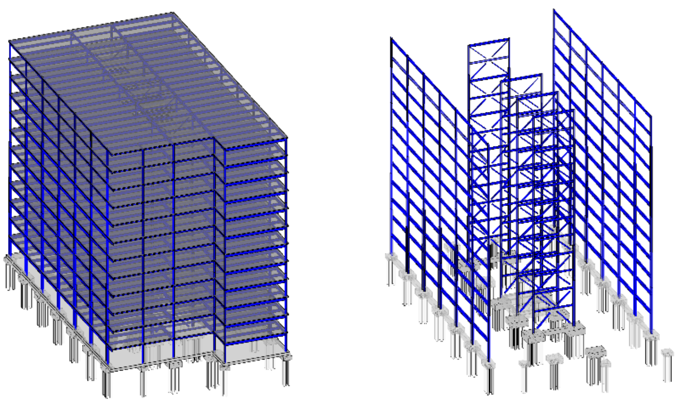
NIST GCR 21-917-48v1A



Seismic Design of Archetype Steel Buildings in Central and Eastern United States

Volume 1A –12-story Office Building in Savannah, Georgia Building Designs

Applied Technology Council

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National Institute of Standards and Technology
U.S. Department of Commerce

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NIST GCR 21-917-48v1A

Seismic Design of Archetype Steel Buildings in Central and Eastern United States Volume 1A – 12-story Office Building in Savannah, Georgia

Prepared for
U.S. Department of Commerce
Engineering Laboratory
National Institute of Standards and Technology
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Gina M. Raimondo, Secretary

National Institute of Standards and Technology
James K. Olthoff, Performing the Non-Exclusive Functions and Duties of the Under Secretary of Commerce for Standards and Technology & Director, National Institute of Standards and Technology

NIST GCR 21-917-48v1A

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Preface

Seismic design codes in the United States have evolved since first introduced in 1925; however, they are primarily based on the knowledge of performance requirements for buildings located in high seismicity regions of the United States, such as the West Coast. These model codes are extrapolated for use in areas with moderate seismicity, such as the Central and Eastern United States (CEUS), where member sizes of the lateral-force-resisting systems may be governed by wind requirements. There is a need to understand the seismic performance of buildings when the controlling design load is from wind effects.

In September 2018, the Applied Technology Council (ATC) commenced a task order project under National Institute of Standards and Technology (NIST) Contract SB1341-13-CQ-0009 to develop designs for archetype steel buildings to facilitate future research in understanding the seismic performance of buildings when the controlling design load is from wind. For this purpose, three archetype steel buildings were designed in accordance with older building codes and current building codes for specific locations within the CEUS. This document is one of three volumes presenting design of suites of buildings. Representative structural calculations are provided as supplemental documentation in NIST GCR 21-917-48v1B.

The designs presented were developed by design firms PCS Structural Solutions of Seattle, Washington and Uzun + Case of Atlanta, Georgia. The Project Technical Committee, consisting of Don Scott, John Hutton, and Adrian Persaud monitored and guided the technical efforts of the Project Working Groups, which included Steve Antilla, Jared Dragovich, Hai Lin, Chris Putman, Cameron Prince, and Gavin Rinaldo. Project Working Group member McKell Bowen led the development of two of the three designs presented. The Project Review Panel, consisting of Melissa Burton (ATC Board Contact), C.B. Crouse, Ramon Gilsanz, Larry Griffis, Emily Guglielmo, Eric Hines, and Erik Madsen provided technical advice and consultation over the duration of the work. The names and affiliations of all who contributed to this report are provided in the list of Project Participants.

ATC also gratefully acknowledges Jay Harris (Contracting Officer's Representative) for his input and guidance throughout the project development process. ATC staff member Justin Moresco and Ginevra Rojahn provided project management support and report production services, respectively.

Ayse Hortacsu	Jon Heintz
Associate Program Manager	Program Manager

Table of Contents

List of Figures and Tables

Building 1 Overview

The objective of this project was to develop designs for archetype steel buildings to facilitate future research in understanding the seismic performance of buildings when the controlling design load is from wind. For this purpose, three buildings were designed in accordance with previous editions of building codes and current building codes for specific locations within Central and Eastern United States (CEUS). This volume documents designs for Building 1, a 12-story office building located in Savannah, Georgia; designs for Buildings 2 and 3 are documented in NIST GCR 21-917-48 Volumes 2 and 3, respectively.

I.1 Building Selection Criteria

Three buildings were selected for design to support the investigation of the relationship between wind-controlled and seismic-controlled design, as well as the effect of seismic detailing. Each building was selected to be in a moderate- to high-seismic region of CEUS with high design wind loads, with different building configurations (height and footprint), and occupancies. For each building, a different lateral-force-resisting system (LFRS) is used in orthogonal directions: a moment frame system in one direction and a braced frame system in the other.

Building designs include the structural framing systems necessary to resist gravity and environmental (wind) and natural hazard (earthquake) lateral loads consistent with those commonly used in the CEUS at the designated benchmark year. Designs include gravity loads and associated performance criteria consistent with the design use and occupancy identified for the building, and include allowances for interior finishes, mechanical and electrical equipment, and façade. Elevators or stairwells are not included, and nonstructural building systems are not designed as part of this project. Floor systems are assumed to be metal deck with concrete infill slabs and roof systems are selected to be appropriate for the building system. The buildings were designed to the minimum requirements of the building code in effect for the time period of the design.

A total of 16 designs were developed, comprising variation of location, occupancy, height, applicable design code, Risk Category, and Seismic Design Category. Table I-1 presents a summary of designs documented in each of the three Volumes.

In addition, one building (Building 2 documented in NIST GCR 21-917-48 Volume 2) was also evaluated using performance-based seismic design principles specified in

ASCE/SEI 41-17 (ASCE, 2017b), for an Immediate Occupancy performance objective.

Table I-1 Summary of Designs Documented in NIST GCR 21-917-48

Parameters	Volume 1	Volume 2	Volume 3
Location	Savannah, GA	Long Island, NY	St. Louis, MO
Occupancy	Office	Healthcare	Education
Height	12-story	7-story	3-story
Overall Plan Dimensions	190 ft × 120 ft	124 ft × 129 ft	148 ft × 76 ft
Design Code (old)[a]	1988 SBC	1987 NBC	1987 NBC
Design Code (current)[a]	2018 IBC	2018 IBC	2018 IBC
Performance-based Design		ASCE/SEI 41-17	
Risk Category	II, III	III, IV	II, III
Seismic Design Category	C, D	B, C, D	C, D
Number of Designs	5	6	5

[a] Design code designations are discussed in the next section.

Figures I-1 through I-3 present schematic designs for each of the three buildings.

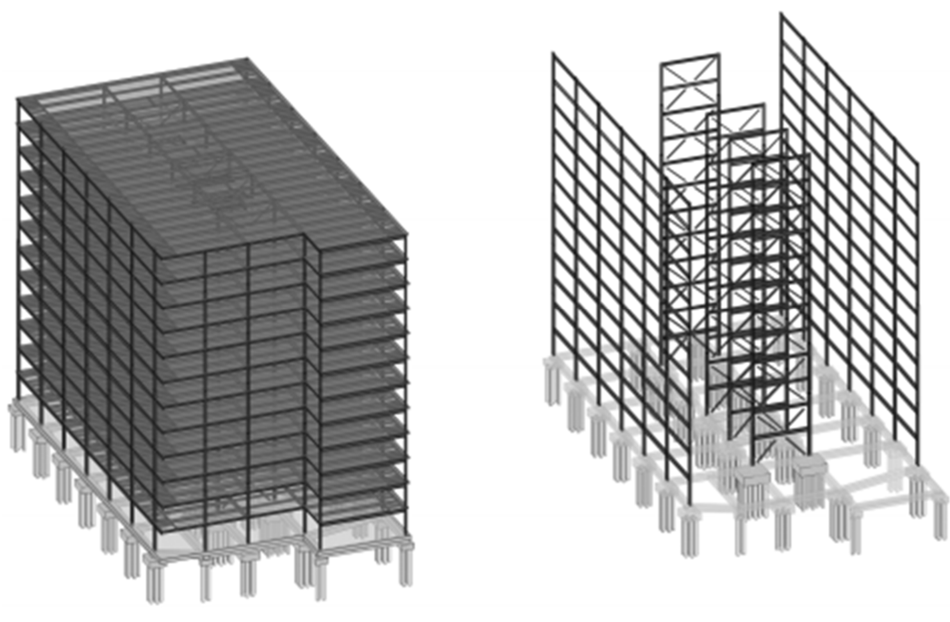

Figure I-1 Schematic for Building 1 (this volume).

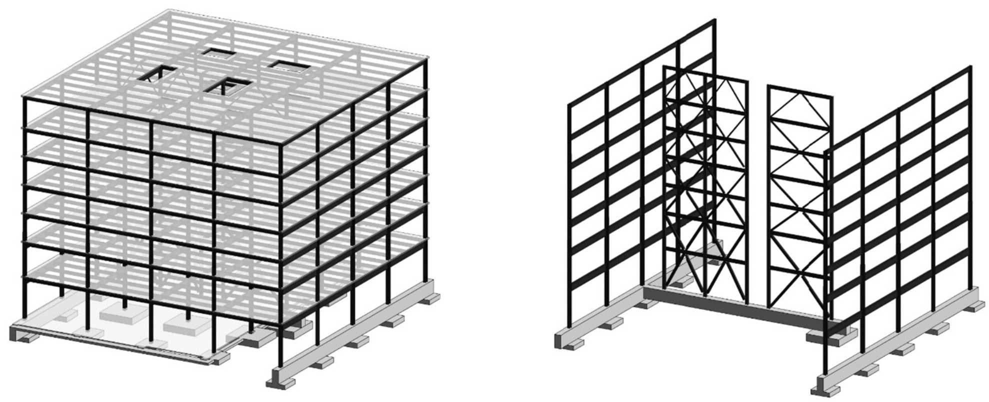

Figure I-2 Schematic for Building 2.

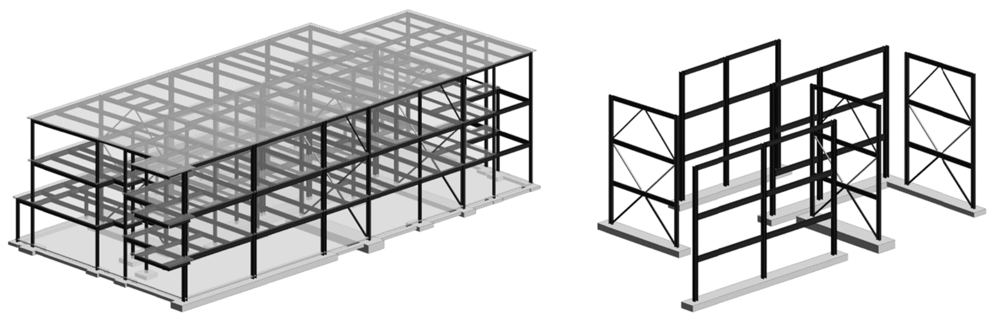

Figure I-3 Schematic for Building 3.

I.2 Design Codes

To provide designs that are defined by varying Risk Categories, the edition of the national design codes to be used for the "older" buildings were evaluated to reference the ANSI A58.1 – 1982, *American National Standard, Minimum Design Loads for Building and Other Structures* (ANSI, 1982) as this was the first standard in the United States to introduce Importance Factors, which are based upon the use of the building, into the design of buildings. Current building codes now define these Importance Factors as Risk Category Factors.

In the 1980s there were three regional building codes utilized in the United States, the *Standard Building Code* (SBC) used in the Southeast, the *National Building Code* (NBC) used in the Northeast and Midwest, and the *Uniform Building Code* (UBC) used in the West. ANSI A58.1 – 1982 was first referenced by the national building codes in the 1988 edition of the SBC developed by the Southern Building Code Congress International, Inc., and the 1987 NBC developed by the Building Officials and Code Administrators, Inc.

The "current" versions of the designs satisfy the requirements of the 2018 *International Building Code* (IBC) developed by the International Code Council and used throughout the United States.

Based upon the selection of the editions of the overall building codes, the appropriate editions of the material design standards were determined. The material standards used for the designs are as follows.

1987 National Building Code (NBC) – not applicable to Building 1

- American Institute of Steel Construction (AISC), *Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings*, 1978 Edition
- American Concrete Institute (ACI) – *318-83: ACI Building Code Requirements for Structural Concrete*, (ACI 318-83)

1988 Standard Building Code (SBC)

- AISC *Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings*, 1978 Edition
- ACI *318-83: ACI Building Code Requirements for Structural Concrete*, (ACI 318-83)

2018 International Building Code (IBC)

- *Minimum Design Loads and Associated Criteria for Building and Other Structures*, 2016 Edition (ASCE/SEI 7-16)
- AISC, *Specification for Structural Steel Buildings*, (ANSI/AISC 360-16)
- ACI *318-14: Building Code Requirements for Structural Concrete and Commentary*, (ACI 318-14)

I.3 Building 1 Design Cases

This volume documents the designs for Building 1, a 12-story office building located in Savannah, Georgia, illustrated in Figure I-1. Five design cases were developed for this building.

A. 2018 IBC Risk Category II, Seismic Design Category D

B. 2018 IBC Risk Category III, Seismic Design Category D

C. 1988 SBC "Risk Category II, Seismic Design Category C" Equivalent

D. 1988 SBC "Risk Category III, Seismic Design Category C" Equivalent

E. 2018 IBC Risk Category II, Seismic Design Category C

As noted previously, the 1980s editions of the building codes did not use the term Risk Category but based the selection of the required "Importance Factor" on the specified Use or Occupancy of the facility. In the current editions of the building codes the "Importance Factor" is based upon the "Risk Category" of the facility. Therefore, the term "Equivalent" found in Designs C and D listed above is used to distinguish which Importance Factor was used in seismic design, 1.00 or 1.25, and relate it to the current code language.

I.4 Variations in Gravity Framing Design

The primary reason for developing designs with building codes from both 1980s and current building codes was to demonstrate the difference in detailing requirements the LFRS. However, there are also other requirements of the building codes that contribute significantly to the differences in designs.

The occupancy and framing layout are identical for each of the individual archetype building designs. The differences in gravity designs are a result of changes in code provisions, material strengths, and engineering practice between the 1980s and 2018. The differences described below primarily lead to reductions in weight and depth of the structural members for the 2018 IBC design with respect to the 1980s SBC and NBC designs for the gravity system.

I.4.1 ASD vs. LRFD Design

The design philosophy changed from Allowable Stress Design (ASD) in the 1988 SBC and the 1987 NBC to Load and Resistance Factor Design (LRFD) in the 2018 IBC. All things being equal, ASD commonly leads to heavier or deeper member sizes when compared to the LRFD methodology. For this building, ASD is utilized for the SBC designs to mimic the design philosophy that would have been used during this era of structural engineering.

I.4.2 Live Load Reduction

At first glance, the SBC live load reduction provisions appear identical to the 2018 IBC alternate live load reduction provisions, however there is a subtle difference. The SBC live load reduction provisions do not allow a reduction for the first 150 square feet of the tributary area associated with the member and then reductions at a rate of 8% of the entire tributary area once above 150 square feet. IBC requires deduction of 150 square feet from the tributary area in all cases. The net result is that greater live load reduction is allowed under 1988 SBC provisions for members with tributary areas greater than 150 square feet, which represents most of the members in Building 1.

I.4.3 Material Strengths

There was a significant change in the material strengths of commonly available wide flange steel between the 1980s and 2018. ASTM A36 strength steel with F_y = 36 ksi was the most commonly available steel in 1980s and was therefore used for the 1980s designs. Whereas today ASTM A992 grade 50, F_y = 50 ksi, steel is commonly available and was used for the 2018 IBC designs. This increase in strength has the general effect of reducing the overall structural material weight.

I.4.4 Engineering Practice – Serviceability

In 1980s, it was not common practice to design buildings explicitly for vibration criteria, whereas it is today. Therefore, vibration criteria were considered for the 2018 IBC designs but not for the 1980s designs. The change in engineering practice between the 1980s and today was driven by necessity, as higher steel strengths and more economical design methodologies, i.e., LRFD, resulted in lighter member designs. In addition, the shift from "paper offices", where paper was stored in file cabinets throughout the floor plate resulting in heavy dead loads on the floor and dampened effects of vibration, to today's "electronic offices", where items are stored electronically and "open" office concepts result in lower applied dead loads, contributed to vibration criteria controlling the design of gravity members.

I.5 Variations in Lateral-Force-Resisting System Design

The resulting lateral designs are considerably different between the 1988 SBC and 2018 IBC. The 1988 SBC designs are controlled by wind loads. The 2018 IBC designs are also controlled by wind loads for strength and drift, but seismic capacity design and detailing requirements influence members sizes and connections significantly for the Seismic Design Category (SDC) D designs (Design Cases A and B). For the SDC C design (Design Case E), the lateral system is detailed as "Steel Systems Not Specifically Detailed for Seismic Resistance," as is common practice for the East Coast, and therefore seismic requirements do not have as a significant effect.

When adjusted for ASD vs. LFRD, the resulting wind design loads between 1988 SBC and 2018 IBC are found to be very similar. However, the drift requirements used for the 1988 SBC designs are more stringent than the 2018 IBC designs. Specifically, for Risk Category II designs, a H/360 drift limit at 50-year return period fastest-mile winds was used for the 1988 SBC designs, whereas a H/400 drift limit at 10-year three-second gust wind is used for 2018 IBC designs. Similarly, for the Risk Category III designs, a H/360 drift limit at 100-year return period fastest-mile winds is used for the 1988 SBC designs, and a H/400 drift limit at 25-year three-second gust wind is used for 2018 IBC designs. Wind drift controls over strength for the 1988 SBC designs.

1988 SBC includes provisions for a 1/3 allowable stress increase for combinations including wind and seismic; these provisions do not exist in the 2018 IBC. However, as noted above, since drift controls the 1988 SBC designs, this was not as significant a factor as it would have been otherwise.

For seismic loads, the 1988 SBC uses regional seismic zones and does not consider the response of the building's lateral system, while the 2018 IBC uses site specific values, and considers the response of the lateral system, including the natural frequency of the building. Because the building has very different periods in each orthogonal direction (moment frame in the east-west, braced frame in the north -south), the IBC design yields base shears that differ by a factor of two in each orthogonal direction. For the SBC design, where building response is not considered, has the same base shear in each orthogonal direction.

The greatest difference between the design of the lateral systems is due to the seismic detailing requirements to ensure ductility and energy dissipation. The 2018 IBC SDC D designs (Design Cases A and B) had 16-20% greater lateral steel tonnage (moment and braced frame columns, beams, and braces) compared to the 1988 SBC designs (Design Cases C and D). When comparing the 2018 IBC SDC C design (Design Case E) to the corresponding 1988 SBC design (Design Case C), the 2018 IBC design had 15% less lateral steel tonnage, with no significant difference in detailing.

I.6 Comparison of Building 1 Designs

The focus of this project and the designs is the steel structure and thus the foundation systems used are representative for the geographic region of the country that the buildings are in; however, the foundation systems are not fully designed and detailed. The primary observation of the effect the various requirements have on the design of the building structure can be made from the steel tonnage calculated for each of the designs, as shown in Table I-2 below.

Table I-2 Steel Tonnage for Building 1 Designs

Design Case (Code Year, Risk Category, Seismic Design Category)	Steel (tons)
Design A (2018 IBC, RC II, SDC D)	1,664 tons
Design B (2018 IBC, RC III, SDC D)	1,720 tons
Design C (1988 SBC, "RC II, SDC C" Equivalent)	1,622 tons
Design D (1988 SBC, "RC III, SDC C" Equivalent)	1,668 tons
Design E (2018 IBC, RC II, SDC C)	1,336 tons

Overall, a decrease of approximately 16-20% of total lateral-force-resisting system steel tonnage (moment and braced frame beams, columns, and braces) was observed between SBC and IBC designs.

It is noted that because of advancement of seismic engineering, buildings designed to current codes are expected to have higher seismic performance than buildings constructed in the 1980s; however, they are being constructed at a higher cost. This cost increase is not evident in the total steel tonnages; it is due to additional detailing and fabrication costs associated with reaching the code required level of ductility within the lateral systems.

I.7 Report Organization

This report provides the necessary context for researchers utilizing the building designs developed on this project. List of references and project participants are provided in the next section.

The remainder of the report includes applicable codes, snow loads, seismic loading criteria, wind loading criteria, description of gravity design, description of lateral design, and structural drawings for the following design cases:

- Design Case A: 2018 IBC Risk Category II, Seismic Design Category D
- Design Case B: 2018 IBC Risk Category III, Seismic Design Category D
- Design Case C: 1988 SBC "Risk Category II, Seismic Design Category C" Equivalent
- Design Case D: 1988 SBC "Risk Category III, Seismic Design Category C" Equivalent
- Design Case E: 2018 IBC Risk Category II – Seismic Design Category C

Representative structural calculations are provided as supporting documentation in NIST GCR 21-917-48v1B.

Designs for Buildings 2 and 3 are documented in NIST GCR 21-917-48 Volumes 2 and 3, respectively.

References

ACI, 1983a, *318-83: ACI Building Code Requirements for Structural Concrete*, ACI 318-83, American Concrete Institute, Farmington Hills, Michigan.

ACI, 1983b, *ACI 318-14: Building Code Requirements for Structural Concrete and Commentary*, American Concrete Institute, Farmington Hills, Michigan.

AISC, 1978, *Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings*, 1978 Edition, American Institute of Steel Construction, Chicago, Illinois.

AISC, 2016, *Specification for Structural Steel Buildings*, ANSI/AISC 360-16, American Institute of Steel Construction, Chicago, Illinois.

ANSI, 1982, *American National Standard, Minimum Design Loads for Buildings and Other Structures*, American National Standards Institute, New York, New York.

ASCE, 2017a, *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*, ASCE/SEI 7-16, Structural Engineering Institute of American Society of Civil Engineers, Reston, Virginia.

ASCE, 2017b, *Seismic Evaluation and Retrofit of Existing Buildings*, ASCE/SEI 41-17, Structural Engineering Institute of American Society of Civil Engineers, Reston, Virginia.

BOCA, 1987, *The BOCA National Building Code/1987*, Tenth Edition, NBC 1987 Building Officials and Code Administrators International, Inc., Country Club Hills, Illinois.

ICC, 2018, *International Building Code,* 2018 IBC, International Code Council, Washington, DC.

SBC, 1988, *Standard Building Code 1988 Edition*, SBC 1988, Southern Building Code Congress International, Inc., Birmingham, Alabama.

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Design Case A

2018 IBC
Risk Category II
Seismic Design Category D

A.1 Gravity Design

The 12-story office is a typical steel framed building with 3” metal deck and 3-1/4” lightweight concrete topping providing a total floor depth of 6-1/4”, not including the structural steel. This decking was chosen to provide the required 2-hour fire rating that is typical for office buildings. The columns and beams are ASTM A992 steel wide flange members and were designed using ANSI/AISC 360-16. The deflection was limited to the IBC prescribed limits of *L*/360 for floor live load, *L*/240 for floor total load, *L*/240 for roof live load and *L*/180 for roof total load. The calculated total dead load applied was 62.5 psf at the floors and 72.5 psf at the roof. The live loads for offices, corridors (at and above the first floor) and roofs were per IBC table 1607.1. Partition loads were also applied per IBC 1607.5.

A.2 Lateral Design

The building lateral load resisting system consists of braced frames in the North/South direction and moment frames in the East/West direction. The applied wind and seismic loads were determined using chapters 27 and 12 respectively from the ASCE 7-16. Wind base shears significantly exceeded earthquake base shears in both directions. Thus, for the lateral resisting system in the North/South direction the brace sizes were governed by wind, however, the columns and beams were governed by seismic detailing requirements. In the East/West direction, the moment frame beams were governed by wind drift requirements while the columns were governed by seismic detailing requirements. Wind drifts were limited to *H*/400 during a 10-year mean return interval windstorm. Fixed base connections for the moment frames, utilizing the code required concrete grade beams, were used to limit drift and column sizes.

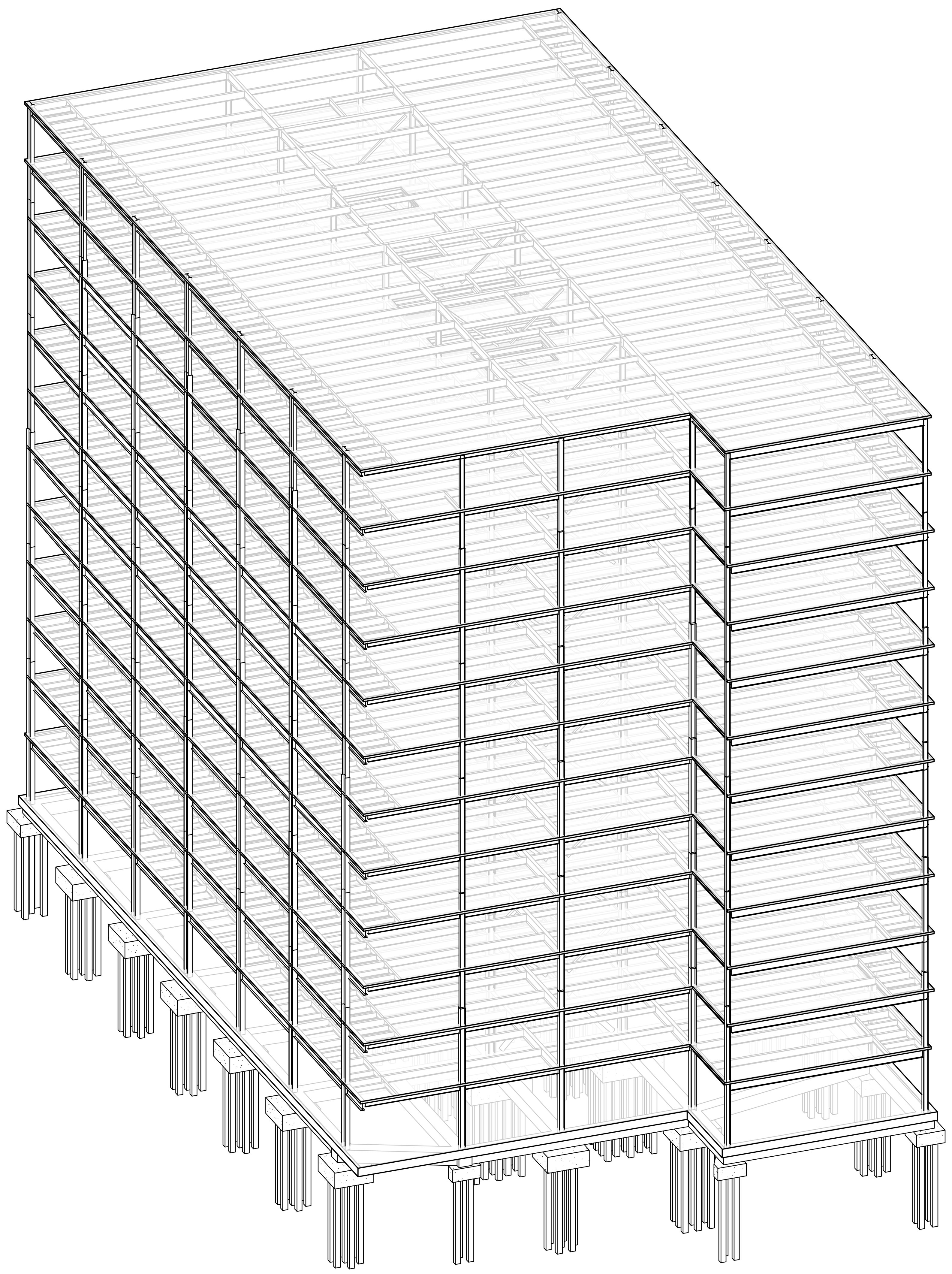
A.3 Steel Tonnage

Total steel tonnage for this design case is calculated as 1,664 tons.

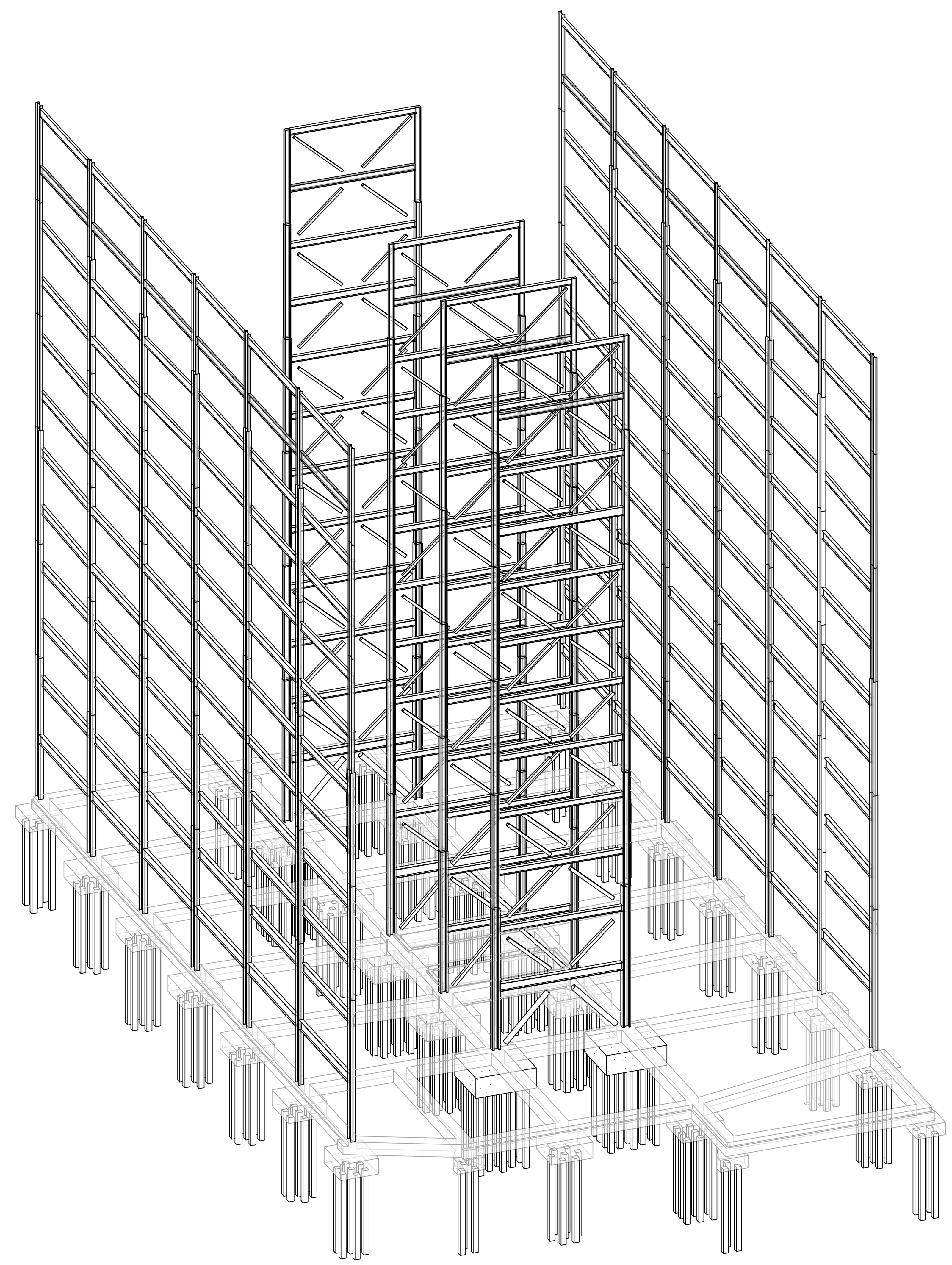
A.4 Structural Drawings

Structural drawings for Design Case A are provided on the following pages.

OFFICE BUILDING - SAVANNAH, GEORGIA
DESIGN A - 2018 IBC RISK CATEGORY II



OVERALL FRAMING 3D VIEW



FORCE RESISTING SYSTEM 3D VIEW

DESIGN A: 2018 IBC RISK CATEGORY II	
OFFICE BUILDING SAVANNAH, GEORGIA	
ITEM	**QUANTITY**
WF COLUMNS (Fy = 50 ksi)	60 TONS
WF GIRDERS & JOISTS (Fy = 50 ksi)	933 TONS
MOMENT FRAME WF COLUMNS (Fy = 50 ksi)	187 TONS
MOMENT FRAME WF BEAMS (Fy = 50 ksi)	176 TONS
BRACED FRAME WF COLUMNS (Fy = 50 ksi)	198 TONS
BRACED FRAME WF BEAMS (Fy = 50 ksi)	62 TONS
HSS BRACES ROUND (Fy = 46 ksi) & SQUARE (Fy = 50 ksi)	49 TONS
TOTAL	1664 TONS

NOTES:

1. STEEL QUANTITIES DO NOT INCLUDE MISCELLANEOUS STEEL, CUT WASTE STEEL, STAIRS, TYPICAL STEEL FRAMING CONNECTIONS, ETC.

STRUCTURAL DRAWING INDEX	
SHEET NUMBER	**SHEET NAME**
S0.00	COVER SHEET
S0.10	GENERAL NOTES
S1.00	LOAD MAPS
S2.00	FOUNDATION & GRADE LEVEL FRAMING PLAN
S2.10	SECOND FLOOR FRAMING PLAN
S2.20	TYPICAL FLOOR FRAMING PLAN
S2.30	ROOF FRAMING PLAN
S3.00	FOUNDATION DETAILS
S3.10	FOUNDATION DETAILS
S4.00	COLUMN SCHEDULE
S5.00	STEEL DETAILS
S6.00	BRACED FRAME ELEVATIONS
S6.10	MOMENT FRAME ELEVATIONS
S6.20	MOMENT FRAME ELEVATIONS
S7.00	BRACED FRAME DETAILS
S7.10	MOMENT FRAME DETAILS
Grand total: 16	

CONSULTANTS

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UZUN +CASE

PROJECT
OFFICE BUILDING
SAVANNAH, GEORGIA
UZUN+CASE
DESIGN A
2018 IBC WITH RISK CATEGORY II
SEISMIC DESIGN CATEGORY D

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DRAWINGS
01 MARCH, 2021

Job Number	20.027
Checked	CP
Approved	AP/JH

TITLE
COVER SHEET

SHEET NUMBER
S0.00

ABBREVIATIONS

A	ADD'L	ADDITIONAL
	ADJ.	ADJACENT
	A/E	ARCHITECT/ENGINEER
	ALT.	ALTERNATE
	ARCH.	ARCHITECTURAL
	AFF	ABOVE FINISHED FLOOR
B	BM	BEAM
	BRG	BEARING
	BOT.	BOTTOM
	B/, BO	BOTTOM OF
	BLDG	BUILDING
C	CJ	CONTRACTION JOINT
	CL	CENTERLINE
	CLR	CLEAR
	CMU	CONCRETE MASONRY UNIT
	COL.	COLUMN
	COORD.	COORDINATE
	CONC.	CONCRETE
	CONN.	CONNECTION
	CONT.	CONTINUOUS
D	DIM.	DIMENSION
E	EA.	EACH
	EE	EACH END
	EF	EACH FACE
	ES	EACH SIDE
	EW	EACH WAY
	ELEV.	ELEVATION, ELEVATOR
	EMBED.	EMBEDMENT
	EQ.	EQUAL
	EXP. JT.	EXPANSION JOINT
F	FTG	FOOTING
	FND	FOUNDATION
G	GALV.	GALVANIZED
	GR.	GRADE (MATERIAL)
H	HK	HOOK
	HORIZ.	HORIZONTAL
	HT	HEIGHT
I	IF	INSIDE FACE
	INFO.	INFORMATION
J	JT	JOINT
K	K	KIPS
	KSF	KIPS PER SQUARE FOOT
L	LLH	LONG LEG HORIZONTAL
	LLV	LONG LEG VERTICAL
	LSH	LONG SIDE HORIZONTAL
	LSV	LONG SIDE VERTICAL
M	MANUF.	MANUFACTURER
	MAX.	MAXIMUM
	MECH.	MECHANICAL
	MEP	MECHANICAL, ELECTRICAL, PLUMBING
	MIN.	MINIMUM
	MISC.	MISCELLANEOUS
O	OC	ON CENTER
	OPNG	OPENING
	OPP.	OPPOSITE
	OH	OPPOSITE HAND
P	PL.	PLATE
	PCF	POUNDS PER CUBIC FOOT
	PCY	POUNDS PER CUBIC YARD
	PSF	POUNDS PER SQUARE FOOT
	PSI	POUNDS PER SQUARE INCH
R	REINF.	REINFORCEMENT, REINFORCING
	REQ'D	REQUIRED
S	SCHED.	SCHEDULE
	SIM.	SIMILAR
	SFRS	SEISMIC FORCE RESISTING SYSTEM
	SOG	SLAB ON GROUND
	STIFF.	STIFFENER
	SYM.	SYMMETRIC
T	TEMP.	TEMPERATURE
	T&B	TOP AND BOTTOM
	T/, TO	TOP OF
	TYP.	TYPICAL
U	UNO	UNLESS NOTED OTHERWISE
V	VERT.	VERTICAL
W	WF	WIDE FLANGE
	WP	WORK POINT
	WWR	WELDED WIRE REINFORCEMENT
	W/	WITH

1.00 GENERAL

1.1 LOCATION:
- SAVANNAH, GEORGIA
- 32.0808989 LATITUDE, -81.091203 LONGITUDE

1.2 ALL CONSTRUCTION SHALL CONFORM TO THE 2018 INTERNATIONAL BUILDING CODE. REFERENCE TO OTHER STANDARD SPECIFICATIONS OR CODES SHALL MEAN THE BUILDING CODE ADOPTED EDITION.

1.3 CONSTRUCTION SHALL BE TESTED AND INSPECTED BY A QUALIFIED AGENCY IN ACCORDANCE WITH CHAPTER 17 OF THE BUILDING CODE.

2.00 STRUCTURAL LOAD CRITERIA

2.1 RISK CATEGORY____ II

2.2 DEAD LOADS (SEE LOAD MAPS, S1.00):
- ROOFING____ 10 PSF
- MISCELLANEOUS ROOF LOAD____ 10 PSF
- MISCELLANEOUS FLOOR LOAD____ 10 PSF
- COMPOSITE SLAB:____ 46 PSF
- STRUCTURAL STEEL____ ACTUAL

2.3 LIVE LOADS*(SEE LOAD MAPS, S1.00):
- OFFICE____ 50 PSF/2000 POUNDS
- PARTITIONS (UNREDUCIBLE)____ 15 PSF
- CORRIDORS____ 80 PSF
- LOBBIES & STAIRS____ 100 PSF
- MECHANICAL & STORAGE ROOMS____ 125 PSF

* LIVE LOAD REDUCTIONS ARE TAKEN IN ACCORDANCE WITH IBC SECTION 1607.11.1.

2.4 SNOW LOAD CRITERIA:
- GROUND SNOW LOAD____ Pg = 0 PSF

2.5 WIND LOAD CRITERIA:
- BASIC DESIGN WIND SPEED____ V = 135 MPH
- ALLOWABLE STRESS DESIGN WIND SPEED____ Vasd = 105 MPH
- WIND EXPOSURE____ C
- INTERNAL PRESSURE COEFFICIENT____ Gcpi = ± 0.18
- DESIGN BASE SHEAR, NORTH-SOUTH____ 2185 KIPS
- DESIGN BASE SHEAR, EAST-WEST____ 1541 KIPS
- ALLOWABLE DRIFT AT 10-YEAR MEAN RETURN INTERVAL HT/400
- COMPONENTS AND CLADDING BASIC DESIGN WIND PRESSURES (PSF):

ELEMENT	ZONE	EFFECTIVE WIND AREA (FT^2)		
		A < 10	A = 100	A > 500
WALLS	4	± 58	± 53	± 48
	5	± 107	± 85	± 64
ROOF	1	± 85	± 69	± 58
	2	± 134	± 112	± 96
	3	± 182	± 154	± 134
PARAPET	2	± 173	± 143	± 119
	3	± 222	± 185	± 157

NOTES:
1. REFER TO ASCE 7-16 FIGURE 30.5-1 FOR WALL AND ROOF ZONE LOCATIONS.
2. WALL ZONE 5 SHALL EXTEND 12'-6" FROM BUILDING EDGES.
3. ROOF ZONE 2 SHALL EXTEND 12'-6" FROM THE ROOF EDGES.
4. ROOF ZONE 3 SHALL EXTEND 12'-6" FROM THE ROOF EDGES AND 25'-0" FROM ROOF CORNERS.
5. "+" INDICATES POSITIVE AND "–" INDICATES NEGATIVE PRESSURE (SUCTION).
6. FOR ALLOWABLE STRESS DESIGN, MULTIPLY TABULATED PRESSURES BY 0.6.
7. EFFECTIVE AREAS BETWEEN THOSE PROVIDED IN THE TABLE ABOVE MAY BE INTERPOLATED.
8. DEFERRED SUBMITTALS BY DELEGATED COMPONENT STRUCTURAL ENGINEER SHALL INDEPENDENTLY DETERMINE THE DESIGN PRESSURES BASED ON APPLICABLE BUILDING CODES.

2.06 SEISMIC LOAD CRITERIA:
- SEISMIC IMPORTANCE FACTOR____ $I_e = 1.0$
- 0.2 SECOND SPECTRAL RESPONSE ACCELERATION $S_S = 0.313$
- 1.0 SECOND SPECTRAL RESPONSE ACCELERATION $S_1 = 0.114$
- SITE CLASS____ E
- SITE COEFFICIENT____ $F_a = 2.223$
- SITE COEFFICIENT____ $F_v = 4.2$
- 0.2 SECOND SPECTRAL DESIGN RESPONSE ACCELERATION____ $S_{DS} = 0.464$
- 1.0 SECOND SPECTRAL DESIGN RESPONSE ACCELERATION____ $S_{D1} = 0.319$
- SEISMIC DESIGN CATEGORY____ D
- BASIC SEISMIC FORCE RESISTING SYSTEM, NORTH-SOUTH:
  STEEL SPECIAL CONCENTRICALLY BRACED FRAMES
  RESPONSE MODIFICATION COEFFICIENT____ $R = 6$
  SYSTEM OVERSTRENGTH FACTOR____ $\Omega_o = 2$
  DEFLECTION AMPLIFICATION FACTOR____ $C_d = 5$
  DESIGN BASE SHEAR____ 1001 KIPS
  SEISMIC RESPONSE COEFFICIENT____ $C_s = 0.041$
- BASIC SEISMIC FORCE RESISTING SYSTEM, EAST-WEST:
  STEEL SPECIAL MOMENT FRAMES
  RESPONSE MODIFICATION COEFFICIENT____ $R = 8$
  SYSTEM OVERSTRENGTH FACTOR____ $\Omega_o = 3$
  DEFLECTION AMPLIFICATION FACTOR____ $C_d = 5.5$
  DESIGN BASE SHEAR____ 494 KIPS
  SEISMIC RESPONSE COEFFICIENT____ $C_s = 0.020$
- ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE

3.00 FOUNDATIONS:

3.01 PRECAST PRESTRESSED CONCRETE PILES SHALL BE 14 INCHES SQUARE WITH THE FOLLOWING ALLOWABLE CAPACITIES:
- COMPRESSION____ 80 TONS
- TENSION____ 60 TONS
- LATERAL____ 10 TONS

4.00 REINFORCED CONCRETE

4.01 ALL CONCRETE WORK SHALL CONFORM TO ACI 301-16, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS". DESIGN IS BASED ON ACI 318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE".

4.02 UNLESS NOTED OTHERWISE, ALL CONCRETE SHALL BE NORMALWEIGHT AND HAVE THE FOLLOWING MINIMUM 28-DAY STRENGTHS:
- FOUNDATIONS____ 4000 PSI
- SLABS-ON-GROUND____ 4000 PSI
- SLABS ON STEEL DECK (110 PCF MAXIMUM)____ 3000 PSI

4.03 REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.

4.04 WELDED WIRE REINFORCEMENT (MESH) SHALL CONFORM TO ASTM A1064 AND SHALL BE PROVIDED IN FLAT SHEETS (ROLLS NOT PERMITTED). LAP TWO SQUARES AT SPLICES.

4.05 PROVIDE CLASS "B" TENSION SPLICE UNLESS NOTED OTHERWISE. DOWELS SHALL MATCH THE SIZE AND SPACING OF THE SPECIFIED REINFORCING AND SHALL BE LAPPED WITH CLASS "B" TENSION SPLICES. REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE COVER UNLESS NOTED OTHERWISE:
- CONCRETE CAST AGAINST EARTH (NOT FORMED)____ 3"
- FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
  #6 THROUGH #18 BARS____ 2"
  #5 BARS AND SMALLER____ 1 ½"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
  SLABS AND WALLS____ 1"
  BEAM STIRRUPS AND COLUMN TIES____ 1 ½"

4.06 CONCRETE SLABS ON STEEL DECK SHALL BE PLACED AT A CONSTANT THICKNESS.

5.00 STRUCTURAL STEEL

5.01 ALL STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO THE AISC 360, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS".

5.02 UNLESS NOTED OTHERWISE, STRUCTURAL STEEL WIDE FLANGES AND TEES SHALL CONFORM TO ASTM A992, GRADE 50; ROUND, SQUARE, AND RECTANGULAR HSS SECTIONS SHALL CONFORM TO ASTM A500, GRADE C; ROUND PIPES SHALL CONFORM TO ASTM A53, GRADE B; AND ALL OTHER SHAPES AND PLATES SHALL CONFORM TO ASTM A36 OR A572, GRADE 50.

5.03 HEAVY SECTIONS IN THE SFRS:
- HOT ROLLED SHAPES WITH FLANGE THICKNESSES $\geq$ 1 ½ IN. SHALL HAVE A MINIMUM CHARPY V-NOTCH (CVN) TOUGHNESS OF 20 FT-LB AT 70°F, TESTED IN THE ALTERNATE CORE LOCATION AS DESCRIBED IN ASTM A6 SUPPLEMENTARY REQUIREMENT S30.
- PLATES WITH THICKNESS $\geq$ 2 IN. SHALL HAVE A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT-LB AT 70°F, MEASURED AT ANY LOCATION PERMITTED BY ASTM A673, FREQUENCY P, WHERE THE PLATE IS USED FOR THE FOLLOWING:
  (A) MEMBERS BUILT UP FROM PLATE
  (B) CONNECTION PLATES

5.04 STEEL FRAMING CONNECTIONS SHALL BE BOLTED OR WELDED:
- BOLTED JOINTS SHALL CONFORM TO RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS". BOLTS SHALL CONFORM TO ASTM F3125, GRADE A325, AND SHALL BE MINIMUM 3/4" DIAMETER, UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE CONSIDERED BEARING TYPE, UNLESS OTHERWISE NOTED.
- UNO WELDS SHALL CONFORM TO THE "STRUCTURAL WELDING CODE" OF THE AMERICAN WELDING SOCIETY, AWS D1.1. USE E70XX ELECTRODES. WELDING PROCESSES AND OPERATORS SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATIONS PROCEDURES".
- WELDING AND WELED CONNECTIONS USED IN THE SFRS SHALL BE IN ACCORDANCE WITH STRUCTURAL WELDING CODE—SEISMIC SUPPLEMENT (AWS D1.8/D1.8M), HEREAFTER REFERRED TO AS AWS D1.8/D1.8M, WITH FILLER METALS MEETING THE REQUIREMENTS SPECIFIED IN CLAUSES 6.1, 6.2 AND 6.3. WELDING PROCEDURE SPECIFICATIONS (WPS) USED IN THE SFRS SHALL BE APPROVED BY THE ENGINEER OF RECORD.
- WELDS DESIGNATED AS DEMAND CRITICAL SHALL BE MADE WITH FILLER METALS MEETING THE REQUIREMENTS SPECIFIED IN AWS D1.8/D1.8M CLAUSES 6.1, 6.2 AND 6.3.

5.05 ANCHOR RODS SHALL CONFORM TO ASTM F1554, GR 55, S1 (WELDABLE) UNLESS OTHERWISE NOTED.

5.06 STEEL SURFACES TO BE WELDED OR ENCASED IN CONCRETE OR FIREPROOFING, CONNECTIONS DESIGNATED AS SLIP CRITICAL TYPE, OR SURFACES RECEIVING WELDED SHEAR CONNECTORS IN THE FIELD SHALL NOT BE PAINTED.

5.07 PLACE NON-SHRINK, HIGH-STRENGTH GROUT (MINIMUM 6,000 PSI) UNDER BASE PLATES AFTER SETTING AND LEVELING, AND PRIOR TO PLACING ELEVATED SLAB CONCRETE.

5.08 SHEAR CONNECTORS: PROVIDE AWS D1.1, TYPE B, 3/4" DIAMETER, SOLID FLUXED HEADED SHEAR CONNECTOR STUDS AUTOMATICALLY END WELDED THROUGH THE STEEL DECK AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.

6.00 STEEL DECKING:

6.01 UNLESS NOTED OTHERWISE, STEEL DECK SHALL BE GRADE 50, GALVANIZED (MINIMUM G60), CONFORMING TO STEEL DECK INSTITUTE (SDI) STANDARDS.

6.02 STEEL COMPOSITE FLOOR DECK SHALL BE FASTENED TO STEEL FRAMING WITH 5/8" DIAMETER PUDDLE WELDS AT THE FOLLOWING SPACINGS:
- AT FRAMING PERPENDICULAR TO DECK FLUTES: 12" ON CENTER MAXIMUM AND AT EACH EDGE FLUTE OF EACH DECK UNIT.
- AT FRAMING PARALLEL TO DECK FLUTES: 24" ON CENTER MAXIMUM.
- SIDE LAPS SHALL BE FASTENED WITH #10 SELF-TAPPING SCREWS AT A MAXIMUM SPACING OF 2 FEET CENTER TO CENTER BETWEEN SUPPORTS.

6.03 DECKING SHALL BE CONTINUOUS OVER 3 SPANS MINIMUM WHERE SUPPORTING STRUCTURE PERMITS.

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DESIGN A
2018 IBC WITH RISK CATEGORY II
SEISMIC DESIGN CATEGORY D

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DRAWINGS
01 MARCH, 2021

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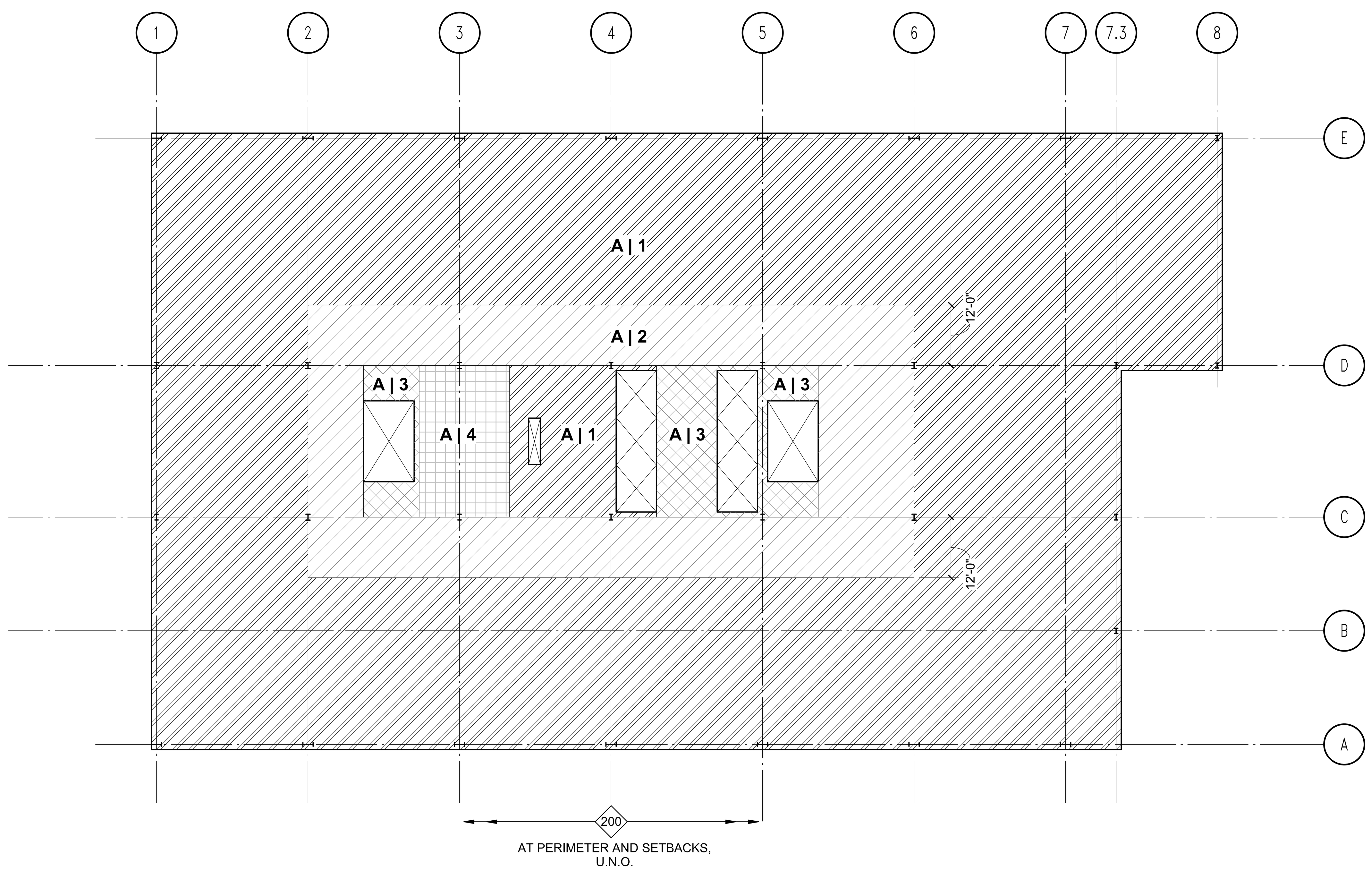
TITLE

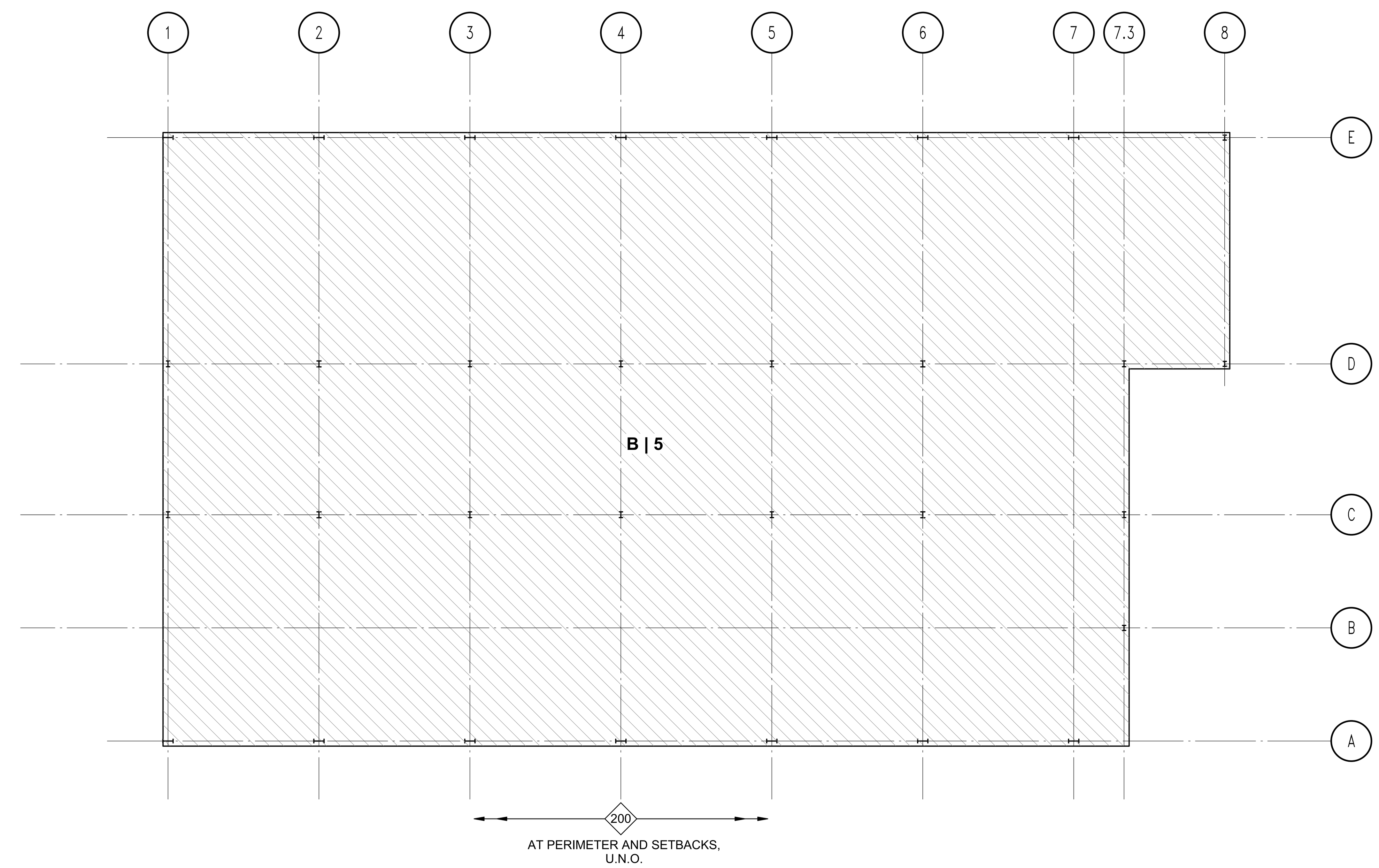
GENERAL NOTES

SHEET NUMBER

S0.10



1 S1.00 LEVEL 2-12 LOAD MAP
SCALE: 1/16" = 1'-0"



2 S1.00 ROOF LOAD MAP
SCALE: 1/16" = 1'-0"

SUPERIMPOSED DEAD LOAD DESIGNATIONS			
MARK	USE	LOAD (PSF)	NOTES
A	OFFICE	10	MISC.
B	ROOF	20	10 ROOFING + 10 MISC.

LIVE LOAD DESIGNATIONS			
MARK	USE	LOAD (PSF)	NOTES
1	OFFICE	50 (R) + 15 (NR)	50 OFFICE + 15 PARTITION
2	CORRIDORS	80 (R)	
3	LOBBIES & STAIRS	100 (R)	
4	MECHANICAL & STORAGE	125 (R)	
5	ROOF	20 (R)	

"NR" INDICATES NON-REDUCABLE LIVE LOAD.
"R" INDICATES LIVE LOADS REDUCIBLE PER IBC SECTION 1607.11

LOAD MAP KEY:

A | 1

NUMBER INDICATES LIVE LOAD MARK

LETTER INDICATES SUPERIMPOSED DEAD LOAD MARK

200 INDICATES CLADDING LOAD IN POUNDS PER LINEAR FOOT. CLADDING LOAD IS 200 POUNDS PER LINEAR FOOT U.N.O.

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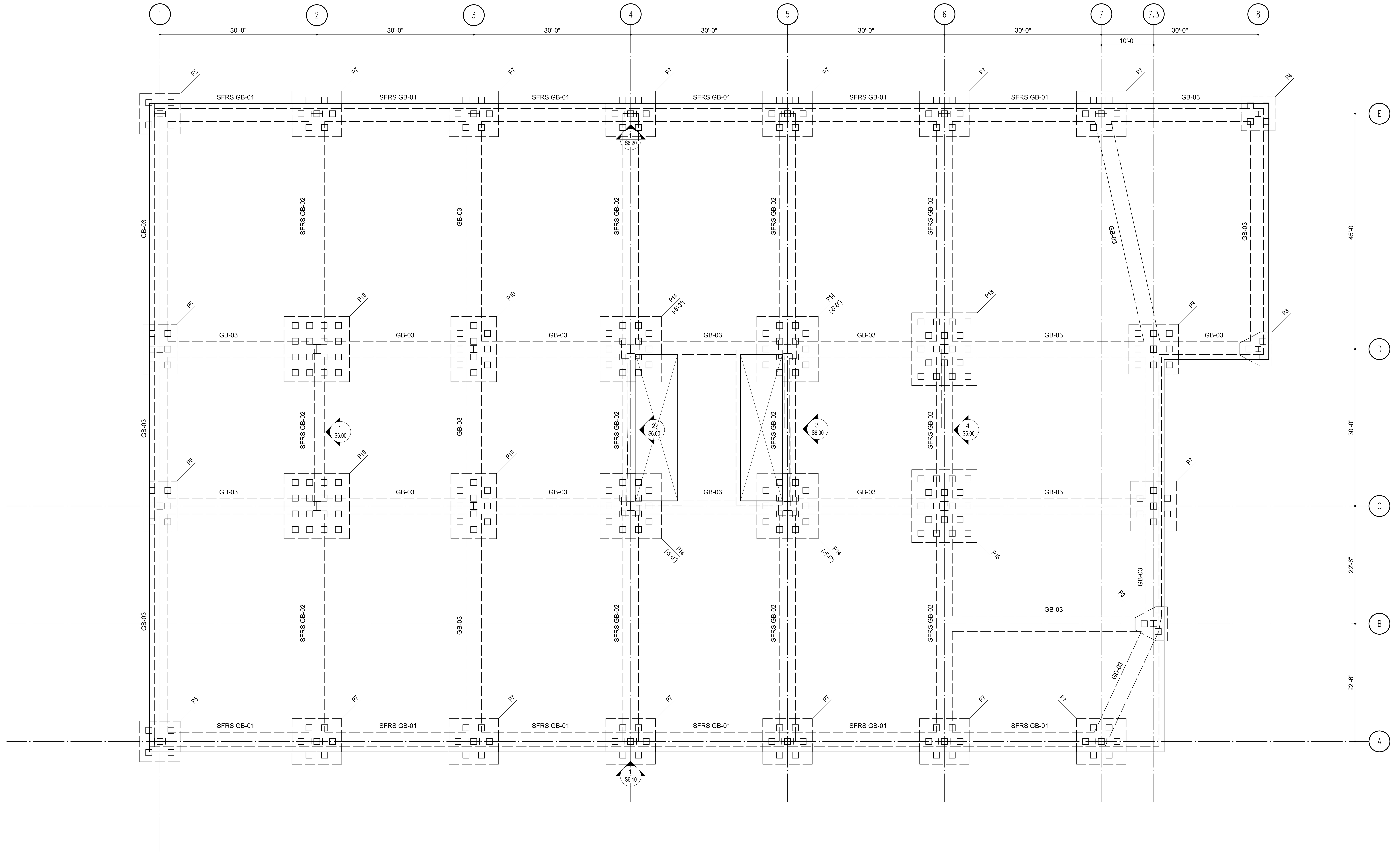
LOAD MAPS

SHEET NUMBER
S1.00



1 S2.00 FOUNDATION & GRADE LEVEL FRAMING PLAN

SCALE: 1/8" = 1'-0"

N

FOUNDATION AND SOG NOTES:

1. TOP OF NOMINAL SLAB ELEVATION = 100'-00".
2. SLAB-ON-GROUND THICKNESS IS 5", UNLESS NOTED OTHERWISE.
3. ALL FOOTINGS, PILE CAPS, AND PIERS ARE CENTERED ABOUT COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.
4. "GB" INDICATES GRADE BEAM. SEE S3.00 FOR ADDITIONAL INFORMATION.
5. SEE S4.00 FOR COLUMN SCHEDULE.

LEGEND:

X'-X" INDICATES TOP OF WALL FOOTING OR TOP OF GRADE BEAM ELEVATION

INDICATES PILE, SEE 3/S3.00

PX INDICATES PILE CAP TYPE. SEE SHEET S3.01

X'-X" INDICATES TOP OF PILE CAP ELEVATION BELOW SLAB ON GRADE, TYP. ELEVATION IS -4'-0" BELOW TOP OF SOG, UNO

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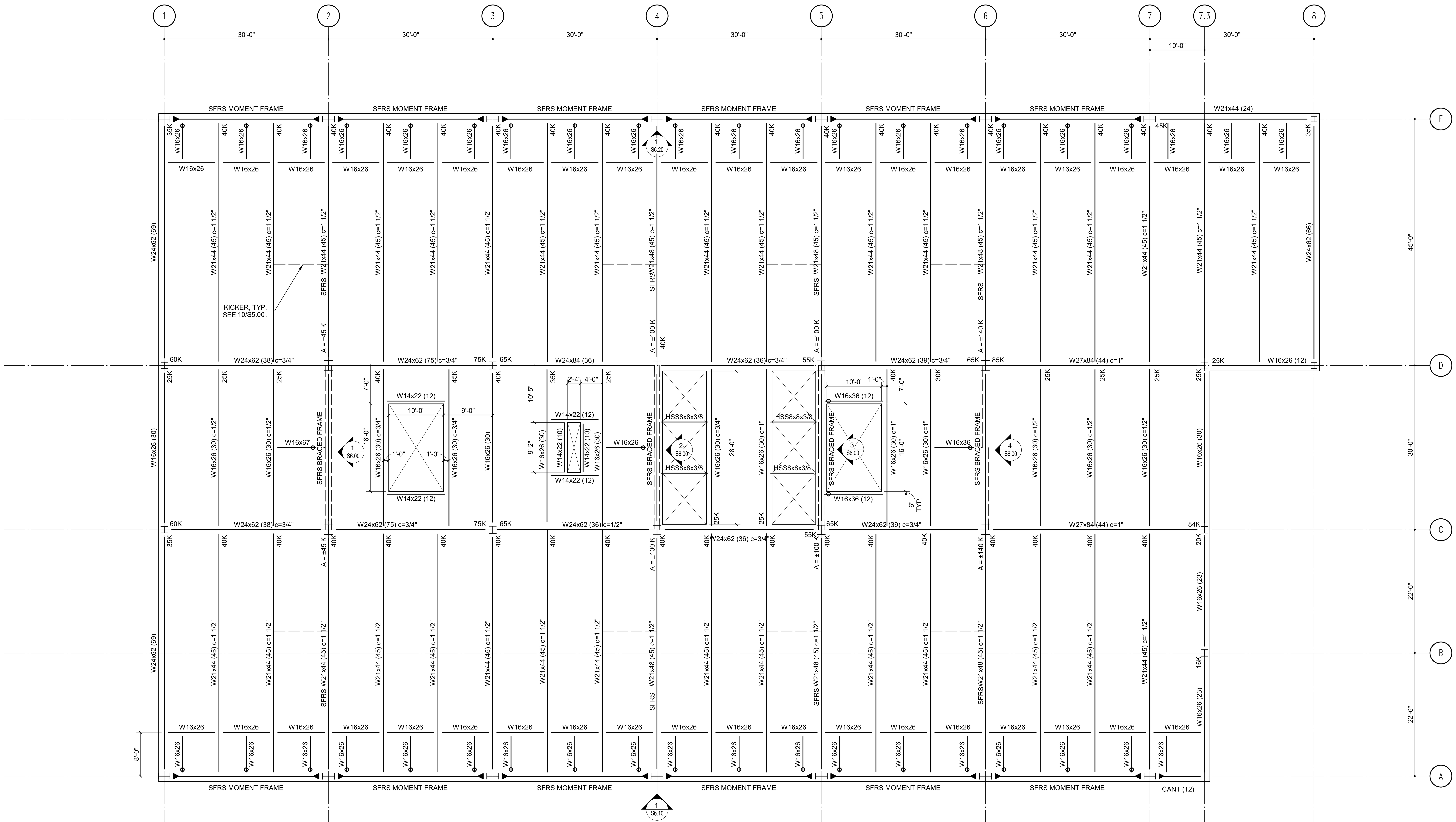
FOUNDATION & GRADE LEVEL FRAMING PLAN

SHEET NUMBER

S2.00



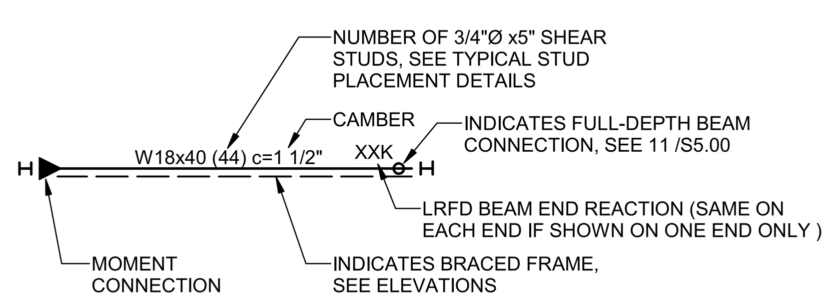
1 S2.10 SECOND FLOOR FRAMING PLAN

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = +115', AT FINISHED FLOOR UNLESS NOTED OTHERWISE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. ⟷ INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3.25" LIGHTWEIGHT (115 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. 'A=±xxK' INDICATES FACTORED AXIAL FORCE. PROPORTION CONNECTIONS FOR 'A' IN COMBINATION WITH SHEAR FORCE. INDICATED AXIAL FORCE MUST BE TRANSFERRED THROUGH COLUMN TO ADJACENT MEMBER.
7. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
8. SEE COLUMN SCHEDULE ON S4.00 FOR COLUMN SIZES.

FRAMING LEGEND:



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TITLE
SECOND FLOOR FRAMING PLAN

SHEET NUMBER
S2.10

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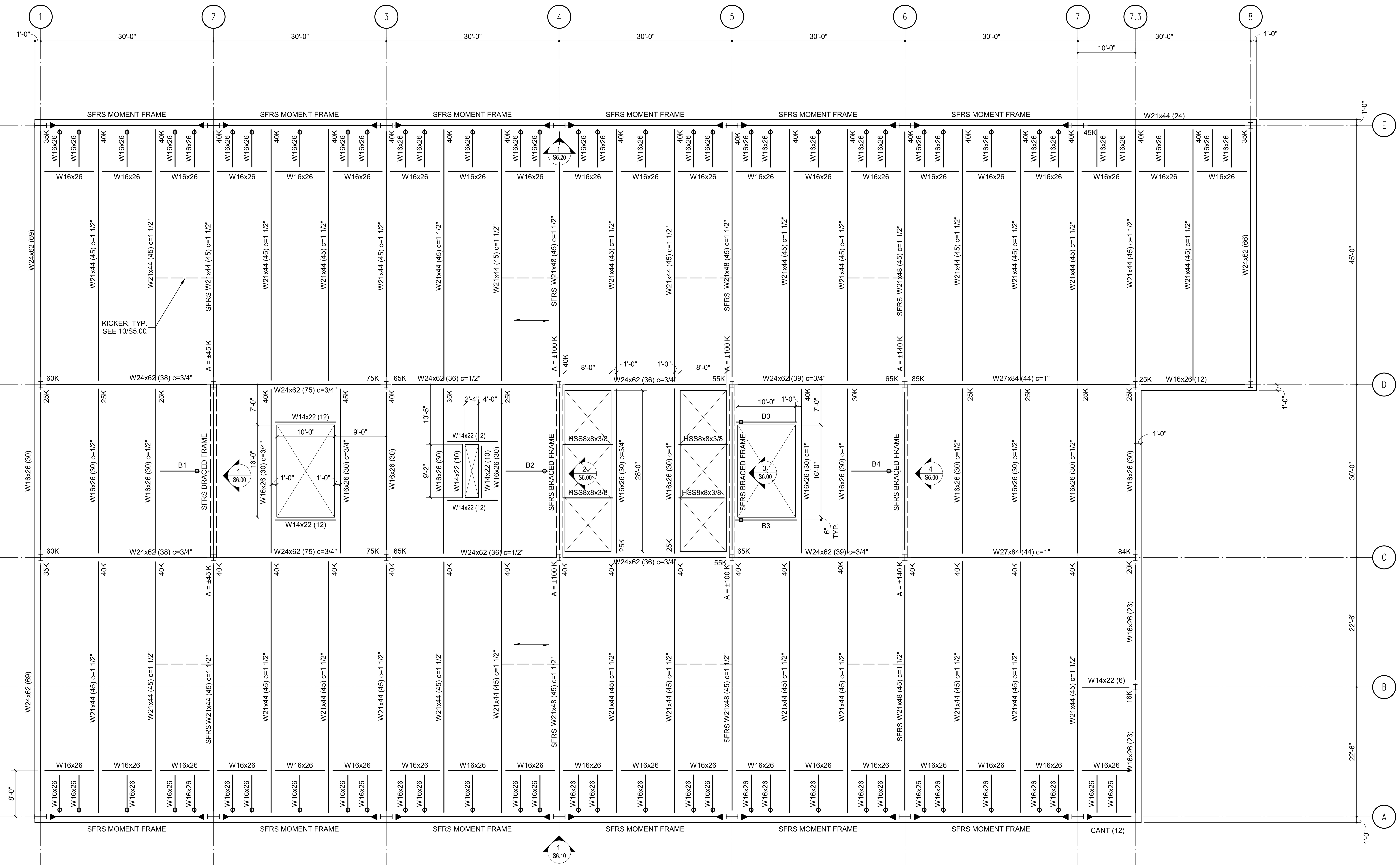


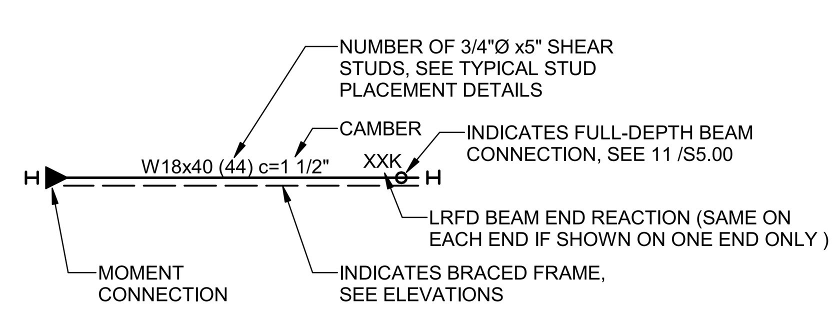
TYPICAL FLOOR FRAMING PLAN

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = SEE TABLE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. ⟷ INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3.25" LIGHTWEIGHT (115 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. 'A=±xxK' INDICATES FACTORED AXIAL FORCE. PROPORTION CONNECTIONS FOR 'A' IN COMBINATION WITH SHEAR FORCE. INDICATED AXIAL FORCE MUST BE TRANSFERRED THROUGH COLUMN TO ADJACENT MEMBER.
7. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
8. SEE COLUMN SCHEDULE ON S4.00 FOR COLUMN SIZES.

FRAMING LEGEND:



LEVEL	ELEVATION
3	+128'-6"
4	+142'-0"
5	+155'-6"
6	+169'-0"
7	+182'-6"
8	+196'-0"
9	+209'-6"
10	+223'-0"
11	+236'-6"
12	+250'-0"

BEAM BRACING SCHEDULE				
LEVEL	B1	B2	B3	B4
3	W16X31	W16X26	W16X31	W16X36
4	W16X31	W16X26	W16X31	W16X31
5	W16X31	W16X26	W16X31	W16X36
6	W16X26	W16X31	W16X31	W16X26
7	W16X31	W16X26	W16X26	W16X31
8	W16X31	W16X31	W16X26	W16X31
9	W16X31	W16X26	W16X26	W16X31
10	W16X40	W16X26	W16X31	W16X26
11	W16X26	W16X26	W16X26	W16X26
12	W16X31	W16X31	W16X45	W16X31

N

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TITLE
TYPICAL FLOOR FRAMING PLAN

SHEET NUMBER
S2.20

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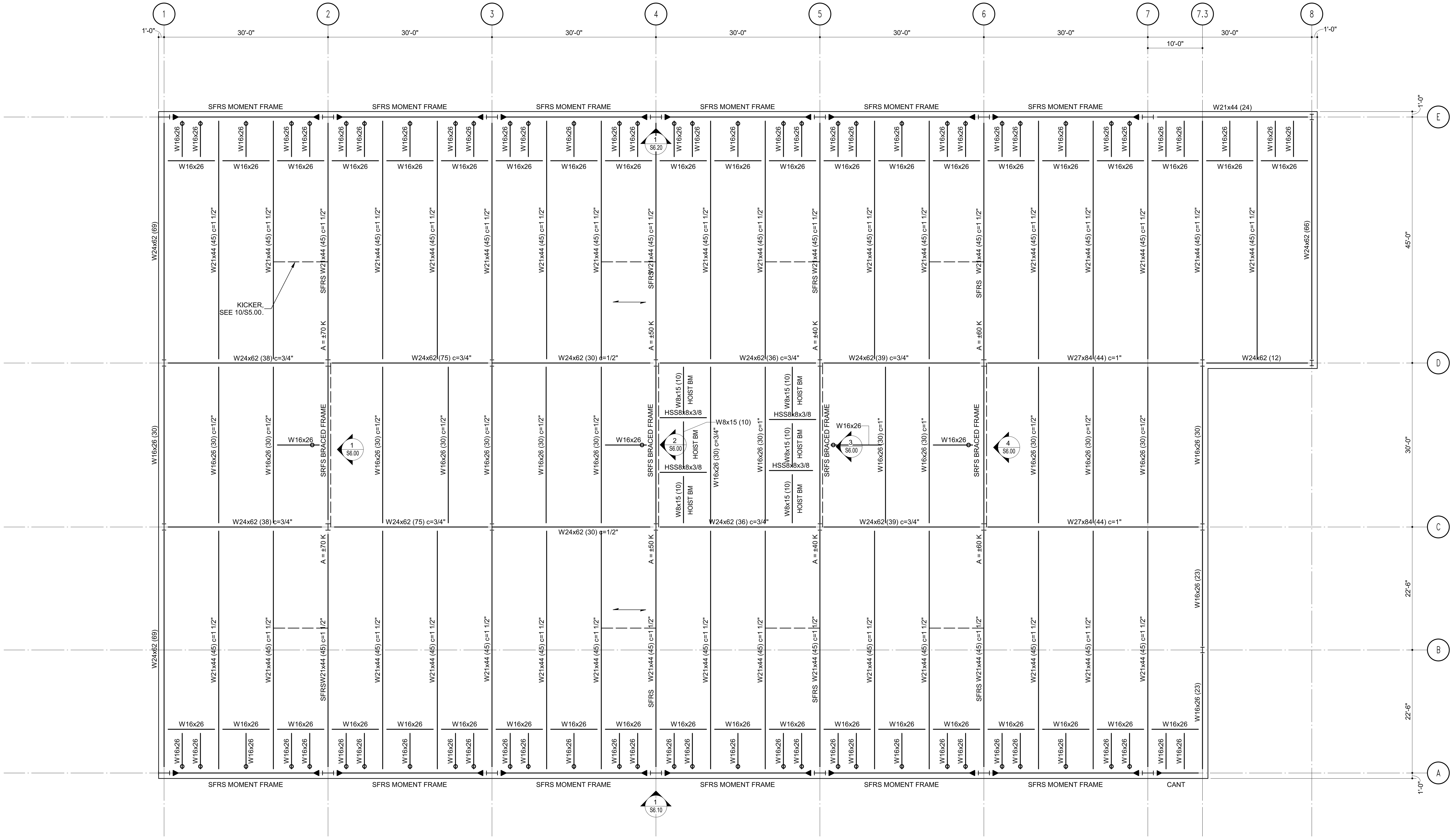


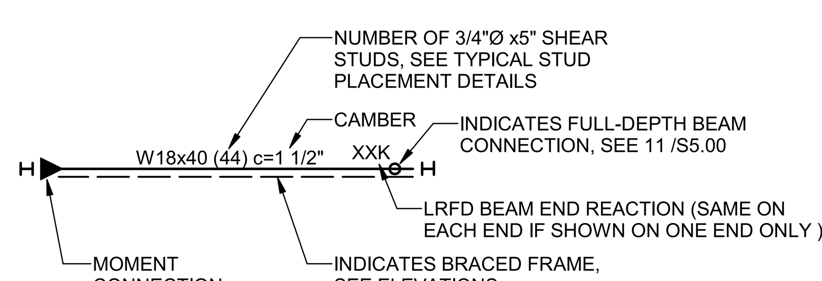
1 ROOF FRAMING PLAN
S2.30
SCALE: 1/8" = 1'-0"

N

FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = +263'-6", AT FINISHED FLOOR UNLESS NOTED OTHERWISE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3.25" LIGHTWEIGHT (115 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. "A=±xxK" INDICATES FACTORED AXIAL FORCE. PROPORTION CONNECTIONS FOR 'A' IN COMBINATION WITH SHEAR FORCE. INDICATED AXIAL FORCE MUST BE TRANSFERRED THROUGH COLUMN TO ADJACENT MEMBER.
7. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
8. SEE COLUMN SCHEDULE ON S4.00 FOR COLUMN SIZES.

FRAMING LEGEND:



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DESIGN A
2018 IBC WITH RISK CATEGORY II
SEISMIC DESIGN CATEGORY D

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DRAWINGS
01 MARCH, 2021

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TITLE
ROOF FRAMING PLAN

SHEET NUMBER
S2.30

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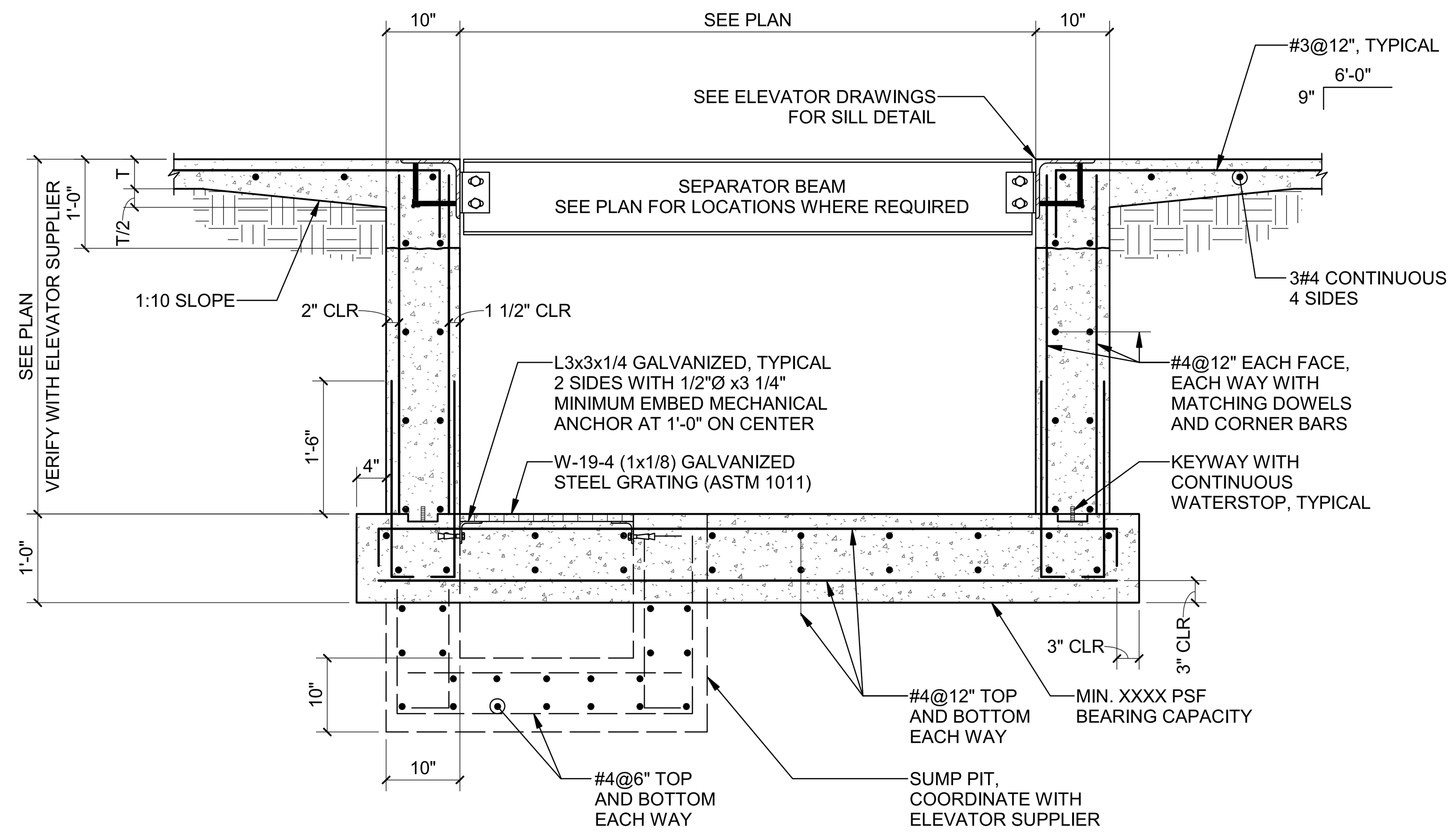
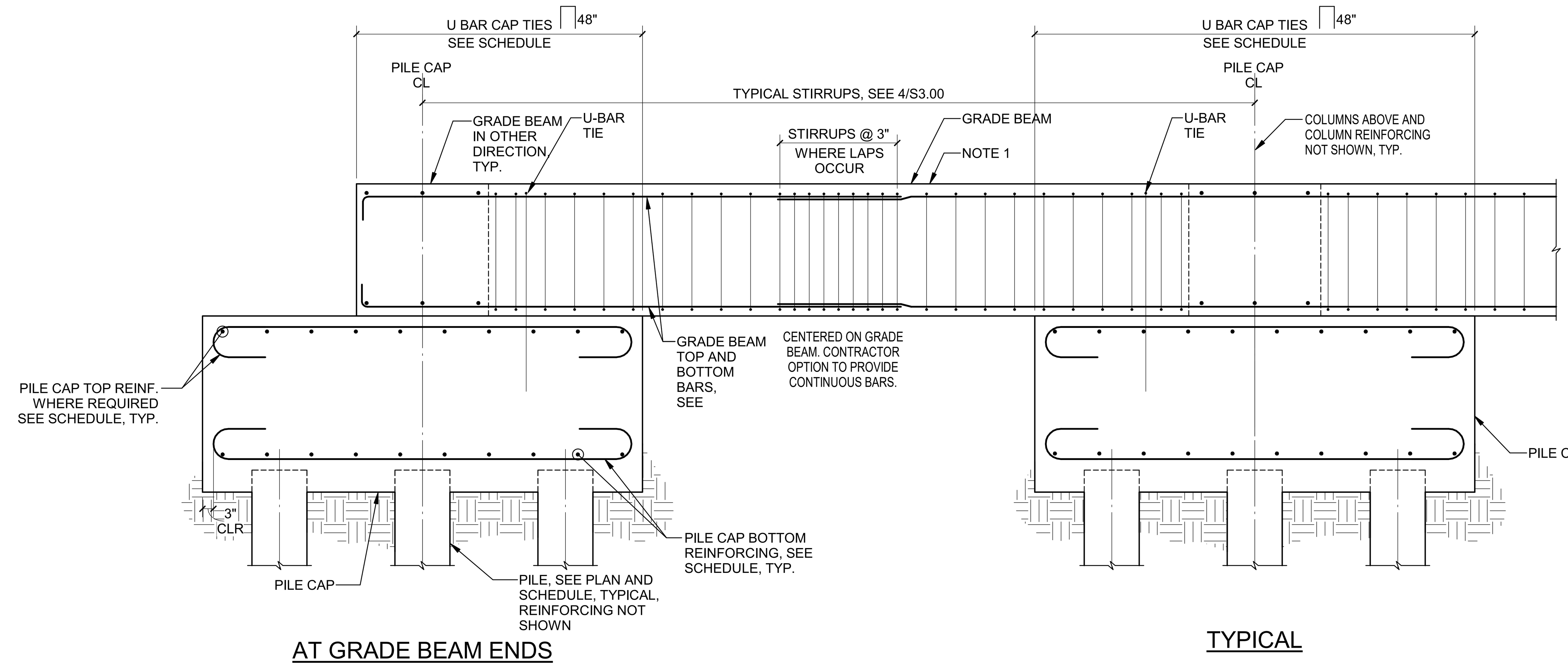
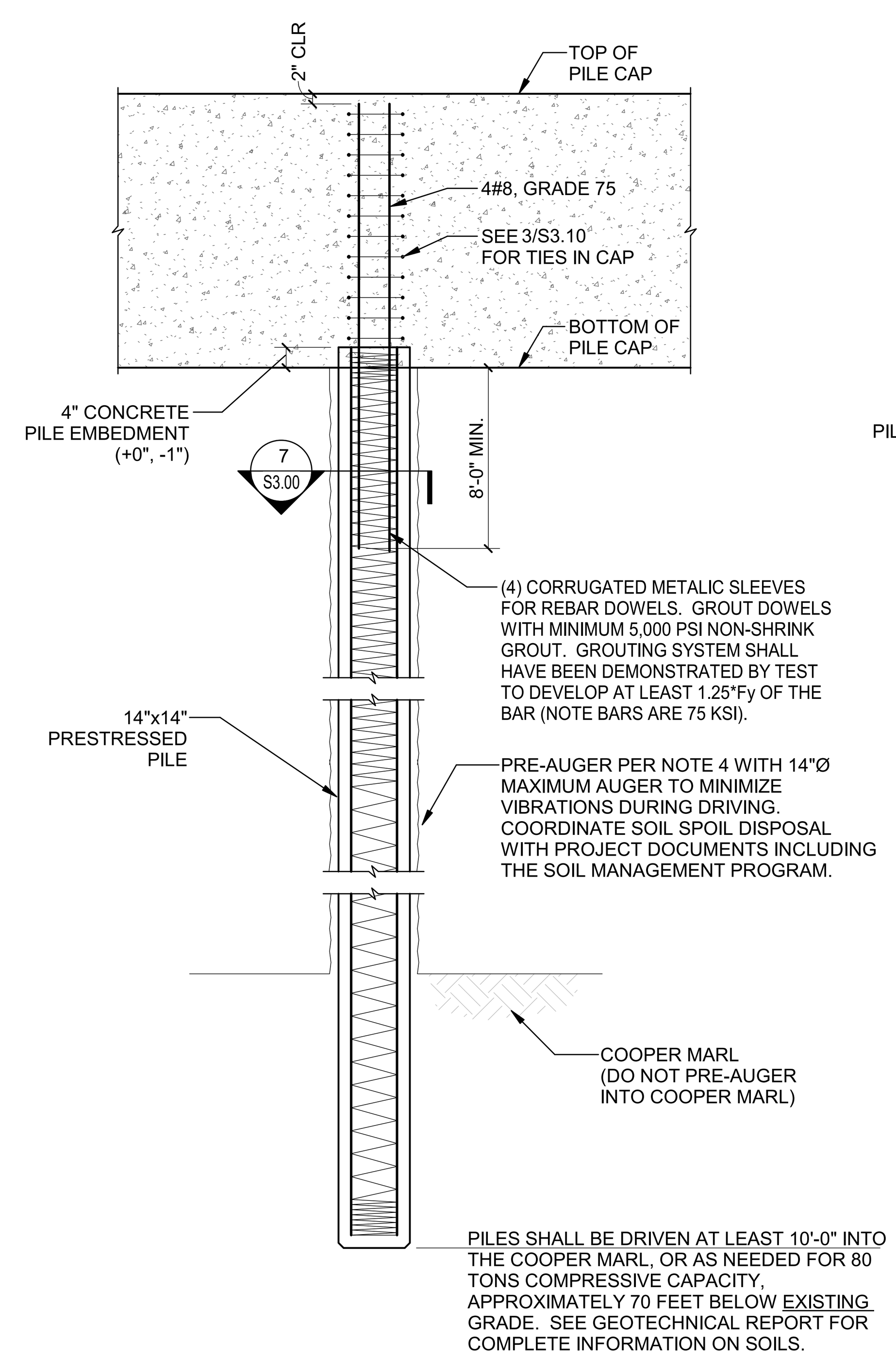


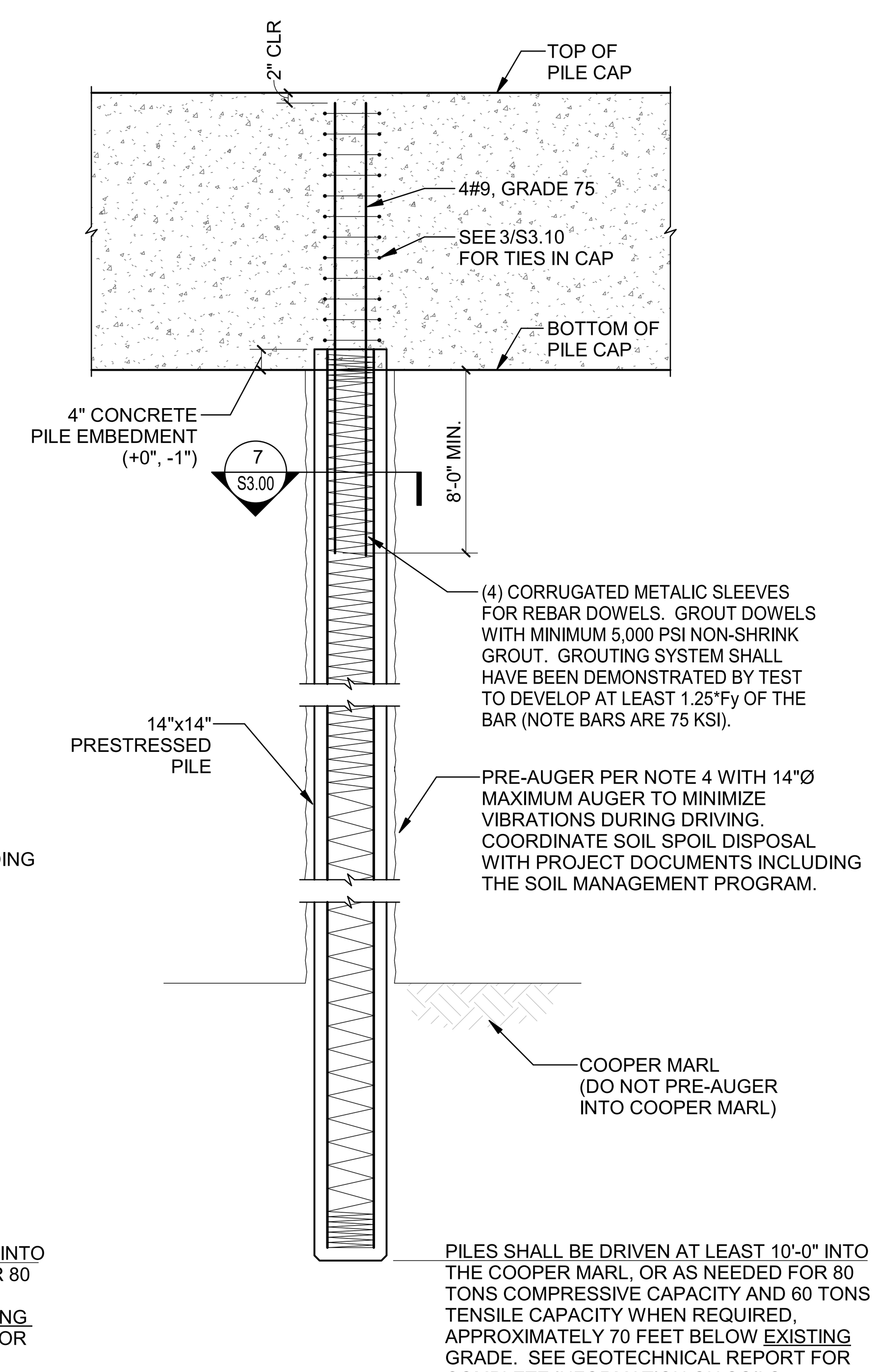
1 S3.00 TYPICAL ELEVATOR PIT SECTION
SCALE: 3/4" = 1'-0"



2 S3.00 TYPICAL GRADE BEAM ELEVATION
SCALE: 1/2" = 1'-0"

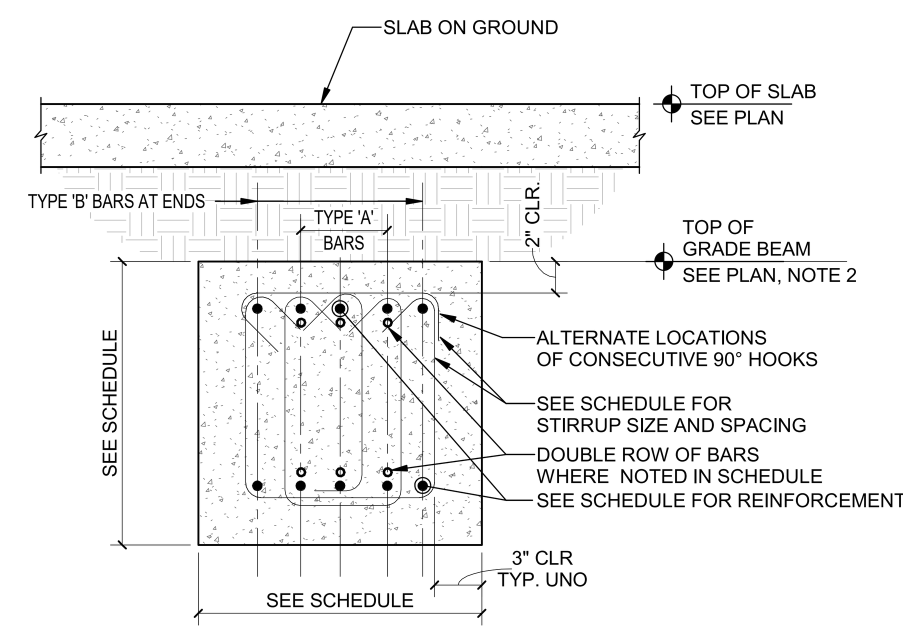


COMPRESSION PILE DETAIL



TENSION PILE DETAIL

3 S3.00 PILE DETAILS
SCALE: 1/2" = 1'-0"

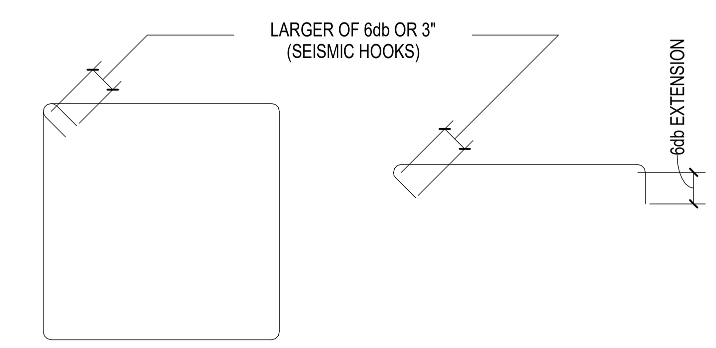


GRADE BEAM SCHEDULE

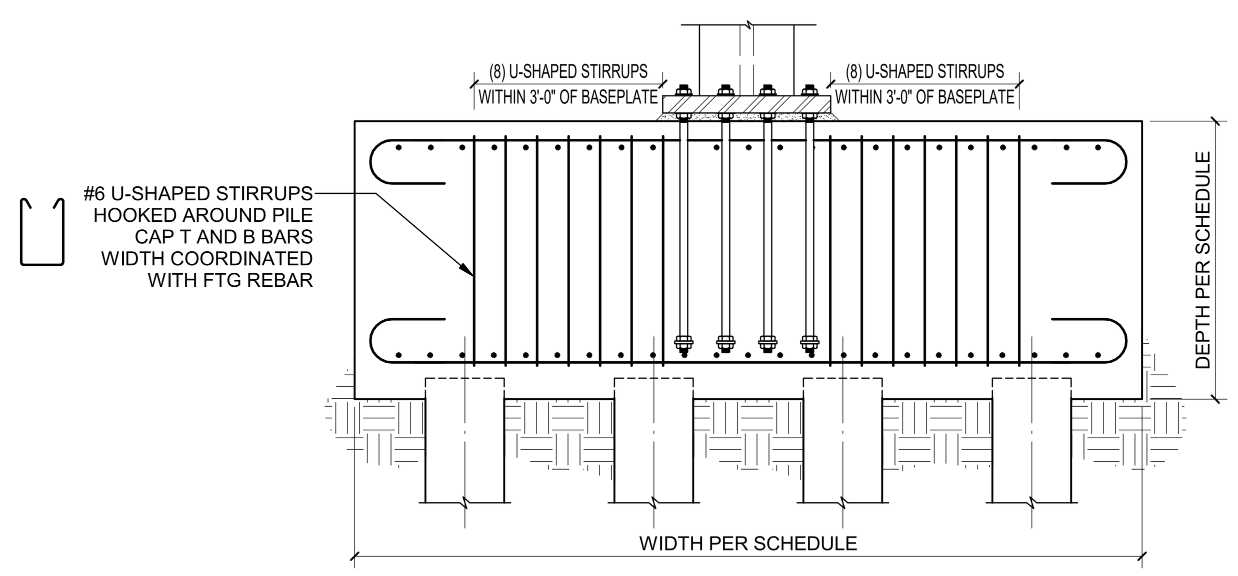
GRADE BEAM MARK	SIZE		LONGITUDINAL REINFORCING				STIRRUPS		U-BAR CAP TIES	REMARKS
	WIDTH (INCH)	DEPTH (INCH)	BOTTOM 'A' BARS	BOTTOM 'B' BARS	TOP 'A' BARS	TOP 'B' BARS	SIZE	SPACING EACH END UNO		
GB-01	36	36	6#11 (75 KSI)	2#8	6#11 (75 KSI)	2#8	#4	1@2, 12@6, R@16	(2)-#4@12	DOUBLE ROW
GB-02	36	36	2#10	2#10	2#10	2#10	#4	1@2, R@16	(2)-#4@12	---
GB-03	36	36	3#8	2#8	3#8	2#8	#4	1@2, R@16	#4@16	---

NOTE:
1. REINFORCING BARS ARE 60 KSI, UNO.

4 S3.00 TYPICAL GRADE BEAM SECTION
SCALE: 1 1/2" = 1'-0"

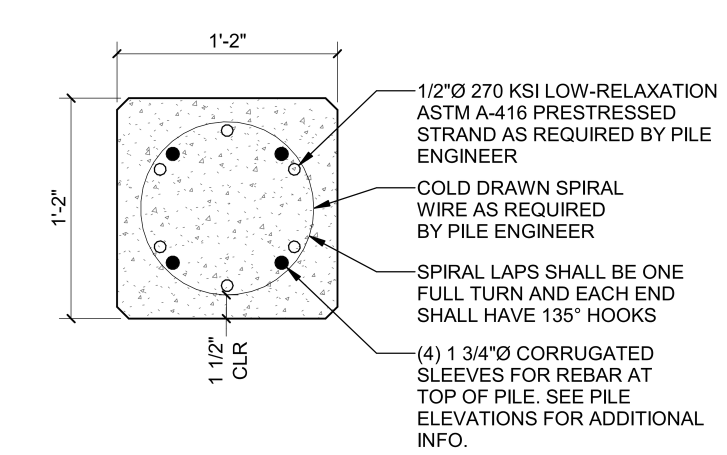


5 S3.00 HOOP AND CROSSTIE DETAILS
SCALE: 1 1/2" = 1'-0"



NOTE:
1. U-SHAPED STIRRUPS TO BE PLACED ON (4) SIDES OF COLUMN AS SHOWN

6 S3.00 TYPICAL PILE CAP AT BRACED FRAME AND MOMENT FRAME BASE PLATES
SCALE: 1/2" = 1'-0"



7 S3.00 TYPICAL SECTION THROUGH PRECAST PILE
SCALE: 1 1/2" = 1'-0"

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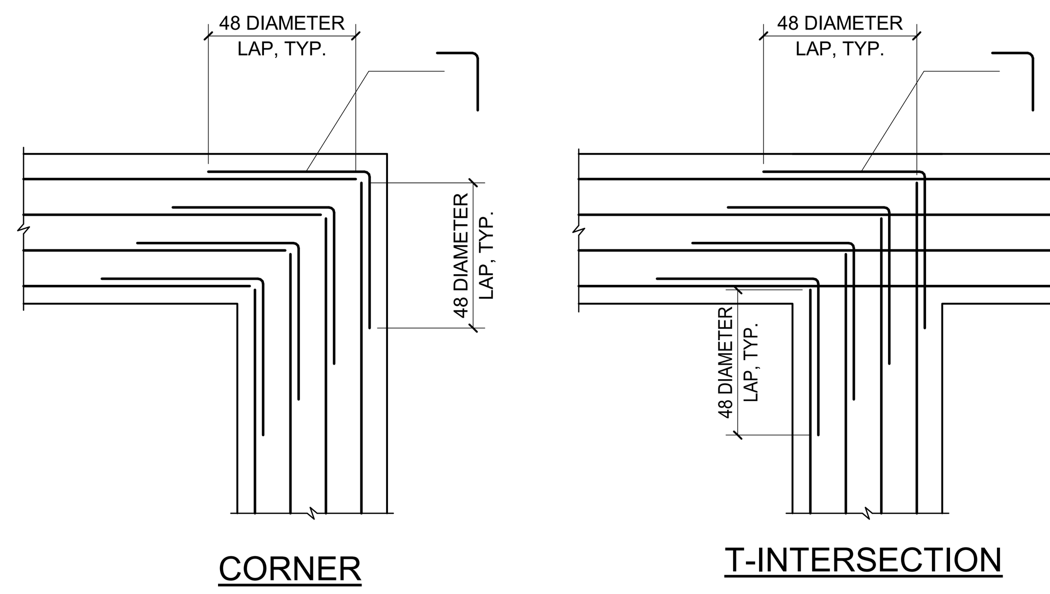
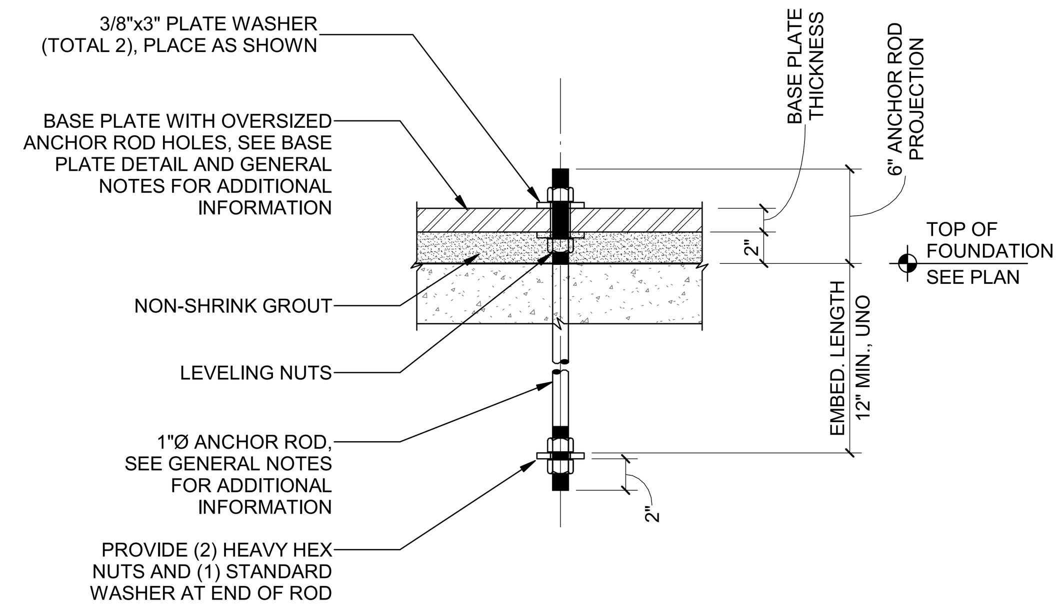


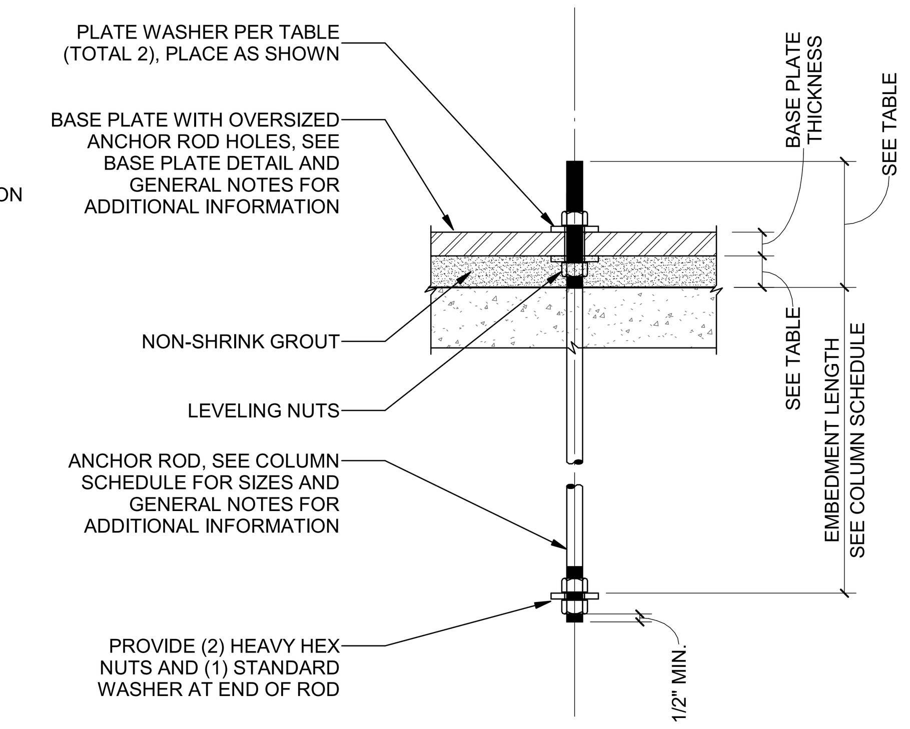
NOTES:
1. TRANSVERSE FOOTING STEEL NOT SHOWN FOR CLARITY.
2. BENT CORNER REINFORCEMENT SHALL MATCH SIZE AND SPACING OF CONTINUOUS LONGITUDINAL REINFORCEMENT.
3. SEE PLAN AND SECTIONS FOR SIZE AND NUMBER OF REINFORCEMENT BARS.
4. TOP BARS, IF REQUIRED, SHALL FOLLOW THE SAME LAP PATTERN.
5. SEE PLAN FOR FOOTING SIZE.

1 S3.10 TYPICAL FOOTING INTERSECTION PLAN DETAIL

SCALE: 1/8" = 1'-0"



NOTES:
1. CIRCULAR OR SQUARE WASHERS ARE ACCEPTABLE.

