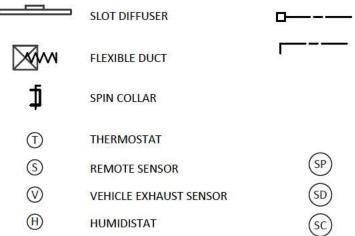
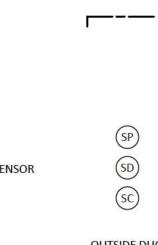
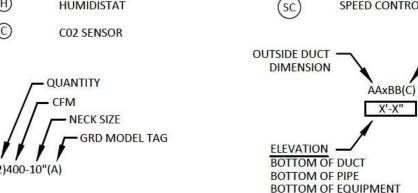
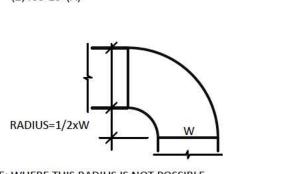
DUCTWORK SYMBOLS LEGEND S/A DIFFUSER EX - EXISTING



R/A DIFFUSER







NOTE: WHERE THIS RADIUS IS NOT POSSIBLE PROVIDE A FULL RADIUS VANE OR A SQUARE ELBOW WITH VANES (BELOW)

R = 2.0 INCHES

► NO TRAILING EDGE

SINGLE THICKNESS VANE

PROJECT NAME:

IMC Ventilation

100A-VESTIBULE

100-PARTS A

101-PARTS B

103-RESTROOM

104-RESTROOM

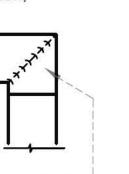
105-PARTS C

106-BREAK

102-OFFICE

ROOM

NUMBER & NAME



O'REILLY - DOLTON

77 RET-STORAGE ROOMS

60 PS-TOILET ROOMS (INT) (Jan Clos =1 WC)

53 OFF-OFFICE SPACES

77 RET-STORAGE ROOMS

33 F&B-DINING ROOMS

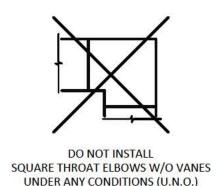
58 PS-CORRIDORS

72 RET-SALES

OCCLIPANCY

CLASSIFICATION

63 PS-TOILET ROOMS (INT) (Jan Clos =1 WC)



DO NOT INSTALL

UNDER ANY CONDITIONS

PROJECT NUMBER:

15 428 43

70 6.3 4

49 48

5 0.4

NOT IN CONTRACT UNLESS NOTED OTHERWISE

BV - B-VENT

OBD - OPPOSED BLADE DAMPER

PV	- PLUMBING VENT
RD	- ROOF DRAIN
 MOD	- MOTOR OPERATED DAMPER
 MVD	- MANUAL VOLUME DAMPER
FD	- FIRE DAMPER

PBD - PARALLEL BLADE DAMPER BDD - BACK DRAFT DAMPER STATIC PRESSURE SENSOR

SMOKE DETECTOR SPEED CONTROLLER

I - LINER

W - WRAPPED

U - UNINSULATED

6 THROWAWAY FILTERS (2") 7 LOUVERED COIL GUARDS 8 STAINLESS STEEL HEAT EXCHANGER

3 DRIVE (DIRECT)

9 SEPARATELY WIRED CONVENIENCE OUTLET

2 INSULATED CURB - FIELD PROVIDED

10 CO2 SENSOR WITH LED DISPLAY AND NO OVERRIDE

4 ENTHALPY ECONOMIZER W/BAROMETRIC RELIEF

ROOFTOP UNIT SCHEDULE

COOLING ENERGY EFFICIENCY

SUPPLY FAN

COOLING COIL

HEATING

DATA

(MIN. REQ'D)

HEATING

(ALTERNATE)

ELECTRICAL

DATA

DATA

LOCATION SERVING

MANUFACTURER

TONS (NOMINAL

REFRIGERANT TYPE

ESP (DUCT ONLY

FAT (DB/WE

COIL LAT (DB/WE

UNIT LAT (DB/WE

INPUT (MBH) (MA)

INPUT (MBH) (MAX

OUTDOOR AIR (CFM

REMARKS / ACCESSORIES

UNIT WEIGHT (LBS

OUTPUT (MBH) (MAX

OUTPUT (MBH) (MA

MODE

CFM

RPM

BHP

MRH

STAGE

STAGE

STAGE

VOI

PHASI

MCA / MOC

11 MEDIUM STATIC

12 TENANT PROVIDED AND FIELD INSTALLED ACCESSORIES: NON-FUSED DISCONNECT SWITCH, GRIDPOINT THERMOSTAT 13 RTU RESPONSIBILITIES:

