

GENERAL PROJECT REQUIREMENTS

A. CODE COMPLIANCE:

1. THE CONTRACTOR SHALL COMPLY WITH THE LAWS, ORDINANCES, RULES, AND REGULATIONS OF THE STATE OF NEW YORK, ALL GOVERNMENTAL AUTHORITIES HAVING JURISDICTION, THE NATIONAL FIRE PROTECTION ASSOCIATION, THE NATIONAL ELECTRICAL CODE, AND THE PUBLIC UTILITIES HAVING JURISDICTION OVER ANY OF THE SYSTEMS HEREIN SPECIFIED.

B. PERMIT FEES:

1. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS, INSPECTIONS, AND APPROVALS TO COMPLETE THE PROJECT WORK. ALL CERTIFICATES SHALL BE IN DUPLICATE AND BE DELIVERED TO THE OWNER'S REPRESENTATIVE.

C. DEFINITIONS:

1. "PROVIDE" UNDER THIS CONTRACT IS DEFINED AS FURNISH AND INSTALL.
2. "CONCEALED" UNDER THIS CONTRACT IS DEFINED AS HIDDEN BY ARCHITECTURAL WALLS AND CEILINGS.
3. "EXPOSED" UNDER THIS CONTRACT IS DEFINED AS VISIBLE TO VIEW.
4. "INDICATED" UNDER THIS CONTRACT IS DEFINED AS SHOWN IN THE CONTRACTED DOCUMENTS.

D. SCOPE OF WORK:

1. PROVIDE ALL WORK INDICATED IN THE CONTRACT DOCUMENTS.

E. CONTRACT DOCUMENTS:

1. THE CONTRACT DOCUMENTS SHALL BE CONSIDERED FOR DIAGRAMMATIC PURPOSES ONLY. ATTENTION IS CALLED TO THE FACT THAT WHILE THE DOCUMENTS ARE GENERALLY TO SCALE AND ARE AS ACCURATE AS THE SCALE WILL PERMIT, ALL IMPORTANT DIMENSIONS SHALL BE DETERMINED IN THE FIELD.

2. THE DRAWINGS ARE NOT TO BE CONSIDERED AS CONSTRUCTION SHOP DRAWINGS. THE DRAWINGS DO NOT SHOW OFFSET WALL, PALL BOX OR SIMILAR COMPONENTS REQUIRED TO COMPLETE THE PROJECT WORK. PREPARE FIELD COORDINATION DRAWINGS TO ENSURE PROPER INSTALLATION. PROVIDE ALL NECESSARY OFFSETS AND FITTINGS TO INSTALL THE SYSTEMS AS DIAGRAMMED AT NO ADDITIONAL COST.

F. EQUIPMENT AND MATERIALS:

1. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, UNLESS INDICATED OTHERWISE, AND THE CURRENT MODEL FOR WHICH REPLACEMENT PARTS ARE AVAILABLE. SUBSTITUTIONS SHALL ONLY BE ACCEPTED AT THE DISCRETION OF THE OWNER'S REPRESENTATIVE OR THE ENGINEER.

2. THE CONTRACTOR SHALL INSTALL AND CONNECT ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE BEST ENGINEERING PRACTICE AND UNLESS OTHERWISE INDICATED SHALL FOLLOW THE MANUFACTURER'S PUBLISHED INSTRUCTIONS AND RECOMMENDATIONS.

3. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED AUXILIARY ITEMS FOR A COMPLETE SYSTEM.

4. ALL EQUIPMENT SHALL BE MOUNTED VIBRATION FREE.

G. COORDINATION:

1. THE CONTRACTOR SHALL INSTALL ALL DUCTWORK, PIPING, RACEWAYS, CIRCUITRY, CONDUIT, ETC., AS HIGH AS POSSIBLE TO MAINTAIN HEADROOM. RUN PARALLEL OR PERPENDICULAR TO THE BUILDING WALLS IN A NEAT WORKMANLIKE MANNER. AVOID CONFLICT WITH NEW EQUIPMENT, LIGHTS, CABLE TRAYS, ETC. IF CONFLICT WITH DOES OCCUR, THE CONTRACTOR SHALL RESOLVE CONFLICTING PROJECT WORK AS DIRECTED BY THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST.

2. THE CONTRACTOR SHALL PROVIDE COMPLETE COORDINATION DRAWINGS FOR EACH LEVEL. SHOW ALL RELEVANT TRADES AND AVAILABLE CEILING PLENUM HEIGHT.

3. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY FOR THIS WORK AND ASSURE RESPONSIBILITY FOR THEIR ACCURACY. THE DRAWINGS AS SHOWN ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO MANUFACTURER'S STANDARD ROUGH-IN DRAWINGS FOR MECHANICAL FIXTURES, AND TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS. REPORT ANY CONFLICTS OR DISCREPANCIES TO THE ARCHITECT/ENGINEER.

4. SHOULD ANY STRUCTURAL IMPEDIMENTS (I.E. BEAMS, SLAB FOLDS, POST-TENSIONED SLABS, COLUMNS, SHEAR WALLS, ETC.) PREVENT THE SETTING OF CABINETS, PANELBOARDS, EQUIPMENT, FEEDER CONDUITS, ETC. AT THE LOCATION INDICATED ON THE PLANS, THE CONTRACTOR SHALL MAKE ANY NECESSARY DEVIATIONS, AS COORDINATED WITH THE ARCHITECT/ENGINEER AND IMPLEMENT AT NO ADDITIONAL COST.

5. COORDINATE WITH ALL TRADES TO AVOID INTERFERENCE AMONG MECHANICAL, ELECTRICAL, ARCHITECTURAL, AND STRUCTURAL ITEMS. PROVIDE ALL NECESSARY OFFSETS AND FITTINGS IN CIRCUITRY AND OTHER ITEMS REQUIRED TO INSTALL THE WORK WITHOUT INTERFERENCES.

6. COORDINATE WITH THE WORK OF OTHER SECTIONS AND TRADES, WITH EQUIPMENT FURNISHED BY OTHERS, AND WITHIN THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.

H. PARTITIONS AND DUCTWORK:

1. THE CONTRACTOR SHALL REPAIR ALL OPENINGS IN WALLS, CEILINGS, FLOORS, ROOF, ETC., WHICH ARE CROPPED BY DEMOLITION AND/OR NEW PROJECT WORK. THE REPAIRS SHALL BE WITH MATERIALS AND FINISH TO MATCH EXISTING. OPENINGS AND PENETRATIONS IN FIRE RATED PARTITIONS OR DUCTWORK SHALL BE SEALED PER U.L. APPROVED FIRE ASSEMBLY TO MAINTAIN FIRE RESISTANT INTEGRITY. DUCTWORK AND PIPING SHALL BE CAPPED, SEALED AIR AND WATER-TIGHT, AND INSULATED TO MATCH EXISTING CONDITIONS.

2. WHERE IT IS NECESSARY TO CUT WALLS, FLOORS OR CEILINGS FOR THE INSTALLATION OF ANY MECHANICAL WORK, SUCH CUTTING SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR. ALL AFFECTED AREAS SHALL BE PATCHED BY THE CONTRACTOR TO MATCH THE ORIGINAL CONDITION, FINISH AND APPEARANCE. BEFORE CUTTING TAKES PLACE, THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ARCHITECT AND/OR BUILDING MANAGEMENT.

