

### MECHANICAL ABBREVIATIONS

|        |  |
|--------|--|
| AFF    | ABOVE FINISHED FLOOR.                  |
| AHU    | AIR HANDLER UNIT (HEAT PUMP TYPE)      |
| B.D.D. | BACK DRAFT DAMPER.                     |
| C      | COMMON                                 |
| CAP.   | CAPACITY                               |
| CFM    | CUBIC FEET PER MINUTE.                 |
| CD     | CONDENSATE RETURN (GRAVITY)            |
| C.D.   | CEILING DIFFUSER.                      |
| C.G.   | CEILING GRILLE.                        |
| CP     | CONDENSATE DRAIN PUMP.                 |
| CQ     | CIRCULATING FAN                        |
| CR     | CEILING REGISTER.                      |
| E.A.T  | ENTERING AIR TEMPERATURE               |
| EER    | ENERGY EFFICIENCY RATIO.               |
| ER     | EXHAUST RETURN                         |
| EF     | EXHAUST FAN.                           |
| E.S.P. | EXTERNAL STATIC PRESSURE (INCHES W.G.) |
| E.U.H. | ELECTRIC UNIT HEATER                   |
| E.W.H. | ELECTRIC WALL HEATER                   |
| EXH.   | EXHAUST.                               |
| F.D.   | FIRE DAMPER (WITH ACCESS DOOR).        |
| FLA.   | FULL LOAD AMPS.                        |
| FLR.   | FLOOR.                                 |
| FD/SD  | FIRE/SMOKE DAMPER                      |
| (F)    | FUTURE                                 |
| HP#    | HEAT PUMP NUMBER                       |
| HP     | HORSEPOWER.                            |
| O.A.   | OUTSIDE AIR.                           |
| O.E.D. | OPEN END DUCT                          |
| RAG    | RETURN AIR GRILLE                      |
| S.L.   | SOUND LINE                             |
| TYP.   | TYPICAL                                |
| W.MS.  | WIRE MESH                              |

**PER IMC 2006 CODE**

SUMMER: INSIDE: 75°F DB, 50% RH  
OUTSIDE: 95°F DB, 78°F WB

WINTER: INSIDE: 72°F DB  
OUTSIDE: 10°F DB

### MECHANICAL GENERAL NOTES

- ALL SYSTEMS TO BE INSTALLED IN CONFORMANCE TO LOCAL CODES IN FORCE GOVERNING THAT TYPE OF CONSTRUCTION.
- ALL DUCTWORK FOR CONSTANT VOLUME SYSTEMS INCLUDING ALL RETURN DUCTWORK SHALL BE FABRICATED AND INSTALLED FOR 2 INCHES WATER GAGE FOR COMMON AREA AND 0.5" W.C. FOR APARTMENT.
- ALL DUCT DIMENSIONS SHOWN ARE NET (INSIDE DIMENSIONS).
- PROVIDE TURNING VANES AS SHOWN IN PLANS.
- SPIN-IN FITTINGS FOR CONSTANT VOLUME SYSTEMS SUPPLY BRANCH TAKE-OFFS SHALL HAVE 90 DEGREE SCOOPS AND VOLUME DAMPERS WITH LOCKING QUADRANTS WHERE REQUIRED.
- ALL DUCTWORK SHALL BE FABRICATED FROM FIELD VERIFIED DIMENSIONS. PRIOR TO DUCT FABRICATION, CEILING CLEARANCES SHALL BE COORDINATED WITH THE EXISTING STRUCTURE AND WITH ALL OTHER TRADES. (SPRINKLERS PIPING, ELECTRIC CONDUIT, LIGHTS, ETC.)
- FINAL LOCATION OF DIFFUSERS, GRILLES AND REGISTERS SHALL BE LOCATED IN ACCORDANCE WITH ARCHITECT'S REFLECTED CEILING PLANS AND LIGHT FIXTURES LOCATIONS.
- FINAL LOCATION OF ALL WALL MOUNTED THERMOSTATS, TEMPERATURE SENSORS SHALL BE COORDINATED WITH ARCHITECT PRIOR TO FINAL INSTALLATION. SUBMIT FLOOR PLANS INDICATING FINAL LOCATIONS FOR ARCHITECT'S REVIEW & APPROVAL PRIOR TO INSTALLATION. MOUNT TOP OF T'STAT 48" ABOVE FINISH FLOOR MAXIMUM.
- ALL THERMOSTATS LOCATED IN PUBLIC SPACES SHALL BE TAMPER PROOF OR BE PROVIDED WITH PROTECTIVE LOCKABLE COVERS. (SUBMIT COVERS FOR ARCHITECT'S APPROVAL).
- BATHROOM AND DRYER EXHAUST DUCTS TO BE FABRICATED FROM STANDARD GAUGE SHEET METAL. FINAL CONNECTION OF DRYER VENT TO APPLIANCE BY OTHERS.
- PLUMBING CONTRACTOR TO PROVIDE CONDENSATE DRAIN HUB FOR EACH CONDENSATE DRAIN RISER INCLUDING PRIMARY DRAIN LINE FROM HUB TO WASTE SYSTEM IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS.
- ELECTRICAL DATA SHOWN HERE IS THAT PUBLISHED BY THE MANUFACTURER. IT REMAINS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO PROVIDE THE APPROPRIATE WIRING SIZES AND CIRCUIT PROTECTION, PREFERABLY HACR TYPE CIRCUIT BREAKERS.
- ANY PLATFORMS AND ACCESS PANELS REQUIRED TO BE FURNISHED AND INSTALLED BY OTHERS.
- VENTING OF BATH FANS AND DRYERS MAY CHANGE DUE TO FIELD CONDITIONS. MUST BE APPROVED BY PROJECT MANAGER.
- ALL FLEXIBLE AND RIGID DUCT WORK TO COMPLY WITH THE REQUIREMENTS OF U.L. 181 FOR CLASS 0 OR CLASS 1.

### DRAWINGS INDEX

- |       |                                     |
|-------|-------------------------------------|
| M1.00 | COVER SHEET                         |
| M2.00 | FIRST FLOOR - MECHANICAL            |
| M2.01 | SECOND FLOOR - MECHANICAL           |
| M2.02 | THIRD FLOOR PLAN - MECHANICAL       |
| M2.03 | FOURTH FLOOR PLANS - MECHANICAL     |
| M2.04 | ROOF PLAN - MECHANICAL              |
| M3.01 | ENLARGE FLOOR PLAN - FIRST FLOOR A  |
| M3.02 | ENLARGE FLOOR PLAN - FIRST FLOOR B  |
| M3.03 | ENLARGE FLOOR PLAN - SECOND FLOOR A |
| M3.04 | ENLARGE FLOOR PLAN - SECOND FLOOR B |
| M3.05 | ENLARGE FLOOR PLAN - THIRD FLOOR A  |
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| M3.07 | ENLARGE FLOOR PLAN - FOURTH FLOOR A |
| M3.08 | ENLARGE FLOOR PLAN - FOURTH FLOOR B |
| M4.00 | MECHANICAL RISER                    |
| M5.00 | MECHANICAL SCHEDULES                |
| M6.00 | MECHANICAL DETAILS                  |
| M6.01 | MECHANICAL DETAILS                  |



JES architecture

8370 Greensboro Dr.  
Suite 917  
McLean, VA 22102  
202.403.1272  
757-757-7259  
Fax: 202.737.7159  
Email: JESarchitecture@gmail.com

3511 13th St. NW  
WASHINGTON, DC 20010

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PROJECT:

