SmartPlant 3D
HVAC Labs

Process, Power & Marine

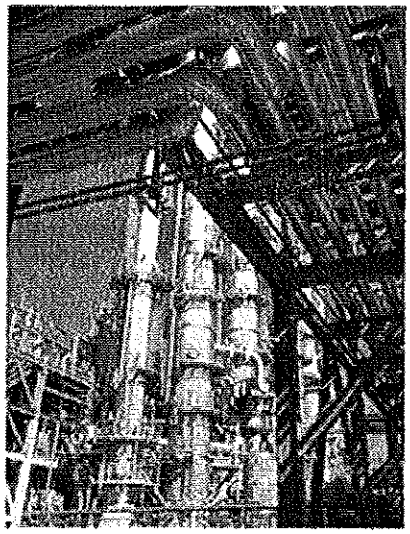
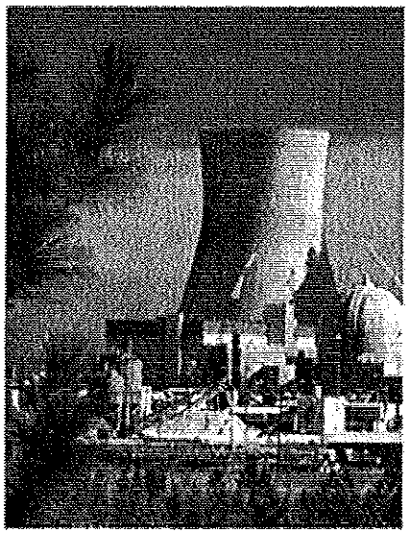


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Table of Contents

Preparation:

1. Restore Training Plant
2. Enter a Session File and set workspace to show ALL filter
3. Go to tools, select by filter
4. Open For Instructors only folder and select Equipment and Piping class filter, delete the selected objects
5. Go to tools select by filter, open For Instructors only folder and select Structural class filter, delete the selected objects
6. Activate pin point and set Active Coordinate system to Global
7. Go to Edit, Paste from Catalog. Open Modules, HVAC, HV Grids
8. Select HVAC_CS and ok
9. OK on Place Macro
10. Key in -35 for Easting, 10 for North and 0 for Elevation
11. Set your Workspace to Show HVAC filter

NO LONGER AVAILABLE...

GRIDS TO BE ADDED MANUALLY

LAB-1: Placing Air Handling Unit

Objective

1 Open a Session file with Imperial Units

2 Define your Workspace to Show HVAC Labs filter

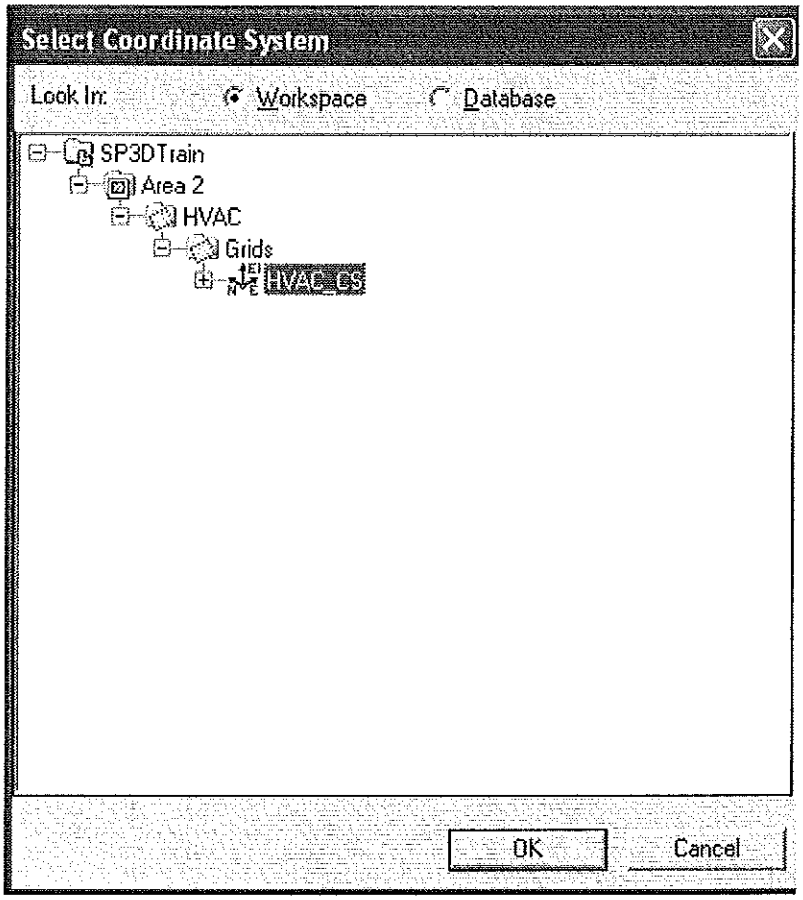
3 If you are not in the Equipment task, then select Task -> Equipment and Furnishing

4 Make sure the Active Permission Group is set to ***HVAC***

5 Activate PinPoint by Selecting Tools > PinPoint

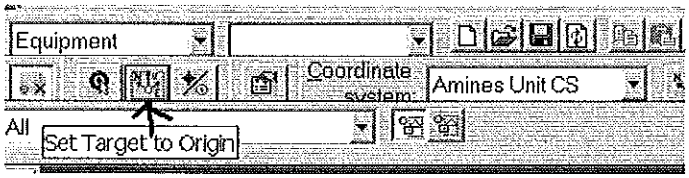
6 From Ribbon Bar, select more under Coordinate systems

7 Expand HVAC, Grids and select HVAC_CS



8 Ok on the Select Coordinate System form

9 Select Set target to Origin Option



10 Select Place Designed Equipment Command

11 From Catalog Browser select, \Equipment\Process\Horizontal Vessels\Horizontal Drum with Saddle

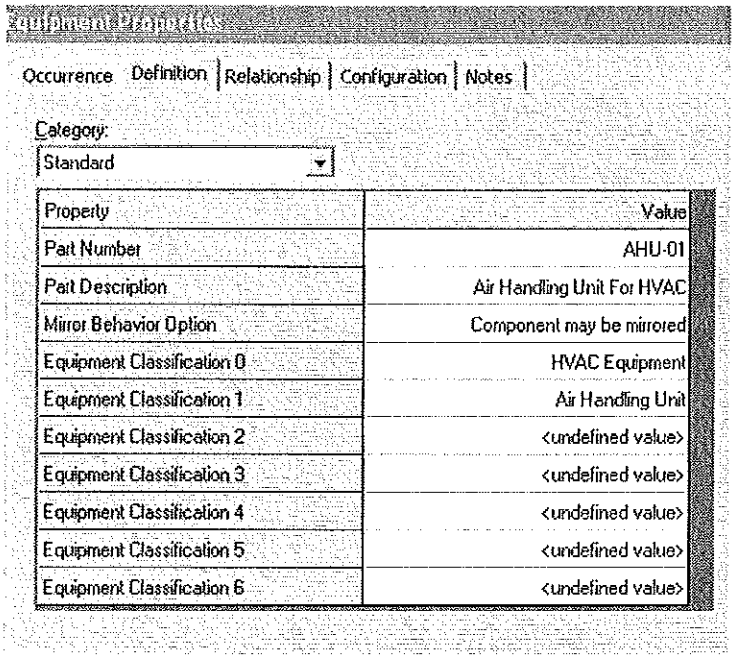
12 Key in 31' for East, 4' for North and 2' for Elevation.

