

**PLUMBING SPECIFICATIONS:**

**220000 SUMMARY**

1. THE SCOPE OF THIS PROJECT IS TO CONSTRUCT A NEW 3,300 SQ.FT. BUILDING FOR USE AS A FRED ASTAIRE DANCE STUDIO.
2. PLUMBING SCOPE:
  - 2.1. PIPING TO SUPPORT NEW TOILET ROOMS, PANTRY AREA AND JANITOR'S CLOSET.
  - 2.2. NEW WATER SERVICE FROM WELL BY CIVIL ENGINEER.
3. THE BUILDING IS A SEISMIC DESIGN CATEGORY OF B, WHICH MEANS THAT PLUMBING SYSTEMS DO NOT REQUIRE SEISMIC BRACING.

**220010 DEFINITIONS**

1. FURNISH: TO PURCHASE AND DELIVER AN ITEM TO THE STAGING AREA COMPLETE WITH ALL REQUIRED APPEARANCES.
2. INSTALL: TO MOVE THE ITEM FROM THE STAGING AREA AND FASTEN TO THE STRUCTURE.
3. PROVIDE: TO FURNISH AND INSTALL.

**220040 SUBSTITUTIONS**

1. ALL SUBSTITUTIONS MUST BE APPROVED PRIOR TO BIDDING. PROVIDE SUBSTITUTION INFORMATION DURING THE BID-PHASE QUESTION AND ANSWER PERIOD. INCLUDE DETAILED DATA ON THE PROPOSED SUBSTITUTION INCLUDING DOLLAR AMOUNT OF PROPOSED SAVINGS. ENGINEER SHALL REVIEW THE INFORMATION AND DETERMINE WHETHER THE SUBSTITUTION WILL BE ALLOWED.
2. ANY CHANGES TO THE CONTRACT DOCUMENTS DUE TO THE SUBSTITUTION SHALL BE COORDINATED BY THE GENERAL CONTRACTOR AND ANY ADDITIONAL COST TO MODIFY THE DESIGN OR MODIFY THE SCOPE OF OTHER TRADES SHALL BE INCLUDED IN THE PROPOSED SAVINGS. THIS SHALL INCLUDE MODIFICATIONS TO THE STRUCTURAL SCOPE FOR EQUIPMENT SUPPORT AS WELL AS MODIFICATIONS TO ELECTRICAL BRANCH CIRCUITRY OR FEEDERS FOR EQUIPMENT.

**220050 SUBMITTALS**

1. ALL SUBMITTALS SHALL BE ROUTED TO THE ARCHITECT FOR DISTRIBUTION TO ALL DESIGN PROFESSIONALS.
2. ALL SUBMITTALS SHALL BEAR A COVER-SHEET FROM THE GENERAL CONTRACTOR INDICATING THEY HAVE REVIEWED THE SUBMITTAL AND FIND IT TO CONFORM TO THE CONTRACT DOCUMENTS.
3. SHOP DRAWING SUBMISSIONS CONSISTING OF PRODUCT DATA CUT-SHEETS MAY BE SUBMITTED ELECTRONICALLY.
4. SHOP DRAWING SUBMISSIONS CONSISTING OF COORDINATION PLANS, LAYOUT DRAWINGS, FIRE PROTECTION SHOP DRAWINGS, FIRE ALARM SHOP DRAWINGS, SHEET METAL SHOP DRAWINGS, ETC. SHALL BE SUBMITTED IN LARGE FORMAT, ORIGINAL SIZE ON PAPER. PROVIDE FIVE COPIES OF THE SHOP DRAWINGS. THE ENGINEER SHALL KEEP A COPY, THE ARCHITECT SHALL KEEP A COPY, THE REMAINING THREE COPIES WILL BE RETURNED TO THE GENERAL CONTRACTOR.
5. REQUESTS FOR INFORMATION (RFIS) SHALL INCLUDE THE QUESTION, THE REFERENCED PORTION OF THE CONTRACT DOCUMENTS, AND THE CONTRACTOR'S RECOMMENDED SUGGESTION FOR REMEDY.
6. DELEGATED-DESIGN SUBMISSIONS SHALL BE PROVIDED WITH A COVER-SHEET INDICATING THE PROFESSIONAL OF RECORD THAT WILL SIGN AND SEAL THE DOCUMENT. ORIGINAL SIGNED AND SEALED DOCUMENTS DO NOT NEED TO BE SUBMITTED UNTIL THE DOCUMENTS ARE APPROVED BY THE ARCHITECT AND ENGINEER.
7. REFER TO THE INDIVIDUAL SPECIFICATION SECTIONS FOR THE REQUIRED SUBMITTALS.
8. COMPILE OPERATION AND MAINTENANCE (O&M) MANUALS AND SUBMIT ELECTRONICALLY FOR APPROVAL. AFTER APPROVAL OF ALL MANUALS, PROVIDE TWO COPIES OF A PRINTED, BOUND SET TO THE OWNER AND A COMPACT DISC WITH THE DATA AS .PDFS.

**220070 QUALITY ASSURANCE**

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND SHALL CONFORM TO THE NEW JERSEY UNIFORM CONSTRUCTION CODE. THE CURRENTLY ADOPTED SUBCODES WITH AMENDMENTS ARE AS FOLLOWS:
  - 1.1. INTERNATIONAL BUILDING CODE 2021
  - 1.2. NATIONAL STANDARD PLUMBING CODE 2021
  - 1.3. INTERNATIONAL MECHANICAL CODE 2021
  - 1.4. INTERNATIONAL FUEL GAS CODE 2021
  - 1.5. NATIONAL ELECTRIC CODE 2020
  - 1.6. ASHRAE 90.1-2019
  - 1.7. ICC A117.1-2017
  - 1.8. NFPA 13-2019 (ADOPTED THROUGH IBC 2021)
2. WHERE THE CONTRACT DOCUMENTS INDICATE MORE STRINGENT REQUIREMENTS THAN THE PRECEDING CODES AND ORDINANCES, THE CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE. PRIOR TO ORDERING AND/OR INSTALLING ANY PORTION OF THE WORK WHICH APPEARS TO BE IN CONFLICT WITH THE WORK SHALL BE BROUGHT TO THE ARCHITECT/ENGINEER'S ATTENTION FOR DIRECTIONS AS TO WHAT IS PROVIDED.
3. IN THE EVENT OF A CONFLICT WITH CODES, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.

**220100 EXECUTION**

1. ALL CUTTING AND PATCHING OF THE BUILDING SHALL BE PERFORMED BY THE CONTRACTOR. REMOVAL OF EXISTING SYSTEMS, COMPONENTS, SUPPORTS, ETC. SHALL HAVE ALL EXISTING HOLES OR PENETRATIONS PATCHED TO MATCH THE EXISTING ADJACENT CONSTRUCTION.
2. REMOVE AND DISPOSE OF IN A LEGAL MANNER ALL CONSTRUCTION DEBRIS IDENTIFIED TO BE REMOVED. THE CONSTRUCTION AREA SHALL BE BROOM SWEEP EACH NIGHT. DO NOT LET RUBBISH ACCUMULATE.
3. ALL CONSTRUCTION MATERIAL THAT CAN BE RECYCLED SHALL BE RECYCLED. MAINTAIN ALL RECEIPTS AND SUBMIT COPIES OF THE RECEIPT TO THE ARCHITECT TO DOCUMENT THE QUANTITIES OF THE RECYCLED MATERIAL.

**220110 O&M DATA**

1. PROVIDE OPERATION AND MAINTENANCE MANUALS. REFER TO THE INDIVIDUAL SPECIFICATION SECTIONS FOR REQUIREMENTS.
2. THE O&M MANUALS SHALL INCLUDE AS-BUILT DOCUMENTATION. AS-BUILT DOCUMENTATION SHALL CONSIST OF CONTRACTOR RED-LINED CONTRACT DOCUMENTS. INCLUDE THE AS-BUILT DOCUMENTATION WITH THE O&M SUBMITTALS.

**220130 FIRESTOPPING**

1. ALL PENETRATIONS THROUGH FIRE-RATED ASSEMBLIES SHALL HAVE APPROPRIATE INTUMESCENT MATERIAL FIRE STOPPING INSTALLED. ALL OPENINGS SHALL BE CAULKED AND SEALED WITH SSS INTUMESCENT FIRESTOP SEALANT AS MANUFACTURED BY SPECIFIED TECHNOLOGIES, INC.

**220300 ROOFING**

1. ALL ROOF PENETRATIONS SHALL BE WEATHERPROOF IN ALL RESPECTS. ANY WORK DONE ON THE ROOF SHALL BE PERFORMED BY A CONTRACTOR CERTIFIED BY THE ROOF MANUFACTURER TO MAINTAIN THE EXISTING ROOF WARRANTY.

**220400 PLUMBING COMMON REQUIREMENTS**

1. SCOPE
  - 1.1. SLEEVES
  - 1.2. ESCUTCHEONS
  - 1.3. IDENTIFICATION
  - 1.4. HANGERS AND SUPPORTS
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS FOR ALL PRODUCTS INCLUDING PRODUCT DATA.
  - 2.2. VALVE TAG CHART LISTING ALL OF THE VALVES KEYPED TO THE TAG NUMBER.
  - 2.3. A FLOOR PLAN SHOWING THE LOCATION OF ALL VALVES KEYPED TO THE VALVE TAG CHART.
3. SLEEVES
  - 3.1. GALVANIZED STEEL-PIPE SLEEVES: ASTM A 53, TYPE E, GRADE B, SCHEDULE 40 ZINC COATED WITH PLAIN ENDS.
  - 3.2. INSTALL SLEEVES FOR PIPING PENETRATING PARTITIONS OR WALLS.
  - 3.3. PROVIDE APPROPRIATE FIRESTOPPING/JOINT SEALANT IN ALL PENETRATIONS.
4. ESCUTCHEONS
  - 4.1. SPLIT-CASTING BRASS TYPE WITH POLISHED CHROME-PLATED FINISH AND CONCEALED HINGE AND SCREWS.
  - 4.2. INSTALL ESCUTCHEONS FOR PIPES PENETRATING WALLS AND CEILINGS. INSTALL TO CLOSELY FIT AROUND PIPING AND INSULATION WITH AN OUTER DIAMETER TO COMPLETELY COVER THE OPENING.
5. IDENTIFICATION
  - 5.1. PROVIDE SELF-ADHESIVE PIPE LABELS THAT INCLUDES COLOR-CODING FOR EACH SYSTEM, FLOW DIRECTION ARROWS, AND LETTERING AT LEAST 1/2" HIGH.
  - 5.2. PROVIDE VALVE TAGS THAT ARE STAMPED BRASS.
  - 5.3. PROVIDE VALVE TAG CHART LISTING EACH VALVE AND CORRESPONDING TAG NUMBER. ALSO PROVIDE A FULL SCALE SET OF PLANS IDENTIFYING THE LOCATION OF EACH VALVE AND KEYING THE VALVE TAG NUMBER TO THE VALVE TAG CHART.
  - 5.4. PROVIDE SELF-ADHESIVE PIPE LABELS EVERY 50 FEET, NEAR EACH VALVE, BRANCH CONNECTION, AND PENETRATIONS OF WALLS OR FLOORS. PROVIDE LABELS WHERE VISIBLE FROM ACCESS PANELS THAT PROVIDE ACCESS TO SPACES ABOVE CEILINGS OR WITHIN WALLS.
6. HANGERS AND SUPPORTS
  - 6.1. INDIVIDUAL PIPE HANGERS TO BE ANVIL INTERNATIONAL CLEVIS HANGER FIG. 260, ELCCN, OR APPROVED EQUAL.
  - 6.2. HANGERS SHALL BE SIZED TO ALLOW INSULATION TO PASS THROUGH UNOBSTRUCTED, PROVIDE SAE SUPPORT FOR INSULATION AT ALL HANGERS.
  - 6.3. PROVIDE HANGERS, SUPPORTS, CLAMPS AND ATTACHMENTS TO SUPPORT PIPING PROPERLY FROM BUILDING STRUCTURE. SUPPORT FROM THE DECKING ABOVE IS PROHIBITED. 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 SMALLEST PIPE SIZE OR PROVIDE INTERMEDIATE SUPPORTS FOR SMALLER DIAMETER PIPE AS SPECIFIED ABOVE FOR INDIVIDUAL PIPE HANGERS.
  - 6.4. PIPING SHALL ALSO BE SUPPORTED AT EACH CHANGE IN DIRECTION, VALVES AND EQUIPMENT.
  - 6.5. HANGER SPACING AND ROD SIZING
    - 6.5.1. REFER TO SCHEDULE ON P-002 - PLUMBING SYMBOLS AND SCHEDULES.

**220700 PLUMBING INSULATION**

1. SCOPE
  - 1.1. PIPING INSULATION
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA.
3. PIPING INSULATION
  - 3.1. INSULATION SHALL BE MANUFACTURED BY JOHNS MANVILLE, KNAUF, OR OWENS CORNING.
  - 3.2. INSULATION SHALL BE MINERAL-FIBER, PREFORMED PIPE INSULATION, TYPE I, RATED UP TO 850°F. COMPLY WITH ASTM C 547, TYPE I, GRADE A WITH FACTORY-APPLIED AS-J-SL. AS-J-SL SHALL BE FACTORY APPLIED, SELF-SEALING, PRESSURE SENSITIVE ACRYLIC BASED ADHESIVE COVERED BY A REMOVABLE PROTECTIVE STRIP COMPLYING WITH ASTM C1136, TYPE I.
  - 3.3. INSULATION SURFACE SHALL MEET ASTM E 84 FLAME SPREAD AND SMOKE DEVELOPED RATINGS OF 25/50.
  - 3.4. FLEXIBLE ELASTOMERIC INSULATION SHALL COMPLY WITH ASTM C 534.
  - 3.5. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
  - 3.6. INSTALL LONGITUDINAL SEAMS FACING UP.
  - 3.7. INSTALL INSULATION ON ALL PIPING LISTED AND OVER ALL FITTINGS, VALVES, AND SPECIALTIES. FOR SPECIALTIES THAT REQUIRE REGULAR MAINTENANCE SUCH AS DRAIN VALVES, STRAINERS, AND BALANCING VALVES PROVIDE PRE-FORMED INSULATION COMPONENTS THAT PERMIT MAINTENANCE WITHOUT DAMAGING THE INSULATION.
  - 3.8. REFER TO PIPING MATERIALS AND INSULATION SCHEDULE.

**220500 PLUMBING VALVES**

1. SCOPE
  - 1.1. BALL VALVES.
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA.
  - 2.2. SUBMIT OPERATION AN MAINTENANCE DATA.
3. VALVES SHALL BE MANUFACTURED BY MILWAUKEE VALVE, NIBCO, OR WATTS REGULATOR.
4. BALL VALVES
  - 4.1. PROVIDE TWO PIECE STANDARD-PORT, BRONZE BALL VALVES WITH STAINLESS STEEL TRIM. FOR VALVES USED IN POTABLE WATER SYSTEMS, PROVIDE LOW LEAD VALVES FOR POTABLE WATER. 600 WOG WITH SOLDER OR PRESS ENDS.
  - 4.2. CONFORM TO MSS SP-110.
  - 4.3. CONFORM TO NSF/ANSI 372 FOR POTABLE WATER APPLICATIONS.
  - 4.4. PROVIDE EXTENSION STEM WHEN INSTALLED IN PIPING WITH INSULATION.
  - 4.5. ANY VALVE INSTALLED ON PIPING SERVING EMERGENCY FIXTURES, OR WHERE INDICATED, SHALL HAVE A TAMPERPROOF LOCKING FEATURE TO PREVENT ACCIDENTAL CLOSURE.
5. INSTALL VALVES IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
6. INSTALL VALVES IN HORIZONTAL PIPING WITH STEM AT OR ABOVE CENTER OF PIPE.

7. INSTALL VALVES IN POSITIONS TO ALLOW FULL STEM MOVEMENT.
8. PROVIDE BALL VALVES FOR SHUT-OFF DUTY ON PIPING.

**220600 NATURAL GAS VALVES**

1. SCOPE
  - 1.1. GAS BALL VALVES
  - 1.2. NATURAL GAS PRESSURE REGULATORS
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA.
  - 2.2. SUBMIT OPERATION AN MAINTENANCE DATA.
3. VALVES SHALL BE MANUFACTURED BY MILWAUKEE VALVE, NIBCO, OR WATTS REGULATOR.
4. GAS BALL VALVES
  - 4.1. BRONZE BALL VALVES
    - 4.1.1. PROVIDE ONE PIECE STANDARD-PORT, BRONZE BALL VALVES WITH STAINLESS STEEL TRIM. VALVES SHALL BE SUITABLE FOR NATURAL GAS SHUT-OFF USE OUTSIDE UP TO 5 PSI IN ACCORDANCE WITH ASME STANDARDS.
    - 4.1.1.1. GAS VALVES FOR NATURAL GAS SYSTEM 1-1/2" AND SMALLER SHALL BE APOLLO SERIES 70-100-07, THREADED BRONZE BALL VALVE, 600 PSI WOG.
    - 4.1.1.2. GAS VALVES FOR NATURAL GAS SYSTEM 2" AND LARGER SHALL BE ROCKWELL FIG. 143, SEMI-STEEL, LUBRICATED PLUG VALVES, FLANGED ENDS, WRENCH OPERATED, 200 PSI WOG.
  - 4.1.2. CAST IRON VALVES
    - 4.1.2.1. VALVES SHALL COMPLY WITH ASTM A 126 CLASS B.
    - 4.1.2.2. VALVES SHALL BE MANUFACTUR BY MUELLER, OR FLOWSERV.
    - 4.1.2.3. VALVES SHALL BE SUITABLE FOR NATURAL GAS SERVICE WITH "WOG" INDICATED ON THE BODY.
- 4.2. NATURAL GAS PRESSURE REGULATORS
  - 4.2.1. NATURAL GAS REGULATING VALVES SHALL BE MANUFACTURED BY MAXITROL, OR FISHER CONTROLS.
  - 4.2.2. LINE PRESSURE REGULATORS SHALL COMPLY WITH ANSI Z21.80.
  - 4.2.3. APPLIANCE PRESSURE REGULATORS SHALL COMPLY WITH ANSI Z21.18.
  - 4.2.4. PRESSURE REGULATORS SHALL BE VENTED TO THE OUTDOORS.
  - 4.2.5. PRESSURE REGULATORS SHALL BE INSTALLED PRIOR TO FINAL CONNECTION OF EQUIPMENT WITH ANY NATURAL GAS SERVICE GREATER THEN 0.25 PSI.
  - 4.2.6. ADJUST PRESSURE REGULATORS SUCH THAT EQUIPMENT WILL SEE A CONSISTENT GAS PRESSURE.
  - 4.2.7. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
5. INSTALL VALVES IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
6. INSTALL VALVES IN HORIZONTAL PIPING WITH STEM AT OR ABOVE CENTER OF PIPE.
7. INSTALL VALVES IN POSITIONS TO ALLOW FULL STEM MOVEMENT.
8. PROVIDE BALL VALVES FOR SHUT-OFF DUTY ON PIPING.

