

PLUMBING SPECIFICATIONS

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS:

- A. THE LATEST EDITION OF AIA DOCUMENTS A201 GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, OR AS REQUIRED BY THE ARCHITECTURAL DOCUMENTS AND/OR THE STRUCTURAL ENGINEER'S DRAWINGS ARE PART OF THE CONTRACT.
- B. PROVIDE ALL PLUMBING WORK SHOWN ON THE CONTRACT DOCUMENTS. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE UNIFORM CONSTRUCTION CODE (UNAC 5.23), 2020 BUILDING CODE OF NEW YORK STATE, 2020 PLUMBING CODE OF NY STATE, 2020 FUEL GAS CODE OF NY STATE, AND ALL AUTHORITIES HAVING JURISDICTION (NYS, APPLICABLE NATIONAL, STATE AND LOCAL CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THE WORK SHALL BE INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS.
- C. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THIS WORK. FINAL ACCEPTANCE SHALL BE DEFINED AS THE TIME AT WHICH THE PLUMBING WORK IS TAKEN OVER AND ACCEPTED BY THE OWNER. ENGAGE THE SERVICES OF VARIOUS MANUFACTURERS SUPPLYING THE EQUIPMENT FOR THE PROPER STARTUP, OPERATION AND TRAINING OF ALL SYSTEMS INSTALLED. INSTRUCT THE OWNERS PERSONNEL IN THE PROPER OPERATION AND SERVICING OF THE EQUIPMENT.
- D. BIDDERS SHALL VISIT AND CAREFULLY EXAMINE THE AREA AFFECTED BY THIS WORK TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THIS WORK BEFORE SUBMITTING PROPOSALS. EXAMINE THE CONTRACT DOCUMENTS OF THIS TRADE AND ALL OTHER TRADES FOR THIS PROJECT. VERIFY ALL EXISTING CONDITIONS AT THE SITE, AND BECOME FULLY INFORMED AS TO THE EXTENT AND CHARACTER OF THE WORK IN THE BUILDING. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO BID. IF DISCREPANCIES ARE NOT RESOLVED TO CONTRACTOR'S SATISFACTION THEY SHALL BE QUALIFIED BY THEIR BID SUBMISSION.
- E. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENTS OF SYSTEMS AND WORK INCLUDED IN CONTRACT. IF IT IS NOT INTENDED TO SPECIFY OR TO SHOW EVERY OFFSET, FITTING, OR COMPONENT, HOWEVER, CONTRACT DOCUMENTS REQUIRE COMPONENTS AND MATERIALS WHETHER OR NOT INDICATED OR SPECIFIED AS NECESSARY TO MAKE THE INSTALLATION COMPLETE AND OPERATIONAL. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID CONFLICT. THE CONTRACTOR SHALL, WITHOUT EXTRA COST TO THE OWNER, MAKE ALL REASONABLE MODIFICATIONS IN THE WORK AS MAY BE REQUIRED TO PREVENT CONFLICT WITH THE WORK OF OTHER TRADES, OR FOR THE PROPER INSTALLATION OF THE WORK.
- F. INTERRUPTION OF EXISTING BUILDING SERVICES IN ORDER TO CONNECT NEW PIPING TO EXISTING SHALL BE MADE AT SUCH TIME AS TO CAUSE THE LEAST INTERFERENCE WITH ESTABLISHED BUILDING OPERATING PROCEDURE. ALL EXISTING SERVICE SHUTDOWNS SHALL BE SUPERVISED AND DIRECTED BY BUILDING MANAGEMENT. THE CONTRACTOR SHALL GIVE NOTICE 48 HOURS PRIOR TO ANY SHUTDOWN.
- G. ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN OR SHOWN ON THE DRAWINGS, ANY EQUIPMENT, MATERIALS, ACCESSORIES, OR LABOR REQUIRED FOR A CODE COMPLIANT AND COMPLETE INSTALLATION OF THE PLUMBING WORK SHALL BE FURNISHED AND INSTALLED AS PART OF THE ORIGINAL BID.
- H. PATCH AND/OR REPLACE DAMAGED ARCHITECTURAL FINISHES AS A RESULT OF PLUMBING SYSTEMS INSTALLATION. CLEAN UP THE CONSTRUCTION SITE DAILY DURING CONSTRUCTION SO AS NOT TO INTERFERE WITH THE WORK OF OTHER TRADES, AND AFTER THE COMPLETION OF INSTALLATION AND TESTING.
- I. ALL NECESSARY CUTTING AND PATCHING IN FLOOR SLABS, ROOF SLABS, WALLS, AND CEILINGS FOR THE PLUMBING WORK SHALL BE PERFORMED BY THIS CONTRACTOR. RESTORE TO MATCH EXISTING CONDITIONS.
- J. REMOVAL, TEMPORARY CONNECTIONS AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE INSTALLATION OF THE NEW SYSTEMS. ALL EXISTING CONDITIONS ARE NOT COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND MAKE ALL NECESSARY CHANGES REQUIRED BASED ON EXISTING CONDITIONS FOR PROPER INSTALLATION OF NEW WORK.
- K. ALL EQUIPMENT INSTALLED OR CONNECTED INTO THE BUILDING STACKS, RISERS, PLUMBING SYSTEMS AND INFRASTRUCTURE SHALL BE APPROVED IN ADVANCE BY THE BUILDING PRIOR TO INSTALLATION. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING PIPING TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING MANAGEMENT.
- L. GUARANTEE: THE CONTRACTOR SHALL GUARANTEE AND SERVICE THE ENTIRE INSTALLATION FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE FINAL ACCEPTANCE OF THE INSTALLATION. THE CONTRACTOR SHALL, DURING THE GUARANTEE, REPLACE OR REPAIR AT HIS OWN EXPENSE ANY PIECE OF EQUIPMENT AND/OR MATERIAL WHICH IS FOUND TO BE DEFECTIVE, THE REPLACEMENT OR REPAIR SHALL BE PERFORMED THE SAME DAY OF NOTIFICATION IN AN EMERGENCY FASHION WHEN ORDERED BY THE OWNER OR AUTHORIZED REPRESENTATIVE. THE CONTRACTOR SHALL ALSO REPAIR ALL DAMAGE TO SURROUNDING WORK CAUSED BY THE FAILURE, REPAIR OR REPLACEMENT OF DEFECTIVE EQUIPMENT. THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS DEMONSTRATED THAT HIS WORK FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATION, AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVALS.

1.02 SCOPE OF WORK

- A. THE CONTRACTOR SHALL FURNISH AND INSTALL PLUMBING WORK COMPLETE WITH ALL EQUIPMENT, FIXTURES, PIPING, VALVES, AND ACCESSORIES AND ASSOCIATED WORK IN ACCORDANCE ALL NATIONAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION, BUILDING MANAGEMENT, DESIGN DRAWINGS AND THIS SPECIFICATION. THE SCOPE OF WORK SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
 - 1. *ADD IF REQUIRED- DISCONNECT AND REMOVE PLUMBING EQUIPMENT, FIXTURES, PIPING AND SUPPORTS. REMOVE PIPING BACK TO EXISTING STACKS AND RISERS AND CAP.
 - 2. FURNISH AND INSTALL NEW FIXTURES, PIPING, VALVES, SUPPORTS, SEISMIC BRACING AND RELATED EQUIPMENT. MAKE ALL REQUIRED PLUMBING CONNECTIONS TO APPLIANCES OR FIXTURES FURNISHED BY OTHERS.
 - 3. PREPARE AND SUBMIT "AS-BUILT" DRAWINGS INDICATING ACTUAL LOCATIONS OF EQUIPMENT, PIPING, AND VALVES. "AS-BUILT" DRAWINGS SHALL BE SUBMITTED TO THE OWNER UPON COMPLETION OF INSTALLATION AND TESTING. SUBMIT DIGITAL COPIES IN PDF FORMAT AND DWG AUTOCAD FORMAT.
 - 4. PERSONAL CUTTING, CORING, AND ROUGH PATCHING REQUIRED TO ACCOMMODATE PLUMBING INSTALLATION.
 - 5. PERFORM MAINTENANCE AND PROPER OPERATION OF EXISTING BASE BUILDING SYSTEMS WITHIN THE CONTRACT AREA IN ACCORDANCE WITH THE REQUIREMENTS OF BUILDING MANAGEMENT.
 - 6. PROVIDE INSULATION OF PIPING, FITTINGS, VALVES. PROVIDE PIPING SYSTEMS IDENTIFICATION. PROVIDE VALVE TAGS AND CHART.
 - 7. COORDINATION WITH WORK OF OTHER TRADES.
 - 8. SCAFFOLDING AND RIGGING.
 - 9. TESTING AS REQUIRED BY APPLICABLE CODES AND STANDARDS.
 - 10. SECURING OF ALL PERMITS AND APPROVALS AND PAYMENT OF FEES.

1.03 SHOP DRAWINGS, EQUIPMENT SUBMISSION, MAINTENANCE MANUALS.

- A. SUBMIT ONE (1) PRINT OF THE PLUMBING PIPING LOG, CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN ESTABLISHED. SUBMIT MANUFACTURER'S CATALOG CUTS OF THE FOLLOWING:
 - 1. PIPING AND FITTINGS
 - 2. INSULATION
 - 3. VALVES
 - 4. VALVE TAGS AND CHART
 - 5. HANGERS AND SUPPORTS, SEISMIC SUPPORTS
 - 6. ESCUTCHEONS AND SLEEVES
 - 7. WATER HEATER(S)
 - 8. OPERATION AND MAINTENANCE MANUALS
 - 9. MANUFACTURER'S CATALOG CUTS OF ALL EQUIPMENT
- B. UPON REQUEST, THE ENGINEER MAY FURNISH DESIGN DRAWINGS TO THE CONTRACTOR TO AID IN DEVELOPMENT OF PIPING SHOP DRAWINGS. THESE SHALL BE FURNISHED IN THE SAME FORMAT FOR WHICH THE DESIGN DRAWINGS WERE CREATED.

1.04 SUBSTITUTIONS

- A. NO SUBSTITUTE MATERIAL, OR MANUFACTURER OR EQUIPMENT SHALL BE PERMITTED WITHOUT A FORMAL WRITTEN SUBMITTAL TO THE ENGINEER WHICH INCLUDES ALL DIMENSIONAL, PERFORMANCE AND MATERIAL SPECIFICATIONS, ANY CHANGES IN LAYOUT, STRUCTURAL REQUIREMENTS, OR DESIGN DUE TO THE USE OF A SUBSTITUTION SHALL BE SUBMITTED TO THE ENGINEER AS PART OF THIS PROPOSAL. THE CONTRACTOR TAKES FULL RESPONSIBILITY FOR THE SUBSTITUTION AND ALL CHANGES RESULTING FROM SUBSTITUTION. ALL ITEMS SHALL BE SUBMITTED FOR REVIEW IN CONJUNCTION WITH THE SUBMITTAL OF THE ALTERNATE. ANY SUBSTITUTION MUST BE SUBMITTED WITH AN EXPLANATION WHY SUBSTITUTION IS BEING UTILIZED. IF THE SUBSTITUTED ITEM DEVIATES FROM THE SPECIFIED ITEM, THOSE DEVIATIONS ARE TO BE IDENTIFIED ON A LINE BY LINE BASIS. IF THE SUBSTITUTION IS BEING UTILIZED FOR FINANCIAL REASONS, THE ASSOCIATED CREDIT MUST BE SIMULTANEOUSLY SUBMITTED.
- B. ALL SUBSTITUTED MATERIAL SHALL CONFORM TO SPACE REQUIREMENTS AND PERFORMANCE REQUIREMENTS SHOWN ON CONTRACT DOCUMENTS.
- C. CONTRACTOR SHALL SUBMIT HIS BID BASED ON THE SPECIFIED ITEMS AND SHALL SUPPLY AS AN ADD OR DEDUCT ALTERNATE PRICE FOR ANY SUBSTITUTIONS.

1.05 QUALITY ASSURANCE

- A. ALL PIPES SHALL BE MARKED TO INDICATE MANUFACTURER AND ASTM STANDARD. EACH FULL PIPE LENGTH SHALL HAVE THE MANUFACTURER'S NAME CAST, STAMPED OR ROLLED ON.
- B. EACH FITTING SHALL HAVE THE MANUFACTURER'S SYMBOL & PRESSURE RATING CAST, STAMPED OR ROLLED ON.
- C. ALL NEW COMPONENTS OF THE PLUMBING SYSTEM MUST CONFORM TO LOCAL AND STATE BUILDING AND PLUMBING CODES AND BUILDING STANDARDS.

1.06 COORDINATION WITH BUILDING MANAGEMENT

- A. THE PLUMBING CONTRACTOR IS TO OBTAIN A COPY OF THE BUILDING RULES AND REGULATIONS FOR TENANT ALTERATIONS PRIOR TO BID SUBMISSION IN ORDER TO DETERMINE THE BUILDING RULES AND REGULATIONS MINIMUM MATERIAL REQUIREMENTS AND THE EXTENT OF WORK REQUIRED TO BE PERFORMED ON PREMISE TIME, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:
 - 1. SHUT-DOWNS OF BUILDING SERVICES
 - 2. NOISY WORK, INCLUDING CORE DRILLING
 - 3. WORK ON OTHER TENANTS SPACES
- B. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ADHERING TO THE BUILDING OWNERS RULES AND REGULATIONS, ANY DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS AND THE BUILDING RULES AND REGULATIONS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER WITH THE BID FOR REVIEW.
- C. PRIOR TO THE START OF ANY BUILDING PLUMBING SYSTEM MODIFICATIONS, THE PROPERTY MANAGER SHALL BE PROVIDED WITH A MINIMUM OF 2 BUSINESS NOTICE BUILDING SERVICES IN ORDER TO CONNECT NEW PIPING TO EXISTING SHALL BE MADE AT SUCH TIME AS TO CAUSE THE LEAST INTERFERENCE WITH ESTABLISHED BUILDING OPERATING PROCEDURE. THE CONTRACTOR SHALL NOT INTERRUPT THE SERVICE WITHOUT WRITTEN PERMISSION OF BUILDING MANAGEMENT.
- D. DURING THE PROJECT DURATION, THE BUILDING MANAGEMENT OFFICE AND ITS DESIGNATED REPRESENTATIVE SHALL BE ABLE TO INSPECT THE WORK IN PROGRESS. ANY WORK WHICH THE BUILDING MANAGEMENT DEEMS UNACCEPTABLE SHALL BE REMOVED AND REPLACED AT THE EXPENSE OF CONTRACTOR/TEENANT.

