

LAKE SUPERIOR STATE UNIVERSITY

NATATORIUM CEILING

REPLACEMENT

650 W. EASTERDAY AVE. SAULT SAINT MARIE, MICHIGAN 49783



Sidock Group

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Key Plan: No Scale

Client:
LAKE SUPERIOR STATE UNIVERSITY

Project:
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Seal:



Date	Issued For
12-19-2025	95% CDs
1-7-2026	BIDS / PERMIT

Drawn:	DM
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Sheet Title:
COVER SHEET

Project Number: **525596**

Sheet Number: **CS-000**

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SHEET INDEX			
CS-000	COVER SHEET	E-102	LIGHTING PLAN
AD-800	DEMOLITION REFLECTED CEILING PLAN	M-100	MECHANICAL SYMBOLS, NOTES, AND ABBREVIATIONS
A-801	REFLECTED CEILING PLAN	M-101	MECHANICAL SPECIFICATIONS
E-100	ELECTRICAL SPECIFICATIONS	M-300	FLOOR PLAN- HVAC DEMOLITION
E-101	ELECTRICAL DEMOLITION PLAN	M-400	FLOOR PLAN- HVAC NEW

Existing natatorium ceiling demolition and lighting replacement.

PROJECT INFORMATION

SITE DATA

SITE AREA: EXISTING
ZONING: EXISTING

USE:
PRIMARY USE: NATATORIUM (A-3)
PARKING: EXISTING

BUILDING DATA:
BUILDING AREA EXISTING: 275,000 SQFT
PROJECT AREA: 13,860 SQFT

CODE INFORMATION

JURISDICTION:
CITY/ TWP. SAULT STE. MARIE
COUNTY CHIPPEWA
STATE MICHIGAN (LARA / BCC)

BUILDING CODE: MICHIGAN REHABILITATION CODE FOR EXISTING BUILDINGS- 2015, SECTION 504 PRESCRIPTIVE LEVEL 2
INCORPORATING MICHIGAN BUILDING CODE - 2015 (AS APPROP.)

ALTERNATION CONSTRUCTION TYPE: II-B, SPRINKLERED
OCC. GROUP: A-4
RISK CATEGORY: III

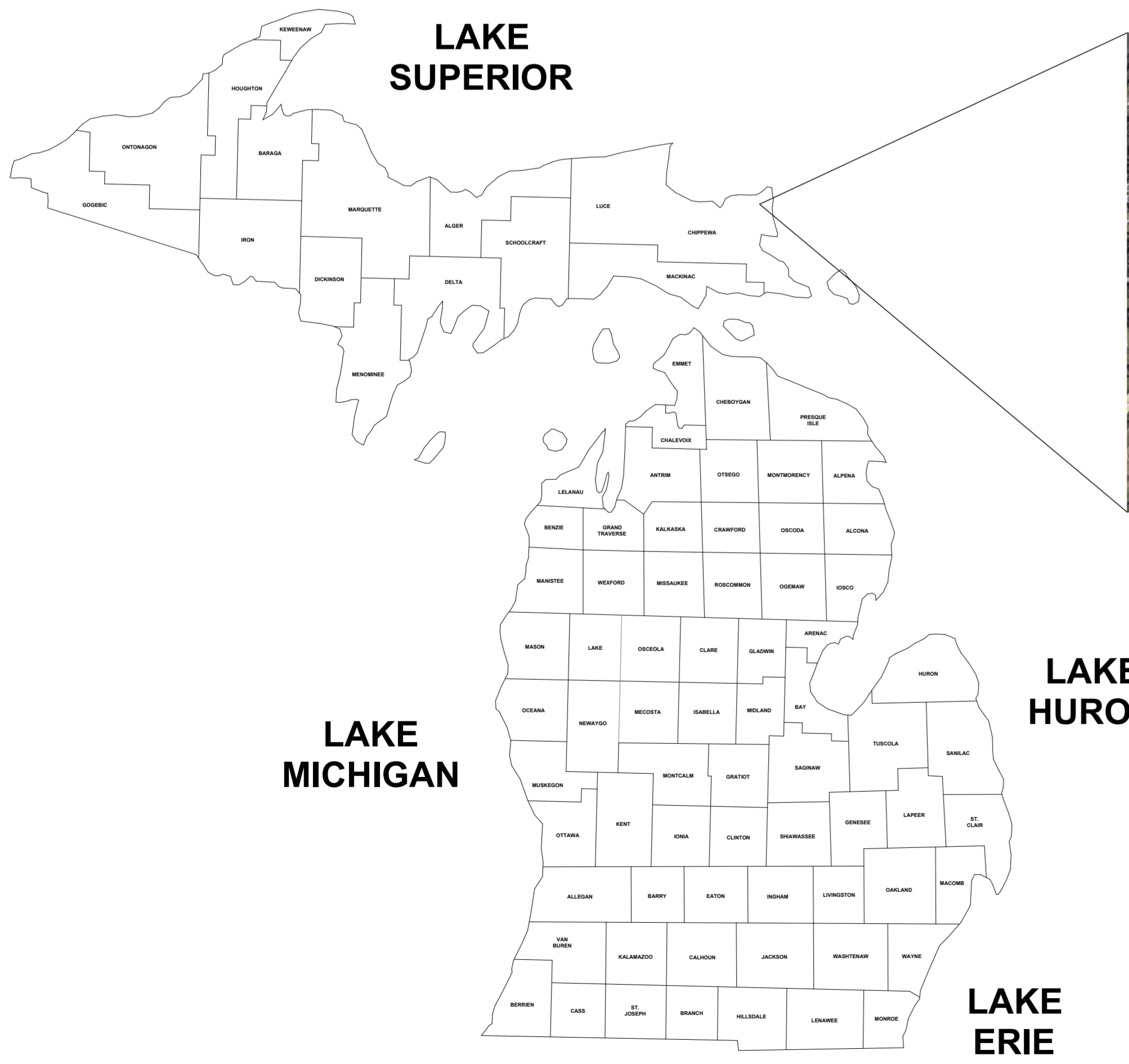
ELECTRICAL CODE: MICHIGAN ELECTRICAL CODE - 2017, INCORPORATING THE 2017 NEC W/ MICHIGAN PART 8 RULES
FIRE CODE: INTERNATIONAL FIRE CODE- 2015

ENERGY CODE: ASHRAE STANDARD 90.1-2013 W/ 2015 MICHIGAN UNIFORM ENERGY CODE PART 10A AMENDMENTS

FIRE SUPPRESSION: NOT PROVIDED IN ORIGINAL CONSTRUCTION
FIRE ALARM: REQUIRED (408.10)

ACCESSIBILITY: ICC A117.1 - 2009
2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

OCCUPANT LOAD: NO CHANGE; EXIT ACCESS: NO CHANGE



PROJECT SITE
W. EASTERDAY AVE/MERIDIAN ST., SAULT SAINT MARIE MI.



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Sheet Title:
**DEMOLITION
REFLECTED
CEILING PLAN**

Project Number: **525596**

Sheet Number: **AD-800**

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REFLECTED CEILING DEMO NOTES:

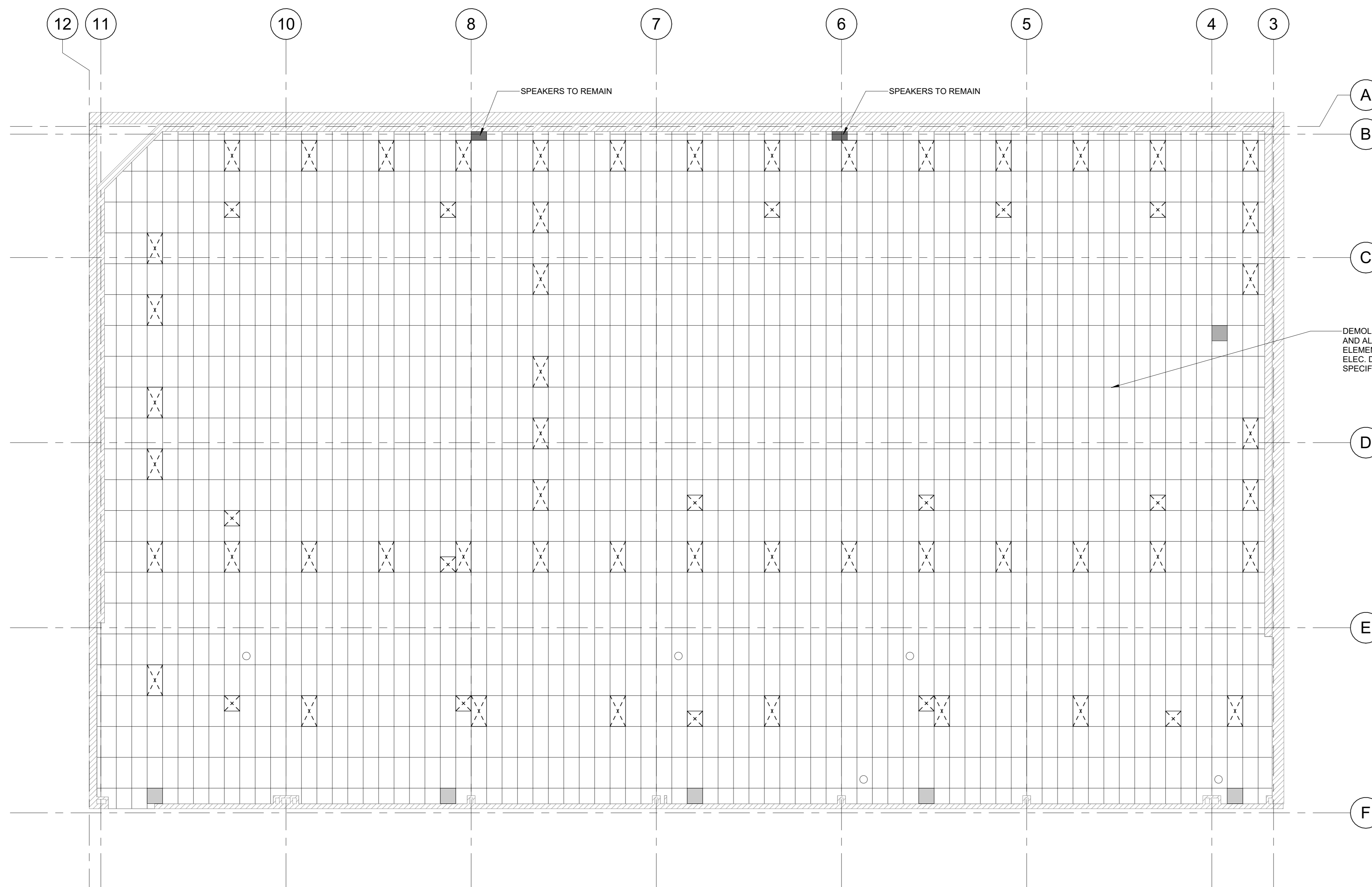
1. CONTRACTOR SHALL FIELD-VERIFY ALL EXISTING CONDITIONS BEFORE STARTING DEMOLITION. REPORT DISCREPANCIES TO THE ARCHITECT/ENGINEER. DO NOT PROCEED UNTIL POOL HAS BEEN EMPTIED BY THE UNIVERSITY.
2. THIS PLAN IS INTENDED TO SHOW GENERAL COORDINATION OF OVERHEAD DEMOLITION WORK. REFER TO PLUMBING, MECHANICAL, ELECTRICAL & LOW VOLTAGE DRAWINGS FOR FURTHER INFORMATION.
3. TEST FOR ASBESTOS OR OTHER HAZARDOUS MATERIALS BEFORE DEMOLITION. NOTIFY OWNER AND ARCHITECT IF FOUND.
4. PROVIDE TEMPORARY POOL COVERING, DUST BARRIERS, AND PROTECTIVE COVERINGS FOR ADJACENT FINISHES AND EQUIPMENT.
5. COMPLY WITH OSHA AND LOCAL REGULATIONS FOR DEMOLITION WORK. PROVIDE BARRICADES, SIGNAGE, AND MAINTAIN SAFE ACCESS ROUTES.
6. DISCONNECT ELECTRICAL, HVAC, AND PLUMBING COMPONENTS BEFORE CEILING REMOVAL. PROVIDE TEMPORARY SUPPORTS FOR ANY REMAINING SERVICES. SEE MECH. & ELEC. DRAWINGS.
7. PROTECT EXISTING STRUCTURAL CEILING DECK AND ANY ELEMENTS SCHEDULED TO REMAIN.
8. SALVAGE REUSABLE MATERIALS IF INDICATED ON MECHANICAL OR ELECTRICAL DRAWINGS. DISPOSE OF DEMOLISHED MATERIALS LEGALLY AND PROMPTLY OFF-SITE.
9. REMOVE AND DISPOSE OF ALL LAY-IN CEILING TILES, SUSPENSION GRID, AND ASSOCIATED COMPONENTS INCLUDING WIRES, HANGERS.
10. REMOVE ALL CEILING-MOUNTED ITEMS SUCH AS LIGHT FIXTURES, DIFFUSERS, SPEAKERS, AND SMOKE DETECTORS AS INDICATED. CAP OR REROUTE SERVICES AS REQUIRED.
11. PATCH AND REPAIR SURFACES EXPOSED BY DEMOLITION TO MATCH ADJACENT FINISHES WHERE REQUIRED.

EXISTING NOTES:

1. CONTRACTOR MUST VISIT THE SITE AND FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS. VERIFY MEASUREMENTS WITH CORRESPONDING CONSTRUCTION OR EXISTING CONDITIONS PRIOR TO PROCEEDING WITH THE WORK, AND NOTIFY THE ARCHITECT IMMEDIATELY OF SIGNIFICANT DISCREPANCIES.
2. VERIFY ALL CONDITIONS COVERING OR AFFECTING THE STRUCTURAL WORK. OBTAIN AND VERIFY ALL DIMENSIONS AND ELEVATIONS TO ENSURE THE PROPER STRENGTH, FIT AND LOCATION OF THE STRUCTURAL WORK. REPORT TO THE ARCHITECT ANY AND ALL CONDITIONS WHICH MAY INTERFERE WITH OR OTHERWISE AFFECT OR PREVENT THE PROPER EXECUTION AND COMPLETION OF THE NEW WORK. ALL DISCREPANCIES SHALL BE FULLY RESOLVED PRIOR TO COMMENCING WORK.
3. EXISTING CONSTRUCTION NOT UNDERGOING ALTERATION IS TO REMAIN UNDISTURBED. WHERE SUCH CONSTRUCTION IS DISTURBED AS A RESULT OF THE OPERATIONS OF THIS CONTRACT, IT MUST BE REPAIRED OR REPLACED BY THE CONTRACTOR AS REQUIRED AND TO THE SATISFACTION OF THE ARCHITECT.
4. WHERE THE EXISTING CONSTRUCTION IS TO BE ALTERED, OR OTHERWISE DISTURBED, PROVIDE TEMPORARY AND/OR PERMANENT BRACING AND SHORING AS MAY BE REQUIRED BEFORE AND DURING OPERATIONS AND UNTIL THE WORK IS SAFELY COMPLETED AND NO LONGER NEEDS SAME.
5. EACH CONTRACTOR SHALL PROVIDE ALL THE NECESSARY SUPPORT, BRACING, SHORING, ETC. (TEMPORARY AND/OR PERMANENT) OF BOTH NEW AND EXISTING CONSTRUCTION AS REQUIRED FOR THE SAFE INSTALLATION OF THE NEW CONSTRUCTION AND EQUIPMENT.
6. THE STRUCTURE IS DESIGNED TO BE SELF SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE BUILDING AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE-DOWNS IF NECESSARY.
7. THE CONTRACTOR IS RESPONSIBLE FOR MEANS, METHODS, SEQUENCES, AND PROCEDURES OF CONSTRUCTION.
8. PROVIDE FIRE WATCH DURING FIELD CUTTING AND WELDING OPERATIONS, MEETING THE OWNER'S REQUIREMENTS.
9. CONTRACTOR TO COORDINATE ALL REPAIR, REPLACEMENT, AND/OR CLEANING OF ALL EXISTING MASONRY, STONE, OR PRECAST CONCRETE WITH STRUCTURAL ENGINEER AND ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
10. ALL EXISTING STRUCTURAL MEMBERS TO REMAIN, U.N.O.

