

GRILLES, REGISTERS, & DIFFUSERS

| TAG | SERIES | DUTY | MATERIAL | DAMPER | NOM. FACE SIZE | CFM | NECK (N. DIAM.) | TYPE / NOTES |
|-----|----------|-----------------|----------|--------|----------------|-----------|-----------------|--|
| A | TMS | SUPPLY | STEEL | YES | 24x24 | SEE PLANS | SEE PLANS | MULTI-LOUVERED DIFFUSER STANDARD COMMERCIAL TYPE ① ② |
| B | TMS | SUPPLY | STEEL | YES | 12x12 | SEE PLANS | SEE PLANS | |
| C | 50F | SUPPLY | ALUMINUM | YES | 24x24 | SEE PLANS | SEE PLANS | EGGCRATE |
| D | 50F | RETURN/TRANSFER | ALUMINUM | YES | 24x24 | SEE PLANS | SEE PLANS | EGGCRATE |
| E | 50F | TRANSFER | ALUMINUM | YES | 12x24 | SEE PLANS | SEE PLANS | EGGCRATE |
| F | ML/MP-39 | SUPPLY | ALUMINUM | YES | SEE PLANS | SEE PLANS | SEE PLANS | LINEAR SLOT DIFFUSER ③ |

NOTES:

A. REFER TO ARCHITECTURAL DRAWINGS FOR TYPE OF CEILING AND/OR SUSPENSION SYSTEM.
B. COLOR SHALL BE BY ARCHITECT. SUBMIT COLOR CHART FOR APPROVAL.

① PROVIDE DAMPER INTEGRAL WITH DIFFUSER AS WELL AS AT TAKE-OFF.

② 12x12 DIFFUSER TO BE PROVIDED WITH 24x24 LAY-IN PANEL, IF SHOWN ON PLANS.

③ 4'-0" LONG DIFFUSER WITH (2) 1" SLOTS AND INSULATED MANUFACTURER'S PLENUM.

SELECTIONS ARE BASED ON PRODUCTS BY TITUS.

LEGEND

| SYMBOL | DESCRIPTION | ABBREVIATION | SYMBOL | DESCRIPTION | ABBREVIATION |
|--------|--|--------------|--------|--------------------------|--------------|
| | CEILING SUPPLY GRILLE WITH FLEX DUCT | --- | --- | ABOVE FINISHED FLOOR | AFF |
| | CEILING RETURN GRILLE WITH FLEX DUCT | --- | --- | BELOW FINISHED CEILING | BFC |
| | DIFFUSER TYPE "A", BALANCED FOR 100 CFM, 6" NECK | --- | --- | CLEANOUT | CO |
| | DUCT SIZE (RECTANGULAR) | --- | --- | CONDENSATE DRAIN | CD |
| | DUCT SIZE (ROUND) | --- | --- | DRY BULB | DB |
| | EQUIPMENT DESIGNATION | --- | --- | ENTERING AIR TEMPERATURE | EAT |
| | EXHAUST FAN | EF | --- | EXHAUST FAN | EF |
| | FIRE DAMPER (HORIZONTAL) | FD | --- | EXTERNAL STATIC PRESSURE | ESP |
| | FIRE DAMPER (VERTICAL) | FD | --- | INTAKE HOOD | IH |
| | MANUAL VOLUME DAMPER | MVD | --- | LEAVING AIR TEMPERATURE | LAT |
| | SMOKE DETECTOR | SD | --- | OPPOSED BLADE DAMPER | OBD |
| | THERMOSTAT | T-STAT | --- | OUTSIDE AIR | OA |
| | 1000 BTU/HR | MBH | --- | RETURN AIR | RA |
| | | | --- | ROOFTOP UNIT | RTU |
| | | | --- | SMOKE DETECTOR | SD |
| | | | --- | SUPPLY AIR | SA |
| | | | --- | SUPPLY FAN | SF |
| | | | --- | UNLESS NOTED OTHERWISE | UNO |
| | | | --- | WET BULB | WB |