3511 13th St. NW

PROJECT NO:

SHEET TITLE:

SHEET NUMBER:

M-1

ISSUED: SCHEMATIC DESIGN  
DATE: 3/1/2011



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8370 Greensboro Dr.  
Suite 917  
McLean, VA 22102  
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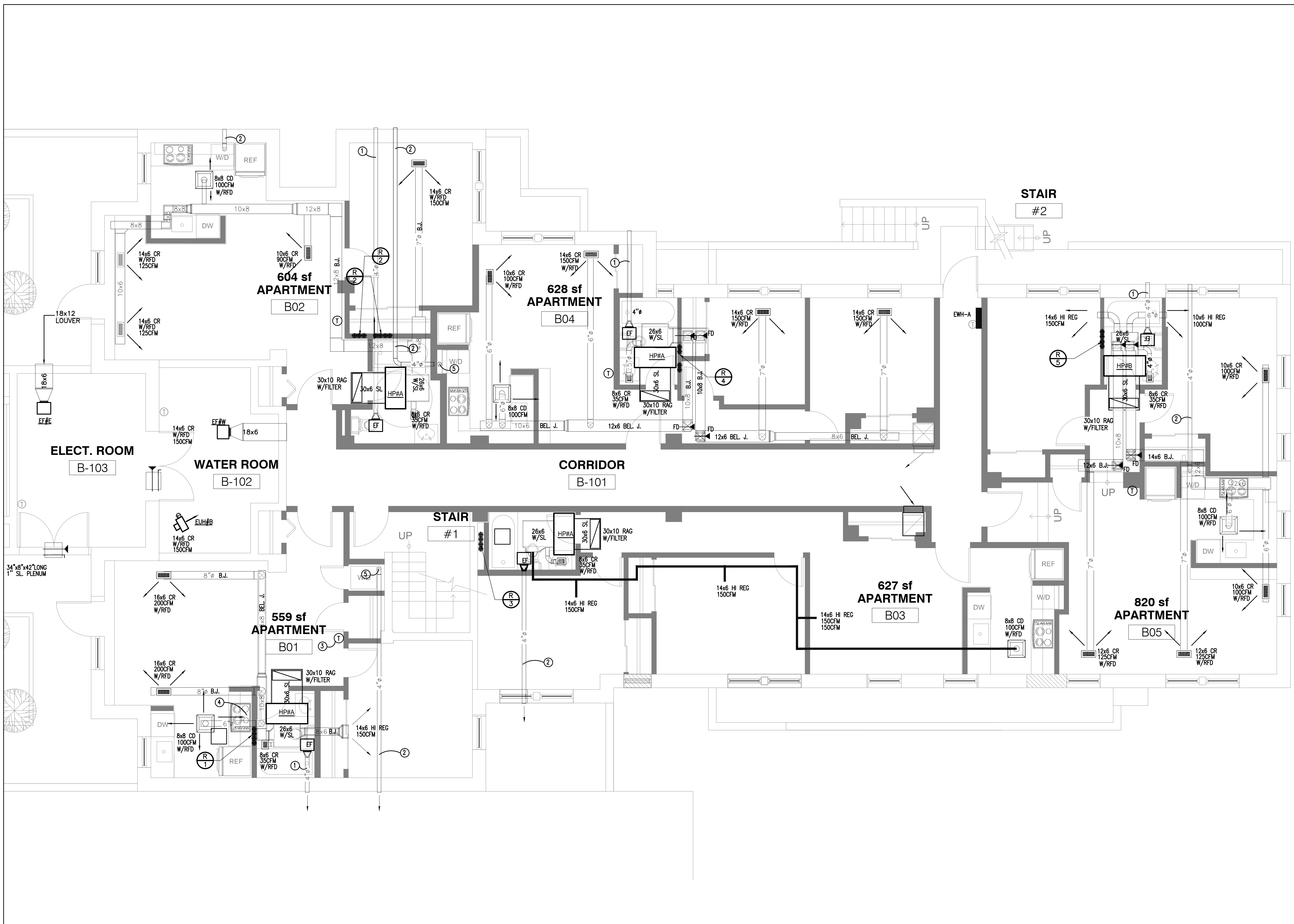
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SHEET NUMBER:

M-2

ISSUED: SCHEMATIC DESIGN  
DATE: 3/1/2011



604 sf  
APARTMENT  
B02

628 sf  
APARTMENT  
B04

STAIR  
#2

ELECT. ROOM  
B-103

WATER ROOM  
B-102

CORRIDOR  
B-101

STAIR  
#1

559 sf  
APARTMENT  
B01

627 sf  
APARTMENT  
B03

820 sf  
APARTMENT  
B05



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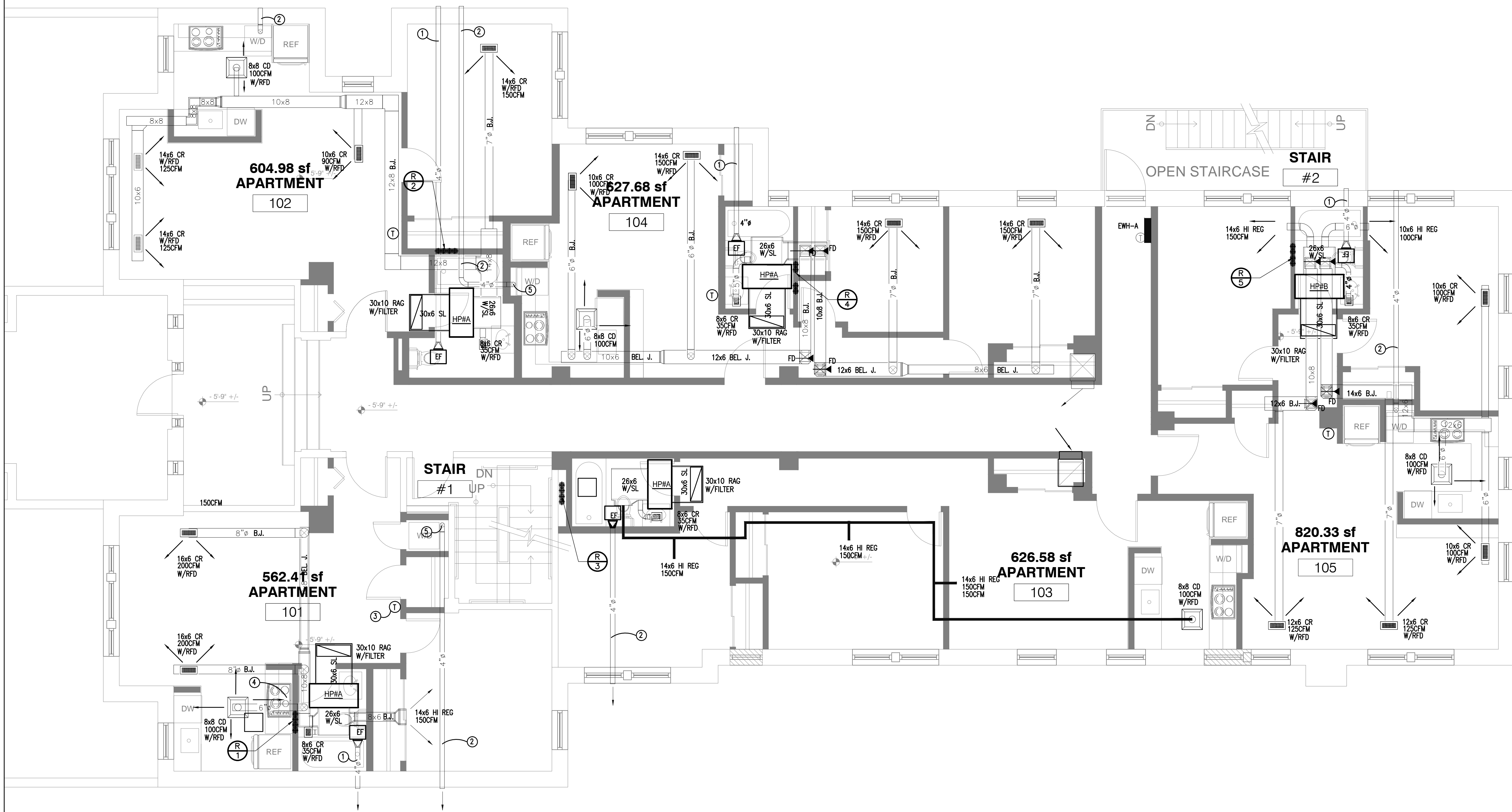
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M-3