RTU-1

SALES/STOCK

CARRIER

48GCTM06

16 SEER

R-410A

1,500

1895

0.72

61

81.5/67

54/53.5

55.5/54.5

115

93

150

120

29/40

208

430

1.000

1-19, 22

RTU-2

SALES/STOCK

CARRIER

48HCSD08

75

12 FFR

R-410A

2,250

846

1 08

90

81.5/67

54/53.5

55.5/54.5

125

103

180

150

41/50

208

3

640

1,350

1,2,4-21,22

RTU-3

STOCK

CARRIER

48GCTM06

5

16 SEER

R-410A

1,500

1895

0.72

61

81.5/67

54/53.5

55.5/54.5

115

93

150

120

29/40

208

3

430

1,000

1-19, 22

A) ALL HVAC UNITS ARE OWNER SUPPLIED BY O'REILLY AUTOMOTIVE.

B) MECHANICAL CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF ALL HVAC UNITS. C) MECHANICAL CONTRACTOR IS RESPONSIBLE FOR THE FIRST YEAR LABOR WARRANTY ON ALL OWNER SUPPLIED

5 FDD (ECONOMIZER FAULT DETECTION & DIAGNOSTICS) W/ HONEYWELL 7220 CONTROLLER

EQUIPMENT. D) MECHANICAL CONTRACTOR MUST CALL "CARRIER CORPORATION'S NATIONAL ACCOUNTS" DEPARTMENT FOR

CONFIRMATION OF ORDERS ONLY! CUSTOMER SERVICE REP, MARIA CAMPANELLO. PH: 315-432-3946, Maria.campanello@carrier.utc.com or StrategicAccounts2@carrier.utc.com

E) MECHANICAL CONTRACTOR IS RESPONSIBLE FOR SCHEDULING, SHIPPING & RECEIVING OF ALL CARRIER UNITS FROM CARRIER NATIONAL ACCOUNTS. CONTACT CUSTOMER SERVICE REP.

F) VERIFY ALL RESPONSIBILITIES WITH THE G.C. 14 RETURN SMOKE DETECTOR

15 REMOTE TEST/RESET STATION (#SD-TRM4, CRSDTEST001A00)

16 ALARM/STROBE (#6536-G5, CRSDHNSB001A00)

17 CONDENSATE OVERFLOW SWITCH

18 THRU THE BOTTOM ELECTRIC AND GAS

THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRING AND CONNECTIONS REQUIRED BETWEEN THE 19 SMOKE DETECTOR AND THE UNIT. AND SHALL PROVIDE SMOKE TESTING TO VERIFY PROPER OPERATION AND UNIT SHUT.

EF-2

20 2 SPEED FAN CONTROL

21 DRIVE (BELT)

22 PROVIDE ALTERNATE HEAT IF ACCEPTABLE BY LOCAL CODE

FAN SCHEDULE

LOCATION SERVING		RESTROOMS	OFFICE	
MANUFACTURER		COOK	COOK	
MODEL		GN-642	GN-642	
TYPE		INLINE EXHAUST	INLINE EXHAUST	
CFM		500	500	
ESP (DUCT ONLY)		0.375	0.375	
	FAN RPM	1482	1482	
FAN MOTOR DATA	WATTS	165	165	
	VOLT	120	120	
	PHASE	1	1	
UNIT W	UNIT WEIGHT (LBS) 40		40	
REMARKS / ACCESSORIES		1-6	1-4,7	

2 70

1 70

70

210

- 1 NFW 2 ACCEPTABLE ALTERNATES (NO EXCEPTIONS): GREENHECK, CARNES
- 3 DAMPER (GRAVITY)

1957-1

VENTILATION

CFM/P CFM

- 4 DISCONNECT SWITCH 5 ALUMINUM WALL CAP (WCA-6)

CFM/SF CFM

0.06 2

0.06 5

0.12 240 240

0.12 198 198

1,161

7.5 323 0.12 342 665

7.5 30 0.18 16 46

- 6 SPEED CONTROLLER (UNIT MOUNTED)
- 7 SPEED CONTROLLER (WALL MOUNTED)

VERIFY COLOR WITH ARCHITECT

PROJECT NAME

Multiple Zone = 1

Single or 100% = 2

ACCEPTABLE ALTERNATES (NO EXCEPTIONS): PRICE, KRUEGER, TUTTLE & BAILEY, NAILOR, ARROW, CARNES, ANEMOSTAT

O'REILLY - DOLTON

COMMON VENTILATION SYSTEM CORRECTION VENTILATION (CFM) ROOM Adjstd NAME & NUMBER Target Zp=Voz/Vp Ventilation Note CFM 101 111 100 2.4% 1,943 2,143 2,150 2,150 665 30.9%