**220700 PLUMBING INSULATION**

1. SCOPE
  - 1.1. PIPING INSULATION
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA.
3. PIPING INSULATION
  - 3.1. INSULATION SHALL BE MANUFACTURED BY JOHNS MANVILLE, KNAUF, OR OWENS CORNING.
  - 3.2. INSULATION SHALL BE MINERAL-FIBER, PREFORMED PIPE INSULATION, TYPE I, RATED UP TO 850°F. COMPLY WITH ASTM C 547, TYPE I, GRADE A WITH FACTORY-APPLIED AS-J-SL. AS-J-SL SHALL BE FACTORY APPLIED, SELF-SEALING, PRESSURE SENSITIVE ACRYLIC BASED ADHESIVE COVERED BY A REMOVABLE PROTECTIVE STRIP COMPLYING WITH ASTM C1136, TYPE I.
  - 3.3. INSULATION SURFACE SHALL MEET ASTM E 84 FLAME SPREAD AND SMOKE DEVELOPED RATINGS OF 25/50.
  - 3.4. FLEXIBLE ELASTOMERIC INSULATION SHALL COMPLY WITH ASTM C 534.
  - 3.5. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
  - 3.6. INSTALL LONGITUDINAL SEAMS FACING UP.
  - 3.7. INSTALL INSULATION ON ALL PIPING LISTED AND OVER ALL FITTINGS, VALVES, AND SPECIALTIES. FOR SPECIALTIES THAT REQUIRE REGULAR MAINTENANCE SUCH AS DRAIN VALVES, STRAINERS, AND BALANCING VALVES PROVIDE PRE-FORMED INSULATION COMPONENTS THAT PERMIT MAINTENANCE WITHOUT DAMAGING THE INSULATION.
  - 3.8. REFER TO PIPING MATERIALS AND INSULATION SCHEDULE.

**221000 PLUMBING PIPING**

1. SCOPE
  - 1.1. DOMESTIC WATER PIPING
  - 1.2. SANITARY AND VENT PIPING
  - 1.3. PIPE FITTINGS
  - 1.4. PIPING SUPPORTS
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA.
  - 2.2. SUBMIT FIELD QUALITY CONTROL REPORTS.
  - 2.2.1. HYDROSTATIC TEST REPORTS
  - 2.2.2. DISINFECTING ACTIVITIES REPORTS
3. PIPING
  - 3.1. HARD COPPER TUBE: ASTM B 88, TYPE L WATER TUBE.
  - 3.2. SOFT COPPER TUBE: ASTM B 88, TYPE K WATER TUBE.
  - 3.3. SCHEDULE 40 PVC PIPE, ASTM D2665, DRAIN, WASTE, VENT.
  - 3.3. HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS: ASTM A 888.
  - 3.4. COPPER DWV TUBE: ASTM B 306, DRAINAGE TUBE.
  - 3.5. PROVIDE DIELECTRIC FITTINGS ON ALL PIPING

**JOINING DISSIMILAR METALS.**

- 3.5.1. TRANSITION FROM PVC SCHEDULE 40 SOLID WALL PIPE TO CAST IRON SHALL UTILIZE HUSKY SD4000 (ORANGE) (BASIS OF DESIGN). A STANDARD TWO BAND RUBBER "FERNO" FITTING WILL NOT BE APPROVED AS AN EQUAL.

**3.6. INSTALL PIPING WITH APPROPRIATE PITCH AND PARALLEL TO BUILDING WALLS.**

- 3.7. INSTALL PIPING TO CONSERVE SPACE IN THE BUILDING. ENSURE PIPING IS LOCATED TO ALLOW FOR OPENING OF CEILINGS OR ACCESS PANELS.
- 3.8. INSTALL PIPING TO ALLOW FOR SERVICING OF EQUIPMENT AND MAINTAIN REQUIRED CLEARANCES. IF PIPING NEEDS TO IMPEDE SERVICE CLEARANCE NOTIFY ARCHITECT/ENGINEER.
- 3.9. DO NOT INSTALL PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT WITHOUT APPROVAL FROM ARCHITECT/ENGINEER.

- 3.10. INSTALL UNIONS OR FLANGES ON ALL PIPING CONNECTING TO EQUIPMENT.
- 3.11. PROVIDE IDENTIFICATION ON ALL PIPING AS SPECIFIED.
- 3.12. ARRANGE FOR ALL REQUIRED INSPECTIONS PRIOR TO CONCEALING PIPING.
- 3.13. INSTALL SLEEVES AS SPECIFIED.
- 3.14. INSULATE PIPING AS SPECIFIED.

**4. PIPE FITTINGS**

- 4.1. DOMESTIC WATER:
  - 4.1.1. WROUGHT-COPPER, SOLDER JOINT FITTINGS ASME B16.22 WROUGHT COPPER PRESSURE FITTINGS.
  - 4.1.2. COPPER UNIONS - MSS SP-123
  - 4.1.3. COPPER PRESSURE SEAL JOINT FITTINGS AS MANUFACTURED BY ELKHART, NIBCO, OR VEGA.

**4.2. SANITARY, VENT**

- 4.2.1. PVC SOCKET FITTINGS ASTM D2665 MADE TO ASTM D3311 DRAIN, WASTE, AND VENT PATTERNS AND TO FIT SCHEDULE 40 PVC.
- 4.2.2. COPPER DRAINAGE FITTINGS: ASME B16.23, CAST COPPER OR ASME B16.29, WROUGHT COPPER, SOLDER-JOINT FITTINGS.
- 4.2.3. HEAVY-DUTY, HUBLESS-PIPING COUPLINGS AS MANUFACTURED BY MIFAB, TYLER, OR DALLAS.

**5. SUPPORTS**

- 5.1. REFER TO HANGERS AND SUPPORTS SECTION.
6. REFER TO PLUMBING PIPING MATERIAL/INSULATION SCHEDULE FOR APPLICATION DETAILS.
7. DOMESTIC WATER PIPING
  - 7.1. TEST FOR LEAKS AND DEFECTS OF THE PIPING SYSTEM.
    - 7.1.1. PROVIDE HYDROSTATIC PRESSURE TEST 50 PSIG IN EXCESS OF OPERATING PRESSURE.
    - 7.1.2. PREPARE TEST REPORTS
    - 7.1.3. CLEAN AND DISINFECT POTABLE PIPING SYSTEMS AND PROVIDE REPORTS OF DISINFECTING ACTIVITIES.
  - 7.1.4. PROVIDE TESTS AND CLEANING PRIOR TO TURNING OVER EACH PHASE OF CONSTRUCTION.

**8. SANITARY PIPING**

- 8.1. INSTALL ALL PIPING 3" AND UP WITH A 1/8" PER FOOT SLOPE IN DIRECTION OF FLOW.
- 8.2. INSTALL ALL PIPING LESS THAN 3" WITH A 1/4" PER FOOT SLOPE IN DIRECTION OF FLOW.
- 8.3. TEST PIPING FOR LEAKS WITH HYDROSTATIC TESTS. PROVIDE TEST REPORTS.

**9. VENT PIPING**

- 9.1. INSTALL ALL PIPING WITH A 1/16" PER FOOT SLOPE TO DRAIN TO SANITARY PIPING.
- 9.2. TEST PIPING FOR LEAKS WITH HYDROSTATIC TESTS. PROVIDE TEST REPORTS.

**221100 NATURAL GAS PIPING**

1. SCOPE
  - 1.1. NATURAL GAS PIPING
  - 1.2. PIPE FITTINGS
  - 1.3. PIPING SUPPORTS
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA.
  - 2.2. SUBMIT FIELD QUALITY CONTROL REPORTS
  - 2.2.1. NATURAL GAS PIPING TEST REPORTS
3. PIPING
  - 3.1. STEEL PIPE ASTM A 53 BLACK STEEL, SCHEDULE 40, TYPE E OR S, GRADE B
  - 3.2. GALVANIZED STEEL PIPE ASTM A 53 STEEL, SCHEDULE 40, TYPE E OR S, GRADE B.
  - 3.3. PROVIDE DIELECTRIC FITTINGS ON ALL PIPING JOINING DISSIMILAR METALS.
  - 3.4. INSTALL PIPING WITH APPROPRIATE PITCH AND PARALLEL TO BUILDING WALLS.
  - 3.5. INSTALL PIPING TO CONSERVE SPACE IN THE BUILDING. ENSURE PIPING IS LOCATED TO ALLOW FOR OPENING OF CEILINGS OR ACCESS PANELS.
  - 3.6. INSTALL PIPING TO ALLOW FOR SERVICING OF EQUIPMENT AND MAINTAIN REQUIRED CLEARANCES. IF PIPING NEEDS TO IMPEDE SERVICE CLEARANCE NOTIFY ARCHITECT/ENGINEER.
  - 3.7. DO NOT INSTALL PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT WITHOUT APPROVAL FROM ARCHITECT/ENGINEER.
- 3.8. INSTALL UNIONS OR FLANGES ON ALL PIPING CONNECTING TO EQUIPMENT.
- 3.9. PROVIDE IDENTIFICATION ON ALL PIPING AS SPECIFIED.
- 3.10. ARRANGE FOR ALL REQUIRED INSPECTIONS PRIOR TO CONCEALING PIPING.
- 3.11. INSTALL SLEEVES AS SPECIFIED.
- 3.12. INSULATE PIPING AS SPECIFIED.

**221319 SANITARY WASTE PIPING SPECIALTIES**

1. SCOPE
  - 1.1. CLEANOUTS
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA.
3. CLEANOUTS
  - 3.1. CLEANOUTS SHALL BE MANUFACTURED BY MIFAB, JAY R. SMITH OR WATTS.
  - 3.2. STANDARD: ASME A112.36.2M
  - 3.3. REFER TO SCHEDULE FOR DETAILS.
- 3.4. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

**223300 ELECTRIC, DOMESTIC-WATER HEATERS**

1. SCOPE
  - 1.1. COMMERCIAL ELECTRIC, STORAGE DOMESTIC-WATER HEATER, EWH.
  - 1.2. EXPANSION TANK, EXP.
  - 1.3. DOMESTIC WATER HEATER ACCESSORIES
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA
  - 2.2. SUBMITTALS
3. EWH
  - 3.1. PROVIDE A WATER HEATER MANUFACTURED BY AO SMITH, LOCHINVAR, OR BRADFORD WHITE.
  - 3.2. REFER TO THE SCHEDULE FOR PERFORMANCE REQUIREMENTS.
  - 3.3. WATER HEATER SHALL BE LISTED BY UL AND APPROVED TO NSF STANDARD 5.
  - 3.4. TANKS SHALL HAVE 150 PSI WORKING PRESSURE AND SHALL BE EQUIPPED WITH HIGH DENSITY ANODE.
  - 3.5. ALL INTERNAL SURFACES OF THE HEATER EXPOSED TO WATER SHALL BE GLASSIUNG WITH AN ALKALINE BOROSILICATE COMPOSITION THAT HAS BEEN FUSED-TO-STEEL.
  - 3.6. PROVIDE THREE YEAR WARRANTY.

**9. TEST AND INSPECT NATURAL GAS PIPING IN ACCORDANCE WITH THE INTERNATIONAL FUEL GAS CODE.**

10. PROVIDE FLEXIBLE GAS CONNECTION FOR FINAL CONNECTION GENERATORS.

**221119 DOMESTIC WATER PIPING SPECIALTIES**

1. SCOPE
  - 1.1. THERMOSTATIC MIXING VALVES
  - 1.2. HOSE BIBS
  - 1.3. WELL TANK
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA.
  - 2.2. SUBMITTALS
3. THERMOSTATIC MIXING VALVES
  - 3.1. BELOW DECK MIXING VALVES SHALL BE MANUFACTURED BY LEONARD, POWERS, OR ZURN.
  - 3.1.2. THERMOSTATIC MIXING VALVES SHALL BE MANUFACTURED BY LEONARD, POWERS, OR ZURN.
  - 3.1.2. THE MIXING VALVE SHALL CONFORM TO ASSE 1070.
  - 3.1.3. REFER TO SCHEDULE FOR PRODUCT BASIS FOR DESIGN.
  - 3.1.9. MIXING VALVE SET POINT:
    - 3.1.9.1. LAVATORIES, AND HAND SINKS SHALL PROVIDE A MAXIMUM TEMPERATURE OF 110°F.
    - 3.1.9.2. LAVATORIES IN HEALTHCARE FACILITIES SHALL PROVIDE A MAXIMUM TEMPERATURE OF 105°F.
    - 3.1.9.3. PANTRY SINKS, LAB SINKS, ETC. SHALL PROVIDE A MAXIMUM TEMPERATURE OF 120°F.

**3.1.1. THERMOSTATIC MIXING VALVES SHALL BE MANUFACTURED BY LEONARD, POWERS, OR ZURN.**

- 3.1.2. THE MIXING VALVE SHALL CONFORM TO ASSE 1070.
- 3.1.3. REFER TO SCHEDULE FOR PRODUCT BASIS FOR DESIGN.

**3.1.9. MIXING VALVE SET POINT:**

- 3.1.9.1. LAVATORIES, AND HAND SINKS SHALL PROVIDE A MAXIMUM TEMPERATURE OF 110°F.
- 3.1.9.2. LAVATORIES IN HEALTHCARE FACILITIES SHALL PROVIDE A MAXIMUM TEMPERATURE OF 105°F.
- 3.1.9.3. PANTRY SINKS, LAB SINKS, ETC. SHALL PROVIDE A MAXIMUM TEMPERATURE OF 120°F.

**3.1.10. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.**

**3.2. PRIMARY MIXING VALVES**

- 3.2.1. THERMOSTATIC MIXING VALVES SHALL BE MANUFACTURED BY LEONARD, POWERS, HOLBY, OR LEGEND.
- 3.2.2. THE MIXING VALVE SHALL CONFORM TO ASSE 1017.
- 3.2.3. REFER TO SCHEDULE FOR PRODUCT BASIS FOR DESIGN.
- 3.2.4. PROVIDE HOT WATER BYPASS WITH NORMALLY CLOSED BALL VALVE.

**3.2.5. DOMESTIC HOT WATER DISTRIBUTION SYSTEM SHALL BE MAINTAINED AT 120°F.**

- 3.2.7. INSTALL VALVE WITH 27" MINIMUM THERMAL LOOP ON COLD WATER INLET SIDE OF VALVE.
- 3.2.8. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

**3.2.9. THERE SHALL BE A MAIN MIXING VALVE AT THE WATER HEATER AND THERE SHALL ALSO BE BELOW-COUNTER MIXING VALVES FOR THE LAVATORIES THROUGHOUT THE FACILITY.**

**3.2.10. THERE SHALL BE A MAIN MIXING VALVE AT THE WATER HEATER AND THERE SHALL ALSO BE BELOW-COUNTER MIXING VALVES FOR THE LAVATORIES THROUGHOUT THE FACILITY.**

**4. HOSE BIBS**

- 4.1. HOSE BIBS SHALL INCLUDE ALL HOSE BIBS, WALL HYDRANTS, ROOF HYDRANTS, YARD HYDRANTS, AND HOSE STATIONS.
- 4.2. HOSE BIBS SHALL BE MANUFACTURED BY JAY R. SMITH, WATTS, ZURN, T&S BRASS, WOODFORD, OR MIFAB.

**4.3. STANDARDS:**

- 4.3.1. HOSE BIB AND HOSE STATIONS SHALL CONFORM TO ASME A112.18.1.
- 4.3.2. VACUUM BREAKER SHALL CONFORM TO ASSE 1011.
- 4.3.3. WALL HYDRANTS, GROUND HYDRANTS, AND ROOF HYDRANTS SHALL CONFORM TO ASME A112.21.3M.

**4.4. ALL HOSE BIBS SUBJECT TO FREEZING CONDITIONS SHALL BE OF THE NON FREEZE TYPE.**

**4.5. INSTALL HOSE BIB IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS.**

**5. WELL TANK**

- 5.1. PROVIDE EXPANSION TANK MANUFACTURED BY AMTROL, AO SMITH, OR TACO.
- 5.2. REFER TO SCHEDULE FOR PRODUCT BASIS FOR DESIGN.
- 5.3. INSTALL IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS.

**221319 SANITARY WASTE PIPING SPECIALTIES**

1. SCOPE
  - 1.1. CLEANOUTS
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA.
3. CLEANOUTS
  - 3.1. CLEANOUTS SHALL BE MANUFACTURED BY MIFAB, JAY R. SMITH OR WATTS.
  - 3.2. STANDARD: ASME A112.36.2M
  - 3.3. REFER TO SCHEDULE FOR DETAILS.



SYMBOL LEGEND	
SYMBOL	DESCRIPTION
---	DOMESTIC COLD WATER PIPING
---	DOMESTIC HOT WATER PIPING (120°F)
---	PLUMBING EQUIPMENT
SS	SANITARY PIPING ABOVE VISIBLE FLOOR.
---	SANITARY PIPING BELOW VISIBLE FLOOR.
---	VENT PIPING.
G	NATURAL GAS PIPING.
?	BREAK
↘	PIPING TURNING DOWN.
⊕	PIPING TEE.
↙	PIPING TURNING UP.
⊙	FLOOR DRAIN
⊙	DRAIN AND TRAP ASSEMBLY.
⊙	FLOOR CLEAN OUT
⊙	WALL CLEANOUT
⊘	SHUT OFF VALVE.
⊘	PRESSURE REGULATOR
GM	GAS METER
⊙	POINT OF CONNECTION TO EXISTING.
⊙	KEYNOTE TAG
S #	SANITARY PIPING RISER TAG
DW #	DOMESTIC WATER PIPING RISER TAG

MIXING VALVE SCHEDULE																	
TAG	DESCRIPTION	MIN. FLOW (GPM)	PRESSURE DROP	TEMPERATURE (°F)			MFG.	MODEL	LOCATION	CONNECTION SIZE (")				ELECTRICAL REQUIREMENTS	ACCESSORIES	NOTES	
				INLET	OUTLET	RETURN				HW (IN)	CW	HW (OUT)	HWR				
TMV1	THERMOSTATIC MASTER MIXING VALVE.	1	10 PSI @ 9 GPM	140	120	-	HOLBY	HTV050	NEAR WATER HEATER	1/2"	1/2"	1/2"	-	-	-	1	-
TMV2	BELOW DECK THERMOSTATIC MIXING VALVE.	0.5	5 PSI @ 1 GPM	120	NOTE b	-	WATTS	LFE480	BELOW DECK	1/2	1/2	1/2	-	-	-	-	a

ACCESSORIES:  
1. PROVIDE INLET AND OUTLET THERMOMETERS.

NOTES:  
a. 110 °F FOR LAVATORY, 120 °F FOR PANTRY SINK.