13 Change the System to HVAC, HVAC AHU

14 Change the name to AHU-01

15 Select AHU-01 in WSE, and open its properties page

16 Switch to Definition tab and make following changes



Property	Value
Part Number	AHU-01
Part Description	Air Handling Unit For HVAC
Mirror Behavior Option	Component may be mirrored
Equipment Classification 0	HVAC Equipment
Equipment Classification 1	Air Handling Unit
Equipment Classification 2	<undefined value>
Equipment Classification 3	<undefined value>
Equipment Classification 4	<undefined value>
Equipment Classification 5	<undefined value>
Equipment Classification 6	<undefined value>

17 Select Place Shape Command

18 If prompted, select AHU-01 in WSE

19 Select the Rectangular shape

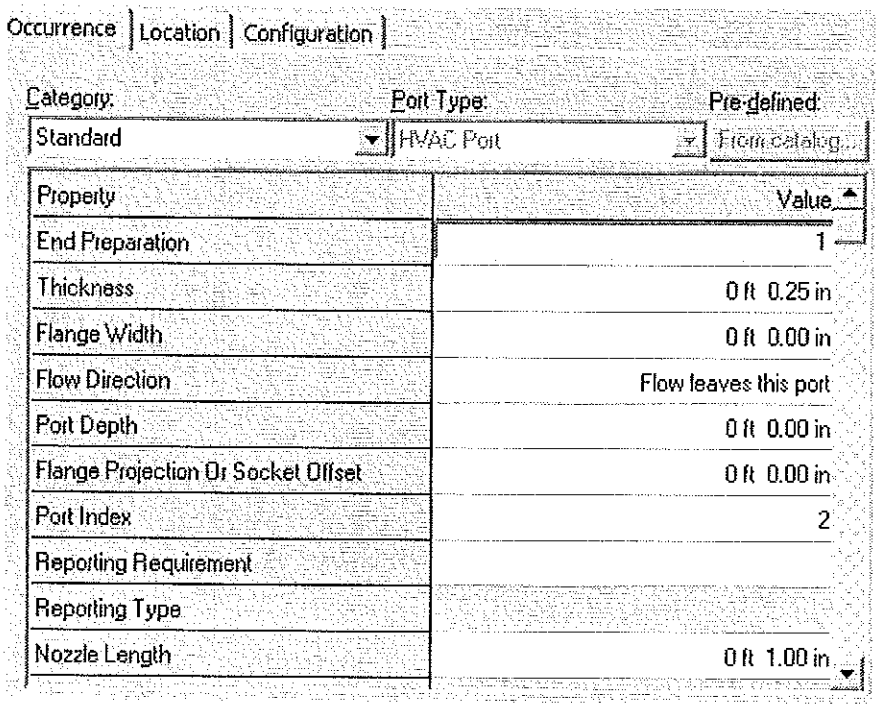
20 Key in A=8, B=6 and C=4

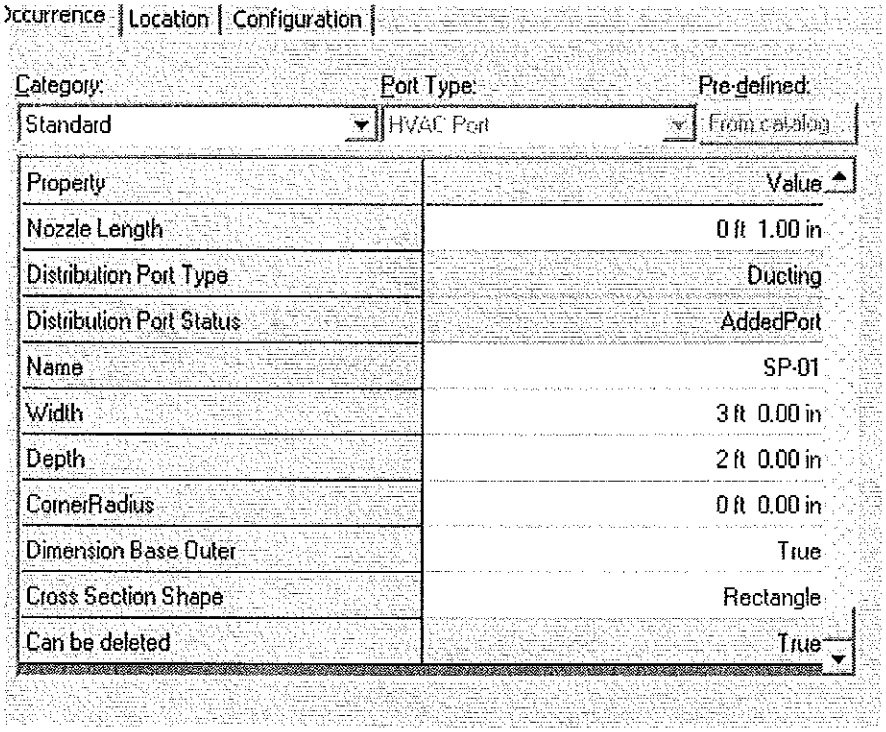
21 Key in 31' for East, 4' for North and 2' for Elevation.

22 Change the name of the shape to AHUBOX

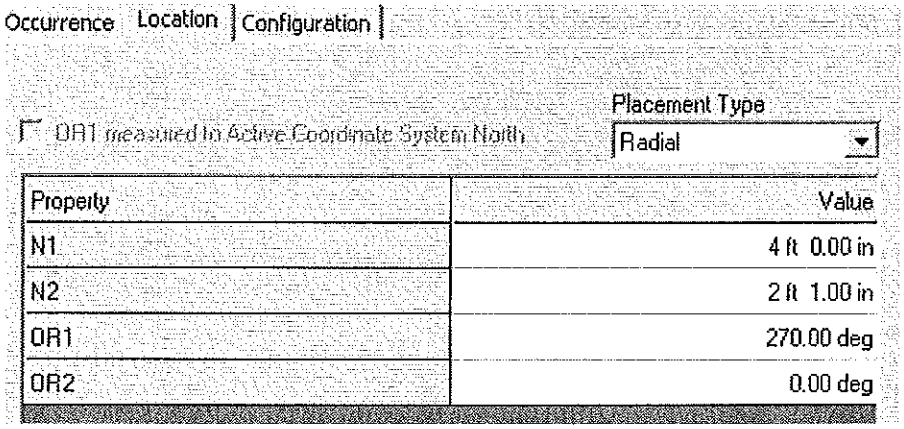
23 Select Place Nozzle Command and select the shape AHUBOX as the nozzle parent

