HVAC & PLUMBING GENERAL NOTES:

1. THE DRAWINGS ON THESE PLANS ARE DIAGRAMMATIC. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH OTHER TRADES AND THE BUILDING STRUCTURE. NO EXTRA PAYMENTS WILL BE AUTHORIZED FOR REROUTING OR REMOVAL OF INSTALLED WORK DUE TO LACK OF COORDINATION WITH OTHER SYSTEMS.
2. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING OF WALLS, FLOORS AND CEILINGS AS REQUIRED FOR INSTALLATION OF HIS WORK.
3. THIS CONTRACTOR SHALL FURNISH AND INSTALL ACCESS PANELS AS REQUIRED WHERE ACCESSIBILITY TO COMPONENTS (VALVES, TRAPS, CLEANOUTS, ETC.) IS REQUIRED FOR MAINTENANCE AND/OR SYSTEM OPERATION.
4. ALL PENETRATIONS THROUGH FIRE RATED PARTITIONS SHALL BE SEALED FIRE AND SMOKE TIGHT WITH AN APPROPRIATE U.L. LISTED FIRESTOPPING MATERIAL AND OR SYSTEM.
5. ALL PENETRATIONS THROUGH FOUNDATIONS AND EXTERIOR WALLS SHALL BE SEALED WITH EDPM OR EDPM RUBBER GASKET AND SEALED WITH A WATERPROOF, NON-HARDENING SEALANT.
6. FURNISH AND INSTALL UNDER SINK PROTECTIVE PIPE COVER KITS ON EXPOSED PIPING AT ALL ADA ACCESSIBLE SINKS AND LAVATORIES.
7. COORDINATE FIXTURE ROUGH-INS AND INSTALLATIONS WITH THE ARCHITECTURAL PLANS.
8. PROVIDE SHUT-OFF VALVES AT ALL BRANCH PIPING TAKE-OFFS (UNO) AND AT ALL CONNECTIONS TO EQUIPMENT. PROVIDE UNIONS AT ALL EQUIPMENT CONNECTIONS.
9. PROVIDE DRAINS WITH HOSE ADAPTERS AND CAPS ON PIPING AT ALL LOW POINTS. PROVIDE MANUAL VENTS ON PIPING AT ALL HIGH POINTS.
10. ALL DUCTWORK PASSING THROUGH A FIRE RATED PARTITION SHALL BE PROVIDED WITH A FIRE DAMPER TO MAINTAIN THE FIRE RATING OF THE PARTITION.
11. LOCATIONS OF DIFFUSERS AND GRILLES ARE APPROXIMATE. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS.
12. ALL BRANCHES AND TAKE-OFFS SHALL BE EQUIPPED WITH VOLUME CONTROL DAMPERS. DAMPERS TO BE OPPOSED BLADE TYPE, 4" MAX. BLADE HEIGHT. VOLUME DAMPERS TO BE LOCATED AS NEAR TO THE POINT OF TAKE-OFF AS PRACTICAL.
13. FLEXIBLE DUCT CONNECTIONS SHALL BE LIMITED TO A MAXIMUM LENGTH OF FIVE (5) FEET AND SUPPORTED AT MID-POINT.
14. ALL SUPPLY & RETURN AIR DUCTWORK SHALL BE INSULATED.
15. PROVIDE SHUT-OFF VALVES AT ALL PIPING BRANCH TAKE-OFFS AND AT ALL CONNECTIONS TO EQUIPMENT.
16. COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL CONTRACTOR.
17. ALL REQUIRED MOTOR STARTERS SHALL BE FURNISHED BY THIS CONTRACTOR AND INSTALLED BY THE E.C.
18. ALL REQUIRED CONTROL EQUIPMENT AND WIRING SHALL BE FURNISHED & INSTALLED BY THIS CONTRACTOR.
19. WHERE INSTALLATION OR REMOVAL OF BELOW-SLAB PIPING IS INDICATED IN EXISTING CONCRETE SLAB, THIS CONTRACTOR SHALL SAW-CUT AND EXCAVATE THE EXISTING SLAB AS REQUIRED. UPON COMPLETION OF WORK, THIS CONTRACTOR SHALL PATCH THE CONCRETE SLAB. FLOOR FINISH WORK BY G.C.
20. THE TERMS "PROVIDE" OR "FURNISH", AS USED ON THESE PLANS, INDICATE THAT THE CONTRACTOR IS TO FURNISH AND INSTALL THE REFERENCED EQUIPMENT OR SYSTEMS IN THEIR ENTIRETY AS REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
21. CONTRACTOR SHALL PROVIDE ALL COMPONENTS INDICATED ON DETAIL SHEETS, PLANS, SPECIFICATIONS AND ALL PERTINENT EQUIPMENT REQUIRED FOR A COMPLETE AND WORKABLE SYSTEM.
22. CONTRACT CLOSE OUT: IN THE PRESENCE OF THE OWNER, ENGINEER OR ARCHITECT; DEMONSTRATING OPERATION OF SYSTEMS AND THAT ALL SPECIFICATIONS HAVE BEEN MET TO THE SATISFACTION OF ALL PARTIES.
23. IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS TO PROVIDE ALTERATIONS AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS TO PROVIDE COMPLETE NEW SYSTEMS IN EVERY RESPECT, CAPABLE OF OPERATING AS DESIGNED. IT IS NOT INTENDED THAT EVERY FITTING, MINOR DETAIL OR FEATURE BE SHOWN ON DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DETAIL NECESSARY FOR COMPLETION OF THESE SYSTEMS IN ACCORDANCE WITH GOOD PRACTICE.

