

1. ALL EXHAUST FAN DISCHARGE TO BE A MINIMUM OF 3'-0" AWAY FROM ANY WINDOW OR OPENING INTO THE BUILDING. ALL FANS TO BE PROVIDED WITH BACKDRAFT DAMPERS.
2. ALL DUCTWORK TO CONFORM TO CMC CHP. 6 AND ASHRAE STANDARDS. GALVANIZED SHEET METAL DUCTS SHALL COMPLY WITH CMC-STANDARD 6-2. FOR FLEXIBLE DUCTS USE "CASCO SILENT FLEX" OR APPROVED EQUAL.
3. ALL TRANSVERSE JOINTS TO BE SEALED WITH DUCTSEALER AND TAPE: UL-181.
4. ALL SUPPLY AND RETURN AIR DUCTWORK EXPOSED TO WEATHER (OR IN GARAGE) TO BE LINED WITH 1-1/2" THICK 1.5 LB/FT DENSITY FIBERGLASS INSULATION.
5. ALL SUPPLY AND RETURN AIR DUCTWORK IN CONCEALED SPACES TO BE WRAPPED WITH 1" THICK 0.61 LB/FT DENSITY FIBERGLASS INSULATION JOINTS TO OVERLAP 3" MINIMUM.
6. FINAL CONNECTIONS TO ALL GRILLES, REGISTERS AND DIFFUSERS TO BE A MINIMUM OF ONE LENGTH OF UNID FLEXIBLE DUCT.
7. ALL AIR CONDITIONING LINES TO BE FURNISHED WITH MAINTENANCE MANUALS, SCHEDULES, AND TAGS.
8. AUTOMATIC TEMPERATURE CONTROL DEVICE FOR REGULATION OF SPACE TEMPERATURE SHALL BE CAPABLE OF BEING SET FROM 55 DEGREES TO 85 DEGREES AND HAVE THE ABILITY TO OPERATE THE HEATING AND THE COOLING IN SEQUENCE. CONTROL SHALL BE ADJUSTABLE TO PROVIDE A RANGE OF UP TO 10 DEGREES F BETWEEN FULL HEATING AND FULL COOLING AND HAVE A CAPABILITY OF TERMINATING ALL HEATING AT A TEMPERATURE NO MORE THAN 70 DEGREES F AND COOLING AT A TEMPERATURE NO LESS THAN 78 DEGREES F.
9. ALL GAS FIRED HEATING EQUIPMENT SHALL BE "IID" (PILOTLESS) TYPE.
10. MOUNT WALL THERMOSTAT 4'-0" ABOVE FINISHED FLOOR.
11. INSTALLATION OF DUCTWORK AND EQUIPMENT SHALL BE IN COORDINATION WITH ALL OTHER TRADES.
12. EQUIPMENT AND DUCTWORK EXPOSED TO WEATHER TO BE WEATHERPROOFED.
13. CONTRACTOR SHALL BALANCE AIR SYSTEM TO THE CFM CAPACITY AS SHOWN ON FLOOR PLAN, AND DELIVER A "CERTIFICATE" TO OWNER.
14. VERIFY WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT LOCATION OF DUCT OPENINGS THROUGH ROOF.
15. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF ALL APPLICABLE CODES, LAWS, ORDINANCES AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION. THIS CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, PLAN CHECK FEES, INSPECTIONS, ETC. AND FURNISH SIGNED CERTIFIED AND ACCEPTABLE COPIES TO THE OWNER FOR RECORD.
16. DUCT INSULATION FLAME SPREAD RATING = 25 OR LESS SMOKE DEVELOPMENT RATING = 50 OR LESS.
17. PROVIDE AT EACH ROOF PENETRATION A PREFABRICATED FLASHING SYSTEM BY STONEMAN OR EQUAL FOR SINGLE OR MULTIPLE PIPING INSTALLATION.
18. ALL DUCTS SHALL BE SUPPORTED IN CONFORMANCE WITH CMC-2010-CHAPTER 6 TABLE '6-5' & 6.204.
19. PROVIDE VOLUME DAMPERS IN EACH BRANCH DUCT AT POINT OF TAKE-OFF.
20. WALL MOUNTED REGISTERS FOR RETURN AIR: CONTRACTOR SHALL INSTALL WALL REGISTERS IN CONJUNCTION WITH "WAINS COAT". VERIFY EXACT LOCATION WITH ARCHITECTURAL PLANS.
21. ALL DUCT JOINTS AND SEALS SHALL COMPLY WITH UL181 AND 181A.

GENERAL CONTRACTOR:

1. PROVIDE ALL NECESSARY EQUIPMENT CURBS, RUNNERS AND PLATFORMS.
2. PROVIDE ALL NECESSARY ROOFING, PATCHING, CUTTING, RATED SHAFTS, FURRING, FLASHING, AND PAINTING.

3. SIZE AND LOCATION OF ALL PENETRATION TO BE COORDINATED WITH A/C CONTRACTOR.

PLUMBING CONTRACTOR:

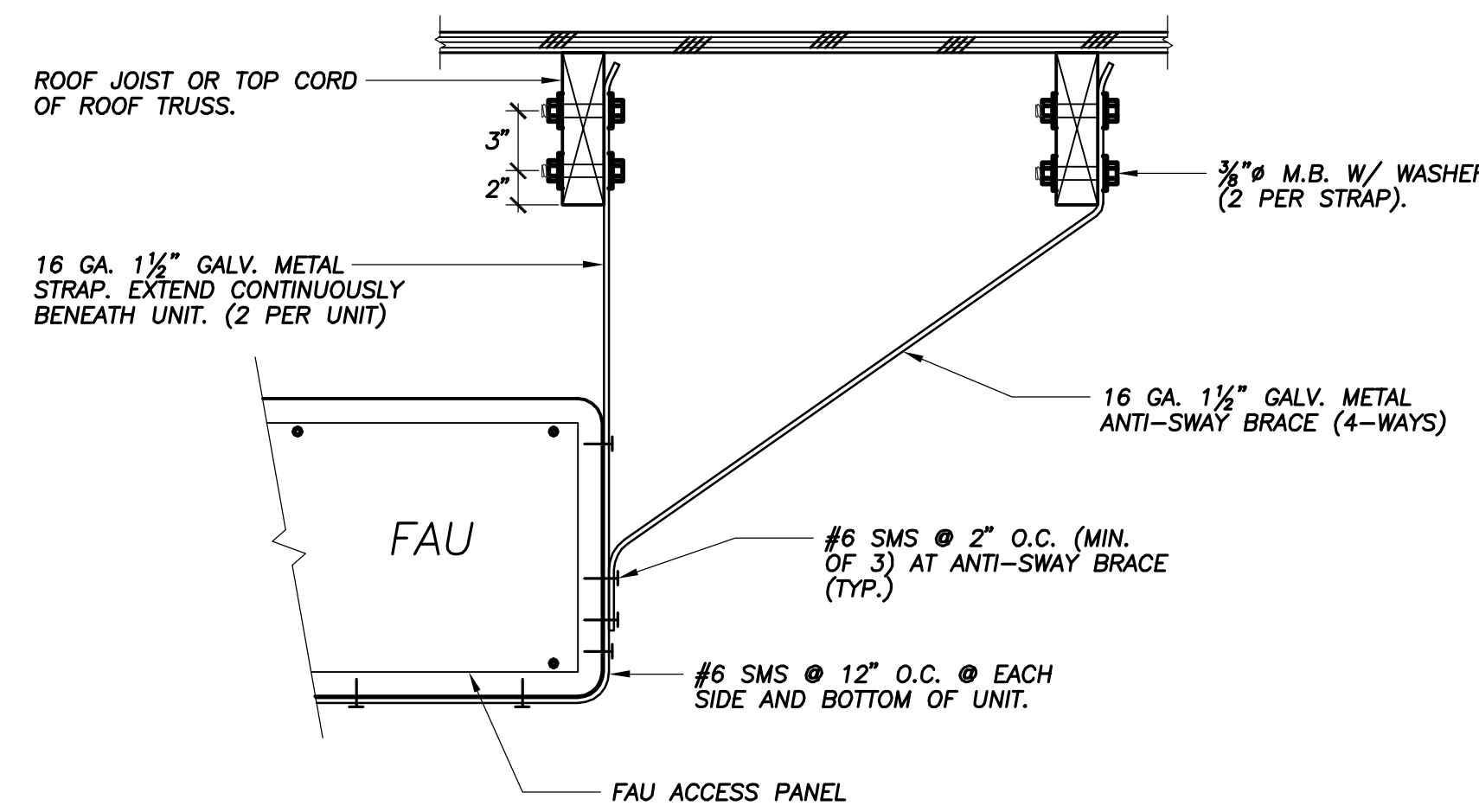
1. PROVIDE ALL NECESSARY DRAINS, GAS, CONDENSATE DRAINS WITH TRAPS, MAKE-UP WATER, INCLUDING FINAL CONNECTIONS.

ELECTRICAL CONTRACTOR:

1. FURNISH AND INSTALL ALL CONTROL CONDUIT AND AUXILIARIES ON PLANS AS PER DIAGRAMS SHOWN.

DUCTWORK APPLICATION SCHEDULE:

1. USE GALVANIZED SHEET METAL: UMC-STANDARD 6-2 FOR:
 1. ALL DUCTS IN GARAGE.
 2. FAU-PLenums: SUPPLY AIR AND RETURN AIR.
 3. MAIN SUPPLY AIR DUCTS: 18", 16", 14".
 4. ALL DUCT RISERS FROM 1ST FLOOR TO 2ND FLOOR; RECTANGULAR AND ROUND.
 5. SUPPLY AND RETURN AIR REGISTER BOXES.
2. USE FLEXIBLE FACTORY MADE DUCTS: UMC SECTION 6.507 FOR:
 1. ALL DUCTS 12" AND SMALLER.
 2. ALL RUN OUT CONNECTION TO DIFFUSERS.
 3. MAIN RETURN AIR DUCTS.