3. WHERE IT IS NECESSARY TO CORE DRILL THE FLOORS FOR INSTALLATION OF SPECIFIED WORK, THE CONTRACTOR SHALL HAVE THE AREA TO BE CORE DRILLED X-RAYED TO ENSURE THE STRUCTURAL SYSTEM WILL NOT BE COMPROMISED. DO NOT CORE DRILL, PENETRATE OR CUT EXISTING CONCRETE FLOOR SLABS WITHOUT CONSULTING WITH THE BUILDING'S STRUCTURAL ENGINEER OF RECORD. AND/OR A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER. DO NOT PROCEED WITH WORK WITHOUT WRITTEN PERMISSION FROM THE ABOVE PROFESSIONALS. ARRANGE MOBILIZATION AND PAYMENT FOR X-RAY EQUIPMENT, IF NECESSARY, TO INVESTIGATE ALL POTENTIAL STRUCTURAL IMPEDIMENTS.

4. ALL NEW FLOOR OPENINGS, AND OPENINGS IN SLAB-TO-SLAB WALLS SHALL BE PATCHED BY THE CONTRACTOR OR TRADE WHOSE WORK REQUIRES PATCHING TO MATCH ORIGINAL CONDITION, APPEARANCE AND FIRE RATING.

5. PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER DEMOLITION OPERATIONS ARE COMPLETE.

6. FIRE STOPPING SHALL BE U.L. APPROVED AND COMPLIANT WITH ALL LOCAL AND FEDERAL CODES AND REGULATIONS. CONTRACTOR SHALL ENGAGE THE SERVICES OF TECHNICIANS TRAINED AND CERTIFIED IN THE APPLICATION OF FIRE STOP MATERIALS. WHERE REQUIRED BY LOCAL CODES, THE TECHNICIAN SHALL BE LICENSED.

L. SITE CLEANUP:

1. THE CONTRACTOR SHALL CLEAN UP THE JOBSITE DAILY. THE CONTRACT AREA AND ALL OTHER AREAS USED FOR STORAGE, STAGING, ETC. SHALL BE BROOM CLEANED AND MATERIALS, TOOLS, ETC. SHALL BE LEFT IN AN ORDERLY MANNER.

2. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN THE CONTRACT AREA AND ALL OTHER AREAS USED FOR STORAGE, STAGING, ETC. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO WASHING AND/OR REPAIRING ALL GLASS, REMOVING SPOTS AND STAINS, CLEANING ALL FIXTURES AND WASHING ALL FLOORS, WALLS AND CEILINGS IF APPROPRIATE.

M. WARRANTIES:

1. THE CONTRACTOR SHALL TEST ALL EQUIPMENT INSTALLED UNDER THIS CONTRACT AND DEMONSTRATE TO THE OWNER'S REPRESENTATIVE ITS PROPER OPERATION(S). ALL NEW EQUIPMENT SHALL BE MOUNTED VIBRATION FREE. THE CONTRACTOR SHALL PROVIDE ALL LABOR AS REQUIRED DURING COMMISSIONING AND INSTRUCTION OF OWNER'S PERSONNEL OPERATING PROCESSES.

2. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY DEFECTIVE OR NONOPERATIVE EQUIPMENT AND COMPONENTS FURNISHED BY THE CLIENT AT NO COST TO THE CLIENT.

3. THE CONTRACTOR'S WARRANTY SHALL INCLUDE ALL EQUIPMENT SUPPLIED BY THE CONTRACTOR OR CLIENT.

N. RECORD DRAWINGS:

1. THE CONTRACTOR SHALL MAINTAIN THREE (3) SETS OF ALL RECORD DOCUMENTS, FOR DISTRIBUTION TO THE CLIENT. THESE DOCUMENTS SHALL INCLUDE: CONTRACT DRAWINGS AND SPECIFICATIONS, APPROVED SIGNED-OFF PERMIT DRAWINGS AND BUILDING PERMITS, ADDENDUMS, AND APPROVED SHOP DRAWINGS. THESE DOCUMENTS SHALL BE MARKED AS REQUIRED TO RECORD ALL CHANGES DURING CONSTRUCTION. THESE DRAWINGS SHALL BE DELIVERED TO THE OWNER, IN GOOD CONDITION AND ORDER TO THE FOLLOWING PARTIES: THE ORIGINAL DOCUMENTS TO THE TENANT, ONE (1) COPY TO THE BUILDING MANAGEMENT AND ONE COPY TO THE ARCHITECT.

O. BUILDING SMOKE/FIRE ALARM SYSTEM

1. DELETED

P. EQUIPMENT SERVICE ACCESS:

1. PROVIDE ACCESS DOORS IN DRYWALL CEILINGS AND PARTITIONS TO SERVICE EQUIPMENT, BALANCE DIFFUSERS, AND EXPOSE JUNCTION BOXES. COORDINATE THE EXACT LOCATIONS AND STYLE OF FLANGELESS ACCESS DOORS WITH THE ENGINEER.

P. JOB RESPONSIBILITY:

1. PROVIDE ADEQUATE STORAGE FACILITIES FOR MATERIALS AND EQUIPMENT DURING THE PROGRESS OF THE WORK.

2. BE RESPONSIBLE FOR THE CONDITION OF ALL MATERIAL AND EQUIPMENT EMPLOYED IN THE INSTALLATION UNTIL FINAL ACCEPTANCE BY THE OWNER. PROTECT SAME FROM ANY CAUSE WHATSOEVER.

3. BE RESPONSIBLE FOR THE REPLACEMENT OF ALL DAMAGED OR DEFECTIVE WORK, MATERIALS, EQUIPMENT. DO NOT INSTALL SENSITIVE OR DELICATE EQUIPMENT UNTIL MAJOR CONSTRUCTION WORK IS COMPLETED.

4. OBSERVE AND CONFORM TO APPLICABLE SAFETY REGULATIONS, INCLUDING THOSE REQUIRED BY THE OWNER'S REPRESENTATIVE.

5. ERECT AND MAINTAIN SUITABLE BARRIERS, PROTECTIVE DEVICES, LIGHTS AND WARNING SIGNS FOR THE PROTECTION OF OCCUPANTS, TRANSDIENTS AND WORKMEN FROM DANGER DUE TO WORK PERFORMED BY THE CONTRACTOR.

6. MAKE GOOD ANY DAMAGE TO THE WORK CAUSED BY FLOODS, STORMS, ACCIDENTS, ACTS OF NATURE, STRIKES, VIOLENCE OR THING UP TO THE TIME OF FINAL ACCEPTANCE BY THE OWNER.

7. BE RESPONSIBLE FOR ANY LOSS OR INJURY TO PERSONS OR PROPERTY RESULTING FROM NEGLIGENCE OR ANY OTHER CAUSES ON THE PART OF THE EMPLOYEES.

8. DO NOT LEAVE ANY WORK IN A HAZARDOUS CONDITION, EVEN TEMPORARILY.

9. ERECT, MAINTAIN AND FINALLY REMOVE ALL SCAFFOLDING, STAGING, FORMS, PLATFORMS AND LADDERS REQUIRED FOR THE INSTALLATION.

10. DO NOT INSTALL WORK FOR WHICH AN EXTRA CHARGE IS TO BE MADE WITHOUT WRITTEN APPROVAL FROM THE OWNER'S REPRESENTATIVE AND THE OWNER. A WRITTEN REQUEST FOR EXTRA WORK SHALL STATE THE NATURE OF THE WORK, BY WHOM REQUESTED, AND THE PRICE TO BE CHARGED.

11. CONTRACTOR SHALL SUBMIT A COPY OF THEIR SAFETY TRAINING PROGRAM AND QUALITY CONTROL PROGRAM FOR REVIEW AND ACCEPTANCE.

12. CONTRACTOR SHALL ACCEPT ALL OWNER SUPPLIED EQUIPMENT AND PROVIDE ON OR OFF SITE STORAGE, RIGGING, AND HANDLING AS NEEDED.

