



CLARK COUNTY DEPARTMENT OF BUILDING & FIRE PREVENTION

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SUBJECT: TG-10-2016 STRUCTURAL OBSERVATION

1.0 PURPOSE: The purpose of this technical guideline is to specify the requirements for structural observation for projects built within the jurisdiction of Clark County.

2.0 SCOPE: Structural observation shall be performed for those structures included in Seismic Design Category D, E, or F, as determined in 2012 IBC Section 1704, where one or more of the conditions outlined in 2012 IBC Section 1704.5 exist. Additionally, the Building Official is requiring structural observation on all buildings defined as resort hotels under Clark County Code Title 30, high rise buildings as defined in the Southern Nevada Amendments to the 2012 IBC, and atriums as defined in the 2012 IBC, and any complex structures as deemed necessary by the Building Official regardless of the Seismic Design Category.

3.0 ABBREVIATIONS & ACRONYMS:

- BAC:** Building Administrative Code of Clark County
- CCDB:** Clark County Department of Building
- IBC:** International Building Code
- RDP:** Registered Design Professional
- QAA:** Quality Assurance Agency
- QAA-SIA:** Quality Assurance Agency Special Inspection Agreement
- TG:** Technical Guideline

4.0 DEFINITIONS: For the purposes of this TG certain terms, phrases, words and their derivatives shall be construed as specified in this section and the BAC.

Approved Construction Document: Construction documents that have been reviewed and accepted for permit by the Building Official pursuant to the BAC.

APPROVED DATE: AUGUST 01, 2016

EFFECTIVE DATE: SEPTEMBER 01, 2016

Revised By:	Concurred By:	Approved By:
<i>John Telford</i>	<i>Theodore L. Droessler</i>	<i>Ronald L. Lynn</i>
John S. Telford, P.E. Principal Engineer	Theodore L. Droessler, P.E. Manager of Engineering	Ronald L. Lynn Director/Building Official

Atrium: See 2012 IBC Section 404. An opening connecting two or more stories other than enclosed stairways, elevators, hoistways, escalators, plumbing, electrical, air-conditioning or other equipment, which is closed at the top and not defined as a mall. Stories, as used in this definition, do not include balconies within assembly groups or mezzanines that comply with 2012 IBC Section 505.

Certificate of Compliance: A cover letter template issued by CCDB for use by the structural observer to document the completion of structural observations and compliance to the requirements in the approved structural observation plan.

Engineer of Record: The registered design professional in responsible charge of the structural and/or geotechnical design of the subject project.

High Rise Building: A building with an occupied floor located more than 55 feet above the lowest level of fire department vehicle access.

Registered Design Professional: An individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed.

Resort Facility: See Title 30.08.030 Clark County Unified Development Code.

Structural Observation: The visual observation of the structural system encompassing the structure, foundation elements, and soils within the influence zone of the foundation elements by a registered design professional for general conformance to the approved construction documents at significant stages and at completion of the structural system. Structural observation does not waive the responsibility for the inspection required by the BAC, IBC, referenced standards, and approved TGs.

Structural Observer: The registered design professional in responsible charge of the structural observation services. The structural observer is required to have the minimum licensing requirements as the project's engineer of record. The engineer performing the field structural observation shall be employed by the same firm as the structural observer and shall have a current civil or structural professional engineering license from the State of Nevada.

Structural Observation Report (Form 802): A standard form issued by CCDB for use by the structural observer to document the structural observations.

5.0 REFERENCES:

BAC	Clark County Building Administrative Code
IBC	International Building Code
SNA-IBC	Southern Nevada Amendments to the International Building Code
Title 30	Clark County Unified Development Code, current adopted edition

6.0 RESPONSIBILITIES:

- 6.1 **CCDB:**
CCDB shall require structural observation as specified in the scope of this TG.

6.2 Owner:

The owner shall employ a structural observer to perform the structural observations in accordance with the approved structural observation plan. The structural observer shall not be employed by the QAA listed on the QAA-SIA nor shall they be employed by the contractor as the Quality Control inspection firm, except when the structural observer is also the engineer of record for the discipline they are observing (i.e; geotechnical or structural). It is the owner's responsibility to coordinate with the contractor and the structural observer to ensure that the structural observer is able to perform the duties as required in the approved structural observation plan.

6.3 Structural Observer:

The registered design professional hired by the owner shall perform the structural observations in accordance with the approved structural observation plan and shall submit reports as required in this TG.

7.0 PROCEDURE:

7.1 Prior to Permit Issuance:

7.1.1 CCDB shall notify the point of contact on the permit application and the engineer(s) of record that structural observation is required in the initial plan review correction letter. This notification shall include a request to provide a structural observation plan which would outline the schedule of the required structural observations. A separate observation plan from the geotechnical engineer of record and the structural engineer of record may be required.