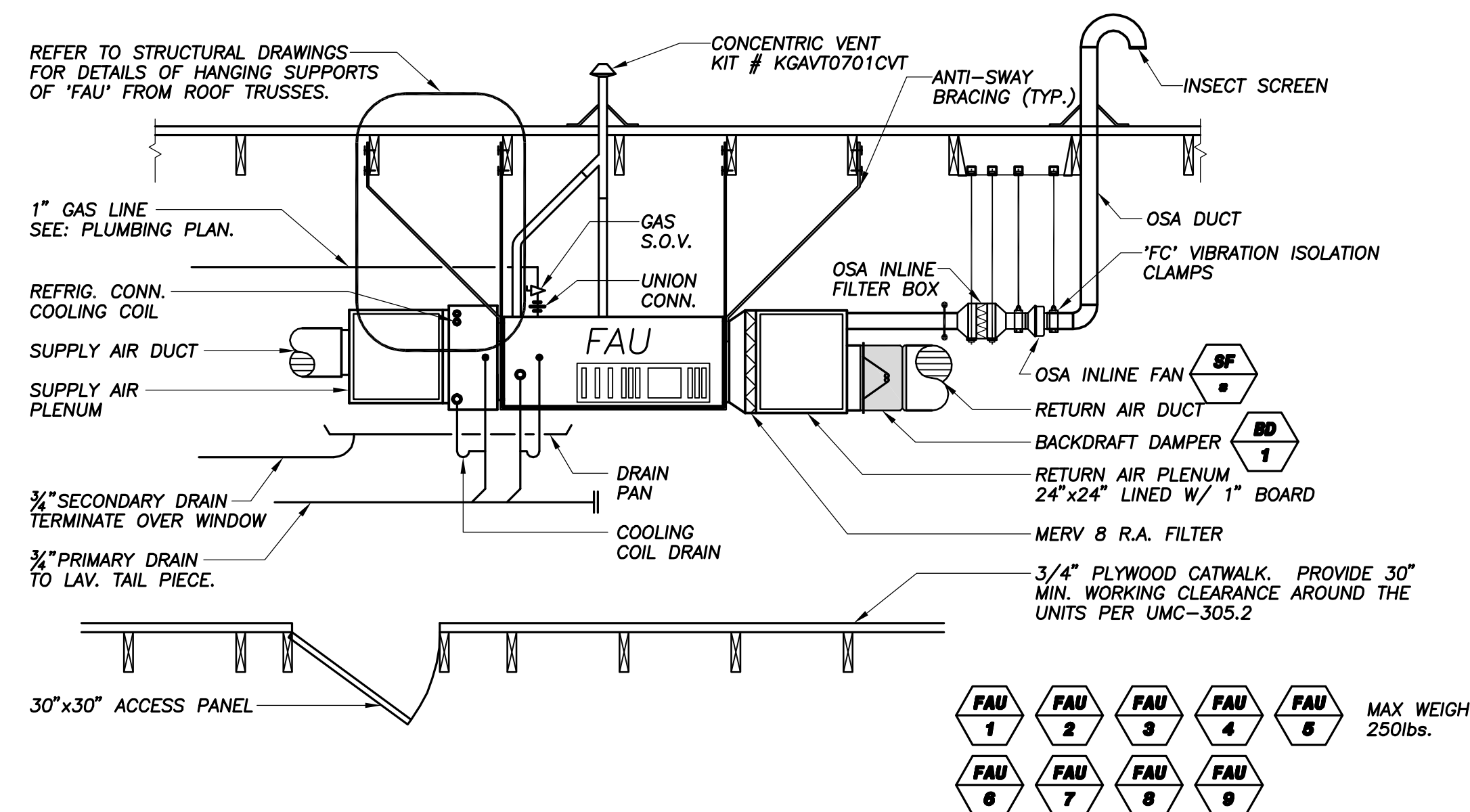


- NOTES:**
1. FOR HANGING SUPPORT AT LOCATIONS WHERE UNIT IS PARALLEL TO JOISTS: SEE SHEET M-1, DETAIL '6'.
 2. SEE STRUCTURAL ENGINEERS CALCULATIONS, SHEET 'C'.

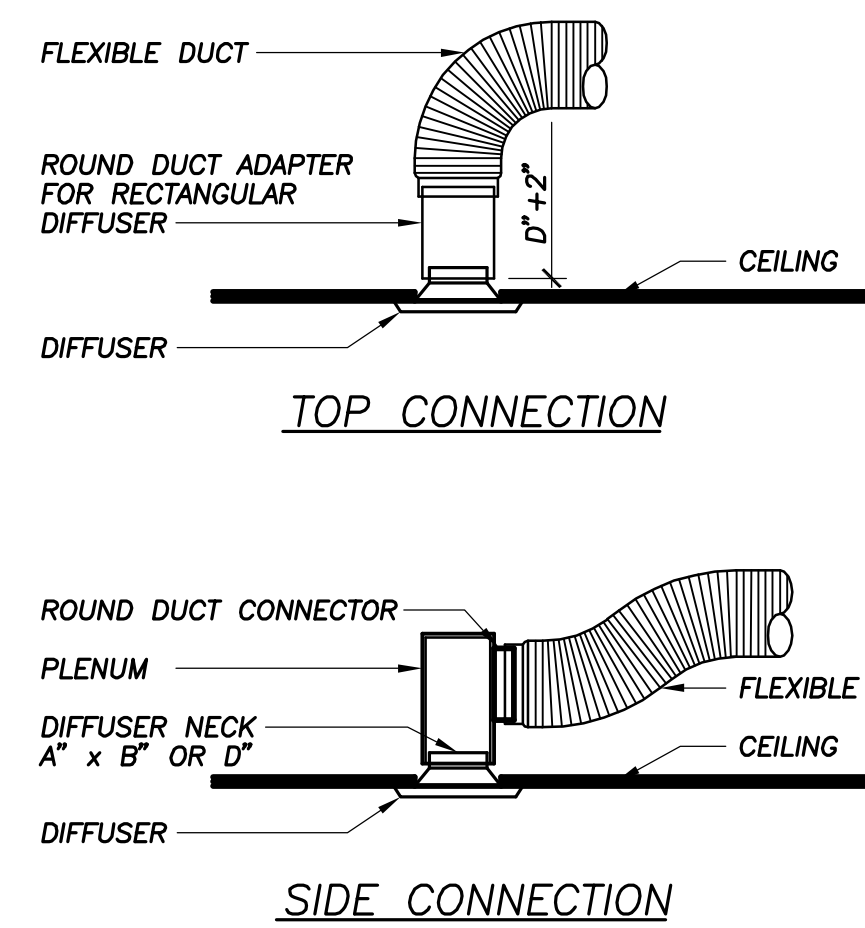
3 HANGING SUPPORT (PERPENDICULAR TO JOISTS)
SCALE: N.T.S.

