GENERAL STRUCTURAL NOTES

A. GENERAL REQUIREMENTS

- 1. All work shall conform to the requirements of the British Columbia Builling Code (BCBC), 2018. All documents designated therein and all local
- 2. The General Contractor shall compare and coordinate the drawings of all the disciplines and report any discprepancies to the Architect and the Engineers for assessment / clarification before proceeding with the work. 3. It is assumed these drawings accurately reflect actual site conditions. This design has been reviewed for the adequacy of permanent primary structural components only. Excavation, soil mechanics, shoring and

falsewrok components necessary for construction safety are not included

- and will not be reviewed by the structural engineer. 4. The Contractor is responsible for the safety in and around the work site during construction, and for the design, erection and inspection of all temporary structure, formwork, falsework, shoring, etc. needed during
- construction as required by the Worker's Compensation Board (WCB). 5. These structual drawings do not include the design of non-structural elements, including, but not limited to: handrails, snow retention, skylights,

glazing systems, brick & stone veneer ties, and seismic restraint of

- mechanical and electrial equipment. 6. The General Contractor must check his/her work and the work of his/her subtrades before review by the Engineer.
- . Where conflicts exist between structural documents, the strictest
- requirements, as indicated by the Structural Engineer, shall govern. 8. No Structural member shall be cut or notched or otherwise reduced in strength unless approved by the Engineer.

B. SITE REVIEWS

1. Site reviews of construction will be performed by the Engineer. The contractor shall give 24 HOURS NOTICE for request of any such reviews. These reviews will be limited to concrete reinforcing steel installation, structural steelwork & decking, reinforced masonry and rough carpentry items only. They will not include site safety, methods of construction, electrical or mechanical installations.

C. DESIGN CRITERIA

 Building Code British Columbia Building Code (BCBC) 2018

DESIGN LOADS				
Ground Snow Load Roof Dead Load Roof Design Snow Load Roof Top Patio Dead Load Garage Floor Dead Load Garage Floor Live Load or Concentrated Live Load Interior Floor Dead Load Interior Floor Live Load Peck Dead Load Floor Live Load Deflection Roof Live Load Deflection	73 psf 15 psf 42.3 psf 70 psf 70 psf 70 psf 100 psf or 4000 lbs 20 psf 40 psf 50 psf L/360 L/240			

D. FOUNDATIONS / FOUNDATION WALLS

- 1. The Owner is responsible for engaging a Geotechnical Engineer. 2. No review of slope stability or ground bearing conditions for this have been performed by the Structural Engineer. Such reviews, if required,
- shall be performed by a Geotechnical Engineer. 3. The design uses the following assumed values: a. Allowable bearing pressure = 1500 psf
- b. Frost depth = 3'-0" c. Lateral soil pressure = 50 psf per foot of depth
- d. Seismic Site Class D 4. Willerton Engineering recommends a Geotechnical Engineer review and approve the above assumed values. All costs associated with incorrect assumptions are the responsibility of the Owner.
- 5. The Contractor shall be responsible for maintaining any excavations in a stable condition without adversely affecting surrounding properties including services. This includes obtaining all necessary approvals for
- shoring and anchoring systems. 6. Footings near boundaries must not be located higher or lower than
- footings of adjacent properties unless approved. 7. Keep footings clean and free of loose material before inspection,
- immediately prior to pouring concrete ad during pouring. 8. Footings are to bear on native undisturbed soil or rock, free of all organic
- material with a frost protection as specified above, unless otherwise directed / supervised and approved by a Geotechnical Engineer. 9. Use engineering for all walls backfilled greater than 4'-0". Walls backfilled
- 10. Do not backfill foundation walls more than 4'-0" until floor construction at top and bottom is completed. Ensure free draining backfill and drainage is
- 11. Footings are to be constructed and backfilled as soon as possible following excavation to avoid softening or drying out by exposure.