1.07 AS-BUILT DRAWINGS:

- A. CONTRACTOR SHALL MAINTAIN RECORD DRAWING PRINTS ON JOB SITE AND RECORD, AT TIME OF OCCURRENCE, DEVIATIONS FROM CONTRACT DOCUMENTS.
- B. AT THE COMPLETION OF WORK AND BEFORE FINAL ACCEPTANCE, PROVIDE AS-BUILT DRAWINGS OF THE INSTALLATION, IN AUTO-CAD 2014 OR NEWER. AN ELECTRONIC COPY (AUTOCAD FORMAT) OF ALL PLUMBING DRAWINGS WILL BE PROVIDED TO THE PLUMBING CONTRACTOR. THE CONTRACTOR SHALL NOT BE RESPONSIBLE FOR THE COST OF ARCHITECTURAL DRAWINGS TO AVOID CONFLICT. THE CONTRACTOR SHALL, WITHOUT EXTRA COST TO THE OWNER, MAKE ALL REASONABLE MODIFICATIONS IN THE WORK AS MAY BE REQUIRED TO PREVENT CONFLICT WITH THE WORK OF OTHER TRADES, OR FOR THE PROPER INSTALLATION OF THE WORK.
- C. CLEARLY INDICATE THE WORDS "AS-BUILT" IN THE TITLE BLOCK COLUMN OF THE DRAWINGS AS WELL AS THE PLUMBING CONTRACTOR'S NAME AND ADDRESS.
- D. SUBMIT A SINGLE PRINT TO CONSULTANT FOR REVIEW. WHEN FOUND ACCEPTABLE BY THE CONSULTANT, SUBMIT THREE SETS OF PRINTS TOGETHER WITH THE CAD DISK FOR PRESENTATION TO THE LANDLORD AND TENANT.

1.08 OPERATION AND MAINTENANCE MANUALS:

- A. PROVIDE TWO(2) SETS OF OPERATION AND MAINTENANCE MANUALS OF ALL PLUMBING EQUIPMENT SUBMITTED IN HARD COVER 3-RING BINDERS. INCLUDE THE FOLLOWING INFORMATION IN THE OPERATIONS AND MAINTENANCE MANUALS:
 - 1. NAMES AND ADDRESS OF LOCAL SUPPLIERS FOR THE ITEMS INCLUDED.
 - 2. TECHNICAL DATA, PRODUCT DATA, SUPPLEMENTED BY PARTS LIST, COMPONENT ILLUSTRATIONS, EXPLODED VIEWS, TECHNICAL DESCRIPTIONS OF ITEMS, AND BULLETINS. ADVERTISING OR SALES LITERATURE IS NOT ACCEPTABLE.
 - 3. THE CONSULTANTS RECEIVED SHOP DRAWINGS.
- B. REVIEW INFORMATION PROVIDED IN THE MAINTENANCE INSTRUCTIONS AND MANUALS WITH THE TENANTS' OPERATING PERSONNEL AND LANDLORD'S OPERATING PERSONNEL, WHERE BASE BUILDING SYSTEMS ARE REVISID, TO ENSURE A COMPLETE UNDERSTANDING OF THE ELECTRICAL EQUIPMENT AND SYSTEMS AND THEIR OPERATION.

1.09 MATERIALS AND EQUIPMENT

- A. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY AND MANUFACTURED TO THE STANDARDS SPECIFIED.

1.10 INSURANCE

- A. PROVIDE AND MAINTAIN INSURANCE TO PROTECT THE LANDLORD, TENANT AND TRADES FROM ALL POSSIBLE CLAIMS. SUBMIT WITH BID FOR AN AMOUNT ACCEPTABLE TO LANDLORD AND TENANT.

1.11 CONTRACT DOCUMENTS

- A. THE DRAWINGS FOR THE PLUMBING WORK ARE DIAGRAMMATIC. PERFORMANCE DRAWINGS ONLY, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE SIZE AND LOCATION OF PLUMBING AND EQUIPMENT. THE DRAWINGS DO NOT ATTEMPT TO SHOW ARCHITECTURAL, INTERIOR DESIGN, MECHANICAL, STRUCTURAL, OR BASE BUILDING DETAILS. THE CONTRACTOR IS TO BE RESPONSIBLE FOR A THOROUGH KNOWLEDGE OF SAME BEFORE PROCEEDING WITH THE WORK.
- B. DO NOT SCALE OR MEASURE DRAWINGS, BUT OBTAIN INFORMATION REGARDING ACCURATE DIMENSIONS FROM THE DIMENSIONS SHOWN ON THE DESIGN CONSULTANT/ARCHITECT'S DRAWINGS, OR BY SITE MEASUREMENTS.
- C. ANY DISCREPANCIES BETWEEN DRAWINGS AND/OR SPECIFICATIONS AND EXISTING CONDITIONS, MUST BE REFERRED TO THE DESIGN CONSULTANT/ARCHITECT BEFORE ANY WORK AFFECTS SUCH DISCREPANCY.
- D. COOPERATE AND COORDINATE WITH OTHER CONTRACTORS IN LAYING OUT OF WORK SO AS NOT TO CONFLICT WITH THE WORK OF OTHER CONTRACTORS. CARRY OUT WORK PROMPTLY AS PER CONSTRUCTION SCHEDULE AND COORDINATE WITH WORK OF OTHER CONTRACTORS.
- E. MAKE, AT NO ADDITIONAL COST, ANY CHANGES OR ADDITIONS TO MATERIALS AND EQUIPMENT NECESSARY TO ACCOMMODATE STRUCTURAL CONDITIONS (OFFSETS AROUND BEAMS, COLUMN, ETC.)

1.12 INTENT

- A. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS THAT THE CONTRACTOR IS TO PROVIDE COMPLETE AND OPERATIONAL SYSTEMS.
- B. ANY MISCELLANEOUS ITEMS, VALVES, FITTINGS, GAUGES, HARDWARE, ETC. NOT SPECIFICALLY DESCRIBED, BUT REQUIRED FOR THE PROPER OPERATION OF THE PLUMBING SYSTEMS, MUST BE PROVIDED AND INCLUDED AS PART OF THE BID.

1.13 ACCESS DOORS

- A. WHEREVER ANY BASE BUILDING EQUIPMENT OR NEW EQUIPMENT, VALVES, ETC. REQUIRES ACCESSIBILITY, MAINTENANCE OR ADJUSTMENT, PROVIDE ACCESS DOORS APPROVED BY DESIGN CONSULTANT/ARCHITECT AND LANDLORD. ARRANGE FOR ACCESS DOOR INSTALLATION BY THE DIVISION IN WHOSE WORK IT OCCURS.
- B. PROVIDE ACCESS PANELS, MINIMUM 18" X 18", FOR ALL NEW AND EXISTING VALVES, EQUIPMENT, ETC. AS REQUIRED.

1.14 CORE DRILLING

- A. BEFORE CORE DRILLING FLOOR SLAB OR STRUCTURAL WALLS, X-RAY SLABS OR WALLS AND HAVE THE LOCATIONS APPROVED BY THE LANDLORD IN WRITING.
- B. ANY EXISTING BUILDING SERVICE DAMAGED BY CORE DRILLING SHALL BE REPAIRED IMMEDIATELY AT NO COST TO LANDLORD OR TENANT.
- C. FLOOR DRILLING TO BE PERFORMED AFTER NORMAL WORKING HOURS AND AT A TIME ACCEPTABLE TO LANDLORD AND ALLOWANCES FOR THIS WORK SHALL BE INCLUDED IN BID PRICE SUBMITTED.

1.15 INTERRUPTION OF SERVICES

- A. INTERRUPTION OF EXISTING PLUMBING SERVICES TO ANY PART OF THE BUILDING SHALL OCCUR ONLY BY PRE-ARRANGEMENT WITH AND AT TIMES SUITABLE TO THE LANDLORD.
- B. INTERRUPTIONS SHALL ONLY OCCUR DURING PREMIUM TIME PERIODS; ALL ALLOWANCES FOR THIS SHALL BE INCLUDED IN THE PRICE SUBMITTED.

1.16 VALUATION OF CHANGES

- A. PROVIDE COMPLETE BREAKDOWN OF MATERIAL, LABOR, OVERHEAD, PROFIT, ETC., WHEN SUBMITTING QUOTATIONS FOR CHANGE ORDERS ON THIS PROJECT.
- B. THE HOURLY LABOR RATE SHALL BE INCLUSIVE OF ALL CHARGES FOR SUPERVISION, VARIABLE LABOR FACTORS, HAND TOOLS, PAYROLL BURDENS, HEIGHT FACTORS, WARRANTIES, STORAGE, RENTALS, ADDITIONAL BONDING, PARKING, CLEAN-UP, AS-BUILT DRAWINGS, HOISTING, FREIGHT AND DELIVERY, BUT EXCLUSIVE OF OVERHEAD AND PROFIT.

1.17 COMPLETION OF CONTRACT

- A. ALL EQUIPMENT MUST BE CLEANED AND TESTED BEFORE FINAL ACCEPTANCE BY THE CONSULTANT.
- B. DEFECTS AND DEFICIENCIES WHICH ORIGINATE OR BECOME EVIDENT DURING THE WARRANTY PERIOD MUST BE REPAIRED OR REPLACED, AT NO COST.

1.18 DEMOLITION

- A. VISIT THE SITE, EXAMINE THE EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE EXTENT OF THE NECESSARY REMOVAL, RELOCATION, RECONNECTING AND REROUTING OF PLUMBING EQUIPMENT AND PIPING AS NECESSARY FOR THE COMPLETION OF THE PROJECT.
- B. REVIEW AND CONFIRM WITH THE ARCHITECT/DESIGNER'S DRAWINGS FOR THE COMPLETE EXTENT OF DEMOLITION AND ALTERATION.
- C. ENSURE THAT ALL EXISTING PLUMBING PIPING OR SYSTEMS, IN AREAS OUTSIDE THE AREAS OF THIS WORK, THAT ARE REQUIRED TO REMAIN IN SERVICE, SHALL DO SO.
- D. RELOCATE ANY PLUMBING PIPING OR EQUIPMENT THAT IS REQUIRED TO REMAIN IN SERVICE, THAT IS SECURED TO EXISTING WALLS, FLOORS OR CEILINGS TO BE DEMOLISHED.
- E. ALL EXISTING PLUMBING EQUIPMENT OR PIPING WHICH IS NO LONGER REQUIRED SHALL BE REMOVED AND DISPOSED OF, OFF SITE.
- F. BE RESPONSIBLE AND PAY FOR ANY DAMAGE TO THE BASE BUILDING INCURRED BY WORK OF THIS DIVISION, OR REPAIR TO THE SATISFACTION OF THE CONSULTANT.
- G. CARRY OUT THE WORK WITH MINIMUM OF NOISE, DUST AND DISTURBANCE.

1.19 UNIT PRICES

- A. SUBMIT THE FOLLOWING LIST OF UNIT PRICES (FURNISH AND INSTALL):
 - 1. FIXTURES - \$ FOR EACH TYPE IN THE DOCUMENTS (INCLUDE ROUGHING)
 - 2. PIPING - \$ FOR EACH SIZE AND TYPE REQUIRED (INCLUDE HANGERS & INSULATION WHERE APPLICABLE)

PART 2 MATERIALS

2.01 PIPING AND FITTINGS

- A. DOMESTIC HOT AND COLD WATER PIPING, INDIRECT WASTE PIPING
 - 1. PIPING (SOLDERED JOINTS): TYPE L HARD COPPER TUBE, DRAWN TEMPER, COMPLYING WITH ASTM B 88 AND NSF 61.
 - 2. FITTINGS (SOLDERED JOINTS): WROUGHT COPPER SOLDER JOINT PRESSURE TYPE FITTINGS COMPLYING WITH ASME B 16.22.
- 3. SOLDER FILLER METALS: ALLOY 5065 OR ALLOY 5064, TIN (SN) APPROXIMATELY 95%, AND SILVER (AG) APPROXIMATELY 5%, HAVING 0.05% MAXIMUM LEAD (Pb) CONTENT.
- 4. SOLDERING FLUX: APPLY ASTM B 810, WATER FLUSHABLE FLUX TO END OF TUBE. JOIN COPPER TUBE AND FITTINGS ACCORDING TO ASTM B 838 OR CSDAS COPPER TUBE HANDBOOK.
- 5. ALL EXPOSED PIPING SHALL BE CHROME PLATED BRASS. ALL PIPE PASSING THROUGH WALLS, FLOORS, CEILING, AND PARTITIONS SHALL BE PROVIDED WITH CHROME PLATED BRASS ESCUTCHEONS HELD IN PLACE WITH SET SCREWS.

2.02 VALVES - DOMESTIC WATER

- A. SHUT-OFF VALVES - 3" AND SMALLER: TWO PIECE, FULL PORT, LEAD-FREE BRONZE BALL VALVES, 800 PSI NON-SHOCK CWP, NSF/ANSI 61-8 WITH THE CAPABILITY OF ACCEPTING EXTENDED OPERATING HANDLES. MILWAUKEE MODEL UP868S FOR THREADED ENDS OR UP868S FOR SOLDERED ENDS. PROVIDE EXTENDED OPERATING HANDLE WHEN INSTALLING ON INSULATED PIPE.
- B. SHUT-OFF VALVES - 3" AND LARGER: LEAD-FREE BRONZE GATE VALVE, NON-RISING STEM, SOLID WEDGE, 300 PSI NON-SHOCK CWP, NSF/ANSI 61-8. NBCCO 11-13-LF FOR THREADED ENDS OR 1-13-LF FOR SOLDER ENDS.
- C. CHECK VALVES - 2" AND SMALLER: LEAD-FREE BRONZE, Y-PATTERN, HORIZONTAL SWING, WITH REMOVABLE SEAT AND DISC. 200 PSI CWP NON-SHOCK, NSF/ANSI 61-8. NBCCO 11-13-LF FOR THREADED ENDS OR A-1413-LF FOR SOLDER ENDS.
- D. CHECK VALVES - 2-1/2" & 3": LOW LEAD, BRONZE BODY, SWING CHECK
- E. VALVE, 200 PSIG, NON-SHOCK, ASME B16.1, MILWAUKEE UP867 FOR THREADED ENDS, UP868 FOR SOLDERED ENDS.
- F. CHECK VALVES ON PUMP DISCHARGE: SILENT GLOBE VALVE, FLANGED, CLASS 125, STAINLESS STEEL, SPRING & SCREWS, CAST IRON BODY, MILWAUKEE MODEL 1800.
- G. SOLENOID VALVE - DE-ENERGIZED CLOSED, ASCO MODEL #8100003, 120 V., WITH BRONZE BODY.
- H. PRESSURE REDUCING VALVE - 3/4" & 1" LEAD, BRONZE BODY, DIRECT ACTING PRESSURE REDUCING VALVE WITH STRAINER. VALVE SHALL BE WATTS SERIES 12235.
- I. PRESSURE REDUCING VALVE - 2 1/2" AND 3" LEAD, FREE, ASSE 1003 LISTED, DIRECT ACTING PRESSURE REDUCING VALVE WITH STRAINER. VALVE SHALL BE WATTS SERIES 12235.

2.03 VALVE TAGS AND CHART

- A. PROVIDE FOR EACH VALVE, EXCEPT STOP VALVES AT FIXTURES, A 2 INCH DIAMETER BRASS TAG WITH 1/8 INCH HIGH NUMERALS STAMPED THEREON, SECURED TO THE VALVE BY MEANS OF BRASS S-HOOK OR BRASS CHAIN. EACH SYSTEM TO HAVE A LETTER DESIGNATION AS WELL.
- B. FURNISH AN APPROVED, NEATLY DRAWN VALVE CHART, PROPERLY FIELDED, SHOWING THE USE AND LOCATION OF EACH VALVE THAT IS TAGGED.