HVAC GENERAL NOTES:

1. ALL DUCTWORK PASSING THROUGH A FIRE RATED PARTITION SHALL BE PROVIDED WITH A FIRE DAMPER TO MAINTAIN THE FIRE RATING OF THE PARTITION.
2. LOCATIONS OF DIFFUSERS AND GRILLES ARE APPROXIMATE. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS.
3. ALL BRANCHES AND TAKE-OFFS SHALL BE EQUIPPED WITH VOLUME CONTROL DAMPERS. DAMPERS TO BE OPPOSED BLADE TYPE, 4" MAX. BLADE HEIGHT. VOLUME DAMPERS TO BE LOCATED AS NEAR TO THE POINT OF TAKE-OFF AS PRACTICAL.
4. FLEXIBLE DUCT CONNECTIONS SHALL BE LIMITED TO A MAXIMUM LENGTH OF FIVE (5) FEET AND SUPPORTED AT MID-POINT.
5. ALL SUPPLY & RETURN AIR DUCTWORK SHALL BE INSULATED.
6. PROVIDE SHUT-OFF VALVES AT ALL PIPING BRANCH TAKE-OFFS AND AT ALL CONNECTIONS TO EQUIPMENT.

HVAC DEMOLITION NOTES:

1. COORDINATE WITH ARCHITECTURAL PLANS FOR EXACT AREAS TO BE DEMOLISHED.
2. REMOVE ALL EQUIPMENT, DUCTWORK AND PIPING AS INDICATED ON PLAN. REMOVALS SHALL INCLUDE ALL SUPPORTS AND HANGERS, HOUSEKEEPING PADS, DAMPERS, VALVES, FITTINGS, CONTROLS AND ASSOCIATED LOW VOLTAGE WIRING, AND ANY OTHER ASSOCIATED ACCESSORIES WHICH PERTAIN TO THE EQUIPMENT TO BE REMOVED.
3. REMOVAL OF ALL POWER CONNECTIONS TO DEMOLITION ITEMS SHALL BE BY THE E.C.
4. ANY DISCREPANCIES BETWEEN THE DEMOLITION PLANS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER. ANY DEMOLITION WORK WHICH MAY BE QUESTIONABLE DUE TO UNFORESEEN FIELD CONDITIONS SHALL NOT BE REMOVED UNTIL REVIEWED BY THE ARCHITECT, ENGINEER OR BUILDING FACILITIES MANAGER.
5. DEMOLITION WORK SHALL INCLUDE THE PREPARATION OF EXISTING EQUIPMENT FOR CONNECTION TO NEW EQUIPMENT. COORDINATE DEMOLITION WORK WITH THE CONSTRUCTION PLANS.
6. ALL EQUIPMENT REMOVALS SHALL BECOME THE PROPERTY OF THIS CONTRACTOR. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER REMOVAL AND DISPOSAL OF DEMOLITION ITEMS OFF-SITE, UNLESS OTHERWISE NOTED.
7. ALL CUTTING AND PATCHING NECESSARY FOR THE DEMOLITION WORK SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR.
8. IT SHALL BE THE OWNER'S RESPONSIBILITY TO REMOVE ANY LOOSE EQUIPMENT, FURNITURE, SUPPLIES, ETC. THAT MAY BE LOCATED IN THE AREA OF WORK.
9. THE PLANS ARE INTENDED TO CONVEY THE EXTENT AND SCOPE OF THE DEMOLITION WORK. EVERY ITEM INTENDED FOR REMOVAL MAY NOT BE SHOWN. THE CONTRACTOR IS ADVISED TO SURVEY THE PROJECT SITE BEFORE SUBMITTING A BID FOR DEMOLITION WORK.

ENERGY CODE STATEMENT:

TO THE BEST OF THE REGISTERED DESIGN PROFESSIONAL'S KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND/OR SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 ENERGY CODE.

UNIFORM CODE STATEMENT:

TO THE BEST OF THE REGISTERED DESIGN PROFESSIONAL'S KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND/OR SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 UNIFORM CODE.

DUCTWORK SYMBOLS

- AxB — DUCTWORK DOUBLE LINE REPRESENTATION: "A" INDICATES DUCT WIDTH; "B" INDICATES DUCT DEPTH.
- AxB — DUCTWORK SINGLE LINE REPRESENTATION: "A" INDICATES DUCT WIDTH; "B" INDICATES DUCT DEPTH.
- SUPPLY AIR FLOW
- RETURN/EXHAUST AIR FLOW
- BDD — BACK DRAFT DAMPER
- FIRE DAMPER W/ ACCESS DOOR
- EXHAUST FAN

GENERAL SYMBOLS

- POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK
- X / XX — INDICATES SECTION LETTER / INDICATES DRAWING NUMBER WHERE LOCATED
- XXX / XXX — INDICATES TYPE OF AIR OUTLET / INDICATES AIR FLOW REQUIREMENTS

