DIVISION 1 - GENERAL REQUIREMENTS

- 1.1 CONSTRUCTION MEANS AND METHODS A. Contractor and Subs shall not scale drawings for purposes of construction. Notify Architect of any dimensional discrepancies found between disciplines.
- B. Contractor agrees that Contractor shall assume sole and complete responsibility for job site conditions during the course of the Work, including safety of all persons and property: that this requirement shall apply continuously and not be limited to normal working hours; and that Contractor shall defend, indemnify, and hold Owner and Structural Engineer harmless from any and all liability, real or alleged, in connection with the performance of the Work on this Project, excepting for liability arising from the sole negligence of Owner or Structural Engineer.
- C. The Contract Documents represent the finished structure. They do not include the method of construction. Contractor shall provide all measures necessary to protect the structure during construction. Such measures shall include, but not be limited to: protection of subgrade from freezing conditions, bracing, shoring for loads due to construction equipment, temporary structures, and partially completed work. Observation visits to the site by Structural Engineer
- shall not include inspection of the above items. D. KPFF Consulting Engineers shall not have control over or charge of and shall not be responsible in any way for construction means. methods, techniques, sequences, or procedures, or for safety or safety precautions and programs in connection with any construction activities, since these are solely Contractor's responsibility under the Contract.
- E. KPFF Consulting Engineers shall not be responsible for Contractor's schedule or failures to carry out any construction activities in accordance with the Contract Documents. KPFF Consulting Engineers shall not have control over or charge of actions of Contractor, Subcontractor. or any of their Agents, or employees, or any other persons performing portions of any construction activities.
- F. The structure is stable only in its completed form. Temporary supports which may be required for stability of the structure during all intermediate stages of construction shall be determined. furnished and installed by the Contractor.
- 1.2 SUBMITTALS A. Submittals prepared by Subcontractors shall be reviewed by Contractor prior to submitting to Architect. B. Reproduction of Structural Drawings shall be in accordance with AISC Code of Standard Practice.
- C. CAD files prepared using KPFF standards may be made available to the General Contractor upon receipt of an executed CAD File Transfer Agreement between KPFF and the General Contractor. I the event CAD files are made available, one copy in AutoCAD 2007 format will be provided to the General Contractor for their use specifically for this Project and distribution to its Subcontractors working on the Project.
- D. Contractor shall verify the structurally supported equipment weights, opening sizes, and locations indicated on the Structural Drawings with Documents from other disciplines and notify Architect of any discrepancies.
- E. Contractor shall submit Shop Drawings showing size, method of anchorage, weight, openings, and locations of equipment not indicated on the Structural Drawings prior to ordering for review by Structural Engineer to determine adequacy of the structure. F. All submittals reviewed by Structural Engineer are reviewed for
- general conformance with design concept only and does not relieve the fabricator/vendor of responsibility for conformance with design drawings and Specifications, all of which have priority over submittals. G. Submittals shall be reviewed within 10 working days after being
- received by Structural Engineer.
- 1.3 QUALITY REOUIREMENTS A. Reference to standard specifications or codes of any technical society, organization, or association or to codes of local or state authorities, shall mean the standards in effect as of date of the Contract Documents, unless otherwise noted. B. Contract Documents shall govern in the event of a conflict with
- standard specifications or codes of any technical society, organization, or association. C. No provision of any referenced standard specification or code.
- whether or not specifically incorporated by reference in the Contract Documents, shall be effective to change the duties and responsibilities of Owner, Architect, Structural Engineer, Contractor, or any of their Consultants, Agents, or employees from those set forth in the Contract Documents, nor shall it be effective to assign to Structural Engineer or any of Structural Engineer's Consultants, Agents, or employees any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibilities contrary to the provisions of the Contract Documents D. Structural Documents are being released prior to Documents of
- other disciplines. Contractor shall coordinate Structural Documents with other portions of the Contract Documents as they are released. Report any discrepancy or omission to Architect and Structural
- E. All omissions and conflicts within the Contract Documents shall be brought to the attention of Architect prior to proceeding with the Work.
- F. Contractor shall verify dimensions and conditions at the job site. Any discrepancies between the conditions found and those indicated in the Contract Documents shall be brought to the attention of Architect prior to proceeding with the Work. G. No pipes, conduits, sleeves, ducts, chases, etc. shall be placed
- within structural walls, beams, slabs or columns nor shall any structural members be cut for pipes, ducts, etc., unless specifically noted. Notify Structural Engineer when Documents by other disciplines show openings, pockets, conduits, pipes, sleeves, etc. not indicated in the Structural Drawings, but are located in structural members. Contractor shall obtain prior approval from Structural Engineer for installation of such pipes, ducts, chases, etc.
- H. Details labeled "Typical" on the Structural Drawings apply to all situations occurring on Project that are the same or similar to those locations specifically indicated. Where a detail is not indicated, the detail shall be the same as for other similar conditions.
- I. The design responsibility of the elements listed below is being delegated to a Specialty Structural Engineer hired by the Contractor. The designated elements shall be designed in accordance with the Building Code and specific requirements in the contract documents by an engineer licensed in the state where the Project is located. Submittals shall be sealed by the responsible licensed Engineer. The following elements and their connections shall be designed by a Specialty Structural Engineer:
- Excavation support Temporary bracing and shoring
- Structural steel connections Open web steel joists
- 5. Seismic Anchorage and Sway Bracing of Mechanical, Electrical and Plumbing Systems Components 5. Stairs
- . Ladders 8. Curtainwall
- 9. Secondary steel and metal strut support framing for ceilingand wall-mounted medical equipment and accessories, including lead and RF shielding 10. Secondary steel framing and anchorage of floor-mounted medical equipment

STRUCTURAL GENERAL NOTES

1.4 STRUCTURAL SPECIAL INSPECTIONS Special inspections shall be in accordance with the governing

- Building Code and the Statement of Special Inspections on Sheet 1.5 DESIGN CRITERIA: A. The structure is designed in accordance with the ICC International Building Code, 2012 Edition. 1. Building Risk Category II Provisions have been made for future second floor infill of clerestory. Gravity Loads: 1. Uniform Roof Live Loads: a. Live Load: 20 psf, (reduced as allowed by the Building b. Snow Load: Ground Snow Load: 20 psf Flat Roof Snow Load: 20 psf) Snow Exposure Factor: 1.0) Snow Importance Factor: 1.0 5) Snow Thermal Factor: a) Building: 1.0 b) Canopy: 1.2 6) See Sheet S1.7 for snow drifting diagrams. 2. Uniform Floor Live Loads (reduced as allowed by the Building Code. unless otherwise noted): Corridors - above the 1st Floor 80 ps[.] Offices 80 ps⁻ Lobbies and Public Areas 100 psf Stairs 100 psf 3. Concentrated Floor Live Loads a. Loads are distributed over an area of 2-1/2 sq. ft., unless noted otherwise. Offices buildings 300 lb. (over 4 sq. in.) Stairs 4. Concentrated Lateral Live Loads a. Handrail assemblies: 1) Top Rail: 200 lb. or 50 lb/ft applied non-concurrently in any direction. 2) Intermediate rails, balusters, filler panels, etc.: 50 psf applied non-concurrently with the top rail D. Lateral Loads: 1. Wind Design Data a. Basic Wind Speed: 115MPH b. Importance Factor: 1.0 c. Exposure: (d. Enclosure Classification: Enclosed Building Internal Pressure Coefficient: +/-0.18 Components and Cladding Design Wind Pressures (psf) Area: 10sf 50sf 100sf L) Zone 1 36 34 33) Zone 2 60 45 39) Zone 3 60 45 39 4) Zone 4 36 31 28 5) Zone 5 44 34 28 2. Earthquake Design Data a. Seismic Importance Factor: 1.0 b. Mapped Spectral Response Accelerations: Ss=0.113, S1=0.067 c. Site Classification: C d. Spectral Response Coefficients: Sds=0.091, Sd1=0.075 . Seismic Design Category: B . Basic Seismic Force Resisting System: Steel Systems not Specifically Designed for Seismic Resistance Design Base Shear : V=135k Seismic Response coefficient: Cs=0.03 Response Modification Factor, R: 3.0 Deflection Amplification Factor, Cd: 3.0 Analysis Procedure: Equivalent Lateral Force
 - 3. MEP Seismic Anchorage: a. Contractor shall design and install MEP supports in accordance with the latest local Ordinances and Building Code.
 - b. Power actuated fasteners installed in concrete shall not be used to resist seismic loads.

DIVISION 2 - FOUNDATIONS

2.1 GENERAL

A. Foundation design is based upon recommendations in the geotechnical report prepared by Alpha-Omega Geotech dated October 26, 2017. Structural Engineer is not responsible for subsurface conditions encountered in the field that are different from those assumed in design. 1. Prepare building site in accordance with Geotechnical and Civil recommendations and specifications. Site is underlain with highly plastic clays that shall be remediated in accordance with Geotechnical report. B. Owner's Geotechnical Representative shall certify the bearing medium. C. Excavations shall be kept free of loose material and standing

2.2 FOOTINGS A. Individual spread footings and continuous footings shall bear on and be formed by clean, undisturbed, virgin, sub-soil or compacted engineered fill with an allowable bearing pressure of 3000 psf and 2500 psf, respectively. 1. No footing shall bear on rock. Undercut rock a minimum of 2 feet below the bottom of footing and replace with compacted engineered fill.

DIVISION 3 - CONCRETE

- 3.1 REINFORCING A. GENERAL
- 1. Reinforcing steel shall be ASTM A615. Grade 60. deformed bars. unless noted otherwise. Welding of ASTM A615, Grade 60 reinforcing is not allowed. 2. Reinforcing steel to be welded shall be ASTM A706, deformed
- 3. Welded wire reinforcing shall be ASTM A185, contact lap spliced 12 inches minimum. 4. All reinforcing bars shall be detailed, fabricated, supported,
- and placed in accordance with ACI 315-99 "Details and Detailing of Concrete Reinforcement" and CRSI's "Manual of Standard Practice." 2009.
- 5. Reinforcing, including dowels, shall be securely tied and cast with the lower member. Placing reinforcing after concrete has been placed is not permitted.
- 6. Field bending of reinforcing partially embedded in concrete is not allowed unless specifically noted in the Structural
- Documents or approved by Structural Engineer. 7. Provide dowels from foundation the same grade, size, and number as vertical wall or column reinforcing, unless noted otherwise. 8. Provide corner bars to match horizontal reinforcing at corners and intersections.
- 9. Adhesive for reinforcing dowels into existing concrete shall be Hilti HIT HY 200 or approved equal. Minimum embedment length shall be 12 bar diameters. unless noted otherwise.
- 10. Mechanical couplers shall be uni-axial type capable of developing 125% of the specified yield strength of the bar in tension. Splices made using mechanical couplers shall be staggered by twice the length of the coupler. 11. All reinforcing shall be contact lap spliced or doweled as
- follows: #3 bars -- 25" #7 bars -- 71" #4 bars -- 33" #8 bars -- 81" #5 bars -- 41" #9 bars -- 91" #6 bars -- 49" #10 bars -- 102"
- B. WALLS 1. Provide #4 at 12" o.c. horizontal and vertical in each face of all walls 10" and thicker, unless noted otherwise. 2. Provide #4 at 12" o.c. horizontal and vertical at center of all walls 8" and thinner, unless noted otherwise. C. BEAMS
- Provide 2-#5 stirrup spacers in all beams. D. SLABS
- 1. Provide slab bolsters, high chairs, and #5 support bars as necessary to maintain proper placement of reinforcing. 2. Provide 2-#5 top x 5'-0" diagonals at corners of openings and re-entrant corners, unless noted otherwise.
- 3.2 CAST-IN-PLACE CONCRETE A. Reinforced concrete shall be normal weight and have a minimum 28-day compressive strength of 4000 psi.
- B. All concrete to have the following unit weights (+/- 3 pcf): Normal weight concrete: plastic = 145 pcf
- Lightweight: plastic = 120 pcf, air-dried = 115 pcf C. All concrete exposed to freezing and thawing and deicer chemicals shall have 6% (+1%/-1.5%) air entrainment. Do not air entrain concrete to be trowel finished.
- D. Provide concrete cover for reinforcing as follows: Concrete cast against and permanently exposed to earth..... Concrete exposed to earth or weather. Concrete not exposed to weather or in contact with ground: a. Slabs and walls.. b. Beams and columns.
- E. For concrete cast on metal deck, concrete thickness indicated is nominal. Contractor shall allow for the deflection of the floor assembly due to the wet weight of the concrete when calculating concrete quantity. F. Provide construction or control joints in slab-on-grade as indicated
- in the Structural Drawings. If joint pattern is not indicated, provide joints at 10 feet (+/-) in both directions and located to conform to bay spacing wherever possible (at column centerlines, half bays, third bays, etc.). G. Interface of construction joints shall be roughened to a full amplitude of 1/4". Surface of construction joints shall be clean
- and free of laitance. Immediately before new concrete is placed. construction joints shall be wetted and standing water removed. H. See Architectural Drawings for waterstops. T. Provide compressible filler and sealant in slab-on-grade and wall
- and column interfaces that are not doweled together J. All column pockets shall be filled with concrete after column is erected
- K. Non-structural embeddments (conduit, pipes, sleeves, etc.)within walls, beams, or slabs shall be submitted to the Structural Engineer and Architect for review and approval prior to construction. All embeddments shall be fabricated and installed in accordance with ACI standards, including but not limited to the following: Aluminum materials shall not be embedded in structural concrete. Overall outside dimension of embeddments shall not exceed 1/3 the concrete member thickness up to 2 inch maximum.
- a. For concrete slabs on metal deck the member thickness shall be the continuous slab thickness above the deck Embeddments shall be spaced a minimum of 6 inches on center. Embeddments shall not alter or displace reinforcing. Embeddments within columns shall not displace more than 4
- percent of the area of the column cross section. L. At floor drains, locally slope floor towards drain. See Documents from other disciplines for drain locations. M. Unless noted otherwise, structural slabs exposed to weather shall be sloped approximately 1/4 inch per foot away from occupied
- space toward floor drains, scuppers, gutters, etc. For exterior non-structural flatwork (eg. sidewalks, pavement) reference Civil site plan and specifications. N. See Architectural Documents for molds, grooves, ornaments, clips, etc. required to be encased in concrete and for location of floor

DIVISION 4 - CONCRETE MASONRY (Not Applicable)

finishes and slab depressions.

DIVISION 5 - METALS

5.1 STRUCTURAL STEEL

- A. GENERAL the applicable provisions of the following:
 - and Bridges A490 Bolts
- 2. All steel permanently exposed to view shall be designated as architecturally exposed structural steel.
- a. W's and WT's b. Plates & other shapes ASTM A36 HSS:
- d. Pipe e. Bolts
- hex head f. Anchor Rods Threaded Rod
- Headed Studs Flectrodes
- connections unless noted otherwise.
- fabrication.
- been sized for local effects at connections.
- 9. Minimum factored beam shear reaction is 10 kips.
- noted otherwise. 11. Minimum bolt diameter shall be 3/4".
- - Beam Size W8 | W10 | W12 W14 | W16 | W18 W21 | W24 W27 | W30 W33 | W36 W40 | W44
- in the shear plane: a. Moment frames
- . Vertical braces Beam and girder connections to columns Hangers
- prior to fabrication.
- of 3-1/2".
- B. STEEL LINTELS
- L5x5x5/16 for spans less than 7'-11"
- unless noted otherwise.
- shall be galvanized.
- C. ANCHORS TO CONCRETE AND MASONRY Expansion anchors shall be as follows:
 - approved equal . Solid, lightweight concrete over metal deck: Hilti Kwik
- approved equal 3. Adhesive anchors shall be as follows:
- noted otherwise:
- L/2" diam. : 3-1/2" embedment
- 8. When installing anchors:
- instructions instructions.
- cast in place anchors

- anchors where supported item is galvanized. Simpson products shall be ASTM A36 threaded rod. 3/8" diam. : 2-1/2" embedment
- 5/8" diam. : 4" embedment 3/4" diam. : 4-3/4" embedment 1" diam. : 6" embedment noted otherwise: 3/8" diam. : 3-1/2" embedment 1/2" diam. : 4-1/4" embedment
- 5/8" diam. : 5" embedment 3/4" diam. : 6-5/8" embedment 1" diam. : 8-1/4" embedment a. Do not cut existing reinforcing
- the anchor unless noted otherwise.
- shall be re-trained and re-certified

- shall be included with the submittal package.



1. Structural steel fabrication and erection shall comply with a. AISC 360- 10 Specification for Structural Steel Buildings b. AISC 303- 10 Code of Standard Practice for Steel Buildings c. Specification for Structural Joints using ASTM A325 or

3. Materials shall conform to the following, unless noted otherwise. ASTM A992

ASTM A500, Grade B or C ASTM A53, Type E or S, Grade ASTM A325, 3/4" diameter (min.),

ASTM F1554, Grade 36 with A36 washers and heavy hex nuts, uno

AWS D1.1, Type B Matching strength, 70 ksi min. 4. General notes for steel connections shall apply to all steel 5. The contractor shall be responsible for the design, detailing,

and fabrication of all steel framing connections unless specifically detailed on the Structural Drawings. The contractor shall retain a structural engineer for the design of the connections who is licensed to perform the work in the jurisdiction where the project is located. Submit signed and sealed calculations to the Architect for review and approval prior to starting

6. Steel connection details shown on the Structural Drawings indicate general concept and minimum criteria for design and detailing and are not intended to show complete connection configurations or other specific information that are the

responsibility of the connection design engineer. Alternative connection configurations may be submitted to the Architect for review and approval. Connections specifically detailed on the Structural Drawings are to be fabricated as shown. 7. Connections shall be capable of resisting vertical and horizontal loads listed on the Structural Drawings. Connection design shall provide an adequate load path to transfer the loads

from each member, through the connection, into the supporting member, and shall consider the effects of the forces on each member. Members shown on the Structural Drawings have not 8. Loads provided in the Structural Drawings for the design of

connections are factored and shall be considered to act simultaneously. 10. Detail steel beam connections as simple span beams, unless

12. Unless noted otherwise in the drawings, minimum number of bolts required in a beam web connection shall be as follows:

Min. No. of Bolts

13. Minimum thickness of connection angles shall be 5/16". Minimum thickness of connection shear plates shall be 3/8". 14. Bolted connections at the following locations shall be designed

as fully tensioned bearing connections with threads included

15. Bolted connections designated as fully tensioned shall be installed with direct-tension indicator washers or tension-control 16. Use prequalified welded joints in accordance with AISC and AWS D1.1:2000. Non-prequalified joints shall be qualified 17. Studs for composite beams using 2" composite metal deck shall

be 3/4" diameter with final installed length after welding

1. Loose lintels supporting brick masonry shall be the following

UNO, one angle (LLV) per 4" nominal width of masonrv: L5x5x3/8 for spans between 8'-0" and 9'-11"

2. Lintels bearing on masonry shall have 8" minimum bearing, 3. Exterior lintels whether loose or attached to the structure

4. Contractor shall coordinate with the Structural Drawings and Documents of other disciplines for openings.

1. Anchors shall be expansive anchors, unless noted otherwise. a. Solid, normal weight concrete, including normal weight concrete over metal deck: Hilti Kwik Bolt TZ (ICC-E ESR 1917), Simpson Strong-Bolt 2 (ICC-ES ESR 3037) or

Bolt TZ (ICC-ES ESR 1917), Hilti Kwik Bolt 3 (ICC-ES ESR 2302), Simpson Strong-Bolt 2 (ICC-ES ESR 3037) or

a. Solid, normal weight concrete: Hilti HIT-RE 500-SD (ICC-FS ESR 2322), Hilti HY 200-SD (ICC-ES ESR 3187), Simpson SET-XP (ICC-ES ESR 2508), or approved equal. 4. Anchors shall be plain, uncoated except provide galvanized 5. Anchor rods used with Hilti products shall be Hilti HAS-E threaded rod (ISO 898 Class 5.8). Anchor rods used with 6. Expansion anchor embedment depth shall be as follows, unless

7. Adhesive anchor embedment depth shall be as follows, unless

b. Install anchors to accommodate the standard hole size in the supported steel member. The hole diameter through the supported steel member shall be 1/16" larger than c. Holes shall be drilled and cleaned per the manufacturer's d. Anchors shall be installed per manufacturer's installation 9. All personnel installing anchors shall be trained and certified

by the adhesive anchoring system manufacturer. If failures occur at any time during testing or construction, then personnel 10. Post installed anchors shall only be used where specified on the drawings. Contractor shall obtain approval from Engineer prior to using post installed anchors for missing or misplaced

11. Substitution requests for products other than those listed above shall be submitted to the Engineer of Record with calculations that are prepared and sealed by a registered Professional Engineer showing that the substituted product will achieve an equivalent capacity using the appropriate design procedure required by the Building Code. Product ICC-ES code reports

5.2 STEEL JOISTS

A. GENERAL 1. Steel joists without specified chord size or designated as SP shall be designed by Contractor for the superimposed loads indicated in the Structural Drawings. Where joists are designated similar to 24K(xxx/yyy), xxx is the total service load in pounds/ft and vvv is the service live load in pounds/ft. Loads indicated do not contain allowance for the self-weight of

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other documents or instruments not sealed by this Professional Engineer relating to, or intended to be used

this page refers.

for, any part or parts of the engineering project to which

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MO Certificate of Authority

No. 2001010829

- the joists.
- 2. Align all steel joist panel points to permit passage of mechanical ductwork. See Mechanical Documents for size and location of ductwork.
- 3. Steel joists shall have bridging sized and spaced in accordance with SJI Standard Specifications.
- 4. Steel joist manufacturer shall provide special seats in accordance with SJI for joists sloping more than 1/4 inch per foot.
- 5. Steel joists shall be designed for a minimum net uplift of
- B. K-SERIES JOISTS
- 1. Steel K joists shall be designed, fabricated, and erected in accordance with SJI "Standard Specifications for Open Web Steel Joists, K-Series," 1994.
- 2. Steel K joists, unless noted otherwise, shall have a minimum bearing length of 2-1/2" on steel supports. Each joist, unless
- noted otherwise, shall be field welded to the supporting steel with two 1" long x 1/8" fillet welds.

LONGSPAN LH-SERIES AND DLH-SERIES STEEL JOISTS

erection with two 3/4" diameter bolts.

DIH-Series." 1994.

noted otherwise.

not engage the support.

spacing

SDI COSP-2012.

2. Roof deck shall be painted.

etc. from the roof deck.

1) Weld Pattern: 36/5

1) Weld Pattern: 24/4

1) Weld Pattern: 24/4

) Sidelap welds: 24"oc

Composite floor deck shall be galvanized

) Weld Pattern: 36/4

a. Structural Steel Sheet

b. Self-Drilling Screws

against the inside track web.

c. Electrodes

of 1-1/8".

L) 0.0451 inch thick or less

shall be installed to provide such bearing.

2" of weld at 12" o.c. each side.

and 54 is the material thickness in mils.

thickness shall be 54 mil.

DIVISION 6 - WOOD (Not Applicable)

END OF STRUCTURAL GENERAL NOTES

2) 0.0566 inch thick or greater

min

weld as follows:

C. COMPOSITE FLOOR DECK

5.4 COLD-FORMED METAL FRAMING

A. GENERAL

noted otherwise.

b. At 3" roof deck:

ROOF DECK

5.3 METAL DECK

A. GENERAL

1. Steel LH and DLH joists shall be designed, fabricated, and

2. Steel LH and DLH joists shall have a minimum bearing length

3. Field bolt joists located at columns for stability during

of 4" on steel supports and shall be field welded to the

erected in accordance with SJI "Standard Specifications for

Longspan Steel Joists, LH-Series and Deep Longspan Steel Joists,

supporting steel with two 2" long x 1/4" fillet welds, unless

. Deck shall be continuous over 3 spans, unless noted otherwise.

or provide shims at fastening points if the deck valley does

2. At supports parallel to the deck span, raise steel supports

3. At Contractor's option, Hilti X-EDN and ENP fastening systems

4. Metal deck accessories, including but not limited to: girder

fillers, Z-closures, and cover plates; that are integral

same material, finish and minimum thickness as the metal

deck. Accessories shall be anchored to supporting members

1. Roof deck shall be designed, fabricated, and installed in

3. 1-1/2" wide rib roof deck with design thickness 0.0358" (20

in^4/ft, Sp=0.234 in^3/ft, Sn=0.247 in^3/ft, Fy=33 ksi

4. 3" roof deck with design thickness 0.0295" (22 gauge) shall

5. Do not support ducts, ceilings, lights, plumbing, sprinklers, etc. from the roof deck Do not support ducts, ceilings, lights, plumbing, sprinklers,

Roof deck shall be welded to supports, both perpendicular

a. Typical installation, unless noted otherwise:

2) Sidelap Fasteners: 5/span, maximum 18"

2) Sidelap Fasteners: 5/span, maximum 18"

and parallel to the deck, with 5/8" diameter puddle welds

and fastened at sidelaps with No. 10 screws as follows, unless

2" acoustical roof deck shall be welded to supports, both

puddle welds and fastened at sidelaps with 1 ½" fillet

1. Composite floor deck shall be designed, fabricated, and installed

in accordance with "SDI Specifications and Commentary for

Shore composite floor deck where required by manufacturer

4. 2" composite deck with design thickness 0.0358" (20 gauge)

Composite Steel Floor Deck" in SDI Publication No. 29, 1995

shall have the following minimum properties: Ip=0.418 in^4/ft,

5. Composite floor deck shall be welded to supports, both perpendicular

In=0.415 in^4/ft, Sp=0.355 in^3/ft, Sn=0.360 in^3/ft, Fy=50

and parallel to the deck, with 5/8" diameter puddle welds

and fastened at sidelaps with No. 10 screws as follows:

1. Cold-formed metal framing shall be designed, fabricated, and

Design of Cold-Formed Steel Structural Members," 1996.

B. Complete, uniform, and level bearing support shall be provided

for the top and bottom tracks of stud walls, or full size shims

D. Full-height double studs shall be provided at the ends of partitions,

1. Weld the flanges of double studs together full height using

1. Locate anchors at 3" from the ends of partitions, and at 6"

F. Provide sheathing attached to both faces of wall studs throughout

I. Slide clips shall be capable of resisting a lateral force of 500

J. Wall studs shall have the following minimum effective properties.

In the designation below, 362 is the member depth in 1/100 inches

Thick. Ix, in4 Sx, in3 A, in2 Fy, ksi

S is the member style, 162 is the flange width in 1/100 inches,

the length of the studs or provide bridging at 4'-0" o.c.

Splices in studs shall not be permitted. Do not cut studs.

Designation Design Effective Properties

362S162-43 0.0451 0.710 0.372 0.340 362S162-54 0.0566 0.873 0.444 0.422

362S162-68 0.0713 1.069 0.574 0.524

600S162-43 0.0451 2.316 0.767 0.447

6005162-54 0.0566 2.860 0.916 0.566

600S162-68 0.0713 3.525 1.164 0.693

8005162-43 0.0451 4.500 1.019 0.537 8005162-54 0.0566 5.600 1.229 0.670

of stud walls and at headers for stud walls.

800S162-68 0.0713 7.089 1.737 0.836 50

L. Provide matching thickness track (54 mil minimum) at top and bottom

K. At locations requiring welding of or to metal studs, minimum stud

E. Anchor stud tracks with low-velocity powder actuated fasteners

o.c. (maximum), 4" o.c. (minimum) throughout

at wall openings, and at other locations indicated in the Structural

with a minimum shank diameter of 0.145", and a minimum penetration

G. Provide stud wall bridging according to manufacturer's recommendations

C. Studs shall be installed with their bearing ends positioned flush

erected in accordance with AISI's "Specification for the

2. Materials shall conform to the following, unless noted otherwise.

ASTM A653 SS

Grade 50, Class

Grade 33

SAE J78

a. Typical installation, unless noted otherwise:

Sidelap Fasteners: 3/span, maximum 18"

perpendicular and parallel to the deck, with 3/4" diameter

in^3/ft, Sn=0.433 in^3/ft, and Fy=33 ksi.

gauge) shall have the following minimum properties: I=0.212

by arc spot welds or self-drilling screws at 12 inch maximum

accordance with "SDI Code of Standard Practice and Commentary",

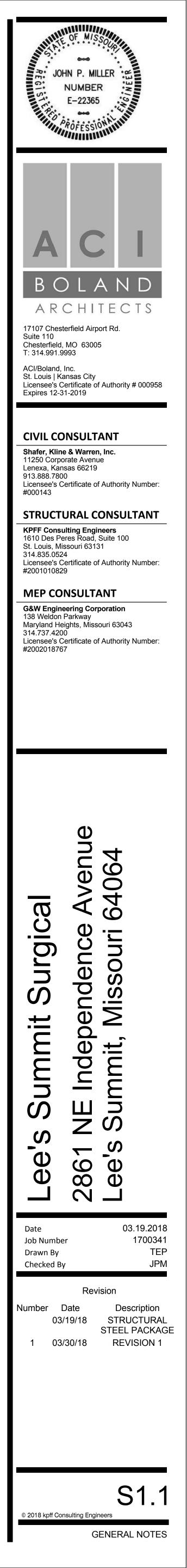
have the following minimum properties: I=0.772 in^4/ft, Sp=0.382

with the floor diaphragm or roof diaphragm shall be of the

or approved equal may be used in lieu of welds to supports.

