CITY OF NEWPORT BEACH
BUILDING AND FIRE BOARD OF APPEALS STAFF REPORT
September 21, 2011
Agenda Item No. 3

**SUBJECT: Case No. 2011-01**
**Ratification of Chief Building Official's Structural Observation Policy**

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## SUMMARY:

The 2010 California Building Code Section 1710-1710.3 requires structural observation to be performed by a registered design professional for structures meeting any of the five (5) specific conditions outlined in the code. Condition number 5 of Section 1710.2 delegate's authority to the City's Chief Building Official to designate when structural observation is required beyond what is listed in the code. The Chief Building Official proposes the attached policy to specify and clarify the implementation of condition number 5 by the Building Division.

## RECOMMENDATION:

1) Ratify the Chief Building Official's structural observation policy; and

2) Alternatively, discuss and take other action related to this item.

## DISCUSSION:

Background

The 2010 California Building Code Section 1710.2 establishes five (5) conditions that require structural observation. The conditions are:

1) The structure is classified as Occupancy Category III or IV in accordance with Table 1604.5.

2) The height of the structure is greater than 75 feet above the base.

3) The structure is assigned to Seismic Design Category E, is classified as Occupancy Category I or II in accordance with Table 1604.5, and is greater than two stories above grade plane.

4) When so designated by the registered design professional responsible for the structural design.

***5) When such observation is specifically required by the building official.***

Historically, the City's Building Division has not implemented a structural observation policy beyond what is required in the building code. The purpose of implementing a policy is to standardize and document the requirements associated with Section 1710.2 condition number five (5) (listed on the previous page) for both the design community and for the Building Division's plan review staff.

The purpose of structural observation is to ensure that a registered or licensed design professional with expertise in the field of structural design observes and verifies the construction of a project is completed according to the approved plan. The observation is similar to an inspection conducted by the City's building inspector but instead it is done by a design professional with background in the structural systems used. The structural observation is above and beyond the inspections of a building inspector, and does not waive or supersede the building inspector's role of inspecting the project. Some structural design elements are of such complex nature that structural observation in conjunction with building inspection will properly ensure the construction is in accordance to the design.

It is important to understand that structural observation is an added protection for the property owner and to ensure that construction of the structural systems are preceding in general conformance with the approved plan.

Proposed Policy

The proposed policy specifies the requirements for Section 1710.2 condition number 5 of the 2010 California Building Code. The policy requires the development of all structures to require structural observation, but with specific exceptions for smaller projects. The following types of projects are exempt from the proposed policy:

1) Wood framed structures complying with all of the following conditions:

    a. Two story or less;
    b. The gross area of work is less than 3,500 square feet;
    c. All lateral forces are resisted by code compliant wood shear walls; and,
    d. A conventional foundation system is used.

2) Non-structural alterations regardless of floor area or use.

3) The Chief Building Official may make additional exceptions to the policy for conditions not stated above.

If structural observation is required, then the policy requires the design professional to identify the stages of construction and elements to observe on the design plans. Upon completion of the structural observation the observer shall complete and submit a report to the Chief Building Official identifying any deficiencies and/or whether they have been corrected. At the end of the project, a final structural observation report is required stating the structural systems conform to the approved construction documents and that all deficiencies have by corrected.

Exceptions to the Policy

The first exception, allows wood framed structures that meet all of the conditions stated above. The purpose of this exception is to allow smaller wood framed structures, typically a residential house or room addition to be constructed without the need for structural observation. A typical project that would fit into this exception would not have a complex foundation system of caissons and piles and use a more tradition conventional system. Single family homes that incorporate a basement will also not qualify for this exception due to the complexity of designing and constructing the basement.

The second exception, allows non-structural alterations regardless of floor area to be built without structural observation. The purpose of this exception is to allow residential alterations, and commercial tenant improvements to occur without the need for structural observation. Some commercial projects are non-structural in nature and only require the addition of non-bearing walls and finish work.

The third exception allows the City's Chief Building Official to use discretion on determining when a project may not be subject to structural observation. Not every unique case can be listed in this policy. Therefore, allowing the Chief Building Official the latitude to use professional judgment to make exceptions to particular cases not listed in this policy would be beneficial to the community.

**PUBLIC NOTICE:**

The Building and Fire Board of Appeals Agenda was posted on Thursday, September 15, 2011, outside of City Hall.

