CODES, RULES, PERMITS AND FEES

THIS CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS AND PAY ALL STATE AND LOCAL TAXES, FEES AND OTHER COSTS IN CONNECTION WITH HIS WORK; FILE ALL NECESSARY PLANS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL STATE AND LOCAL DEPARTMENTS HAVING JURISDICTION: OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK AND DELIVERY OF SAME TO THE OWNER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK. THIS CONTRACTOR SHALL INCLUDE IN THE WORK, WITHOUT EXTRA COST TO THE OWNER, ANY LABOR, MATERIALS, SERVICES, APPARATUS, DRAWINGS (IN ADDITION TO CONTRACT DRAWINGS AND DOCUMENTS), IN ORDER TO COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS WHETHER OR NOT SHOWN ON THE DRAWINGS AND/OR SPECIFIED. THIS CONTRACTOR SHALL PERFORM AND FILE ALL TESTS IN ACCORDANCE WITH CURRENT REGULATIONS OF THE STATE AND LOCAL AUTHORITIES. HE SHALL FURNISH AND INSTALL SIGNS REQUIRED BY THE STATE AND LOCAL AUTHORITIES. ALL MATERIALS FURNISHED AND ALL WORK INSTALLED SHALL COMPLY WITH THE RULES AND RECOMMENDATIONS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS. WITH ALL REQUIREMENTS OF LOCAL UTILITIES COMPANIES, WITH THE RECOMMENDATIONS OF THE FIRE INSURANCE RATING ORGANIZATION HAVING JURISDICTION.

ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH THE CURRENT STATE OF CONNECTICUT BASIC BUILDING CODE, THE CURRENT STATE FIRE SAFETY CODE, A.D.A., U.L., NEMA, O.S.H.A., INTERNATIONAL PLUMBING CODE, INTERNATIONAL MECHANICAL CODE AND NFPA, WITH ALL REQUIREMENTS OF ALL GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION. REQUIREMENTS OF THE ABOVE SHALL TAKE PRECEDENCE OVER PLANS AND SPECIFICATIONS.

GUARANTEE AND SERVICE

THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF THE INSTALLATION. IN ADDITION, THE CONTRACTOR SHALL PROVIDE, FREE OF CHARGE, ONE YEAR'S MAINTENANCE GUARANTEE OF MAINTAINED SERVICE AND ADJUSTMENT OF ALL EQUIPMENT IN THIS CONTRACT.

DRAWINGS AND INTENT

DRAWINGS ARE INTENDED AS WORKING DRAWINGS FOR GENERAL LAYOUT OF THE VARIOUS ITEMS OF EQUIPMENT. HOWEVER, LAYOUT OF EQUIPMENT, ACCESSORIES, SPECIALTIES, AND PIPING SYSTEMS ARE DIAGRAMMATIC UNLESS SPECIFICALLY DIMENSIONED. AND DO NOT NECESSARILY INDICATE EVERY REQUIRED PIPE, VALVE, FITTINGS, TRAP, ELBOW, TRANSITION, OFFSETS, JUNCTION OR PULLBOX, OR SIMILAR ITEMS REQUIRED FOR A COMPLETE INSTALLATION.

RELATED WORK IN OTHER DIVISIONS

ALL ELECTRICAL WORK, SETTING OF ACCESS DOORS IN HUNG CEILINGS, WALL AND FURRED SPACES, FINISHED PAINTING OF PIPING AND EQUIPMENT, CUTTING AND PATCHING, CONCRETE WORK. THIS CONTRACTOR SHALL FURNISH THE GENERAL CONTRACTOR WITH THE SIZES AND LOCATIONS OF CHASES AND OPENINGS WHICH OCCUR IN WALLS, PARTITIONS, FLOORS, ETC. REQUIRED FOR THE INSTALLATION OF THE WORK CALLED FOR UNDER THIS CONTRACT, WILL BE DONE BY THE GENERAL CONTRACTOR, EXCEPT CUTTING REQUIRED FOR THE INSTALLATION OF HANGERS.

ALL MEASUREMENTS TAKEN AT THE BUILDING SHALL TAKE PRECEDENCE OVER SCALE DIMENSIONS. EVERY PART OF THE PLANS SHALL BE FITTED TO THE ACTUAL CONDITIONS AT THE BUILDING. IF IN CONFLICT WITH SCALE DIMENSIONS, CONTACT ARCHITECT FOR CLARIFICATION.

PROTECTION OF FIXTURES, MATERIALS AND EQUIPMENT

CLOSE PIPE OPENINGS WITH CAPS OR PLUGS DURING INSTALLATION. TIGHTLY COVER AND PROTECT FIXTURES AND EQUIPMENT AGAINST DIRT, WATER AND CHEMICAL OR MECHANICAL INJURY. AT COMPLETION OF ALL WORK, FIXTURES, EXPOSED MATERIALS AND EQUIPMENT SHALL BE THOROUGHLY CLEANED.

DEMOLITION

CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, ETC., REQUIRED TO COMPLETE ALL DEMOLITION WORK NECESSARY FOR THE FULL COMPLETION OF THIS CONTRACT. PROTECT ALL PARTS AND EQUIPMENT THAT ARE TO REMAIN. ASSUME FULL RESPONSIBILITY FOR DAMAGE. ALL ITEMS BEING REMOVED SHALL REMAIN THE PROPERTY OF THE OWNER UNLESS OTHERWISE INDICATED BY HIM. EQUIPMENT AND DEVICES THE OWNER DOES NOT WISH TO RETAIN SHALL BECOME THE PROPERTY OF THIS CONTRACTOR AND REMOVED FROM THE SITE. ALL MATERIAL CHOSEN TO BE RETAINED BY THE OWNER SHALL BE DELIVERED BY THE CONTRACTOR TO SUCH POINT AS DESIGNATED BY THE OWNER.

EXAMINATION OF PREMISES - SPECIAL NOTE

NO CONSIDERATION OR ALLOWANCE WILL BE GRANTED FOR FAILURE TO VISIT SITE. OR FOR ANY ALLEGED MISUNDERSTANDING OF MATERIALS TO BE FURNISHED. OR WORK TO BE DONE. THE CONTRACTOR SHALL BE ASSUMED TO HAVE VISITED THE PREMISES AND NOTED ALL PERTINENT FACTS AND DATA INCLUDING THE CONDITIONS UNDER WHICH THE WORK MUST BE CARRIED OUT. AND NO ALLOWANCE WILL BE MADE FOR FAILURE TO HAVE DONE SO.

SCAFFOLDING, RIGGING AND HOISTING

UNLESS OTHERWISE SPECIFIED, CONTRACTOR SHALL FURNISH ALL SCAFFOLDING, RIGGING. HOISTING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES OF ANY EQUIPMENT AND APPARATUS FURNISHED. REMOVE SAME FROM THE PREMISES WHEN NO LONGER

HOUSEKEEPING

THIS CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING STOCK OF MATERIALS AND EQUIPMENT STORED ON PREMISES IN A NEAT AND ORDERLY MANNER AND. AT ALL TIMES. KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH CAUSED BY HIS EMPLOYEES AT WORK. HE SHALL REMOVE HIS RUBBISH AND SURPLUS MATERIALS FROM THE JOB SITE AND SHALL LEAVE THE PREMISES AND HIS WORK IN A CLEAN AND PERFECT

QUIET OPERATION

ALL WORK SHALL OPERATE UNDER ALL CONDITIONS OF LOAD WITHOUT ANY SOUND OR VIBRATION WHICH IS OBJECTIONABLE IN THE OPINION OF THE ENGINEER. IN CASE OF MOVING MACHINERY, SOUND OR VIBRATION NOTICEABLE OUTSIDE OF ROOM IN WHICH IT IS INSTALLED, OR ANNOYING INSIDE ITS OWN ROOM. WILL BE CONSIDERED OBJECTIONABLE BY THE ENGINEER AND SHALL BE REMEDIED IN APPROVED MANNER BY CONTRACTOR AT HIS EXPENSE.

SHOP DRAWINGS

PRIOR TO DELIVERY TO JOB SITE, BUT SUFFICIENTLY IN ADVANCE OF REQUIREMENTS NECESSARY TO ALLOW ENGINEER AMPLE TIME FOR REVIEW, CONTRACTOR SHALL SUBMIT FOR APPROVAL, SEVEN (7) COPIES EACH OF SHOP DRAWINGS OF ALL EQUIPMENT. ALSO SHEET METAL FABRICATION DRAWINGS DRAWN TO A SCALE OF 1/4" TO THE FOOT OR LARGER.

EQUIPMENT DEVIATION

THE PLANS AND/OR SPECIFICATIONS INDICATE THE NAME, MODEL NUMBER OR TYPE OF EQUIPMENT OR MATERIALS SPECIFIED. SHOULD THE BIDDER DESIRE TO USE EQUIPMENT OR MATERIALS OR A MAKE OTHER THAN THOSE SPECIFIED OR SHOWN, HE SHALL ATTACH A RIDER TO THE BID FORM LISTING THE DEDUCTIONS AND/OR ADDITIONS TO HIS BASE BID, TOGETHER WITH THE MANUFACTURER'S NAME AND MODEL NUMBERS OF THE EQUIPMENT OR MATERIALS HE PROPOSED TO FURNISH AS "SUBSTITUTES". IF NO SUBSTITUTE INFORMATION IS FURNISHED, IT WILL BE EXPRESSLY UNDERSTOOD THAT ALL EQUIPMENT AND MATERIALS NAMED WILL BE FURNISHED IN FULL ACCORDANCE WITH THE PLANS AND/OR SPECIFICATIONS.

OWNER'S INSTRUCTIONS AND SYSTEM OPERATION

AT THE TIME OF THE JOB'S ACCEPTANCE BY OWNER, CONTRACTOR SHALL FURNISH ONE COMPLETE SET OF APPROVED CERTIFIED DRAWINGS TO THE OWNER. IN ADDITION, CONTRACTOR SHALL FURNISH MAINTENANCE AND OPERATING INSTRUCTIONS FOR ALL EQUIPMENT. THESE INSTRUCTIONS SHALL BE WRITTEN IN LAYMAN'S LANGUAGE AND SHALL BE INSERTED IN VINYL-COVERED THREE-RING LOOSE LEAF BINDER. THIS INFORMATION IN BINDER SHALL BE FIRST SENT TO AND APPROVED BY THE ARCHITECT/ENGINEER BEFORE TURNING OVER TO

PROVIDE NO. 22 USSG GALVANIZED IRON SLEEVES EXTENDED THROUGH CONSTRUCTION IN CEILINGS, WALLS AND PARTITIONS. FOR INSULATED PIPING SIZED TO ALLOW INSULATION TO PASS THROUGH SLEEVE. PROVIDE 1/2 INCH SPACE BETWEEN PIPE AND/OR INSULATION AND SLEEVE. SEAL ALL SLEEVES IN ACCORDANCE WITH BUILDING CODE AND FIRE DEPARTMENT REQUIREMENTS.

EXPANSION ANCHORS

SUSPEND HANGERS FROM EXPANSION ANCHORS IN SOLID CONCRETE SLABS SIMILAR TO HILTI HDI OR FROM EXISTING STRUCTURAL STEEL WITH BEAM CLAMPS SIMILAR TO GRINNELL NO. 61, 87, 131 AND 225. PROVIDE HANGER IN PLACE WITH DOUBLE NUTS. PROVIDE PROTECTION SHIELDS ON INSULATED PIPING. INSTALL HANGERS OVER INSULATION AND SHIELDS.

PROVIDE BRASS OR COPPER WATER PIPING CONNECTED TO GALVANIZED PIPE AND FOR ANY OTHER DISSIMILAR METALS WITH DIELECTRIC FITTINGS.

CONTRACTOR SHALL ARRANGE WITH SOUTHERN CONNECTICUT GAS TO PROVIDE 2 PSI GAS DELIVERY PRESSURE TO BUILDING.

THIS CONTRACTOR SHALL MAKE MODIFICATIONS TO EXISTING GAS PIPING AS INDICATED CONNECT ALL GAS FIXTURES AND OUTLETS AS SHOWN. ALL GAS PIPING SHALL BE BLACK STEEL WITH BLACK MALLEABLE FITTINGS. SECURELY STRAP PIPING TO STRUCTURE AND MAKE EACH CONNECTION THROUGH A COCK. ALL PIPING TO CONFORM TO A.G.A. AND NATIONAL BOARD OF FIRE UNDERWRITERS STANDARDS AND SPECIFICATIONS. VALVES SHALL BE BALL TYPE, FULL PORT APOLLO, A.G.A. APPROVED FOR GAS SERVICE APPLICATION, GAS PRESSURE REGULARS SHALL BE EQUAL TO MAXITROL. ALL REGULATORS SHALL BE VENTED TO EXTERIOR. ALL REGULATORS SHALL BE SUITABLE FOR 2 Ib. INLET PRESSURE MINIMUM AND 10" W.C. OUTLET PRESSURE MINIMUM AT REQUIRED C.F.H. DELIVERY.

DOMESTIC WATER PIPING

ALL WATER PIPING WITHIN THE BUILDING SHALL BE TYPE "L" COPPER TUBING WITH SWEAT TYPE WROUGHT FITTINGS, AND ALL JOINTS SHALL BE MADE WITH 95-5 SOLDER OR STAY-SAFE BRIDGET LEAD-FREE SOLDER. PROVIDE AIR CUSHIONS OR ZURN-SHOKTROL AT EACH GROUP OF FIXTURES AS INDICATED OR REQUIRED BY GOOD PRACTICE. PROVIDE SECTION CUTOFF VALVES ON ALL MAIN BRANCHES. PITCH AND VALVE ALL WATER PIPING FOR CONVENIENT DRAINAGE. ALL PIPES SHALL BE REAMED TO FULL AREA BEFORE INSTALLATION AND BLOWN CLEAN OF CHIPS AND DIRT. PIPING SHALL BE CONCEALED IN FURRED SPACE OF OCCUPIED AREAS OR CHASES WHEREVER CONSTRUCTION PERMITS. CONTRACTOR SHALL OBTAIN PERMISSION OF THE ARCHITECT TO RUN EXPOSED PIPES NOT SPECIFICALLY SHOWN ON THE DRAWINGS AS EXPOSED. WHERE HORIZONTAL BRANCH PIPE MAINS, BRANCHES, OR RISERS ARE EXPOSED IN FINISHED AREAS, THEY SHALL BE FITTED WITH A TWO PIECE FLOOR AND CEILING PLATE HAVING A DULL SATIN CHROME PLATE FINISH.

