SPECIAL INSPECTION MANUAL

BUILDING & SAFETY

Revised May 2011

Pursuant to Section 202 of the Uniform Administrative Code, this manual establishes supplemental regulations to clarify the application of the Special Inspection provisions of Chapter 17 of the Uniform Building Code. It shall be the special inspector's responsibility to understand and apply the provisions herein, and to maintain a copy at the job site within the Inspection Report File.

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GENERAL REQUIREMENTS

INTRODUCTION

Under Section 1701 of the Uniform Building Code, certain types of work are subject to special inspection. Additionally, the City of Irvine Municipal Code recognizes special inspection as an acceptable form of quality control for asphalt paving work. When special inspection is provided, its purpose is to promote quality assurance through third party monitoring of the construction process.

1.0 PURPOSE

Pursuant to Section 202 of the Uniform Administrative Code, this manual establishes supplemental regulations to clarify the application of the Special Inspection provisions of Chapter 17 of the Uniform Building Code. Part I of this manual provides an overview of the process, and describes the duties and responsibilities of the owner and/or architect or engineer; the special inspector; and the contractor. Part II provides requirements specific to the various types of work that may be involved in a given project.

2.0 OVERVIEW

When special inspections are required by code, the Chief Building Official, prior to issuance of a building permit, must approve a special inspection program. The program, prepared by the architect or engineer of record, must designate those portions of work subject to special inspection; the name or names of the individuals or firms who are to perform the special inspections; and indicate the duties of the special inspectors. As work progresses, the contractor is generally responsible for coordinating the required special inspections.

3.0 DEFINITIONS

3.1 **Special Inspector.** The special inspector is a person who has demonstrated competence, to the satisfaction of the Chief Building Official, for inspection of the particular type of construction or operation subject to special inspection, and has achieved and maintains national certification(s) for those types of inspections to be performed. See appendix page A1 and A2 application form.

3.2 **Continuous Special Inspection.** Continuous Special Inspection means the special inspector is on the site at all times inspecting the work requiring special inspection. Unless otherwise indicated herein or approved by the Chief Building Official, all special inspections shall be continuous.

3.3 **Periodic Special Inspection.** Some special inspections may be made on a periodic basis provided the periodic special inspection is performed as outlined in the approved plans and specifications and approved by the Chief Building Official, or as provided herein.

4.0 DUTIES AND RESPONSIBILITIES

The various duties and responsibilities described below are divided by the main project stages of plans approval, pre-construction, and construction.

4.1 Plans Approval Stage

4.1.1 **Architect or Engineer of Record.** During the plan check process, the architect or engineer of record is responsible for providing a Special Inspection Program to the Chief Building Official for review and approval. The program must be provided on the Special Inspection Program Form as provided in City of Irvine Informational Bulletin No. 278, (see appendix page B1 and B2), and incorporated in the project plans in a prominent location such as the first sheet of the architectural or structural plans.

4.1.2 **Owner, Architect or Engineer of Record, or Agent for the Owner.** Before the special inspection program is approved, a statement therein must be signed by the owner, architect or engineer of record, or an agent of the owner accepting responsibility for employing the special inspector(s).

4.2 Pre-Construction

4.2.1 **Contractor.** Unless waived by the Chief Building Official, prior to the start of construction, the contractor is responsible for coordinating a pre-construction meeting. This meeting shall be scheduled through the inspection request system a minimum of 24 hours in advance, and coordinated with the building inspector. Those present shall include the building inspector, the general contractor, the special inspector(s), and all subcontractors responsible for work subject to special inspection. During the meeting, the building inspector will review the processes to be followed, and the duties and responsibilities of all parties involved.

4.3 Construction

4.3.1 **Contractor.** It is the contractor's responsibility to coordinate construction activities such that the special inspector is given sufficient notification so as to be present as required by the program, and to allow 24 hours notice by the special inspector to the building inspector.

4.3.2 **Special Inspector.** The special inspector represents the owner, or architect or engineer of record in witnessing those portions of work identified in the special inspection program for conformance to the approved plans and specifications and applicable workmanship provisions of the code. The special inspector must report all activities to the City building inspector, and

resolve all questions regarding special inspection requirements or methods with the building inspector.

Specifically, the special inspector shall:

4.3.2.1 **Advanced Notice.** Notify the building inspector 24 hours in advance of any construction activity requiring special inspection, and to inform the building inspector if the contractor is not providing sufficient notice. Notification shall include the special inspector name and city license number, job address, permit number, and type of work being performed.

4.3.2.2 **Availability of Approved Plans and Specifications.** Ensure that the approved plans and specifications are on site and available for use during special inspections.

4.3.2.3 **Special Inspection.** Perform continuous and/or periodic special inspection of all work assigned for conformance to the approved plans, specifications and applicable workmanship provisions of the code. All special inspections shall be continuous unless specifically noted otherwise. (Note: Sufficient special inspectors must be present to monitor all ongoing work subject to special inspection. It is the responsibility of the special inspector to ensure that all work occurring is being properly witnessed, and to bring to the immediate attention of the contractor and building inspector any problems in this regard.)

4.3.2.4 **Non-conforming Work.** Immediately bring to the attention of the contractor for correction any discrepancies between the work being performed and the approved plans, specifications and applicable workmanship provisions of the code. All such work shall be formally reported as specified below. If it is not corrected within three working days, or is about to be incorporated into the work, the special inspector shall immediately notify the architect or engineer of record, and the building department by telephone, fax or in person.

