



**DEPARTMENT OF DEVELOPMENT SERVICES  
Planning & Development Services Division**

625 Swift Blvd., Richland, WA 99352  
Telephone 509-942-7794 Fax 509-942-7764  
[www.ci.richland.wa.us](http://www.ci.richland.wa.us)

PROJECT: \_\_\_\_\_ PERMIT: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ DATE: \_\_\_\_\_

TESTING AGENCY: \_\_\_\_\_ PHONE: \_\_\_\_\_

**Structural Observation Required (IBC 1704.6)** \_\_\_\_\_  
**Structural Observers Name**

**PRE-CONSTRUCTION MEETING REQUIRED.** A City Building Inspector must be contacted in advance of any work noted below. It is the responsibility of the owner or owner's designee to notify the Special Inspection Agency AND schedule a building inspection in a timely manner. Copies of all inspection reports must be posted on site and summary letters submitted to Development Services Department and the registered design professional. Unresolved non-conformancies must be brought to the immediate attention of the City Building Inspector. Send summary letters and nonconformance reports to the Development Services Department.

**Required Special Inspections  
per the  
2021 International Building Code, Chapter 17**

- |   |   |
|---|---|
| <input type="checkbox"/> 1. Structural Steel Bolting and Welding    | <input type="checkbox"/> 12. Wind Resistance                                |
| <input type="checkbox"/> 2. Cold-formed Steel Deck                  | <input type="checkbox"/> 13. Seismic Resistance – MEP Components            |
| <input type="checkbox"/> 3. Open-web Steel Joists and Joist Girders | <input type="checkbox"/> 14. Seismic Resistance – Storage Racks             |
| <input type="checkbox"/> 4. Structural Concrete                     | <input type="checkbox"/> 15. Seismic Resistance – Isolation Systems         |
| <input type="checkbox"/> 5. Structural Masonry                      | <input type="checkbox"/> 16. Seismic Resistance – Moment Frames             |
| <input type="checkbox"/> 6. Wood – High-Load Diaphragms             | <input type="checkbox"/> 17. Sprayed Fire-Resistant Materials               |
| <input type="checkbox"/> 7. Wood – Trusses Spanning 60+ feet        | <input type="checkbox"/> 18. Mastic And Intumescent Fire-Resistant Coatings |
| <input type="checkbox"/> 8. Soils                                   | <input type="checkbox"/> 19. Fire-Resistant Penetrations and Joints         |
| <input type="checkbox"/> 9. Driven Deep Foundations                 | <input type="checkbox"/> 20. Testing for Smoke Control                      |
| <input type="checkbox"/> 10. Cast-In-Place Deep Foundations         | <input type="checkbox"/> 21. Medical Gas & Vacuum Testing as per UPC        |
| <input type="checkbox"/> 11. Helical Pile Foundations               | <input type="checkbox"/> 22.  |

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**Table 1705.2  
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION**

