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DATE: 10-8-18 DRAWN BY: NJK



DATE NO. REVISIONS KARTAS Engineering RESIDENTIAL / COMMERCIAL DESIGN & ENGINEERING (801) 786-0849 email: KustomNK@gmail.com

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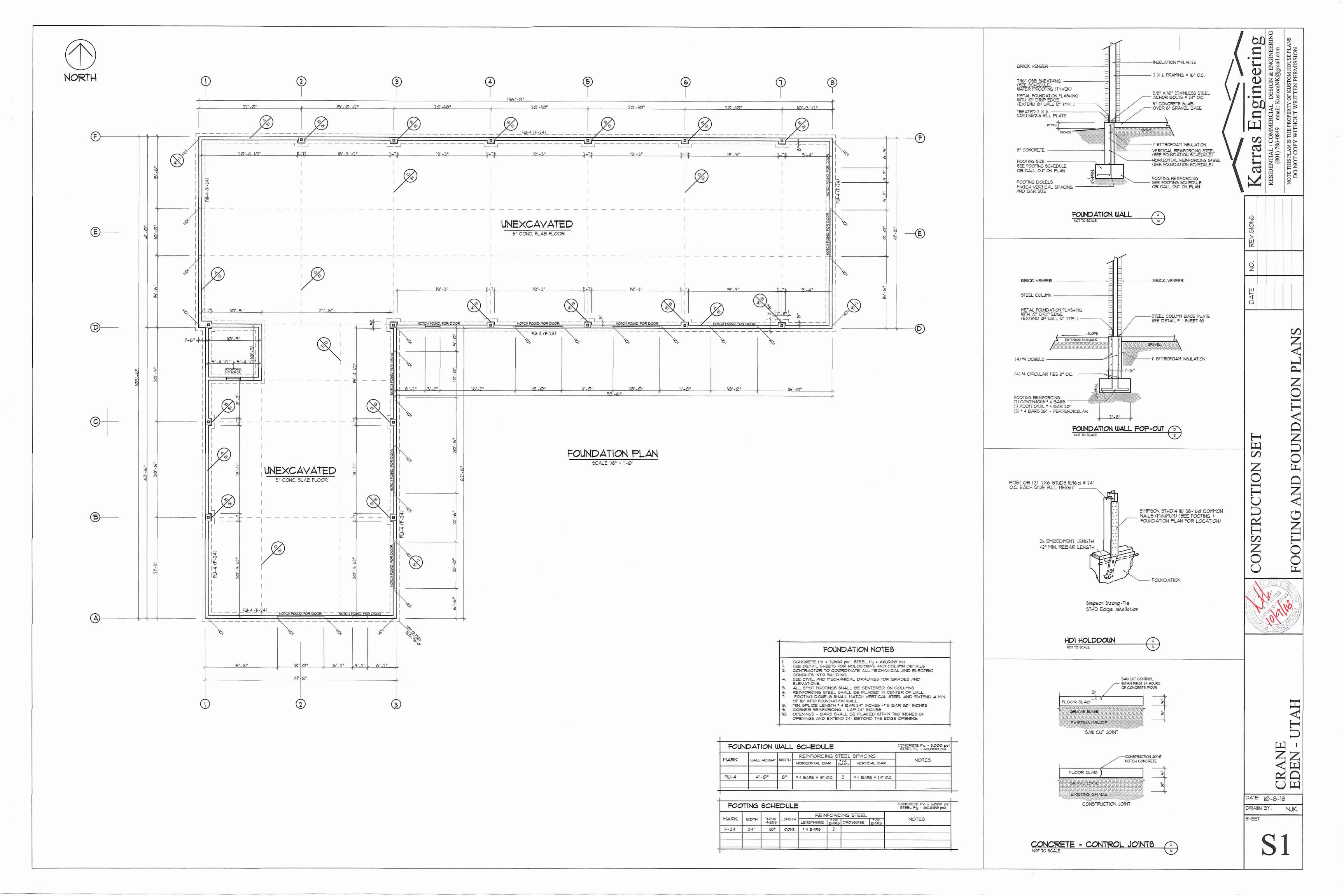
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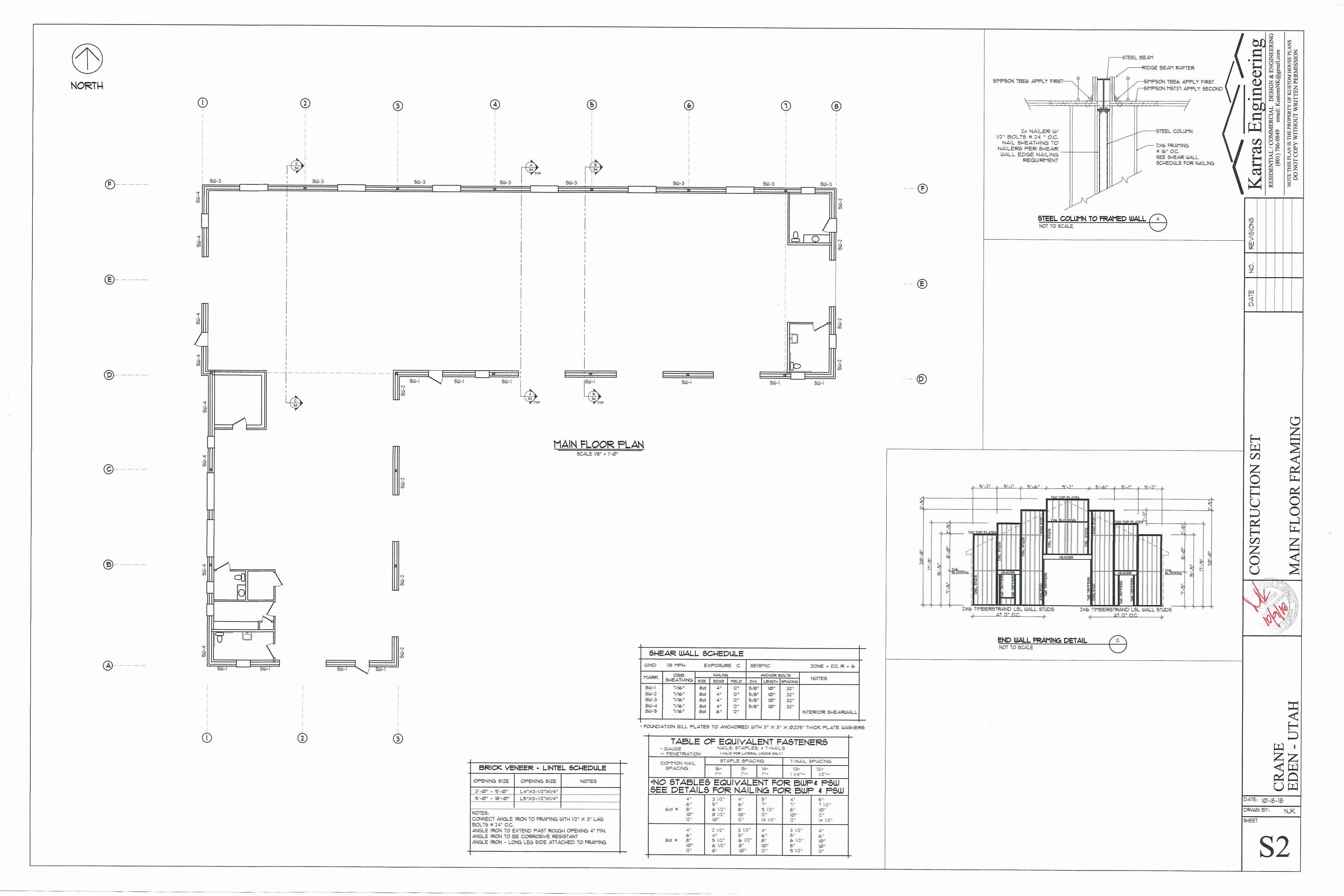
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