



I. SOILS & FOUNDATIONS

A. Soils Investigation & Foundation Design

1. A soils investigation report is required for all new foundations for new construction/additions, per code Bulletin B9906-04, with the following exceptions:
 - Additions with a footprint of less than 2,000 sq. ft. and 3 or less storiesReports from adjacent properties may be used; with Engineer's letter of approval.
2. Plans Examiner shall verify that the content complies with Code Bulletin B9906-04:
 - no test pits
 - minimum depth of exploration is 10 feet
 - location of water table
3. Detail on adjacent alleys, sidewalk, yards, etc. and description of required sheeting and shoring must be included as per Code Bulletin B-0503-R1.
4. The description of the proposed structure and the recommendations on foundation must be accurately reflected on the proposed construction plan. Deviations may only be accepted if:
 - Endorsed in writing by the geotechnical engineer; or
 - Foundation plan is sealed by an engineer with a sealed statement confirming that design was based upon the findings of the soils investigation report.
5. A design must meet the prescriptive requirements of Section 1809 of the 2018 IBC, or plans must be sealed by an engineer. Conflicts with the geotechnical report must be resolved as noted above.
 - An architect is not permitted to 'engineer' a foundation system.
 - Foundations must extend at least 30" below grade or meet one of the alternative criteria or exception (low-risk, one-story structures) of Section 1809.9.
 - Where the soils report identifies hydrostatic pressure, the design must comply with ground-water control system requirements of Section 1803.5.4 or waterproofing requirements of Section 1805.3.

B. Excavation & Underpinning

1. Excavations shall not remove lateral support from any footing or foundation without first underpinning or protecting the footing or foundation against settlement or lateral translation, per Section 1804.1.
2. Construction plans must reflect the depth of proposed footings and the depth of adjacent footings. If the proposed footing extends below the adjacent footing, the plan must be sealed by the engineer.
 - Underpinning plans must reflect underpinning details and phasing (including timing). If proposal reflects less than three phases, calculations shall be submitted.
 - Protections other than underpinning must be accompanied by calculations unless otherwise directed by a supervisor.
3. Sheeting and Shoring shall be in accordance with Code Bulletin B-0503-R2.
 - For excavations up to 12', sheeting and shoring shall be described in the soils investigation report.
 - Excavations greater than 5' must meet OSHA standards and sheeting/ shoring must be verified by the engineer at the time of excavation.
 - Excavations deeper than 12' that are within 1.25 * depth of excavation of footway/ adjacent property require engineered plans.



- Where the protection of footways and other public rights-of-way includes permanent protections other than sheeting and shoring (such as tie-backs, soil nailing, etc.) or includes encroachments into the right-of-way, the method and plans shall be approved by the Streets Department.

II. BEARING WALLS & PARTY WALLS

1. Bearing Walls

1. Plans Examiner shall check to ensure that the bearing walls are designed to transfer the structure loads to the foundation, and to ensure that the load transfer to the foundation shall not have an adverse effect on the wall stability.
2. The Plans Examiner shall review the load path of every floor and roof assembly to the bearing wall or column.
3. In structures with cantilevered assemblies, dead or live loads would create a force to the supporting structure. The Plans Examiner shall review the proposed connection for adequate stability.

2. Party Walls (2018 IBC)

1. Plans Examiner shall check to ensure that any wall located on a *lot line* between adjacent buildings, which is used or adapted for joint service between the two buildings, shall be constructed as a *fire wall* in accordance with Section 706.
 - Party walls shall be constructed without openings and shall create separate buildings.
 - A wall that does not encroach over the property line but is built directly adjacent to it is considered an exterior wall (Code Bulletin #B-0702)
2. Plans Examiner shall review the location of the property line to confirm that the proposed or existing wall is a party wall and not an exterior wall.
3. Plans Examiner shall confirm that a party wall is constructed as a fire wall in accordance with Section 706.
 - Party walls shall be constructed without openings and shall create separate buildings.
 - Exception: party walls in anchor buildings and malls shall be in accordance with IBC Chapter 4.
4. Plans Examiner shall confirm that party walls (fire walls) have sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall for the duration of time indicated by the required fire-resistance rating.
5. Plans Examiner should review the joist framed connection into the party wall to confirm that the wall will keep its structural integrity under fire conditions.
 - Party wall can be constructed of any approved noncombustible materials with exception to Type V construction.
 - Break away clips shall be provided shall be provided to protect the structural integrity of the party wall, fire wall or area separation wall.
 - Masonry construction shall comply with Section 2104. No joist shall be installed into a masonry party wall that extends beyond the property line.