ABBREVIATIONS

ACT	ACOUSTIC CEILING TILE
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AFM	AIR FLOW MEASURING DEVICE
AP	ACCESS PANEL
BDD	BACK DRAFT DAMPER
BTUH	BRITISH THERMAL UNITS/HOUR
CC	COOLING COIL
CFM	CUBIC FEET PER MINUTE
CG	CEILING GRILLE
CLG	CEILING
CO	CLEAN OUT
CR	CEILING REGISTER
CW	DOMESTIC COLD WATER
D	DRAIN
Db	DRY BULB TEMPERATURE, °F
dB	DECIBELS
DIA	DIAMETER
DN	DOWN
DP	DIFFERENTIAL PRESSURE
Dp	DEW POINT TEMPERATURE, °F
DS	DUCT SMOKE DETECTOR
DX	DIRECT EXPANSION
EA	EXHAUST AIR
E.C.	ELECTRICAL CONTRACTOR
ECC	ENGINEERING CONTROL CENTER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EMD	END OF MAIN DRIP (STEAM)
EUH	ELECTRIC UNIT HEATER
EXIST	EXISTING
F.A.I.	FRESH AIR INTAKE
FC	FLEXIBLE CONNECTION
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
FLR	FLOOR
FPC	FIRE PROTECTION CONTRACTOR
F/SD	COMBINATION FIRE/SMOKE DAMPER
G.C.	GENERAL CONTRACTOR
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
G.SAN	"GREASE LADEN" SANITARY DRAINAGE PIPE
H.C.	HVAC CONTRACTOR
HF	HEPA FILTER
HP	HORSEPOWER
HRP	HYDRONIC RADIANT CEILING PANEL
HV	HEATING AND VENTILATING UNIT
HW	DOMESTIC HOT WATER PIPE (120°F)
HWR	DOMESTIC HOT WATER RETURN PIPE (120°F)
IV	INLET VANES
LCD	LINEAR CEILING DIFFUSER
LF	LINEAR FEET
LPG	LP GAS PIPING
LPR	LOW PRESSURE STEAM CONDENSATE
LPS	LOW PRESSURE STEAM
LBS/HR	POUNDS PER HOUR
MER	MECHANICAL EQUIPMENT ROOM
MAX.	MAXIMUM
MBH	ONE THOUSAND BTUH
MIN.	MINIMUM
NOM.	NOMINAL
OA	OUTSIDE AIR
P	PUMP
P.C.	PLUMBING CONTRACTOR
PD	PRESSURE DROP (FEET OF WATER)
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE IN.
RHC	REHEAT COIL
Rh	RELATIVE HUMIDITY
RPZ	REDUCED PRESSURE ZONE
SA	SUPPLY AIR
SAN	SANITARY DRAINAGE PIPE
SD	SMOKE DAMPER
SP	STATIC PRESSURE
SPD	SPLITTER DAMPER
S.S.	STAINLESS STEEL
ST	STORM DRAINAGE PIPE
TWU	THRU WALL UNIT
U.N.O.	UNLESS NOTED OTHERWISE
UV	UNIT VENTILATOR
V	VENT PIPE
VE	VOLUME EXTRACTOR
VI	VIBRATION ISOLATOR
VIF	VERIFY IN FIELD
VTR	VENT THROUGH ROOF
Wb	WET BULB TEMPERATURE, °F
WCO	WALL CLEAN OUT
WFM	WATER FLOW MEASURING DEVICE
WH	WATER HEATER
WMS	WIRE MESH SCREEN

EXHAUST FAN SCHEDULE

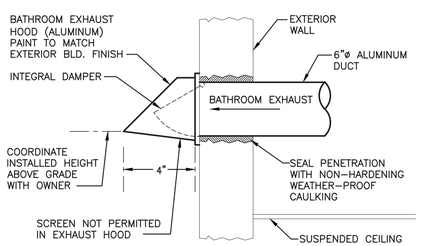
UNIT NO.	SERVICE	LOCATION	CFM	E.S.P(IN.)	DRIVE	FAN RPM	MOTOR WATTS	VOLT/PH	MODEL	REMARKS
EF-1	BATHROOMS	CEILING MOUNTED	80	0.3	DIRECT	820	18.1	115/1Ø	SP-AP0511W	SEE NOTES

NOTES:
1. PROVIDE ALL FANS WITH THERMAL OVERLOAD PROTECTION.
2. PROVIDE BACKDRAFT DAMPERS.

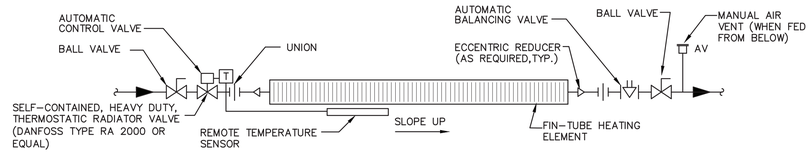
LOUVER SCHEDULE

TAG	APPLICATION	NOMINAL SIZE(IN)	FREE AREA (SF)	CFM	MATERIAL BLADE/FRAME	DRAINABLE	MODEL	REMARKS
L-1	EXHAUST	14" X 12"	0.2	80-100	ALUMINUM	YES	GREENHECK "WC-6"	SEE NOTES

NOTES:
1. PROVIDE ALL LOUVERS POWDER COATING COLOR TO MATCH BUILDING EXTERIOR. COORDINATE WITH ARCHITECT.
2. PROVIDE ALL LOUVERS WITH BIRD SCREEN.



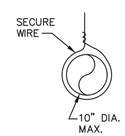
1 BATHROOM EXHAUST HOOD DETAIL
N.T.S.



NOTES:
1. AUTOMATIC BALANCING VALVE SHALL BE "HAYS" 2520 MESURFLO OR EQUAL.
2. BALANCE BASEBOARD CIRCUITS AS FOLLOWS:

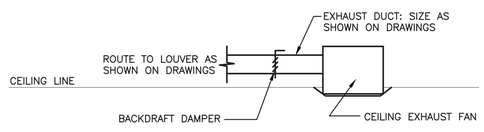
ACTIVE LENGTH (LF)	FLOW RATE (GPM)
2-6	0.5
7-12	1.0
14	1.5
36	3.0

2 BASEBOARD RADIATION PIPING SCHEMATIC
N.T.S.



NOTE:
HANGERS MUST NOT DEFORM DUCT SHAPE.

