

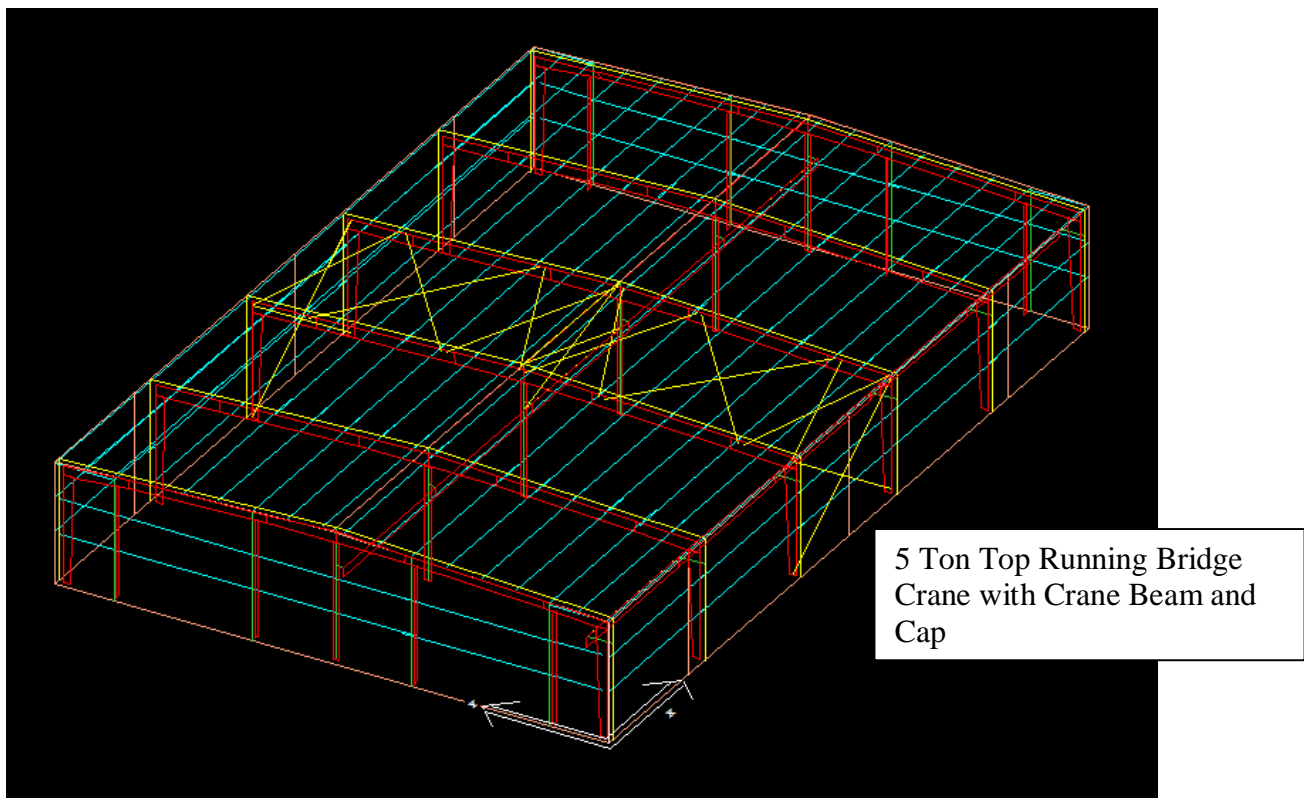
Lesson 14

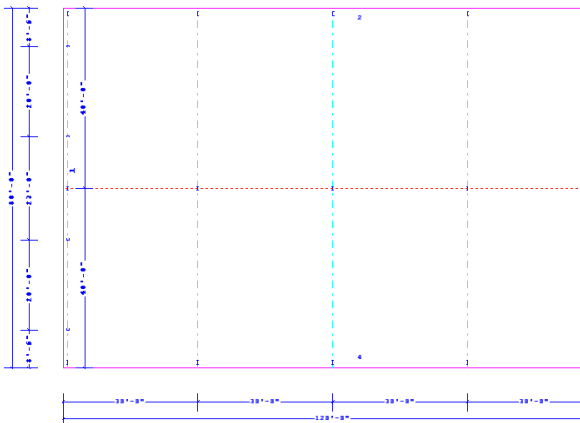
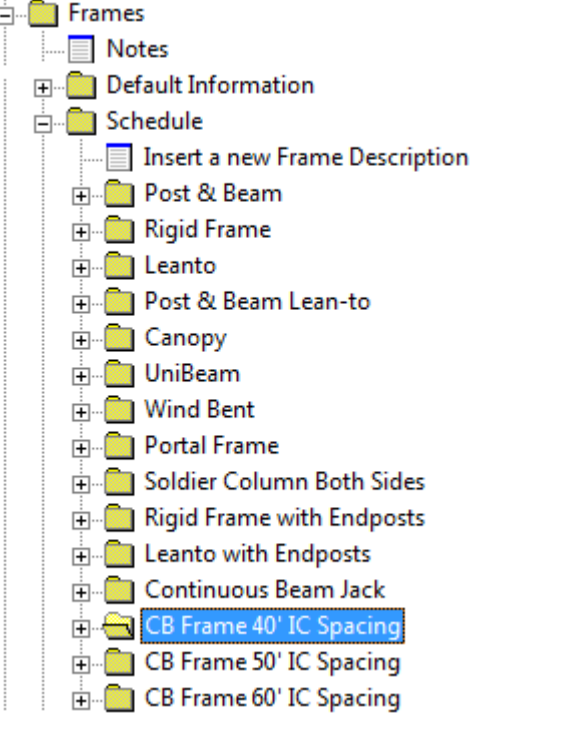

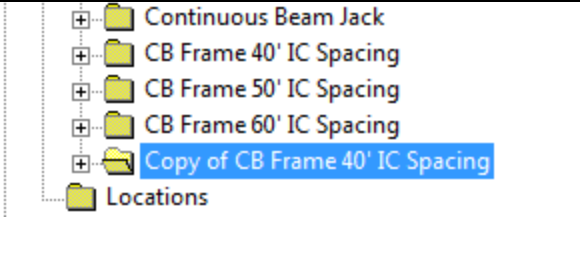
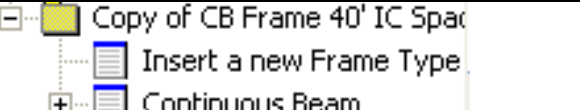
The Focus of this Lesson is:

- Input a basic building
- Change to CB-1 Main frames
- Add a Crane
- Check for Crane deflection requirements
- Check pricing report for runway beam prices

Lesson Comments:

At this time we only recommend using this option if you have been through the level 2 training class. Upon completion of the crane information input, VPCCommand will automatically hold deflection on and load the primary frames. It will also add and detail the crane bracket if applicable.