AIR BALANCE SUMMARY

| TAG | SUPPLY AIR (CFM) | RETURN AIR (CFM) | OUTSIDE AIR (CFM) | EXHAUST AIR (CFM) | BUILDING PRESSURE (CFM) |
|--------------------------------------|------------------|------------------|-------------------|-------------------|-------------------------|
| RTU-1 | 2,000 | 1,600 | 400 | --- | +400 |
| RTU-2 | 2,400 | 2,170 | 480 | --- | +480 |
| RTU-3 | 2,000 | 1,600 | 400 | --- | +400 |
| MUA-1 | 2,500 | --- | 2,500 | --- | +2,500 |
| SF-1 | 1,710 | --- | 1,710 | --- | +1,710 |
| SF-2 | 3,200 | --- | 3,200 | --- | +3,200 |
| TOTAL INTAKE VENTILATION AIR (CFM) | | | | | +8,690 |
| EF-1 | --- | --- | --- | 150 | -150 |
| EF-2 | --- | --- | --- | 75 | -75 |
| EF-3 | --- | --- | --- | 2,000 | -2,000 |
| EF-4 | --- | --- | --- | 2,000 | -2,000 |
| EF-5 | --- | --- | --- | 2,150 | -2,150 |
| EF-6 | --- | --- | --- | 525 | -525 |
| EF-7 | --- | --- | --- | 1,000 | -1,000 |
| TOTAL EXHAUST AIR (CFM) | | | | | -7,900 |
| NET POSITIVE BUILDING PRESSURE (CFM) | | | | | +790 |

NOTES:

1. A COMPLETE TEST AND AIR BALANCE SHALL BE PERFORMED ON ALL AIR DISTRIBUTION EQUIPMENT. THE TEST AND BALANCE SHALL BE PERFORMED BY AN INDEPENDENT, FULLY CERTIFIED TAG AGENCY THAT SPECIALIZES IN THE TESTING AND BALANCING OF AIR SYSTEMS AS CONTRACTED BY THE OWNER. THE TAG AGENCY SHALL SUBMIT THE OWNER (6) COPIES OF A WRITTEN REPORT WITHIN 10 DAYS AFTER THE INSPECTION IS COMPLETE. LIST ALL COMPLAINTS AND MALFUNCTIONS ENCOUNTERED AND INDICATE STEPS TAKEN OR NEEDED TO BE TAKEN TO CORRECT.

2. TEST AND BALANCE SUB-CONTRACTOR SHALL BE PROVIDED BY OWNER. G.C. TO COORDINATE SCHEDULE.

DX COOLING ROOFTOP UNITS W/ NATURAL GAS HEAT

| TAG | MODEL No. | NOMINAL TONS | TOTAL CFM | MIN. OA CFM | MAX. FAN HP | ESP | COOLING | | HEATING | | UNIT WEIGHT (LBS.) | ACCESSORIES |
|---------|-----------|--------------|-----------|-------------|-------------|-------|-----------------|-----------------|-----------------|------------------|--------------------|----------------------------|
| | | | | | | | TOT. COOL (MBH) | SEN. COOL (MBH) | GAS INPUT (MBH) | GAS OUTPUT (MBH) | | |
| RTU-1,3 | YSC060 | 5.0 | 2000 | 400 | 1.0 | 0.50" | 60.0 | 47.1 | 60.0 | 48.0 | 800 | 1,2,3,4,5,6,7,8,9,10,11,12 |
| RTU-2 | YSC072 | 6.0 | 2400 | 480 | 0.7 | 0.50" | 72.6 | 52.1 | 80.0 | 64.0 | 1,000 | 1,2,3,4,5,6,7,8,9,10,11,12 |

NOTES:

A. COOLING CAPACITY BASED ON 80°F DB/67°F WB INDOOR ENTERING AIR TEMPERATURE AND 100°F DB ENTERING OUTDOOR TEMPERATURE.
B. ESP DOES NOT INCLUDE COIL, CASING OR FILTER LOSSES.
C. UNIT WEIGHT INCLUDES CURB.
D. MINIMUM EER OF 10.3
E. MINIMUM STEADY-STATE COMBUSTION 80% EFFICIENCY.

