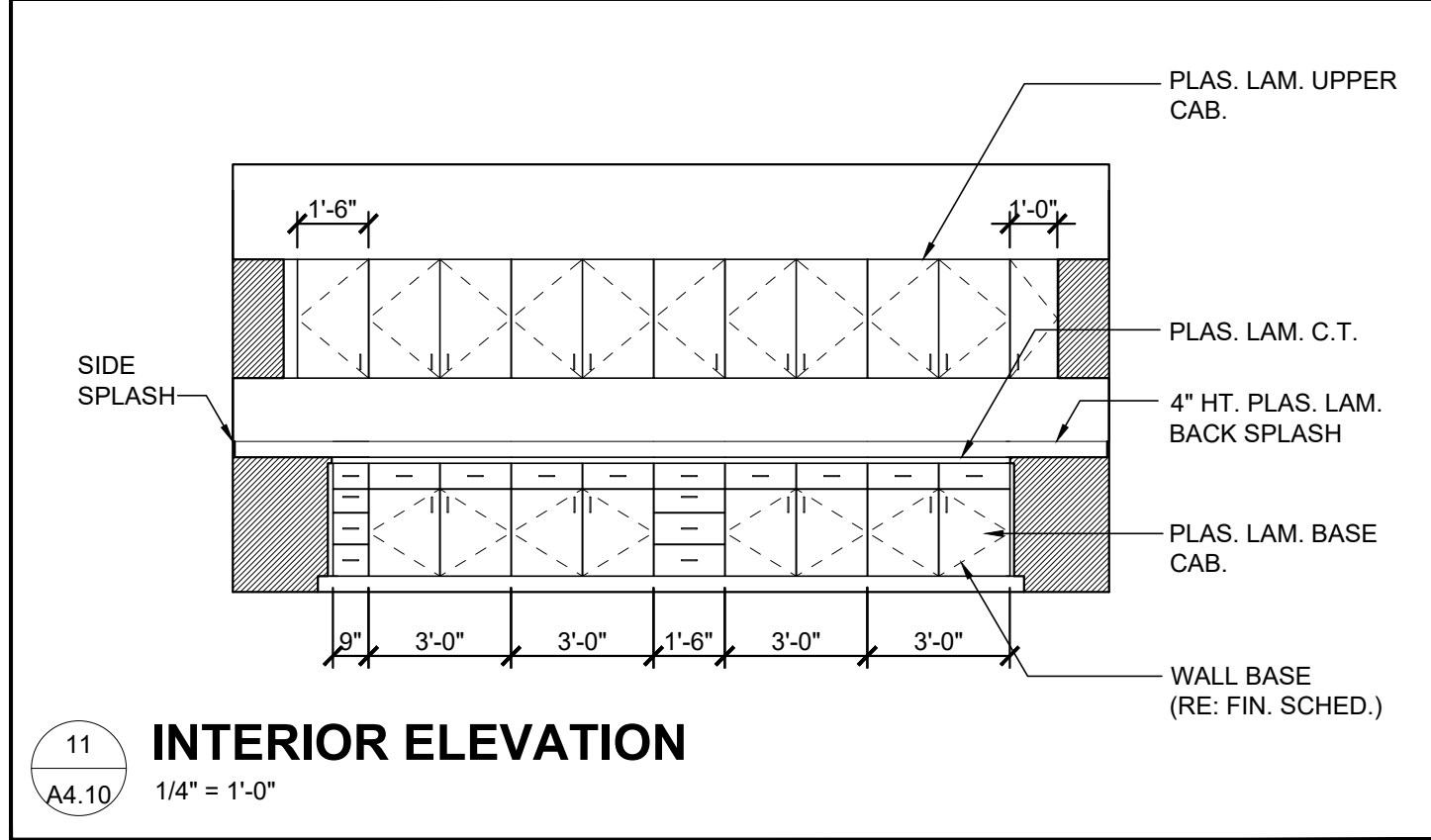
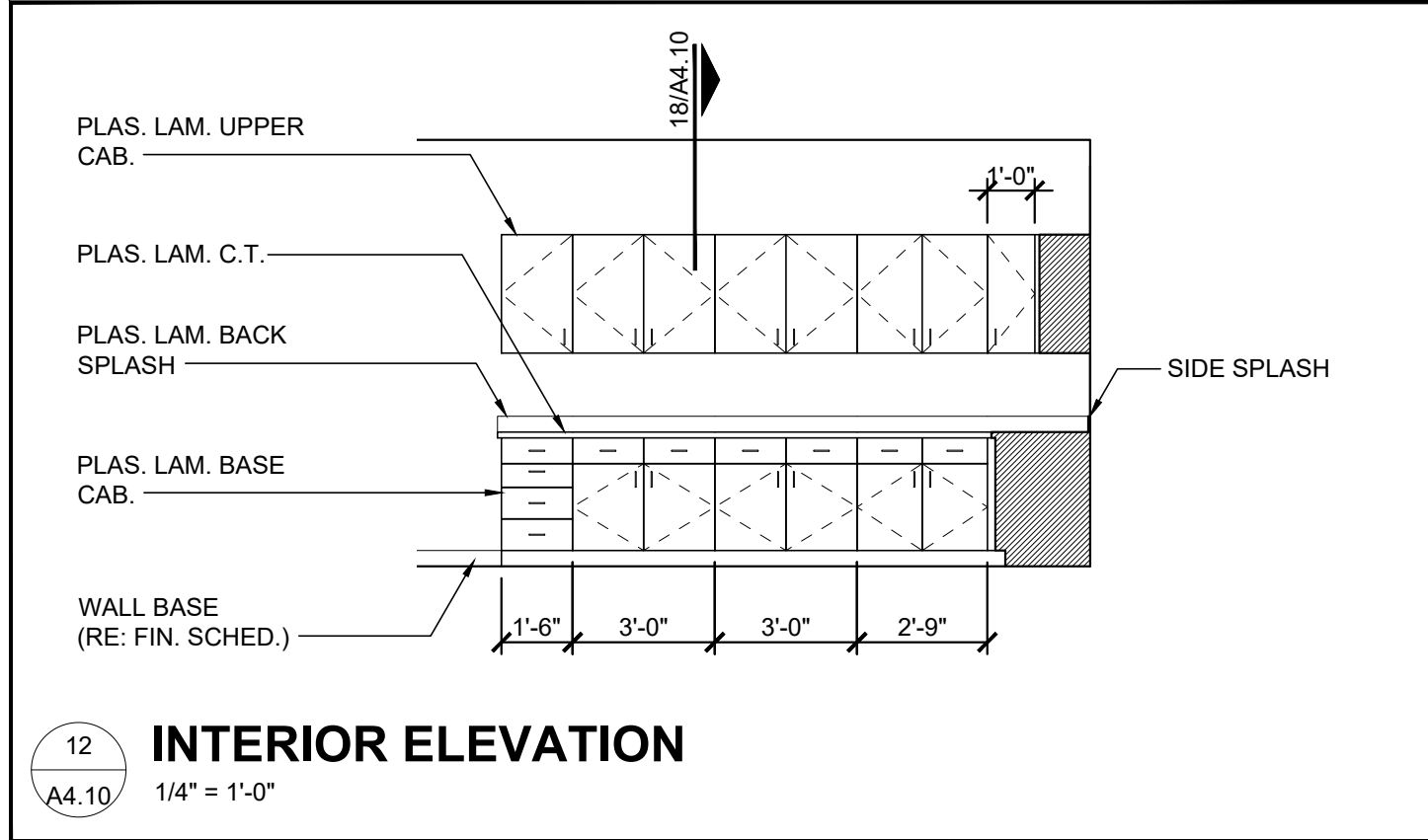
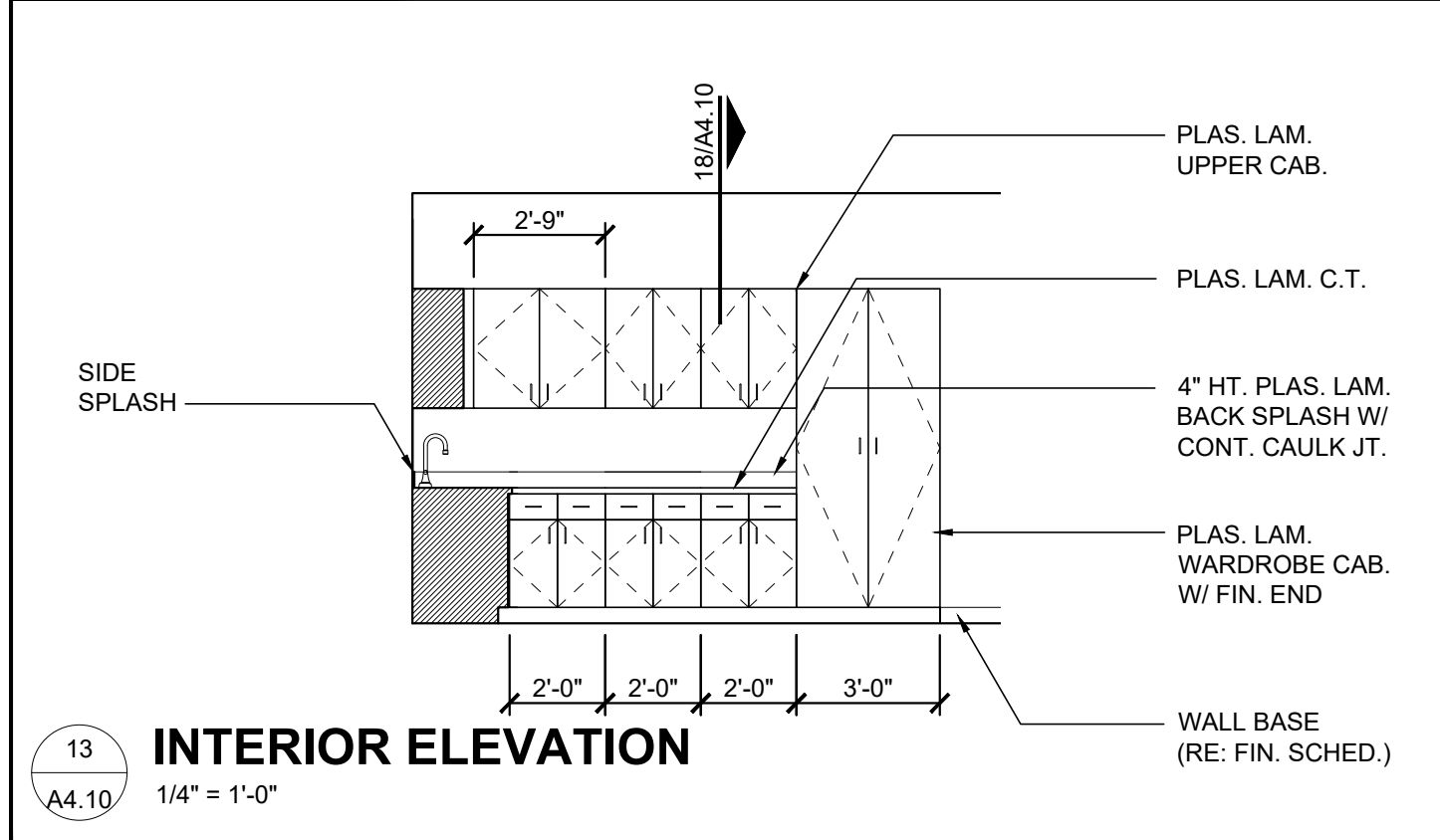
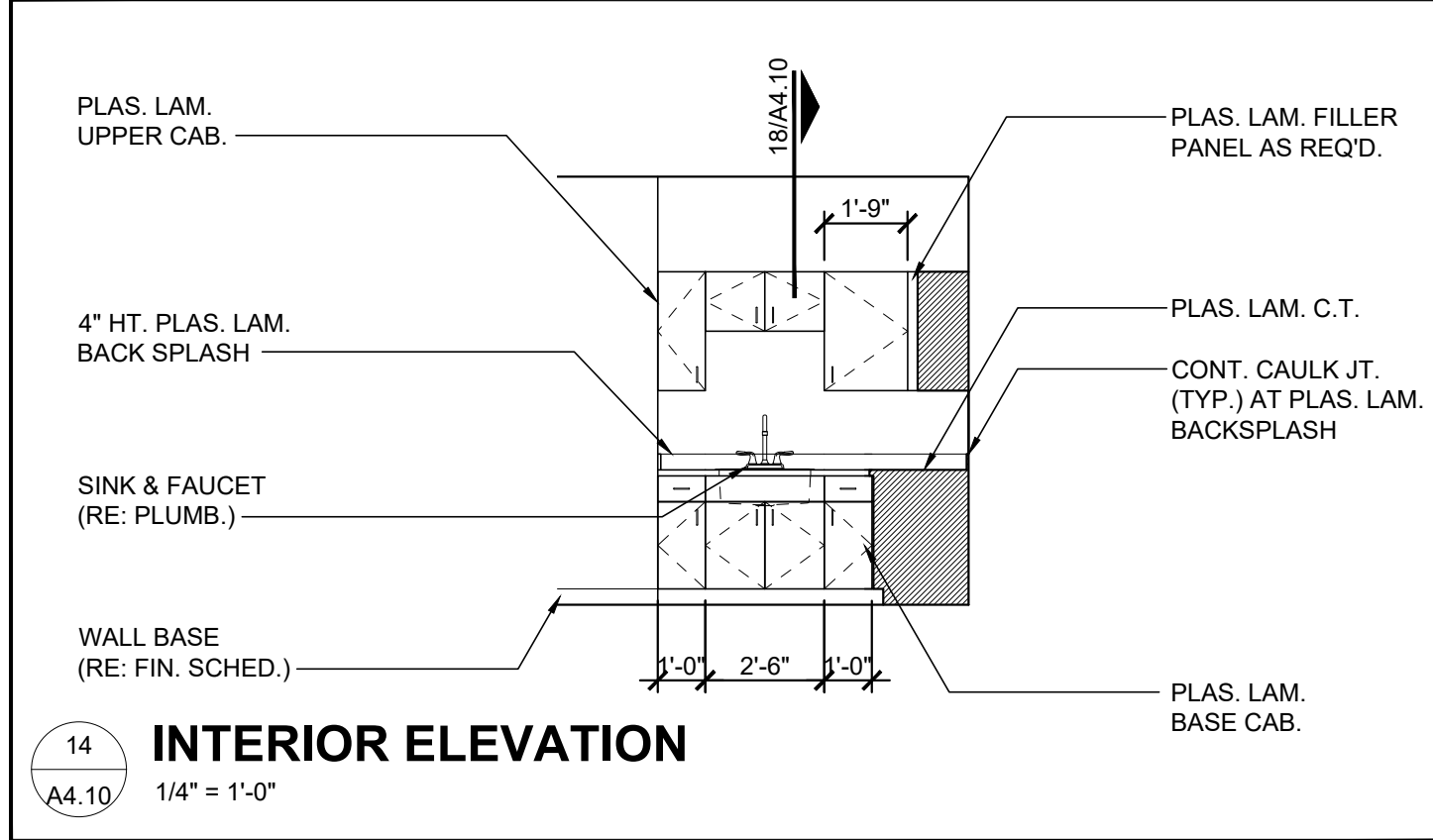
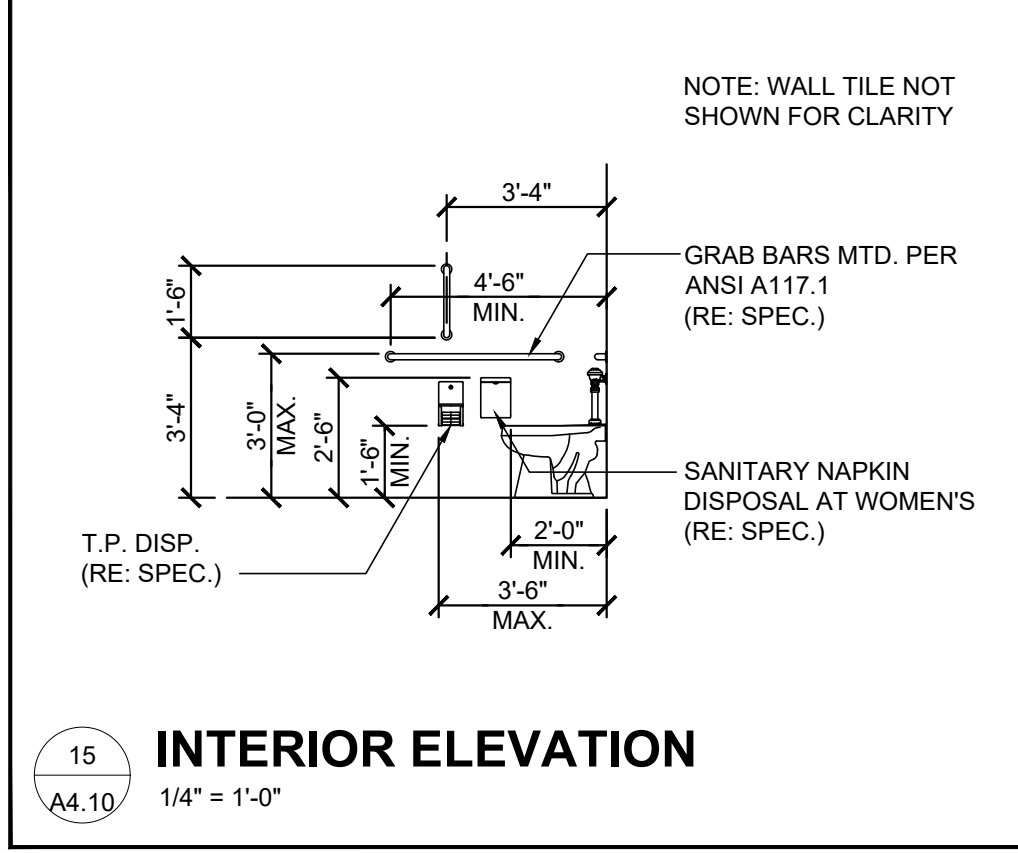
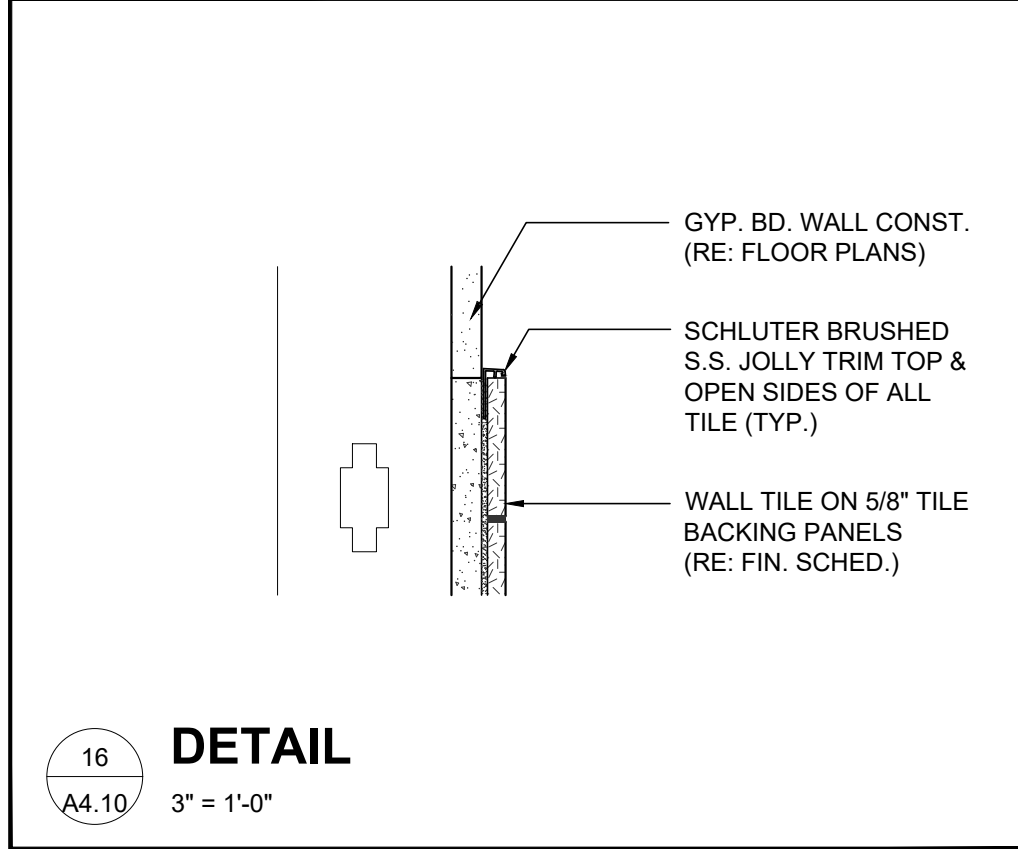
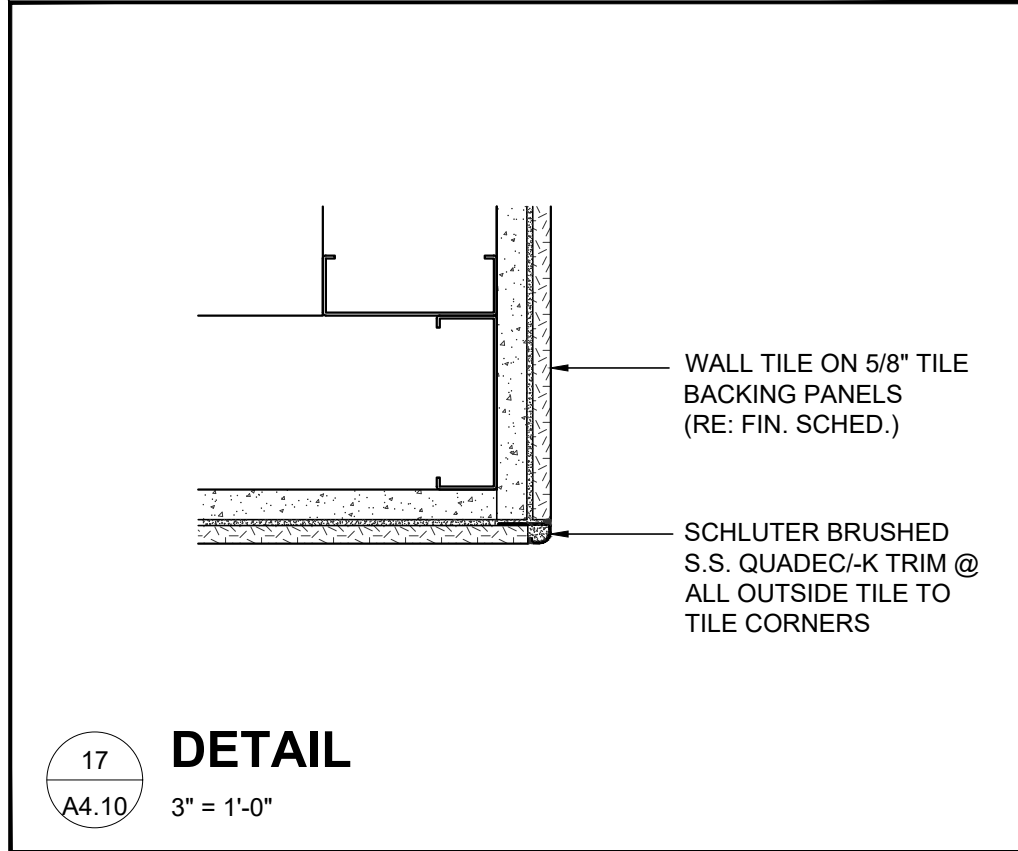
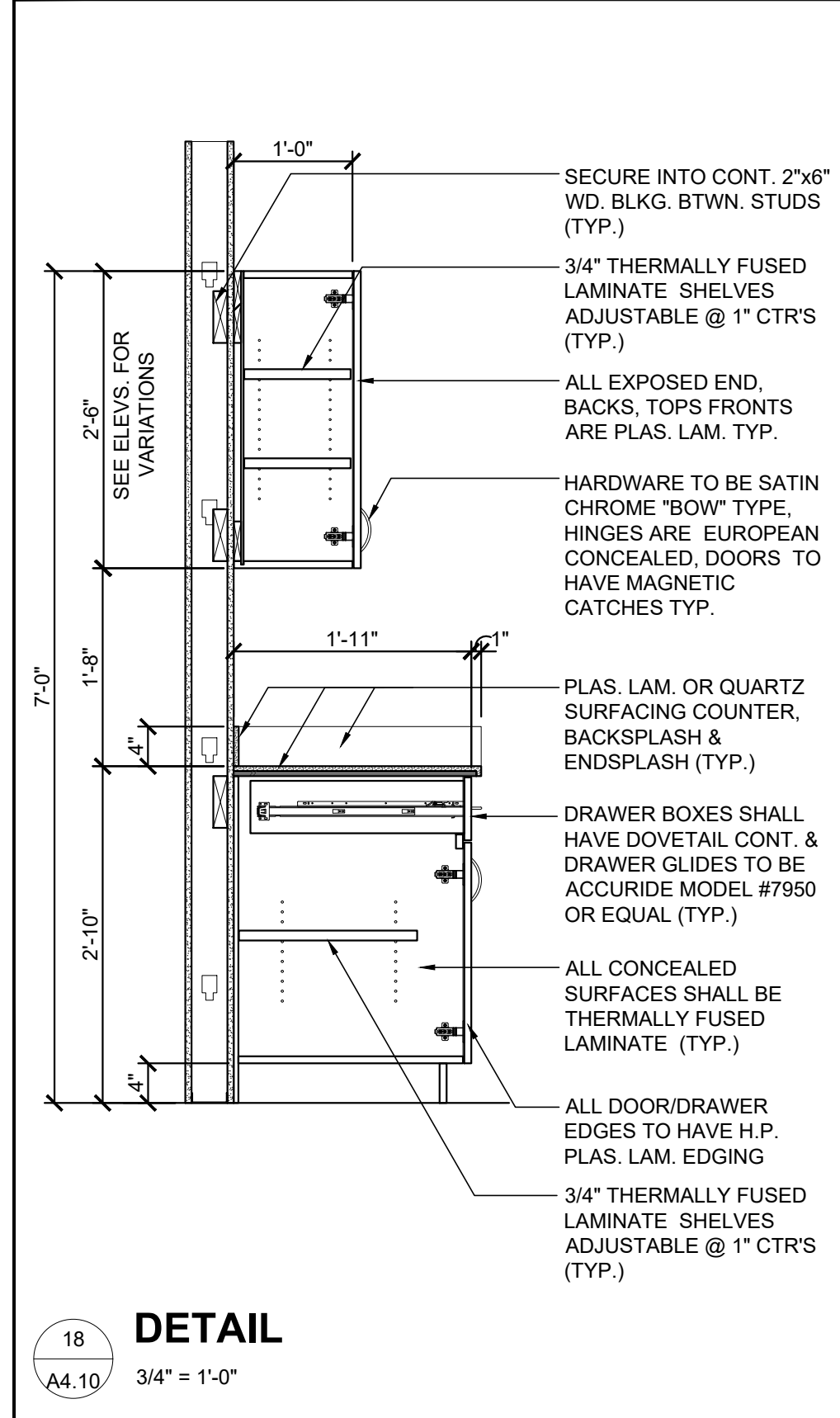
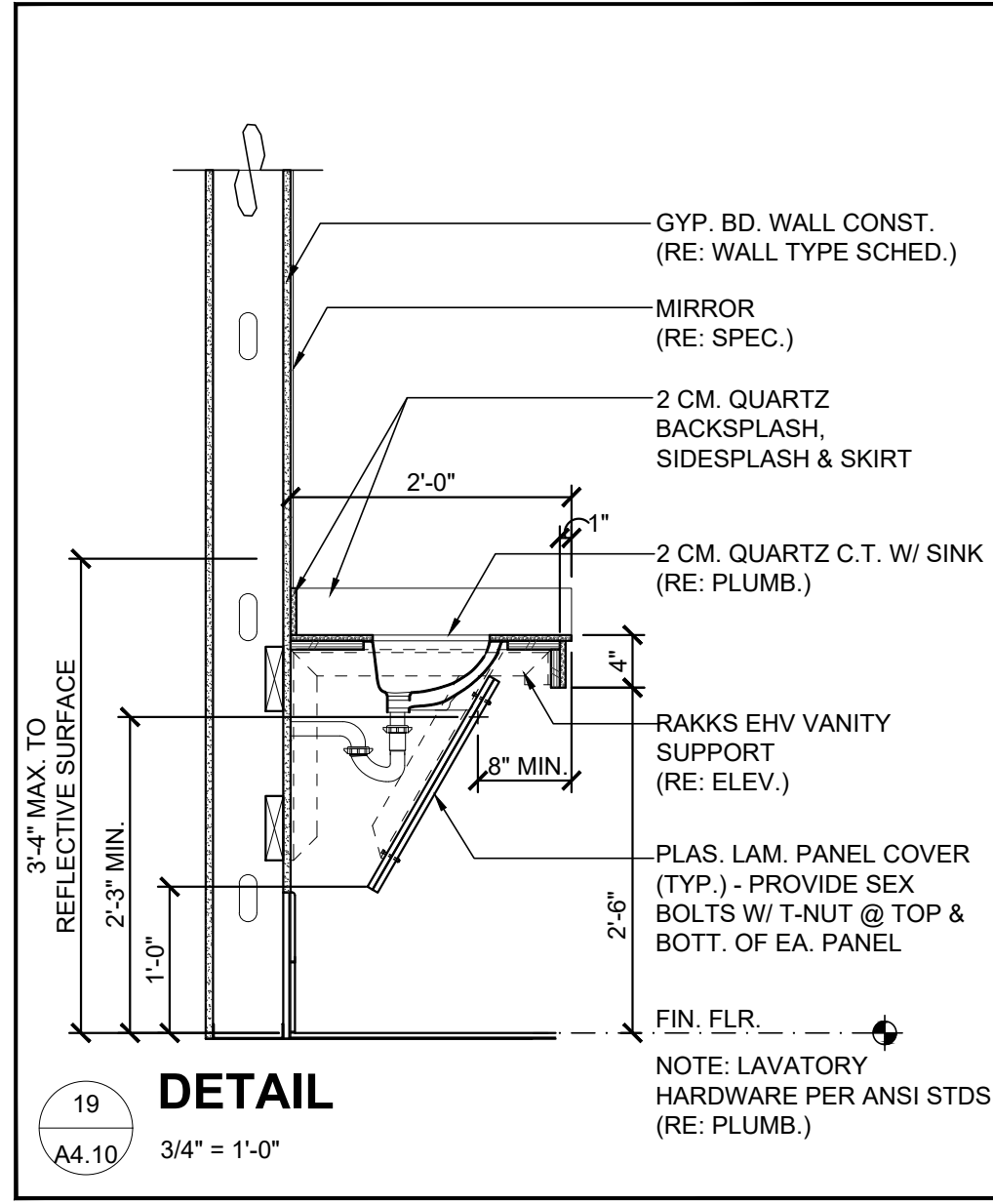
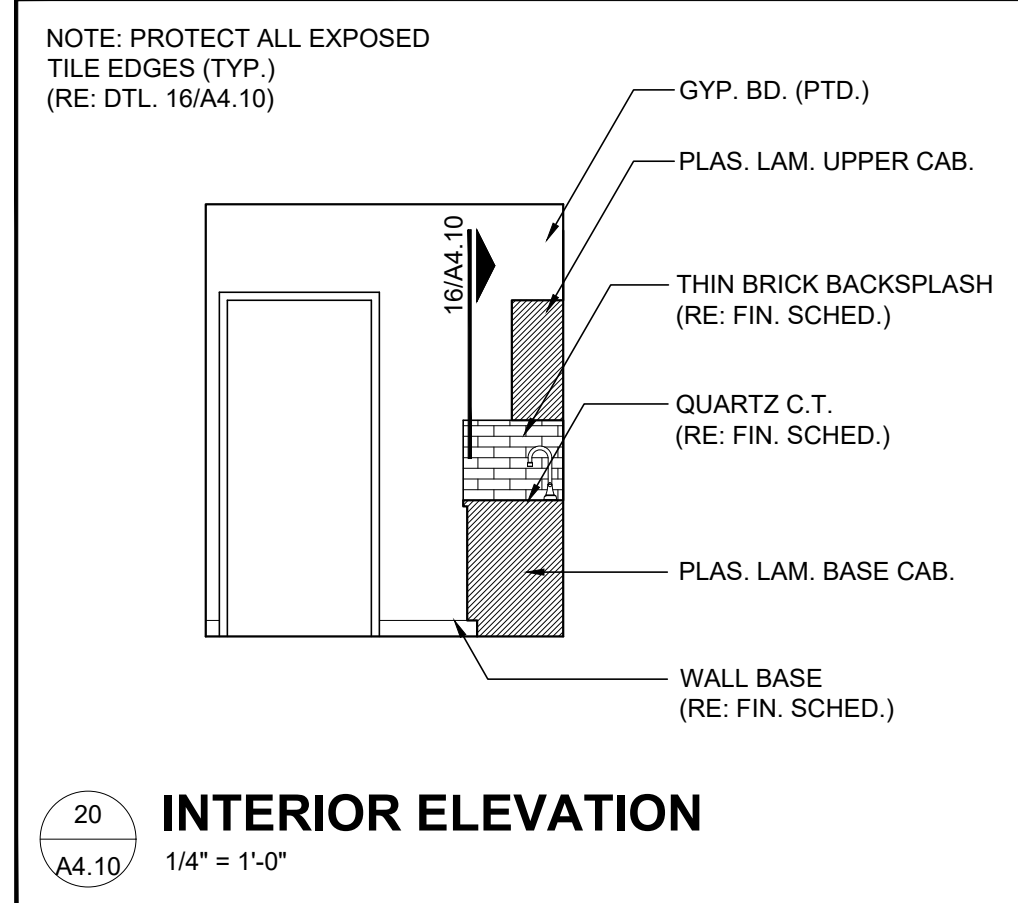
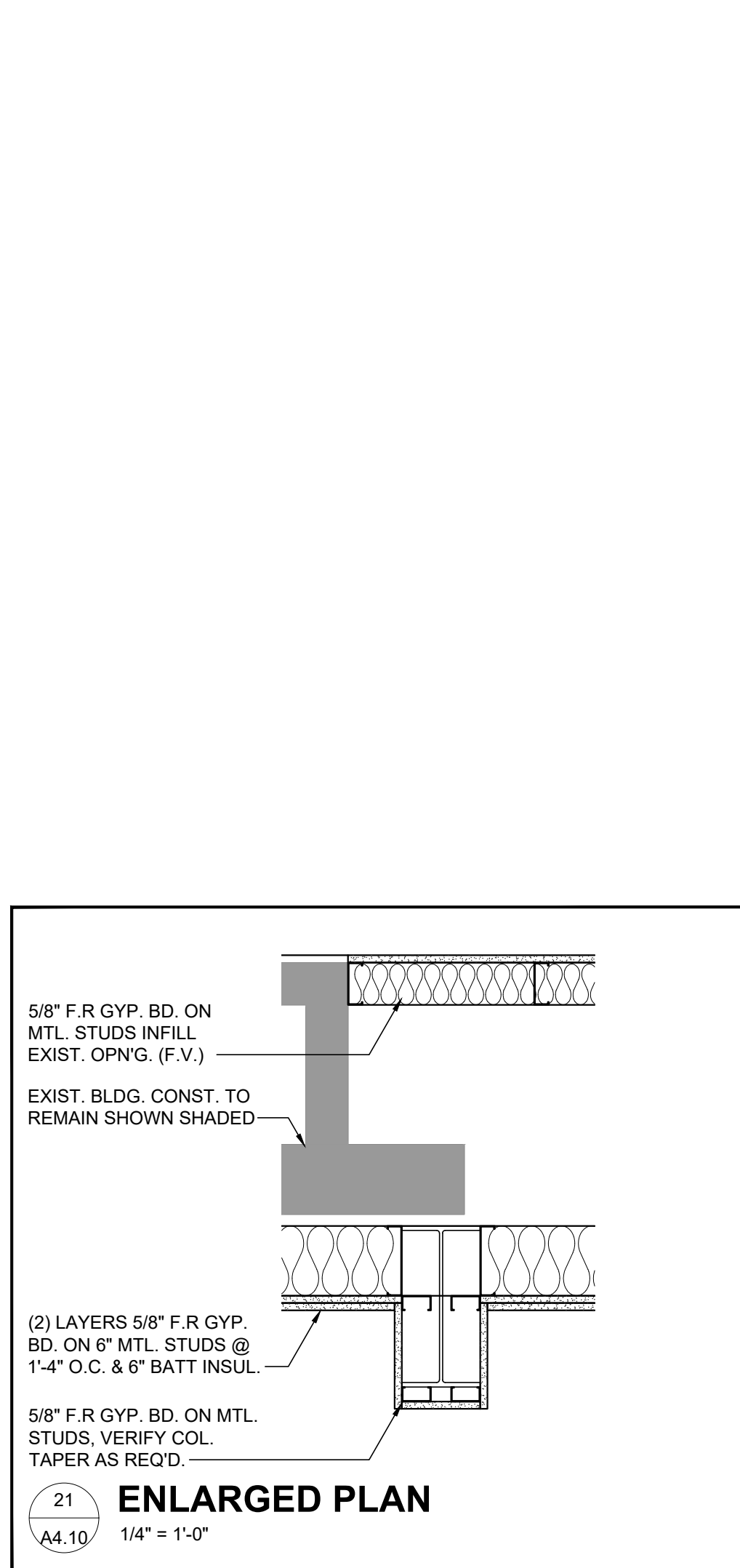


ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

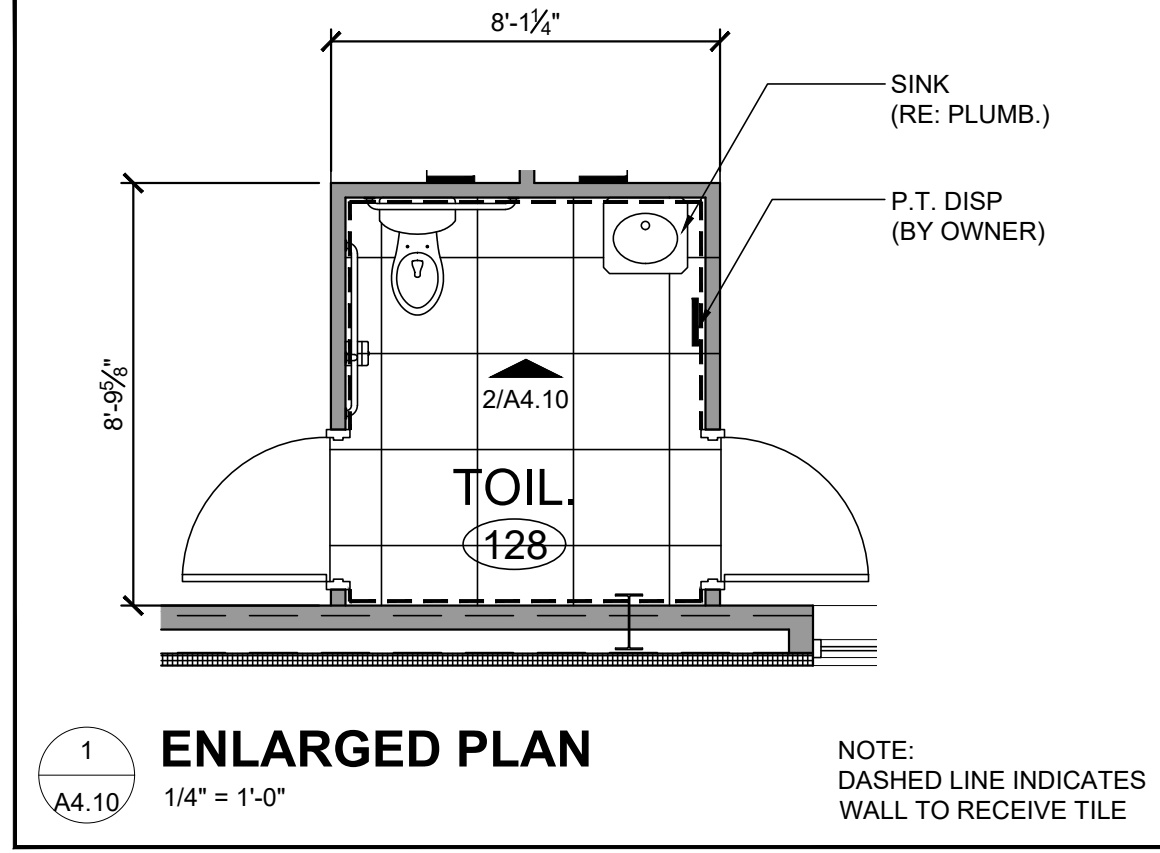
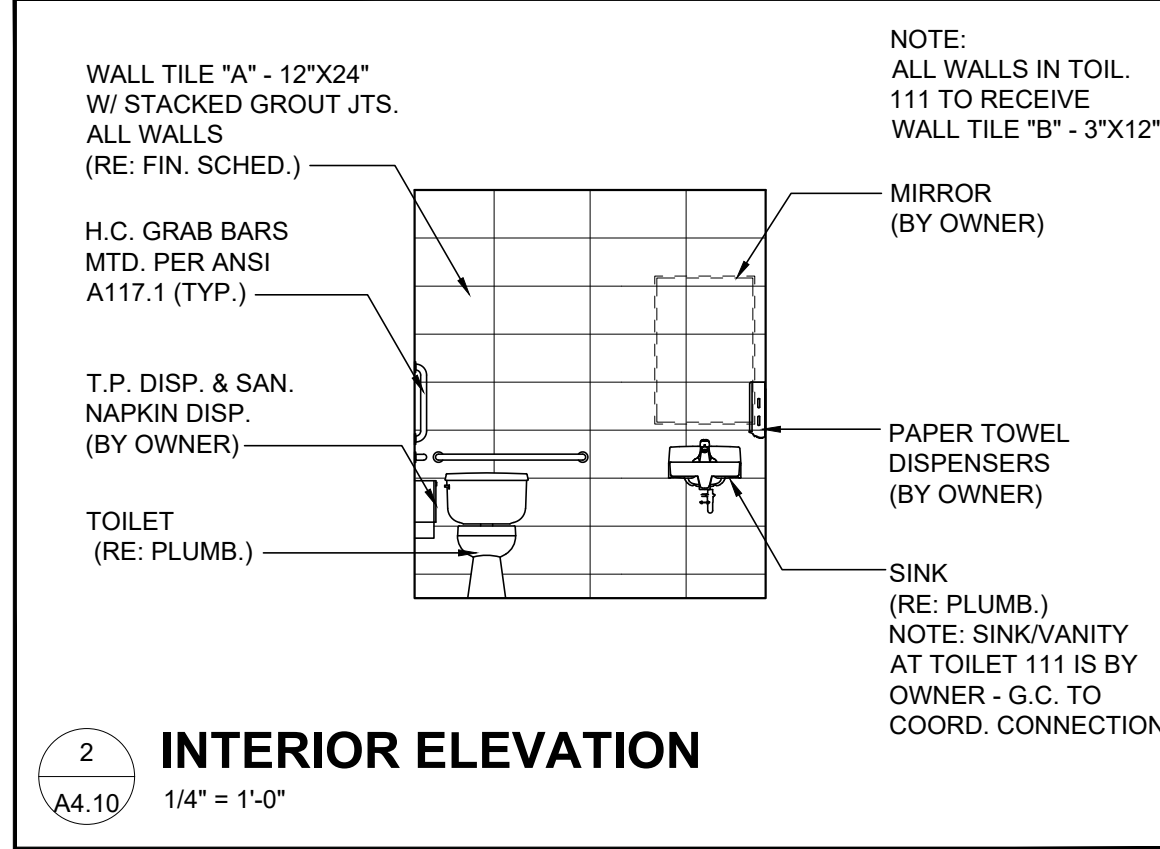
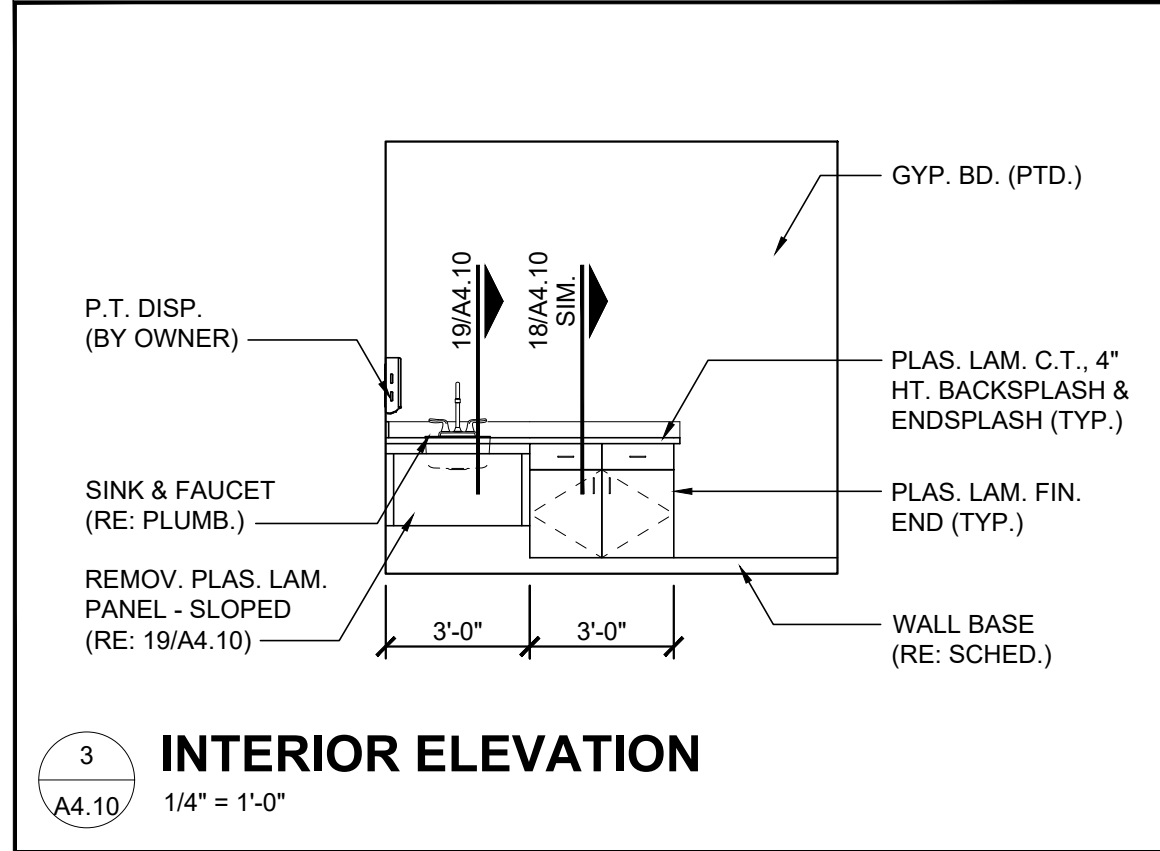
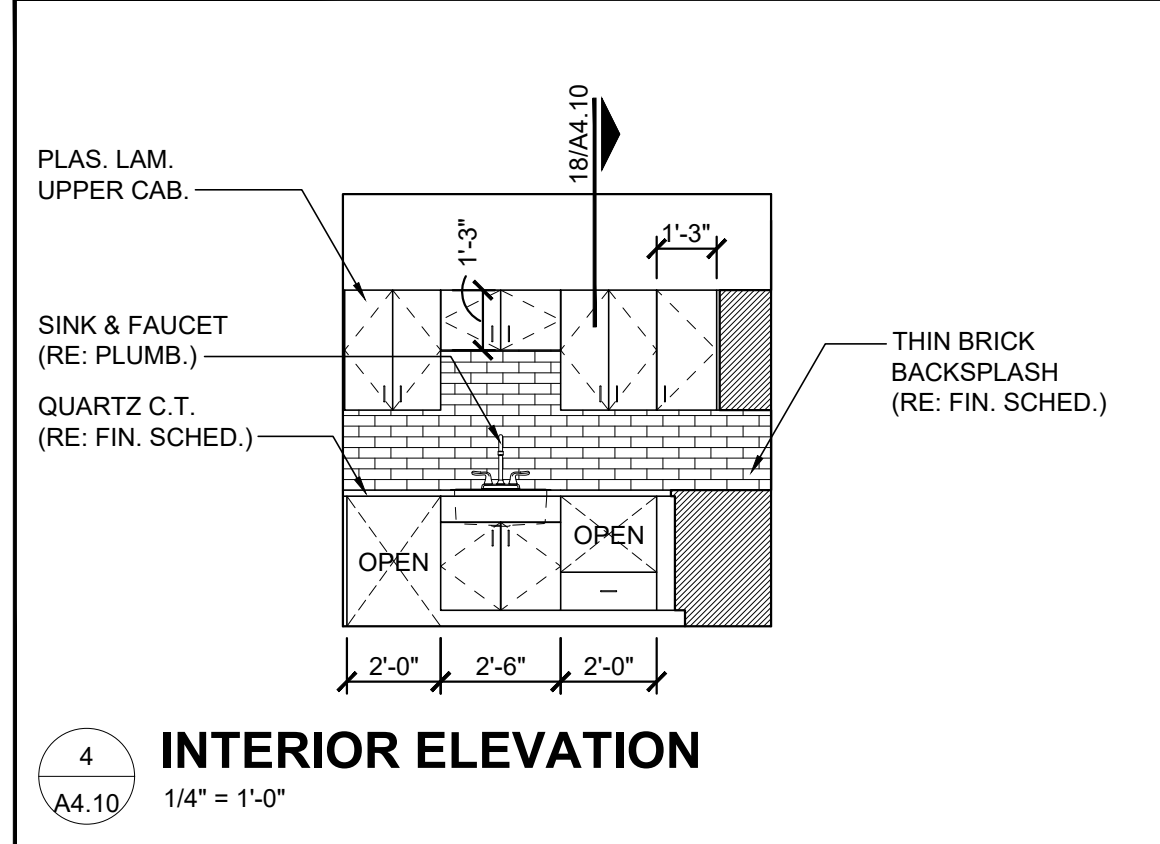
PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY: JTE/BNA
CHECKED BY: DEE

REVISIONS:

SHEET No.
A3.20
WALL SECTIONS / DETAILS



OWNER PROVIDED EQUIPMENT SCHEDULE (SEE PLANS FOR LOCATIONS)			
1 WAREFORCE UH30 UNDERCOUNTER DISHWASHER HIGH TEMPERATURE SANITIZING	8 MANITOWOC QM-45A UNDERCOUNTER ICE MACHINE AIR COOLED	9 MANITOWOC INDIGO SERIES IY-0324A 350 POUND HALF SIZE CUBEICE MACHINE	10 HOSHIZAKI AMERICA INC. HNC-120BA REFRIGERATED DISPLAY CASE
2 FISHER & PAYKEL 24-IN DOUBLE DRAWER DISHWASHER	11 BLACK TRUE TCGD-31 DRY BAKERY CASE	12 BEVERAGE AIR LV27-1 LUMAVUE REFRIGERATED GLASS DOOR MERCHANDISER	13 VULCAN-HART (ECO2D) HALF-SIZE ELECTRIC CONVECTION OVEN
3 AVANTCO TUC48R DOUBLE DOOR UNDERCOUNTER REFRIGERATOR			
4 AVANTCO TUC48F DOUBLE DOOR UNDERCOUNTER FREEZER			
5 SAMSUNG 25.7 CU FT FRENCH DOOR REFRIGERATOR			
6 TRUE T-72 REFRIGERATOR, REACH-IN 3 SECTION/SS DOORS			
7 TRUE T-48F REACH-IN SOLID DOOR FREEZER			



