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**REVISION HISTORY**

11. ENGINE ROOM VENTILATION FANS SHALL SHUT DOWN AND FIRE DAMPERS SHALL CLOSE AUTOMATICALLY UPON RELEASE OF THE FIRE SUPPRESSION SYSTEM.
12. VENTILATION FANS SHALL BE RESILIENTLY MOUNTED AND FLEX CONNECTED TO DUCTS.
13. ENGINE ROOM FANS SHALL BE CONTROLLED WITH VARIABLE SPEED DRIVES TO MAINTAIN A PREDETERMINED POSITIVE PRESSURE. SEE REFERENCE 1 FOR DETAILS.
14. ALL DUCT WORK SHALL BE THIN WALL ALUMINUM TUBE.
15. ENGINE ROOM SUPPLY SHALL BE FITTED WITH A MIST ELIMINATOR TO PREVENT WATER INGRESS INTO THE ENGINE ROOM.
16. PROVIDE DIRECTIONAL VANES AT ENGINE ROOM AIR SUPPLY TO DIRECT AIR FORWARD TOWARDS THE GENERATOR.
17. PROVIDE BAFFLE TO PREVENT EXCESS WATER OR SPRAY ENTERING ENGINE ROOM. EQUIP WITH DRAIN BELOW MOISTURE ELIMINATOR.
18. LOCATE EXHAUST DAMPER AT MAIN DECK. PROVIDE BOLTED ACCESS HATCH IN EXHAUST AIR TRUNK.
19. PASSENGER SPACE HEAT PUMPS AND EXHAUST FAN SHALL BE FITTED WITH EMERGENCY SHUT DOWN LOCATED IN THE PILOTHOUSE.

| REV | ZONE | DESCRIPTION | DWN | DATE | APVD |
|-----|------|-------------|-----|------|------|
|     |      |             |     |      |      |

**GENERAL NOTES**

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH 46 CFR SUBCHAPTER T REGULATIONS.
2. THIS DRAWING IS DIAGRAMMATIC AND DOES NOT REPRESENT A COMPLETE DETAILED DESIGN. EQUIPMENT LAYOUT IN A GIVEN AREA IS APPROXIMATE. THE CONTRACTOR SHALL DEVELOP A DETAILED DESIGN THAT PROVIDES A FULLY FUNCTIONAL ARRANGEMENT SUITABLE FOR INSTALLATION, TAKING INTO ACCOUNT ALL NECESSARY SYSTEM INTERFACES AND INTERFERENCES. DIMENSIONS SHALL BE VERIFIED FROM THE SHIP AND MANUFACTURERS' CERTIFIED DRAWINGS AS APPROPRIATE.
3. FAN SELECTIONS AND MOTOR RATINGS ARE BASED ON ESTIMATED ROUTING AND CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALCULATING ACTUAL FAN PRESSURE AND POWER REQUIREMENTS BASED UPON THE AS-BUILT SYSTEM.
4. FANS SHALL BE LABELED WITH NAMEPLATES IDENTIFYING THE UNIT, THE FAN VOLUME IN CUBIC FEET PER MINUTE (CFM), STATIC PRESSURE RATING AT SPECIFIED VOLUME, MOTOR FULL LOAD AMPERAGE, FAN SPEED, AND MOTOR HORSEPOWER. AIRFLOW DIRECTION SHALL BE IDENTIFIED ON THE FAN EXTERIOR BODY.
5. VOLUME FLOW RATES SHOWN ON THE DIAGRAM ARE MAXIMUM DESIGN FLOW RATES, EXPRESSED IN CUBIC FEET PER MINUTE.
6. IN GENERAL AIR VELOCITIES SHALL BE LIMITED TO 2,000 FEET PER MINUTE. WHERE SPACE CONDITIONS NECESSITATE, LOCAL VELOCITIES MAY APPROACH 3000 FEET PER MINUTE.
7. WHERE FANS ARE NOT DUCTED AT ONE END, FIT NON-DUCTED END WITH A BELLMOUTH AND GUARD.
8. WEATHER LOUVERS SHALL BE ALUMINUM WITH STAINLESS STEEL SCREENS. LOUVERS SHALL BE REMOVABLE, HELD IN PLACE WITH STAINLESS STEEL FASTENERS. ACCOMMODATION INLET LOUVERS SHALL BE EQUIPPED WITH STAINLESS STEEL BUG SCREENS.
9. REFRIGERANT TUBING SHALL BE INSTALLED IN ACCORDANCE WITH THE HEAT PUMP MANUFACTURER'S REQUIREMENTS OR IN ACCORDANCE WITH THE STANDARD FOR COPPER REFRIGERANT PIPING GIVEN IN ASTM F1155-10 (2015) TABLE 19 AS APPLICABLE.
10. FIRE DAMPERS SHALL BE EQUIPPED 165°F THERMAL TRIP DEVICES FOR AUTO-CLOSE IN CASE OF FIRE. FIRE DAMPERS SHALL BE EASILY ACCESSIBLE FOR SERVICE AND INSPECTION.