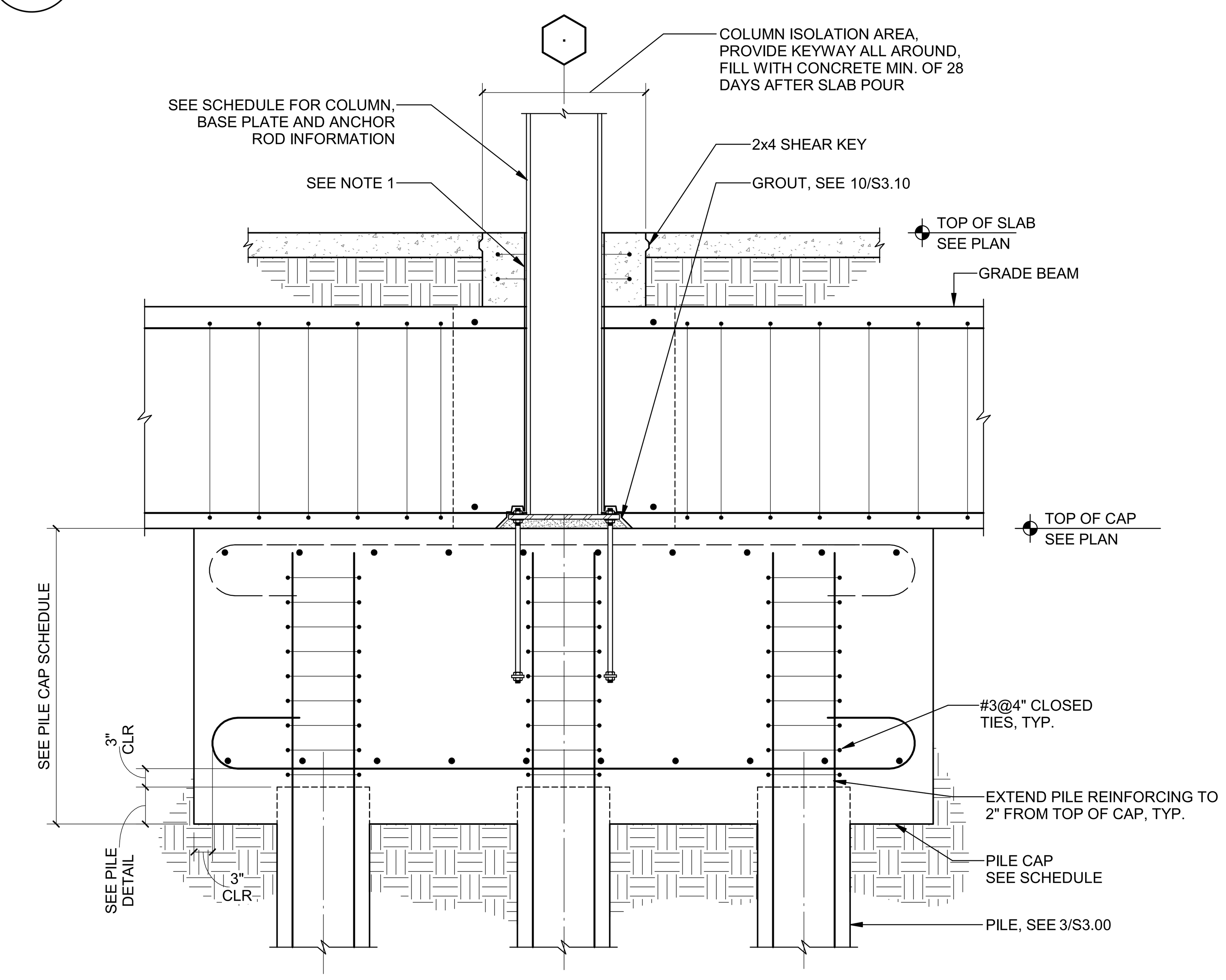


ANCHOR BOLT AND PLATE WASHER TABLE			
ANCHOR ROD	ANCHOR ROD PROJECTION	PLATE WASHER	GROUT THICKNESS
3/4" Ø	8"	1/4"x2"	2"
1" Ø	8"	3/8"x3"	2"
1 1/4" Ø	10"	1/2"x3"	3"
1 1/2" Ø	10"	1/2"x3 1/2"	3"
1 3/4" Ø	10"	5/8"x4"	3"
2" Ø	12"	3/4"x5"	4"
2 1/2" Ø	12"	7/8"x5 1/2"	4"

NOTES:
1. CIRCULAR OR SQUARE WASHERS ARE ACCEPTABLE.

2 S3.10 ANCHOR ROD DETAIL

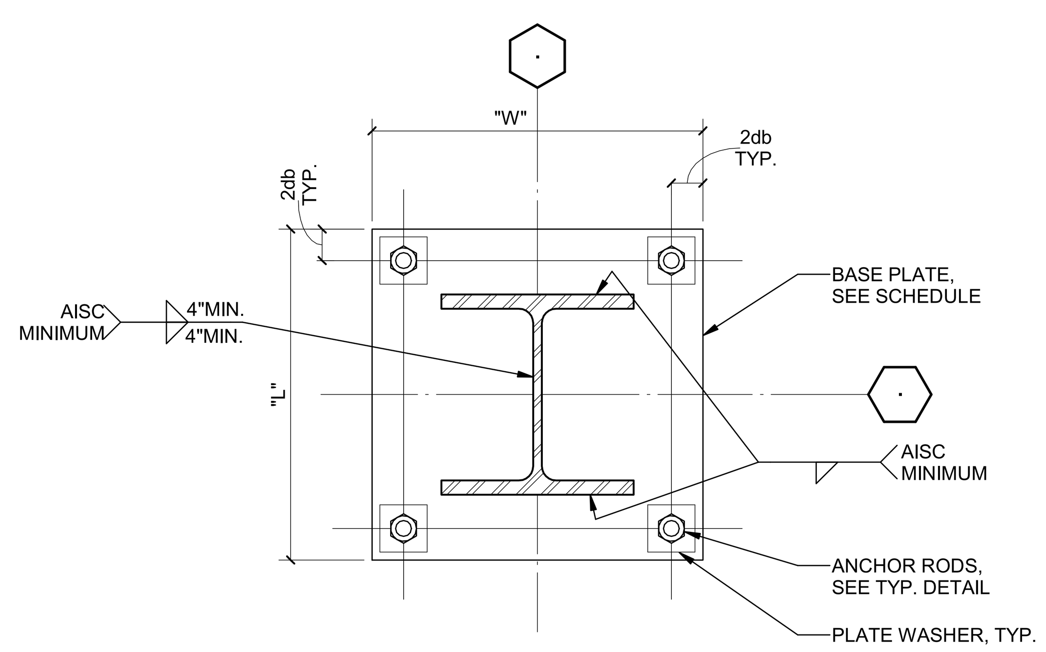
SCALE: 1 1/2" = 1'-0"



NOTES:
1. AT EXTERIOR COLUMNS, COAT BELOW GRADE PORTION OF COLUMN AND BASE PLATE WITH BITUMINOUS MASTIC AND PROVIDE 1/2" PREFORMED JOINT FILLER AROUND COLUMNS. AT INTERIOR COLUMNS, PROVIDE 30# ROOFING FELT.

3 S3.10 TYPICAL COLUMN AND PILE CAP DETAIL

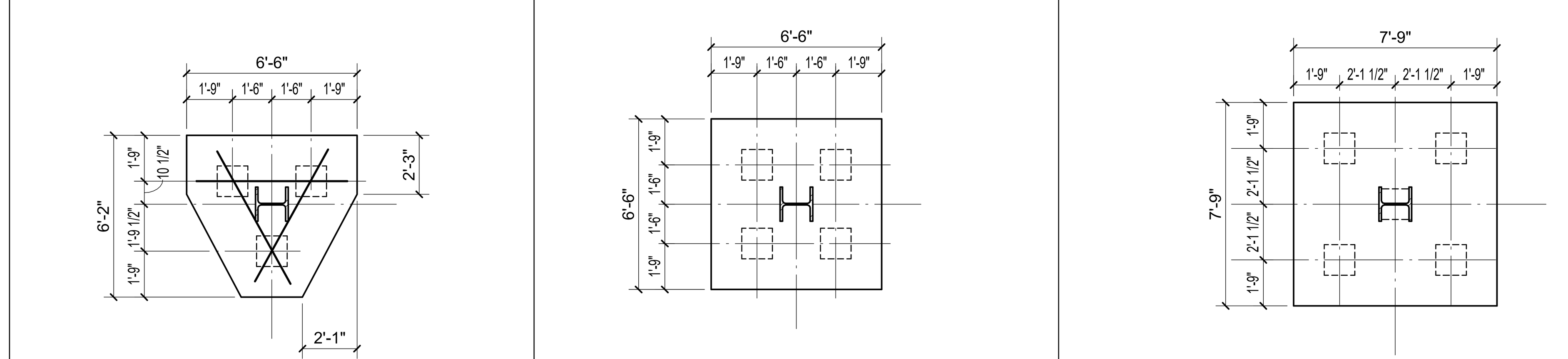
SCALE: 3/4" = 1'-0"



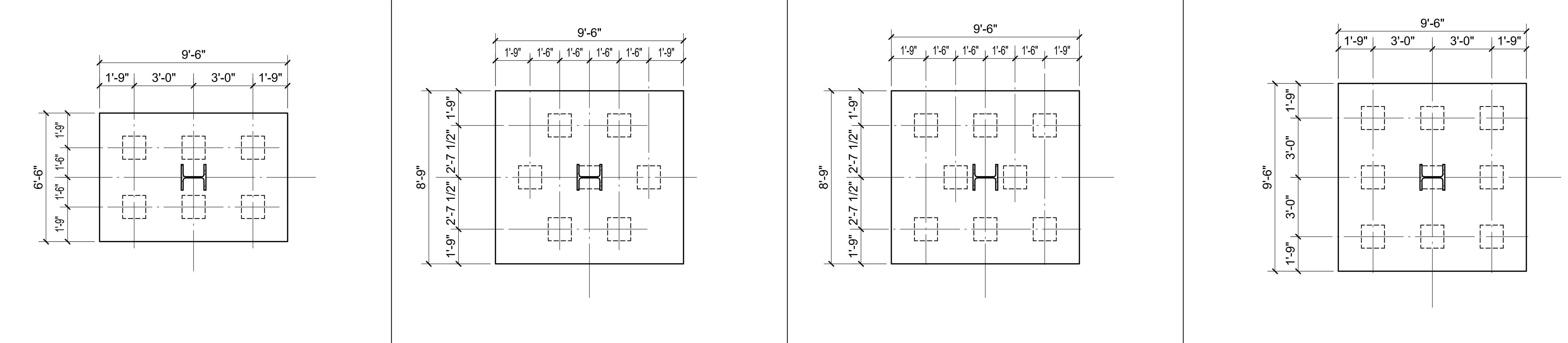
4 S3.10 TYPICAL GRAVITY COLUMN BASE PLATE DETAIL

SCALE: 1 1/2" = 1'-0"

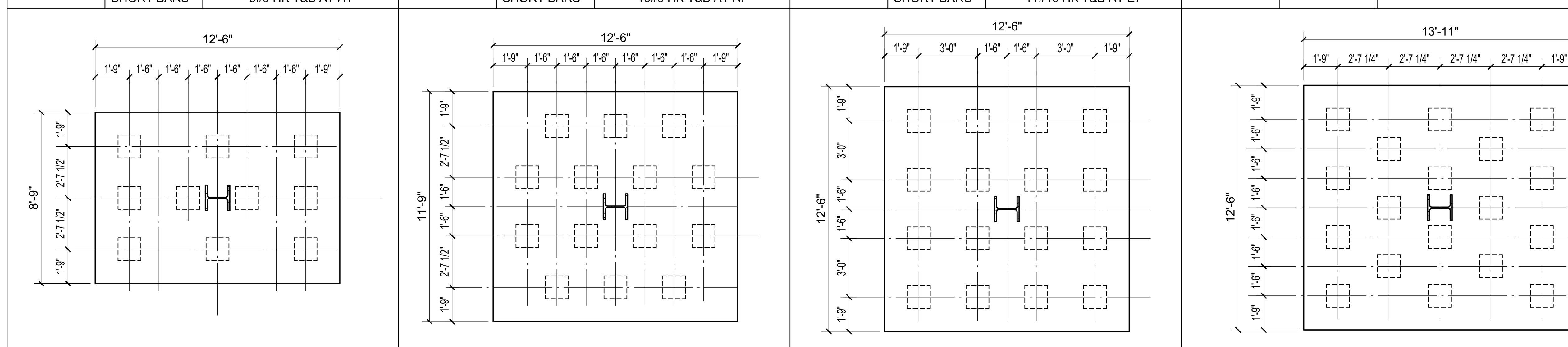
PILE CAP SCHEDULE FOR 14" SQ. PRECAST PILES 80 TON COMPRESSION AND 60 TON TENSION PILES



P3	THICKNESS	35"	
	BARS, EACH WAY (x3)	3#9 HK	
P4	THICKNESS	35"	
	BARS, EACH WAY	7#9 HK T&B	
P5	THICKNESS	35"	
	BARS, EACH WAY	7#10 HK T&B AT E1	



P6	THICKNESS	43"
	LONG BARS	9#9 HK T&B AT A1
	SHORT BARS	9#9 HK T&B AT A1
P7	THICKNESS	45"
	LONG BARS	8#10 HK T&B AT A7
	SHORT BARS	10#9 HK T&B AT A7
P8	THICKNESS	40"
	LONG BARS	12#9 HK T&B AT E7
	SHORT BARS	11#10 HK T&B AT E7
P9	THICKNESS	46"
	BARS, EACH WAY	15#9 HK



P10	THICKNESS	49"
	LONG BARS	10#11 HK
	SHORT BARS	11#10 HK
P14	THICKNESS	49"
	LONG BARS	17#10 HK T&B
	SHORT BARS	18#10 HK T&B
P16	THICKNESS	53"
	BARS, EACH WAY	21#10 HK T&B
P18	THICKNESS	57"
	LONG BARS	19#11 HK T&B
	SHORT BARS	21#10 HK T&B

NOTES:
1. "HK" = HOOK EACH SIDE OF ALL BARS 180 DEGREES.
2. SEE GENERAL NOTES FOR REQUIRED PILE AND PILE CAP CONCRETE STRENGTHS.
3. ALL REINFORCEMENT SHOWN IS BOTTOM REINFORCEMENT, UNLESS NOTED OTHERWISE. SEE DETAIL 3/S3.01 FOR ADDITIONAL INFORMATION.
4. SEE 3/S3.00 FOR PILE DETAIL.
5. LAYOUT PILES PER DIMENSIONS SHOWN ON THIS DETAIL AND NOT AS SHOWN ON PLAN.

5 S3.10 PRECAST PILE CAP SCHEDULE

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TITLE
FOUNDATION DETAILS

SHEET NUMBER
S3.10

Column Locations	A-1	A-2	A-3	A-4	A-5	A-6	A-7	B-7.3
ROOF 263'-6" / LEVEL 12 250'-0"	SFRS W24X94	SFRS W24X94	SFRS W24X94	SFRS W24X94	SFRS W24X94	SFRS W24X94	SFRS W24X94	W12x40
LEVEL 11 236'-6" / LEVEL 10 223'-0"	SFRS W24X94	SFRS W24X131	SFRS W24X131	SFRS W24X131	SFRS W24X131	SFRS W24X131	SFRS W24X94	W14x43
LEVEL 09 209'-6" / LEVEL 08 196'-0"	SFRS W24X94	SFRS W24X162	SFRS W24X162	SFRS W24X162	SFRS W24X162	SFRS W24X162	SFRS W24X94	W14x43
LEVEL 07 182'-6" / LEVEL 06 169'-0"	SFRS W24X131	SFRS W24X192	SFRS W24X192	SFRS W24X192	SFRS W24X192	SFRS W24X192	SFRS W24X131	W14x43
LEVEL 05 155'-6" / LEVEL 04 142'-0"	SFRS W24X131	SFRS W24X229	SFRS W24X229	SFRS W24X229	SFRS W24X229	SFRS W24X229	SFRS W24X146	W14x43
LEVEL 03 128'-6" / LEVEL 02 115'-0"	SFRS W24X162	SFRS W24X250	SFRS W24X250	SFRS W24X250	SFRS W24X250	SFRS W24X250	SFRS W24X176	W14x90
LEVEL 01 100'-0"								
Anchor Rods								(4)-1" DIA.
Base Plate								1"x22"x1'-10"
Remarks	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	

Column Locations	C-1	C-2	C-3	C-4	C-5	C-6	C-7.3	D-1
ROOF 263'-6" / LEVEL 12 250'-0"	W14x43	SFRS W14x68	W14x48	SFRS W14x53	SFRS W14x53	SFRS W14x68	W14x43	W14x43
LEVEL 11 236'-6" / LEVEL 10 223'-0"	W14x61	SFRS W14x145	W14x74	SFRS W14x132	SFRS W14x132	SFRS W14x159	W14x61	W14x61
LEVEL 09 209'-6" / LEVEL 08 196'-0"	W14x68	SFRS W14x257	W14x99	SFRS W14x193	SFRS W14x211	SFRS W14x257	W14x74	W14x68
LEVEL 07 182'-6" / LEVEL 06 169'-0"	W14x82	SFRS W14x370	W14x132	SFRS W14x311	SFRS W14x311	SFRS W14x370	W14x90	W14x82
LEVEL 05 155'-6" / LEVEL 04 142'-0"	W14x90	SFRS W14x500	W14x159	SFRS W14x398	SFRS W14x398	SFRS W14x500	W14x99	W14x90
LEVEL 03 128'-6" / LEVEL 02 115'-0"	W14x109	SFRS W14x605	W14x193	SFRS W14x500	SFRS W14x550	SFRS W14x605	W14x120	W14x109
LEVEL 01 100'-0"								
Anchor Rods	(4)-1" DIA.		(4)-1" DIA.				(4)-1" DIA.	(4)-1" DIA.
Base Plate	2"x22"x1'-10"		3"x28"x2'-4"				2"x22"x1'-10"	2"x22"x1'-10"
Remarks		SEE 1/S7.00		SEE 1/S7.00 (SIM)	SEE 1/S7.00 (SIM)	SEE 1/S7.00		

Column Locations	D-2	D-3	D-4	D-5	D-6	D-7.3	D-8	E-1
ROOF 263'-6" / LEVEL 12 250'-0"	SFRS W14x68	W14x48	SFRS W14x53	SFRS W14x53	SFRS W14x68	W14x48	W12x40	SFRS W24X94
LEVEL 11 236'-6" / LEVEL 10 223'-0"	SFRS W14x145	W14x74	SFRS W14x132	SFRS W14x132	SFRS W14x159	W14x68	W12x40	SFRS W24X94
LEVEL 09 209'-6" / LEVEL 08 196'-0"	SFRS W14x257	W14x99	SFRS W14x193	SFRS W14x211	SFRS W14x257	W14x90	W12x40	SFRS W24X94
LEVEL 07 182'-6" / LEVEL 06 169'-0"	SFRS W14x370	W14x132	SFRS W14x311	SFRS W14x311	SFRS W14x370	W14x109	W12x53	SFRS W24X131
LEVEL 05 155'-6" / LEVEL 04 142'-0"	SFRS W14x500	W14x159	SFRS W14x398	SFRS W14x398	SFRS W14x500	W14x132	W12x53	SFRS W24X131
LEVEL 03 128'-6" / LEVEL 02 115'-0"	SFRS W14x605	W14x193	SFRS W14x500	SFRS W14x550	SFRS W14x605	W14x159	W12x65	SFRS W24X162
LEVEL 01 100'-0"								
Anchor Rods		(4)-1" DIA.				(4)-1" DIA.	(4)-1" DIA.	
Base Plate		3"x28"x2'-4"				2 1/4"x22"x1'-10"	1 1/2"x20"x1'-8"	
Remarks	SEE 1/S7.00		SEE 1/S7.00 (SIM)	SEE 1/S7.00 (SIM)	SEE 1/S7.00			SEE 4/S7.10

Column Locations	E-2	E-3	E-4	E-5	E-6	E-7	E-8
ROOF 263'-6" / LEVEL 12 250'-0"	SFRS W24X94	SFRS W24X94	SFRS W24X94	SFRS W24X94	SFRS W24X94	SFRS W24X94	W12x40
LEVEL 11 236'-6" / LEVEL 10 223'-0"	SFRS W24X131	SFRS W24X131	SFRS W24X131	SFRS W24X131	SFRS W24X131	SFRS W24X94	W12x40
LEVEL 09 209'-6" / LEVEL 08 196'-0"	SFRS W24X162	SFRS W24X162	SFRS W24X162	SFRS W24X162	SFRS W24X162	SFRS W24X103	W12x53
LEVEL 07 182'-6" / LEVEL 06 169'-0"	SFRS W24X192	SFRS W24X192	SFRS W24X192	SFRS W24X192	SFRS W24X192	SFRS W24X146	W12x58
LEVEL 05 155'-6" / LEVEL 04 142'-0"	SFRS W24X229	SFRS W24X229	SFRS W24X229	SFRS W24X229	SFRS W24X229	SFRS W24X162	W12x65
LEVEL 03 128'-6" / LEVEL 02 115'-0"	SFRS W24X250	SFRS W24X250	SFRS W24X250	SFRS W24X250	SFRS W24X250	SFRS W24X229	W12x87
LEVEL 01 100'-0"							
Anchor Rods							(4)-1" DIA.
Base Plate							2"x20"x1'-8"
Remarks	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	

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COLUMN SCHEDULE

SHEET NUMBER

S4.00

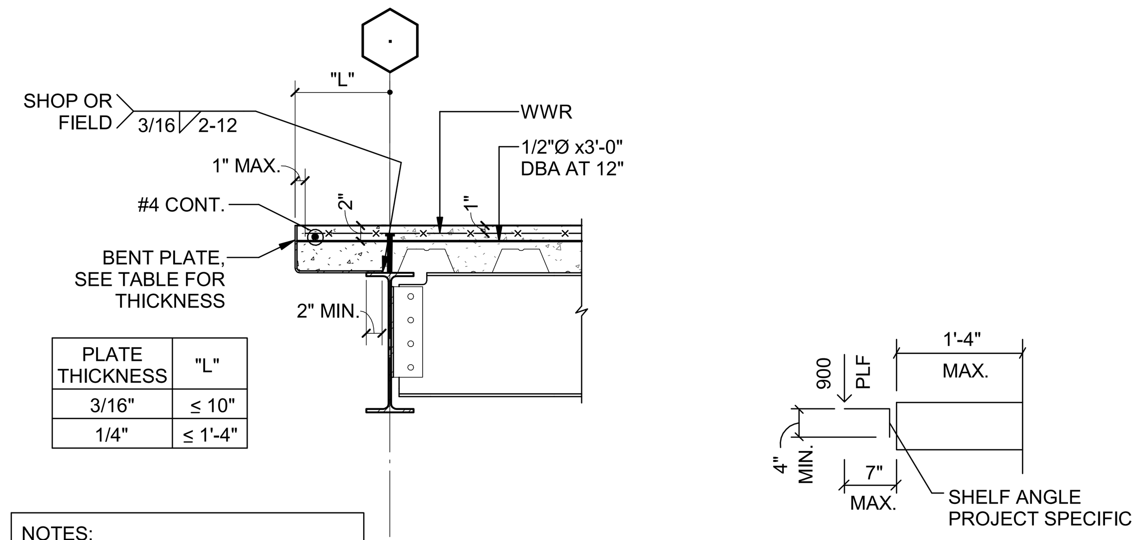


PLATE THICKNESS	"L"
3/16"	≤ 10"
1/4"	≤ 1'-4"

NOTES:
1. DBA NOT REQUIRED AT FRAMED INTERIOR OPENINGS.

1 FLOOR EDGE BEAM PARALLEL TO DECK
S5.00 SCALE: 3/4" = 1'-0"

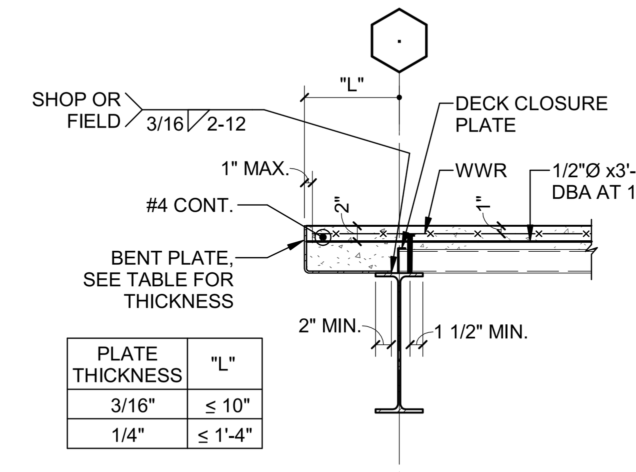
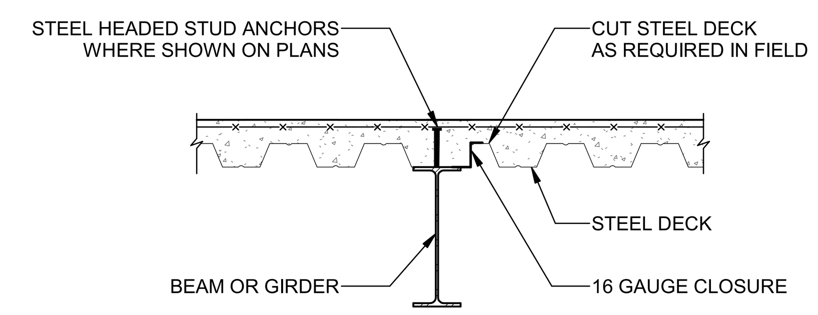


PLATE THICKNESS	"L"
3/16"	≤ 10"
1/4"	≤ 1'-4"

NOTES:
1. DBA NOT REQUIRED AT FRAMED INTERIOR OPENINGS.

2 FLOOR EDGE BEAM PERPENDICULAR TO DECK
S5.00 SCALE: 3/4" = 1'-0"



NOTES:
1. CLOSURE MUST BE WELDED TO THE BEAM AND SCREWED OR WELDED TO THE DECK TO ENSURE THAT THE FLANGE DOES NOT FALL UNDER HIGH CELL RESULTING IN UNBRACED BEAM. SEE GENERAL NOTES FOR ATTACHMENT.
2. DETAIL SIMILAR AT ROOF DECK.

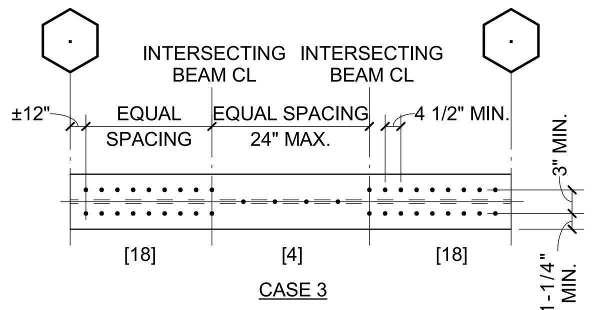
3 TYPICAL DECK PARALLEL TO STEEL BEAM
S5.00 SCALE: 3/4" = 1'-0"

DECK PERPENDICULAR TO BEAM

CASE 1: FEWER STUDS THAN FLUTES
PLACE ONE STUD IN EVERY OTHER FLUTE STARTING AT BEAM ENDS. IF STUDS REMAIN, PLACE IN FLUTES NOT ALREADY HAVING A STUD, STARTING AT BEAM ENDS AND CONTINUING TOWARD BEAM CENTER. MAXIMUM SPACING ALLOWED IS 24" OC.

CASE 2: MORE STUDS THAN FLUTES
PLACE ONE STUD IN EACH FLUTE FOR ENTIRE LENGTH OF BEAM. IF STUDS REMAIN, PLACE A SECOND STUD IN FLUTES, STARTING AT BEAM ENDS AND CONTINUING TOWARD CENTER. SPACING BETWEEN PAIRS OF STUDS SHALL NOT BE LESS THAN 3".

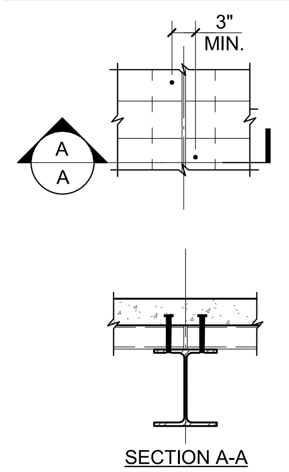
DECK PARALLEL TO BEAM



CASE 3: GIRDER WITH SEGMENTED STUD SPACING
PLACE SPECIFIED NUMBER OF STUDS IN EACH SEGMENT OF GIRDER AT EQUAL SPACES. IF SPACING IS LESS THAN 4 1/2", USE DOUBLE ROW AS REQUIRED.

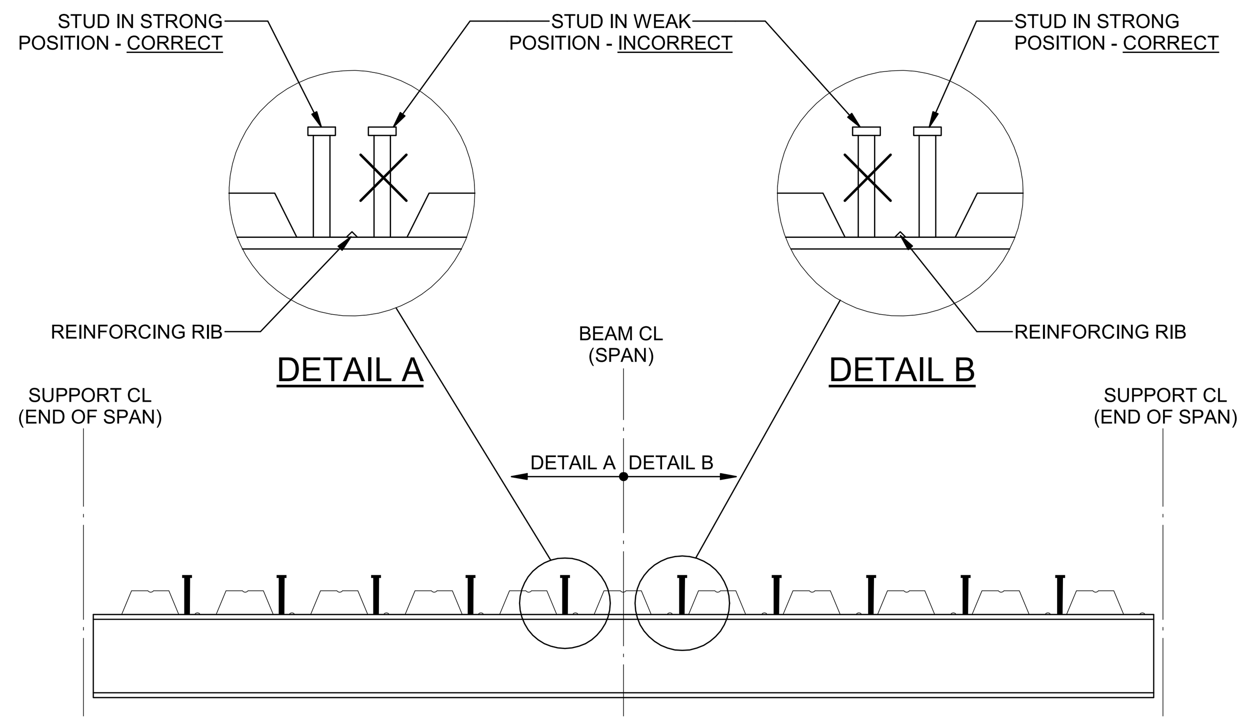
CASE 4: ALL CASES OF DECK PARALLEL WITH UNIFORM STUD SPACING OR FLAT SLABS
PLACE A SINGLE ROW OF STUDS ALONG GIRDER AT EQUAL SPACING. IF SPACING IS LESS THAN 4 1/2", USE DOUBLE ROW AS REQUIRED, STARTING AT BEAM ENDS.

AT BUTT JOINTS:
1. DECK JOINT SHALL BE LOCATED ON BEAM CENTERLINE.
2. STUDS SHALL BE PLACED ON ALTERNATE SIDES OF JOINT.



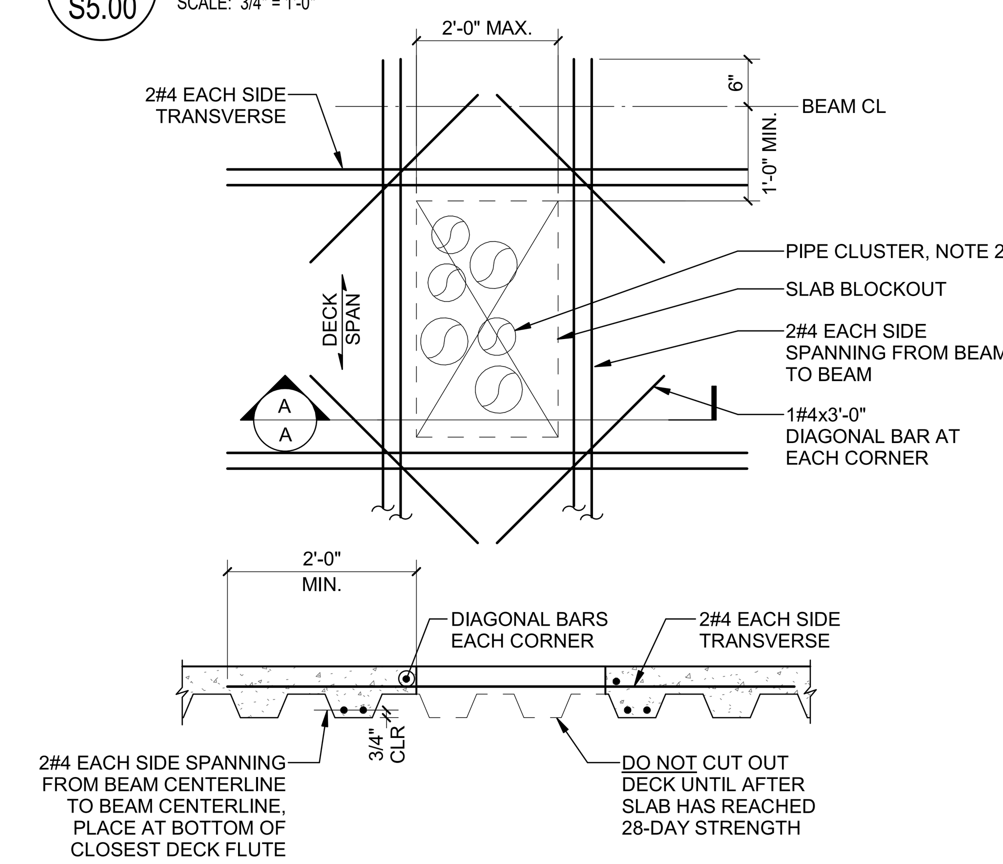
BUTT JOINTS

NOTES:
1. ALL STUDS LOCATED IN DECK FLUTES SHALL BE PLACED IN STRONG POSITION. A STUD PLACED ON THE SIDE OF THE REINFORCING RIB NEAREST THE END OF THE SPAN IS IN THE STRONG POSITION.
2. LAY OUT ALL STUDS FOR A BEAM PRIOR TO WELDING.



STUD PLACEMENT DETAIL

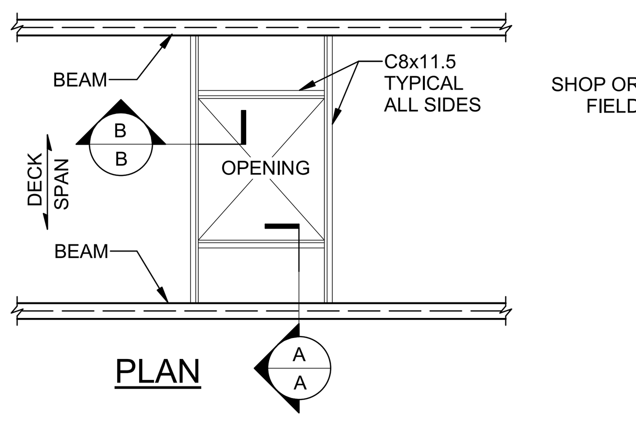
4 TYPICAL STUD PLACEMENT DETAIL
S5.00 SCALE: 3/4" = 1'-0"



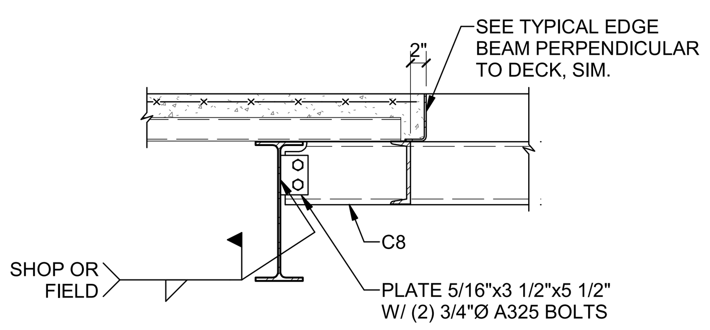
SECTION A-A

NOTES:
1. INDIVIDUAL CORES OR BLOCKOUTS OF 8" OR LESS DO NOT REQUIRE REINFORCING.
2. PIPE CLUSTER: TWO OR MORE PIPES WITH LESS THAN 1'-0" CLEAR BETWEEN PIPES.

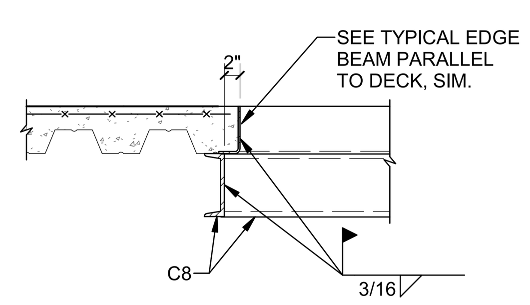
5 TYPICAL DECK PENETRATION ≤ 2'-0"
S5.00 SCALE: 3/4" = 1'-0"



PLAN



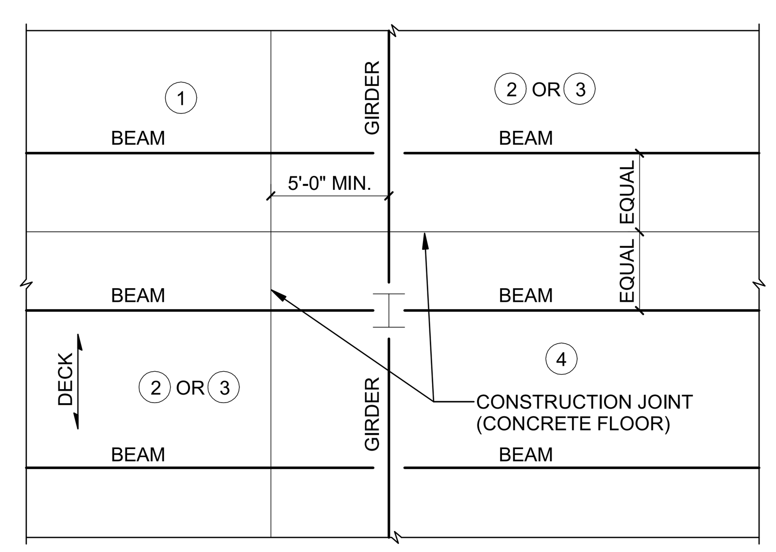
SECTION A-A



SECTION B-B

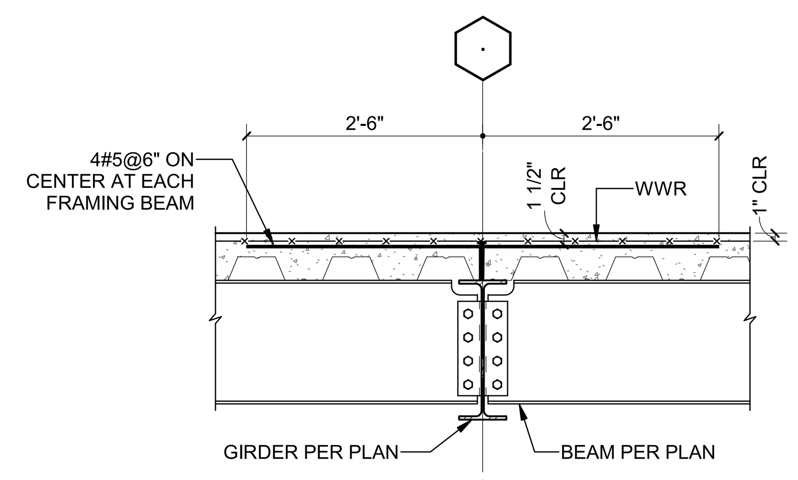
NOTES:
1. MAXIMUM OPENING DIMENSION = 5'-0".
2. SEE STRUCTURAL, ARCHITECTURAL, OR MECHANICAL DRAWINGS FOR LOCATION.

6 TYPICAL DETAIL AT COMPOSITE FLOOR OPENING
S5.00 SCALE: 3/4" = 1'-0"

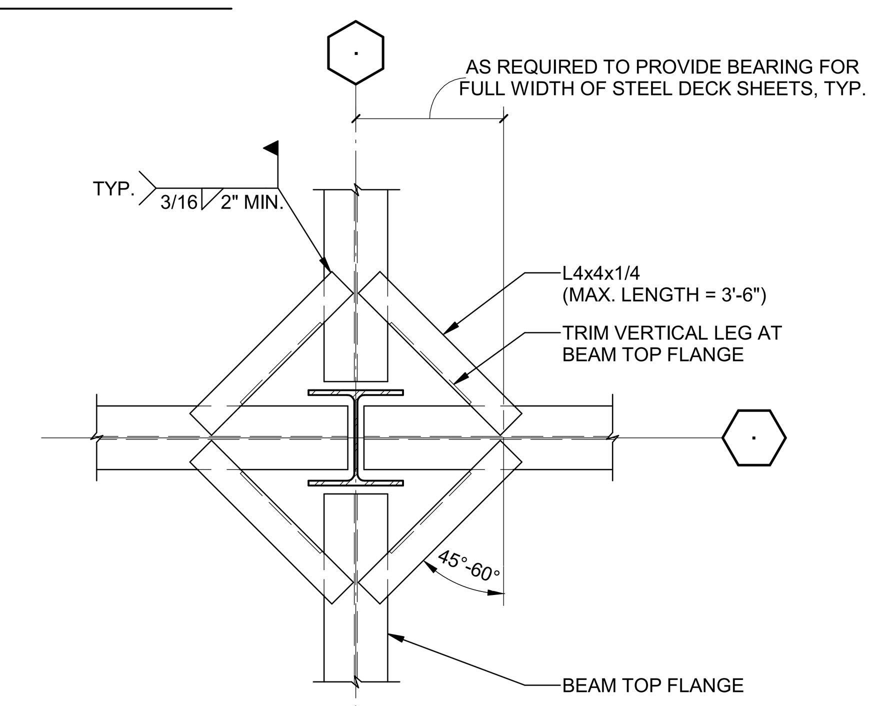


NOTES:
1. # REFERS TO POUR SEQUENCE.
2. CONTINUE SLAB REINFORCING THROUGH CONSTRUCTION JOINTS.

7 TYPICAL DETAIL AT COMPOSITE FLOOR CONSTRUCTION JOINT
S5.00 SCALE: 3/4" = 1'-0"

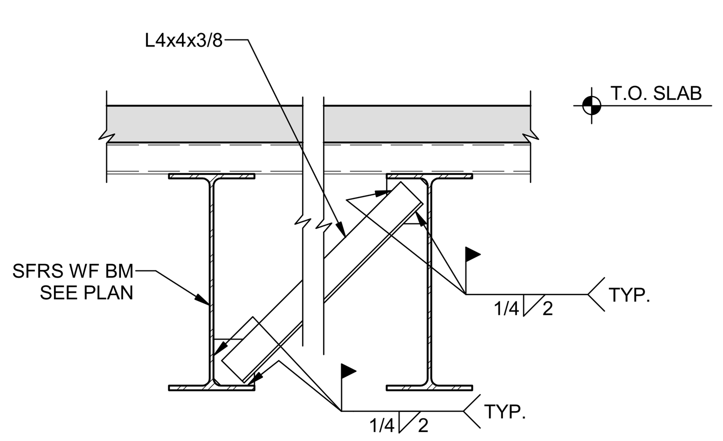


8 TYPICAL DETAIL AT GIRDER
S5.00 SCALE: 3/4" = 1'-0"



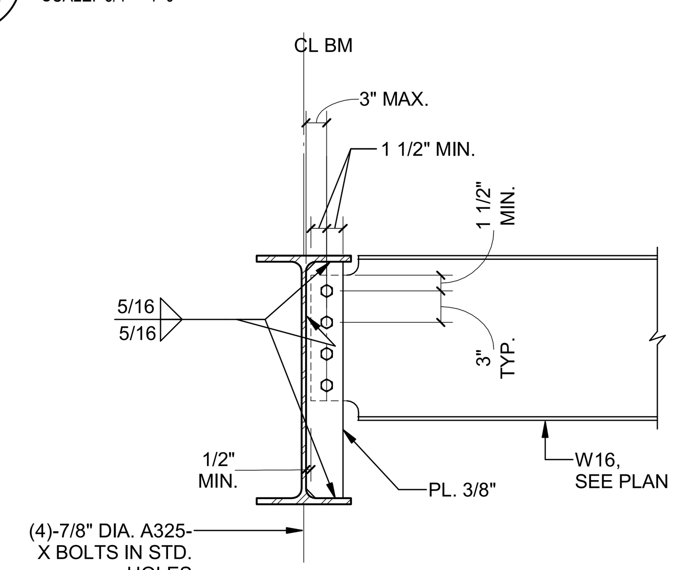
ANGLE REINFORCEMENT ONLY REQUIRED:
1. WHERE PIPE SLEEVES OCCUR NEXT TO COLUMN.
2. WHERE COLUMN BASE PLATE OCCURS ON TOP FLANGE OF STEEL BEAM.
3. AT ALL OTHER CONDITIONS WHERE DECK SUPPORT IS INTERRUPTED FOR A DISTANCE GREATER THAN 6".

9 TYPICAL INTERRUPTED DECK SUPPORT AT COLUMN
S5.00 SCALE: 3/4" = 1'-0"



NOTES:
1. USE THIS DETAIL WHERE BOTTOM FLANGE BRACES TO AN ADJACENT WF BEAM ARE SHOWN BUT NOT DETAILED.
2. COORDINATE LOCATIONS OF ANGLES W/ ARCH AND MEP DWGS.

10 TYPICAL WF BEAM BOT FLANGE BRACE TO WF BEAM
S5.00 SCALE: 1" = 1'-0"



11 FULL DEPTH BEAM CONNECTION DETAIL
S5.00 SCALE: 1" = 1'-0"

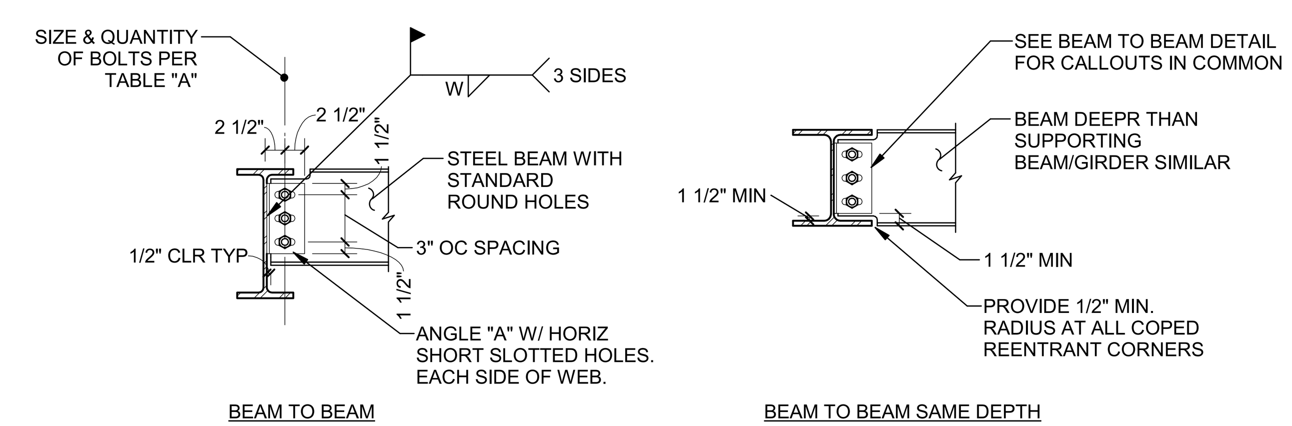


TABLE "A"

SUPPORTED BEAM SIZE	QUANTITY OF 7/8"Ø A325N BOLTS	ANGLE SIZE"A"	WELD "W"
W10	2	L5x3x5/16	1/4"
W12, W14	3	L5x3x5/16	1/4"
W16, W18	4	L5x3x5/16	1/4"
W21, W24	5	L5x3x5/16	1/4"
W27	6	L5x3x5/16	1/4"

12 TYPICAL SHEAR CONNECTION
S5.00 SCALE: 3/4" = 1'-0"

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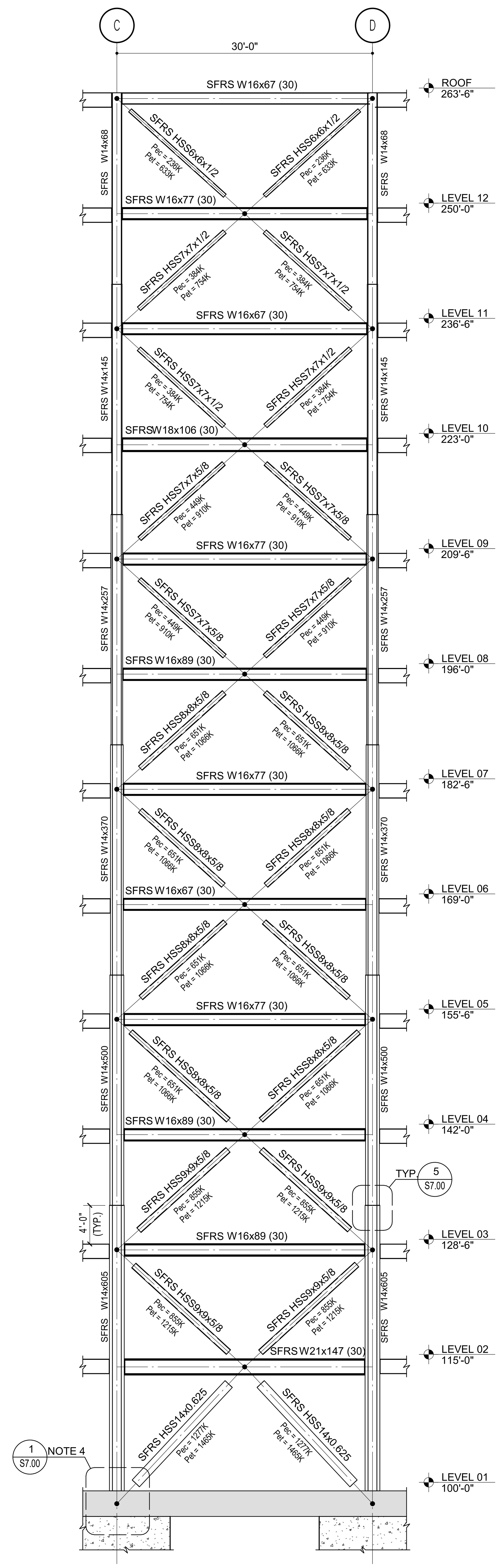
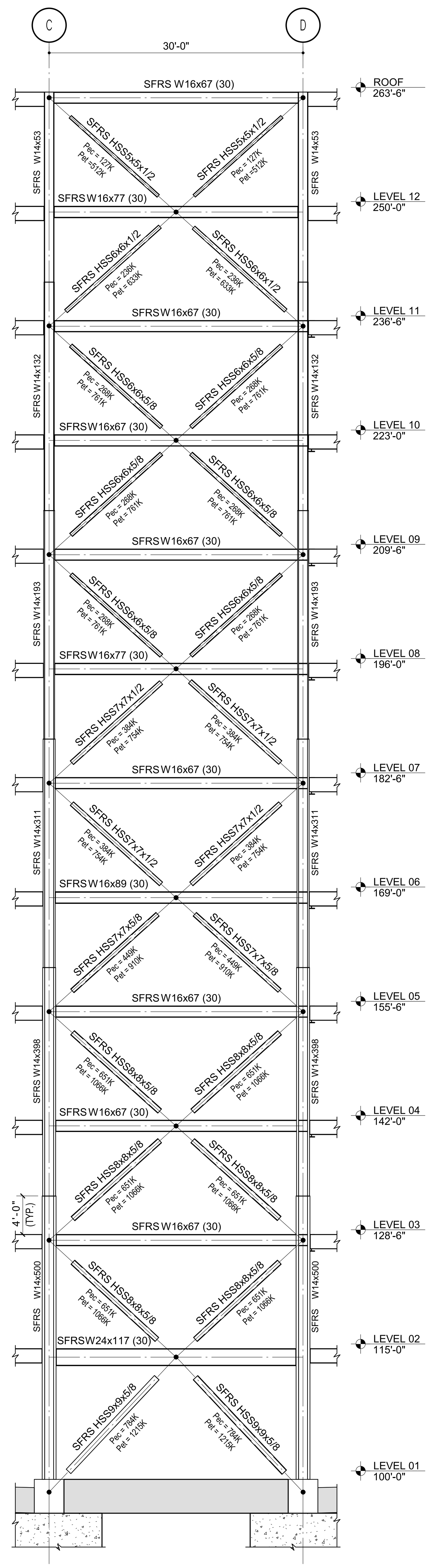
TITLE
STEEL DETAILS

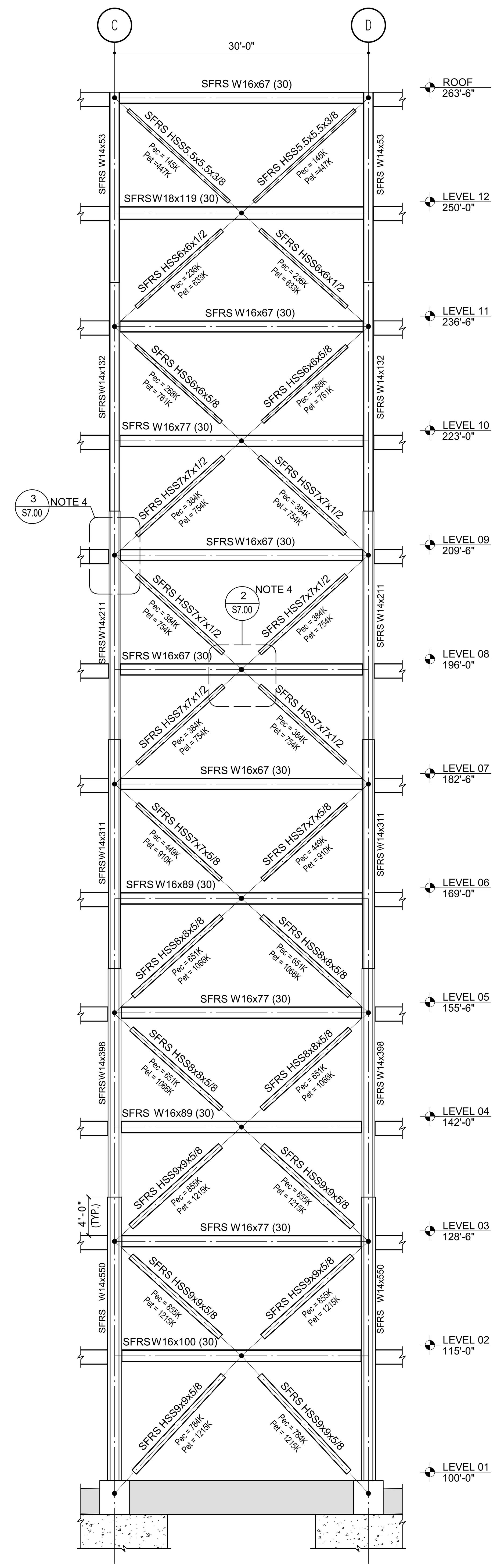
SHEET NUMBER
S5.00



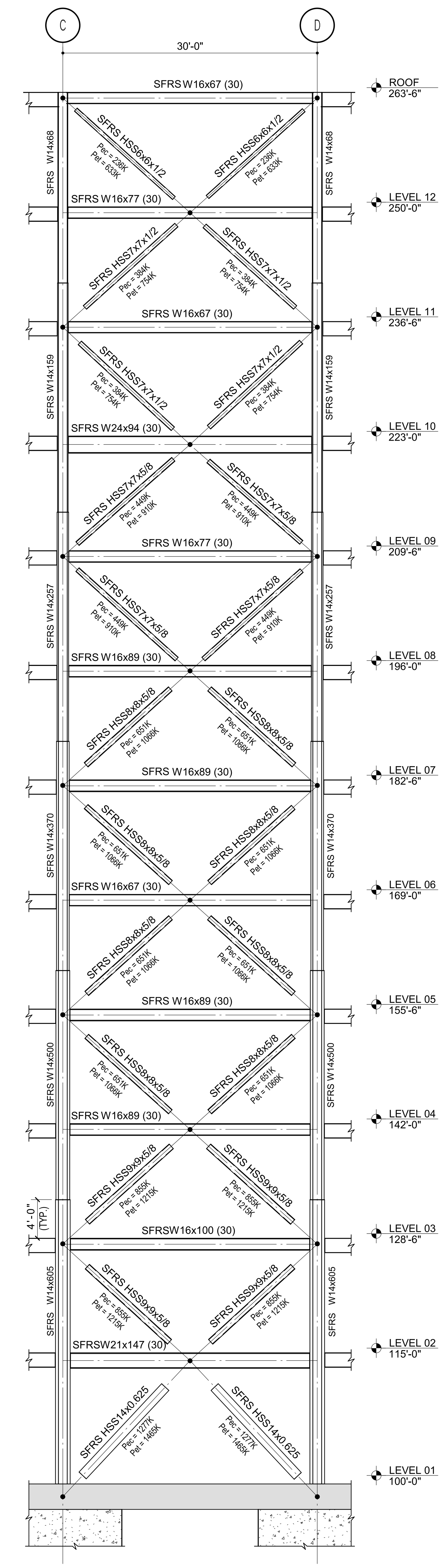
1 S6.00 ELEVATION ALONG GRID 2 BETWEEN GRID C AND D
SCALE: 1/8" = 1'-0"



2 S6.00 ELEVATION ALONG GRID 4 BETWEEN GRID C AND D
SCALE: 1/8" = 1'-0"



3 S6.00 ELEVATION ALONG GRID 5 BETWEEN GRID C AND D
SCALE: 1/8" = 1'-0"



4 S6.00 ELEVATION ALONG GRID 6 BETWEEN GRID C AND D
SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. ALL BRACES, BEAMS AND COLUMNS INDICATED AS 'SFRS' ARE PART OF THE SEISMIC FORCE RESISTING SYSTEM (SFRS). SEE PLANS & ELEVATIONS.
2. SEE S7.00 FOR TYPICAL BRACED FRAME DETAILS.
3. Pec = XXXXK INDICATES EXPECTED COMPRESSION FORCE IN BRACE FOR DESIGN OF CONNECTIONS
   Pet = XXXXK INDICATES EXPECTED TENSION FORCE IN BRACE FOR DESIGN OF CONNECTIONS
4. EXAMPLE CONNECTION CALCULATIONS WERE PERFORMED FOR SPECIFIC INDICATED CONDITIONS. CONNECTION GEOMETRY AND DESIGN WILL VARY BASED ON EACH BRACED FRAME MEMBER SIZES PER AISC 341.

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TITLE
BRACED FRAME ELEVATIONS

SHEET NUMBER
S6.00

1 S6.10

MOMENT FRAME ELEVATION ALONG GRID A

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. ALL BEAMS AND COLUMNS INDICATED AS 'SFRS' ARE PART OF THE SEISMIC FORCE RESISTING SYSTEM (SFRS). SEE PLANS & ELEVATIONS.
2. SEE S7.10 SERIES FOR TYPICAL BRACED FRAME DETAILS.
3. [X"] INDICATES DOUBLER PLATE THICKNESS. SEE DETAIL 3/ S7.10

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MOMENT FRAME ELEVATIONS

SHEET NUMBER

S6.10

1 S6.20 MOMENT FRAME ELEVATION ALONG GRID E

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. ALL BEAMS AND COLUMNS INDICATED AS 'SFRS' ARE PART OF THE SEISMIC FORCE RESISTING SYSTEM (SFRS). SEE PLANS & ELEVATIONS.
2. SEE S7.10 SERIES FOR TYPICAL BRACED FRAME DETAILS.
3. X" INDICATES DOUBLER PLATE THICKNESS. SEE DETAIL 3/ S7.10

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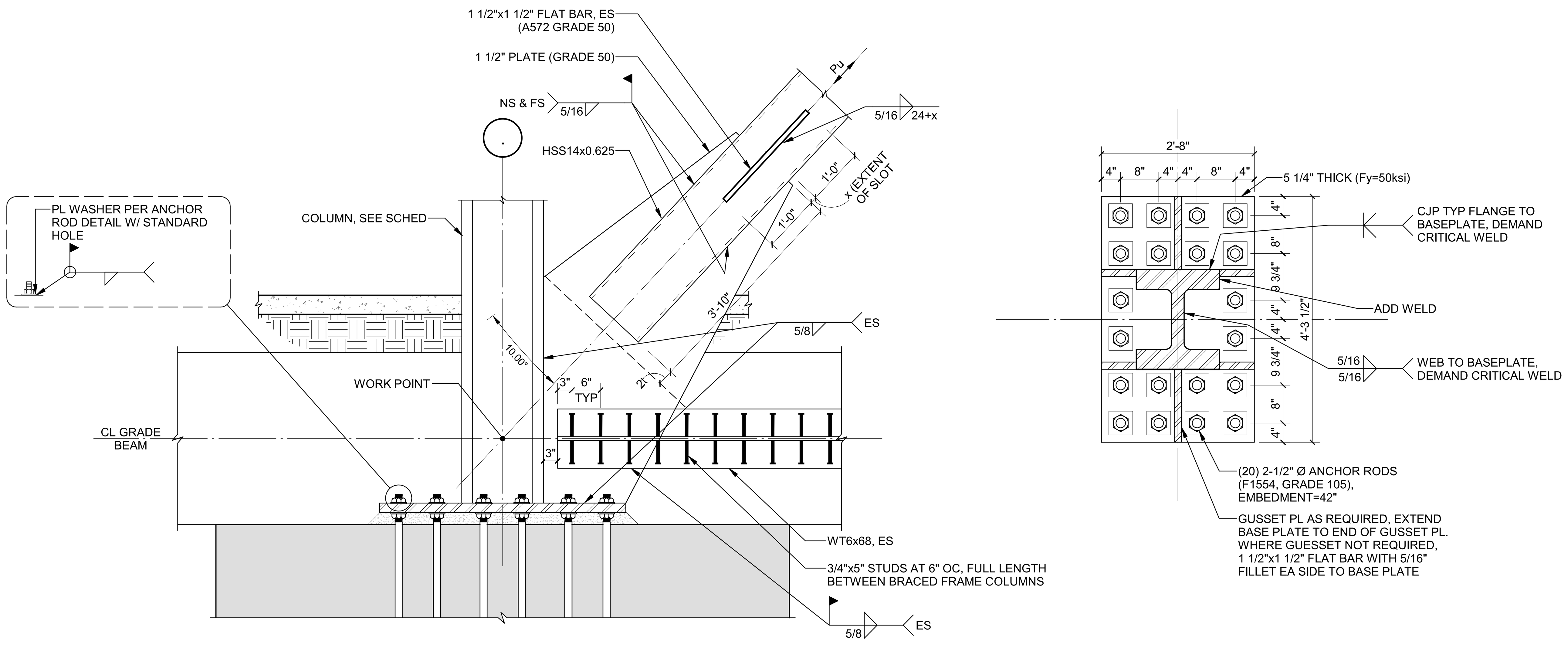
MOMENT FRAME ELEVATIONS

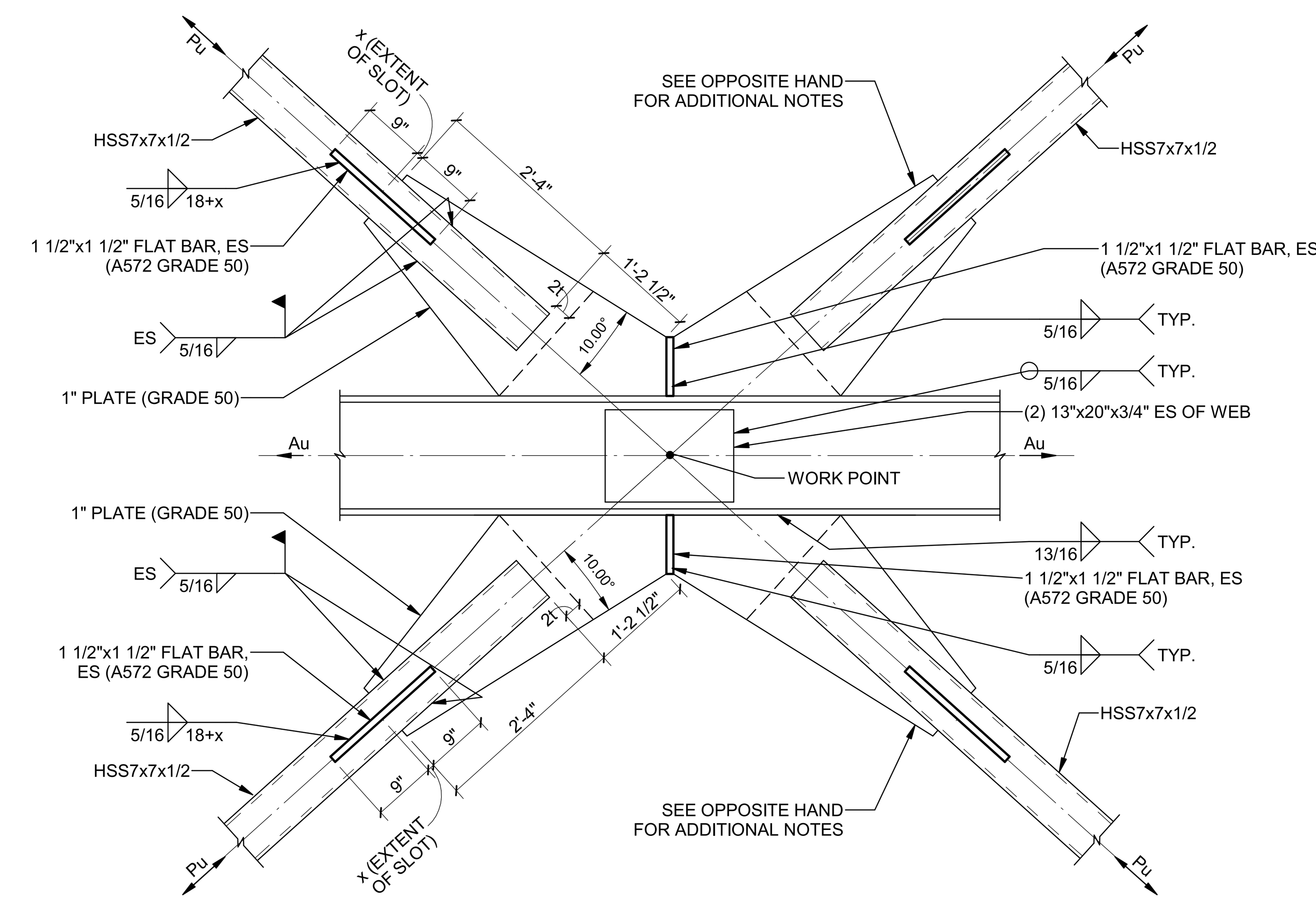
SHEET NUMBER

S6.20

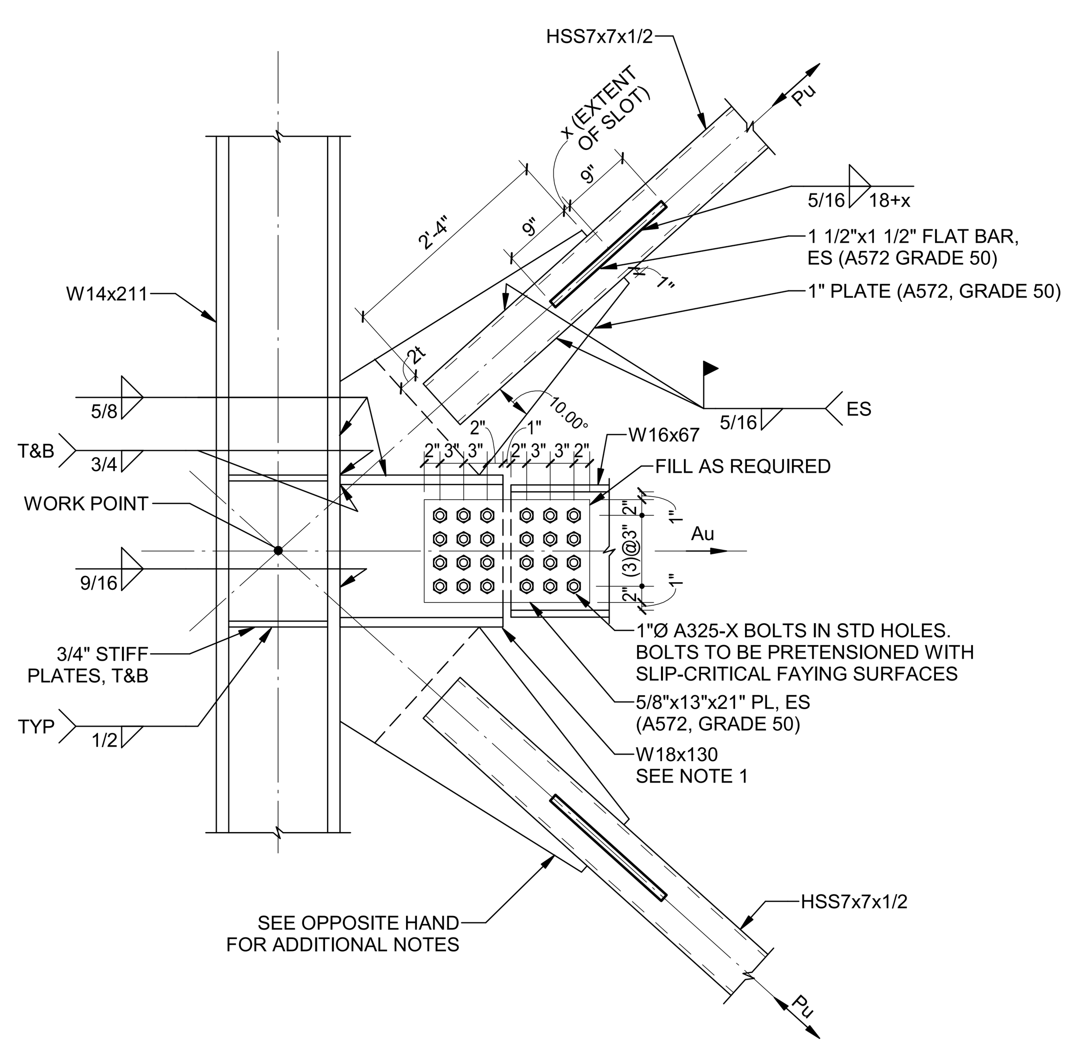


NOTES:
1. AT SIM, CONNECTION GEOMETRY AND DESIGN WILL VARY BASED ON EACH BRACED FRAME MEMBER SIZES PER AISC 341.

1 S7.00 BRACED FRAME CONNECTION
SCALE: 3/4" = 1'-0"

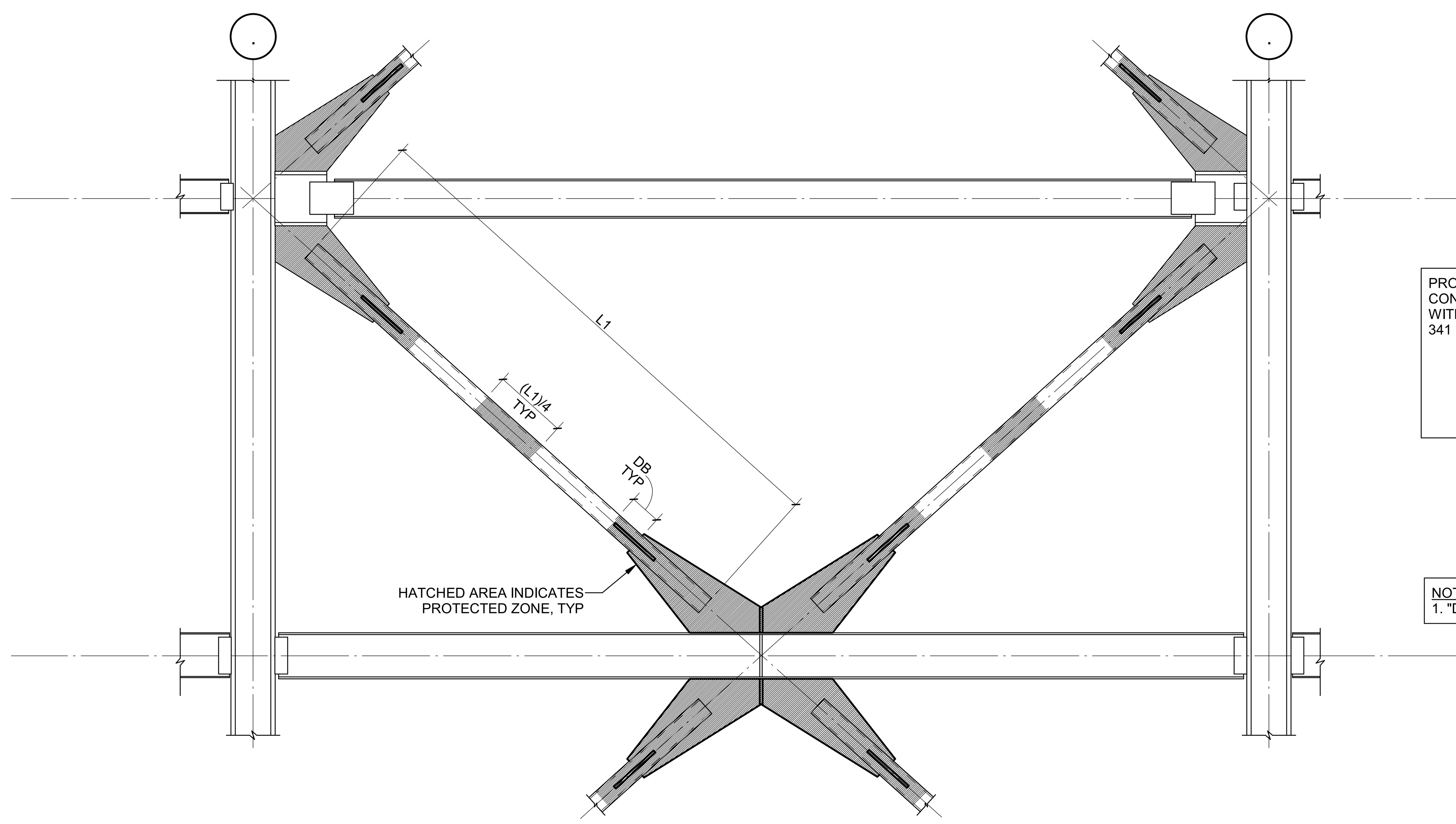


2 S7.00 BRACED FRAME CONNECTION
SCALE: 3/4" = 1'-0"



NOTES:
1. PROVIDE L3x2x1/4 (LLH) DECK SUPPORT AT LARGER BEAM WHERE REQUIRED.

3 S7.00 BRACED FRAME CONNECTION
SCALE: 3/4" = 1'-0"

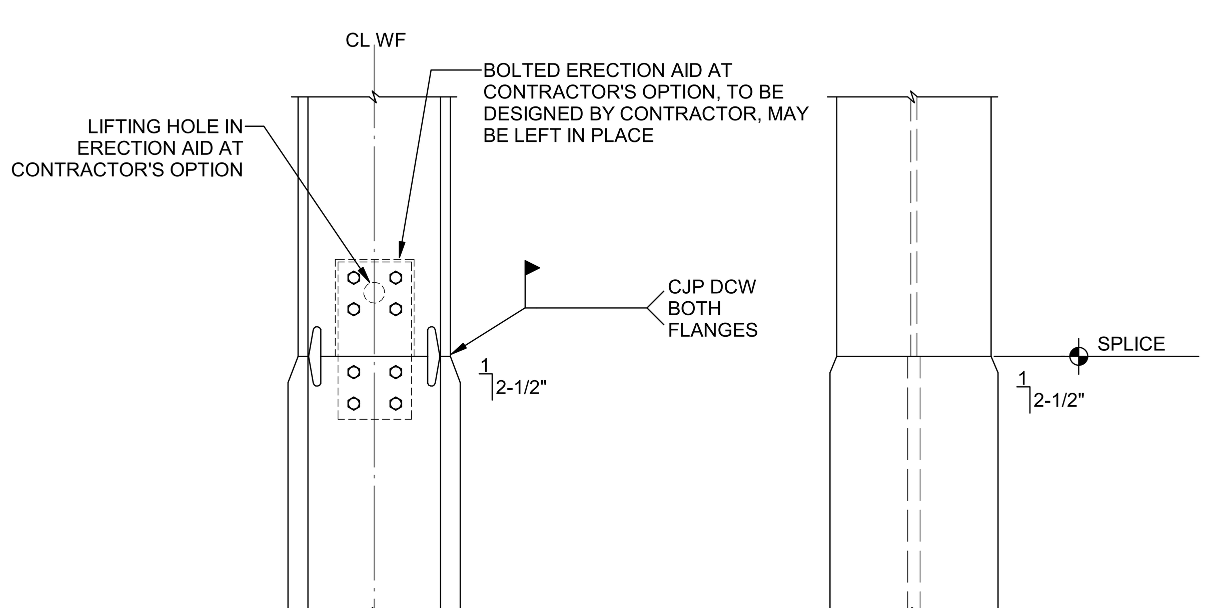


PROTECTED ZONES ARE AREAS OF THE SEISMIC FORCE RESISTING SYSTEM MEMBERS AND MEMBER CONNECTIONS WHERE LIMITATIONS APPLY TO FABRICATION AND SUPPLEMENTAL ATTACHMENTS. WITHIN DESIGNATED PROTECTED ZONES COMPLY WITH THE FOLLOWING AND AS INDICATED IN AISC 341 SECTION D1.3 AND I2.1:

1. HOLES, TACK WELDS, ERECTION AIDS, AIR-ARC GOUGING AND UNSPECIFIED THERMAL CUTTING FROM FABRICATION OR ERECTION OPERATIONS SHALL BE REPAIRED AS REQUIRED BY THE ENGINEER OF RECORD.
2. WELDED, BOLTED, SCREWED OR SHOT-IN ATTACHMENTS FOR FACADES, PARTITIONS, DUCT WORK, PIPING OR OTHER CONSTRUCTION SHALL NOT BE PERMITTED.

NOTES:
1. "DB" INDICATES THE BRACE DIAMETER OR THICKNESS.

4 S7.00 TYPICAL DETAIL AT PROTECTED ZONES
SCALE: 3/8" = 1'-0"



5 S7.00 TYPICAL BRACED AND MOMENT FRAME COLUMN SPLICE
SCALE: 1" = 1'-0"

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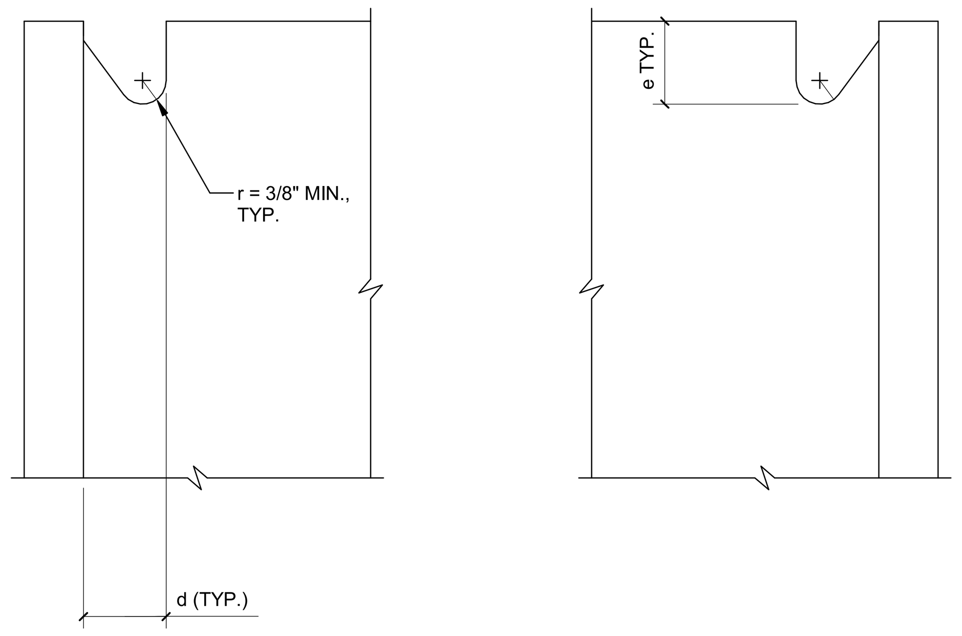
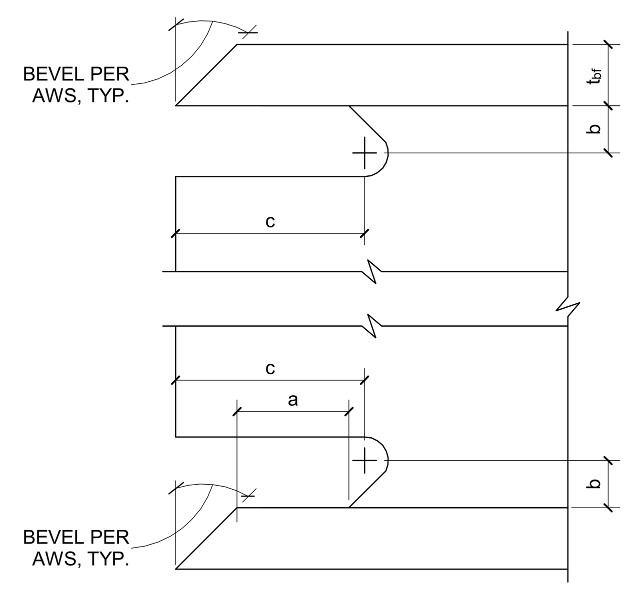
BRACED FRAME DETAILS

SHEET NUMBER
S7.00



NOTES:
1. FOR ADD'L INFO SEE AISC 360 SECTION J1.6
2. PREHEAT PER AISC 360 SECTION M2.2 BEFORE THERMAL CUTTING.
3. 'tw' IS THE THICKNESS OF THE MATERIAL IN WHICH THE HOLE IS MADE.
4. d = GREATER OF 1 5/16" AND tw.
5. e = 1 1/2 x tw, e = 1" MIN., e MAY BE REDUCED TO 2" FOR W14x426 AND LARGER COLUMNS.

1 S7.10 TYP. WELD ACCESS HOLE DETAIL AT COLUMN

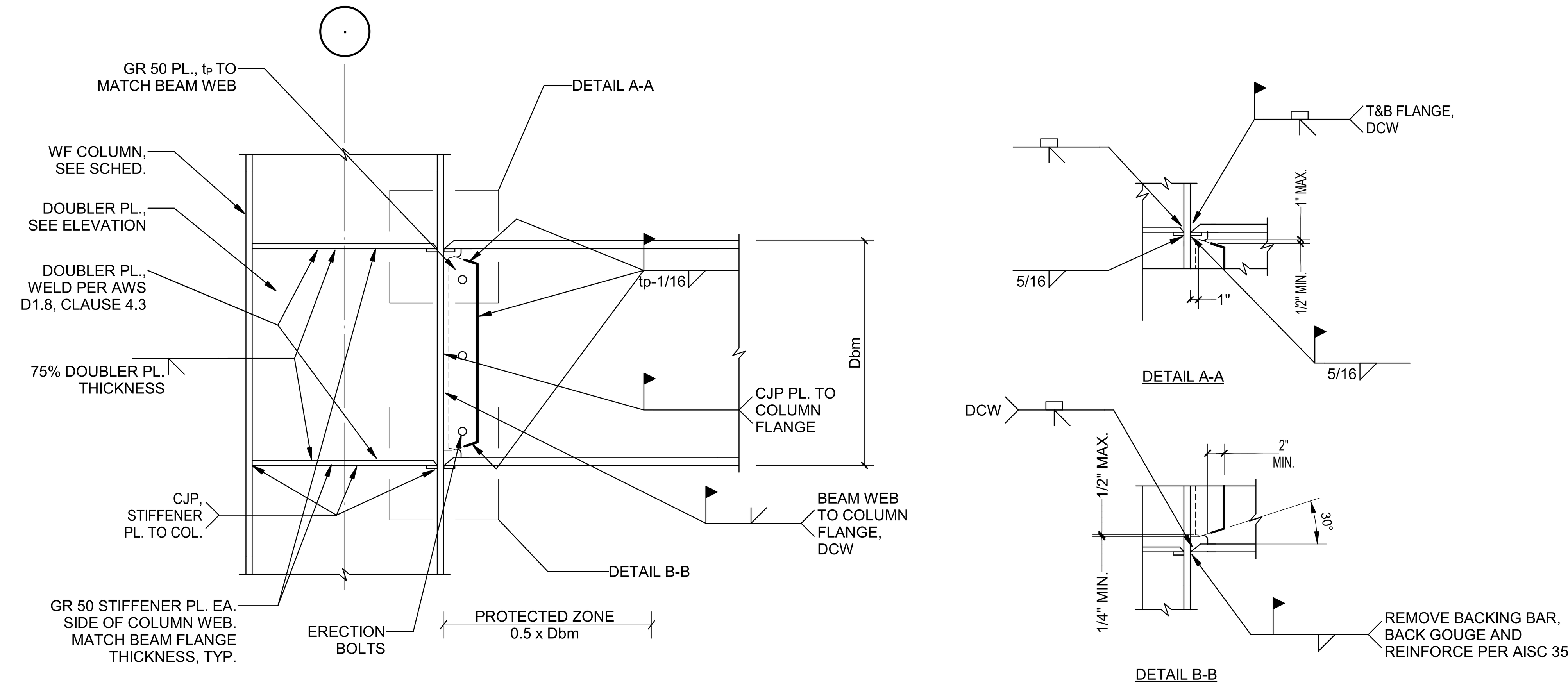


NOTES:

DIMENSION AS FOLLOWS (INCLUDING AISC TOLERANCES)

a = LARGER OF t_{bf} OR 1/2" (+ 1/2 x t_{bf} , - 1/4 x t_{bf})
b = GREATER OF 3/4 x t_{bf} OR 3/4" (± 1/4")
c = 3 x t_{bf} (± 1/2")

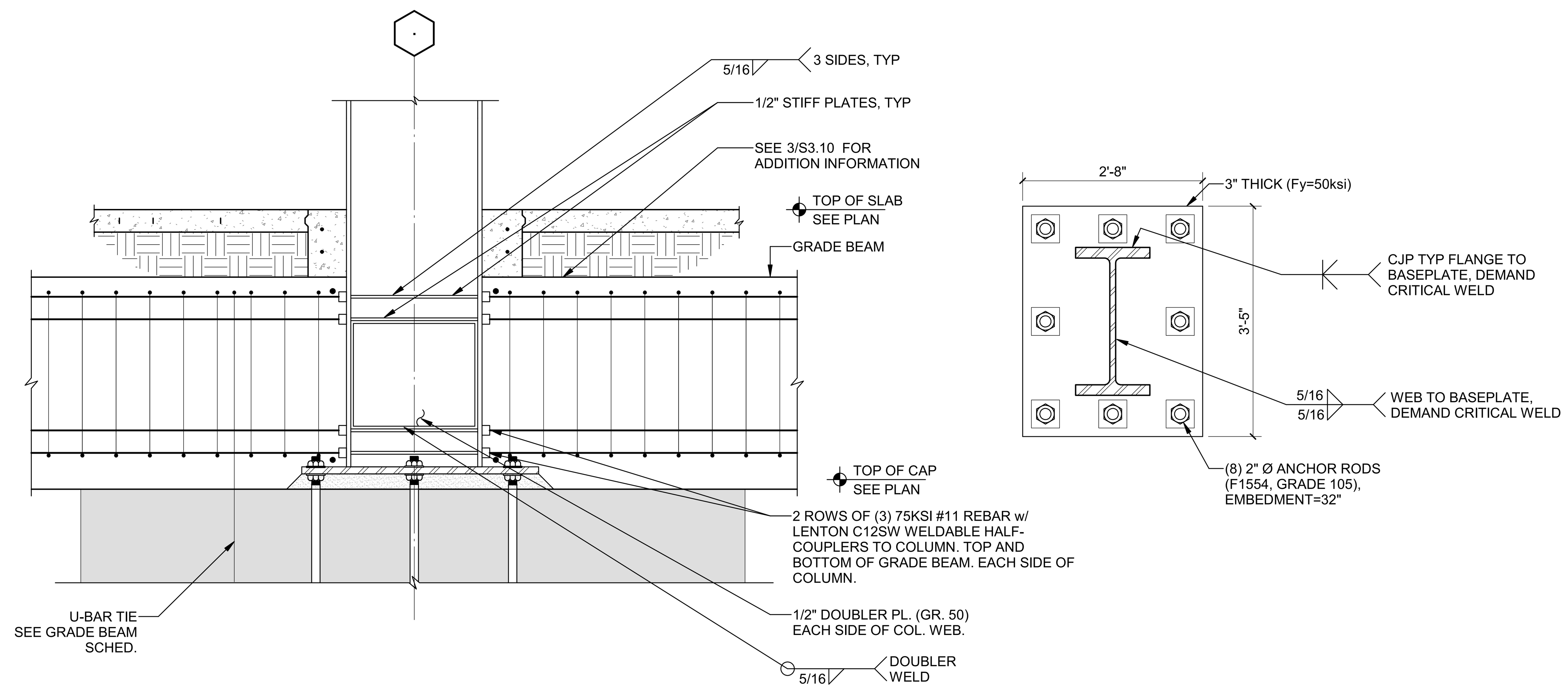
2 S7.10 TYP. WELD ACCESS HOLE DETAIL AT BEAM



PROTECTED ZONES ARE AREAS OF THE SEISMIC FORCE RESISTING SYSTEM MEMBERS AND MEMBER CONNECTIONS WHERE LIMITATIONS APPLY TO FABRICATION AND SUPPLEMENTAL ATTACHMENTS. WITHIN DESIGNATED PROTECTED ZONES COMPLY WITH THE FOLLOWING AND AS INDICATED IN AISC 341 SECTION D1.3 AND I2.1:

1. HOLES, TACK WELDS, ERECTION AIDS, AIR-ARC GOUGING AND UNSPECIFIED THERMAL CUTTING FROM FABRICATION OR ERECTION OPERATIONS SHALL BE REPAIRED AS REQUIRED BY THE ENGINEER OF RECORD.
2. WELDED, BOLTED, SCREWED OR SHOT-IN ATTACHMENTS FOR FACADES, PARTITIONS, DUCT WORK, PIPING OR OTHER CONSTRUCTION SHALL NOT BE PERMITTED.

3 S7.10 MOMENT CONNECTION WUF - W



4 S7.10 MOMENT FRAME CONNECTION
SCALE: 3/4" = 1'-0"

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MOMENT FRAME DETAILS

SHEET NUMBER
S7.10

Design Case B

2018 IBC
Risk Category III
Seismic Design Category D

B.1 Gravity Design

The 12-story office is a typical steel framed building with 3” metal deck and 3-1/4” lightweight concrete topping providing a total floor depth of 6-1/4”, not including the structural steel. This decking was chosen to provide the required 2-hour fire rating that is typical for office buildings. The columns and beams are ASTM A992 steel wide flange members and were designed using ANSI/AISC 360-16. The deflection was limited to the IBC prescribed limits of $L/360$ for floor live load, $L/240$ for floor total load, $L/240$ for roof live load and $L/180$ for roof total load.

The calculated total dead load applied was 62.5 psf at the floors and 72.5 psf at the roof. The live loads for offices, corridors (at and above the first floor) and roofs were per IBC table 1607.1. Partition loads were also applied per IBC 1607.5.

B.2 Lateral Design

The building lateral load resisting system consists of braced frames in the North/South direction and moment frames in the East/West direction. The applied wind and seismic loads were determined using Chapters 27 and 12 respectively from the ASCE 7-16. Wind base shears significantly exceeded earthquake base shears in both directions. Thus, for the lateral load resisting system in the North/South direction the brace sizes were governed by wind, however the columns and beams were governed by seismic detailing requirements. In the East/West direction the moment frame beams were governed by wind drift requirements while the columns were governed by seismic detailing requirements. Wind drifts were limited to $H/400$ during a 25-year mean return interval windstorm. Fixed base connections for the moment frames, utilizing the code required concrete grade beams, were used to limit drift and column sizes.

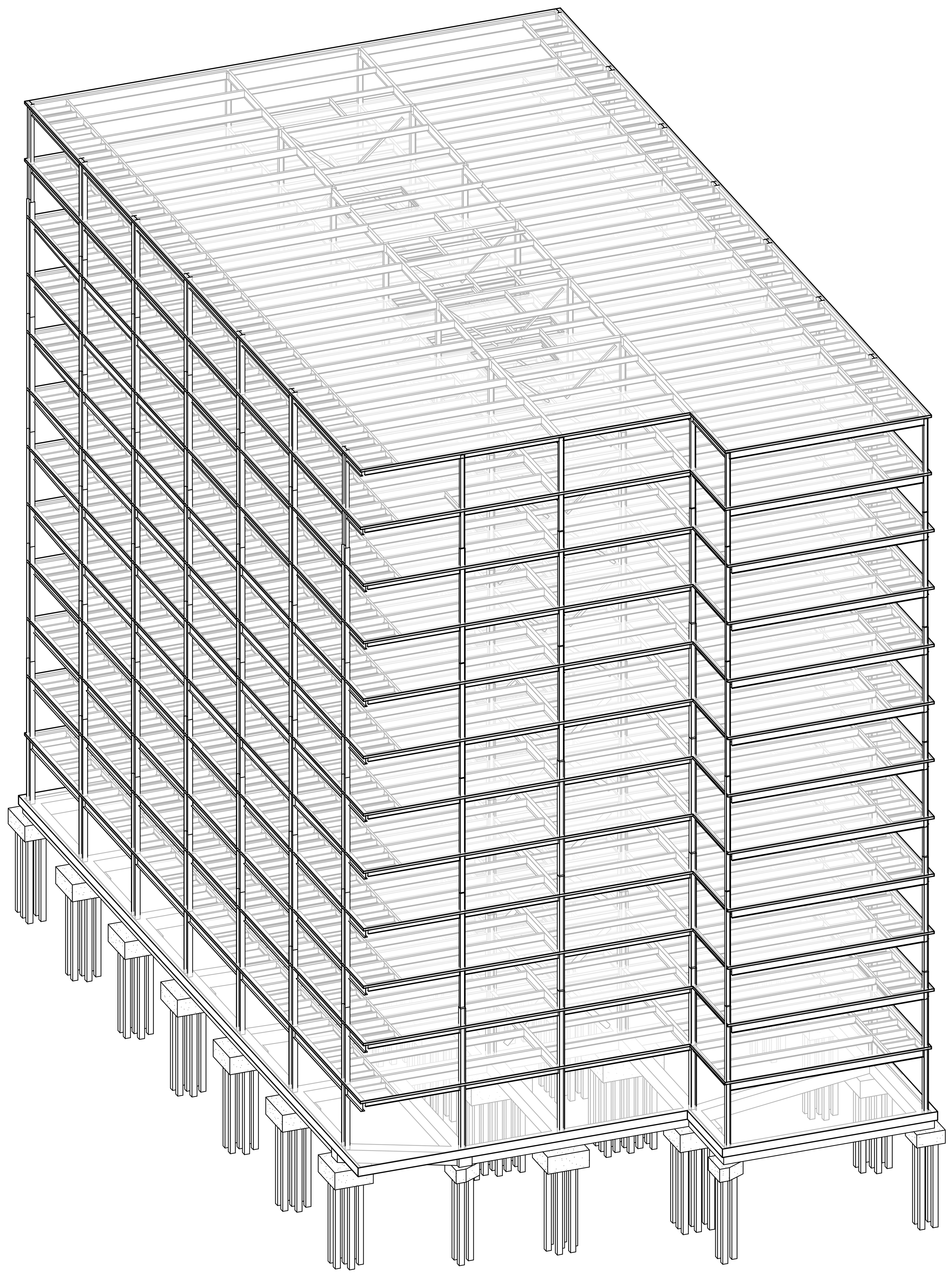
B.3 Steel Tonnage

Total steel tonnage for this design case is calculated as 1,720 tons.

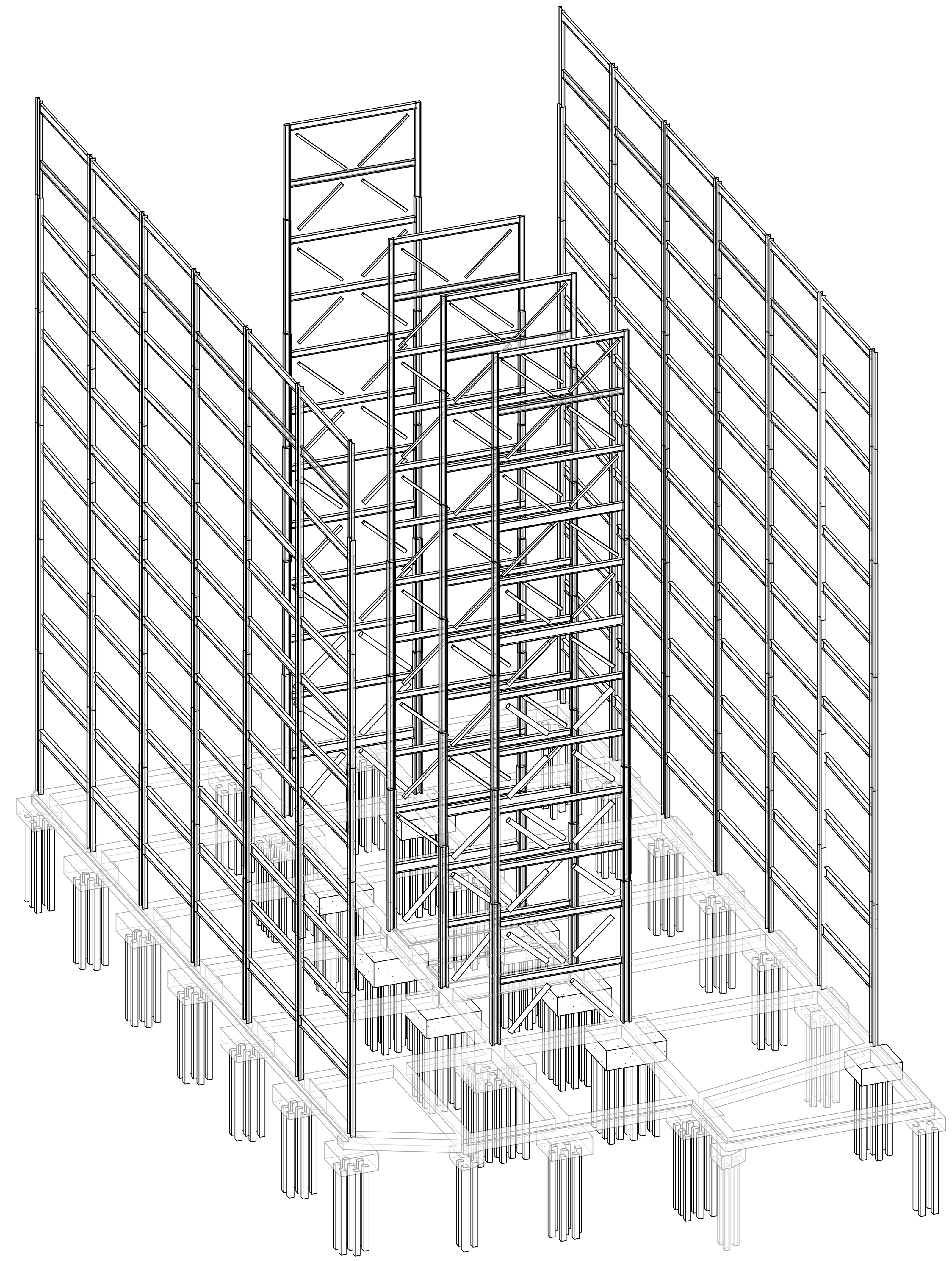
B.4 Structural Drawings

Structural drawings for Design Case B are provided on the following pages.

OFFICE BUILDING - SAVANNAH, GEORGIA
DESIGN B - 2018 IBC RISK CATEGORY III



OVERALL FRAMING 3D VIEW



FORCE RESISTING SYSTEM 3D VIEW

DESIGN B: 2018 IBC RISK CATEGORY III	
OFFICE BUILDING SAVANNAH, GEORGIA	
ITEM	**QUANTITY**
WF COLUMNS (Fy = 50 ksi)	60 TONS
WF GIRDERS & JOISTS (Fy = 50 ksi)	933 TONS
MOMENT FRAME WF COLUMNS (Fy = 50 ksi)	211 TONS
MOMENT FRAME WF BEAMS (Fy = 50 ksi)	186 TONS
BRACED FRAME WF COLUMNS (Fy = 50 ksi)	213 TONS
BRACED FRAME WF BEAMS (Fy = 50 ksi)	62 TONS
HSS BRACES ROUND (Fy = 46 ksi) & SQUARE (Fy = 50 ksi)	56 TONS
TOTAL	1720 TONS

NOTES:

1. STEEL QUANTITIES DO NOT INCLUDE MISCELLANEOUS STEEL, CUT WASTE STEEL, STAIRS, TYPICAL STEEL FRAMING CONNECTIONS, ETC.

STRUCTURAL DRAWING INDEX

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COVER SHEET

SHEET NUMBER

S0.00

ABBREVIATIONS

A	ADD'L	ADDITIONAL
	ADJ.	ADJACENT
	A/E	ARCHITECT/ENGINEER
	ALT.	ALTERNATE
	ARCH.	ARCHITECTURAL
	AFF	ABOVE FINISHED FLOOR
B	BM	BEAM
	BRG	BEARING
	BOT.	BOTTOM
	B/, BO	BOTTOM OF
	BLDG	BUILDING
C	CJ	CONTRACTION JOINT
	CL	CENTERLINE
	CLR	CLEAR
	CMU	CONCRETE MASONRY UNIT
	COL.	COLUMN
	COORD.	COORDINATE
	CONC.	CONCRETE
	CONN.	CONNECTION
	CONT.	CONTINUOUS
D	DIM.	DIMENSION
E	EA.	EACH
	EE	EACH END
	EF	EACH FACE
	ES	EACH SIDE
	EW	EACH WAY
	ELEV.	ELEVATION, ELEVATOR
	EMBED.	EMBEDMENT
	EQ.	EQUAL
	EXP. JT.	EXPANSION JOINT
F	FTG	FOOTING
	FND	FOUNDATION
G	GALV.	GALVANIZED
	GR.	GRADE (MATERIAL)
H	HK	HOOK
	HORIZ.	HORIZONTAL
	HT	HEIGHT
I	IF	INSIDE FACE
	INFO.	INFORMATION
J	JT	JOINT
K	K	KIPS
	KSF	KIPS PER SQUARE FOOT
L	LLH	LONG LEG HORIZONTAL
	LLV	LONG LEG VERTICAL
	LSH	LONG SIDE HORIZONTAL
	LSV	LONG SIDE VERTICAL
M	MANUF.	MANUFACTURER
	MAX.	MAXIMUM
	MECH.	MECHANICAL
	MEP	MECHANICAL, ELECTRICAL, PLUMBING
	MIN.	MINIMUM
	MISC.	MISCELLANEOUS
O	OC	ON CENTER
	OPNG	OPENING
	OPP.	OPPOSITE
	OH	OPPOSITE HAND
P	PL.	PLATE
	PCF	POUNDS PER CUBIC FOOT
	PCY	POUNDS PER CUBIC YARD
	PSF	POUNDS PER SQUARE FOOT
	PSI	POUNDS PER SQUARE INCH
R	REINF.	REINFORCEMENT, REINFORCING
	REQ'D	REQUIRED
S	SCHED.	SCHEDULE
	SIM.	SIMILAR
	SFRS	SEISMIC FORCE RESISTING SYSTEM
	SOG	SLAB ON GROUND
	STIFF.	STIFFENER
	SYM.	SYMMETRIC
T	TEMP.	TEMPERATURE
	T&B	TOP AND BOTTOM
	T/, TO	TOP OF
	TYP.	TYPICAL
U	UNO	UNLESS NOTED OTHERWISE
V	VERT.	VERTICAL
W	WF	WIDE FLANGE
	WP	WORK POINT
	WWR	WELDED WIRE REINFORCEMENT
	W/	WITH

1.00 GENERAL

1.1 LOCATION:
- SAVANNAH, GEORGIA
- 32.0808989 LATITUDE, -81.091203 LONGITUDE

1.2 ALL CONSTRUCTION SHALL CONFORM TO THE 2018 INTERNATIONAL BUILDING CODE. REFERENCE TO OTHER STANDARD SPECIFICATIONS OR CODES SHALL MEAN THE BUILDING CODE ADOPTED EDITION.

1.3 CONSTRUCTION SHALL BE TESTED AND INSPECTED BY A QUALIFIED AGENCY IN ACCORDANCE WITH CHAPTER 17 OF THE BUILDING CODE.

2.00 STRUCTURAL LOAD CRITERIA

2.1 RISK CATEGORY______III

2.2 DEAD LOADS (SEE LOAD MAPS, S1.00):
- ROOFING______10 PSF
- MISCELLANEOUS ROOF LOAD______10 PSF
- MISCELLANEOUS FLOOR LOAD______10 PSF
- COMPOSITE SLAB:______46 PSF
- STRUCTURAL STEEL______ACTUAL

2.3 LIVE LOADS*(SEE LOAD MAPS, S1.00):
- OFFICE______50 PSF/2000 POUNDS
- PARTITIONS (UNREDUCIBLE)______15 PSF
- CORRIDORS______80 PSF
- LOBBIES & STAIRS______100 PSF
- MECHANICAL & STORAGE ROOMS______125 PSF

* LIVE LOAD REDUCTIONS ARE TAKEN IN ACCORDANCE WITH IBC SECTION 1607.11.1.

2.4 SNOW LOAD CRITERIA:
- GROUND SNOW LOAD______Pg = 0 PSF

2.5 WIND LOAD CRITERIA:
- BASIC DESIGN WIND SPEED______V = 148 MPH
- ALLOWABLE STRESS DESIGN WIND SPEED______Vasd = 115 MPH
- WIND EXPOSURE______C
- INTERNAL PRESSURE COEFFICIENT______Gcpi = ± 0.18
- DESIGN BASE SHEAR, NORTH-SOUTH______2658 KIPS
- DESIGN BASE SHEAR, EAST-WEST______1890 KIPS
- ALLOWABLE DRIFT AT-25 YEAR MEAN RETURN INTERVAL______HT/400
- COMPONENTS AND CLADDING BASIC DESIGN WIND PRESSURES (PSF):

ELEMENT	ZONE	EFFECTIVE WIND AREA (FT^2)		
		A < 10	A = 100	A > 500
WALLS	4	± 70	± 64	± 57
	5	± 128	± 102	± 77
ROOF	1	± 102	± 84	± 70
	2	± 161	± 134	± 115
	3	± 219	± 185	± 161
PARAPET	2	± 209	± 172	± 143
	3	± 267	± 223	± 189

NOTES:
1. REFER TO ASCE 7-16 FIGURE 30.5-1 FOR WALL AND ROOF ZONE LOCATIONS.
2. WALL ZONE 5 SHALL EXTEND 12'-6" FROM BUILDING EDGES.
3. ROOF ZONE 2 SHALL EXTEND 12'-6" FROM THE ROOF EDGES.
4. ROOF ZONE 3 SHALL EXTEND 12'-6" FROM THE ROOF EDGES AND 25'-0" FROM ROOF CORNERS.
5. "+" INDICATES POSITIVE AND "–" INDICATES NEGATIVE PRESSURE (SUCTION).
6. FOR ALLOWABLE STRESS DESIGN, MULTIPLY TABULATED PRESSURES BY 0.6.
7. EFFECTIVE AREAS BETWEEN THOSE PROVIDED IN THE TABLE ABOVE MAY BE INTERPOLATED.
8. DEFERRED SUBMITTALS BY DELEGATED COMPONENT STRUCTURAL ENGINEER SHALL INDEPENDENTLY DETERMINE THE DESIGN PRESSURES BASED ON APPLICABLE BUILDING CODES.

2.06 SEISMIC LOAD CRITERIA:
- SEISMIC IMPORTANCE FACTOR______$I_e = 1.25$
- 0.2 SECOND SPECTRAL RESPONSE ACCELERATION $S_S = 0.313$
- 1.0 SECOND SPECTRAL RESPONSE ACCELERATION $S_1 = 0.114$
- SITE CLASS______E
- SITE COEFFICIENT______$F_a = 2.223$
- SITE COEFFICIENT______$F_v = 4.2$
- 0.2 SECOND SPECTRAL DESIGN RESPONSE ACCELERATION______$S_{DS} = 0.464$
- 1.0 SECOND SPECTRAL DESIGN RESPONSE ACCELERATION______$S_{D1} = 0.319$
- SEISMIC DESIGN CATEGORY______D
- BASIC SEISMIC FORCE RESISTING SYSTEM, NORTH-SOUTH:
  STEEL SPECIAL CONCENTRICALLY BRACED FRAMES
  RESPONSE MODIFICATION COEFFICIENT______$R = 6$
  SYSTEM OVERSTRENGTH FACTOR______$\Omega_o = 2$
  DEFLECTION AMPLIFICATION FACTOR______$C_d = 5$
  DESIGN BASE SHEAR______1255 KIPS
  SEISMIC RESPONSE COEFFICIENT______$C_s = 0.052$
- BASIC SEISMIC FORCE RESISTING SYSTEM, EAST-WEST:
  STEEL SPECIAL MOMENT FRAMES
  RESPONSE MODIFICATION COEFFICIENT______$R = 8$
  SYSTEM OVERSTRENGTH FACTOR______$\Omega_o = 3$
  DEFLECTION AMPLIFICATION FACTOR______$C_d = 5.5$
  DESIGN BASE SHEAR______620 KIPS
  SEISMIC RESPONSE COEFFICIENT______$C_s = 0.026$
- ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE

3.00 FOUNDATIONS:

3.01 PRECAST PRESTRESSED CONCRETE PILES SHALL BE 14 INCHES SQUARE WITH THE FOLLOWING ALLOWABLE CAPACITIES:
- COMPRESSION______80 TONS
- TENSION______60 TONS
- LATERAL______10 TONS

4.00 REINFORCED CONCRETE

4.01 ALL CONCRETE WORK SHALL CONFORM TO ACI 301-16, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS". DESIGN IS BASED ON ACI 318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE".

4.02 UNLESS NOTED OTHERWISE, ALL CONCRETE SHALL BE NORMALWEIGHT AND HAVE THE FOLLOWING MINIMUM 28-DAY STRENGTHS:
- FOUNDATIONS______4000 PSI
- SLABS-ON-GROUND______4000 PSI
- SLABS ON STEEL DECK (110 PCF MAXIMUM)______3000 PSI

4.03 REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.

4.04 WELDED WIRE REINFORCEMENT (MESH) SHALL CONFORM TO ASTM A1064 AND SHALL BE PROVIDED IN FLAT SHEETS (ROLLS NOT PERMITTED). LAP TWO SQUARES AT SPLICES.

4.05 PROVIDE CLASS "B" TENSION SPLICE UNLESS NOTED OTHERWISE. DOWELS SHALL MATCH THE SIZE AND SPACING OF THE SPECIFIED REINFORCING AND SHALL BE LAPPED WITH CLASS "B" TENSION SPLICES. REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE COVER UNLESS NOTED OTHERWISE:
- CONCRETE CAST AGAINST EARTH (NOT FORMED)______3"
- FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
  #6 THROUGH #18 BARS______2"
  #5 BARS AND SMALLER______1 ½"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
  SLABS AND WALLS______1"
  BEAM STIRRUPS AND COLUMN TIES______1 ½"

4.06 CONCRETE SLABS ON STEEL DECK SHALL BE PLACED AT A CONSTANT THICKNESS.

5.00 STRUCTURAL STEEL

5.01 ALL STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO THE AISC 360, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS".