PLUMBING FIXTURE SCHEDULE														
TAG	DESCRIPTION	MAKE	MODEL	SERIES	TRIM				CONNECTIONS				ACCESSORIES	NOTES
					MAKE	MODEL	FLOW RATE	POWER REQ.	SAN.	VENT	CW	HW		
(H)LAV	WALL-HUNG VITREOUS CHINA LAVATORY, ADA BARRIER FREE COMPLIANT.	AMERICAN STANDARD	355.012000	LUCERNE	AMERICAN STANDARD	MONTERREY 5500.175	0.5 GPM	-	1-1/2"	1-1/2"	1/2"	1/2"	1,2,3,4,5,6	a,b
PS	SINGLE BOWL, STAINLESS STEEL PANTRY SINK.	ELKAY	LRAD221965	LUSTERTONE	ELKAY	LK810A08T6	1.5 GPM	-	1-1/2"	1-1/2"	1/2"	1/2"	1,2,4,5,7,8	a
(H)WC	BARRIER FREE, FLOOR MOUNTED TANK TYPE TOILET WITH ELONGATED OPEN FRONT SEAT.	AMERICAN STANDARD	2467.100	CADET	-	-	1.28 GPF	-	4"	2"	3/4"	---	9,10	b
SS	FLOOR MOUNTED FIBERGLASS BASIN SERVICE SINK.	MUSTEE	63M	-	AMERICAN STANDARD	YOKE 8354.112	6.0 OPM	-	3"	2"	3/4"	3/4"	1,11	-

ACCESSORIES:  
1. PROVIDE P-TRAP.  
2. PROVIDE WATTS MODEL: LFUSG-HWP BELOW DECK MIXING VALVE.  
3. PROVIDE MCGUIRE 155WC OPEN GRID DRAIN.  
4. PROVIDE FAUCET SUPPLIES CHROME PLATED ANGLE VALVE.  
5. PROVIDE TRIBRO LAVGUARD INSULATION PRODUCT ON ALL EXPOSED PIPING BELOW DECK.  
6. PROVIDE J.R. SMITH CONCEALED ARM CARRIER MODEL: 0700.  
7. PROVIDE MOUNTING CLIPS, AS NEEDED.  
8. PROVIDE DRAIN AND TAILPIECE, AS NEEDED. COORDINATE WITH MILWORK.  
9. PROVIDE HEAVY DUTY TOILET SEAT.  
10. PROVIDE FLOOR FLANGE AND GASKET.  
11. PROVIDE HOSE AND WALL HOOK, MOP HANGER, BACK-SPLASH PANEL, AND VINYL SPLASH GUARDS.

NOTES:  
a. PROVIDE TEES, AND FLEXIBLE COPPER TUBING TO SUITE INSTALLATION.  
b. PROVIDE WHITE COLOR FIXTURE, CONFIRM WITH ARCHITECT DURING SHOP DRAWINGS.

PLUMBING EQUIPMENT SCHEDULE													
TAG	DESCRIPTION	MAKE	MODEL	POWER REQUIREMENTS			CONNECTIONS					ACCESSORIES	NOTES
				V	KW	PHASE	SAN	VENT	CW	HW	NG		
EW1	15 GALLON STORAGE TYPE ELECTRICAL WATER HEATER, 12 GPH RECOVERY @ 100°F RISE. SET STORAGE TEMPERATURE TO 140°F.	A.O. SMITH	DEL 15	208V	3 KW	1ø	3/4"	---	3/4"	3/4"	---	-	a
WT	FULL ACCEPTANCE BLADDER WELL TANK, 5.3 GALLON ACCEPTANCE.	AMTROL	WX-447C	-	-	-	---	---	2"	---	---	-	-
WCO	WALL CLEAN OUT WITH ROUND STAINLESS STEEL ACCESS COVER.	JAY R. SMITH	FIG. 4510	-	-	-	NOTE b.	---	---	---	---	-	b
FPWH	FROST FREE WALL HYDRANT WITH DRAIN, LOCKING BRASS COVER, AND ASSE 1011 APPROVED VACUUM BREAKER.	WOODFORD MFG.	RB65-BR	-	-	-	---	---	3/4"	---	---	-	-

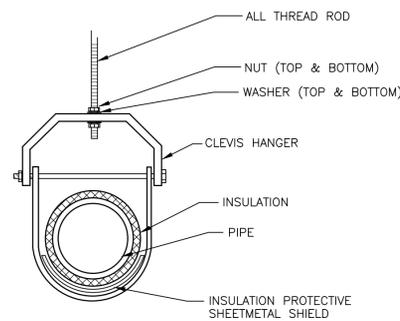
ACCESSORIES:  
-

NOTES:  
a. REFER TO INSTALLATION DETAIL.  
b. COORDINATE SIZE WITH PIPING SERVED.

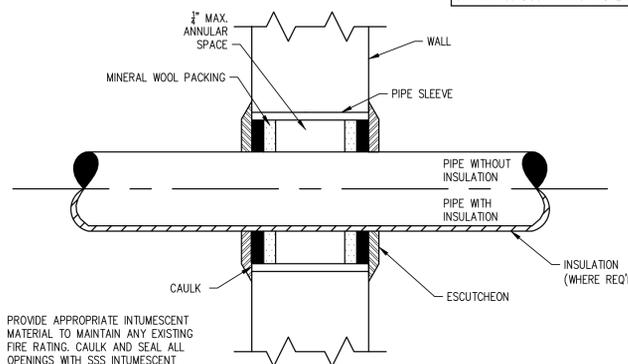
PIPING SUPPORT CRITERIA					
COPPER PIPE SIZE	MAX. HORIZ. SPACING	MIN. ROD SIZE	STEEL PIPE SIZE	MAX. HORIZ. SPACING	MIN. ROD SIZE
3/4" AND SMALLER	5- FEET	3/8"	1" AND SMALLER	8- FEET	3/8"
1" TO 1-1/4"	6- FEET	3/8"	1-1/4"	9- FEET	3/8"
1-1/2" TO 2"	8- FEET	3/8"	1-1/2" TO 2"	9- FEET	3/8"
2-1/2"	9- FEET	1/2"	2-1/2" TO 3-1/2"	10- FEET	1/2"
3" TO 5"	10- FEET	1/2"	4" AND UP	10- FEET	5/8"
6"	10- FEET	5/8"			
8"	10- FEET	3/4"			

SUPPORT VERTICAL PIPING EVERY 10- FEET.			SUPPORT VERTICAL PIPING EVERY 10- FEET.		
CAST IRON PIPE SIZE	MAX. HORIZ. SPACING	MIN. ROD SIZE	PVC PIPE SIZE	MAX. HORIZ. SPACING	MIN. ROD SIZE
1-1/2" TO 2"	5- FEET	3/8"	1-1/2" TO 2"	4- FEET	3/8"
3"	5- FEET	1/2"	3"	4- FEET	1/2"
4" TO 5"	5- FEET	5/8"	4" TO 5"	4- FEET	5/8"
6" TO 8"	5- FEET	3/4"	6" TO 8"	4- FEET	3/4"
10" TO 12"	5- FEET	7/8"	10" TO 12"	4- FEET	7/8"

SUPPORT VERTICAL PIPING EVERY 15- FEET.      SUPPORT VERTICAL PIPING EVERY 4- FEET.

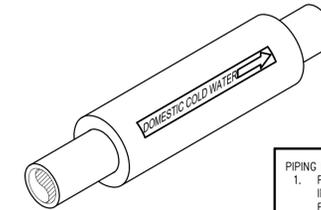


**2 TYPICAL PIPE SUPPORT DETAIL**  
NOT TO SCALE



PROVIDE APPROPRIATE INTUMESCENT MATERIAL TO MAINTAIN ANY EXISTING FIRE RATING. CAULK AND SEAL ALL OPENINGS WITH SSS INTUMESCENT FIRESTOP SEALANT AS MANUFACTURED BY SPECIFIED TECHNOLOGIES, INC.

**3 PIPE THROUGH INTERIOR WALL PARTITION**  
NOT TO SCALE



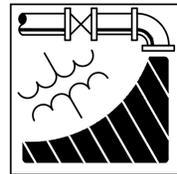
PIPING IDENTIFICATION NOTES:  
1. PROVIDE SELF-ADHESIVE PIPE LABELS THAT INCLUDES COLOR-CODING FOR EACH SYSTEM, FLOW DIRECTION ARROWS (IF APPLICABLE), AND LETTERING AT LEAST 3" HIGH.  
2. PROVIDE SELF-ADHESIVE PIPE LABELS EVERY 50 FEET, NEAR EACH BRANCH CONNECTION AND PENETRATIONS OF WALLS OR FLOORS. PROVIDE LABELS WHERE VISIBLE FROM ACCESS PANELS THAT PROVIDE ACCESS TO SPACES ABOVE CEILINGS OR WITHIN WALLS.

EQUIPMENT IDENTIFICATION NOTES:  
1. PROVIDE MULTI-COLOR PLASTIC LABELS FOR MECHANICAL ENGRAVING WITH WHITE LETTERING ON BLACK BACKGROUND.  
2. MINIMUM LETTER SIZE SHALL BE 1"

**1 TYPICAL PIPING IDENTIFICATION**  
NOT TO SCALE

PIPING MATERIALS / INSULATION SCHEDULE								
SERVICE	LOCATION	PIPING			INSULATION			NOTES
		SIZE	MATERIAL	FITTINGS	TYPE	JACKET	THICKNESS	
DOMESTIC WATER	ABOVE GROUND	ALL	TYPE L COPPER	SOLDER OR PRESSURE SEAL	MINERAL FIBER	ASJ	1"	-
	BELOW GROUND	<= 3"	TYPE K COPPER	NONE	ELASTOMERIC	-	1/2"	-
SANITARY WASTE	ABOVE GRADE	ALL	CAST IRON / COPPER DWV	HUBLESS / SWEAT	-	-	-	-
	BELOW GRADE	ALL	PVC	SOLVENT WELD	-	-	-	-
SANITARY VENT	ABOVE GRADE	ALL	CAST IRON / COPPER DWV	HUBLESS / SWEAT	-	-	-	-
	BELOW GRADE	ALL	PVC	SOLVENT WELD	-	-	-	-
NATURAL GAS	INDOOR	<= 3"	BLACK STEEL	THREADED OR PRESSURE SEAL	-	-	-	1
	OUTDOOR	<= 3"	GALVANIZED STEEL	THREADED OR PRESSURE SEAL	-	-	-	2
	ABOVE GRADE	>= 4"	BLACK STEEL	WELDED	-	-	-	3

NOTES:  
1. PAINT EXPOSED PIPING YELLOW  
2. PAINT PIPING YELLOW  
3. PAINT OUTDOOR PIPING AND EXPOSED INDOOR PIPING YELLOW.



**ENGINEERING DRIVEN DESIGN PC**  
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Jeffrey N. Beeden  
Professional Engineer  
NJ License 24GE04746800

**FRED ASTAIRE DANCE STUDIO**

320 NJ-33  
MANALAPAN, NJ 07726

**OWNER/CLIENT**  
FRED ASTAIRE DANCE STUDIO  
320 NJ-33  
MANALAPAN, NJ 07726

**ARCHITECT**  
JASON PEIST ARCHITECT, LLC  
171 BROAD STREET  
MATAWAN, NJ 07747

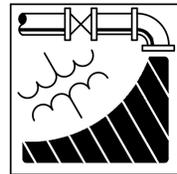
02/02/2026	ISSUED FOR CONSTRUCTION
MARK	DATE
DESCRIPTION	
<b>SHEET ISSUE INFORMATION</b>	
PROJECT NUMBER:	25-0115
CONTRACT DATE:	08/26/2025
DRAWN BY:	JS
CHECKED BY:	JNB
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<b>SHEET MANAGEMENT DATA</b>	

**PLUMBING SYMBOLS AND SCHEDULES**

SHEET TITLE BLOCK

**P-002**  
SHEET 3 OF 17





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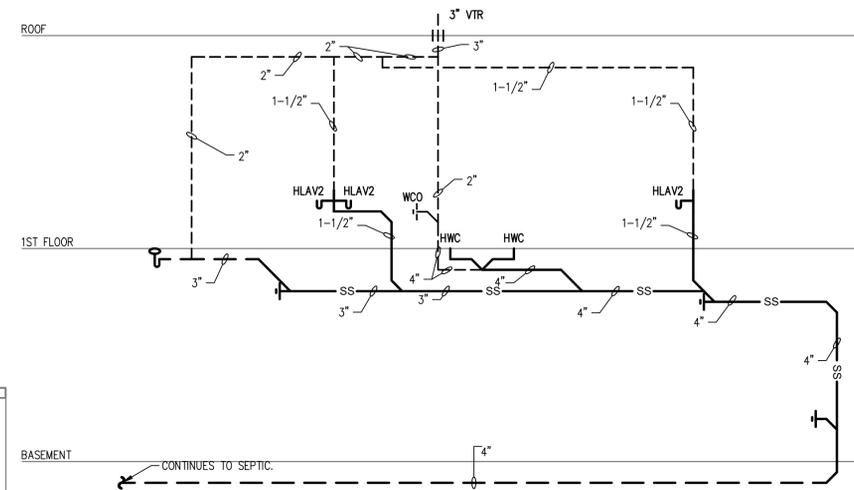
Jeffrey N. Beeden  
Professional Engineer  
NJ License 24GE04746800

**FRED ASTAIRE DANCE STUDIO**

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MANALAPAN, NJ 07726

**OWNER/CLIENT**  
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MANALAPAN, NJ 07726

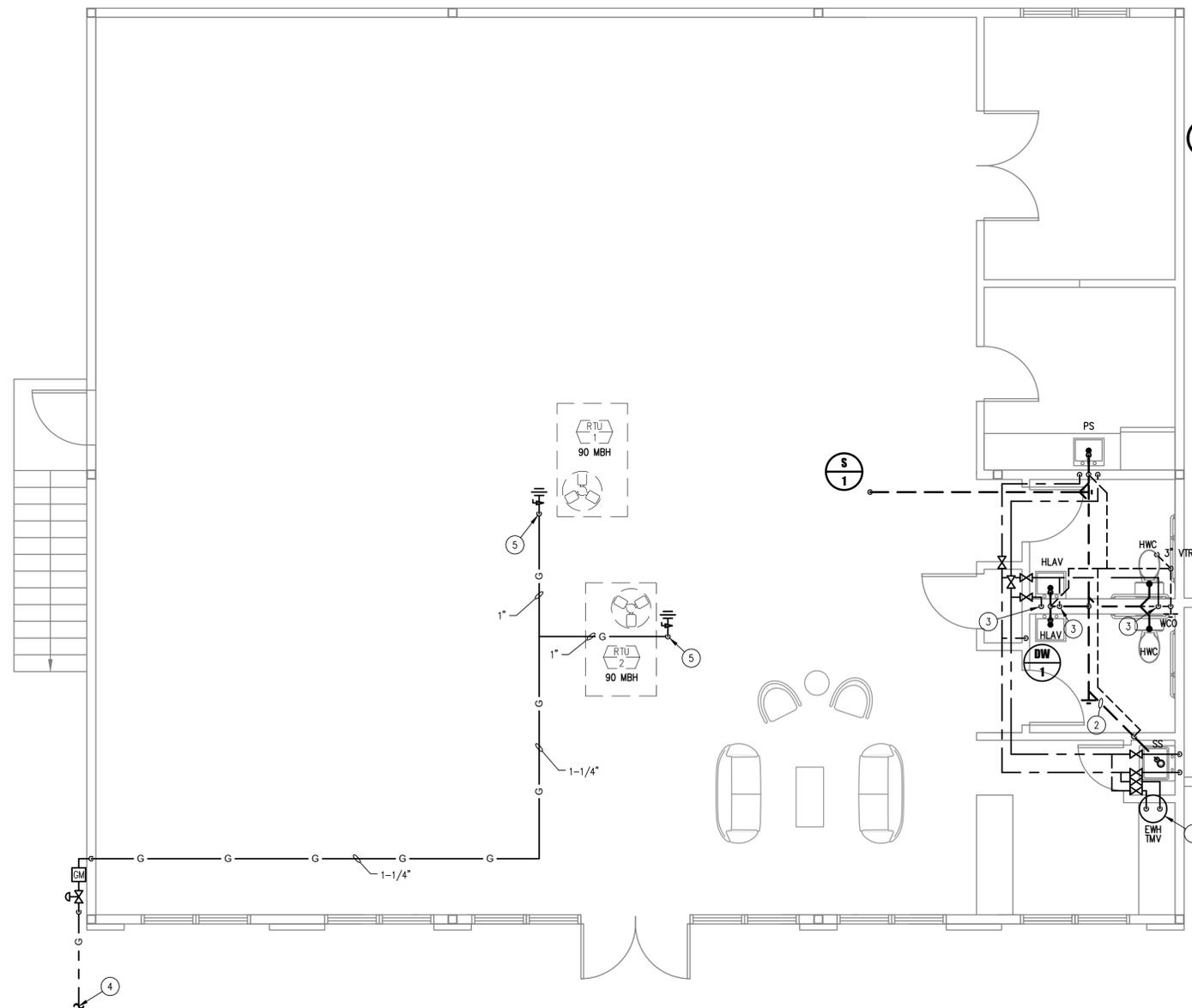
**ARCHITECT**  
JASON PEIST ARCHITECT, LLC  
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MATAWAN, NJ 07747



**2 SANITARY AND VENT RISER DIAGRAM**  
DIAGRAMMATIC

**DRAWING KEYED NOTES:**

- 1 WATER HEATER LOCATED ON SHELF ABOVE SERVICE SINK. ROUTE DRAIN TO SERVICE SINK.
- 2 COORDINATE PIPING PENETRATION INTO BASEMENT SUCH THAT CLEANOUT CAN BE ACCESSIBLE.
- 3 PROVIDE CONNECTIONS FOR FIXTURES ON BOTH SIDES OF THE WALL.
- 4 PIPING CONTINUES. REFER TO CIVIL PLAN FOR CONTINUATION.
- 5 PIPING UP TO ROOF TO SERVE ROOF TOP UNIT. COORDINATE FINAL CONNECTION LOCATION IN THE FIELD.



