HVAC SPECIFICATIONS

GENERAL CONDITIONS:

A. WORK OF THIS SECTION SHALL CONFORM TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

B. THE TERMS "CONTRACTOR", "THIS CONTRACTOR", "HVAC", ETC. SHALL BE UNDERSTOOD TO MEAN, "THAT CONTRACTOR WHICH PERFORMS THE HEATING, VENTILATION AND/AIR CONDITIONING WORK.

C. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, EQUIPMENT, SERVICES, OBTAIN ALL PERMITS, FILING OF FORMS AND PERFORM ALL WORK IN CONNECTION WITH THE MECHANICAL SYSTEMS AS SHOWN ON THE CONTRACT DRAWINGS AND AS SPECIFIED HEREIN. CONTRACTOR MAY NEED TO HIRE A PROFESSIONAL ENGINEER TO OBTAIN ALL SIGN-OFFS FOR HIS WORK. IT INCLUDES OBTAINING EQUIPMENT USE PERMITS.

D. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL LAWS AND SHALL HOLD THE OWNER HARMLESS FROM ANY DAMAGE OR EXPENSES ARISING FROM ANY VIOLATION THEREOF.

E. EQUIPMENT AND MATERIALS: NEW, BEST OF THEIR RESPECTIVE KINDS AND FREE FROM DEFECTS; BASIS OF QUALITY SHALL BE LATEST STANDARDS OF ASTM, ASA, FEDERAL SPECIFICATION OR OTHER APPLICABLE STANDARDS.

F. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK.

G. THIS CONTRACTOR SHALL BE HELD TO HAVE EXAMINED THE SITE AND UNDERSTANDS THE SCOPE AND INTENT OF THE DESCRIBED WORK BEFORE HAVING SUBMITTED HIS PROPOSAL. SUBMIT ALL DISCREPANCIES TO THE ENGINEER FOR QUALIFICATION BEFORE PROCEEDING WITH WORK. HE SHALL INVESTIGATE EACH SPACE THROUGH WHICH EQUIPMENT MUST BE MOVED. WHERE NECESSARY, EQUIPMENT MAY BE SHIPPED IN SECTIONS FOR MOVING THROUGH RESTRICTED SPACES.

H. CONTRACTOR SHALL COORDINATE HIS WORK WITH ARCHITECTURAL REFLECTED CEILING PLANS, FLOOR PLANS AND ALL OTHER TRADES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR CONDITIONS CAUSED BY AVOIDANCE OF ABOVE, DURING THE COURSE OF THE CONTRACT.

I. STORE MATERIALS IN SPACES SO DESIGNATED BY ARCHITECT/OWNER.

J. REMOVE RUBBISH FROM PREMISES AS OFTEN AS NECESSARY OR AS DIRECTED.

K. CUTTING AND PATCHING IN CONNECTION WITH THIS WORK SHALL BE THE RESPONSIBILITY OF THIS TRADE.

L. CUTTING AND ROUGH PATCHING OF ROOF BY GENERAL CONTRACTOR.

M. THIS CONTRACTOR WILL FURNISH ALL EQUIPMENT CURBS AND SUPPORTS.

N. EQUIPMENT INTENDED FOR PERMANENT INSTALLATION SHALL NOT BE OPERATED FOR TEMPORARY PURPOSES.

O. INSTALL ALL WORK IN SUCH A MANNER SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIRS.

P. EVERY EFFORT SHALL BE MADE TO MINIMIZE VIBRATION AND NOISE THROUGH CAREFUL FABRICATION AND ERECTION OF DUCTWORK AND EQUIPMENT.

Q. FURNISH EACH MOTOR WITH AN APPROVED STARTER, READY FOR WIRING BY ELECTRICAL CONTRACTOR.

R. ALL WORK AND EQUIPMENT SHALL BE CLEANED TO THE SATISFACTION OF OWNER BEFORE TURNING SAME OVER TO OWNER.

S. EQUIPMENT WILL BE STARTED UP AND CHECKED OUT BY THE CONTRACTOR WITH ASSISTANCE FROM MANUFACTURER'S PERSONNEL.

T. ALL WORK AND EQUIPMENT TO BE FULLY GUARANTEED FOR ONE (1) YEAR FROM THE DATE OF FINAL PAYMENT AND ACCEPTANCE. COMPRESSORS TO BE WARRANTED FOR 5 YEARS.