**REFERENCES**

1. 16109-003-802-0 CONTRACT SPECIFICATIONS

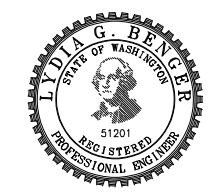


**Elliott Bay Design Group**  
**North Carolina, PLLC**

CLIENT: **NORTH CAROLINA D.O.T.**  
 RALEIGH, NORTH CAROLINA

PROJECT: **PEDESTRIAN FERRY**

TITLE: **HVAC BLOCK DIAGRAM**



|       |                 |           |
|-------|-----------------|-----------|
| SIZE  | DWG NO.         | REV       |
| D     | 16109-003-065-0 | -         |
| SCALE | FILE NAME       | SHEET     |
| NTS   | 16109-003-065-0 | 1 OF 4    |
| DWN   | MOD             | CKD       |
| LGB   | JHP             | APVD      |
|       | LGB             | APVD DATE |
|       |                 | 3/3/2017  |

**SYMBOLS LIST**

|  |  |
|--|--|
|  | AXIAL FAN                                |
|  | PLA CEILING-RECESSED AC / HEAT PUMP UNIT |
|  | EXHAUST AIR DUCT                         |
|  | SUPPLY AIR DUCT                          |
|  | RETURN/EXHAUST GRILL                     |
|  | SUPPLY DIFFUSER                          |
|  | LOUVER OR DEMISTER                       |
|  | LOUVER WITH WEATHER TIGHT COVER          |
|  | CFM TO OR FROM TERMINAL                  |
|  | FIRE DAMPER                              |
|  | BALANCING DAMPER (MANUAL)                |
|  | CENTRIFUGAL FAN                          |
|  | GOOSENECK VENT                           |
|  | BULKHEAD/TANK PENETRATION                |
|  | SUPPLY TERMINAL WITH SCREEN              |
|  | EXHAUST TERMINAL                         |
|  | VENT TERMINAL, INVERTED BALL CHECK       |
|  | VARIABLE FREQUENCY DRIVE                 |
|  | PRESSURE TRANSDUCER                      |

**EQUIPMENT LIST**

| QTY. | SERVICE                         | TYPE            | MODEL | CAPACITY                    | DRIVE                             | REMARKS   |
|------|---------------------------------|-----------------|-------|-----------------------------|-----------------------------------|---|
| 2    | PILOTHOUSE HEAT PUMP            | OUTDOOR UNIT    | -     | 24,000 BTU/H                | 208/230VAC/1Ø/60HZ<br>2.5KW (MAX) | -   |
| 2    | PILOTHOUSE HEAT PUMP            | INDOOR UNIT     | -     | 24,000 BTU/H                | PWR FROM<br>OUTDOOR UNIT          | -   |
| 4    | PASSENGER SPACE HEAT PUMP       | OUTDOOR UNIT    | -     | 35,000 BTU/H                | 208/230VAC/1Ø/60HZ<br>4.5KW (MAX) | -   |
| 4    | PASSENGER SPACE HEAT PUMP       | INDOOR UNIT     | -     | 35,000 BTU/H                | PWR FROM<br>OUTDOOR UNIT          | -   |
| 2    | ENGINE ROOM SUPPLY FAN          | AXIAL           | -     | 10,400 CFM<br>@ 0.7" H2O SP | 208VAC/3Ø/60HZ<br>5 HP            | VARIABLE SPEED DRIVE<br>SEE REF 1 FOR CONTROLS                                |
| 1    | PASSENGER SPACE EXHAUST FAN     | CENTRIFUGAL     | -     | 600 CFM<br>@ 1.3" H2O SP    | 120V/1Ø/60HZ<br>1.5 HP            | -   |
| 2    | JET ROOM EXHAUST FAN            | DC BLOWER       | -     | 200 CFM<br>@ 1.5" H2O SP    | 24 VDC<br>8 AMP                   | -   |
| 2    | ENGINE ROOM INLET FIRE DAMPER   | STAINLESS STEEL | -     | 27" x 27"                   | -                                 | ELECTRICALLY ACTUATED<br>CLOSES UPON ACTIVATION OF FIRE<br>SUPPRESSION SYSTEM |
| 2    | ENGINE ROOM EXHAUST FIRE DAMPER | STAINLESS STEEL | -     | 27" x 20"                   | -                                 | ELECTRICALLY ACTUATED<br>CLOSES UPON ACTIVATION OF FIRE<br>SUPPRESSION SYSTEM |
| 2    | MOISTURE ELIMINATOR             | ALUMINUM        | -     | 40" x 30"                   | -                                 | -   |