MECHANICAL SPECIFICATIONS:

A. GENERAL

1. THE DRAWINGS PREPARED FOR THIS PROJECT ARE AN OUTLINE TO SHOW WHERE PIPES, DUCTS AND APPARATUSES MUST GO IN ORDER TO HARMONIZE WITH THE BUILDING AND INSTALLATION OF THE VARIOUS TRADES. WORK MUST BE INSTALLED IN ACCORDANCE WITH THE DRAWINGS AS MUCH AS POSSIBLE. DRAWINGS SHALL BE CAREFULLY CHECKED DURING THE COURSE OF CONSTRUCTION. IF DISCREPANCIES, ERRORS OR OMISSIONS ARE DISCOVERED PRIOR TO OR DURING CONSTRUCTION PHASE, NOTIFY THE ENGINEER IMMEDIATELY FOR INTERPRETATION OR CORRECTION. TAKE NECESSARY MEASUREMENTS AND RESPONSIBILITY FOR ANY SAME, INCLUDING CLEARANCES FOR EQUIPMENT THAT ARE TO BE FURNISHED, THE ARCHITECT /ENGINEER RESERVE THE RIGHT TO MAKE MINOR LOCATION CHANGES OF PIPING AND EQUIPMENT WHERE SUCH ADJUSTMENTS ARE DEEMED DESIRABLE FROM AN APPEARANCE OR OPERATIONAL STANDPOINT. SUCH CHANGES WILL BE ANTICIPATED SUFFICIENTLY IN ADVANCE TO AVOID EXTRA WORK OR DELAY THE PROGRESS OF THE PROJECT.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE AND VERIFYING EXISTING FIELD CONDITIONS PRIOR TO INSTALLATION. THE CONTRACT DOCUMENTS INDICATE APPROXIMATE LOCATIONS OF DUCTWORK AND PIPING AND ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL LOCATION AND ROUTING OF THE EXISTING PIPING AND NEW DUCTWORK.

3. CONTRACTOR IS RESPONSIBLE FOR COORDINATING HIS WORK WITH THE WORK OF ALL TRADES AND MAKING ANY NECESSARY MODIFICATIONS TO HIS WORK, INCLUDING OFFSETS, AT NO ADDITIONAL COST TO THE OWNER.

4. ALL WORK SHALL BE DONE IN ACCORDANCE WITH LOCAL CODES. THESE CODES SHALL BE FOLLOWED AS A MINIMUM. PROVIDE HIGHER GRADES OF MATERIAL AND WORKMANSHIP WHERE REQUIRED BY THESE DOCUMENTS. PROVIDE ALL TESTS REQUIRED BY LOCAL CODES.

5. ALL PERMITS, FEES, LICENSES, APPROVALS, AND OTHER ARRANGEMENTS FOR THE WORK SHALL BE OBTAINED BY THE CONTRACTOR AT HIS OWN EXPENSE.

6. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIAL FOR ONE YEAR AFTER FINAL ACCEPTANCE AGAINST ALL DEFECTS OF MATERIAL, EQUIPMENT AND WORKMANSHIP. PROVIDE AN ADDITIONAL FOUR (4) YEAR WARRANTY (TOTAL OF 5 YEARS) ON ALL REFRIGERATION COMPRESSORS. DELIVER ALL WARRANTY CERTIFICATES TO THE OWNER PRIOR TO FINAL ACCEPTANCE AND BUILDING TURNOVER.

7. PROVIDE ASSEMBLED PRINTED INSTRUCTIONS FOR THE OPERATION AND MAINTENANCE OF EACH ITEM INSTALLED ALONG WITH THE EQUIPMENT CUT SHEETS AND CONTROL WIRING DIAGRAMS.

8. THE MECHANICAL DRAWINGS INDICATE THE GENERAL ROUTING AND LOCATION OF DUCTWORK, PIPING, EQUIPMENT, FIXTURES, TERMINAL DEVICES, ETC. CONTRACTOR SHALL DETERMINE THE EXACT LOCATION FROM ACTUAL FIELD MEASUREMENTS AT THE JOB SITE. ALL DUCTWORK AND PIPING SHALL BE COORDINATED WITH LIGHT FIXTURES, STRUCTURAL SYSTEM, CEILING GRID, SUPPORTS, PLUMBING, SPRINKLER PIPING, AND ARCHITECTURAL FEATURES OF THE BUILDING PRIOR TO FABRICATION OR INSTALLATION. NO EXTRAS WILL BE ALLOWED FOR DUCTWORK OR PIPING WHICH IS FABRICATED AND THEN FOUND UNABLE TO FIT IN THE INTENDED SPACE. ALL EQUIPMENT SHALL BE LOCATED TO ALLOW FOR CLEANING, INSPECTION AND SERVICE.

9. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING CEILING TYPE AND DIFFUSER & GRILLE LOCATIONS WITH ARCHITECT'S REFLECTED CEILING PLANS. DIFFUSER AND GRILLE LOCATION ON SHOP DRAWINGS ARE SUBJECT TO APPROVAL BY ARCHITECT.

10. PROVIDE ACCESS PANELS FOR ANY PIECE OF EQUIPMENT LOCATED ABOVE NON-ACCESSIBLE CEILINGS. NO EQUIPMENT SHALL BE LOCATED ABOVE WALLS.

11. WHEREVER DUCTWORK OR OTHER ITEMS PASS THROUGH FIRE-RATED WALLS AND FLOORS, THE CONTRACTOR SHALL ADEQUATELY FIRE STOP THE SPACE BETWEEN ITEMS AND THE MASONRY OR THE SPACE BETWEEN THE ITEM AND THE SLEEVE. FIRE STOP SHALL BE A NON-COMBUSTIBLE, NON-MELTING, APPROVED MATERIAL.

12. THE DRAWINGS INDICATE GENERAL CHARACTER AND LOCATION OF WORK INCLUDED, BUT MAY HAVE MINOR SPECIALTIES OMITTED THAT SHALL BE PROVIDED WITHOUT EXTRA COST.

13. CONTRACTOR SHALL PROVIDE ALL OPENINGS REQUIRED TO INSTALL IN THE NEW SYSTEMS AND EQUIPMENT. PROVIDE CUTTING AND PATCHING OF WALLS, PARTITIONS, CEILINGS AND FLOORS, AS REQUIRED. PATCH TO MATCH ADJACENT SURFACES UNLESS OTHERWISE NOTED. REFER TO ARCHITECTURAL PLANS FOR FINISHES. SLEEVE ALL PIPE PENETRATIONS AND SEAL ALL OPENINGS. REFER TO ARCHITECTURAL PLANS FOR ADDITIONAL REQUIREMENTS.

14. CONTRACTOR SHALL PROVIDE A SEALING ALL PENETRATIONS TO THE INTERIOR OR EXTERIOR OF THE BUILDING AS A RESULT OF HIS WORK, IN SUCH A MANNER THAT THE DESIGN FIRE RATING IS MAINTAINED. CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES AS REQUIRED FOR NECESSARY PENETRATIONS. IN THE ABSENCE OF ARCHITECTURAL SPECIFICATIONS, USE TWO (2) HOUR FIRE RATING.

15. CONTRACTOR SHALL FURNISH ALL PIPING, VALVES AND FITTINGS AT A PRESSURE RATING OF NO LESS THAN 125 PSI, OR AS REQUIRED BY LOCAL CODES AND REGULATIONS, WHERE LOCAL JURISDICTIONS ALLOW FOR A LOWER PRESSURE RATING THAN THAT SPECIFIED ABOVE, THE ABOVE SPECIFIED PRESSURE RATING SHALL DICTATE.

16. IN CASES WHERE MANUFACTURER PROVIDES INTERNAL MAXIMUM OVERCURRENT PROTECTION (MOCP) DEVICES IN THE EQUIPMENT, THE MANUFACTURER SHALL SUPPLY LABELING STATING SUCH ON THE EQUIPMENT SHEET. OTHERWISE CONTRACTOR TO SHALL SUPPLY EXTERNAL FUSED DISCONNECT SIZED TO PROVIDE MOCP.