ACCESSORIES:

1. 14" HIGH INSULATED ROOF CURB BY UNIT MANUFACTURER.
2. 7-DAY PROGRAMMABLE THERMOSTAT WITH SETBACK CAPABILITY AND AUTO CHANGEOVER.
3. SMOKE DETECTOR IN RETURN AIR DUCT.
4. MOTORIZED OUTDOOR AIR DAMPER.
5. INTEGRAL FILTER RACK WITH 1" THICK DISPOSABLE FILTERS.
6. BAROMETRIC RELIEF DAMPER.
7. SINGLE-POINT POWER CONNECTION W/ UNIT MOUNTED DISCONNECT.
8. DISCHARGE AND RETURN FLEX CONNECTIONS.
9. BELT DRIVE FAN MOTORS.
10. LOW GAS HEAT.
11. STANDARD STATIC DRIVE.
12. REFERENCE HURRICANE TIE-DOWN DETAIL ON SHEET M-1.1.

SELECTIONS ARE BASED ON PRODUCTS BY TRANE.

FANS

| TAG | MODEL | DUTY | CFM | E.S.P. | SONES | MOTOR SIZE | RPM | DRIVE | WEIGHT (LB) | ACCESSORIES |
|------|-----------|-------------------------|-------|--------|-------|------------|------|--------|-------------|------------------|
| EF-1 | SP-A200 | TOILET EXHAUST | 150 | 0.25" | 1.9 | FRAC. HP | 900 | DIRECT | 21 | 1,2,3,4 |
| EF-2 | SP-A110 | TOILET EXHAUST | 75 | 0.25" | 1.3 | FRAC. HP | 950 | DIRECT | 15 | 1,2,3,4 |
| EF-3 | NCA14FA | COOKING HOOD EXHAUST | 2,000 | 1.00" | --- | 1.00 HP | 1225 | BELT | 125 | 5,6,7,8,10,12,13 |
| EF-4 | NCA14FA | COOKING HOOD EXHAUST | 2,000 | 1.00" | --- | 1.00 HP | 1225 | BELT | 125 | 5,6,7,8,10,12,13 |
| EF-5 | NCA14FA | COOKING HOOD EXHAUST | 2,150 | 1.00" | --- | 1.00 HP | 1260 | BELT | 125 | 5,6,7,8,10,11,13 |
| EF-6 | DU30HFA | DISHWASHER HOOD EXHAUST | 525 | 0.50" | --- | 0.25 HP | 1185 | BELT | 61 | 5,7,8,10,13 |
| EF-7 | NCA10FA | COOKING HOOD EXHAUST | 1,000 | 1.00" | --- | 0.50 HP | 1285 | BELT | 101 | 5,6,7,8,10,13 |
| SF-1 | NSAU1-G10 | COOKING HOOD SUPPLY | 1,710 | 0.50" | --- | 0.75 HP | 728 | BELT | 209 | 5,8,9,11,13 |
| SF-2 | NSAU2-G12 | COOKING HOOD SUPPLY | 3,200 | 0.50" | --- | 1.50 HP | 779 | BELT | 294 | 5,8,9,12,13 |

ACCESSORIES:

1. GRAVITY BACKDRAFT DAMPER.
2. WIRE INTO DEDICATED WALL SWITCH. COORDINATE WITH ELECTRICAL.
3. PLUG TYPE DISCONNECT BY DIVISION 15.
4. UNIT MOUNTED SPEED CONTROL SWITCH.
5. PRE-WIRED DISCONNECT.
6. GREASE TERMINATOR.
7. HINGED TYPE ROOF CURB.
8. INTERLOCK WITH HOOD MOUNTED CONTROLS.
9. 14" HIGH ROOF CURB.
10. 20" HIGH VENTED ROOF CURB.
11. INTERLOCK SF-1 MAKE-UP TO EF-5.
12. INTERLOCK SF-2 MAKE-UP TO EF-3 AND EF-4.
13. STARTER.