 <p>A technical drawing showing the building's geometry. It features a rectangular footprint with dimensions 80' wide by 120' x 19'6" high. The drawing includes vertical and horizontal dashed lines representing structural grid lines and a horizontal red dashed line indicating a specific level or height.</p>	<p>Building Geometry</p> <p>This building can be input using the pre-defined rectangle. 80 wide X 120' x 19'6" height 1/2:12 pitch.</p>
 <p>A screenshot of a software interface showing a tree view of frame types. The 'Frames' folder is expanded, and the 'Schedule' sub-folder is also expanded. The 'CB Frame 40' IC Spacing' folder is highlighted in blue.</p>	<p>Frame Types</p> <ol style="list-style-type: none"> 1) For this lesson you should use a CB-1 with 40' interior column spacing. 2) Because the crane will attach to the endwall frame we need to have a half load CB 1 with end posts at each endwall. The crane function in VPCCommand will only recognize interior and exterior columns as valid locations for crane brackets. 3) To create the <i>CB 1 with end posts</i>: 4) Open the <i>Frame Schedule</i> folder. 5) Click one time on the <i>CB Frame 40' IC Spacing</i> folder. Notice the folder opens. 
 <p>A screenshot of the software interface showing the 'Frame Schedule' folder expanded. The 'Copy of CB Frame 40' IC Spacing' folder is highlighted in blue.</p>	<ol style="list-style-type: none"> 6) Click and hold down the left mouse button on the <i>CB Frame 40' IC Spacing</i> folder and drag up anywhere in the <i>Schedule</i> and release the left mouse button. This will create a copy of the folder. 7) To add end posts to this folder open the <i>Frame Schedule</i> and open the folder for the <i>Copy of CB Frame 40' IC Spacing</i>.
 <p>A screenshot of the software interface showing the 'Copy of CB Frame 40' IC Spacing' folder expanded. The 'Insert a new Frame Type' folder is highlighted in blue.</p>	<ol style="list-style-type: none"> 8) Double click <i>Insert a new Frame Type</i>.

Frame Information

Description | Design | Length

Frame Name
Copy of CB Frame 40' IC Spacing

Frame Type
End Posts

Interior Column / Endpost Locations ...

Endpoint Locations

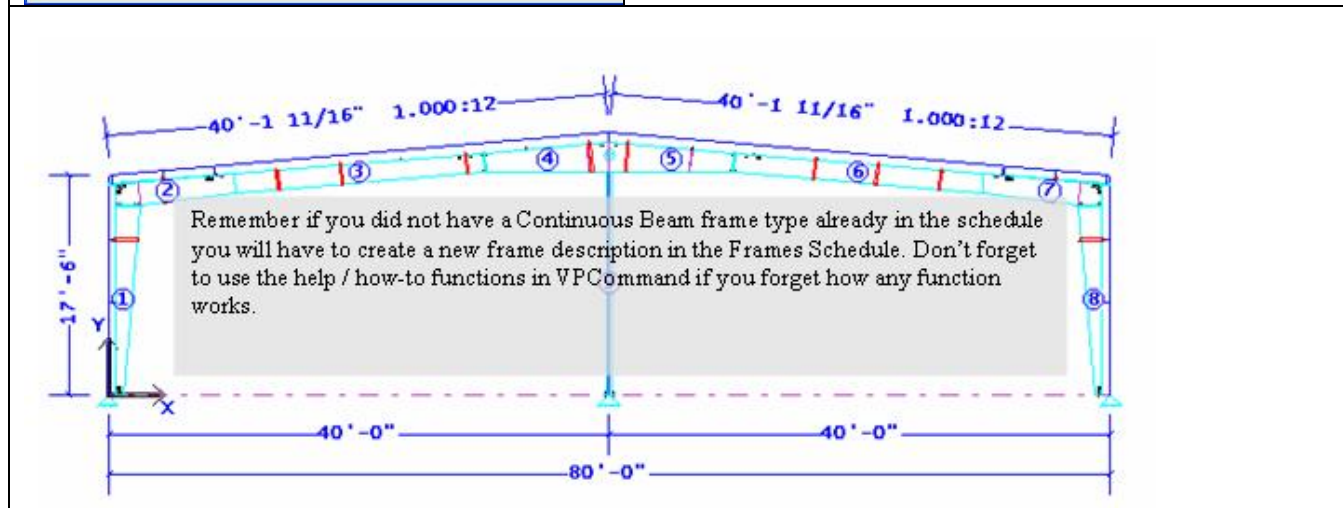
Use Default Locations

Ridge Intermediate
11'6"/0 20'0"/0

High Side Last (Min.)
21'6"/0 8'6"/0

View OK Cancel Apply

- 9) Choose *End Posts* from the frame type drop down list. You can rename the frame type at this point if you would like.
- 10) Click *OK* and the tree will refresh automatically.
- 11) Your Endwall frame is now ready to locate.



Frame Locations on Plant Side 4

Frame Locations

Orientation from Wall
 Perpendicular Special

Total Distance Remaining Left Angle Right Angle
 120'0"/0 1'0"/0 90.0000 90.0000

Location	Space	Description	Angle	Group	Trib.	Design Statu
1	1/0/0	1/0/0	CB Frame 40' IC Spacing w/ E	90.0000		Automatic Design
2	24/0/0	23/0/0	CB Frame 40' IC Spacing	90.0000		Automatic Design
3	48/0/0	24/0/0	CB Frame 40' IC Spacing	90.0000		Automatic Design
4	72/0/0	24/0/0	CB Frame 40' IC Spacing	90.0000		Automatic Design
5	96/0/0	24/0/0	CB Frame 40' IC Spacing	90.0000		Automatic Design
6	119/0/0	23/0/0	CB Frame 40' IC Spacing w/ E	90.0000		Automatic Design

Type: _____

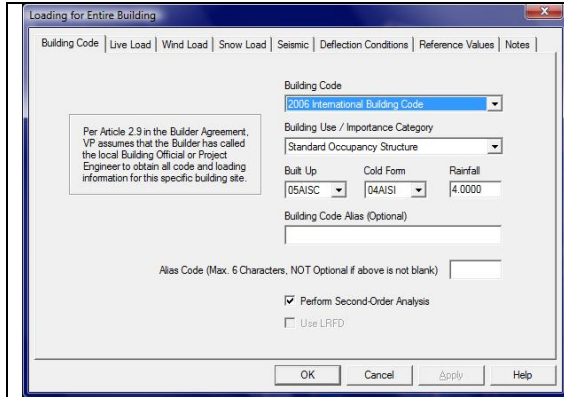
Spaces At: _____ Angle: _____

Or Location At: _____

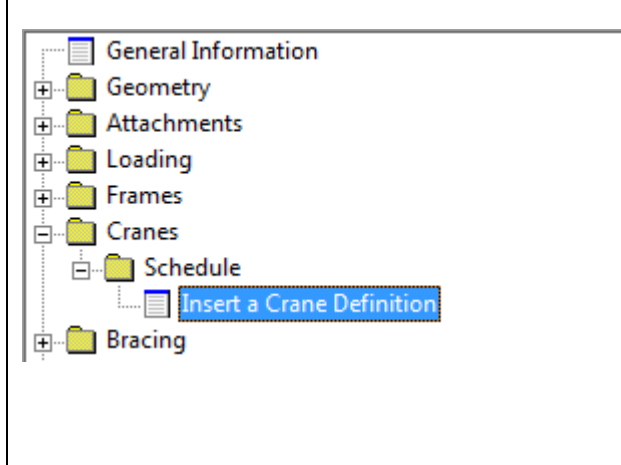
View OK Cancel Apply Help

- 12) *Add Frame Locations*
Use the frame locations shown on the floor plan on page 1 to enter your frame locations using your new Half Load CB-1 with end posts.

Lesson 14

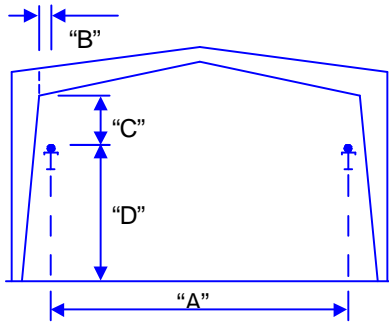


13) *Loading / Loads and Codes*
 Add your Load and Code data in for your area, or use your Default building.