Type	Duration	Referenced Standard	IBC Reference
<p><b>Inspection Tasks Prior to Welding</b></p> <ol style="list-style-type: none"> <li>1. Welder qualification records and continuity records</li> <li>2. WPS available</li> <li>3. Manufacturer certifications for welding consumables available</li> <li>4. Material identification (type/grade)</li> <li>5. Welder identification system <sup>a</sup></li> <li>6. Fit-up of groove welds (including joint geometry)               <ul style="list-style-type: none"> <li>▪ Joint preparations</li> <li>▪ Dimensions (alignment, root opening, root face, bevel)</li> <li>▪ Cleanliness (condition of steel surfaces) O O</li> <li>▪ Tacking (tack weld quality and location)</li> <li>▪ Backing type and fit (if applicable)</li> </ul> </li> <li>7. Fit-up of CJP groove welds of HSS T-, Y- and K-joints without backing (including joint geometry)               <ul style="list-style-type: none"> <li>▪ Joint preparations</li> <li>▪ Dimensions (alignment, root opening, root face, bevel)</li> <li>▪ Cleanliness (condition of steel surfaces)</li> <li>▪ Tacking (tack weld quality and location)</li> </ul> </li> <li>8. Configuration and finish of access holes</li> <li>9. Fit-up of fillet welds               <ul style="list-style-type: none"> <li>▪ Dimensions (alignment, gaps at root)</li> <li>▪ Cleanliness (condition of steel surfaces)</li> <li>▪ Tacking (tack weld quality and location)</li> </ul> </li> <li>10. Check welding equipment</li> </ol>	<p>O P P  O O O  O   O O O O O</p>	<p>AISC 360: Table N5.4-1</p>	<p>1705.2.1</p>
<p><b>Inspection Tasks During Welding</b></p> <ol style="list-style-type: none"> <li>1. Control and handling of welding consumables               <ul style="list-style-type: none"> <li>▪ Packaging</li> <li>▪ Exposure control</li> </ul> </li> <li>2. No welding over cracked tack welds</li> <li>3. Environmental conditions               <ul style="list-style-type: none"> <li>▪ Wind speed within limits</li> <li>▪ Precipitation and temperature</li> </ul> </li> <li>4. WPS followed               <ul style="list-style-type: none"> <li>▪ Settings on welding equipment</li> <li>▪ Travel speed</li> <li>▪ Selected welding materials</li> <li>▪ Shielding gas type/flow rate</li> <li>▪ Preheat applied</li> <li>▪ Interpass temperature maintained (min./max.)</li> <li>▪ Proper position (F, V, H, OH)</li> </ul> </li> <li>5. Welding techniques               <ul style="list-style-type: none"> <li>▪ Interpass and final cleaning</li> <li>▪ Each pass within profile limitations</li> <li>▪ Each pass meets quality requirements</li> </ul> </li> <li>6. Placement and installation of steel headed stud anchors</li> </ol>	<p>O  O O  O   O P</p>	<p>AISC 360: Table N5.4-2</p>	<p>1705.2.1</p>
<p><b>Inspection Tasks After Welding</b></p> <ol style="list-style-type: none"> <li>1. Welds cleaned</li> <li>2. Size, length and location of welds</li> </ol> <p><i>Continues on page 4...</i></p>	<p>O P</p>	<p>AISC 360: Table N5.4-3</p>	<p>1705.2.1</p>

<i>Continued from page 3...</i>			
3. Welds meet visual acceptance criteria Crack prohibition Weld/base-metal fusion Crater cross section Weld profiles Weld size Undercut Porosity	P	AISC 360: Table N5.4-3	1705.2.1
4. Arc strikes	P		
5. k-area <sup>[b]</sup>	P		
6. Weld access holes in rolled heavy shapes and built-up heavy shapes <sup>[c]</sup>	P		
7. Backing removed and weld tabs removed (if required)	P		
8. Repair activities			
9. Document acceptance or rejection of welded joint or member	P		
10. No prohibited welds have been added without the approval of the EOR	O		
<b>Inspection Tasks Prior to Bolting</b>			
1. Manufacturer's certifications available for fastener materials	P		
2. Fasteners marked in accordance with ASTM requirements	O		
3. Correct fasteners selected for the joint detail (grade, type, bolt length if threads are to be excluded from shear plane)	O		
4. Correct bolting procedure selected for joint detail	O		
5. Connecting elements, including the appropriate faying surface condition and hole preparation, if specified, meet applicable requirements	O	AISC 360: Table N5.6-1	1705.2.1
6. Pre-installation verification testing by installation personnel observed and documented for fastener assemblies and methods used	O		
7. Protected storage provided for bolts, nuts, washers and other fastener components	O		
<b>Inspection Tasks During Bolting</b>			
1. Fastener assemblies placed in all holes and washers and nuts are positioned as required	O		
2. Joint brought to the snug-tight condition prior to the pretensioning operation	O		
3. Fastener component not turned by the wrench prevented from rotating	O	AISC 360: Table N5.6-2	1705.2.1
4. Fasteners are pretensioned in accordance with the <i>RCSC Specification</i> , progressing systematically from the most rigid point toward the free edges	O		
<b>Inspection Tasks After Bolting</b>			
1. Document acceptance or rejection of bolted connections	P	AISC 360: Table N5.6-3	1705.2.1
<p>Observe (O): The inspector shall observe these items on a random basis. Operations need not be delayed pending these inspections.</p> <p>Perform (P): These tasks shall be performed for each welded joint or member.</p> <p><sup>[a]</sup> The fabricator or erector, as applicable, shall maintain a system by which a welder who has welded a joint or member can be identified. Stamps, if used, shall be the low-stress type.</p> <p><sup>[b]</sup> When welding of doubler plates, continuity plates or stiffeners has been performed in the k-area, visually inspect the web k-area for cracks within 3 in. (75 mm) of the weld.</p> <p><sup>[c]</sup> After rolled heavy shapes (see Section A3.1c) and built-up heavy shapes (see Section A3.1d) are welded, visually inspect the weld access hole for cracks.</p>			