3 ROUND DUCT HANGING DETAIL
N.T.S.



NOTE:
1. HVAC CONTRACTOR SHALL PROVIDE CONTROLS, ELECTRICAL CONTRACTOR SHALL PROVIDE ELECTRICAL POWER CONNECTION.

4 EXHAUST FAN DETAIL
N.T.S.

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ROCKLAND BOCES ROOTED IN THE COMMUNITY

Building #6 Life Skills Alteration

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West Nyack, NY 10994

SED# 50-90-00-00-0-006-004

KEY PLAN

REVISIONS

No.	Description	Date

ISSUED: CD SET
DATE: 2/17/23
SCALE: AS NOTED
SHEET NAME: SYMBOLS, NOTES & ABBREVIATIONS
SHEET NUMBER: H-001

GENERAL CONDITIONS - HVAC

1. GOVERNING CONDITIONS – GOVERNING CONDITIONS OF THE HEATING, VENTILATING AND AIR–CONDITIONING CONTRACT SHALL BE IN ACCORDANCE WITH ALL PROVISIONS OF THE BID DOCUMENTS, CONTRACT DOCUMENTS, SPECIFICATIONS AND SUPPLEMENTARY GENERAL CONDITIONS, INCLUDING "STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT" (NSPE/ACED–56465, LATEST EDITION) AND/OR "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION" (AIA DOCUMENT A201, LATEST EDITION).

2. DRAWINGS, SPECIFICATIONS, BID DOCUMENTS – SYSTEM LAYOUT AND DETAILS SHOWN ON DRAWINGS – HVAC SERIES. SCALE AS NOTED. DO NOT SCALE DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR ACTUAL DIMENSIONS. FOLLOW DRAWINGS AS FAR AS PRACTICAL AND SUPPLEMENT BY ACTUAL FIELD CONDITIONS.

   ALL WORK WITHIN THIS SECTION SHALL BE SUBJECT TO ALL PROVISIONS OF THE BIDDING DOCUMENTS, CONTRACT DOCUMENTS, SPECIFICATIONS AND ALL SUPPLEMENTARY GENERAL CONDITIONS THERETO.

   PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, APPARATUS, TOOLS, SERVICES, APPLIANCES, PLANT, PERMANENT AND TEMPORARY FACILITIES REQUIRED IN PERFORMING ALL OPERATIONS NECESSARY FOR THE COMPLETE INSTALLATION OF HEATING, VENTILATING AND AIR CONDITIONING FACILITIES AS CALLED FOR WITHIN THIS SECTION OF THE SPECIFICATIONS AND DRAWINGS.

   PROVISIONS WITHIN THIS SECTION OF THE SPECIFICATIONS ARE COMPLEMENTARY TO ALL OTHER SECTIONS OF THE SPECIFICATIONS, TO THE DRAWINGS, AND TO THE SITE AND JOB CONDITIONING.

   IT IS THE INTENTION THAT THESE SPECIFICATIONS, AND DRAWINGS ACCOMPANYING SAME, SHALL PROVIDE FOR THE FURNISHING AND INSTALLING OF THE HEATING, VENTILATING AND AIR–CONDITIONING SYSTEMS COMPLETE AS SPECIFIED AND SHOWN. ANY WORK SHOWN ON THE DRAWINGS AND NOT PARTICULARLY DESCRIBED IN THE SPECIFICATIONS OR VICE VERSA, OR ANY WORK CHANGES WHICH MAY BE EVIDENTLY NECESSARY TO COMPLETE THE INSTALLATION SHALL BE FURNISHED BY THIS CONTRACTOR.

3. WORKMANSHIP – PROVIDE NEAT, MECHANICAL APPEARANCE. PROVIDE MINOR ALTERATIONS TO SUIT JOB CONDITIONS TO ACCOMPLISH. SPECIAL ATTENTION SHALL BE GIVEN TO HEADROOM REQUIREMENTS WHERE DUCTS AND PIPING ARE EXPOSED.

4. MATERIALS – PROVIDE BEST–ACCEPTED INDUSTRY STANDARD EQUIPMENT AS PER MANUFACTURER AND CATALOG NUMBERS SHOWN. PIPING MATERIALS SHALL MEET ASME TEST CODES. COOLING EQUIPMENT RATINGS SHOULD BE PER ARI STANDARDS. ALL EQUIPMENT SHALL BE NEW AND CORROSION PROTECTED.

5. GUARANTEE – CONTRACTOR SHALL GUARANTEE ALL WORKMANSHIP, MATERIALS AND CORRECT OPERATION FOR A PERIOD OF ONE YEAR AND SHALL REPAIR PROMPTLY ANY LEAKS OR BREAKDOWNS DURING THAT PERIOD. WHERE SPECIFIC ITEMS HAVE GREATER MANUFACTURER'S GUARANTEE PERIOD, THIS GUARANTEE IS IN ADDITION TO MANUFACTURER'S LIABILITY. GUARANTEE SHALL BE IN WRITING TO THE OWNER. ALL AIR CONDITIONING COMPRESSORS SHALL BE GUARANTEED FOR FIVE YEARS. THE CONTRACTOR SHALL PROMPTLY CORRECT ANY DEFECTS UPON NOTICE FROM THE OWNER TO DO SO, WITHOUT COST TO THE OWNER.

6. CODES, PERMITS AND INSPECTIONS – COMPLY WITH ALL BUILDING CODE REQUIREMENTS OF NEW YORK STATE BUILDING CODE, NATIONAL ELECTRICAL CODE, NFPA, AND ALL APPLICABLE FEDERAL, STATE AND MUNICIPAL LAWS, ORDINANCES AND REGULATIONS. THIS CONTRACTOR SHALL APPLY FOR AND OBTAIN ALL REQUIRED PERMITS AND INSPECTIONS AND PAY ALL FEES.