E. CONCRETE - CAST IN PLACE

less than 4'-0" do not require engineering.

- 1. All concrete placement and performance shall be in accordance with
- 2. Mix designs shall be submitted by the contractor to the testing agency for
- 3. All cement is to be Type 10. Maximum nominal aggregate size is to be 20mm. No chlorides are permitted.
- 4. No coring, holes, chases or embedment of pipes other than those shown on the structural drawings is permitted without written permission from Willerton Engineering.
- 5. The Contractor shall provide minimum 24 hours notice for reinforcement inspections. Concrete shall not be poured until the reinforcing has been inspected by Willerton Engineering and final approval is obtained.
- 6. Concrete should be protected at all times from being damaged during construction. No more than 2 hours shall elapse between concrete batching and concrete placement unless approved by the testing agency. No water
- the Contractor. 8. Formed concrete shall be cured for a minimum of 7 days prior to stripping of formwork.

should be added after initial batching. These items are to be monitored by

- 9. For all footings, foundation walls, columns and shear walls, concrete is to be 30 MPa at 28 days.
- 10. For slabs on grade and suspended slabs, concrete is to be 30 MPa at 28 days, and is to have a curing agent (ie Master Seal) applied immediately after finishing the surface with a steel power trowel to a smooth and flat
- 11. Use a minimum of 4" concrete slab-on-grade, reniforced with 10m bars @ 18" c/c eachway placed at mid-depth, unless noted otherwise.
- 12. Damp proof all walls below grade with 2 coats of asphalt emulsion, and plug tie holes with fiber-gum.
- 13. All concrete shall be compacted with mechanical vibrators. 14. Concrete testing shall be done by a testing laboratory at the Owner's expense. Concrete testing shall be conducted for every 70 cubic yards of
- concrete, but not less than 1 test for concrete cast each day. 15. Construction joints shall be installed at 100 ft c/c maximum spacing, unless noted otherwise.
- 16. Control joints in slab-on-grade shall be saw cut at a maximum distance of 50 times the slab thickiness or 20 feet (whichever is less) before shrinkage cracks can form.

F. COLD WEATHER CONCRETE REQUIREMENTS

- 1. Forecasted temperature no below 2 degrees celsius:
- a. If conrete drops below 10 degrees celsius at point of pouring, the mixing water shall be heated to maintain a minimum concrete
- temperature of 10 degrees celsius. b. Concrete shall not be placed on or against any surface which is at
- temperatures less than 4 degrees celsius. c. Contractor should be prepared to cover concrete pour in unexpected.
- 2. Forecasted temperature below 2 degrees celsius but above -4 degrees
- a. Forms and steel should be free of ice and snow. b. Mixing water shall be heated to give a minimum concrete temperature of 10 degrees celsius at point of pour. c. Concrete shall not be placed on or against any surface which is at
- temperatures less the 4 degrees celsius. d. Poured concrete shall be covered with canvas or similar and kept a few inches from the surface.
- e. Protection shoud be maintained for at least 3 days.
- 3. Forecasted temperature below -4 degees celsius:
- a. Forms and steel should be free of ice and snow. b. Mixing water shall be heated to give a minimum concrete temperature of 10 degrees celsius at point of pour.
- c. Concrete shall not be placed on or against any surface which is at temperatures less the 4 degrees celsius.
- d. Poured concrete shall be covered with canvas or similar and kept a few inches from the surface.
- e. Temperature of the the concrete at all surfaces shall be kept at minimum of 20 degrees celsius for 3 days, or 10 degrees celsius for 5 days. The concrete must be kept above freezing for a minimum of 7
- f. The enclosure must be constructed so that air can circulate outside the outer of edge members.

G. WOOD

1. GENERAL

- a. All materials shall be kept dry and protected from the
- environment at all times. b. No cutting or notching of members without the approval from the Structural Engineer.