- 3. Field bolt joists located at columns for stability during

- erection with two 1/2" diameter bolts.



GENERAL The Owner shall engag
as required by chapter acceptable to act as spe
and the owner.
Special Inspectors shall Owner, Architect, Struct conformance to approve
correction. If the discre Official, Owner, Archited
documenting required s submitted at a point in t
REQUIRED SPECIAL I The following types of s
inspecting requirements area where the work is special inspector who is
SPECIAL INSI
1. Verify materials below
the design bearing ca 2. Verify excavations are
proper material. 3. Perform classification
4. Verify use of proper n
5. Prior to placement of
that site has been pre
SPECIAL INSI
1. Inspection of steel rei
quantity and placeme
 Reinforcing bar welding a. Verify weldability of the second second
b. Inspect single-pas
c. Inspect all other w
 Inspection of anchor in shear stud shear rein
prior to and during pla
 Inspection of anchors Verification of use of
6. Testing of slump, air of
at the time fresh conc specimens for strengt
 Inspection of concrete and depositing. Inspection of curing p
curing temperatures.
9. Inspection of prestres
a. Application of pre-
the seismic force
11. Verification of concre
shores and forms fro 12. Inspect formwork for of the concrete mem
of the concrete mem 13. Verification that app being used on site.
being used on site.
POST INST
SPECIAL INSI
1. Use of proper anchor
2. Review of installer's q anchor manufacturer.
3. Anchor installation pro
4. Verification of support
5. Proof testing as outline
Adhesive anchors inst orientations to resist s
7. Mechanical anchors a
 * Remark Notes: 1. Inspector shall be far 2. Refer to manufacture

SPECIAL INSPECTION TABLES

STATEMENT OF STRUCTURAL SPECIAL INSPECTIONS

gage and employ a qualified special inspection agency or agencies to conduct special inspections of structural work ter 17 of the 2012 International Building Code and as delineated below. Agencies that are considered qualified and s special inspectors will be those acceptable to the building official of the jurisdiction that grants the building permit

ON REPORT REQUIREMENTS hall keep records of inspections. The special inspector shall furnish inspection reports to the Building Official, ructural Engineer, and Contractor. Reports shall indicate that the structural work inspected was done in oved Contract Documents. Discrepancies shall be brought to the immediate attention of the Contractor for repancies are not corrected, the discrepancies shall be brought to the attention of the Building hitect, and Structural Engineer prior to the completion of that phase of work. A final report of inspections ed special inspections of structural work and correction of any discrepancies noted in the inspections shall be in time agreed upon by the Owner and the Building Official prior to the start of work.

L INSPECTIONS of structural work require special inspections. Refer to individual Specification Sections for specific testing and ents. Continuous inspection is the full-time observation of work by a qualified special inspector who is present in the is being performed. Periodic special inspection is the part-time or intermittent observation of work by a qualified is present in the area where the work has been or is being performed and at the completion of the work.

SOIL	_S			
PECTION ITEM	TYPE OF INSPECTION		TYPE OF INSPECTION	
	CONTINUOUS	PERIODIC	REMARKS	
w shallow foundations are adequate to achieve apacity.		х		
re extended to proper depth and have reached		Х		
n and testing of compacted fill materials.		Х		
materials, densities and lift thicknesses during paction of compacted fill.	х			
f compacted fill, inspect subgrade and verify epared properly.		х		

CONCRETE CONSTRUCTION

CONCRETEC			
PECTION ITEM	TYPE OF IN	SPECTION	REMARKS
	CONTINUOUS	PERIODIC	
inforcement, including size, ent.		х	
ing:			
of reinforcing bars other than ASTM A706.		х	
ss fillet welds, maximum 5/16"; and		Х	
welds.	x		
rods, headed bolts, headed studs, nforcing and other embedded items lacement of concrete.	x		
s installed in hardened concrete.			See "Post Installed Anchors" table
required design mixture.		х	
content, and temperature of concrete crete is sampled to fabricate of the tests.	x		Frequency of test per specifications.
te placement, including conveying	X		
procedures and maintenance of		Х	
ssed concrete:			
estressing forces.	X		
ed prestressing tendons in resisting system.	X		
concrete members.		Х	
rete strength before removal of om beams and slabs.		Х	
or shape, location and dimensions mber being formed.		х	
proved shop drawings are		Х	

TALLED ANCHORS TO CONCRETE AND MASONRY

SPECTION ITEM	TYPE OF IN	NSPECTION	REMARKS
	CONTINUOUS	PERIODIC	
or system and manufacturer.		Х	
qualifications including certification by r.		Х	* See Note 1
process as noted in general notes.			* See Note 2
orting material's condition.		Х	
ined in general notes.		Х	
nstalled in horizontally or upwardly inclined tension loads.	Х		
and adhesive anchors not defined in Note 6.		х	
familiar with anchor manufacturer's written installatic urer's ESR for type of inspection periodic vs. continu		report.	

SEISMIC FORCE RESISTING SYSTEM			
	TYPE OF I		
SPECIAL INSPECTION ITEM	PERFORM FOR EACH STEEL ELEMENT	OBSERVE ON A RANDOM BASIS	REMARKS
1. RBS requirements, if applicable:			
Contour and finishDimensional tolerances	Х		
 Protected zones - no holes and unapproved attachments made by fabricator or erector, as applicable. 	х		

WELDED STEEL	CONSTRUC	TION		STEEL DECKING	CONSTRUC	TION	this page refer
	TYPE OF IN	ISPECTION			TYPE OF INS	PECTION	
SPECIAL INSPECTION ITEM	PERFORM FOR EACH STEEL ELEMENT	OBSERVE ON A RANDOM BASIS	REMARKS	SPECIAL INSPECTION ITEM	PERFORM FOR EACH STEEL ELEMENT	OBSERVE ON A RANDOM BASIS	REMARKS
1. Inspection tasks prior to welding:				1. Inspection or execution tasks prior to deck placement:			
a. Welding procedure specifications (WPS) available.	X			 Verify compliance of materials (deck and all deck accessories) with construction documents, including profiles, material properties, and base metal thickness. 		х	
b. Manufacturer certifications for welding consumables available.	X			 b. Document acceptance or rejection of deck & deck accessories. 		Х	
c. Material identification (type/grade).		Х		 2. Inspection or execution tasks after deck placement: 			
d. Welder identification system.		Х		 a. Verify compliance of deck and all deck accessories installation with construction documents. 		Х	
 e. Fit-up of groove welds (including joint geometry): Joint preparation Dimensions (alignment, root opening, root face, bevel) Cleanliness (condition of steel surfaces) Tacking (tack weld quality and location) Backing type and fit (if applicable) 		Х		 b. Verify deck materials are represented by the mill certifications that comply with the construction documents. c. Document acceptance or rejection of installation of deck and deck accessories. 		X X	
f. Configuration and finish of access holes.				 Inspection or execution tasks prior to welding: 			
g. Fit-up of fillet welds:		X		a. Welding procedure specifications (WPS) available.		Х	
 Dimensions (alignment, gaps at root) Cleanliness (condition of steel surfaces) Tacking (tack weld quality and location) 		х		b. Manufacturer certifications for welding consumables available.		x	
h. Check welding equipment.		X		 c. Material identification (type/grade). 		Х	
2. Inspection tasks during welding:				d. Check welding equipment.		Х	
a. Use of qualified welders.		X		4. Inspection or execution tasks during welding:			
b. Control and handling of welding consumables:				a. Use of qualified welders.		Х	
Packaging Exposure control		Х		b. Control and handling of welding consumables.		Х	
c. No welding over cracked tack welds.		Х		c. Environmental conditions (wind speed, moisture, temperature)		Х	
 d. Environmental conditions: Wind speed within limits Precipitation and temperature 		Х		d. WPS followed.		Х	
e. WPS followed:				5. Inspection or execution tasks after welding:			
 Settings on welding equipment Travel speed Selected welding materials 		Х		a. Verify size and location of welds, including support, sidelap, and perimeter welds.		X	
 Shielding gas type/flow rate Preheat applied Interpass temperature maintained (min/max) 				 b. Welds meet visual acceptance criteria. c. Verify repair activities. 		X X	
Proper position (F, V, H, OH) f. Welding techniques:				d. Document acceptance or rejection of welds.		X	
 Interpass and final cleaning Each pass within profile limitations Each pass meets quality requirements 		х		6. Inspection or execution tasks prior to mechanical fastening:		^	
3. Inspection tasks after welding:				a. Manufacturer installation instructions available for mechanical		X	
a. Welds cleaned.		Х		b. Proper tools available for fastener installation.		X	
b. Size, length and location of welds.	x	X		c. Proper storage for mechanical fasteners.		X	
c. Welds meet visual acceptance criteria:	^			 Inspection or execution tasks during mechanical fastening: 			
 Crack prohibition Weld/base-metal fusion 				a. Fasteners are positioned as required.		X	
Crater cross sectionWeld profilesWeld size	X			b. Fasteners are installed in accordance with manufacturer's		X	
UndercutPorosity				 - 8. Inspection or execution tasks after mechanical fastening: 			
d. Arc strikes.	Х			 a. Check spacing, type, and installation of support fasteners. 		X	
 e. Visually inspect the web k-area for cracks within 3" of doubler plates, continuity plates and stiffeners welded in the k-area. 	x			 b. Check spacing, type, and installation of sidelap fasteners. 		× ×	
f. Placement of reinforcing or contouring fillet welds (if required).	X			c. Check spacing, type, and installation of perimeter fasteners.		X	
g. Backing removed and weld tabs removed (if required).	X			d. Verify repair activities.		x	
h. Repair activities.	X			e. Document acceptance or rejection of mechanical fasteners.		Х	
i. Document acceptance or rejection of welded joint or member.	X						
				BOLTED STEEL C	CONSTRUCT		

COMPOSITE STEEL	. CONSTRI	JCTION	
	TYPE OF I	NSPECTION	DEMADIKO
SPECIAL INSPECTION ITEM	PERFORM FOR EACH STEEL ELEMENT	OBSERVE ON A RANDOM BASIS	REMARKS
 Inspection tasks of steel elements of composite construction prior to concrete placement: 			
a. Placement and installation of steel deck.	х		
b. Placement and installation of steel headed stud anchors.	х		
c. Document acceptance or rejection of steel elements.	Х		

STRUCTURAL LIGHT GAGE STUD CONSTRUCTION

STRUCTURAL LIGHT GAGE STUD CONSTRUCTION			
SPECIAL INSPECTION ITEM	TYPE OF II	NSPECTION	REMARKS
	CONTINUOUS	PERIODIC	
1. Material verification of studs and weld electrodes.		Х	
2. Inspection of light gage welds to structure.		Х	
Inspection of screw attachment, bolting, anchoring and other fastening of components.		Х	
 Inspection of screw attachment, bolting, anchoring and other fastening of components within wind and seismic force resisting systems, including shear walls, braces, diaphragms, collectors (drag struts) and hold-downs. 		х	

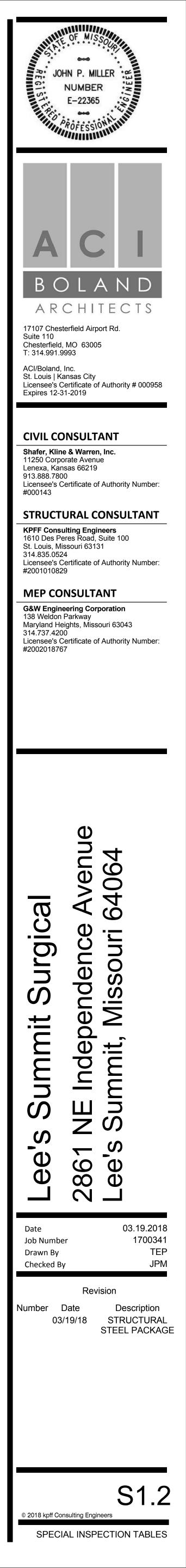
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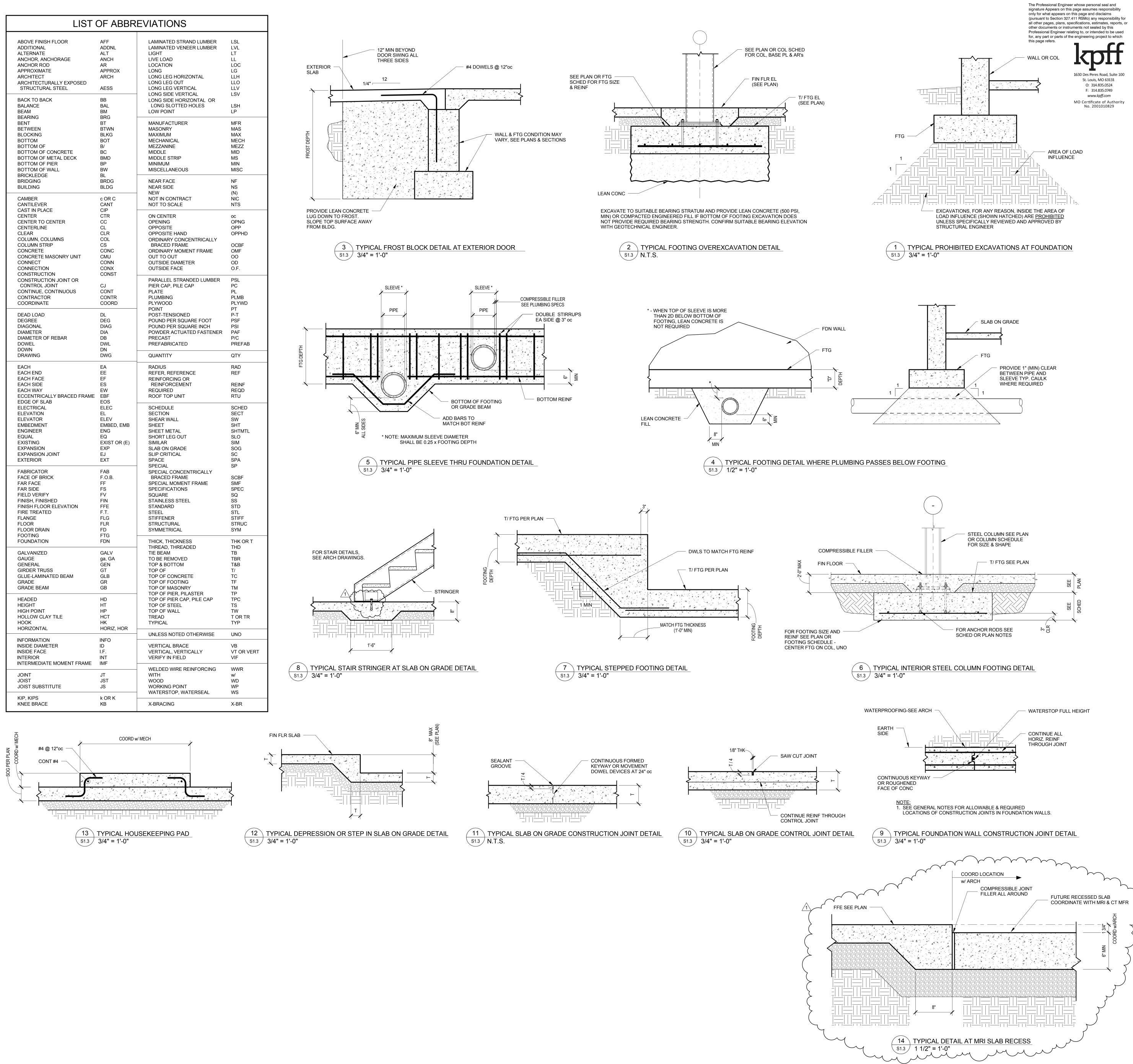
St. Louis, MO 63131 O: 314.835.0524 F: 314.835.0749 www.kpff.com MO Certificate of Authority No. 2001010829

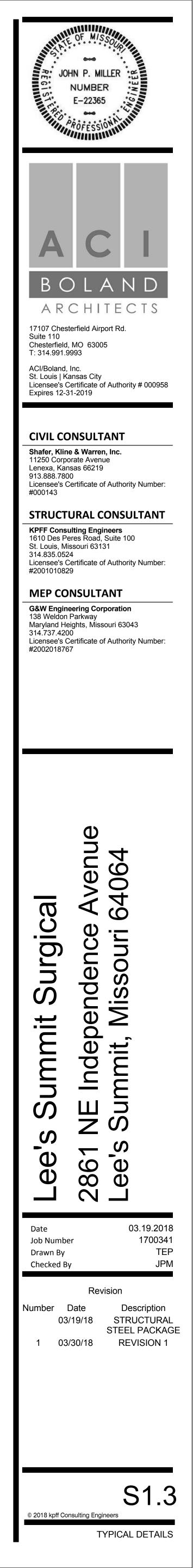
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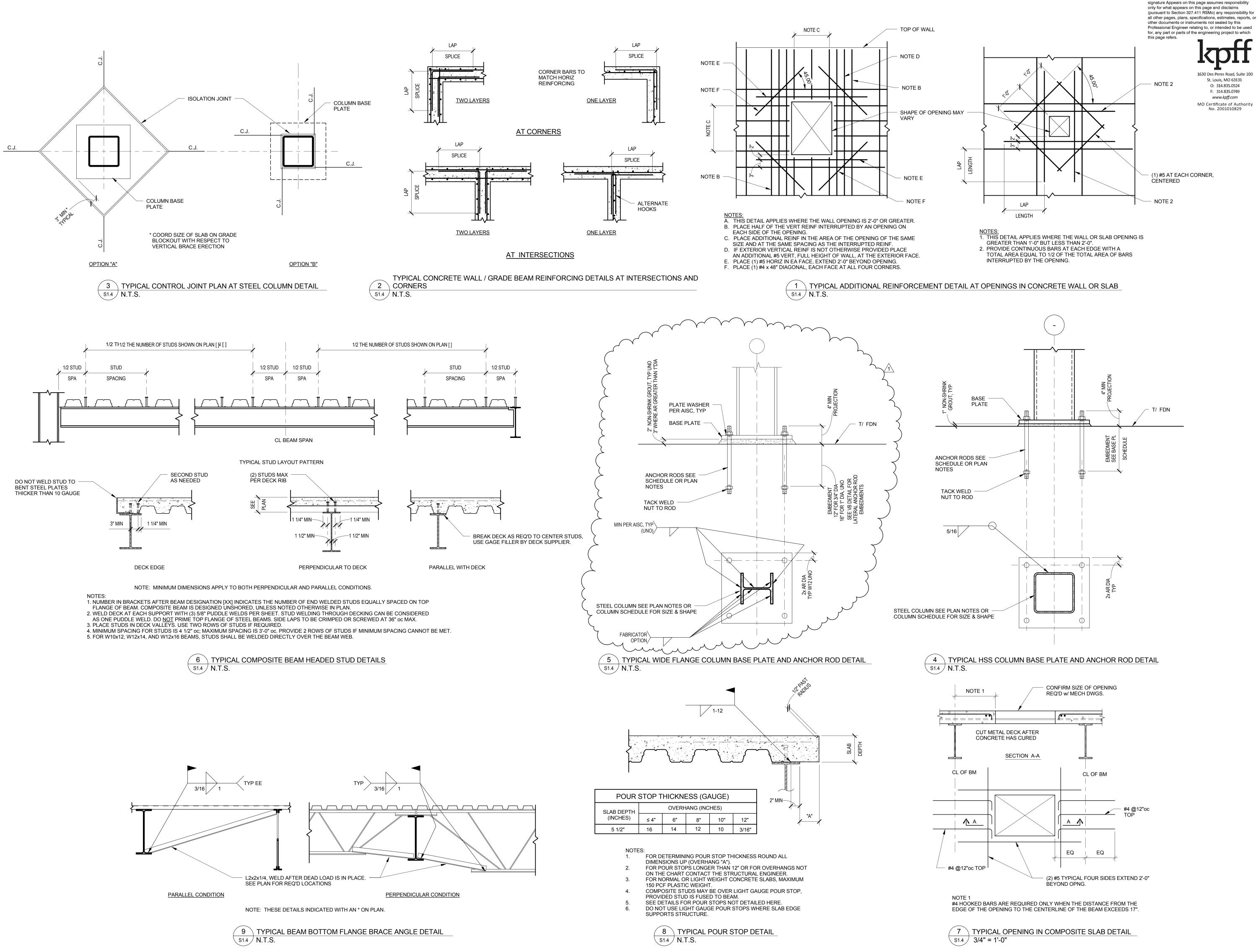
	TYPE OF IN	SPECTION	
SPECIAL INSPECTION ITEM	PERFORM FOR EACH STEEL ELEMENT	OBSERVE ON A RANDOM BASIS	REMARKS
1. Inspection tasks prior to bolting:			
a. Manufacturer's certifications available for fastener material.	Х		
b. Fasteners marked in accordance with ASTM requirements.		Х	
 Proper fasteners selected for the joint detail (grade, type, bolt length if threads are to be excluded from shear plane). 		Х	
d. Proper bolting procedure selected for joint detail.		Х	
 Connecting elements, including the appropriate faying surface condition and hole preparation, if specified, meet applicable requirements. 		Х	
 f. Pre-installation verification testing by installation personnel observed and documented for fastener assemblies and methods used. 		Х	
 g. Proper storage provided for bolts, nuts, washers and other fastener components. 		Х	
2. Inspection tasks during bolting:			
 Fastener assemblies, of suitable condition, placed in all holes and washers (if required) are positioned as required. 		Х	
 Joint brought to the snug-tight condition prior to the pretensioning operation. 		Х	
 Fastener component not turned by the wrench prevented from rotating. 		Х	
 Fasteners are pretensioned in accordance with the RCSC Specification, progressing systematically from the most rigid point toward the free edges. 		Х	
3. Inspection tasks after bolting:			
a. Document acceptance or rejection of bolted connections.	X		

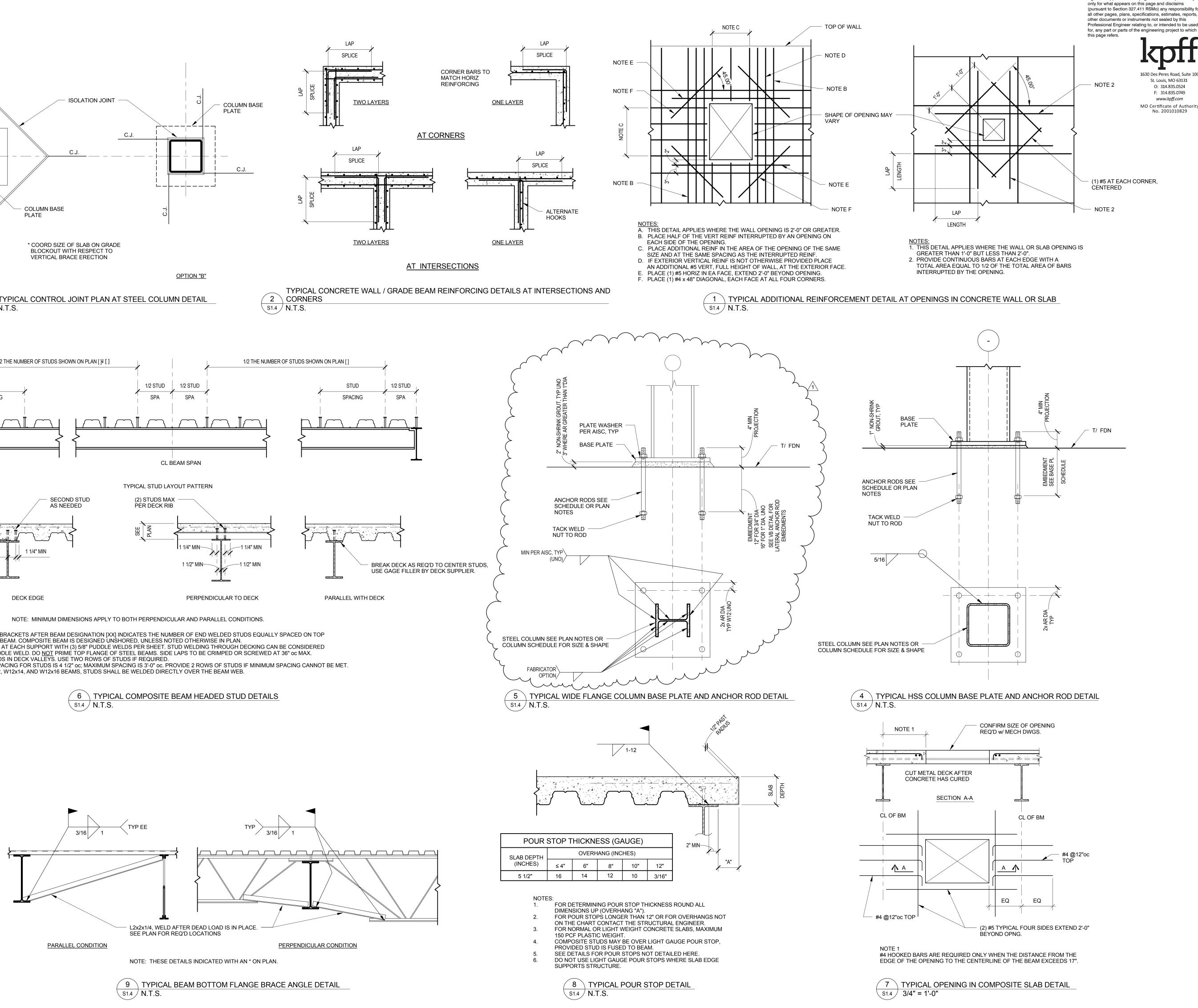


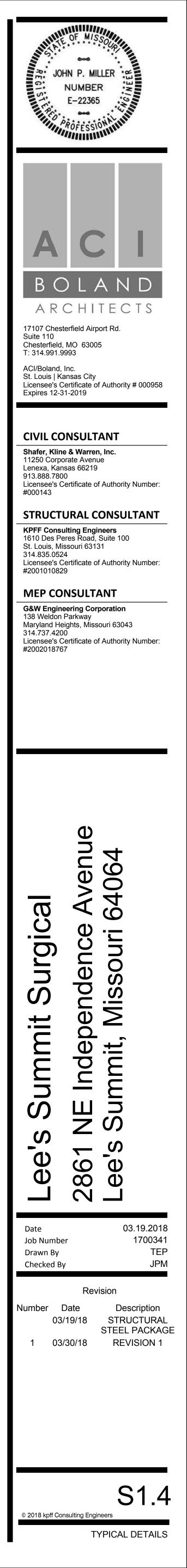
	EIGT		
	BOVE FINISH FLOOR ADDITIONAL ALTERNATE ANCHOR, ANCHORAGE ANCHOR ROD APPROXIMATE ARCHITECT ARCHITECTURALLY EXPOSED STRUCTURAL STEEL BACK TO BACK BALANCE BEAM BEARING BENT BETWEEN BLOCKING BOTTOM OF CONTOM OF CONTOM OF CONCRETE BOTTOM OF CONCRETE BOTTOM OF METAL DECK BOTTOM OF PIER BOTTOM OF WALL BRICKLEDGE BRIDGING BUILDING CAMBER CAMBER CAMBER CAMBER CAMBER CAMBER CAMBER CAMBER CAMBER CAMBER CAMBER COLUMN, COLUMNS COLUMN, COLUMNS CONSTRUCTION CONSTRUCTION CONSTRUCTION CONSTRUCTION CONTRAL JOINT CONTROL JOINT CONTRACTOR	AFF ADDNL ALT ANCH AR APPROX ARCH AESS BB BAL BM BRG BT BTWN BLKG BOT B/ BC BMD BC BMD BP BW BL BRDG BLDG COR C CANT CIP CTR CC CL CLR COL CLR COL CS CONC CMU CONST CONST CJ CONT CONTR COORD DL DEG DIAG DWL DWG C C C C C C C C C C C C C	LAMINATED STRAND LUMB LAMINATED VENEER LUMB LIGHT LIVE LOAD LOCATION LONG LEG HORIZONTAL LONG LEG VERTICAL LONG SIDE VERTICAL LONG SIDE VERTICAL LONG SIDE HORIZONTAL C LONG SLOTTED HOLES LOW POINT MANUFACTURER MASONRY MAXIMUM MECHANICAL MEZZANINE MIDDLE MIDDLE STRIP MINIMUM MISCELLANEOUS NEAR FACE NEAR SIDE NEW NOT IN CONTRACT NOT TO SCALE ON CENTER OPENING OPPOSITE OPPOSITE HAND ORDINARY CONCENTRICAL BRACED FRAME ORDINARY MOMENT FRAMI OUT TO OUT OUTSIDE DIAMETER OUTSIDE FACE PARALLEL STRANDED LUM PIER CAP, PILE CAP PLATE PLUMBING PLYWOOD POINT POST-TENSIONED POUND PER SQUARE FOOT POUND PER SQUARE INCH POWDER ACTUATED FASTE PREFABRICATED QUANTITY PADILIS
E E E E E E E E E	EDGE OF SLAB ELECTRICAL ELEVATION ELEVATOR EMBEDMENT	EA EE EF ES EW EBF EOS ELEC EL ELEV EMBED, EMB	RADIUS REFER, REFERENCE REINFORCING OR REINFORCEMENT REQUIRED ROOF TOP UNIT SCHEDULE SECTION SHEAR WALL SHEET
E E E E	ENGINEER EQUAL EXISTING EXPANSION EXPANSION JOINT EXTERIOR	ENG EQ EXIST OR (E) EXP EJ EXT	SHEET METAL SHORT LEG OUT SIMILAR SLAB ON GRADE SLIP CRITICAL SPACE SPECIAL
F. F. F F F F F F F	ABRICATOR ACE OF BRICK AR FACE AR SIDE IELD VERIFY INISH, FINISHED INISH FLOOR ELEVATION IRE TREATED LANGE LOOR COOR DRAIN	FAB F.O.B. FF FS FV FIN FFE F.T. FLG FLR FD FTG	SPECIAL CONCENTRICALLY BRACED FRAME SPECIAL MOMENT FRAME SPECIFICATIONS SQUARE STAINLESS STEEL STANDARD STEEL STIFFENER STRUCTURAL SYMMETRICAL
F GGGGGGG GGGG H H H H	GUNDATION GALVANIZED GAUGE GENERAL GIRDER TRUSS GLUE-LAMINATED BEAM GRADE GRADE BEAM HEADED HEIGHT HIGH POINT HOLLOW CLAY TILE	FDN GALV ga, GA GEN GT GLB GR GB HD HT HP HCT	THICK, THICKNESS THREAD, THREADED TIE BEAM TO BE REMOVED TOP & BOTTOM TOP OF TOP OF CONCRETE TOP OF FOOTING TOP OF FOOTING TOP OF MASONRY TOP OF PIER, PILASTER TOP OF PIER, PILASTER TOP OF STEEL TOP OF STEEL TOP OF WALL TREAD
Н	IOOK IORIZONTAL	HK HORIZ, HOR	TYPICAL UNLESS NOTED OTHERWIS
IN IN IN	NFORMATION NSIDE DIAMETER NSIDE FACE NTERIOR NTERMEDIATE MOMENT FRAME	INFO	VERTICAL BRACE VERTICAL, VERTICALLY VERIFY IN FIELD
J	OINT OIST OIST SUBSTITUTE	JT JST JS	WELDED WIRE REINFORCIN WITH WOOD WORKING POINT
K	(IP, KIPS NEE BRACE	k OR K KB	WATERSTOP, WATERSEAL X-BRACING