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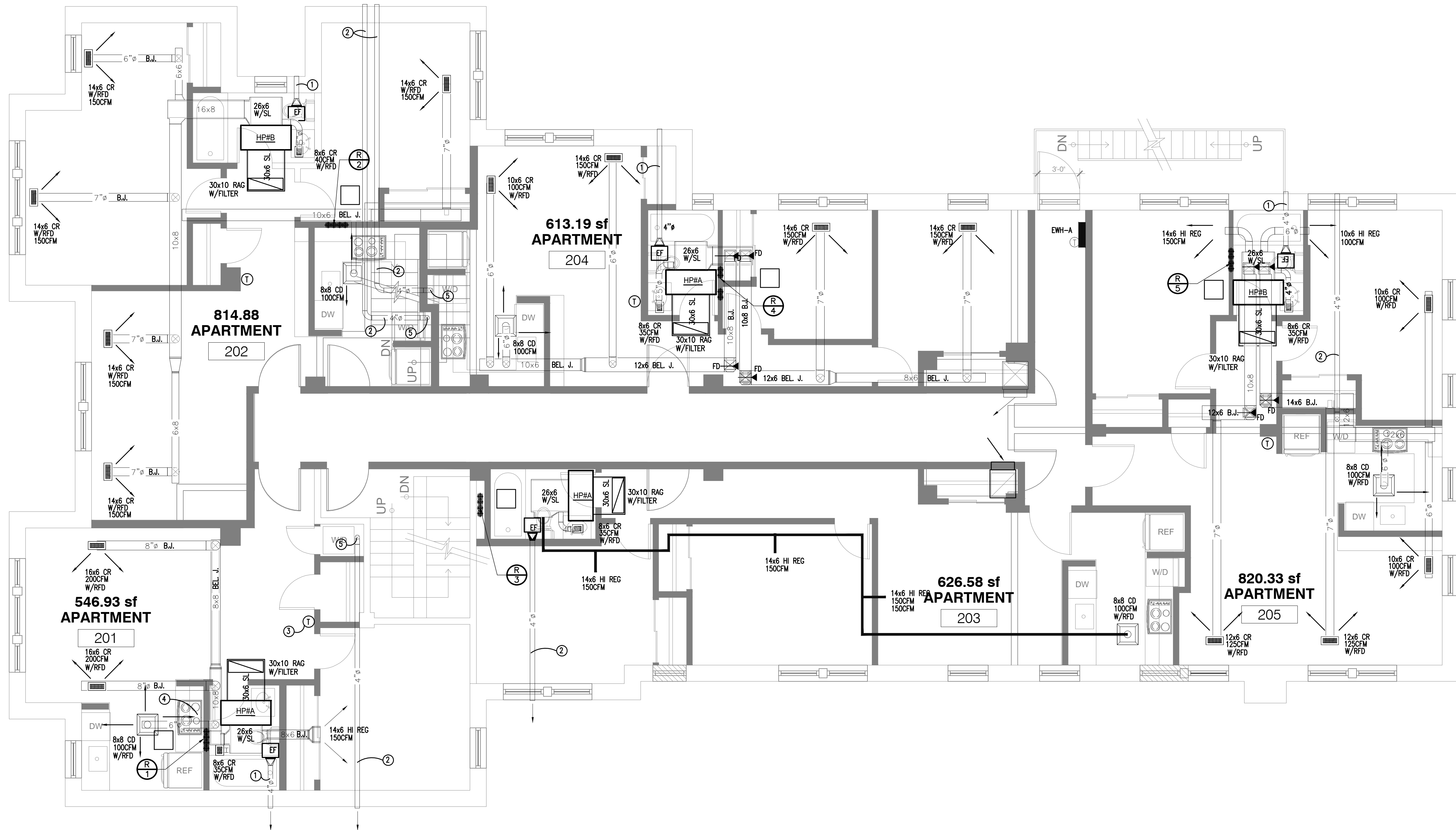
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M-4

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DRAWING NOTES

- ① 4" BATH ROOM EXHAUST TERMINATE WITH 4" WALL CAP.
- ② 4" DRYER EXHAUST TERMINATE WITH 4" WALL CAP.
- ③ THERMOSTAT MOUNT TOP 8" A.F.F.
- ④ RECIRCULATING FAN BY OTHERS
- ⑤ 4" DN TO DRYER



JES architecture  
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 Suite 917  
 McLean, VA 22102  
 202.403.1272  
 757-757-7259  
 Fax: 202.737.7159  
 Email: JESarchitecture@gmail.com