Submitted by:

Seimone Jurjis, PE, CBO
Chief Building Official

**ATTACHMENTS:**

BOA 1 Structural Observation Policy
BOA 2 Structural Observation Report
BOA 3 Definition of Structural Observation
BOA 4 2010 California Building Code Section 1710

# Attachment No. BOA 1

**Structural Observation Policy**

# CITY OF NEWPORT BEACH

## COMMUNITY DEVELOPMENT DEPARTMENT
## BUILDING DIVISION

## BUILDING CODE POLICY

| Effective Date | Subject | Policy No. |
|---|---|---|
| September 21, 2011 | Structural Observation | 2010 CBC 1710 |

Per California Building Code Section 1710.2 condition number 5, the Chief Building Official requires Structural Observation for all new construction, addition, alteration or reconstruction of structures.

**EXCEPTIONS:**

1. Wood framed structures complying with all of the following conditions:
   a. Two story or less;
   b. The gross area of work is less than 3,500 square feet;
   c. All lateral forces are resisted by code compliant wood shearwalls; and,
   d. A conventional foundation system is used.
2. Non-structural alterations regardless of floor area or use.
3. As designated by the Chief Building Official.

**DOCUMENTATION OF STRUCTURAL OBSERVATION**

Prior to the issuance of a building permit, the licensed design professional responsible for the structural design shall identify the construction stages and elements to be observed. The information shall be made a part of the approved construction plans and documents. In addition, for repetitive work involving similar or identical construction (i.e., floor construction at multi-story buildings), the licensed design professional responsible for the structural design may specify the location and/or frequency of structural observation required on the construction documents.

**PERFORMANCE OF STRUCTURAL OBSERVATION**

The structural observer shall perform structural observation at each construction stage identified on the approved construction documents. Upon completion of structural observations for each construction stage, the structural observer shall complete and submit a structural observation report to the Chief Building Official.

When a deficiency is noted in the structural observation report, the structural observer shall give the report to the building owner or owner's representative, project contractor, and the Chief Building Official. The structural observer shall note on the report how correction of each observed deficiency will be verified.

Upon completion of the structural system the structural observer shall submit a final structural observation report to the Chief Building Official. The final report must state that the structural system generally conforms to the approved construction documents and that all observed deficiencies have been corrected. Final approval of the structural work by the Chief Building Official will not occur without the final structural observation report.

Authored by: _____
Suzanne Kusik, Sr. Plan Check Engineer

Approved by: _____
Seimone Jurjis, Chief Building Official

# Attachment No. BOA 2

Structural Observation Report and Schedule

# CITY OF NEWPORT BEACH


**COMMUNITY DEVELOPMENT DEPARTMENT**
**BUILDING DIVISION**
3300 Newport Boulevard | P.O. Box 1768 | Newport Beach, CA 92658
www.newportbeachca.gov | (949) 644-3200


# Structural Observation Report

| Project Address: | Report date: | CNB Inspector Name: | CNB Permit #: |
|---|---|---|---|
| Building Owner Name: | Owner's Mailing address (if different from site); | Owner's Telephone #: | CNB Plan Check #: |
| Full Name of Structural Observer (SO): | SO email Address: | SO Telephone #: | SO License / Reg. #: |

**PLEASE INDICATE STRUCTURAL ELEMENTS AND CONNECTIONS OBSERVED (check applicable boxes)**

| FOUNDATIONS | SHEAR WALLS | FRAMES | DIAPHRAGMS (Floor/Roof) | INDICATE LOCATION(S) OBSERVED | DATE OBSERVED |
|---|---|---|---|---|---|
| ☐ Conventional Footings & Slab | ☐ Concrete | ☐ Steel | ☐ Concrete | | |
| ☐ Mat Foundation, Prestressed Concrete | ☐ Masonry | ☐ Concrete | ☐ Steel Deck | | |
| ☐ Caissons, Piles, Grade Beams | ☐ Wood or Manuf. Shear Panels | ☐ Masonry | ☐ Wood | | |
| ☐ Other: | ☐ Other: | ☐ Other: | ☐ Other: | | |

☐ **ITEMS CHECKED ABOVE ARE APPROVED AND WITHOUT DEFICIENCIES.**

☐ **OBSERVED DEFICIENCIES AND COMMENTS:**

☐ REPORT CONTINUED ON ATTACHED PAGES.