17. CONDENSATE PIPING SHALL BE TYPE "L" COPPER OR SCHEDULE 40 PVC. CONDENSATE PUMP WITH FLEX TUBING TO EXTERIOR IS ACCEPTABLE - AS REQUIRED BY SITE CONDITIONS.

B. INSULATION

1. DUCTWORK
a. SIZES INDICATED ARE FREE INSIDE AREA, I.E. SIZES DO NOT INCLUDE INSULATION OR LINING THICKNESS.
b. INSULATION SHALL BE WRAPPED ON DUCTS WITH 1/2" OUTWARD CLINCHING STAPLES ON 4" CENTERS.
c. STAPLES AND SEAMS SHALL BE SEALED WITH A BRUSH COAT OF VAPOR BARRIER MASTIC.
d. INSULATION SHALL BE FACED WITH FIRE RESISTANT VAPOR BARRIER JACKET WITH A 2" TAB ON ONE EDGE.
e. SUPPLY, RELIEF AND EXHAUST DUCTWORK INSULATION SHALL BE A 1-1/2" THICK 3/4 LB. DENSITY FLEXIBLE FIBERGLASS BLANKET.
f. EXHAUST AND RELIEF DUCTWORK SHALL BE INSULATED FROM POINT OF EXHAUST FROM THE BUILDING TO THE BACKDRAFT DAMPER OR SHUT-OFF DAMPER CLOSEST TO THE EXIT FROM THE BUILDING.

- g. EXPOSED DUCTWORK SHALL BE EITHER INTERNALLY LINED OR COVERED W/ RIGID FIBERGLASS INSULATION OF SIMILAR THICKNESS AND PERFORMANCE.
h. INTERNAL LINING OF SIMILAR THICKNESS AND PERFORMANCE MAY BE USED IN LIEU OF WRAPPING THE DUCTWORK WITH INSULATION.
i. ALL DUCTWORK LOCATED IN UNCONDITIONED SPACES SHALL BE INSULATED WITH A MINIMUM OF R-6 INSULATION. ALL DUCTWORK LOCATED OUTSIDE OF THE BUILDING ENVELOPE SHALL HAVE A MINIMUM OF R-8 INSULATION.

2. INSULATION OF DUCTWORK AND PIPE PASSING THROUGH NON-RATED WALLS SHALL BE CONTINUOUS THROUGH THE WALL PENETRATION.

3. INSULATION OF CONDENSATE PIPING SHALL BE 1" THICK FIBERGLASS INSULATION WITH VAPOR BARRIER.

4. PROVIDE 1" THICK 3/4 LB. DENSITY ACOUSTICAL INTERIOR LINER WHERE INDICATED. ADJUST SHEET METAL SIZE AS REQUIRED TO PROVIDE CLEAR INSIDE DIMENSION INDICATED.

C. DUCTWORK

1. ALL NEW DUCT TURNS, ELBOWS, ETC. SHALL BE INSTALLED WITH TURNING VANES OR MINIMUM 1-1/2 RADIIUS ELBOWS.

2. PROVIDE VOLUME DAMPERS AT ALL BRANCH TAKE-OFFS.

3. CONSTRUCT ALL HIGH PRESSURE VAV DUCTWORK AND ACCESSORIES IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA STANDARDS FOR 2" PRESSURE CLASS AND SEAL CLASS A.

4. CONSTRUCT ALL LOW PRESSURE DUCTWORK AND ACCESSORIES IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA STANDARDS FOR 1/2" PRESSURE CLASS AND SEAL CLASS A.

5. METAL DUCTWORK: FABRICATE ALL DUCTWORK, HOUSINGS, DAMPERS, AND ALL OTHER DUCT RELATED ACCESSORIES FROM GALVANIZED STEEL SHEETS.

6. INSTALL ALL DUCTWORK ABOVE CEILING AND TIGHT TO UNDERSIDE OF STRUCTURE ABOVE UNLESS OTHERWISE INDICATED.

7. CHANGES TO DUCTWORK DUE TO FIELD CONDITIONS SHALL BE MADE PROVIDED THAT THE DUCT FREE AREA IS MAINTAINED AND SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

8. FLEXIBLE DUCTWORK: PROVIDE INSULATED U.L. LISTED CLASS 1 DUCT COMPLYING WITH NFPA 90A. THERMAFLEX G-KM OR APPROVED EQUAL. MAXIMUM LENGTH SHALL BE 8 LINEAR FEET.

9. LEAKAGE:
a. ALL NEW DUCT JOINTS SHALL BE SEALED WITH HARDCAST 601 OR APPROVED EQUAL.
b. LEAKAGE TESTING FOR ALL NEW DUCTWORK SHALL BE PER SMACNA.
c. PERFORM ALL TESTING AFTER THE SEALS HAVE CURED COMPLETELY AND BEFORE COVERING WITH INSULATION OR CONCEALING IN MASONRY OR OTHER PARTITION MATERIAL.

D. TESTING AND BALANCING

1. SCOPE
a. AN INDEPENDENT CONTRACTOR WITH NEBB OR AABC CERTIFICATION SHALL PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT TO PERFORM ALL OPERATIONS REQUIRED FOR COMPLETE BALANCING OF THE AIR SYSTEMS AND RELATED WORK AS INDICATED ON DRAWINGS AND SPECIFIED HEREIN.

- b. BALANCING SHALL NOT BE PERFORMED UNTIL ALL MECHANICAL EQUIPMENT IS PROPERLY INSTALLED AND IS 100% OPERATIONAL, ALL TEMPERATURE CONTROLS ARE INSTALLED AND CALIBRATED, AND ALL SYSTEMS ARE CLEANED, PIPES AND STRAINERS FLUSHED, AND CLEAN FILTERS INSTALLED.

- c. BALANCING SHALL BE WITHIN +/- 10% OF THE TOTAL INDICATED VALUES.
d. IT IS THE INTENT OF THIS SPECIFICATION TO ENSURE THAT THE ENTIRE PROJECT IS SUBSTANTIALLY COMPLETED SO THAT ALL COMPONENTS OF ALL MECHANICAL SYSTEMS CAN BE PUT INTO NORMAL OPERATION WITH ALL WINDOWS AND DOORS CLOSED AND BALANCED IN THAT CONDITION. IN NO CASE IS THE CONTRACTOR TO PERFORM HIS WORK IN A PIECEMEAL FASHION.

2. BELTS AND SHEAVE CHANGES REQUIRED TO MEET SPECIFIED AIR VOLUMES SHALL BE MADE AT NO ADDITIONAL EXPENSE TO THE OWNER.
3. BALANCING REPORT - AFTER FINAL ADJUSTMENTS ARE COMPLETED, THE HVAC SYSTEM SHALL BE TESTED, AND THE FOLLOWING INFORMATION RECORDED AND INCLUDED IN THE BALANCING REPORT.
a. EACH PIECE OF EQUIPMENT SHALL BE IDENTIFIED WITH LOCATION, SERVICE MANUFACTURER, MODEL NUMBER, ELECTRICAL DATA, AND MEASURED STATIC PRESSURES (EXTERNAL AND TOTAL).
b. TRAVERSE MAIN SUPPLY DUCT AND INDICATE SIZE. NOTE: TRAVERSE SHALL BE DONE IN A LOCATION NEAR THE FAN BUT AVOIDING TURBULENCE.
c. EACH AIR DEVICE (NEW AND EXISTING) SHALL BE IDENTIFIED WITH LOCATION AND SERVICE, TYPE, AND SIZE.
d. BALANCE REPORT SHALL INDICATE REQUIRED CFM AND RESULTANT CFM FOR EACH AIR DEVICE.