INSULATE ALL NEW HOT AND COLD WATER ABOVE GRADE WITH 1" THICK HEAVY DENSITY FIBERGLASS 25 ASJ WITH VAPOR BARRIER AND LAP ADHESIVE JACKET. INSULATION ON FITTINGS SHALL BE FIBERGLASS WITH PRE-MOLDED JACKET.

INTERIOR WATER VALVES

VALVES SHALL BE BRONZE BALL TYPE, 2 PIECE, FULL PORT APOLLO 3 OR EQUAL.

PROTECTION OF POTABLE WATER SUPPLY

PROTECT POTABLE WATER SUPPLIES AGAINST BACKFLOW, BACK-SIPHONAGE, CROSS CONNECTION, AND OTHER UNSANITARY CONDITIONS. DO NOT DIRECTLY CONNECT POTABLE WATER TO, OR RUN WITHIN, ANY PIPING OR DEVICE CONTAINING OR CONVEYING SEWAGE WASTES, OR OTHER MATERIALS HAZARDOUS TO HEALTH AND SAFETY. EQUIP PLUMBING FIXTURE SUPPLIES. OTHER THAN "OVER-RIM" TYPE, WITH APPROVED VACUUM BREAKERS OR AIR GAP FITTINGS. SUPPLIES EQUIPPED FOR HOSE CONNECTION MUST HAVE INTEGRAL VACUUM BREAKERS.

DISINFECTION OF POTABLE WATER PIPING

COMPLETE AND EFFECTIVE DISINFECTION OF POTABLE WATER PIPING SYSTEMS AFTER TESTING AND ACCEPTANCE. DISINFECT AFTER FLUSHING WITH CLEAR WATER BY FILLING ENTIRE SYSTEM OR ANY PART THEREOF WITH WATER SOLUTION CONTAINING AT LEAST 50 PARTS PER MILLION OF AVAILABLE CHLORINE. ALLOW SOLUTION TO STAND IN SYSTEM AT LEAST 24 HOURS BEFORE FLUSHING OUT WITH CLEAN POTABLE WATER. IN LIEU OF ABOVE, SWAB WATER CONTACTING SURFACES WITH SOLUTION CONTAINING AT LEAST 200 PARTS PER MILLION OF AVAILABLE CHLORINE. ALLOW SOLUTION TO STAND IN SYSTEM FOR AT LEAST THREE HOURS BEFORE FLUSHING OUT WITH CLEAN POTABLE WATER.

SOIL, WASTE, VENT AND STORM WATER PIPING

SHALL BE NO-HUB CAST IRON WITH 4 CLAMP FITTINGS. OR D.W.V. COPPER WITH SOLDER JOINTS ON 2" AND SMALLER PIPING. VENT PIPING CAN BE SCH.40 P.V.C. WITH SOLVENT CEMENT JOINTS. FITTINGS ON SOIL AND WASTE LINES SHALL BE DRAINAGE PATTERN. P.V.C. PIPING CAN NOT BE USED IN PLENUM CEILINGS. EXPOSED COUNTER SINK WASTE PIPING SHALL BE CHROME PLATED BRASS. RUN ALL SOIL, WASTE AND VENT PIPING SHOWN OR REQUIRED BY LOCAL CODE. PIPING SHOWN IS MINIMUM AND IN ACCORDANCE WITH STATE AND FEDERAL CODES. IF LOCAL CODES REQUIRE ADDITIONAL VENTING OR LARGER SIZES, SAME SHALL TAKE PRECEDENCE. MAKE ALL CONNECTIONS THROUGH APPROVED TRAPS. EACH TRAP TO BE VENTED, EITHER BY CIRCUIT LOOP OR BY INDIVIDUAL VENT, AS REQUIRED, BUT NOT LESS THAN SHOWN OR AS REQUIRED BY LOCAL CODE. CLEANOUTS SHALL BE INSTALLED AT BASE OF ALL STACKS, AT ALL CHANGES OF DIRECTION, AND IN LONG LINES, IF NECESSARY, TO PROVIDE MEANS OF CLEANING LINES AT MAXIMUM 50 FT. INTERVALS. PITCH HORIZONTAL PIPING 1/4" PER FOOT UNLESS NOTED OTHERWISE ON PLANS.

THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, DURING THE PROGRESS OF THE WORK OR UPON ITS COMPLETION AS ORDERED, MAKE SUCH TESTS OF HIS WORK AS ARE HEREIN SPECIFIED OR AS ARE REQUIRED BY AND IN THE PRESENCE OF THE PLUMBING INSPECTOR. IF SO DIRECTED, TESTS SHALL BE MADE OF SECTIONS FOR THE WORK SO AS NOT TO DELAY THE WORK OR OTHER TRADES. THE CONTRACTOR SHALL PROVIDE ALL APPARATUS, TEMPORARY WORK OR ANY OTHER REQUIREMENTS NECESSARY FOR SUCH TESTS. ANY DEFECTS OR DEFICIENCIES DISCOVERED AS A RESULT OF TESTS SHALL BE IMMEDIATELY REPAIRED AND TESTS SHALL BE REPEATED UNTIL THE TEST REQUIREMENTS ARE FULLY COMPLIED WITH. THE DRAINAGE AND VENT SYSTEMS SHALL BE TESTED IN SECTIONS WHEN REQUIRED TO PERMIT GENERAL CONSTRUCTION WORKS TO PROCEED. THE PIPING SHALL BE TESTED UNDER A HYDROSTATIC PRESSURE CORRESPONDING TO A HEAD OF AT LEAST 10 FEET OF WATER FOR 2 HOURS. ALL WATER PIPING SHALL BE TESTED TO A HYDROSTATIC PRESSURE OF 150 POUNDS PER SQUARE INCH. PRESSURE SHALL BE MAINTAINED WITHOUT PUMPING FOR TWO HOURS.

HANGING AND SUPPORTING - PIPING SHALL NOT BE SUPPORTED BY OTHER PIPING, BUT SHALL BE SUPPORTED WITH COPPER PIPE HANGERS SUITABLE FOR THE SIZE OF PIPE AND PROPER STRENGTH AND QUALITY AT PROPER INTERVALS SO THAT PIPING CANNOT BE MOVED ACCIDENTALLY FROM THE INSTALLED POSITION AS FOLLOWS: PROVIDE COPPER CLEVIS HANGERS

1/2 INCH PIPE OR TUBING - 6 FEET 3/4 INCH OR 1 INCH PIPE OR TUBING - 8 FEET

1-1/4 INCH OR LARGER (HORIZONTAL) - 10 FEET 1-1/4 INCH OR LARGER (VERTICAL) - EVERY FLOOR LEVEL

SEISMIC RESTRAINTS

SEISMIC RESTRAINTS DESIGNED AND CONSTRUCTED FOR LATERAL FORCES IN ANY DIRECTION SHALL BE PROVIDED FOR ALL MECHANICAL EQUIPMENT IN ACCORDANCE WITH SECTION 1624 (2003 IBC PORTION OF THE C.S.B.C.) MECHANICAL COMPONENT.

FLOOR DRAINS SHALL BE ZURN #ZN-415 WITH B STRAINER. ALL FLOOR DRAINS TO HAVE IN LINE "SURE SEAL" FLOOR DRAIN TRAP SEALER.

CLEANOUTS

BRING CLEANOUTS TO FINISHED FLOOR WHERE SHOWN FOR VINYL FLOORING INCLUDING UNDER CARPETING, CLEANOUTS SHALL BE "ZURN" SERIES #ZN-1405-6. IN CERAMIC TILE FLOORS CLEANOUTS SHALL BE #ZN-1455-4CT. FOR CONCRETE FLOORS CLEANOUTS SHALL BE #ZN-1405-2-VP. IN HEAVY TRAFFIC AREAS # Z-1400-HD.

FIXTURES UNDER THIS SECTION

INCLUDED SHALL BE ALL PLUMBING FIXTURES, ALL TRIM ITEMS AND ALL ACCESSORY ITEMS SHOWN OR REQUIRED FOR A COMPLETE PLUMBING INSTALLATION. "KOHLER" NUMBERS ARE SPECIFIED UNLESS OTHERWISE NOTED. THE FIXTURES SHALL BE COMPLETE_WITH CHROME PLATING ON EXPOSED IRON OR PIPE, TRAPS, ANCHOR BOLTS, HANGERS, STRAINERS, LOOSE KEY STOPS VALVES AT EVERY FIXTURE, FAUCET AND OTHER INCIDENTAL ITEMS FURNISHED AS STANDARD. THE PLUMBING CONTRACTOR SHALL FURNISH AND INSTALL ALL FIXTURES IN ACCORDANCE WITH THE DRAWINGS AND THE SCHEDULE.

CONFORM LOCATION AND SIZE OF FIXTURES AND OPENINGS BEFORE ROUGH-IN AND INSTALLATION. VERIFY ADJACENT CONSTRUCTION IS READY TO RECEIVE ROUGH-IN WORK OF THIS SECTION.

INSTALL EACH FIXTURE WITH TRAP, EASILY REMOVABLE FOR SERVICING AND CLEANING. PROVIDE CHROME PLATED RIGID OR FLEXIBLE SUPPLIES TO FIXTURES WITH LOOSE KEY STOPS REDUCERS, AND ESCUTCHEONS. INSTALL COMPONENTS LEVEL AND PLUMB.

CLEANING AND ADJUSTING

AS DIRECTED, CLEAN FIXTURES, EQUIPMENT, PIPING AND OTHER EXPOSED WORK. DO CLEANING WORK IN STAGES IF SO ORDERED BY ARCHITECT TO FACILITATE WORK OF OTHERS. SHOW TRAPS, WASTES AND SUPPLIES FREE AND UNOBSTRUCTED. PLATED, POLISHED, BRONZED, OR PAINTED WORK, BRIGHT AND CLEAN. FLUSH OUT PIPING AFTER INSTALLATION. ADJUST VALVES, FAUCETS, AUTOMATIC CONTROL DEVICES FOR PROPER AND QUIET OPERATION.

INSIDE WORK - FIRE PROTECTION

THIS PROJECT IS A RENOVATION. FURNISH AND INSTALL ALL MAINS AND BRANCH PIPING NECESSARY TO SUPPLY THE TOTAL NUMBER OF APPROVED AUTOMATIC SPRINKLER HEADS AS SHOWN OR REQUIRED. THE ABOVE LISTING SHALL BE TAKEN AS A GENERAL OUTLINE ONLY, AND NOT AS A COMPLETE TABULATION OR DESCRIPTION OF ALL THE WORK INCLUDED AND NOT IN ANY RESPECT LIMITING THE WORK TO BE DONE UNDER THIS DIVISION OF THE SPECIFICATIONS.

PIPE AND FITTINGS

ALL PIPES USED FOR THE SPRINKLER SYSTEM SHALL BE NATIONAL TUBE COMPANY OR EQUAL, THE BEST GRADE STEEL WITH CLEAN CUT THREADS OR GROOVED ENDS FOR VICTAULIC FITTINGS. ALL FITTINGS SHALL BE THE BEST GRADE CAST IRON SCREWED OR VICTAULIC SUITABLE FOR WORKING PRESSURE OF 175#. IN JOINING PIPE AND FITTINGS, CARE SHOULD BE TAKEN THAT PIPES DO NOT EXTEND INTO FITTINGS TO REDUCE THE WATERWAY.

ALL HANGERS TO BE OF APPROVED TYPE, METAL PIPE RINGS, RODS AND INSERTS, ONE HANGER FOR EACH LENGTH OF PIPE BETWEEN SPRINKLER HEADS ON BRANCH LINES AND ONE HANGER FOR AT LEAST 12 FEET OF PIPE ON MAINS.

<u>FLUSHING</u>

PROVISION SHOULD BE MADE FOR FLUSHING SYSTEM BY INSTALLING 2"X4" NIPPLE AND CAP AT END OF EACH CROSS MAIN.

TEST ALL PIPING HYDROSTATICALLY AT NOT LESS THAN 200# PER SQUARE INCH PRESSURE FOR TWO HOURS AND ALL DEFECTIVE MATERIAL SHALL BE REPLACED. BEFORE MAKING FINAL APPROVAL, THE SUBCONTRACTOR SHOULD PRODUCE A WRITTEN STATEMENT. SIGNED BY A REPRESENTATIVE OF THE OWNER'S UNDERWRITER. THAT THE WORK HAS BEEN COMPLETED AND TESTED IN ACCORDANCE WITH APPROVED SPECIFICATIONS AND PLANS.

AUXILIARY STEEL

ALL AUXILIARY STEEL NECESSARY TO ASSURE PROPER HANGING TO BE SUPPLIED BY THIS CONTRACTOR.

AUXILIARY DRAINS

PROVIDE SIZE NOTED DRAIN VALVES AT LOW POINTS OF MAINS AND DRAIN AS INDICATED OR REQUIRED.

SPRINKLER HEADS

SPRINKLER HEADS SHALL BE PENDENT CHROME SEMI-RECESSED. HEADS SHALL BE AS MANUFACTURED BY VIKING, GRINNELL OR STAR. CONTRACTOR SHALL INCLUDE IN HIS BID 100 NEW CHROME ESCUTCHEONS.

QUOTATIONS

SYSTEM AS SHOWN IS FOR GENERAL GUIDANCE PURPOSES ONLY, I.E., AVOIDANCE OF CONFLICT WITH OTHER TRADES, ETC. SUBCONTRACTOR SHALL GUARANTEE THE INSTALLATION OF A COMPLETELY AUTOMATIC SYSTEM INCLUDING ALL NECESSARY ACCESSORIES FOR ONE YEAR FROM DATE OF ACCEPTANCE BY OWNER. INSTALLATION SHALL BE IN STRICT COMPLIANCE WITH INSURANCE COMPANY REQUIREMENTS AND SHALL BE ACCEPTED AND APPROVED BY SAID COMPANY. FOREGOING REQUIREMENTS MUST BE INCLUDED IN BID SUBMITTED.

REGULATIONS

ALL DEVICES, EQUIPMENT AND WORKMANSHIP SHALL BE IN STRICT ACCORDANCE WITH OWNER'S RATING ASSOCIATION STANDARDS AND REGULATIONS OF N.F.P.A. #13, "SPRINKLER SYSTEMS".

DESIGN CRITERIA-WET SYSTEM

A STANDARD INSTALLATION OF AUTOMATIC SPRINKLERS ARRANGED AS A WET PIPE SYSTEM IS REQUIRED. THE SYSTEM SHALL BE INSTALLED AS A LIGHT HAZARD OCCUPANCY. ALLOWANCE FOR INSIDE AND OUTSIDE HOSE TO BE INCLUDED.

