

# GENERAL

- The stamped set of plans and specifications shall be kept on the job site in an accessible location and shall be available to authorized representative of the City of Los Angeles Building and Safety Department. There shall be no deviation from the stamped plans and specifications without official approval or instruction from the City of Los Angeles Building and Safety Department. All plans are designed in compliance with the minimum seismic resistance standards of the City of Los Angeles Ordinances # 183893 - Mandatory Earthquake Hazard Reduction in Existing Wood-Frame Buildings with Soft, Weak or Open-Front Walls.
- Construction safety provisions in accordance with Uniform Building Code shall be provided and approved by the Building inspector prior to starting any work on the building. Permits for protective fences and/or canopies constructed on public property must be secured from the Street Use Inspection Division of the Department of Public Works.
- Building shall not be occupied during retrofit work where:
  - The building strength is substantially weakened at any point during the retrofit work.
  - Required exits are not available or are obstructed.
  - Required fire safety devices such as sprinklers, standpipes, and alarm systems are not operational.
  - The building will be unsafe or substandard pursuant to the Uniform Building Code or Housing Code of the City of Los Angeles
- The contractor shall visit the job site as many times as necessary in order to familiarize himself with the existing job site conditions under which the work will be performed. Contractor shall verify all dimensions, conditions, and grades prior to making a bid. The contractor's bid will reflect his job site observation and will note any inconsistencies or conflicts. Any questions regarding these documents shall be discussed with the engineer prior to bidding.
- Plans and details were developed based upon a field investigation by the responsible engineer and reflect the actual condition of the building as observed. Any inconsistencies shall be brought to the engineer's attention and all work pertaining to discovered existing condition shall commence only after re-engineering, if required, is done.
- Structural elements (including walls and foundations) which project into public properties require public works approval prior to issuance of building permit.
- All structural design elements requiring continuous inspection as a condition of use have been specified on plans. Deputy inspectors used for this purpose must be registered with Department and report to the responsible engineer as required.

# ENVIRONMENTAL

- Where public utility lines or quipment must be removed, and/or relocated, the necessary approvals must be obtained from the Water and Power Department prior to starting work.
- Existing plumbing and electrical lines shall not be embedded into new concrete or pneumatically placed concrete, unless encased in a metal case and detailed on the plans or wrapped in approved tape and inspected prior to placing concrete.
- Alterations to existing and relocations of electrical, plumbing, or HVAC systems require separate approved permits issued by the City of Los Angeles.

# CONCRETE/MORTAR/GROUT

- Concrete used for seismic upgrading shall be grade C-f'c = 3,000 psi. Concrete used for other purposes shall be grade C-f'c = 2,500 psi. For required f'c greater than 2,500 psi, continuous inspection is required.

# SOIL

- Assumed allowable soil bearing pressure is 1500 PSF. If adverse soil conditions are encountered, a soils investigation report may be required.

# LUMBER/NAILING

- Structural Lumber:
  - General: All structural lumber shall be stress graded Douglas Fir, with M.C. <19%.
  - Grading:
    - All beams, girders, posts shall be No. 1 Douglas Fir or better.
    - All joists, rafters, studs, struts, sills, and plates shall be No. 2 Douglas Fir or better.
  - The maximum allowable height for studs shall be:
    - 10 ft. for 2x3s.
    - 14 ft. for 2x4s and 3x4s.
    - 20 ft. for 2x6s.
  - All wood in direct contact with concrete or masonry, if within 48" of the nearest ground, shall be pressure treated wood or foundation grade redwood.
- Unless otherwise noted on plans, all new structural plywood shall be exterior grade CD plywood with exterior conforming to PS 1-77.
- All nails to be common nails or galvanized box. Where splitting occurs, pre-drill holes. Machine nailing to be permitted upon continued demonstration of suitable nailing. Nails not to be driven more than 1/16" below surface of plywood. Under-driven nails to be hand driven flush to plywood surface.
- Nail penetration for plywood diaphragms shall be 1 1/2" into blocking, near misses to be re-nailed.
- All bolt holes should be drilled with a guide to the proper diameter and spacing for even bearing. Pretension should be applied to seat the bolts. All bolt holes shall be drilled 1/32" to 1/16" oversized.
- All holes for wood screws to be pre-drilled and inspector to verify pilot holes for wood screws into center line of joist.

# STEEL/BOLTS

- All structural steel shall conform to A992-Grade 50.
- Bolts and nuts shall conform to ASTM A-307, unless noted otherwise.
- Reinforcing steel shall comply to ASTM A-615 grades 40 for stirrups or ties and grade 60 for longitudinal rebar. Minimum lap, unless noted otherwise on plans, shall be 40 times the diameter of the rebar.
- Shop welding shall be performed in the shop of a licensed fabricator approved by the Department. All field welds for structural steel to be done by welders certified by LADBS and be continuously inspected by a registered deputy inspector certified by LADBS.
- Holes for bolts in structural steel shall be drilled or punched. Burning of holes shall not be permitted.
- Steel exposed to weather shall be painted and protected, utilizing an exterior metal priming paint and a finish coat.
- The absolute maximum bolt hole oversizing is 1/16th inch.
- An LADBS licensed fabricator is required for all offsite construction of connection hardware, miscellaneous metals and structural steel. The approved fabricator must provide a Certificate of Compliance to the building official and structural designer stating that the work conforms to the approved plans and specifications.

# FIRE-LIFE SAFETY

- Steel beams and columns shall be protected as required for 1-hour protection. Where ceiling forms the protective membrane for fire-resistive assemblies, the construction and their supporting horizontal structural members need not be individually fire protected except where such members support directly applied loads from more than one floor or roof. The required fire resistance shall not be less than that required for individual protection of members.

# INSPECTION

- Contractors responsible for the construction of a seismic force resisting system/ component listed in the "Statement of Special Inspection" shall submit a written statement of responsibility to the LADBS Inspectors and the owner prior to the commencement of work on such system or component.

# STRUCTURAL OBSERVATION

- Structural Observer of Record: Engineer or architect of record or their designee shall provide structural observation in accordance with the requirements of the City of Los Angeles.
- When Required: Structural observation shall be required for those structures assigned to Seismic Design Category D, E, or F where one or more of the following conditions exists:
  - The structure is classified as Risk Category III or IV in accordance with Table 1604.5.
  - The height of the structure is greater than 75 feet above the base.
  - The structure is assigned to Seismic Design Category E, is classified as Risk Category I or II in accordance with Table 1604.5, and is greater than two stories above grade plane.
  - When so designated by the registered professional responsible for the structural design.
  - When such observation is specifically required by the Building Official.
- Preconstruction Meeting: Upon excavation and exposure of existing structural elements and connections and prior to installation of any new structural elements or members, the owner or owner's representative shall arrange a pre-construction meeting to be attended by the engineer or architect responsible for the structural design, contractor and the building inspector. The purpose of the meeting shall be to identify the major structural elements, connections and existing conditions that affect the vertical and lateral load systems of the structure and to review scheduling of the required observations.
- Duties of the Structural Observer: Observed deficiencies shall be reported in writing to the owner's representative, special inspector, contractor and the Building Officer. Upon the form prescribed by the Building Officer, the structural observer shall submit to the Building Officer a written statement at each significant construction stage stating that the site visit has been made and identifying any reported deficiencies that, to the best of the structural observer's knowledge, have not been resolved. A final report by the structural observer, which accurately states that all observed deficiencies have been resolved, is required before acceptance of the work by the Building Officer.
- The structural observer shall perform site visits at those steps in the progress of the work that allow for correction of deficiencies without substantial effort or uncovering of the work involved. At a minimum, the following significant construction stages require a site visit and an observation report from the structural observer:
 

Construction Stages	Elements/Connections to be Observed
a) PRIOR TO EPOXY	/ CHECK HOLE SIZES AND DEPTH
b) PRIOR TO CONCRETE POUR	/ CHECK REBAR SIZE AND SPACING
c) FINAL INSPECTION	/ CHECK JOB AGAINST PLANS

## SYMBOLS & ABBREVIATIONS

	DETAIL NUMBER	ADJ. A/C ALUM.	ADJACENT ASPHALT CONC. AIR CONDITIONING ALUMINUM AT	REG. REINF. REQ'D R.D.	REGULAR REINFORCING REQUIRED ROOF DRAIN
	SECTION NUMBER	BLDG. BLK. BLK'G BM.	BUILDING BLOCK BLOCKING BEAM	SECT. SHT. SHT'G SQ. SYND. SYM. SIM. S.A.	SECTION SHEET SHEATHING SQUARE STANDARD SYMMETRICAL SIMILAR SHEAR ANCHOR
	EXIST. TILT-UP WALL	CLG. CLR. CL.R. CONC. CONT. C.A.	CEILING CLEAR CENTER LINE CONCRETE CONTINUOUS COMBINATION ANCHOR	TEL. T.S. TYP. T.O.P. T.A. THK	TELEPHONE TOP OF SHEATHING TYPICAL TOP OF PARAPET TENSION ANCHOR THICKNESS
	EXIST. BLOCK WALL	DBL. DIM DN. DR. D.O.	DOUBLE DIMENSION DOWN DOOR DO OVER	U.R.M. U.N.O.	UNREINFORCED MASONRY UNLESS NOTED OTHERWISE
	EXIST. PARTITION	EA. (E) EQ. SP. EXP.	EACH EXISTING EQUALLY SPACED EXPOSED	VERT.	VERTICAL
	EXIST. MEZZ. LINE	FLR. FTG. FOUND. FIN. F.D. F.O.S. F.O.W. F.F. F.G. F.J.	FLOOR FOOTING FOUNDATION FINISH FLOOR DRAIN FACE OF STUD FACE OF WALL FINISH FLOOR FINISH GRADE FLOOR JOIST	WD. WDW. W/ W.H.	WOOD WINDOW WITH WATER HEATER
	(N) ANCHOR (BOTH SIDES)	LG.	LONG		
	(N) ANCHOR (ONE SIDE)	MAX. M. O. M. B.	MAXIMUM MASONRY OPENING MACHINE BOLT		
	(N) CONTINUITY TIE	N. I. C. NO. (N)	NOT IN CONTRACT NUMBER NEW		
	(N) ANCHOR • PANEL JOINT	O. D. O. C.	OVERFLOW DRAIN ON CENTER		
	PAN. PART. PRELIM. P. L. PL.		PANEL PARTITION PRELIMINARY PROPERTY LINE PLATE		

## PROJECT STATISTICS

### LEGAL DESCRIPTION:

TRACT: TR 7497  
BLOCK: NONE  
LOT: 55  
APN: 2369-025-001  
MAP REF. #: M B 88-3/5 (SHTS 1-3)  
PIN #: 162B169 397

### BUILDING CONSTRUCTION TYPE:

WOOD FRAME

### NUMBER OF STORIES:

3

### YEAR BUILT:

1965

### BUILDING AREA:

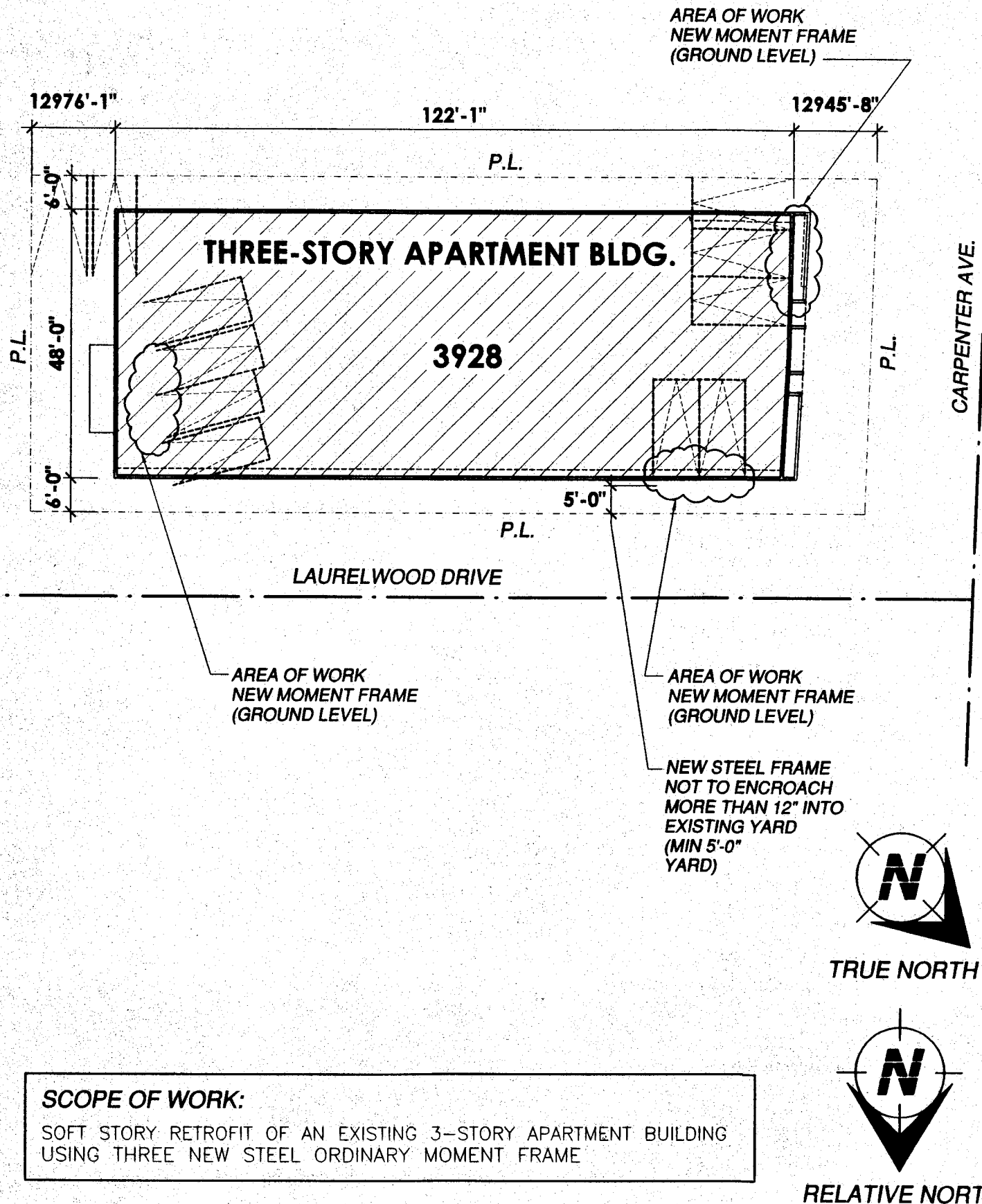
15,597 SQ. FT.

### SEISMIC INFORMATION:

SEISMIC IMPORTANCE FACTOR: I  
RISK CATEGORY: II  
Ss: 2.430 g  
S1: 0.831 g  
SITE CLASS: D  
SDs: 1.620 g  
SD1: 0.831 g  
SEISMIC DESIGN CATEGORY: E  
FORCE RESISTING SYSTEM: C4  
DESIGN BASE SHEAR: 0.4629 W  
Cs: (0.4629 x 0.75) 0.3471  
R: 3.5  
REDUNDANCY FACTOR: 1.3

THE LATERAL FORCE RESISTING SYSTEM FOR THIS BUILDING IS A:  
ORDINARY MOMENT FRAMES

## PLOT PLAN



### SCOPE OF WORK:

SOFT STORY RETROFIT OF AN EXISTING 3-STORY APARTMENT BUILDING USING THREE NEW STEEL ORDINARY MOMENT FRAME

## SHEET INDEX

S-1	GENERAL NOTES, SYMBOLS & ABBREVIATIONS, PROJECT STATISTICS, PLOT PLAN, SHEET INDEX, ENGINEER'S STATEMENT
S-2	GROUND LEVEL LAYOUT / SECOND FLOOR FRAMING PLAN, DETAILS
S-3	SECOND FLOOR LAYOUT / THIRD FLOOR FRAMING PLAN, DETAILS
S-4	THIRD FLOOR LAYOUT / ROOF FRAMING PLAN, DETAILS
S-5	ELEVATIONS AND DETAILS
S-6 (1 OF 3)	STANDARD QUALITY ASSURANCE PLAN FOR STEEL MOMENT FRAMES
S-7 (2 OF 3)	STANDARD QUALITY ASSURANCE PLAN FOR STEEL MOMENT FRAMES
S-8 (3 OF 3)	STANDARD QUALITY ASSURANCE PLAN FOR STEEL MOMENT FRAMES

## REVISION BLOCK

BY	REVISIONS

## APPROVAL STAMP

City of Los Angeles, Department of Building & Safety  
APPROVED PLANS

17016100028543

Manuel Montufar

08/06/18

17016100028543

Application No.

This set of plans MUST be at the job site during construction.

It is unlawful to alter, change, or deviate from these plans.

The stamping of this plan SHALL NOT be held to permit or to be an approval of the violation of any provisions of any Ordinance or Law.

SEPARATE permits are required for BUILDING, ELECTRICAL, PLUMBING, FIRE SPRINKLERS, ELEVATOR, HEATING or REFRIGERATION work, unless this permit was issued as a combination permit for a One or Two Family Dwelling pursuant to LAMC Section 91.0107.2.2, and the work by trade does not require Trade Check.

Owner/Owner Address LAURELWOOD TOWERS LLC, 16280 DORILEE LANE, ENCINO, CA 91436

Job Address 3928 CARPENTER AVENUE, STUDIO CITY, CA 91604

Sheet Title GENERAL NOTES, SYMBOLS & ABBREVIATIONS, PROJECT STATISTICS, PLOT PLAN, SHEET INDEX, ENGINEER'S STATEMENT

DRAWN MG

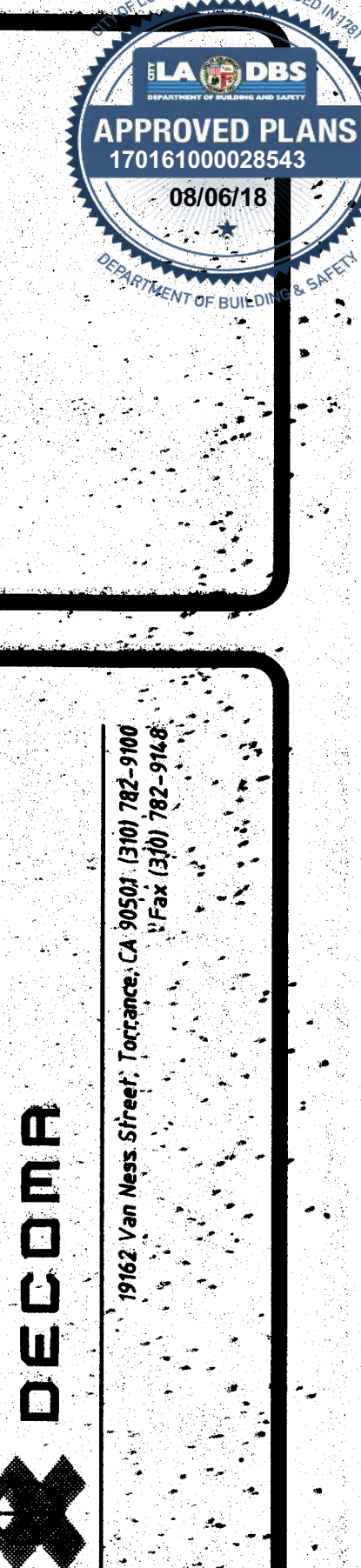
CHECKED MG

DATE SEPT, 2017

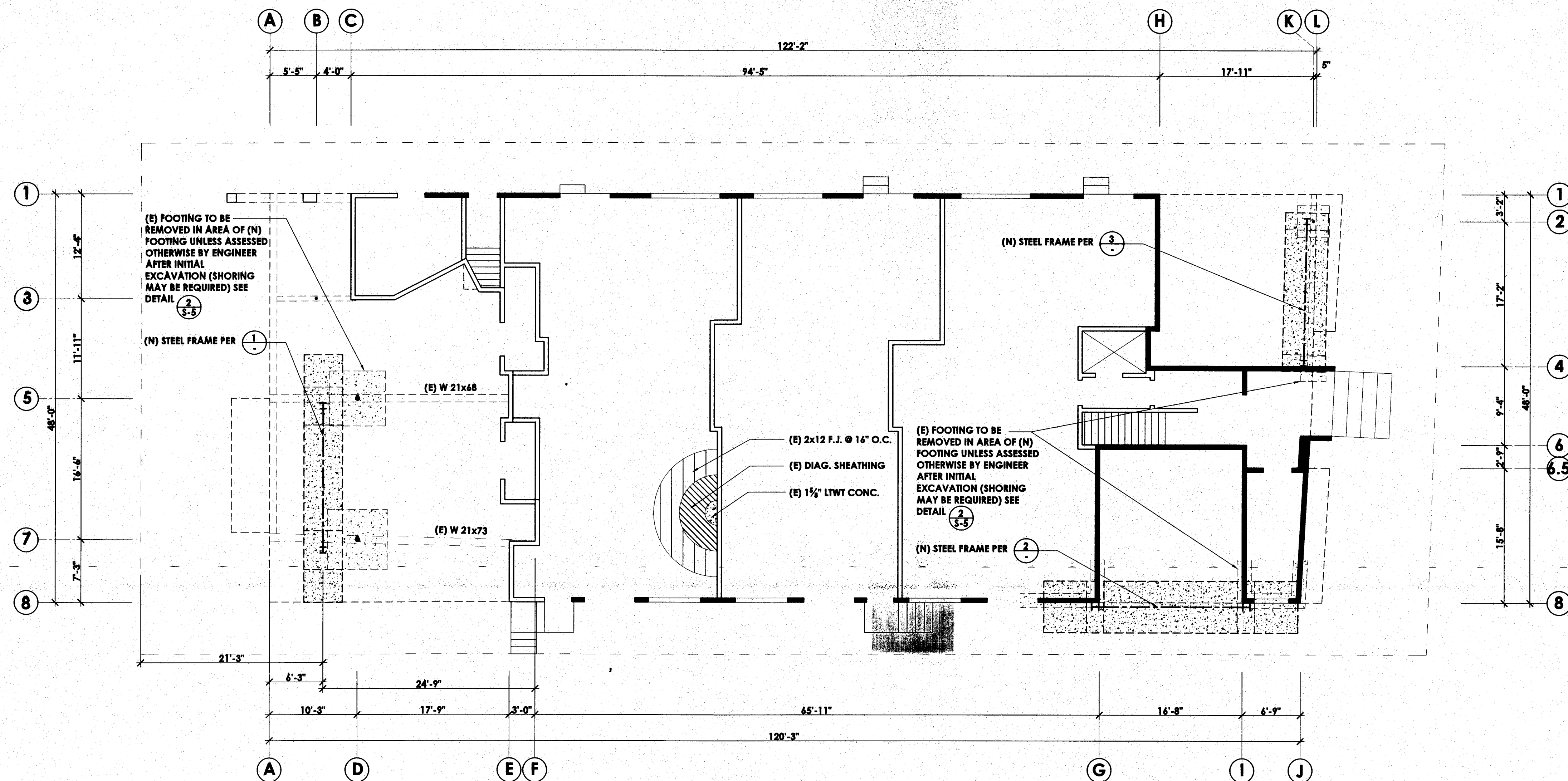
SCALE N.S.