2. DIMENSIONAL LUMBER

- a. All sawn lumber is to conform to CAN/CSA O141. b. All dimensional lumber shall be graded in accordance with the
- National Lumber Grades Authority. c. All dimensional lumber shall be dry with a maximum moisture
- content of 12%. d. All dimensional lumber shall be SPF No. 2 or better unless noted
- e. Wood in contact with concrete or masonry shall be pressure

treated or separated from contact with a moisture barrier.

- 3. STRUCTURAL COMPOSITE LUMBER a. All manufactured beams are to be minimum 2.0E/2900Fb unless noted otherwise and identified with a stamp indicating the product type and grade.
- 4. SHEATHING (Plywood and Oriented Strand Board)
- a. All floor, roof and wall sheathing shall be plywood conforming to CAN/CSA O121 or CAN/CSA O151 or Oriented Strand Board (OSB) to CAN/CSA O325.
- b. Sheathing shall be fastened directly to the supporting framing with the face grain oriented perpendicular to the framing.
- c. Panel edges and openings shall be reinforced with back framing, h-clips or tongue and groove.

- a. (2) ply built-up beams shall be fastened together with minimum (2) rows of 3 1/2" common nails @ 10" c/c unless noted otherwise.
- b. (3) ply built-up beams shall be fastened together with minimum (2) rows of 3 1/2" common nails @ 10" c/c on each face unless
- c. (4) ply and (5) ply built-up beams shall be fastened together with minimum (2) rows of 1/2" Ø bolts @ 16" c/c unless noted

6. BUILT-UP COLUMNS

d. Equivalent length 1/4" Ø structural screws (GRK or Simpson) may be used in place of common nails. a. (2) ply built-up columns shall be fastened together with minimum (2) rows of 3" common nails @ 9" c/c alternating face (1 row for 2x4 lumber). b. (3) ply built-up columns shall be fastened together with minimum (2) rows of 4 1/2" common nails @ 9" c/c alternating face. c. (4) ply built-up columns shall be fastened together with minimum (2) rows of 6" common nails @ 9" c/c alternating face. d. (5) ply built-up columns shall be fastened together with minimum (1) 1/2" Ø bolt @ 12" c/c unless noted otherwise. e. Equivalent length 1/4" Ø structural screws (GRK or Simpson) may be used in place of common nails.

L_________ FW1 20'-1" 6'-1" 11'-11" 58'-1" SCALE: 1/4"=1'-0"

20'-1"

1. REFER TO ARCHITECTURAL DRAWINGS BY MARC LAMERTON ARCHITECTS FOR FURTHER INFORMATION.

FOUNDATION NOTES

ALL PART 9 FOUNDATIONS REFER TO MARC LAMERTON

ARCHITECT DRAWINGS FOR FURTHER INFORMATION.

- 2. REFER TO CONSTRUCTION DRAWINGS BY WOOD CREEK CONSTRUCTION FOR FURTHER INFORMATION.
- 3. ITEMS NOT SPECIFICALLY DETAILED AND DIMENSIONED ARE TO CONFORM TO PART 9 OF THE BRITISH COULMBIA BUILDING CODE (BCBC) AND ARE BY OTHERS.
- 4. POINT LOADS INDICATED ON THE DRAWINGS ARE OVER 10,000 LBS AND ARE UNFACTORED.

FOUNDATION WALL SCHEDULE



EXISTING 8" WIDE PART 9 CONCRETE FOUNDATION WALL ON UNKNOWN CONCRETE STRIP FOOTING - NOT WITHIN WILLERTON ENGINEERING'S DESIGN SCOPE



EXISTING 8" WIDE PART 9 CONCRETE FROST WALL ON UNKNOWN CONCRETE STRIP FOOTING - NOT WITHIN WILLERTON ENGINEERING'S DESIGN SCOPE

CONCRETE PIER SCHEDULE

HOOKS UNDER FOOTING BARS.