4.3.2.5 **Hazardous Conditions.** The special inspector is responsible to immediately notify the building department of any structural failure, collapse or condition that, in the opinion of the special inspector, may possibly lead to structural failure.

4.3.2.6 **Special Inspection Report File.** Maintain at the job site for the building inspector, an Inspection Report File. This file shall consist of a three-ring binder or binders, subdivided by main categories of work subject to special inspection, see Part II for typical category headings. Log sheet forms (see appendix page C) immediately following each sub-divider, shall be updated to reflect each report entry.

4.3.2.7 **Special Inspection Reports.** Throughout the project, the special inspector(s) shall generate reports as required in Part II of this manual, and as required herein. Separate reports are required from each special inspector, and for each type of work being inspected. The special inspector generating the report shall be responsible for properly numbering each report, filing a copy in the Inspection Report File and logging each entry.

4.3.2.8 **Special Inspector Daily Performance Report.** Reports shall be completed on the day of the special inspection using forms obtained from the City (see appendix page D). Each form shall be completely filled out, and in the space provided shall include:

- A clear description of the inspection process, testing, and acceptance of the structural members and/or assemblies.
- Specific information as dictated by the type of work being performed, see Part II of this manual.

Note: Daily report forms provided by the special inspector's company may be substituted for the City of Irvine Special Inspector Daily Performance Report form provided prior authorization is obtained from the Chief Building Official, and the information contained therein is consistent with the City's form.

4.3.2.9 **Special Inspector Non-Compliance Report.** A separate Non-Compliance Report shall be completed upon detection of any work not complying to the approved plans, specifications or quality of work provisions of the code using forms obtained from the City (see appendix page E). Each form shall be completely filled out, and in the space provided shall include a clear description of the non-complying item/condition, its location, cross referenced to specific approved plan sheet, detail and/or specification. Such work shall be brought to the immediate attention of the contractor for correction, the building inspector shall be noticed through the Inspection Report File.

4.3.2.10 **Special Inspector Record of Correction Report.** Each report of non-complying work must be resolved to the satisfaction of the Chief Building Official and documented in a Record of Correction Report using forms obtained from the City (see appendix page F). Each form shall be completely filled out, and in the space provided shall:

- Reference the corresponding Non-Complying Report number.
- Describe the non-complying item/condition and state that the non-complying item/condition is now cleared and in compliance.
- Describe the reinspection/testing process, results and location.
- If acceptance is provided through an engineering letter or detail approved by the Building Official, a copy of such letter or detail shall be attached.

4.3.2.11 **Final Report**. Provide a signed final report that includes the following:

- A cover sheet that lists the name, address, lot and tract number of the project, the permit number, the special inspector's name and City license number, and the following completed statement: "All (main category of work) requiring special inspection has been inspected, reported and found to be in conformance to the approved plans, specifications and codes."

- A table of contents.

- All items as required in Part II for the specific type of work involved.

The final report shall be bound in a folder or comparable means, and presented to the City inspector prior to the final building inspection, but no later than five working days after the completion of the specific work to which the report pertains.

5.0 LICENSE NUMBER; REQUIREMENTS

All special inspectors who perform work in the City of Irvine shall first obtain a City of Irvine License for the particular type(s) of construction or operation subject to special inspection. The special inspector's name and City of Irvine License number shall be included on all documents submitted to the City.

Any person wishing to obtain a City of Irvine special inspector license shall submit a complete application and provide evidence of qualification for each type of construction or operation for which application is made. Examples of suitable evidence include certification from a nationally recognized agency such as ACI, AWS, ICBO; certification from the City of Los is also acceptable.

Special Inspector licenses must be renewed annually. At the time of renewal, evidence of qualification must be shown to be current.

PART II

SPECIFIC REQUIREMENTS BY TYPE OF WORK

INTRODUCTION

The following are special inspector duties and responsibilities specific to the various types of work subject to special inspection. For types of construction work subject to special inspection refer to Section 1701.5 of the Uniform Building Code and Informational Bulletin No. 181. For asphalt concrete, see Article 12 of the City of Irvine Grading and Right-of-Way Manual, and Informational Bulletin No. 151. Note: for ease of reference, each bulletin and excerpts from the Grading and Right-of-Way Manual are included in the appendix.

1.0 CONCRETE AND SHOTCRETE

1.1 **Prior to the Start of Construction.** Unless waived by the Chief Building Official, prior to the start of construction the special inspector shall have participated in a pre-construction meeting wherein responsibilities and processes will have been discussed per subsection 4.2 of Part I.

1.2 **Required Verification and Inspection.** Unless otherwise required by the Chief Building Official or specified by the architect or engineer of record, special inspections shall be performed as required by Table 1 appearing at the end of this section.

1.3 **Reporting.** Throughout the project the special inspector(s) shall generate reports as required in subsection 4.3 of Part I, and as specified below.

1.3.1 **Special Inspection Daily Performance Report.** Each form shall be completely filled out, and in the space provided shall include the following:

1.3.1.1 A clear description of the inspection process, testing and acceptance of structural members and assemblies.

1.3.1.2 (Reinforcing steel and structural embeds) Identity of fabricator, mill certification, description of structural items supplied, and location of use cross-referenced to the approved plans.

1.3.1.3 Itemization of concrete deliveries which includes delivery ticket certificate number, cross-reference to specified strength per approved plans, and description of placement location.

1.3.2 **Non-Compliance Report.** See Part I, subsection 4.3.2.9.

1.3.3 **Record of Correction Report.** See Part I, subsection 4.3.2.10.