7.1.2 The engineer(s) of record shall submit a written structural observation plan to CCDB for approval. This document is required to be sealed by the appropriate engineer of record. The plan shall require structural observation to be performed at significant construction stages and at the completion of the structural system.

7.1.2.1 Structural Engineer of Record: At a minimum, structural observation shall be performed for all lateral elements, prior to placement of concrete for the foundation system, for all atypical levels of construction, 20% of the remaining levels rounded up to the nearest level, at the completion of the structural system and as required by the structural engineer of record. Additional structural observations may be required by the Building Official depending upon the complexity of the project.

7.1.2.2 Geotechnical Engineer of Record: At a minimum, structural observation shall be performed on the first five foundation elements, prior to placement of concrete for the foundation system, 20% of the remaining foundation elements, and as required by the geotechnical engineer of record. Additional structural observations may be required by the Building Official depending upon the complexity of the project.

7.1.3 CCDB shall review, indicate any required corrections, and approve the structural observation plan. Once approved by the CCDB the structural observation plan is considered an approved construction document. Any revisions to the approved structural observation plan shall be submitted to and approved by CCDB prior to execution.

- 7.1.4 The owner shall employ a registered design professional to perform the structural observations and notify CCDB in writing of the selected structural observer.
- 7.1.5 The selected structural observer shall review the construction documents and the structural observation plan. The structural observer shall submit a written statement to the Building Official prior to permit issuance. The structural observer's written statement shall state that the construction documents and the structural observation plan have been reviewed and contain an acknowledgement that all requirements are understood. The written statement shall also include the names and license number(s) of the structural observer and those that will perform the field structural observations.

7.2 After Permit Issuance:

- 7.2.1 The structural observer shall perform the required structural observations in accordance with the approved structural observation plan. No concrete shall be placed or any portion of the structural system covered or loaded prior to the structural observation and resolution of any noted discrepancies.
- 7.2.2 It is the Contractor's responsibility to coordinate the Structural Observation visits in such a way that the engineer performing the structural observation is able to perform the duties outlined in the structural observation plan and allow for the implementation of any corrections necessary.
- 7.2.3 The structural observer shall submit Form 802 to CCDB indicating that the required structural observation has been performed after each site observation has been completed in accordance with the approved structural observation plan. Form 802 shall be submitted to the Building Official within 24 hours of the structural observation being completed.
- 7.2.4 The structural observer shall clearly identify the work observed by using gridlines and elevations, where applicable.
- 7.2.5 The structural observer shall notify the contractor, special inspector, CCDB, and the owner of any observed discrepancies.
- 7.2.6 The owner shall coordinate with the contractor and ensure that areas with unresolved discrepancies are not covered or loaded until all discrepancies are resolved.
- 7.2.7 CCDB shall issue the appropriate enforcement action and ensure that all noted discrepancies are resolved.
- 7.2.8 The contractor shall correct all noted discrepancies indicated on Form 802 and notify the structural observer when the discrepancies are corrected. The corrected work shall not be covered until the structural observer has observed the corrected work.
- 7.2.9 The structural observer shall document the observation of the corrected work, the method of correction, and attach any documents utilized to resolve the discrepancy to Form 802.

- 7.2.10 CCDB shall review the submitted Forms 802 and enter the appropriate disposition for the “2205 Inspection”; approved (AP), approved with exception (AE), or disapproved (DA). CCDB shall enter a “2205 Inspection” for each submitted structural observation report.
- 7.2.11 The structural observer shall submit a Certificate of Compliance to CCDB in accordance with Appendix A at the completion of the project
- 7.2.12 CCDB shall review and accept the Certificate of Compliance and resolve the “2205 Inspection”. A final building inspection shall not be scheduled until the geotechnical and structural Certificates of Compliance have been approved by CCDB.

8.0 RECORDS:

All documents associated with the structural observation shall be sent to the Records Division.

9.0 ATTACHMENTS:

Appendix A – Final Structural Observation Cover Letter Template
Appendix B – Structural Observation Report Form 802

10.0 REVISION HISTORY:

Title	Revision/Approved Date	Effective Date
TG-10-2009	September 11, 2009	October 31, 2009
TG-10-2013	April 05, 2013	May 01, 2013
TG-10-2016	August 01, 2016	September 01, 2016

Appendix A
Final Structural Observation Report Cover Letter Template

**COMPANY LETTERHEAD
ADDRESS, TELEPHONE & FAX #**

CERTIFICATE OF COMPLIANCE

CLIENT INFO

DATE

Final Structural Observation Report

Project Name:

Project Address:

Permit No.

Project No.

COMPANY NAME performed and completed the structural observation services for the **PROJECT NAME** project and find the work is in compliance with the Clark County Department of Building approved structural observation plan.

