Quality Assurance Plan

Quality Assurance for Seismic Resistance

Seismic Design Category C

Quality Assurance Plan Required (Y/(N))

Description of seismic force resisting system and designated seismic systems:

Foundations embedded with Anchor Bolts @ 6'O.C with 12" from Ends

Quality Assurance for Wind Requirements

Basic Wind Speed (3 second gust) 160 mph

Wind Exposure Category Exp B

Quality Assurance Plan Required ((Y)/N)

Description of wind force resisting system and designated wind resisting components:

Type ~~IV~~B Construction IAW Chapter 23 of IBC.
Walls will be wood shear walls with the appropriate open Spacing Ratio 25'-0 max Unbraced wall length.

Statement of Responsibility

Each contractor responsible for the construction or fabrication of a system or component designated above must submit a Statement of Responsibility.

Qualifications of Inspectors and Testing Technicians

The qualifications of all personnel performing Special Inspection and testing activities are subject to the approval of the Building Official. The credentials of all Inspectors and testing technicians shall be provided if requested.

Key for Minimum Qualifications of Inspection Agents:

When the Registered Design Professional in Responsible Charge deems it appropriate that the individual performing a stipulated test or inspection have a specific certification or license as indicated below, such designation shall appear below the *Agency* ***Number*** on the Schedule.

PE/SE	Structural Engineer – a licensed SE or PE specializing in the design of building structures
PE/GE	Geotechnical Engineer – a licensed PE specializing in soil mechanics and foundations
EIT	Engineer-In-Training – a graduate engineer who has passed the Fundamentals of Engineering examination

American Concrete Institute (ACI) Certification

ACI-CFTT	Concrete Field Testing Technician – Grade 1
ACI-CCI	Concrete Construction Inspector
ACI-LTT	Laboratory Testing Technician – Grade 1&2
ACI-STT	Strength Testing Technician

American Welding Society (AWS) Certification

AWS-CWI	Certified Welding Inspector
AWS/AISC-SSI	Certified Structural Steel Inspector

American Society of Non-Destructive Testing (ASNT) Certification

ASNT	Non-Destructive Testing Technician – Level II or III.

International Code Council (ICC) Certification

ICC-SMSI	Structural Masonry Special Inspector
ICC-SWSI	Structural Steel and Welding Special Inspector
ICC-SFSI	Spray-Applied Fireproofing Special Inspector
ICC-PCSI	Prestressed Concrete Special Inspector
ICC-RCSI	Reinforced Concrete Special Inspector

National Institute for Certification in Engineering Technologies (NICET)

NICET-CT	Concrete Technician – Levels I, II, III & IV
NICET-ST	Soils Technician - Levels I, II, III & IV
NICET-GET	Geotechnical Engineering Technician - Levels I, II, III & IV

Exterior Design Institute (EDI) Certification

EDI-EIFS	EIFS Third Party Inspector

Other

Soils and Foundations

Item	Agency # (Qualif.)	Scope
1. Shallow Foundations	*PE/GE*	*Inspect soils below footings for adequate bearing capacity and consistency with geotechnical report.* *Inspect removal of unsuitable material and preparation of subgrade prior to placement of controlled fill*
2. Controlled Structural Fill	*PE/GE*	*Perform sieve tests (ASTM 0422 & D1140) and modified Proctor tests (ASTM 01557) of each source of fill material.* *inspect placement, lift thickness and compaction of controlled fill.* *Test density of each lift of fill by nuclear methods (ASTM D2922)* *Verify extent and slope of fill placement.*
3. Deep Foundations	*PE/GE*	*Inspect and log pile driving operations. Record pile driving resistance and verify compliance with driving criteria.* *Inspect piles for damage from driving and plumbness.* *Verify pile size, length and accessories.* *Inspect installation of drilled pier foundations. Verify pier diameter, bell diameter, lengths, embedment into bedrock and suitability of end bearing strata.*
4. Load Testing		
4. Other:		

