# H.V.A.C. SPECIFICATIONS:

x) MANUFACTURER SUPPLIED LOW AMBIENT KIT SHALL BE PROVIDED WITH PREDESIGNED CONTROL BOX RATED FOR OUTDOOR INSTALLATION AND CAPABLE OF CONTROLLING KIT OPERATION AUTOMATICALLY IN ALL OUTDOOR UNIT OPERATION MODES.

xi) MANUFACTURER SUPPLIED LOW AMBIENT KIT SHALL BE LISTED BY ELECTRICAL LABORATORIES (ETL) AND BEAR THE ETL LABEL.

xii) MANUFACTURER SUPPLIED LOW AMBIENT KIT SHALL BE FACTORY TESTED IN LOW AMBIENT TEMPERATURE CHAMBER TO ENSURE OPERATION. FACTORY PERFORMANCE TESTING DATA SHALL BE AVAILABLE WHEN REQUESTED.

xiii) THE OUTDOOR UNIT SHALL BE PROVIDED WITH A MANUFACTURER SUPPLIED 20 GAUGE HOT DIPPED GALVANIZED SNOW /HAIL GUARD. THE SNOW/HAIL GUARD PROTECTS THE OUTDOOR COIL SURFACES FROM HAIL DAMAGE AND SNOW BUILD-UP IN SEVERE CLIMATES.

xiv) THE OUTDOOR UNIT SHALL HAVE A HIGH EFFICIENCY OIL SEPARATOR PLUS ADDITIONAL LOGIC CONTROLS TO ENSURE ADEQUATE OIL VOLUME IN THE COMPRESSOR IS MAINTAINED.

xv) UNIT MUST DEFROST ALL CIRCUITS SIMULTANEOUSLY IN ORDER TO RESUME FULL HEATING MORE QUICKLY. PARTIAL DEFROST WHICH MAY EXTEND "NO OR REDUCED HEATING" PERIODS SHALL NOT BE ALLOWED.

b. UNIT CABINET:

i) THE CASING(S) SHALL BE FABRICATED OF GALVANIZED STEEL, BONDERIZED AND FINISHED. UNITS CABINETS SHALL BE ABLE TO WITHSTAND 960 HOURS PER ASTM B117 CRITERIA FOR SEACOAST PROTECTED MODELS (-BS MODELS).

c. FAN:

i) EACH OUTDOOR UNIT MODULE SHALL BE FURNISHED WITH ONE DIRECT DRIVE, VARIABLE SPEED PROPELLER TYPE FAN. THE FAN SHALL BE FACTORY SET FOR OPERATION UNDER 0 IN. WG EXTERNAL STATIC PRESSURE, BUT CAPABLE OF NORMAL OPERATION UNDER A MAXIMUM OF 0.24 IN. WG EXTERNAL STATIC PRESSURE VIA DIPSWITCH.

ii) ALL FAN MOTORS SHALL HAVE INHERENT PROTECTION, HAVE PERMANENTLY LUBRICATED BEARINGS, AND BE COMPLETELY VARIABLE SPEED.

iii) ALL FAN MOTORS SHALL BE MOUNTED FOR QUIET OPERATION.

iv) ALL FANS SHALL BE PROVIDED WITH A RAISED GUARD TO PREVENT CONTACT WITH MOVING PARTS.

v) THE OUTDOOR UNIT SHALL HAVE VERTICAL DISCHARGE AIRFLOW.

d. REFRIGERANT:

i) R410A REFRIGERANT SHALL BE REQUIRED FOR PURY OUTDOOR UNIT SYSTEMS.

ii) POLYOLESTER (POE) OIL SHALL BE REQUIRED. PRIOR TO BIDDING, MANUFACTURERS USING ALTERNATE OIL TYPES SHALL SUBMIT MATERIAL SAFETY DATA SHEETS (MSDS) AND COMPARISON OF HYGROSCOPIC PROPERTIES FOR ALTERNATE OIL WITH LIST OF LOCAL SUPPLIERS STOCKING ALTERNATE OIL FOR APPROVAL AT LEAST TWO WEEKS PRIOR TO BIDDING.

e. COIL:

i) THE OUTDOOR COIL SHALL BE OF NONFERROUS CONSTRUCTION WITH LANCED OR CORRUGATED PLATE FINS ON COPPER TUBING.

ii) THE COIL FINS SHALL HAVE A FACTORY APPLIED CORROSION RESISTANT BLUE-FIN FINISH.

iii) THE COIL SHALL BE PROTECTED WITH AN INTEGRAL METAL GUARD.

iv) REFRIGERANT FLOW FROM THE OUTDOOR UNIT SHALL BE CONTROLLED BY MEANS OF AN INVERTER DRIVEN COMPRESSOR.

v) THE OUTDOOR COIL SHALL INCLUDE 4 CIRCUITS WITH TWO POSITION VALVES FOR EACH CIRCUIT, EXCEPT FOR THE LAST STAGE.

f. COMPRESSOR:

i) EACH OUTDOOR UNIT MODULE SHALL BE EQUIPPED WITH ONE INVERTER DRIVEN SCROLL HERMETIC COMPRESSOR. NON INVERTER-DRIVEN COMPRESSORS, WHICH CAUSE INRUSH CURRENT (DEMAND CHARGES) AND REQUIRE LARGER WIRE SIZING, SHALL NOT BE ALLOWED.

ii) A CRANKCASE HEATER(S) SHALL BE FACTORY MOUNTED ON THE COMPRESSOR(S).

iii) THE OUTDOOR UNIT COMPRESSOR SHALL HAVE AN INVERTER TO MODULATE CAPACITY. THE CAPACITY SHALL BE COMPLETELY VARIABLE WITH A TURNDOWN OF 19%-5% OF RATED CAPACITY, DEPENDING UPON UNIT SIZE.

iv) THE COMPRESSOR WILL BE EQUIPPED WITH AN INTERNAL THERMAL OVERLOAD.

v) THE COMPRESSOR SHALL BE MOUNTED TO AVOID THE TRANSMISSION OF VIBRATION.

vi) FIELD-INSTALLED OIL EQUALIZATION LINES BETWEEN MODULES ARE NOT ALLOWED. PRIOR TO BIDDING, MANUFACTURERS REQUIRING EQUALIZATION MUST SUBMIT OIL LINE SIZING CALCULATIONS SPECIFIC TO EACH SYSTEM AND MODULE PLACEMENT FOR THIS PROJECT.

g. ELECTRICAL:

i) THE OUTDOOR UNIT ELECTRICAL POWER SHALL BE 460 VOLTS, 3-PHASE, 60 HERTZ.

ii) THE OUTDOOR UNIT SHALL BE CAPABLE OF SATISFACTORY OPERATION WITHIN VOLTAGE LIMITS OF 414-506 VOLTS.

iii) THE OUTDOOR UNIT SHALL BE CONTROLLED BY INTEGRAL MICROPROCESSORS.

iv) THE CONTROL CIRCUIT BETWEEN THE INDOOR UNITS, BC CONTROLLER AND THE OUTDOOR UNIT SHALL BE 24VDC COMPLETED USING A 2-CONDUCTOR, TWISTED PAIR SHIELDED CABLE TO PROVIDE TOTAL INTEGRATION OF THE SYSTEM.

h. CONTROLS:

iw) THE OUTDOOR UNIT SHALL HAVE THE CAPABILITY OF UP TO 8 LEVELS OF DEMAND CONTROL FOR EACH REFRIGERANT SYSTEM.

D. WALL MOUNTED INDOOR UNIT (AHU-x):

a. GENERAL:

a) THE UNIT SHALL BE A WALL-MOUNTED INDOOR UNIT SECTION AND SHALL HAVE A MODULATING LINEAR EXPANSION DEVICE AND A FLAT FRONT. THE UNIT SHALL BE USED WITH THE OUTDOOR UNIT

b. INDOOR UNIT

i) THE INDOOR UNIT SHALL BE FACTORY ASSEMBLED, WIRED AND RUN TESTED. CONTAINED WITHIN THE UNIT SHALL BE ALL FACTORY WIRING, PIPING, ELECTRONIC MODULATING LINEAR EXPANSION DEVICE, CONTROL CIRCUIT BOARD AND FAN MOTOR. THE UNIT SHALL HAVE A SELF-DIAGNOSTIC FUNCTION, 3-MINUTE TIME DELAY MECHANISM, AN AUTO RESTART FUNCTION, AND A TEST RUN SWITCH. INDOOR UNIT AND REFRIGERANT PIPES SHALL BE CHARGED WITH DEHYDRATED AIR BEFORE SHIPMENT FROM THE FACTORY.

c. UNIT CABINET:

i) ALL CASINGS, REGARDLESS OF MODEL SIZE, SHALL HAVE THE SAME WHITE FINISH.

ii) MULTI DIRECTIONAL DRAIN AND REFRIGERANT PIPING OFFERING FOUR (4) DIRECTIONS FOR REFRIGERANT PIPING AND TWO (2) DIRECTIONS FOR DRAINING SHALL BE STANDARD.

iii) THERE SHALL BE A SEPARATE BACK PLATE WHICH SECURES THE UNIT FIRMLY TO THE WALL.

d. FAN:

i) THE INDOOR FAN SHALL BE AN ASSEMBLY WITH ONE OR TWO LINE-FLOW FAN(S) DIRECT DRIVEN BY A SINGLE MOTOR.

ii) THE INDOOR FAN SHALL BE STATICALLY AND DYNAMICALLY BALANCED TO RUN ON A MOTOR WITH PERMANENTLY LUBRICATED BEARINGS.

iii) A MANUAL ADJUSTABLE GUIDE VANE SHALL BE PROVIDED WITH THE ABILITY TO CHANGE THE AIRFLOW FROM SIDE TO SIDE (LEFT TO RIGHT).

iv) A MOTORIZED AIR SWEEP LOUVER SHALL PROVIDE AN AUTOMATIC CHANGE IN AIRFLOW BY DIRECTING THE AIR UP AND DOWN TO PROVIDE UNIFORM AIR DISTRIBUTION.

e. FILTER:

i) RETURN AIR SHALL BE FILTERED BY MEANS OF AN EASILY REMOVABLE, WASHABLE FILTER.

f. COIL:

i) THE INDOOR COIL SHALL BE OF NONFERROUS CONSTRUCTION WITH SMOOTH PLATE FINS ON COPPER TUBING.

ii) THE TUBING SHALL HAVE INNER GROOVES FOR HIGH EFFICIENCY HEAT EXCHANGE.

iii) ALL TUBE JOINTS SHALL BE BRAZED WITH PHOS-COPPER OR SILVER ALLOY.

iv) THE COILS SHALL BE PRESSURE TESTED AT THE FACTORY.

v) A CONDENSATE PAN AND DRAIN SHALL BE PROVIDED UNDER THE COIL.

vi) BOTH REFRIGERANT LINES TO THE INDOOR UNITS SHALL BE INSULATED IN ACCORDANCE WITH THE INSTALLATION MANUAL.

g. ELECTRICAL:

i) THE UNIT ELECTRICAL POWER SHALL BE AS SCHEDULED.

ii) THE SYSTEM SHALL BE CAPABLE OF SATISFACTORY OPERATION WITHIN VOLTAGE LIMITS OF 414-506 VOLTS (460 - 3-PHASE).

h. CONTROLS:

a) THIS UNIT SHALL USE CONTROLS TO PERFORM FUNCTIONS NECESSARY TO OPERATE THE SYSTEM.

b) THE UNIT SHALL HAVE A FACTORY BUILT IN RECEIVER FOR WIRELESS REMOTE CONTROL

c) INDOOR UNIT SHALL COMPENSATE FOR THE HIGHER TEMPERATURE SENSED BY THE RETURN AIR SENSOR COMPARED TO THE TEMPERATURE AT LEVEL OF THE OCCUPANT WHEN IN HEAT MODE. DISABLING OF COMPENSATION SHALL BE POSSIBLE FOR INDIVIDUAL UNITS TO ACCOMMODATE INSTANCES WHEN COMPENSATION IS NOT REQUIRED.

d) CONTROL BOARD SHALL INCLUDE CONTACTS FOR CONTROL OF EXTERNAL HEAT SOURCE. EXTERNAL HEAT MAY BE ENERGIZED AS SECOND STAGE WITH 1.8°F - 9.0°F ADJUSTABLE DEADBAND FROM SET POINT.

e) INDOOR UNIT SHALL INCLUDE NO LESS THAN FOUR (4) DIGITAL INPUTS CAPABLE OF BEING USED FOR CUSTOMIZABLE CONTROL STRATEGIES. INDOOR UNIT SHALL INCLUDE NO LESS THAN THREE (3) DIGITAL OUTPUTS CAPABLE OF BEING USED FOR CUSTOMIZABLE CONTROL STRATEGIES.

E. EXHAUST FAN - (EF-x):

1) ROOF EXHAUST FANS SHALL BE CENTRIFUGAL BELT DRIVEN TYPE. THE FAN WHEEL SHALL BE CENTRIFUGAL BACKWARD INCLINED, CONSTRUCTED OF ALUMINUM AND SHALL INCLUDE A WHEEL CONE CAREFULLY MATCHED TO THE INLET CONE FOR PRECISE RUNNING TOLERANCES. WHEELS SHALL BE STATICALLY AND DYNAMICALLY BALANCED. THE FAN HOUSING SHALL BE CONSTRUCTED OF HEAVY GAUGE ALUMINUM WITH A RIGID INTERNAL SUPPORT STRUCTURE. THE FAN SHROUD SHALL HAVE A ROLLED BEAD FOR ADDED STRENGTH. GALVANIZED RIGID WIRE PROTECTS THE FAN'S DISCHARGE FROM BIRDS OR SMALL OBJECTS.

2) MOTORS SHALL BE HEAVY DUTY BALL BEARING TYPE, CAREFULLY MATCHED TO THE FAN LOAD, AND FURNISHED AT THE SPECIFIED VOLTAGE, PHASE AND ENCLOSURE. MOTORS AND DRIVES SHALL BE MOUNTED ON VIBRATION ISOLATORS, OUT OF THE AIRSTREAM. FRESH AIR FOR MOTOR COOLING SHALL BE DRAWN INTO THE MOTOR COMPARTMENT FROM AN AREA FREE OF DISCHARGE CONTAMINANTS. MOTORS SHALL BE READILY ACCESSIBLE FOR MAINTENANCE.

3) DRIVE FRAME ASSEMBLIES SHALL BE CONSTRUCTED OF HEAVY GAUGE STEEL AND MOUNTED ON VIBRATION ISOLATORS. PRECISION GROUND AND POLISHED FAN SHAFTS SHALL BE MOUNTED IN PERMANENTLY SEALED, LUBRICATED PILLOW BLOCK BALL BEARINGS. BEARINGS SHALL BE SELECTED FOR A MINIMUM (L10) LIFE IN EXCESS OF 100,000 HOURS AT MAXIMUM CATALOGED OPERATING SPEED. DRIVES SHALL BE SIZED FOR A MINIMUM OF 150 PERCENT OF DRIVEN HORSEPOWER. PULLEYS SHALL BE OF THE FULLY MACHINED CAST IRON TYPE, KEYED AND SECURELY ATTACHED TO THE WHEEL AND MOTOR SHAFTS. MOTOR PULLEYS SHALL BE ADJUSTABLE FOR FINAL SYSTEM BALANCING.