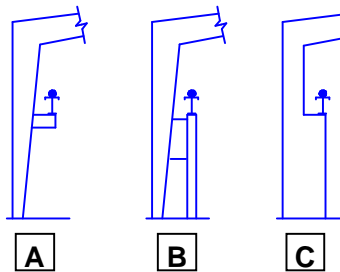


14) *Adding the Crane*

- Crane information is entered in the *Crane Schedule*; this is found under the *Crane* folder in the tree. Because it is a schedule you can add *more than one crane*. VPCOMMAND allows you to add up to *2 cranes per aisle with a maximum of five aisles* in the building.
- There are a number of *different crane types and load capacities*. For this example we will enter a *5 ton top running crane*. There are critical dimensions that must be known to input the crane properly into VPCOMMAND, you should have all required clearances and loading info prior to input.

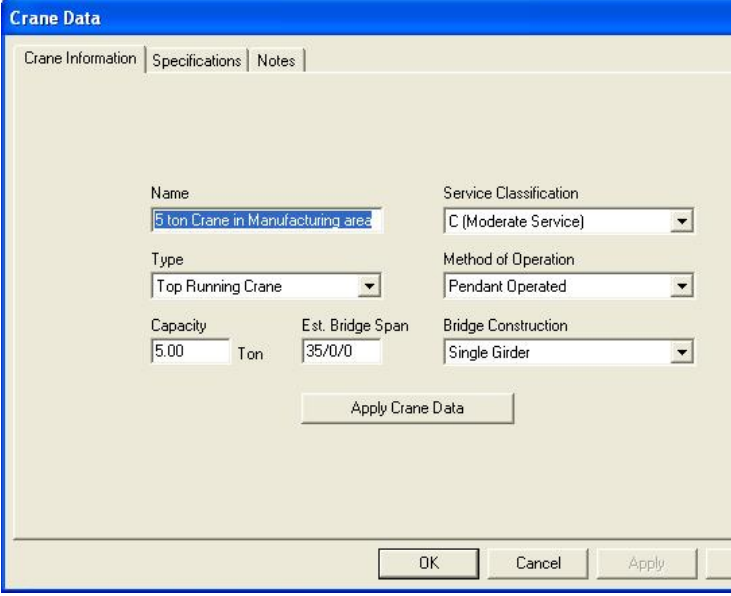

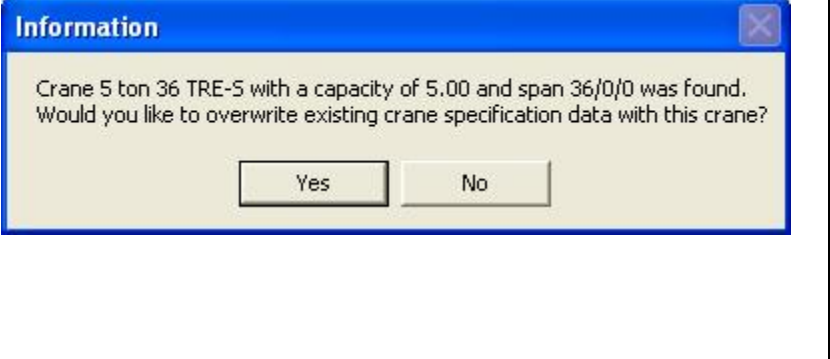


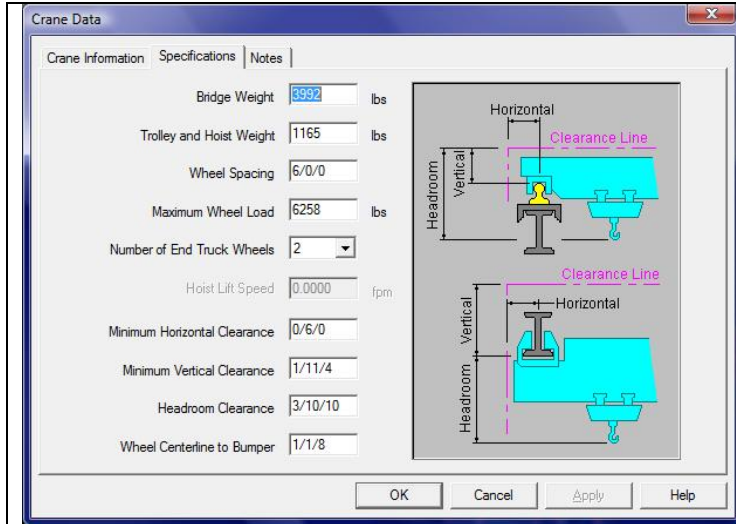
CRITICAL DIMENSIONS: (Include OSHA Requirements.)
 "A" Bridge Span (centerline to centerline of runway/rail):
 "B" Horizontal Clearance (centerline of runway/rail to face of column)
 "C" Vertical Clearance (top of rail to underside of frame rafter)
 "D" Top of Rail Elevation (dimensioned from finished floor)



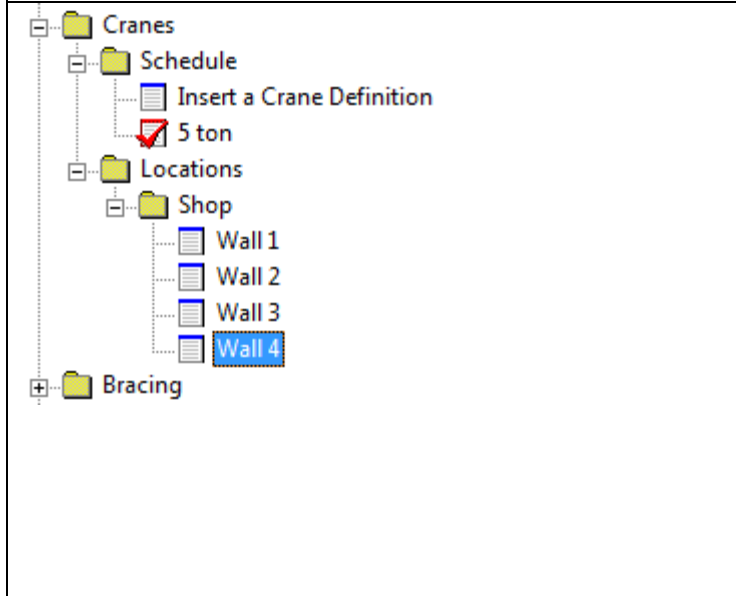
Runway Support Option: (Option B and C will require VP assistance)
 A Brackets (Maximum 55 kip bracket load; Maximum 20 ton cap. crane)
 B Auxiliary (Independent) Crane Columns
 C Stepped Crane Column