100A-VESTIBULE RTU-1.2 100-PARTS A 101-PARTS B 102-OFFICE 260 140 RTU-3, EF-1 103-RESTROOM 18 20 50 50 104-RESTROOM 32 35 50 50 1,336 1,474 1,470 1,470 105-PARTS C 106-BREAK 156 172 180 180 1 4,759 5,250 5,250 5,250

PRIOR TO INSTALLATION, VERIEY ALL DUCTWORK, PIPING, WIRING. ONDUITS AND EQUIPMENT LOCATIONS SHOWN ON DRAWINGS TO AVOID CONFLICTS WITH THE BUILDING STRUCTURE, WALLS, CEILINGS, LIGHTS, ELECTRICAL ITEMS AND/OR OTHER TRADE ITEMS. NOTIFY DESIGN ENGINEER IN WRITING PRIOR TO ANY CHANGES.

90

6,835

ROOM INPUT

AREA

(S.F.)

40

2,850

DIVISION 23 (HVAC)

JOB SPECIFICATIONS ARE AS FOLLOWS

• CODE - CONTRACTOR TO LOCATE, REVIEW AND COMPLY WITH ALL LOCAL, STATE AND/OR NATIONAL CODES. CONTRACTOR TO SPECIFICALLY LOCATE, REVIEW AND COMPLY WITH ALL LOCAL CODE AMENDMENTS.

• WORKMANSHIP/WARRANTY - CONTRACTOR IS RESPONSIBLE FOR ALL MEANS, MATERIALS, METHODS, TECHNIQUES, SEQUENCES AND DETAILS TO PERFORM ITS WORK. ALL MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL BE GUARANTEED FOR A MINIMUM OF ONE (1) YEAR FROM THE DATE THE EQUIPMENT/SYSTEMS ARE PLACED INTO OPERATION AND ACCEPTED BY THE OWNER. WARRANTY TO INCLUDE LABOR & MATERIALS REQUIRED FOR

 EQUIPMENT MANUFACTURER INSTRUCTIONS - CONTRACTOR TO FOLLOW EQUIPMENT MANUFACTURER'S INSTALLATION, OPERATION AND MAINTENANCE (IOM) MANUALS FOR ALL NEW EQUIPMENT. EQUIPMENT MANUFACTURER'S IOM INSTRUCTIONS SUPERSEDE ANY CONFLICTS WITH THESE

 SCHEDULED EQUIPMENT - CONTRACTOR PRICING TO BE BASED ON THE SCHEDULED EQUIPMENT. SUBSTITUTIONS TO BE SUBMITTED AS DEDUCTS (OR ADDS) TO THE BASE CONTRACT ALONG WITH A DESCRIPTION OF THE DIFFERENCES. ALL SUBSTITUTIONS WILL REQUIRE THE CONTRACTOR TO SUBMIT REVISED DIGITAL SHOP DRAWINGS (IN AUTOCAD FORMAT) FOR REVIEW PRIOR TO INSTALLATION. THE REVISED DRAWINGS TO INCLUDE (BUT ARE NOT LIMITED TO) THE REVISED EQUIPMENT SPECIFICATION SCHEDULES, LOCATIONS, WEIGHTS, DUCTWORK, PIPING, WIRING, BREAKERS (ETC.). THE REVISED DRAWINGS TO SHOW THE ENTIRE SYSTEM AS THE SYSTEM WILL BE INSTALLED BY THE CONTRACTOR.

 SUBMITTALS - CONTRACTOR TO COORDINATE SUBMITTAL SCHEDULE WITH OWNER IMMEDIATELY AFTER ACCEPTANCE OF CONTRACT, AS SOON AS POSSIBLE BEFORE CONSTRUCTION, CONTRACTOR TO EMAIL NEW FOUIPMENT, FIXTURES AND/OR SHOP DRAWING SUBMITTALS (INCLUDING ALL