24 Change the port type to HVAC Port and set the properties as shown:

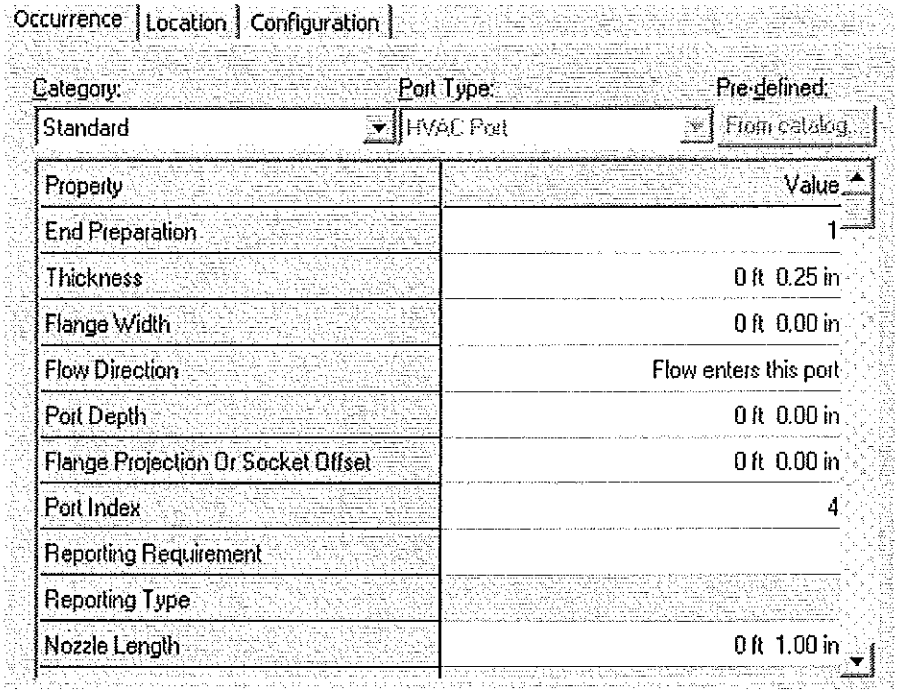


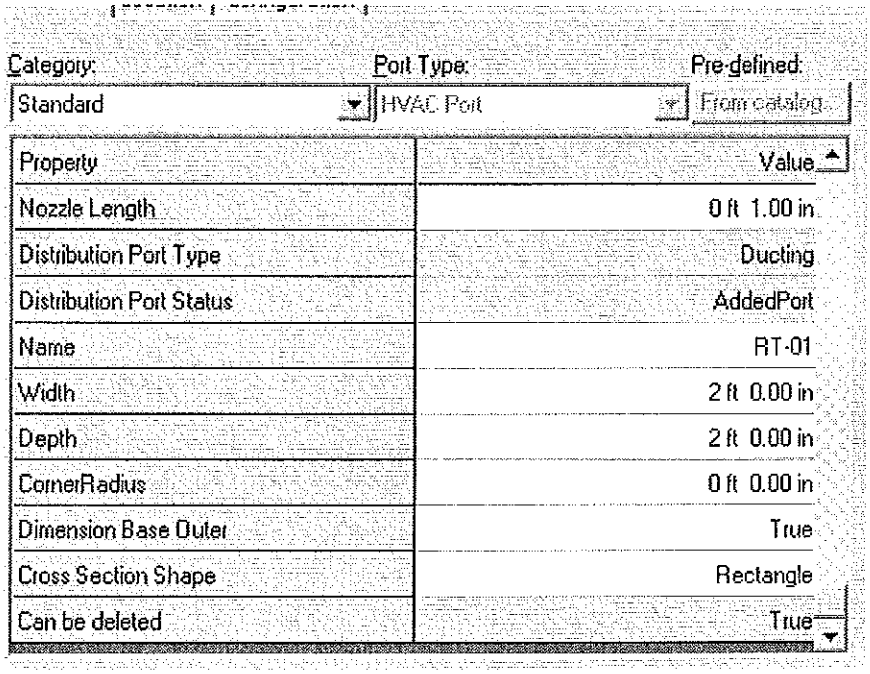


25 Switch to location tab and set the values as shown

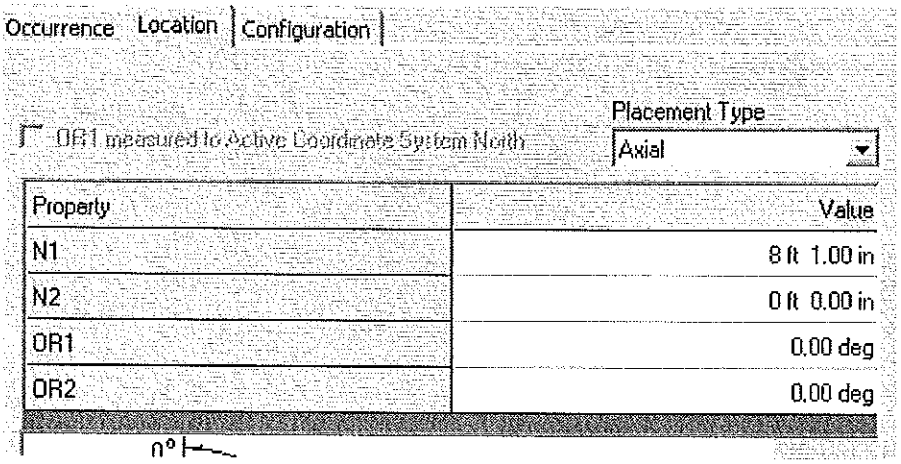


26 Place another Nozzle with following Properties


Occurrence
Location
Configuration
Category:
Port Type:
Pre-defined:
Standard
HVAC Port
From catalog...
Property
Value
End Preparation
1
Thickness
0 ft 0.25 in
Flange Width
0 ft 0.00 in
Flow Direction
Flow enters this port
Port Depth
0 ft 0.00 in
Flange Projection Or Socket Offset
0 ft 0.00 in
Port Index
4
Reporting Requirement
Reporting Type
Nozzle Length
0 ft 1.00 in


Category:
Port Type:
Pre-defined:
Standard
HVAC Port
From catalog...
Property
Value
Nozzle Length
0 ft 1.00 in
Distribution Port Type
Ducting
Distribution Port Status
AddedPort
Name
RT-01
Width
2 ft 0.00 in
Depth
2 ft 0.00 in
CornerRadius
0 ft 0.00 in
Dimension Base Outer
True
Cross Section Shape
Rectangle
Can be deleted
True