REGISTERED ARCHITECT
DAVID E. EVANS
No. 31501
KANSAS CITY
MO.
01/29/2021

ARCHITECT: DAVID EUGENE EVANS
ARCHITECT LICENSE NO.: MA 31501

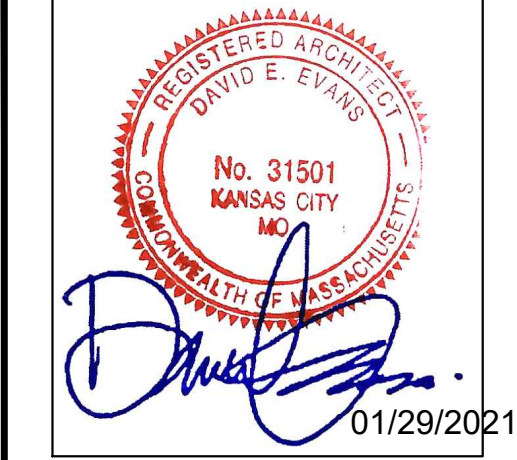
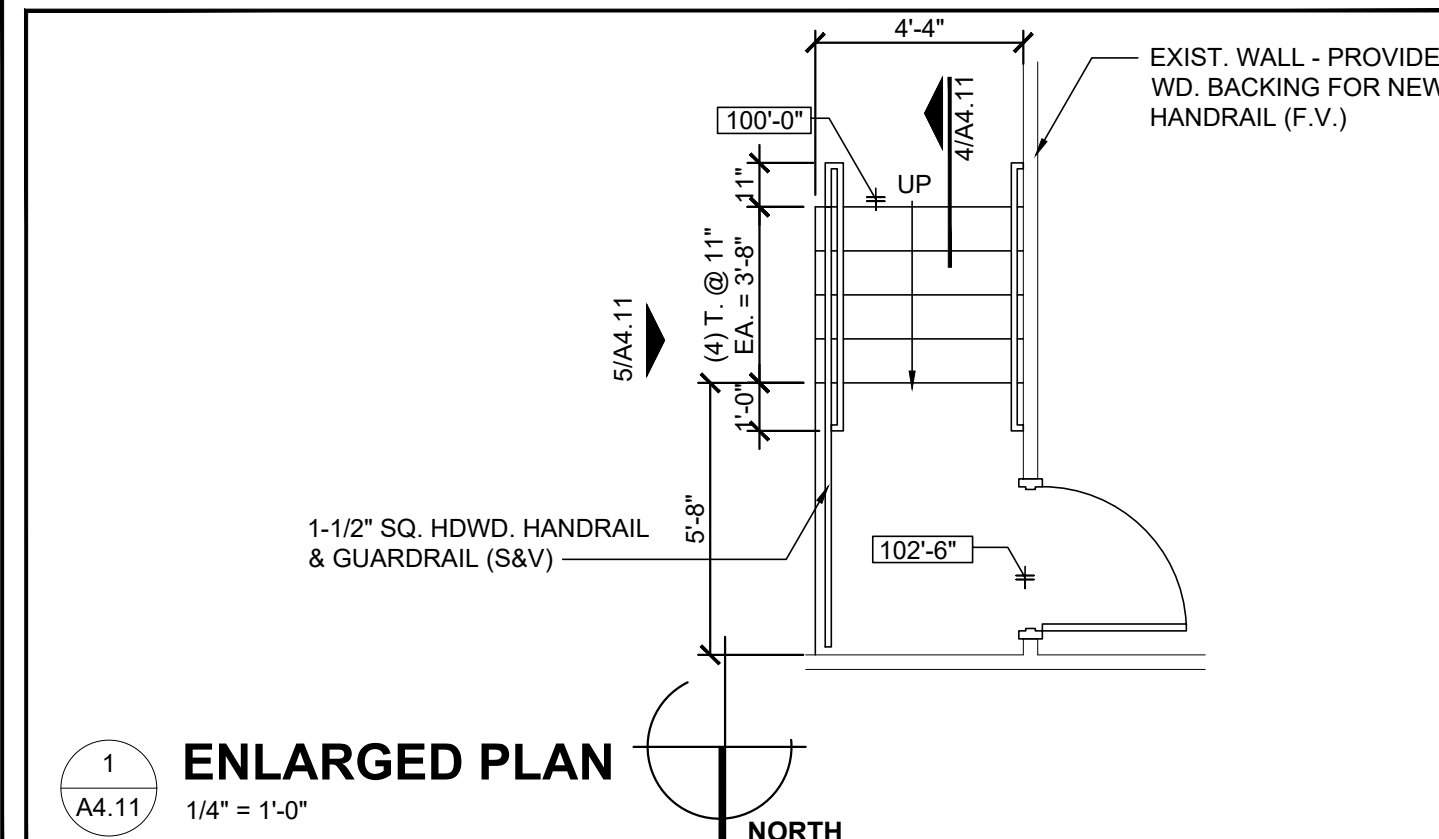
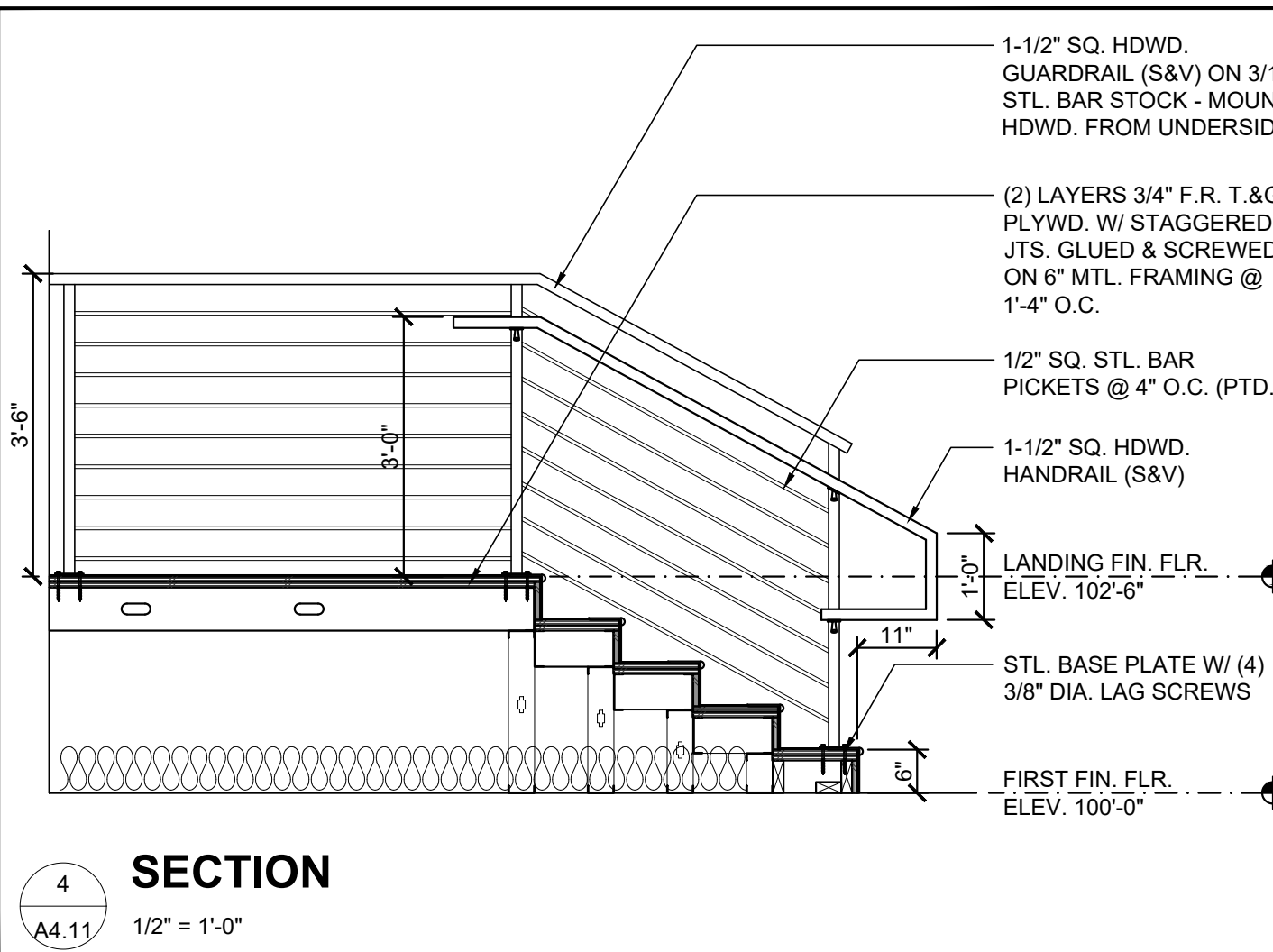
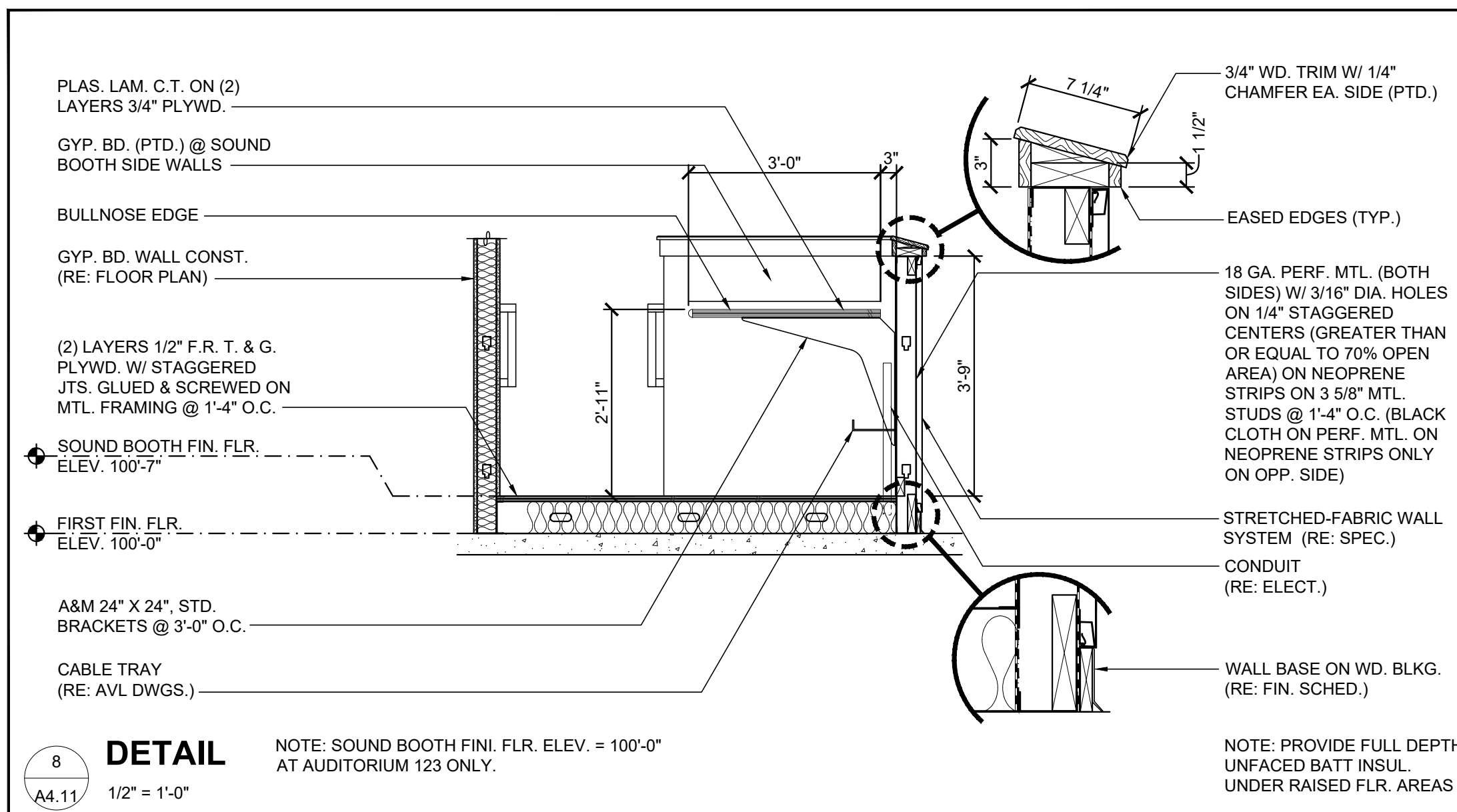
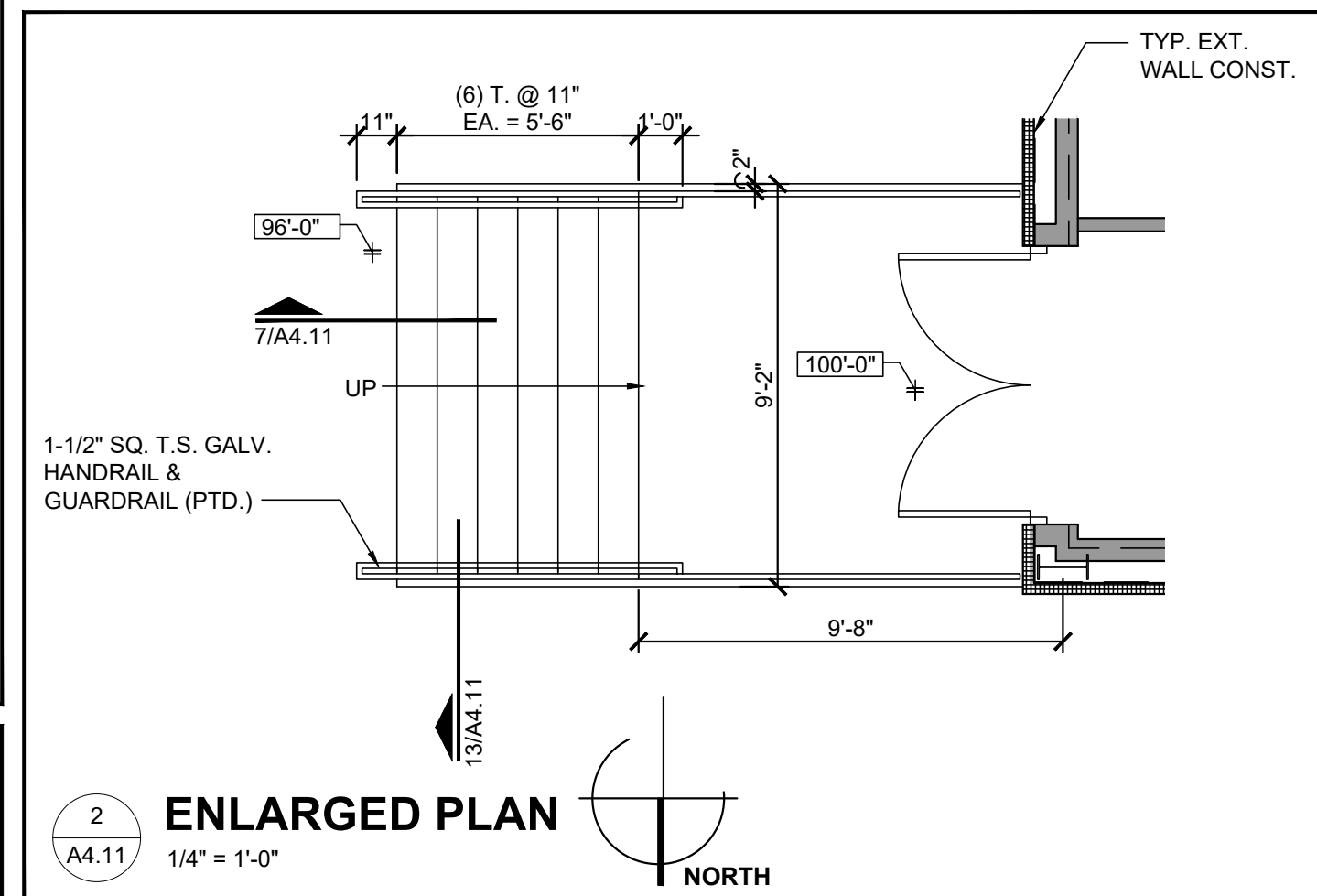
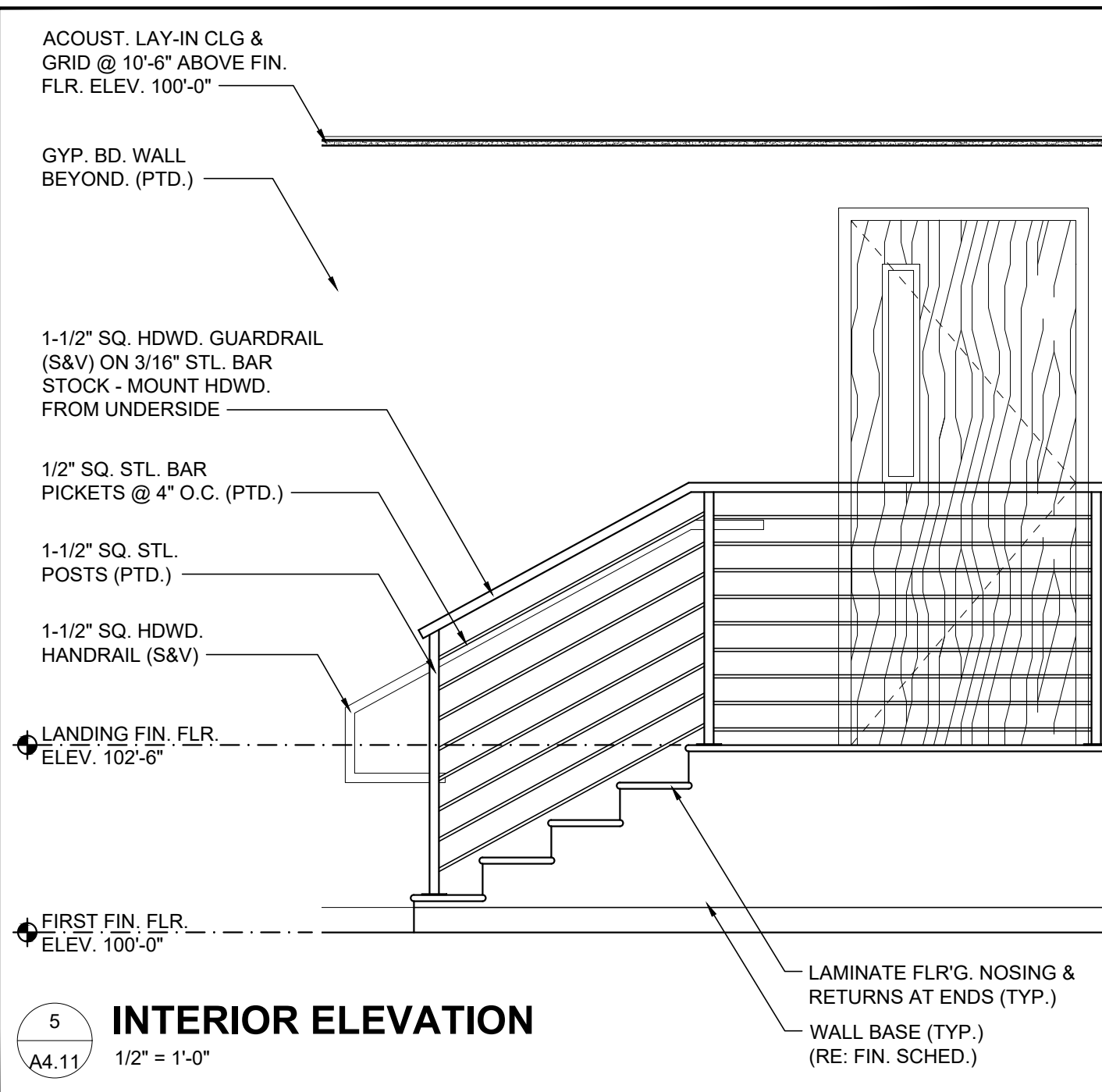
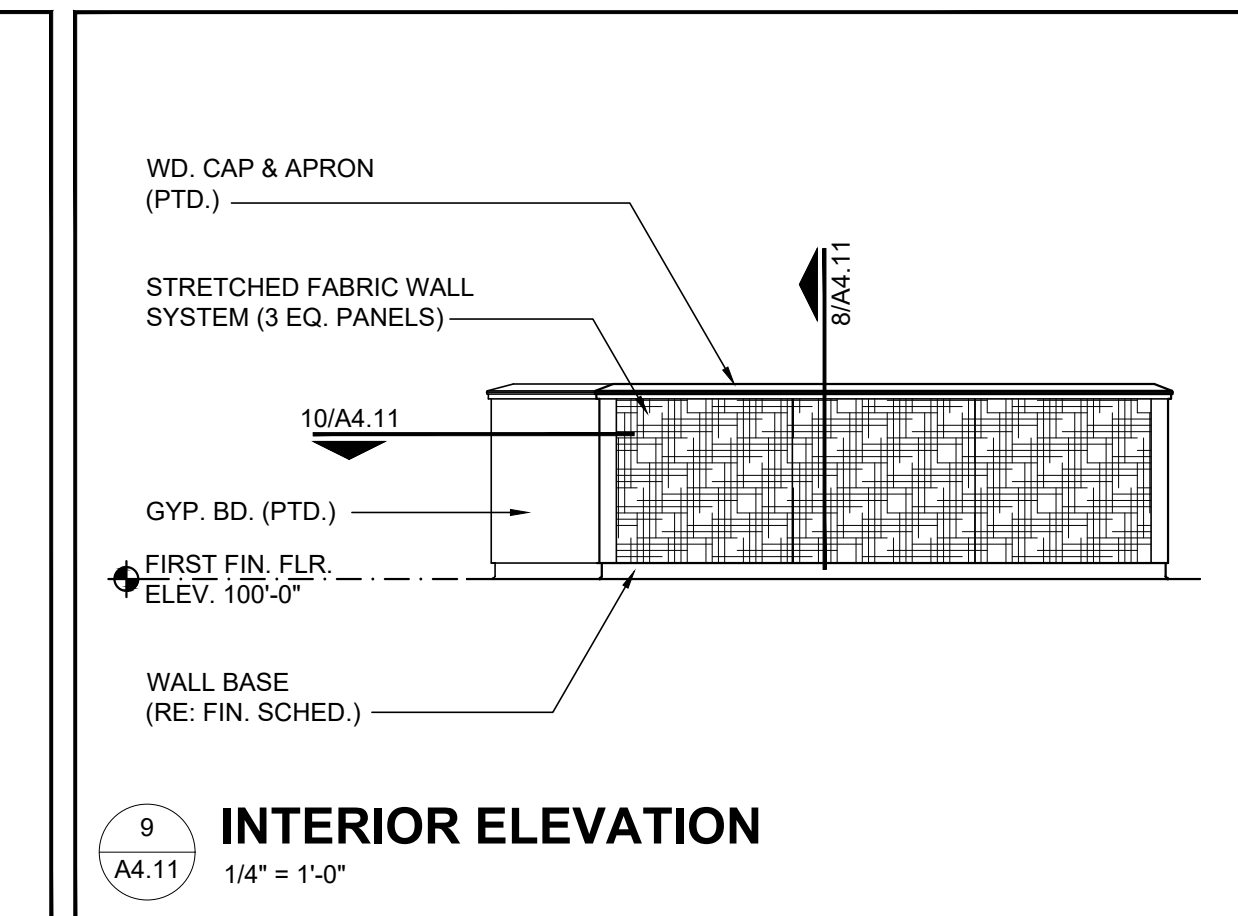
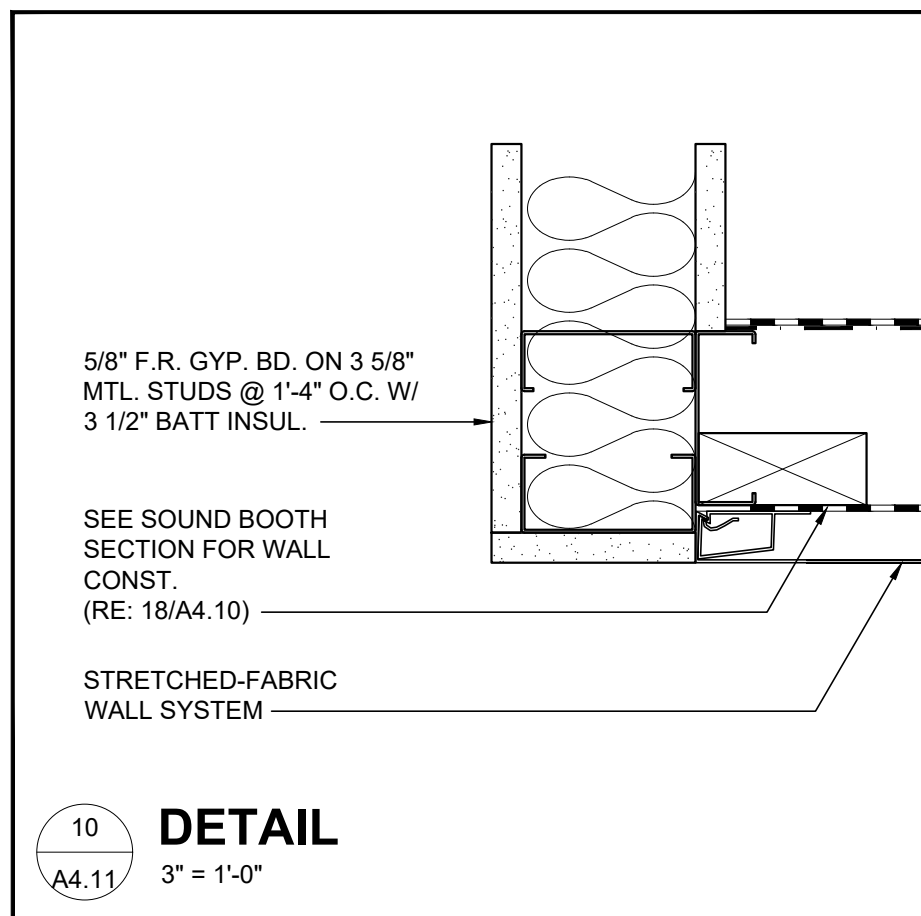
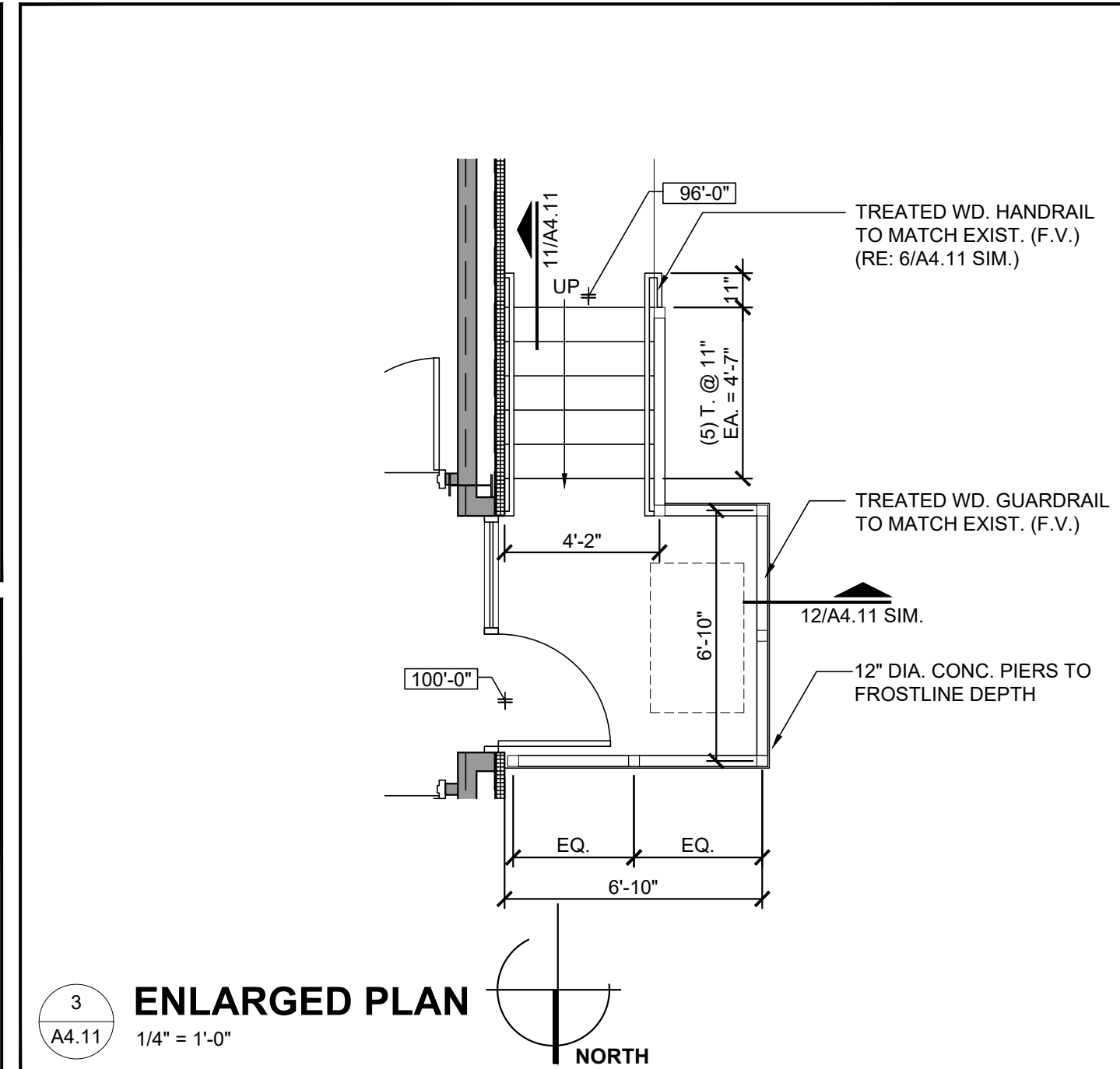
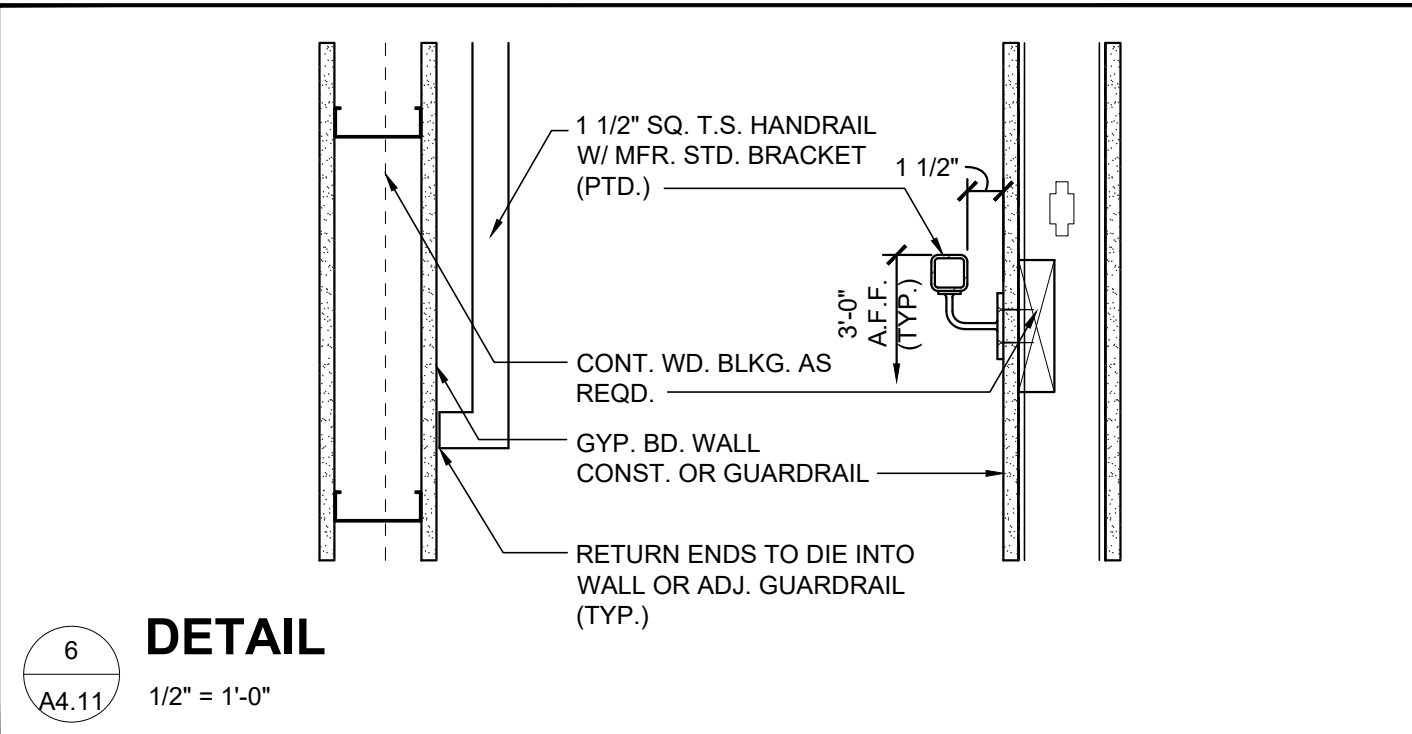
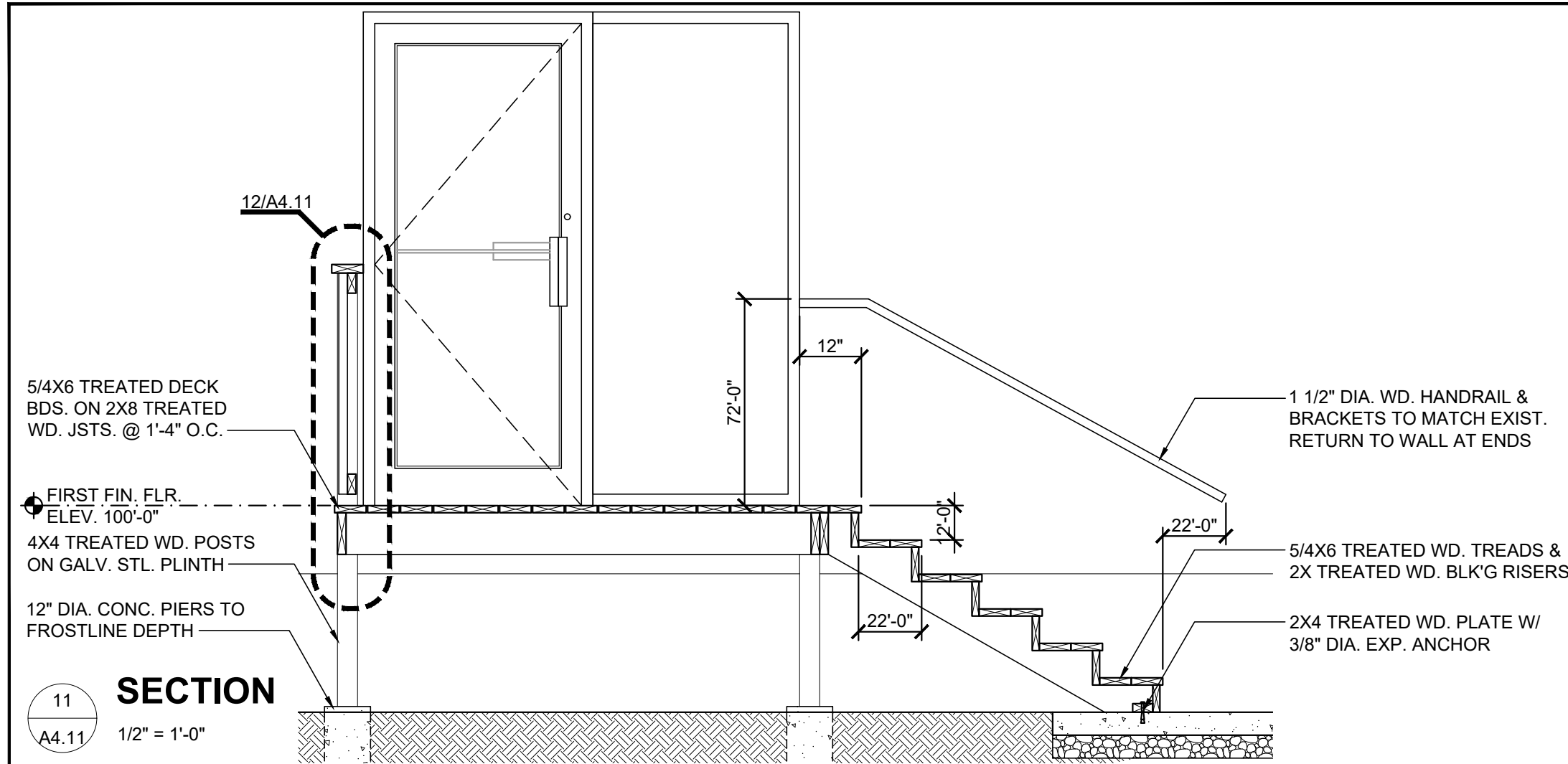
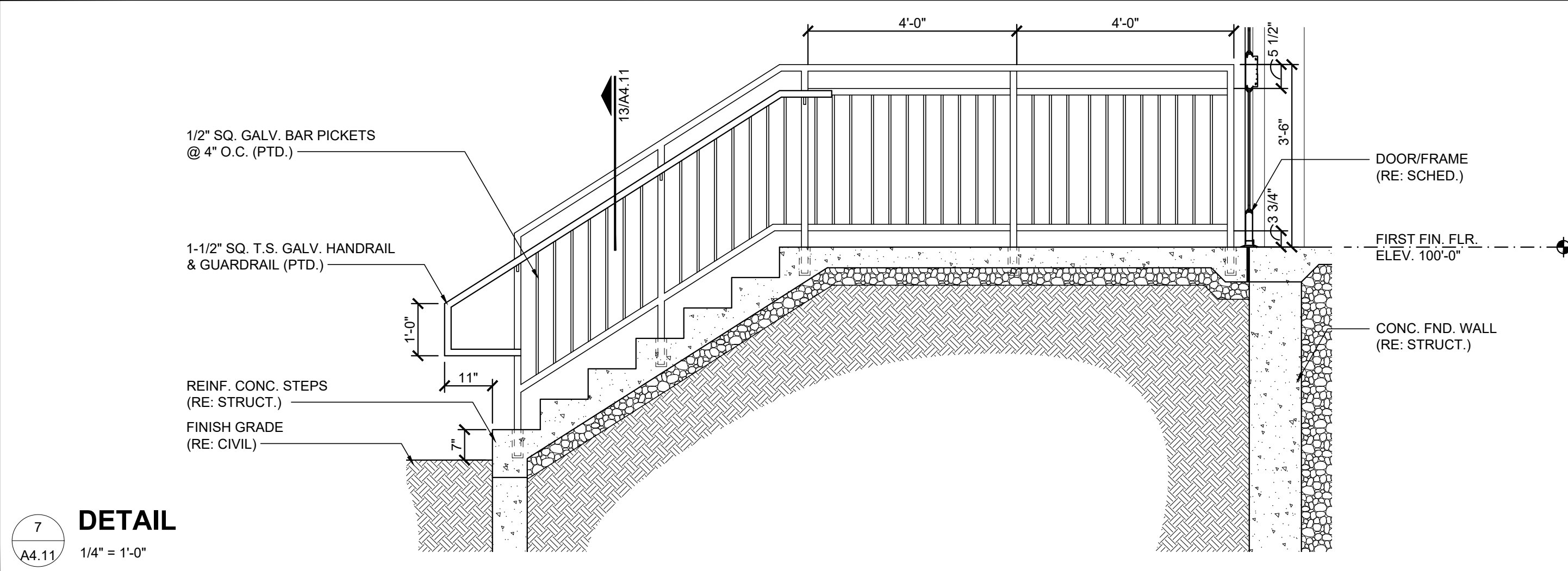
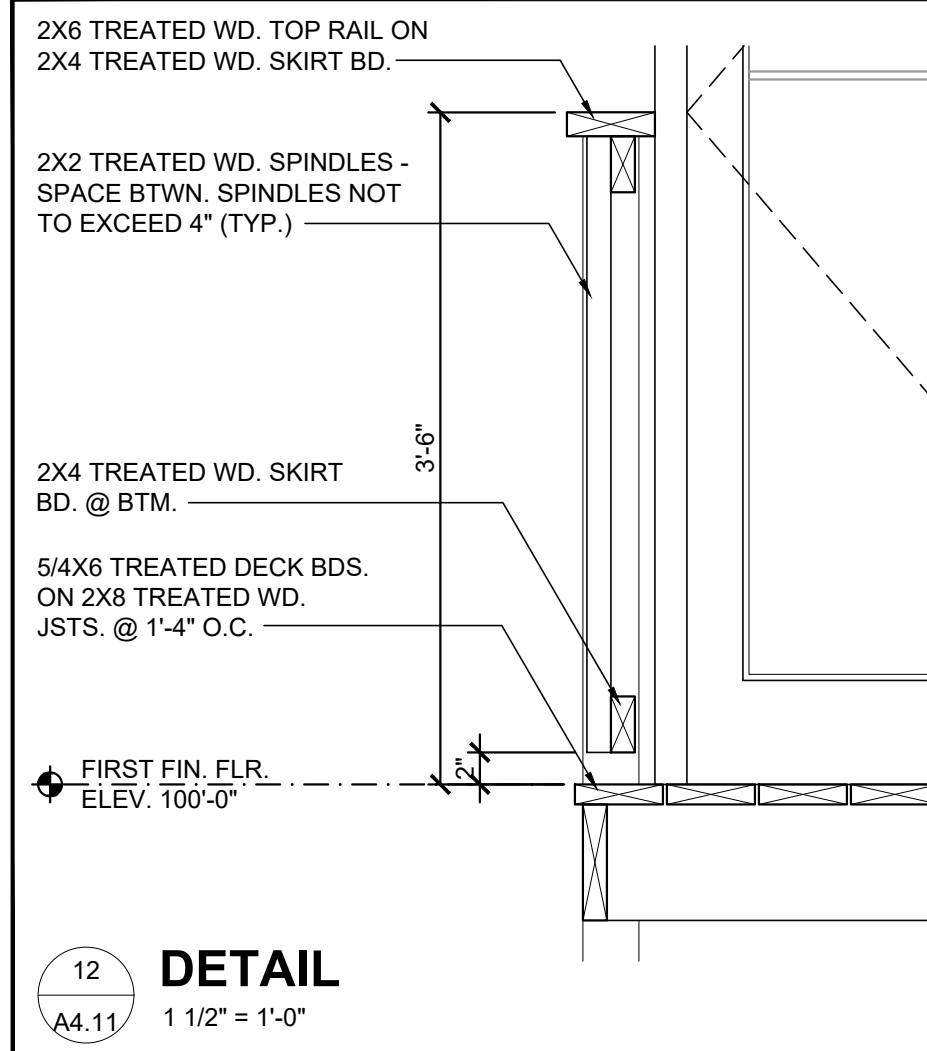
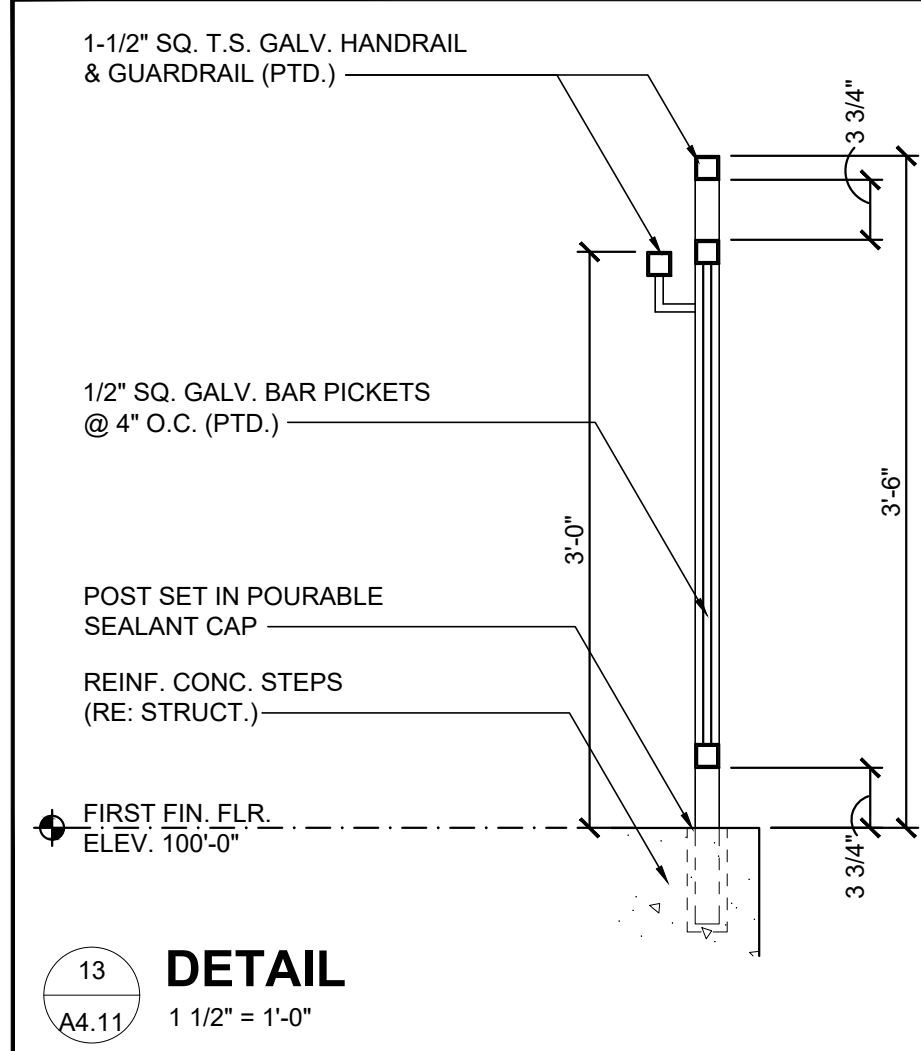
MANTTEL TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTTEL TETER ARCHITECTS, P.C.

consulting | architecture | developing
5013 N. Washington St., Gladstone, Missouri 64118
t: 816.931.5600
www.mantelteter.com

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY: JTE/BN
CHECKED BY: DEE
REVISIONS:

SHEET No.
A4.10
ENLARGED PLANS /
INTERIOR ELEVATIONS /
DETAILS



ARCHITECT: DAVID EUGENE EVANS
ARCHITECT LICENSE NO.: MA 31501

MANTLE TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTLE TETER ARCHITECTS, P.C.



ADDITIONS & RENOVATIONS TO:

LIFESONG CHURCH

65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY: JTE/BNA
CHECKED BY: DEE

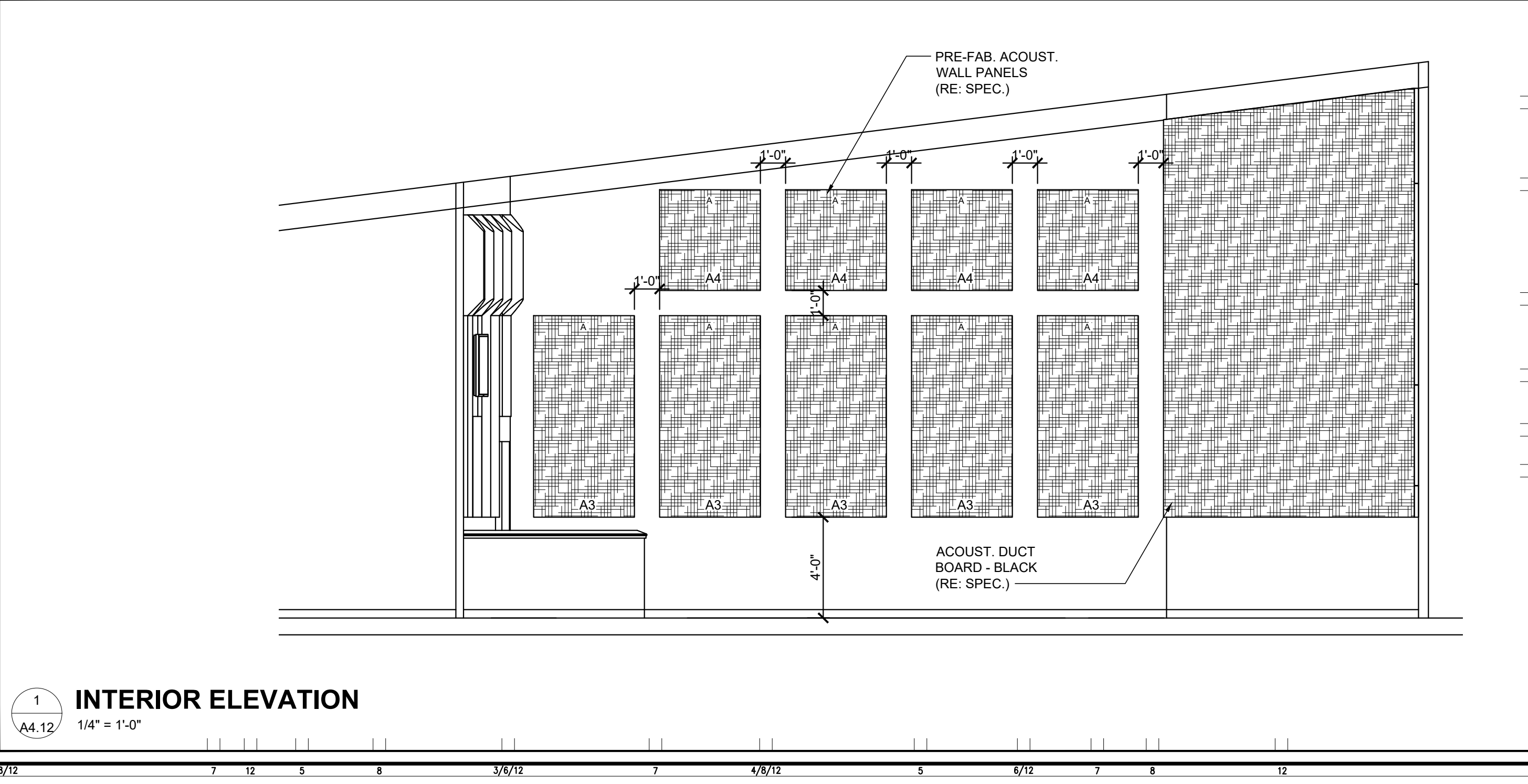
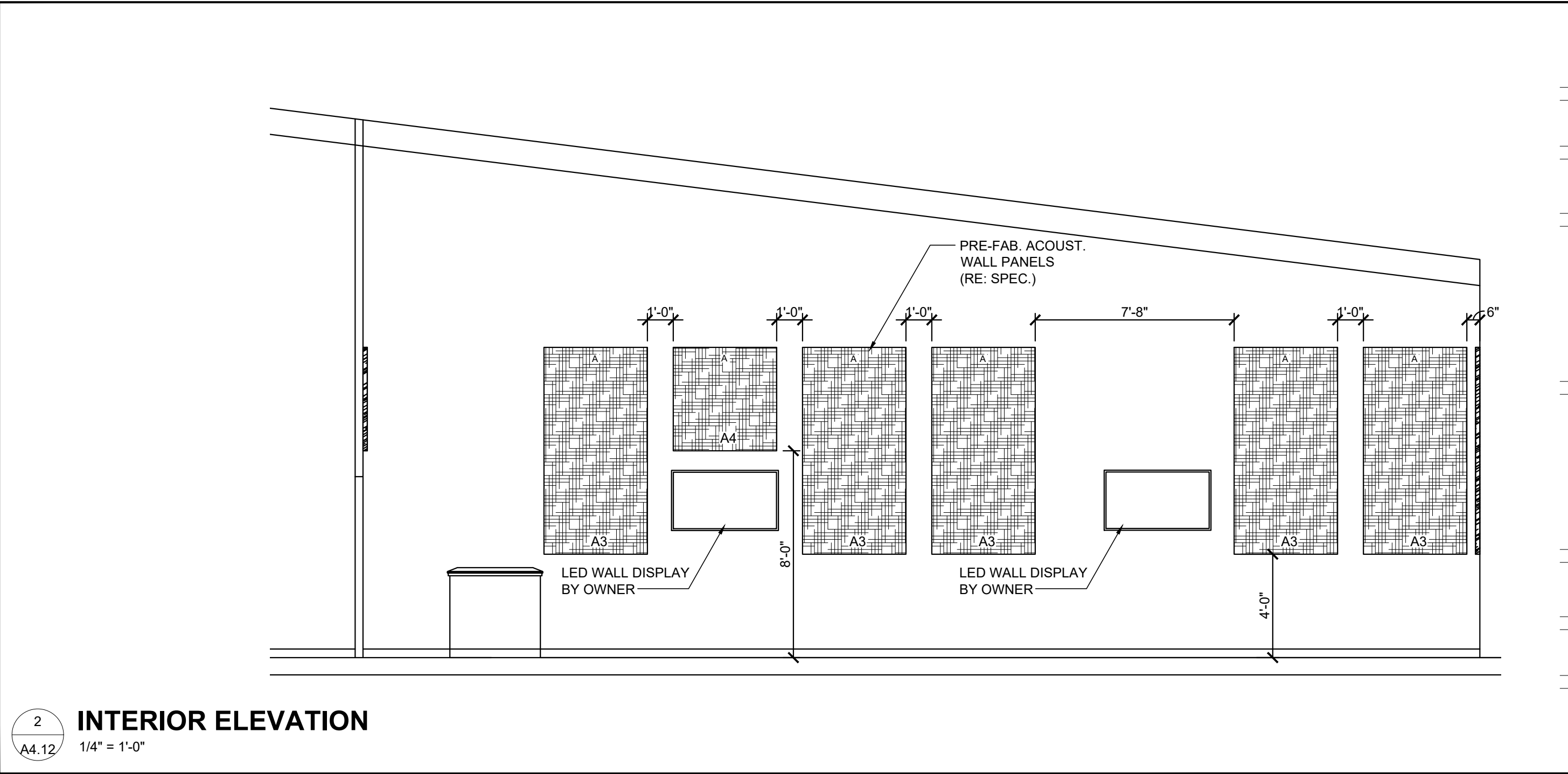
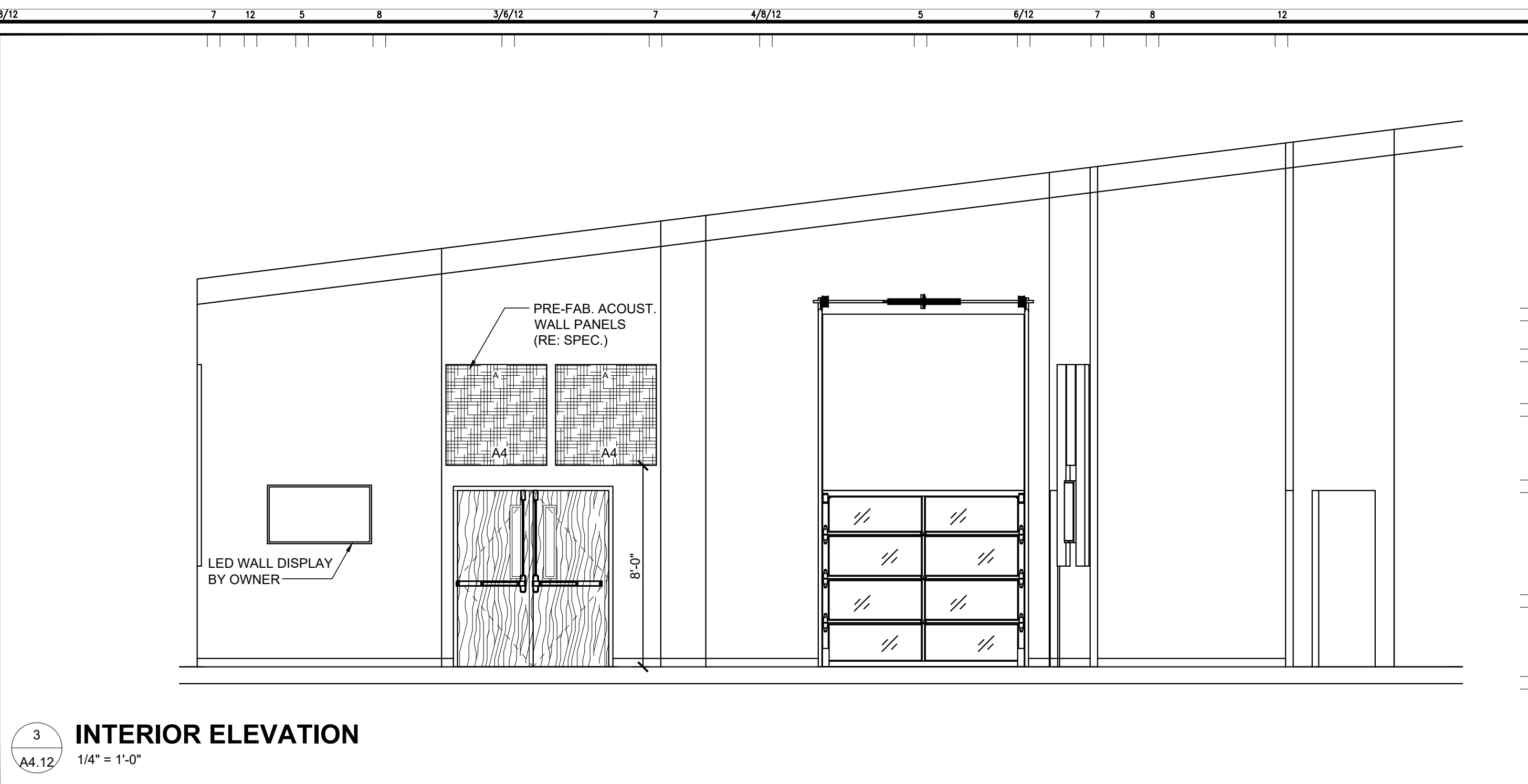
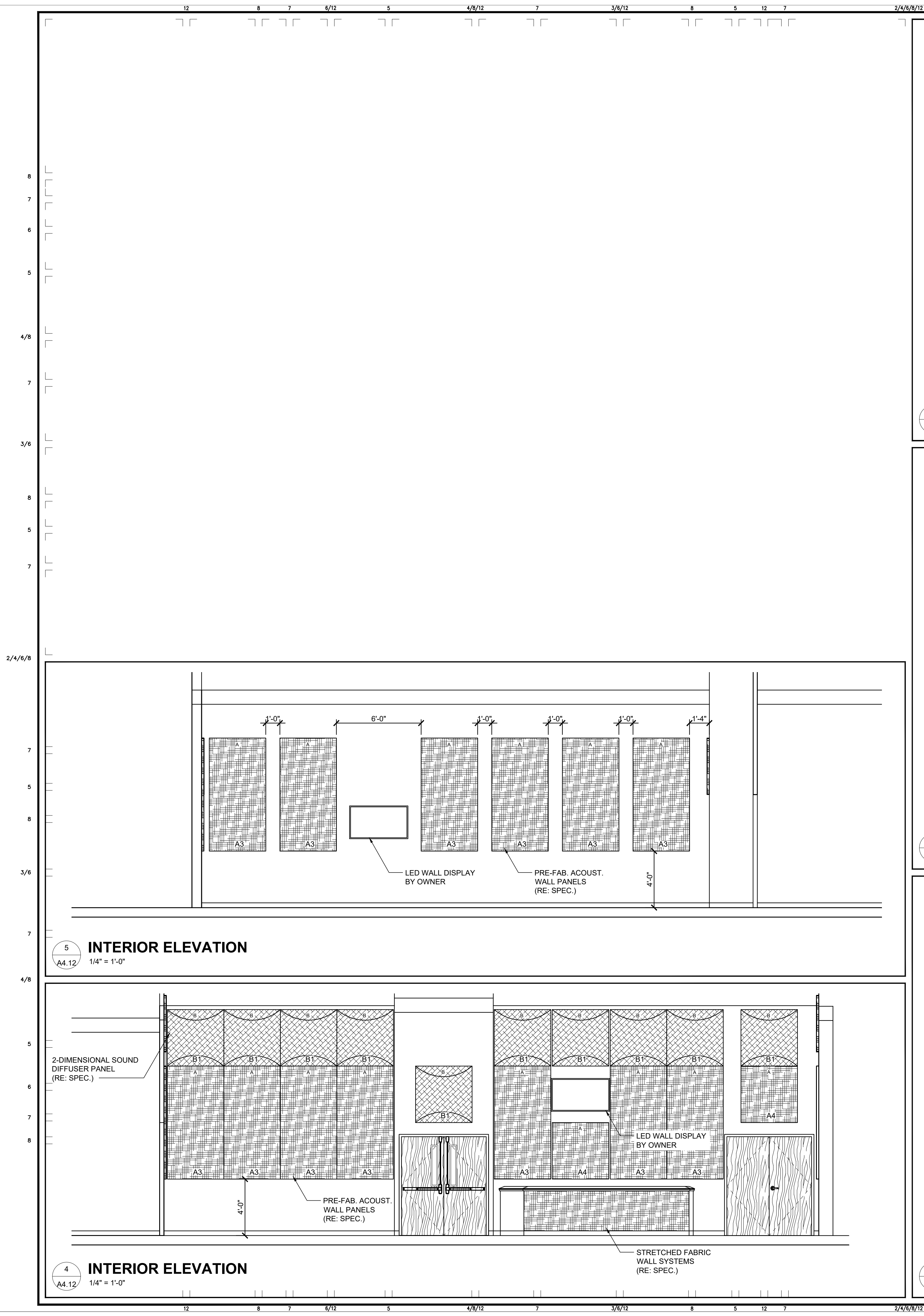
REVISIONS:

NO.	DESCRIPTION

SHEET No.