Lesson 14

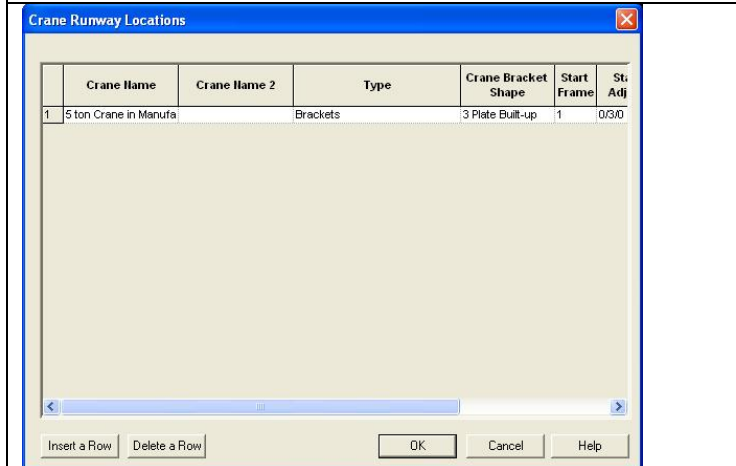
	<p>15) <i>Crane Schedule</i></p> <ul style="list-style-type: none"> • Open the <i>Crane Schedule</i> folder in the tree. • Double click on <i>Insert a Crane Definition</i> to start the crane information input. • This brings up the <i>Crane Information</i> screen. Fill in the name of the crane, this is important for buildings that will have <i>more than one crane system</i>, make it a name you can identify later on in the input process <p>16) Fill in the <i>Capacity and Est. Bridge Span</i> and check the drop down lists on the right to make sure you have the <i>most accurate data</i> possible. Use the help screens if you need to.</p>
	<p>17) Once you have filled out the required information, click the <i>Apply Crane Data</i> button. At this point VPCommand will check the information you have input against a database of <i>Kranco crane data</i> to find the closest match to your input conditions for loading purposes. You will see the following verification.</p>
	<p>18) Notice that the <i>default information</i> that VPCommand will use is for a 36' span because that is closest to the 35' we entered <i>Click yes to accept and overwrite</i>, if the Kranco data does not match what you need, you can overwrite it in the <i>Specifications</i> screen. Click the <i>Specifications</i> tab to view the information.</p>



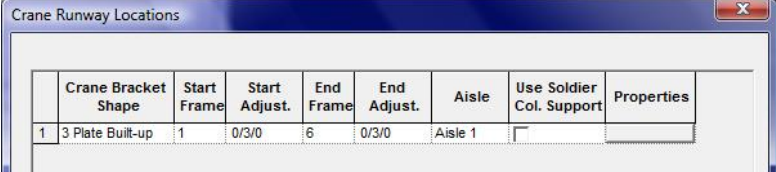
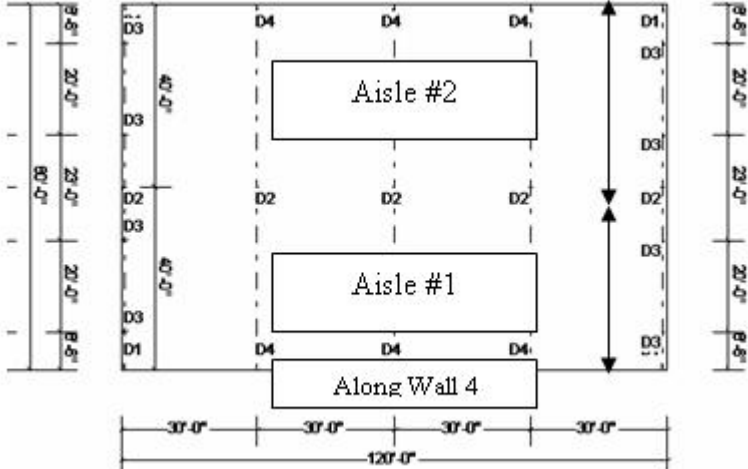
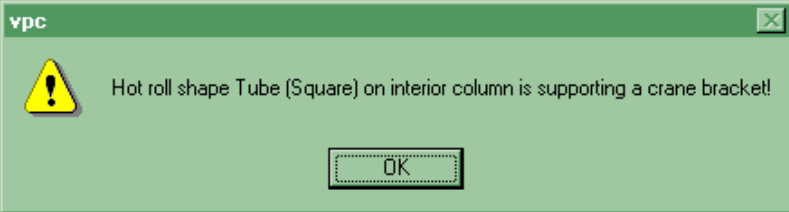
- 19) All values shown on this screen are *default values* based on your input. The clearances shown may not work based on the depth of the frame after it has been designed. You may need to run the project and *check the clearances* on the drawings to calculate the final clearances you need.
- 20) Click *ok* when your Specifications input is complete.
- 21) The tree will *automatically* refresh.

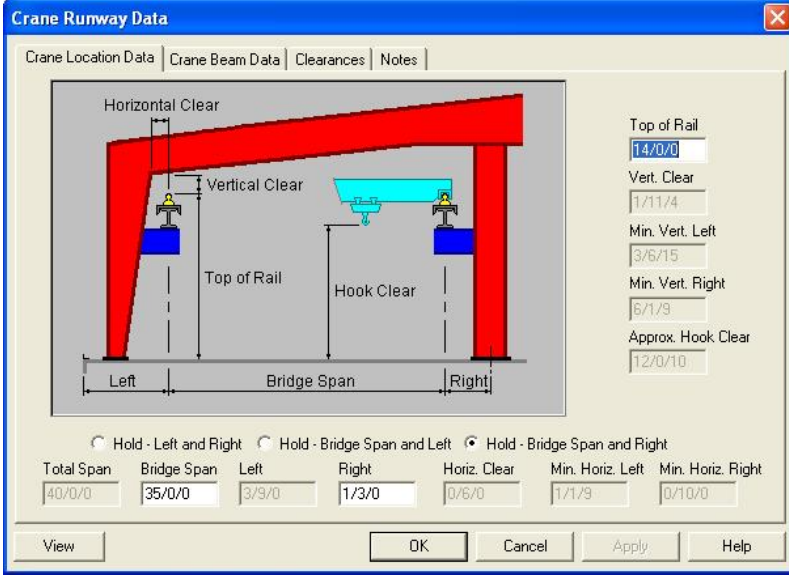


- 22) *Locating the Crane*
- 23) Now when you open the *Cranes* folder your building name(s) will be shown.
- 24) Open the building name you would like to add the crane to and *select the wall* the crane will be located along. This should be the same wall that you located the *primary frames* along. You have to use the *same* along wall as the frames because the program is going to read your frames for column locations.
- 25) *Double click the "Along" wall* you selected to locate the Frames along.



- 26) From the Crane Runway Locations window you can click the *Insert a Row* button at the bottom left to begin.

 <table border="1"> <thead> <tr> <th>Crane Bracket Shape</th> <th>Start Frame</th> <th>Start Adjust.</th> <th>End Frame</th> <th>End Adjust.</th> <th>Aisle</th> <th>Use Soldier Col. Support</th> <th>Properties</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>3</td> <td>Plate Built-up</td> <td>1</td> <td>0/3/0</td> <td>6</td> <td>0/3/0</td> <td>Aisle 1</td> <td><input type="checkbox"/></td> <td></td> </tr> </tbody> </table>	Crane Bracket Shape	Start Frame	Start Adjust.	End Frame	End Adjust.	Aisle	Use Soldier Col. Support	Properties	1	3	Plate Built-up	1	0/3/0	6	0/3/0	Aisle 1	<input type="checkbox"/>		<p>27) Scroll to the right to see the <i>start frame and end frame</i> choice for the crane. This allows you to specify which bays the crane is located in.</p>
Crane Bracket Shape	Start Frame	Start Adjust.	End Frame	End Adjust.	Aisle	Use Soldier Col. Support	Properties												
1	3	Plate Built-up	1	0/3/0	6	0/3/0	Aisle 1	<input type="checkbox"/>											
 <p>The diagram shows a crane runway layout with two aisles, Aisle #1 and Aisle #2, and an 'Along Wall 4' section. The layout is defined by interior columns labeled D1, D2, D3, and D4. Horizontal dimensions show four 30'-0" bays, totaling 120'-0". Vertical dimensions show the spacing between columns D1, D2, D3, and D4.</p>	<p>28) You can also specify which aisle the crane is located in. The aisles are referenced from the Along wall that you chose to locate the crane along. The aisle is considered to be the distance from the along wall to the centerline of the first interior column. If your building has more than one interior column the next aisle would be from centerline to centerline of interior column.</p> <p>29) Once you have specified the location of the crane and which aisle it is in you should scroll to the right and click <i>properties</i>.</p>																		
 <p>Warning message dialog box with a yellow warning icon and the text: "Hot roll shape Tube (Square) on interior column is supporting a crane bracket!". An "OK" button is visible at the bottom.</p>	<p>30) If you receive this <i>warning message</i> you should make a note to go to the Frames Schedule and change your interior columns to <i>3 Plate members</i>. VP cannot attach a bracket for crane support to a tube column. This will only happen if you make interior columns Tube.</p>																		