2.04 HANGERS AND SUPPORTS

- A. ALL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH ALL APPLICABLE LOCAL AND STATE CODES.
- B. EXCEPT AS OTHERWISE INDICATED, PROVIDE FACTORY FABRICATED HANGERS, CLAMPS, RODS, BUILDING ATTACHMENTS, INSULATION SADDLES AND INSULATION SHELLS SHALL BE UL LISTED FM GLOBAL APPROVED AND COMPLYING WITH ANSI MSS-SP-58. CONTRACTOR SHALL SELECT AND APPLY HANGERS AND SUPPORTS IN ACCORDANCE WITH ANSI MSS-SP-58.
- C. ALL INSULATED HORIZONTAL PIPING LARGER THAN 1" DIAMETER SHALL BE HUNG WITH ADJUSTABLE GALVANIZED STEEL CLEVIS HANGERS, COOPER B-LINE FIG. 8100. ALL INSULATED COPPER PIPING 1/2" DIAMETER OR SMALLER SHALL BE HUNG WITH ADJUSTABLE RESISTAL HANGER FOR COPPER PIPING. COOPER B-LINE FIG. 8338, 360 DEG. CALCIUM SILICATE SHELD. HANGERS SHALL NOT PENETRATE INSULATION, WHERE INSULATED PIPING IS SUPPORTED WITH CLEVIS HANGERS OR SWIVEL HANGERS COOPER B-LINE FIG. 81516 PER GALVANIZED INSULATION SHELLS MAY BE USED.
- E. ALL HORIZONTAL CAST IRON OR UNSULATED STEEL PIPING SHALL BE HUNG WITH ADJUSTABLE GALVANIZED STEEL CLEVIS HANGERS, COOPER B-LINE FIG. 8100 PER GALVANIZED STANDARD CLEVIS HANGER.

- F. VERTICAL PIPING SHALL BE SUPPORTED BY MEANS OF RISER CLAMPS. RISER CLAMPS SHALL FIT EXACT PIPE SIZE FOR BARE PIPES. FOR CAST IRON PIPES USE TWO BOLT, GALVANIZED BLACK STEEL CLAMPS OR FOUR BOLT EXTRA HEAVY GALVANIZED STEEL RISER CLAMPS FOR COPPER TUBING USE CARBON STEEL COPPER PLATED RISER CLAMP.
- G. RODS FOR PIPE HANGERS SHALL BE CONTINUOUS THREADED ROD, GALVANIZED STEEL SIZED FOR THE LOAD REQUIRED.
- H. C-CLAMPS MUST BE INSTALLED WITH RETAINING STRAPS.
- I. ATTACH HANGER RODS TO THE BUILDING ONLY IN A MANNER APPROVED BY THE CLIENT. GENERAL ELECTRIC DO NOT HANG PIPING FROM DUCTWORK OR OTHER PIPING. CHAIN STRAPS, PERFORATED BARS OR WIRE HANGERS SHALL NOT BE PERMITTED.
- J. INTERVALS OF SUPPORTS
 - 1. ALL HORIZONTAL CAST IRON PIPING SHALL BE SUPPORTED ON FIVE FOOT CENTERS AND AT ALL JOINTS. IN ADDITION ALL CAST IRON PIPE PIPING AND FITTINGS 6" DIA. AND LARGER MUST BE SUITABLY BRACED TO PREVENT HORIZONTAL MOVEMENT. THIS MUST BE DONE AT EVERY BRANCH OPENING OR CHANGE OF DIRECTION BY THE USE OF BRACES, BLOCKS, RODDING, OR OTHER SUITABLE METHOD. TO PREVENT MOVEMENT OR JOINT SEPARATION PER CHAPTER IV OF THE CAST IRON SOIL PIPE INSTITUTE HANDBOOK.
 - 2. ALL HORIZONTAL STEEL SCREWED PIPING SHALL BE SUPPORTED ON TEN FOOT CENTERS.
 - 3. ALL HORIZONTAL COPPER TUBING SHALL BE SUPPORTED BY HANGERS NOT OVER SIX FEET APART FOR TUBING 1-1/4" DIA. AND SMALLER AND NOT OVER TEN FEET APART FOR TUBING 1-1/2" AND LARGER.

K. PROVIDE SEISMIC RESTRAINTS FOR ALL PIPING SYSTEMS AND EQUIPMENT AS REQUIRED BY LOCAL AND STATE CODES.

2.05 INSULATION

- A. DOMESTIC COLD WATER, HOT WATER, HOT WATER RECIRC. PIPING, HORIZONTAL STORM PIPING:
 - 1. JOHNS MANVILLE MICRO-LK HP FIBER GLASS PIPE INSULATION WITH FACTORY APPLIED ALL SERVICE VAPOR RETARDER JACKET WITH SELF-SEALING CLOSURE LAP. COMPLYING WITH ASTM C847, ASTM C855, ASTM C1155 AND ASTM E84. COMPOSITE FIBER REINFORCED AND LABELED. FIRE AND SMOKE HAZARD RATING NOT TO EXCEED A FLAME SPREAD OF 25 OR SMOKE DEVELOPMENT OF 50.
 - 2. FITTINGS AND VALVES TO BE COVERED WITH JOHNS MANVILLE ZESTON 2000 SERIES STANDARD GAUGE PVC FITTING COVERS WITH HI-LO TEMPERATURE FIBER GLASS INSERTS.
 - 3. PROVIDE 1" THICK INSULATION FOR DOMESTIC WATER PIPING AND HORIZONTAL STORM PIPING.
- B. INSULATE ALL EXPOSED DRINKAGE PIPING INCLUDING HOT, COLD AND TEMPERED WATER SUPPLIES UNDER LAVATORIES OR SINKS. INSTALLED COVER SHALL MEET ADA 119.4 ADAAG 806.5, ICCANSI A117.1 806.6, OR GSA & DOD'S AB4 606.5. REQUIREMENT TO PROTECT AGAINST CONTACT - NO SHARP OR ABRASIVE SURFACES- PIPE COVER MATERIAL TO BE 18" THICK PVC WITH ANTIMICROBIAL, ANTI-FUNGAL AND UV INHIBITED PROPERTIES. PLUMBEX PRO-EXTREME OR APPROVED EQUAL.

2.06 SLEEVES AND FIRE STOPPING

- A. INSTALL ESCUTCHEONS ON BOTH SIDES OF CONSTRUCTION WHEREVER PIPES PASS THROUGH WALLS, FLOORS, PARTITIONS OR CEILINGS. ESCUTCHEONS SHALL BE HELD IN PLACE WITH SET SCREWS. TAKE SPECIAL CARE TO PROTECT THE ESCUTCHEONS DURING THE COURSE OF CONSTRUCTION.
- B. SLEEVES THROUGH WALLS, AND WHERE SERVING EXPOSED PIPE PENETRATING FLOORS SHALL BE SCHEDULE 40.
- C. SLEEVES WITHIN FURRED OUT ENCLOSURE, GYPSUM BOARD PARTITIONS AND BLOCK WALLS SHALL BE 18 GAUGE GALVANIZED SHEET METAL.
- D. ALL SLEEVES THROUGH RATED WALLS OR PARTITIONS SHALL FORM A UL CLASSIFIED FIRESTOP CAPABLE OF RETURNING THE WALL OR PARTITION BACK TO ITS UNPENETRATED FIRE RESISTANCE.
- E. FIRESTOPPING CALK SHALL BE SIMILAR TO 3M CP 25WB + CALK. FIRESTOPPING WRAP SHALL BE SIMILAR TO 3M FS-195 - WRAPSTRIP.

2.07 ESCUTCHEONS

- A. INSTALL ESCUTCHEONS ON BOTH SIDES OF CONSTRUCTION WHEREVER PIPES PASS THROUGH WALLS, FLOORS, PARTITIONS OR CEILINGS. ESCUTCHEONS SHALL BE HELD IN PLACE WITH SET SCREWS. TAKE SPECIAL CARE TO PROTECT THE ESCUTCHEONS DURING THE COURSE OF CONSTRUCTION.
- B. ESCUTCHEON APPLICATION SCHEDULE
 - 1. FINISHED SPACES SHALL BE POLISHED BRASS
 - 2. UNFINISHED SPACES SHALL BE PLAIN BRASS OR CAST IRON.

2.08 PIPE IDENTIFICATION

- A. INSTALL MANUFACTURED PIPE MARKERS ON EACH PIPING SYSTEM. INSTALL WITH FLOW INDICATOR ARROWS SHOWING DIRECTION OF FLOW. LOCATE PIPE MARKERS EVERY TWENTY FEET ON EACH PIPE AND AT A MINIMUM OF ONCE IN EACH ROOM.
- B. COMPLY WITH ASME A13.1 SCHEME FOR THE IDENTIFICATION OF PIPING SYSTEMS FOR LETTER SIZE, LENGTH OF COLOR FIELD, COLORS, AND VIEWING ANGLES OF IDENTIFICATION DEVICES FOR PIPING.

PART 3 EXECUTION

3.01 GENERAL:

- A. PERFORM THE WORK AT SUCH TIME AND IN SUCH MANNER AS TO MINIMIZE INTERFERENCE WITH THE BUILDING'S NORMAL OPERATION. NOTIFY BUILDING MANAGEMENT REPRESENTATIVES IN ADVANCE EACH TIME AN INTERRUPTION WILL BE REQUIRED FOR THE PERFORMANCE OF SOME PHASE OF THE WORK. SCHEDULE SUCH SERVICE OUTAGE OR INTERRUPTION, ONLY AFTER HAVING RECEIVED APPROVAL OF DATE, HOUR, AND TIME INTERVAL, REQUIRED THEREOF. SCHEDULE OF WORK AS DIRECTED SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE.
- B. OPENINGS AROUND PIPING PENETRATIONS THROUGH FIRE RESISTANCE RATED WALLS, PARTITIONS, FLOORS, OR CEILINGS SHALL BE FIRE STOPPED USING APPROVED METHOD. SEALANT SHALL BE RATED FOR 3 HOURS.
- C. PRIOR TO ANY CHASING, CHOPPING, OR CORE DRILLING BEING PERFORMED, THE CONTRACTOR SHALL FIELD INVESTIGATE CONDITIONS AND COORDINATE WITH ALL APPROPRIATE TRADES TO ENSURE THAT WORKWILL BE IN HARMONY WITH OTHER WORK AND NOT AFFECTED ANY EXISTING BUILDING SYSTEMS. X-RAY SLABS IF REQUIRED. THIS WORK MUST BE APPROVED BY BUILDING MANAGEMENT PRIOR TO PROCEEDING. ALL CORNINGCHASING WILL BE DONE ON OVERTIME.
- D. THE CONTRACTOR SHALL TAKE STATIC AND RESIDUAL PRESSURE READINGS AT ALL NEW POINTS OF CONNECTION TO THE BASE BUILDING DOMESTIC WATER SYSTEM. THE RESIDUAL PRESSURE READING SHALL BE TAKEN WITH THE BASE BUILDING SHUT OFF VALVE IN THE FULL OPEN POSITION. ALL RESULTING PRESSURES AND FLOWS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
- E. PROCUREMENT AND INSTALLATION OF PLUMBING FIXTURES AND APPLIANCES SHALL OCCUR ONLY AFTER THE FLOW TEST RESULTS AND ANY PRESSURE/OPERATIONAL CONCERNS HAVE BEEN REVIEWED BY THE ENGINEER.

3.02 GENERAL INSTALLATION REQUIREMENTS

- A. RUN AND ARRANGE PIPING APPROXIMATELY AS INDICATED ON THE DRAWINGS AND AS DIRECTED DURING INSTALLATION, AS STRAIGHT AND DIRECT AS POSSIBLE, FORMING RIGHT ANGLES OR PARALLEL LINES WITH BUILDING WALLS AND OTHER PIPES, AND NEATLY SPACED. PIPING SHALL BE INSTALLED SO THAT EVERY PORTION OF THE SYSTEM CAN BE ENTIRELY DRAINED.
- B. MATERIALS AND COMPONENTS: INSTALL LEVEL, PLUMB, AND PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS, UNLESS OTHERWISE INDICATED.
- C. EQUIPMENT: INSTALL TO FACILITATE SERVICE, MAINTENANCE, AND REPAIR OR REPLACEMENT OF COMPONENTS. CONNECT FOR EASE OF DISCONNECTING, WITH MINIMUM INTERFERENCE WITH OTHER INSTALLATIONS.
- D. DO NOT INSTALL PIPES OR OTHER APPARATUS IN A MANNER WHICH MAY INTERFERE WITH THE FULL SWING OF ANY DOOR.
- E. THE ARRANGEMENT, POSITION AND CONNECTION OF PIPES INDICATED ON THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE, BUT THE RIGHT IS RESERVED BY THE OWNER TO CHANGE LOCATIONS AND ELEVATIONS TO ACCOMMODATE CONDITIONS WHICH MAY ARISE DURING THE PROGRESS OF THE WORK, WITHOUT ADDITIONAL COMPENSATION TO THE CONTRACTOR FOR SUCH CHANGES, PROVIDED THAT NO ADDITIONAL EQUIPMENT OR FIXTURES ARE REQUIRED AND CHANGES ARE REQUESTED PRIOR TO INSTALLATION.
- F. REAM ALL PIPE SMOOTH BEFORE INSTALLATION. DO NOT BEND, SPLIT, FLATTEN OR DAMAGE PIPE IN ANY WAY. ANY PIPE CUT, DENTED OR DAMAGED SHALL BE REPLACED BY THIS CONTRACTOR WITHOUT ADDITIONAL EXPENSE TO THE OWNER.
- G. THE DRAWINGS ARE GIVEN AS A GUIDE ONLY, AND THEREFORE, DO NOT RELIEVE THIS CONTRACTOR FROM PROVING AND INSTALLING ALL EQUIPMENT NECESSARY TO COMPLY WITH THE CHARTS AND ACCORDING TO THE REQUIREMENTS OF LOCAL AND STATE PLUMBING AND BUILDING CODES.

3.03 BUILDING DEPARTMENT PERMITS AND CERTIFICATES

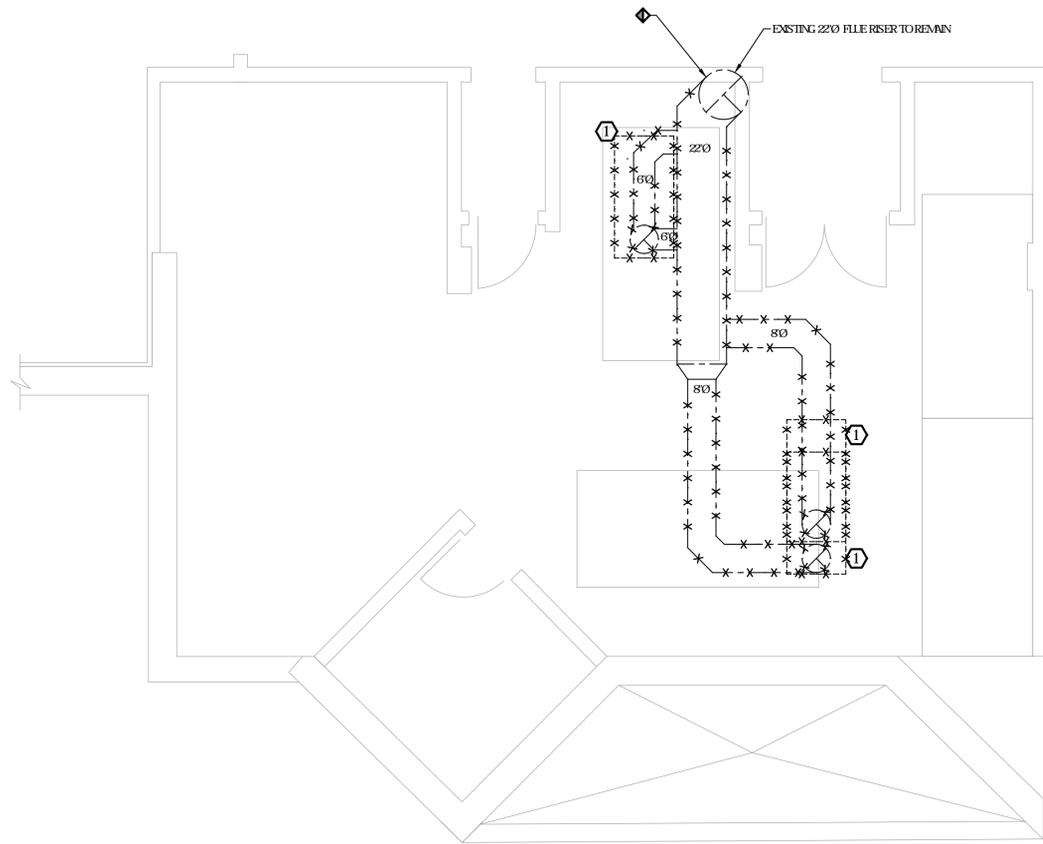
- A. THE PLUMBING CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS WITH THE LOCAL BUILDING DEPARTMENT AND BE RESPONSIBLE FOR OBTAINING FINAL APPROVALS WITH ALL AUTHORITIES HAVING JURISDICTION. PROVIDE A COPY OF ALL REQUIRED APPLICATIONS AND PERMITS TO THE PROPERTY MANAGER AND LANDLORD FOR THEIR RECORDS.