1.3.4 **Final Report.** A separate final report for Concrete and Shotcrete shall be provided in conformance to subsection 4.3.2.11, which shall include in order:

1.3.4.1 Certification of Compliance for fabricated and manufactured items.

1.3.4.2 Special Inspector Daily Performance Reports arranged sequentially.

1.3.4.3 Record of Correction Reports and corresponding Non-Compliance Reports arranged sequentially.

TABLE 1

Required Verification and Inspection of Concrete Construction

Verification & Inspection	Continuous	Periodic	Reference Standard	UBC Reference
1. Inspection of reinforcing steel: A. General. Inspection of reinforcing steel, including prestressing tendons, and placement. B. Moment-resisting concrete frames designed to resist seismic loads. Inspection of reinforcing steel placement.	 X	X	ACI 318:3.5, 7.1-7.7	1903.5. 1907.1. 1907.7. 1924.4 1701.5 item 3
2. Inspection of welding	X		AWS D1.4 ACI318: 3.5.2	1903.5.2
3. Inspect bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased or where lower load factors have been used in design.	X		-----	1923.2
4. Verifying proper mix properties including weights and mixtures		X	ACI 318: Ch.4, 5.2-5.4	1904, 1905.2-1905.4, 1924.2 1924.3
5. Sampling fresh concrete and performing slump, air content and determining the temperature of fresh concrete at the time of making specimens for strength tests.	X		ASTM C172 ASTM C31 ACI 318: 5.6. 5.8	1905.6, 1924.10. 1924.8
6. Inspection of concrete placement: A. Concrete, and shotcrete placement and mixing and placement of reinforced gypsum concrete for proper application techniques. B. Insulating concrete fill, limited to initial inspection to check deck surface and placement of reinforcement.	 X	 X	ACI 318: 5.9, 5.10	1905.9, 1905.10 1924.6, 1924.7, 1924.8
7. Inspection for maintenance of specified curing temperature and techniques.		X	ACI 318: 5.11-5.13	1905.11 1905.13. 1924.9
8. Inspection of prestressed concrete: A. Application of prestressing forces. B. Grouting of bonded prestressing tendons in the seismic force-resisting system.	 X X		 ACI 318: 18.18 ACI 318: 18.16.4	-----
9. Erection of precast concrete members.		X	ACI 318: Chapter 16	-----
10. Verification of 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.		X	ACI 318: 6.2	1906.2
11. Grouting of column bases using approved grouting material	X		-----	-----

[1] For welding see Section 2.0, Table 2-A

2.0 STRUCTURAL STEEL

2.1 **Prior to the Start of Construction.** Unless waived by the Chief Building Official, prior to the start of construction the special inspector shall have participated in a pre-construction meeting wherein responsibilities and processes will have been discussed per subsection 4.2 of Part I.

2.2 **Required Verification and Inspection.** Unless otherwise required by the Chief Building Official or specified by the architect or engineer of record, special inspections shall be performed as required by Table 2 appearing at the end of this section.

2.3 **Reporting.** Throughout the project the special inspector(s) shall generate reports as required in subsection 4.3 of Part I, and as specified below.

2.3.1 **Special Inspection Daily Performance Report.** Each form shall be completely filled out, and in the space provided shall include the following:

2.3.1.1 A clear description of the inspection process, testing and acceptance of structural members and assemblies.

2.3.1.2 Identity of fabricator, description of structural items supplied, and location of use cross-referenced to the approved plans.

2.3.1.3 A listing of all shop inspection documentation and mill certifications cross-referenced to the approved plans.

2.3.1.4 A listing of all welders on the job site that day which includes names, work addresses, certification numbers and types of weld processes and positions for which certification is provided, and a description of work performed by each welder.

2.3.2 **Non-Compliance Report.** See Part I, section subsection 4.3.2.9.

2.3.3 **Record of Correction Report.** See Part I, section 4.3.2.10.

2.3.4 **Final Report.** A separate final report for Structural Steel Construction shall be provided in conformance to subsection 4.3.2.11, which shall include in order:

2.3.4.1 Certification of Compliance for fabricated and manufactured items.

2.3.4.2 Special Inspector Daily Performance Reports arranged sequentially.

2.3.4.3 Record of Correction Reports and corresponding Non-Compliance Reports arranged sequentially.

TABLE 2

Required Verification and Inspection of Steel Construction[1]

Verification and Inspection	Continuous	Periodic	Reference Standard	UBC Reference
1. Material verification of high-strength bolts, nuts, and washers: A. Identification markings to conform to ASTM standards specified in the approved construction documents. B. Manufacturer's certificate of compliance required.		X	Applicable ASTM material specifications; AISC ASD, Section A3.4; AISC LRFD, Section A3.3	-----
2. Inspection of high-strength bolting: A. Bearing –type connections. B. Slip-critical connections	 X	 X X	AISC :LRFD Section M2.5	 1701.5 item 6.
3. Material verification of structural steel: A. Identification markings to conform to ASTM standards specified in the approved construction documents. B. Manufacturers' certified mill test reports required.		 X X	 ASTM A 6 or ASTM A 568 ASTM A 6 or ASTM A 568	 -----
4. Material verification of weld filler materials: A. Identification markings to conform to AWS specification in the approved construction documents. B. Manufacturer's certificate of compliance required.		 X X	AISC, ASD, Section A3.6; AISC LRFD, Section A3.5	 -----
5. Inspection of welding: A. Structural Steel 1) Complete & partial penetration groove welds 2) Multi-pass fillet welds 3) Single-pass fillet welds exceeding 5/16" (7.9 mm) 4) Single-pass fillet welds not exceeding 5/16" (7.9 mm) 5) Floor and deck welds and stud welds B. Reinforcing Steel 1) Verification of weldability of reinforcing steel other than ASTM A706 2) Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls, and shear reinforcement. 3) Shear reinforcement. 4) Other reinforcing steel.	 X X X X X	 X X X X X	AWS D1.1 AWS D1.3 AWS D1.4 ACI 318:3.5.2	1701.5 item 5.1 1701.5 item 5.3
6. Testing of welds in fully restrained connections between primary members of moment frames: A. Complete penetration groove welds in joints and splices – test 100 percent by either ultrasonic testing or by radiography. B. Base metal thicker than 1½ inches when subject to through-thickness weld shrinkage strains-test 100 percent by ultrasonic testing	 X X			 1703 item 1 1703 item 3
7. Inspection of steel frame joint details for compliance with approved construction documents: C. Details such as bracing and stiffening. D. Member size and location. E. Application of joint details at each connection.		X		

