Supplemental Structural Correction Sheet
Steel Moment Frame Design
(2014 LABC)

Plan Check/PCIS Application No.: ____

Checked By: ____

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If you have any questions or need clarification on any plan check matters, please contact a plan check supervisor or call our Customer Hotline at (213) 482-0056

For instructions and other information, read the master plan check list attached.

References:

- LABC - 2014 City of Los Angeles Building Code, Jan 2014
- AISC 341 - The AISC Seismic Provisions for Structural Steel Buildings, June 22, 2010, published by the American Institute of Steel Construction
- AISC 360 - Specification for Structural Steel Buildings, June 22, 2010
- P/BC 2014-098 - Information Bulletin P/BC 2014-098 for Structural Design Requirements for Steel Moment Frame Connections
- AWS D1.1 - The Structural Welding Code-Steel AWS D1.1/D1.1M:2010 by American Welding Society
- AWS D1.8 - Structural Welding Code-Seismic Supplement AWS D1.8/D1.8M:2009 by American Welding Society
- ASCE 7 - The Minimum Design Loads for Buildings and other structures ASCE 7-10 by American Society of Civil Engineers. Excluding Chapter 14 and Appendix 11A
- ACI 318 - Building Code Requirements for Structural Concrete ACI 318-10 by American Concrete Institute
- AISC 358 - Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications, 2010 with 2011 Supplement No. 1

Information Bulletins, Affidavits and Forms can be obtained from our web site (www.ladbs.org).

A. GENERAL

❑ Refer to Information Bulletin P/BC 2014-098 “Structural Design Requirements for Steel Moment Frame Connections” for qualification requirements and limitations of steel moment frame connections.

❑ Structural design drawings and specifications shall indicate the work to be performed, and include items required by the *AISC 341*, the *AISC Code of Standard Practice for Steel Buildings and Bridges*, the *2014 LABC*, and the following, as applicable:
AISC 341 A4 (1) and A4 (2)

- ❑ Designation of the seismic force resisting system (SFRS).
- ❑ Identification of the members and connections that are part of the SFRS.
- ❑ Locations and dimensions of protected zones.

- ❑ Connection details between concrete floor diaphragms and the structural steel elements of the SFRS.

- ❑ Configuration of the connections.

- ❑ Connection material specifications and sizes.

- ❑ Locations of demand critical welds.

- ❑ Locations where gusset plates are to be detailed to accommodate inelastic rotation.

- ❑ Locations of connection plates requiring Charpy V-notch (CVN) toughness.

- ❑ *Lowest anticipated service temperature* (LAST) of the steel structure, if the structure is not enclosed and maintained at a temperature of 50°F (10°C) or higher.

- ❑ Locations where weld backing is required to be removed.

- ❑ Locations where fillet welds are required when weld backing is permitted to remain.

- ❑ Locations where fillet welds are required to reinforce groove welds or to improve connection geometry.

- ❑ Locations where weld tabs are required to be removed.

- ❑ Splice locations where tapered transitions are required.

- ❑ The shape of weld access holes, if a shape other than those provided for in the *Specification* is required.

- ❑ Joints or groups of joints in which a specific assembly order, welding sequence, welding technique, or other special precautions.

❑ Clearly identify in the structural calculation and structural plan what type of steel moment frame system the building is designed for.

❑ The R value used for design of the steel moment frame system shall not be greater than the least R value of any different structural systems used in the building in the same direction of resistance. Deflection amplification factor, C_d, and the system over strength factor Ω_o in the direction under consideration shall consistent with R factor used in the same direction that is being considered. *ASCE 7 12.2.3.3*

❏ NOTES TO PLANS:

❏ All of the minimum specifications, tables, and notes from the "LADBS Standard Quality Assurance Plan for Steel Moment Frames" shall be attached to OR made part of the structural plans. This can be obtained at http://ladbs.org/faq/steel_moment_std_plans.htm. *P/BC 2014-098 Part D*

❏ Identify prominently on the plan the type of Lateral Force Resisting System the building is designed for. Note to plan "The Lateral Force Resisting System for this building is a (Special Moment Frame) (Intermediate Moment Frame) (Ordinary Moment Frame)."