7. OPENINGS, CHASES, CUTTING AND PATCHING, CLEANUP – GENERAL CONTRACTOR SHALL PROVIDE ALL OPENINGS, CHASES, AND RECESSES NECESSARY FOR THIS WORK. HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL NECESSARY INFORMATION TO GENERAL CONTRACTOR, SUCH AS LOCATIONS AND SIZES, IN AMPLE TIME PRIOR TO INSTALLATION OF HIS WORK.

   FURNISH THE GC WITH SLEEVES, INSERTS, ETC. AHEAD OF THE GENERAL CONSTRUCTION WORK SO THAT THEY MAY BE INSTALLED BY HIM. SUPERVISE THE PLACING OF THESE ITEMS.

   IN NO CASE MAY FLOOR OR WALLS THAT ARE WATERPROOFED BE CUT FOR ADMISSION OF ANY EQUIPMENT NOR ANY STRUCTURAL MEMBER BE PIERCED WITHOUT WRITTEN PERMISSION OF THE (ARCHITECT, ENGINEER, OWNER). ALL CUTTING AND PATCHING OF EXISTING OR INSTALLED CONSTRUCTION SHALL BE BY HVAC CONTRACTOR.

   HVAC CONTRACTOR SHALL DO ALL CUTTING AND PATCHING OF HIS WORK WHICH MAY BE REQUIRED TO MAKE VARIOUS PARTS COME TOGETHER PROPERLY AND FIT IT TO RECEIVE OR BE RECEIVED BY WORK OF OTHER CONTRACTORS AS SHOWN OR REASONABLY IMPLIED BY THE CONTRACT DRAWINGS AND SPECIFICATIONS FOR COMPLETED WORK; AND, HE SHALL MAKE GOOD AFTER THEM AS THE ARCHITECT MAY DIRECT.

   ANY ADDITIONAL COSTS CAUSED BY DEFECTIVE OR ILL–TIMED WORK BY THE HVAC CONTRACTOR SHALL BE BORNE BY HIM.

   HVAC CONTRACTOR SHALL NOT ENDANGER ANY WORK BY CUTTING, EXCAVATING OR OTHERWISE ALTERING THE WORK AND SHALL NOT CUT OR ALTER THE WORK OF ANY OTHER CONTRACTOR SAVE WITH WRITTEN PERMISSION OF THE ARCHITECT.

   HVAC CONTRACTOR SHALL AT ALL TIMES KEEP ALL AREAS VOID OF PACKING, RUBBISH, ETC., AND SHALL CLEAN UP PROJECT AS SOON AS COMPLETED.

8. ACCESSIBILITY – HVAC CONTRACTOR SHALL FULLY INFORM HIMSELF REGARDING ANY AND ALL PECULIARITIES AND LIMITATIONS OF THE SPACE AVAILABLE FOR THE INSTALLATION OF ALL WORK AND MATERIALS FURNISHED AND INSTALLED UNDER THE CONTRACT. DUE CARE SHALL BE EXERCISED SO THAT ALL PARTS OF HIS WORK ARE MADE QUICKLY AND EASILY ACCESSIBLE. ALL CONCEALED EQUIPMENT, VALVES, CONTROLS, ETC., SHALL BE LOCATED IN A FULLY ACCESSIBLE POSITION PROVIDED WITH ACCESS DOORS OF SUFFICIENT SIZE AND AS APPROVED BY ARCHITECT.

9. SUPPORTS – ALL CONCRETE FOUNDATIONS FOR HEATING, VENTILATING AND AIR CONDITIONING APPARATUS SHALL BE INSTALLED BY THIS CONTRACTOR. FURNISH ALL NECESSARY TEMPLATES, ANCHOR BOLTS, PLATES, TUBES, WASHERS, DOUBLE NUTS, ETC., REQUIRED FOR SETTING.

   THIS CONTRACTOR SHALL GUARANTEE THAT THE WORK AS INSTALLED BY HIM WILL NOT RESULT IN THE TRANSMISSION OF OBJECTIONABLE NOISE OR VIBRATION TO ANY OCCUPIED PARTS OF THE BUILDING; AND, HE SHALL TAKE FULL RESPONSIBILITY FOR ANY NECESSARY MODIFICATIONS OF HIS EQUIPMENT, OR OF THE FOUNDATIONS AND SUPPORTS FOR THE SAME NECESSARY TO SECURE THIS RESULT.

10. TEMPORARY HEAT – THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL TEMPORARY HEATING EQUIPMENT AND SHALL FUEL AND MAINTAIN SAME DURING COURSE OF PROJECT. HE SHALL RENDER IT OPERATIVE AND MAINTAIN A MINIMUM WORKING TEMPERATURE THROUGHOUT THE BUILDING OF 55 DEGREES F. THIS CONTRACTOR SHALL READ AND THOROUGHLY UNDERSTAND THIS SECTION AND HIS PARTICIPATION IN THE REQUIREMENT OF TEMPORARY HEATING.

    THIS CONTRACTOR SHALL NOT USE PERMANENT HEATING EQUIPMENT FOR TEMPORARY HEAT UNTIL SAME IS ACCEPTED BY OWNER.

11. PROTECTION OF APPARATUS – ALL PIPE AND DUCT OPENINGS SHALL BE PROTECTED BY TEMPORARY COVERS TO EXCLUDE ENTRANCE OF DEBRIS OR OTHER FOREIGN MATTER DURING CONSTRUCTION. ALL EQUIPMENT SHALL BE PROPERLY PROTECTED FROM DAMAGE DURING THE COURSE OF BUILDING CONSTRUCTION.