CONTINUED USE OF FACILITIES:

1. EACH CONTRACTOR SHALL AT ALL TIMES MAINTAIN A CLEAN AND SAFE PASSAGEWAY FOR THE OWNER'S OPERATION AND PERSONNEL IN EXISTING AREAS AND MAINTAIN CLEARANCES ADJACENT TO AND IN CONNECTION WITH THE WORK PERFORMED.
2. EACH CONTRACTOR SHALL EFFECTIVELY CONFINE DUST, DIRT AND NOISE TO THE ACTUAL CONSTRUCTION AREA AS APPROVED BY THE GENERAL CONTRACTOR IN ACCORDANCE WITH STATE OF MICHIGAN REGULATIONS.
3. WORK SHALL, IF REQUIRED, BE CONSTRUCTED IN PHASES TO ACCOMMODATE THE OWNER'S USE OF THE PREMISES DURING THE CONSTRUCTION PERIOD AND FOR INSTALLATION OF HIS EQUIPMENT. COORDINATE THE CONSTRUCTION SCHEDULE WITH THE GENERAL CONTRACTOR AND OWNER'S REPRESENTATIVE.
4. DURING THE CONTRACTOR'S PERFORMANCE OF THE WORK OF THIS CONTRACT, THE OWNER'S WILL CONTINUE TO OCCUPY THE EXISTING BUILDING. INTERRUPTION OF BUILDING ACCESS AND FACILITIES BY THE CONTRACTOR WILL NOT BE PERMITTED. TO WHATEVER EXTENT SUCH INTERRUPTIONS MIGHT INTERFERE WITH OWNER'S OCCUPANCY, LIMIT CONSTRUCTION OPERATIONS TO THOSE METHODS AND PROCEDURES WHICH WILL NOT ADVERSELY AND UNDULY EFFECT THE WORKING ENVIRONMENT OF OWNER'S OCCUPIED SPACES, INCLUDING NOISE, DUST, ODORS, AIR POLLUTION, AMBIENT DISCOMFORT, POOR LIGHTING, HAZARDS AND OTHER UNDESIRABLE EFFECTS AND CONDITIONS. COORDINATE AND SCHEDULE ALL WORK IN EXISTING BUILDING WITH OWNER AND GENERAL CONTRACTOR.



LEVEL 1 RCP DEMO
1/8" = 1'-0"

REFLECTED CEILING NOTES:

1. THIS PLAN IS INTENDED TO SHOW GENERAL COORDINATION OF OVERHEAD WORK. REFER TO PLUMBING, MECHANICAL, ELECTRICAL DRAWINGS FOR FURTHER INFORMATION.
2. CHECK FOR MOISTURE, LEAKS, OR MOLD. IF FOUND, BRING THESE ISSUES TO THE ARCHITECT'S ATTENTION BEFORE PAINTING.
3. REMOVE DUST AND DEBRIS IN ENTIRE EXPOSED PLENUM SPACE USING A VACUUM WITH A HEPA FILTER OR COMPRESSED AIR. SEE EXECUTION SECTION IN PAINT SPECIFICATIONS.
4. EXISTING ROOF STEEL TRUSSES TO BE INSPECTED FOR RUST. BRING ANY INSTANCES OF RUST TO THE ARCHITECT'S ATTENTION BEFORE PAINTING.
5. PROVIDE TEMPORARY PROTECTION FOR POOLS, FLOORS, WALLS, EQUIPMENT, AND ADJACENT FINISHES DURING SPRAY APPLICATION OF DRYFALL COATINGS. USE THE FOLLOWING MATERIALS:
 - POLYETHYLENE PLASTIC SHEETING (4-6 MIL THICKNESS) FOR ENTIRE POOL DECK.
 - PAINTER'S PLASTIC (HDPE) FOR LIGHTWEIGHT COVERAGE OF VERTICAL SURFACES NEAR LOWER PERIMETER OF CEILING ZONE.
 - DROP CLOTHS OR CANVAS COVERS FOR HIGH-TRAFFIC AREAS AND WALKWAYS.
 - SECURE ALL PROTECTION WITH LOW-TACK PAINTER'S TAPE OR APPROVED FASTENERS TO PREVENT DAMAGE TO FINISHED SURFACES.
6. APPLY A BONDING PRIMER THAT IS SUITABLE FOR THE MATERIAL TYPES FOUND IN THE PLENUM SPACE. SEE PAINT SPEC.
7. USE A LOW-VOC PAINT, APPLY WITH A SPRAYER. SEE PAINT SPEC.
8. REFER TO MECH. AND ELEC. DWGS FOR ADDITIONAL INFORMATION

SPECIFICATIONS:

PAINTING - SECTION 09 91 00

PART 1 - GENERAL

1.1 SUMMARY THE SCOPE OF WORK INCLUDES CLEANING, SURFACE PREPARATION, PRIMING, AND FINISH PAINTING OF ALL EXPOSED STRUCTURAL AND MECHANICAL/ELECTRICAL COMPONENTS LOCATED ABOVE THE FINISHED CEILING PLANE. THIS WORK COVERS THE UNDERSIDE OF THE METAL DECK, OPEN-WEB STEEL JOISTS, BRIDGING, AND MISCELLANEOUS STEEL FRAMING. IT ALSO INCLUDES EXPOSED DUCTWORK, FITTINGS, HANGERS, AND SUPPORTS, AS WELL AS ELECTRICAL CONDUIT, CABLE TRAYS, JUNCTION BOXES, AND ASSOCIATED SUPPORTS, PLUMBING AND FIRE PROTECTION ELEMENTS SUCH AS EXPOSED PIPING, VALVES, HANGERS, AND BRACKETS ARE INCLUDED, ALONG WITH ALL VISIBLE FASTENERS, BRACKETS, AND MISCELLANEOUS ITEMS WITHIN THE EXPOSED CEILING ZONE. ALL SURFACES WILL BE CLEANED TO REMOVE DUST, GREASE, AND CONTAMINANTS, PREPARED AS REQUIRED, AND FINISHED USING THE SPECIFIED COATING SYSTEM.

1.2 REFERENCES COMPLY WITH AMPP/SSPC SP 1, SP 2, SP 3 FOR SURFACE PREPARATION AND SSPC-PA 2 FOR DRY FILM THICKNESS MEASUREMENT.

1.3 SUBMITTALS: PROVIDE PRODUCT DATA AND SDS, COLOR SCHEDULE, CERTIFICATES FOR VOC/EMISSIONS COMPLIANCE, MOCKUPS, AND MAINTENANCE MATERIALS.

1.4 QUALITY ASSURANCE USE A SINGLE-MANUFACTURER SYSTEM BY SHERWIN-WILLIAMS; APPLICATORS EXPERIENCED WITH SPRAY APPLIED INDUSTRIAL COATINGS; MEASURE DFT PER SSPC-PA 2 USING ASTM D7091 INSTRUMENTATION.

1.5 DELIVERY, STORAGE, AND HANDLING DELIVER MATERIALS IN ORIGINAL UNOPENED CONTAINERS; STORE PER MANUFACTURER REQUIREMENTS; PROTECT FROM FREEZING AND CONTAMINATION.

1.6 PROJECT CONDITIONS MAINTAIN APPLICATION TEMPERATURES PER MANUFACTURER: DRYFALL MINIMUM 50°F; PRO-CRYL PRIMER MINIMUM 35-40°F. PROVIDE VENTILATION DURING AND AFTER APPLICATION; PROTECT ADJACENT SURFACES AND EQUIPMENT.

1.7 COORDINATION COORDINATE WITH MECHANICAL/ELECTRICAL TRADES TO ALLOW CLEANING, MASKING, AND COATING OF DUCTWORK, CONDUIT, PIPING, HANGERS; PRESERVE IDENTIFICATION AND SAFETY MARKINGS.

1.8 WARRANTY PROVIDE STANDARD ONE-YEAR WARRANTY COVERING ADHESION, PEELING, AND VISIBLE DEFECTS; CORRECT FAILURES AT NO COST TO OWNER.

PART 2 - PRODUCTS

2.1 MANUFACTURER SHERWIN-WILLIAMS COMPANY - NO SUBSTITUTIONS.

2.2 PRIMER - METAL SUBSTRATES PRO INDUSTRIAL™ PRO-CRYL® UNIVERSAL ACRYLIC PRIMER. SINGLE-COMPONENT, RUST-INHIBITIVE ACRYLIC PRIMER FOR STEEL, GALVANIZED, AND ALUMINUM. RECOMMENDED DFT PER COAT: 1.9-3.8 MILS; WFT 5.0-10.0 MILS. MINIMUM APPLICATION TEMPERATURE 35-40°F.

2.3 FINISH COAT - EXPOSED CEILINGS PRO INDUSTRIAL™ WATERBORNE ACRYLIC DRYFALL - FLAT. AIRLESS SPRAY FOR INTERIOR CEILINGS/WALLS NOT SUBJECT TO WEAR; OVERSPRAY DRIES TO DUST AND CLEANS BY SWEEPING/VACUUMING. RECOMMENDED DFT PER COAT: ~1.9-2.9 MILS AT 6.0-9.0 MILS WFT. TYPICAL DRYFALL DISTANCE 10-15 FT. MINIMUM APPLICATION TEMPERATURE 50°F. COLOR: FLAT WHITE.

2.4 ACCESSORIES CLEANERS/DEGREASERS, MASKING TAPES/FILMS, PROTECTION MATERIALS, AND WATER REDUCER AS RECOMMENDED BY SHERWIN-WILLIAMS. SEE SHERWIN-WILLIAMS DATA SHEETS FOR COMPREHENSIVE PRODUCT INFORMATION.

2.5 SYSTEM SCHEDULE - EC-1 EXPOSED CEILING SYSTEM FOR DECK, JOISTS, DUCTWORK, CONDUIT, PIPING, HANGERS; PRIMER - 1 COAT PRO-CRYL UNIVERSAL ACRYLIC PRIMER (DFT 1.9-3.8 MILS); FINISH - 2 COATS PRO INDUSTRIAL WATERBORNE ACRYLIC DRYFALL - FLAT (DFT 1.9-2.9 MILS PER COAT). COLOR: WHITE/EGG SHELL.

PART 3 - EXECUTION

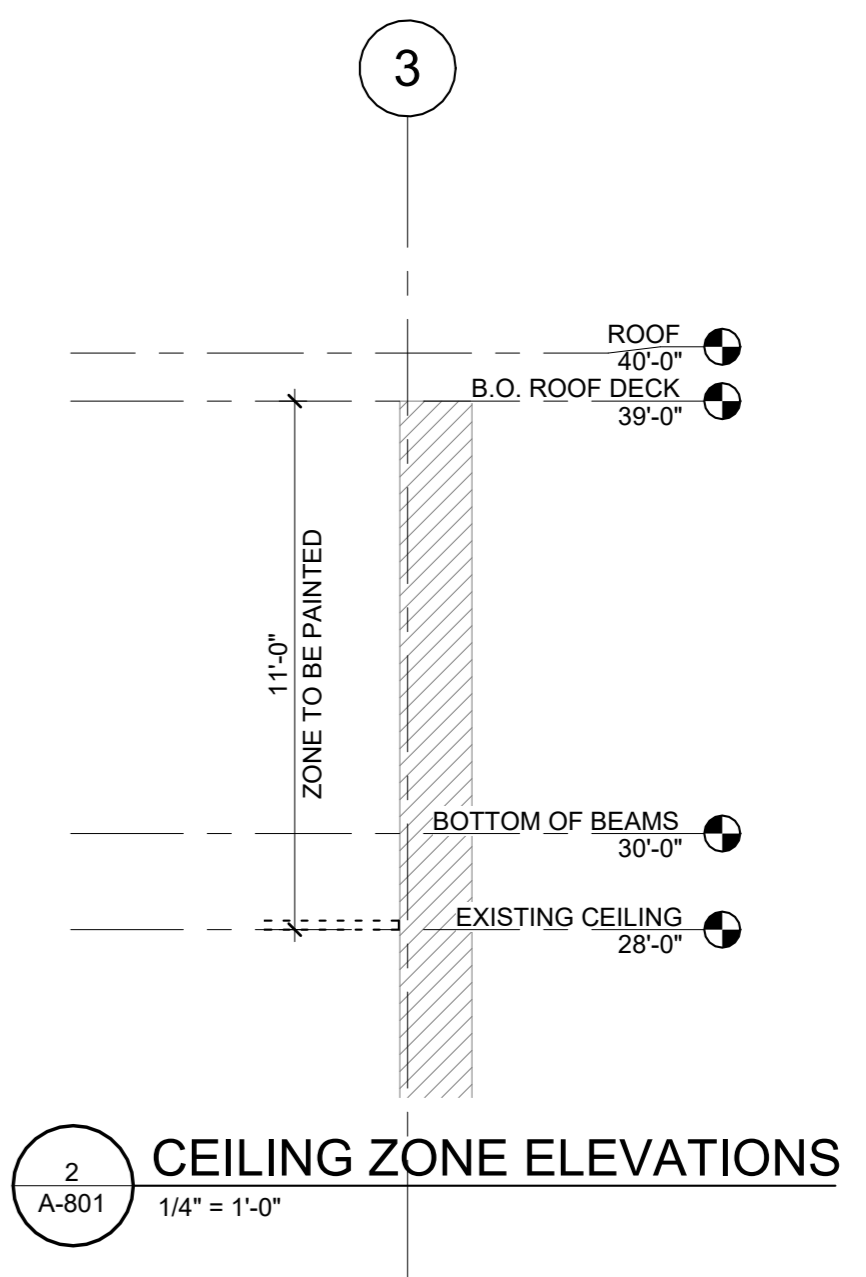
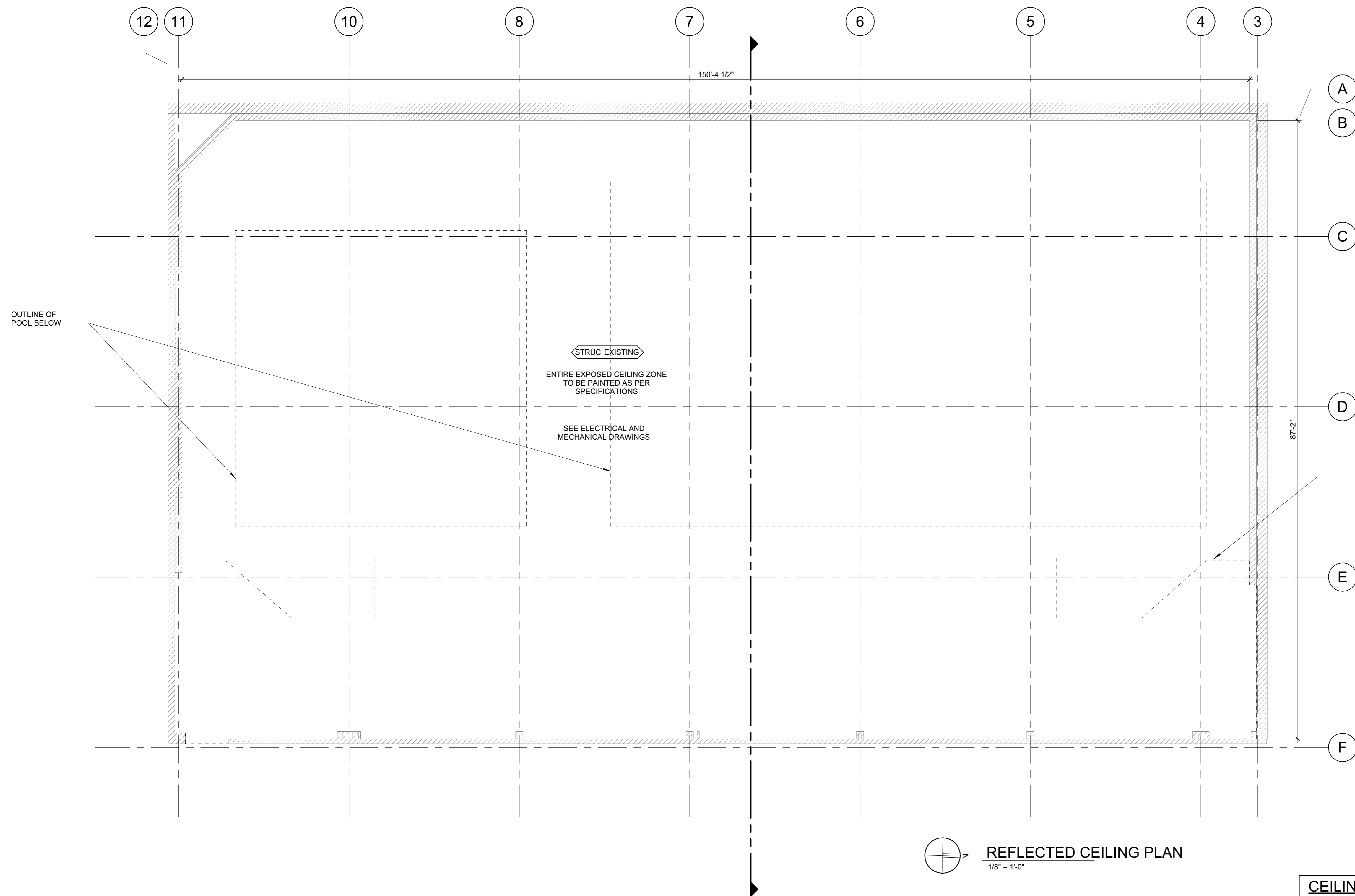
3.1 EXAMINATION VERIFY SUBSTRATES ARE CLEAN, DRY, AND READY; REPORT CONDITIONS ADVERSELY AFFECTING PERFORMANCE TO ARCHITECT.

3.2 PREPARATION REMOVE OIL/GREASE PER SSPC-SP 1; MECHANICALLY REMOVE LOOSE RUST/PAINT PER SSPC-SP 2 OR SP 3; FEATHER EDGES; LIGHTLY SCUFF GLOSSY SURFACES. MASK AND PROTECT ADJACENT DEVICES AND EQUIPMENT.