SELECTIONS ARE BASED ON PRODUCTS BY GREENHECK FOR EF-1,2 AND CAPTIVEAIRE FOR EF-3,4,5,6,7 AND SF-1,2.

100% OUTSIDE AIR UNIT W/ NATURAL GAS HEAT

| TAG | MODEL No. | TOTAL CFM | MAX. FAN HP | ESP | COOLING | | HEATING | | UNIT WEIGHT (LBS.) | ACCESSORIES |
|-------|-----------|-----------|-------------|------|---------------|---------------|---------------|----------------|--------------------|----------------------------|
| | | | | | MBH TOT. COOL | MBH SEN. COOL | MBH GAS INPUT | MBH GAS OUTPUT | | |
| MUA-1 | RN-015 | 2500 | 1.2 | 1.0" | 191.9 | 108.3 | 195.0 | 156.0 | 1,825 | 1,2,3,4,5,6,7,8,9,10,11,12 |

NOTES:

A. COOLING CAPACITY BASED ON 100°F DB AND 80°F WB ENTERING OUTDOOR AIR TEMPERATURE AND 54.3°F DB/54.1°F WB.
B. ESP DOES NOT INCLUDE COIL, CASING OR FILTER LOSSES.
C. UNIT WEIGHT INCLUDES CURB.
D. R-410A REFRIGERANT.

ACCESSORIES:

1. EQUIPMENT SHALL BE MOUNTED ON 14" HIGH INSULATED ROOF CURB.
2. FACTORY MOUNTED MAUI CONTROLLER.
3. SMOKE DETECTOR IN SUPPLY AIR DUCT.
4. MODULATING HOT GAS RE-HEAT.
5. INTEGRAL FILTER RACK WITH 2" PRE-FILTERS AND 4" 85% FARR PLEATED FILTERS.
6. STAINLESS STEEL HEAT EXCHANGER.
7. SINGLE POINT POWER CONNECTION WITH UNIT MOUNTED DISCONNECT.
8. DISCHARGE FLEX CONNECTIONS.
9. MOTORIZED OUTDOOR AIR DAMPER.
10. 6-RW EVAPORATOR COIL.
11. INTERLOCK TO KITCHEN EXHAUST HOODS.
12. REFERENCE HURRICANE TIE-DOWN DETAIL ON SHEET M-1.1.

SELECTIONS ARE BASED ON PRODUCTS BY AAO.

VENTILATION AIR CALCULATIONS

| SPACE | NET SQUARE FEET | CODE REQUIRED CFM/SF | NUMBER OF OCCUPANTS | MINIMUM CFM REQUIRED | CFM PROVIDED |
|--------------------------|-----------------|----------------------|---------------------|----------------------|--------------|
| ENTRY | 182 SF | .20 | 2 | 36 | 40 |
| HALLWAY | 161 SF | .20 | 6 | 32 | 35 |
| KITCHEN | 764 SF | .30 | 4 | 230 | 480 |
| MAIN DINING ROOM | 783 SF | .50 | 60 | 390 | 390 |
| MANAGER OFFICE | 42 SF | .08 | 1 | 3 | 5 |
| MENS RESTROOM | 67 SF | --- | --- | --- | --- |
| PRIVATE DINING/WINE ROOM | 407 SF | .50 | 32 | 203 | 205 |
| RESTROOM VESTIBULE | 45 SF | --- | --- | --- | --- |
| SERVICE LINE | 414 SF | .30 | 3 | 124 | 125 |
| WOMENS RESTROOM | 48 SF | --- | --- | --- | --- |
| TOTAL | | | | 1018 | 1280 |