NOISE CONTROL

1. CONTRACTOR SHALL NOT LOCATE RETURN GRILLES IN CLOSE PROXIMITY OR ANY EXISTING HEAT PUMP OR ANY AIR HANDLING EQUIPMENT.

2. ALL CEILING DIFFUSERS SHALL BE SELECTED AND BALANCED TO THE PROPER AIR FLOWS INDICATED AND SHALL NOT PRODUCE OBJECTIONABLE AIR NOISE. REFER TO SUPPLEMENTAL GENERAL CONDITIONS 3.0,5 FOR ADDITIONAL REQUIREMENTS.

SUPPLEMENTAL GENERAL CONDITIONS

1. CONTRACTUAL RELATIONSHIP WITH OWNER – UPON AWARD OF THIS CONTRACT, THE CONTRACTOR SHALL SAVE HARMLESS THE OWNER AND HIS AGENTS FROM ANY OR ALL CAUSES OF ACTION ARISING OUT OF THE CONTRACTOR'S NEGLIGENCE.

2. O.S.H.A. – ALL WORK ON THIS PROJECT SHALL BE ACCOMPLISHED IN ACCORDANCE WITH FEDERAL STATUTES SUCH AS THE OCCUPATIONAL SAFETY AND HEALTH ACT (1970).

3. OTHER GENERAL CONDITIONS –

   a. INTENT – IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS TO PROVIDE ALTERATIONS AND/OR NEW CONSTRUCTION AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS TO PROVIDE COMPLETE NEW SYSTEMS IN EVERY RESPECT, CAPABLE OF OPERATING AS DESIGNED. IT IS NOT INTENDED THAT EVERY FITTING, MINOR DETAIL OR FEATURE BE SHOWN ON DRAWINGS.

      THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DETAIL NECESSARY FOR COMPLETION OF THESE SYSTEMS IN ACCORDANCE WITH GOOD PRACTICE.

      INSTALLATION SHALL BE EXECUTED SO AS TO CONTRIBUTE TO EFFICIENCY OF OPERATION, MINIMUM MAINTENANCE, ACCESSIBILITY AND SIGHTLINESS. THE INSTALLATION SHALL CONFORM AND ACCOMMODATE ITSELF TO THE BUILDING STRUCTURE, ITS EQUIPMENT AND ITS USAGE. NO PIPING OR EQUIPMENT SHALL BE INSTALLED IN SUCH A MANNER AS TO INTERFERE WITH THE OPERATION OF ANY DOORS OR WINDOWS.

      REQUIREMENTS SPECIFIED HEREIN SHALL GOVERN APPLICABLE PORTIONS OF MECHANICAL AND ELECTRICAL SECTIONS WHETHER SO STATED HEREIN OR NOT.

   b. REGULATIONS AND CERTIFICATES – ALL WORK SHALL BE DONE IN STRICT ACCORDANCE WITH RULES AND REGULATIONS OF LOCAL AND STATE AUTHORITIES HAVING JURISDICTION OVER SUCH WORK, UTILITY COMPANIES OPERATING WHERE APPARATUS IS BEING INSTALLED, NATIONAL FIRE PROTECTION ASSOCIATION, IEEE AND INSURANCE COMPANIES. WHERE DISCREPANCIES OCCUR BETWEEN ABOVE REGULATIONS AND THESE PLANS AND SPECIFICATIONS, REQUIREMENTS OF THE REGULATIONS SHALL TAKE PRECEDENCE, EXCEPT THAT THESE SPECIFICATIONS SHALL BE MINIMUM REQUIREMENTS AND THAT NO CHANGES SHALL BE MADE WITHOUT APPROVAL OF THE ENGINEER.

      COMPLETE APPROVAL OF ALL ABOVE MENTIONED AUTHORITIES SHALL BE SECURED AND THEIR CERTIFICATES OF APPROVAL SHALL BE DELIVERED TO THE OWNER BEFORE FINAL ACCEPTANCE. ANY AND ALL DRAWINGS OR DOCUMENTS REQUIRED (IN ADDITION TO CONTRACT DRAWINGS) SHALL BE FURNISHED IN ORDER TO SECURE ABOVE–MENTIONED APPROVALS.

   c. DRAWINGS AND MEASUREMENTS – CONTRACT DRAWINGS FOR MECHANICAL AND ELECTRICAL WORK ARE IN PART DIAGRAMMATIC, INTENDED TO COVER THE GENERAL DESIGN AND EXTENT OF THE SYSTEMS AND INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, DUCTS, CONDUITS, PIPING AND APPROXIMATE SIZES AND LOCATIONS OF EQUIPMENT AND OUTLETS. DRAWINGS ARE NOT INTENDED TO BE SCALED FOR ROUGHING–IN MEASUREMENTS NOR TO SERVE AS SHOP DRAWINGS. WHERE DRAWINGS ARE REQUIRED FOR THESE PURPOSES OR HAVE TO BE MADE FROM FIELD MEASUREMENTS, THEY SHALL BE PREPARED BY THE VARIOUS TRADES AND COORDINATED BY THE CONTRACTOR.

      WHERE JOB CONDITIONS REQUIRE REASONABLE CHANGES FROM INDICATED LOCATIONS AND ARRANGEMENTS, SUCH CHANGES SHALL BE MADE WITHOUT COST TO THE OWNER.