Switch to Location tab and set



LAB-2: Basic Duct Routing

1 Open a Session file with Imperial Units

2 Define your Workspace to Show HVAC LABS filter

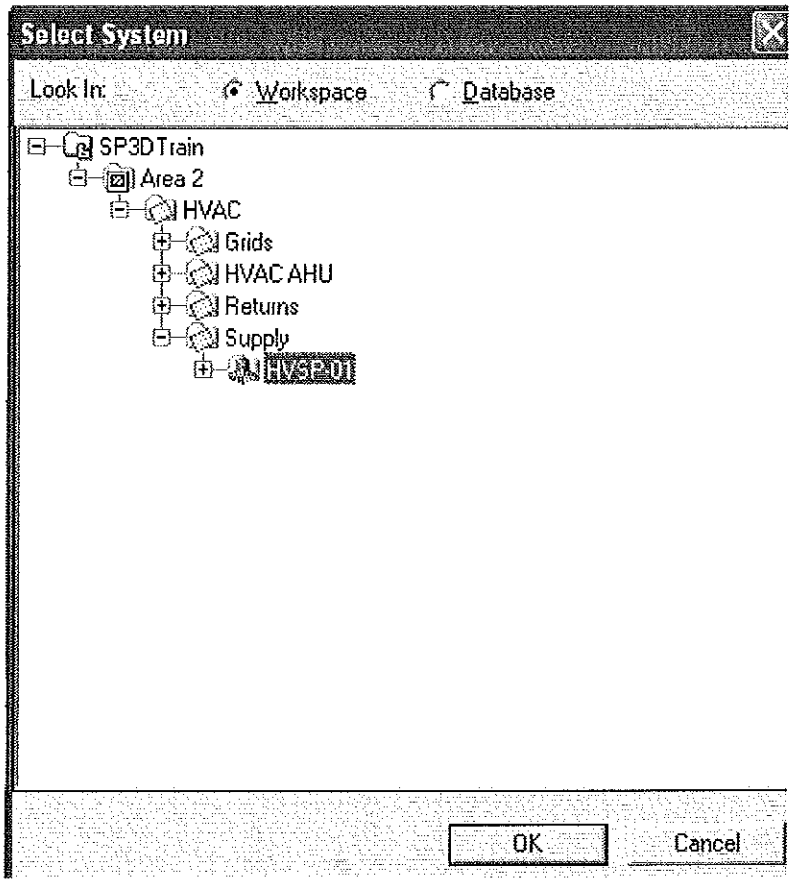
3 Switch to HVAC task

4 Activate PinPoint by Selecting Tools > PinPoint

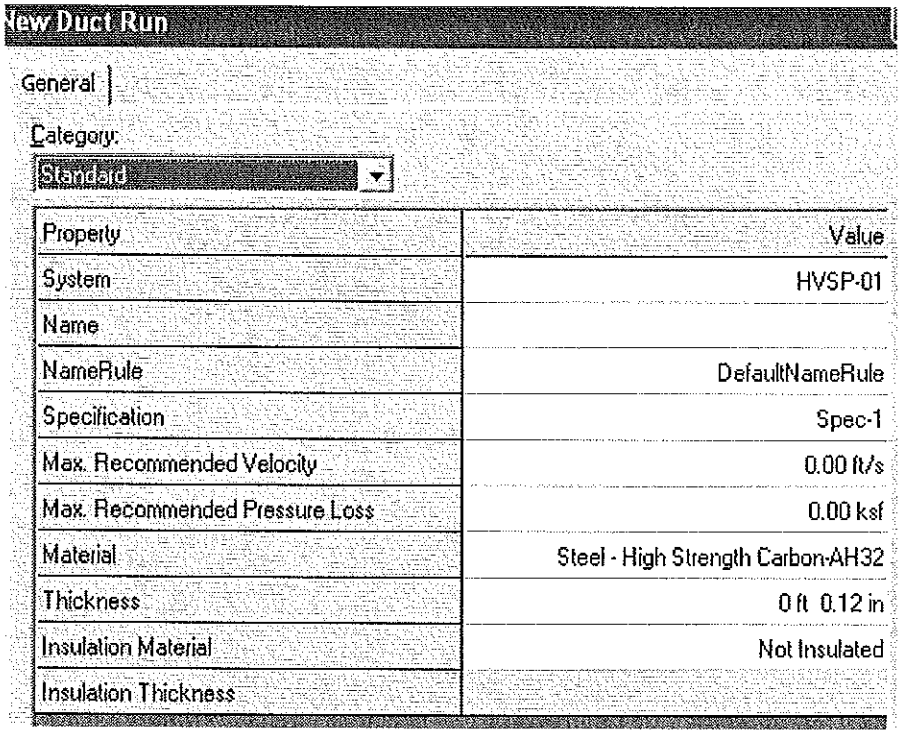
5 Select Route Duct command

6 Select Port SP-01 on AHU-01 as the starting point

7 Change the system as shown



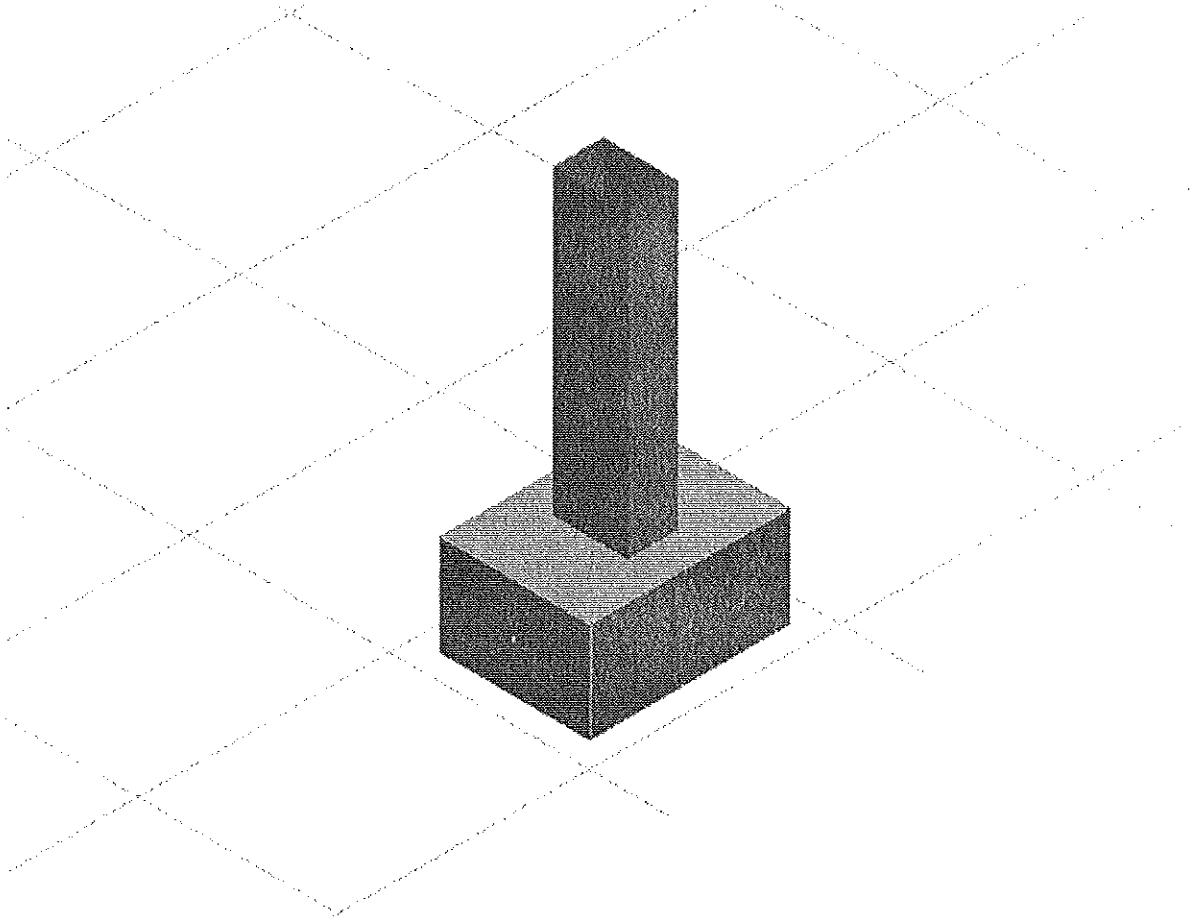
8 Change the rest of the properties as shown