1 For grouting of column bases, see Section 1.0, Table 1-A

3.0 MASONRY

3.1 **Prior to the Start of Construction.** Unless waived by the Chief Building Official, prior to the start of construction the special inspector shall have participated in a pre-construction meeting wherein responsibilities and processes will have been discussed per subsection 4.2 of Part I.

3.2 **Required Verification and Inspection.** Unless otherwise required by the Chief Building Official or specified by the architect or engineer of record, special inspections shall be performed as required by Table 3.

3.3 **Reporting.** Throughout the project the special inspector(s) shall generate reports as required in subsection subsection 4.3 of Part I, and as specified below.

3.3.1 **Special Inspection Daily Performance Report.** Each form shall be completely filled out, and in the space provided shall include the following:

3.3.1.1 A clear description of the inspection process, testing and acceptance of structural members and assemblies.

3.3.1.2 (Reinforcing steel and structural embeds) Identity of fabricator, mill certifications, description of structural items supplied, and location of use cross-referenced to the approved plans.

3.3.1.3 A listing of all shop inspection documentation and mill certifications cross-referenced to the approved plans.

3.3.2 **Non-Compliance Report.** See Part I, subsection 4.3.2.9.

3.3.2.1 **Record of Correction Report.** See Part I, subsection 4.3.2.10.

3.3.3 **Final Report.** A separate final report for Masonry shall be provided in conformance to 4.3.2.11, which shall include in order:

3.3.3.1 Certification of Compliance for fabricated and manufactured items.

3.3.3.2 Special Inspector Daily Performance Reports arranged sequentially.

3.3.3.3 Record of Correction Reports and corresponding Non-Compliance Reports arranged sequentially.

TABLE 3

Required Verification and Inspection of Masonry Construction

Verification and Inspection	Continuous	Periodic	ACI 530/ASCE 5/ TMS 402	UBC Reference
1. From the beginning of masonry construction, the following shall be verified to ensure compliance:				2105
A. Compliance with requirements for specified compressive strength of masonry f'm. See requirements for specimen preparation in item 3 below.		X	Chapter 8	2105.3 1701.5
B. Proportions of site mixed mortar and grout		X		
C. Masonry units		X		
D. Placement of masonry units and construction or mortar joints				1701.5
1) General	X			
2) Fully grouted open-end hollow-unit masonry		X		
E. Placement of reinforcement and connectors				1701.5 1701.5
1) General	X			
2) Fully grouted open end hollow unit masonry		X		
F. Grout space prior to grouting	X			
G. Placement of grout	X			
2. The inspection program shall verify:				2105
A. size and location of structural elements		X	Chapter 8 Sec. 4.2, 5.14	
B. Type, size and location of anchors, including other details of anchorage of masonry to structural members frames, or other construction		X X		
C. Specified size, grade, and type of reinforcement	X		Chap. 8 Sec. 8.5.7 and 8.5.7.2	
D. Welding of reinforcing bars[1]				2108.2.3.7, item 7
E. Protection of masonry during cold weather (temperature below 40 degrees F)				2104.3
3. Preparation of any required grout specimens, mortar specimens, and/or prisms shall be observed	X			2105.3 2105.4 2105.5
4. Compliance with required inspection provisions of the Construction Documents and the approved submittals shall be verified		X		

[1] For welding see section 2.0, Table 2

4.0 SPRAY-APPLIED FIRE-RESISTIVE MATERIALS

4.1 **Prior to the Start of Construction.** Unless waived by the Chief Building Official, prior to the start of construction the special inspector shall have participated in a pre-construction meeting wherein responsibilities and processes will have been discussed per subsection 4.2 of Part I.

4.2 **Required Verification and Inspection.** Unless otherwise required by the Chief Building Official or specified by the architect or engineer of record, special inspections for sprayed fire-resistant materials applied to structural elements and decks shall be as follows:

4.2.1 **Structural Member Surface Conditions.** Surface preparation shall be verified to be in accordance with the approved fire resistance design and the manufacturer's written instructions.

Note: Authorization by the building inspector shall be obtained prior to application of spray-applied materials.

4.2.2 **Application.** Minimum substrate ambient temperature and proper ventilation before and after application as required per approved written manufacturer's instructions shall be verified.

4.2.3 **Thickness.** Thickness measured in accordance to ASTM E 605 shall be verified on average to comply with the approved plans and specifications. In calculating average thickness, any sample measurement exceeding the design thickness by more than ¼ inch, shall be counted as the design thickness plus ¼ inch. For design thicknesses of 1 inch or greater, thicknesses of less than design thickness minus ¼ inch shall be rejected. For design thicknesses less than 1 inch, thicknesses of less than the design thickness minus 25 percent shall be rejected. In-place sampling for thickness determinations shall occur as specified in the approved plans and specifications, but not to be less than:

4.2.3.1 **Floor, Roof, and Wall Assemblies.** 4 measurements for each 1,000 square feet of sprayed applied area of each floor or portion thereof.

