2015 IBC Performing Structural Plan Reviews

Based on the 2015 International Building Code®, IBC®

Course Description

- This seminar helps participants to perform a structural plan review in compliance with the 2015 International Building Code® (IBC®). Topics that mirror the plan review record are included, and additional topics applicable to most construction projects are covered.

Goal

- Participants will be able to successfully review construction documents for proper submittal, structural loads, foundation systems and structural components and materials.

Objectives

Upon completion, participants will be better able to:
1. Describe the Plan Review Process and Plan Review Record.
2. Explain the purpose of using a Plan Review Record.
3. Describe the purpose of performing a structural plan review.
4. List the structural plan review steps.
5. Complete the Plan Review Record.
Objectives (continued)

6. Describe the purpose of determining if complete construction documents have been submitted for review and the consequences of incomplete construction documents.

7. Describe the purpose of verifying that structural loads, foundation system design and structural components and materials are in compliance with code requirements.

Plan Review Process

The purpose of a structural plan review is to determine that building structures:

- Comply with applicable standards of construction.
- Use appropriate materials and methods.
- Are safe for people and property.
- Comply with code requirements.

Completing the Plan Review Record

- List the required corrections as you review the plans and specifications.
- Number the corrections sequentially.
- Use a legend for symbols:
  - NR = Not required
  - NA = Not applicable
  - OK = Complies with applicable code requirements
  - Note 1, Note 2, etc. = Reference number to the designated correction list note.
Overview of the Structural Plan Review

- Construction Document Review
- Structural Load Review
- Foundation System Review
- Structural Components and Materials Review

Construction Documents Review—Purpose
The purpose of this review is to determine that:
- The design of the structural components is based on the required minimum loads listed in the code
- All structural elements are substantiated by the design calculations in accordance with state and local professional registration laws.

Construction Documents Review—Task
1. Review the submitted construction documents.
**Task 1: Review Submitted Construction Documents**

1. Verify that all construction documents have been submitted.
2. Check construction documents for registered design professional.
3. Check construction documents for design loads.
4. Check construction documents for special loads.
5. Check load combinations.
6. Check for statement of special inspection.
7. Check for constructor’s statement of responsibility.

**Practice**

Examine submittals and note any deficiencies on the IBC Plan Review Record.
Structural Loads Review—Purpose
The purpose of verifying that structural loads are in compliance with IBC requirements is to determine if minimum required design loads have been used in the design of the building.

Structural Loads Review—Tasks
1. Live loads, dead loads and special loads review.
2. Determination of Importance factor.
3. Roof load review.
4. Wind load review.
5. Earthquake/Seismic load review.
7. Special inspections review.

Task 1: Live Loads, Dead Loads and Special Loads Review—Steps
1. Check uniform floor live loads.
2. Determine if partition loads comply.
3. Check concentrated live loads.
4. Consider impact and crane loads.
5. Consider other loads.

Check Uniform Floor Live loads
2015 IBC Table 1607.1 Page 360-361

<table>
<thead>
<tr>
<th>OCCUPANCY OR USE</th>
<th>UNIFORM (psf)</th>
<th>CONCENTRATED (psf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Apartment (non-resident)</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>2. Assisted living</td>
<td>30</td>
<td>2500</td>
</tr>
<tr>
<td>3. Office</td>
<td>100</td>
<td>2500</td>
</tr>
<tr>
<td>4. Residential building (non</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>5. Assembly area</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>6. Foyer, stairway</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>7. Elevator</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>8. Fireplace</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>9. Balcony and deck</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>10. Commercial</td>
<td>40</td>
<td>300</td>
</tr>
<tr>
<td>11. Common area</td>
<td>150</td>
<td>300</td>
</tr>
<tr>
<td>12. Courtyard</td>
<td>100</td>
<td>300</td>
</tr>
<tr>
<td>13. Other entries</td>
<td>100</td>
<td>300</td>
</tr>
</tbody>
</table>
**Floor Load Calculations**