3.3 APPLICATION SPRAY APPLICATION REQUIRED FOR UNIFORM COVERAGE; APPLY AT MANUFACTURER'S WFT/DFT, TEMPERATURES, AND RECOAT INTERVALS. MAINTAIN DRYFALL CONDITIONS; PROVIDE CONTINUOUS, EVEN COVERAGE WITH NO THIN SPOTS, DRIPS, OR OVERSPRAY DEPOSITS. PAINT ALL SURFACES VISIBLE FROM OCCUPIED SPACES.

3.4 FIELD QUALITY CONTROL MEASURE DFT PER SSPC-PA 2; DOCUMENT READINGS; CORRECT NONCONFORMING THICKNESSES. INSPECT FOR ADHESION, UNIFORM COLOR/SHEEN, AND COMPLETE COVERAGE.

3.5 CLEANING AND PROTECTION REMOVE MASKING AFTER CURING; CLEAN OVERSPRAY FROM ADJACENT FINISHES; LEAVE AREAS CLEAN AND FREE OF DEBRIS.



REFLECTED CEILING PLAN
1/8" = 1'-0"

CEILING SCHEDULE		
MARK	DESCRIPTION	REMARKS
STRUC	EXPOSED EXISTING STRUCTURE	EXT. HTG.: 28'-0"



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ELECTRICAL SPECIFICATION

PART 1 - GENERAL

COOPERATION WITH OTHER TRADES

WHEN INTERFERENCES EXIST WITH THE WORK OF OTHER TRADES, NOTIFY THE OWNER BEFORE PROCEEDING WITH THE INSTALLATION OF THE WORK. IF ADDITIONAL WORK IS REQUIRED TO REARRANGE INTERFERING EQUIPMENT AND THE CONTRACTOR HAS FAILED TO NOTIFY THE OWNER OF THE INTERFERENCE, THEN THE CORRECTIVE WORK REQUIRED TO MODIFY THE INTERFERENCE WILL BE DONE AT NO ADDITIONAL EXPENSE TO THE OWNER.

ORDINANCES AND CODES

THE ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH THE GOVERNING RULES AND REGULATIONS OF THE NATIONAL ELECTRIC CODE, ALL LOCAL GOVERNING BOARDS HAVING JURISDICTION, AND, IN ADDITION, SHALL MEET ALL THE STANDARDS AND REQUIREMENTS OF THE OWNER.

THE ENTIRE INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF APPLICABLE FEDERAL, STATE AND LOCAL CODES, ORDINANCES AND REGULATIONS.

PROVIDE MATERIALS LISTED BY THE UNDERWRITERS' LABORATORIES, INC. AND BEARING THEIR LABEL, WHERE SUCH SERVICE IS AVAILABLE FOR THE TYPE OF EQUIPMENT SPECIFIED.

WHERE PLANS AND SPECIFICATIONS CONFLICT WITH SUCH LAWS AND ORDINANCES, NOTIFY THE ARCHITECT BEFORE SUBMISSION OF THE BID. AFTER ENTERING INTO THE CONTRACT, THE CONTRACTOR WILL BE HELD RESPONSIBLE TO COMPLETE ALL WORK IN STRICT ACCORDANCE WITH ALL GOVERNING REGULATIONS WITHOUT ADDITIONAL COST TO THE OWNER.

PERMITS

OBTAIN AND PAY FOR ALL REQUIRED PERMITS.

INSPECTIONS

GIVE ALL REQUIRED NOTICES OF INSPECTIONS REQUIRED BY THE LAWS OR OTHER REGULATIONS AND PAY ALL FEES IN CONNECTION THEREWITH.

FINAL ELECTRICAL INSPECTION IS REQUIRED BY THE LOCAL INSPECTION AUTHORITY. FORWARD A COPY OF THE FINAL APPROVAL TO THE FIRE MARSHAL DIVISION, LOCAL FIELD OFFICE.

COORDINATION AND PROJECT RECORD DOCUMENTS

PROJECT RECORD DOCUMENTS ARE REQUIRED UPON COMPLETION OF THE WORK AND BEFORE FINAL PAYMENT IS MADE.

GUARANTEE

THE COMPLETE ELECTRICAL SYSTEM OR SYSTEMS FURNISHED AND INSTALLED SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THE WORK AGAINST DEFECTIVE MATERIALS AND/OR WORKMANSHIP. UPON RECEIPT OF NOTICE OF FAILURE OF ANY PART OF THE WORK DURING THE GUARANTEED PERIOD, THE AFFECTED PART OR PARTS SHALL BE REPLACED PROMPTLY AT NO ADDITIONAL COST TO THE OWNER, INCLUDING ANY DAMAGE DONE TO THE WORK OF OTHERS CAUSED BY THE FAILURE OF THE ELECTRICAL SYSTEM.

CHARACTER OF WORK

THE INSTALLATION SHALL BE SO MADE THAT ITS MANY COMPONENT PARTS WILL FUNCTION TOGETHER AS A WORKABLE SYSTEM. IT SHALL BE COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION, AND SHALL BE LEFT WITH ALL EQUIPMENT PROPERLY ADJUSTED AND IN WORKING ORDER.

EXECUTE THE WORK IN CONFORMITY WITH THE BEST PRACTICE, SO AS TO CONTRIBUTE TO EFFICIENCY OF OPERATION, MINIMUM MAINTENANCE, ACCESSIBILITY AND SIGHTLINESS. EXECUTE SO THAT THE INSTALLATION WILL CONFORM AND ACCOMMODATE ITSELF TO THE BUILDING STRUCTURE, ITS EQUIPMENT AND ITS USAGE.

MOUNTING HEIGHTS

MOUNT OUTLET BOXES AND EQUIPMENT AS SHOWN BELOW, UNLESS OTHERWISE INDICATED ON DRAWINGS. MOUNTING HEIGHTS SHOWN, IN GENERAL, ARE ABOVE FINISHED FLOOR TO CENTER LINE OF OUTLET BOXES OR EQUIPMENT.

BRACKET MOUNTED MIRROR LIGHTING FIXTURES: ABOVE MIRROR.

SWITCHES: 3'-10".

RECEPTACLES: FINISHED AREAS: 18".

VOICE/DATA OUTLETS - DESK MOUNTED: 18".

VOICE/DATA OUTLETS - WALL MOUNTED: 4'-6".

SAFETY SWITCHES: 4'-10".

MOTOR STARTERS: 4'-10".

BRACKET EXIT LIGHTING FIXTURES: 6'-8" TO BOTTOM OF FIXTURE FOR CEILINGS UP TO 9 FEET. MOUNT AT 8'-0" FOR CEILINGS HIGHER THAN 9 FEET.

REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS BEFORE INSTALLING ANY OF THE ABOVE OUTLETS OR EQUIPMENT FOR INTERFERENCE, AND ADJUST HEIGHTS TO AVOID INTERFERENCES THAT WOULD OCCUR. IF DEVIATIONS ARE REQUIRED, OBTAIN APPROVAL OF THE OWNER BEFORE PROCEEDING WITH INSTALLATION.

EQUIPMENT IDENTIFICATION

IDENTIFY ALL PANELS, CONTROL POINTS, CONTROL CENTERS, EQUIPMENT BREAKERS, SWITCHES, ETC., AS APPROVED IN ACCORDANCE WITH THE IDENTIFICATION MARKINGS SHOWN ON THE DRAWINGS AND/OR AS DIRECTED. IDENTIFY EQUIPMENT WITH SUITABLY SIZED ENGRAVED PLASTIC LAMINATE PHENOLIC WHITE BACKGROUND WITH BLACK LETTERING AND ATTACH WITH SHEET METAL SCREWS.

DISCONNECT SWITCHES (INDIVIDUALLY OR PANEL MOUNTED), COMBINATION STARTERS AND TRANSFORMERS SHALL BE IDENTIFIED BY NAME, SOURCE OF POWER SERVED, AND EQUIPMENT SERVED. PROVIDE NEW NAMEPLATES FOR REVISIONS TO EXISTING EQUIPMENT AFFECTED BY WORK IN THIS CONTRACT.

PANELBOARDS SHALL HAVE TYPED CIRCUIT DIRECTORIES IDENTIFYING EACH LOAD AND LOCATION. UP-DATE ALL EXISTING PANEL SCHEDULES WITH NEW TYPED SCHEDULES FOR PANELS AFFECTED BY WORK IN THIS CONTRACT INCLUDING ADDITIONS OR DELETIONS TO EXISTING PANELS.

CONDUCTORS SHALL BE IDENTIFIED WITH WIRE MARKERS INDICATING THE CIRCUIT NUMBER, WIRE NUMBER OR PHASE LETTER AT EVERY TERMINAL POINT OR SPLICE. PROVIDE CIRCUIT IDENTIFICATION OF EVERY UNSPLICED CONDUCTOR WITHIN EACH JUNCTION OR PULL BOX.

PARTS 2 AND 3 - PRODUCTS, INSTALLATION AND TESTING

ALL WIRING METHODS SHALL BE IN ACCORDANCE WITH NEC ARTICLE 300.

RACEWAYS AND FITTINGS

CONDUIT:

ELECTRICAL METALLIC TUBING: ZINC-COATED STEEL PER ANSI C80.3-1977 "SPECIFICATION FOR ELECTRICAL TUBING, ZINC-COATED".

RIGID STEEL CONDUIT, ELBOWS, AND COUPLINGS: ZINC-COATED THREADED STEEL PER ANSI C80.1 "SPECIFICATION FOR RIGID STEEL CONDUIT, ZINC-COATED". EACH LENGTH OF CONDUIT SHALL BE THREADED ON BOTH ENDS.

LIQUID-TIGHT FLEXIBLE STEEL CONDUIT: PER UL-360 "LIQUIDTIGHT FLEXIBLE STEEL CONDUIT, ELECTRICAL", "SEALTITE ELECTRIFLEX".

RIGID NON-METALLIC CONDUIT, ELBOWS, AND COUPLINGS: SMOOTH-WALL POLYVINYLCHLORIDE (PVC), 90°C, UL LISTED AND IN COMPLIANCE WITH THE TESTING REQUIREMENTS DEFINED IN NEMA WTC-2, NEMA TC-3, UL-651, AND UL-514 (FITTINGS). SCHEDULE 40. CARLON PLUS 40 (HEAVY WALL EPC) & SCHEDULE 80. CARLON PLUS 80 (EXTRA HEAVY EPC-80).

MANUFACTURERS: APPLIED, ANACONDA-SEALTITE, CERTAINTED, ELECTRI-FLEX CO., ALLETON, CROUSE-HINDS, PITTSBURGH, REPUBLIC, STEELDUCT, TRIANGLE/PWC AND WHEATLAND TUBE.

CONDUIT FITTINGS:

COUPLINGS AND CONNECTORS FOR EMT: ZINC-PLATED STEEL, COMPRESSION TYPE.

FITTINGS FOR FLEXIBLE STEEL CONDUIT: MALLEABLE IRON OR STEEL, ZINC OR CADMIUM PLATED, SECURING THE CONDUIT BY CLAMPING ACTION AROUND THE PERIPHERY OF THE CONDUIT. DO NOT FURNISH FITTINGS THAT ANCHOR THE CONDUIT BY MEANS OF SET SCREWS.

MANUFACTURERS: SAME AS LISTED FOR CONDUIT PLUS APPLETON, CROUSE-HINDS, ERICKSON, HUBBELL INC., MIDLAND-ROSS, MIDWEST, RACO, O.Z./GEDNEY ELECTRIC CO., STEEL CITY, THOMAS & BETTS OR TOMIC.

CONDUIT SUPPORT:

PIPE STRAPS USED FOR EXPOSED WORK SHALL BE ONE HOLE MALLEABLE IRON GALVANIZED. USE OF PERFORATED STRAP OR WIRE IS NOT ALLOWED. PROVIDE GALVANIZED TRAPEZE HANGERS FOR GROUPS OF CONDUITS.

INDIVIDUAL CONDUITS NOT SUPPORTED ON PIPE STRAPS SHALL BE PROVIDED WITH CLEVIS TYPE HANGERS. HANGER SUPPORTS SHALL BE ROD OR PIPE WITH THREADED CONNECTIONS.

BEAM CLAMPS FOR SUPPORT OF CONDUIT SHALL BE MALLEABLE IRON OR WROUGHT STEEL WITH HOOK RODS TO GRIP BEAM FLANGE. C-CLAMPS SHALL NOT BE USED.

MANUFACTURERS: SAME AS LISTED FOR CONDUITS, PLUS 8-LINE HUBBELL INC., KINDORF, MIDLAND-ROSS, RACO, O.Z./GEDNEY ELECTRIC CO., STEEL CITY, THOMAS & BETTS AND UNISTRUT.

INSTALLATION - RACEWAYS AND FITTINGS

CONDUIT:

USE EMT (WITH COMPRESSION FITTINGS ONLY) IN CONCEALED DRY LOCATIONS UP TO 4-INCHES WHERE CONDUITS ARE NOT SUBJECT TO MECHANICAL DAMAGE.

INSTALL CONDUIT SIZES AS INDICATED. WHERE CONDUIT SIZES ARE NOT INDICATED, INSTALL SIZES PER NEC REQUIREMENTS, EXCEPT DO NOT USE CONDUIT SIZES SMALLER THAN 3/4-INCH UNLESS OTHERWISE SPECIFIED. USE 1/2-INCH FIXTURE STEMS OPTIONALLY, UNLESS OTHERWISE INDICATED.

CONCEAL ALL CONDUIT IN FINISHED AREAS EITHER ABOVE CEILINGS, IN WALLS OR FLOORS, OTHER THAN SLABS ON GRADE UNLESS OTHERWISE SPECIFIED OR INDICATED. INSTALL CONDUIT IN MECHANICAL ROOMS AND SIMILAR SPACES EXPOSED, UNLESS OTHERWISE SPECIFIED OR INDICATED.

FLEXIBLE STEEL CONDUIT SHALL BE USED FOR ALL FINAL CONNECTIONS TO CEILING MOUNTED EQUIPMENT SUCH AS LIGHTING FIXTURES AND SMOKE DETECTORS. USE IN DRY LOCATIONS.

LIQUID TIGHT FLEXIBLE STEEL CONDUIT SHALL BE USED FOR ALL FINAL CONNECTIONS TO TRANSFORMERS, VIBRATING EQUIPMENT SUCH AS MOTORS AND UNDER RAISED ACCESS FLOORING. USE IN WET LOCATIONS.

INSTALL CONDUIT A MINIMUM OF 12 INCHES FROM HOT WATER OR STEAM PIPES AND 3 INCHES FROM OTHER MECHANICAL PIPING.

SUPPORT CONDUIT EVERY 8 FEET IF SMALLER THAN 2 INCHES AND EVERY 10 FEET IF 2 INCHES OR LARGER.

DO NOT SUPPORT CONDUIT FROM PIPES, HANGERS, OR EXTENSION OF INSTALLATION OF OTHER TRADES.

SUPPORT 1-1/2-INCH AND LARGER CONDUIT RUNS ABOVE SUSPENDED CEILING FROM BUILDING STRUCTURAL MEMBERS (DO NOT USE CEILING MEMBERS). SUPPORT SUCH CONDUIT FROM STRUCTURAL SUPPORT SYSTEM. INSTALL PULL BOXES AT LEAST EVERY 100 FEET IN LONG CONDUIT RUNS.

DO NOT EXCEED LOADING LIMITS OF STRUCTURAL SYSTEMS WHERE GROUPS OF CONDUITS ARE SUPPORTED ON COMMON HANGERS. SEE STRUCTURAL DRAWINGS FOR LIMITS.

EXPANSION FITTINGS:

INSTALL A CONDUIT EXPANSION FITTING IN EACH CONDUIT RUN WHEREVER IT CROSSES AN EXPANSION JOINT IN THE STRUCTURE TO WHICH IT IS ATTACHED. IN ADDITION, INSTALL AN EXPANSION FITTING IN EACH CONDUIT RUN WHICH IS MECHANICALLY ATTACHED TO SEPARATE STRUCTURES. INSTALL A BONDING JUMPER OR GROUND CLAMP TO CONNECT THE CONDUITS.

SLEEVES:

INSTALL SLEEVES AS NOTED. WHERE CONDUITS ARE TO PASS THROUGH FLOOR SLABS, AND PIPE SLOTS ARE NOT PROVIDED, INSTALL PIPE SLEEVES OF SIZE AS INDICATED. INSTALL PIPE SLEEVES WITH BOTTOM OF SLEEVES FLUSH WITH SLAB AND TOP 3 INCHES ABOVE FINISHED FLOOR.

CLOSE AND MAKE WATERTIGHT ALL OPEN SPACES AROUND INSTALLED CONDUIT WITH OAKUM AND AN APPROVED MASTIC. SUPPORT CONDUIT AT EACH LEVEL. PROVIDE APPROVED MASTIC FOR FIRE STOP AND/OR FIRE RATED WALL/FLOOR PENETRATION SYSTEM AT ALL FLOOR/WALL PENETRATIONS.

BUSHINGS:

INSTALL INSULATING BUSHINGS ON CONDUIT ENDS BEFORE THE INSTALLATION OF ANY CONDUCTORS.