U. SHOP DRAWINGS FOR EQUIPMENT SELECTION SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL PRIOR TO ORDERING, FABRICATION AND/OR INSTALLATION OF SAME. FOUR (4) COPIES OF EACH SUBMITTAL FOR EQUIPMENT ARE REQUIRED. (1) SEPIA AND (1) PRINT SHALL BE SUBMITTED FOR DUCT LAYOUTS. SHOP DRAWINGS SHALL INCLUDE LOCATION OF ALL EXISTING DUCTWORK, AND INTERFERENCE WITH OTHER TRADES OR EXISTING EQUIPMENT. CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING OF ANY CONFLICTS, PRIOR TO FABRICATION. "FAX" COPIES OF SHOP DWGS. ARE NOT ACCEPTABLE. SHOP DRAWINGS SHALL BE PREPARED IN 3/8" = 1'-0" SCALE, UNLESS OTHERWISE APPROVED. CONTRACTOR WISHING TO SUBMIT FAX SHOP DRAWINGS WILL SUBMIT A $200.00 DEPOSIT TO BE USED TO PAY FOR THE COST OF PREPARING AND HANDLING ADDITIONAL COPIES NEEDED FOR RECORD.

INTERPRETATION OF DRAWINGS

A. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK. CERTAIN DETAILS APPEAR ON THE DRAWINGS FOR ELECTRICAL WORK WHICH ARE SPECIFIC WITH REGARD TO THE DIMENSIONING AND POSITIONING OF THE WORK. THESE ARE INTENDED ONLY FOR GENERAL INFORMATION PURPOSES. THEY DO NOT OBVIATE FIELD COORDINATION FOR INDIVIDUAL ITEMS OF THE INDICATED WORK.

B. LOCATION OF AIR OUTLETS ARE DIAGRAMMATIC. COORDINATE EXACT LOCATIONS AND DIMENSIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS/ELECTRICAL AND OTHER EQUIPMENT.

C. INFORMATION AS TO GENERAL CONSTRUCTION AND ARCHITECTURAL FEATURES AND FINISHES SHALL BE DERIVED FROM ARCHITECTURAL DRAWINGS AND SPECIFICATIONS ONLY.

D. THE USE OF WORDS IN THE SINGULAR SHALL NOT BE CONSIDERED AS LIMITING WHERE OTHER INDICATIONS DENOTE THAT MORE THAN ONE ITEM IS REQUIRED.

E. RATINGS OF DEVICES, MATERIALS AND EQUIPMENT SPECIFIED WITHOUT REFERENCE TO SPECIFIC PERFORMANCE CRITERIA SHALL BE UNDERSTOOD TO BE NOMINAL OR NAMEPLATE RATINGS ESTABLISHED BY MEANS OF INDUSTRY STANDARD PROCEDURES.

GUARANTEES AND CERTIFICATIONS

A. ALL WORK SHALL BE GUARANTEED TO BE FREE FROM DEFECTS. ANY DEFECTIVE MATERIALS OR WORKMANSHIP, AS WELL AS DAMAGE TO THE WORK OF ALL TRADES RESULTING FROM SAME, SHALL BE REPLACED OR REPAIRED AS DIRECTED FOR THE DURATION OF STIPULATED GUARANTEE PERIODS.

B. THE DURATION OF GUARANTEE PERIODS FOLLOWING THE DATE OF ACCEPTANCE OF THE WORK SHALL BE, FOR WORK NOT OTHERWISE SPECIFIED, ONE YEAR.

C. THE DATE OF ACCEPTANCE SHALL BE THE DATE OF THE FINAL PAYMENT FOR THE WORK OR THE DATE OF A FORMAL NOTICE OF ACCEPTANCE, WHICHEVER IS EARLIER.

SHOP DRAWINGS

1. PRIOR TO ASSEMBLING OR INSTALLING THE WORK, THE FOLLOWING SHALL BE SUBMITTED FOR APPROVAL:

   A. CATALOG INFORMATION AND CUT SHEETS, FACTORY ASSEMBLY DRAWING AND DATA REQUIRED FOR A COMPLETE EXPLANATION AND DESCRIPTION OF ALL HVAC EQUIPMENT, DEVICES AND ITEMS OF EQUIPMENT.

