SECTION 01 45 35

SPECIAL INSPECTIONS
02/15

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE 7	(2017) Minimum Design Loads for Buildings and Other Structures

INTERNATIONAL CODE COUNCIL (ICC)

ICC IBC	(2021) International Building Code

JAPANESE STANDARDS ASSOCIATION (JSA)

JIS Z2305	(2013) Non-destructive Testing - Qualification and Certification of Personnel

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 03-301-01	(2019) Structural Engineering

1.2 GENERAL REQUIREMENTS

Perform Special Inspections in accordance with the Statement of Special Inspections, Schedule of Special Inspections and Chapter 17 of ICC IBC. The Statement of Special Inspections and Schedule of Special Inspections are included as an attachment to this specification. Special Inspections are to be performed by an independent third party and are intended to ensure that the work of the prime contractor is in accordance with the Contract Documents and applicable building codes. Special inspections do not take the place of the three phases of control inspections performed by the Contractor's QC Manager or any testing and inspections required by other sections of the specifications.[

Structural observations will be performed by the Government. The contractor must provide notification to the Contracting Officer 14 days prior to the following points of construction:

a. [_____]
b. [_____]
c. [_____]]

1.3 DEFINITIONS

1.3.1 Continuous Special Inspections

Continuous Special Inspections is the constant monitoring of specific tasks by a special inspector. These inspections must be carried out continuously over the duration of the particular tasks.

1.3.2 Periodic Special Inspections

Periodic Special Inspections is Special Inspections by the special inspector who is intermittently present where the work to be inspected has been or is being performed.

1.3.3 Perform

Perform these Special Inspections tasks for each welded joint or member, bolted or fastener connection, and required verification.

1.3.4 Observe

Observe these Special Inspections items on a random daily basis. Operations need not be delayed pending these inspections.

1.3.5 Special Inspector (SI)

A qualified person retained by the contractor and approved by the Contracting Officer as having the competence necessary to inspect a particular type of construction requiring Special Inspections. The SI must be an independent third party hired directly by the Prime Contractor.

1.3.6 Associate Special Inspector (ASI)

A qualified person who assists the SI in performing Special Inspections but must perform inspection under the direct supervision of the SI and cannot perform inspections without the SI on site.

1.3.7 Third Party

A third party inspector must not be company employee of the Contractor or any Sub-Contractor performing the work to be inspected.

[1.3.8 Special Inspector of Record (SIOR)

A licensed engineer in responsible charge of supervision all special inspectors for the project and approved by the Contracting officer. The SIOR must be an independent third party hired directly by the Prime Contractor.

]1.3.9 Contracting Officer

The Government official having overall authority for administrative contracting actions. Certain contracting actions may be delegated to the Contracting Officer's Representative (COR).

1.3.10 Contractor's Quality Control (QC) Manager

An individual retained by the prime contractor and qualified in accordance with the Section [01 45 00.00 10 QUALITY CONTROL] having the overall

responsibility for the contractor's QC organization.

1.3.11 Designer of Record (DOR)

A registered design professional [employed by the Government] [contracted by the Government as an A/E] responsible for the overall design and review of submittal documents prepared by others. The DOR is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws in state in which the design professional works. The DOR is also referred to as the Engineer of Record (EOR) in design code documents.

1.3.12 Statement of Special Inspections (SSI)

A document developed by the DOR identifying the material, systems, components and work required to have Special Inspections.

1.3.13 Schedule of Special Inspections

A schedule which lists each of the required Special Inspections, the extent to which each Special Inspections is to be performed, and the required frequency for each in accordance with ICC IBC Chapter 17.

[1.3.14 Designated Seismic System

Those nonstructural components that require design in accordance with ASCE 7 Chapter 13 and for which the component importance factor, Ip, is greater than 1.0. This designation applies to systems that are required to be operational following the Design Earthquake for RC I - IV structures [and following the MCER for RC V structures. All systems in RC V facilities designated as MC-1 in accordance with UFC 03-301-01 are considered part of the Designated Seismic Systems]. [Designated Seismic Systems will be identified by Owner and will have an Importance Factor Ip = 1.5].

][1.3.15 Component Certification and O&M Manual

For any electrical or mechanical component required by ASCE 7 Section 13.2.2 to be certified, evidence demonstrating compliance with the requirement shall be maintained in a file identified as "Equipment Certification Documentation." This file shall be a part of the Operations & Maintenance Manual that is turned over to the Contracting Officer. The project specifications shall require the Operations & Maintenance Manual state that replaced or modified components need to be certified per the original certification criteria.