❏ Provide on plan the special inspection for structural steel shall be in accordance with the quality assurance inspection requirements of AISC 360 and AISC 341.
LABC 1705.2.1, AISC 341 Ch. J and AISC 360 Ch. N

❏ Structural Observation per Section 1704.5.1 is required for this project. The engineer of record shall prepare an observation program, including the name(s) of the individuals or firms who will perform the work. The observation program shall be shown on the first sheet of the structural plans.

❏ Provide the following Structural Observation Checklist in addition to the structural observations that may be required on the structural plan;

❏ Orientation and placement of connected components

❏ Removal of backing bars, as required

❏ Placement of reinforcing fillets, as required

❏ Presence of continuity plates, as required

❏ Welding of continuity plates, as required

❏ Presence and type of doubler plates, as required

❏ Welding of doubling plates, as required

❏ Configuration and finish of access holes

❏ Placement of beam stiffeners, as required

❏ Contour and finish of RBS profile, if applicable

❏ Placement of welds for web connection, as required

❏ Type and placement of bolts

❏ Inaccessible conditions

- ❑ For buildings over 160 feet in height with structural steel moment-resisting frames, comply with LABC 1705.11.1. Special inspection for structural steel shall be in accordance with the quality assurance requirement of AISC 341 during fabrication and erection of building. The engineer responsible for structural design <u>*and*</u> general contractor shall submit a statement in writing to the Department stating that they know from personal knowledge that the material installed and structural work performed is in compliance with the approved plan, specifications and change orders.

  LABC 1705.11.1 and 1705.11.1.1

- ❑ Material Specifications

  - ❑ The structural steel used in SFRS described in Chapters E, F, G and H shall meet one of the following ASTM Specifications : A36, A53, A500(Grade B or C), A501, A529, A572 (Grade 42, 50, or 55), A588, A913 (Grade 50, 60 or 65), A992, A1011 HSLAS Grade 55, or A1043. The structural steel used for column base plates shall meet one of the preceding ASTM specifications or ASTM A283 Grade D.

    AISC 341 A3 (1)

  - ❑ Structural steel used in Seismic Force Resisting (SFRS) shall meet requirements of AISC 360 section A 3.1 except as modified by AISC 341. The specified minimum yield stress of steel to be used for members in which inelastic behavior is expected shall not exceed 50 ksi for SMF and IMF, nor exceed 55 ksi for OMF, unless the suitability of the material is determined by testing or other rational criteria. The specified minimum yield stress of structural steel shall not exceed 65 ksi for columns in systems defined as SMF and STMF.

    AISC 341 A3 (1)

  - ❑ Charpy V-Notch (CVN) Requirements

    - ❑ *Heavy Sections*

      - ❑ Hot rolled shapes with flanges 1 1/2 in. thick and thicker shall have a min. CVN toughness of 20 ft-lb at 70°F. *AISC 341 A3 - 3*

      - ❑ Plates 2 in. thick and thicker shall have a min. CVN toughness of 20ft-lb at 70°F, where the plate is used in the following:

        - ❑ Members built-up from plate
        - ❑ Connection plates where inelastic strain under seismic loading is expected.
        - ❑ The steel core of buckling-restrained braces.