   B. LAYOUT DRAWINGS FOR MAIN HVAC EQUIPMENT AND PIPING RUNS, ETC. LAYOUTS SHALL BE DONE ON DRAWINGS AT 3/8"=1'0" SCALE.

2. SHOP DRAWINGS SHALL CLEARLY AND SPECIFICALLY DELINEATE, ON BOTH DRAWINGS, CATALOG CUTS AND ACCOMPANYING TRANSMITTAL SHEETS, ANY ITEMS OF WORK THAT DIFFER FROM THE CONTRACT DOCUMENTS AND ANY CLAIMED CHANGES IN THE CONTRACT COST DUE TO THESE DIFFERENCES. NO CONSIDERATION WILL BE GIVEN TO ANY CLAIMS FOR EXTRA COMPENSATION DUE TO APPROVED ITEMS WHERE SUCH CLAIMS WERE NOT MADE PRIOR TO APPROVALS.

3. CORRECTIONS OR COMMENTS MADE ON THE SHOP DRAWINGS DURING SHOP DRAWINGS' REVIEW DO NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. THE SHOP DRAWINGS' CHECK IS ONLY FOR REVIEW OF GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, SELECTING FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION; COORDINATING HIS WORK WITH THAT OF ALL OTHER TRADES; AND PERFORMING HIS WORK IN A SAFE AND SATISFACTORY MANNER.

4. CONTRACTOR SHALL SUBMIT A MINIMUM OF SHOP DRAWINGS AS FOLLOWS;

   1. DUCT LAYOUTS
   2. EQUIPMENT CUTS
   3. PIPING LAY-OUTS
   4. FANS
   5. AIR CONDITIONING EQUIPMENT
   6. CONTROLS
   7. INSULATION
   8. STARTERS

RECORD DRAWINGS

1. THE CONTRACTOR SHALL KEEP CAREFUL RECORD OF ANY AND ALL CHANGES MADE DURING THE PROGRESS OF THE INSTALLATION, AND AT THE CONCLUSION THEREOF SHALL PREPARE A SET OF RECORD REPRODUCIBLE DRAWINGS INDICATING THE "AS-BUILT" MANNER OF INSTALLATION OF ALL HVAC WORK, WHICH SHALL BE TURNED OVER TO THE OWNER.

DUCTWORK

A. INSTALL DUCTWORK IN COMPLETE CONFORMANCE WITH LATEST ASHRAE GUIDE, SMACNA AND ALL OTHER AUTHORITIES HAVING JURISDICTION. CONTRACTOR TO SUBMIT METHOD OF INSTALLATION OF THE DUCTWORK SYSTEM TO BE INSTALLED IN THIS PROJECT. METHODS SHALL INCLUDE GAUGES, JOINTS, HANGERS, SEALING METHOD, ETC.

B. INSTALL VOLUME DAMPERS WITH DUCT MOUNTED ACCESS DOORS WHERE SHOWN ON DRAWINGS. INSTALL ACCESS DOORS IN DUCTWORK FOR SERVICE OF DAMPERS, COILS SENSORS AND OTHER DUCT MOUNTED DEVICES.

C. THIS CONTRACTOR SHALL FURNISH THE GENERAL CONTRACTOR ACCESS DOORS FOR MOUNTING IN PLASTER CEILINGS, WALLS OR ANY INACCESSIBLE SPACES, TO PERMIT ACCESS TO DEVICES MOUNTED IN DUCTWORK.

D. WHERE DUCTWORK IS EXPOSED, THE CONSTRUCTION SHALL BE FLAT SEAM AND THE INSTALLATION SHALL BE NEAT, MAINTAINING THE DUCT PARALLEL OR PERPENDICULAR TO COLUMNS AND WALLS. DUCTWORK EXPOSED WHICH IN THE OPINION OF THE ENGINEER DOES NOT MEET THIS CRITERIA WILL BE REMOVED AND REPLACED.

E. DUCTWORK SHALL BE SEALED WITH A NEW YORK CITY APPROVED SEALANT. APPLY SEALANT TO ALL JOINTS IN ORDER TO ELIMINATE DUCTWORK LEAKAGE AS NOTED IN THE SPECIFICATION SECTION "AIR BALANCING".