JOB NO. 1513

SHEET S-1

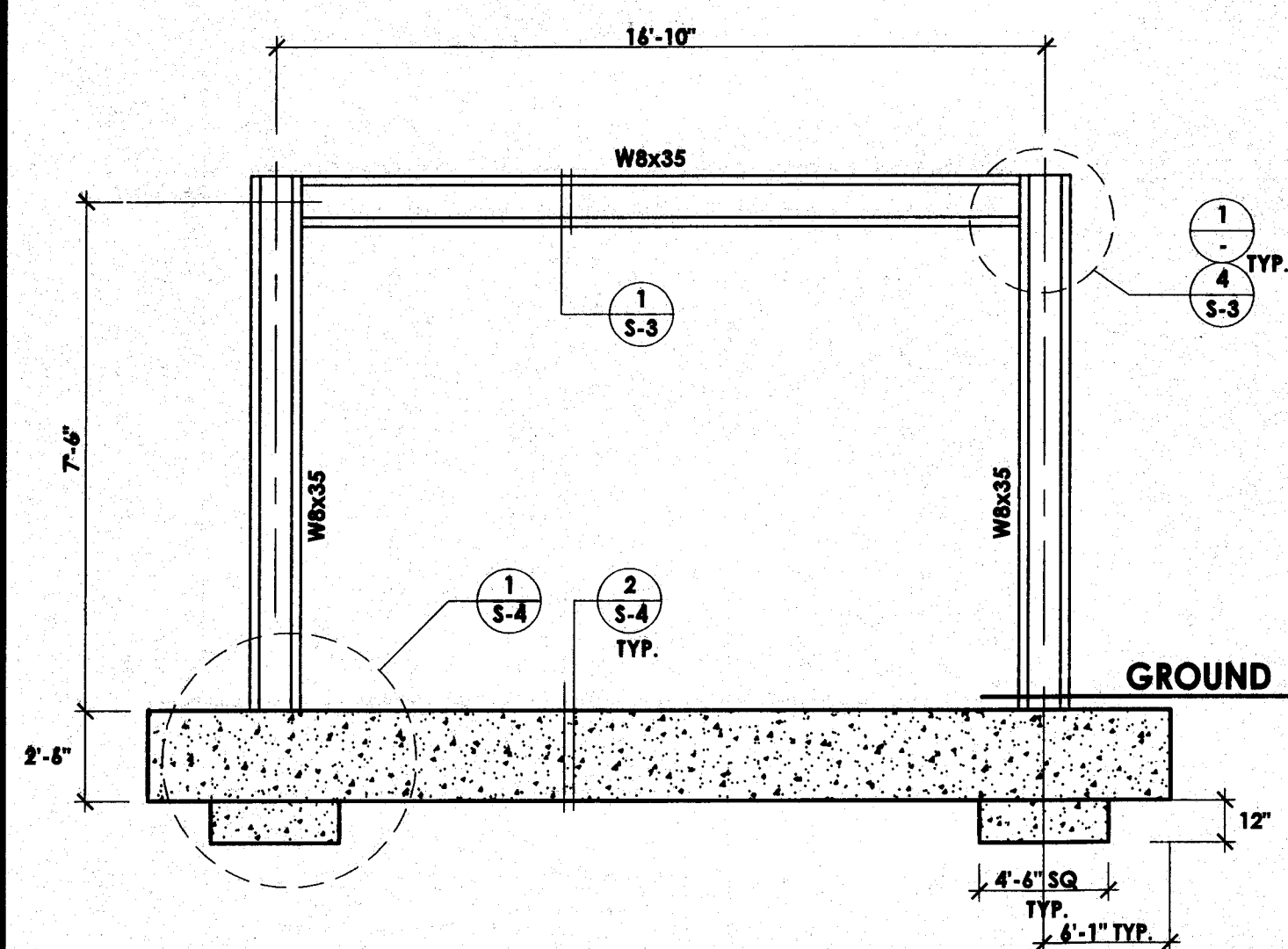




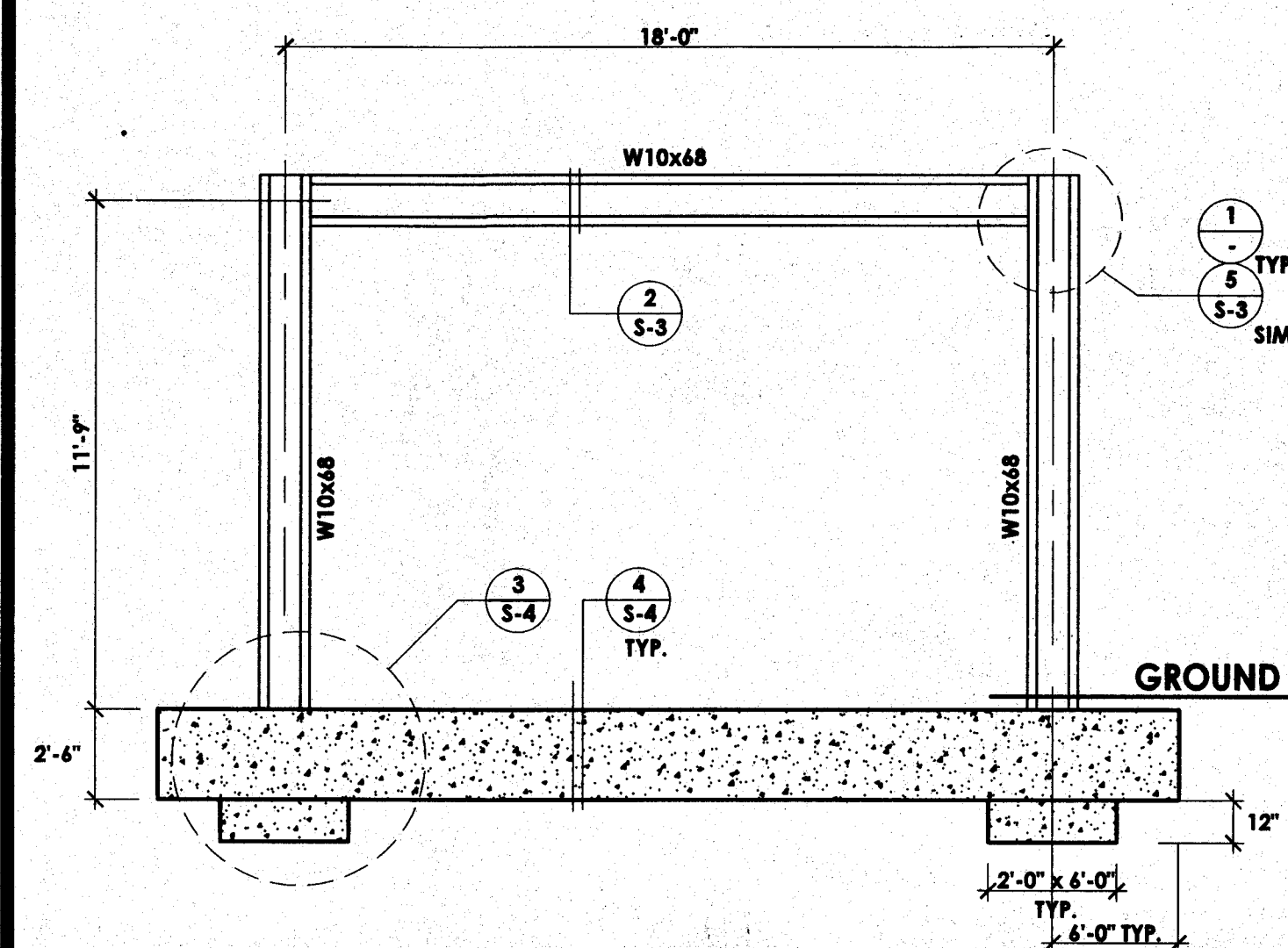


## GROUND LEVEL LAYOUT / SECOND FLOOR FRAMING PLAN

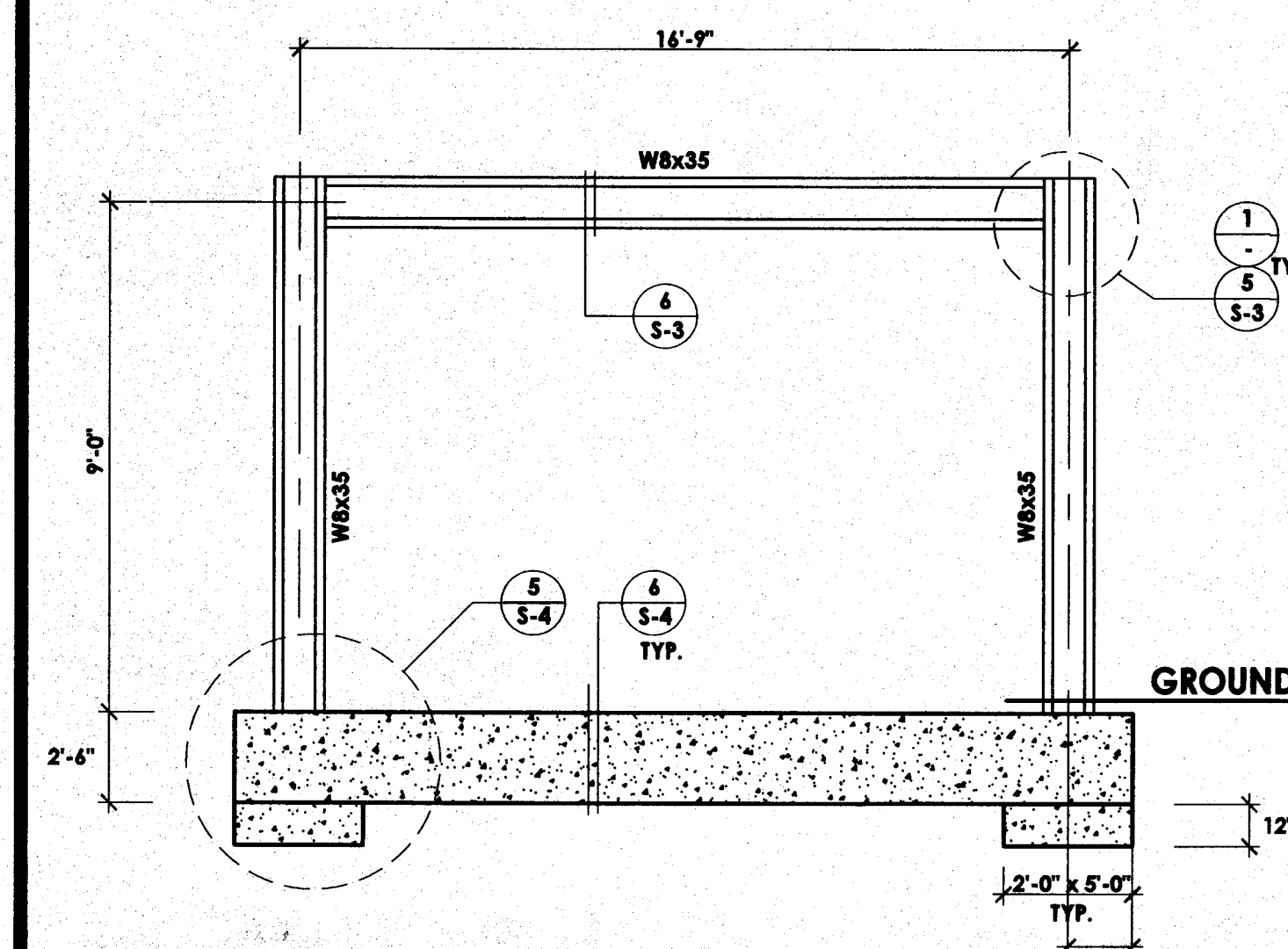
(FLOOR DEAD LOAD: 34.0 PSF, 1 1/2" LIGHTWEIGHT CONCRETE TOPPING)



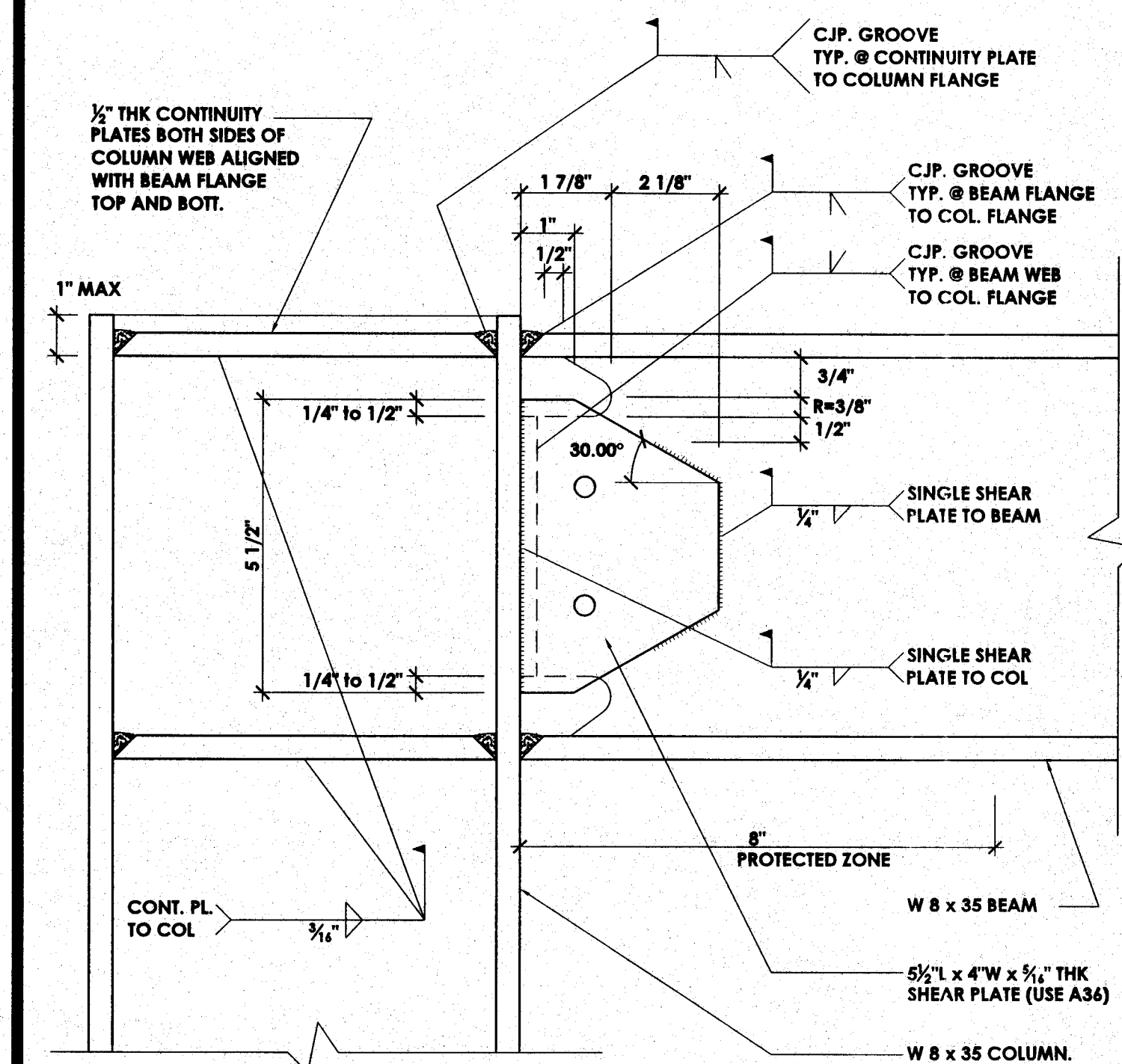
(N) COLUMNS MAY BE EITHER PLASTERED OR PAINTED.  
(N) BEAMS HAVE TO BE PLASTERED.



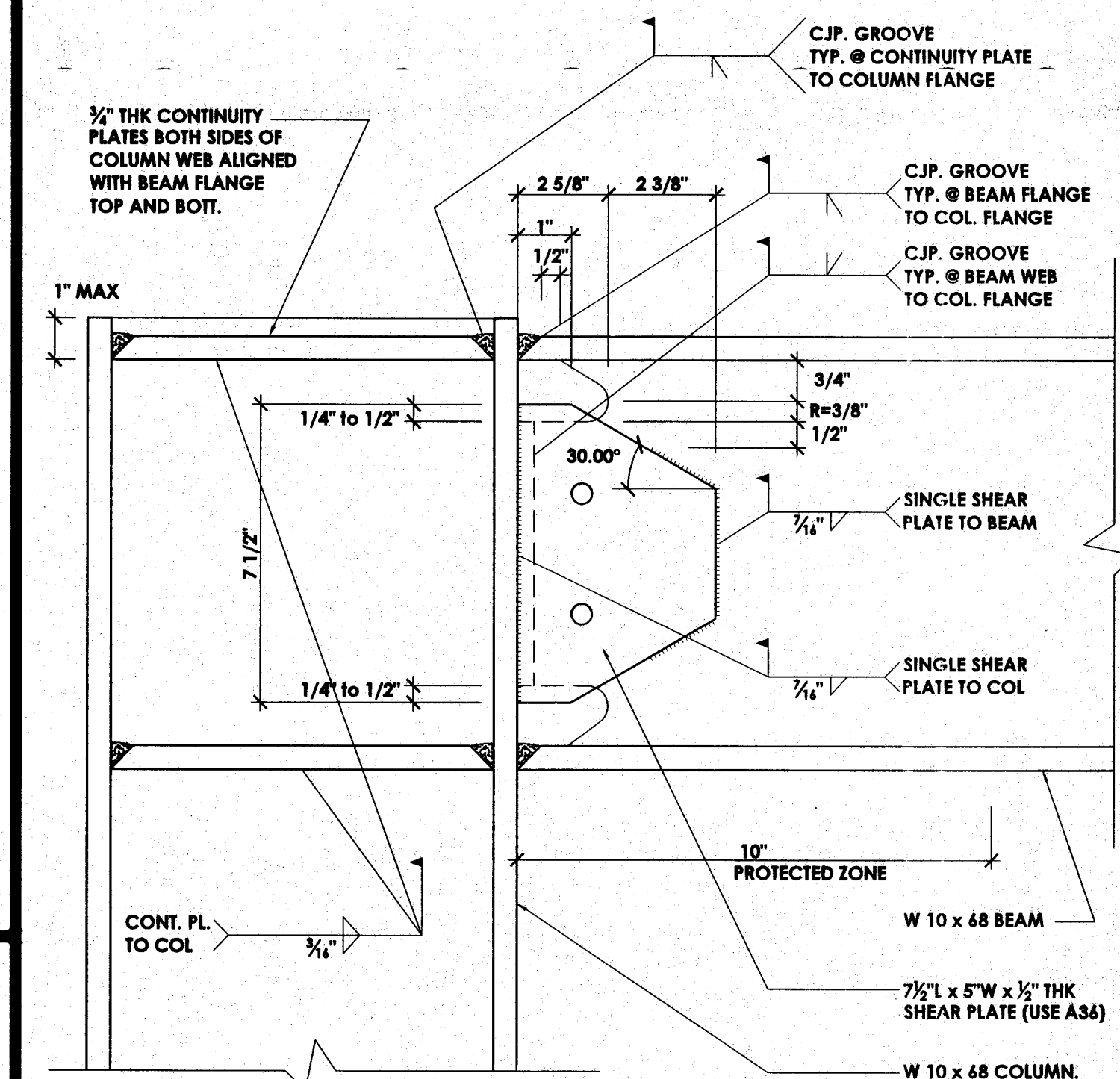
(N) COLUMNS MAY BE EITHER PLASTERED OR PAINTED.  
(N) BEAMS HAVE TO BE PLASTERED.



(N) COLUMNS MAY BE EITHER PLASTERED OR PAINTED.  
(N) BEAMS HAVE TO BE PLASTERED.



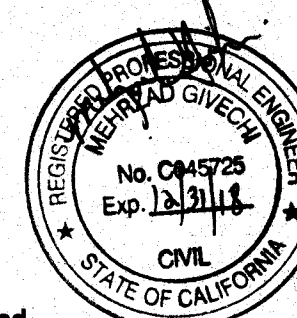
FOR W8x35'S ALONG LINES "B.1" & "K"



FOR W10x68 ALONG LINE "B"

### NOTES:

- Web access hole geometry per 12 S-8.
- Erection bolts in standard holes or horizontal short slots are permitted as needed.
- A CJP groove weld shall be provided between the beam web and the column flange. This weld shall be provided over the full length of the web between weld access holes, and shall conform to the requirements for demand critical welds in the AISC Seismic Provisions and AWS D1.8/D1.8M. Weld tabs are not required. Weld tabs, if used, must be removed after welding in accordance with the requirements of Section 3.4. When weld tabs are not used, the use of "Cascaded weld ends" within the weld groove shall be permitted at a maximum angle of 45 degrees. Nondestructive testing (NDT) of cascaded weld ends need not be performed.
- Backing bars: Backing bars can stay below the top beam flange to column CJP groove weld provided they are secured with 5/16" fillet weld. Backing bars below the bottom beam flange to column CJP groove weld must be removed.