CP1

58'-1"

2'-3"

15'-5"

16'-1"

SITE CONFIRM

20'-0"

CP1 PF1

. _ _ _ _ _ _ _ _ _ _ _ _ _

28 kip -

(FW2)

(FW2)

(FW1)

17'-4"

SITE CONFIRM

20'-0"

NEW 11"x11" PART 9 CONCRETE PIER - NOT WITHIN WILLERTON ENGINEERING'S DESIGN SCOPE	
	1

11"x11" CONCRETE PIER c/w 10M CLOSED-TIE STIRRUPS @

9" c/c AROUND (4) 10M VERTICAL BARS c/w 12" LONG

PAD FOOTING SCHEDULE

NEW PART 9 CONCRETE PAD FOOTING - NOT WITHIN WILLERTON ENGINEERING'S DESIGN SCOPE 3'-0"x3'-0"x8" THICK CONCRETE PAD FOOTING c/w (4) 15M BARS EACHWAY, CHAIRED 3" CLEAR OF GRADE

4'-6"x4'-6"x10" THICK CONCRETE PAD FOOTING c/w (5) 15M

BARS EACHWAY, CHAIRED 3" CLEAR OF GRADE

WILLERTON **ENGINEERING** 4408 28th STREET, VERNON, B.C.

Phone: 250-306-7126 email : christina@willerton.ca web : willerton.ca

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CONSULTANTS

REVISIONS NO. DATE DESCRIPTION A 200207 PRELIMINARY B 200210 COORDINATION C 200214 BUILDING PERMIT

200318 CONSTRUCTION

PROJECT BRINTNELL

RESIDENCE RENOVATION 2721 17th STREET NE Salmon Arm, BC

DRAWING

PROJECT **NOTES**

FOUNDATION

19-079

18 MARCH 2020

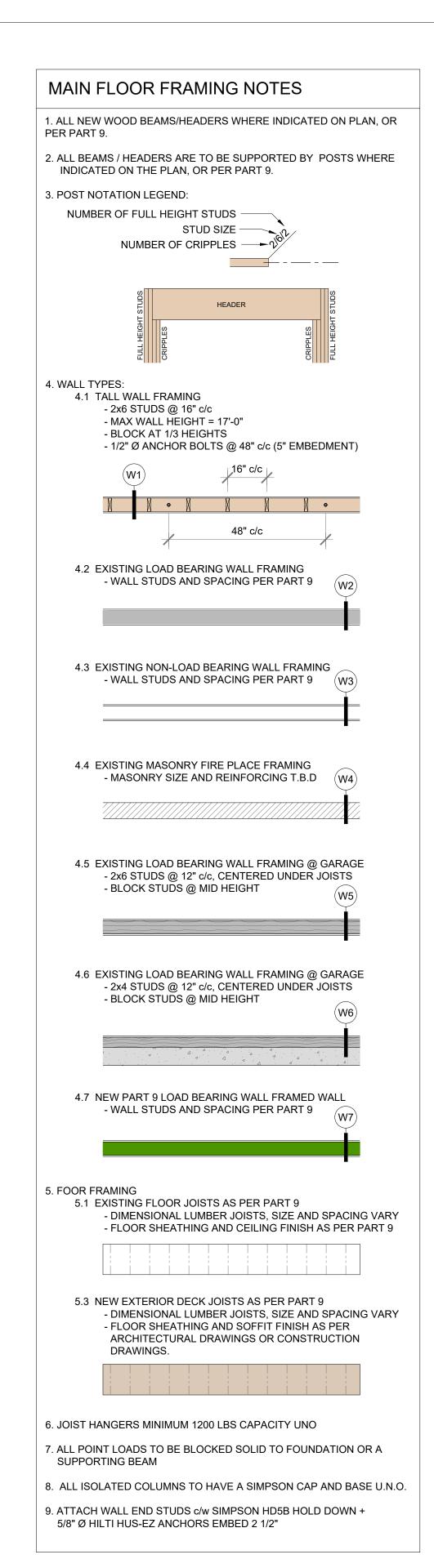
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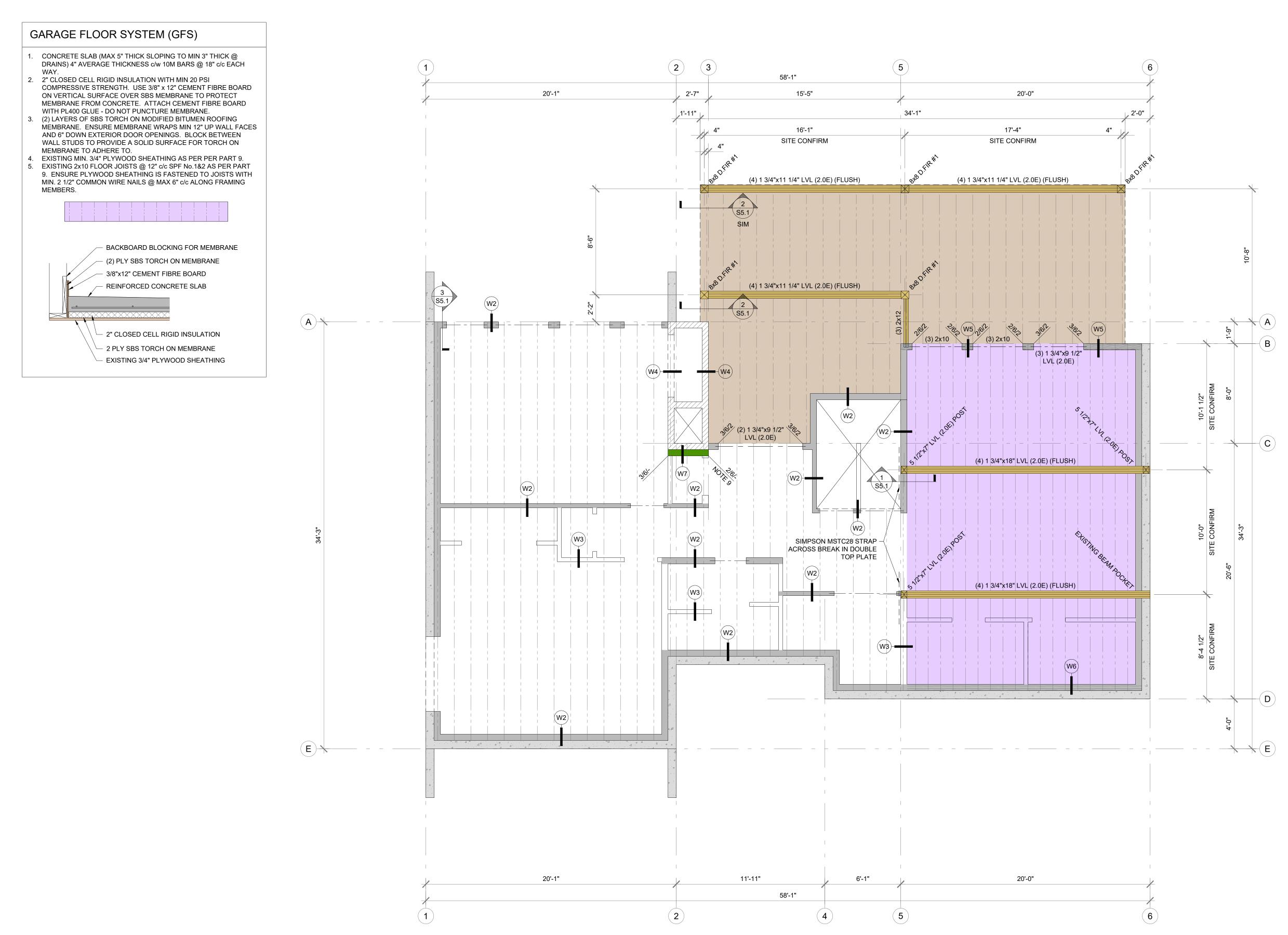
ENGINEER CW