PULL ROPE:

INSTALL 1/8 INCH-DIAMETER NYLON PULLING ROPE WITH WOODEN BLOCKS AND IDENTIFICATION FASTENED TO BOTH ENDS IN ALL EMPTY ELECTRICAL AND TELEPHONE CONDUITS.

PULL AND JUNCTION BOXES:

BOXES LESS THAN 5-INCHES BY 5-INCHES: CONFORM TO PARAGRAPH ON "OUTLET BOXES".

SHEET METAL BOXES: CODE GAGE, FULL SEAM WELDED WITH BENT-IN

SAME GAGE AS BOX. FASTEN COVER WITH BRASS MACHINE SCREWS. GALVANIZE BOX AND COVER AFTER FABRICATION. PROVIDE SIZES CONFORMING TO NEC REQUIREMENTS FOR WIRING SPACE, EXCEPT

LOCATED IN AREAS REQUIRING GASKETS.

SPECIAL BOXES SHALL BE PROVIDED AS NOTED ON THE DRAWINGS.

PROVIDE SIZES PER NEC REQUIREMENTS FOR WIRING SPACE.

KILLARK:

INSTALLATION - PULL AND JUNCTION BOXES:

FOR JUNCTION OR PULL BOXES NOT OVER 100 CUBIC INCHES IN SIZE USE 4-11/16-INCHES X 4-11/16-INCHES OUTLET BOXES. FOR JUNCTION OR PULL BOXES OVER 100 CUBIC INCHES IN SIZE, CONSTRUCT SAME AS CABINETS WITH COVERS OF SAME GAGE METAL AS BOXES AND SECURE BY SCREWS OR BOLTS. USE GALVANIZED SHEET STEEL BOXES WITH METAL THICKNESS NOT LESS THAN NO. 14 GAGE. SIZE AND INSTALL BOXES PER THE LATEST EDITION OF NEC ARTICLE NO. 314. INSTALL REMOVABLE COVERS FOR ACCESS AT ALL TIMES.

OUTLET BOXES:

IN GENERAL, USE OUTLET BOXES NOT LESS THAN 4-INCHES SQUARE, AT LEAST 2-INCHES DEEP AND OF SUFFICIENT SIZE TO ACCOMMODATE THE WHERE BOXES OF LARGER SIZE ARE INDICATED. FURNISH GASKETS WHEN WIRING DEVICES TO BE INSTALLED AT THE OUTLET LOCATION. FLUSH MOUNTED BOXES FOR MULTIPLE OUTLET SHALL BE OF GANG TYPE AND SHALL BE NOT LESS THAN 2-1/4 INCH DEEP AND NOT LESS THAN 3 INCHES DEEP FOR CEILING BOXES.

WHERE SHOWN ON THE DRAWINGS, AND NOTED IN THESE SPECIFICATIONS, USE THREADED-HUB, CAST METAL, OUTLET ON EXPOSED CONDUIT SYSTEMS OR FOR WEATHERPROOF DEVICES SUITABLE FOR THE WIRING DEVICES TO BE INSTALLED. MANUFACTURERS: APPLETON, CROUSE-HINDS, HOFFMAN, KEYSTONE, AND SQUARE D.

USE OUTLET BOXES WITH PLASTER COVERS FOR WIRING DEVICES IN FINISHED WALLS WHERE PRACTICABLE, TO BRING BOX OPENINGS FLUSH WITH FINISHED WALL OR NOT MORE THAN 1/4-INCH BACK OF SAME.

WHERE MOUNTING HEIGHT OR LOCATION OF OUTLETS IS NOT SHOWN OR SPECIFIED LOCATE THE OUTLET AS BEST SUITED FOR THE EQUIPMENT CONNECTED THERETO OR AS DIRECTED.

USE 4-INCH OCTAGON BOXES WITH 3/8-INCH FIXTURE STUD FOR LIGHTING FIXTURES.

WIREWAYS:

PAINTED STEEL ENCLOSURE NEMA 1 (OR OTHER AS NOTED ON DRAWINGS) WITH SCREWED FASTENED COVER, BENDS, ELBOWS, TEES, CROSSES, ADAPTERS AND ACCESSORIES AS REQUIRED, EASILY ASSEMBLED INTO A COMPLETE SYSTEM. PROVIDE SIZES PER NEC REQUIREMENTS FOR WIRING SPACE, EXCEPT WHERE LARGER SIZES ARE INDICATED. FURNISH GASKETS WHEN LOCATED IN AREAS REQUIRING GASKETS.

MANUFACTURERS: COPE, HOFFMAN, KEYSTONE, PARK METAL AND SQUARE D.

INSTALLATION - WIREWAYS:

INSTALL WIREWAYS COMPLETE WITH ALL REQUIRED COUPLINGS, END CLOSURES, ETC., AS REQUIRED. TAPS & SPLICES ARE PERMITTED WITHIN THE WIREWAY BUT SHALL BE LIMITED TO THE REQUIREMENTS OF NEC ARTICLE NO. 376.

WIRES AND CABLES:

PROVIDE WIRE AND CABLE FOR STANDARD SPECIFICATIONS ESTABLISHED FOR SUCH MATERIAL AND CONSTRUCTION BY ASTM, ANSI, IPCEA AND NEMA, WHERE APPLICABLE. PROVIDE COPPER CONDUCTORS OF 98% CONDUCTIVITY, NOT LESS THAN NO. 12 AWG. PROVIDE CONDUCTOR SIZES AS INDICATED. PROVIDE STRANDED CONDUCTORS.

WIRE FOR GENERAL INTERIOR AND EXTERIOR USE: SINGLE CONDUCTOR, ANNEALED COPPER, RATED 600 VOLTS AS FOLLOWS:

NEC TYPE THHN/THWN-2, RATED 90°C, DRY AND WET LOCATIONS.

NEC TYPE THHN/THWN, RATED 90°C, DRY LOCATIONS AND 75°C, WET LOCATIONS.

NEC TYPE XHHW, RATED 90°C, DRY AND DAMP LOCATION AND 75°C, WET LOCATION.

NEC TYPE MC SHALL BE PERMITTED FOR USE AS SPECIFIED IN NEC ARTICLE 330.

INSTALLATION - WIRES AND CABLES:

INSTALL WIRING IN ACCORDANCE WITH ARTICLE NO. 310 OF THE NATIONAL ELECTRICAL CODE OR PER ANY OTHER CODES THAT TAKE PRECEDENCE.

INSTALL CONDUCTORS IN SUCH A MANNER THAT THE BENDING RADIUS OF ANY WIRE OR CABLE IS NOT LESS THAN THE MINIMUM RECOMMENDED BY ICEA AND/OR THE MANUFACTURER. DO NOT EXCEED MANUFACTURER'S RECOMMENDED VALUES FOR MAXIMUM PULLING TENSION OR SIDEWALL FORCE APPLIED TO ANY WIRE OR CABLE.

PROVIDE A GREEN GROUND WIRE FOR EVERY CIRCUIT.

COLOR CODING AND CONDUCTOR IDENTIFICATION:

MATCH EXISTING COLOR SCHEME OR AS REQUIRED BY THE NEC.

BRANCH CIRCUITS:

PROVIDE A SEPARATE NEUTRAL WIRE FOR EVERY BRANCH CIRCUIT REQUIRING A NEUTRAL. SHARING OF NEUTRAL WIRES IS NOT ALLOWED.

GROUND WIRE:

GROUND WIRE FOR GENERAL INTERIOR USE SHALL BE GREEN INSULATED STRANDED COPPER AND SHALL MEET REQUIREMENTS OF WIRE FOR INTERIOR AND EXTERIOR USE.

MANUFACTURERS: AMERICAN INSULATED WIRE CORP., CABLEC, CAROL, GENERAL CABLE, OKONITE, ROME, SOUTH WIRE AND TRIANGLE.

INSULATING TAPE:

SCOTCH 33 PLUS OR OKONITE TYPE CLF SERIES 602-20 FOR GENERAL USE AND SCOTCH 27 FOR HIGH TEMPERATURE AREAS.

WIRING DEVICES:

LIGHTING SWITCHES:

TOGGLE OPERATED, SINGLE POLE SINGLE THROW, SINGLE POLE DOUBLE THROW, DOUBLE POLE DOUBLE THROW, SPECIFICATION GRADE, COMPOSITION BASED, HEAVY DUTY, FLUSH, QUIET TYPE, WITH PROVISION FOR BACK AND SIDE WIRING AND RATED 20 AMPERES, 120/277 VOLTS A.C. ARROW-HART 1991 THRU 1994, BRYANT 4901 THRU 4904, OR HUBBELL HBL 1221 THRU HBL 1224.

BOXES, PROVIDE PERMANENTLY INSTALLED BARRIERS BETWEEN ADJACENT SWITCHES.

ILLUMINATED TOGGLE SWITCHES SHALL HAVE LONG LIFE NEON LAMPS AND LEXAN HANDLE, IN EITHER RED OR IVORY, AS INDICATED. HUBBELL #1223-IL-PL, OR #1223-IL-LI.

DEVICE PLATES:

GANG TOGETHER ALL SWITCHES LOCATED IN ONE LOCATION AND COVER WITH ONE CUSTOM MADE WALL PLATE. SELECT THE CORRECT COMBINATION AND TYPE OF OPENING.

DEVICE PLATES IN FINISHED AREAS SHALL BE SMOOTH, BRUSHED STAINLESS STEEL NO. 302/304 FINISH. FOR RECEPTACLES WIRED TO THE EMERGENCY SYSTEM, THE PLATE SHALL BE ENGRAVED WITH "EMERGENCY" IN RED FILLED LETTERS.

INSTALLATION - WIRING DEVICES:

INSTALL WALL SWITCHES NEAR DOORS AT STRIKE SIDE OF DOORS AS FINALLY HUNG, 6 INCHES FROM DOOR FRAME. INSTALL SWITCHES IN 4-11/16 INCHES SQUARE BOXES WHERE POSSIBLE.

USE GANGED BOXES, 2-1/2 INCH DEEP. FOR 120 VOLT AND 277 VOLT SWITCHES AT THE SAME LOCATION WITH ISOLATING PARTITION BETWEEN 120 VOLT AND 277 VOLT SWITCHES. PROVIDE ISOLATING PARTITION BETWEEN 277 VOLT SWITCHES.

INSTALL PLUG-IN STRIPS AS INDICATED ON THE DRAWINGS. IF NOT INDICATED, INSTALL STRIPS ABOVE COUNTER 1 INCH ABOVE BACKSPASH AND STRIPS ABOVE BASEBOARD, FLUSH WITH TOP OF BASEBOARD.

GROUNDING:

GROUNDING CONDUCTORS:

BARE GROUNDING CONDUCTORS: STRANDED ANNEALED COPPER (SIZE AS INDICATED ON THE DRAWINGS).

INSULATED GROUNDING CONDUCTORS: REFER TO "WIRES AND CABLES" IN THIS SPECIFICATION.

GROUNDING CONNECTIONS:

EXOTHERMIC WELD.

GROUNDING FITTINGS FOR BONDING A GROUND CONDUCTOR TO ITS OWN CONDUIT: BURNDY TYPE NE, OR PENN UNION TYPE BD.

INSTALLATION - GROUNDING:

THOROUGHLY CLEAN ALL BONDING SURFACES OF NON-CONDUCTING MATERIALS. TIN AND SWEAT CONTACT SURFACES WHILE BOLTING. DO NOT USE SOLDER TYPE CONNECTIONS.

PROVIDE SUPPLEMENTAL GROUNDING SYSTEM / RODS / MATS AS REQUIRED TO CONFORM TO NEC.

LIGHTING SYSTEMS:

FURNISH AND INSTALL LIGHTING SYSTEMS AS REQUIRED, AND ALL MATERIALS AND EQUIPMENT, INCLUDING LUMINAIRES, LAMPS, DRIVERS, POLES, ACCESSORIES AND ASSOCIATED SYSTEMS AND EQUIPMENT, AS INDICATED OR SPECIFIED.

FURNISH LUMINAIRES AND OTHER EQUIPMENT, INCLUDING ALL MODIFICATIONS THERETO AND COMPONENT ELECTRICAL PARTS, LISTED BY UNDERWRITERS' LABORATORIES AS MEETING NATIONAL ELECTRICAL CODE REQUIREMENTS AND BEARING THE UL LABEL WHERE SUCH SERVICE IS AVAILABLE FOR EQUIPMENT SPECIFIED.

FURNISH AND INSTALL EXIT LUMINAIRES AND EMERGENCY LIGHTING UNITS THAT ARE LISTED AND LABELED FOR THEIR INDICATED USE ON THE PROJECT.

FURNISH AND INSTALL LUMINAIRES FOR USE IN DAMP OR WET LOCATIONS, UNDERWATER, AND RECESSED IN COMBUSTIBLE CONSTRUCTION SPECIFICALLY LISTED AND LABELED FOR SUCH USE. PROVIDE LUMINAIRES FOR USE IN HAZARDOUS LOCATIONS THAT ARE LISTED AND LABELED FOR THE SPECIFIC HAZARD.

FURNISH AND INSTALL SUPPORTS AND MOUNTING HARDWARE FOR ALL LUMINAIRES AS DETAILED, AS SPECIFIED OR AS OTHERWISE REQUIRED BY THE FIXTURE SPECIFIED.

PERFORM OPERATING TESTS ON LIGHTING SYSTEMS TO PROVE THAT ALL DESIGN FUNCTIONS ARE SATISFACTORILY PERFORMED.

LIGHT EMITTING DIODE (LED):

LED: LAMP SHAPE AND BASE, BAR. MEETS FEDERAL MINIMUM FOR EFFICIENCY STANDARDS, EPA TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP) COMPLIANT, LUMEN MAINTENANCE, PER LM-80, COLOR RENDERING INDEX (CRI) GREATER THAN 85, CORRELATED COLOR TEMPERATURE (CCT) OF 3500K UNLESS OTHERWISE NOTED, AVERAGE RATED LIFE, 50,000 HOURS HOURS. MINIMUM STARTING TEMPERATURE OF MINUS 40 DEGREES CELSIUS(40 DEGREES FAHRENHEIT). OPERATE LAMPS AT FREQUENCY OF 60 HERTZ OR HIGHER. DESIGNED FOR USE WITH OCCUPANCY SENSORS PROVIDING 50,000 STARTS MINIMUM.

DRIVERS:

SINGLE OR MULTI-VOLTAGE DRIVERS, INPUT FREQUENCY 50/60 HERTZ, INPUT VOLTAGE 120 VOLTS OR 277 VOLTS, SUSTAINED VARIATIONS OF ±10% VOLTAGE AND FREQUENCY WITH NO DAMAGE TO DRIVER, NON-PCB, CBM CERTIFIED AND CLASS "P" APPROVED UNLESS OTHERWISE SPECIFIED IN THE FIXTURE SPECIFICATIONS. POWER FACTOR GREATER THAN 90%, TOTAL HARMONIC DISTORTION (THD) LESS THAN 20% FOR PRIMARY LAMP APPLICATION, LAMP CURRENT CREST FACTOR (LCCF) LESS THAN 1.5, MINIMUM DRIVER EFFICIACY OF 90%. FURNISH COMMERCIAL AND RECESSED TYPE FIXTURES WITH DRIVERS HAVING A NEMA SOUND RATING OF "A" OR BETTER. CONTAIN AUTO-RESTART CIRCUITRY IN ORDER TO RESTART LAMPS WITHOUT RESETTING POWER, TOLERATE SUSTAINED OPEN CIRCUIT AND SHORT CIRCUIT OUTPUT CONDITIONS WITHOUT DAMAGE, AND SHALL BE REDUCTION OF HAZARDOUS SUBSTANCES (ROHS) COMPLAINT.

LIGHTING CONTROL SYSTEM:

PROVIDE LIGHTING CONTROL SYSTEMS AND COMPONENTS AS SHOWN ON DRAWINGS. CONTROL FUNCTIONS MUST MEET CURRENT ENERGY CODE.

INSTALLATION - LIGHTING:

SUPPORTS:

PROVIDE SUPPORTS FOR ALL LIGHTING FIXTURES AS DETAILED, AS SPECIFIED OR AS OTHERWISE REQUIRED BY THE FIXTURE SPECIFIED. SUPPORT SINGLE UNITS FROM FIXTURE STUDS IN OUTLET BOXES. IN FINISHED AREAS, PROVIDE SUPPORTS INDEPENDENT OF THE ACOUSTIC TILE OR PLASTER; SUPPORT FIXTURES FROM THE CEILING SUPPORT SYSTEM, OR FROM THE CONCRETE FLOOR OR ROOF STEEL ABOVE THE CEILING.

PROVIDE SUPPORTS FOR RECESSED FIXTURES AS RECOMMENDED BY THE FIXTURE MANUFACTURER OR AS SPECIFIED. VERIFY CEILING SUPPORT SYSTEMS AND COORDINATE FIXTURE INSTALLATION. FASTEN "LAY-IN" FIXTURES TO THE CEILING GRID.

END OF SECTION.