5.02 UNLESS NOTED OTHERWISE, STRUCTURAL STEEL WIDE FLANGES AND TEES SHALL CONFORM TO ASTM A992, GRADE 50; ROUND, SQUARE, AND RECTANGULAR HSS SECTIONS SHALL CONFORM TO ASTM A500, GRADE C; ROUND PIPES SHALL CONFORM TO ASTM A53, GRADE B; AND ALL OTHER SHAPES AND PLATES SHALL CONFORM TO ASTM A36 OR A572, GRADE 50.

5.03 HEAVY SECTIONS IN THE SFRS:
- HOT ROLLED SHAPES WITH FLANGE THICKNESSES ≥ 1 ½ IN. SHALL HAVE A MINIMUM CHARPY V-NOTCH (CVN) TOUGHNESS OF 20 FT-LB AT 70°F, TESTED IN THE ALTERNATE CORE LOCATION AS DESCRIBED IN ASTM A6 SUPPLEMENTARY REQUIREMENT S30.
- PLATES WITH THICKNESS ≥ 2 IN. SHALL HAVE A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT-LB AT 70°F, MEASURED AT ANY LOCATION PERMITTED BY ASTM A673, FREQUENCY P, WHERE THE PLATE IS USED FOR THE FOLLOWING:
  (A) MEMBERS BUILT UP FROM PLATE
  (B) CONNECTION PLATES

5.04 STEEL FRAMING CONNECTIONS SHALL BE BOLTED OR WELDED:
- BOLTED JOINTS SHALL CONFORM TO RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS". BOLTS SHALL CONFORM TO ASTM F3125, GRADE A325, AND SHALL BE MINIMUM 3/4" DIAMETER, UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE CONSIDERED BEARING TYPE, UNLESS OTHERWISE NOTED.
- UNO WELDS SHALL CONFORM TO THE "STRUCTURAL WELDING CODE" OF THE AMERICAN WELDING SOCIETY, AWS D1.1. USE E70XX ELECTRODES. WELDING PROCESSES AND OPERATORS SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATIONS PROCEDURES".
- WELDING AND WELED CONNECTIONS USED IN THE SFRS SHALL BE IN ACCORDANCE WITH STRUCTURAL WELDING CODE—SEISMIC SUPPLEMENT (AWS D1.8/D1.8M), HEREAFTER REFERRED TO AS AWS D1.8/D1.8M, WITH FILLER METALS MEETING THE REQUIREMENTS SPECIFIED IN CLAUSES 6.1, 6.2 AND 6.3. WELDING PROCEDURE SPECIFICATIONS (WPS) USED IN THE SFRS SHALL BE APPROVED BY THE ENGINEER OF RECORD.
- WELDS DESIGNATED AS DEMAND CRITICAL SHALL BE MADE WITH FILLER METALS MEETING THE REQUIREMENTS SPECIFIED IN AWS D1.8/D1.8M CLAUSES 6.1, 6.2 AND 6.3.

5.05 ANCHOR RODS SHALL CONFORM TO ASTM F1554, GR 55, S1 (WELDABLE) UNLESS OTHERWISE NOTED.

5.06 STEEL SURFACES TO BE WELDED OR ENCASED IN CONCRETE OR FIREPROOFING, CONNECTIONS DESIGNATED AS SLIP CRITICAL TYPE, OR SURFACES RECEIVING WELDED SHEAR CONNECTORS IN THE FIELD SHALL NOT BE PAINTED.

5.07 PLACE NON-SHRINK, HIGH-STRENGTH GROUT (MINIMUM 6,000 PSI) UNDER BASE PLATES AFTER SETTING AND LEVELING, AND PRIOR TO PLACING ELEVATED SLAB CONCRETE.

5.08 SHEAR CONNECTORS: PROVIDE AWS D1.1, TYPE B, 3/4" DIAMETER, SOLID FLUXED HEADED SHEAR CONNECTOR STUDS AUTOMATICALLY END WELDED THROUGH THE STEEL DECK AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.

6.00 STEEL DECKING:

6.01 UNLESS NOTED OTHERWISE, STEEL DECK SHALL BE GRADE 50, GALVANIZED (MINIMUM G60), CONFORMING TO STEEL DECK INSTITUTE (SDI) STANDARDS.

6.02 STEEL COMPOSITE FLOOR DECK SHALL BE FASTENED TO STEEL FRAMING WITH 5/8" DIAMETER PUDDLE WELDS AT THE FOLLOWING SPACINGS:
- AT FRAMING PERPENDICULAR TO DECK FLUTES: 12" ON CENTER MAXIMUM AND AT EACH EDGE FLUTE OF EACH DECK UNIT.
- AT FRAMING PARALLEL TO DECK FLUTES: 24" ON CENTER MAXIMUM.
- SIDE LAPS SHALL BE FASTENED WITH #10 SELF-TAPPING SCREWS AT A MAXIMUM SPACING OF 2 FEET CENTER TO CENTER BETWEEN SUPPORTS.

6.03 DECKING SHALL BE CONTINUOUS OVER 3 SPANS MINIMUM WHERE SUPPORTING STRUCTURE PERMITS.

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DRAWINGS
01 MARCH, 2021

Job Number	20.027
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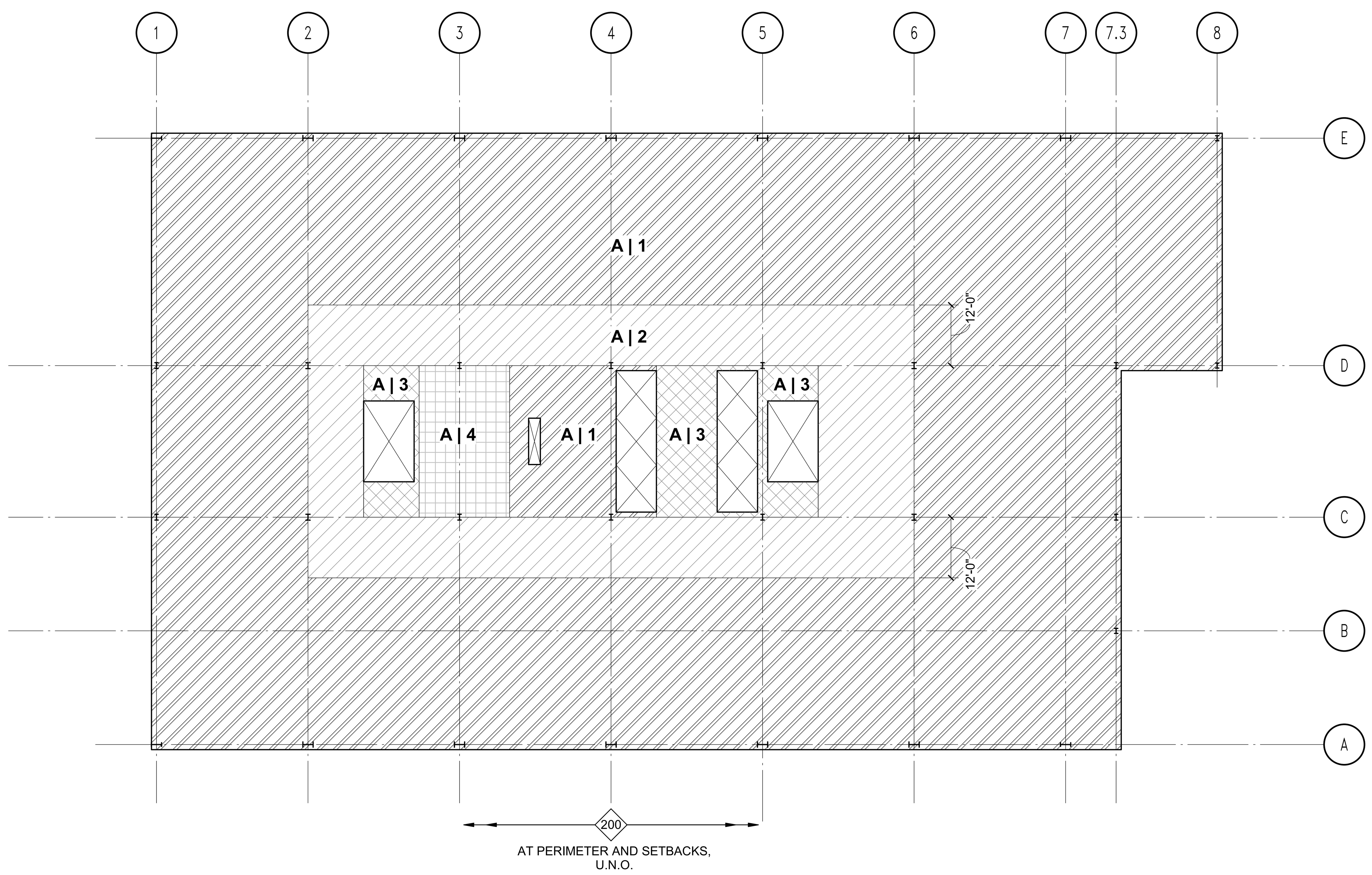
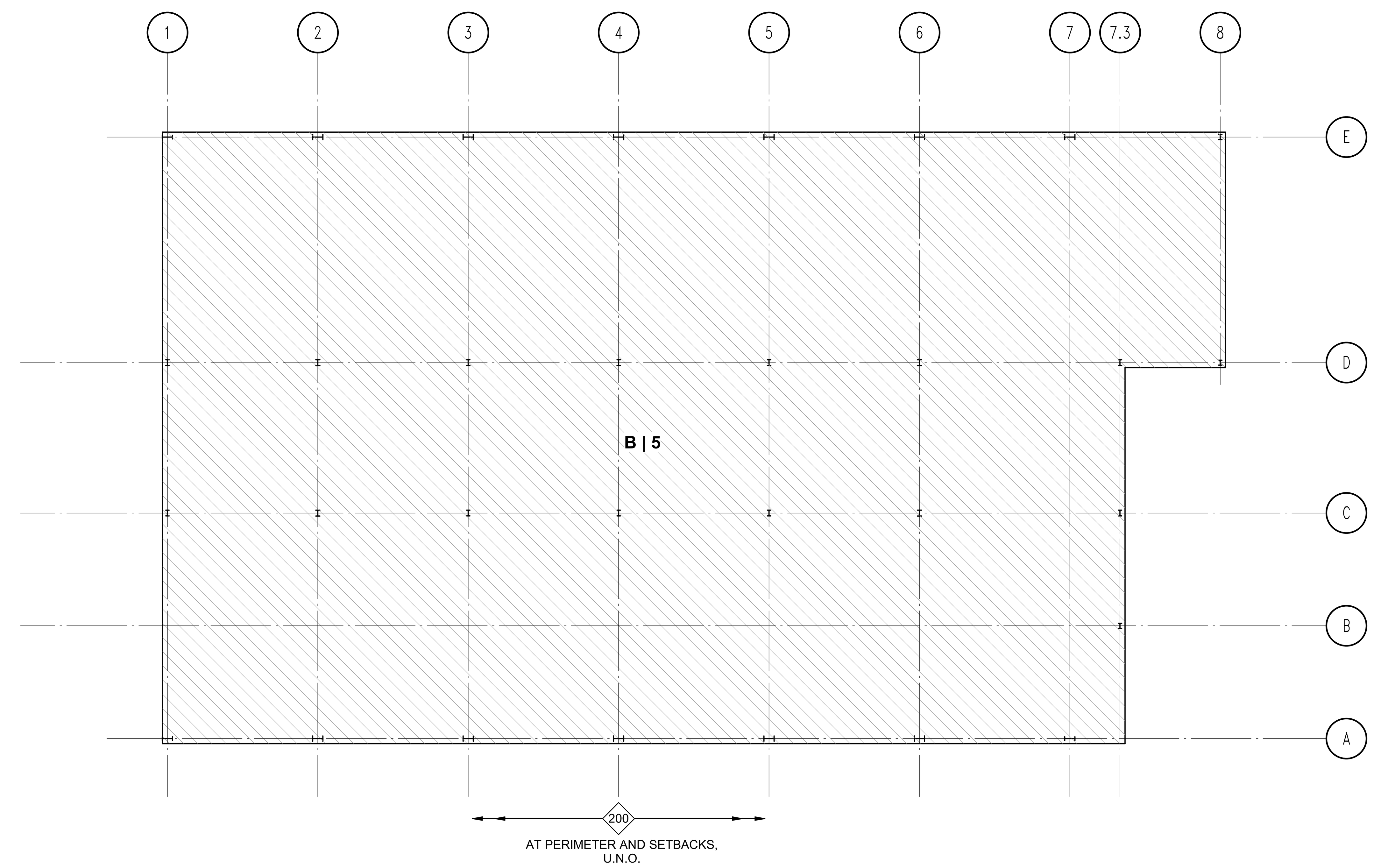
TITLE
GENERAL NOTES

SHEET NUMBER
S0.10



1 S1.00 LEVEL 2-12 LOAD MAP
SCALE: 1/16" = 1'-0"



2 S1.00 ROOF LOAD MAP
SCALE: 1/16" = 1'-0"

SUPERIMPOSED DEAD LOAD DESIGNATIONS			
MARK	USE	LOAD (PSF)	NOTES
A	OFFICE	10	MISC.
B	ROOF	20	10 ROOFING + 10 MISC.

LIVE LOAD DESIGNATIONS			
MARK	USE	LOAD (PSF)	NOTES
1	OFFICE	50 (R) + 15 (NR)	50 OFFICE + 15 PARTITION
2	CORRIDORS	80 (R)	
3	LOBBIES & STAIRS	100 (R)	
4	MECHANICAL & STORAGE	125 (R)	
5	ROOF	20 (R)	

"NR" INDICATES NON-REDUCABLE LIVE LOAD.
"R" INDICATES LIVE LOADS REDUCIBLE PER IBC SECTION 1607.11

LOAD MAP KEY:

A | 1

NUMBER INDICATES LIVE LOAD MARK

LETTER INDICATES SUPERIMPOSED DEAD LOAD MARK

200 INDICATES CLADDING LOAD IN POUNDS PER LINEAR FOOT. CLADDING LOAD IS 200 POUNDS PER LINEAR FOOT U.N.O.

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TITLE
LOAD MAPS

SHEET NUMBER
S1.00

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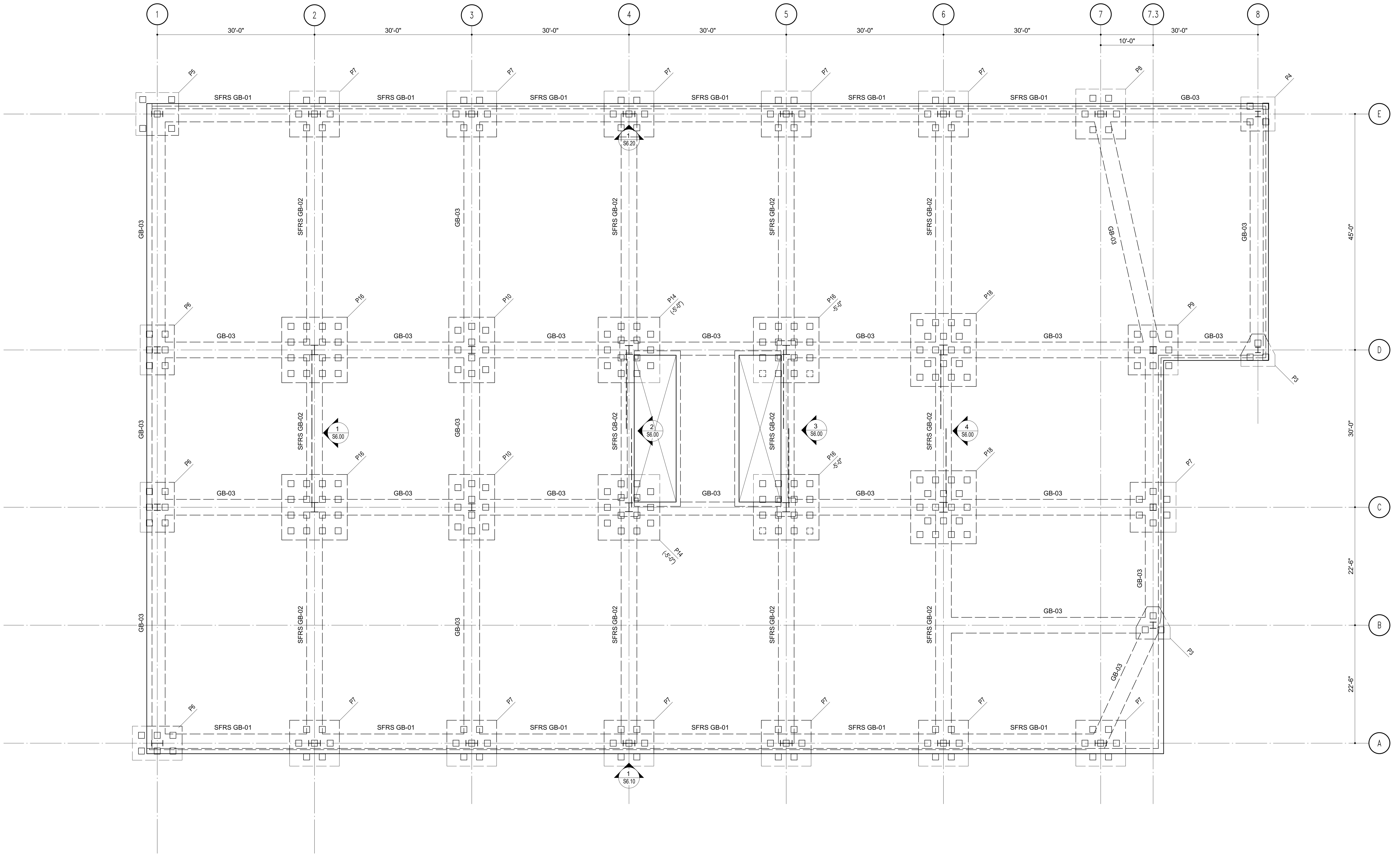

1
S2.00

FOUNDATION & GRADE LEVEL FRAMING PLAN

SCALE: 1/8" = 1'-0"

N

FOUNDATION AND SOG NOTES:

1. TOP OF NOMINAL SLAB ELEVATION = 100'-00".
2. SLAB-ON-GROUND THICKNESS IS 5", UNLESS NOTED OTHERWISE.
3. ALL FOOTINGS, PILE CAPS, AND PIERS ARE CENTERED ABOUT COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.
4. 'GB' INDICATES GRADE BEAM. SEE S3.00 FOR ADDITIONAL INFORMATION.
5. SEE S4.00 FOR COLUMN SCHEDULE.

LEGEND:

X'-X" — INDICATES TOP OF WALL FOOTING OR TOP OF GRADE BEAM ELEVATION

INDICATES PILE, SEE 3/S3.00

PX — INDICATES PILE CAP TYPE. SEE SHEET S3.01

X'-X" — INDICATES TOP OF PILE CAP ELEVATION BELOW SLAB ON GRADE, TYP. ELEVATION IS -4'-0" BELOW TOP OF SOG, UNO

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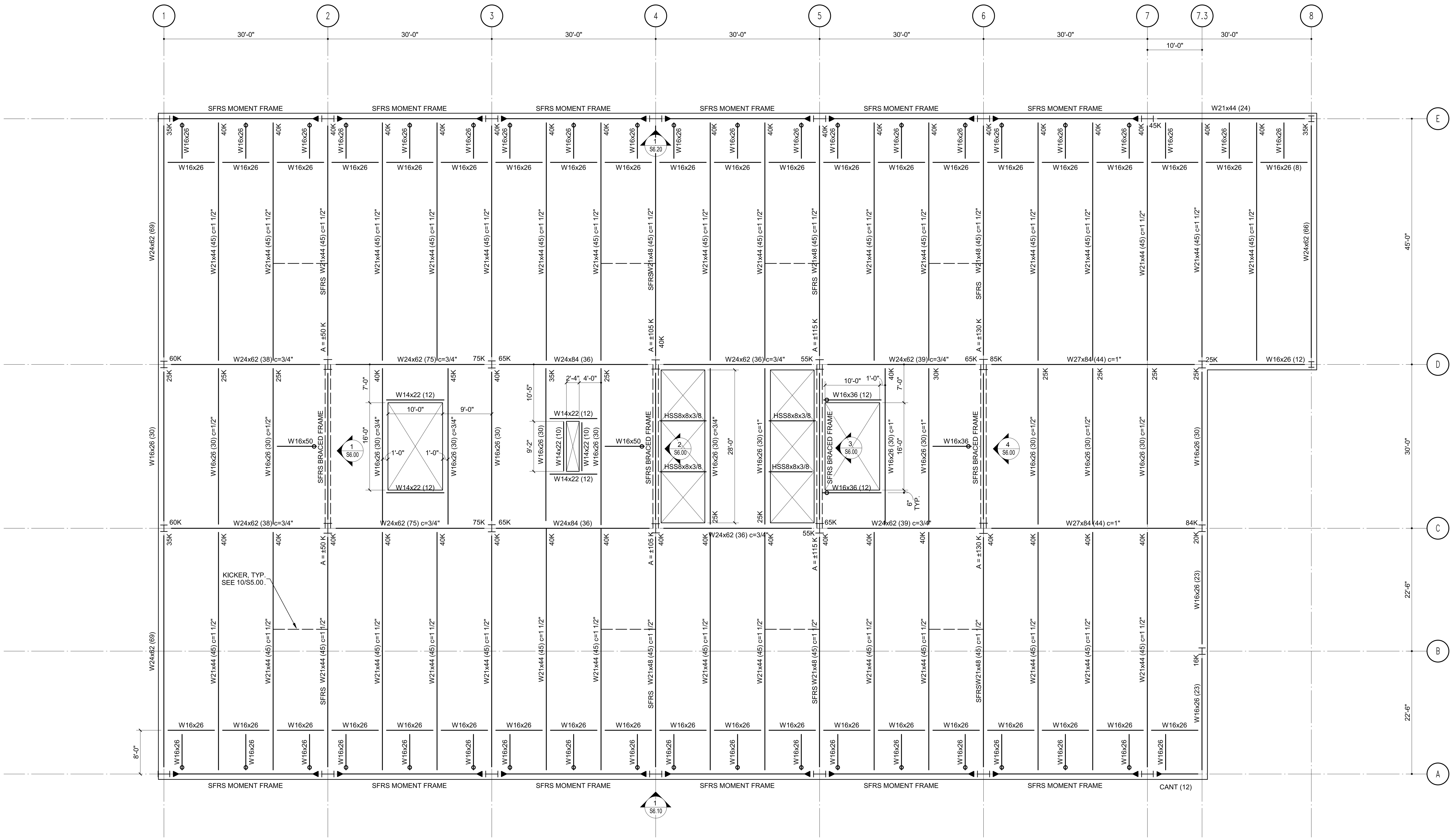
TITLE
FOUNDATION & GRADE LEVEL FRAMING PLAN

SHEET NUMBER
S2.00



SECOND FLOOR FRAMING PLAN

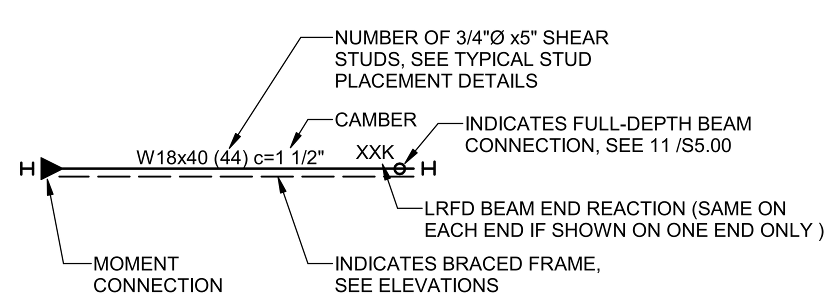
1
S2.10

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = +115', AT FINISHED FLOOR UNLESS NOTED OTHERWISE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. ⟷ INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3.25" LIGHTWEIGHT (115 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. 'A=±xxK' INDICATES FACTORED AXIAL FORCE. PROPORTION CONNECTIONS FOR 'A' IN COMBINATION WITH SHEAR FORCE. INDICATED AXIAL FORCE MUST BE TRANSFERRED THROUGH COLUMN TO ADJACENT MEMBER.
7. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
8. SEE COLUMN SCHEDULE ON S4.00 FOR COLUMN SIZES.

FRAMING LEGEND:



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SECOND FLOOR FRAMING PLAN

SHEET NUMBER

S2.10

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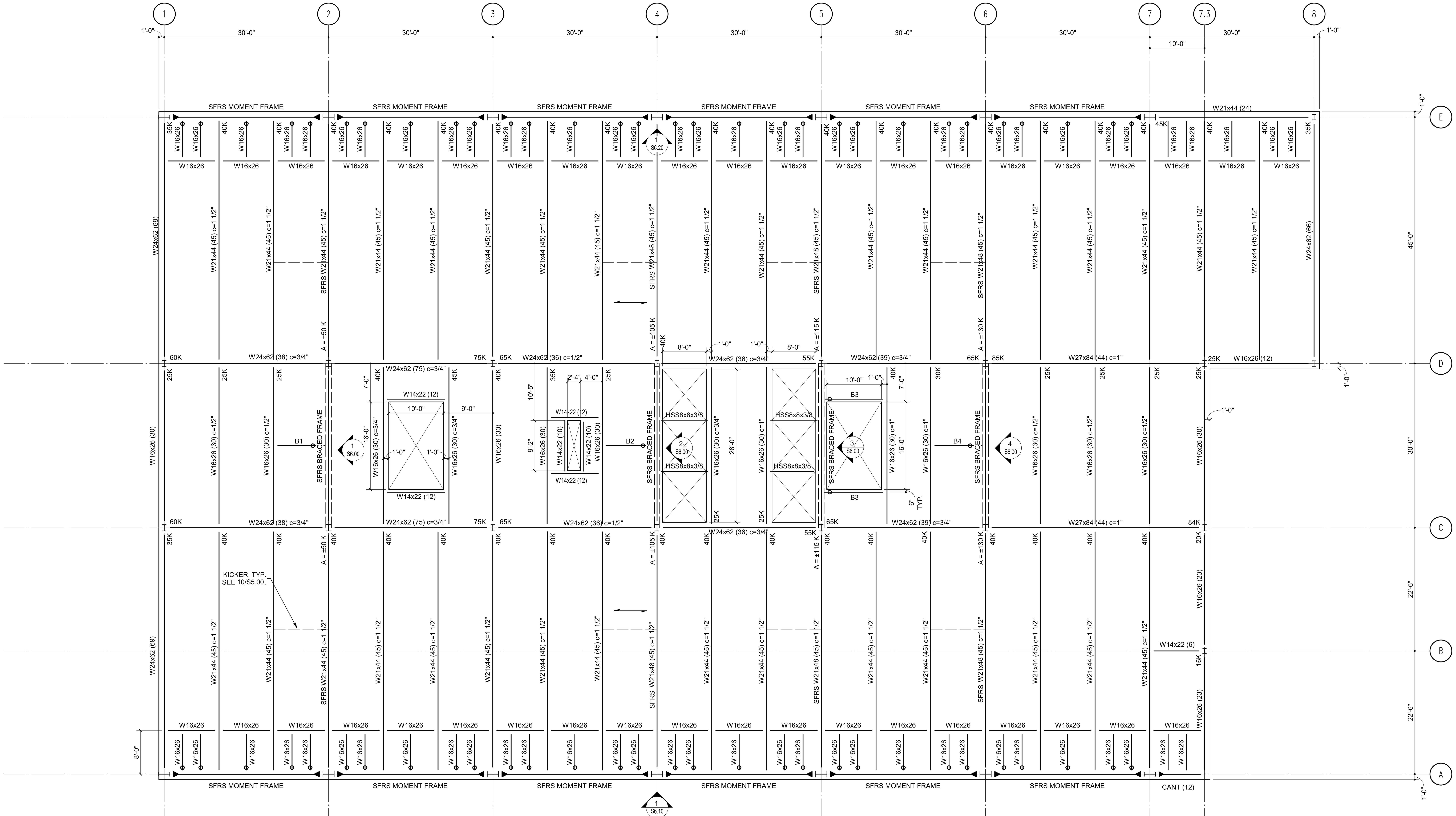


1 TYPICAL FLOOR FRAMING PLAN

S2.20

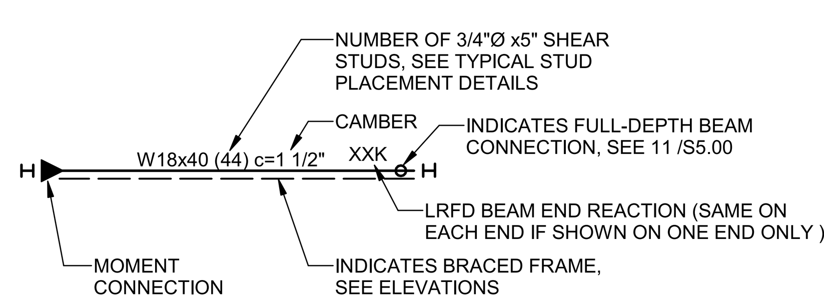
SCALE: 1/8" = 1'-0"

N

FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = SEE TABLE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3.25" LIGHTWEIGHT (115 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. 'A=±xxK' INDICATES FACTORED AXIAL FORCE. PROPORTION CONNECTIONS FOR 'A' IN COMBINATION WITH SHEAR FORCE. INDICATED AXIAL FORCE MUST BE TRANSFERRED THROUGH COLUMN TO ADJACENT MEMBER.
7. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
8. SEE COLUMN SCHEDULE ON S4.00 FOR COLUMN SIZES.

FRAMING LEGEND:



LEVEL	ELEVATION
3	+128'-6"
4	+142'-0"
5	+155'-6"
6	+169'-0"
7	+182'-6"
8	+196'-0"
9	+209'-6"
10	+223'-0"
11	+236'-6"
12	+250'-0"

BEAM BRACING SCHEDULE				
LEVEL	B1	B2	B3	B4
3	W16X31	W16X31	W16X31	W16X36
4	W16X26	W16X26	W16X45	W16X26
5	W16X31	W16X31	W16X31	W16X36
6	W16X31	W16X31	W16X31	W16X26
7	W16X26	W16X26	W16X31	W16X36
8	W16X26	W16X26	W16X26	W16X67
9	W16X26	W16X26	W16X31	W16X31
10	W16X35	W16X26	W16X26	W16X26
11	W16X26	W16X26	W16X26	W16X26
12	W16X31	W16X31	W16X45	W16X31

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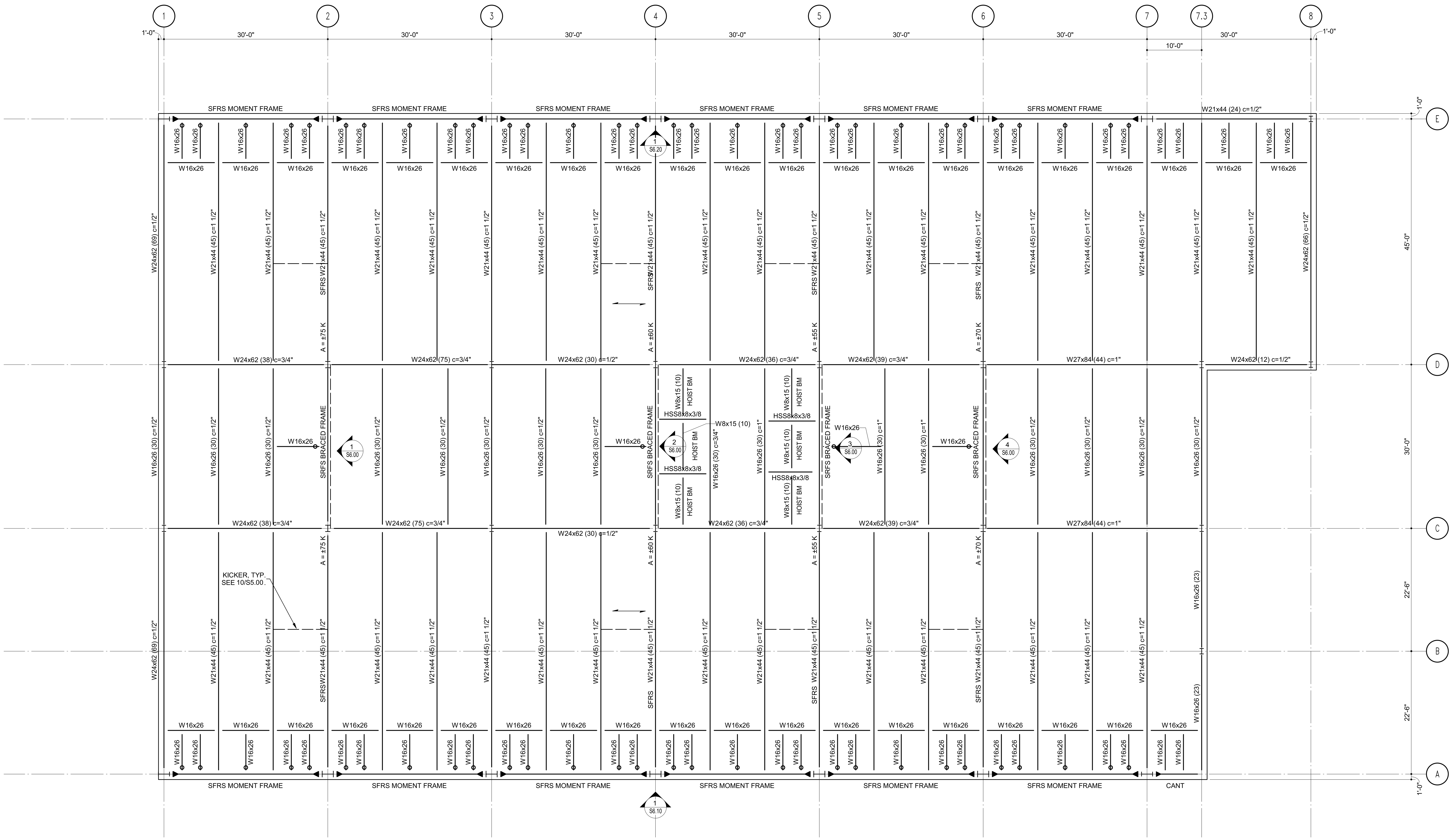
TYPICAL FLOOR FRAMING PLAN

SHEET NUMBER

S2.20



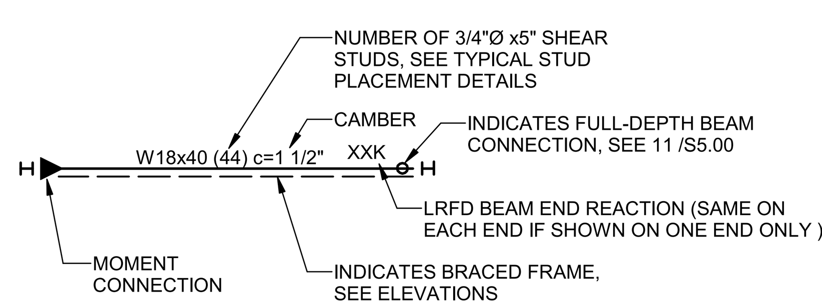
1
S2.30
ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"

N

FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = +263'-6", AT FINISHED FLOOR UNLESS NOTED OTHERWISE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. ⟵⟶ INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3.25" LIGHTWEIGHT (115 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. 'A=±xxK' INDICATES FACTORED AXIAL FORCE. PROPORTION CONNECTIONS FOR 'A' IN COMBINATION WITH SHEAR FORCE. INDICATED AXIAL FORCE MUST BE TRANSFERRED THROUGH COLUMN TO ADJACENT MEMBER.
7. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
8. SEE COLUMN SCHEDULE ON S4.00 FOR COLUMN SIZES.

FRAMING LEGEND:



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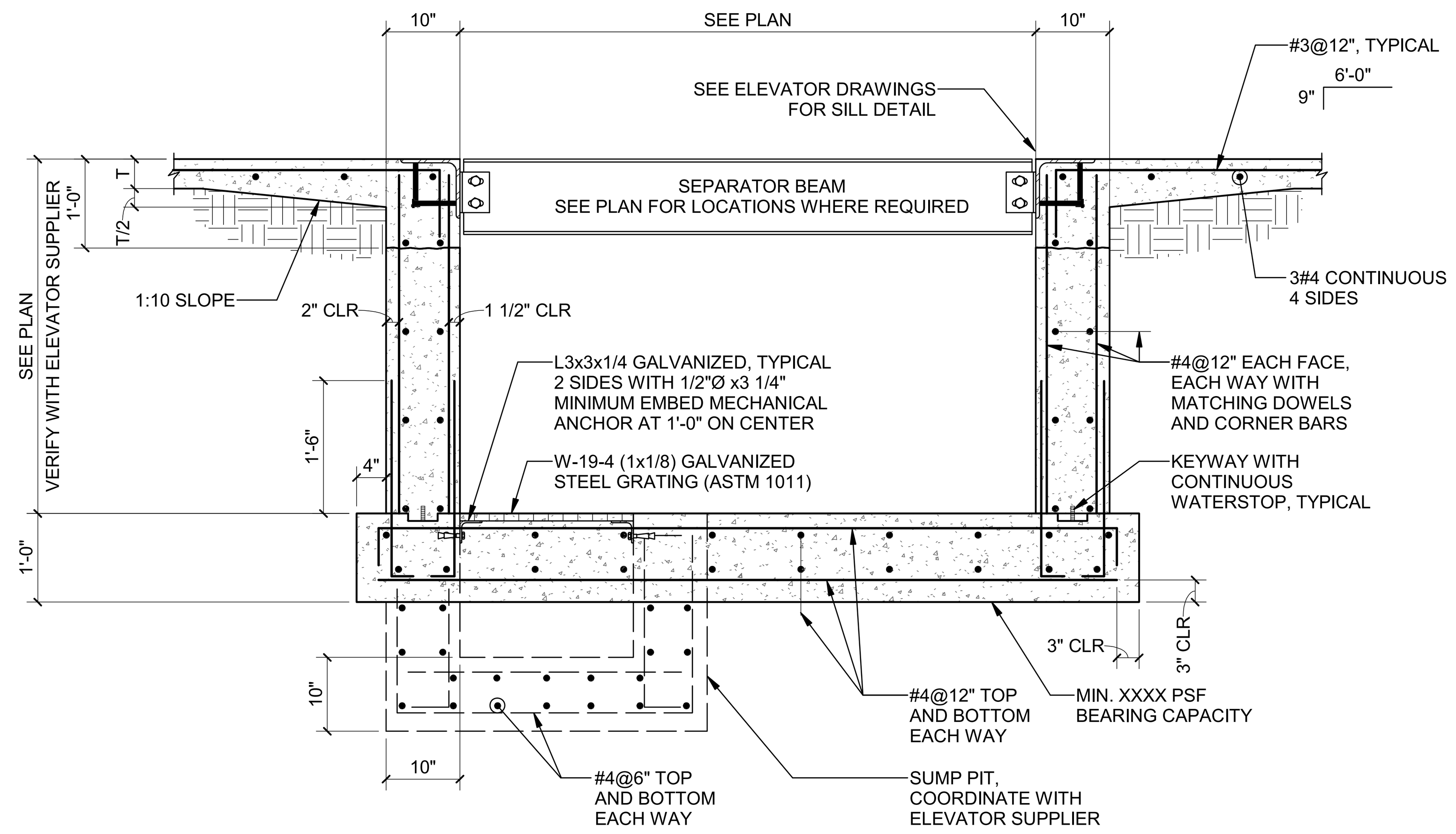
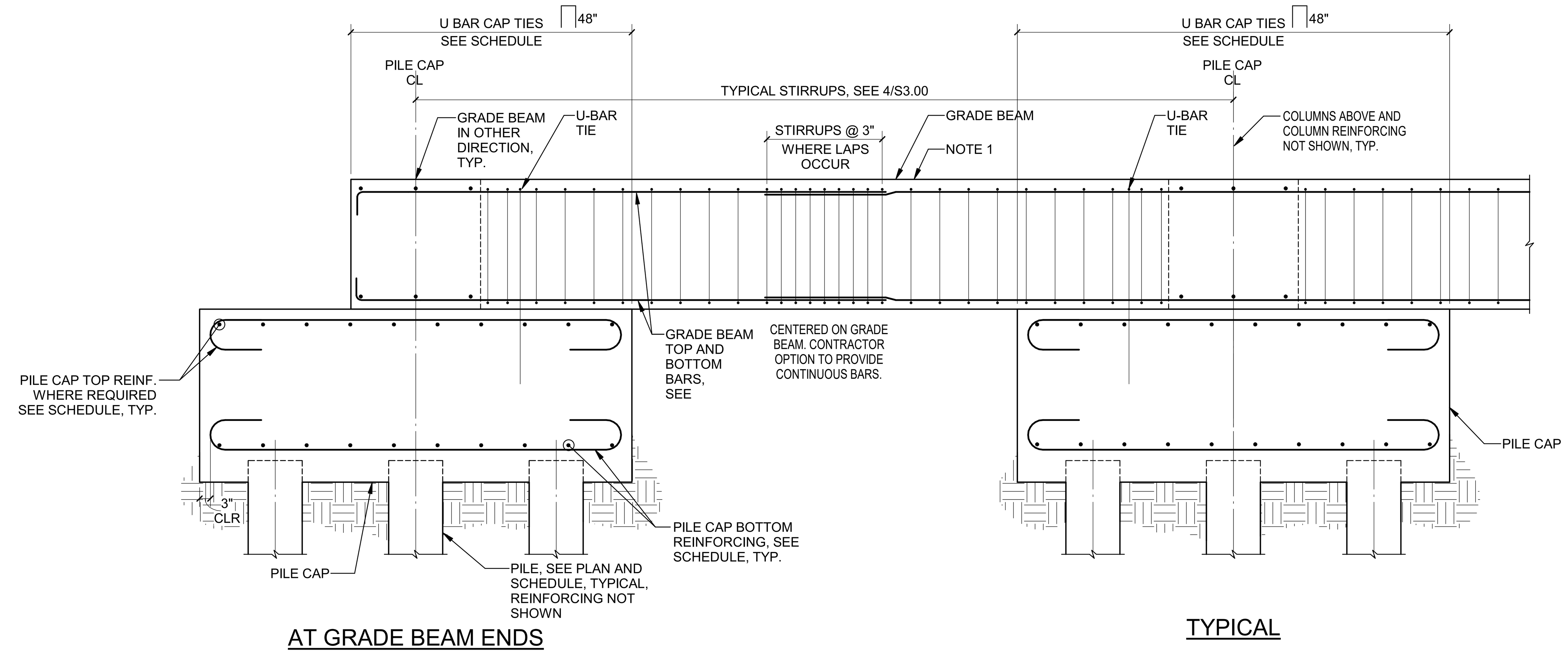
TITLE
ROOF FRAMING PLAN

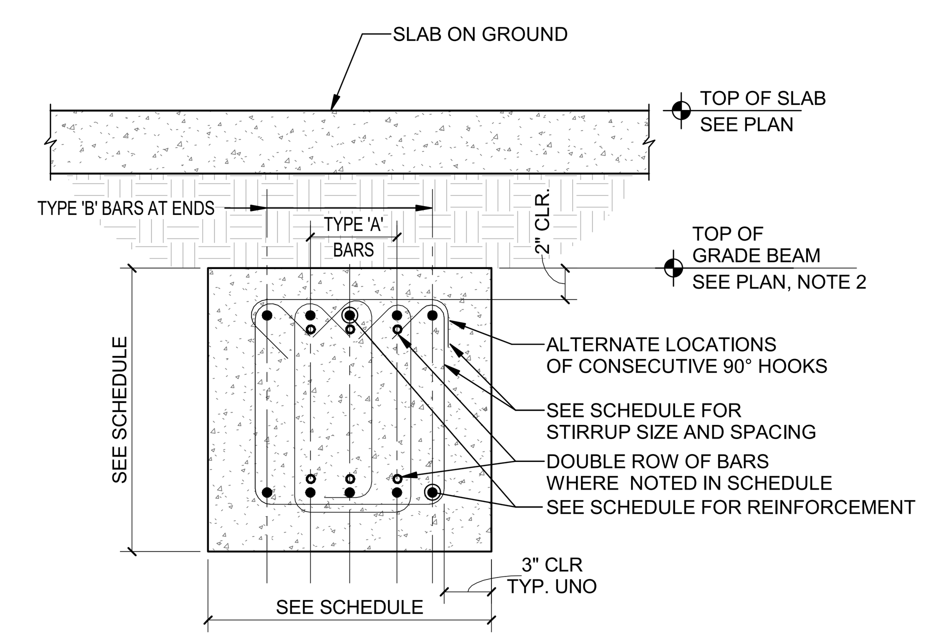
SHEET NUMBER
S2.30



1 S3.00 TYPICAL ELEVATOR PIT SECTION
SCALE: 3/4" = 1'-0"



2 S3.00 TYPICAL GRADE BEAM ELEVATION
SCALE: 1/2" = 1'-0"

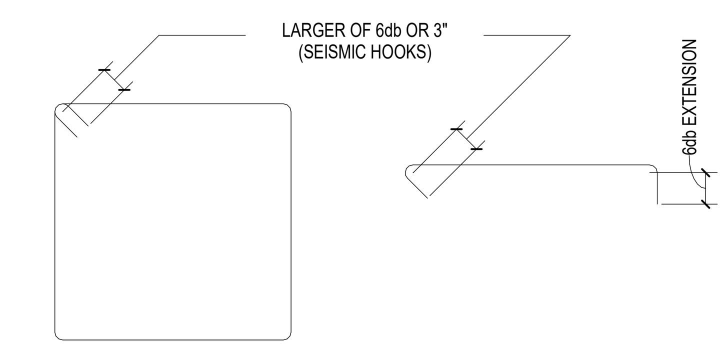


GRADE BEAM SCHEDULE

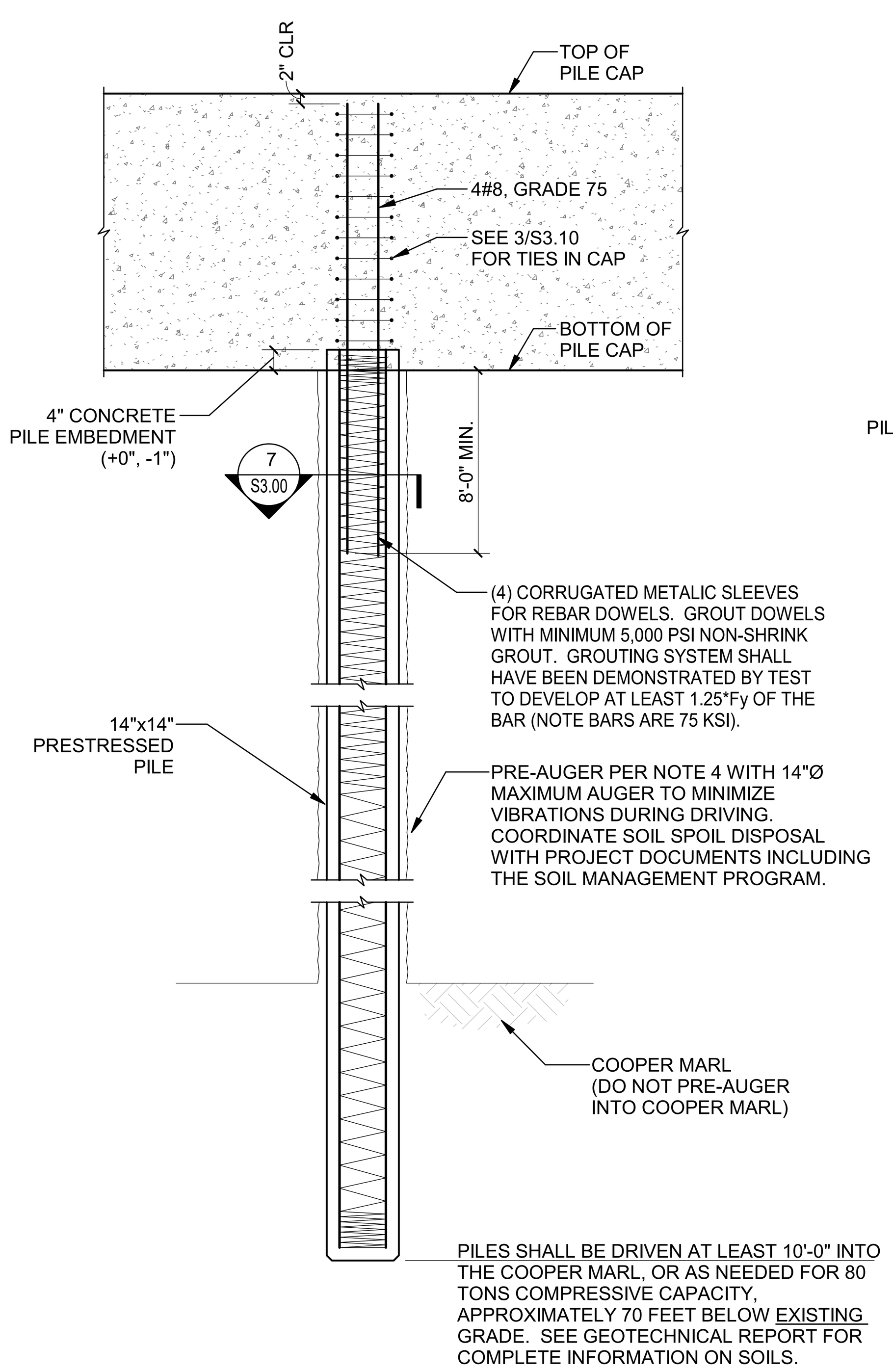
GRADE BEAM MARK	SIZE		LONGITUDINAL REINFORCING				STIRRUPS		U-BAR CAP TIES	REMARKS
	WIDTH (INCH)	DEPTH (INCH)	BOTTOM 'A' BARS	BOTTOM 'B' BARS	TOP 'A' BARS	TOP 'B' BARS	SIZE	SPACING EACH END UNO		
GB-01	36	36	6#11 (75 KSI)	2#8	6#11 (75 KSI)	2#8	#4	1@2, 12@6, R@16	(2)-#4@12	DOUBLE ROW
GB-02	36	36	2#10	2#10	2#10	2#10	#4	1@2, R@16	(2)-#4@12	---
GB-03	36	36	3#8	2#8	3#8	2#8	#4	1@2, R@16	#4@16	---

NOTE:
1. REINFORCING BARS ARE 60 KSI, UNO.

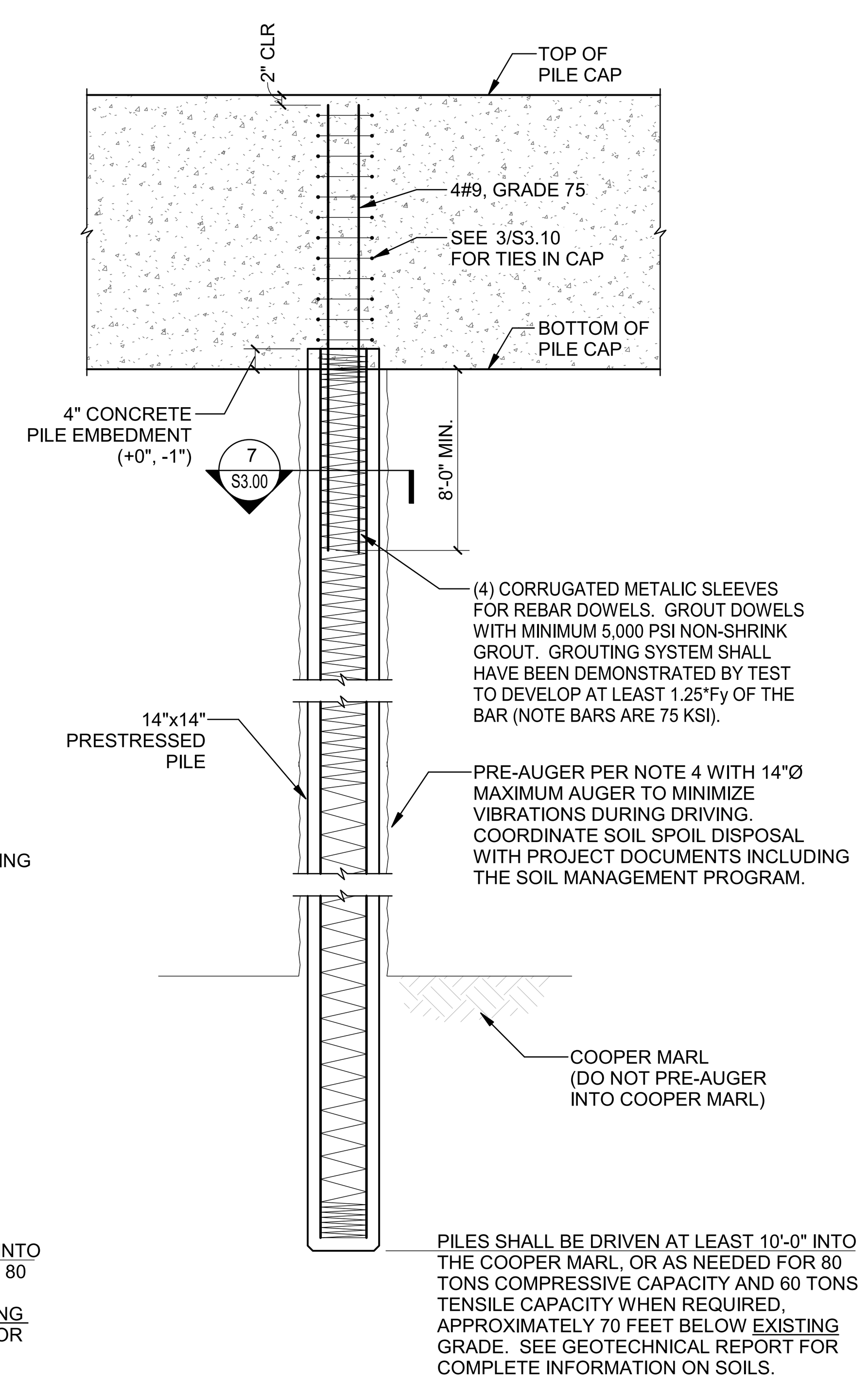
4 S3.00 TYPICAL GRADE BEAM SECTION
SCALE: 1 1/2" = 1'-0"



5 S3.00 HOOP AND CROSSTIE DETAILS
SCALE: 1 1/2" = 1'-0"

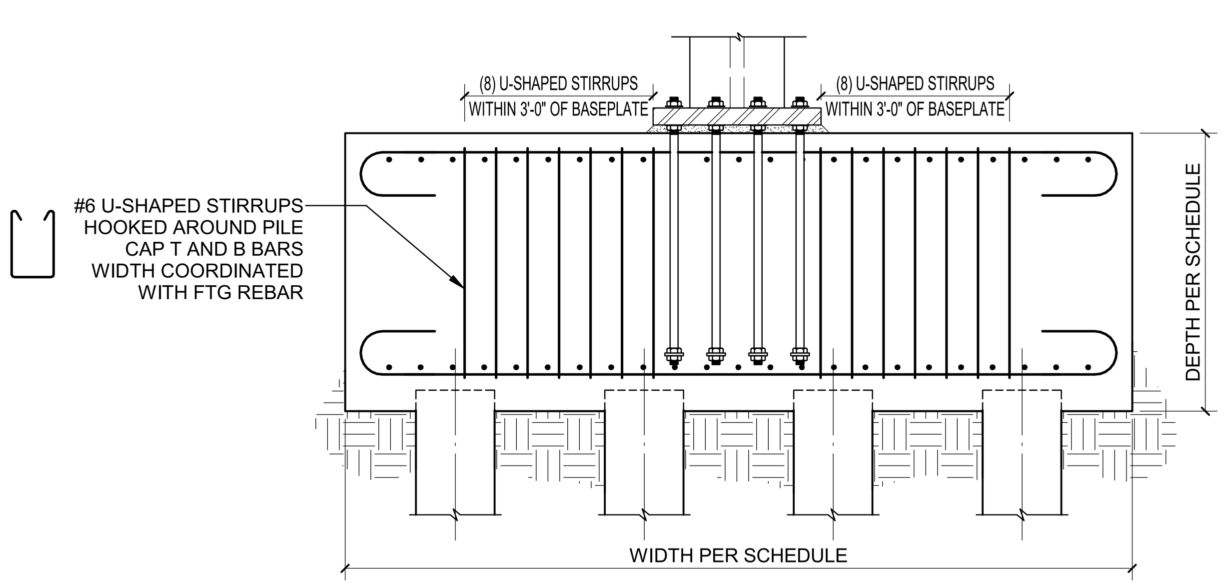


COMPRESSION PILE DETAIL



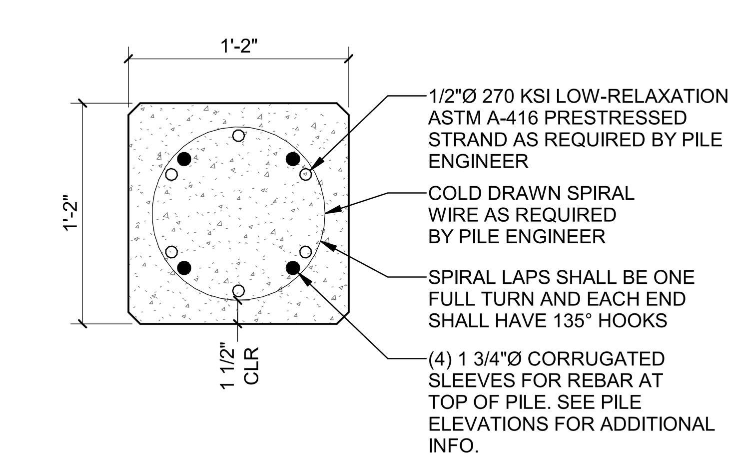
TENSION PILE DETAIL

3 S3.00 PILE DETAILS
SCALE: 1/2" = 1'-0"



NOTE:
1. U-SHAPED STIRRUPS TO BE PLACED ON (4) SIDES OF COLUMN AS SHOWN

6 S3.00 TYPICAL PILE CAP AT BRACED FRAME AND MOMENT FRAME BASE PLATES
SCALE: 1/2" = 1'-0"



7 S3.00 TYPICAL SECTION THROUGH PRECAST PILE
SCALE: 1 1/2" = 1'-0"

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DESIGN B
2018 IBC WITH RISK CATEGORY III
SEISMIC DESIGN CATEGORY D

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DRAWINGS
01 MARCH, 2021

Job Number	20.027
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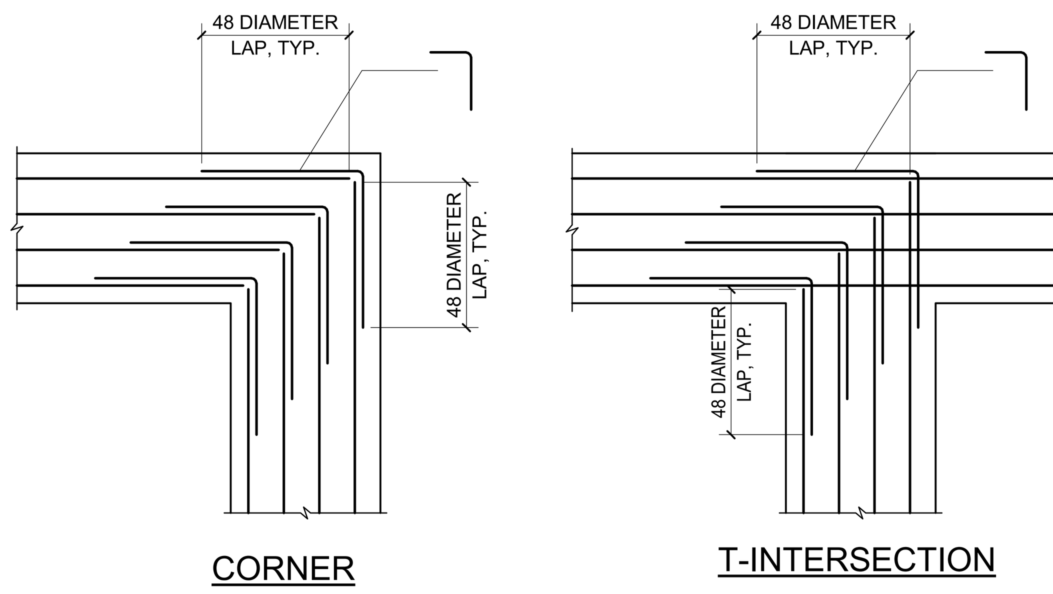
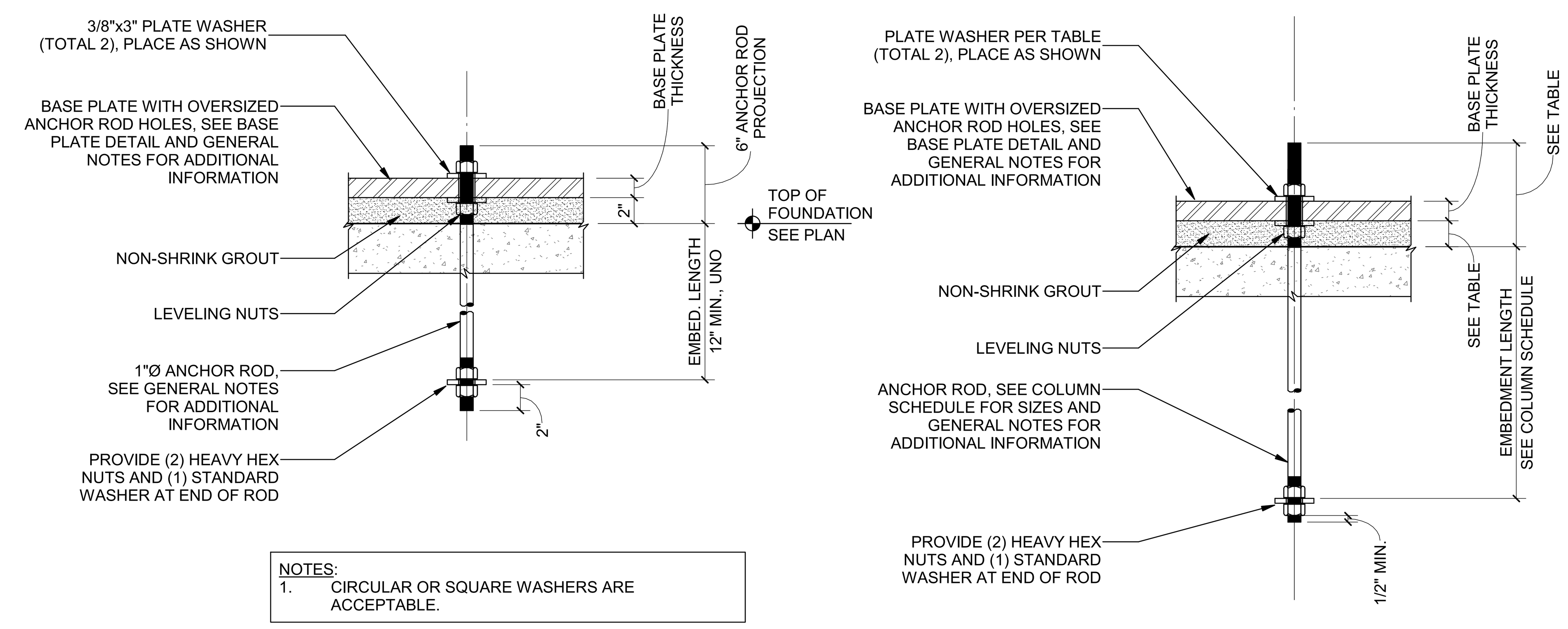
TITLE
FOUNDATION DETAILS

SHEET NUMBER
S3.00



NOTES:
1. TRANSVERSE FOOTING STEEL NOT SHOWN FOR CLARITY.
2. BENT CORNER REINFORCEMENT SHALL MATCH SIZE AND SPACING OF CONTINUOUS LONGITUDINAL REINFORCEMENT.
3. SEE PLAN AND SECTIONS FOR SIZE AND NUMBER OF REINFORCEMENT BARS.
4. TOP BARS, IF REQUIRED, SHALL FOLLOW THE SAME LAP PATTERN.
5. SEE PLAN FOR FOOTING SIZE.

1 TYPICAL FOOTING INTERSECTION PLAN DETAIL
S3.10 SCALE: 1/8" = 1'-0"

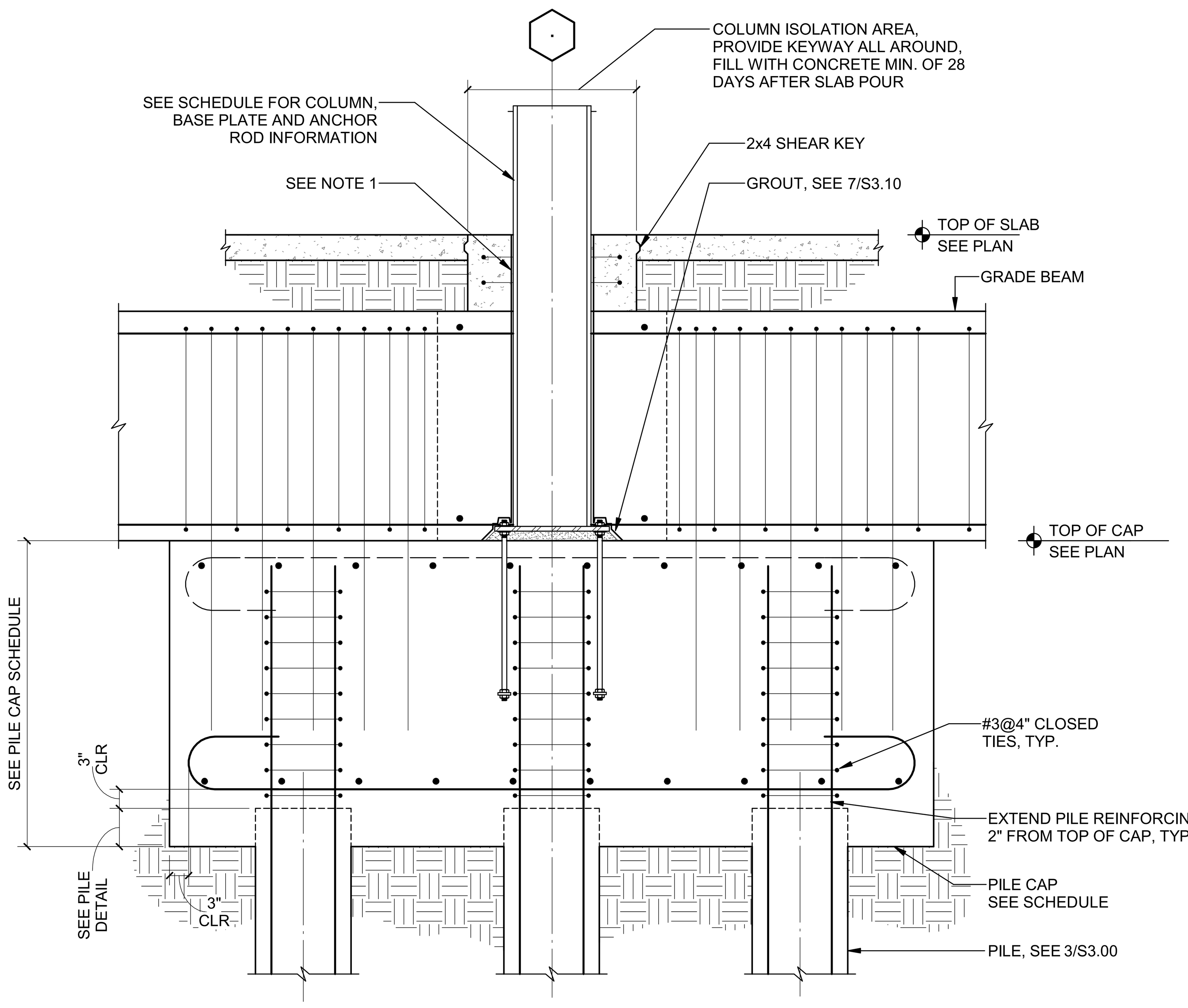


NOTES:
1. CIRCULAR OR SQUARE WASHERS ARE ACCEPTABLE.

ANCHOR BOLT AND PLATE WASHER TABLE			
ANCHOR ROD	ANCHOR ROD PROJECTION	PLATE WASHER	GROUT THICKNESS
3/4" Ø	8"	1/4"x2"	2"
1" Ø	8"	3/8"x3"	2"
1 1/4" Ø	10"	1/2"x3"	3"
1 1/2" Ø	10"	1/2"x3 1/2"	3"
1 3/4" Ø	10"	5/8"x4"	3"
2" Ø	12"	3/4"x5"	4"
2 1/2" Ø	12"	7/8"x5 1/2"	4"

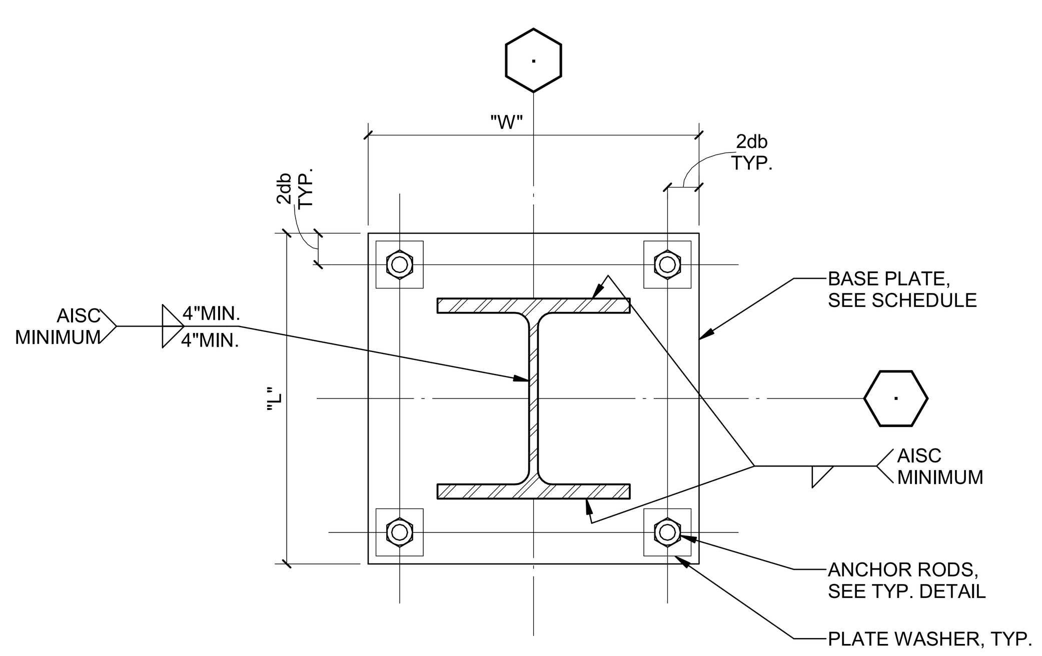
NOTES:
1. CIRCULAR OR SQUARE WASHERS ARE ACCEPTABLE.

2 ANCHOR ROD DETAIL
S3.10 SCALE: 1 1/2" = 1'-0"



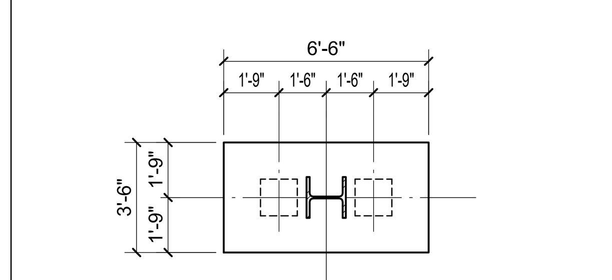
NOTES:
1. AT EXTERIOR COLUMNS, COAT BELOW GRADE PORTION OF COLUMN AND BASE PLATE WITH BITUMINOUS MASTIC AND PROVIDE 1/2" PREFORMED JOINT FILLER AROUND COLUMNS. AT INTERIOR COLUMNS, PROVIDE 30# ROOFING FELT.

3 TYPICAL COLUMN AND PILE CAP DETAIL
S3.10 SCALE: 3/4" = 1'-0"

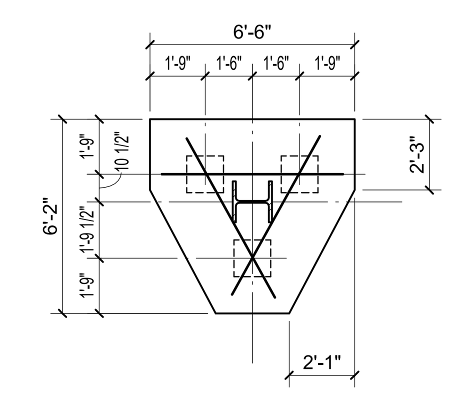


4 TYPICAL GRAVITY COLUMN BASE PLATE DETAIL
S3.10 SCALE: 1 1/2" = 1'-0"

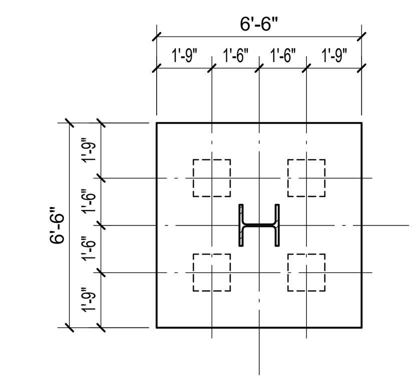
PILE CAP SCHEDULE FOR 14" SQ. PRECAST PILES 80 TON COMPRESSION AND 60 TON TENSION PILES



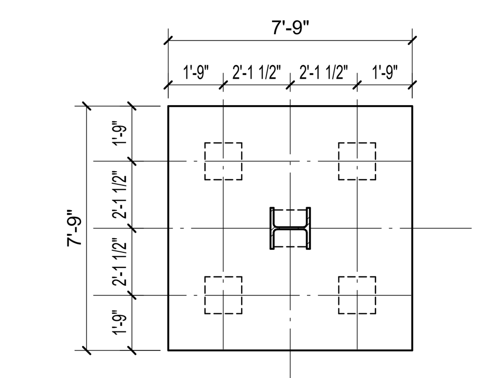
P2		
	THICKNESS	34"
	LONG BARS SHORT BARS	3#10 HK 9#7 HK



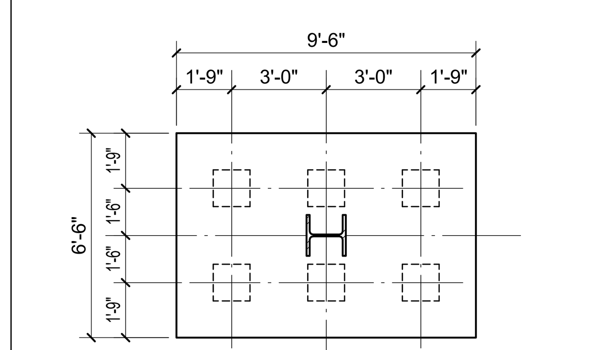
P3		
	THICKNESS	35"
	BARS, EACH WAY (x3)	3#9 HK



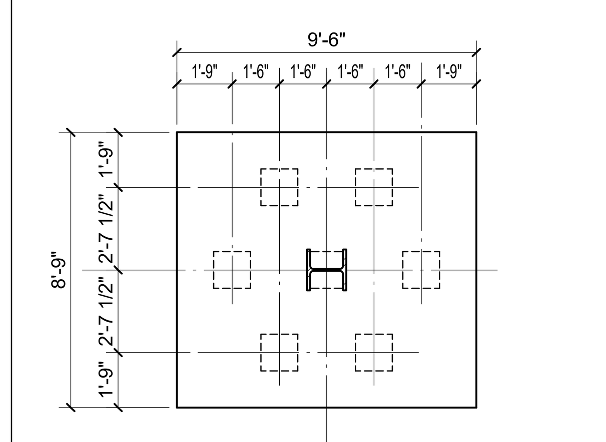
P4		
	THICKNESS	35"
	BARS, EACH WAY	7#9 HK



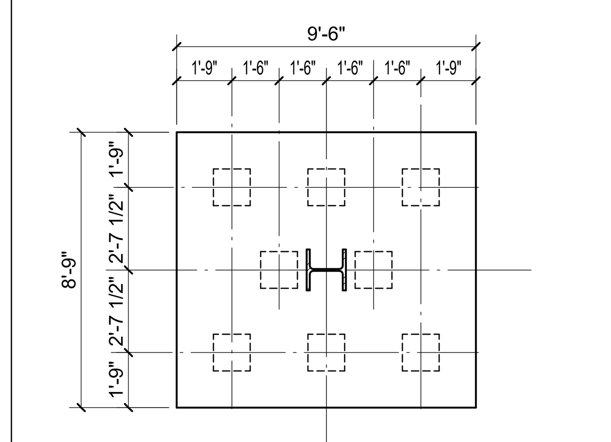
P5		
	THICKNESS	35"
	BARS, EACH WAY	7#10 HK T&B AT E1



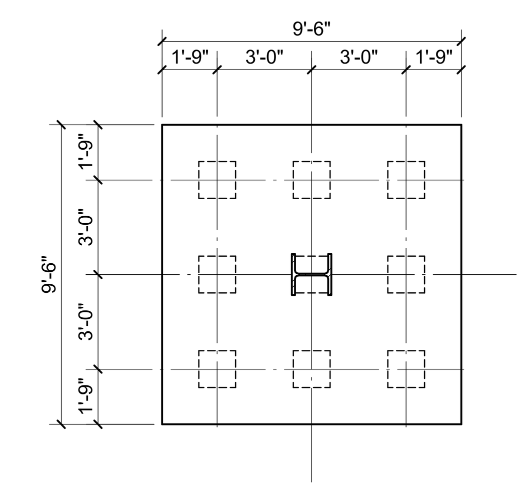
P6		
	THICKNESS	43"
	LONG BARS SHORT BARS	9#9 HK T&B AT A1 9#9 HK T&B AT A1



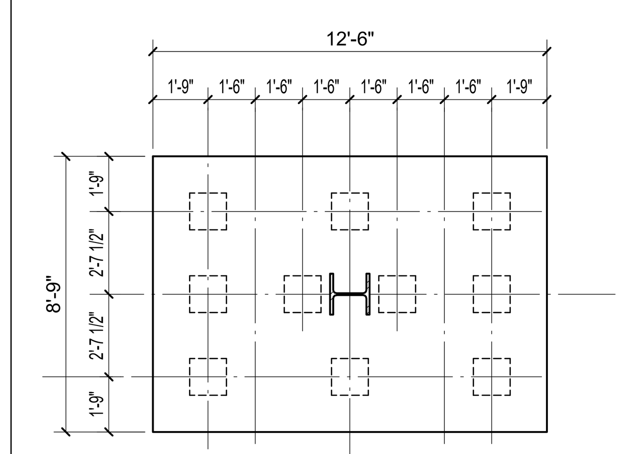
P7		
	THICKNESS	45"
	LONG BARS SHORT BARS	8#10 HK T&B AT A7 10#9 HK T&B AT A7



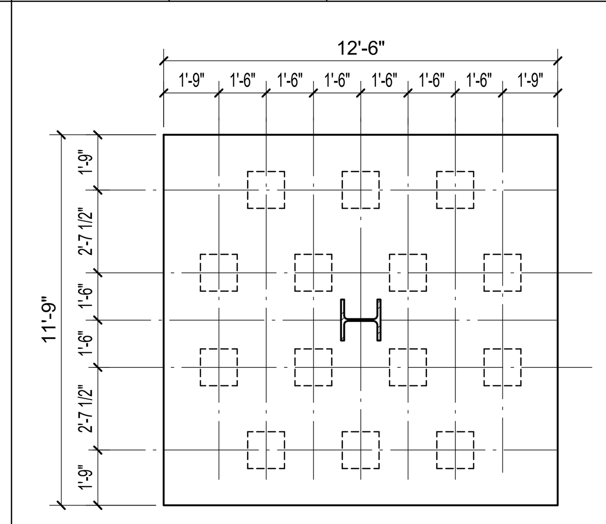
P8		
	THICKNESS	40"
	LONG BARS SHORT BARS	12#9 HK T&B AT E7 11#10 HK T&B AT E7



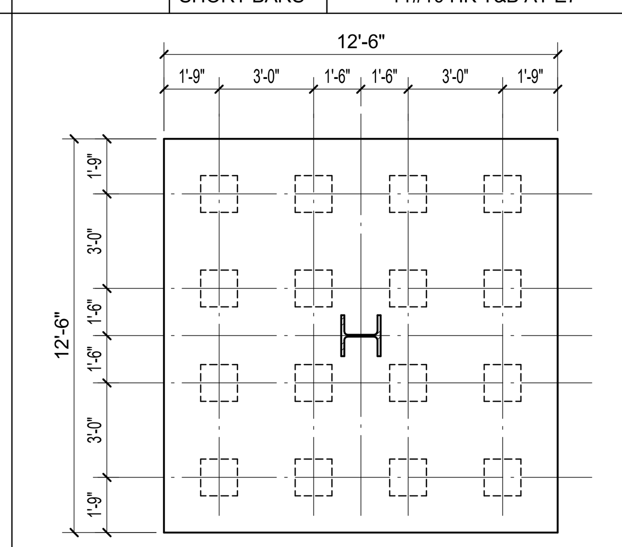
P9		
	THICKNESS	46"
	BARS, EACH WAY	15#9 HK



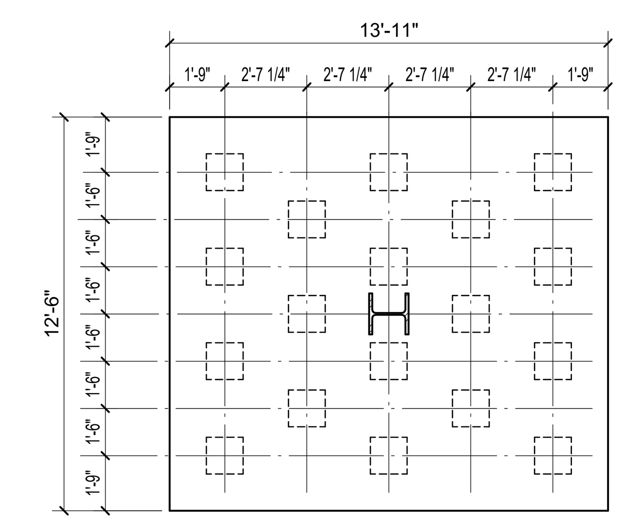
P10		
	THICKNESS	49"
	LONG BARS SHORT BARS	10#11 HK 11#10 HK



P14		
	THICKNESS	49"
	LONG BARS SHORT BARS	17#10 HK T&B 18#10 HK T&B



P16		
	THICKNESS	53"
	BARS, EACH WAY	21#10 HK T&B



P18		
	THICKNESS	57"
	LONG BARS SHORT BARS	19#11 HK T&B 21#10 HK T&B

NOTES:.
1. "HK" = HOOK EACH SIDE OF ALL BARS 180 DEGREES.
2. SEE GENERAL NOTES FOR REQUIRED PILE AND PILE CAP CONCRETE STRENGTHS.
3. ALL REINFORCEMENT SHOWN IS BOTTOM REINFORCEMENT, UNLESS NOTED OTHERWISE. SEE DETAIL 3/S3.01 FOR ADDITIONAL INFORMATION.
4. SEE 3/S3.00 FOR PILE DETAIL.
5. LAYOUT PILES PER DIMENSIONS SHOWN ON THIS DETAIL AND NOT AS SHOWN ON PLAN.

5 PRECAST PILE CAP SCHEDULE
S3.10

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2018 IBC WITH RISK CATEGORY III
SEISMIC DESIGN CATEGORY D

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DRAWINGS
01 MARCH, 2021

Job Number	20.027
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TITLE
FOUNDATION DETAILS

SHEET NUMBER
S3.10

Column Locations	A-1	A-2	A-3	A-4	A-5	A-6	A-7	B-7.3
ROOF 263'-6"								
LEVEL 12 250'-0"	SFRS W24X94	SFRS W24X131	SFRS W24X131	SFRS W24X131	SFRS W24X131	SFRS W24X131	SFRS W24X94	W12x40
LEVEL 11 236'-6"								
LEVEL 10 223'-0"	SFRS W24X131	SFRS W24X146	SFRS W24X146	SFRS W24X146	SFRS W24X146	SFRS W24X146	SFRS W24X131	W14x43
LEVEL 09 209'-6"								
LEVEL 08 196'-0"	SFRS W24X131	SFRS W24X176	SFRS W24X176	SFRS W24X176	SFRS W24X176	SFRS W24X176	SFRS W24X131	W14x43
LEVEL 07 182'-6"								
LEVEL 06 169'-0"	SFRS W24X131	SFRS W24X207	SFRS W24X207	SFRS W24X207	SFRS W24X207	SFRS W24X192	SFRS W24X131	W14x43
LEVEL 05 155'-6"								
LEVEL 04 142'-0"	SFRS W24X146	SFRS W24X250	SFRS W24X250	SFRS W24X250	SFRS W24X250	SFRS W24X250	SFRS W24X162	W14x43
LEVEL 03 128'-6"								
LEVEL 02 115'-0"	SFRS W24X192	SFRS W24X279	SFRS W24X279	SFRS W24X279	SFRS W24X279	SFRS W24X279	SFRS W24X207	W14x90
LEVEL 01 100'-0"								
Anchor Rods								(4)-1" DIA.
Base Plate								1"x22"x1'-10"
Remarks	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	

Column Locations	C-1	C-2	C-3	C-4	C-5	C-6	C-7.3
ROOF 263'-6"							
LEVEL 12 250'-0"	W14x43	SFRS W14x68	W14x48	SFRS W14x53	SFRS W14x53	SFRS W14x68	W14x43
LEVEL 11 236'-6"							
LEVEL 10 223'-0"	W14x61	SFRS W14x145	W14x74	SFRS W14x132	SFRS W14x132	SFRS W14x159	W14x61
LEVEL 09 209'-6"							
LEVEL 08 196'-0"	W14x68	SFRS W14x257	W14x99	SFRS W14x211	SFRS W14x233	SFRS W14x233	W14x74
LEVEL 07 182'-6"							
LEVEL 06 169'-0"	W14x82	SFRS W14x370	W14x132	SFRS W14x311	SFRS W14x342	SFRS W14X398	W14x90
LEVEL 05 155'-6"							
LEVEL 04 142'-0"	W14x90	SFRS W14x500	W14x159	SFRS W14x426	SFRS W14x455	SFRS W14x550	W14x99
LEVEL 03 128'-6"							
LEVEL 02 115'-0"	W14x109	SFRS W14X665	W14x193	SFRS W14x550	SFRS W14x605	SFRS W14x730	W14x120
LEVEL 01 100'-0"							
Anchor Rods	(4)-1" DIA.		(4)-1" DIA.				(4)-1" DIA.
Base Plate	2"x22"x1'-10"		3"x28"x2'-4"				2"x22"x1'-10"
Remarks		SEE 1/S7.00		SEE 1/S7.00 (SIM)	SEE 1/S7.00 (SIM)	SEE 1/S7.00	

Column Locations	D-1	D-2	D-3	D-4	D-5	D-6	D-7.3	D-8
ROOF 263'-6"								
LEVEL 12 250'-0"	W14x43	SFRS W14x68	W14x48	SFRS W14x53	SFRS W14x53	SFRS W14x68	W14x48	W12x40
LEVEL 11 236'-6"								
LEVEL 10 223'-0"	W14x61	SFRS W14x145	W14x74	SFRS W14x132	SFRS W14x132	SFRS W14x159	W14x68	W12x40
LEVEL 09 209'-6"								
LEVEL 08 196'-0"	W14x68	SFRS W14x257	W14x99	SFRS W14x211	SFRS W14x233	SFRS W14x233	W14x90	W12x40
LEVEL 07 182'-6"								
LEVEL 06 169'-0"	W14x82	SFRS W14x370	W14x132	SFRS W14x311	SFRS W14x342	SFRS W14X398	W14x109	W12x53
LEVEL 05 155'-6"								
LEVEL 04 142'-0"	W14x90	SFRS W14x500	W14x159	SFRS W14x426	SFRS W14x455	SFRS W14x550	W14x132	W12x53
LEVEL 03 128'-6"								
LEVEL 02 115'-0"	W14x109	SFRS W14X665	W14x193	SFRS W14x550	SFRS W14x605	SFRS W14x730	W14x159	W12x65
LEVEL 01 100'-0"								
Anchor Rods	(4)-1" DIA.		(6)-1" DIA.				(4)-1" DIA.	(4)-1" DIA.
Base Plate	2"x22"x1'-10"		3"x28"x2'-4"				2 1/4"x22"x1'-10"	1 1/2"x20"x1'-8"
Remarks		SEE 1/S7.00		SEE 1/S7.00 (SIM)	SEE 1/S7.00 (SIM)	SEE 1/S7.00		

Column Locations	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8
ROOF 263'-6"								
LEVEL 12 250'-0"	SFRS W24X94	SFRS W24X131	SFRS W24X131	SFRS W24X131	SFRS W24X131	SFRS W24X131	SFRS W24X131	W12x40
LEVEL 11 236'-6"								
LEVEL 10 223'-0"	SFRS W24X131	SFRS W24X146	SFRS W24X146	SFRS W24X146	SFRS W24X146	SFRS W24X146	SFRS W24X146	W12x40
LEVEL 09 209'-6"								
LEVEL 08 196'-0"	SFRS W24X131	SFRS W24X162	SFRS W24X162	SFRS W24X162	SFRS W24X162	SFRS W24X162	SFRS W24X162	W12x53
LEVEL 07 182'-6"								
LEVEL 06 169'-0"	SFRS W24X131	SFRS W24X176	SFRS W24X207	SFRS W24X207	SFRS W24X207	SFRS W24X207	SFRS W24X176	W12x58
LEVEL 05 155'-6"								
LEVEL 04 142'-0"	SFRS W24X146	SFRS W24X250	SFRS W24X250	SFRS W24X250	SFRS W24X250	SFRS W24X250	SFRS W24X192	W12x65
LEVEL 03 128'-6"								
LEVEL 02 115'-0"	SFRS W24X176	SFRS W24X279	SFRS W24X279	SFRS W24X279	SFRS W24X279	SFRS W24X279	SFRS W24X229	W12x87
LEVEL 01 100'-0"								
Anchor Rods								(4)-1" DIA.
Base Plate								2"x20"x1'-8"
Remarks	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	SEE 4/S7.10	

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DRAWINGS
01 MARCH, 2021

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TITLE
COLUMN SCHEDULE

SHEET NUMBER
S4.00

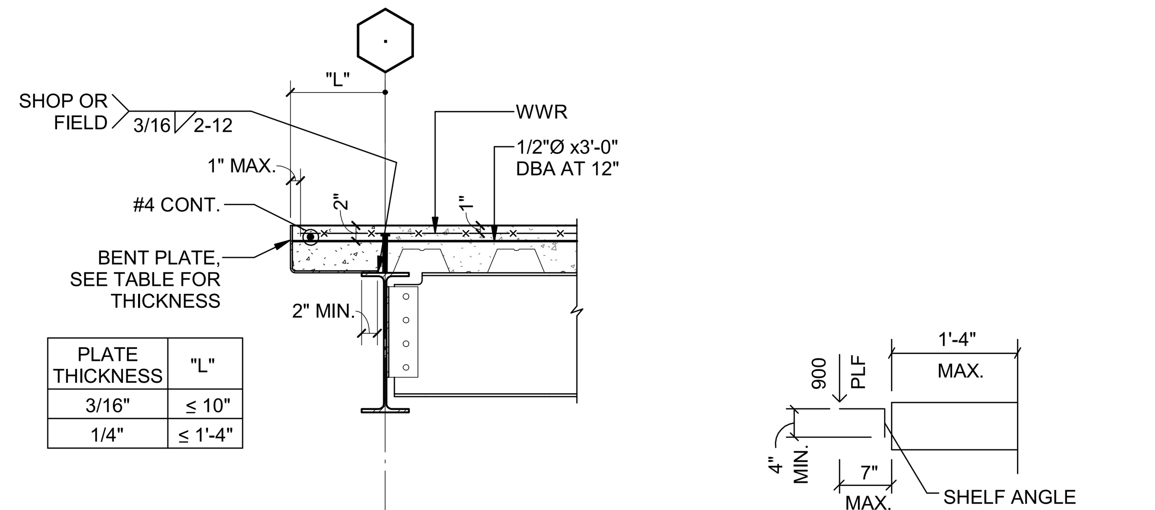


PLATE THICKNESS	"L"
3/16"	≤ 10"
1/4"	≤ 1'-4"

NOTES:
1. DBA NOT REQUIRED AT FRAMED INTERIOR OPENINGS.

1 S5.00 FLOOR EDGE BEAM PARALLEL TO DECK
SCALE: 3/4" = 1'-0"

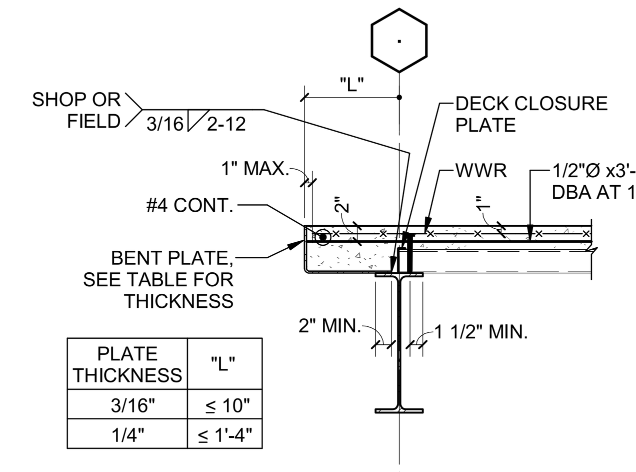
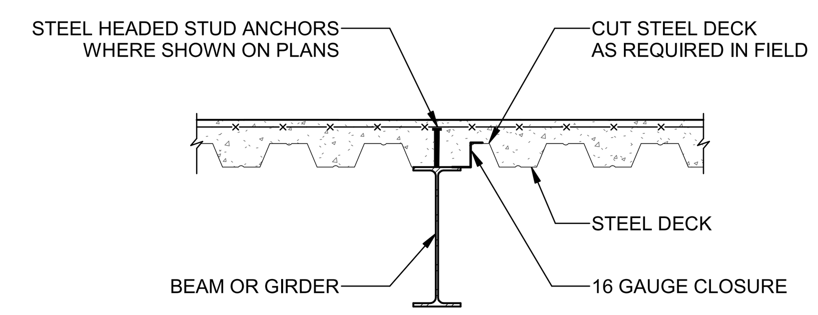


PLATE THICKNESS	"L"
3/16"	≤ 10"
1/4"	≤ 1'-4"

NOTES:
1. DBA NOT REQUIRED AT FRAMED INTERIOR OPENINGS.

2 S5.00 FLOOR EDGE BEAM PERPENDICULAR TO DECK
SCALE: 3/4" = 1'-0"



NOTES:
1. CLOSURE MUST BE WELDED TO THE BEAM AND SCREWED OR WELDED TO THE DECK TO ENSURE THAT THE FLANGE DOES NOT FALL UNDER HIGH CELL RESULTING IN UNBRACED BEAM. SEE GENERAL NOTES FOR ATTACHMENT.
2. DETAIL SIMILAR AT ROOF DECK.

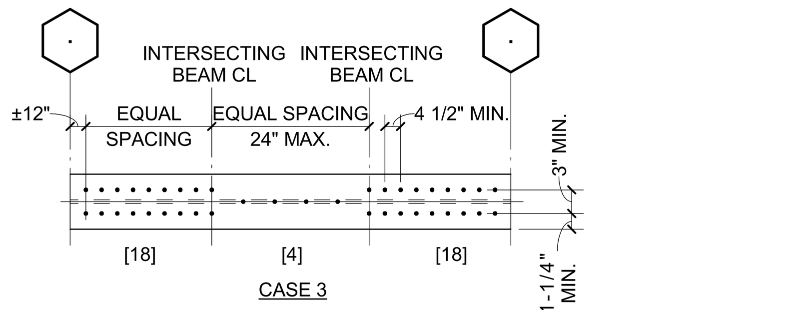
3 S5.00 TYPICAL DECK PARALLEL TO STEEL BEAM
SCALE: 3/4" = 1'-0"

DECK PERPENDICULAR TO BEAM

CASE 1: FEWER STUDS THAN FLUTES
PLACE ONE STUD IN EVERY OTHER FLUTE STARTING AT BEAM ENDS. IF STUDS REMAIN, PLACE IN FLUTES NOT ALREADY HAVING A STUD, STARTING AT BEAM ENDS AND CONTINUING TOWARD BEAM CENTER. MAXIMUM SPACING ALLOWED IS 24" OC.

CASE 2: MORE STUDS THAN FLUTES
PLACE ONE STUD IN EACH FLUTE FOR ENTIRE LENGTH OF BEAM. IF STUDS REMAIN, PLACE A SECOND STUD IN FLUTES, STARTING AT BEAM ENDS AND CONTINUING TOWARD CENTER. SPACING BETWEEN PAIRS OF STUDS SHALL NOT BE LESS THAN 3".

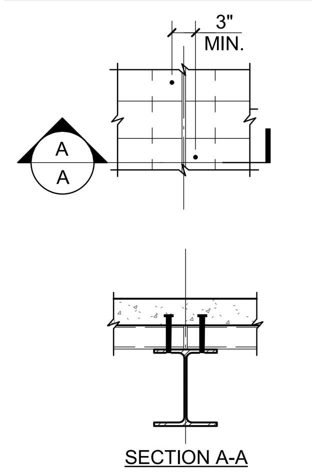
DECK PARALLEL TO BEAM



CASE 3: GIRDER WITH SEGMENTED STUD SPACING
PLACE SPECIFIED NUMBER OF STUDS IN EACH SEGMENT OF GIRDER AT EQUAL SPACES. IF SPACING IS LESS THAN 4 1/2", USE DOUBLE ROW AS REQUIRED.

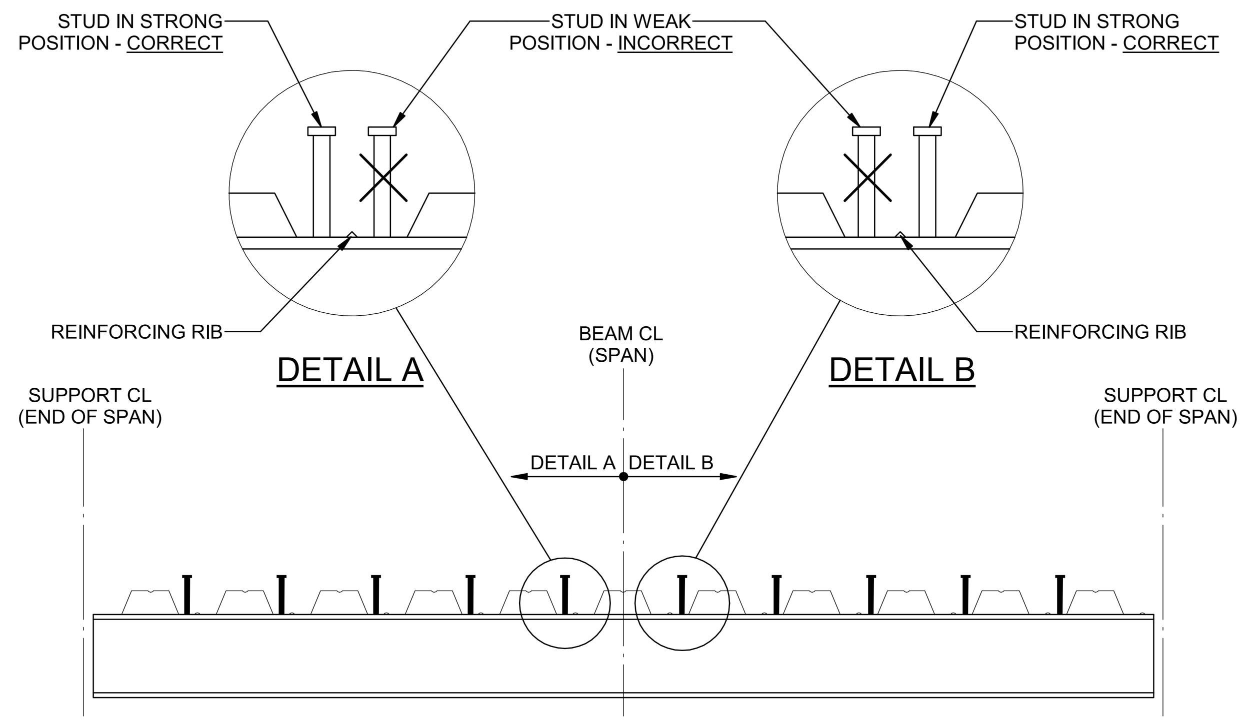
CASE 4: ALL CASES OF DECK PARALLEL WITH UNIFORM STUD SPACING OR FLAT SLABS
PLACE A SINGLE ROW OF STUDS ALONG GIRDER AT EQUAL SPACING. IF SPACING IS LESS THAN 4 1/2", USE DOUBLE ROW AS REQUIRED, STARTING AT BEAM ENDS.

AT BUTT JOINTS:
1. DECK JOINT SHALL BE LOCATED ON BEAM CENTERLINE.
2. STUDS SHALL BE PLACED ON ALTERNATE SIDES OF JOINT.



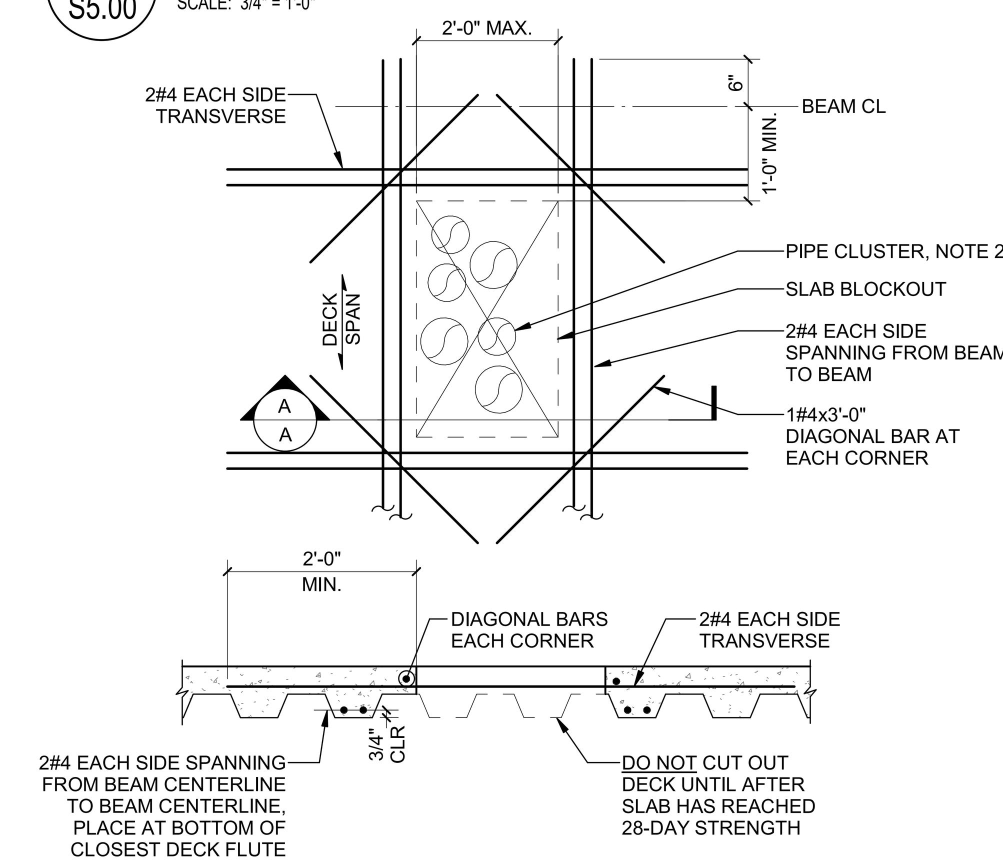
BUTT JOINTS

NOTES:
1. ALL STUDS LOCATED IN DECK FLUTES SHALL BE PLACED IN STRONG POSITION. A STUD PLACED ON THE SIDE OF THE REINFORCING RIB NEAREST THE END OF THE SPAN IS IN THE STRONG POSITION.
2. LAY OUT ALL STUDS FOR A BEAM PRIOR TO WELDING.



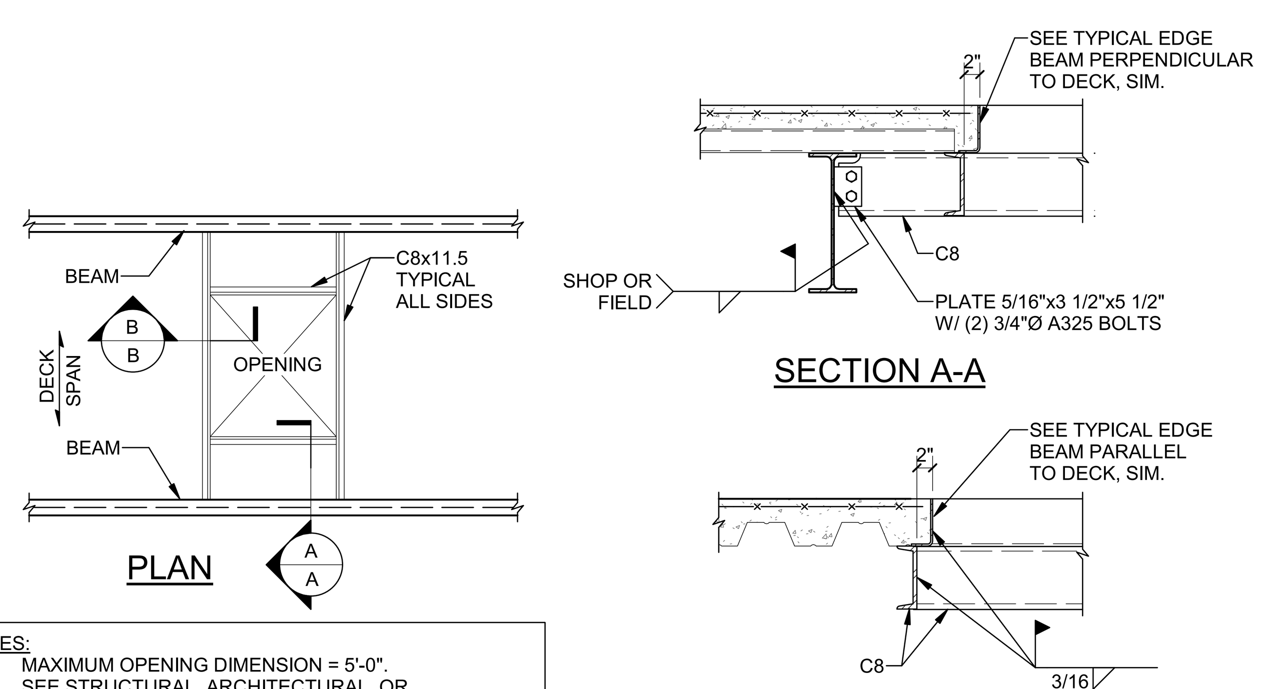
STUD PLACEMENT DETAIL

4 S5.00 TYPICAL STUD PLACEMENT DETAIL
SCALE: 3/4" = 1'-0"



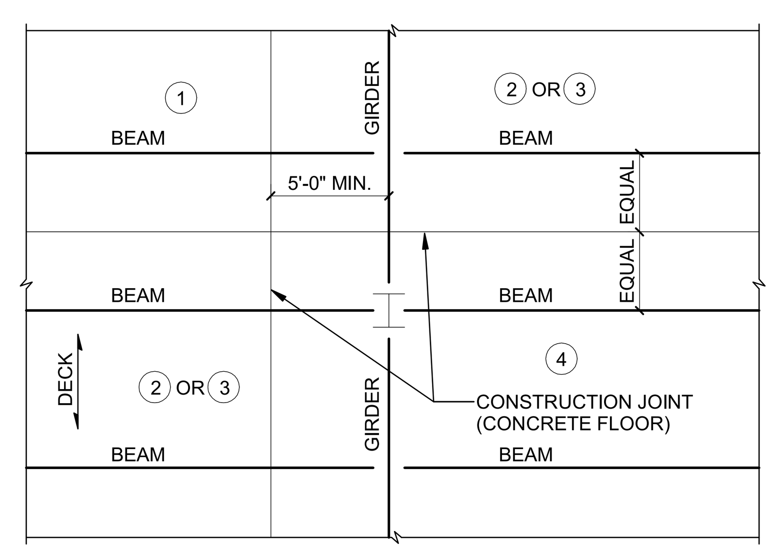
NOTES:
1. INDIVIDUAL CORES OR BLOCKOUTS OF 8" OR LESS DO NOT REQUIRE REINFORCING.
2. PIPE CLUSTER: TWO OR MORE PIPES WITH LESS THAN 1'-0" CLEAR BETWEEN PIPES.

5 S5.00 TYPICAL DECK PENETRATION ≤ 2'-0"
SCALE: 3/4" = 1'-0"



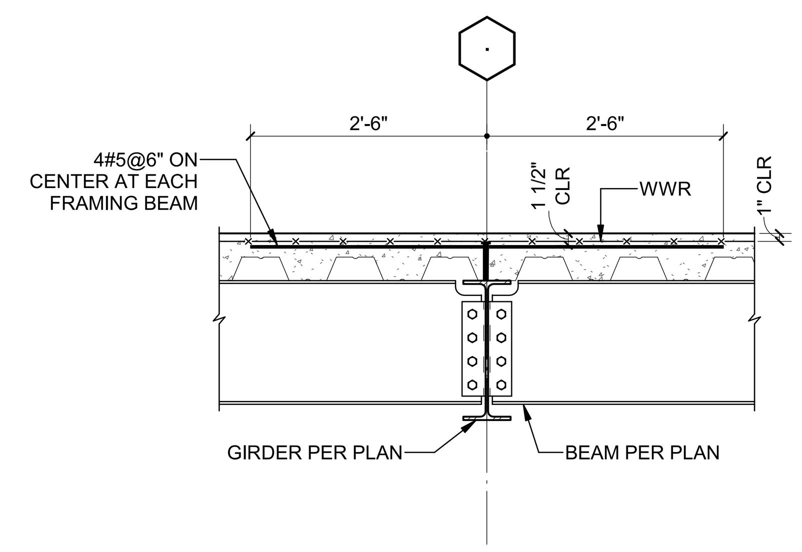
NOTES:
1. MAXIMUM OPENING DIMENSION = 5'-0".
2. SEE STRUCTURAL, ARCHITECTURAL, OR MECHANICAL DRAWINGS FOR LOCATION.

6 S5.00 TYPICAL DETAIL AT COMPOSITE FLOOR OPENING
SCALE: 3/4" = 1'-0"

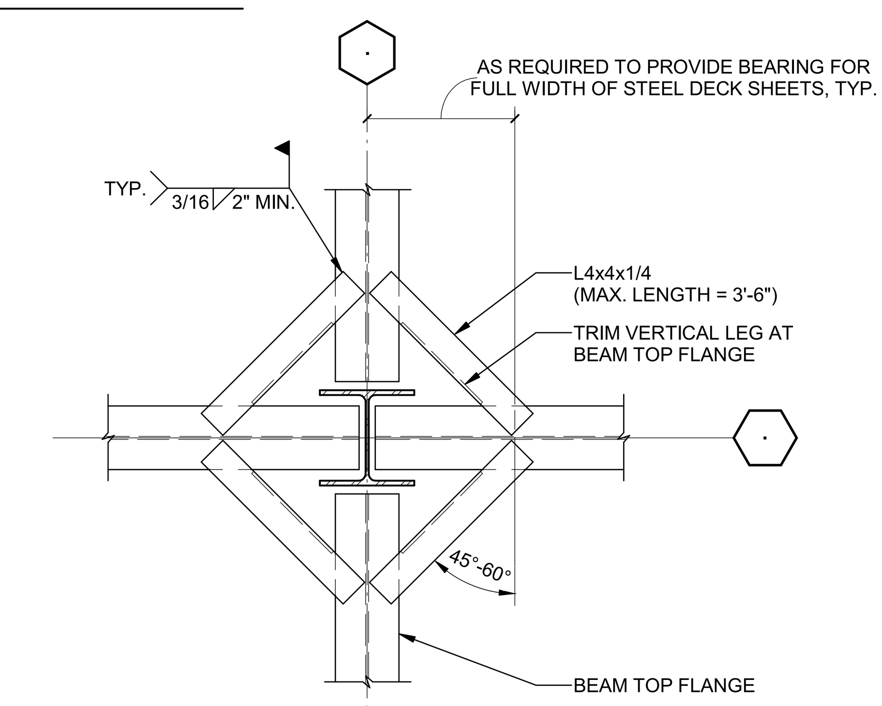


NOTES:
1. # REFERS TO POUR SEQUENCE.
2. CONTINUE SLAB REINFORCING THROUGH CONSTRUCTION JOINTS.