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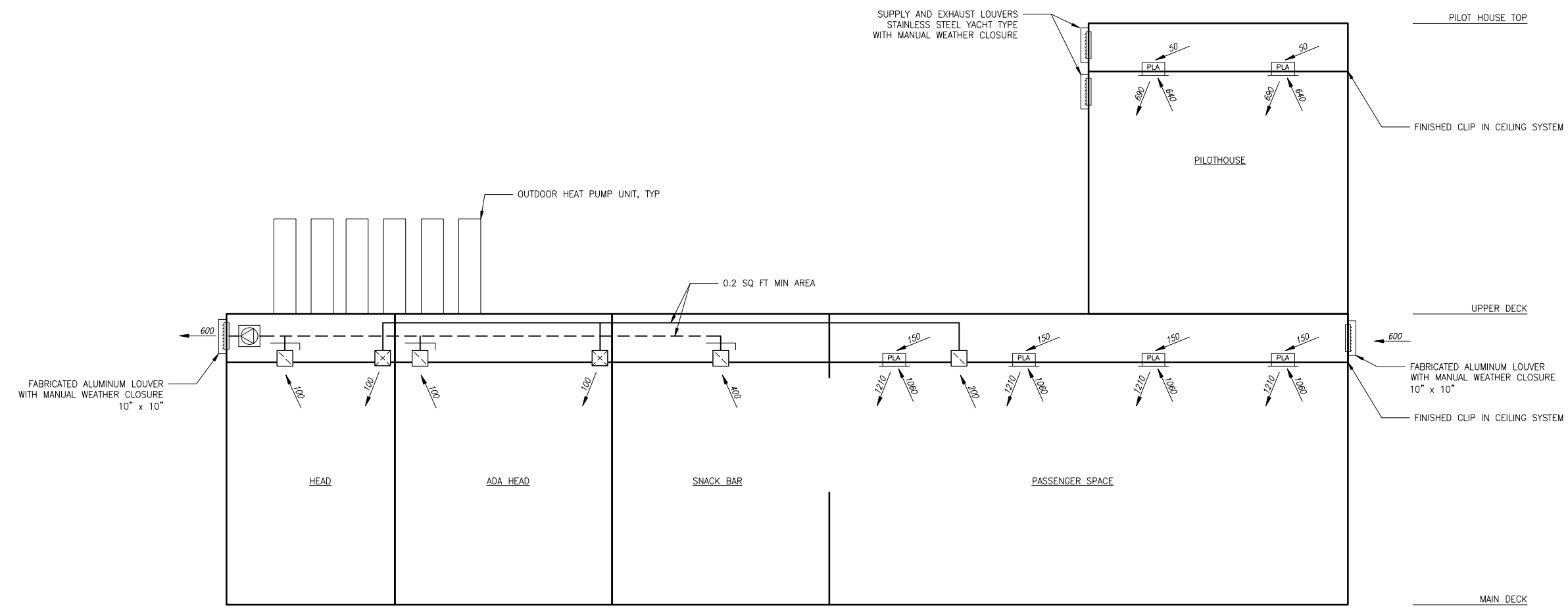
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B