☐ **FINAL STRUCTURAL OBSERVATION REPORT:**
**The structure generally complies with the approved construction documents, and all observed deficiencies were corrected.**

I declare that the following statements are true to the best of my knowledge:

1. I am the licensed design professional retained by the owner to be in responsible charge of the structural observation;
2. I, or another licensed design professional whom I have designated above and is under my responsible charge, have performed the required site visits at each significant construction stage to verify that the structure is in general conformance with the approved construction documents;
3. I understand that all deficiencies which I have documented must be corrected, prior to final acceptance of the structural systems by the City of Newport Beach, Building Division.

STAMP OF STRUCTURAL OBSERVER

SIGNATURE OF STRUCTURAL OBSERVER OF RECORD _____ DATE _____

**STRUCTURAL OBSERVATION DOES NOT WAIVE ANY REQUIREMENTS FOR BUILDING INSPECTION BY AUTHORIZED EMPLOYEES OF THE CITY OF NEWPORT BEACH.**

# STRUCTURAL OBSERVATION REPORT INSTRUCTIONS

When structural observation is required for a project, the structural observer shall perform site visits at significant construction stages throughout the progress of the work. Site visit frequency shall allow for correction of observed deficiencies without substantial effort or uncovering of the completed work. Structural observation site visits shall be performed for each construction stage identified on the approved construction documents.

The structural observer shall utilize the City of Newport Beach "Structural Observation Report" form, to record the required observation visits. All structural observation reports shall include the license stamp and wet signature of the structural observer responsible for the project.

## OBSERVED DEFICIENCIES

When a deficiency is noted, the structural observer shall give copies of the completed structural observation report to the owner or owner's representative, project contractor, and the Chief Building Official.

The contractor shall resolve all deficiencies prior to final inspection or acceptance of the structural work by the Chief Building Official.

## FINAL STRUCTURAL OBSERVATION REPORT

The structural observer shall submit a final structural observation report to the Chief Building Official, or designee, upon completion of the structural systems. The final structural observation report shall state that the structural systems conform to the approved construction documents and that all previously observed deficiencies have been corrected. Final inspection or other acceptance of the structural system by the Chief Building Official, may not occur until the final structural observation report is received.

# CITY OF NEWPORT BEACH
## COMMUNITY DEVELOPMENT DEPARTMENT | BUILDING DIVISION

## STRUCTURAL OBSERVATION GENERAL NOTES

1. STRUCTURAL OBSERVATION IS REQUIRED FOR THIS PROJECT IN ACCORDANCE WITH CBC 1710. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE STRUCTURAL SYSTEM BY A LICENSED DESIGN PROFESSIONAL FOR GENERAL CONFORMANCE TO THE APPROVED CONSTRUCTION DOCUMENTS.
2. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR THE REQUIRED INSPECTIONS BY THE CITY OF NEWPORT BEACH.
3. THE OWNER SHALL EMPLOY A LICENSED DESIGN PROFESSIONAL TO PERFORM STRUCTURAL OBSERVATION SITE VISITS, AND TO ISSUE ALL STRUCTURAL OBSERVATION REPORTS.
4. THE DESIGN ENGINEER SHALL IDENTIFY THE REQUIRED STRUCTURAL OBSERVATION SITE VISITS ON THE STRUCTURAL OBSERVATION SCHEDULE.
5. THE REQUIRED SITE VISITS SHALL AT A MINIMUM INCLUDE THE FOLLOWING:
   A. OBSERVATION OF THE FOUNDATION SYSTEM PRIOR TO FINAL CONCRETE POUR;
   B. OBSERVATION OF THE BUILDING FRAMING PRIOR TO CALLING FOR THE CITY OF NEWPORT BEACH "COMPLETE FRAMING INSPECTION"; AND,
   C. FINAL OBSERVATION OF THE COMPLETED STRUCTURE.