][1.3.16 Component Identification Nameplate

Any electrical or mechanical component required by ASCE 7 SSection 13.2.2 to be certified shall bear permanent marking or nameplates constructed of a durable heat and water resistant material. Nameplates shall be mechanically attached to such nonstructural components and placed on each component for clear identification. The nameplate shall not be less than 125 x 180 with red letters 25 in height on a white background stating "Certified Equipment." The following statement shall be on the nameplate: "This equipment/component is certified. No modifications are allowed unless authorized in advance and documented in the Equipment Certification Documentation file." The nameplate shall also contain the component identification number in accordance with the drawings/specifications and

the O&M manuals.

]1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for [Contractor Quality Control approval.][information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

SIOR Letter of Acceptance; G[, [_____]]

Special Inspections Project Manual; G[, [_____]]

Special Inspections Agency's Written Practices

NDT Procedures and Equipment Calibration Records

SD-06 Test Reports

Special Inspections Daily Reports

Special Inspections Biweekly Reports

SD-07 Certificates

Fabrication Plant

Certificate of Compliance

Special Inspector of Record Qualifications; G[, [_____]]

Special Inspector Qualifications; G[, [_____]]

Qualification Records for NDT technicians

SD-11 Closeout Submittals

Interim Final Report of Special Inspections

Comprehensive Final Report of Special Inspections; G[, [_____]]

1.5 SPECIAL INSPECTOR QUALIFICATIONS

Submit qualifications for each special inspector [and the special inspector of record].

Certifying Associations	
FM	Factory Mutual
ICC	International Code Council

Certifying Associations	
JCI	Japan Concrete Institute
JSFA	Japan Steel Fabricators Association
JWES	Japan Welding Engineering Society
UL	Underwriters Laboratories
Architect Under Bldg Standard Law of Japan	First Class Architect (Kenchikushi) Registered Under Standard Law of Japan

1.5.1 Steel Construction and High Strength Bolting

1.5.1.1 Special Inspector

a. Structural Steel Work Manager (Tekkotsu Koji Kanri Sekininsha), or

b. Japan Welding Society Certified Inspector (Nihon Yosetsu Kyokai Kensa-in), or

c. Non-Destructive Test Technician (Hihakai Kensa Gijutsusha), or

d. Architectural or Civil Construction Managing Engineer (Kenchiku/ Doboku Koji Sekou Kanrigishi), or

e. JSFA Certified Architectural High Strength Bolt Joint Management Engineer

1.5.2 Welding Structural Steel

1.5.2.1 Special Inspector

a. JWES Certified Welding Management Engineer

b. JSFA Certified Architectural Structural Steel Products Inspection Engineer

1.5.3 Nondestructive Testing of Welds

1.5.3.1 Special Inspector

JIS Z2305 NDT Level III Certificate.

1.5.3.2 Associate Special Inspector

JIS Z2305 NDT Level II Certificate plus one year of related experience.

1.5.4 Cold Formed Steel Framing

1.5.4.1 Special Inspector

a. JSFA Certified Architectural Structural Steel Products Inspection Engineer, or

b. Registered Professional Engineer with related experience.

1.5.5 Concrete Construction

1.5.5.1 Special Inspector

a. Japan Concrete Institute Concrete Engineer (JCI Concrete Gishi), or

b. Registered Professional Engineer with related experience, or

c. First Class Kenchikushi with four years of related experience.

d. Architectural or Civil Construction Managing Engineer (Kenchiku/ Doboku Sekou Kanrigishi)

1.5.6 Prestressed Concrete Construction

1.5.6.1 Special Inspector

a. Registered Professional Engineer with related experience, or

b. First Class Kenchikushi with four years of related experience

1.5.7 Post-tensioned Concrete Construction

1.5.7.1 Special Inspector

a. Registered Professional Engineer with related experience, or

b. First Class Kenchikushi with four years of related experience.

1.5.8 Masonry Construction

1.5.8.1 Special Inspector

a. Registered Professional Engineer with related experience, or

b. First Class Kenchikushi with four years of related experience.

1.5.9 Wood

1.5.9.1 Special Inspector

a. Registered Professional Engineer with related experience

b. First Class Kenchikushi with four years of related experience

1.5.10 Verification of Site Soil Condition, Fill Placement and Load-Bearing Requirements

1.5.10.1 Special Inspector

a. First Class Kenchikushi, or

b. First Class Doboku Sekou Kanrigishi (1st class Civil Engineering Works Management Engineer), or

c. Geotechnical Survey Technician (Chishitsu Chosa Gishi), or

d. Soil Investigation Technician (Jiban Kensa Gishi)

1.5.11 Deep Foundations

1.5.11.1 Special Inspector

Chishitsu Chosa Gishi (Professional Geotechnical Engineer)

1.5.12 Sprayed Fire Resistant Material

1.5.12.1 Special Inspector

a. ICC Spray-applied Fireproofing Special Inspector Certificate, or

b. ICC Fire Inspector I Certificate with one year of related experience, or

c. Registered Professional Engineer with related experience, or

d. First Class Kenchikushi with four years related experience.