Cast-in-Place Concrete

Item	Agency # (Qualif.)	Scope
1. Mix Design	ACI-CCI ICC-RCSI	*Review concrete batch tickets and verify compliance with approved mix design. Verify that water added at the site does not exceed that allowed by the mix design.*
2. Material Certification		
3. Reinforcement Installation	ACI-CCI ICC-RCSI	*Inspect size, spacing, cover, positioning and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials. Inspect bar laps and mechanical splices. Verify that bars are adequately tied and supported on chairs or bolsters*
4. Post-Tensioning Operations	ICC-PCSI	*Inspect placement, stressing, grouting and protection of post-tensioning tendons. Verifi that tendons are correctly positioned, supported, tied and wrapped. Record tendon elongations.*
5. Welding of Reinforcing	AWS-CWI	*Visually inspect all reinforcing steel welds. Verify weldability of reinforcing steel. Inspect preheating of steel when required,*
6. Anchor Rods		*Inspect size, positioning and embedment of anchor rods. Inspect concrete placement and consolidation around anchors.*
7. Concrete Placement	ACI-CCI ICC-RCSI	*Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination, Verifi that concrete is properly consolidated.*
8. Sampling and Testing of Concrete	ACI-CFTT ACI-STT	*Test concrete compressive strength (ASTM C31 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).*
9. Curing and Protection	ACI-CCI ICC-RCSI	*Inspect curing, cold weather protection and hot weather protection procedures.*
10. Other:		

Precast Concrete

Item	Agency # (Qualif.)	Scope
1. Plant Certification/ Quality Control Procedures ☐ Fabricator Exempt	*ACI-CCI ICC-RCSI*	*Review plant operations and quality control procedures.*
2. Mix Design	*ACI-CCI ICC-RCSI*	*Inspect concrete batching operations and verify compliance with approved mix design*
3. Material Certification		
4. Reinforcement Installation	*ACI-CCI ICC-RCSI*	*Inspect size, spacing, position and grade of reinforcing steel. Verify that reinforcing bars are free of form oil or other deleterious materials.*
5. Prestress Operations	*ICC-PCSI*	*Inspect placement, stressing, grouting and protection of prestressing tendons*
6. Connections/ Embedded Items		
7. Formwork Geometry		
8. Concrete Placement	*ACI-CCI ICC-RCSI*	*Inspect placement of concrete. Verify that concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated.*
9. Sampling and Testing of Concrete	*ACI-CFTT ACI-STT*	*Test concrete compressive strength (ASTM C31 & C39), slump (ASTM C143), air-content (ASTM C231 or C173) and temperature (ASTM C1064).*
10. Curing and Protection	*ACI-CCI ICC-RCSI*	*Inspect curing, cold weather protection and hot weather protection procedures.*
11. Erected Precast Elements	*PE/SE*	*Inspect erection of precast concrete including member configuration, connections, welding and grouting.*
12. Other:		

Masonry

Required Inspection Level: ☐ 1 ☐ 2

Item	Agency # (Qualif.)	Scope
1. Material Certification		
2. Mixing of Mortar and Grout	*ICC-SMSI*	*Inspect proportioning, mixing and retempering of mortar and grout.*
3. Installation of Masonry	*ICC-SMSI*	*Inspect size, layout, bonding and placement of masonry units.*
4. Mortar Joints	*ICC-SMSI*	*Inspect construction of mortar joints including tooling and filling of head joints.*
5. Reinforcement Installation	*ICC-SMSI* *AWS-CWI*	*Inspect placement, positioning and lapping of reinforcing steel.* *Inspect welding of reinforcing steel.*
6. Prestressed Masonry	*ICC-SMSI*	*Inspect placement, anchorage and stressing of prestressing bars.*
7. Grouting Operations	*ICC-SMSI*	*Inspect placement and consolidation of grout. Inspect masonry clean-outs for high-lift grouting.*
7. Weather Protection	*ICC-SMSI*	*Inspect cold weather protection and hot weather protection procedures. Verify that wall cavities are protected against precipitation.*
9. Evaluation of Masonry Strength	*ICC-SMSI*	*Test compressive strength of mortar and grout cube samples (ASTM C780).* *Test compressive strength of masonry prisms (ASTM C1314)*
10. Anchors and Ties	*ICC-SMSI*	*Inspect size, location, spacing and embedment of dowels, anchors and ties.*
11. Other:		