4) A DISCONNECT SWITCH SHALL BE FACTORY INSTALLED AND WIRED FROM THE FAN MOTOR TO A JUNCTION BOX INSTALLED WITHIN THE MOTOR COMPARTMENT.

5) A FAN CONDUIT CHASE SHALL BE PROVIDED THROUGH THE CURB CAP TO THE MOTOR COMPARTMENT FOR EASE OF INSTALLATION.

6) ALL FANS SHALL BEAR THE AMCA CERTIFIED RATINGS SEAL FOR SOUND AND AIR PERFORMANCE.

7) EACH FAN SHALL BEAR A PERMANENTLY AFFIXED MANUFACTURER'S NAMEPLATE CONTAINING THE MODEL NUMBER AND INDIVIDUAL SERIAL NUMBER FOR FUTURE IDENTIFICATION.

8) ACCEPTABLE MANUFACTURERS:

a. GREENHECK (BASIS OF DESIGN).
b. LOREN COOK.
c. APPROVED EQUAL.

F. CONDENSATE PUMPS (CP'S):

1) GENERAL:

a. FURNISH AND INSTALL CONDENSATE PUMPS AND CONNECT TO DRAINS AS INDICATED ON THE DRAWINGS.

b. CONDENSATE PUMP SHALL BE IN-LINE, AUTOMATIC PUMP SIMILAR TO LITTLE GIANT TYPE 554200 - VCC-20ULS. PUMP SHALL BE CAPABLE OF OPERATION WITH 120V, 1 PHASE, 60 HZ POWER. PUMP SHALL BE RATED AT 25 GPH @ 15 FEET OF HEAD.

c. PUMP SHALL HAVE 1/20 HP MOTOR WITH SINGLE POINT, HARD WIRED ELECTRICAL CONNECTION.

d. CONDENSATE PUMP SHALL HAVE FOLLOWING FEATURES: VERTICAL TYPE PUMP UNIT; LEAK PROOF, RUSTPROOF, HIGH-IMPACT POLYSTYRENE TANK; ABS MOTOR AND TANK COVER; VOLUTE AND IMPELLER; STAINLESS STEEL SHAFT; SNAP ACTION SWITCH; BARBED DISCHARGE; THERMAL OVERLOAD PROTECTION.

e. PROVIDE DISCONNECT SWITCH IF UNIT IS HARDWIRED (NOT PLUGGED INTO A STANDARD WALL OUTLET).

f. PROVIDE CHECK VALVE AT PUMP DISCHARGE IF NOT FACTORY PROVIDED WITH UNIT.

g. OUTLET PIPING SHOULD BE FLEXIBLE TUBING OR PIPE SUITABLE FOR CONNECTION TO BARBED CHECK VALVE AT PUMP OUTLET (3/8" I.D. MAX. TO PREVENT EXCESSIVE FLOW BACK TO UNIT).

18. AUTOMATIC CONTROLS- GENERAL REQUIREMENT:

1) FURNISH AND INSTALL A COMPLETE ELECTRIC OR ELECTRONIC CONTROL SYSTEM TO PROVIDE TEMPERATURE CONTROL AS SPECIFIED UNDER SEQUENCE OF OPERATION AND DAINTREE CONTROLS SPECIFICATIONS AS REQUIRED.

2) WORK SHALL INCLUDE ALL WIRING, CONTROL EQUIPMENT, AND ACCESSORIES NECESSARY TO MAKE THIS SYSTEM COMPLETE. ALL WIRING SHALL BE 24 VOLT. ALL OUTDOOR CONTROL WIRING SHALL BE INSTALLED WITHIN ELECTRICAL CONDUIT. COORDINATE WITH MANUFACTURER FOR INTERCONNECTION WITH CONTROLS INCLUDED IN EQUIPMENT. ALL CONTROL WORK SHALL BE INSTALLED BY HVAC CONTRACTOR.

3) ACCEPTABLE MANUFACTURERS:

h. DAINTREE.

4) OPERATION OF TYPICAL CONTROL SAFETY DEVICES.

a. HOA SUPPLY FAN SWITCHES: SAFETY DEVICES SHALL BE INTERLOCKED WITH "HAND" AND "AUTOMATIC" POSITIONS IN SERIES WITH MOTOR CONTROLLER HOLDING COIL CIRCUIT. INTERLOCKING WITH OTHER FANS AND EQUIPMENT OF SYSTEM SHALL BE THROUGH "AUTOMATIC" POSITION ONLY. "HAND" POSITION SHALL BE FOR MAINTENANCE ONLY.

19. SEQUENCE OF OPERATION.

A. PACKAGED ROOFTOP UNIT (RTU-x):

1) OCCUPIED MODE AND EXTERIOR WALL IS CLOSED TO OUTSIDE.

a. SUPPLY FAN CONTROL: THE SUPPLY FAN RUNS CONTINUOUSLY AND IS CONSTANT VOLUME.

b. OUTSIDE AIR: OUTSIDE AIR DAMPER AND RETURN AIR DAMPER SHALL MODULATE TO A FLOW RATE OF (XXX CFM, ADJ.) OUTSIDE AIR TO PRESSURIZE THE SPACE.

c. HEATING MODE: THE HEATING MODE WILL BE ENABLED WHEN THE OUTSIDE AIR TEMPERATURE FALLS BELOW THE HEATING ENABLE SET POINT OF (66°F, ADJ.) AND THE UNIT IS NOT IN THE DEHUMIDIFICATION MODE. DURING THE HEATING MODE, THE DDC CONTROLLER SHALL MODULATE THE GAS FIRED HEATING BETWEEN STAGES TO MAINTAIN A RETURN AIR TEMPERATURE SET POINT OF (68°F, ADJ.).

d. COOLING MODE: THE COOLING MODE WILL BE ENABLED WHEN THE OUTSIDE AIR TEMPERATURE RISES ABOVE THE COOLING ENABLE SET POINT OF (75°F, ADJ.) DURING THE COOLING MODE, THE DDC CONTROLLER WILL MODULATE AND STAGE COOLING TO MAINTAIN A RETURN AIR TEMPERATURE SET POINT OF (74°F, ADJ.). COOLING STAGES ARE MAINTAINED BY ADJUSTABLE MINIMUM ON, OFF, STAGE UP AND STAGE DOWN TIMERS.

e. DEHUMIDIFICATION MODE: THE DEHUMIDIFICATION MODE WILL BE ENABLED WHEN THE OUTSIDE AIR DEW POINT RISES ABOVE THE DEHUMIDIFCATION ENABLE DEW POINT SET POINT (56°F, ADJ.). DURING THE DEHUMIDIFICATION MODE, THE DDC CONTROLLER WILL MODULATE AND STAGE COOLING TO MAINTAIN THE SUPPLY AIR DEW POINT SET POINT OF (55°F, ADJ.) AND MODULATE THE REFRIGERANT HOT-GAS-REHEAT VALVE(S) TO MAINTAIN A RETURN AIR TEMPERATURE SET POINT OF (72°F, ADJ.).

2) OCCUPIED MODE AND EXTERIOR WALL IS OPEN TO OUTSIDE.

a. SUPPLY FAN CONTROL: THE SUPPLY FAN RUNS CONTINUOUSLY AND IS CONSTANT VOLUME.

b. OUTSIDE AIR: OUTSIDE AIR DAMPER AND RETURN AIR DAMPER SHALL MODULATE TO A FLOW RATE OF (XXX CFM, ADJ.) OUTSIDE AIR TO PRESSURIZE THE SPACE.

c. HEATING MODE: THE HEATING MODE WILL BE ENABLED WHEN THE OUTSIDE AIR TEMPERATURE FALLS BELOW THE HEATING ENABLE SET POINT OF (66°F, ADJ.) AND THE UNIT IS NOT IN THE DEHUMIDIFICATION MODE. DURING THE HEATING MODE, THE DDC CONTROLLER SHALL MODULATE THE GAS FIRED HEATING BETWEEN STAGES TO MAINTAIN A RETURN AIR TEMPERATURE SET POINT OF (68°F, ADJ.).

d. COOLING MODE: THE COOLING MODE WILL BE ENABLED WHEN THE OUTSIDE AIR TEMPERATURE RISES ABOVE THE COOLING ENABLE SET POINT OF (75°F, ADJ.) DURING THE COOLING MODE. THE DDC CONTROLLER WILL MODULATE AND STAGE COOLING TO MAINTAIN A RETURN AIR TEMPERATURE SET POINT OF (74°F, ADJ.). COOLING STAGES ARE MAINTAINED BY ADJUSTABLE MINIMUM ON, OFF, STAGE UP AND STAGE DOWN TIMERS.

e. DEHUMIDIFICATION MODE: THE DEHUMIDIFICATION MODE WILL BE ENABLED WHEN THE OUTSIDE AIR DEW POINT RISES ABOVE THE DEHUMIDIFCATION ENABLE DEW POINT SET POINT (56°F, ADJ.). DURING THE DEHUMIDIFICATION MODE, THE DDC CONTROLLER WILL MODULATE AND STAGE COOLING TO MAINTAIN THE SUPPLY AIR DEW POINT SET POINT OF (55°F, ADJ.) AND MODULATE THE REFRIGERANT HOT-GAS-REHEAT VALVE(S) TO MAINTAIN A RETURN AIR TEMPERATURE SET POINT OF (72°F, ADJ.).

3) SUPPLY FAN STATUS.

a. THE SUPPLY FAN STATUS INPUT MUST BE CLOSED FOR MECHANICAL HEATING OR COOLING TO OPERATE. IF THIS INPUT OPENS DURING NORMAL OPERATION, ALL MECHANICAL HEATING AND COOLING OUTPUTS WILL BE DEACTIVATED WITHIN 10 SECONDS AND AN ALARM WILL BE GENERATED.

4) EMERGENCY SHUTDOWN.

a. THE EMERGENCY SHUTDOWN INPUT MUST BE CLOSED FOR NORMAL OPERATION. IF THIS INPUT IS OPEN, NO OUTPUTS ON THE CONTROLLER WILL BE ACTIVATED. IF THIS INPUT OPENS DURING NORMAL OPERATION, ALL OF THE CONTROLLER OUTPUTS WILL BE DEACTIVATED WITHIN 10 SECONDS AND AN ALARM WILL BE GENERATED.

5) DIRTY FILTER.

a. IF THE DIRTY FILTER INPUT CLOSES DURING SUPPLY FAN OPERATION, AN ALARM WILL BE GENERATED INDICATING THE FILTERS NEED TO BE CHANGED.

6) FREEZE PROTECTION.

a. IF THE SUPPLY AIR TEMPERATURE FALLS BELOW THE FREEZE PROTECTION LIMIT (DEFAULT 40°F) AND THE FREEZE PROTECTION TIMER EXPIRES (DEFAULT 10 MINUTES), ALL OUTPUTS WILL BE DEACTIVATED AND AN ALARM WILL BE GENERATED. NORMAL OPERATION WILL BE RESTORED WHEN THE SUPPLY AIR TEMPERATURE RISES ABOVE THE FREEZE PROTECTION LIMIT BY 5°F.

7) SUCTION PRESSURE PROTECTION.

a. SUCTION PRESSURE IS USED TO UNLOAD THE COOLING AND DEHUMIDIFICATION PID LOOPS TO PROTECT AGAINST COIL FREEZING. UNLOADING OCCURS WHEN THE SUCTION PRESSURE DROPS TO 100 PSI (32°F). THIS PROCESS WILL STAGE DOWN OR MODULATE COMPRESSORS TO MAINTAIN THE SUCTION PRESSURE ABOVE 100 PSI. IF DOWN TO ONE COMPRESSOR AT MINIMUM CAPACITY, THAT COMPRESSOR WILL TURN OFF IF THE SUCTION PRESSURE REMAINS UNDER 93 PSI (28°F) FOR UP TO 5 MINUTES. THE COMPRESSOR MUST REMAIN OFF FOR 5 MINUTES BEFORE RESTARTING. A LOW SUCTION PRESSURE ALARM WILL BE GENERATED.

8) HEAD PRESSURE CONTROL.

a. A DISCHARGE PRESSURE TRANSDUCER WILL BE MONITORED ON EACH COMPRESSOR OR REFRIGERANT CIRCUIT, USING INPUT FILTERS IN THE LOGIC TO AVERAGE EACH SIGNAL. THE CONDENSER FAN SIGNAL (VFD OR ECM) IS MODULATED TO MAINTAIN 110°F (365 PSI) CONDENSING TEMPERATURE DURING THE COOLING AND DEHUMIDIFICATION MODES. THE CONDENSER FAN SIGNAL RANGE IS FROM 20% MINIMUM TO 100% MAXIMUM. IF THE UNFILTERED, MAXIMUM HEAD PRESSURE RISES OVER 130°F (475 PSI) RAPIDLY, THE CONDENSER FANS WILL BE FORCED TO 100% UNTIL THE HEAD PRESSURE FALLS BACK TO SETPOINT.

9) ECONOMIZER (WHEN EXTERIOR DOORS ARE CLOSED): ECONOMIZER CYCLE SHALL BE CONTROLLED BY ENTHALPY SENSORS WHICH SHALL ALLOW COOLING WITH OUTDOOR AIR WHENEVER ENERGY WOULD OTHERWISE BE REQUIRED FOR COOLING. THE ECONOMIZER CYCLE SHALL BE ACTIVATED AUTOMATICALLY WHENEVER COOLING IS REQUIRED AND THE TOTAL LATENT AND SENSIBLE HEAT CONTENT OF OUTDOOR AIR IS LOWER THAN THAT OF THE INDOOR AIR. COMPRESSOR SHALL DE-ENERGIZE. SUPPLY FAN SHALL CONTINUE TO OPERATE. POWER EXHAUST FAN SHALL ENERGIZE. RETURN AIR DAMPER SHALL MODULATE CLOSED AS REQUIRED, OUTDOOR AIR INTAKE AND RELIEF AIR DISCHARGE DAMPERS SHALL MODULATE OPEN AS REQUIRED.

B. PACKAGED ROOFTOP UNIT (RTU-x):

1) H.V.A.C. SETPOINTS WILL BE ON AUTO BETWEEN 68°F AND 73°F DURING OCCUPIED HOURS.

2) H.V.A.C. SETPOINTS WIL BE ON AUTO BETWEEN 66°F AND 80°F DURING UNOCCUPIED HOURS.

3) FAN OFF: THROUGH PROGRAMMABLE THERMOSTAT SUPPLY FAN SHALL TURN OFF. COMPRESSOR SHALL DE-ENGERGIZE, CONDENSER FAN SHALL SHUT OFF.

4) FAN ON: THROUGH PROGRAMMABLE THERMOSTAT, EVAPORATOR FAN SHALL ENERGIZE, RETURN AIR, OUTDOOR AIR INTAKE AND RELIEF AIR DISCHARGE DAMPERS SHALL MODULATE TO THEIR MINIMUM VENTILATION POSITIONS, CONDENSER FANS SHALL REMAIN OFF, COMPRESSORS SHALL REMAIN OFF.

5) COOLING MODE: THROUGH PROGRAMMABLE THERMOSTAT EVAPORATOR FAN SHALL ENERGIZE, RETURN AIR, OUTDOOR AIR INTAKE AND RELIEF AIR DISCHARGE DAMPERS SHALL MODULATE TO THEIR MINIMUM VENTILATION POSITIONS, CONDENSER FANS SHALL ENERGIZE, COMPRESSORS SHALL ENERGIZE. UPON CALL FOR COOLING THERMOSTAT SHALL CYCLE COMPRESSORS TO MAINTAIN USER ADJUSTABLE SPACE TEMPERATURE SETPOINT.