A4.11

ENLARGED PLANS /
INTERIOR ELEVATIONS /
DETAILS



Architectural drawings for Lifesong Church, including a title block, project information, and a sheet number.

PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY: JTE/BN
CHECKED BY: DEE
REVISIONS:

SHEET No.
A4.12
 ENLARGED PLANS /
 INTERIOR ELEVATIONS /
 DETAILS

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
 65 GILMORE DRIVE
 SUTTON, MA 01590

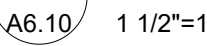
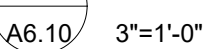
ARCHITECT: DAVID EUGENE EVANS
 ARCHITECT LICENSE NO.: MA 31501

MANTTEL TETER ARCHITECTS, P.C.
 CERT. OF AUTHORITY NO.: N/A
 BUSINESS LICENSE NO.: 001064363
 EXPIRES: 03/15/2021
 COPYRIGHT © 2021- MANTTEL TETER ARCHITECTS, P.C.

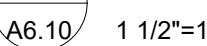
mantel teter
 consulting | architecture | developing
 5013 N. Washington St., Gladstone, Missouri 64118
 t: 816.931.5600 www.mantelteter.com

REGISTERED ARCHITECT
DAVID E. EVANS
No. 31501
KANSAS CITY
MO.
 01/29/2021

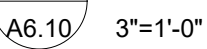
A6.10 $1\frac{1}{2}"=1'-0"$



A6.10 $1\frac{1}{2}"=1'-0"$



A6.10 $1\frac{1}{2}"=1'-0"$









DOOR INFORMATION

No.		SIZE	THKN.	MATL.	ELEV.	MATL.	JAMB	HEAD	SILL	F.R.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	REMARKS	
101	A	3'-0" X 7'-0"	1 3/4"	SCWD	H	H.M.	2/A6.10	2/A6.10	1/A6.10		●					●	7					●	12		●												O.H. SECTIONAL DR.
101	B	10'-0" X 7'-0"	—	ALUM.	I	ALUM.	7/A6.10	7/A6.10	—																												
101	C	3'-0" X 7'-0"	1 3/4"	SCWD	D	H.M.	2/A6.10	2/A6.10	1/A6.10													●	12		●												
102	A	3'-0" X 7'-0"	1 3/4"	SCWD	H	H.M.	2/A6.10	2/A6.10	1/A6.10		●					●						●	12		●		●										
102	B	10'-0" X 7'-0"	—	ALUM.	I	ALUM.	7/A6.10	7/A6.10	—																											O.H. SECTIONAL DR.	
103		3'-0" X 7'-0"	1 3/4"	SCWD	D	H.M.	2/A6.10	2/A6.10	1/A6.10		●					●						●	12		●		●										
104		3'-0" X 7'-0"	1 3/4"	SCWD	H	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
105		3'-0" X 7'-0"	1 3/4"	SCWD	D	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
106		3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	—		●											●	12		●		●										
107		PR. 4'-0" X 7'-0"	—	ALUM.	B	ALUM.	2/A6.10	2/A6.10	—			●			●							●	12		●		●										CONTINUOUS PIANO HINGE EA. DOOR
108		3'-0" X 7'-0"	1 3/4"	SCWD	D	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
109		3'-0" X 7'-0"	1 3/4"	SCWD	D	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
110		3'-0" X 7'-0"	1 3/4"	SCWD	D	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
111		3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	1/A6.10		●					●						●	12		●		●										
112		3'-0" X 7'-0"	1 3/4"	SCWD	J	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
113		3'-0" X 7'-0"	1 3/4"	SCWD	D	H.M.	2/A6.10	2/A6.10	1/A6.10		●					●						●	12		●		●										
115		PR. 3'-0" X 7'-0"	—	ALUM.	B	ALUM.	5/A6.10	5/A6.10	4/A6.10			●										●	12		●		●										
116		3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
117		3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
118		PR. 3'-0" X 7'-0"	1 3/4"	SCWD	E	H.M.	2/A6.10	2/A6.10	1/A6.10				●	●	●							●	12		●		●										
119	A	PR. 3'-0" X 7'-0"	1 3/4"	SCWD	G	H.M.	3/A6.10	3/A6.10	1/A6.10		●	●										●	12		●		●				●		●				
119	B	PR. 3'-0" X 7'-0"	1 3/4"	SCWD	G	H.M.	3/A6.10	3/A6.10	1/A6.10		●	●										●	12		●		●				●		●				
119	C	8'-0" X 7'-0"	—	ALUM.	I	ALUM.	7/A6.10	7/A6.10	—							●						●	12		●					●		●					O.H. SECTIONAL DR.
120		3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	—		●					●						●	12		●		●										
121		3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	—		●					●						●	12		●		●										
122	A	4'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	—		●					●						●	12		●		●										
122	B	4'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	—		●					●						●	12		●		●										
123	A	3'-0" X 7'-0"	1 3/4"	SCWD	D	H.M.	3/A6.10	3/A6.10	1/A6.10		●	●										●	12		●		●										
123	B	PR. 3'-0" X 7'-0"	1 3/4"	SCWD	G	H.M.	3/A6.10	3/A6.10	1/A6.10		●	●										●	12		●		●			●		●					
123	C	8'-0" X 7'-0"	—	ALUM.	I	ALUM.	7/A6.10	7/A6.10	—							●						●	12		●												O.H. SECTIONAL DR.
124		3'-0" X 7'-0"	1 3/4"	SCWD	F	H.M.	2/A6.10	2/A6.10	1/A6.10		●					●						●	12		●		●										
125	A	3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
125	B	3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
126		3'-0" X 7'-0"	1 3/4"	SCWD	F	H.M.	2/A6.10	2/A6.10	1/A6.10		●					●						●	12		●		●										
127		3'-0" X 7'-0"	1 3/4"	SCWD	F	H.M.	2/A6.10	2/A6.10	1/A6.10		●					●						●	12		●		●										
128	A	3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
128	B	3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
129		3'-0" X 7'-0"	1 3/4"	SCWD	F	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
130		3'-0" X 7'-0"	—	ALUM.	A	ALUM.	5/A6.10	5/A6.10	4/A6.10			●				●						●	12		●		●										
131		3'-0" X 7'-0"	1 3/4"	SCWD	F	H.M.	2/A6.10	2/A6.10	1/A6.10		●					●						●	12		●		●										
132	A	3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
132	B	3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
133		3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
134		3'-0" X 7'-0"	1 3/4"	SCWD	C	H.M.	2/A6.10	2/A6.10	1/A6.10		●											●	12		●		●										
135		3'-0" X 7'-0"	1 3/4"	SCWD	D	H.M.	2/A6.10	2/A6.10	1/A6.10		●					●						●	12		●		●										

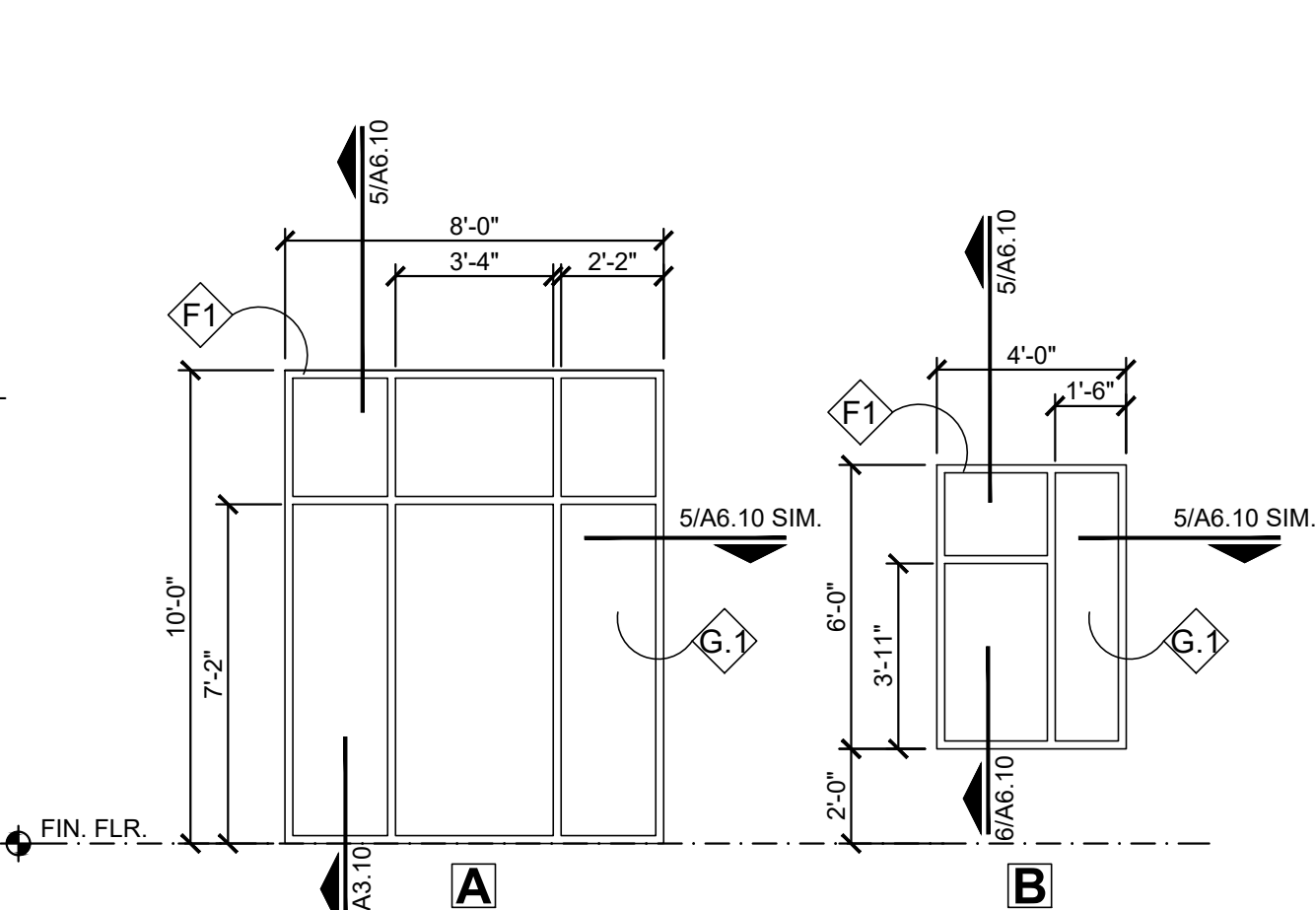
1. ALL SOLID-CORE WOOD DOORS TO BE 1 3/4" THICK & STAIN-GRADE BIRCH UNLESS NOTED OTHERWISE.
2. WOOD DOORS WITH ACOUSTICAL SEALS SHALL BE SOLID CORE, 5-PLY MINIMUM.
3. WOOD DOORS WITH ACOUSTICAL SEALS SHALL BE INSTALLED IN 16 GAUGE WELDED HOLLOW METAL FRAMES.
4. SEE SECTION 087100 IN THE PROJECT MANUAL FOR ALL DOOR HARDWARE SPECIFICATIONS.
5. ALL DOOR HARDWARE SHALL COMPLY WITH SECTION 404.2 OF CADD/PANSI/IFC 2009.
6. ALL DOOR HARDWARE SHALL HAVE USED26 FINISH TO MATCH EXISTING, FIELD VERIFY.
7. ALL ACOUSTICAL DOOR HARDWARE SHALL BE BY ZERO INTERNATIONAL- NO SUBSTITUTIONS.
8. AT ALL DOORS WITH ACOUSTICAL SEALS, SEALS SHALL BE INSTALLED CONTINUOUS AT HEAD, JAMBS, & SILL. DO NOT CUT SEALS FOR ANY REASON.
9. CHAIN HOLLOW METAL FRAMES TIGHT TO GYPSUM BOARD WALLS.
10. HOLLOW PANIC BAR FROM FRAME STOP TO ACCOMMODATE CONTINUOUS ACOUSTICAL SEALS AT ALL DOORS WITH ACOUSTICAL SEALS & PANIC BARS .
11. THE HOLLOW METAL FRAME JAMBS & HEADS AT DOORS WITH ACOUSTICAL SEALS SHALL BE PACKED WITH 2.5 PCF MINERAL WOOL INSULATION PRIOR TO HOLLOW METAL FRAME INSTALLATION.
12. ADOOR & DOOR FRAME SHALL BE OWNER. GENERAL CONTRACTOR SHALL COORDINATE REQUIREMENTS WITH OWNER'S REPRESENTATIVE.

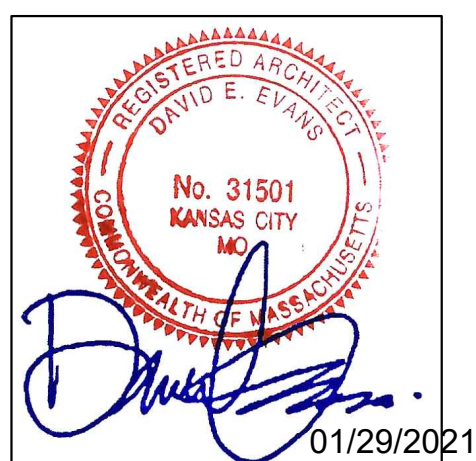
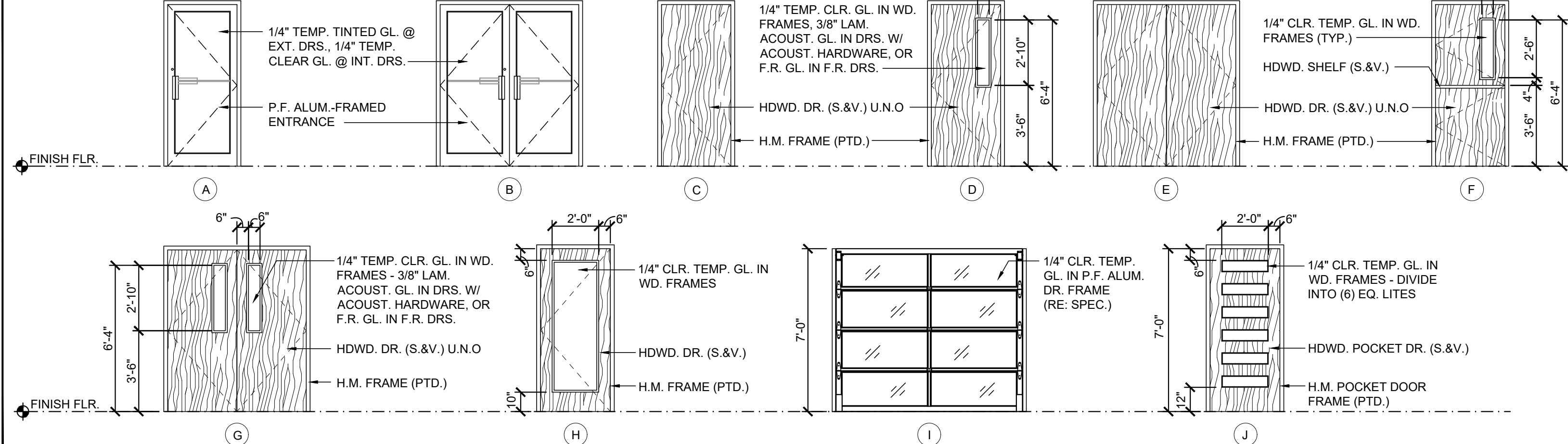
1. 3-HINGES (6-HINGES AT PAIRS OF DOORS)
2. PANIC HARDWARE (TOP ROD ONLY AT PAIRS OF DOORS)
3. FLUSH BOLT
4. DUSTPROOF STRIKE
5. ELECTRIC STRIKE
6. CYLINDRICAL LOCK (FUNCTION PER SPEC.)
7. CYLINDER ONLY (BALANCE OF HARDWARE BY OTHERS)
8. DEAD LATCH
9. S.S. KICKPLATE
10. PUSH/PULL PLATE
11. 3-SILENCERS (6-SILENCERS IN PAIRS OF DOORS)
12. CLOSER
13. ELECTROMAGNETIC HOLDER
14. OVERHEAD STOP
15. WALL STOP
16. FLOOR STOP
17. ACOUSTICAL THRESHOLD 164A AL (ZERO INTERNATIONAL)
18. SOUND GASKET 770SP @ HEAD & JAMES AL (ZERO INTERNATIONAL) (F.R. OPENINGS ONLY)
19. SOUND GASKET 770AA @ HEAD & JAMES AL (ZERO INTERNATIONAL)
20. AUTOMATIC DOOR BOTTOMS: TYPE 360AA 36" AL (ZERO INTERNATIONAL)
21. ASTRAGAL 55AA x 155AA 84" AL (ZERO INTERNATIONAL)
22. THRESHOLD
23. SMOKE GASKET
24. RAIN GUARD
25. WEATHER SEALS

GLAZING AND FRAME KEY:

-  1" INSUL. TINTED GL.
-  1" INSUL. TINTED GL.
W/ CERAMIC FRIT
-  1/4" CLR. GL.
-  P.F. ALUM. FRAMED S.F.
-  P.F. ALUM. CURTAIN WALL
-  H.M. FRAME (PTD.)

NOTE:
PROVIDE TEMPERED GLASS
AT CODE REQUIRED
LOCATIONS





ARCHITECT: DAVID EUGENE EVANS

MANTEL TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTEL TETER ARCHITECTS, P.C.



5013 N. Washington St., Gladstone, Missouri 64118
t: 816.931.5600 www.manteliteteter.com

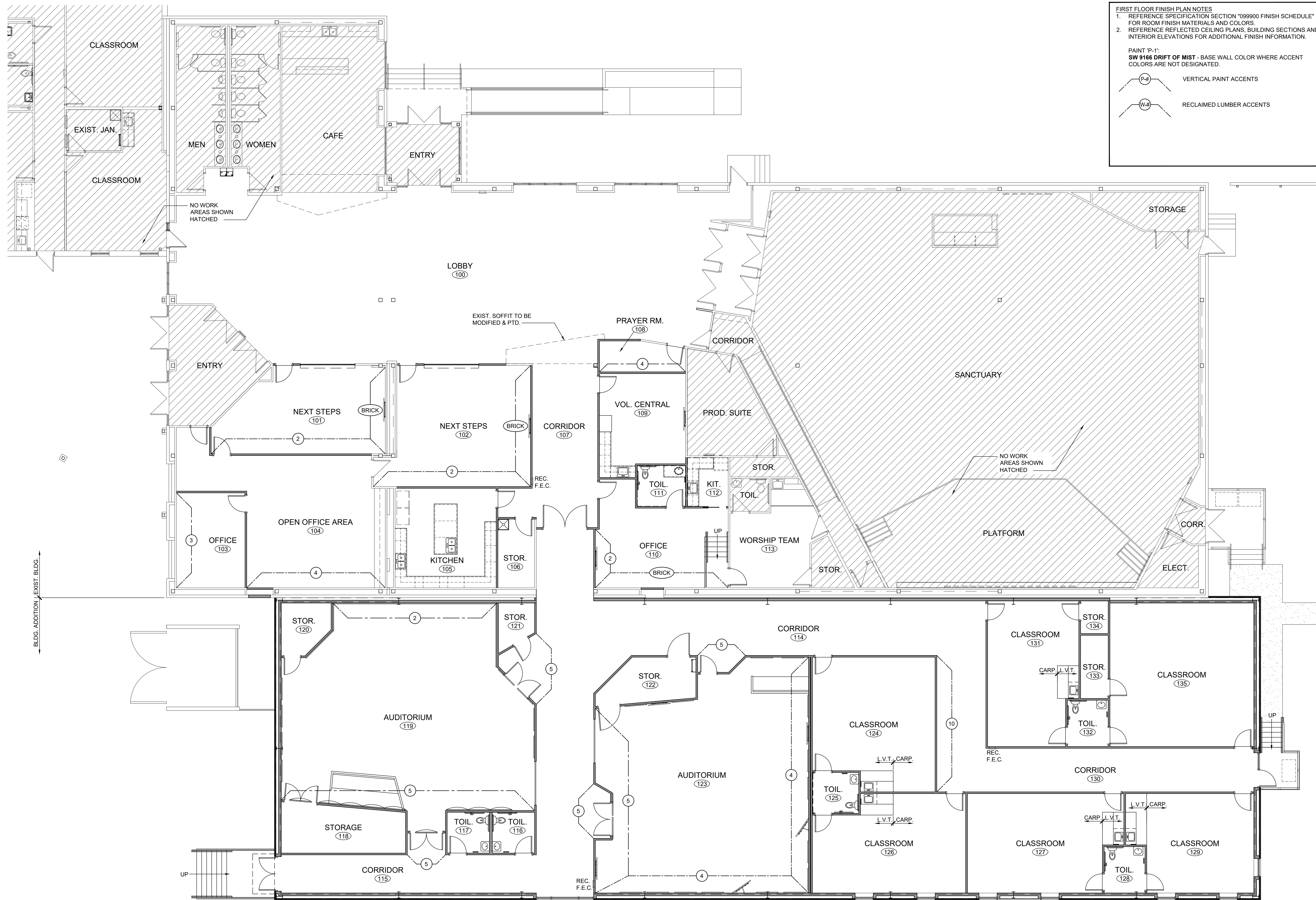
ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 19-793
 ISSUE DATE: 01/29/2021
 DRAWN BY: JTE/BN
 CHECKED BY: DEE
 REVISIONS:

SHEET No.

A6.10

DOOR & FRAME SCHEDULE /
DOOR ELEVATIONS /
WINDOW ELEVATIONS



FIRST FLOOR FINISH PLAN NOTES
1. REFERENCE SPECIFICATION SECTION "099900 FINISH SCHEDULE" FOR ROOM FINISH MATERIALS AND COLORS.
2. REFERENCE REFLECTED CEILING PLANS, BUILDING SECTIONS AND INTERIOR ELEVATIONS FOR ADDITIONAL FINISH INFORMATION.

PAINT 1P-1:
SW 9166 DRIFT OF MIST - BASE WALL COLOR WHERE ACCENT COLORS ARE NOT DESIGNATED.

VERTICAL PAINT ACCENTS
RECLAIMED LUMBER ACCENTS

01/29/2021

ARCHITECT: DAVID EUGENE EVANS
ARCHITECT LICENSE NO: MA 31501

MANTTEL TETER ARCHITECTS, P.C.
CERT. OF AUTHORITY NO.: N/A
BUSINESS LICENSE NO.: 001064363
EXPIRES: 03/15/2021
COPYRIGHT © 2021- MANTTEL TETER ARCHITECTS, P.C.

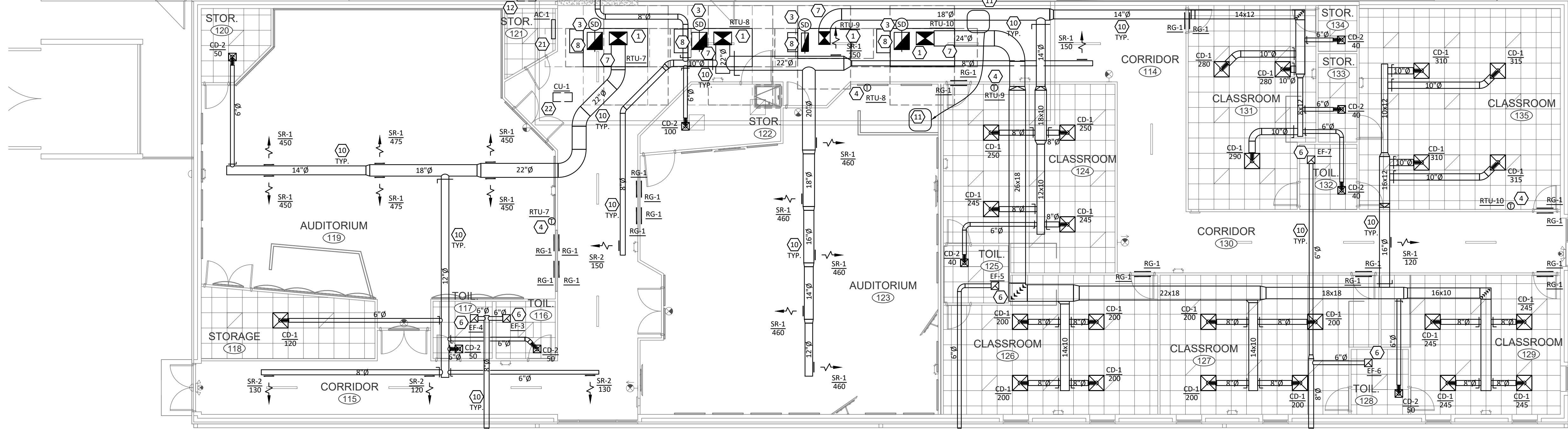
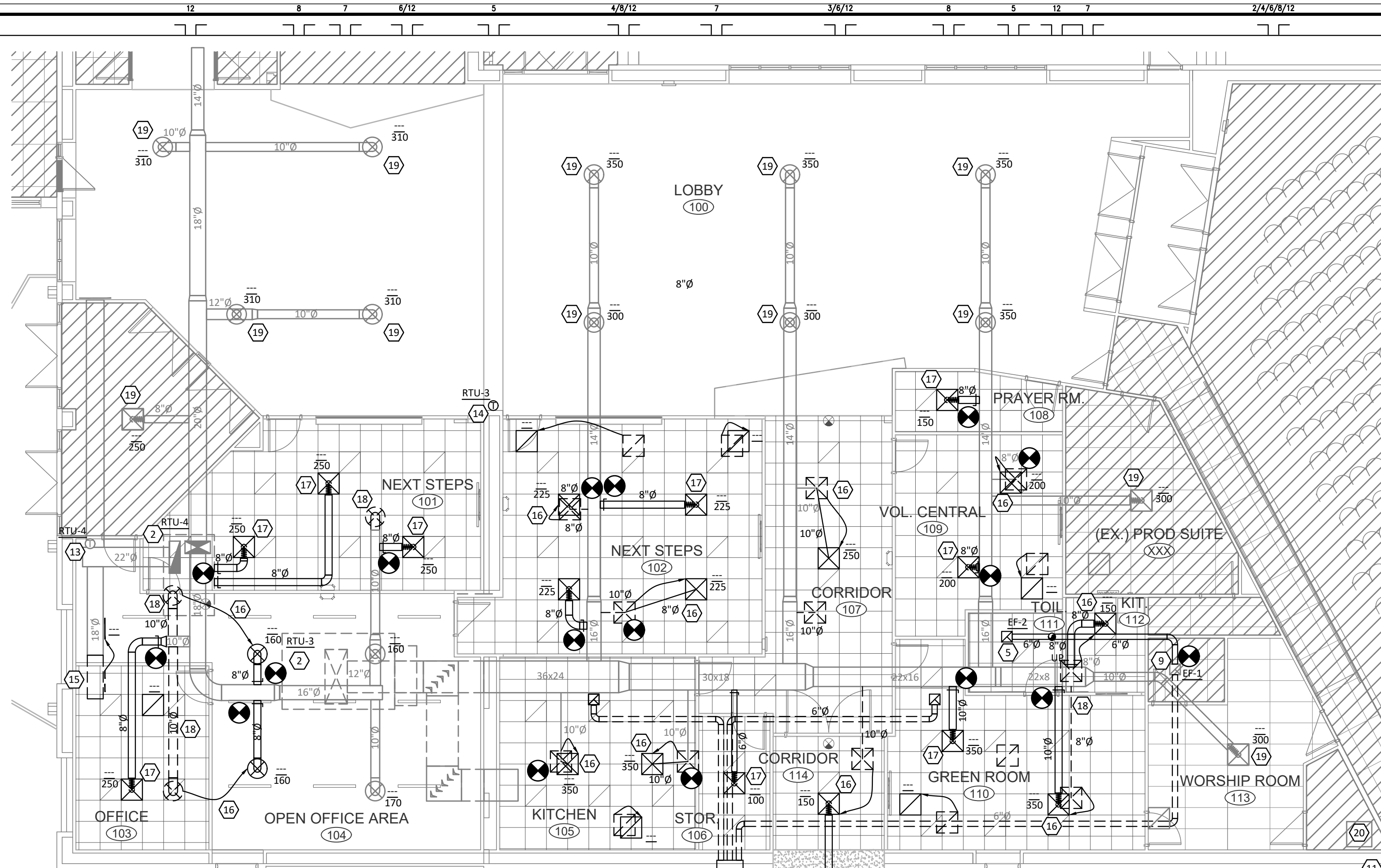
mantel teter
consulting | architecture | developing

5013 N. Washington St., Gladstone, Missouri 64118
t: 816.931.5600 www.mantelteter.com

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 19-793
ISSUE DATE: 01/29/2021
DRAWN BY: JTE/BNA
CHECKED BY: DEE
REVISIONS:

SHEET No.
A7.10
FIRST FLOOR FINISH PLAN



HVAC LEGEND			
	DRAWING NOTE SYMBOL		REMOVED/RELOCATED SUPPLY AIR DIFFUSER
	EXISTING RECTANGULAR DUCTWORK TO REMAIN		NEW/RELOCATED SUPPLY AIR DIFFUSER AND CFM
	EXISTING ROUND DUCTWORK TO REMAIN		NEW/RELOCATED RETURN GRILLE
	NEW RECTANGULAR DUCTWORK AND SIZE		REMOVED/RELOCATED RETURN GRILLE
	NEW ROUND DUCTWORK AND SIZE		NEW EXHAUST FAN
	BALANCING/VOLUME DAMPER		SMOKE DETECTOR
	FLEX DUCT		SUPPLY DUCT UP THROUGH ROOF
	THERMOSTAT		RETURN/EXHAUST DUCT UP THROUGH ROOF
			CONNECT TO EXISTING

- GENERAL DEMOLITION NOTES**
- FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK. DUCT SIZES INDICATED ARE FOR REFERENCE ONLY. MECHANICAL CONTRACTOR SHALL VERIFY EXISTING DUCT SIZES THAT ARE AFFECTED BY THIS WORK, PRIOR TO BEGINNING WORK OR FABRICATING NEW DUCTWORK. DRAWINGS ARE ILLUSTRATIVE AND MAY NOT REFLECT EXACT CONDITIONS OR DIMENSIONS.
 - THE DEMOLITION DRAWINGS ARE INTENDED TO SHOW THE GENERAL INTENT OF THE EXISTING HEATING AND VENTILATION SYSTEM DEMOLITION WORK. THESE DRAWINGS WERE CREATED BY USING EXISTING DRAWINGS AND BY CASUAL SITE VISITS. THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE ALL EXISTING PIPING, DUCTWORK, AND MISCELLANEOUS HARDWARE ASSOCIATED WITH MECHANICAL EQUIPMENT TO BE REMOVED UNLESS OTHERWISE INDICATED.
 - THE HVAC CONTRACTOR SHALL TURN OVER TO OWNER OR DISPOSE OF OFF SITE ACCORDING TO OWNERS DIRECTIONS ANY MECHANICAL ITEMS BEING REMOVED.
 - ANY OPENING IN WALLS OR ROOF LEFT WITH VOID SPACES BY THE REMOVAL OF ANY MECHANICAL EQUIPMENT, THE HVAC CONTRACTOR SHALL PATCH THEM TO MATCH ADJACENT SURFACES. ALL PATCHING & FINISHING SHALL BE DONE BY SKILLED WORKMEN IN THE TRADE.
 - NOTIFY THE OWNER IN WRITING AND FIELD VERIFY CONDITIONS BEFORE PERFORMING ANY SAW CUTTING, TRENCHING, CORING OR ANY OTHER STRUCTURAL MODIFICATIONS. INSURE THAT NO ADVERSE EFFECT TO THE BUILDING'S STRUCTURAL INTEGRITY WILL OCCUR.
 - ANY EXISTING CONDITION DISCOVERED DURING THE DEMOLITION OR CONSTRUCTION PROCESS WHICH, BY GENERALLY ACCEPTED CONSTRUCTION PRACTICES, SHOULD BE REMEDIED, SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER/ARCHITECT IMMEDIATELY IN WRITING.
 - THE HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CLEAN-UP AND TO REPAIR OR REPLACE ANYTHING DAMAGED DURING CONSTRUCTION ACTIVITIES. PROVIDE 1-YEAR WARRANTY FOR ALL REPAIR WORK.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING FLOOR PROTECTION TO PREVENT DAMAGE TO FLOORING DURING CONSTRUCTION ACTIVITIES.

1
M1.0
MECHANICAL FLOOR PLAN
1/8" = 1'-0"
NORTH

KEYED NOTES

- PROVIDE NEW ROOFTOP UNIT AND CURB. ROUTE SUPPLY/RETURN DROPS DOWN THROUGH ROOF. COORDINATE ROOF TOP UNIT LOCATION WITH STRUCTURE BELOW. PROVIDE NEW THERMOSTAT, CONTROL WIRING, AND STAND ALONE CONTROLS FOR RTU OPERATION. ROUTE CONDENSATE TO ROOF. BALANCE SUPPLY AND OUTSIDE AIRFLOW AS SCHEDULED.
- EXISTING ROOFTOP UNIT AND ASSOCIATED SMOKE DETECTOR TO REMAIN. MECHANICAL CONTRACTOR TO FIELD VERIFY EXACT LOCATION PRIOR TO BID AND SERVICE UNIT TO ASSURE IT IS OPERATING PROPERLY. REPLACE ALL FILTERS PRIOR TO LEAVING JOB SITE. BALANCE SUPPLY AND OUTSIDE AIR TO CFM SCHEDULED.
- EC TO FURNISH DUCT MOUNTED SMOKE DETECTOR AND COMPATIBLE REMOTE ANNUNCIATOR/TEST SWITCH. MC TO INSTALL SMOKE DETECTOR IN RETURN DUCT, PRIOR TO ANY OUTDOOR AIR CONNECTIONS. MC TO PROVIDE INTERLOCK WIRING BETWEEN SMOKE DETECTOR AND UNIT TO SHUT DOWN UNIT UPON DETECTION OF SMOKE. EC SHALL PROVIDE WIRING FOR FINAL CONNECTION TO CENTRAL FIRE ALARM SYSTEM, IF APPLICABLE, AND WIRING TO REMOTE ANNUNCIATOR/TEST SWITCH.
- PROVIDE THERMOSTAT AND MOUNT ON WALL 4 FEET A.F.F.
- PROVIDE NEW EXHAUST FAN, CONTROLLED BY LIGHT SWITCH, AND ROUTE EXHAUST DUCTWORK TO MANUFACTURER'S STANDARD VENT CAP.
- PROVIDE NEW EXHAUST FAN, CONTROLLED BY LIGHT SWITCH, AND ROUTE EXHAUST DUCTWORK TO FLUSH MOUNT LOUVERED FLAPPER GRILLE. PAINT GRILLE TO MATCH COLOR OF WALL.
- INTERNALLY LINE FIRST 10 FEET OF SUPPLY AND RETURN AIR DUCTWORK WITH JOHN'S MANVILLE, OR EQUIVALENT, 1 INCH THICK SPIRACOUSSTIC FIBERGLASS DUCT LINER. DUCT SIZES SHOWN ARE CLEAR INSIDE DIMENSIONS.
- PROVIDE 1/2" X 1/2" WIRE MESH COVER ON BOTTOM OF RETURN DUCT.
- EXISTING EXHAUST FAN TO REMAIN. MECHANICAL CONTRACTOR TO SERVICE FAN TO ASSURE IT IS OPERATING PROPERLY AND BALANCE TO CFM INDICATED. ROUTE DUCTWORK TO MANUFACTURER'S STANDARD VENT CAP.
- ALL SPIRAL DUCTWORK TO BE PAINT GRIP GALVANIZED TO ALLOW FOR FIELD PAINTING.
- EXISTING CONDENSING UNIT TO BE RELOCATED TO NEW LOCATION INDICATED ON ROOF. MECHANICAL CONTRACTOR TO FIELD VERIFY CONDENSING UNIT IS OPERATING PROPERLY. RECHARGE REFRIGERANT, AS REQUIRED PRIOR TO LEAVING JOB SITE.
- EXHAUST LOUVER AND ASSOCIATED DUCTWORK TO BE REMOVED. GC TO PATCH WALL AS REQUIRED.
- EXISTING THERMOSTAT TO REMAIN. FIELD VERIFY THERMOSTAT IS OPERATING PROPERLY.
- EXISTING THERMOSTAT TO BE RELOCATED TO NEW LOCATION INDICATED. EXTEND CONTROL WIRING AS REQUIRED. COORDINATE LOCATION WITH LEADERSHIP ON WALL. FIELD VERIFY EXISTING LOCATION.
- RELOCATE EXISTING SUPPLY REGISTER AS SHOWN AND BALANCE TO CFM INDICATED. REMOVE PORTION OF DUCTWORK AND PROVIDE SHEETMETAL, SAME GAUGE AS EXISTING DUCTWORK AND SEAL PER SMACNA GUIDELINES.
- RELOCATE EXISTING DIFFUSER TO NEW LOCATION, AS INDICATED. EXTEND DUCTWORK AS REQUIRED AND BALANCE DIFFUSER TO CFM INDICATED.
- PROVIDE NEW DIFFUSER TO MATCH EXISTING. BALANCE TO CFM INDICATED.
- CAP EXISTING DUCTWORK WITH SHEETMETAL, SAME GAUGE AS EXISTING DUCTWORK AND SEAL PER SMACNA GUIDELINES.
- EXISTING AIR DEVICE TO REMAIN. FIELD VERIFY EXACT LOCATION. BALANCE TO CFM INDICATED.
- EXISTING AIR HANDLING UNIT AND ALL ASSOCIATED DUCTWORK AND AIR DEVICES TO REMAIN. COORDINATE REFRIGERANT PIPING WITH NEW LOCATION OF CONDENSING UNIT.
- PROVIDE WALL MOUNTED DUCTLESS SPLIT SYSTEM AND INSTALL IN LOCATION INDICATED. ROUTE CONDENSATE TO NEAREST APPROVED RECEPTACLE. PROVIDE CONDENSATE PUMP AS REQUIRED. PROVIDE WIRED THERMOSTAT TO CONTROL DUCTLESS SPLIT SYSTEM. MOUNT THERMOSTAT AT 5' AFF.
- PROVIDE CONDENSING UNIT AND LOCATE ON ROOF ON ANVIL INTERNATIONAL HAYDON H-BLOCK, OR EQUIVALENT, ROOFTOP SUPPORT SYSTEM, COMPLETE WITH ROOF PAD. MAINTAIN UNIT MINIMUM REQUIRED SERVICE AND AIRFLOW CLEARANCE. ROUTE REFRIGERANT LIQUID AND SUCTION LINES BETWEEN CONDENSING UNIT AND DUCTLESS SPLIT SYSTEM AND SEAL ROOF PENETRATIONS WEATHER-TIGHT. PROVIDE PATE, OR EQUIVALENT, PIPE CURB FOR ALL ROOF PENETRATIONS. ROUTE AND SIZE LINES AND ACCESSORIES PER MANUFACTURER'S GUIDELINES. PROVIDE A FULLY CHARGED SYSTEM AND INSULATE ALL REFRIGERANT PIPING WITH ARMAFLEX INSULATION.

GENERAL NOTES

- THE DRAWINGS ARE DIAGRAMMATIC IN NATURE. EXACT LOCATIONS OF DEVICES AND ROUTING OF DUCTWORK SHALL BE DETERMINED BY CONTRACTOR AFTER COORDINATION WITH ALL OTHER TRADES AND FIELD DETERMINATION OF FINAL CONSTRUCTION DETAILS. MINOR ADJUSTMENTS TO DUCT ROUTING AND CONFIGURATION TO AVOID CONFLICT WITH BUILDING STRUCTURE OR OTHER TRADES SHALL BE INCLUDED IN CONTRACTOR'S PRICE. CONTRACTOR SHALL OBTAIN ENGINEERS APPROVAL IN WRITING FOR ANY MODIFICATIONS TO SYSTEM DESIGN PRIOR TO INSTALLATION.
- ALL EXPOSED MATERIALS AND EQUIPMENT SHALL BE INSTALLED AND SUPPORTED IN A FIRST-CLASS AND WORKMANLIKE FASHION. DUCTWORK SHALL RUN PARALLEL AND/OR PERPENDICULAR TO MAIN BUILDING STRUCTURE. ANY WORK THAT IS NOT DONE IN A FIRST-CLASS OR WORKMANLIKE FASHION, IN THE ARCHITECT'S OPINION, SHALL BE REDONE AT THE CONTRACTOR'S EXPENSE.
- ALL DUCT JOINTS, SEAMS AND CONNECTIONS SHALL BE SECURELY FASTENED AND SEALED. DUCTS SHALL BE SUPPORTED WITH APPROVED HANGERS AT INTERVALS NOT EXCEEDING TEN FEET. DUCT COVERINGS AND LININGS SHALL HAVE A FLAME-SPREAD INDEX NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX NOT MORE THAN 50.
- PROVIDE VOLUME DAMPERS AT ALL ROUND BRANCH DUCT TAKE-OFFS THAT ARE ACCESSIBLE. PROVIDE TURNING VANES AT ALL 90 DEGREE SQUARE ELBOWS IN SUPPLY AIR DUCTS. PROVIDE 45 DEGREE HEEL AT ALL RECTANGULAR SUPPLY AND RETURN BRANCH DUCT TAKE-OFFS.
- OUTDOOR AIR INTAKES SHALL BE 10'-0" MINIMUM AWAY FROM ANY EXHAUST AND PLUMBING VENT OUTLET.
- WIRE UP ALL LOW VOLTAGE (24V) THERMOSTATS.
- CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL PIPES, DUCTWORK, UNITS, ETC. WITH ALL OTHER TRADES AND SHIFT LOCATION OR OFFSET WHERE NECESSARY. PROVIDE TRANSITIONS IN DUCTWORK TO AVOID CONFLICT WITH EXISTING DUCTWORK AND OTHER STRUCTURES.
- CONTRACTOR SHALL COORDINATE ALL AIR DEVICES WITH ELECTRICAL AND ARCHITECTURAL REFLECTED CEILING PLANS.
- COORDINATE LOCATION OF ALL EXTERIOR LOUVER OR OUTLET WITH ARCHITECTURAL ELEVATION PLAN.
- COORDINATE ROOF WORK WITH BUILDING OWNER'S ROOFING CONTRACTOR TO ASSURE THAT THE ROOF WARRANTY IS NOT VOIDED.
- INSTALL DUCTWORK AS HIGH AS POSSIBLE.
- EXHAUST AIR DUCTS SHALL BE EQUIPPED WITH BACKDRAFT DAMPERS.
- ALL DUCT OPENINGS AND OTHER AIR DISTRIBUTION OPENINGS SHALL BE COVERED DURING CONSTRUCTION EXCEPT FOR TESTING AND INSPECTION.
- PROVIDE BUILDING OWNER OR REPRESENTATIVE WITH DETAILED OPERATING AND MAINTENANCE INSTRUCTIONS AND WARRANTIES /WRITTEN GUARANTEE FOR EACH SYSTEM. O&M INSTRUCTIONS SHALL BE CONSISTENT WITH OSHA REQUIREMENTS IN CCR TITLE 8, SECTION 5142 AND OTHER RELATED REGULATIONS.
- ALL DUCT ELBOWS SHALL BE LONG RADIUS OR MITERED.

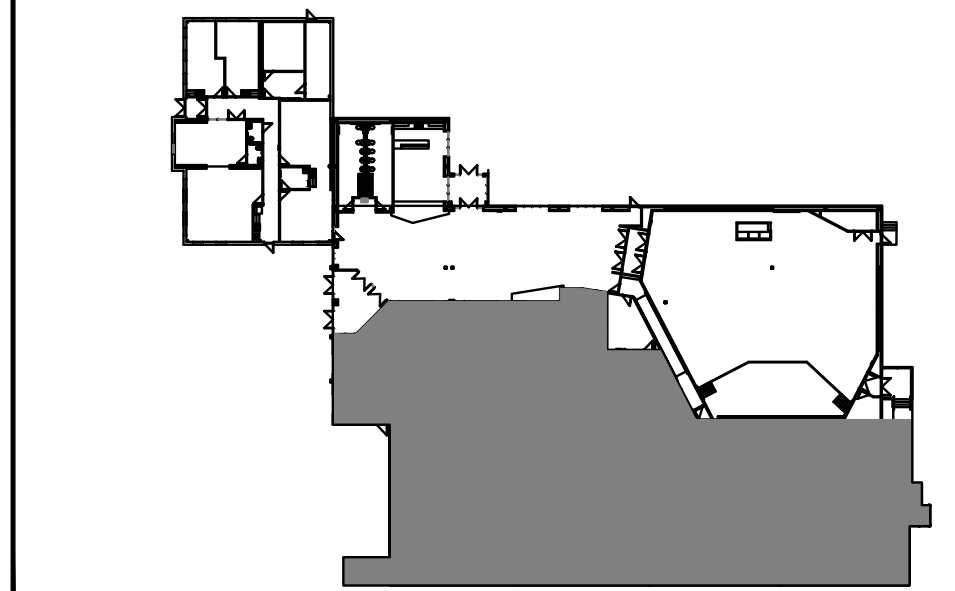
RETURN AIR PLENUM

THE ENTIRE AREA ABOVE THE CEILING IS A RETURN AIR PLENUM. ALL WIRING SHALL BE PLENUM RATED OR IN CONDUIT, AND NO PVC PIPING IS ALLOWED.

ROOF PENETRATIONS

COORDINATE ROOF WORK WITH BUILDING OWNER'S ROOFING CONTRACTOR TO ASSURE THAT THE ROOF WARRANTY IS NOT VOIDED.

KEY PLAN



JOHN J. GRAVES, P.E.
2696 PINEVIEW DRIVE
VILLA HILLS, KY 41017



01/29/2021

ADDITIONS & RENOVATIONS TO:

LIFESONG CHURCH

65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 11351
ISSUE DATE: 01/29/2020
DRAWN BY: K.RUSS
CHECKED BY: J.GRAVES
REVISIONS:

SHEET No.
M1.0
MECHANICAL FLOOR PLAN

EXHAUST FAN SCHEDULE

TAG	MANUFACTURER	MODEL	CFM	ESP	RPM	WATTS	ELECTRICAL			WEIGHT LBS	SONES	REMARKS
							VOLTAGE	PHASE	MOCP			
EF-1	COOK	GC-200	90	0.2	1,050	33	120	1	15	-	-	E
EF-2	GREENHECK	SP-B90	75	0.25	700	21	120	1	15	10	1.2	A,B,C,D
EF-3	GREENHECK	SP-B90	75	0.25	700	21	120	1	15	10	1.2	A,B,C,D
EF-4	GREENHECK	SP-B90	75	0.25	700	21	120	1	15	10	1.2	A,B,C,D
EF-5	GREENHECK	SP-B90	75	0.25	700	21	120	1	15	10	1.2	A,B,C,D
EF-6	GREENHECK	SP-B90	75	0.25	700	21	120	1	15	10	1.2	A,B,C,D
EF-7	GREENHECK	SP-B90	75	0.25	700	21	120	1	15	10	1.2	A,B,C,D

REMARKS:

- A. DISCONNECT SWITCH
B. BACK DRAFT DAMPER
C. ALUMINUM GRILLE WITH WHITE ENAMEL FINISH
D. HANGING VIBRATION ISOLATORS
E. EXISTING EXHAUST FAN

AIR DEVICE SCHEDULE

TAG	MANUFACTURER	MODEL	FUNCTION	FACE SIZE	BORDER TYPE	MATERIAL	FINISH	REMARKS
CD-1	PRICE	SPD	SUPPLY	24x24	LAY-IN	STEEL	WHITE	A,B,C
CD-2	PRICE	SPD	SUPPLY	12x12	LAY-IN	STEEL	WHITE	A,B,C
SR-1	PRICE	SDGE	SUPPLY	18x6	DUCT	ALUMINUM	WHITE	D
SR-2	PRICE	SDGE	SUPPLY	10x4	DUCT	ALUMINUM	WHITE	D
RG-1	PRICE	630L	RETURN	26x16	LAY-IN	ALUMINUM	WHITE	-

REMARKS:

- A. PROVIDE VOLUME DAMPERS IN TAKEOFFS WHERE ACCESSIBLE. WHERE DAMPERS ARE NOT ACCESSIBLE, PROVIDE OPPOSED BLADE DAMPER AT DIFFUSER
B. COORDINATE FRAME TYPE WITH ARCHITECTURAL REFLECTED CEILING PLAN
C. PLAQUE DIFFUSER
D. SCOOP DAMPER

DUCTLESS SPLIT SYSTEM SCHEDULE

TAG	MANUFACTURER	MODEL	SUPPLY CFM	ESP IN W.C.	COOLING MBH		VOLTS/PH	FAN HP	FLA	MCA	MOCP	REMARKS	
					TOTAL	SENSIBLE							
AC-1	LG	LSN90HSV5	317	0.2	-	-	-	208/1	-	-	-	C	
CU-1	LG	LSU90HSV5	-	-	9.0	6.75	23.5	208/1	-	7.4	10	15	A.B

REMARKS:

- A. COOLING CAPACITY INDICATED IS AT 75°F DB, 45% RH AND 95°F OUTSIDE AIR CONDITIONS.
B. LOW AMBIENT COOLING TO -20°F, WITH ADVANCED WIND BAFFLE.
C. INDOOR UNIT POWERED OFF OUTDOOR UNIT.