7 S5.00 TYPICAL DETAIL AT COMPOSITE FLOOR CONSTRUCTION JOINT
SCALE: 3/4" = 1'-0"

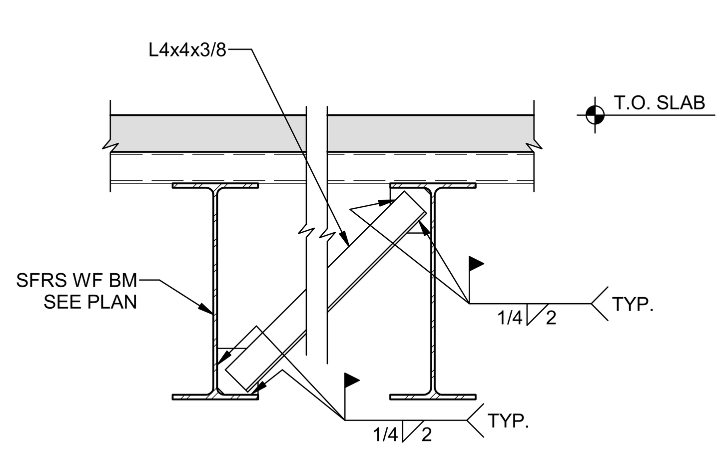


8 S5.00 TYPICAL DETAIL AT GIRDER
SCALE: 3/4" = 1'-0"



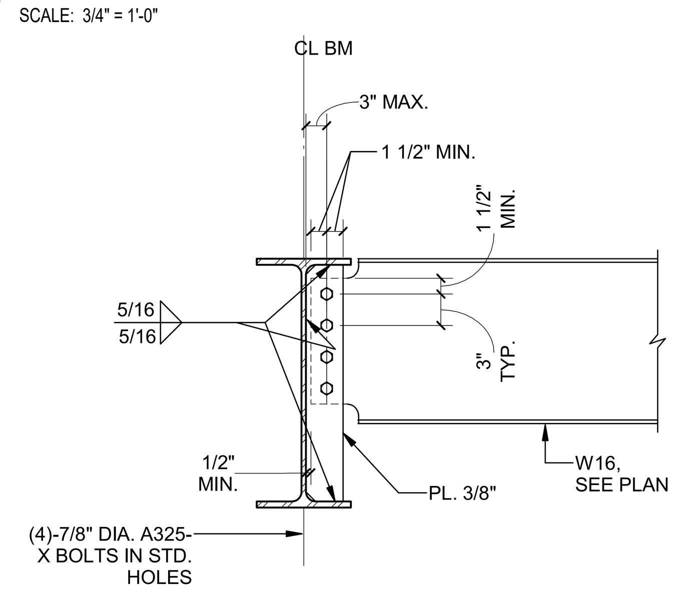
ANGLE REINFORCEMENT ONLY REQUIRED:
1. WHERE PIPE SLEEVES OCCUR NEXT TO COLUMN.
2. WHERE COLUMN BASE PLATE OCCURS ON TOP FLANGE OF STEEL BEAM.
3. AT ALL OTHER CONDITIONS WHERE DECK SUPPORT IS INTERRUPTED FOR A DISTANCE GREATER THAN 6".

9 S5.00 TYPICAL INTERRUPTED DECK SUPPORT AT COLUMN
SCALE: 3/4" = 1'-0"



NOTES:
1. USE THIS DETAIL WHERE BOTTOM FLANGE BRACES TO AN ADJACENT WF BEAM ARE SHOWN BUT NOT DETAILED.
2. COORDINATE LOCATIONS OF ANGLES W/ ARCH AND MEP DWGS.

10 S5.00 TYPICAL WF BEAM BOT FLANGE BRACE TO WF BEAM
SCALE: 1" = 1'-0"



11 S5.00 FULL DEPTH BEAM CONNECTION DETAIL
SCALE: 1" = 1'-0"

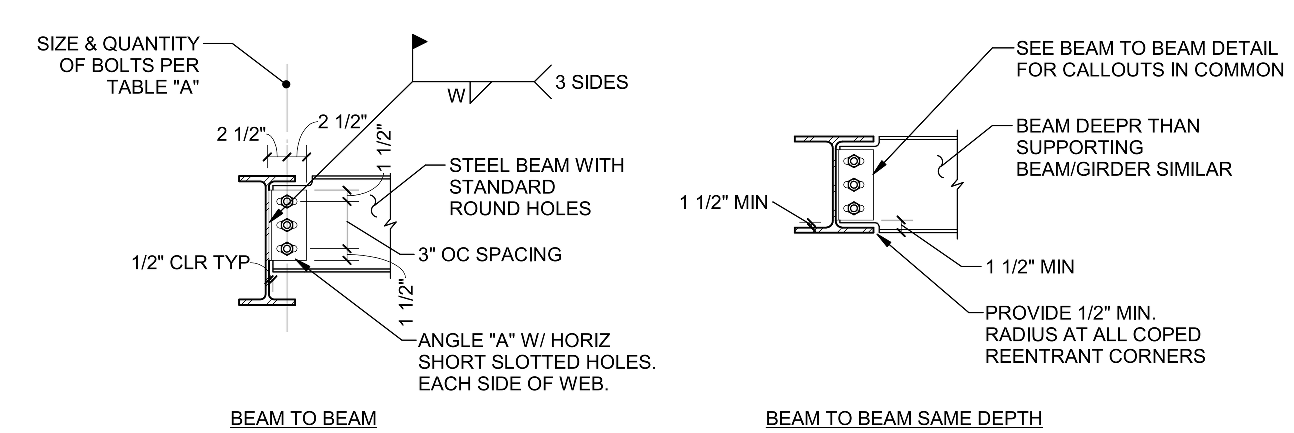


TABLE "A"

SUPPORTED BEAM SIZE	QUANTITY OF 7/8"Ø A325N BOLTS	ANGLE SIZE"A"	WELD "W"
W10	2	L5x3x5/16	1/4"
W12, W14	3	L5x3x5/16	1/4"
W16, W18	4	L5x3x5/16	1/4"
W21, W24	5	L5x3x5/16	1/4"
W27	6	L5x3x5/16	1/4"

12 S5.00 FULL DEPTH BEAM CONNECTION DETAIL
SCALE: 3/4" = 1'-0"

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DESIGN B
2018 IBC WITH RISK CATEGORY III
SEISMIC DESIGN CATEGORY D

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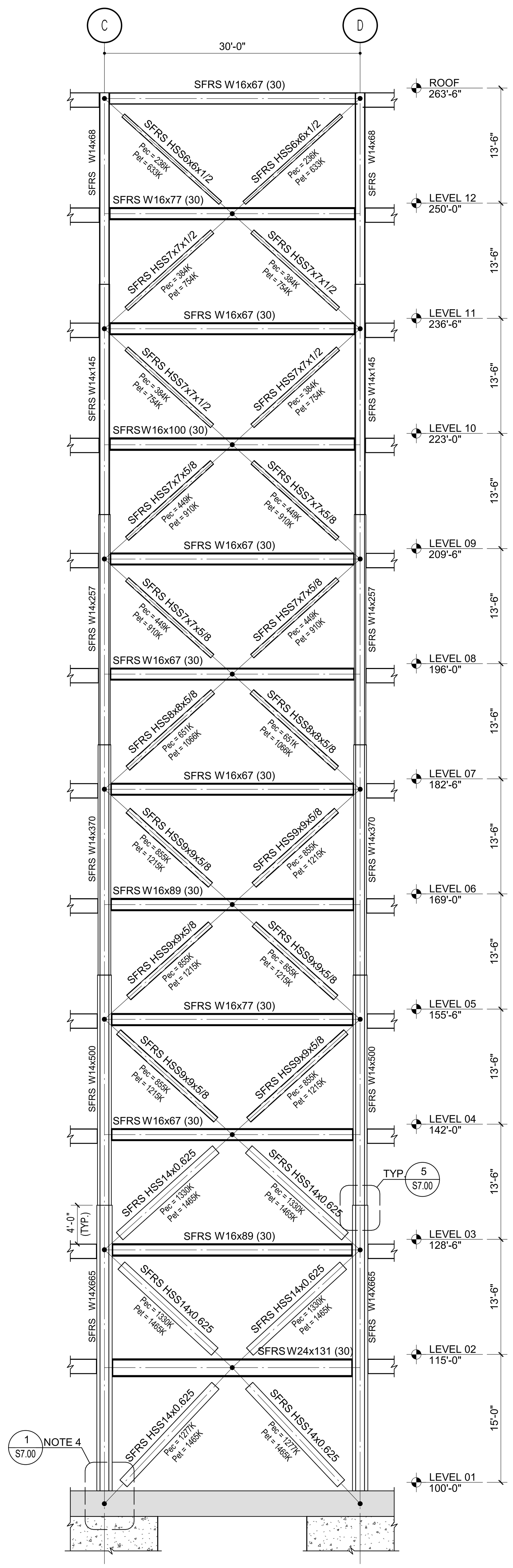
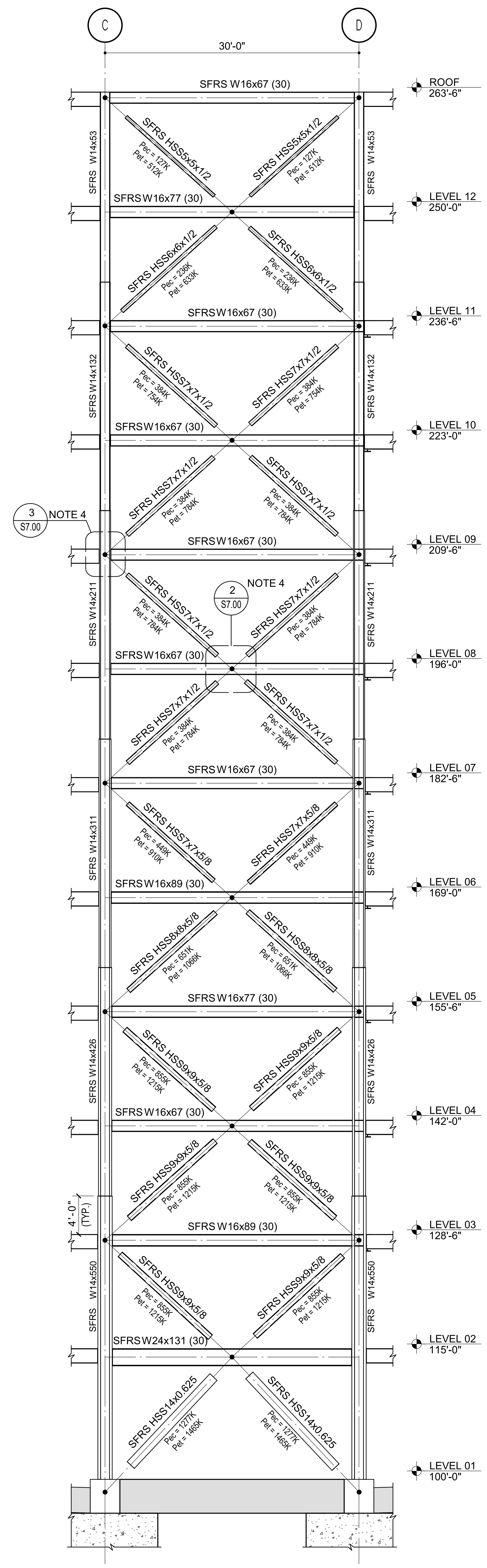
TITLE
STEEL DETAILS

SHEET NUMBER
S5.00



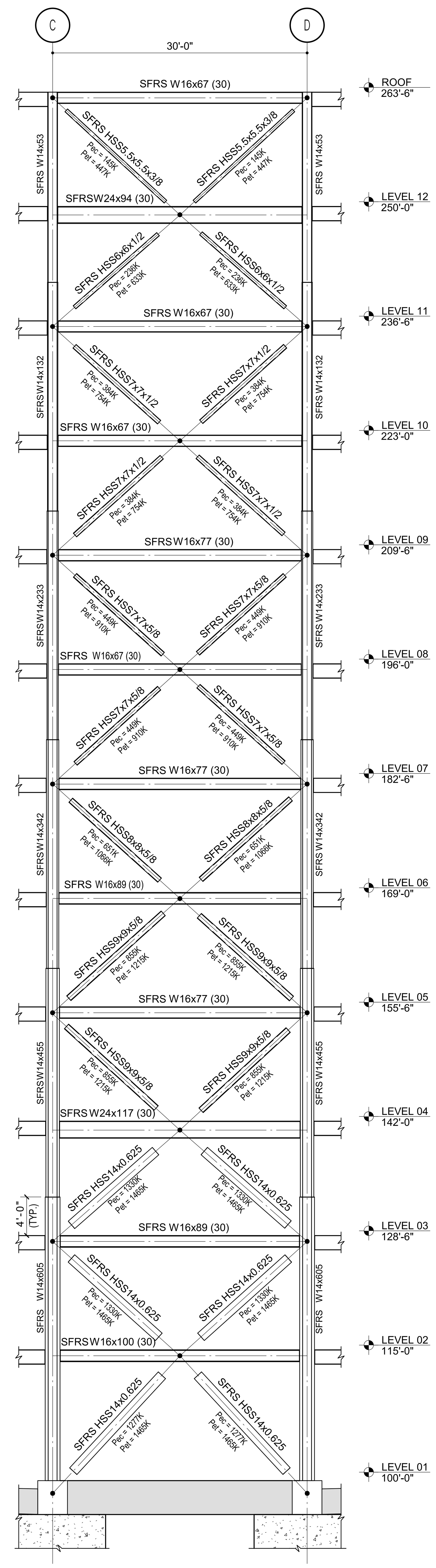
1 S6.00 ELEVATION ALONG GRID 2 BETWEEN GRID C AND D

SCALE: 1/8" = 1'-0"



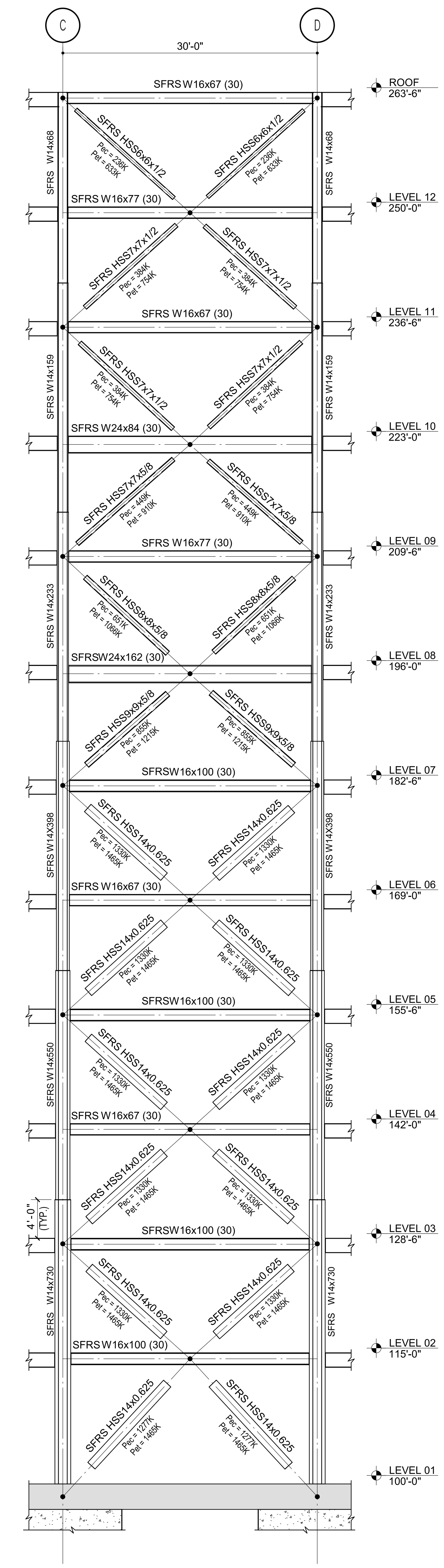
2 S6.00 ELEVATION ALONG GRID 4 BETWEEN GRID C AND D

SCALE: 1/8" = 1'-0"



3 S6.00 ELEVATION ALONG GRID 5 BETWEEN GRID C AND D

SCALE: 1/8" = 1'-0"



4 S6.00 ELEVATION ALONG GRID 6 BETWEEN GRID C AND D

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. ALL BRACES, BEAMS AND COLUMNS INDICATED AS 'SFRS' ARE PART OF THE SEISMIC FORCE RESISTING SYSTEM (SFRS). SEE PLANS & ELEVATIONS.
2. SEE S7.00 SERIES FOR TYPICAL BRACED FRAME DETAILS.
3. Pec = XXXXK INDICATES EXPECTED COMPRESSION FORCE IN BRACE FOR DESIGN OF CONNECTIONS. Pet = XXXXK INDICATES EXPECTED TENSION FORCE IN BRACE FOR DESIGN OF CONNECTIONS.
4. EXAMPLE CONNECTION CALCULATIONS WERE PERFORMED FOR SPECIFIC INDICATED CONDITIONS. CONNECTION GEOMETRY AND DESIGN WILL VARY BASED ON EACH BRACED FRAME MEMBER SIZE PER AISC 341.

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TITLE

BRACED FRAME ELEVATIONS

SHEET NUMBER

S6.00

1 S6.10 MOMENT FRAME ELEVATION ALONG GRID A

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. ALL BEAMS AND COLUMNS INDICATED AS 'SFRS' ARE PART OF THE SEISMIC FORCE RESISTING SYSTEM (SFRS). SEE PLANS & ELEVATIONS.
2. SEE S7.10 SERIES FOR TYPICAL MOMENT FRAME DETAILS.
3. [X"] INDICATES DOUBLER PLATE THICKNESS. SEE DETAIL 3 /S7.10

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TITLE

MOMENT FRAME ELEVATIONS

SHEET NUMBER

S6.10

1 S6.20 MOMENT FRAME ELEVATION ALONG GRID E

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. ALL BEAMS AND COLUMNS INDICATED AS 'SFRS' ARE PART OF THE SEISMIC FORCE RESISTING SYSTEM (SFRS). SEE PLANS & ELEVATIONS.
2. SEE S7.10 SERIES FOR TYPICAL MOMENT FRAME DETAILS.
3. $\boxed{X"}$ INDICATES DOUBLER PLATE THICKNESS. SEE DETAIL 3 /S7.10

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MOMENT FRAME ELEVATIONS

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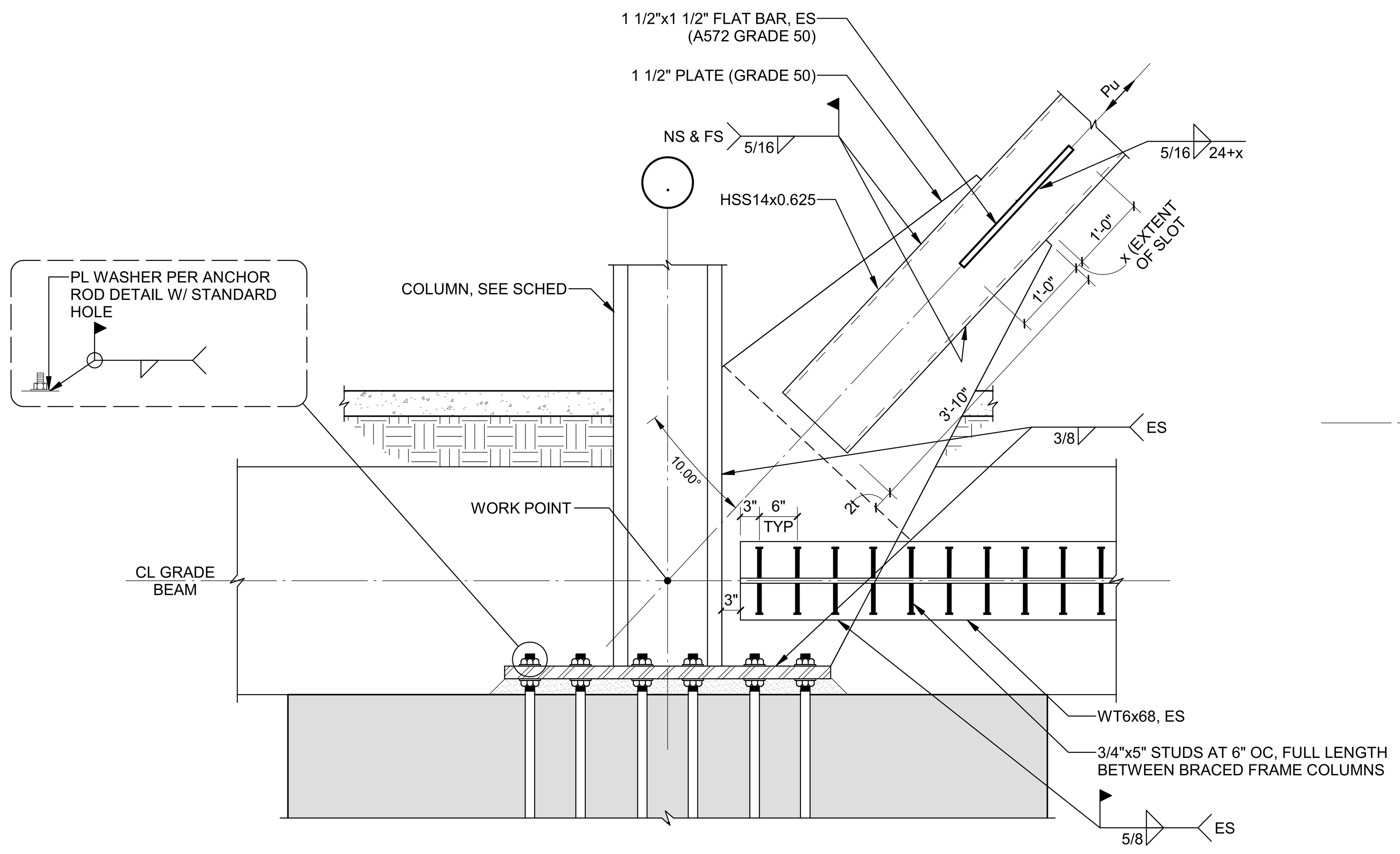
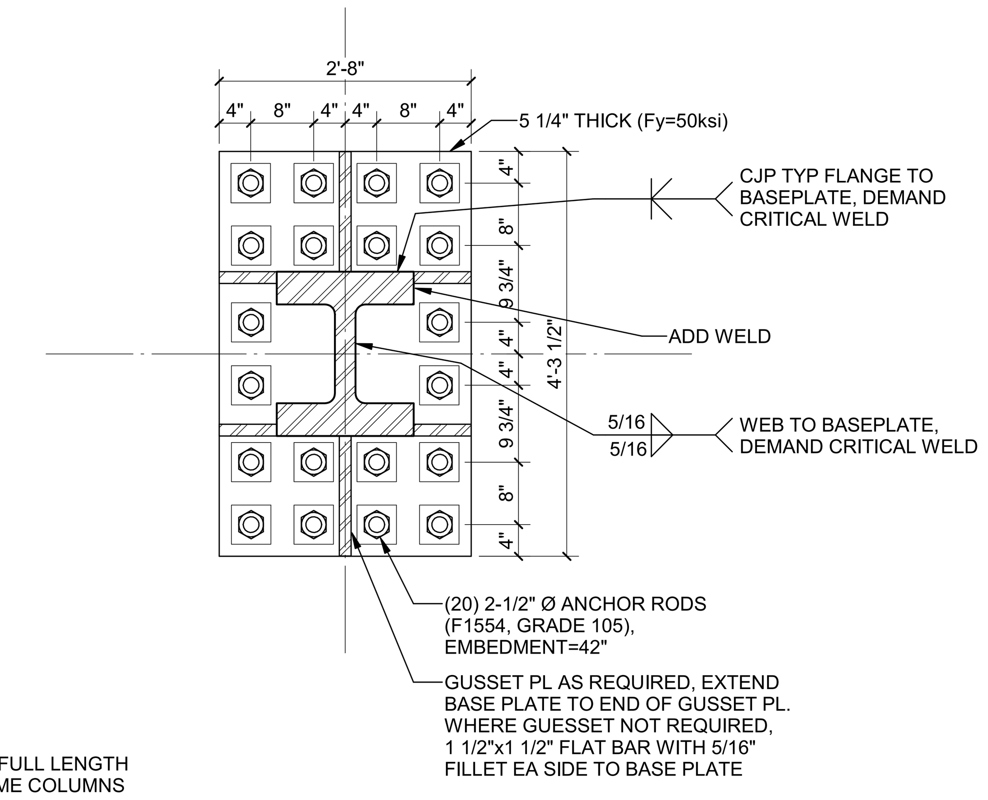
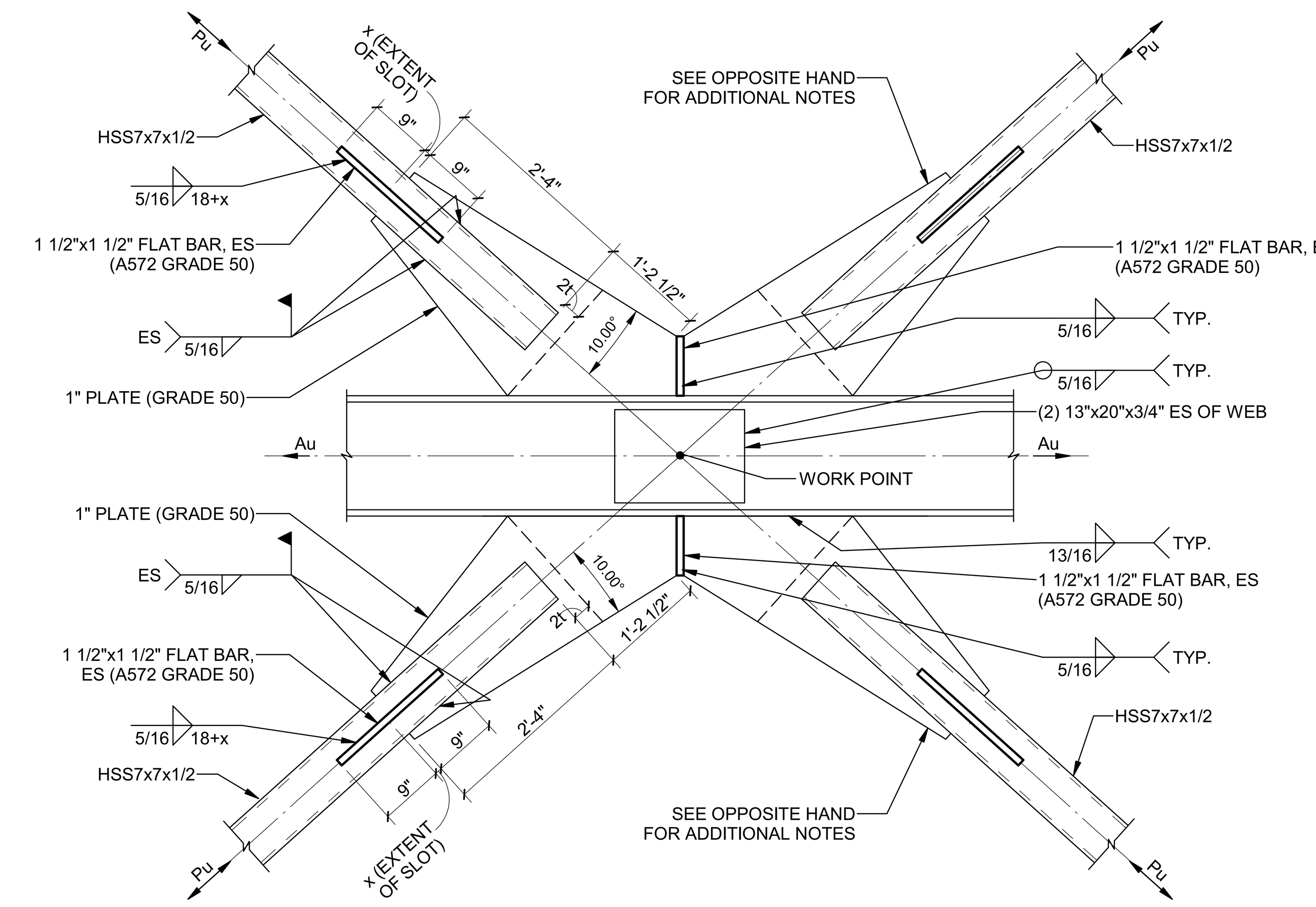
S6.20



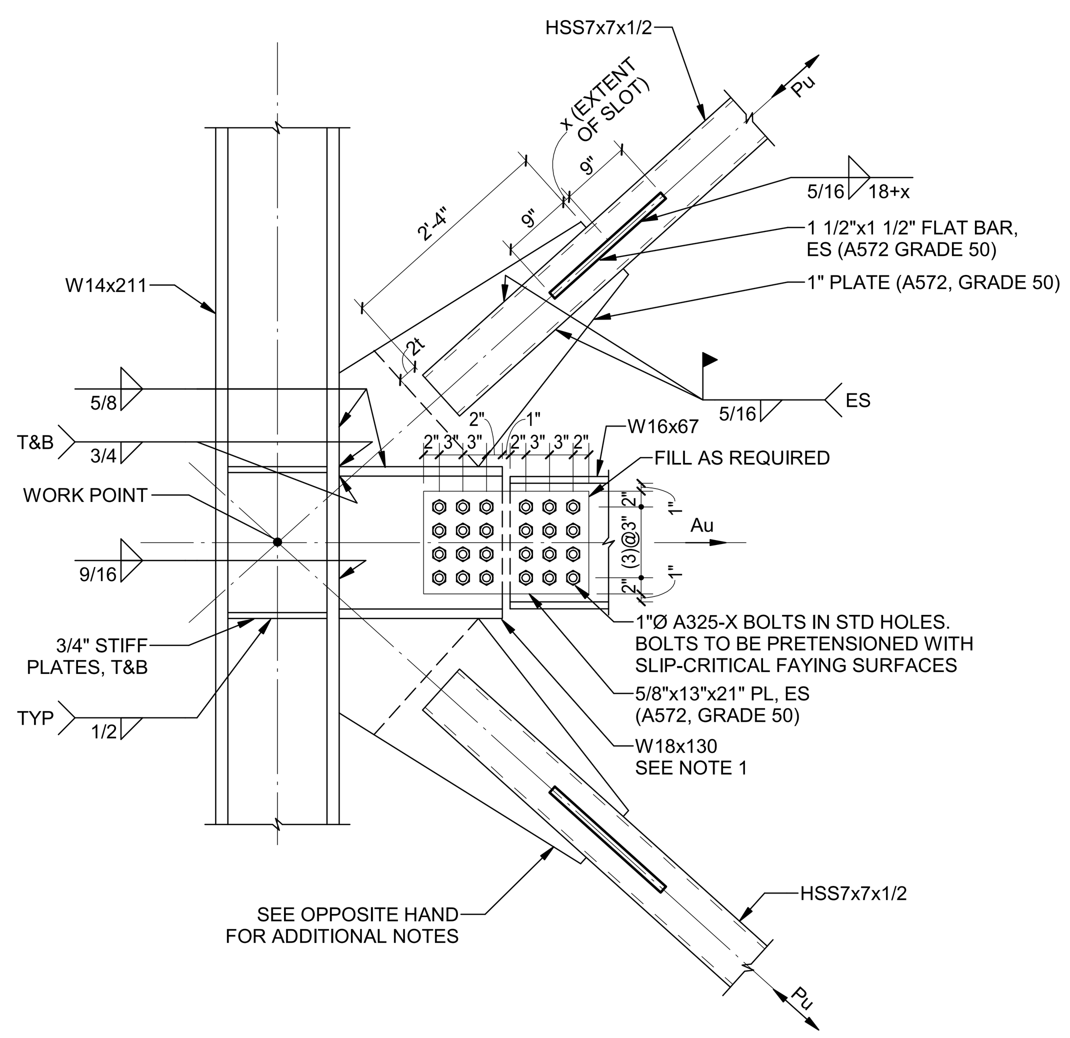
NOTES:
1. AT SIM, CONNECTION GEOMETRY AND DESIGN WILL VARY BASED ON EACH BRACED FRAME MEMBER SIZES PER AISC 341.



1 S7.00 BRACED FRAME CONNECTION
SCALE: 3/4" = 1'-0"

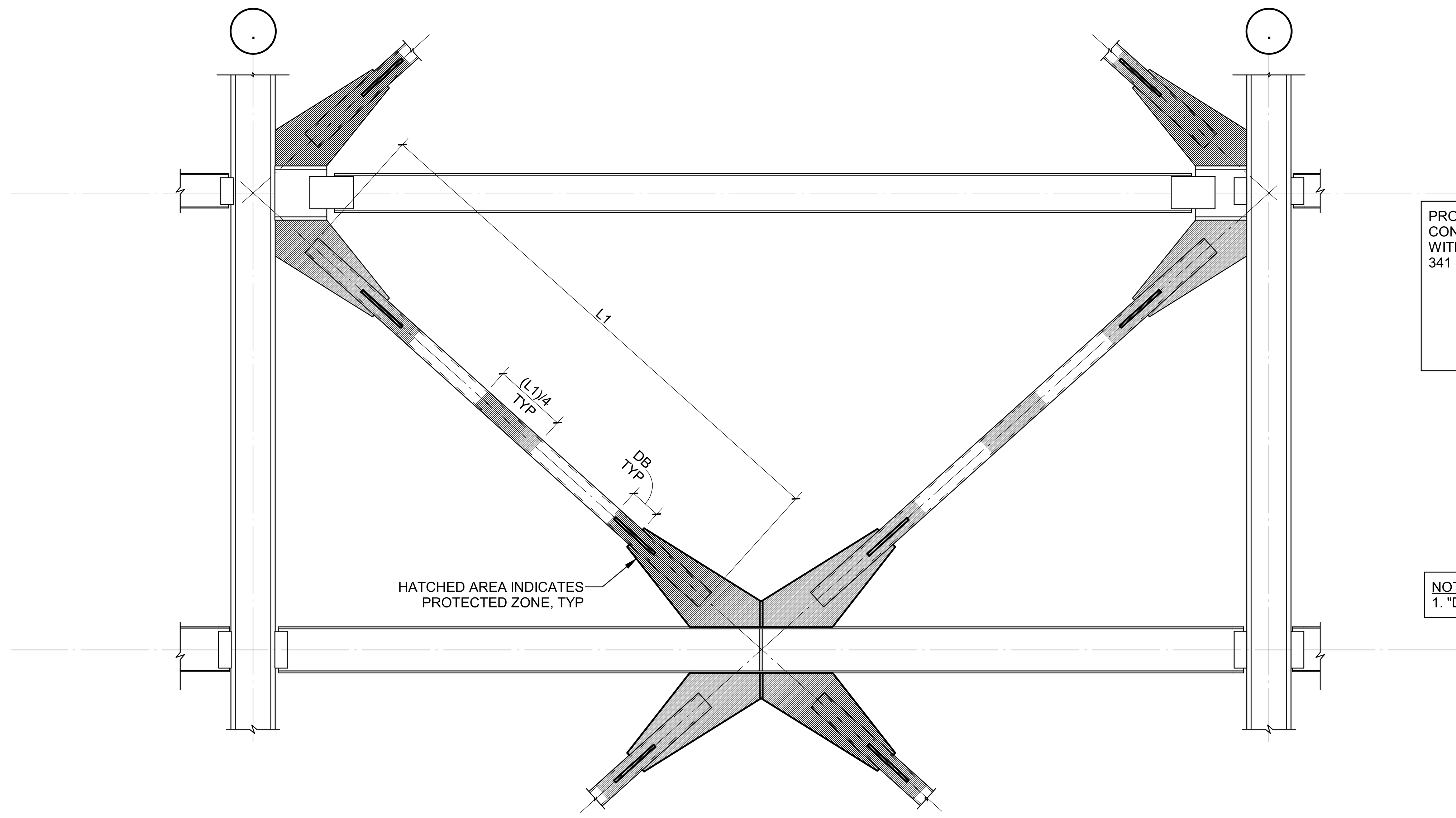


2 S7.00 BRACED FRAME CONNECTION
SCALE: 3/4" = 1'-0"



NOTES:
1. PROVIDE L3x2x1/4 (LLH) DECK SUPPORT AT LARGER BEAM WHERE REQUIRED.

3 S7.00 BRACED FRAME CONNECTION
SCALE: 3/4" = 1'-0"

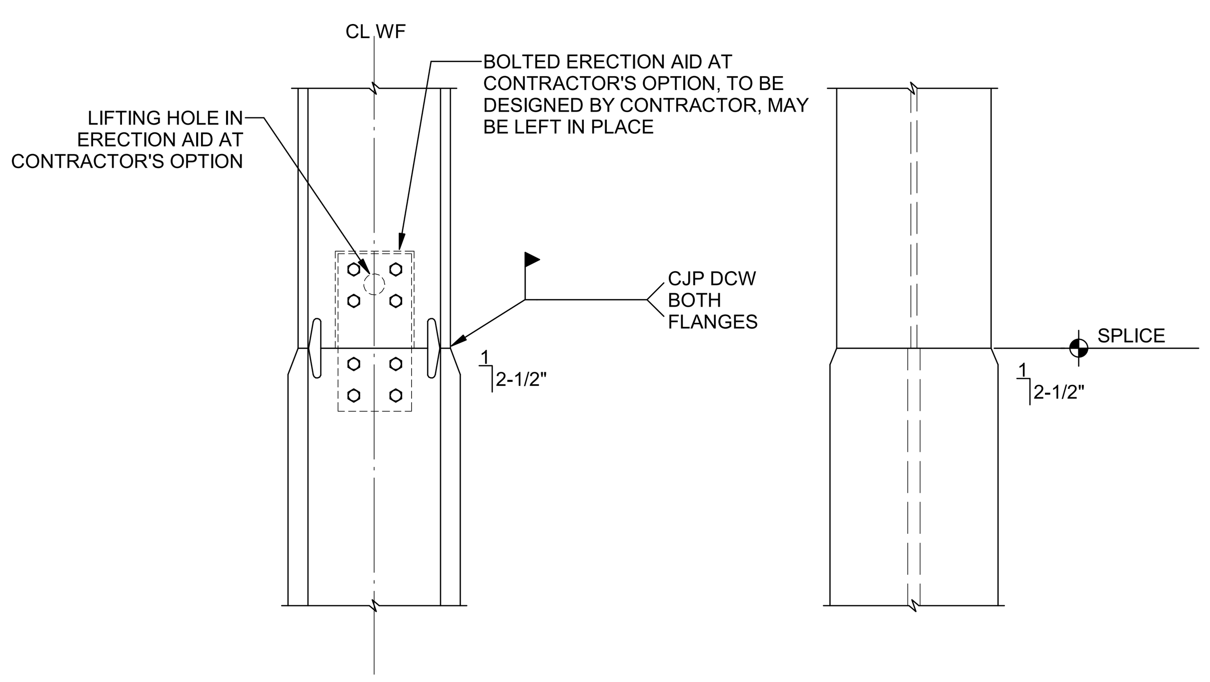


PROTECTED ZONES ARE AREAS OF THE SEISMIC FORCE RESISTING SYSTEM MEMBERS AND MEMBER CONNECTIONS WHERE LIMITATIONS APPLY TO FABRICATION AND SUPPLEMENTAL ATTACHMENTS. WITHIN DESIGNATED PROTECTED ZONES COMPLY WITH THE FOLLOWING AND AS INDICATED IN AISC 341 SECTION D1.3 AND I2.1:

1. HOLES, TACK WELDS, ERECTION AIDS, AIR-ARC GOUGING AND UNSPECIFIED THERMAL CUTTING FROM FABRICATION OR ERECTION OPERATIONS SHALL BE REPAIRED AS REQUIRED BY THE ENGINEER OF RECORD.
2. WELDED, BOLTED, SCREWED OR SHOT-IN ATTACHMENTS FOR FACADES, PARTITIONS, DUCT WORK, PIPING OR OTHER CONSTRUCTION SHALL NOT BE PERMITTED.

NOTES:
1. "DB" INDICATES THE BRACE DIAMETER OR THICKNESS.

4 S7.00 TYPICAL DETAIL AT PROTECTED ZONES
SCALE: 3/8" = 1'-0"



5 S7.00 TYPICAL BRACED AND MOMENT FRAME COLUMN SPLICE
SCALE: 1" = 1'-0"

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TITLE
BRACED FRAME DETAILS

SHEET NUMBER
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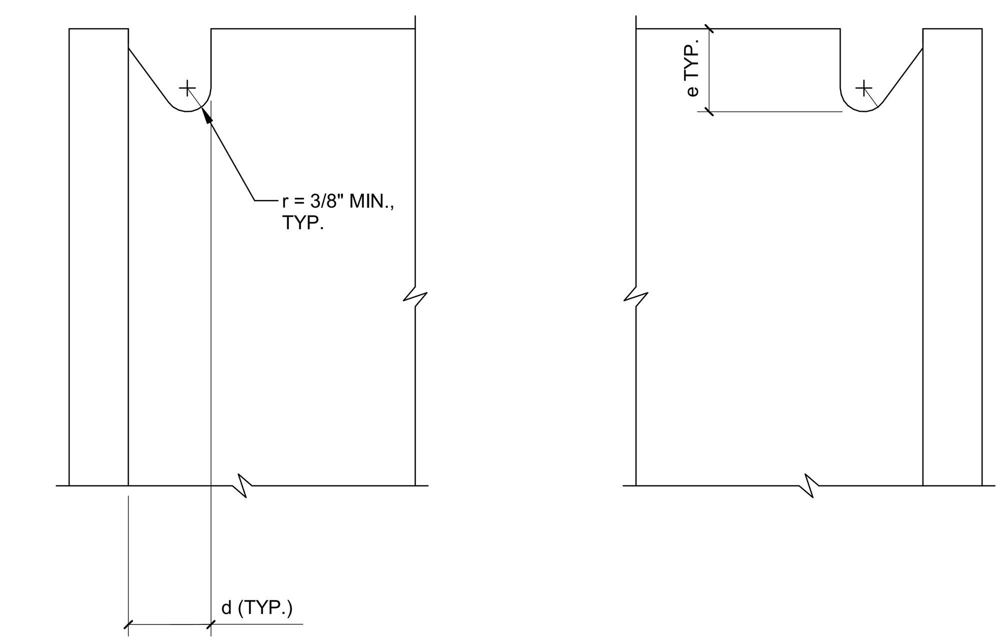
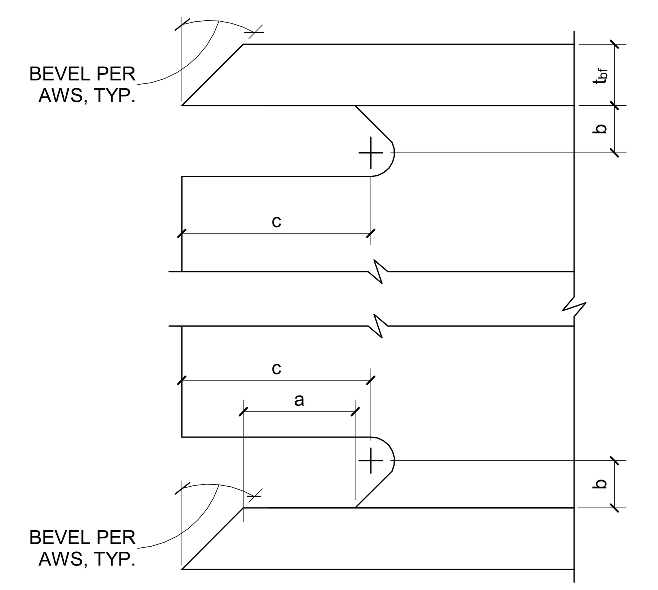


NOTES:
1. FOR ADD'L INFO SEE AISC 360 SECTION J1.6
2. PREHEAT PER AISC 360 SECTION M2.2 BEFORE THERMAL CUTTING.
3. 'tw' IS THE THICKNESS OF THE MATERIAL IN WHICH THE HOLE IS MADE.
4. d = GREATER OF 1 5/16" AND tw.
5. e = 1 1/2 x tw, e = 1" MIN., e MAY BE REDUCED TO 2" FOR W14x426 AND LARGER COLUMNS.

1 S7.10 TYP. WELD ACCESS HOLE DETAIL AT COLUMN

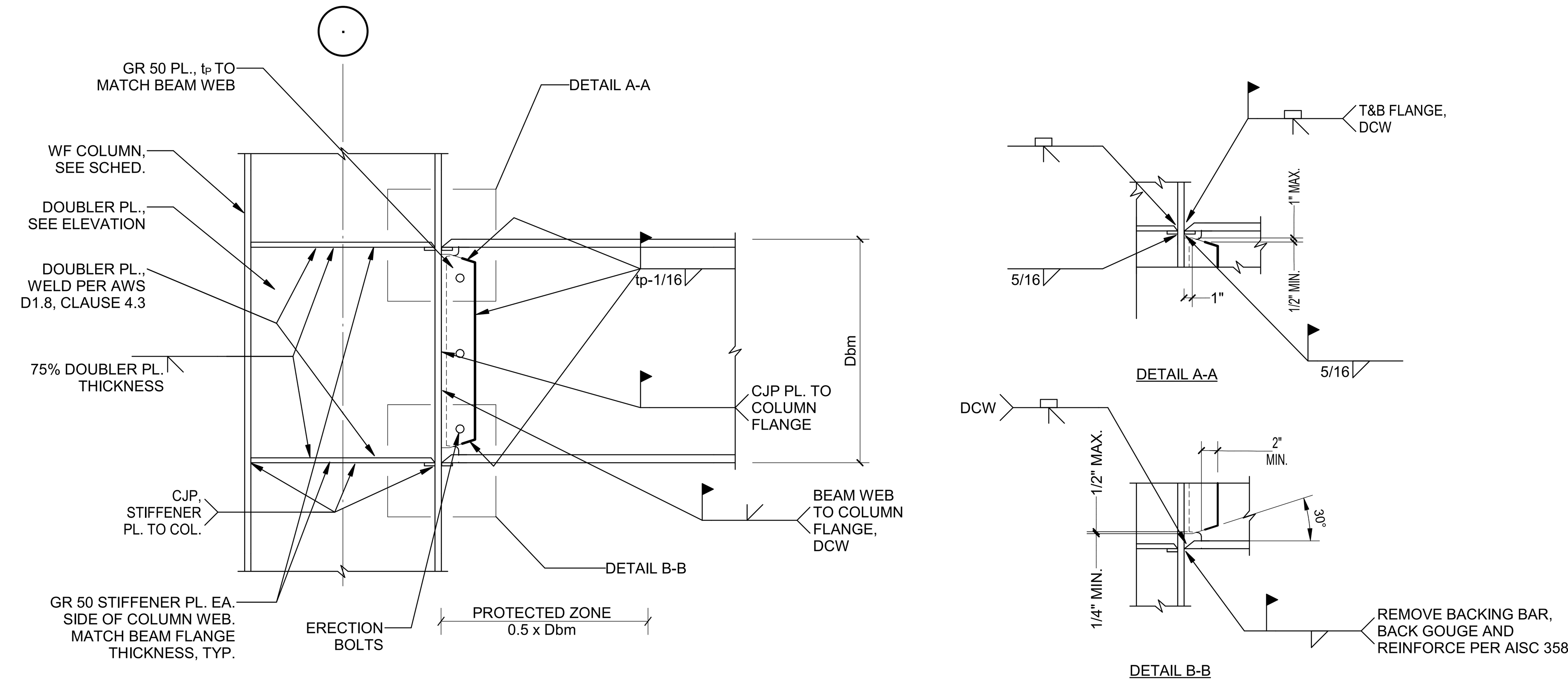


NOTES:

DIMENSION AS FOLLOWS (INCLUDING AISC TOLERANCES)

a = LARGER OF t_{bf} OR 1/2" (+ 1/2 x t_{bf} , - 1/4 x t_{bf})
b = GREATER OF 3/4 x t_{bf} OR 3/4" (± 1/4")
c = 3 x t_{bf} (± 1/2")

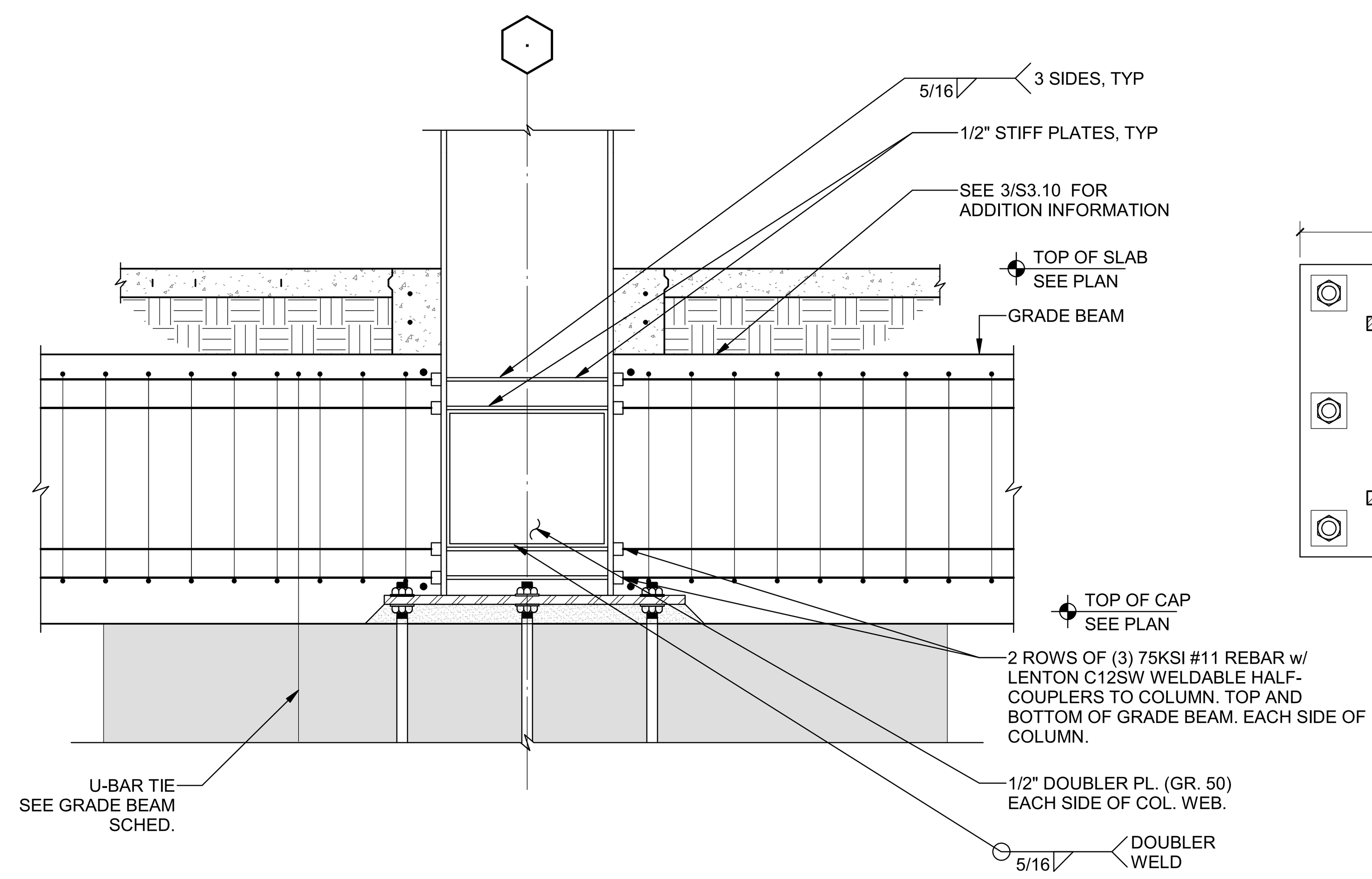
2 S7.10 TYP. WELD ACCESS HOLE DETAIL AT BEAM

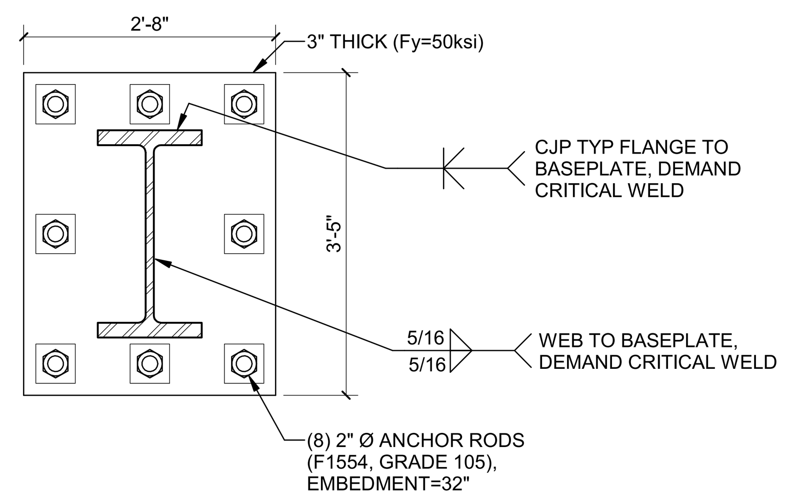


PROTECTED ZONES ARE AREAS OF THE SEISMIC FORCE RESISTING SYSTEM MEMBERS AND MEMBER CONNECTIONS WHERE LIMITATIONS APPLY TO FABRICATION AND SUPPLEMENTAL ATTACHMENTS. WITHIN DESIGNATED PROTECTED ZONES COMPLY WITH THE FOLLOWING AND AS INDICATED IN AISC 341 SECTION D1.3 AND I2.1:

1. HOLES, TACK WELDS, ERECTION AIDS, AIR-ARC GOUGING AND UNSPECIFIED THERMAL CUTTING FROM FABRICATION OR ERECTION OPERATIONS SHALL BE REPAIRED AS REQUIRED BY THE ENGINEER OF RECORD.
2. WELDED, BOLTED, SCREWED OR SHOT-IN ATTACHMENTS FOR FACADES, PARTITIONS, DUCT WORK, PIPING OR OTHER CONSTRUCTION SHALL NOT BE PERMITTED.

3 S7.10 MOMENT CONNECTION WUF - W





4 S7.10 MOMENT FRAME CONNECTION
SCALE: 3/4" = 1'-0"

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TITLE
MOMENT FRAME DETAILS

SHEET NUMBER
S7.10

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Design Case C

1988 SBC
"Risk Category II"
"Seismic Design Category C"

C.1 Gravity Design

The 12-story office is a typical steel framed building with 3" metal deck and 3-1/4" lightweight concrete topping providing a total floor depth of 6-1/4", not including the structural steel. This decking was chosen to provide the required 2-hour fire rating that is typical for office buildings. The columns and beams are ASTM A36 steel wide flange members and were designed using AISC Design, Fabrication and Erection of Structural Steel for Buildings 1978. The deflection was limited to the SBC prescribed limits of $L/360$ for floor live load, $L/240$ for floor total load, $L/240$ for roof live load and $L/180$ for roof total load.

The calculated total dead load applied was 90 psf at the floors and 80 psf at the roof. The live loads for offices, corridors (at and above the first floor) and roofs were per SBC table 1203.3. Partition loads were also applied per SBC 1202.2 and are included in the dead load.

C.2 Lateral Design

The building vertical lateral resisting system consists of steel concentrically braced frames in the North/South direction and steel moment frames in the East/West direction. The applied wind and seismic loads were determined using sections 1205 and 1206 respectively from SBC. Wind base shears significantly exceeded earthquake base shears in both directions. Thus, for the vertical lateral resisting system in the North/South direction the brace sizes were governed by wind. In the East/West direction the moment frame beams were governed by wind drift requirements. Wind drifts were limited to $H/360$ at the design wind load. Fixed base connections for the moment frames, were used to limit drift and column sizes.

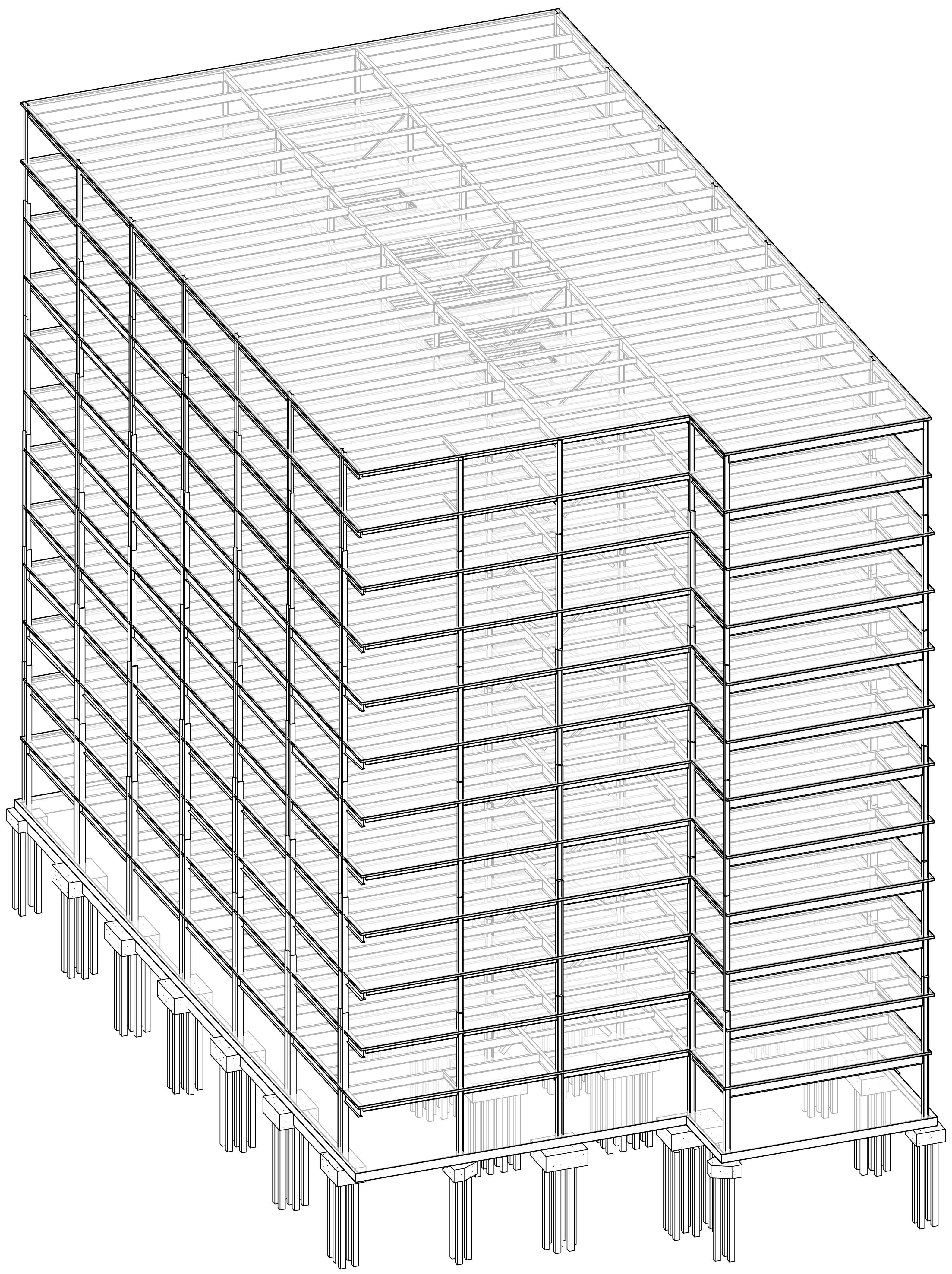
C.3 Steel Tonnage

Total steel tonnage for this design case is calculated as 1,622 tons.

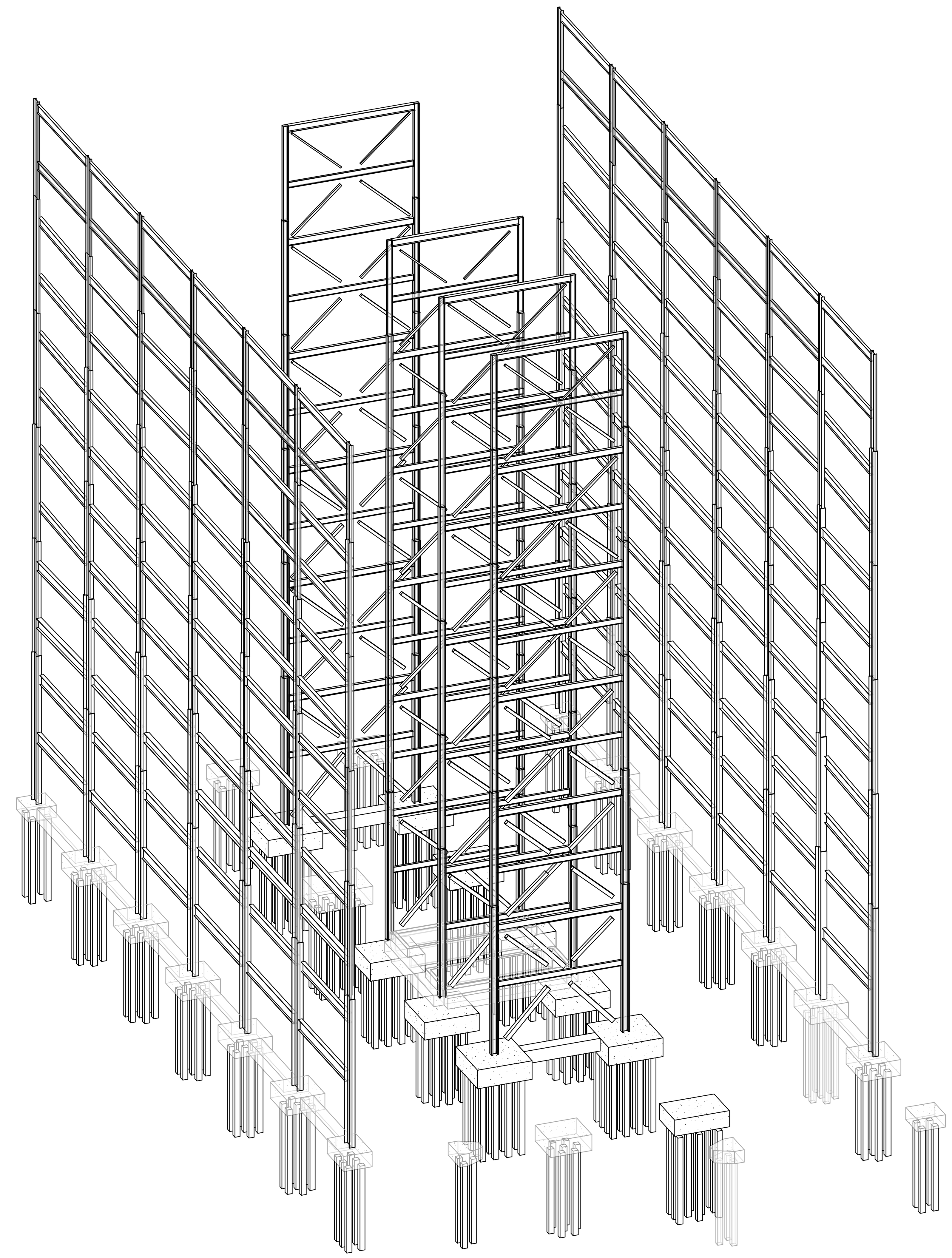
C.4 Structural Drawings

Structural drawings for Design Case C are provided on the following pages.

OFFICE BUILDING - SAVANNAH, GEORGIA
DESIGN C - 1988 SBC EQUIVIVALENT RISK CATEGORY II



OVERALL FRAMING 3D VIEW



FORCE RESISTING SYSTEM 3D VIEW

DESIGN C: 1988 SBC RISK CATEGORY II	
OFFICE BUILDING SAVANNAH, GEORGIA	
ITEM	**QUANTITY**
WF COLUMNS (Fy = 36 ksi)	92 TONS
WF GIRDERS & JOISTS (Fy = 36 ksi)	967 TONS
MOMENT FRAME WF COLUMNS (Fy = 36 ksi)	166 TONS
MOMENT FRAME WF BEAMS (Fy = 36 ksi)	205 TONS
BRACED FRAME WF COLUMNS (Fy = 36 ksi)	129 TONS
BRACED FRAME WF BEAMS (Fy = 36 ksi)	33 TONS
HSS BRACES (Fy = 46 ksi)	30 TONS
TOTAL	1622 TONS

NOTES:

1. STEEL QUANTITIES DO NOT INCLUDE MISCELLANEOUS STEEL, CUT WASTE STEEL, STAIRS, TYPICAL STEEL FRAMING CONNECTIONS, ETC.

STRUCTURAL DRAWING INDEX	
SHEET NUMBER	**SHEET NAME**
S0.00	COVER SHEET
S0.10	GENERAL NOTES
S1.00	LOAD MAPS
S2.00	FOUNDATION & GRADE LEVEL FRAMING PLAN
S2.10	SECOND FLOOR FRAMING PLAN
S2.20	TYPICAL FLOOR FRAMING PLAN
S2.30	ROOF FRAMING PLAN
S3.00	FOUNDATION DETAILS
S3.10	FOUNDATION DETAILS
S4.00	COLUMN SCHEDULE
S5.00	STEEL DETAILS
S6.00	BRACED FRAME ELEVATIONS
S6.10	MOMENT FRAME ELEVATIONS
S6.20	MOMENT FRAME ELEVATIONS
S7.00	BRACED FRAME DETAILS
S7.10	MOMENT FRAME DETAILS
Grand total: 16	

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1988 SBC WITH EQUIVALENT RISK CATEGORY II

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COVER SHEET

SHEET NUMBER

S0.00

ABBREVIATIONS

A	ADD'L	ADDITIONAL
	ADJ.	ADJACENT
	A/E	ARCHITECT/ENGINEER
	ALT.	ALTERNATE
	ARCH.	ARCHITECTURAL
	AFF.	ABOVE FINISHED FLOOR
B	BRG	BEARING
	BLDG	BUILDING
	BM.	BEAM
	BOT.	BOTTOM
	B/, BO	BOTTOM OF
C	CJ	CONTRACTION JOINT
	CL	CENTERLINE
	CLR	CLEAR
	CMU	CONCRETE MASONRY UNIT
	COL.	COLUMN
	COORD.	COORDINATE
	CONC.	CONCRETE
	CONN.	CONNECTION
	CONT.	CONTINUOUS
D	DIM	DIMENSION
E	EA.	EACH
	EE	EACH END
	EF	EACH FACE
	ES	EACH SIDE
	EW	EACH WAY
	ELEV.	ELEVATION, ELEVATOR
	EMBED.	EMBEDMENT
	EQ.	EQUAL
	EXP. JT.	EXPANSION JOINT
F	FTG	FOOTING
	FND	FOUNDATION
G	GALV.	GALVANIZED
	GR.	GRADE (MATERIAL)
H	HK	HOOK
	HORIZ.	HORIZONTAL
I	IF	INSIDE FACE
	INFO.	INFORMATION
J	JT	JOINT
K	K	KIPS
	KSF	KIPS PER SQUARE FOOT
L	LLH	LONG LEG HORIZONTAL
	LLV	LONG LEG VERTICAL
	LSH	LONG SIDE HORIZONTAL
M	MANUF.	MANUFACTURER
	MAX.	MAXIMUM
	MECH.	MECHANICAL
	MEP	MECH, ELECTRICAL, PLUMBING
	MIN.	MINIMUM
	MISC.	MISCELLANEOUS
O	OC	ON CENTER
	OPNG.	OPENING
	OPP.	OPPOSITE
	OH	OPPOSITE HAND
P	PL.	PLATE
	PCF	POUNDS PER CUBIC FOOT
	PCY	POUNDS PER CUBIC YARD
	PSF	POUNDS PER SQUARE FOOT
	PSI	POUNDS PER SQUARE INCH
R	REINF.	REINFORCEMENT, REINFORCING
	REQD	REQUIRED
S	SCHED.	SCHEDULE
	SIM.	SIMILAR
	SFRS	SEISMIC FORCE RESISTING SYSTEM
	SOG	SLAB ON GROUND
	STIFF.	STIFFENER
	SYM.	SYMMETRIC
T	TEMP.	TEMPERATURE
	T&B	TOP AND BOTTOM
	T/, TO	TOP OF
	TYP.	TYPICAL
U	UNO	UNLESS NOTED OTHERWISE
V	VERT.	VERTICAL
W	WF	WIDE FLANGE
	WP	WORK POINT
	WWF	WELDED WIRE FABRIC
	W/	WITH

1.00 GENERAL

1.01 ALL CONSTRUCTION SHALL CONFORM TO THE 1988 STANDARD BUILDING CODE. REFERENCE TO OTHER STANDARD SPECIFICATIONS OR CODES SHALL MEAN THE BUILDING CODE ADOPTED EDITION.

2.00 STRUCTURAL LOAD CRITERIA

2.01 NATURE OF OCCUPANCY:
- ALL BUILDING EXCEPT THOSE LISTED

2.02 WIND LOADING CRITERIA:
- BASIC WIND SPEED__________ V = 90 MPH (FASTEST MILE)
- USE FACTOR__________ 1.0
- ALLOWABLE DRIFT AT DESIGN WIND SPEED__________ H/360
- DESIGN BASE SHEAR, NORTH-SOUTH__________ 1477 KIPS
- DESIGN BASE SHEAR, EAST-WEST__________ 859 KIPS

2.03 SNOW LOADING CRITERIA:
- GROUND SNOW LOAD__________ 0 PSF

2.04 SEISMIC LOADING CRITERIA:
- ZONE__________ 2
- Av__________ 0.10
- Z FACTOR__________ 0.24
- I, OCCUPANCY IMPORTANCE FACTOR__________ 1.0
- K, BRACED FRAMES__________ 1.0
- K, ORDINARY MOMENT-RESISTING STEEL FRAMES____ 1.0
- S (SOIL PROFILE TYPE S_3)__________ 1.5
- DESIGN BASE SHEAR__________ 521 KIPS

3.00 FOUNDATIONS:

3.01 PRECAST PRESTRESSED CONCRETE PILES SHALL BE 14 INCHES SQUARE WITH THE FOLLOWING ALLOWABLE CAPACITIES:
- COMPRESSION__________ 80 TONS
- TENSION __________ 60 TONS
- LATERAL __________ 10 TONS

4.00 REINFORCED CONCRETE

4.01 ALL CONCRETE WORK SHALL CONFORM TO ACI 301-82, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS". DESIGN IS BASED ON ACI - 83, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE".

4.02 UNLESS NOTED OTHERWISE, ALL CONCRETE SHALL BE NORMALWEIGHT AND HAVE THE FOLLOWING MINIMUM 28-DAY STRENGTHS:
- FOUNDATIONS __________ 4000 PSI
- SLABS-ON-GROUND__________ 4000 PSI
- SLABS ON STEEL DECK (110 PCF MAXIMUM) __________ 3000 PSI

4.03 REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.

4.04 WELDED WIRE REINFORCEMENT (MESH) SHALL CONFORM TO ASTM A1064 AND SHALL BE PROVIDED IN FLAT SHEETS (ROLLS NOT PERMITTED). LAP TWO SQUARES AT SPLICES.

4.05 PROVIDE CLASS "B" TENSION SPLICE UNLESS NOTED OTHERWISE. DOWELS SHALL MATCH THE SIZE AND SPACING OF THE SPECIFIED REINFORCING AND SHALL BE LAPPED WITH CLASS "B" TENSION SPLICES. REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE COVER UNLESS NOTED OTHERWISE:
- CONCRETE CAST AGAINST EARTH (NOT FORMED)__________ 3"
- FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
  - #6 THROUGH #18 BARS __________ 2"
  - #5 BARS AND SMALLER __________ 1 ½"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
  - SLABS AND WALLS __________ 1"
  - BEAM STIRRUPS AND COLUMN TIES __________ 1 ½"

4.06 CONCRETE SLABS ON STEEL DECK SHALL BE PLACED AT A CONSTANT THICKNESS.

5.00 STRUCTURAL STEEL

5.01 ALL STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO THE AISC 360, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS".

5.02 UNLESS NOTED OTHERWISE, STRUCTURAL STEEL WIDE FLANGES AND TEES SHALL CONFORM TO ASTM A36; ROUND TUBES SHALL BE 42 KSI, SQUARE, AND RECTANGULAR TUBES SHALL BE 46 KSI; AND ALL OTHER SHAPES AND PLATES SHALL CONFORM TO ASTM A36.

5.03 STEEL FRAMING CONNECTIONS SHALL BE BOLTED OR WELDED:
- BOLTED JOINTS SHALL CONFORM TO RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS". BOLTS SHALL CONFORM TO ASTM A325, AND SHALL BE MINIMUM 3/4" DIAMETER, UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE CONSIDERED BEARING TYPE, UNLESS OTHERWISE NOTED.
- WELDS SHALL CONFORM TO THE "STRUCTURAL WELDING CODE" OF THE AMERICAN WELDING SOCIETY, AWS D1.1. USE E70XX ELECTRODES. WELDING PROCESSES AND OPERATORS SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATIONS PROCEDURES".

5.04 ANCHOR RODS SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE NOTED.

5.05 STEEL SURFACES TO BE WELDED OR ENCASED IN CONCRETE OR FIREPROOFING, CONNECTIONS DESIGNATED AS SLIP CRITICAL TYPE, OR SURFACES RECEIVING WELDED SHEAR CONNECTORS IN THE FIELD SHALL NOT BE PAINTED.

5.06 PLACE NON-SHRINK, HIGH-STRENGTH GROUT (MINIMUM 6,000 PSI) UNDER BASE PLATES AFTER SETTING AND LEVELING, AND PRIOR TO PLACING ELEVATED SLAB CONCRETE.

5.07 SHEAR CONNECTORS: PROVIDE AWS D1.1, TYPE B, 3/4" DIAMETER, SOLID FLUXED HEADED SHEAR CONNECTOR STUDS AUTOMATICALLY END WELDED THROUGH THE STEEL DECK AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.

6.00 STEEL DECKING:

6.01 UNLESS NOTED OTHERWISE, STEEL DECK SHALL BE GRADE 50, GALVANIZED (MINIMUM G60), CONFORMING TO STEEL DECK INSTITUTE (SDI) STANDARDS.

6.02 STEEL COMPOSITE FLOOR DECK SHALL BE FASTENED TO STEEL FRAMING WITH 5/8" DIAMETER PUDDLE WELDS AT THE FOLLOWING SPACINGS:
- AT FRAMING PERPENDICULAR TO DECK FLUTES: 12" ON CENTER MAXIMUM AND AT EACH EDGE FLUTE OF EACH DECK UNIT.
- AT FRAMING PARALLEL TO DECK FLUTES: 24" ON CENTER MAXIMUM.
- SIDE LAPS SHALL BE FASTENED WITH #10 SELF-TAPPING SCREWS AT A MAXIMUM SPACING OF 2 FEET CENTER TO CENTER BETWEEN SUPPORTS.

6.03 DECKING SHALL BE CONTINUOUS OVER 3 SPANS MINIMUM WHERE SUPPORTING STRUCTURE PERMITS.

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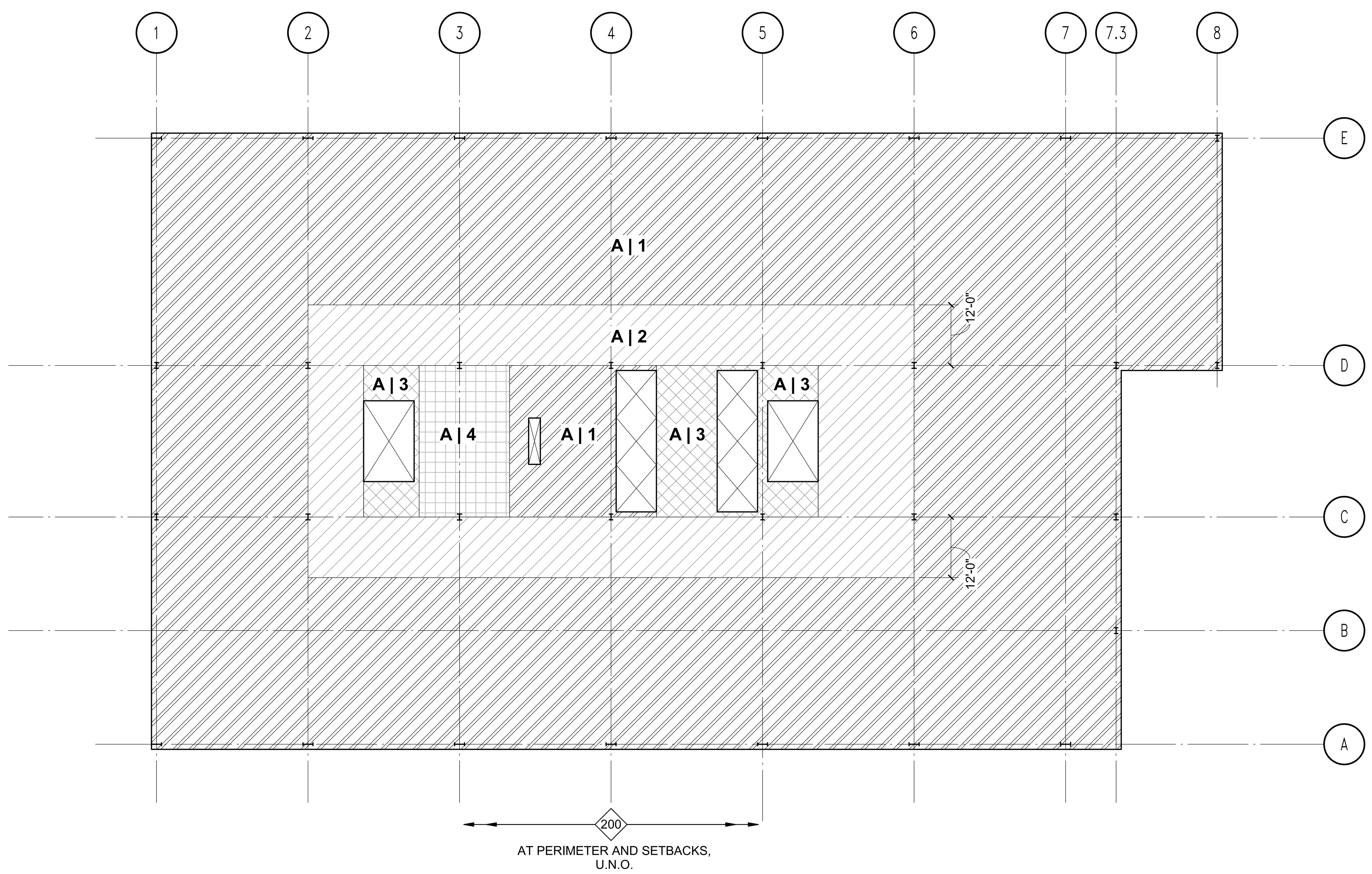
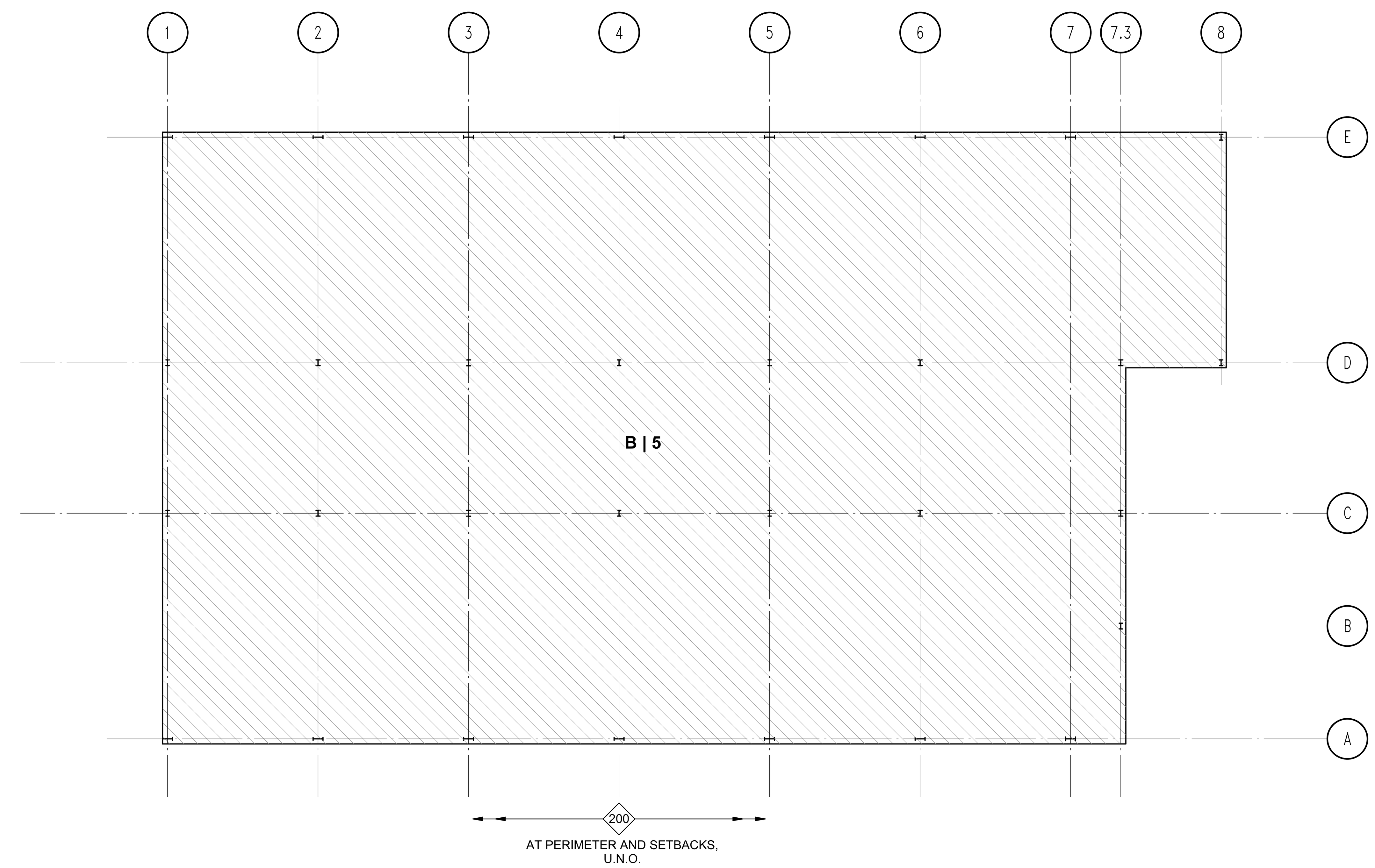
GENERAL NOTES

SHEET NUMBER

S0.10



1 S1.00 LEVEL 2-12 LOAD MAP
SCALE: 1/16" = 1'-0"



2 S1.00 ROOF LOAD MAP
SCALE: 1/16" = 1'-0"

SUPERIMPOSED DEAD LOAD DESIGNATIONS			
MARK	USE	LOAD (PSF)	NOTES
A	OFFICE	10 + 20	MISC. + PARTITIONS
B	ROOF	20	10 ROOFING + 10 MISC.

LIVE LOAD DESIGNATIONS			
MARK	USE	LOAD (PSF)	NOTES
1	OFFICE	50 (R)	
2	CORRIDORS	80 (R)	
3	LOBBIES & STAIRS	100 (R)	
4	MECHANICAL & STORAGE	125 (NR)	
5	ROOF	20 (R)	

LOAD MAP KEY:

A | 1
NUMBER INDICATES LIVE LOAD MARK
LETTER INDICATES SUPERIMPOSED DEAD LOAD MARK

200 INDICATES CLADDING LOAD IN POUNDS PER LINEAR FOOT. CLADDING LOAD IS 200 POUNDS PER LINEAR FOOT U.N.O.

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LOAD MAPS

SHEET NUMBER
S1.00

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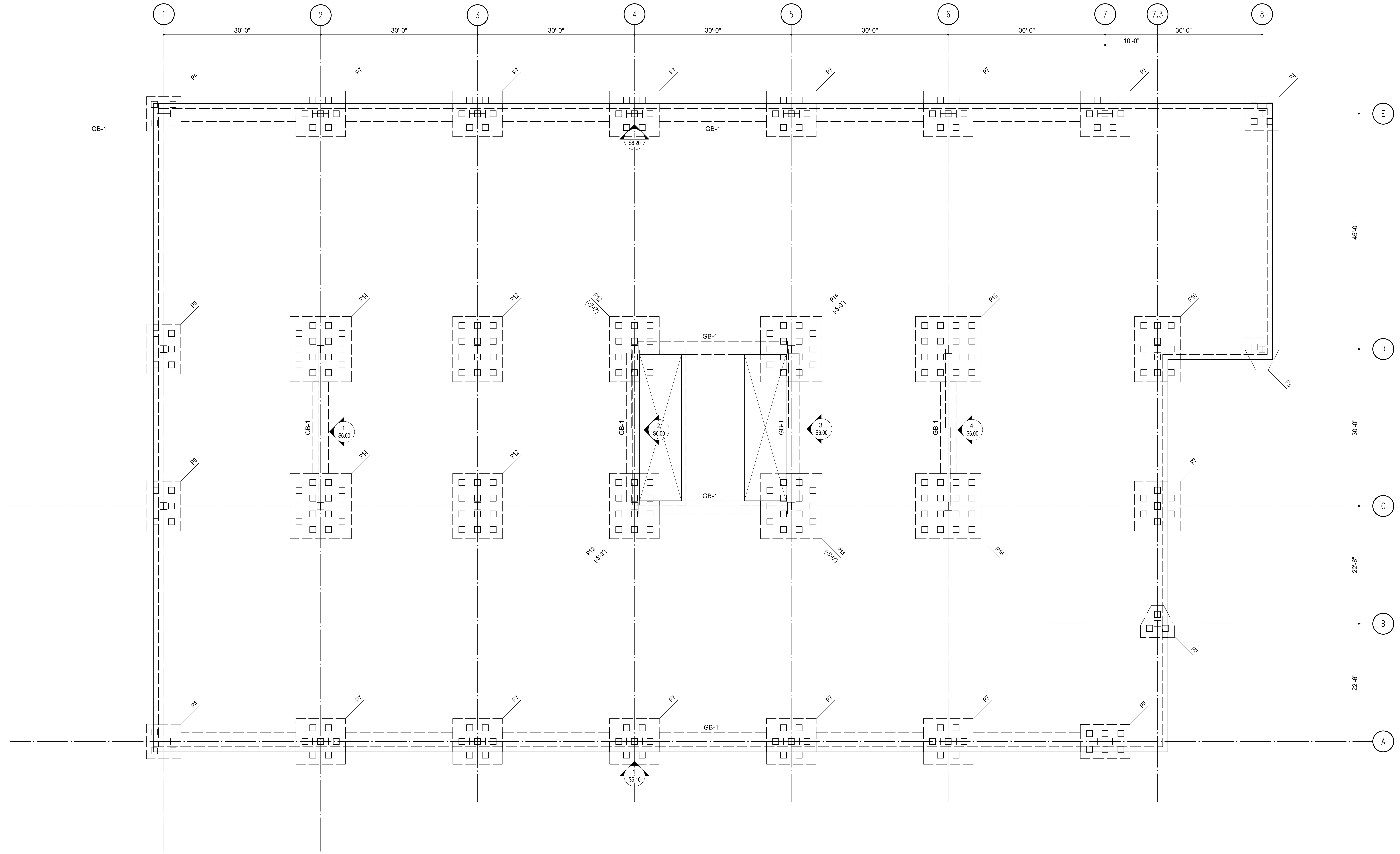

1 S2.00 FOUNDATION & GRADE LEVEL FRAMING PLAN

SCALE: 1/8" = 1'-0"

N

FOUNDATION AND SOG NOTES:

1. TOP OF NOMINAL SLAB ELEVATION = 100'-00".
2. SLAB-ON-GROUND THICKNESS IS 5", UNLESS NOTED OTHERWISE.
3. ALL FOOTINGS, PILE CAPS, AND PIERS ARE CENTERED ABOUT COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.
4. 'GB' INDICATES GRADE BEAM. SEE S3.00 FOR ADDITIONAL INFORMATION.
5. SEE S4.00 FOR COLUMN SCHEDULE.

LEGEND:

X'-X" — INDICATES TOP OF WALL FOOTING OR TOP OF GRADE BEAM ELEVATION

INDICATES PILE, SEE 3/S3.00

PX — INDICATES PILE CAP TYPE. SEE SHEET S3.01

X'-X" — INDICATES TOP OF PILE CAP ELEVATION BELOW SLAB ON GRADE, TYP. ELEVATION IS -4'-0" BELOW TOP OF SOG, UNO

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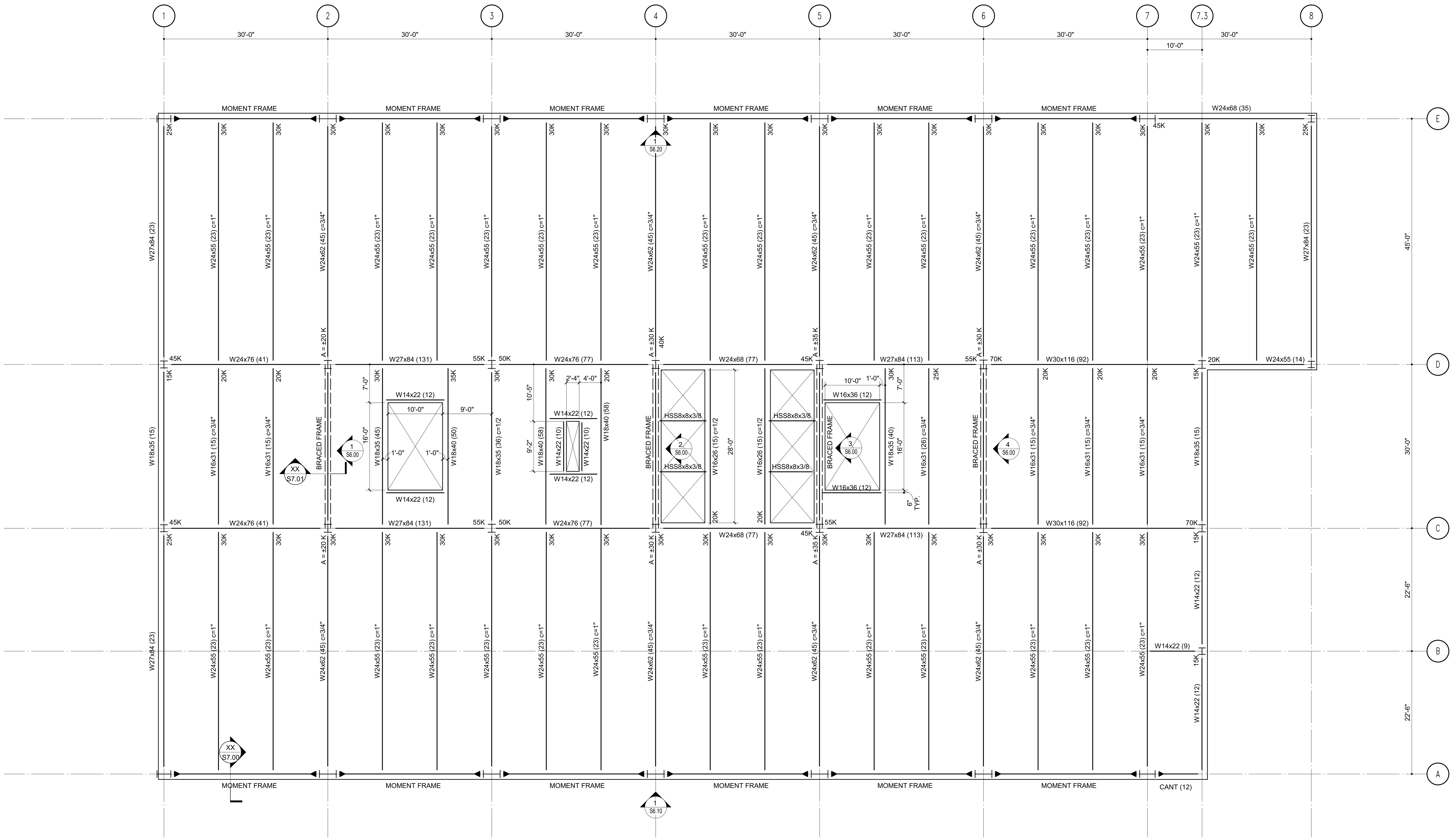
TITLE
FOUNDATION & GRADE LEVEL FRAMING PLAN

SHEET NUMBER
S2.00



SECOND FLOOR FRAMING PLAN

1 / S2.10

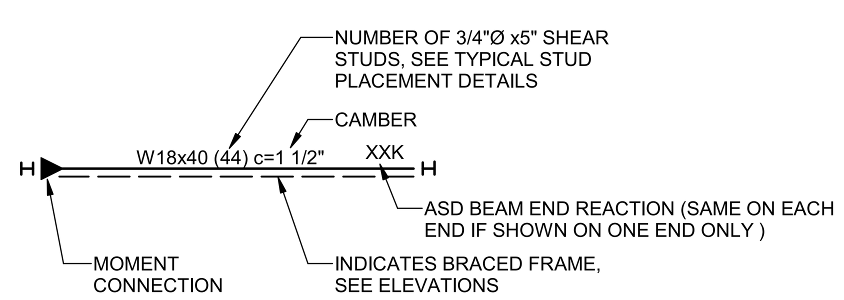
SCALE: 1/8" = 1'-0"

N

FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = +115', AT FINISHED FLOOR UNLESS NOTED OTHERWISE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3.25" LIGHTWEIGHT (110 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
7. SEE COLUMN SCHEDULE ON S4.00 FOR COLUMN SIZES.

FRAMING LEGEND:



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SECOND FLOOR FRAMING PLAN

SHEET NUMBER

S2.10

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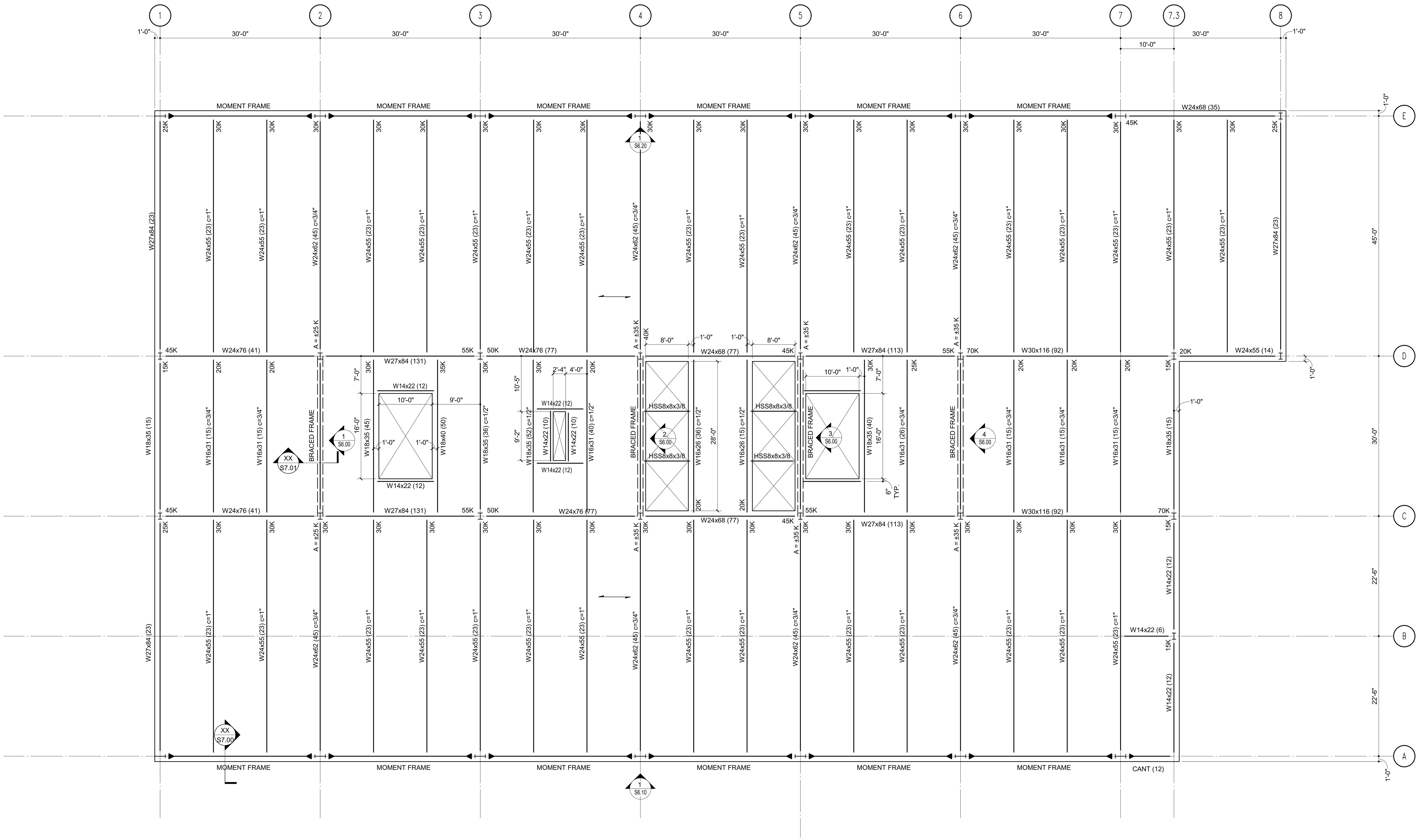


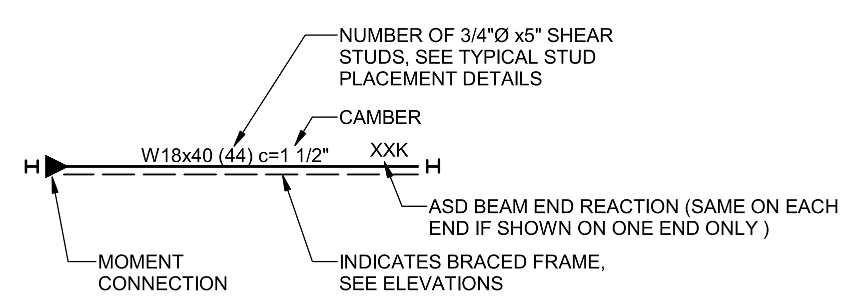
1 S2.20 TYPICAL FLOOR FRAMING PLAN

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = SEE TABLE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3.25" LIGHTWEIGHT (110 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
7. SEE COLUMN SCHEDULE ON S4.00 FOR COLUMN SIZES.

FRAMING LEGEND:



LEVEL	ELEVATION
3	+128'-6"
4	+142'-0"
5	+155'-6"
6	+169'-0"
7	+182'-6"
8	+196'-0"
9	+209'-6"
10	+223'-0"
11	+236'-6"
12	+250'-0"

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TYPICAL FLOOR FRAMING PLAN

SHEET NUMBER

S2.20

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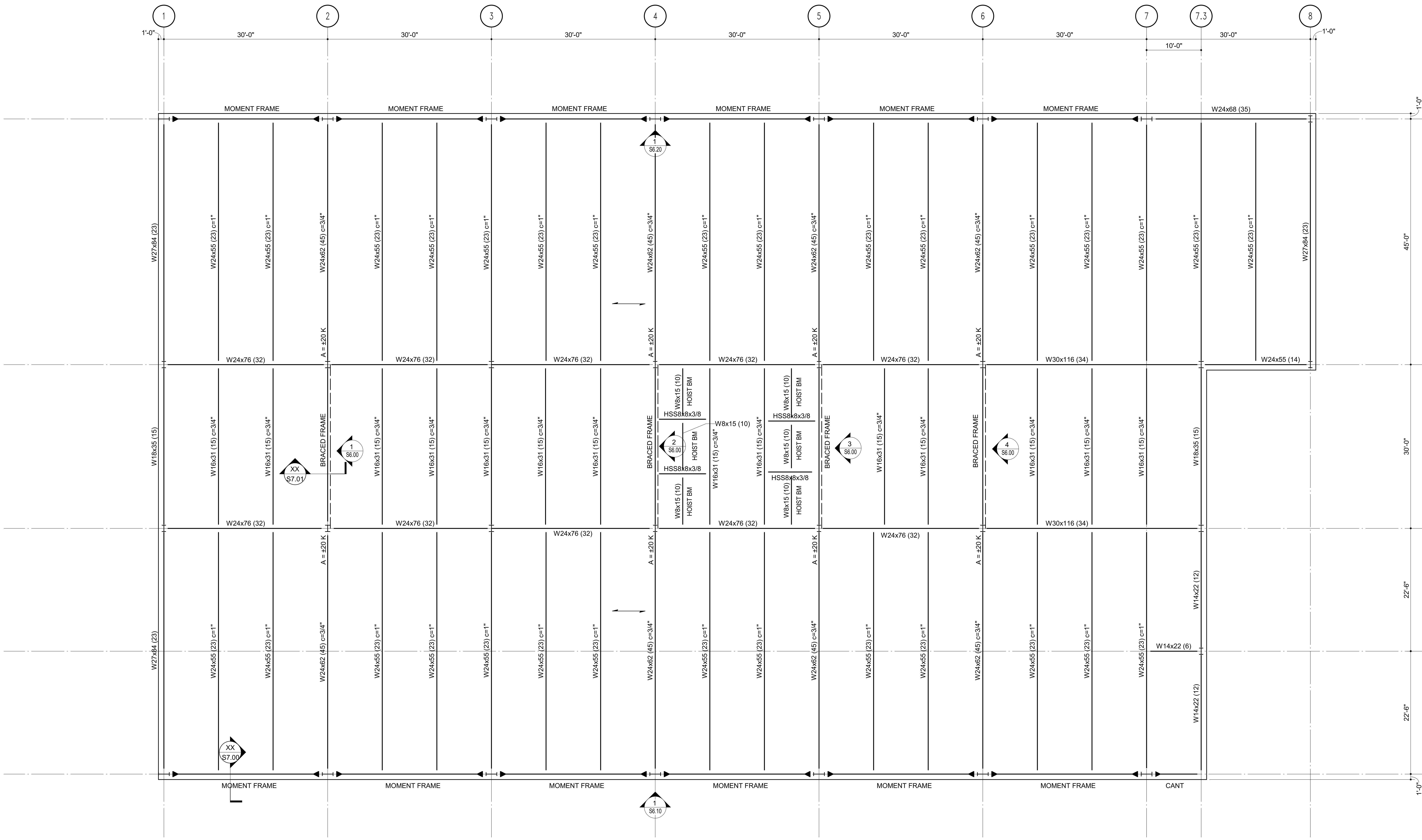


1 S2.30

ROOF FRAMING PLAN

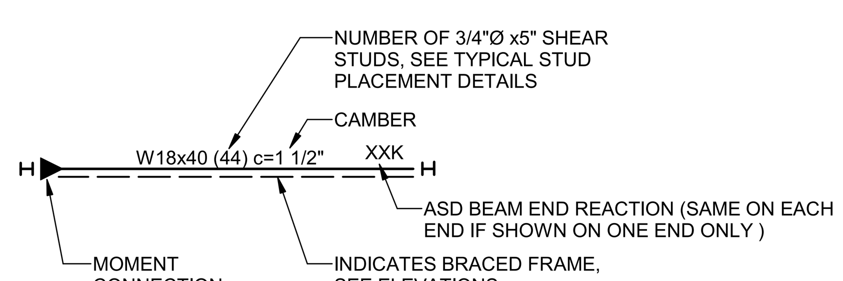
SCALE: 1/8" = 1'-0"

N

FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = +263'-6", AT FINISHED FLOOR UNLESS NOTED OTHERWISE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. ⟷ INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3.25" LIGHTWEIGHT (110 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
7. SEE COLUMN SCHEDULE ON S4.00 FOR COLUMN SIZES.