NOTES:

1. THE COMBUSTION AIR OPENINGS, INCLUDING ATTIC VENTS SHALL BE COVERED WITH CORROSION RESISTANT SCREEN OF 1/4" MESH PER UMC-702.3,317.7.
2. FOR COOLING EQUIPMENT LOCATED IN AN ATTIC OR FURRED SPACE, AN ADDITIONAL WATER-TIGHT PAN OF CORROSION-RESISTANT METAL SHALL BE INSTALLED BENEATH THE COOLING COIL TO CATCH THE OVERFLOW CONDENSATE DUE TO CLOGGED PRIMARY CONDENSATE DRAIN. THE ADDITIONAL PAN SHALL BE PROVIDED WITH A DRAIN PIPE, 3/4-INCH NOMINAL PIPE SIZE, DISCHARGING AT A POINT WHICH CAN BE READILY OBSERVED.



4 HORIZONTAL GAS FURNACE INSTALLATION
SCALE: N.T.S.

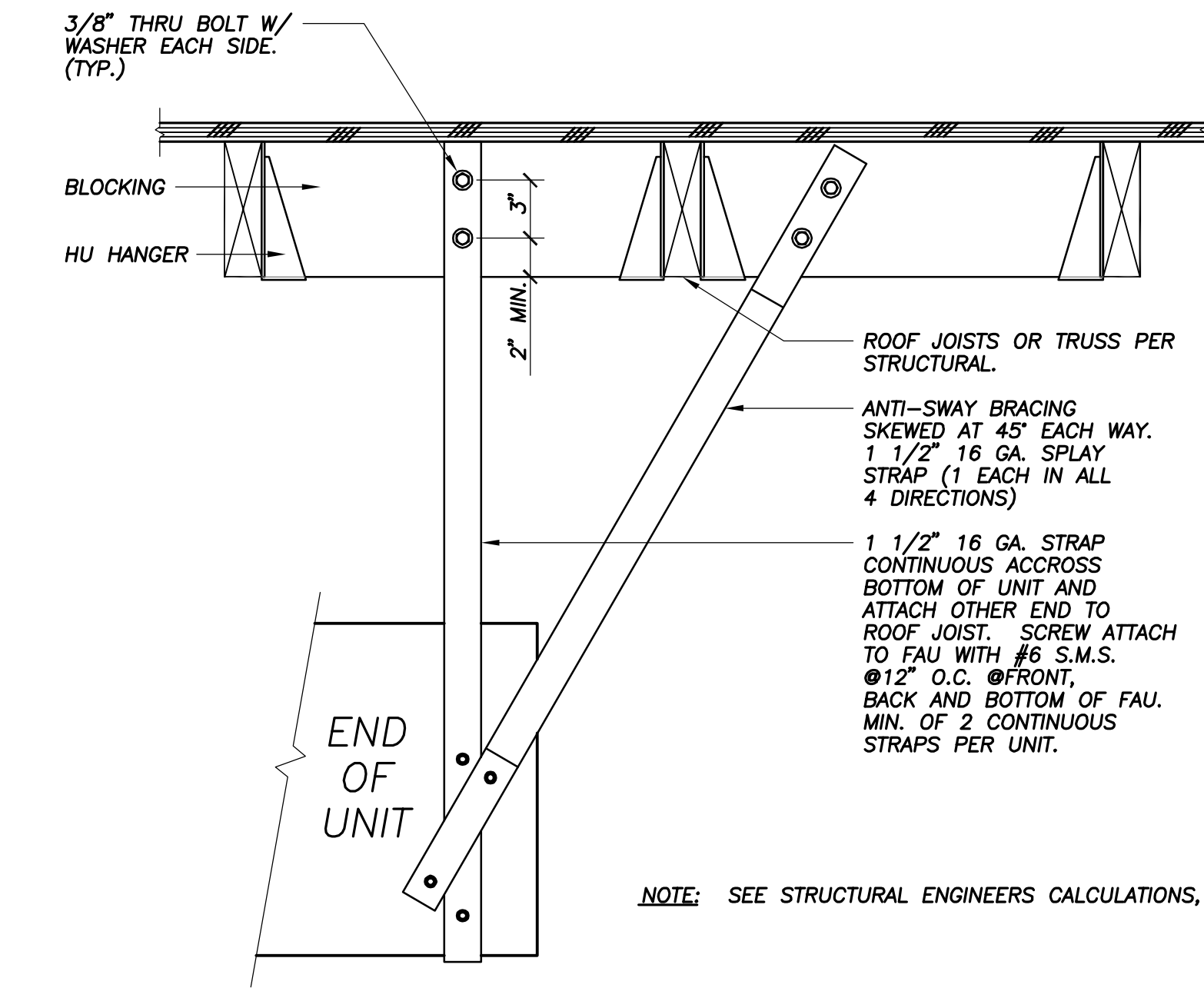


FLEXIBLE DUCTS SHALL BE "CASCO SILENT FLEX" OR EQUAL, CONSISTING OF AN EXTERIOR REINFORCED LAMINATED VAPOR BARRIER, 1 1/2" THICK FIBERGLASS INSULATED (K=25 @ 75 F), ENCAPSULATED SPRING STEEL WIRE HELIX AND IMPERVIOUS, FLEXIBLE DUCTS SHALL CONTAIN FACTORY FABRICATED STEEL CONNECTION COLLARS.

FLEXIBLE DUCTS SHALL BE SUPPORTED EVERY 4 FT. WITH 1 1/2" WIDE 28 GA. STEEL HANGER COLLAR ATTACHED TO THE STRUCTURE WITH AN APPROVED DUCT HANGER. INSTALLATION SHALL MINIMIZE SHARP RADIUS TURNS OR OFFSETS. REFER TO UMC-2010-SECTION 6.507.

ALL DUCT JOINTS AND SEALS SHALL COMPLY WITH UL181 AND 181A.