4. SHOULD TOTAL INDICATED AIRFLOWS NOT BE ACHIEVABLE, CONTRACTOR SHALL STOP WORK, NOTIFY OWNER, BUILDING ENGINEER AND ARCHITECT. PROPORTIONAL BALANCING IS NOT PERMITTED. WORK SHALL NOT RESUME UNTIL CORRECTIVE MEASURES HAVE BEEN COMPLETED.

E. AIR CLEANING SYSTEM:

1. ALL UNITS SHALL HAVE AIR PURIFICATION SYSTEM OR EQUAL AIR CLEANERS INSTALLED PER MANUFACTURER. COORDINATE WITH ELECTRICAL CONTRACTOR.

2. PROVIDE ATMOS AIR SERIES OR EQUAL. UNITS SHALL BE SIZED PER MFR.

3. UNITS SHALL BE INSTALLED ABOVE THE EVAPORATOR COIL INSIDE THE AHU/RTU AND/OR SUPPLY DUCT.

4. ALL LAMPS SHALL BE REMOVABLE FROM OUTSIDE OF THE AHU/RTU/DUCT CASING FOR MAINTENANCE AND REPLACEMENT PURPOSES.

5. UNITS SHALL HAVE A SAFETY WARNING LABEL APPLIED TO THE EXTERIOR OF EACH SECTION.

Attachment: H1-T-1														
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Room Number	Description	Area (ft ²) (Aa)	Area Outdoor Air Rate (ft ² /min) (Ab)	Area Outdoor Air Rate (ft ² /min) (Ac)	Occupant Load Rate Table 403.3 (Pea)	Occupancy C x P (1000) (Pg)	Occupant Outdoor Air Rate per VMC Table 403.3 (Pp)	Occupant Outdoor Air Rate (RpPp)	Breathing Zone Outdoor Air Rate (Rz)	Zone Air Distribution Effectiveness (Ez)	Zone Outdoor Air Rate (Vz)	Supply Air Design (Vsz)	Secondary Recirculated Air	Outdoor Air Fraction (Zs + Vz)
107-Adm. Call Hang	Per Shop	135	0.18	24	10	2	7.5	15	39	0.8	49	230		0.213
108-Shop Call Hang	Per Shop	120	0.18	22	10	2	7.5	15	37	0.8	47	200		0.226
109-Cat Playroom	Per Shop	150	0.18	27	10	2	7.5	15	45	0.8	57	270		0.186
110-Cat Playroom 1	Per Shop	120	0.18	22	10	2	7.5	15	37	0.8	47	200		0.197
111-Cat Playroom 2	Per Shop	120	0.18	22	10	2	7.5	15	37	0.8	47	200		0.197
112-Cat Playroom 3	Per Shop	120	0.18	22	10	2	7.5	15	37	0.8	47	200		0.197
113-Cat Playroom 4	Per Shop	120	0.18	22	10	2	7.5	15	37	0.8	47	200		0.197
114-Cat Playroom 5	Per Shop	120	0.18	22	10	2	7.5	15	37	0.8	47	200		0.197
115-Cat Playroom 6	Per Shop	120	0.18	22	10	2	7.5	15	37	0.8	47	200		0.197
116-Cat Playroom 7	Per Shop	120	0.18	22	10	2	7.5	15	37	0.8	47	200		0.197
117-Cat Playroom 8	Per Shop	60	0.18	11	10	1	7.5	7.5	18.5	0.8	24	100		0.240
118-Cat Playroom 9	Per Shop	60	0.18	11	10	1	7.5	7.5	18.5	0.8	24	100		0.240
Totals		1395		249		22		165	414		528	3000	0	0.240

Project Name: H1 Tor Animal Shelter		Unit Total Supply Air: 4780 cfm												
Date: 8/17/21		Unit Total Outdoor Air: 580 cfm												
Unit Designation: RTU-2														
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Room Number	Description	Area (ft ²) (Aa)	Area Outdoor Air Rate (ft ² /min) (Ab)	Area Outdoor Air Rate (ft ² /min) (Ac)	Occupant Load Rate Table 403.3 (Pea)	Occupancy C x P (1000) (Pg)	Occupant Outdoor Air Rate per VMC Table 403.3 (Pp)	Occupant Outdoor Air Rate (RpPp)	Breathing Zone Outdoor Air Rate (Rz)	Zone Air Distribution Effectiveness (Ez)	Zone Outdoor Air Rate (Vz)	Supply Air Design (Vsz)	Secondary Recirculated Air	Outdoor Air Fraction (Zs + Vz)
101A-Entry Vest	Corridor	35	0.06	2	0	0	0	0	0	0.8	3	70		0.043
101B-Exit Vestibule	Corridor	35	0.06	2	0	0	0	0	0	0.8	3	70		0.043
102-Cat Supplies	Storage Rm	56	0.12	0	0	0	0	0	0	0.8	8	80		0.113
103-Reception Area	Reception	120	0.06	7	30	4	5	20	27	0.8	34	200		0.170
104-Walking Area	Storage Rm	108	0.12	0	0	0	0	0	0	0.8	36	200		0.140
105-Dog Kennel	Per Shop	80	0.18	14	10	1	7.5	23.5	23.5	0.8	17	200		0.170
106-Cat Food Trl	Storage Rm	99	0.12	0	0	0	0	0	0	0.8	15	160		0.107
107-Exotic Temp Area	Per Shop	110	0.18	14	10	1	7.5	23.5	23.5	0.8	17	200		0.170
108-Nursing Clinic	Per Shop	35	0.18	14	10	1	7.5	23.5	23.5	0.8	17	70		0.243
109-Nursing Clinic	Per Shop	35	0.18	14	10	1	7.5	23.5	23.5	0.8	17	70		0.243

GUIDE SPECIFICATIONS

GAS HEAT/ELECTRIC COOLING PACKAGED ROOFTOP

PART 1: SCHEDULES FOR DECENTRALIZED HVAC EQUIPMENT

DECENTRALIZED UNITARY HVAC EQUIPMENT SCHEDULE

1. ROOFTOP UNIT SCHEDULE

A. SCHEDULE IS PER THE PROJECT SPECIFICATION REQUIREMENTS.

PART 2: HVAC EQUIPMENT INSULATION

DECENTRALIZED, ROOFTOP UNITS:

1. EVAPORATOR FAN COMPARTMENT:

A. INTERIOR CABINET SURFACES SHALL BE INSULATED WITH A MINIMUM 1/2-IN. THICK, MINIMUM 1 1/2 LB DENSITY, FLEXIBLE FIBERGLASS INSULATION BONDED WITH A PHENOLIC BINDER, NEOPRENE COATED ON THE AIR SIDE.

B. INSULATION AND ADHESIVE SHALL MEET NFPA 90A REQUIREMENTS FOR FLAME SPREAD AND SMOKE GENERATION.

2. GAS HEAT COMPARTMENT:

A. ALUMINUM FOIL-FACED FIBERGLASS INSULATION SHALL BE USED.

B. INSULATION AND ADHESIVE SHALL MEET NFPA 90A REQUIREMENTS FOR FLAME SPREAD AND SMOKE GENERATION.

2.1. COMFORTLINK UNIT CONTROLS SHALL CONTAIN:

A. FOUR BUTTON DETAILED ENGLISH SCROLLING MARQUEE DISPLAY.

B. COIL (CARTRIDGE COMFORT NETWORK) CAPABLE.

C. UNIT CONTROL WITH STANDARD SUCOR PRESSURE TRANSDUCERS AND CONDENSING THERMISTORS.

D. SHALL PROVIDE A 5°F TEMPERATURE DIFFERENCE BETWEEN COOLING AND HEATING SET POINTS TO MEET ASHRAE 90.1 ENERGY STANDARD.