ROOFTOP UNIT SCHEDULE

TAG	MANUFACTURER	MODEL	NOMINAL TONNAGE	SUPPLY CFM	OA CFM	ESP IN IN. W.C.	TOT BTUH	SENS BTUH	SEER/ EER	STAGE	HTG IN BTUH	HTG OUT BTUH	ELECTRICAL				WEIGHT	REMARKS		
													HP	VOLTAGE	PHASE	FLA	MCA	MOCP		
RTU-3	CARRIER	48TCFD17E2A6	15.0	6,000	960	1.0	174,000	130,500	-/10.8	2	350,000/ 280,000	280,000/ 224,500	-	460	3	39.7	43.6	60	-	A,H
RTU-4	CARRIER	48TCED12E2A6	10.0	4,000	640	1.0	114,000	85,500	-/11.1	2	224,000/ 180,000	184,000/ 147,500	-	460	3	22.5	25.0	30	-	A,H
RTU-7	LENNOX	KG8102S4B	8.5	3,400	950	1.0	99,600	70,700	-/11.0	2	130,000/ 84,500	104,000/ 67,500	2.0	460	3	18.6	22.0	25	1,021	A,B,C,D,E,F,G,I
RTU-8	LENNOX	KG8092S4B	7.5	3,000	840	1.0	89,900	64,700	-/11.0	2	130,000/ 84,500	104,000/ 67,500	2.0	460	3	18.2	20.0	25	1,001	A,B,C,D,E,F,G,I
RTU-9	LENNOX	KG8060S4B	5.0	2,000	540	1.0	64,000	47,400	14/11.8	1	65,000	52,000	1.0	460	3	11.4	13.0	20	780	A,B,C,D,E,F,G,I
RTU-10	LENNOX	KG8120S4B	10.0	4,000	1,140	1.0	120,000	86,400	-/11.0	2	180,000/ 117,000	144,000/ 93,500	3.0	460	3	23.4	26.0	30	1,094	A,B,C,D,E,F,G,I

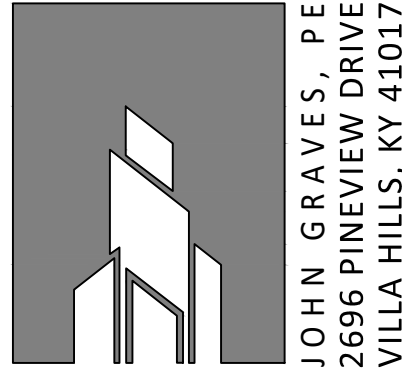
REMARKS:

- A. ALL HVAC EQUIPMENT TO BE FIELD LABELED TO IDENTIFY WHICH AREAS OF THE BUILDING THEY SERVE
B. MERV 13 PLEATED FILTER
C. DRY BULB ECONOMIZER WITH BAROMETRIC RELIEF
D. SMOKE DETECTOR WITH REMOTE ANNUNCIATOR (BY EC)
E. 14" HIGH INSULATED ROOF CURB
F. UNIT MOUNTED NON POWERED CONVENIENCE OUTLET
G. UNIT MOUNTED NON FUSED DISCONNECT SWITCH
H. EXISTING ROOFTOP UNIT
I. LP CONVERSION KIT

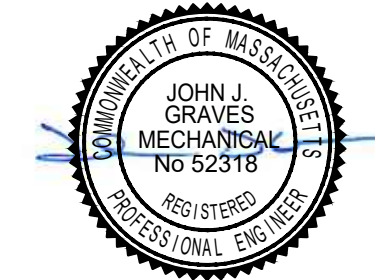
VENTILATION SCHEDULE

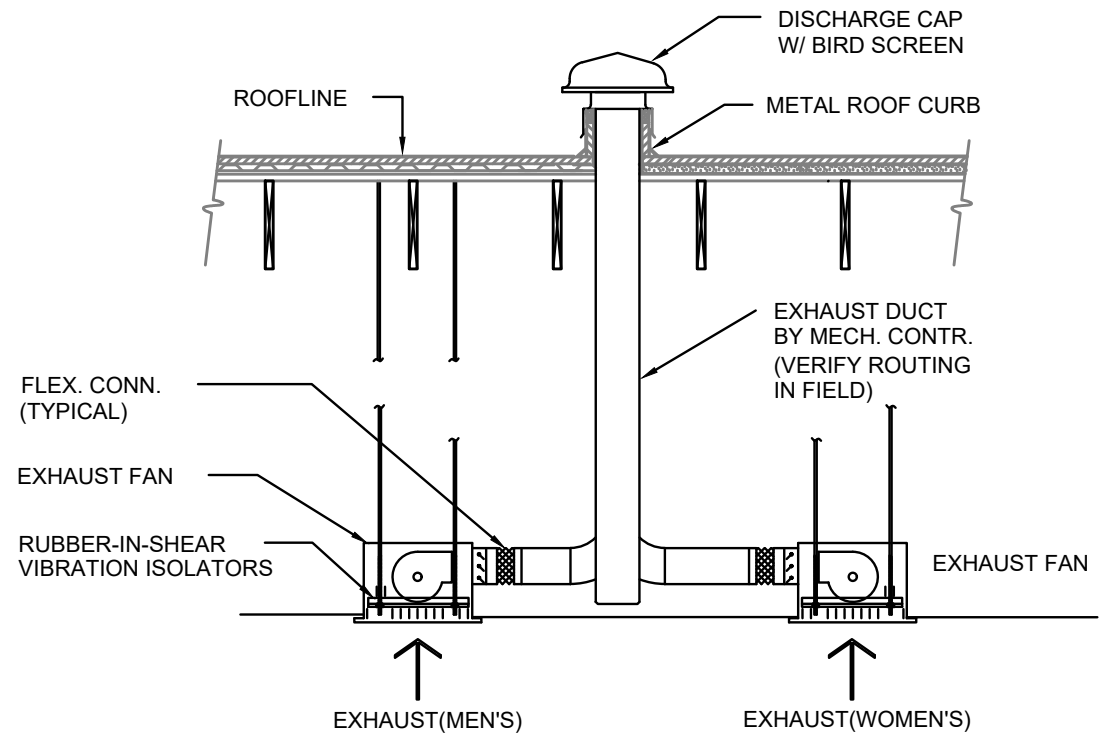
Lifesong Church - Sutton, MA - Phase 2

		Table 403.3.1.1		Vbz = Az x Ra + Rp x Pz		PEOPLE		AREA		OA	AIR			SA			Zp =			Vot =
		Az	OCCUPANCY	Rp	Ra	Pz	Rp x Pz	Az x Ra	CFM		Bf	Vo z =	CFM		O/A	Vo z /		Vpz	Ev	
ROOM #	ROOM NAME	SQFT	CATEGORY	CFM/P	CFM/SQFT	people	CFM	CFM	Vbz	Ez	Vbz/Ez	Vpz	16%	16%	16%	16%	16%	16%	16%	16%
100	Right Lobby	1813	Main Lobbies	5	0.06	18	90	109	199	0.8	248	2000	320	0.12	1.00	248				
102	Next Steps	566	Office	5	0.06	14	70	34	104	0.8	130	900	144	0.14	1.00	130				
105	Kitchen	337	Kitchen	7.5	0.12	4	30	40	70	0.8	88	700	112	0.13	1.00	88				
106	Storage	85	Storage	0	0.12	0	0	10	10	0.8	13	100	16	0.13	1.00	13				
107	Corridor	392	Corridor	0	0.06	0	0	24	24	0.8	29	250	40	0.12	1.00	29				
108	Prayer Room	84	Office	5	0.06	2	10	5	15	0.8	19	150	24	0.13	1.00	19				
109	Vol Cental	280	Office	5	0.06	5	25	17	42	0.8	52	400	64	0.13	1.00	52				
110	Green Room	395	Office	5	0.06	10	50	24	74	0.8	92	700	112	0.13	1.00	92				
111	Toilet	56	Restroom	0	0	0	0	0	0	0.8	0	50	8	0.00	1.00	0				
112	Kitchen	67	Kitchen	7.5	0.12	1	8	8	16	0.8	19	150	24	0.13	1.00	19				
113	Worship Room	255	Office	5	0.06	2	10	15	25	0.8	32	300	48	0.11	1.00	32				
XXX	(Ex) Production Suite	250	Office	5	0.06	3	15	15	30	0.8	38	300	48	0.13	1.00	38				
	(EX) RTU-3	4580				59					760	6000	960			760				
														16%						
100	Left Lobby	1094	Main Lobbies	5	0.06	11	55	66	121	0.8	151	1240	198	0.12	1.00	151				
101	Next Steps	448	Office	5	0.06	11	55	27	82	0.8	102	750	120	0.14	1.00	102				
103	Office	219	Office	5	0.06	3	15	13	28	0.8	35	250	40	0.14	1.00	35				
104	Open Office Area	714	Office	5	0.06	6	30	43	73	0.8	91	650	104	0.14	1.00	91				
XXX	(Ex) Entry	290	Main Lobbies	0	0.06	0	0	17	17	0.8	22	250	40	0.09	1.00	22				
XXX	(Ex) Coffee Shop & RR	1120	Office	5	0.06	5	25	67	92	0.8	115	860	138	0.13	1.00	115				
	(EX) RTU-4	3885				36					516	4000	640			516				
														27%						
115	Corridor	440	Corridor	0	0.06	0	0	26	26	0.8	33	380	103	0.09	0.90	37				
116	Toilet	58	Restroom	0	0	0	0	0	0	0.8	0	50	14	0.00	0.90	0				
117	Toilet	58	Restroom	0	0	0	0	0	0	0.8	0	50	14	0.00	0.90	0				
118	Storage	192	Storage	0	0.12	0	0	23	23	0.8	29	120	32	0.24	0.90	32				
119	Auditorium	1580	Auditorium	5	0.06	88	440	95	535	0.8	669	2750	743	0.24	0.90	743				
120	Storage	77	Storage	0	0.12	0	0	9	9	0.8	12	50	14	0.23	0.90	13				
	RTU-7	2405				88					742	3400	920			824				
														28%						
114	Corridor	1695	Corridor	0	0.06	0	0	102	102	0.8	127	600	168	0.21	0.90	141				
122	Storage	130	Storage	0	0.12	0	0	16	16	0.8	20	100	28	0.20	0.90	22				
123	Auditorium	1474	Auditorium	5	0.06	74	370	88	458	0.8	573	2300	644	0.25	0.90	637				
	RTU-8	3299				74					720	3000	840			800				
														27%						
124	Classroom	520	Classroom	10	0.12	13	130	62	192	0.8	241	990	267	0.24	0.90	267				
125	Toilet	64	Restroom	0	0	0	0	0	0	0.8	0	40	11	0.00	0.90	0				
131	Classroom	425	Classroom	10	0.12	11	110	51	161	0.8	201	850	230	0.24	0.90	224				
132	Toilet	64	Restroom	0	0	0	0	0	0	0.8	0	40	11	0.00	0.90	0				
133	Storage	59	Storage	0	0.12	0	0	7	7	0.8	9	40	11	0.22	0.90	10				
134	Storage	30	Storage	0	0.12	0	0	4	4	0.8	5	40	11	0.11	0.90	5				
	RTU-9	1162				24					455	2000	540			506				
														29%						
126	Classroom	477	Classroom	10	0.12	10	100	57	157	0.8	197	800	228	0.25	0.90	218				
127	Classroom	487	Classroom	10	0.12	10	100	58	158	0.8	198	800	228	0.25	0.90	220				
128	Toilet	64	Restroom	0	0	0	0	0	0	0.8	0	50	14	0.00	0.90	0				
129	Classroom	394	Classroom	10	0.12	10	100	47	147	0.8	184	980	279	0.19	0.90	205				
130	Corridor	397	Corridor	0	0.06	0	0	24	24	0.8	30	120	34	0.25	0.90	33				
135	Classroom	693	Classroom	10	0.12	17	170	83	253	0.8	316	1250	356	0.25	0.90	352				
	RTU-10	4836				95					925	4000	1140			1028				

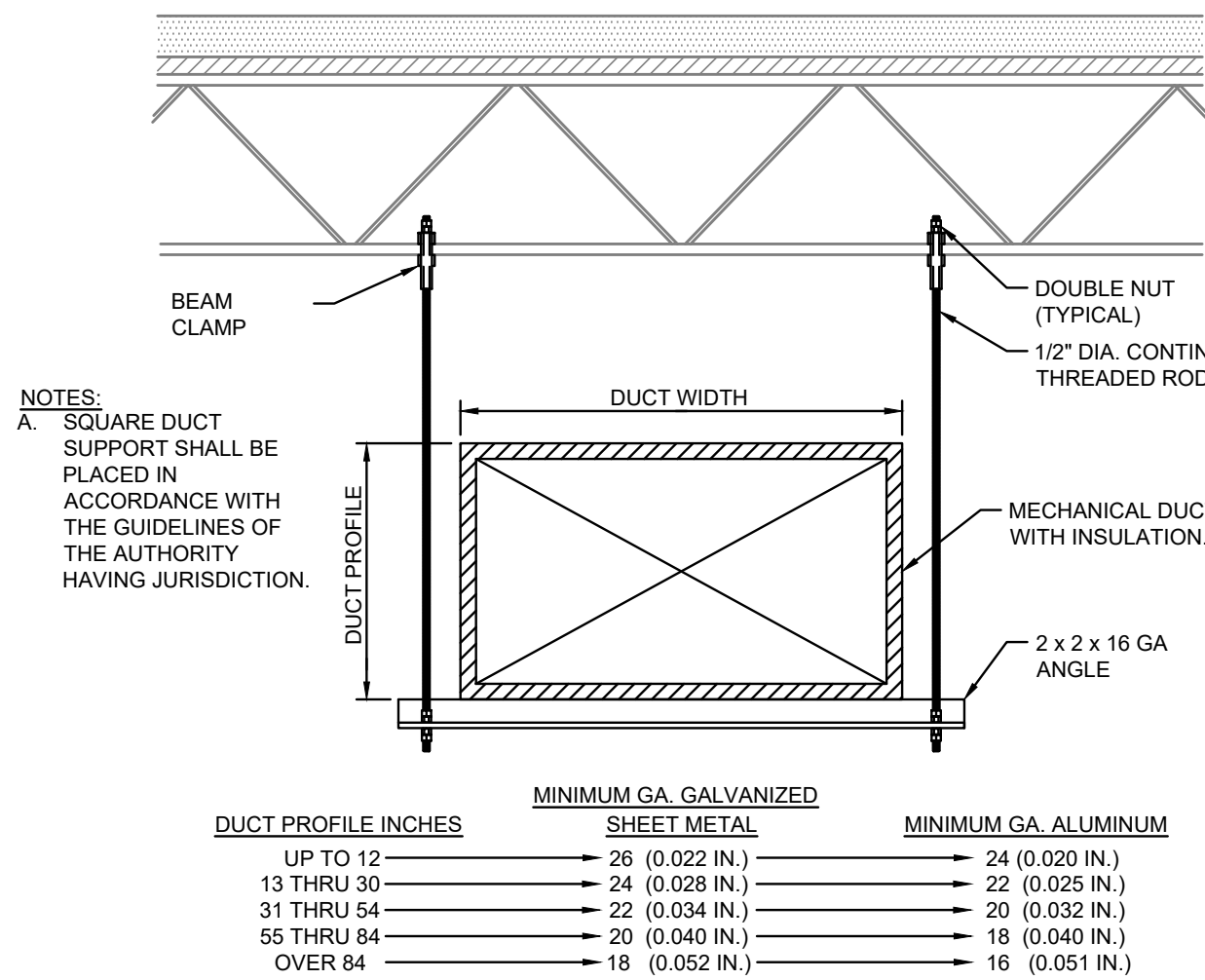


JOHN GRAVES, P.E.
2696 PINEVIEW DRIVE
VILLA HILLS, KY 41017

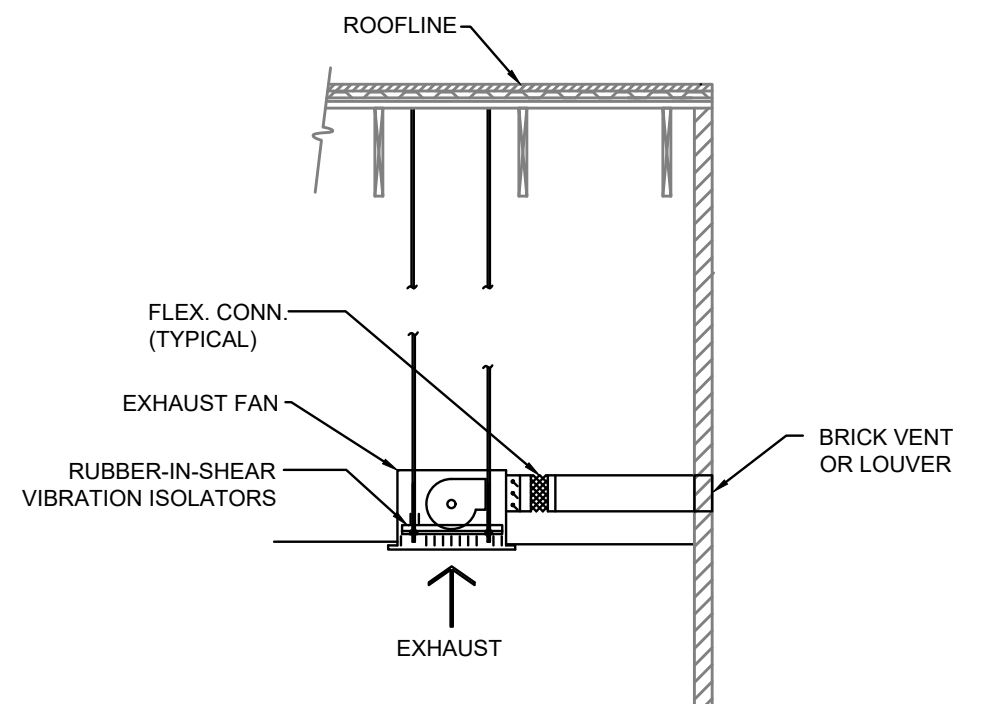




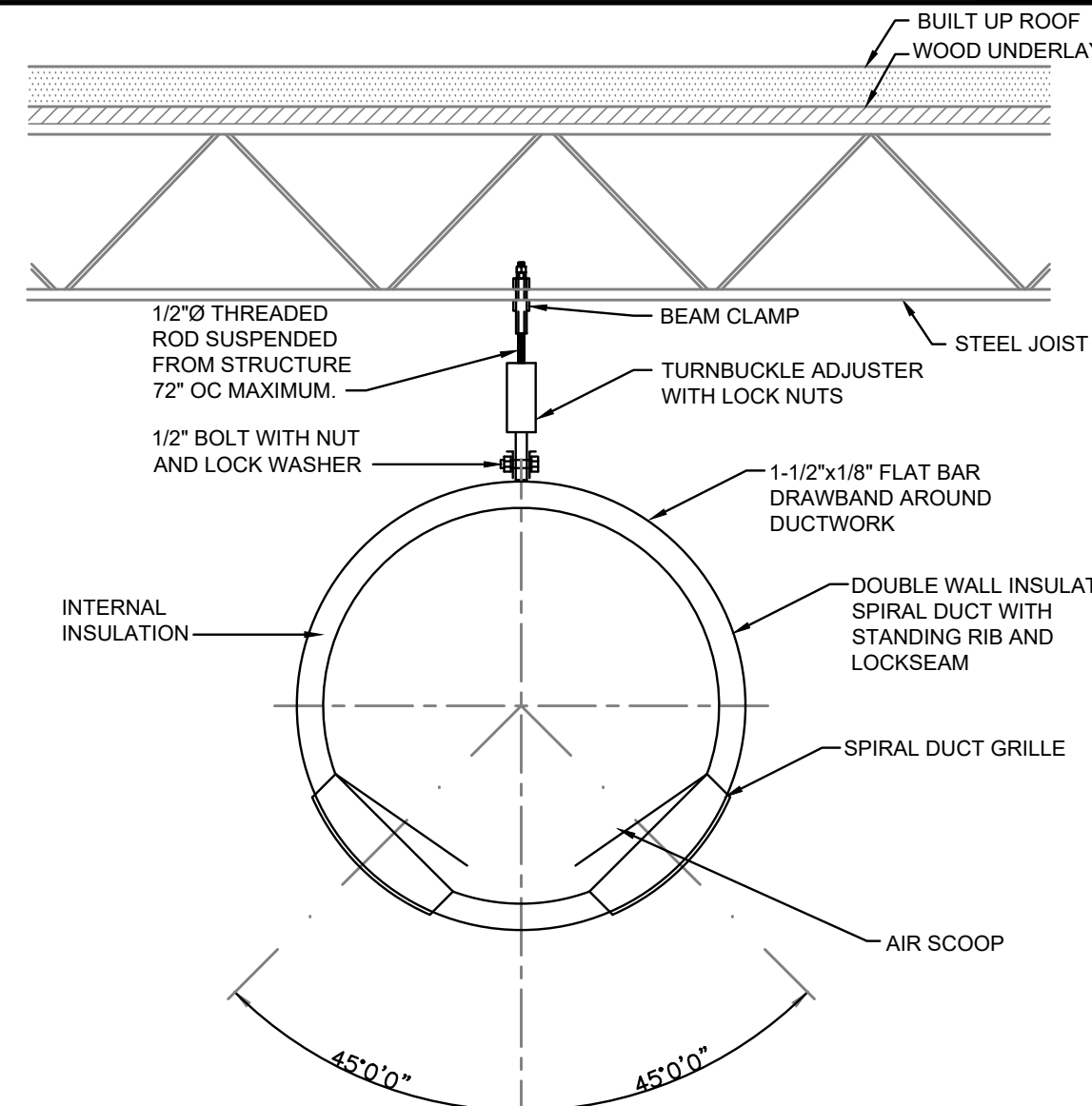
6 EXHAUST RISER DETAIL
SCALE: NONE



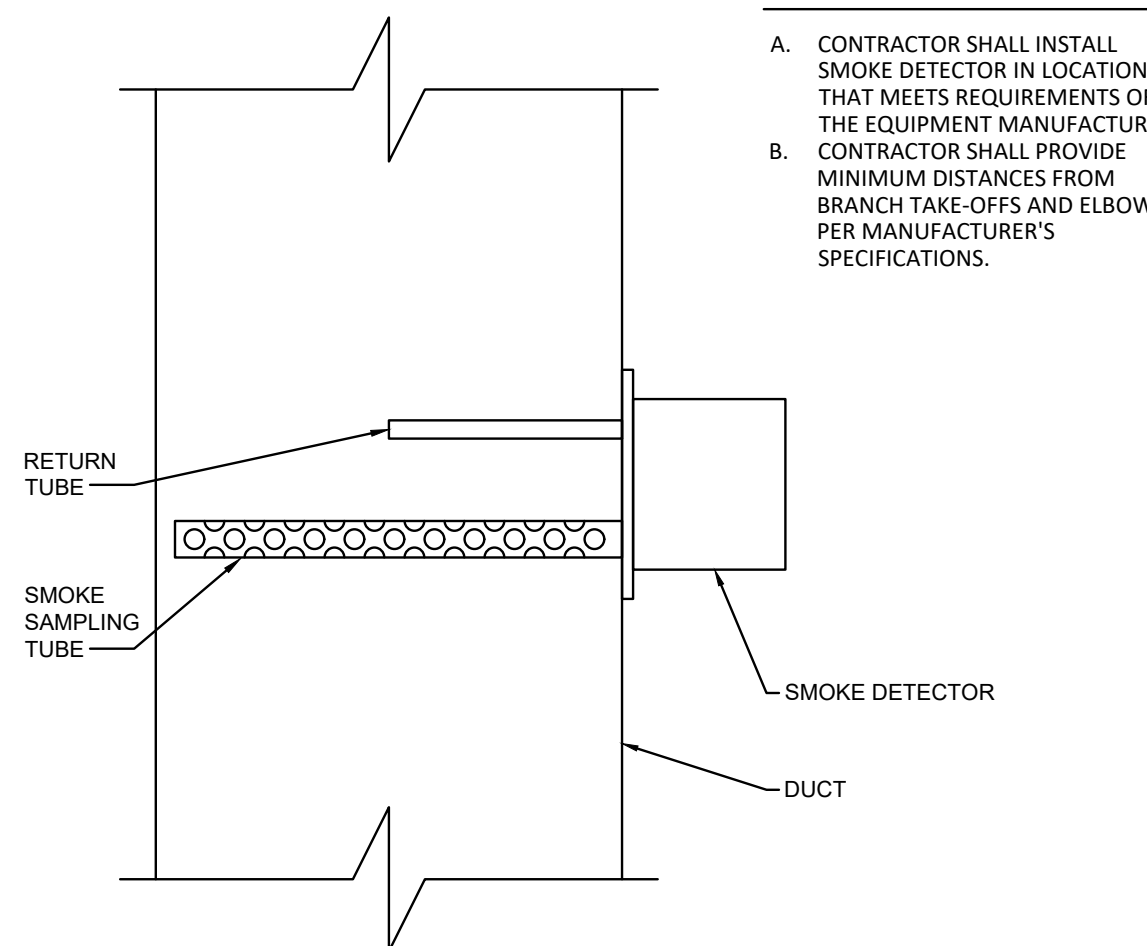
3 RECT. DUCT SUPPORT DETAIL
SCALE: NONE



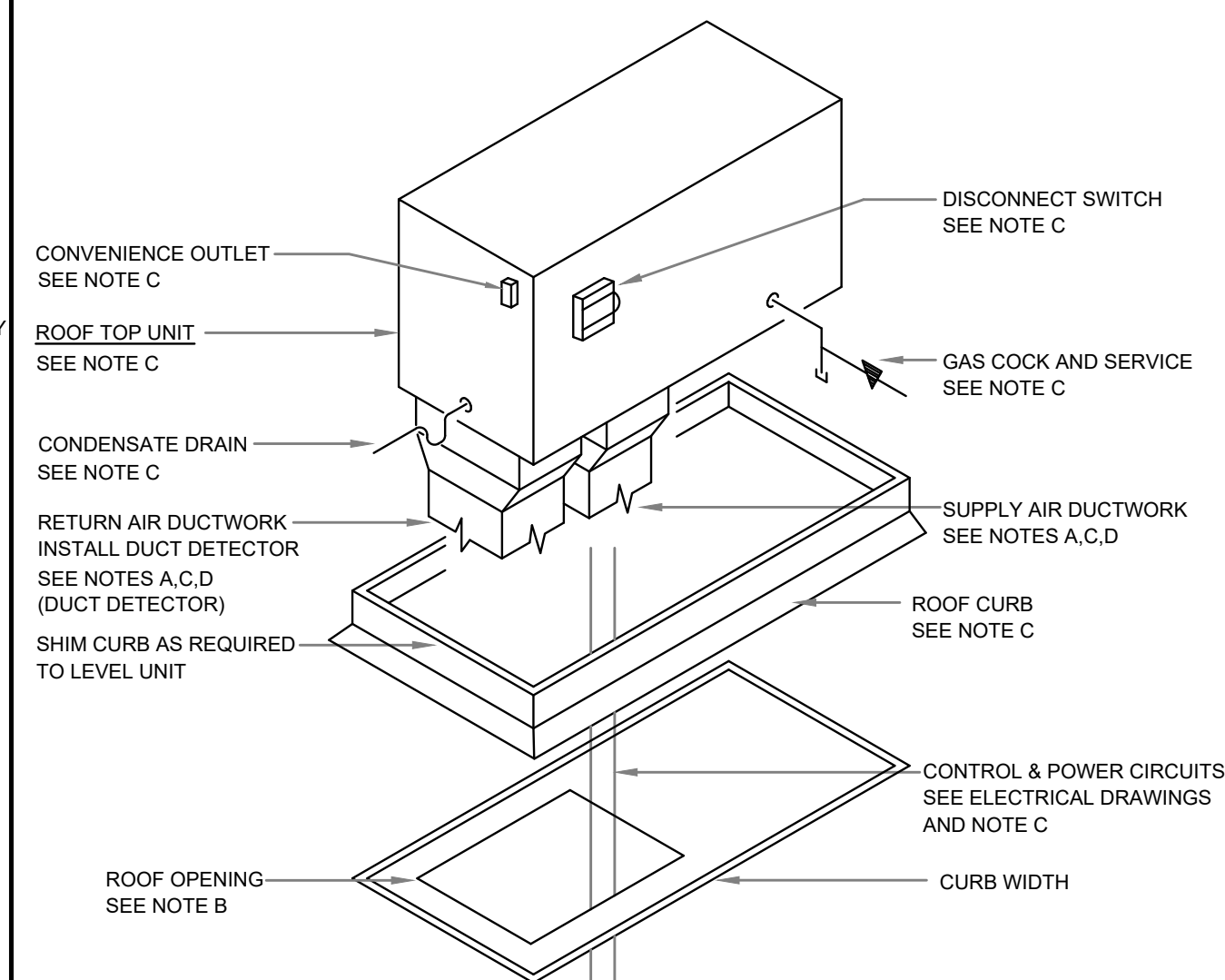
7 EXHAUST RISER DETAIL
SCALE: NONE



4 SPIRAL DUCT GRILLE DETAIL
SCALE: NONE

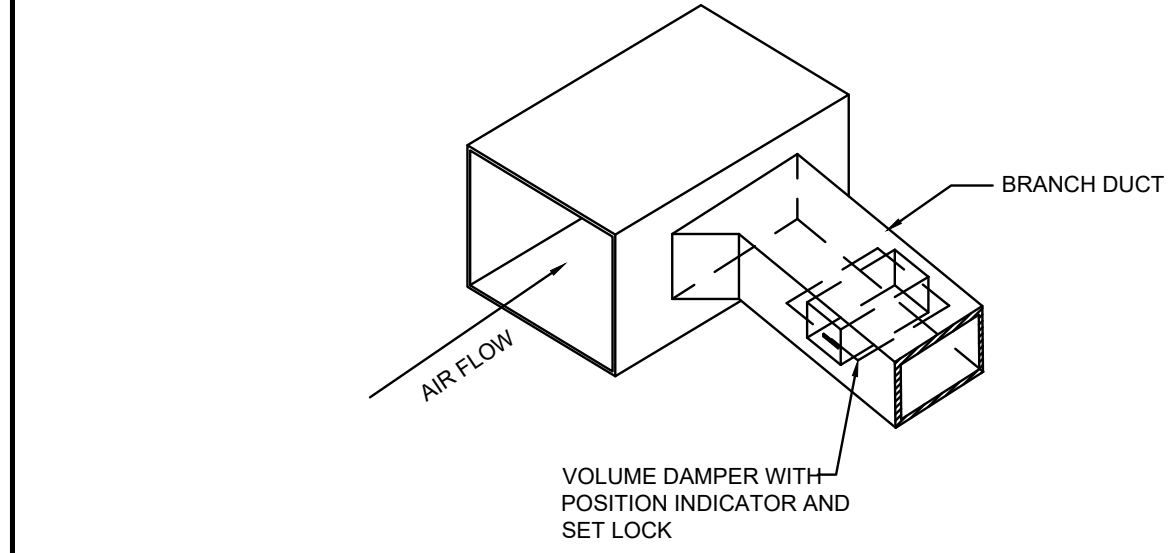
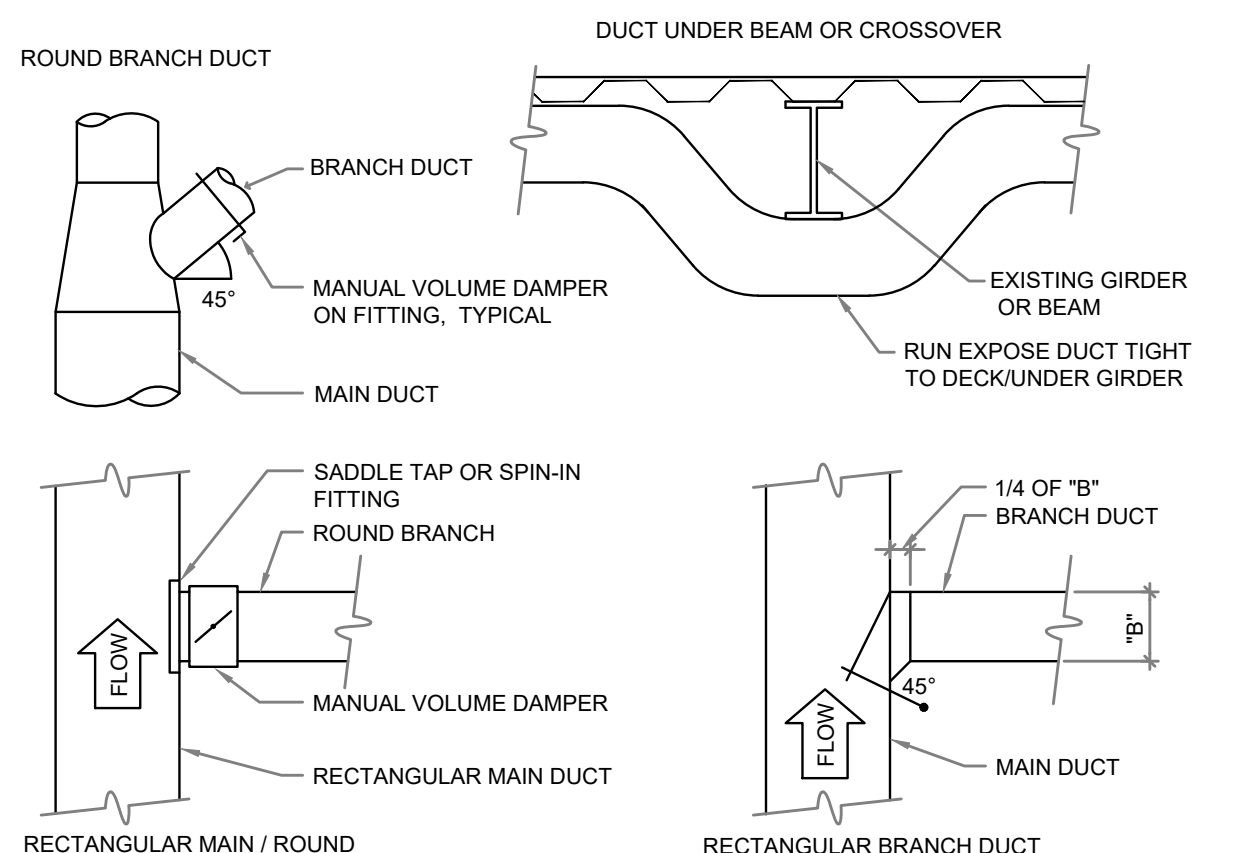


5 DUCT SMOKE DETECTOR DETAIL
SCALE: NONE



- ROOF TOP UNIT NOTES
- DUCT TRANSITION FROM RTU TO DUCT SIZE SHOWN ON MECHANICAL DRAWING SHALL BE MADE BETWEEN RTU & TOP OF ROOF WITH-IN CURB.
 - SIZE OF OPENING IN ROOF DECK TO BE AS SMALL AS POSSIBLE. COORDINATE WITH STRUCTURAL DRAWINGS (6" MIN. LARGER THAN DUCT SIZE SHOWN).
 - INSTALL PER MANUFACTURER'S RECOMMENDATION AND INSTALLATION MANUAL. PROVIDE TAPERED INSULATION SADDLE AT ROOF CURB. COORDINATE WITH ROOFING CONTRACTOR. SEE ARCHITECTS DETAIL.
 - NEOPRENE FLEXIBLE CONNECTOR.

1 ROOF TOP UNIT DETAIL
SCALE: NONE



2 BRANCH DUCT TAKEOFF DETAIL
SCALE: NONE

JOHN GRAVES & SONS
2696 PINEVIEW DRIVE
VILLA HILLS, KY 41017



01/29/2021

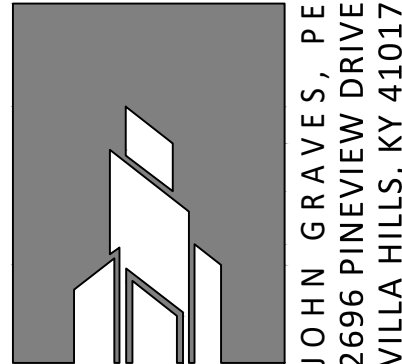
ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 11351
ISSUE DATE: 01/29/2020
DRAWN BY: K. RUSS
CHECKED BY: J. GRAVES

REVISIONS:

NO.	DESCRIPTION

SHEET No.
M2.1
MECHANICAL DETAILS



01/29/2021

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 11351
ISSUE DATE: 01/29/2020
DRAWN BY: K.RUSS
CHECKED BY: J.GRAVES

REVISONS:

SHEET No.
M3.0
MECHANICAL
SPECIFICATIONS

DIVISION 23 MECHANICAL SPECIFICATIONS

23 05 01 COMMON REQUIREMENTS FOR HVAC

ALL MECHANICAL WORK AND TESTS SHALL BE DONE IN STRICT ACCORDANCE WITH THE LATEST STATE, COUNTY, AND LOCAL REGULATIONS, LAWS, AND ORDINANCES WHICH MAY BE APPLICABLE.

BEFORE SUBMITTING A BID, EXAMINE DOCUMENTS OF ALL OTHER TRADES, VISIT THE SITE AND GET ACQUAINTED WITH ALL CONDITIONS THAT MAY IN ANY WAY AFFECT THE EXECUTION OF THIS CONTRACT. TAKE MEASUREMENTS AND BE RESPONSIBLE FOR EXACT SIZE AND LOCATIONS OF ALL OPENINGS REQUIRED. VERIFY INSTALLATION MAY BE MADE IN COMPLETE ACCORDANCE WITH ALL PERTINENT CODES AND REGULATIONS. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE PROFESSIONAL ENGINEER OF RECORD. DO NOT PROCEED WITH THE INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

IT IS NOT THE INTENT OF THE DRAWINGS THAT EXISTING CONDITIONS BE ACCURATELY SHOWN. EXISTING MECHANICAL WORK IS SHOWN TO LIMITED EXTENT ONLY AND IS SHOWN FOR GENERAL REFERENCE ONLY. LOCATIONS AND INFORMATION WERE DERIVED FROM CURSORY SITE VISUAL OBSERVATIONS OR FROM DOCUMENTS THAT WERE PREPARED FOR PREVIOUSLY INSTALLED WORK WHEN AVAILABLE.

THE WORK COVERED BY THESE SPECIFICATIONS SHALL CONSIST OF: PROVIDING ALL NEW MATERIAL, LABOR, EQUIPMENT, AND SERVICES NECESSARY FOR A COMPLETE MECHANICAL INSTALLATION AS SPECIFIED HEREIN. WORK IN THIS SECTION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING ITEMS:

- PACKAGED ROOF TOP UNITS
- TOILET EXHAUST FANS
- LOW VOLTAGE THERMOSTATS/REMOTE SENSORS
- DUCT
- DAMPERS
- DIFFUSERS, REGISTERS, AND LOUVERS

WHENEVER THE WORDS "CONTRACTOR" APPEAR ON MECHANICAL DRAWINGS OR IN THESE SPECIFICATIONS, IT SHALL REFER TO THE MECHANICAL SUB-CONTRACTOR. WHENEVER THE WORD "PROVIDE" APPEARS IN THESE DOCUMENTS, IT SHALL BE INTERPRETED TO MEAN "FURNISH AND INSTALL".

COORDINATE ALL WORK WITH THE OWNER TO MINIMIZE INTERRUPTION OF BUILDING OPERATION.

COORDINATE THE INSTALLATION OF MECHANICAL ITEMS WITH THE SCHEDULES FOR WORK OF ALL OTHER TRADES TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

THIS CONTRACTOR SHALL VERIFY AND SATISFY HIMSELF THAT ALL EQUIPMENT FURNISHED WILL PROPERLY FIT IN THE SPACE PROVIDED, THAT IT WILL FUNCTION PROPERLY, AND THAT ALL PARTS OF EQUIPMENT REQUIRING SERVICE ARE READILY ACCESSIBLE.

ALL PIPING SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING WALLS AND FRAMING SYSTEM. ALL VERTICAL RUNS SHALL BE HELD AGAINST WALLS, COLUMNS, ETC., AS POSSIBLE TO PERMIT MAKING OF PIPE JOINTS.

CONTRACTOR SHALL PROVIDE A GUARANTEE IN WRITTEN FORM STATING THAT ALL WORK SHALL BE FREE OF DEFECTS OR ERRORS, AND ALL EQUIPMENT, MATERIALS, OR PARTS FOR A PERIOD OF ONE YEAR FROM THE DATE OF OWNER'S FINAL ACCEPTANCE AND SHALL REPAIR, REVISE OR REPLACE AT NO COST TO THE OWNER ANY SUCH DEFECTS OCCURRING WITHIN THE GUARANTEE PERIOD.

CONTRACTOR SHALL ALSO STATE IN WRITTEN FORM THAT ANY ITEMS OR OCCURRENCES ARISING DURING THE GUARANTEE PERIOD WILL BE ATTENDED TO IN A TIMELY MANNER AND WILL IN NO CASE EXCEED THREE (3) WORKING DAYS FROM DATE OF NOTIFICATION BY OWNER.

PROVIDE A COMPLETE INSTALLATION IN CONFORMANCE WITH THE FOLLOWING STANDARDS.
AGA: AMERICAN GAS ASSOCIATION
ASHRAE: AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS
NFPA: NATIONAL FIRE PROTECTION ASSOCIATION
SMACNA: SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION.
STATEWIDE BUILDING CODE
INTERNATIONAL MECHANICAL CODE

CONTRACTOR SHALL DO ALL CUTTING AND PATCHING REQUIRED FOR INSTALLATION OF THIS WORK. ALL OPENINGS IN WALLS, FLOORS OR CEILINGS SHALL BE PROPERLY SEALED AND RESTORED IN KIND. FLASH AND COUNTERFLASH AT ROOF OPENINGS.

ALL EQUIPMENT SHALL BE LISTED AND LABELED, UNLESS OTHERWISE APPROVED.

ALL WIRING SHALL MEET THE REQUIREMENTS LISTED IN THE ELECTRICAL SPECIFICATIONS. ALL CONTROL AND INTERLOCK WIRING AND CONDUIT (120V OR 24V) SHALL BE BY THE MECHANICAL CONTRACTOR.

EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE CONDITIONS OF LISTING AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THIS CODE.

CLEANING: THIS CONTRACTOR SHALL REMOVE FROM THE PREMISES ALL ACCUMULATION OF DIRT, DEBRIS, WASTE MATERIALS AND RUBBISH CAUSED BY HIS EMPLOYEES OR WORK, AT LEAST ONCE A WEEK, EXCEPT THAT COMBUSTIBLE MATERIALS SHALL BE REMOVED DAILY.

DURING PROGRESS OF THE WORK, MAINTAIN ON DRAWINGS AT THE SITE, AN ACCURATE RECORD OF THE INSTALLATION OF THE MECHANICAL SYSTEM, INDICATING ALL ITEMS WHICH HAVE BEEN CHANGED OR ADDED.

APPLY FOR AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED BY LOCAL AUTHORITY, FOR THE APPROVAL OF WORK.

A CERTIFICATE OF FINAL INSPECTION AND APPROVAL SHALL BE SUBMITTED WITH THE CONTRACTOR'S REQUEST FOR FINAL PAYMENT. NO FINAL PAYMENT WILL BE APPROVED WITHOUT THIS CERTIFICATE.

GUARANTEE ALL WORKMANSHIP, MATERIAL, AND EQUIPMENT AND REPLACE ANY FOUND DEFECTIVE WORK WITHOUT COST TO THE OWNER, FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE.

EXISTING CONDITIONS

DO NOT REUSE REMOVED MECHANICAL MATERIALS UNLESS SPECIFICALLY INDICATED ON DRAWINGS. EXISTING SYSTEMS MAY BE UTILIZED ONLY TO THE EXTENT INDICATED ON DRAWINGS.

IF REQUIRED TO ACCOMMODATE CONSTRUCTION RELATED ACTIVITIES TEMPORARILY REMOVE, STORE IN PROTECTED LOCATION ON SITE, AND REINSTALL CONFLICTING MECHANICAL EQUIPMENT, OR DEVICES THAT ARE TO REMAIN OR TO BE RELOCATED.

WHERE THE TERM "DEMOLITION" IS USED HEREIN, INTERPRET IT TO MEAN "DEMOLITION" OR "SELECTIVE DEMOLITION" WHERE APPLICABLE.

PROVIDE MECHANICAL DEMOLITION WORK AS REQUIRED TO ACCOMMODATE PROJECT DEMOLITION AND AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION. DISCONNECT AND REMOVE WORK TO BE ABANDONED, AND AS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES, IN AREAS AFFECTED BY THIS PROJECT.

LEGALLY DISPOSE OF MATERIALS TO SALVAGED OR RETAINED.

23 05 03 SUBMITTALS FOR MECHANICAL SYSTEMS

DESIGN BASIS MANUFACTURERS OF MATERIAL AND EQUIPMENT ARE SPECIFIED AND PLANS ARE DETAILED ACCORDING TO THIS MATERIAL. CONTRACTOR SHALL BASE HIS BID ON FURNISHING AND INSTALLING THIS MAKE OF MATERIAL AND EQUIPMENT.

AN ACCEPTABLE MANUFACTURER'S NAME AND MODEL NUMBER OF A PRODUCT MAY BE PROVIDED IN THESE DOCUMENTS. THIS IS THE EQUIPMENT INCLUDED DURING THE DESIGN PROCESS AND FORMS THE BASIS OF A STANDARD OF QUALITY. WHERE MORE THAN ONE MAKE OF MATERIAL OR EQUIPMENT IS SPECIFIED, THE CONTRACTOR SHALL STATE IN HIS BID WHICH MAKE HE PROPOSES TO FURNISH AND INSTALL. SHOP DRAWING APPROVAL SHALL BE OBTAINED PRIOR TO SHIPMENT OF EQUIPMENT.

VERIFY THE MODEL NUMBER OR PRODUCT IS STILL ACCURATE AND MEETS ALL REQUIREMENTS SHOWN ON THE DRAWINGS. IF THERE IS A DISCREPANCY BETWEEN THE REQUIREMENTS AND THE PRODUCT OR MODEL NUMBER, THE STRICTER OF THE TWO SHALL GOVERN.

SUBMIT SHOP DRAWINGS AND/OR PRODUCT DATA (ELECTRONIC COPIES) ON THE FOLLOWING ITEMS FOR REVIEW BEFORE FABRICATION OR SHIPMENT:

- PACKAGED ROOF TOP UNITS
- TOILET EXHAUST FANS
- LOW VOLTAGE THERMOSTATS/REMOTE SENSORS
- DUCT
- DAMPERS
- DIFFUSERS, REGISTERS, AND LOUVERS

MAINTENANCE MANUALS: THE MANUALS SHALL INCLUDE WIRING DIAGRAMS, MAINTENANCE AND OPERATING INSTRUCTIONS, PARTS LISTINGS, AND COPIES OF OTHER SUBMITTALS INDICATED FOR INCLUSION.

REVIEW AND CORRECTIONS OR COMMENTS MADE ON SHOP DRAWINGS, PRODUCT DATA, CATALOGS, CUT SHEETS, CHARTS, AND OTHER ITEMS DURING CONSTRUCTION PHASE SUBMITTAL REVIEW DO NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS, FOR PROVIDING A COMPLETE AND FUNCTIONING PROJECT, NOR SHALL THEY RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR DEVIATIONS OR ERRORS OF ANY SORT. THIS REVIEW IS FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH INFORMATION GIVEN AND THE DESIGN CONCEPT EXPRESSED IN THE CONTRACT DOCUMENTS. CONTRACTOR REMAINS RESPONSIBLE FOR DETERMINING THE ACCURACY AND COMPLETENESS OF OTHER DETAILS SUCH AS DIMENSIONS AND QUANTITIES, FOR SUBSTANTIATING INSTRUCTIONS FOR INSTALLATIONS, VERIFYING MATERIALS REQUIRED, OBTAINING FIELD MEASUREMENTS AND RELATED CRITERIA, COORDINATING WORK WITH OTHER DISCIPLINES AND PERFORMING WORK IN COMPLIANCE WITH THE CONTRACT DOCUMENTS.

ANY CHANGES TO ITEMS SPECIFIED MUST BE SUBMITTED IN WRITING AS A SUBSTITUTION, WITH COMPLETE DOCUMENTATION OF PRICE DIFFERENTIAL AND EQUIPMENT DETAILS. ANY SUBSTITUTIONS PROVIDED SHALL BE REVIEWED AT MARQUE ENGINEERING'S HOURLY RATES. REVIEW SHALL BE PAID FOR BY THE CONTRACTOR TO MARQUE ENGINEERING AT NO COST TO THE OWNER. BY USING PRE-APPROVED SUBSTITUTIONS, THE CONTRACTOR ACCEPTS ALL RESPONSIBILITY AND ASSOCIATED COSTS FOR ALL REQUIRED MODIFICATIONS TO THE CONTRACT DOCUMENTS TO INCLUDE BUT NOT LIMITED TO MATERIAL OR EQUIPMENT COSTS FOR THEIR OR OTHER TRADES, AND ENSURING THAT SUBSTITUTED MATERIALS AND EQUIPMENT TO BE FURNISHED FIT INTO SPACE AVAILABLE.

EXTENSIVE REVISIONS NECESSITATED TO THE CONTRACT DOCUMENTS, OR SUBSTITUTION ACTIONS RELATED TO ANY SPECIFIED PRODUCT NOT ABLE TO BE PROVIDED DUE TO A FAILURE TO COMMENCE WORK, RELEASE PRODUCT OR COORDINATE CONSTRUCTION ACTIVITIES SHALL BE PROVIDED AT MARQUE ENGINEERING'S HOURLY RATES. COSTS SHALL BE BORN BY THE CONTRACTOR AT NO COST TO THE OWNER.

23 05 29 HANGERS AND SUPPORTS

SUPPORT ALL PIPING, DUCTWORK AND EQUIPMENT BY HANGERS OR BRACKETS. FURNISH STRUCTURAL STEEL MEMBERS WHERE REQUIRED TO SUPPORT PIPING AND EQUIPMENT. NO PORTION OF PIPING OR VALVES SHALL BE SUPPORTED BY EQUIPMENT.

DUCTWORK - SUPPORT BY MEANS OF HANGERS AS FOLLOWS:
DUCT WIDTH 30 OR LESS
HANGER SIZE (16 GAUGE)
TYPE: MAX. SPACING 8
A PAIR OF HANGERS SHALL BE LOCATED AT EVERY TRANSVERSE JOINT AND ELSEWHERE ACCORDING TO THE TABLE.

23 05 93 HVAC SYSTEM TESTING ,ADJUSTING AND BALANCING FOR HVAC

ALL SYSTEMS AND EQUIPMENT SHALL BE CAREFULLY ADJUSTED TO PROVIDE COMFORTABLE AND UNIFORM CONDITIONS IN EACH AND EVERY SPACE TO THE OWNER'S SATISFACTION. PROVIDE ANY REQUIRED DEVICES TO SATISFY QUANTITIES INDICATED. PROVIDE A CERTIFIED AIR BALANCE OF THE DIFFUSERS AND AIR HANDLERS.

AIR SYSTEM:

AIR BALANCE AND TESTING SHALL NOT BEGIN UNTIL THE SYSTEM HAS BEEN COMPLETED AND IS IN FULL WORKING ORDER. CONTRACTOR SHALL PUT ALL HEATING, VENTILATING AND AIR CONDITIONING SYSTEM AND EQUIPMENT INTO FULL OPERATION AND SHALL CONTINUE THE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING. CONTRACTOR SHALL SUBMIT WITHIN 30 DAYS AFTER RECEIPT OF CONTRACT, COPIES OF SUBMITTAL DATA FOR THE TESTING AND BALANCING OF THE AIR CONDITIONING, HEATING, AND VENTILATING SYSTEMS. THE AIR BALANCE AND TESTING AGENCY SHALL PROVIDE PROOF OF HAVING SUCCESSFULLY COMPLETED AT LAST FIVE PROJECTS OF SIMILAR SIZE AND SCOPE.

CONTRACTOR SHALL PROCURE THE SERVICES OF AN INDEPENDENT AIR BALANCE AND TESTING AGENCY, APPROVED BY THE ENGINEER, AND A MEMBER OF AABC OR NEBB, WHICH SPECIALIZES IN THE BALANCING AND TESTING OF HEATING VENTILATION AND AIR CONDITIONING SYSTEMS, TO BALANCE, ADJUST AND TEST AIR MOVING EQUIPMENT AND AIR DISTRIBUTION OR EXHAUST SYSTEMS AS HEREIN SPECIFIED.

ALL WORK BY THIS AGENCY SHALL BE DONE UNDER THE DIRECT SUPERVISION OF A QUALIFIED HEATING AND VENTILATING ENGINEER EMPLOYED BY THIS AGENCY. ALL INSTRUMENTS USED BY THIS AGENCY SHALL BE ACCURATELY CALIBRATED AND MAINTAINED IN GOOD WORKING ORDER.

23 07 13 DUCT INSTALLATION

INSULATE ALL SUPPLY, DIFFUSER PLENUMS, AND OUTSIDE AIR DUCTWORK OF ALL UNITS WITH OWENS CORNING "ALL SERVICE DUCT WRAP" TYPE 150 GLASS FIBER INSULATION UNLESS OTHERWISE NOTED. INSULATION SHALL BE 1-1/2" THICK (2" THICK FOR SUPPLY AND RETURN IN TRUSS SPACE). 3.5 PCF. DENSITY WITH FRK JACKET. 002 THICK REINFORCED ALUMINUM FOIL VAPOR BARRIER. INSULATION SHALL CONFORM TO NFPA 90A AND 90B PER ASTM E-84 FOR FLAME SPREAD AND SMOKE DEVELOPED RATING.

INSULATE ALL EXTERIOR SUPPLY AND RETURN DUCTWORK WITH RIGID FIBERGLASS BOARD INSULATION WITH OUTDOOR JACKET. INSULATION SHALL BE 2" THICK WITH A U-VALUE OF 0.23 AT 75° F. INSTALL ON DUCTWORK USING IMPALE ANCHORS AND WIRES. SEAL VAPOR BARRIER WITH VAPOR BARRIER ADHESIVE.

PROVIDE INSULATION ON ALL CONCEALED SUPPLY, RETURN DUCTWORK. ALL LINERS, INSULATION AND ADHESIVES SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50.

RIGID FIBERGLASS DUCTWORK INSULATION: GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 612, TYPE IB, WITHOUT FACING AND WITH VAPOR BARRIER ALL-SERVICE JACKET MANUFACTURED FROM KRAFT PAPER, REINFORCING SCRIM, ALUMINUM FOIL, AND VINYL FILM. INSULATION SHALL HAVE A MINIMUM R VALUE AS REQUIRED BY CODE.

FLEXIBLE FIBERGLASS DUCTWORK INSULATION: GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 553, TYPE II, WITHOUT FACING AND WITH VAPOR BARRIER ALL-SERVICE JACKET MANUFACTURED FROM KRAFT PAPER, REINFORCING SCRIM, ALUMINUM FOIL, AND VINYL FILM. INSULATION SHALL HAVE A MINIMUM R VALUE AS REQUIRED BY CODE.

VAPOR BARRIER MATERIAL FOR DUCTWORK: PAPER-BACKED ALUMINUM-FOIL, EXCEPT AS OTHERWISE INDICATED; STRENGTH AND PERMEABILITY RATING EQUIVALENT TO FACTORY-APPLIED VAPOR BARRIERS ON ADJOINING DUCTWORK INSULATION, WHERE AVAILABLE; WITH FOLLOWING ADDITIONAL CONSTRUCTION CHARACTERISTICS:

HIGH PUNCTURE RESISTANCE: LOW VAPOR TRANSMISSION (FOR DUCTS IN EXPOSED AREAS: MECH. ROOMS, ETC.)
MODERATE PUNCTURE RESISTANCE: MEDIUM VAPOR TRANSMISSION (FOR DUCTS IN CONCEALED AREAS).

INSTALLATION IS NOT PERMITTED ABOVE DRYWALL CEILINGS AND INACCESSIBLE CEILINGS.

23 09 93 SEQUENCE OF OPERATION
PACKAGED ROOFTOP UNIT
STARTUP

THE UNIT SHALL OPERATE ON A 7 DAY/NIGHT PROGRAMMABLE THERMOSTAT. DURING STARTUP, THE FAN SHALL RUN WITH THE DAMPERS IN THE FULL RECIRCULATION POSITION. PROVIDE OCCUPIED CHANGEOVER SEQUENCE WITH OPTIMUM START FUNCTION. WHEN THE RETURN AIR TEMPERATURE REACHES OCCUPIED SETPOINT (ADJUSTABLE), THE MINIMUM OUTSIDE AIR DAMPER SHALL OPEN TO THE CONTROLLED MINIMUM OUTDOOR AIR POSITION.

SUPPLY FAN CONTROL
THE SUPPLY FAN SPEED SHALL BE CONSTANT AND SET TO THE REQUIRED CFM.

SPACE TEMPERATURE CONTROL
PROVIDE LOCAL WALL MOUNTED ROOM TEMPERATURE THERMOSTAT WITH DIGITAL DISPLAY OF ROOM TEMPERATURE AND SETPOINT (+/- DEG. F. ADJUSTABLE), AND OVERRIDE FEATURE. PROVIDE REMOTE SENSOR TO MONITOR SPACE TEMPERATURE AND MAINTAIN THERMOSTAT SETPOINT.

MINIMUM OUTSIDE AIR CONTROL
DURING OCCUPIED MODE THE MINIMUM OUTSIDE AIR DAMPER SHALL BE OPEN. PROVIDE MOTORIZED OUTDOOR AIR DAMPER.

ECONOMIZER CONTROL
DRY BULB CONTROLLED ECONOMIZER: OPERATED TO AUTOMATICALLY USE OUTDOOR AIR FOR "FREE COOLING" WHEN OUTDOOR AIR TEMPERATURE IS AT ACCEPTABLE LEVELS. AUTOMATICALLY MODULATED OUTDOOR AND RETURN AIR DAMPERS MAINTAIN PROPER DISCHARGE AIR TEMPERATURE INTO THE CONDITIONED SPACE. ADJUSTABLE MINIMUM POSITION CONTROL IS STANDARD. ECONOMIZER SHALL HAVE POWERED OR BAROMETRIC RELIEF, AS SCHEDULED.