**Table 1705.3  
REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION**

Type	Duration	Referenced Standard	IBC Reference
1. Inspect reinforcement, including prestressing tendons, and verify placement.	P	ACI 318 Ch. 20, 25.2,25.3, 26.6.1-26.6.3	1908.4
2. Reinforcing bar welding: a. Verify weldability of reinforcing bars other than ASTM A706; b. Inspect single-pass fillet welds, maximum 5/16"; and c. Inspect all other welds.	P P C	AWS D1.4 ACI 318: 26.6.4	
3. Inspect anchors cast in concrete.	P	ACI 318: 17.8.2	
4. Inspect anchors post-installed in hardened concrete members. <sup>b</sup> a. Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads. b. Mechanical anchors and adhesive anchors not defined in 4.a.	C P	ACI 318: 17.8.2.4 ACI 318: 17.8.2	
5. Verify use of required design mix.	P	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	C	ASTM C172 ASTM C31 ACI 318: 26.4, 26.12	1908.10
7. Inspect concrete and shotcrete placement for proper application techniques.	C	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. Verify maintenance of specified curing temperature and techniques.	P	ACI 318: 26.5.3-26.5.5	1908.9
9. Inspect prestressed concrete for: a. Application of prestressing forces; and b. Grouting of bonded prestressing tendons.	C C	ACI 318: 26.10	
10. Inspect erection of precast concrete members.	P	ACI 318: Ch. 26.8	
11. Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	P	ACI 318: 26.11.2	
12. Inspect formwork for shape, location and dimensions of the concrete member being formed.	P	ACI 318: 26.11.1.2(b)	
<p>Continuous (C); Periodic (P)</p> <p><sup>a</sup> Where applicable, see also Section 1705.12, Special inspections for seismic resistance.</p> <p><sup>b</sup> Specific requirements for special inspection shall be included in the research report for the anchor issued by an approved source in accordance with 17.8.2 in ACI 318, or other qualification procedures. Where specific requirements are not provided, special inspection requirements shall be specified by the registered design professional and shall be approved by the building official prior to the commencement of the work.</p>			

**IBC Section 1705.4**  
**TMS 602/ACI 530.1/ASCE 6 - 2013**  
**TABLE 4 – LEVEL B QUALITY ASSURANCE**

<b>MINIMUM TESTS</b>	
Verification of Slump flor and VSI as delivered to the site in accordance with Article 1.5 B.1.b.3 for self-consolidating grout	
Except for masonry that is exempt, pre-construction ferication of $f'_m$ and $f'_{AAC}$ in accordance with Article 1.4 B.	
<b>MINIMUM INSPECTION</b>	
<b>Inspection Task</b>	<b>Duration</b>
1. Verify compliance with approved submittals	P
2. Verify the following are in compliance:	
a. Proportions of site-prepared mortar	P
b. Construction of mortar joints	P
c. Grade and size of prestressing tendons and anchorages	P
d. Location of reinforcement, connectors, and prestressing tendons and anchorages	P
e. Prestressing technique	P
3. Prior to grouting verify the following comply:	
a. Grout space	P
b. Grade, type, and size of reinforcement and anchor bolts, and presetreing tendons, and anchorages	P
c. Placement of reinforcement, COIUlectors, and prestressing tendons and anchorages	P
d. Proportions of site-prepared grout and prestressing grout for bonded tendons	P
e. Construction of mortar joints	P
4. Verify during construction:	
a. Size and location of structural elements	P
b. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames, or other construction	P
c. Welding of reinforcement	C
d. Preparation, construction, and protection of masonry during cold weather (temperature belopw 40F) or hot weather (temperature above 90F)	P
e. Application and measurement of prestressing force	C
f. Placement of grout and prestressing grout for bonded tendons is in compliance	C
5. Observe preparation of grout specimens, mortar specimens, and/or prisms	P
Continuous (C); Periodic (P)	

**Table 1705.6  
REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS**

Type	Duration
6. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	C
7. Verify excavations are extended to proper depth and have reached proper material.	C
8. Perform classification and testing of compacted fill materials.	C
9. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill.	C
10. Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly.	P
Continuous (C); Periodic (P)	