- Beam: W16 x 40 per AISC Manual of Steel Construction
  - $S_x = 64.7 \text{ in}^3$
  - $d = 16.01 \text{ inches}$
  - $t_w = .305 \text{ inch}$

**Handrail and Guard Design and Construction**

- 200 lb. Concentrated load at any point in any direction or
- 50 lb. per linear foot uniform load applied in any direction for all occupancies except One- and two-family dwellings (200 lb. Concentrated load) and Group I-3, F, H and I occupancies which are not accessible to the public and have an occupant load not greater than 50 (20 lb. per linear foot)

- 50 lb. normal load applied horizontally on a 1 sq. ft. area at any point

**Task 2: Determination of Importance Factor—Steps**

- Determine the Importance Factor
### Importance Factor

#### Table 1604.5

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Type of Occupancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Buildings and other structures that operate in areas that are not part of a larger system, including but not limited to:</td>
</tr>
<tr>
<td></td>
<td>• Agricultural facilities.</td>
</tr>
<tr>
<td></td>
<td>• Correctional facilities.</td>
</tr>
<tr>
<td></td>
<td>• Military storage facilities.</td>
</tr>
<tr>
<td></td>
<td>• Other storage facilities.</td>
</tr>
<tr>
<td>II</td>
<td>Buildings and other structures that are located in Risk Category I and in other risk categories that have a maximum occupant load of 100.</td>
</tr>
<tr>
<td></td>
<td>• Buildings and other structures whose primary occupancy is a public assembly with a maximum occupant load of 100.</td>
</tr>
<tr>
<td></td>
<td>• Buildings and other stories that are located in Risk Category I and in other risk categories that have a maximum occupant load of 100.</td>
</tr>
<tr>
<td>III</td>
<td>Buildings and other structures whose primary occupancy is a public assembly with a maximum occupant load of 100.</td>
</tr>
<tr>
<td></td>
<td>• Buildings and other structures that are located in Risk Category I and in other risk categories that have a maximum occupant load of 100.</td>
</tr>
<tr>
<td></td>
<td>• Buildings and other structures that are located in Risk Category I and in other risk categories that have a maximum occupant load of 100.</td>
</tr>
<tr>
<td></td>
<td>• Buildings and other structures that are located in Risk Category I and in other risk categories that have a maximum occupant load of 100.</td>
</tr>
<tr>
<td></td>
<td>• Buildings and other structures that are located in Risk Category I and in other risk categories that have a maximum occupant load of 100.</td>
</tr>
</tbody>
</table>

**Practice**

Indicate the risk category for the following buildings:

1. Business office with a total occupant load of 500.
2. Basketball arena with a capacity of 1,000.
3. A sheep barn.
4. A hospital with an emergency unit.
5. A police station.
6. A prison.
7. An elementary school with an occupant load of 250.
8. An elementary school with an occupant load of 251.

**Task 3: Roof Load Review—Steps**

1. Determine minimum roof live load.
2. Determine rain load.
3. Determine snow load.
4. Determine required roof design load.
Tributary area for the rafter = _____
Live Load for the rafter = ______
Tributary area for the main beam = _____
Live load for the main beam = ______

---

Calculate the rain load for the roof in the figure, below.

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**Determining Snow Load**

- The determination of snow loads on the roof depends on the three different types of roof conditions:
  - Condition 1 – Determine what the snow load would be on a flat roof.
  - Condition 2 – Determine what the snow load would be on a sloped roof, if applicable.
  - Condition 3 – Determine special snow loads, such as where drifting on the roof or snow sliding to a lower roof is possible or unbalanced snow loads are possible.