**1 PLUMBING PLAN**  
1/4"=1'-0"

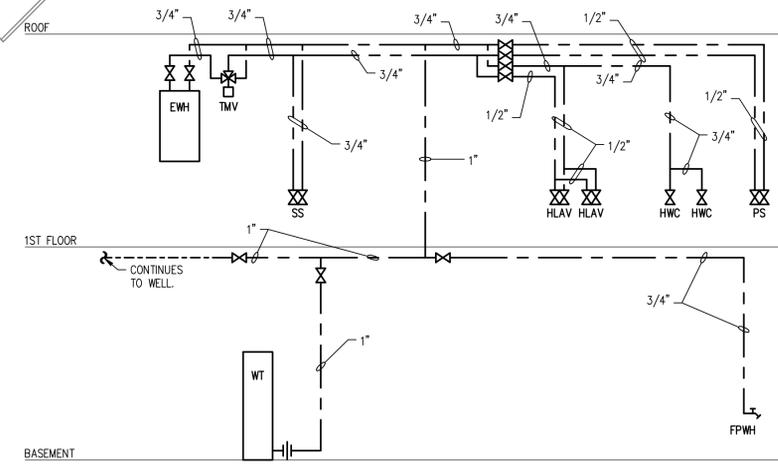
**GENERAL NOTES:**

- 1. CONTRACTOR TO TRENCH, AS REQUIRED, TO ACCOMMODATE SCOPE OF WORK.
- 2. INSULATE ALL DOMESTIC HOT AND COLD WATER PIPING.
- 3. PROVIDE ALL PIPE LABELS AND VALVE TAGS, REFER TO SPECIFICATIONS.

**NATURAL GAS SIZING NOTES**

APPLICABLE CODE	GAS INFORMATION			TOTAL CONNECT LOAD	INLET PRESSURE (AT REGULATOR)	PRESSURE DROP	APPLICABLE TABLE	EQUIVALENT LENGTH OF PIPE	LONGEST RUN LESS THAN	NOTES
	TYPE	SPECIFIC GRAVITY	QUALITY							
IFCG-2021	NATURAL	0.60	1000 BTU/CF	180 MBH	0.25 PSI	0.3" W.C.	402.4(1)	98 FT.	100 FT.	1

**NOTES:**  
1. PIPE SIZES MAY HAVE TO BE REVISED IF QUALITY OR PRESSURE VARIES SIGNIFICANTLY FROM THESE VALUES. THE CONTRACTOR SHALL VERIFY NATURAL GAS QUALITY, DELIVERED PRESSURE AND GAS PRESSURE REQUIREMENTS FOR ALL GAS-FIRED EQUIPMENT AND APPLIANCES.



**3 DOMESTIC WATER RISER DIAGRAM**  
DIAGRAMMATIC

02/02/2026	ISSUED FOR CONSTRUCTION	
MARK	DATE	DESCRIPTION
<b>SHEET ISSUE INFORMATION</b>		
PROJECT NUMBER:	25-0115	
CONTRACT DATE:	08/26/2025	
DRAWN BY:	JS	
CHECKED BY:	JNB	
COPYRIGHT: ENGINEERING DRIVEN DESIGN PC 2026		
<b>SHEET MANAGEMENT DATA</b>		
<b>PLUMBING 1ST FLOOR PLAN</b>		
<b>SHEET TITLE BLOCK</b>		
<b>P-101</b>		
SHEET 5 OF 17		

## MECHANICAL SPECIFICATIONS:

### 230000 SUMMARY

1. THE SCOPE OF THIS PROJECT IS TO CONSTRUCT A NEW 3,300 SQ.FT. BUILDING FOR USE AS A FRED ASTAIRE DANCE STUDIO.
2. THE BUILDING IS A SEISMIC DESIGN CATEGORY OF B, WHICH MEANS THAT MECHANICAL SYSTEMS ARE EXEMPT FROM SEISMIC BRACING REQUIREMENTS.

### 230030 DEFINITIONS

1. FURNISH: TO PURCHASE AND DELIVER AN ITEM TO THE STAGING AREA COMPLETE WITH ALL REQUIRED APPURTENANCES.
2. INSTALL: TO MOVE THE ITEM FROM THE STAGING AREA AND FASTEN TO THE STRUCTURE.
3. PROVIDE: TO FURNISH AND INSTALL.

### 230040 SUBSTITUTIONS

1. ALL SUBSTITUTIONS MUST BE APPROVED PRIOR TO BIDDING. PROVIDE SUBSTITUTION INFORMATION DURING THE BID-PHASE QUESTION AND ANSWER PERIOD. INCLUDE DETAILED DATA ON THE PROPOSED SUBSTITUTION INCLUDING DOLLAR AMOUNT OF PROPOSED SAVINGS. ENGINEER SHALL REVIEW THE INFORMATION AND DETERMINE WHETHER THE SUBSTITUTION WILL BE ALLOWED.
2. ANY CHANGES TO THE CONTRACT DOCUMENTS DUE TO THE SUBSTITUTION SHALL BE COORDINATED BY THE GENERAL CONTRACTOR AND ANY ADDITIONAL COST TO MODIFY THE DESIGN OR MODIFY THE SCOPE OF OTHER TRADES SHALL BE INCLUDED IN THE PROPOSED SAVINGS. THIS SHALL INCLUDE MODIFICATIONS TO THE STRUCTURAL SCOPE FOR EQUIPMENT SUPPORT AS WELL AS MODIFICATIONS TO ELECTRICAL BRANCH CIRCUITRY OR FEEDERS FOR EQUIPMENT.

### 230050 SUBMITTALS

1. ALL SUBMITTALS SHALL BE ROUTED TO THE ARCHITECT FOR DISTRIBUTION TO ALL DESIGN PROFESSIONALS.
2. ALL SUBMITTALS SHALL BEAR A COVER-SHEET FROM THE GENERAL CONTRACTOR INDICATING THEY HAVE REVIEWED THE SUBMITTAL AND FIND IT TO CONFORM TO THE CONTRACT DOCUMENTS.
3. SHOP DRAWING SUBMISSIONS CONSISTING OF PRODUCT DATA CUT-SHEETS MAY BE SUBMITTED ELECTRONICALLY.
4. SHOP DRAWING SUBMISSIONS CONSISTING OF COORDINATION PLANS, LAYOUT DRAWINGS, FIRE PROTECTION SHOP DRAWINGS, FIRE ALARM SHOP DRAWINGS, SHEET METAL SHOP DRAWINGS, ETC. SHALL BE SUBMITTED IN LARGE FORMAT, ORIGINAL SIZE ON PAPER. PROVIDE FIVE COPIES OF THE SHOP DRAWINGS. THE ENGINEER SHALL KEEP A COPY, THE ARCHITECT SHALL KEEP A COPY, THE REMAINING THREE COPIES WILL BE RETURNED TO THE GENERAL CONTRACTOR.
5. REQUESTS FOR INFORMATION (RFIS) SHALL INCLUDE THE QUESTION, THE REFERENCED PORTION OF THE CONTRACT DOCUMENTS, AND THE CONTRACTOR'S RECOMMENDED SUGGESTION FOR REMEDY.
6. DELEGATED-DESIGN SUBMISSIONS SHALL BE PROVIDED WITH A COVER-SHEET INDICATING THE PROFESSIONAL OF RECORD THAT WILL SIGN AND SEAL THE DOCUMENT. ORIGINAL SIGNED AND SEALED DOCUMENTS DO NOT NEED TO BE SUBMITTED UNTIL THE DOCUMENTS ARE APPROVED BY THE ARCHITECT AND ENGINEER.
7. REFER TO THE INDIVIDUAL SPECIFICATION SECTIONS FOR THE REQUIRED SUBMITTALS.
8. COMPILER OPERATION AND MAINTENANCE (O&M) MANUALS AND SUBMIT ELECTRONICALLY FOR APPROVAL. AFTER APPROVAL OF ALL MANUALS, PROVIDE TWO COPIES OF A PRINTED, BOUND SET TO THE OWNER AND A COMPACT DISC WITH THE DATA AS .PDFS.

### 230060 TEMPORARY REQUIREMENTS DURING CONSTRUCTION

1. PROVIDE FOR FULLY FUNCTIONAL HVAC SYSTEM IN THE SPACES THAT ARE OCCUPIED THROUGHOUT CONSTRUCTION. ANY SHUT DOWN OF THE EQUIPMENT SHALL BE PERFORMED IN EVENINGS OR ON WEEKENDS.
2. IN THE CONSTRUCTION AREAS, THE CONTRACTOR SHALL PROVIDE TEMPORARY HEAT FOR THE DURATION OF THE CONSTRUCTION OF THE PROJECT. PROVIDE TEMPORARY HEATERS AS REQUIRED TO KEEP THE SPACE ABOVE 55 DEGREES FAHRENHEIT. IF EXISTING OR PROPOSED EQUIPMENT IS USED, THE CONTRACTOR SHALL PROVIDE TEMPORARY FILTERS ON THE RETURN AIR INLETS AND IN THE UNIT. ALL CONSTRUCTION FILTERS SHALL BE REMOVED AFTER CONSTRUCTION AND THE UNIT FILTERS SHALL BE REPLACED WITH NEW FILTERS.

### 230070 QUALITY ASSURANCE

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND SHALL CONFORM TO THE NEW YORK UNIFORM CONSTRUCTION CODE. THE CURRENTLY ADOPTED SUBCODES WITH AMENDMENTS ARE AS FOLLOWS:
  - 1.1. BUILDING CODE OF NEW YORK STATE 2020
  - 1.2. PLUMBING CODE OF NEW YORK STATE 2020
  - 1.3. MECHANICAL CODE OF NEW YORK STATE 2020
  - 1.4. NEW YORK STATE FUEL GAS CODE 2020
  - 1.5. FUEL GAS CODE OF NEW YORK STATE 2020
  - 1.6. NFPA 13-2016
2. WARRANTY
  - 2.1. CONTRACTOR TO PROVIDE ONE YEAR WARRANTY ON ALL EQUIPMENT AND PARTS AS WELL AS INSTALLATION. CONTRACT SHALL INCLUDE ONE YEAR OF ON-SITE SERVICE.

### 230100 EXECUTION

1. ALL CUTTING AND PATCHING OF THE BUILDING SHALL BE PERFORMED BY THE CONTRACTOR. REMOVAL OF EXISTING SYSTEMS, COMPONENTS, SUPPORTS, ETC. SHALL HAVE ALL EXISTING HOLES OR PENETRATIONS PATCHED TO MATCH THE EXISTING ADJACENT CONSTRUCTION.
2. REMOVE AND DISPOSE OF IN A LEGAL MANNER ALL CONSTRUCTION DEBRIS IDENTIFIED TO BE REMOVED. THE CONSTRUCTION AREA SHALL BE BROOM SWEEP EACH NIGHT, DO NOT LET RUBBISH ACCUMULATE.
3. ALL CONSTRUCTION MATERIAL THAT CAN BE RECYCLED SHALL BE RECYCLED. MAINTAIN ALL RECEIPTS AND SUBMIT COPIES OF THE RECEIPT TO THE ARCHITECT TO DOCUMENT THE QUANTITIES OF THE RECYCLED MATERIAL.

### 230110 O&M DATA

1. PROVIDE OPERATION AND MAINTENANCE MANUALS. REFER TO THE INDIVIDUAL SPECIFICATION SECTIONS FOR REQUIREMENTS.
2. THE O&M MANUALS SHALL INCLUDE AS-BUILT DOCUMENTATION. AS-BUILT DOCUMENTATION SHALL CONSIST OF CONTRACTOR RED-LINED CONTRACT DOCUMENTS, INCLUDE THE AS-BUILT DOCUMENTATION WITH THE O&M SUBMITTALS.

### 230200 TRAINING

1. PROVIDE TRAINING ON ALL REQUIRED SYSTEMS. REFER TO THE INDIVIDUAL SPECIFICATION SECTIONS FOR REQUIREMENTS. ALL TRAINING SHALL BE VIDEO-RECORDED. THE VIDEO RECORDING SHALL HAVE CLEAR AUDIO AND VIDEO RECORDING, THE QUALITY OF THE RECORDING SHALL BE DETERMINED BY THE ARCHITECT AND ENGINEER. ANY RECORDING THAT IS NOT ACCEPTED SHALL BE RE-RECORDED.

### 230300 ROOFING

1. ALL ROOF PENETRATIONS SHALL BE WEATHERPROOF IN ALL RESPECTS. ANY WORK DONE ON THE ROOF SHALL BE PERFORMED BY A CONTRACTOR CERTIFIED BY THE ROOF MANUFACTURER TO MAINTAIN THE EXISTING ROOF WARRANTY.

### 230500 MECHANICAL COMMON REQUIREMENTS

1. SCOPE
  - 1.1. IDENTIFICATION
2. SHOP DRAWINGS
  - 2.1. SUBMIT SHOP DRAWINGS FOR ALL ITEMS INCLUDING PRODUCT DATA AND DETAILS.
3. IDENTIFICATION
  - 3.1. DUCTWORK
    - 3.1.1. PROVIDE MULTI-COLOR PLASTIC LABELS FOR MECHANICAL ENGRAVING WITH WHITE LETTERING ON BLUE BACKGROUND.
    - 3.1.2. MINIMUM LETTER SIZE SHALL BE 1/8".
    - 3.1.3. IDENTIFY THE DUCTWORK SERVICE AS WELL AS FLOW DIRECTION.
    - 3.1.4. INSTALL DUCTWORK LABELS DIRECTLY TO DUCTWORK INSULATION EVERY 50' OR AT EACH WALL PENETRATION.
  - 3.2. EQUIPMENT
    - 3.2.1. PROVIDE MULTI-COLOR PLASTIC LABELS FOR MECHANICAL ENGRAVING WITH WHITE LETTERING ON BLACK BACKGROUND.
    - 3.2.2. MINIMUM LETTER SIZE SHALL BE 1"
    - 3.2.3. FOR AIR TERMINAL UNITS, PROVIDE A RED THUMB TACK IN THE CORNER OF THE ACOUSTIC CEILING TILE THAT PROVIDES THE BEST ACCESS TO EACH UNIT.

### 230593 TESTING, ADJUSTING, AND BALANCING

1. SCOPE
  - 1.1. CONSTANT VOLUME AIR HANDLING SYSTEMS
2. SUBMITTALS
  - 2.1. SUBMIT TAB CONTRACTOR QUALIFICATIONS.
  - 2.2. SUBMIT CERTIFIED TAB REPORTS
3. QUALITY ASSURANCE
  - 3.1. TESTING, ADJUSTING, AND BALANCING CONTRACTOR SHALL BE CERTIFIED BY THE NEBB OR AABC.
4. FOLLOW PROCEDURES IN ACCORDANCE WITH AABC'S NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCING OR NEBB'S PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS.
5. CUT INSULATION AND DUCTWORK AS REQUIRED TO OBTAIN MEASUREMENTS. PATCH AND REPAIR ALL COMPONENTS.
6. PRIOR TO BALANCING ENSURE THAT AIR FILTERS ARE IN PLACE.
7. EXAMINE ALL DUCTWORK AND DAMPERS TO ENSURE THE INSTALLATION IS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
8. DESIGN AIRFLOWS ARE STANDARD CUBIC FEET PER MINUTE. ENSURE ALL OF THE DATA IS CONVERTED TO SCFM.
9. ADJUST AIRFLOWS TO BE WITHIN +/- 10% OF THE DESIGN VALUES.
10. DOCUMENT ANY ITEMS OUT OF TOLERANCE WITH POSSIBLE CONTRIBUTING FACTORS. DOCUMENT OTHER DEFICIENCIES SUCH AS NOISE AND OTHER INSTALLATION ISSUES.
11. PREPARE AND SUBMIT FINAL REPORT TO ARCHITECT.
12. WORK WITH THE CONTROL VENDOR TO PROVIDE ANY VALUES THAT WOULD BE USEFUL FOR SETTING STATIC PRESSURE SETPOINTS AND PROVIDE TIME AS NECESSARY.
13. AFTER SUBSTANTIAL COMPLETION OF THE ENTIRE PROJECT, PROVIDE FOR ONE ADDITIONAL VISIT TO THE SITE TO SPOT CHECK AIRFLOW VALUES TO ENSURE THE SYSTEM IS OPERATING AS IT WAS BALANCED.

### 230713 DUCTWORK INSULATION

1. SCOPE
  - 1.1. PROVIDE INSULATION ON DUCTWORK IN ACCORDANCE WITH DUCT/INSULATION SCHEDULE.
2. SHOP DRAWINGS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA AND DETAILS.
3. ALL INSULATION INSTALLED INDOORS MUST MEET ASTM E 84 FLAME-SPREAD INDEX OF 25 OR LESS AND SMOKE-DEVELOPED INDEX OF 50 OR LESS. ALL INSULATION INSTALLED OUTDOORS MUST MEET ASTM E 84 FLAME-SPREAD INDEX OF 75 OR LESS AND SMOKE-DEVELOPED INDEX OF 150 OR LESS.

### 230715 DUCTWORK INSULATION

1. SCOPE
  - 1.1. PROVIDE INSULATION ON DUCTWORK IN ACCORDANCE WITH DUCT/INSULATION SCHEDULE.
2. SHOP DRAWINGS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA AND DETAILS.
3. ALL INSULATION INSTALLED INDOORS MUST MEET ASTM E 84 FLAME-SPREAD INDEX OF 25 OR LESS AND SMOKE-DEVELOPED INDEX OF 50 OR LESS. ALL INSULATION INSTALLED OUTDOORS MUST MEET ASTM E 84 FLAME-SPREAD INDEX OF 75 OR LESS AND SMOKE-DEVELOPED INDEX OF 150 OR LESS.

### 230900 DIRECT DIGITAL CONTROL SYSTEMS

1. REFER TO THESE DESIGN DRAWINGS FOR INFORMATION ON THE CONTROL SYSTEM.
2. PROVIDE ALL COMPONENTS THAT ARE REQUIRED FOR A COMPLETE INSTALLATION.
3. WORK WITH THE BALANCING CONTRACTOR TO PROVIDE ANY TIME REQUIRED FOR THE BALANCING OF THE SYSTEM.