1962 Van Ness Street, Torrance, CA 90501 (310) 782-9100 Fax (310) 782-9148

DECOMA

Owner / Owner Address LAURELWOOD TOWERS LLC

3828 CARPENTER AVENUE, STUDIO CITY, CA 91604

Location

GROUND LEVEL LAYOUT / SECOND FLOOR FRAMING PLAN DETAILS

Sheet Title

DRAWN

MG

CHECKED

MG

DATE

SEPT., 2017

SCALE

1/8" = 1'-0"

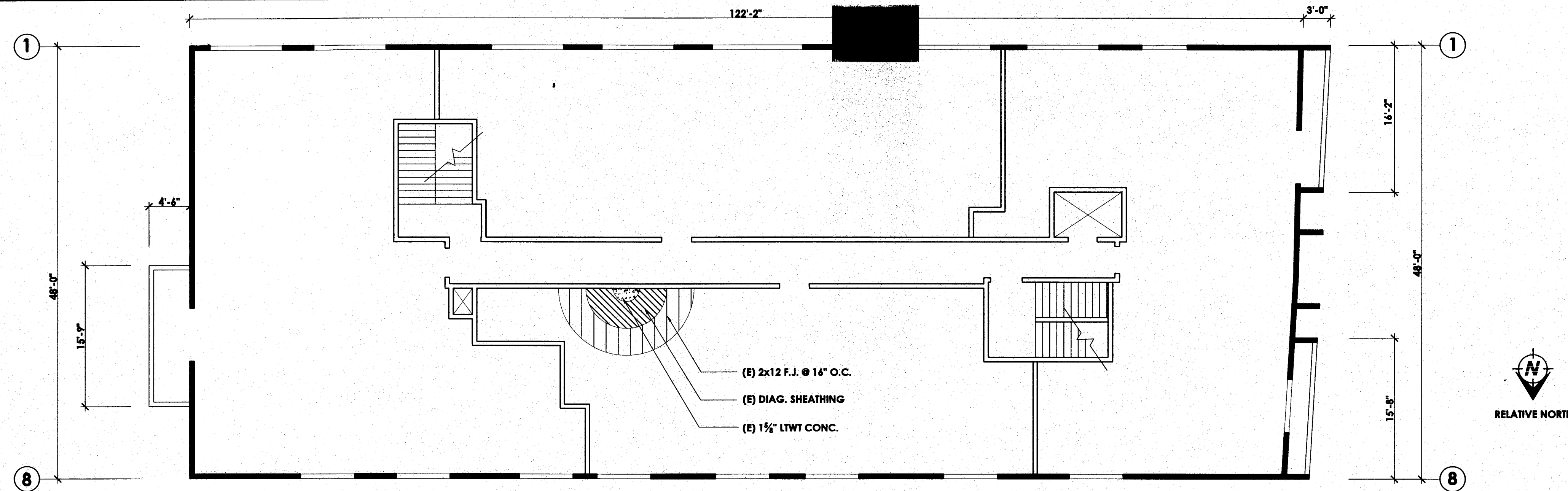
JOB NO.

1513

SHEET

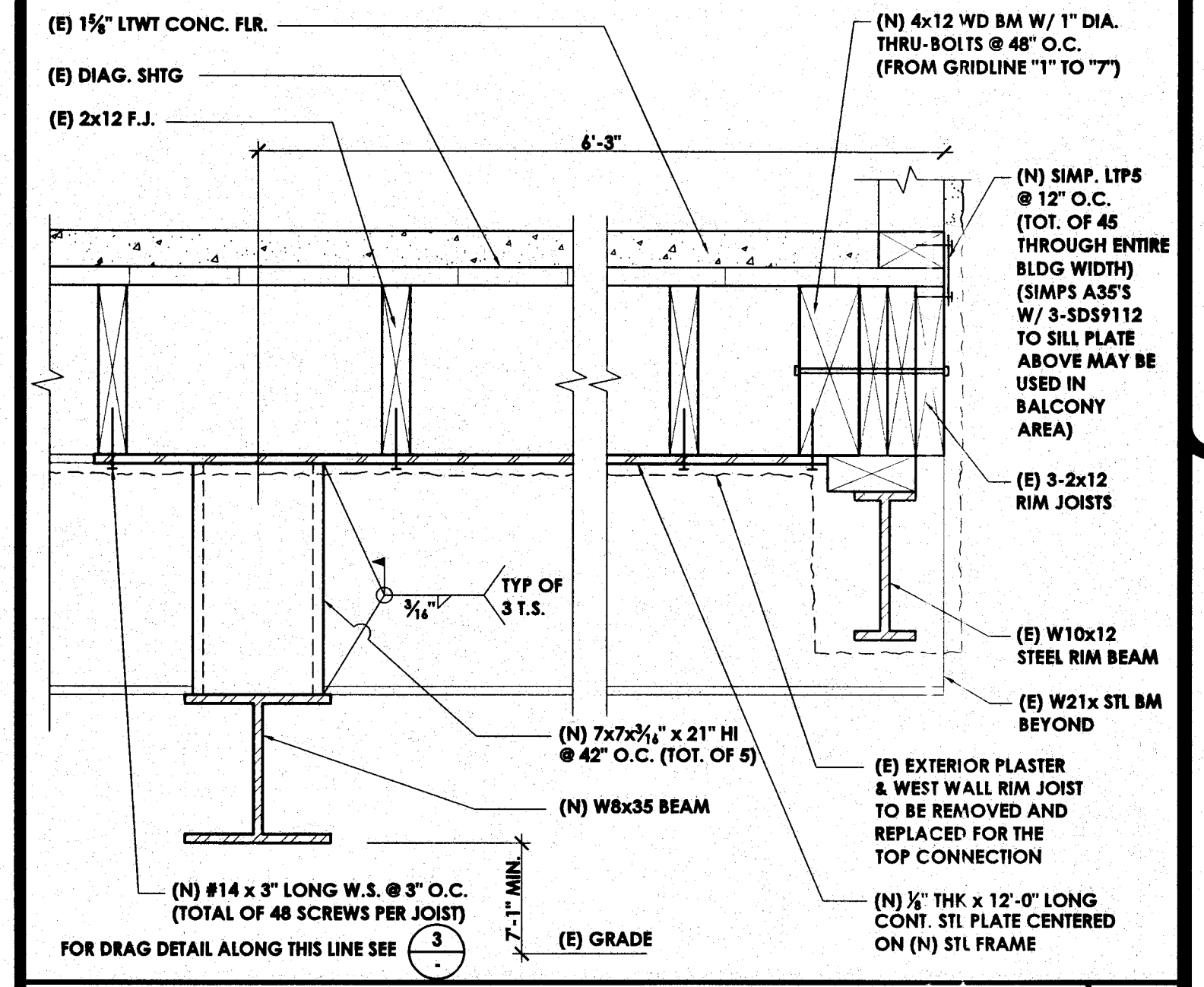
S-2



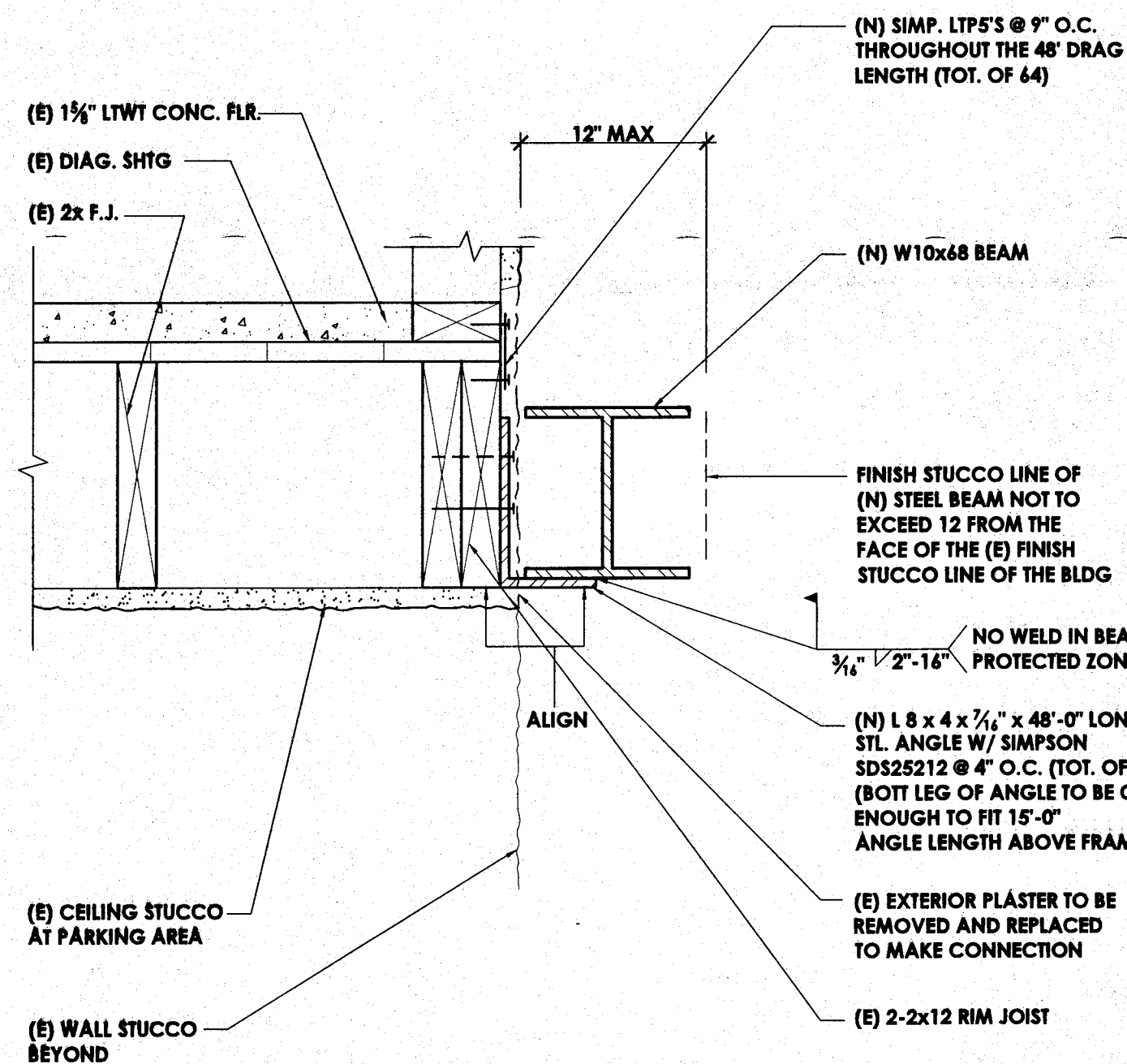


**SECOND FLOOR LAYOUT / THIRD FLOOR FRAMING PLAN**

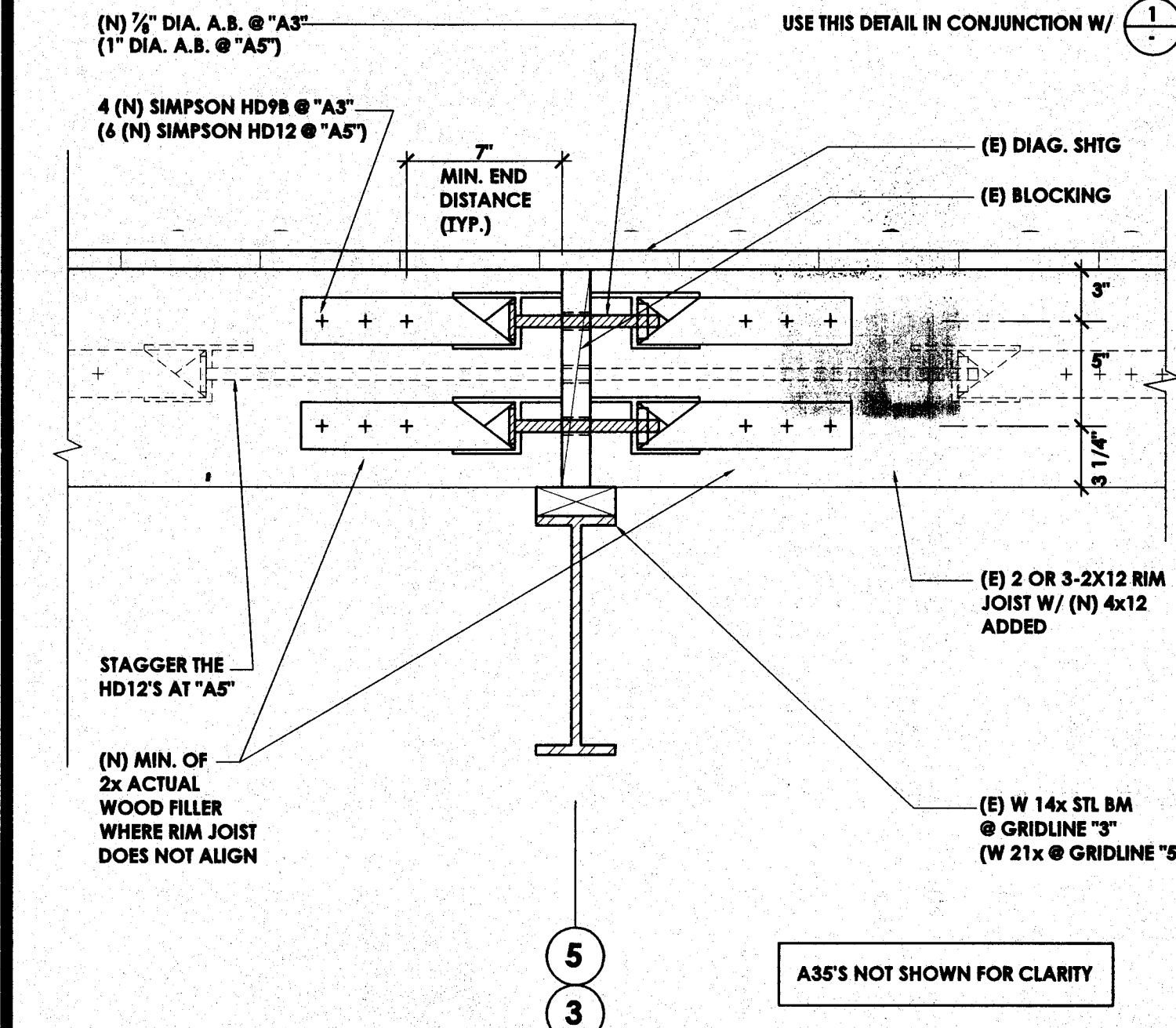
(FLOOR DEAD LOAD: 34.0 PSF; 1 1/2\"/>



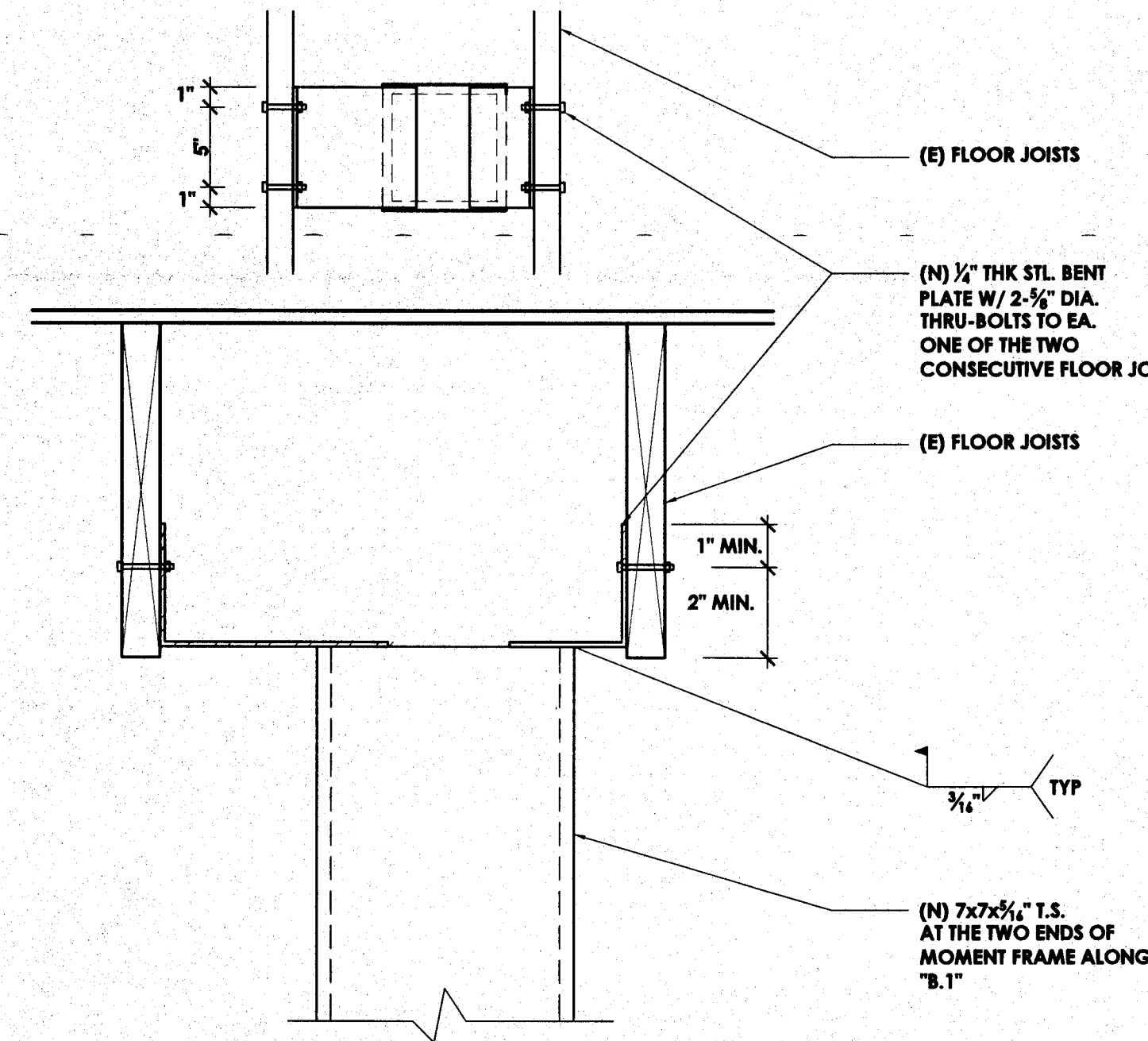
**TOP CONNECTION AT STEEL FRAME ALONG LINE \"B.1\"**



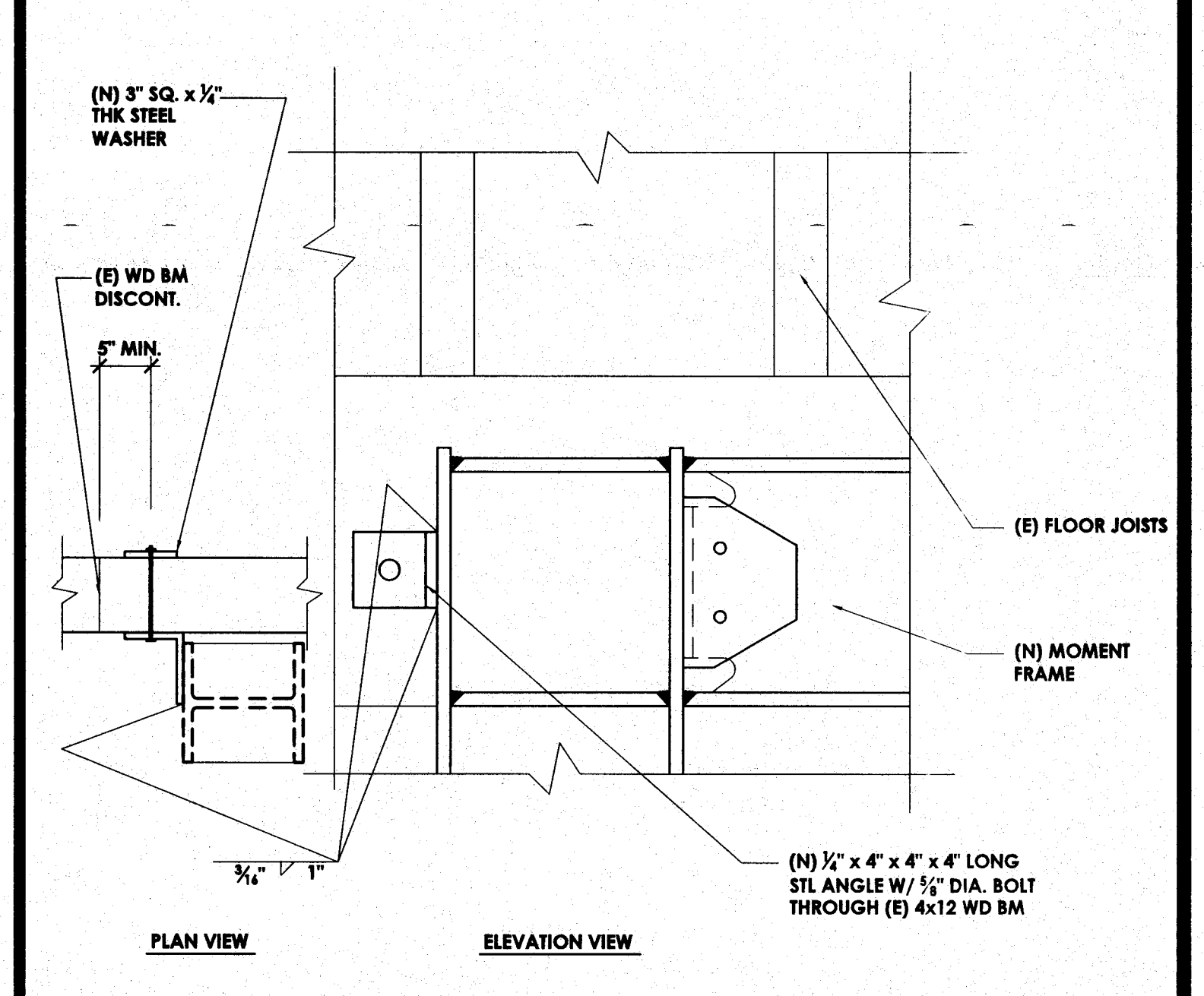
**TOP CONNECTION AT STEEL FRAME ALONG LINE \"B\"**