5 FLEX DUCT DETAIL
SCALE: N.T.S.

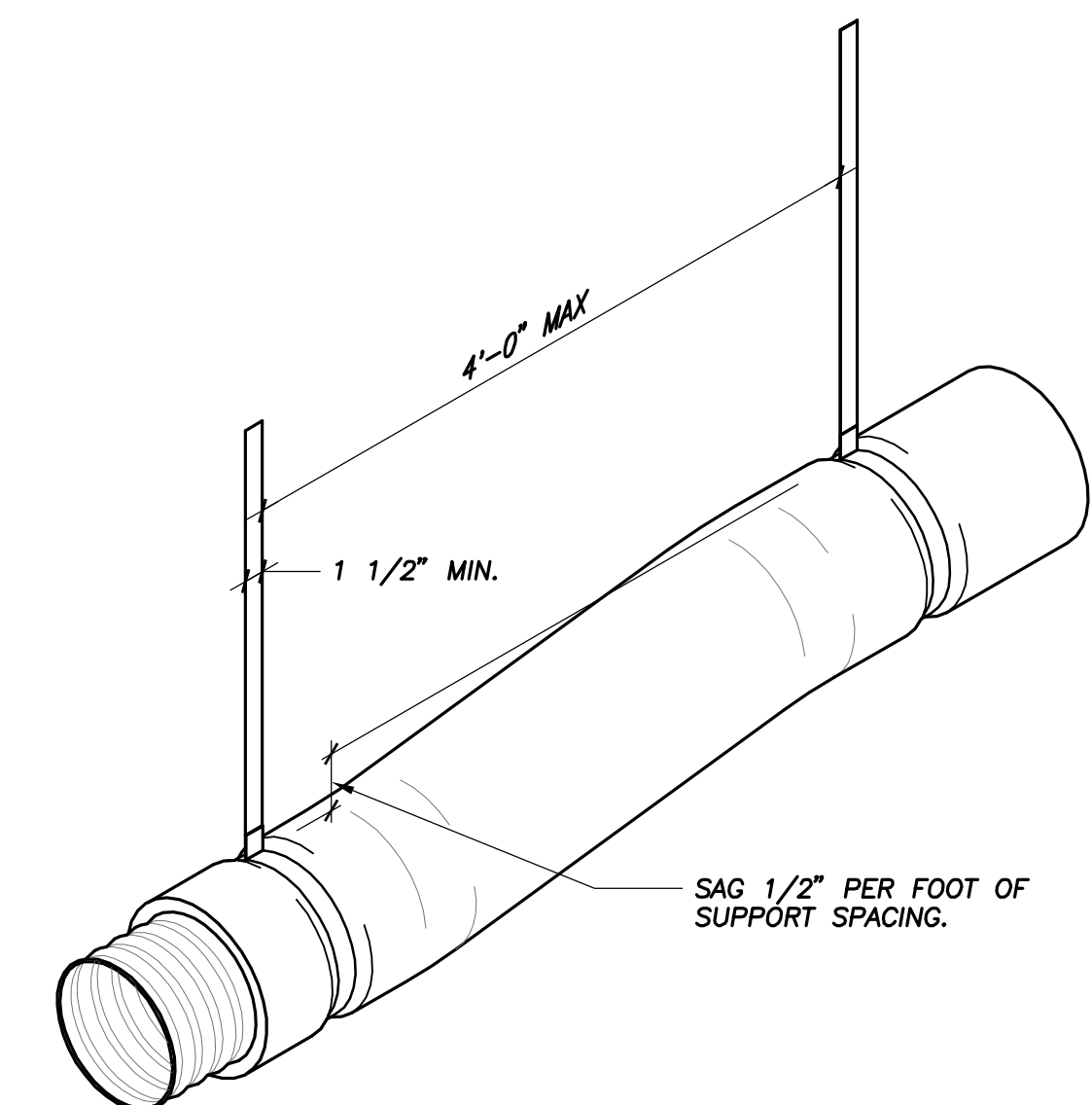


NOTE: SEE STRUCTURAL ENGINEERS CALCULATIONS, SHEET 'C'.

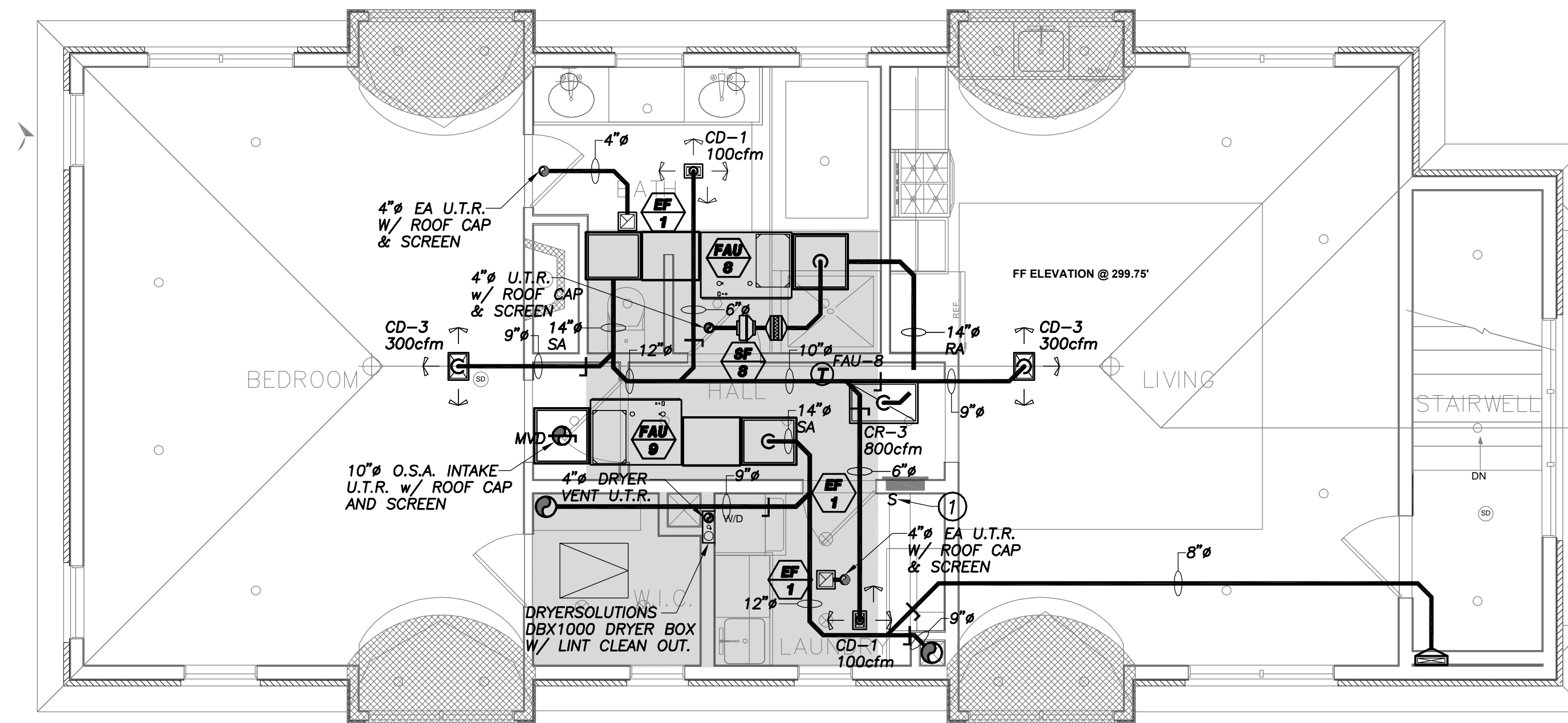
6 HANGING SUPPORT (PARALLEL TO JOISTS)
SCALE: N.T.S.

