



SPECIAL INSPECTION PROGRAM GUIDE

CASCADE INSPECTION SERVICES

Revised October 17, 2017

Based on the Michigan Building Code 2015



TABLE OF CONTENTS

	<u>Page No.</u>
INTRODUCTION	1
GENERAL GUIDELINES FOR THE SPECIAL INSPECTION PROGRAM	2
1. Purpose of Special Inspections.	
2. Special Inspections & Testing Agreement.	
3. Statement of Special Inspections.	
4. Minimum Qualifications for Special Inspectors	
5. Special Inspections and Testing Log	
6. Pre-construction Meeting.	
AN OVERVIEW OF SPECIAL INSPECTIONS AND TESTING	3 – 6
• Outline of Special Inspections and Testing requirements with Code Sections.	
Additional Special Inspections and Testing Program Documents (Available online at www.cascadetwp.com)	
1. SPECIAL INSPECTION AND TESTING AGREEMENT (only for large projects)	
• Statement outlining each party’s responsibilities in the Special Inspections and Testing process.	
• Required to be submitted with the Building Permit Application.	
2. STATEMENT OF SPECIAL INSPECTIONS	
• Form used to identify Special Inspections required for a project.	
• Provides a list of designated Special Inspectors, Testers and/or Agencies.	
• Required to be submitted with the Building Permit Application.	
3. MINIMUM QUALIFICATIONS FOR SPECIAL INSPECTORS	
• Provides details of required qualifications for Special Inspectors.	
4. SPECIAL INSPECTION LOG	
• A form to be used in the field for Special Inspectors to log in and identify their inspections.	

INTRODUCTION

The Special Inspection and Testing requirements of the Michigan Building Code 2015 (MBC 2015) are detailed and can be a challenge to work with. The Cascade Inspection Services has developed this Guide to help all parties involved, including Owners, Architects, Engineers, Special Inspection and Testing Agencies, Special Inspectors, Testers and Cascade Inspection Services, understand the requirements and provide an efficient process that will allow Building Code requirements outlined in Sections 1704 and 1705 to be satisfied without causing delays in the construction process. The Program is based on a Model Program for Special Inspections developed by the International Code Council (ICC).

The Special Inspection Program outlines a partnership between all the parties involved in the construction process. This Guide explains each party's responsibilities in the process and encourages communication and cooperation to ensure that construction is completed in a safe and timely manner.

This Guide provides important information that will help you understand and comply with the Michigan Building Code, International Building Code and Cascade Inspection Services Special Inspection Program. It contains details of the Special Inspections and Testing requirements and other information that can save you valuable time in obtaining your Building Permit and constructing your building. Submitting all the necessary information noted in the Special Inspection Program Guide will help expedite the plan review and inspection process and help you complete your project on schedule. We urge you to use this Guide as a resource throughout the building design and construction process.

We hope this Guide is helpful and encourage you to provide us with any suggestions you may have as we continue to work to improve our Special Inspection Program.

Thank you.

Cascade Inspection Services

GENERAL GUIDELINES FOR THE SPECIAL INSPECTION AND TESTING PROGRAM

1. Purpose of Special Inspections and Testing:

Special Inspections and Testing monitor materials and workmanship that are critical to the structural integrity of the building structure. Special Inspections and Testing are a review of the construction to assure that the approved plans, shop drawings, and specifications are being followed and that relevant Codes and Referenced Standards are being observed by all parties involved. Good communication between all parties, including the Owner, the Registered Design Professional, the Special Inspection Agencies, the Special Inspectors, the Contractor, and the Cascade Inspection Services, is essential to the safety and quality assurance of a building project.

2. Special Inspection and Testing Agreement:

This document outlines in detail each party's responsibilities when using the Special Inspections and Testing Program. This document requires that the Owner, the Registered Design Professional, the Special Inspection Agencies, the Special Inspectors, and the Contractor read the Special Inspections and Testing Agreement and acknowledge their responsibilities by completing each of their designated sections at the end of the form. This agreement will only be used for large or complicated projects.

3. Statement of Special Inspections:

This form is used by the Registered Design Professional in responsible charge to identify what Special Inspections and Testing are required for a project. Cascade Inspection Services requires that the Registered Design Professional complete all related entries on the Statement of Special Inspections form and provide documentation indicating the qualifications of each Special Inspection Agency, Special Inspector, Tester, Testing Lab, Laboratory Technician, and Fabrication Shop.