6) HEATING MODE: THROUGH PROGRAMMABLE THERMOSTAT EVAPORATOR FAN SHALL ENERGIZE, RETURN AIR, OUTDOOR AIR INTAKE AND RELIEF AIR DISCHARGE DAMPERS SHALL MODULATE TO THEIR MINIMUM VENTILATION POSITIONS, SYSTEM SHALL INITIALLY PROVIDE FULL HEAT. ONCE SPACE TEMPERATURE IS SATISFIED, SYSTEM SHALL MODULATE TO MAINTAIN USER ADJUSTABLE SPACE TEMPERATURE SETPOINT.

7) ECONOMIZER: ECONOMIZER CYCLE SHALL BE CONTROLLED BY ENTHALPY SENSORS WHICH SHALL ALLOW COOLING WITH OUTDOOR AIR WHENEVER ENERGY WOULD OTHERWISE BE REQUIRED FOR COOLING. THE ECONOMIZER CYCLE SHALL BE ACTIVATED AUTOMATICALLY WHENEVER COOLING IS REQUIRED AND THE TOTAL LATENT AND SENSIBLE HEAT CONTENT OF OUTDOOR AIR IS LOWER THAN THAT OF THE INDOOR AIR. COMPRESSOR SHALL DE-ENERGIZE, SUPPLY FAN SHALL CONTINUE TO OPERATE, POWER EXHAUST FAN SHALL ENERGIZE, RETURN AIR DAMPER SHALL MODULATE CLOSED AS REQUIRED, OUTDOOR AIR INTAKE AND RELIEF AIR DISCHARGE DAMPERS SHALL MODULATE OPEN AS REQUIRED.

B. AIR COOLED SPLIT SYSTEMS: (ACCU-x):

1) ALL INDOOR UNITS SHALL BE TIED INTO THE INTELLIGENT TOUCH CENTRALIZED CONTROLLER, THEY SHALL ALSO HAVE A THERMOSTAT TIED INTO EACH UNIT AS SHOWN ON THE PLANS. THE CONTROLLER SHALL HAVE THE ABILITY TO OVER-RIDE THE THERMOSTATS.

2) COOLING SHALL BE ACTIVATED VIA A SPACE TEMPERATURE SENSOR. WHEN SPACE TEMPERATURE EXCEEDS THE (ADJUSTABLE) PRESET TEMPERATURE, COOLING MODE CIRCUITS SHALL ENERGIZE AND MAINTAIN PRESET TEMPERATURE. .

3) UPON DETECTION OF LEAKAGE, ALARM SHALL SOUND, SYSTEM SHALL SHUT OFF.

4) FAN OFF: AC UNIT SUPPLY FANS AND OUTDOOR CONDENSING UNITS SHALL DE-ENERGIZE.

C. SMOKE DETECTORS:

1) UPON SMOKE DETECTION, THE SMOKE DETECTOR SHALL AUTOMATICALLY SHUT DOWN THE AIR DISTRIBUTION SYSTEM.

D. TOILET EXHAUST FANS (EF-x):

1) TOILET EXHAUST FAN SHALL BE INTERLOCK WITH BUILDING TIME CLOCK AND SHALL OPERATE DURING OCCUPIED HOURS.

LEAK DETECTORS:

1) LEAK DETECTOR SHALL GENERATE A CONTROL SIGNAL WHENEVER WATER IS DETECTED. CONTROL SIGNAL SHALL NOTIFY TENANT OF THE ALARM CONDITION.
2) IF THE EQUIPMENT THE LEAK DETECTOR IS ASSOCIATED WITH CONTAINS WATER AND/OR IS FED BY A DOMESTIC WATER OR HYDRONIC WATER PIPING SYSTEM, THE LEAK DETECTOR SHALL BE WIRED TO THE CONTROL VALVE(S) OR A SPRING FAIL ISOLATION VALVE TO LIMIT THE DURATION OF THE LEAK.
3) IF THE EQUIPMENT THE LEAK DETECTOR IS ASSOCIATED WITH IS AN DX-COOLED HVAC UNIT, THE LEAK DETECTOR SHALL BE WIRED TO THE HVAC UNIT EMERGENCY SHUT-DOWN CONTACT TO LIMIT THE DURATION OF THE LEAK.
4) A REMOTE MOUNTED RED LED ALARM LIGHT SHALL PROVIDE A VISUAL ALARM, UNLESS DIRECTED OTHERWISE (COORDINATE WITH THE DESIGN TEAM LEADER(S)).

G. COMBINATION FIRE/SMOKE DAMPERS (FSD/AD):

1) ALL FIRE/SMOKE DAMPERS SHALL BE PROVIDED WITH DUCT MOUNTED SMOKE DETECTORS TO SHUTDOWN DAMPERS UPON DETECTION OF HEAT AND/OR SMOKE.

H. CONDENSATE PUMPS (CP'S):

1) THE PUMP IS CONTROLLED BY A FLOAT/SWITCH MECHANISM WHICH TURNS THE PUMP ON WHEN APPROXIMATELY 1" OF WATER COLLECTS IN THE TANK, AND AUTOMATICALLY SWITCHES OFF WHEN THE TANK DRAINS TO APPROXIMATELY ½".

2) SAFETY OVERFLOW SWITCH SHOULD BE CONNECTED TO A CLASS II LOW VOLTAGE CIRCUIT.


CapitalOne

CAPITAL ONE CAFE
THE COUNTRY CLUB PLAZA
430 NICHOLS ROAD, SPACE J430
KANSAS CITY, MO 64112

CHIPMAN DESIGN ARCHITECTURE INC
1350 E TOUHY AVE
FIRST FLOOR EAST
DES PLAINES, IL 60018
TEL:847.298.6900

WCW Engineers, Inc.
760 Creel Drive
Wood Dale, Illinois 60191
Tel. 630/595-8800
Fax 630/595-8818
www.WCWengineers.com


| △ | Date | Description |
|---|---|---|
| | 12/22/21 | ISSUED FOR PERMIT AND BID |
| △ | 01/21/22 | REVISION 1 |

Seal / Signature

STATE OF MISSOURI
JOSEPH G. THOMAS
NUMBER E-27428
REGISTERED PROFESSIONAL ENGINEER

Signature
Date 01/21/2022
Expiration Date 12/31/2023

I HEREBY CERTIFY THAT THESE PLANS HAVE BEEN PREPARED UNDER MY SUPERVISION AND THAT TO THE BEST OF MY KNOWLEDGE, THE SAMECOMPLY WITH ALL RULES, REGULATIONS, AND ORDINANCES OF KANSAS CITY, MO, RELATING TO STRUCTURES AND BUILDINGS.

Project Name
CAPITAL ONE CAFE - COUNTRY CLUB PLAZA

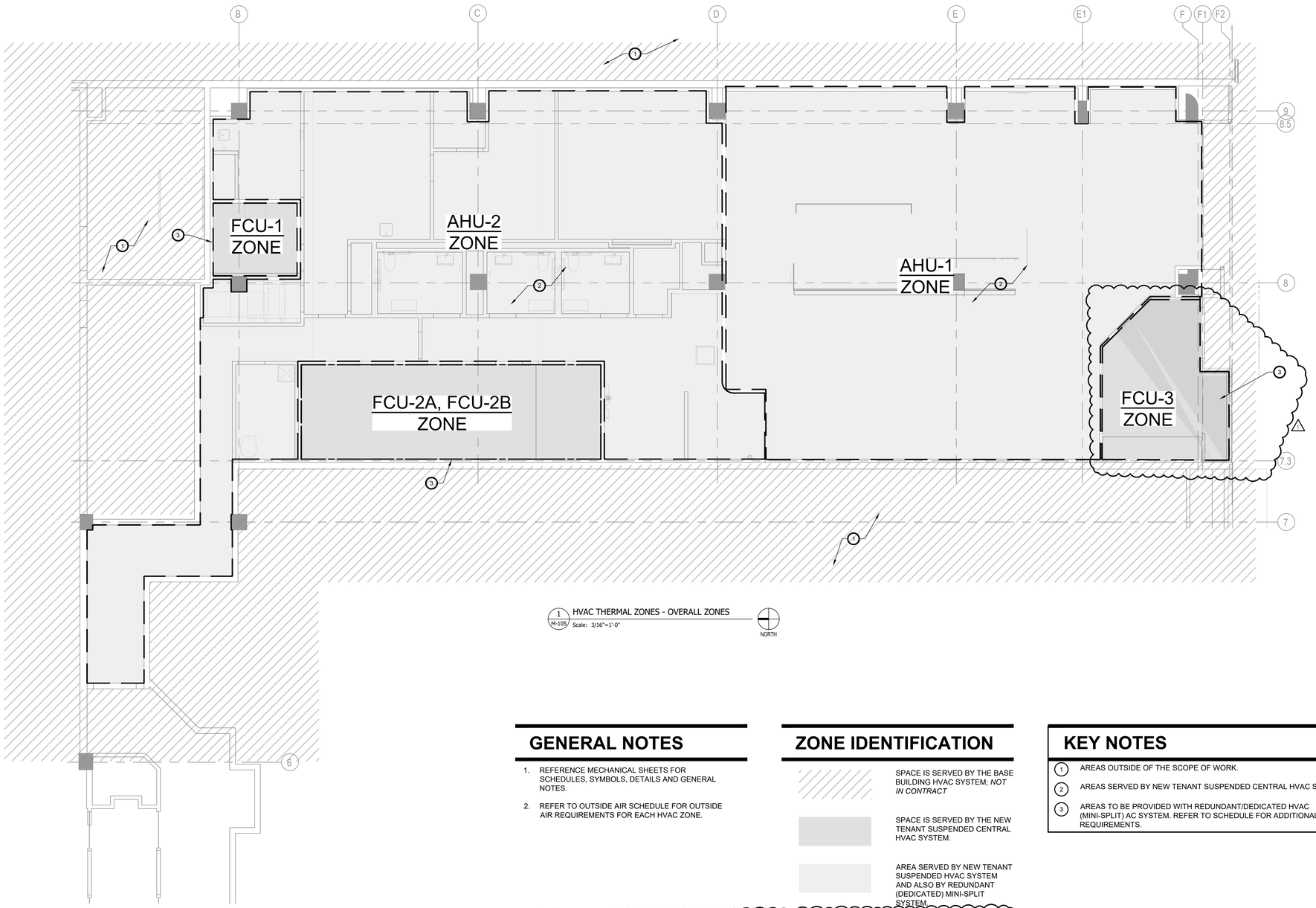
Project Number
21-1400.00

Description
MECHANICAL SPECIFICATIONS

Permit Number

Scale
NONE

**M-102**




1 M-105 HVAC THERMAL ZONES - OVERALL ZONES
Scale: 3/16"=1'-0"

NORTH

## GENERAL NOTES

1. REFERENCE MECHANICAL SHEETS FOR SCHEDULES, SYMBOLS, DETAILS AND GENERAL NOTES.
2. REFER TO OUTSIDE AIR SCHEDULE FOR OUTSIDE AIR REQUIREMENTS FOR EACH HVAC ZONE.

## ZONE IDENTIFICATION

SPACE IS SERVED BY THE BASE BUILDING HVAC SYSTEM; *NOT IN CONTRACT*

SPACE IS SERVED BY THE NEW TENANT SUSPENDED CENTRAL HVAC SYSTEM.

AREA SERVED BY NEW TENANT SUSPENDED HVAC SYSTEM AND ALSO BY REDUNDANT (DEDICATED) MINI-SPLIT SYSTEM.

## KEY NOTES

1. AREAS OUTSIDE OF THE SCOPE OF WORK.
2. AREAS SERVED BY NEW TENANT SUSPENDED CENTRAL HVAC SYSTEM.
3. AREAS TO BE PROVIDED WITH REDUNDANT/DEDICATED HVAC (MINI-SPLIT) AC SYSTEM. REFER TO SCHEDULE FOR ADDITIONAL REQUIREMENTS.

## THERMAL COMFORT

1. SYSTEMS ARE DESIGNED FOR AN INDOOR, OCCUPIED SET POINT OF 72°F WITH MAXIMUM 55% RELATIVE HUMIDITY FOR COOLING AND 68° F FOR HEATING.

Capital One

CAPITAL ONE CAFE
THE COUNTRY CLUB PLAZA
430 NICHOLS ROAD, SPACE J430
KANSAS CITY, MO 64112

CHIPMAN DESIGN ARCHITECTURE INC
1350 E TOUHY AVE
FIRST FLOOR EAST
DES PLAINES, IL 60018
TEL:847.298.6900

WCW Engineers, Inc.
760 Creel Drive
Wood Dale, Illinois 60191
Tel. 630/595-8800
Fax 630/595-8818
www.WCWengineers.com

| △ | Date | Description |
|---|---|---|
| | 12/22/21 | ISSUED FOR PERMIT AND BID |
| △ | 01/21/22 | REVISION 1 |

Seal / Signature

STATE OF MISSOURI
JOSEPH G. THOMAS
NUMBER E-27428
REGISTERED PROFESSIONAL ENGINEER

Signature
Date 01/21/2022
Expiration Date 12/31/2023

I HEREBY CERTIFY THAT THESE PLANS HAVE BEEN PREPARED UNDER MY SUPERVISION AND THAT TO THE BEST OF MY KNOWLEDGE, THE SAMECOMPLY WITH ALL RULES, REGULATIONS, AND ORDINANCES OF KANSAS CITY, MO, RELATING TO STRUCTURES AND BUILDINGS.