F. STRAP HANGERS SHALL NOT BE LESS THAT 1" BY ONE-EIGHT OF AN INCH THICK AND ATTACHED TO SIDE OF DUCT WITH SHEETMETAL SCREWS. (SEE "DUCT HANGER DETAIL").

G. FLEXIBLE DUCT CONNECTIONS SHALL BE NEOPRENE OR GLASS CLOTH. UNCLAMPED SECTION SHALL BE 4" IN LENGTH.

H. COORDINATE WITH G.C. INSTALLATION OF NEW CHIMNEY. INSTALLATION SHALL BE AS PER NEW YORK CITY CODE. CONTRACTOR TO SUBMIT A METHOD OF INSTALLATION.

FANS:

A. INSTALL TURBINE FANS, (WIND DRIVEN TYPE) AT TOP OF THE KITCHEN AND TOILET EXHAUST RISERS, AS SHOWN ON THE DRAWINGS. INSTALL FANS ON PRE-FABRICATED CURB, AND CONNECT TO DUCTWORK RISER.

KITCHEN EXHAUST FAN

A. FANS SHALL BE IN-LINE CENTRIFUGAL CONNECTED TO THE HOOD AND WITH BACKDRAFT DAMPERS.

B. CONNECT HOOD EXHAUST TO DUCTWORK, AS SHOWN ON THE DRAWINGS. INSTALL FLEXIBLE CONNECTIONS AT INTAKE AND DISCHARGE OF FAN.

C. MOUNT FANS FROM SLAB WITH FOUR RODS 1/8" IN DIAMETER AND WITH VIBRATION ISOLATORS.

TOILET EXHAUST FANS

A. FANS SHALL BE AS NOTED ON SCHEDULE. FAN SHALLS HAVE A SPEED CONTROL SWITCH AND BACKDRAFT DAMPER.

B. MOUNT UNIT ON A PRE-FABRICATED ROOF CURB. CURB SHALL BE SOUND INSULATED AND FITTED WITH AN ACOUSTICAL DEVICE AT INTAKE OF FANS. INSTALL FLEXIBLE CONNECTIONS AT INTAKE OF FANS.

AIR CONDITIONING EQUIPMENT:

AIR COOLED CHILLER

A. UNIT SHALL BE SIMILAR TO "CARRIER" MODEL AS NOTED ON THE DRAWINGS. PROVIDE UNIT WITH ALL SAFETIES AND CONTROLS, AS NEEDED TO MAKE SYSTEM COMPLETELY OPERATIONAL.

B. MOUNT THE UNIT ON SUPPORTING STEEL AND OVER VIBRATION ELIMINATORS. CONNECT UNIT AND FAN COIL UNITS WITH PIPING FILLED WITH A GLYCOL MIXED TO 40% CONCENTRATION. INSTALL CHILLED WATER PIPING (WITH GLYCOL MIX) AND FITTINGS AS PER DETAILS. CONTRACTOR TO SUPPLY THE GLYCOL NEEDED TO FILL SYSTEM.

FAN COIL UNITS

A. UNITS SHALL BE SIMILAR TO "MAGIC AIRE" MODELS FOR DUCTED UNITS AND "INTERNATIONALENVIRONMENTAL" FOR CABINET UNITS, AS NOTED ON THE SCHEDULE.

B. MOUNT UNITS FROM SLAB WITH FOUR (4) ¾"RODS SECURED TO SLAB BY INSERTS. INSTALL VIBRATION ISOLATORS AND A DRAIN PAN UNDER DUCTED UNITS. INSTALL FLEXIBLE CONNECTIONS AT INTAKE AND DISCHARGE OF FANS.

C. INSTALL OUTSIDE AIR DUCTS AND DAMPERS FOR CABINET UNITS NEAR THE EXTERIOR OF THE BUILDING AND FOR THE DUCTED UNITS WHERE NOTED OR SHOWN.

HEATING EQUIPMENT:

BOILERS

A. UNIT SHALL BE SIMILAR TO "LAARS" MODEL AS NOTED ON THE DRAWINGS. PROVIDE UNIT WITH ALL SAFETIES AND CONTROLS, AS NEEDED TO MAKE SYSTEM COMPLETELY OPERATIONAL.