DESIGN

SEAL

SHEET NUMBER





MAIN FLOOR FRAMING PLAN

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

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NO.	DATE	DESCRIPTION
A	200207	PRELIMINARY
B	200210	COORDINATION
C	200214	BUILDING PERMIT
0	200318	CONSTRUCTION

PROJECT

BRINTNELL RESIDENCE RENOVATION 2721 17th STREET NE Salmon Arm, BC

DRAWING

MAIN FLOOR FRAMING PLAN

> FILE 19-079

18 MARCH 2020 SCALE 1/4" = 1'-0"

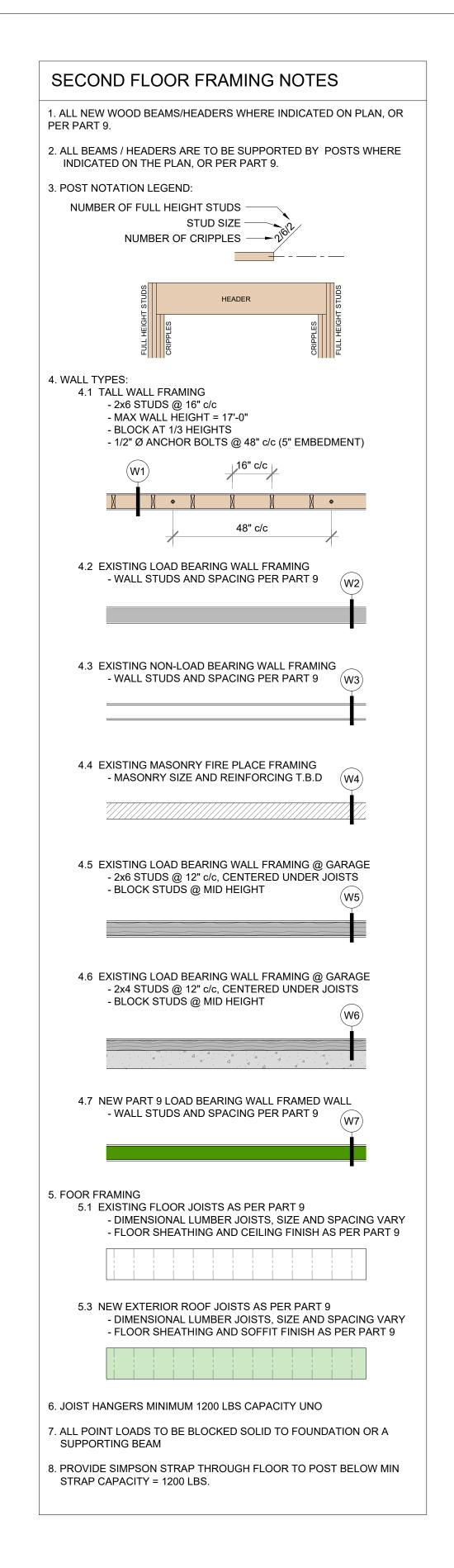
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ENGINEER CW