DUCT INSTALLATION

SIZES AND APPROXIMATE LOCATION OF ALL DUCTS ARE SHOWN ON THE DRAWINGS. CHECK CAREFULLY WITH THE ARCHITECTURAL DRAWINGS AND DRAWINGS SHOWING WORK OF OTHER TRADES TO MAKE SURE THAT THERE WILL BE NO CONFLICT BETWEEN THESE TRADES AND THE DUCTS. DUCTS SHALL BE OFFSET AS REQUIRED TO CLEAR STRUCTURAL MEMBERS, AND, IF NECESSARY, TO ALTER DIMENSIONS OF THE DUCT. THIS MAY BE DONE PROVIDED THE CROSS-SECTIONAL AREA IS IN NO

SHEET METAL DUCTWORK

ALL SUPPLY AIR DUCTWORK DOWNSTREAM OF VAV BOXES SHALL BE CONSTRUCTED OF #1 QUALITY FIRST SHEETS OF OF GALVANIZED STEEL FREE OF CRACKS OR BLEMISHES. WHEN PITTSBURGING OR SNAP LOCKING A JOINT. THE GALVANIZING SHALL NOT BE CHIPPED OFF. ALL JOINTS SHALL BE SEALED AIRTIGHT. ALL PARTS OF THE SHEET METAL DUCT SYSTEM SHALL BE CONSTRUCTED AND INSTALLED IN STRICT ACCORDANCE WITH THE FIRST EDITION 1985 FOR PRESSURES 2 IN W.G. MAXIMUM STATIC PRESSURE AS OUTLINED AND DETAILED BY SMACNA, APRIL, 1986. FLEXIBLE DUCT MAY BE USED TO CONNECT RIGID DUCTWORK TO SUPPLY DIFFUSERS. DUCT SHALL BE SMACNA FORM 'M-I' INSULATED METALLIC. FLEXIBLE DUCT SHALL NOT EXCEED 3'-0" IN LENGTH. IF LONGER BRANCH DUCT IS REQUIRED, CONTRACTOR SHALL EXTEND GALVANIZED SHEET METAL TO A POINT WITHIN 3'-0" (MAX.) OF DIFFUSER.

<u>DUCT INSULATION - INTERIOR</u>

COVER ALL NEW CONCEALED SUPPLY DUCTWORK WITH 2" FIBERGLASS DUCT WRAP EQUAL TO MANVILLE R-SERIES MICROLITE WITH F.R.G. VAPOR BARRIER.

VOLUME DAMPERS

SINGLE BLADE OR OPPOSED BLADE MULTI-LOUVER TYPE AS DETAILED IN SMACNA STANDARDS, FIGURES 2-11 AND 2-12. PROVIDE END BEARING FOR ALL DAMPERS. QUADRANT OR OTHER OPERATOR FOR EXTERNALLY INSULATED DUCT SHALL HAVE STAND-OFF MOUNT SO OPERATION IS CLEAR OF THE INSULATION. PROVIDE VOLUME DAMPER IN DUCTWORK FOR EACH SUPPLY DIFFUSER.

SEISMIC RESTRAINT FOR DUCTWORK

PROVIDE REQUIRED BRACING MATERIAL. DUCTWORK SHALL BE SUPPORTED AND BRACED TO RESIST ALL DIRECTIONAL (TRANSVERSE, LONGITUDINAL AND VERTICAL) FORCES EQUAL TO 10 PERCENT OF THE WEIGHT OF THE DUCT SYSTEM

TEST AND BALANCE

COMPLETELY TEST AND BALANCE ALL SUPPLY AIR, RETURN AIR, OUTSIDE AIR AND EXHAUST AIR SYSTEMS AND HOT WATER HEATING SYSTEMS AND PROVE THE CAPACITIES OF THE SYSTEM AND THE SYSTEM COMPONENTS. SUBMIT RESULTS TO ENGINEER FOR APPROVAL. PROVIDE SINGLE LINE DRAWINGS OF SYSTEM WITH LOCATIONS AND CAPACITIES OF ALL DIFFUSERS AND EQUIPMENT. BALANCING SHALL BE PERFORMED BY AN INDEPENDENT AABC OR NEBB MEMBER.

PIPE - HEATING HOT WATER

HOT WATER SUPPLY AND RETURN PIPING SHALL BE TYPE L COPPER TUBING WITH SWEAT FITTINGS MADE UP WITH 95-5 SOLDER OR STANDARD WEIGHT, SCHEDULE 40, OPEN HEARTH STEEL, NATIONAL OR EQUAL. FITTINGS FOR STEEL PIPE SHALL BE AS FOLLOWS: GENERALLY, BUTT WELDED FITTINGS OVER TWO INCHES SHALL BE USED AND EITHER SOCKET-WELD OR SCREWED FOR TWO INCHES AND UNDER. WELDING FITTINGS SHALL BE STANDARD FORGED STEEL WITH CHAMFERED ENDS. ALL BRANCHES SHALL BE WELDED WITH EITHER WELDOLETE OR TEES. THROUGHOUT FOR STEEL PIPE, ALL SCREWED FITTINGS, OR VICTAULIC FITTINGS WITH GRADE "E" GASKETS AND ROLL GROVED STEEL PIPE.

PIPE INSULATION - HEATING HOT WATER

SHALL BE MANVILLE MICRO-LOK HP OR EQUAL. INSULATION THICKNESS SHALL BE 1.5" FOR LESS THAN 1.5" PIPE SIZE, AND 2" FOR 1-1/2" OR GREATER PIPE SIZE. PROVIDE ZESTON COVERS ON ALL FITTINGS.

<u>VALVES — HEATING HOT WATER</u>

VALVES SHALL BE BALL TYPE, FULL PORT, JAMESBURY CLINCHER OR APOLLO TYPE. VALVES LARGER THAN 3" SHALL BE GATE TYPE.

BALANCING VALVES - HEATING HOT WATER

BALANCING VALVES SHALL BE B&G CIRCUIT SETTER.

DISSIMILAR METALS

WHEREVER COPPER OR BRASS ALLOY IS CONNECTED TO STEEL OR GALVANIZED METAL, THE TWO SHALL BE SEPARATED WITH AN DIELECTRIC CONNECTION FITTING.

PIPING IDENTIFICATION AND FLOW DIRECTION SLEEVES

PROVIDE AND INSTALL NEW PIPING IDENTIFICATION AND FLOW DIRECTION SLEEVES, SETON NAMEPLATE SETMARK SNAP-AROUND PIPE MARKERS, FOR ALL NEW PIPING IN MECHANICAL ROOM. NUMBER OF SLEEVES REQUIRED SHALL BE DETERMINED IN FIELD.

CLEANING/FLUSHING EXISTING HOT WATER SYSTEM

CONTRACTOR MUST COMPLETLY FLUSH ALL ZONES OF THE EXISTING HEATING SYSTEM. SYSTEM MUST BE FLUSHED UNTIL WATER RUNS CLEAR OF ANY DEBRIS A CLEANER MAY BE NECESSARY TO ENSURE ALL SEDIMENT HAS BEEN REMOVED FROM THE SYSTEM.

GENERAL NOTES

- LOCATIONS OF EXISTING PIPING AND FOUIPMENT AS SHOWN ON PLANS ARE TAKEN FROM THE BEST AVAILABLE FIELD OBSERVATIONS. FROM BUILDING TO BUILDING, EXACT LOCATIONS AND MAKES OF EQUIPMENT, PIPING AND PIPING ARRANGEMENTS MAY VARY FROM THOSE SHOWN, VERIFY EXACT LOCATIONS IN FIELD BEFORE BEGINNING ANY WORK, MODIFY PIPING ARRANGEMENTS AS REQUIRED FOR VARIANCES ENCOUNTERED. REPORT TO ENGINEER ANY DISCREPANCIES THAT MAY HAVE AN IMPACT TO THE INSTALLATION THE NEW SYSTEM. REMOVE ALL EXISTING PIPING NOT BEING REUSED, WHETHER OR NOT SHOWN ON PLANS. ALL EXISTING PIPING AND EQUIPMENT TO BE REMOVED AND DISPOSED OF SHALL BE DONE IN STRICT ACCORDANCE WITH ALL STATE AND FEDERAL CODES AND REQUIREMENTS.
- BEFORE SUBMITTING A BID, EACH CONTRACTOR SHALL VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS UNDER WHICH HIS WORK WILL BE INSTALLED. EACH CONTRACT INCLUDES ALL NECESSARY OFFSET, TRANSITIONS AND MODIFICATIONS REQUIRED TO INSTALL ALL NEW EQUIPMENT. ALSO INCLUDED SHALL BE ANY MODIFICATIONS NECESSARY TO EXISTING. PIPING OR SYSTEMS FOR INSTALLATION OF NEW EQUIPMENT BY THIS OR ANY OTHER TRADE. ALL NEW EQUIPMENT AND SYSTEMS SHALL BE FULLY OPERATIONAL UNDER THIS CONTRACT BEFORE THE JOB IS CONSIDERED COMPLETE. EACH CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY ASSUMPTIONS HE MAKES, ANY OMISSIONS OR ERRORS HE MAKES, AS A RESULT OF HIS FAILURE TO COORDINATE WITH THE EXISTING CONDITIONS AND THE CONTRACT DOCUMENTS OF ALL TRADES.
- NEW GAS FIRED BOILERS AND WATER HEATERS MUST BE MOUNTED DEAD LEVEL. NEW WATER HEATERS SHALL BE MOUNTED ON 4" HIGH SOLID CONCRETE BLOCKS, ADJUST LEVELING LEGS AS REQUIRED. SAFE OFF OPENING AROUND VENT PIPING WITH NEW SHEET METAL AS REQUIRED.
- CONNECT NEW COLD WATER MAKE—UP PIPING FOR NEW BOILER TO EXISTING DOMESTIC COLD WATER. RUN AND CONNECT NEW PIPING BETWEEN NEW AIR SEPARATOR AND EXISTING EXPANSION TANK. PROVIDE AND INSTALL INLINE A NEW BOILER FILL AND MAKE-UP DUAL CONTROL. FEED WATER REGULATOR AND RELIEF VALVE AND BACKFLOW PREVENTER WITH INLET AND OUTLET VALVES. SEE PIPING DETAIL.
- DISCONNECT EXISTING GAS PIPING FROM BOILERS AND WATER HEATERS. MODIFY EXISTING GAS PIPING AS REQUIRED AND PIPE TO NEW BOILERS AND WATER HEATERS. AT EACH PIECE OF EQUIPMENT PROVIDE AND INSTALL NEW GAS REGULATORS VENT LINES, BALL VALVE UNION AND DIRT LEG,

MECHANICAL DRAWING LIST
MECHANICAL SPECIFICATIONS
MECHANICAL SPECIFICATIONS
FIRST FLOOR PLAN - HVAC & PARTIAL PLUMBING
DETAILS, SCHEDULES AND SYMBOLS
FIRST FLOOR PLAN - MECHANICAL
FIRST FLOOR PLAN - FIRE PROTECTION
ROOF PLAN - MECHANICAL



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AWING TITLE: **MECHANICAL**

BJC GDD

SPECIFICATIONS

GDD JOB NUMBER: 07 MAY 2019 19469

PART 1 - GENERAL - BUILDING AUTOMATION SYSTEM

1.1 WORK INCLUDED

- A. THIS SECTION GOVERNS THE MATERIALS AND INSTALLATION OF A COMPLETE BUILDING AUTOMATION SYSTEM CONSISTING OF A DIRECT-DIGITAL TEMPERATURE CONTROL AND MONITORING SYSTEM WITH ALL I/O OPERATOR DEVICES, WEB PAGE DATA SERVER, CONTROLLERS, SENSORS, VALVES, DAMPERS, DAMPER MOTORS, RELAYS, CONTROL CABINET, ETC. TO PERFORM THE FUNCTIONS AS SPECIFIED IN THE SEQUENCE OF CONTROL.
- B. RELATED SECTIONS

1. ENERGY MONITORING

- C. ALL CONTROL WIRING REQUIRED FOR THE TEMPERATURE CONTROL SYSTEM SHALL BE INCLUDED IN THIS SECTION OF THE SPECIFICATIONS. WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND DIVISION 16 - ELECTRICAL OF THESE SPECIFICATIONS.
- 1.2 EQUIPMENT SUBSTITUTION
- A. MOST ITEMS IN THIS DIVISION ARE ELIGIBLE FOR SUBSTITUTION IN ACCORDANCE WITH THE GENERAL CONDITIONS AND SUPPLEMENTS THERETO. WHERE A PROPRIETARY SPECIFICATION IS WRITTEN FOR A PARTICULAR ITEM, THEN ONLY THAT ITEM MAY BE USED. ALL ITEMS ELIGIBLE FOR SUBSTITUTION REQUIRE SUBMISSION OF REQUEST FOR SUBSTITUTION 10 DAYS PRIOR TO BID DATE. THIS SUBMITTAL SHALL INCLUDE SPECIFIC MODELS AND CAPACITIES OF EQUIPMENT AND NOT JUST MANUFACTURER'S LITERATURE. ONLY THOSE MANUFACTURERS LISTED AND THOSE RECEIVING WRITTEN PRIOR APPROVAL COMMUNICATED VIA ADDENDUM SHALL BE CONSIDERED FOR REVIEW. VERBAL APPROVALS WILL NOT BE

1.3 TESTING & APPROVING AGENCIES

A. WHERE ITEMS OF EQUIPMENT ARE REQUIRED TO BE PROVIDED WITH COMPLIANCE TO U.L., ETL, CSA, FCC PART 15, CLASS A OR OTHER TESTING AND APPROVING AGENCIES, THE CONTRACTOR MAY SUBMIT A WRITTEN CERTIFICATION FROM ANY NATIONALLY RECOGNIZED TESTING AGENCY. ADEQUATELY EQUIPPED AND COMPETENT TO PERFORM SUCH SERVICES, THAT THE ITEM OF EQUIPMENT HAS BEEN TESTED AND CONFORMS TO THE SAME METHOD OF TEST AS THE LISTED AGENCY WOULD CONDUCT.