4. Minimum Qualification for Special Inspectors:

Please refer to our document titled "Minimum Qualifications for Special Inspectors." This document outlines the education, experience, and certifications each Special Inspector and Tester is required to have in order to perform inspections and testing within the different categories.

5. Special Inspection Log:

Our office will issue the log for each project and require that it be posted on site. This log is to be used by each Special Inspector or Testers for each Special Inspection or Testing performed, and will be used by the Building Inspector to monitor the progress and status of Special Inspections.

6. Pre-Construction Meeting:

Cascade Inspection Services encourages the Contractor, Owner, and Registered Design Professional to attend a Pre-Construction meeting before starting construction. This is an opportunity for all parties involved in the construction process to coordinate their efforts and develop lines of communication that will help in facilitating a smooth and efficient construction process. This meeting can be scheduled at the time of the Building Permit issuance. The Building Department recommends that a representative from the Special Inspection Agency involved in the construction project attend the Pre-Construction Meeting to discuss the Special Inspection and Testing process.

AN OVERVIEW OF SPECIAL INSPECTIONS AND TESTING

Special Inspections and Testing are the monitoring of materials, installation, fabrication, erection or placement of components and connections that require special expertise that are critical to the structural integrity of the building structure. Special Inspections and Testing are required to ensure compliance with the approved construction documents and standards referenced in the applicable Codes. Special Inspectors or Special Inspection and Testing Agencies shall be approved by the Building Official to conduct certain types of inspections and testing. Although Section 1704.2 requires the Owner or the Registered Design Professional acting as the owner's agent to provide qualified Inspectors, the approval of Special Inspectors, Testers, and Special Inspection Agencies is the responsibility of the Building Official.

A Special Inspector is a person who has been approved by the Building Department to perform certain types of Special Inspections and Testing. A qualified Special Inspector generally has training in a specific area that is more specialized than that of Building Department Inspectors. A Building Inspector is required to have a general knowledge of a great number of Code requirements, whereas Special Inspectors focus mainly on specific areas of structural inspection, material testing, and fabrication. The inspections performed by the Special Inspector or Testers often require them to be on the job site for extended periods of time, something the Building Inspector would have difficulty doing with the multitude and variety of inspections they perform each day.

Special Inspection Program: Cascade Inspection Services Special Inspection Program consists of the following five documents/forms:

1. Special Inspection Program Guide
2. Special Inspection & Testing Agreement
3. Special Inspections Log
4. Statement of Special Inspections
5. Minimum Qualifications for Special Inspectors. This covers Special Inspectors, Testers, Laboratory Technicians, Special Inspection Agencies, Testing Labs, and Fabrication Shops.

Requirements for Special Inspections and Testing:

Section 1704 of the Michigan Building Code 2015 (MBC 2015) lists a number of conditions where the employment of Special Inspectors is mandatory. Section 1704.2 of the Code states:

"The owner or the owner's authorized agent, other than the contractor, shall employ one or more approved agencies to provide inspections and tests during construction on the types of work listed under Section 1705 and identify the approved agencies to the Building Official."

"The approved agencies shall provide written documentation to the Building Official demonstrating the competence and relevant experience or training of the Special Inspectors who will perform the special inspections and tests during construction. Experience or training shall be considered relevant where the documented experience or training is related in complexity to the same type of special inspection or testing activities for projects of similar complexity and material qualities. These qualifications are in addition to qualifications specified in other sections of this code.

The registered design professional in responsible charge and engineers of record involved in the design of the project are permitted to act as the approved agency and their personnel are permitted to act as the special inspector for the work designed by them, provided they qualify as special inspectors."