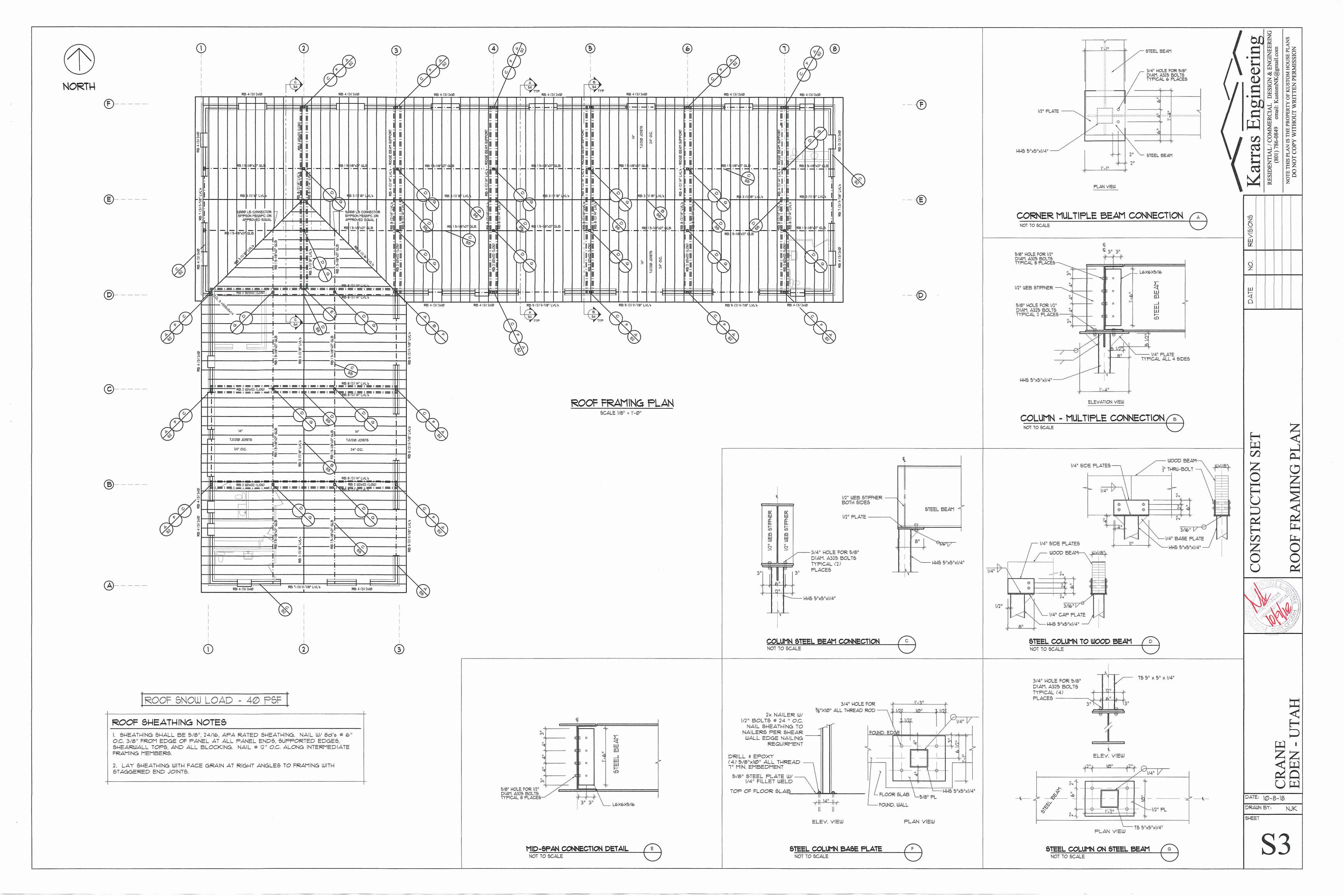
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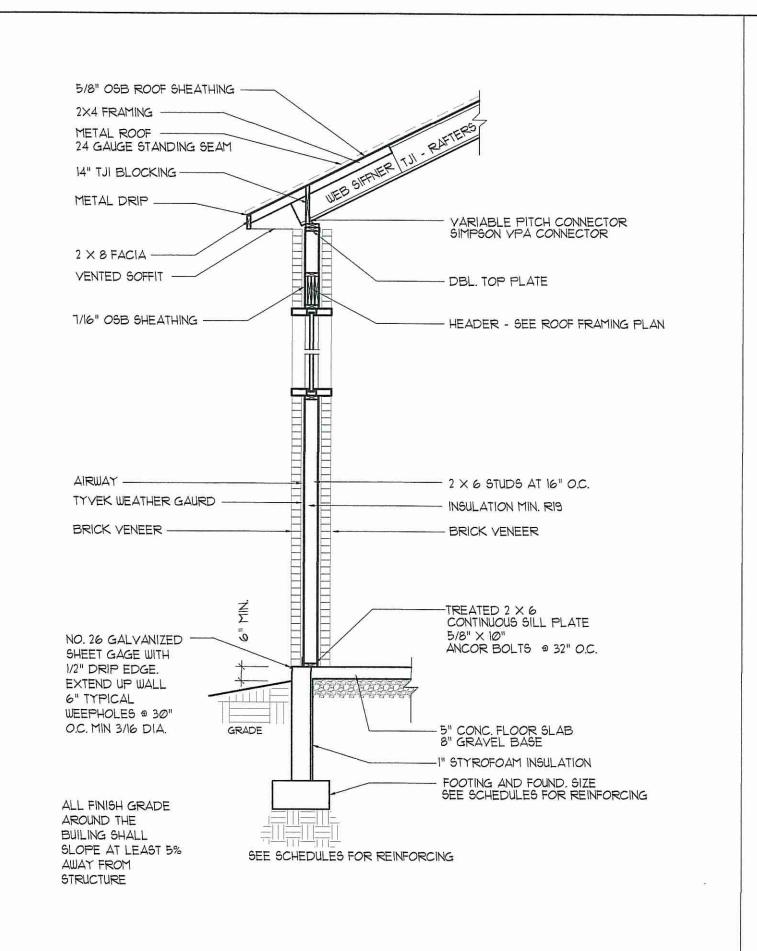
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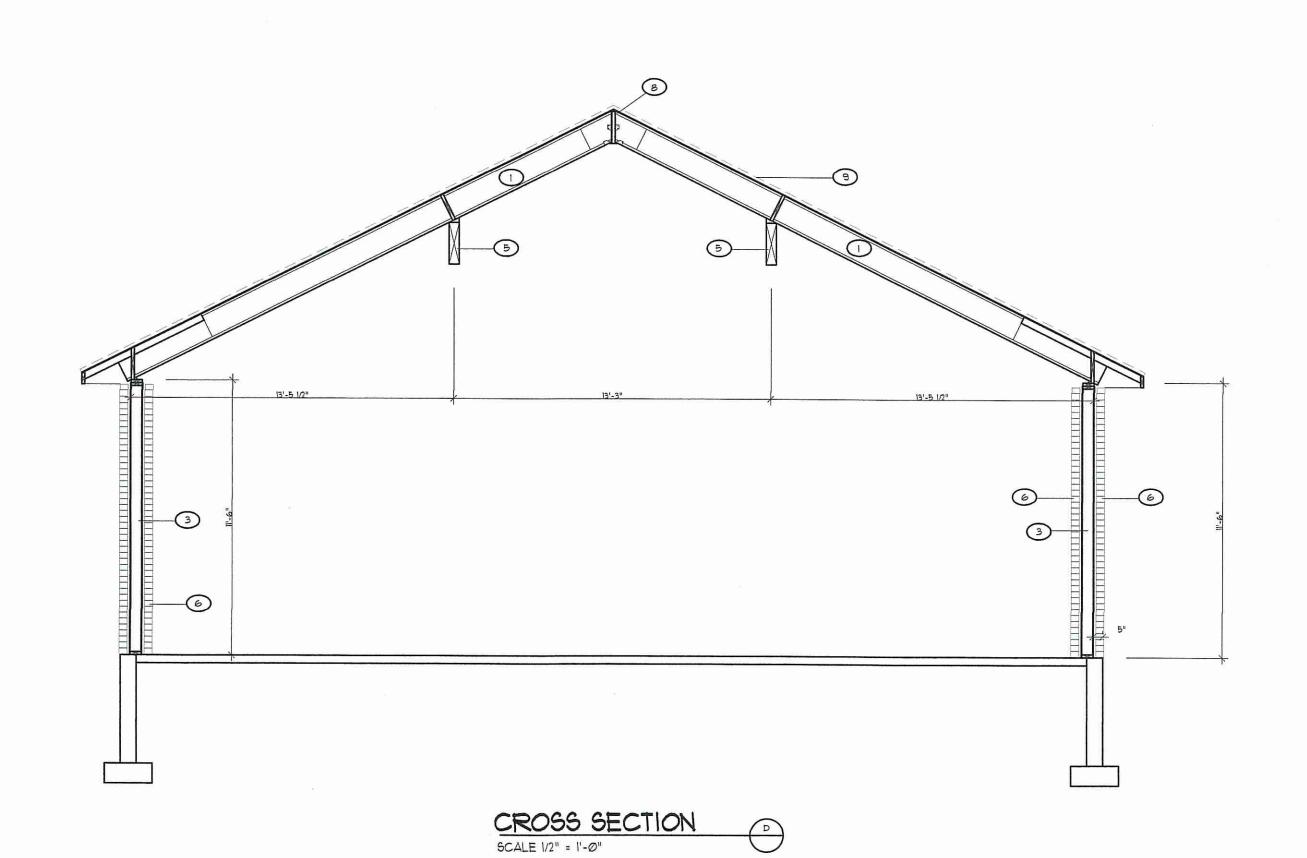