Structural Steel

Item	Agency # (Qualif.)	Scope
1. Fabricator Certification/ Quality Control Procedures ☐ Fabricator Exempt	AWS/AISC-SSI ICC-SWSI	Review shop fabrication and quality control procedures.
2. Material Certification	AWS/AISC-SSI ICC-SWSI	Review certified mill test reports and identification markings on wide-flange shapes, high-strength bolts, nuts and welding electrodes
3. Open Web Steel Joists		Inspect installation, field welding and bridging of joists.
4. Bolting	AWS/AISC-SSI ICC-SWSI	Inspect installation and tightening of high-strength bolts. Verify that splines have separated from tension control bolts. Verify proper tightening sequence. Continuous inspection of bolts in slip-critical connections.
5. Welding	AWS-CWI ASNT	Visually inspect all welds. Inspect pre-heat, post-heat and surface preparation between passes. Verify size and length of fillet welds. Ultrasonic testing of all full-penetration welds.
6. Shear Connectors	AWS/AISC-SSI ICC-SWSI	Inspect size, number, positioning and welding of shear connectors. Inspect studs for full 360 degree flash. Ring test all shear connectors with a 3 lb hammer. Bend test all questionable studs to 15 degrees.
7. t t Details	PE/SE	Inspect steel frame for compliance with structural drawings, including bracing, member configuration and connection details.
8. etal Deck	AWS-CWI	Inspect welding and side-lap fastening of metal roof and floor deck.
9. Other:		

Cold-Formed Steel Framing

Item	Agency # (Qualif.)	Scope
1. Member Sizes		
2. Material Thickness		
3. Material Properties		
4. Mechanical Connections		
5. Welding		
6. Framing Details		
7. Trusses		
8. Permanent Truss Bracing		
9. Other:		

Spray-Applied Fire Resistant Material

Item	Agency # (Qualif.)	Scope
1. Material Specifications		
2. Laboratory Tested Fire Resistance Design	*ICC-SFSI*	*Review UL fire resistive design for each rated beam, column, or assembly.*
3. Schedule of Thickness	*ICC-SFSI*	*Review approved thickness schedule.*
4. Surface Preparation	*ICC-SFSI*	*Inspect surface preparation of steel prior to application of fireproofing*
5. Application	*ICC-SFSI*	*Inspect application of fireproofing.*
6. Curing and Ambient Condition	*ICC-SFSI*	*Verify ambient air temperature and ventilation is suitable for application and curing of fireproofing.*
7. Thickness	*ICC-SFSI*	*Test thickness of fireproofing (ASTM E605). Perform a set of thickness measurements for every 1,000 SF of floor and roof assemblies and on not less than 25% of rated beams and columns.*
8. Density	*ICC-SFSI*	*Test the density of fireproofing material (ASTM E60.5).*
9. Bond Strength	*ICC-SFSI*	*Test the cohesive/adhesive bond strength of fireproofing ASTM E736). Perform not less than one test for each 10,000 SF.*
10. Other:		

Wood Construction

Item	Agency # (Qualif.)	Scope
1. Fabricator Certification/ Quality Control Procedures ☐ Fabricator Exempt		***Inspect shop fabrication and quality control procedures for wood truss plant.***
2. Material Grading		
3. Connections		
4. Framing and Details		
5. Diaphragms and Shearwalls		***Inspect size, configuration, blocking and fastening of shearwalls and diaphragms. Verify panel grade and thickness.***
6. Prefabricated Wood Trusses		***Inspect the fabrication of wood trusses***
7. Permanent Truss Bracing		
8. Other:		

Exterior Insulation & Finish *Systems* (EIFS)

Item	Agency # (Qualif.)	Scope
1. Material Submittals		
2. Condition of Substrate		
3. Application of Foam Plastic Board		
4. Application of Coatings		
5. Application of Mesh		
6. Ambient Condition and Curing		
7. Flashing and Joint Details		
8. Sealants/Caulks		
9. Other:		

Mechanical & Electrical Systems

Item	Agency # (Qualif.)	Scope
1. Smoke Control		
2. Mechanical, HVAC & Piping		
3. Electrical System		
4. Other:		

Architectural Systems

Item	Agency # (Qualif.)	Scope
1. Wall Panels & Veneers		
2. Suspended Ceilings		
3. Access Floors		
4. Other:		