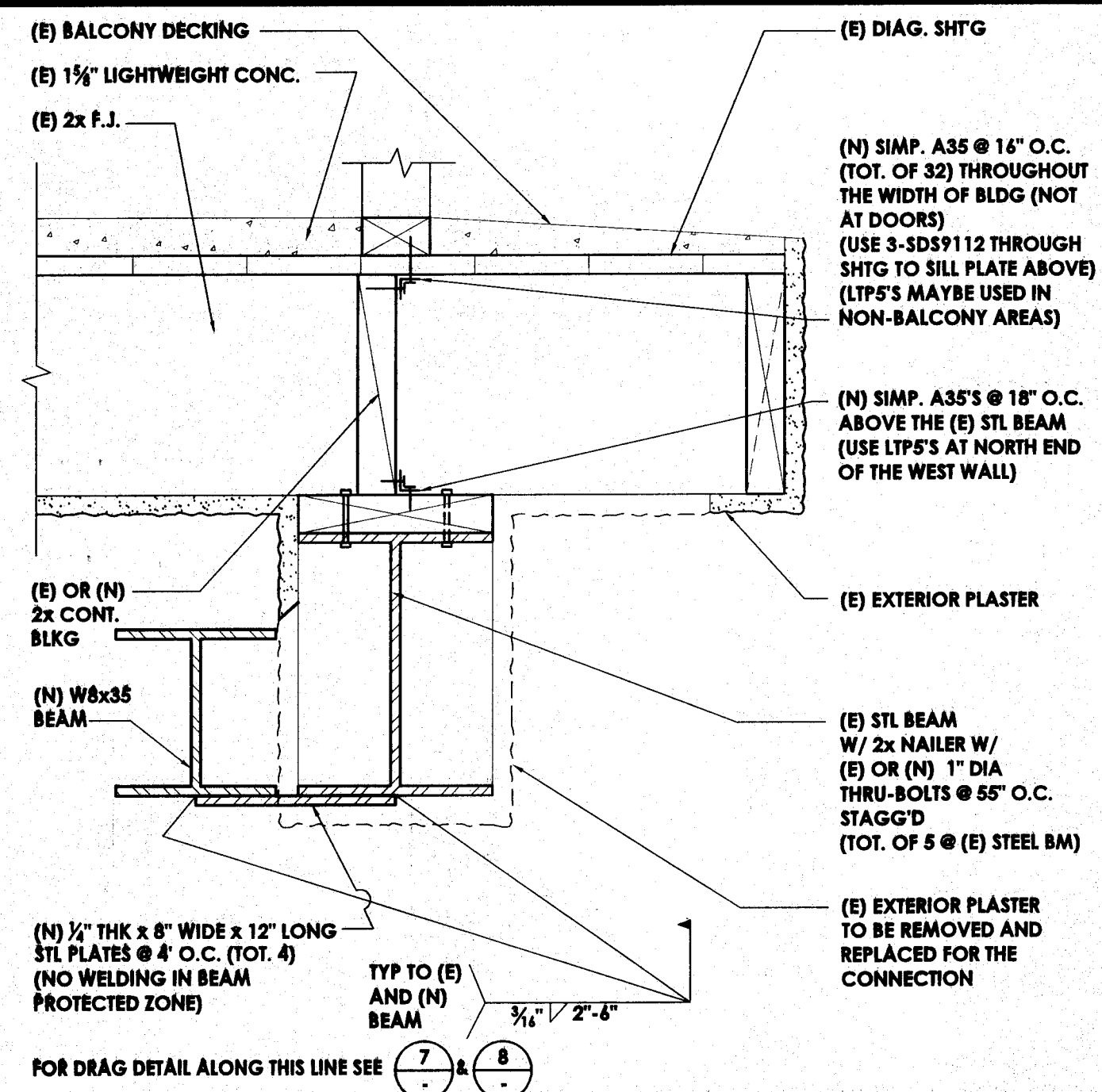
**DRAG DETAIL FOR LINE \"B.1\" STRENGTHENING ELEMENT ALONG LINE \"A\"**



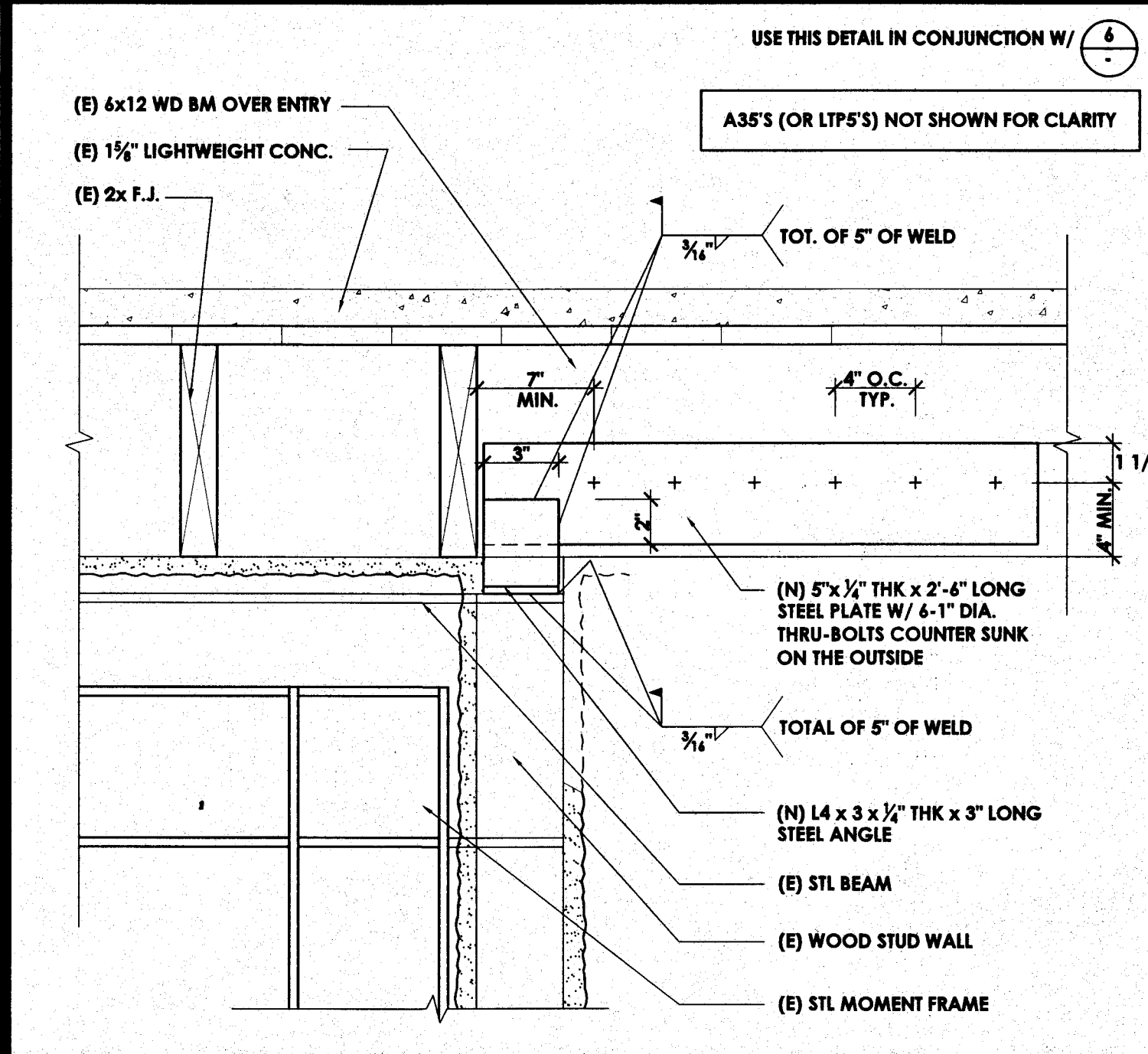
**COLUMN BRACE DETAIL AT \"B.1\"**



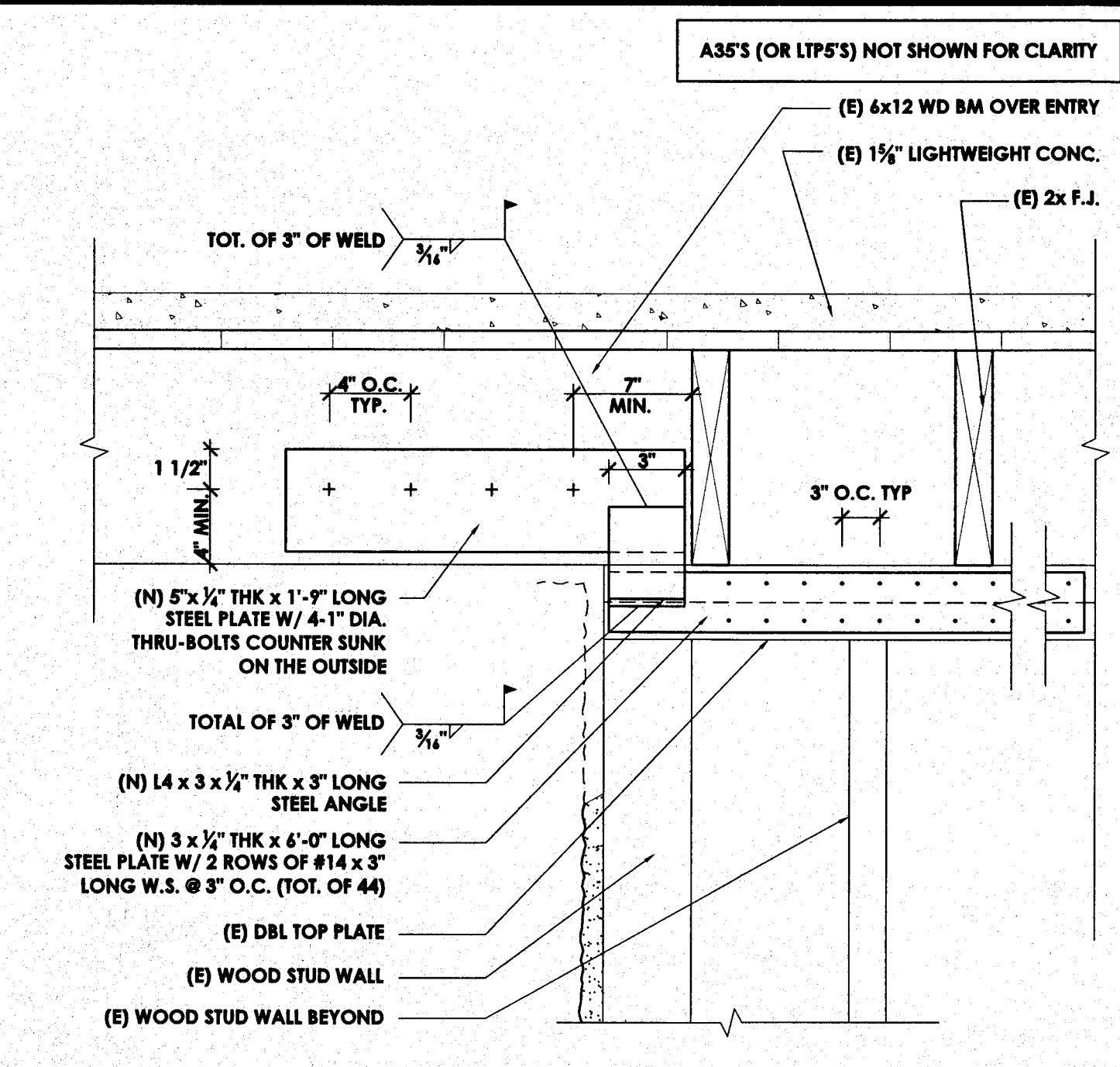
**COLUMN BRACE DETAIL AT \"B\" & \"K\"**



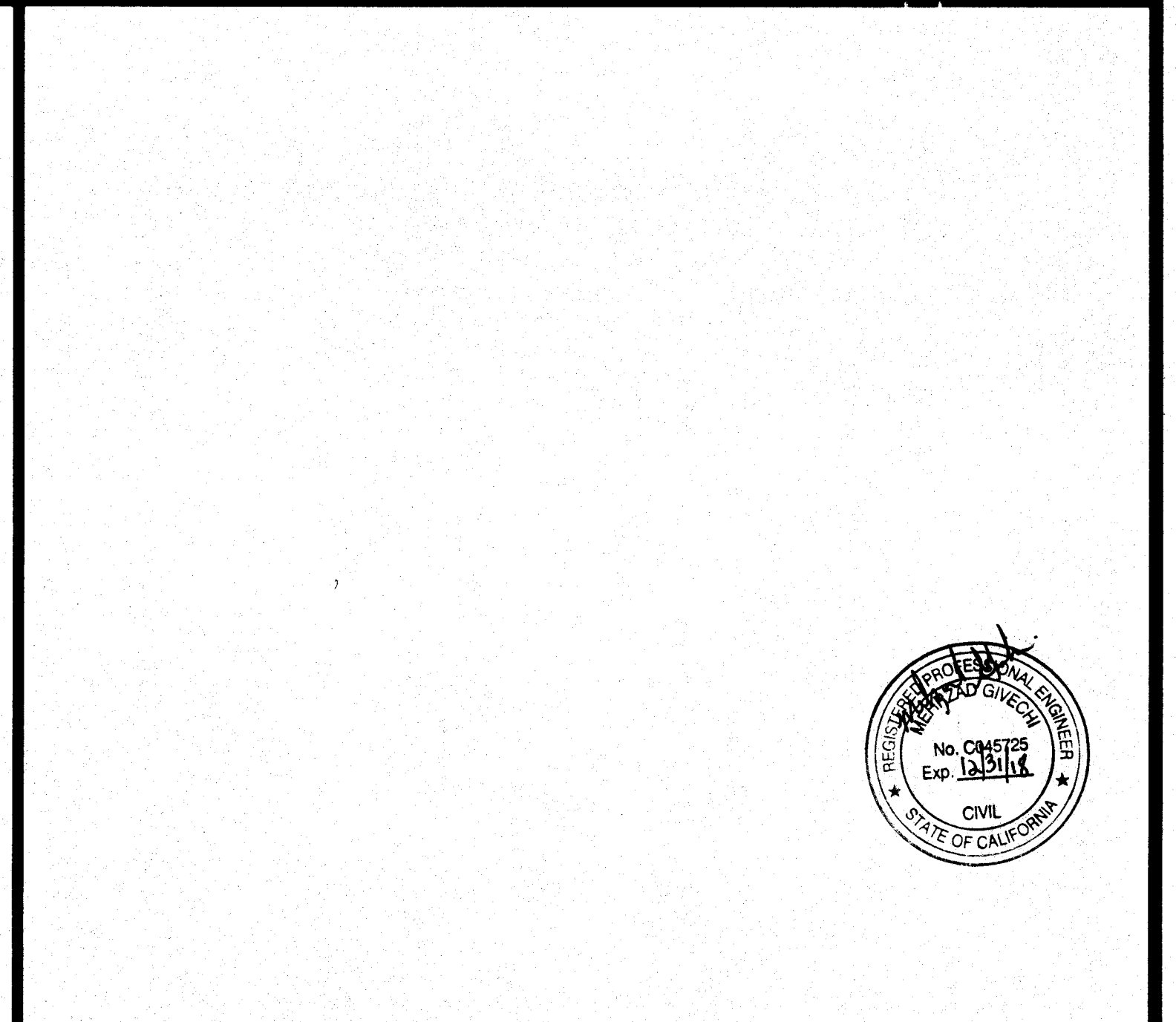
**TOP CONNECTION AT STEEL FRAME ALONG LINE \"K\"**



**DRAG DETAIL @ \"K\" & \"A\"**



**DRAG DETAIL @ \"K\" & \"6.5\"**



**X**



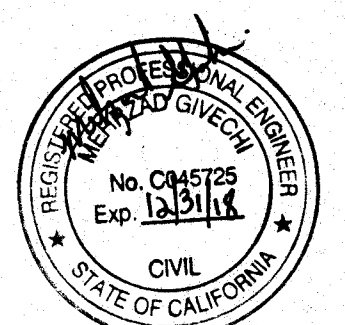
1962 Van Ness Street, Torrance, CA 90501 (310) 782-9100  
Fax (310) 782-9148

**DECOMA**

Owner / Owner Address: LAURELWOOD TOWERS LLC  
3928 CARPENTER AVENUE, STUDIO CITY, CA 91604

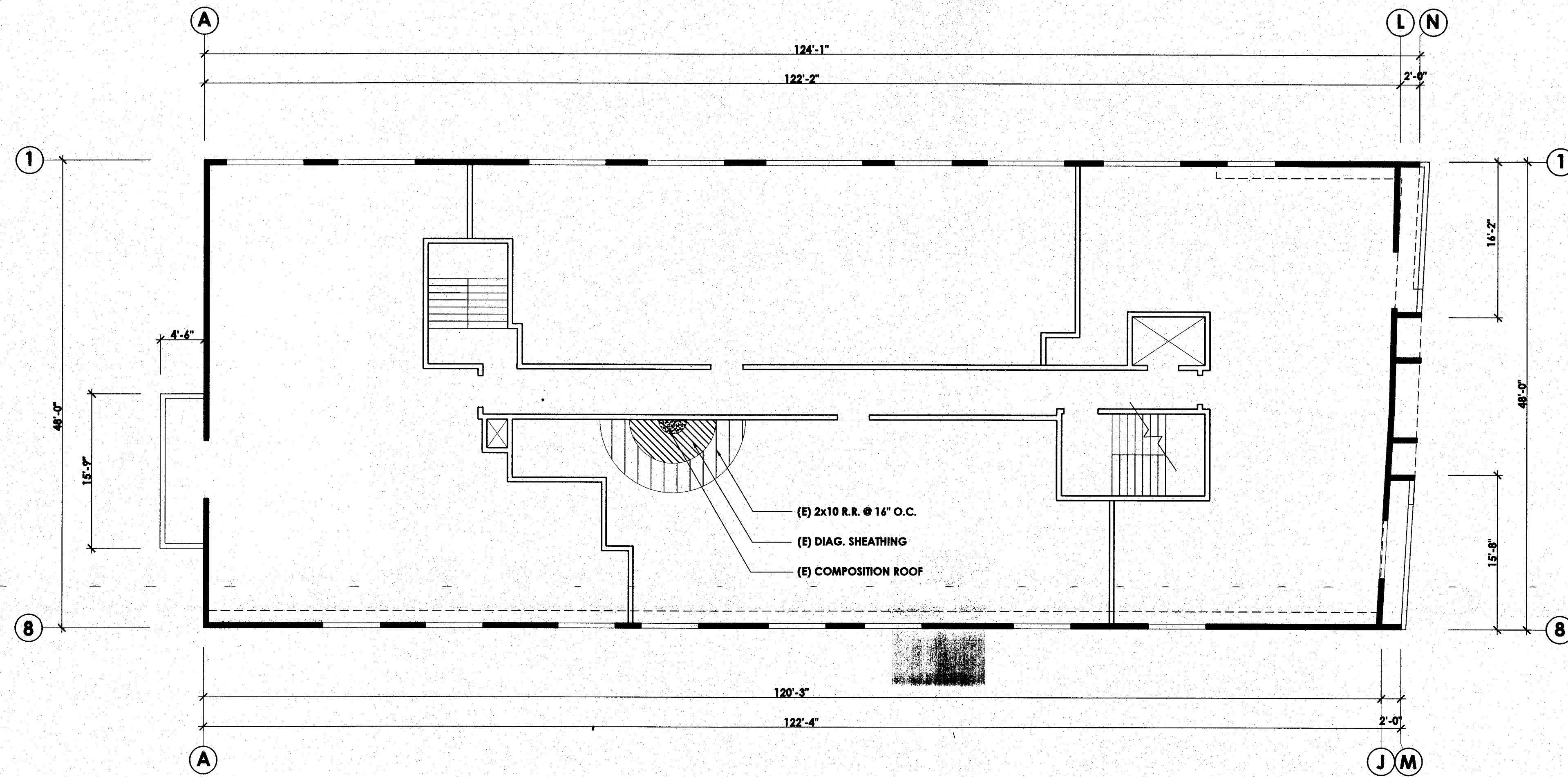
Location: SECOND FLOOR LAYOUT / THIRD FLOOR FRAMING PLAN DETAILS