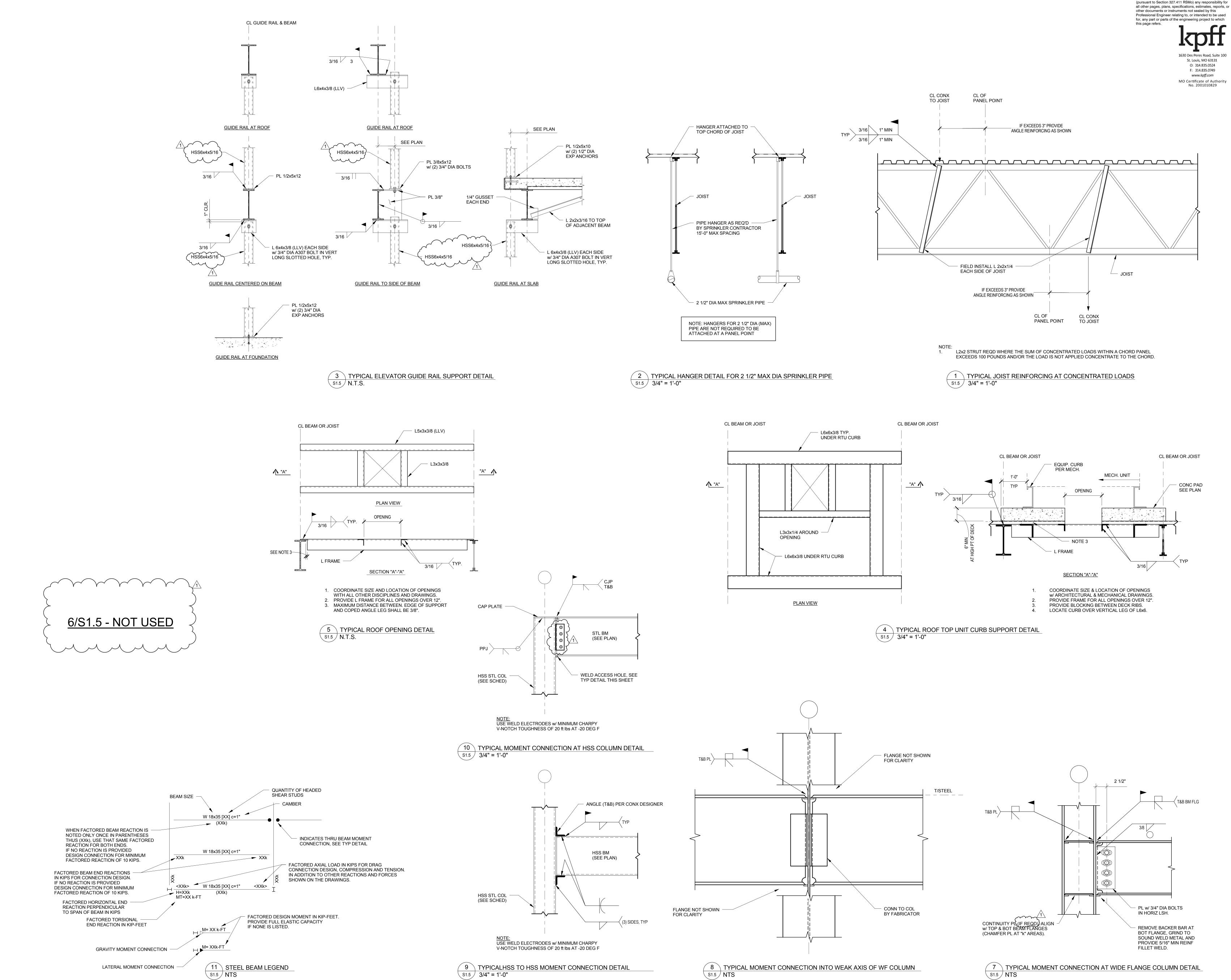


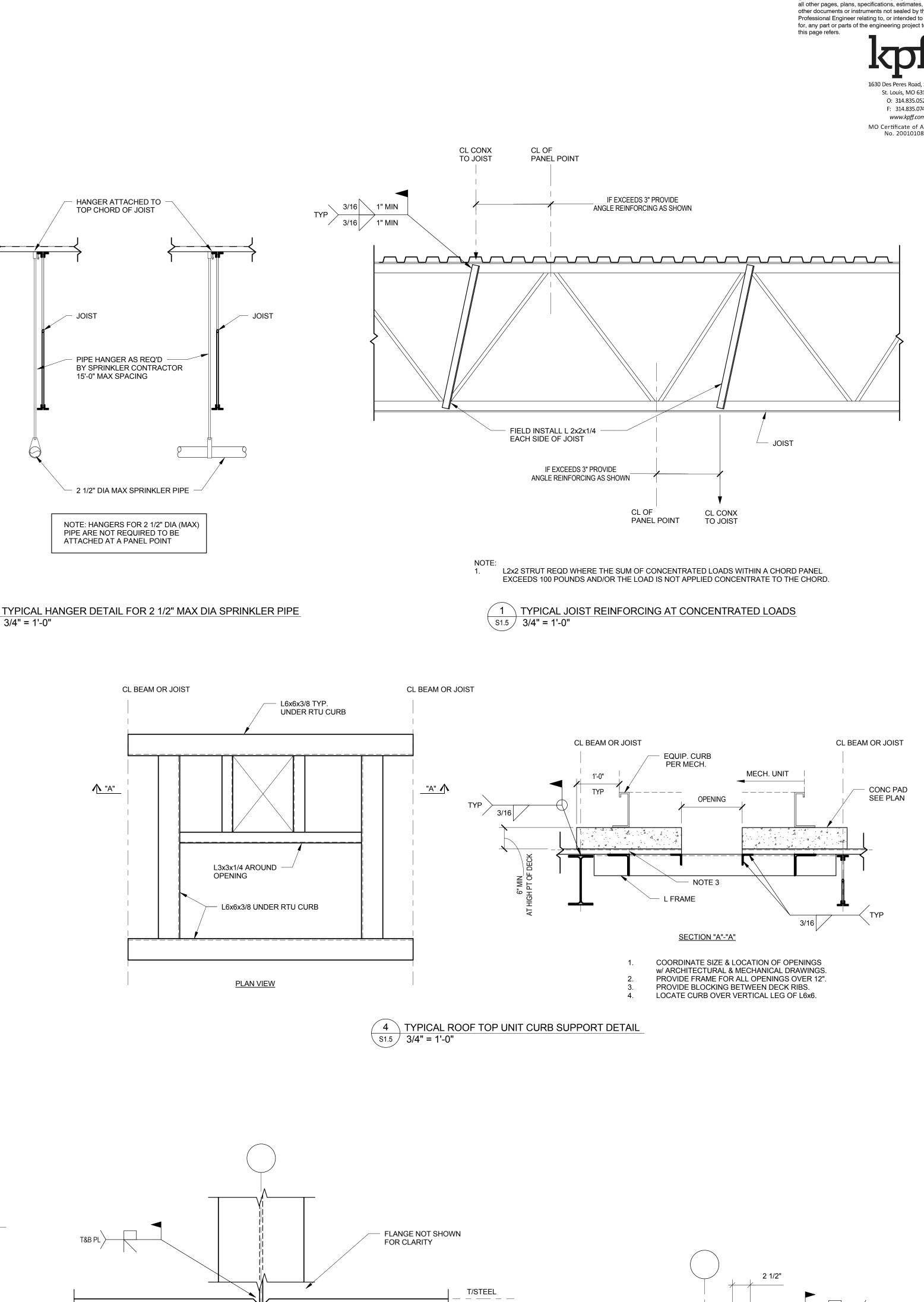






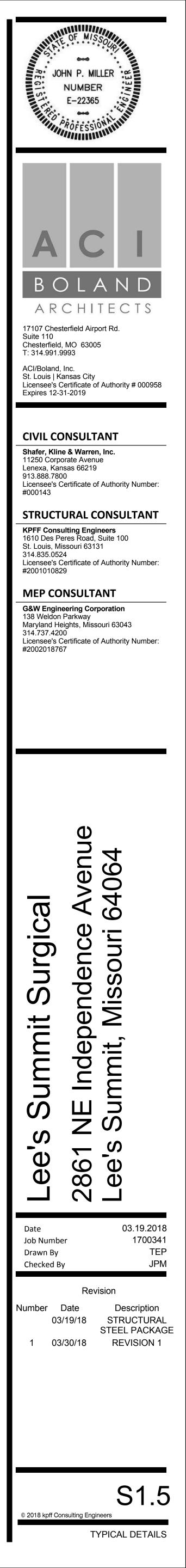
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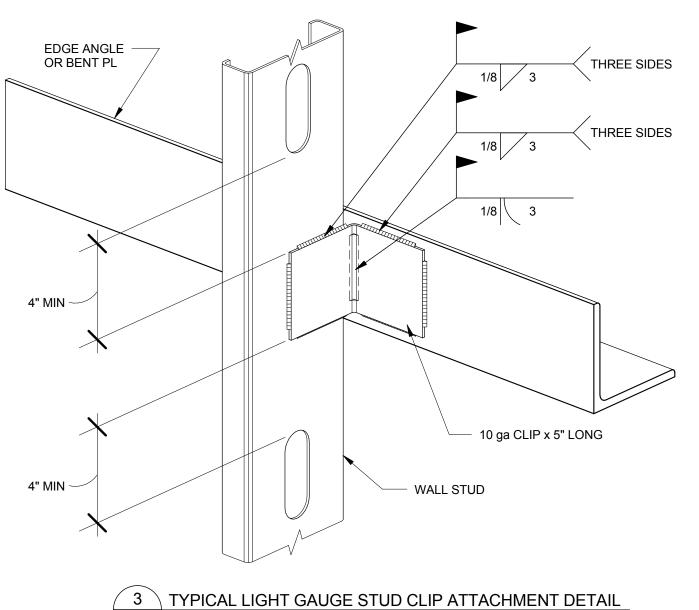


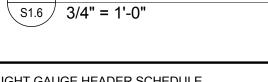
S1.5 NTS

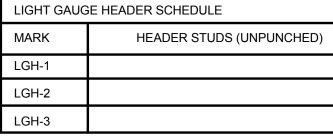
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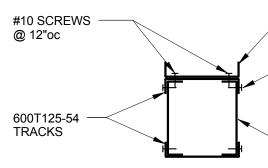


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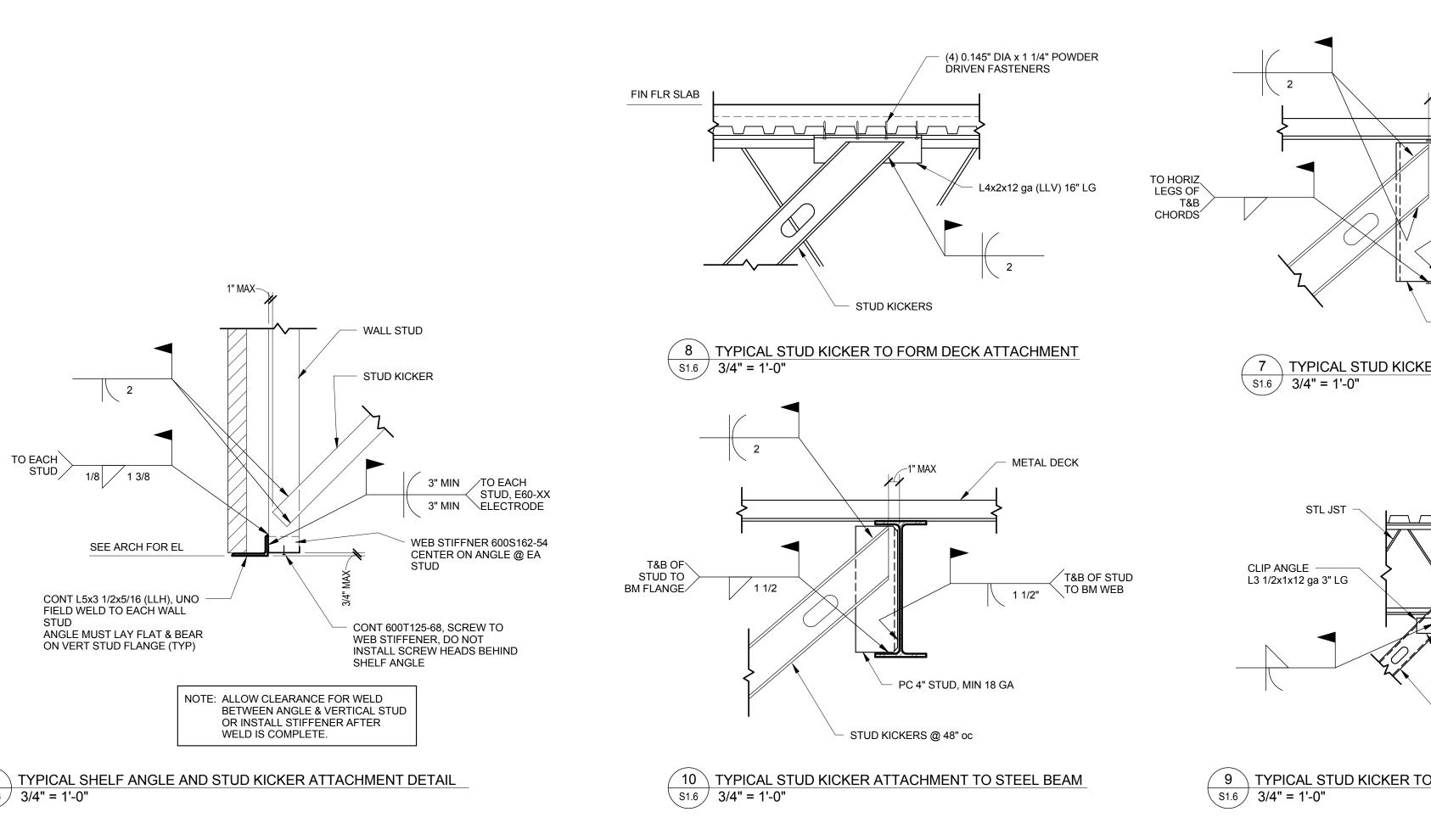


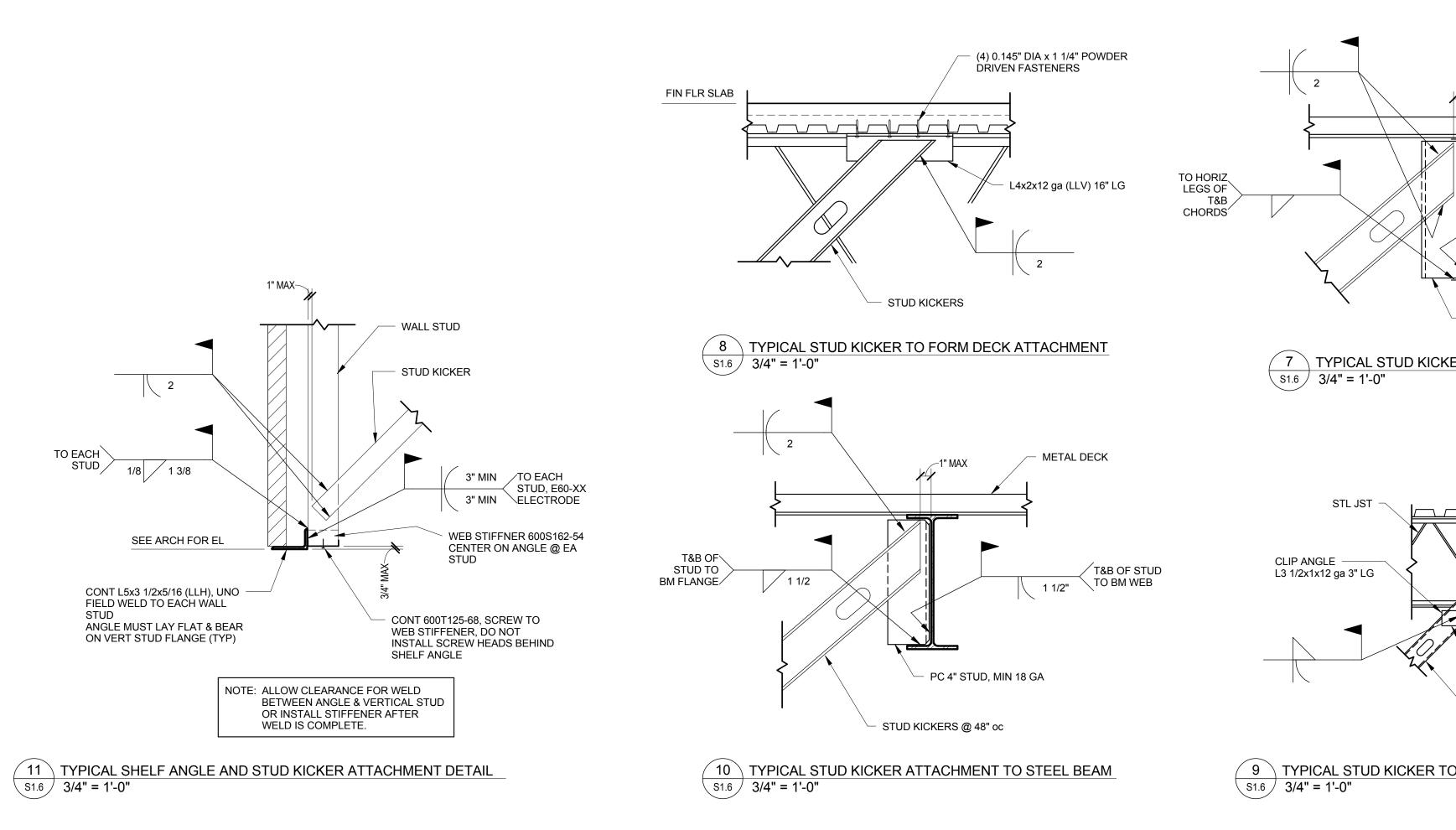












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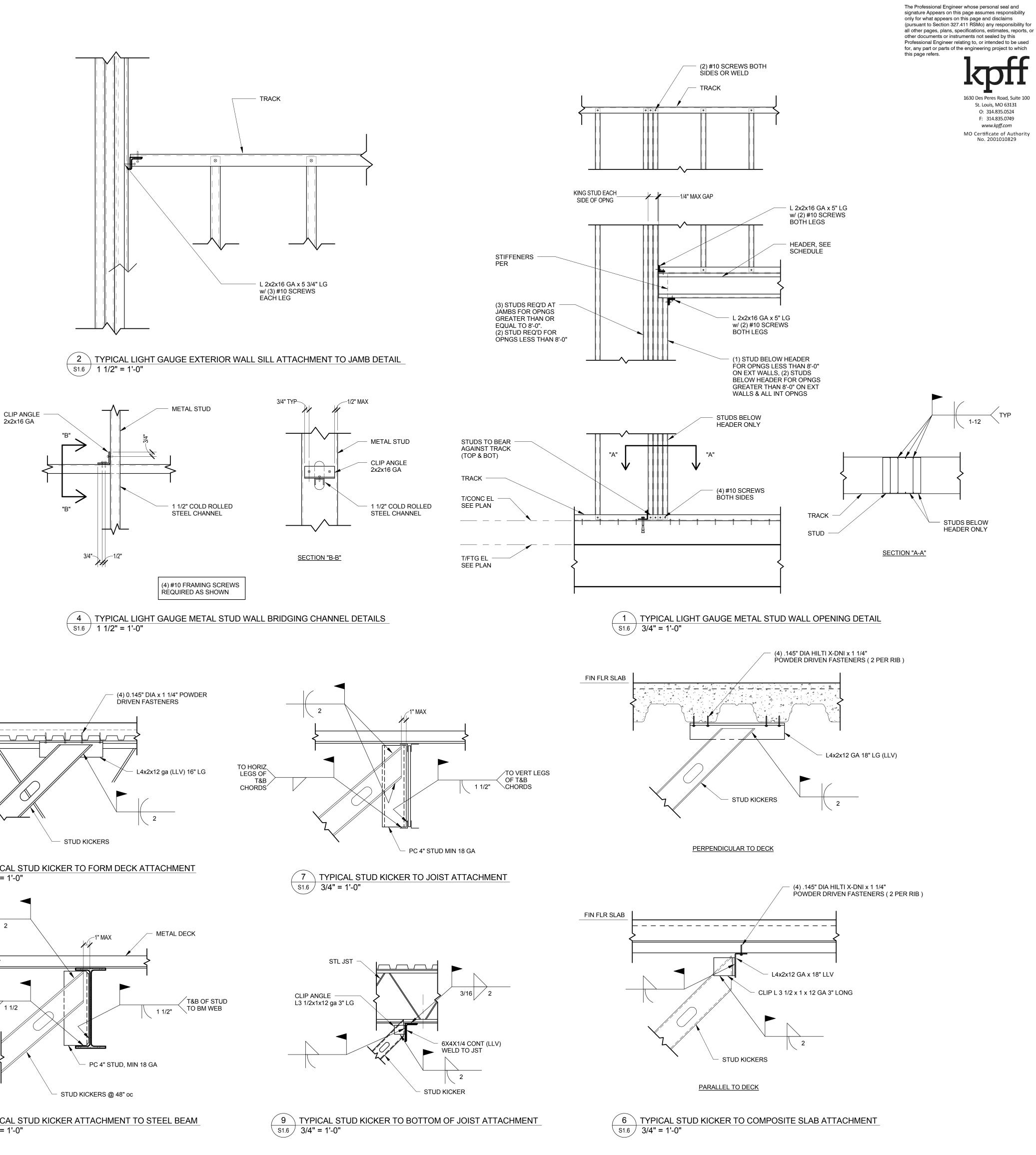
- #10 SCREWS

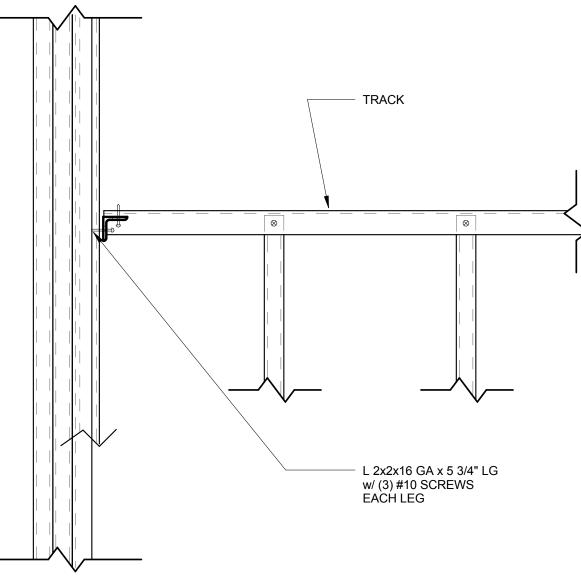
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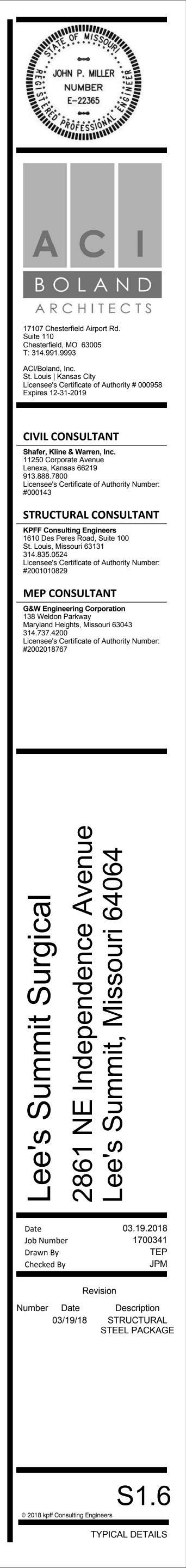
HEADER STUDS