III. FLOOR / CEILING FRAMING

A. General:

1. Materials shall be identified (steel, wood, masonry, concrete)

B. 2018 IBC

Wood / Common Lumber:

1. Plans Examiner to verify that the Design Professional checked the following:
 - Structural design loads (Floor live loads) conform to *Table 1607.1*



STRUCTURAL PLAN REVIEW GUIDELINES

- Snow loads conform to (*Section 1608 / ASCE Chapter 7*)
- Common Lumber – Floor joist spans conform to **Table 2308.4.2.1**
- Headers/Girders conform to *Table 2308.4.1.1*
- Common Lumber - Ceiling joist span conform to *Table 2308.7.1*.

Steel:

1. Plans Examiner to verify that the Design Professional checked that steel joist and joist girders shall be in accordance with SJI CJ-1.0; SJI K-1.1; SJI LH/DLH-1.1 or SJI JG-1.1 (*Section 2207*).

C. 2015 IRC

Wood / Common Lumber:

1. Plans Examiner to verify that the Design Professional checked the following:
 - Floor joist spans conform to *Table 502.3.1*
 - Cantilever span for exterior balconies conform to *Table 502.3.3(2)*
 - Truss Design Specs – manufacturer drawings required
 - No cutting or notching in accordance with *Section 502.8*

Cold-form steel:

1. Plans Examiner to verify that the Design Professional checked the following:
 - Floor joist span conform with *Table 505.3.2*
 - Joist sizes conform to *Table 505.2.3*
 - No cutting / notching per *Section 505.3*

Wood Ceiling Joist / Rafters:

1. Plans Examiner to verify that the Design Professional checked the following:
 - Ceiling rafter spans shall conform to *Table 802.5.1*
 - Uplift Strap connections conform to *Section 802.11*
 - Roof ventilation conforms to *Section 806*
 - Attic access conforms to *Section 807*

IV. WALL BRACING

A. Scoping Provisions

1. Effective May 1, 2018. All wood framed systems must include a separate wall bracing plan. Please see <http://www.phila.gov/li/Documents/Wall%20Bracing%20v4.pdf> for info.
2. Engineered Design
 - All prescriptive wall bracing requirements are limited to a building maximum of 3 stories with no pilot house; any building taller must be designed by a Professional Engineer.
3. Prescriptive Requirements
 - 2018 IBC - Section 2308.6
 - 2015 IRC – Section R602.10 (per PA Act 106 of 2008)

B. 2018 IBC Prescriptive Design

1. Plans Examiner must verify that the proposed building is eligible to utilize Prescriptive Bracing Design Methods.
2. Design Professional must identify which method of bracing they will be using (Method 1-7, Section 2308.6.1) or if they will be utilizing the Alternative Bracing Provisions of Section 2308.6.5.1 and submit plans and details that conform to that method.



STRUCTURAL PLAN REVIEW GUIDELINES

3. Plans Examiner must review Wall Bracing Plan and verify that the submitted plans and details comply with the requirements of the bracing method identified including verifying maximum wall spacing and minimum bracing length.
4. Plans Examiner should utilize Figure 2308.6.1 and Table 2308.6.1 to verify compliance with the prescriptive method(s).