Sheet Title: SECOND FLOOR LAYOUT / THIRD FLOOR FRAMING PLAN DETAILS

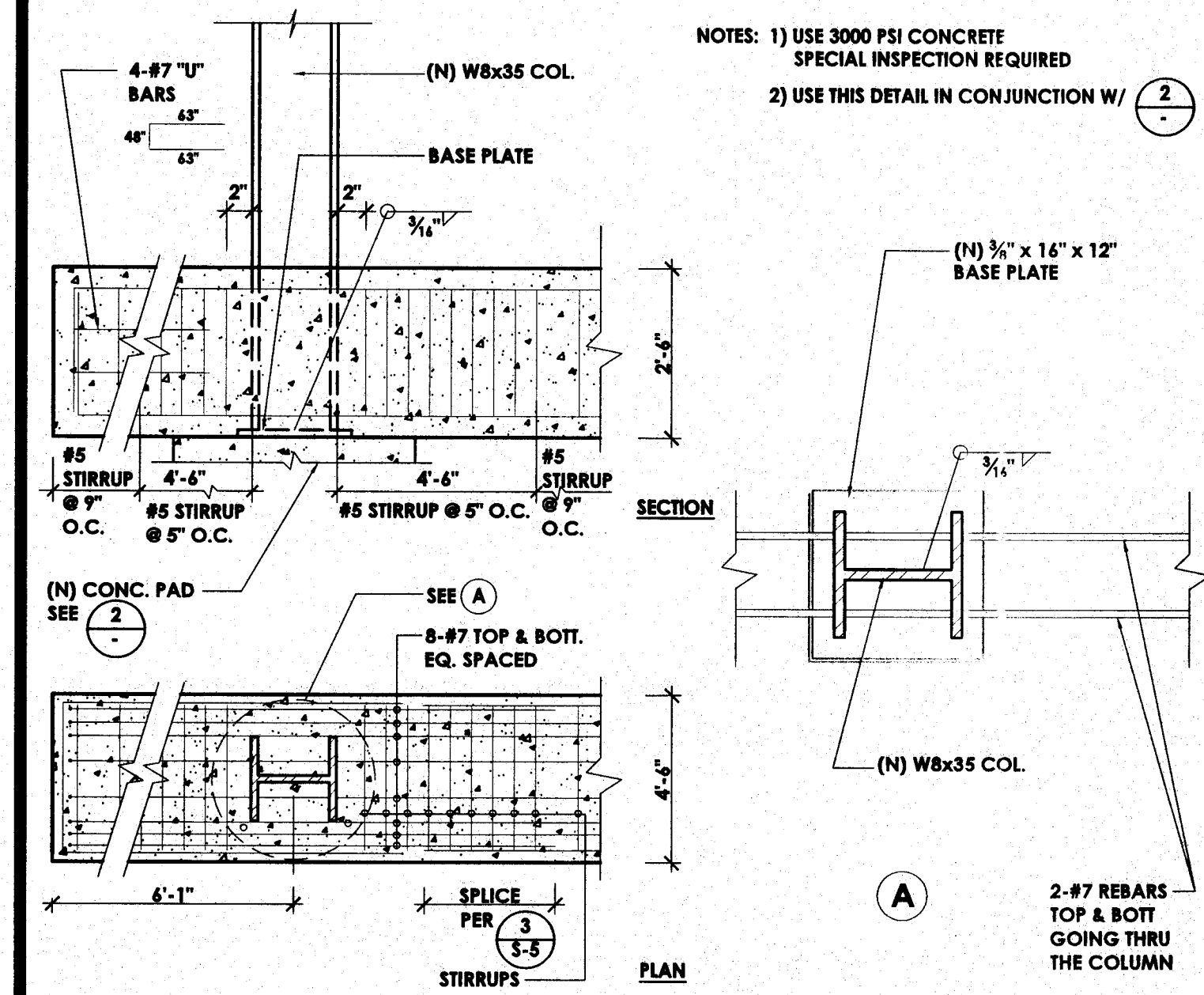


DRAWN	MG
CHECKED	MG
DATE	SEPT., 2017
SCALE	1/8" = 1'-0"
JOB NO.	1513
SHEET	S-3

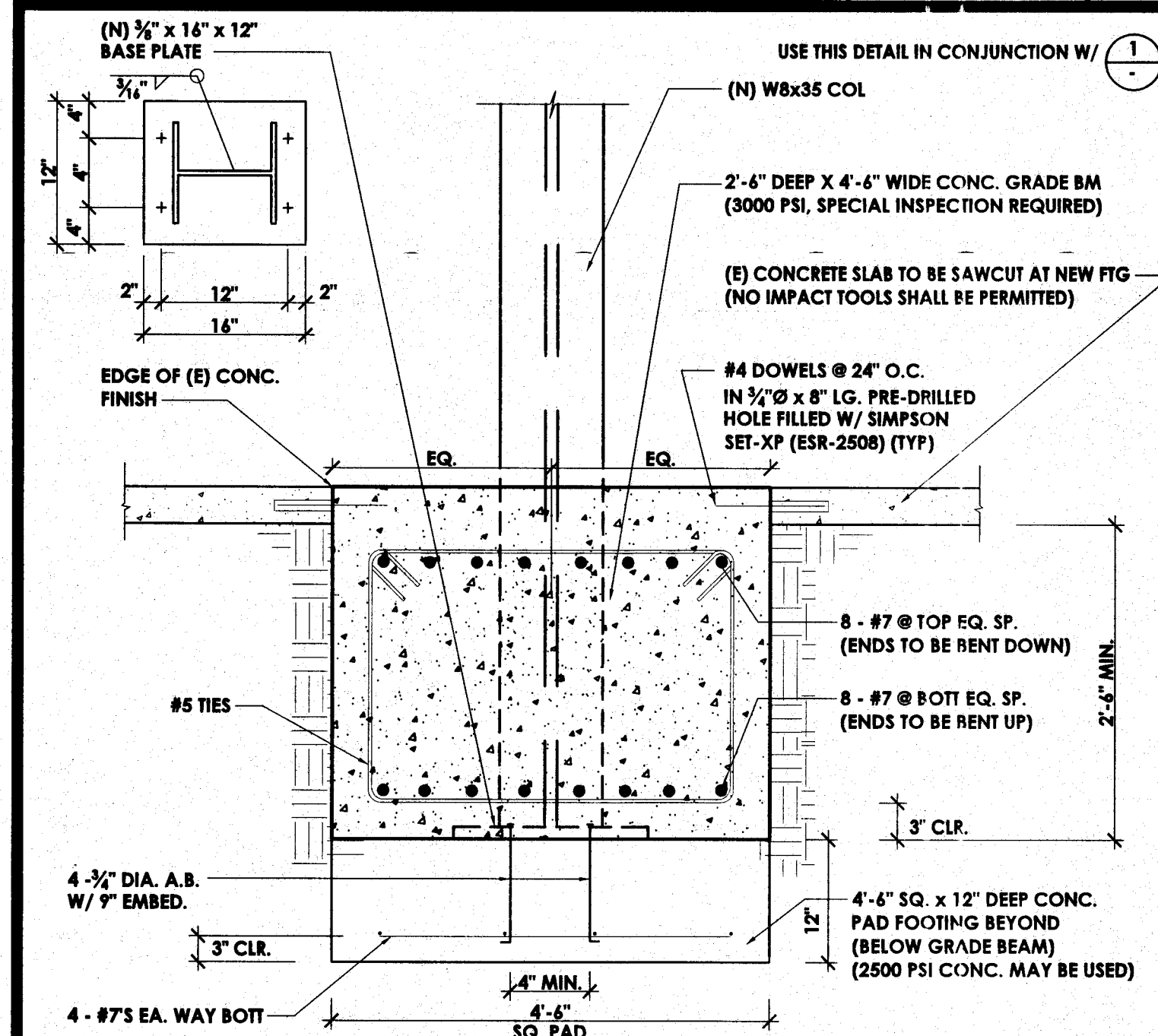




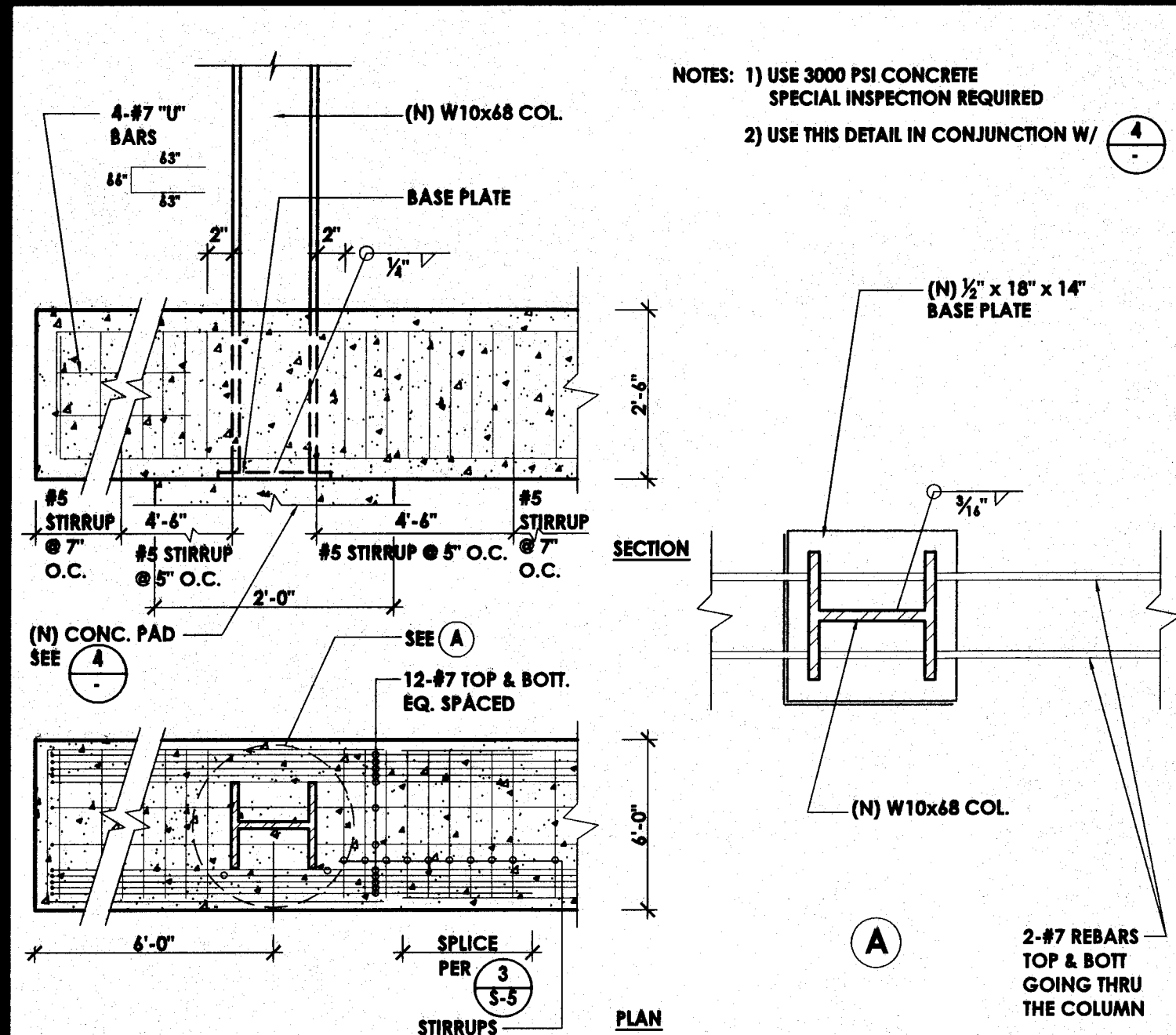
**THIRD FLOOR LAYOUT / ROOF FRAMING PLAN**  
(ROOF DEAD LOAD: 18.0 PSF; NO CONCRETE TOPPING)