      EXACT LOCATIONS OF ALL GRILLES, REGISTERS, PLUMBING FIXTURES, ELECTRICAL FIXTURES, PANELBOARDS, ETC., SHALL BE GOVERNED BY PLANS, ELEVATIONS AND DETAILS.

   d. RECORD DRAWINGS – DURING THE COURSE OF CONSTRUCTION THE RESPECTIVE CONTRACTOR SHALL KEEP A CAREFUL RECORD (IN DRAWING FORM) OF ALL DEVIATIONS FROM THE WORK AS SHOWN ON THE CONTRACT DRAWINGS ON THE INSTALLATION OF PIPES, DUCTS, ELECTRIC OUTLETS, EQUIPMENT, INVERT ELEVATIONS, ETC. THESE DRAWINGS SHALL BE DELIVERED TO THE ENGINEER BEFORE THE FINAL CERTIFICATE OF PAYMENT IS ISSUED.

   e. QUIET OPERATION – ALL EQUIPMENT SHALL OPERATE UNDER ALL CONDITIONS OF LOAD WITHOUT ANY SOUND OR VIBRATION WHICH IS OBJECTIONABLE TO THE OPINION OF THE ENGINEER. IN CASE OF MOVING MACHINERY, SOUND OR VIBRATION NOTICEABLE OUTSIDE OF ROOM IN WHICH IT IS INSTALLED OR ANNOYINGLY NOTICEABLE INSIDE ITS OWN ROOM WILL BE CONSIDERED OBJECTIONABLE. SOUND OR VIBRATION CONDITIONS CONSIDERED OBJECTIONABLE BY THE ENGINEER SHALL BE CORRECTED IN APPROVED MANNER BY THE CONTRACTOR AT THE LATTER'S EXPENSE.

   f. COVERING OF WORK – NO PIPE FITTINGS OR OTHER WORK OF ANY KIND SHALL BE COVERED UP OR HIDDEN FROM VIEW BEFORE IT HAS BEEN EXAMINED OR APPROVED BY THE ENGINEER OR OTHER AUTHORITY HAVING JURISDICTION. ANY UNFAITHFUL OR IMPERFECT WORK OR MATERIAL WHICH MAY BE DISCOVERED SHALL BE REMOVED AND CORRECTED IMMEDIATELY BEFORE BEING CONDEMNED, AND OTHER WORK AND MATERIALS SHALL BE FURNISHED WHICH SHALL BE SATISFACTORY TO THE ENGINEER.

   g. WATERPROOFING – WHERE ANY WORK PIERCES WATERPROOFING, THE INSTALLATION SHALL BE AS APPROVED BY THE ENGINEER. CONTRACTOR SHALL FURNISH ALL NECESSARY SLEEVES, CAULKING AND FLASHING AS REQUIRED TO MAKE THE OPENINGS ABSOLUTELY WATERTIGHT.

   h. SITE CONDITIONS–PRIOR TO BID SUBMISSION, THIS CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE AND UNDERSTAND ALL THE CONDITIONS UNDER WHICH HE WILL BE OBLIGATED TO OPERATE IN PERFORMING HIS PART OF THE CONTRACT. NO ALLOWANCE WILL BE SUBSEQUENTLY MADE IN THIS CONNECTION TO THIS CONTRACT OR FOR ANY ERRORS THROUGH OMISSION OR NEGLIGENCE ON HIS PART.

4. FIRESTOPPING–ALL PENETRATIONS THROUGH FIRE AND SMOKE RATED WALLS, FLOORS, AND CEILINGS SHALL BE THOROUGHLY SEALED WITH 3M BRAND FIRE BARRIER CP25WB LATEX BASED CAULK, OR APPROVED EQUAL. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

5. EQUIPMENT RETURNS–AS PART OF THIS CONTRACT, CONTRACTORS SHALL ENSURE THAT SUPPLIERS OF ANY AND ALL EQUIPMENT SUPPLIED FOR THIS PROJECT AGREE TO ACCEPT THE RETURN OF ANY EQUIPMENT ON THIS PROJECT THAT IS IN UNDAMAGED CONDITION AND HAS NOT BEEN PUT INTO SERVICE WITH A MAXIMUM RESTOCKING FEE OF 25%, UP UNTIL THE DATE OF CERTIFIED SUBSTANTIAL COMPLETION OF THE PROJECT.

6. COORDINATION OF TRADES – IT IS UNDERSTOOD THAT COORDINATION BETWEEN ALL OF THE TRADES ON THIS PROJECT IS THE RESPONSIBILITY OF THE CONSTRUCTION MANAGER (IF ANY), THE GENERAL CONTRACTOR (IF ANY) AND THE TRADES THEMSELVES. THIS COORDINATION WILL INCLUDE MEETINGS AND DISCUSSIONS AS NEEDED AMONG THE PARTIES NOTED ABOVE, AND PREPARATION OF COORDINATION DRAWINGS AS NEEDED. THE COST OF THIS COORDINATION WORK SHALL BE INCLUDED IN THE CONTRACTORS' BIDS. IT IS NOT THE RESPONSIBILITY OF THE ENGINEER TO PERFORM THIS COORDINATION. NO EXTRA CHARGES WILL BE PAID TO ANY CONTRACTOR THAT IS DUE TO ADDITIONAL WORK BEING PERFORMED DUE TO LACK OF COORDINATION BETWEEN THE TRADES.

7. BUILDING SERVICES SHUTDOWNS – ALL BUILDING SERVICES SHUTDOWNS, INCLUDING ELECTRIC, GAS, WATER, AND TELEPHONE UTILITIES, AND HVAC, SPRINKLER, AND PLUMBING SYSTEMS IN EXISTING BUILDINGS, FOR THE PURPOSE OF PERFORMING CUTOVERS AND TIE–INS OF NEW SYSTEMS, SHALL BE STRICTLY COORDINATED WITH THE APPROPRIATE UTILITY COMPANIES AND THE BUILDING OWNER. FOR WORK IN EXISTING BUILDINGS, IT WILL BE REQUIRED TO PERFORM THIS WORK OUTSIDE OF NORMAL BUILDING OPERATION HOURS AND THE COST FOR THIS IS TO BE INCLUDED IN THE BIDS.