9 System picks the Width and Depth from the Port.

10 Route to Elevation 16'

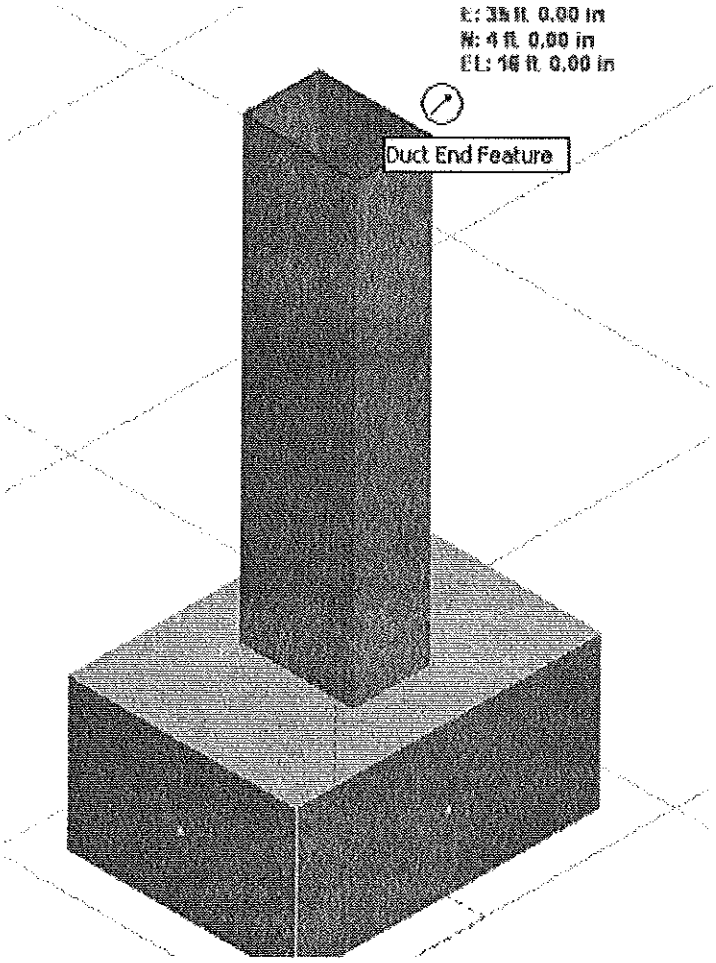
11 Your view should resemble this



LAB-3: Inserting Duct Divisions

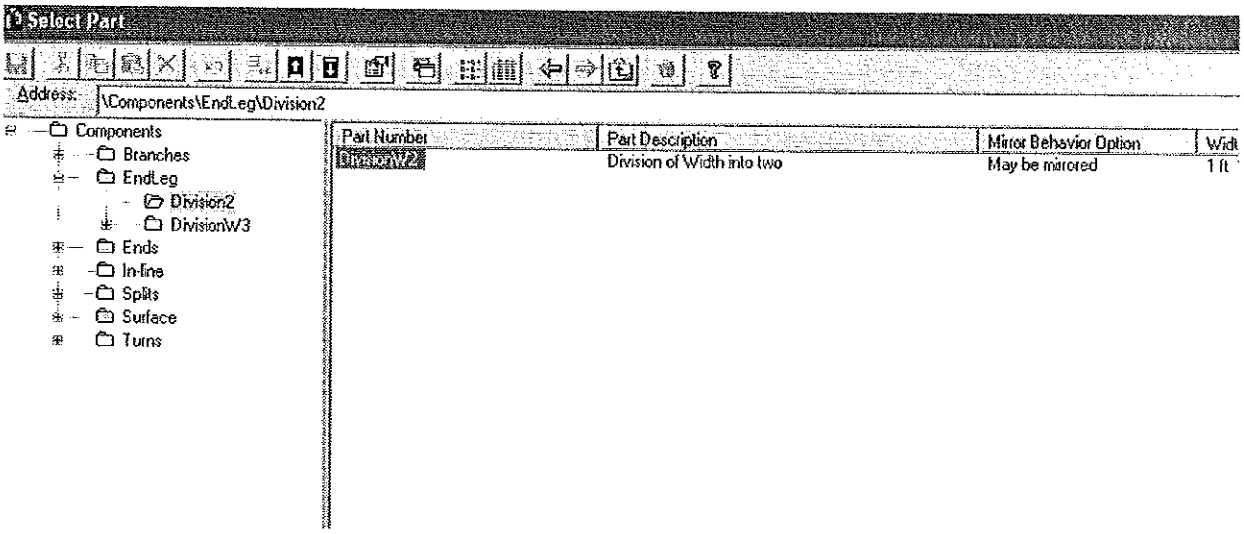
1 Select insert Inline Component Command