- | | | | |
|--------------|--------------|--------------|---|
| CU 2 | CU 4 | CU 6 | OUTDOOR CONDENSER UNIT: 2-TON (PURON) CARRIER 24ANB724-30 WITH OEM HARD START KIT COOLING CAPACITY=24,000 BTUH MIN. SEER=14.5 ELECTRICAL: 208V-18-11 FLA-MCA=13.3A, MF=30A. MOUNT UNIT ON 1/2" THICK NEOPRENE MOUNT FOR VIBRATION CONTROL. WEIGHT=250 LBS. |
| FAU 2 | FAU 4 | FAU 6 | INDOOR FURNACE UNIT: MODEL NO. CARRIER 58MV640-14 + CARRIER #CNP43017AC INPUT HEATING=40,000 BTUH- OUTPUT CAPACITY=37,000 BTUH- MIN. 96% EFF. HORIZONTAL MOUNT. WITH FACTORY-INSTALLED TXV & COOLING COIL CONNECTED TO CONDENSING UNIT. MAX RATED AIR DELIVERY=1000 CFM @ 1" EXTERNAL S.P. MOTOR: 120V-18-1/2 HP. WEIGHT=250 LBS. PROVIDE MERV 8 R.A. FILTER & FILTER COMPARTMENT. PROVIDE CONCENTRIC VENT KIT # KGAVT0701CVT FOR HANGING SUPPORT SEE MECHANICAL DETAILS. |
| CU 7 | CU 8 | CU 9 | OUTDOOR CONDENSER UNIT: 3-TON (PURON) CARRIER 24ANB726-30 WITH OEM HARD START KIT COOLING CAPACITY=36,000 BTUH MIN. SEER=15 ELECTRICAL: 208V-18-14 FLA-MCA=17.2A, MF=30A. MOUNT UNIT ON 1/2" THICK NEOPRENE MOUNT FOR VIBRATION CONTROL. WEIGHT=302 LBS. |
| FAU 7 | FAU 8 | FAU 9 | INDOOR FURNACE UNIT: MODEL NO. CARRIER 58MV660-14 + CARRIER #CNP43817AC INPUT HEATING=60,000 BTUH- OUTPUT CAPACITY=56,000 BTUH- MIN. 90% EFF. HORIZONTAL MOUNT. WITH FACTORY-INSTALLED TXV & COOLING COIL CONNECTED TO CONDENSING UNIT. MAX RATED AIR DELIVERY=1300 CFM @ 1" EXTERNAL S.P. MOTOR: 120V-18-1/2 HP. WEIGHT=250 LBS. PROVIDE 30% EFFICIENCY 4" WIDE R.A. FILTER & FILTER COMPARTMENT. PROVIDE CONCENTRIC VENT KIT # KGAVT0701CVT FOR HANGING SUPPORT SEE MECHANICAL DETAILS. |
| CU 1 | CU 3 | CU 5 | OUTDOOR CONDENSER UNIT: 4-TON (PURON) CARRIER 24ANB748-30 WITH OEM HARD START KIT COOLING CAPACITY=48,000 BTUH MIN. SEER=15 ELECTRICAL: 208V-18-20 FLA-MCA=24.3A, MF=40A. MOUNT UNIT ON 1/2" THICK NEOPRENE MOUNT FOR VIBRATION CONTROL. WEIGHT=358 LBS. |
| FAU 1 | FAU 2 | FAU 3 | INDOOR FURNACE UNIT: MODEL NO. CARRIER 58MV680-20 + CARRIER #CNP44821AC INPUT HEATING=80,000 BTUH- OUTPUT CAPACITY=75,000 BTUH- MIN. 94% EFF. HORIZONTAL MOUNT. WITH FACTORY-INSTALLED TXV & COOLING COIL CONNECTED TO CONDENSING UNIT. MAX RATED AIR DELIVERY=2000 CFM @ 1" EXTERNAL S.P. MOTOR: 120V-18-1 HP. WEIGHT=250 LBS. PROVIDE MERV 8 R.A. FILTER & FILTER COMPARTMENT. PROVIDE CONCENTRIC VENT KIT # KGAVT0701CVT FOR HANGING SUPPORT SEE MECHANICAL DETAILS. |
| BF 1 | BF 2 | BF 3 | PANASONIC #FV-08V02-0.3 SONE TOILET EXHAUST FAN OR #FV-08V03 (W/ LIGHT); 93ZRP4, 75CFM @ 0.25" SP. 120 VOLT, 0.175AMPS, 21WATTS W/ INTEGRAL BACK-DRAFT DAMPER |
| BF 4 | BF 5 | BF 6 | A/V CLOSET: NOM. 200 CFM @ 0.5" SP GREENHECK MODEL #SP-A290 CEILING MOUNTED EXHAUST FAN CENTRIFUGAL DIRECT-DRIVE - 1,050 RPM - 80W - 120V/1PH ACCESSORIES: RDC-8 ROUND DUCT CONNECTOR AT OUTLET W/ INTEGRAL BACKDRAFT DAMPER, RCC-7 CURB CAP. CONTROLLED BY 120V THERMOSTAT SET @ 76F. |
| BF 7 | BF 8 | BF 9 | ELEVATOR MECH. ROOM: NOM. 100 CFM @ 0.5" SP GREENHECK MODEL #SP-B110 CEILING MOUNTED EXHAUST FAN CENTRIFUGAL DIRECT-DRIVE - 950 RPM - 80W - 120V/1PH ACCESSORIES: INTEGRAL BACKDRAFT DAMPER, RCC-7 CURB CAP. CONTROLLED BY 120V THERMOSTAT SET @ 76F. |
| BD 1 | BD 2 | BD 3 | FANTECH FG4 OUTSIDE AIR FAN INCLUDING WC15 FAN CONTROL 3,000 RPM, 30CFM @ 0.7" SP. 120 VOLT, 0.19AMPS. 20WATTS PROVIDE "FC" VIBRATION ISOLATING CLAMPS PROVIDE SOLER & PALAU #MFL-100 FILTRATION BOX AT OUTLET OF O.S.A. FAN & BACK-DRAFT DAMPER. SEE DETAIL 4/MO.1 |
| BD 4 | BD 5 | BD 6 | AUTOMATIC ZONE DAMPER FOR EXERCISE JACKSON SYSTEMS #ZD 3-1 (10" DIA.) |
| BD 7 | BD 8 | BD 9 | BACKDRAFT DAMPER IN RETURN AIR DUCT: POTTORFF 'BD20RES' SIZE PER MECHANICAL PLANS SEE DETAIL 4/MO.1 |