1.4 SUBMITTAL DATA

- A. SEE DWG. M-1 FOR GENERAL SUBMITTAL REQUIREMENTS.
- B. SUBMITTALS FOR ALL AUTOMATION, CONTROL AND MONITORING SYSTEMS SHALL INCLUDE COMPLETE SCHEMATIC/FLOW DRAWINGS, LOGIC DIAGRAMS, WIRING DIAGRAMS, MANUFACTURER'S LITERATURE/SUBMITTAL SHEETS FOR ALL COMPONENTS, CONTROL POINTS LIST, BILL OF MATERIALS AND A BOUND BOOKLET OF ALL INSTRUMENTS AND DEVICES TO BE INSTALLED.
- C. MECHANICAL CONTRACTOR SHALL RED-LINE ONE SET OF SUBMITTAL DRAWINGS, SHOWING ANY AND ALL DEVIATIONS OF INSTALLED SYSTEM FROM THAT SHOWN IN THE SUBMITTAL DRAWINGS FOR THIS USE IN DEVELOPING RECORD DRAWINGS.

PART 2 - PRODUCTS

2.1 ACCEPTABLE SYSTEMS

- A. SYSTEM SHALL TACO IWORX OR APPROVED EQUAL.
- 1. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING WORK AND MATERIAL AS DESCRIBED ON CONTRACT DRAWINGS AND HEREIN AFTER UNDER PARAGRAPH 'WORK INCLUDED."
- 2. COORDINATE ALL WORK ASSOCIATED WITH CONTROL INSTALLER.

2.2 MAN/MACHINE LOCAL CONTROL INTERFACE (LCI)

A. GENERAL

1. THE LCI SHALL BE A COLOR TOUCHSCREEN USER INTERFACE AND SYSTEM CONFIGURATION TOOL THAT COMMUNICATES WITH DEVICE CONTROLLERS OVER A LONWORKS NETWORK. ITS FUNCTIONS SHALL INCLUDE A LOCAL TOUCHSCREEN USER INTERFACE, INTERNET OR DIAL-UP CONNECTIVITY FOR REMOTE ACCESS, NETWORK CONFIGURATION TOOLS, DATABASE GENERATION TOOL. AUTOMATIC WEB PAGE GENERATION AND GLOBAL TIME OF DAY SCHEDULING. THE LCI WILL PROVIDE SUPERVISORY HVAC CONTROL, LIGHTING CONTROL, AND ACCESS CONTROL INTEGRATION.

B. COMMUNICATIONS

1. THE LCI2 SHALL INCORPORATE ECHELON CORPORATION LONWORKS COMMUNICATIONS, UTILIZING FREE TOPOLOGY TRANSCEIVERS (FIT—10) FOR COMMUNICATION TO NETWORKED CONTROLLERS

C. TOUCH SCREEN

- 1. THE LCI SHALL HAVE A MINIMUM USEABLE TOUCH SCREEN AREA OF 16.4 SQUARE INCHES WITH 1/4 VGA 320X240 PIXEL RESOLUTION. THE LCI2 DISPLAY SHALL CONSISTS OF AN ANALOG RESISTANCE-BASED TOUCHSCREEN OVER AN LCD DISPLAY WITH COLD-CATHODE FLUORESCENT (CCFL) BACK LIGHTING. THE TOUCH SCREEN SHALL INCLUDE CONTRAST ADJUSTMENT.
- D. AUTOMATIC CONFIGURATION AND NETWORK ADDRESSING
- 1. THE LCI SHALL AUTOMATICALLY SELF CONFIGURE FOR NETWORK ADDRESSING AND COMMUNICATION FOR HVAC, ACCESS AND LIGHTING CONTROLLERS UPON INITIATION OF THE SERVICE PIN PUSH-BUTTON OF A DEVICE CONTROLLER ADDED TO THE NETWORK. SYSTEMS THAT REQUIRE PC BASED CONFIGURATION SOFTWARE OR PORTABLE SYSTEM CONFIGURATION HARDWARE TOOLS SHALL NOT BE ACCEPTABLE.

E. PROGRAMMING

- 1. THE LCI SHALL BE PREPROGRAMMED AND NOT REQUIRE FIELD PROGRAMMING OF CONTROL PROPORTIONAL BANDS, CONTROL DEADBANDS, REVERSE OR DIRECT ACTING CONTROL ACTIONS, CONTROL ALGORITHMS OR ANY OTHER PROGRAMMABLE PARAMETERS.
- 2. FIELD PROGRAMMING SHALL ONLY REQUIRE INPUT OF SETPOINTS, SCHEDULES AND PASSWORDS.
- F. AUTOMATIC WEB PAGE CREATION
- 1. AS THE LCI AUTOMATICALLY CREATES THE DATABASE FOR HVAC, ACCESS AND LIGHTING CONTROLLERS BY THE INITIATION OF THE SERVICE PIN PUSH-BUTTON, IT SHALL CREATE THE DATABASE SO THAT IT IS ACCESSIBLE FROM WEB-BROWSERS. THE LCI SHALL AUTOMATICALLY GENERATE WEB PAGES WITHOUT ADMINISTRATOR INTERACTION, CONNECTION TO A PERSONAL COMPUTER, OR HTML PROGRAMMING SHALL NOT BE REQUIRED.

G. WEB CONTENT

1. ALL DATA THAT IS ACCESSIBLE FROM THE LOCAL TOUCHSCREEN SHALL BE ACCESSIBLE REMOTELY EXCEPT FOR THE ABILITY TO CALIBRATE THE TOUCHSCREEN, CHANGE USER NAMES AND ENABLE AND DISABLE THE KEYCLICK.

H. E-MAIL ALARMS

1. IN THE EVENT OF AN ALARM CONDITION, THE LCI SHALL GENERATE AN E-MAIL MESSAGE TO UP TO THREE PREDEFINED E-MAIL ACCOUNTS. THE E-MAIL ALARM MESSAGE WILL PROVIDE THE SITE NAME, DEVICE, ALARM DESCRIPTION, AND THE DATE AND TIME THE ALARM EVENT OCCURRED.

I. ELECTRICAL SPECIFICATIONS

- 1. POWER REQUIREMENTS 28-36 VAC OR 24 VAC (REQUIRES EXTERNAL POWER SUPPLY).
- 2. POWER CONSUMPTION 24 VA.
- J. BATTERY AND REAL TIME CLOCK
- 1. THE LCI2 SHALL INCLUDE A REAL TIME CLOCK. A LITHIUM BATTERY SHALL MAINTAIN NONVOLATILE DATABASE MEMORY.

MECHANICAL SPECIFICATIONS

2.3 APPLICATION SPECIFIC CONTROLLERS (ASC)

- A. EACH ASC SHALL OPERATE AS A STAND-ALONE CONTROLLER CAPABLE OF PERFORMING ITS SPECIFIED CONTROL RESPONSIBILITIES INDEPENDENT OF OTHER CONTROLLERS IN THE NETWORK. EACH ASC SHALL BE A MICRO-PROCESSOR BASED CONTROLLER, MULTI-TASKING REAL-TIME DIGITAL CONTROL PROCESSOR AND SHALL HAVE SUFFICIENT MEMORY TO SUPPORT ITS OWN OPERATING SYSTEM AND DATA BASES INCLUDING:
- 1. CONTROLS PROCESSOR
- 2. MONITORING FUNCTIONS 3. ENERGY MANAGEMENT FUNCTIONS
- 4. I/O INTERFACE AND CONVERSIONS
- B. COMMUNICATIONS
- 1. ASC'S SHALL INCORPORATE ECHELON CORPORATION LONWORKS COMMUNICATIONS, UTILIZING FREE TOPOLOGY TRANSCEIVERS (FTT-10) FOR COMMUNICATION TO THE LCI AND THE WEB DATA SERVER.
- C. AUTOMATIC CONFIGURATION
- 1. THE ASC'S AND LCI SHALL USE A SELF-CONFIGURING CONTROL NETWORK MANAGEMENT SCHEME REQUIRING NO EXTERNAL COMPUTERS, TOOLS, BINDING, OR LONWORKS KNOWLEDGE. THE LCI SHALL RECOGNIZE AND CONFIGURE NETWORKED CONTROLLERS WHEN THE CONTROLLER'S SERVICE PIN IS PRESSED. ONCE THE SERVICE PIN HAS BEEN PRESSED, NO FURTHER ACTION SHALL BE REQUIRED BY THE INSTALLER, THE CONTROLLER WILL BE FULLY ACCESSIBLE TO THE LCI.
- D. ASC'S MAY INCLUDE A LOCAL IVIEW LCD MAN/MACHINE INTERFACE. THE IVIEW SHALL INCLUDE, BUT NOT BE LIMITED, TO THE FOLLOWING:
- 1. DISPLAY OPERATING CONDITIONS.
- 2. DISPLAY STATUS.
- 3. DISPLAY SETPOINTS. 4. DISPLAY CONTROL PARAMETERS
- 5. OVERRIDE OUTPUTS
- 6. CHANGE SETPOINTS AND OPERATING PARAMETERS E. PROGRAMMING
- 1. THE ASC'S SHALL NOT REQUIRE ANY SPECIAL KNOWLEDGE OF PROGRAMMING. THE ASC'S SHALL BE PREPROGRAMMED FOR CONTROL PROPORTIONAL BANDS, CONTROL DEADBANDS, REVERSE OR DIRECT ACTING CONTROL ACTIONS, CONTROL ALGORITHMS OR ANY OTHER PROGRAMMABLE PARAMETERS.
- 2. FIELD PROGRAMMING SHALL BE LIMITED TO INPUT OF SETPOINTS, SCHEDULES AND PASSWORDS.
- F. ALL SYSTEM SETPOINTS, PROPORTIONAL BANDS, CONTROL DEADBANDS, REVERSE OR DIRECT ACTING CONTROL ACTIONS, CONTROL ALGORITHMS AND ANY OTHER PROGRAMMABLE PARAMETERS SHALL BE STORED SUCH THAT A POWER FAILURE OF ANY DURATION DOES NOT NECESSITATE THE REPROGRAMMING OF THE CONTROLLER.
- G. ASCS SHALL BE PROVIDED FOR CONTROL OF HVAC FAN COILS, HEAT PUMPS, VAV UNITS, AIR HANDLING UNITS, AC UNITS, BOILERS, CHILLERS, COOLING TOWERS, PUMPS, AND ENERGY (BTU) METERING.

2.4 SENSORS

- A. SENSOR SHALL BE RTD TYPE, NICKEL SILICON, PLATINUM, OR THERMISTOR TYPE TO BEST MEET THE APPLICATION. COMPLETE WITH ALL NECESSARY MOUNTING HARDWARE.
- 1. ROOM SENSORS: PLASTIC OR METALLIC CASING WITH OCCUPANT READJUSTMENT FEATURE AS REQUIRED BY DESCRIPTION IN SEQUENCE OF CONTROL. WHEN REQUIRED BY SEQUENCE DESCRIPTION, AN OCCUPIED/UNOCCUPIED OVERRIDE SWITCH WILL BE RESIDENT WITH THE SENSOR TO ALLOW OCCUPANT OVERRIDE OF SYSTEM MODE. EACH SENSOR SHALL HAVE PROVISIONS FOR SET POINT ADJUSTMENT.
- 2. DUCT SENSORS: SENSOR COMPLETELY CASED IN METALLIC CASE WITH HANDI-BOX FOR ELECTRICAL WIRING CONNECTIONS.
- 3. FLUID SENSORS: MOUNT IN SEPARABLE WELL OR EQUIVALENT STRAP-ON. SENSOR CASED IN METAL CASING WITH HANDI-BOX FOR ELECTRIC WIRE CONNECTIONS.
- 4. LOW LIMIT SENSOR OR THERMOSTAT. UNIT WITH 20 FT. AVERAGING ELEMENT AND MANUAL OR AUTOMATIC RESET AS INDICATED ON THE SEQUENCE DESCRIPTION. (LOW LIMIT SENSORS WHICH PROVIDE SYSTEM FREEZE-UP PROTECTION WILL BE MANUAL RESET TYPE.).
- 5. DIFFERENTIAL STATIC PRESSURE SENSORS (DUCT AND BUILDING): TRANSMITTER MEASURES DIFFERENTIAL STATUS OF PRESSURE WITH A STAINLESS STEEL DISPLAYER THAT CONVERTS THE DIFFERENTIAL STATIC PRESSURE TO A 0-10 VDC OR A 4 TO 20 MA PROPORTIONAL OUTPUT. RANGE AS REQUIRED BY APPLICATIONS.

2.5 CONTROL VALVES

- A. BRASS BODY WITH STAINLESS STEEL STEM AND MODULATED PLUG. REPLACEABLE SEATS AND STEM. REPLACEABLE PACKING WITH ADJUSTABLE PACKING UNIT.
- B. TWO-WAY OR THREE-WAY MIXING APPLICATION AS INDICATED.
- C. VALVES LESS THAN 2" TO BE SCREWED CONNECTION, OVER 2" TO BE FLANGED.

2.6 PUMPS

- A. SHALL BE ECM TYPE. PUMPS SHALL BE PROVIDED WITH A 3 YEAR WARRANTY.
- 1. CIRCULATOR SHALL BEAR UL LABEL.
- 2. AN INTEGRAL VARIABLE SPEED DRIVE (VSD) SHALL ACCEPT A 0-10 VDC OR 4-20 MA MODULATING CONTROL SIGNAL TO CONTROL THE SPEED OF THE CIRCULATOR MOTOR.