B. MOUNT THE UNIT ON HOUSEKEEPING PAD. CONNECT UNIT AND FAN COIL UNITS WITH PIPING FILLED WITH A GLYCOL MIXED TO 40% CONCENTRATION. INSTALL HEATING WATER PIPING (WITH GLYCOL MIX) AND FITTINGS AS PER DETAILS. CONTRACTOR TO SUPPLY THE GLYCOL NEEDED TO FILL SYSTEM.

AIR EXTRACTORS

A. TITUS, MODEL AG-225, WITH-TYPE-3 OPERATOR.

TURNING VANES

A. DOUBLE THICKNESS, AIRFOIL-TYPE

AIR OUTLETS

A. TITUS AS STANDARD. UNITS SHALL BE FURNISHED WITH BAKED-ENAMEL FINISH; COLOR AND FRAME AS SELECTED BY ARCHITECT/OWNER.

B. SQUARE DIFFUSERS "CD" SHALL BE ALUMINUM, MODEL TDC, WITH OPPOSED BLADE DAMPER AND EQUALIZING GRID.

C. SUPPLY REGISTERS "TR" SHALL BE ALUMINUM, MODEL 272-FL5.

D. RETURN REGISTERS "CR" OR "TR" SHALL BE STEEL, MODEL 25-RL5.

E. EXHAUST/RETURN GRILLES "CG" OR "TG" AS ABOVE, WITHOUT DAMPERS.

F. GRILLES SHALL HAVE REMOVABLE INNER CORE. FACE SCREW-HOLES ARE NOT PERMITTED TO SUPPORT DIFFUSERS, GRILLES OR REGISTERS, REMOVAL SHALL BE BY LOCKING MECHANISM.

G. LINEAR DIFFUSERS AND GRILLES MODEL CT-581, 1/8" BARS, BORDER AND FRAME TYPE 4, 15' DEGREES DEFLECTION.

PAINTING

A. INSIDE DUCTWORK WHERE VISIBLE THROUGH OUTLET: ONE COAT OF FLAT BLACK OR A COLOR AS SELECTED BY THE ARCHITECT.

SOUND TREATMENT

A. SOUNDLINE DUCTWORK TO A DISTANCE OF 25 FT. FROM FAN DISCHARGE AND INLET. SOUNDLINING SHALL BE 1" THICK MATFACED FIBERGLASS DUCTLINER. DUCT SIZES INDICATED SHALL BE CLEAR DIMENSIONS. WHERE ACOUSTICAL LINING IS SPECIFIED, THERMAL INSULATION IS NOT REQUIRED. (EXCEPT DUCTWORK ABOVE ROOF, WHICH WILL HAVE EXTERIOR INSULATION AS WELL.)

B. LINER SHALL BE INSTALLED AS PER RECOMMENDATION OF LINER MANUFACTURER. LINER SHALL BE SECURED WITH PINS AND MASTIC SHALL BE APPLIED TO THE LEADING EDGES OF THE LINER TO REDUCE POSSIBILITY OF THE LINER BREAKING DOWN AFTER INSTALLATION. CONTRACTOR TO SUBMIT SHOP DRAWINGS DETAILING INSTALLATION OF LINER.

INSULATION

A. INSULATE CONCEALED SUPPLY DUCTWORK WITH ONE AND A HALF INCH THICK PINK WRAP TYPE IV, OWENS-CORNING FIBERGLASS, AS STANDARD. TAPE AND SEAL ALL SEAMS PER MANUFACTURER'S RECOMMENDATIONS.

B. INSULATING MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE CITY OF NEW YORK.

AIR BALANCING

A. TEST, BALANCE AND SUBMIT "AIR BALANCE REPORT" SHOWING AIR QUANTITIES AT FANS AND AIR OUTLETS (BY DIRECT READING EQUIPMENT FOR AIR OUTLETS, PITOT TUBE AND DRAFT GAUGE FOR MAIN DUCTS). AIR QUANTITIES AT AIR OUTLETS SHALL BE WITHIN 5% OF THOSE SPECIFIED. DUCT LEAKAGE SHALL NOT VARY BY MORE THAN 10% OF THE TOTAL SYSTEM AIR QUANTITY.