Special Cases

Item	Agency # (Qualif.)	Scope

Instructions – Preparation of the Statement of Special Inspections

1. Who Prepares the Form:
   The program of inspection and testing for a project should be prepared by the Registered Design Professional (RDP) that is in responsible charge of the building system requiring inspections and testing. The Structural Engineer of Record (SER) should prepare the sections required for the structural elements such as foundations, concrete, structural steel, etc. The Architect and MEP Engineer of Record should prepare the corresponding sections of the SSI for the building systems that they are responsible for. For further explanation, please refer to the "Guide to Special Inspections and Quality Assurance".

2. The Front Page:
   - 2-1. At the top of the page indicate the project name and location as they appear on the Contract Documents, provide the Owner's name (individual, private company, municipality, government agency, etc.), and indicate the Design Professional In Responsible Charge. This should be the RDP in responsible charge of the building systems for which this Statement of Special Inspections is being prepared. See explanation in item 1 above.
   - 2-2. Next, read the first paragraph and check the box below indicating the discipline(s) that this SSI will encompass (Structural, Architectural, Mechanical/Electrical/Plumbing, or Other).
   - 2-3. After reading the remaining paragraphs, the RDP must indicate the frequency of "Interim Reports" required from the Special Inspection Coordinator for the project. This can be indicated directly on the page, i.e. "weekly", or the adjacent box can be checked to attach a more specific schedule.
   - 2-4. Near the bottom of the page, the RDP must print, sign, and date the form, and stamp the form with their professional seal in the box provided.
   - 2-5. The Owner or Owner's agent must sign and date the front page after the SSI has been completed by the RDP.
   - 2-6. The Building Official must sign and date the form upon acceptance.

3. Page 2 – Schedule of Inspection and Testing Agencies:
   - 3-1. The top of the page lists all of the categories of building systems with a box next to each. The RDP must check the boxes for *only* the building systems that are going to be covered in this **SSI.** A completed inspection program page must be attached for each building system that is checked off. (See instruction #5 below.)
   - 3-2. The chart below is where the members of the Special Inspection Program are listed. Their names, addresses, telephone numbers, and emails should be filled out in the appropriate boxes. If the Inspectors and Testing Agencies have not been determined yet, the RDP can fill in the boxes with "To Be Determined".

4. Page 3 – Quality Assurance Plan:
   - 4-1. The RDP must review sections 1705 and 1706 in Chapter 17 of the IBC to determine if the project requires a Quality Assurance Plan for the seismic force and wind force resisting systems and components.
   - 4-2. The RDP must indicate whether or not a Quality Assurance Plan is required by filling in the information requested on the page. It is only necessary to provide descriptions

of the seismic and wind force resisting systems if it is determined that a Quality Assurance Plan is required.

5. Inspection Program Pages For Each Building System:

5-1. There is a page attached for each building system where the RDP identifies the inspection requirements of each system. Fill out the pages for *only* the building systems included in this **SSI.** Do not include blank pages for building systems not covered under this **SSI.**

5-2. Indicate the inspection or testing firm (Agency #) that will perform each inspection task. The Agency # **is** the number listed next to the Inspector or Testing Laboratory on the chart on page **2** of the **SSI.**

5-3. Indicate the required qualifications of the Inspector for each inspection. **A** list of qualifications of Inspectors and testing technicians is provided on page 4 of the **SSI** for reference. The RDP may require additional qualifications beyond the ones listed if they feel it is appropriate. Suggested qualifications have been included for consideration. The RDP must determine what qualifications are appropriate for the particular project and confirm that the selected agency employs individuals with the specified qualifications.

5-4. The scope of each inspection must be filled in by the RDP. The editable text provided in italics reflects the code mandated minimum inspection requirements designated in section 1704 of IBC Chapter 17. The editable text does not include the inspections requirements for seismic and wind resisting systems listed in sections 1705 through 1708. The RDP must determine if the project falls under the requirements of sections 1705 to 1708 and add the required inspections to the building systems. The final scope of the inspections required for the project must be determined by the RDP.

5-5. Descriptions of all inspections must include the required frequency of each inspection or test.