7 EQUIPMENT SCHEDULE
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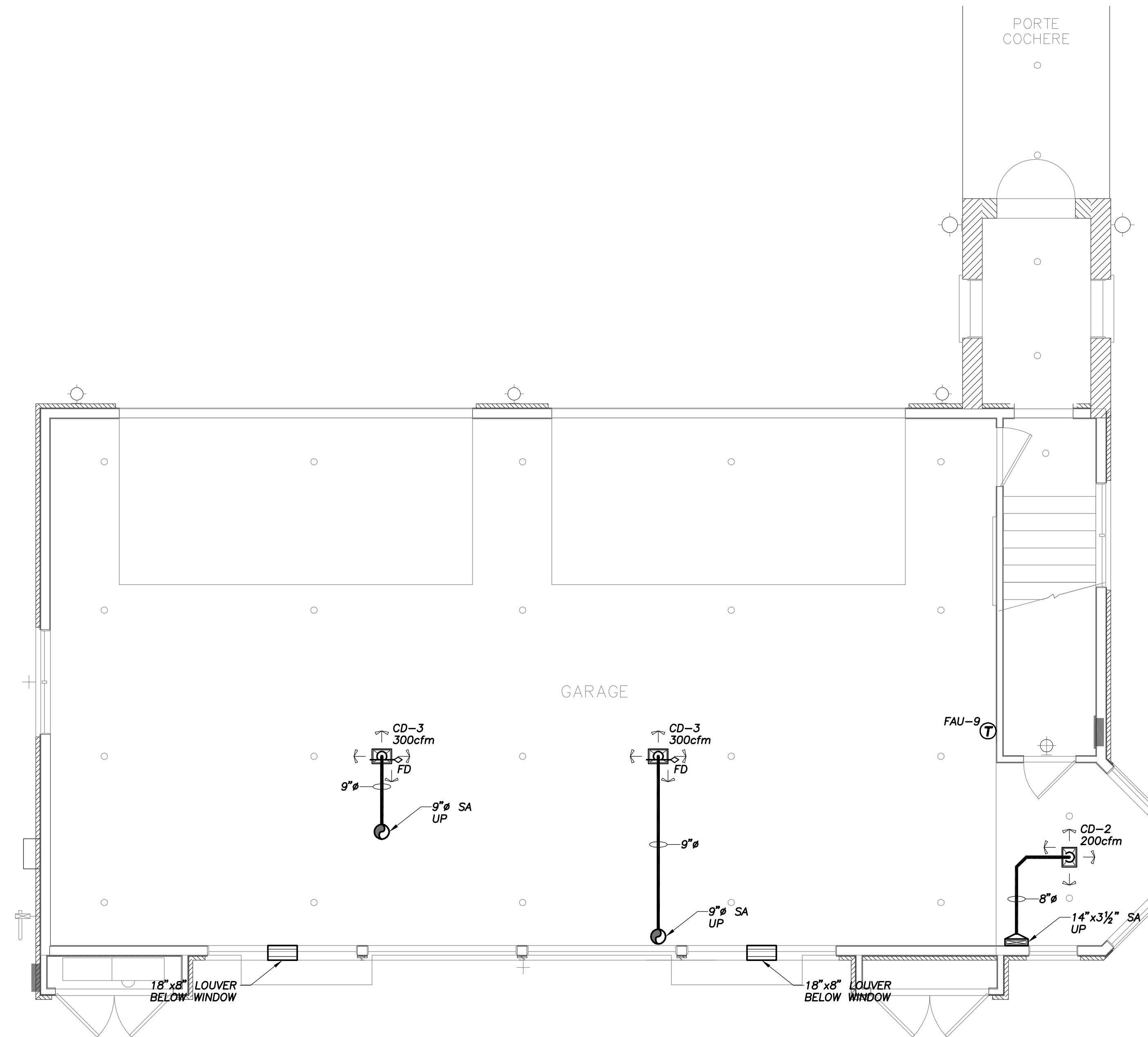
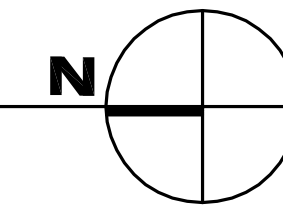