B. FOUR COPIES OF A COMPLETE, TABULATED LOG OF ALL TEST READINGS INCLUDING PRESSURES, TEMPERATURES, VELOCITIES AND FLOW QUANTITIES AT INTAKE AND DISCHARGE OF AC UNITS, RPM, ELECTRIC VOLTAGE AND CURRENT, SHALL BE SUBMITTED TO ARCHITECT FOR APPROVAL.

C. AFTER THE BALANCING REPORT IS SUBMITTED, THE CONTRACTOR WILL TAKE READINGS WITH APPROVED INSTRUMENTS PROVIDED BY THE CONTRACTOR IN THE PRESENCE OF THE ARCHITECT AND ENGINEER. IF THE SYSTEM IS DEFICIENT, THE CONTRACTOR WILL PAY FOR ANY SUBSEQUENT VISITS NEEDED TO VERIFY THE PROPER BALANCING OF THE SYSTEM.

GAS PIPING

A. BLACK STEEL PIPE, SCHEDULE-40 WITH CAST IRON, SCREW-TYPE FITTINGS

B. MAKE FINAL CONNECTION TO EQUIPMENT FROM CAPPED CONNECTION LEFT OUT BY PLUMBING CONTRACTOR. OTHERWISE THIS CONTRACTOR SHALL BE RESPONSIBLE TO MAKE CONNECTION TO NEAREST SOURCE OF ADEQUATE CAPACITY TO SUPPLY GAS TO THE APPLIANCE BEING CONNECTED.

C. PRESSURE TEST PIPING AS REQUIRED BY GOVERNING CODES BEFORE CONNECTION TO EQUIPMENT.

HOT WATER AND CONDENSATE DRAIN PIPING

A. COPPER TUBING TYPE "L" WITH CAST BRASS OR WROUGHT COPPER JOINTS. SOLDERED JOINTS FOR CONDENSATE DRAIN AND BRAZED JOINTS FOR HOT WATER JOINTS. PRESSURE TEST PIPING AS REQUIRED BY GOVERNING CODES BEFORE CONNECTION TO EQUIPMENT.

HEATING SYSTEM (HOT WATER)

A. INSTALLATION OF BOILER BY A LICENSED INSTALLER SHALL BE IN COMPLETE CONFORMANCE WITH N.Y.C. CODE AND DEPARTMENT OF AIR RESOURCE REQUIREMENTS.

B. ONCE WORK PERMIT FOR THIS WORK IS ISSUED, INSTALLER SHALL SECURE ALL NECESSARY PERMITS TO COMPLETE INSTALLATION, INCLUDING ARRANGEMENT FOR DEPARTMENT OF AIR RESOURCES INSPECTION.

C. SUPPLY AND RETURN PIPING: COPPER TUBING TYPE "L" WITH BRAZED JOINTS.

D. SUPPORT PIPING WITH STEEL CLEAVES HANGERS AND ONE-QUARTER INCH DIAMETER RODS SPACED 8'-0" ON CENTERS. PROVIDE PROTECTION SADDLES, WITH CALCIUM SILICATE INSERT REPLACING REGULAR PIPE INSULATION FOR FULL LENGTH OF SADDLE.

E. HEATING PIPES SHALL BE KEPT A MINIMUM OF 6" FROM COLD WATER PIPING.

F. MAKE ALL CHANGES IN SIZES OF HORIZONTAL PIPING WITH ECCENTRIC FITTINGS.

G. MAKE CONNECTION TO AND FROM HOT WATER MAINS WITH 3-ELBOW SWINGS.

H. PITCH PIPING SO THAT AIR IN THE SYSTEM CAN BE VENTED THROUGH AUTOMATIC RELIEF VALVES.

I. TEST PIPING AND PROVE TIGHT FOR AT LEAST (2) HOURS AT TWICE WORKING PRESSURE.

J. VALVES: BRONZE, SCREWED, GATE-TYPE, THREE QUARTER INCH TO 3": MILWAUKEE VALVE CO., GATE 115, WITH SWEAT ENDS, NON-RISING STEM AND RATED FOR 125 PSI WORKING PRESSURE.

K. INSTALL NEW CHIMNEY AS PER NYC CODE.

PIPE AND OTHER DEVICES INSULATION

A. SUPPLY, HORIZONTAL MAINS AND FRESH WATER PIPING SHALL BE INSULATED WITH 1" THICK FIBERGLASS INSULATION #25ASKED/SELL OR EQUAL.