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Client:

LAKE SUPERIOR STATE UNIVERSITY

Project:

LSSU NATATORIUM CEILING REPLACEMENT

650 W. EASTERDAY AVE.
SAULT SAINT MARIE,
MICHIGAN 49783

Seal:



Michael R. Iott

No.	Date	Issued for
1	11/14/25	REVIEW
2	12-17-2025	95% CDs
3	01/07/26	BID/PERMIT SET

Drawn: MRI
Checked: MRI
Approved: GG

Sheet Title:

ELECTRICAL SPECIFICATIONS

Project Number: **525596**

Sheet Number: **E100**

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ALL EQUIPMENT SHOWN ON THIS SHEET IS EXISTING. REMOVE DASHED LINES INDICATE EXISTING EQUIPMENT TO BE REMOVED. SOLID LINES INDICATE EXISTING EQUIPMENT TO REMAIN.

EXISTING EQUIPMENT THAT IS TO REMAIN IS INTENDED TO BE OPERATIONAL AT THE COMPLETION OF THE PROJECT. RECIRCUIT WHERE NECESSARY TO INSURE CONTINUED OPERATION.

EXISTING EQUIPMENT SHOWN ON DRAWINGS IS BELIEVED TO BE A REASONABLE INDICATION OF THE EXISTING LAYOUT. EXACT QUANTITY AND LOCATION SHALL BE DETERMINED AT THE JOB SITE. THE EXISTING DRAWINGS ARE FOR CONVENIENCE ONLY AND NOT FOR THE BASIS OF BIDDING.

DEMOLITION NOTES

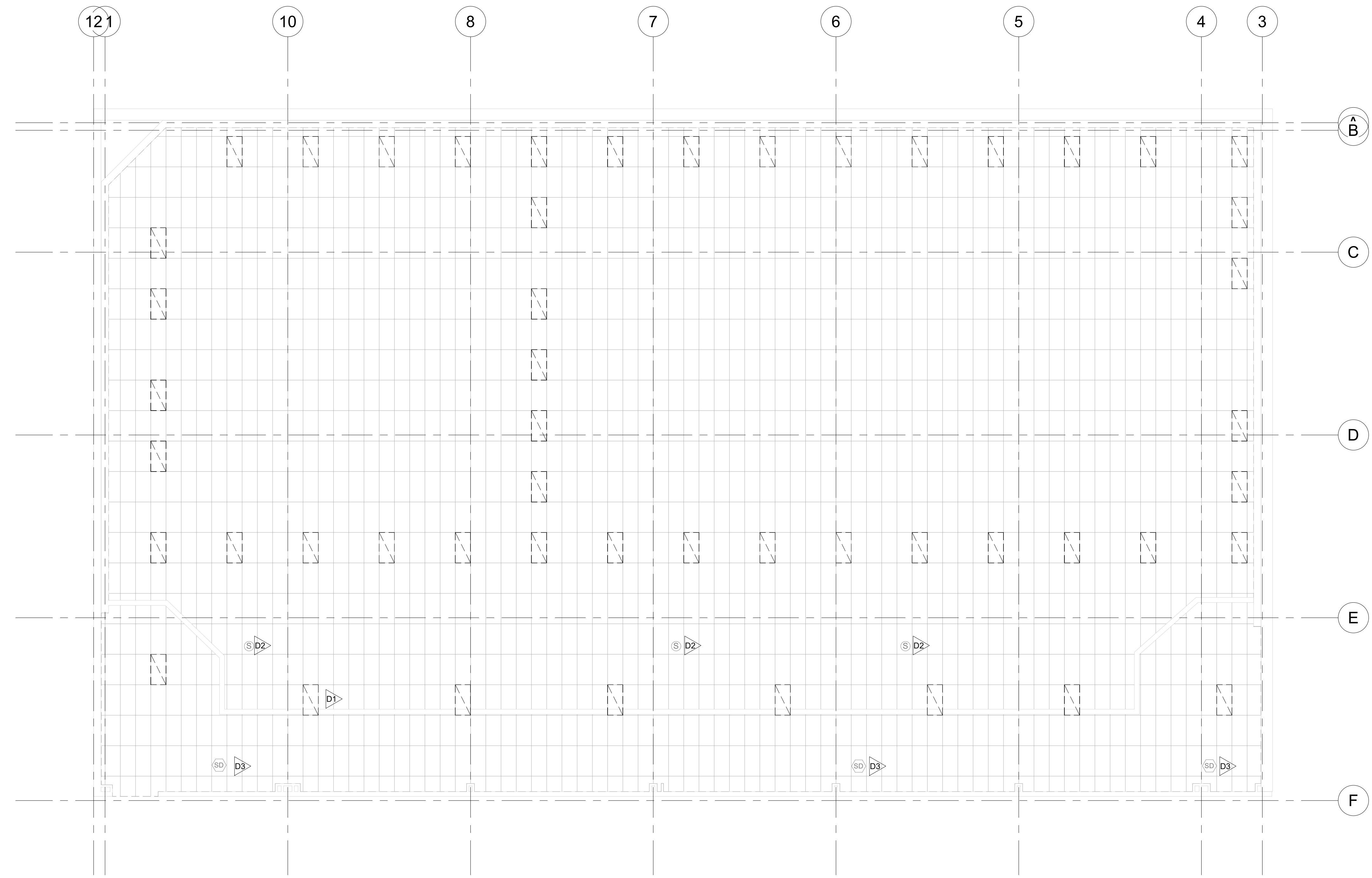
- D1 REMOVE EXISTING LAY-IN FIXTURE COMPLETELY AND CONDUIT AND CONDUCTORS BACK TO JB AT THE ENTRY OF THE POOL AREA.
- D2 REMOVE SPEAKER AND RETAIN FOR REINSTALLATION.
- D3 REMOVE SMOKE DETECTOR AND RETAIN FOR REINSTALLATION.

REMODEL/DEMOLITION NOTES - APPLY TO ALL ELECTRICAL SHEETS:

- REMOVE ABANDONED WIRE COMPLETELY TO ITS SOURCE UNLESS NOTED OTHERWISE. REMOVE ABANDONED RACEWAY WITHIN THE PROJECT AREA AND CAP STUBS THAT REMAIN. SEAL PENETRATIONS THROUGH FLOORS AND WALLS.
- REMOVE ABANDONED JUNCTION OR OUTLET BOXES IN WALLS, FLOORS, OR CEILINGS THAT ARE TO BE DEMOLISHED.
- EXISTING EQUIPMENT THAT REMAINS IS INTENDED TO BE OPERATIONAL AT THE COMPLETION OF THE JOB. RE-CIRCUIT WHERE NECESSARY TO ENSURE THIS CONTINUED OPERATION.
- OWNER MAY SALVAGE ITEMS SUCH AS LIGHT FIXTURES, DEVICES, RACEWAYS, ETC. TO BE REMOVED. PROPERLY DISPOSE OF OFF SITE ITEMS NOT SALVAGED BY OWNER. THE EXISTING EQUIPMENT SHOWN ON THE DRAWINGS IS BELIEVED TO BE A REASONABLE INDICATION OF THE PRESENT LAYOUT. DETERMINE EXACT QUANTITY AND LOCATION AT THE JOB SITE. THE EXISTING DRAWINGS ARE FOR CONVENIENCE ONLY AND NOT FOR THE BASIS OF BIDDING.
- SWITCHES WITHIN THE REMODELED AREA THAT ARE TO REMAIN SHALL BE REPLACED WITH THE SPECIFIED DEVICES AND PLATES.
- WHERE EXISTING DEVICES ARE REMOVED, PATCH WALL. DO NOT INSTALL COVER PLATES TO COVER OPENING.
- VERIFY ALL DEMOLITION WORK PRIOR TO SUBMITTING A BID/PROPOSAL.
- DETERMINE AND MAINTAIN TRANSIENT SERVICES THROUGH THE PROJECT AREA AS REQUIRED.
- SOME REQUIRED DEMOLITION WORK MAY NOT BE INDICATED ON THESE DRAWINGS.
- EXISTING RACEWAYS AND BOXES MAY BE REUSED WHERE FOUND TO BE SUITABLE.
- INCLUDE IN BID/PROPOSAL COSTS FOR CUTTING AND PATCHING AS REQUIRED TO INSTALL NEW OR EXISTING WORK, EQUIPMENT OR SYSTEMS.
- CIRCUIT NUMBERS SHOWN FOR EXISTING PANELS ARE BASED ON EXISTING DRAWINGS, SCHEDULES, AND FIELD SURVEY. FIELD VERIFY AS REQUIRED.

3 Existing Notes
E101 12" = 1'-0"

2 Remodel/Demolition Notes
E101 12" = 1'-0"



1 ELECTRICAL DEMOLITION PLAN
E101 1/8" = 1'-0"

Client:
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Project:
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 Approved: GG

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ELECTRICAL DEMOLITION PLAN

Project Number: **525596**

Sheet Number: **E101**

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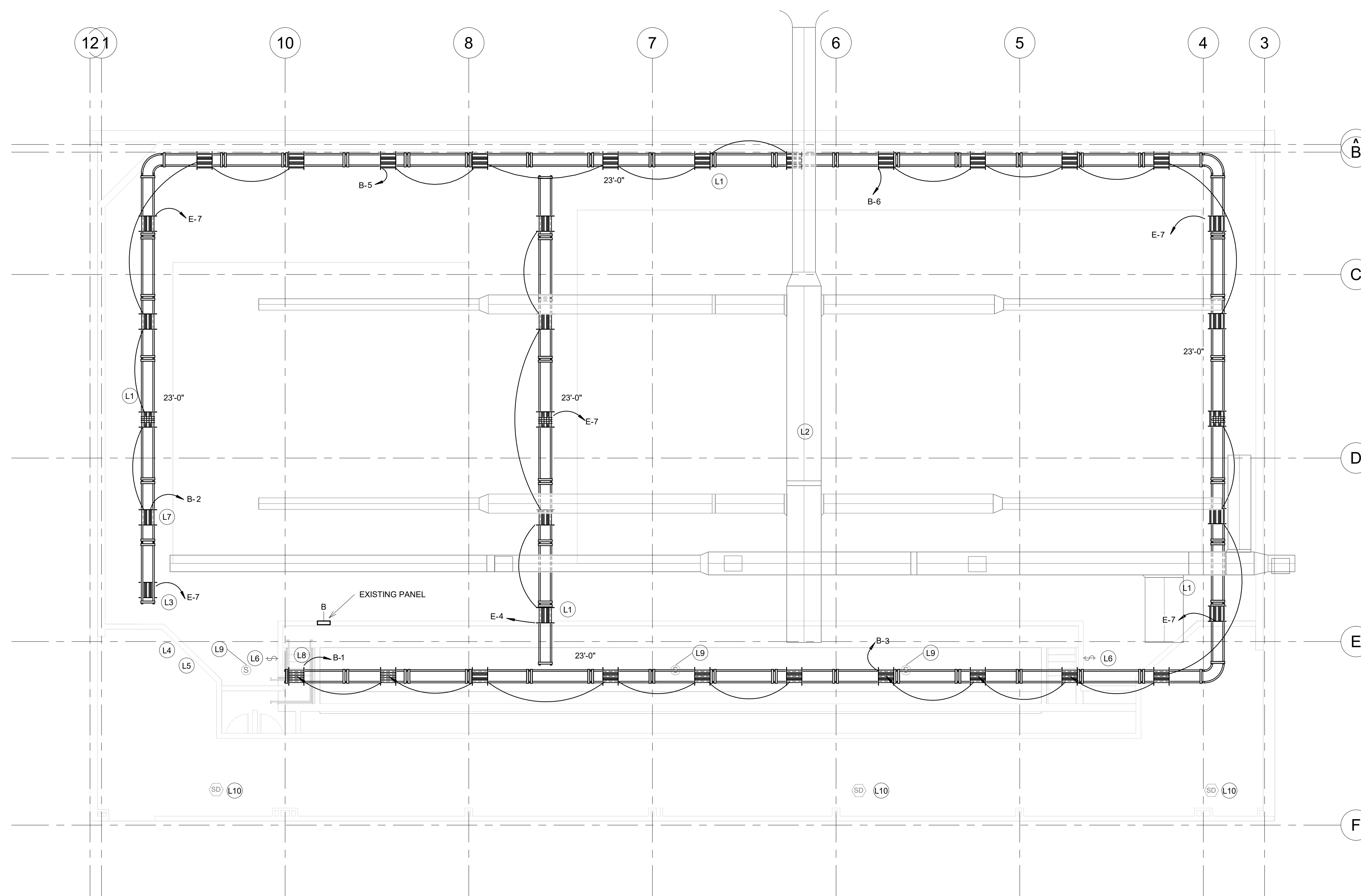
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LIGHTING NOTES

L1	THE LIGHTING LAYOUT SHOWN APPROXIMATELY REPRESENTS LIGHTING TRUSS/FIXTURE COMBINATION OF MANUFACTURER SPI - LIGHT TRUSS GENERATION 2 WITH L649W FIXTURES. A SIMILAR SYSTEM BY MANUFACTURER METEOR - NOVA LINK RAIL SYSTEM AND BOLT NOVA 1050W FIXTURES AND 120W FIXTURES IS ALSO PRE-APPROVE TO BID ON THIS PROJECT.
L2	HVAC DUCTWORK ABOVE NEW LIGHTING, SHOWN HERE FOR REFERENCE ONLY.
L3	ALL CONDUIT AND ASSOCIATED JUNCTION BOXES MUST BE INSTALLED PRIOR TO PAINTING OF CEILING STRUCTURE. (TYPICAL)
L4	MOUNT WAVELINX MODEL WAC2-120, AREA CONTROLLER OR APPROVED EQUAL ABOVE CEILING IN OFFICE. PROVIDE POWER TO ALL LIGHTING CONTROL DEVICES FROM EMERGENCY CIRCUIT, E-7 OR E-8.
L5	MOUNT WAVELINX MODEL TSC-E-7 OR APPROVED EQUAL IN POOL SUPERVISOR'S OFFICE. THE 7" TOUCHSCREEN TO INTERFACE WITH WAVELINX AREA CONTROLLER TO PROVIDE DISCREET LIGHT LEVEL CONTROL IN POOL AREA.
L6	PROVIDE WAVELINX PRO WALLSTATION, WW1-W OR APPROVED EQUAL AT EACH ENTRY INTO POOL AREA. CONFIRM REQUIREMENTS WITH OWNER.
L7	PROVIDE AND INSTALL WAVELINX PRO DIMMING SWITCH PACK OR APPROVED EQUAL AT EACH LIGHTING CIRCUIT. (TYPICAL)
L8	PROVIDE AND INSTALL A PRO EMERGENCY SWITCHPACK, WAVELINX MODEL ESP-P-010-347 OR APPROVED EQUAL AT EACH EMERGENCY FIXTURE LOCATION POWERED FROM A GENERATOR CIRCUIT.
L9	MOUNT SPEAKER REMOVED DURING DEMOLITION TO UNDERSIDE OF TRUSS IN THIS AREA. PROVIDE SPEAKER BACK BOX IF REQUIRED. RECONNECT TO AUDIO CIRCUIT AND CONFIRM OPERATION.
L10	MOUNT SMOKE DETECTOR REMOVED DURING DEMOLITION TO UNDERSIDE OF TRUSS IN THIS AREA. RECONNECT TO FIRE ALARM CIRCUIT CIRCUIT AND CONFIRM OPERATION.



NOTE: THE ABOVE SPI FIXTURE LAYOUT AS WELL AS ONE SUBMITTED BY METEOR LIGHTING WERE PROVIDED BY THE LIGHTING MANUFACTURER AND WERE DESIGNED TO MEET I.E.S RECOMMENDATIONS FOR DIVISION I WATER SPORTS. ANY ADDITIONAL MANUFACTURER WISHING TO PROVIDE A COMPETITIVE FIXTURE MUST SUBMIT PRODUCT CUT SHEETS FOR THE PROPOSED FIXTURE(S), PROPOSED LAYOUT AND PHOTOMETRIC DATA DEMONSTRATING THAT DIVISION I CRITERIA ARE MET. ALL ALTERNATE SUBMITTALS MUST BE RECEIVED A MINIMUM OF 7 DAYS PRIOR TO BID DATE.