4.2.3.2 **Structural Framing Members.** 25 percent of the structural members of each floor.

4.2.4 **Density.** Density measured in accordance to ASTM E 605 shall be verified to comply with approved plans and specifications.

4.2.5 **Bond Strength.** Cohesive/adhesive bond strength measured in accordance to the field test specified in ASTM E 736 shall be verified to comply with approved plans and specifications, but no less than 150 psf. In-place sampling shall occur as specified in the approved plans and specifications, but not to be less than:

4.2.5.1 **Floor, Roof and Wall Assemblies.** One sample per 10,000 square feet or portion thereof for each floor, roof or wall assembly in each story.

4.2.5.2 **Structural Framing Members.** One sample per 10,000 square feet of floor area for each type of structural framing member, e.g. column, beam, girder, truss.

4.3 **Reporting.** Throughout the project the special inspector(s) shall generate reports as required in subsection 4.3 of Part I, and as specified below.

4.3.1 **Special Inspection Daily Performance Report.** Each form shall be completely filled out, and in the space provided shall include the following:

4.3.1.1 A clear description of the inspection process, testing and acceptance of the members and/or assemblies treated including degree of protection, cross-referenced to the approved plans and specifications.

4.3.1.2 Identity of manufacturer and product used.

4.3.2 **Non-Compliance Report.** See Part I, subsection 4.3.2.9.

4.3.3 **Record of Correction Report.** See Part I, subsection 4.3.2.10.

4.3.4 **Final Report.** A separate final report for Spray-Applied Fire Resistive Materials section shall be provided in conformance to subsection 4.3.2.11, which shall include in order:

4.3.4.1 Certification of Compliance for fabricated and manufactured items.

4.3.4.2 Special Inspector Daily Performance Reports arranged sequentially.

4.3.4.3 Record of Correction Reports and corresponding Non-Compliance Reports arranged sequentially.

5.0 PILING, DRILLED PIERS AND CAISSONS

5.1 **Prior to the Start of Construction.** Unless waived by the Chief Building Official, prior to the start of construction the special inspector shall have participated in a pre-construction meeting wherein responsibilities and processes will have been discussed per 4.2 of Part I.

5.2 **Required Verification and Inspection.** Unless otherwise required by the Chief Building Official or specified by the architect or engineer of record, special inspections for piling, drilled piers and caissons shall be as follows:

5.2.1 **Driven Piles.** Prior to driving operation, materials shall be verified to conform to the approved plans and specifications. All driving and testing operations shall be continuously inspected.

5.2.2 **Drilled Piers and Caissons.** Refer to special inspection requirements for concrete in Section 1.0 Concrete and Shotcrete.

5.3 **Reporting.** Throughout the project the special inspector(s) shall generate reports as required in subsection 4.3 of Part I, and as specified below.

5.3.1 **Special Inspection Daily Performance Report.** Each form shall be completely filled out, and in the space provided shall include the following:

5.3.1.1 A clear description of the inspection process, testing and acceptance of structural members and assemblies.

5.3.1.2 Blow count and depth of refusal, if any, for driven piles.

5.3.1.3 Cutoff and tip elevation of each completed pile, pier and/or caisson relative to a fixed reference.

5.3.1.4 Identity of fabricator, description of structural items supplied, and location of use cross-referenced to the approved plans.

5.3.1.5 A listing of all shop inspection documentation and mill certifications cross-referenced to the approved plans.

5.3.1.6 For drilled piers and caissons refer to section 1.3.1.

5.3.2 **Non-Compliance Report.** See Part I, subsection 4.3.2.9.

5.3.3 **Record of Correction Report.** See Part I, subsection 4.3.2.10.

5.3.4 **Final Report.** A separate final report shall be provided for Piling, Drilled Piers and Caissons in conformance to subsection 4.3.2.11, which shall include in order:

5.3.4.1 Certification of Compliance for fabricated and manufactured items.

5.3.4.2 Special Inspector Daily Performance Reports arranged sequentially.

5.3.4.3 Record of Correction Reports and corresponding Non-Compliance Reports arranged sequentially.

6.0 SMOKE-CONTROL

6.1 **Prior to the Start of Construction.** Unless waived by the Chief Building Official, prior to the start of construction the special inspector shall have participated in a pre-construction meeting wherein responsibilities and processes will have been discussed per subsection 4.2 of Part I. Special emphasis shall be placed on conducting a thorough review of the design engineer's test plan.

6.2 **Required Inspection and Testing.** Unless otherwise required by the Chief Building Official or specified by the architect or engineer of record, special inspections for Smoke-Control Systems are required:

- During the erection of ductwork (including drywall shafts) and prior to concealment for the purposes of leakage testing and recording of device locations, and
- Prior to occupancy and after sufficient completion for the purposes of pressure difference testing, flow measurements, and detection and control verification, and
- Shall meet the minimum criteria as shown in Table 6 at the end of this section.

6.3 **Reporting.** Throughout the project the special inspector(s) shall generate reports as required in subsection 4.3 of Part I, and as specified below.

6.3.1 **Special Inspection Daily Performance Report.** Each form shall be completely filled out, and in the space provided shall include a clear description of the inspection process, testing and acceptance of system components and assemblies. Approved plans and specifications shall be cross-referenced.