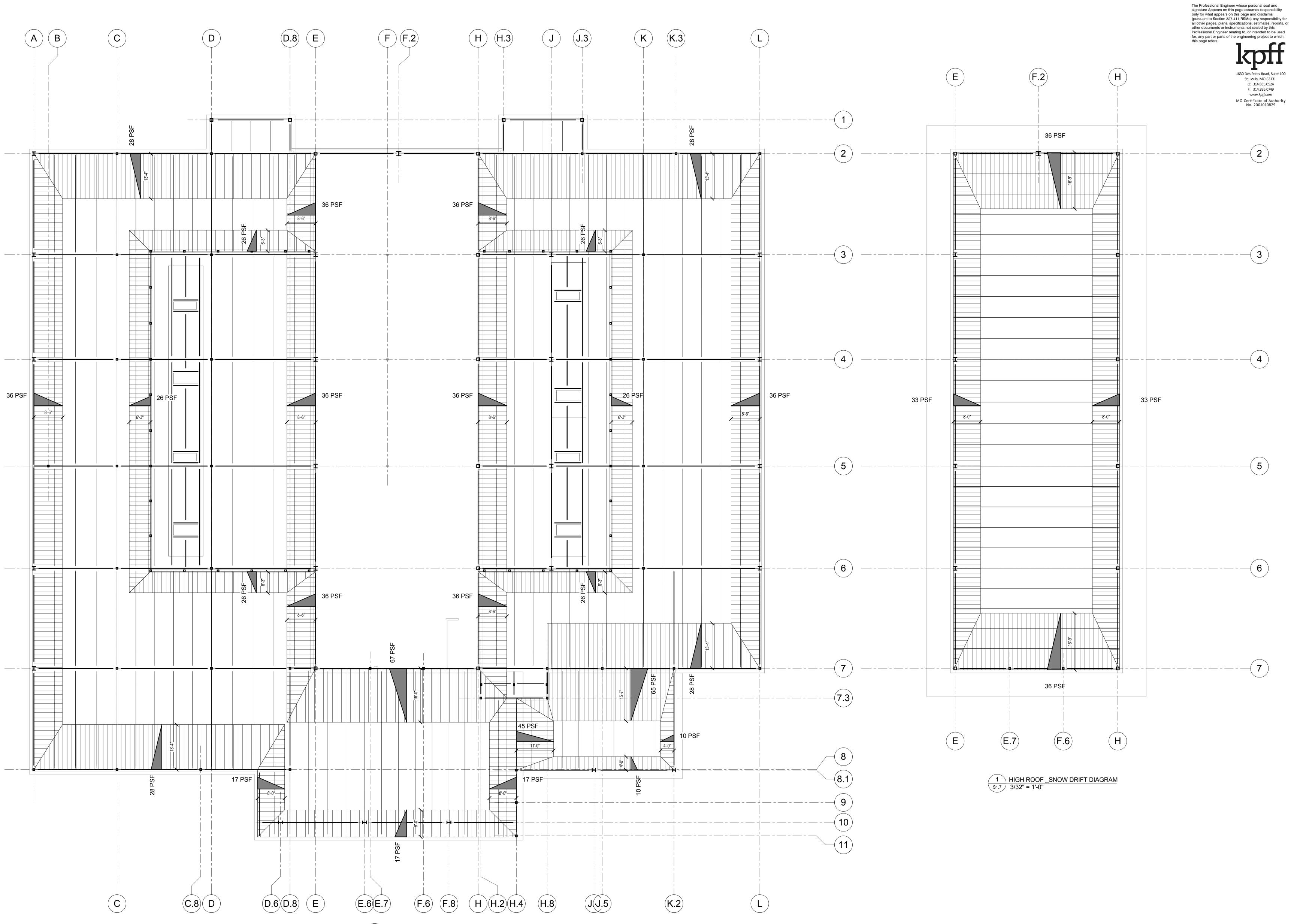
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COMMENTS

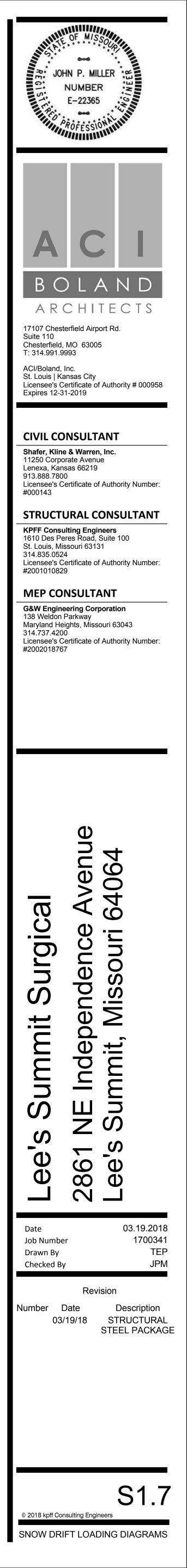


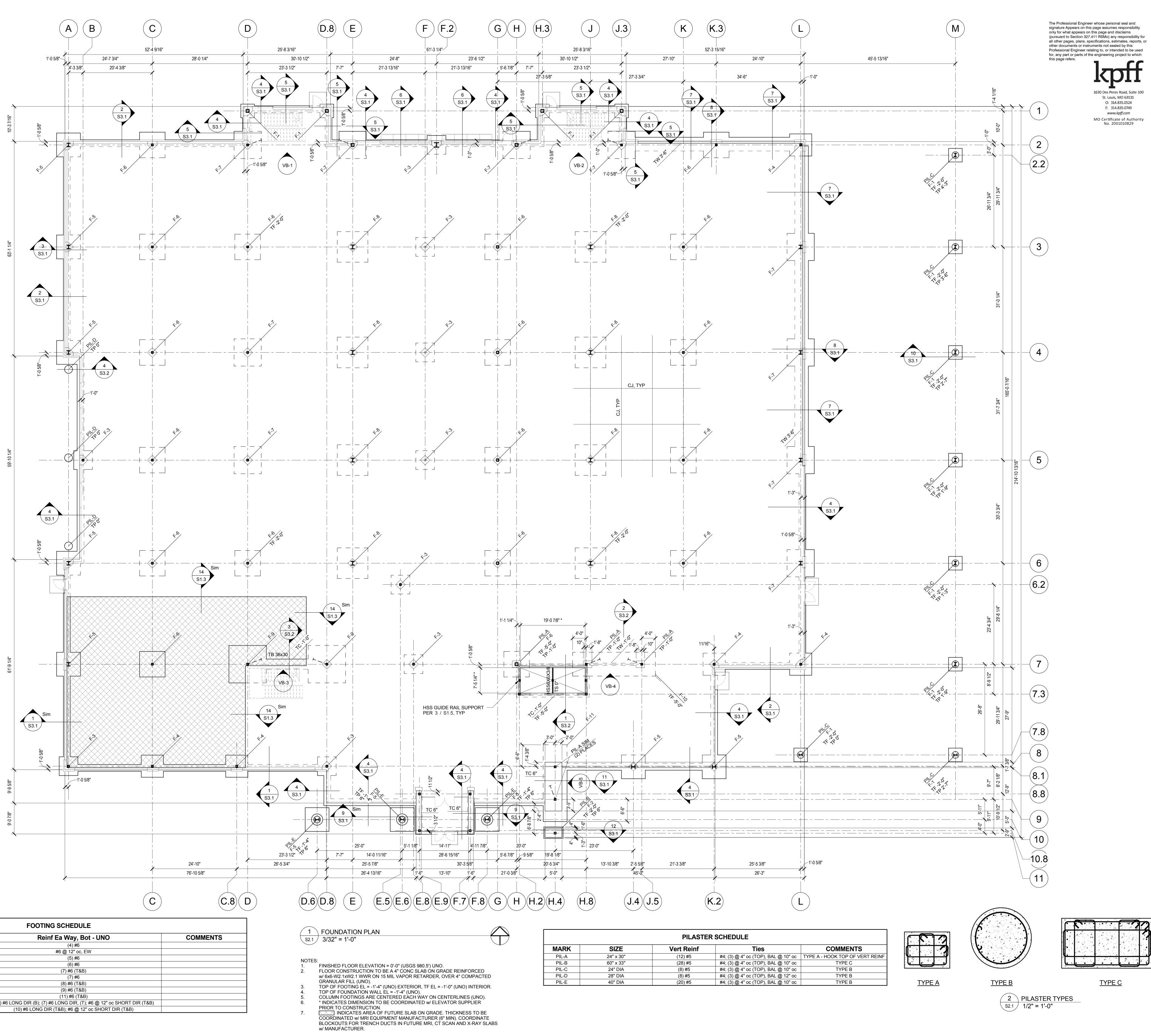






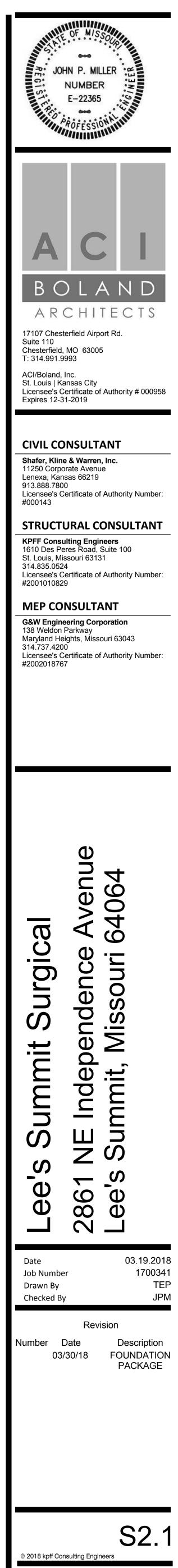
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FOOTING SCHEDULE				
MARK	SIZE	Reinf Ea Way, Bot - UNO	COMMENTS	
F-1	4'-0" x 4'-0" x 2'-0"	(4) #6		
F-2	5'-8" x 3'-5" x 1'-4"	#6 @ 12" oc, EW		
F-3	5'-6" x 5'-6" x 2'-0"	(5) #6		
F-4	6'-6" x 6'-6" x 2'-0"	(6) #6		
F-5	7'-0" x 7'-0" x 2'-0"	(7) #6 (T&B)		
F-6	7'-6" x 7'-6" x 2'-0"	(7) #6		
F-7	8'-0" x 8'-0" x 2'-0"	(8) #6 (T&B)		
F-8	9'-0" x 9'-0" x 2'-6"	(9) #6 (T&B)		
F-9	11'-0" x 11'-0" x 2'-6"	(11) #6 (T&B)		
F-10	24'-4" x 6'-0" x 2'-0"	(15) #6 LONG DIR (B); (7) #6 LONG DIR, (T); #6 @ 12" oc SHORT DIR (T&B)		
F-11	22'-7" x 7'-0" x 2'-0"	(10) #6 LONG DIR (T&B); #6 @ 12" oc SHORT DIR (T&B)		

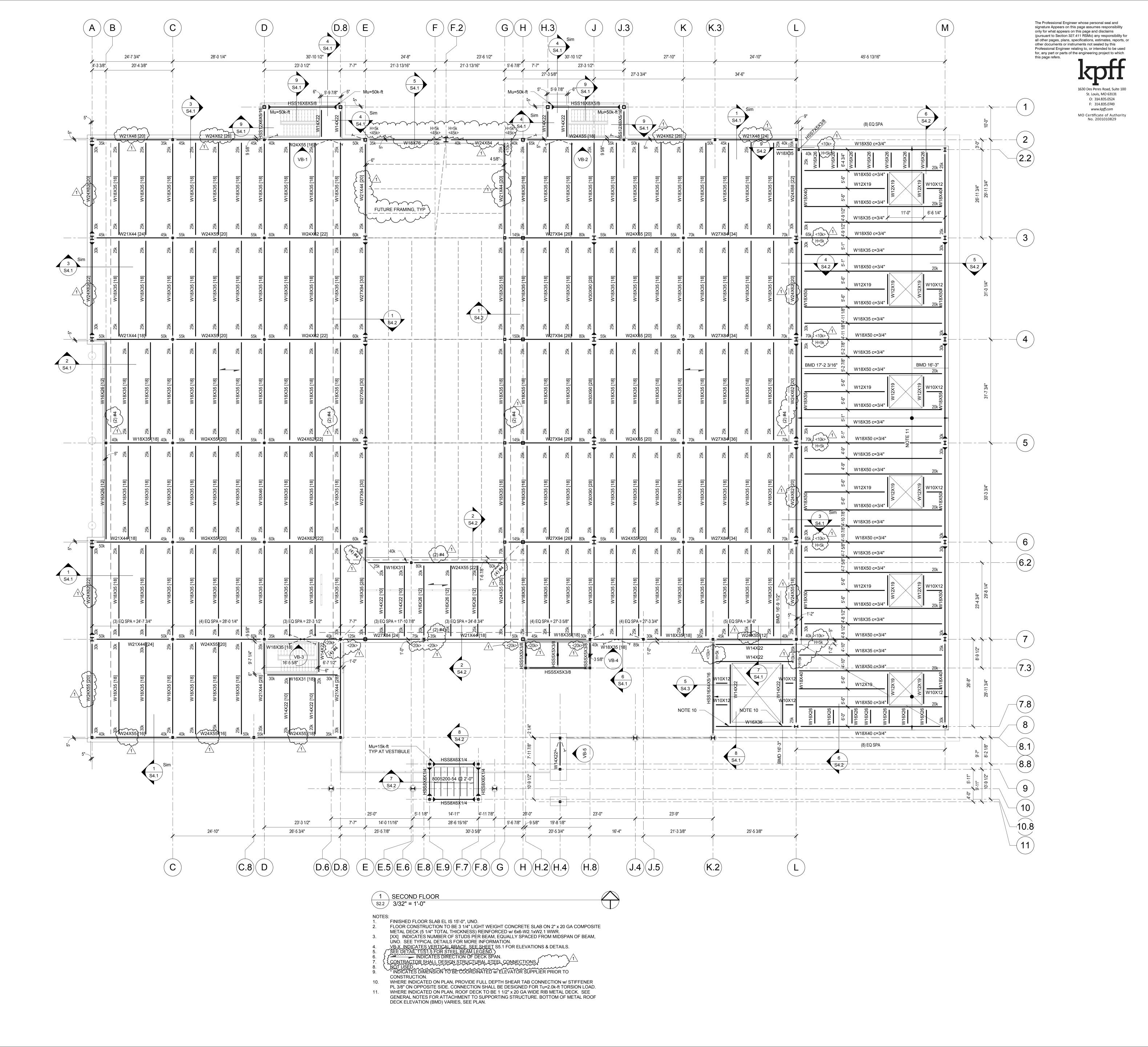
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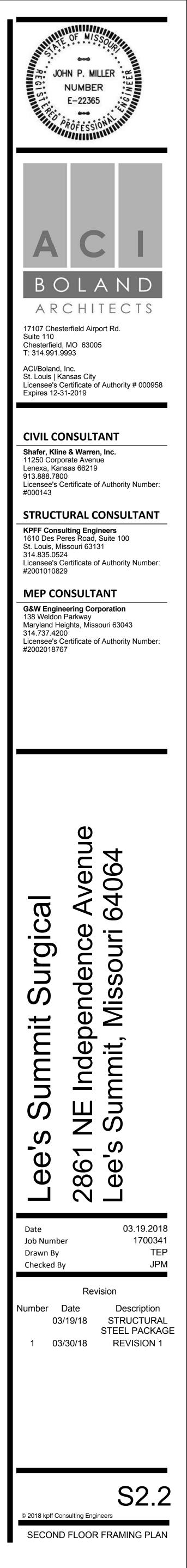




FOUNDATION PLAN

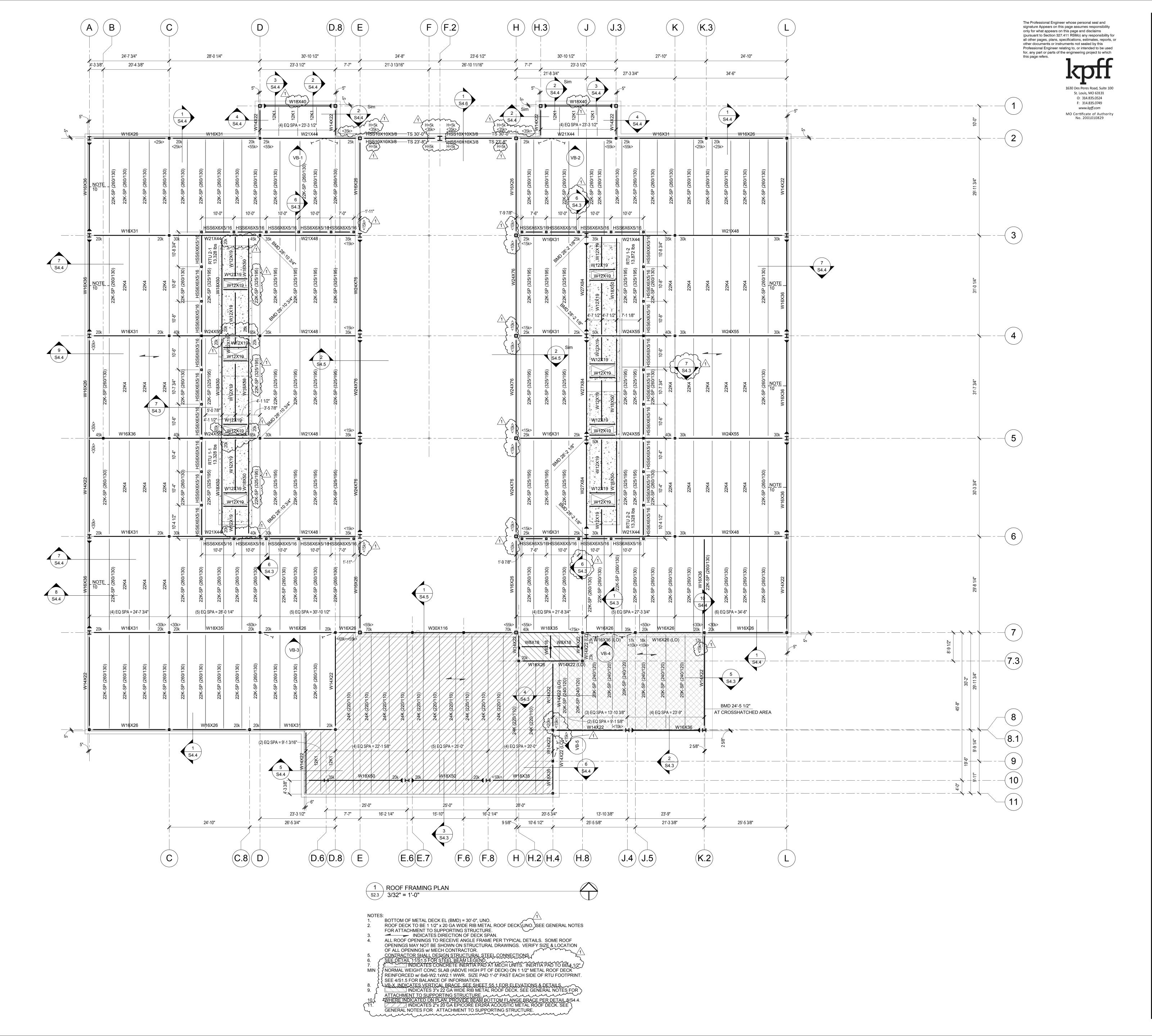
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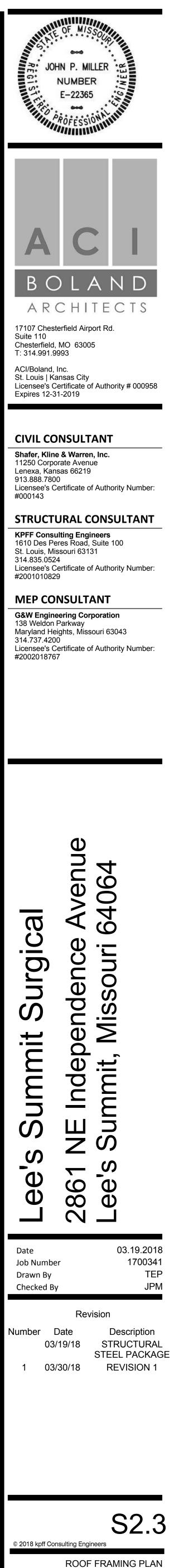


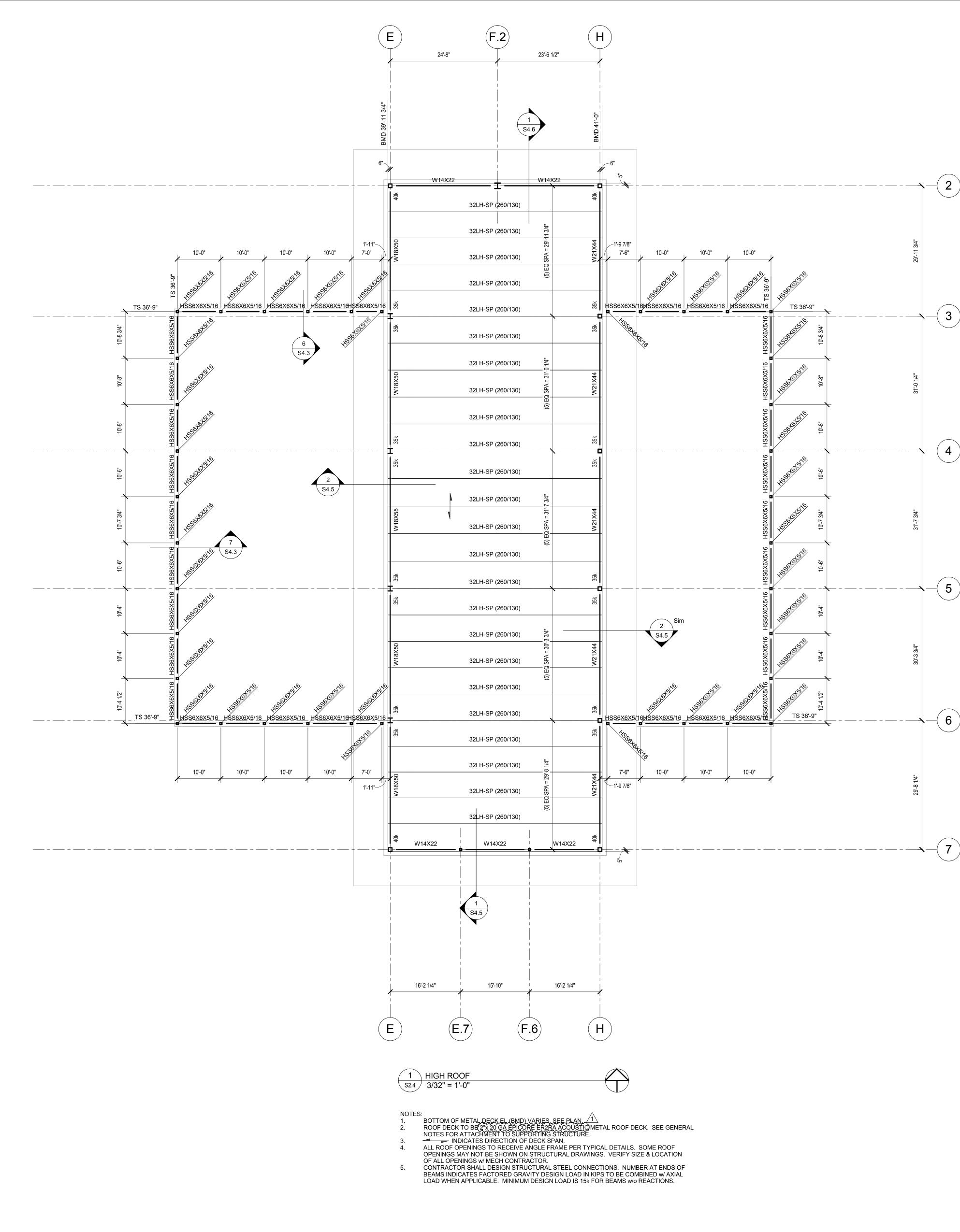


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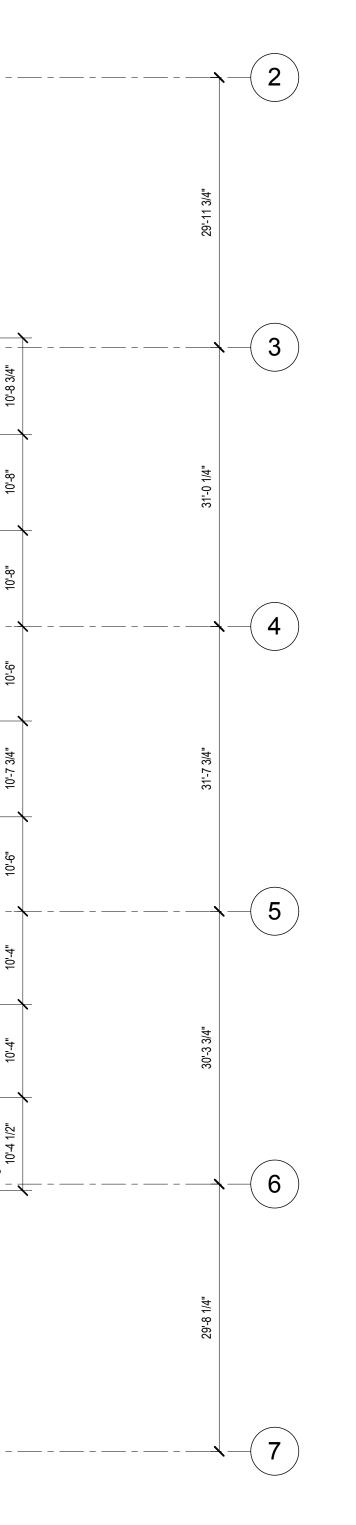


