

## **BOLTING PLANS TEST 1**

1. At the roof level shown on S106  
Using the legend shown on this page determine the symbol for a stiffened beam connection  
Locate the symbol on the west side of the building, the only size given for east-west stiffened beams is W12 x 14
2. The location on S103  
Shows a W21x57 beam with a symbol connecting to the column flange  
The legend indicated two rows of bolts per 9 on S006  
S006 The beam connection with two rows of bolts Detail 9 shows the beam to column flange with a note, # of 1" diameter A325SC class "A" bolts per 5 on S005 in each row  
S005 Detail 5 shows the connection is made with 2 rows of 6 bolts in each row, therefore the answer is W21 x 57, 12 HS bolts
3. See the legend on S102 through S106 identify bottom flange bracing which shows 3 on S006  
S006 Detail 3 shows the plate as 3/8"
4. S001 General Notes Structural Steel Notes #4  
G. High strength bolts ASTM A325 type N (UNO)
5. The second floor is displayed on S102,  
An elevation marker at 4 line shows a detail of 3 on S302  
S302 Detail 3 shows the beam at level two as a W130x191  
Observe the symbol, a dark triangle at the end of beam line, shown at the location on S102  
Consult the legend on S102, for the interpretation of the symbol, which indicates slotted beam connection per S510  
S510 Slotted Beam Connection Schedule shows a W30x191 connects with 4, 3/4" diameter A325 bolts
6. Again on S510, the Slotted Beam Connection Schedule Note #3  
Erection bolt holes in the shear plate shall be horizontal short slotted holes.
7. The second floor framing plan is displayed on S102,  
The 18x55 beam is shown at approximately A.5 between 6 and 7 line with a marker of 11 on S005  
S005 Detail 11 WF beam to HSS column connection shows two 3/4" diameter A307 bolts
8. The roof framing plan is displayed on S106  
The location shows an elevation marker of 2 on S302  
S302, frame elevation Detail 2  
Shows the beam as a W27 x 94

9. The location on S103 between B and C  
Shows a W12 connecting to a W18  
The wide flange, beam and girder connection schedule on S005  
Detail 5 shows the W12 connects with Three 1" A325 N
10. The location on S106  
Shows the symbol for two rows of bolts  
The legend for two rows of bolts refers to 9 on S006  
S006 Detail 9 shows the connection plate is 1/2"
11. S001 General Notes Structural Observations #3  
There are no substitutions for special inspection
12. The location on S105, the fifth floor framing plan, shows the beam as a W21x44  
Detail 5 on S005 Shows the this connection for a W21 beam is made with  
6, 1" diameter, A325 N bolts one end
13. The location at the foundation S101 or any level shows an elevation marker of 3 on S302  
S302 Detail 3 Shows the base plate as 2"x 47"x 36", therefore the widest dimension is  
47"
14. Consult the legend on S102 for the symbol indicating bracing  
The dashed line arrow indicated bottom flange bracing per 3 on S006  
S006 Detail 3 shows the 4x4x1/2" angles connect to the 3/8" beam plate with  
2, 1" A325 N bolts
15. The location on S102  
Shows the beam as a W21 with a beam to flange connection and a symbol  
The legend on S102 shows the symbol indicated two rows of bolts per 9 on S006  
S006 Detail 9 beam to the flange shows, # of 1" diameter A325SC class "A" bolts per 5 on  
S005 in each row  
S005Detail 5 shows the this connection for a W21 beam is made with  
Two rows of A325 SC bolts
16. S103 Third Floor Framing Plan  
Using the legend identify the slotted beam  
At the location determine the non-slotted beam  
The non-slotted beam connects to the column web
17. S001 General Notes Special inspection notes  
Note: It is solely the contractor's responsibility to see that these tests and inspections are  
performed

18. S106 shows the roof framing plan  
An elevation marker at 9 line shows a detail of 3 on S302  
S302 Detail 3 shows the beam At the roof level as a W21x111  
Observe the symbol, a dark triangle at the end of beam line, shown at the location on S106  
Consult the legend on S106 for the interpretation of the symbol, which indicates slotted beam connection per S510  
S510 Slotted Beam Connection Schedule shows a W21x111 connects with 4, 3/4" diameter A325 bolts
  
19. Plan Note #1 on S101 and S102  
See sheets S001 thru S009 for general notes and typical details.  
Typical Steel Details are shown on S005 and S006, scan those details  
S005 Detail 14 Typical beam/wf column non-moment connections  
The first bolt hole is located 3 inches from the second hole typical
  
20. Scan the legend at any level for a stiffened beam connection, information is revealed per detail 5 on S006  
S006 Detail 5 reveals a connection with full height plate shows the distance to be 2" plus 2" at the top of the display  
Approximately 4" is the answer
  
21. The beam at the location on S103  
Is a W16x26, No other information is given, scan typical steel details to S006 for a Typical beam to wide flange column non-moment connection Detail 14, which shows 5 on S005 for typical connection Detail 5 Shows the this connection for a W16 beam is made with 4, A325 N
  
22. See the legend on S102 indicates bottom flange bracing per 3 on S006  
S006 Detail 3 shows the connection is made with 2, 1" A325 N
  
23. S001 General Notes Structural Steel Notes #10  
A325 SC
  
24. S102 at the location Shows a darkened circle  
The legend indicated a darkened circle represents two row of bolts
  
25. A WF beam to a HSS column is show on S102  
Near A.5 and 6 line with a marker of 11 on S005  
S005Detail 11 WF beam to HSS column connection does not show the information but Detail 16 typical WF beam to HSS column, unless noted otherwise  
Shows the first bolt holes are located 1 1/2" from the top of the connection plate

26. The foundation level on S101  
Shows an elevation marker of 2 on S302  
S302 Detail 2 Shows 8 on S501  
S501Detail 8 shows the column anchor rods are F1554 grade 105
27. The location on S106  
Shows a wide flange beam connecting to a wide flange beam non-moment  
Scan typical details on S005 and S006 for detail 4  
Typical wide flange beam to wide flange beam non-moment connection, which shows the bolt holes to be 3" apart
28. S001 General Notes High strength bolts Note #5  
Slip-critical joint assemblies shall be fully pre-tensioned by turn-of-nut tightening, calibrated wrench tightening, installation of alternate design bolts or by direct tension indicator tightening  
4 is the answer
29. S103 at the location  
Shows both beams are W18x35 connecting to a perpendicular W21x62  
The wide flange beam and girder connection schedule on S005  
Detail 5 shows the this connection for a W18 beam is made with  
Five, 1" diameter A325 N
30. Scan for beam slot connections on S510  
Construction procedure #2 shows  
No grinding of flame cut slots is required, therefore the answer is False