1 LIGHTING PLAN
E102 1/8" = 1'-0"

Client:
LAKE SUPERIOR STATE UNIVERSITY

Project:
LSSU NATATORIUM CEILING REPLACEMENT

650 W. EASTERDAY AVE.
SAULT SAINT MARIE,
MICHIGAN 49783

Seal:



No.	Date	Issued for
1	11/14/25	REVIEW
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Drawn: MRI
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Sheet Title:
LIGHTING PLAN

Project Number: **525596**

Sheet Number: **E102**

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MECHANICAL ABBREVIATIONS

AFF	ABOVE FINISH FLOOR	ID	INSIDE DIAMETER
AC	AIR COMPRESSOR	I.E.	INVERT ELEVATION
AHU	AIR HANDLING UNIT	IAH	INTAKE HOOD
AS	AIR SEPARATOR		
A.T.C.	ARCHITECTURAL TRADES CONTRACTOR	LAT	LEAVING AIR TEMPERATURE
		LH	LATENT HEAT (MBH)
B	BOILER	LWT	LEAVING WATER TEMPERATURE
B.A.S.	BUILDING AUTOMATION SYSTEM		
CAF	COMBUSTION AIR FAN	MAX	MAXIMUM
CC	COOLING COIL	MBH	BTU PER HOUR (THOUSAND)
CFM	CUBIC FEET PER MINUTE	MIN	MINIMUM
CHLR	CHILLER	M.T.C.	MECHANICAL TRADES CONTRACTOR
CHP	CONSOLE HEAT PUMP		
CONV	CONNECTOR	N.C.	NOISE CRITERIA
CT	COOLING TOWER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CJ	CONDENSING UNIT	NTS	NOT TO SCALE
CUH	CABINET UNIT HEATER	P	PUMP
CV	CONTROL VALVE	PCR	PUMPED CONDENSATE RETURN
CWP	CHILLED WATER PUMP	PD	PRESSURE DROP
		RPC	RADIANT CEILING PANEL
DB	DRY BULB	REQD	REQUIRED
DFU	DUCT FURNACE	RG	RETURN GRILLE
DIA	DIAMETER	RH	RELATIVE HUMIDITY
DN	DOWN	RLH	RELIEF HOOD
DPR	DAMPER	RTU	ROOF TOP UNIT
DS	DUCT SILENCER		
		SD	SUPPLY DIFFUSER
EAT	ENTERING AIR TEMPERATURE	SF	SUPPLY FAN
EF	EXHAUST FAN	SG	SUPPLY GRILLE
EG	EXHAUST GRILLE	SH	SENSIBLE HEAT (MBH)
E.T.C.	ELECTRICAL TRADES CONTRACTOR	SM	SHEET METAL
EVR	EVAPORATOR	SQ. FT.	SQUARE FEET
EWT	ENTERING WATER TEMPERATURE	SST	SATURATED SUCTION TEMPERATURE
EXH	EXHAUST	STR	STRAINER
EXIST	EXISTING		
		TC	TOTAL COOLING (MBH)
FF	FINISH FLOOR	TCL	TEMPERATURE CONTROL
FPM	FEET PER MINUTE	T&P	TEMPERATURE & PRESSURE RELIEF VALVE
FT	FEET	TYP	TYPICAL
FTR	FINNED TUBE RADIATION		
FU	FURNACE	UH	UNIT HEATER
		VAV	VARIABLE AIR VOLUME BOX
GAL	GALLON	VRH	VARIABLE AIR VOLUME REHEAT BOX
GFRH	GAS FIRED RADIANT HEATER	FPVAV	FAN POWERED VARIABLE AIR VOLUME BOX
GR	GRILLE	V.F.D	VARIABLE FREQUENCY DRIVE
		ZD	ZONE DAMPER
H	HUMIDIFIER	X-SA	EXISTING ITEM (EXISTING SUPPLY AIR DUCT)
HC	HEATING COIL		ITEM
HD	HEAD (FT)		EXISTING
HP	HORSE POWER		
HHP	HORIZONTAL HEAT PUMP		
HTG	HEATING		
HVAC	HEATING, VENTILATION, & AIR CONDITIONING		
HWP	HEATING WATER PUMP		
HX	HEAT EXCHANGER		

GENERAL HVAC NOTES

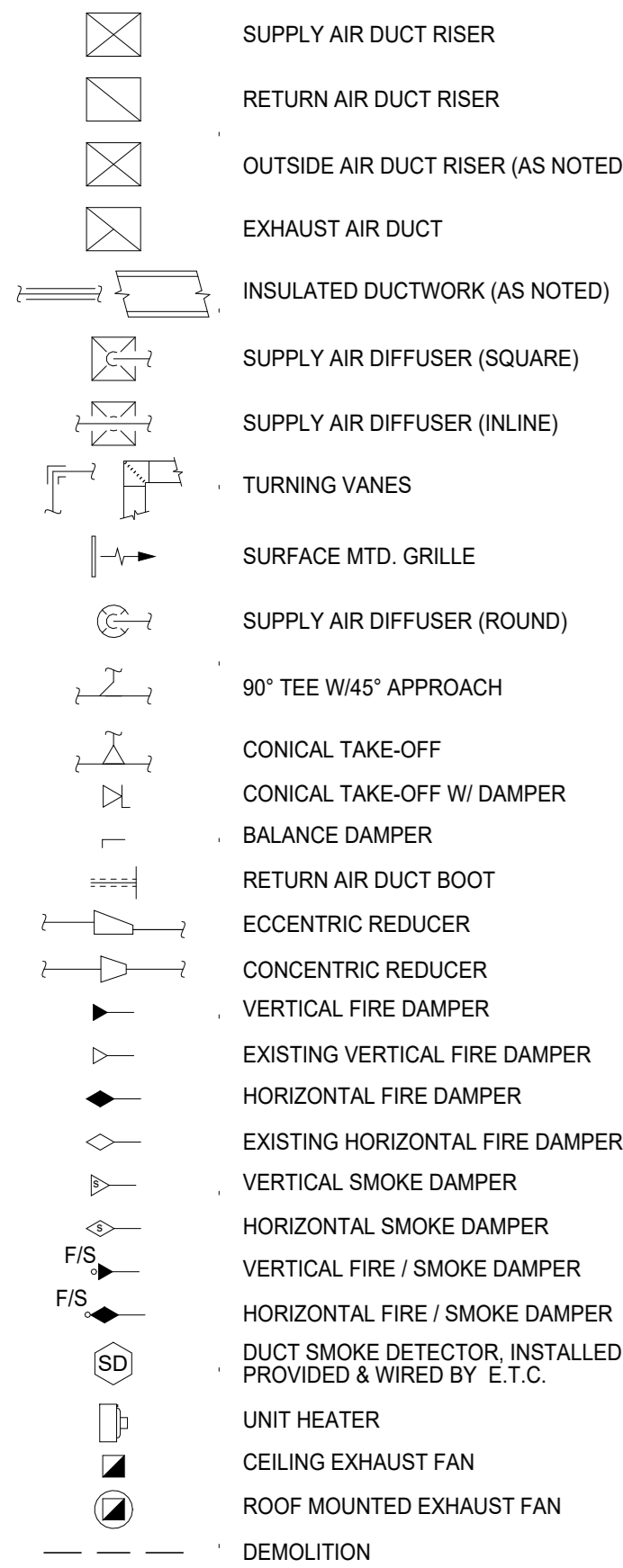
1. ALL WORK SHALL CONFORM TO MICHIGAN MECHANICAL CODE, LATEST APPLICABLE EDITION.
2. INSTALL ALL EQUIPMENT, MATERIALS, AND ACCESSORIES PER MANUFACTURERS WRITTEN INSTRUCTIONS.
3. ALL EXISTING SYSTEMS (AIR HANDLING UNITS, FANS) THAT SERVES AREAS BEING RENOVATED SHALL BE REBALANCED AS REQUIRED.
4. NOTIFY OWNER OF ANY PIPING OR DUCTWORK DEMOLITION THAT MAY AFFECT NORMAL OPERATION OF OTHER AREAS.
5. FIELD VERIFY LOCATIONS OF EXISTING PIPING THAT MAY CONFLICT WITH NEW CONSTRUCTION AND RELOCATE AS NEEDED.
6. PROVIDE BALANCE DAMPERS FOR EACH DIFFUSER/GRILLE AND BRANCH DUCT.
7. CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER DISCIPLINES PRIOR TO CONSTRUCTION TO AVOID CONFLICTS.
8. THE CONTRACTOR SHALL FIELD VERIFY THE SIZES, LOCATION, ELEVATIONS, AND DETAILS OF ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF ALL EQUIPMENT AND MATERIALS IN A "NEW" CONDITION DURING CONSTRUCTION.
10. ALL WORK SHALL BE PERFORMED BY LICENSED CONTRACTORS AND SUBCONTRACTORS AS REQUIRED BY LAW.
11. CONTRACTOR SHALL USE LOW PRESSURE LOSS DUCT FITTINGS IN ACCORDANCE WITH SMACNA. (WYES, RADIUS OR VANED TEES, ETC.) DUCTWORK SHALL BE GALVANIZED SHEET METAL, MIN. 26 GA.
12. IF THERE IS CONFLICTING INFORMATION IN THE PLANS OR SPECIFICATIONS THE MORE STRINGENT AND GREATER COST ITEM SHALL BE USED.
13. DRAWINGS INDICATE REQUIRED SIZES AND POINTS OF TERMINATION OF PIPES AND DUCTS AND SUGGESTED ROUTES. IT IS NOT INTENTION OF DRAWINGS TO INDICATE ALL NECESSARY OFFSETS. INSTALL WORK IN MANNER TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. DO NOT SCALE FROM DRAWINGS.

GENERAL DEMOLITION NOTES

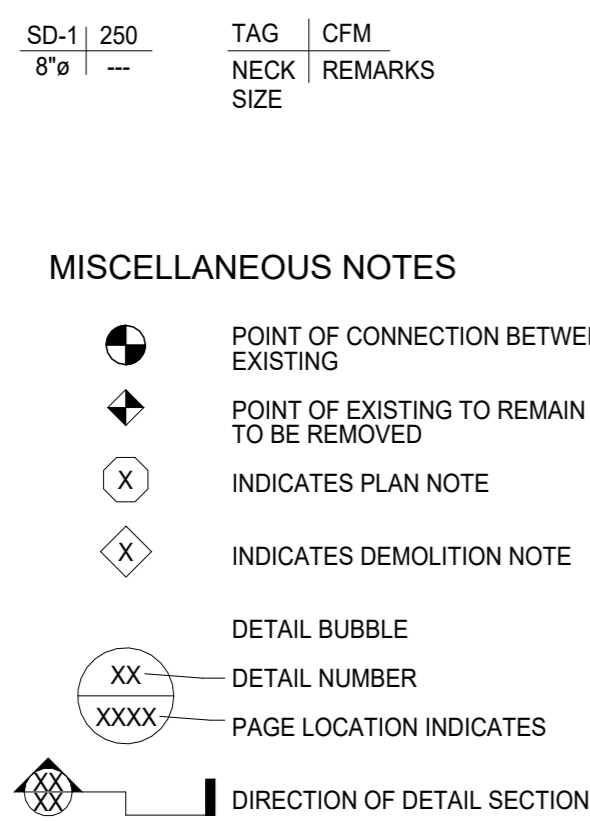
1. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
2. EXISTING EQUIPMENT LAYOUT IS SCHEMATIC. EXACT LOCATION OF EXISTING DUCTWORK AND EQUIPMENT SHALL BE COORDINATED WITH BUILDING STRUCTURE. EQUIPMENT FURNISHED ARCHITECTURAL DRAWINGS AND ALL OTHER TRADES PRIOR TO DEMOLITION.
3. PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS, REVISIONS, AMENDMENTS, OR SUPPLEMENTS OF APPLICABLE STATUTES, ORDINANCES, CODES OR REGULATIONS OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED.
4. WHERE APPROVED STANDARDS HAVE BEEN ESTABLISHED BY OSHA, UNDERWRITERS LABORATORIES, AMERICAN CODES, ASA, ASHRAE, ARI, NEC, STATE FIRE INSURANCE REGULATION BODY, NFPA OR OTHERS, THESE STANDARDS SHALL BE FOLLOWED WHETHER OR NOT INDICATED ON THE DRAWING AND SPECIFICATIONS.
5. ALL BOLD DASHED LINES INDICATE ITEMS TO BE REMOVED UNLESS NOTED BY KEYNOTE. ALL OTHER EXISTING SYSTEMS SHOWN FOR REFERENCE ONLY.
6. NOTATIONS ARE MADE IN VARIOUS PLACES ON THE DRAWINGS TO CALL ATTENTION TO DEMOLITION WHICH IS REQUIRED. HOWEVER, THESE DRAWINGS ARE NOT INTENDED TO SHOW EACH AND EVERY ITEM TO BE REMOVED. CONTRACTOR SHALL REMOVE ALL MATERIALS RELATED TO THEIR RESPECTIVE TRADES AS REQUIRED TO PERMIT THE CONSTRUCTION OF THE NEW WORK AS SHOWN.
7. THE GENERAL CONTRACTOR SHALL COORDINATE THE EXTENT OF THE REQUIRED DEMOLITION OF THE EXISTING BUILDING AS REQUIRED TO FACILITATE THE CONSTRUCTION OF THE PROJECT AS SHOWN AS PART OF THIS WORK.
8. ALL DEMOLITION SHALL BE APPROVED BY THE OWNER/TENANT PRIOR TO COMMENCEMENT AND SHALL BE PERFORMED UNDER REQUIREMENTS AND APPROVAL OF THE LOCAL CODE JURISDICTIONS.
9. ASBESTOS ABATEMENT. CONTRACTOR SHALL NOTIFY BUILDING REPRESENTATIVE IMMEDIATELY WHEN AND IF ANY ITEMS ARE ENCOUNTERED THAT IN ANY WAY, SHAPE, OR FORM APPEAR TO BE HAZARDOUS OF NATURE. ASBESTOS ABATEMENT IS NOT PART OF THE SCOPE OF THE DESIGN PROFESSIONALS DOCUMENTATION OR RESPONSIBILITY TO SURVEY, IDENTIFY, OR FOR CONSULTATION OF PROPER DISPOSAL.
10. PROTECT ALL EXISTING WORK WHICH IS TO REMAIN AND RESTORE IN AN APPROVED MANNER ANY SUCH WORK WHICH BECOMES DAMAGED.
11. RUBBISH AND DEBRIS RESULTING FROM THE WORK SHALL BE REMOVED IMMEDIATELY FROM THE SITE IN A SAFE AND LEGAL MANNER BY THE CONTRACTOR.
12. DEMOLITION CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT BUILDING REPRESENTATIVE TO CLARIFY ANY ITEMS NOT SHOWN ON THESE DOCUMENTS OR SHOWN NOT MATCHING FIELD CONDITIONS.