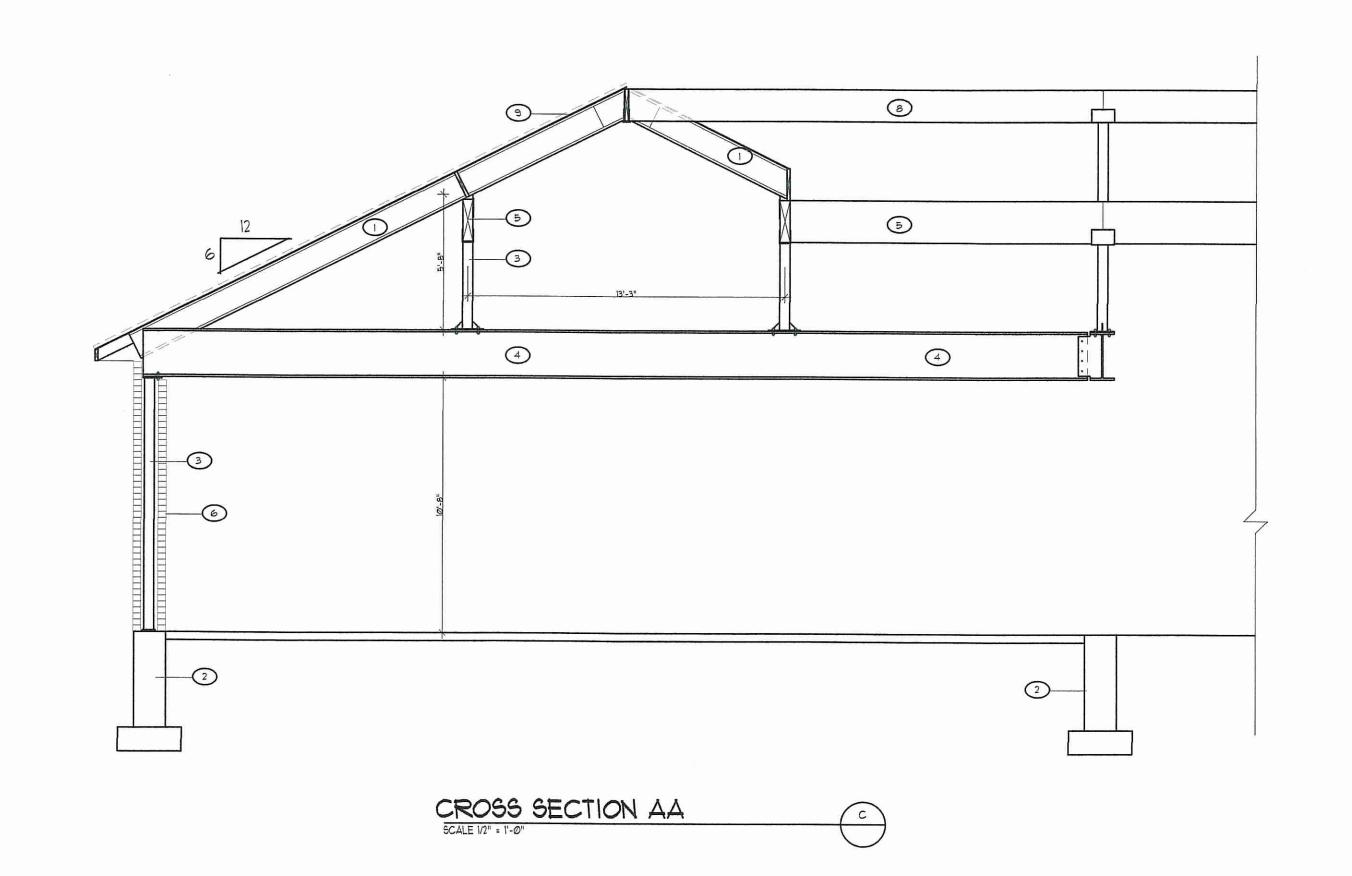


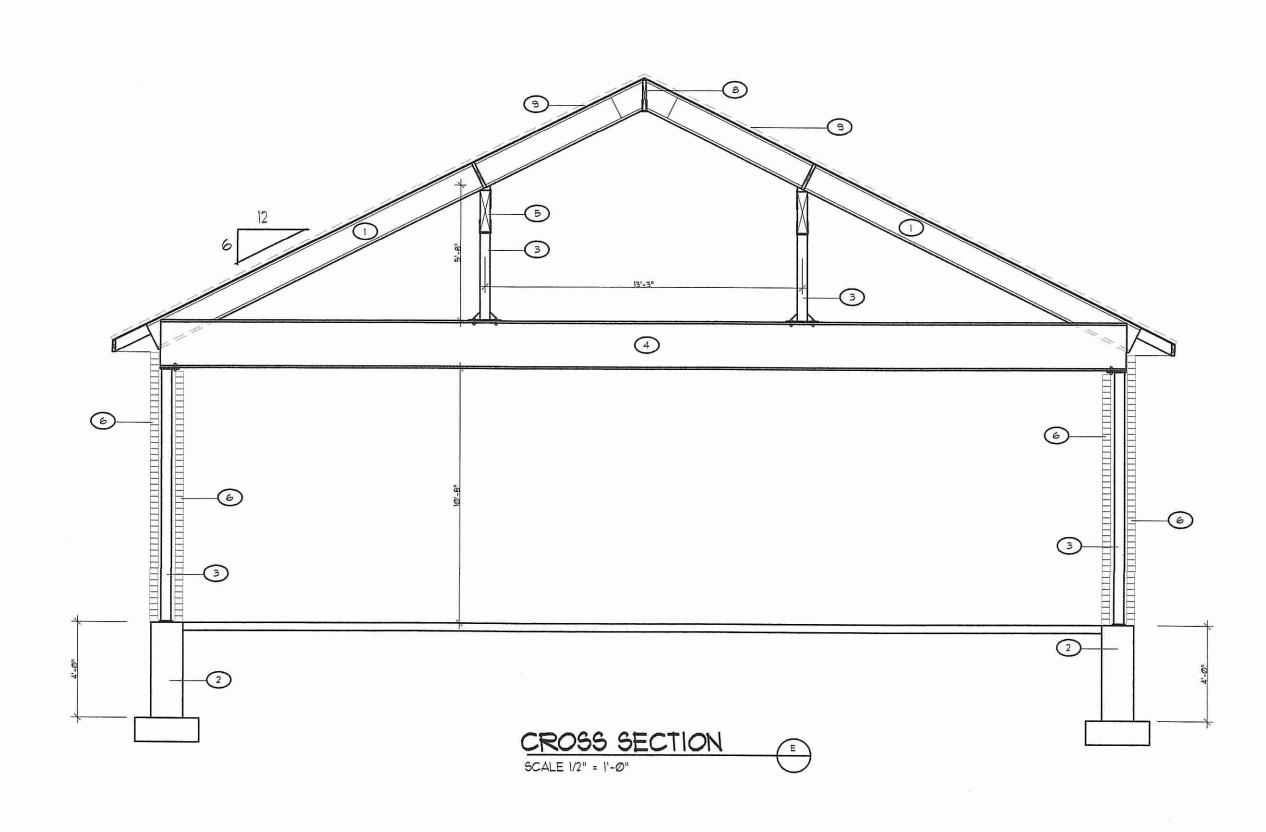
SHEET NOTES		
NUM.	DESCRIPTION	
$\bigcirc$	ROOF RAFTERS - SEE ROOF FRAMING PLAN	
2	CONCRETE COLUMN - SEE FOUND, PLAN	
3	STEEL COLUMN	
4	STEEL BEAM	
(F)	WOOD GLU-LAM BEAM - SEE ROOF FRAMING PLAN	
6	PRE-CAST BRICK VENEER - COLOR BY OWNER	
7	FOOTING - SEE FOUNDATION PLAN	
8	RIDGE BEAM - SEE ROOF FRAMING PLAN	
(6)	METAL ROOF - 24 GAUGE STANDING SEAM	
9		