3.04 CUTTING AND PATCHING

- A. DO ALL CUTTING NECESSARY FOR THE INSTALLATION OF PLUMBING WORK, ACCURATELY LAYOUT WORK OR WHEN CUTTING IS REQUIRED, SO AS TO AVOID UNNECESSARY LARGE OPENINGS, CUTTING OF BEAMS, JOISTS, FLOORS OR WALLS OF THE BUILDING WILL NOT BE PERMITTED EXCEPT AFTER RECEIVING APPROVAL OF THE BUILDING MANAGER.
- B. ROUGH PATCHING WILL BE DONE BY THIS CONTRACTOR IN A MANNER TO ACCOMMODATE FINISHED PATCHING WORK. FINISHED PATCHING WILL BE DONE UNDER ANOTHER SECTION OF THE SPECIFICATION.

3.05 PROTECTION

- A. CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK AND EQUIPMENT UNTIL FINALLY INSPECTED, TESTED AND ACCEPTED. MATERIALS AND EQUIPMENT SHALL BE CAREFULLY STORED, WHICH ARE NOT IMMEDIATELY INSTALLED, AFTER DELIVERY TO SITE. CLOSE EXPOSED PARTS OF THE WORK WITH PROTECTORY COVERS, OR PLUGS DURING CONSTRUCTION, TO PREVENT ENTRY OF MOISTURE OR OBSTRUCTING MATERIALS.
- B. PROTECT THE WORK AND MATERIAL OF OTHERS FROM DAMAGE INSTALLED AS PART OF THIS CONTRACT. RESTORE ANY WORK DAMAGED AND BE RESPONSIBLE FOR ALL CURRENT WORK AND ASSOCIATED COSTS.



MECHANICAL DEMOLITION NOTES

1. GENERAL
 - A. PRIOR TO PROPOSAL SUBMISSION, THIS CONTRACTOR SHALL VISIT THE SITE TO REVIEW THE EXISTING CONDITIONS ASSOCIATED WITH THE SCOPE OF WORK AND ADJACENT AREAS TO ASCERTAIN THE DIFFICULTIES WHICH WILL AFFECT THE EXECUTION OF THE WORK OF THIS CONTRACT.
 - B. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT THE ABOVE SITE EXAMINATION HAS BEEN MADE AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
 - C. DEMOLITION WORK SHALL INCLUDE ALL MATERIALS, LABOR, EXTENSIONS, CONNECTIONS, CUTTING REPAIRING, ADAPTING AND OTHER MECHANICAL WORK REQUIRED TO MAINTAIN SERVICE PENDING THE COMPLETION OF THE PERMANENT WORK. COORDINATE THE EXTENT OF DEMOLITION WORK WITH THE ARCHITECT AND BUILDING MANAGEMENT.
2. SCOPE OF WORK
 - A. ALL EXISTING WORK REQUIRED TO REMAIN BUT INTERFERING WITH PROPOSED NEW MECHANICAL, PLUMBING, ELECTRICAL AND GENERAL CONSTRUCTION WORK. INTERFERING WORK SHALL BE RELOCATED AND RECONNECTED USING MATERIALS CONFORMING TO STANDARDS OF THIS CONTRACT.
 - B. REMOVE EXISTING FLUE PIPE CONNECTED TO EXISTING HOT WATER HEATERS. PATCH FLUE UNTIL NEW CONNECTION IS MADE.
 - C. PROVIDE ADDITIONAL SUPPORT FOR ALL EXISTING DUCTS AND PIPING TO REMAIN WHICH ARE AFFECTED BY DEMOLITION OF EXISTING CEILING AND PARTITIONS.
 - D. ALL MATERIALS AND EQUIPMENT SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE LAWS AND ENVIRONMENTAL REGULATIONS.
 - E. COORDINATE WITH OWNER TO DETERMINE WHETHER EQUIPMENT IS TO BE TURNED OVER FOR FUTURE USE AND STORED IN THEIR ASSOCIATED STORAGE LOCATIONS.

MECHANICAL KEY NOTES

- PLUMBING CONTRACTOR SHALL DECOMMISSION AND REMOVE EXISTING GAS-FIRED WATER HEATER.
- ① DISCONNECT AND REMOVE EXISTING FLUE ASSOCIATED WITH GAS-FIRE WATER HEATER BACK TO FLUE MAIN. PATCH FLUE UNTIL RECONNECTION.

GE Crotonville - Executive Residence Building Water Heater Replacement

Old Albany Post Road,
Ossining, NY

Date	Issued	Revision No.
11/09/21	ISSUED FOR PRICING	
10/29/21	ISSUED FOR REVIEW	



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Drawing Title:
MECHANICAL BASEMENT FLOOR DEMOLITION PART PLAN

Scale: 1/2"=1'-0" Issue Date: 10/XX/2021

Proj Manager: RR Proj Engineer: JJC

AMA Project No:
G003-03-017

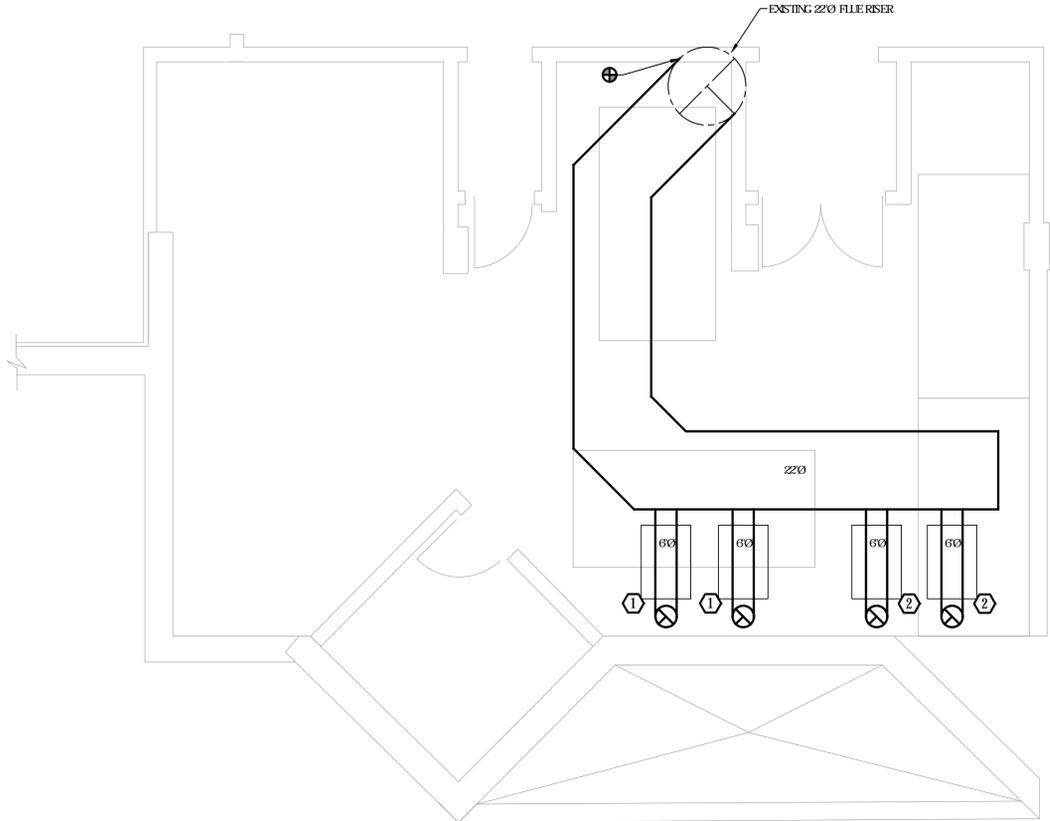
Drawing No: **M-201**

NYC DOB NUMBER:

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 ENERGY CONSERVATION
THIS PLAN IS APPROVED ONLY FOR THE WORK ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

MECHANICAL KEYED NOTES

- ① PROVIDE NEW 60 FLE AND DRECHTING FOR NEW AERCO MODEL INN 1350 HOT WATER HEATER. CONNECT TO EXISTING FLE RISER. HOT WATER HEATER SHALL BE INSTALLED BY PLUMBER. COORDINATED FLE CONNECTION TO HOT WATER HEATER WITH PLUMBING CONTRACTOR.
- ② PROVIDE NEW 60 FLE AND DRECHTING FOR NEW AERCO MODEL INN 1000 HOT WATER HEATER. CONNECT TO EXISTING FLE RISER. HOT WATER HEATER SHALL BE INSTALLED BY PLUMBER. COORDINATED FLE CONNECTION TO HOT WATER HEATER WITH PLUMBING CONTRACTOR.



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Scale: 1/2"=1'-0"	Issue Date: 10/XX/2021
Proj Manager: RR	Proj Engineer: JJC
AMA Project No: G003-03-017	
Drawing No: M-501	

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 ENERGY CONSERVATION
THIS PLAN IS APPROVED ONLY FOR THE WORK ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

ELECTRICAL SPECIFICATIONS
PART 1 GENERAL

1.01 GENERAL REQUIREMENTS:

- A. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF THE ELECTRICAL CODE OF THE CITY OF NEW YORK, THE NEW YORK CITY BUILDING CODE, BUILDING MANAGEMENT AND ALL AUTHORITIES HAVING JURISDICTION (A.H.J.), APPLICABLE NATIONAL, STATE AND LOCAL CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK SHALL BE INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS.
- B. IF A CONFLICT OCCURS IN THE SPECIFICATIONS AND/OR ON THE DRAWINGS, THE MORE STRINGENT SITUATION SHALL APPLY.
- C. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THIS WORK. FINAL ACCEPTANCE SHALL BE DEFINED AS THE TIME AT WHICH THE ELECTRICAL WORK IS TAKEN OVER AND ACCEPTED BY THE OWNER. ENGAGE THE SERVICES OF VARIOUS MANUFACTURERS SUPPLYING THE EQUIPMENT FOR THE PROPER STARTUP, OPERATION AND TRAINING OF ALL SYSTEMS INSTALLED. INSTRUCT THE OWNERS PERSONNEL IN THE PROPER OPERATION AND SERVICING OF THE EQUIPMENT.
- D. ELECTRICAL CONTRACTOR SHALL VISIT AND EXAMINE CAREFULLY THE EXISTING AREAS AFFECTED BY THIS WORK TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND WITH DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THE WORK. CONTRACTOR SHALL PERFORM THIS, PRIOR TO SUBMITTING THEIR PROPOSAL. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN UNDERTAKEN.
- E. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF ALL DEVICES INCLUDING DIMENSIONS AND ELEVATIONS. WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID CONFLICTS.
- F. ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN OR SHOWN ON THE DRAWINGS, ANY EQUIPMENT, MATERIALS, ACCESSORIES, OR LABOR REQUIRED FOR PROPER AND COMPLETE INSTALLATION OF THE ELECTRICAL WORK SHALL BE FURNISHED AND INSTALLED AS PART OF THE ORIGINAL BID.
- G. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE LATEST COPY OF THE BUILDING RULES AND REGULATIONS TO DETERMINE THE EXTENT OF PREMIUM TIME WORK REQUIRED. BASE BUILDING SYSTEM INTERRUPTIONS ARE TO BE PERFORMED OUTSIDE OF NORMAL BUSINESS HOURS. COORDINATE WITH BUILDING OWNER FOR ANY SERVICE INTERRUPTION OF EXISTING SYSTEMS AND GIVE NOTICE AS REQUIRED BY BUILDING RULES AND REGULATIONS.
- H. ANY DAMAGE TO EXISTING PARTITIONS, FLOORS, CEILINGS OR ANY PART OF THE BUILDING OR EQUIPMENT HOUSED THEREIN CAUSED BY THE WORK OF THE CONTRACTOR SHALL BE REPAIRED AT NO ADDITIONAL EXPENSE TO THE OWNER.
- I. ALL NEW MATERIALS REQUIRED SHALL CONFORM WITH THE STANDARDS OF THE UNDERWRITERS LABORATORIES, INC. (UL) IN EVERY CASE WHERE SUCH A STANDARD EXISTS.
- J. DURING THE PROJECT DURATION, THE BUILDING MANAGEMENT OFFICE AND ITS DESIGNATED REPRESENTATIVE SHALL BE ABLE TO INSPECT THE WORK IN PROGRESS. ANY WORK WHICH THE BUILDING MANAGEMENT DEEMS UNACCEPTABLE SHALL BE REMOVED AND REPLACED AT THE EXPENSE OF CONTRACTOR/TENANT.
- K. ALL EQUIPMENT INSTALLED OR CONNECTED INTO THE BUILDING RISERS, SYSTEMS AND INFRASTRUCTURE SHALL BE APPROVED IN ADVANCE BY THE BUILDING PRIOR TO INSTALLATION.

1.02 SCOPE OF WORK:

- A. PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR COMPLETE, SAFE INSTALLATION OF ALL ELECTRICAL WORK. THE SCOPE OF WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:
 1. INSTALLATION OF NEW RACEWAY AND CONDUCTORS FOR LIGHTING AND POWER.
 2. ADDITION OR MODIFICATION OF EXISTING ELECTRICAL DISTRIBUTION EQUIPMENT.
 3. INSTALLATION OF MECHANICAL EQUIPMENT FEEDERS AND FINAL CONNECTIONS TO MECHANICAL EQUIPMENT.
 4. GROUNDING OF ALL EQUIPMENT AS REQUIRED BY CODE AND AS SPECIFIED.
 5. DEMOLITION AND REMOVAL OF ELECTRICAL EQUIPMENT AS REQUIRED INCLUDING ALL CONDUCTORS AND CONDUIT BACK TO THEIR SOURCE.
 6. MAINTENANCE AND PROPER OPERATION OF EXISTING BASE BUILDING SYSTEMS WITHIN THE CONTRACT AREA IN ACCORDANCE WITH THE REQUIREMENTS OF BUILDING MANAGEMENT.
 7. RECEIPT AND INSTALLATION OF DEVICES, EQUIPMENT, SYSTEMS, SUPPLIED BY OTHERS AS DETAILED.
 8. COORDINATION WITH OTHER TRADES.