### 233113 DUCTWORK

1. SCOPE
  - 1.1. SINGLE-WALL DUCTWORK
  - 1.2. DUCT LINER
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING DUCTWORK SHOP STANDARDS
  - 2.2. PROVIDE SHEET METAL SHOP DRAWINGS PREPARED AT LEAST 1/4" = 1'-0" SCALE COORDINATED WITH THE EXISTING CONDITIONS.
3. COMPLY WITH SMACNA STANDARDS FOR DUCT CONSTRUCTION.
4. COMPLY WITH SMACNA STANDARDS FOR DUCT SUPPORTS FOR STRAP AND ROD SIZING.
5. HANGER RODS SHALL BE CADMIUM PLATED STEEL RODS AND NUTS.
6. INSTALL DUCTWORK AS INDICATED ON APPROVED SHOP DRAWINGS.
7. COMPLY WITH SMACNA STANDARDS FOR DUCT INSTALLATION.
8. SUPPORT DUCTWORK IN ACCORDANCE WITH SMACNA STANDARDS.
9. ALL BRANCH TAKE-OFFS SHALL HAVE MANUAL VOLUME DAMPERS.
10. ALL BRANCH TAKE-OFFS SHALL BE 45-DEGREE TAKE-OFFS.
11. ALL EXPOSED DUCTWORK SHALL BE ROUND, SPIRAL-WOUND DUCT UNLESS INDICATED OTHERWISE IN DESIGN. EXPOSED DUCTWORK SHALL BE PAINTED (CONTRACTOR TO CONFIRM COLOR PRIOR TO PAINTING) AND INTERNALLY LINED.
12. REFER TO DUCT/INSULATION SCHEDULE FOR DUCT SEAL CLASSES AND PRESSURE SEAL CLASSES.
13. SEALANT SHALL BE A MAXIMUM FLAME-SPREAD INDEX OF 25 AND A MAXIMUM SMOKE-DEVELOPED INDEX OF 50 WHEN TESTED ACCORDING TO UL 723, CERTIFIED BY AN NRTL.
14. SEALANT SHALL BE A WATER-BASED JOINT AND SEAM SEALANT; BRUSH ON APPLICATION METHOD; MINIMUM 65 PERCENT SOLIDS CONTENT; MINIMUM 20 SHORE A HARDNESS; WATER RESISTANT; MOLD AND MILDEW RESISTANT; MAXIMUM 75 G/L (LESS WATER) VOC; AND COMPATIBLE WITH GALVANIZED SHEET STEEL.
15. ALL SIZES SHOWN ON THE DRAWINGS ARE CLEAR INSIDE DIMENSIONS. FOR INTERNALLY LINED DUCTWORK, INCREASE THE SIZE OF THE SHEET METAL.
16. PROVIDE INTERNALLY LINED DUCTWORK ON ALL RETURN AIR TRANSFER DUCTWORK.
17. PROVIDE INTERNALLY LINED DUCTWORK ON ALL RETURN AIR PLENUMS CONSTRUCTED ABOVE RETURN GRILLES.
18. ELBOWS SHALL BE LONG-RADIUS TYPE RATHER THAN RECTANGULAR WHERE INSTALLATION PERMITS.
19. DUCT LINER SHALL COMPLY WITH ASTM C 1071 AND SHALL BE MANUFACTURED BY JOHNS MANVILLE, KNAUF, OR OWENS CORNING.
- 19.1. LINER SHALL HAVE ANTIMICROBIAL EROSION-RESISTANT COATING.
- 19.2. LINER SHALL BE 1" THICK.

### 233300 AIR DUCT ACCESSORIES

1. SCOPE
  - 1.1. MANUAL VOLUME DAMPERS
  - 1.2. FLEXIBLE DUCTWORK
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA AND DETAILS.
  - 2.2. INCORPORATE INFORMATION INTO SHEET METAL SHOP DRAWINGS.
3. MANUAL VOLUME DAMPERS
  - 3.1. STEEL MANUAL VOLUME DAMPERS SHALL BE MANUFACTURED BY AIR BALANCE, NAILOR, OR RUSKIN.
  - 3.2. STANDARD LEAKAGE RATING.
  - 3.3. MULTIPLE- OR SINGLE-BLADE DAMPERS WITH GALVANIZED STEEL BLADES WITH OIL-IMPREGNATED BRONZE BEARINGS.
- 3.4. INSTALL MANUAL VOLUME DAMPERS AT EACH BRANCH TAKE-OFF.
- 3.5. SET MANUAL VOLUME DAMPERS TO FULLY OPEN PRIOR TO BALANCING.
4. FLEXIBLE DUCTWORK
  - 4.1. PROVIDE INSULATED FLEXIBLE DUCT, UL 181 CLASS 1, 2 PLY VINYL FILM SUPPORTED BY HELICALLY WOUND, SPRING-STEEL WIRE, FIBROUS INSULATION, POLYETHYLENE VAPOR-BARRIER FILM.
  - 4.2. PRESSURE RATING SHALL BE 10-INCH WATER GAGE POSITIVE AND 1-INCH WATER GAGE NEGATIVE.
  - 4.3. INSTALL AIR DUCT ACCESSORIES IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
  - 4.4. CONNECT FLEXIBLE DUCTWORK TO METAL DUCTWORK WITH DRAW BANDS.
  - 4.5. SUPPORT FLEXIBLE DUCTWORK IN ACCORDANCE WITH SMACNA STANDARDS.
  - 4.6. FLEXIBLE DUCTWORK SHALL NOT EXCEED 10'-0" IN LENGTH.

### 233423 HVAC POWER VENTILATORS

1. SCOPE
  - 1.1. CEILING EXHAUST FANS
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA AND DETAILS.
3. UL COMPLIANCE: POWER VENTILATORS SHALL COMPLY WITH UL 705.
4. CEILING EXHAUST FANS SHALL BE MANUFACTURED BY LOREN COOK, GREENHECK, OR TWIN CITY FAN.
- 4.1. REFER TO SCHEDULE FOR PERFORMANCE AND BASIS OF DESIGN.
- 4.2. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- 4.3. MAKE FINAL DUCT CONNECTION WITH FLEXIBLE DUCT

### CONNECTION.

### 233713 DIFFUSERS, REGISTERS, AND GRILLES

1. SCOPE
  - 1.1. DIFFUSERS AND GRILLES
2. SUBMITTALS
  - 2.1. SUBMIT SHOP DRAWINGS INCLUDING PRODUCT DATA.
3. DIFFUSERS AND GRILLES
  - 3.1. PROVIDE IN ACCORDANCE WITH THE SCHEDULE ON THE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED AT THE PROJECT SITE AND SHALL FOLLOW DRAWINGS IN LAYING OUT WORK AND SHALL CHECK DRAWINGS OF THE OTHER TRADES TO VERIFY SPACES IN WHICH WORK WILL BE INSTALLED.
  - 3.2. SHALL BE MANUFACTURED BY TITUS, PRICE, OR NAILOR.
  - 3.3. COORDINATE ARCHITECTURAL SUSPENDED CEILING GRID WITH MOUNTING BORDER PRIOR TO ORDERING.
  - 3.4. INSTALL DIFFUSERS, REGISTERS, AND GRILLES IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
  - 3.5. INSTALL DIFFUSERS, REGISTERS, AND GRILLES AS INDICATED ON APPROVED SHEET METAL SHOP DRAWINGS.
  - 3.6. ENSURE FINAL CONNECTIONS TO DIFFUSERS, REGISTERS, AND GRILLES ARE SEALED AND TIGHT.

### 237413 PACKAGED ROOFTOP UNITS

1. SCOPE
  - 1.1. PACKAGED ROOFTOP UNITS
2. SUBMITTALS
  - 2.1. PROVIDE SHOP DRAWINGS INCLUDING PRODUCT DATA
  - 2.2. PROVIDE OPERATIONS AND MAINTENANCE MANUAL
  - 2.3. PROVIDE 5 YEAR WARRANTY ON COMPRESSORS
  - 2.4. PROVIDE ONE SET OF SPARE FILTERS AND BELTS FOR EACH UNIT.
3. PACKAGED ROOFTOP UNITS
  - 3.1. SHALL BE MANUFACTURED BY AAO, CARRIER, OR TRANE.
  - 3.2. REFER TO SCHEDULE FOR PERFORMANCE DATA AND BASIS OF DESIGN.
  - 3.3. PROVIDE APPROPRIATE SUPPORTS TO WITHSTAND WIND LOADING.
  - 3.4. NATURAL GAS HEATING CONTROL VALVE SHALL BE MODULATING TYPE WITH A 15:1 TURN DOWN.
  - 3.5. COOLING SHALL HAVE TWO STAGES OF COMPRESSORS. ONE STAGE SHALL BE MODULATING VIA HOT GAS BYPASS IN ORDER TO PROVIDE CAPACITY CONTROL.
  - 3.6. UNITS SHALL HAVE HOT GAS REHEAT COIL TO PROVIDE FOR DEHUMIDIFIED AIR.
  - 3.7. UNITS SHALL HAVE SINGLE POINT ELECTRICAL POWER AND SHALL HAVE A 24 VOLT CONTROL CIRCUIT FOR INTERFACE WITH THE DDC SYSTEM.
  - 3.8. UNITS SHALL HAVE A 115 VOLT GFCI CONVENIENCE OUTLET FACTORY INSTALLED POWERED FROM A SEPARATE BRANCH CIRCUIT THAN THE UNIT.
  - 3.9. CUSTOM DDC CONTROLS SHALL BE FACTORY-MOUNTED AND WRID.
  - 3.10. THE UNIT SHALL BE EQUIPPED WITH A FACTORY INSTALLED MOTORIZED PROPORTIONAL OUTSIDE AIR DAMPER WITH WEATHERPROOF AIR INTAKE HOOD AND BIRD SCREEN.
  - 3.11. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  - 3.12. PROVIDE FLEXIBLE DUCT CONNECTIONS AT FINAL UNIT CONNECTION OF DUCTWORK.
  - 3.13. PROVIDE FOR FACTORY STARTUP OF EQUIPMENT.
  - 3.14. PROVIDE TRAINING TO PROPERTY MANAGER ON OPERATION AND MAINTENANCE OF UNIT.
  - 3.15. LABEL EACH AC UNIT AS SPECIFIED.

### 239617 ELECTRIC UNIT HEATERS

1. SCOPE
  - 1.1. ELECTRIC UNIT HEATERS
2. SUBMITTALS
  - 2.1. PROVIDE SHOP DRAWINGS INCLUDING PRODUCT DATA.
  - 2.2. PROVIDE OPERATIONS AND MAINTENANCE MANUAL.
  - 2.3. ELECTRIC UNIT HEATERS
  - 3.1. SHALL BE MANUFACTURED BY BERKO, MARLEY, OR INDECO.
3. REFER TO SCHEDULE FOR PERFORMANCE DATA AND BASIS OF DESIGN.
- 3.3. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

### 239618 AIR CURTAINS

1. SCOPE
  - 1.1. AIR CURTAINS
2. SUBMITTALS
  - 2.1. PROVIDE SHOP DRAWINGS INCLUDING PRODUCT DATA.
  - 2.2. PROVIDE OPERATIONS AND MAINTENANCE MANUAL.
3. AIR CURTAINS SHALL BE MANUFACTURED BY BERNER, MARS AIR, OR AWOCO.
  - 3.1. REFER TO SCHEDULE FOR PERFORMANCE DATA AND BASIS OF DESIGN.
  - 3.2. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

## GENERAL PROJECT REQUIREMENTS:

### 1. CONTRACT DRAWINGS AND SPECIFICATIONS:

- 1.1. CONTRACT DRAWINGS ARE GENERALLY DIAGRAMMATIC AND CONVEY THE SCOPE OF WORK AND GENERAL ARRANGEMENT OF APPARATUS AND EQUIPMENT. THE DRAWINGS DO NOT INTEND TO SHOW EVERY OFFSET AND ACCESSORY REQUIRED, NOR EVERY STRUCTURAL DIFFICULTY THAT MAY BE ENCOUNTERED.
- 1.2. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED AT THE PROJECT SITE AND SHALL FOLLOW DRAWINGS IN LAYING OUT WORK AND SHALL CHECK DRAWINGS OF THE OTHER TRADES TO VERIFY SPACES IN WHICH WORK WILL BE INSTALLED.
- 1.3. MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITIONS AT ALL POINTS.
- 1.4. IF DIRECTED BY THE GENERAL CONTRACTOR, ENGINEER, AND/OR ARCHITECT, THE SUBCONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE WORK AS NEEDED TO PREVENT CONFLICT WITH OTHER TRADES OR BEFORE PROPER EXECUTION OF THE WORK.
- 1.5. THE SPECIFICATIONS ARE INTENDED ONLY TO COMPLEMENT THE DRAWINGS; HOWEVER, WORK DETAILED AND/OR NOTED ONLY ON THE DRAWINGS OR WORK DESCRIBED ONLY IN THE SPECIFICATIONS SHALL ALL BE CONSIDERED AS PART OF THE SCOPE OF WORK.

### 2. OBTAINING INFORMATION

- 2.1. OBTAIN FROM THE MANUFACTURER THE PROPER METHOD OF INSTALLATION AND CONNECTION OF THE EQUIPMENT THAT IS TO BE FURNISHED AND INSTALLED. OBTAIN ALL INFORMATION THAT IS NECESSARY TO FACILITATE THE WORK AND TO COMPLETE THE PROJECT.

### 3. ELECTRICAL EQUIPMENT

- 3.1. ELECTRICAL COMPONENTS OF MECHANICAL EQUIPMENT AND SYSTEMS, SHALL BE PROVIDED UNDER THE RELATED SECTION OF DIVISION 23.
- 3.2. ALL ELECTRICAL EQUIPMENT INSTALLED IN CONCEALED SPACES SHALL BE PROVIDED WITH A HARD-WIRED ELECTRICAL CONNECTION. PLUG-TYPE DISCONNECTS SHALL NOT BE ALLOWED IN CONCEALED SPACES. EQUIPMENT PROVIDED WITH PLUG-IN CORDS SHALL NOT HAVE THEIR CORDS MODIFIED.

### 4. OPENINGS IN EXTERIOR WALLS OR ROOF

- 4.1. OPENINGS IN EXTERIOR WALLS OR ROOF SHALL BE KEPT PROPERLY PLUGGED AND CAULKED AT ALL TIMES, EXCEPT WHEN BEING WORKED ON TO PRECLUDE THE POSSIBILITY OF FLOODING DUE TO STORM OR OTHER AFTER COMPLETION OF WORK. OPENINGS SHALL BE PERMANENTLY SEALED AND CAULKED IN A MANNER APPROVED BY THE ARCHITECT.

### 5. BIDDER'S REPRESENTATION:

- 5.1. BY THE ACT OF SUBMITTING A BID FOR THE PROPOSED CONTRACT, THE BIDDER REPRESENTS THAT:
  - 5.1.1. THE BIDDER AND ALL SUBCONTRACTORS HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS, SPECIFICATIONS, AND OTHER CONSTRUCTION CONTRACT DOCUMENTS.
  - 5.1.2. THE BIDDER INTENDS TO USE CONTRACTORS WHO ARE LICENSED, SKILLED AND EXPERIENCED IN THE TYPE OF CONSTRUCTION REPRESENTED BY THE CONSTRUCTION CONTRACT DOCUMENTS BID UPON.
  - 5.1.3. NEITHER THE BIDDER NOR ANY OF THE BIDDER'S EMPLOYEES, AGENTS, INTENDED SUPPLIERS, OR SUBCONTRACTORS HAVE RELIED UPON ANY VERBAL REPRESENTATIONS.
  - 5.1.4. THE BID FIGURE IS BASED SOLELY UPON THE CONSTRUCTION CONTRACT DOCUMENTS AND PROPERLY ISSUED WRITTEN ADDENDA AND NOT UPON OTHER WRITTEN REPRESENTATION.

### 6. PROJECT RECORD DOCUMENTS

- 6.1. EACH CONTRACTOR SHALL RECORD CLEARLY, NEATLY, ACCURATELY AND PROMPTLY AS WORK PROGRESSES THE FOLLOWING DATA:
  - 6.1.1. CHANGES MADE RESULTING FROM CHANGE ORDERS OR INSTRUCTIONS ISSUED BY THE ARCHITECT.
  - 6.1.2. CHANGES IN ROUTING MADE TO AVOID CONFLICT WITH OTHER TRADES OR STRUCTURAL CONDITIONS.
  - 6.1.3. FINAL LOCATION OF EQUIPMENT AND PANELS IF DIFFERENT THAN CONTRACT DOCUMENTS.
- 6.2. UPON COMPLETION OF THE PROJECT SUBMIT TO THE ARCHITECT A SET OF ELECTRONIC MEDIA NOTING "AS BUILT" CONDITIONS INDICATING ALL VARIATIONS AND DEVIATIONS OF HIS WORK FROM CONTRACT DOCUMENTS.

### 7. PROTECTION

- 7.1. PROTECT ALL WORK AND MATERIAL FROM DAMAGE BY WORK AND WORKMEN, AND ACCEPT LIABILITY FOR ALL DAMAGE THUS CAUSED.
- 7.2. BE RESPONSIBLE FOR WORK AND EQUIPMENT UNTIL FINALLY INSPECTED, TESTED, AND ACCEPTED. PROTECT WORK AGAINST THEFT, INJURY OR DAMAGE, AND CAREFULLY STORE MATERIAL AND EQUIPMENT RECEIVED ON SITE, WHICH IS NOT IMMEDIATELY INSTALLED.
- 7.3. CLOSE OPEN ENDS OF WORK WITH TEMPORARY COVERS OR PLUGS DURING STORAGE AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.
- 7.4. ALL OPENINGS IN STORED & INSTALLED PIPING SHALL BE COVERED & SEALED WHEN NOT IN USE TO PREVENT CONTAMINATION FROM DUST & DEBRIS.

### 8. MATERIALS AND WORKMANSHIP

- 8.1. ALL MATERIALS AND APPARATUS REQUIRED FOR THE WORK, EXCEPT AS SPECIFICALLY SPECIFIED OTHERWISE, SHALL BE NEW, OF FIRST-CLASS QUALITY, AND SHALL BE FURNISHED, DELIVERED, ERECTED, CONNECTED AND FINISHED IN EVERY DETAIL, AND SHALL BE SO SELECTED AND ARRANGED AS TO FIT PROPERLY INTO THE BUILDING SPACES, WHERE NO SPECIFIC KIND OR QUALITY OF MATERIAL IS GIVEN, A FIRST-CLASS STANDARD ARTICLE AS APPROVED BY THE ARCHITECT SHALL BE FURNISHED.

### 8.2. FURNISH THE SERVICES OF AN EXPERIENCED FOREMAN WHO SHALL BE CONSTANTLY IN CHARGE OF THE INSTALLATION OF THE WORK, TOGETHER WITH ALL SKILLED WORKMEN, FITTERS, METAL WORKERS, WELDER, HELPERS, AND LABOR REQUIRED TO UNLOAD, TRANSFER, ERECT, CONNECT, ADJUST, START, OPERATE, AND TEST EACH SYSTEM.

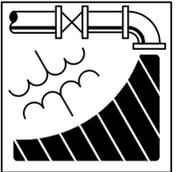
- 8.3. ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS AS WELL AS UL LISTING INSTRUCTIONS AND ALL LOCAL, STATE AND NATIONAL CODES.

### 9. ACCESSIBILITY

- 9.1. ASSURE AND BE RESPONSIBLE FOR THE ADEQUACY OF SHAFTS AND CHASES, THE ADEQUATE CLEARANCE IN DOUBLE PARTITIONS AND HUNG CEILINGS FOR THE PROPER INSTALLATION OF THE WORK.
- 9.2. COOPERATE WITH ALL OTHER TRADES WHOSE WORK IS IN THE SAME SPACE. SUCH SPACES SHALL HOWEVER, BE KEPT TO THE MINIMUM SIZE REQUIRED.
- 9.3. LOCATE ALL EQUIPMENT, WHICH MUST BE SERVICED, OPERATED, ADJUSTED OR MAINTAINED IN FULLY ACCESSIBLE POSITIONS. EQUIPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO, VALVES, TRAPS, CLEANOUTS, MOTORS, CONTROLLERS, STRAINERS, RPZs, TRAP PRIMERS, WATER HAMMER ARRESTORS, AND DRAINS. IF REQUIRED FOR BETTER ACCESSIBILITY, FURNISH ACCESS DOORS FOR THIS PURPOSE. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ALLOW FOR BETTER ACCESSIBILITY, AND THE ENGINEER SHALL APPROVE ANY CHANGE.