Crane Runway Data

Crane Location Data | Crane Beam Data | Clearances | Notes

Horizontal Clear
Vertical Clear
Top of Rail
Hook Clear

Left | Bridge Span | Right

Top of Rail: 14/0/0
Vert. Clear: 1/11/4
Min. Vert. Left: 3/6/15
Min. Vert. Right: 6/1/9
Approx. Hook Clear: 12/0/10

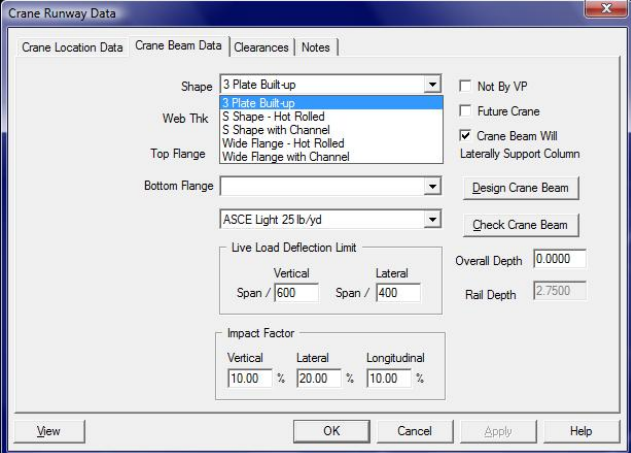
Hold - Left and Right
 Hold - Bridge Span and Left
 Hold - Bridge Span and Right

Total Span	Bridge Span	Left	Right	Horiz. Clear	Min. Horiz. Left	Min. Horiz. Right
40/0/0	35/0/0	3/9/0	1/3/0	0/6/0	1/1/9	0/10/0

View OK Cancel Apply Help

- Crane Runway Data*
- Once you have clicked the properties button you will see the Crane Runway Data screen.
 - From this window you can input the *top of rail* as 14/0/0 and all of the clearance values.
 - Notice the radio buttons for specifying the bridge span, for this example we will use *hold bridge span and right*. This will make it easier because the interior column will most likely be 8"-10" deep, therefore we can estimate 4" plus the distance to the centerline of the rail to be *around 1'-3" total*.
 - Now click the *crane beam data tab*.

Remember that the clearances at the sidewall column are estimated until the VPC Run is complete. At that point we can check the actual depth of the sidewall column, and make clearance adjustments if necessary. Notice this screen is oriented starting at the along wall going into aisle#1 to the IC.



Crane Runway Data

Crane Location Data | Crane Beam Data | Clearances | Notes

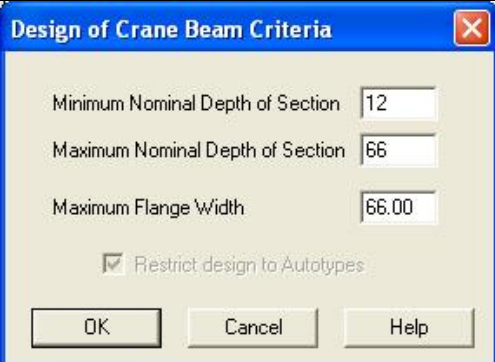
Shape: 3 Plate Built-up Not By VP
 Web Thick: 3 Plate Built-up Future Crane
 Top Flange: S Shape - Hot Rolled Crane Beam Will Laterally Support Column
 Bottom Flange: Design Crane Beam
 ASCE Light 25 lb/yd Check Crane Beam

Live Load Deflection Limit
 Vertical Span / 600 Lateral Span / 400 Overall Depth 0.0000
 Rail Depth 2.7500

Impact Factor
 Vertical 10.00 % Lateral 20.00 % Longitudinal 10.00 %

View OK Cancel Apply Help

- Now click the *crane beam data tab*.
- Click on the Shape Dropdown menu to pick your Crane Beam Shape. For our example we will use a Wide Flange with Channel.
- Click *Design Crane Beam*. You will see the Design of Crane Beam Criteria box.



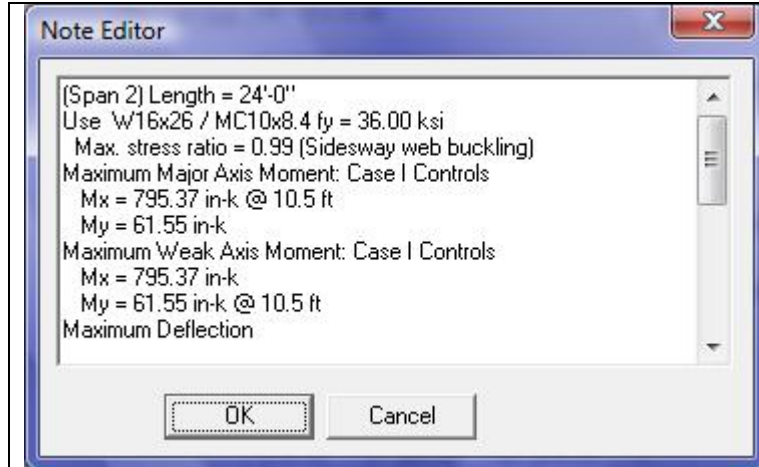
Design of Crane Beam Criteria

Minimum Nominal Depth of Section: 12
 Maximum Nominal Depth of Section: 66
 Maximum Flange Width: 66.00

Restrict design to Autotypes

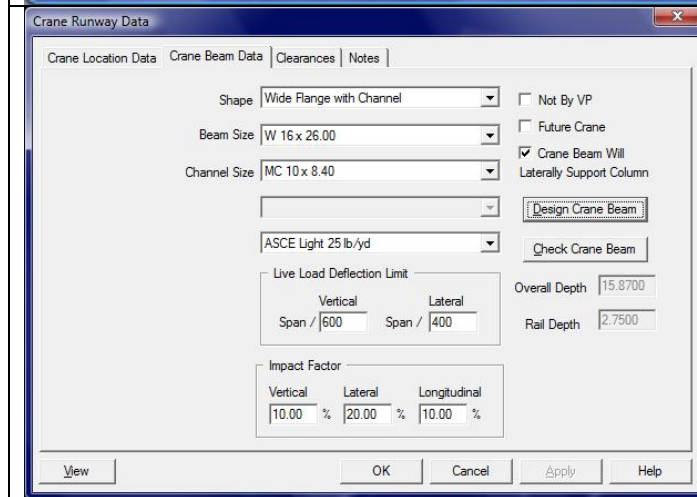
OK Cancel Help

- Make any changes needed and click ok.