1.5.13 Mastic and Intumescent Fire Resistant Coatings

1.5.13.1 Special Inspector

a. ICC Spray-applied Fireproofing Special Inspector Certificate, or

b. ICC Fire Inspector I Certificate with one year of related experience, or

c. Registered Professional Engineer with related experience, or

d. First Class Kenchikushi with four years related experience

1.5.14 Exterior Insulation and Finish System (EIFS)

1.5.14.1 Special Inspector

a. Registered Professional Engineer with related experience, or

b. First Class Kenchikushi with four years related experience.

1.5.15 Fire-Resistant Penetrations and Joints

1.5.15.1 Special Inspector

a. Passed the UL Firestop Exam with one year of related experience, or

b. Passed the FM Firestop Exam with one year of related experience, or

c. Registered Professional Engineer with related experience, or

d. First Class Kenchikushi with four years related experience.

1.5.16 Smoke Control

1.5.16.1 Special Inspector

a. AABC Technician Certification with one year of related experience, or

b. Registered Professional Engineer with related experience, or

c. First Class Kenchikushi with four years related experience

1.5.17 Architectural Components

1.5.17.1 Special Inspector

a. Registered Professional Architect with related experience, or

b. Registered Professional Engineer with related experience, or

c. First Class Kenchikushi with four years related experience.

1.5.18 Mechanical, Electrical, and Plumbing Designated Seismic Systems

1.5.18.1 Special Inspector

a. Registered Professional Engineer with related experience, or

b. First Class Kenchikushi with four years related experience.

1.5.19 Verification of Electrical Systems

a. Chief Electrical Engineer (Denki Shunin Gijutusha), or

b. Electrical Construction Managing Engineer (Denki Sekou Kanrigishi), or

c. Japanese Licensed Electrician (Denki Koujishi)

[1.5.20 Special Inspector of Record (SIOR)

Registered Professional Engineer or First Class Kenchikushi with four years of related experience.

]PART 2 PRODUCTS

2.1 FABRICATOR SPECIAL INSPECTIONS

Special Inspections of fabricator's work performed in the fabricator's shop is required to be inspected in accordance with the Statement of Special Inspections and the Schedule of Special Inspections unless the fabricator is certified by the approved agency to perform such work without Special Inspections. Submit the following certification [certifications] to the Contracting Officer for information to allow work performed in the fabricator's shop to not be subjected to Special Inspections.

Minister of Land, Infrastructure and Transportation (MLIT) Certified Fabrication Plant, Category as specified

At the completion of fabrication, submit a certificate of compliance, to be included with the comprehensive final report of Special Inspections, stating that the materials supplied and work performed by the fabricator are in accordance the construction documents.

PART 3 EXECUTION

3.1 RESPONSIBILITIES

[3.1.1 Special Inspector of Record

a. Supervise all Special Inspectors required by the contract documents and the IBC.

b. Submit a SIOR Letter of Acceptance to the Contracting Officer attesting to acceptance of the duties of SIOR, signed and sealed by the SIOR.

c. Verify the qualifications of all of the Special Inspectors.

d. Verify the qualifications of fabricators.

[e. Submit Special Inspections agency's written practices for the monitoring and control of the agency's operations to include the following:

(1) The agency's procedures for the selection and administration of inspection personnel, describing the training, experience and examination requirements for qualifications and certification of inspection personnel.

(2) The agency's inspection procedures, including general inspection, material controls, and visual welding inspection.

f. Submit qualification records for nondestructive testing (NDT) technicians designated for the project.

g. Submit NDT procedures and equipment calibration records for NDT to be performed and equipment to be used for the project.]

h. Prepare a Special Inspections Project Manual, which will cover the following:

(1) Roles and responsibilities of the following individuals during Special Inspections: SIOR, SI, General Contractor, Subcontractors, QC Manager, and DOR.

(2) Organizational chart and/or communication plan, indicating lines of communication.

(3) Contractor's internal plan for scheduling inspections. Address items such as timeliness of inspection requests, who to contact for inspection requests, and availability of alternate inspectors.

(4) Indicate the government reporting procedures.

(5) Propose forms or templates to be used by SI and SIOR to document inspections.

(6) Indicate procedures for tracking nonconforming work and verification that corrective work is complete.

(7) Indicate how the SIOR and/or SI will participate in weekly QC meetings.

(8) Indicate how Special Inspections of shop fabricated items will be handled when the fabricator's shop is not certified per paragraph FABRICATOR SPECIAL INSPECTIONS.

(9) Include a section in the manual that covers each specific item requiring Special Inspections that is indicated on the Schedule of Special Inspections. Provide names and qualifications of each special inspector who will be performing the Special Inspections for each specific item. Provide detail on how the Special Inspections are to be carried out for each item so that the expectations are clear for the General Contractor and the Subcontractor performing the work.