SYSTEM TESTING, ADJUSTMENT AND OPERATION

1. TESTING – RENDER ALL EQUIPMENT OPERATIVE. CHECK SYSTEM FOR PROPER OPERATION. RUN ALL EQUIPMENT LONG ENOUGH TO DRY OUT AND TEST ALL CONTROLS FOR PROPER OPERATION AND OPERATION OF ALL SAFETY CONTROLS.

2. ADJUSTMENT AND BALANCING – BALANCE VOLUME DAMPERS ON ALL DUCTS AND REGISTERS TO EFFECT COMFORT AND PROPER CFM. ALL TESTING AND BALANCING SHALL BE PERFORMED BY A CERTIFIED HVAC TESTING AND BALANCING CONTRACTOR AT RESPONSIBILITY OF HVAC CONTRACTOR.

3. HVAC CONTRACTOR TO PROVIDE CERTIFIED HVAC TEST AND BALANCE REPORT FOR ENGINEER'S REVIEW AND APPROVAL. HVAC TEST AND BALANCE MUST MEET THE SATISFACTION OF THE ENGINEER. APPROVED TEST AND BALANCE REPORT SHALL BE PROVIDED TO CODE ENFORCEMENT AGENT UPON REQUEST.

4. OPERATING INSTRUCTIONS – FURNISH, FRAME AND POST ALL OPERATING INSTRUCTIONS FOR ALL HVAC EQUIPMENT ON PROJECT.

5. CONTRACT CLOSE OUT–

   a. IN THE PRESENCE OF THE OWNER, ENGINEER OR ARCHITECT; DEMONSTRATING OPERATION OF SYSTEMS AND THAT ALL SPECIFICATIONS HAVE BEEN MET TO THE SATISFACTION OF ALL PARTIES.

   b. PROVIDE REQUIRED SPARE PARTS, DEVICES AND APPURTENANCES.

   c. PROVIDE 2 COPIES OF O & M MANUALS, SHOP DRAWINGS AND CATALOG CUTS, BOUND IN 3 RING BINDER OR SIMILAR.

   d. DEMONSTRATE TO BUILDING MAINTENANCE PERSONNEL CORRECT PREVENTIVE MAINTENANCE AND SCHEDULED MAINTENANCE SERVICES.

   e. PROVIDE WARRANTIES TO OWNER, INCLUDING POINTS OF CONTACT FOR WARRANTY WORK FOR SYSTEM INSTALLATION AND MANUFACTURERS EQUIPMENT INSTALLED.

FINAL PAYMENT WILL NOT BE RELEASED UNTIL CONTRACT CLOSEOUT IS COMPLETE.

SCOPE OF WORK

1. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND CONTRACTORS SERVICES NECESSARY FOR A COMPLETE SAFE INSTALLATION OF ALL WORK INDICATED IN CONTRACT DOCUMENTS. IN FULL CONFORMITY WITH REQUIREMENTS OF BUILDING CODES, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

   A. NEW DUCTWORK, CONNECTIONS, AND DAMPERS
   B. NEW DIFFUSERS AND GRILLS

DEMOLITION

1. ALL OPENINGS IN BUILDING STRUCTURE RESULTING FROM REMOVAL OF EXISTING HVAC EQUIPMENT, DUCTWORK, PIPING, ETC. SHALL BE REPAIRED IN KIND WITH THE BUILDING MATERIALS OF THE SURROUNDING AREA.

2. AT OWNER'S DIRECTION, CONTRACTOR SHALL DISPOSE OF OR TURN OVER EXISTING EQUIPMENT AFTER IT IS REMOVED.

SHOP DRAWINGS AND APPROVALS

FURNISH SHOP DRAWINGS FOR ALL MAJOR ITEMS OF EQUIPMENT. ITEMS REQUIRING SHOP DRAWINGS:

ALL HVAC ROOFTOP EQUIPMENT
RADIANT FLOOR HEATING SYSTEM
CONDENSING BOILER, PUMPS, AND HYDRONIC SPECIAL TIES
TESTING AND BALANCING REPORTS

SUBMIT FOUR COPIES OF SHOP DRAWINGS FOR APPROVAL AND CUTS OF ALL EQUIPMENT AND APPLIANCES PRIOR TO START ANY WORK. NO ITEMS OF EQUIPMENT WILL BE PERMITTED ON THE SITE UNTIL THIS APPROVAL HAS BEEN GIVEN. HVAC CONTRACTOR SHALL ALLOW AMPLE TIME FOR CHECKING AND PROCESSING AND SHALL ASSUME RESPONSIBILITY FOR DELAYS DUE TO REJECTED ITEMS.

EQUIPMENT

1. GENERAL – FURNISH AND INSTALL EQUIPMENT AS SHOWN ON DRAWINGS. LOCATIONS AND QUANTITIES ARE INDICATED ON PLANS. PERFORMANCE REQUIREMENTS ARE SPECIFIED ON EQUIPMENT SCHEDULES. ALL COMPONENT PACKAGE UNITS SHALL BE FACTORY–ASSEMBLED, COMPLETED AND TESTED.

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KEY PLAN

REVISIONS

No.	Description	Date

ISSUED: CD SET

DATE: 2/17/23

SCALE: AS NOTED

SHEET NAME:
SPECIFICATIONS

SHEET NUMBER:

H-002