   ADDITIONAL SITE VISITS MAY BE NEEDED AS DETERMINED BY THE DESIGN ENGINEER OR STRUCTURAL OBSERVER.
6. THE STRUCTURAL OBSERVER SHALL PREPARE A STRUCTURAL OBSERVATION REPORT FOR EACH STAGE OF CONSTRUCTION OBSERVED. THE CITY OF NEWPORT BEACH "STRUCTURAL OBSERVATION REPORT" FORM, OR A SIMILARLY FORMATTED REPORT, SHALL BE USED FOR ALL STRUCTURAL OBSERVATION REPORT.
7. IF THE CITY'S FORM IS NOT USED REPORTS SHALL BE ON THE STRUCTURAL OBSERVER'S LETTERHEAD, STATE THE SITE ADDRESS, PLAN CHECK AND PERMIT NUMBERS, STAGES AND ELEMENTS OBSERVED, DATE OBSERVED, AND COMPLETE CONTACT INFORMATION FOR THE STRUCTURAL OBSERVER.
8. ALL STRUCTURAL OBSERVATION REPORTS, REGARDLESS OF FORM USED, SHALL INCLUDE THE LICENSE STAMP AND SIGNATURE OF THE STRUCTURAL OBSERVER RESPONSIBLE FOR THE PROJECT.
9. EACH STRUCTURAL OBSERVATION REPORT SHALL BE GIVEN TO THE OWNER OR OWNER'S REPRESENTATIVE, PROJECT CONTRACTOR, AND THE BUILDING INSPECTOR.
10. THE CONTRACTOR SHALL RESOLVE ALL DEFICIENCIES AND THE FINAL STRUCTURAL OBSERVATION REPORT ISSUED PRIOR TO FINAL INSPECTION OR ACCEPTANCE OF THE STRUCTURAL WORK BY THE BUILDING INSPECTOR.
11. THE FINAL STRUCTURAL OBSERVATION REPORT SHALL STATE THAT THE STRUCTURAL SYSTEM CONFORMS TO THE APPROVED CONSTRUCTION DOCUMENTS AND THAT ALL PREVIOUSLY OBSERVED DEFICIENCIES HAVE BEEN CORRECTED.
12. FINAL INSPECTION OR OTHER ACCEPTANCE OF THE STRUCTURAL SYSTEM BY THE CHIEF BUILDING OFFICIAL, OR DESIGNEE, WILL NOT OCCUR UNTIL THE FINAL STRUCTURAL OBSERVATION REPORT IS RECEIVED.
13. THE LICENSED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE SHALL PREPARE ALL CONSTRUCTION DOCUMENT CHANGES RELATING TO THE STRUCTURAL SYSTEMS. REVIEW AND APPROVAL OF SUCH CHANGES BY THE CHIEF BUILDING OFFICIAL, OR DESIGNEE, SHALL BE OBTAIN BY THE DESIGN PROFESSIONAL AND/OR CONTRACTOR PRIOR TO INSTALLATION AND/OR CONSTRUCTION OF SAID CHANGES.

## STRUCTURAL OBSERVATION SCHEDULE

| **SITE ADDRESS:** | **PC #:** |
|---|---|

***TO BE COMPLETED BY THE DESIGN ENGINEER, AND INCLUDED ON THE CONSTRUCTION DRAWINGS.***
BASED ON THE PROJECT SCOPE, PLEASE IDENTIFY THE ELEMENTS AND/OR CONNECTIONS THAT REQUIRE STRUCTURAL OBSERVATION. SPECIFY THE INTERVAL OR STAGE OF CONSTRUCTION WHEN THE STRUCTURAL OBSERVATION WILL BE PERFORMED.

| TYPE | STRUCTURAL ELEMENTS AND/OR CONNECTIONS TO BE OBSERVED | SCHEDULED INTERVAL OR STAGE OF CONSTRUCTION |
|---|---|---|
| FOUNDATIONS | ☐ FOOTINGS, SLAB FOUNDATION, ANCHORS | |
| | ☐ MAT FOUNDATION, PRESTRESSED CONC. SLAB | |
| | ☐ CAISSON, PILE, GRADE BEAM | |
| | ☐ OTHER: | |
| SHEAR WALLS | ☐ CONCRETE | |
| | ☐ MASONRY | |
| | ☐ WOOD OR MANUFACTURED SHEAR PANELS | |
| | ☐ OTHER: | |
| FRAMES | ☐ STEEL MOMENT OR BRACED FRAME | |
| | ☐ CONCRETE MOMENT FRAME | |
| | ☐ MASONRY WALL FRAME | |
| | ☐ OTHER: | |
| DIAPHRAGMS | ☐ CONCRETE | |
| | ☐ STEEL DECK | |
| | ☐ WOOD | |
| | ☐ OTHER: | |

# Attachment No. BOA 3

Definitions

# CHAPTER 17
# STRUCTURAL TESTS AND SPECIAL INSPECTIONS

## SECTION 1701
## GENERAL

**1701.1 Scope.** The provisions of this chapter shall govern the quality, workmanship and requirements for materials covered. Materials of construction and tests shall conform to the applicable standards listed in this code.

