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CHARTER TOWNSHIP OF PORT HURON BUILDING DEPARTMENT

SPECIAL INSPECTION PROGRAM GUIDE

Based on the Michigan Building Code - 2009



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• Outline of Special Inspection requirements with Code sections.	
ATTACHMENTS (Special Inspection Program Documents to be submitted with the Building Permit Application):	
• SPECIAL INSPECTION AND TESTING AGREEMENT (5 pages)	
○ Statement outlining each party’s responsibilities in the Special Inspection process.	
○ Required to be submitted with the Building Permit Application.	
• STATEMENT OF SPECIAL INSPECTIONS (24 pages)	
○ Form used to identify Special Inspections required for a project.	
○ Provides details of required qualifications for Special Inspectors.	
○ Provides a list of designated Special Inspectors and/or Agencies.	
○ Required to be submitted with the Building Permit Application.	

INTRODUCTION

The Special Inspection requirements of the Michigan Building Code – 2009 (MBC-09) are detailed and can be a challenge to work with. The Charter Township of Port Huron has developed this Guide to help all parties involved understand the requirements and provide an efficient process that will allow Building Code requirements to be satisfied without causing delays in the construction process.

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.

The Program is based on a Model Program for Special Inspections developed by the International Code Council (ICC). It has been prepared to help project Owners, Architects, Engineers, Special Inspection Agencies, Special Inspectors, and the Township's Building Department with the effective processing and completion of Special Inspections and Testing required by Sections 1704 and 1705 of the Michigan Building Code - 2009.

This Guide provides important information that will help you understand and comply with the Michigan Building Code and the Township's Special Inspection Program. It contains details of the Special Inspection requirements and other information that can save you valuable time in obtaining your Building Permit and constructing your building. Submitting all the necessary forms, information and documents required in the Special Inspection Program Guide will expedite the plan review process and help in completing 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.

The Charter Township of Port Huron Building Department

GENERAL GUIDELINES FOR THE SPECIAL INSPECTION PROGRAM

1. **Purpose of Special Inspections:**

Special Inspections monitor materials and workmanship that are critical to the structural integrity of the building structure. Special Inspections are a review of the construction to assure that the approved plans and specifications are being followed and that relevant Codes and referenced standards are being observed.

Good communication between the parties, including the Owner, the Registered Design Professional in responsible charge, Special Inspection Agencies, Special Inspectors, the Contractor, and the Township Building Department is essential to the quality assurance of a building project.

2. **The Charter Township of Port Huron Special Inspection and Testing Agreement:**

This document outlines in detail each party's responsibilities when using the Special Inspection Program.

The Township requires that the Owner, the Registered Design Professional in responsible charge, Special Inspection Agencies, Special Inspectors, and the Contractor read the Special Inspection and Testing Agreement and acknowledge their responsibilities by completing each of their designated sections at the end of the form (a copy of the Agreement is included at the end of this Guide).

3. **Statement of Special Inspections:**

This form is used by the Registered Design Professional in responsible charge to identify what Special Inspections are required for a project. It also contains details of the required qualifications for Special Inspectors.

The Township requires that the Registered Design Professional in responsible charge complete all related entries on the Statement of Special Inspections form and provide documentation indicating the qualifications of each Special Inspection Agency, Special Inspector, Testing Lab, Laboratory Technician, and Fabrication Shop (a copy of the Statement of Special Inspections is included at the end of this Guide).

4. **Pre-construction Meeting:**

The Township Building Department encourages the Contractor, Owner, and Registered Design Professional to attend a Pre-Construction meeting. 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 the Special Inspection Agency involved in the construction project attend the Pre-Construction Meeting to discuss the Special Inspection process.

AN OVERVIEW OF SPECIAL INSPECTIONS

Section 1704 of the Michigan Building Code - 2009 (MBC-2009) lists a number of conditions where the employment of Special Inspectors is mandatory. Section 1704.1 of the Code states:

“The owner or the registered design professional in responsible charge acting as the owner’s agent shall employ one or more approved agencies to perform inspections during construction on the types of work listed under Section 1704. These inspections are in addition to the inspections identified in Section 110. The Special Inspector shall be a qualified person who shall demonstrate competence, to the satisfaction of the Building Official, for inspections of the particular types of construction or operation requiring special inspection.”