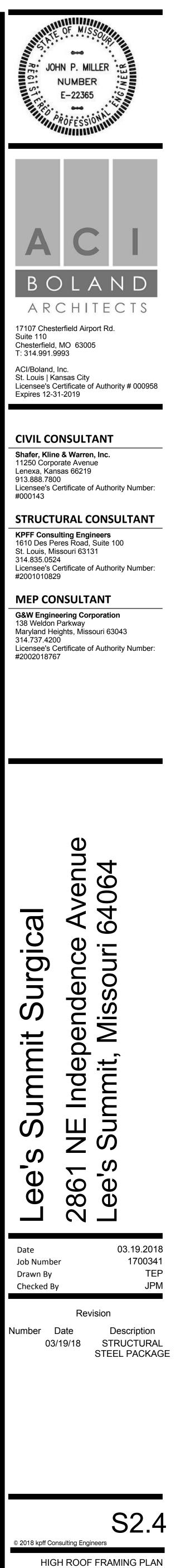


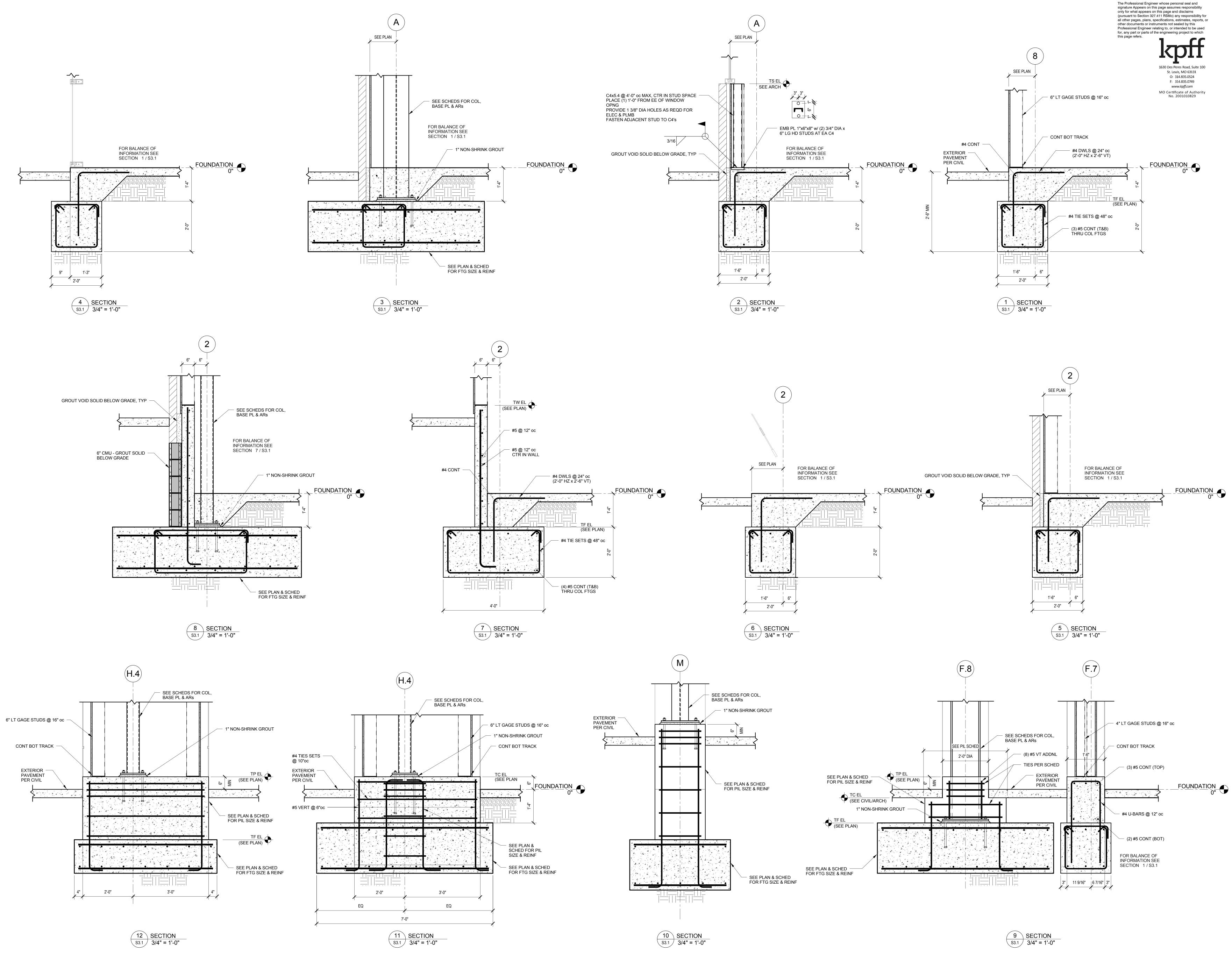


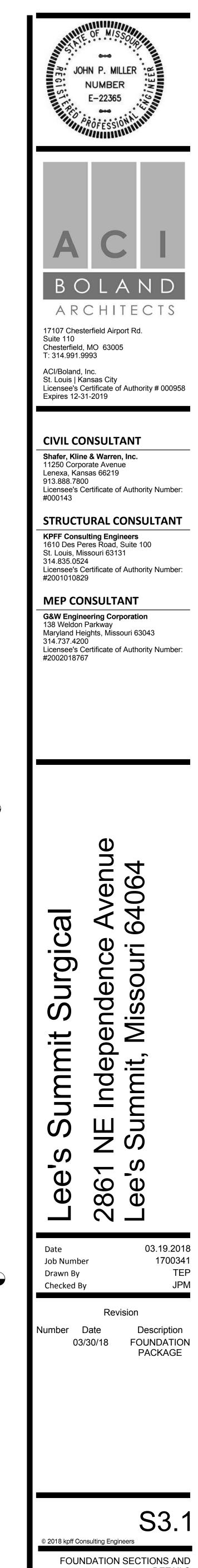






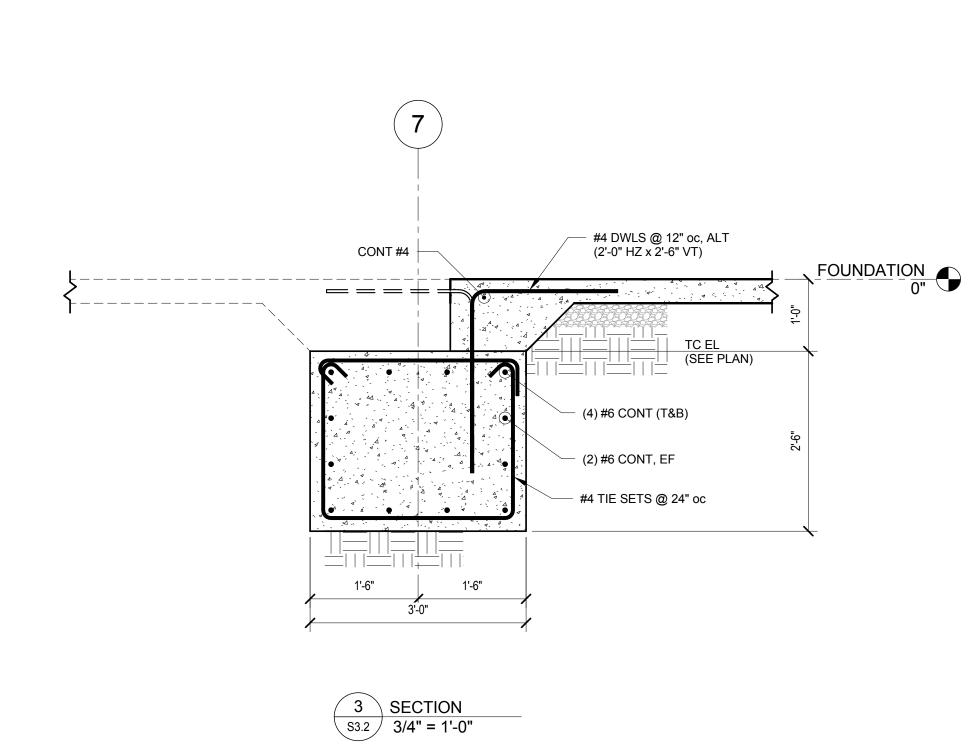


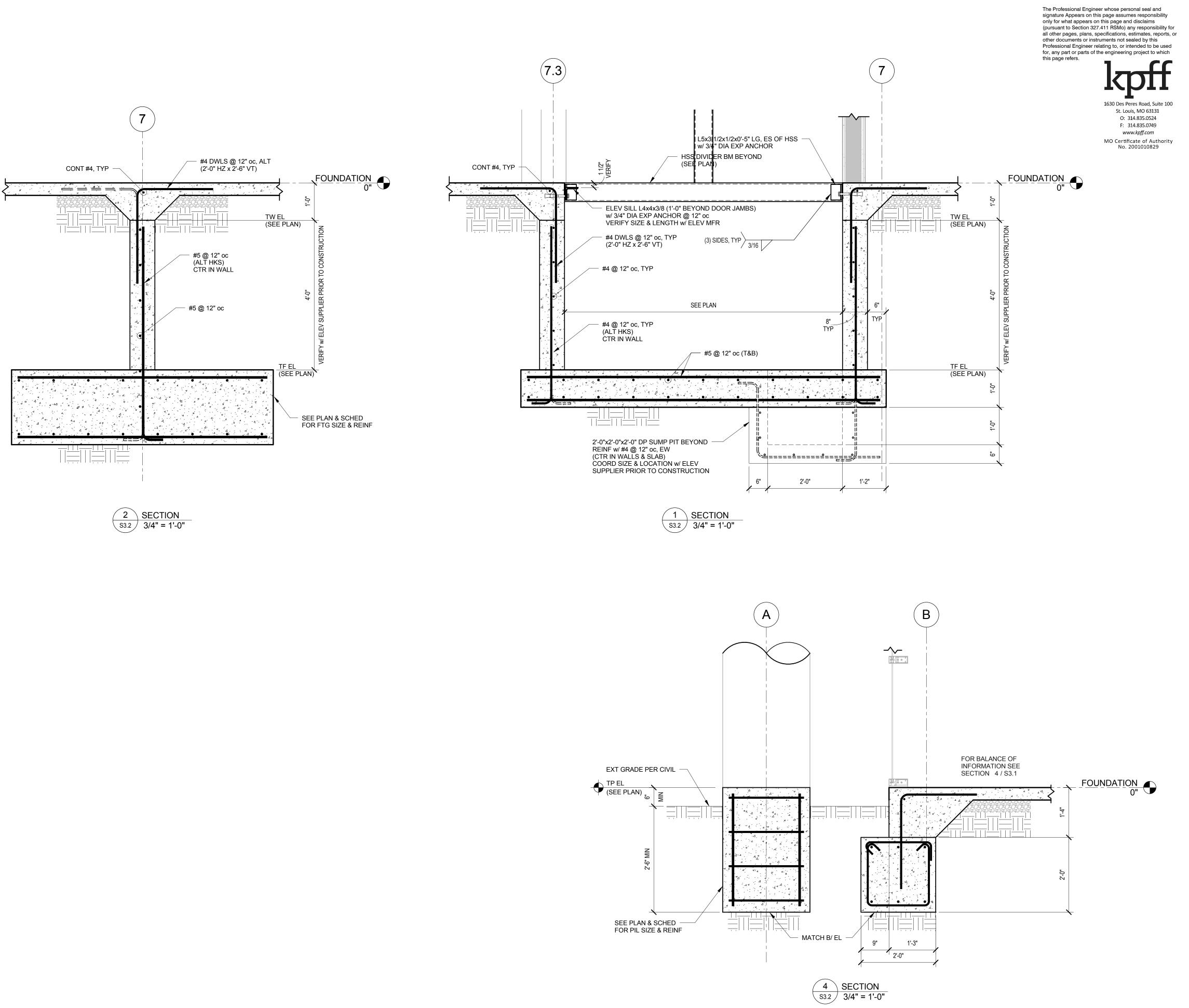


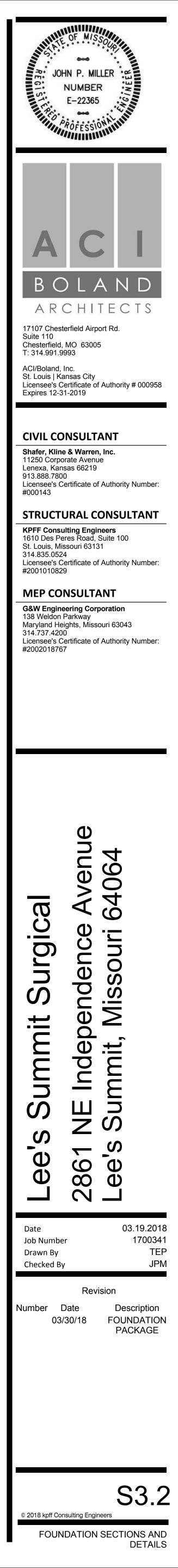


FOUNDATION SECTIONS AND DETAILS

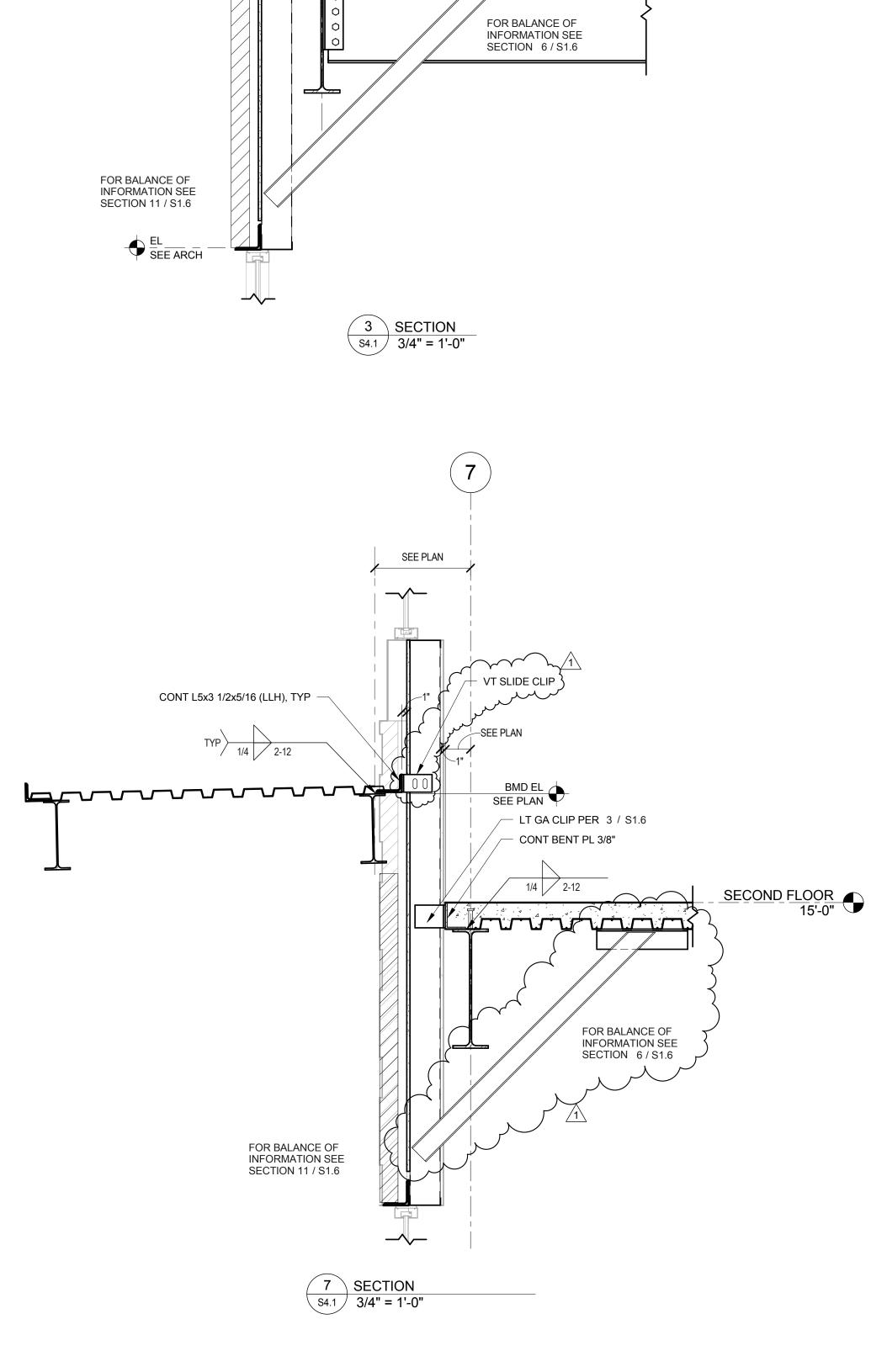


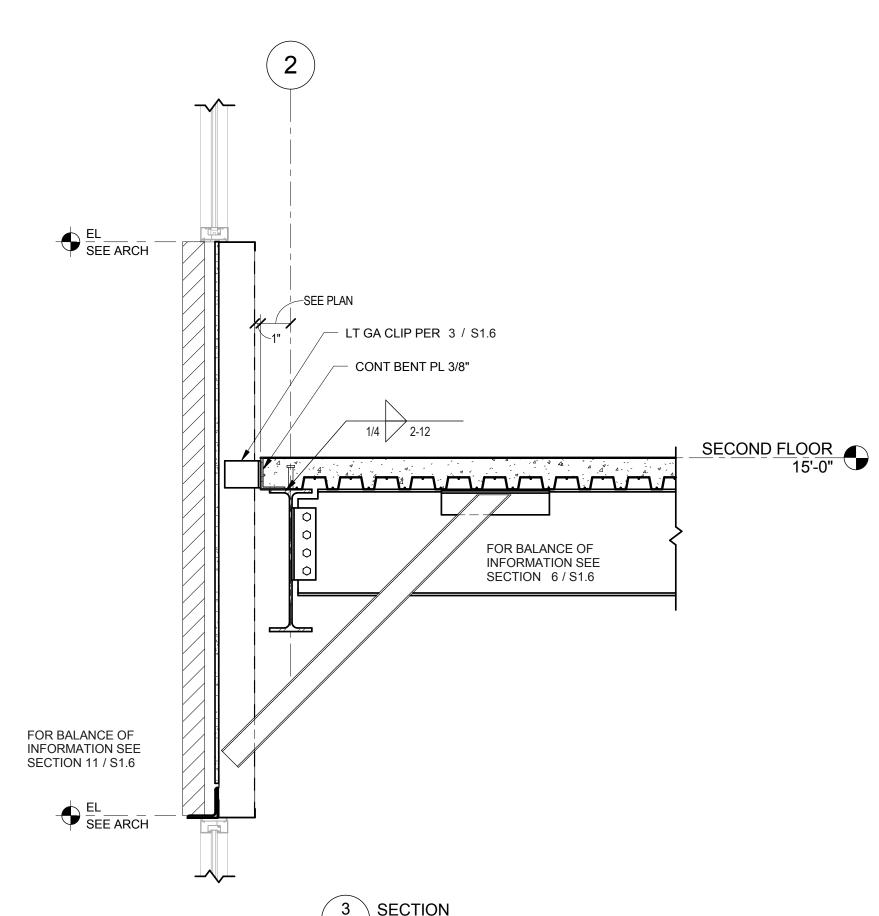


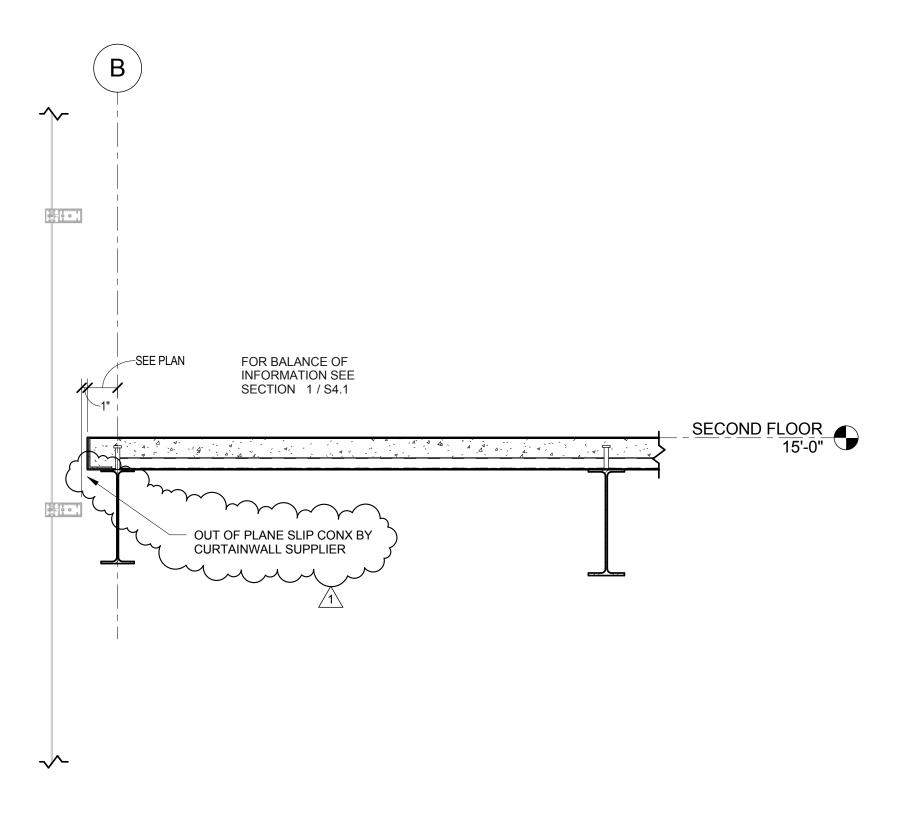




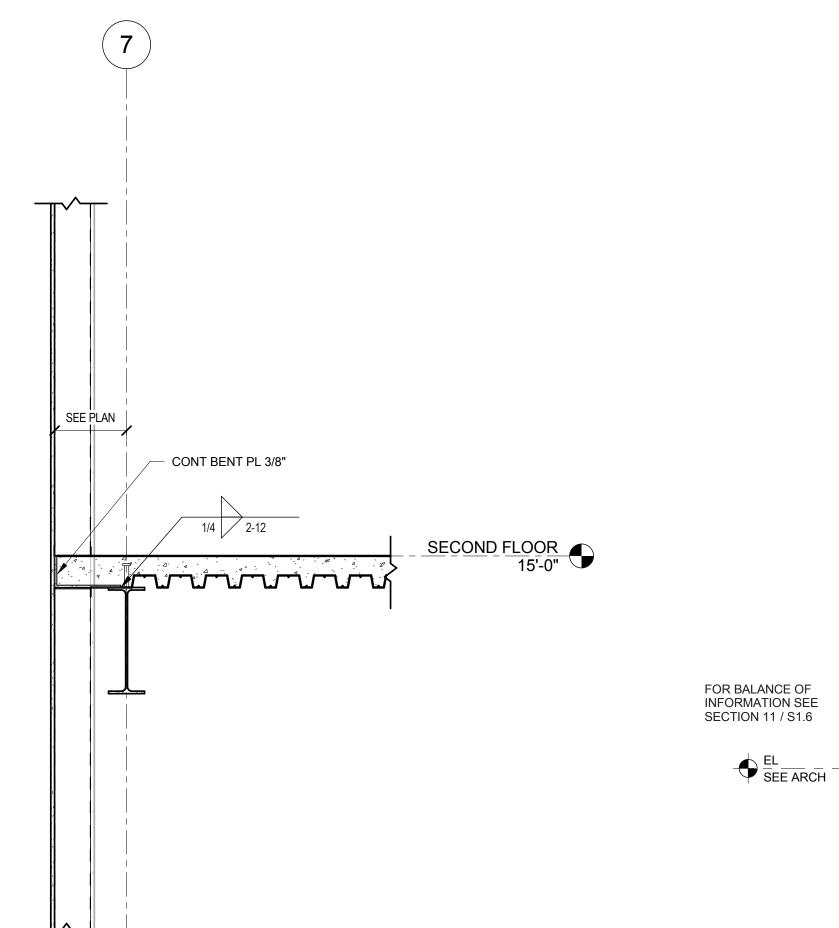
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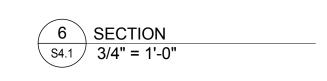


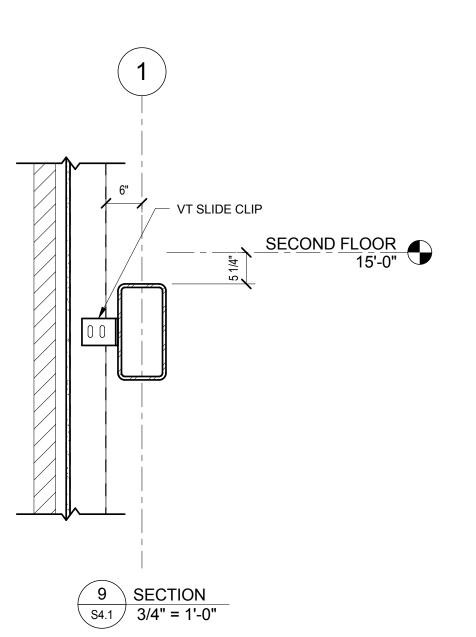


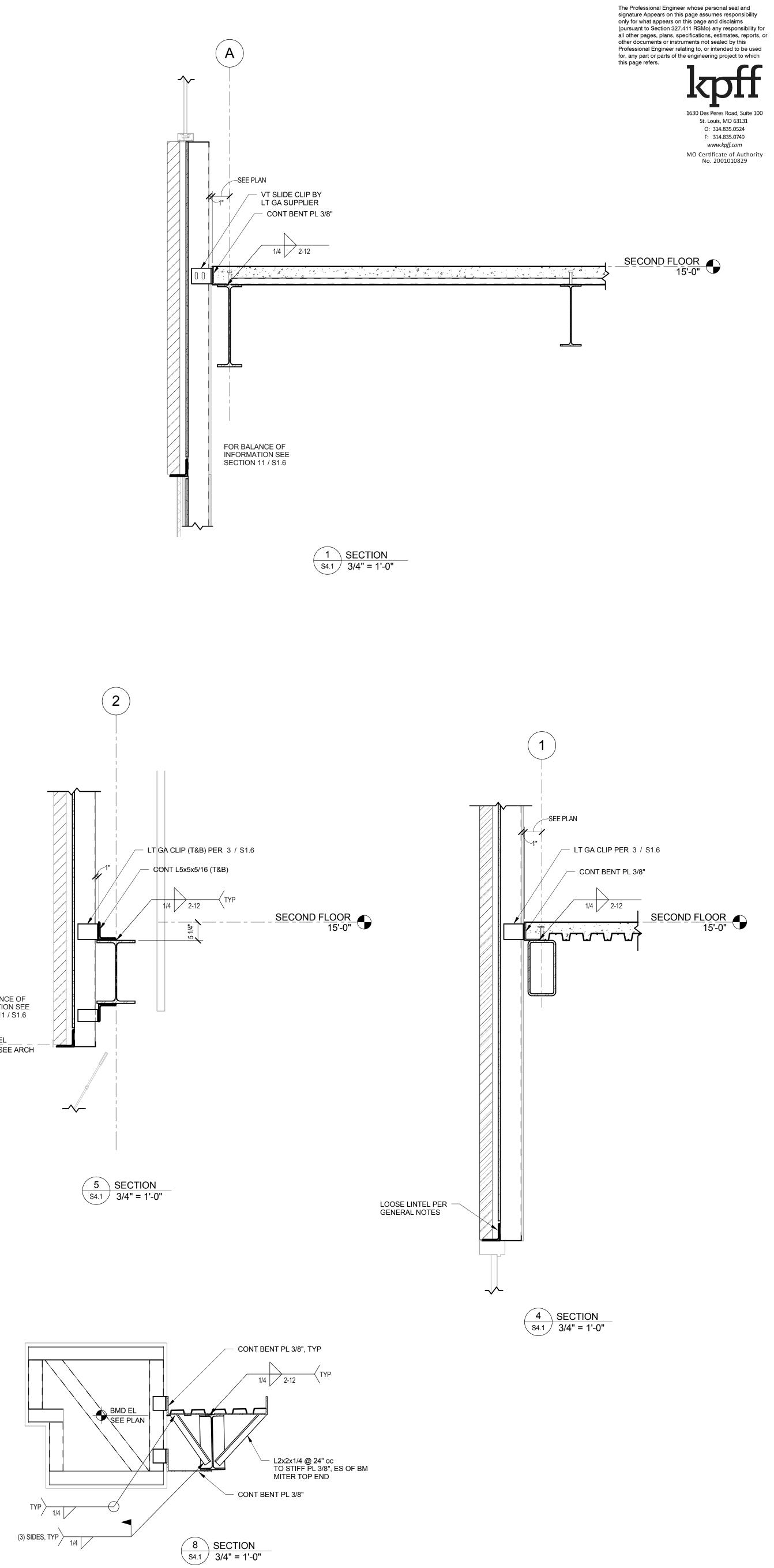


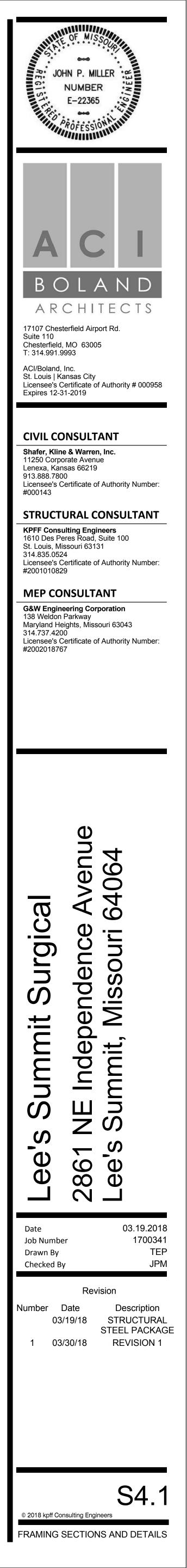
2 SECTION \$4.1 3/4" = 1'-0"