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**DIAGRAM 2-4B**  
 PASSENGER SPACE AND PILOTHOUSE HVAC



|       |     |           |                  |       |        |
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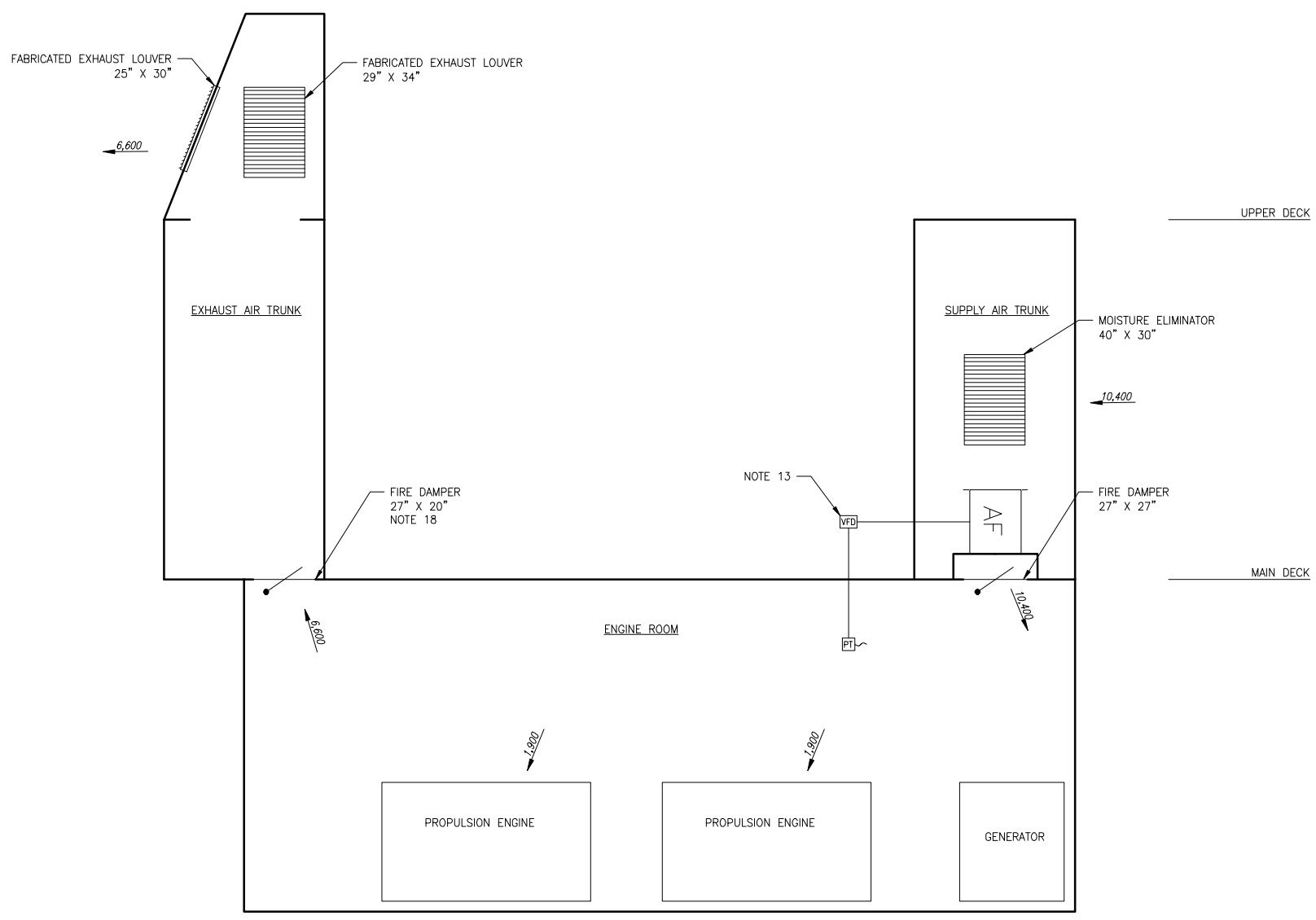
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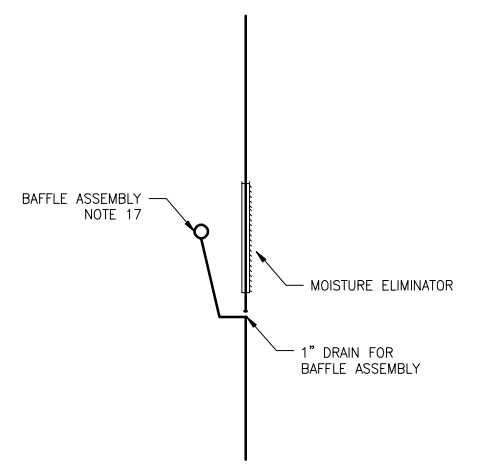
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**DIAGRAM 3-4B**  
 ENGINE ROOM VENTILATION  
 STBD SIDE SHOWN, PORT SIMILAR