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**Practice #1**

Calculate the flat roof snow load ($p_f$) for the following situation:

- **Location:** Chicago, IL
- **Site:** Urban area, partially exposed roof
- **Building:** One-story high school, occupant load 450
- **Roof slope:** $1/2:12$
### Practice #2
- **Location**: Hannibal, MO (Ground snow load = 20 psf)
- **Site**: Rural area, fully exposed roof, flat terrain
- **Building**: One-story high school, occupant load 450
- **Roof slope**: ½:12

### Sloped Roof Snow Load
Calculate the sloped roof snow load \( (p_s) \) for the following situation:
- **Location**: Chicago, IL
- **Site**: Urban area, partially exposed roof
- **Building**: One-story high school, occupant load 450
- **Roof slope**: 12:12
- **Roof covering**: Asphalt shingles

### Drifting Snow

![Diagram of drifting snow](image)

- \( p_{(upper)} = 63 \text{ psf} \)
- \( h_r = 17.4 \text{ ft.} \)
- \( h_s = 3.2 \text{ ft.} \)
- Drift surcharge
- Roof snow
- \( p_{(lower)} = 70 \text{ psf} \)
- \( l_r = 40 \text{ ft.} \)
- \( l_s = 12.8 \text{ ft.} \)
- Length = 30 ft.

### Plan Review
Examine the construction documents and determine if floor loads and roof loads are in compliance with code requirements.

Note any deficiencies and describe them in the Correction List in the Plan Review Record.
Task 4: Wind Loads Review—Steps
1. Determine if the ultimate wind speed is in compliance with code.
2. Determine if the wind exposure category is in compliance with code.
3. Verify wind-borne debris regions.
**Terminology: Enclosure Classification of the Building**

The enclosure classification is a measure of the percentage of any single wall that contains opening area, (e.g., windows, doors).

- Open
- Partially enclosed
- Enclosed

**Exposure Category**

- Determine the exposure categories for this building for wind blowing west.

**Ultimate Design Wind Speed**

Indicate the ultimate design wind speeds for the following locales (assume Risk Category II):

1. New York City
2. Washington, D.C.
3. Miami
4. New Orleans
5. Chicago
6. Denver
7. St. Louis
8. Dallas
9. Tulsa
10. Minneapolis
11. Kansas City

**Sample Wind Load Calculations**
Sample Wind Load Calculations

Internal Pressure Effects on Opposing Walls

Methods for Wind Load Design

- ASCE 7-10 Chapter 27, Wind loads on buildings—MWFRS (Directional Procedure)
  - Part 1: Enclosed, partially enclosed and open buildings of all heights
  - Part 2: Enclosed simple diaphragm buildings with h ≤ 160 ft.
- ASCE 7-10 Chapter 28, Wind loads on buildings—MWFRS (Envelope Procedure)
  - Part 1: Enclosed and partially enclosed low-rise buildings
  - Part 2: Enclosed simple diaphragm low-rise buildings
- ASCE 7-10 Chapter 29, Wind loads on other structures and building appurtenances—MWFRS
- IBC Section 1609.6 Alternate all-heights method (Simplification of ASCE 7-10 Chapter 27)

Directional Procedure

- ASCE 7-10 Chapter 27, Wind loads on buildings—MWFRS (Directional Procedure)
  - Part 1: Enclosed, partially enclosed and open buildings of all heights
    \[ p = qG_c - q_i G_{ci} \]
**Envelope Procedure (Simplified Method)**
- ASCE 7-10 Chapter 28, Wind loads on buildings—MWFRS (Envelope Procedure)
  - Part 2: Enclosed simple diaphragm low-rise buildings
    \[ p_s = \lambda K_z p_{s30} \]

**Components and Cladding (Low-rise Buildings with \( h \leq 60 \text{ feet} \))
- ASCE 7-10 Chapter 30, Wind loads—components and cladding (C&C)
  - Part 2: Enclosed simple diaphragm low-rise buildings
    \[ p_s = \lambda K_z p_{s30} \]