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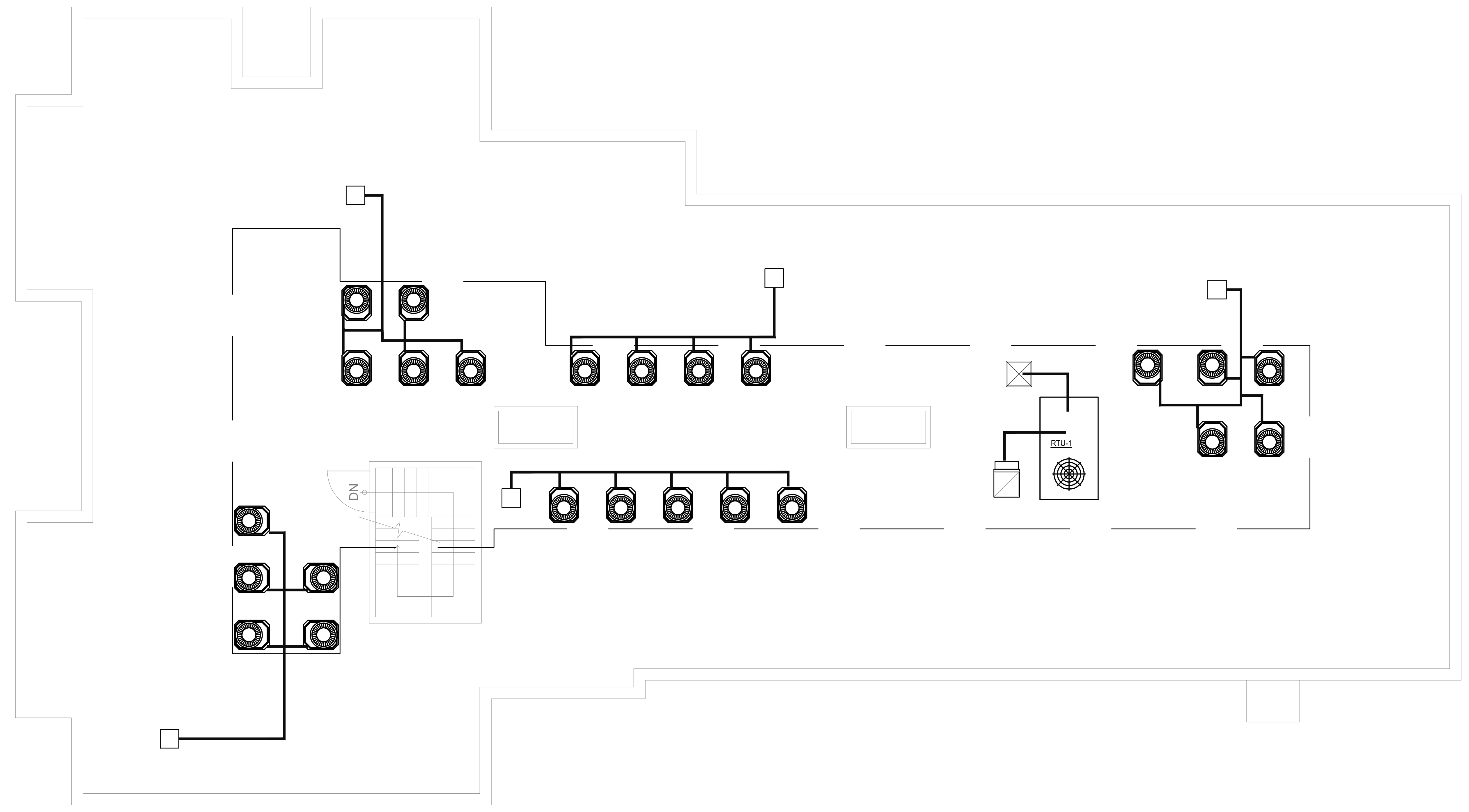
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**M-5**

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Suite 917  
McLean, VA 22102  
202.403.1272  
757-757-7259  
Fax: 202.737.7159  
Email: JESarchitecture@gmail.com

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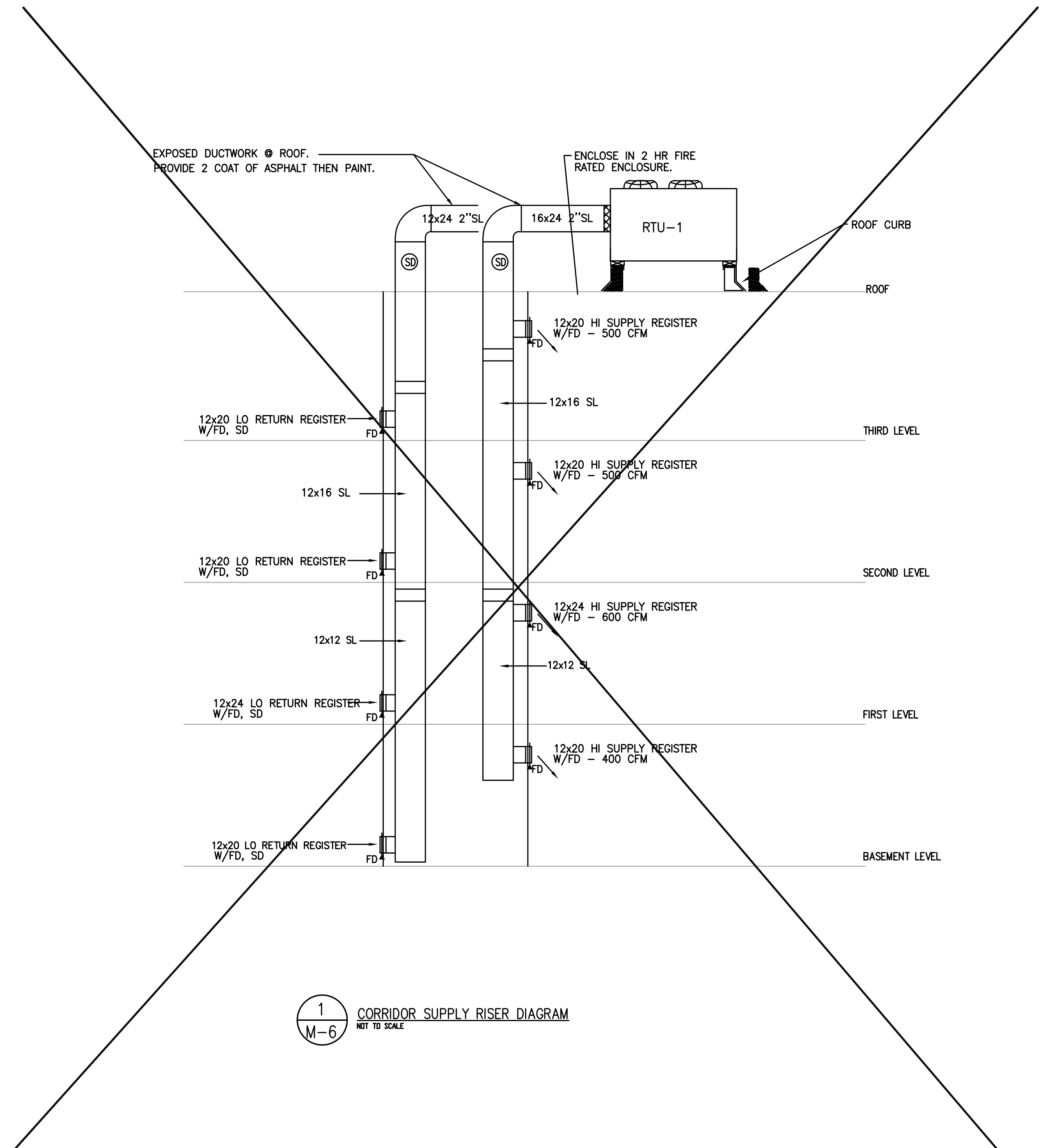
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M-6

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1  
M-6  
CORRIDOR SUPPLY RISER DIAGRAM  
NOT TO SCALE

- NOTES:
- ① 22" BOTH TYPICAL.
  - ② DUCTWORK WORK 2HR RATED ENCLOSURE.
  - ③ DRYER EXHAUST DUCT INSIDE 2HR. RATED ARCHITECTURAL CHASE. NO JOINT INSIDE THE DUCT. PROVIDE SMOOTH SURFACE INSIDE THE DUCT.
  - ④ CLEAN OUT.
  -



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 McLean, VA 22102  
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 757-757-7259  
 Fax: 202.737.7159  
 Email: JESarchitecture@gmail.com