39) The *Note Editor* appears showing the *crane beam size* that will be necessary for the *crane specifications* you have input.

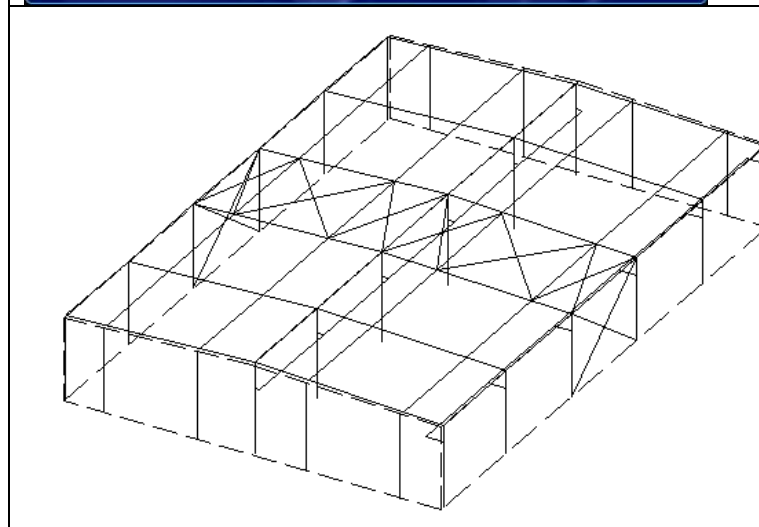
If you have questions about this data please contact VP. Otherwise click OK



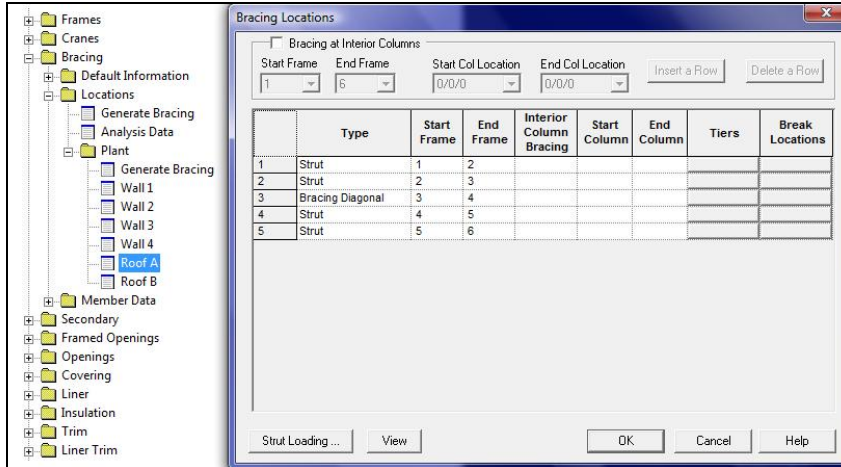
40) Now you will see the *Beam and Channel size* filled in automatically.

41) VPCommand will not include the price and weight for crane beams.

42) The *crane rail is not by VP* and should be supplied by the crane manufacturer. Click *OK* and *OK* to exit the screen.



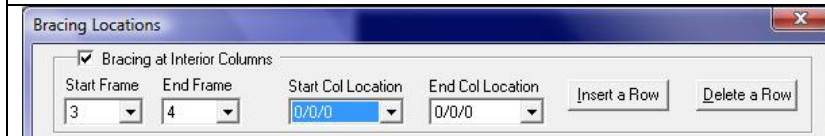
43) Your building should have generated the *crane brackets and bracing* as shown in the picture below.



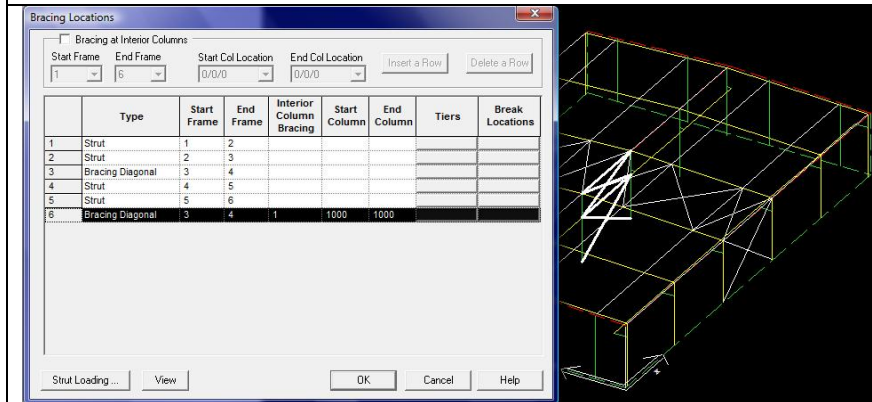
Bracing at the interior columns.

The system will add the bracing for the exterior walls, yet bracing needs to be added in the same brace bay as the roof bracing in the interior. There are two options: first to brace from the crane beam up to the roof bracing, and second to brace from the ridge to the foundation on the interior columns. For our example we will do option #1.

- 44) Open Bracing/Locations/Shape name/Roof A, then double click on Roof A.



- 45) At the top of the Bracing Locations screen, click the Bracing at Interior Columns check box, Start Frame at line 3, End Frame at Line 4, and Start/End Col Location at 0/0/0. When complete click on the Insert a Row button.



- 46) When you now look at the Bracing Locations screen, you will see the bracing that was added at the bottom. Highlight the number in front of the item, and then click on the Break Locations button.

Tiers	Break Locations

Bracing Tier Locations

	Space	Location	Description	Break
1	0/0/0	0/0/0	Base	<input checked="" type="checkbox"/>
2	12/5/6	12/5/6	Crane Bracket	<input checked="" type="checkbox"/>
3	10/4/10	22/10/0	Eave	<input checked="" type="checkbox"/>

47) When looking at the Bracing Tier Locations screen, you can affect the Break points of the Bracing. We want to remove the Bracing from the bottom of the Columns to the Crane Bracket, so that the loading goes back into the roof bracing. Click off the X in the Break column for Row 1.

Bracing Tier Locations

	Space	Location	Description	Break
1	0/0/0	0/0/0	Base	<input type="checkbox"/>
2	12/5/6	12/5/6	Crane Bracket	<input checked="" type="checkbox"/>
3	6/8/10	19/2/0	Eave	<input checked="" type="checkbox"/>

Warning

Location: CRITICAL
Partial Height Bracing at interior columns can cause an unstable condition.

Proceed ?

Spaces At
Total Distance

Location At

48) Once you do that, a Warning will appear. In our case, this is a valid situation, so click the Yes button.

Note: If you got this any other time, and were unsure of what the affects would be, then click No, and verify with a Builder Support person.