SEAL

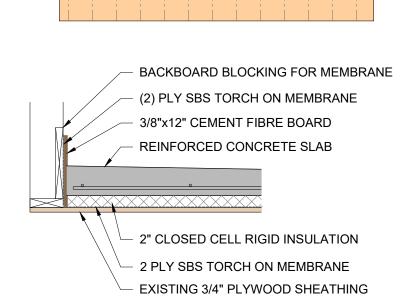
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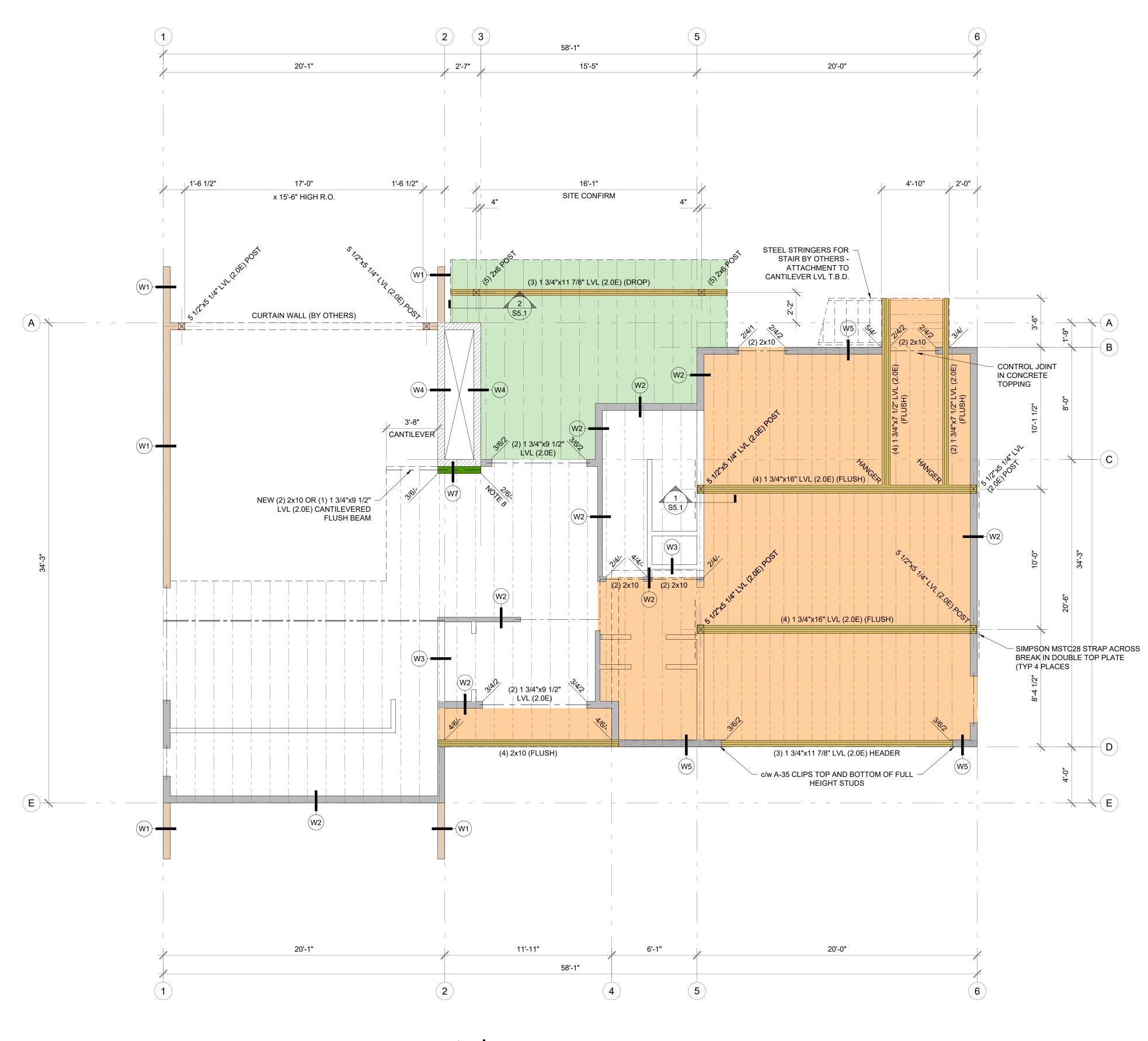
S2.1



ROOF DECK SYSTEM (RDS)