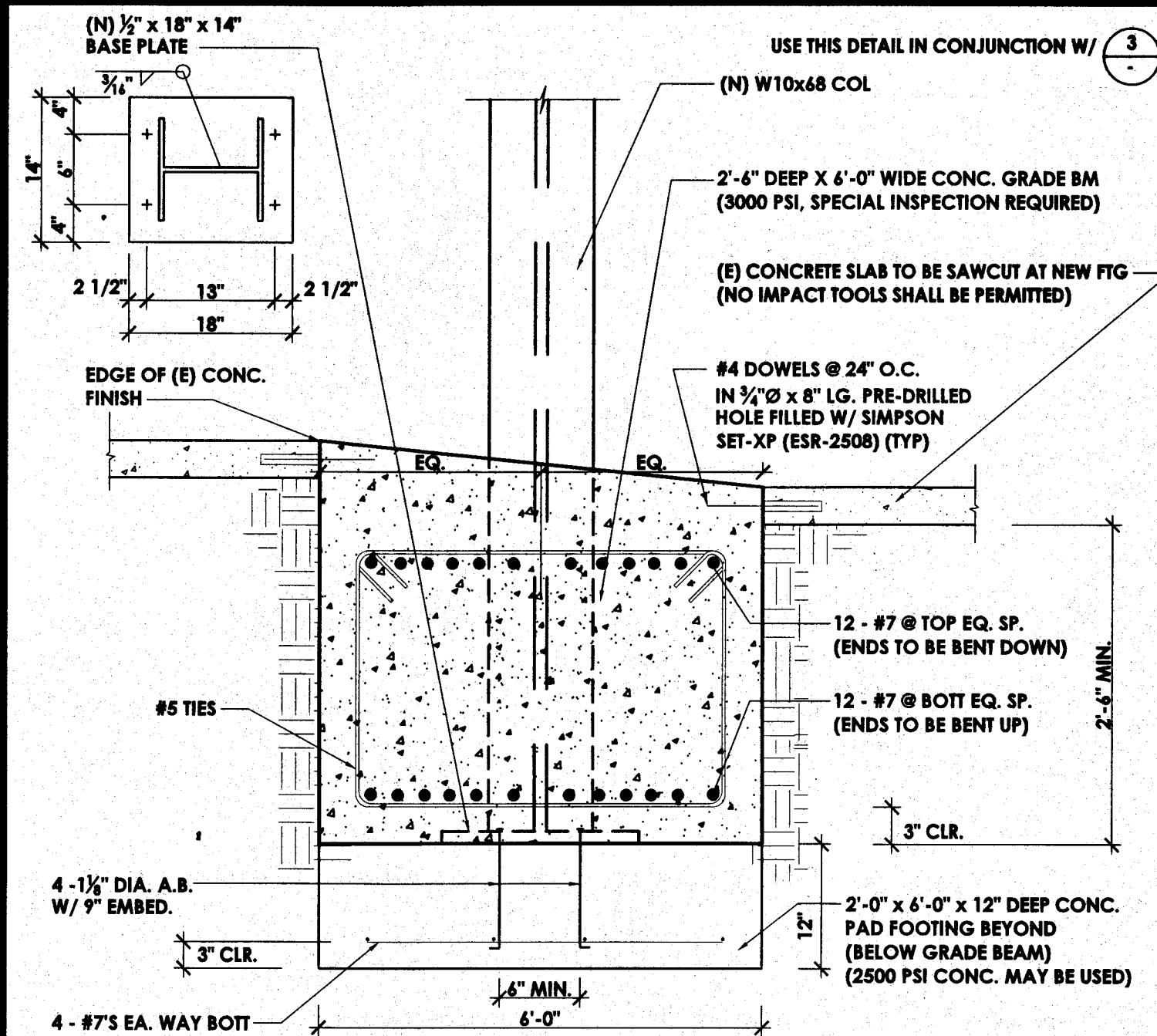
**GRADE BEAM ALONG LINE "B.1"**



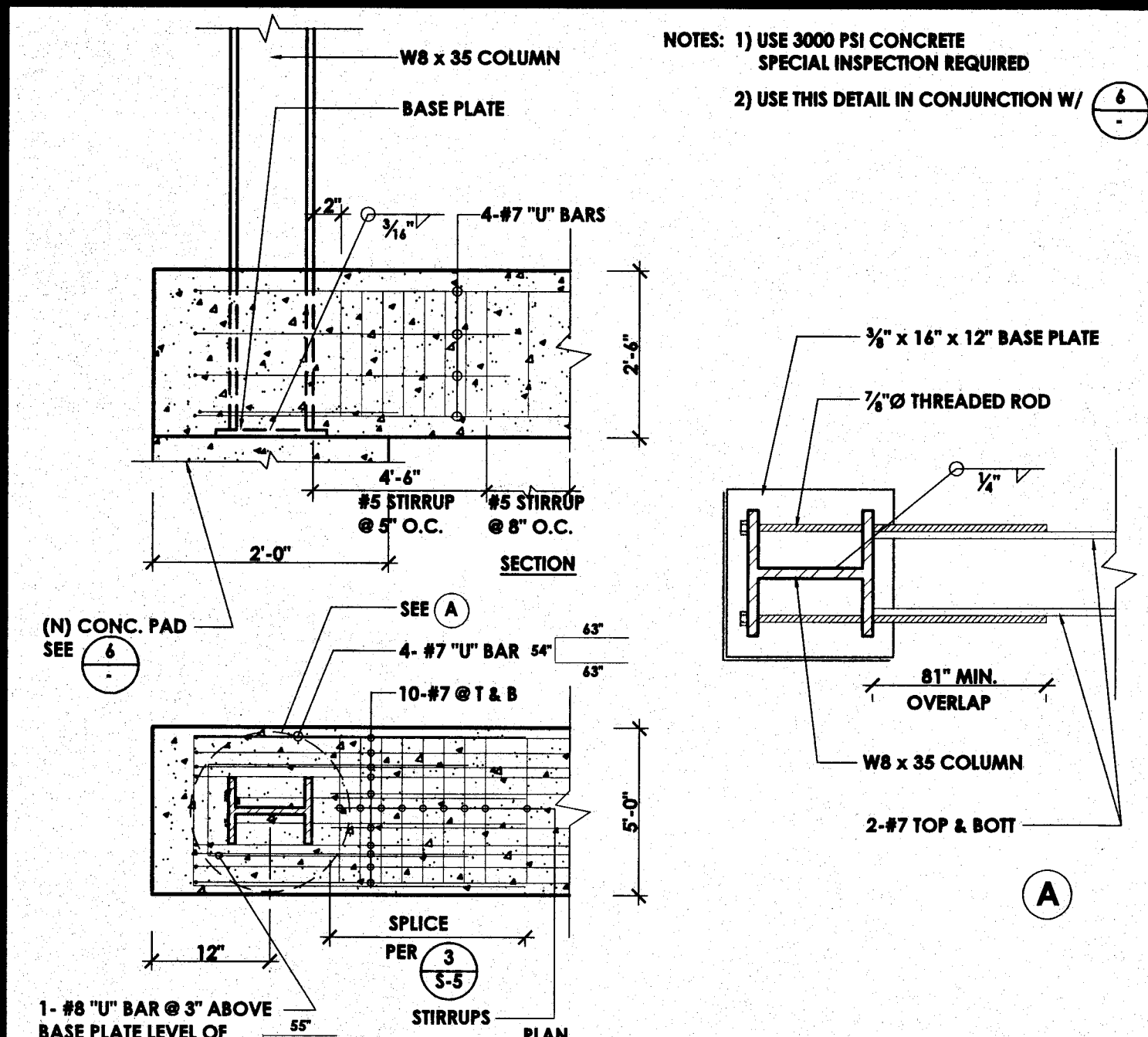
**GRADE BEAM SECTION ALONG LINE "B.1"**



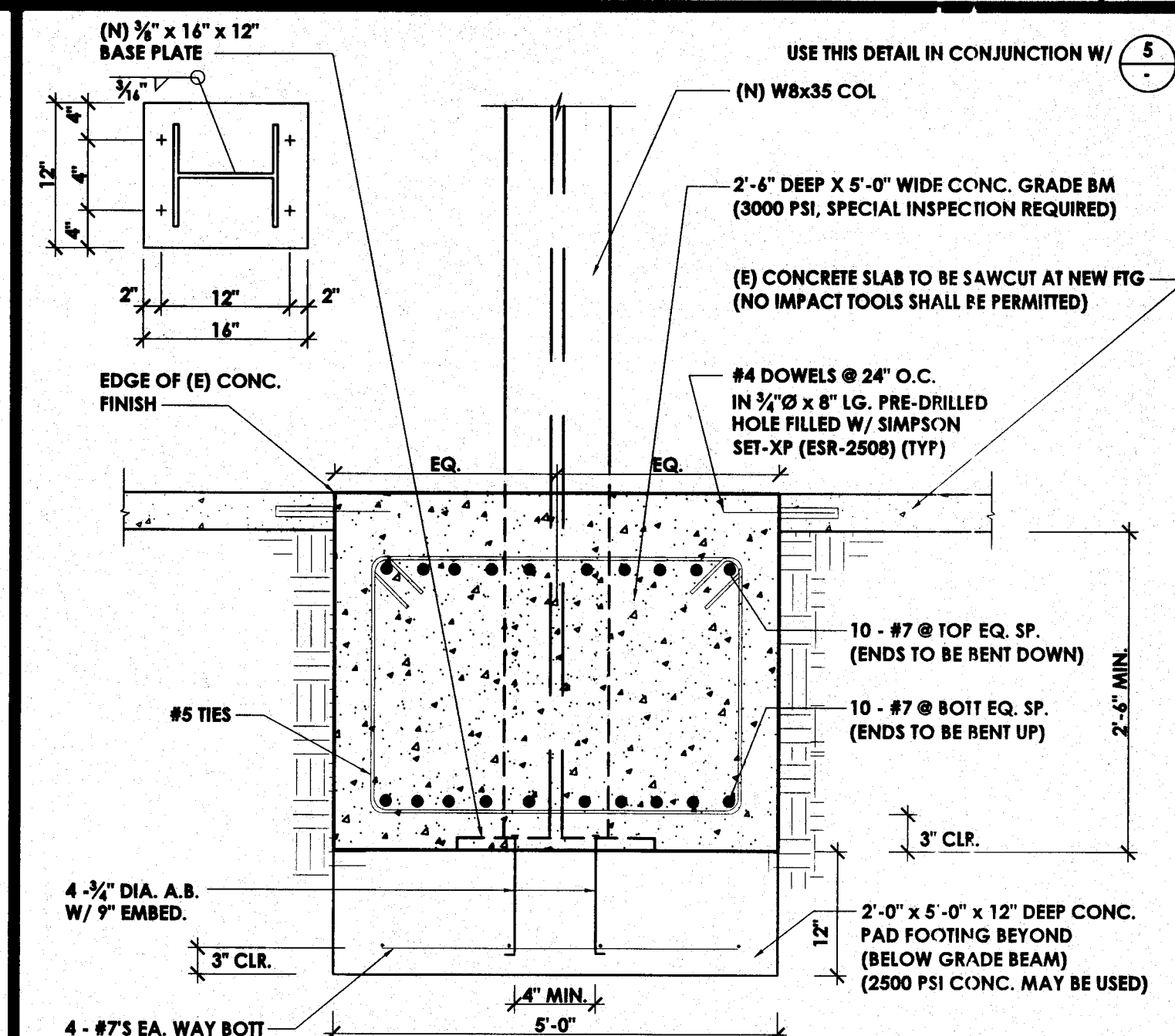
**GRADE BEAM ALONG LINE "B"**



**GRADE BEAM SECTION ALONG LINE "B"**



**GRADE BEAM ALONG LINE "K"**



**GRADE BEAM SECTION ALONG LINE "K"**





9162 Van Ness Street, Torrance, CA 90501 (310) 782-9100

3928 CARPENTER AVENUE, STUDIO CITY, CA 91604

Owner / Owner Address LAURELWOOD TOWERS LLC

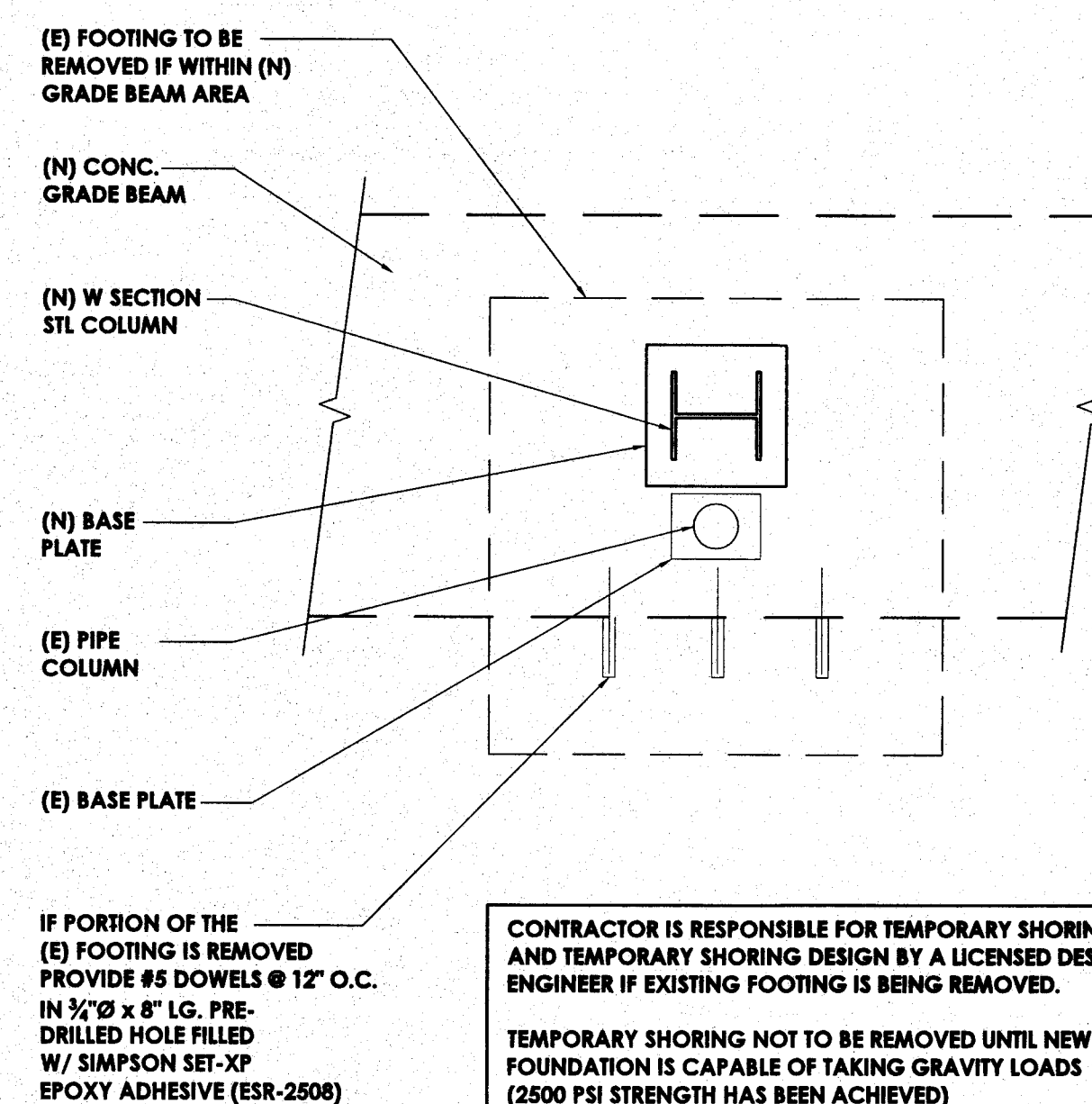
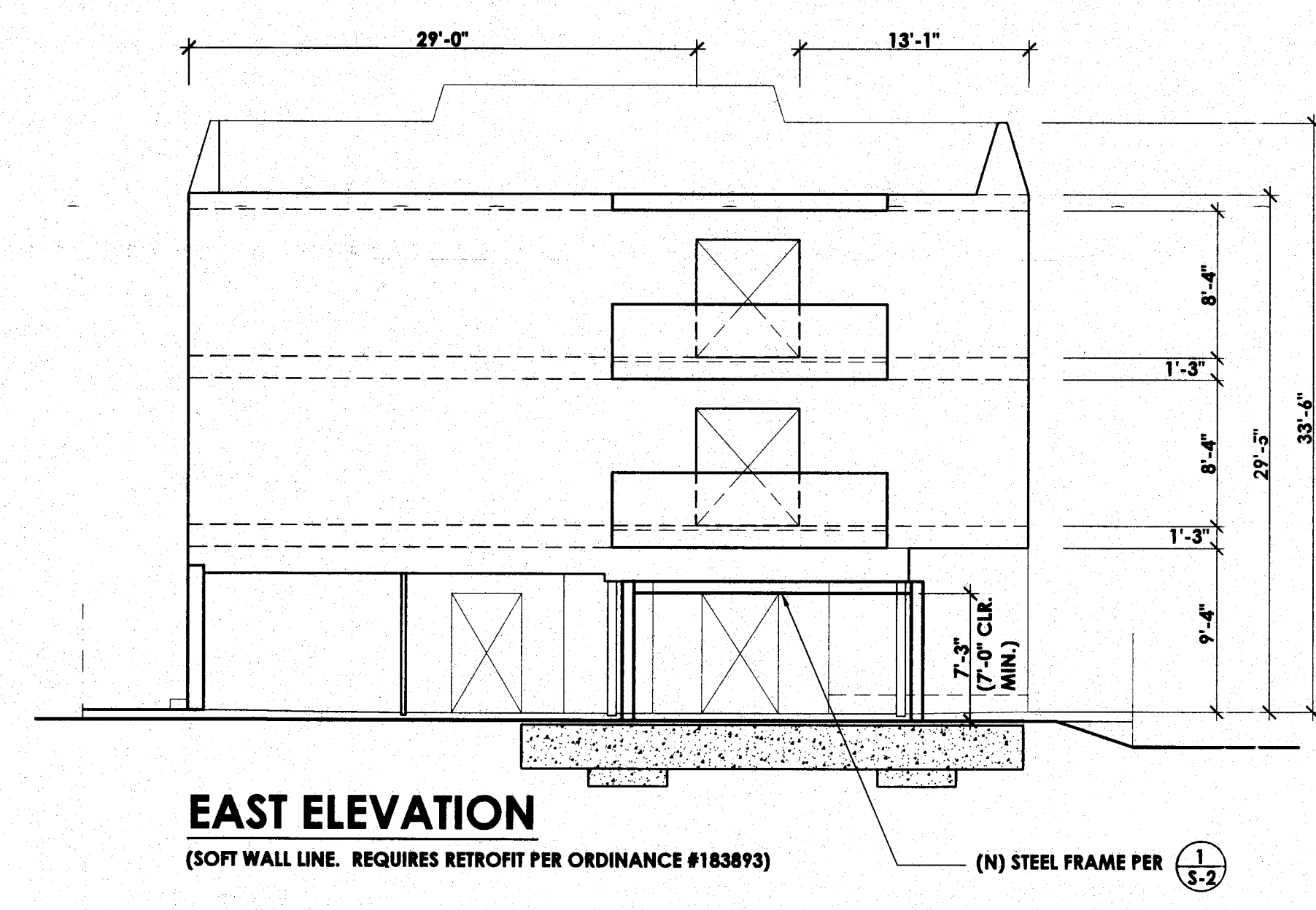
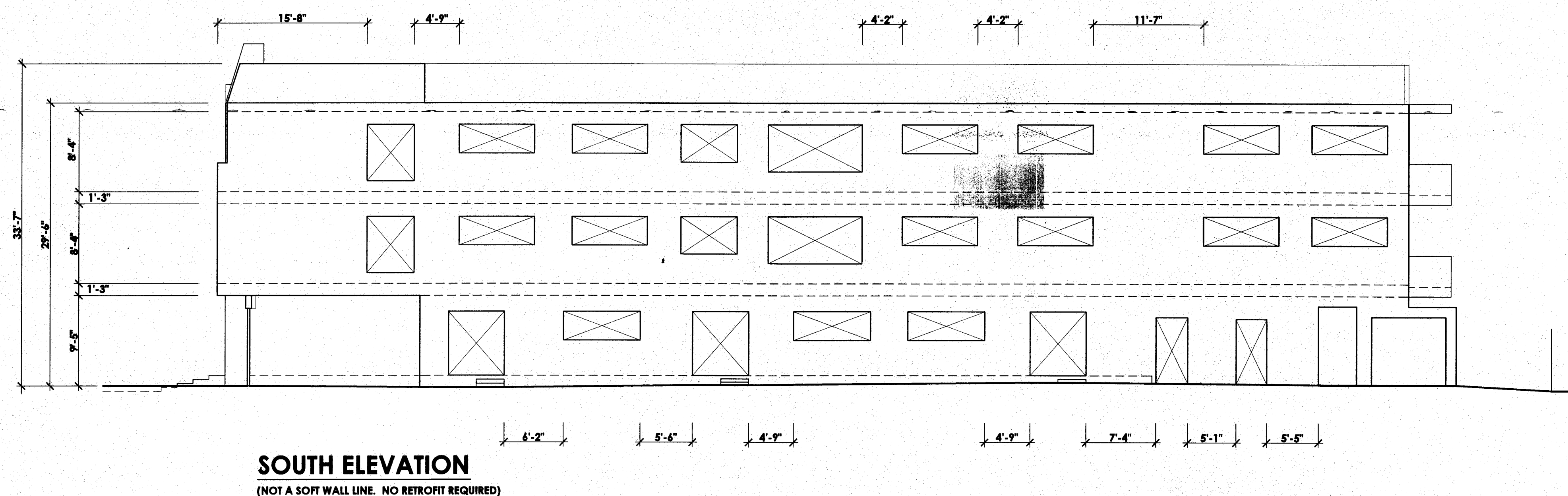
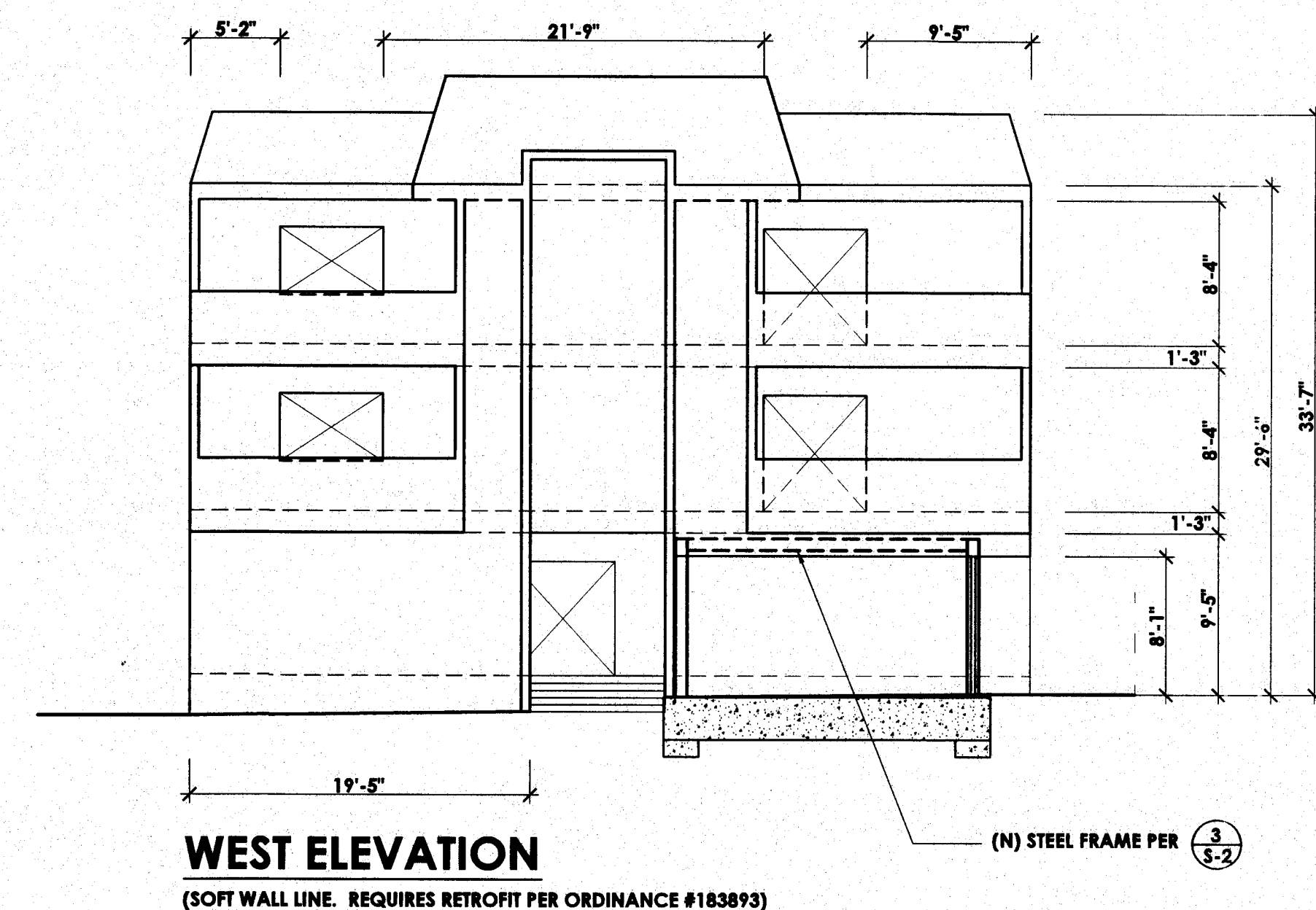
Location 3928 CARPENTER AVENUE, ELEVATIONS AND DETAILS

- DRAWN  
MG  
CHECKED  
MG  
DATE -  
SEPT., 201  
SCALE -  
1/8" = 1'-0"  
JOB NO.

1513

**SHEET**

**S-5**



BAR SIZE	LAP CLASS	REINFORCING BAR LAP SCHEDULE			
		fc = 3000 psi			
		TOP BARS		OTHER BARS	
		CASE 1	CASE 2	CASE 1	CASE 2
#3	A	22"	33"	17"	25"
	B	28"	42"	22"	33"
#4	A	29"	43"	22"	33"
	B	38"	56"	29"	43"
#5	A	36"	54"	28"	42"
	B	47"	70"	36"	54"
#6	A	43"	65"	33"	50"
	B	56"	84"	43"	65"
#7	A	63"	94"	48"	72"
	B	81"	122"	63"	94"
#8	A	72"	107"	55"	83"
	B	93"	140"	72"	107"

1. CASES 1 and 2 which depend on clear concrete cover and the center-to-center spacing of the bars are defined:  
CASE 1: cover of least 1db and c-c spacing of least 2db.  
CASE 2: cover less than 1db or c-c spacing less than 2db.
2. "Top bars" are horizontal bars with more than 12 inches of concrete cast below the bars.
3. "Other bars" include vertical bars and horizontal bars with less than 12" of concrete cast below horizontal bars.
4. Bar splices not covered by this schedule should be discussed with the engineer of record.
5. All splices shall be class "B" unless noted otherwise on plans.
6. For development length, Ld, use class "A" lap splice length.

### PARKING LAYOUT

## 1 EXISTING FOUNDATION REMOVAL GENERAL DETAIL AND NOTES

## 2 TYPICAL DEVELOPMENT AND SPLICES OF REINFORCING BARS

3



## STANDARD QUALITY ASSURANCE PLAN

### I. PURPOSE

The Standard Quality Assurance Plan (hereinafter referred to as "Standard QA Plan") for steel moment frames provides specifications, procedures, and illustrative details to comply with the requirements of the 2002 Los Angeles Building Code. The quality assurance requirements described in this Standard QA Plan are intended to promote public safety and welfare by standardizing inspections, tests, and all other applicable measures that ensure substantial compliance with the code performance objectives of steel moment frame connections.

### II. HOW TO USE THIS STANDARD QA PLAN

To use the Standard QA Plan, follow the steps outlined below:

- Standard QA Plan shall be attached to or incorporated in the structural plan.
- Where the Standard QA Plan is attached to the structural plan, the Engineer of Record shall:
  - Identify the type of steel moment frame to be used in the building or structure by placing an "X" mark in the box below:
 

☐ SPECIAL MOMENT FRAME (SMF)

☐ INTERMEDIATE MOMENT FRAME (IMF)

☐ ORDINARY MOMENT FRAME (OMF)

- Place a NOTE on the structural plan stating "All specifications, tables, and notes in the City of Los Angeles Standard Quality Assurance Plan for Steel Moment Frames shall be part of this approved structural plan."
  - Sign and stamp the Standard QA Plan in the box provided at the lower right corner of each sheet.
- Where the Standard QA Plan is incorporated directly in the structural plan, the Engineer of Record shall place a NOTE on the structural plan to clearly indicate the type of steel moment frame to be used in the building or structure.
  - All of the quality assurance requirements listed in the Standard QA Plan shall be applied to special moment frames, intermediate moment frames, and ordinary moment frames unless noted otherwise herein.
  - Organize and submit all reports required in Table 1 on Sheet 2 to the City Building Inspector in a timely manner for review and approval.
  - The procedures, specifications and illustrative details as described in the Standard QA Plan shall not exempt the Engineer of Record from using engineering judgment in determining the suitability of applying the Standard QA Plan to any welded connections. Any deviations in the quality assurance requirements as specified in the Standard QA Plan shall comply with Part III Item 5 of the Standard QA Plan.

### III. GENERAL REQUIREMENTS

#### 1. Referenced Documents

The design and construction of steel moment frames shall be in compliance with the following:

- City of Los Angeles Building Code, 2002 Edition (hereinafter referred to as "LABC").
- AISC Seismic Provisions for Structural Steel Buildings, Part I and Part II, dated May 21, 2002 (hereinafter referred to as "AISC Seismic").
- AWS D1.1/D1.1M:2002 Structural Welding Code - Steel (hereinafter referred to as "AWS").

#### 2. Material Specifications

- Structural steel shall comply with UBC Standard 22-1 and the following ASTM standard specifications:
  - Wide flange shapes .....ASTM A572 (50), A913 (50), A992
  - Continuity, doubler and column base plates, shear tabs.....ASTM A36
  - Anchor bolts at column base plates.....ASTM F1554
- Fabricate and erect structural steel in compliance with either the 2001 Edition of AISC "Load and Resistance Factor Design Specification for Structural Steel Buildings" (hereinafter referred to as "AISC LRFD Specification") or 1989 Edition of the AISC "Allowable Stress Design Specification for Structural Steel Buildings" (hereinafter referred to as "AISC ASD Specification").
- Steel having dual ASTM designation shall be clearly identified on each specific plan detail.
- High strength bolts shall comply with the following requirements and ASTM standard specifications:
  - High strength bolts, nuts and washers.....ASTM A325, A490
  - Installed bolts in accordance with the "Specifications for Structural Joints using ASTM A325 or A490 Bolts."
  - Tighten bolts to a snug tight condition that is at least the minimum proper tension and verify using a calibrated tension measuring device.
  - Slip critical high strength bolts are required.
  - All faying surfaces of connections with high strength fasteners shall be prepared as required for Class A per the AISC Seismic Section 7.2.
- Filler metal properties and specifications shall be as follows:
  - Electrodes shall be of a low-hydrogen type conforming to AWS specifications as referenced in Table 7 on Sheet 2.
  - Filler metals shall be classified for nominal 70 ksi tensile strength.
  - The maximum permitted electrode diameter shall be in accordance with Table 5 on Sheet 2.
- Filler metals shall have a minimum Charpy V-Notch (CVN) toughness of 20 ft-lbf at -20°F using AWS A5 classification test methods.
- The use of intermixed welds shall not occur unless it can be demonstrated by testing in accordance with AWS Section 4.
- The parameters established by the electrode manufacturer shall be reflected in the approved WPS.
- Other materials not listed in UBC Standard 22-1 or LABC Chapter 35 are not permitted without specific approval from the Department.

#### 3. Welding Processes

Structural welding shall be limited to the Shielded Metal Arc Welding or Flux Cored Arc Welding processes.

#### 4. Base Metal Repairs or Restorations

- Any repair or restoration of base metal shall comply with all of the following:
- Engineer of Record shall review and approve the WPS for repair procedures prior to welding.
  - Ensure that repair procedures meet the requirements outlined in AWS Section 5.26 and ASTM A6/A6M-02 Section 9.2, 9.3, 9.4 and 9.5.
  - All welding shall be performed using low-hydrogen process or with SMAW using low-hydrogen electrodes.
  - Provide continuous visual inspection by the Deputy Inspector.
  - Provide non-destructive testing upon completion of the repair work.

#### 5. Deviations From the Standard Quality Assurance Plan

Deviations from any part of the Standard QA Plan may be made provided the procedures outlined below are followed:

- Deviations from the Standard QA Plan must be reviewed and approved by the Engineer of Record.
- Engineer of Record shall provide alternate procedures, specifications, and/or details to justify the deviations.
- Submit the proposed deviations from the Standard QA Plan to the Department for review and approval prior to commencement of work.
- Supplemental testing and additional specifications may be required to justify the deviation.
- Conformance with all applicable provisions of the LABC, AISC, and AWS is required.