Project Name
CAPITAL ONE CAFE - COUNTRY CLUB PLAZA

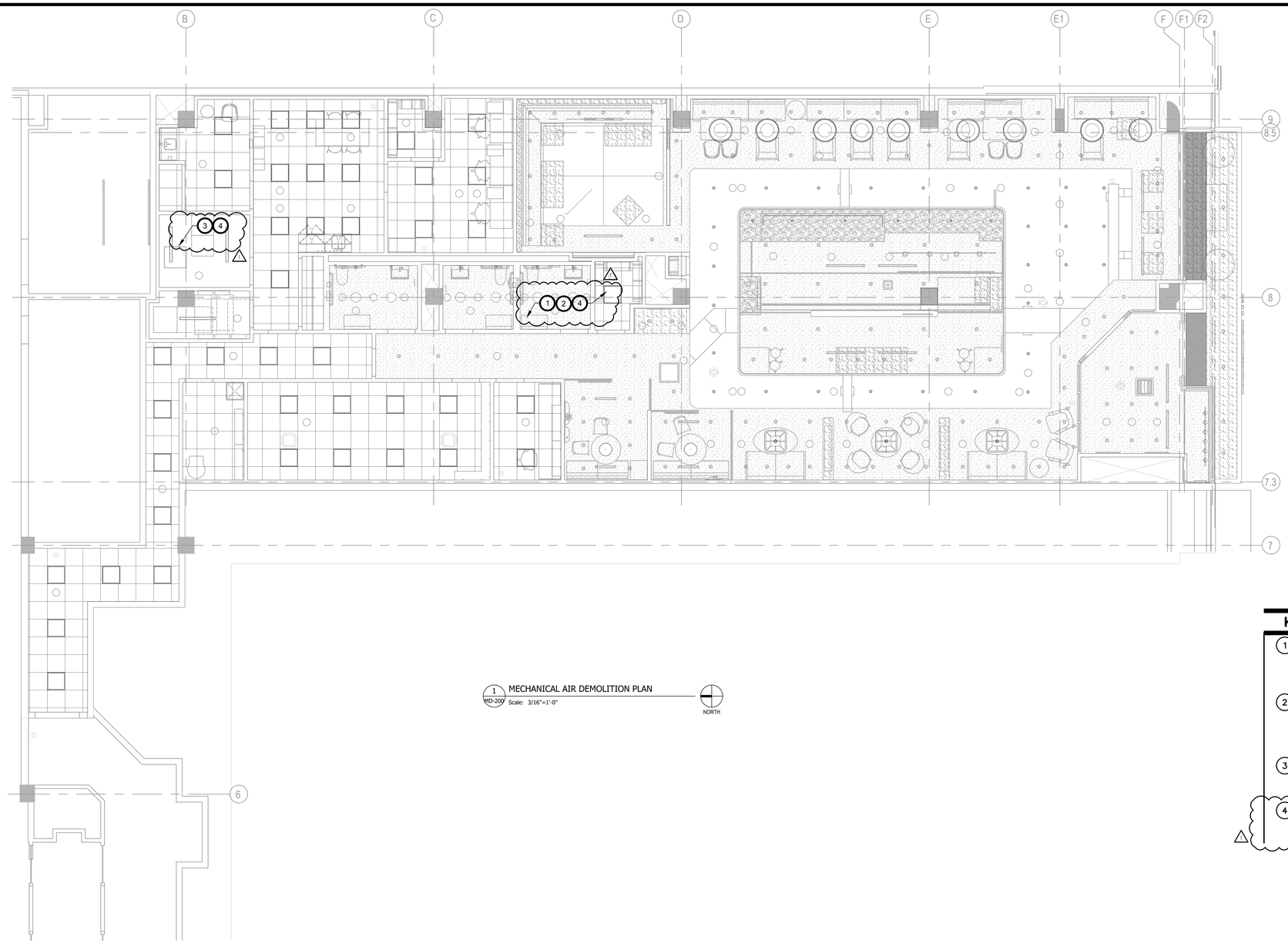
Project Number
21-1400.00

Description
HVAC THERMAL ZONES PLAN

Permit Number

Scale
AS INDICATED

**M-105**




1 MD-200 MECHANICAL AIR DEMOLITION PLAN
Scale: 3/16"=1'-0"

NORTH

## KEY NOTES

1. CONTRACTOR TO REMOVE EXISTING UNIT THERMOSTATS/CONTROL PANELS AND ASSOCIATED SENSORS AND WIRING AND INSTALL NEW DAINTREE CONTROLS, THERMOSTAT AND SENSORS TO COMPLY WITH DRAWING M-200 AND ME-100.
2. CONTRACTOR TO REMOVE ANY EXISTING AHU'S, FANS DUCTWORK, DIFFUSERS, GRILLES, HANGERS, SUPPORTS, INSULATION, ETC., LEFT OVER BY THE PREVIOUS TENANT AND THAT IS NOT REQUIRED FOR THE NEW STORE LAYOUT. FIELD VERIFY EXISTING INFORMATION. COORDINATE WITH CAPITAL ONE'S PROJECT MANAGER PRIOR TO REMOVAL.
3. CONTRACTOR TO REPURPOSE EXISTING DUCT UP THROUGH ROOF TO ALLOW FOR NEW REFRIGERATION PIPING, PATCH AND REPAIR ROOF AS REQUIRED PER REMOVAL OF DUCTWORK.
4. G.C. TO USE LANDLORD ROOFING CONTRACTOR FOR ALL ROOF, CUTTING, PATCHING & RESTORATION OF ROOF AT TENANT'S EXPENSE.

THIS IS AN EXISTING BUILDING THAT WILL REQUIRE DEMOLITION, REMOVAL, RELOCATION, REPLACEMENT, RECONNECTION, ETC. OF THE MECHANICAL/PLUMBING SYSTEMS. THE CONTRACTORS ARE REQUIRED TO VISIT THE SITE AND FULLY ACQUAINT THEMSELVES WITH THE EXISTING CONDITIONS AND THE DIFFICULTIES INVOLVED IN ACCOMPLISHING THE NEW WORK. PROBLEMS, DISCREPANCIES OR INFORMATION NEEDED SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING PRIOR TO SUBMITTING A PROPOSAL. THE SUBMISSION OF PROPOSAL WILL INDICATE THAT THE CONTRACTOR HAS FULLY UNDERSTOOD AND HAS INCLUDED ALL COSTS FOR THIS PROJECT.

## LEGEND

| | |
|---|---|
| (ETR) | EXISTING TO REMAIN |
| (REL) | RELOCATE |
| (R) | REMOVE |

CapitalOne


CAPITAL ONE CAFE
THE COUNTRY CLUB PLAZA
430 NICHOLS ROAD, SPACE J430
KANSAS CITY, MO 64112

CHIPMAN DESIGN ARCHITECTURE INC
1350 E TOUHY AVE
FIRST FLOOR EAST
DES PLAINES, IL 60018
TEL:847.298.6900

WCW Engineers, Inc.
760 Creel Drive
Wood Dale, Illinois 60191
Tel. 630/595-8800
Fax 630/595-8818
www.WCWengineers.com


| △ | Date | Description |
|---|---|---|
| | 12/22/21 | ISSUED FOR PERMIT AND BID |
| 1 | 01/21/22 | REVISION 1 |

Seal / Signature

STATE OF MISSOURI
JOSEPH G. THOMAS
NUMBER E-27428
REGISTERED PROFESSIONAL ENGINEER

Signature
Date 01/21/2022
Expiration Date 12/31/2023

I HEREBY CERTIFY THAT THESE PLANS HAVE BEEN PREPARED UNDER MY SUPERVISION AND THAT TO THE BEST OF MY KNOWLEDGE, THE SAMECOMPLY WITH ALL RULES, REGULATIONS, AND ORDINANCES OF KANSAS CITY, MO, RELATING TO STRUCTURES AND BUILDINGS.

**Project Name**
CAPITAL ONE CAFE - COUNTRY CLUB PLAZA

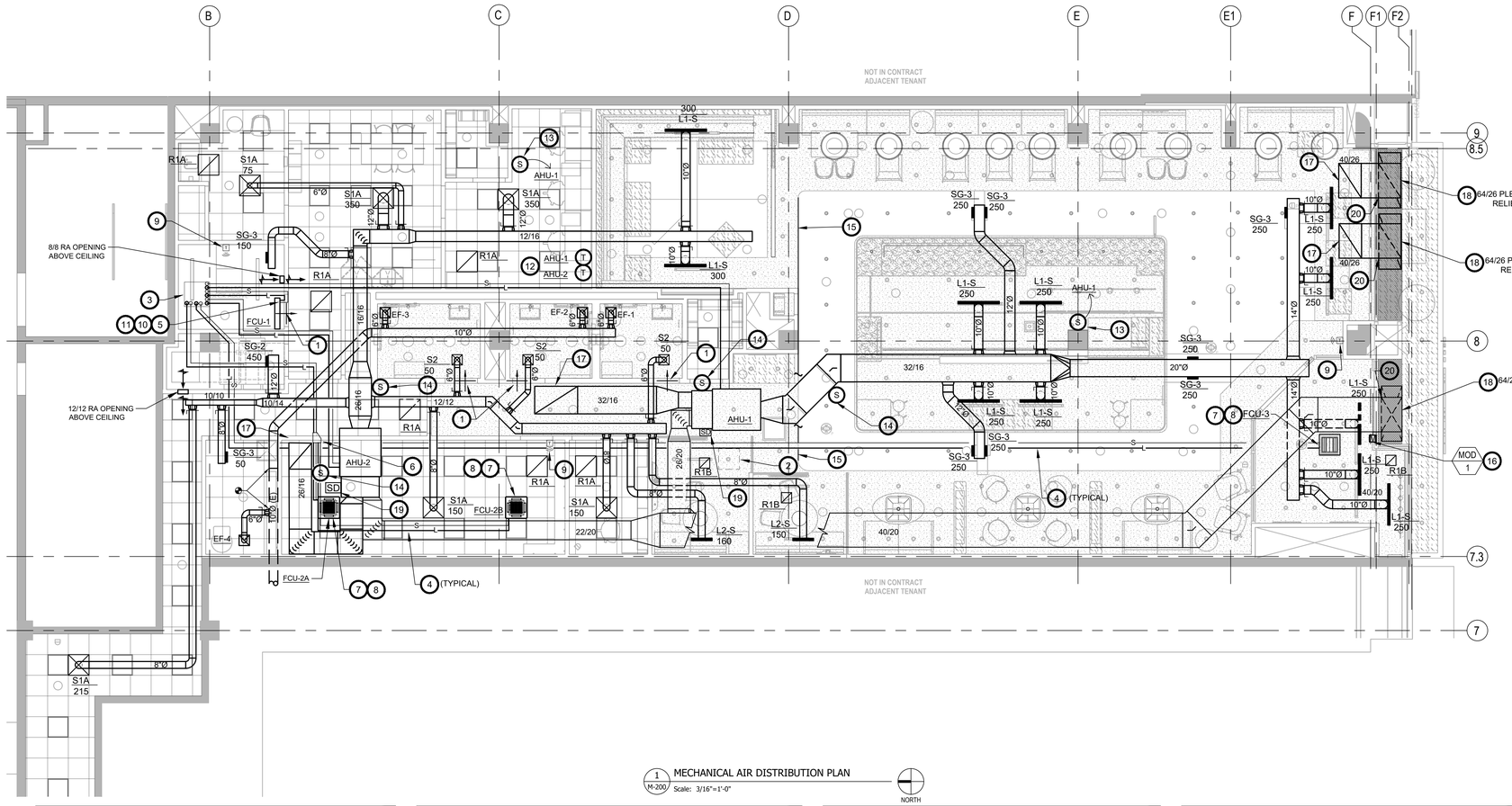
**Project Number**
21-1400.00

**Description**
MECHANICAL AIR DEMOLITION PLAN

**Permit Number**

**Scale**
AS INDICATED

# MD-200




1 M-200 MECHANICAL AIR DISTRIBUTION PLAN
Scale: 3/16"=1'-0"

NORTH

## MECHANICAL CONTROLS GENERAL NOTES:

1. ALL WIRELESS ADAPTERS MUST BE PROVIDED WITH UN-INTERRUPTED/UN-SWITCHED POWER. WSA10 WIRELESS SENSOR ADAPTERS REQUIRE 24V POWER.
2. DURING INSTALLATION THE LAST 4 DIGITS OF THE IEEE ADDRESS FOR EACH WIRELESS COMPONENT MUST BE RECORDED ON THE SHOP DRAWING SET CORRESPONDING TO THE LOCATION OF THE COMPONENT.
3. FOR ANY SENSORS ATTACHED TO A WIRELESS SENSOR ADAPTER (WSA10) THE LAST 4 DIGITS OF THE IEEE ADDRESS FOR THE RESPECTIVE WSA10 MUST BE RECORDED. THE SPECIFIC WSA10 PORT MUST ALSO BE RECORDED PER SENSOR.
4. DURING WIRELESS ADAPTER INSTALLATION FOLLOW THESE STEPS AS DEFINED IN THE DEVICE INSTALLATION GUIDE IN THE FOLLOWING ORDER.
   A. CONFIRM WIRELESS ADAPTER DIP SWITCHES ARE SET CORRECTLY.
   B. RESET ADAPTER (ALL ADAPTERS)
   C. PERFORM PROPER TEST SUITE.
5. INSTALLER MUST BECOME FAMILIAR WITH THE PUBLISHED INSTALLATION GUIDES FOR THE PRODUCTS IN THE PROJECT SCOPE. DAINTREE INSTALLATION GUIDES CAN BE FOUND AT: DAINTREE.NET/RESOUTCES/DEVELOPMENT-TOOLS/
6. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROCUREMENT AND INSTALL OF DAINTREE AND RELATED COMPONENTS PERTAINING TO IT/DATA, LIGHTING, POWER AND HVAC.

## GENERAL NOTES

1. PROVIDE FIRE PENETRANT MATERIAL TO ALL PIPE PENETRATIONS TO MAINTAIN FIRE RATING INTEGRITY OF WALL/FLOORS. REFER TO ARCHITECTURAL FOR FIRE RATING OF WALLS/PARTITION AND FOR FIRE PENETRATION DETAILS.
2. REFRIGERANT LINES ROUTING SHALL BE USED AS A GUIDE; CONTRACTOR TO FIELD DETERMINE BEST ROUTING AND PERFORM ALL REFRIGERANT LINES PIPING AND CHARGE AS PER MANUFACTURER RECOMMENDATIONS. ALL PIPE PENETRATIONS THRU RATED WALLS/PARTITIONS/FLOORS SHALL BE SLEEVED TO MEET THE RATED PENETRATION USING RATED SYSTEM.
3. DUCT RUNOUT TO DIFFUSER SHALL MATCH DIFFUSER'S NECK. REFER TO DIFFUSER, REGISTER AND GRILLE SCHEDULE. FLEXIBLE RUNS SHALL NOT EXCEED 5' IN LENGTH.
4. DUCTWORK INSULATION SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF THE LATEST SMACNA STANDARDS. ADDITIONAL REQUIREMENTS SHALL BE PER MALL OF AMERICA RECOMMENDATIONS.
5. PROVIDE TRANSITIONS FROM ROUND TO SQUARE DUCT MAINTAINING SAME MATERIAL; TRANSITIONS MUST BE MADE IN ORDER TO MAINTAIN STATIC REGAIN METHOD.
6. OFFSET ANY ELECTRICAL PIPE OR STRUCTURAL MEMBER BY PROVIDING THE REQUIRED TRANSITIONING; PROVIDE THIS IN ACCORDANCE WITH APPLICABLE SMACNA STANDARDS.
7. PLENUM IS USED AS MEANS OF RETURN AIR; NO COMBUSTIBLE MATERIALS ALLOWED WITHIN RETURN AIR PLENUM OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50.
8. COORDINATE ALL THERMOSTAT'S FINAL LOCATION WITH ARCHITECT TO ASSURE THEIR INSTALLATION DOES NOT INTERFERE WITH ANY ARCHITECTURAL ELEMENT.
9. COORDINATE THE LOCATION, SIZE AND QUANTITY OF ACCESS PANELS AT HARD CEILING AREAS WITH ARCHITECTURAL PLANS.
10. PROVIDE THERMOSTATS IN ACCORDANCE WITH THE CONTROLS REQUIREMENTS.
11. FLOOR SLAB PENETRATIONS: PRIOR TO ANY FLOOR PENETRATION, TENANT'S CONTRACTOR MUST COORDINATE WORK WITH LANDLORD'S FIELD REPRESENTATIVE. EXISTING BUILDING SYSTEMS SHALL NOT BE DISRUPTED BY CONTRACTOR'S CORE DRILLING. LANDLORD MAY REQUIRE THE CONTRACTOR TO X-RAY THE FLOOR WHEN UNCERTAIN CONDITIONS EXIST. ALL FLOOR PENETRATIONS SHALL REQUIRE A TWO-HOUR FIRE RATED ASSEMBLY ALONG WITH A WATERPROOF MEMBRANE.
12. METHOD OF ATTACHMENT: TENANT'S CONTRACTOR SHALL ATTACH FRAMING, HANGING WIRE, DUCTS, ETC., TO STRUCTURAL MEMBERS ONLY. ALL ATTACHMENTS SHALL BE MADE IN COMPLIANCE WITH PREVIOUSLY SUBMITTED PLANS.
13. FIRE STOPPING: CONTRACTOR WILL BE REQUIRED TO INSTALL FIRE STOPPING AT ALL FLOOR, CEILING AND FIRE WALL PENETRATIONS. FIRE STOPPING MATERIALS AND INSTALLATION SHALL BE SPECIFIC TO MANUFACTURER'S REQUIREMENTS. TENANT'S CONTRACTOR WILL BE REQUIRED TO REVIEW FIRE STOPPING PROCEDURES WITH LANDLORD'S FIELD REPRESENTATIVE PRIOR TO INSTALLATION. HILTI SYSTEM F-A-2213 SHALL BE USED WHEN NECESSARY AS A FIRE-STOP DEVICE. CONTACT LANDLORD REPRESENTATIVE FOR MORE DETAILS AND SPECIFICATIONS.