E. SHALL PROVIDE AND DISPLAY A CURRENT ALARM LIST AND AN ALARM HISTORY LIST.

F. SERVICE RUN TEST CAPABILITY.

G. SHALL ACCEPT INPUT FROM A CO2 SENSOR (BOTH INDOOR AND OUTDOOR).

H. CONFIGURABLE ALARM LIGHT SHALL BE PROVIDED WHICH ACTIVATES WHEN CERTAIN TYPES OF ALARMS OCCUR.

I. COMPRESSOR MINIMUM RUN TIME (3 MINUTES) AND MINIMUM OFF TIME (5 MINUTES) ARE PROVIDED.

J. SERVICE DIAGNOSTIC MODE.

K. ECONOMIZER CONTROL (OPTIONAL).

L. CONTROL MULTI-CAPACITY STAGES.

M. UNIT SHALL BE COMPLETE WITH SELF-CONTAINED LOW VOLTAGE CONTROL CIRCUIT.

N. UNIT SHALL HAVE OT LOW AMBIENT COOLING OPERATION.

PART 3: ELECTRIC AND ELECTRONIC CONTROL SYSTEM FOR HVAC

DECENTRALIZED, ROOFTOP UNITS:

1. GENERAL:

A. SHALL BE COMPLETE WITH SELF-CONTAINED LOW-VOLTAGE CONTROL CIRCUIT PROTECTED BY A RESETTABLE CIRCUIT BREAKER ON THE 24-V COMPLETE FUSE TRANSFORMER SHALL HAVE 75VA CAPABILITY.

B. SHALL UTILIZE COLOR-CODED WIRING.

C. SHALL INCLUDE A CENTRAL CONTROL TERMINAL BOARD TO CONVENIENTLY AND SAFELY PROVIDE CONNECTION POINTS FOR VITAL CONTROL FUNCTIONS SUCH AS: SMOKE DETECTORS, PHASE MONITOR, GAS CONTROLLER, ECONOMIZER, THERMOSTAT, DC CONTROL OPTIONS, AND LOW AND HIGH PRESSURE SWITCHES.

D. THE HEAT EXCHANGER SHALL BE CONTROLLED BY AN INTEGRATED GAS CONTROLLER (IGC) MICROPROCESSOR. SEE HEAT EXCHANGER SECTION OF THIS SPECIFICATION.

E. UNIT SHALL INCLUDE A MINIMUM OF 8-PIN SCREW TERMINAL CONNECTION BOARD FOR CONNECTION OF CONTROL WIRING.

3.1. SAFETIES:

A. COMPRESSOR OVER-TEMPERATURE, OVER-CURRENT, HIGH INTERNAL PRESSURE DIFFERENTIAL.

B. LOW-PRESSURE SWITCH.

1. UNITS WITH 2 COMPRESSORS SHALL HAVE DIFFERENT ZIGZAG CONNECTORS FOR THE CIRCUIT 1 AND CIRCUIT 2 LOW AND HIGH PRESSURE SWITCHES. THEY SHALL PHYSICALLY PREVENT THE CROSS-WIRING OF THE SAFETY SWITCHES BETWEEN CIRCUITS 1 AND 2.

2. LOW PRESSURE SWITCH SHALL USE DIFFERENT COLOR WIRE THAN THE HIGH PRESSURE SWITCH, THE PURPOSE IS TO ASSIST THE INSTALLER AND SERVICE TECHNICIAN TO CORRECTLY WIRE AND OR TROUBLESHOOT THE ROOFTOP UNIT.

C. HIGH-PRESSURE SWITCH.

1. UNITS WITH 2 COMPRESSORS SHALL HAVE DIFFERENT ZIGZAG CONNECTORS FOR THE CIRCUIT 1 AND CIRCUIT 2 LOW AND HIGH PRESSURE SWITCHES. THEY SHALL PHYSICALLY PREVENT THE CROSS-WIRING OF THE SAFETY SWITCHES BETWEEN CIRCUITS 1 AND 2.

2. HIGH PRESSURE SWITCH SHALL USE DIFFERENT COLOR WIRE THAN THE LOW PRESSURE SWITCH, THE PURPOSE IS TO ASSIST THE INSTALLER AND SERVICE TECHNICIAN TO CORRECTLY WIRE AND OR TROUBLESHOOT THE ROOFTOP UNIT.

D. AUTOMATIC RESET MOTOR THERMAL OVERLOAD PROTECTOR.

E. HEATING SECTION SHALL BE PROVIDED WITH THE FOLLOWING MINIMUM PROTECTIONS:

1. HIGH-TEMPERATURE LIMIT SWITCHES.

2. INDUCED DRAFT MOTOR SPEED SENSOR.

3. FLAME ROLLOUT SWITCH.

4. FLAME PROVING CONTROLS.

PART 4: SEQUENCE OF OPERATIONS FOR HVAC CONTROLS

DECENTRALIZED, ROOFTOP UNITS:

A.1. SEQUENCE OF OPERATION FOR RTU & RTU WITH ERV.

A.2. SEQUENCE OF OPERATION FOR RTU & RTU WITH ERV.

A.3. SEQUENCE OF OPERATION FOR RTU & RTU WITH ERV.

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TEMPERATURE LIMIT SWITCH.

4. UNIT SHALL BE EQUIPPED WITH ANTI-CYCLE PROTECTION WITH ONE SHORT CYCLE ON UNIT FLAME ROLLOUT SWITCH OR A CONTINUOUS SHORT CYCLES ON THE HIGH TEMPERATURE LIMIT SWITCH. FAULT INDICATION SHALL BE MADE USING AN LED.

C. STANDARD HEAT EXCHANGER CONSTRUCTION

1. HEAT EXCHANGER SHALL BE OF THE TUBULAR-SECTION TYPE CONSTRUCTED OF A MINIMUM OF 20-GAUGE STEEL COATED WITH A NOMINAL 1/2 MIL ALUMINUM-SILOXONE ALLOY FOR CORROSION RESISTANCE.

2. BURNERS SHALL BE OF THE IN-SHOT TYPE CONSTRUCTED OF ALUMINUM-COATED STEEL.

3. BURNERS SHALL INCORPORATE ORIFICES FOR RATED HEAT INPUT TO 2000 FT. (610M) ELEVATION. ADDITIONAL ACCESSORY KITS MAY BE REQUIRED FOR APPLICATIONS ABOVE 2000 FT. (610M) ELEVATION, DEPENDING ON LOCAL GAS SUPPLY CONDITIONS.

4. MOIST EXCHANGER TUBES SHALL BE PROVIDED WITH MULTIPLE DIMPLES FOR INCREASED HEATING EFFECTIVENESS.

D. INDUCED DRAFT COMBUSTION MOTOR AND BLOWER

1. SHALL BE A DIRECT-DRIVE, SINGLE INLET, FORWARD-CURVED CENTRIFUGAL TYPE.

2. SHALL BE MADE FROM STEEL WITH A CORROSION-RESISTANT FINISH.

3. SHALL HAVE PERMANENTLY LUBRICATED SEALED BEARINGS.

4. SHALL HAVE INHERENT THERMAL OVERLOAD PROTECTION.

5. SHALL HAVE AN AUTOMATIC RESET FEATURE.

6.1. COILS

A. STANDARD ALUMINUM FIN/COOPER TUBE COILS:

1. STANDARD EVAPORATOR AND CONDENSER COILS SHALL HAVE ALUMINUM LANCED PLATE FINS MECHANICALLY BONDED TO SEAMLESS INTERNALLY GROOVED COPPER TUBES WITH ALL JOINTS BRAZED.