ACCESSORIES). NO NEW EQUIPMENT, FIXTURES AND/OR SHOP DRAWING ITEMS ARE TO BE INSTALLED UNTIL SUBMITTED INFORMATION IS APPROVED. SHOP DRAWINGS - BEFORE INSTALLATION, PROVIDE 1/4" SCALE 'SHOP DRAWINGS' FOR COORDINATION AND APPROVAL. 'SHOP DRAWINGS' TO SHOW DIMENSIONS, ELEVATIONS AND LOCATIONS OF ALL EQUIPMENT, DUCTWORK, PIPING, WIRING AND CONDUIT. INSTALLATION TO START ONLY AFTER WRITTEN APPROVAL FROM ENGINEER, ALL CONTRACTOR PROVIDED DRAWINGS TO BE MADE WITH 'AUTO CAD' DRAFTING SOFTWARE AND SUBMITTED IN BOTH AUTOCAD AND ADOBE DIGITAL FORMAT. [NOTE - DESIGN DRAWINGS, NOTES AND/OR ADDENDUMS ARE NOT TO BE COPIED OR REPRODUCED IN

ANY WAY FOR USE AS CONTRACTOR SUBMITTED DRAWINGS. PROVIDE (4) PAPER HARD COPIES OF SHOP DRAWINGS AS BUILT DRAWINGS - UPON COMPLETION OF THE INSTALLATION WORK, PROVIDE 'AS BUILT' CHANGES CLEARLY SHOWING THE FINAL DIMENSIONS, ELEVATIONS AND LOCATIONS OF ALL EQUIPMENT, DUCTWORK, PIPING, WIRING AND CONDUIT. ALL AS BUILT DRAWING CHANGES TO BE MADE WITH 'AUTO CAD' DRAFTING SOFTWARE AND SUBMITTED IN BOTH AUTOCAD AND ADOBE DIGITAL FORMAT. [NOTE - DESIGN DRAWINGS, NOTES AND/OR

ADDENDUMS ARE NOT TO BE COPIED OR REPRODUCED IN ANY WAY FOR USE AS CONTRACTOR SUBMITTED DRAWINGS. POST CONSTRUCTION DOCUMENTS - CONTRACTOR TO EMAIL A MICROSOFT WINDOWS FORMAT FOLDER INCLUDING ALL REQUIRED PROJECT CLOSE OUT DOCUMENTS. THE WINDOWS FORMAT FOLDER TO INCLUDE SUB-FOLDERS AND TO BE LABELLED AS PER BELOW. [ALSO PROVIDE (3) EXACT PRINTED

o TRADE NAME 1. WARRANTY - WARRANTY LETTER INCLUDING THE AGREED UPON START DATE

2. EQUIPMENT - COMPLETE LIST OF MODEL NUMBERS AND SERIAL NUMBERS FOR EACH PIECE OF EQUIPMENT

3. IOM - INSTALLATION, OPERATION AND/OR MAINTENANCE (IOM) MANUALS. INCLUDE PARTS LIST FOR EACH PIECE OF EQUIPMENT 4. VENDERS LIST - LIST OF CONTACT INFORMATION INCLUDING CONTACT NAME, PHONE NUMBER AND EMAIL ADDRESS FOR EQUIPMENT.

5. AS BUILT DRAWING - AS BUILT DRAWING INCLUDING FINAL LOCATION FOR EACH PIECE OF EQUIPMENT

6. TEST & BALANCE REPORT - REPORT OF ALL FINAL TESTED AND BALANCED AIR AND WATER SYSTEMS. SEE DIVISION 23 NOTES. ACCESS DOORS - CONTRACTOR TO FURNISH AND INSTALL ACCESS DOORS AS REQUIRED. EACH TRADE TO COORDINATE WITH CARPENTRY CONTRACTOR THE LOCATION OF ACCESS DOORS IN ALL CEILINGS, SOFFITS AND WALLS FOR ACCESS TO EQUIPMENT, VALVES, DAMPERS, FIRE DAMPERS, CLEAN OUTS,

SWITCHES, CONTROLS, ETC STRUCTURE PROTECTION - THE BUILDING OR STRUCTURE SHALL NOT BE WEAKENED BY THE INSTALLATION OF ANY NEW SYSTEMS. WHERE FLOORS, WALLS, CEILINGS OR ANY OTHER PORTION OF THE BUILDING OR STRUCTURE ARE REQUIRED TO BE ALTERED OR REPLACED IN THE PROCESS OF INSTALLING
4) CURBS: OR REPAIRING ANY SYSTEM, THE BUILDING OR STRUCTURE SHALL BE LEFT IN A SAFE STRUCTURAL CONDITION IN ACCORDANCE WITH ALL LOCAL, STATE

• FIRE RESISTANT ASSEMBLIES - PENETRATIONS OF WALL/FLOOR/CEILING ASSEMBLIES AND ASSEMBLIES REQUIRED TO HAVE A FIRE-RESISTANCE RATING SHALL BE PROTECTED IN ACCORDANCE WITH ALL LOCAL. STATE AND/OR NATIONAL CODES.