NOTES:

1. EACH TOILET ROOM SHALL EXHAUST 75 CFM PER FIXTURE TO MEET EXHAUST REQUIREMENTS.

HVAC NOTES

GENERAL:

- ALL MECHANICAL EQUIPMENT AND INSTALLATIONS SHALL CONFORM WITH THE REQUIREMENTS OF THE 2006 UNIFORM MECHANICAL CODE, THE 2006 INTERNATIONAL BUILDING CODE, THE 2008 HOUSTON CONSERVATION ENERGY CONSERVATION CODE, STATE AMENDMENTS, NFPA 90A, 96, 101, UNDERWRITERS LABORATORIES (OR ETL) AND ALL APPLICABLE LOCAL CODES AND ORDINANCES.
- PRIOR TO PURCHASING ANY MATERIALS OR STARTING ANY WORK, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, DUCTWORK SIZES AND LOCATIONS, EQUIPMENT, ETC. SHOWN ON THE DRAWINGS OR AFFECTING THIS WORK AND SHALL REPORT ANY DEVIATIONS TO THE ARCHITECT.
- SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ARCHITECT PRIOR TO ORDERING, PURCHASING, OR FABRICATING ANY MECHANICAL EQUIPMENT. SHOP DRAWINGS SHALL INCLUDE: ALL EQUIPMENT SCHEDULED OR SPECIFIED ON THE DRAWINGS; DUCTWORK DRAWN TO 1/4" SCALE OR THE SCALE SHOWN ON THE DRAWINGS; REFRIGERANT PIPING AND CONTROL WIRING SCHEMATICS CERTIFIED BY THE AIR CONDITIONING EQUIPMENT MANUFACTURER.
- ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- ALL MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE BY OWNER.
- ALL HVAC COMPRESSORS SHALL HAVE EXTENDED 4 YEAR MANUFACTURER'S WARRANTY FOR A 5-YEAR TOTAL WARRANTY.
- INSTALL ROOF MOUNTED OUTDOOR AIR CONDITIONING EQUIPMENT LEVEL ON 14" HIGH INSULATED ROOF CURB. MOUNT ALL EQUIPMENT ON NEOPRENE PADS. ALL ROOFTOP MOUNTED EQUIPMENT SHALL BE INSTALLED PER DETAILS AND AS RECOMMENDED BY THE MANUFACTURER.
- MOUNT TOP OF THERMOSTATS 4'-0" AFF UNLESS NOTED OTHERWISE. PROVIDE CLEAR LOCKING GUARD ASSEMBLIES FOR ALL PUBLIC AREA THERMOSTATS. COORDINATE THERMOSTAT LOCATIONS WITH OTHER TRADES. ALL THERMOSTATS SHALL BE ADA COMPLIANT.
- ALL WORK SHALL BE COORDINATED AND PERFORMED WITH PRIOR APPROVAL FROM THE OWNER TO SUIT HIS OPERATING CONDITIONS.
- ANY EXISTING WALL, FLOOR, OR CEILING SURFACE THAT IS DISTURBED DURING THE COURSE OF THE HVAC WORK SHALL BE REPAIRED TO MATCH NEW AND/OR EXISTING CONDITIONS.
- AFTER CONSTRUCTION, THE ENTIRE HVAC SYSTEM SHALL BE TESTED, ADJUSTED, AND BALANCED TO DELIVER THE AIR QUANTITIES SHOWN ON THE DRAWINGS. SUBMIT CERTIFIED (AABC OR NEBB) TEST AND BALANCE REPORT TO THE ARCHITECT FOR APPROVAL.
- CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL MECHANICAL EQUIPMENT, DUCTWORK, PIPING, ETC. TO FIT WITHIN THE SPACE ALLOWED BY THE ARCHITECTURAL AND STRUCTURAL CONDITIONS. CUTTING OR OTHERWISE ALTERING ANY STRUCTURAL MEMBERS SHALL NOT BE PERMITTED WITHOUT WRITTEN PERMISSION FROM THE ARCHITECT.
- ALL PIPE AND DUCT PENETRATIONS OF FIRE AND/OR SMOKE-RATED ASSEMBLIES SHALL BE FIRE-STOPPED AS REQUIRED TO RESTORE THE ASSEMBLY TO ITS ORIGINAL INTEGRITY. FIRE BARRIER PRODUCTS SHALL BE AS MANUFACTURED BY TREMCO, HILTI, 3M OR APPROVED EQUAL.
- PROVIDE ACCESS PANELS IN NON-ACCESSIBLE CEILINGS AND IN WALL STRUCTURE TO ALLOW ADEQUATE ROOM FOR MAINTENANCE OF EQUIPMENT AND BALANCING OF SYSTEMS. ACCESS PANELS IN CEILING AND WALLS SHALL BE PROVIDED WHERE SHOWN ON THE DRAWINGS OR NECESSARY TO ACCESS DAMPERS, VALVES, ETC. COORDINATE EXACT LOCATION OF ALL ACCESS PANELS WITH THE ARCHITECT DURING THE SHOP DRAWING PROCESS.
- ALL MECHANICAL EQUIPMENT SHALL BE LABELED WITH A SEMI-RIGID PLASTIC LAMINATE NAMEPLATE WITH 2" HIGH WHITE LETTERS ON A BLACK BACKGROUND SECURELY AFFIXED TO THE EQUIPMENT. THE NAMEPLATE SHALL SHOW THE EQUIPMENT TAG USED ON THESE DRAWINGS.
- REFER TO ARCHITECTURAL PLANS FOR CEILING ASSEMBLY UL RATINGS AND DETAILS.