**1701.2 New materials.** New building materials, equipment, appliances, systems or methods of construction not provided for in this code, and any material of questioned suitability proposed for use in the construction of a building or structure, shall be subjected to the tests prescribed in this chapter and in the *approved* rules to determine character, quality and limitations of use.

**1701.3 Used materials.** The use of second-hand materials that meet the minimum requirements of this code for new materials shall be permitted.

## SECTION 1702
## DEFINITIONS

**1702.1 General.** The following words and terms shall, for the purposes of this chapter and as used elsewhere in this code, have the meanings shown herein.

**APPROVED AGENCY.** An established and recognized agency regularly engaged in conducting tests or furnishing inspection services, when such agency has been *approved. [HCD 1 & HCD 2] "Approved agency" shall mean "Listing agency" and "Testing agency" (See Chapter 2 definitions).*

**APPROVED FABRICATOR.** An established and qualified person, firm or corporation *approved* by the *building official* pursuant to Chapter 17 of this code.

**CERTIFICATE OF COMPLIANCE.** A certificate stating that materials and products meet specified standards or that work was done in compliance with *approved construction documents.*

**DESIGNATED SEISMIC SYSTEM.** Those architectural, electrical and mechanical systems and their components that require design in accordance with Chapter 13 of ASCE 7 and for which the component importance factor, $I_p$, is greater than 1 in accordance with Section 13.1.3 of ASCE 7.

**FABRICATED ITEM.** Structural, load-bearing or lateral load-resisting assemblies consisting of materials assembled prior to installation in a building or structure, or subjected to operations such as heat treatment, thermal cutting, cold working or reforming after manufacture and prior to installation in a building or structure. Materials produced in accordance with standard specifications referenced by this code, such as rolled structural steel shapes, steel-reinforcing bars, masonry units, and wood structural panels or in accordance with a standard, listed in Chapter 35, which provides requirements for quality control done under the supervision of a third-party quality control agency shall not be considered "fabricated items."

**INSPECTION CERTIFICATE.** An identification applied on a product by an *approved agency* containing the name of the manufacturer, the function and performance characteristics, and the name and identification of an *approved agency* that indicates that the product or material has been inspected and evaluated by an *approved agency* (see Section 1703.5 and "*Label*," "Manufacturer's designation" and "*Mark*").

**INTUMESCENT FIRE-RESISTANT COATINGS.** Thin film liquid mixture applied to substrates by brush, roller, spray or trowel which expands into a protective foamed layer to provide fire-resistant protection of the substrates when exposed to flame or intense heat.

**MAIN WINDFORCE-RESISTING SYSTEM.** An assemblage of structural elements assigned to provide support and stability for the overall structure. The system generally receives wind loading from more than one surface.

**MASTIC FIRE-RESISTANT COATINGS.** Liquid mixture applied to a substrate by brush, roller, spray or trowel that provides fire-resistant protection of a substrate when exposed to flame or intense heat.

**SPECIAL INSPECTION.** Inspection as herein required of the materials, installation, fabrication, erection or placement of components and connections requiring special expertise to ensure compliance with *approved construction documents* and referenced standards (see Section 1704).

**SPECIAL INSPECTION, CONTINUOUS.** The full-time observation of work requiring *special inspection* by an *approved* special inspector who is present in the area where the work is being performed.

**SPECIAL INSPECTION, PERIODIC.** The part-time or intermittent observation of work requiring *special inspection* by an *approved* special inspector who is present in the area where the work has been or is being performed and at the completion of the work.

**SPRAYED FIRE-RESISTANT MATERIALS.** Cementitious or fibrous materials that are sprayed to provide fire-resistant protection of the substrates.

**STRUCTURAL OBSERVATION.** The visual observation of the structural system by a *registered design professional* for general conformance to the *approved construction documents.* Structural observation does not include or waive the responsibility for the inspection required by Section 110, 1704 or other sections of this code.