TYPICAL WALL SECTION A

CONCRETE F'c - 3,000 psi







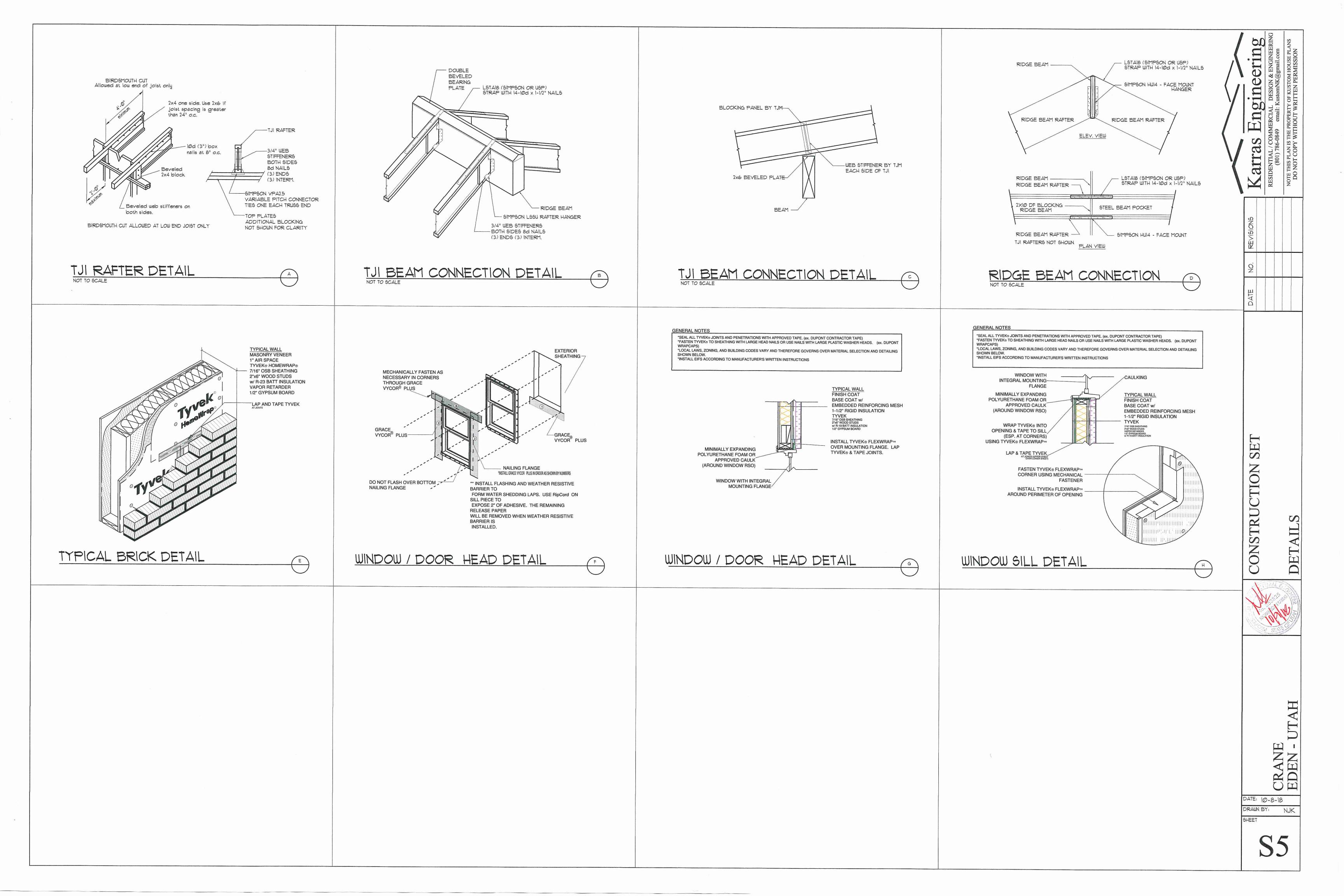
CONSTRUCTION SET

CRANE EDEN - UTAH

DATE: 10-8-18

DRAWN BY: N.
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#### GEOTECHNICAL STUDY

GEOTECHNICAL STUDY - PREPARED BY EARTHTEC - 801-399-9516
JAN. 9, 2018 PROJECT NO. 171087

ADDENDUM # 1 - APRIL 18, 2018.

# SPECIAL INSPECTIONS

1. CONTRACTOR IS RESPONSIBLE TO COORDINATE SPECIAL INSPECTIONS ON THE FOLLOWING ITEMS:

SOIL VERIFICATION - EARTHTEC ENGINEERING INC.
EXCAVATION VERIFICATION - EARTHTEC ENGINEERING INC.
STRUCTURAL FILL - EARTHTEC ENGINEERING INC.
REBAR PLACEMENT - KARRAS ENGINEERING PLLC.
CONCRETE STRENGTH TEST - EARTHTEC ENGINEERING INC.
STEEL CONSTRUCTION - KARRAS ENGINEERING PLLC.
EPOXY ANCHORS - EARTHTEC ENGINEERING INC.