### 10. CUTTING AND PATCHING

- 10.1. PROVIDE ALL CUTTING AND PATCHING NECESSARY TO INSTALL THE WORK SPECIFIED IN THIS DIVISION. PATCHING SHALL MATCH ADJACENT SURFACES. AT FLOOR SLABS & WALL OPENINGS TO BE CORED DRILLED OR CUT, CONTRACTOR SHALL FIND AND MARK ON BOTH FACES ALL REINFORCING, REBAR, CONDUITS, UTILITIES, ETC. BY MEANS OF X-RAY, PACI-O-METER OR PROF-O-METER. SUBMIT SKETCH SHOWING LOCATIONS OF ALL FINDINGS AND PROPOSED CUTS OR CORES.
- 10.2. NO STRUCTURAL MEMBERS SHALL BE CUT WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER, AND ALL SUCH CUTTING SHALL BE ACCOMPLISHED IN A MANNER DIRECTED BY THE STRUCTURAL ENGINEER.



## ENGINEERING DRIVEN DESIGN PC

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## FRED ASTAIRE DANCE STUDIO

320 NJ-33  
MANALAPAN, NJ 07726

### OWNER/CLIENT

FRED ASTAIRE DANCE STUDIO  
320 NJ-33  
MANALAPAN, NJ 07726

### ARCHITECT

JASON PEIST ARCHITECT, LLC  
171 BROAD STREET  
MATAWAN, NJ 07747

## MECHANICAL SPECIFICATIONS

### MECHANICAL SHEET LIST

SHEET NUMBER	SHEET TITLE
M-000	MECHANICAL SPECIFICATIONS
M-001	MECHANICAL SCHEDULES
M-100	MECHANICAL PLAN
M-200	MECHANICAL BASEMENT PLAN
M-300	MECHANICAL DETAILS

02/02/2026	ISSUED FOR CONSTRUCTION
MARK	DATE DESCRIPTION

### SHEET ISSUE INFORMATION

PROJECT NUMBER: 25-0115

CONTRACT DATE: 08/26/2025

DRAWN BY: RM

CHECKED BY: JNB

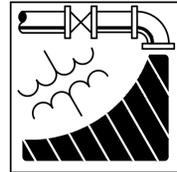
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### SHEET MANAGEMENT DATA

## MECHANICAL SPECIFICATIONS

### SHEET TITLE BLOCK





**ENGINEERING DRIVEN DESIGN PC**

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**Mechanical Compliance Certificate**

**Project Information**

Energy Code: 90.1 (2019) Standard  
Project Title: 25-0118 FRED ASTAIRE DANCE STUDIO  
Location: Freehold, New Jersey  
Climate Zone: 4a  
Project Type: Alteration

Construction Site: \_\_\_\_\_ Owner/Agent: \_\_\_\_\_ Designer/Contractor: \_\_\_\_\_

**Mechanical Systems List**

Quantity	Component	Description
1	RTU-1.2	Heating: 1 each - Central Furnace (RTU-1.2), Gas, Capacity = 90 MBtu/h Proposed Efficiency = 81.00% E <sub>f</sub> , Required Efficiency = 80.00% E <sub>f</sub> (or 80% AFUE) Cooling: 1 each - Single Package DX Unit (RTU-1.2), Capacity = 60 MBtu/h, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 16.80 SEER2, Required Efficiency = 13.40 SEER2 Proposed Part Load Efficiency = 1.50, Required Part Load Efficiency = 1.50 Fan System: RTU-1.2 - Compliance (Motor nameplate HP and fan efficiency method) - Passes Fan: SE Supply, Single-Zone VAV, 2000 CFM, 3.0 motor nameplate hp, 0.00 fan energy index. Fan exception: Part of code listed equipment. SYSTEM VERIFICATION REQUIRED.

**Mechanical Compliance Statement**

The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other Compliance Statement calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2019) Standard requirements in COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

Report Title: 25-0118 FRED ASTAIRE DANCE STUDIO Report Date: 1/26/25 2:52 PM 2 of 11

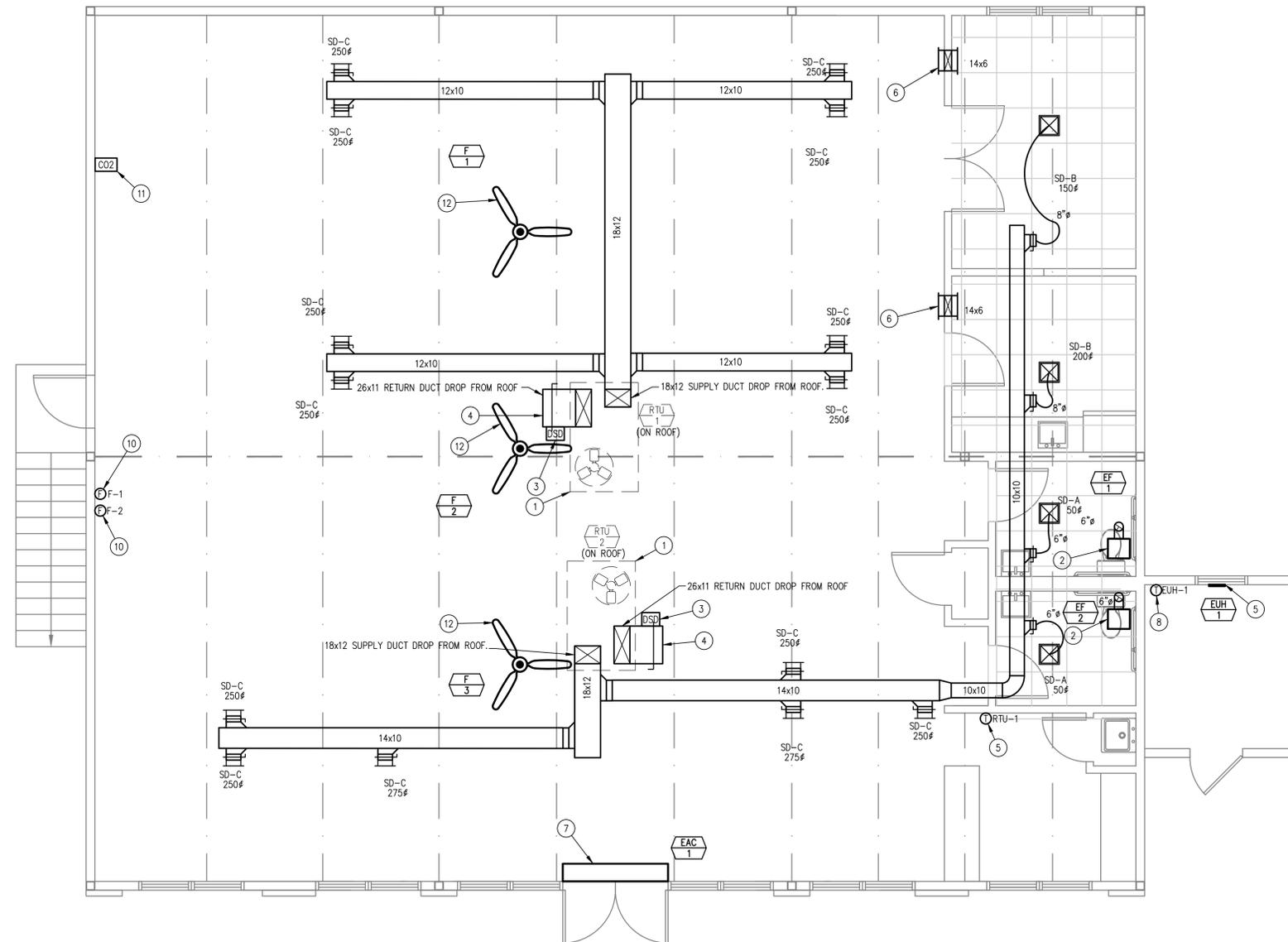
**FRED ASTAIRE DANCE STUDIO**

320 NJ-33  
MANALAPAN, NJ 07726

**OWNER/CLIENT**  
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**ARCHITECT**  
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MECHANICAL PLAN



**1 MECHANICAL PLAN**  
1/8"=1'-0"

**GENERAL NOTES:**

- COORDINATE ALL PHASING WITH ALL CONTRACTORS.
- PATCH AND SEAL EXISTING OPENINGS THAT ARE OBSOLETE FROM THE DEMOLITION.
- BALANCE ALL DIFFUSERS IN ACCORDANCE WITH THE VALUES SHOWN ON THIS PLAN.
- TAKE DOWN CEILING, LIGHTS, SPRINKLERS, ETC. AS REQUIRED TO INSTALLATION OF EQUIPMENT, AND DUCTWORK.
- PAINT ALL EXPOSED DUCTWORK AND DIFFUSERS. COORDINATE WITH ARCHITECT.

**DRAWING KEYED NOTES:**

- PROVIDE ROOFTOP UNIT ON 14-INCH ROOF CURB.
- PROVIDE CEILING EXHAUST FAN. ROUTE DUCTWORK TO ROOF. TERMINATE WITH GOOSENECK. REFER TO DETAIL 5/M-300. PROVIDE GRAVITY BACKDRAFT DAMPER.
- INSTALL DUCT MOUNTED SMOKE DETECTOR. FURNISHED BY FIRE ALARM CONTRACTOR.
- PROVIDE 90 DEGREE RETURN DUCT, TERMINATE WITH A WIRE MESH SCREEN AND VOLUME DAMPER.
- PROVIDE THERMOSTAT ON WALL.
- PROVIDE INDUSTRIAL ACOUSTICS COMPANY TYPE W MODEL 414 IN WALL. COORDINATE FINAL LOCATION WITH ARCHITECT.
- PROVIDE WALL MOUNTED ELECTRIC HEATED AIR CURTAIN 8' ABOVE FINISHED FLOOR. COORDINATE WITH EXIT SIGNS.
- PROVIDE WALL MOUNTED ELECTRIC UNIT HEATER.
- PROVIDE CEILING MOUNTED DESTRATIFICATION FAN.
- PROVIDE FAN CONTROLLER ON WALL.
- PROVIDE CARBON DIOXIDE SENSOR ON WALL.
- PROVIDE FAN SUPPORTED FROM CEILING.

02/02/2026	ISSUED FOR CONSTRUCTION
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MARK	DATE	DESCRIPTION
<b>SHEET ISSUE INFORMATION</b>		
PROJECT NUMBER:	25-0115	
CONTRACT DATE:	08/26/2025	
DRAWN BY:	RM	
CHECKED BY:	JNB	
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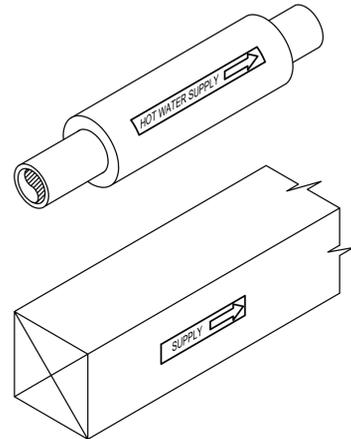
**SHEET MANAGEMENT DATA**

**MECHANICAL PLAN**

**SHEET TITLE BLOCK**

**M-100**  
SHEET 8 OF 17





**DUCTWORK IDENTIFICATION NOTES:**

1. PROVIDE MULTI-COLOR PLASTIC LABELS FOR MECHANICAL ENGRAVING WITH WHITE LETTERING ON BLUE BACKGROUND.
2. MINIMUM LETTER SIZE SHALL BE 1/8".
3. IDENTIFY THE DUCTWORK SERVICE AS WELL AS FLOW DIRECTION.
4. INSTALL DUCTWORK LABELS DIRECTLY TO DUCTWORK INSULATION EVERY 50' OR AT EACH WALL PENETRATION.
5. PROVIDE LABELS ON BOTH SIDES OF DUCTWORK.

**PIPING IDENTIFICATION NOTES:**

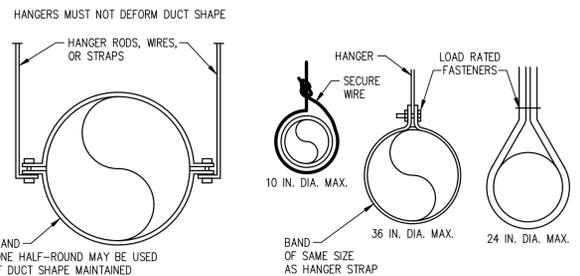
1. PROVIDE SELF-ADHESIVE PIPE LABELS THAT INCLUDES COLOR-CODING FOR EACH SYSTEM, FLOW DIRECTION ARROWS, AND LETTERING AT LEAST 1" HIGH.
2. PROVIDE SELF-ADHESIVE PIPE LABELS EVERY 50 FEET, NEAR EACH BRANCH CONNECTION AND PENETRATIONS OF WALLS OR FLOORS. PROVIDE LABELS WHERE VISIBLE FROM ACCESS PANELS THAT PROVIDE ACCESS TO SPACES ABOVE CEILINGS OR WITHIN WALLS.

**EQUIPMENT IDENTIFICATION NOTES:**

1. PROVIDE MULTI-COLOR PLASTIC LABELS FOR MECHANICAL ENGRAVING WITH WHITE LETTERING ON BLACK BACKGROUND.
2. MINIMUM LETTER SIZE SHALL BE 1"

**1 TYPICAL DUCTWORK AND PIPING IDENTIFICATION**

NOT TO SCALE

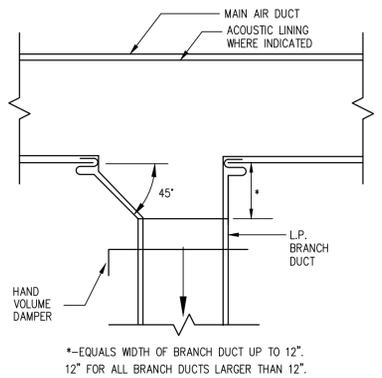


DUCT DIAMETER	MAX. SPACING	WIRE DIA.	ROD DIA.	STRAP
UP TO 10"	12'-0" O.C.	ONE 12 GA	1/4"	1" x 22 GA
11" TO 18"	12'-0" O.C.	TWO 12 GA	1/4"	1" x 22 GA
19" TO 24"	12'-0" O.C.	TWO 10 GA	1/4"	1" x 22 GA
25" TO 36"	12'-0" O.C.	TWO 8 GA	3/8"	1" x 20 GA

SUPPORT VERTICAL DUCTWORK EVERY 10- FEET WITH ONE SUPPORT MINIMUM

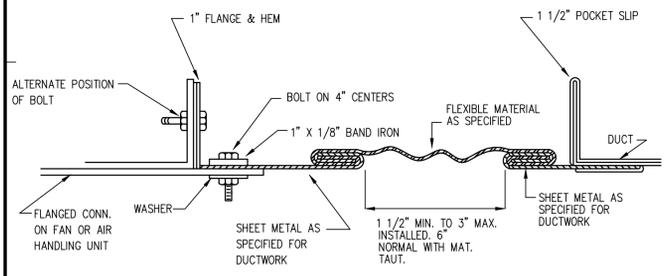
**2 TYPICAL DUCTWORK SUPPORT SCHEDULE**

NOT TO SCALE



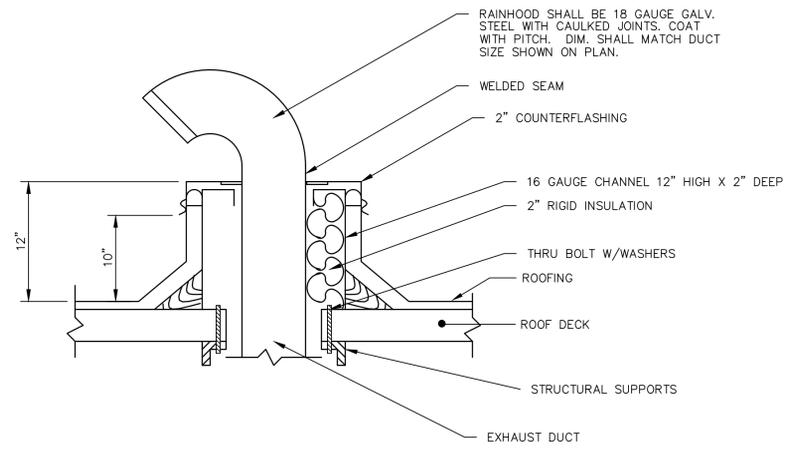
**3 TYPICAL BRANCH DUCT TAKE-OFF**

NOT TO SCALE



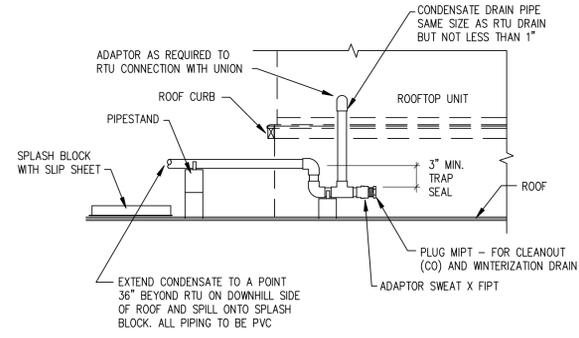
**4 FLEXIBLE DUCTWORK CONNECTION DETAIL**

NOT TO SCALE



**5 GOOSENECK DETAIL - EXHAUST DUCTWORK**

NOT TO SCALE



**6 ROOFTOP EQUIPMENT CONDENSATE PIPING DETAIL**

NOT TO SCALE

**RTU-1 SEQUENCE OF OPERATION**

RUN CONDITIONS - SCHEDULED:  
THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES:

**OCCUPIED MODE:** THE UNIT SHALL MAINTAIN

- A 75F (ADJ.) COOLING SETPOINT
- A 70F (ADJ.) HEATING SETPOINT.

**UNOCCUPIED MODE (NIGHT SETBACK):** THE UNIT SHALL MAINTAIN

- A 85F (ADJ.) COOLING SETPOINT.
- A 60F (ADJ.) HEATING SETPOINT.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).
- HIGH ZONE HUMIDITY: IF THE ZONE HUMIDITY IS GREATER THAN THE HUMIDITY SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

**ZONE SETPOINT ADJUST:**  
THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINTS AT THE ZONE SENSOR.

**OPTIMAL START:**  
THE UNIT SHALL START PRIOR TO SCHEDULED OCCUPANCY BASED ON THE TIME NECESSARY FOR THE ZONES TO REACH THEIR OCCUPIED SETPOINTS. THE START TIME SHALL AUTOMATICALLY ADJUST BASED ON CHANGES IN OUTSIDE AIR TEMPERATURE AND ZONE TEMPERATURES.