1.03 SUBSTITUTIONS:

- A. NO SUBSTITUTE MATERIAL OR MANUFACTURER OF EQUIPMENT SHALL BE PERMITTED WITHOUT A FORMAL WRITTEN SUBMITTAL TO THE ENGINEER WHICH INCLUDES ALL DIMENSIONAL, PERFORMANCE AND MATERIAL SPECIFICATIONS. ANY CHANGES IN LAYOUT, MECHANICAL CHARACTERISTICS, STRUCTURAL REQUIREMENTS, OR DESIGN DUE TO THE USE OF A SUBSTITUTION SHALL BE SUBMITTED TO THE ENGINEER AS PART OF THIS PROPOSAL. THE CONTRACTOR TAKES FULL RESPONSIBILITY FOR THE SUBSTITUTION AND ALL CHANGES RESULTING FROM SUBSTITUTION. ALL ITEMS SHALL BE SUBMITTED FOR REVIEW IN CONJUNCTION WITH THE SUBMITTAL OF THE ALTERNATE. ANY SUBSTITUTION MUST BE SUBMITTED WITH AN EXPLANATION WHY SUBSTITUTION IS BEING UTILIZED. IF THE SUBSTITUTED ITEM DEVIATES FROM THE SPECIFIED ITEM, THOSE DEVIATIONS ARE TO BE IDENTIFIED ON A LINE BY LINE BASIS. IF THE SUBSTITUTION IS BEING UTILIZED FOR FINANCIAL REASONS, THE ASSOCIATED CREDIT MUST BE SIMULTANEOUSLY SUBMITTED.
- B. ALL SUBSTITUTED EQUIPMENT SHALL CONFORM TO SPACE REQUIREMENTS AND PERFORMANCE REQUIREMENTS SHOWN ON CONTRACT DOCUMENTS.
- C. CONTRACTOR SHALL SUBMIT BID BASED ON SPECIFIED ITEMS AND SHALL SUPPLY AS AN ALTERNATE PRICE ANY SUBSTITUTIONS.
- D. ALL EQUIPMENT SHALL BE APPROVED FOR USE IN THE STATE OF NEW YORK.

1.04 SHOP DRAWINGS:

- A. SHOP DRAWINGS SUBMISSION SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:
 1. DISTRIBUTION EQUIPMENT (PANELS, SWITCHES, ETC.).
 2. OVERCURRENT PROTECTIVE DEVICES (FUSES AND CIRCUIT BREAKERS).
 3. CONDUIT, RACEWAYS, WIREWAYS
 4. WIRING
 5. SCALED FIELD DRAWINGS.
- B. ALL SUBMISSIONS SHALL BE MADE ELECTRONICALLY IN PDF FORMAT.
- C. CHANGES MADE TO SHOP DRAWINGS BY THE CONSULTANT WILL NOT AFFECT THE CONTRACT PRICE.

1.06 COORDINATION

- A. COORDINATE CHASES, SLOTS, INSERTS, SLEEVES, AND OPENINGS WITH GENERAL CONSTRUCTION WORK AND ARRANGE IN BUILDING STRUCTURE DURING PROGRESS OF CONSTRUCTION TO FACILITATE THE ELECTRICAL INSTALLATIONS THAT FOLLOW.
 1. SET INSERTS AND SLEEVES IN POURED-IN-PLACE CONCRETE, MASONRY WORK, AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED.
- B. SEQUENCE, COORDINATE, AND INTEGRATE INSTALLING ELECTRICAL MATERIALS AND EQUIPMENT FOR EFFICIENT FLOW OF THE WORK. COORDINATE INSTALLING LARGE EQUIPMENT REQUIRING POSITIONING BEFORE CLOSING IN THE BUILDING.
- C. COORDINATE ELECTRICAL SERVICE CONNECTIONS TO COMPONENTS FURNISHED BY UTILITY COMPANIES.
 1. COORDINATE INSTALLATION AND CONNECTION OF EXTERIOR UNDERGROUND AND OVERHEAD UTILITIES AND SERVICES, INCLUDING PROVISION FOR ELECTRICITY-METERING COMPONENTS.
 2. COMPLY WITH REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION AND OF UTILITY COMPANY PROVIDING ELECTRICAL POWER AND OTHER SERVICES.
- D. COORDINATE LOCATION OF ACCESS PANELS AND DOORS FOR ELECTRICAL ITEMS THAT ARE CONCEALED BY FINISHED SURFACES. ACCESS DOORS AND PANELS ARE SPECIFIED IN A SEPARATE DIVISION OF THE SPECIFICATIONS.
- E. WHERE ELECTRICAL IDENTIFICATION DEVICES ARE APPLIED TO FIELD-FINISHED SURFACES, COORDINATE INSTALLATION OF IDENTIFICATION DEVICES WITH COMPLETION OF FINISHED SURFACE.
- F. WHERE ELECTRICAL IDENTIFICATION MARKINGS AND DEVICES WILL BE CONCEALED BY ACOUSTICAL CEILINGS AND SIMILAR FINISHES, COORDINATE INSTALLATION OF THESE ITEMS BEFORE CEILING INSTALLATION.

1.07 AS-BUILT DRAWINGS:

- A. CONTRACTOR SHALL MAINTAIN RECORD DRAWING PRINTS ON JOB SITE AND RECORD, AT TIME OF OCCURRENCE, DEVIATIONS FROM CONTRACT DOCUMENTS.
- B. AT THE COMPLETION OF WORK AND BEFORE FINAL ACCEPTANCE, PROVIDE AS-BUILT DRAWINGS OF THE INSTALLATION, IN AUTO-CAD (VERSION AS REQUESTED BY CLIENT).
- C. INCORPORATE ALL CHANGES AND DEVIATIONS FROM BID DRAWINGS, UTILIZING NORMAL, RECOGNIZED DRAFTING PROCEDURES THAT MATCH THE ORIGINAL DRAFTING METHODOLOGY. AS-BUILT DRAWINGS SHALL INDICATE ACTUAL LOCATIONS OF ALL EQUIPMENT.
- D. ALL MAIN BRANCH CONDUIT RUNS, JUNCTION BOX LOCATIONS, CONDUIT RUNS FOR ALL FLOOR OUTLETS, ETC., MUST BE REFLECTED ON THE DRAWINGS.
- E. CLEARLY INDICATE THE WORDS "AS-BUILT" IN THE TITLE BLOCK COLUMN OF THE DRAWINGS AS WELL AS THE ELECTRICAL CONTRACTOR'S NAME AND ADDRESS.
- F. SUBMIT ONE (1) PDF SET TO CONSULTANT FOR REVIEW. WHEN FOUND ACCEPTABLE BY THE CONSULTANT, SUBMIT THREE (3) SETS OF PRINTS TOGETHER WITH THE CAD AND PDF DXF FOR PRESENTATION TO THE LANDLORD AND TENANT.

1.08 OPERATION AND MAINTENANCE MANUALS:

- A. PROVIDE TWO (2) SETS OF OPERATION AND MAINTENANCE MANUALS SUBMITTED IN HARD COVER 3-RING BINDERS. INCLUDE THE FOLLOWING INFORMATION IN THE OPERATIONS AND MAINTENANCE MANUALS:
 1. NAMES AND ADDRESS OF LOCAL SUPPLIERS FOR THE ITEMS INCLUDED.
 2. TECHNICAL DATA, PRODUCT DATA, SUPPLEMENTED BY BULLETINS, COMPONENT ILLUSTRATIONS, EXPLODED VIEWS, TECHNICAL DESCRIPTIONS OF ITEMS, AND PARTS LISTS. ADVERTISING OR SALES LITERATURE IS NOT ACCEPTABLE.
 3. THE CONSULTANTS REVIEWED SHOP DRAWINGS.
 4. CERTIFICATE(S) OF ACCEPTANCE FROM THE AUTHORITIES INSPECTION DEPARTMENT.
 5. VERIFICATION REPORTS AND CERTIFICATE(S) FOR ANY NEW FIRE ALARM COMPONENTS OR TIE-INS AND ANY BASE BUILDING TIE-INS FOR MISCELLANEOUS SYSTEMS (I.E. SECURITY, LIGHTING CONTROL, DIGITAL METERING).
 6. WRITTEN GUARANTEE.
- B. REVIEW INFORMATION PROVIDED IN THE MAINTENANCE INSTRUCTIONS AND MANUALS WITH THE TENANT'S OPERATING PERSONNEL AND LANDLORD'S OPERATING PERSONNEL WHERE BASE BUILDING SYSTEMS ARE REVISED, TO ENSURE A COMPLETE UNDERSTANDING OF THE ELECTRICAL EQUIPMENT AND SYSTEMS AND THEIR OPERATION.

1.09 MATERIALS AND EQUIPMENT:

- A. ALL MATERIALS AND EQUIPMENT SHALL BE NEW, CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY AND MANUFACTURED TO THE STANDARDS SPECIFIED.
- B. WHERE THERE IS NO ALTERNATIVE TO SUPPLYING EQUIPMENT WHICH IS NOT NRTL CERTIFIED, OBTAIN SPECIAL APPROVAL FROM THE LOCAL ELECTRICAL SAFETY AUTHORITY.

1.10 INSURANCE:

- A. PROVIDE AND MAINTAIN INSURANCE TO PROTECT THE LANDLORD, TENANT AND TRADES FROM ALL POSSIBLE CLAIMS. SUBMIT WITH BID FOR AN AMOUNT ACCEPTABLE TO LANDLORD AND TENANT.

1.11 CONTRACT DOCUMENTS:

- A. THE DRAWINGS FOR THE ELECTRICAL WORK ARE DIAGRAMMATIC PERFORMANCE DRAWINGS ONLY, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE SIZE AND LOCATION OF ELECTRICAL EQUIPMENT. THE DRAWINGS DO NOT INTEND TO SHOW ARCHITECTURAL, INTERIOR DESIGN, MECHANICAL, STRUCTURAL OR BASE BUILDING DETAILS. BE RESPONSIBLE FOR A THOROUGH KNOWLEDGE OF SAME BEFORE PROCEEDING WITH THE WORK.
 - B. DO NOT SCALE OR MEASURE DRAWINGS, BUT OBTAIN INFORMATION REGARDING ACCURATE DIMENSIONS FROM THE DIMENSIONS SHOWN ON THE DESIGN CONSULTANT/ARCHITECT'S DRAWINGS, OR BY SITE MEASUREMENTS.
 - C. ANY DISCREPANCIES BETWEEN DRAWINGS AND/OR SPECIFICATIONS AND EXISTING CONDITIONS, MUST BE REFERRED TO THE DESIGN CONSULTANT/ARCHITECT BEFORE ANY WORK AFFECTED IS BEGUN.
 - D. COOPERATE AND COORDINATE WITH OTHER CONTRACTORS IN LAYING OUT OF WORK SO AS NOT TO CONFLICT WITH THE WORK OF OTHER CONTRACTORS. CARRY OUT WORK PROMPTLY AS PER CONSTRUCTION SCHEDULE AND COORDINATE WITH WORK OF OTHER CONTRACTORS.
- E. MAKE, AT NO ADDITIONAL COST, ANY CHANGES OR ADDITIONS TO MATERIALS AND EQUIPMENT NECESSARY TO ACCOMMODATE STRUCTURAL CONDITIONS (OFFSETS AROUND BEAMS, COLUMN, ETC.)

1.12 INTENT:

- A. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS THAT THE CONTRACTOR PROVIDE COMPLETE AND OPERATIONAL SYSTEMS AS REQUIRED. WHERE DIFFERENCES OCCUR, THE MAXIMUM CONDITION SHALL GOVERN.
- B. ANY MISCELLANEOUS ITEMS, HARDWARE, DEVICES, WIRING, ETC., NOT SPECIFICALLY DESCRIBED, BUT REQUIRED FOR THE OPERATION OF THE SYSTEM, MUST BE PROVIDED AND INCLUDED AS PART OF THE BID.

1.15 ACCESS DOORS:

- A. WHEREVER ANY BASE BUILDING EQUIPMENT REQUIRES ACCESSIBILITY, MAINTENANCE OR ADJUSTMENT, PROVIDE ACCESS DOORS APPROVED BY DESIGN CONSULTANT/ARCHITECT AND LANDLORD. ARRANGE FOR ITS INSTALLATION BY THE DIVISION IN WHOSE WORK IT OCCURS.

1.16 DRY WALL CEILINGS:

- A. IN ALL DRYWALL CEILING AREAS, DIVISION 16 IS TO REMOVE AND RELOCATE ALL EXISTING JUNCTION BOXES TO ACCESSIBLE CEILING SPACE.
- B. PROVIDE ACCESS PANELS FOR ALL NEW AND EXISTING DEVICES AS REQUIRED

1.18 NOISE AND VIBRATION:

- A. ELECTRICAL EQUIPMENT IS TO OPERATE WITHOUT OBJECTIONABLE NOISE OR VIBRATION. IF, IN THE OPINION OF THE LANDLORD, ARCHITECT OR CONSULTANT, THE EQUIPMENT OPERATES WITH EXCESSIVE NOISE OR VIBRATION, THEN THE EQUIPMENT MUST BE REPLACED OR NOISE OR VIBRATION ELIMINATED.
- B. CONNECTIONS TO NOISE-PRODUCING AND VIBRATING EQUIPMENT MUST BE MADE WITH LIQUID-TIGHT FLEXIBLE CONDUIT AND ASSOCIATED CONNECTORS. THIS INCLUDES TRANSFORMERS, DIMMING EQUIPMENT RACKS, AND MOTORS. USE A MINIMUM OF 3 FT OF FLEXIBLE CABLE WITH SLACK AT EACH DEVICE.
- C. VIBRATION ISOLATORS ARE TO BE PROVIDED WHERE INDICATED OR REQUIRED. TRANSFORMERS TO BE ISOLATED FROM THE STRUCTURE, WITH SPRING AND RUBBER ISOLATORS WHEN WALL MOUNTED OR SUSPENDED AND 1/2" HIGH DENSITY NEOPRENE SANDWICH PADS (TYPE MWPF) WHEN FLOOR MOUNTED.

1.19 TENANT'S EQUIPMENT:

- A. WHERE SPECIFIED, INSTALL ALL EQUIPMENT PROVIDED BY THE TENANT. RECEIVE, STORE AND INSTALL EQUIPMENT AND ACCEPT FULL RESPONSIBILITY FOR ITS CORRECT OPERATION. PROVIDE CONDUIT, WIRE, BOXES, SWITCHES, OUTLETS, DEVICES, FLEX CONNECTIONS, ETC., AS REQUIRED.

1.20 INTERRUPTION OF SERVICES:

- A. INTERRUPTION OF ELECTRICAL SERVICE TO ANY PART OF THE BUILDING SHALL OCCUR ONLY BY PRE-ARRANGEMENT WITH AND AT TIMES SUITABLE TO THE LANDLORD.
- B. INTERRUPTIONS SHALL ONLY OCCUR DURING PREMIUM TIME PERIODS; ALL ALLOWANCES FOR THIS SHALL BE INCLUDED IN THE PRICE SUBMITTED.