2.7 DAMPERS

- A. DAMPERS
 - 1. AIRFOIL, LOW LEAKAGE RATED. SIZE AS INDICATED ON THE DRAWINGS.
- 2. CONTROL DAMPERS WILL BE OPPOSED BLADE TYPE. MIXING DAMPERS SHALL BE PARALLEL BLADE WITH BLADE ATTITUDE FOR CONVERGING AIR STREAMS.
- B. ACTUATORS
- 1. ELECTRIC/ELECTRONIC ACTUATORS: PROVIDE WITH ALL NECESSARY MOUNTING HARDWARE AND LINKAGE TO MEET APPLICATION. SIZE TO PROVIDE CONTROL SEQUENCE AS INDICATED FOR APPLICATION.
- 2. MAGNETIC OR SYNCHRONOUS MOTORS FOR FULL MODULATION WITH APPROPRIATE LINKAGE TO PROVIDE LINEAR ACTUATION.
- 3. CONTROL OF SYSTEM COMPONENTS WHICH REQUIRE ACTION AFTER POWER FAILURE (SUCH AS FREEZE PROTECTION) REQUIRE SPRING RETURN DEVICES. 2.8 SMOKE DETECTORS
- A. SELF-CONTAINED, STAND ALONG, IONIZED TYPE DUCT DETECTOR WITH SAMPLING TUBES TO SAMPLE FULL WIDTH OF THE DUCT.
- PART 3 EXECUTION

- 3.1 INSTALLATION
- A. NETWORK ALL CONTROLLERS TOGETHER FOR COMMUNICATION WITH LCI.
- B. INSTALLED BY TRAINED MECHANICS AND WITH FIRST-CLASS WORKMANSHIP THROUGHOUT.
- C. REFER TO OTHER PARTS OF THESE SPECIFICATIONS FOR GENERAL METHODS OF RUNNING PIPE, HANGERS, SLEEVES, COORDINATION WITH OTHER TRADES, ETC. SPECIFICATIONS GOVERNING OTHER TRADES SHALL ALSO GOVERN THESE INSTALLERS. D. CONDUIT AND WIRE
- 1. ALL CABLE AND WIRING FOR THE BAS SYSTEM SHALL BE CONCEALED EXCEPT IN MECHANICAL AREAS WHERE IT SHALL BE PROTECTED BY METALLIC RACEWAYS.
- 2. CONCEALED CABLE IN ACCESSIBLE CEILING, STUD WALLS, CRAWL SPACE, ETC., MAY BE PLENUM RATED, LOW VOLTAGE CABLE. CABLE IN CEILING SPACES SHALL NOT INTERFERE WITH THE REMOVAL OF CEILING TILES OR LIGHT FIXTURES AND SHALL BE RUN IN A WORKMANLIKE MANNER FIRMLY SECURED REGULARLY TO BUILDING STRUCTURES. IT SHALL NOT DRAPE ACROSS THE CEILING OR BE SUSPENDED FROM OTHER SYSTEM COMPONENTS SUCH AS DUCTWORK, PIPE OR ELECTRICAL CONDUIT RUNS.
- 3. PARALLEL CABLE SYSTEMS SHALL BE BUNDLED AND IDENTIFIED.
- 4. LONWORKS COMMUNICATION CABLE SHALL BE ECHELON APPROVED LEVEL 4 TWISTED PAIR.
- 5. SENSOR WIRING SHALL BE MINIMUM 18 GAUGE TWISTED SHIELDED STRANDED PAIR.

1.2 SEQUENCE OF OPERATION

A. SAMPLES FOR ALL POINTS SHALL BE STORED FOR THE PAST 24 HOURS TO ALLOW THE OPERATOR OR SERVICE PERSON TO IMMEDIATELY ANALYZE EQUIPMENT PERFORMANCE AND ALL PROBLEM-RELATED EVENTS FOR THE PAST DAY.

1.3 TESTING, INSTRUCTING, CHECKOUT AND BALANCING

A. COMMISSIONING AND SETUP

- 1. BAS INSTALLER TO FURNISH PERSONNEL TO CHECK OUT AND DEMONSTRATE WORKABILITY OF SYSTEM BEFORE FINAL JOB ACCEPTANCE. PROVIDE MINIMUM OF TWO COMMISSIONING AND SETUP VISITS, ONE AT THE START OF THE HEATING SEASON AND ONE AT THE START OF THE COOLING SEASON. TIMES TO BE AS COORDINATED WITH THE OWNER.
- 2. BAS INSTALLER SHALL FULLY COOPERATE WITH THE MECHANICAL CONTRACTOR IN PROVIDING QUALIFIED PERSONNEL TO ASSIST IN THE TESTING AND CHECKOUT OF THE HVAC SYSTEMS.

B. INSTRUCTION

- 1. AT THE COMPLETION OF THE JOB AND THE SECOND SEASONAL COMMISSIONING VISIT PROVIDE COMPETENT PERSONNEL TO ADEQUATELY INSTRUCT THE OWNER'S PERSONNEL IN THE OPERATION OF THE COMPLETE CONTROL SYSTEM.
- a. PERSONNEL SHALL SIGN OFF THAT THEY HAVE RECEIVED SATISFACTORY INSTRUCTION AND UNDERSTAND THE SYSTEM.
- b. SIGN-OFF SHEET SHALL BE FORWARDED TO THE OWNER AND THE A/E FOR MATTER OF RECORD
- 2. PROVIDE ONE ADDITIONAL VISIT TO THE JOB AT THE ONE-YEAR ANNIVERSARY TO REVIEW OPERATING SEQUENCES, OPERATING HISTORY WITH THE USERS AND MAKE ANY ADJUSTMENT, CORRECTIONS AND REPAIRS TO SYSTEMS WHICH MAY HAVE BEEN EVIDENCED DURING THE ONE-YEAR OPERATING HISTORY



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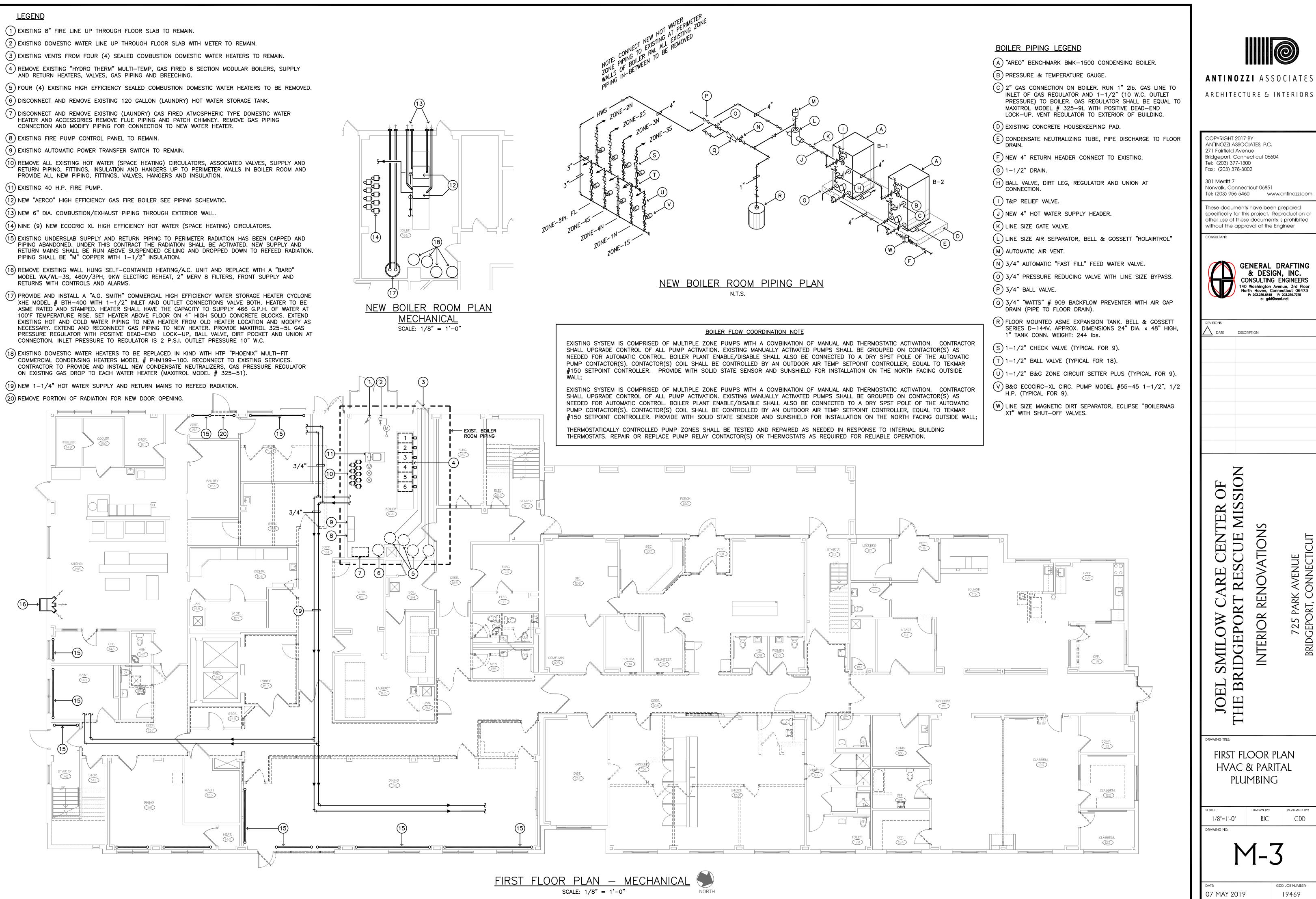
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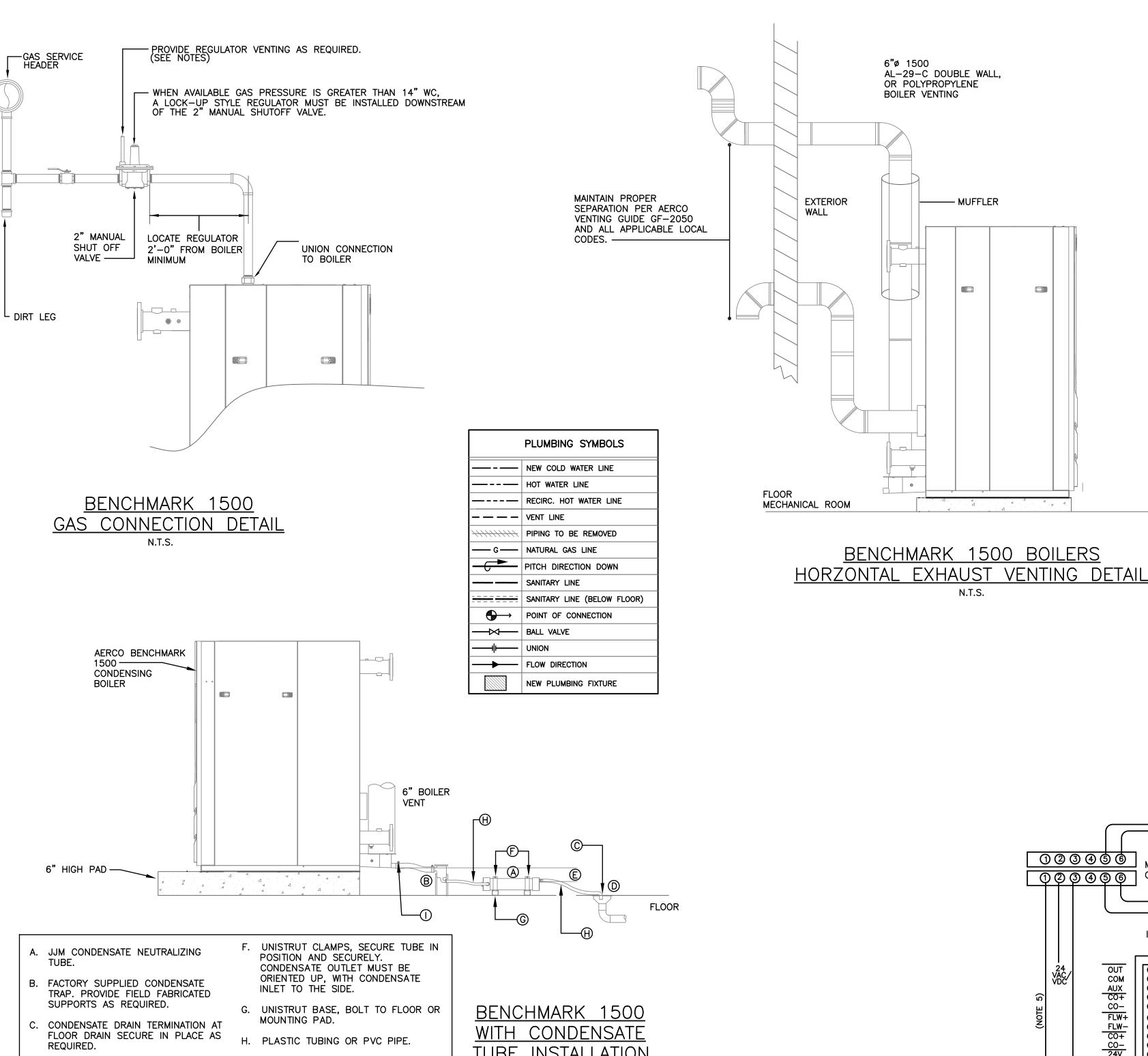
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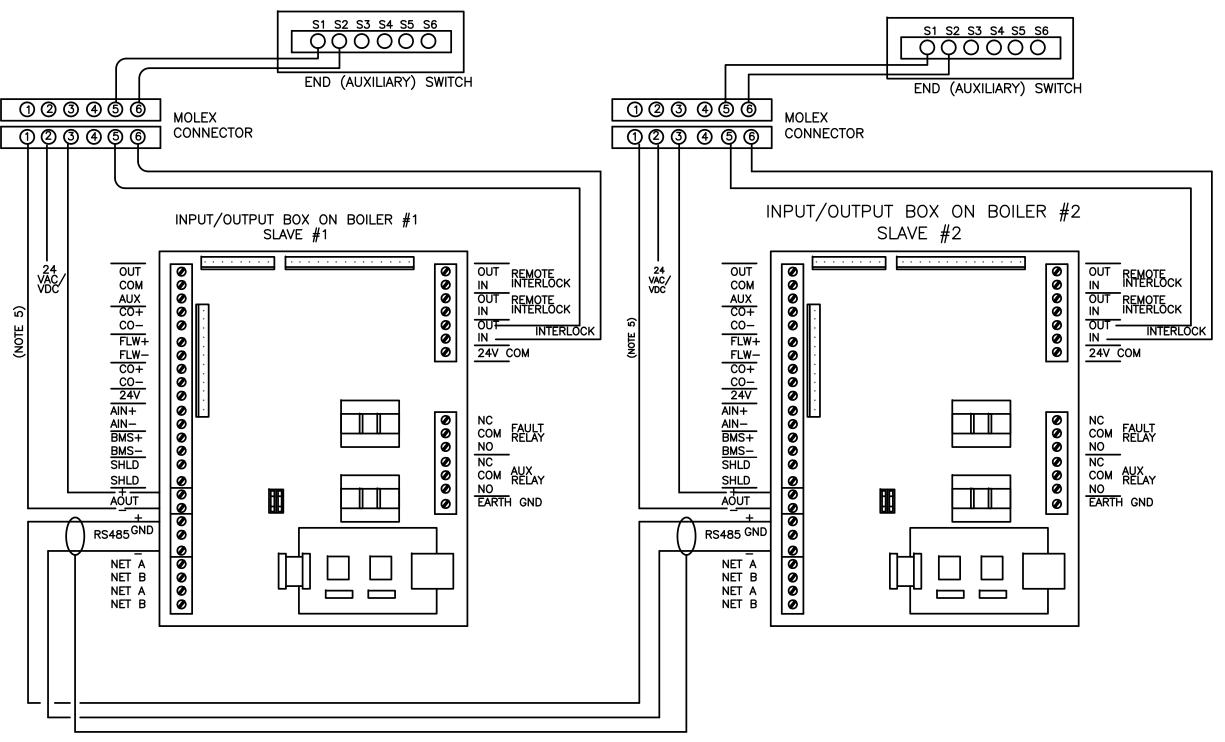
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SYMBOL	FIXTURE TYPE	FIXTURE SPECIFICATIONS	COMMENTS
P1	WATER CLOSET ADA ACESSIBLE	WATER CLOSET SHALL BE "KOHLER" KINGSTON MODEL #K-3423, ADA WALL HUNG VITREOUS CHINA, WITH ELONGATED BOWL AND WHITE KOHLER STRONGHOLD COMMERICAL TOILET SEAT #K-4731-C. FLUSH VALVE SHALL BE SLOAN ROYAL MODEL #111-1.28. CARRIER SHALL BE ZURN ADJUSTABLE VERTICAL MODEL #1200 SERIES.	WALL HUNG SET AT PROPER HEIGHT FOR ADA
P2	LAVATORY ADA ACESSIBLE	LAVATORY SHALL BE KOHLER "GREENWICH" VITREOUS CHINA #K-2032 20" X 18" WALL MOUNTED WITH 4" FAUCET CENTERS. FAUCET SHALL BE "SYMMONS" SYMMETREX #S-20-G-FR-VP-W. SUPPLIES SHALL BE #K-7607. TRAP SHALL BE #K-9000. LAVATORY REQUIRES OFF-SET DRAIN NUMBER K-13885. INSULATE TRAP AND SUPPLIES BELOW LAVATORY WITH "HANDI LAV-GUARD" PRE-FORMED INSULATING KIT AS MANUFACTURED BY TRU BRO. INC. SET LAV AT PROPER HEIGHT FOR HANDICAPPED. LAVATORY SHALL BE SUPPORTED ON PROPER BLOCKING IN WALL.	MOUNT FIXTURE AT PROPER HEIGHT FOR ADA
Р3	SHOWER STALL ADA ACESSIBLE	SHOWER STALLS SHALL BE PREFABRICATED MODULES AS MANUFACTURED BY STERLING PLUMBING GROUP, INC. UNIT SHALL BE MADE OF SOLID "VIKRELL" COMPRESSION MOLDED FIBERGLAS REINFORCED RESIN. MODULES SHALL BE MADE UP OF FOUR (4) PIECE SHOWER STALLS. FINISH SHALL BE HIGH GLOSS COLOR SHALL BE SELECTED BY ARCHITECT. SHOWER STALL SHALL BE MODEL #62500115ADA, 39–3/8"x39–38"x72" RIGHT OR LEFT HAND AS REQUIRED. SHOWER ASSEMBLY SHALL BE "SYMMONS" TEMPTROL #96–500–B30–L-VX PRESSURE—BALANCING MIXING VALVE WITH INTEGRAL STOPS, SINGLE BLADE HANDLE AND ADJUSTABLE STOP SCREW TO LIMIT HANDLE TURN. LEVERTOL 4–458 DIVERTER. SHOWER HEAD WITH ARM AND FLANGE. SHOWER HEAD MUST HAVE 1.5 G.P.M. FLOW RESTRICTOR. WALL/HAND SHOWER WITH FLEXIBLE METAL HOSE, IN-LINE VACUUM BREAKER, WALL CONNECTION AND FLANGE 30" SLIDE BAR FOR HAND SHOWER MOUNTING. PROVIDE FACTORY INSTALLED STAINLESS STEEL GRAB BARS AND FOLDING SEAT. NOTE RIGHT OR LEFT HAND UNIT REQUIREMENTS INDICATED ON DRAWINGS. SHOWER UNIT MUST BE SET IN A MUD BASE AND EVENLY SUPPORTED FOR ITS ENTIRE LENGTH AND WIDTH FOR PROPER INSTALLATION.	STERLING IS A "KOHLER" CO.
P4	SHOWER STALL	SHOWER STALLS SHALL BE PREFABRICATED MODULES AS MANUFACTURED BY STERLING PLUMBING GROUP, INC. UNIT SHALL BE MADE OF SOLID "VIKRELL" COMPRESSION MOLDED FIBERGLAS REINFORCED RESIN. MODULES SHALL BE MADE UP OF FOUR (4) PIECE SHOWER STALLS. FINISH SHALL BE HIGH GLOSS COLOR SHALL BE SELECTED BY ARCHITECT. SHOWER STALL SHALL BE MODEL #6200100, 36"x34"x73.25" RIGHT OR LEFT HAND AS REQUIRED. SHOWER ASSEMBLY SHALL BE "SYMMONS" TEMPTROL #96-1-X1 PRESSURE-BALANCING MIXING VALVE WITH INTEGRAL STOPS, SINGLE BLADE HANDLE AND ADJUSTABLE STOP. SHOWER HEAD WITH ARM AND FLANGE. SHOWER VALVES TO BE MOUNTED AT 48" A.F.F. AS SHOWN IN MANUFACTURE'S INSTRUCTIONS. SHOWER HEADS MUST HAVE 1.5 G.P.M.FLOW RESTRICTOR. SHOWER UNIT MUST BE SET IN A MUD BASE AND EVENLY SUPPORTED FOR ITS ENTIRE LENGTH AND WIDTH FOR PROPER INSTALLATION.	STERLING IS A "KOHLER" CO.
P5	FLOOR RECEPTER	FLOOR RECEPTOR SHALL BE FIAT MOLDED STONE MOP SERVICE BASIN #MSB 2424, 24" X 24" X 10", #830-AA SERVICE FAUCET WITH INTEGRAL VACUUM BREAKER, #889-CC MOP HANGER, #E-88-AA BUMPER GUARD, #832-AA HOSE AND HOSE BRACKET.	FAUCET CONTAINS VACUUM BREAKER
P6	HAND WASHING LAVATORY	LAVATORY SHALL BE KOHLER "GREENWICH" VITREOUS CHINA #K-2032 20" X 18" WALL MOUNTED WITH 4" FAUCET CENTERS. FAUCET SHALL BE "ELKAY" MODEL #LK406GN005L2 GOOSENECK FAUCET WITH LEVER HANDLES. PROVIDE SEMI-CAST TRAP AND FLEX RISERS. LAVATORY SHALL BE SUPPORTED ON PROPER BLOCKING IN WALL.	STAND LAVATORY