Special Inspection is 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. A Special Inspection is required to ensure compliance with the approved construction documents and standards referenced in the applicable Codes. Special Inspectors or Special Inspection Agencies must be approved by the Building Official to conduct certain type of inspections and testing. Although Section 1704.1 of MBC-2009 requires the Owner or the Registered Design Professional acting as the owner’s agent to provide qualified Inspectors, the approval of Special Inspectors 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 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 requirements in the MBC-2009 are comprehensive and consist of 15 major Categories as follows:

- A. Inspection of Fabricators** – Where fabrication of structural load-bearing members and assemblies is being performed on the premises of a fabricator. Note the exception for approved fabricators (see Section 1704.2)
- B. Steel Construction** – Steel elements of building and structures requiring Special Inspection are found in Section 1704.3 (see Table 1704.3 for detailed information regarding inspections, testing and reference standards). Specific areas listed in Table 1704.3 for steel construction are as follow:
 - 1. Material verification of high-strength bolts, nuts and washers.
 - 2. Inspection of high-strength bolting.
 - 3. Material verification of structural steel and cold-formed steel decking.
 - 4. Material verification of weld filler materials.

5. Inspection of welding for structural steel and cold-formed steel decking, and reinforcing steel.
6. Inspection of steel frame joint details for compliance with approved construction documents.

C. Concrete Construction – The Special Inspection and verification for concrete constructions are found in Section 1704.4 (see Table 1704.4 for detailed information regarding inspections, testing and reference standards). Specific areas listed in Section 1704.4 for concrete construction are as follows:

1. Inspection of reinforcing steel, including pre-stressing tendons, and placement.
2. Inspection of reinforcing steel welding.
3. Inspection of bolts to be installed in concrete prior to and during placement of concrete.
4. Inspection of anchors installed in hardened concrete.
5. Verifying the use of the required design mix.
6. Sampling fresh concrete and performing slump, air content and fresh concrete temperature at the time of making specimens for strength tests.
7. Inspection of concrete and shotcrete placement for proper application techniques.
8. Inspection of the maintenance of specified curing temperature and techniques.
9. Inspection for pre-stressed concrete, including application of pre-stressing forces and grouting of bonded pre-stressing tendons
10. Erection of precast concrete members.
11. Verification of in-situ concrete strength prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms for beams and structural slabs.
12. Inspection of formwork for shape, location and dimensions of concrete members.

D. Masonry Construction – The Special Inspection and verification for masonry construction are found in Section 1705 and 1704.11. Tables 1705.1 and 1705.3 show detailed information regarding Level 1 and Level 2 Special Inspections for masonry construction and when continuous or periodic inspections are required. Specific areas to be inspected in masonry construction (see Section 1704.5) are as follows:

1. Verification of site-prepared mortar, construction of mortar joints and locations of reinforcement and connectors.
2. Verification of size and location of structural elements; type, size, and location of anchors, including details of anchorage of masonry to structural members, frames, or other construction.
3. Verification of specified size, grade, and type of reinforcement.
4. Verification of welding of reinforcing bars.
5. Verification of protection of masonry during cold or hot weather.
6. Verifying prior to grouting that grout space is clean and the proportions of site-prepared grout is correct.
7. Verifying grout placement is in compliance with code and construction document provisions.
8. Inspecting the preparation of any grout specimens, mortar specimens, and/or prisms.
9. Verifying the compliance with required inspection provisions of the construction documents and the approved submittals.

E. Wood Construction – Special Inspection of the fabrication process of prefabricated wood structural elements and assemblies shall be in accordance with Section 1704.2. Special inspections of site-built assemblies shall be in accordance with Section 1704.6. Specific areas inspected in wood construction (see Section 1704.6) are as follows:

1. Verification of high-load diaphragms designed in accordance with Table 2306.2.1(2) and in accordance with applicable provisions of Section 1704.6.1.
2. Verification of metal-plate-connected wood trusses spanning 60 feet or greater in accordance to applicable provisions of Section 1704.6.2.

F. Soils – Special Inspection for existing site soils conditions, fill placement and load-bearing requirements shall be as required by Section 1704.7 and Table 1704.7. The approved geotechnical report (Section 1803.1), and the construction documents prepared by the registered design professional shall be used to determine compliance. During fill placement, the Special Inspector shall determine that proper materials and procedures are used in accordance with the approved geotechnical report. Specific areas listed in Table 1704.4 for soils are as follows:

1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity
2. Verify excavations are extended to the proper depth and have reached proper material.
3. Perform classification and testing of compacted fill materials.
4. Verify use of proper materials, densities and lift thicknesses during placement and compacted fill.
5. Prior to placement of compacted fill, observe subgrade and verify that the site has been prepared properly.