1.21 VALUATION OF CHANGES:

- A. PROVIDE COMPLETE BREAKDOWN OF MATERIAL, LABOR, OVERHEAD, PROFIT, ETC., WHEN SUBMITTING QUOTATIONS FOR CHANGE NOTICES ON THIS PROJECT.
- B. THE HOURLY LABOR RATE SHALL BE INCLUSIVE OF ALL CHARGES FOR SUPERVISION, VARIABLE LABOR FACTORS, HAND TOOLS, PAYROLL BURDENS, HEIGHT FACTORS, WARRANTIES, STORAGE, RENTALS, ADDITIONAL BONDING, PARKING, CLEAN-UP, AS-BUILT DRAWINGS, HOISTING, FREIGHT AND DELIVERY, BUT EXCLUSIVE OF OVERHEAD AND PROFIT.

1.22 ENGINEERS FINAL INSPECTION

- A. FINAL INSPECTION IS IMPERATIVE. PRIOR TO CLOSING OF CEILINGS, THIS CONTRACTOR SHALL CONTACT AMA CONSULTING ENGINEERS (212-944-7722) AND THE LANDLORD'S REPRESENTATIVE TO PERFORM A FINAL INSPECTION. WHEN CEILING TILES HAVE BEEN INSTALLED IT WILL BE NECESSARY FOR THE CONTRACTOR TO REMOVE PORTIONS FOR INSPECTION.

1.23 COMPLETION OF CONTRACT:

- A. ALL EQUIPMENT MUST BE CLEANED AND TESTED BEFORE FINAL ACCEPTANCE BY THE CONSULTANT.
- B. DEFECTS AND DEFICIENCIES WHICH ORIGINATE OR BECOME EVIDENT DURING THE WARRANTY PERIOD MUST BE REPAIRED OR REPLACED, AT NO COST.
- C. REPLACE, AT NO COST, ALL INCANDESCENT LAMPS BURNED-OUT DURING A THIRTY (30) DAY PERIOD AND ALL BURNED-OUT LED AND HID LAMPS FOR A PERIOD OF NINETY (90) DAYS AFTER DATE OF ISSUANCE OF CERTIFICATE OF "SUBSTANTIAL PERFORMANCE" FOR THE CONTRACT FOR THE WORK.
- D. IF, DURING THE WARRANTY PERIOD, TRANSFORMERS, BALLASTS OR OTHER NOISE AND VIBRATION PRODUCING EQUIPMENT ARE CONSIDERED BY THE CONSULTANT TO EXCEED ACCEPTABLE STANDARDS, THEN THESE MUST BE REPLACED WITHOUT DELAY OR ADDITIONAL COST TO THE TENANT. ALL WORK RELATING TO THE REPLACEMENT OF DEFECTIVE ITEMS, MUST BE CARRIED OUT AFTER NORMAL WORKING HOURS AND AT A TIME WHICH IS ACCEPTABLE TO THE TENANT.

1.24 DEMOLITION:

- A. VISIT THE SITE, EXAMINE THE EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE EXTENT OF THE NECESSARY REMOVAL, RELOCATION, RECONNECTING AND REROUTING OF ELECTRICAL EQUIPMENT AND WIRING AS NECESSARY FOR THE COMPLETION OF THE PROJECT.
- B. MAKE SAFE AND DISCONNECT ALL POWER AND SYSTEMS, AS AND WHEN, AND TO THE EXTENT REQUIRED TO FACILITATE WITH THE DEMOLITION.
- C. ENSURE THAT ALL ELECTRICAL, LIFE SAFETY SERVICES, AND SERVICES FOR EXISTING EQUIPMENT, IN AREAS OUTSIDE THE AREAS OF THIS WORK, THAT ARE REQUIRED TO REMAIN IN SERVICE, SHALL DO SO.
- D. WHEN DELETING AND/OR MAKING SAFE EXISTING ELECTRICAL WORK, ENSURE THAT IT INCLUDES ALL CONDUITS AND WIRING BACK TO THE ASSOCIATED PANELBOARD OR CONTROL PANEL. WHERE FLOORBOXES ARE BEING REMOVED, ENSURE UNDER-FLOOR CONDUIT IS REMOVED BACK TO SOURCE AND FILL ALL CORE HOLES, IN FLOORS AND WIN WALLS, WITH APPROPRIATE CONCRETE.
- E. DISCONNECT AND REMOVE EXISTING LIGHT FIXTURES, DEVICES, OUTLETS, ETC. WHICH ARE NOT TO BE REUSED. SUCH ITEMS SHALL BE CARTONED AND TURNED OVER TO THE LANDLORD AT A PLACE DESIGNATED BY THE LANDLORD. CUT BACK AND CAP UNUSED RACEWAY AND OUTLETS AND REMOVED UNUSED WIRING BACK TO PANELBOARD IN AN APPROVED MANNER.
- F. ALL EXISTING ELECTRICAL EQUIPMENT WHICH IS NO LONGER REQUIRED SHALL BE REMOVED AND DISPOSED OF, OFF SITE.
- G. BE RESPONSIBLE AND PAY FOR ANY DAMAGE TO THE BASE BUILDING INCURRED BY WORK OF THIS DIVISION, OR REPAIR TO THE SATISFACTION OF THE CONSULTANT.
- H. CARRY OUT THE WORK WITH MINIMUM OF NOISE, DUST AND DISTURBANCE.

1.25 WORK IN NEW AND RENOVATED AREAS:

- A. WHEN DELETING AND/OR MAKING SAFE EXISTING ELECTRICAL WORK, ENSURE THAT IT INCLUDES REMOVAL OF ALL DISCONNECTED WIRING BACK TO THE ASSOCIATED PANELBOARD OR DISTRIBUTION EQUIPMENT.
- B. DISCONNECT AND REMOVE EXISTING LUMINAIRES, DEVICES, OUTLETS, ETC., WHICH ARE NOT TO BE REUSED. SUCH ITEMS SHALL BE CARTONED AND TURNED OVER TO THE LANDLORD AT A PLACE DESIGNATED BY THE LANDLORD. CUT BACK AND CAP UNUSED RACEWAY AND OUTLETS AND REMOVE UNUSED WIRING BACK TO PANELBOARD IN AN APPROVED MANNER. REMOVE ALL REDUNDANT COMMUNICATIONS CABLES TO HUB ROOMS AND/OR TELEPHONE RISER ROOMS.
- C. ENSURE THAT ALL EXISTING EQUIPMENT WHICH IS TO BE REUSED AND/OR RELOCATED IS THOROUGHLY INSPECTED AND REFURBISHED TO ENSURE CORRECT OPERATION WHEN PUT BACK INTO SERVICE AND MEETS THE LOCAL ELECTRICAL SAFETY AUTHORITY'S APPROVAL. OUTLET BOXES AND WIRING AND/OR CONDUITS WHICH ARE CORRODED OR DAMAGED ARE TO BE REPLACED.
- D. ALL EXISTING ELECTRICAL EQUIPMENT WHICH IS NO LONGER REQUIRED SHALL BE REMOVED AND DISPOSED OF, OFF SITE.
- E. WHERE EXISTING OUTLET BOXES ARE REMOVED FROM EXISTING UNDERFLOOR DUCTS, PLUG AND CAP EXISTING HOLES FLUSH WITH FLOOR USING APPROVED FITTINGS. REMOVE ALL REDUNDANT WIRE AND CABLE BACK TO SERVICE.
- F. BE RESPONSIBLE AND PAY FOR ANY DAMAGE TO THE BASE BUILDING INCURRED BY WORK OF THIS DIVISION, OR REPAIR TO THE SATISFACTION OF THE CONSULTANT.
- G. CARRY OUT THE WORK WITH A MINIMUM OF NOISE, DUST AND DISTURBANCE.
- H. PROVIDE TOOLS AND CLEAN UP EQUIPMENT. OBTAIN THE LANDLORD'S PERMISSION FOR THE USE OF ELECTRICAL, ELEVATOR, PLUMBING OR DRAINAGE OUTLETS.
- I. PROVIDE DAILY CLEAN UP AND PROPER DISPOSAL OF DEBRIS GENERATED BY DAILY OPERATIONS. ON COMPLETION OF THE WORK, ALL TOOLS, SURPLUS MATERIALS AND WASTE MATERIALS SHALL BE REMOVED AND THE PREMISES LEFT IN A CLEAN AND PERFECT CONDITION.
- J. REMOVE AND REROUTE EXISTING CONDUITS WHICH ARE TO REMAIN IN "FINISHED" AREAS WHICH ARE TO BE EXPOSED.
- K. CONDUITS WHICH ARE TO BE CUT BACK ARE TO TERMINATE IN A JUNCTION BOX.
- L. CLEAN LUMINAIRE REFLECTORS AND LENSES, LAMPS AND OTHER SURFACES THAT HAVE BEEN EXPOSED TO CONSTRUCTION DUST AND DIRT. CLEAN THE INSIDES AND OUTSIDES OF PANELBOARDS, SPLITTERS AND OTHER ELECTRICAL EQUIPMENT, AND COMPLETELY REMOVE ALL DEBRIS AND TOOLS FROM THE PROJECT.

PART 2 PRODUCT/APPLICATION

2.01 RACEWAYS:

- A. EMT: ANSI C80.3, ZINC-COATED STEEL, WITH DOUBLE SET-SCREW OR COMPRESSION FITTINGS.
- B. FMC: ZINC-COATED STEEL.
- C. RMC: ANSI C80.1, HOT-DIPPED GALVANIZED STEEL WITH THREADED FITTINGS
- D. IMC: ANSI C80.6, ZINC-COATED STEEL, WITH THREADED FITTINGS.
- E. LFMC: ZINC-COATED STEEL WITH SUNLIGHT-RESISTANT AND MINERAL-OIL-RESISTANT PLASTIC JACKET.
- F. RNC: NEMA TC 2, SCHEDULE 40/SCHEDULE 80 PVC, WITH NEMA TC3 FITTINGS.
- G. RACEWAY FITTINGS: SPECIFICALLY DESIGNED FOR THE RACEWAY TYPE WITH WHICH USED.
- H. ELECTRIC METALLIC TUBING SHALL BE INDUSTRY STANDARD THIN WALL CONDUIT, HOT DIPPED GALVANIZED STEEL (3/4" MIN. 4" MAX).
- I. THE FLEXIBLE METALLIC CONDUIT SHALL BE OF THE GROUNDING TYPE. IT SHALL CONSIST OF GALVANIZED STEEL TAPE FORMED INTO AN INDUSTRY STANDARD INTERLOCKING COIL (3/4" MIN).
- J. RIGID METAL CONDUIT SHALL BE INDUSTRY STANDARD STEEL CONDUIT (3/4" MIN. 4" MAX).
- K. THREADED FITTINGS SHALL BE USED WITH RIGID CONDUIT. DOUBLE SET SCREW OR COMPRESSION FITTINGS SHALL BE USED WITH EMT.

2.02 WIRE AND CABLE:

- A. CONDUCTORS, NO. 10 AWG AND SMALLER: SOLID COPPER.
- B. CONDUCTORS, LARGER THAN NO. 10 AWG: STRANDED COPPER.
- C. INSULATION: THERMOPLASTIC, RATED AT 75 DEG C MINIMUM.
- D. ALL CONDUCTORS SHALL BE SOFT 98% MINIMUM CONDUCTIVITY PROPERLY REFINED COPPER, TYPE THHN/THWN INSULATED FOR INDOOR USE AND TYPE XHHW-2 FOR OUTDOOR USE RATED AT 600V, UNLESS OTHERWISE NOTED.
- E. REFER TO SECTION 3.11 FOR COLOR-CODING OF ALL WIRING.

2.03 SUPPORTING DEVICES:

- A. MATERIAL: COLD-FORMED STEEL, WITH COPROSION-RESISTANT COATING ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.
- B. METAL ITEMS FOR USE OUTDOORS OR IN DAMP LOCATIONS: HOT-DIP GALVANIZED STEEL.
- C. SLOTTED-STEEL CHANNEL SUPPORTS: FLANGE EDGES TURNED TOWARD WEB, AND 9/16-INCH DIAMETER SLOTTED HOLES AT A MAXIMUM OF 2 INCHES O.C., IN WEBS.
- D. SLOTTED-STEEL CHANNEL SUPPORTS: COMPLY WITH DIVISION 5 SECTION "METAL FABRICATIONS" FOR SLOTTED CHANNEL FRAMING.
 1. CHANNEL THICKNESS: SELECTED TO SUIT STRUCTURAL LOADING.
 2. FITTINGS AND ACCESSORIES: PRODUCTS OF THE SAME MANUFACTURER AS CHANNEL SUPPORTS.
- E. NONMETALLIC CHANNEL AND ANGLE SYSTEMS: STRUCTURAL-GRADE, FACTORY-FORMED, GLASS-FIBER-RESIN CHANNELS AND ANGLES WITH 9/16-INCH- DIAMETER HOLES AT A MAXIMUM OF 8 INCHES O.C., IN AT LEAST ONE J. SURFACE.
 1. FITTINGS AND ACCESSORIES: PRODUCTS OF THE SAME MANUFACTURER AS CHANNELS AND ANGLES.
 2. FITTINGS AND ACCESSORY MATERIALS: SAME AS CHANNELS AND ANGLES, EXCEPT METAL ITEMS MAY BE K. STAINLESS STEEL.
- F. RACEWAY AND CABLE SUPPORTS: MANUFACTURED CLEVIS HANGERS, RISER CLAMPS, STRAPS, THREADED C-CLAMPS WITH RETAINERS, CEILING TRAPEZE HANGERS, WALL BRACKETS, AND SPRING-STEEL CLAMPS OR CLICK-TYPE HANGERS.
- G. PIPE SLEEVES: ASTM A 53, TYPE E, GRADE A, SCHEDULE 40, GALVANIZED STEEL, PLAIN ENDS.
- H. CABLE SUPPORTS FOR VERTICAL CONDUIT: FACTORY-FABRICATED ASSEMBLY CONSISTING OF THREADED BODY AND INSULATING WEDGING PLUG FOR NONARMORED ELECTRICAL CABLES IN RISER CONDUITS. PLUGS HAVE NUMBER AND SIZE OF CONDUCTOR GRIPPING HOLES AS REQUIRED TO SUIT INDIVIDUAL RISERS. BODY CONSTRUCTED OF MALLEABLE-IRON CASTING WITH HOT-DIP GALVANIZED FINISH.
- I. EXPANSION ANCHORS: CARBON-STEEL WEDGE OR SLEEVE TYPE.
- J. TOGGLE BOLTS: ALL-STEEL SPRINGHEAD TYPE.
- K. POWDER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL.
- L. PROVIDE ALL STEEL SUPPORTING MEMBERS, HANGERS, BRACKETS OR OTHER SPECIAL DETAILS REQUIRED AND NECESSARY AS PER CODE.
- M. EXCEPT FOR BRANCH CIRCUITRY INSTALL ALL CONDUIT IN HUNG CEILING SPACE ON ACCEPTABLE HANGERS AND INSERTS. CONDUIT OR MC CABLE FOR BRANCH CIRCUITRY SHALL BE SUPPORTED BY CLAMPS OR PIPE STRAPS SECURED TO THE CEILING SUPPORT SYSTEM (BLACK IRON - NYG), FROM STRUCTURAL MEMBERS OR FROM THE DECK. SUPPORT FROM CEILING TEES, CROSS TEES OR SUPPORT WIRES IS PROHIBITED.