FIXTURE NOTES:

- . INCLUDED SHALL BE PLUMBING FIXTURES NOTED, ALL TRIM ITEMS AND ALL ACCESSORY ITEMS SHOWN OR REQUIRED FOR A COMPLETE INSTALLATION. UNLESS NOTED OTHERWISE.
- 2. THE FIXTURES SHALL BE COMPLETE WITH CHROME PLATING ON EXPOSED IRON OR PIPE, TRAPS, ANCHOR BOLTS, HANGERS, STRAINERS, LOOSE KEY STOP VALVES AT EVERY FIXTURE, FAUCET AND OTHER INCIDENTAL ITEMS FURNISHED AS STANDARD. UNLESS NOTES OTHERWISE KOHLER NUMBERS ARE SPECIFIED.
- 3. ALL FIXTURES ARE TO BE FIRST QUALITY, FREE OF CRACKS, BLEMISHES, OR OTHER IMPERFECTIONS AND TO BE "ACID RESISTING" QUALITY. SET AND PROPERLY CONNECT ALL FIXTURES WITH HOT AND COLD WATER, VENT AND DRAINAGE PIPING AND OTHER SERVICES AS REQUIRED AND PROTECT FIXTURES UNTIL FINAL ACCEPTANCE AND TEST.
- 4. THE PLUMBING CONTRACTOR SHALL FURNISH, SET AND CONNECT ALL FIXTURES AND ACCESSORIES SHOWN AND SPECIFIED TO FULLY COMPLETE THE PLUMBING INSTALLATION.



BENCHMARK ONBOARD BOILER SEQUENCING TECHNOLOGY WITH FIELD WIRING DIAGRAM 2 BOILERS

N.T.S.



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	REVIS	SIONS;	
	\triangle	DATE	DESCRIPTION

OF SIO CENTER SCUE MISS RENOVATION RE JOEL SMILOW CA INTERIOR

25 EPC

DETAIL, SCHEDULES AND SYMBOLS

SCALE:	DRAWN BY:	REVIEWED
NONE	BJC	GDD
DDAMING NG		

GDD JOB NUMBER:

07 MAY 2019 19469

TUBE INSTALLATION I. USE HOSE CLAMPS AT ALL D. FLOOR DRAIN CONNECTIONS WHEN USING FACTORY SUPPLIED RUBBER HOSE. N.T.S. E. BOTTOM OF BOILER CONDENSATE OUTLET MUST BE ABOVE THE THE BOTTOM OF THE JM TUBE CONDENSATE OUTLET

HIGH EFFICIENCY CONDENSING BOILER SCHEDULE

160°F.

WATER FLOW WATER

25-250

25-250

WATER TEMP WATER TEMP MIN-MAX (GPM) VOLUME (GAL) SIZE TURN DOWN EMISSIONS

34

|VENT | BOILER

20:1 < 20 PPM | 120V/60/1PH | 95.0

6" | 20:1 | < 20 PPM | 120V/60/1PH | 95.0 | 1, 2, 3 & 4

6"

REMARKS

GAS PRESSURE | SUPPLY | RETURN

MIN-MAX

B-1 | BOILER ROOM | 1500 | 1425 | NAT. GAS | 4" - 14" WC

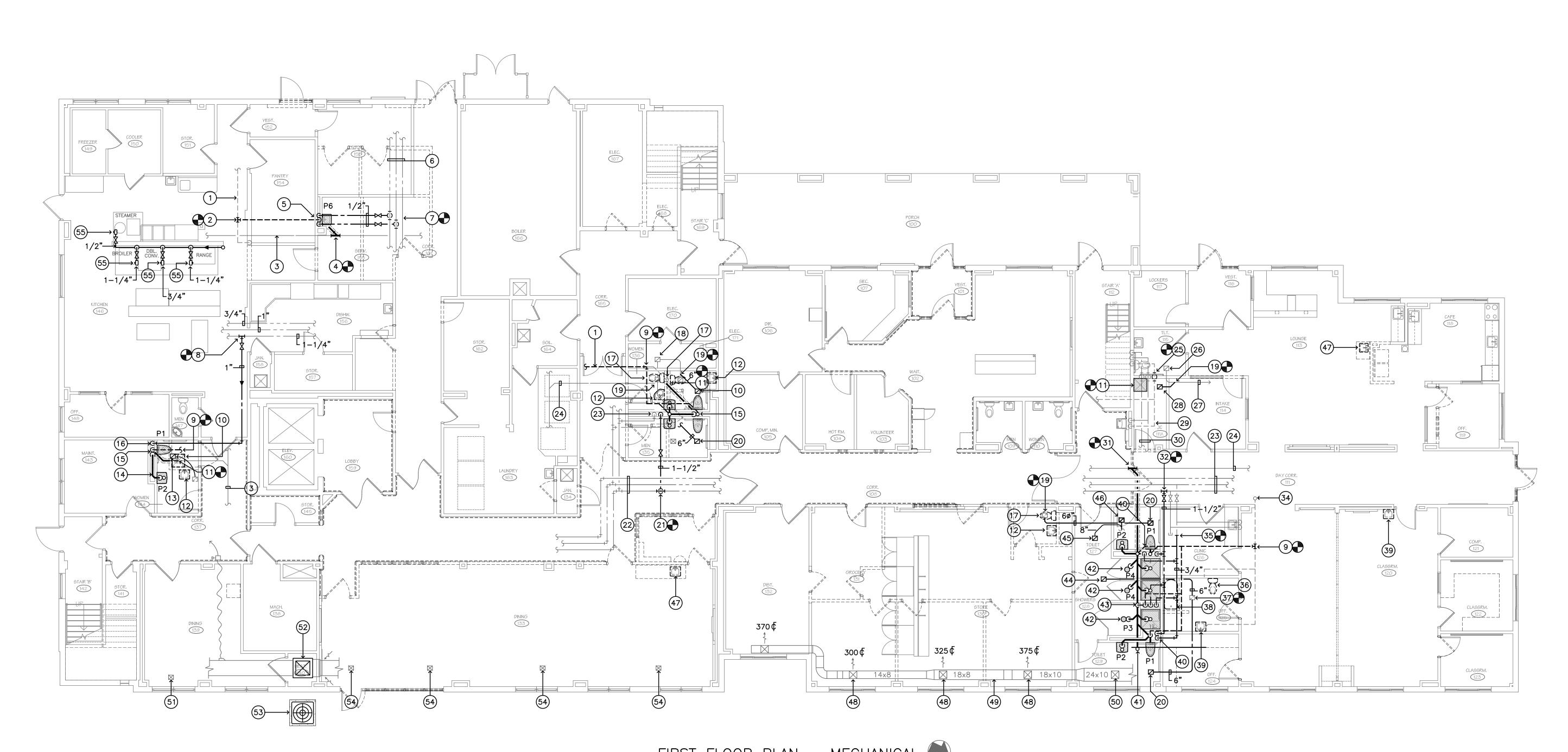
4. PROVIDE MUFFLER IN EXHAUST PIPE (TYPICAL FOR 2).

B-2 | BOILER ROOM | 1500 | 1425 | NAT. GAS | 4" - 14" WC | 180°F.

3. PROVIDE WITH CONDENSATE NEUTRALIZATION TUBE EQUAL TO JM-20.

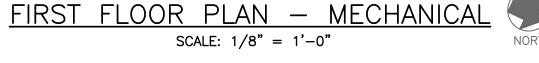
1. PROVIDE WITH ON-BOARD FACTORY BOILER MANAGEMENT SYSTEM, AERCO BST.