6.3.2 **Non-Compliance Report.** See Part I, subsection 4.3.2.9.

6.3.3 **Record of Correction Report.** See Part I, subsection 4.3.2.10.

6.3.4 **Final Report.** A separate final report shall be provided for the Smoke-Control System in conformance to section 905.15.9 of the Uniform Building Code.

A complete report of testing shall be prepared by the special inspector or by the special inspector agency. The report shall include identification of all devices by manufacturer, nameplate data, design values, measured values and identification tag or mark. The report shall be reviewed by the responsible designer, and when satisfied that the design intent has been achieved, the responsible designer shall affix the designer's signature and date to the report with a statement as follows:

"I have reviewed this report and by personal knowledge and onsite observation, certify that the smoke control system is in substantial compliance with the design intent, and to the best of my understanding, complies with the code."

A copy of the final report shall be filed with the building official and an identical copy shall be maintained in approved location at the building.

TABLE 6

Required Inspection and Testing of Smoke Control Systems

Component	Verify (UBC Reference)	Test (UBC Reference)
1. Automatic Dampers.	1. Automatic dampers installed within smoke-control system are listed and conform to the requirements of the approved recognized standards. (905.7.5) 2. Fire dampers are labeled for use in dynamic systems. (713.12)	Functions in installed condition.
2. Control Air Tubing.	1. Tubing and fittings material and connection requirements. (905.10.1) 2. Tubing conforms to approved control diagram. 3. Verify all tubing serving other than smoke-control functions are separated by automatic isolation valves. (905.10.3) 4. Tubing has been flushed clean and dry prior to final connections (905.10.1)	Pressure test installed tubing to three times operating pressure for minimum of 30 minutes without loss of gage pressure prior to final connection to devices.
3. Control Diagrams.	1. Location of all fire alarm initiating devices indicated on the control diagrams. (905.12 and 905.15.8) 2. Locations of all output devices, i.e. dampers, fans, automatic doors, conductors, junction points, are installed according to approved control diagrams. (905.12, 905.15.8) 3. Fire alarm initiating devices which activate smoke-control are properly zoned in accordance with the respective smoke-control zone. This includes fire sprinklers when applicable. (905.12, 905.15.8)	
4. Fan Belts.	Belt-driven fans have at least 1.5 times the number required for the design duty, but no less than 2. (905.7.6)	
5. Marking and Identification.	Detection and control systems are clearly marked at all junctions, accesses and terminations. (905.11)	
6. Control Action Priorities.		1. Firefighter's control panel has priority over other building systems. 2. Firefighter's smoke control panel functions in accordance with the design intent. 3. Doors, fans, damper configurations, and status indication lights for system integrity.
7. Controls.		1. Actuation of each smoke zone operation by a minimum of one automatic initiation device, and proper sequence initiation by remaining devices. (905.15.8) 2. Confirmation of actuation, testing and manual override. (905.9.1) 3. Control sequence throughout system, including firefighter's control panel. (905.15.8) 4. Smoke control operations from firefighter's control panel during simulated standby power conditions. (905.15.8)
8. Detection Devices.		1. Smoke or fire detectors in their installed condition. (905.15) Duct type smoke detectors, in their installed condition for both minimum and maximum airflow. (905.15.2)

TABLE 6
(Continued)

Required Inspection and Testing of Smoke Control Systems

Component	Verify (UBC Reference)	Test (UBC Reference)
9. Ducts and Drywall Shafts.		1. At various stages of construction, pressure test to 1.5 times maximum design pressure. Verify leakage does not exceed 5% of the design flow. (905.7.3) 2. Traverse ducts using generally accepted practices to determine actual air quantities. (905.15.3)
10. Fans.		1. Determine based on actual current draw or kW meter that fan motors do not exceed their name plate horsepower. (905.7.6) 2. Fan rotation, voltage, amperage, rpm and belt tension. 3. Airflow sensor integration.
11. Inlets and outlets.		Air flow quantities using generally accepted practices.
12. Pressurized Stair Enclosures.		1. Controlled relief vent at upper portion of stair enclosure test to 2500 CFM at design pressure difference. 2. 0.05 inch water gage differential between entrance vestibule and stair enclosure. (1009.7)
13. Control and actuation Response Times.		1. Control air isolation valves. …… .Immediately 2. Smoke damper closing……15 seconds. 3. Smoke damper opening……15 seconds. 4. Fan starting (energizing)……..15 seconds. 5. Fan stopping (de-energizing)…….Immediately. 6. Fan volume modulation……..…...30 seconds. 7. Pressure control modulation……..….15 seconds. 8. Temperature control safety override… Immediately. 9. Positive indication status……..……....15 seconds. Note: Time limits are maximums and apply to automatic and manual smoke-control action initiated from any control point. (905.14)
14. Smoke Barriers.		Pressure difference across smoke barriers for each possible smoke-control condition. Pressure testing of passive zones shall be done using portable fans, the leakage area shall be per 905.2.3.
15. Standby Power.		Full standby power within 60 seconds of primary power failure. (905.8.1)
16. Vestibule.		Pressure difference with doors closed is minimum plus 0.05 inch water gage relative to the fire floor, and minus 0.05 inch relative to the exit enclosure. (1009.8.6)

7.0 ASPHALT PAVING

7.1 **Prior to the Start of Construction.** Unless waived by the Chief Building Official, prior to the start of construction the special inspector shall have participated in a pre-construction meeting wherein responsibilities and processes will have been discussed per subsection 4.2 of Part I.