2.04 SPACING OF SUPPORTS SHALL BE PER THE NEC/NYCEC.

- A. INSERTS ARE TO BE OF A LEAD SHIELD TYPE.
- B. HANGERS MUST NOT BE WELDED TO STRUCTURAL STEEL MEMBERS AND BURNING OF HOLES IN STRUCTURAL STEEL IS PROHIBITED.
- C. SLEEVES ARE TO BE OF A TYPE SUITABLE FOR THE APPLICATION AND BE SEALED AND MADE WATER/TIGHT. SLEEVES THROUGH CONCRETE SHALL BE SCHEDULED 40 STEEL PIPE, SIZED FOR FREE PASSAGE OF CONDUIT AND INSTALLED FLUSH WITH UNDERSIZE OF CONCRETE SLAB AND EXTEND 4" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.

2.04 PULLBOXES, JUNCTION BOXES AND OUTLET BOXES:

- A. PULLBOXES, JUNCTION BOXES AND OUTLET BOXES SHALL BE MANUFACTURED FROM GALVANIZED INDUSTRY STANDARD GAUGE SHEET STEEL.
- B. PROVIDE PULL BOXES AND JUNCTION BOXES IN LONG STRAIGHT RUNS OF RACEWAY TO ASSURE THAT CABLES ARE NOT DAMAGED WHEN THEY ARE PULLED, TO FULFILL REQUIREMENTS AS TO THE NUMBER OF BENDS PERMITTED IN RACEWAY BETWEEN CABLE ACCESS POINTS, THE ACCESSIBILITY OF CABLE JOINTS AND SPLICES, AND THE APPLICATION OF CABLE SUPPORTS.
- C. PULLBOXES AND JUNCTION BOXES SHALL BE SIZED SO THAT THE MINIMUM BENDING RADIUS CRITERIA SPECIFIED FOR THE WIRES AND CABLE ARE MAINTAINED.
- D. SWITCH RECEPTACLE AND WALL OUTLET BOXES SHALL BE A NOMINAL 4" SQUARE, 1-1/2" OR 2-1/8" DEEP AS REQUIRED BY CODE WITH A RAISED COVER, UNLESS OTHERWISE INDICATED ON THE DRAWING.
- E. PROVIDE BLANK COVERPLATES FOR BOXES WITHOUT WIRING DEVICES.
- F. DO NOT INSTALL OUTLET BOXES BACK TO BACK IN PARTITIONS. STAGGER TO PREVENT SOUND TRANSFER.
- G. TWO OR MORE OUTLET BOXES THAT OCCUR AT THE SAME LOCATION SHALL BE GANGED TOGETHER IN THE SAME COVERPLATE UNLESS OTHERWISE NOTED.
- H. LIGHTING FIXTURE BOXES SHALL BE 4" OCTAGON TYPE, DEPTH AS REQUIRED WITH 3/8" FIXTURE STUD. FOR SUSPENDED CEILING WORK, PROVIDE A 4" OCTAGON BOX WITH REMOVABLE BACKPLATE WHERE REQUIRED.
- I. PULL/JUNCTION BOX BARRIERS SHALL BE PROVIDED WHERE REQUIRED BY CODE.
- J. INSTALL JUNCTION AND PULLBOXES IN INCONSPICUOUS LOCATIONS.
- K. A MINIMUM OF ONE PULLBOX SHALL BE INSTALLED FOR EVERY 100 FT OF CONDUITS. (NOTE: EACH 90 DEGREE BEND SHALL EQUATE TO 30' LENGTH OF CONDUIT).
- L. NO MORE THAN TWO (2) 90 DEGREE BENDS SHALL BE INSTALLED BETWEEN AND TWO ADJACENT PULLBOXES.
- M. ALL EQUIPMENT, DEVICE BOXES, JUNCTION BOXES, PULLBOXES AND OUTLET BOXES SHALL BE INSTALLED SO AS TO ALLOW ACCESS TO THE BOX.
- N. OUTLET BOXES SHALL BE PROVIDED FOR ALL LOW VOLTAGE DEVICES (I.E. TELEPHONE/DATA, SECURITY, FIRE ALARM, ETC.), COORDINATE BOX SIZE AND DEPTH WITH RESPECTIVE VENDOR.

2.06 SUPPORTS AND FASTENINGS:

- A. PROVIDE ALL STEEL SUPPORTING MEMBERS, HANGERS, BRACKETS OR OTHER SPECIAL DETAILS REQUIRED AND NECESSARY AS PER CODE.
- B. EXCEPT FOR BRANCH CIRCUITRY INSTALL ALL CONDUIT IN HUNG CEILING SPACE ON ACCEPTABLE HANGERS AND INSERTS. CONDUIT OR MC CABLE FOR BRANCH CIRCUITRY SHALL BE SUPPORTED BY CLAMPS OR PIPE STRAPS SECURED TO THE CEILING SUPPORT SYSTEM (BLACK IRON), FROM STRUCTURAL MEMBERS OR FROM THE DECK. SUPPORT FROM CEILING TEES, CROSS TEES OR SUPPORT WIRES IS PROHIBITED.
- C. SPACING OF SUPPORTS SHALL BE PER THE NEC/NYCEC.
- D. INSERTS ARE TO BE OF A LEAD SHIELD TYPE.
- E. HANGERS MUST NOT BE WELDED TO STRUCTURAL STEEL MEMBERS AND BURNING OF HOLES IN STRUCTURAL STEEL IS PROHIBITED.
- F. SLEEVES ARE TO BE OF A TYPE SUITABLE FOR THE APPLICATION AND BE SEALED AND MADE WATER/TIGHT. SLEEVES THROUGH CONCRETE SHALL BE SCHEDULED 40 STEEL PIPE, SIZED FOR FREE PASSAGE OF CONDUIT AND INSTALLED FLUSH WITH UNDERSIZE OF CONCRETE SLAB AND EXTEND 4" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.

2.07 DISCONNECT SWITCHES:

- A. INDOOR DISCONNECT SWITCHES SHALL BE "QUICK-MAKE, QUICK-BREAK" HEAVY DUTY TYPE IN NEMA 1 ENCLOSURES. PROVIDE ALL FUSES WHERE NOTED.
- B. OUTDOOR DISCONNECT SWITCHES SHALL BE SIMILAR TO INDOOR, EXCEPT LISTED FOR OUTDOOR APPLICATIONS (NEMA 3R OR 4, AS REQUIRED)
- C. FUSED DISCONNECT SWITCHES SHALL BE PROVIDED WITH FUSE CLIPS TO ACCEPT SPECIFIED FUSES.

2.09 CIRCUIT BREAKERS:

- A. FOR PANELBOARD APPLICATIONS, CIRCUIT BREAKERS SHALL BE BOLTED TO THE PANELBOARD BUS BARS. WHERE CIRCUIT BREAKERS ARE INSTALLED IN EXISTING PANELBOARD BREAKERS SHALL BE OF THE SAME MANUFACTURER AND INTERRUPTING RATING. BREAKERS SHALL BE COMPATIBLE WITH EXISTING PANELBOARDS.
- B. CIRCUIT BREAKERS SHALL BE "THERMAL MAGNETIC" TYPE, QUICK-MAKE, QUICK-BREAK, TRIP-FREE WITH NON-WELDING CONTACTS COMPENSATED FOR AMBIENT TEMPERATURES AND SHALL HAVE A MINIMUM SHORT CIRCUIT RATING OF 10,000 AMPERES SYMMETRICAL FOR 120/208V PANELS AND 14,000 AMPERES SYMMETRICAL FOR 277/480V PANELS OR HIGHER WHERE NOTED. CIRCUIT BREAKERS SHALL BE FULLY RATED. SERIES RATING IS NOT ACCEPTABLE.
- C. MULTI-WIRE BRANCH CIRCUITS SUPPLYING POWER TO MORE THAN ONE DEVICE OR EQUIPMENT SHALL BE PROVIDED WITH A MEANS TO DISCONNECT SIMULTANEOUSLY ALL UNGROUNDED CONDUCTORS AT THE PANELBOARD WHERE THE BRANCH CIRCUIT ORIGINATES. CONTRACTOR SHALL COORDINATE WITH LOCAL A.H.J. THE MEANS REQUIRED TO MEET NEC SECTIONS 210.4(B). CONTRACTOR SHALL REMOVE AND REPLACE ALL EXISTING CIRCUIT BREAKERS THAT CAN NOT BE RETROFITTED WITH THE BARS AS REQUIRED TO COMPLY WITH REQUIREMENT.
- D. TANDEM BREAKERS MAY NOT BE UTILIZED.
- E. PROVIDE BREAKER LOOKS FOR ALL NEW AND EXISTING BREAKERS SERVING EXIT LIGHTS, EMERGENCY LIGHTING AND EMERGENCY BATTERY PACKS.

2.14 GROUNDING:

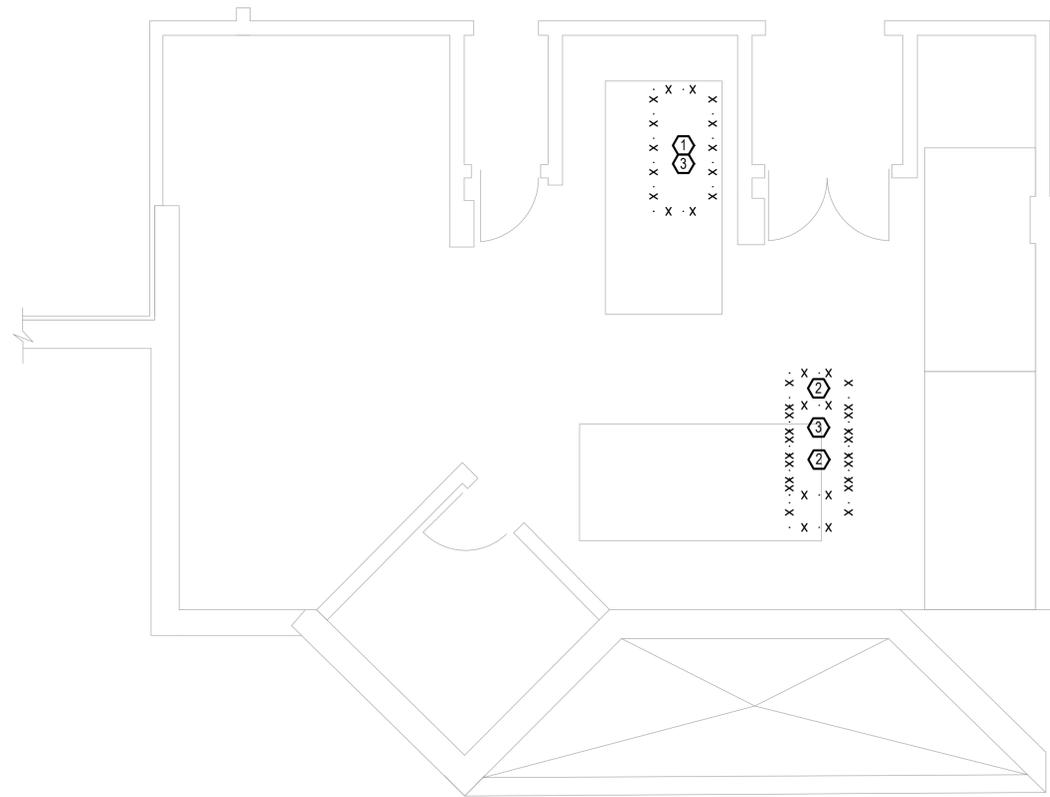
- A. PROVIDE SUPPLEMENTARY GROUND BONDING WHERE METALLIC CONDUITS TERMINATE AT METAL CLAD EQUIPMENT (OR AT THE METAL PULL BOX OF EQUIPMENT) FOR WHICH A GROUND BUS IS SPECIFIED WITH A BUSHING OF THE GROUNDING TYPE CONNECTED INDIVIDUALLY TO GROUND BUS.
- B. GROUND ALL EQUIPMENT IN ACCORDANCE WITH LATEST EDITION OF THE NATIONAL ELECTRICAL CODE. PROVIDE SEPARATE GREEN INSULATED GROUND CONDUCTOR IN EVERY CONDUIT TO ALL DEVICES, LIGHTING FIXTURES AND FEEDERS (PANELBOARDS, DISCONNECT SWITCHES, ETC.)
- C. ALL GROUND WIRES SHALL BE SUITABLY PROTECTED FROM MECHANICAL INJURY.
- D. SPECIALTY GROUNDING AS DETAILED ON THE DESIGN DRAWINGS OR REQUESTED AS ELECTRICAL CONTRACTOR SCOPE BY OTHER CONSULTANTS DOCUMENTS.

2.16 MOTORS AND APPARATUS FURNISHED BY OTHERS:

- A. INSTALL ALL WIRING IN CONDUITS. CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH 18" TO 24" OF FLEXIBLE CONDUIT FROM END OF CONDUIT TO MOTOR TERMINAL BOX.
- B. PROVIDE CONNECTIONS TO ALL "EXISTING TO BE RELOCATED" AS WELL AS NEW MOTORS, CONTROLLERS, DISCONNECTS, ACTUATING AND CONTROL DEVICES. CONDUCTORS TO MOTORS TO BE THE SAME AS TO CONTROLLERS EXCEPT AS NOTED.
- C. MOTORS, CONTROLLERS, ACTUATING AND CONTROL DEVICES WILL BE SUPPLIED UNDER SECTIONS OF WORK EXCEPT AS NOTED.
- D. ACCEPT DELIVERY OF CONTROLLERS, OR RELOCATE EXISTING CONTROLLERS, ERECT ON WALLS OR ABOVE CEILING AS INDICATED AND WIRE UNDER THIS SECTION EXCEPT AS NOTED.
- E. WIRE ALL MOTOR AND ACTUATING DEVICES SUPPLIED AND INSTALLED UNDER OTHER SECTIONS OF WORK EXCEPT AS NOTED.
- F. FURNISH DISCONNECT SWITCHES UNDER THIS SECTIONS OF WORK EXCEPT AS NOTED.
- G. LEAVE MOTOR, CONTROL AND ACTUATING EQUIPMENT READY FOR OPERATION.
- H. ASCERTAIN EXACT LOCATIONS OF CONTROLLERS AND CONTROL SERVICES PRIOR TO INSTALLATION AND PULLING WIRING.
- I. COORDINATE WITH ALL OTHER TRADES AND PROVIDE ALL WIRING, CONDUIT, JUNCTION BOXES, DISCONNECTS, CONNECTIONS AND TERMINATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER WIRING AND NECESSARY ELECTRICAL ADJUSTMENTS AS REQUIRED BY THE EQUIPMENT SPECIFICATION.
- J. UNLESS OTHERWISE NOTED, ALL STARTERS AND CONTROL WIRING TO BE PROVIDED BY DIVISION 15. DIVISION 16 TO RECEIVE, INSTALL STARTERS AND PROVIDE ALL LINE-SIDE AND LOAD-SIDE POWER WIRINGS AND REQUIRED ISOLATING DISCONNECT SWITCHES.
- K. CONFIRM ELECTRICAL REQUIREMENTS AND EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT WITH DIVISION 15 PRIOR TO INSTALLATION