### IV. QUALITY ASSURANCE

#### 1. Certification

- Inspectors shall be LADBS Certified Deputy Inspectors per LABC Section 1701.2 and Information Bulletin P/B/C 2002-035 "Regulations Regarding Registration for Deputy and Controlled Activities Inspection." Employment shall be in accordance with Information Bulletin P/B/C 2002-034 "Employment and Duties of a Registered Deputy Inspector."
- Welders shall be LADBS Certified Welders for the Structural Steel classification per LABC Section 1701.18.1, 2205.10, and Information Bulletin P/B/C 2002-045 "Welder Certification Rules and Regulations."
- Shop welds shall be performed in an LADBS Certified Fabricator's Shop per LABC Section 96.204(g) and Information Bulletin P/B/C 2002-042 "Application for Approval as Fabricator."
- Technicians performing Non Destructive Testing (NDT) shall be certified for Level II in accordance with ASNT SNT-TC-1A 2002 Edition by a Testing Agency approved per LABC Section 98.0503 and Information Bulletin P/B/C 2002-058 "Guidelines for Recognition of Testing Agencies."

#### 2. Pre-Construction Meeting

- The Owner (or owner's representative) shall arrange a pre-construction meeting(s) with the Engineer of Record (or Structural Observer designated by the Engineer of Record), the Contractor (or affected Sub-Contractor), and the Deputy Inspector to discuss and review welding procedures, bolting procedures, and inspection requirements for all welding and bolting operations.
- The City Building Inspector shall be notified of such meeting(s) and may participate at his/her discretion.
- Meeting record(s) shall be included in the first report submitted to the City Building Inspector.

#### 3. Structural Observation

Structural observation shall be performed in accordance with Information Bulletin P/B/C 2002-024. The Structural Observer shall:

- Perform structural observation listed in Table 6 on Sheet 2.
- Perform structural observation prior to placement of decking, covering by fireproofing, encasement in concrete or placement of other finishes.
- Submit observation report(s) to the City Building Inspector at each stage observed and upon completion of the structural system.
- State in the report that the steel moment frame system substantially conforms with the approved structural plans and specifications.
- Use the Department's Structural Observation Report Form to report all observations. Structural Observation Report Form can be obtained at [www.ladbs.org](http://www.ladbs.org), keyword "Information Bulletin P/B/C 2002-024".

#### 4. Deputy Inspection

The following are the basic Quality Assurance responsibilities of the Deputy Inspectors:

- Arrive on the job in sufficient time to verify the permit information, check for prior inspections and/or approvals by the City Building Inspector or previous Deputy Inspectors, check the quality of all materials and become familiar with the approved structural plans and specifications.
- Verify that structural steel delivered is from a fabricator currently licensed by the Department.
- Identify material from an offsite fabricator in accordance with LABC Section 2203 and compare to the approved plans and specifications.
- Verify that each steel piece is labeled with the approved fabricator's shop name and license number.
- Visual check shop welds, joint preparation, faying surfaces, indentation stamps and color codes of high strength steel, excessive mill scale or lamination, and dimensional conformity with the approved plans.
- Before any welding begins, inspect joint preparation, fit-up, condition of surfaces to be welded, storage and use of electrodes, current license of all welders, and voltage/amperage of welding machines.
- Ensure that all welding and inspection activities comply with AWS.
- Measure voltage/amperages near the arc with a hand held calibrated averaging type meter. The meter shall be calibrated not less than once a year. This equipment shall be used by the Fabricator, Erector, and Deputy Inspector.
- During welding operation, provide continuous inspection particularly on multiple pass welds to assure that each pass has been prepared correctly, preheat and interpass temperatures are maintained and that finished welds shall be the correct size and without rejectable discontinuities.

Mark steel near the weldment to indicate that inspection was made.

- Verify type and size of bolts and washers, check mill certificates, and verify faying surfaces are free of burrs, scale, rust, grease or anything that may inhibit full contact.

- Verify connections involving high strength bolts and welds are fabricated per Part III Item 2(b) and 2(c) and erected in a sequence per Part V Item 2, unless specified otherwise by the Engineer of Record.
- Verify high strength bolts are not welded or damaged by preheating.
- Verify washers are always installed with all bolts, except A-490 bolts which require washers under both elements.
- Verify that any deficiency noted in the Structural Observation Report Form has been corrected.
- Verify that the Engineer of Record has approved the written Welding Procedure Specification (WPS) prepared by the Fabricator or Erector. The WPS shall include the following:
  - All applicable requirements from the codes, the Standard QA Plan, and any other information necessary to produce the welds.
  - List the applicable base metal types and thicknesses.
  - List the welding joint detail, including joint type, weld type, joint geometry, and applicable dimensions. Individual weld passes shall be identified in sketches and numbered to identify the sequence of their deposition (see Detail 13 on Sheet 3 for example). The sketches shall identify the maximum layer thicknesses and bead widths. In no case shall layer thicknesses exceed 1/4 inch nor shall the maximum bead widths exceed 5/8 inch.
  - List the welding processes.
  - Specify the required welding positions.
  - List the filler metal per AWS for electrode specification and classification (see Table 7 on Sheet 2), as well as information regarding shielding material to be used.
  - Indicate the minimum preheat and interpass temperatures (see Table 4 on Sheet 2) and post weld heat treatment per Part V Item 5.
  - List all applicable electrical characteristics for the welding process employed. WPS shall clearly indicate the specific values required for each welding pass. These electrical characteristics shall include at minimum the following:
    - Electrode diameter (see Table 5 on Sheet 2),
    - Type of current, and acceptable ranges of current measured in amperage,
    - Voltage,
    - Travel speed (range), and
    - Amperage, voltage and electrode extension (as applicable) shall be within the filler metal manufacturer's recommendations.
- A copy of the electrode manufacturer's technical information with ID # listed shall be attached to the WPS.
- Weld joints not conforming to AWS Chapter 3 must be tested by an approved testing agency, accepted by the Engineer of Record, and approved by the Department's Material Control Section before the weld is performed. Material Control Section can be contacted at:

LADBS Material Control Section  
 221 N. Figueroa St., Suite 1540  
 Los Angeles, CA 90012  
 (213) 482-0380 or 1-888-LA-4BUILD

- Notify the Contractor, Engineer of Record, and City Building Inspector of any deviations or non-compliance with the approved WPS, plans or specifications.
- "Deputy Inspection Report Form B-94" shall be submitted on a weekly basis to the City Building Inspector and Engineer of Record, unless determined otherwise by the City Building Inspector.
- During the execution of the work, the Deputy Inspector shall not undertake or engage in any other task or occupation which will interfere with the proper performance of the duties of such inspection.

#### 5. Electrode Storage and Atmospheric Exposure

- Electrodes are considered to be exposed to the atmosphere if:
  - the manufacturer's sealed electrode containers or packagings are opened or damaged, or
  - outside of baking or storage ovens.
- Modification or lubrication of electrodes are not permitted.
- Drying of electrodes in baking or storage ovens are permitted as recommended by the manufacturer.
- Electrodes shall be identified to facilitate monitoring of total atmospheric exposure time.
- Storage and atmospheric exposure of AWS A5.1-91 and A5.5-96 low-hydrogen SMAW electrodes shall be in accordance with AWS Section 5.3.2.
- FCAW electrodes not consumed within 24 hrs of accumulated atmospheric exposure time shall not be used. Manufacturer's recommendations that show that drying effectively removes moisture and restores electrodes to their designated diffusible hydrogen levels are permitted.
- FCAW electrode welding suspended more than 8 hrs shall be removed from the machines and stored in an electrode wire baking or storage oven maintained at a temperature between 250° and 550°F, or as recommended by the electrode manufacturer.

#### 6. Plastic Hinging Zone Protection

- The plastic hinging zone shall be identified diagrammatically, as illustrated in Detail 15 on Sheet 3, on the structural plans by the Engineer of Record.
- The Engineer of Record and Contractor shall be responsible for reviewing shop drawings of ALL relevant trades to ensure compliance. This shall be discussed and documented in pre-construction meetings.
- The Contractor shall be responsible for developing a program to ensure that all workers on the project, including their subcontractors, are aware of and understand this requirement. Failure to comply with these requirements may cause the replacement of steel.
- Plastic hinging zones shall be defined by permanent markings such as paint or ink.
- A note, as illustrated in Detail 15 on Sheet 3, shall be prominently placed on the structural plans (general note sheet and adjacent to moment frame detail) and the construction documents of ALL trades.
- Welded, bolted, screwed, or shot-in (powder driven) attachments for perimeter edge angles, shear studs, exterior facades, partitions, duct work, piping, or other connections shall not be permitted within the plastic hinging zones.

- Any penetrations or damage from temporary welded attachments within the plastic hinging zones shall be repaired as required by the Engineer of Record and comply with Part III Item 4.
- Initially, the plastic hinging zone "Warning Sign", as illustrated in Detail 15 on Sheet 3, may be temporary. However, the temporary "Warning Sign" shall be replaced by a permanent "Warning Sign" before project completion. This sign and identification of the plastic hinging zone shall be maintained during construction, and may require repair after operations such as fireproofing.
- Signs shall be affixed to the beam and located within the plastic hinging zone. The City Building Inspector may accept alternate methods of attaching the "Warning Sign" to the plastic hinging zones.

#### 7. Additional Charpy V-Notch Toughness (not required for OMF)

Welds at the locations indicated below shall be made with filler metal having a CVN toughness of 20 ft-lbf at -20°F AND 40 ft-lbf at 70°F as determined by test procedure prescribed in the AISC Seismic Appendix X "Weld Metal / Welding Procedure Specification Toughness Verification Test."

- Beam flanges to columns,
- Single plate shear connections to columns,
- Beam webs to columns, and
- Column splices.

#### 8. Non-Destructive Testing (NDT) Requirements

- The minimum non-destructive testing at each weld joints or parts shall be conducted at the locations and frequencies as specified in Table 2 and Table 3 on Sheet 2 respectively.
- A copy of each NDT report shall be provided to the Contractor, Engineer of Record, Deputy Inspector, and City Building Inspector with the following information:
  - Document the accepted and rejected welds, parts, or joints.
  - Identify the tested weld by piece mark and location in the piece.
  - Identify the tested weld location in the structure.
- NDT Technician shall perform the following tasks:
  - Coordinate the NDT scope and schedule with the Deputy Inspector.
  - Perform NDT in a timely manner (so as not to hinder construction work) and to detect welding problems soon after occurrence so that corrective measures can be taken by the Contractor.
  - Mark the inspected and accepted welds, parts, and joints with a distinguishing mark or die stamp.
- Reduction Rate for NDT
  - The rate of UT testing on CJP groove welds may be reduced if approved by the Engineer of Record and the Department. The NDT rate for an individual welder or welding operator may be reduced to 25%, provided the reject rate is demonstrated to be 5 % or less of the welds tested for the welder or welding operator. A sampling of at least 40 completed welds for a job shall be made for such reduction evaluation.
  - The rate of MT testing on CJP groove welds may be reduced if approved by the Engineer of Record and the Department. The MT rate for an individual welder or welding operator may be reduced to 10%, provided the reject rate is demonstrated to be 5 % or less of the welds tested for the welder or welding operator. A sampling of at least 20 completed welds for a job shall be made for such a reduction evaluation. This reduction is not permitted on welds in the k-area, at repair sites, weld tab and backing removal sites and access holes.
  - Reject rate shall mean the number of welds containing rejectable defects divided by the number of welds completed.

#### 9. Documentations

The reports listed in Table 1 on Sheet 2 shall be submitted to the City Building Inspector in a timely manner.

### V. WELDING PROCEDURES

#### 1. Bottom Beam Flange Moment Connection Welding

Where welding of the bottom beam flange to the column flange is in the flat welding position, welding shall be completed with the following sequence:

- Start welding from Side A (one side of the beam) with a maximum 1/4 inch thick root pass beyond the center of the joint on Side B (other side of the beam), reaching past the beam web through the weld access hole.
- After the arc is initiated, electrode travel shall progress toward the edge of the Side A beam flange, terminating on the Side A weld tab.
- The Side A root pass, and the root pass deposit on Side B, shall be thoroughly cleaned to allow the Deputy Inspector to verify that the resulting bead profile is suitable for obtaining good fusion by the subsequent root pass to be initiated from Side B. If the profile is not conducive to good fusion, the start of the first root pass shall be ground, gouged, chipped, or otherwise prepared to ensure adequate profile to achieve fusion.
- Complete the root pass on Side B before any other weld passes are performed.
- The arc shall be initiated at the start of the first Side A root pass, and electrode travel shall progress toward the edge of the Side B beam flange, terminating on the Side B weld tab.
- The above sequence shall be repeated for subsequent weld layers, and each weld layer shall be completed on both sides of the joint before a new layer is deposited. The order of operations (Side A, then Side B, or vice versa) is not restricted and may vary for each weld layer. Weld passes shall be placed in horizontal layers. Each pass shall be thoroughly cleaned of slag and wire brushed. Each pass shall be visually inspected by the Deputy Inspector, as described above in Step (c).

An alternate welding sequence may be made provided the Welder or Contractor submits in writing an alternate sequence that is approved by the Engineer of Record and complies with the requirements of Part III Item 5 of the Standard QA Plan.

#### 2. Sequence for Welding at Multiple Locations

When welding occur at multiple locations of welded steel moment frame connections, the following sequence shall be followed:

- Weld both top and bottom beam flanges prior to any supplemental welding on the beam web or shear tab.

- Engineer of Record shall review and approve all field welding sequences prior to the start of work.
- Field welding of web shear plates with bolts shall occur after field welding of beam flanges to column flange.
- High strength bolts shall be in the snug tight condition prior to welding.
- Notwithstanding AISC LRFD Specification Section J1.9 to the contrary, high strength bolts shall be fully tensioned upon completion of all welding activities.

#### 3. Welding Technique

- Stringer beads shall be used during all welding operations. Maximum bead width, bead thickness, and layer thickness shall be considered. Weaving is not permitted, except when the WPS approved by the Engineer of Record limits electrode oscillation transverse to the weld axis to a maximum of:
  - 3d for 1G/1F, 2G/2F, and 4G/4F weld positions, or
  - 5d for the 3G/3F position, where d = electrode diameter.
- Welding layers should progress from the face of the column flange outward toward the groove face of the beam flange as illustrated in Detail 13 on Sheet 3.

#### 4. Preheat and Interpass Temperature

- The minimum preheat and interpass temperature requirements in Table 4 of Sheet 2 shall be observed. Special attention shall be given to AWS Section 3.5.1 and Section 5.6 for the thickness of the base metal to be welded.
- Preheat and all subsequent interpass temperatures shall be maintained during the welding operation for a distance at least equal to the thickness of the thicker welded part, but not less than 3", in all directions from the point of welding.
- Where base metals are of different thickness, the higher minimum preheat and interpass temperature requirements of the thicker plate shall govern.
- Maximum preheat and interpass temperature shall not exceed the lesser of:
  - 550°F, or
  - The maximum temperature recommended by the manufacturer.

#### 5. Post Weld Heat Treatment

Unless specified otherwise in an approved WPS, the minimum post weld heat treatment shall be provided as follows:

- Apply temperature in the 400°F to 600°F range immediately after completion of welding to prevent the weld metal from cooling below the minimum preheat and interpass temperature.
- Maintain temperature for approximately 1 hour per inch of thickness of weld metal or 2 hours, whichever is less.
- Conditions specified in AWS Section 3.14 and Section 5.8 should carefully be considered when applying post weld heat treatment.

Alternatively, the use of insulating blankets after the completion of welding in lieu of post weld heat treatment may be permitted to control the cooling of the welded connection to ambient temperature if recommended by the Engineer of Record and approved by the City Building Inspector, unless required otherwise by an approved WPS.

### VI. WELDING AND FABRICATION DETAILS

#### 1. Base Metal Joint Preparation

- Base metal preparation shall be in comply with AWS Section 5.15.
- All beam flange to column flange welds are to be made with an AWS prequalified CJP groove welded joint detail.
- Bevel, fit-up and detail tolerances shall be as required by the selected prequalified welded joint detail.
- Whenever possible, use the AWS prequalified CJP groove welded joint detail as illustrated in Detail 14 on Sheet 3 and the following:
  - Use single bevel CJP groove welds made with a 30° groove angle or double bevel CJP groove welds when flange thickness exceed 1-1/2 inch.
  - "As Fit-Up" and "As Detailed" shall be the maximum tolerances.
  - Meet all prequalified WPS variables in Table 5 on Sheet 2.

#### 2. Weld Access Hole

- Where weld access holes are provided, they shall be detailed as illustrated in Detail 12 on Sheet 3.
- Notches and gouges shall be repaired following a WPS approved by the Engineer of Record.
- Weld access holes shall be prepared by grinding to a suitable finish in accordance with AISC LRFD Specification Section J1.8 and provided with a minimum radius of 3/8 inch as illustrated in Detail 12 on Sheet 3.

#### 3. Backing Bar

- Backing bar used in connections with a CJP groove weld of beam flange to column flange shall be removed except that top flange backing bar attached to the column by a continuous fillet weld on the edge below the CJP groove weld need not be removed.
- Following removal of backing bar, the root pass shall be backgouged to sound weld metal, and back welded. A reinforcing fillet weld with a minimum leg size of 5/16 inch or the root opening plus 1/16 inch, whichever is larger, shall be provided. The reinforcing fillet weld need not be ground.
- When backing bar is other than AWS Table 3.1 and Section 5.2.2 approved base metal is used, the following shall apply:
  - Ceramic, flux or glass tape may be used provided the manufacture's recommendations are followed.
  - When a non-metallic backing bar is used, the WPS and the Welder shall be qualified using the type of backing bar intended for welding.
  - Nonferrous metallic (e.g. copper) backing materials are not permitted.

#### 4. Weld Tab

- Weld tabs shall be aligned parallel to the joint preparation.
- No weld dams are allowed.
- Weld tabs shall extend beyond the edge of the joint a minimum distance equal to the part thickness, but not less than one inch.
- Weld tab shall be removed upon completion of the welded joint as follows:
  - No more than 1/8 inch beyond the edge of the joint shall remain, except at continuity plate where up to 1/4 inch is acceptable.
  - Edges of the weld tab shall be finished to a surface roughness value of 500 micro inch or better. Grinding to a flush condition is not required.

SITE ADDRESS: 3928 CARPENTER AVENUE

OWNER: LAURELWOOD TOWERS LLC

STANDARD QUALITY ASSURANCE PLAN  
 For Steel Moment Frames

The specifications and illustrative details presented in this Standard Quality Assurance Plan have been prepared in accordance with recognized engineering practices and are for general information only. This Standard Quality Assurance Plan is not a contract and does not constitute a warranty of any kind, express or implied, by the Engineer of Record. By signing and sealing the Standard Quality Assurance Plan, the Engineer of Record acknowledges that the City of Los Angeles, the Engineer of Record, and the fabricator shall be responsible for the application of all the specifications and illustrative details associated with the subject property. Furthermore, by signing and sealing the Standard Quality Assurance Plan, the Engineer of Record acknowledges that the City of Los Angeles, the Engineer of Record, and the fabricator shall be responsible for the application of all the specifications and illustrative details associated with the subject property.

Engineer of Record  
**LA DBS**  
 DEPARTMENT OF BUILDING AND SAFETY  
 Date: 06/20/2006  
 Scale: Not to Scale  
 Sheet: **S-6**  
 (1 OF 3)



SITE ADDRESS: 3928 CARPENTER AVENUE  
OWNER: LAURELWOOD TOWERS LLC

STANDARD QUALITY ASSURANCE PLAN  
For Steel Moment Frames

The specifications and illustrative details presented in this Standard Quality Assurance Plan have been prepared in accordance with recognized engineering principles and are for general information only. The Standard Quality Assurance Plan is not intended to be used as a basis for design or construction without the application of the Engineer or Architect of Record. By signing and sealing this plan, the Engineer or Architect of Record is certifying that the specifications and illustrative details are in accordance with the applicable provisions of the Building Code of the City of Los Angeles and that the City of Los Angeles assumes no responsibility for the application of any of the specifications and illustrative details contained in this Standard Quality Assurance Plan and all liability arising from such use.

Table 1. REPORTS TO BE SUBMITTED TO THE CITY BUILDING INSPECTOR

	PREPARED BY	TYPE OF REPORT
1.	Structural Observer(s)	Structural Observation Reports
2.	Deputy Inspector(s)	Deputy Inspection Reports
3.	NDT Technician(s)	Non-Destructive Testing Reports

Table 2. NON-DESTRUCTIVE TEST LOCATIONS

REQUIRED LOCATIONS		OMF	IMF	SMF
1.	<b>CJP Groove Weld</b> Ultrasonic test shall be performed on all CJP groove welds in materials 5/16 inch (8 mm) thick or greater. In addition, magnetic particle test shall be performed on all beam-to-column CJP groove welds.	B	A	A
2.	<b>"k" Area</b> When welding of doubler plates, continuity plates, or stiffeners has been performed in the k-area, the web shall be tested for cracks using magnetic particle testing. The magnetic particle test area shall include the k-area base metal within 3 in. (75 mm) of the weld.	C	B	B
3.	<b>Beam Cope and Access Hole</b> At welded splices and connections, thermally cut surfaces of beam copes and access holes shall be tested using magnetic particle testing, when the flange thickness exceeds 1-1/2 in. (38 mm) for rolled shapes.	C	B	B
4.	<b>Reduced Beam Section Repair</b> Magnetic particle testing shall be performed on any weld and adjacent area of the RBS plastic hinge region that has been repaired by welding, or on the base metal of the RBS plastic hinge region if a sharp notch has been removed by grinding.	B	B	A
5.	<b>Base Metal Lamellar Tearing and Laminations at CJP Groove Weld</b> Base metal thicker than 1-1/2 in. (38 mm) shall be ultrasonically tested for discontinuities behind and adjacent to the fusion line when the base metal is loaded in tension in the through thickness direction in tee and corner joints and the connected material is greater than 3/4 in. (19 mm). Any base metal discontinuities found within 1/4 of the steel surface shall be accepted or rejected on the basis of criteria of AWS D1.1 Table 6.2, where t is the thickness of the part subjected to the through-thickness strain.	B	B	A
6.	<b>End of Weld at Weld Tab Removal Site</b> Magnetic particle testing shall be performed on the end of welds from which the weld tabs have been removed, except for continuity plate weld tabs.	C	B	B
7.	<b>PJP Groove Weld</b> Ultrasonic testing shall be performed on PJP groove welds used in column splices with an effective throat of 3/4 in. (19.1 mm) thick or greater.	C	B	A

NOTE: A, B, and C are the frequencies of non-destructive tests listed in Table 3.