MECHANICAL SYMBOLS LEGEND

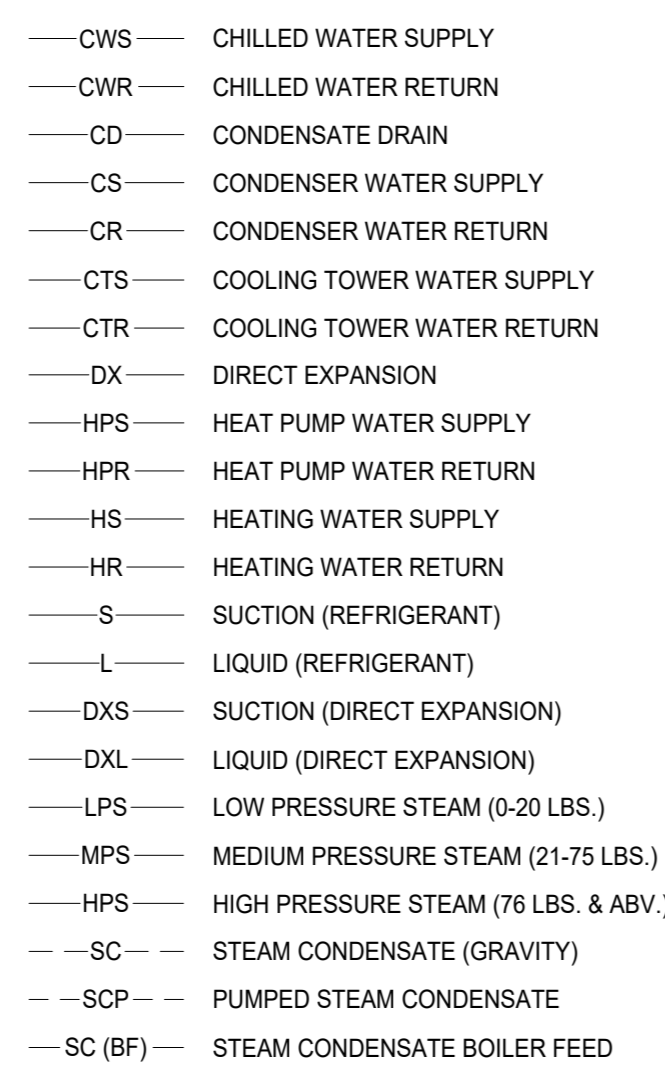
HVAC DUCTWORK SYMBOLS



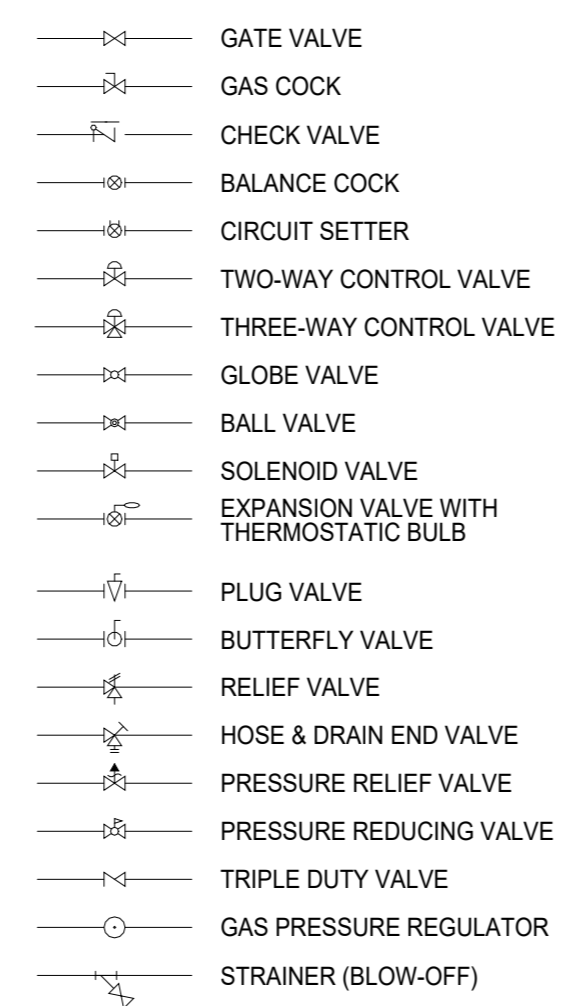
HVAC DUCTWORK & DIFFUSER TAGS



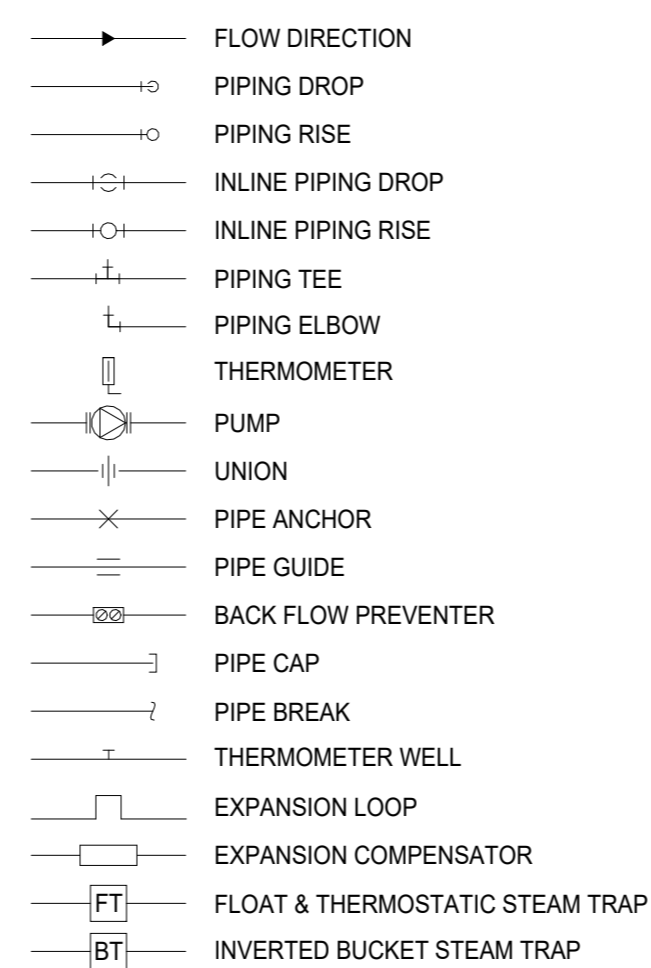
HVAC PIPING



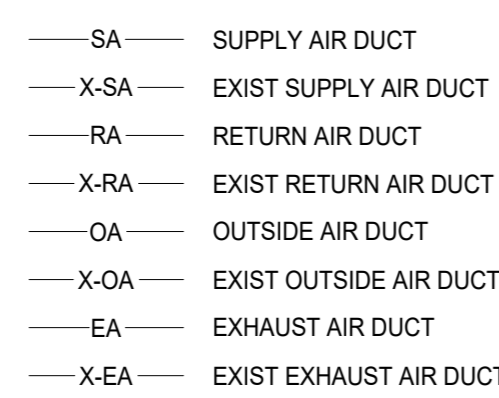
HVAC PIPING VALVES



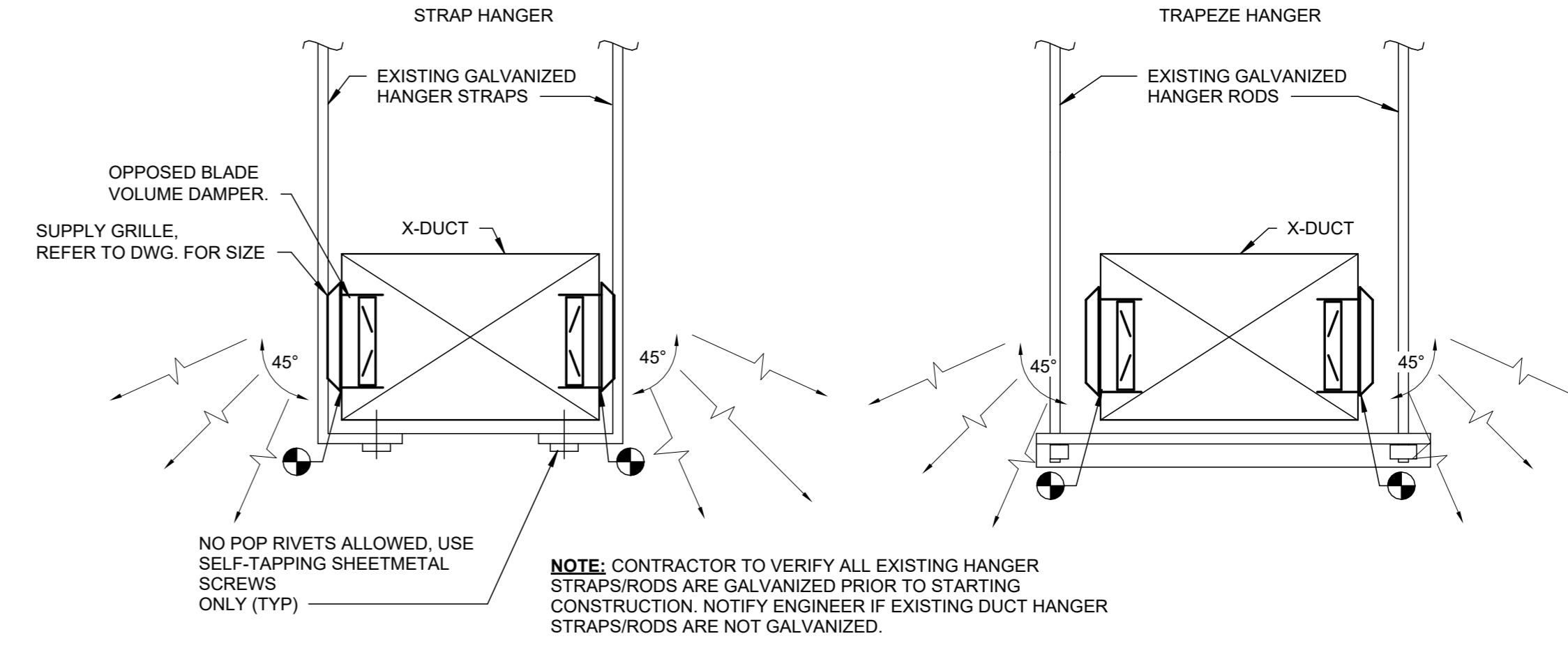
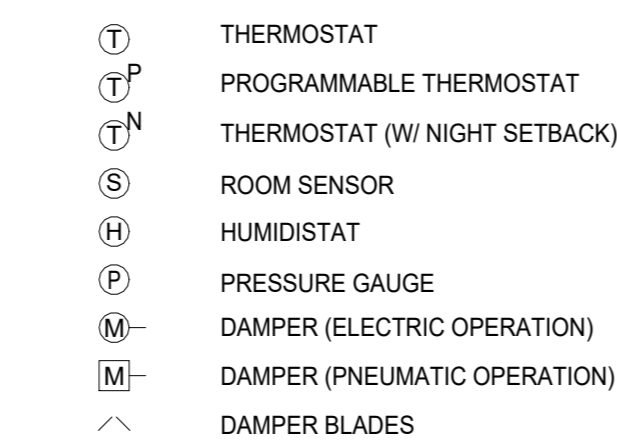
HVAC PIPING SYMBOLS



HVAC DUCTWORK



TEMPERATURE CONTROL SYMBOLS



1 SUPPLY GRILLE DETAIL
M-100 NOT TO SCALE

DIFFUSERS, REGISTERS AND GRILLES SCHEDULE

TAG	MODEL	NECK SIZE	FACE SIZE	CFM RANGE (MIN-MAX.)	PATTERN	MOUNT	MATERIAL	COLOR	50 FPM THROW	COMMENTS
SD-1	272FL	36x8	36x8	900-1,300	ADJ DBL DEFL	SURFACE	ALUMINUM	WHITE	27'	1,2,3,4,5,6
RG-1	50F	24x24	24x24	3,000	1/2x1/2x1/2 GRID	SURFACE	ALUMINUM	WHITE	-	1,2,3,4,6

NOTES:
1. BASED ON TITUS
2. MAX. NC = 30
3. MAX. APD - 0.10 INCHES
4. SELECT BOARDER TO MATCH ROOM FINISH SCHEDULE
5. ADJUST BLADES TO DISCHARGE AT 45° ANGLE DOWN



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MECHANICAL SYMBOLS, NOTES, AND ABBREVIATIONS

Project Number: **525596**

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MECHANICAL SPECIFICATIONS

- ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH ALL APPLICABLE CODES, SPECIFICATIONS, LOCAL ORDINANCES, INDUSTRY STANDARDS AND UTILITY COMPANY REGULATIONS.
- IN CASE OF DIFFERENCE BETWEEN BUILDING CODES, SPECIFICATIONS, STATE LAWS, LOCAL ORDINANCES, INDUSTRY STANDARDS, UTILITY COMPANY REGULATIONS, CONTRACT DOCUMENTS, AND AUTHORITY HAVING JURISDICTION, THE MOST STRINGENT SHALL GOVERN. CONTRACTOR SHALL PROMPTLY NOTIFY OWNER IN WRITING OF ANY SUCH DIFFERENCE.
- NON-COMPLIANCE: SHOULD CONTRACTOR PERFORM ANY WORK THAT DOES NOT COMPLY WITH REQUIREMENTS OF APPLICABLE BUILDING CODES, STATE LAWS, LOCAL ORDINANCES, INDUSTRY STANDARDS, UTILITY COMPANY REGULATIONS, CONTRACT DOCUMENTS, OR AUTHORITY HAVING JURISDICTION, HE SHALL BEAR ALL COSTS ARISING IN CORRECTING THE DEFICIENCIES.
- APPLICABLE CODES AND STANDARDS SHALL INCLUDE ALL STATE LAWS, LOCAL ORDINANCES, UTILITY COMPANY REGULATIONS AND APPLICABLE REQUIREMENTS OF MICHIGAN BUILDING CODE, MICHIGAN PLUMBING CODE, MICHIGAN DEPARTMENT OF FIRE AND BUILDING SERVICES.
- EXCEPT AS OTHERWISE SPECIFIED HEREIN, ALL PIPING WORK AND MATERIAL ARE TO CONFORM TO THE AMERICAN STANDARDS ASSOCIATION CODE FOR PRESSURE PIPING.
- PERMITS: CONTRACTOR SHALL PAY FOR ALL BUILDING PERMITS REQUIRED BY WORK AND PERMITS FOR OPENING STREETS AND FOR CONNECTION TO VARIOUS UTILITIES, INCLUDING FEES FOR WATER METER INSTALLATION AND ANY OTHER REQUIREMENTS NECESSARY TO CARRY OUT HIS WORK. WHERE STREETS OR SIDEWALKS ARE CUT, SAME MUST BE REPAIRED TO AT LEAST AS GOOD A CONDITION AS THEY WERE BEFORE, ALL AT EXPENSE OF THIS CONTRACTOR. PERMITS SHALL BE POSTED IN A PROMINENT PLACE AT THE BUILDING SITE AND BE PROPERLY PROTECTED FROM WEATHER AND PHYSICAL DAMAGE.

GUARANTEE

- CONTRACTOR SHALL, BY ACCEPTING THESE DRAWINGS AND SPECIFICATIONS, GUARANTEE THE FOLLOWING:
 - CONTRACTOR WILL FURNISH ALL MATERIAL AND EQUIPMENT AS SPECIFIED EXCEPT WHERE SPECIFIC WRITTEN APPROVAL IS GIVEN BY ENGINEER FOR SUBSTITUTION.
 - ALL MATERIAL AND EQUIPMENT WILL BE INSTALLED SUBSTANTIALLY AS SHOWN ON DRAWINGS AND AS REQUIRED WITHIN INTENT OF THESE SPECIFICATIONS. ALL EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.
 - ALL EQUIPMENT, PIPING, ETC., WILL BE DRIPTIGHT, AIRTIGHT, FREE OF VIBRATION, POUNDING AND OTHER OBJECTIONABLE NOISES.
 - ALL EQUIPMENT, ACCESSORIES AND MATERIAL FURNISHED BY THE CONTRACTOR, INCLUDING INSTALLATION, PIPE JOINTS, ETC., FURNISHED AND/OR DONE BY HIM FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE AGAINST ALL DEFECTS IN MATERIAL AND WORKMANSHIP.
 - IF ANY EQUIPMENT, MATERIAL AND/OR PIPE JOINTS, CONNECTIONS, ETC., FAILS OR DOES NOT OPERATE SATISFACTORILY OR SHOWS UNDUE WEAR, HE WILL, UPON BEING NOTIFIED, IMMEDIATELY REMEDY DEFECT AT HIS OWN EXPENSE.

WORK AND WORKMANSHIP

- PROVIDE ALL REQUIRED LABOR, MATERIALS, EQUIPMENT AND CONTRACTOR'S SERVICES NECESSARY FOR COMPLETE INSTALLATION OF SYSTEMS REQUIRED IN FULL CONFORMITY WITH REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION, ALL AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.
- FINISHED JOB SHALL BE FUNCTIONAL AND COMPLETE IN EVERY DETAIL, INCLUDING ANY AND ALL SUCH ITEMS REQUIRED FOR A COMPLETE SYSTEM WHETHER OR NOT THESE ITEMS BE SPECIFIED OR SHOWN ON DRAWINGS.
- SPECIAL ATTENTION SHALL BE GIVEN TO ACCESSIBILITY OF WORKING PARTS AND CONTROLLING PARTS. ADJUSTABLE PARTS SHALL BE WITHIN EASY REACH. REMOVABLE PARTS SHALL HAVE SPACE FOR REMOVAL.
- EACH CONTRACTOR SHALL ACQUAINT HIMSELF WITH DETAILS OF ALL WORK TO BE PERFORMED BY OTHER TRADES AND TAKE NECESSARY STEPS TO INTEGRATE AND COORDINATE HIS WORK WITH OTHER TRADES.
- IT IS ASSUMED THE CONTRACTOR IS FAMILIAR WITH STANDARD 1ST CLASS INSTALLATION PROCEDURES. THEREFORE, THESE SPECIFICATIONS DO NOT ATTEMPT TO INCLUDE EVERY DETAIL OR OPERATION NECESSARY FOR THE COMPLETE INSTALLATION.
- IT SHOULD BE PARTICULARLY NOTED THAT THE TERMS "FURNISH" AND "PROVIDE" ARE INTERCHANGEABLE AND THAT EACH OF THESE MEANS TO PROVIDE, INSTALL AND CONNECT, UNLESS OTHERWISE STATED.
- WHENEVER TABLES OR SCHEDULES SHOW QUANTITY OF MATERIALS, THEY SHALL NOT BE USED AS A GUIDE TO CONTRACTOR. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MATERIALS NOTED ON DRAWINGS AS SPECIFIED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION, SAFE-KEEPING AND CLEANLINESS OF ALL EXISTING EQUIPMENT, MATERIAL, ETC., LOCATED IN SPACES TO BE REMODELED IN WHICH HE IS WORKING. AS PART OF HIS RESPONSIBILITY, HE SHALL PROVIDE NECESSARY COVERS, STRUCTURES, ETC., AS REQUIRED TO KEEP ALL DIRT, WATER, MOISTURE AND DUST FROM EQUIPMENT. METHOD THE CONTRACTOR PROPOSES TO USE IN PROTECTING EQUIPMENT SHALL BE COORDINATED WITH ENGINEER AND OWNER'S REPRESENTATIVE FOR APPROVAL BEFORE ANY WORK IS STARTED. ANY DAMAGE SUSTAINED DURING CONSTRUCTION SHALL BE CORRECTED OR REPLACED BY CONTRACTOR.
- MECHANICAL INSTALLATIONS: COORDINATE MECHANICAL EQUIPMENT AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS. VERIFY ALL DIMENSIONS BY FIELD MEASUREMENTS. WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, INSTALL MECHANICAL SERVICES AND OVERHEAD EQUIPMENT TO PROVIDE THE MAXIMUM HEADROOM POSSIBLE. INSTALL MECHANICAL EQUIPMENT TO FACILITATE MAINTENANCE AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS. AS MUCH AS PRACTICAL, CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM OF INTERFERENCE WITH OTHER INSTALLATIONS. COORDINATE THE INSTALLATION OF MECHANICAL MATERIALS AND EQUIPMENT ABOVE CEILINGS WITH SUSPENSION SYSTEM, LIGHT FIXTURES, AND OTHER INSTALLATIONS. INSTALL EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.
- OPERATION AND MAINTENANCE DATA: MANUFACTURER'S PRINTED OPERATION PROCEDURES TO INCLUDE START-UP, BREAK-IN, ROUTINE, NORMAL, SUMMER AND WINTER OPERATION INSTRUCTIONS, REGULATION, CONTROL, STOPPING, SHUT-DOWN, AND EMERGENCY INSTRUCTIONS. PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING DISASSEMBLY, REPAIR, AND REASSEMBLY, ALIGNING AND ADJUSTING INSTRUCTIONS, TRAIN OWNER'S PERSONNEL ON PROCEDURES FOR STARTING, STOPPING, TROUBLESHOOTING, SERVICING, AND MAINTAINING EQUIPMENT. TURN OVER TO THE OWNER.
- RECORD DRAWINGS: THE CONTRACTOR SHALL KEEP A RUNNING RECORD OF EACH CHANGE AND DEVIATION FROM THE DRAWINGS. UPON THE COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT ONE COMPLETE SET OF CLEAN DRAWINGS NEATLY SHOWING DEVIATIONS FROM THE CONTRACT DOCUMENTS WITH DIMENSIONS SHOWING THE EXACT LOCATION OF CONCEALED OR INACCESSIBLE PIPING, DUCTS, ETC.