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**M-7**

ISSUED: SCHEMATIC DESIGN  
 DATE: 3/1/2011

**SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE - PHASE 1**

| UNIT NO. | SERVING THE AREA | CFM | E.S.P. | INDOOR UNIT   |     |              |                 | OUTDOOR UNIT |          |                     |                     | S.E.E.R. (E.E.R.) | COP  |     | HSPF   | SOUND RATING (BELS) | REMARKS |     |                 |                        |            |              |      |      |      |                     |
|----------|------------------|-----|--------|---------------|-----|--------------|-----------------|--------------|----------|---------------------|---------------------|-------------------|------|-----|--------|---------------------|---------|-----|-----------------|------------------------|------------|--------------|------|------|------|---------------------|
|          |                  |     |        | FAN           |     | COOLING CAP. |                 | HEATING DATA |          | COMPRESSOR          |                     |                   | 47F  | 17F |        |                     |         |     |                 |                        |            |              |      |      |      |                     |
| HP#A     | SEE FLOOR PLAN   | 650 | 0.3    | VOLTAGE/PH/Hz | HP. | TOTAL M.B.H. | SENSIBLE M.B.H. | E.A.T.       | VOLTAGE  | SUPPLEMENT HEAT, KW | WT. IN LBS (APPROX) | VOLTAGE           |      |     | L.R.A. | R.L.A.              | FAN FLA | MCA | MOCP            | WT. IN LBS             | AHU/HEATER | OUTDOOR UNIT | 13.0 | 3.30 | 2.20 | 7.7                 |
| HP#B     | SEE FLOOR PLAN   | 710 | 0.3    | 208/230/1/60  | 1/8 | 17.20        | 12.95           | ARI          | 240/1/60 | 6                   | 225                 | 208/230/1/60      | 48.0 | 9.0 | 0.8    | 12.0                | 20      | 300 | FIRST CO 25HX06 | AMERICAN STD. 446B3018 | 13.0       | 3.54         | 2.48 | 8.2  | 7.5  | ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ |

ACCESSORIES: ① TIME DELAY RELAY ② BI-FLOW LIQUID LINE FILTER DRIER ③ FACTORY BUILT-IN BI-FLOW THERMOSTATIC EXPANSION VALVE ④ HEATING & COOLING ENERGY STAR PROGRAMMABLE T'STAT W/EM. HEAT/FAN ON/OFF SWITCH/AUTO SWITCH.  
 ⑤ BUILT-IN DUCT HEATER. ⑥ COORDINATE CONDENSATE DRAIN PIPING WITH PLUMBING CONTRACTOR. IF NECESSARY PROVIDE CONDENSATE PUMP, LITTLE GIANT CO. 1/20 H.P., 115/1/60  
 ⑦ SINGLE POINT POWER CONNECTION FOR AIR HANDLING UNIT. ⑧ STAINLESS STEEL DRAIN PAN. ⑨ MFG. CARSON ACP3636-3 DURAGRID PAD. ⑩ SINGLE POINT POWER CONNECTION KIT. ⑪ AUTO CHANGE OVER NIGHT SET BACK PROGRAMMABLE T'STAT WITH LOCKING COVER.  
 ⑫ PROVIDE 1" SL. INSULATED ACCESS DOOR 24"x48"

**GAS FIRED ROOFTOP UNIT SCHEDULE**

| UNIT No. | SERVING THE AREA | NOMINAL CFM | MIN. O.A. CFM | E.S.P. IN WG. | EVAP. FAN |     | COOLING CAPAC. MBH |       | EAT | HEATING CAPACITY MBH |        | ELECTRIC V/PH/Hz | COMPRESSOR |      |      | CONDENSER FAN | COMBUSTION FAN MOTOR | MCA | MOCP* | WEIGHT IN LBS. | AMERICAN STANDARD MODEL No. | SEER     | SOUND RATING (BELS) | REMARKS |           |
|----------|------------------|-------------|---------------|---------------|-----------|-----|--------------------|-------|-----|----------------------|--------|------------------|------------|------|------|---------------|----------------------|-----|-------|----------------|-----------------------------|----------|---------------------|---------|-----------|
|          |                  |             |               |               | HP        | FLA | SENS.              | TOTAL |     | INPUT                | OUTPUT |                  | EFF.       | QTY. | RLA  |               |                      |     |       |                |                             |          |                     |         | LRA       |
| 1        | CORRIDOR         | 1800        | 600           | 0.8           | 1         | --  | 44.3               | 61.3  | ARI | 130.0                | 104.0  | 80               | 208/3/60   | 1    | 17.6 | 123           | 1                    | 2.5 | 29.5  | 45             | 700                         | YSC060E3 | 13.0                | 8.0     | 1 THRU 12 |

ACCESSORIES: ① ROOF CURB. ② TIME DELAY RELAY. ③ DIFFERENTIAL ENTHALPY CONTROL ACCUSENSOR III CONTROL W/ DURABLADE ECONOMIZER. ④ RELIEF DAMPER. ⑤ AUTO CHANGE OVERNIGHT SET-BACK PROGRAMMABLE ENERGY STAR THERMOSTAT. ⑥ SMOKE DETECTOR IN SUPPLY AND RETURN AIR DUCTS WITH REMOTE STATUS INDICATORS. ⑦ 1" VIBRATION ISOLATOR RAIL BY MICROMETL CO. ⑧ CONVENIENCE OUTLET. ⑨ STD. MOTOR. ⑩ DISCONNECT SWITCH. ⑪ CO2 SENSOR. ⑫ REFRIGERANT "R-410A".  
 \* FUSE OR HACR CIRCUIT BREAKER AS PER NEC.

**FAN SCHEDULE**

| FAN NO. | SERVING THE AREA | QTY. | TOTAL CFM | SP IN WG | RPM  | HP (WATTS) | VOLTAGE  | TYPE | SONES | W.T. IN LBS | CONTROL      | DAMPER | SUP OR EXH. | MFG. & MODEL NO    | REMARKS   |
|---------|------------------|------|-----------|----------|------|------------|----------|------|-------|-------------|--------------|--------|-------------|--------------------|-----------|
| A       | BATHROOM         |      | 80        | 0.125    | 1050 | (60)       | 115/1/60 | CLG  | 2.5   | 20          | LIGHT SWITCH | BDD    | E           | BROAN #584         | ② ③       |
| E       | ELECTRICAL RM.   | 1    | 500       | 0.25     | 1114 | (198)      | 115/1/60 | CLG  | 3.5   | 40          | T'STAT       | BDD    | E           | LOREN COOK #GC-720 | ② ③ ④ ⑤ ⑧ |
| W       | WATER ROOM       | 1    | 250       | 0.25     | 1112 | (152)      | 115/1/60 | CLG  | 3.1   | 30          | LIGHT SWITCH | BDD    | E           | LOREN COOK #GC-420 | ① ② ③ ④ ⑥ |

DERC: DRYER EXH. ROOF CAP. BROAN MODE NO-636 WITH BUILT IN DAMPER & BIRD SCREEN.  
 ① BELT DRIVE ② DIRECT DRIVE ③ BACK DRAFT DAMPER ④ DISCONNECT SWITCH ⑤ ISOLATOR HANGERS  
 ⑥ T'STAT SET @ 80°F ⑦ CONTROL VIA TIME CLOCK. ⑧ SPEED CONTROLLER. ⑨ BIRD SCREEN. ⑩ WEATHER COVER. ⑪ DRAIN ⑫ MOTORIZED SUTTER  
 ⑬ 1" ISOLATOR RAIL.