Table 3. NON-DESTRUCTIVE TEST FREQUENCY

	Frequency Designation		
	A	B	C
Ultrasonic Testing (UT)	100% of joints	50% of joints	25% of joints
Magnetic Particle Testing (MT)	50% of joints	25% of joints	Not Required

NOTES:  
1. Refer to Table 2 for locations of non-destructive testing.  
2. Rate of non-destructive testing may be reduced as permitted in Sheet 1, Part IV, Item 8(d).

Table 4. PREQUALIFIED MINIMUM PREHEAT AND INTERPASS TEMPERATURE

STEEL SPECIFICATION	WELDING PROCESS	THICKNESS OF THICKEST PART AT POINT OF WELDING (in.)	MINIMUM PREHEAT AND INTERPASS TEMPERATURE (°F)
ASTM A36 ASTM A572 Grade 50 ASTM A913 Grade 50 ASTM A992	SMAW with low-hydrogen electrodes, FCAW	1/8 to 3/4 Incl.	32
		Over 3/4 to 1-1/2 Incl.	50
		Over 1-1/2 to 2-1/2 Incl.	150
		Over 2-1/2	225

NOTES:  
1. Surfaces to be welded and surfaces adjacent to welds shall be free of moisture pursuant to AWS D1.1/D1.1M:2002 Section 5.15. Use a higher preheat temperature from this Table to remove moisture.  
2. Adapted with permission from the AWS D1.1 Committee on Structural Welding, Structural Welding Code - Steel, AWS D1.1/D1.1M: 2002, Miami: American Welding Society, Table 3.2.

Table 5. PREQUALIFIED WPS REQUIREMENTS (1, 2, 3)

VARIABLE	POSITION OF WELD	WELD TYPE	SMAW	FCAW
Maximum Electrode Diameter	Flat (F)	Fillet (4)	5/16 in.	1/8 in.
		Groove (4)	1/4 in.	
		Root Pass	3/16 in.	
	Horizontal (H)	Fillet	1/4 in.	1/8 in.
		Groove	3/16 in.	
Maximum Current	Vertical (V)	All	3/16 in.	3/32 in.
	Overhead (OH)	All	3/16 in.	5/64 in.
	All	Fillet	Within the range of recommended operation by the filler metal manufacturer and a WPS approved by engineer of record.	Within the range of recommended operation by the filler metal manufacturer and a WPS approved by engineer of record.
	All	Groove weld root pass with opening		
		Groove weld root pass without opening		
		Groove weld fill passes		
Maximum Root Pass Thickness (5)	Flat (F)	All	3/8 in.	3/8 in.
	Horizontal (H)		5/16 in.	5/16 in.
	Vertical (V)		1/2 in.	1/2 in.
Maximum Fill Pass Thickness	Overhead (OH)	All	5/16 in.	5/16 in.
	All		3/16 in.	1/4 in.
	Flat (F)		3/8 in.	1/2 in.
Maximum Single Pass Fillet Weld Size	Horizontal (H)	Fillet	5/16 in.	3/8 in.
	Vertical (V)		1/2 in.	1/2 in.
	Overhead (OH)		5/16 in.	5/16 in.
	Overhead (OH)		5/16 in.	5/16 in.
Maximum Single Pass Layer Width	All	Root opening >1/2 in.	Not applicable.	Split layers
		Any layer of width w		(6)

NOTES:  
1. Applicable provisions of AWS D1.1/D1.1M:2002 Section 3 "Prequalification of WPSs" must be maintained for prequalified status of SMAW and FCAW WPSs.  
2. Refer to Detail 13 on Sheet 3 for diagram of weld pass sequence.  
3. Adapted with permission from the AWS D1.1 Committee on Structural Welding, Structural Welding Code - Steel, AWS D1.1/D1.1M: 2002, Miami: American Welding Society, Table 3.7.  
4. Except root passes.  
5. See AWS D1.1/D1.1M:2002, Section 3.7.2, for width-to-depth limitations.  
6. In the F, H, or OH positions for nontubulars, split layers when the layer width w > 5/8 inch. In the V position for nontubulars or the 5G or 6G for tubulars, split layers when the width w > 1 inch.

Table 6. STRUCTURAL OBSERVATION CHECKLIST

STRUCTURAL OBSERVATION PROGRAM (Steel Moment Frame for Seismic Application)	
<input type="checkbox"/>	Orientation and placement of connected components.
<input type="checkbox"/>	Removal of backing bars, as required on the plans.
<input type="checkbox"/>	Removal of runoff tabs, as required on the plans.
<input type="checkbox"/>	Presence of continuity plates, as required on the plans.
<input type="checkbox"/>	Presence of doubler plates, as required on the plans.
<input type="checkbox"/>	Configuration and finish of weld access holes, if applicable.
<input type="checkbox"/>	Contour of RBS profile, if applicable.
<input type="checkbox"/>	Verify that no welded attachments occur in the plastic hinge region.
<input type="checkbox"/>	Review NDT and deputy inspection reports for general compliance.

NOTES:  
1. Weld qualities shall be verified by the Deputy Inspector.  
2. The structural observations listed in this Table are in addition to the structural observations that may be required on the structural plans.

Table 7. PREQUALIFIED BASE METAL - FILLER METAL COMBINATIONS FOR MATCHING STRENGTH (1, 2, 3, 4)

BASE METAL		FILLER METAL	
Group	Steel Specification	Welding Process	Electrode Specification
I	ASTM A36 < 3/4 in.	SMAW	A5.1 E70XX
			A5.5 (6) E70XX-X
		FCAW	A5.20 (5) E70XT-X, E7XT-XM
			A5.29 (6) E70XTX-X, E7XTX-XM
II	ASTM A36 ≥ 3/4 in. ASTM A572 Grade 50 ASTM A913 Grade 50 ASTM A992	SMAW	A5.1 E7015, E7016, E7018, E7028
			A5.5 (6) E70XX-X
		FCAW	A5.20 (5) E70XT-X, E7XT-XM
			A5.29 (6) E70XTX-X, E7XTX-XM
RELATIONSHIP	BASE METAL(S)	FILLER METAL STRENGTH RELATIONSHIP REQUIRED	
Matching	Any steel to itself or any steel to another in the same group	Any filler metal listed in the same group	
	Any steel in one group to any steel in another	Any filler metal listed for a lower strength group [SMAW electrodes shall be the low-hydrogen classification]	
Under-Matching	Any steel to any steel to any group		

NOTES:  
1. The base metal/filler metal strength relationships above shall be used to determine whether matching or under-matching filler metals are required. Refer to AWS D1.1/D1.1M:2002, Section 3.3.  
2. Preheating of joints involving base metals of different groups shall be in conformance with the requirements applicable to the higher strength group.  
3. When welds are to be stress-relieved, the deposited weld metal shall not exceed 0.05 percent vanadium.  
4. Adapted with permission from the AWS D1.1 Committee on Structural Welding, Structural Welding Code - Steel, AWS D1.1/D1.1M: 2002, Miami: American Welding Society, Table 3.1.  
5. FCAW electrodes with the -2, -2M, -3, -4, -7, -10, -11, -13, -14, G, -GS suffix shall be excluded and electrodes with the -11 suffix shall be excluded for thicknesses greater than 1/2 in.  
6. Filler metals of alloy group B3, B3L, B4, B4L, B5, B5L, B6, B6L, B7, B7L, B8, B8L, B9, or any BXH grade in AWS A5.5 or A5.29 are not prequalified for use in the as-weld condition.

CONTINUED FROM SHEET 1

e. Gouges and notches are not permitted. The transitional slope of any area where gouges and notches have been removed shall not exceed 1:5.  
f. Material removed by grinding that extends more than 1/16 inch below the surface of the base metal shall be filled with weld metal. The contour of the weld at the ends shall provide a smooth transition, free of notches and sharp corners.

5. Continuity Plate  
a. Continuity plates shall be detailed as illustrated in Detail 11 on Sheet 3.  
b. The weld attaching the continuity plate to the column flange shall be as follows:  
i. Use a CJP groove weld for the full length of the groove preparation.  
ii. When backing bars are omitted, the root shall be backgouged and back welded.  
iii. When backing bars are used and remain in place, backing bars shall be attached to the column flanges with a reinforcing fillet weld.  
iv. Fillet weld shall not be used to connect backing bars to continuity plates.  
v. The fillet weld size need not exceed the minimum size requirements of AWS Table 5.8.  
c. Weld terminations near the end of the column flange tips may be completed using weld tabs as follows:  
i. Weld tabs may be steel or nonfusible material.  
ii. Weld terminations near the radius of the column need not be made using weld tabs. The use of small nonfusible weld tabs to assist in weld terminations is permitted.  
iii. Weld tabs shall be removed following completion of welding.  
d. Continuity plates may be welded to the column web with groove welds, fillet welds, or a combination of the two. Fillet welds shall terminate a minimum distance of 1/4 inch from each end of the joint.

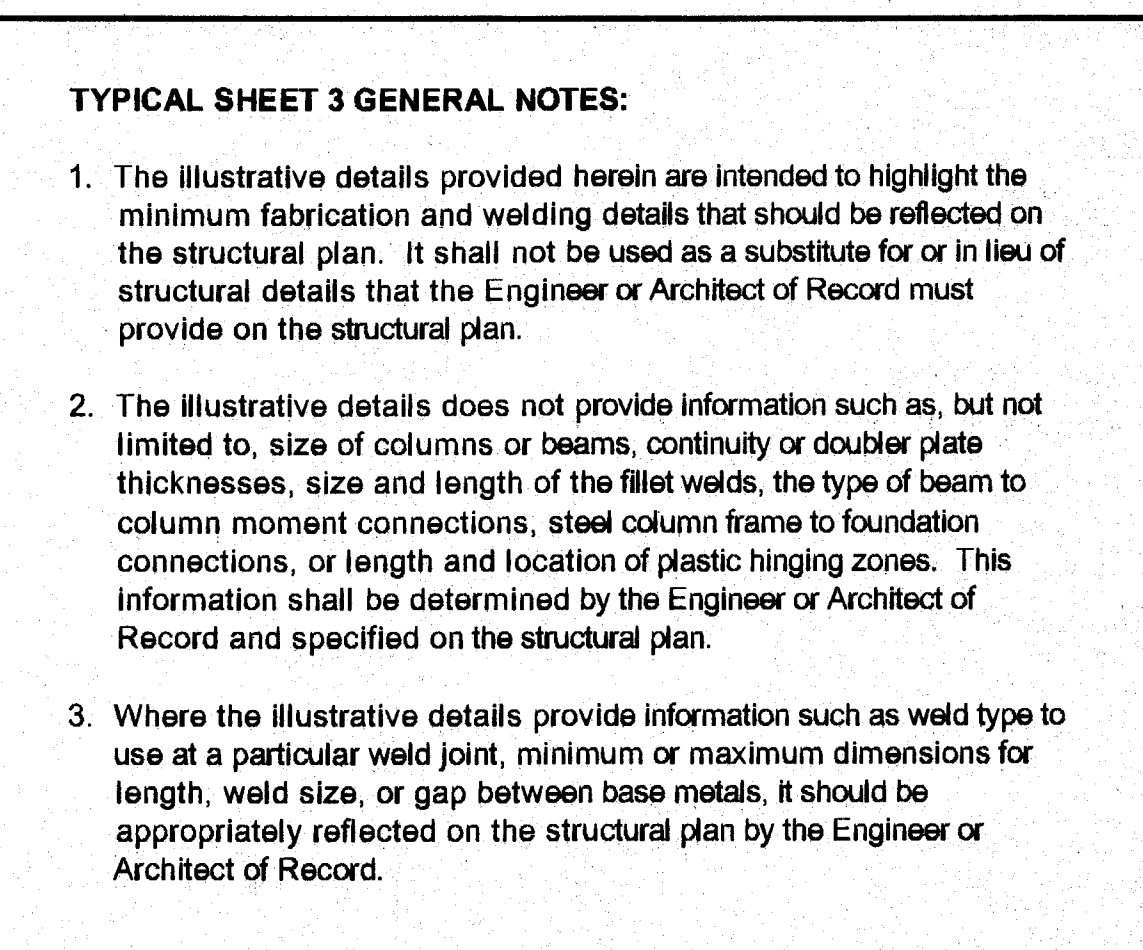
6. Doubler Plate  
Web doubler plates, as illustrated in Detail 2, 3, or 4 on Sheet 3, shall be welded using either Detail 5, 6, or 7 on Sheet 3.

7. Requirements for "k" Area  
Welds shall terminate short of the "k" area for continuity plates as illustrated in Detail 11 on Sheet 3.

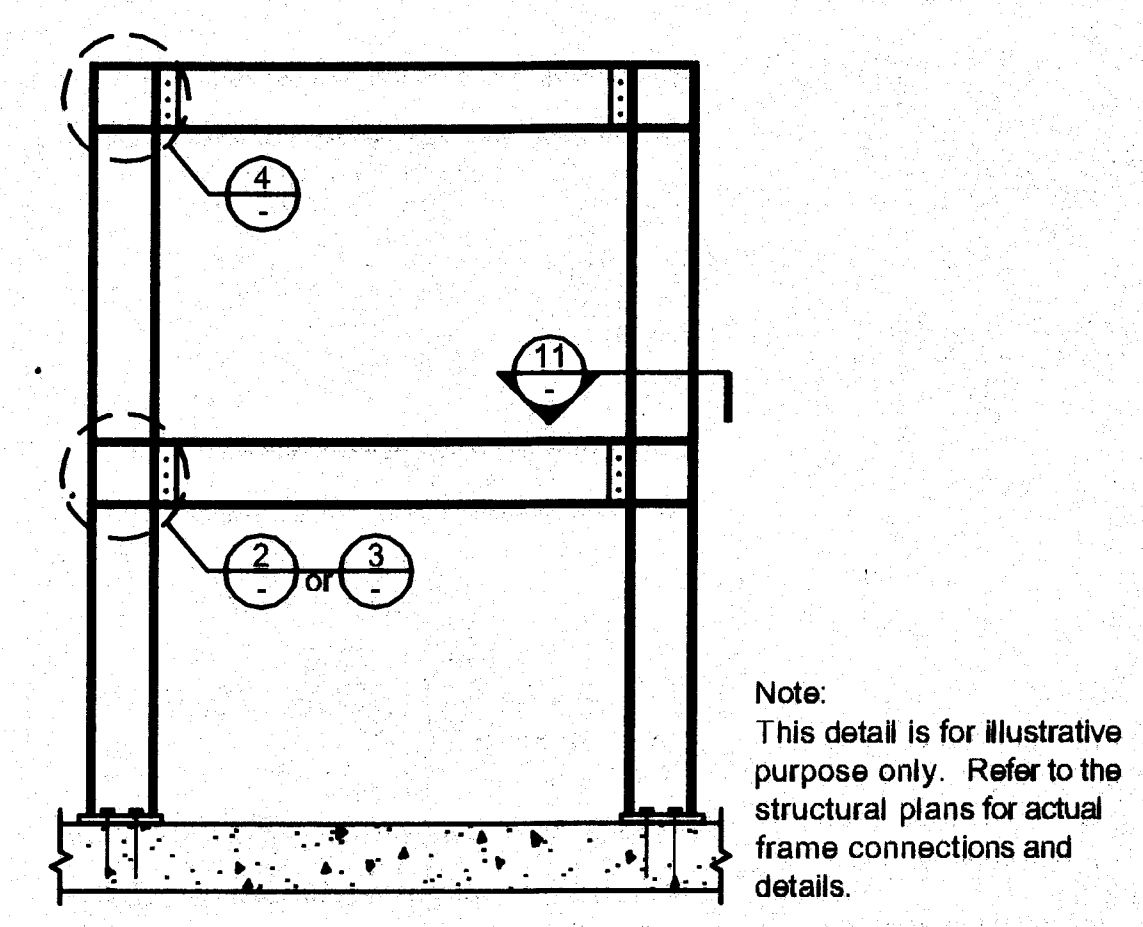
VII. EXEMPTIONS

- Reduction from certain quality assurance components of this Standard QA Plan, as listed in Part VII Item 2, are permitted for the following buildings or structures:
  - One or two family dwellings not more than 1 story in height and 2,500 sq ft of floor area.
  - Buildings or structures accessory to residential uses (such as carport, storage, garage), and
  - Miscellaneous structures (such as walkway, canopy, patio cover, gazebo, storage rack).
- Buildings or structures, as listed in Part VII Item 1, are exempt from providing the following quality assurance components:
  - Electrode Storage and Atmospheric Exposure, Part IV Item 5(f) and 5(g).
  - Plastic Hinging Zone Protection, Part IV Item 6.
  - Additional CVN Notch Toughness Testing, Part IV Item 7.
  - Non-Destructive Testing, Part IV Item 8.
  - Preheat and Interpass Temperature, Part V Item 4.
  - Post Weld Heat Treatment, Part V Item 5.





<b>Typical Sheet 3 Notes</b>	

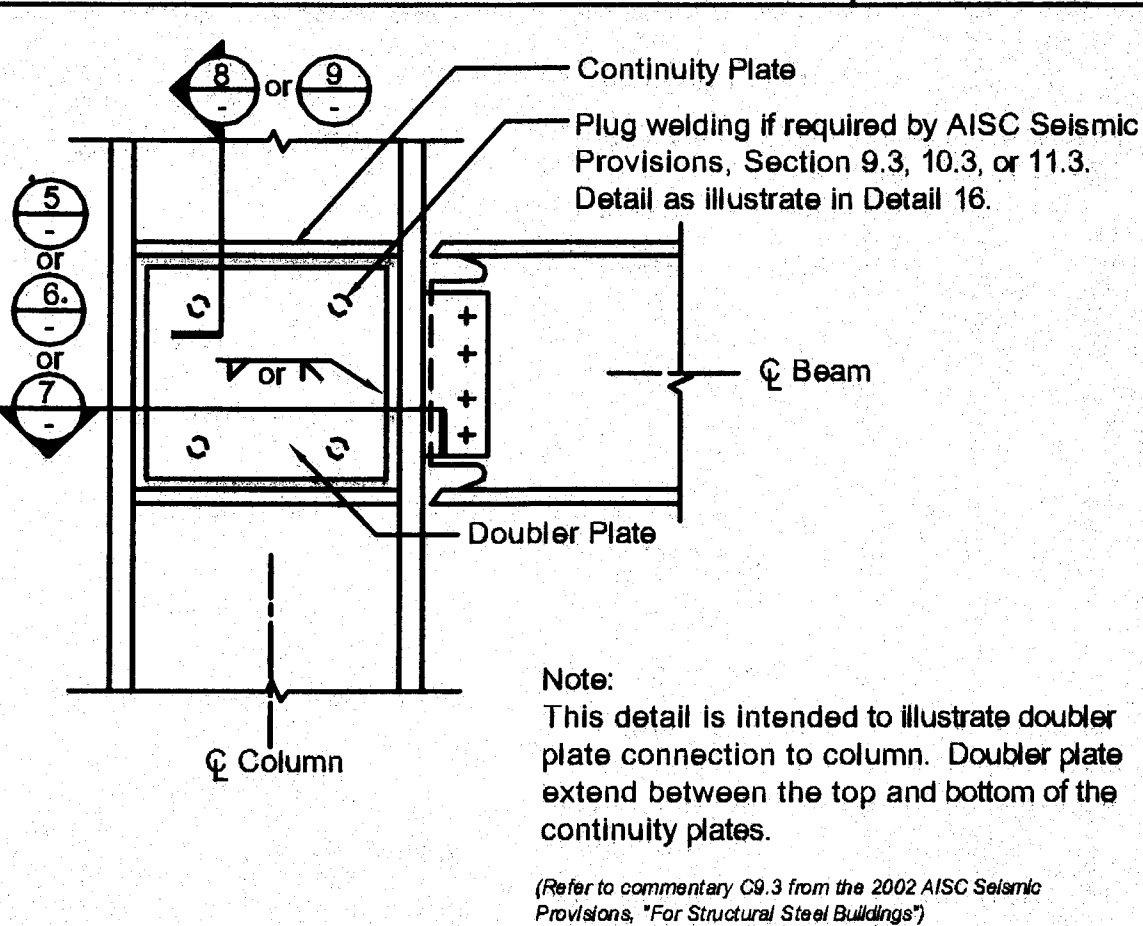


<b>Sample Steel Moment Frame</b>	<b>Detail 1</b>
	Scale: Not to Scale

Notes:

1. Groove welds in corner and T-joints of cyclically loaded structures shall be reinforced with fillet welds equal to  $t_f/4$ , but need not exceed 3/8 inch.
2. For corner joints, the outside groove preparation may be in either or both members, provided the basic groove configuration is not changed and adequate edge distance is maintained to support the welding operations without excessive edge melting.
3. Adapted with permission from the AWS D1.1 Committee on Structural Welding, Structural Welding Code - Steel, AWS D1.1/D1.1M: 2002, Miami: American Welding Society, Figure 3.4 pg. 92 (top left).

<b>Web Doubler Plate Detail</b>	<b>Detail 2</b>
	Scale: Not to Scale



<b>Web Doubler Plate Detail</b>	<b>Detail 3</b>
	Scale: Not to Scale