 ACCESSIBILITY - MANUAL ACCESSIBLE ITEMS IN OCCUPIED SPACES (SUCH AS CONTROLS, THERMOSTATS, SWITCHES AND ELECTRICAL OUTLETS) TO BE LOCATED NO HIGHER THAN 48" AND NO LOWER THAN 15" PER THE AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS, VERIFY LOCAL ACCESSIBILITY CODE REQUIREMENTS OVER AND ABOVE THE ADA REQUIREMENTS. COORDINATE FINAL MOUNTING HEIGHTS WITH OWNER.

COPIES IN SEPARATE HARD BINDERS.]

KEEP OUTSIDE AIR INTAKES A MINIMUM OF 10'-0" AWAY FROM CONTAMINANT SOURCES.

• KEEP B-VENTS A MINIMUM OF 3'-0" ABOVE ROOF PENETRATION AND/OR 2'-0" ABOVE ANY PART OF THE BUILDING WITHIN 10'-0". B-VENTS TO CLEAR THERMOSTATS, SENSORS AND CONTROL PANELS FOR HVAC EQUIPMENT SHALL BE LOCATED IN ACCORDANCE WITH THE MECHANICAL PLANS. FURNISH

AND INSTALL CLEAR LOCKING COVERS FOR ALL T-STATS. ALL COVERS TO BE KEYED THE SAME.

PROVIDE ENGRAVED TAGS FOR ALL HVAC EQUIPMENT

• PROVIDE FACTORY START UP FOR ALL EQUIPMENT.

NORK	ITEM	SCHEDULE	
		345	

ITEM	PROVIDED BY	INSTALLED BY	WIRED BY	NOTES/REMARKS		
T-STAT(S)	Т	T	Т	INSTALLED BY TENANT'S EMS CONTRACTOR		
SMOKE DETECTOR(S)	MC	MC	MC	PROVIDED WITH UNIT(S)		
REMOTE TEST STATION(S)	MC	MC	MC	PROVIDED WITH UNIT(S)		
REMOTE ALARM(S)/STROBE(S)	MC	MC	MC	PROVIDED WITH UNIT(S)		
EMS (GRIDPOINT)	Т	T	T	INSTALLED BY TENANT'S EMS CONTRACTOR		
CO2 SENSOR(S)	МС	MC	MC	RTU'S (PROVIDED WITH UNITS) COORDINATE WITH EMS CONTRACTOR		
OCCUPANCY SENSOR(S)	EC	EC	EC	TOILET EF		
SPEED CONTROLLER(S)	MC	EC	EC	OFFICE EF		

MC - MECHANICAL CONTRACTOR

EC - ELECTRICAL CONTRACTOR

T - TENANT (MECHANICAL CONTRACTOR AND/OR GENERAL CONTRACTOR TO HIRE TENANT SUGGESTED EMS VENDOR. SEE GRIDPOINT SCOPE OF WORK ON "EM" SHEETS FOR ADDITIONAL INFORMATION.)

RILLE, REGISTER & DIFFUSER SCHEDULE							
AG	Α	A1	В	С	Е	F ²	
IFGR.	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	
IODEL	TMS	TMSA	50F	300RL	350ZRL	T700L (STEEL)	
YPE	S/A DIFFUSER	S/A DIFFUSER	R/A GRILLE	REGISTER	E/A GRILLE	DOOR GRILLE	
ECK SIZE	SEE PLAN	SEE PLAN	SEE PLAN	SEE PLAN	SEE PLAN	SEE PLAN	
IOUNTING TYPE	LAY IN	SURFACE	LAY IN/SURFACE	SURFACE	SURFACE	SURFACE	
AMPER	125	u <u>2</u> :	525 525	OBD	OBD	22%	
EMARKS/ACCESSORIES	1,2	1,2,4	1,2	1,2	1,2	1,2,3	

GRILLE WITH BORDER ON BOTH SIDES OF DOOR

DIRECTIONAL TABS

24.2%

3.9%

198 13.5%

46 25.7%

Ev = 0.8 1,452 Corrected Total Outdoor Airflow Rate

1,161

Max Zp = 30.9% O/A Percent- Critical Space

DIVISION 23 (HVAC-CONTROLS)