FRAMING LEGEND:



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ROOF FRAMING PLAN

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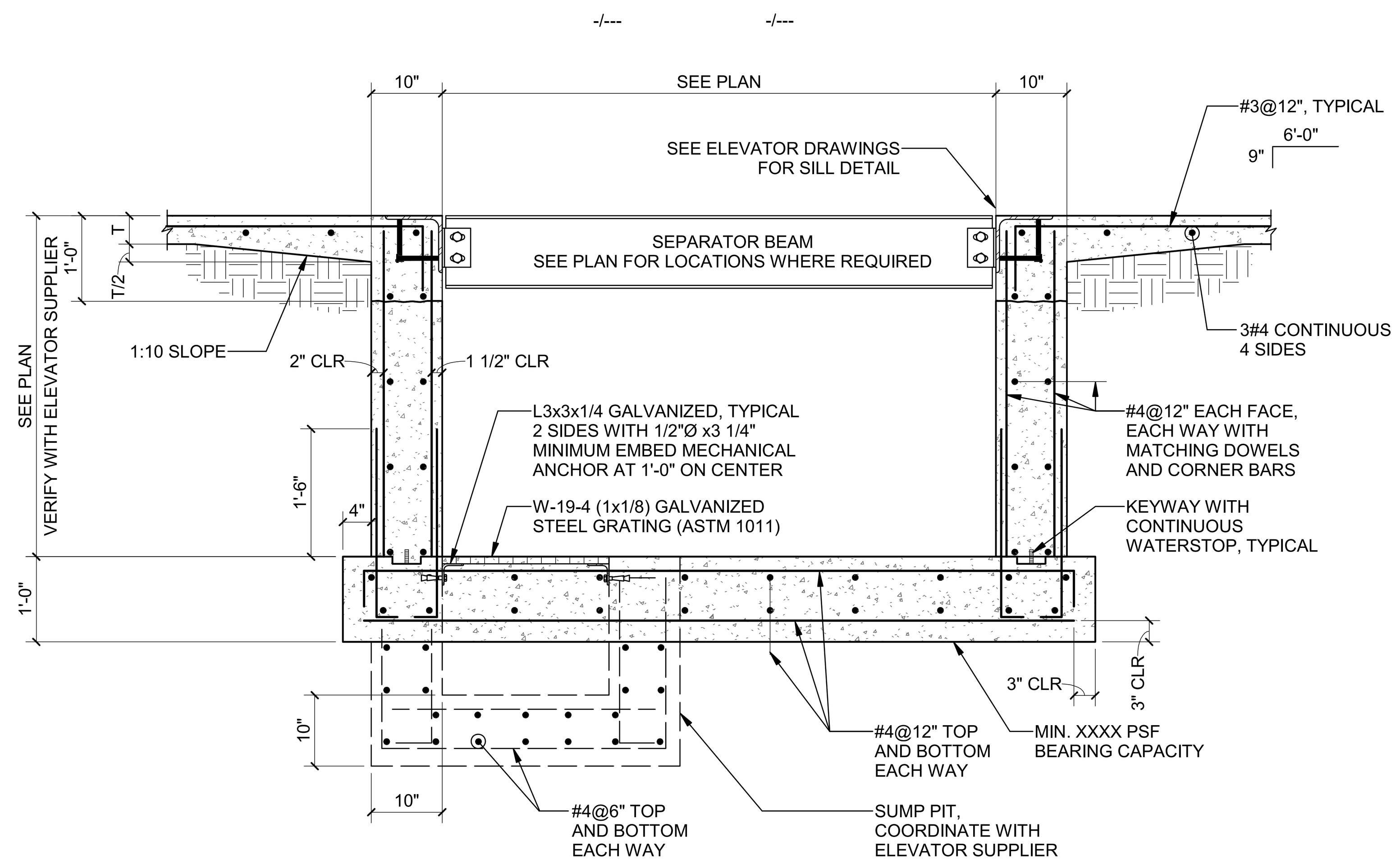
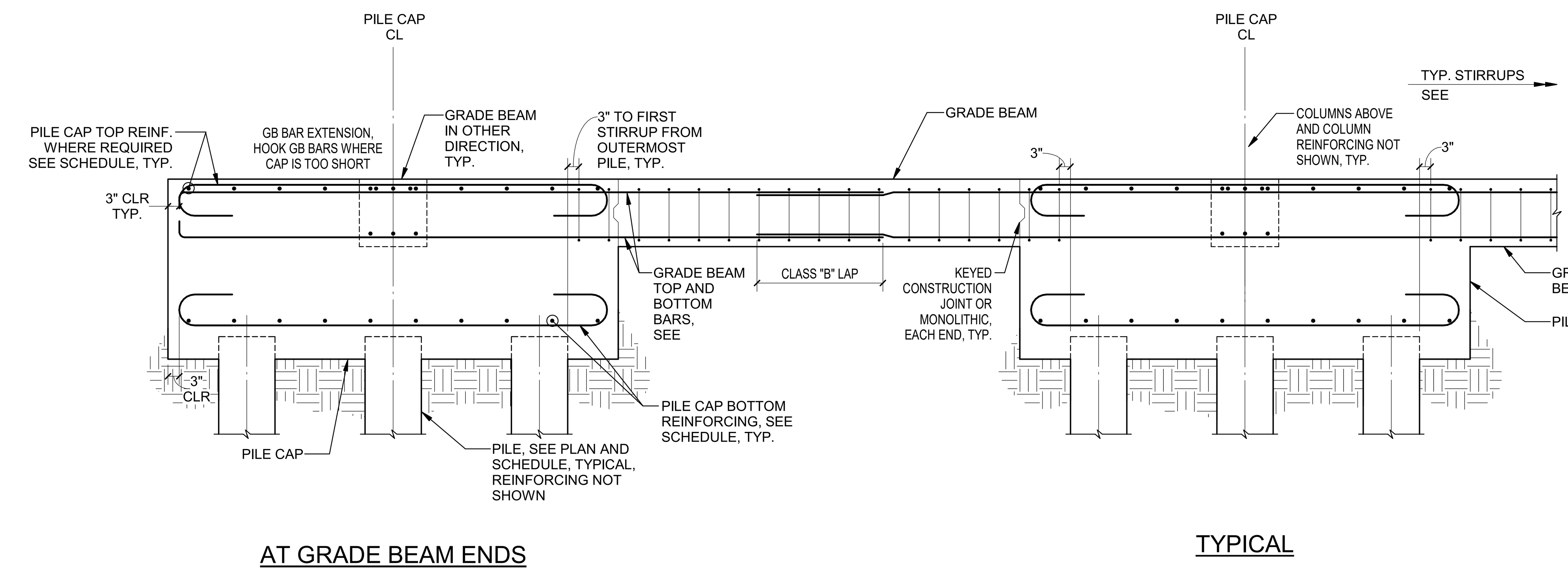
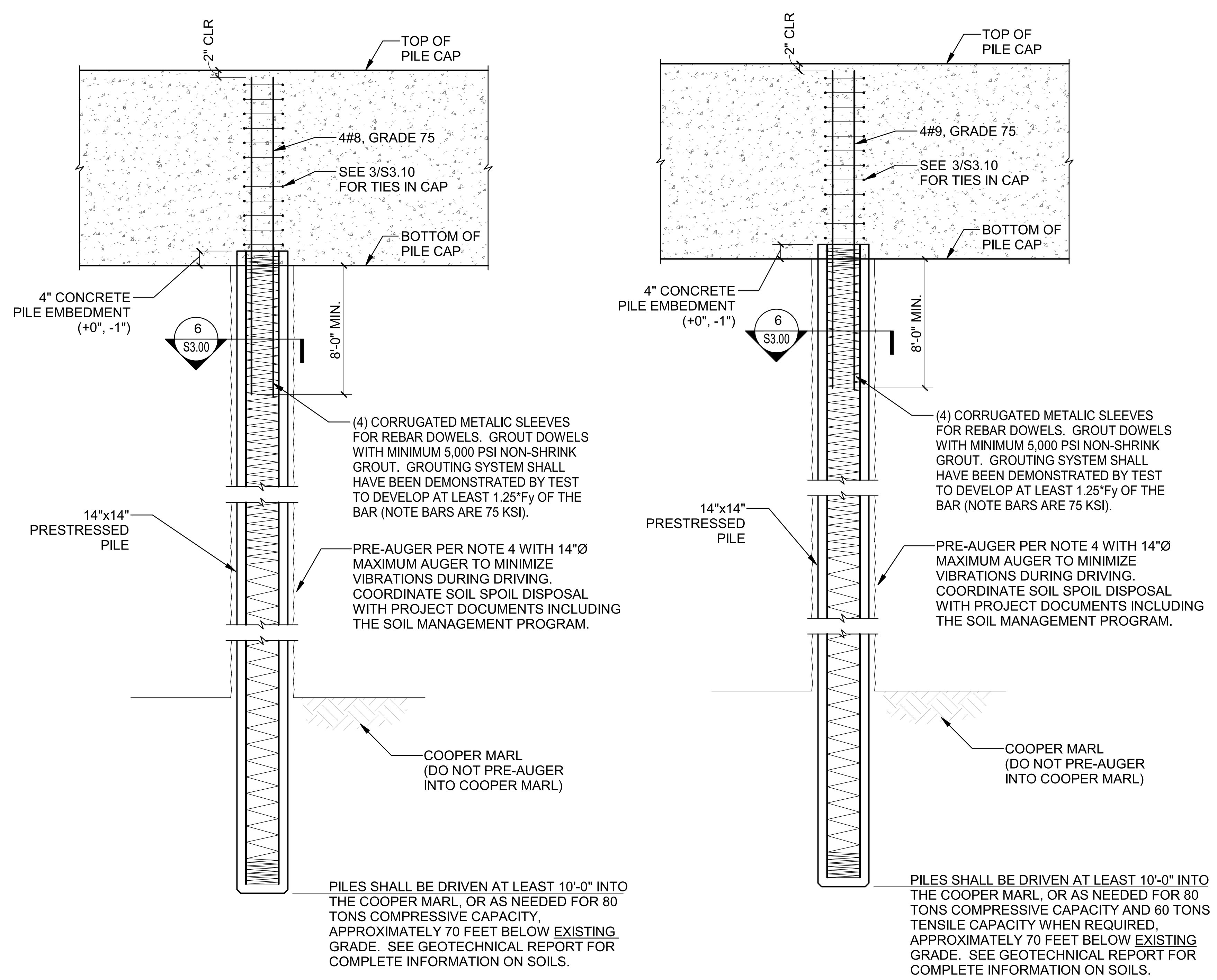
S2.30



1 S3.00 TYPICAL ELEVATOR PIT SECTION
SCALE: 3/4" = 1'-0"



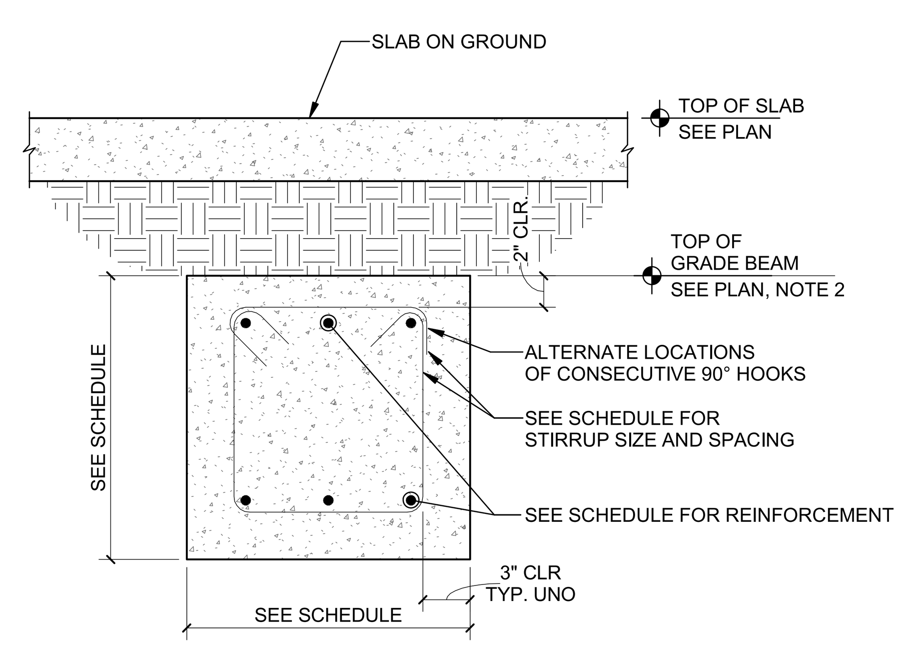
2 S3.00 TYPICAL GRADE BEAM ELEVATION
SCALE: 1/2" = 1'-0"



COMPRESSION PILE DETAIL

TENSION PILE DETAIL

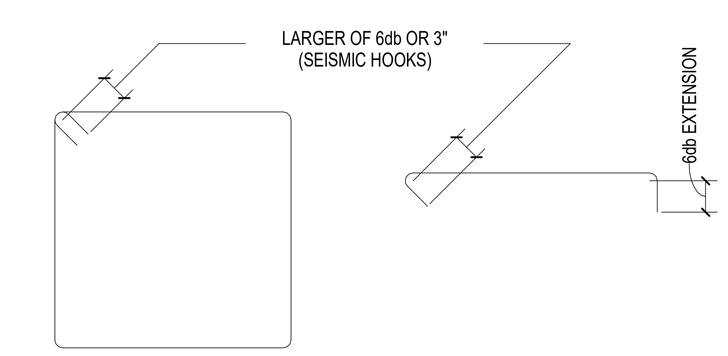
3 S3.00 PILE DETAILS
SCALE: 1/2" = 1'-0"



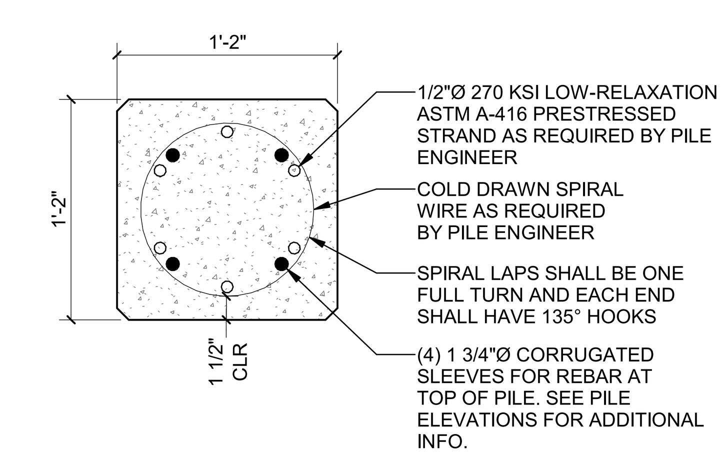
GRADE BEAM SCHEDULE

GRADE BEAM MARK	SIZE		LONGITUDINAL REINFORCING			STIRRUPS		REMARKS
	WIDTH (INCH)	DEPTH (INCH)	BOTTOM BARS	TOP BARS	SIDE FACE BARS (EACH FACE)	SIZE	SPACING EACH END UNO	
GB-1	36"	36"	4#9	4#9	2#5	#4	1@2, 4@12, R@16	---

4 S3.00 TYPICAL GRADE BEAM SECTION
SCALE: 1 1/2" = 1'-0"



5 S3.00 HOOP AND CROSSTIE DETAILS
SCALE: 1 1/2" = 1'-0"



6 S3.00 TYPICAL SECTION THROUGH PRECAST PILE
SCALE: 1 1/2" = 1'-0"

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FOUNDATION DETAILS

SHEET NUMBER
S3.00

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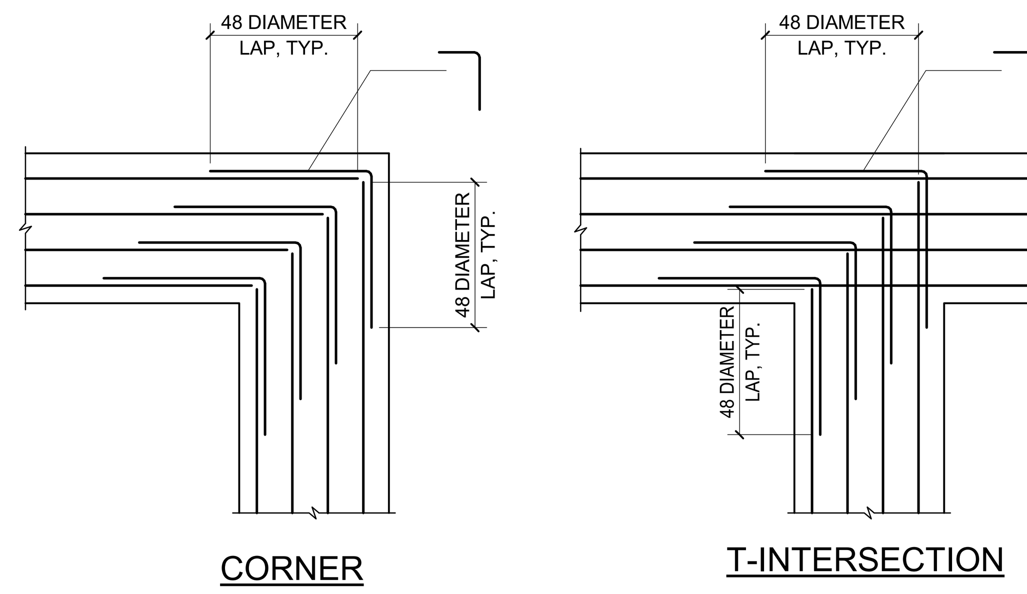
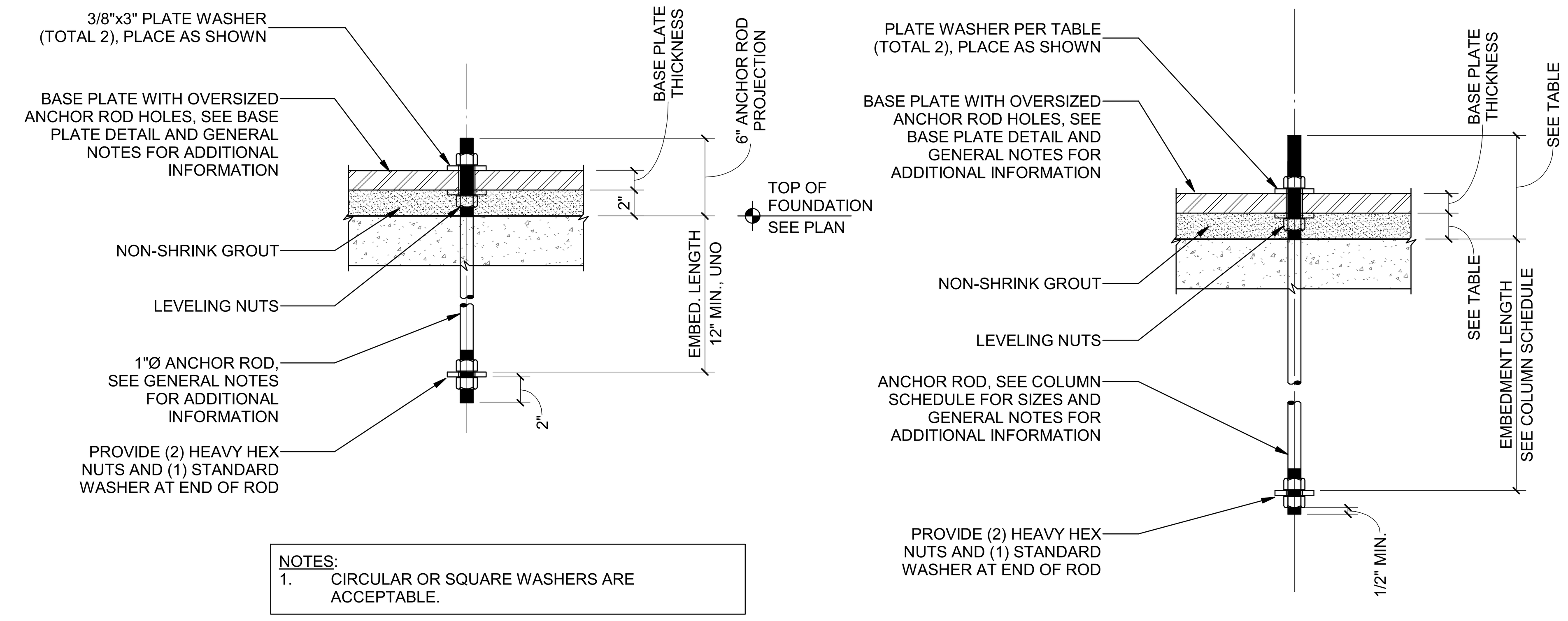


NOTES:
1. TRANSVERSE FOOTING STEEL NOT SHOWN FOR CLARITY.
2. BENT CORNER REINFORCEMENT SHALL MATCH SIZE AND SPACING OF CONTINUOUS LONGITUDINAL REINFORCEMENT.
3. SEE PLAN AND SECTIONS FOR SIZE AND NUMBER OF REINFORCEMENT BARS.
4. TOP BARS, IF REQUIRED, SHALL FOLLOW THE SAME LAP PATTERN.
5. SEE PLAN FOR FOOTING SIZE.

1 S3.10 TYPICAL FOOTING INTERSECTION PLAN DETAIL

SCALE: 1/8" = 1'-0"



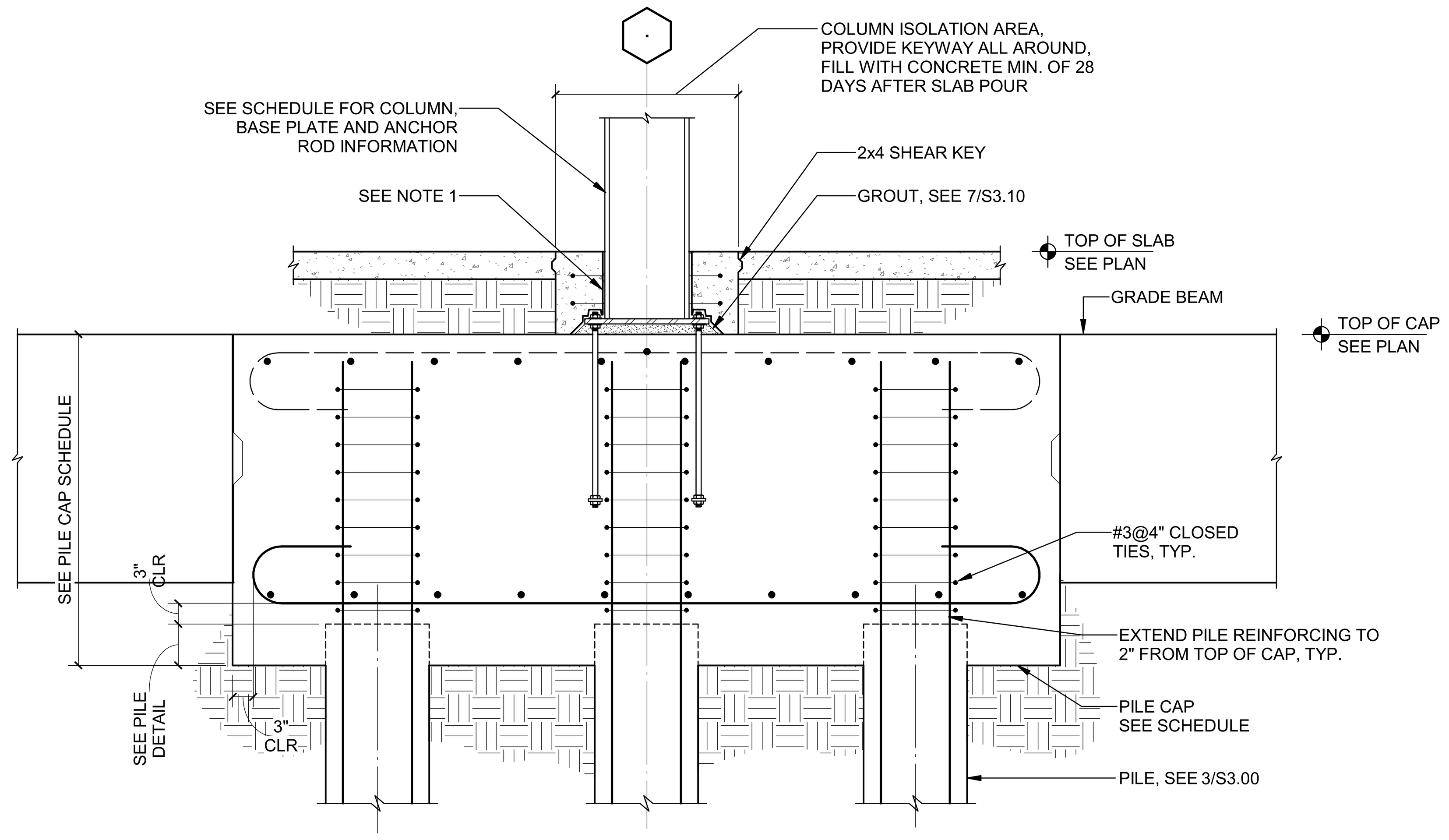
NOTES:
1. CIRCULAR OR SQUARE WASHERS ARE ACCEPTABLE.

ANCHOR BOLT AND PLATE WASHER TABLE			
ANCHOR ROD	ANCHOR ROD PROJECTION	PLATE WASHER	GROUT THICKNESS
3/4" Ø	8"	1/4"x2"	2"
1" Ø	8"	3/8"x3"	2"
1 1/4" Ø	10"	1/2"x3"	3"
1 1/2" Ø	10"	1/2"x3 1/2"	3"
1 3/4" Ø	10"	5/8"x4"	3"
2" Ø	12"	3/4"x5"	4"
2 1/2" Ø	12"	7/8"x5 1/2"	4"

NOTES:
1. CIRCULAR OR SQUARE WASHERS ARE ACCEPTABLE.

2 S3.10 ANCHOR ROD DETAIL

SCALE: 1 1/2" = 1'-0"

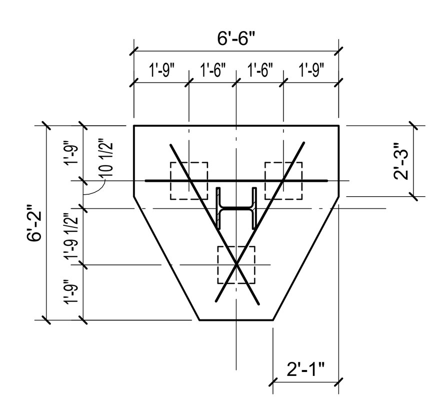


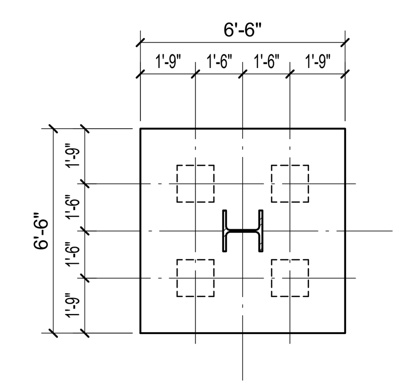
NOTES:
1. AT EXTERIOR COLUMNS, COAT BELOW GRADE PORTION OF COLUMN AND BASE PLATE WITH BITUMINOUS MASTIC AND PROVIDE 1/2" PREFORMED JOINT FILLER AROUND COLUMNS. AT INTERIOR COLUMNS, PROVIDE 30# ROOFING FELT.

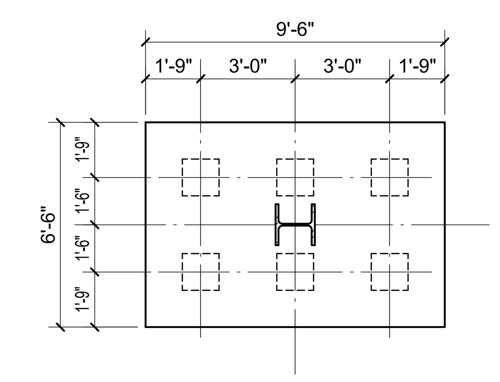
3 S3.10 TYPICAL COLUMN AND PILE CAP DETAIL

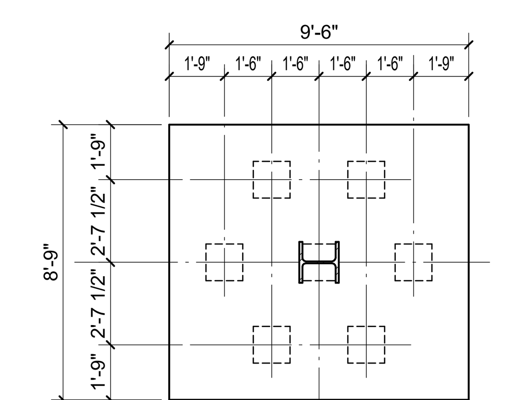
SCALE: 3/4" = 1'-0"

PILE CAP SCHEDULE FOR 14" SQ. PRECAST PILES 80 TON COMPRESSION AND 60 TON TENSION PILES

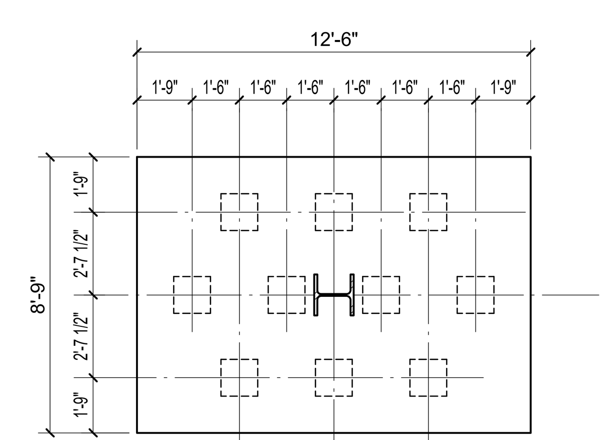


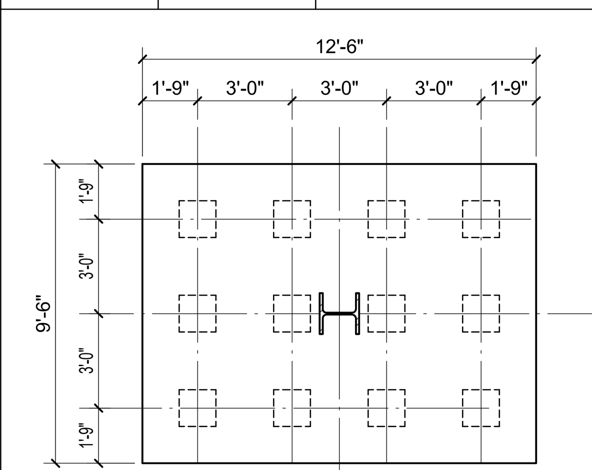


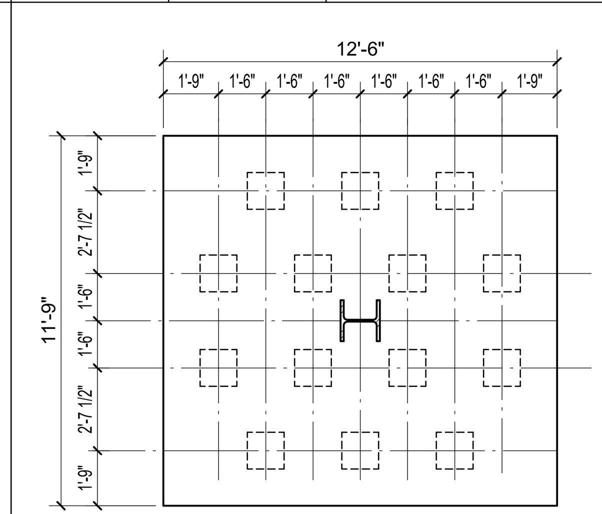


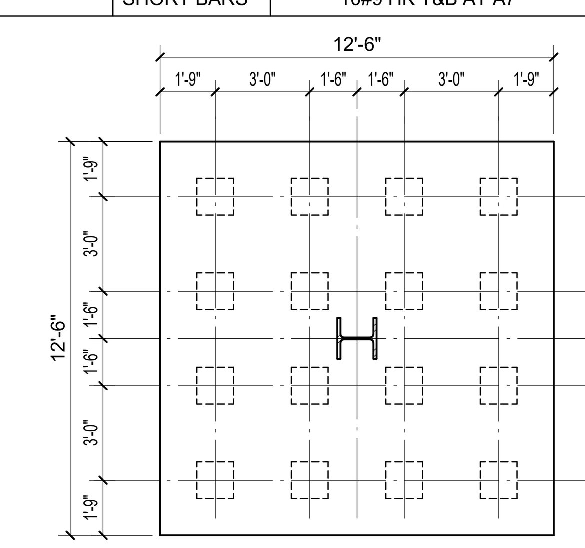


P3	THICKNESS	35"
	BARS, EACH WAY (x3)	3#9 HK
P4	THICKNESS	35"
	BARS, EACH WAY	7#9 HK T&B
P6	THICKNESS	43"
	LONG BARS	9#9 HK T&B AT A1
	SHORT BARS	9#9 HK T&B AT A1
P7	THICKNESS	45"
	LONG BARS	8#10 HK T&B AT A7
	SHORT BARS	10#9 HK T&B AT A7

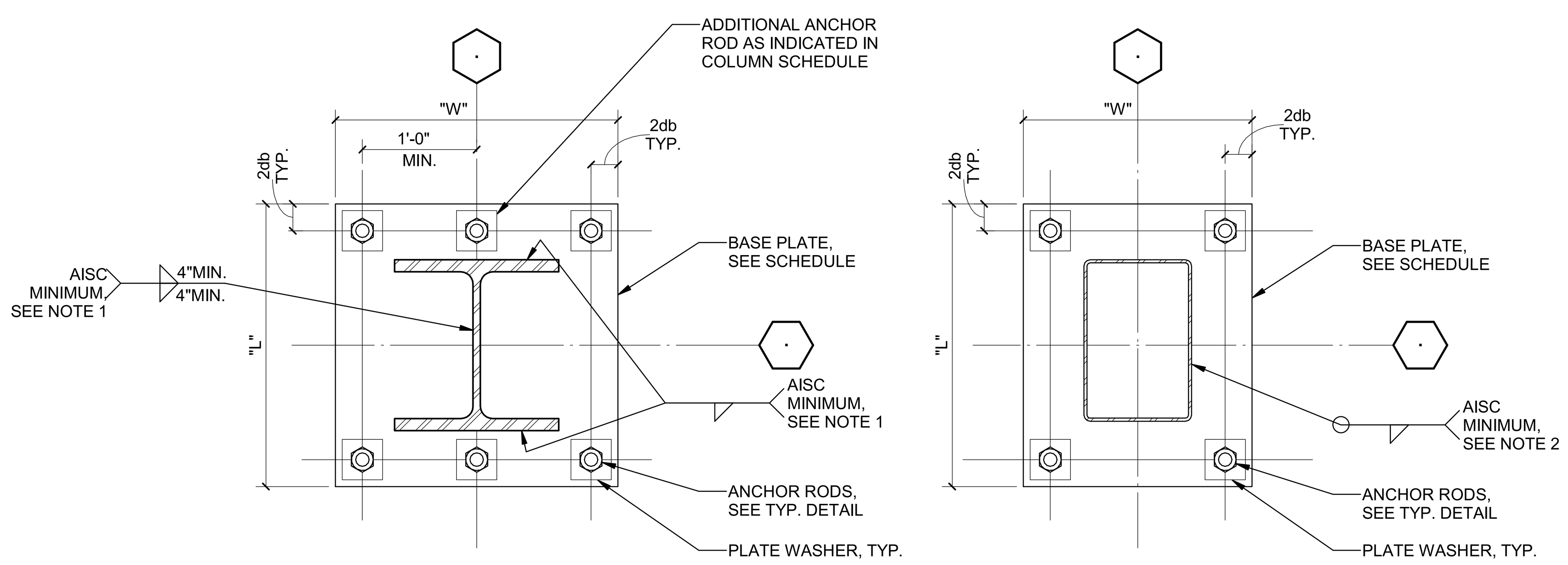








P10	THICKNESS	46"
	LONG BARS	10#11 HK
	SHORT BARS	11#10 HK
P12	THICKNESS	51"
	LONG BARS	16#10 HK
	SHORT BARS	15#10 HK
P14	THICKNESS	49"
	LONG BARS	14#11 HK T&B
	SHORT BARS	15#11 HK T&B
P16	THICKNESS	53"
	BARS, EACH WAY	17#11 HK T&B



NOTES:
1. AT MOMENT FRAME COLUMNS, PROVIDE XX" FILLET WELD ALL AROUND. SEE FLOOR AND ROOF FRAMING PLANS FOR MOMENT FRAMES.
2. PROVIDE WELD IN WORKABLE FLAT PORTION OF TUBE, TYPICAL.

4 S3.10 TYPICAL BASE PLATE DETAIL

SCALE: 1 1/2" = 1'-0"

NOTES:
1. "HK" = HOOK EACH SIDE OF ALL BARS 180 DEGREES.
2. SEE GENERAL NOTES FOR REQUIRED PILE AND PILE CAP CONCRETE STRENGTHS.
3. ALL REINFORCEMENT SHOWN IS BOTTOM REINFORCEMENT, UNLESS NOTED OTHERWISE. SEE DETAIL 3/S3.01 FOR ADDITIONAL INFORMATION.
4. SEE 3/S3.00 FOR PILE DETAIL.
5. LAYOUT PILES PER DIMENSIONS SHOWN ON THIS DETAIL AND NOT AS SHOWN ON PLAN.

5 S3.10 PRECAST PILE CAP SCHEDULE

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DESIGN C
1988 SBC WITH EQUIVALENT RISK CATEGORY II

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DRAWINGS
01 MARCH, 2021

Job Number	20.027
Checked	FS
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TITLE
FOUNDATION DETAILS

SHEET NUMBER
S3.10

Column Locations	A-1	A-2	A-3	A-4	A-5	A-6	A-7	B-7.3	C-1	C-2	C-3	C-4	C-5	C-6
ROOF 263'-6"														
LEVEL 12 250'-0"	W24X62	W24X62	W24X62	W24X62	W24X62	W24X62	W24X68	W14x43	W14x53	W14x61	W14x68	W14x53	W14x53	W14x61
LEVEL 11 236'-6"														
LEVEL 10 223'-0"	W24X68	W24X94	W24X94	W24X94	W24X94	W24X94	W24X104	W14x43	W14x74	W14x99	W14x109	W14x90	W14x90	W14x109
LEVEL 09 209'-6"														
LEVEL 08 196'-0"	W24X94	W24X131	W24X131	W24X131	W24X131	W24X131	W24X117	W14x43	W14x90	W14x145	W14x159	W14x132	W14x145	W14x159
LEVEL 07 182'-6"														
LEVEL 06 169'-0"	W24X104	W27X161	W27X161	W27X161	W27X161	W27X161	W27X146	W14x43	W14x120	W14x193	W14x233	W14x176	W14x193	W14x233
LEVEL 05 155'-6"														
LEVEL 04 142'-0"	W27X146	W33X201	W33X201	W33X201	W33X201	W33X201	W30X191	W14x48	W14x145	W14x257	W14x283	W14x233	W14x283	W14x342
LEVEL 03 128'-6"														
LEVEL 02 115'-0"	W30X173	W36X245	W36X245	W36X245	W36X245	W36X245	W33X221	W14x90	W14x176	W14x342	W14x342	W14x342	W14x370	W14x455
LEVEL 01 100'-0"														
Anchor Rods	(6)1-3/4" DIA.x21"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2" DIA.x24"	(4) 1" DIA.	(4) 1" DIA.	(6)2" DIA.x24"	(4) 1" DIA.	(6)2" DIA.x24"	(6)2-1/4" DIA.x27"	(6)2-1/2" DIA.x30"
Base Plate	2-1/4"x32"x3'-10"	2-3/4"x34"x4'-4"	2-3/4"x34"x4'-4"	2-3/4"x34"x4'-4"	2-3/4"x34"x4'-4"	2-3/4"x34"x4'-4"	2-3/4"x34"x4'-2"	3/4"x22"x1'-10"	2"x22"x1'-10"	3-1/4"x30"x4'-2"	3"x28"x2'-4"	3-1/4"x30"x4'-2"	3-1/2"x30"x4'-2"	3-3/4"x30"x4'-2"
Remarks														

Column Locations	C-7.3	D-1	D-2	D-3	D-4	D-5	D-6	D-7.3	D-8	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8
ROOF 263'-6"																	
LEVEL 12 250'-0"	W14x61	W14x53	W14x61	W14x68	W14x53	W14x53	W14x61	W14x61	W14x43	W24X62	W24X62	W24X62	W24X62	W24X62	W24X62	W24X68	W14x43
LEVEL 11 236'-6"																	
LEVEL 10 223'-0"	W14x82	W14x74	W14x99	W14x109	W14x90	W14x90	W14x109	W14x90	W14x43	W24X68	W24X94	W24X94	W24X94	W24X94	W24X94	W24X104	W14x61
LEVEL 09 209'-6"																	
LEVEL 08 196'-0"	W14x109	W14x90	W14x145	W14x159	W14x132	W14x145	W14x159	W14x132	W14x61	W24X94	W24X131	W24X131	W24X131	W24X131	W24X131	W24X117	W14x68
LEVEL 07 182'-6"																	
LEVEL 06 169'-0"	W14x132	W14x120	W14x193	W14x233	W14x176	W14x193	W14x233	W14x176	W14x68	W24X104	W27X161	W27X161	W27X161	W27X161	W27X161	W27X146	W14x90
LEVEL 05 155'-6"																	
LEVEL 04 142'-0"	W14x159	W14x145	W14x257	W14x283	W14x233	W14x283	W14x342	W14x211	W14x82	W27X146	W33X201	W33X201	W33X201	W33X201	W33X201	W30X191	W14x99
LEVEL 03 128'-6"																	
LEVEL 02 115'-0"	W14x211	W14x176	W14x342	W14x342	W14x342	W14x370	W14x455	W14x283	W14x90	W30X173	W36X245	W36X245	W36X245	W36X245	W36X245	W33X221	W14x120
LEVEL 01 100'-0"																	
Anchor Rods	(4) 1" DIA.	(4) 1" DIA.	(6)2" DIA.x24"	(6) 1" DIA.	(6)2" DIA.x24"	(6)2-1/4" DIA.x27"	(6)2-1/2" DIA.x30"	(4) 1" DIA.	(4) 1" DIA.	(6)1-3/4" DIA.x21"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2" DIA.x24"	(4) 1" DIA.
Base Plate	2"x22"x1'-10"	2"x22"x1'-10"	3-1/4"x30"x4'-2"	3"x28"x2'-4"	3-1/4"x30"x4'-2"	3-1/2"x30"x4'-2"	3-3/4"x30"x4'-2"	2-1/2"x22"x1'-10"	1-1/4"x22"x1'-10"	2-1/4"x32"x3'-10"	2-3/4"x34"x4'-4"	2-3/4"x34"x4'-4"	2-3/4"x34"x4'-4"	2-3/4"x34"x4'-4"	2-3/4"x34"x4'-4"	2-3/4"x34"x4'-2"	2"x20"x1'-8"
Remarks																	

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PROJECT

OFFICE BUILDING

SAVANNAH, GEORGIA
UZUN+CASE
DESIGN C
1988 SBC WITH EQUIVALENT RISK CATEGORY II

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DRAWINGS

01 MARCH, 2021

Job Number	20.027
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Approved	AP/JH

TITLE

COLUMN SCHEDULE

SHEET NUMBER

S4.00

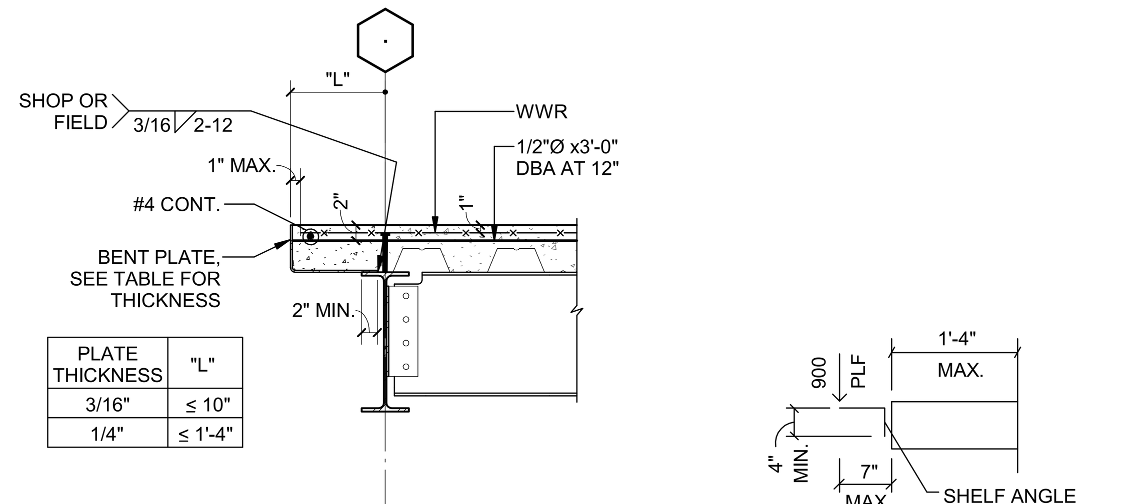


PLATE THICKNESS	"L"
3/16"	≤ 10"
1/4"	≤ 1'-4"

NOTES:
1. DBA NOT REQUIRED AT FRAMED INTERIOR OPENINGS.

1 S5.00 FLOOR EDGE BEAM PARALLEL TO DECK
SCALE: 3/4" = 1'-0"

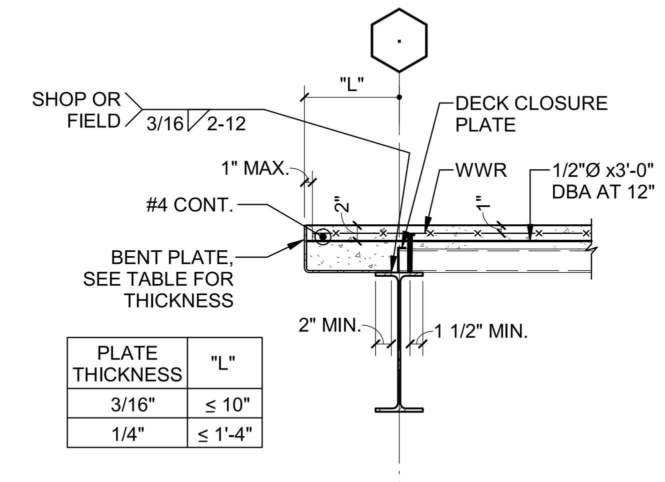
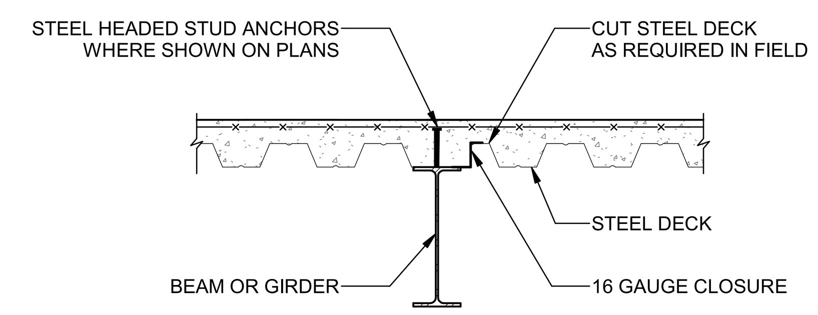


PLATE THICKNESS	"L"
3/16"	≤ 10"
1/4"	≤ 1'-4"

NOTES:
1. DBA NOT REQUIRED AT FRAMED INTERIOR OPENINGS.

2 S5.00 FLOOR EDGE BEAM PERPENDICULAR TO DECK
SCALE: 3/4" = 1'-0"



NOTES:
1. CLOSURE MUST BE WELDED TO THE BEAM AND SCREWED OR WELDED TO THE DECK TO ENSURE THAT THE FLANGE DOES NOT FALL UNDER HIGH CELL RESULTING IN UNBRACED BEAM. SEE GENERAL NOTES FOR ATTACHMENT.
2. DETAIL SIMILAR AT ROOF DECK.

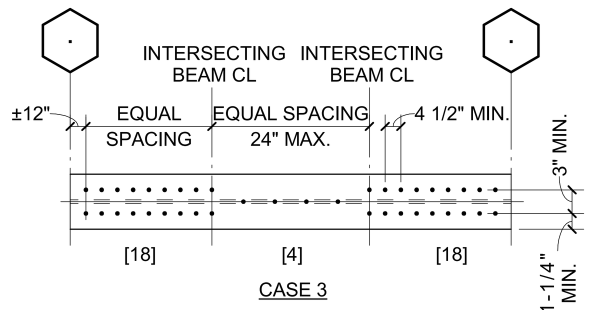
3 S5.00 TYPICAL DECK PARALLEL TO STEEL BEAM
SCALE: 3/4" = 1'-0"

DECK PERPENDICULAR TO BEAM

CASE 1: FEWER STUDS THAN FLUTES
PLACE ONE STUD IN EVERY OTHER FLUTE STARTING AT BEAM ENDS. IF STUDS REMAIN, PLACE IN FLUTES NOT ALREADY HAVING A STUD, STARTING AT BEAM ENDS AND CONTINUING TOWARD BEAM CENTER. MAXIMUM SPACING ALLOWED IS 24" OC.

CASE 2: MORE STUDS THAN FLUTES
PLACE ONE STUD IN EACH FLUTE FOR ENTIRE LENGTH OF BEAM. IF STUDS REMAIN, PLACE A SECOND STUD IN FLUTES, STARTING AT BEAM ENDS AND CONTINUING TOWARD CENTER. SPACING BETWEEN PAIRS OF STUDS SHALL NOT BE LESS THAN 3".

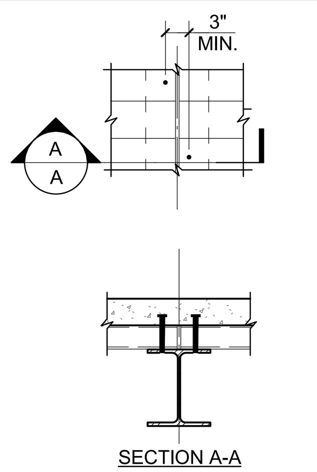
DECK PARALLEL TO BEAM



CASE 3: GIRDER WITH SEGMENTED STUD SPACING
PLACE SPECIFIED NUMBER OF STUDS IN EACH SEGMENT OF GIRDER AT EQUAL SPACES. IF SPACING IS LESS THAN 4 1/2", USE DOUBLE ROW AS REQUIRED.

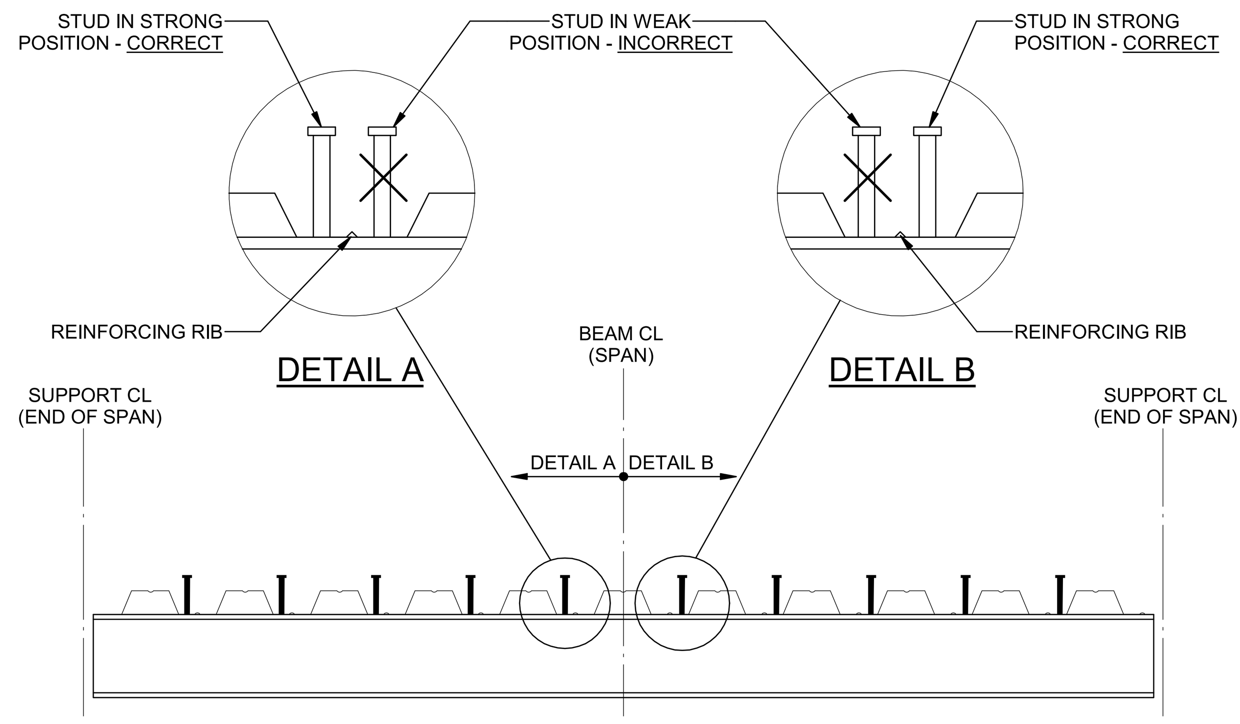
CASE 4: ALL CASES OF DECK PARALLEL WITH UNIFORM STUD SPACING OR FLAT SLABS
PLACE A SINGLE ROW OF STUDS ALONG GIRDER AT EQUAL SPACING. IF SPACING IS LESS THAN 4 1/2", USE DOUBLE ROW AS REQUIRED, STARTING AT BEAM ENDS.

AT BUTT JOINTS:
1. DECK JOINT SHALL BE LOCATED ON BEAM CENTERLINE.
2. STUDS SHALL BE PLACED ON ALTERNATE SIDES OF JOINT.



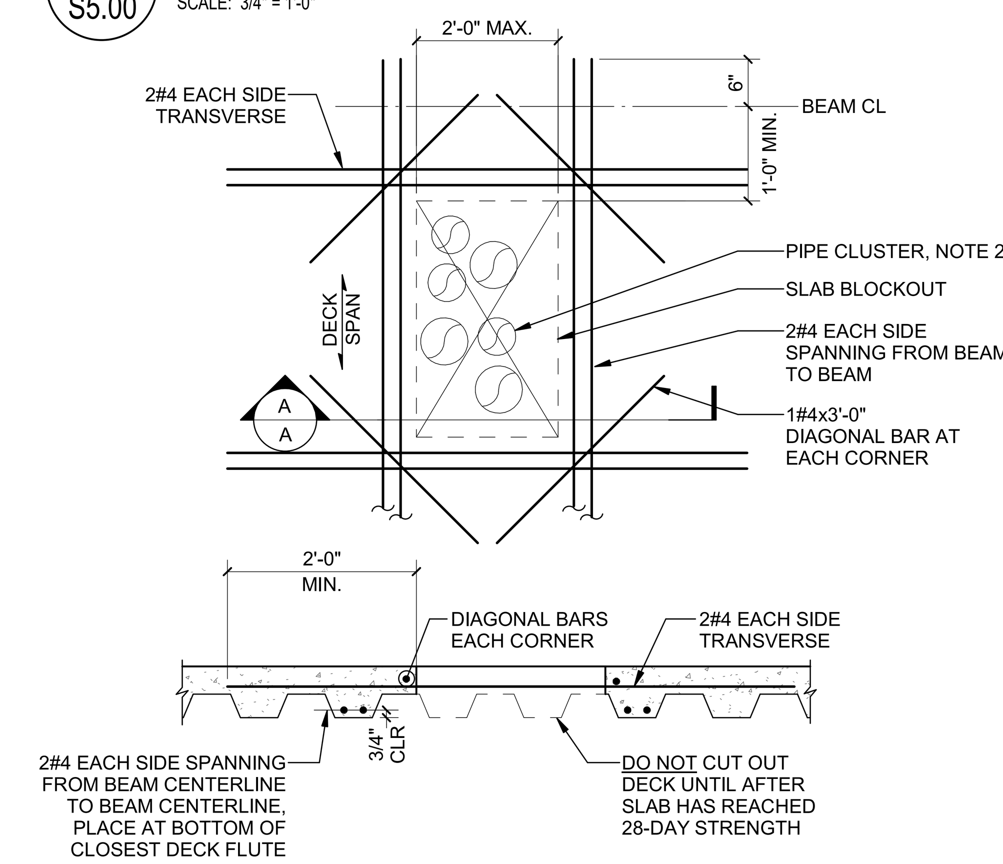
BUTT JOINTS

NOTES:
1. ALL STUDS LOCATED IN DECK FLUTES SHALL BE PLACED IN STRONG POSITION. A STUD PLACED ON THE SIDE OF THE REINFORCING RIB NEAREST THE END OF THE SPAN IS IN THE STRONG POSITION.
2. LAY OUT ALL STUDS FOR A BEAM PRIOR TO WELDING.



STUD PLACEMENT DETAIL

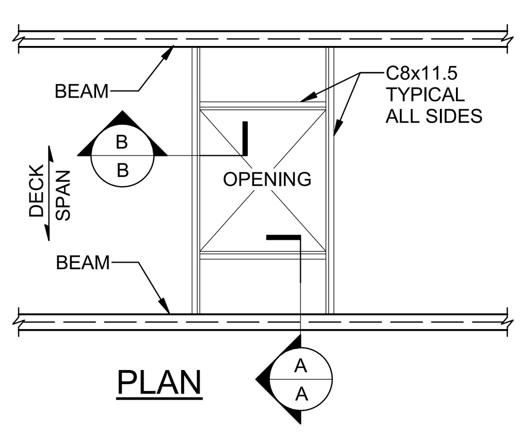
4 S5.00 TYPICAL STUD PLACEMENT DETAIL
SCALE: 3/4" = 1'-0"



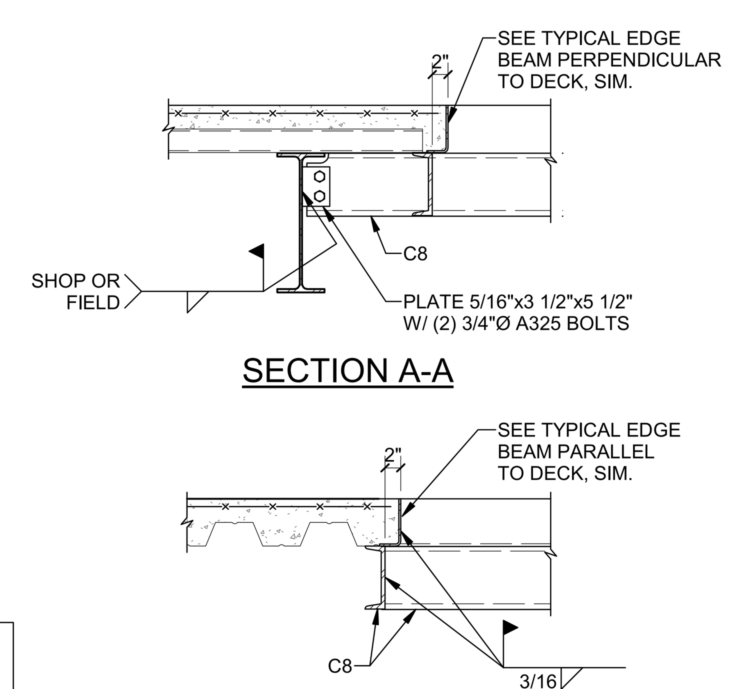
SECTION A-A

NOTES:
1. INDIVIDUAL CORES OR BLOCKOUTS OF 8" OR LESS DO NOT REQUIRE REINFORCING.
2. PIPE CLUSTER: TWO OR MORE PIPES WITH LESS THAN 1'-0" CLEAR BETWEEN PIPES.

5 S5.00 TYPICAL DECK PENETRATION ≤ 2'-0"
SCALE: 3/4" = 1'-0"



PLAN

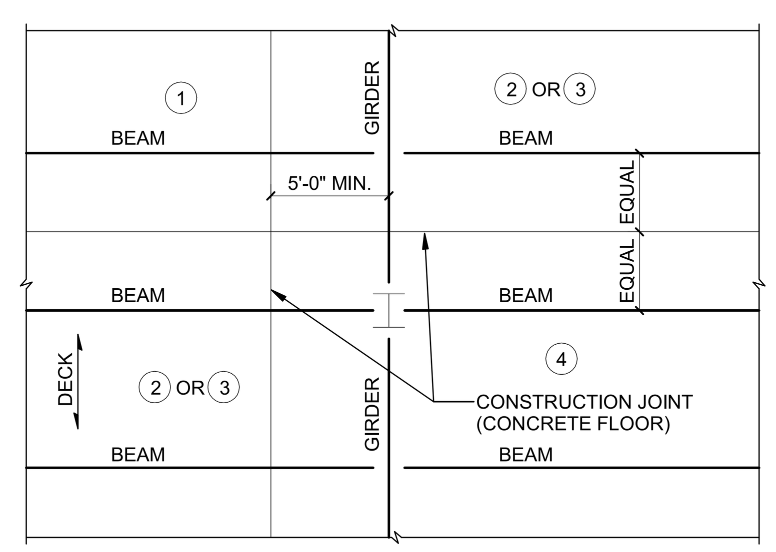


SECTION A-A

SECTION B-B

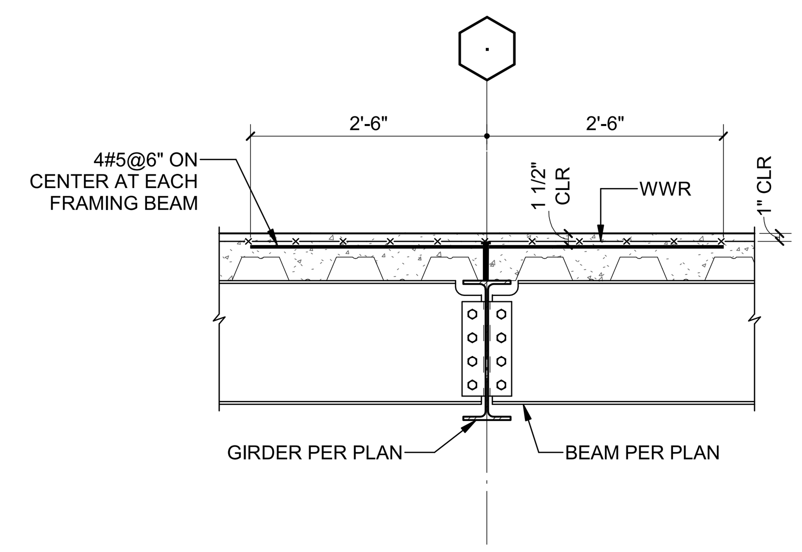
NOTES:
1. MAXIMUM OPENING DIMENSION = 5'-0".
2. SEE STRUCTURAL, ARCHITECTURAL, OR MECHANICAL DRAWINGS FOR LOCATION.

6 S5.00 TYPICAL DETAIL AT COMPOSITE FLOOR OPENING
SCALE: 3/4" = 1'-0"

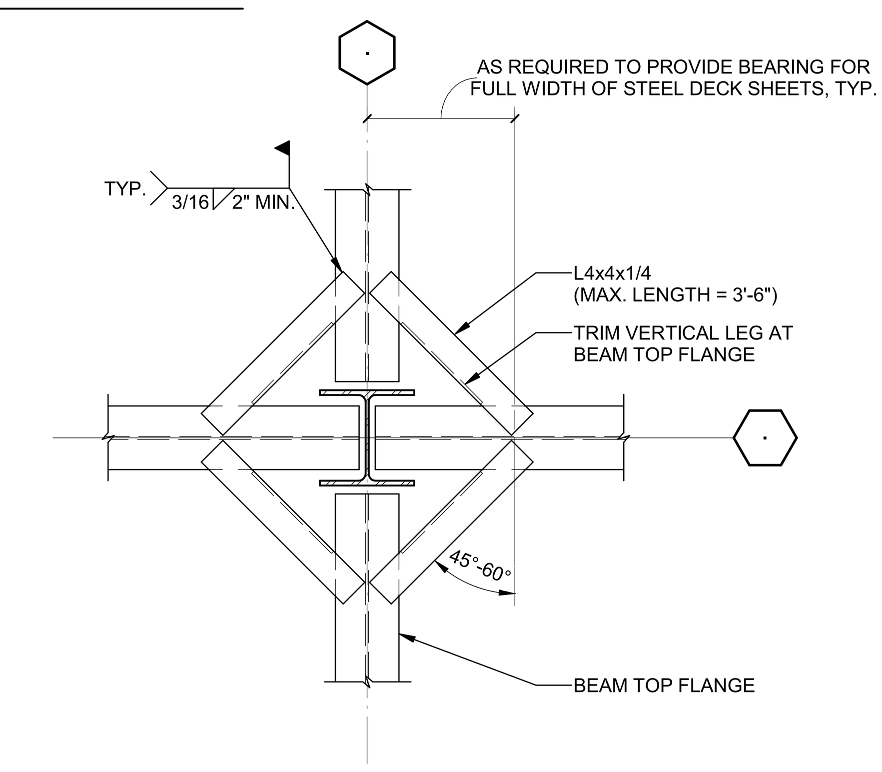


NOTES:
1. # REFERS TO POUR SEQUENCE.
2. CONTINUE SLAB REINFORCING THROUGH CONSTRUCTION JOINTS.

7 S5.00 TYPICAL DETAIL AT COMPOSITE FLOOR CONSTRUCTION JOINT
SCALE: 3/4" = 1'-0"



8 S5.00 TYPICAL DETAIL AT GIRDER
SCALE: 3/4" = 1'-0"



ANGLE REINFORCEMENT ONLY REQUIRED:
1. WHERE PIPE SLEEVES OCCUR NEXT TO COLUMN.
2. WHERE COLUMN BASE PLATE OCCURS ON TOP FLANGE OF STEEL BEAM.
3. AT ALL OTHER CONDITIONS WHERE DECK SUPPORT IS INTERRUPTED FOR A DISTANCE GREATER THAN 6".

9 S5.00 TYPICAL INTERRUPTED DECK SUPPORT AT COLUMN
SCALE: 3/4" = 1'-0"

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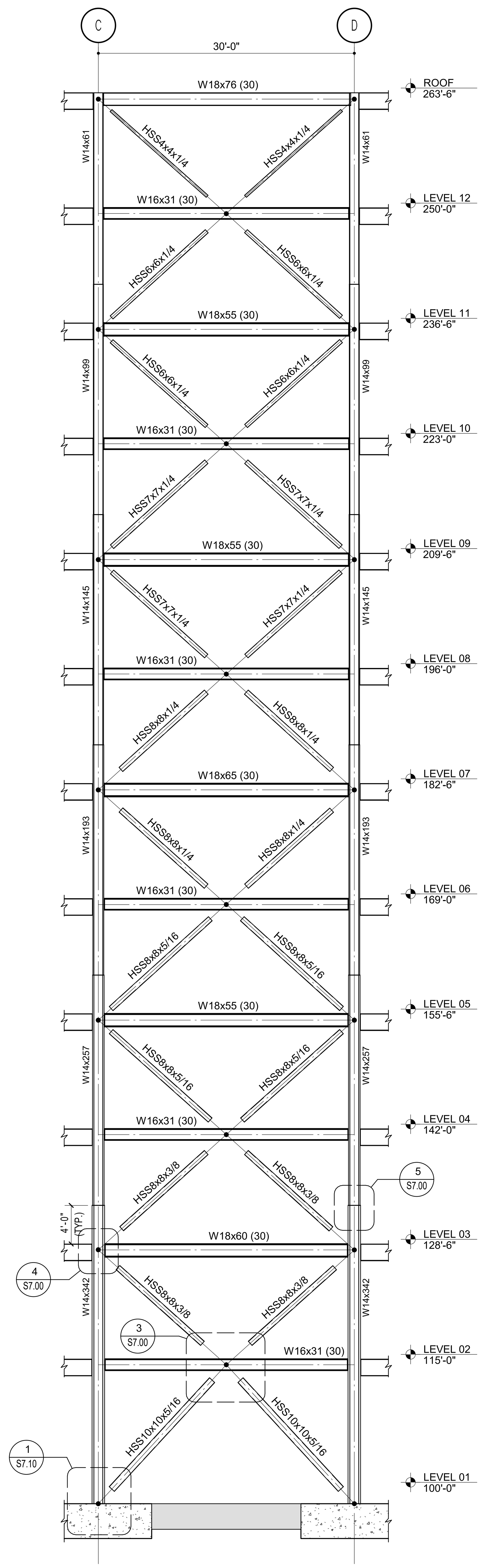
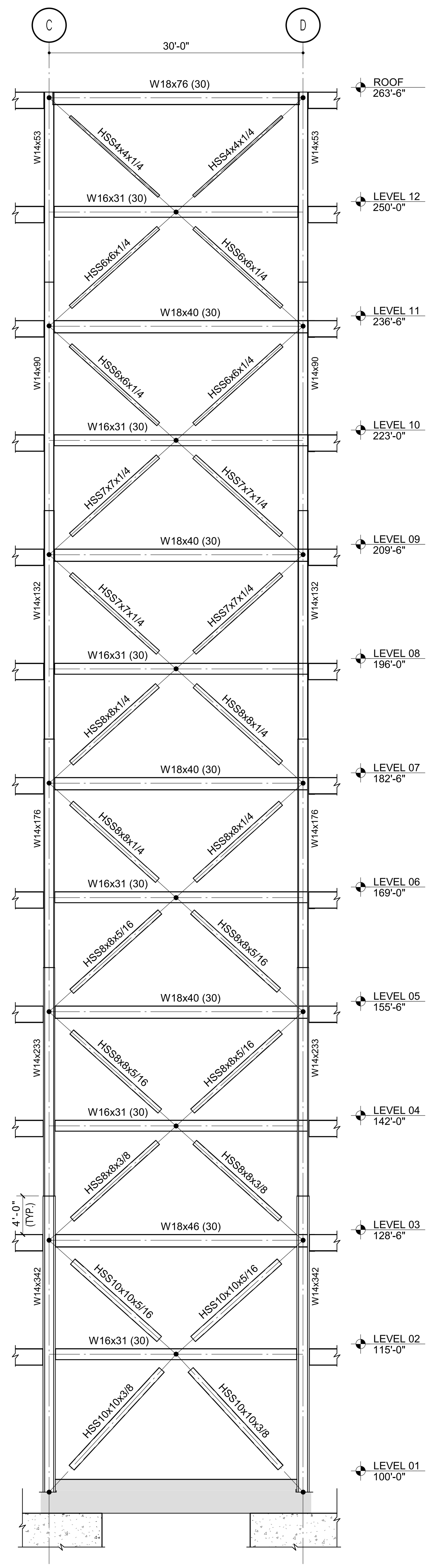
TITLE
STEEL DETAILS

SHEET NUMBER
S5.00



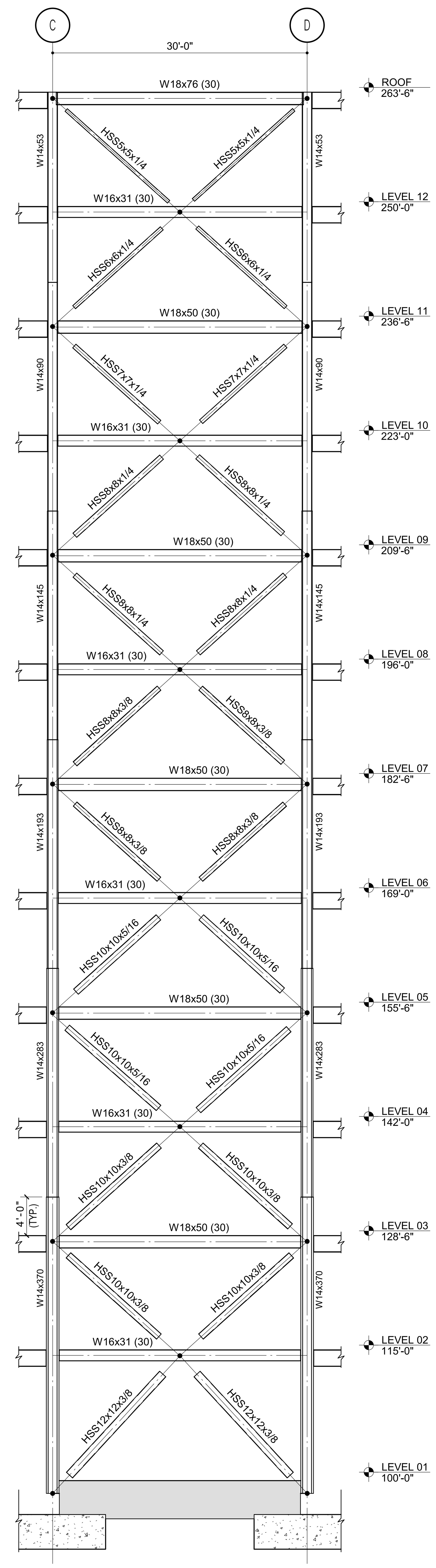
1 S6.00 ELEVATION ALONG GRID 2 BETWEEN GRID C AND D

SCALE: 1/8" = 1'-0"



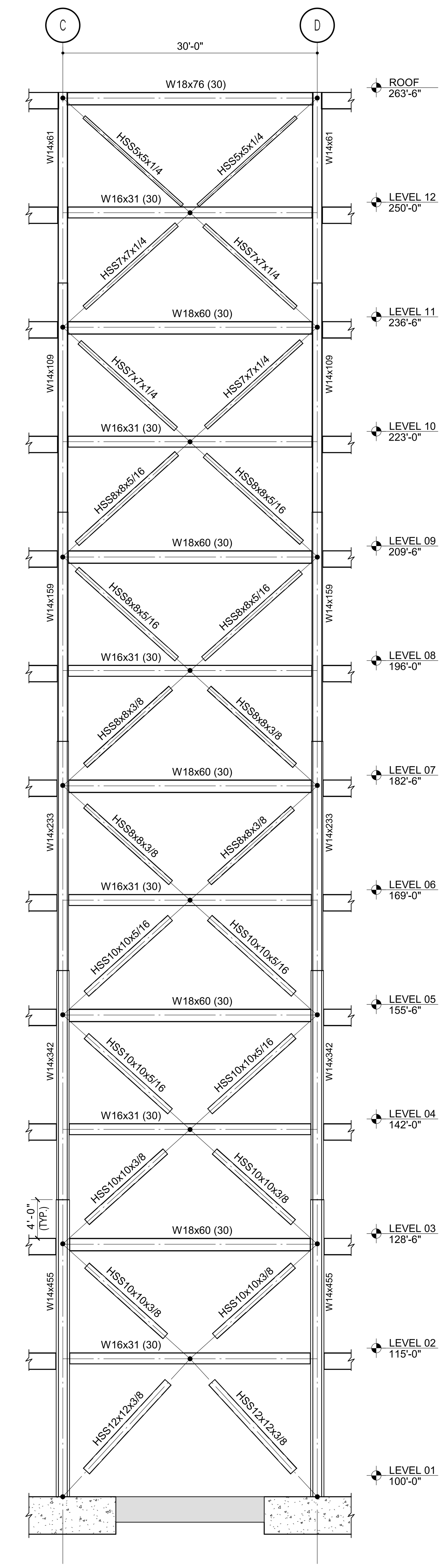
2 S6.00 ELEVATION ALONG GRID 4 BETWEEN GRID C AND D

SCALE: 1/8" = 1'-0"



3 S6.00 ELEVATION ALONG GRID 5 BETWEEN GRID C AND D

SCALE: 1/8" = 1'-0"



4 S6.00 ELEVATION ALONG GRID 6 BETWEEN GRID C AND D

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. SEE S7.XX SERIES FOR TYPICAL BRACED FRAME DETAILS.

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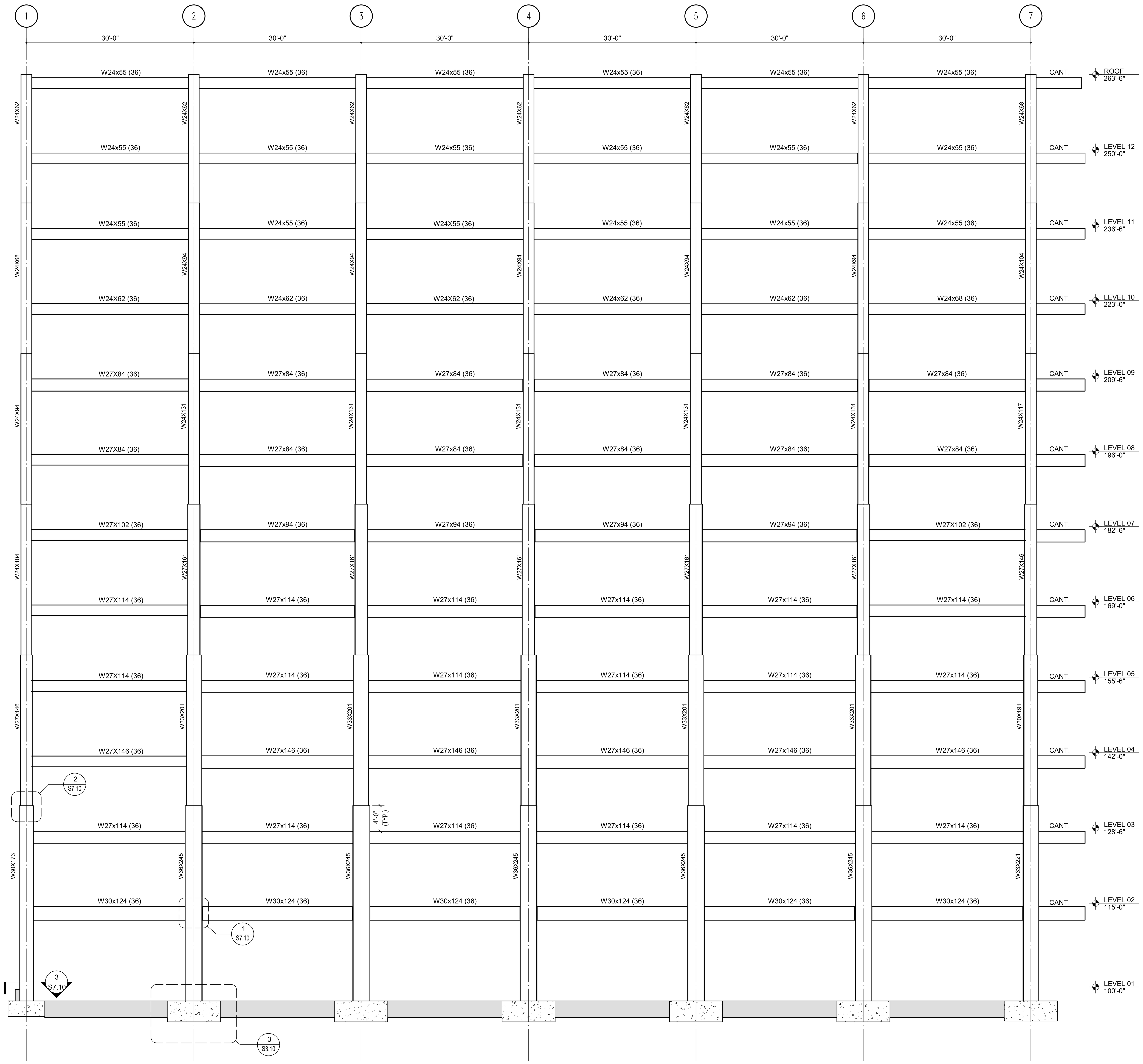
TITLE

BRACED FRAME ELEVATIONS

SHEET NUMBER

S6.00

3/1/2021 3:45:14 PM



1 S6.10 MOMENT FRAME ELEVATION ALONG GRID A

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. SEE S7.XX SERIES FOR TYPICAL MOMENT FRAME DETAILS.

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OFFICE BUILDING

SAVANNAH, GEORGIA
UZUN+CASE
DESIGN C
1988 SBC WITH EQUIVALENT RISK CATEGORY II

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MOMENT FRAME ELEVATIONS

SHEET NUMBER

S6.10

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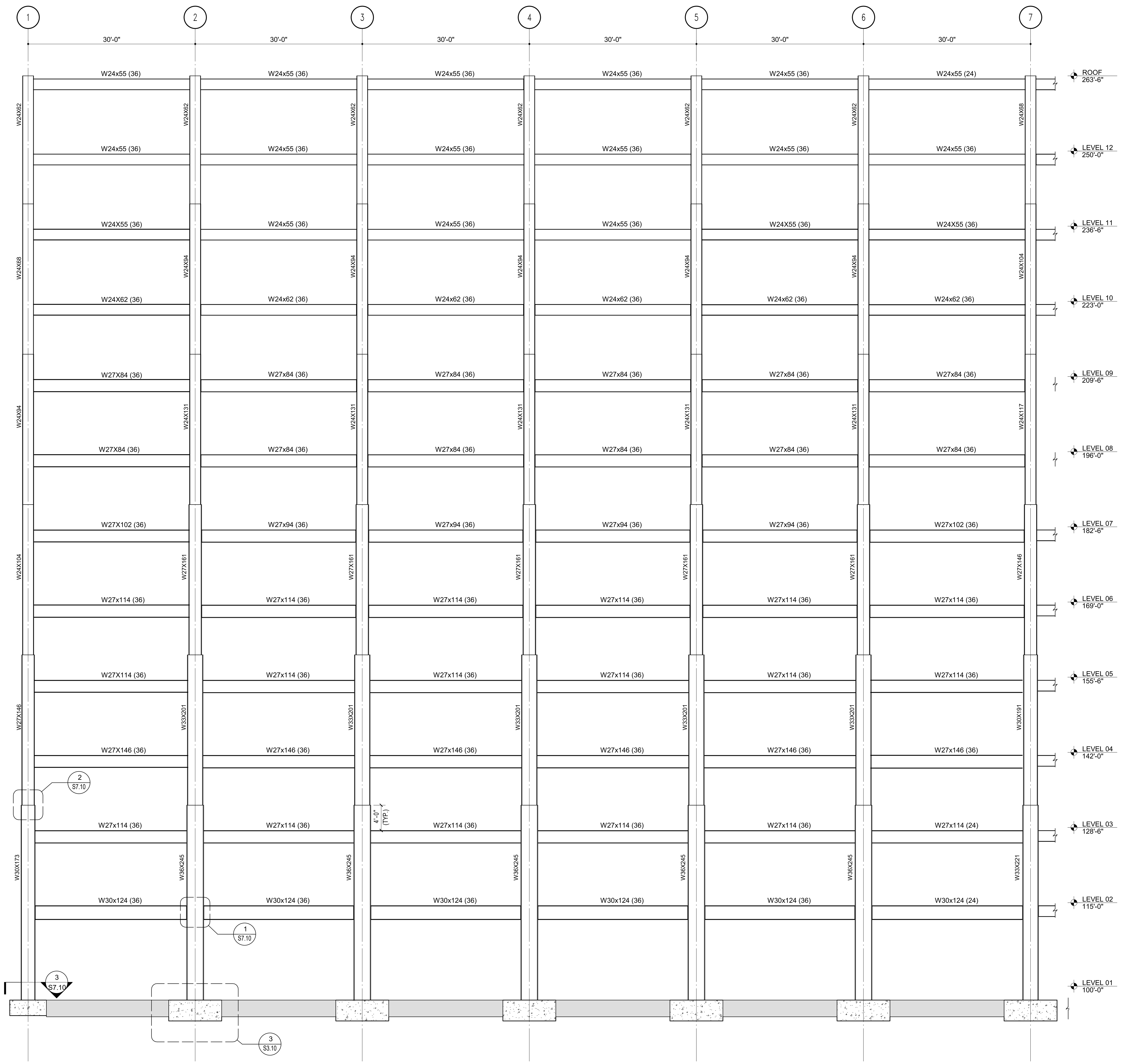

1 S6.20 MOMENT FRAME ELEVATION ALONG GRID E

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. SEE S7.XX SERIES FOR TYPICAL MOMENT FRAME DETAILS.

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S6.20

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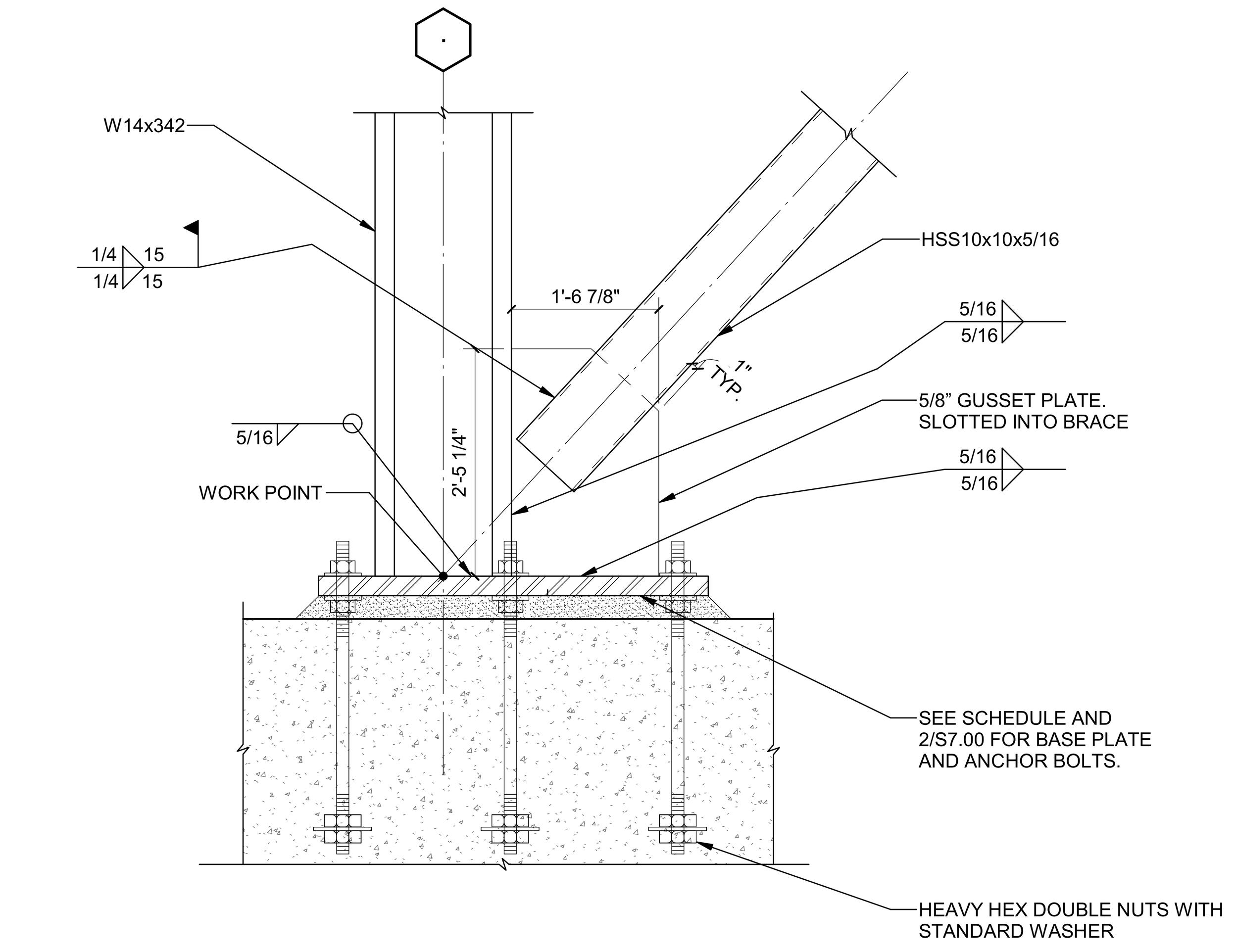
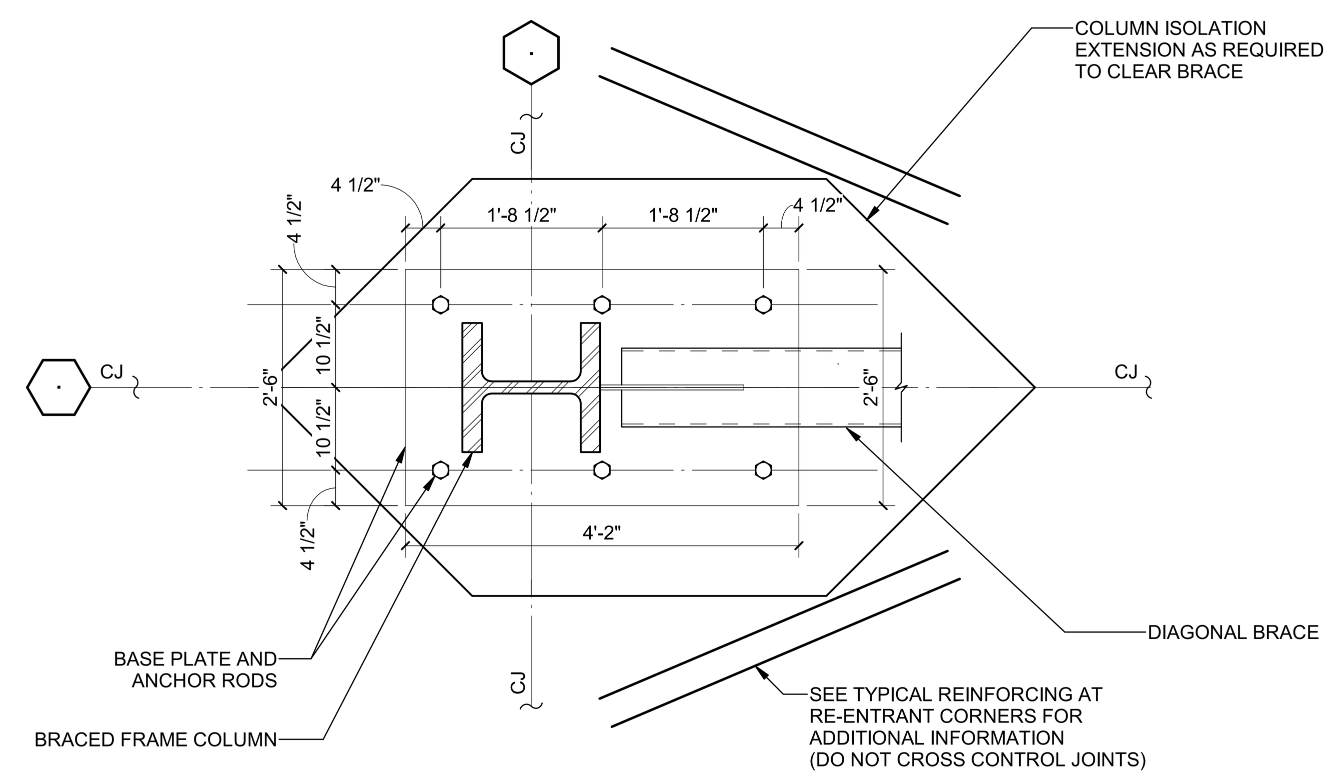
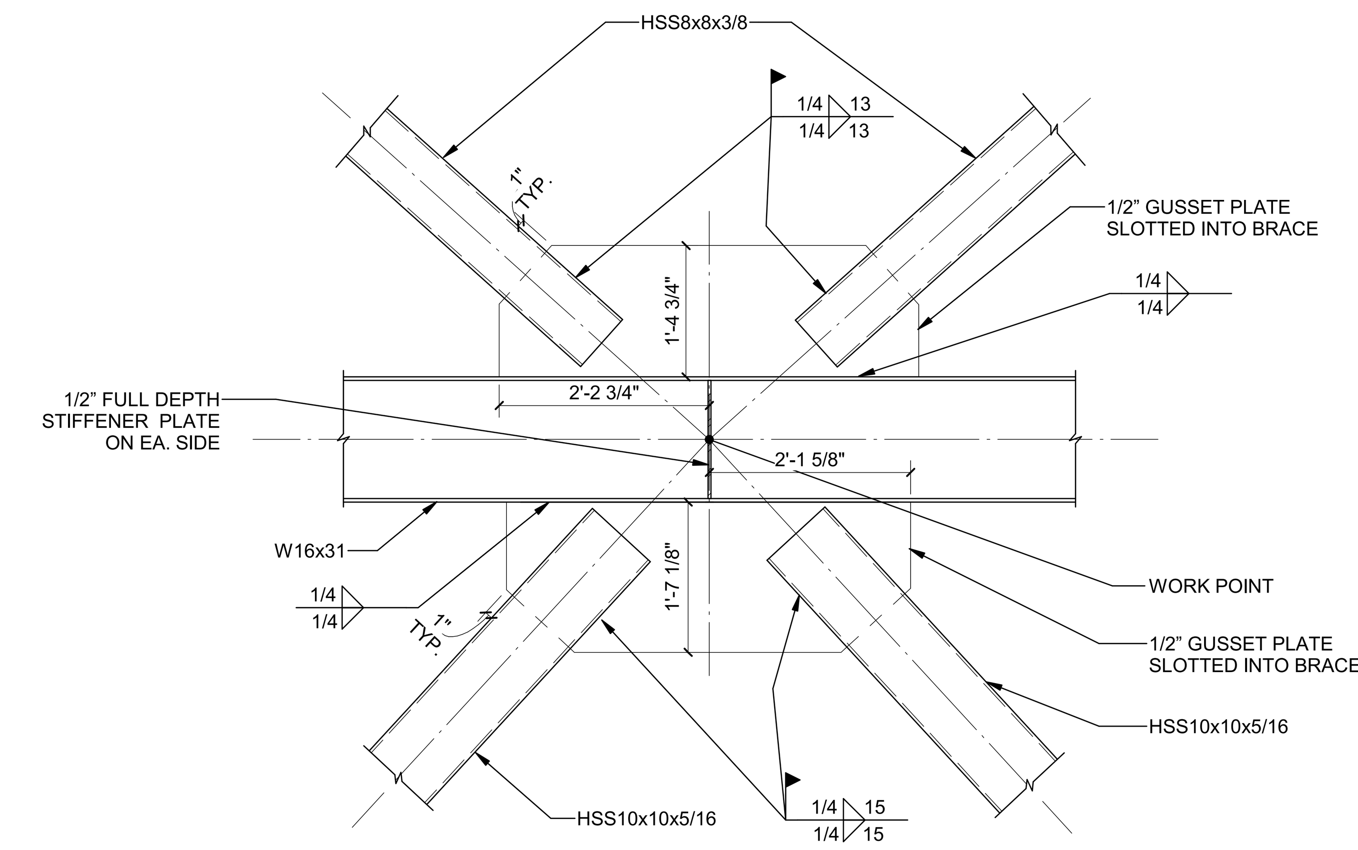


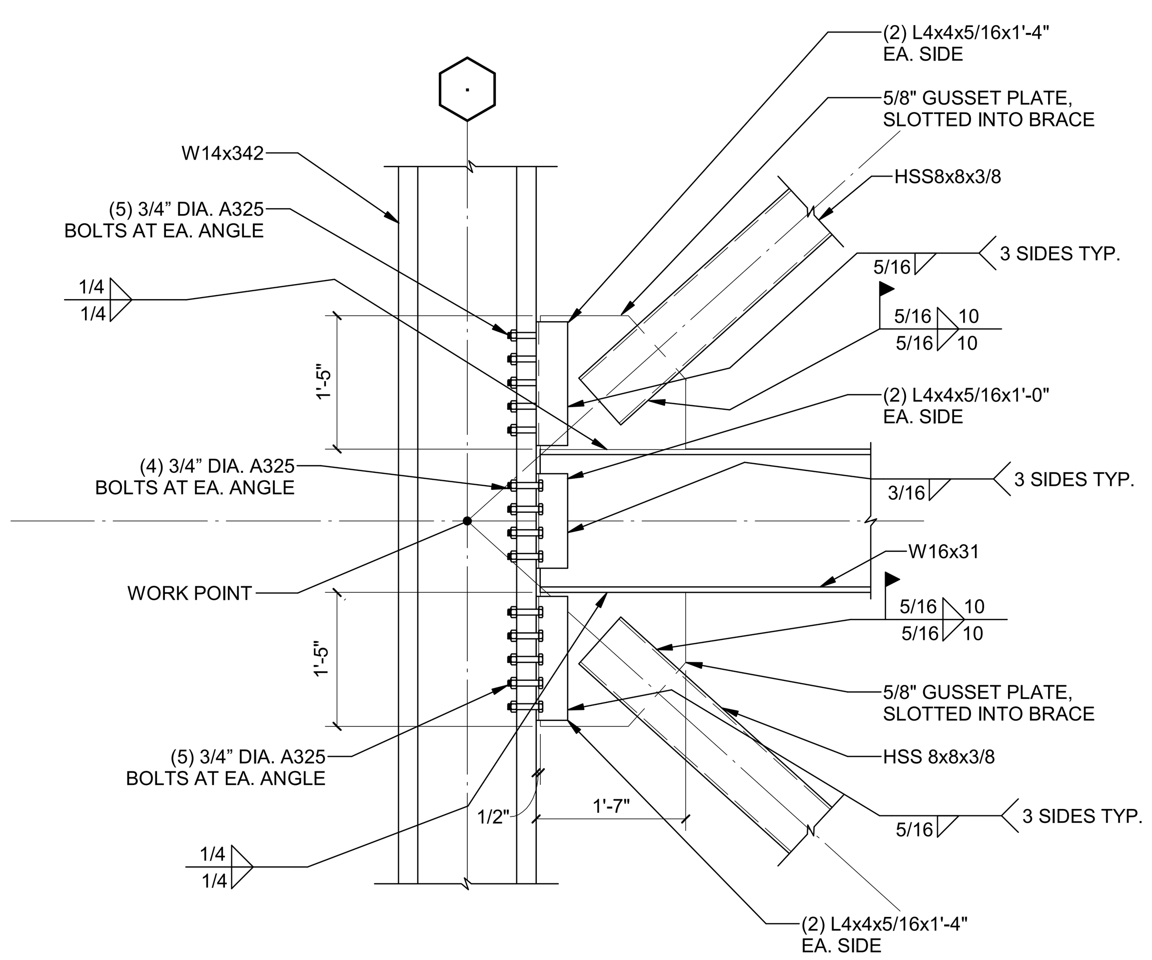
1 BRACED FRAME BASE PLATE DETAIL
S7.00
SCALE: 3/4" = 1'-0"



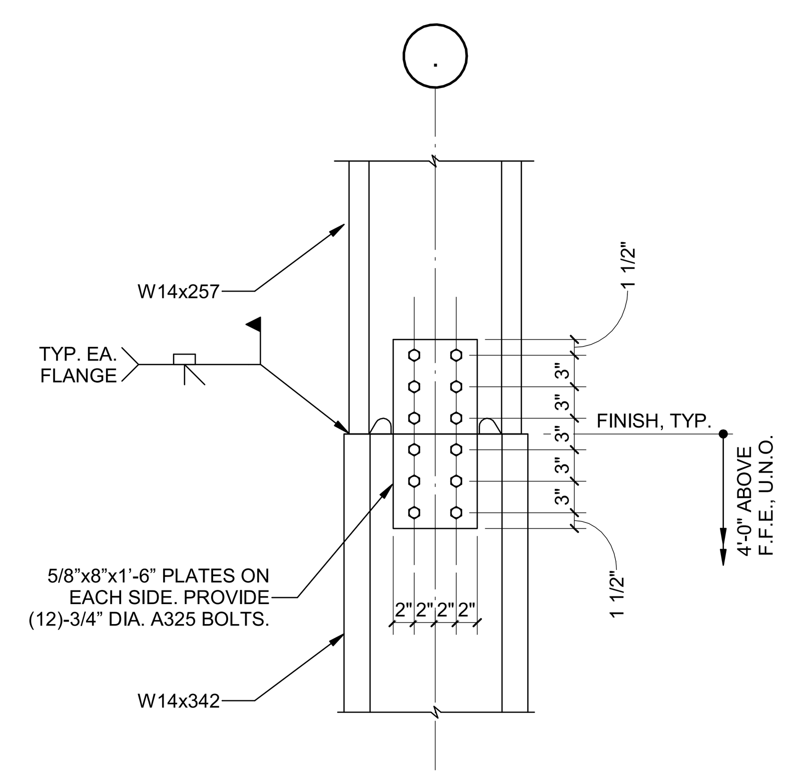
2 TYPICAL COLUMN ISOLATION PLAN DETAIL AT BRACED FRAME
S7.00
SCALE: 3/4" = 1'-0"



3 TYPICAL BRACED FRAME CONNECTION DETAIL
S7.00
SCALE: 3/4" = 1'-0"



4 TYPICAL BRACED FRAME CONNECTION DETAIL
S7.00
SCALE: 3/4" = 1'-0"



5 TYPICAL BRACED FRAME COLUMN SPLICE
S7.00
SCALE: 1" = 1'-0"

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BRACED FRAME DETAILS

SHEET NUMBER
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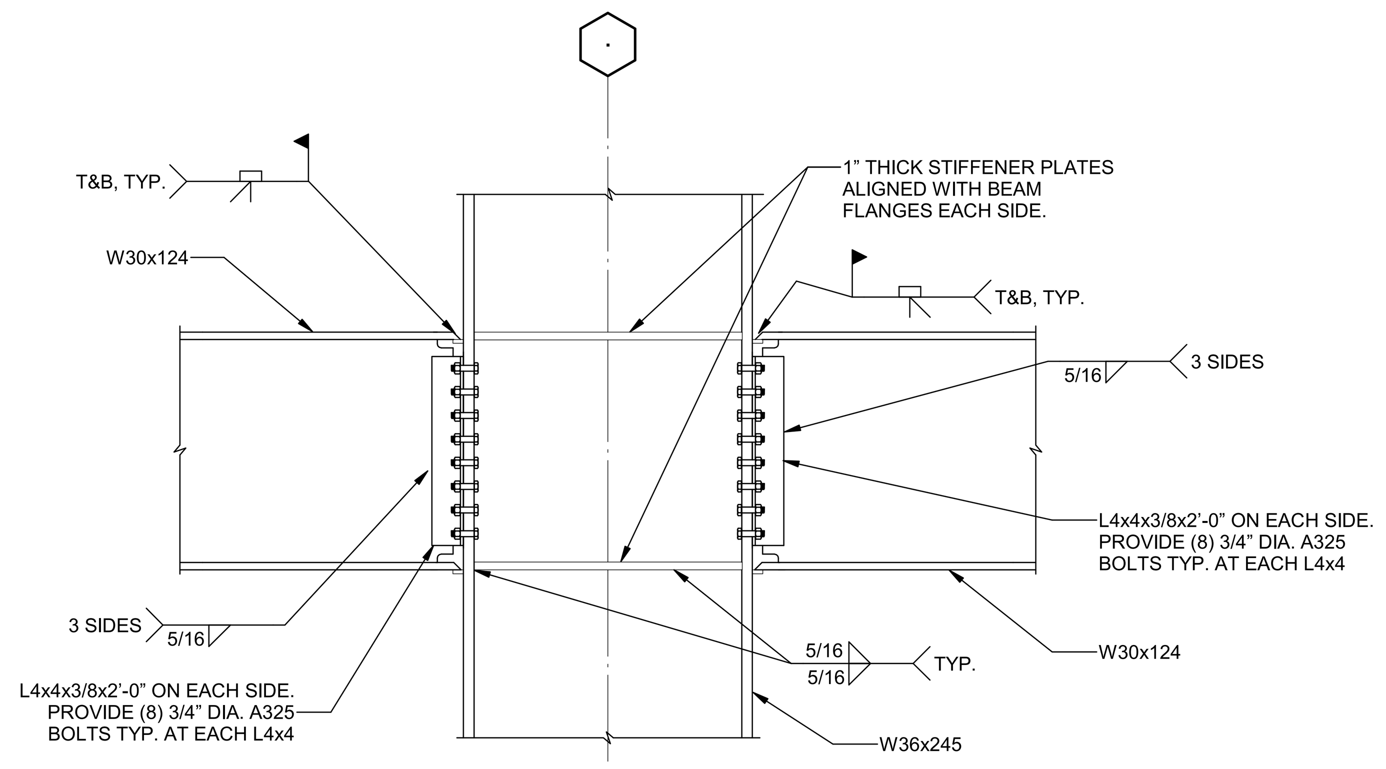
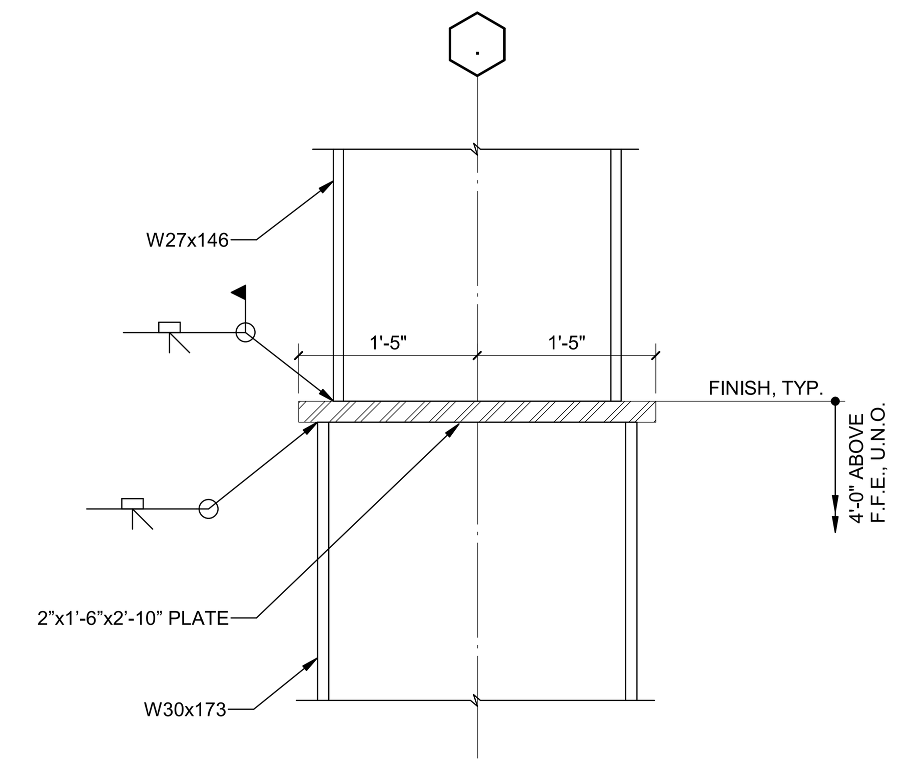


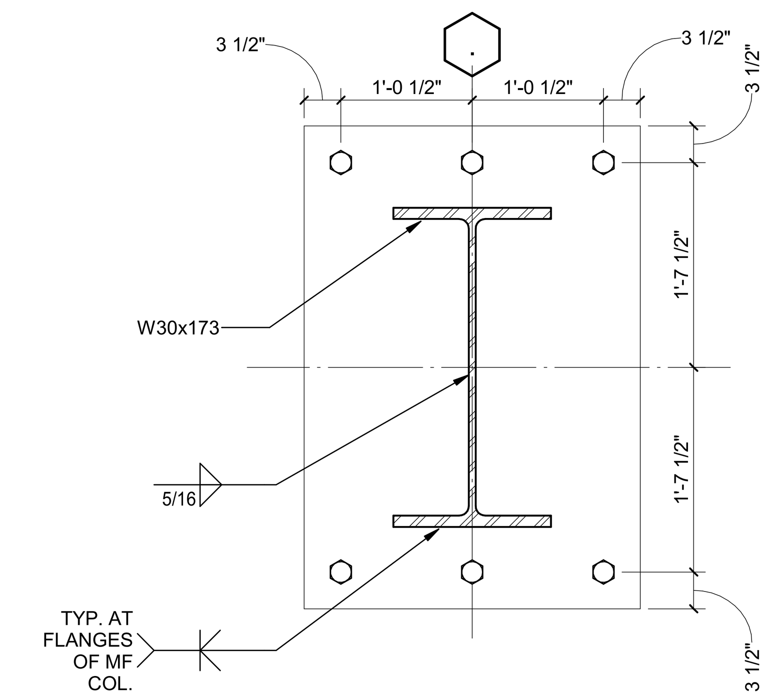
1 S7.10 TYPICAL BEAM TO WF COLUMN FLANGE MOMENT CONNECTION

SCALE: 3/4" = 1'-0"



2 S7.10 TYPICAL MOMENT FRAME COLUMN SPLICE

SCALE: 1" = 1'-0"



3 S7.10 TYP. MOMENT FRAME COL. BASE PLATE

SCALE: 1" = 1'-0"

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Design Case D

1988 SBC
"Risk Category III"
"Seismic Design Category C"

D.1 Gravity Design

The 12-story office is a typical steel framed building with 3" metal deck and 3-1/4" lightweight concrete topping providing a total floor depth of 6-1/4", not including the structural steel. This decking was chosen to provide the required 2-hour fire rating that is typical for office buildings. The columns and beams are ASTM A36 steel wide flange members and were designed using AISC Design, Fabrication and Erection of Structural Steel for Buildings 1978. The deflection was limited to the SBC prescribed limits of $L/360$ for floor live load, $L/240$ for floor total load, $L/240$ for roof live load and $L/180$ for roof total load.

The calculated total dead load applied was 90 psf at the floors and 80 psf at the roof. The live loads for offices, corridors (at and above the first floor) and roofs were per SBC table 1203.3. Partition loads were also applied per SBC 1202.2 and are included in the dead load.

D.2 Lateral Design

The building vertical lateral resisting system consists of steel concentrically braced frames in the North/South direction and steel moment frames in the East/West direction. The applied wind and seismic loads were determined using sections 1205 and 1206 respectively from SBC. Wind base shears significantly exceeded earthquake base shears in both directions. Thus, for the vertical lateral resisting system in the North/South direction the brace sizes were governed by wind. In the East/West direction the moment frame beams were governed by wind drift requirements. Wind drifts were limited to $H/360$ at the design wind load. Fixed base connections for the moment frames, were used to limit drift and column sizes.

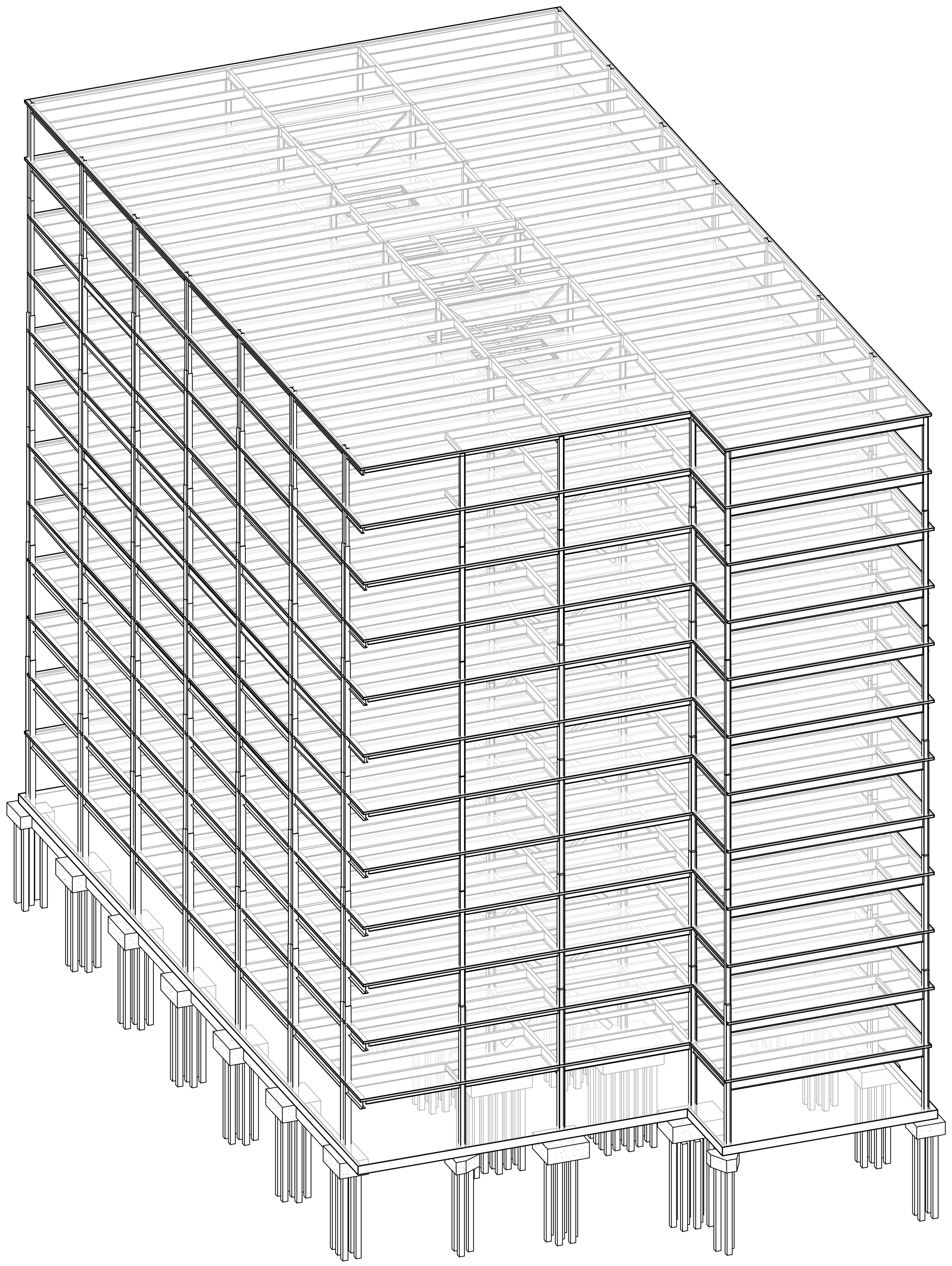
D.3 Steel Tonnage

Total steel tonnage for this design case is calculated as 1,668 tons.

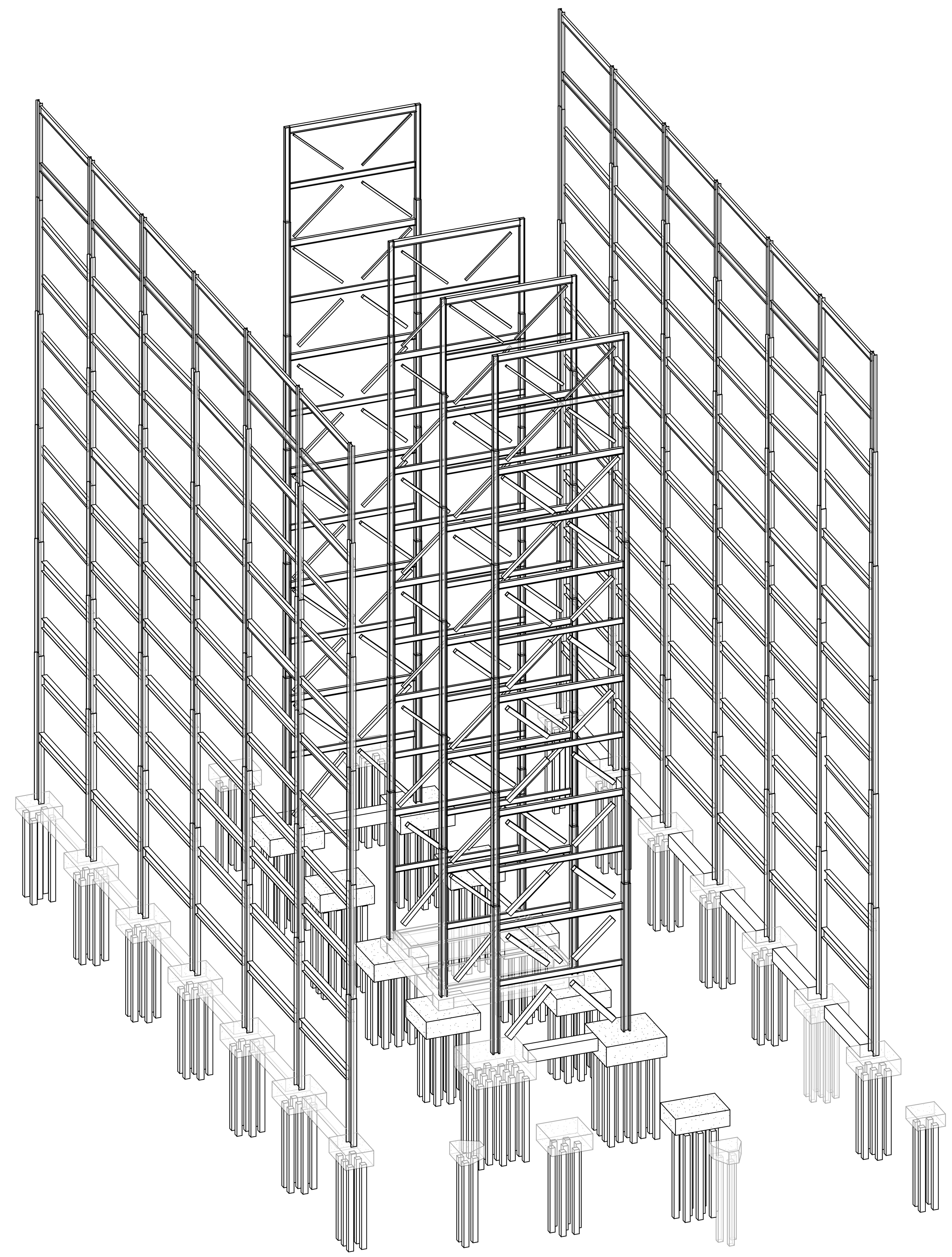
D.4 Structural Drawings

Structural drawings for Design Case D are provided on the following pages.