COOLING CONTROL
COOLING SHALL BE CONTROLLED TO MAINTAIN SPACE TEMPERATURE SETPOINT. ON A CALL FOR COOLING THE HEATING SHALL BE OFF. ON A FURTHER CALL FOR COOLING, ENABLE THE ECONOMIZER MODE. ON A FURTHER CALL FOR COOLING, DISABLE THE ECONOMIZER MODE AND THE MECHANICAL COOLING SHALL BE STAGED ON.

HEATING CONTROL
HEATING SHALL BE CONTROLLED TO MAINTAIN SPACE TEMPERATURE SETPOINT. ON A CALL FOR HEATING, THE MECHANICAL COOLING SHALL BE OFF. ON A FURTHER CALL FOR HEATING, THE ECONOMIZER MODE SHALL BE DISABLED. ON A FURTHER CALL FOR HEATING THE GAS HEATING SHALL BE STAGED ON.

SMOKE DETECTOR
WHEN THE SMOKE DETECTOR IS ALARMED, THE SYSTEM SHALL BE ALARMED AND THE AIR HANDLER SHALL FAIL SAFE WITH MANUAL RESET. ELECTRICAL CONTRACTOR SHALL FURNISH, HVAC CONTRACTOR SHALL MOUNT & ELECTRICAL

CONTRACTOR SHALL WIRE A UL LISTED PHOTOELECTRIC SMOKE DETECTOR PER LOCAL CODE AUTHORITY HAVING JURISDICTION.

UNOCCUPIED MODE
DURING THE UNOCCUPIED MODE OF OPERATION, THE RTU SHALL GO INTO NIGHT SETBACK MODE. AT NIGHT SETBACK/SHUTDOWN THE RTU SHALL GO TO FAIL SAFE POSITION. FAIL SAFE POSITION IS DEFINED BY THE FOLLOWING: THE SUPPLY FAN IS OFF, THE OUTDOOR AIR INTAKE DAMPER IS CLOSED, THE HEATING IS OFF AND THE MECHANICAL COOLING IS OFF. THE SUPPLY FAN SHALL CYCLE IN CONJUNCTION WITH EITHER THE HEATING OR COOLING SYSTEM TO MAINTAIN A MINIMUM/MAXIMUM SPACE TEMPERATURE DEPENDING ON THE SEASON.

LOW VOLTAGE THERMOSTATS SHALL BE PROVIDED AND WIRED BY THE HVAC CONTRACTOR. ELECTRICAL CONTRACTOR SHALL PROVIDE 4" SQUARE X 1-1/2" DEEP WALL OUTLET BOXES (WITH SINGLE-GANG RINGS) FOR ALL THERMOSTATS/SENSORS. ELECTRICAL CONTRACTOR SHALL PROVIDE ONE 3/4" EMPTY CONDUIT FROM EACH THERMOSTAT/SENSOR LOCATION, TURNED OUT ABOVE ACCESSIBLE CEILING (IN JOIST SPACE OR AGAINST OVERHEAD SLAB/DECK). HVAC/TEMPERATURE CONTROL CONTRACTOR SHALL PROVIDE ALL OTHER NECESSARY CONDUIT, RACEWAY AND WIRING RELATED WORK. CONDUIT SHALL BE IDENTIFIED IN CEILING CAVITY AND SHALL BE PROVIDED WITH SWEEP BENDS, BUSHINGS AND DRAGLINE.

EXHAUST FANS SHALL BE TIED TO LIGHT SWITCH, WHICH SHALL BE FURNISHED. INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR. WHEN ACTIVATED, EXHAUST FAN MOTOR DAMPER SHALL OPEN AND FAN SHALL START.

ALL DUCT SMOKE DETECTORS WILL BE FURNISHED BY ELECTRICAL CONTRACTOR, INSTALLED BY THE HVAC CONTRACTOR, AND WIRED BY THE ELECTRICAL CONTRACTOR PER LOCAL CODES. HVAC CONTRACTOR WILL INTERLOCK FAN WITH SMOKE DETECTOR.

23 22 00 CONDENSATE DRAIN PIPING

INSTALL TRAP AT EVAPORATOR COIL DRAIN, EXTEND DRAIN LINE FROM COIL TRAP TO DRAIN. PIPING SHALL BE STANDARD WEIGHT, PVC PIPE AND FITTINGS AND WITH JOINTS OF PVC SOLVENT CEMENT. PROVIDE CLEANOUTS THROUGHOUT RUN AND AT TOPS OF TRAPS.

23 30 00 AIR DISTRIBUTION SYSTEM

CEILING AIR DIFFUSERS:
SQUARE: SQUARE HOUSING, CORE OF SQUARE CONCENTRIC LOUVERS, SQUARE OR ROUND DUCT CONNECTION.

LINEAR: EXTRUDED ALUMINUM CONTINUOUS SLOT, SINGLE OR MULTIPLE.

DIFFUSER MOUNTINGS:
SURFACE MOUNT: DIFFUSER SHALL HAVE ROLLED EDGE BELOW FINISHED CEILING FOR SURFACE MOUNTING OR DIFFUSER SHALL BE FURNISHED WITH ACCESSORY PLASTER FRAME.

LAY-IN: DIFFUSER HOUSING SIZED TO FIT BETWEEN CEILING EXPOSED SUSPENSION TEE BARS AND REST ON TOP SURFACE OF THE BAR.

DIFFUSER ACOUSTIC PERFORMANCE: NC LESS THAN OR EQUAL TO 30

DIFFUSER ACCESSORIES: PLASTER RING: PERIMETER RING DESIGNED TO ACT AS PLASTER STOP AND DIFFUSER ANCHOR.

DIFFUSER FINISHES: WHITE ENAMEL: SEMI-GLOSS WHITE ENAMEL PRIME FINISH.

CEILING AND WALL REGISTERS & GRILLES:
STEEL CONSTRUCTION: MANUFACTURER'S STANDARD STAMPED SHEET STEEL FRAME AND ADJUSTABLE BLADES.

REGISTER AND GRILLE FINISHES: WHITE ENAMEL: SEMI-GLOSS WHITE ENAMEL PRIME FINISH.

REGISTER AND GRILLE ACOUSTIC PERFORMANCE: NC LESS THAN OR EQUAL TO 30

23 31 13 METAL DUCTS

CONSTRUCTION, INSTALLATION AND SUPPORT OF ALL DUCTWORK SHALL CONFORM TO THE LATEST EDITION OF SMACNA "HVAC DUCT CONSTRUCTION STANDARD -METAL AND FLEXIBLE".

ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ACHIEVE AIR-TIGHT (5% LEAKAGE FOR SYSTEMS RATED 3" AND UNDER; 1% FOR SYSTEMS RATED OVER 3") AND NOISELESS (NO OBJECTABLE NOISE) SYSTEMS. INSTALL EACH RUN WITH MINIMUM NUMBER OF JOINTS. ALIGN DUCTWORK ACCURATELY AT CONNECTIONS, WITHIN 1/8" MISALIGNMENT TOLERANCE AND WITH INTERNAL SURFACES SMOOTH.

SUPPORT VERTICAL DUCTS AT EVERY FLOOR. SUPPORT DUCT WITH APPROVED HANGERS AT INTERVALS NOT EXCEEDING 10 FEET.

DUCTS SHALL BE GALVANIZED SHEET METAL OF STANDARD GAUGES. DUCTWORK SHALL HAVE A MINIMUM THICKNESS OF 24 GAUGE. ALL DUCT ELBOWS SHALL BE EITHER FULL RADIUS OR WITH TURNING VANES.

WHERE DUCTWORK IS INDICATED TO BE EXPOSED IN OCCUPIED SPACES, PROVIDE MATERIALS WHICH ARE FREE FROM VISUAL IMPERFECTIONS INCLUDING PITTING, SEAM MARKS, ROLLER MARKS, STAINS AND DISCOLORATIONS, AND OTHER IMPERFECTIONS, INCLUDING THOSE WHICH WOULD IMPAIR PAINTING.

EXPOSED DUCTWORK WHICH IS TO BE PAINTED SHALL HAVE PAINT GRIP APPLIED.

PROVIDE VOLUME DAMPERS IN ALL BRANCH DUCTS OR AS REQUIRED FOR BALANCING TO REQUIRED AIR FLOWS.

PROVIDE RADIUS TYPE FITTINGS FABRICATED OF MULTIPLE SECTIONS WITH MAXIMUM 15 DEG. CHANGE OF DIRECTION PER SECTION. UNLESS DETAILED OTHERWISE, USE 45 DEG. LATERALS AND 45 DEG. ELBOWS FOR BRANCH TAKEOFF CONNECTIONS. WHERE 90 DEG. BRANCHES ARE INDICATED, PROVIDE CONICAL TYPE TEES.

PROVIDE DUCT SEALANT AND/OR CEMENT WHICH IS NON-HARDENING, NON-MIGRATING MASTIC OR OF LIQUID ELASTIC SEALANT, TYPE APPLICABLE FOR FABRICATION/INSTALLATION DETAIL, AS COMPOUNDED AND RECOMMENDED BY MANUFACTURER SPECIFICALLY FOR SEALING JOINTS AND SEAMS IN DUCTWORK.

FLEXIBLE DUCTS SHALL EITHER BE SPIRAL-WOUND SPRING STEEL WITH FLAMEPROOF VINYL SHEATHING OR CORRUGATED ALUMINUM. THE MAXIMUM LENGTH OF FLEX DUCT ON THE SUPPLY EQUALS 5 FEET. FLEX IS NOT ALLOWED FOR RETURN, RELIEF OR EXHAUST APPLICATIONS.

FLEXIBLE DUCTS SHALL CONFORM TO THE REQUIREMENTS OF UL 181 FOR CLASS 0 OR CLASS 1 FLEXIBLE AIR DUCTS AND SHALL BE SO IDENTIFIED.

WHERE INSTALLED IN UNCONDITIONED SPACES OTHER THAN RETURN AIR PLENUMS, PROVIDE 1" THICK 1-1/2 LB. CONTINUOUS FLEXIBLE FIBERGLASS SHEATH WITH VINYL VAPOR BARRIER JACKET.

SHOP FABRICATE DUCTWORK IN 4, 8, 10 OR 12-FT LENGTHS, OR REQUIRED TO COMPLETE RUNS.

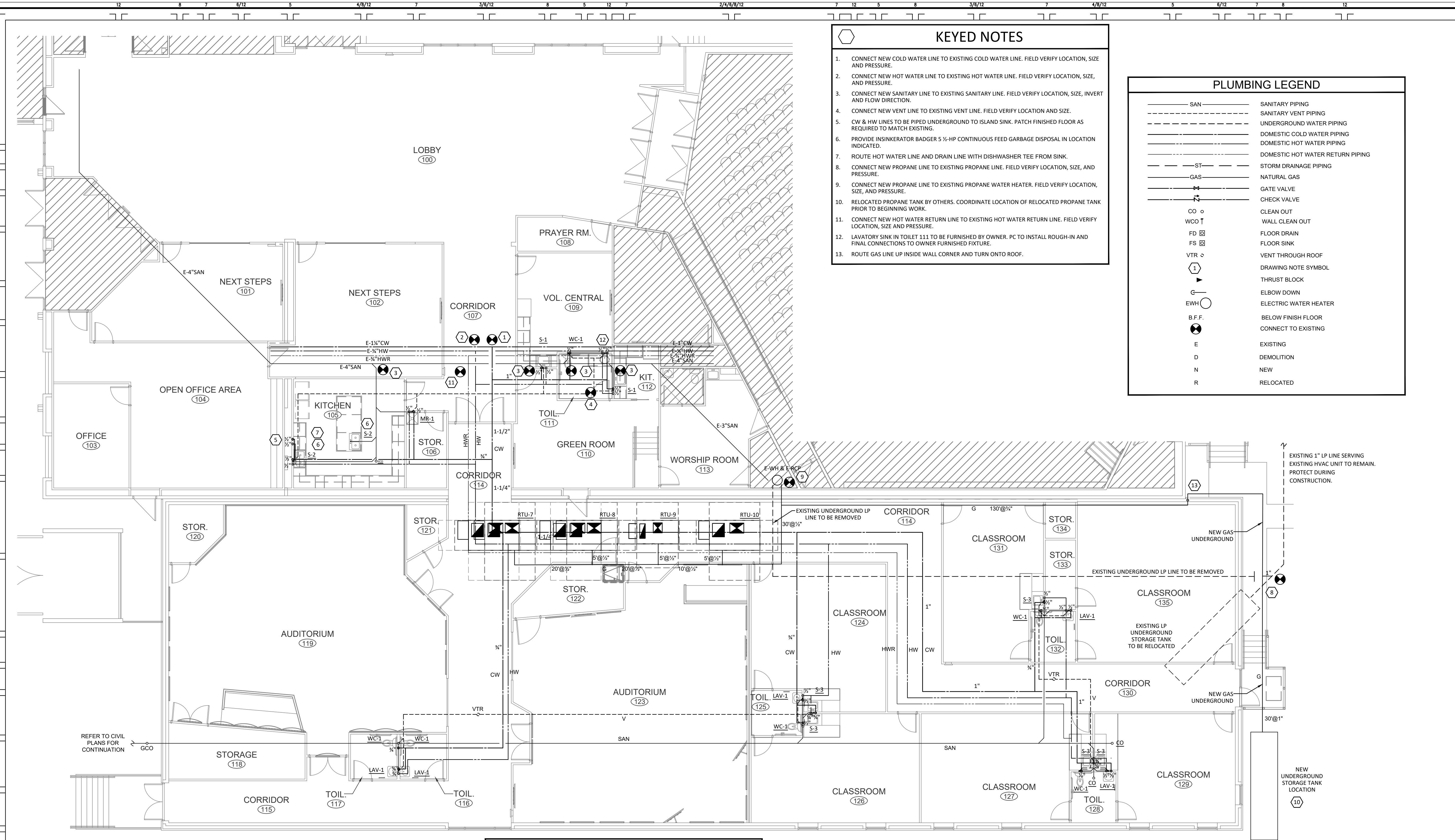
FABRICATE DUCTWORK WITH DUCT LINER IN EACH SECTION OF DUCT WHERE INDICATED. LAMINATE LINER TO INTERNAL SURFACES OF DUCT IN ACCORDANCE WITH INSTRUCTIONS BY MANUFACTURERS OF LINING AND ADHESIVE, AND FASTEN WITH MECHANICAL FASTENERS. DUCT LINER TO BE 3-LB DENSITY FOR ACOUSTIC REQUIREMENTS. 1" THICK OR AS NOTED, SIZE OF DUCTWORK SHOWN ON THE DRAWINGS IS FREE NET AREA, OUTSIDE DIMENSION OF DUCTS WILL NEED TO BE INCREASED IF LINED DUCT IS USED.

DUCT LINER SHALL BE OF FIBROUS GLASS OF THICKNESS INDICATED. 3-LB DENSITY. ALL LINERS, INSULATION AND ADHESIVES SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX OF NOT MORE THAN 50.

23 33 13 DAMPERS

DAMPERS WITH LOCKING DEVICE, WHERE ACCESSIBLE, SHALL BE RUSKIN MD-35, OPPOSED BLADE FOR RECTANGULAR DUCTS 12 INCHES AND ABOVE, AND MODEL MD-25 PARALLEL BLADE FOR DUCTS 10 INCHES AND BELOW, AND MODEL MDRS-25 FOR ROUND DUCTS. INSTALL PER MANUFACTURER'S INSTRUCTIONS. SINGLE BLADE ROUND DAMPERS WITH LOCKING DEVICE SHALL BE IN SPIN-IN COLLARS.

FIRE DAMPERS SHALL BE RUSKIN MODEL 1BD, STYLE B WITH BLADE PACKAGE OUT OF AIR STREAM. HORIZONTAL, INSTALL WHERE INDICATED ON DRAWINGS AND AS REQUIRED BY AUTHORITY HAVING LOCAL JURISDICTION.



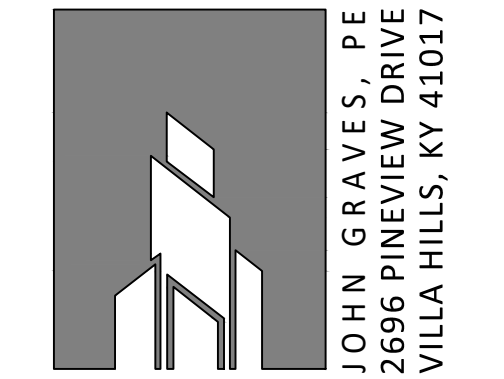
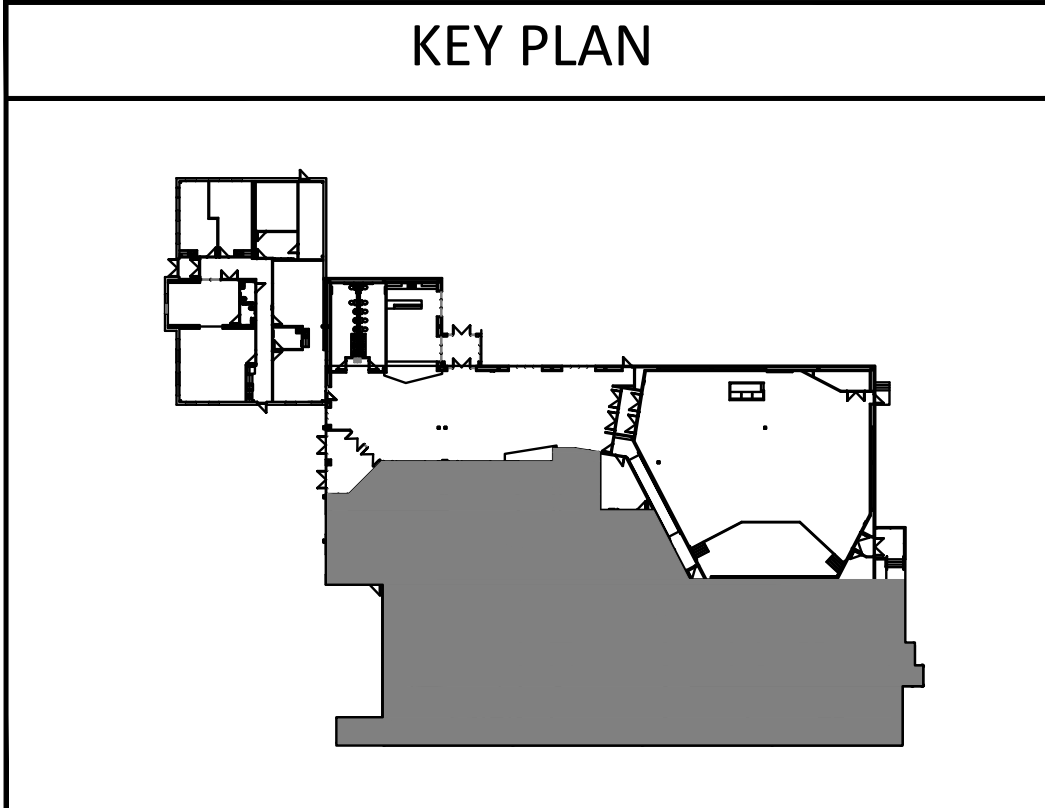
1 PLUMBING FLOOR PLAN
1/8" = 1'-0"

- ### KEYED NOTES
1. CONNECT NEW COLD WATER LINE TO EXISTING COLD WATER LINE. FIELD VERIFY LOCATION, SIZE AND PRESSURE.
 2. CONNECT NEW HOT WATER LINE TO EXISTING HOT WATER LINE. FIELD VERIFY LOCATION, SIZE, AND PRESSURE.
 3. CONNECT NEW SANITARY LINE TO EXISTING SANITARY LINE. FIELD VERIFY LOCATION, SIZE, INVERT AND FLOW DIRECTION.
 4. CONNECT NEW VENT LINE TO EXISTING VENT LINE. FIELD VERIFY LOCATION AND SIZE.
 5. CW & HW LINES TO BE PIPED UNDERGROUND TO ISLAND SINK. PATCH FINISHED FLOOR AS REQUIRED TO MATCH EXISTING.
 6. PROVIDE INSINKERATOR BADGER 5 1/2-HP CONTINUOUS FEED GARBAGE DISPOSAL IN LOCATION INDICATED.
 7. ROUTE HOT WATER LINE AND DRAIN LINE WITH DISHWASHER TEE FROM SINK.
 8. CONNECT NEW PROPANE LINE TO EXISTING PROPANE LINE. FIELD VERIFY LOCATION, SIZE, AND PRESSURE.
 9. CONNECT NEW PROPANE LINE TO EXISTING PROPANE WATER HEATER. FIELD VERIFY LOCATION, SIZE, AND PRESSURE.
 10. RELOCATED PROPANE TANK BY OTHERS. COORDINATE LOCATION OF RELOCATED PROPANE TANK PRIOR TO BEGINNING WORK.
 11. CONNECT NEW HOT WATER RETURN LINE TO EXISTING HOT WATER RETURN LINE. FIELD VERIFY LOCATION, SIZE AND PRESSURE.
 12. LAVATORY SINK IN TOILET 111 TO BE FURNISHED BY OWNER. PC TO INSTALL ROUGH-IN AND FINAL CONNECTIONS TO OWNER FURNISHED FIXTURE.
 13. ROUTE GAS LINE UP INSIDE WALL CORNER AND TURN ONTO ROOF.

PLUMBING LEGEND	
	SANITARY PIPING
	SANITARY VENT PIPING
	UNDERGROUND WATER PIPING
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	DOMESTIC HOT WATER RETURN PIPING
	STORM DRAINAGE PIPING
	NATURAL GAS
	GATE VALVE
	CHECK VALVE
	CLEAN OUT
	WALL CLEAN OUT
	FLOOR DRAIN
	FLOOR SINK
	VENT THROUGH ROOF
	DRAWING NOTE SYMBOL
	THRUST BLOCK
	ELBOW DOWN
	ELECTRIC WATER HEATER
	BELOW FINISH FLOOR
	CONNECT TO EXISTING
	EXISTING
	DEMOLITION
	NEW
	RELOCATED

- ### GENERAL NOTES
- A. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK. VERIFY ALL DIMENSIONS. DRAWINGS ARE ILLUSTRATIVE AND MAY NOT REFLECT EXACT CONDITIONS OR DIMENSIONS.
- B. DO NOT SCALE THE DRAWINGS. DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL ARRANGEMENT OF EQUIPMENT AND SYSTEMS. THEY ARE NOT INTENDED TO SHOW EVERY OFFSET, FITTING AND COMPONENT. DO NOT USE THE PLANS FOR EXACT LOCATION OF EQUIPMENT, FIXTURES OR ARCHITECTURAL ITEMS SUCH AS WALLS, WINDOWS, SOFFITS, AND PILASTERS. SPECIFIC LOCATIONS, MOUNTING HEIGHTS AND OVERALL DIMENSIONS OF DEVICES AND FIXTURES ARE TO BE OBTAINED FROM THE ARCHITECTURAL DRAWINGS AND DETAILS WHEN AVAILABLE.
- C. DRAWINGS SPECIFIC TO THIS TRADE DO NOT LIMIT THE RESPONSIBILITY OR WORK REQUIRED BY THE CONTRACT DOCUMENTS REFER TO DRAWINGS AND SPECIFICATIONS OF OTHER TRADES FOR COMPLETE INFORMATION PRIOR TO BID.
- D. WHERE CONFLICTS EXIST AMONG DRAWINGS, SPECIFICATIONS AND EQUIPMENT SCHEDULES, THE MORE STRINGENT SHALL APPLY. NOTIFY THE ENGINEER OF ALL CONFLICTS FOR RESOLUTION OR INTERPRETATION.
- E. NOTIFY THE OWNER IN WRITING AND FIELD VERIFY CONDITIONS BEFORE PERFORMING ANY SAW CUTTING, TRENCHING, CORING OR ANY OTHER STRUCTURAL MODIFICATIONS. INSURE THAT NO ADVERSE EFFECT TO THE BUILDING'S STRUCTURAL INTEGRITY WILL OCCUR.
- F. ANY EXISTING CONDITION DISCOVERED DURING THE DEMOLITION OR CONSTRUCTION PROCESS WHICH, BY GENERALLY ACCEPTED CONSTRUCTION PRACTICES, SHOULD BE REMEDIATED, SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER/ARCHITECT IMMEDIATELY, IN WRITING.
- G. OBTAIN WRITTEN APPROVAL FROM THE ENGINEER BEFORE REUSING ANY EXISTING EQUIPMENT, COMPONENTS OR OPENINGS.
- H. INSULATE PLUMBING LINES IN EXTERIOR WALLS TO PREVENT FREEZING.
- I. COORDINATE ROOF WORK WITH ROOFING CONTRACTOR TO ASSURE THAT THE ROOF WARRANTY IS NOT VOIDED.

- ### GENERAL DEMOLITION NOTES
- A. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO START OF WORK. DUCT SIZES INDICATED ARE FOR REFERENCE ONLY. MECHANICAL CONTRACTOR SHALL VERIFY EXISTING DUCT SIZES THAT ARE AFFECTED BY THIS WORK, PRIOR TO BEGINNING WORK OR FABRICATING NEW DUCTWORK. DRAWINGS ARE ILLUSTRATIVE AND MAY NOT REFLECT EXACT CONDITIONS OR DIMENSIONS.
- B. THE DEMOLITION DRAWINGS ARE INTENDED TO SHOW THE GENERAL INTENT OF THE EXISTING HEATING AND VENTILATION SYSTEM DEMOLITION WORK. THESE DRAWINGS WERE CREATED BY USING EXISTING DRAWINGS AND BY CASUAL SITE VISITS. THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE ALL EXISTING PIPING, DUCTWORK, AND MISCELLANEOUS HARDWARE ASSOCIATED WITH MECHANICAL EQUIPMENT TO BE REMOVED UNLESS OTHERWISE INDICATED.
- C. THE HVAC CONTRACTOR SHALL TURN OVER TO OWNER OR DISPOSE OF OFF SITE ACCORDING TO OWNERS DIRECTIONS ANY MECHANICAL ITEMS BEING REMOVED.
- D. ANY OPENING IN WALLS OR ROOF LEFT WITH VOID SPACES BY THE REMOVAL OF ANY MECHANICAL EQUIPMENT, THE HVAC CONTRACTOR SHALL PATCH THEM TO MATCH ADJACENT SURFACES. ALL PATCHING & FINISHING SHALL BE DONE BY SKILLED WORKMEN IN THE TRADE.
- E. NOTIFY THE OWNER IN WRITING AND FIELD VERIFY CONDITIONS BEFORE PERFORMING ANY SAW CUTTING, TRENCHING, CORING OR ANY OTHER STRUCTURAL MODIFICATIONS. INSURE THAT NO ADVERSE EFFECT TO THE BUILDING'S STRUCTURAL INTEGRITY WILL OCCUR.
- F. ANY EXISTING CONDITION DISCOVERED DURING THE DEMOLITION OR CONSTRUCTION PROCESS WHICH, BY GENERALLY ACCEPTED CONSTRUCTION PRACTICES, SHOULD BE REMEDIATED, SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER/ARCHITECT IMMEDIATELY IN WRITING.
- G. THE HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CLEAN-UP AND TO REPAIR OR REPLACE ANYTHING DAMAGED DURING CONSTRUCTION ACTIVITIES. PROVIDE 1-YEAR WARRANTY FOR ALL REPAIR WORK.
- H. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING FLOOR PROTECTION TO PREVENT DAMAGE TO FLOORING DURING CONSTRUCTION ACTIVITIES.



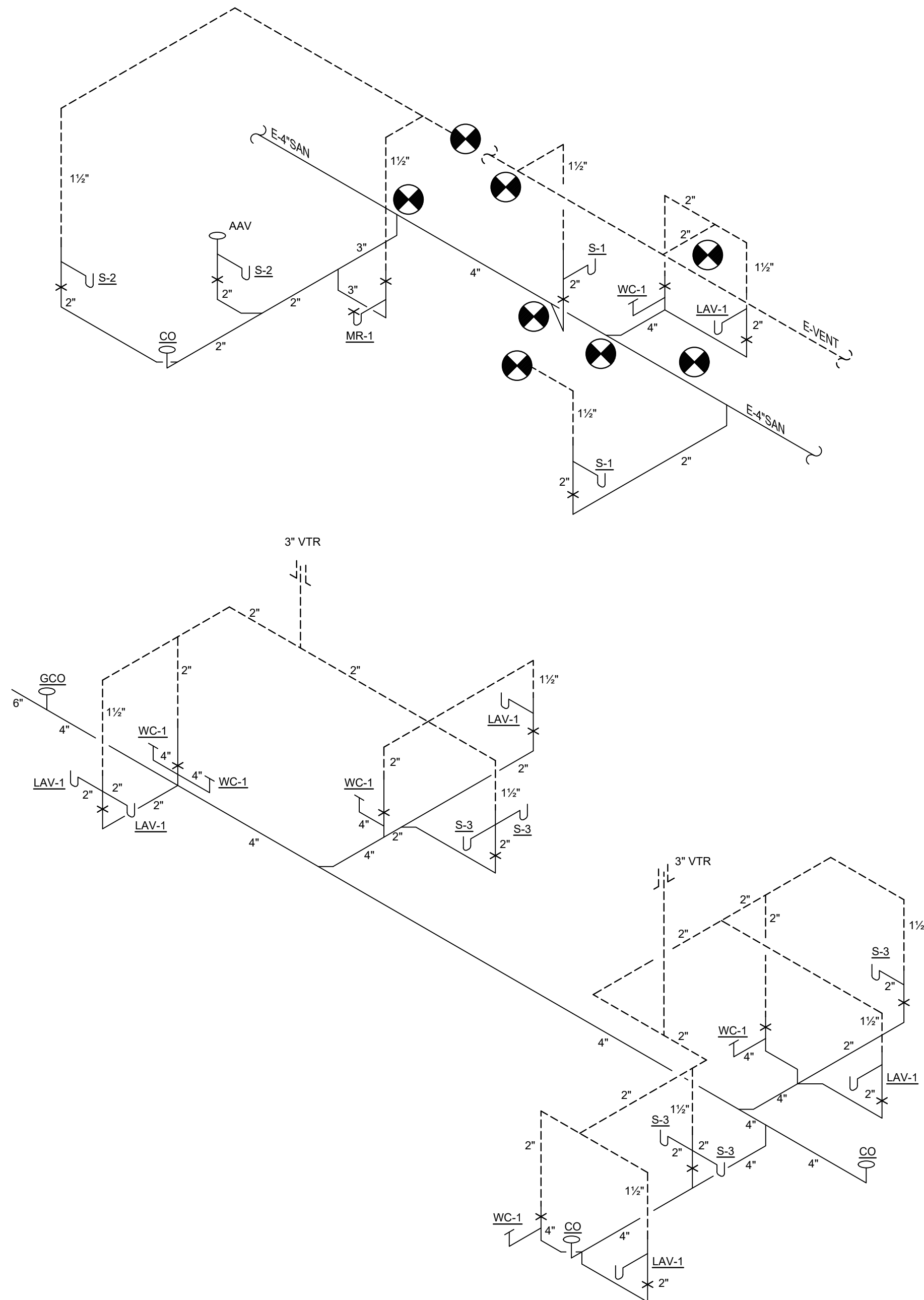
01/29/2021

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

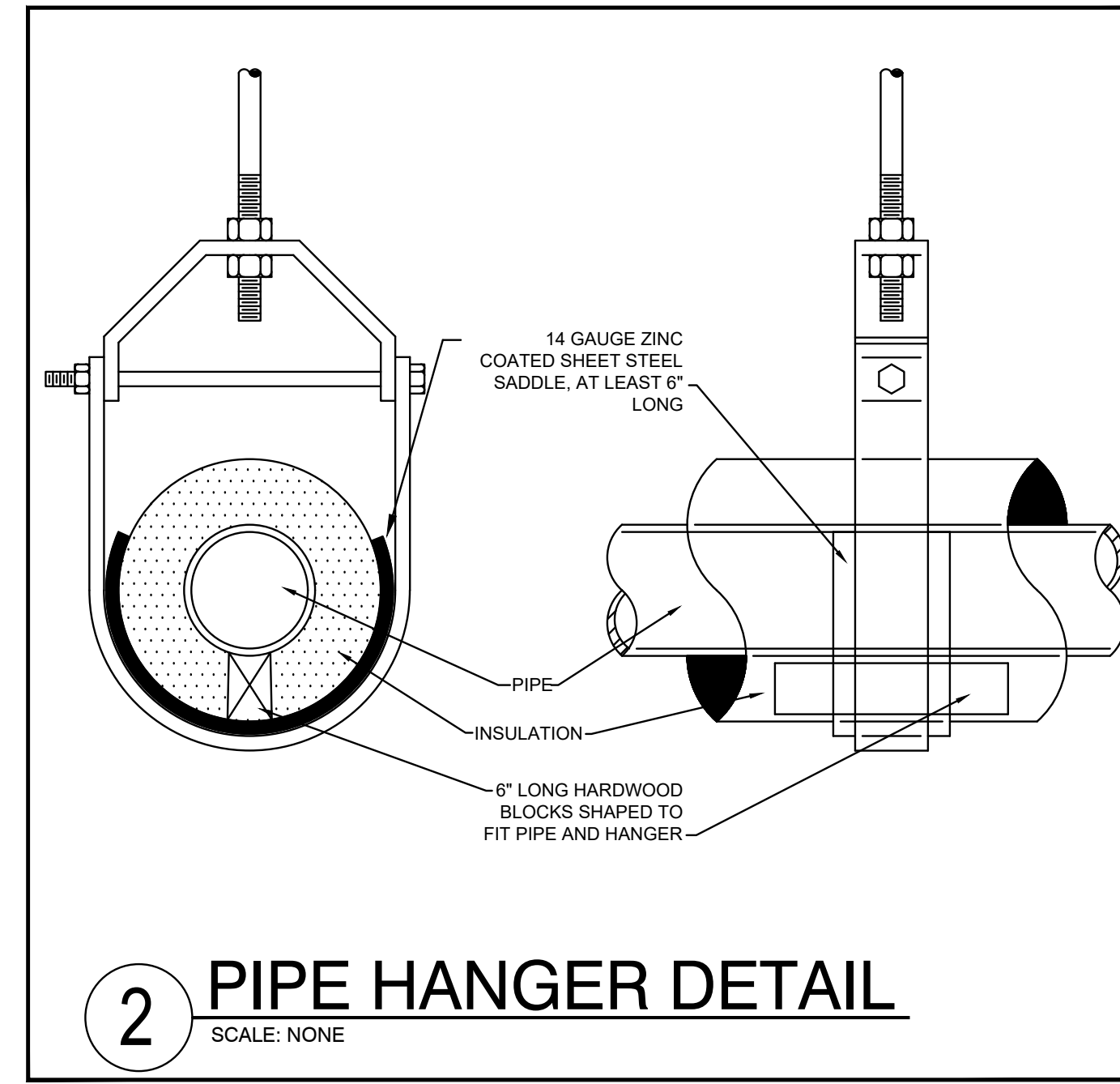
PROJECT #: 11351
ISSUE DATE: 01/29/2020
DRAWN BY: B. DUNN
CHECKED BY: J. GRAVES

REVISIONS:

SHEET No.
P1.0
PLUMBING FLOOR PLAN

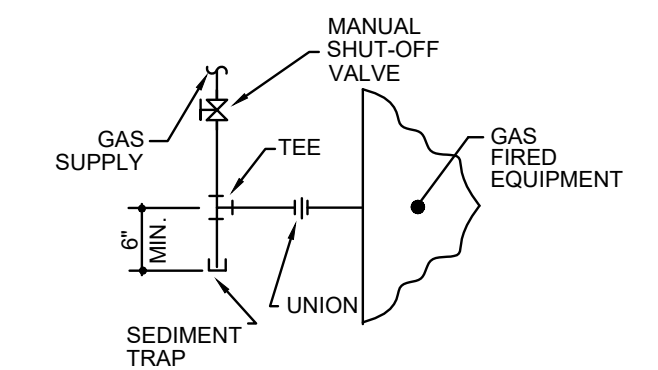


1 **SANITARY ISOMETRIC**
SCALE: NONE



2 **PIPE HANGER DETAIL**
SCALE: NONE

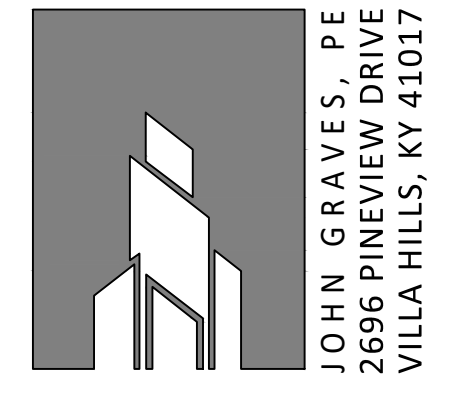
PLUMBING FIXTURE SCHEDULE					
MARK	DESCRIPTION	SAN	VENT	CW	HW
WC-1	WATER CLOSET: WHITE VITREOUS CHINA, FLOOR MOUNTED, ELONGATED FRONT BOWL, BOLT CAPS, 1.6 GALLONS/FLUSH, EQUAL TO AMERICAN STANDARD CHAMPION PRO 211AA.005, 4\"/>	4"	2"	1/2"	-
LAV-1	LAVATORY: WALL HUNG 20"x18" VITREOUS CHINA AMERICAN STANDARD "LUCERNE" 0355.012, WITH SLOAN OPTIMA EBF-85 BATTERY POWERED, SENSOR ACTIVATED FAUCET WITH GRID DRAIN, SUPPLIES, STOPS AND 1-1/4" P" TRAP. SUPPLIED WITH WALL HANGER. INSULATE PIPING BELOW LAVATORY USING TRUEBRO "LAVGUARD2-" MOUNT AT BARRIER-FREE HEIGHT, ASSE 1070 TEMPERING ANTI-SCALD VALVE - SET TO 110°, EQUAL TO POWERS HYDROGUARD LF480. MEETS ADA GUIDELINES.	1-1/2"	1-1/2"	1/2"	1/2"
S-1	COUNTERTOP SINK: ELKAY SINGLE BOWL STAINLESS STEEL SINK, LR2219, 22"x19-1/2"x7-5/8", SLOAN OPTIMA EBF-750 BATTERY POWERED, SENSOR ACTIVATED FAUCET WITH LK-99 CRUMB CUP STRAINER AND DRAIN. PROVIDE 1-1/2" P" TRAP AND SUPPLIES WITH STOPS.	1-1/2"	1-1/2"	1/2"	1/2"
S-2	COUNTERTOP SINK: ELKAY DOUBLE BOWL STAINLESS STEEL SINK, LR3319, 33"x19-1/2"x7-5/8", ELKAY LK02423BH "HARCO" FAUCET WITH LK-99 CRUMB CUP STRAINER AND DRAIN. PROVIDE 1-1/2" P" TRAP AND SUPPLIES WITH STOPS.	1-1/2"	1-1/2"	1/2"	1/2"
S-3	COUNTERTOP SINK: ELKAY SINGLE BOWL STAINLESS STEEL SINK, LRAD2219, 22"x19-1/2"x5-1/2", SLOAN OPTIMA EBF-750 BATTERY POWERED, SENSOR ACTIVATED FAUCET WITH LK-99 CRUMB CUP STRAINER AND DRAIN. PROVIDE 1-1/2" P" TRAP AND SUPPLIES WITH STOPS.	1-1/2"	1-1/2"	1/2"	1/2"
MR-1	MOP RECEPTOR: 24"x 24"x 10" ONE PIECE MOLDED STONE WITH 3" DRAIN, FIAT #MSB-2424 WITH #889-CC-24" MOP HANGER. FAUCET FIAT #830-AA WITH VACUUM BREAKER, PAIL HOOK & BRACE.	3"	1-1/2"	1/2"	1/2"
CO	CLEAN OUT: SIOUX CHIEF ON GRADE ADJUSTABLE CLEAN OUT 834-PNR, PVC BASE ADAPTER, ROUND NICKEL-BRONZE COVER.	-	-	-	-
AAV	AIR ADMITTANCE VALVE: SIOUX CHIEF 250 SERIES TURBOVENT.	-	-	-	-
GCO	GRADE CLEAN OUT: JAY R SMITH 4250 SERIES CLEAN OUT FOR UNFINISHED AREAS.	-	-	-	-



EQUIPMENT PROPANE PIPING
NOT TO SCALE

PROPANE LOADS	
EQUIPMENT	MBH
RTU-7	130
RTU-8	130
RTU-9	65
RTU-10	180
EX WATER HEATER	61
EX HVAC UNIT	259
TOTAL	825

- PROPANE NOTES:**
- A. PROPANE LINE SIZING BASED ON INLET PRESSURE OF 5 PSI AND PRESSURE DROP OF 3.5 PSI. 2015 IFGC TABLE 402.4(s) SCHEDULE 40 METALLIC PIPE.
 - B. INDICATED LENGTHS OF PIPE ARE EQUIVALENT DEVELOPED LENGTHS. MAXIMUM DEVELOPED LENGTH IS 240'.
 - C. ALL PROPANE PIPING OTHER THAN BLACK STEEL SHALL BE PERMANENTLY IDENTIFIED BY A YELLOW LABEL AT INTERVALS OF NOT MORE THAN 5'-0".
 - D. ALL OUTSIDE EXPOSED PROPANE PIPING SHALL BE COATED WITH A RUST INHIBITOR TO PREVENT ATMOSPHERIC CORROSION.
 - E. PROPANE PIPING SHALL BE INSPECTED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS PER IFGC 406.1, NFPA 54 AND ANSI B 31.2.
 - F. MAINTAIN 3 FEET AWAY FROM ELECTRIC LINE.
 - G. PROVIDE ANVIL H-BLOCK HBS SUPPORT WITH H-164 STEEL CHANNEL ROOFTOP SUPPORT SYSTEM WHEN PIPING IS INSTALLED ON ROOFTOP.



JOHN GRAVES MECHANICAL
2696 PINEVIEW DRIVE
VILLA HILLS, KY 41017



01/29/2021

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 11351
ISSUE DATE: 01/29/2020
DRAWN BY: B. DUNN
CHECKED BY: J. GRAVES

REVISIONS:

SHEET No.
P2.0
PLUMBING DETAILS

DIVISION 22 - PLUMBING SPECIFICATION

22 05 00 COMMON WORK RESULTS FOR PLUMBING

ALL PLUMBING WORK AND TESTS SHALL BE DONE IN STRICT ACCORDANCE WITH THE LATEST STATE, COUNTY, AND LOCAL REGULATIONS, LAWS, AND ORDINANCES WHICH MAY BE APPLICABLE.

BEFORE SUBMITTING A BID, EXAMINE DOCUMENTS OF ALL OTHER TRADES. VISIT THE SITE AND GET ACQUAINTED WITH ALL CONDITIONS THAT MAY IN ANY WAY AFFECT THE EXECUTION OF THIS CONTRACT. TAKE MEASUREMENTS AND BE RESPONSIBLE FOR EXACT SIZE AND LOCATIONS OF ALL OPENINGS REQUIRED. VERIFY INSTALLATION MAY BE MADE IN COMPLETE ACCORDANCE WITH ALL PERTINENT CODES AND REGULATIONS. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE PROFESSIONAL ENGINEER OF RECORD. DO NOT PROCEED WITH THE INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

IT IS NOT THE INTENT OF THE DRAWINGS THAT EXISTING CONDITIONS BE ACCURATELY SHOWN. EXISTING PLUMBING WORK IS SHOWN TO LIMITED EXTENT ON DRAWINGS AND IS SHOWN FOR GENERAL REFERENCE ONLY. LOCATIONS AND INFORMATION WERE DERIVED FROM CURSORY SITE VISUAL OBSERVATIONS OR FROM DOCUMENTS THAT WERE PREPARED FOR PREVIOUSLY INSTALLED WORK WHEN AVAILABLE.

THE WORK COVERED BY THESE SPECIFICATIONS SHALL CONSIST OF PROVIDING ALL NEW MATERIAL, LABOR, EQUIPMENT, AND SERVICES NECESSARY FOR A COMPLETE PLUMBING INSTALLATION AS SPECIFIED HEREIN. WORK IN THIS SECTION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING ITEMS:

- PLUMBING FIXTURES

WHENEVER THE WORDS "CONTRACTOR" APPEAR ON PLUMBING DRAWINGS OR IN THESE SPECIFICATIONS, IT SHALL REFER TO THE PLUMBING SUB-CONTRACTOR. WHENEVER THE WORD "PROVIDE" APPEARS IN THESE DOCUMENTS, IT SHALL BE INTERPRETED TO MEAN "FURNISH AND INSTALL".

COORDINATE ALL WORK WITH THE OWNER TO MINIMIZE INTERRUPTION OF BUILDING OPERATION.

COORDINATE THE INSTALLATION OF PLUMBING ITEMS WITH THE SCHEDULES FOR WORK OF ALL OTHER TRADES TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

THIS CONTRACTOR SHALL VERIFY AND SATISFY HIMSELF THAT ALL EQUIPMENT FURNISHED WILL PROPERLY FIT IN THE SPACE PROVIDED, THAT IT WILL FUNCTION PROPERLY, AND THAT ALL PARTS OF EQUIPMENT REQUIRING SERVICE ARE READILY ACCESSIBLE.

ALL PIPING SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING WALLS AND FRAMING SYSTEM. ALL VERTICAL RUNS SHALL BE HELD AGAINST WALLS, COLUMNS, ETC., AS POSSIBLE TO PERMIT MAKING OF PIPE JOINTS.

CONTRACTOR SHALL PROVIDE A GUARANTEE IN WRITTEN FORM STATING THAT ALL WORK SHALL BE FREE OF DEFECTS OR ERRORS, AND ALL EQUIPMENT, MATERIALS, OR PARTS FOR A PERIOD OF ONE YEAR FROM THE DATE OF OWNER'S FINAL ACCEPTANCE AND SHALL REPAIR, REVISE OR REPLACE AT NO COST TO THE OWNER ANY SUCH DEFECTS OCCURRING WITHIN THE GUARANTEE PERIOD.

CONTRACTOR SHALL ALSO STATE IN WRITTEN FORM THAT ANY ITEMS OR OCCURRENCES ARISING DURING THE GUARANTEE PERIOD WILL BE ATTENDED TO IN A TIMELY MANNER AND WILL IN NO CASE EXCEED THREE (3) WORKING DAYS FROM DATE OF NOTIFICATION BY OWNER.

PROVIDE A COMPLETE INSTALLATION IN CONFORMANCE WITH THE FOLLOWING STANDARDS:
AGA: AMERICAN GAS ASSOCIATION
ASPE: AMERICAN SOCIETY OF PLUMBING ENGINEERS
NFPA: NATIONAL FIRE PROTECTION ASSOCIATION
STATEWIDE BUILDING CODE
INTERNATIONAL PLUMBING CODE

CONTRACTOR SHALL DO ALL CUTTING AND PATCHING REQUIRED FOR INSTALLATION OF THIS WORK. ALL OPENINGS IN WALLS, FLOORS OR CEILINGS SHALL BE PROPERLY SEALED AND RESTORED IN KIND. FLASH AND COUNTERFLASH AT ROOF OPENINGS.

ALL EQUIPMENT SHALL BE LISTED AND LABELED, UNLESS OTHERWISE APPROVED.

ALL WIRING SHALL MEET THE REQUIREMENTS LISTED IN THE ELECTRICAL SPECIFICATIONS. ALL CONTROL AND INTERLOCK WIRING AND CONDUIT (120V OR 24V) SHALL BE BY THE PLUMBING CONTRACTOR.

EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE CONDITIONS OF LISTING AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND THIS CODE.

CLEANING: THIS CONTRACTOR SHALL REMOVE FROM THE PREMISES ALL ACCUMULATION OF DIRT, DEBRIS, WASTE MATERIALS AND RUBBISH CAUSED BY HIS EMPLOYEES OR WORK AT LEAST ONCE A WEEK, EXCEPT THAT COMBUSTIBLE MATERIALS SHALL BE REMOVED DAILY.

DURING PROGRESS OF THE WORK, MAINTAIN ON DRAWINGS AT THE SITE, AN ACCURATE RECORD OF THE INSTALLATION OF THE MECHANICAL SYSTEM, INDICATING ALL ITEMS WHICH HAVE BEEN CHANGED OR ADDED.

APPLY FOR AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED BY LOCAL AUTHORITY, FOR THE APPROVAL OF WORK.

A CERTIFICATE OF FINAL INSPECTION AND APPROVAL SHALL BE SUBMITTED WITH THE CONTRACTOR'S REQUEST FOR FINAL PAYMENT. NO FINAL PAYMENT WILL BE APPROVED WITHOUT THIS CERTIFICATE.

GUARANTEE ALL WORKMANSHIP, MATERIAL, AND EQUIPMENT AND REPLACE ANY FOUND DEFECTIVE WORK WITHOUT COST TO THE OWNER, FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE.

EXISTING CONDITIONS

DO NOT REUSE REMOVED PLUMBING MATERIALS UNLESS SPECIFICALLY INDICATED ON DRAWINGS. EXISTING SYSTEMS MAY BE UTILIZED ONLY TO THE EXTENT INDICATED ON DRAWINGS.

IF REQUIRED TO ACCOMMODATE CONSTRUCTION RELATED ACTIVITIES TEMPORARILY REMOVE, STORE IN PROTECTED LOCATION ON SITE, AND REINSTALL CONFLICTING PLUMBING EQUIPMENT, OR DEVICES THAT ARE TO REMAIN OR TO BE RELOCATED.

WHERE THE TERM "DEMOLITION" IS USED HEREIN, INTERPRET IT TO MEAN "DEMOLITION" OR "SELECTIVE DEMOLITION" WHERE APPLICABLE.

PROVIDE PLUMBING DEMOLITION WORK AS REQUIRED TO ACCOMMODATE PROJECT DEMOLITION AND AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION. DISCONNECT AND REMOVE WORK TO BE ABANDONED, AND AS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES, IN AREAS AFFECTED BY THIS PROJECT.

LEGALLY DISPOSE OF MATERIALS TO SALVAGED OR RETAINED.

22 05 03 SUBMITTALS FOR PLUMBING

DESIGN BASIS MANUFACTURERS OF MATERIAL AND EQUIPMENT ARE SPECIFIED AND PLANS ARE DETAILED ACCORDING TO THIS MATERIAL. CONTRACTOR SHALL BASE HIS BID ON FURNISHING AND INSTALLING THIS MAKE OF MATERIAL AND EQUIPMENT.

SHOP DRAWINGS SHALL INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING: MAKE, MODEL NUMBER, DIMENSIONS, ELECTRICAL CHARACTERISTICS (RATING). SHOP DRAWINGS SHALL BEAR NAME OF PROJECT AND LOCATION.

THE MAKE, TYPE, AND FINISH OF ALL MATERIALS, EQUIPMENT AND APPARATUS SHALL BE APPROVED BY THE ENGINEER/ARCHITECT IN WRITING BEFORE THE CONTRACTOR INSTALLS IT. ANY SUBSTITUTION FOR ANY SPECIFIED EQUIPMENT OR MATERIAL SHALL BE FIRST APPROVED BY THE ENGINEER/ARCHITECT IN WRITING.

SUBMIT SHOP DRAWINGS ON THE FOLLOWING ITEMS FOR REVIEW BEFORE FABRICATION OR SHIPMENT:

- PLUMBING FIXTURES

MAINTENANCE MANUALS: FURNISH THREE FINAL COPIES, INCLUDING WRITING

DIAGRAMS, MAINTENANCE AND OPERATING INSTRUCTIONS, PARTS LISTINGS, AND COPIES OF OTHER SUBMITTALS INDICATED FOR INCLUSION.

ANY CHANGES TO ITEMS SPECIFIED MUST BE SUBMITTED AS A SUBSTITUTION, WITH COMPLETE DOCUMENTATION OF PRICE DIFFERENTIAL AND EQUIPMENT DETAILS.

1. CERTAIN MAKES OF MATERIALS AND EQUIPMENT ARE SPECIFIED AND DRAWINGS ARE DETAILED ACCORDING TO THIS MATERIAL. CONTRACTOR SHALL BASE HIS BID ON FURNISHING AND INSTALLING THE SPECIFIED MAKE AND MODEL OR THE "EQUIVALENT" MODEL OF ANOTHER OF THE SPECIFIED MANUFACTURERS WHICH MEETS ALL THE QUALIFICATIONS OF THE SPECIFIED ITEMS.

2. WHERE MORE THAN ONE MAKE OF MATERIAL OR EQUIPMENT IS SPECIFIED, THE CONTRACTOR SHALL STATE IN HIS BID MAKE HE PROPOSES TO FURNISH. SHOP DRAWING APPROVAL SHALL BE OBTAINED PRIOR TO SHIPMENT OF EQUIPMENT.

3. "EQUIVALENT" MATERIALS AND EQUIPMENT ARE THOSE OF MANUFACTURER WHICH MEET THE SAME STANDARDS OF PERFORMANCE, HAVE EQUAL OR BETTER MATERIALS OF CONSTRUCTION, AND EQUAL OR BETTER MAINTENANCE CHARACTERISTICS. ALL EQUIVALENTS MUST FIT THE SPACE PROVIDED IN THE BUILDING STRUCTURE WHERE THE USE OF EQUIVALENTS RESULTS IN CHANGES. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR SUCH CHANGES AND ANY COSTS RESULTING FROM THEM.

4. IF THE CONTRACTOR INTENDS TO USE EQUIPMENT OR MATERIALS NOT SPECIFIED, HE MUST RECEIVE APPROVAL FROM THE ENGINEER/ARCHITECT PRIOR TO THE AWARD OF THE CONTRACT. THIS PRIOR APPROVAL ONLY PERMITS SUBMITTAL OF A PARTICULAR MANUFACTURER'S EQUIPMENT IN GENERAL. THE SPECIFIED ITEM TO BE USED MUST AGAIN BE SUBMITTED FOR FINAL REVIEW AS SPECIFIED UNDER "SHOP DRAWINGS".

22 05 23 GENERAL DUTY VALVES

GENERAL

PROVIDE STOPS OR ISOLATION VALVES ON DOMESTIC WATER SUPPLIES TO ISOLATE HOT AND COLD WATER TO EACH FIXTURE, INCLUDING ALL EQUIPMENT AND EQUIPMENT PROVIDED BY OTHERS. FIXTURES, ITEM OR UNITS FURNISHED BY THE MANUFACTURER WITH INTEGRAL STOPS OR STOPS SPECIFIED WITH THE FIXTURE ARE CONSIDERED TO BE PROPERLY VALVED AT THE FIXTURES.

ACCESS SHALL BE PROVIDED TO ALL VALVES. VALVES ON DOMESTIC WATER PIPING SHALL BE BALL VALVES.

[BALL VALVES: 1" INCH AND SMALLER: 2-PIECE BODY, 600 PSI CWP, 150 PSI SWP, CAST BRONZE BODY, FULL PORT, TEFLON SEATS, BLOWOUT-PROOF STEM, ADJUSTABLE PACKING GLAND, CHROME PLATED BRONZE BALL, WITH SCREWED ENDS, AND VINYL-COVERED STEEL HANDLE. PROVIDE SOLDER ENDS. PROVIDE EXTENDED VALVE STEMS FOR VALVES USED ON INSULATED LINES. PROVIDE NIBCO SERIES 585-70-N.S.]