2 FLEX DUCT SUPPORT
SCALE: N.T.S.



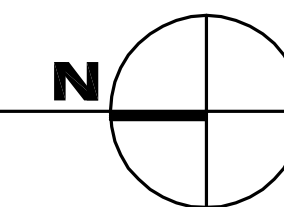
SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"



A/C ZONE SCHEDULE					
UNIT	TONS	CFM	ROOMS SERVED	ZONE	FLOOR
FAU-8	2	800	GUEST HOUSE	8	2nd
FAU-9	2	600	GARAGE	9	1st

1. CEILING DIFFUSERS TO BE ALIGNED WITH CENTERLINE OF LIGHT FIXTURES, HALLWAYS, DOOR OPENINGS AND ON EXIT OPENINGS AS APPROPRIATE. VERIFY LOCATION WITH THE ARCHITECT IF QUESTIONS ARISE.
2. SEE PLANS FOR DISCHARGE PATTERNS OF AIRFLOW.
3. CORRESPOND DIFFUSER SIZE WITH CFM ON THE DRAWING.

SUPPLY AIR LEGEND		
DIFFUSER TYPE	CFM	DIFFUSER SIZE
CD-1 & WD-1	50-100cfm	8x6
CD-2 & WD-2	150-200cfm	12x8
CD-3 & WD-3	250-300cfm	14x8
CD-4 & WD-4	350-400cfm	14x10

RETURN AIR LEGEND		
DIFFUSER TYPE	CFM	DIFFUSER SIZE
CR-1 & BR-1	200-300cfm	14x10
CR-2 & BR-2	400-500cfm	18x10
CR-3 & BR-3	600-1000cfm	30x18
CR-4 & BR-4	1100-1500cfm	36x18
CR-5 & BR-5	1600-2000cfm	42x24

GENERAL REQUIREMENTS:

1. CONTRACTOR SHALL MEASURE EXACT LENGTH OF REFRIGERATION PIPING TO DETERMINE THE REQUIRED REFRIGERANT CHARGE. REFER TO MANUFACTURER WRITTEN INSTRUCTIONS
2. CONTRACTOR SHALL DEMONSTRATE TO OWNER THAT ALL SYSTEMS ARE FULLY FUNCTIONAL AND PERFORMING AT FULL CAPACITIES.
3. CONTRACTOR SHALL PROVIDE TESTING AND AIR BALANCING OF AIR DISTRIBUTION SYSTEM, AND FURNISH REPORTS TO THE OWNER.

WHOLE BUILDING VENTILATION FLOW RATE SUMMARY

ASHRAE 62.2 SECTION 4.1a

$1.213 \frac{s.f.}{100} + 7.5 \times 2 = 27.13$ CFM MIN. REQUIRED

- DESIGNED CONTINUOUS FAN FLOW (CFM) = 30 CFM > 27.13
- PROVIDED VIA CONTINUOUS OPERATION OF OUTSIDE AIR SUPPLY FAN (OASF) DUCTED THRU FAU. SEE DETAIL 4/M-1.0

1. ON/OFF OVERRIDE CONTROL SWITCH FOR WHOLE BUILDING VENTILATION SYSTEM. PROVIDE LABEL THAT READS: "WHOLE BUILDING VENTILATION SYSTEM MUST OPERATE CONTINUOUSLY".

SEQUENCE OF OPERATION FOR OUTSIDE AIR SYSTEM TYPICAL FOR ALL OASFs

- Continuous Supply Fan Operation:**
1. Supply Fan shall operate continuously. OASF will introduce fresh outside air, the fresh air is brought into the return air plenum of FAU where it is filtered and distributed evenly throughout the diffusers in the residence. Even when the FAU are not operating (no cooling or heating), OASF will introduce fresh outside air. The outside air is untempered. Exfiltration will occur thru the bath exhaust and kitchen exhaust.
 2. Comfort temperature controls shall be provided, as usual, by the room thermostats.
- ON/OFF Control:**
1. An ON/OFF override control switch is wired to "SF-7". Override control shall be readily accessible to the occupants and must have a label that reads: "WHOLE BUILDING VENTILATION SYSTEM SHALL OPERATE CONTINUOUSLY".

SMOLINISKY RESIDENCE
 680 CHAUTAUQUA BLVD
 LOS ANGELES, CA

PROJECT:

**GUEST HOUSE
 MECHANICAL PLAN**

SHEET TITLE:

DRAWING SCALE:
 AS NOTED

DATE:
 SEPTEMBER 16, 2011

REVISIONS:
 10/11/11
 90% COMPLETE
 ISSUED FOR REVIEW
 11/04/11
 ISSUED FOR BID

SHEET NO.
M-4.0