OFFICE BUILDING - SAVANNAH, GEORGIA
DESIGN D - 1988 SBC EQUIVIVALENT RISK CATEGORY III



OVERALL FRAMING 3D VIEW



FORCE RESISTING SYSTEM 3D VIEW

DESIGN D: 1988 SBC RISK CATEGORY III	
OFFICE BUILDING SAVANNAH, GEORGIA	
ITEM	**QUANTITY**
WF COLUMNS (Fy = 36 ksi)	92 TONS
WF GIRDERS & JOISTS (Fy = 36 ksi)	972 TONS
MOMENT FRAME WF COLUMNS (Fy = 36 ksi)	175 TONS
MOMENT FRAME WF BEAMS (Fy = 36 ksi)	245 TONS
BRACED FRAME WF COLUMNS (Fy = 36 ksi)	132 TONS
BRACED FRAME WF BEAMS (Fy = 36 ksi)	32 TONS
HSS BRACES (Fy = 46 ksi)	40 TONS
TOTAL	1688 TONS

NOTES:

1. STEEL QUANTITIES DO NOT INCLUDE MISCELLANEOUS STEEL, CUT WASTE STEEL, STAIRS, TYPICAL STEEL FRAMING CONNECTIONS, ETC.

STRUCTURAL DRAWING INDEX	
SHEET NUMBER	**SHEET NAME**
S0.00	COVER SHEET
S0.10	GENERAL NOTES
S1.00	LOAD MAPS
S2.00	FOUNDATION & GRADE LEVEL FRAMING PLAN
S2.10	SECOND FLOOR FRAMING PLAN
S2.20	TYPICAL FLOOR FRAMING PLAN
S2.30	ROOF FRAMING PLAN
S3.00	FOUNDATION DETAILS
S3.10	FOUNDATION DETAILS
S4.00	COLUMN SCHEDULE
S5.00	STEEL DETAILS
S6.00	BRACED FRAME ELEVATIONS
S6.10	MOMENT FRAME ELEVATIONS
S6.20	MOMENT FRAME ELEVATIONS
S7.00	BRACED FRAME DETAILS
S7.10	MOMENT FRAME DETAILS
Grand total: 16	

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ABBREVIATIONS

A	ADD'L	ADDITIONAL
	ADJ.	ADJACENT
	A/E	ARCHITECT/ENGINEER
	ALT.	ALTERNATE
	ARCH.	ARCHITECTURAL
	AFF.	ABOVE FINISHED FLOOR
B	BRG	BEARING
	BLDG	BUILDING
	BM.	BEAM
	BOT.	BOTTOM
	B/, BO	BOTTOM OF
C	CJ	CONTRACTION JOINT
	CL	CENTERLINE
	CLR	CLEAR
	CMU	CONCRETE MASONRY UNIT
	COL.	COLUMN
	COORD.	COORDINATE
	CONC.	CONCRETE
	CONN.	CONNECTION
	CONT.	CONTINUOUS
D	DIM	DIMENSION
E	EA.	EACH
	EE	EACH END
	EF	EACH FACE
	ES	EACH SIDE
	EW	EACH WAY
	ELEV.	ELEVATION, ELEVATOR
	EMBED.	EMBEDMENT
	EQ.	EQUAL
	EXP. JT.	EXPANSION JOINT
F	FTG	FOOTING
	FND	FOUNDATION
G	GALV.	GALVANIZED
	GR.	GRADE (MATERIAL)
H	HK	HOOK
	HORIZ.	HORIZONTAL
I	IF	INSIDE FACE
	INFO.	INFORMATION
J	JT	JOINT
K	K	KIPS
	KSF	KIPS PER SQUARE FOOT
L	LLH	LONG LEG HORIZONTAL
	LLV	LONG LEG VERTICAL
	LSH	LONG SIDE HORIZONTAL
M	MANUF.	MANUFACTURER
	MAX.	MAXIMUM
	MECH.	MECHANICAL
	MEP	MECH, ELECTRICAL, PLUMBING
	MIN.	MINIMUM
	MISC.	MISCELLANEOUS
O	OC	ON CENTER
	OPNG.	OPENING
	OPP.	OPPOSITE
	OH	OPPOSITE HAND
P	PL.	PLATE
	PCF	POUNDS PER CUBIC FOOT
	PCY	POUNDS PER CUBIC YARD
	PSF	POUNDS PER SQUARE FOOT
	PSI	POUNDS PER SQUARE INCH
R	REINF.	REINFORCEMENT, REINFORCING
	REQD	REQUIRED
S	SCHED.	SCHEDULE
	SIM.	SIMILAR
	SFRS	SEISMIC FORCE RESISTING SYSTEM
	SOG	SLAB ON GROUND
	STIFF.	STIFFENER
	SYM.	SYMMETRIC
T	TEMP.	TEMPERATURE
	T&B	TOP AND BOTTOM
	T/, TO	TOP OF
	TYP.	TYPICAL
U	UNO	UNLESS NOTED OTHERWISE
V	VERT.	VERTICAL
W	WF	WIDE FLANGE
	WP	WORK POINT
	WWF	WELDED WIRE FABRIC
	W/	WITH

1.00 GENERAL

1.01 ALL CONSTRUCTION SHALL CONFORM TO THE 1988 STANDARD BUILDING CODE. REFERENCE TO OTHER STANDARD SPECIFICATIONS OR CODES SHALL MEAN THE BUILDING CODE ADOPTED EDITION.

2.00 STRUCTURAL LOAD CRITERIA

2.01 NATURE OF OCCUPANCY:
- OCCUPANT LOAD > 300 IN ANY ONE ROOM (WIND)
- TOTAL OCCUPANT LOAD > 300 IN USE GROUP A (SEISMIC)

2.02 WIND LOADING CRITERIA:
- BASIC WIND SPEED____ V = 90 MPH (FASTEST MILE)
- USE FACTOR____ 1.15
- ALLOWABLE DRIFT AT DESIGN WIND SPEED____ H/360
- DESIGN BASE SHEAR, NORTH-SOUTH____ 1698 KIPS
- DESIGN BASE SHEAR, EAST-WEST____ 987 KIPS

2.03 SNOW LOADING CRITERIA:
- GROUND SNOW LOAD____ 0 PSF

2.04 SEISMIC LOADING CRITERIA:
- ZONE____ 2
- Av____ 0.10
- Z FACTOR____ 0.24
- I, OCCUPANCY IMPORTANCE FACTOR____ 1.25
- K, BRACED FRAMES____ 1.0
- K, ORDINARY MOMENT-RESISTING STEEL FRAMES____ 1.0
- S (SOIL PROFILE TYPE S_3)____ 1.5
- DESIGN BASE SHEAR____ 652 KIPS

3.00 FOUNDATIONS:

3.01 PRECAST PRESTRESSED CONCRETE PILES SHALL BE 14 INCHES SQUARE WITH THE FOLLOWING ALLOWABLE CAPACITIES:
- COMPRESSION____ 80 TONS
- TENSION ____ 60 TONS
- LATERAL ____ 10 TONS

4.00 REINFORCED CONCRETE

4.01 ALL CONCRETE WORK SHALL CONFORM TO ACI 301-82, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS". DESIGN IS BASED ON ACI - 83, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE".

4.02 UNLESS NOTED OTHERWISE, ALL CONCRETE SHALL BE NORMALWEIGHT AND HAVE THE FOLLOWING MINIMUM 28-DAY STRENGTHS:
- FOUNDATIONS ____ 4000 PSI
- SLABS-ON-GROUND____ 4000 PSI
- SLABS ON STEEL DECK (110 PCF MAXIMUM) ____ 3000 PSI

4.03 REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.

4.04 WELDED WIRE REINFORCEMENT (MESH) SHALL CONFORM TO ASTM A1064 AND SHALL BE PROVIDED IN FLAT SHEETS (ROLLS NOT PERMITTED). LAP TWO SQUARES AT SPLICES.

4.05 PROVIDE CLASS "B" TENSION SPLICE UNLESS NOTED OTHERWISE. DOWELS SHALL MATCH THE SIZE AND SPACING OF THE SPECIFIED REINFORCING AND SHALL BE LAPPED WITH CLASS "B" TENSION SPLICES. REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE COVER UNLESS NOTED OTHERWISE:
- CONCRETE CAST AGAINST EARTH (NOT FORMED)____ 3"
- FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
  - #6 THROUGH #18 BARS ____ 2"
  - #5 BARS AND SMALLER ____ 1 ½"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
  - SLABS AND WALLS ____ 1"
  - BEAM STIRRUPS AND COLUMN TIES ____ 1 ½"

4.06 CONCRETE SLABS ON STEEL DECK SHALL BE PLACED AT A CONSTANT THICKNESS.

5.00 STRUCTURAL STEEL

5.01 ALL STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO THE AISC 360, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS".

5.02 UNLESS NOTED OTHERWISE, STRUCTURAL STEEL WIDE FLANGES AND TEES SHALL CONFORM TO ASTM A36; ROUND TUBES SHALL BE 42 KSI, SQUARE, AND RECTANGULAR TUBES SHALL BE 46 KSI; AND ALL OTHER SHAPES AND PLATES SHALL CONFORM TO ASTM A36.

5.03 STEEL FRAMING CONNECTIONS SHALL BE BOLTED OR WELDED:
- BOLTED JOINTS SHALL CONFORM TO RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS". BOLTS SHALL CONFORM TO ASTM A325, AND SHALL BE MINIMUM 3/4" DIAMETER, UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE CONSIDERED BEARING TYPE, UNLESS OTHERWISE NOTED.
- WELDS SHALL CONFORM TO THE "STRUCTURAL WELDING CODE" OF THE AMERICAN WELDING SOCIETY, AWS D1.1. USE E70XX ELECTRODES. WELDING PROCESSES AND OPERATORS SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATIONS PROCEDURES".

5.04 ANCHOR RODS SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE NOTED.

5.05 STEEL SURFACES TO BE WELDED OR ENCASED IN CONCRETE OR FIREPROOFING, CONNECTIONS DESIGNATED AS SLIP CRITICAL TYPE, OR SURFACES RECEIVING WELDED SHEAR CONNECTORS IN THE FIELD SHALL NOT BE PAINTED.

5.06 PLACE NON-SHRINK, HIGH-STRENGTH GROUT (MINIMUM 6,000 PSI) UNDER BASE PLATES AFTER SETTING AND LEVELING, AND PRIOR TO PLACING ELEVATED SLAB CONCRETE.

5.07 SHEAR CONNECTORS: PROVIDE AWS D1.1, TYPE B, 3/4" DIAMETER, SOLID FLUXED HEADED SHEAR CONNECTOR STUDS AUTOMATICALLY END WELDED THROUGH THE STEEL DECK AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.

6.00 STEEL DECKING:

6.01 UNLESS NOTED OTHERWISE, STEEL DECK SHALL BE GRADE 50, GALVANIZED (MINIMUM G60), CONFORMING TO STEEL DECK INSTITUTE (SDI) STANDARDS.

6.02 STEEL COMPOSITE FLOOR DECK SHALL BE FASTENED TO STEEL FRAMING WITH 5/8" DIAMETER PUDDLE WELDS AT THE FOLLOWING SPACINGS:
- AT FRAMING PERPENDICULAR TO DECK FLUTES: 12" ON CENTER MAXIMUM AND AT EACH EDGE FLUTE OF EACH DECK UNIT.
- AT FRAMING PARALLEL TO DECK FLUTES: 24" ON CENTER MAXIMUM.
- SIDE LAPS SHALL BE FASTENED WITH #10 SELF-TAPPING SCREWS AT A MAXIMUM SPACING OF 2 FEET CENTER TO CENTER BETWEEN SUPPORTS.

6.03 DECKING SHALL BE CONTINUOUS OVER 3 SPANS MINIMUM WHERE SUPPORTING STRUCTURE PERMITS.

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GENERAL NOTES

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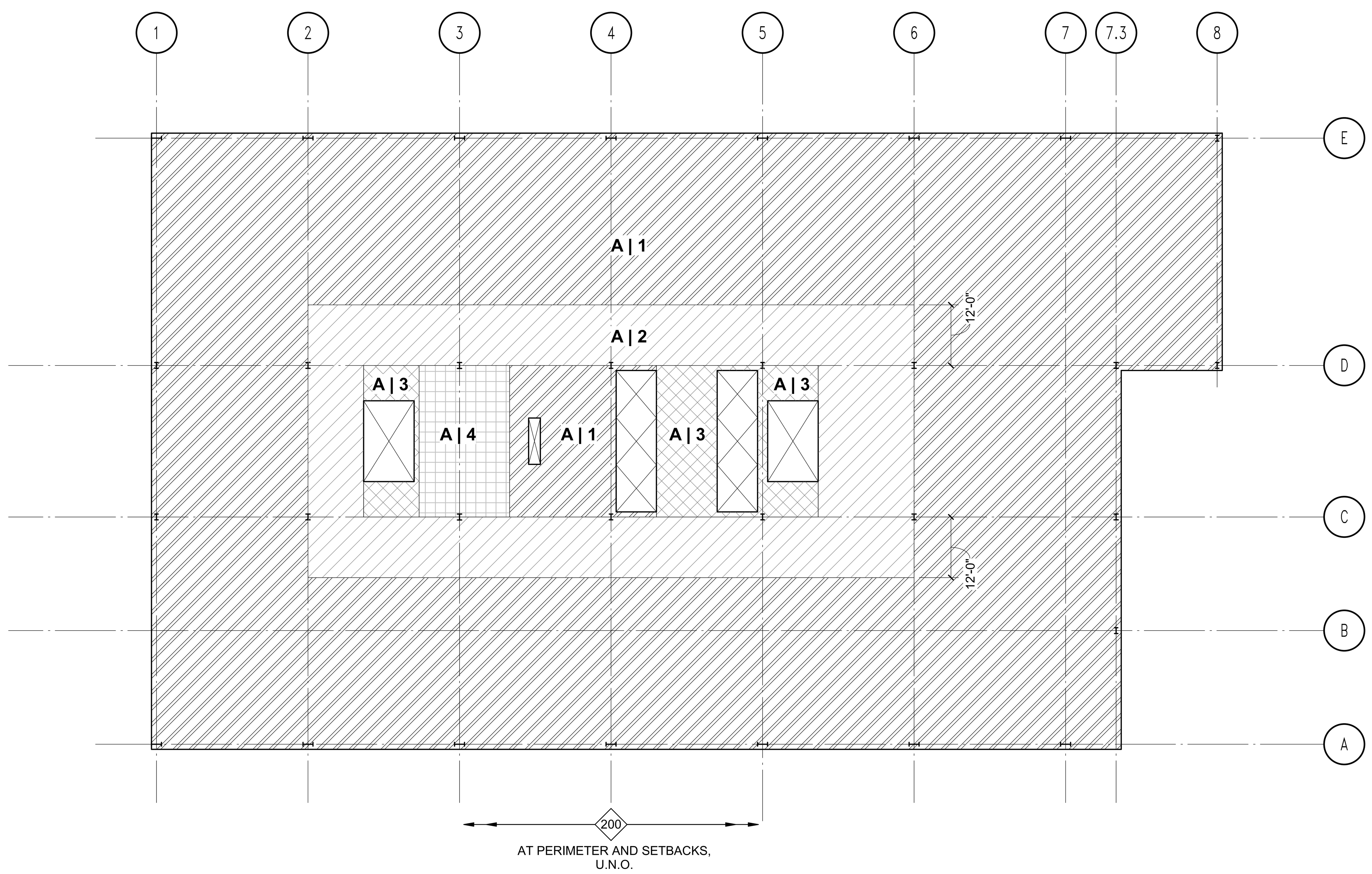
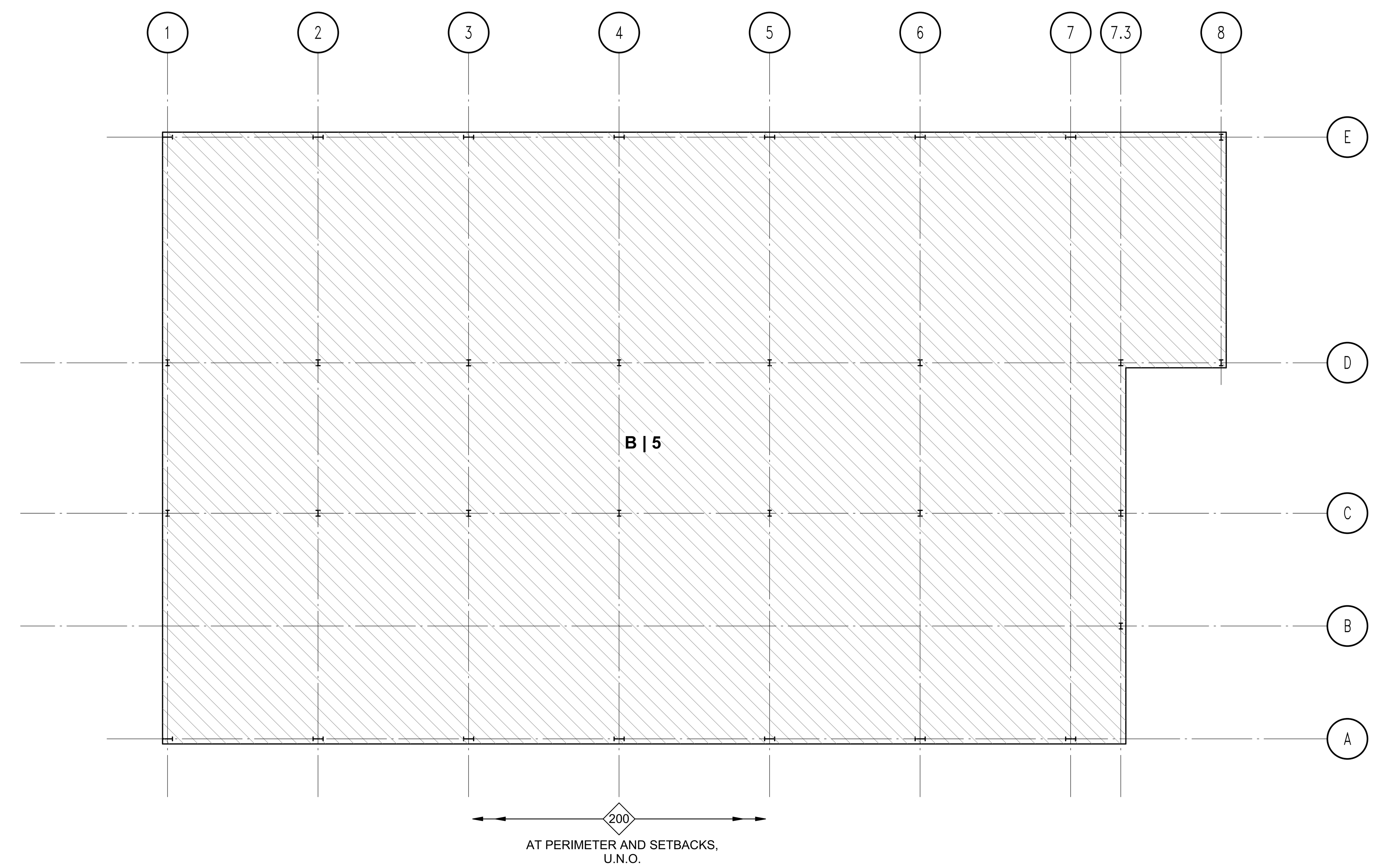


1 S1.00 LEVEL 2-12 LOAD MAP
SCALE: 1/16" = 1'-0"



2 S1.00 ROOF LOAD MAP
SCALE: 1/16" = 1'-0"

SUPERIMPOSED DEAD LOAD DESIGNATIONS			
MARK	USE	LOAD (PSF)	NOTES
A	OFFICE	10 + 20	MISC. + PARTITIONS
B	ROOF	20	10 ROOFING + 10 MISC.

LIVE LOAD DESIGNATIONS			
MARK	USE	LOAD (PSF)	NOTES
1	OFFICE	50 (R)	
2	CORRIDORS	80 (R)	
3	LOBBIES & STAIRS	100 (R)	
4	MECHANICAL & STORAGE	125 (NR)	
5	ROOF	20 (R)	

LOAD MAP KEY:

A | 1

NUMBER INDICATES LIVE LOAD MARK

LETTER INDICATES SUPERIMPOSED DEAD LOAD MARK

200 INDICATES CLADDING LOAD IN POUNDS PER LINEAR FOOT. CLADDING LOAD IS 200 POUNDS PER LINEAR FOOT U.N.O.

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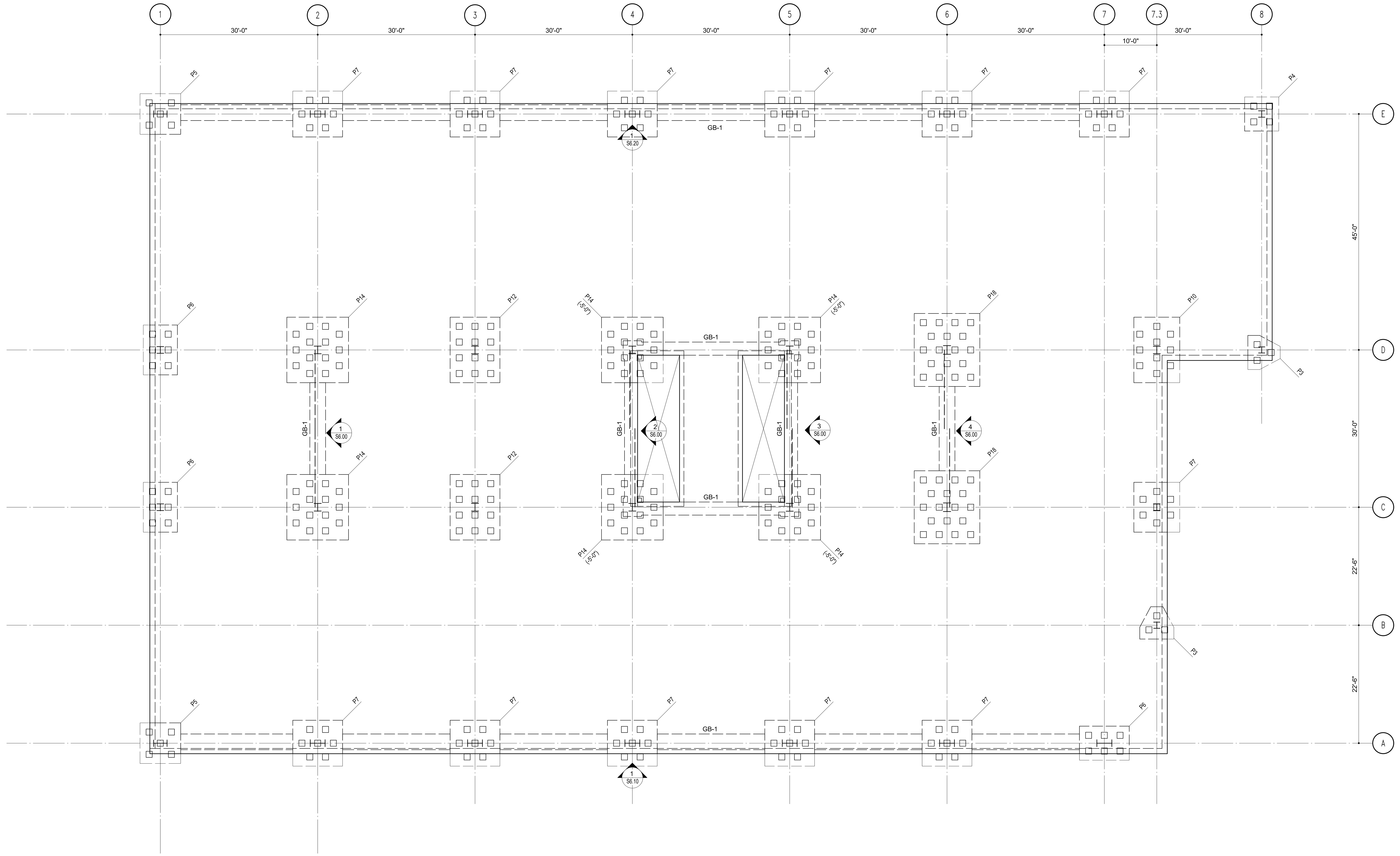

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S2.00

FOUNDATION & GRADE LEVEL FRAMING PLAN

SCALE: 1/8" = 1'-0"

FOUNDATION AND SOG NOTES:

1. TOP OF NOMINAL SLAB ELEVATION = 100'-00".
2. SLAB-ON-GROUND THICKNESS IS 5", UNLESS NOTED OTHERWISE.
3. ALL FOOTINGS, PILE CAPS, AND PIERS ARE CENTERED ABOUT COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.
4. 'GB' INDICATES GRADE BEAM. SEE S3.00 FOR ADDITIONAL INFORMATION.
5. SEE S4.00 FOR COLUMN SCHEDULE.

LEGEND:

X'-X" — INDICATES TOP OF WALL FOOTING OR TOP OF GRADE BEAM ELEVATION

INDICATES PILE, SEE 3/S3.00

PX — INDICATES PILE CAP TYPE. SEE SHEET S3.01

X'-X" — INDICATES TOP OF PILE CAP ELEVATION BELOW SLAB ON GRADE, TYP. ELEVATION IS -2'-6" BELOW TOP OF SOG, UNO

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FOUNDATION & GRADE LEVEL FRAMING PLAN

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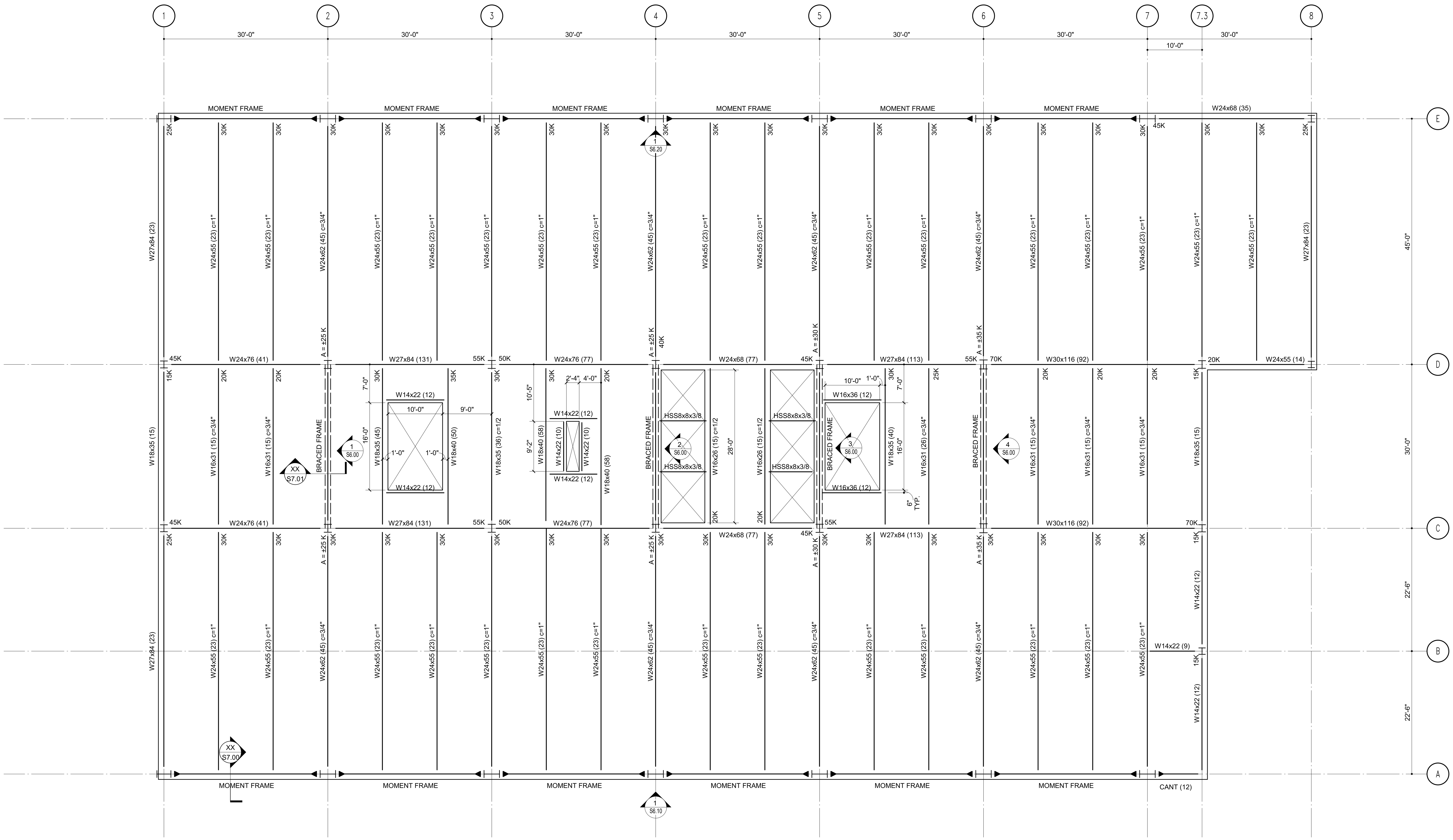
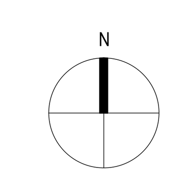




1
S2.10

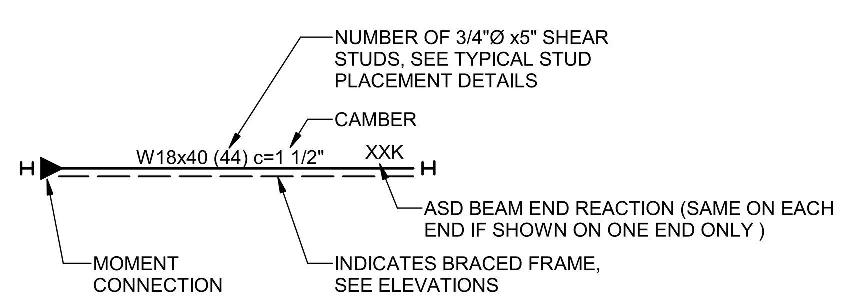
SECOND FLOOR FRAMING PLAN

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = +115', AT FINISHED FLOOR UNLESS NOTED OTHERWISE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. ⟷ INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3.25" LIGHTWEIGHT (110 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
7. SEE COLUMN SCHEDULE ON S4.00 FOR COLUMN SIZES.

FRAMING LEGEND:



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SECOND FLOOR FRAMING PLAN

SHEET NUMBER

S2.10

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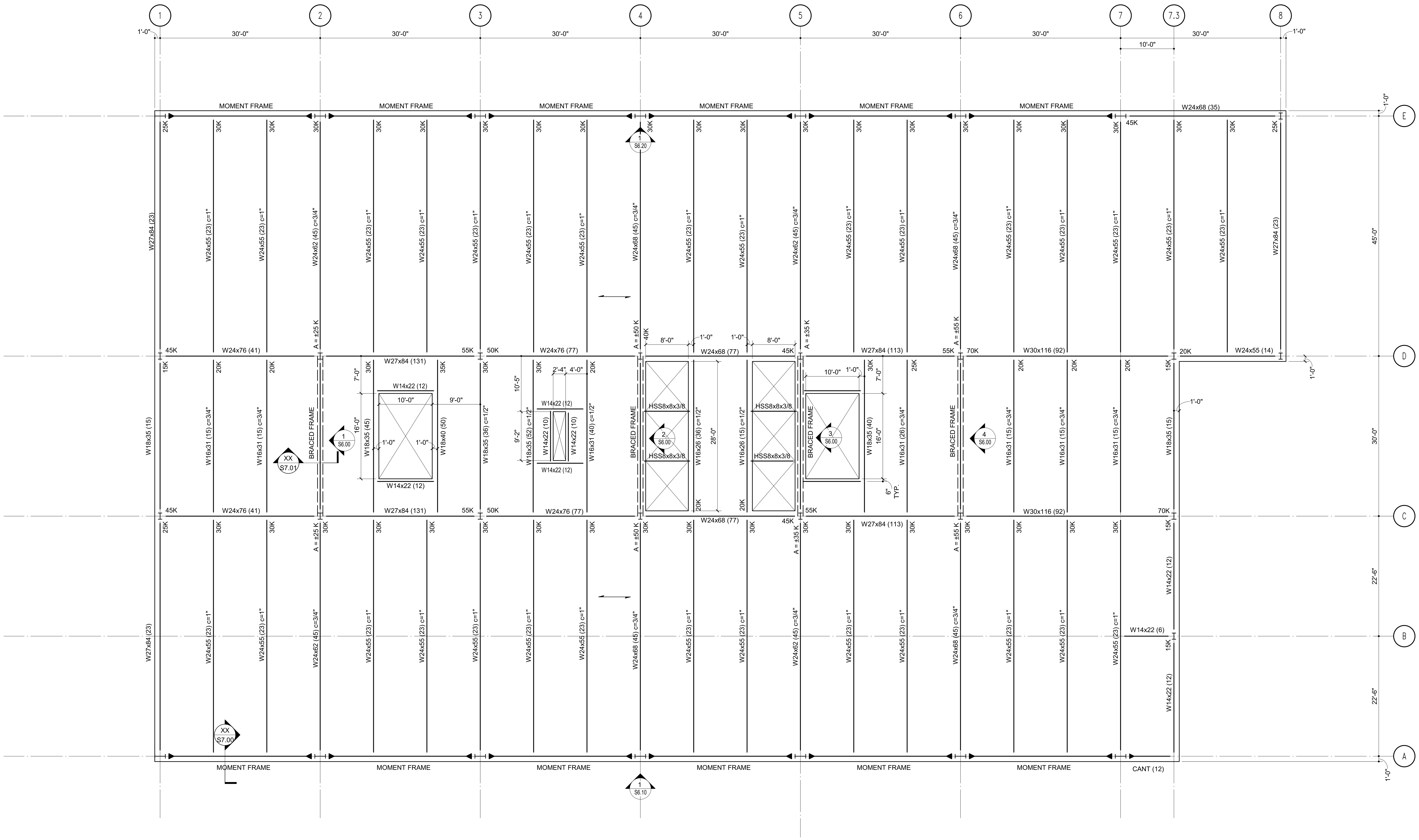


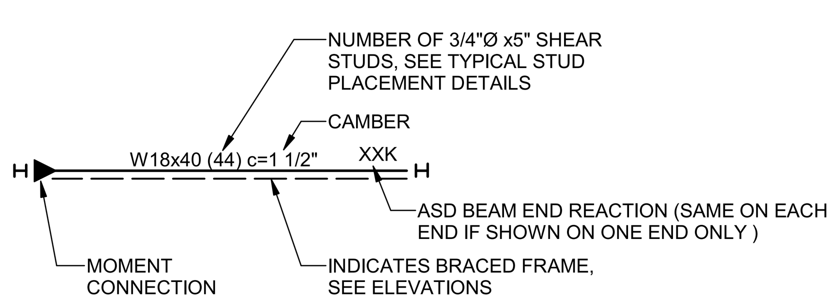
1
S2.20
TYPICAL FLOOR FRAMING PLAN

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = SEE TABLE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3.25" LIGHTWEIGHT (110 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
7. SEE COLUMN SCHEDULE ON S4.00 FOR COLUMN SIZES.

FRAMING LEGEND:



LEVEL	ELEVATION
3	+128'-6"
4	+142'-0"
5	+155'-6"
6	+169'-0"
7	+182'-6"
8	+196'-0"
9	+209'-6"
10	+223'-0"
11	+236'-6"
12	+250'-0"

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TYPICAL FLOOR FRAMING PLAN

SHEET NUMBER

S2.20

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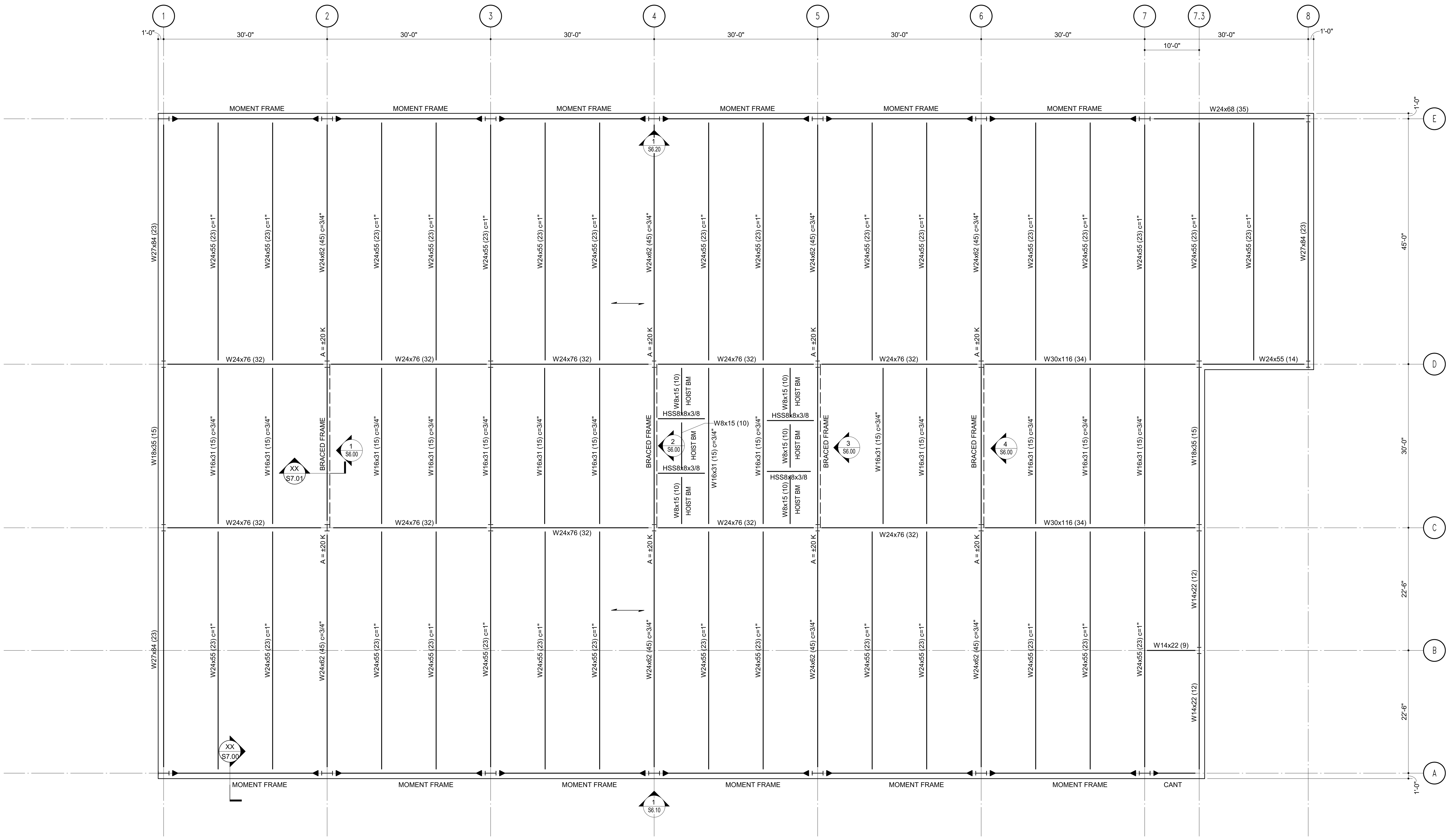


1 ROOF FRAMING PLAN

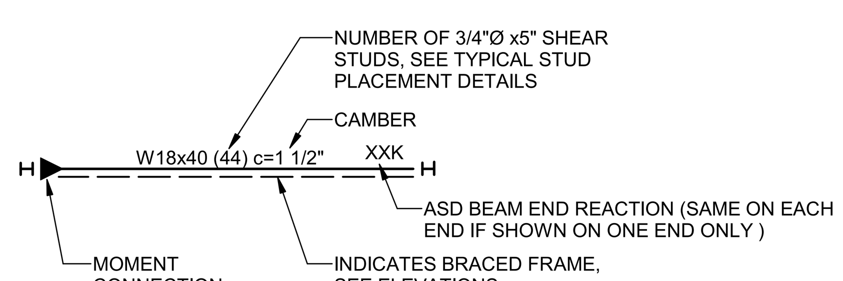
S2.30

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = +263'-6", AT FINISHED FLOOR UNLESS NOTED OTHERWISE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3.25" LIGHTWEIGHT (110 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
7. SEE COLUMN SCHEDULE ON S4.00 FOR COLUMN SIZES.

FRAMING LEGEND:



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ROOF FRAMING PLAN

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S2.30

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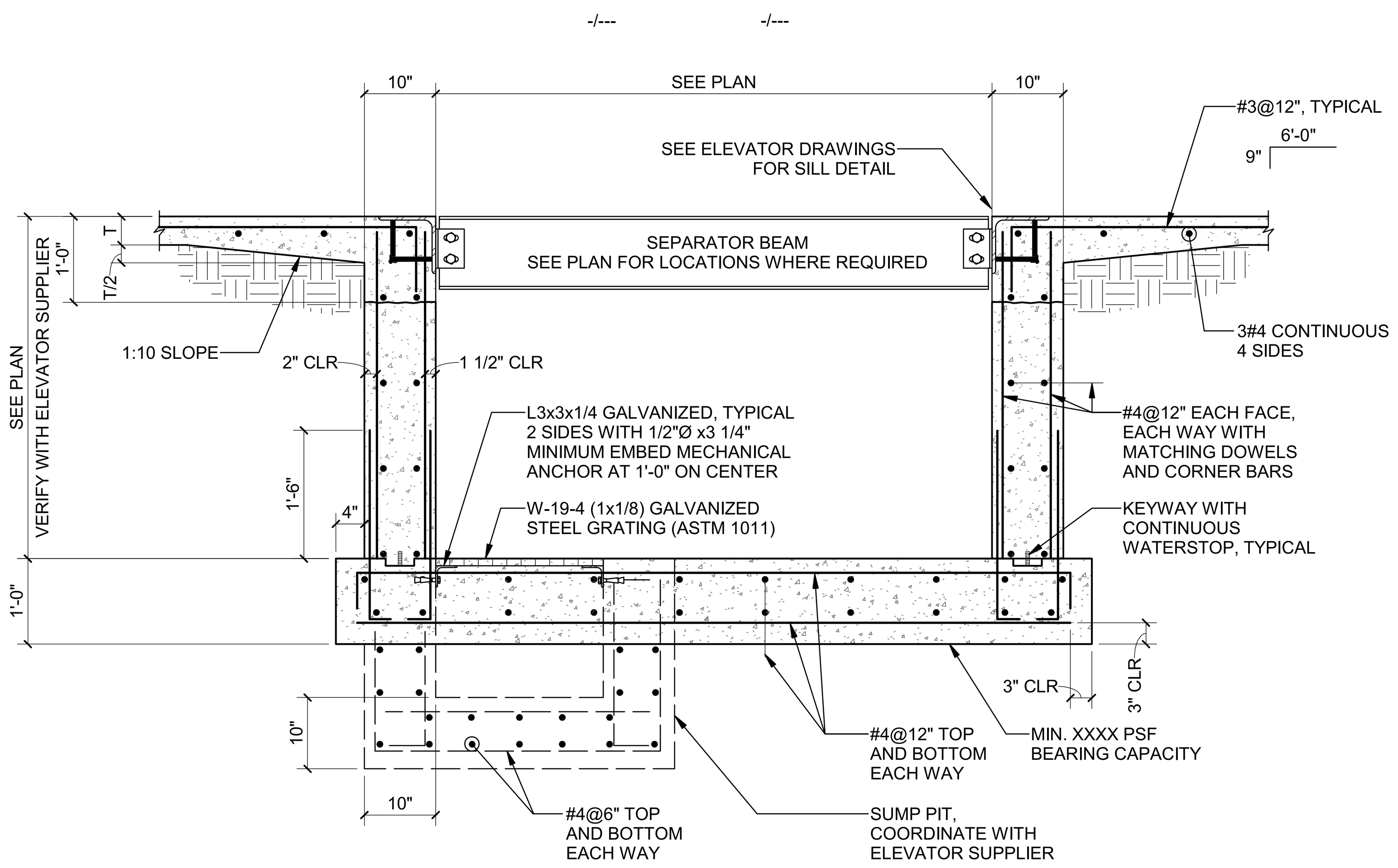
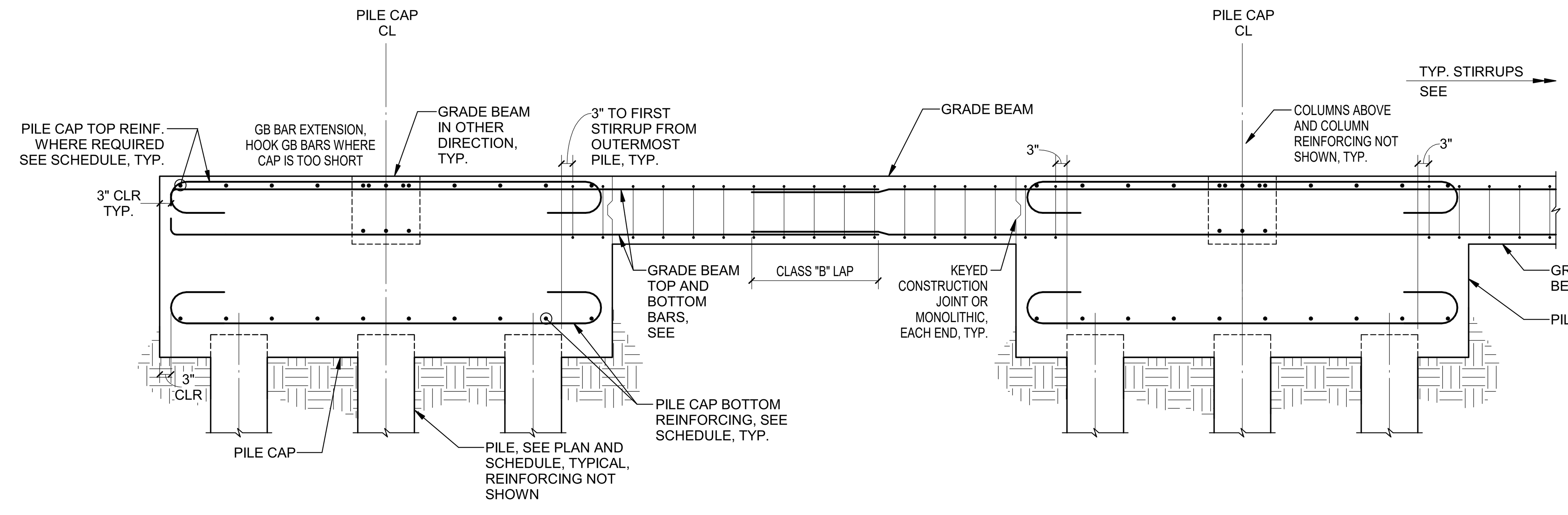


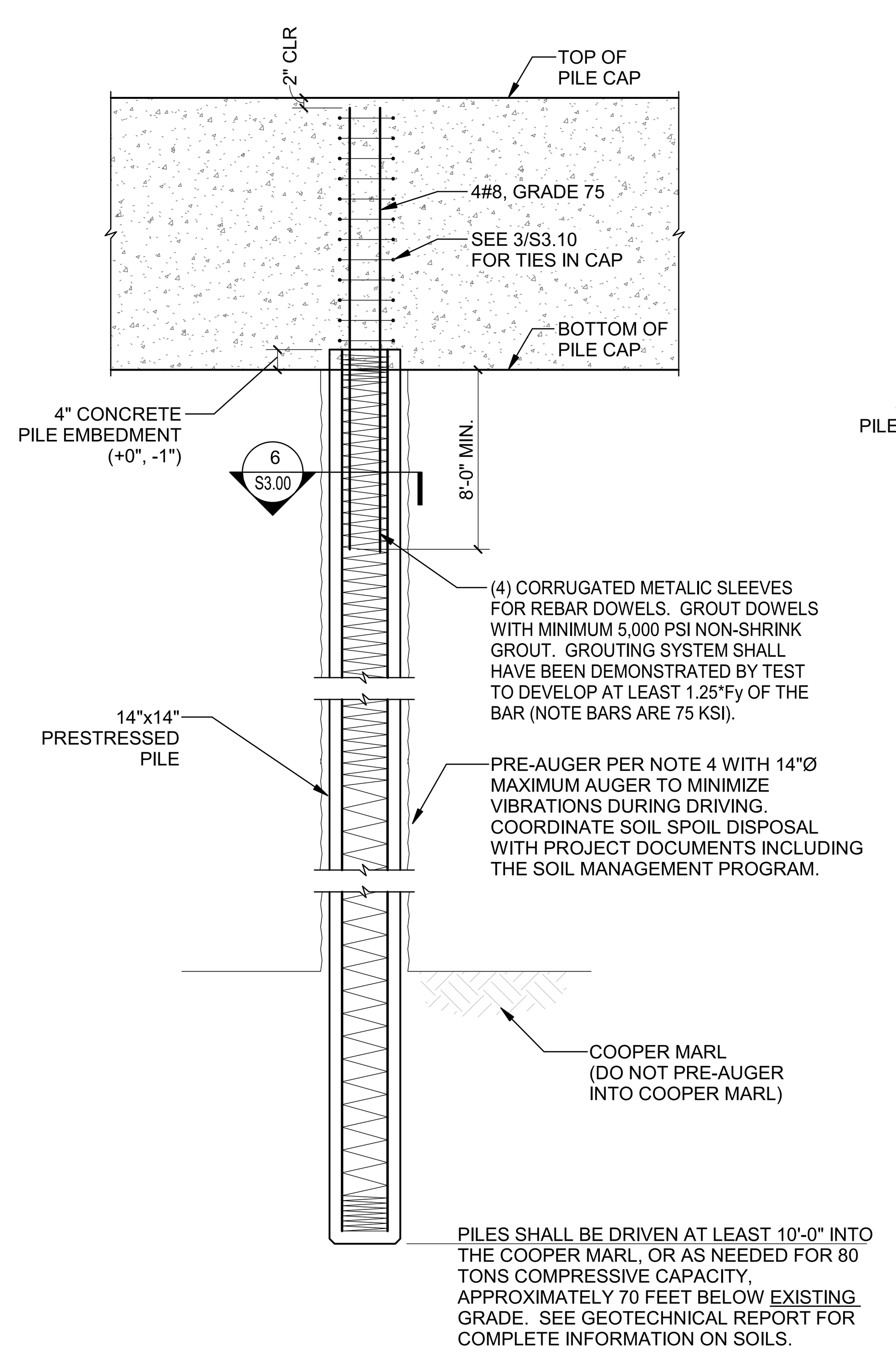
1 S3.00 TYPICAL ELEVATOR PIT SECTION

SCALE: 3/4" = 1'-0"

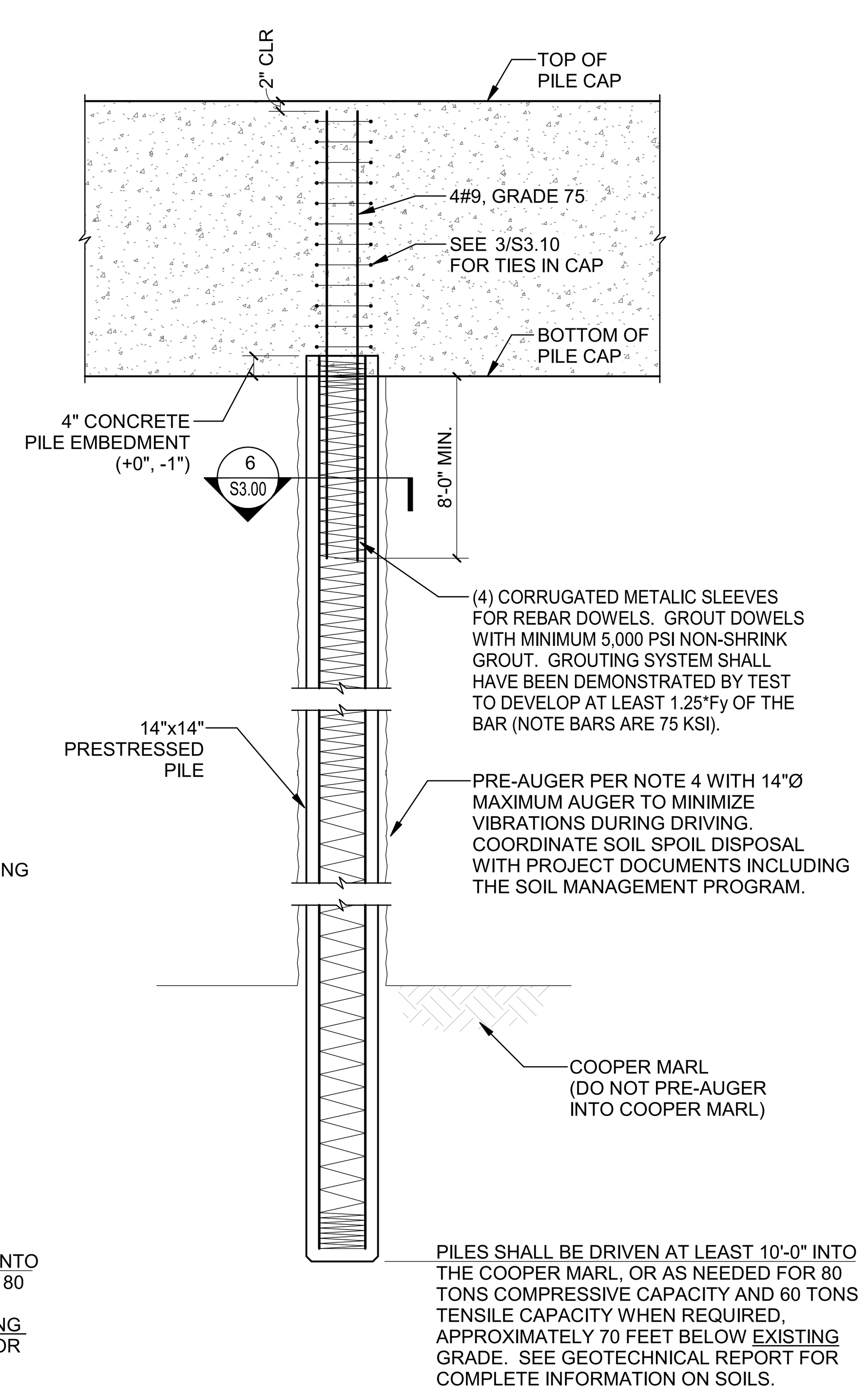


2 S3.00 TYPICAL GRADE BEAM ELEVATION

SCALE: 1/2" = 1'-0"



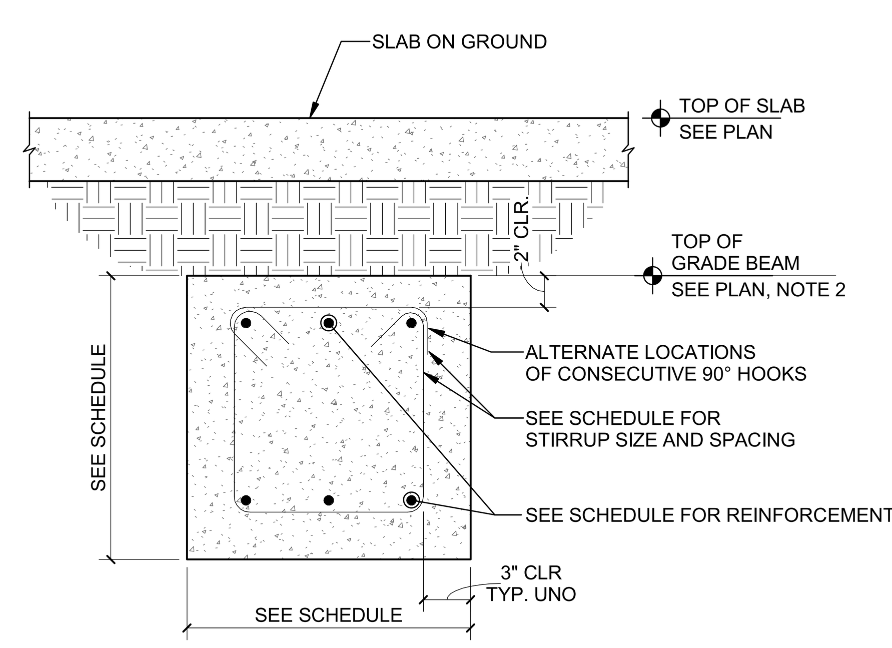
COMPRESSION PILE DETAIL



TENSION PILE DETAIL

3 S3.00 PILE DETAILS

SCALE: 1/2" = 1'-0"

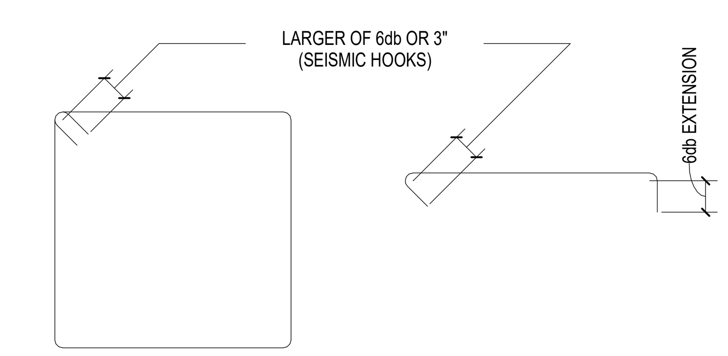


GRADE BEAM SCHEDULE

GRADE BEAM MARK	SIZE		LONGITUDINAL REINFORCING			STIRRUPS		REMARKS
	WIDTH (INCH)	DEPTH (INCH)	BOTTOM BARS	TOP BARS	SIDE FACE BARS (EACH FACE)	SIZE	SPACING EACH END UNO	
GB-1	36"	36"	4#9	4#9	2#5	#4	1@2, 4@12, R@16	---

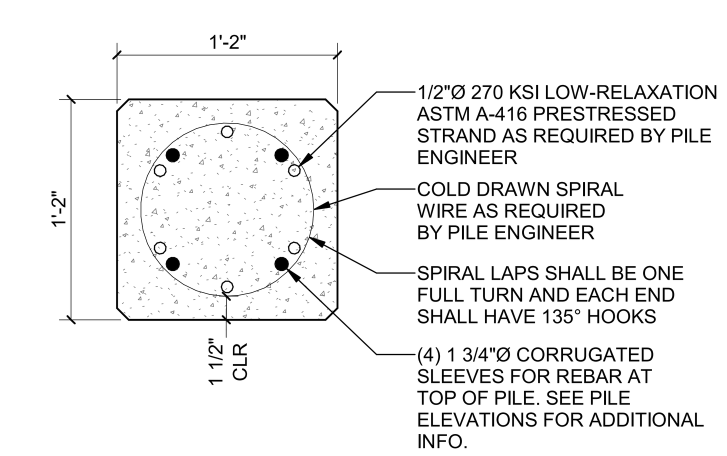
4 S3.00 TYPICAL GRADE BEAM SECTION

SCALE: 1 1/2" = 1'-0"



5 S3.00 HOOP AND CROSSTIE DETAILS

SCALE: 1 1/2" = 1'-0"



6 S3.00 TYPICAL SECTION THROUGH PRECAST PILE

SCALE: 1 1/2" = 1'-0"

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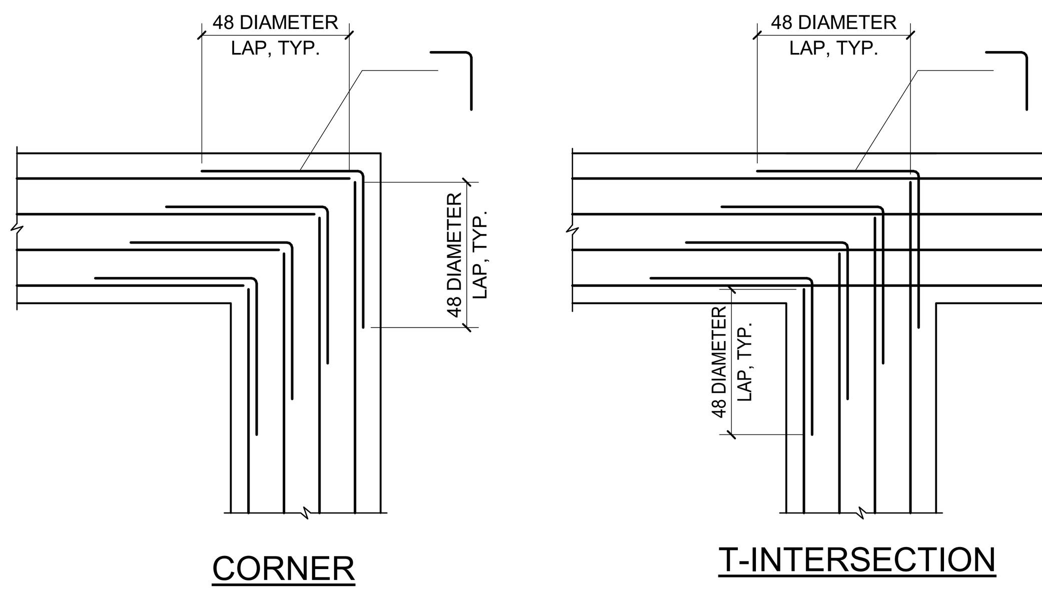
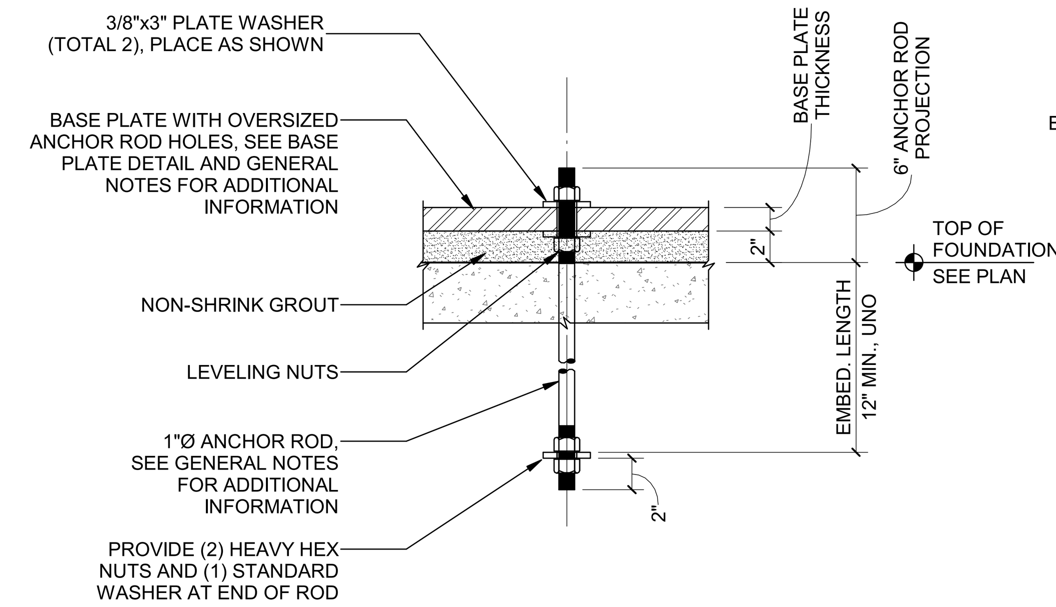
S3.00

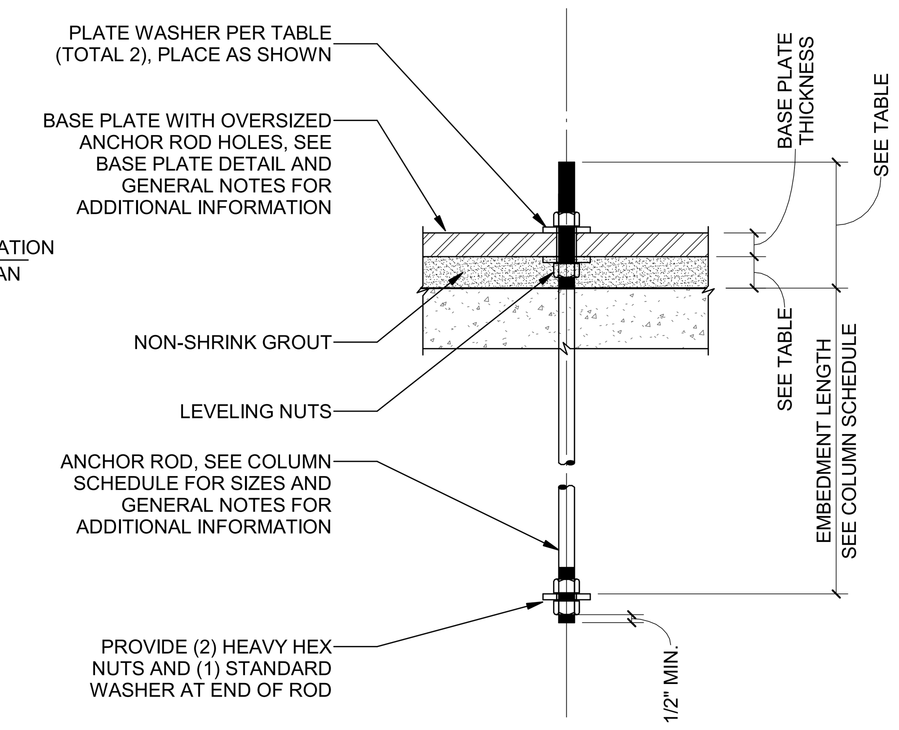


NOTES:
1. TRANSVERSE FOOTING STEEL NOT SHOWN FOR CLARITY.
2. BENT CORNER REINFORCEMENT SHALL MATCH SIZE AND SPACING OF CONTINUOUS LONGITUDINAL REINFORCEMENT.
3. SEE PLAN AND SECTIONS FOR SIZE AND NUMBER OF REINFORCEMENT BARS.
4. TOP BARS, IF REQUIRED, SHALL FOLLOW THE SAME LAP PATTERN.
5. SEE PLAN FOR FOOTING SIZE.

1 S3.10 TYPICAL FOOTING INTERSECTION PLAN DETAIL
SCALE: 1/8" = 1'-0"



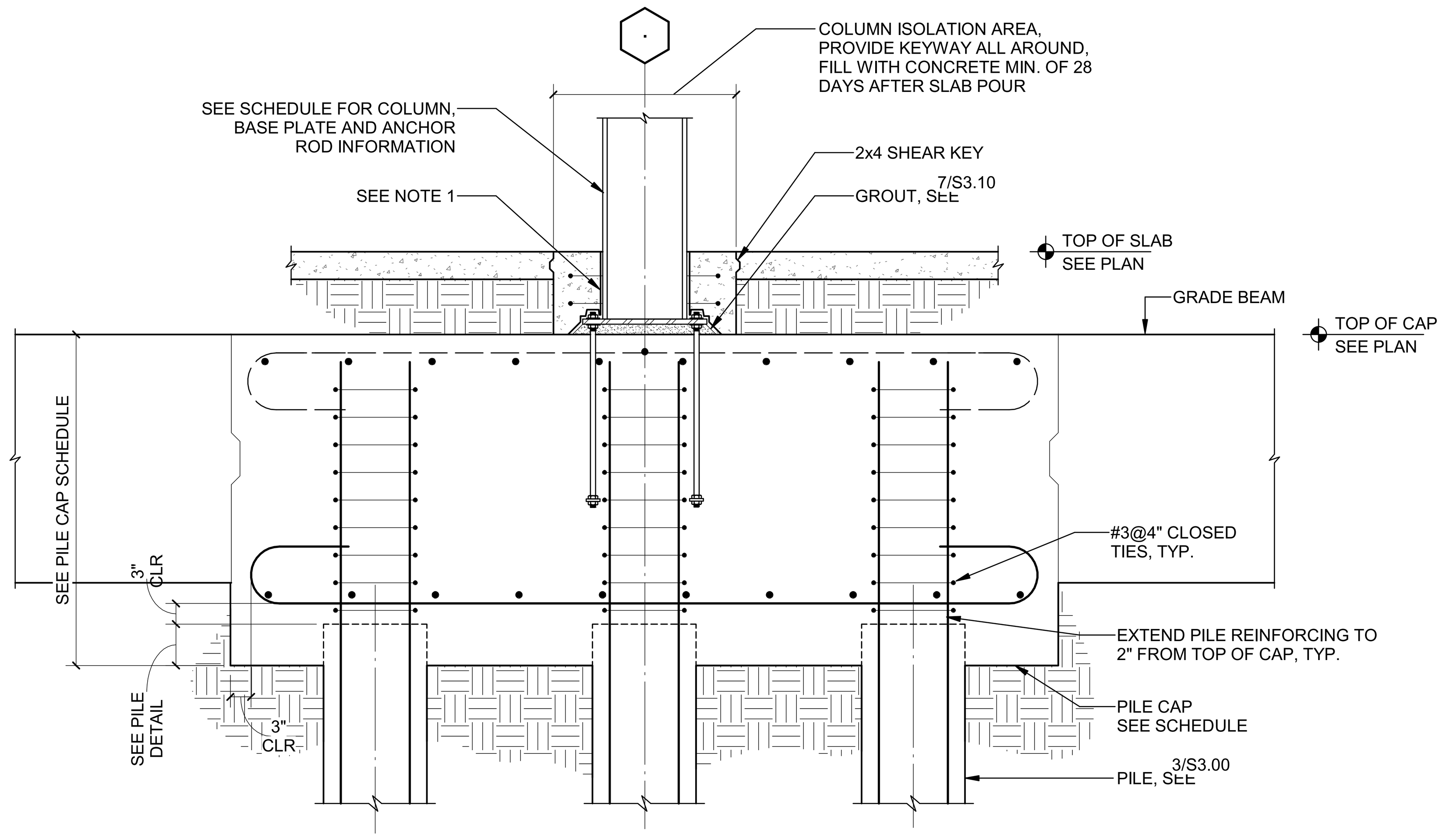
NOTES:
1. CIRCULAR OR SQUARE WASHERS ARE ACCEPTABLE.



ANCHOR BOLT AND PLATE WASHER TABLE			
ANCHOR ROD	ANCHOR ROD PROJECTION	PLATE WASHER	GROUT THICKNESS
3/4" Ø	8"	1/4"x2"	2"
1" Ø	8"	3/8"x3"	2"
1 1/4" Ø	10"	1/2"x3"	3"
1 1/2" Ø	10"	1/2"x3 1/2"	3"
1 3/4" Ø	10"	5/8"x4"	3"
2" Ø	12"	3/4"x5"	4"
2 1/2" Ø	12"	7/8"x5 1/2"	4"

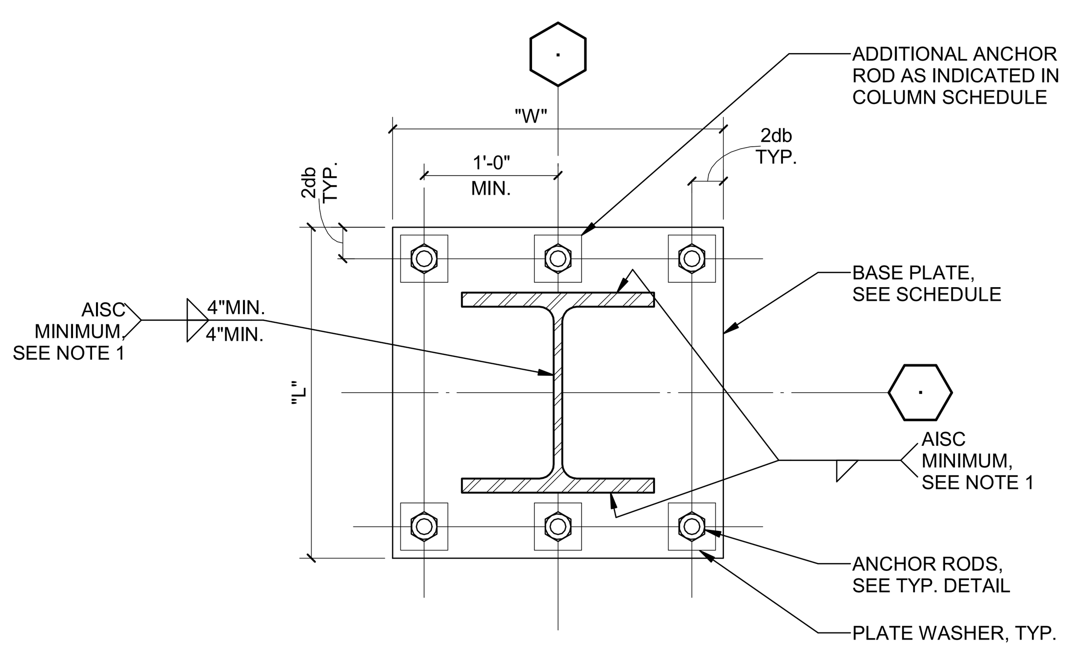
NOTES:
1. CIRCULAR OR SQUARE WASHERS ARE ACCEPTABLE.

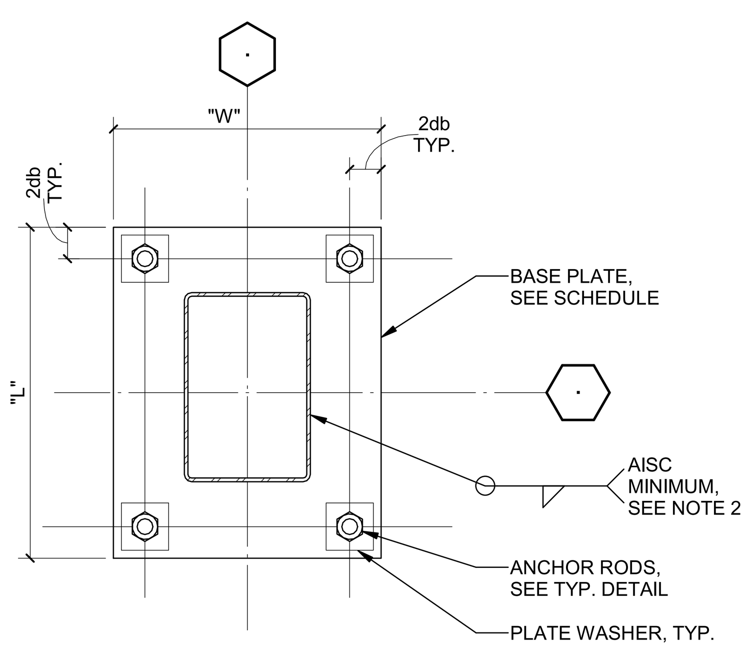
2 S3.10 ANCHOR ROD DETAIL
SCALE: 1 1/2" = 1'-0"



NOTES:
1. AT EXTERIOR COLUMNS, COAT BELOW GRADE PORTION OF COLUMN AND BASE PLATE WITH BITUMINOUS MASTIC AND PROVIDE 1/2" PREFORMED JOINT FILLER AROUND COLUMNS. AT INTERIOR COLUMNS, PROVIDE 30# ROOFING FELT.

3 S3.10 TYPICAL COLUMN AND PILE CAP DETAIL
SCALE: 3/4" = 1'-0"

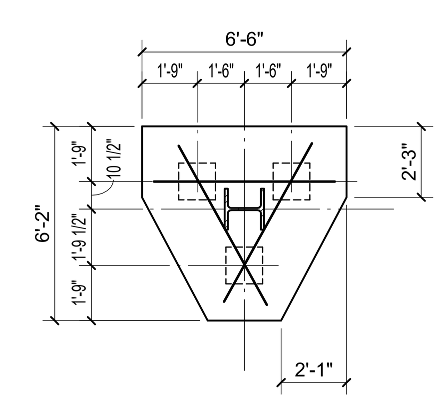


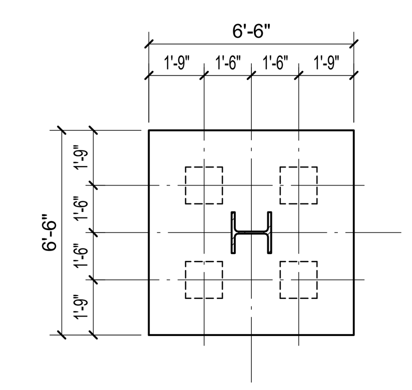


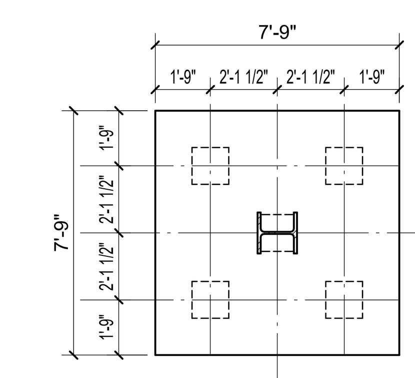
NOTES:
1. AT MOMENT FRAME COLUMNS, PROVIDE XX" FILLET WELD ALL AROUND. SEE FLOOR AND ROOF FRAMING PLANS FOR MOMENT FRAMES.
2. PROVIDE WELD IN WORKABLE FLAT PORTION OF TUBE, TYPICAL.

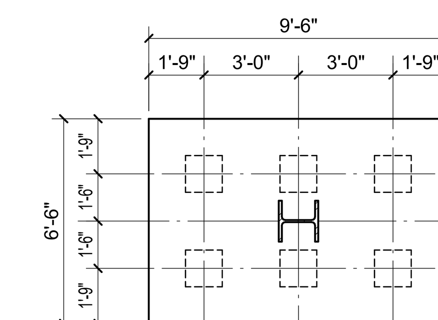
4 S3.10 TYPICAL BASE PLATE DETAIL
SCALE: 1 1/2" = 1'-0"

PILE CAP SCHEDULE FOR 14" SQ. PRECAST PILES 80 TON COMPRESSION AND 60 TON TENSION PILES

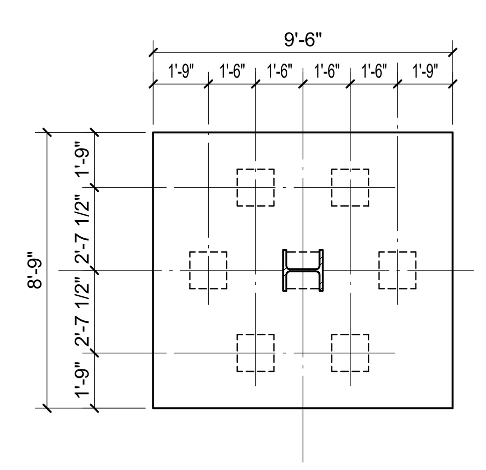


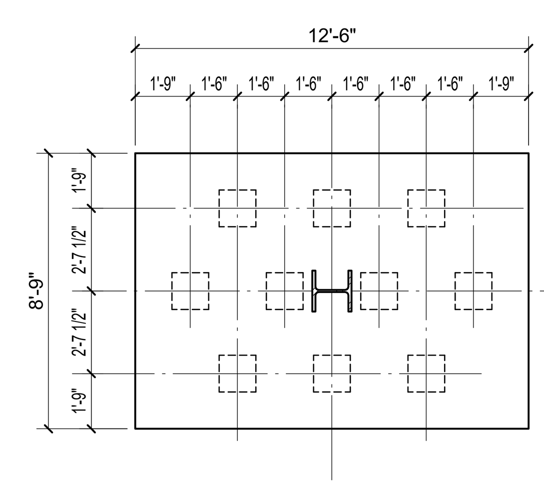


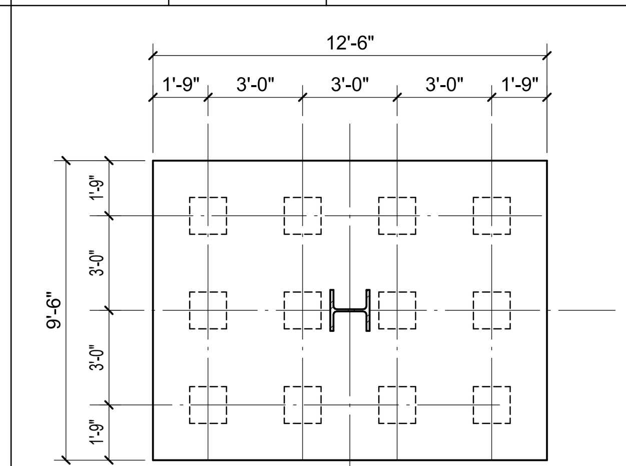


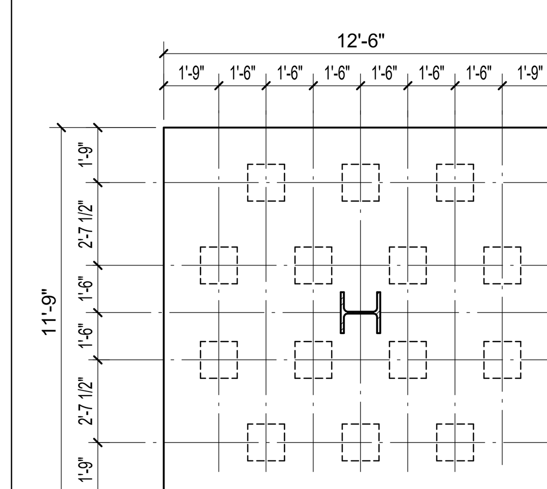


P3	THICKNESS	35"	P4	THICKNESS	35"	P5	THICKNESS	35"	P6	THICKNESS	43"
	BARS, EACH WAY (x3)	3#9 HK		BARS, EACH WAY	7#9 HK T&B		BARS, EACH WAY	7#10 HK T&B AT E1		LONG BARS SHORT BARS	9#9 HK T&B AT A1 9#9 HK T&B AT A1

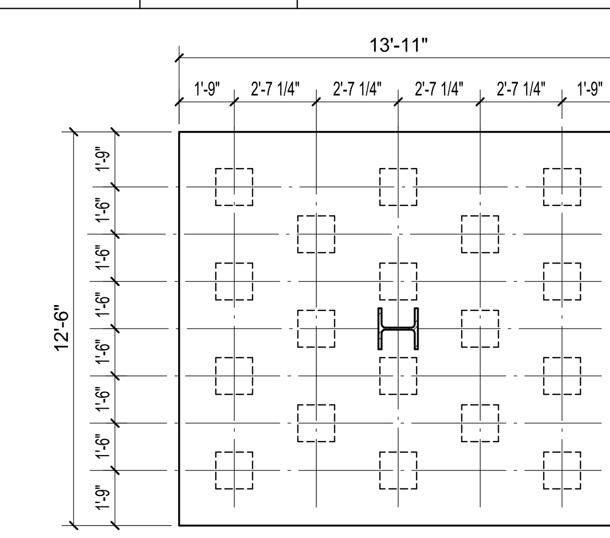








P7	THICKNESS	45"	P10	THICKNESS	46"	P12	THICKNESS	51"	P14	THICKNESS	49"
	LONG BARS SHORT BARS	8#10 HK T&B AT A7 10#9 HK T&B AT A7		LONG BARS SHORT BARS	10#11 HK 11#10 HK		LONG BARS SHORT BARS	16#10 HK 15#10 HK		LONG BARS SHORT BARS	14#11 HK T&B 15#11 HK T&B



P18	THICKNESS	57"
	LONG BARS SHORT BARS	19#11 HK T&B 17#11 HK T&B

NOTES:.
1. "HK" = HOOK EACH SIDE OF ALL BARS 180 DEGREES.
2. SEE GENERAL NOTES FOR REQUIRED PILE AND PILE CAP CONCRETE STRENGTHS.
3. ALL REINFORCEMENT SHOWN IS BOTTOM REINFORCEMENT, UNLESS NOTED OTHERWISE. SEE DETAIL 3/S3.01 FOR ADDITIONAL INFORMATION.
4. SEE 3/S3.00 FOR PILE DETAIL.
5. LAYOUT PILES PER DIMENSIONS SHOWN ON THIS DETAIL AND NOT AS SHOWN ON PLAN.

5 S3.10 PRECAST PILE CAP SCHEDULE

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Level	A-1	A-2	A-3	A-4	A-5	A-6	A-7	B-7.3
ROOF 263'-6"								
LEVEL 12 250'-0"	W24X68	W24X76	W24X76	W24X76	W24X76	W24X76	W24X76	W14x43
LEVEL 11 236'-6"								
LEVEL 10 223'-0"	W24X94	W24X104	W24X104	W24X104	W24X104	W24X104	W24X104	W14x43
LEVEL 09 209'-6"								
LEVEL 08 196'-0"	W24X117	W27X146	W27X146	W27X146	W27X146	W27X146	W27X146	W14x43
LEVEL 07 182'-6"								
LEVEL 06 169'-0"	W24X131	W27X178	W27X178	W27X178	W27X178	W27X178	W27X178	W14x43
LEVEL 05 155'-6"								
LEVEL 04 142'-0"	W27X161	W30X191	W30X191	W30X191	W30X191	W30X191	W30X191	W14x48
LEVEL 03 128'-6"								
LEVEL 02 115'-0"	W30X191	W33X221	W33X221	W33X221	W33X221	W33X221	W33X241	W14x90
LEVEL 01 100'-0"								
Anchor Rods	(6)1-3/4" DIA.x21"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2" DIA.x24"	(4) 1" DIA.
Base Plate	2-1/4"x32"x3'-10"	3"x34"x4'-4"	3"x34"x4'-4"	3"x34"x4'-4"	3"x34"x4'-4"	3"x34"x4'-4"	2-3/4"x34"x4'-4"	3/4"x22"x1'-10"
Remarks								
Column Locations	A-1	A-2	A-3	A-4	A-5	A-6	A-7	B-7.3

Level	C-1	C-2	C-3	C-4	C-5	C-6	C-7.3	D-1
ROOF 263'-6"								
LEVEL 12 250'-0"	W14x53	W14x61	W14x68	W14x53	W14x53	W14x61	W14x61	W14x53
LEVEL 11 236'-6"								
LEVEL 10 223'-0"	W14x74	W14x99	W14x109	W14x90	W14x90	W14x109	W14x82	W14x74
LEVEL 09 209'-6"								
LEVEL 08 196'-0"	W14x90	W14x145	W14x159	W14x132	W14x145	W14x159	W14x109	W14x90
LEVEL 07 182'-6"								
LEVEL 06 169'-0"	W14x120	W14x193	W14x233	W14x193	W14x211	W14x233	W14x132	W14x120
LEVEL 05 155'-6"								
LEVEL 04 142'-0"	W14x145	W14x257	W14x283	W14x257	W14x283	W14x342	W14x159	W14x145
LEVEL 03 128'-6"								
LEVEL 02 115'-0"	W14x176	W14x342	W14x342	W14x342	W14x370	W14x500	W14x211	W14x176
LEVEL 01 100'-0"								
Anchor Rods	(4) 1" DIA.	(6)2" DIA.x24"	(4) 1" DIA.	(6)2" DIA.x24"	(6)2-1/4" DIA.x28"	(6)2-3/4" DIA.x33"	(4) 1" DIA.	(4) 1" DIA.
Base Plate	2"x22"x1'-10"	3-1/4"x30"x4'-2"	3"x28"x2'-4"	3-1/4"x30"x4'-2"	3-1/2"x30"x4'-2"	4-1/4"x30"x4'-2"	2"x22"x1'-10"	2"x22"x1'-10"
Remarks								
Column Locations	C-1	C-2	C-3	C-4	C-5	C-6	C-7.3	D-1

Level	D-2	D-3	D-4	D-5	D-6	D-7.3	D-8
ROOF 263'-6"							
LEVEL 12 250'-0"	W14x61	W14x68	W14x53	W14x53	W14x61	W14x61	W14x43
LEVEL 11 236'-6"							
LEVEL 10 223'-0"	W14x99	W14x109	W14x90	W14x90	W14x109	W14x90	W14x43
LEVEL 09 209'-6"							
LEVEL 08 196'-0"	W14x145	W14x159	W14x132	W14x145	W14x159	W14x132	W14x61
LEVEL 07 182'-6"							
LEVEL 06 169'-0"	W14x193	W14x233	W14x193	W14x211	W14x233	W14x176	W14x68
LEVEL 05 155'-6"							
LEVEL 04 142'-0"	W14x257	W14x283	W14x257	W14x283	W14x342	W14x211	W14x82
LEVEL 03 128'-6"							
LEVEL 02 115'-0"	W14x342	W14x342	W14x342	W14x370	W14x500	W14x283	W14x90
LEVEL 01 100'-0"							
Anchor Rods	(6)2" DIA.x24"	(6) 1" DIA.	(6)2" DIA.x24"	(6)2-1/4" DIA.x28"	(6)2-3/4" DIA.x33"	(4) 1" DIA.	(4) 1" DIA.
Base Plate	3-1/4"x30"x4'-2"	3"x28"x2'-4"	3-1/4"x30"x4'-2"	3-1/2"x30"x4'-2"	4-1/4"x30"x4'-2"	2-1/2"x22"x1'-10"	1-1/4"x22"x1'-10"
Remarks							
Column Locations	D-2	D-3	D-4	D-5	D-6	D-7.3	D-8

Level	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8
ROOF 263'-6"								
LEVEL 12 250'-0"	W24X68	W24X76	W24X76	W24X76	W24X76	W24X76	W24X76	W14x43
LEVEL 11 236'-6"								
LEVEL 10 223'-0"	W24X94	W24X104	W24X104	W24X104	W24X104	W24X104	W24X104	W14x61
LEVEL 09 209'-6"								
LEVEL 08 196'-0"	W24X117	W27X146	W27X146	W27X146	W27X146	W27X146	W27X146	W14x68
LEVEL 07 182'-6"								
LEVEL 06 169'-0"	W24X146	W27X178	W27X178	W27X178	W27X178	W27X178	W27X178	W14x90
LEVEL 05 155'-6"								
LEVEL 04 142'-0"	W27X161	W30X191	W30X191	W30X191	W30X191	W30X191	W30X191	W14x99
LEVEL 03 128'-6"								
LEVEL 02 115'-0"	W30X191	W33X221	W33X221	W33X221	W33X221	W33X221	W33X241	W14x120
LEVEL 01 100'-0"								
Anchor Rods	(6)1-3/4" DIA.x21"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2-1/4" DIA.x28"	(6)2" DIA.x24"	(4) 1" DIA.
Base Plate	2-1/4"x32"x3'-10"	3"x34"x4'-4"	3"x34"x4'-4"	3"x34"x4'-4"	3"x34"x4'-4"	3"x34"x4'-4"	2-3/4"x32"x3'-10"	2"x20"x1'-8"
Remarks								
Column Locations	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8

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TITLE
COLUMN SCHEDULE

SHEET NUMBER
S4.00

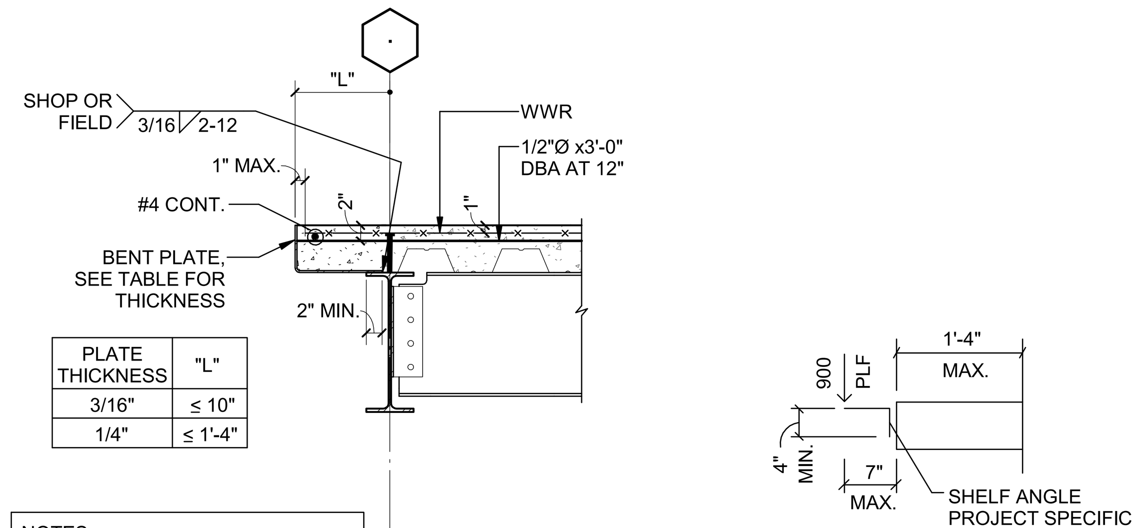


PLATE THICKNESS	"L"
3/16"	≤ 10"
1/4"	≤ 1'-4"

NOTES:
1. DBA NOT REQUIRED AT FRAMED INTERIOR OPENINGS.

1 S5.00 FLOOR EDGE BEAM PARALLEL TO DECK
SCALE: 3/4" = 1'-0"

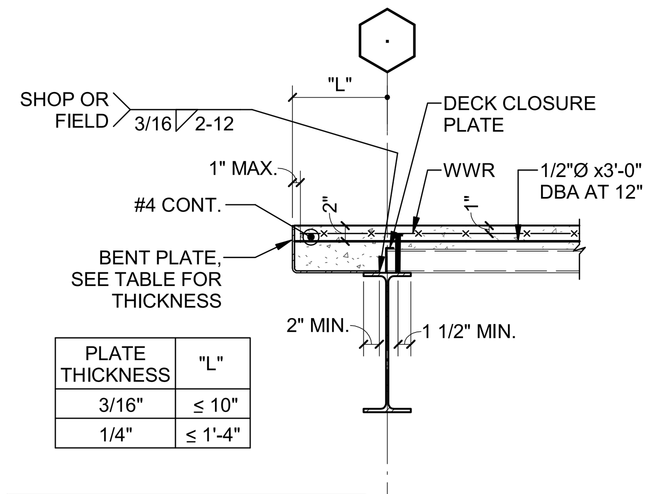
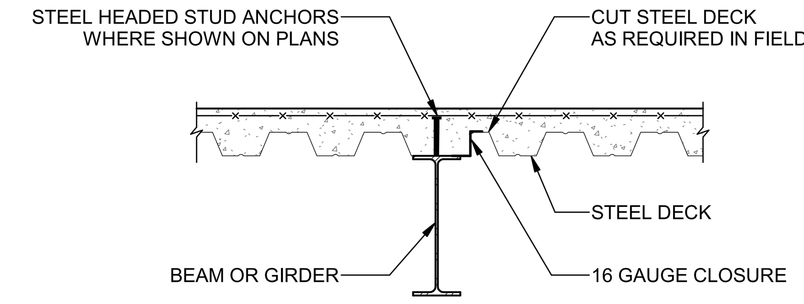


PLATE THICKNESS	"L"
3/16"	≤ 10"
1/4"	≤ 1'-4"

NOTES:
1. DBA NOT REQUIRED AT FRAMED INTERIOR OPENINGS.

2 S5.00 FLOOR EDGE BEAM PERPENDICULAR TO DECK
SCALE: 3/4" = 1'-0"



NOTES:
1. CLOSURE MUST BE WELDED TO THE BEAM AND SCREWED OR WELDED TO THE DECK TO ENSURE THAT THE FLANGE DOES NOT FALL UNDER HIGH CELL RESULTING IN UNBRACED BEAM. SEE GENERAL NOTES FOR ATTACHMENT.
2. DETAIL SIMILAR AT ROOF DECK.

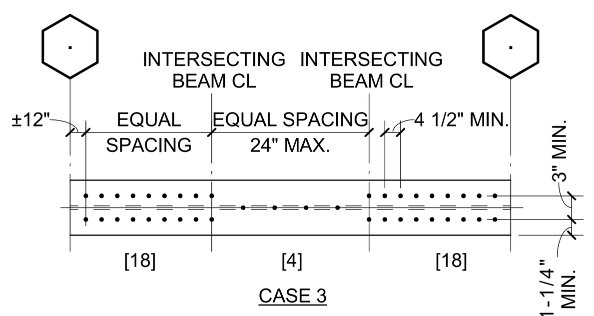
3 S5.00 TYPICAL DECK PARALLEL TO STEEL BEAM
SCALE: 3/4" = 1'-0"

DECK PERPENDICULAR TO BEAM

CASE 1: FEWER STUDS THAN FLUTES
PLACE ONE STUD IN EVERY OTHER FLUTE STARTING AT BEAM ENDS. IF STUDS REMAIN, PLACE IN FLUTES NOT ALREADY HAVING A STUD, STARTING AT BEAM ENDS AND CONTINUING TOWARD BEAM CENTER. MAXIMUM SPACING ALLOWED IS 24" OC.

CASE 2: MORE STUDS THAN FLUTES
PLACE ONE STUD IN EACH FLUTE FOR ENTIRE LENGTH OF BEAM. IF STUDS REMAIN, PLACE A SECOND STUD IN FLUTES, STARTING AT BEAM ENDS AND CONTINUING TOWARD CENTER. SPACING BETWEEN PAIRS OF STUDS SHALL NOT BE LESS THAN 3".

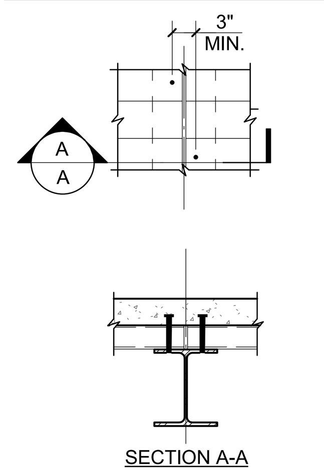
DECK PARALLEL TO BEAM



CASE 3: GIRDER WITH SEGMENTED STUD SPACING
PLACE SPECIFIED NUMBER OF STUDS IN EACH SEGMENT OF GIRDER AT EQUAL SPACES. IF SPACING IS LESS THAN 4 1/2", USE DOUBLE ROW AS REQUIRED.

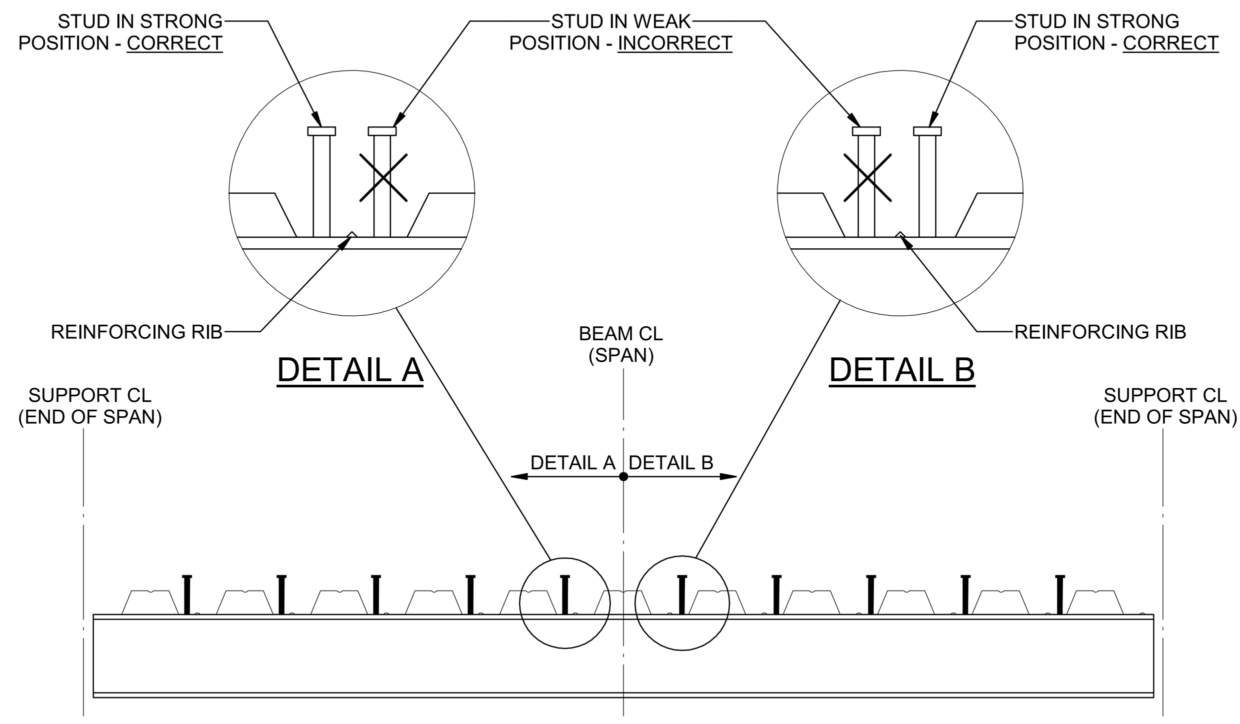
CASE 4: ALL CASES OF DECK PARALLEL WITH UNIFORM STUD SPACING OR FLAT SLABS
PLACE A SINGLE ROW OF STUDS ALONG GIRDER AT EQUAL SPACING. IF SPACING IS LESS THAN 4 1/2", USE DOUBLE ROW AS REQUIRED, STARTING AT BEAM ENDS.

AT BUTT JOINTS:
1. DECK JOINT SHALL BE LOCATED ON BEAM CENTERLINE.
2. STUDS SHALL BE PLACED ON ALTERNATE SIDES OF JOINT.



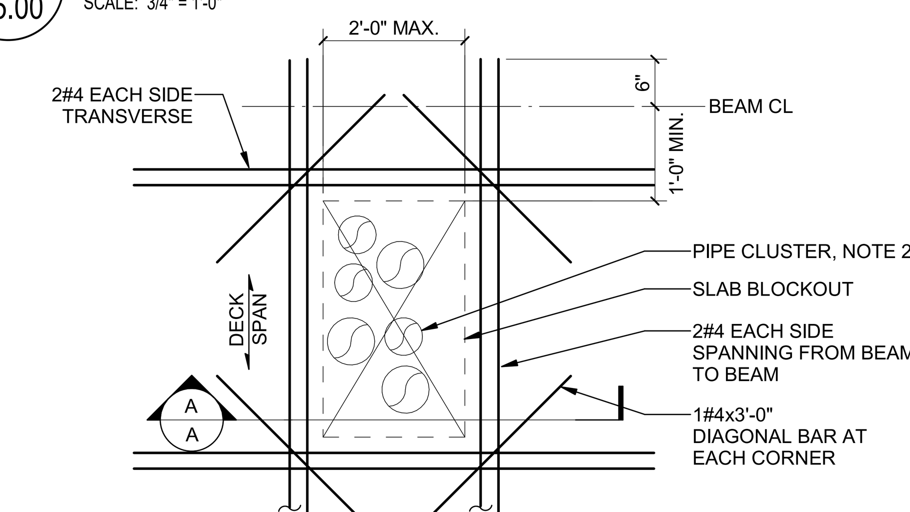
BUTT JOINTS

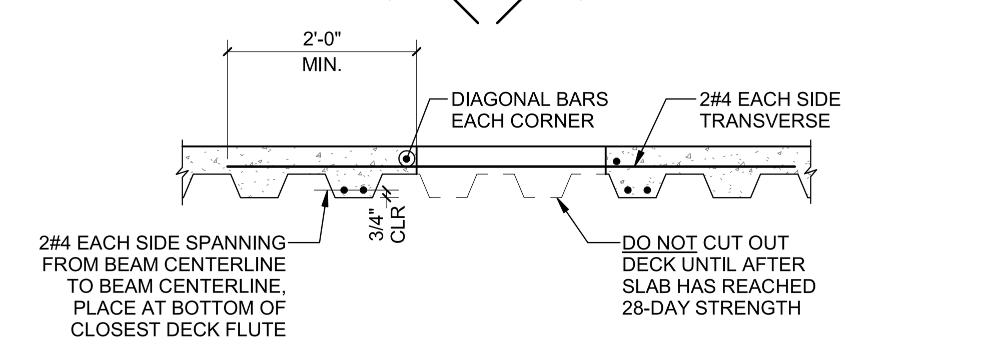
NOTES:
1. ALL STUDS LOCATED IN DECK FLUTES SHALL BE PLACED IN STRONG POSITION. A STUD PLACED ON THE SIDE OF THE REINFORCING RIB NEAREST THE END OF THE SPAN IS IN THE STRONG POSITION.
2. LAY OUT ALL STUDS FOR A BEAM PRIOR TO WELDING.



STUD PLACEMENT DETAIL

4 S5.00 TYPICAL STUD PLACEMENT DETAIL
SCALE: 3/4" = 1'-0"

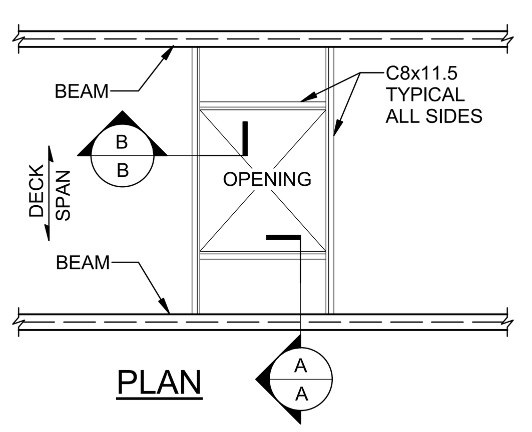




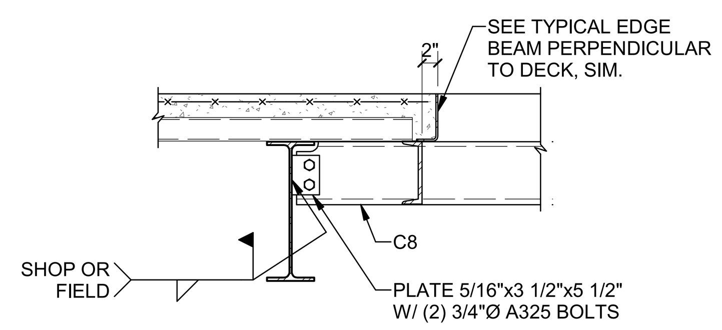
SECTION A-A

NOTES:
1. INDIVIDUAL CORES OR BLOCKOUTS OF 8" OR LESS DO NOT REQUIRE REINFORCING.
2. PIPE CLUSTER: TWO OR MORE PIPES WITH LESS THAN 1'-0" CLEAR BETWEEN PIPES.

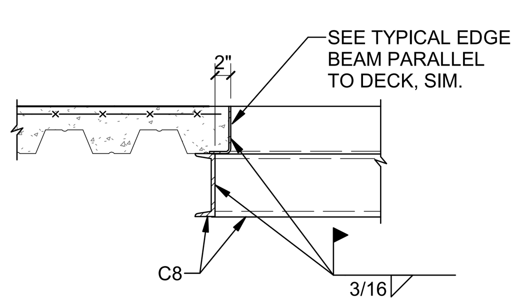
5 S5.00 TYPICAL DECK PENETRATION ≤ 2'-0"
SCALE: 3/4" = 1'-0"



PLAN



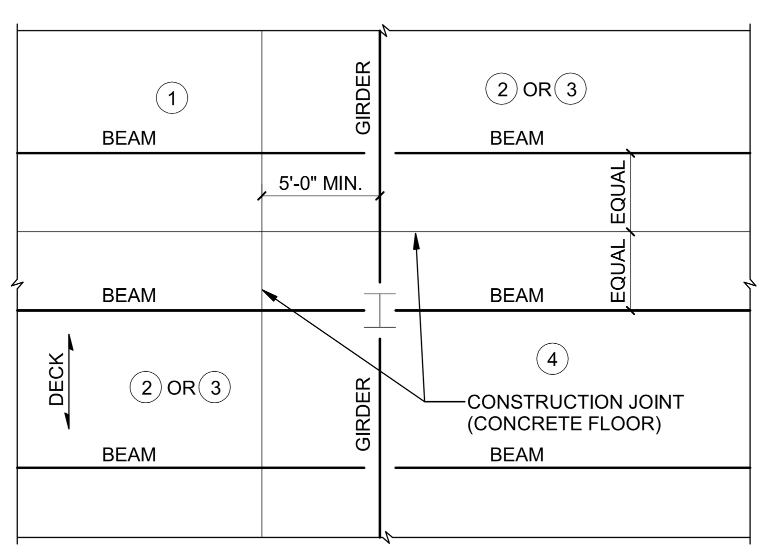
SECTION A-A



SECTION B-B

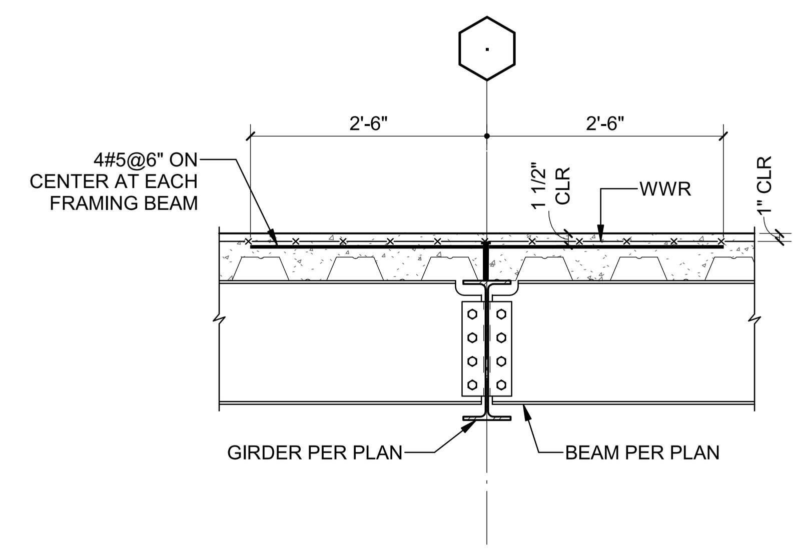
NOTES:
1. MAXIMUM OPENING DIMENSION = 5'-0".
2. SEE STRUCTURAL, ARCHITECTURAL, OR MECHANICAL DRAWINGS FOR LOCATION.

6 S5.00 TYPICAL DETAIL AT COMPOSITE FLOOR OPENING
SCALE: 3/4" = 1'-0"

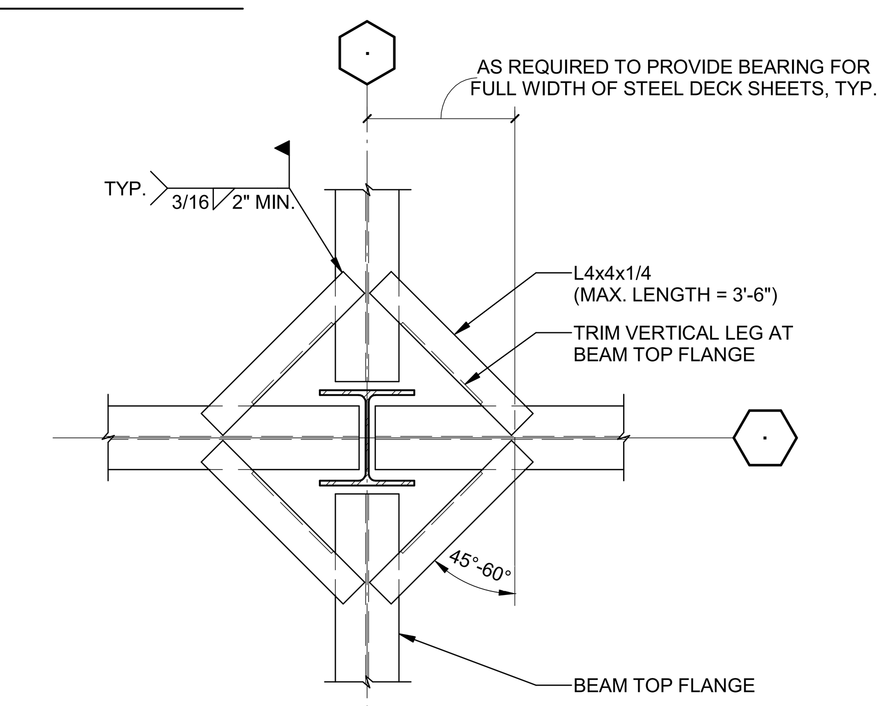


NOTES:
1. # REFERS TO POUR SEQUENCE.
2. CONTINUE SLAB REINFORCING THROUGH CONSTRUCTION JOINTS.

7 S5.00 TYPICAL DETAIL AT COMPOSITE FLOOR CONSTRUCTION JOINT
SCALE: 3/4" = 1'-0"



8 S5.00 TYPICAL DETAIL AT GIRDER
SCALE: 3/4" = 1'-0"



ANGLE REINFORCEMENT ONLY REQUIRED:
1. WHERE PIPE SLEEVES OCCUR NEXT TO COLUMN.
2. WHERE COLUMN BASE PLATE OCCURS ON TOP FLANGE OF STEEL BEAM.
3. AT ALL OTHER CONDITIONS WHERE DECK SUPPORT IS INTERRUPTED FOR A DISTANCE GREATER THAN 6".