2. EVAPORATOR COILS SHALL BE LEAK TESTED TO 150 PSIG; PRESSURE TESTED TO 450 PSIG, AND QUALIFIED TO UL 1995 BURST TEST AT 1775 PSIG.

3. CONDENSER COILS SHALL BE LEAK TESTED TO 150 PSIG; PRESSURE TESTED TO 650 PSIG, AND QUALIFIED TO UL 1995 BURST TEST AT 1980 PSIG.

B. REFRIGERANT COMPONENTS

A. REFRIGERANT CIRCUIT SHALL INCLUDE THE FOLLOWING CONTROL, SAFETY, AND MAINTENANCE FEATURES:

1. THERMOSTATIC EXPANSION VALVE (TXV) SHALL HELP PROVIDE OPTIMUM PERFORMANCE ACROSS THE ENTIRE OPERATING RANGE.

2. SHALL CONTAIN REMOVABLE POWER ELEMENT TO ALLOW CHANGE OUT OF POWER ELEMENT AND BULB WITHOUT REMOVING THE VALVE BODY.

3. REFRIGERANT FILTER DRIER – SOLID CORE DESIGN.

4. SERVICE GAUGE CONNECTIONS ON SUCTION AND DISCHARGE LINES.

5. PRESSURE GAUGE ACCESS THROUGH A SPECIALLY DESIGNED ACCESS PORT IN THE TOP PANEL OF THE UNIT.

6. THERE SHALL BE GAUGE LINE ACCESS PORT IN THE SOIN OF THE ROOFTOP, COVERED BY A BLACK, REMOVABLE PLUG.

7. WHEN THE PLUG IS REMOVED, THE GAUGE ACCESS PORT SHALL ENABLE MAINTENANCE PERSONNEL TO ROUTE THEIR PRESSURE GAUGE LINES.

8. THIS GAUGE ACCESS PORT SHALL FACILITATE CORRECT AND ACCURATE CONDENSER PRESSURE READINGS BY ENABLING THE READING WITH THE COMPRESSOR ACCESS PANEL ON.

9. THE PLUG SHALL BE MADE OF A LEAK PROOF, UV-RESISTANT, COMPOSITE MATERIAL.

C. COMPRESSORS

1. UNIT SHALL USE FULLY HERMETIC, SCROLL COMPRESSOR FOR EACH INDEPENDENT REFRIGERATION CIRCUIT.

2. MODELS SHALL BE AVAILABLE WITH SINGLE COMPRESSOR/SINGLE STAGE COOLING DESIGNS ON 04 – 07 SIZES MODELS, AND 2 COMPRESSOR/2-STAGE COOLING MODELS ON 08 – 14 SIZES.

3. MODELS SHALL BE AVAILABLE WITH SINGLE COMPRESSOR/SINGLE STAGE COOLING DESIGNS ON 04 – 07 SIZES MODELS, AND 2 COMPRESSOR/2-STAGE COOLING MODELS ON 08 – 14 SIZES.

4. COMPRESSOR MOTORS SHALL BE COOLED BY REFRIGERANT GAS PASSING THROUGH MOTOR WINDINGS.

5. COMPRESSORS SHALL BE PROTECTED FROM HIGH DISCHARGE TEMPERATURES BY THERMAL PROTECTION DEVICES.

6. COMPRESSORS SHALL BE PROTECTED FROM OVER-TEMPERATURE AND OVER-AMPERAGE CONDITIONS BY AN INTERNAL MOTOR OVERLOAD DEVICE.

7. COMPRESSOR SHALL BE FACTORY MOUNTED ON RUBBER GROMMETS.

8. COMPRESSOR MOTORS SHALL HAVE INTERNAL LINE BREAK THERMAL, CURRENT OVERLOAD AND HIGH PRESSURE DIFFERENTIAL PROTECTION.

9. CRANKCASE HEATERS SHALL NOT BE REQUIRED FOR NORMAL OPERATING RANGE, UNLESS PROVIDED BY THE FACTORY.

D. FILTER SECTION

A. FILTERS ACCESS IS SPECIFIED IN THE UNIT CABINET SECTION OF THIS SPECIFICATION.

B. FILTERS SHALL BE HELD IN PLACE BY A PIVOTING FILTER TRAY, FACILITATING EASY REMOVAL AND INSTALLATION.

C. SHALL CONSIST OF FACTORY-INSTALLED, LOW VELOCITY, THROU-AWAY 2-IN. THICK FIBERGLASS FILTERS.

D. FILTERS SHALL BE STANDARD, COMMERCIALY AVAILABLE SIZES.

E. ONLY ONE SIZE FILTER PER UNIT IS ALLOWED.

6.1. EVAPORATOR FAN AND MOTOR



1 MECHANICAL ZONING PLAN
3/16" = 1'-0"

CDi
620 Pennsylvania Ave
Winchester, VA 22601
Phone 540-665-2846
Fax 540-667-3284

Comfort Design Inc.
Mechanical & Electrical
Engineers
Job # E2119

MECHANICAL
ZONING PLAN

DRAWN BY: JLC
CHECKED BY: CRS
SCALE: AS NOTED
DATE: 20 OCT 2021
PROJECT NO: 2019

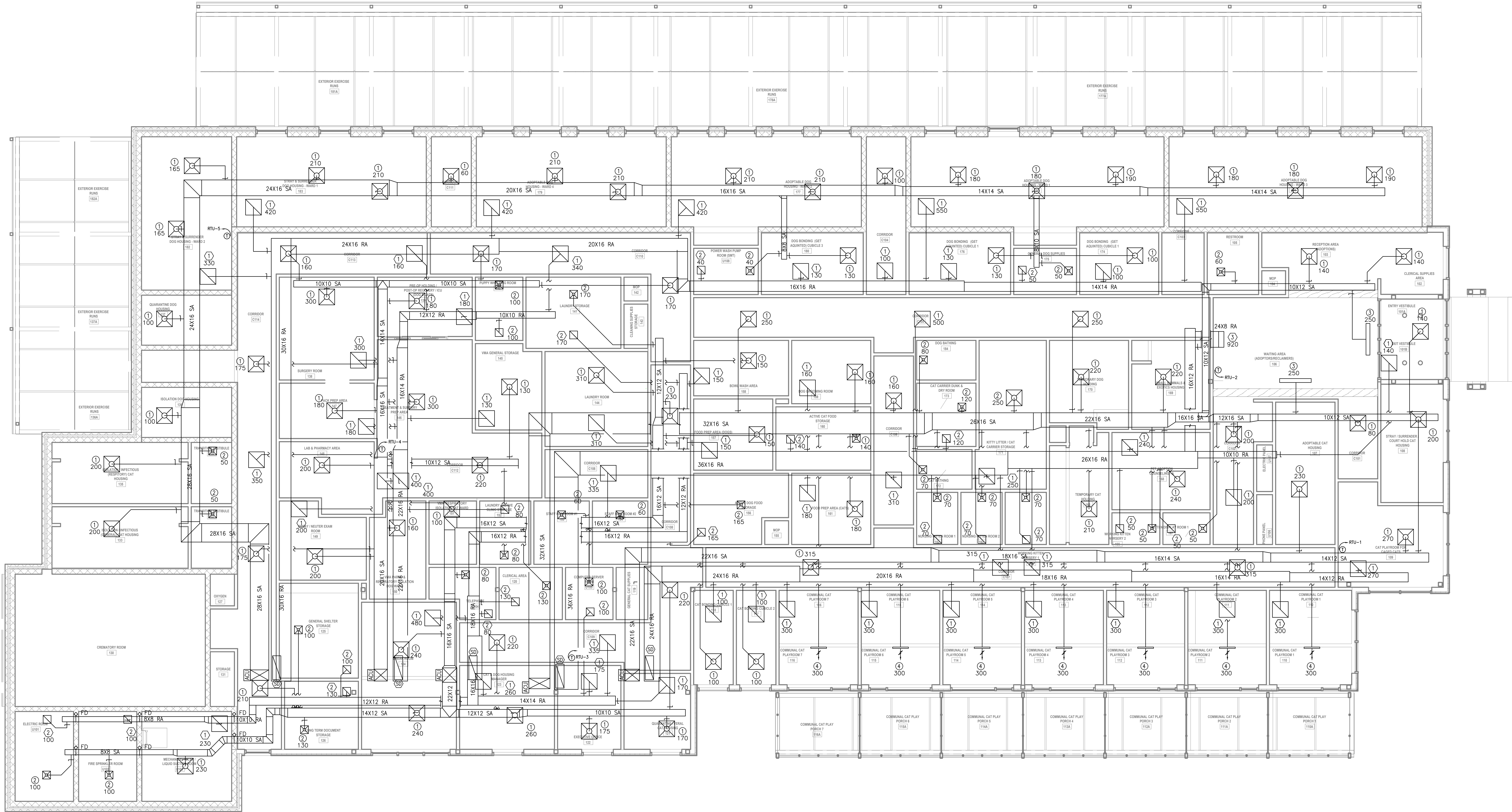
CAPITAL PROJECT 1483
CONSTRUCTION OF A NEW ANIMAL SHELTER FACILITY
65 FIREMENS MEMORIAL DRIVE, POMONA, NY 10970