B. ALL INSULATION ON INDOOR WORK SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS, (INSULATION AND JACKET OR FACING AND ADHESIVE USED TO ADHERE JACKET OR FACING TO INSULATION) AS TESTED BY PROCEDURE FUEL CONTRIBUTED OF 50 AND SMOKE DEVELOPED OF 50. ACCESSORIES SUCH AS ADHESIVES, MASTICS, CEMENTS, TAPES AND CLOTHS FOR FITTINGS SHALL HAVE COMPONENT RATINGS.

C. INSULATE THE HOT WATER PIPING WITH 1" FIBERGLASS INSULATION, SEALED TO MAINTAIN A CONTINUOUS VAPOR BARRIER. PROTECT INSULATION INSTALLED OUTDOOR WITH A METAL JACKET COVER. INSULATION SHALL MEET THE REQUIREMENTS OF NYC CODE AND SHALL BE APPROVED FOR USE IN NYC. INSULATE DRAINS PIPING WITH 1/2" FIBERGLASS INSULATION.

PIPE CLEANING AND WATER TREATMENT

A. CONTRACTOR SHALL SUBMIT A METHOD OF CLEANING OF PIPING BEFORE THE WATER SYSTEM IS COMPLETED. PIPES SHALL BE CLEANED WITH A MIXTURE OF CHEMICAL AND WATER CIRCULATED FOR THE TIME RECOMMENDED BY THE PRODUCT MANUFACTURER. AFTER THE CHEMICAL CLEANING IS COMPLETED, WATER SHALL BE CIRCULATED UNTIL THE SYSTEM IS COMPLETELY NEUTRALIZED. ONCE THE CLEANING IS COMPLETED, CONTRACTOR SHALL INSTALL THE WATER FOR THE SYSTEM, TREATED AS REQUIRED. SHOP DRAWING OF THE WATER TREATMENT SHALL BE SUBMITTED FOR APPROVAL.

LOUVERS

A. OUTSIDE AIR INTAKE: RUSKIN, MODEL ELF811, STATIONARY-TYPE, FIXED AT 45 DEGREES. FURNISH WITH STANDARD CHANNEL FRAME, 1/4X1/4 MESH BIRDSCREEN AND RUSKIN, CD35 MOTORIZED DAMPER WITH 120 VOLT 2-POSITION OPERATOR BEHIND LOUVER, WITH BLADE AND JAMB SEALS. DAMPER OPENS WHEN MAKE UP FAN IS ON.

FIRE DAMPERS

A. RUSKIN CURTAIN-TYPE, MODEL APT2, STYLE B. UL LISTED 1 1/2 HOUR RATING FRAME: 20-GA, GALVANIZED STEEL BLADES: 24-GA, GALVANIZED STEEL ENCLOSURE; 20-GA, GALVANIZED STEEL. FUSIBLE LINK: UL LISTED 165 DEGREES F. FOR HORIZONTAL OR VERTICAL INSTALLATION. MEA: 292-71-SA.

AUTOMATIC CONTROLS

A. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED CONDUIT, WIRE, RELAYS, SWITCHES, DAMPER MOTORS, AND THERMOSTATS AS REQUIRED TO ACHIEVE SEQUENCE OF OPERATION AS DESCRIBED. DEVICES SHALL BE AS MANUFACTURED BY HONEYWELL CO. OR AS APPROVED. THE ENTIRE CONTROL SYSTEM IS THE RESPONSIBILITY OF THE HVAC CONTRACTOR. FURNISH AND INSTALL ALL CONTROL WIRING RELATED TO HVAC WORK. (POWER WIRING BY ELECTRICAL CONTRACTOR.)

B. AT HIS OPTION HE MAY HIRE AN ELECTRICAL CONTRACTOR TO DO ALL THE NECESSARY WIRING NEEDED TO ACCOMPLISH THE SEQUENCE OF CONTROL DESCRIBED BELOW.

C. THIS CONTRACTOR SHALL PROVIDE REQUIRED CONTROL DIAGRAMS, "SEQUENCE OF OPERATION" AND CUTS OF CONTROL DEVICES FOR ENGINEER'S APPROVAL. (SEE "SHOP DRAWINGS").