        AISC 341 A3 - 3

❑ *Welded Joints*

❑ All welds used in members and connections, including welds designated as demand critical in the SFRS shall be made with filler metals meeting the requirements specified in Clause 6.3 of the Structural Welding Code - Seismic Supplement (AWS D1.8/D1.8M). *AISC 341 A3 - 4a and 4b*

❑ AWS D1.8/D1.8M requires that all seismic force resisting system welds are to be made using filler metals classified using AWS A5 Standards for CVN toughness, provide a minimum 20 ft-lb at 0°F, and 40 ft-lb at 70°F for demand critical welds. *AWS D1.8 T6.1,T6.2, AISC 341 A3 - 4b*

B. SPECIAL MOMENT RESISTING FRAME (SMF)

❑ PLAN DETAILS

❑ All prequalified connections and connections qualified by cyclic tests with variations such as additional haunches or cover plates, additional welds, or deviations from the tested weld access hole configuration at moment connections are not permitted. *P/BC 2014-098 Part C Sec B.2*

❑ (Column Weak Axis) (Skewed) (Dual Axis) moment connection is not permitted. *P/BC 2014-098 Part C Sec B.2*

❑ For Reduced Beam Section (RBS) moment connections, comply with AISC 358 Section 5.3 for Prequalification limits.

❑ For Bolted Unstiffened and Stiffened Extended End-Plate (BSEEP, BUEEP) moment connections, comply with AISC 358 Section 6.3 for Prequalification limits. Note: SMF systems in direct contact with concrete structural slabs are not prequalified, unless they comply with the condition per AISC 358 Section 6.2.

❑ For other prequalified moment connections, comply with AISC 358 Section 7.3, 8.3,9.3,10.3 for Prequalification limits.

❑ Clearly identify on the plan the location and length of the expected plastic hinging zone. No welded, screwed, bolted, or shot-in attachment is permitted within this zone. See AISC 341 - D1(3) for exception. *AISC 341 I2-1 and D1-3*

❑ Column and beam members used in SMF shall meet the width-to-thickness (λ_{hd}) limitations of Table D1.1 per AISC 341 Chapter D. *AISC 341 D1-1b*

❑ Provide a beveled transition detail where changes in thickness and width of flanges and webs occur in complete joint penetration groove welded column splices. *AWS D1.1 2.7.1, 2.16.1.1*

❑ Column splices shall be located 4 ft or more away from the beam-to-column flange connections, except: *AISC 341 D2 - 5a*

- ❑ When the column clear height between beam-to-column flange connections is less than 8 ft. (2.4 m), splices shall be at half the clear height.

- ❑ Column splices with webs and flanges joined by complete-joint-penetration groove welds are permitted to be located closer to the beam-to-column flange connections, but not less than the depth of the column.

- ❑ Splices in composite columns.

❑ Splice plates or channels used for making web splices in the SFRS columns shall be placed on both sides of the column web. Detail this on the plan.
AISC 341 D2 - 5d

❑ Where groove welds are used for column splice, they shall be complete-joint-penetration groove welds that meet the requirement of AISC 341 A3-4b and I2 - 3 for demand critical welds. Weld tabs shall be removed upon complection of weld. *AISC 341 E3 - 6a*

❑ Panel zone doubler plates shall comply with the requirements per AISC 341 - E3 - 6e(3) as:

- ❑ Doubler plates in contact with the column web.

- ❑ Spaced doubler plates.

- ❑ Doubler plates used with continuity plates.

- ❑ Doubler plates used without continuity plates.

❑ Continuity plate for SMF connection shall be detailed on the plan to match the prequalified connection in AISC 358 or connection prequalified in accordance with Section K1 or tested in accordance with Section K2 of AISC 341.
AISC 341 E3 - 6f

❑ When the beam-to-column moment ratio calculated using Equation (E3-1) is more than 2 (column remains elastic), the column flanges shall be laterally supported at the level of the top flanges of the beams. *AISC 341 E3 - 4c*

❑ When the beam-to-column moment ratio calculated using Equation (E3-1) is less than or equal to 2 (column does not remain elastic), the following requirements shall apply;

- ❑ Column flanges shall be laterally braced at the levels of both the top and bottom beam flanges. Stability bracing shall be either direct by attaching the lateral bracing element to the column flange at or near the desired bracing point to resist lateral buckling or, alternatively shall be indirect by attached to the column flanges, or rather act through the column web or stiffener plates. *AISC 341 E3 - 4c(1)*