East Coast Office
97 Broadway
Pomona, NY 10970
T: 845.268.2550
F: 845.268.2557

ARCHITECTS
SCALE

NO.	REVISION	DESCRIPTION	DATE
1			11.11.21

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1 MECHANICAL FLOOR PLAN
3/16" = 1'-0"

CDi
620 Pennsylvania Ave
Winchester, VA 22601
Phone 540-665-2846
Fax 540-667-3284

Comfort Design Inc.
Mechanical & Electrical
Engineers
Job # E2119

**MECHANICAL FLOOR
PLAN**

DRAWN BY: JLC
CHECKED BY: CRS
SCALE: AS NOTED
DATE: 20 OCT 2021
PROJECT NO: 2019

PROGRESS SET ☐ BID SET ☒ PERMIT SET ☐ CONSTRUCTION SET ☐

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CAPITAL PROJECT 1483
CONSTRUCTION OF A NEW ANIMAL SHELTER FACILITY
65 FIREMENS MEMORIAL DRIVE, POMONA, NY 10970

ARCHITECTS
SCAL

East Coast Office
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New York, NY 10006
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F: 212 691 1112

West Coast Office
23101 Mulliken Pkwy #106
Escondido, CA 92025
T: 858 586 0000
F: 858 586 8888

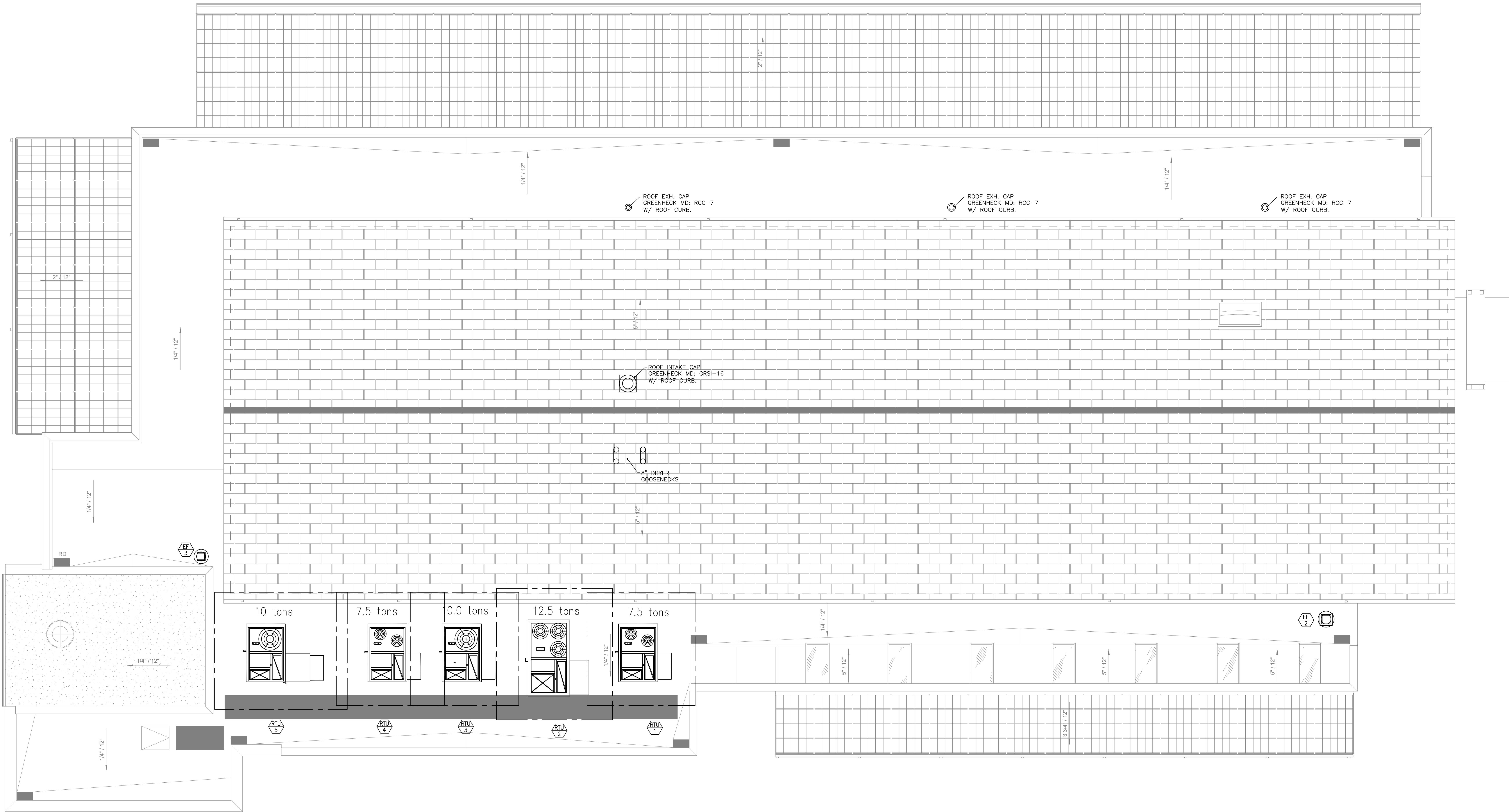
rauhaus fredenfeld & associates

REVISION	DESCRIPTION	DATE
NO.	ADDENDUM #1	11.11.21
1		



Comfort Design Inc.
Mechanical & Electrical
Engineers

Job # E2119



1 MECHANICAL ROOF PLAN
3/16" = 1'-0"

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620 Pennsylvania Ave
Winchester, VA 22601
Phone 540-665-2846
Fax 540-667-3284

Comfort Design Inc.
Mechanical & Electrical
Engineers
Job # E2119

**MECHANICAL
ROOF PLAN**

DRAWN BY: JLC
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SCALE: AS NOTED
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**CAPITAL PROJECT 1483
CONSTRUCTION OF A NEW ANIMAL SHELTER FACILITY
65 FIREMENS MEMORIAL DRIVE, POMONA, NY 10970**



East Coast Office
97 Broadway
Pomona, NY 10970
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F: 847.336.2557

West Coast Office
23101 Mulliken Pkwy #106
Troy, CA 92653
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F: 949.318.9559

ARCHITECTS
SEAL

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1		ADDENDUM #1	11.11.21