7.2 **Required Verification and Inspection.** Unless otherwise required by the Chief Building Official or specified by the architect or engineer of record, special inspections for asphalt paving shall be as follows:

7.2.1 Materials. Prior to placement of asphalt, materials shall be verified to conform to the approved plans, the current edition of the Standard Specifications For Public Works Construction and any supplemental specifications.

7.2.2 Asphalt Placement. Asphalt placement shall be continuously inspected to verify placement and application techniques conforming to approved plans, the current edition of the Standard Specifications For Public Works Construction and any supplemental specifications.

7.3 **Reporting.** Throughout the project the special inspector(s) shall generate reports as required in subsection 4.3 of Part I, and as specified below.

7.3.1 **Special Inspection Daily Performance Report.** Each form shall be completely filled out, and in the space provided shall include the following:

7.3.1.1 A clear description of the inspection process, testing and acceptance of paved sections or areas.

7.3.1.2 Itemization of asphalt deliveries which includes delivery ticket certificate number, cross-reference to specified mix design of approved plans and specifications, and description of placement location.

7.3.2 **Non-Compliance Report.** See Part I, subsection 4.3.2.9.

7.3.3 **Record of Correction Report.** See Part I, subsection 4.3.2.10.

7.3.4 **Final Report.** A separate final report for Asphalt Paving shall be provided in conformance to 4.3.2.11, which shall include in order:

7.3.4.1 Certification of Compliance for fabricated and manufactured items.

7.3.4.2 Special Inspector Daily Performance Reports arranged sequentially.

7.3.4.3 Record of Correction Reports and corresponding Non-Compliance Reports arranged sequentially.

COMMUNITY DEVELOPMENT
Building and Safety

APPLICATION FOR SPECIAL INSPECTOR

FOR OFFICE USE ONLY

DATE _____ AMOUNT PAID _____

☐ NEW ☐ RENEWAL ☐ ADD-ON INSPECTOR # _____

NAME			
ADDRESS	CITY	STATE	ZIP
PHONE	E-MAIL (Only use for annual renewal notice)		

TYPE OF CERTIFICATION REQUIRED (Check all that apply; $20.00 for each certification)

- ☐ CONCRETE (Testing only)
- ☐ REINFORCED CONCRETE
- ☐ MASONRY
- ☐ ASPHALT
- ☐ PRESTRESSED CONCRETE
- ☐ STRUCTURAL STEEL/WELDING
- ☐ FIREPROOFING
- ☐ _____

QUALIFICATIONS (Provide copies of qualifying documentation)

FOR OFFICE USE ONLY

☐ **APPROVED** ☐ **DENIED** BY _____

INSPECTION SUPERVISOR

REASON FOR DENIAL

A1

AFFIDAVIT

I have read and understand the Special Inspector's Instruction Manual published by the City of Irvine. I agree to abide by the minimum rules stated therein and prescribed procedures.

I declare this statement to be true and correct under penalty of perjury.

SIGNATURE

PRINT NAME

SPECIAL INSPECTOR REGISTRATION NUMBER - CITY OF IRVINE (If known)

INFORMATIONAL BULLETIN

Bulletin No.: 278

Effective: 2/18/99
Approved:

Chief Building Official

Special Inspection Program Requirements

When special inspection is required for a project, the Uniform Building Code requires a special inspection program to be submitted to the Chief Building Official for approval prior to issuance of the building permit. Such program shall be prepared by the architect or engineer of record and submitted with the plan check documents for the project. The program shall be included on the project plans in a prominent location such as on the first sheet of architectural or structural plans.

Attached: Special Inspection Program Form

SPECIAL INSPECTION PROGRAM SUMMARY

Building Address: _____
Project Description: _____
Plan Check Number: _____

I, as the owner, or agent of the owner (contractors may not employ the special inspector), certify that I, or the architect/engineer of record, will be responsible for employing the special inspector(s) as required by Uniform Building Code (UBC) Section 1701.1 for the construction project located at the site listed above. UBC Section 106.3.5.

Signed _____ Date _____

Print Name _____ ☐ Owner ☐ Engineer ☐ Architect

Firm _____

I, as the engineer/architect of record, certify that I have prepared the following special inspection program as required by UBC Section 106.3.5 for the construction project located at the site listed above.

Engineer's/Architect's Seal
& Signature Here

Signed _____ Date _____

Firm _____ Phone _____

1. List of work requiring special inspection:

- ☐ Concrete
- ☐ Bolts in concrete and epoxy installation
- ☐ Special-Moment Resisting Frame
- ☐ Reinforcing Steel
- ☐ Prestressed Concrete
- ☐ Piling, and drilled piers
- ☐ Smoke-Control System
- ☐ Structural Welding
- ☐ High-Strength Bolting
- ☐ Structural Masonry
- ☐ Insulating Concrete Fill or Reinforced Gypsum Concrete
- ☐ Spray-applied Fireproofing
- ☐ Shotcrete
- ☐ Other: _____

2. Name(s) of individual(s) or firm(s) responsible for the special inspections listed above:

A. _____

B. _____

C. _____

3. Duties of the special inspectors for the work listed above: (Attach additional sheets as necessary)

A. _____

B. _____

C. _____

Special inspectors shall notify the City of Irvine Building and Safety Division at (949) 724-6331 and present their credentials for approval prior to beginning work on the job site.

FORM 65-34

CITY OF IRVINE
SPECIAL INSPECTION REPORT FILE

_____ **LOG SHEET No.** _____
(main category of work)

DATED FROM _____ **TO** _____

PROJECT NAME: _____ **ADDRESS:** _____

PERMIT NUMBERS: _____

Date	Report Type[1]	No.	General Area of Work	Responsible Special Inspector (Print Name & License No.)