- ❏ Each column-flange lateral brace shall be designed for a required strength that is equal to 2 percent of the available beam flange strength $F_y b_f t_{bf}$ (LRFD) or $F_y b_y t_{bf}/1.5$ (ASD), as appropriate. *AISC 341 E3 - 4c(1)*

❏ Where unbraced connections occur in special cases such as two-story frames, atriums and similar architectural spaces. Comply with AISC 341 *E3 - 4c(2)* for unbraced Beam-to-Column connections to avoid lateral-torsional buckling of column. *AISC 341 E3 - 4c(2)*

❏ Beams shall be braced to satisfy the requirements for highly ductile members per AISC 341 - D1 - 2b: *AISC 341 E3 - 4b*

- ❏ Both flanges of beams shall be laterally braced or the beam cross section shall be torsionally braced.

- ❏ The unbraced length between lateral supports shall not exceed 0.086 r_y E/F_y for SMF. *AISC 341 D1-2b*

- ❏ Lateral supports shall be provided near concentrated forces, changes in cross-section and other locations where analysis indicates that a plastic hinge will form during inelastic deformations.

- ❏ The required strength of lateral bracing shall be $M_r = R_y F_y Z$ (LRFD) or $M_r = R_y F_y Z/1.5$ (ASD), and the required strength of lateral bracing of each flange provided adjacent to plastic hinges shall be at least; $P_u = 0.06 R_y F_y Z/h_o$ (LRFD) or $P_a = (0.06/1.5) R_y F_y Z/h_o$ (ASD), and required stiffness shall meet the requirements of Appendix 6 of the AISC 360. *AISC 341 D1 - 2c*

- ❏ The required strength of lateral bracing provided adjacent to plastic hinges for concrete encased composite beams shall be $P_u = 0.06M_{p,exp}/h_o$

❏ The individual thicknesses of column webs and doubler plates, if used, shall not be less than that specified in Equation (E3-7) per AISC 341 E3 - 6e(2).

❏ CALCULATIONS

- ❏ Column members shall satisfy the requirements of AISC 341 D1 - 1 for highly ductile members. The compressive axial strength and tensile strength as determined using the load combinations stipulated in the 2014 LABC including the amplified seismic load. *AISC E3 - 5 and D1 - 4a*

- ❏ The measured flexural resistance of the connection, determined at the column face, shall equal at least 0.80Mp of the connected beam at an interstory drift angle of 0.04 radians. *AISC 341 E3 - 6b*

- ❏ The required shear strength, V_u , of the connection shall be based on load combinations per the 2014 LABC that include the amplified seismic load, where the amplified seismic load due to the effect of horizontal forces is $E_{mh} = 2(1.1R_y M_p)/L_h$ *AISC 341 E3 - 6d*

- ❏ The maximum inelastic response displacement, D_M, of the frame shall not exceed (0.015)(0.020h) (0.025h) per IB-2014-098 Table 1,2,3.

- ❏ The connection of the frame to the Column Base shall be designed to transmit forces to the foundation per IB-2014-098 Part C Sec B.3.a Column base elements include anchor bolts, base plate welds, and any elements that transfer shear, moment, or tension to the foundation.

  P/BC 2014-098 Part C Sec B.3a

  - ❏ The seismic loads to be transferred to the foundation interface shall be based upon the seismic load combinations of ASCE 7 section 12.4.3.2.

  - ❏ Design of concrete elements at the Column Base, including anchor rod embedment and reinforcement steel, shall be in accordance with LABC Chapter 19.

  - ❏ Grade beams shall be provided with ductile detailing per ACI 318 Chapter 21.6 & 21.12

- ❏ Provide calculations to show that the required shear strength, R_u, of the panel-zone is less than the design shear strength, $\Phi_v R_v$, of the panel zone per AISC 341 E3 - 6e.

- ❏ Members shall be sized to provide strong column/weak beam in accordance with Equation (E3 -1) per AISC 341 E3 - 4a.