[BALL VALVES: 1-1/4 INCH TO 3 INCH: 3-PIECE BODY, 600 PSI CWP, 150 PSI SWP, CAST BRONZE BODY, CONVENTIONAL PORT, TEFLON SEATS, BLOWOUT-PROOF STEM, ADJUSTABLE PACKING GLAND, CHROME PLATED BRONZE BALL, SCREWED ENDS, AND VINYL-COVERED STEEL HANDLE. PROVIDE SOLDER ENDS. PROVIDE EXTENDED VALVE STEMS FOR VALVES USED ON INSULATED LINES. PROVIDE TO NIBCO SERIES 590-Y.]

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, AND ARE LIMITED TO, THE FOLLOWING:

AMERICAN VALVE, INC.
CONBRACO INDUSTRIES, INC.; APOLLO VALVES.
CRANE CO.; CRANE VALVE GROUP; CRANE VALVES.
HAMMOND VALVE.
MILWAUKEE VALVE COMPANY.
NIBCO INC.
RED-WHITE VALVE CORPORATION.
WATTS REGULATOR CO.; A DIVISION OF WATTS WATER TECHNOLOGIES, INC.

CHECK VALVES
SWING CHECK VALVES - CLASS 125, CAST BRONZE BODY AND CAP, HORIZONTAL SWING, Y-PATTERN, WITH A BRONZE DISC, AND HAVING THREADED OR SOLDER ENDS. PROVIDE SOLDER ENDS FOR DOMESTIC HOT AND COLD WATER SERVICE. PROVIDE NIBCO S-413.

22 05 29 HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

GENERAL

SUPPORT ALL PIPING AND EQUIPMENT BY HANGERS OR BRACKETS. PROVIDE STRUCTURAL STEEL MEMBERS WHERE REQUIRED TO SUPPORT PIPING AND EQUIPMENT. NO PORTION OF PIPING OR VALVES SHALL BE SUPPORTED BY EQUIPMENT.

DELEGATED DESIGN
FOR EQUIPMENT SUPPORTS, THIS CONTRACTOR SHALL RETAIN A QUALIFIED PROFESSIONAL ENGINEER TO PROVIDE SUPPORT CALCULATIONS OF STATIC AND DYNAMIC LOADING DUE TO OPERATING EQUIPMENT WEIGHT, SEISMIC AND WIND FORCES. THE SIGNED AND SEALED CALCULATIONS AND DETAILS SHALL BE SUBMITTED BY THE RETAINED PROFESSIONAL ENGINEER.

PIPING

PROVIDE HANGERS, SUPPORTS, CLAMPS AND ATTACHMENTS TO SUPPORT PIPING PROPERLY FROM BUILDING STRUCTURE. ARRANGE FOR GROUPING OF PARALLEL RUNS OF HORIZONTAL PIPING SUPPORTED TOGETHER ON FIELD-FABRICATED, HEAVY-DUTY TRAPEZE HANGERS WHERE POSSIBLE. WHERE PIPING OF VARIOUS SIZES IS SUPPORTED TOGETHER BY TRAPEZE HANGERS, SPACE HANGERS FOR SMALLER PIPE SIZE OR PROVIDE INTERMEDIATE SUPPORTS FOR SMALLER DIAMETER PIPE AS SPECIFIED ABOVE FOR INDIVIDUAL PIPE HANGERS.

INDIVIDUAL PIPE HANGERS TO BE ANVIL INTERNATIONAL CLEVIS HANGER FIG. 260, ELCEN. ROD SIZES TO CONFORM TO THE FOLLOWING: 3/8" RODS FOR 3/4" TO 2" PIPE; 1/2" RODS FOR 2-1/2" TO 3" PIPE; 5/8" RODS FOR 4" TO 5" PIPE; 3/4" RODS FOR 6" PIPE.

HANGERS SHALL BE SIZED TO ALLOW INSULATION TO PASS THROUGH UNOBSTRUCTED, PROVIDE SADDLE SUPPORT FOR ALL HANGERS.

HANGER SPACING FOR STEEL PIPING UNLESS OTHERWISE NOTED IS TO BE AS FOLLOWS: 1-1/4" OR SMALLER TO BE 8' ON CENTER; 1-1/2" TO 2" TO BE 10' ON CENTER; 2-1/2" AND LARGER TO BE 12' ON CENTER AND AT EACH CHANGE OF DIRECTION. HANGER SPACING FOR COPPER PIPE TO BE AS FOLLOWS: 1" OR SMALLER 6' ON CENTER; 1-1/4" OR LARGER 8' ON CENTER.

HANGER SPACE FOR CPVC AND PVC PIPE TO BE AS FOLLOWS: 1" AND SMALLER TO BE 3' ON CENTER; 1-1/4" OR LARGER TO BE 4' ON CENTER.

PIPING SHALL ALSO BE SUPPORTED AT EACH CHANGE IN DIRECTION, VALVES AND EQUIPMENT.

22 05 53 IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PIPING

PROVIDE SELF-ADHESIVE PIPE LABELS WITH WHITE BACKGROUND AND BLACK LETTERING, CONTACT TYPE WITH PERMANENT ADHESIVE BACKING. INCLUDE IDENTIFICATION OF PIPING SERVICE USING SAME DESIGNATIONS OR ABBREVIATIONS AS USED ON THE DRAWINGS AND AN ARROW INDICATING FLOW DIRECTION.

EQUIPMENT

PROVIDE SELF-ADHESIVE PLASTIC EQUIPMENT LABELS WITH WHITE BACKGROUND AND BLACK LETTERING. CONTACT TYPE WITH PERMANENT ADHESIVE BACKING. 180 DEGREE F TEMPERATURE. INCLUDE EQUIPMENT'S DRAWING DESIGNATION AND SPECIFICATION SECTION NUMBER WHERE EQUIPMENT IS SPECIFIED.

22 07 19 PLUMBING SYSTEM INSULATION

GENERAL

INSULATION SHALL BE LISTED AND LABELED PER ASTM E 84 FOR PLENUM INSTALLATIONS EMPLOYING SLIP ON TECHNIQUES.

PROVIDE INSULATION MATERIALS, ACCESSORIES, AND FINISHES WITH SMOOTH, STRAIGHT, AND EVEN SURFACES. FREE OF VOILAGE.

MILWAUKEE VALVE COMPANY.

SURFACE PREPARATION: CLEAN AND DRY SURFACES TO RECEIVE INSULATION. REMOVE MATERIAL THAT WILL ADVERSELY AFFECT INSULATION APPLICATION.

PIPING SYSTEMS REQUIRING INSULATION

INSULATE DOMESTIC COLD WATER PIPING, ASSOCIATED FITTINGS AND VALVES WITH FLEXIBLE ELASTOMERIC 1/2" WALL THICKNESS INSULATION.

INSULATE DOMESTIC HOT WATER PIPING, ASSOCIATED FITTINGS AND VALVES WITH 1" THICK FLEXIBLE ELASTOMERIC, 1" THICK MINERAL WOOL, 1-1/2" THICK FIBERGLASS INSULATION OR PER LOCAL ENERGY CODE, WHICHEVER GREATER.

INSULATE DOMESTIC HOT WATER RETURN PIPING, ASSOCIATED FITTINGS AND VALVES WITH 1" WALL THICKNESS INSULATION OR PER LOCAL ENERGY CODE, WHICHEVER GREATER.

INSULATE WASTE PIPING ABOVE CEILINGS THAT RECEIVE CONDENSATE WITH 1/2" WALL THICKNESS INSULATION.

INSULATE EXPOSED SANITARY DRAINS, DOMESTIC WATER, DOMESTIC HOT WATER, AND STOPS FOR PLUMBING FIXTURES FOR PEOPLE WITH DISABILITIES.

FLEXIBLE ELASTOMERIC INSULATION
CLOSED-CELL, SPONGE-OR EXPANDED-RUBBER MATERIALS. COMPLY WITH ASTM C 534, TYPE I FOR TUBULAR MATERIALS AND TYPE II FOR SHEET MATERIALS.

ADHESIVES, SEALERS, AND PROTECTIVE FINISHES: AS RECOMMENDED BY INSULATION

MANUFACTURER FOR APPLICATIONS INDICATED.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, AND ARE LIMITED TO, THE FOLLOWING:

AEROFLEX USA, INC.; AEROCCEL.
ARMACELL LLC; AP ARMAFLEX.
K-FLEX USA; INSUL-LOCK, INSUL-TUBE, AND K-FLEX L.S.

FIBERGLASS INSULATION
FIBERGLASS PIPING INSULATION: ASTM C 547, CLASS 1
ENCASE PIPE FITTINGS INSULATION WITH ONE-PIECE PRE-MOLDED PVC FITTING COVERS.

VAPOR BARRIER MATERIAL: PAPER-BACKED ALUMINUM FOIL, EXCEPT AS OTHERWISE INDICATED, STRENGTH AND PERMEABILITY RATING EQUIVALENT TO ADDIONING PIPE INSULATION JACKETING.

STAPLES, BANDS, WIRES, AND CEMENT: AS RECOMMENDED BY INSULATION MANUFACTURER FOR APPLICATIONS INDICATED.

ADHESIVES, SEALERS, AND PROTECTIVE FINISHES: AS RECOMMENDED BY INSULATION MANUFACTURER FOR APPLICATIONS INDICATED.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, AND ARE LIMITED TO, THE FOLLOWING:

ARMSTRONG WORLD INDUSTRIES, INC.
OWENS-CORNING FIBERGLASS CORP.
KEENE CORP.
CERTANTEED.
JOHNS MANVILLE.

ADHESIVES

MATERIALS SHALL BE COMPATIBLE WITH INSULATION MATERIALS, JACKETS, AND SUBSTRATES AND FOR BONDING INSULATION TO ITSELF AND TO SURFACES TO BE INSULATED, UNLESS OTHERWISE INDICATED.

INSULATION FOR HANDICAP ACCESSIBLE FIXTURES

ALL HANDICAP LAVATORY P-TRAP AND ANGLE STOP ASSEMBLIES SHALL BE INSULATED WITH TRAP WRAP PROTECTIVE KIT MANUFACTURED BY PROFLO MODEL PF20ZW. ABRASION RESISTANT, ANTI-MICROBIAL VINYL EXTERIOR COVER SHALL BE SMOOTH. FOR TRAPS, THE INSULATION SHALL HAVE A CLEANOUT NUT CAP TO ALLOW SERVICE TO THE TRAP WITHOUT DISASSEMBLY. FOR STOPS, THE INSULATION SHALL HAVE A LOCK LID THAT PREVENTS TAMPERING BUT ALLOWS ACCESS WITHOUT REMOVAL OF THE INSULATION. FASTENERS SHALL REMAIN SUBSTANTIALLY OUT OF SIGHT.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS:

PROFLO

TRUEBRO

PLUMBEREX

22 11 16 DOMESTIC WATER PIPING

GENERAL

INSTALL PIPING CONCEALED FROM VIEW UNLESS NOTED OTHERWISE. FREE OF SAGS AND BENDS. DO NOT ENCLOSE, COVER, OR PUT PIPING INTO OPERATION UNTIL IT HAS BEEN INSPECTED AND APPROVED BY AUTHORITIES HAVING JURISDICTION. CLEAN AND DISINFECT POTABLE DOMESTIC WATER PIPING USING APPROVED PROCEDURES BY AUTHORITIES HAVING JURISDICTION.

INSTALL AT RIGHT ANGLES; DIAGONAL RUNS ARE PROHIBITED UNLESS OTHERWISE SHOWN. REMOVE PIPING ABOVE ACCESSIBLE CEILINGS TO ALLOW SUFFICIENT SPACE FOR CEILING PANEL REMOVAL. COORDINATE ALL PIPING WITH ALL OTHER TRADES.

PROVIDE WATER PRESSURE REGULATORS WHERE NECESSARY TO LIMIT THE INCOMING WATER PRESSURE TO 80 PSI INSIDE THE BUILDING.

DOMESTIC WATER PIPING ABOVE GROUND:

HARD COPPER TUBE, ASTM B 88, TYPE L; WROUGHT-COPPER, SOLDER-JOINT FITTINGS; AND SOLDERED JOINTS.

SOLDER FILLER METALS: ASTM B 32, LEAD-FREE ALLOYS.

FLUX: ASTM B 813, WATER FLUSHABLE.

TYPE "L"; COPPER PRESSURE-SEAL JOINT; AND PRESSURE-SEAL JOINT SYSTEMS.

FLOWGUARD GLOD CPVC PLUMBING SYSTEM. (COPPER TUBE SIZE) SCHEDULE 40 CPVC PIPE, SOCKET FITTINGS; AND SOLVENT-CEMENTED JOINTS. MEET THE FLAME /SMOKE REQUIREMENTS. COMPLY WITH NSF 61 FOR POTABLE DOMESTIC WATER PIPING AND COMPONENTS. APPROVED FOR RETURN AIR PLenums INSTALLATION AND POTABLE WATER DISTRIBUTION SYSTEM. TEST REPORT REQUIRED.

TYPE PEX-A. CROSS LINKED POLYETHYLENE TUBING FOR HOT AND COLD WATER DISTRIBUTION. ENGINEERED PLASTIC FITTINGS WITH PLASTIC COLLARS. ENGINEERED PLASTIC MANIFOLDS: USE MANUFACTURER APPROVED VALVES AND FITTINGS. BASIS OF DESIGN - UPONOR PER TUBING INC. OR JEBO MARKETING INC.

CATHODIC PROTECTION

PROVIDE DIELECTRIC INSULATION AT POINTS WHERE COPPER OR BRASS PIPE COMES IN CONTACT WITH FERROUS PIPING, REINFORCING STEEL OR OTHER DISSIMILAR METAL IN STRUCTURE.

22 11 19 DOMESTIC WATER PIPING SPECIALTIES

REDUCED PRESSURE BACKFLOW PREVENTERS

BACKFLOW PREVENTER (2" AND SMALLER) - PROVIDE A REDUCED PRESSURE BACKFLOW PREVENTER ON WATER SERVICE MAIN WHERE THE WATER SERVICE ENTERS THE BUILDING. REDUCED PRESSURE BACKFLOW PREVENTER SHALL BE SIZED EQUAL TO THE SIZE OF THE WATER SERVICE AND CONFORM TO ASSE 1013. PIPE BACKFLOW PREVENTER DISCHARGE TO APPROVED PLACE OF DISPOSAL.

DUAL CHECK VALVE BACKFLOW PREVENTER

PROVIDE A DUAL CHECK VALVE BACKFLOW PREVENTER THAT COMPLIES WITH ASSE 1022 AT CONNECTION OF DOMESTIC WATER SUPPLY TO ANY PERMANENTLY CONNECTED CANNISTED BEVERAGE DISPENSER OR WHERE INDICATED IN THE CONTRACT DOCUMENTS.

PROVIDE A DUAL CHECK VALVE BACKFLOW PREVENTER THAT COMPLIES WITH ASSE 1024 AT CONNECTION OF DOMESTIC WATER SUPPLY TO ANY POTABLE WATER DISPENSING EQUIPMENT SUCH AS ICE MAKERS, COFFEE MACHINES, TEA MACHINES, ESPRESSO MACHINES OR WHERE INDICATED IN THE CONTRACT DOCUMENTS.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, AND ARE LIMITED TO, THE FOLLOWING:

AMES FIRE & WATERWORKS; A DIVISION OF WATTS WATER TECHNOLOGIES, INC.
CONBRACO INDUSTRIES, INC.
FEBCO; A DIVISION OF WATTS WATER TECHNOLOGIES, INC.
FLOMATIC CORPORATION.

WATTS; A DIVISION OF WATTS WATER TECHNOLOGIES, INC.; WATTS REGULATOR COMPANY.

ZURN INDUSTRIES, LLC; PLUMBING PRODUCTS GROUP; WILKINS WATER CONTROL PRODUCTS.

BALANCING VALVES

PROVIDE BALANCING VALVES WHERE REQUIRED FOR PROPER BALANCING OF WATER SYSTEMS AS SHOWN ON THE CONTRACT DOCUMENTS.

BALANCING VALVES SHALL BE RED-WHITE VALVE CORPORATION MODEL 9517AB (NPT) OR MODEL 9519 (SOLDER). VALVE SHALL HAVE BRASS BODY, GLOBE VALVE REGULATION AND ISOLATION PROPERTIES. FIXED ORIFICE DESIGN FOR PRECISE MEASUREMENT. INTEGRAL MEMORY STOP TO ENSURE REPEATABLE SETTING, FULL SHUTOFF WITHOUT AFFECTING MEMORY SETTINGS, HIGH AND LOW PRESSURE METERING POINTS, PRECISION INDICATING WINDOWS, RUGGED TOP SET HAND-WEAVE ASSEMBLY, PRESSURE RATING OF 300 PSI, AND TEMPERATURE RATING OF 15 DEG. F TO 250 DEG. F.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, AND ARE LIMITED TO, THE FOLLOWING:

CRANE CO.; CRANE VALVE GROUP; CRANE VALVES.
HAMMOND VALVE.
MILWAUKEE VALVE COMPANY.

NIBCO INC.

WATTS
RED-WHITE VALVE CORP.

VACUUM BREAKERS

VACUUM BREAKERS SHALL BE WATTS MODEL LF228A FOR PIPING CONNECTIONS OR WATTS LF8 SERIES FOR HOSE CONNECTIONS. VACUUM BREAKERS SHALL COMPLY WITH ASSE 1001 FOR PIPED CONNECTIONS, ASSE 1011 FOR HOSE CONNECTIONS, BRONZE BODY AND THREADED CONNECTIONS WITH ROUGH BRONZE FINISH.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, AND ARE LIMITED TO, THE FOLLOWING:

MIFAB, INC.
PRIER PRODUCTS, INC.

WATTS; A DIVISION OF WATTS WATER TECHNOLOGIES, INC.; WATTS REGULATOR COMPANY.

ZURN INDUSTRIES, LLC; PLUMBING PRODUCTS GROUP; LIGHT COMMERCIAL PRODUCTS.

ZURN INDUSTRIES, LLC; PLUMBING PRODUCTS GROUP; WILKINS WATER CONTROL PRODUCTS

EXCESSIVE OF 80 PSIG. PRESSURE REDUCING VALVE SHALL BE WATTS MODEL LF2235, COMPLY WITH ASSE 1003, INITIAL WORKING PRESSURE OF 300 PSIG, INTEGRAL STRAINER, LEAD-FREE BRASS BODY WITH THREADED CONNECTIONS.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, AND LIMITED TO, THE FOLLOWING:

CASH ACME; A DIVISION OF RELIANCE WORLDWIDE CORPORATION.
CONBRACO INDUSTRIES, INC.

HONEYWELL INTERNATIONAL INC.
WATTS; A DIVISION OF WATTS WATER TECHNOLOGIES, INC.; WATTS REGULATOR COMPANY.

ZURN INDUSTRIES, LLC; PLUMBING PRODUCTS GROUP; WILKINS WATER CONTROL PRODUCTS.

STRAINERS

PROVIDE LEAD-FREE WYE-PATTERN STRAINER WATTS MODEL LF5775 RATED FOR 125 PSIG MINIMUM, BRONZE BODY, THREADED CONNECTIONS, STAINLESS STEEL SCREEN WITH ROUND PERFORATIONS OF 0.020 INCH AND PIPE PLUG DRAIN. PROVIDE STRAINERS ON SUPPLY SIDE OF EACH PRESSURE REDUCING VALVE, SOLENOID VALVE AND PUMP.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, AND LIMITED TO, THE FOLLOWING:

MIFAB, INC.
PRIER PRODUCTS, INC.

WATTS; A DIVISION OF WATTS WATER TECHNOLOGIES, INC.; WATTS REGULATOR COMPANY.

ZURN INDUSTRIES, LLC; PLUMBING PRODUCTS GROUP; LIGHT COMMERCIAL PRODUCTS.

ZURN INDUSTRIES, LLC; PLUMBING PRODUCTS GROUP; WILKINS WATER CONTROL PRODUCTS

HOSE BIBBS

WHERE APPLICABLE AND POSSIBLE, INSTALL ALL HOSE BIBBS 24"-30" ABOVE FINISHED FLOOR TO FACILITATE FILLING OF MOP BUCKET WITHOUT A HOSE. FURNISH TO OWNER WITH RECEIPT ONE VALVE KEY FOR EACH KEY OPERATED HOSE BOB INSTALLED.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, AND LIMITED TO, THE FOLLOWING:

JOSAM COMPANY

MIFAB, INC.

SMITH, JAY R. MFG. CO.; DIVISION OF SMITH INDUSTRIES, INC.

TYLER PIPE, WADE DIV.

WATTS DRAINAGE PRODUCTS.

WOODFORD MANUFACTURING COMPANY; A DIVISION OF WCM INDUSTRIES, INC.

ZURN INDUSTRIES, LLC; PLUMBING PRODUCTS GROUP; LIGHT COMMERCIAL PRODUCTS.

ZURN INDUSTRIES, LLC; PLUMBING PRODUCTS GROUP; SPECIFICATION DRAINAGE PRODUCTS

WALL HYDRANTS

PROVIDE NONFREEZE WALL HYDRANTS WOODFORD MODEL B-67 WITH CHROME FINISH ON BRASS CASTING WITH BOX AND HINGED DOOR CONCEALED WITHIN INTERIOR PARTITIONS. FURNISH TO OWNER WITH RECEIPT ONE VALVE KEY FOR EACH KEY OPERATED WALL HYDRANT INSTALLED.

MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, AND LIMITED TO, THE FOLLOWING:

JOSAM COMPANY

MIFAB, INC.

SMITH, JAY R. MFG. CO.; DIVISION OF SMITH INDUSTRIES, INC.

TYLER PIPE, WADE DIV.

WATTS DRAINAGE PRODUCTS.

WOODFORD MANUFACTURING COMPANY; A DIVISION OF WCM INDUSTRIES, INC.

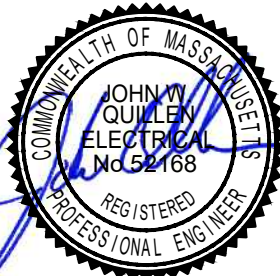
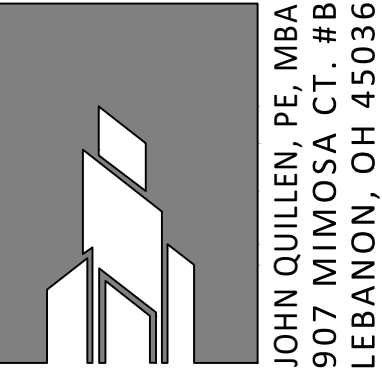
ZURN INDUSTRIES, LLC; PLUMBING PRODUCTS GROUP; LIGHT COMMERCIAL PRODUCTS.

ZURN INDUSTRIES, LLC; PLUMBING PRODUCTS GROUP; SPECIFICATION DRAINAGE PRODUCTS

TRAP-SEAL PRIMER DEVICE

- PHOTOMETRIC NOTES
- A. THIS PHOTOMETRIC REPORT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA (IES FILES). THIS LABORATORY DATA IS TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH THE ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IESNA) APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRES MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE, AND OTHER VARIABLE FIELD CONDITIONS.
- B. THE ILLUMINATION LEVELS, MEASURED IN FOOTCANDLES, SHOWN ARE BASED ON THE SPECIFIED CRITERIA. ANY SUBSTITUTIONS/DEVIATIONS IN LUMINAIRES OR ALTERATIONS TO THE LAYOUT WILL AFFECT ILLUMINATION LEVELS SHOWN.
- C. CALCULATION POINTS ARE BASED UPON A (2') ROW AND COLUMN SPACING AT GRADE UNLESS OTHERWISE INDICATED.
- D. FINAL ADJUSTMENTS TO AIMING ANGLE(S) OF LUMINAIRES MAY BE REQUIRED TO ELIMINATE LIGHT TRESPASS OR GLARE ONTO ADJACENT PROPERTIES OR ROADWAYS.
- E. FOOTCANDLE LEVELS SHOWN ARE CONSIDERED MAINTAINED.

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Auditorium 123	+	52.4 fc	74.8 fc	7.6 fc	9.8:1	6.9:1
Classroom 124	+	48.0 fc	72.8 fc	16.5 fc	4.4:1	2.9:1
Classroom 126	+	40.5 fc	62.0 fc	9.5 fc	6.5:1	4.3:1
Classroom 127	+	40.8 fc	62.0 fc	5.2 fc	11.9:1	7.8:1
Classroom 129	+	38.6 fc	61.8 fc	8.5 fc	7.3:1	4.5:1
Classroom 131	+	45.3 fc	65.0 fc	14.6 fc	4.5:1	3.1:1
Classroom 135	+	45.8 fc	68.9 fc	10.2 fc	6.8:1	4.5:1
Corridor 107	+	18.7 fc	26.3 fc	7.1 fc	3.7:1	2.6:1
Corridor 114	+	13.6 fc	22.6 fc	3.0 fc	7.5:1	4.5:1
Corridor 115	+	14.2 fc	22.4 fc	2.0 fc	11.2:1	7.1:1
Corridor 130	+	14.6 fc	22.1 fc	3.2 fc	6.9:1	4.6:1
Green Room 110	+	52.1 fc	78.6 fc	9.7 fc	8.1:1	5.4:1
Kit. 112	+	27.7 fc	38.7 fc	19.1 fc	2.0:1	1.5:1
Kitchen 105	+	54.0 fc	75.3 fc	24.9 fc	3.0:1	2.2:1
Next Steps 101	+	47.2 fc	68.4 fc	21.8 fc	3.1:1	2.2:1
Next Steps 102	+	49.9 fc	69.4 fc	6.6 fc	10.5:1	7.6:1
Office 103	+	47.5 fc	65.4 fc	18.2 fc	3.6:1	2.6:1
Open Office Area 104	+	39.5 fc	61.3 fc	3.1 fc	19.8:1	12.7:1
Prayer Room 108	+	23.0 fc	27.1 fc	14.6 fc	1.9:1	1.6:1
Stor. 106	+	26.0 fc	31.5 fc	18.8 fc	1.7:1	1.4:1
Stor. 118	+	16.8 fc	22.0 fc	8.9 fc	2.5:1	1.9:1
Stor. 120	+	14.2 fc	19.0 fc	8.4 fc	2.3:1	1.7:1
Stor. 121	+	16.5 fc	19.1 fc	14.4 fc	1.3:1	1.1:1
Stor. 122	+	20.6 fc	26.5 fc	8.3 fc	3.2:1	2.5:1
Stor. 133	+	14.3 fc	19.5 fc	8.5 fc	2.3:1	1.7:1
Stor. 134	+	17.2 fc	19.5 fc	16.1 fc	1.2:1	1.1:1
Toil. 111	+	18.6 fc	23.4 fc	14.4 fc	1.6:1	1.3:1
Toil. 116	+	18.7 fc	23.4 fc	14.4 fc	1.6:1	1.3:1
Toil. 117	+	18.7 fc	23.4 fc	14.4 fc	1.6:1	1.3:1
Toil. 125	+	18.7 fc	23.4 fc	14.4 fc	1.6:1	1.3:1
Toil. 128	+	18.7 fc	23.1 fc	14.8 fc	1.6:1	1.3:1
Toil. 132	+	18.6 fc	23.8 fc	13.7 fc	1.7:1	1.4:1
Vol Central 109	+	38.3 fc	55.7 fc	9.2 fc	6.1:1	4.2:1
Worship Team	+	32.5 fc	57.4 fc	9.3 fc	6.2:1	3.5:1

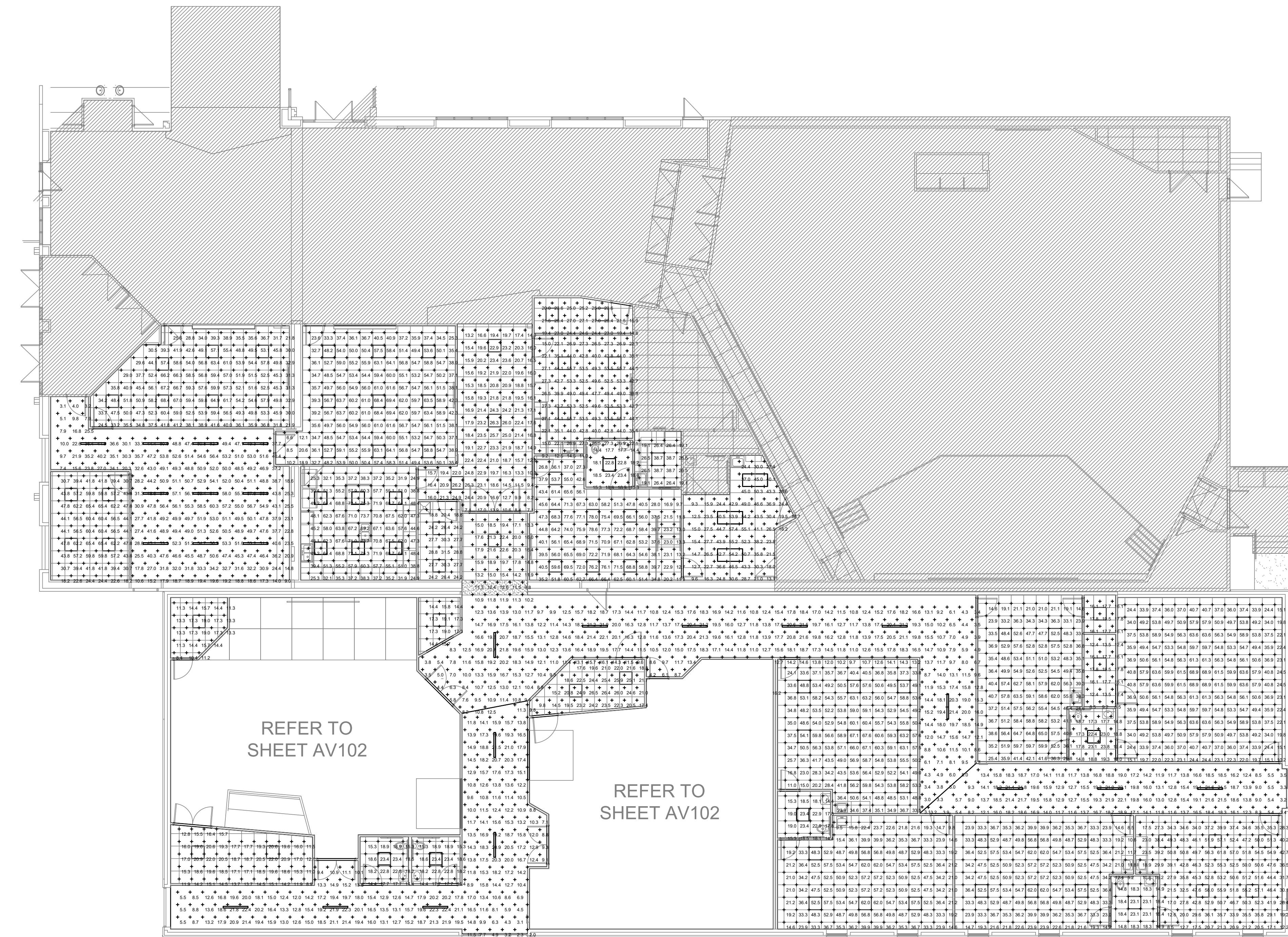


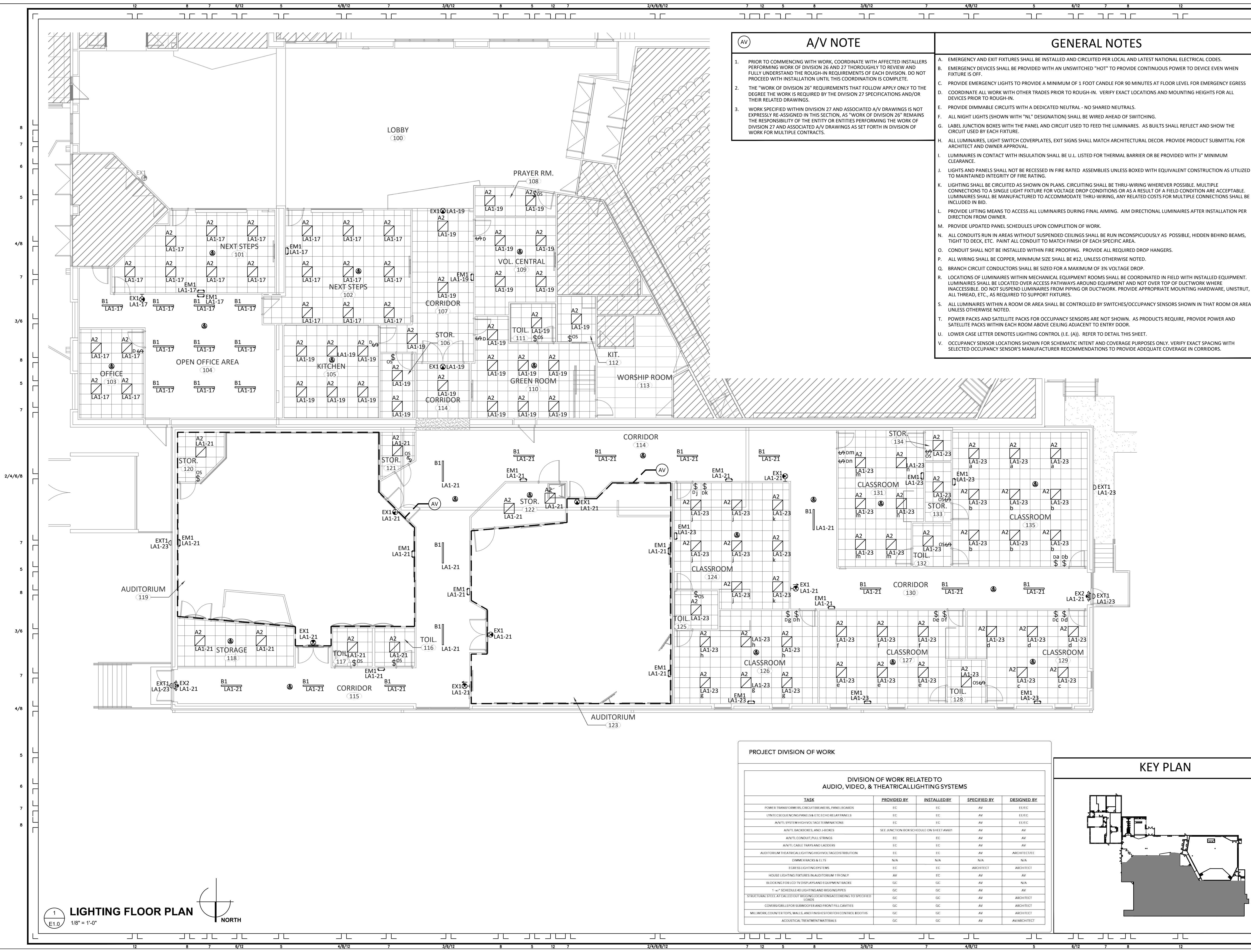
01/29/2021

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 11351
ISSUE DATE: 01/29/2020
DRAWN BY: C.H.ESS
CHECKED BY: J.QUILLEN
REVISIONS:

SHEET No.
E0.0
LIGHTING PHOTOMETRY

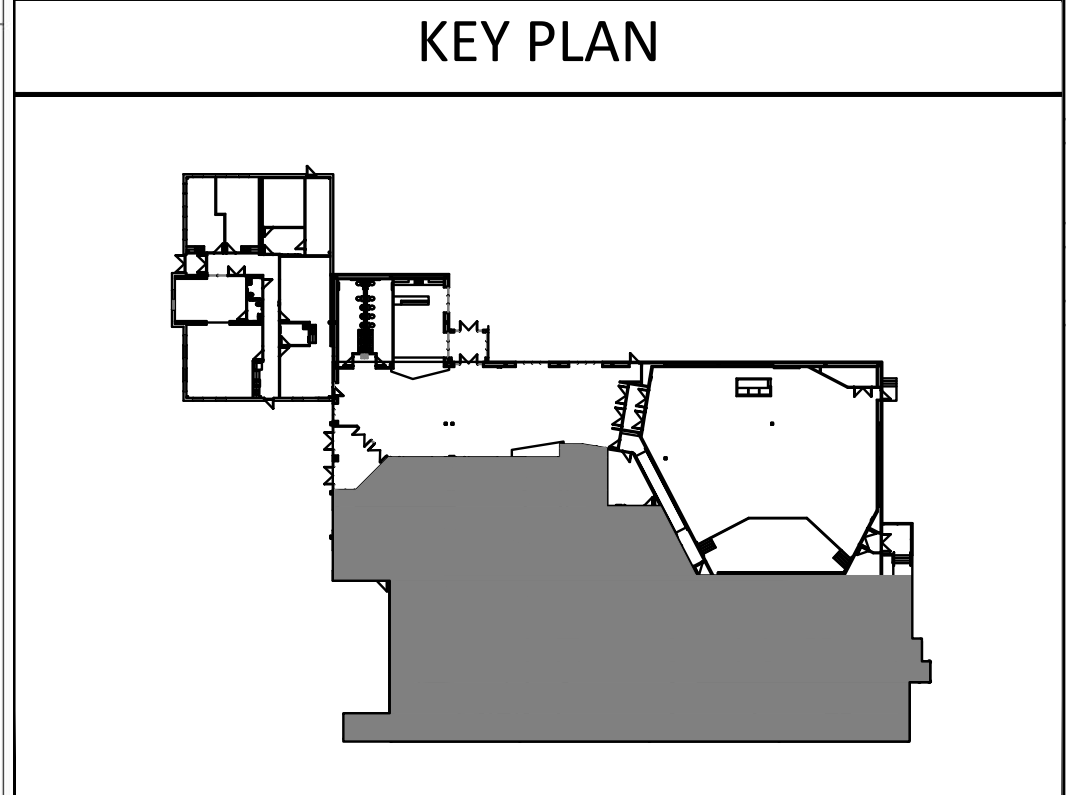




- A/V NOTE**
- PRIOR TO COMMENCING WITH WORK, COORDINATE WITH AFFECTED INSTALLERS PERFORMING WORK OF DIVISION 26 AND 27 THOROUGHLY TO REVIEW AND FULLY UNDERSTAND THE ROUGH-IN REQUIREMENTS OF EACH DIVISION. DO NOT PROCEED WITH INSTALLATION UNTIL THIS COORDINATION IS COMPLETE.
 - THE "WORK OF DIVISION 26" REQUIREMENTS THAT FOLLOW APPLY ONLY TO THE DEGREE THE WORK IS REQUIRED BY THE DIVISION 27 SPECIFICATIONS AND/OR THEIR RELATED DRAWINGS.
 - WORK SPECIFIED WITHIN DIVISION 27 AND ASSOCIATED A/V DRAWINGS IS NOT EXPRESSLY RE-ASSIGNED IN THIS SECTION, AS "WORK OF DIVISION 26" REMAINS THE RESPONSIBILITY OF THE ENTITY OR ENTITIES PERFORMING THE WORK OF DIVISION 27 AND ASSOCIATED A/V DRAWINGS AS SET FORTH IN DIVISION OF WORK FOR MULTIPLE CONTRACTS.

- GENERAL NOTES**
- EMERGENCY AND EXIT FIXTURES SHALL BE INSTALLED AND CIRCUITED PER LOCAL AND LATEST NATIONAL ELECTRICAL CODES.
 - EMERGENCY DEVICES SHALL BE PROVIDED WITH AN UNSWITCHED "HOT" TO PROVIDE CONTINUOUS POWER TO DEVICE EVEN WHEN FIXTURE IS OFF.
 - PROVIDE EMERGENCY LIGHTS TO PROVIDE A MINIMUM OF 1 FOOT CANDLE FOR 90 MINUTES AT FLOOR LEVEL FOR EMERGENCY EGRESS.
 - COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO ROUGH-IN. VERIFY EXACT LOCATIONS AND MOUNTING HEIGHTS FOR ALL DEVICES PRIOR TO ROUGH-IN.
 - PROVIDE DIMMABLE CIRCUITS WITH A DEDICATED NEUTRAL - NO SHARED NEUTRALS.
 - ALL NIGHT LIGHTS (SHOWN WITH "NL" DESIGNATION) SHALL BE WIRED AHEAD OF SWITCHING.
 - LABEL JUNCTION BOXES WITH THE PANEL AND CIRCUIT USED TO FEED THE LUMINAIRES. AS BUILTS SHALL REFLECT AND SHOW THE CIRCUIT USED BY EACH FIXTURE.
 - ALL LUMINAIRES, LIGHT SWITCH COVERPLATES, EXIT SIGNS SHALL MATCH ARCHITECTURAL DECOR. PROVIDE PRODUCT SUBMITTAL FOR ARCHITECT AND OWNER APPROVAL.
 - LUMINAIRES IN CONTACT WITH INSULATION SHALL BE U.L. LISTED FOR THERMAL BARRIER OR BE PROVIDED WITH 3" MINIMUM CLEARANCE.
 - LIGHTS AND PANELS SHALL NOT BE RECESSED IN FIRE RATED ASSEMBLIES UNLESS BOXED WITH EQUIVALENT CONSTRUCTION AS UTILIZED TO MAINTAINED INTEGRITY OF FIRE RATING.
 - LIGHTING SHALL BE CIRCUITED AS SHOWN ON PLANS. CIRCUITING SHALL BE THRU-WIRING WHEREVER POSSIBLE. MULTIPLE CONNECTIONS TO A SINGLE LIGHT FIXTURE FOR VOLTAGE DROP CONDITIONS OR AS A RESULT OF A FIELD CONDITION ARE ACCEPTABLE. LUMINAIRES SHALL BE MANUFACTURED TO ACCOMMODATE THRU-WIRING, ANY RELATED COSTS FOR MULTIPLE CONNECTIONS SHALL BE INCLUDED IN BID.
 - PROVIDE LIFTING MEANS TO ACCESS ALL LUMINAIRES DURING FINAL AIMING. AIM DIRECTIONAL LUMINAIRES AFTER INSTALLATION PER DIRECTION FROM OWNER.
 - PROVIDE UPDATED PANEL SCHEDULES UPON COMPLETION OF WORK.
 - ALL CONDUITS RUN IN AREAS WITHOUT SUSPENDED CEILINGS SHALL BE RUN INCONSPICUOUSLY AS POSSIBLE, HIDDEN BEHIND BEAMS, TIGHT TO DECK, ETC. PAINT ALL CONDUIT TO MATCH FINISH OF EACH SPECIFIC AREA.
 - CONDUIT SHALL NOT BE INSTALLED WITHIN FIRE PROOFING. PROVIDE ALL REQUIRED DROP HANGERS.
 - ALL WIRING SHALL BE COPPER, MINIMUM SIZE SHALL BE #12, UNLESS OTHERWISE NOTED.
 - BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED FOR A MAXIMUM OF 3% VOLTAGE DROP.
 - LOCATIONS OF LUMINAIRES WITHIN MECHANICAL EQUIPMENT ROOMS SHALL BE COORDINATED IN FIELD WITH INSTALLED EQUIPMENT. LUMINAIRES SHALL BE LOCATED OVER ACCESS PATHWAYS AROUND EQUIPMENT AND NOT OVER TOP OF DUCTWORK WHERE INACCESSIBLE. DO NOT SUSPEND LUMINAIRES FROM PIPING OR DUCTWORK. PROVIDE APPROPRIATE MOUNTING HARDWARE, UNISTRUT, ALL THREAD, ETC., AS REQUIRED TO SUPPORT FIXTURES.
 - ALL LUMINAIRES WITHIN A ROOM OR AREA SHALL BE CONTROLLED BY SWITCHES/OCCUPANCY SENSORS SHOWN IN THAT ROOM OR AREA UNLESS OTHERWISE NOTED.
 - POWER PACKS AND SATELLITE PACKS FOR OCCUPANCY SENSORS ARE NOT SHOWN. AS PRODUCTS REQUIRE, PROVIDE POWER AND SATELLITE PACKS WITHIN EACH ROOM ABOVE CEILING ADJACENT TO ENTRY DOOR.
 - LOWER CASE LETTER DENOTES LIGHTING CONTROL (I.E. (A)). REFER TO DETAIL THIS SHEET.
 - OCCUPANCY SENSOR LOCATIONS SHOWN FOR SCHEMATIC INTENT AND COVERAGE PURPOSES ONLY. VERIFY EXACT SPACING WITH SELECTED OCCUPANCY SENSOR'S MANUFACTURER RECOMMENDATIONS TO PROVIDE ADEQUATE COVERAGE IN CORRIDORS.

PROJECT DIVISION OF WORK				
DIVISION OF WORK RELATED TO AUDIO, VIDEO, & THEATRICAL LIGHTING SYSTEMS				
TASK	PROVIDED BY	INSTALLED BY	SPECIFIED BY	DESIGNED BY
POWER TRANSFORMERS, CIRCUIT BREAKERS, PANEL BOARDS	EC	EC	AV	EE/EC
LYNTECH/SEQUENCING PANELS & ETC/CHO RELAY PANELS	EC	EC	AV	EE/EC
AV/ITL SYSTEM HIGH VOLTAGE TERMINATIONS	EC	EC	AV	EE/EC
AV/ITL BACKBOARDS, AND J-BOXES	SEE JUNCTION BOX SCHEDULE ON SHEET AW601		AV	AV
AV/ITL CONDUIT, PULL STRINGS	EC	EC	AV	AV
AV/ITL CABLE TRAYS AND LADDERS	EC	EC	AV	AV
AUDITORIUM THEATRICAL LIGHTING HIGH VOLTAGE DISTRIBUTION	EC	EC	AV	ARCHITECTURE
DIMMER RACKS & ELTS	N/A	N/A	N/A	N/A
FORENSIC LIGHTING SYSTEMS	EC	EC	ARCHITECT	ARCHITECT
HOUSE LIGHTING FIXTURES IN AUDITORIUM FOR ONLY	AV	EC	AV	AV
BLOCKING FOR LED TO DISPLAY APPARATUS BACKS	GC	GC	AV	N/A
1" x 4" SCHEDULED LIGHTING AND ROSSING PIPES	GC	GC	AV	AV
STRUCTURAL STEEL AT CALLED OUT RIGGING LOCATIONS ACCORDING TO SPECIFIED LOADS	GC	GC	AV	ARCHITECT
COVERS/GIRLS FOR SUBWOOFER AND FRONT FILL CAVITIES	GC	GC	AV	ARCHITECT
MILLWORK, COUNTER TOPS, WALLS, AND FINISHES FOR FLOW CONTROL BOOTHS	GC	GC	AV	ARCHITECT
ACOUSTICAL TREATMENT MATERIALS	GC	GC	AV	AV/ARCHITECT

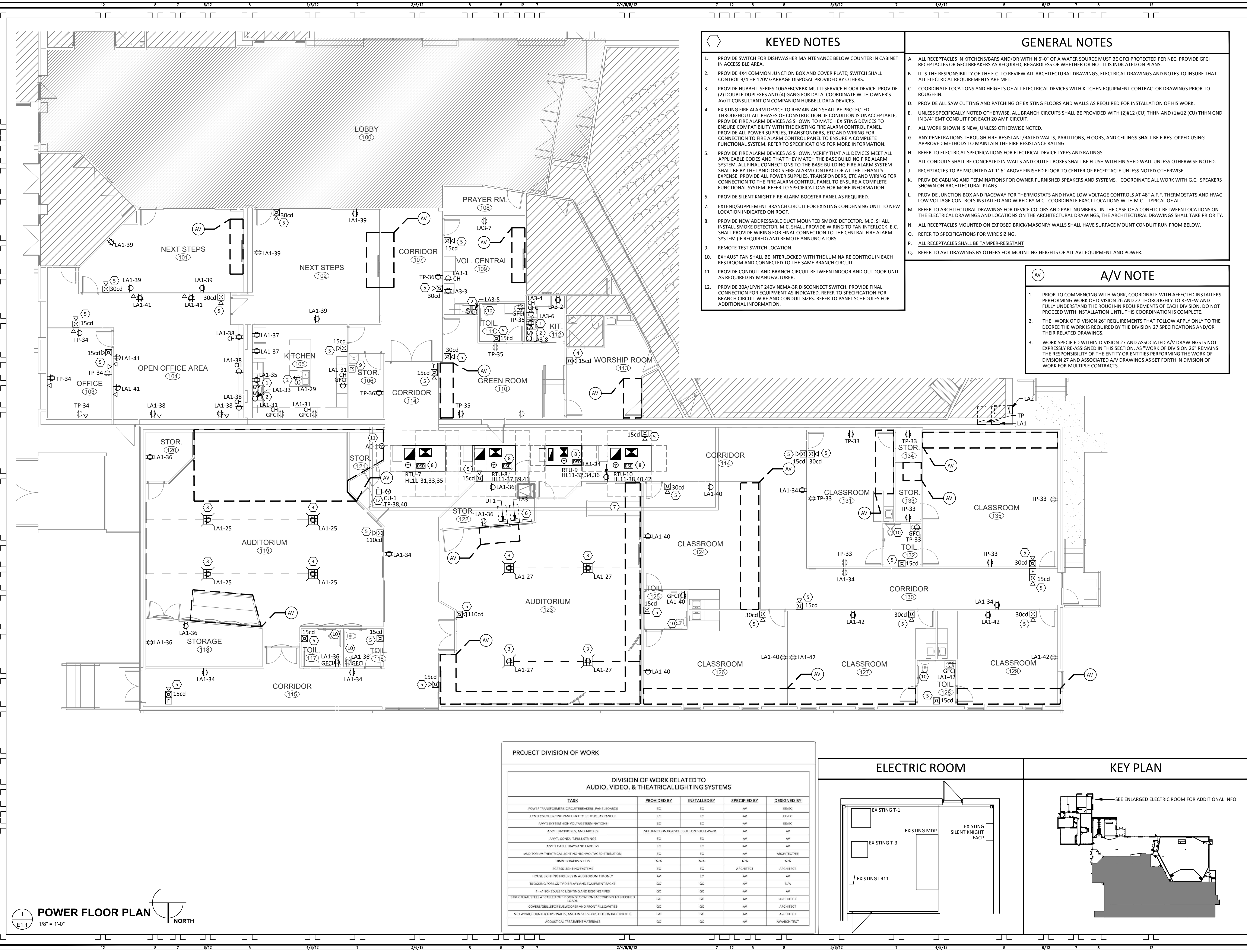


01/29/2021

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 11351
ISSUE DATE: 01/29/2020
DRAWN BY: C. HESS
CHECKED BY: J. QUILLEN
REVISIONS:

SHEET No.
E1.0
LIGHTING FLOOR PLAN

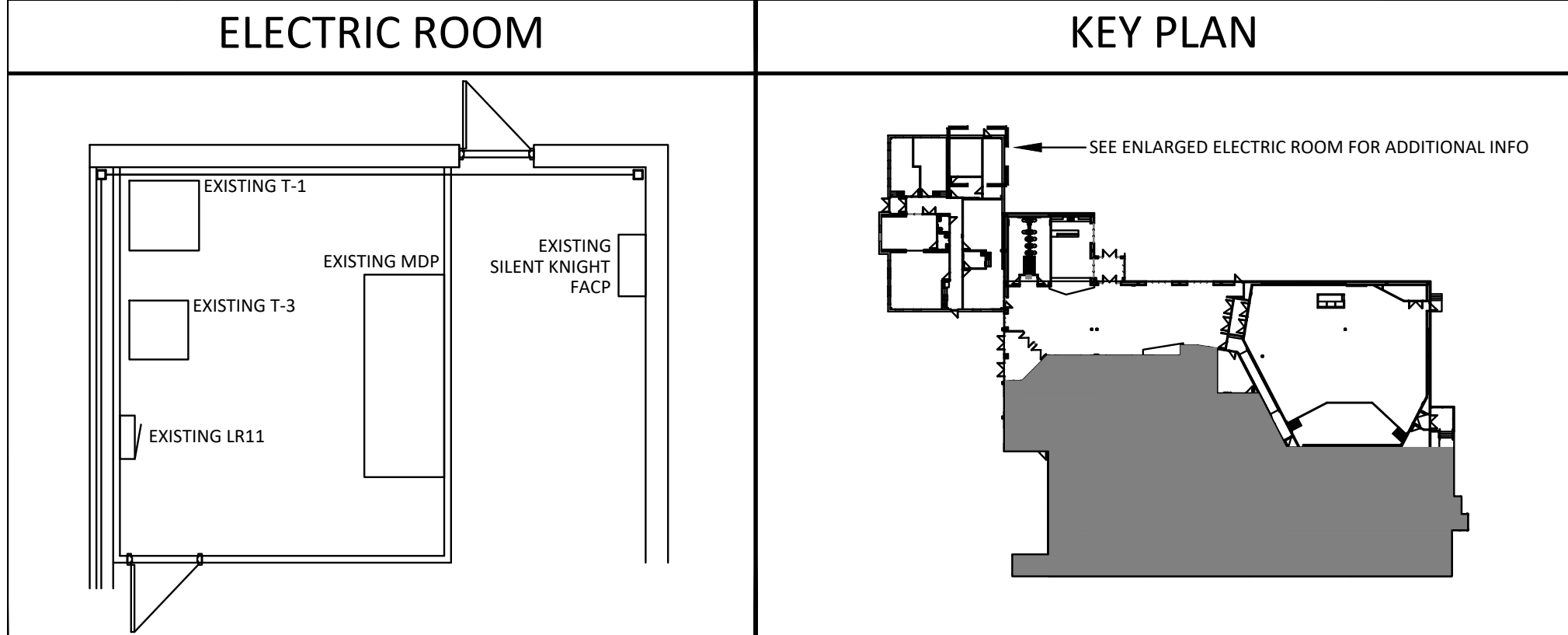


- KEYED NOTES**
1. PROVIDE SWITCH FOR DISHWASHER MAINTENANCE BELOW COUNTER IN CABINET IN ACCESSIBLE AREA.
 2. PROVIDE 4X4 COMMON JUNCTION BOX AND COVER PLATE; SWITCH SHALL CONTROL 3/4 HP 120V GARBAGE DISPOSAL PROVIDED BY OTHERS.
 3. PROVIDE HUBBELL SERIES 10GAFBCVRBK MULTI-SERVICE FLOOR DEVICE. PROVIDE (2) DOUBLE DUPLEXES AND (4) GANG FOR DATA. COORDINATE WITH OWNER'S AV/IT CONSULTANT ON COMPANION HUBBELL DATA DEVICES.
 4. EXISTING FIRE ALARM DEVICE TO REMAIN AND SHALL BE PROTECTED THROUGHOUT ALL PHASES OF CONSTRUCTION. IF CONDITION IS UNACCEPTABLE, PROVIDE FIRE ALARM DEVICES AS SHOWN TO MATCH EXISTING DEVICES TO ENSURE COMPATIBILITY WITH THE EXISTING FIRE ALARM CONTROL PANEL. PROVIDE ALL POWER SUPPLIES, TRANSPONDERS, ETC AND WIRING FOR CONNECTION TO FIRE ALARM CONTROL PANEL TO ENSURE A COMPLETE FUNCTIONAL SYSTEM. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
 5. PROVIDE FIRE ALARM DEVICES AS SHOWN. VERIFY THAT ALL DEVICES MEET ALL APPLICABLE CODES AND THAT THEY MATCH THE BASE BUILDING FIRE ALARM SYSTEM. ALL FINAL CONNECTIONS TO THE BASE BUILDING FIRE ALARM SYSTEM SHALL BE BY THE LANDLORD'S FIRE ALARM CONTRACTOR AT THE TENANT'S EXPENSE. PROVIDE ALL POWER SUPPLIES, TRANSPONDERS, ETC AND WIRING FOR CONNECTION TO THE FIRE ALARM CONTROL PANEL TO ENSURE A COMPLETE FUNCTIONAL SYSTEM. REFER TO SPECIFICATIONS FOR MORE INFORMATION.
 6. PROVIDE SILENT KNIGHT FIRE ALARM BOOSTER PANEL AS REQUIRED.
 7. EXTEND/SUPPLEMENT BRANCH CIRCUIT FOR EXISTING CONDENSING UNIT TO NEW LOCATION INDICATED ON ROOF.
 8. PROVIDE NEW ADDRESSABLE DUCT MOUNTED SMOKE DETECTOR. M.C. SHALL INSTALL SMOKE DETECTOR. M.C. SHALL PROVIDE WIRING TO FAN INTERLOCK. E.C. SHALL PROVIDE WIRING FOR FINAL CONNECTION TO THE CENTRAL FIRE ALARM SYSTEM (IF REQUIRED) AND REMOTE ANNUNCIATORS.
 9. REMOTE TEST SWITCH LOCATION.
 10. EXHAUST FAN SHALL BE INTERLOCKED WITH THE LUMINAIRE CONTROL IN EACH RESTROOM AND CONNECTED TO THE SAME BRANCH CIRCUIT.
 11. PROVIDE CONDUIT AND BRANCH CIRCUIT BETWEEN INDOOR AND OUTDOOR UNIT AS REQUIRED BY MANUFACTURER.
 12. PROVIDE 30A/1P/NF 240V NEMA-3R DISCONNECT SWITCH. PROVIDE FINAL CONNECTION FOR EQUIPMENT AS INDICATED. REFER TO SPECIFICATION FOR BRANCH CIRCUIT WIRE AND CONDUIT SIZES. REFER TO PANEL SCHEDULES FOR ADDITIONAL INFORMATION.