D. ROOM THERMOSTATS, WHERE INDICATED ON THE DRAWINGS OR WHERE IMPLIED BY THIS SPECIFICATIONS, SHALL BE ELECTRONIC, PROGRAMMABLE TYPE WITH ROOM TEMPERATURE AND CONTROL SETTING DISPLAY. ELECTRONIC THERMOSTATS IF PROGRAMMABLE SHALL REPLACE THE TIMECLOCK REQUIRED BY THE SEQUENCE OF CONTROL.

E. SEQUENCE OF CONTROL:

   1. A PROGRAMMABLE THERMOSTAT SHALL SCHEDULE THE OPERATION OF THE AC UNITS, AS OCCUPIED AND UNOCCUPIED MODE. SUMMER/ WINTER SCHEDULE IS DONE BY AN OUTDOOR THERMOSTAT, WINTER OCCURS BELOW OUTDOOR TEMPERATURE OF 55 DEGREES F, AND SUMMER IS ABOVE 55 DEGREES F.

   2. DURING THE OCCUPIED MODE, THE AC UNIT FANS ARE ON AND A ROOM THERMOSTAT CONTROLS THE COOLING AND HEATING CIRCUITS TO MAINTAIN SPACE SERVED AT A PRESET TEMPERATURE LEVEL. THESE SETTINGS ARE ADJUSTABLE. THE LOCAL EXHAUST FANS ARE CONTROLLED MANUALLY BY LOCAL SWITCHES. ROOF MOUNTED FANS ARE CONTROLLED BY TIMECLOCKS. THE DRYER EXHAUST FAN AND THE COMBUSTION AIR FAN RESPOND TO A DUCTSTAT IN THE DUCT AND CHIMNEY RESPECTIVELY. UPON SENSING TEMPERATURE ABOVE ROOM TEMPERATURE, THE FANS ACTIVATE.

3. COOLING IS CONTROLLED BY THE ROOM THERMOSTATS AND THE OUTDOOR SUMMER/WINTER SWITCH. UPON DEMAND FOR COOLING THE CONTROL VALVE OF THE FAN COIL UNIT OPENS, THE OUTSIDE AIR DAMPER OPENS, AND THE CHILLER AND ASSOCIATED PUMP ARE ON. THE CHILLER RESPONDS TO A PIPE AQUASTAT TO MAINTAIN PRESET WATER TEMPERATURES. A BY-PASS MAINTAINS CONSTANT WATER PRESSURE ACROSS THE WATER LOOP.

4. HEATING IS SCHEDULED BY THE OUTDOOR THERMOSTAT. DURING THE WINTER MODE, THE BOILERS ARE CONTROLLED BY A BUILT-IN AQUASTAT SET TO MAINTAIN WATER TEMPERATURE AT A PRESET SCHEDULE OF 180 DEGREES WHEN OUTDOOR TMPERATURE IS 0 DEGREES F. AND 105 DEGREES F WHEN OUTDOOR IS 55 DEGREES F. INTERPOLATION BETWEEN THESE POINTS IS LINEAR. THE HEATING RADIATORS AND CABINET HEATERS RESPOND TO THEIR LOCAL THERMOSTATS TO MAINTAIN SPACE AT A PRESET TEMPERATURE.

5. AN AQUASTAT IN THE DWH CONTROLS A CIRCULATING PUMP TO MAINTAIN WATER AT PRE-SET AND ADJUSTABLE TEMPERATURE.

6. DURING THE UNOCCUPIED PERIOD ALL THE AC UNITS ARE OFF.

7. SAFETIES: AN EMERGENCY SHUT OFF SWITCH (MANUALLY ACTIVATED), OR THE SMOKE DETECTORS (AUTOMATICALLY ACTIVATED) SHALL STOP THE AC UNITS WHENEVER EITHER DEVICE IS ACTIVATED.

8. THE DRIP PANS UNDER THE AC UNITS AND SENSOR IN MECHANICAL ROOM WILL HAVE A WATER SENSOR THAT IF ACTIVATED WILL SHUT DOWN THE ASSOCIATED A.C. UNITS AND SOUND OFF AN ALARM.

NOTE:
THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS BEING EITHER APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

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General Notes

No.	Revision/Issue	Date
	GENERAL REVISION	10.18.06
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The Deuce
534 West 42nd Street
New York, NY 10036

HVAC SPECIFICATIONS

Scale	N/A
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