- ❏ Where column splice occurs, provide calculation to show that the required flexural and shear strength of column splices satisfy AISC 341 E3 - 6g, and AISC 341 D2 -5.

C. INTERMEDIATE MOMENT RESISTING FRAME (IMF)

- ❏ PLAN DETAILS

  - ❏ All prequalified connections and connections qualified by cyclic tests with variations such as additional haunches or cover plates, additional welds, or deviations from the tested weld access hole configuration at moment connections are not permitted. *P/BC 2014-098 Part C Sec B.2*

  - ❏ (Column weak axis) (Skewed) (Dual axis) moment connection is not permitted.

    P/BC 2014-098 Part C Sec B.2

  - ❏ For Reduced Beam Section (RBS) moment connections, comply with AISC 358 section 5.3 for Prequalification limits

  - ❏ For Bolted Unstiffened and Stiffened Extended End-Plate (BSEEP, BUEEP) moment connections, comply with AISC 358 Section 6.3 for Prequalification limits.

❑ For other prequalified moment connections, comply with AISC 358 Section 7.3, 8.3,9.3,10.3 for Prequalification limits.

❑ Clearly identify on the plan the location and length of the expected plastic hinging zone. No welded, screwed, bolted, or shot-in attachment is permitted within this zone. *AISC 341 E2 - 5c and D1 -3*

❑ Column and beam members used in IMF shall meet the width-to-thickness (λ_{md}) limitations of Table D1.1 per AISC 341 Chapter D. *AISC 341 D1 - 1b*
Provide a beveled transition detail where changes in thickness and width of flanges and webs occur in complete joint penetration groove welded column splices. *AWS D1.1 2.7.1, 2.16.1.1*

❑ Column splices shall be located 4 ft or more away from the beam-to-column flange connections, except: *AISC 341 D2 - 5a*

- ❑ When the column clear height between beam-to-column flange connections is less than 8 ft. (2.4 m), splices shall be at half the clear height.
- ❑ Column splices with webs and flanges joined by complete-joint-penetration groove welds are permitted to be located closer to the beam-to-column flange connections, but not less than the depth of the column.
- ❑ Splices in composite columns.

❑ Splice plates or channels used for making web splices in the SFRS columns shall be placed on both sides of the column web. Detail this on the plan. *AISC 341 D2 - 5d*

❑ Where groove welds are used for column splice, they shall be complete-joint-penetration groove welds that meet the requirement of AISC 341 A3 - 4b and I2 - 3 for demand critical welds. *AISC 341 E2 - 6a*

❑ Continuity plate for IMF connection shall be detailed on the plan to match the prequalified in AISC 358 or connection prequalified in accordance with Section K1 or tested in accordance with Section K2 of AISC 341. *AISC 341 E2 - 6f and E3 - 6f*

❑ Beams shall be braced to staisfy the requirements for moderately ductile members per AISC 341 D1 - 2a: *AISC 341 E2 - 4a*

- ❑ Both flanges of beams shall be laterally braced.
- ❑ The unbraced length between lateral supports shall not exceed $0.17 r_y E/F_y$ for IMFs per Equation D1 - 2.
- ❑ Lateral supports shall be provided near concentrated forces, changes in cross-section and other locations where analysis indicates that a plastic hinge will form during inelastic deformations.

- ❑ The required strength of lateral bracing shall meet the requirements of Appendix 6 of the AISC 360.

❑ CALCULATIONS

- ❑ Column members shall satisfy the requirements of AISC 341 D1 -1 for moderately ductile members. The compressive axial strength and tensile strength shall be determined using the load combinations stipulated in the 2014 LABC including the amplified seismic load. *AISC 341 E2 - 5a and D1 - 4a*

- ❑ The measured flexural resistance of the connection, determined at the column face, shall equal at least .80Mp of the connected beam at an interstory drift angle of 0.02 radians. *AISC 341 E2 - 6b*

- ❑ The required shear strength, V_u , of the connection shall be based on load combinations per the 2014 LABC that include the amplified seismic load, where the amplified seismic load due to the effect of horizontal forces is $E_{mh} = 2(1.1R_yM_p)/L_h$ *AISC 341 E2 - 6d*

- ❑ The maximum inelastic response displacement, D_M, of the frame shall not exceed (0.015h) (0.020h) (0.025h) per IB 2014-098 Table 1,2,3.