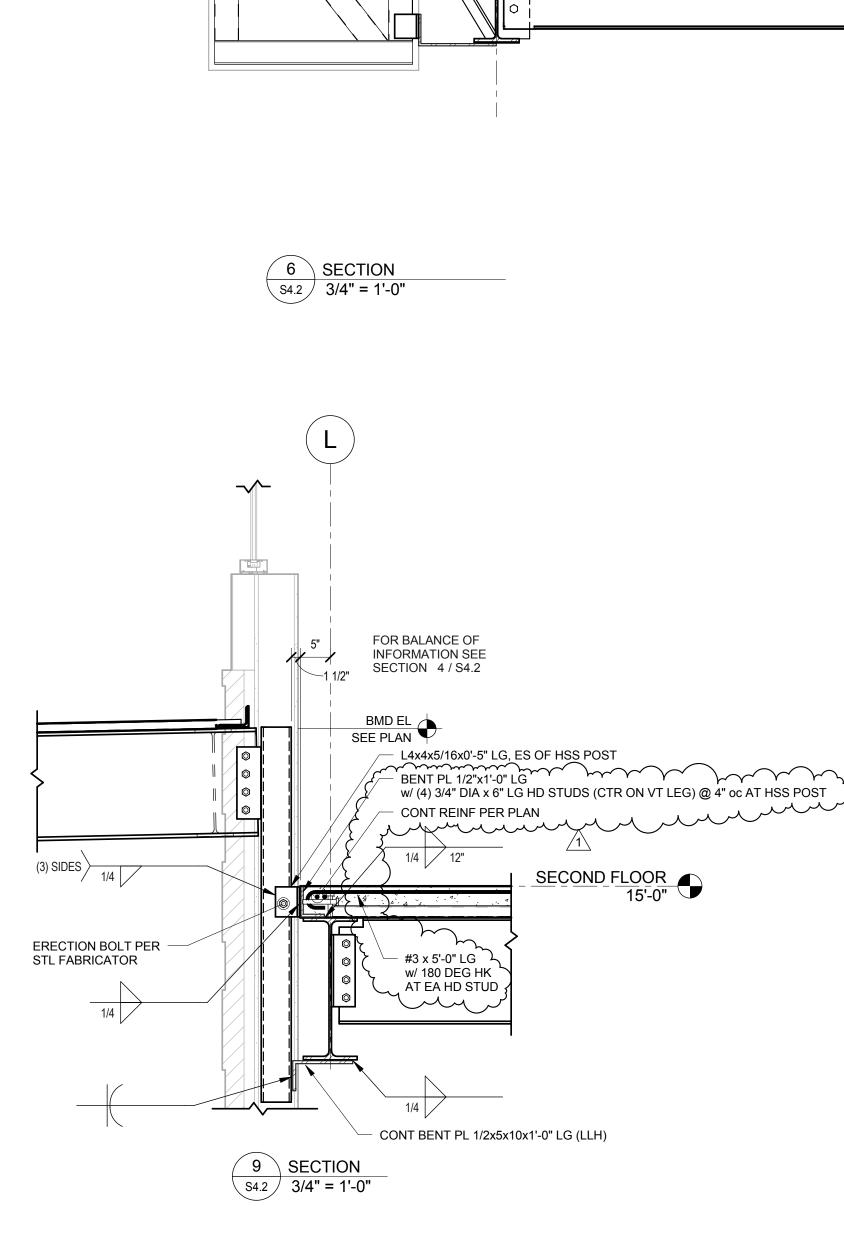


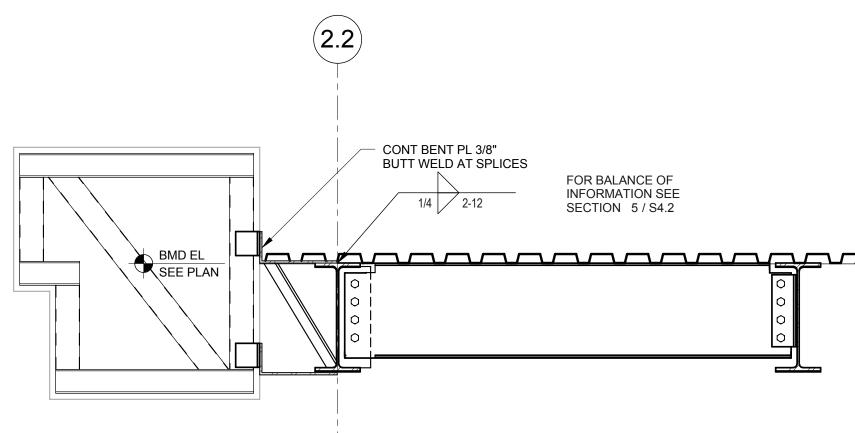


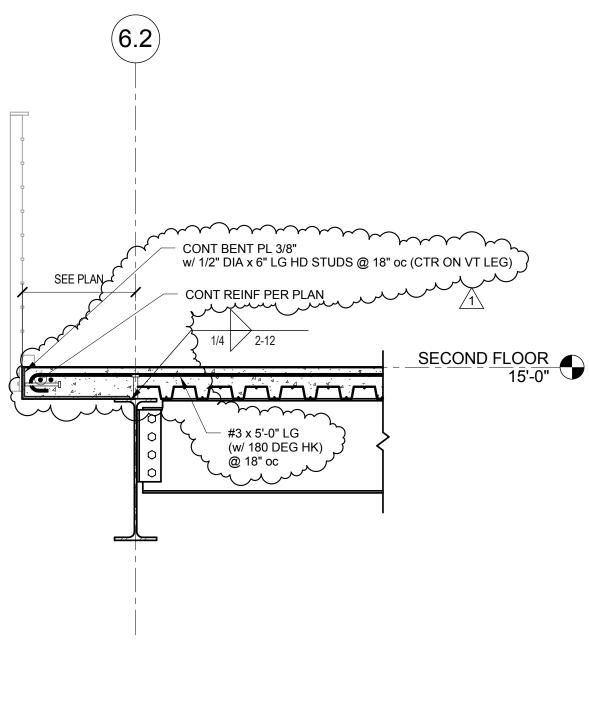


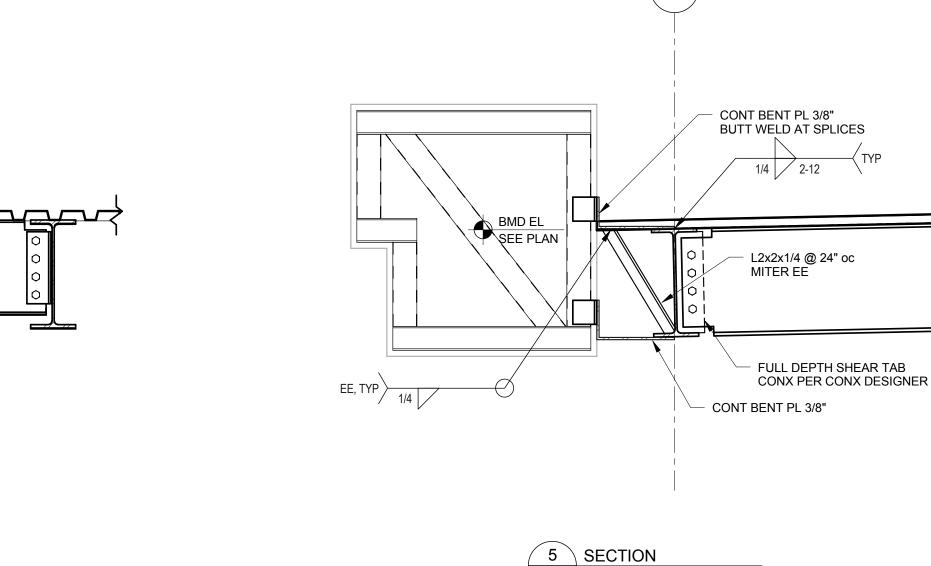


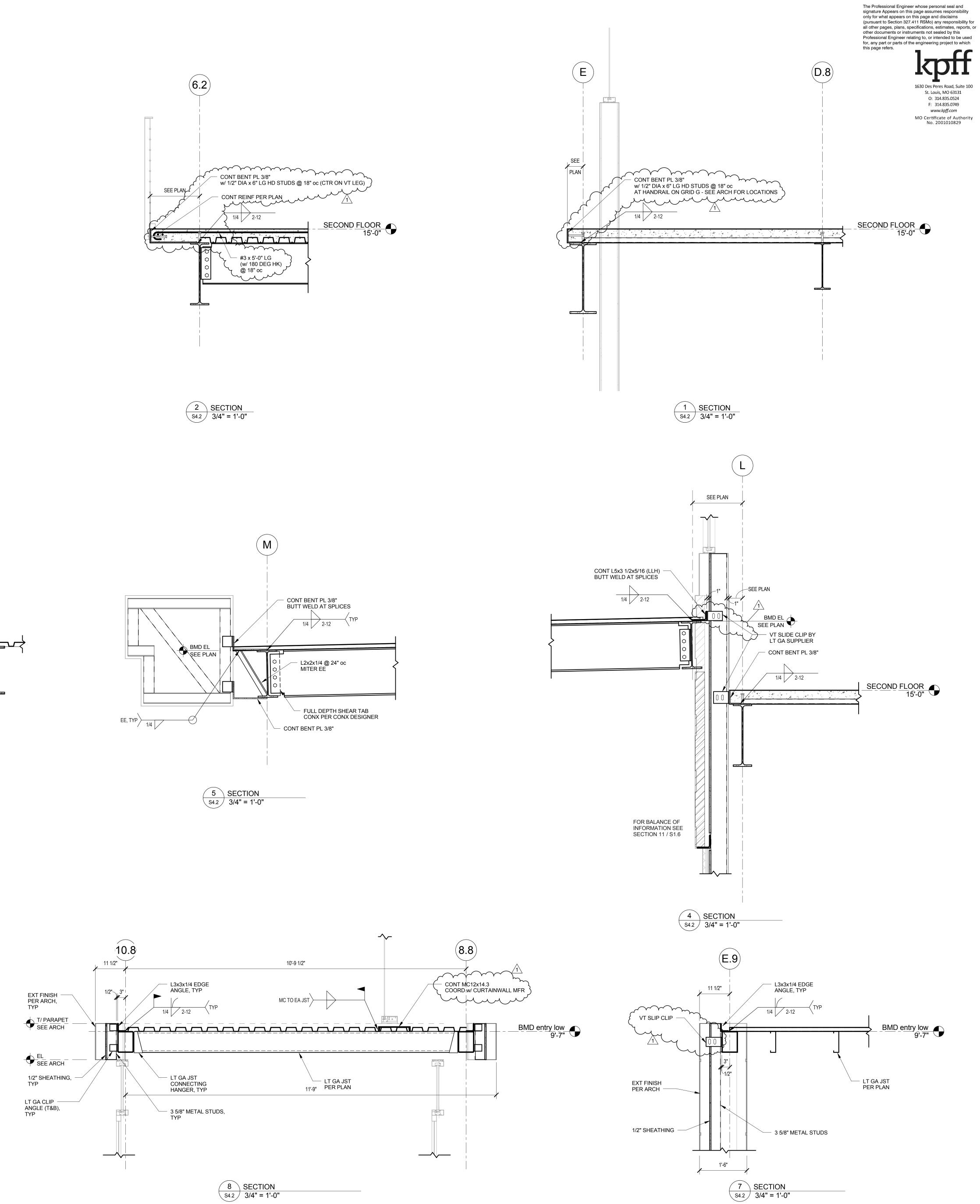


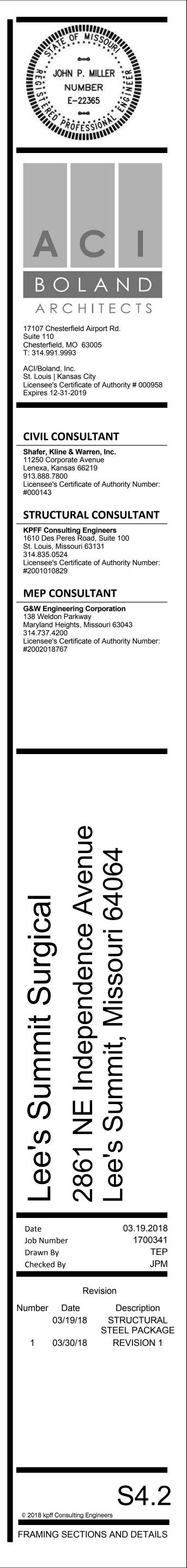


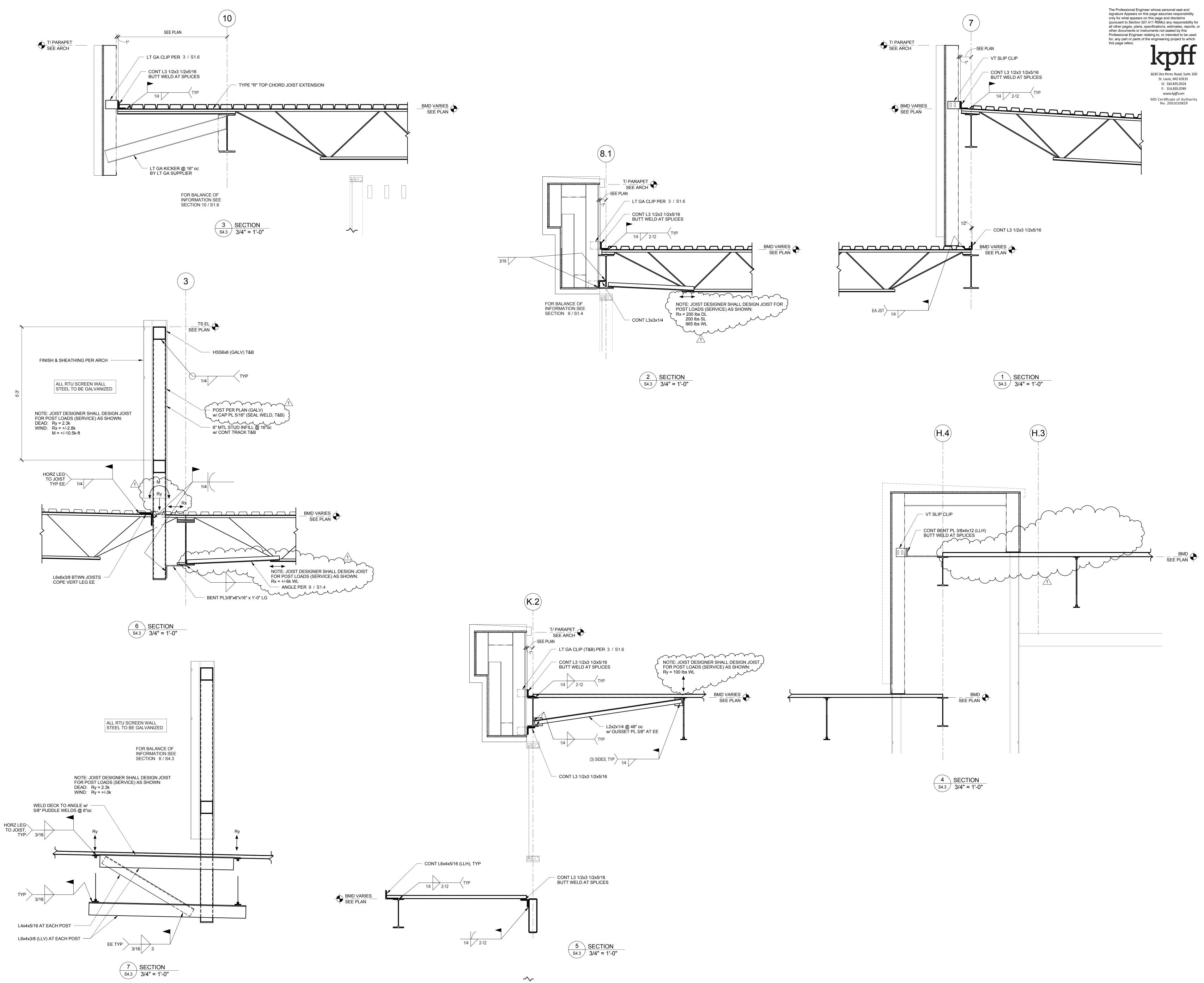


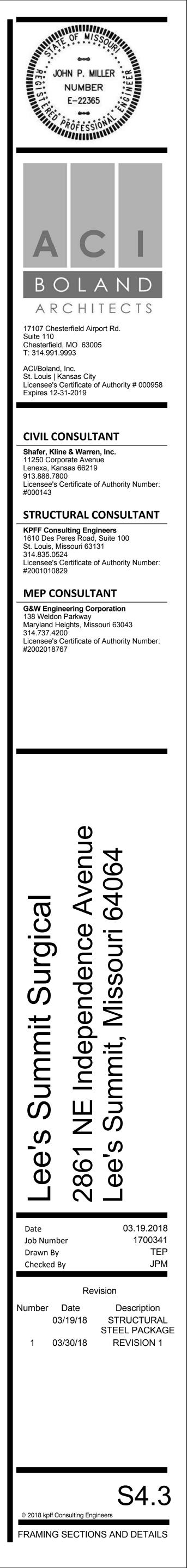


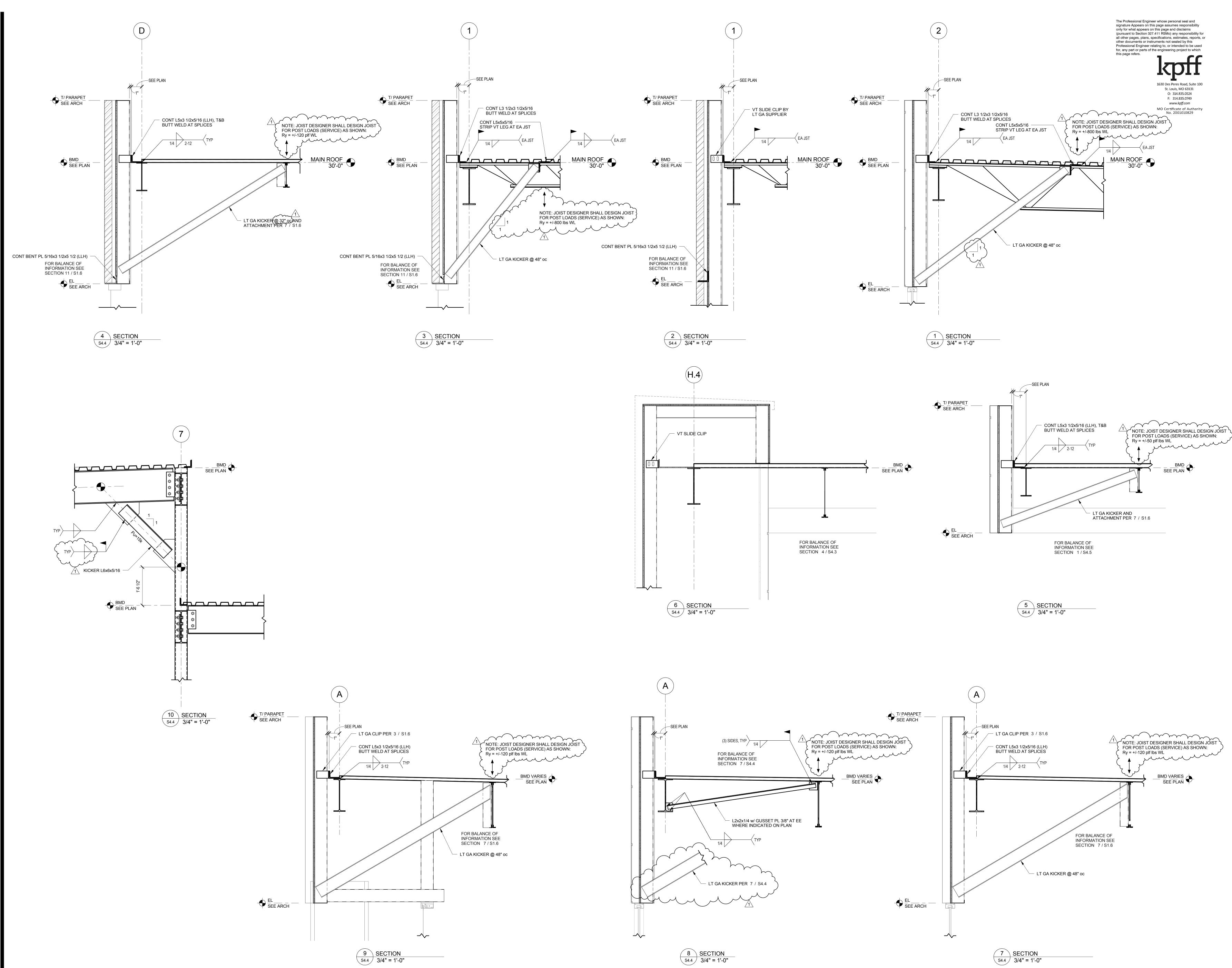


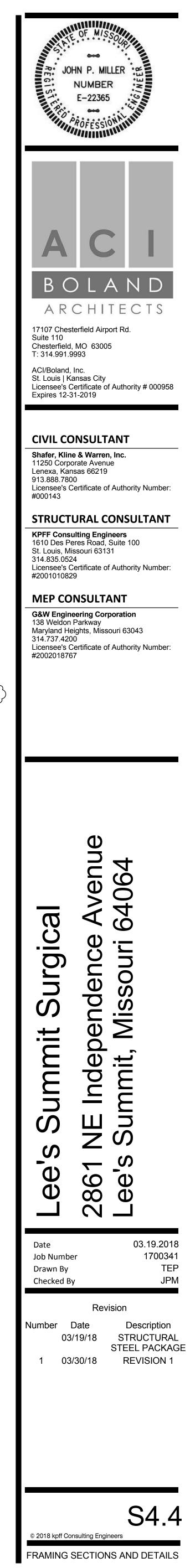


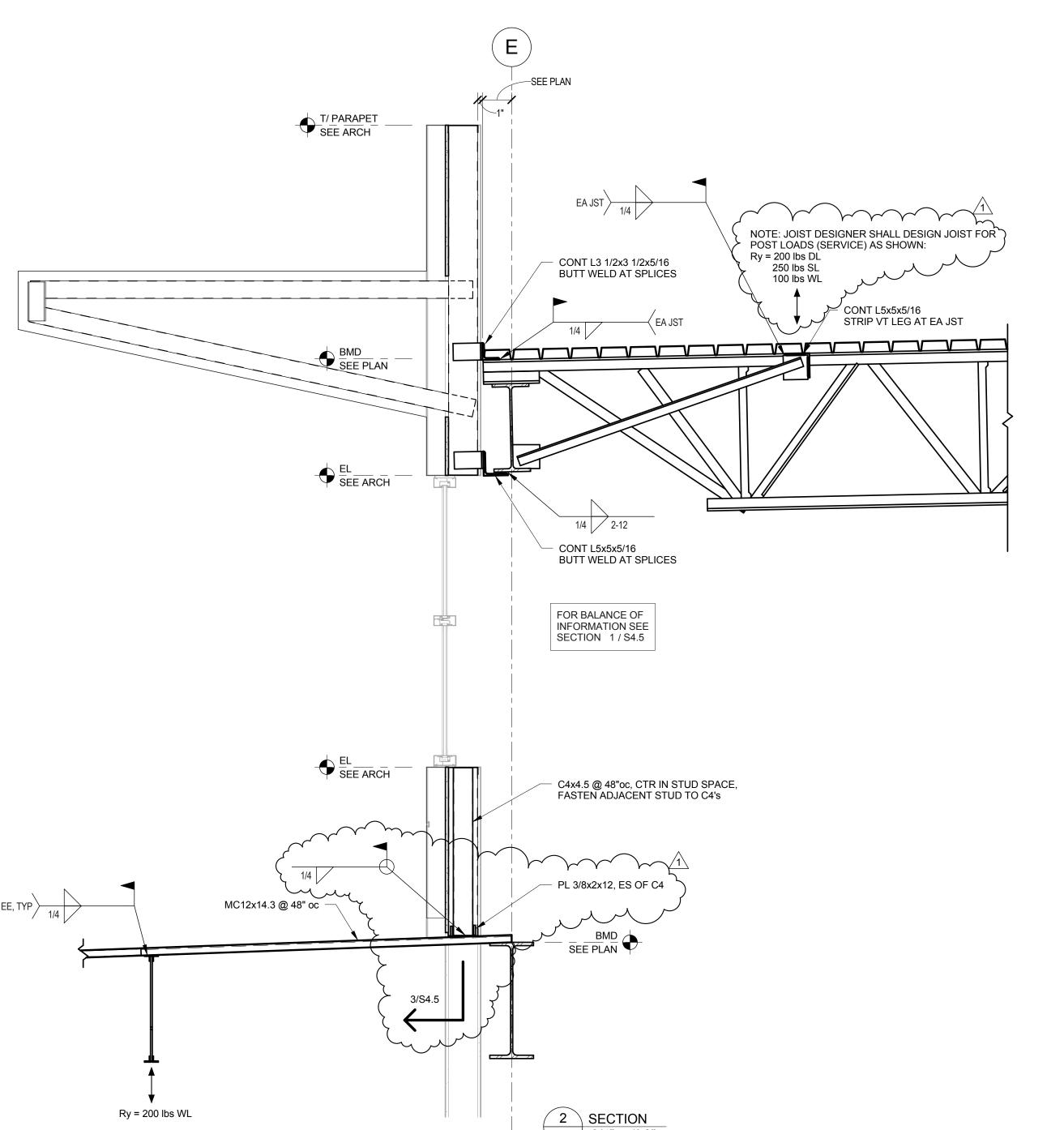


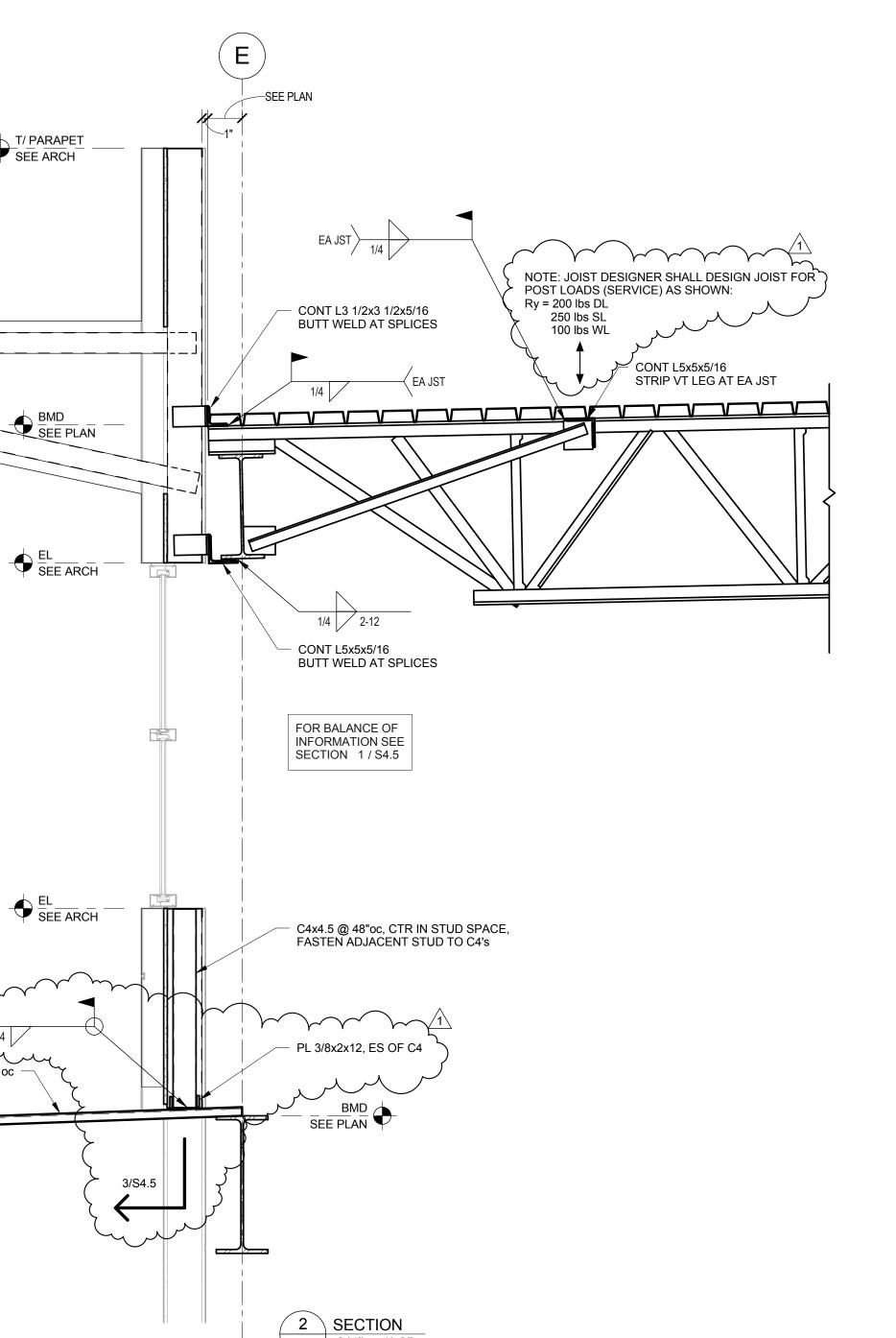


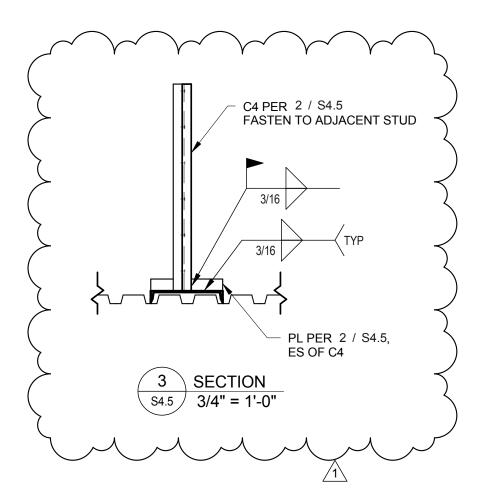


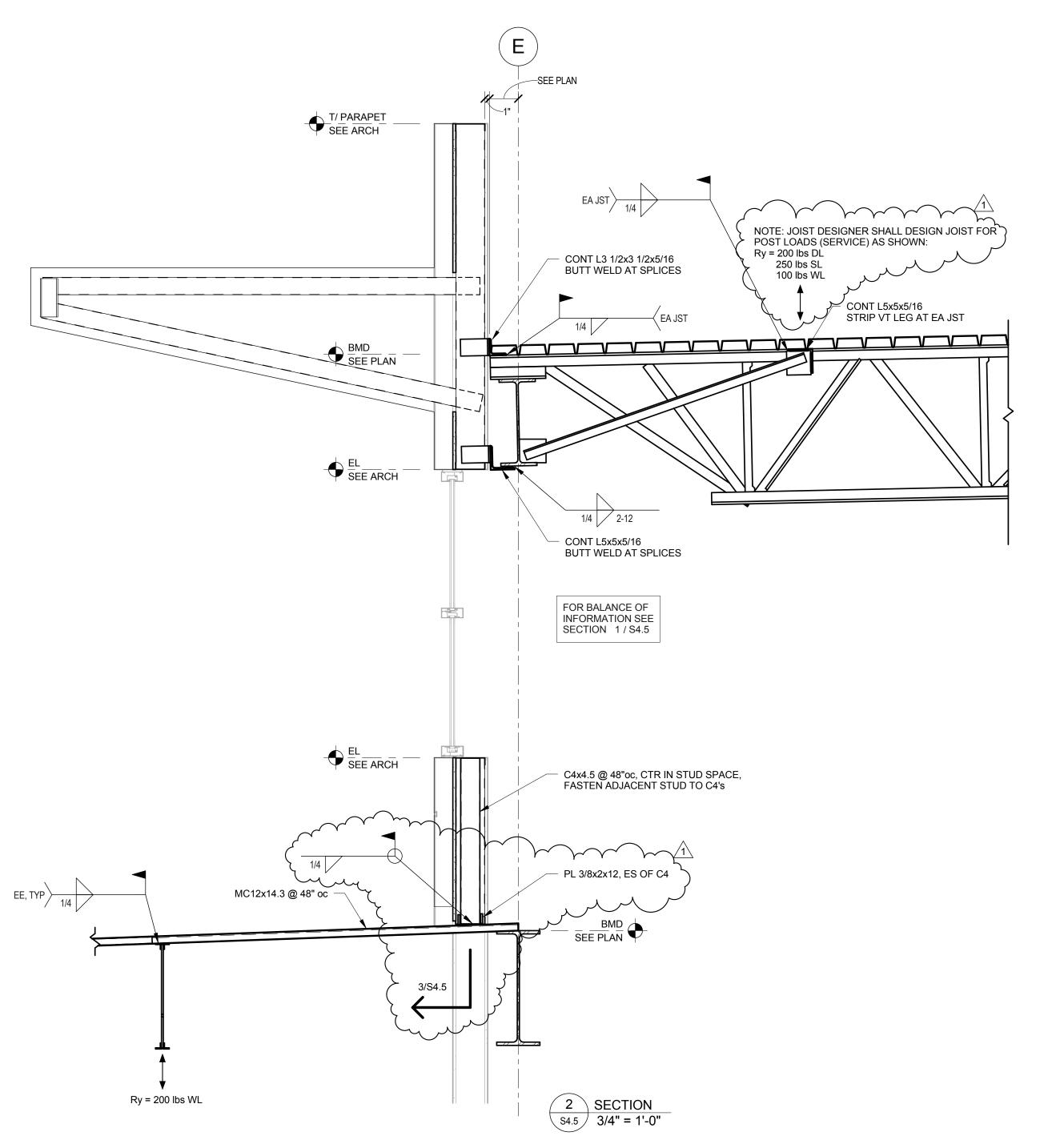


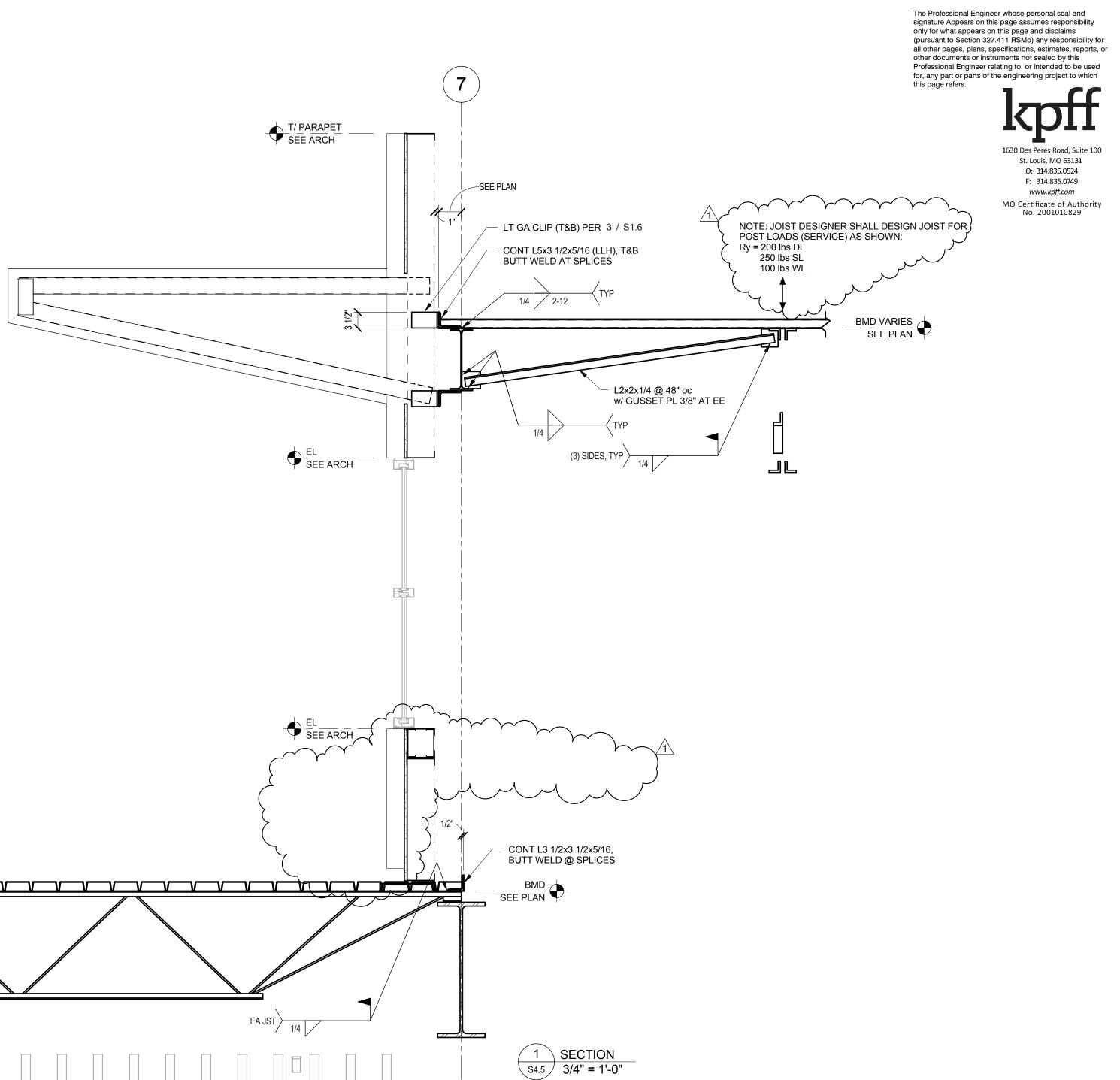


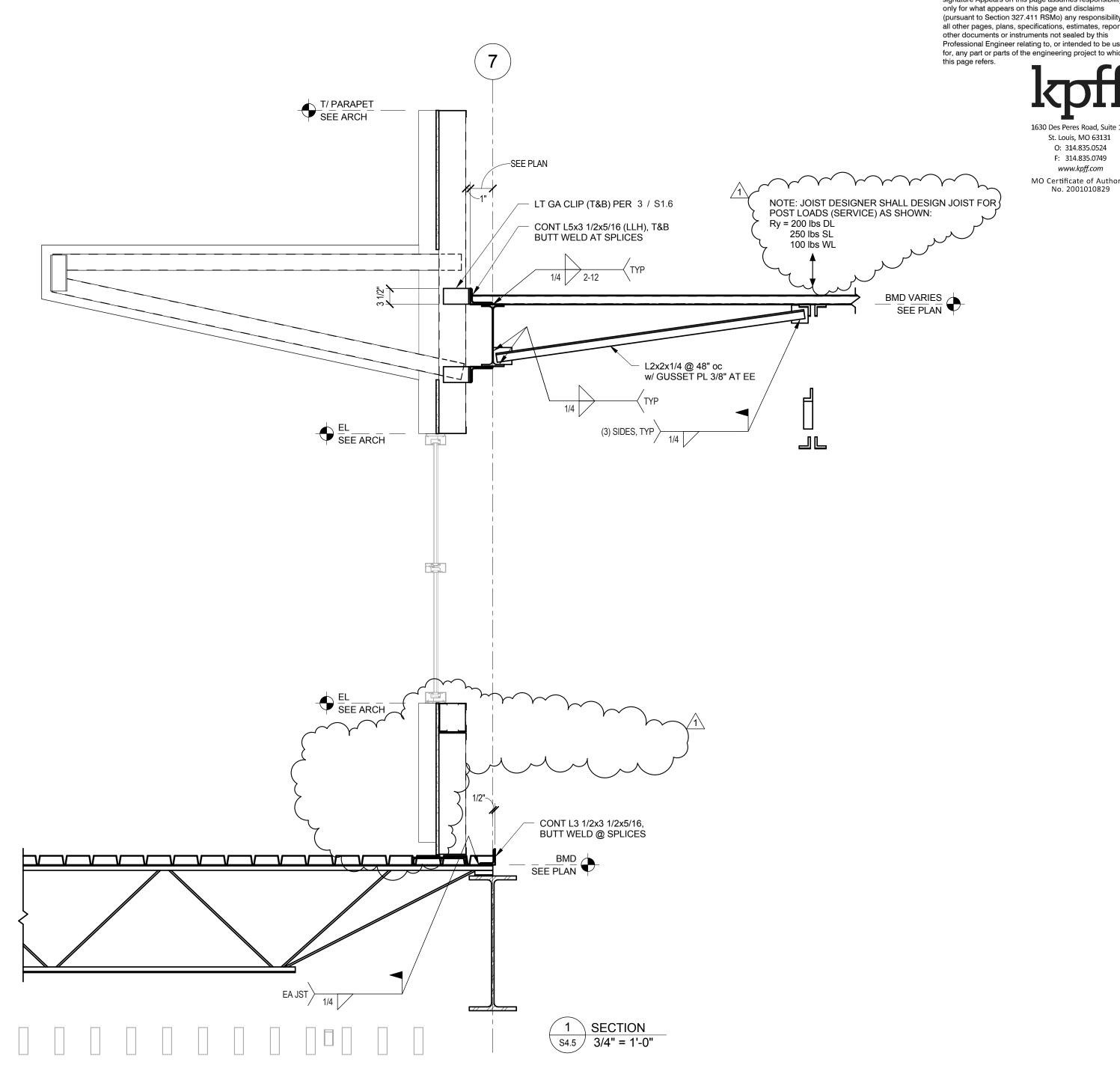


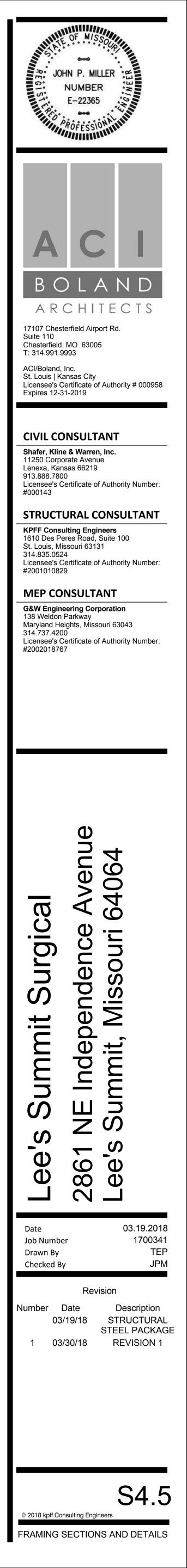


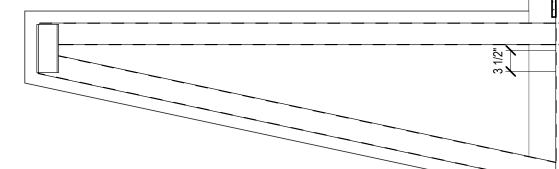




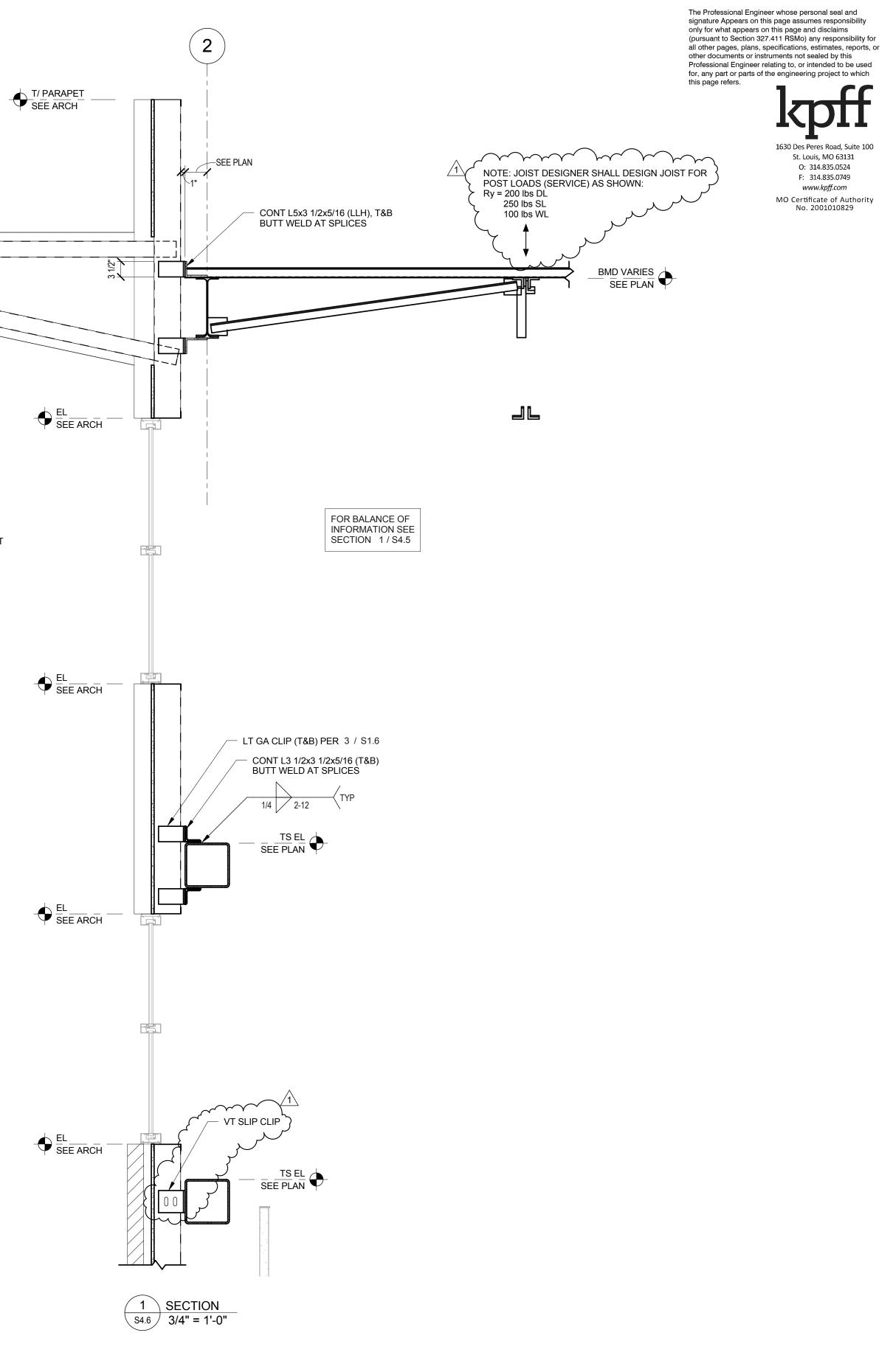


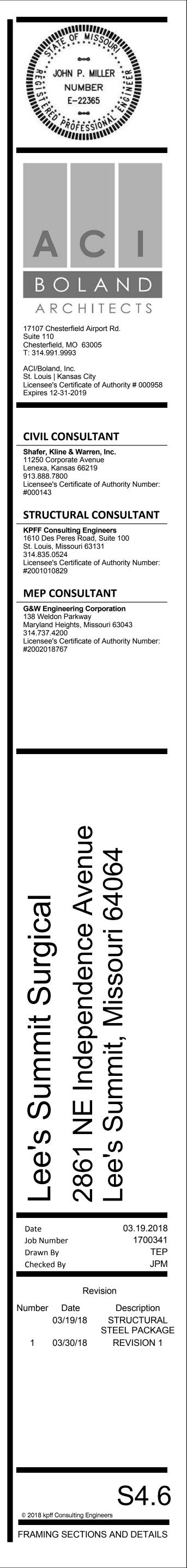


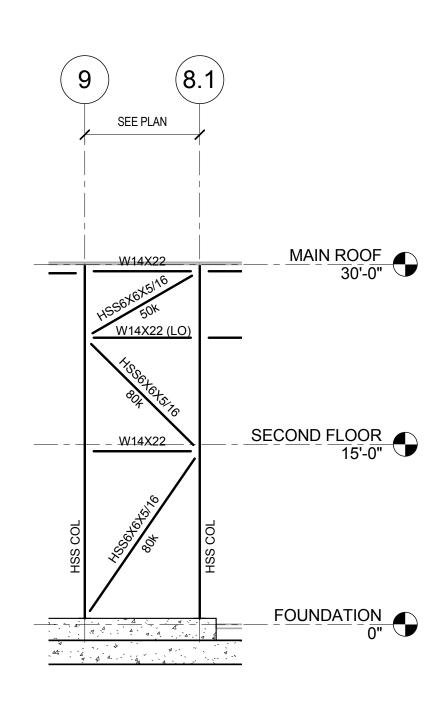


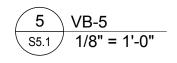


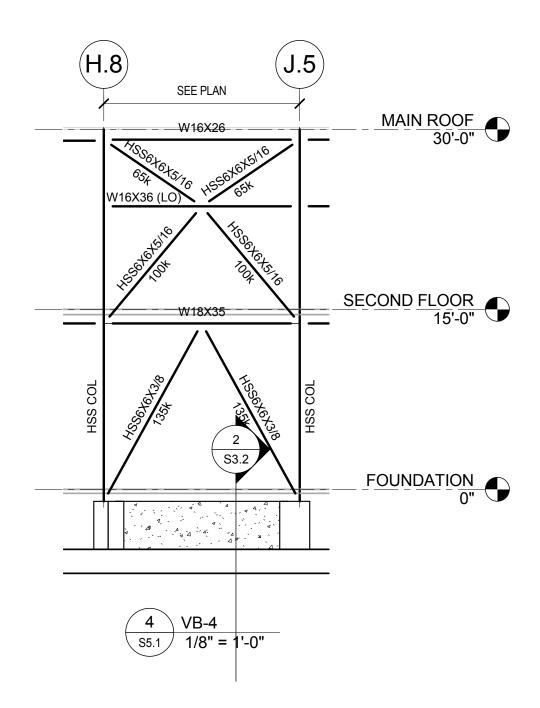