- GENERAL NOTES**
- A. ALL RECEPTACLES IN KITCHENS/BARS AND/OR WITHIN 6'-0" OF A WATER SOURCE MUST BE GFCI PROTECTED PER NEC. PROVIDE GFCI RECEPTACLES OR GFCI BREAKERS AS REQUIRED, REGARDLESS OF WHETHER OR NOT IT IS INDICATED ON PLANS.
 - B. IT IS THE RESPONSIBILITY OF THE E.C. TO REVIEW ALL ARCHITECTURAL DRAWINGS, ELECTRICAL DRAWINGS AND NOTES TO INSURE THAT ALL ELECTRICAL REQUIREMENTS ARE MET.
 - C. COORDINATE LOCATIONS AND HEIGHTS OF ALL ELECTRICAL DEVICES WITH KITCHEN EQUIPMENT CONTRACTOR DRAWINGS PRIOR TO ROUGH-IN.
 - D. PROVIDE ALL SAW CUTTING AND PATCHING OF EXISTING FLOORS AND WALLS AS REQUIRED FOR INSTALLATION OF HIS WORK.
 - E. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL BRANCH CIRCUITS SHALL BE PROVIDED WITH (2)#12 (CU) THHN AND (1)#12 (CU) THHN GND IN 3/4" EMT CONDUIT FOR EACH 20 AMP CIRCUIT.
 - F. ALL WORK SHOWN IS NEW, UNLESS OTHERWISE NOTED.
 - G. ANY PENETRATIONS THROUGH FIRE-RESISTANT/RATED WALLS, PARTITIONS, FLOORS, AND CEILINGS SHALL BE FIRESTOPPED USING APPROVED METHODS TO MAINTAIN THE FIRE RESISTANCE RATING.
 - H. REFER TO ELECTRICAL SPECIFICATIONS FOR ELECTRICAL DEVICE TYPES AND RATINGS.
 - I. ALL CONDUITS SHALL BE CONCEALED IN WALLS AND OUTLET BOXES SHALL BE FLUSH WITH FINISHED WALL UNLESS OTHERWISE NOTED.
 - J. RECEPTACLES TO BE MOUNTED AT 1'-6" ABOVE FINISHED FLOOR TO CENTER OF RECEPTACLE UNLESS NOTED OTHERWISE.
 - K. PROVIDE CABLING AND TERMINATIONS FOR OWNER FURNISHED SPEAKERS AND SYSTEMS. COORDINATE ALL WORK WITH G.C. SPEAKERS SHOWN ON ARCHITECTURAL PLANS.
 - L. PROVIDE JUNCTION BOX AND RACEWAY FOR THERMOSTATS AND HVAC LOW VOLTAGE CONTROLS AT 48" A.F.F. THERMOSTATS AND HVAC LOW VOLTAGE CONTROLS INSTALLED AND WIRED BY M.C.. COORDINATE EXACT LOCATIONS WITH M.C.. TYPICAL OF ALL.
 - M. REFER TO ARCHITECTURAL DRAWINGS FOR DEVICE COLORS AND PART NUMBERS. IN THE CASE OF A CONFLICT BETWEEN LOCATIONS ON THE ELECTRICAL DRAWINGS AND LOCATIONS ON THE ARCHITECTURAL DRAWINGS, THE ARCHITECTURAL DRAWINGS SHALL TAKE PRIORITY.
 - N. ALL RECEPTACLES MOUNTED ON EXPOSED BRICK/MASONRY WALLS SHALL HAVE SURFACE MOUNT CONDUIT RUN FROM BELOW.
 - O. REFER TO SPECIFICATIONS FOR WIRE SIZING.
 - P. ALL RECEPTACLES SHALL BE TAMPER-RESISTANT.
 - Q. REFER TO AVL DRAWINGS BY OTHERS FOR MOUNTING HEIGHTS OF ALL AVL EQUIPMENT AND POWER.

- A/V NOTE**
1. PRIOR TO COMMENCING WITH WORK, COORDINATE WITH AFFECTED INSTALLERS PERFORMING WORK OF DIVISION 26 AND 27 THOROUGHLY TO REVIEW AND FULLY UNDERSTAND THE ROUGH-IN REQUIREMENTS OF EACH DIVISION. DO NOT PROCEED WITH INSTALLATION UNTIL THIS COORDINATION IS COMPLETE.
 2. THE "WORK OF DIVISION 26" REQUIREMENTS THAT FOLLOW APPLY ONLY TO THE DEGREE THE WORK IS REQUIRED BY THE DIVISION 27 SPECIFICATIONS AND/OR THEIR RELATED DRAWINGS.
 3. WORK SPECIFIED WITHIN DIVISION 27 AND ASSOCIATED A/V DRAWINGS IS NOT EXPRESSLY RE-ASSIGNED IN THIS SECTION, AS "WORK OF DIVISION 26" REMAINS THE RESPONSIBILITY OF THE ENTITY OR ENTITIES PERFORMING THE WORK OF DIVISION 27 AND ASSOCIATED A/V DRAWINGS AS SET FORTH IN DIVISION OF WORK FOR MULTIPLE CONTRACTS.

PROJECT DIVISION OF WORK				
DIVISION OF WORK RELATED TO AUDIO, VIDEO, & THEATRICAL LIGHTING SYSTEMS				
TASK	PROVIDED BY	INSTALLED BY	SPECIFIED BY	DESIGNED BY
POWER TRANSFORMERS, CIRCUIT BREAKERS, PANEL BOARDS	EC	EC	AV	EE/EC
LYNTEC LIGHTING PANELS, ETC. ECHO RELAY PANELS	EC	EC	AV	EE/EC
AV/IT SYSTEM HIGH VOLTAGE TERMINATIONS	EC	EC	AV	EE/EC
AV/IT BACKBOXES AND J-BOXES	SEE JUNCTION BOX SCHEDULE ON SHEET A-1001		AV	AV
AV/IT CONDUIT, PULL STRINGS	EC	EC	AV	AV
AV/IT CABLE TRAYS AND LADDERS	EC	EC	AV	AV
AUDITORIUM THEATRICAL LIGHTING HIGH VOLTAGE DISTRIBUTION	EC	EC	AV	ARCHITECT/EE
DIMMER BACKS & TILT'S	N/A	N/A	N/A	N/A
EDGEBUS LIGHTING SYSTEM	EC	EC	ARCHITECT	ARCHITECT
HOUSE LIGHTING FIXTURES IN AUDITORIUM TYPICALLY	AV	EC	AV	AV
BLOCKING FOR LEDS, TVS, DISPLAYS AND EQUIPMENT BACKS	EC	EC	AV	N/A
1" x 4" SCHEDULE 40 LIGHTING AND WIRING PIPES	EC	EC	AV	AV
STRUCTURAL STEEL AT EXISTING RIGGING LOCATIONS ACCORDING TO SPECIFIED LOADS	EC	EC	AV	ARCHITECT
COVERS/CABLES FOR SUBWOOFERS AND FRONT FILL CABS	EC	EC	AV	ARCHITECT
MILLWORK, COUNTER TOPS, WALLS, AND FINISHES FOR CONTROL BOOTHS	EC	EC	AV	ARCHITECT
ACOUSTICAL TREATMENT MATERIALS	EC	EC	AV	AV/ARCHITECT



POWER FLOOR PLAN
1/8" = 1'-0"
NORTH

JOHN QUILLEN, PE, MBA
907 WIMOSA CT, #6
LEBANON, OH 45036

01/29/2021

ADDITIONS & RENOVATIONS TO:

LIFESONG CHURCH

65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 11351
ISSUE DATE: 01/29/2020
DRAWN BY: C. HESS
CHECKED BY: J. QUILLEN

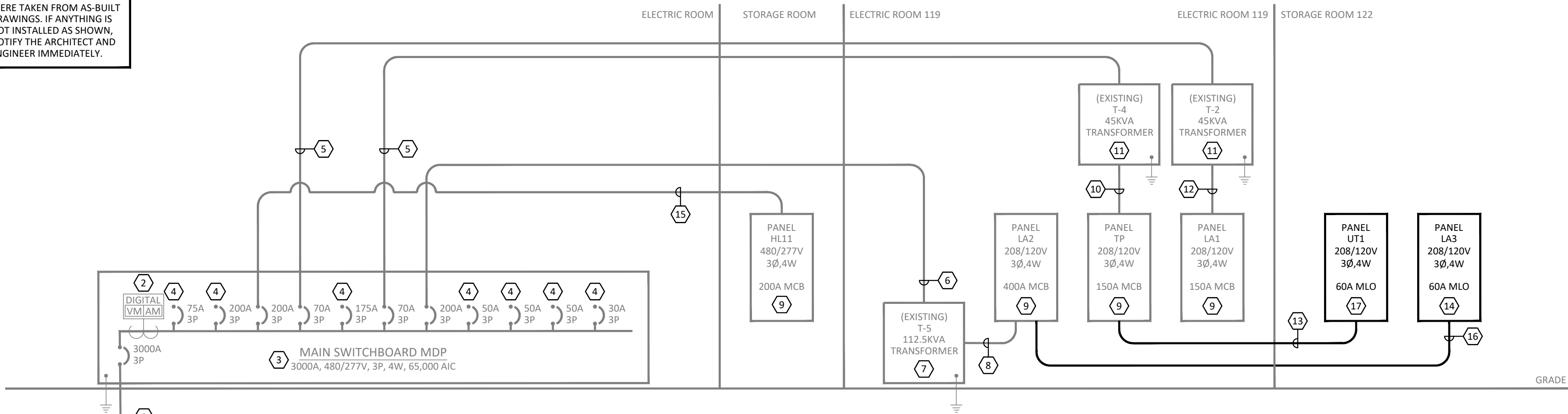
REVISIONS:

SHEET No.

E1.1

POWER FLOOR PLAN

ALL EXISTING CONDITIONS WERE TAKEN FROM AS-BUILT DRAWINGS. IF ANYTHING IS NOT INSTALLED AS SHOWN, NOTIFY THE ARCHITECT AND ENGINEER IMMEDIATELY.



1
E2.0 NTS
ELECTRICAL SINGLE LINE DIAGRAM

- KEYED NOTES
1.

EXISTING (4) 500KCMIL, (1) 400 KCMIL GND. IN (8) 3-1/2" CONDUIT TO REMAIN.
2.

EXISTING VOLTMETER/ANMMETER TO REMAIN.
3.

EXISTING MAIN DISTRIBUTION PANEL TO REMAIN.
4.

EXISTING BREAKER SHOWN FOR REFERENCE ONLY - NOT IN SCOPE.
5.

EXISTING (3)#3, (1)#6 GND. IN 1-1/2" CONDUIT TO REMAIN.
6.

EXISTING (3)#4/0, (1)#4 GND. IN 2-1/2" CONDUIT TO REMAIN.
7.

EXISTING 480V DELTA TO 208V WYE DRY TYPE TRANSFORMER TO REMAIN.
8.

EXISTING (2) SETS OF (4)#3/0, (1)#2 GND. IN 2" CONDUIT EACH TO REMAIN.
9.

EXISTING ELECTRIC PANEL TO REMAIN. PROVIDE NEW BREAKERS AS NECESSARY. REFER TO PANEL SCHEDULE FOR ADDITIONAL INFORMATION.
10.

EXISTING (4)#1/0, (1)#6 GND., (1)#6 I.G. IN 2" CONDUIT TO REMAIN.
11.

EXISTING TRAPEZE MOUNTED 480V DELTA TO 208V WYE DRY TYPE TRANSFORMER TO REMAIN.
12.

EXISTING (4)#1/0, (1)#6 GND. IN 2" CONDUIT TO REMAIN.
13.

PROVIDE (4)#4 AWG CU & (1)#10AWG CU GND. & (1)#10 AWG CU I.G. IN 1-1/4" CONDUIT.
14.

PROVIDE NEW ELECTRIC PANEL. REFER TO PANEL SCHEDULE FOR ADDITIONAL INFORMATION.
15.

EXISTING (4)#3/0, (1)#6 GND. IN 2" CONDUIT TO REMAIN.
16.

PROVIDE (4)#4 AWG CU & (1)#10 AWG CU GND. IN 1-1/4" CONDUIT.
17.

REFER TO A/V DRAWINGS FOR NEW PANEL REQUIREMENTS. PANEL SHOWN FOR POWER LOAD REFERENCE ONLY.
- GENERAL NOTES
- A.

CONDUCTORS BELOW GRADE OR SUBJECT TO MOISTURE SHALL BE "XHHW-2".
- B.

WORKING CLEARANCES SHALL BE PROVIDED FOR ALL ELECTRICAL EQUIPMENT (SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, STARTERS, DISCONNECTS, ETC. AS APPLICABLE) IN STRICT COMPLIANCE WITH N.E.C. CHAPTER 1, PART B, SECTION 110-26(a). LOCATIONS SHOWN ON FLOOR PLANS ARE SCHEMATIC AND DIAGRAMMATIC IN NATURE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING COMPLIANCE WITH THE ABOVE N.E.C. REFERENCE. THIS REQUIREMENT APPLIES TO EQUIPMENT ON FLOOR PLANS AS WELL AS TO EQUIPMENT SHOWN ON RISER.
- C.

HOLD ALL NEW OVERHEAD ELECTRICAL WORK AS TIGHT AS POSSIBLE TO THE BOTTOM OF THE OVERHEAD STRUCTURE. LOCATE ANY RELATED PULLBOXES SO THAT THEY WILL BE FULLY ACCESSIBLE AFTER ALL CONSTRUCTION WORK IS COMPLETE, AS WITH ALL WORK, COORDINATE IN ADVANCE WITH ALL OTHER TRADES.
- D.

BALANCE ALL PANEL LOADS SO PHASES ARE WITHIN 10% OF EACH OTHERS.
- E.

PROVIDE HACR CIRCUIT BREAKER FOR ALL MOTOR LOADS.

LUMINAIRE SCHEDULE						
CALLOUT	SYMBOL	DESCRIPTION	MODEL	LAMP	VOLTS	INPUT WATTS
A2		LED RECESSED 2'X2'	COOPER LIGHTING SOLUTIONS: 22FP4235C	LED (INTEGRAL)	120	38.9
B1		4' LED STRIP LIGHT	AXIS LIGHTING: ZELED-SLO-100-950-80-35-MSQ-4-W-UNV-MD-1	LED (INTEGRAL)	120	47.23
EM1		LED EMERGENCY FIXTURE W/90 MIN BATTERY BACKUP	SURE-LITES: APEL-H2	LED (INTEGRAL)	120	5
EX1		LED EXIT SIGN W/90 MIN BATTERY BACKUP	SURE-LITES: LPX7	LED (INTEGRAL)	120	5
EX2		LED EXIT SIGN W/90 MIN BATTERY BACKUP	SURE-LITES: LPXC	LED (INTEGRAL)	120	5
EXT1		EXTERIOR WALLPACK W/90 MIN BATTERY BACKUP	LUMARK: XTOR6B-W-WT-PCI-CBP	LED (INTEGRAL)	120	58

- LUMINAIRE SCHEDULE NOTES
- A.

REFER TO ARCHITECTURAL RCP(S), ELEVATIONS, AND DETAILS. FULLY COORDINATE WITH ALL MATERIAL.
- B.

COORDINATE WITH ALL TRADES PRIOR TO INSTALLATION TO AVOID CONFLICTS AND ENSURE SUFFICIENT SPACE ABOVE CEILINGS.
- C.

ALL LUMINAIRES WITHIN A ROOM OR AREA SHALL BE CONTROLLED BY SWITCHES/OCCUPANCY SENSORS SHOWN IN THAT ROOM OR AREA U.N.O.
- D.

LUMINAIRES IDENTIFIED AS NIGHT LIGHT (NL) SHALL BE CONNECTED AHEAD OF ANY SWITCHING FOR CONTINUOUS OPERATION.
- E.

LOCATIONS OF LUMINAIRES WITHIN MECHANICAL EQUIPMENT ROOMS SHALL BE COORDINATED IN FIELD WITH INSTALLED EQUIPMENT. LUMINAIRES SHALL BE LOCATED OVER ACCESS PATHWAYS AROUND EQUIPMENT AND NOT OVER TOP OF DUCTWORK WHERE INACCESSIBLE.
- F.

DO NOT SUSPEND LUMINAIRES FROM PIPING OR DUCTWORK.
- G.

PROVIDE APPROPRIATE MOUNTING HARDWARE, UNISTRUT, ALL THREAD, ETC., AS REQUIRED TO SUPPORT ALL LUMINAIRES.
- H.

ALL LUMINAIRES SHALL BE U.L. LISTED.
- I.

INSTALL LUMINAIRES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- J.

PROVIDE ALL EXIT SIGNAGE WITH APPROPRIATE MOUNTING HARDWARE AND DIRECTIONAL CHEVRONS.
- K.

PROVIDE ALL HANGING/MOUNTING HARDWARE AS REQUIRED TO INSTALL FIXTURES IN LOCATIONS SHOWN, EVEN IF NOT SPECIFICALLY LISTED IN SCHEDULE.
- L.

UNLESS OTHERWISE NOTED, ALL LED DRIVERS AND LAMPS SHALL BE 3500K COLOR TEMPERATURE. IF FIXTURE LISTED IS NOT AVAILABLE IN SPECIFIED COLOR TEMPERATURE, CONTACT ENGINEER FOR RECOMMENDATIONS.
- M.

CONTRACTOR IS ALLOWED TO USE COMBINATION EXIT SIGN AND UNITARY BATTERY POWERED EGRESS EMERGENCY LIGHTING UNITS. NOTE: IN INSTANCES WHERE THERE IS A "HIGH CAPABLE" DEVICE FEEDING AN EXTERIOR EGRESS LUMINAIRE, THE CONTRACTOR SHALL MAINTAIN THE HIGH CAPABLE FUNCTION OR FEED WITH ANOTHER UNITARY BATTERY DEVICE.
- N.

ACCEPTABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING: COOPER LIGHTING SOLUTIONS, GE, ACUTY BRANDS, PHILLIPS, HUBBELL, SIGNIFY.

- GENERAL PROJECT NOTES
- A.

ALL DEVICES SHOWN ON THE EXTERIOR OF THE BUILDING SHALL BE WEATHER PROOF TYPE.
- B.

REFER TO ALL OTHER CONSTRUCTION TRADES' DRAWINGS' AND SPECIFICATIONS' FOR ADDITIONAL ELECTRICAL WORK THAT IS INCLUDED IN DIVISION 26'S SCOPE.
- C.

ALL CONDUITS RUN IN AREAS WITHOUT SUSPENDED CEILINGS SHALL BE RUN INCONSPICUOUSLY AS POSSIBLE, HIDDEN BEHIND BEAMS, TIGHT TO DECK, ETC. PAINT ALL CONDUIT TO MATCH FINISH OF EACH SPECIFIC AREA.
- D.

CONDUIT SHALL NOT TO BE INSTALLED WITHIN FIRE PROOFING. PROVIDE ALL REQUIRED DROP HANGERS.
- E.

BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED FOR A MAXIMUM OF 3% VOLTAGE DROP.
- F.

PROVIDE ALL RACEWAY FOR HVAC THERMOSTATS AND SENSORS. THERMOSTAT AND SENSORS ARE FURNISHED AND INSTALLED UNDER MECHANICAL DIVISION 23 SCOPE.
- G.

PROVIDE ALL TELECOMMUNICATION RACEWAYS. TELECOMMUNICATION SYSTEMS ARE UNDER DEFERRED SUBMITTAL UNLESS OTHERWISE NOTED.

- MOUNTING HEIGHTS
- ALL MOUNTING HEIGHTS ARE BASED ON NECA-1, NATIONAL ELECTRICAL CONTRACTOR'S ASSOCIATION STANDARD PRACTICE OF GOOD WORKMANSHIP IN ELECTRICAL CONSTRUCTION, UNLESS OTHERWISE NOTED. ALL HEIGHTS ARE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE.
- WALL SWITCHES

48" (120 cm)
- RECEPTACLE OUTLETS (GENERAL)

18" (45 cm)
- RECEPTACLE OUTLETS (COUNTER HEIGHT)

42" (105 cm) OR 6" (15 cm) ABOVE COUNTERTOP. INSTALL ABOVE BACKSPLASH, IF APPLICABLE
- SPECIAL PURPOSE OUTLET

WITHIN 72" (180 cm) OF INTENDED USE
- TELEPHONE OUTLETS

18" (45 cm)
- WALL INTERCOM STATIONS

18" (45 cm)
- NIGHT LIGHTS

18" (45 cm)
- WALL LIGHTING OUTLETS

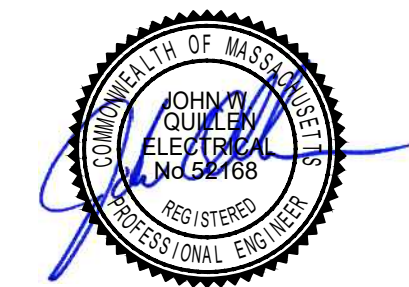
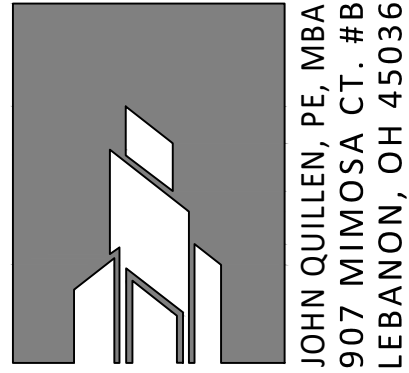
84" (210 cm)
- THERMOSTATS

48" (120 cm)
- PUSH BUTTONS

48" (120 cm)
- BELLS, BUZZERS, CHIMES

96" (240 cm) PREFERRED, OR 6" (15 cm) BELOW CEILING

ELECTRIC ABBREVIATIONS			
1Ø	SINGLE PHASE	MC	METAL-CLAD
1P	SINGLE POLE	MCA	MINIMUM CIRCUIT AMPS
3Ø	THREE-PHASE	MCB	MAIN CIRCUIT BREAKER
4W	FOUR-WIRE	MDP	MAIN DISTRIBUTION PANEL
AF	AMPERE FRAME OR AMP FUSE	MOCP	MAXIMUM OVERCURRENT PROTECTION
AFB	ABOVE FINISHED FLOOR	MLO	MAIN LUGS ONLY
AHJ	AUTHORITY HAVING JURISDICTION	MTD	MOUNTED
AIC	AMPERE INTERRUPTING CAPACITY	MTG	MOUNTING
ALT	ALTERNATE	NA	NOT APPLICABLE
A	AMPERE	NEC	NATIONAL ELECTRICAL CODE
AT	AMPERE TRIP	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
AV	AUDIO VISUAL	NEUT	NEUTRAL
C	CONDUIT	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
cd	CANDELA	NIC	NOT IN CONTRACT
CD	CONSTRUCTION DOCUMENTS	NL	NIGHT LIGHT
CLG	CEILING	NM	NON-METALLIC
COMM	COMMUNICATION	NTS	NOT TO SCALE
CRI	COLOR RENDERING INDEX	OC	ON CENTER
CT	CURRENT TRANSFORMER	OD	OUTSIDE DIAMETER
CU	COPPER	PC	PHOTOCELL
DISC	DISCONNECT	PNL	PANEL
EC	ELECTRICAL CONTRACTOR	PWR	POWER
EG	EQUIPMENT GROUND	RCP	REFLECTED CEILING PLAN
EMT	ELECTRICAL METALLIC TUBING	RMC	RIGID METAL CONDUIT
EPO	EMERGENCY POWER OFF	RMS	ROOT MEAN SQUARE
ETR	EXISTING TO REMAIN	SE	SERVICE ENTRANCE
FA	FIRE ALARM	SER	SERVICE ENTRANCE RATED
FAAP	FIRE ALARM ANNUNCIATOR PANEL	SF	SQUARE FOOT (FEET)
FACP	FIRE ALARM CONTROL PANEL	SW	SWITCH
FC	FOOTCANDLE	SWBD	SWITCHBOARD
FLA	FULL LOAD AMPS	SWGR	SWITCHGEAR
FMC	FLEXIBLE METALLIC CONDUIT	TC	TIME CLOCK
GND	GROUND	TV	TELEVISION AND/OR MONITOR
GFI/GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TYP	TYPICAL
HP	HORSEPOWER	UL	UNDERWRITERS LABORATORY
IMC	INTERMEDIATE METAL CONDUIT	V	VOLT
IR	INFRARED	VA	VOLT AMPERE
JBOX	JUNCTION BOX	VOLT	VOLTAGE
KV	KILOVOLT	W	WATT
kVA	KILOVOLT AMPERE	WH	WATER HEATER
KW	KILOWATT	WP	WEATHERPROOF
KWH	KILOWATT HOUR	XFMR	TRANSFORMER
LV	LOW VOLTAGE		



01/29/2021

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

PROJECT #: 11351
ISSUE DATE: 01/29/2020
DRAWN BY: C.HESS
CHECKED BY: J.QUILLEN

REVISIONS:

SHEET No.
E2.0
ELECTRICAL SINGLE LINE

LA1

ROOM MOUNTING SURFACE FED FROM UTILITY		VOLTS 208Y/120V 3P 4W BUS AMPS 150 NEUTRAL 100%			AIC EXISTING 10,000 MAIN BKR 150 LUGS STANDARD						
NOTE											
CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA		
			A	B	C				A	B	C
1	60/2	(EX) EXISTING CU-1	3.6			2	20/1	(EX) EXISTING RCPT - PLATFORM 118, ELEC 119	0.9		
3				3.6		4	20/1	(EX) EXISTING RCPT - RM 117,121		1.44	
5	15/2	(EX) EXISTING AC-1			0.895	6	15/1	(EX) EXISTING WHLRP - MECH 116			0.796
7						8	15/1	(EX) EXISTING EF-1 - TOILET 115	0.1		
9	20/1	(EX) EXISTING RCPT - RM 113,117	1.44			10	20/1	(EX) EXISTING DUH - 1,2		0.4	
11	20/1	(EX) EXISTING RCPT - PROD SUITE 112			1.08	12	20/1	(EX) EXISTING RCPTS - SOUNDBOOTH LTG CTRL			0.36
13	20/1	(EX) EXISTING RCPT - RM 114,116	0.72			14	20/1	(EX) EXISTING DMX MIXER	1.44		
15	20/1	(EX) EXISTING RCPT - RM 114,115	0.72			16	20/1	(EX) RCPTS - LIGHT TRUSS	0.18		
17	20/1	NEXT STEPS & OFFICE LIGHTING			1.27	18	20/1	(EX) RCPTS - LIGHT TRUSS			0.18
19	20/1	KITCHEN, GREEN ROOM, VOL. CENTER, PRAYER ROOM, & CORRIDOR LIGHTING	1.07			20	20/1	(EX) RCPTS - LIGHT TRUSS	0.18		
21	20/1	STORAGE 118, STORAGE 122 & CORRIDOR LIGHTING		1.06		22	20/1	(EX) RCPTS - LIGHT TRUSS		0.18	
23	30/1	CLASSROOMS LIGHTING			2.01	24	20/1	(EX) RCPTS - LIGHT TRUSS			0.18
25	20/1	AUDITORIUM 119 RECEPTACLE	1.44			26	20/1	(EX) RCPTS - LIGHT TRUSS	0.18		
27	20/1	AUDITORIUM 123 RECEPTACLE		1.44		28	20/1	(EX) RCPTS - LIGHT PIPE		0.18	
29	20/1	KITCHEN 105 GARBAGE DISPOSAL			1.66	30	20/1	(EX) RCPTS - LIGHT PIPE			0.18
31	40/1	KITCHEN 105 SMALL APPLIANCE	4.5			32	20/1	(EX) RCPTS - LIGHT PIPE	0.18		
33	20/1	KITCHEN 105 GARBAGE DISPOSAL		1.66		34	20/1	CORRIDOR 115, 114, & 130 RECEPTACLE		1.26	
35	20/1	KITCHEN 105 G - DISHWASHER			1	36	20/1	STORAGE 118, 120, 122 & TOIL. 117 & TOIL. 116 RECEPTACLE			1.26
37	20/1	KITCHEN 105 G - REFRIGERATOR	1.5			38	20/1	OFFICE 104 RECEPTACLE	1.08		
39	20/1	NEXT STEPS RECEPTACLE			1.08	40	20/1	CLASSROOMS 124 & 126 RECEPTACLE		0.9	
41	20/1	OFFICE 104 RECEPTACLE			1.44	42	20/1	CLASSROOMS 127 & 129 RECEPTACLE			0.9
						TOTAL CONNECTED KVA BY PHASE			17.8	15.5	13.2
		CONN KVA	CALC KVA				CONN KVA	CALC KVA			
LIGHTING		5.41	6.76	(125%)	KITCHEN EQUIPMENT		4.5	4.05	(90%)		
LARGEST MOTOR		7.2	1.8	(25%)	NONCONTINUOUS		4.1	4.1	(100%)		
MOTORS		3.31	3.31	(100%)	HEATING		8.99	8.99	(100%)		
RECEPTACLES		20.2	15.1	(50%>10)	COOLING		8.99	0	(0%)		
					TOTAL LOAD		44.1				
					BALANCED 3-PHASE LOAD		122 A				

TP

ROOM MOUNTING SURFACE FED FROM UTILITY		VOLTS 208Y/120V 3P 4W BUS AMPS 150 NEUTRAL 100%			AIC EXISTING 10,000 MAIN BKR 150 LUGS STANDARD			
NOTE		LOAD KVA			CIRCUIT DESCRIPTION			
CKT #	CKT BKR	CIRCUIT DESCRIPTION			CKT #	CKT BKR	CIRCUIT DESCRIPTION	
		A	B	C			A B C	
1	20/1	(EX) EXISTING RCPTS - SOUND BOOTH AUDIO	1.25		2	20/1	(EX) EXISTING RCPT - SOUND BOOTH VIDEO	1.4
3	20/1	(EX) EXISTING RCPT - SOUND BOOTH COMPUTERS		0.72	4	20/1	(EX) EXISTING RCPT - SOUND BOOTH COUNTER	0.36
5	20/1	(EX) EXISTING RCPT - PLATFORM 118			6	20/1	(EX) EXISTING RCPT - PLATFORM 118	0.54
7	20/1	(EX) EXISTING RCPT - PLATFORM 118	0.72		8	20/1	(EX) EXISTING MONITORS - CAFE 123	0.6
9	20/1	(EX) EXISTING RCPT - SANCTUARY 117		0.54	10	20/1	(EX) EXISTING RCPT - ELEC 119	0.54
11	20/1	(EX) EXISTING AMP RACK PROCESSING 119			12	20/1	(EX) EXISTING AMP RACK MONITORS 119	1.85
13	20/1	(EX) EXISTING AMP RACK CENTER - 119	1.6		14	20/1	(EX) EXISTING AMP RACK CENTER 119	1.6
15	20/1	(EX) EXISTING AMP RACK SUBWOOFERS 119		1.93	16	20/1	(EX) EXISTING AMP RACK SUBWOOFERS 119	1.93
17	20/1	(EX) EXISTING RCPT - DIST SYSTEM - CAFE 123		1.45	18	20/1	(EX) EXISTING SPEAKER ARRAY - SANCTUARY 117	0.75
19	20/1	(EX) EXISTING SPEAKER ARRAY - SANCTUARY 117	0.75		20	20/1	(EX) EXISTING SUBWOOFER PLATFORM 118	0.6
21	20/1	(EX) EXISTING SUBWOOFER PLATFORM 118		0.6	22	20/1	(EX) EXISTING PROJECTORS PLATFORM 118	1.2
23	20/1	(EX) EXISTING PROJECTOR SANCTUARY 117		0.7	24	20/1	(EX) EXISTING CLG RCPTS - SANCTUARY 117	0.9
25	20/1	(EX) EXISTING MONITOR - RM 101,109,114	1		26	20/1	(EX) EXISTING MONITORS - FOYER 101	0.4
27	20/1	(EX) EXISTING RCPT - PROD SUITE 112		1.26	28	20/1	(EX) EXISTING RCPT - PROD SUITE 112	1.08
29	20/1	(EX) EXISTING RCPT - PROD SUITE 112			30	20/1	(EX) EXISTING RCPT - CLASSROOM 102	0.72
31	20/1	(EX) EXISTING RCPT - CLASSROOM 192	0.36		32	30/1	(EX) EXISTING TWIST LOCK RECEPT	1.5
33	20/1	CLASSROOMS 131 & 135 RECEPTACLE		1.44	34	20/1	OFFICE 105 RECEPTACLE	0.9
35	20/1	GREEN ROOM RECEPTACLE		0.54	36	20/1	CORRIDOR 107 & STORAGE 106 RECEPTACLE	0.36
37	60/3	PANEL UT1	6.48		38	15/2	CU-1	1.04
39				5.4	40			1.04
41				6.12	42	20/1	SPACE	0
					TOTAL CONNECTED KVA BY PHASE			19.3 18.9 16.5
		CONN KVA	CALC KVA				CONN KVA	CALC KVA
LARGEST MOTOR		2.08	0.52	(25%)	NONCONTINUOUS		19.6	19.6
RECEPTACLES		33.1	21.5	(50%>10)	HEATING		2.08	2.08 (100%)
					COOLING		2.08	0 (0%)
					TOTAL LOAD		43.7	
					BALANCED 3-PHASE LOAD		121 A	

LA2

ROOM MOUNTING SURFACE FED FROM UTILITY		VOLTS 208Y/120V 3P 4W BUS AMPS 400 NEUTRAL 100%			AIC EXISTING 10,000 MAIN BKR 400 LUGS STANDARD			
NOTE		LOAD KVA			CIRCUIT DESCRIPTION			
CKT #	CKT BKR	LOAD KVA			CKT #	CKT BKR	LOAD KVA	
		A	B	C			A B C	
1	20/3	(EX) EXISTING THEATRICAL LTG. - LCP 101	1.92		2	40/3	(EX) EXISTING DIMMING PANEL - LDR -1	3.84
3			1.92		4			3.84
5			1.92		6			3.84
7	20/3	(EX) EXISTING THEATRICAL LTG. - LCP 102	1.92		8	20/1	(EX) EXISTING RECEPT LIGHTING TRUSS	1
9			1.92		10	20/1	(EX) EXISTING RECEPT LIGHTING TRUSS	1
11			1.92		12	20/1	(EX) EXISTING RECEPT LIGHTING TRUSS	1
13	20/3	(EX) EXISTING THEATRICAL LTG. - LCP 103	1.92		14	20/1	(EX) EXISTING RECEPT LIGHTING TRUSS	1
15			1.92		16	20/1	(EX) EXISTING RECEPT LIGHTING TRUSS	1
17			1.92		18	20/1	(EX) EXISTING RECEPT LIGHTING TRUSS	1
19	20/3	(EX) EXISTING THEATRICAL LTG. - LCP 104	1.92		20	20/1	(EX) EXISTING DMX MIXER RECEPT	1
21			1.92		22	20/1	(EX) EXIT/FBU'S SANCTUARY	1
23			1.92		24	20/1	(EX) EXISTING UNDER STAGE OUTLETS	0.75
25	20/3	(EX) EXISTING THEATRICAL LTG. - LCP 105	1.92		26	20/1	(EX) EXISTING UNDER STAGE OUTLETS	0.75
27			1.92		28	20/1	(EX) EXISTING UNDER STAGE OUTLETS	0.75
29			1.92		30	20/1	(EX) EXISTING UNDER STAGE OUTLETS	0.75
31	20/3	(EX) EXISTING THEATRICAL LTG.	1.92		32	20/1	(EX) EXISTING UNDER STAGE OUTLETS	0.75
33			1.92		34	20/1	(EX) EXISTING UNDER STAGE OUTLETS	0.75
35			1.92		36	20/1	(EX) EXISTING UNDER STAGE OUTLETS	0.75
37	60/3	PANEL LA3	3.59		38	20/1	(EX) EXISTING UNDER STAGE OUTLETS	0.75
39			2.25		40	20/1	(EX) EXISTING DIMMER PACK	0.75
41			2.66		42	20/1	(EX) EXISTING DIMMER PACK	0.75
					TOTAL CONNECTED KVA BY PHASE			24.2 22.9 23
		CONN KVA	CALC KVA					
LIGHTING		52.1	65.1	(125%)	RECEPTACLES		7.68 7.68 (50%~10)	
LARGEST MOTOR		1.66	0.414	(25%)	KITCHEN EQUIPMENT		1.5 1.5 (100%)	
MOTORS		3.31	3.31	(100%)	NONCONTINUOUS		5.5 5.5 (100%)	
		TOTAL LOAD					83.5	
		BALANCED 3-PHASE LOAD					232 A	

HL11

ROOM MOUNTING SURFACE FED FROM UTILITY		VOLTS 480Y/277V 3P 4W BUS AMPS 200 NEUTRAL 100%			AIC EXISTING 22,000 MAIN BKR MLO LUGS STANDARD							
NOTE												
CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			
			A	B	C				A	B	C	
1	20/1	(EX) EXISTING ELEC/CORRIDOR	0.58			2	20/1	(EX) EXISTING SITE LIGHTING	3.14			
3	20/1	(EX) EXISTING LTG - RECEPTION/OFFICE/HALL		3.09		4	20/1	(EX) EXISTING SITE LIGHTING		1.88		
5	20/1	(EX) EXISTING LTG - CONF/OFFICE			1.74	6	20/1	(EX) EXISTING SITE LIGHTING			2.75	
7	20/1	(EX) EXISTING LTG - 126,129,130	1.76			8	20/1	(EX) EXISTING EXTERIOR LIGHTING	1.92			
9	20/1	(EX) EXISTING LTG - 124,125,131,132		1.28		10	20/1	(EX) EXISTING MONUMENT SIGN		1		
11	20/1	(EX) EXISTING LTG - 104-112,114-116			3.16	12	20/1	(EX) EXISTING BUILDING SIGNAGE			1.2	
13	20/1	(EX) EXISTING LTG - 100,101,103	2.39			14	20/1	(EX) EXISTING BUILDING SIGNAGE	1			
15	20/1	(EX) EXISTING LTG - 102		1.82		16	15/3	(EX) EXISTING SEWAGE EJECTOR PUMP		1.33		
17	20/1	(EX) EXISTING LTG - 113,119,121			0.612	18					1.33	
19	20/1	(EX) EXISTING LTG - 123	1.22			20			1.33			
21	20/1	SPACE		0		22	20/1	SPACE		0		
23	20/1	SPACE			0	24	20/1	SPACE			0	
25	20/1	SPACE	0			26	20/1	SPACE	0			
27	20/1	SPACE		0		28	20/1	SPACE		0		
29	20/1	SPACE			0	30	20/1	SPACE			0	
31	25/3	RTU-7	6.1			32	20/3	RTU-9	3.6			
33				6.1		34				3.6		
35					6.1	36					3.6	
37	25/3	RTU-8	5.54			38	20/3	RTU-10	3.6			
39				5.54		40				3.6		
41					5.54	42					3.6	
TOTAL CONNECTED KVA BY PHASE												
									32.2	29.2	29.6	
		CONN KVA	CALC KVA					CONN KVA	CALC KVA			
LIGHTING		30.5	38.2	(125%)	MOTORS		4	4	(100%)			
LARGEST MOTOR		18.3	4.57	(25%)	HEATING		56.5	56.5	(100%)			
						COOLING		56.5	0	(0%)		
						TOTAL LOAD		103				
						BALANCED 3-PHASE LOAD		124 A				

LA3

ROOM MOUNTING SURFACE FED FROM LA2		VOLTS 208Y/120V 3P 4W BUS AMPS 60 NEUTRAL 100%			AIC 10,000 MAIN BKR MLO LUGS STANDARD						
NOTE											
CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA		
			A	B	C				A	B	C
1	20/1	G - MICROWAVE	1			2	20/1	G - REFRIGERATOR	0.75		
3	20/1	G - REFRIGERATOR		0.75		4	20/1	SMALL APPLIANCE		1.5	
5	20/1	GARBAGE DISPOSAL			1.66	6	20/1	G - DISHWASHER			1
7	20/1	VOL. CENTRAL 109 RECEPTACLE	0.18			8	20/1	GARBAGE DISPOSAL	1.66		
9	20/1	SPACE		0		10	20/1	SPACE		0	
11	20/1	SPACE			0	12	20/1	SPACE			0
13	20/1	SPACE	0			14	20/1	SPACE	0		
15	20/1	SPACE		0		16	20/1	SPACE		0	
17	20/1	SPACE			0	18	20/1	SPACE			0
19	20/1	SPACE	0			20	20/1	SPACE	0		
21	20/1	SPACE		0		22	20/1	SPACE		0	0
23	20/1	SPACE			0	24	20/1	SPACE			0
						TOTAL CONNECTED KVA BY PHASE			3.59	2.25	2.66
		CONN KVA	CALC KVA					CONN KVA	CALC KVA		
LARGEST MOTOR		1.66	0.414	(25%)			RECEPTACLES		1.68	1.68	(50%>10)
MOTORS		3.31	3.31	(100%)			KITCHEN EQUIPMENT		1.5	1.5	(100%)
							NONCONTINUOUS		2	2	(100%)
							TOTAL LOAD		8.91		
							BALANCED 3-PHASE LOAD		24.7 A		

DIVISION 26 ELECTRICAL SPECIFICATIONS

26 05 01 COMMON REQUIREMENTS FOR ELECTRIC

ALL ELECTRICAL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF NFPA 70 AND ALL REGULATIONS, LAWS, AND ORDINANCES WHICH MAY BE APPLICABLE AND BY TRAINED AND LICENSED ELECTRICIANS.

BEFORE SUBMITTING A BID, EXAMINE DOCUMENTS OF ALL OTHER TRADES, VISIT THE SITE AND GET ACQUAINTED WITH ALL CONDITIONS THAT MAY IN ANY WAY AFFECT THE EXECUTION OF THIS CONTRACT. TAKE MEASUREMENTS AND BE RESPONSIBLE FOR EXACT SIZE AND LOCATIONS OF ALL OPENINGS REQUIRED. VERIFY INSTALLATION MAY BE MADE IN COMPLETE ACCORDANCE WITH ALL PERTINENT CODES AND REGULATIONS. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE PROFESSIONAL ENGINEER OF RECORD. DO NOT PROCEED WITH THE INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.

IT IS NOT THE INTENT OF THE DRAWINGS THAT EXISTING CONDITIONS BE ACCURATELY SHOWN. EXISTING ELECTRICAL WORK IS SHOWN TO LIMITED EXTENT ON DRAWINGS AND IS SHOWN FOR GENERAL REFERENCE ONLY. LOCATIONS AND INFORMATION WERE DERIVED FROM CURSORY SITE VISUAL OBSERVATIONS OR FROM DOCUMENTS THAT WERE PREPARED FOR PREVIOUSLY INSTALLED WORK WHEN AVAILABLE.

LIST OF EQUIPMENT, TABULATIONS OF DATA, SCHEDULES, ETC. APPEARING IN THE SPECIFICATIONS OR ON THE DRAWINGS ARE INCLUDED FOR REFERENCE BY THE CONTRACTOR IN ARRIVING AT A MORE COMPLETE UNDERSTANDING OF THE INTENDED INSTALLATION. THEY ARE NOT INTENDED OR TO BE CONSTRUED AS RELIEVING THE RESPONSIBILITY OF THE CONTRACTOR IN MAKING HIS/HER OWN TAKE-OFF AND PROVIDING ALL REQUIRED WORK.

THE WORK COVERED BY THESE SPECIFICATIONS SHALL CONSIST OF: PROVIDING ALL NEW MATERIAL, LABOR, EQUIPMENT, AND SERVICES NECESSARY FOR A COMPLETE ELECTRICAL INSTALLATION AS SPECIFIED HEREIN. WORK IN THIS SECTION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING ITEMS:

- TELEPHONE CONDUIT SYSTEM
- DATA COMMUNICATIONS CONDUIT SYSTEM
- WIRING DEVICES
- BRANCH CIRCUITING
- GROUNDING
- CONNECTION OF HVAC EQUIPMENT
- TEMPORARY ELECTRICAL WIRING
- LIGHTING

WHENEVER THE WORDS "CONTRACTOR" APPEAR ON ELECTRICAL DRAWINGS OR IN THESE SPECIFICATIONS, IT SHALL REFER TO THE ELECTRICAL SUB-CONTRACTOR. WHENEVER THE WORD "PROVIDE" APPEARS IN THESE DOCUMENTS, IT SHALL BE INTERPRETED TO MEAN "FURNISH AND INSTALL".

COORDINATE ALL WORK WITH THE OWNER TO MINIMIZE INTERRUPTION OF BUILDING OPERATION. SCHEDULE OF ALL POWER OUTAGES MUST BE APPROVED BY THE OWNER PRIOR TO THE BEGINNING OF ANY WORK.

PRIOR TO ALL WORK, CAREFULLY INSPECT THE INSTALLED WORK OF ALL OTHER TRADES AND VERIFY THAT ALL SUCH WORK IS COMPLETE TO THE POINT WHERE THIS INSTALLATION MAY PROPERLY COMMENCE. COORDINATE THE INSTALLATION OF ELECTRICAL ITEMS WITH THE SCHEDULES FOR WORK OF ALL OTHER TRADES TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

COORDINATE EXACT ELECTRICAL REQUIREMENTS (VOLTAGE, PHASE, AMPS, WIRING, CONNECTIONS, AND ETC.) OF EQUIPMENT FURNISHED BY OTHERS PRIOR TO PERFORMING WORK. COORDINATE MANUFACTURER'S ELECTRICAL WIRING AND CONNECTION REQUIREMENTS WITH PRODUCT DATA AND/OR SUBMITTAL DRAWINGS PRIOR TO ROUGH-IN AND FURNISHING EQUIPMENT'S OVER-CURRENT PROTECTIVE DEVICES. ALL WIRING REQUIREMENTS SHOWN ARE SCHEMATIC IN NATURE.

- COORDINATE SPECIALTY RECEPTACLE AND/OR OUTLET TYPES WITH EQUIPMENT REQUIREMENTS.
- WHEN LOOSE DISCONNECT SWITCHES ARE FURNISHED UNDER MECHANICAL CONTRACT, RECEIVE AND INSTALL AND PROVIDE ALL FINAL TERMINATIONS NECESSARY.

VERIFY ALL EQUIPMENT LOCATIONS, SWITCHES, RECEPTACLES, LIGHTING FIXTURES, ETC., IN FIELD. THE OWNER RESERVES THE RIGHT TO CHANGE LOCATION OF ANY OUTLET OR FIXTURE FOR A DISTANCE OF 15 FT. IN ANY DIRECTION FROM DRAWING LOCATION, BEFORE THE WORK IS ACTUALLY ROUGHED IN, AT NO EXTRA CHARGE.

WHERE LIGHT FIXTURE AND OTHER ELECTRICAL ITEMS ARE SHOWN IN CONFLICT WITH LOCATIONS OF STRUCTURAL MEMBERS AND MECHANICAL OR OTHER EQUIPMENT, PROVIDE ALL REQUIRED SUPPORTS AND WIRING TO CLEAR THE ENCROACHMENT.

PROVIDE ALL MISCELLANEOUS HARDWARE AND MATERIAL NOT SPECIFIED BUT NECESSARY TO PROVIDE A COMPLETE AND WORKING ELECTRICAL SYSTEM. THIS HARDWARE SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL MISCELLANEOUS CONDUIT FITTINGS AND MOUNTING HARDWARE, LUMINAIRE MOUNTING HARDWARE, BRACKETS, CONNECTORS, CORDS AND PLUGS.

PROVIDE ACCESS DOORS TO PROVIDE ACCESS TO ALL J-BOXES, PULL BOXES, AND OTHER EQUIPMENT AS REQUIRED. ACCESS DOORS FOR INSTALLATION IN FIRE RATED CONSTRUCTION SHALL HAVE APPROPRIATE FIRE RATING.

DURING PROGRESS OF THE WORK, MAINTAIN ON DRAWINGS AT THE SITE, AN ACCURATE RECORD OF THE INSTALLATION OF THE ELECTRICAL SYSTEM, INDICATING ALL ITEMS WHICH HAVE BEEN CHANGED OR ADDED.

APPLY FOR AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED BY LOCAL AUTHORITY, FOR THE APPROVAL OF WORK.

A CERTIFICATE OF FINAL INSPECTION AND APPROVAL SHALL BE SUBMITTED WITH THE CONTRACTOR'S REQUEST FOR FINAL PAYMENT. NO FINAL PAYMENT WILL BE APPROVED WITHOUT THIS CERTIFICATE.

GUARANTEE ALL WORKMANSHIP, MATERIAL, AND EQUIPMENT AND REPLACE ANY FOUND DEFECTIVE WORK WITHOUT COST TO THE OWNER, FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE.

ALL MATERIALS, APPARATUS AND EQUIPMENT SHALL BEAR THE SEAL OF UNDERWRITERS LABORATORIES INC. (UL) OR A SIMILAR CREDIBLE TESTING AGENCY. DESIGN BASIS MANUFACTURERS OF MATERIAL AND EQUIPMENT ARE SPECIFIED AND PLANS ARE DETAILED ACCORDING TO THIS MATERIAL. CONTRACTOR SHALL BASE HIS BID ON FURNISHING AND INSTALLING THIS MAKE OF MATERIAL AND EQUIPMENT.

AN ACCEPTABLE MANUFACTURER'S NAME AND MODEL NUMBER OF A PRODUCT MAY BE PROVIDED IN THESE DOCUMENTS. THIS IS THE EQUIPMENT INCLUDED DURING THE DESIGN PROCESS AND FORMS THE BASIS OF A STANDARD OF QUALITY. WHERE MORE THAN ONE MAKE OF MATERIAL OR EQUIPMENT IS SPECIFIED, THE CONTRACTOR SHALL STATE IN HIS BID WHICH MAKE HE PROPOSES TO FURNISH AND INSTALL. SHOP DRAWING APPROVAL SHALL BE OBTAINED PRIOR TO SHIPMENT OF EQUIPMENT.

VERIFY THE MODEL NUMBER OR PRODUCT IS STILL ACCURATE AND MEETS ALL REQUIREMENTS SHOWN ON THE DRAWINGS. IF THERE IS A DISCREPANCY BETWEEN THE REQUIREMENTS AND THE PRODUCT OR MODEL NUMBER, THE STRICTER OF THE TWO SHALL GOVERN.

26 05 03 SUBMITTALS FOR ELECTRICAL SYSTEMS

SUBMIT SHOP DRAWINGS AND/OR PRODUCT DATA (ELECTRONIC COPIES) ON THE FOLLOWING ITEMS FOR REVIEW BEFORE FABRICATION OR SHIPMENT:

- LOW VOLTAGE TRANSFORMERS
- PANEL BOARDS AND CIRCUIT BREAKERS
- DISCONNECT SWITCHES
- WIRING DEVICES
- LIGHTING
- LIGHTING CONTROLS (SWITCHES - TOGGLE, DIMMER, OCCUPANT SENSORS, ETC.)
- DISTRIBUTION PANELS
- SWITCHBOARDS

MAINTENANCE MANUALS: THE MANUALS SHALL INCLUDE WIRING DIAGRAMS, MAINTENANCE AND OPERATING INSTRUCTIONS, PARTS LISTINGS, AND COPIES OF OTHER SUBMITTALS INDICATED FOR INCLUSION.

REVIEW AND CORRECTIONS OR COMMENTS MADE ON SHOP DRAWINGS, PRODUCT DATA, CATALOGS, CUT SHEETS, CHARTS, AND OTHER ITEMS DURING CONSTRUCTION PHASE SUBMITTAL REVIEW DO NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS, FOR PROVIDING A COMPLETE AND FUNCTIONING PROJECT, NOR SHALL THEY RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR DEVIATIONS OR ERRORS OF ANY SORT. THIS REVIEW IS FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH INFORMATION GIVEN AND THE DESIGN CONCEPT EXPRESSED IN THE CONTRACT DOCUMENTS. CONTRACTOR REMAINS RESPONSIBLE FOR DETERMINING THE ACCURACY AND COMPLETENESS OF OTHER DETAILS SUCH AS DIMENSIONS AND QUANTITIES, FOR SUBSTANTIATING INSTRUCTIONS FOR INSTALLATIONS, VERIFYING MATERIALS REQUIRED, OBTAINING FIELD MEASUREMENTS AND RELATED CRITERIA, COORDINATING WORK WITH OTHER DISCIPLINES AND PERFORMING WORK IN COMPLIANCE WITH THE CONTRACT DOCUMENTS.

ANY CHANGES TO ITEMS SPECIFIED MUST BE SUBMITTED IN WRITING AS A SUBSTITUTION, WITH COMPLETE DOCUMENTATION OF PRICE DIFFERENTIAL AND EQUIPMENT DETAILS.

26 05 05 - EXISTING CONDITIONS & DEMOLITION

DO NOT REMOVE ELECTRICAL MATERIALS UNLESS SPECIFICALLY INDICATED ON DRAWINGS. EXISTING WIRING SYSTEMS MAY BE UTILIZED ONLY TO THE EXTENT INDICATED ON DRAWINGS.

IF REQUIRED TO ACCOMMODATE CONSTRUCTION RELATED ACTIVITIES TEMPORARILY REMOVE, STORE IN PROTECTED LOCATION ON SITE, AND REINSTALL CONFLICTING ELECTRICAL EQUIPMENT, LUMINAIRES, OR DEVICES THAT ARE TO REMAIN OR TO BE RELOCATED.