- ❑ The connection of the frame to the Column Base shall be designed to transmit forces to the foundation per IB-2008-098 Part C Sec B.3.a Column base elements include anchor bolts, base plate welds, and any elements that transfer shear, moment, or tension to the foundation. *P/BC 2014-098 Part C Sec B.3.a*

  - ❑ The seismic loads to be transferred to the foundation soil interface shall be based upon the seismic load combinations of ASCE 7 section 12.4.3.2.

  - ❑ Design of concrete elements at the Column Base, including anchor rod embedment and reinforcement steel, shall be in accordance with LABC Chapter 19.

  - ❑ Grade beams shall be provided with ductile detailing per ACI 318 Chapter 21.6 & 21.12

- ❑ Where column splice occurs, provide calculation to show that the required flexural and shear strength of column splices satisfy AISC 341 D2 -5, and AISC 341 E2 - 6g.

- ❑ R value used in determining the base shear shall be limited to 4.5 Limited height to (35 ft) (65 ft). Limit story to (No Limit) (1). Limit weight of each wall, roof or floor to (No Limit) (20 psf) (35 psf). *P/BC 2014-098 Table 1,2,3*

- ❑ For moment joint field connections with bolts, framing shall be limited to 1 story metal buildings only up to 65 ft high. *P/BC 2014-098 Table 1,2,3*

D. ORDINARY MOMENT RESISTING FRAME (OMF)

- ❑ PLAN DETAILS

  - ❑ All prequalified connections and connections qualified by cyclic tests with variations such as additional haunches or cover plates, additional welds, or deviations from the tested weld access hole configuration at moment connections are not permitted. *P/BC 2014-098 Part C Sec B.2*

  - ❑ (Column weak axis) (Skewed) (Dual axis) moment connection is not permitted. *P/BC 2014-098 Part C Sec B.2*

  - ❑ Provide a beveled transition detail where changes in thickness and width of flanges and webs occur in complete joint penetration groove welded column splices. *AWS D1.1 2.7.1, 2.16.1.1*

  - ❑ Column splices shall be located 4 ft or more away from the beam-to-column flange connections, except: *AISC 341 D2 - 5a*

    - ❑ When the column clear height between beam-to-column flange connections is less than 8 ft. (2.4 m), splices shall be at half the clear height.

    - ❑ Column splices with webs and flanges joined by complete-joint-penetration groove welds are permitted to be located closer to the beam-to-column flange connections, but not less than the depth of the column.

    - ❑ Splices in composite columns.

  - ❑ Splice plates or channels used for making web splices in the SFRS columns shall be placed on both sides of the column web. Detail this on the plan. *AISC 341 D2 - 5d*

  - ❑ Where column splice subject to net tensile load effect and where partial-joint-penetration (PJP) groove welds are used for column splice, they shall be at least design for 200 percent of required strength. *AISC 341 D2 - 5b(1)*

  - ❑ Continuity plate for OMF connection shall be detailed on the plan and in accordance with Sections J10.1, J10.2 and J10.3 of AISC 360. Provide continuity plate per AISC 340 E1 - 6b *AISC 341 E1 - 6b*

  - ❑ The shape of web access holes shall be in accordance with subclause 6.10.1.2 of AWS D1.8/D1.8M. Weld access hole quality requirements shall be in accordance with subclause 6.10.2 of AWS D1.8/D1.8M. *AISC 341 E1 - 6b(c)*

  - ❑ Column and beam members are limited to wide flanges only (except for steel moment frame with “Symmetrical Shapes” in IB-2014-098 Table 1,2,3).