- THE NATURAL GAS HEATING COIL SHALL BE USED TO PROVIDE HEATING DURING OPTIMAL START WHEN THE OUTDOOR AIR TEMPERATURE IS LESS THAN 55F (ADJ.).
- THE DX COOLING COIL SHALL BE USED TO PROVIDE COOLING DURING OPTIMAL START WHEN THE OUTDOOR AIR TEMPERATURE IS GREATER THAN 60F (ADJ.).

**ZONE UNOCCUPIED OVERRIDE:**  
A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE

SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.

**SUPPLY FAN:**  
THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- SUPPLY FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
- SUPPLY FAN VFD FAULT

**MECHANICAL COOLING:**  
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE AND STAGE THE COOLING TO MAINTAIN ITS COOLING SETPOINT. TO PREVENT SHORT CYCLING, THE STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

THE COOLING SHALL BE ENABLED WHENEVER:

- THE UNIT IS IN OPTIMAL START MODE OR;
- OUTSIDE AIR TEMPERATURE IS GREATER THAN 60F (ADJ.).
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE HEATING IS NOT ACTIVE.

**NATURAL GAS HEATING:**  
THE CONTROLLER SHALL MEASURE THE ZONE AIR TEMPERATURE AND STAGE THE HEATING TO MAINTAIN ITS HEATING SETPOINT.

THE HEATING SHALL BE ENABLED WHENEVER:

- THE UNIT IS IN OPTIMAL START MODE OR;
- OUTSIDE AIR TEMPERATURE IS LESS THAN 55F (ADJ.).
- AND THE SUPPLY FAN STATUS IS ON.

- AND THE COOLING COIL IS NOT ACTIVE.

**ECONOMIZER:**  
THE CONTROLLER SHALL MEASURE THE DIFFERENCE IN ENTHALPY BETWEEN THE OUTDOOR AIR AND RETURN AIR. WHILE IN ECONOMIZER MODE, THE ECONOMIZER DAMPER SHALL MODULATE TO MEET THE COOLING DEMAND AND ZONE AIR TEMPERATURE SETPOINT UNTIL THE DAMPERS ARE IN THE 100% OPEN POSITION. IF THE DAMPER IS FULLY OPENED AND THE COOLING DEMAND HAS NOT BEEN MET, THE MECHANICAL COOLING SHALL BE USED IN CONJUNCTION WITH THE MODULATING OF THE ECONOMIZER DAMPERS.

THE OUTSIDE AIR DAMPER SHALL MODULATE PER THE CO2 CONTROL DESCRIBED LATER, WHENEVER OCCUPIED.

THE ECONOMIZER SHALL BE ENABLED WHENEVER:

- THERE IS A DEMAND FOR COOLING;
- AND THE OUTSIDE AIR ENTHALPY IS LESS THAN THE RETURN AIR ENTHALPY.
- AND THE SUPPLY FAN STATUS IS ON.

**DAMPERS:**  
THE OUTDOOR AIR DAMPER SHALL ALWAYS OPEN TO PROVIDE MINIMUM OUTSIDE AIR VENTILATION ANYTIME THE UNIT IS OCCUPIED. THE DAMPER SHALL ALSO MODULATE IN ACCORDANCE WITH THE DEMAND CONTROL VENTILATION SECTION OF THIS SEQUENCE. IF OPTIMAL START UP IS AVAILABLE AND WHENEVER THE UNIT IS IN UNOCCUPIED MODE, THE OUTSIDE AIR DAMPER SHALL FULLY CLOSE AND THE RETURN AIR DAMPER SHALL FULLY OPEN.

**FILTER DIFFERENTIAL PRESSURE MONITOR:**  
THE CONTROLLER SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- FILTER CHANGE REQUIRED: FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT MEASURED IN INCHES OF WATER COLUMN (ADJ.).

**SUPPLY AIR TEMPERATURE:**  
THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- HIGH SUPPLY AIR TEMP: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 90F (ADJ.).

- LOW SUPPLY AIR TEMP: IF THE RETURN AIR TEMPERATURE IS LESS THAN 45F (ADJ.).

**DEMAND CONTROL VENTILATION (CO2) CONTROL:**  
THE CONTROLLER SHALL MONITOR THE LEVEL OF CO2 RETURNING TO THE UNIT DURING OCCUPIED MODE.

THE CONTROLLER SHALL FULLY MODULATE THE OUTDOOR AIR DAMPER BETWEEN TWO BALANCED POSITIONS BASED ON THE LEVEL OF CO2 MEASURED.

- THE MINIMUM OPEN POSITION SHALL BE BALANCED TO PROVIDE THE MINIMUM VENTILATION AS SCHEDULED. THE FULLY OPEN POSITION SHALL BE BALANCED TO PROVIDE THE MAXIMUM VENTILATION AS SCHEDULED.
- THE MINIMUM AND MAXIMUM DAMPER POSITIONS SHALL CORRESPOND TO A MINIMUM (ADJ.) AND MAXIMUM (ADJ.) CO2 MEASUREMENT (UNITS: PPM).

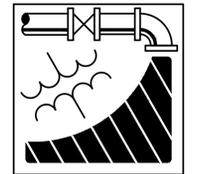
**CONDENSATE OVERFLOW DETECTION:**  
THE CONTROLLER SHALL MONITOR THE LEVEL OF CONDENSATE IN THE COOLING COIL DRAIN PAN UPON DETECTION OF CONDENSATE OVERFLOW, THE CONTROLLER SHALL FULLY DISABLE MECHANICAL COOLING. A MANUAL RESET AT THE REMOTE OPERATOR WORKSTATION SHALL BE PROVIDED TO RE-ENABLE COOLING OPERATIONS.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- CONDENSATE OVERFLOW: IF THE CONDENSATE IN THE DRAIN PAN OVERFLOWS.

**RETURN AIR AND OUTDOOR AIR TEMPERATURE AND HUMIDITY:**  
THE CONTROLLER SHALL MONITOR THE RETURN AIR AND OUTDOOR AIR TEMPERATURE AND HUMIDITY AND USE AS REQUIRED FOR DIFFERENTIAL ENTHALPY ECONOMIZER CONTROL.

**RETURN AIR SMOKE DETECTION:**  
THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A RETURN AIR SMOKE DETECTOR STATUS.



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MECHANICAL DETAILS

MARK	DATE	DESCRIPTION
	02/02/2026	ISSUED FOR CONSTRUCTION

**SHEET ISSUE INFORMATION**

PROJECT NUMBER: 25-0115  
CONTRACT DATE: 08/26/2025  
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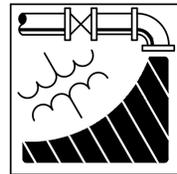
**MECHANICAL DETAILS**

**SHEET TITLE BLOCK**

**M-300**  
SHEET 10 OF 17







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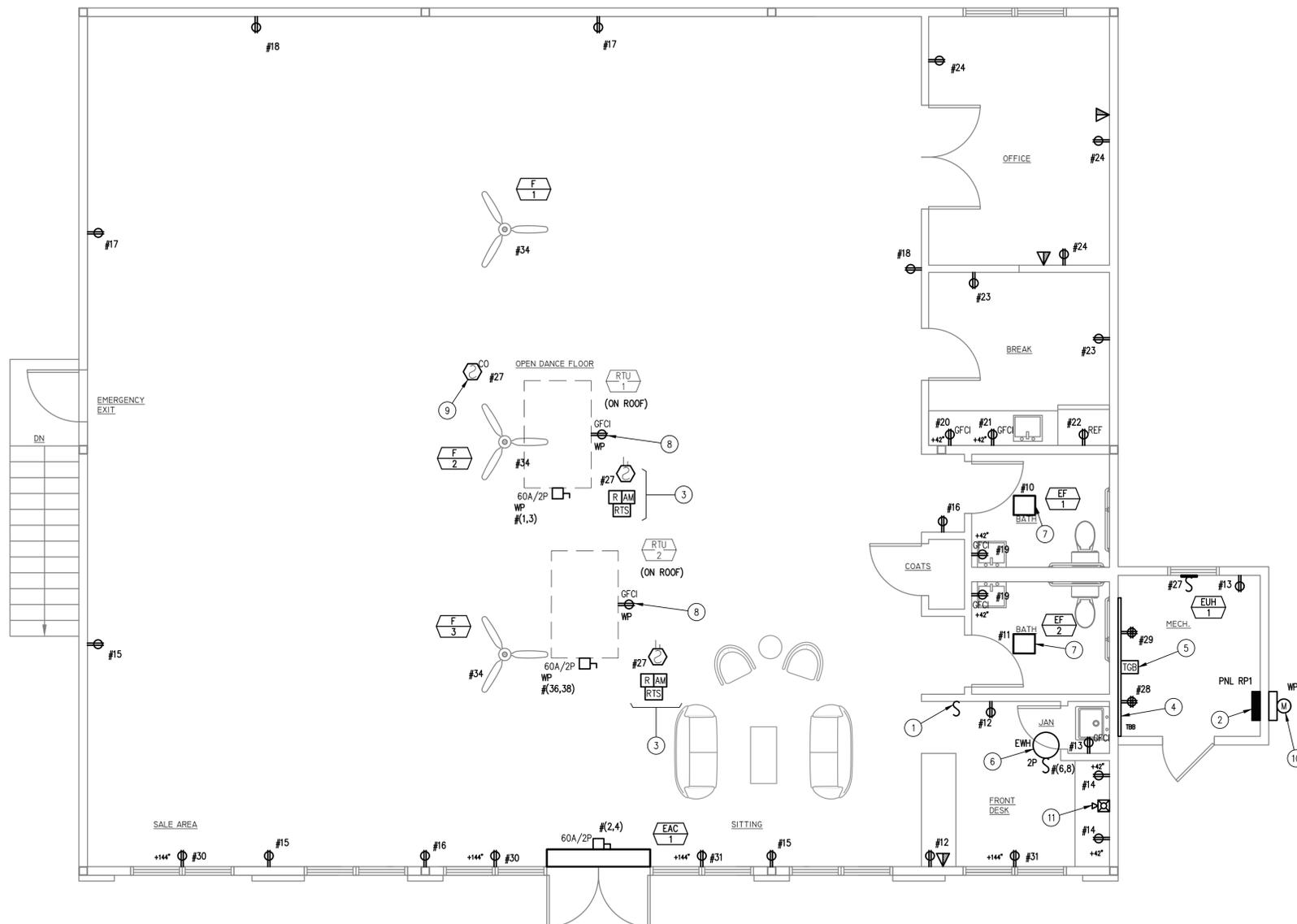
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**1 ELECTRICAL POWER PLAN**  
1/4" = 1'-0"

**DRAWING KEYED NOTES:**

- 1 PROVIDE SNAP SWITCH FOR CONTROL OF CEILING FANS WITHIN SPACE.
- 2 PROVIDE PANELBOARD RP1. COORDINATE FINAL LOCATION IN FIELD.
- 3 FURNISH STANDALONE DUCT SMOKE DETECTOR TO MECHANICAL CONTRACTOR FOR INSTALLATION IN RETURN DUCTWORK. PROVIDE SHUTDOWN RELAY, ADDRESSABLE MODULE AND ANY OTHER APPURTENANCES REQUIRED TO CONNECT AC UNIT TO STANDALONE CONTROL STATION FOR SHUTDOWN OPERATION. COORDINATE EXACT REQUIREMENTS WITH MECHANICAL CONTRACTOR AND HORN STROBE MANUFACTURER.
- 4 PROVIDE 8-FOOT BY 4-FOOT PLYWOOD BACKBOARD FOR TELECOMMUNICATIONS DEMARCATION.
- 5 PROVIDE #6 AWG GROUND EXOTHERMICALLY WELDED TO BUILDING STEEL FOR GROUNDING OF TELECOMMUNICATIONS GROUND BUS.
- 6 PROVIDE POWER AND DISCONNECT SWITCH FOR ELECTRIC WATER HEATER. COORDINATE EXACT REQUIREMENTS WITH PLUMBING CONTRACTOR.
- 7 TIE BATHROOM EXHAUST FAN INTO LIGHTING CONTROL DEVICE. PROVIDE ALL NECESSARY APPURTENANCES AS REQUIRED TO ACCOMMODATE SCOPE OF WORK.
- 8 RTU-1 CONVENIENCE RECEPTACLE IS INTEGRAL TO THE UNIT AND IS FACTORY POWERED.
- 9 CARBON MONOXIDE DETECTORS IN OPEN CEILING SHALL BE STEM MOUNTED. STEM SHALL BE PAINTED SAME COLOR AS OPEN CEILING.
- 10 PROVIDE NEW WEATHERHEAD AND METER PAN FOR REPLACEMENT ELECTRICAL SERVICE. REFER TO SINGLE LINE DRAWING FOR MORE INFORMATION.
- 11 PROVIDE STANDALONE BATTERY POWERED FIRE ALARM HORN/STROBE. DEVICE SHALL BE MOUNTED IN A WELL ATTENDED LOCATION. COORDINATE FINAL MOUNTING LOCATION IN FIELD AND WITH OWNER.

**GENERAL NOTES:**

1. ALL POWER IN SPACE SHALL BE DERIVED BY PANELBOARD RP1 UNLESS OTHERWISE NOTED.
2. ALL RECEPTACLES SHALL BE OF TAMPER RESISTANT TYPE.
3. CONTRACTOR SHALL CARRY AN ALLOWANCE TO DELEGATE AND TEST EMERGENCY RESPONDER RADIO COVERAGE AND BI-DIRECTIONAL AMPLIFIERS.

02/02/2026	ISSUED FOR CONSTRUCTION
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MARK	DATE	DESCRIPTION
<b>SHEET ISSUE INFORMATION</b>		
PROJECT NUMBER:	25-0115	
CONTRACT DATE:	08/26/2025	
DRAWN BY:	DP	
CHECKED BY:	JNB	
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**SHEET MANAGEMENT DATA**

**ELECTRICAL FIRST FLOOR POWER PLAN**

**SHEET TITLE BLOCK**

**E-200**  
SHEET 13 OF 17





# 1 ELECTRICAL LIGHTING PLAN

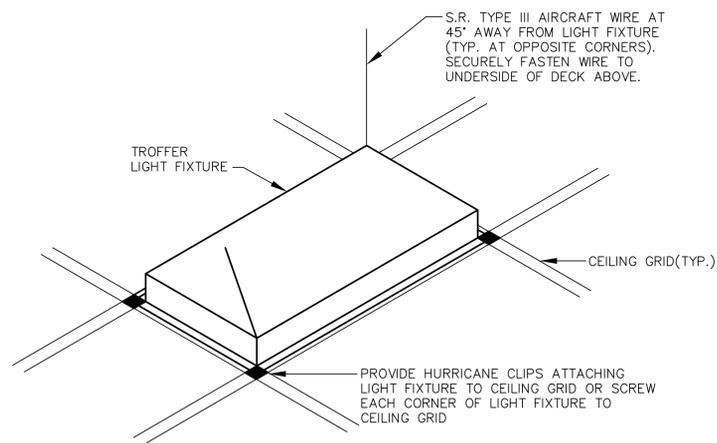
1/4" = 1'-0"

## GENERAL NOTES:

- ALL POWER IN SPACE SHALL BE DERIVED BY PANELBOARD RP1 UNLESS OTHERWISE NOTED. REFER TO 1/E-100 FOR LOCATION OF PANELBOARD.

## DRAWING KEYED NOTES:

- SENSOR IN OPEN CEILING SHALL BE STEM MOUNTED. STEM SHALL BE PAINTED SAME COLOR AS OPEN CEILING.
- PROVIDE ROOM CONTROLLER IN ACCESSIBLE AREA. COORDINATE FINAL LOCATION IN FIELD.
- THE BATHROOM EXHAUST FAN INTO LIGHTING CONTROL DEVICE. PROVIDE ALL NECESSARY APPURTENANCES AS REQUIRED TO ACCOMMODATE SCOPE OF WORK.



## 2 RECESSED LIGHTING FIXTURE SUPPORT DETAIL

NOT TO SCALE

LIGHTING FIXTURE SCHEDULE								GENERAL NOTES: 5,6	
TAG/SYMBOL	BASIS OF DESIGN		DESCRIPTION	VOLTAGE	WATTS	LUMENS	CRI/TEMP.	NOTES	
	MAKE	MODEL							
A	MODERN	W15993816	18 BULB ORBIT CHANDELIER; 44" WIDE	120V	450	3600	80/2700K	NOTES 4,7	
B	JONATHAN LIGHTING	JYL9536A	13" WIDE LED PENDANT FIXTURE	120V	9	800	80/2700K	NOTE 4	
C	RUN BISON	HT-US-SDPLS-22/277-8403-1351	2'X2' LED FLAT PANEL	120V	40	4400	80/3500K	NOTES -	
D	COLUMBIA	MPS4-35VW-CW-EDU	SURFACE MOUNTED 4' LINEAR STRIP LIGHT	120V	20.5	3271	80/3500K	NOTES -	
	DUALITE	EVO	WEATHERPROOF OUTDOOR REMOTE HEAD EMERGENCY LIGHTING UNIT	120V	-	N/A	N/A	NOTE 3	
	DUALITE	EVC-U-R-W-I	COMBINATION EXIT SIGN AND EMERGENCY LIGHTING UNIT WITH INTEGRAL BATTERY PACK	120V	1.65/2.42	N/A	N/A	NOTE 1	
	EVENLITE	TCL4-W-SD	WALL MOUNTED EMERGENCY LIGHTING UNIT	120V	2.4	N/A	N/A	NOTE 2	
	CURRENT	TRP1-24-15-3K8-3-120-PC-EH	SURFACE MOUNTED EXTERIOR EMERGENCY LIGHT	120V	15	N/A	80/3000K	NOTE 2	

**LIGHTING FIXTURE SCHEDULE NOTES:**

- PROVIDE EXIT SIGN WITH ILLUMINATED FACES BASED ON SHADED QUADRANTS. PROVIDE ARROWS AS REQUIRED. INTEGRAL BATTERY SHALL PROVIDE FOR AT LEAST 90 MINUTE ILLUMINATION UPON FAILURE OF POWER.
- PROVIDE WALL-MOUNTED EMERGENCY LIGHTING UNIT WITH INTEGRAL BATTERY THAT SHALL PROVIDE FOR AT LEAST 90 MINUTE ILLUMINATION UPON FAILURE OF POWER.
- PROVIDE REMOTE EMERGENCY LIGHTING UNIT POWERED FROM ADJACENT EXIT SIGN OR EMERGENCY LIGHTING UNIT. PROVIDE 2#12, #12G-3/4" C AND WIRE TO ADJACENT FIXTURE.
- CORD FED FIXTURES SHALL HAVE CORD TIE WRAPPED TO AIRCRAFT CABLE.
- PROVIDE ALL NECESSARY MOUNTING HARDWARE, COMPONENTS, AND LED DRIVERS.
- PROJECT TO INCLUDE MULTIPLE CEILING AND TILE TYPES. COORDINATE FIXTURE MOUNTING WITH CEILING SHOP DRAWINGS.
- CHANDELIER BULBS SHALL BE 25 WATT DIMMABLE E12 CANDELABRA EQUIVALENT BULBS.