## HVAC DESIGN

| HVAC DESIGN REQUIRES: | YES | NO |
|---|---|---|
| DUCT SMOKE DETECTOR | ● | |
| FIRE DAMPER(S) | | ● |
| SMOKE DAMPER(S) | | ● |
| FIRE RATED ENCLOSURE | | ● |
| FIRE RATED ROOF/FLOOR CEILING ASSEMBLY | | ● |
| FIRE STOPPING | | ● |
| SMOKE CONTROL | ● * | |

(*) IDENTIFIES EXISTING CONDITION

## OUTSIDE AIR NOTES

REFER TO M-500, OUTSIDE AIR CALCULATIONS TABLE, FOR OUTSIDE AIR SCHEDULE REQUIREMENT.
FRESH AIR (OUTDOOR AIR) IS DELIVERED BY EXISTING ROOFTOP UNITS.

## SYMBOL LEGEND

AREAS UNDER AC BUT OUTSIDE OF SCOPE OF WORK.

EXISTING TO REMAIN DUCTWORK. REFER TO SCOPE OF WORK AND WORK NOTES.

NEW DUCTWORK, RIGID/FLEXIBLE.

CONNECT TO EXISTING.

### LEGEND

NOTE:
REFER TO M-100 FOR ADDITIONAL LEGEND & SYMBOLS.

## KEY NOTES

1. UNDER CUT DOOR 1" TO ALLOW TRANSFER OF AIR.
2. PROVIDE 24x24 ACCESS PANEL AT HARD CEILING AREAS TO ACCESS ABOVE CEILING INFRASTRUCTURE (LIGHTS, VAV'S, BALANCING DAMPERS, ETC.). COORDINATE FINAL LOCATION AND INSTALLATION REQUIREMENTS WITH ARCHITECTURAL PLANS.
3. REFRIGERANT LINES FROM ROOF INTO SPACE TO INDOOR FOR AHU'S & MINISPLIT FCU'S. REFER TO ME-100 FOR PIPING REQUIREMENTS. ROUTE PIPING UP TO ROOF INSIDE ABANDONED FRESH AIR SHAFT. FIELD VERIFY EXACT CONDITIONS.
4. RUN LINES SUPPORTED TO STRUCTURE ABOVE (TIGHT TO STRUCTURE). COORDINATE WITH IT INFRASTRUCTURE TO AVOID CONFLICTS.
5. INSTALL MINI-SPLIT INDOOR WALL MOUNTED UNIT AS PER MANUFACTURER REQUIREMENTS. PROVIDE PAC-US444CN-1, T-STAT INTERFACE AND VPL24-210 TRANSFORMER FOR THERMOSTAT INTERFACE. SET THERMOSTAT OPERATION PER IT RECOMMENDATIONS.
6. PROVIDE SPLITTER AS PER MANUFACTURER RECOMMENDATION. FIELD ROUTE LINES TO INDOOR CASSETTE FCU'S.
7. INSTALL MINI-SPLIT INDOOR CASSETTE UNIT AS PER MANUFACTURER REQUIREMENTS. PROVIDE PAC-US444CN-1, T-STAT INTERFACE AND VPL24-210 TRANSFORMER FOR THERMOSTAT INTERFACE. SET THERMOSTAT OPERATION PER OWNER & SPACE OPERATIONS REQUIREMENTS.
8. COORDINATE INTEGRATION WITH DAINTREE SYSTEM. REFER TO PLUMBING PLANS FOR CONDENSATE LINES.
9. PROVIDE DAINTREE WIRELESS THERMOSTAT. COORDINATE WITH VENDOR SPECIFIC REQUIREMENTS PRIOR TO ORDERING MINI-SPLIT SYSTEM.
10. PROVIDE NEW FCU AS NOTED ON PLANS AND AS SCHEDULED ON SHEET M-500. PROVIDE REFRIGERANT PIPING TO CONDENSING UNIT ON ROOF PER SPECIFICATIONS.
11. MOUNT DUCTLESS SPLIT SYSTEM HIGH ON WALL AT 8'-0" AFF. COORDINATE WITH IT/SECURITY EQUIPMENT SUCH THAT UNIT DOES NOT IMPEDE INSTALLATION OF IT/SECURITY/ATM EQUIPMENT.
12. PROVIDE NEW DAINTREE DIGITAL 7 DAY PROGRAMMABLE TYPE THERMOSTAT WITH AUTO CHANGE OVER, AUTO SET BACK, AND SENSING LOCATION AS INDICATED ON PLAN FOR HVAC UNIT. LOCATE THERMOSTAT AT LOCATION SHOWN. PROVIDE LOCKABLE CLEAR COVER FOR THERMOSTATS. VERIFY THERMOSTAT LOCATION WITH OWNER PRIOR TO INSTALLATION. COORDINATE TYPE WITH DAINTREE SYSTEM.
13. PROVIDE DAINTREE REMOTE TEMPERATURE SENSOR IN SPACE. TEMPERATURE SENSOR SHALL BE WIRED TO THERMOSTAT IN THE BACK OF HOUSE AREA. VERIFY FINAL LOCATION WITH ARCHITECT PRIOR TO INSTALLATION. SENSOR SHALL HAVE COLOR MATCHING WALL COLOR (COORDINATE WITH THE ARCHITECT). MOUNT REMOTE SENSORS AT 48" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE.
14. SUPPLY AND RETURN SENSORS, DAINTREE TO PROVIDE TRANSFORMERS.
15. PROVIDE OPENING ABOVE CEILING INTO PLENUM FOR RETURN AIR. STOP VERTICAL SOFFIT 12" BELOW DECK FOR ENTIRE SOFFIT AT COLUMN "D" TO PROVIDE 12" GAP BETEEN SLAB ABOVE AND TOP OF VERTICAL SOFFIT.
16. MOD TO OPEN DURING OCCUPIED PERIODS. CLOSE WHEN UNOCCUPIED.
17. PROVIDE OPENING ON TOP OF DUCT SAME SIZE AS DUCT FOR AIRFLOW. COVER OPENING WITH 1/4"X1/4" WIRE MESH SCREEN.
18. COORDINATE INTAKE AIR AND RELIEF AIR CONNECTIONS TO SCREENED OPENINGS ON BOTTOM OF CANOPY INDICATED ON ARCHITECTURAL DRAWINGS. PROVIDE 12" TALL PLENUM AT CONNECTION AS INDICTED ON PLANS.
19. PROVIDE SMOKE DETECTOR PER CODE WIRING BY ELECTRICAL CONTRACTOR.
20. PROVIDE BURGLAR BARS AT DUCT PENETRATION THROUGH WALL, SEE DETAIL.


CAPITAL ONE CAFE
THE COUNTRY CLUB PLAZA
430 NICHOLS ROAD, SPACE J430
KANSAS CITY, MO 64112

CHIPMAN DESIGN ARCHITECTURE INC
1350 E TOUHY AVE
FIRST FLOOR EAST
DES PLAINES, IL 60018
TEL:847.298.6900

WCW Engineers, Inc.
760 Creel Drive
Wood Dale, Illinois 60191
Tel. 630/595-8800
Fax 630/595-8818
www.WCWengineers.com


| △ | Date | Description |
|---|---|---|
| | 12/22/21 | ISSUED FOR PERMIT AND BID |
| 1 | 01/21/22 | REVISION 1 |

Seal / Signature

STATE OF MISSOURI
JOSEPH G. THOMAS
NUMBER E-27428
REGISTERED PROFESSIONAL ENGINEER

Signature
Date 01/21/2022
Expiration Date 12/31/2023

I HEREBY CERTIFY THAT THESE PLANS HAVE BEEN PREPARED UNDER MY SUPERVISION AND THAT TO THE BEST OF MY KNOWLEDGE, THE SAMECOMPLY WITH ALL RULES, REGULATIONS, AND ORDINANCES OF KANSAS CITY, MO, RELATING TO STRUCTURES AND BUILDINGS.

Project Name
CAPITAL ONE CAFE - COUNTRY CLUB PLAZA

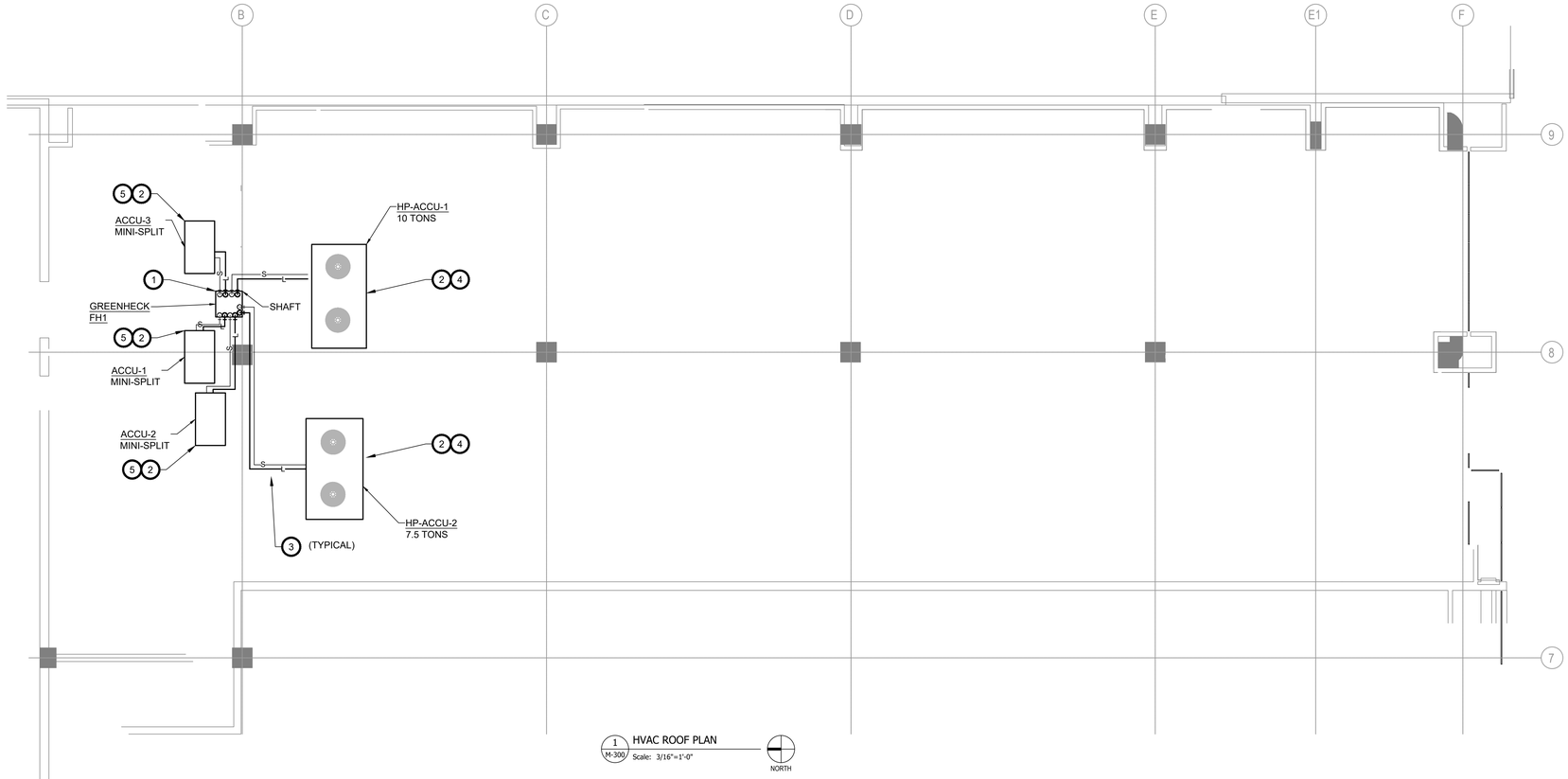
Project Number
21-1400.00

Description
MECHANICAL AIR DISTRIBUTION PLAN

Permit Number

Scale
AS INDICATED

**M-200**




1 M-300 HVAC ROOF PLAN
Scale: 3/16"=1'-0"
NORTH

## GENERAL MECHANICAL SYSTEM RECONDITIONING WORK

CLEAN ALL COMPONENTS OF THE EXISTING ROOFTOP UNIT, LUBRICATE ALL MOVING COMPONENTS AND BEARINGS OR REPLACE IF DEFECTIVE, AND CLEAN ALL COMPONENTS OF BUILT UP DIRT/OIL/GREASE. COMB DAMAGED CONDENSER FINS. REPLACE DRIVE BELTS, SHEAVES AND PULLEYS AND LUBRICATE ALL BEARINGS. CHANGE FILTERS AS REQUIRED PER UNIT BEING SERVICED. CONTRACTOR SHALL INSPECT THE EXISTING HVAC UNITS AND REFRIGERANT LEVEL AND PROVIDE REPAIR OR REPLACE PARTS AS REQUIRED. PERFORM A SERVICE WORK FOR THE EXISTING HVAC UNITS AND PROVIDE A REPORT TO THE CAPITAL ONE'S CONSTRUCTION MANAGER PRIOR TO PROCEEDING WITH THE REPAIR WORK. CONTRACTOR IS RESPONSIBLE FOR FULL FUNCTIONALITY OF ROOFTOP UNITS AND ALL EXISTING TO REMAIN HVAC EQUIPMENT. CONTACT ENGINEER PRIOR TO BID WITH ANY DAMAGED OR NON-FUNCTIONING EQUIPMENT.

## GENERAL NOTES

CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS BEFORE PROCEEDING WITH ANY PART WORK. IF ANY DISCREPANCIES, ERRORS OR OMISSIONS ARE ENCOUNTERED ON PLANS, CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER BEFORE ANY PART OF THE WORK IS STARTED SO THAT PROPER CORRECTIONS BE MAKE. IF ARCHITECTS/ENGINEER IS NOT NOTIFIED PRIOR TO COMMENCING OF THE WORK, THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR ANY DISCREPANCIES, ERROR OR OMISSIONS.

THESE PLANS ARE FOR BUILDING DEPARTMENT REVIEW ONLY. THEY ARE NOT TO BE CONSTRUED AS CONSTRUCTION DOCUMENTS UNTIL ALL BUILDING DEPARTMENT APPROVALS ARE OBTAINED.