SPECIAL INSPECTIONS AND TESTING CATEGORIES

1. **Special Cases (Section 1705.1.1)** – Special Inspections and Testing shall be required per Section 1705.1.1 for work that is, in the opinion of the Building Official, unusual in its nature, such as, but not limited to the following examples:
 1. Construction materials and systems that are alternatives to materials and systems prescribed in the MBC 2015.
 2. Unusual design applications of materials described in the MBC 2015.
 3. Materials and systems required to be installed in accordance with additional manufacturer’s instructions that prescribe requirements not contained or referenced in the MBC 2015.
2. **Steel Construction (Section 1705.2)** – Special Inspections and Non-destructive Testing of steel construction in buildings, structures, and other portions thereof shall be in accordance with Section 1705.2.
 - 2.1 **Structural Steel (Section 1705.2.1)** – Special Inspections and Non-destructive Testing of structural steel elements in buildings, structures, and portions thereof shall be in accordance with the quality assurance inspection requirements of AISC 360-10.
 - 2.2 **Cold-Formed Steel Decking (Section 1705.2.2)** – Special Inspections and qualification of welding special inspections for cold-formed steel floor and roof decking shall be in accordance with the quality assurance inspection requirements of SDI QA/QC.
 - 2.3 **Open-Web Steel Joists and Joist Girders (Section 1705.2.3)** – Special Inspections for open-web steel joists and joist girders in buildings, structures and portions thereof shall be in accordance with Table 1705.2.3.
 - 2.4 **Cold-Formed Steel Trusses Spanning 60 Feet or Greater (Section 1705.2.4)** – Where a cold-formed steel truss clear span is 60 feet or greater, the Special Inspector shall verify that the temporary installation of restraint/bracing and the permanent individual truss member restraint/bracing are installed in accordance with the approved truss submittal package.
3. **Concrete Construction (Section 1705.3)** – Special Inspections and Testing of concrete construction shall be performed in accordance with Section 1705.3 and Table 1705.3 (see Table 1705.3 for detailed information regarding inspections, testing and reference standards).
 - 3.1 **Welding of Reinforced Bars (Section 1705.3.1)** – Special Inspections of welding and qualifications of Special Inspectors for reinforcing bars shall be in accordance with the requirements of AWS D1.4 for Special Inspections and AWS D1.4 for qualifications of Special Inspectors.
 - 3.2 **Material Tests (Section 1705.3.2)** - In the absence of sufficient data or documentation providing evidence of conformance to quality standards for material in Chapters 19 and 20 of ACI 318-14, the Building Official shall require testing of materials in accordance with appropriate standards and criteria for the material in Chapters 19 and 20 of ACI 318-14.
4. **Masonry Construction (Section 1705.4)** – Special Inspections and Testing of masonry construction shall be performed in accordance with the quality assurance program requirements of TMS 402-13/ACI 530-13/ASCE 5-13 and TMS 602-13/ACI 530.1-13/ASCE 6-13.
5. **Wood Construction (Section 1705.5)** – Special Inspections of prefabricated wood structural elements and assemblies shall be in accordance with Section 1704.2.5. Special Inspections of site-built assemblies shall be in accordance with Section 1705.5.

- 6. Soils (Section 1705.6)** – Special Inspections and Testing of existing site soils conditions, fill placement and load-bearing requirements shall be performed in accordance with Section 1705.6 and Table 1705.6. The approved geotechnical report (Section 1803.6), and the construction documents prepared by the registered design professional shall be used to determine compliance. During fill placement, the Special Inspector or Tester shall determine that proper materials and procedures are used in accordance with the approved geotechnical report.
- 7. Driven Deep Foundations (Section 1705.7)** – Special Inspections and Testing shall be performed during installation of driven deep foundation elements as required in Table 1705.7. The approved geotechnical report (Section 1803.6), and the construction documents prepared by the registered design professional shall be used to determine compliance.
- 8. Cast-In-Place Deep Foundations (Section 1705.8)** - Special Inspections and Testing shall be performed during installation and testing of cast-in-place deep foundation elements as specified in Table 1705.8. The approved geotechnical report (Section 1803.6), and the construction documents prepared by the registered design professional shall be used to determine compliance.
- 9. Helical Pile Foundations (Section 1705.9)** – Special Inspections and Testing shall be performed continuously during installation of helical pile foundation as required by Section 1705.9. The approved geotechnical report (Section 1803.6) and the construction documents prepared by the registered design professional shall be used to determine compliance.
- 10. Fabricated Items (Section 1705.10)** – Special Inspections of fabricated items shall be performed in accordance with Sections 1704.2.5
- 11. Special Inspections for Wind Resistance (Section 1705.11)** –Not required in Michigan unless required by the Design Professional.
- 12. Special Inspections for Seismic Resistance (Section 1705.12)** – Special Inspections for seismic resistance shall be required as specified in Sections 1705.12.1 through 1705.12.9, unless exempted by the exceptions of Section 1704.2. The Special Inspections specified by Sections 1705.12.1 through 1705.12.9 are not required for structures that meet one of the exceptions listed in Section 1705.12.