**Methods for Components and Cladding**
- ASCE 7-10 Chapter 30, Wind loads—components and cladding (C&C)
  - Part 1: Low-rise buildings
  - Part 2: Low-rise buildings (Simplified)
  - Part 3: Buildings with \( h > 60 \text{ ft.} \) (Simplified)
  - Part 4: Buildings with \( h \leq 160 \text{ ft.} \) (Simplified)
  - Part 5: Open buildings
  - Part 6: Building appurtenances and rooftop structures and equipment
- IBC Section 1609.6.4.1 Components and cladding
- ASCE 7-10 Chapter 31, Wind tunnel procedure

**Components and Cladding (Low-rise Buildings with \( h \leq 60 \text{ feet} \))
- ASCE 7-10 Chapter 30, Wind loads—components and cladding (C&C)
  - Part 2: Low-rise buildings (Simplified)
    \[ p_{net} = \lambda K_z p_{net30} \]
Components and Cladding (Low-rise Buildings with $h < 60$ feet)
- ASCE 7-10 Chapter 30, Wind loads—components and cladding (C&C)
  - Part 3: Buildings with $h > 60$ ft. (Simplified)
    - $p = q(GC_p) - q_i(GC_{pi})$

Task 5: Earthquake Load Review—Steps
1. Determine site ground motion.
2. Apply importance factor and risk factor.
3. Determine type of soil at building site.
4. Determine type of construction used for basic seismic force-resisting system.

Factors influencing the amount of earthquake load include:
- Geographic location of building.
- Importance factor and risk category.
- Type of soil, site conditions.
- Size and shape of the structure.

Importance Factor and Risk Category

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>$I_e$</th>
</tr>
</thead>
<tbody>
<tr>
<td>I or II</td>
<td>1.00</td>
</tr>
<tr>
<td>III</td>
<td>1.25</td>
</tr>
<tr>
<td>IV</td>
<td>1.50</td>
</tr>
</tbody>
</table>
### ASCE 7-10 Table 20.3-1

<table>
<thead>
<tr>
<th>Site Class</th>
<th>$V_T$ (ft/s)</th>
<th>$R$ or $K_R$ (psi)</th>
<th>$a_o$ (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Hard rock</td>
<td>&gt;5,000 ft/s</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>B. Rock</td>
<td>2,500 to 5,000 ft/s</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>C. Very dense soil and soft rock</td>
<td>1,200 to 2,500 ft/s</td>
<td>&gt;50</td>
<td>&gt;2,000 psi</td>
</tr>
<tr>
<td>D. Soft soil</td>
<td>&lt;600 ft/s</td>
<td>&lt;15</td>
<td>&lt;1,000 psi</td>
</tr>
<tr>
<td>E. Soft clay soil</td>
<td>&lt;600 ft/s</td>
<td>&lt;15</td>
<td>&lt;1,000 psi</td>
</tr>
</tbody>
</table>

Any profile with more than 10 ft of soil having the following characteristics:
- Plasticity index $PI > 20$.
- Moisture content $w > 40\%$.
- Undrained shear strength $s_u < 500$ psi.

F. Soils requiring site response analysis in accordance with Section 29.3.1

**Note:** $\xi = 0.15$ for $\xi = 0.7$ (ASCE 7-10) 2015

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### IBC Tables 1613.3.3 (2)

<table>
<thead>
<tr>
<th>Site Class</th>
<th>$K_{1/1}$</th>
<th>$K_{1/3}$</th>
<th>$K_{1/4}$</th>
<th>$K_{1/5}$</th>
<th>$K_{1/6}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
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</tr>
<tr>
<td>B</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
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</tr>
<tr>
<td>C</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
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<td>D</td>
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<td>1.0</td>
<td>1.0</td>
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<td>1.0</td>
</tr>
<tr>
<td>E</td>
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<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
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<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