Make a copy of the Special Inspections Project Manual available on the job site during construction. Submit a copy of the Special Inspections Project Manual for approval.

i. Attend coordination and mutual understanding meeting where the information in the Special Inspections Project Manual will be reviewed to verify that all parties have a clear understanding of the Special Inspections provisions and the individual duties and responsibilities of each party.

j. Maintain a 3- ring binder for the Special Inspector's daily and biweekly reports and the Special Inspections Project Manual. This file must be located in a conspicuous place in the project trailer/office to allow review by the Contracting Officer and the DOR.

k. Submit a copy of the Special Inspector's daily reports to the QC Manager.

l. Discrepancies that are observed during Special Inspections must be reported to the QC Manager for correction. If discrepancies are not corrected before the special inspector leaves the site the observed discrepancies must be documented in the daily report.

m. Submit a biweekly Special Inspections report until all work requiring Special Inspections is complete. A report is required for each biweekly period in which Special Inspections activity occurs, and must include the following:

(1) A brief summary of the work performed during the reporting time frame.

(2) Changes and/or discrepancies with the drawings, specifications [and mechanical or electrical component certification,] that were observed during the reporting period.

(3) Discrepancies which were resolved or corrected.

(4) A list of nonconforming items requiring resolution.

(5) All applicable test results including nondestructive testing reports.

[n. At the completion of each Definable Feature of Work (DFOW) requiring Special Inspections, submit an interim final report of Special Inspections that documents the Special Inspections completed for that

DFOW and corrections of all discrepancies noted in the daily reports. The interim final report of Special Inspections must be signed, dated and bear the seal of the SIOR.]

o. At the completion of the project submit a comprehensive final report of Special Inspections that documents the Special Inspections completed for the project and corrections of all discrepancies noted in the daily reports. The comprehensive final report of Special Inspections must be signed, dated and bear the seal of the SIOR.

]3.1.2 Quality Control Manager

[a. Supervise all Special Inspectors required by the contract documents and the IBC.

b. Verify the qualifications of all of the Special Inspectors.

c. Verify the qualifications of fabricators.

d. Maintain a 3- ring binder for the Special Inspector's daily and biweekly reports. This file must be located in a conspicuous place in the project trailer/office to allow review by the Contracting Officer and the DOR.

] [a.][e.] Maintain a rework items list that includes discrepancies noted on the Special Inspectors daily report.

3.1.3 Special Inspectors

a. Inspect all elements of the project for which the special inspector is qualified to inspect and are identified in the Schedule of Special Inspections.

b. Attend preparatory phase meetings related to the Definable Feature of Work (DFOW) for which the special inspector is qualified to inspect.

[c. Submit Special Inspections agency's written practices for the monitoring and control of the agency's operations to include the following:

(1) The agency's procedures for the selection and administration of inspection personnel, describing the training, experience and examination requirements for qualifications and certification of inspection personnel.

(2) The agency's inspection procedures, including general inspection, material controls, and visual welding inspection.

d. Submit qualification records for nondestructive testing (NDT) technicians designated for the project.

e. Submit NDT procedures and equipment calibration records for NDT to be performed and equipment to be used for the project.]

f. Submit a copy of the daily reports to the QC Manager.

g. Discrepancies that are observed during Special Inspections must be reported to the QC Manager for correction. If discrepancies are not corrected before the special inspector leaves the site the observed

discrepancies must be documented in the daily report.

h. Submit a biweekly Special Inspection Report until all inspections are complete. A report is required for each biweekly period in which Special Inspections activity occurs, and must include the following:

(1) A brief summary of the work performed during the reporting time frame.

(2) Changes and/or discrepancies with the drawings, specifications [and mechanical or electrical component certification,] that were observed during the reporting period.

(3) Discrepancies which were resolved or corrected.

(4) A list of nonconforming items requiring resolution.

5) All applicable test result including nondestructive testing reports.

[i. At the completion of each DFOW requiring Special Inspections, submit an interim final report of Special Inspections that documents the Special Inspections completed for that DFOW. Identify the inspector responsible for each item inspected and corrections of all discrepancies noted in the daily reports. The interim final report of Special Inspections must be signed, dated and indicate the certification of the special inspector qualifying them to conduct the inspection.]

j. At the completion of the project submit a comprehensive final report of Special Inspections that documents the Special Inspections completed for the project and corrections of all discrepancies noted in the daily reports. The comprehensive final report of Special Inspections must be signed, dated and indicate the certification of the special inspector qualifying them to conduct the inspection.

[k. Submit daily reports to the SIOR.

]3.2 DEFECTIVE WORK

Check work as it progresses, but failure to detect any defective work or materials must in no way prevent later rejection if defective work or materials are discovered, nor obligate the Contracting Officer to accept such work.

-- End of Section --