[1] DR: Special Inspector Daily Performance Report, NCR: Special Inspector Non-Compliance Report, RCR: Special Inspector Record of Correction Report.

CITY OF IRVINE
SPECIAL INSPECTOR DAILY PERFORMANCE REPORT

DATE: _____ **TIME:** _____ **DR No.** _____

Special Inspector: _____

City License No. / Type: _____

Project Address: _____

Permit Number: _____

Description of inspection process, testing, and building components inspected:

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Reference; approved plan sheet, detail and/or specification:

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I declare that to the best of my knowledge, the above-described work is in conformance to the approved plans, specifications and the applicable workmanship provisions of the code.

Signature: _____

CITY OF IRVINE
SPECIAL INSPECTOR NON-COMPLIANCE REPORT

DATE: _____ **TIME:** _____ **NCR No.** _____

Special Inspector: _____

City License No. / Type: _____

Project Address: _____

Permit Number: _____

Description of non-complying item and/or condition, and location:

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Reference; approved plan sheet, detail or specification:

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CITY OF IRVINE
SPECIAL INSPECTOR RECORD OF CORRECTION REPORT

DATE: _____ **TIME:** _____ **RCR #.** _____ **(REF. NCR #** _____**)**

Special Inspector: _____

City License No. / Type: _____

Project Address: _____

Permit Number: _____

Description of non-complying item and/or condition, location, and method of correction:

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Reference; approved plan sheet, detail Change, Engineer's letter or other (copies attached):

_____

_____

_____

I declare that to the best of my knowledge, the above-described work is in conformance to the approved plans, specifications and the applicable workmanship provisions of the code.

Signature: _____

INFORMATIONAL BULLETIN

Effective: 05/01/89
Revised: 02/20/96
Approved:

CONCRETE PLACEMENT IN FOUNDATIONS AND FLOOR SLABS

Placement of concrete in all buildings for foundations or floor slabs shall require the following:

1. All concrete placed for building construction in the City of Irvine shall be sulfate resistant concrete.

2. Inspection and written approval by a City inspector shall be obtained prior to placement of any concrete, unless otherwise approved by the City.

3. On all construction of additions requiring new foundation, where any length of the projected additional area extension is in excess of 10 feet from existing construction, a soil report prepared and signed by a licensed civil and/or geotechnical engineer will be required. The said report shall include, but not limited to, the following information:

   a) A plot showing the location of all test borings and/or excavation.

   b) Descriptions and classifications of the materials/soil encountered.

   c) Elevations of the water table, if encountered.

   d) Recommendations for foundation type and design criteria including bearing capacity, provisions to minimize the effects of expansive soils and the effects of adjacent loads.

   e) Expected total differential settlement.

INFORMATIONAL BULLETIN

4. On all construction where total floor area exceeds 500 square feet, the owner, engineer or architect of record acting as the owner's representative, shall employ a special inspector who is certified by the City of Irvine as a special inspector to be present at all times during placement of concrete regardless of concrete strength. This inspector shall assure that all required reinforcing steel is in place, required type of concrete is used, and that full placement occurs. The special inspector shall provide a daily report and final conformance report to the City Building and Safety Division upon completion of the project. The special inspector shall report the following:

   a) Type of concrete.

   b) All conditions stipulated by the soils report were complied with.

   c) Statement that all steel was placed per code and approved plans.

   d) Statement that all concrete mixes and compressive strengths required have been provided.

   This procedure will assure proper and full concrete placement without proprietary prejudice. This need in our local area is demonstrated by experience shown for quality control, and assurances that concrete is being properly placed in all building foundations and floor slabs.

INFORMATIONAL BULLETIN

Bulletin No.: 151
Page 1 of 1
Effective: 09/01/85
Approved:

ASPHALT CONCRETE INSPECTION

Effective September 1, 1985, all asphalt concrete paving shall comply with City Standards, and the following:

1. Routine inspection by City inspectors shall be made, as in the past.

2. During paving operations, a deputy special inspector who is certified by the City of Irvine shall be employed and paid by the contractor or developer to inspect paving lay down and assure quality control, and compliance with plans and specifications. This inspector shall provide a certificate of conformance on a form provided by the City Inspection Division.

All qualified individuals are encouraged to apply for certification to the City Inspection Division.

A plant inspection program is being developed wherein all asphalt concrete being delivered to the City of Irvine will be inspected and certified by the City. Specifications, approved by the City Standards Committee, are being developed and will be provided in the next bulletin supplement issuance.

EXCERPT FROM CITY OF IRVINE GRADING & RIGHT-OF-WAY MANUAL

A. Paving Inspections

1. Subgrade inspections:

   After subgrade has been established, tested and approved by the geotechnical engineer or his qualified representative. The geotechnical engineer shall provide a field memo of compaction test results. The civil engineer shall provide a field memo that line and grade is set in accordance with approved plans.

2. Untreated base inspections:

   After untreated base course has been placed, tested and approved by the geotechnical engineer or his qualified representative, but prior to asphalt placement. The geotechnical engineer shall provide a field memo of compaction test results. The civil engineer shall provide a field memo that line and grade is set in accordance with the approved plans. Material invoices may be required.

3. Asphalt inspections:

   (a) During asphalt lay down to verify continuos inspection by the geotechnical engineer or his qualified representative or a Special Inspector when authorized. Material invoices may be required.

   (b) Prior to application of seal coat, the paved surface shall be water tested to reveal any irregularities and shall be patched where required. Material invoices may be required after placement of seal coat.