2 Select the End Feature of Vertical Duct



3 Under Part, select more

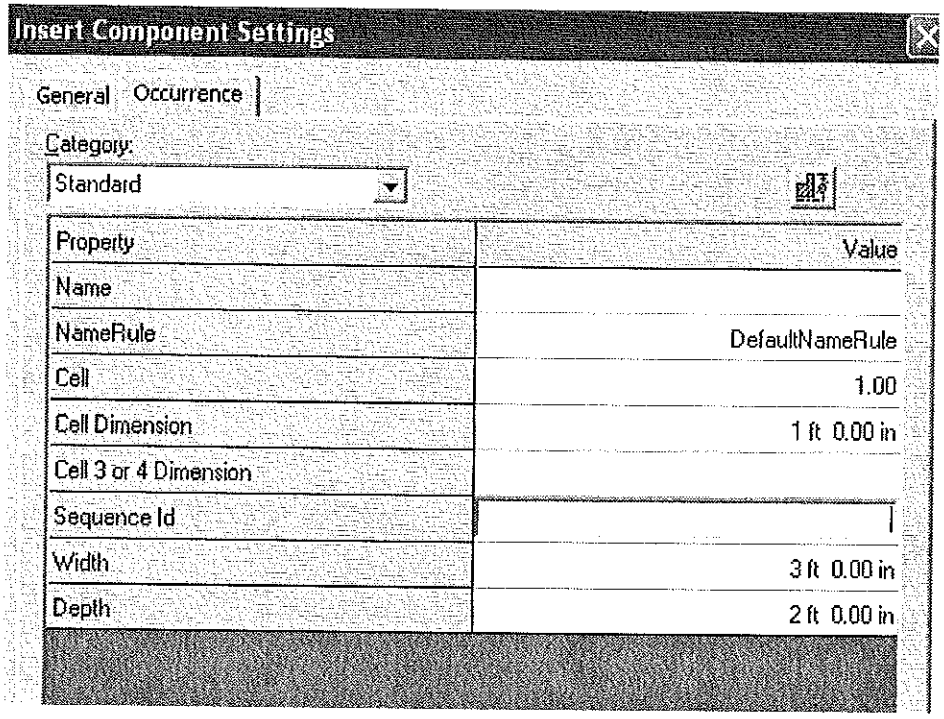
4 Select DivisionW2 as shown



5 OK on the form

6 Select the properties icon from the ribbon bar

7 Change the properties as shown

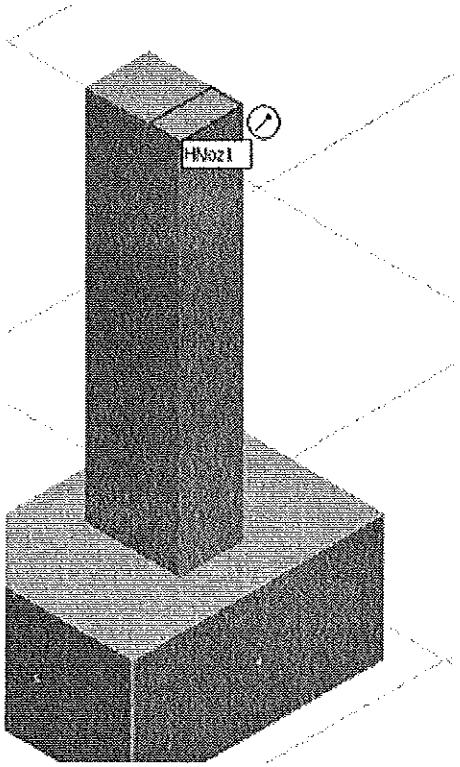


8 Select Finish to place the component

LAB-4: Inserting Transitions

1 Select Insert Transition command

2 Select the smaller section at the end of duct as shown



3 On the new duct run form, keep the properties same as previous lab

4 Change the size to 1' X 1'

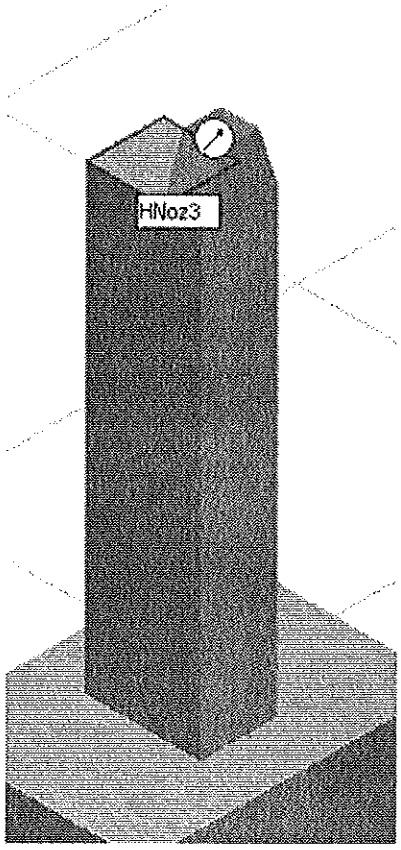
5 Change the length to 1' 6"