**ELECTRIC HEATER SCHEDULE**

| UNIT NO. | QTY. | SERVING THE AREA                 | CAPACITY BTUH KW | CFM | VOLTAGE  | AMPS | APPROX. WT. IN LBS | TYPE        | MANUFACTURER AND MODEL NO. | REMARKS |
|----------|------|----------------------------------|------------------|-----|----------|------|--------------------|-------------|----------------------------|---------|
| A        | -    | STAIR CASE AND ENTRANCE CORRIDOR | 10,240 3.0       | 100 | 208/1/60 | 14.4 | 20                 | WALL HEATER | BERKO #FRC-3027            | ① ② ③ ④ |
| B        | -    | ELECTRIC ROOM                    | 10,236 3.0       | 250 | 208/1/60 | 14.4 | 25                 | UNIT HEATER | BERKO #HUH-327-SA          | ④ ⑤ ⑥ ⑧ |
| C        | -    | WORK ROOM                        | 10,236 3.0       | 250 | 208/1/60 | 14.4 | 25                 | UNIT HEATER | BERKO #HUH-327-SA          | ④ ⑤ ⑥ ⑧ |

ACCESSORIES:  
 ① SURFACE MOUNT. ② TAMPER PROOF T'STAT. ③ THERMAL CUT-OUT. ④ DISCONNECT SWITCH.  
 ⑤ CEILING MOUNTING BRACKET. ⑥ REMOTE T'STAT W/LOCKING COVER. ⑦ SET AT 50°F ⑧ SET AT 60°F  
 ⑨ EXPLOSION PROOF CLASS I, DIV. 1 & II, GROUP C&D. ⑩ EPOXY COATED ALUMINUM FAN BLADE FOR SPARK PROOF. ⑪ HERESITE COATED.

**RETURN GRILLE WITH FILTER**

| CFM RANGE   | SIZE GRILLE | MANUFACTURER AND MODEL No.      |
|-------------|-------------|---------------------------------|
| 0 - 800     | 30x10       | HART & COOLEY #RCBF WITH FILTER |
| 801 - 1,200 | 40x10       |                                 |

**CORRIDOR SUPPLY REGISTER SCHEDULE**

| SIZE  | CFM RANGE      | NC   | MANUFACTURER AND MODEL No.                              |
|-------|----------------|------|---|
| 12x18 | 400 TO 700 CFM | ≥ 30 | MANUFACTURER METALAIR # VMD WITH PREFCO FIRE DAMPER E-2 |

**CORRIDOR RETURN REGISTER SCHEDULE**

| SIZE  | CFM RANGE      | NC   | MANUFACTURER AND MODEL No.                              |
|-------|----------------|------|---|
| 12x18 | 400 TO 700 CFM | ≥ 30 | MANUFACTURER METALAIR # VMD WITH PREFCO FIRE DAMPER E-2 |

**RESIDENTIAL SUPPLY CEILING OR WALL REGISTER SCHEDULE**

| NO. | CFM RANGE | DUCT CONNECTION | OVERALL SIZE | SOUND RATING DBA | MFG. & MODEL No.        |
|-----|-----------|-----------------|--------------|------------------|-------------------------|
| 1   | 0-50      | 8x3 1/4"        | 8"x4"        | <30              | HART & COOLEY MODEL#661 |
| 1   | 51-75     | 10x3 1/4"       | 10"x4"       | *                |                         |
| 2   | 76-100    | 12x3 1/4"       | 12"x4"       | *                |                         |
| 3   | 100-125   | 14x3 1/4"       | 14"x4"       | *                |                         |
| 4   | 126-150   | 16x3 1/4"       | 16"x4"       | *                |                         |
| 5   | 151-175   | 18x3 1/4"       | 18"x4"       | *                |                         |
| 6   | 176-200   | 20x3 1/4"       | 20"x4"       | *                |                         |
| 7   | 201-250   | 24x3 1/4"       | 24"x4"       | *                |                         |

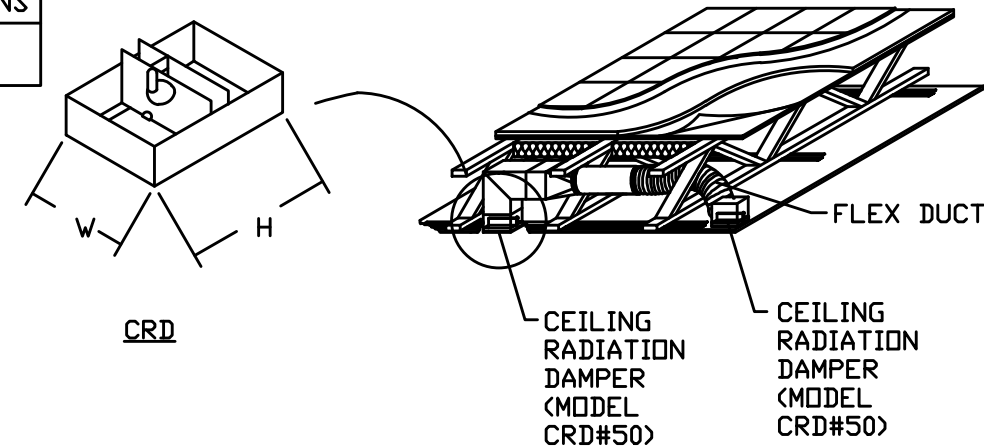
\* SPECIAL ORDER.  
 \*\* UNLESS OTHERWISE NOTED

**LOBBY SUPPLY REGISTER SCHEDULE**

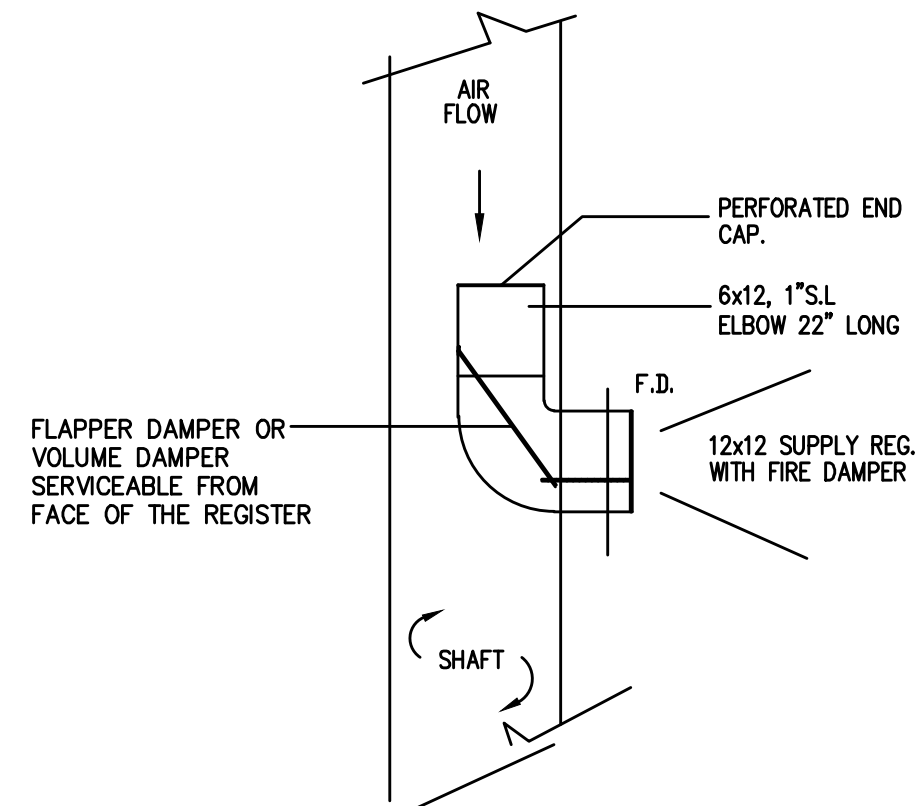
| SIZE | CFM RANGE | NECK SIZE | MANUFACTURER AND MODEL No.      |
|------|-----------|-----------|---------------------------------|
| --   | 0 - 400   | ≥ 30      | MANUFACTURER TITUS MODEL 300 RS |