## SECTION 1703
## APPROVALS

**1703.1 Approved agency.** An *approved agency* shall provide all information as necessary for the *building official* to determine that the agency meets the applicable requirements.

**1703.1.1 Independence.** An *approved agency* shall be objective, competent and independent from the contractor

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2010 CBC Section 1710

fication coefficient, $R$, of 3 or less, excluding cantilever column systems.

2. For ordinary moment frames, ultrasonic and magnetic particle testing of complete joint penetration groove welds are only required for demand critical welds.

**1708.4 Seismic certification of nonstructural components.** The *registered design professional* shall state the applicable seismic certification requirements for nonstructural components and designated seismic systems on the *construction documents*.

1. The manufacturer of each designated seismic system components subject to the provisions of ASCE 7 Section 13.2.2 shall test or analyze the component and its mounting system or anchorage and submit a *certificate of compliance* for review and acceptance by the *registered design professional* responsible for the design of the designated seismic system and for approval by the *building official*. Certification shall be based on an actual test on a shake table, by three-dimensional shock tests, by an analytical method using dynamic characteristics and forces, by the use of experience data (i.e., historical data demonstrating acceptable seismic performance) or by more rigorous analysis providing for equivalent safety.
2. Manufacturer's certification of compliance for the general design requirements of ASCE 7 Section 13.2.1 shall be based on analysis, testing or experience data.

**1708.5 Seismically isolated structures.** For required system tests, see Section 17.8 of ASCE 7.

## SECTION 1709
## CONTRACTOR RESPONSIBILITY

**1709.1 Contractor responsibility.** Each contractor responsible for the construction of a main wind- or seismic-force-resisting system, designated seismic system or a wind- or seismic-resisting component listed in the statement of special inspections shall submit a written statement of responsibility to the *building official* and the owner prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain acknowledgement of awareness of the special requirements contained in the statement of *special inspection*.

## SECTION 1710
## STRUCTURAL OBSERVATIONS

**1710.1 General.** Where required by the provisions of Section 1710.2 or 1710.3, the owner shall employ a *registered design professional* to perform structural observations as defined in Section 1702.

Prior to the commencement of observations, the structural observer shall submit to the *building official* a written statement identifying the frequency and extent of structural observations.

At the conclusion of the work included in the permit, the structural observer shall submit to the *building official* a written statement that the site visits have been made and identify any reported deficiencies which, to the best of the structural observer's knowledge, have not been resolved.

**1710.2 Structural observations for seismic resistance.** Structural observations shall be provided for those structures assigned to *Seismic Design Category* D, E or F, as determined in Section 1613, where one or more of the following conditions exist:

1. The structure is classified as *Occupancy Category* III or IV in accordance with Table 1604.5.
2. The height of the structure is greater than 75 feet (22 860 mm) above the base.
3. The structure is assigned to *Seismic Design Category* E, is classified as *Occupancy Category* I or II in accordance with Table 1604.5, and is greater than two *stories above grade plane*.
4. When so designated by the *registered design professional* responsible for the structural design.
5. When such observation is specifically required by the *building official*.

**1710.3 Structural observations for wind requirements.** Structural observations shall be provided for those structures sited where the basic wind speed exceeds 110 mph (49 m/sec) determined from Figure 1609, where one or more of the following conditions exist:

1. The structure is classified as *Occupancy Category* III or IV in accordance with Table 1604.5.
2. The *building height* of the structure is greater than 75 feet (22 860 mm).
3. When so designated by the *registered design professional* responsible for the structural design.
4. When such observation is specifically required by the *building official*.

## SECTION 1711
## DESIGN STRENGTHS OF MATERIALS

**1711.1 Conformance to standards.** The design strengths and permissible stresses of any structural material that are identified by a manufacturer's designation as to manufacture and grade by mill tests, or the strength and stress grade is otherwise confirmed to the satisfaction of the *building official*, shall conform to the specifications and methods of design of accepted engineering practice or the *approved* rules in the absence of applicable standards.

**1711.2 New materials.** For materials that are not specifically provided for in this code, the design strengths and permissible stresses shall be established by tests as provided for in Section 1712.

## SECTION 1712
## ALTERNATIVE TEST PROCEDURE

**1712.1 General.** In the absence of *approved* rules or other *approved* standards, the *building official* shall make, or cause to