6 Finish placing the transition

LAB-5: Duct Routing with Bends and Branches

1 Select Route Duct command

2 Select the bigger end of the duct end

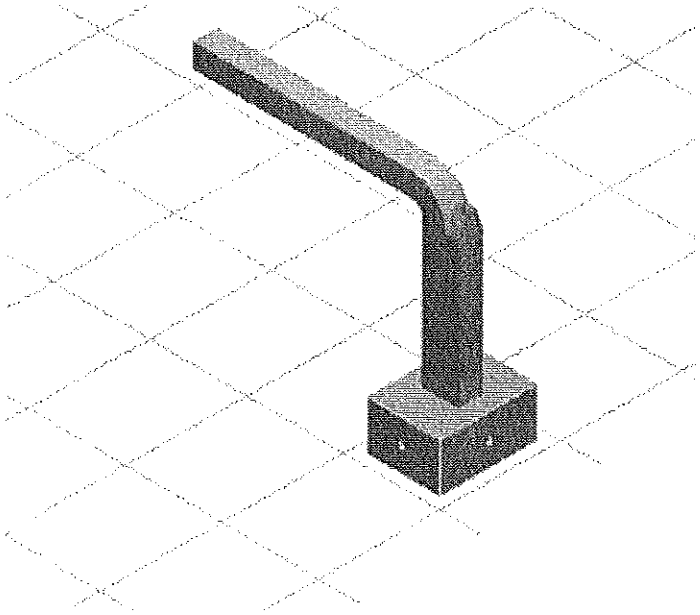


3 Keep all the properties same as previous lab

4 Change the angle to 90 in the ribbon bar

5 Key in 20' for length

6 Route the duct in North direction as shown



7 When finished, right click to cancel the command

8 Place the target at the end of Duct placed in previous step

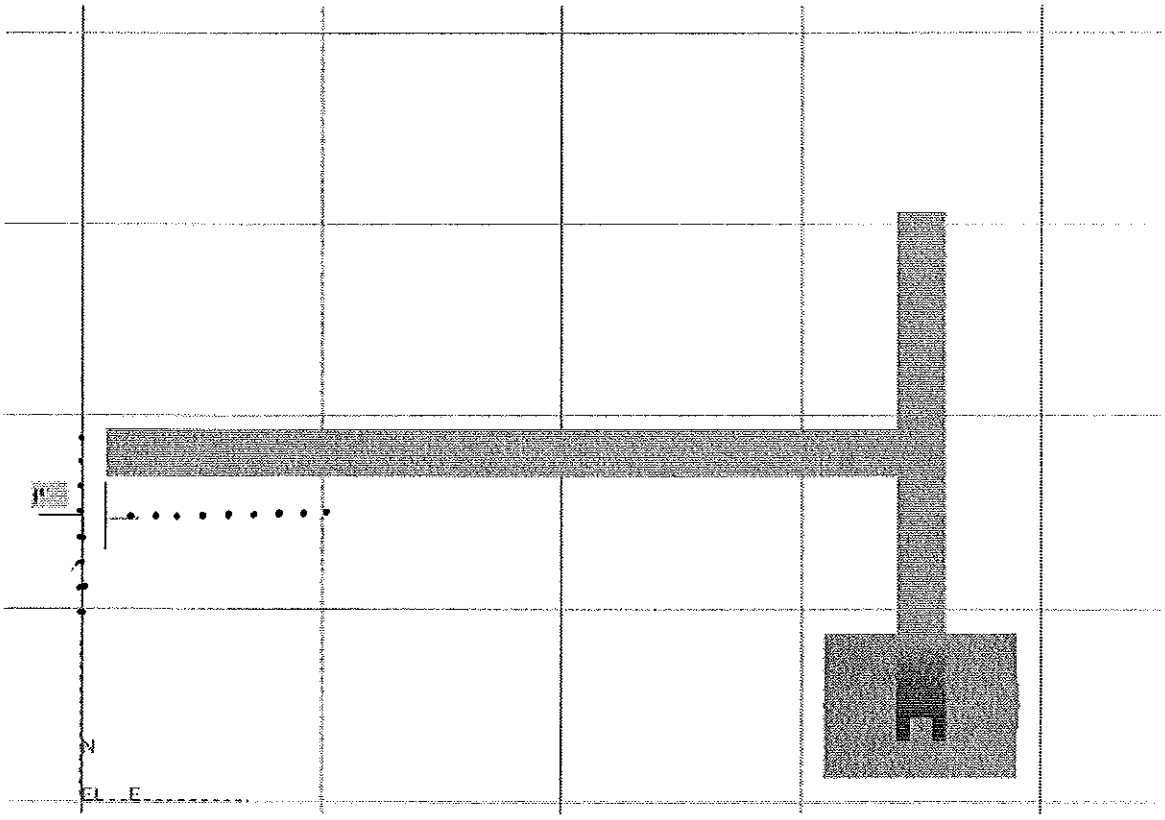
9 Select Route Duct command

10 Key in -10 for North and highlight the duct straight feature, left click to start the new run at this location

11 Keep the same properties on new duct run form. Ok

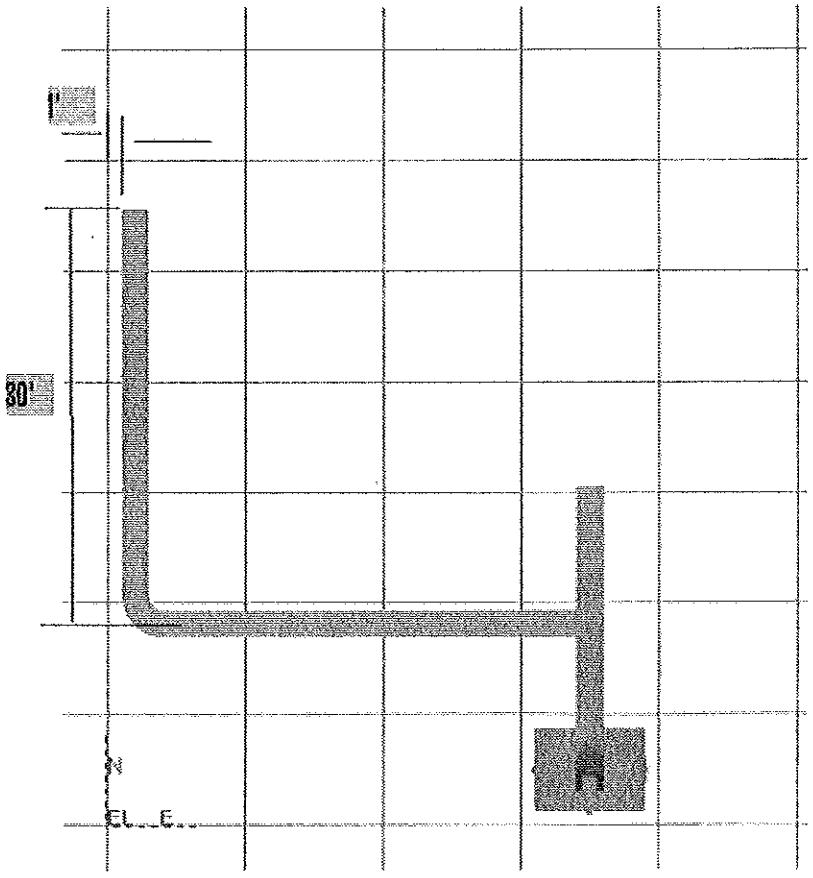
12 Change the size to 2' X 2'

13 Route the duct west as shown



LAB-6: Cardinal Point Routing

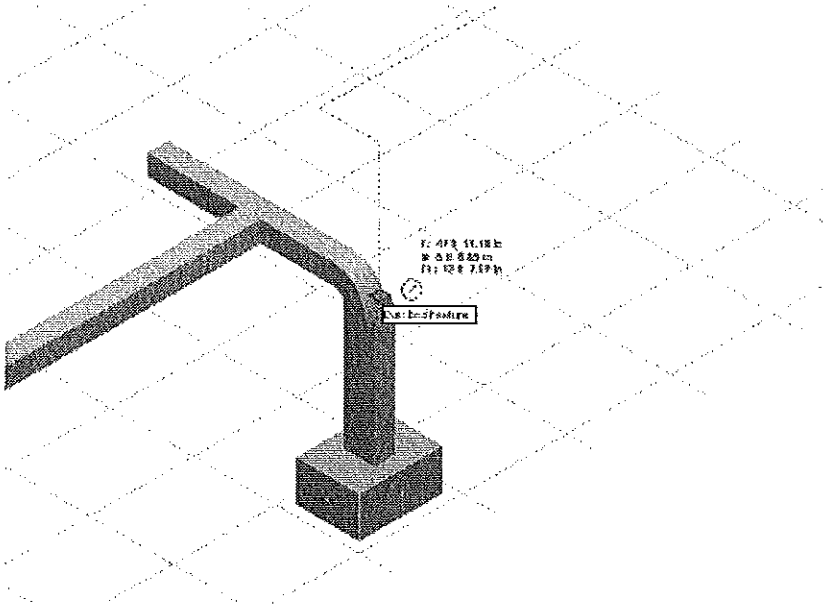
1 Route Duct as shown using appropriate Cardinal point
Note: Make Sure you keep the plan plane lock on



2 Right click to cancel the route command

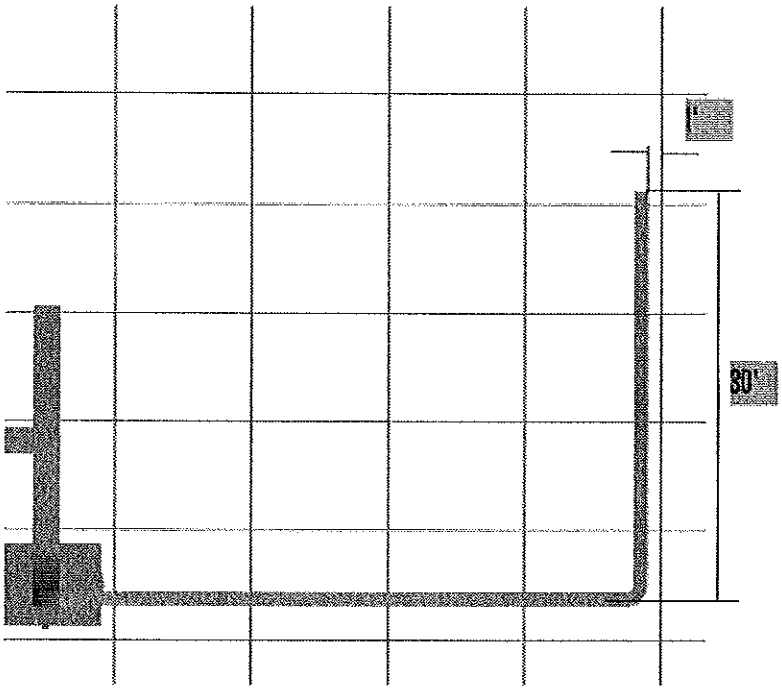
3 Select Route Duct command

4 Define the end if transition as the starting point



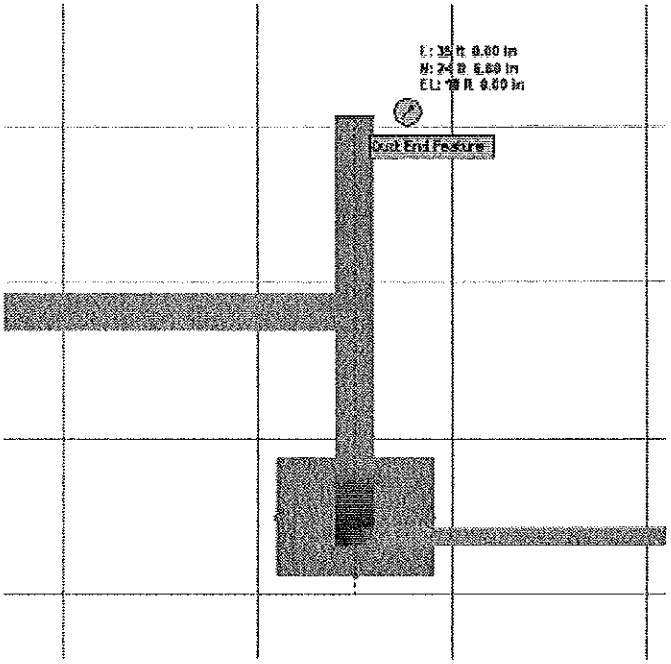
5 Keep the same properties as above labs. Change the angle to 90