WHERE THE TERM "DEMOLITION" IS USED HEREIN, INTERPRET IT TO MEAN "DEMOLITION" OR "SELECTIVE DEMOLITION" WHERE APPLICABLE.

PROVIDE ELECTRICAL DEMOLITION WORK AS REQUIRED TO ACCOMMODATE PROJECT DEMOLITION AND AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION. DISCONNECT AND REMOVE WORK TO BE ABANDONED, AND AS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES, IN AREAS AFFECTED BY THIS PROJECT.

MAINTAIN EXISTING ELECTRICAL SERVICE AND FEEDERS TO OCCUPIED AREAS AND OPERATIONAL FACILITIES, UNLESS OTHERWISE INDICATED, OR WHEN AUTHORIZED OTHERWISE IN WRITING BY OWNER'S REPRESENTATIVE. PROVIDE TEMPORARY SERVICE DURING INTERRUPTIONS TO EXISTING FACILITIES. SCHEDULE MOMENTARY OUTAGES WHEN NECESSARY FOR REPLACING EXISTING WIRING SYSTEMS WITH NEW WIRING SYSTEMS. WHEN THAT "CUTTING-OVER" HAS BEEN SUCCESSFULLY ACCOMPLISHED, REMOVE RELATED WIRING THAT HAS BEEN ABANDONED.

CAREFULLY COORDINATE WORK AND SYSTEM SHUTDOWNS IN ADVANCE WITH OWNER'S REPRESENTATIVE, AND WITH AFFECTED TRADES SO THAT NORMAL BUILDING ACTIVITIES AND OTHER CONSTRUCTION TRADES ARE MINIMALLY AFFECTED. PERFORM ELECTRICALLY RELATED CONSTRUCTION WORK, WHICH WILL AFFECT AN OCCUPIED AREA (INCLUDING THOSE WHICH ARE LOCATED OUTSIDE THE IMMEDIATE AREA OF PROJECT WORK) AT SPECIAL TIMES AS DIRECTED BY OWNER'S REPRESENTATIVE IN FIELD.

PROVIDE WORK IN A MANNER THAT ENSURES EXISTING SYSTEMS AND COMPONENTS REMAIN FULLY OPERATIONAL IN OCCUPIED SPACES DURING OCCUPIED PERIODS.

PROVIDE AND MAINTAIN TEMPORARY PARTITIONS AND DUST BARRIERS ADEQUATE TO PREVENT THE SPREAD OF DUST AND DIRT TO ADJACENT FINISHED AREAS AND OTHER SYSTEM COMPONENTS. PROTECT ADJACENT INSTALLATIONS DURING CUTTING AND PATCHING OPERATIONS. REMOVE PROTECTION AND BARRIERS AFTER DEMOLITION OPERATIONS ARE COMPLETE.

INSPECT EXISTING ELECTRICAL WORK IN AREAS ACCESSED UNDER THIS PROJECT AND BRING INTO COMPLIANCE WITH CURRENT NFPA 70. THIS APPLIES ONLY TO THE EXTENT THAT SUCH WORK IS UNCOVERED IN THE IMMEDIATE PROJECT AREAS AFFECTED BY CONSTRUCTION ACTIVITIES, AND ONLY TO THE LIMITED EXTENT THAT IT APPLIES TO PRE-EXISTING GENERAL INSTALLATION METHODS SUCH AS MISSING JUNCTION BOX PLATE, OPEN JUNCTION BOX KNOCKOUT, MINOR CONDUIT RE-ANCHORING AND MINOR EXPOSED WIRING/CONNECTIONS. IF MORE EXTENSIVE CODE OR SAFETY VIOLATIONS ARE DISCOVERED, IMMEDIATELY BRING THEM TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE (DETAILED IN WRITING) ALONG WITH PROPOSED COST FOR CORRECTIONS AND IMPACT (IF ANY) ON THE CONSTRUCTION SCHEDULE.

THE FOLLOWING APPLIES TO ELECTRICAL MATERIALS THAT WILL REMAIN OR BE REUSED UNDER THIS PROJECT: PROTECT DURING CONSTRUCTION ACTIVITIES:

- DETERMINE WHICH EXISTING BRANCH CIRCUITS MUST REMAIN ACTIVE. RECONNECT (OR MAINTAIN IN OPERATION WHERE APPLICABLE) AND SCHEDULE THEM IN THE PANELBOARD(S).
- EXISTING BRANCH CIRCUIT AND SYSTEMS CONDUIT, NOT CONFLICTING WITH NEW CONSTRUCTION AND NOT CONFLICTING WITH OVERHEAD OR CEILING CAVITY REQUIREMENTS, MAY BE RE-USED AT THE DISCRETION OF THE ELECTRICAL INSTALLER (AFTER ALL ABANDONED CONDUCTORS AND CABLES HAVE BEEN REMOVED FROM THEM), DO NOT EXCEED NFPA 70 REQUIRED CONDUIT FILL AND DO NOT INSTALL WIRING FED FROM DIFFERENT SOURCES IN COMMON CONDUIT.
- COMPLETELY RE-TYPE PANELBOARD DIRECTORIES FOR PANELBOARD(S) AFFECTED BY THIS PROJECT USING ACCURATE "AS-BUILT" INFORMATION.
- WHERE APPLICABLE ENSURE THAT RECONNECTED SHARED NEUTRALS ARE PROPERLY BALANCED WITH THE CORRECT PHASE CONNECTIONS.
- WHERE APPLICABLE, PROVIDE CORRECT COLOR-CODING FOR INSULATION OF RECONNECTED CONDUCTORS IN A MANNER COMPLIANT WITH NFPA 70.
- FOR ALL EXISTING LUMINAIRES SCHEDULED FOR REUSE, REMOVE FROM EXISTING CEILINGS DURING DEMOLITION; PROTECT DURING CONSTRUCTION; CLEAN, SERVICE (IF REQUIRED), RE-LAMP (WITH LAMPS TO MATCH BUILDING STANDARD OR PER THIS SECTION AS NOTED) AND REINSTALL AT LOCATIONS INDICATED. RE-LAMP LUMINAIRES IMMEDIATELY PRIOR TO OCCUPANCY OF THE FINISHED CONSTRUCTION AREA.
- CLEAN COMPONENTS TO BE REUSED INSIDE AND OUT, AND REINSTALL WHERE INDICATED ON DRAWINGS. MODIFY AND EXTEND RELATED EXISTING BRANCH WIRING AND/OR CONTROL WIRING ACCORDINGLY TO INCLUDE CONDUIT, CABLING, ETC.

26 05 19 LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

FURNISH AND INSTALL ALL NECESSARY CABLE OF THE SIZE AND TYPE INDICATED ON THE DRAWINGS. ALL WIRE SHALL BE COPPER UNLESS OTHERWISE SPECIFIED.

NO CONDUCTOR SMALLER THAN NO. 12 AWG SHALL BE USED UNLESS OTHERWISE INDICATED. IN GENERAL, CONDUCTORS SMALLER THAN NO. 12 WILL BE PERMITTED ONLY FOR COMMUNICATION, SIGNAL, OR CONTROL CIRCUITS.

PROVIDE THE FOLLOWING MINIMUM AWG CONDUCTOR SIZES FOR GENERAL BRANCH CIRCUITING AND GROUNDS THAT ARE NOT INDICATED ON DRAWINGS. ALL WIRING IS BASED ON USING COPPER CONDUCTORS UNLESS OTHERWISE INDICATED. WHERE APPLICABLE INCREASE AS REQUIRED TO ACCOMMODATE VOLTAGE DROP AND TO ACCOMMODATE SPECIAL CONDITIONS. DO NOT DERATE ANY GROUNDED (NEUTRAL) CONDUCTORS. TEMPERATURE RATINGS LISTED BELOW PERTAIN TO BOTH WIRE AND TERMINATIONS.

SOURCE BREAKER/FUSE	60 DEG. C. RATING AWG WIRE SIZE	EQUIPMENT GROUNDING AWG WIRE SIZE
15 AMPERE	#12	#12
20 AMPERE	#12	#12
25 AMPERE	#10	#10
30 AMPERE	#10	#10
35 AMPERE	#8	#10
40 AMPERE	#8	#10
45 AMPERE	#6	#10
50 AMPERE	#6	#10
60 AMPERE	#4	#8
70 AMPERE	#4	#8
80 AMPERE	#2	#8
90 AMPERE	#2	#8
100 AMPERE	#1	#8

CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET, NO SPLICES SHALL BE PERMITTED EXCEPT AT OUTLETS. ALL ELECTRICAL CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC.

COLOR CODING IS REQUIRED FOR ALL SERVICE, FEEDER, BRANCH, CONTROL, AND SIGNALING CIRCUIT CONDUCTORS. INSULATION COLOR FOR NEUTRALS SHALL BE WHITE FOR 120 VOLT CIRCUITS. EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN. THE COLOR OF THE INSULATION OF THE UNGROUNDED CONDUCTORS SHALL BE AS FOLLOWS:

208Y/120V SYSTEM: BLACK, RED, BLUE AND WHITE (NEUTRAL)
480Y/277V SYSTEM: BROWN, ORANGE, YELLOW AND GRAY (NEUTRAL)
EQUIPMENT GROUNDING: GREEN

ALL UNGROUNDED CONDUCTORS OF THE SAME COLOR SHALL BE CONNECTED TO THE SAME UNGROUNDED FEEDER CONDUCTOR.

USE NO WIRE SMALLER THAN NO. 12 AWG, RATED AT 600 VOLTS, FOR POWER AND LIGHTING CIRCUITS AND NO SMALLER THAN NO. 14 FOR CONTROL WIRING. BRANCH CIRCUIT CONDUCTORS FOR 20 AMPERE, 120 VOLT CIRCUITS SHALL BE NO. 12 AWG, WITH CONDUCTOR FROM PANEL BOARD TO THE FIRST OUTLET AS FOLLOWS:

0 - 75 FEET-----#12 AWG
75 - 150 FEET-----#10 AWG
150 - 250 FEET-----#8 AWG
250 - 350 FEET-----#6 AWG

ALL JOINTS AND SPLICES SHALL BE MADE MECHANICALLY AND ELECTRICALLY SECURE. ALL SPLICES AND JOINTS SHALL BE MADE WITH APPROVED SOLDERLESS CONNECTORS, PROPERLY INSTALLED.

TYPE MC CABLE MAY MAY BE USED FOR SHORT (LESS THAN 6 FEET) FINAL CONNECTIONS ONLY.

26 05 26 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

ALL WIRE FOR GROUNDING PURPOSE SHALL BE STRANDED COPPER, OR COPPER CLAD STEEL AS REQUIRED FOR TYPE AND SIZES INDICATED ON DRAWINGS.

METAL RACEWAYS MAY NOT BE USED FOR EQUIPMENT GROUNDING CONDUCTOR.

PROPERLY GROUND ALL MOTORS, TRANSFORMERS, EQUIPMENT, CONDUITS, SWITCH GEAR, ETC.

GROUND ALL LUMINAIRES BY INSTALLING A SEPARATE GREEN GROUND WIRE IN ANY FLEXIBLE CONDUIT BETWEEN OUTLET BOX AND FIXTURE.

26 05 29 HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

CONDUIT SHALL BE SUPPORTED BY APPROVED STRAPS, FASTENERS AND HANGERS. HANGERS SHALL BE SUSPENDED FROM RODS. PERFORATED STRAPS WILL NOT BE ACCEPTABLE. FASTENERS SHALL BE LEAD EXPANSION SHIELDS IN BLOCK OR CONCRETE, TOGGLE BOLTS IN HOLLOW WALLS, MACHINE SCREWS ON METAL SURFACES AND WOOD SCREWS ON WOOD CONSTRUCTION.

ALL CONDUIT SHALL BE SUPPORTED INDEPENDENTLY FROM ALL OTHER BUILDING SYSTEMS AND SHALL BE SUPPORTED DIRECTLY FROM STRUCTURAL COMPONENTS. AT BUILDING EXPANSION JOINTS AND WHERE DEFLECTION IS EXPECTED, CONDUITS SHALL BE PROVIDED WITH EXPANSION FITTINGS WITH BONDING JUMPERS. CONDUITS PASSING THROUGH

STRUCTURAL MEMBERS SHALL BE PROVIDED WITH STUB AND COUPLING OR SLEEVE IN THE MEMBER. WHERE MOISTURE CONDITIONS ARE ENCOUNTERED, A HOLE SHALL BE DRILLED AT THE LOWEST POINT IN THE CONDUIT RUN.

26 05 33 RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

CONCEAL CONDUIT AND EMT WITHIN FURNISHED WALLS, CEILINGS, AND FLOORS UNLESS OTHERWISE INDICATED. INSTALL CONDUITS PARALLEL OR PERPENDICULAR TO BUILDING LINES.

INTERIOR CONDUIT SHALL BE OF SUFFICIENT SIZE AND INSTALLED SO THE REQUIRED NUMBER OR CONDUCTORS CAN BE INSERTED OR REMOVED WITHOUT INJURY TO, OR EXCESSIVE STRAIN UPON, THE INSULATION. THE MINIMUM CONDUIT SIZE SHALL BE 3/4" UNLESS OTHERWISE NOTED.

CONDUITS SHALL BE RUN CONTINUOUS FROM OUTLET TO OUTLET AND SHALL BE FASTENED TO ALL BOXES AND CABINETS WITH DOUBLE LOCKOUTS, TO PROVIDE CONTINUITY OF GROUND, AND A BUSHING. THE FULL NUMBER OF THREADS MUST PROJECT BEYOND LOCKOUT IN BOXES AND CABINETS TO ALLOW THE BUSHING TO BUTT UP TIGHT AGAINST THE END OF THE CONDUIT.

CONDUIT RUN EXPOSED SHALL RUN PARALLEL, OR PERPENDICULAR TO WALLS, CEILINGS, OR PRINCIPAL FRAMING MEMBERS. IT IS REQUIRED THAT ALL CONDUIT BE INSTALLED TO REFLECT NEAT, CAREFUL WORKMANSHIP THROUGHOUT THE JOB. CONDUIT WHICH HAS BEEN CRUSHED, DAMAGED, OR DEFORMED IN ANY WAY SHALL NOT BE INSTALLED IN THE JOB. CONDUIT SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST TROUBLE FROM COLLECTION OF TRAPPED CONDENSATE, AND ALL RUNS OF CONDUIT SHALL BE FREE OF SUCH TRAPS WHEREVER POSSIBLE.

ALL CONDUIT HANGERS AND SUPPORTS SHALL BE RIGIDLY FASTENED TO THE BUILDING STRUCTURE. NO CONDUIT SHALL BE SUPPORTED FROM DUCTWORK, PIPING, OR CEILING GRID SYSTEMS.

PROVIDE FIRE SEALS WHEREVER CONDUIT PENETRATES FIRE WALLS, CEILING OR RATED FLOOR SLABS.

RIGID STEEL CONDUIT SHALL BE USED FOR ALL CONDUITS RUNS INSTALLED IN CONCRETE SLABS, IN ALL POURED CONCRETE CONSTRUCTION AND ALL APPLICATIONS INSIDE BUILDING REQUIRING 2" OR LARGER IN SIZE. CONDUIT SHALL BE SUPPORTED AT INTERVALS NOT-TO-EXCEED 7 FEET FOR 3/4" CONDUIT, 8 FEET INTERVALS FOR CONDUIT ON 1" TO AND INCLUDING 2", AND 10 FEET FOR CONDUITS 2-1/2" OR LARGER.

RIGID CONDUIT (ALUMINUM) SHALL NOT BE INSTALLED IN POURED CONCRETE. ALUMINUM CONDUIT MAY BE USED FOR SWITCH LEGS AND BRANCH CIRCUITS IN PARTITIONS ABOVE CEILING, AND WHERE CONDUIT RUN IS EXPOSED. CONDUIT SHALL BE SUPPORTED AT INTERVALS NOT-TO-EXCEED 7 FEET FOR 3/4" CONDUIT, 8 FEET INTERVALS FOR CONDUIT 1" TO AND INCLUDING 2".

ELECTRICAL METALLIC TUBING (THIN WALL) MAY BE USED FOR SWITCH LEGS (EXCEPT IN POURED CONCRETE WALLS) AND BRANCH CIRCUITS IN PARTITIONS, ABOVE CEILINGS, AND WHERE CONDUIT RUN IS EXPOSED. CONDUIT SHALL BE SUPPORTED AT INTERVALS NOT-TO-EXCEED 7 FEET FOR 3/4" CONDUIT, 8 FEET INTERVALS FOR CONDUIT 1" TO AND INCLUDING 1-1/2". EMT LARGER THAN 1-1/2" WILL NOT BE PERMITTED.

PLASTIC CONDUIT (PVC): PLASTIC CONDUIT MAY BE USED FOR UNDERGROUND CONDUIT RUNS OUTSIDE BUILDING AND BELOW FLOOR SLAB. UNDERGROUND CONDUIT RUNS OUTSIDE BUILDING SHALL BE A MINIMUM OF 2'-6" BELOW GRADE. CONDUIT RUN BELOW FLOOR SLAB SHALL BE A MINIMUM OF 12" BELOW FLOOR SLAB.

FLEXIBLE CONDUIT SHALL BE USED BETWEEN OUTLET BOXES IN HUNG OR FURRED CEILINGS AND RECESSED LIGHTING FIXTURES. FLEXIBLE CONDUIT SHALL NOT EXCEED 6 FEET IN LENGTH.

LIQUID TIGHT FLEXIBLE CONDUIT SHALL BE USED FOR FINAL CONNECTIONS, TO ALL MOTORS. LIQUID TIGHT FLEXIBLE CONDUIT SHALL BE USED FOR FINAL CONNECTIONS TO ALL MOTORS OR DEVICES WHICH DO OR MAY VIBRATE. LIQUID TIGHT FLEXIBLE CONDUIT SHALL NOT EXCEED 3 FEET IN LENGTH.

PROVIDE SEALING BUSHINGS IN ALL UNDERGROUND CONDUITS AS REQUIRED TO PREVENT THE ENTRY OF MOISTURE INTO ELECTRICAL EQUIPMENT.

PROVIDE CONDUIT EXPANSION FITTINGS WHERE CONDUIT CROSSES A BUILDING EXPANSION JOINT, AND IN ALL STRAIGHT CONDUIT RUNS 200 FEET OR LONGER.

ALL OUTLET, SWITCH, JUNCTION AND PULL BOXES SHALL BE MADE OF CODE GALVANIZED STEEL COMPLETE WITH RINGS AND SCREW COVER PLATES AND LOCATED WHERE SHOWN AND NOTED ON DRAWINGS. WHERE CONDUIT IS CONCEALED, BOXES SHALL NOT BE LESS THAN 4" SQUARE X 1-1/2" DEEP. ALL BOXES SHALL BE EQUIPPED WITH PROPER COVERS TO BRING FLUSH WITH FINISHED WALL SURFACE.

USE GANG BOXES WHERE MORE THAN ONE DEVICE IS TO BE INSTALLED AT THE SAME LOCATION.

ALL BOXES FOR CONCRETE WORK SHALL BE OF TYPE ESPECIALLY DESIGNED FOR INSTALLATION IN CONCRETE.

PROVIDE OUTLET BOX ACCESSORIES AS REQUIRED FOR EACH INSTALLATION, INCLUDING MOUNTING BRACKETS, WALLBOARD HANGERS, EXTENSION STUDS, CABLE CLAMPS, AND METAL STRAPS FOR SUPPORTING OUTLET BOXES, COMPATIBLE WITH OUTLET BOXES BEING USED AND MEETING REQUIREMENTS OF INDIVIDUAL WIRING SITUATIONS.

PULL BOXES (NOT SHOWN ON THE CONTRACT DRAWINGS) SHALL BE INSTALLED AS REQUIRED TO FACILITATE PULLING OF CONDUCTORS ON LONG RUNS. PULL BOXES LOCATED IN FLOORS SHALL BE FLUSH WITH FINISHED FLOOR, AND OF CAST WROUGHT IRON, ALUMINUM, OR BRONZE WITH SEALED WATERPROOF COVER. CONDUIT ENTRANCES SHALL BE THREADED.

PROVIDE CORROSION RESISTANT CAST METAL WEATHERPROOF OUTLET WIRING BOXES, OF THE TYPE, SHAPE, AND SIZE REQUIRED FOR EACH APPLICATION, WITH THREADED CONDUIT ENDS, CAST METAL FACE PLATE WITH SPRING-HINGE WATERPROOF CAP, SUITABLE CONFIGURED FOR EACH APPLICATION, INCLUDING FACE PLATE GASKET AND CORROSION PROOF FASTENERS.

PROVIDE WATERPROOF OUTLETS FOR INTERIOR AND EXTERIOR LOCATIONS EXPOSED TO WEATHER OR SUBJECT TO FREQUENT WASHING.

SECURE BOXES RIGIDLY TO THE SUBSTRATE UPON WHICH THEY ARE BEING MOUNTED, OR SOLIDLY EMBED BOXES IN CONCRETE OR MASONRY.

26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS

PROVIDE MANUFACTURERS STANDARD SELF-ADHESIVE VINYL TAPE NOT LESS THAN 3 MILS THICK BY 1-1/2" WIDE. INSTALL ON ALL CONCEALED RACEWAYS AT CONNECTION TO ALL JUNCTION BOXES, PULL BOXES, EQUIPMENT, WALL/FLOOR/ROOF PENETRATIONS, ETC.

PROVIDE CIRCUIT IDENTIFICATION BANDS FOR ALL CABLES AND CONDUCTORS. PROVIDE ON ALL CONDUCTORS OF ALL SYSTEMS.

INSTALL ENGRAVED PLASTIC-LAMINATE SIGN ON ELECTRICAL EQUIPMENT, INCLUDING PANELBOARDS, DISCONNECTS, STARTERS, CONTROL PANELS, ETC. PROVIDE SINGLE LINE OF TEXT, 1/2" HIGH LETTERING, ON 1-1/2" HIGH SIGN (2" HIGH WHERE 2 LINES ARE REQUIRED), WHITE LETTERING IN BLACK FIELD.

26 05 84 MECHANICAL EQUIPMENT

PROVIDE ALL NECESSARY ELECTRICALLY RELATED WORK AS REQUIRED TO RENDER ALL MECHANICAL EQUIPMENT (INCLUDING PLUMBING, HEATING, VENTILATING AND AIR CONDITIONING EQUIPMENT) FULLY OPERATIONAL AND FULLY COMPLIANT WITH ALL LOCAL AND NATIONAL CODES. THIS INCLUDES, PRIOR TO ORDERING MATERIALS OR COMMENCING WITH ROUGH-IN, REVIEWING EQUIPMENT SUBMITTAL DATA AND COORDINATING WITH INSTALLING CONTRACTORS TO ENSURE THE CORRECT SIZE, RATING AND QUANTITY OF CONDUCTORS ARE PROVIDED.

26 24 16 PANELBOARDS

PROVIDE PANEL BOARDS AS SHOWN ON THE DRAWINGS. PANEL BOARDS SHALL BE DEAD FRONT EQUIPPED WITH THERMAL MAGNETIC MOULDED CASE CIRCUIT BREAKERS, OF FRAME AND TRIP RATINGS AS SHOWN ON THE PANEL BOARDS SCHEDULE. PANEL BOARDS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE LATEST NEMA STANDARDS AND SHALL BE LISTED BY UL AND BEAR UL LABEL. ALL PANEL BOARDS SHALL BE OF ONE MANUFACTURER.

PANELBOARDS, MAIN BUSS, MAIN LUGS, AND/OR MAIN BREAKER SHALL BE RATED AS NOTED ON PANEL BOARD SCHEDULES. CURRENT DENSITY SHALL BE IN ACCORDANCE WITH UL REQUIREMENTS. BUSS MOUNTING FOR CIRCUIT BREAKERS SHALL BE BOLTED CONNECTIONS AND ACCOMMODATE ANY COMBINATION OF CIRCUIT BREAKER UNITS WITHOUT FURTHER MODIFICATIONS. THE COMPLETE PANEL BOARD, INCLUDING MAIN CIRCUIT BREAKER, BUSS AND LUGS, BRANCH CIRCUIT BREAKERS, AND CONDUITS SHALL BE PROPERLY DESIGNED AND UL LISTED TO WITHSTAND THE EFFECT OF THE AVAILABLE REQUIRED SHORT CIRCUIT CURRENT.

MATERIALS: ALL PANEL BOARDS SHALL BE MOUNTED IN CODE GAUGE GALVANIZED STEEL CABINETS, HAVING HINGED DOOR. EACH DOOR SHALL BE EQUIPPED WITH A LATCH AND LOCK. ALL LOCKS ON ALL PANEL BOARD CABINET DOORS ON THIS PROJECT SHALL ACCEPT A COMMON KEY. FURNISH TWO KEYS WITH EACH LOCK.

FOR DETAILS CONCERNING THE NUMBER AND SIZE OF CIRCUIT BREAKERS, SIZE OF MAINS, SIZE AND LOCATION OF LUGS, AND WHETHER SURFACE OR FLUSH MOUNTED, REFER TO PROJECT PANEL BOARD SCHEDULES ON THE CONTRACT DRAWINGS.

CABINET SHALL BE SIZED TO PROVIDE WIRING GUTTERS AT SIDES, TOP AND BOTTOM TO ACCOMMODATE THE NECESSARY CONDUCTORS WITHOUT CROWDING.

PROVIDE ON THE INSIDE OF THE DOOR FACE OF EACH PANEL BOARD CABINET, AN ACCURATE TYPEWRITTEN CIRCUIT DIRECTORY PROTECTED BY GLASS OR CLEAR PLASTIC. HANDWRITTEN OR HAND PRINTED DIRECTORIES WILL NOT BE ACCEPTED. THE CONTRACTOR IS INSTRUCTED THAT THE FINAL TYPED DIRECTORY SHALL BE MADE AFTER THE

PERMANENT ROOM NUMBERS ARE INSTALLED ON THE DOORS, AND THE DIRECTORIES SHALL LIST THESE NUMBERS RATHER THAN THE ROOM NUMBERS USED ON THE CONSTRUCTION DRAWINGS.

ALL PANEL BOARDS SHALL HAVE ENGRAVED NAME TAGS ATTACHED TO COVER INDICATING PANEL NUMBER AND VOLTAGE.

ANCHOR ENCLOSURES FIRMLY TO WALLS AND STRUCTURAL SURFACES, ENSURING THAT THEY ARE PERMANENTLY AND MECHANICALLY SECURED.

INSTALL ALL PANEL BOARDS WITH THE TOP 6'-6" ABOVE FINISHED FLOOR.

DISTRIBUTION PANEL BRANCH BREAKERS SHALL BE SELECTED TO PROVIDE RATING AS NECESSARY FOR AVAILABLE FAULT CURRENT.

ACCEPTABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWINGS: SCHNEIDER ELECTRIC, EATON, GENERAL ELECTRIC, OR SIEMENS.

26 27 26 WIRING DEVICES

ALL WIRING DEVICES SHALL BE UL LISTED, COMMERCIAL SPECIFICATION GRADE.

SWITCHES IN THE SAME LOCATION SHALL BE GANGED BEHIND A SINGLE PLATE.

DUPLEX RECEPTACLES SHALL BE 20 AMP., 125 VOLT, 3 WIRE GROUNDING TYPE. PROVIDE SMOOTH THERMOPLASTIC COVER PLATE AND MATCHING SCREWS. DEVICES AND COVER PLATES SHALL MATCH ADJACENT ARCHITECTURAL FINISHES UNLESS SPECIFICALLY NOTED OTHERWISE. APPROVED PRODUCTS: HUBBELL, LEVITON, BRYANT OR EQUAL.

WEATHERPROOF RECEPTACLES SHALL BE DUPLEX, 20 AMP., 125 VOLT, GROUND FAULT 3 WIRE GROUNDING TYPE WITH WEATHERPROOF COVER. APPROVED PRODUCTS: HUBBELL, LEVITON, BRYANT OR EQUAL.

USB RECEPTACLES SHALL BE DUPLEX, 20 AMP., 125 VOLT, GROUND FAULT 3 WIRE GROUNDING TYPE WITH TWO VERTICAL USB PORTS WITH A MINIMUM OF 3.6A CHARGING CAPACITY AND TWO 20A RATED OUTLETS. APPROVED PRODUCTS: HUBBELL, LEVITON, BRYANT OR EQUAL.

WALL SWITCHES SHALL BE 20 AMP., 120-277 VOLT, QUIET, HIGH CAPACITY, TOGGLE TYPE. SINGLE POLE SWITCHES - APPROVED PRODUCTS ARE HUBBELL, LEVITON, BRYANT OR EQUAL. THREE-WAY SWITCHES - APPROVED PRODUCTS HUBBELL, LEVITON, BRYANT OR EQUAL.

DIMMER SWITCHES SHALL BE COMPATIBLE WITH LIGHTING TO BE CONTROLLED (I.E. - 120V LINE OR 0-10V LOW VOLTAGE) AND SHALL BE RATED FOR THE LIGHTING LOAD INDICATED. APPROVED PRODUCTS ARE LEVITON, LUTRON, HUBBELL, OR EQUAL.

WALL PLATES FOR SWITCHES, TELEPHONE OUTLETS AND OTHER SPECIAL OUTLETS SHALL MATCH THE WALL PLATES PREVIOUSLY SPECIFIED WITH THE RECEPTACLES. ALL PLATES IN EACH ROOM SHALL MATCH. APPROVED PRODUCTS: HUBBELL, LEVITON, BRYANT OR EQUAL.

DISCONNECT SWITCHES SHALL BE HEAVY DUTY, SINGLE THROW DISCONNECT SWITCHES. ENCLOSURE SHALL BE NEMA 1 INDOOR AND NEMA 3R (RAIN TIGHT) ON EXTERIOR OF BUILDING UNLESS SPECIFICALLY NOTED ELSEWHERE IN THE CONTRACT DRAWINGS. DISCONNECT SWITCHES LOCATED ON THE EXTERIOR OF THE BUILDING IN AN AREA ACCESSIBLE TO THE PUBLIC OR SUBJECT TO VANDALISM SHALL BE CAPABLE OF BEING LOCKED IN THE CLOSED (ON) POSITION. THE AMPERE RATING, FUSIBLE OR NOT FUSIBLE AND VOLTAGE CHARACTERISTICS SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS. APPROVED PRODUCTS: SQUARE D COMPANY, GENERAL ELECTRIC, SIEMENS, OR EATON.

INSTALLATION OF WIRING DEVICES: OUTLET HEIGHTS GIVEN BELOW, OR AS SHOWN ON DRAWINGS, ARE TO THE CENTER OF THE OUTLET BOX. IN UNPLASTERED WALLS WHERE OUTLETS ARE NOT DIMENSIONED, ADJUST HEIGHT TO THE NEXT HIGHER COURSE, AND ADJUST LOCATION TO THE NEAREST CENTER OF THE MASONRY UNIT.

TESTING: TEST WIRING DEVICES TO ENSURE ELECTRICAL CONTINUITY OF GROUNDING CONNECTIONS, AND AFTER ENERGIZING CIRCUITRY, TO DEMONSTRATE COMPLIANCE WITH REQUIREMENTS.

DIVISION 27 COMMUNICATIONS

27 13 01 COMMUNICATION INFORMATION TECHNOLOGY SYSTEMS (APPLIES IN ALL AREAS NOT SPECIFICALLY COVERED IN A/V DRAWINGS)

PROVIDE STANDARD DEVICE BOXES AND COVER PLATES INSTALLED IN WALLS, FLOOR AND CEILINGS.

PROVIDE J-HOOK SYSTEMS COMPLETE WITH NECESSARY FITTINGS, AND ACCESSORIES AS REQUIRED TO MAKE COMPLETE AND CONTINUOUS SYSTEMS. PROVIDE J-HOOK SYSTEM COMPONENTS THAT ARE PLENUM-RATED (REGARDLESS OF WHETHER OR NOT AIR PLENUM CEILING IS SHOWN ON PROJECT). PROVIDE J-HOOK SUPPORT AT FOUR FOOT INTERVALS AND AT OFFSETS. ROUTE J-HOOKS ABOVE CEILINGS THROUGH CORRIDORS AND SIMILAR OPEN AREAS WHEREVER POSSIBLE TO MINIMIZE ABOVE-CEILING WALL PENETRATIONS. SECURELY ANCHOR (MECHANICAL, NOT ADHESIVE) J-HOOKS DIRECTLY TO STRUCTURAL COMPONENTS OF THE BUILDING. DO NOT ANCHOR TO DUCTWORK, CONDUIT, PIPING, FIXTURES, EQUIPMENT, CEILING SUPPORTS (RODS, WIRES, T-BARS), ETC. STRICTLY ADHERE TO FACTORY LOAD CAPACITIES.

PROVIDE (1) 3/4" NON-METALLIC CONDUIT IN ALL WALLS WHERE THE CABLING DROPS DOWN RACEWAY PATH FROM THE CEILING ABOVE TO THE DATA/TELEPHONE OUTLET LOCATION. PROVIDE CONDUIT WITH SW



COMcheck Software Version 4.1.4.1
Interior Lighting Compliance Certificate

Project Information

Energy Code: 2015 IECC
Project Title: Lifesong Church
Project Type: Alteration
Construction Site: 65 Gilmore Drive
Sutton, MA 01590
Owner/Agent:
Designer/Contractor:
John Quillen
907 Mimosa Ct., #B
Lebanon, OH 45036

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft ²)	C Allowed Watts / ft ²	D Allowed Watts (B X C)
1-CLASSROOMS (Common Space Types:Classroom/Lecture/Training)	2124	1.24	2634
2-STORAGE (Common Space Types:Storage): Exempt			
3-CORRIDOR (Common Space Types:Corridor/Transition <8 ft wide)	2872	0.66	1896
4-TOIL (Common Space Types:Restrooms)	379	0.98	371
5-OFFICE 103 (Common Space Types:Office - Enclosed)	226	1.11	251
6-OFFICE 104 (Common Space Types:Office - Open Plan)	745	0.98	730
7-NEXT STEPS (Common Space Types:Conference/Meeting/Multipurpose)	1092	1.23	1343
8-KITCHENS (Common Space Types:Food Preparation)	427	1.21	517
9-VOL. CENTRAL & GREEN ROOM (Common Space Types:Lounge/Breakroom)	669	0.73	488
10-PRAYER ROOM (Common Space Types:Conference/Meeting/Multipurpose)	92	1.23	113
Total Allowed Watts =			8343

Area Category Exemption Qualifications

Activity Area	# Fixtures		Total # Watts	
	Pre-Alt.	Repl./Added	Pre-Alt.	Post-Alt.
STORAGE (Common Space Types:Storage:1007 sq.ft.)	9	0	540,000	540,000
Exemption: Less than 50% fixture replacement.				

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
CLASSROOMS (Common Space Types:Classroom/Lecture/Training 2124 sq.ft.)				
LED 1: A2: 2X2: Other:	1	40	39	1556
STORAGE (Common Space Types:Storage:1007 sq.ft.): Exempt				
LED 1: A2: 2X2: Other:	1	9	39	350
CORRIDOR (Common Space Types:Corridor/Transition <8 ft wide 2872 sq.ft.)				
LED 1: A2: 2X2: Other:	1	4	39	156
LED 3: B1: 4' LED Strip Light: Other:	1	14	47	661
TOIL (Common Space Types:Restrooms 379 sq.ft.)				
LED 1: A2: 2X2: Other:	1	6	39	233
OFFICE 103 (Common Space Types:Office - Enclosed 226 sq.ft.)				

Project Title: Lifesong Church
Data filename: G:\-Projects\11351 - Lifesong Church - Sutton, MA\-- Phase 2\Lifesong Church.cck
Report date: 12/18/20
Page 1 of 6

Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
LED 1: A2: 2X2: Other:	1	4	39	156
OFFICE 104 (Common Space Types:Office - Open Plan 745 sq.ft.)				
LED 3: B1: 4' LED Strip Light: Other:	1	10	47	472
NEXT STEPS (Common Space Types:Conference/Meeting/Multipurpose 1092 sq.ft.)				
LED 1: A2: 2X2: Other:	1	16	39	622
KITCHENS (Common Space Types:Food Preparation 427 sq.ft.)				
LED 1 copy 2: A2: 2X2: Other:	1	7	39	272
VOL. CENTRAL & GREEN ROOM (Common Space Types:Lounge/Breakroom 669 sq.ft.)				
LED 1 copy 3: A2: 2X2: Other:	1	11	39	428
PRAYER ROOM (Common Space Types:Conference/Meeting/Multipurpose 92 sq.ft.)				
LED 1 copy 4: A2: 2X2: Other:	1	2	39	78
Total Proposed Watts =				4634

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version 4.1.4.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date

Project Title: Lifesong Church
Data filename: G:\-Projects\11351 - Lifesong Church - Sutton, MA\-- Phase 2\Lifesong Church.cck
Report date: 12/18/20
Page 2 of 6



COMcheck Software Version 4.1.4.1
Inspection Checklist

Energy Code: 2015 IECC

Requirements: 100.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [P84] ¹	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: E1.0

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Lifesong Church
Data filename: G:\-Projects\11351 - Lifesong Church - Sutton, MA\-- Phase 2\Lifesong Church.cck
Report date: 12/18/20
Page 3 of 6

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.1 [EL15] ¹	Lighting controls installed to uniformly reduce the lighting load by at least 50%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: E1.0
C405.2.1 [EL18] ¹	Occupancy sensors installed in required spaces.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Automatic-on controls are allowed in corridors, stairways, restrooms, primary building entrance areas and lobbies, and areas where manual-on controls could impact safety or security. Location on plans/spec: E1.0
C405.2.1 [EL23] ¹	Independent lighting controls installed per approved lighting plans and all manual controls readily accessible and visible to occupants.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: E1.0
C405.2.2.1 [EL22] ¹	Automatic controls to shut off all building lighting installed in all buildings.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: E1.0
C405.2.3 [EL16] ¹	Daylight zones provided with individual controls that control the lights independent of general area lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C405.2.3.1 [EL20] ¹	Primary sidelighted areas are equipped with required lighting controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C405.2.3.1 [EL21] ¹	Enclosed spaces with daylight area under skylights and rooftop monitors are equipped with required lighting controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
C405.2.4 [EL4] ¹	Separate lighting control devices for specific uses installed per approved lighting plans.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: E1.0
C405.2.4 [EL8] ¹	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: E1.0
C405.3 [EL6] ¹	Exit signs do not exceed 5 watts per face.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: E1.0

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

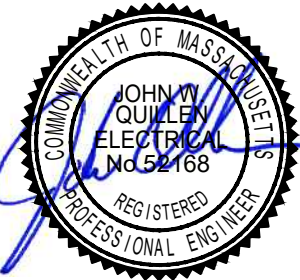
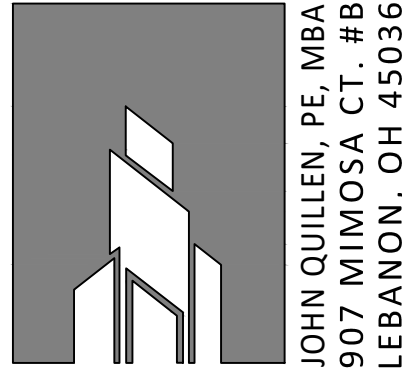
Project Title: Lifesong Church
Data filename: G:\-Projects\11351 - Lifesong Church - Sutton, MA\-- Phase 2\Lifesong Church.cck
Report date: 12/18/20
Page 4 of 6

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [F17] ¹	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.4.1 [F18] ¹	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Interior Lighting fixture schedule for values.
C408.2.5.1 [F16] ¹	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.3 [F133] ¹	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Lifesong Church
Data filename: G:\-Projects\11351 - Lifesong Church - Sutton, MA\-- Phase 2\Lifesong Church.cck
Report date: 12/18/20
Page 5 of 6



01/29/2021

ADDITIONS & RENOVATIONS TO:
LIFESONG CHURCH
65 GILMORE DRIVE
SUTTON, MA 01590

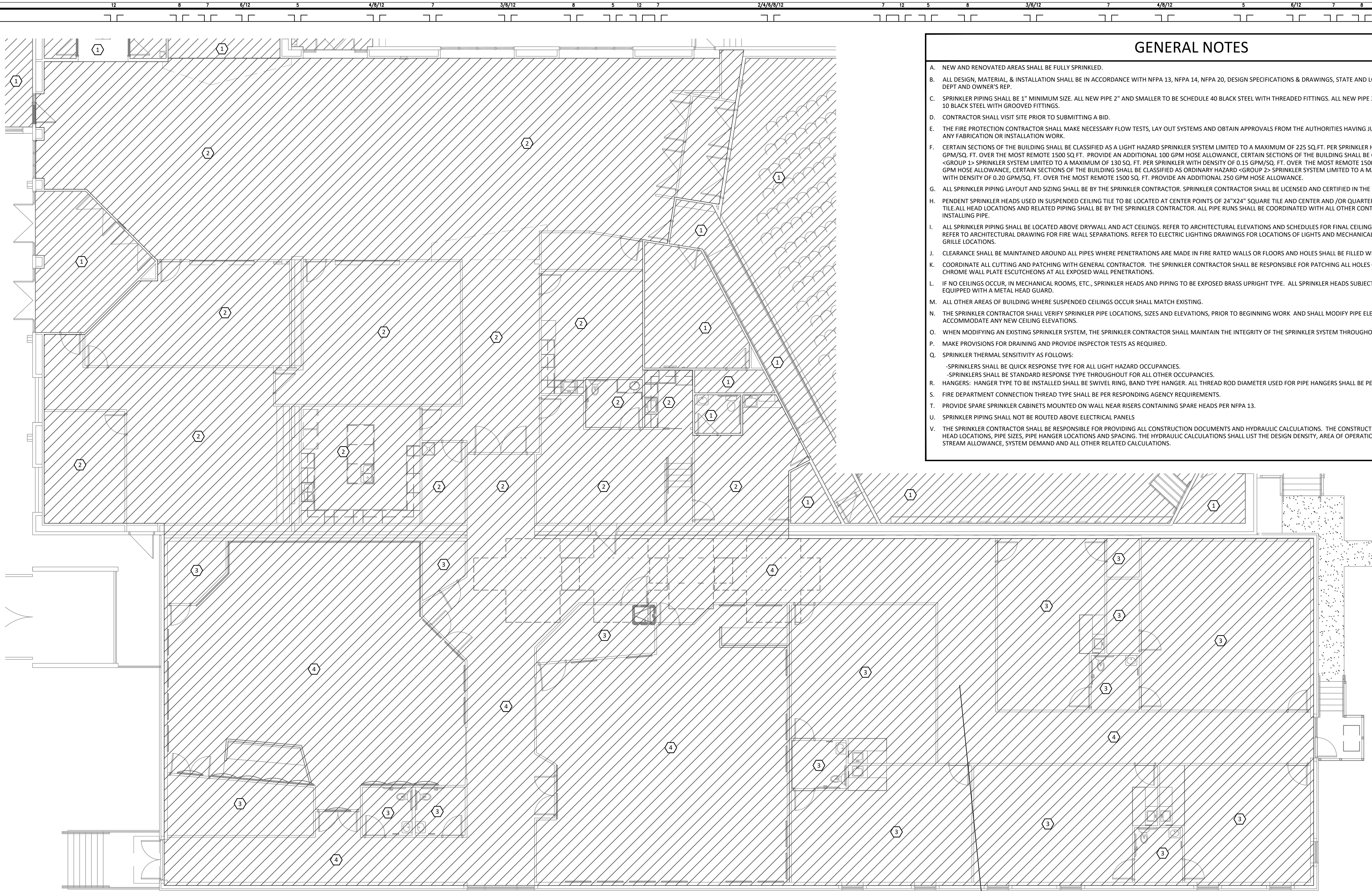
PROJECT #: 11351
ISSUE DATE: 01/29/2020
DRAWN BY: C.HESS
CHECKED BY: J.QUILLEN

REVISIONS:

SHEET No.

E4.0

ELECTRICAL ENERGY
COMPLIANCE



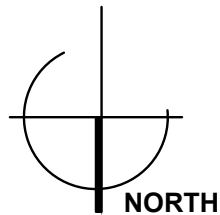
GENERAL NOTES

- A. NEW AND RENOVATED AREAS SHALL BE FULLY SPRINKLED.
- B. ALL DESIGN, MATERIAL, & INSTALLATION SHALL BE IN ACCORDANCE WITH NFPA 13, NFPA 14, NFPA 20, DESIGN SPECIFICATIONS & DRAWINGS, STATE AND LOCAL BUILDING/FIRE CODES LOCAL FIRE DEPT AND OWNER'S REP.
- C. SPRINKLER PIPING SHALL BE 1" MINIMUM SIZE. ALL NEW PIPE 2" AND SMALLER TO BE SCHEDULE 40 BLACK STEEL WITH THREADED FITTINGS. ALL NEW PIPE 2-1/2" AND LARGER TO BE SCHEDULE 10 BLACK STEEL WITH GROOVED FITTINGS.
- D. CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTING A BID.
- E. THE FIRE PROTECTION CONTRACTOR SHALL MAKE NECESSARY FLOW TESTS, LAY OUT SYSTEMS AND OBTAIN APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION, PRIOR TO BEGINNING ANY FABRICATION OR INSTALLATION WORK.
- F. CERTAIN SECTIONS OF THE BUILDING SHALL BE CLASSIFIED AS A LIGHT HAZARD SPRINKLER SYSTEM LIMITED TO A MAXIMUM OF 225 SQ.FT. PER SPRINKLER HEAD WITH A DENSITY OF 0.10 GPM/SQ. FT. OVER THE MOST REMOTE 1500 SQ. FT. PROVIDE AN ADDITIONAL 100 GPM HOSE ALLOWANCE, CERTAIN SECTIONS OF THE BUILDING SHALL BE CLASSIFIED AS ORDINARY HAZARD <GROUP 1> SPRINKLER SYSTEM LIMITED TO A MAXIMUM OF 130 SQ. FT. PER SPRINKLER WITH DENSITY OF 0.15 GPM/SQ. FT. OVER THE MOST REMOTE 1500 SQ. FT. PROVIDE AN ADDITIONAL 250 GPM HOSE ALLOWANCE, CERTAIN SECTIONS OF THE BUILDING SHALL BE CLASSIFIED AS ORDINARY HAZARD <GROUP 2> SPRINKLER SYSTEM LIMITED TO A MAXIMUM OF 130 SQ. FT. PER SPRINKLER WITH DENSITY OF 0.20 GPM/SQ. FT. OVER THE MOST REMOTE 1500 SQ. FT. PROVIDE AN ADDITIONAL 250 GPM HOSE ALLOWANCE.
- G. ALL SPRINKLER PIPING LAYOUT AND SIZING SHALL BE BY THE SPRINKLER CONTRACTOR. SPRINKLER CONTRACTOR SHALL BE LICENSED AND CERTIFIED IN THE STATE OF MASSACHUSETTS.
- H. PENDENT SPRINKLER HEADS USED IN SUSPENDED CEILING TILE TO BE LOCATED AT CENTER POINTS OF 24"X24" SQUARE TILE AND CENTER AND /OR QUARTER POINTS OF 24"X48" RECTANGULAR TILE. ALL HEAD LOCATIONS AND RELATED PIPING SHALL BE BY THE SPRINKLER CONTRACTOR. ALL PIPE RUNS SHALL BE COORDINATED WITH ALL OTHER CONTRACTORS BEFORE FABRICATING OR INSTALLING PIPE.
- I. ALL SPRINKLER PIPING SHALL BE LOCATED ABOVE DRYWALL AND ACT CEILINGS. REFER TO ARCHITECTURAL ELEVATIONS AND SCHEDULES FOR FINAL CEILING HEIGHTS AND BUILDING ELEVATIONS. REFER TO ARCHITECTURAL DRAWING FOR FIRE WALL SEPARATIONS. REFER TO ELECTRIC LIGHTING DRAWINGS FOR LOCATIONS OF LIGHTS AND MECHANICAL DRAWINGS FOR DIFFUSER/RETURN GRILLE LOCATIONS.
- J. CLEARANCE SHALL BE MAINTAINED AROUND ALL PIPES WHERE PENETRATIONS ARE MADE IN FIRE RATED WALLS OR FLOORS AND HOLES SHALL BE FILLED WITH FIRESTOP MATERIAL.
- K. COORDINATE ALL CUTTING AND PATCHING WITH GENERAL CONTRACTOR. THE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING ALL HOLES CREATED BY HIS WORK. PROVIDE CHROME WALL PLATE ESCUTCHEONS AT ALL EXPOSED WALL PENETRATIONS.
- L. IF NO CEILINGS OCCUR, IN MECHANICAL ROOMS, ETC., SPRINKLER HEADS AND PIPING TO BE EXPOSED BRASS UPRIGHT TYPE. ALL SPRINKLER HEADS SUBJECT TO MECHANICAL DAMAGE SHALL BE EQUIPPED WITH A METAL HEAD GUARD.
- M. ALL OTHER AREAS OF BUILDING WHERE SUSPENDED CEILINGS OCCUR SHALL MATCH EXISTING.
- N. THE SPRINKLER CONTRACTOR SHALL VERIFY SPRINKLER PIPE LOCATIONS, SIZES AND ELEVATIONS, PRIOR TO BEGINNING WORK AND SHALL MODIFY PIPE ELEVATIONS, AS REQUIRED, TO ACCOMMODATE ANY NEW CEILING ELEVATIONS.
- O. WHEN MODIFYING AN EXISTING SPRINKLER SYSTEM, THE SPRINKLER CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF THE SPRINKLER SYSTEM THROUGHOUT THE BUILDING AT ALL TIMES.
- P. MAKE PROVISIONS FOR DRAINING AND PROVIDE INSPECTOR TESTS AS REQUIRED.
- Q. SPRINKLER THERMAL SENSITIVITY AS FOLLOWS:
-SPRINKLERS SHALL BE QUICK RESPONSE TYPE FOR ALL LIGHT HAZARD OCCUPANCIES.
-SPRINKLERS SHALL BE STANDARD RESPONSE TYPE THROUGHOUT FOR ALL OTHER OCCUPANCIES.
- R. HANGERS: HANGER TYPE TO BE INSTALLED SHALL BE SWIVEL RING, BAND TYPE HANGER. ALL THREAD ROD DIAMETER USED FOR PIPE HANGERS SHALL BE PER NFPA 13.
- S. FIRE DEPARTMENT CONNECTION THREAD TYPE SHALL BE PER RESPONDING AGENCY REQUIREMENTS.
- T. PROVIDE SPARE SPRINKLER CABINETS MOUNTED ON WALL NEAR RISERS CONTAINING SPARE HEADS PER NFPA 13.
- U. SPRINKLER PIPING SHALL NOT BE ROUTED ABOVE ELECTRICAL PANELS.
- V. THE SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL CONSTRUCTION DOCUMENTS AND HYDRAULIC CALCULATIONS. THE CONSTRUCTION DOCUMENTS SHALL INCLUDE: ALL HEAD LOCATIONS, PIPE SIZES, PIPE HANGER LOCATIONS AND SPACING. THE HYDRAULIC CALCULATIONS SHALL LIST THE DESIGN DENSITY, AREA OF OPERATION, WATER SUPPLY PRESSURE, HOSE STREAM ALLOWANCE, SYSTEM DEMAND AND ALL OTHER RELATED CALCULATIONS.

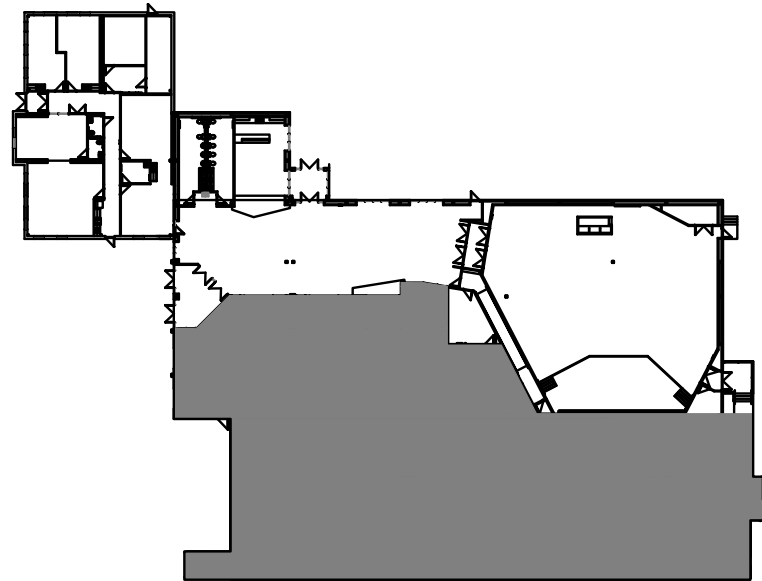
KEYED NOTES

1. EXISTING SPRINKLER HEADS TO REMAIN IN THIS AREA.
2. RELOCATE EXISTING SPRINKLER HEAD IN NEW CEILING TO MAINTAIN LIGHT HAZARD CLASSIFICATION SPACING REQUIREMENTS AND AS REQUIRED BY CODE.
3. PROVIDE NEW PENDENT SPRINKLER 1/2" ORIF., 1/2" NPT, QUICK RESP. SPRINKLER HEAD IN NEW CEILING TO MAINTAIN LIGHT HAZARD CLASSIFICATION SPACING REQUIREMENTS AND AS REQUIRED BY CODE.
4. PROVIDE NEW UPRIGHT SPRINKLER 1/2" ORIF., 1/2" NPT, QUICK RESP. SPRINKLER HEAD IN NEW CEILING TO MAINTAIN LIGHT HAZARD CLASSIFICATION SPACING REQUIREMENTS AND AS REQUIRED BY CODE.

1
FP1.0
FIRE PROTECTION FLOOR PLAN
1/8" = 1'-0"



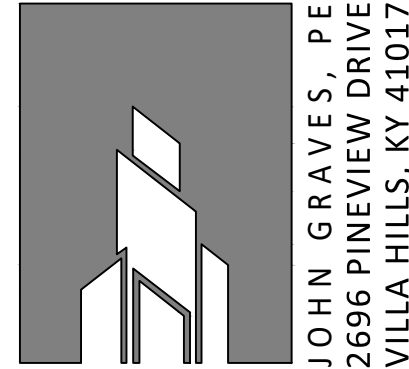
KEY PLAN



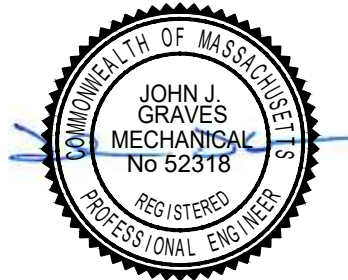
ADDITIONS & RENOVATIONS TO:

LIFESONG CHURCH

65 GILMORE DRIVE
SUTTON, MA 01590



JOHN GRAVES & SONS, INC.
2696 PINEVIEW DRIVE
VILLA HILLS, KY 41017



01/29/2021

PROJECT #: 11351
ISSUE DATE: 01/29/2020
DRAWN BY: B.DUNN
CHECKED BY: J.GRAVES

REVISIONS:

SHEET No.

FP1.0
FIRE PROTECTION
FLOOR PLAN