C. 2015 IRC Prescriptive Design

1. Plans Examiner must verify that the proposed building is eligible to utilize Prescriptive Bracing Design Methods.
2. Design Professional must identify which method of bracing they will be using (Method 1-8, Section & Table R602.10.4) or if they will be utilizing the Alternative Bracing Provisions of Section R602.10.6 and submit plans and details that conform to that method.
3. Plans Examiner must review Wall Bracing Plan and verify that the submitted plans and details comply with the requirements of the bracing method identified including verifying maximum wall spacing and minimum bracing length.
4. Plans Examiner should utilize Table R602.10.4 to verify compliance with the prescriptive method(s).

D. Engineered Design

1. Professional Engineer must design a wall bracing system that complies with the applicable wind and seismic loading requirements per the ASCE 7 Standard.
2. Professional Engineer must submit plans, details and calculations for the compliance wall bracing system.
3. Plans Examiner must review Wall Bracing Plan and calculations to verify that the plan dimensions and details comply with the design parameters utilized in the calculations. Plans Examiner should not verify formulas and calculations, only building dimensional and connection inputs for correlation. The calculations must be reflective of plan details and must be sealed.

V. MASONRY FACADES (VENEERS)

A. 2018 IBC

1. Construction documents shall show all of the items required by 2016 TMS-402 Section 1.2.1, including the following:
 - Specified size, grade, type and location of reinforcement, anchors, and wall ties.
 - Reinforcing bars to be welded and welding procedure.
 - Size and location of structural elements.
 - Provisions for dimensional changes resulting from elastic deformation, creep, shrinkage, temperature and moisture.
 - Loads used in the design of masonry.
 - Specified compressive strength of masonry at stated ages or stages of construction for which masonry is designed, except where specifically exempted by this code.
 - Details of anchorage of masonry to structural members, frames and other construction, including the type, size and location of connectors.
 - Size and location of conduits, pipes and sleeves.
 - The minimum level of testing and inspection as defined in Chapter 17.
2. Anchored masonry veneer shall comply with Sections 1404.6, 1404.7, 1404.8 and 1404.9 and Sections 6.1 and 6.2 of TMS 402/ACI 530/ASCE 5.



STRUCTURAL PLAN REVIEW GUIDELINES

3. The backing of anchored and adhered masonry shall be of concrete, masonry, steel framing or wood framing per 1403.4.

B. 2015 IRC

1. Plans Examiner to verify that the Design Professional checked the following:
 - Adhered masonry veneers shall comply with Table R703.8 and Figure R703.8, along with the requirements of Sections 6.1 and 6.3 of TMS 402/ACI 530/ASCE 5.
 - Masonry veneer shall be anchored to the supporting wall with corrosion-resistant metal ties in accordance with R703.8.4, and shall be installed along the entire length of the wall at fixed vertical intervals, to ensure that the vertical spacing of the reinforcement does not exceed 24 inches.
 - The internal wythe wall shall be bonded and interlocked to each of the two party walls at maximum vertical intervals of 4 feet.
 - Flashing shall be located below the first course of masonry above finished ground level above foundation wall; at all window and door openings; at wall and roof intersections; under and at the ends of masonry, wood or metal copings and sill; where exterior porches, decks or stairs attach to a wall; and, above all projecting wood trim.
 - Weepholes (minimum 3/16 inch diam.) shall be provided in the outside wythe of the masonry wall at a maximum spacing of 33 inches on center, in veneer wythe at bottom of wall, and above wall openings (minimum of 2 weep holes above openings), and shall be located above the flashing.
 - Masonry over openings shall be supported by steel lintels (minimum 4-inch bearing per side), reinforced concrete or masonry lintels, or masonry arches, designed to support load imposed.

VI. CALCULATIONS

A. Wall Bracing Plans

1. The Plans Examiner shall request from the Design Professional a copy of all calculations used in the structural design of the building.
2. Calculations must be submitted by the Design Professional to ensure compliance of all wall bracing systems.

B. Miscellaneous

1. The Plans Examiner shall have the right to request from the Design Professional a copy of all calculations used in the structural design of any project being reviewed (per Administrative Code Section A-301.6.1).

C. Review

The Plans Examiner is only reviewing structural design criteria and load path.