• THE FOLLOWING ARE CONTROL SEQUENCES ONLY. CONTROLS DESIGN AND INSTALLATION TO BE BY LICENSED DESIGN/BUILD CONTROLS CONTRACTOR. CONTROL ACCESSORIES TO BE INSTALLED AND WIRED AS PER THE ORIGINAL FOUIPMENT MANUFACTURERS (OFM) REQUIREMENTS. NON-OFM BUILT UP CONTROL EQUIPMENT TO BE HONEYWELL OR CARRIER. CONTROLS CONTRACTOR TO PROVIDE (4) SETS OF CONTROLS DIAGRAMS AND EQUIPMENT SUBMITTALS FOR APPROVAL PRIOR TO INSTALLATION FOR ALL BUILT UP CONTROL SYSTEMS, MECHANICAL CONTRACTOR IS RESPONSIBLE FOR AND TO COORDINATE INSTALLATION OF CONTROLS, CONTROL WIRING AND CONTROLS EQUIPMENT REQUIRED FOR ALL MECHANICAL EQUIPMENT. COORDINATE LOCATION OF ALL NEW CONTROL PANELS AND CONTROLLERS WITH OWNER PRIOR TO INSTALLATION.

ALL DUCTWORK SHALL MEET S.M.A.C.N.A. STANDARDS AS LISTED IN THE INTERNATIONAL MECHANICAL CODE. DUCTWORK TO BE GALVANIZED SHEET

ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK, SHALL BE SECURELY FASTENED AND SEALED WITH WELDS,

- UNINSULATED SPIRAL TYPE WITH GASKETED FITTINGS (LINDAB OR EQUAL)

ONE HALF THE DUCT WIDTH (SEE DUCTWORK SYMBOLS LEGEND)

- AT ALL FINAL DIFFUSER & GRILLE TAP LOCATIONS (LOCKING TYPE)

- OPPOSED FLAT BLADE, LOCKABLE (RUSKIN CD355-OBD)

- PARALLEL FLAT BLADE, LOCKABLE (RUSKIN CD355-PBD)

- ALUMINUM MEDIUM DUTY TYPE (RUSKIN BD6)

o INSIDE DUCT LINER TO BE KNAUF SONIX XP DUCT LINER (1.5 PCF) OR OWENS CORNING EQUIVALENT.

CURBS TO BE INSULATED AND A MINIMUM 12" HIGH. CURBS TO BE PITCHED TO MATCH SLOPE OF ROOF.

- OPPOSED AIRFOIL BLADE, LOW LEAK, CLASS 1 (RUSKIN CD60)

o DUCT WRAP FOR INTERIOR DUCTWORK TO BE KNAUF FRIENDLY FEEL DUCT WRAP (1.5 PCF) OR OWENS CORNING EQUIVALENT.

o BACKDRAFT DAMPER W/CB - ALUMINUM MEDIUM DUTY TYPE WITH COUNTER BALANCE. LOW LEAK BLADE EDGE SEALS (RUSKIN CBD4)

ALL HVAC PIPING AND PIPE MATERIALS TO MEET ASTM AND ASME STANDARDS AS LISTED IN THE INTERNATIONAL MECHANICAL CODE AND LOCAL CODES.

• PRESSURE RATINGS - PIPE, FITTING AND VALVE PRESSURE RATINGS TO EXCEED MAXIMUM SYSTEM OPERATING PRESSURE BY A MINIMUM OF 20%. VERIFY

o all above ground gas piping to be sch. 40 black steel with screwed malleable fittings for 2" and smaller piping and welded for 2

o ANCHOR ALL FOUIPMENT, DUCTWORK AND PIPING TO APPROVED STRUCTURES WITH ULLISTED AND FACTORY MUTUAL APPROVED ANCHORING AND SUPPORT PRODUCTS, APPROVED ANCHORING SYSTEMS INCLUDE CONCRETE DROP IN ANCHORS, TOP CHORD MOUNTED C-CLAMPS AND TOP CHORD

o FURNISH AND INSTALL VIBRATION ISOLATION TO PREVENT TRANSMISSION OF SOUND AND VIBRATION FROM MOTORIZED AND ROTATING EQUIPMENT

TO THE BUILDING STRUCTURE, TYPICAL APPROVED VIBRATION ISOLATION PRODUCTS INCLUDE ISOLATION HANGERS, ISOLATION SPRINGS, ISOLATION PADS AND ISOLATION CURBS. PROVIDE THE ABOVE ISOLATION FOR ALL EQUIPMENT 1/2 HORSEPOWER OR GREATER OR AS PER THE MANUFACTURERS

FLEXIBLE CONNECTORS. (AIR HANDLING UNITS, INLINE FANS, UTILITY SETS, ROOF MOUNTED UNITS WITH ISOLATION PADS OR ISOLATION CURBS, ETC.)