G. Driven Deep Foundations – Special Inspections shall be performed during installation and testing of driven deep foundation elements as required by Section 1704.8 and Table 1704.8. The approved geotechnical report (Section 1803.1), and the construction documents prepared by the registered design professional shall be used to determine compliance. Specific areas listed in Table 1704.8 for driven deep foundation elements are as follows:

1. Verify element materials, size and lengths comply.
2. Determine capacities of test elements and conduct additional load tests, as required.
3. Observe driving operations and maintain complete and accurate records for each element.
4. Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document any damage to the foundation element.
5. For steel elements, perform additional inspections in accordance with Section 1704.3.
6. For concrete elements and concrete-filled elements, perform additional inspections in accordance with Section 1704.4.

7. For specialty elements, perform additional inspections as determined by the registered design professional in responsible charge.

H. Cast-In-Place Deep Foundations - Special Inspections shall be performed during installation and testing of cast-in-place deep foundation elements as required by Section 1704.9 and Table 1704.9. The approved geotechnical report (Section 1803.1), and the construction documents prepared by the registered design professional shall be used to determine compliance. Specific areas are listed in Table 1704.9 for cast-in-place deep foundation elements are as follows:

1. Observe drilling operations and maintain complete and accurate records of each element.
2. Verify placement locations and plumbness; confirm element diameter, bell diameters (if applicable), lengths, embedment into bedrock (if applicable) and adequate end-bearing strata capacity. Record concrete or grout volumes.
3. For concrete elements, perform additional inspections in accordance with Section 1704.4.

I. Helical Pile Foundations – Special Inspections shall be performed continuously during installation of helical pile foundation as required by Section 1704.10. The approved geotechnical report (Section 1803.1) and the construction documents prepared by the registered design professional shall be used to determine compliance. The Special Inspector shall accurately record the following information:

1. Installation equipment used.
2. Pile dimensions.
3. Tip elevations.
4. Final depth.
5. Final installation torque.
6. Other pertinent installation data as required by the registered design professional in responsible charge.

J. Vertical Masonry Foundation Elements – Special Inspections shall be performed for vertical masonry foundation elements (Section 1704.11) in accordance with Section 1704.5.

K. Sprayed Fire-Resistant Material (SFRM) – Special Inspections for sprayed fire-resistant material applied to floor, roof and wall assemblies and structural elements shall be in accordance with applicable provisions of Sections 1704.12.1 through 1704.12.6. Special Inspections shall be based on the fire-resistance design as designated in the approved construction documents. The tests set forth in Section 1704.12 shall be based on sampling from specific floor, roof and wall assemblies and structural members. Special Inspections shall be performed after the rough installation of electrical, mechanical, plumbing and automatic sprinkler systems and suspension systems (where applicable). Specific areas of inspection of SFRM are as follows:

1. Verification of structural member surface conditions.
2. Verifications of application of materials per manufacturer's instructions.

3. Verification of the thicknesses and density of applied materials.
4. Verification of the bond strength of applied materials.

L. Mastic and Intumescent Fire-Resistant Coatings – Special Inspections of mastic and intumescent fire-resistant coating applied to structural elements and decks shall be in accordance with AWCI 12-B as indicated in Section 1704.13. Special Inspections shall be based on the fire-resistance design as designated in the approved construction documents.

M. Exterior Insulation and Finish Systems (EIFS) – Special Inspections shall be required for all EIFS applications in accordance with applicable provisions of Section 1704.14. Section 1704.14 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.

N. Special Cases – Special Inspections shall be required per Section 1704.15 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-2009.
2. Unusual design applications of materials described in the MBC-2009.
3. Materials and systems to be installed in accordance with additional manufacturer's instructions that prescribe requirements not contained or referenced in the MBC-2009.

O. Smoke Control – Specific areas requiring Special Inspections are listed in Section 1704.16.1 of the MBC-2009. They include the following:

1. Inspection of ductwork for leaks and location of devices.
2. Pressure differential testing, flow measurements, detection and control verification.

P. Special Inspection for Seismic Resistance – Section 1707.1 of the MBC-2009 describes special requirements for seismic resistance required in construction systems. In Michigan, this applies only to structures that are assigned to Seismic Design Category C.

Q. Special Inspection for Wind Requirements - Section 1706.1 of the MBC-2009 describes Special Inspection requirements for the main force-resisting systems in construction. Please note, in Michigan, this does not apply since the 3-second-gust basic wind speed is 90 mph.