2. PROVIDE WITH POLYPROPYLENE, OR AL29-4C STAINLESS STEEL VENTING PER UL1738



<u>LEGEND</u>

- 1 APPROXIMATE LOCATION OF EXISTING 2" VENT PIPING ABOVE CEILING.
- 2 CONNECT NEW 1-1/2" VENT TO EXISTING VENT LINE ABOVE CEILING.
- 3 APPROXIMATE LOCATION OF EXISTING 3" WASTE LINE BELOW FLOOR.
- (4) CONNECT NEW 2" WASTE LINE TO EXISTING BELOW FLOOR.
- 5 1/2" HOT AND COLD WATER DOWN, 1-1/2" VENT UP AND 2" WASTE DOWN INTO FLOOR.
- 6 APPROXIMATE LOCATION OF EXISTING 3" COLD, 2-1/2" HOT AND 3/4" HOT WATER RECIRC. PIPING.
- (7) CONNECT NEW 1/2" HOT AND COLD WATER PIPING TO EXISTING.
- (8) CONNECT NEW 1" COLD WATER TO EXISTING 1-1/4" ABOVE CEILING.
- (9) CONNECT NEW 2" VENT TO EXISTING ABOVE CEILING.
- REMOVE AND DISCARD EXISTING SERVICE SINK AND ALL ASSOCIATED HOT, COLD WASTE AND VENT PIPING. REMOVE ALL PIPING IN WALLS TO BE DEMOLISHED.
- (11) CONNECT NEW 3" SANITARY PIPING TO EXISTING BELOW FLOOR.
- REMOVE AND DISCARD EXISTING WALL HUNG LAVATORY AND ALL ASSOCIATED HOT, COLD, WASTE AND VENT PIPING. REMOVE ALL PIPING IN WALLS TO BE DEMOLISHED.
- 13) ADJUST LOCATION OF EXISTING EXHAUST GRILLE. LOCATE IN NEW TOILET ROOM, EXTEND DUCTWORK AS REQUIRED (70 C,F,M,).
- 1-1/2" WASTE LINE IN PIPE CHASE. EXTEND 1/2" HOT WATER TO LAVATORY FROM EXISTING ABOVE CEILING.
- (15) 3" SANITARY DOWN AND 2" VENT UP.
- 16 1" COLD WATER DOWN IN PIPE CHASE.
- (17) REMOVE AND DISCARD EXISTING WATER CLOSET AND ALL ASSOCIATED COLD WATER, SANITARY AND VENT PIPING. REMOVE ALL PIPING IN WALLS TO BE DEMOLISHED.
- (18) EXISTING 6"x6" EXHAUST RISER.
- (19) CONNECT NEW 6" DIA. EXHAUST DUCTWORK TO EXISTING.
- 20) NEW 8"x8" CEILING EXHAUST GRILLE (70 C.F.M.).



- (21) CONNECT NEW 1-1/2" COLD WATER TO EXISTING 2-1/2" ABOVE SUSPENDED CEILING.
- 22) APPROXIMATE LOCATION OF EXISTING 2-1/2" COLD, 2" HOT AND 3/4" RECIRC.. HOT WATER.
- 23) 1/2" HOT AND COLD WATER DOWN IN PIPE CHASE.
- (24) APPROXIMATE LOCATION OF EXISTING 4" SANITARY LINE BELOW FLOOR.
- (25) CONNECT TO EXISTING PIPING AND DROP 1/2" HOT, COLD AND 1-1/2" VENT DOWN IN PARTITION.
- (26) EXISTING EXHAUST GRILLE TO REMAIN.
- 27 EXISTING 6"x6" EXHAUST DUCTWORK.
- (28) NEW 6"x6" CEILING EXHAUST GRILLE (50 C.F.M.).
- (29) EXISTING VENT PIPING ABOVE CEILING.
- (30) EXISTING HOT AND COLD WATER ABOVE CEILING.
- (31) CONNECT NEW 4" SANITARY PIPING TO EXISTING BELOW FLOOR.
- (32) CONNECT NEW 1-1/2" COLD WATER TO EXISTING 2" ABOVE SUSPENDED CEILING.
- (33) APPROXIMATE LOCATION OF EXISTING 2" COLD, 1" HOT AND 3/4" RECIRC. HOT WATER.
- (34) EXISTING 3" VENT THROUGH ROOF.
- 35) CONNECT NEW 3/4" HOT WATER TO EXISTING.
- (36) REMOVE AND DISCARD EXISTING WATER CLOSET AND ASSOCIATED COLD WATER, VENT AND SANITARY PIPING. CAP AND MAKE SAFE ALL UNUSED PIPING BEHIND FINISHED SURFACES.
- (37) EXISTING 10"x10" EXHAUST RISER UP. CONNECT TWO NEW 6" DIA. EXHAUST DUCTS TO RISER.
- REMOVE AND DISCARD EXISTING TUB AND ALL ASSOCIATED HOT, COLD, WASTE AND VENT PIPING. CAP AND MAKE SAFE ALL UNUSED PIPING BEHIND FINISHED SURFACES.
- (39) REMOVE AND DISCARD EXISTING LAVATORY ASSOCIATED HOT, COLD, WASTE AND VENT PIPING. CAP AND MAKE SAFE ALL UNUSED PIPING BEHIND FINISHED SURFACES.
- 40 1/2" HOT AND 1-1/4" COLD WATER DOWN, 2" VENT UP AND 3" SANITARY DOWN INTO FLOOR.
- (41) FLUSH FLOOR CLEANOUT.

- (42) 2" FLOOR DRAIN (IN SHOWER DRYING AREA).
- (43) 1/2" HOT AND COLD WATER DOWN AND 2" VENT UP.
- (44) NEW 8"x8" CEILING EXHAUST GRILLE (120 C.F.M.).
- 45 NEW 8"X8" CEILING SUPPLY REGISTER (170 C.F.M.).
- (46) EXISTING SUPPLY REGISTER REDUCE AIR SUPPLY TO 65 C.F.M.
- (47) REMOVE AND DISCARD EXISTING COUNTER SINK AND ALL ASSOCIATED HOT, COLD, WASTE AND VENT PIPING. REMOVE ALL PIPING IN WALLS TO BE DEMOLISHED. CAP AND MAKE SAFE ALL UNUSED PIPING BEHIND FINISHED SURFACES.
- ADJUST LOCATION OF EXISTING SUPPLY DIFFUSER AND ASSOCIATED DUCTWORK TO SUIT NEW REFLECTED CEILING LAYOUT. ADJUST AIR FLOW TO C.F.M. NOTED.
- (49) EXISTING TRUNK DUCTWORK TO REMAIN IN SERVICE.
- (50) BLANK-OFF EXISTING SUPPLY DIFFUSER AIR TIGHT.
- (51) EXISTING CEILING SUPPLY DIFFUSERS TO REMAIN.
- (52) REMOVE AND DISCARD EXISTING 5 TON UNIT AIR HANDLING UNIT AND REPLACE WITH NEW "ENVIRCO-TEC" MODEL VE SERIES "C" UNIT SIZE 20 VERTICAL BELT DRIVE BLOWER COIL UNIT WITH FIELD INSTALLED PLENUM. NEW BLOWER COIL TO BE TIED INTO EXISTING SUPPLY AND RETURN DUCTWORK BOILER COIL TO BE WIRED FOR 208V. 1PH SERVICE.
- REMOVE AND DISCARD EXISTING 5 TON CONDENSING UNIT AND REPLACE WITH NEW "DAIKIN" OUTDOOR UNIT MODEL # DX13SA0603 WIRED FOR 208V. 3PH SERVICE. SET NEW CONDENSING UNIT ON NEW CONCRETE BASE. PROVIDE AND INSTALL NEW REFRIGERANT LINE SETS.
- ADJUST LOCATION OF EXISTING SUPPLY DIFFUSER AND ASSOCIATED DUCTWORK TO SUIT NEW REFLECTED CEILING LAYOUT.
- PROVIDE AND INSTALL A GAS PRESSURE REGULATOR ON EACH PIECE OF KITCHEN EQUIPMENT. REGULATORS SHALL BE EQUAL TO MAXITROL #325 SERIES WITH 2 P.S.I. INLET PRESSURE AND 6" OUTLET PRESSURE.



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REVISIONS:

DATE

DESCRIPTION

TILOW CARE CENTER CIGEPORT RESCUE MISSITERIOR RENOVATIONS

25 EPC

RAWING TITLE:
FIRST FLOOR PLAN

- MECHANICAL

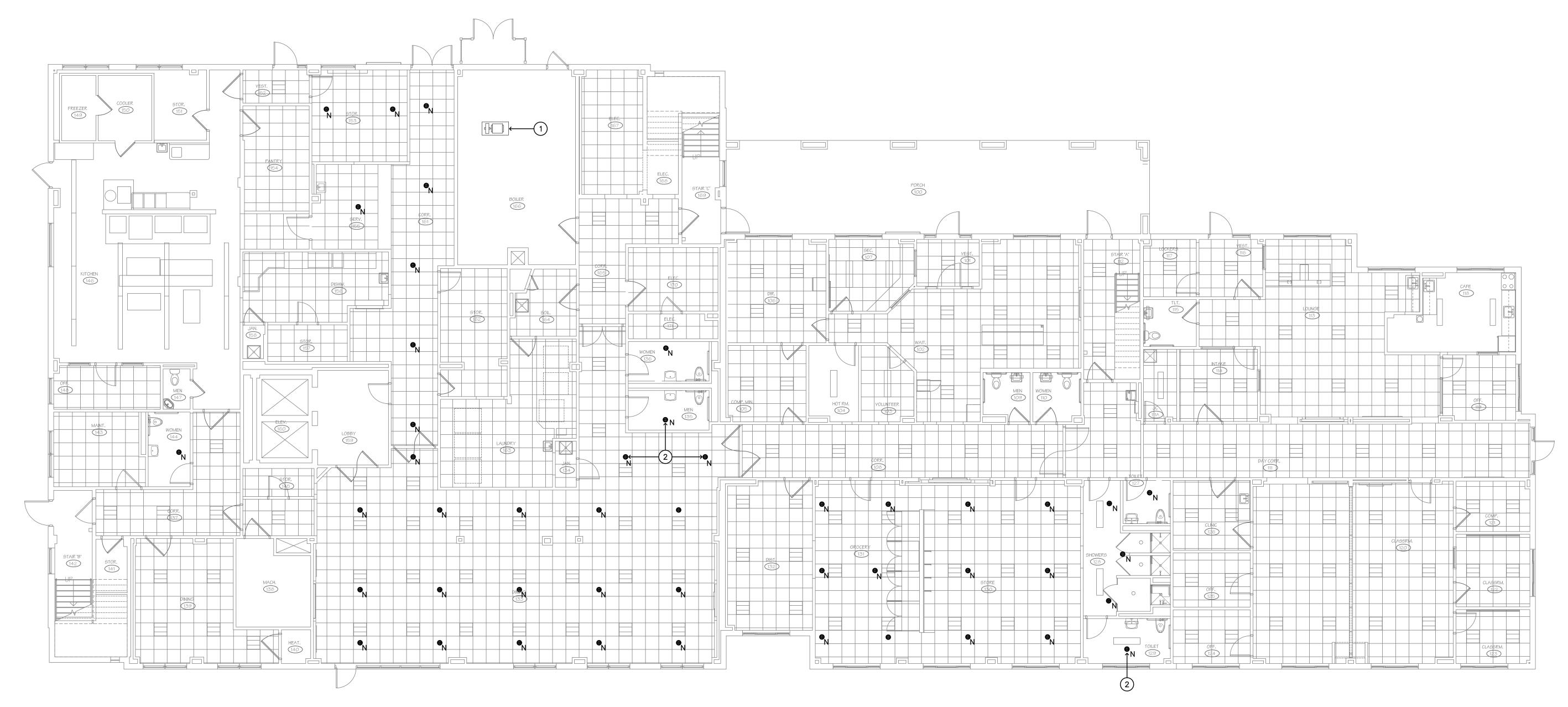
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CALE: DRAWN BY: REVIEWED

1/8"=1'-0" BJC GDI

M_5

DATE: GDD JOB NUMBER: 07 MAY 2019 19469



EXISTING SPRINKLER NOTE:

THE BUILDING IS FULLY SPRINKLERED THROUGHOUT THE BUILDING ALONG WITH A FIRE PUMP AND EXISTING HEADS ARE NOT SHOWN. IN AREAS BEING RENOVATED AND NEW PARTITIONS ARE BEING INSTALLED NEW SEMI-RECESSED CHROME PENDANT SPRINKLER HEADS ARE SHOWN ON PLANS IN NEW LOCATIONS. EXISTING SPRINKLER HEADS TO BE REMOVED. EXTEND EXISTING BRANCH PIPING TO NEW LOCATION AND INSTALL NEW SEMI-RECESSED SPRINKLER HEAD IN NEW SUSPENDED CEILING.

SPRINKLER ESCUTCHEON COVER NOTE: INSTALL NEW WHITE ESCUTCHEON COVER PLATES AS REQUIRED WHERE MISSING.

<u>LEGEND</u>

- 1 EXISTING 40 H.P. FIRE PUMP LOCATED IN BOILER ROOM TO REMAIN.
- 2 NEW SPRINKLER HEAD IN NEW LOCATION, TYPICAL.

SPRINKLER SYMBOLS

N - NEW SEMI-RECESSED CHROME PENDANT SPRINKLER HEAD. CONNECT TO EXISTING PIPING. EXTEND BRANCH PIPING OR CROSS MAIN AS NECESSARY TO SUIT NEW LAYOUT. MODIFY AS REQUIRED.