CONTACTOR TO PROVIDE 48 HRS NOTICE PRIOR TO INSPECTIONS.

CONTACT INFORMAITON - EARTHTEC ENGINEERING INC. 801-399-9516

KARRAS ENGINEERING PLLC. 801-786-0849

#### GENERAL NOTES

1. ANY OMISSIONS OR CONFLICTS WITH THE WORKING DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/OWNER AND STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY WORK.

2. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS AND DIMENSIONS. IF ACTUAL CONDITIONS DIFFER FROM THOSE SHOWN ON DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER BEFORE PROCEEDING WITH THE FABRICATION OR CONSTRUCTION OF THE PROJECT.

3. THE CONTRACTOR SHALL COORDINATE WITH ALL TRADES ANY ITEMS THAT ARE TO BE INTEGRATED INTO THE STRUCTURAL SYSTEM SUCH AS OPENINGS, PENETRATIONS, MECHANICAL AND ELECTRICAL EQUIPMENT, ETC. SIZES AND LOCATIONS OF MECHANICAL AND OTHER EQUIPMENT THAT DIFFERS FROM THOSE SHOWN ON THE CONTRACT DRAWING SHALL BE REPORTED TO THE ENGINEER.

4. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND BRACING AS REQUIRED FOR HIS METHOD OF ERECTION. SHORING AND BRACING SHALL REMAIN IN PLACE UNTIL FINAL CONNECTIONS FOR THE PERMANENT MEMBERS ARE COMPLETED. THE BUILDING SHALL NOT BE CONSIDERED STABLE UNTIL ALL CONNECTIONS ARE COMPLETED. WALLS SHALL NOT BE CONSIDERED SELF-SUPPORTING AND SHALL BE BRACED UNTIL THE ROOF SYSTEM IS COMPLETED.

5. DURING AND AFTER CONSTRUCTION THE CONTRACTOR AND OR OWNER SHALL NOT EXCEED THE LOADING ON THE STRUCTURE AS DESCRIBED IN THE DESIGN CRITERIA.

## FOOTING & FOUNDATION

I. FOOTINGS HAVE BEEN DESIGNED TO THE SOIL BEARING PRESSURE SPECIFIED IN THE DESIGN CRITERIA.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE BEARING PRESSURE. CONTRACTOR TO PROVIDE SOILS TESTING. TESTING RESULTS SHALL BE PROVIDED TO STRUCTURAL ENGINEER FOR REVIEW.

ANY ANOMALOUS SOIL BEARING CONDITION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE CONSTRUCTION.

2. ALL FOOTINGS ARE TO REST ON UNDISTURBED SOIL AND SHALL BE A MINIMUM OF 36", OR LOCAL FROST DEPTH, BELOW THE FINISH GRADE.

3. THE CONTRACTOR SHALL ENSURE THAT THE FOOTINGS ARE PROPERLY DRAINED AND THAT THE SOIL MOISTURE CONTENT MEETS THE IBC REQUIREMENTS.

4. ANY ANOMALOUS SOIL CONDITION ENCOUNTERED DURING EXCAVATION, SUCH AS SLIPPAGE, HIGH MOISTURE CONTENT, IMPROPER DRAINAGE, ETC., SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING.

5. COMPACT BACKFILL AGAINST FOUNDATION WALL TO 85% OF MODIFIED PROCTOR DRY DENSITY TO REDUCE SETTING OF FILL.

6. FOUNDATION ANCHOR BOLTS SHALL BE EMBEDDED IN AT LEAST 7" OF CONCRETE AND PLACED WITHIN 12" OF SILL PLATE END. IF MULTIPLE PLATES ARE USED, THE ANCHOR BOLTS SHALL EXTEND THROUGH ALL PLATES. THERE SHALL BE A MINIMUM OF 2 ANCHOR BOLT PER WALL SECTION. 3"X3"X3/16" SQUARE WASHERS SHALL BE USED BETWEEN ANCHOR BOLT AND PLATE. SEE CROSS SECTION FOR SIZE AND SPACING.

7. GRADE 60 REBAR SHALL BE USED FOR BOTH VERTICAL AND HORIZONTAL INSTALLATIONS.

8. HOLDOWNS SHALL BE EMBEDDED IN THE FOUNDATION PER MANUFACTURERS REQUIREMENTS. THE CONTRACTOR SHALL ENSURE THAT THE FASTENERS HOOK THE REBAR AND MEETS THE MINIMUM EDGE DISTANCE.

#### CONCRETE

ALL CONCRETE SHALL BE 3,000 PSI CONCRETE

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TYPE I/II CEMENT COMPLYING WITH ASTM C-150 SHALL BE USED FOR ALL
CONCRETE

3. THE WATER/CEMENT RATIOS AND AIR ENTRAINMENT SHALL MEET THE REQUIREMENTS OF ACI 318.

4. REINFORCEMENT SHALL HAVE THE FOLLOWING CONCRETE COVER:

CRSI TO SUPPORT AND TIE REINFORCEMENT BARS PRIOR TO PLACING CONCRETE. REINFORCING STEEL FOR SLABS ON GRADE SHALL BE ADEQUATELY SUPPORTED ON PRECAST CONCRETE UNITS. LIFTING THE REINFORCING OFF THE GRADE DURING PLACEMENT OF CONCRETE IS NOT PERMITTED.

B. CONCRETE TO BE MECHANICALLY CONSOLIDATED DURING PLACEMENT PER ACI STANDARDS.

C. CONTRACTOR SHALL COORDINATE PLACEMENT OF ALL OPENINGS, CURBS, DOWELS, SLEEVES, CONDUIT, BOLTS, INSERTS AND OTHER EMBEDDED ITEMS PRIOR TO CONCRETE PLACEMENT.

D. ALL EMBEDS AND DOWELS SHALL BE SECURELY TIED TO FRAMEWORK OR TO ADJACENT REINFORCING PRIOR TO THE PLACEMENT OF CONCRETE.

E. NO PIPES, DUCTS SLEEVES. SHALL BE PLACED IN STRUCTURAL CONCRETE UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE ENGINEER. PENETRATIONS WILL NOT BE ALLOWED IN FOOTINGS OR GRADE BEAMS UNLESS DETAILED. PIPING SHALL BE ROUTED AROUND THESE ELEMENTS AND FOOTINGS STEPPED TO AVOID PIPING.