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### ASCE 7-10 Table 12.6-1

**Table 12.6-1:**

<table>
<thead>
<tr>
<th>Seismic Design Category</th>
<th>Structural Characteristics</th>
<th>Equivalent Lateral Force Analysis, Section 12.6(a)</th>
<th>Modal Response Spectrum Analysis, Section 12.6(b)</th>
<th>Seismic Response History Procedure, Chapter 8(d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, B, C</td>
<td>All structures</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>D, E, F</td>
<td>Buildings not exceeding $2$ stories above the base</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Structures of light frame construction</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Structures with no structural irregularities and not exceeding $100$ ft in structural height</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Structures exceeding $100$ ft in structural height within a structural irregularity with $I_L &gt; 15$</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Buildings exceeding $100$ ft in structural height and having only accidental irregularities of Type I, II, or III in Table 12.3-2 or vertical irregularities of Type I, II, or III in Table 12.3-2</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>All other structures</td>
<td>NP</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
</tbody>
</table>

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### IBC Tables 1613.3.3 (1)

<table>
<thead>
<tr>
<th>Site Class</th>
<th>$X_1$</th>
<th>$X_2$</th>
<th>$X_3$</th>
<th>$X_4$</th>
<th>$X_5$</th>
<th>$X_6$</th>
<th>$X_7$</th>
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<td>1.0</td>
</tr>
<tr>
<td>B</td>
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<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>C</td>
<td>1.0</td>
<td>1.0</td>
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<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
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<tr>
<td>D</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
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<tr>
<td>F</td>
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<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Notes:
- Use input for interpolation for intermediate values of equivalent spectral response accelerations at short period, $X_1$.
- Use input for interpolation for intermediate values of equivalent spectral response accelerations at short period, $X_2$.
- Use input for interpolation for intermediate values of equivalent spectral response accelerations at short period, $X_3$.
- Use input for interpolation for intermediate values of equivalent spectral response accelerations at short period, $X_4$.
- Use input for interpolation for intermediate values of equivalent spectral response accelerations at short period, $X_5$.
- Use input for interpolation for intermediate values of equivalent spectral response accelerations at short period, $X_6$.
- Use input for interpolation for intermediate values of equivalent spectral response accelerations at short period, $X_7$. 

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### ASCE 7-10 Table 12.6-1 Permitted Analytical Procedures

- **K, E:** All structures
- **K, C:** Buildings not exceeding 2 stories above the base
- **K, D:** Structures of light frame construction
- **K, E, F:** Structures with no structural irregularities and not exceeding 100 ft in structural height
- **K, D, E, F:** Structures exceeding 100 ft in structural height within a structural irregularity with $I_L > 15$.
- **K, D, E, F:** Buildings exceeding 100 ft in structural height and having only accidental irregularities of Type I, II, or III in Table 12.3-2 or vertical irregularities of Type I, II, or III in Table 12.3-2.
- **K, D, E, F:** All other structures

**Notes:**
- P = Permitted
- NP = Not permitted
- E = Equivalent force between $E_1$ and $E_2$.
Design Data Required on Construction Documents

- Importance factor and risk category.
- Mapped spectral response acceleration parameters, $S_S$ and $S_I$.
- Site class.
- Design spectral response acceleration parameters, $S_{DES}$ and $S_{D1}$.
- Seismic Design Category.
- Basic seismic-force-resisting system(s).
- Design base shear(s).
- Seismic response coefficient(s), $C_S$.
- Response modification coefficient(s), $R$.
- Analysis procedure used.

Applicability of Seismic Requirements

- Every structure is required to be designed for seismic loads except:
  1. Detached one- and two-family dwellings, either
     1. Assigned to Seismic Design Category A, B or C, or
     2. Located where the mapped short-period spectral response acceleration, $S_S$, is less than 0.4g.
  2. Wood framed buildings constructed using the appropriate seismic provisions of Section 2308 of the IBC.
  3. Agricultural storage structures intended only for incidental human occupancy.
  4. Structures that require special consideration (e.g., vehicular bridges, electrical transmission towers, hydraulic structures, brand utility lines and their appurtenances and nuclear reactors) of their response characteristics and environment that are not addressed by the IBC or ASCE 7 and for which other regulations provide seismic criteria.