MECHANICAL/ELECTRICAL COORDINATION:

- CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL DRAWINGS PRIOR TO ORDERING EQUIPMENT OR SUBMITTING SHOP DRAWINGS, AND SHALL FURNISH EQUIPMENT WIRE FOR THE VOLTAGES SHOWN THEREIN. SHOP DRAWING SUBMITTALS SHALL CLEARLY STATE THAT THE ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT HAS BEEN COORDINATED WITH THE ELECTRICAL CONTRACT DOCUMENTS AND THE ELECTRICAL CONTRACTOR.
- ALL MECHANICAL EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE INSTALLED WITH DISCONNECT SWITCHES AT EACH PIECE OF EQUIPMENT. COORDINATE SWITCH TYPE (FUSED OR NON-FUSED) WITH EQUIPMENT CHARACTERISTICS, MANUFACTURER'S RECOMMENDATIONS AND THE ELECTRICAL DRAWINGS.
- ALL REQUIRED CONTROL WIRING (INCLUDING POWER WIRING REQUIRED FOR CONTROL PANELS, DEVICES, ETC.) NOT SHOWN ON THE ELECTRICAL DRAWINGS SHALL BE INCLUDED AS PART OF THE MECHANICAL WORK. WIRING IN HVAC PLENUM SPACES SHALL BE INSTALLED ACCORDING TO CODE REQUIREMENTS.
- UNLESS NOTED OTHERWISE, TRANSFORMERS, CONTROLS AND CONTROL WIRING REQUIRED FOR ALL MECHANICAL SYSTEMS SHALL BE FURNISHED WITH THE EQUIPMENT IT SERVES AND INSTALLED BY THE MECHANICAL CONTRACTOR. MOTOR STARTERS FOR HVAC EQUIPMENT SHALL BE FURNISHED WITH THE MOTOR OR APPARATUS WHICH IT OPERATES. MOTOR STARTER INSTALLATION SHALL BE BY THE DIVISION 16 CONTRACTOR.