F. REINFORCING BARS SHALL NOT BE WELDED.
G. AT JOINTS PROVIDE REINFORCING DOWELS TO MATCH THE MEMBER

REINFORCING, UNLESS NOTED OTHERWISE. H. AT ALL DISCONTINUOUS CONTROL OR CONSTRUCTION SLAB ON GRADE

JOINTS PROVIDE 2 - #4 × 48".

1. PROVIDE CORNER BARS AT INTERSECTING WALL CORNERS USING THE

SAME BAR SIZE AND SPACING AS THE HORIZONTAL WALL REINFORCING.

J. ALL VERTICAL REINFORCING SHALL BE DOWELED TO FOOTINGS, OR TO THE STRUCTURE BELOW WITH THE SAME SIZE AND SPACING AS THE VERTICAL REINFORCING FOR THE ELEMENT ABOVE. DOWELS EXTENDING INTO FOOTINGS SHALL TERMINATE WITH A 90 DEGREE STANDARD HOOK AND SHALL EXTEND TO WITHIN 4" OF THE BOTTOM OF THE FOOTING. FOOTING DOWELS (#8 BARS AND SMALLER) WITH HOOKS NEED

NOT EXTEND MORE THAN 20" INTO FOOTINGS.

K. HORIZONTAL WALL REINFORCING SHALL TERMINATE AT ENDS OF WALLS AND OPENINGS INTO THE FAR END OF THE JAMB COLUMN WITH A 90-DEGREE STANDARD HOOK PLUS A 6 BAR DIAMETER EXTENSION. HORIZONTAL WALL REINFORCING SHALL BE CONTINUOUS THROUGH CONSTRUCTION AND CONTROL JOINTS.

## STRUCTURAL STEEL

1. FABRICATION AND CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING CODES AND STANDARDS:

A. AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR

BUILDINGS, "WITH " COMMENTARY.

B. AISC "CODE OF STANDARD PRACTICE" EXCLUDING THE FOLLOWING:

SECTION 3.4 SECTION 4.4 SECTION 4.4!

SECTION 3.4, SECTION 4.4, SECTION 4.41.

C. AISC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325

OR A490 BOLTS"

D. AMERICAN WELDING SOCIETY (AWS), STRUCTURAL WELDING CODE

(SPECIFIC ITEMS DO NOT APPLY WHEN THEY CONFLICT WITH AISC REQUIREMENTS).

E. AISC "SEISMIC PROVISION FOR STRUCTURAL STEEL BUILDINGS"

## 2. WELDING

A. ALL WELDING AND CUTTING SHALL BE PREFORMED BY AWS CERTIFIED

WELDERS.

B. USE E-70 XX OR AS NOTED OTHERWISE.

C. ALL INTERSECTING STEEL SHAPES WHICH ARE NOT BOLTED SHALL BE CONNECTED BY A FILLET WELD ALL AROUND, UNLESS NOTED OTHER WISE. WHERE FILLET WELD SIZES ARE NOT SHOWN THEY SHALL BE 1/16" LESS THAN THE THINNEST OF THE CONNECTED PARTS FOR THICKNESS 1/4" AND LARGER. FILLET WELDS ON PLATES LESS THAN 1/4" SHALL BE THE CONNECTED PARTS.

THE SAME SIZE AS THE THINNEST OF THE CONNECTED PART.

D. REINFORCING BARS: DO NOT WELD REBAR. DO NOT SUBSTITUTE REINFORCING BARS FOR DEFORMED BAR ANCHORS (DBAS), MACHINE

BOLTS, OR HEADED STUD ANCHORS (HSAS).

E. DO NOT WELD ANCHOR BOLTS, INCLUDING "TACK" WELDS.

F. HEADED STUD ANCHORS (HSAS) WELDING AND DEFORMED BAR
ANCHOR WELDING SHALL BE CONFORM TO THE MANUFACTURER'S

## 3. BOLTED CONNECTIONS:

16 1/2" TO 20 3/4"

SPECIFICATIONS.

A. USE ASTM A325N BOLTS FOR STEEL TO STEEL CONNECTIONS AS NOTED HERE IN OR AS NOTED NOT HE DRAWINGS. A325N BOLTS SHALL BE USED IN CONNECTIONS FOR SIMPLE SPAN FRAMING AND BEAM (OR GIRDER) TO BEARING PLATE CONNECTIONS. TIGHTEN BOLTS TO A SNUG TIGHT

CONDITION.

B. USE HARDENED WASHERS BENEATH THE TURNED ELEMENT OF ALL BOLTS OR NUTS. USE HARDENED BEVELED WASHERS, TO COMPENSATE FOR THE LACK OF PARALLELISM, WHERE THE OUTER FACE OF THE BOLTED PARTS HAS A SLOPE GREATER THAN ONE IN TWENTY WITH RESPECT TO THE PLANE NORMAL TO THE BOLT AXIS. AT OVER SIZED HOLES HARDENED WASHERS OR PLATES SHALL CONFORM WITH ASTM F-436 AND SHALL COMPLETELY COVER THE SLOT AFTER INSTALLATION.

C. WHERE A STEEL TO STEEL BEAM CONNECTION IS NOT SHOWN, PROVIDE A STANDARD AISC FRAMED CONNECTION FOR ONE HALF THE TOTAL UNIFORM LOAD CAPACITY OF THE BEAM FOR THE SPAN AND STEEL SPECIFIED.