Bracing Locations

Bracing at Interior Columns

Start Frame: 1, End Frame: 6, Start Col Location: 0/0/0, End Col Location: 0/0/0

	Type	Start Frame	End Frame	Interior Column Bracing	Start Column
1	Strut	1	2		
2	Strut	2	3		
3	Bracing Diagonal	3	4		
4	Strut	4	5		
5	Strut	5	6		
6	Bracing Diagonal	3	4	1	1000

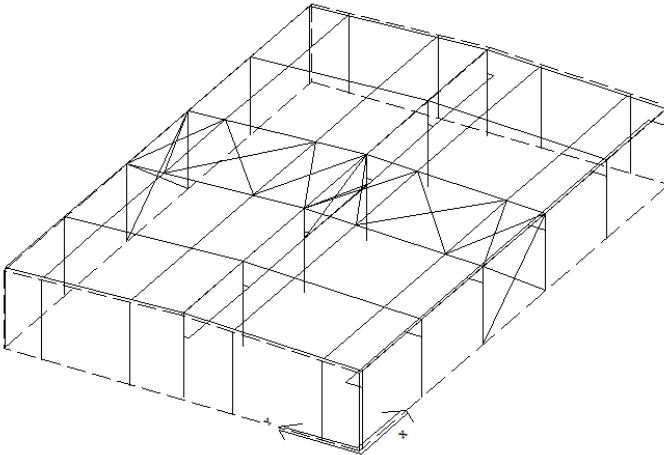
Bracing Tier Locations

	Space	Location	Description	Break
1	0/0/0	0/0/0	Base	<input type="checkbox"/>
2	12/5/6	12/5/6	Crane Bracket	<input checked="" type="checkbox"/>
3	10/4/10	22/10/0	Eave	<input checked="" type="checkbox"/>

Spaces At
Total Distance

Location At

49) After clicking Yes at the warning screen, then click OK out of the next two screens.



Your project should look like this.

Reminder!!!

Change Interior columns to 3 Plate members.

If you have not changed the interior columns to 3-plate, do so at this time using the *Frames / Schedule*.

Deflection Conditions

After the crane is added VPCommand will automatically hold certain deflections on your frames according to the type of crane you add to the building.

Loading for Entire Building

Building Code | Live Load | Wind Load | Snow Load | Seismic | **Deflection Conditions** | Reference Values | Notes

Frames are Vertically Supporting
Metal Roof Purlins and Panels
Deflection Limit Override V/ []

Frames are Laterally Supporting Load Sharing
Pendant Operated Top Running Bridge Crane, Class A, B, or C
Deflection Limit Override H/ []

Purlins are Supporting
Metal Roof Panels
Deflection Limit Override V/ []

Girts are Supporting
Metal Wall Panels
Deflection Limit Override H/ []

Def V	Loa...	App	Buildin...
180	L	1.00	00IBC
180	S	1.00	00IBC
180	W	0.70	00IBC

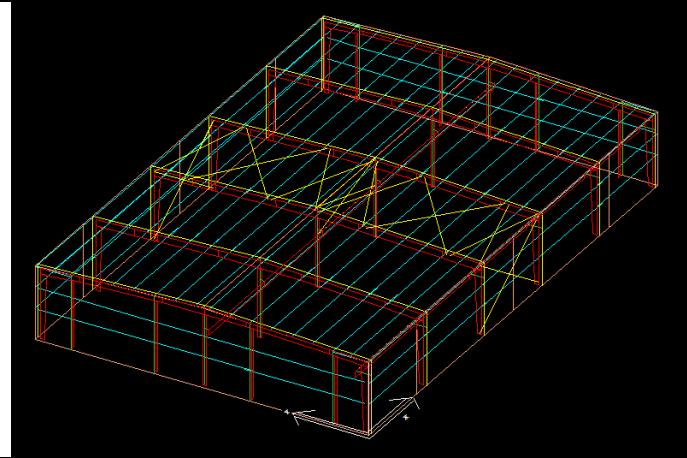
Def H	Loa...	App	Buildin...
100	W	0.75	VPSTD
100	E	0.60	VPSTD
100	AL	1.00	VPSTD

Def V	Loa...	App	Buildin...
150	L	1.00	00IBC
150	S	1.00	VPSTD

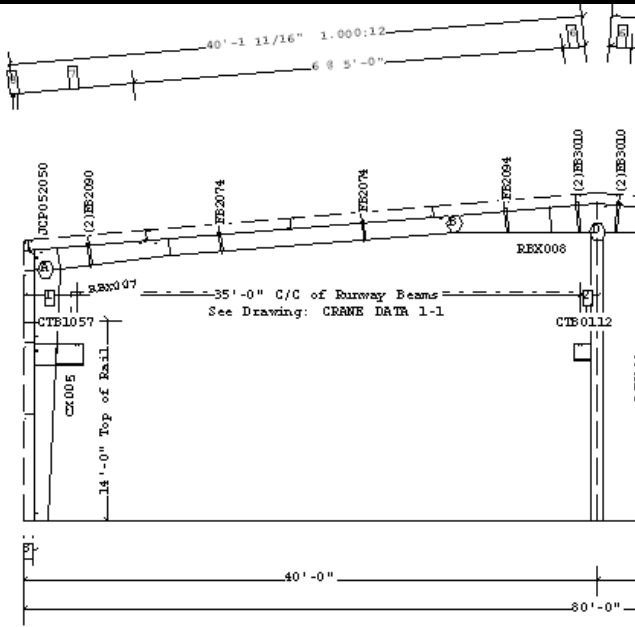
Def H	Loa...	App	Buildin...
90	W	0.70	00IBC

OK Cancel Apply Help

50) If you go to *Loading / Loads and Codes*, notice VPCommand has *automatically* changed the horizontal deflection requirements for the Primary Frames, if you have a *more strict deflection requirement* add it in the *Deflection Limit Override*. Never change the Deflection Limit Override unless you know it is greater than the VP or Building code standard, if there is a question, ask the engineer of record on the project.



51) Once complete your can Price and Design your building by selecting Run/Run All.



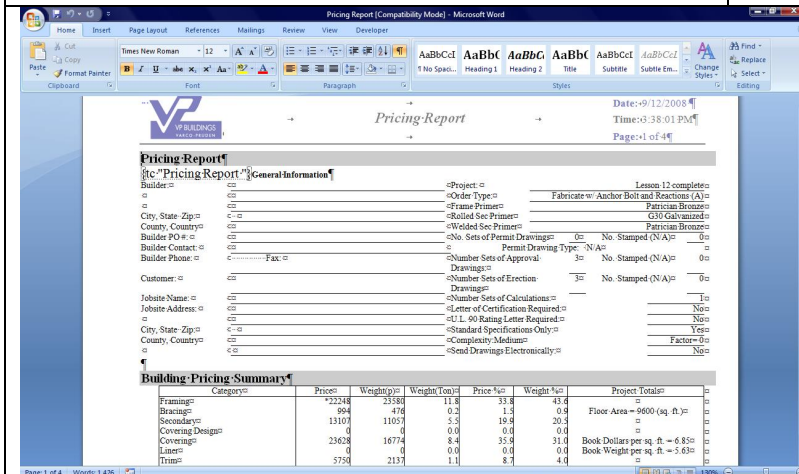
FRAME CROSS SECTION AT FRAME LINE(S) 3

52) VPC Plot

Now you can go into VPC Plot and insert a Frame cross section. By printing out the drawing you can see if the clearances you had input will work. The crane clearances are shown in the upper right corner of the frame cross section. There is also a crane data drawing that you can insert that shows the crane type detail for any VP supported crane condition.