Seismic Example

Given:

- High school building with an occupant load of 1,300 persons located in Baltimore, MD.
- Dense soil, shear wave velocity, $v_s = 2,000$ ft/s
- Building configuration is regular.
- Building construction has ordinary reinforced masonry shear walls and is a building frame system.

General Design Spectral Response Spectrum Curve
Example 1-3

- Work through examples 1-3, page 64-69

Task 6: Load Combinations—Steps
1. Locate load combinations on the construction documents.

Task 7: Special Inspections—Steps
1. Check for statement of special inspections.
2. Check for statement of contractor responsibility.
3. Check special inspections for seismic and wind resistance requirements.
4. Check for provisions for structural testing for seismic resistance.
5. Check for provisions for structural observations.

Foundation System Review

Module 3
Foundation System Review — Purpose

The purpose of evaluating foundation system design is to determine that the investigation of subsurface conditions, selection of foundation type, design of the substructure and proposed construction of the elements transferring the building weight to the underlying soil or rock is adequate to protect life and property.

Foundation System Review — Tasks

1. Soils Report Review
2. Footings Review
3. Foundation Walls Review

Task 1: Soils Report Review—Steps

1. Review provisions for excavation, grading and fill.
2. Verify design of presumptive load-bearing values of soils.

Task 2: Footings Review—Steps

1. Determine if frost protection is in compliance with local requirements.
2. Determine if footings are in compliance with code requirements.
Depth of Footings

Footing Depth

FOOTING DEPTH SHALL EXTEND TO THE FROST LINE BASED ON LOCAL CLIMATIC CONDITIONS BUT NO LESS THAN 12 INCHES

Footing Width

FOOTING WIDTH

Footing Thickness Practice

NOTE: See Section 7.7 of ACI 318-14 for the minimum concrete cover for reinforcement.

Severe Frost Penetration Levels (inches)

Practice

- Determine the required minimum thickness for this reinforced concrete isolated spread footing.
Task 3: Foundation Walls Review—Step

- Review foundation walls. Minimum thickness of foundation walls must not be less than the prescriptive tables for:
  - Material (concrete or masonry)
  - Wall height
  - Unbalanced backfill height
  - Soil class/lateral soil load
- Pier and curtain wall foundations

Practice

Structural Components and Materials Review—Purpose

The purpose of this review is to determine if structural components and materials, such as concrete, masonry, steel and wood are utilized appropriately to meet the structural design requirements of the building.
Structural Components and Materials Review—Tasks

1. Concrete Review
2. Masonry Review
3. Steel Review
4. Wood Review

Task 1: Concrete Review—Steps

1. Check specifications for design/construction standards.
2. Check specifications for material standards and requirements.
3. Check concrete details.
4. Check concrete placing and mixing specifications.

Task 2: Masonry Review—Steps

1. Check specifications for design/construction standards.
2. Check material specifications if masonry materials are specified in accordance with code requirements.

Practice

- Determine the required cover for the reinforcement shown in this foundation wall/footing.
Task 3: Steel Review—Steps

1. Check specifications for steel design/construction standards.
2. Check specifications for material standards.
3. Check details.

Task 4: Wood Review—Steps

1. Check specifications for wood design/construction standards.
2. Check specifications for wood materials.
3. Check installation details.
4. Check additional requirements for conventional construction in Seismic Design Category B or C.
5. Check additional requirements for conventional construction in Seismic Design Category D or E.

Minimum Clearance for Wood Girder/Joist

Clearance Between Wood Siding and Earth
**Maximum Offset of Joists Using Single Top Plate**

- Right: 1" offset
- Wrong: 1" offset

**Sill Plate Anchorage**

- Minimum: 2 x 4
- Anchor bolts: 1/2" dia., min. 2 per sill plate, 12" max. 4" min. from end of plate, 6" - 0" d. c. max. nut and washer tightened on each bolt

**Practice**

**Questions?**
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