2.19 ELECTRICAL IDENTIFICATION

- A. IDENTIFICATION DEVICES: A SINGLE TYPE OF IDENTIFICATION PRODUCT FOR EACH APPLICATION CATEGORY. USE COLORS PRESCRIBED BY ANSI A13.1, NFPA 70, AND THESE SPECIFICATIONS.
- B. RACEWAY AND CABLE LABELS: COMPLY WITH ANSI A13.1, TABLE 3, FOR MINIMUM SIZE OF LETTERS FOR LEGEND AND MINIMUM LENGTH OF COLOR FIELD FOR EACH RACEWAY AND CABLE SIZE.
 1. TYPE: PRETENSIONED, WRAPAROUND PLASTIC SLEEVES. FLEXIBLE, PREPRINTED, COLOR-CODED, ACRYLIC BAND SIZED TO SUIT THE DIAMETER OF THE ITEM IT IDENTIFIES.
 2. TYPE: PREPRINTED, FLEXIBLE, SELF-ADHESIVE, VINYL. LEGEND IS OVERLAMINATED WITH A CLEAR, WEATHER- AND CHEMICAL-RESISTANT COATING.
 3. COLOR: BLACK LETTERS ON ORANGE BACKGROUND.
 4. LEGEND: INDICATES VOLTAGE.
- C. COLORED ADHESIVE MARKING TAPE FOR RACEWAYS, WIRES, AND CABLES: SELF-ADHESIVE VINYL TAPE, NOT LESS THAN 1 INCH WIDE BY 3 MILS THICK.
- D. TAPE MARKERS FOR WIRE: VINYL OR VINYL-CLOTH, SELF-ADHESIVE, WRAPAROUND TYPE WITH PREPRINTED NUMBERS AND LETTERS.
- E. COLOR-CODING CABLE TIES: TYPE 66 NYLON, SELF-LOCKING TYPE. COLORS TO SUIT CODING SCHEME.
- F. ENGRAVED-PLASTIC LABELS, SIGNS, AND INSTRUCTION PLATES: ENGRAVING STOCK, MELAMINE PLASTIC LAMINATE PUNCHED OR DRILLED FOR MECHANICAL FASTENERS 1/16-INCH (1.6MM) MINIMUM THICKNESS FOR SIGNS UP TO 20 SQ. IN. (129 SQ. CM) AND 1/8-INCH (3.2MM) MINIMUM THICKNESS FOR LABELS. ENGRAVED LEGEND IN BLACK LETTERS ON WHITE BACKGROUND.
- G. INTERIOR WARNING AND CAUTION SIGNS: COMPLY WITH 29 CFR, CHAPTER XVII, PART 1910.145. PREPRINTED, ALUMINUM, BAKED-ENAMEL-FINISH SIGNS, PUNCHED OR



ELECTRICAL - BASEMENT PART PLAN

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

DEMOLITION NOTES

1. PRIOR TO SUBMISSION OF BID, THIS CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS TO DETERMINE THEIR IMPACT ON THE EXECUTION OF THIS CONTRACT WORK. SUBMISSION OF PROPOSAL WILL BE CONSTRUED OF SUCH AS EXAMINATION AND ALL LATER CLAIMS WILL NOT BE RECOGNIZED FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH EXAMINATION. GC TO COORDINATE ALL AFTER HOUR WORK WITH TENANT AND LANDLORD.
2. ALL ELECTRIC POWER MUST BE DISCONNECTED PRIOR TO COMMENCEMENT OF DEMOLITION.
3. DEMOLITION WORK SHALL INCLUDE, BUT NOT BE LIMITED TO, ANY & ALL MATERIALS, CONNECTIONS, EXTENSIONS, CUTTING, REPAIRING AND OTHER ELECTRICAL WORK, TEMPORARY OR PERMANENT, THAT MAY BE REQUIRED TO MAINTAIN SERVICE THROUGH THE COMPLETION OF THIS PROJECT. COORDINATE THE EXTENT OF THE DEMOLITION WORK WITH THE ARCHITECT.
4. EXISTING FEEDERS AND BRANCH CIRCUITRY PASSING THROUGH THE AREA OF DEMOLITION AND SERVING OCCUPIED ADJACENT AREAS AND INTERFERING WITH THE NEW WORK SHALL BE TRACED AND RELOCATED BY THIS CONTRACTOR. ALL NECESSARY SHUTDOWNS REQUIRED TO PERFORM THIS WORK SHALL BE COORDINATED WITH THE BUILDING MANAGEMENT. SHUT DOWN WILL NOT BE PERFORMED WITHOUT PRIOR APPROVAL.
5. WIRING, CONDUITS, AND SUPPORTS FOR FEEDERS AND BRANCH CIRCUITRY SHALL BE REMOVED BACK TO THEIR PANEL OF ORIGIN, WITH WIRE DISCONNECTED FROM UNDER THE PROTECTIVE DEVICE. COORDINATE REMOVALS WITH ARCHITECTURAL DOCUMENTS.
6. MAINTAIN THE CONTINUITY OF EXISTING BRANCH CIRCUITRY SERVING REMAINING ELECTRICAL DEVICES OUTSIDE THE SCOPE OF WORK WHERE PORTIONS OF EXISTING BRANCH CIRCUITRY ARE BEING REMOVED.
7. IDENTIFY AS SPARE ANY PROTECTIVE DEVICE IN EXISTING PANELS THAT ARE MADE SPARE DUE TO DEMOLITION. PANEL DIRECTORIES SHALL BE UPDATED ACCORDINGLY.
8. ELECTRICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF ALL OTHER TRADES, AND CONFER WITH THE ARCHITECT.
9. ELECTRICAL PANEL COVERS ARE NOT TO BE LEFT OFF ANY TIME, UNLESS MEN ARE WORKING ON THEM.
10. BUILDING FIRE ALARM SYSTEM INTEGRITY SHALL BE MAINTAINED AT ALL TIMES. (BEFORE, DURING AND AFTER DEMOLITION) EXISTING DEVICES ARE INDICATED. CONTRACTOR TO ENSURE ALL DEVICES ARE PROTECTED.
11. FOR MECHANICAL EQUIPMENT REFER TO MECHANICAL DEMO PLAN. EQUIPMENT SHALL BE REMOVED BY OTHERS. ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE POWER AND SWITCHES.
12. DEMOLITION CONTRACTOR SHALL REMOVE FROM THE SITE ALL RESULTANT DEBRIS AND MATERIALS WHICH ARE NOT TO BE REUSED. IN CERTAIN CASES, EQUIPMENT OR MATERIALS DESIGNATED FOR REMOVAL SHALL REMAIN THE PROPERTY OF THE OWNER AND SHALL BE TURNED OVER AT LOCATIONS AS DIRECTED BY OWNER. THESE ITEMS SHALL INCLUDE, BUT ARE NOT LIMITED TO ALL SECURITY DEVICES, EQUIPMENT RACKS, WIRELESS ACCESS POINTS, ETC.
13. ON THE UNDERSIDE OF CEILING SLAB, THE CONTRACTOR SHALL LEAVE INTACT ALL CONDUITS NOT ASSOCIATED WITH THE AREA OF WORK. THESE RACEWAYS TO BE IDENTIFIED BY THE CONTRACTOR, MARKED FOR THE OWNER AND RE-SUPPORTED WITH A NEW KINDORF, HANGER RODS, STRAPS AND CLEVIS HOOKS BY THIS CONTRACTOR. COORDINATE IN THE FIELD PRIOR TO REMOVAL OF ANY CONDUITS IN THE CEILING.

DEMOLITION KEY NOTES

- ① CONTRACTOR SHALL REMOVE EXISTING GAS-FIRED WATER HEATER SERVING KITCHEN/LAUNDRY. DISCONNECT ALL EXISTING ELECTRICAL CONNECTIONS. PULL WIRING BACK TO NEAREST DEVICE TO REMAIN, OTHERWISE LEAVE CIRCUIT IN CEILING JUNCTION BOX FOR CONNECTION TO NEW WATER HEATER.
- ② CONTRACTOR SHALL REMOVE EXISTING TWO (2) GAS-FIRED WATER HEATER SERVING PODS. DISCONNECT ALL EXISTING ELECTRICAL CONNECTIONS. PULL WIRING BACK TO NEAREST DEVICE TO REMAIN, OTHERWISE LEAVE CIRCUITS IN CEILING JUNCTION BOX FOR CONNECTION TO NEW WATER HEATERS.
- ③ CONTRACTOR SHALL REMOVE AND RELOCATE EXISTING CIRCULATION PUMPS. DISCONNECT ALL EXISTING ELECTRICAL CONNECTIONS. PULL WIRING BACK TO NEAREST DEVICE TO REMAIN, OTHERWISE LEAVE CIRCUITS IN CEILING JUNCTION BOX FOR RE-CONNECTION.

Date	Issued	Revision No.
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Drawing Title:
**ELECTRICAL
BASEMENT FLOOR
DEMOLITION PART PLAN**

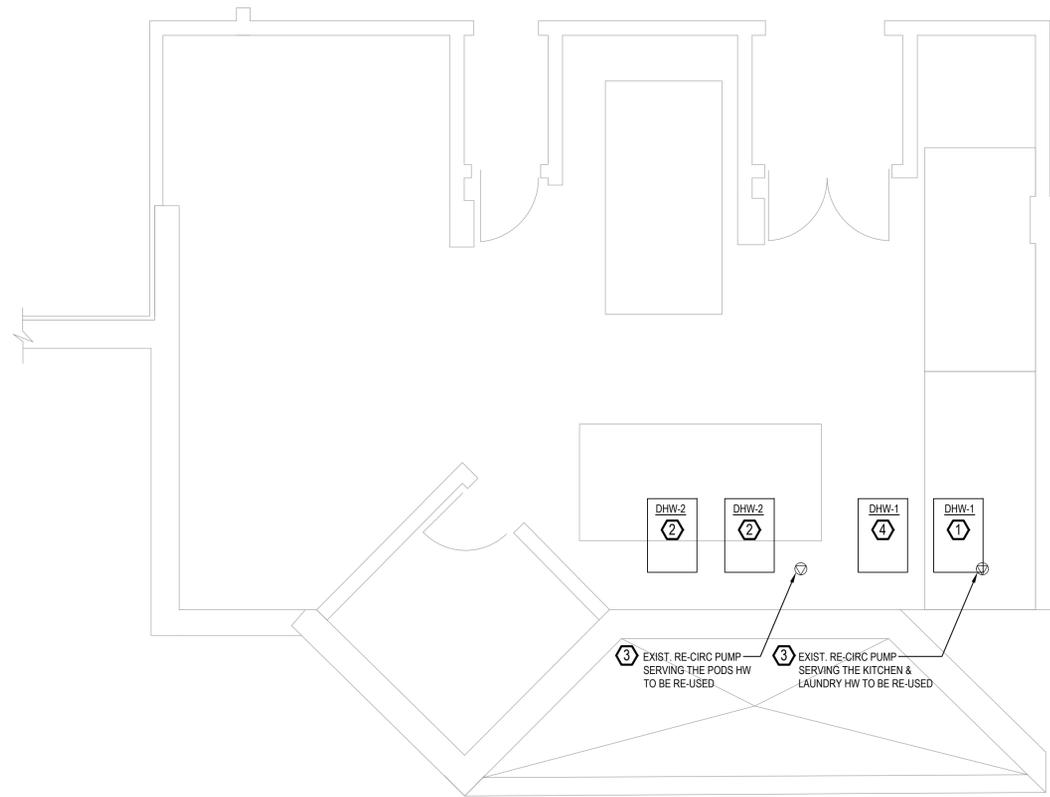
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ELECTRICAL - BASEMENT PART PLAN

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

POWER NOTES

1. REFER TO DRAWING E-001 FOR GENERAL NOTES.
2. FOR EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT, REFER TO PLUMBING DRAWINGS.
3. ALL MECHANICAL EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR, WIRED BY THE ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL WIRE MECHANICAL EQUIPMENT AS PER AN APPROVED MANUFACTURERS WIRING DIAGRAM. ALL CONTROL WIRING SHALL BE BY THE HVAC OR PLUMBING CONTRACTOR.
4. CONTRACTOR SHALL PROVIDE CIRCUITS AS DESIGNATED FOR CONDENSATE PUMPS, SOLENOID VALVES, ETC. COORDINATE WITH PLUMBING CONTRACTORS FOR ALL REQUIREMENTS. PROVIDED ADDITIONAL CIRCUIT(S) FROM AVAILABLE SPARES AS REQUIRED.
5. ALL HEAT TRACE CIRCUITS SHALL HAVE GFI PROTECTED BREAKERS AND TWO POLE LOCKABLE (TOGGLE) DISCONNECT IN ACCORDANCE WITH NEC. EC SHALL INCLUDE IN BID PRICING FOR WIRING OF HWAT POWER TO ALL COMPONENTS (CONTROLLER, TIMECLOCK, ETC.)
6. CONTRACTOR SHALL PROVIDE DISCONNECT SWITCHES FOR ALL MECHANICAL EQUIPMENT THAT IS NOT FACTORY SUPPLIED UNLESS OTHERWISE NOTED ON DRAWINGS. CONTRACTOR SHALL COORDINATE SIZE WITH MECHANICAL EQUIPMENT SPECIFICATIONS AND MECHANICAL EQUIPMENT CONTRACTOR. ASSUME LINE VOLTAGE WIRING IS REQUIRED TO THE CONTROLS AND FROM THE CONTROLS TO THE EQUIPMENT.
7. ALL MECHANICAL EQUIPMENT MUST MAINTAIN REQUIRED SERVICE CLEARANCE OF 36" FOR MECHANICAL EQUIPMENT IN FRONT OF CONTROL PANEL AND/OR DISCONNECT SWITCH PER NEC.
8. CONTRACTOR SHALL PROVIDE 120V POWER FROM MECHANICAL CIRCUIT INDICATED/NEARBY FOR POWER TO ANY AND ALL LEAK DETECTION SYSTEMS AND SOLENOID VALVES REQUIRED FOR OPERATION OF ALL ELECTRIC WATER HEATERS (REFER TO NOTE #4). PROVIDE CIRCUIT(S) AS INDICATED FOR ALL HEAT TRACE PIPING FOR DOWNSTREAM HOT WATER PIPING. ALL COMPONENTS INSTALLED IN CEILING SHALL BE PLENUM RATED.

KEY NOTES

- ① CONTRACTOR SHALL CONNECT NEW GAS-FIRED WATER HEATER SERVING THE KITCHEN/LAUNDRY TO EXISTING CIRCUIT PREVIOUSLY FEEDING WATER HEATER. EXTEND CIRCUIT AS REQUIRED.
- ② CONTRACTOR SHALL CONNECT NEW TWO (2) GAS-FIRED WATER HEATERS SERVING THE PODS TO EXISTING CIRCUITS PREVIOUSLY FEEDING WATER HEATERS. EXTEND CIRCUITS AS REQUIRED.
- ③ CONTRACTOR SHALL CONNECT RELOCATED CIRCULATION PUMPS TO EXISTING CIRCUITS PREVIOUSLY FEEDING CIRCULATION PUMPS. SPLICE/EXTEND CIRCUIT AS REQUIRED.
- ④ CONTRACTOR SHALL CONNECT NEW GAS-FIRED WATER HEATER SERVING THE KITCHEN/LAUNDRY TO A 120V-20A BREAKER WITH 2#12+#12G IN 3/4" CONDUIT. UTILIZE ANY SPARE BREAKERS OR BREAKERS MADE AVAILABLE FROM DEMOLITION FROM THE NEAREST 120V PANEL.

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Drawing Title: ELECTRICAL BASEMENT FLOOR NEW WORK PART PLAN	
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