Frame Clearances
 Horiz. Clearance between members 1(CX005) and 8(CX006): 75'-3"
 Vert. Clearance at member 1(CX005): 17'-5 15/16"
 Vert. Clearance at member 8(CX006): 17'-5 5/8"
 Vert. Clearance at member 9(CX002): 20'-1 9/16"
 Finished Floor Elevation = 100'-0" (Unless Noted Otherwise)

Crane Clearances at Top of Rail
 Vert. Clearance at CRANE DATA 1-1(Left): 3'-7 13/16"
 Horiz. Clearance at CRANE DATA 1-1(Left): 1'-4 1/2"
 Vert. Clearance at CRANE DATA 1-1(Right): 6'-1 9/16"
 Horiz. Clearance at CRANE DATA 1-1(Right): 10"



Pricing-Report

General Information

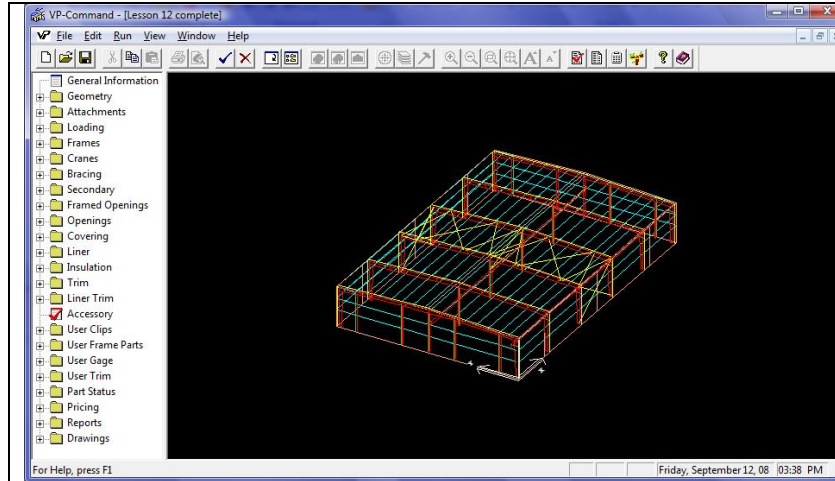
Project: Lesson 12 complete
 Order Type: Fabricate w/ Anchor Bolt and Reactions (A)
 Frame Primer: Patrician Bronze
 Rolled See Primer: G30 Galvanized
 Welded See Primer: Patrician Bronze

Building Pricing Summary

Category	Price	Weight (lb)	Weight (ton)	Price / lb	Weight / ton	Project Total
Frame	22248	23380	11.8	33.8	43.6	
Bracing	894	476	0.2	1.5	0.8	Floor Area = 9600 (sq. ft.)
Secondary	13107	11057	5.3	19.9	20.5	
Covering Design	0	0	0.0	0.0	0.0	
Covering	23638	16774	8.4	35.8	31.0	Book Dollars per sq. ft. = 6.85
Liner	0	0	0.0	0.0	0.0	Book Weight per sq. ft. = 5.63
Trim	5750	2157	1.1	8.3	4.9	

53) Pricing Report

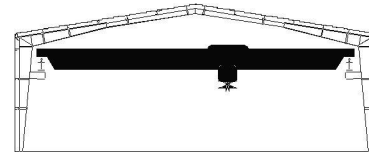
Once you have determined all of the crane information that was input is correct you can check the pricing report. The price of the crane bracket will be included in the price of the frame it is attached to. The crane runway beam that was entered will be priced in the frames category on the report but is just below the primary frames pricing section.



54) *Making Changes*
If you find that you have *interference* you can go back to the VPCOMMAND Building Editor and revise any crane data you had input. Save and re-run the job and check your clearances again.

Crane System Limitations, Guidelines, and Considerations

Following are some considerations when using this option.



General

- 1) 5 Aisles per Building (Max.)
 - a) 3 aisles or more.
 - i) Loading can become a problem when 3 or more aisles are used on some buildings and portal frames, portal braces or partial height rod bracing is used. Contact the Service Center.
- 2) 2 Cranes per Aisle (Max.)
- 3) Crane runways must run perpendicular to frames.
 - a) No cranes parallel to frames in this version.
- 4) Supporting members can be built-up 3-plate for interior columns, exterior columns or rafters.
 - a) Tube Columns or Turned Interior Columns (as end posts) will not work.
 - b) Do not use gage members even though VPC allows the use of them, such as P&B endwalls etc.
- 5) Crane Beams must be sized by the supplier, if beam is NBVP.
 - a) VP Service Center will provide sizes if "By VP".
- 6) Roof Height Change Frames with endposts directly over (above) the interior column of the lower frame will create a problem with the bracket on the lower frame.
 - a) Move the upper end post off the lower column location.
- 7) VPC will only consider VP Standard Deflection limits, which is $H/100$ for A, B & C cranes.
 - a) If the building code specifies E case deflection criteria it will not be auto-generated. This will have to be input as a user load case and will require Service Center support.
 - b) If you have special deflection requirements, you must create load cases that represent the requirements. Call the Service Center for assistance.
- 8) Bracing should generally be broken at bracket locations.
- 9) All crane ties are manually added and extra money must be included in the price for the crane ties.
- 10) Note #9 is missing from Crane Data 1-1. It is not required. Ignore it.
- 11) Column webs are not checked for shear due to crane bracket load. Consult with your Service Center.
- 12) If column flanges are not as wide as the bracket flange, Interactive Frame design will be required. Add a note to the IA designer requesting a minimum flange width on the column.
- 13) VPCCommand is currently limited to 400 load cases. Consult with your service center.
- 14) Maximum column bracket load is 55 kips.
- 15) Maximum column bracket length is 22"



Lesson 14

Top Running Cranes

1) Bracket Supports

- a) Crane Bracket segments will not be generated if greater than 7 feet from a column

Type	Max Load (k)	Max Length (in)
Hot Roll Column Bracket	55	20
Three-plate Column Bracket	55	22
Three plate Welded Under-hung	46	12
Three plate Bolted Under-hung	46	120

or rafter segment or 15 ft if a bolted under-hung is used.

2) Independent Crane Columns

- a) VP Command will put the lateral loads on the main frame column and create the load combinations for auxiliary columns.
 b) VPC will not create or design the actual auxiliary column.
 - Service Center Assistance will be needed for the size and price.
 - The price is to be added to additional prices. Get from Service Center.

3) Stepped Crane Columns

- a) VP Command will put the load on the frame column and create the load combinations for stepped columns.
 - The frame will have to be sent to VP for IA Frame design.
 b) Step Column with Fixed Base option does not automatically fix the base of the affected columns.
 - Service Center Assistance is required for this option.
 c) Fixed Base plates, and step plates are not included in frame pricing from I/A Frames.
 - Service Center Assistance is required for this option.

Under-hung Cranes

- 1) The support beam will have to be chosen from the available shapes.
 - a) The "S" shape with or without channel should be used to allow the wheels to run on the bottom flange.
 - b) The size must be gotten from the supplier or from VP.
 2) The details will not show the braces for the lateral support of the beam.
 - a) The cost will have to be added in Additional Pricing in VPC.
 - b) Get the size and price from your PDM at the Service Center.
 - c) Rafter stiffeners for under-hung brackets default to full depth.
 3) Bracket type – Flexible or Rigid connection
 - a) Rigid Connections are used when the bracket length is less than 12".
 - b) Flexible connections can be used for brackets up to 5' in length.
 - c) Flexible connections require kickers that are not included in the VPCommand pricing and must be obtained from your Estimating Department.

Monorail Cranes

- 1) Crane data for monorail crane systems is not included with VP Command. To approximate a monorail crane use the following procedure:
 - a) Insert an under-hung crane with the correct capacity and a bridge span of 1 foot
 - b) Change the crane type to monorail
 - c) On the specifications screen, change the max wheel load to the trolley weight plus the capacity in pounds
 - d) OK off the crane schedule screen.
 - e) Insert the monorail crane location and adjust the left location to locate the monorail.
 2) The support beam will have to be chosen from the available shapes.
 - a) The "S" shape with or without a channel should be used to allow the wheels to run on the bottom flange.
 3) This option works if the information is input correctly