Only licensed engineers designated in the approved acknowledgement statement were utilized to perform those structural observations as required by the approved structural observation plan. All observed discrepancies were noted on the Form 802 have been corrected to meet the intent of the approved construction documents.

Attached for your review are the structural observation reports and other applicable reports.

CCDB REVIEW STAMP

STRUCTURAL OBSERVER SEAL
HERE

Appendix B

Structural Observation Report Form 802



DEPARTMENT OF BUILDING & FIRE PREVENTION STRUCTURAL OBSERVATION REPORT



PERMIT NO: _____ ADDRESS: _____

OBSERVER FIRM NAME: _____ OBSERVER NAME: _____

This form was submitted to the following individuals.

Entity	Name	Entity	Name
CCDB		Owner's Representative	
Contractor		Special Inspector	

First Observation (Date) _____

Discrepancies Observed (Date) _____

(List discrepancies) _____

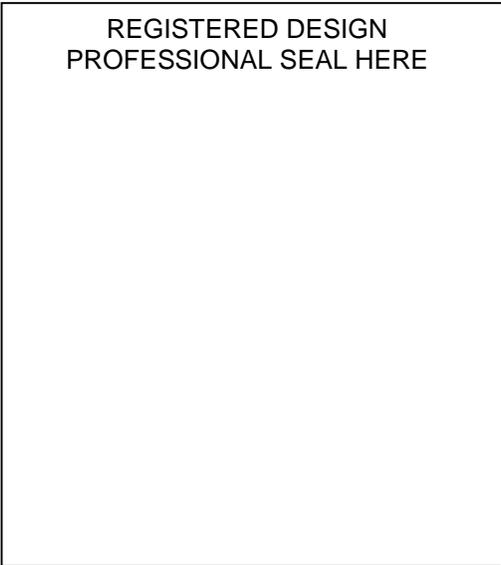
Discrepancies Resolved – Resolution(s) are in accordance with the approved construction documents (list resolution and date).

Structural Observation Approved

I hereby acknowledge that I performed the structural observations in accordance with the approved structural observation plan and TG-10. The work that has been observed complies with the intent of the approved construction documents.

Observations (describe the observations and locations; foundation, level 1, gridlines) _____

Attachments _____



STRUCTURAL OBSERVATION REPORT PROCEDURE

This form is available at the Clark County Department of Building & Fire Prevention web site

- 1.0** Where structural observation is required, a “2205 Inspection”, identified as “B-Structural Observation (802)”, will be added as a “Hold” point to the list of required inspections by the Structural and/or Geotechnical Plans Examiner prior to permit issuance. This required inspection or “Hold” will ensure that certain required Structural Observation Reports are submitted prior to Foundation Inspection and/or Framing Inspection. Another “2205 Inspection will be added as a “Hold” point prior to Final Building Inspection to ensure that the required Certificates of compliance are submitted to CCBD.
- 2.0** The contractor shall coordinate structural observation visits with the structural observer. The contractor shall cause areas to be exposed to allow full access to perform the observations listed in the approved structural observation plan. It is the contractor’s responsibility to ensure that no concrete shall be placed or any portion of the structural system covered or loaded prior to the completion of structural observations and resolution of any noted discrepancies.
- 3.0** The structural observer shall perform structural observations as required in the approved structural observation plan. The structural observer shall document each visit on a Structural Observation Report (Form 802).
- 4.0** The structural observer shall document their observations of conforming work and clearly identify the area or item observed by using gridlines and elevations.
- 5.0** If the structural observer identifies work that does not conform to the intent of the approved construction documents, he/she shall list each discrepancy under the “Discrepancies Observed”. Each discrepancy shall include a location and a detailed description of the discrepancy. The structural observer shall state why the item is a discrepancy.
 - 5.1** The structural observer shall notify the contractor, special inspector, CCBD, and the owner of any observed discrepancies.
 - 5.2** CCDB shall issue the appropriate enforcement action and ensure that all discrepancies are resolved.
 - 5.3** The owner shall coordinate with the contractor and ensure that areas with unresolved discrepancies are not covered or loaded until all discrepancies are resolved.
 - 5.4** The structural observer shall resolve the discrepancy on the original structural observation report that identified the discrepancy; state how the condition has been resolved; and state that the work is in compliance with CCBD approved construction documents. The structural observer shall document the date the discrepancy was resolved and attach any document used to resolve a discrepancy.
- 6.0** The structural observer shall submit a sealed and signed Form 802 to CCBD within 24 hours of performing the structural observations.
- 7.0** The structural observer (geotechnical and structural) shall submit a Certificate of Compliance after the completion of all structural observations required in the approved structural observation plan.
- 8.0** CCBD shall review submitted Forms 802s and the Certificates of Compliance. Once approved, CCBD shall resolve the “2205 Inspections” accordingly.