Please note: The requirements for Special Inspections for seismic resistance per the listed below sub-categories depend on the assigned Seismic Design Category as determined by Section 1613.3.5 for seismic force-resistance systems of building and structures, building components, and/or systems.

 - 12.1 Structural Steel (Section 1705.12.1)** – Special Inspections for seismic resistance shall be in accordance with Section 1705.12.1.1 or 1705.12.1.2, as applicable.
 - 12.1.1 Seismic Force-Resisting Systems (Section 1705.12.1.1)**, or
 - 12.1.2 Structural Steel Elements (Section 1705.12.1.2)**.
 - 12.2 Structural Wood (Section 1705.12.2)**.
 - 12.3 Cold-Formed Steel Light Frame Construction (Section 1705.12.3)**.
 - 12.4 Designated Seismic Systems (Section 1705.12.4)**.
 - 12.5 Architectural Components (Section 1705.12.5)** Not required in Michigan unless required by the Design Professional.
 - 12.6 Plumbing, Mechanical and Electrical Components (Section 1705.12.6)**.
 - 12.7 Storage Racks (Section 1705.12.7)** Not required in Michigan unless required by the Design Professional.

12.8 Seismic Isolation Systems (Section 1705.12.8).

12.9 Cold-Formed Steel Special Bolted Moment Frames (Section 1705.12.9) Not required in Michigan unless required by the Design Professional.

13. Testing for Seismic Resistance (Section 1705.13) – Testing for seismic resistance shall be required as specified in Sections 1705.13.1 through 1705.13.4, unless exempted from special inspections by the exception of Section 1704.2.

Please note: The requirements for Testing for Seismic Resistance in the sub-categories below depend on the assigned Seismic Design Category as determined by Section 1613.3.5 for seismic force-resistance systems of building and structures, &/or systems.

13.1 Structural Steel (Section 1705.13.1) – Non-destructive testing for seismic resistance shall be in accordance with Sections 1705.13.1.1 or 1705.13.1.2 as applicable.

13.1.1 Seismic Force-Resisting Systems (Section 1705.13.1.1), or

13.1.2 Structural Steel Elements (Section 1705.13.1.2).

13.2 Nonstructural Components (Section 1705.13.2).

13.3 Designates Seismic Systems (Section 1705.13.3).

13.4 Seismic Isolation Systems (Section 1705.13.4).

14. Sprayed Fire-Resistant Material (Section 1705.14) – Special Inspections and Testing for sprayed fire-resistant materials applied to floor, roof and wall assemblies and structural elements shall be in accordance with Sections 1705.14.1 through 1705.14.6. Special Inspections shall be based on the fire-resistance design as designated in the approved construction documents. Special Inspections shall be performed after the rough installation of electrical, mechanical, plumbing and automatic sprinkler systems.

15. Mastic and Intumescent Fire-Resistant Coatings (Section 1705.15) – Special Inspections and Testing for mastic and intumescent fire-resistant coating applied to structural elements and decks shall be in accordance with AWCI 12-B as indicated in Section 1705.15. Special Inspections and Testing shall be based on the fire-resistance design as designated in the approved construction documents.

16. Exterior Insulation and Finish Systems (Section 1705.16) – Special Inspections shall be required for all EIFS applications in accordance with Section 1705.16. Section 1705.16 provides exceptions to Special Inspections when EIFS is applied over water-resistive barriers with a means for draining excess water, and when EIFS is installed on masonry or concrete walls. The ICC Evaluation Report for the selected EIFS system may require Special Inspections.

17. Fire Resistant Penetrations and Joints (Section 1705.17) – Special Inspections shall be required in high-rise buildings or in buildings assigned Risk Category III or IV per Section 1604.5. Special Inspections for through-penetrations, membrane penetration fire-stops, fire resistant joint systems, and perimeter fire barrier systems are outlined in Section 1705.17.

18. Testing for Smoke Control (Section 1705.18) – Specific areas requiring Special Inspections are listed in Section 1705.18.