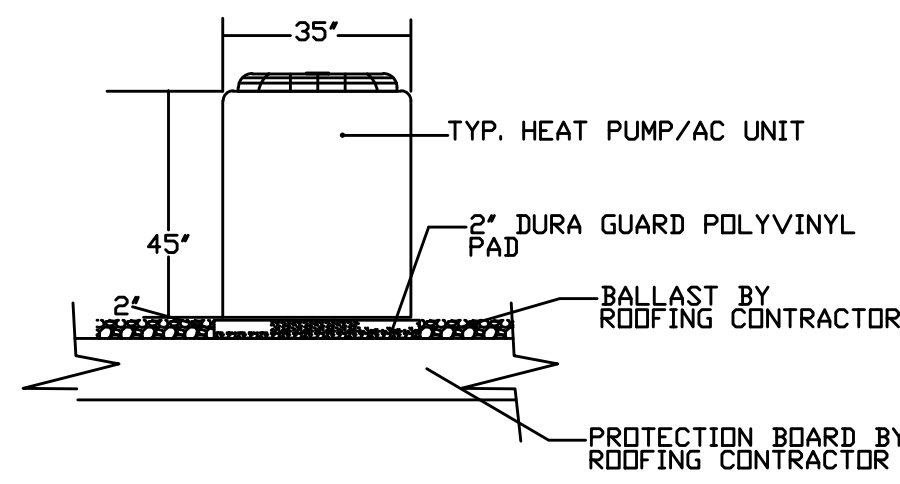
DIMENSIONS  
W = 6"  
H = 10"



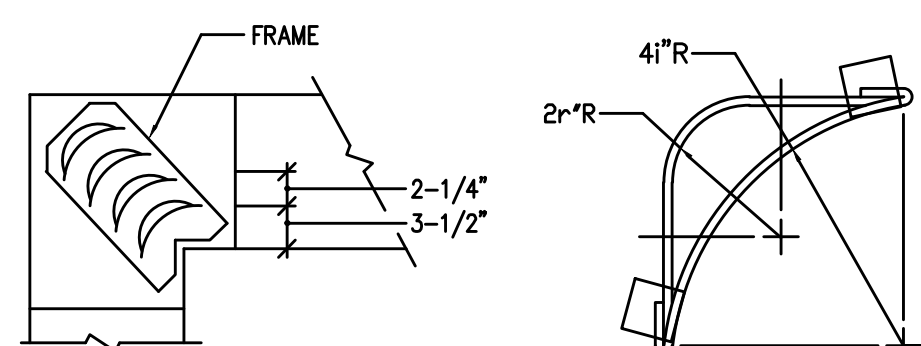
**1 DUCTWORK WITHIN RATED CLNG.**  
M-600 NOT TO SCALE



**2 SUPPLY SUB-DUCT (BOOT) DETAIL**  
M-600 NOT TO SCALE



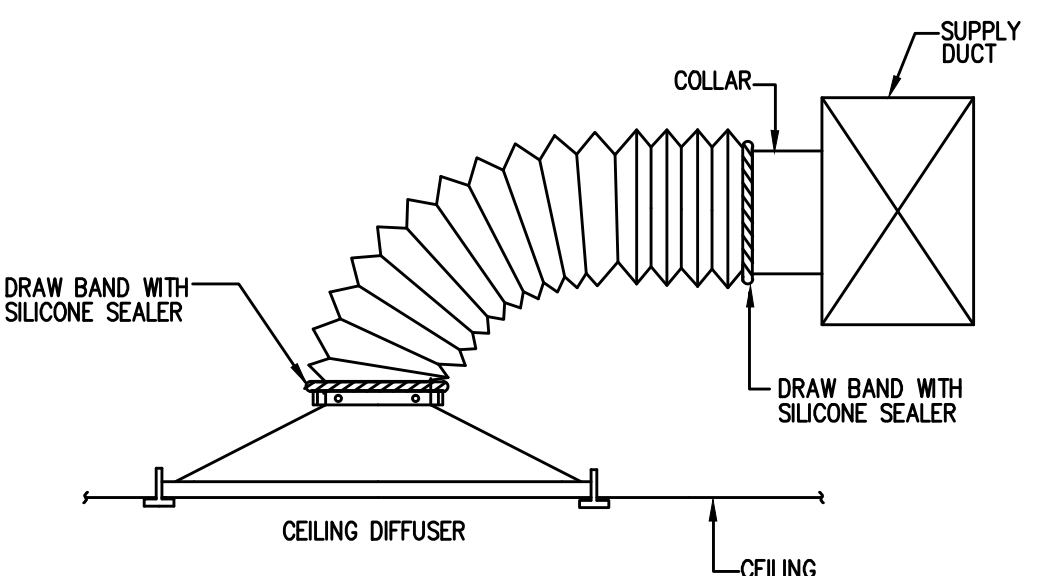
**3 CONDENSING UNIT - ROOF**  
M-600 NOT TO SCALE