9 S5.00 TYPICAL INTERRUPTED DECK SUPPORT AT COLUMN
SCALE: 3/4" = 1'-0"

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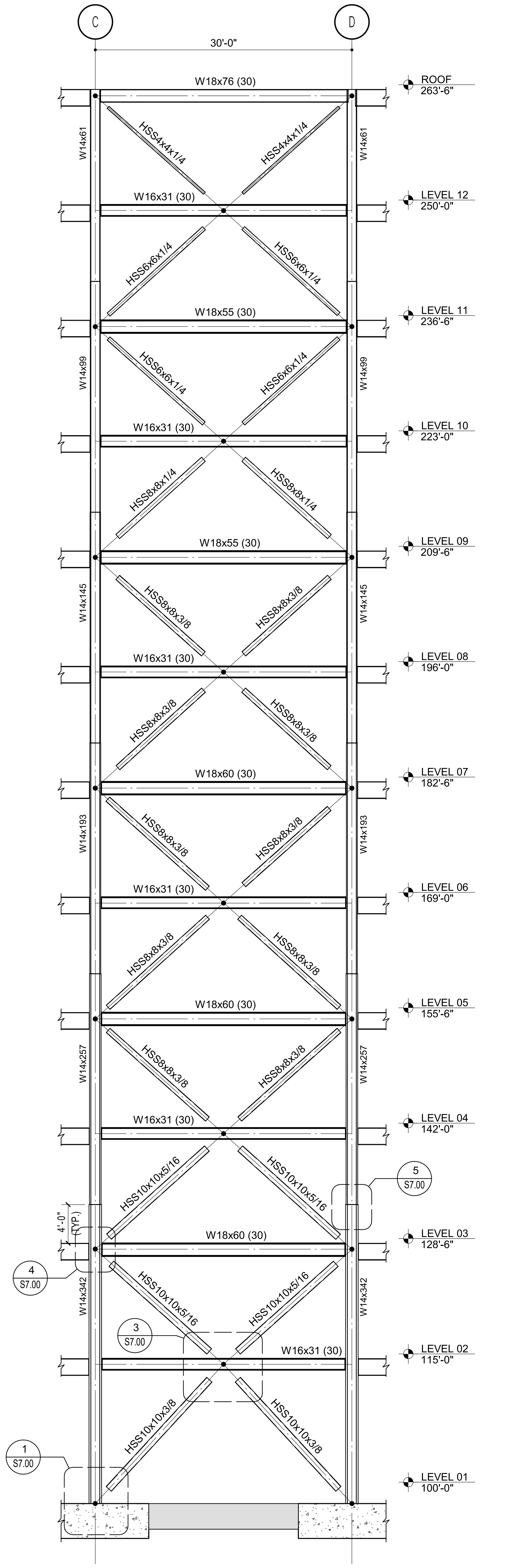
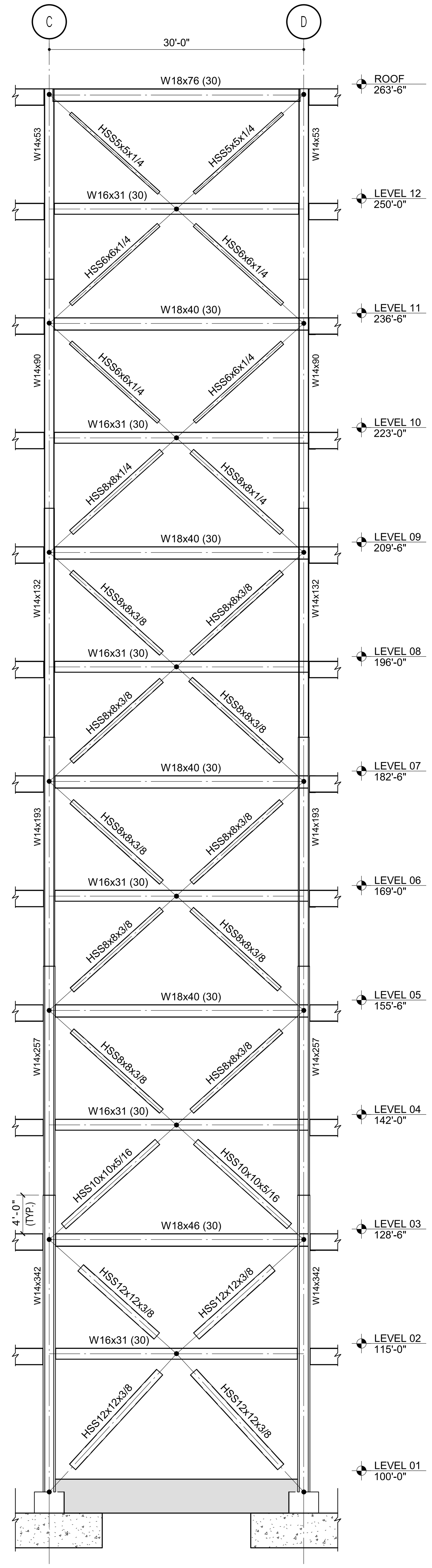
TITLE
STEEL DETAILS

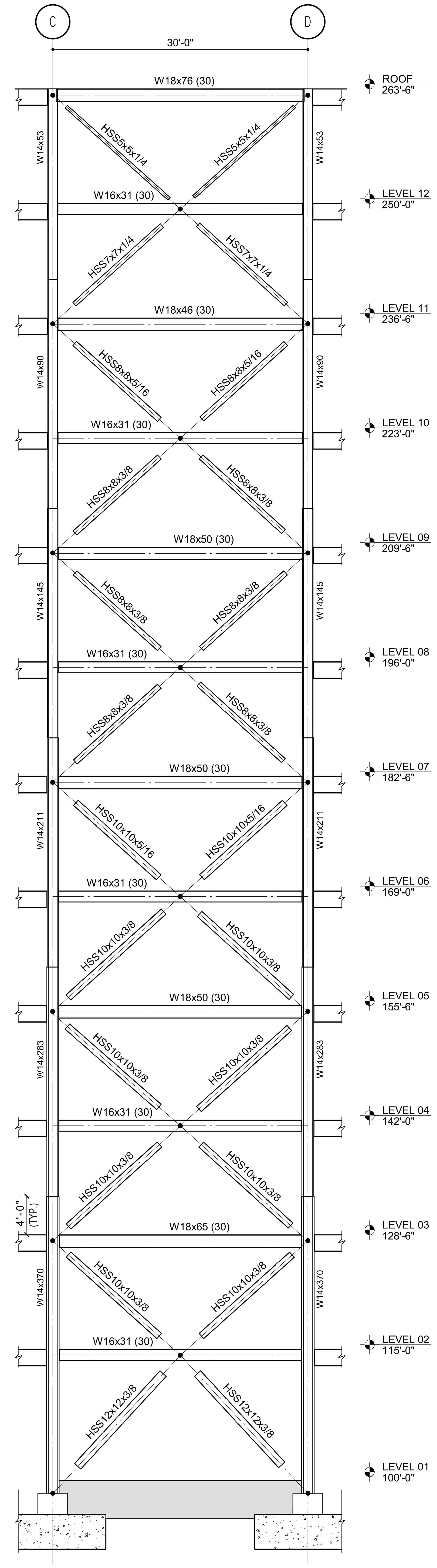
SHEET NUMBER
S5.00



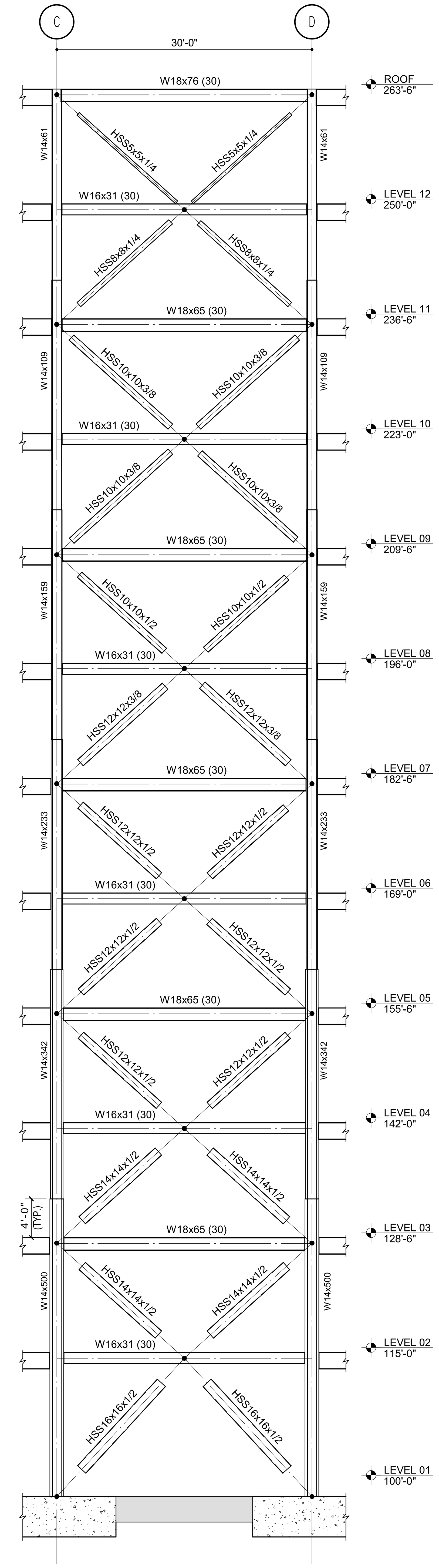
1
S6.00
ELEVATION ALONG GRID 2 BETWEEN GRID C AND D
SCALE: 1/8" = 1'-0"



2
S6.00
ELEVATION ALONG GRID 4 BETWEEN GRID C AND D
SCALE: 1/8" = 1'-0"



3
S6.00
ELEVATION ALONG GRID 5 BETWEEN GRID C AND D
SCALE: 1/8" = 1'-0"



4
S6.00
ELEVATION ALONG GRID 6 BETWEEN GRID C AND D
SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. SEE S7.XX SERIES FOR TYPICAL BRACED FRAME DETAILS.

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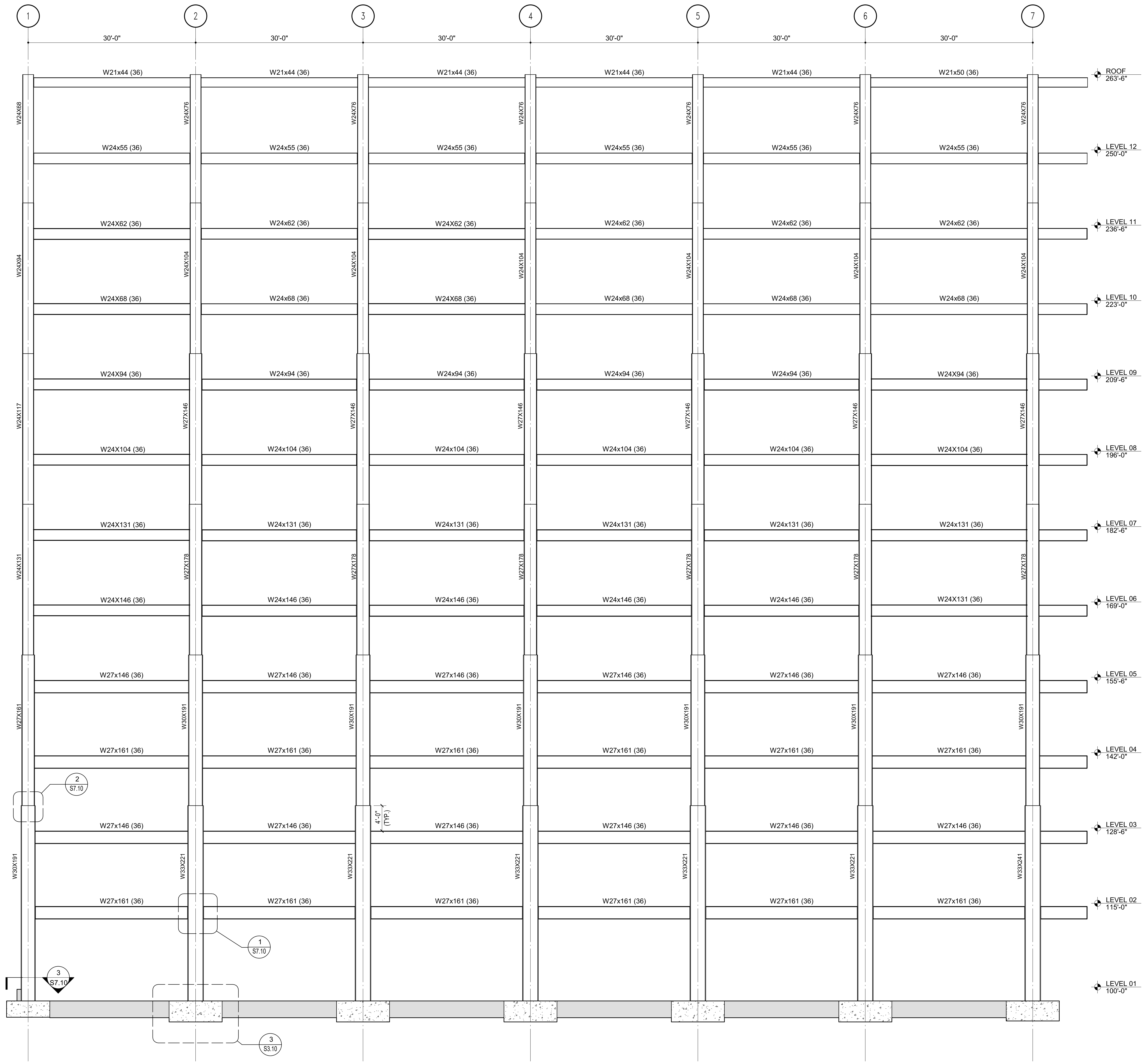
BRACED FRAME ELEVATIONS

SHEET NUMBER

S6.00



1 S6.10 **MOMENT FRAME ELEVATION ALONG GRID A**

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1.SEE S7.XX SERIES FOR TYPICAL MOMENT FRAME DETAILS.

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MOMENT FRAME ELEVATIONS

SHEET NUMBER

S6.10

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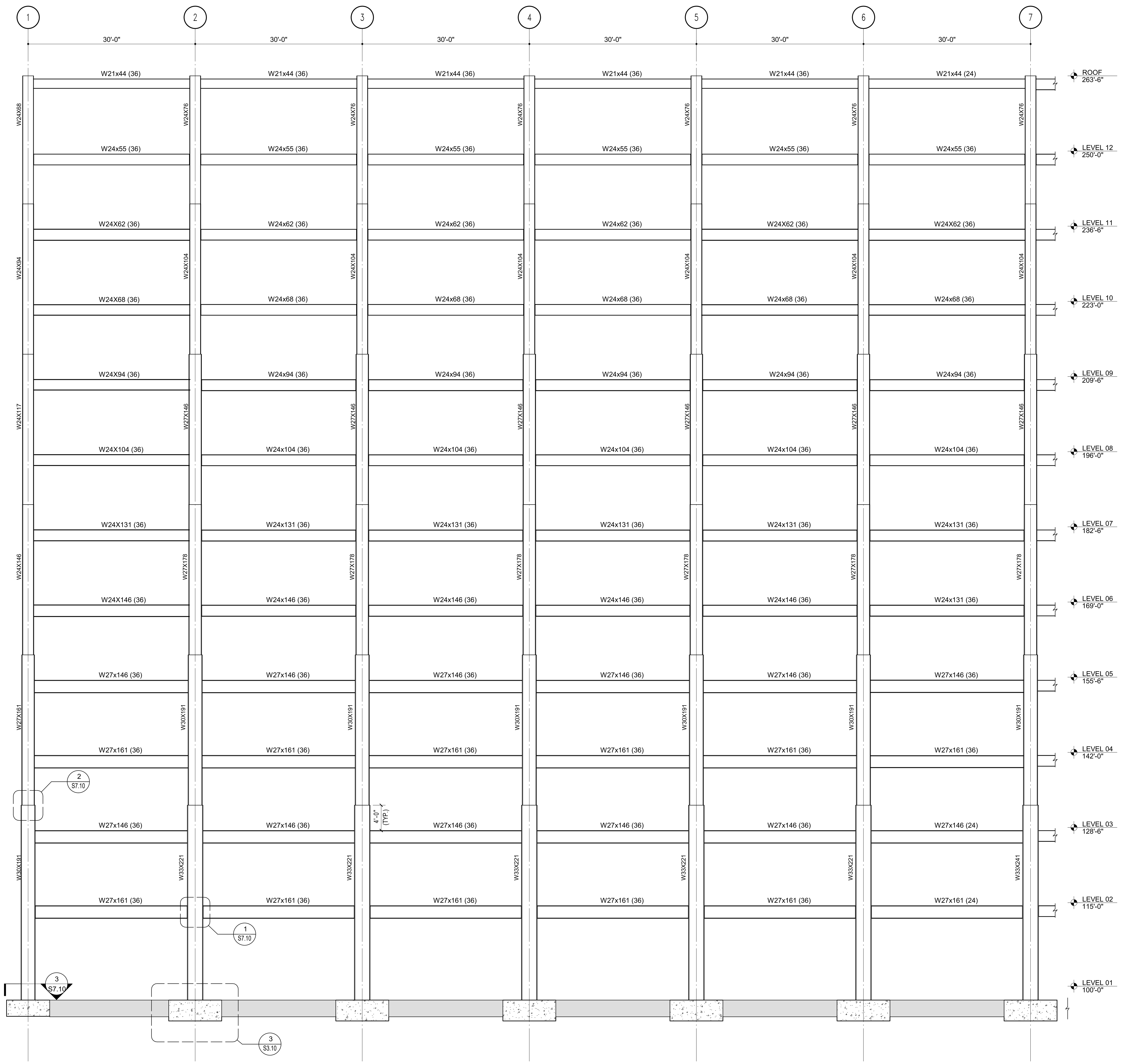

1
S6.20

MOMENT FRAME ELEVATION ALONG GRID E

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1.SEE S7.XX SERIES FOR TYPICAL MOMENT FRAME DETAILS.

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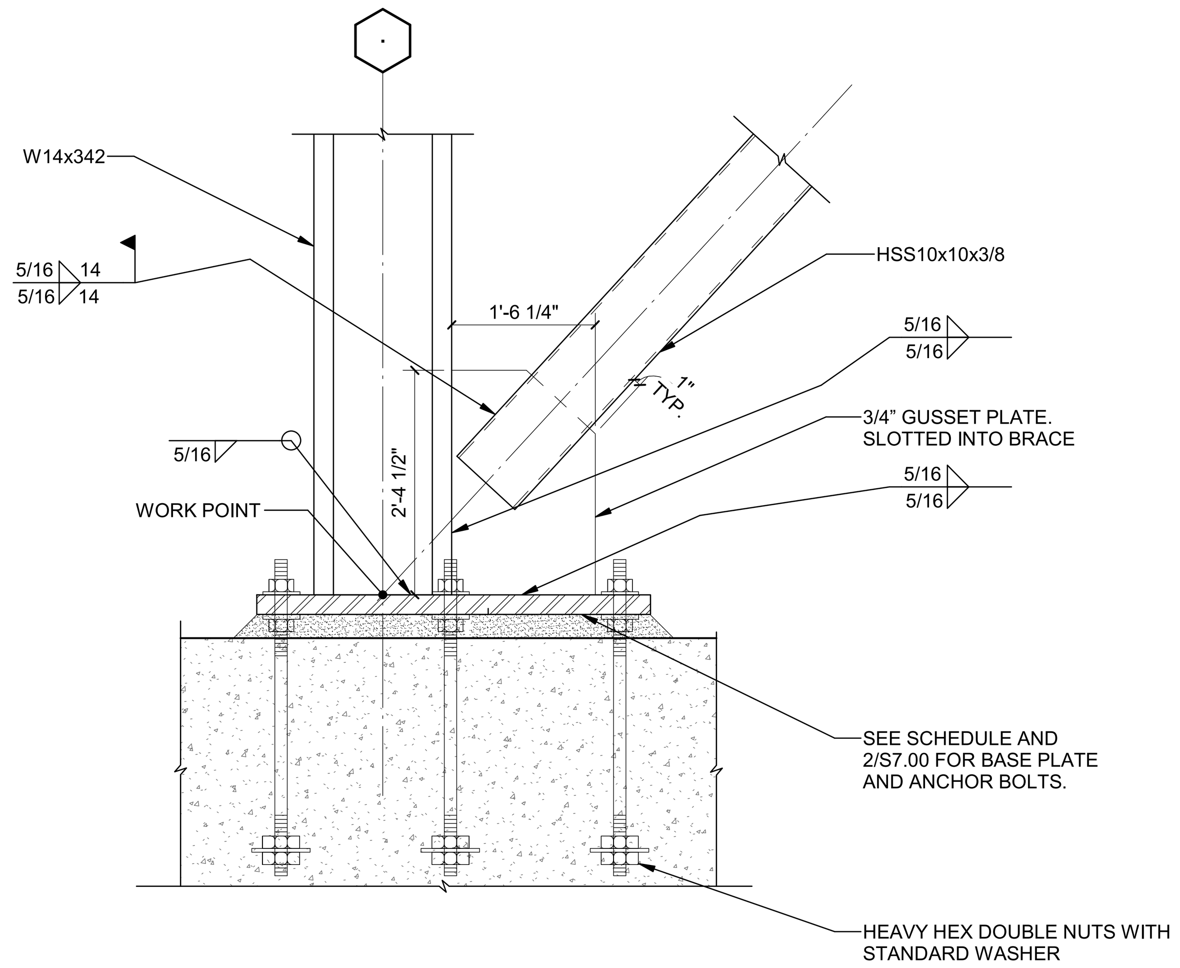
MOMENT FRAME ELEVATIONS

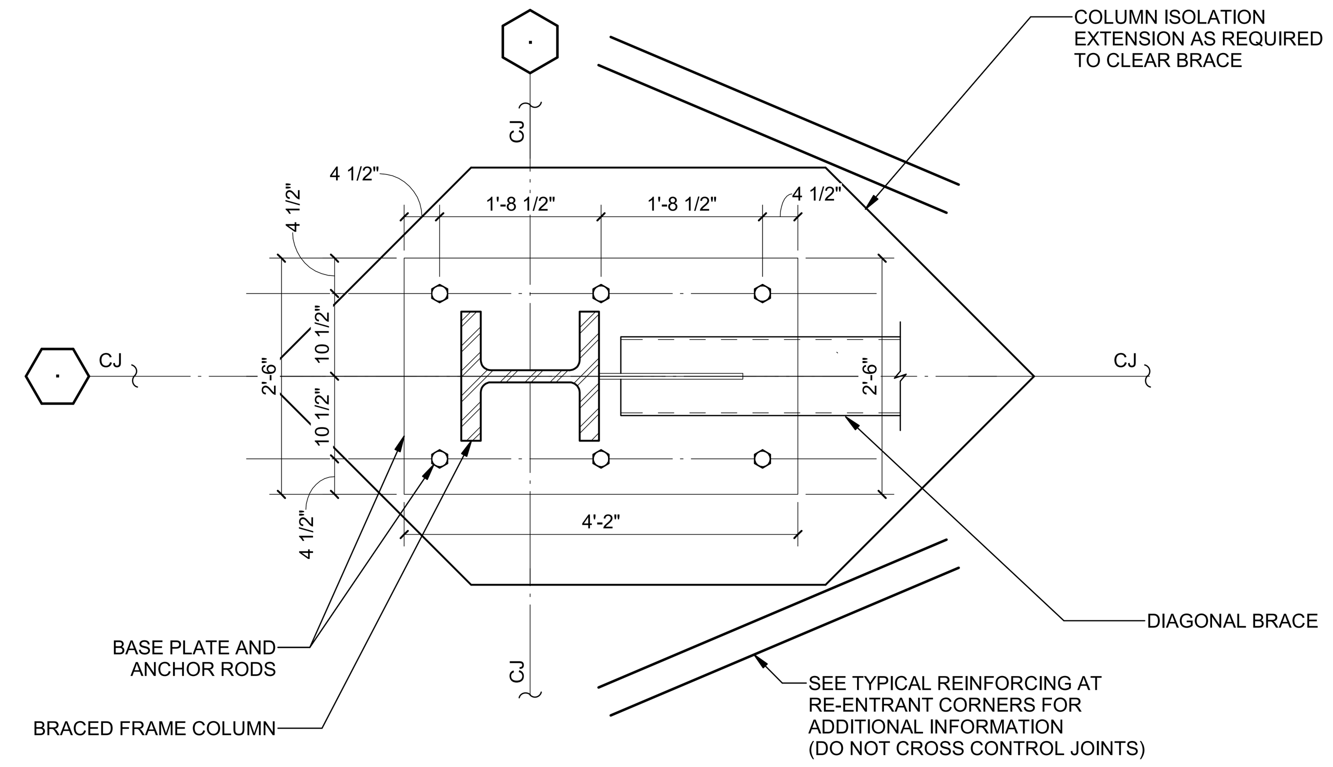
SHEET NUMBER

S6.20



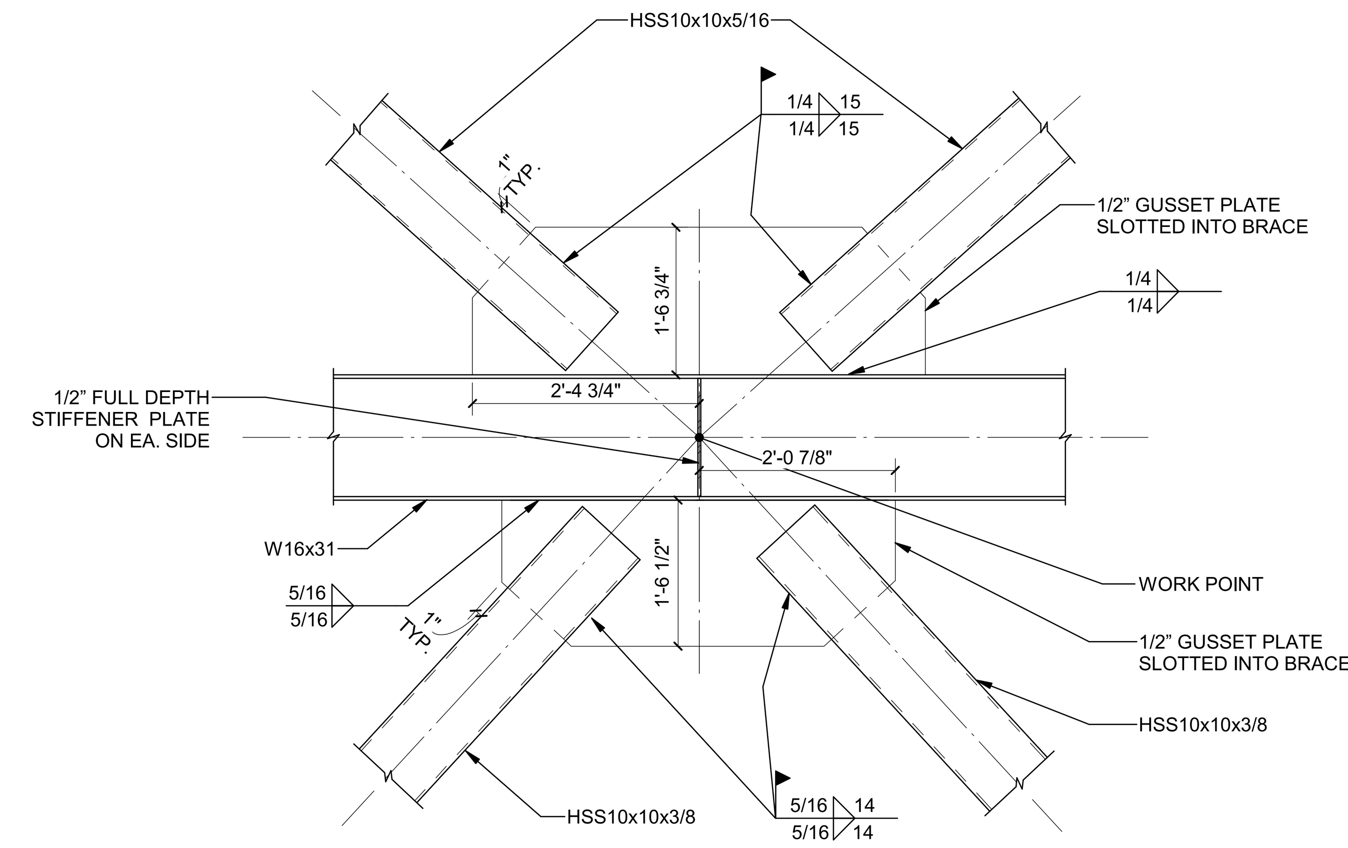
1 S7.00 BRACED FRAME BASE PLATE DETAIL

SCALE: 3/4" = 1'-0"



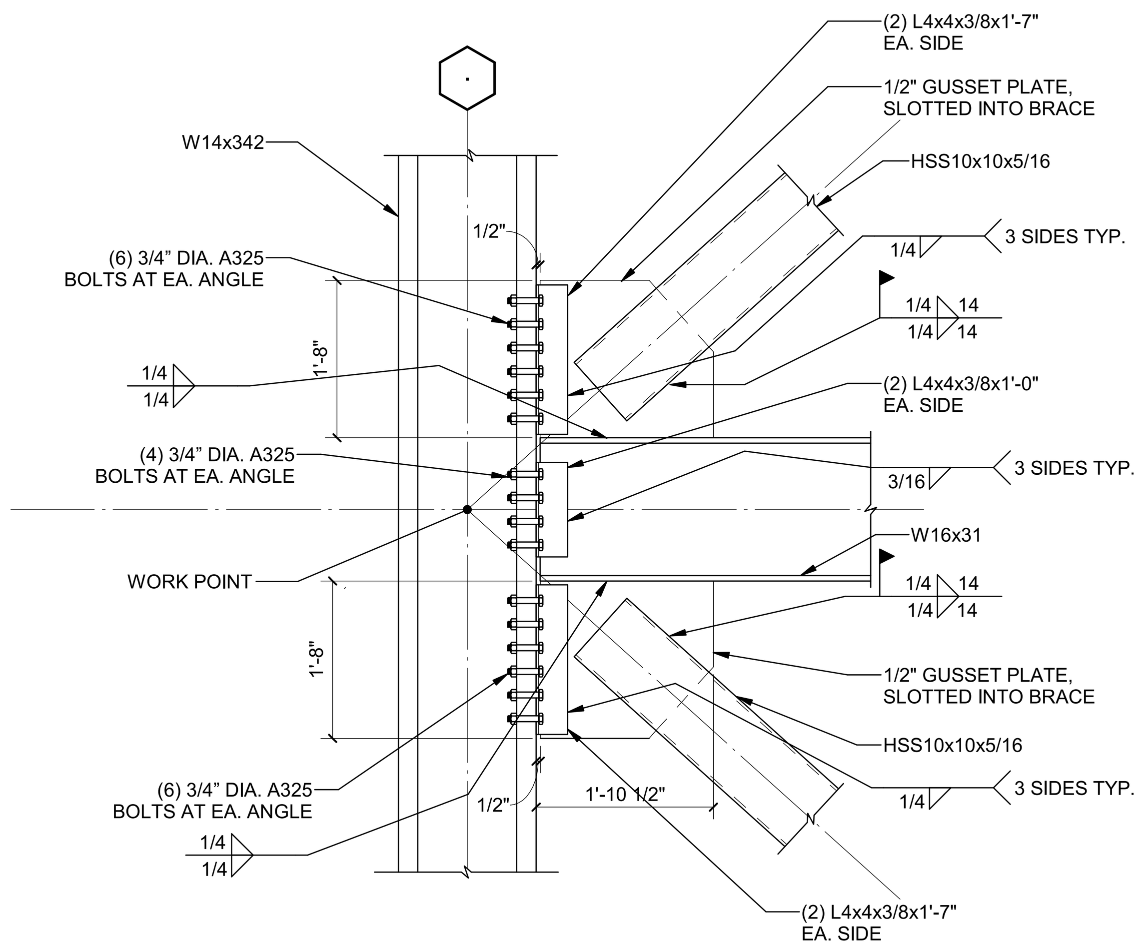
2 S7.00 TYPICAL COLUMN ISOLATION PLAN DETAIL AT BRACED FRAME

SCALE: 3/4" = 1'-0"



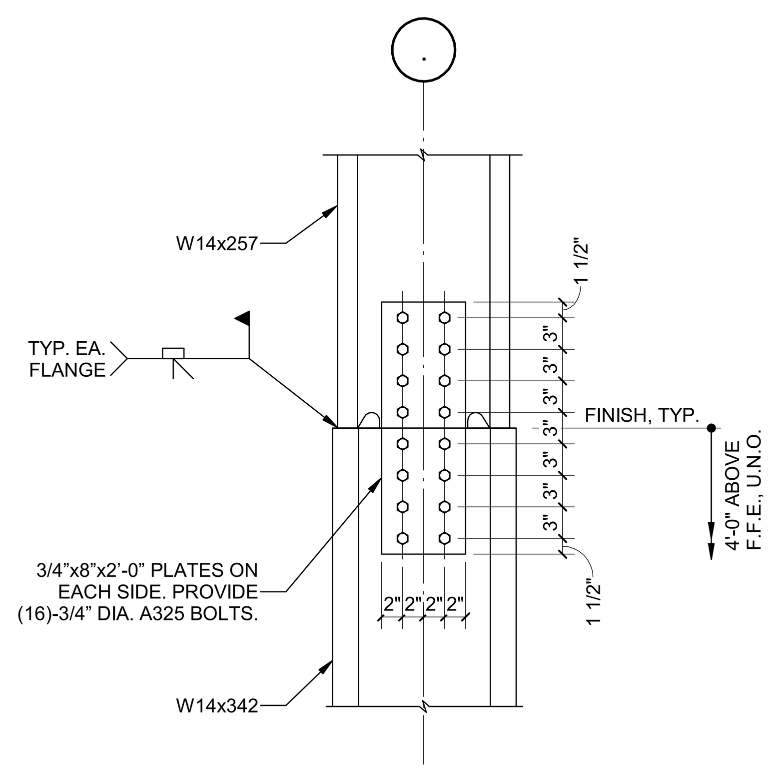
3 S7.00 TYPICAL BRACED FRAME CONNECTION DETAIL

SCALE: 3/4" = 1'-0"



4 S7.00 TYPICAL BRACED FRAME CONNECTION DETAIL

SCALE: 3/4" = 1'-0"



5 S7.00 TYPICAL BRACED FRAME COLUMN SPLICE

SCALE: 1" = 1'-0"

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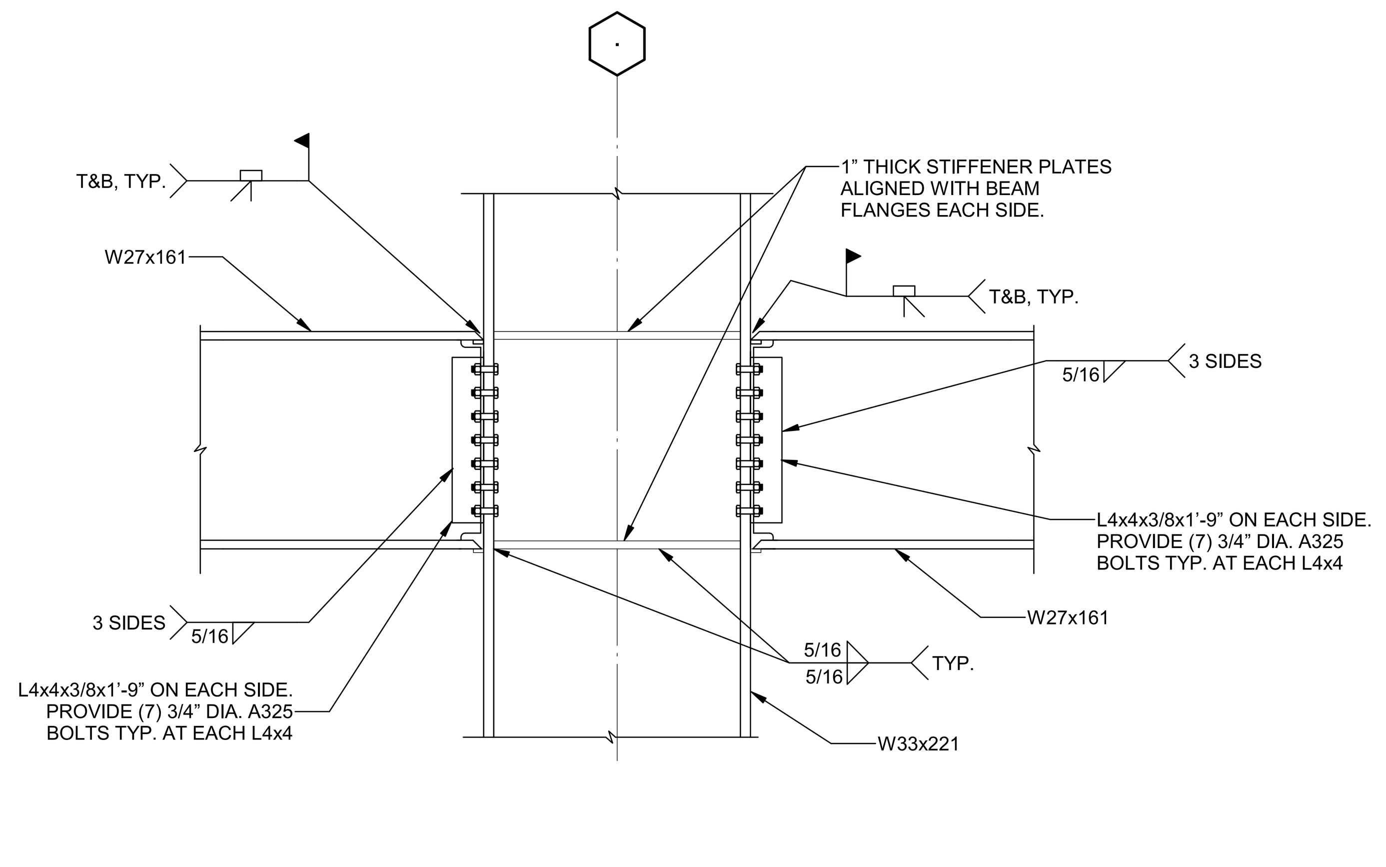
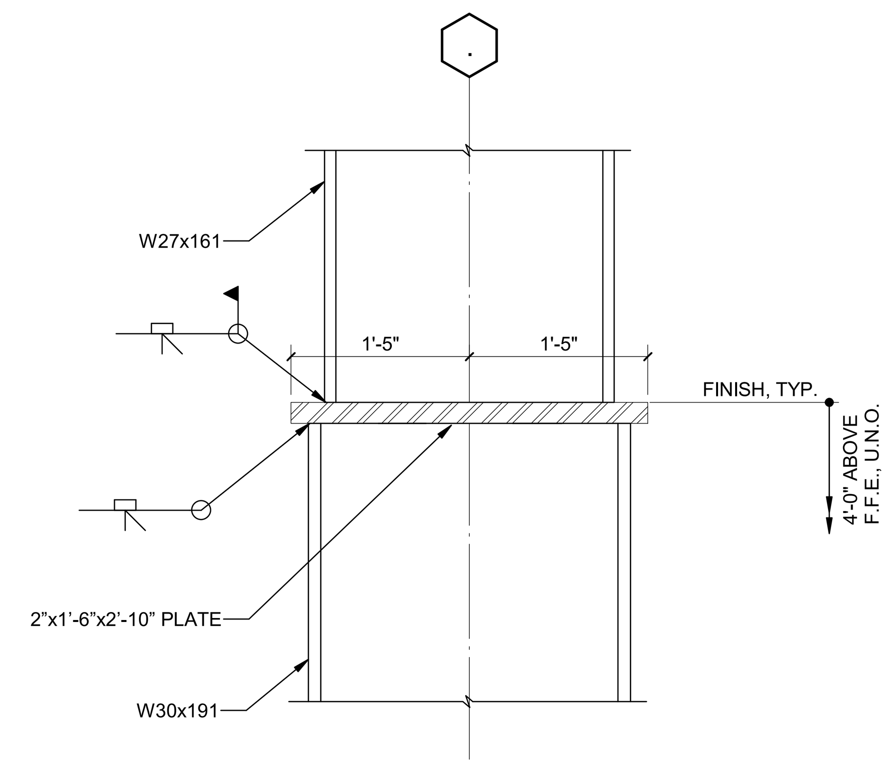
BRACED FRAME DETAILS

SHEET NUMBER

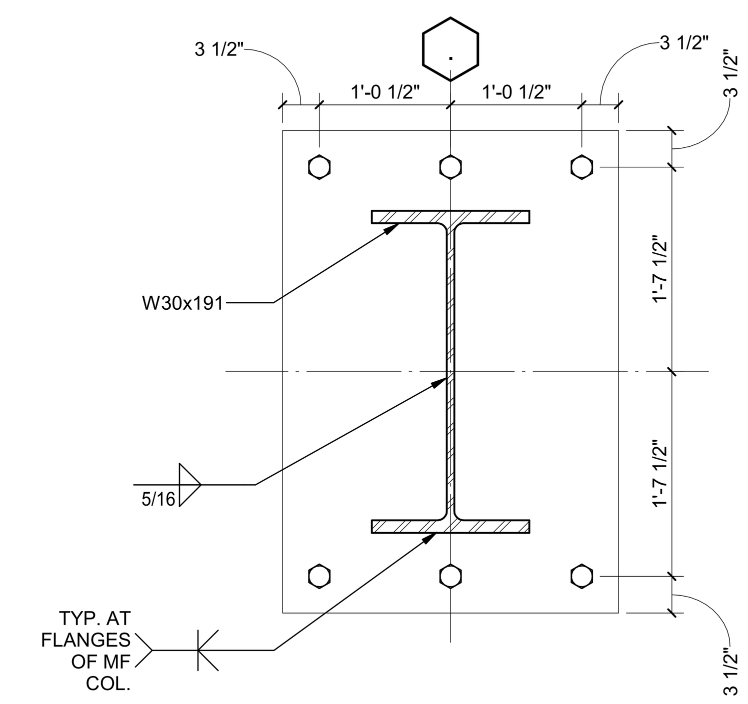
S7.00



1 S7.10 TYPICAL BEAM TO WF COLUMN FLANGE MOMENT CONNECTION
SCALE: 3/4" = 1'-0"



2 S7.10 TYPICAL MOMENT FRAME COL. SPLICE
SCALE: 1" = 1'-0"



3 S7.10 TYP. MOMENT FRAME COL. BASE PLATE
SCALE: 1" = 1'-0"

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TITLE
MOMENT FRAME DETAILS

SHEET NUMBER
S7.10

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Design Case E

2018 IBC
Risk Category II
Seismic Design Category C

E.1 Gravity Design

The 12-story office is a typical steel framed building with 3” metal deck and 3-1/4” lightweight concrete topping providing a total floor depth of 6-1/4”, not including the structural steel. This decking was chosen to provide the required 2-hour fire rating that is typical for office buildings. The columns and beams are ASTM A992 steel wide flange members and were designed using ANSI/AISC 360-16. The deflection was limited to the IBC prescribed limits of $L/360$ for floor live load, $L/240$ for floor total load, $L/240$ for roof live load and $L/180$ for roof total load.

The calculated total dead load applied was 62.5 psf at the floors and 72.5 psf at the roof. The live loads for offices, corridors (at and above the first floor) and roofs were per IBC table 1607.1. Partition loads were also applied per IBC 1607.5.

E.2 Lateral Design

The building vertical lateral resisting system consists of steel concentrically braced frames not specifically detailed for seismic resistance in the North/South direction and steel moment frames not specifically detailed for seismic resistance in the East/West direction. The applied wind and seismic loads were determined using chapters 27 and 12 respectively from the ASCE 7-16. Wind base shears significantly exceeded earthquake base shears in both directions. Thus, for the vertical lateral resisting system in the North/South direction the brace sizes were governed by wind. In the East/West direction the moment frame beams were governed by wind drift requirements. Wind drifts were limited to $H/400$ during a 25-year mean return interval windstorm. Fixed base connections for the moment frames, utilizing concrete grade beams, were used to limit drift and column sizes.

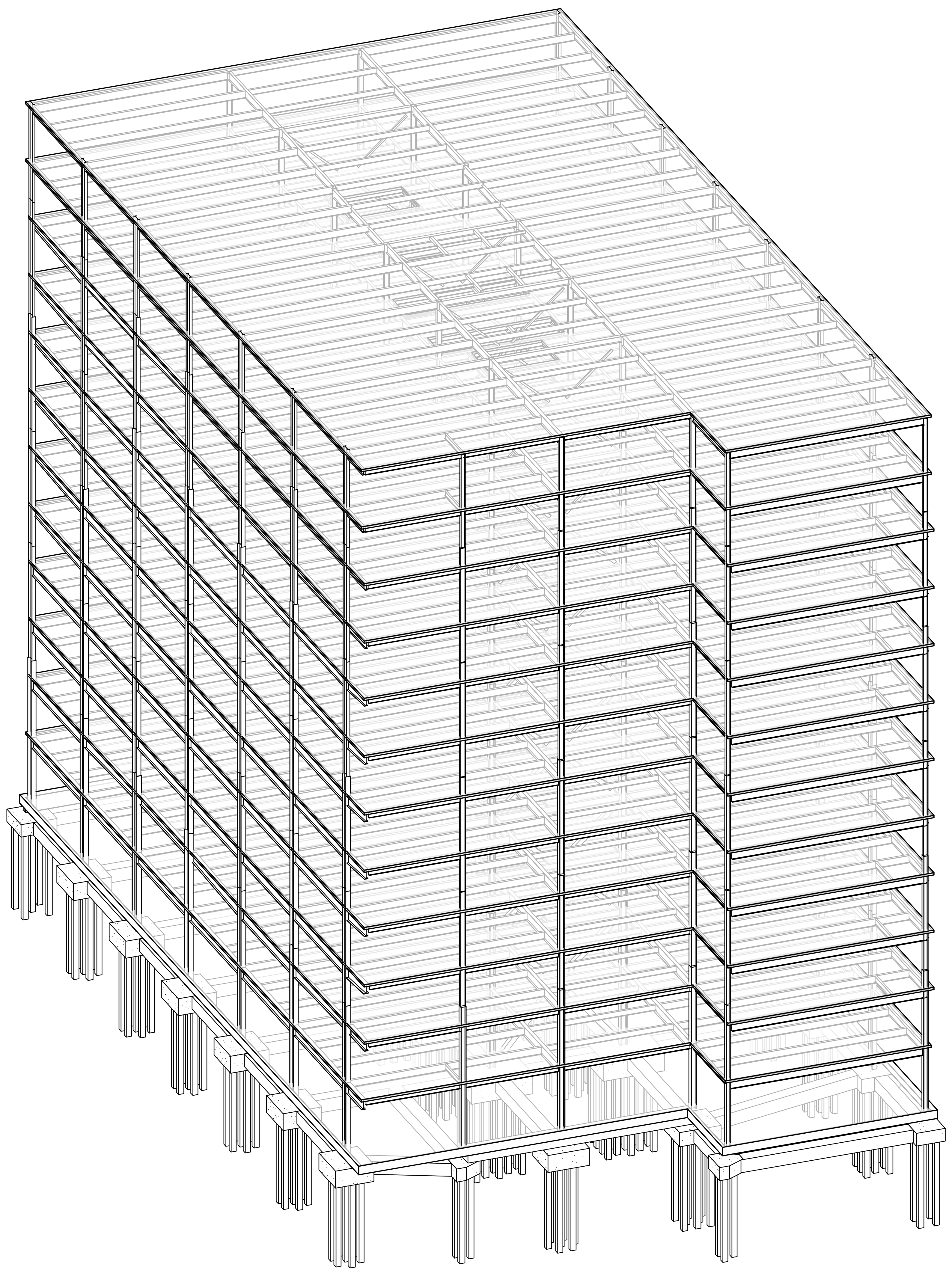
E.3 Steel Tonnage

Total steel tonnage for this design case is calculated as 1,336 tons.

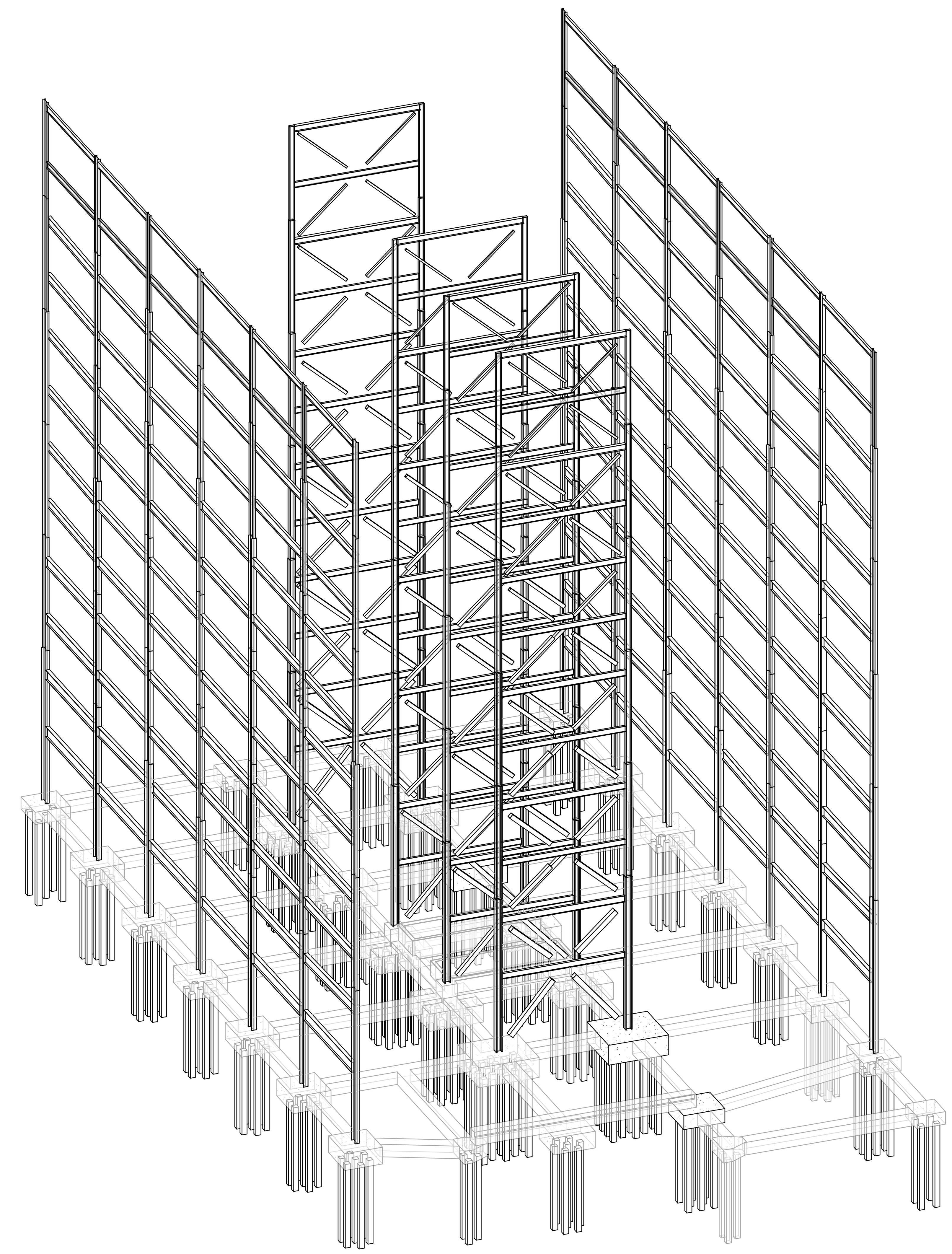
E.4 Structural Drawings

Structural drawings for Design Case E are provided on the following pages.

OFFICE BUILDING - SAVANNAH, GEORGIA
DESIGN E - 2018 IBC RISK CATEGORY II



OVERALL FRAMING 3D VIEW



FORCE RESISTING SYSTEM 3D VIEW

DESIGN E: 2018 IBC RISK CATEGORY II	
OFFICE BUILDING SAVANNAH, GEORGIA	
ITEM	QUANTITY
WF COLUMNS (Fy = 50 ksi)	60 TONS
WF GIRDERS & JOISTS (Fy = 50 ksi)	778 TONS
MOMENT FRAME WF COLUMNS (Fy = 50 ksi)	147 TONS
MOMENT FRAME WF BEAMS (Fy = 50 ksi)	188 TONS
BRACED FRAME WF COLUMNS (Fy = 50 ksi)	95 TONS
BRACED FRAME WF BEAMS (Fy = 50 ksi)	25 TONS
HSS BRACES ROUND (Fy = 46 ksi) & SQUARE (Fy = 50 ksi)	43 TONS
TOTAL	1336 TONS

NOTES:

1. STEEL QUANTITIES DO NOT INCLUDE MISCELLANEOUS STEEL, CUT WASTE STEEL, STAIRS, TYPICAL STEEL FRAMING CONNECTIONS, ETC.

STRUCTURAL DRAWING INDEX

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PROJECT
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SAVANNAH, GEORGIA
UZUN+CASE
DESIGN E
2018 IBC WITH RISK CATEGORY II
SEISMIC DESIGN CATEGORY C

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01 MARCH, 2021

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ABBREVIATIONS

A	ADD'L	ADDITIONAL
	ADJ.	ADJACENT
	A/E	ARCHITECT/ENGINEER
	ALT.	ALTERNATE
	ARCH.	ARCHITECTURAL
	AFF	ABOVE FINISHED FLOOR
B	BM	BEAM
	BRG	BEARING
	BOT.	BOTTOM
	B/, BO	BOTTOM OF
	BLDG	BUILDING
C	CJ	CONTRACTION JOINT
	CL	CENTERLINE
	CLR	CLEAR
	CMU	CONCRETE MASONRY UNIT
	COL.	COLUMN
	COORD.	COORDINATE
	CONC.	CONCRETE
	CONN.	CONNECTION
	CONT.	CONTINUOUS
D	DIM.	DIMENSION
E	EA.	EACH
	EE	EACH END
	EF	EACH FACE
	ES	EACH SIDE
	EW	EACH WAY
	ELEV.	ELEVATION, ELEVATOR
	EMBED.	EMBEDMENT
	EQ.	EQUAL
	EXP. JT.	EXPANSION JOINT
F	FTG	FOOTING
	FND	FOUNDATION
G	GALV.	GALVANIZED
	GR.	GRADE (MATERIAL)
H	HK	HOOK
	HORIZ.	HORIZONTAL
	HT	HEIGHT
I	IF	INSIDE FACE
	INFO.	INFORMATION
J	JT	JOINT
K	K	KIPS
	KSF	KIPS PER SQUARE FOOT
L	LLH	LONG LEG HORIZONTAL
	LLV	LONG LEG VERTICAL
	LSH	LONG SIDE HORIZONTAL
	LSV	LONG SIDE VERTICAL
M	MANUF.	MANUFACTURER
	MAX.	MAXIMUM
	MECH.	MECHANICAL
	MEP	MECHANICAL, ELECTRICAL, PLUMBING
	MIN.	MINIMUM
	MISC.	MISCELLANEOUS
O	OC	ON CENTER
	OPNG	OPENING
	OPP.	OPPOSITE
	OH	OPPOSITE HAND
P	PL.	PLATE
	PCF	POUNDS PER CUBIC FOOT
	PCY	POUNDS PER CUBIC YARD
	PSF	POUNDS PER SQUARE FOOT
	PSI	POUNDS PER SQUARE INCH
R	REINF.	REINFORCEMENT, REINFORCING
	REQ'D	REQUIRED
S	SCHED.	SCHEDULE
	SIM.	SIMILAR
	SFRS	SEISMIC FORCE RESISTING SYSTEM
	SOG	SLAB ON GROUND
	STIFF.	STIFFENER
	SYM.	SYMMETRIC
T	TEMP.	TEMPERATURE
	T&B	TOP AND BOTTOM
	T/, TO	TOP OF
	TYP.	TYPICAL
U	UNO	UNLESS NOTED OTHERWISE
V	VERT.	VERTICAL
W	WF	WIDE FLANGE
	WP	WORK POINT
	WWR	WELDED WIRE REINFORCEMENT
	W/	WITH

1.00 GENERAL

1.01 LOCATION:
- SAVANNAH, GEORGIA
- 32.0808989 LATITUDE, -81.091203 LONGITUDE

1.02 ALL CONSTRUCTION SHALL CONFORM TO THE 2018 INTERNATIONAL BUILDING CODE. REFERENCE TO OTHER STANDARD SPECIFICATIONS OR CODES SHALL MEAN THE BUILDING CODE ADOPTED EDITION.

1.03 CONSTRUCTION SHALL BE TESTED AND INSPECTED BY A QUALIFIED AGENCY IN ACCORDANCE WITH CHAPTER 17 OF THE BUILDING CODE.

2.00 STRUCTURAL LOAD CRITERIA

2.01 RISK CATEGORY ____ II

2.02 DEAD LOADS (SEE LOAD MAPS, S1.00):
- ROOFING ____ 10 PSF
- MISCELLANEOUS ROOF LOAD ____ 10 PSF
- MISCELLANEOUS FLOOR LOAD ____ 10 PSF
- COMPOSITE SLAB ____ 46 PSF
- STRUCTURAL STEEL ____ ACTUAL

2.03 LIVE LOADS* (SEE LOAD MAPS, S1.00):
- OFFICE ____ 50 PSF/2000 POUNDS
- PARTITIONS (UNREDUCIBLE) ____ 15 PSF
- CORRIDORS ____ 80 PSF
- LOBBIES & STAIRS ____ 100 PSF
- MECHANICAL & STORAGE ROOMS ____ 125 PSF

* LIVE LOAD REDUCTIONS ARE TAKEN IN ACCORDANCE WITH IBC SECTION 1607.11.1.

2.04 VIBRATION CRITERIA:
- AISC DESIGN GUIDE 11 SECOND EDITION
- ACCELERATION LIMIT ____ 0.5% g

2.05 SNOW LOAD CRITERIA:
- GROUND SNOW LOAD ____ Pg = 0 PSF

2.06 WIND LOAD CRITERIA:
- BASIC DESIGN WIND SPEED ____ V = 135 MPH
- ALLOWABLE STRESS DESIGN WIND SPEED ____ Vasd = 105 MPH
- WIND EXPOSURE ____ C
- INTERNAL PRESSURE COEFFICIENT ____ Gcpi = ± 0.18
- DESIGN BASE SHEAR, NORTH-SOUTH ____ 2392 KIPS
- DESIGN BASE SHEAR, EAST-WEST ____ 1543 KIPS
- ALLOWABLE DRIFT AT 10-YEAR MEAN RETURN INTERVAL ____ HT/400
- COMPONENTS AND CLADDING BASIC DESIGN WIND PRESSURES (PSF):

ELEMENT	ZONE	EFFECTIVE WIND AREA (FT^2)		
		A < 10	A = 100	A > 500
WALLS	4	±58	±53	±48
	5	±107	±85	±64
ROOF	1	±85	±69	±58
	2	±134	±112	±96
	3	±182	±154	±134
PARAPET	2	±173	±143	±119
	3	±222	±185	±157

NOTES:
1. REFER TO ASCE 7-16 FIGURE 30.5-1 FOR WALL AND ROOF ZONE LOCATIONS.
2. WALL ZONE 5 SHALL EXTEND 12'-6" FROM BUILDING EDGES.
3. ROOF ZONE 2 SHALL EXTEND 12'-6" FROM THE ROOF EDGES.
4. ROOF ZONE 3 SHALL EXTEND 12'-6" FROM THE ROOF EDGES AND 25'-0" FROM ROOF CORNERS.
5. "+" INDICATES POSITIVE AND "–" INDICATES NEGATIVE PRESSURE (SUCTION).
6. FOR ALLOWABLE STRESS DESIGN, MULTIPLY TABULATED PRESSURES BY 0.6.
7. EFFECTIVE AREAS BETWEEN THOSE PROVIDED IN THE TABLE ABOVE MAY BE INTERPOLATED.
8. DEFERRED SUBMITTALS BY DELEGATED COMPONENT STRUCTURAL ENGINEER SHALL INDEPENDENTLY DETERMINE THE DESIGN PRESSURES BASED ON APPLICABLE BUILDING CODES.

2.07 SEISMIC LOAD CRITERIA:
- SEISMIC IMPORTANCE FACTOR ____ $I_e = 1.0$
- 0.2 SECOND SPECTRAL RESPONSE ACCELERATION ____ $S_S = 0.313g$
- 1.0 SECOND SPECTRAL RESPONSE ACCELERATION ____ $S_1 = 0.114g$
- SITE CLASS ____ D
- SITE COEFFICIENT ____ $F_a = 1.549$
- SITE COEFFICIENT ____ $F_v = 2.372$
- 0.2 SECOND SPECTRAL DESIGN RESPONSE ACCELERATION ____ $S_{DS} = 0.324g$
- 1.0 SECOND SPECTRAL DESIGN RESPONSE ACCELERATION ____ $S_{D1} = 0.180g$
- SEISMIC DESIGN CATEGORY ____ C
- BASIC SEISMIC FORCE RESISTING SYSTEM, NORTH-SOUTH:
  STEEL BRACED FRAME NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
  RESPONSE MODIFICATION COEFFICIENT ____ R = 3
  SYSTEM OVERSTRENGTH FACTOR ____ $\Omega_o = 3$
  DEFLECTION AMPLIFICATION FACTOR ____ $C_d = 3$
  DESIGN BASE SHEAR ____ 999 KIPS
  SEISMIC RESPONSE COEFFICIENT ____ $C_s = 0.042$
- BASIC SEISMIC FORCE RESISTING SYSTEM, EAST-WEST:
  STEEL MOMENT FRAME NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
  RESPONSE MODIFICATION COEFFICIENT ____ R = 3
  SYSTEM OVERSTRENGTH FACTOR ____ $\Omega_o = 3$
  DEFLECTION AMPLIFICATION FACTOR ____ $C_d = 3$
  DESIGN BASE SHEAR ____ 553 KIPS
  SEISMIC RESPONSE COEFFICIENT ____ $C_s = 0.023$
- ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE PROCEDURE

3.00 FOUNDATIONS AND SLAB-ON-GROUND

3.01 PRECAST PRESTRESSED CONCRETE PILES SHALL BE 14 INCHES SQUARE WITH THE FOLLOWING ALLOWABLE CAPACITIES:
- COMPRESSION ____ 80 TONS
- TENSION ____ 60 TONS
- LATERAL ____ 10 TONS

4.00 REINFORCED CONCRETE

4.01 ALL CONCRETE WORK SHALL CONFORM TO ACI 301-16, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS". DESIGN IS BASED ON ACI 318, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE".

4.02 UNLESS NOTED OTHERWISE, ALL CONCRETE SHALL BE NORMALWEIGHT AND HAVE THE FOLLOWING MINIMUM 28-DAY STRENGTHS:
- FOUNDATIONS ____ 4000 PSI
- SLABS-ON-GROUND ____ 4000 PSI
- SLABS ON STEEL DECK (110 PCF MAXIMUM) ____ 3000 PSI

4.03 REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.

4.04 WELDED WIRE REINFORCEMENT (MESH) SHALL CONFORM TO ASTM A1064 AND SHALL BE PROVIDED IN FLAT SHEETS (ROLLS NOT PERMITTED). LAP TWO SQUARES AT SPLICES.

4.05 PROVIDE CLASS "B" TENSION SPLICE UNLESS NOTED OTHERWISE. DOWELS SHALL MATCH THE SIZE AND SPACING OF THE SPECIFIED REINFORCING AND SHALL BE LAPPED WITH CLASS "B" TENSION SPLICES. REINFORCING STEEL SHALL HAVE THE FOLLOWING CONCRETE COVER UNLESS NOTED OTHERWISE:
- CONCRETE CAST AGAINST EARTH (NOT FORMED) ____ 3"
- FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
  #6 THROUGH #18 BARS ____ 2"
  #5 BARS AND SMALLER ____ 1 ½"
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
  SLABS AND WALLS ____ 1"
  BEAM STIRRUPS AND COLUMN TIES ____ 1 ½"

4.06 CONCRETE SLABS ON STEEL DECK SHALL BE PLACED AT A CONSTANT THICKNESS.

5.00 STRUCTURAL STEEL

5.01 ALL STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO THE AISC 360, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS".

5.02 UNLESS NOTED OTHERWISE, STRUCTURAL STEEL WIDE FLANGES AND TEES SHALL CONFORM TO ASTM A992, GRADE 50; ROUND, SQUARE, AND RECTANGULAR HSS SECTIONS SHALL CONFORM TO ASTM A500, GRADE C; ROUND PIPES SHALL CONFORM TO ASTM A53, GRADE B; AND ALL OTHER SHAPES AND PLATES SHALL CONFORM TO ASTM A36 OR A572, GRADE 50.

5.03 HEAVY SECTIONS IN THE SFRS:
- HOT ROLLED SHAPES WITH FLANGE THICKNESSES $\geq$ 1 ½ IN. SHALL HAVE A MINIMUM CHARPY V-NOTCH (CVN) TOUGHNESS OF 20 FT-LB AT 70°F, TESTED IN THE ALTERNATE CORE LOCATION AS DESCRIBED IN ASTM A6 SUPPLEMENTARY REQUIREMENT S30.
- PLATES WITH THICKNESS $\geq$ 2 IN. SHALL HAVE A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT-LB AT 70°F, MEASURED AT ANY LOCATION PERMITTED BY ASTM A673, FREQUENCY P, WHERE THE PLATE IS USED FOR THE FOLLOWING:
  (A) MEMBERS BUILT UP FROM PLATE
  (B) CONNECTION PLATES

5.04 STEEL FRAMING CONNECTIONS SHALL BE BOLTED OR WELDED:
- BOLTED JOINTS SHALL CONFORM TO RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS". BOLTS SHALL CONFORM TO ASTM F3125, GRADE A325, AND SHALL BE MINIMUM 3/4" DIAMETER, UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE CONSIDERED BEARING TYPE UNLESS OTHERWISE NOTED.
- UNO WELDS SHALL CONFORM TO THE "STRUCTURAL WELDING CODE" OF THE AMERICAN WELDING SOCIETY, AWS D1.1. USE E70XX ELECTRODES. WELDING PROCESSES AND OPERATORS SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATIONS PROCEDURES".
- WELDS DESIGNATED AS DEMAND CRITICAL SHALL BE MADE WITH FILLER METALS MEETING THE REQUIREMENTS SPECIFIED IN AWS D1.8/D1.8M CLAUSES 6.1, 6.2 AND 6.3.

5.05 ANCHOR RODS SHALL CONFORM TO ASTM F1554, GR 55, S1 (WELDABLE) UNLESS OTHERWISE NOTED.

5.06 STEEL SURFACES TO BE WELDED OR ENCASED IN CONCRETE OR FIREPROOFING, CONNECTIONS DESIGNATED AS SLIP CRITICAL TYPE, OR SURFACES RECEIVING WELDED SHEAR CONNECTORS IN THE FIELD SHALL NOT BE PAINTED.

5.07 PLACE NON-SHRINK, HIGH-STRENGTH GROUT (MINIMUM 6,000 PSI) UNDER BASE PLATES AFTER SETTING AND LEVELING, AND PRIOR TO PLACING ELEVATED SLAB CONCRETE.

5.08 SHEAR CONNECTORS: PROVIDE AWS D1.1, TYPE B, 3/4" DIAMETER, SOLID FLUXED HEADED SHEAR CONNECTOR STUDS AUTOMATICALLY END WELDED THROUGH THE STEEL DECK AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.

6.00 STEEL DECKING:

6.01 UNLESS NOTED OTHERWISE, STEEL DECK SHALL BE GRADE 50, GALVANIZED (MINIMUM G60), CONFORMING TO STEEL DECK INSTITUTE (SDI) STANDARDS.

6.02 STEEL COMPOSITE FLOOR DECK SHALL BE FASTENED TO STEEL FRAMING WITH 5/8" DIAMETER PUDDLE WELDS AT THE FOLLOWING SPACINGS:
- AT FRAMING PERPENDICULAR TO DECK FLUTES: 12" ON CENTER MAXIMUM AND AT EACH EDGE FLUTE OF EACH DECK UNIT.
- AT FRAMING PARALLEL TO DECK FLUTES: 24" ON CENTER MAXIMUM.
- SIDE LAPS SHALL BE FASTENED WITH #10 SELF-TAPPING SCREWS AT A MAXIMUM SPACING OF 2 FEET CENTER TO CENTER BETWEEN SUPPORTS.

6.03 DECKING SHALL BE CONTINUOUS OVER 3 SPANS MINIMUM WHERE SUPPORTING STRUCTURE PERMITS.

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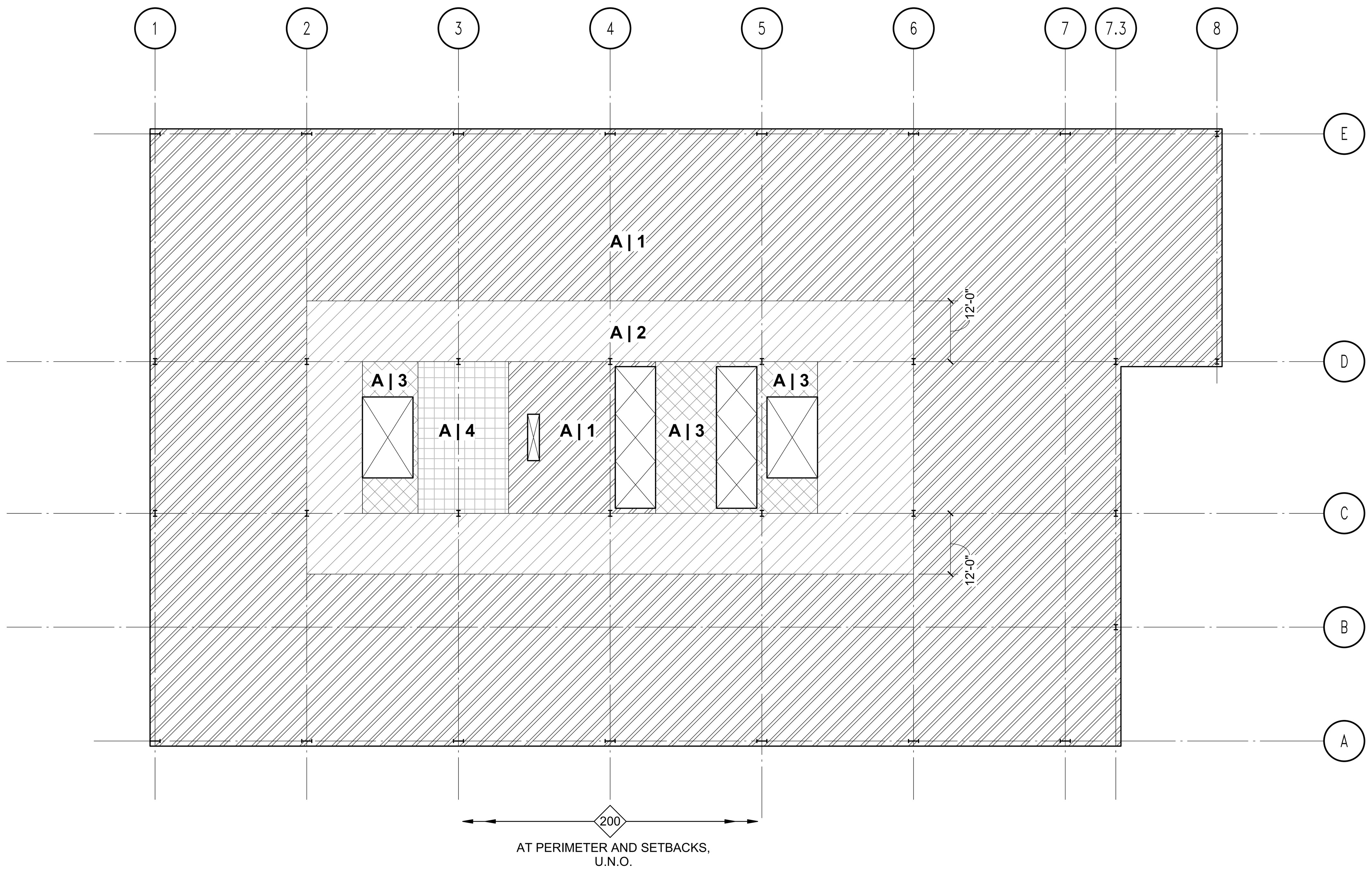
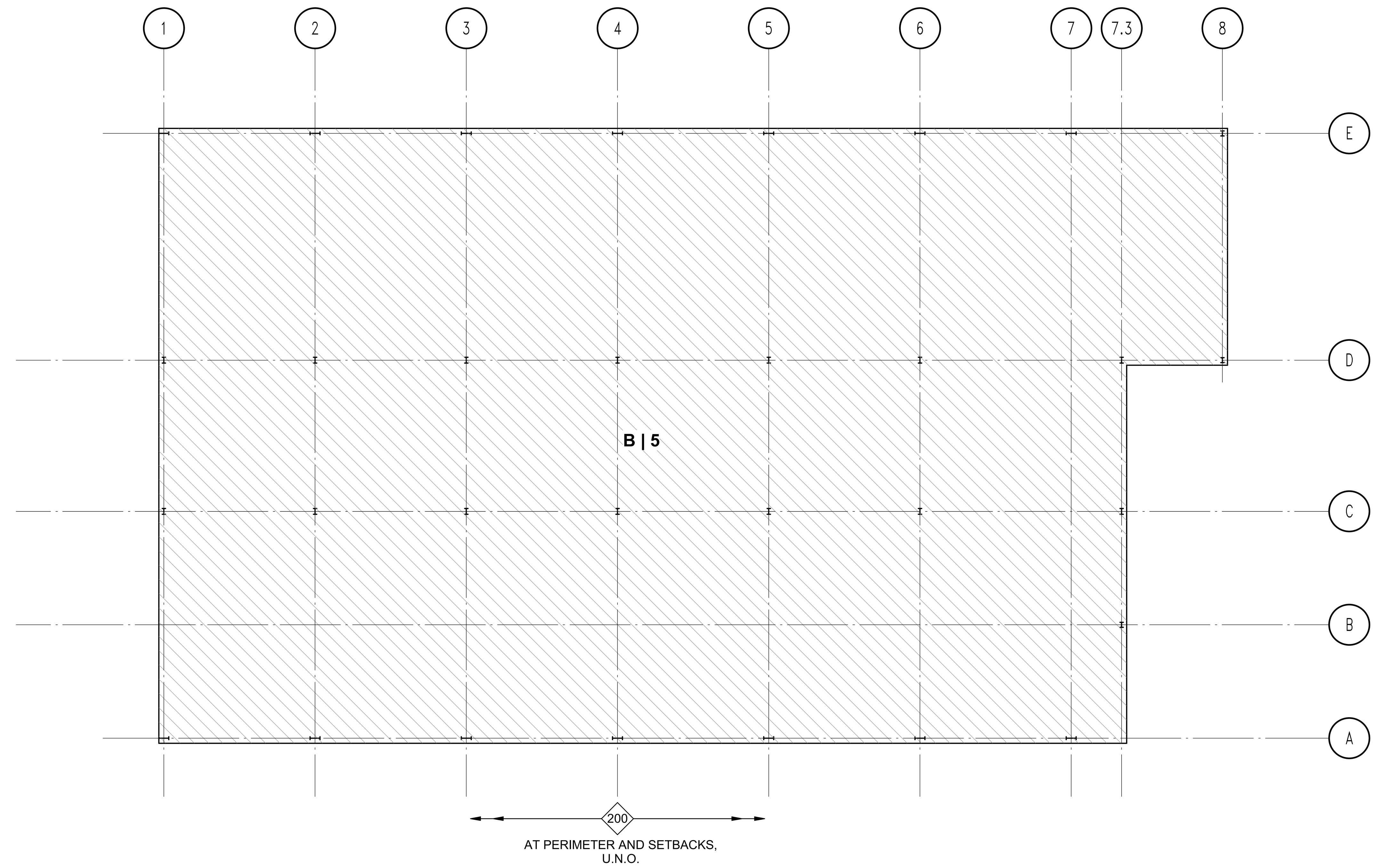


1 S1.00 LEVEL 2-12 LOAD MAP
SCALE: 1/16" = 1'-0"



2 S1.00 ROOF LOAD MAP
SCALE: 1/16" = 1'-0"

SUPERIMPOSED DEAD LOAD DESIGNATIONS			
MARK	USE	LOAD (PSF)	NOTES
A	OFFICE	10	MISC.
B	ROOF	20	10 ROOFING + 10 MISC.

LIVE LOAD DESIGNATIONS			
MARK	USE	LOAD (PSF)	NOTES
1	OFFICE	50 (R) + 15 (NR)	50 OFFICE + 15 PARTITION
2	CORRIDORS	80 (R)	
3	LOBBIES & STAIRS	100 (R)	
4	MECHANICAL & STORAGE	125 (NR)	
5	ROOF	20 (R)	

LOAD MAP KEY:

A | 1

NUMBER INDICATES LIVE LOAD MARK

LETTER INDICATES SUPERIMPOSED DEAD LOAD MARK

200 INDICATES CLADDING LOAD IN POUNDS PER LINEAR FOOT. CLADDING LOAD IS 200 POUNDS PER LINEAR FOOT U.N.O.

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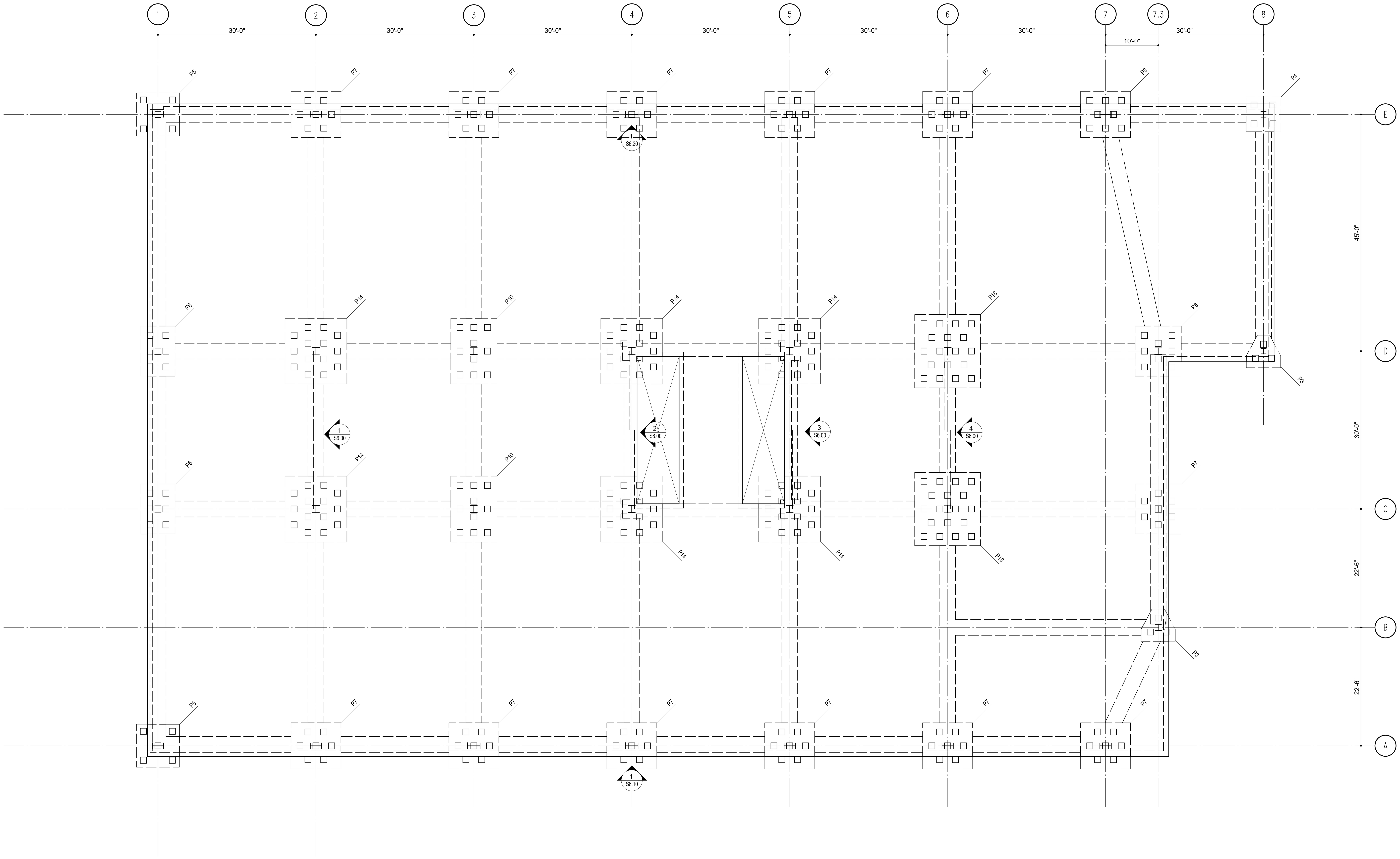

FOUNDATION & GRADE LEVEL FRAMING PLAN

1 / S2.00

SCALE: 1/8" = 1'-0"

N

FOUNDATION AND SOG NOTES:

1. TOP OF NOMINAL SLAB ELEVATION = 100'-00". SEE CIVIL DRAWINGS FOR DATUM ELEVATION.)
2. SLAB-ON-GROUND THICKNESS IS 5", UNLESS NOTED OTHERWISE. SEE GENERAL NOTES FOR ADDITIONAL INFORMATION.
4. 'CJ' INDICATES CONTRACTION JOINT, SEE -/--- . CONTRACTION JOINTS ONLY IN SLAB-ON-GROUND AND TOPPING SLABS. DO NOT CUT IN STRUCTURED SLABS. SEE -/--- FOR CONSTRUCTION JOINT DETAIL.
5. ═══ INDICATES REINFORCING AT CONTRACTION JOINT ENDS, SEE DETAIL FOR ADDITIONAL INFORMATION.
6. ALL FOOTINGS, PILE CAPS, AND PIERS ARE CENTERED ABOUT COLUMN CENTERLINES, UNLESS NOTED OTHERWISE.
7. VERIFY PILE CAP ELEVATIONS AT WET COLUMNS WITH ARCHITECTURAL AND PLUMBING DRAWINGS.
8. 'GB' INDICATES GRADE BEAM. SEE 4/S3.00 FOR ADDITIONAL INFORMATION.
9. SEE ARCHITECTURAL DRAWINGS FOR EDGE OF SLAB DIMENSIONS, LOCATIONS OF DRAINS, SLOPES, AND CONTOURS OF AREAS SLOPED TO DRAIN NOT SHOWN. COORDINATE BEFORE POURING.
11. SEE S4.00 FOR COLUMN SCHEDULE.

LEGEND:

X'-X" INDICATES TOP OF WALL FOOTING OR TOP OF GRADE BEAM ELEVATION

☐ INDICATES PILE, SEE 3/S3.00

PX INDICATES PILE CAP TYPE. SEE SHEET S3.01

X'-X" INDICATES TOP OF PILE CAP ELEVATION BELOW SLAB ON GRADE, TYP. ELEVATION IS -4'-0" BELOW TOP OF SOG, UNO

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FOUNDATION & GRADE LEVEL FRAMING PLAN

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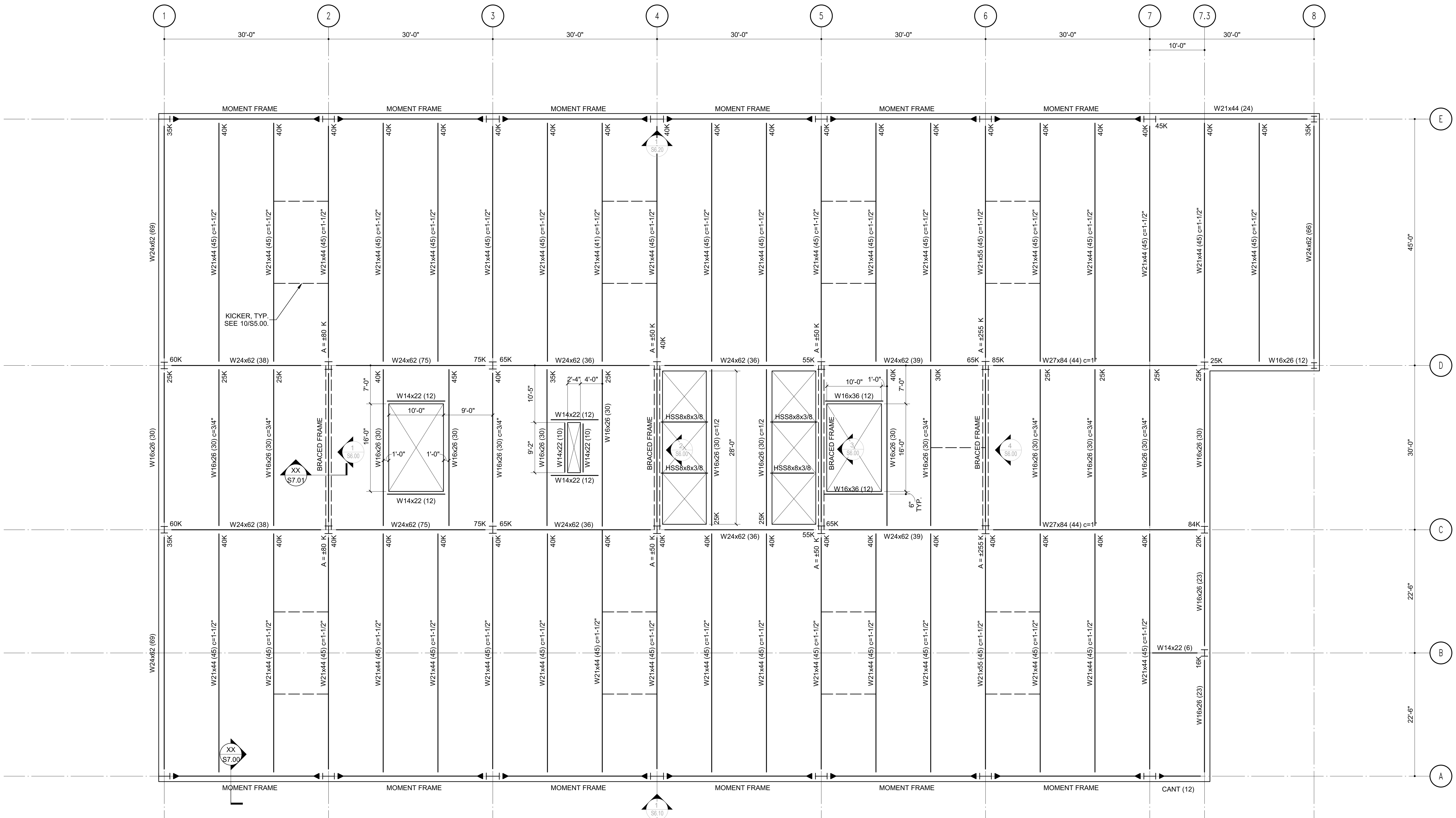


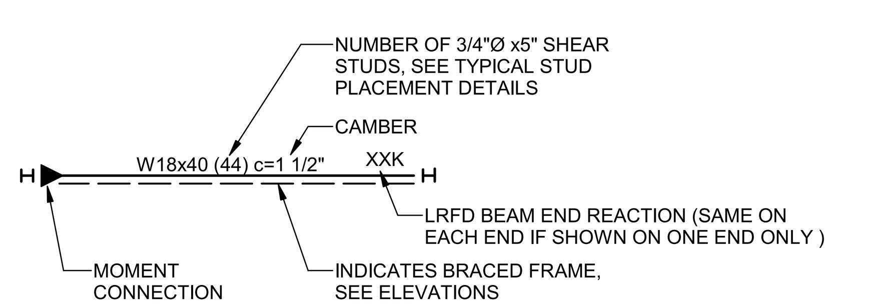
1 S2.10 SECOND FLOOR FRAMING PLAN

SCALE: 1/8" = 1'-0"

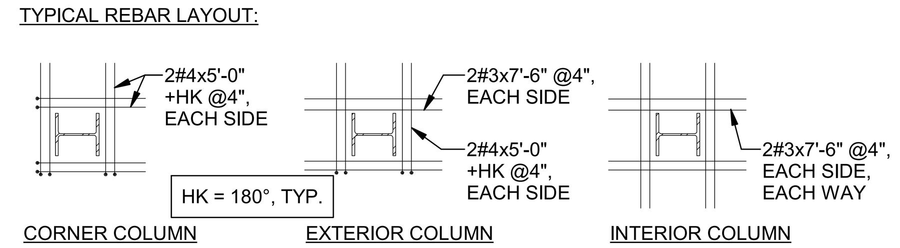
FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = +115', AT FINISHED FLOOR UNLESS NOTED OTHERWISE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. ⟵⟶ INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3+3.25" LIGHTWEIGHT (110 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. 'A=±xxK' INDICATES FACTORED AXIAL FORCE. PROPORTION CONNECTIONS FOR 'A' IN COMBINATION WITH SHEAR FORCE. INDICATED AXIAL FORCE MUST BE TRANSFERRED THROUGH COLUMN TO ADJACENT MEMBER.
7. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
8. SEE COLUMN SCHEDULE FOR COLUMN SIZES.
9. SEE ARCHITECTURAL DRAWINGS FOR LOCATION OF DRAINS AND FLOOR SLOPE INFORMATION.
10. COORDINATE ELEVATOR OPENING DIMENSIONS WITH PURCHASED EQUIPMENT.

FRAMING LEGEND:



TYPICAL REBAR LAYOUT:



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SECOND FLOOR FRAMING PLAN

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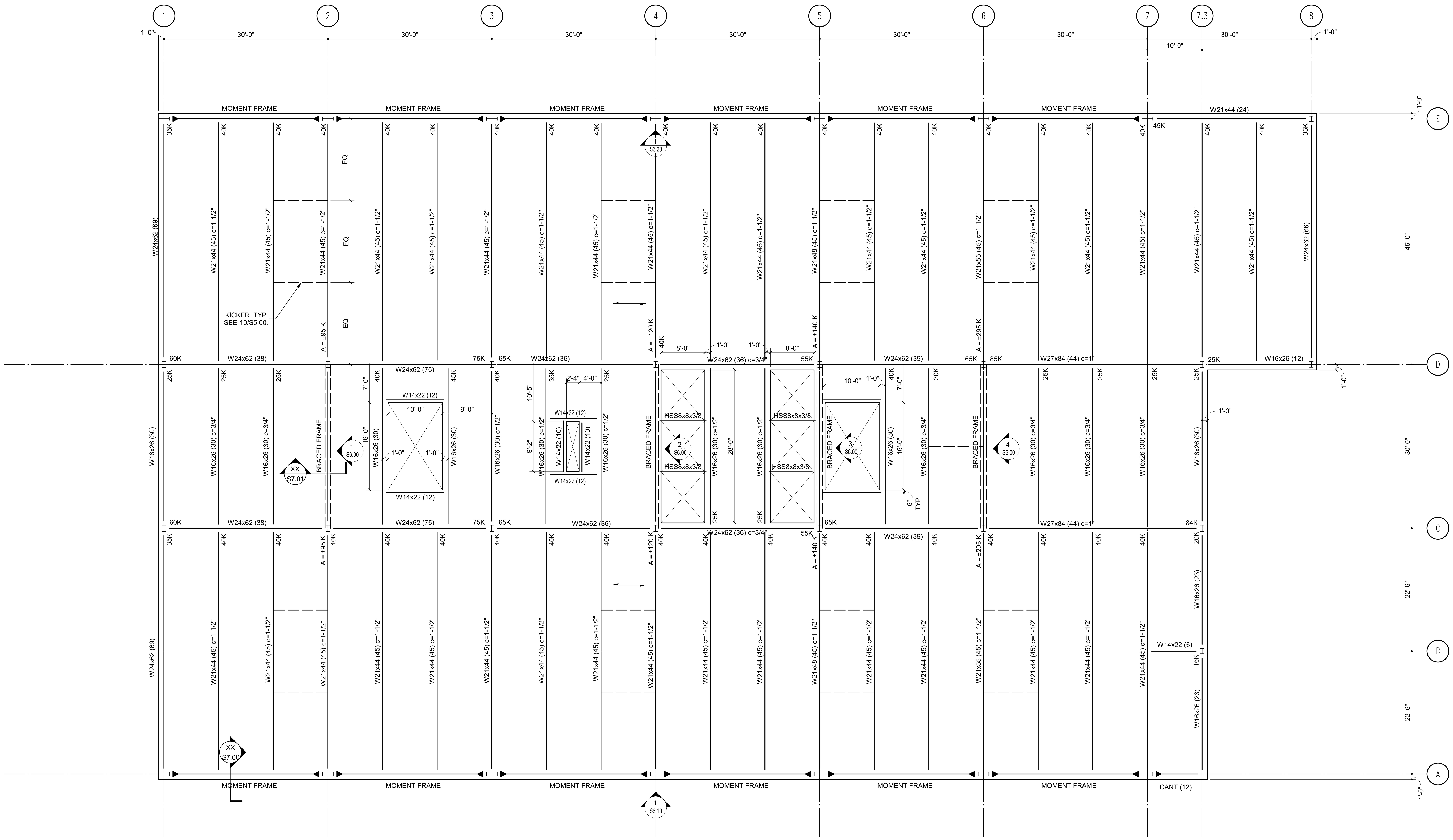

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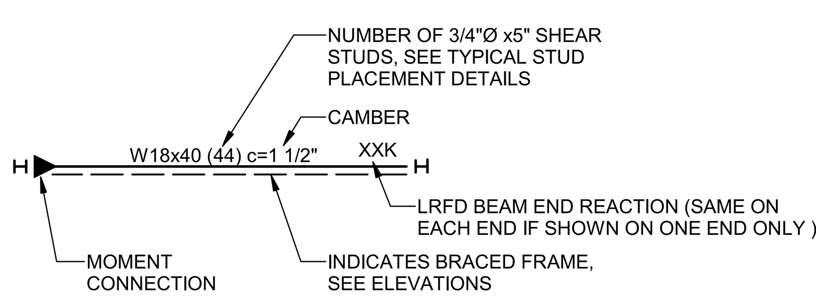
TYPICAL FLOOR FRAMING PLAN

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

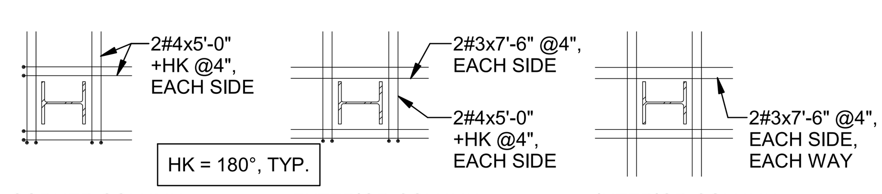
1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = SEE TABLE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3+3.25" LIGHTWEIGHT (110 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. 'A=±xxK' INDICATES FACTORED AXIAL FORCE. PROPORTION CONNECTIONS FOR 'A' IN COMBINATION WITH SHEAR FORCE. INDICATED AXIAL FORCE MUST BE TRANSFERRED THROUGH COLUMN TO ADJACENT MEMBER.
7. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
8. SEE COLUMN SCHEDULE FOR COLUMN SIZES.
9. SEE ARCHITECTURAL DRAWINGS FOR LOCATION OF DRAINS AND FLOOR SLOPE INFORMATION.
10. COORDINATE ELEVATOR OPENING DIMENSIONS WITH PURCHASED EQUIPMENT.

FRAMING LEGEND:



LEVEL	ELEVATION
3	+128'-6"
4	+142'-0"
5	+155'-6"
6	+169'-0"
7	+182'-6"
8	+196'-0"
9	+209'-6"
10	+223'-0"
11	+236'-6"
12	+250'-0"

TYPICAL REBAR LAYOUT:



CORNER COLUMN | EXTERIOR COLUMN | INTERIOR COLUMN

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DESIGN E
2018 IBC WITH RISK CATEGORY II
SEISMIC DESIGN CATEGORY C

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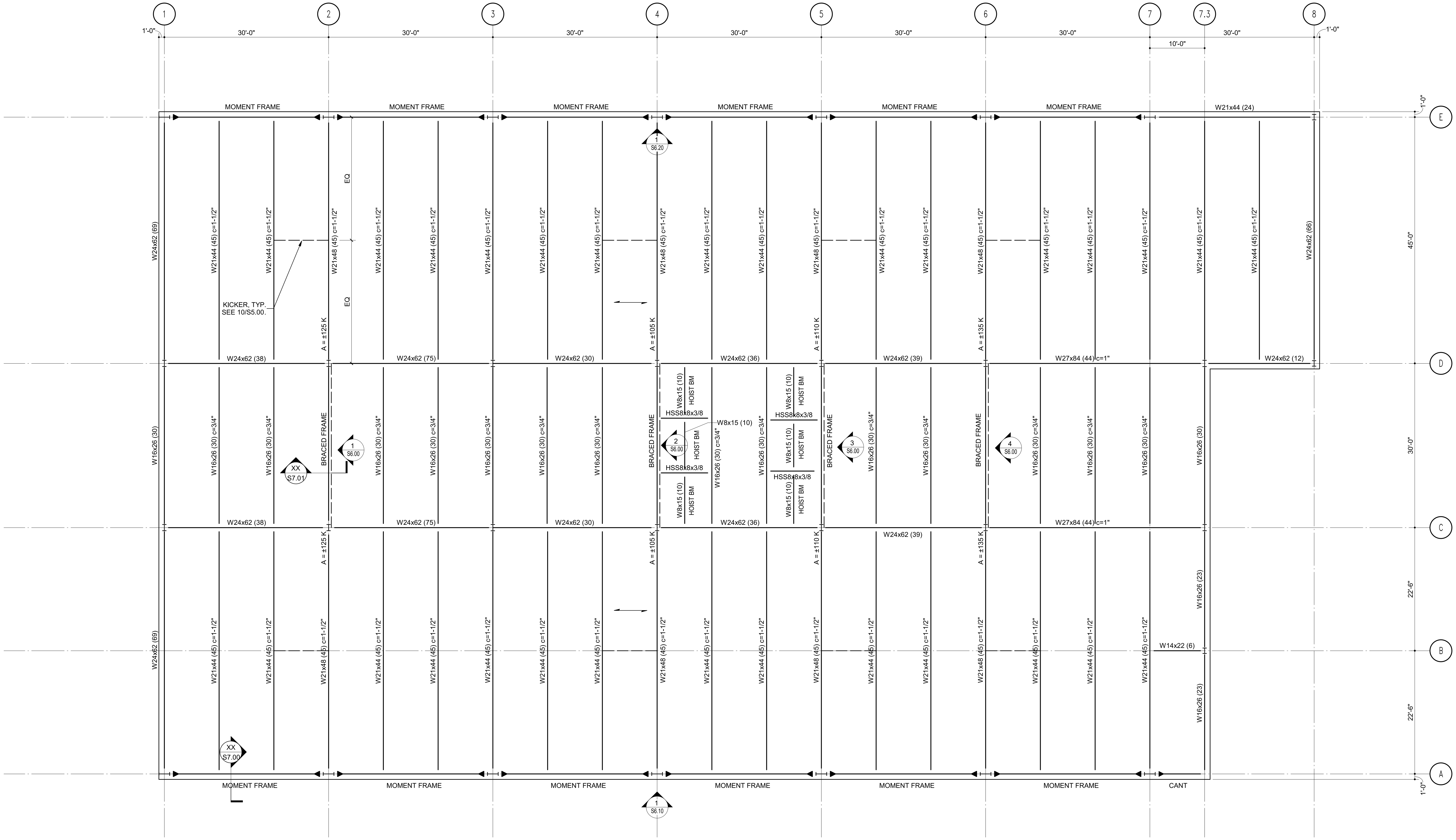
TITLE
TYPICAL FLOOR FRAMING PLAN

SHEET NUMBER
S2.20



ROOF FRAMING PLAN

1
S2.30

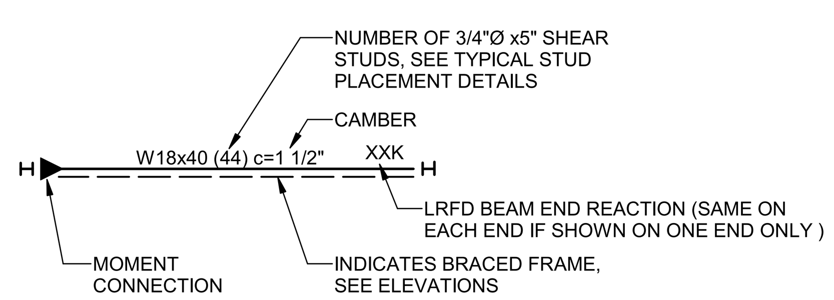
SCALE: 1/8" = 1'-0"

N

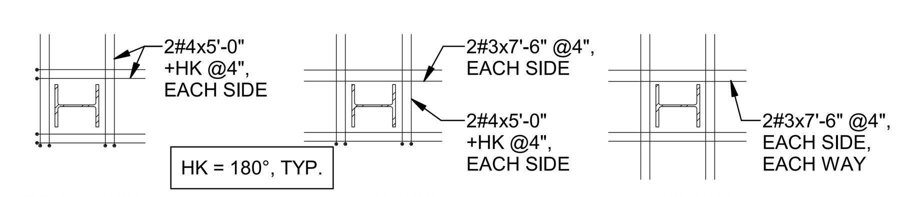
FRAMING NOTES:

1. IN ADDITION TO SECTIONS AND DETAILS REFERENCED IN THIS PLAN, SEE ALL TYPICAL DETAILS.
2. TOP OF SLAB = +263'-6", AT FINISHED FLOOR UNLESS NOTED OTHERWISE
   TOP OF STEEL = -0'-6 1/4" (RELATIVE TO TOP OF SLAB), UNLESS NOTED OTHERWISE.
3. ⟵⟶ INDICATES SPAN DIRECTION OF SLAB CONSTRUCTION: 3" 20 GAUGE (MINIMUM) GALVANIZED COMPOSITE FLOOR DECK TOPPED WITH 3+3.25" LIGHTWEIGHT (110 PCF) CONCRETE, REINFORCED WITH 6x6-W2.9xW2.9 WWR (6 1/4" TOTAL).
4. SPACE STEEL BEAMS EQUALLY BETWEEN COLUMNS, UNLESS NOTED OTHERWISE.
5. CANTILEVER BEAMS HAVE THE SAME SIZES AS THE BEAMS IN THE BACKSPANS, UNLESS NOTED OTHERWISE.
6. 'A=±xxK' INDICATES FACTORED AXIAL FORCE. PROPORTION CONNECTIONS FOR 'A' IN COMBINATION WITH SHEAR FORCE. INDICATED AXIAL FORCE MUST BE TRANSFERRED THROUGH COLUMN TO ADJACENT MEMBER.
7. EDGE OF SLAB AT OPENINGS IS LOCATED 6" FROM THE BEAM CENTERLINE, UNLESS NOTED OTHERWISE.
8. SEE COLUMN SCHEDULE FOR COLUMN SIZES.
9. SEE ARCHITECTURAL DRAWINGS FOR LOCATION OF DRAINS AND FLOOR SLOPE INFORMATION.
10. COORDINATE ELEVATOR OPENING DIMENSIONS WITH PURCHASED EQUIPMENT.