ASSIGNMENT OF MISCELLANEOUS WORK

- CUTTING AND PATCHING: MECHANICAL CONTRACTOR SHALL CUT AND PATCH FINISHED AREAS AS REQUIRED BY MECHANICAL CONTRACTOR. IN ABSENCE OF GENERAL CONTRACTOR, EACH CONTRACTOR SHALL DO HIS OWN CUTTING AND PATCHING.

SHOP DRAWING

- COMPLETE SCHEDULE OF EQUIPMENT, ETC., PROPOSED FOR INSTALLATION SHALL BE SUBMITTED FOR APPROVAL BEFORE ORDERS ARE PLACED.
- ELECTRONIC SHOP DRAWINGS SHALL BE REQUIRED WITHIN 30 DAYS OF AWARD ON CONTRACT AND SHALL INCLUDE CATALOG NUMBERS AND OTHER PERTINENT INFORMATION.
- THE CONTRACTOR SHALL SUBMIT EQUIPMENT SHOP DRAWINGS TO THE ARCHITECT FOR APPROVAL PRIOR TO ORDERING OF ANY OF THE FOLLOWING:
 - DIFFUSERS AND GRILLES

DRAWINGS

- MECHANICAL DRAWINGS SHOW GENERAL ARRANGEMENT OF ALL PIPING EQUIPMENT AND APPURTENANCES. THEY SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT.
- MECHANICAL WORK SHALL CONFORM TO REQUIREMENTS SHOWN ON ALL DRAWINGS. GENERAL AND STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER MECHANICAL DRAWINGS.
- BECAUSE OF SMALL SCALE OF MECHANICAL DRAWINGS IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED. CONTRACTOR SHALL INVESTIGATE STRUCTURAL AND FINISH CONDITIONS AFFECTING WORK AND SHALL ARRANGE HIS WORK ACCORDINGLY, PROVIDING SUCH FITTINGS, VALVES AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS.

COORDINATION BETWEEN CONTRACTORS

- EACH CONTRACTOR AND SUBCONTRACTOR SHALL STUDY ALL DRAWINGS APPLICABLE TO HIS WORK SO COMPLETE COORDINATION BETWEEN TRADES WILL BE EFFECTED. SPECIAL ATTENTION SHALL BE GIVEN TO POINTS WHERE DUCTS CROSS OTHER DUCTS OR PIPING, WHERE LIGHTS FIT INTO CEILINGS AND WHERE PIPE, DUCTS AND CONDUIT PASS THRU WALLS AND COLUMNS.
- IT IS RESPONSIBILITY OF EACH CONTRACTOR AND SUBCONTRACTOR TO LEAVE NECESSARY ROOM FOR OTHER TRADES. NO EXTRA COMPENSATION WILL BE ALLOWED TO COVER COST OF REMOVING PIPING, CONDUIT, DUCTS OR EQUIPMENT FOUND ENCRoACHING ON SPACE REQUIRED BY OTHERS.

MINOR DEVIATIONS

- FOR PURPOSE OF CLARITY AND LEGIBILITY, DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC ALTHOUGH SIZE AND LOCATION OF EQUIPMENT AND PIPING ARE DRAWN TO SCALE WHEREVER POSSIBLE. VERIFY CONTRACT DOCUMENT INFORMATION AT SITE.
- DRAWINGS INDICATE REQUIRED SIZES AND POINTS OF TERMINATION OF PIPES AND DUCTS AND SUGGESTED ROUTES. IT IS NOT INTENTION OF DRAWINGS TO INDICATE ALL NECESSARY OFFSETS. INSTALL WORK IN MANNER TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. DO NOT SCALE FROM DRAWINGS.

BALANCING

- WORK BY MECHANICAL CONTRACTOR.
- GENERAL- BALANCE AND ADJUST SYSTEMS TO ACHIEVE COMFORT AND PROPER OPERATION OF SYSTEMS.
 - USE PROCEDURES AS OUTLINED IN NATIONAL STANDARDS FOR FIELD MEASUREMENTS AND INSTRUMENTATION, CURRENT VOLUME, AS PUBLISHED BY ASSOCIATED AIR BALANCE COUNCIL.
 - IF A PIECE OF EQUIPMENT IS NOT OPERATING IN SATISFACTORY MANNER, COORDINATE WITH MANUFACTURER TO REPAIR OR ADJUST.
 - SUBMIT REPORT TO ENGINEER IF SYSTEM OR PIECE OF EQUIPMENT CANNOT BE ADJUSTED TO OPERATE SATISFACTORILY.

"LOW PRESSURE" DUCTWORK AND ACCESSORIES

- DUCTWORK: GALVANIZED SHEET STEEL, MIN. 26 GAUGE. CONSTRUCTED TO SMACNA STANDARDS, LOCK-FORMING QUALITY, ASTM A653, G90 COATING. FABRICATE ELBOWS WITH INSIDE RADIUS EQUAL TO ONE AND ONE-HALF TIMES THE DUCT WIDTH OR SQUARE WITH TURNING VANES. FABRICATE DIVIDED FLOW FITTINGS WITH A 45-DEGREE TAPERED ENTRY TO BRANCH DUCTS.
- MANUAL VOLUME DAMPERS: CONSTRUCT TO SMACNA STANDARDS. PROVIDE DAMPERS AT ALL BRANCH TAPS TO EACH DIFFUSER OR GRILLE OR ON REGISTERS WHERE SCHEDULED.
- GRILLES AND DIFFUSERS: PROVIDE GRILLES AND DIFFUSERS AS SCHEDULED ON THE DRAWINGS AND AS MANUFACTURED BY TITUS, CARNES, NAILER, ANEMOSTAT, OR PRICE.

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**MECHANICAL
 SPECIFICATIONS**

Project Number: **525596**

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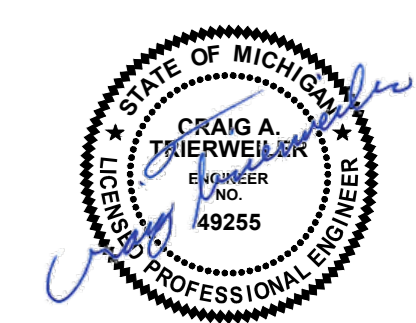
DEMOLITION NOTES

- 1 DISCONNECT, REMOVE, AND DEMO EXISTING SUPPLY DIFFUSER. DEMO ASSOCIATED DUCTWORK BACK TO MAIN AND CAP.
- 2 DISCONNECT, REMOVE, AND DEMO EXISTING RETURN GRILLE. DEMO ASSOCIATED DUCTWORK BACK TO MAIN AND CAP.

Project:
LSSU NATATORIUM CEILING REPLACEMENT

650 W. EASTERDAY AVE.
SAULT SAINT MARIE,
MICHIGAN 49783

Seal:



No.	Date	Issued for
1	11-04-2025	REVIEW
2	12-17-2025	95% CDs
3	1-7-2026	BIDS/PERMITS

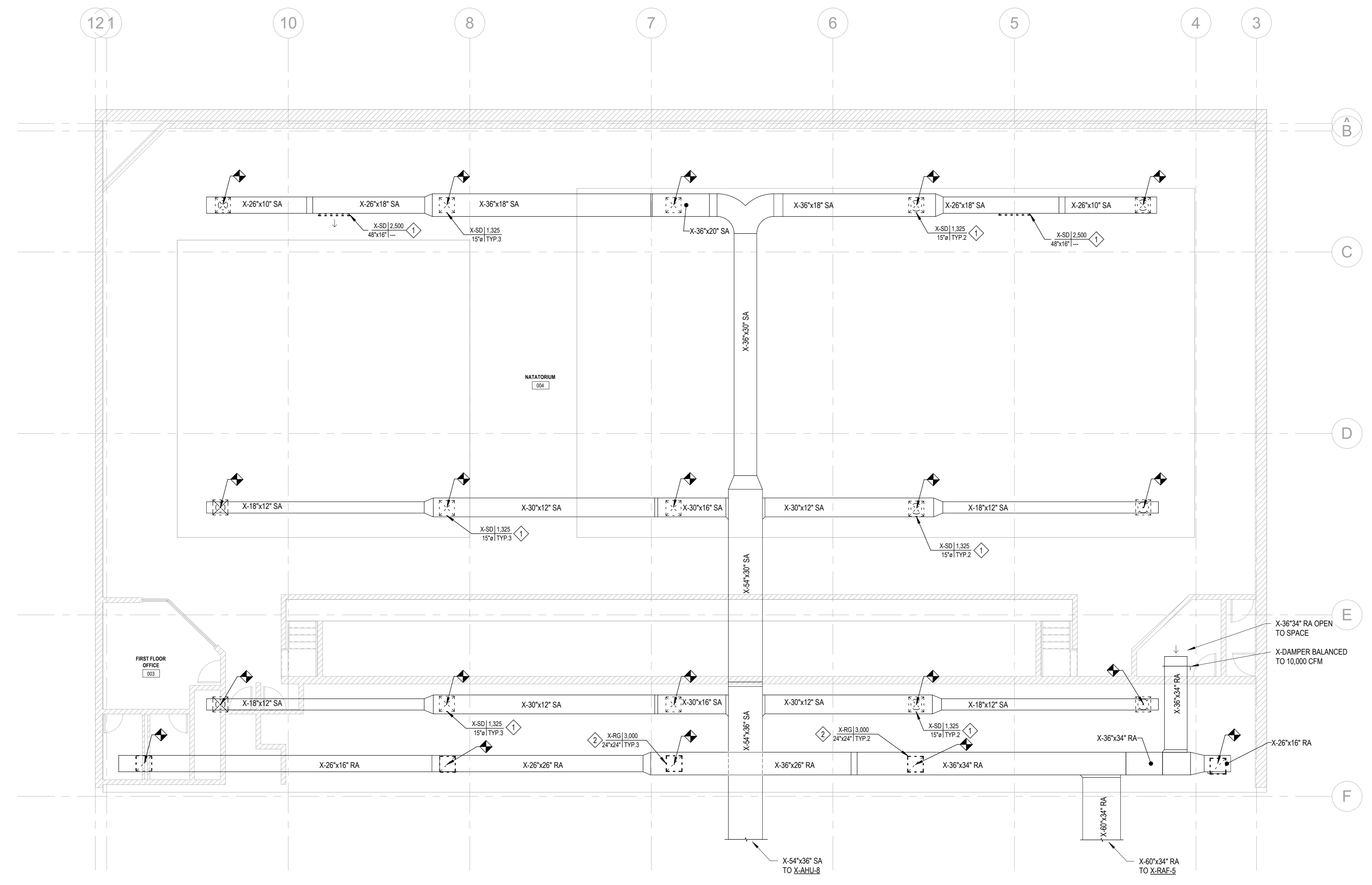
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Checked: NLS
Approved: CAT

Sheet Title:
FLOOR PLAN - HVAC DEMOLITION

Project Number: **525596**

Sheet Number: **M-300**

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FLOOR PLAN - HVAC DEMOLITION
SCALE: 1/8" = 1'-0"



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GENERAL NOTES

- CONTRACTOR SHALL VERIFY ALL EXISTING DUCTWORK AND DUCTWORK HANGERS/RODS ARE GALVANIZED STEEL PRIOR TO STARTING CONSTRUCTION. CONTACT ENGINEER IF EXISTING DUCT HANGERS/RODS ARE NOT GALVANIZED.

HVAC KEY NOTES

- MODIFY EXISTING SUPPLY AIR DUCTWORK AS REQUIRED TO INSTALL NEW SUPPLY DIFFUSER.
- MODIFY EXISTING RETURN AIR DUCTWORK AS REQUIRED TO INSTALL NEW RETURN GRILLE.

Project:
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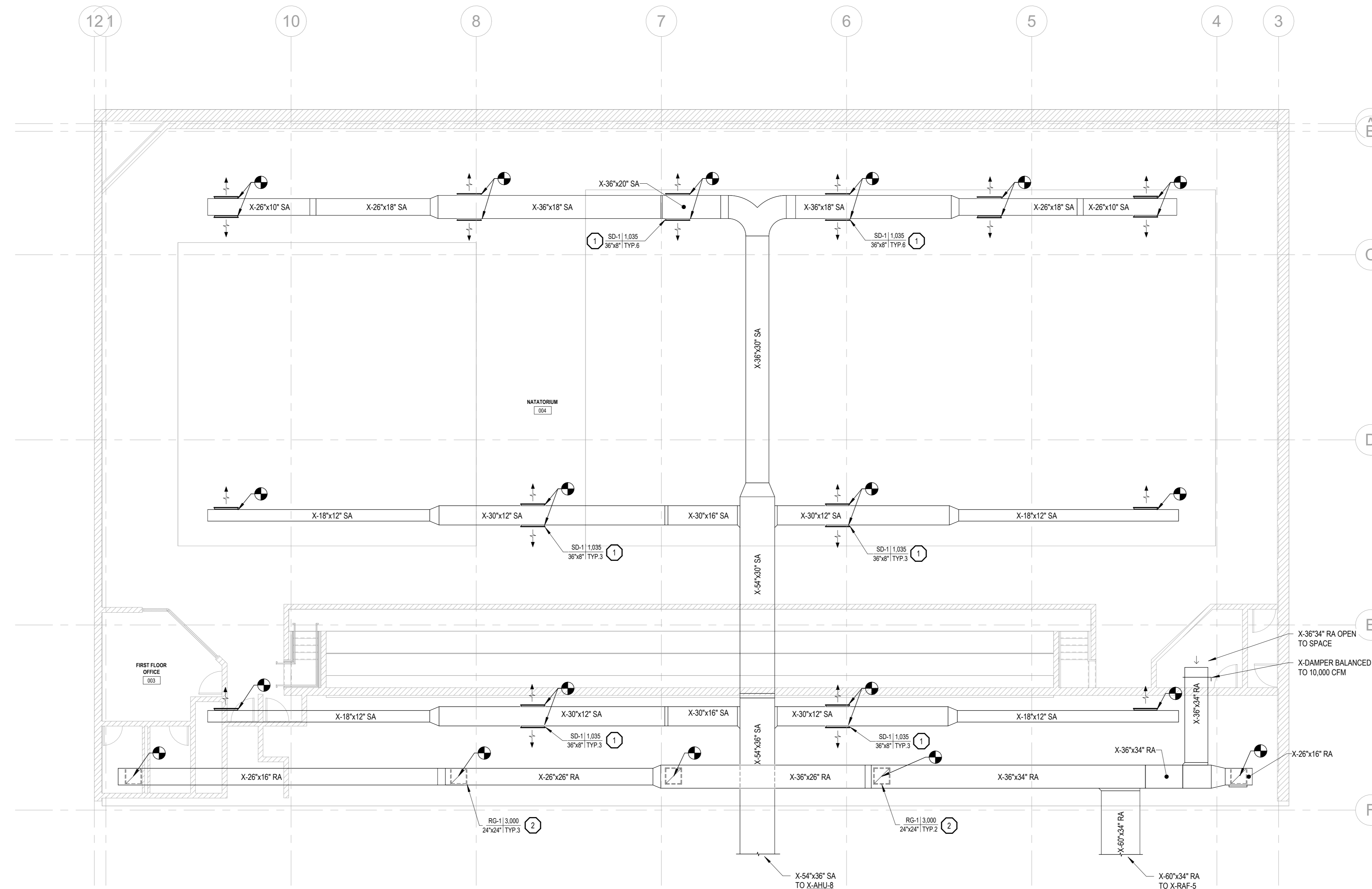
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Sheet Title:
FLOOR PLAN - HVAC NEW

Project Number: **525596**

Sheet Number: **M-400**

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FLOOR PLAN - HVAC NEW
 SCALE: 1/8" = 1'-0"