6 Route as shown



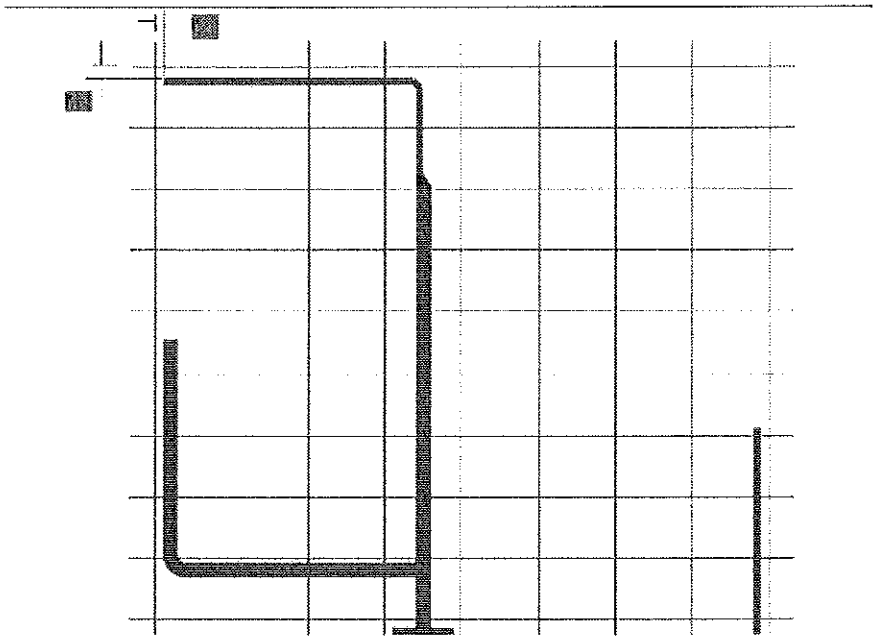
7 Select the Route Duct Command

8 Start at the center 2' X' 2' duct as shown

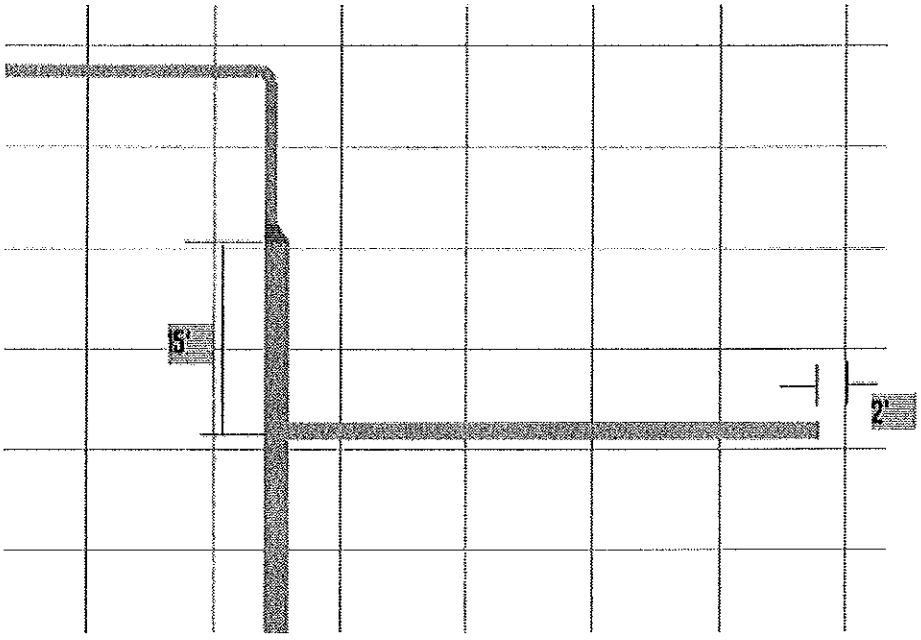


9 Route North 40'

10 Place a Transition to 1' X 1', Length of transition 1' 6" keeping Bottom and East Flat. Continue Routing from the Transition as Shown



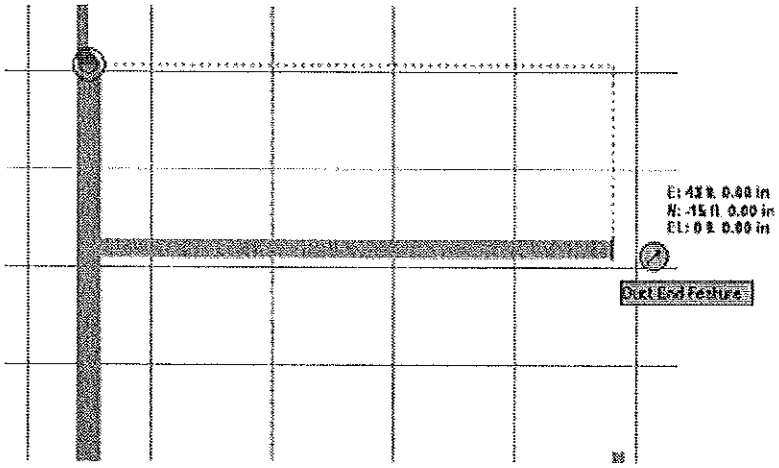
11 Route a 1' 6" X 1' 6" Branch as shown



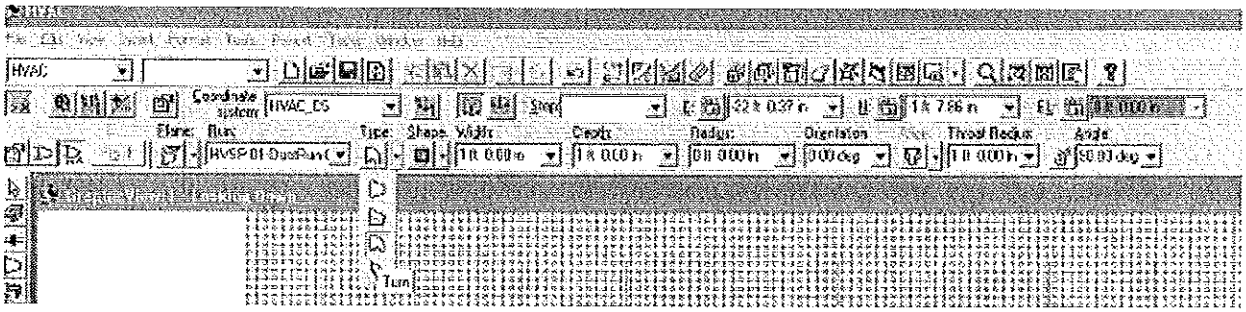
LAB-7: Placing Reducing Elbows

1 Select Place Transition command

2 Select the End Feature of Branch duct placed in previous step



3 Change the type to turn



4 Change the width and depth to 1'

5 Change the Throat Radius to 1'

6 Change the angle to 90

7 Point the elbow in North direction and click in the middle of elbow

8 Finish to place the elbow

9 Route 20' from elbow as shown