  - ❑ Fully restrained moment connections that are part of the SFRS shall satisfy at least one of the following requirements: *AISC 341 E1 - 6b*

- ❑ The required flexural strength shall be equal to $1.1R_yM_p$ (LRFD) or $(1.1/1.5)R_yM_p$ (ASD). The required shear strength, Vu or Va, shall be based on the load combinations stipulated in the 2014 LABC including the amplified seismic load, where the amplified seismic load due to the effect of horizontal forces, including overstrength, is $E_{mh} = 2(1.1R_yM_p)/L_{cf}$.

- ❑ Fully restrained moment connections shall be designed for a required flexural strength and a required shear strength equal to the maximum moment and corresponding shear that can be transferred to the connection by the system, including the effects of material overstrength and strain hardening.

❑ Continuity plates shall be detailed on the plan as follows: *AISC 341 E3 - 6f*

- ❑ For two-sided connections, the minimum thickness of continuity plate shall equal to that of the thicker of beam flanges (or beam-flange connection plate). For one-sided connections, continuity plate thickness shall be at least one half of the thickness of the beam flange (or beam-flange connection plate).

- ❑ Continuity plates shall be welded to column webs using groove welds or fillet welds. The welding strength shall comply with AISC 341 E3 - 6f.

❑ CALCULATIONS

- ❑ Provide width-to-thickness ratios of members for OMF to comply with AISC 360 requirements. *AISC 341 E1 - 5a*

- ❑ For Fully Restrained connections

  - ❑ Comply with AISC 341 E1 - 6b for a flexural strength that is equal to $1.1R_yM_p$(LRFD) or $(1.1/1.5)R_nM_p$ (ASD), as appropriate , of the beam or girder, or the Maximum moment that can be developed by the system, whichever is less. *AISC 341 E1 - 6b*

  - ❑ For FR connections, the required shear strength V_u (LRFD)or V_a (ASD), as appropriate of the connection shall be determined using the E for earthquake load effect per Eq (E1-1) of AISC 341. *AISC 341 E1 - 6b*

    - ❑ Where E is used for strength design, the required shear strength, Vu of the connection shall be determined using load combination 1.2D + 1.0E + L +0.2S (where L can be reduced to 0.5 per exception of Section 2.3 of ASCE 7-10).

    - ❑ The required shear strength need not exceed the shear resulting from the application of appropriate load combination stated in the applicable code using the amplified seismic load.

- ❑ For Partial Restrained (PR) moment connections, comply with AISC 341 E1 - 6c.

- ❏ The maximum inelastic response displacement, D_M, of the frame shall not exceed (0.015h) (0.020h) (______) per P/BC 2014-098 Table 1,2,3.

- ❏ The connection of the frame to the Column Base shall be designed to transmit forces to the foundation per P/BC 2014-098 Part C Sec B.3.a Column base elements include anchor bolts, base plate welds, and any elements that transfer shear, moment, or tension to the foundation.
  P/BC 2014-098 Part C Sec B.3.a

  - ❏ The seismic loads to be transferred to the foundation soil interface shall be based upon the seismic load combinations of ASCE 7 section 12.4.3.2.

  - ❏ Design of concrete elements at the Column Base, including anchor rod embedment and reinforcement steel, shall be in accordance with LABC Chapter 19.

  - ❏ Grade beams shall be provided with ductile detailing per ACI 318 Chapter 21.6 & 21.12

- ❏ Where column splice occurs, provide calculations to show that the required flexural and shear strength of column splices satisfy AISC 341 D2 - 5.

- ❏ OMF shall only be used in Light Frame Construction, Metal Buildings, or Miscellaneous Structures. *P/BC 2014-098 Table 1,2,3*

- ❏ R value used in determining the base shear shall be limited to (1.5) (3.5). The height shall be limited to (35 ft) (65 ft). The number of stories shall be limited to (1). Limit weight of each roof, wall, or floor shall be limited to(20 psf)(35 psf).
  P/BC 2014-098 Table 1,2,3