ALL WORK SHALL BE FIELD VERIFIED AND COORDINATED BEFORE INSTALLATION WITH ALL OTHER TRADES. WHERE INTERFERENCES OCCUR DUE TO UNFORESEEN CONDITIONS, AND IF DEPARTURES FROM THE INDICATED DESIGN/SCOPE OF WORK ARE REQUIRED, TO DETERMINE CHANGES ON LOCATIONS, SIZES AND ELEVATIONS OF PIPING, DUCTWORK, ETC. THE CONTRACTOR SHALL SUBMIT A WRITTEN REQUEST FOR THE CHANGE ACCOMPANIED BY A DETAILED DRAWING FOR APPROVAL FROM ARCHITECT/ENGINEER PRIOR TO PROCEEDING WITH ANY CHANGE OR DEPARTURES FROM EXISTING CONTRACT.

## WORK NOTES

1. PROVIDE FIRE PENETRANT MATERIAL TO ALL PIPE PENETRATIONS TO MAINTAIN FIRE RATING INTEGRITY OF WALL/FLOORS. REFER TO ARCHITECTURAL FOR FIRE RATING OF WALLS/PARTITION AND FOR FIRE PENETRATION DETAILS.
2. PERFORM ALL PIPING INSTALLATION IN ACCORDANCE WITH APPLICABLE STANDARDS AND MANUFACTURER'S RECOMMENDATIONS. PROVIDE INSULATION IN ACCORDANCE WITH THE "REFRIGERATION INSTALLATION GUIDE, NO. IP-2419 895J, AP ARMAFLEX®".
3. ALL EQUIPMENT INSTALLED ON THE ROOF SHALL BE PROPERLY SECURED AS TO WITHSTAND WIND LOADS (PRESSURE) AT VELOCITIES INDICATED ON MBC 2020 REQUIREMENTS. CONTRACTOR SHALL PROVIDE CONDENSING UNIT SUPPORTS TIE-DOWNS FOR NEW CU TO EXISTING ROOF CURB.
4. SYSTEMS EXPOSED TO WEATHER AND OTHER CORROSIVE ENVIRONMENTS SHALL BE PROTECTED WITH CORROSION RESISTANT COATINGS.
5. REFRIGERANT LINES ROUTING SHALL BE USED AS A GUIDE; CONTRACTOR TO FIELD DETERMINE BEST ROUTING AND PERFORM ALL REFRIGERANT LINES PIPING AND CHARGE AS PER MANUFACTURER RECOMMENDATIONS.
6. PIPING INSULATION EXPOSED TO WEATHER SHALL BE PROTECTED FROM DAMAGE, INCLUDING THAT DUE TO SUNLIGHT, MOISTURE, EQUIPMENT MAINTENANCE AND WIND. PIPING INSULATION SHALL BE JACKETED OR PAINTED WITH AV PROTECTIVE PAINT ADHESIVE TAPE SHALL NOT BE PERMITTED.
7. ALL ROOF WORK SHALL BE PERFORMED BY THE LANDLORD'S ROOF COMPANY HOLDING WARRANTY OR DESIGNATED ROOF CONTRACTOR PER MALL OF AMERICA CRITERIA. COORDINATE ROOF ACCESS WITH LANDLORD.

## KEY NOTES

1. APPROXIMATE LOCATION OF ROOF PENETRATION. INSTALL NEW ROOF JACK MODEL MTI LJ-10 OR EQUIVALENT; COORDINATE ROOF PENETRATION TO LAND WITHIN SPACE BEING SERVED. COORDINATE WITH LANDLORD ALL ROOF WORK. SEAL ROOF JACK AFTER WORK COMPLETED. ROUTE REFRIGERANT PIPING INSIDE EXISTING DUCT SHAFT. SEAL AT TOP AND BOTTOM.
2. PROVIDE CONDENSING UNIT ON ROOF WITH SUPPORTS, AS NOTED AND SCHEDULED ON SHEET M-500, DIRECTLY ABOVE TENANT SPACE. COORDINATE FINAL LOCATION OF CONDENSING UNIT WITH LANDLORD AND ALL TRADES. INDICATED LOCATION IS REPRESENTATIVE ONLY AND SHOWN AS SUCH FOR CLARITY. CONTRACTOR SHALL INSTALL CONDENSING UNIT TO MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES. CONDENSING UNIT SHALL BE LABELED WITH UNIT NUMBER AND ASSOCIATED AIR HANDLER UNIT NUMBER. REFER TO STRUCTURAL DRAWINGS FOR EQUIPMENT SUPPORT. UNITS SHALL BE INSTALLED ON NEOPRENE VIBRATION ISOLATION.
3. PROVIDE REFRIGERANT LINES FROM CONDENSING UNIT ON ROOF TO CORRESPONDING AIR HANDLING UNIT BELOW. LINES SHALL BE SIZED ACCORDING TO MANUFACTURERS SPECIFICATIONS. PROVIDE ALL ACCESSORIES AS REQUIRED BY MANUFACTURER FOR COMPLETE WORKING SYSTEM, INCLUDING ANY ACCESSORIES ASSOCIATED WITH LONG PIPING LENGTH APPLICATIONS (WHERE APPLICABLE). PROVIDE NEW LANDLORD APPROVED PIPE SUPPORTS. △1
4. LOCATE NEW HP-ACCU-X ON EXISTING CURB SERVING DEMOLISHED CONDENSING UNIT. PROVIDE NEW EQUIPMENT SUPPORT. FIELD VERIFY EXACT CONDITIONS.
5. PROVIDE NEW EQUIPMENT SUPPORT FOR MINI SPLIT ACCU-X. FIELD VERIFY EXACT LOCATIONS.

CapitalOne

CAPITAL ONE CAFE
THE COUNTRY CLUB PLAZA
430 NICHOLS ROAD, SPACE J430
KANSAS CITY, MO 64112

CHIPMAN DESIGN ARCHITECTURE INC
1350 E TOUHY AVE
FIRST FLOOR EAST
DES PLAINES, IL 60018
TEL:847.298.6900

WCW Engineers, Inc.
760 Creel Drive
Wood Dale, Illinois 60191
Tel. 630/595-8800
Fax 630/595-8818
www.WCWengineers.com

| △ | Date | Description |
|---|---|---|
| | 12/22/21 | ISSUED FOR PERMIT AND BID |
| △1 | 01/21/22 | REVISION 1 |

Seal / Signature

STATE OF MISSOURI
JOSEPH G. THOMAS
NUMBER E-27428
REGISTERED PROFESSIONAL ENGINEER

Signature
Date 01/21/2022
Expiration Date 12/31/2023

I HEREBY CERTIFY THAT THESE PLANS HAVE BEEN PREPARED UNDER MY SUPERVISION AND THAT TO THE BEST OF MY KNOWLEDGE, THE SAMECOMPLY WITH ALL RULES, REGULATIONS, AND ORDINANCES OF KANSAS CITY, MO, RELATING TO STRUCTURES AND BUILDINGS.

Project Name
CAPITAL ONE CAFE - COUNTRY CLUB PLAZA

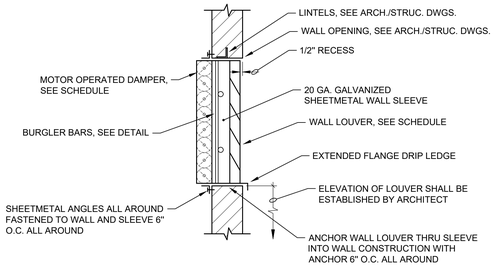
Project Number
21-1400.00

Description
HVAC ROOF PLAN

Permit Number

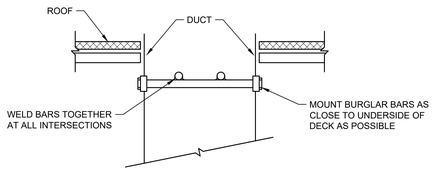
Scale
AS INDICATED

**M-300**




## WALL LOUVER DETAIL

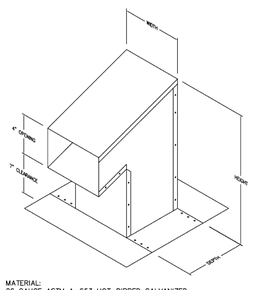
SCALE: NONE




NOTES:
1. 3/4" STEEL BARS @ 8" O.C. WELDED TO A 5/8" X 4" STEEL PLATE FRAME TO FIT INSIDE DUCT. PROVIDE A 3/8" x 4" STEEL PLATE TO FIT OUTSIDE DUCT. FASTEN FRAMES TOGETHER WITH 3/8" CARRIAGE BOLTS O.C. BOLT FROM INSIDE TO OUTSIDE DUCT. BURGLAR BARS SHALL RUN IN BOTH DIRECTIONS.
2. ONLY REQUIRED FOR OPENINGS 12" X 12" AND LARGER.

## BURGLAR BAR DETAIL

SCALE: NONE



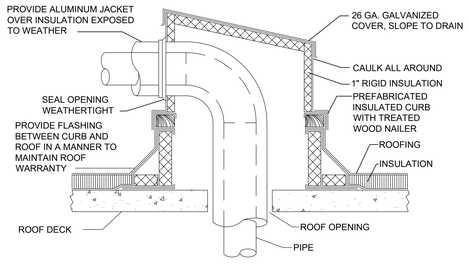

MATERIAL:
26 GAUGE ASTM A-653 HOT-DIPPED GALVANIZED STEEL SHEET

STANDARD SIZES:

| MODEL | WIDTH | DEPTH | HEIGHT | BOX QTY |
|---|---|---|---|---|
| LJ5 | 5" | 5" | 13 7/8" | 1 |
| LJ6 | 6" | 6" | 14 1/8" | 1 |
| LJ7 | 7" | 7" | 14 1/2" | 1 |
| LJ10 | 10" | 10" | 15 1/4" | 1 |

ALTERNATE BID

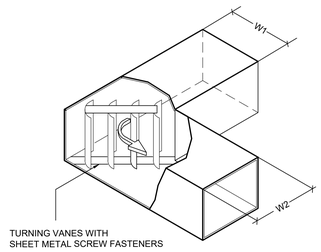
BASE BID OPTION




NOTES:
1. FOR MULTIPLE PIPES, PROVIDE ONE ENCLOSURE, WHERE FEASIBLE.
2. ALL ROOF WOK SHALL BE PERFORMED IN ACCORDANCE WITH MOA REQUIREMENTS.

## REFRIGERANT LINES JACK DETAIL

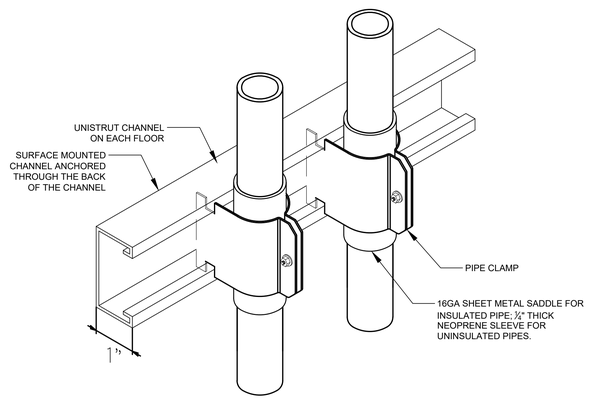
SCALE: NONE




NOTES:
1. ALL VANED ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN $W_1$ DOES NOT EQUAL $W_2$ VANE SHALL BE SINGLE VANE TYPE REGARDLESS OF W DIMENSION. VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE VANES SHALL HAVE A 2" RADIUS, 1 1/2" MAXIMUM SPACE BETWEEN VANES AND A 1 1/2" MAXIMUM SPACE BETWEEN VANES AND A 3/4" TRAILING EDGE.
4. WHEN $W_1$ EQUALS $W_2$ AND $W_2$ IS GREATER THAN 20" VANES SHALL BE DOUBLE VANE TYPE.

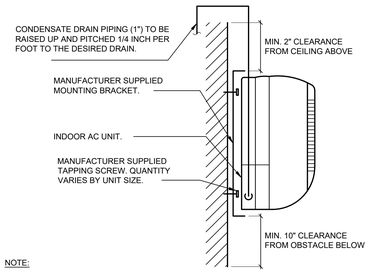
## ELBOW DETAIL

SCALE: NONE




## REFRIGERANT PIPE RISER SUPPORT DETAIL

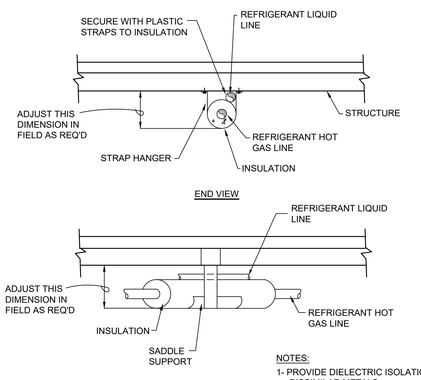
SCALE: NONE




NOTE:
1. FIELD VERIFY FINAL LOCATION OF UNIT WITH OWNER AND ARCHITECT.
2. UNIT TO BE SECURED TO MANUFACTURER SUPPLIED MOUNTING BRACKET.
3. DETAIL TO BE USED FOR REFERENCE ONLY. UNIT TO BE MOUNTED AS PER EXISTING FIELD CONDITIONS PRESENT AND MANUFACTURERS RECOMMENDATION FOR INSTALLATION.

## INDOOR EVAPORATOR FAN MOUNTING DETAIL

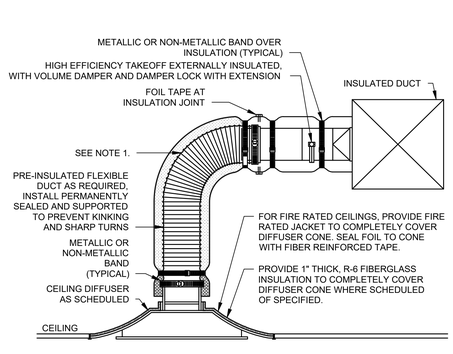
SCALE: NONE




NOTES:
1- PROVIDE DIELECTRIC ISOLATION BETWEEN DISSIMILAR METALS
2- PROVIDE SADDLE PROTECTION AT EACH

## REFRIGERANT PIPE SUPPORT DETAIL

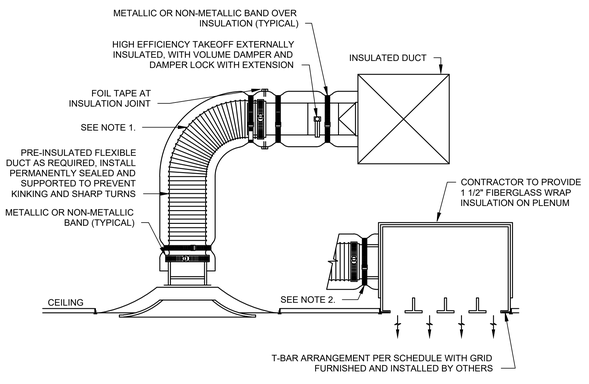
SCALE: NONE




NOTES:
1. EXTEND RIGID METAL DUCT SO THAT MAXIMUM FLEXIBLE DUCT LENGTH DOES NOT EXCEED 5'-0". PROVIDE RIGID 90° ELBOW WHERE REQUIRED TO KEEP FLEXIBLE DUCT WITHIN 5'-0" LENGTH LIMITATION.