SMOKE DETECTORS:

- ALL FANS SUPPLYING MORE THAN 2000 CFM OF AIR TO ANY SPACE SHALL BE INSTALLED WITH A SMOKE DETECTOR IN THE SUPPLY DUCTWORK. DUCT SMOKE DETECTORS SHALL BE INSTALLED IN THE SUPPLY AIR PATH OF AIR DISTRIBUTION SYSTEMS UTILIZING A COMMON SUPPLY AND/OR RETURN AIR PLENUM WITH A COMBINED DESIGN CAPACITY GREATER THAN 2000 CFM.
- THE SMOKE DETECTOR SHALL BE WIRED TO STOP THE FAN UPON DETECTION OF SMOKE, AND SIGNAL THE BUILDING FIRE ALARM CONTROL PANEL. THE SMOKE DETECTOR SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR, MOUNTED IN THE DUCT BY THE MECHANICAL CONTRACTOR, AND WIRED BY THE ELECTRICAL CONTRACTOR.

AIR DISTRIBUTION:

- SUPPLY AND RETURN DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEETMETAL AS RECOMMENDED IN SMACNA DUCT CONSTRUCTION STANDARDS, LATEST EDITION. ALL JOINTS AND SEAMS IN ALL SHEETMETAL DUCTWORK SHALL BE SEALED WITH DUCT SEALER.
- EXHAUST DUCTWORK SHALL BE GALVANIZED SHEETMETAL CONSTRUCTED TO SMACNA STANDARDS AND SHALL NOT BE INSULATED UNLESS NOTED OTHERWISE.
- ALL DUCTWORK SHALL BE SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR CEILING STRUCTURE. DUCT SUPPORTS AND ATTACHMENT TO STRUCTURE SHALL BE PER SMACNA STANDARDS.
- FLEXIBLE DUCTWORK SHALL BE THERMAFLEX M-KE (U.L. 181 LISTED, CLASS 1 FLEXIBLE AIR DUCT) OR EQUAL. PROVIDE MINIMUM INSULATION VALUE OF R-6, R-8 WHEN LOCATED OUTSIDE THE THERMAL ENVELOPE OF THE BUILDING, OR GREATER WHERE REQUIRED BY APPLICABLE ENERGY CODE. AIR CONNECTORS ARE NOT ACCEPTABLE. FLEX DUCT DIAMETER SHALL MATCH DEVICE NECK DIAMETER. PROVIDE ROUND GALVANIZED STEEL DUCT RUNOUTS TO MAINTAIN A MAXIMUM FLEXIBLE DUCT LENGTH OF 8'-0". FLEXIBLE DUCTWORK SHALL BE INSTALLED AS STRAIGHT AS POSSIBLE AND SHALL BE ROUTED AND SUPPORTED WITHOUT FORMING CRIMPS OR OTHER AIR FLOW RESTRICTIONS. PROVIDE SQUARE TO ROUND ADAPTERS OR BOOTS TO CONNECT TO AIR DEVICE NECK WHEN REQUIRED.
- ROUND AND FLEXIBLE SUPPLY AIR DUCTWORK SHALL BE CONNECTED TO MAIN DUCTS WITH A SPIN-IN FITTING WITH SCOOP AND BALANCING DAMPER (EXCEPT WHERE INSTALLED ABOVE INACCESSIBLE CEILINGS, THE DAMPER SHALL BE OMITTED AND PROVIDED IN THE AIR DEVICE NECK).
- DUCTWORK DIMENSIONS SHOWN ON THE DRAWINGS ARE INSIDE CLEAR DIMENSIONS.
- EXTERNAL STATIC PRESSURE (ESP) DOES NOT INCLUDE COIL, CASING OR FILTER PRESSURE DROP.
- INSTALL FIRE DAMPERS IN ALL RATED WALLS, FLOOR AND CEILING PENETRATIONS. FIRE DAMPERS SHALL BE THE DYNAMIC TYPE WITH BLADES OUT OF THE AIRSTREAM WHERE POSSIBLE. REFER TO THE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF RATED ASSEMBLIES. PROVIDE ACCESS DOORS IN DUCTWORK AT EACH FIRE DAMPER LOCATION.
- DUCT ACCESS DOORS: PROVIDE ACCESS DOORS IN DUCTWORK AT EACH FIRE DAMPER LOCATION.
- LOCATIONS OF GRILLES, REGISTERS, & DIFFUSERS SHOWN ON THE DRAWINGS ARE APPROXIMATE. COORDINATE EXACT LOCATIONS WITH LIGHTS, CEILING GRID, ETC. AND ARCHITECTURAL REFLECTED CEILING PLAN.
- DUCTWORK CONNECTING DISHWASHER EXHAUST HOODS TO EXHAUST FANS SHALL BE CONSTRUCTED OF 16-GAUGE ALUMINUM WITH WELDED SEAMS.
- DUCTWORK CONNECTING KITCHEN GREASE EXHAUST HOODS TO EXHAUST FANS SHALL BE CONSTRUCTED OF 16-GAUGE BLACK STEEL WITH WELDED SEAMS. ALL GREASE EXHAUST DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED ACCORDING TO REQUIREMENTS OF LOCAL CODE AUTHORITIES AND NFPA 96 REQUIREMENTS. INSTALL GASKETED ACCESS DOORS AT 20" ON CENTER AND AT EACH CHANGE OF DIRECTION.