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JOEL SMILOW CA

RENOVATIONS 725 GEPC

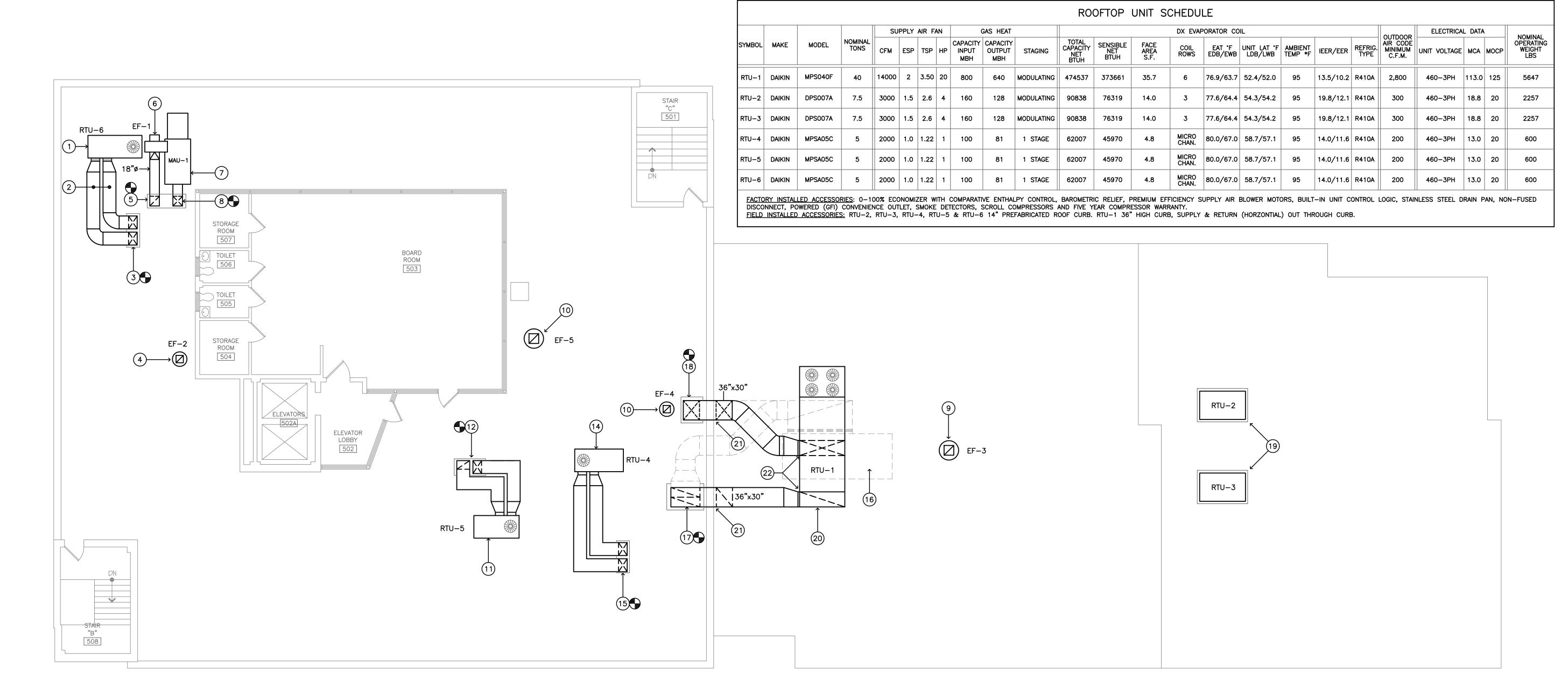
INTERIOR

FIRST FLOOR PLAN - FIRE PROTECTION

GDD JOB NUMBER:

07 MAY 2019 19469





<u>FIFTH FLOOR PLAN - MECHANICAL</u> SCALE: 1/8" = 1'-0"

SYMBOL	MAKE	MODEL	TYPE	CFM	S.P.	HP	VOLTAGE	DRIVE	RPM	TIP SPEED	SONES	EXHAUST SERVICE	
EF-1	соок	CPS195	CENTRICAL VENT SET BLOWER	3815	2.5"	3	460-3PH	BELT	1425	3562	_	KITCHEN HOOD	
EF-2	соок	ACRUB 100RB2	ROOFTOP CENTRICAL EXHAUST VENTILATOR	542	.375"	1/6	120-1PH	BELT	1340	3508	7.3	DISHWASHER EXHAUST	
EF-3	соок	165C3B	ROOFTOP CENTRICAL EXHAUST VENTILATOR	1500	.50"	1/4	120-1PH	BELT	830	3581	6.6	TOILETS	
EF-4		С	ONTRACTOR							-			
EF-5	EXHAUST VENTILATOR WITH NEW. VERIFY SIZE IN FIELD												

KITCHEN EXHAUST HOOD MAKE-UP AIR UNIT													
SYMBOL MAKE MODEL ARRANGEMENT				MBH OUTPUT	EAT F	LAT F	СҒМ	HP	T.S.P.	FAN RPM	NATURAL GAS INPUT	VOLTAGE	MOTOR F.L.A.
MAU-1	REZNOR	RHD-225	HORIZONTAL	182.25	0	55	3050	2	1.47	1178	225 MBH	460/3/60	3.5

COMPLETE WITH ELECTRONIC IGNITION, CURB CAP, DOUBLE WALL CAP, POWER VENTED, STAINLESS STEEL HEAT EXCHANGER, ELEC. MODULATION WITH REMOTE SELECT, 2 H.P. ODP MOTOR, MOTOR CONTRACTOR, 24V. COIL, 2 POS MOTORIZED 100% O/A DAMPER 100% O/A RAIN BAFFLED INTAKE HOOD, FILTER RACK WITH 2" PLEATED FILTERS, DOUBLE WALL INSULATED CABINET, FLUSH MTD. NONFUSED LOCKABLE DISCONNECT, RELAY STARTS UNIT FROM REMOTE CONTACTS, FURNACE COND. DRAIN, VIBRATION ISOLATION, CONTROL PANEL, DISCHARGE TEMP DIAL ON PANEL, 5 YEAR HEAT EXCHANGER WARRANTY

- (1) REMOVE EXISTING "CARRIER" 5 TON ROOF TOP UNIT, ROOF CURBS AND SUPPLY AND RETURN DUCTWORK BACK TO VERTICAL DUCTWORK THROUGH ROOF. IN IT'S PLACE INSTALL A NEW PACKAGED HEATING/COOLING ROOFTOP UNIT RTU-6 WITH HORIZONTAL INLET AND OUTLET DUCT CONNECTIONS. MOUNT ON FULL NEW PERIMETER ROOF CURB. PROVIDE FLEXIBLE CONNECTIONS AT INLET AND OUTLET OF UNIT. TRANSFORM TO AND RUN NEW 20"x18" I.D. SHEET METAL DUCTING SYSTEM WITH 2" RIGID BOARD INSULATION; R-8.0 MINIMUM. COVER ALL DUCT INSULATION WITH "ALUMAGUARD" ALL WEATHER INSULATION MANUFACTURED BY "POLYGUARD" WITH PEEL'N' STICK VAPOR BARRIER INSULATION JACKET AND CLADDING SYSTEMS. ALL EXTERIOR HORIZONTAL SUPPLY AND RETURN DUCTWORK SHALL BE SUPPORTED USING ROOF PRODUCTS MODEL SS-D-C GALVANIZED UNISTRUT DUCT SUPPORTS WITH 16 GAUGE STAINLESS STEEL BASES, MAXIMUM 10
- (2) NEW 20"x18" INSULATED AND WEATHER PROOFED SUPPLY AND RETURN DUCTWORK SUPPORTED ABOVE ROOF.
- (3) CONNECT NEW 20"x18" DUCTWORK TO EXISTING VERTICAL DUCTWORK. ALL CONNECTIONS TO BE WEATHER TIGHT.
- REMOVE EXISTING EXHAUST FAN AND ROOF CURB INSTALL NEW EXHAUST FAN EF-2 (DISHWASHER EXHAUST) AND NEW CURB. CONNECT TO EXISTING DUCTWORK.
- (5) CONNECT NEW KITCHEN HOOD EXHAUST DUCTWORK TO EXISTING. ALL CONNECTIONS TO BE WEATHER TIGHT.
- 6) REMOVE EXISTING 3800 C.F.M. KITCHEN HOOD EXHAUST UTILITY SET AND ASSOCIATED EXHAUST DUCTWORK BACK TO VERTICAL DUCTWORK THROUGH ROOF. IN IT'S PLACE INSTALL A NEW EXHAUST FAN EF-1 WITH NEW 18" DIA. EXHAUST DUCT WORK, DUCTWORK TO BE NO. 16 GAUGE WELDED BLACK STEEL OR 18 GAUGE STAINLESS STEEL, AND PROTECTED FROM CORROSION. PROVIDE FLEXIBLE CONNECTION AT THE FAN INLET LISTED AND LABELED FOR THE APPLICATION.
- (7) REMOVE EXISTING "RENZOR" MAKE-UP AIR UNIT, ROOF CURB AND SUPPLY AIR DUCTWORK. IN IT'S PLACE INSTALL A NEW "RENZNOR" GAS FIRED MAKE-UP AIR UNIT MAU-1 ON NEW FULL PREMIER ROOF CURB. PROVIDE FLEXIBLE CONNECTION ON OUTLET OF UNIT. TRANSFORM TO AND RUN 20"x18" I.D. SHEET METAL DUCTING SYSTEM WITH 2" RIGID BOARD INSULATION; R-8.0 MINIMUM. COVER ALL DUCT INSULATION WITH "ALUMAGUARD"ALL WEATHER INSULATION MANUFACTURED BY "POLYGUARD" WITH PEEL'N' STICK VAPOR BARRIER INSULATION JACKET AND CLADDING SYSTEMS.
- (8) CONNECT NEW MAKE-UP AIR SUPPLY DUCTWORK TO EXISTING. ALL CONNECTIONS TO BE WEATHER TIGHT.
- (9) REMOVE EXISTING EXHAUST FAN AND ROOF CURB, INSTALL NEW EXHAUST FAN EF-3 (TOILET ROOM EXHAUST) AND ROOF CURB. CONNECT TO EXISTING DUCTWORK.
- (10) REMOVE AND REPLACE EXISTING EXHAUST FAN EF-4 AND EF-5 AND ASSOCIATED ROOF CURB WITH NEW EXHAUST FANS AND ROOF CURBS. EXISTING C.F.M. AND H.P. OF EACH FAN MUST BE DETERMINED IN FIELD.
- (11) REMOVE EXISTING "CARRIER" 5 TON ROOF TOP UNIT, ROOF CURBS AND SUPPLY AND RETURN DUCTWORK BACK TO VERTICAL DUCTWORK THROUGH ROOF. IN IT'S PLACE INSTALL A NEW PACKAGED HEATING/COOLING ROOFTOP UNIT RTU-5 WITH HORIZONTAL INLET AND OUTLET OF UNIT. TRANSFORM TO AND RUN NEW 20"X12" I.D. SHEET METAL DUCTING SYSTEM WITH 2" RIGID BOARD INSULATION; R-8.0 MINIMUM. COVER ALL DUCT INSULATION WITH "ALUMAGUARD"ALL WEATHER INSULATION MANUFACTURED BY "POLYGUARD" WITH PEEL'N' STICK VAPOR BARRIER INSULATION JACKET AND CLADDING SYSTEMS. ALL EXTERIOR HORIZONTAL SUPPLY AND RETURN DUCTWORK SHALL BE SUPPORTED USING ROOF PRODUCTS MODEL SS-D-C GALVANIZED UNISTRUT DUCT SUPPORTS WITH 16 GAUGE STAINLESS STEEL BASES, MAXIMUM 10

- (12) CONNECT NEW DUCTWORK TO EXISTING VERTICAL DUCTWORK. TRANSITION TO 28"x10" THROUGH ROOF ALL CONNECTIONS TO BE WEATHER
- (13) NEW 20"X12" INSULATED AND WEATHER PROOFED SUPPLY AND RETURN DUCTWORK SUPPORTED ABOVE ROOF.
- (14) REMOVE EXISTING "CARRIER" 5 TON ROOF TOP UNIT, ROOF CURBS AND SUPPLY AND RETURN DUCTWORK BACK TO VERTICAL DUCTWORK THROUGH ROOF. IN IT'S PLACE INSTALL A NEW PACKAGED HEATING/COOLING ROOFTOP UNIT RTU-4 WITH HORIZONTAL INLET AND OUTLET DUCT CONNECTIONS. MOUNT ON FULL NEW PERIMETER ROOF CURB. PROVIDE FLEXIBLE CONNECTIONS AT INLET AND OUTLET OF UNIT. TRANSFORM TO AND RUN NEW 20"X12" I.D. SHEET METAL DUCTING SYSTEM WITH 2" RIGID BOARD INSULATION; R-8.0 MINIMUM. COVER ALL DUCT INSULATION WITH "ALUMAGUARD" ALL WEATHER INSULATION MANUFACTURED BY "POLYGUARD" WITH PEEL'N' STICK VAPOR BARRIER INSULATION JACKET AND CLADDING SYSTEMS. ALL EXTERIOR HORIZONTAL SUPPLY AND RETURN DUCTWORK SHALL BE SUPPORTED USING ROOF PRODUCTS MODEL SS-D-C GALVANIZED UNISTRUT DUCT SUPPORTS WITH 16 GAUGE STAINLESS STEEL BASES, MAXIMUM 10 FT. BETWEEN SUPPORTS.
- (15) CONNECT NEW 20"X12" DUCTWORK TO EXISTING VERTICAL DUCTWORK. ALL CONNECTIONS TO BE WEATHER TIGHT.
- (16) REMOVE EXISTING "CARRIER" 35 TON ROOF TOP UNIT, ROOF CURBS AND SUPPLY AND RETURN DUCTWORK BACK TO VERTICAL DUCTWORK THROUGH ROOF. IN IT'S PLACE INSTALL A NEW PACKAGED HEATING/COOLING ROOFTOP UNIT RTU-1 WITH HORIZONTAL INLET AND OUTLET DUCT CONNECTIONS THROUGH ROOF CURB. MOUNT ON NEW 36" HIGH FULL PREMIER ROOF CURB. PROVIDE FLEXIBLE CONNECTIONS AT INLET AND OUTLET OF UNIT. RUN NEW SHEET METAL DUCTWORK WITH 2" RIGID BOARD INSULATION; R-8.0 MINIMUM. COVER ALL DUCT INSULATION WITH "ALUMAGUARD"ALL WEATHER INSULATION MANUFACTURED BY "POLYGUARD" WITH PEEL'N' STICK VAPOR BARRIER INSULATION JACKET AND CLADDING SYSTEMS. ALL EXTERIOR HORIZONTAL SUPPLY AND RETURN DUCTWORK SHALL BE SUPPORTED USING ROOF PRODUCTS MODEL SS-D-C GALVANIZED UNISTRUT DUCT SUPPORTS WITH 16 GAUGE STAINLESS STEEL BASES, MAXIMUM 10 FT. BETWEEN SUPPORTS.
- (17) TRANSFORM NEW RETURN DUCTWORK TO 54"x22" THROUGH ROOF.
- (18) TRANSFORM NEW SUPPLY DUCTWORK TO 36"X30" THROUGH ROOF.
- (19) REMOVE EXISTING 7.5 TON ROOF TOP UNIT AND ROOF CURB, REPLACE WITH NEW 7.5 TON DOWN FLOW HEATING/COOLING ROOF TOP UNIT WITH NEW FULL PERIMETER ROOF CURB.
- (20) NEW RTU-1 ON 36" HIGH PERIMETER ROOF CURB.
- (21) NEW DUCTWORK TO PASS OVER TOP OF PARAPET WALL.
- (22) HORIZONTAL SUPPLY AND RETURN DUCT CONNECTIONS THROUGH ROOF CURB, PROVIDE FLEX CONNECTIONS.

NOTE: PROVIDE AND INSTALL A GAS PRESSURE REGULATOR ON ALL ROOF TOP AND MAKE-UP AIR UNITS. REGULATOR SHALL BE EQUAL TO "MAXITROL" WITH 2 P.S.I. INLET PRESSURE AND 10" W.C. OUTLET PRESSURE.



ARCHITECTURE & INTERIORS

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DESCRIPTION

ER AIS ZE \simeq

2 El

RAWING TITLE: ROOF PLAN -**MECHANICAL**

GE

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AWING NO.

1/8"=1'-0" BJC

GDD JOB NUMBER: 19469

07 MAY 2019