FRAMING LEGEND:



TYPICAL REBAR LAYOUT:



CORNER COLUMN | EXTERIOR COLUMN | INTERIOR COLUMN

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TITLE

ROOF FRAMING PLAN

SHEET NUMBER

S2.30

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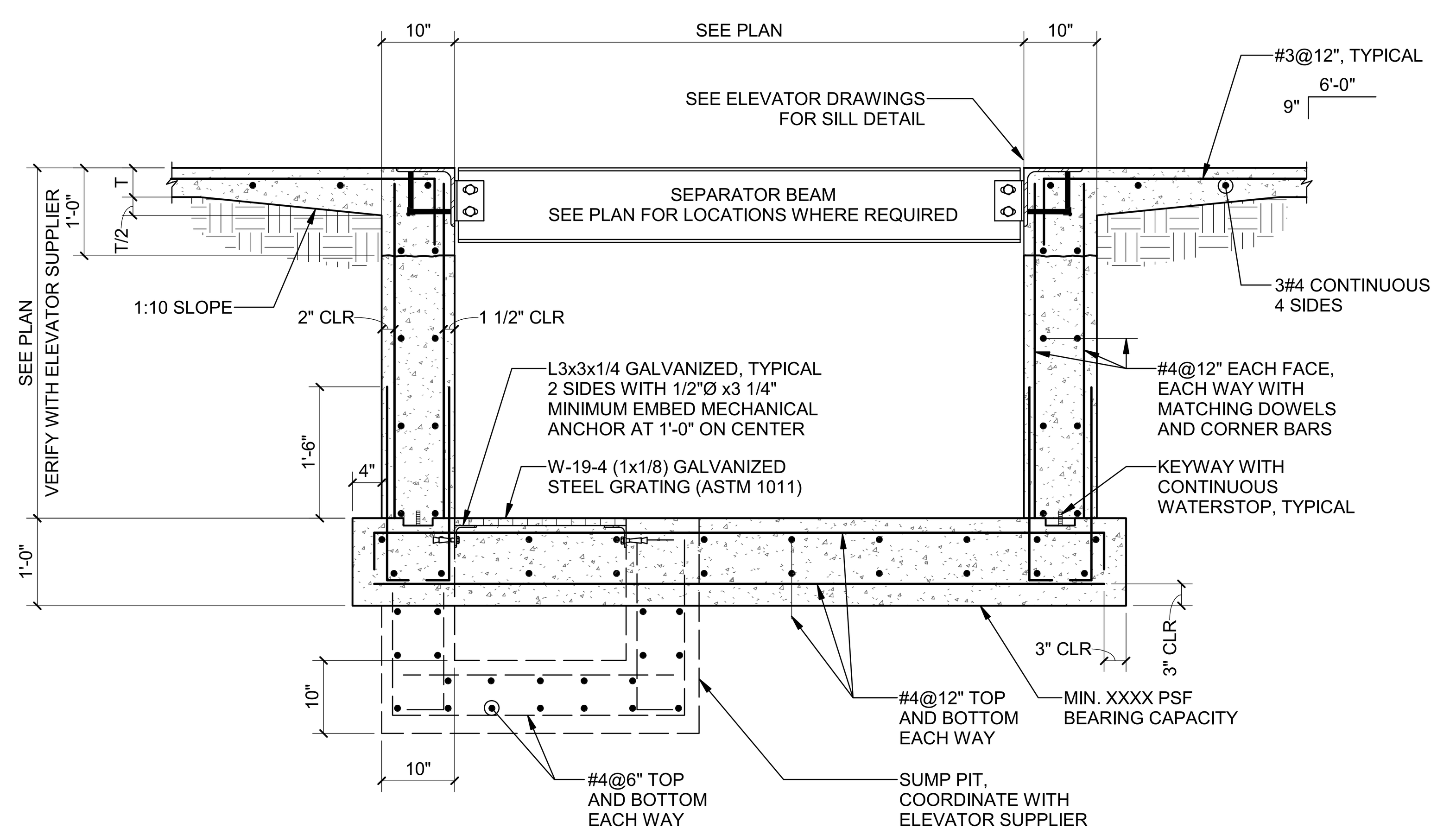
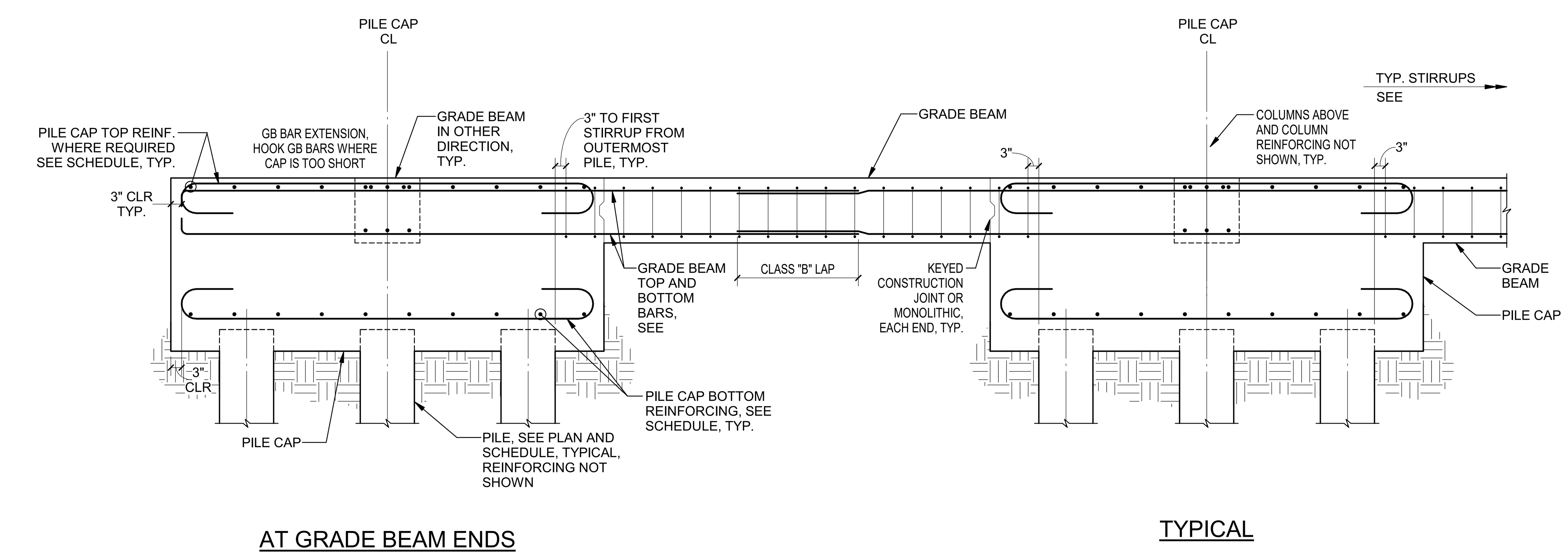
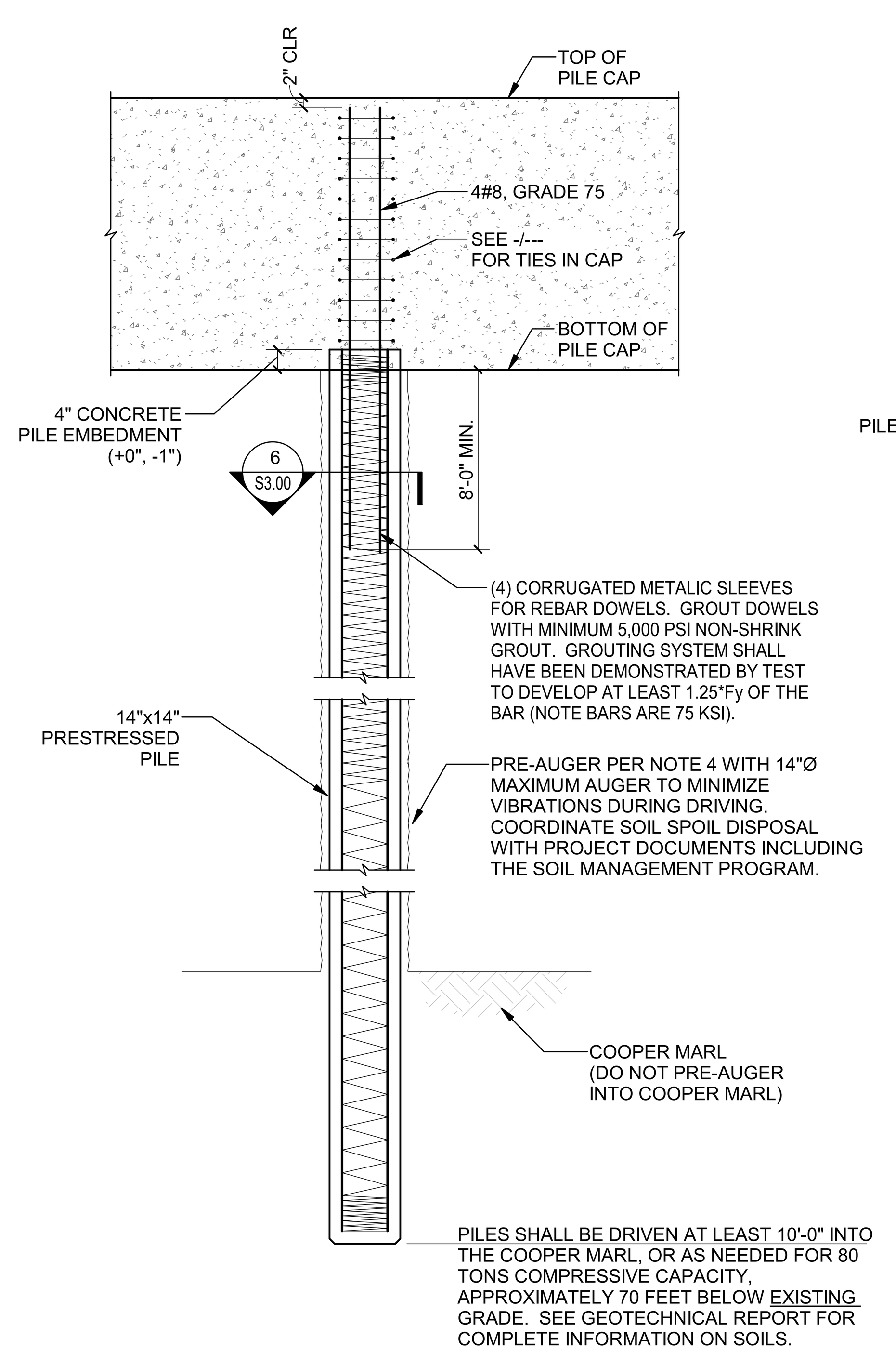


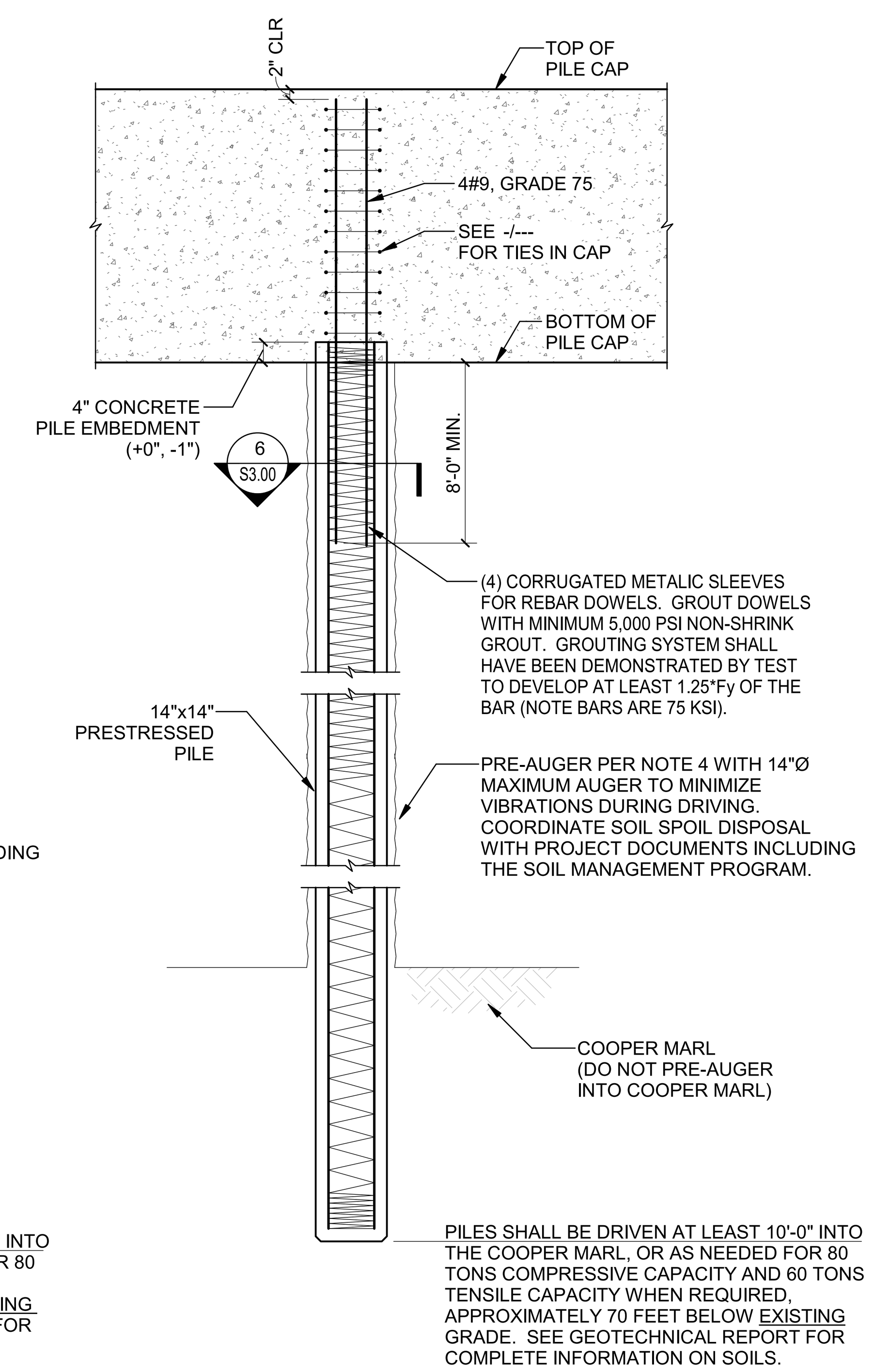
1 TYPICAL ELEVATOR PIT SECTION
S3.00 SCALE: 3/4" = 1'-0"



7 TYPICAL GRADE BEAM ELEVATION
S3.00 SCALE: 1/2" = 1'-0"

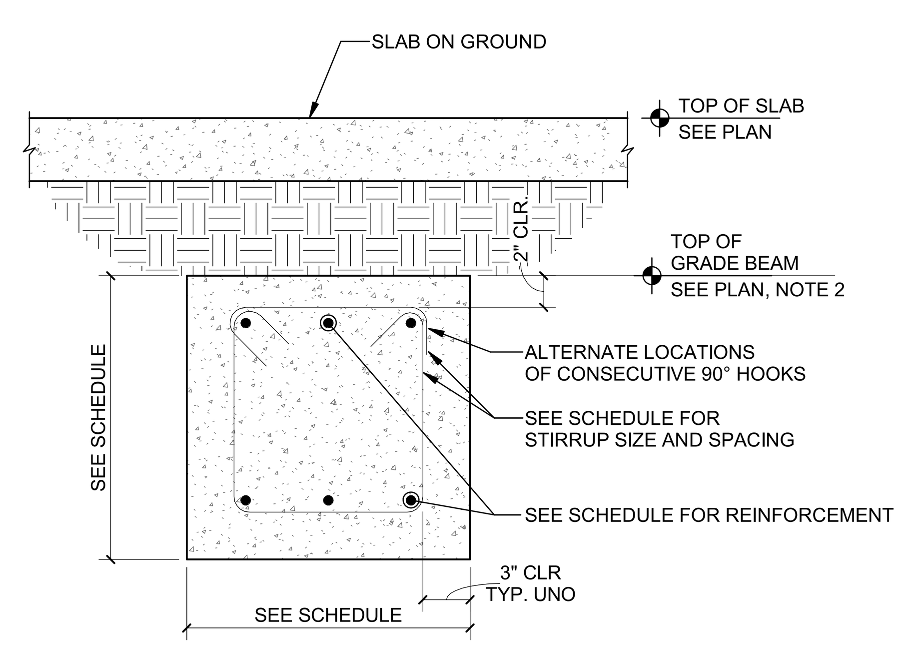


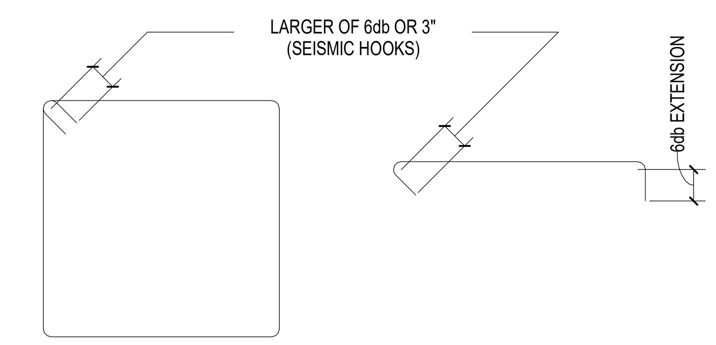
COMPRESSION PILE DETAIL



TENSION PILE DETAIL

3 PILE DETAILS
S3.00 SCALE: 1/2" = 1'-0"



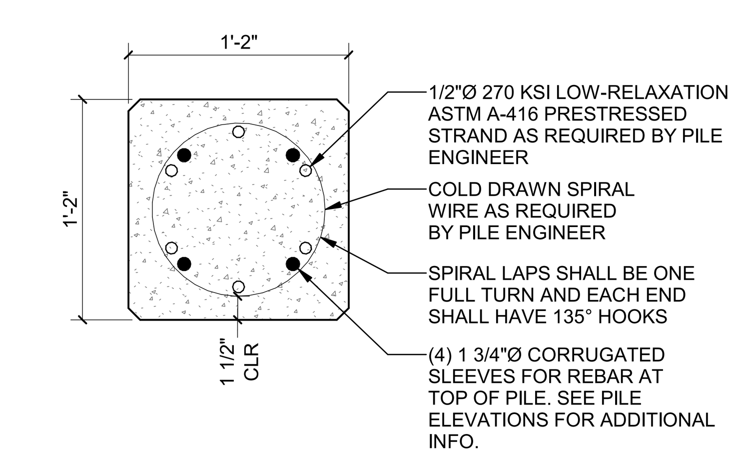


5 HOOP AND CROSSTIE DETAILS
S3.00 SCALE: 1 1/2" = 1'-0"

GRADE BEAM SCHEDULE

GRADE BEAM MARK	SIZE		LONGITUDINAL REINFORCING			STIRRUPS		REMARKS
	WIDTH (INCH)	DEPTH (INCH)	BOTTOM BARS	TOP BARS	SIDE FACE BARS (EACH FACE)	SIZE	SPACING EACH END UNO	
GB1	XX	XX	X#X	X#X	X#X	#X	1@X, X@X, R@X	---
GB2	XX	XX	X#X	X#X	X#X	#X	1@X, X@X, R@X	---
GB3	XX	XX	X#X	X#X	X#X	#X	1@X, X@X, R@X	---
GB4	XX	XX	X#X	X#X	X#X	#X	1@X, X@X, R@X	---

4 TYPICAL GRADE BEAM SECTION
S3.00 SCALE: 1 1/2" = 1'-0"



6 TYPICAL SECTION THROUGH PRECAST PILE
S3.00 SCALE: 1 1/2" = 1'-0"

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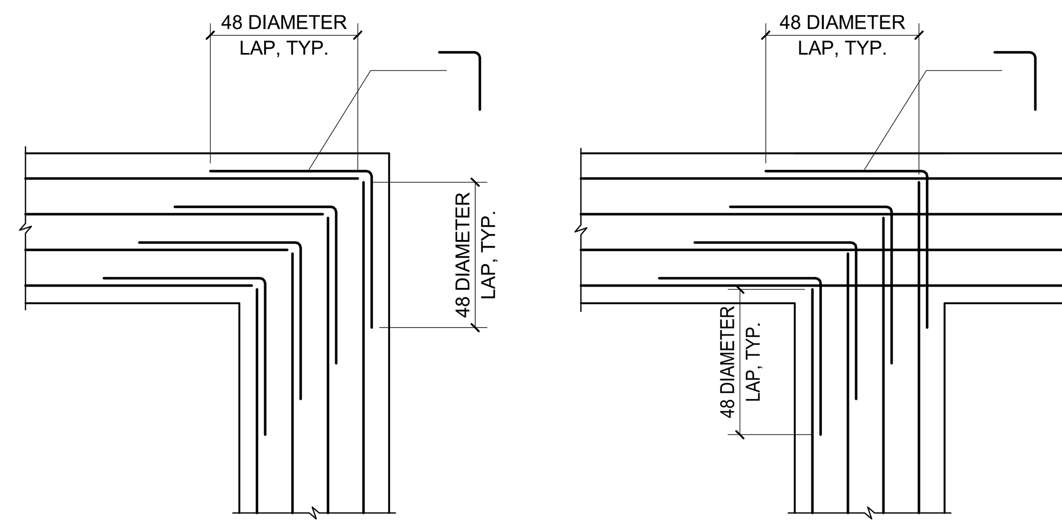
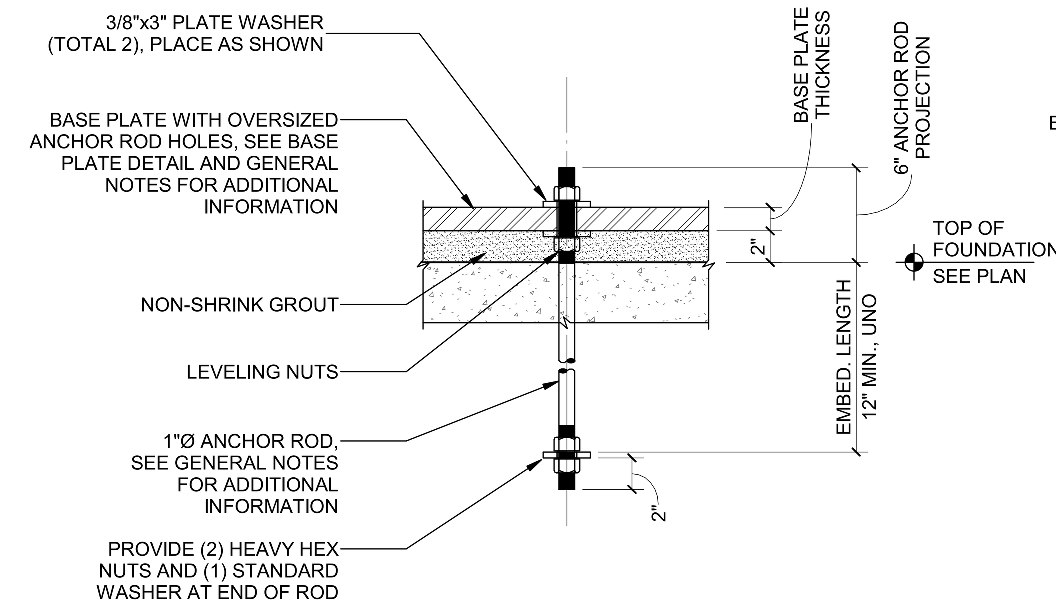
TITLE
FOUNDATION DETAILS

SHEET NUMBER
S3.00

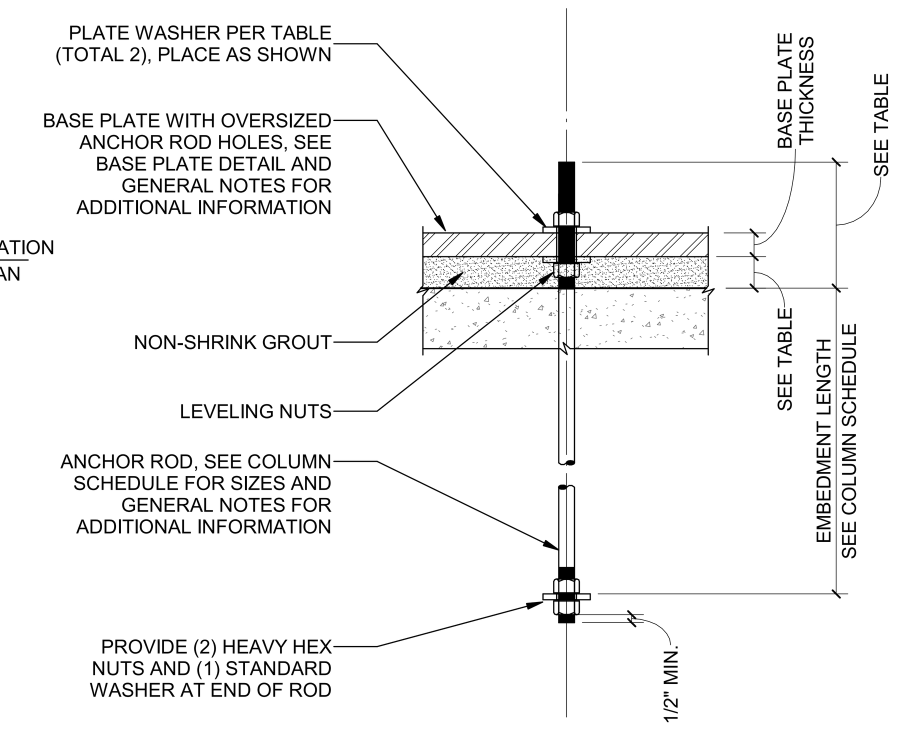


NOTES:
1. TRANSVERSE FOOTING STEEL NOT SHOWN FOR CLARITY.
2. BENT CORNER REINFORCEMENT SHALL MATCH SIZE AND SPACING OF CONTINUOUS LONGITUDINAL REINFORCEMENT.
3. SEE PLAN AND SECTIONS FOR SIZE AND NUMBER OF REINFORCEMENT BARS.
4. TOP BARS, IF REQUIRED, SHALL FOLLOW THE SAME LAP PATTERN.
5. SEE PLAN FOR FOOTING SIZE.

1 TYPICAL FOOTING INTERSECTION PLAN DETAIL
S3.10
SCALE: 1/8" = 1'-0"



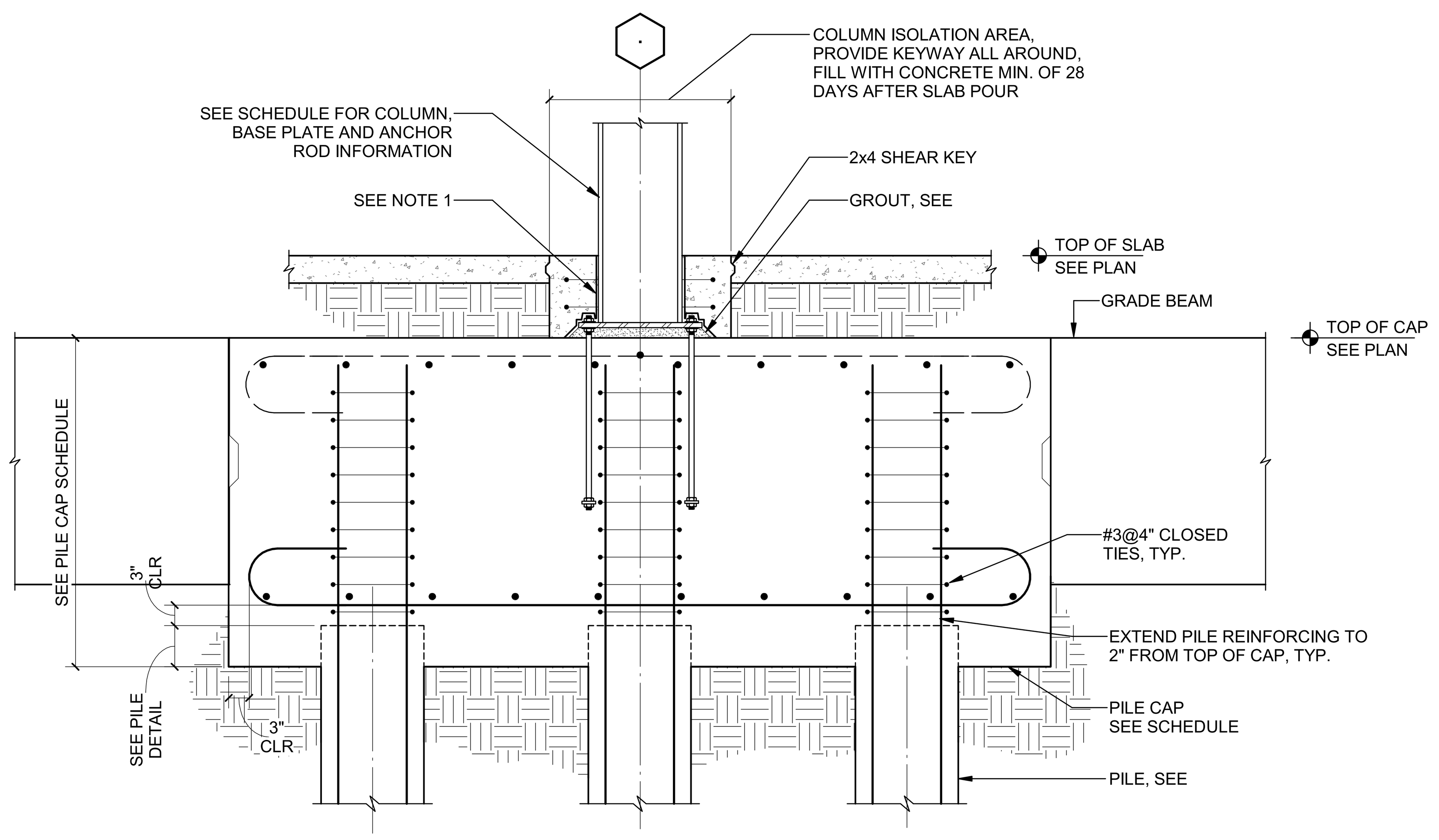
NOTES:
1. CIRCULAR OR SQUARE WASHERS ARE ACCEPTABLE.



ANCHOR BOLT AND PLATE WASHER TABLE			
ANCHOR ROD	ANCHOR ROD PROJECTION	PLATE WASHER	GROUT THICKNESS
3/4" Ø	8"	1/4"x2"	2"
1" Ø	8"	3/8"x3"	2"
1 1/4" Ø	10"	1/2"x3"	3"
1 1/2" Ø	10"	1/2"x3 1/2"	3"
1 3/4" Ø	10"	5/8"x4"	3"
2" Ø	12"	3/4"x5"	4"
2 1/2" Ø	12"	7/8"x5 1/2"	4"

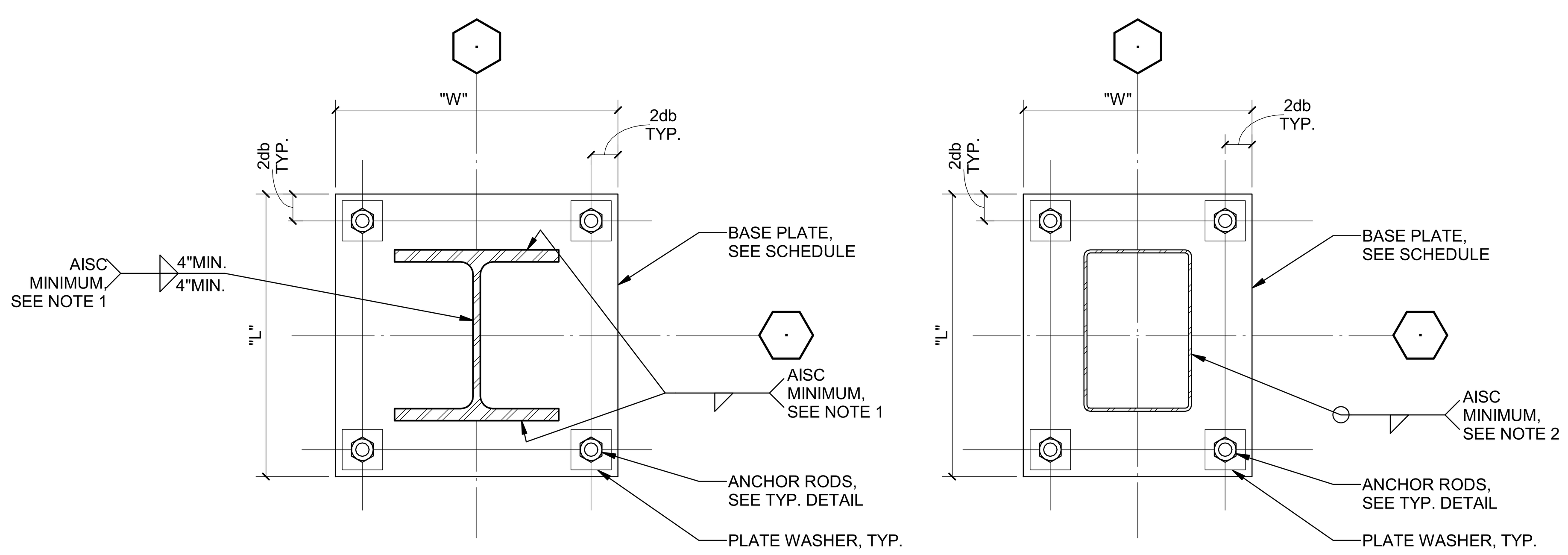
NOTES:
1. CIRCULAR OR SQUARE WASHERS ARE ACCEPTABLE.

2 ANCHOR ROD DETAIL
S3.10
SCALE: 1 1/2" = 1'-0"



NOTES:
1. AT EXTERIOR COLUMNS, COAT BELOW GRADE PORTION OF COLUMN AND BASE PLATE WITH BITUMINOUS MASTIC AND PROVIDE 1/2" PREFORMED JOINT FILLER AROUND COLUMNS. AT INTERIOR COLUMNS, PROVIDE 30# ROOFING FELT.

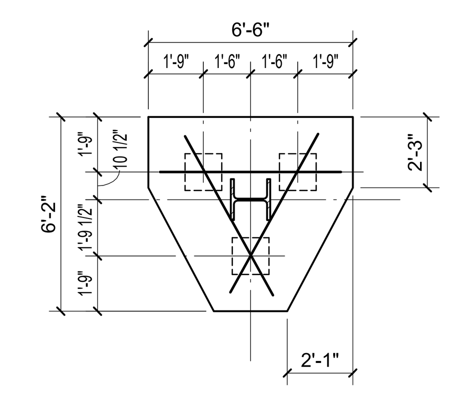
3 TYPICAL COLUMN AND PILE CAP DETAIL
S3.10
SCALE: 3/4" = 1'-0"



NOTES:
1. AT MOMENT FRAME COLUMNS, PROVIDE 5/16" FILLET WELD ALL AROUND. SEE FLOOR AND ROOF FRAMING PLANS FOR MOMENT FRAMES.
2. PROVIDE WELD IN WORKABLE FLAT PORTION OF TUBE, TYPICAL.

4 TYPICAL BASE PLATE DETAIL
S3.10
SCALE: 1 1/2" = 1'-0"

PILE CAP SCHEDULE FOR 14" SQ. PRECAST PILES 80 TON COMPRESSION AND 60 TON TENSION PILES

P3:


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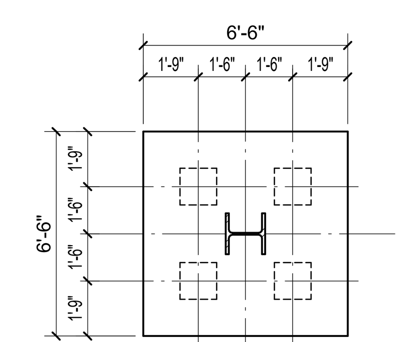

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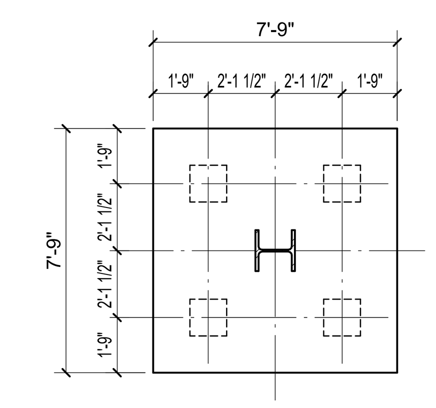
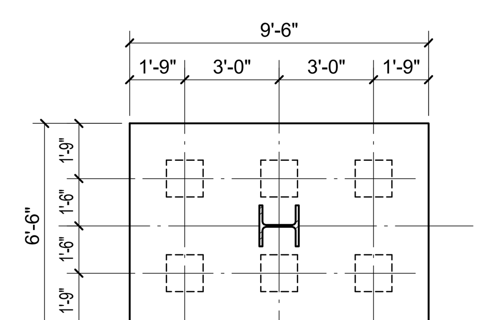


P6:


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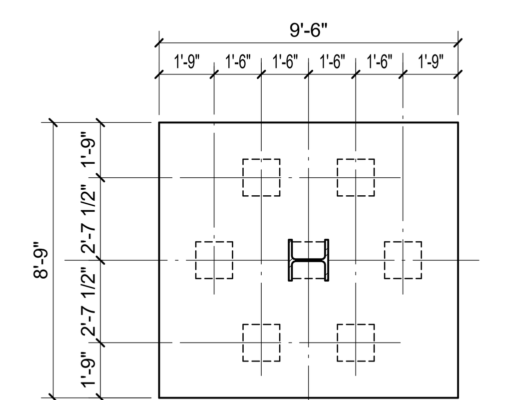

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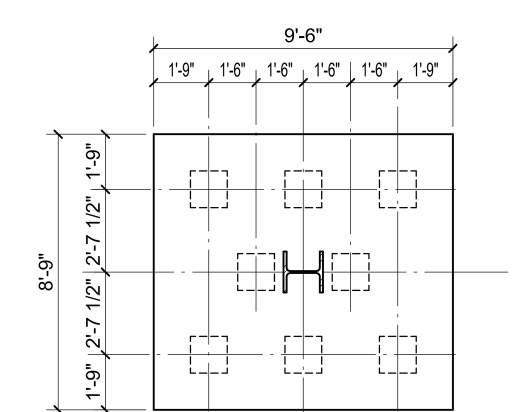
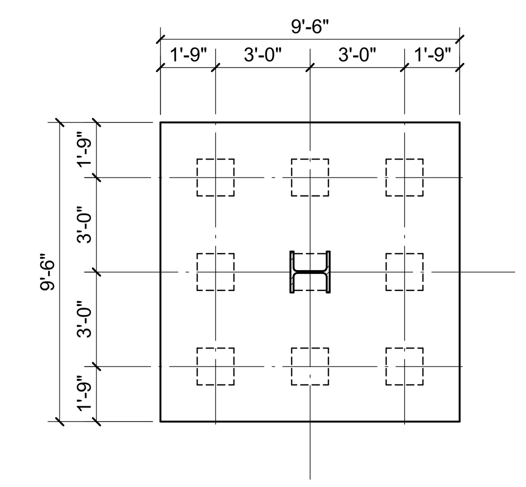
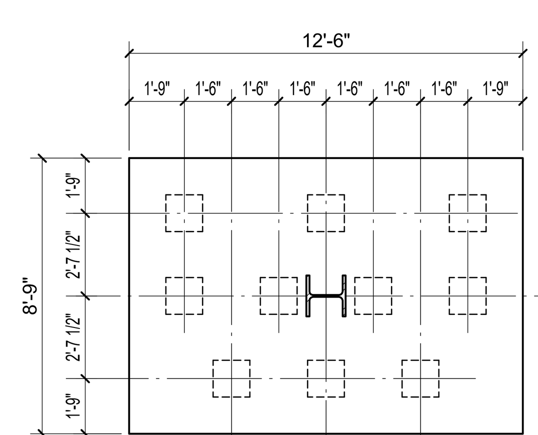


P9:


P10:


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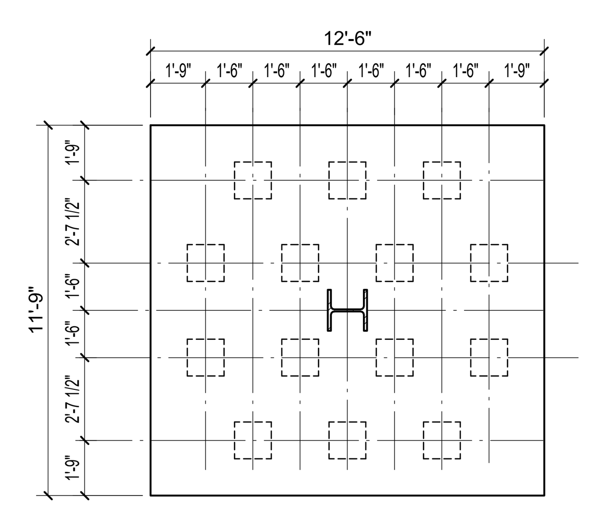

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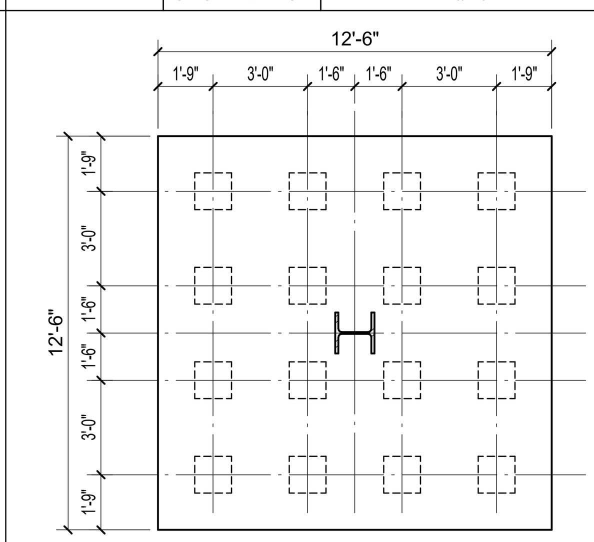
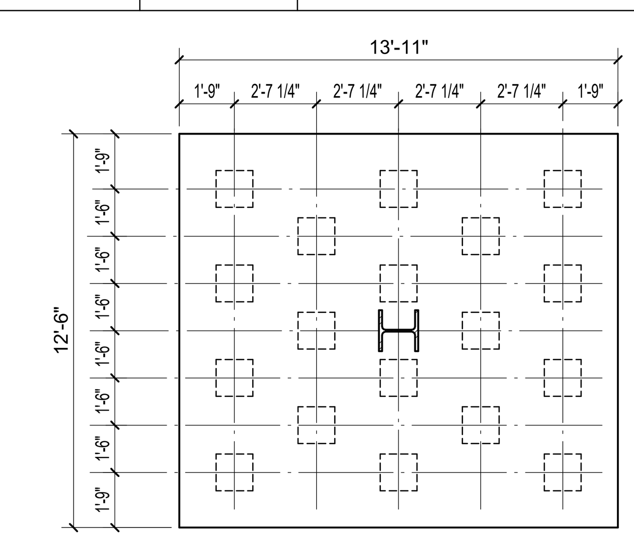


P18:


MARK		
P3	THICKNESS	35"
	BARS, EACH WAY (x3)	3#9 HK
P4	THICKNESS	35"
	BARS, EACH WAY	7#9 HK
P5	THICKNESS	35"
	BARS, EACH WAY	7#10 HK T&B AT E1
P6	THICKNESS	43"
	LONG BARS	9#9 HK T&B AT A1
	SHORT BARS	10#9 HK T&B AT A1
P7	THICKNESS	45"
	LONG BARS	8#10 HK T&B AT A7 & E7
	SHORT BARS	10#9 HK T&B AT A7 & E7
P8	THICKNESS	40"
	LONG BARS	12#9 HK
	SHORT BARS	11#10 HK
P9	THICKNESS	46"
	BARS, EACH WAY	15#9 HK
P10	THICKNESS	49"
	LONG BARS	10#11 HK
	SHORT BARS	11#10 HK
P14	THICKNESS	49"
	LONG BARS	17#10 HK T&B
	SHORT BARS	18#10 HK T&B
P16	THICKNESS	53"
	BARS, EACH WAY	21#10 HK T&B
P18	THICKNESS	57"
	LONG BARS	19#11 HK T&B
	SHORT BARS	21#10 HK T&B

NOTES:
1. "HK" = HOOK EACH SIDE OF ALL BARS 180 DEGREES.
2. SEE GENERAL NOTES FOR REQUIRED PILE AND PILE CAP CONCRETE STRENGTHS.
3. ALL REINFORCEMENT SHOWN IS BOTTOM REINFORCEMENT, UNLESS NOTED OTHERWISE. SEE DETAIL 3/S3.01 FOR ADDITIONAL INFORMATION.
4. SEE 3/S3.00 FOR PILE DETAIL.
5. LAYOUT PILES PER DIMENSIONS SHOWN ON THIS DETAIL AND NOT AS SHOWN ON PLAN.

5 PRECAST PILE CAP SCHEDULE1
S3.10
SCALE: 1/4" = 1'-0"

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SHEET NUMBER
S3.10

	A-1	A-2	A-3	A-4	A-5	A-6	A-7	B-7.3
ROOF 263'-6" / LEVEL 12 250'-0" / LEVEL 11 236'-6"	W24X55	W24X55	W24X55	W24X55	W24X55	W24X55	W24X55	W12x40
LEVEL 10 223'-0" / LEVEL 09 209'-6"	W24X62	W24X76	W24X76	W24X76	W24X76	W24X76	W24X68	W14x43
LEVEL 08 196'-0" / LEVEL 07 182'-6"	W24X68	W24X103	W24X131	W24X131	W24X131	W24X131	W24X94	W14x43
LEVEL 06 169'-0" / LEVEL 05 155'-6"	W24X84	W24X162	W24X162	W24X162	W24X162	W24X162	W24X104	W14x43
LEVEL 04 142'-0" / LEVEL 03 128'-6"	W24X103	W24X192	W24X192	W24X192	W24X192	W24X192	W24X131	W14x43
LEVEL 02 115'-0" / LEVEL 01 100'-0"	W24X131	W24X207	W27X217	W27X217	W24X207	W24X207	W24X229	W14x90
Anchor Rods	(10) 2" DIA.x16"	(12) 2" DIA.x16"	(12) 2" DIA.x16"	(12) 2" DIA.x16"	(12) 2" DIA.x16"	(12) 2" DIA.x16"	(12) 2" DIA.x16"	(4) 1" DIA.
Base Plate	3 1/4"x50"x4'-2"	3 1/4"x54"x5'-4"	3 1/4"x54"x5'-4"	3 1/4"x54"x5'-4"	3 1/4"x54"x5'-4"	3 1/4"x54"x5'-4"	3 1/4"x54"x5'-4"	1 1/2"x28"x2'-4"
Remarks								
Column Locations	A-1	A-2	A-3	A-4	A-5	A-6	A-7	B-7.3

	C-1	C-2	C-3	C-4	C-5	C-6	C-7.3	D-1
ROOF 263'-6" / LEVEL 12 250'-0" / LEVEL 11 236'-6"	W14x43	W14x43	W14x48	W14x43	W14x43	W14x43	W14x43	W14x43
LEVEL 10 223'-0" / LEVEL 09 209'-6"	W14x61	W14x68	W14x74	W14x61	W14x61	W14x74	W14x61	W14x61
LEVEL 08 196'-0" / LEVEL 07 182'-6"	W14x68	W14x99	W14x99	W14x90	W14x90	W14x109	W14x74	W14x68
LEVEL 06 169'-0" / LEVEL 05 155'-6"	W14x82	W14x145	W14x132	W14x132	W14x145	W14x159	W14x90	W14x82
LEVEL 04 142'-0" / LEVEL 03 128'-6"	W14x90	W14x211	W14x159	W14x193	W14x193	W14x233	W14x99	W14x90
LEVEL 02 115'-0" / LEVEL 01 100'-0"	W14x109	W14x283	W14x193	W14x257	W14x283	W14x342	W14x120	W14x109
Anchor Rods	(4) 1" DIA.	(12) 2" DIA.x24"	(4) 1" DIA.	(12) 2" DIA.x24"	(12) 2" DIA.x24"	(12) 2" DIA.x24"	(4) 1" DIA.	(4) 1" DIA.
Base Plate	2"x22"x1'-10"	4 1/2"x48"x4'-6"	3"x28"x2'-4"	4 1/2"x48"x4'-6"	4 1/2"x48"x4'-6"	4 1/2"x48"x4'-6"	2 3/4"x28"x2'-4"	2"x22"x1'-10"
Remarks								
Column Locations	C-1	C-2	C-3	C-4	C-5	C-6	C-7.3	D-1

	D-2	D-3	D-4	D-5	D-6	D-7.3	D-8
ROOF 263'-6" / LEVEL 12 250'-0" / LEVEL 11 236'-6"	W14x43	W14x48	W14x43	W14x43	W14x43	W14x48	W12x40
LEVEL 10 223'-0" / LEVEL 09 209'-6"	W14x68	W14x74	W14x61	W14x61	W14x74	W14x68	W12x40
LEVEL 08 196'-0" / LEVEL 07 182'-6"	W14x99	W14x99	W14x90	W14x90	W14x109	W14x90	W12x40
LEVEL 06 169'-0" / LEVEL 05 155'-6"	W14x145	W14x132	W14x132	W14x145	W14x159	W14x109	W12x53
LEVEL 04 142'-0" / LEVEL 03 128'-6"	W14x211	W14x159	W14x193	W14x193	W14x233	W14x132	W12x53
LEVEL 02 115'-0" / LEVEL 01 100'-0"	W14x283	W14x193	W14x257	W14x283	W14x342	W14x159	W12x65
Anchor Rods	(12) 2" DIA.x24"	(6) 1" DIA.	(12) 2" DIA.x24"	(12) 2" DIA.x24"	(12) 2" DIA.x24"	(4) 1" DIA.	(4) 1" DIA.
Base Plate	4 1/2"x48"x4'-6"	3"x28"x2'-4"	4 1/2"x48"x4'-6"	4 1/2"x48"x4'-6"	4 1/2"x48"x4'-6"	3"x28"x2'-4"	1 3/4"x24"x2'-0"
Remarks							
Column Locations	D-2	D-3	D-4	D-5	D-6	D-7.3	D-8

	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8
ROOF 263'-6" / LEVEL 12 250'-0" / LEVEL 11 236'-6"	W24X55	W24X55	W24X55	W24X55	W24X55	W24X55	W24X55	W12x40
LEVEL 10 223'-0" / LEVEL 09 209'-6"	W24X62	W24X76	W24X76	W24X76	W24X76	W24X76	W24X68	W12x40
LEVEL 08 196'-0" / LEVEL 07 182'-6"	W24X68	W24X103	W24X131	W24X131	W24X131	W24X117	W24X94	W12x53
LEVEL 06 169'-0" / LEVEL 05 155'-6"	W24X84	W24X162	W24X162	W24X162	W24X162	W24X162	W24X104	W12x58
LEVEL 04 142'-0" / LEVEL 03 128'-6"	W24X103	W24X192	W24X192	W24X192	W24X192	W24X192	W24X131	W12x65
LEVEL 02 115'-0" / LEVEL 01 100'-0"	W24X131	W24X207	W27X217	W27X217	W24X207	W24X207	W24X229	W12x87
Anchor Rods	(10) 2" DIA.x16"	(12) 2" DIA.x16"	(12) 2" DIA.x16"	(12) 2" DIA.x16"	(12) 2" DIA.x16"	(12) 2" DIA.x16"	(12) 2" DIA.x16"	(4) 1" DIA.
Base Plate	3 1/4"x50"x4'-2"	3 1/4"x54"x5'-4"	3 1/4"x54"x5'-4"	3 1/4"x54"x5'-4"	3 1/4"x54"x5'-4"	3 1/4"x54"x5'-4"	3 1/4"x54"x5'-4"	2"x20"x1'-8"
Remarks								
Column Locations	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8

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TITLE

COLUMN SCHEDULE

SHEET NUMBER

S4.00

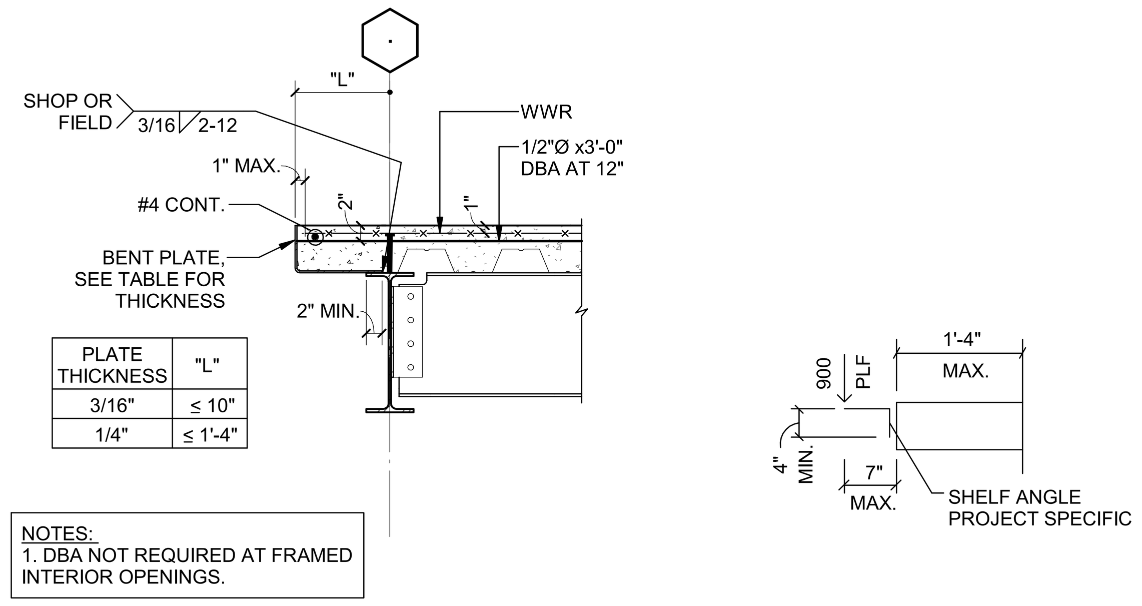


PLATE THICKNESS	"L"
3/16"	≤ 10"
1/4"	≤ 1'-4"

NOTES:
1. DBA NOT REQUIRED AT FRAMED INTERIOR OPENINGS.

1 S5.00 FLOOR EDGE BEAM PARALLEL TO DECK
SCALE: 3/4" = 1'-0"

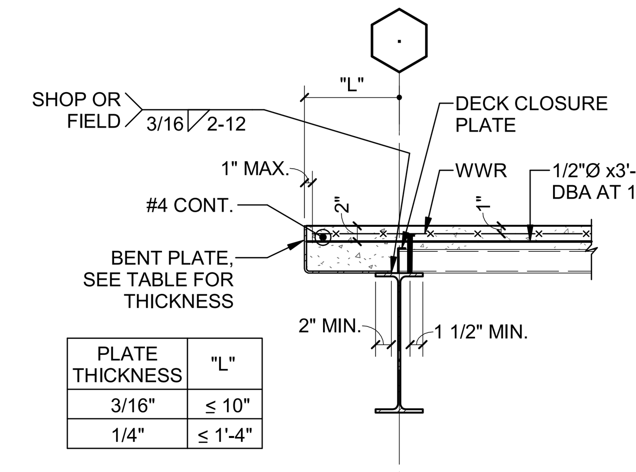
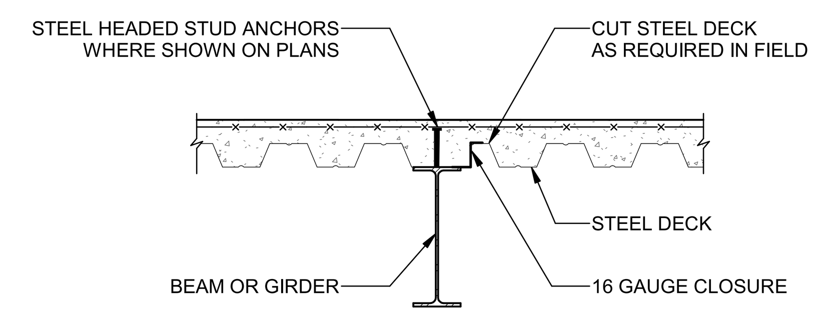


PLATE THICKNESS	"L"
3/16"	≤ 10"
1/4"	≤ 1'-4"

NOTES:
1. DBA NOT REQUIRED AT FRAMED INTERIOR OPENINGS.

2 S5.00 FLOOR EDGE BEAM PERPENDICULAR TO DECK
SCALE: 3/4" = 1'-0"



NOTES:
1. CLOSURE MUST BE WELDED TO THE BEAM AND SCREWED OR WELDED TO THE DECK TO ENSURE THAT THE FLANGE DOES NOT FALL UNDER HIGH CELL RESULTING IN UNBRACED BEAM. SEE GENERAL NOTES FOR ATTACHMENT.
2. DETAIL SIMILAR AT ROOF DECK.

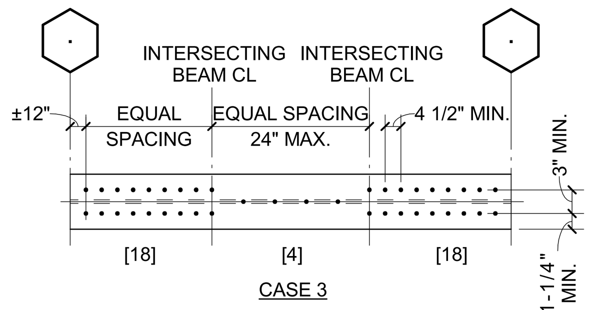
3 S5.00 TYPICAL DECK PARALLEL TO STEEL BEAM
SCALE: 3/4" = 1'-0"

DECK PERPENDICULAR TO BEAM

CASE 1: FEWER STUDS THAN FLUTES
PLACE ONE STUD IN EVERY OTHER FLUTE STARTING AT BEAM ENDS. IF STUDS REMAIN, PLACE IN FLUTES NOT ALREADY HAVING A STUD, STARTING AT BEAM ENDS AND CONTINUING TOWARD BEAM CENTER. MAXIMUM SPACING ALLOWED IS 24" OC.

CASE 2: MORE STUDS THAN FLUTES
PLACE ONE STUD IN EACH FLUTE FOR ENTIRE LENGTH OF BEAM. IF STUDS REMAIN, PLACE A SECOND STUD IN FLUTES, STARTING AT BEAM ENDS AND CONTINUING TOWARD CENTER. SPACING BETWEEN PAIRS OF STUDS SHALL NOT BE LESS THAN 3".

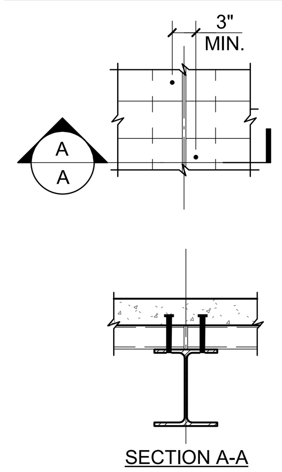
DECK PARALLEL TO BEAM



CASE 3: GIRDER WITH SEGMENTED STUD SPACING
PLACE SPECIFIED NUMBER OF STUDS IN EACH SEGMENT OF GIRDER AT EQUAL SPACES. IF SPACING IS LESS THAN 4 1/2", USE DOUBLE ROW AS REQUIRED.

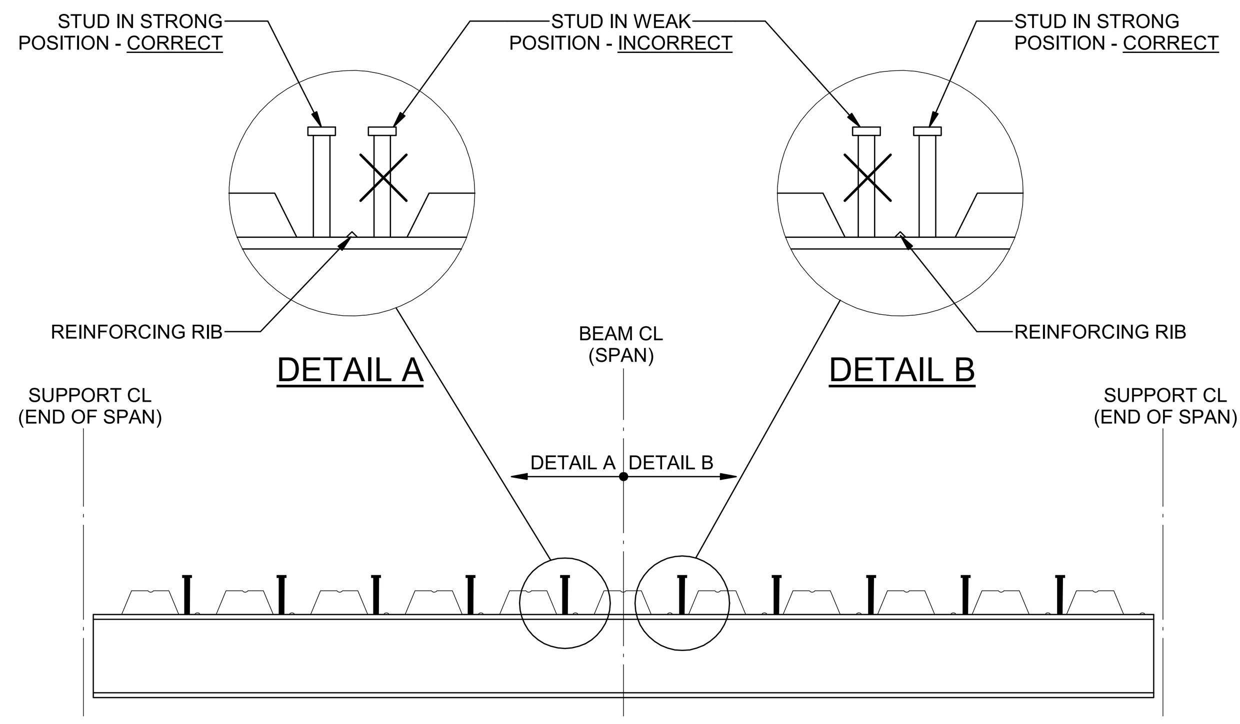
CASE 4: ALL CASES OF DECK PARALLEL WITH UNIFORM STUD SPACING OR FLAT SLABS
PLACE A SINGLE ROW OF STUDS ALONG GIRDER AT EQUAL SPACING. IF SPACING IS LESS THAN 4 1/2", USE DOUBLE ROW AS REQUIRED, STARTING AT BEAM ENDS.

AT BUTT JOINTS:
1. DECK JOINT SHALL BE LOCATED ON BEAM CENTERLINE.
2. STUDS SHALL BE PLACED ON ALTERNATE SIDES OF JOINT.



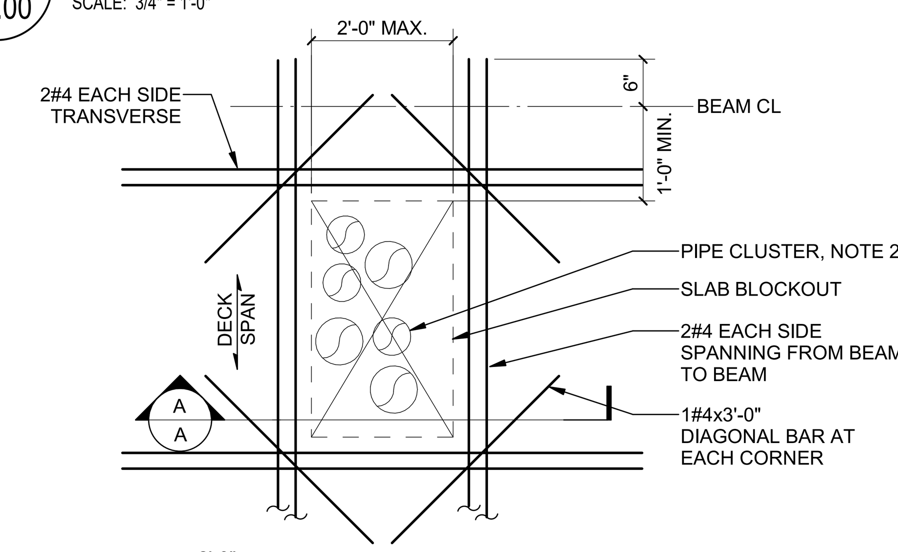
BUTT JOINTS

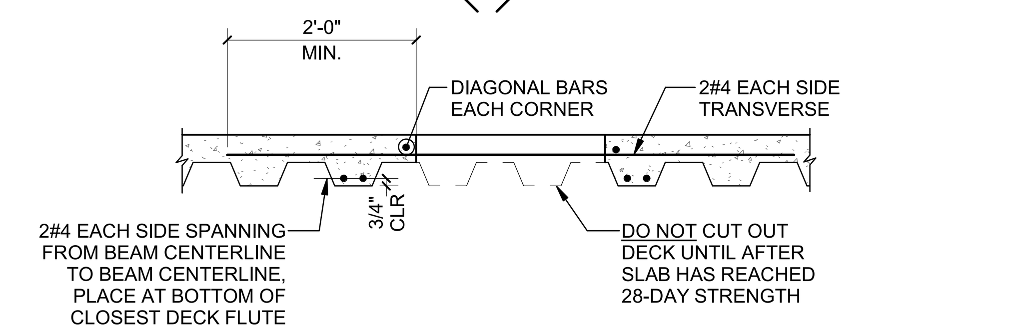
NOTES:
1. ALL STUDS LOCATED IN DECK FLUTES SHALL BE PLACED IN STRONG POSITION. A STUD PLACED ON THE SIDE OF THE REINFORCING RIB NEAREST THE END OF THE SPAN IS IN THE STRONG POSITION.
2. LAY OUT ALL STUDS FOR A BEAM PRIOR TO WELDING.



STUD PLACEMENT DETAIL

4 S5.00 TYPICAL STUD PLACEMENT DETAIL
SCALE: 3/4" = 1'-0"

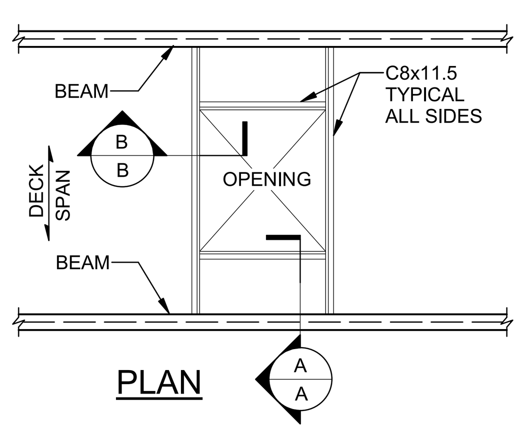




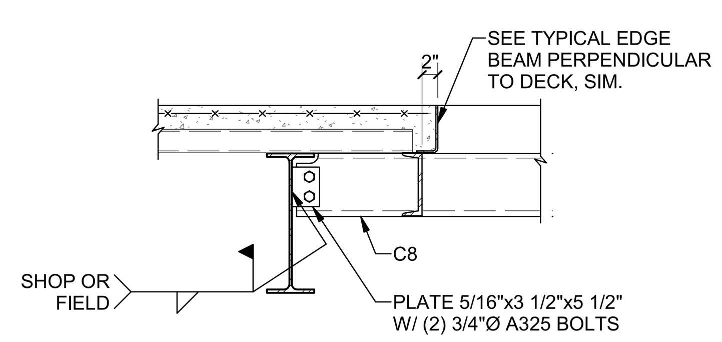
SECTION A-A

NOTES:
1. INDIVIDUAL CORES OR BLOCKOUTS OF 8" OR LESS DO NOT REQUIRE REINFORCING.
2. PIPE CLUSTER: TWO OR MORE PIPES WITH LESS THAN 1'-0" CLEAR BETWEEN PIPES.

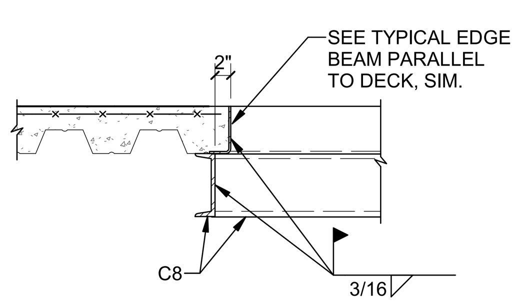
5 S5.00 TYPICAL DECK PENETRATION ≤ 2'-0"
SCALE: 3/4" = 1'-0"



PLAN



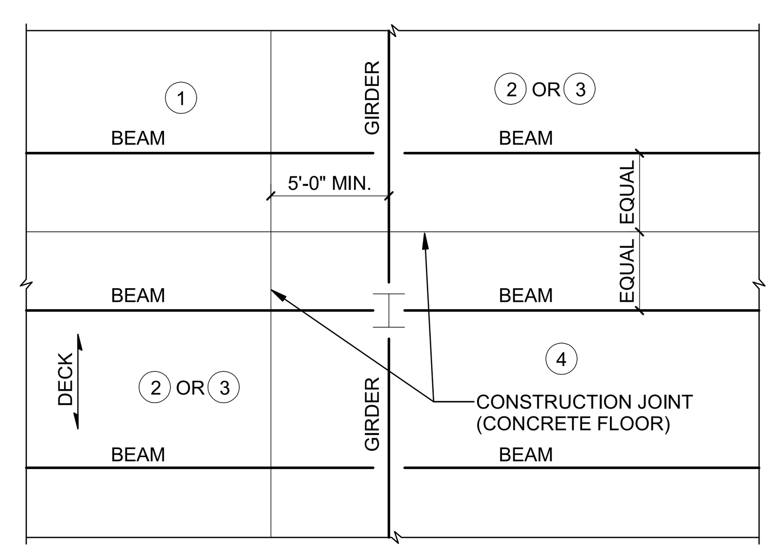
SECTION A-A



SECTION B-B

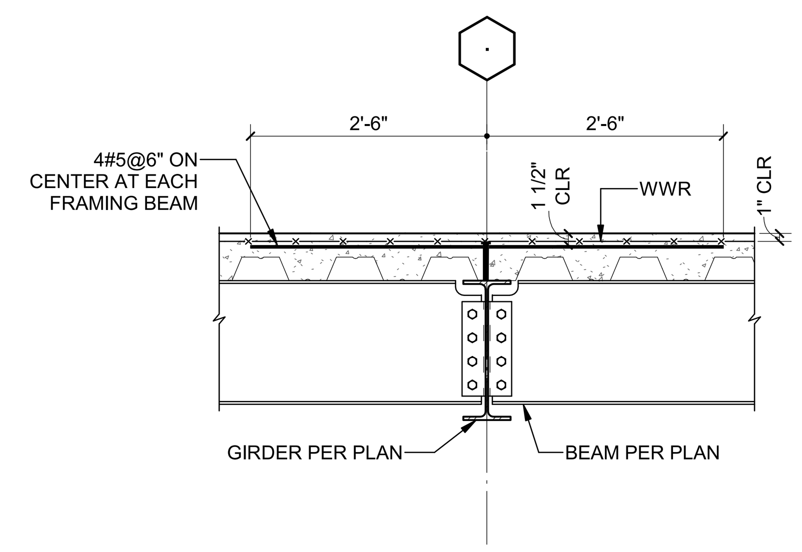
NOTES:
1. MAXIMUM OPENING DIMENSION = 5'-0".
2. SEE STRUCTURAL, ARCHITECTURAL, OR MECHANICAL DRAWINGS FOR LOCATION.

6 S5.00 TYPICAL DETAIL AT COMPOSITE FLOOR OPENING
SCALE: 3/4" = 1'-0"

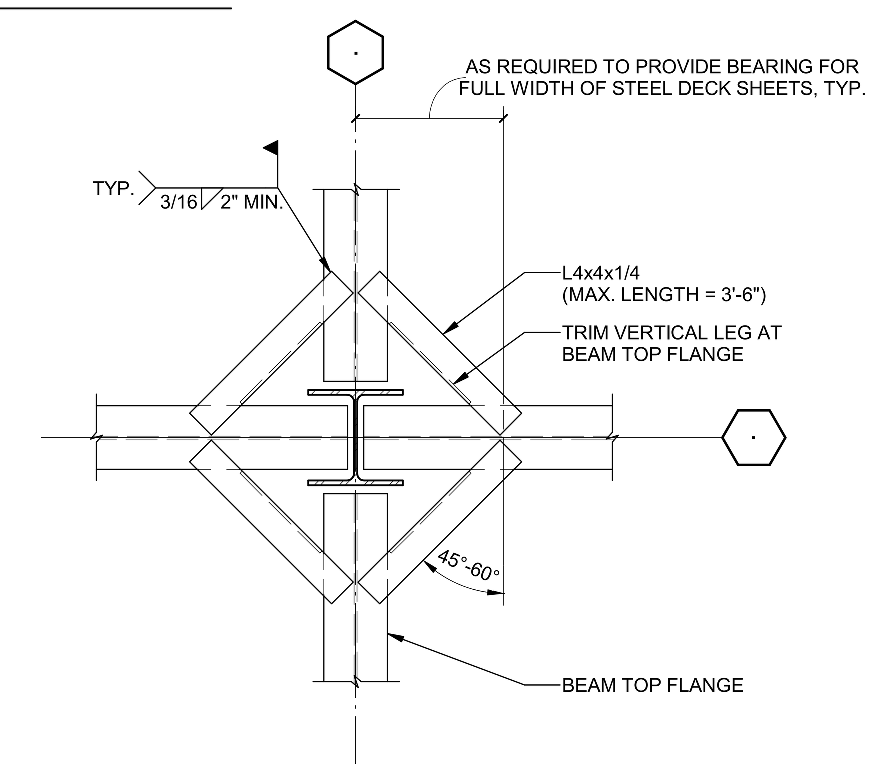


NOTES:
1. # REFERS TO POUR SEQUENCE.
2. CONTINUE SLAB REINFORCING THROUGH CONSTRUCTION JOINTS.

7 S5.00 TYPICAL DETAIL AT COMPOSITE FLOOR CONSTRUCTION JOINT
SCALE: 3/4" = 1'-0"

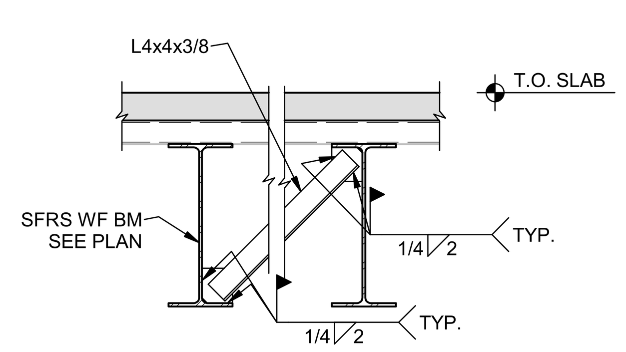


8 S5.00 TYPICAL DETAIL AT GIRDER
SCALE: 3/4" = 1'-0"



ANGLE REINFORCEMENT ONLY REQUIRED:
1. WHERE PIPE SLEEVES OCCUR NEXT TO COLUMN.
2. WHERE COLUMN BASE PLATE OCCURS ON TOP FLANGE OF STEEL BEAM.
3. AT ALL OTHER CONDITIONS WHERE DECK SUPPORT IS INTERRUPTED FOR A DISTANCE GREATER THAN 6".

9 S5.00 TYPICAL INTERRUPTED DECK SUPPORT AT COLUMN
SCALE: 3/4" = 1'-0"



NOTES:
1. USE THIS DETAIL WHERE BOTTOM FLANGE BRACES TO AN ADJACENT WF BEAM ARE SHOWN BUT NOT DETAILED.
2. COORDINATE LOCATIONS OF ANGLES W/ ARCH AND MEP DWGS.

10 S5.00 TYPICAL BEAM BOT. FLANGE BRACING DETAIL
SCALE: 3/4" = 1'-0"

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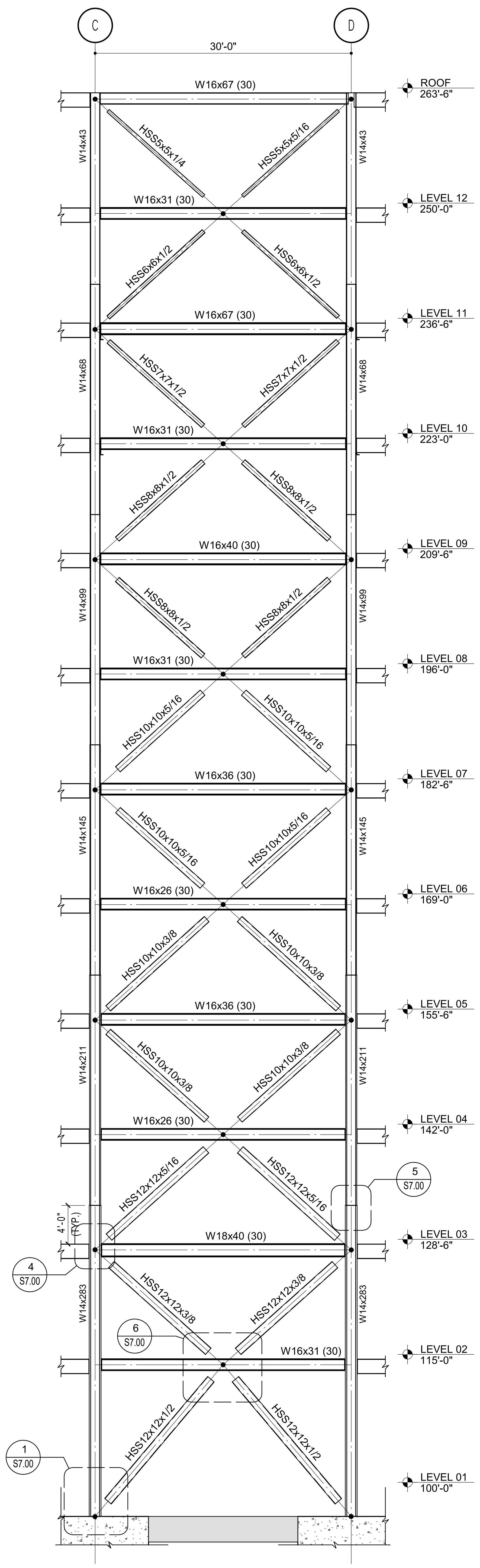
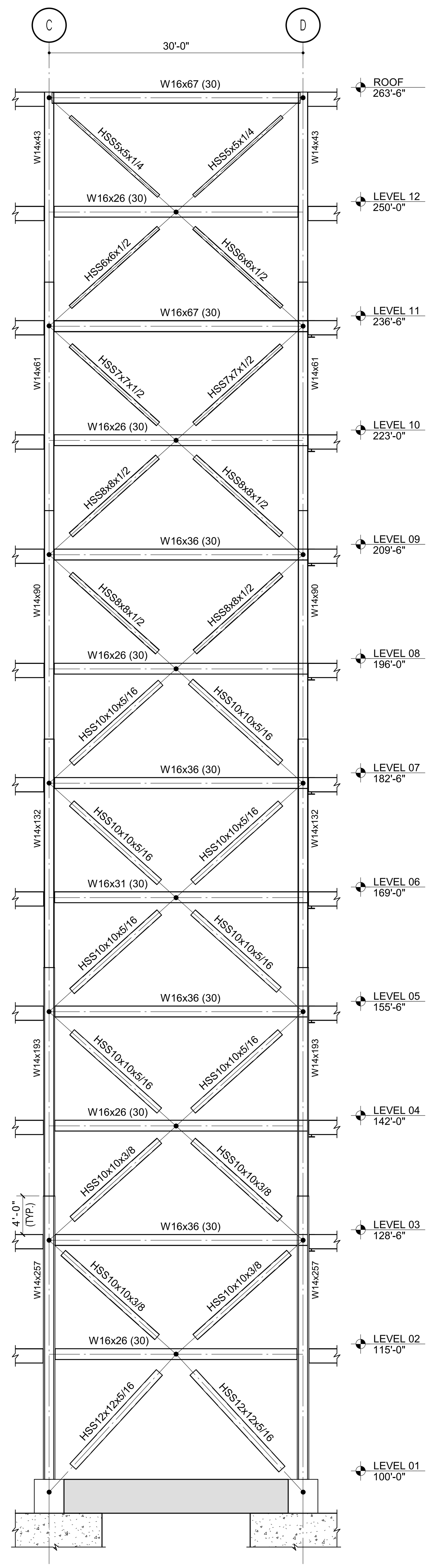
STEEL DETAILS

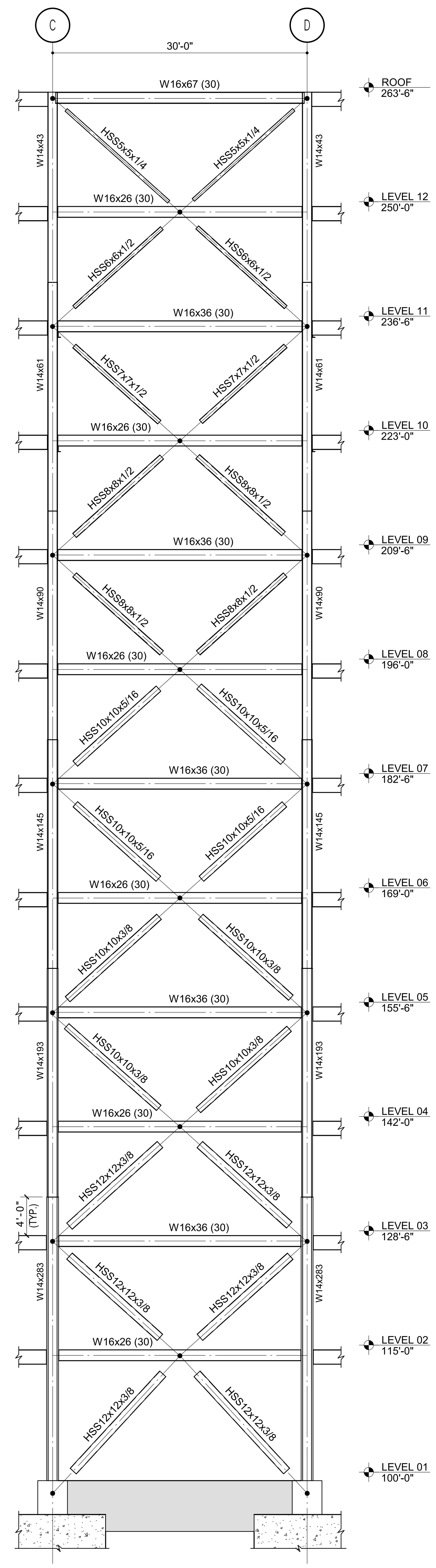
SHEET NUMBER
S5.00



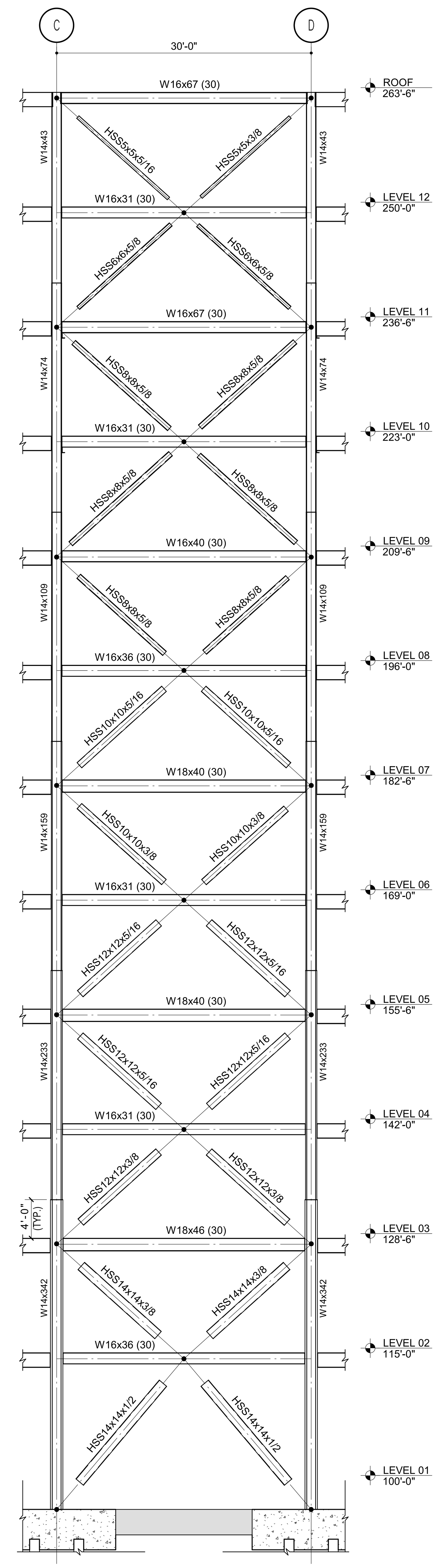
1 S6.00 **ELEVATION ALONG GRID 2 BETWEEN GRID C AND D**
SCALE: 1/8" = 1'-0"



2 S6.00 **ELEVATION ALONG GRID 4 BETWEEN GRID C AND D**
SCALE: 1/8" = 1'-0"



3 S6.00 **ELEVATION ALONG GRID 5 BETWEEN GRID C AND D**
SCALE: 1/8" = 1'-0"



4 S6.00 **ELEVATION ALONG GRID 6 BETWEEN GRID C AND D**
SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. SEE S7.XX SERIES FOR TYPICAL BRACED FRAME DETAILS.

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TITLE
BRACED FRAME ELEVATIONS

SHEET NUMBER
S6.00

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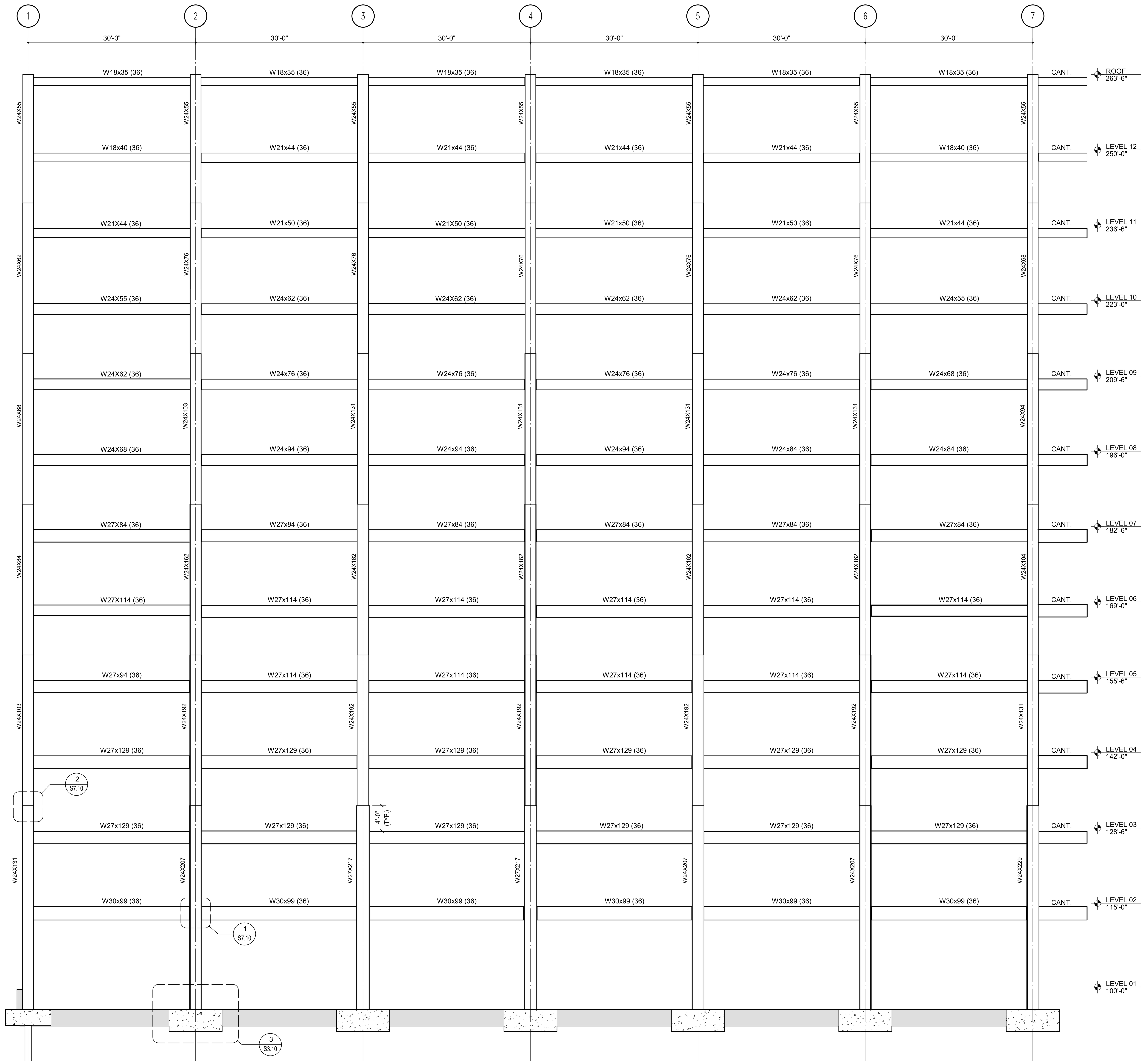

1
S6.10
MOMENT FRAME ELEVATION ALONG GRID A
SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. SEE S7.XX SERIES FOR TYPICAL MOMENT FRAME DETAILS.

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MOMENT FRAME ELEVATIONS

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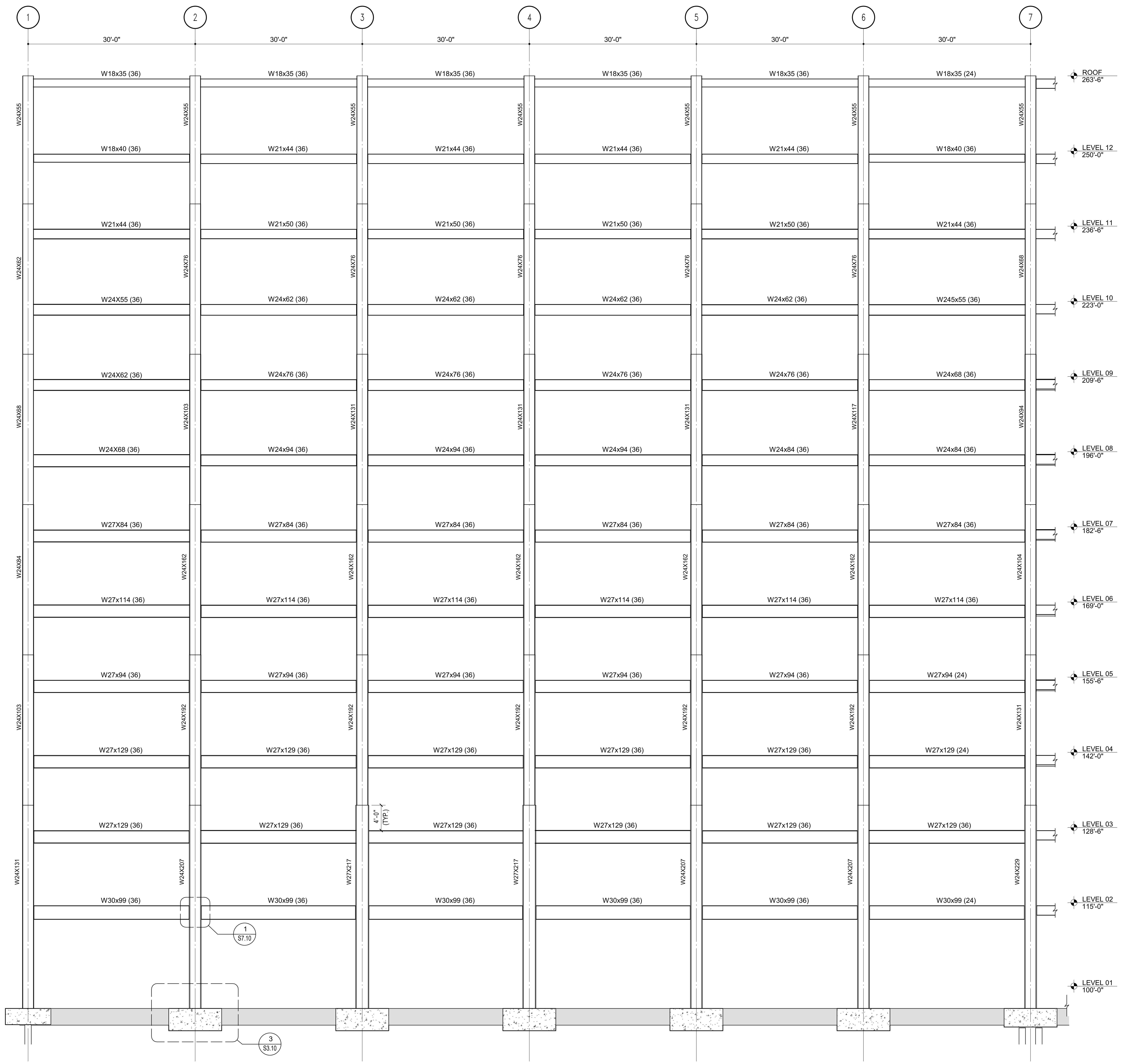

1 S6.20 **MOMENT FRAME ELEVATION ALONG GRID E**

SCALE: 1/8" = 1'-0"

FRAMING NOTES:

1. SEE S7.XX SERIES FOR TYPICAL MOMENT FRAME DETAILS.

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MOMENT FRAME ELEVATIONS

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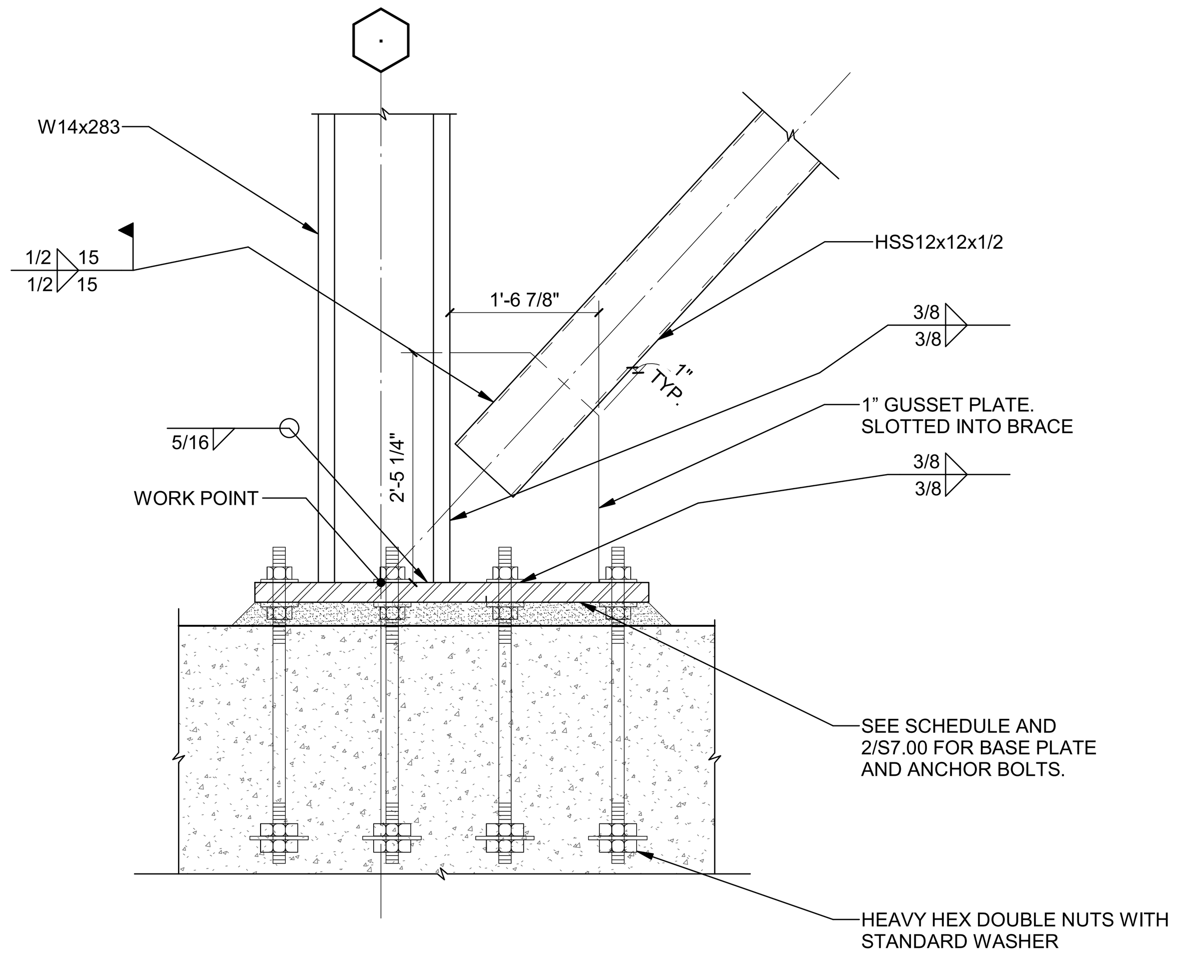
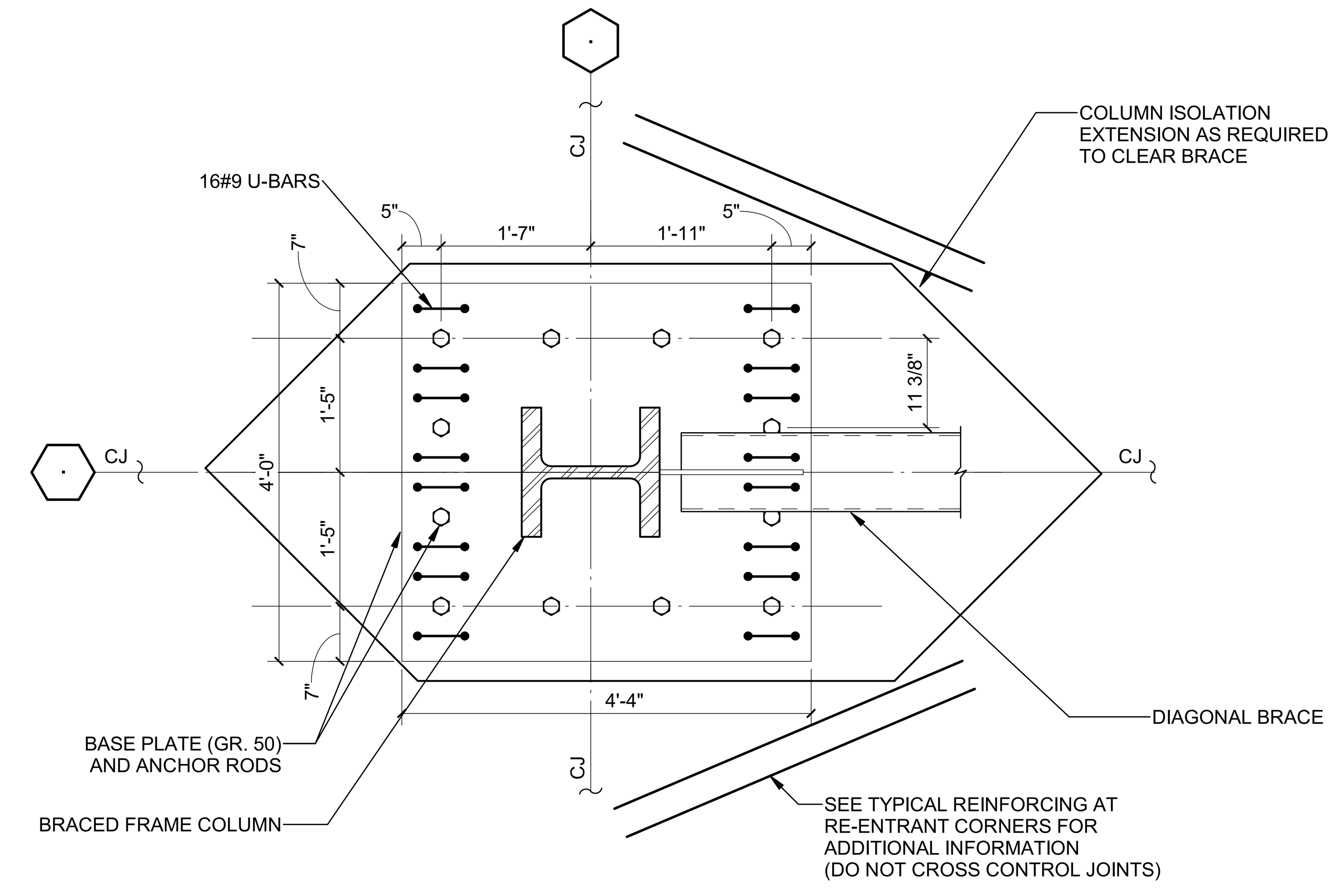
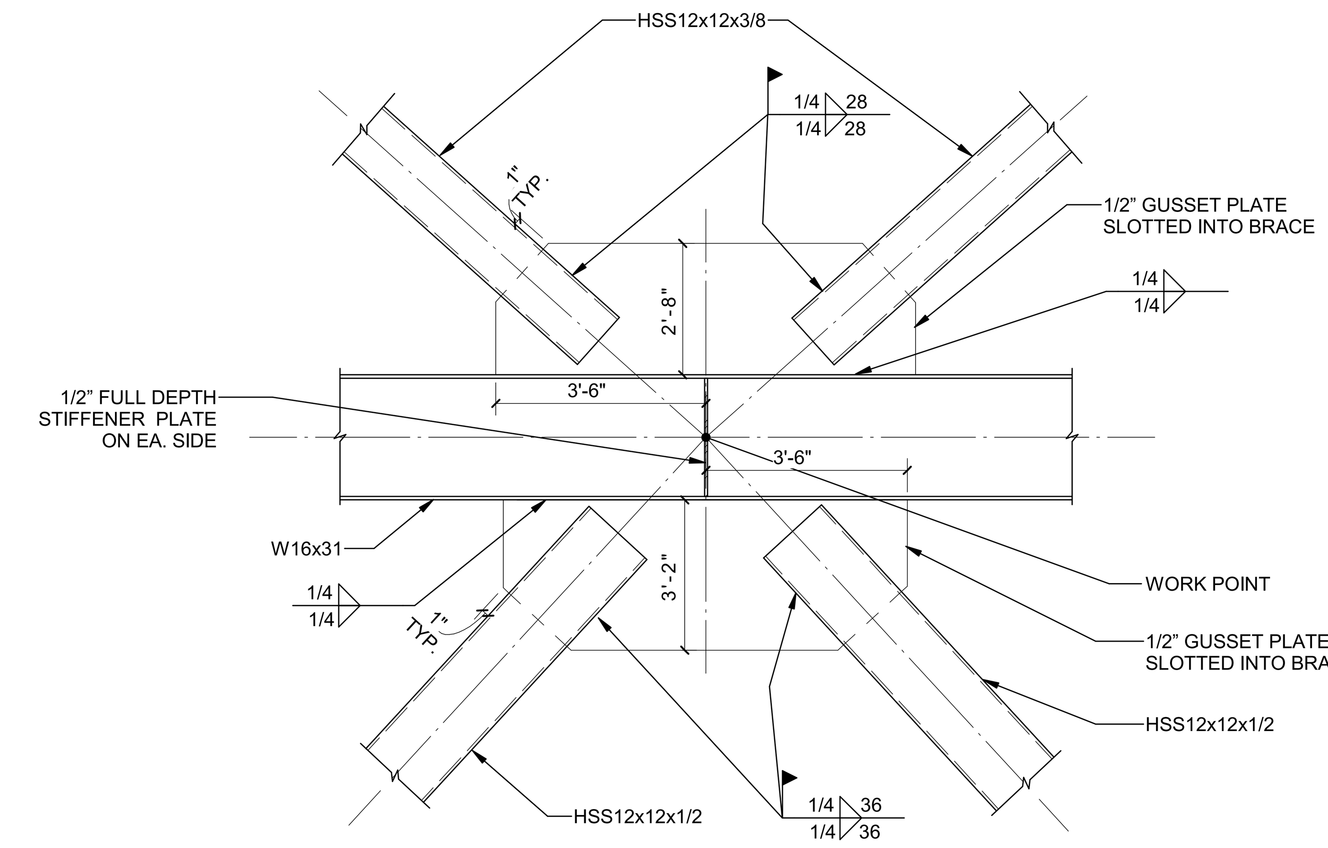


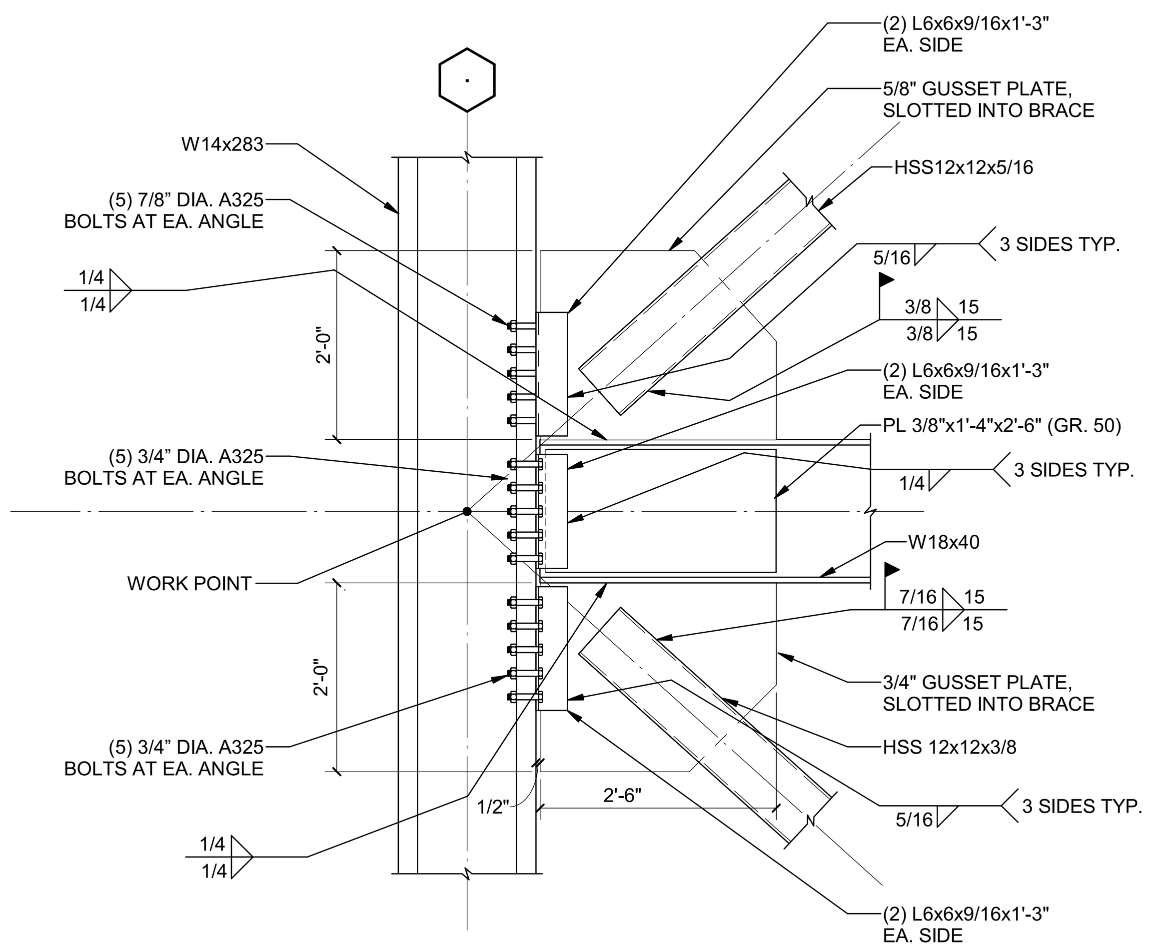
1 S7.00 BRACED FRAME BASE PLATE DETAIL
SCALE: 3/4" = 1'-0"



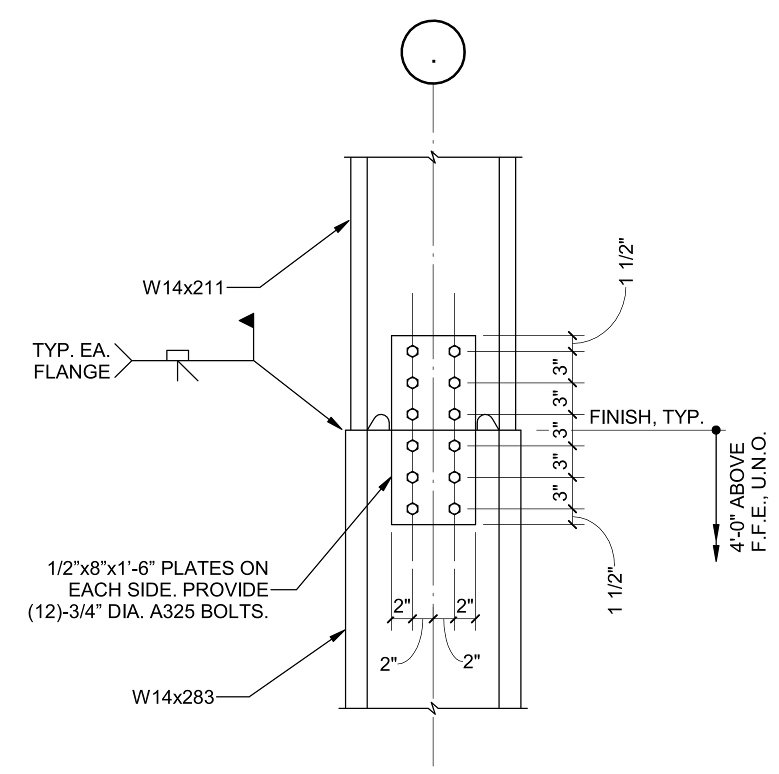
2 S7.00 TYPICAL COLUMN ISOLATION PLAN DETAIL AT BRACED FRAME
SCALE: 3/4" = 1'-0"



6 S7.00 TYPICAL BRACED FRAME CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



4 S7.00 TYPICAL BRACED FRAME CONNECTION DETAIL
SCALE: 3/4" = 1'-0"



5 S7.00 TYPICAL BRACED FRAME COLUMN SPLICE
SCALE: 1" = 1'-0"

FRAMING NOTES:

1. DESIGN OF BRACED FRAME CONNECTION IS A DEFFERED SUBMITTAL THAT SHALL BE SEALED, SIGNED AND DATED BY A STRUCTURAL ENGINEER REGISTERED IN THE PROJECT STATE. ALL CONNECTIONS SHALL BE DESIGNED TO DEVELOP THE FORCES INDICATED ON THE BRACED FRAME ELEVATIONS.
2. "Pu" INDICATES ULTIMATE BRACE FORCE (KIPS) IN TENSION (+) OR COMPRESSION (-).
3. "Vu" INDICATES ULTIMATE SHEAR FORCE (KIPS) DOWNWARDS (+) UPWARDS (-).
4. "Au" INDICATES ULTIMATE DRAG FORCE (KIPS) IN TENSION (+) OR COMPRESSION (-).
5. FORCES AND MEMBERS ARE SYMMETRICAL ABOUT CENTERLINES.
6. INCREASE WELD SIZE BY AMOUNT OF GAP.

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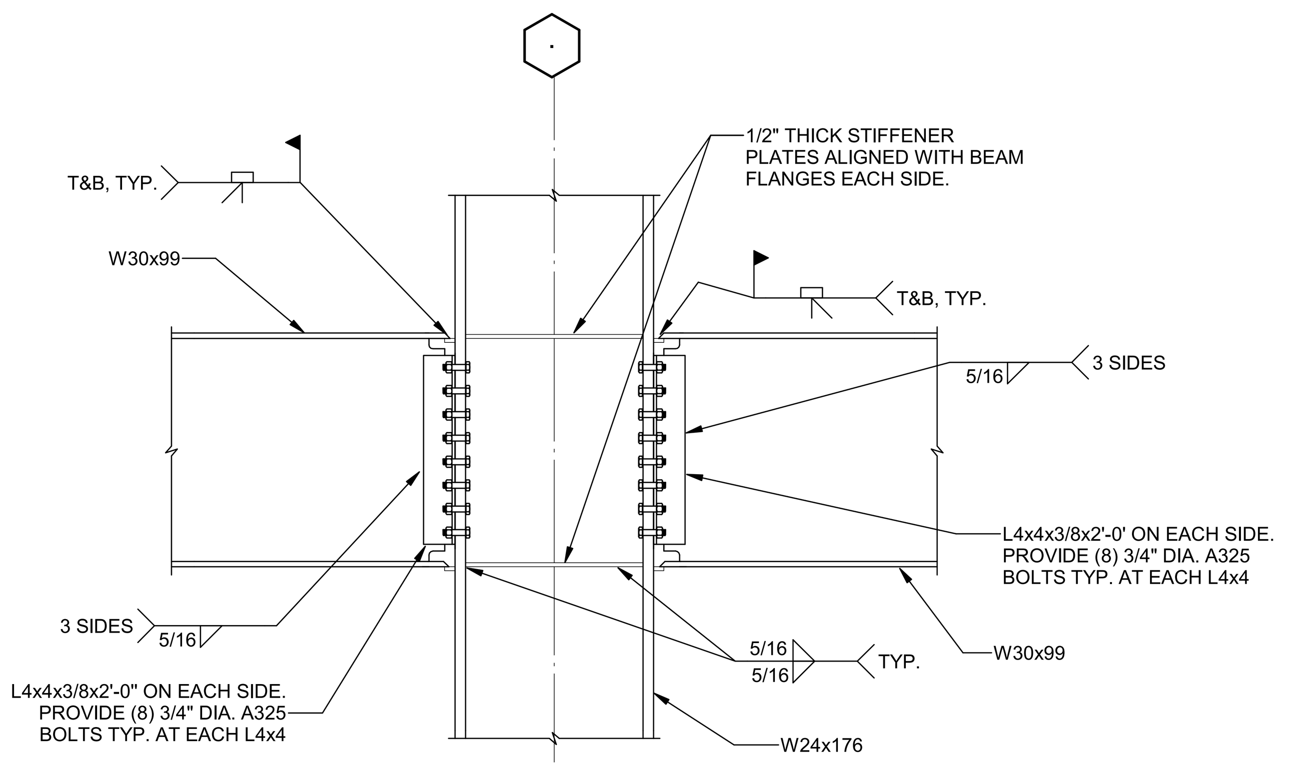
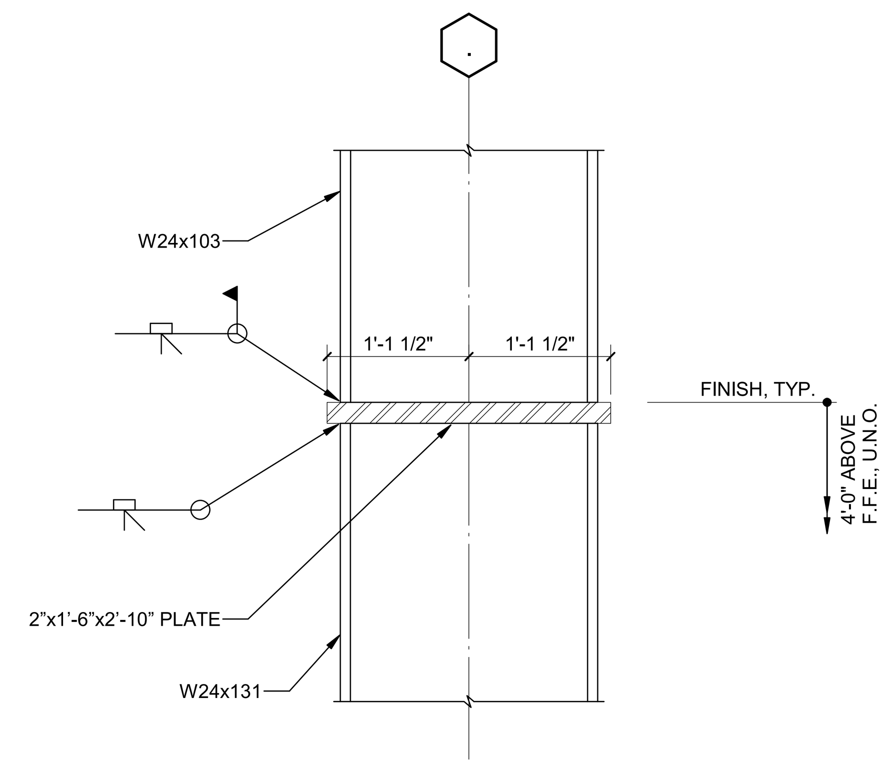
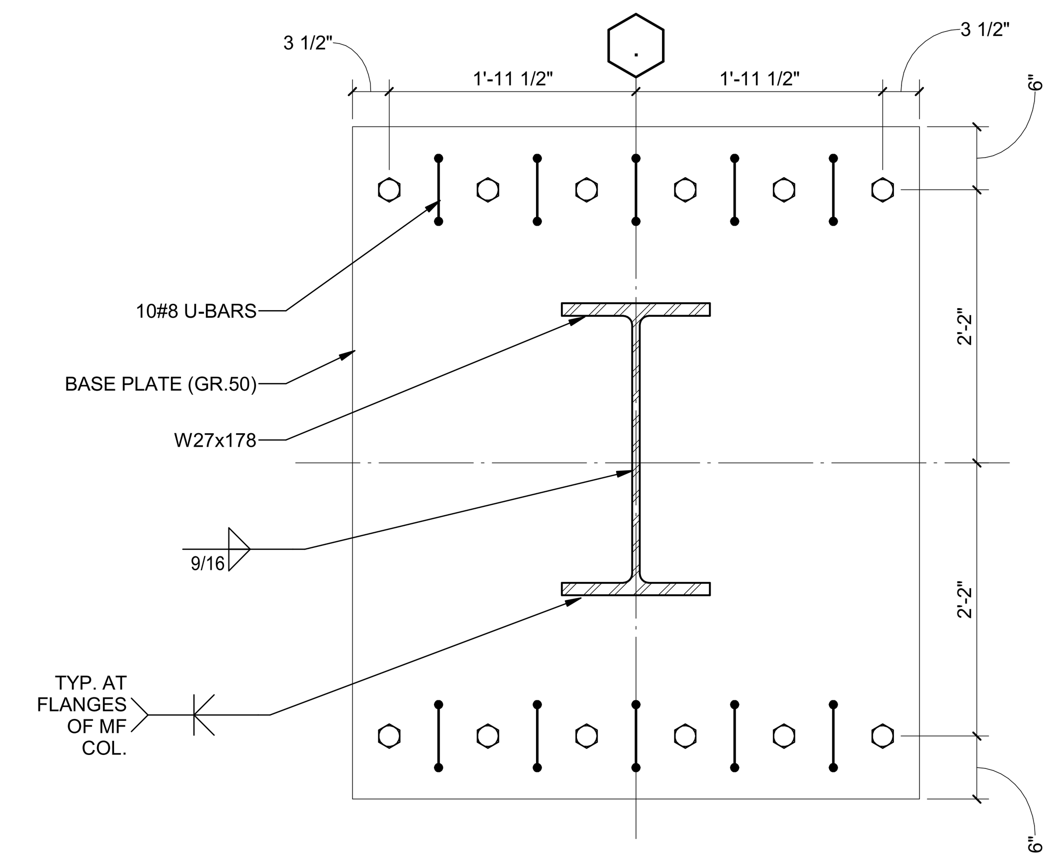


1 S7.10 TYPICAL BEAM TO WF COLUMN FLANGE MOMENT CONNECTION



2 S7.10 TYPICAL MOMENT FRAME COLUMN SPLICE



3 S7.10 TYP. MOMENT FRAME COL. BASE PLATE
SCALE: 1" = 1'-0"

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