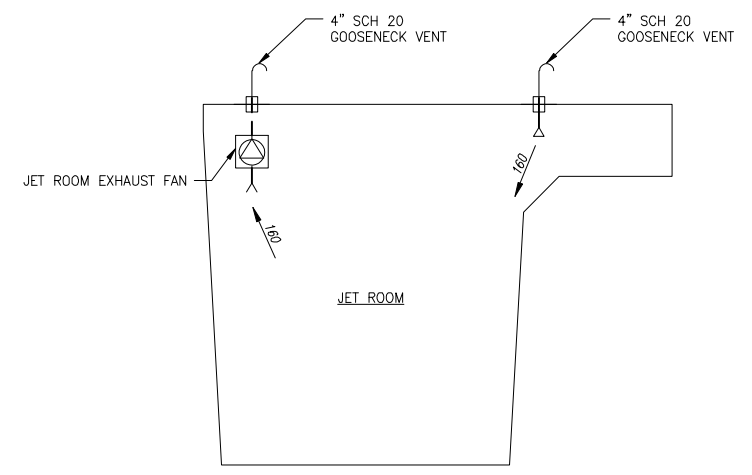
**DETAIL 3-1B**  
 SUPPLY AIR BAFFLE



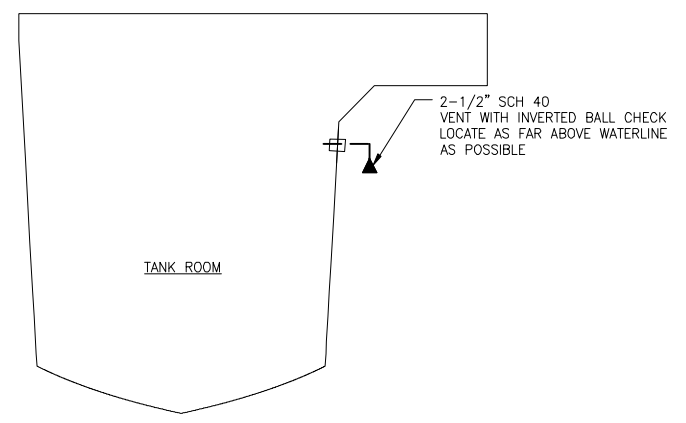
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| SIZE  | D   | DWG NO.   | 16109-003-065-0  | REV   | -      |
| SCALE | NTS | FILE NAME | 16109-003-065-0- | SHEET | 3 OF 4 |

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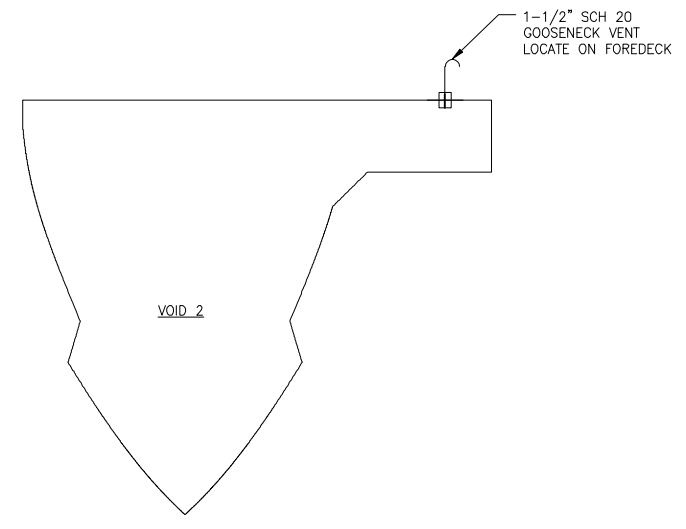
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**DIAGRAM 4-5C**  
 JET ROOM VENTILATION



**DIAGRAM 4-5A**  
 TANK ROOM VENT



**DIAGRAM 4-3A**  
 VOID 2 VENT



|       |     |           |                  |       |        |
|-------|-----|-----------|------------------|-------|--------|
| SIZE  | D   | DWG NO.   | 16109-003-065-0  | REV   | -      |
| SCALE | NTS | FILE NAME | 16109-003-065-0- | SHEET | 4 OF 4 |

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