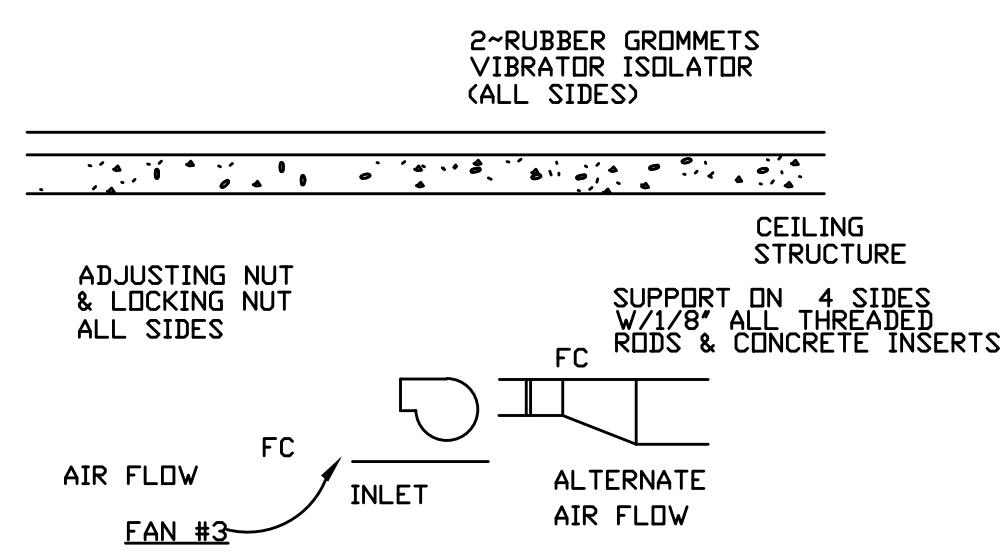
**VANED ELBOW**

**TURNING VANE**

- NOTES:  
1- LOCKING LUGS INTEGRAL WITH VANE.  
2- MAXIMUM UNSUPPORTED VANE LENGTH 48\"/>

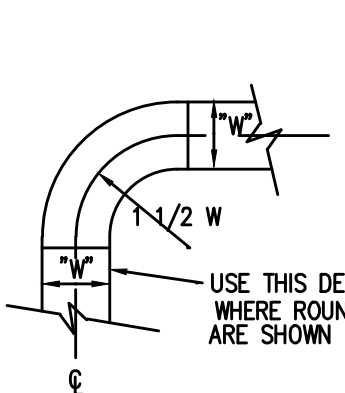


**5 TYPICAL DIFFUSER CONNECTION**  
M-600 N.T.S. (SIDE OF DUCT CONNECTION)

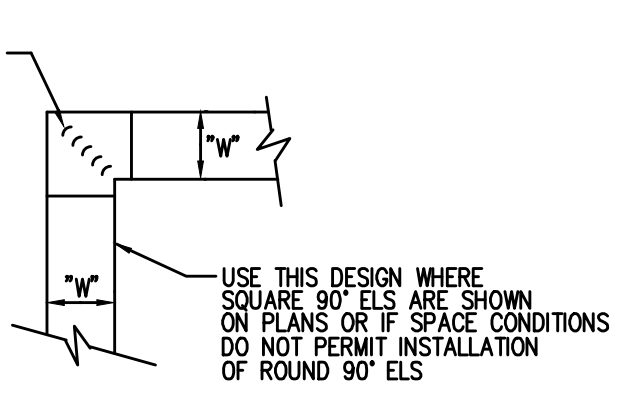


**6 INSTALLATION DETAIL - CEILING CABINET FAN**  
M-600 NOT TO SCALE

**4 DOUBLE THICKNESS TURNING VANES FOR SQUARE ELBOW**  
M-600 NOT TO SCALE

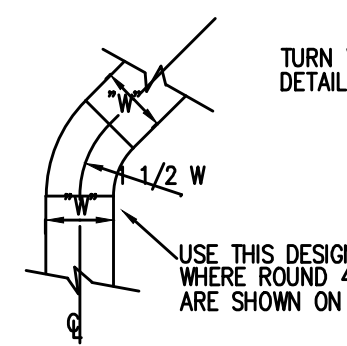


**ROUND 90° ELBOW**

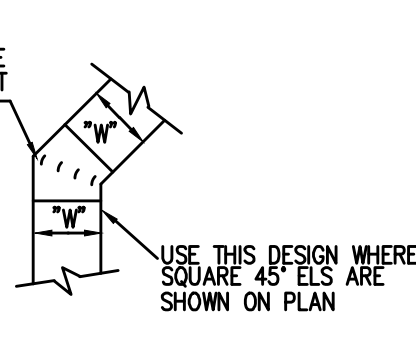


**SQUARE 90° ELBOW**

**CONSTRUCTION OF 90° ELBOWS**  
NOT TO SCALE

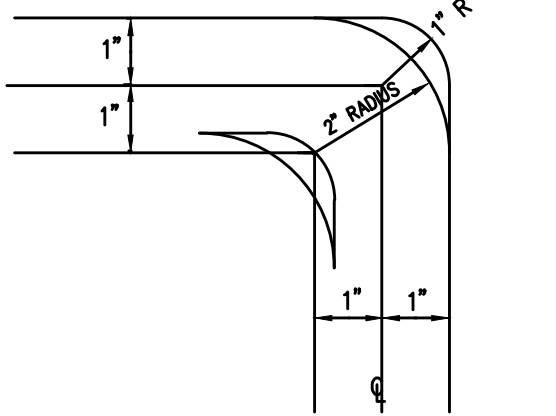


**ROUND 45° ELBOW**

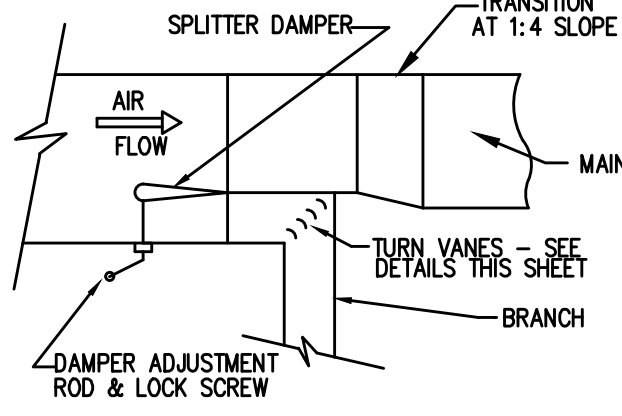


**SQUARE 45° ELBOW**

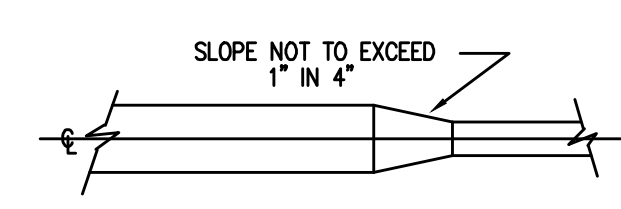
**CONSTRUCTION OF 45° ELBOWS**



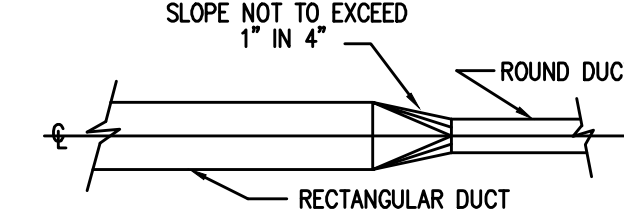
**DETAIL OF TURN VANES**



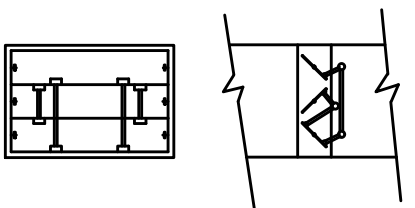
**TYPICAL SPLITTER DAMPER**



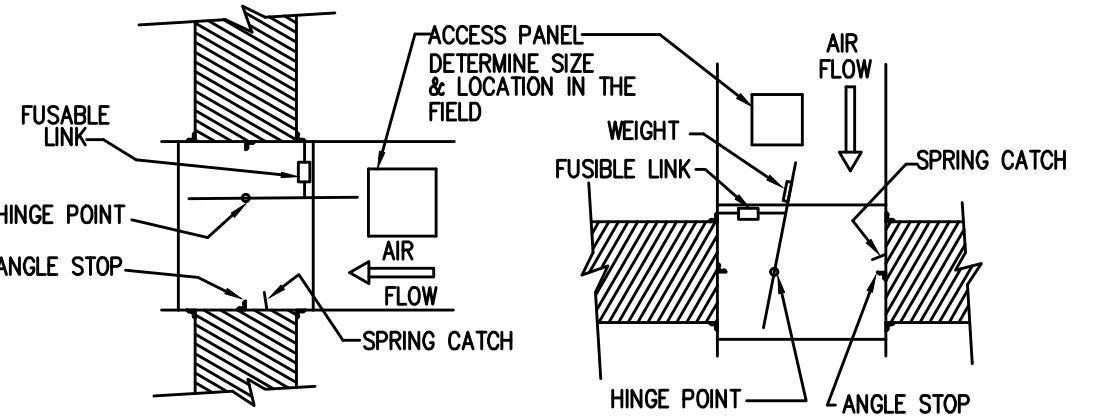
**TYPICAL RECTANGLE TRANSITION**



**TYPICAL RECTANGLE TO ROUND TRANSITION**



**TYPICAL VOLUME DAMPER**



**TYPICAL FIRE DAMPER**

**7 DUCTWORK DETAIL**  
M-600 NOT TO SCALE



JES architecture  
8370 Greensboro Dr.  
Suite 917  
McLean, VA 22102  
202.403.1272  
757-757-7259  
Fax: 202.737.7159  
Email: JESarchitecture@gmail.com

3511 13th St. NW  
WASHINGTON, DC 20010

CONSULTANTS:

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PROJECT:  
3511 13th St. NW

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SHEET TITLE:

SHEET NUMBER:

**M-9**

ISSUED: SCHEMATIC DESIGN  
DATE: 3/1/2011