## LAY-IN CEILING DIFFUSER DETAIL

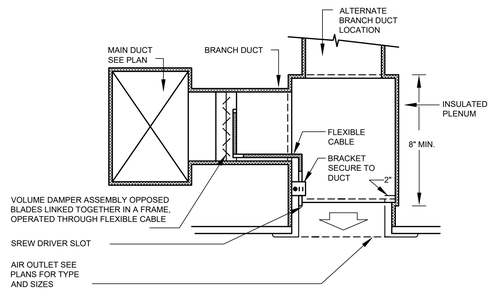
SCALE: NONE




NOTES:
1. EXTEND RIGID METAL DUCT SO THAT MAXIMUM FLEXIBLE DUCT LENGTH DOES NOT EXCEED 5'-0". PROVIDE RIGID 90° ELBOW WHERE REQUIRED TO KEEP FLEXIBLE DUCT WITHIN 5'-0" LENGTH LIMITATION.
2. PROVIDE RIGID ROUND-TO-OVAL TRANSITION WHEN PLENUM HAS OVAL CONNECTION.

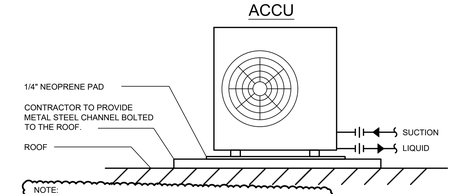
## LAY-IN AND SLOT TYPE CEILING DIFFUSER DETAIL

SCALE: NONE




## LINEAR DIFFUSER DETAIL

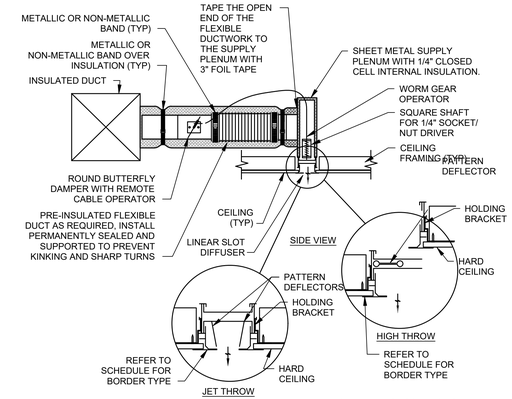
SCALE: NONE

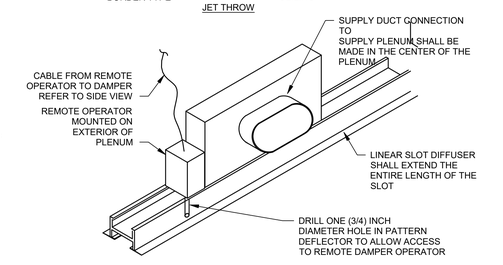



NOTE:
1. FIELD VERIFY FINAL LOCATION OF UNIT WITH OWNER AND ARCHITECT.
2. UNIT TO BE SECURED TO STEEL CHANNELS AS REQUIRED..
3. DETAIL TO BE USED FOR REFERENCE ONLY. UNIT TO BE MOUNTED AS PER EXISTING FIELD CONDITIONS PRESENT AND MANUFACTURERS RECOMMENDATION FOR ROOFTOP INSTALLATION.
4. COORDINATE ACCU SUPPORT & PIPE SUPPORT WITH LANDLORD.

## AIR-COOLED CONDENSER MOUNTING DETAIL

SCALE: NONE




ISOMETRIC VIEW

NOTES:
1. EXTEND HARD METAL DUCT SO THAT MAXIMUM FLEXIBLE DUCT LENGTH DOES NOT EXCEED 5'-0". PROVIDE RIGID 90° ELBOW WHERE REQUIRED TO KEEP FLEXIBLE DUCT WITHIN 5'-0" LENGTH LIMITATION.
2. COORDINATE EXACT LENGTH AND LOCATION OF SLOT DIFFUSER WITH ARCHITECT'S REFLECTED CEILING PLAN.
3. PORTIONS OF THE SLOT DIFFUSER NOT USED FOR SUPPLY SHALL REMAIN OPEN TO THE PLENUM FOR RETURN UNLESS NOTED OTHERWISE.
4. ALL FLEXIBLE DUCT OFFSETS SHALL MAINTAIN A RADIUS OF 1.5 TIMES THE DIAMETER.
5. REFER TO DIFFUSER MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR EACH SCHEDULED BORDER TYPE.

## LINEAR SLOT DIFFUSER DETAIL

SCALE: NONE


CAPITAL ONE CAFE
THE COUNTRY CLUB PLAZA
430 NICHOLS ROAD, SPACE J430
KANSAS CITY, MO 64112

CHIPMAN DESIGN ARCHITECTURE INC
1350 E TOUHY AVE
FIRST FLOOR EAST
DES PLAINES, IL 60018
TEL:847.298.6900

WCW Engineers, Inc.
760 Creel Drive
Wood Dale, Illinois 60191
Tel. 630/595-8800
Fax 630/595-8818
www.WCWengineers.com


| △ Date | Description |
|---|---|
| 12/22/21 | ISSUED FOR PERMIT AND BID |
| △ 01/21/22 | REVISION 1 |

Seal / Signature

STATE OF MISSOURI
JOSEPH G. THOMAS
NUMBER E-27428
REGISTERED PROFESSIONAL ENGINEER

Signature
Date 01/21/2022
Expiration Date 12/31/2023

I HEREBY CERTIFY THAT THESE PLANS HAVE BEEN PREPARED UNDER MY SUPERVISION AND THAT TO THE BEST OF MY KNOWLEDGE, THE SAMECOMPLY WITH ALL RULES, REGULATIONS, AND ORDINANCES OF KANSAS CITY, MO, RELATING TO STRUCTURES AND BUILDINGS.

Project Name
CAPITAL ONE CAFE - COUNTRY CLUB PLAZA

Project Number
21-1400.00

Description
HVAC DETAILS

Permit Number

Scale
AS NOTED

**M-401**

# AIR COOLED HEAT PUMP CONDENSING UNIT SCHEDULE

| DESIG'N | SERVICE | MANUFACTURER | MODEL NO. | TOTAL COOLING CAPACITY (MBH) | TOTAL HEATING CAPACITY (MBH @ 20°F) | CAPACITY STEPS (%) | NO. AND TYPE OF COMPRESSORS | REFRIGERANT TYPE | CONDENSER E.A.T. MAX. AMBIENT (°F) | ELECTRICAL VOLTAGE | ELECTRICAL PHASE (Ø) | ELECTRICAL MCA | ELECTRICAL MOCP | EER | COP @ AIR CONDITIONS | UNIT WEIGHT (LBS) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HP-ACCU-1 | AHU-1 | CARRIER | 38AUQD12A | 119.0 | 104.0 | 2 | 2-HERMETIC | R-410a | 95° | 460 | 3 | 19.0 | 25 | 11.0 | 3.30 | 600 | SEE BELOW |
| HP-ACCU-2 | AHU-2 | CARRIER | 38AUQ08A | 91.8 | 84.6 | 2 | 1-HERMETIC | R-410a | 95° | 460 | 3 | 18.0 | 30 | 11.0 | 3.30 | 500 | SEE BELOW |

NOTE:
- INSULATE ALL REFRIGERANT PIPING PER MANUFACTURER'S INSTALLATION INSTRUCTION.
- INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- PROVIDE REFRIGERANT PIPING PER MANUFACTURER'S INSTALLATION INSTRUCTIONS
- FACTORY NON FUSED DISCONNECT.
- GFI SERVICE RECEPTACLE.
- CONDENSER COIL HAIL GUARDS
- FACTORY START UP

# HEAT PUMP AIR HANDLING UNIT SCHEDULE

| DESIG'N | SERVICE | MANUFACTURER | MODEL NO. | AIR QUANTITY (CFM) | MINIMUM OUTSIDE AIR (CFM) | ESP (IN. W.C.) | PERFORMANCE DATA TOTAL COOLING CAPACITY (MBH) | PERFORMANCE DATA SENSIBLE COOLING CAPACITY (MBH) | PERFORMANCE DATA TOTAL HEATING CAPACITY (MBH) | PERFORMANCE DATA REFRIGERANT TYPE | ELECTRICAL SUPPLAMENTAL ELECTRIC HEAT (KW) | ELECTRICAL VOLTAGE | ELECTRICAL PHASE (Ø) | ELECTRICAL MCA | ELECTRICAL MOCP | DRIVE | TYPE OF MOUNTING | UNIT WEIGHT (LBS) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AHU-1 | FRONT | CARRIER | 40RUQA12T | 4,000 | 800 | 1.0 | 119.0 | 90.3 | 104.0 | R-410a | 25 | 460 | 3 | 43.7 | 50 | BELT 2-SPEED VFD | SUSPENDED | 450 | SEE BELOW |
| AHU-2 | BACK | CARRIER | 40RUQA08T | 3,000 | 300 | 1.0 | 91.8 | 68.0 | 84.6 | R-410a | 15 | 460 | 3 | 27.3 | 30 | BELT 2-SPEED VFD | SUSPENDED | 400 | SEE BELOW |

PROVIDE THE FOLLOWING:
- SPRING ISOLATION HANGERS.
- FULLY FUNCTIONING ECONOMIZER WITH CONTROLS AND ACTUATORS. ALONG WITH ENERGY CODE REQUIRED FAULT DIAGNOSTICS.
- SMOKE DETECTOR TEST STATIONS.
- FACTORY START UP.
- MINIMUM MERV 8 FILTERS.
- CODE REQUIRED RETURN AIR SMOKE DETECTORS.

# MINI SPLIT SYSTEM EVAPORATOR UNIT SCHEDULE

| DESIG'N | SERVICE | MANUFACTURER | MODEL NO. | CFM | UNIT CAPACITY E.A.T. (°F DB) | UNIT CAPACITY L.A.T. (°F DB) | UNIT CAPACITY TOTAL COOLING CAPACITY (BTU) | UNIT CAPACITY HEAT CAPACITY (BTU) | ELECTRICAL FAN MOTOR (WATTS) | ELECTRICAL FAN MOTOR (FLA) | ELECTRICAL PHASE | ELECTRICAL VOLTAGE | ELECTRICAL MCA/MOCP | E.E.R. (S.E.E.R.) | COP | HSPF | UNIT WEIGHT (LBS) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FCU-1 | IT ROOM | MITSUBISHI ELECTRIC | PKA-A30KA7 | 705 | 80.0 | 66.0 | 18,000 | 21,000 | 56 | 0.36 | 1 | 208 | 1/15 | 15 / (22.3) | - | - | 46 | PROVIDE FLOW SWITCH DEVICE AT SECONDARY DRAIN PAN IN ORDER TO SHUT-OFF AC UNIT IF OVERFLOW. DELUXE MA REMOTE CONTROLLER PAR-40MAAU. MAXIBULE ADVANCED BLUE DIAMOND MINI CONDENSATE PUMP WITH RESERVOIR AND SENSOR X87-721 - 208/230V. ADAPTER BOARD FOR CONTROLS. |
| FCU-2A | PANTRY | MITSUBISHI ELECTRIC | PLFY-P15NFMU | 315 | 80.0 | 66.0 | 15,000 | 17,000 | 50 | 0.28 | 1 | 208 | 0.35 / 15 | 15 / (22.3) | 4 | 12 | 37 | PROVIDE FLOW SWITCH DEVICE AT SECONDARY DRAIN PAN IN ORDER TO SHUT-OFF AC UNIT IF OVERFLOW. DRAIN PAN LEVEL SENSOR DPLS2 (CONTROL FOR INDOOR UNIT SHUT OFF TO PREVENT DRAIN PAN OVERFLOW). 3D I-SEE SENSOR. ADAPTER BOARD FOR CONTROLS. |
| FCU-2B | PANTRY | MITSUBISHI ELECTRIC | PLFY-P15NFMU | 315 | 80.0 | 66.0 | 15,000 | 17,000 | 50 | 0.28 | 1 | 208 | 0.35 / 15 | 15 / (22.3) | 4 | 12 | 37 | PROVIDE FLOW SWITCH DEVICE AT SECONDARY DRAIN PAN IN ORDER TO SHUT-OFF AC UNIT IF OVERFLOW. DRAIN PAN LEVEL SENSOR DPLS2 (CONTROL FOR INDOOR UNIT SHUT OFF TO PREVENT DRAIN PAN OVERFLOW). 3D I-SEE SENSOR. ADAPTER BOARD FOR CONTROLS. |
| FCU-3 | VESTIBULE | MITSUBISHI ELECTRIC | TPLA0A0241EA70A | 710 | 80.0 | 66.0 | 24,000 | 28,000 | 120 | 1.0 | 1 | 208 | 1.0/15 | 14/(21.5) | 4 | 11.3 | 56 | PROVIDE FLOW SWITCH DEVICE AT SECONDARY DRAIN PAN IN ORDER TO SHUT-OFF AC UNIT IF OVERFLOW. DRAIN PAN LEVEL SENSOR DPLS2 (CONTROL FOR INDOOR UNIT SHUT OFF TO PREVENT DRAIN PAN OVERFLOW). 3D I-SEE SENSOR. ADAPTER BOARD FOR CONTROLS. |

# MINI SPLIT SYSTEM AIR COOLED CONDENSING UNIT SCHEDULE

| DESIG'N | SERVICE | MANUFACTURER | MODEL NO. | TONNAGE | TOTAL COOLING CAPACITY (BTU/HR.) | CAPACITY STEPS (%) | NO. AND TYPE OF COMPRESSORS | REFRIGERANT TYPE | SUCTION TEMPERATURE (°F) | CONDENSER E.A.T. MAX. AMBIENT (°F) | CONDENSER E.A.T. MIN. AMBIENT (°F) | ELECTRICAL VOLTAGE | ELECTRICAL PHASE (Ø) | ELECTRICAL MCA | ELECTRICAL MOCP | E.E.R. (S.E.E.R.) | UNIT WEIGHT (LBS) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ACCU-1 | FCU-1 | MITSUBISHI ELECTRIC | PUY-A30NHA7 | 2.5 | 18,000 | 0-100 | 1-ROTARY | 410a | 45 | 95 | 0 | 208 | 1 | 19.0 | 26 | 15 | 151 | LOW AMBIENT ACCESSORIES. FRONT WIND BAFFLE. |
| ACCU-2 | FCU-2A FCU-2B | MITSUBISHI ELECTRIC | PUMY-HP36NKMU1 | 3.0 | 36,000 | 0-100 | 1-SCROLL | 410a | 45 | 95 | 0 | 208 | 1 | 36.0 | 44 | 15 | 278 | LOW AMBIENT ACCESSORIES. FRONT WIND BAFFLE. DRAIN PAN. BRANCH JOINT CMY-Y62-G-E. |
| ACCU-3 | FCU-3 | MITSUBISHI ELECTRIC | TRUZHO241HA10NA | 2.0 | 24,000 | 0-100 | 1-SCROLL | 410a | 45 | 95 | 0 | 208 | 1 | 17.0 | 27 | 14 | 190 | LOW AMBIENT ACCESSORIES. FRONT WIND BAFFLE. |

PROVIDE NEW CURB OR RAILS FOR SUPPORT △

# MOTORIZED DAMPER SCHEDULE

| DESIG'N | SERVICE | MANUFACTURER MODEL NO. | BLADE OPERATION | FAIL POSITION | STATIC PRESSURE ($FT^2$) | OPERATOR TYPE | VOLTAGE & PHASE | REMARKS |
|---|---|---|---|---|---|---|---|---|
| MOD-1 | FRESH AIR INTAKE | RUSKIN CD-50 | OPPOSED | CLOSED | 4.00 | MODULATING | 24V-1Ø | PROVIDE 24V MODULATING ELECTRIC DAMPER OPERATOR. |

NOTE:
PRESSURE INDICATED IS THE PRESSURE WHICH WILL BE EXERTED ON THE DAMPER FACE WHEN IN THE CLOSED POSITION, SIZE AND NUMBER OF JACKSHAFTS SHALL BE BASED ON THE DAMPER OPENING AGAINST THIS PRESSURE. DAMPER SHALL BE LOW LEAKAGE TYPE RATED AT MAXIMUM 10 CFM PER SQUARE FOOT LEAKAGE AT 4" W.C. THE DAMPER BLADES SHALL BE THE AIRFOIL TYPE WITH EXTRUDED VINYL BLADE EDGE SEALS AND FLEXIBLE METAL COMPRESSION JAMB SEALS.