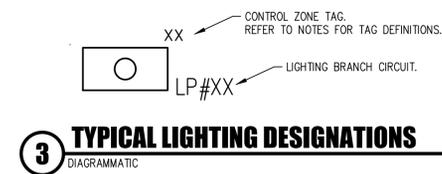
AUTOMATIC LIGHTING CONTROL SCHEDULE							
TAG	BASIS OF DESIGN		DESCRIPTION	SENSOR	VOLT.	NOTES	
	MAKE	MODEL					
S <sup>x</sup> <sub>OS</sub>	NX	LHMTS SERIES	LINE VOLTAGE DUAL TECHNOLOGY OCCUPANCY WALL SWITCH/SENSOR	PIR/US	120/277V	2	
S <sup>x</sup> <sub>OS</sub>	NX	LHDMMTS SERIES	LINE VOLTAGE DUAL TECHNOLOGY OCCUPANCY WALL SWITCH/SENSOR WITH 0-10V DIMMING	PIR/US	120/277V	1	
S <sup>x</sup> <sub>D</sub>	NX	NX-ORLO SERIES	LOW VOLTAGE WALL SWITCH FOR 0-10V DIMMING	---	24V	5	
S <sup>x</sup> <sub>#</sub>	NX	NXSW2 SERIES	LOW VOLTAGE WALL SWITCH FOR 0-10V DIMMING	---	24V	7	
OS	NX	NXSMOT-OMNI SERIES	LOW VOLTAGE DUAL TECHNOLOGY OCCUPANCY CEILING SENSOR	PIR/US	24V	2,4,6	
PP	NX	NXRFCX2 SERIES	ROOM CONTROLLER WITH 0-10V DIMMING	---	120/277V	5	

**AUTOMATIC LIGHTING CONTROL SCHEDULE NOTES:**

- PROVIDE LOW VOLTAGE DIMMING POWERPACKS AS REQUIRED. NX MODEL: NXRFCX2.
- PROVIDE SENSOR WITH AUTO ON MODE SELECTED.
- PROVIDE SENSOR WITH MANUAL ON MODE SELECTED.
- PROVIDE CAT6 WIRING FROM SENSORS TO POWER PACKS AS REQUIRED.
- PROVIDE WIRING FOR ALL 0-10V DIMMED FIXTURES AS REQUIRED.
- PROVIDE ALL LIGHTING CONTROL SWITCHES AND SENSORS WITH WHITE FINISH.
- SWITCH '#' DESIGNATION INDICATES NUMBER OF SWITCH ZONES TO BE CONTROLLED ON/OFF WITH DIMMING.

GENERAL NOTES: 1,6

LIGHTING CONTROL SEQUENCE OF OPERATION		
REQUIRED CONTROL OPERATION	DESCRIPTION	
1 RESTRICTED TO MANUAL ON	NONE OF THE LIGHTING SHALL BE AUTOMATICALLY TURNED ON.	
2 RESTRICTED TO PARTIAL AUTOMATIC ON	NO MORE THAN 50% OF THE TOTAL LIGHTING POWER FOR THE GENERAL LIGHTING SHALL BE ALLOWED TO AUTOMATICALLY TURNED ON.	
3 BILEVEL LIGHTING CONTROL	THE GENERAL LIGHTING SHALL BE CONTROLLER SO AS TO PROVIDE CONTINUOUS DIMMING IN ADDITION TO FULL-ON AND FULL-OFF OPERATIONS.	
4 AUTOMATIC DAYLIGHT RESPONSIVE CONTROLS FOR PRIMARY SIDELIGHTING AREA	GENERAL LIGHTING WITHIN PRIMARY SIDELIGHTED AREAS SHALL BE CONTROLLED VIA PHOTOCONTROLS. PHOTOCONTROLS SHALL CALIBRATE LIGHTING POWER VIA CONTINUOUS DIMMING OPERATION.	
5 AUTOMATIC DAYLIGHT RESPONSIVE CONTROLS FOR SECONDARY SIDELIGHTING AREAS	GENERAL LIGHTING WITHIN SECONDARY SIDELIGHTED AREAS SHALL BE CONTROLLED VIA PHOTOCONTROLS. PHOTOCONTROLS FOR SECONDARY SIDELIGHTED AREAS SHALL BE INDEPENDENT OF CONTROLS USED FOR PRIMARY SIDELIGHTED AREAS. PHOTOCONTROLS SHALL CALIBRATE LIGHTING POWER VIA CONTINUOUS DIMMING OPERATION.	
6 AUTOMATIC DAYLIGHT RESPONSIVE CONTROLS FOR TOPLIGHTING	GENERAL LIGHTING WITHIN PRIMARY TOPLIGHTED AREAS SHALL BE CONTROLLED VIA PHOTOCONTROLS. PHOTOCONTROLS SHALL CALIBRATE LIGHTING POWER VIA CONTINUOUS DIMMING OPERATION.	
7 AUTOMATIC PARTIAL OFF	THE GENERAL LIGHTING POWER SHALL BE AUTOMATICALLY BY AT LEAST 50% WITHIN 20 MINUTES OF ALL OCCUPANTS LEAVING SPACE.	
8 AUTOMATIC FULL OFF	ALL LIGHTING FIXTURES WITHIN SPACE SHALL BE AUTOMATICALLY SHUT OFF WITHIN 20 MINUTES OF ALL OCCUPANTS LEAVING SPACE.	
9 SCHEDULED SHUTOFF	ALL LIGHTING WITHIN SPACE SHALL BE AUTOMATICALLY SHUT OFF DURING PERIODS WHEN THE SPACE IS SCHEDULED TO BE UNOCCUPIED.	

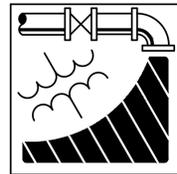


## 3 TYPICAL LIGHTING DESIGNATIONS

DIAGRAMMATIC

### TYPICAL LIGHTING CONTROL DESIGNATION NOTES:

- CONTROL ZONE TAGS:  
a,b,c... - SWITCH ZONE TAG - LOWER CASE DESIGNATION  
a/p, b/p, c/p... - DAYLIGHT RESPONSIVE CONTROL PRIMARY ZONE TAG  
a/s, b/s, c/s... - DAYLIGHT RESPONSIVE CONTROL SECONDARY ZONE TAG  
DAYLIGHT RESPONSIVE CONTROL ZONES, BOTH PRIMARY AND SECONDARY, SHALL BE SWITCHED WITH FIXTURES WITH THE SAME SWITCH ZONE TAG DESIGNATION IN ADDITION TO AUTOMATIC DIMMING/SHUTOFF FROM DAYLIGHT SENSOR.



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## FRED ASTAIRE DANCE STUDIO

320 NJ-33  
MANALAPAN, NJ 07726

### OWNER/CLIENT

FRED ASTAIRE DANCE STUDIO  
320 NJ-33  
MANALAPAN, NJ 07726

### ARCHITECT

JASON PEIST ARCHITECT, LLC  
171 BROAD STREET  
MATAWAN, NJ 07747

02/02/2026 ISSUED FOR CONSTRUCTION

MARK DATE DESCRIPTION

### SHEET ISSUE INFORMATION

PROJECT NUMBER: 25-0115

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### SHEET MANAGEMENT DATA

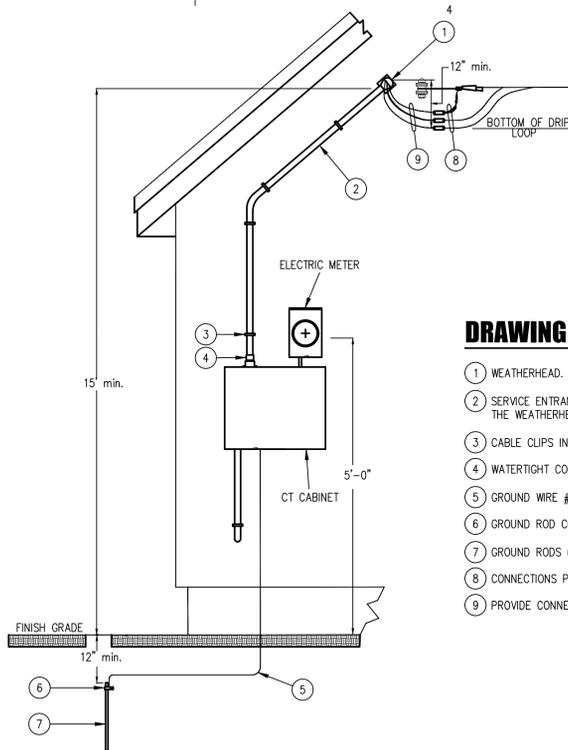
## ELECTRICAL LIGHTING PLAN

### SHEET TITLE BLOCK

**E-300**

SHEET 16 OF 17

PANEL RP1 SCHEDULE															
VOLTAGE		240		/120V, 1 PHASE, 3 WIRE											
RATED AMPS: 400		MCB		<input checked="" type="checkbox"/> GFP		<input type="checkbox"/>		MOUNTING:							
KAIC RATING: 22		MLO		<input type="checkbox"/> SHUNT TRIP		<input type="checkbox"/>		ENCLOSURE:							
		IG		<input type="checkbox"/> SERVICE ENTRANCE		<input checked="" type="checkbox"/>		REFER TO GENERAL PANEL SCHEDULE NOTES FOR MORE INFORMATION.							
		200% N		<input type="checkbox"/> FEED THRU LUGS		<input type="checkbox"/>									
NOTES	DESCRIPTION OF LOAD	OCF AMP	POLES	BRANCH CIRCUIT	CIRCUIT LOAD (VA)	PHASE A LOAD (VA)	PHASE B LOAD (VA)	CIRCUIT LOAD (VA)	BRANCH CIRCUIT	POLES	OCF AMP	DESCRIPTION OF LOAD	NOTES		
	RTU-1	60	2	2#4, #10G-3/4"C.	5040	9221		4181	2#6, #10G-3/4"C.	2	55	EAC-1	2		
	SPARE	20	1	-	0	1500		1500	2#12, #12G-3/4"C.	2	20	EWB	6		
	EUH-2	45	2	2#8, #10G-3/4"C.	3744		5244	1500	2#12, #12G-3/4"C.	1	20	EF-1	8		
	EF-2	20	1	2#12, #12G-3/4"C.	17		377	360	2#12, #12G-3/4"C.	1	20	REC-FRONT DESK	10		
	REC-MECH./JAN.	20	1	2#12, #12G-3/4"C.	360	720		360	2#12, #12G-3/4"C.	1	20	REC-FRONT DESK COUNT	12		
	REC-OPEN DANCE FL.	20	1	2#12, #12G-3/4"C.	540		900	360	2#12, #12G-3/4"C.	1	20	REC-OPEN DANCE FL.	14		
	REC-OPEN DANCE FL.	20	1	2#12, #12G-3/4"C.	360	720		360	2#12, #12G-3/4"C.	1	20	REC-OPEN DANCE FL.	16		
	REC-RESTROOM	20	1	2#12, #12G-3/4"C.	360		1860	1500	2#12, #12G-3/4"C.	1	20	REC-COUNTERTOP	18		
	REC-COUNTERTOP	20	1	2#12, #12G-3/4"C.	1500	2500		1000	2#12, #12G-3/4"C.	1	20	REC-REFRIGERATOR	20		
	REC-BREAK ROOM	20	1	2#12, #12G-3/4"C.	360		900	540	2#12, #12G-3/4"C.	1	20	REC-OFFICE	22		
	EUH-1	20	1	2#12, #12G-3/4"C.	500	500		0	-	1	20	SPARE	24		
	DUCT SMOKE/CO DETECT	20	1	2#12, #12G-3/4"C.	100		460	360	2#12, #12G-3/4"C.	1	20	REC-TBB QUAD	26		
	REC-TBB QUAD	20	1	2#12, #12G-3/4"C.	360	720		360	2#12, #12G-3/4"C.	1	20	REC-CEILING MOUNTED	28		
	REC-CEILING MOUNTED	20	1	2#12, #12G-3/4"C.	360		2160	1800	2#12, #12G-3/4"C.	1	20	LTG-CIRCUIT #1	30		
	LTG-CIRCUIT #2	20	1	2#12, #12G-3/4"C.	531	658		127	2#12, #12G-3/4"C.	1	20	CEILING FANS	32		
	LTG/REC-BASEMENTI	20	1	2#12, #12G-3/4"C.	250		5290	5040	2#4, #10G-3/4"C.	2	60	RTU-2	34		
	LEVEL 2 EV CHARGER	80	2	2#3, #8G-1"C.	9600	14640		5040	-	1	20	SPARE	36		
	SPARE	20	1	-	0	0		9600	-	1	20	SPARE	38		
					0	0		0	-	1	20	SPARE	40		
					0	0		0	-	1	20	SPARE	42		
TOTALS					34940	36012									
TOTAL CONN. LOAD (kVA)		70.95		PANEL SCHEDULE NOTES: 1. BREAKER SHALL BE OF TYPE OFCI.								DEMAND LOAD (kVA)		70.95	
TOTAL CONN. AMPS PER #		296										DEMAND AMPS PER #		296	



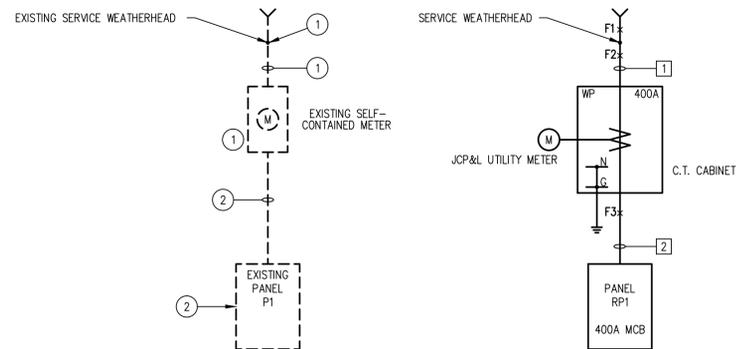
**GENERAL DRAWING NOTES:**

- THE POINT OF ATTACHMENT ON THE BUILDING TO BE DETERMINED BY THE REQUIRED MINIMUM GROUND CLEARANCES OF SERVICE DROP CONDUCTORS.
- ALL THE WIRING AND MATERIAL MUST CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND TO THE APPLICABLE LOCAL CODES WHERE THE CONFLICT EXISTS, THE MORE STRINGENT CODE WILL APPLY.
- DRAWING IS DIAGRAMMATIC AND IS NOT REPRESENTATIVE OF SCOPE REQUIRED BY THIS PROJECT. REFER TO SINGLE LINE DRAWING FOR MORE INFORMATION ON SERVICE ENTRANCE QUANTITIES AND REQUIREMENTS.
- COORDINATE UTILITY ENTRANCE CONNECTIONS WITH UTILITY.

**DRAWING KEYED NOTES:**

- WEATHERHEAD.
- SERVICE ENTRANCE CABLE TO BE INSTALLED WITH ENDS EXTENDING 3'-0" OUTSIDE OF THE WEATHERHEAD FOR DRIP LOOP.
- CABLE CLIPS INSTALLED EVERY 36".
- WATERTIGHT CONNECTOR.
- GROUND WIRE #6 COPPER STAPLED EVERY 6".
- GROUND ROD CONNECTORS.
- GROUND RODS (2) MIN. 6'-0" x 5/8" DATER COPPER CLAD.
- CONNECTIONS PROVIDED BY UTILITY.
- PROVIDE CONNECTIONS TO UTILITY.

**1 SINGLE PHASE OVERHEAD ELECTRICAL SERVICE ENTRANCE DETAIL**  
NOT TO SCALE



**2 ELECTRICAL SINGLE LINE DRAWING**  
DIAGRAMMATIC

**DRAWING KEYED NOTES:**

- REMOVE EXISTING WEATHERHEAD, METER, AND METER PAN. COORDINATE REMOVAL WITH UTILITY COMPANY.
- REMOVE EXISTING PANELBOARD AND FEEDER BACK TO SOURCE.

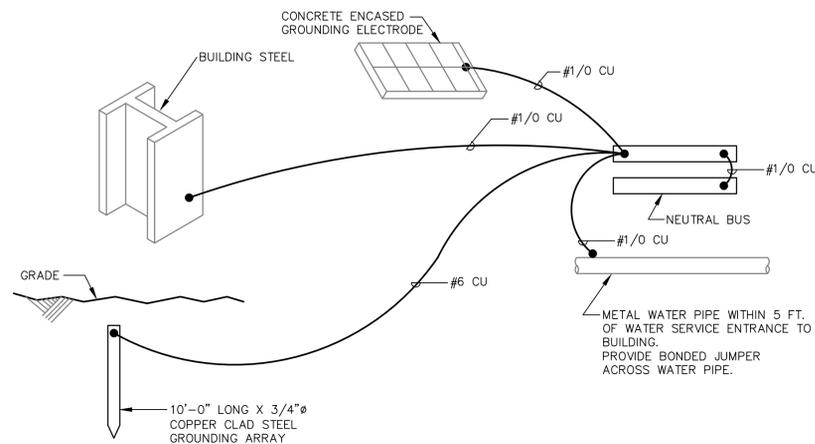
FEEDER TABLE			
TAG #	# SETS	FEEDER SIZE	NOTES
1	1	3#600kMIL, -4"C.	1
2	1	3#600kMIL, #3G-4"C.	1

FEEDER TABLE NOTES:  
1. COPPER CONDUCTORS.

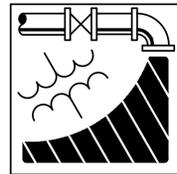
FAULT CURRENT TABLE		
TAG	DESCRIPTION	FAULT CURRENT RMS SYMM AMPERES
F1	UTILITY TRANSFORMER PRIMARY TERMINALS	ASSUMED INFINITE
F2	UTILITY TRANSFORMER SECONDARY TERMINALS	22,483
F3	LINE SIDE OF METER	21,603

FAULT CURRENT TABLE ASSUMPTIONS:  
1. UTILITY TRANSFORMER SPECIFICATIONS: 150 KVA, 2% IMPEDANCE.  
2. COORDINATE AVAILABLE FAULT CURRENT WITH UTILITY AND ADJUST PANEL AIC RATING ACCORDINGLY.

**GROUNDING ELECTRODE SYSTEM DETAIL NOTES:**  
CONNECTIONS SHALL BE FIRMLY BONDED TO NEUTRAL BUS, BUILDING STEEL, GROUNDING ROD, GROUND RING, AND WATER PIPE.



**3 GROUNDING ELECTRODE SYSTEM DETAIL**  
NOT TO SCALE



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**SHEET MANAGEMENT DATA**

**ELECTRICAL SINGLE LINE AND PANEL SCHEDULE**

**SHEET TITLE BLOCK**

**E-400**

SHEET 17 OF 17