NOTE: JOIST DESIGNER SHALL DESIGN JOIST FOR POST LOADS (SERVICE) AS SHOWN:

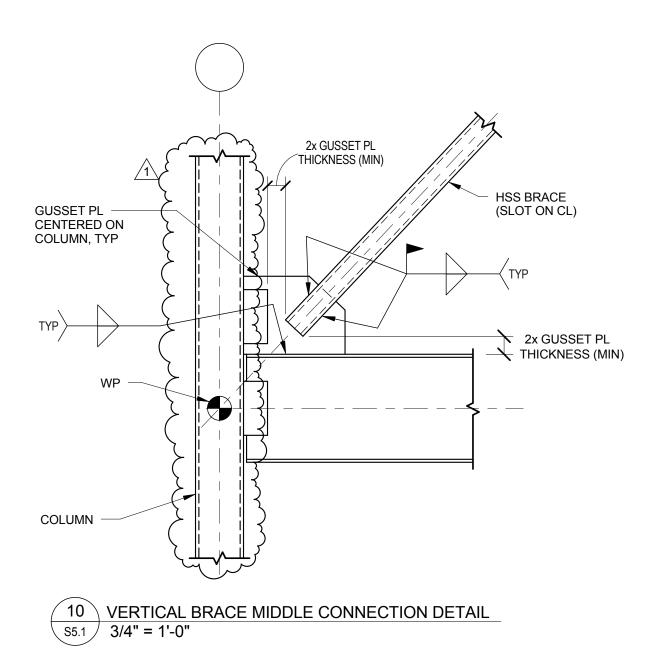


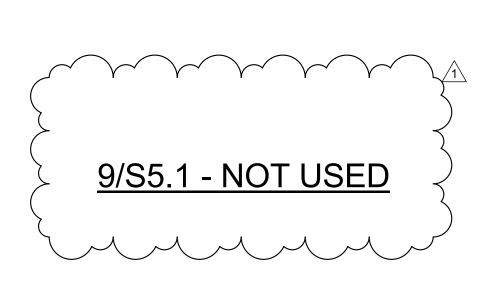


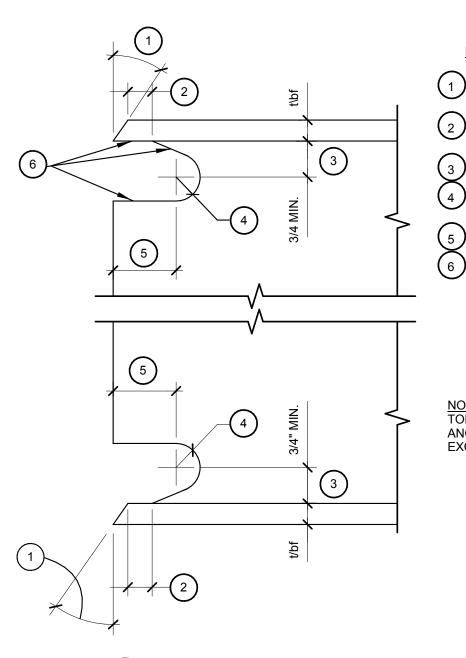












<u>NOTES</u>

(3)

BEVEL AS REQUIRED BY AWS D1.1 FOR SELECTED GROOVE WELD PROCEDURE.

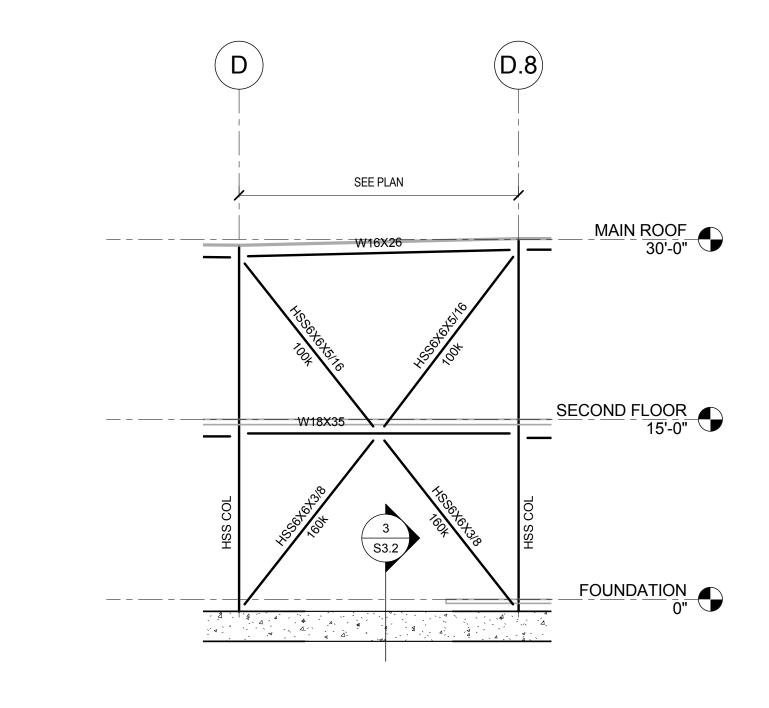
- (2)LARGER OF t/bf OR 1/2". (PLUS 1/2 t/bf, OR MINUS 1/4 t/bf.)
 - 3/4" t/bf TO t/bf, 3/4" MINIMUM (+/- 1/4"). 3/8" MINIMUM RADIUS (PLUS NOT
 - LIMITED, OR MINUS 0).

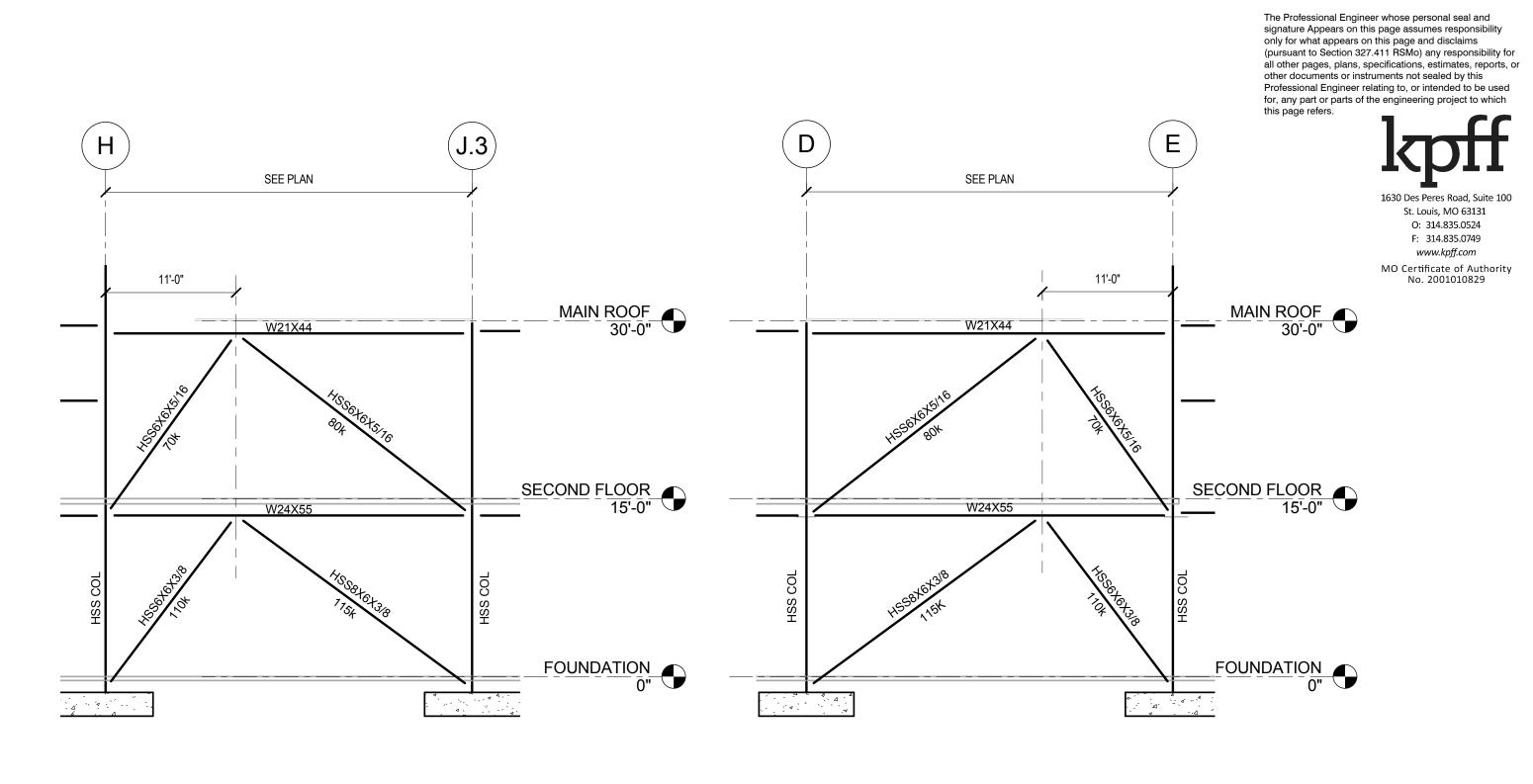
3 t/bf. (+/- 1/2"). SEE FEMA-353, RECOMMENDED

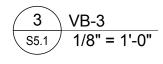
SPECIFICATIONS AND QUALITY ASSURANCE GUIDELINES FOR STEEL MOMENT-FRAME CONSTRUCTION FOR SEISMIC APPLICATIONS FOR FABRICATION DETAILS INCLUDING CUTTING METHODS AND SMOOTHNESS REQUIREMENTS.

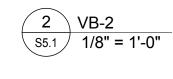
TOLERANCES SHALL NOT ACCUMULATE TO THE EXTENT THAT THE ANGLE OF THE ACCESS HOLE CUT TO THE FLANGE SURFACE EXCEEDS 25 DEG.