o PIPING TO BE SUPPORTED WITH CLEVIS HANGERS AND INSULATION PROTECTORS WHERE INSULATED. ALLOW FOR EXPANSION AND DO NOT DIRECTLY

SMOKE DETECTORS TO BE PROVIDED AS PER NFPA AND LOCAL CODES. SMOKE DETECTORS SHALL BE INSTALLED IN RETURN AIR SYSTEMS, WITH A DESIGN

DETECTOR TO SHUT UNIT(S) DOWN UPON ALARM, SMOKE DETECTORS TO BE 4-WIRE PHOTOELECTRIC TYPE (SYSTEM SENSOR INNOVAIRFLEX SERIES OR EQUAL). REMOTE TEST STATION(S) TO BE EQUAL TO EDWARDS SIGNALING PRODUCTS MODEL SD-TRK4. FINAL MAKE AND MODEL TO BE COORDINATED

• FIRE DAMPERS TO BE PROVIDED AS PER NFPA AND LOCAL CODES. MINIMUM 18x18 ACCESS DOOR TO BE PROVIDED AT EVERY FIRE DAMPER NOT LOCATED DIRECTLY BEHIND A REMOVABLE GRILLE, REGISTER OR DIFFUSER. FIRE DAMPERS TO BE "B STYLE", U.L. 555 LISTED, 1 5 HOUR DAMPERS (SAFE AIR DOWCO

• TEST AND BALANCE CONTRACTOR TO BE COMPLETELY INDEPENDENT OF THE MECHANICAL CONTRACTOR AND NOT TO BE A SUB TO THE MECHANICAL CONTRACTOR, BALANCE ALL EQUIPMENT, GRILLES, REGISTERS AND DIFFUSERS TO FLOW RATES SHOWN ON THE PLANS, FURNISH AND INSTALL ALL NECESSARY DRIVES, SHEAVES & BELTS AS REQUIRED TO PROVIDE COMPLETE AND OPERABLE SYSTEMS. VARIABLE FREQUENCY DRIVES NOT TO BE RAISED ABOVE 60 HZ FOR ANY REASON UNLESS APPROVED IN WRITING BY THE ENGINEER. FINAL TEST AND BALANCE REPORT TO INCLUDE FLOWRATES (CFM/GPM/LBS PER HOUR), PRESSURES (FAN STATIC/PUMP HEAD), RPM (FAN/PUMP), MOTOR (RPM/ VOLTS/PHASE/AMPS/POWER FACTOR). ALL TESTING AND BALANCING TO BE PERFORMED BY N.E.B.B. AND/OR A A.B.C. CERTIFIED TECHNICIANS. PROVIDE 'PDF' FORMAT AND (3) PAPER COPIES OF

CAPACITY GREATER THAN 2000 CEM. IN THE RETURN AIR DUCT OR PLENUM UPSTREAM OF ANY FILTERS, EXHAUST AIR CONNECTIONS, OUTDOOR AIR CONNECTIONS OR DECONTAMINATION EQUIPMENT AND APPLIANCES. SAMPLING TUBES TO MATCH LONG DIMENSION OF DUCT PLENUM. DUCT SMOKE

o ROOF MOUNTED PIPING SUPPORT TO BE CLOSED CELL MEDIUM DENSITY POLYETHYLENE FOAM BLOCK PIPE PIER (TOLCO BY NIBCO OR EQUAL).

o DUCTWORK TO BE SUPPORTED IN ACCORDANCE WITH S.M.A.C.N.A. STANDARDS. MAXIMUM OF 12' O.C. SUPPORT INTERVALS.

RECOMMENDATIONS. FURNISH AND INSTALL ISOLATION CURBS AND FLEXIBLE PIPING CONNECTIONS ONLY AS SPECIFICALLY NOTED ON PLANS.

FURNISH AND INSTALL EQUIPMENT DUCTWORK CONNECTIONS WITH SIX INCH (6") LONG DOUBLE THICK, AIR TIGHT, WATER TIGHT AND FIREPROOF

SHEET METAL DUCT STRAPS, U-CHANNEL, ANGLE IRON AND/OR PIPE CLEVIS HANGERS. FOLLOW THE ABOVE REQUIREMENTS UNLESS NOTED

MOUNTED BEAM CLIP DUCTWORK STRAP HANGERS. APPROVED SUPPORT SYSTEMS INCLUDE MINIMUM 3/8" THREADED ROD. MINIMUM 1" 20 GAUGE

CONTACT THE CITY/TOWNSHIP FOR THE PROPER EDITIONS AND AMENDMENTS OF THE ALL RELATIVE CODE PUBLICATIONS. ALL GAS PIPING AND

SEALED AND MECHANICALLY FASTENED. DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS.