D. BOLTS, NUTS AND WASHERS SHALL NOT BE REUSED.

BOTH SIDES WITH FILLET WELDS ALL AROUND:

4. PROVIDE FULL-DEPTH WEB-STIFFENER PLATES AT EACH SIDE OF ALL BEAMS AT ALL BEARING POINTS. STIFFENER PLATES SHALL BE THE THICKNESS CALLED OUT BELOW UNLESS NOTED OTHERWISE AND SHALL BE WELDED

3 3/8"

FLANGE WIDTH STIFFENER THICKNESS WELD SIZE

LESS THAN 81/4" 1/4" 3/8" 1/4"

8 1/4" TO 12 1/4" 3/8" 1/4"

12 1/4 " TO 16 1/2" 1/2" 5/16"

5/8"

### WOOD - GENERAL FRAMING NOTES

1. FRAMING LUMBER SHALL BE #2 DOUGLAS FIR-LARCH OR BETTER UNLESS NOTED OTHER WISE.

2. ALL WOOD IN CONTACT WITH CONCRETE, MASONRY OR SOIL SHALL BE PRESSURE TREATED OR BE REDWOOD.

3. ALL FRAMING ANCHORS, POST CAPS, HOLD DOWNS, COLUMN BASES, ETC. SHALL BE PROVIDED BY SIMPSON STRONG-TIE OR APPROVED EQUAL.

4. ALL WALLS SHALL HAVE A MINIMUM OF TWO TOP PLATES . SPLICES IN TOP PLATES SHALL BE STAGGERED A MINIMUM OF FOUR FEET FROM THE NEAREST SPLICE IN ADJOINING TOP PLATE.

5. ALL CONSTRUCTION SHALL CONFORM TO IBC & IRC SPECIFICATIONS.

6. ALL LOAD BEARING WINDOW AND DOOR HEADERS SHALL HAVE (2) 9-1/2" LVL'S WIFILLER UNLESS NOTED OTHERWISE ON DRAWING.

7. ALL HEADERS SUPPORTING A GIRDER TRUSS SHALL BE A MIN. OF (2) 1-3/4"x11-7/8" LVLs UNLESS NOTED OTHERWISE ON DRAWING.

8. ALL MULTIPLE BEAMS AND HEADERS SHALL BE NAILED USING 2 ROWS OF 16d NAILS @ 12" O.C.

9. ALL POINT LOADS SHALL BE SOLID BLOCKED TO THE FOUNDATION.

10. USE DOUBLE TRIMMERS TO SUPPORT BEAMS AND HEADERS GREATER THAN 6 FEET UNLESS NOTED OTHERWISE ON DRAWING.

11. USE SIMPSON OR EQUIVALENT HARDWARE TO CONNECT BEAMS 6' AND LONGER TO STUDS OR POSTS.

#### ROOF SHEATHING NOTES

1. SHEATHING SHALL BE 5/8", 24/16, APA RATED SHEATHING. NAIL W/ 8d's @ 6" O.C. 3/8" FROM EDGE OF PANEL AT ALL PANEL ENDS, SUPPORTED EDGES, SHEARWALL TOPS, AND ALL BLOCKING. NAIL @ 12" O.C. ALONG INTERMEDIATE FRAMING MEMBERS.

2. LAY SHEATHING WITH FACE GRAIN AT RIGHT ANGLES TO FRAMING WITH STAGGERED END JOINTS.

### SHEAR WALL NOTES

1. AS A MINIMUM, ALL EXTERIOR WALL SHALL BE SHEATHED WITH 1/16" APA OSB SHEATHING AND NAILED WITH 8d's 4" O.C. EDGE AND 12" O.C. FIELD.

2. SHEATHING SHALL EXTEND CONTINUOUS FROM MUD SILL TO TOP PLATE AND NAILED AT LEAST 7" O.C. ALONG SILL PLATE. SHEATHING SHALL EXTEND FROM FLOOR FRAMING TO HIGH ROOF FRAMING ON UPPER LEVEL EXTERIOR WALLS.

3. NAILS SHALL BE PLACED NOT LESS THAN 1/2" FROM EDGE OF PANEL AND DRIVEN FLUSH. NAIL SHALL NOT FRACTURE THE SURFACE OF THE SHEATHING.

### IBC NAILING SCHEDULE

CONNECTION	NAI	
1. Joist to sill or girder, toenail		3
2. Bridging to joist, toenail each end		2
3. $1" \times 6"$ (25 mm $\times$ 152 mm) subfloor or less to ea	ach joist, face nail	2
4. Wider than 1" $\times$ 6" (25 mm $\times$ 152 mm) subfloor to	o each joist, face nail	3
5. 2" (51 mm) subfloor to joist or girder, blind a	nd face nail	2.
6. Sole plate to joist or blocking, typical face Sole plate to joist or blocking, at braced w		
7. Top plate to stud, end nail		2.
8. Stud to sole plate	4-8d, toenail or 2-16d, en	d
9. Double studs, face nail	16d @ 24" (610 mm	)
10. Doubled top plates, typical face nail	16d @ 16" (406 mm	1)
Double top plates, lap splice		8
11. Blocking between joists or rafters to top pla	ate, toenail	27
12. Rim joist to top plate, toenail	8d @ 6" (152 mm	)
13. Top plates, laps and intersections, face nail		2.
14. Continuous header, two pieces 16	d @ 16" (406 mm) o.c. along each	0
15. Ceiling joists to plate, toenail		11
16. Continuous header to stud, toenail		_
17. Ceiling joists, laps over partitions, face nail		3
18. Ceiling joists to parallel rafters, face nail		3
19. Rafter to plate, toenail	- — « — — — — — — — — — — — — — — — — —	2
20. 1" (25 mm) brace to each stud and plate, fac	ce nail	2
21. 1" $\times$ 8" (25 mm $\times$ 203 mm) sheathing or less to		2
22. Wider than 1" × 8" (25 mm × 203 mm) sheathing		7
23. Built-up corner studs	16d @ 24" (610 mm	
24. Built-up girder and beams	20d @ 32" (813 mm) o.c. @ top bottom and staggered 2 at ends and at each s	a 2 -
25. 2" (51 mm) planks	2-16d @ each be	
26. Wood structural panels and particleboard. Subfloor, roof and wall sheathing (to framing 1/2" and less 19/32" - 3/4" 7/8" - 1" 1 1/8" - 1 1/4" Combination subfloor-underlayment (to framing 3/4" and less 7/8" - 1" 1 1/8" - 1 1/4"	8d⁴.	
27. Panel siding (to framing): 1/2" (13 mm) or less 5/8" (16 mm)		
28. Fiberboard sheathing: 1/2" (13 mm)	No.	
20/32" (20 mm)	No. 1 No. 1	11
29. Interior paneling 1/4" (6.4 mm) 3/8" (9.5 mm)		

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