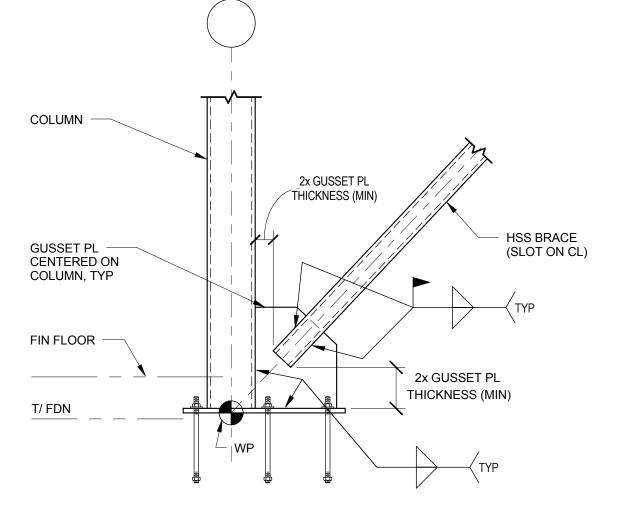
13TYPICAL WELD ACCESS HOLES FOR MOMENT CONNECTION DETAILS\$5.13/4" = 1'-0"







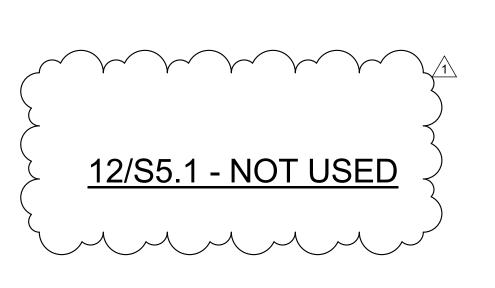


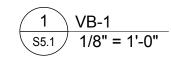


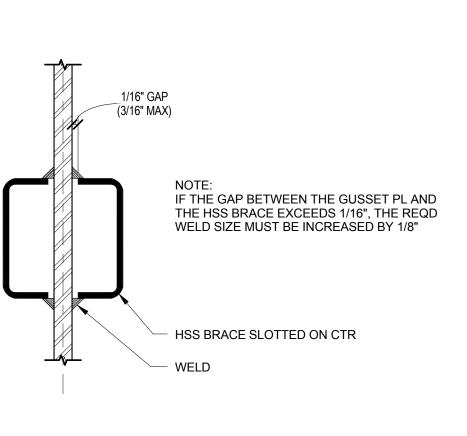
8 VERTICAL BRACE BOTTOM CONNECTION DETAIL AT HSS COLUMN S5.1 3/4" = 1'-0"

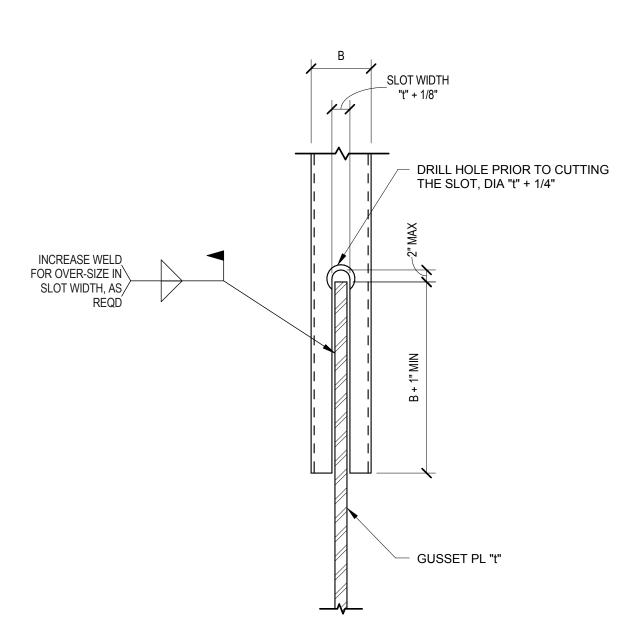
SEISMIC FORCE RESISTING SYSTEM GENERAL NOTES:

- ALL BRACING AND DRAG STRUT CONNECTIONS TO BE DESIGNED BY CONTRACTOR FOR ULTIMATE LOAD INDICATED. 1.
- VERTICAL BRACE FRAMES, BEAMS COLUMNS, CONNECTIONS AND FOOTINGS ARE PART OF SEISMIC FORCE RESISTING SYSTEM. SEE PROJECT SPECIFICATIONS FOR SPECIAL INSPECTION AND QUALITY ASSURANCE REQUIREMENTS.
- WELD FILLER METAL SHALL MEET MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT-LBS AT MINUS 20 DEGREES FAHRENHEIT AS DETERMINED BY AWS CLASSIFICATION OR MANUFACTURER CERTIFICATION.
- BOLT HOLES IN BASE PLATES FOR ALL BRACED FRAME COLUMNS SHALL BE STANDARD 4. SIZE HOLES. OVERSIZED HOLES SHALL HAVE PLATE WASHERS ADDED AND PLATE
- SHALL BE WELDED ALL AROUND TO BASE PLATE. CONTRACTOR SHALL DESIGN PLATE WASHER. SEE COLUMN SCHEDULE FOR COLUMN, BASE PLATE, AND ANCHOR ROD SIZES.



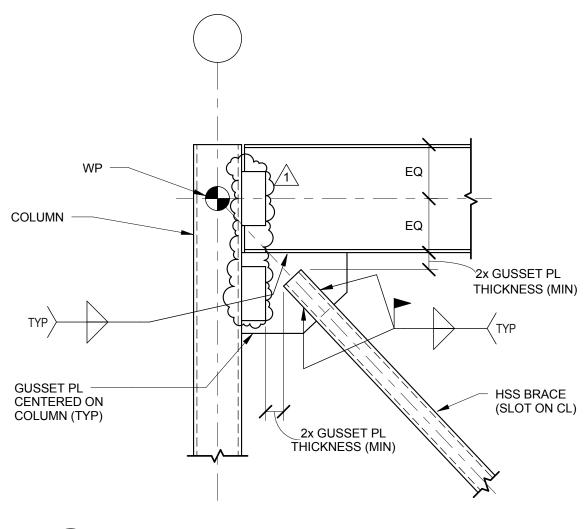




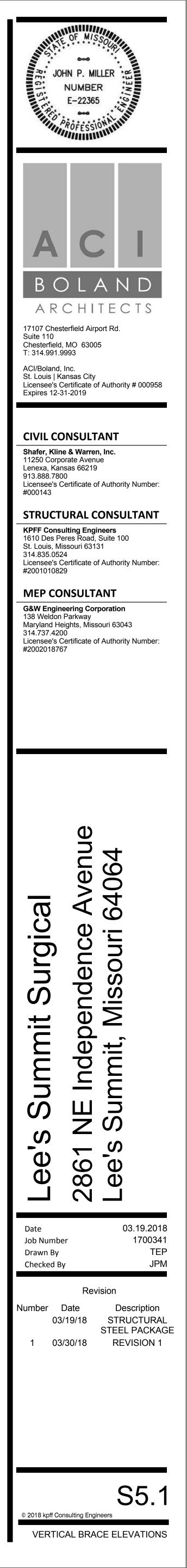








11VERTICAL BRACE TOP CONNECTION DETAIL AT HSS COLUMN\$5.13/4" = 1'-0"



CL

.2". 6" .3" 3" .6" .2

It I I I I

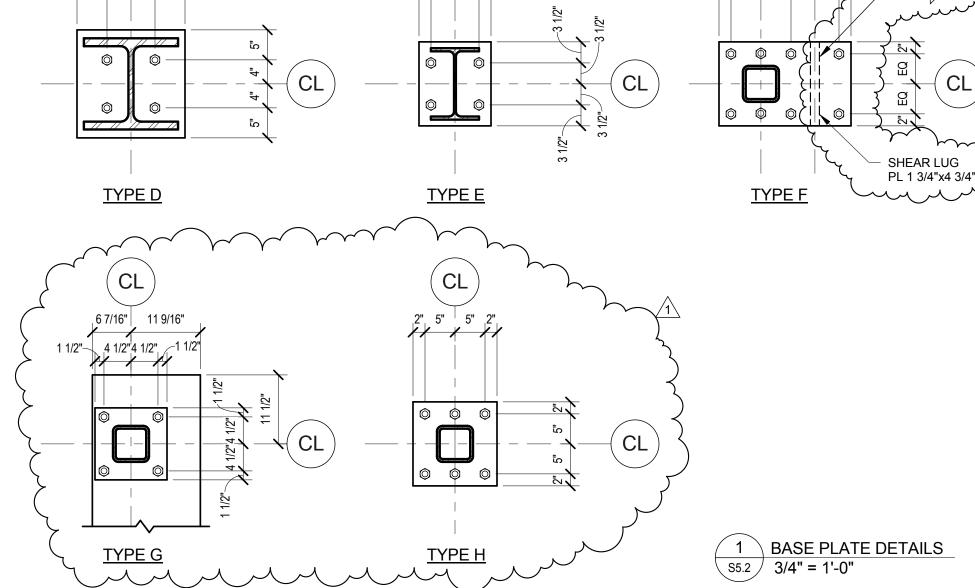
<u>TYPE A</u>

5" 4" 4" 5"

+

 \bigcirc \bigcirc \bigcirc

o.



(CL

2" EQ EQ 2"

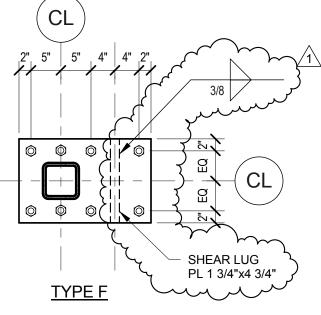
00

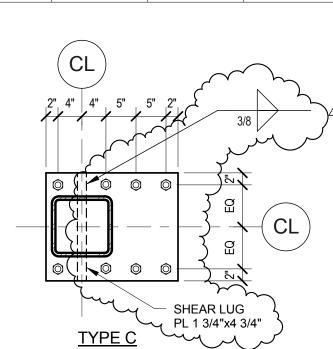
<u>TYPE B</u>

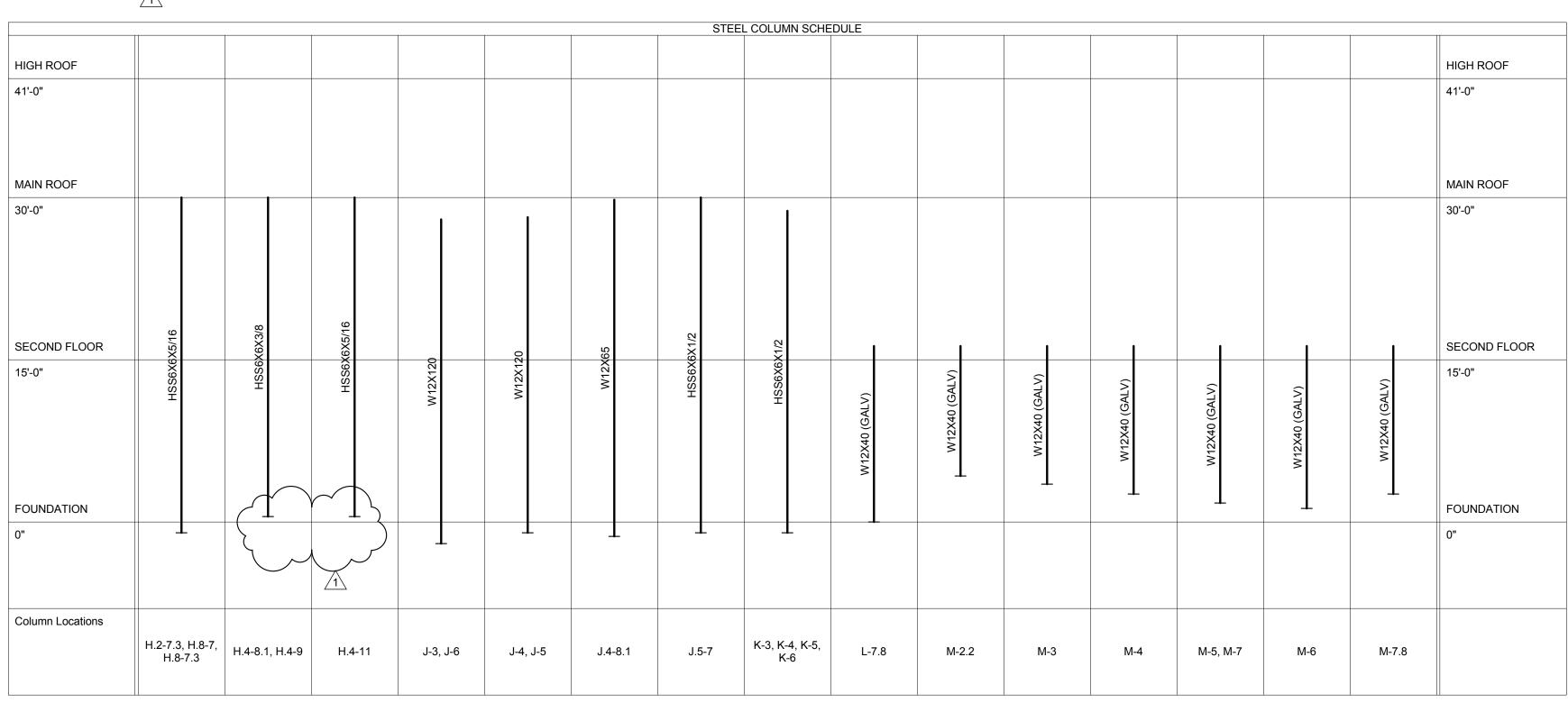
2" 4" 4" 2"

O Q

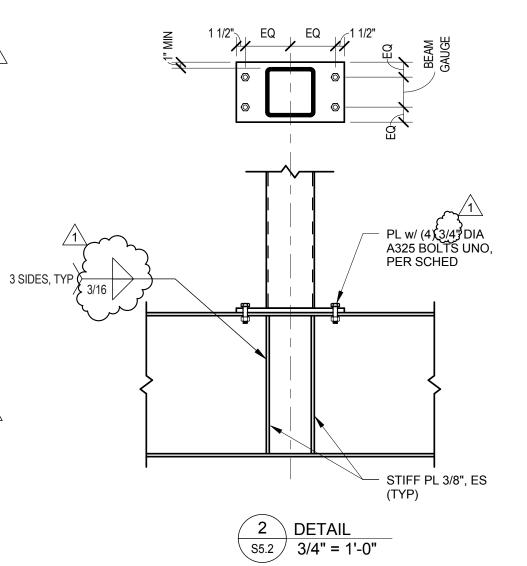
 \leftarrow CL





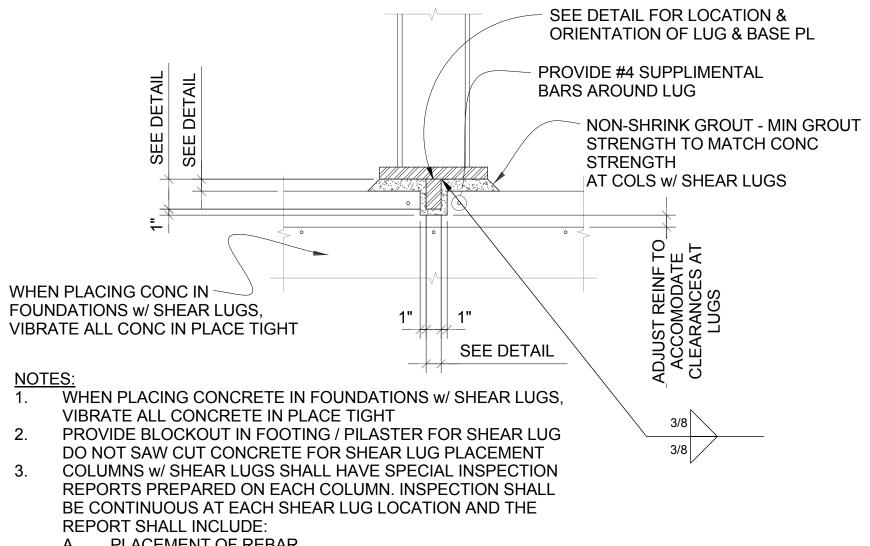


																STEE	L COLUMN SCH	EDULE														
HIGH ROOF																																HIGH ROOF
41'-0"																1	•	1					I									41'-0"
																					HSS6X6X5/16			HSS6X6X5/16								
				1	1	1												(5/8		1									5/8		X2/8	MAIN ROOF
30'-0" SECOND FLOOR	95	<5/16	/16	(5/16	X3/8	X3/8	0X5/8		X3/8	1/2	(1/2	X3/8		X5/8		HSS10X10X5/8	W12X120	HSS10X10X		88			W14X176					HSS10X10X5/8	HSS10X10X		HSS10X10	30'-0"
15'-0"	W12X6	HSS6X6X	HSS6X6X5	HSS6X6X	(9X9SSH	HSS6X6	HSS10X1		HSS6X6	HSS6X6X1	HSS6X6X	(9x9X9X	W14X68	9X9SSH					HSS6X6X3/8	W14X6	HSS6X6X3/8	FUTURE			HSS8X8X1/2		HSS8X8X5/8					15'-0"
FOUNDATION																					\square	<u>}</u>										FOUNDATION
0" Column Locations				+	+			-	L	Ţ		+				1				Ŧ						•	+					- L 0"
			8-8, -7, L-2, B-5	 С-8, К.3-2	C-3, C-4, C-5, C-6	C-7	D-1, D H.3-1,).8-1, J.3-1	D-2, J.3-2	D-3, D-6	D-4, D-5	D-7	D.6-10	D.8-	7	E-2	E-3, E-4, E-5, E-6	E-7	E.5-6.2, E.8-7 E	E.6-10, F.8-10	E.9-8. E.7-7 E.9-10.8, F F.7-10	8, 7-8.8, F-3, F-4, .8	F-5 F.2-	2 F.6-7	G-3, G-	i-4, G-5	G-6	H-2	Н-3	H-	-4, H-5, H-6	H-7



	STE	EL COLUMN BASEPLA	ATE SCHEDULE	
COLUMN				
LOCATION MARK	TYPE	BASEPLATE	ANCHOR RODS	COM
A-2	W12X65	PL 1 3/4x20x20	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE
A-3	W12X65	PL 1 3/4x20x20	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE
A-4	W12X65	PL 1 3/4x20x20	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE
A-6	W12X65	PL 1 3/4x20x20	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE
A-7	W12X65	PL 1 3/4x20x20	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE
A-8	HSS6X6X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
B-5	HSS6X6X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
C-2	HSS6X6X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
C-3	HSS6X6X3/8	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
C-4	HSS6X6X3/8	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
C-5	HSS6X6X3/8	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
C-6	HSS6X6X3/8	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
C-7	HSS6X6X3/8	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
C-8	HSS6X6X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
C.8-8	HSS6X6X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
D-1	HSS10X10X5/8	PL 3/4x16x16	(4) 3/4" DIA (9" EMBED)	
D-2	HSS6X6X3/8	PL 1x14x22	(8) 1" DIA (14" EMBED)	GRADE 55 - SEE
D-3	HSS6X6X1/2	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
D-4	HSS6X6X1/2	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
D-5	HSS6X6X1/2	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
D-6	HSS6X6X1/2	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
D-7	HSS6X6X3/8	PL 1 3/4x14x22	(8) 1" DIA (14" EMBED)	GRADE 55 - SEE
D.6-10	W14X68	{ PL 1x16x22	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE
D.8-1	HSS10X10X5/8	PL 3/4x16x16	(4) 3/4" DIA (9" EMBED)	fiitit
D.8-7	HSS6X6X5/8	PL 1 3/4x14x22	(8) 1" DIA (14" EMBED)	GRADE 55 - SEE
D.8-8	HSS6X6X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
E-2	HSS10X10X5/8	PL 1x18x22	(8) 1" DIA (14" EMBED)	GRADE 55 - SEE
E-3	W12X120	PL 1 3/4x22x22	(12) 1" DIA (24" EMBED)	GRADE 55 - SEE
E-4	W12X120	PL 1 3/4x22x22	(12) 1" DIA (24" EMBED)	GRADE 55 - SEE
E-5	W12X120	PL 1 3/4x22x22	(12) 1" DIA (24" EMBED)	GRADE 55 - SEE
E-6	W12X120	PL 1 3/4x22x22	(12) 1" DIA (24" EMBED)	GRADE 55 - SEE
E-7	HSS10X10X5/8	PL		PL 3/4" ON BEAM
E.5-6.2	HSS6X6X3/8	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
E.6-10	W14X68	CPI 1x16x22	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE
E.7-7	HSS6X6X5/16	PL		PL'3/4" ON BEAM
E.8-7	HSS6X6X3/8	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
E.9-8.8	HSS6X6X3/8	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
E.9-10.8	HSS6X6X3/8	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
F-3	FUTURE COL	PL		
F-4	FUTURE COL	PL		
F-5	FUTURE COL	PL		
F.2-2	W14X176	PL 3/4x18x18	(4) 1" DIA (12" EMBED)	GRADE 55 - SEE
F.6-7	HSS6X6X5/16	PL		PL 3/4" ON BEAM
F.7-8.8	HSS6X6X3/8	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
F.7-10.8	HSS6X6X3/8	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
F.8-10	W14X68	{ PL 1x16x22	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE
G-3	HSS8X8X1/2	PL 3/4x14x14	(4) 3/4" DIA (9" EMBED)	him
G-4	HSS8X8X1/2	PL 3/4x14x14	(4) 3/4" DIA (9" EMBED)	
G-5	HSS8X8X1/2	PL 3/4x14x14	(4) 3/4" DIA (9" EMBED)	
G-6	HSS8X8X5/8	PL 3/4x14x14	(4) 3/4" DIA (9" EMBED)	
H(11 17/64")-7.3(4'-0 1/4")	HSS6X4X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
H(11 17/64")-7.3(4'-0 1/4")	HSS6X4X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
H-2	HSS10X10X5/8	PL 1x18x22	(8) 1" DIA (14" EMBED)	GRADE 55 - SEE
H-3	HSS10X10X5/8	PL		PL 3/4" ON BEAM
H-4	HSS10X10X5/8	PL		PL 3/4" ON BEAM
H-5	HSS10X10X5/8	PL		PL 3/4" ON BEAM
H-6	HSS10X10X5/8	PL		PL 3/4" ON BEAM
H-7	HSS10X10X5/8	PL 3/4x16x16	(4) 3/4" DIA (9" EMBED)	
H.2(9'-10 1/16")-7(-4'-9 1/4")	HSS6X4X5/16	PL 3/4x10x10 PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
H.2(9'-10 1/16")-7(-4'-9 1/4")	HSS6X4X5/16	PL 3/4x12x12 PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
11.2(3-10 1/10)-/(-4-3 1/4)				-
H.2-7.3	HSS6X6X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	

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- A. PLACEMENT OF REBAR
- PROPER CONCRETE MIX B PLACEMENT OF NON-SHRINK GROUT
- WELDING OF COLUMN TO BASE PLATE D.
- WELDING OF SHEAR LUG
- PLACEMENT OF CONCRETE CONDITION OF CONCRETE (HONEYCOMBS, CRACKS,
- G. ETC...)

3 TYPICAL SHEAR LUG DETAIL S5.2 3/4" = 1'-0"

STEEL	COLUMN	BASEPLAT	E SCHEDULE

	COLUMN LOCATION MARK	TYPE	BASEPLATE	ANCHOR RODS	COMMENTS
COMMENTS			-		COIVIIVIEIN 15
GRADE 55 - SEE TYPE B	H.3-1	HSS10X10X5/8	PL 3/4x16x16	(4) 3/4" DIA (9" EMBED)	A
GRADE 55 - SEE TYPE B	H.4-8.1	HSS6X6X3/8	{PL 1 3/4x14x14	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE TYPE H
GRADE 55 - SEE TYPE B	H.4-9	HSS6X6X3/8	PL 1 3/4x14x22	ر (8) 1" DIA (18" EMBED) مريد (8) 1" DIA (18" EMBED)	GRADE 55 - SEE TYPE F
GRADE 55 - SEE TYPE B	H.4-11	HSS6X6X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
GRADE 55 - SEE TYPE B	H.8-7	HSS6X6X5/16	PL 1 3/4x14x22	(8) 1" DIA{(24" EMBED))/1	GRADE 55 - SEE TYPE F
	H.8-7.3	HSS6X6X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
	H.8-7.3(4'-0 1/4")	HSS6X4X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
	H.8-7.3(4'-0 1/4")	HSS6X4X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
	H.8-7.3(4'-0 1/4")	HSS6X4X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
	J-3	W12X120	PL 1 3/4x22x22	(12) 1" DIA (24" EMBED)	GRADE 55 - SEE TYPE A
	J-4	W12X120	PL 1 3/4x22x22	(12) 1" DIA (24" EMBED)	GRADE 55 - SEE TYPE A
	J-5	W12X120	PL 1 3/4x22x22	(12) 1" DIA (24" EMBED)	GRADE 55 - SEE TYPE A
	J-6	W12X120	PL 1 3/4x22x22	(12) 1" DIA (24" EMBED)	GRADE 55 - SEE TYPE A
	J.3-1	HSS10X10X5/8	PL 3/4x16x16	(4) 3/4" DIA (9" EMBED)	
	J.3-2	HSS6X6X3/8	PL 1x14x22	(8) 1" DIA (14" EMBED)	GRADE 55 - SEE TYPE C
	J.4-8.1	W12X65	PL 1x20x20	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE TYPE B
GRADE 55 - SEE TYPE C	J.5-7	HSS6X6X1/2	PL 1 3/4x14x22	(8) 1" DIA (24" EMBED) / 1	GRADE 55 - SEE TYPE F
	K-3	HSS6X6X1/2	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
	K-4	HSS6X6X1/2	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
	K-5	HSS6X6X1/2	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
	K-6	HSS6X6X1/2	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
GRADE 55 - SEE TYPE F	K.2-7	HSS6X6X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
GRADE 55 - SEE TYPE B	K.2-8.1	W12X65	PL 1x20x20	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE TYPE B
	K.3-2	HSS6X6X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
GRADE 55 - SEE TYPE F	L-2	HSS6X6X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
	L-3	W12X65	PL 1 3/4x20x20	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE TYPE B
GRADE 55 - SEE TYPE C	L-4	W12X65	PL 1 3/4x20x20	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE TYPE B
GRADE 55 - SEE TYPE A	L-5	W12X65	PL 1 3/4x20x20	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE TYPE B
GRADE 55 - SEE TYPE A	L-6	W12X65	PL 1 3/4x20x20	(6) 1" DIA (18" EMBED)	GRADE 55 - SEE TYPE B
GRADE 55 - SEE TYPE A	L-7	HSS6X6X5/16	PL 3/4x12x12	(4) 3/4" DIA (9" EMBED)	
GRADE 55 - SEE TYPE A	L-7.8	W12X40 (GALV)	PL 3/4x12x14	(4) 3/4" DIA (9" EMBED)	
PL 3/4" ON BEAM PER 2/S5.2	M-2.2	W12X40 (GALV)	PL 3/4x12x14	(4) 3/4" DIA (9" EMBED)	
	M-3	W12X40 (GALV)	PL 3/4x12x14	(4) 3/4" DIA (9" EMBED)	
GRADE 55 - SEE TYPE B	M-4	W12X40 (GALV)	PL 3/4x12x14	(4) 3/4" DIA (9" EMBED)	SEE TYPE E
2/3/4" ON BEAM PER 2/S5.2	M-5	. ,			· · · · · · · · · · · · · · · · · · ·
-L 3/4 UN DEAIVI PEK 2/33.2		W12X40 (GALV)	PL 3/4x12x14	(4) 3/4" DIA (9" EMBED) (
	M-6	W12X40 (GALV)	PL 3/4x12x14	(4) 3/4" DIA (9" EMBED)	
	M-7	W12X40 (GALV)	PL 3/4x12x14	(4) 3/4" DIA (9" EMBED)	
	M-7.8	W12X40 (GALV)	PL 3/4x12x14	(4) 3/4" DIA (9" EMBED)	ر SEE TYPE E لر

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D)	GRADE 55 - SEE TYPE D
	PL 3/4" ON BEAM PER 2/S5.2
ED)	
D)	GRADE 55 - SEE TYPE B
ED)	
D)	GRADE 55 - SEE TYPE C
	PL 3/4" ON BEAM PER 2/S5.2
	PL 3/4" ON BEAM PER 2/S5.2
	PL 3/4" ON BEAM PER 2/S5.2
	PL 3/4" ON BEAM PER 2/S5.2
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