- INSULATED (5'-0" MAXIMUM LENGTH)

- INSULATED (5'-0" MAXIMUM LENGTH)

UNINSULATED. (5'-0" MAXIMUM LENGTH)

- OUTSIDE DIMENSIONS SHOWN ON PLANS

AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE

GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS, OR TAPES. TAPE AND MASTICS USED TO SEAL DUCTWORK SHALL BE LISTED

METAL UNLESS NOTED OTHERWISE.

LOW PRESSURE:

o ROUND S/A

o ROUND R/A

o ROUND E/A

o FLEX S/A

o FLEX R/A

o FLEX E/A

o DIMENSIONS

o SHOE-TAPS

ELBOW RADIUS

o RECT. BALANCING

o E/A AND O/A (MOD)

DUCT SEAL CLASS

1/2" AND LARGER PIPING.

EQUIPMENT VIBRATION ISOLATION

DRAIN PIPING:

PIPING SUPPORT

◆ STEEL PIPE

DUCTWORK SUPPORT:

PVC PIPE

FIRE DAMPERS:

9) TESTING & BALANCING

INSULATION & LINER

o BACKDRAFT DAMPER

o RECT. MIXING

o RTU S/A & R/A DROPS

o RECTANGULAR S/A

o RECTANGULAR R/A

o RECTANGULAR E/A

o ROUND (EXPOSED)

o RECT. DUCT LENGTHS

o BALANCING DAMPERS

ALL RECTANGULAR BRANCH DUCTS TO HAVE OPPOSED BLADE DAMPERS.

- 2" LINER

- 2" LINER.

2" LINER.

- 6" LONG

o DUCT PRESSURE CLASS - 1" W.C. (LOW PRESSURE)

o ADD INSULATION TO LINED DUCTWORK IF NEEDED.

- CLASS A

EACH PIPE SYSTEM OPERATING PRESSURE BEFORE INSTALLATION.

ANCHORING, SUPPORT & ISOLATION (EQUIPMENT, PIPING & DUCTWORK):

ATTACH PIPE BETWEEN ANY TWO FIXED STRUCTURES.

o MAXIMUM PIPE SUPPORT SPACING SHALL BE AS FOLLOWS.

◆ COPPER PIPE - 12' HORIZONTAL, 15' VERTICAL

) SMOKE DETECTORS AND REMOTE TEST STATIONS

WITH SMOKE DETECTORS FOR ALL UNITS.

150 SERIES OR EQUAL) UNLESS NOTED OTHERWISE.

- 12' HORIZONTAL, 15' VERTICAL

4' HORIZONTAL, 10' VERTICAL (MID-STORY GUIDE)

- UNINSULATED

- UNINSULATED.

- 2" FIBERGLASS WRAF

- 2" FIBERGLASS WRAP

- 59" WITH S&D JOINTS

o MINIMUM R-6 FOR INTERIOR DUCTWORK. MINIMUM R-12 FOR EXTERIOR DUCTWORK

MATERIALS TO MEET ASTM STANDARDS AS LISTED IN THE INTERNATIONAL FUEL GAS CODE

ALL DWV PIPING TO BE PLAIN END SCH. 40 DWV PVC WITH SOCKET TYPE DWV PVC FITTINGS.

OTHERWISE BY EQUIPMENT MANUFACTURER OR STAMPED STRUCTURAL SUPPORT DRAWINGS

) COMMERCIAL VENTILATION

• PACKAGED ROOFTOP AIR HANDLING UNITS - TO BE CONTROLLED BY GRIDPOINT EMS SYSTEM PROVIDED BY TENANT AND INSTALLED BY TENANT'S SUGGESTED GRIDPOINT EMS CONTRACTOR. MECHANICAL CONTRACTOR OR GENERAL CONTRACTOR TO HIRE EMS CONTRACTOR. MECHANICAL CONTRACTOR TO COORDINATE WITH TENANT'S SUGGESTED EMS CONTRACTOR. SEE TENANT'S "VS SHEETS" FOR MORE INFORMATION.

• INLINE EXHAUST TOILET FAN - TO BE ENERGIZED BY OCCUPANCY SENSOR FOR BOTH FAN AND LIGHT. INLINE EXHAUST OFFICE FAN - TO BE ENERGIZED BY WALL MOUNTED SPEED CONTROLLER.

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REVISIONS

1 1/3/20