INSULATION:

- DUCT INSULATION: DUCT WRAP SHALL BE JOHNS MANVILLE MICROLITE XG OR EQUAL UL LISTED FIBERGLASS BLANKET INSULATION WITH FOIL VAPOR BARRIER. PUNCTURES AND TEARS IN THE FOIL JACKET SHALL BE PATCHED WITH FOIL TAPE TO MAINTAIN THE INTEGRITY OF THE VAPOR BARRIER. INSULATE SHEETMETAL DUCTWORK IN THE THICKNESSES AND DENSITIES AS LISTED BELOW:

- SHEETMETAL SUPPLY DUCTWORK: 2" THICK, 1 LB/FT3 DENSITY, R-6 MINIMUM INSTALLED.
- SHEETMETAL RETURN DUCTWORK: 2" THICK, 1 LB/FT3 DENSITY, R-6 MINIMUM INSTALLED.

- DUCT LINER: LINE ALL SHEETMETAL DUCTWORK A MINIMUM OF 15'-0" DOWNSTREAM OF MAKE-UP AIR UNIT AND ALL ROOFTOP UNITS. DUCT LINER SHALL BE 1" THICK, 3 LB/FT' DENSITY (MINIMUM R VALUE = 4.0); CERTAINTED TOUGHGARD 2" OR EQUAL BY KNAUF OR JOHNS-MANVILLE. THE LEADING EDGE OF THE DUCT LINER SHALL HAVE A SHEETMETAL NOSING.

GAS FLUES (U.L. LISTED):

- TERMINATE ALL GAS FLUE PIPING THRU ROOF WITH TALL CONE FLASHING, STORM COLLAR, AND WEATHER CAP.

PIPING:

- CONDENSATE FROM ALL AIR CONDITIONING EQUIPMENT SHALL BE TRAPPED AND ROUTED AS SHOWN ON PLANS. CONDENSATE PIPING SHALL BE SCHEDULE 40 PVC. CONDENSATE SHALL BE PUMPED AS REQUIRED.
- ALL PIPING ABOVE GRADE SHALL BE SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR CEILING STRUCTURE. PIPING HUNG FROM JOISTS SHALL BE HUNG FROM THE TOP CHORDS OF THE JOISTS.

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