# LOUVER SCHEDULE

| ITEM | FUNCTION | MANUFACTURER | MODEL | AIRFLOR (CFM) | PRESSURE DROP (IN H20) | VELOCITY (FPM) | SIZE | FREE AREA (SQ. FT.) | DEPTH (IN) | BLADE ANGLE | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| L-1 | INTAKE | RUSKIN | ELF375DX | 7,000 | 0.15 | 673 | 96"x28" | 18.67 | 4" | 37.5° | 1,2 |
| L-2 | RELIEF | RUSKIN | ELF375DX | 7,000 | 0.20 | 648 | 96"x28" | 18.67 | 4" | 37.5° | 1,2,3 |

REMARKS:
1. PROVIDE WITH BIRD/INSECT SCREEN.
2. COORDINATE EXACT LOUVER LOCATION IN FIELD, FIELD VERIFY. PAINT TO MATCH WALL COORDINATE WITH LANDLORD/ARCHITECT PRIOR TO ORDERING.
3. PROVIDE GRAVITY BACKDRAFT DAMPER.

# EXHAUST FAN SCHEDULE

| DESIG'N | SERVICE | MANUFACTURER | MODEL NO. | TYPE | CFM | EXTERNAL STATIC PRESSURE ("W.C.) | ELECTRICAL MOTOR HP (WATTS) | ELECTRICAL VOLTAGE | ELECTRICAL PHASE (Ø) | OPERATING WEIGHT (LBS) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EF-1 | MULTI-GENDER RESTROOM | LOREN COOK | GC-148 | CEILING | 75 | 0.500 | (36) | 120 | 1 | 12 | PROVIDE FSC SPEED CONTROLLER. PROVIDE INTEGRAL DISCONNECT SWITCH AND BACKDRAFT DAMPER, ALUMINUM DELUXE CEILING GRILLE, AND HANGING ISOLATOR KIT. EXHAUST FAN SHALL RUN DURING OCCUPIED HOURS. |
| EF-2 | MULTI-GENDER RESTROOM | LOREN COOK | GC-148 | CEILING | 75 | 0.500 | (36) | 120 | 1 | 12 | PROVIDE FSC SPEED CONTROLLER. PROVIDE INTEGRAL DISCONNECT SWITCH AND BACKDRAFT DAMPER, ALUMINUM DELUXE CEILING GRILLE, AND HANGING ISOLATOR KIT. EXHAUST FAN SHALL RUN DURING OCCUPIED HOURS. |
| EF-3 | MULTI-GENDER RESTROOM | LOREN COOK | GC-148 | CEILING | 75 | 0.500 | (36) | 120 | 1 | 12 | PROVIDE FSC SPEED CONTROLLER. PROVIDE INTEGRAL DISCONNECT SWITCH AND BACKDRAFT DAMPER, ALUMINUM DELUXE CEILING GRILLE, AND HANGING ISOLATOR KIT. EXHAUST FAN SHALL RUN DURING OCCUPIED HOURS. |
| EF-4 | JANITORS/ REFUSE RECYCLE | LOREN COOK | GC-148 | CEILING | 75 | 0.500 | (36) | 120 | 1 | 12 | PROVIDE FSC SPEED CONTROLLER. PROVIDE INTEGRAL DISCONNECT SWITCH AND BACKDRAFT DAMPER, ALUMINUM DELUXE CEILING GRILLE, AND HANGING ISOLATOR KIT. EXHAUST FAN SHALL RUN DURING OCCUPIED HOURS. |
| SEF-1 | NOT USED | - | - | - | - | - | - | - | - | - | - |
| SEF-2(ETR) | NOT USED | - | - | - | - | - | - | - | - | - | EXISTING TO REMAIN, SERVICE AS NEEDED. |

2017 OHIO MECHANICAL CODE VENTILATION SCHEDULE

| | ROOM NO. | ROOM AREA SF. | ROOM NAME | OCCUPANCY CLASSIFICATION | TOILET ROOM # WC+UR | AIRFLOW RATE CFM/ PERSON | AIRFLOW RATE CFM/SF | OCC. DENSITY PER/1000 SF | EXHAUST RATE CFM/SF | EXHAUST RATE CFM/FIXT | REQUIRED OUTDOOR VENTILATION AIR & NUMBER OF PEOPLE CODE # OF PERSONS | OA(PER) | OA(SF) | TOTAL OA | EXHAUST REQUIRED (CFM) | EXHAUST ACTUAL (CFM) | EXHAUST SYSTEM | SUPPLY ACTUAL (CFM) | SUPPLY SYSTEM | REMARKS | ROOM NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RTU-1 | 101 | 3228 | CAFE 101 THRU LOUNGE 125 | SALES (RETAIL) | | 7.5 | 0.12 | 15 | 0 | 0 | 49 | 367.5 | 387.36 | 755 | 0.0 | 0 | 0 | 0 | RTU-1 | | 101 |
| RTU-1 | 105 | 72 | NOOK | OFFICE SPACES (OFFICES) | | 5 | 0.06 | 5 | 0 | 0 | 1 | 5 | 4.32 | 10 | 0.0 | 1 | 0 | 1 | RTU-1 | | 105 |
| RTU-1 | 106 | 72 | NOOK | OFFICE SPACES (OFFICES) | | 5 | 0.06 | 5 | 0 | 0 | 1 | 5 | 4.32 | 10 | 0.0 | 1 | 0 | 1 | RTU-1 | | 106 |
| RTU-1 | 107 | 72 | MONEY COACHING | OFFICE SPACES (OFFICES) | | 5 | 0.06 | 5 | 0 | 0 | 1 | 5 | 4.32 | 10 | 0.0 | 1 | 0 | 1 | RTU-1 | | 107 |
| RTU-1 | 108 | 207 | HALLWAY | CORRIDORS (PUBLIC SPACES) | | 0 | 0.06 | 0 | 0 | 0 | 0 | 0 | 12.42 | 13 | 0.0 | 1 | 0 | 1 | RTU-1 | | 108 |
| RTU-1 | 122 | 297 | PANTRY | STORAGE ROOMS (RETAIL) | | 0 | 0.12 | 0 | 0 | 0 | 0 | 0 | 35.64 | 36 | 0.0 | 0 | 0 | 0 | RTU-1 | | 122 |
| RTU-2 | 109 | 68 | ALL GENDER RESTROOM | TOILET ROOMS (PUBLIC SPACES) | 1 | 0 | 0 | 0 | 0 | 70 | 0 | 0 | 0 | 0 | 70.0 | 0 | 0 | 0 | RTU-2 | | 109 |
| RTU-2 | 110 | 68 | ALL GENDER RESTROOM | TOILET ROOMS (PUBLIC SPACES) | 1 | 0 | 0 | 0 | 0 | 70 | 0 | 0 | 0 | 0 | 70.0 | 0 | 0 | 0 | RTU-2 | | 110 |
| RTU-2 | 111 | 68 | EMPLOYEE RESTROOM | TOILET ROOMS (PUBLIC SPACES) | 1 | 0 | 0 | 0 | 0 | 70 | 0 | 0 | 0 | 0 | 70.0 | 0 | 0 | 0 | RTU-2 | | 111 |
| RTU-2 | 113 | 81 | JANITOR/REFUSE/RECYCLE | STORAGE ROOMS (RETAIL) | | 0 | 0.12 | 0 | 0 | 0 | 0 | 0 | 9.72 | 10 | 0.0 | 0 | 0 | 0 | RTU-2 | | 113 |
| RTU-2 | 114 | 44 | STORAGE | STORAGE ROOMS (RETAIL) | | 0 | 0.12 | 0 | 0 | 0 | 0 | 0 | 5.28 | 6 | 0.0 | 0 | 0 | 0 | RTU-2 | | 114 |
| RTU-2 | 115 | 68 | ELECTRICAL | STORAGE ROOMS (RETAIL) | | 0 | 0.12 | 0 | 0 | 0 | 0 | 0 | 8.16 | 9 | 0.0 | 0 | 0 | 0 | RTU-2 | | 115 |
| RTU-2 | 116 | 121 | IT/AV | TELEPHONE/DATA ENTRY (OFFICES) | | 5 | 0.06 | 60 | 0 | 0 | 8 | 40 | 7.26 | 48 | 0.0 | 0 | 0 | 0 | RTU-2 | | 116 |
| RTU-2 | 117 | 71 | STORAGE | STORAGE ROOMS (RETAIL) | | 0 | 0.12 | 0 | 0 | 0 | 0 | 0 | 8.52 | 9 | 0.0 | 0 | 0 | 0 | RTU-2 | | 117 |
| RTU-2 | 118 | 170 | CAPITAL ONE OFFICE | OFFICE SPACES (OFFICES) | | 5 | 0.06 | 5 | 0 | 0 | 1 | 5 | 10.2 | 16 | 0.0 | 1 | 0 | 1 | RTU-2 | | 118 |
| RTU-2 | 119 | 337 | BREAKROOM | OFFICE SPACES (OFFICES) | | 5 | 0.06 | 5 | 0 | 0 | 2 | 10 | 20.22 | 31 | 0.0 | 1 | 0 | 1 | RTU-2 | | 119 |
| RTU-2 | 120 | 106 | MOTHERS ROOM | OFFICE SPACES (OFFICES) | | 5 | 0.06 | 5 | 0 | 0 | 1 | 5 | 6.36 | 12 | 0.0 | 1 | 0 | 1 | RTU-2 | | 120 |
| RTU-2 | 121 | 83 | CAFE OFFICE | OFFICE SPACES (OFFICES) | | 5 | 0.06 | 5 | 0 | 0 | 1 | 5 | 4.98 | 10 | 0.0 | 1 | 0 | 1 | RTU-2 | | 121 |

# DIFFUSER AND GRILLE SCHEDULE

| PLAN MARK | SERVICE | MODULE | BLADE | MOUNTING LOCATION | FASTENING | MOUNTING FRAME | MATERIAL | FINISH | MANUFACTURER | MODEL NO. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S1A | SUPPLY | 24X24 | SQUARE PLAQUE | CEILING | LAY-IN | TYPE 3 | ALUMINUM | NO. 26 WHITE | TITUS | OMNI-AA | |
| S2 | SUPPLY | 12X12 | SQUARE PLAQUE | CEILING | LAY-IN | TYPE 3 | ALUMINUM | NO. 26 WHITE | TITUS | OMNI-AA | PROVIDE WITH RAPID MOUNT FRAME IN GYP. CEILING |
| S3 | SUPPLY | 6X6 | 3/4" SPACING DBL. DEFL. | WALL | SURFACE | TYPE 1 | STEEL | NO. 26 WHITE | TITUS | 300RS | PROVIDE OPPOSED BLADE DAMPER. |
| SG-1 | SUPPLY | 36X6 | DBL. DEFL. | DUCT | SURFACE | - | ALUMINUM | NO. 26 WHITE | TITUS | S300FS | PROVIDE AIR SCOOP DAMPER. |
| SG-2 | SUPPLY | 18X6 | DBL. DEFL. | DUCT | SURFACE | - | ALUMINUM | NO. 26 WHITE | TITUS | S300FS | PROVIDE AIR SCOOP DAMPER. |
| SG-3 | SUPPLY | 12X6 | DBL. DEFL. | DUCT | SURFACE | - | ALUMINUM | NO. 26 WHITE | TITUS | S300FS | PROVIDE AIR SCOOP DAMPER. |
| L1-S | SUPPLY | 1" WIDE-1 SLOT | - | CEILING | SURFACE | TYPE 66 | ALUMINUM | NO. 26 WHITE | TITUS | FL-10 | PROVIDE 4FT. SECTION, FACTORY PLENUM WITH ROUND CONNECTION, ADJUSTABLE CONTROLLER PATTERN AND END CAPS. |
| L2-S | SUPPLY | 1" WIDE-1 SLOT | - | CEILING | SURFACE | TYPE 66 | ALUMINUM | NO. 26 WHITE | TITUS | FL-10 | PROVIDE 2FT. SECTION, FACTORY PLENUM WITH ROUND CONNECTION, ADJUSTABLE CONTROLLER PATTERN AND END CAPS. |
| R1A | RETURN | 24X24 | SQUARE PLAQUE | CEILING | LAY-IN | TYPE 3 | ALUMINUM | NO. 26 WHITE | TITUS | OMNI-AA | |
| R1B | RETURN | 12X12 | SQUARE PLAQUE | CEILING | SURFACE | TYPE 1 | ALUMINUM | NO. 26 WHITE | TITUS | OMNI-AA | |
| R1C | TRANSFER | - NOT USED | | | | | | | | | |
| E1 | EXHAUST | 24X24 | SQUARE PLAQUE | CEILING | LAY-IN | TYPE 3 | ALUMINUM | NO. 26 WHITE | TITUS | OMNI-AA | PROVIDE WITH RAPID MOUNT FRAME IN GYP. CEILING |
| E1A | EXHAUST | 20X6 | 1/2" SPACING 35° FIXED | DUCT | SURFACE | TYPE 1 | STEEL | NO. 26 WHITE | TITUS | 25RL | |
| E1B | EXHAUST | 16X6 | 1/2" SPACING 35° FIXED | DUCT | SURFACE | TYPE 1 | STEEL | NO. 26 WHITE | TITUS | 25RL | |
| E1C | EXHAUST | 6X6 | 1/2" SPACING 35° FIXED | DUCT | SURFACE | TYPE 1 | STEEL | NO. 26 WHITE | TITUS | 25RL | |


CapitalOne

CAPITAL ONE CAFE
THE COUNTRY CLUB PLAZA
430 NICHOLS ROAD, SPACE J430
KANSAS CITY, MO 64112

CHIPMAN DESIGN ARCHITECTURE INC
1350 E TOUHY AVE
FIRST FLOOR EAST
DES PLAINES, IL 60018
TEL:847.298.6900

WCW Engineers, Inc.
760 Creel Drive
Wood Dale, Illinois 60191
Tel. 630/595-8800
Fax 630/595-8818
www.WCWengineers.com


| △ | Date | Description |
|---|---|---|
| | 12/22/21 | ISSUED FOR PERMIT AND BID |
| △ | 01/21/22 | REVISION 1 |

△

Seal / Signature

STATE OF MISSOURI
JOSEPH G. THOMAS
NUMBER E-27428
REGISTERED PROFESSIONAL ENGINEER

Signature
Date 01/21/2022
Expiration Date 12/31/2023

I HEREBY CERTIFY THAT THESE PLANS HAVE BEEN PREPARED UNDER MY SUPERVISION AND THAT TO THE BEST OF MY KNOWLEDGE, THE SAMECOMPLY WITH ALL RULES, REGULATIONS, AND ORDINANCES OF KANSAS CITY, MO, RELATING TO STRUCTURES AND BUILDINGS.

Project Name

CAPITAL ONE CAFE - COUNTRY CLUB PLAZA

Project Number

21-1400.00

Description

HVAC SCHEDULES

Permit Number

Scale

AS INDICATED

**M-500**