- 1. CONCRETE SLAB (MAX 5" THICK SLOPING TO MIN 3" THICK @ DRAINS) 4" AVERAGE THICKNESS c/w 10M BARS @ 18" c/c EACH
- 2. 2" CLOSED CELL RIGID INSULATION WITH MIN 20 PSI COMPRESSIVE STRENGTH. USE 3/8" x 12" CEMENT FIBRE BOARD ON VERTICAL SURFACE OVER SBS MEMBRANE TO PROTECT MEMBRANE FROM CONCRETE. ATTACH CEMENT FIBRE BOARD WITH PL400 GLUE - DO NOT PUNCTURE MEMBRANE.
- (2) LAYERS OF SBS TORCH ON MODIFIED BITUMEN ROOFING MEMBRANE. ENSURE MEMBRANE WRAPS MIN 12" UP WALL FACES AND 6" DOWN EXTERIOR DOOR OPENINGS. BLOCK BETWEEN WALL STUDS TO PROVIDE A SOLID SURFACE FOR TORCH ON MEMBRANE TO ADHERE TO.
- 4. EXISTING MIN. 3/4" PLYWOOD SHEATHING AS PER PER PART 9.
- 5. EXISTING 2x8 FLOOR JOISTS @ 16" c/c SPF No.1&2 ENSURE PLYWOOD SHEATHING IS FASTENED TO JOISTS WITH 2 1/2" COMMON WIRE NAILS @ MAX 6" c/c ALONG FRAMING MEMBERS.





SECOND FLOOR FRAMING PLAN

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

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> **BRINTNELL** RESIDENCE

PROJECT

RENOVATION 2721 17th STREET NE Salmon Arm, BC

DRAWING

SECOND FLOOR FRAMING PLAN

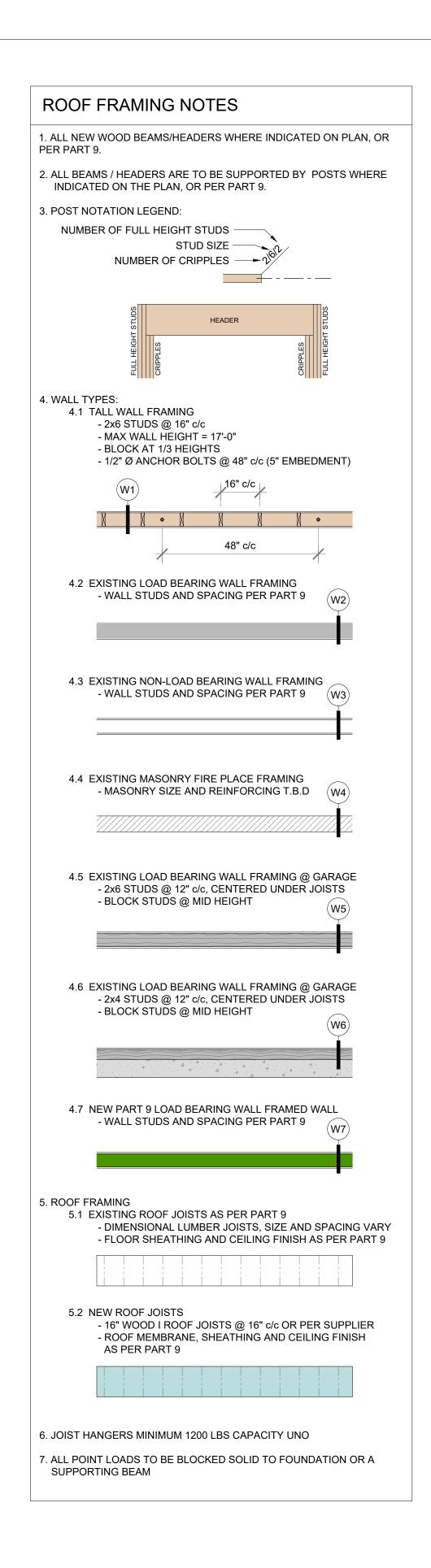
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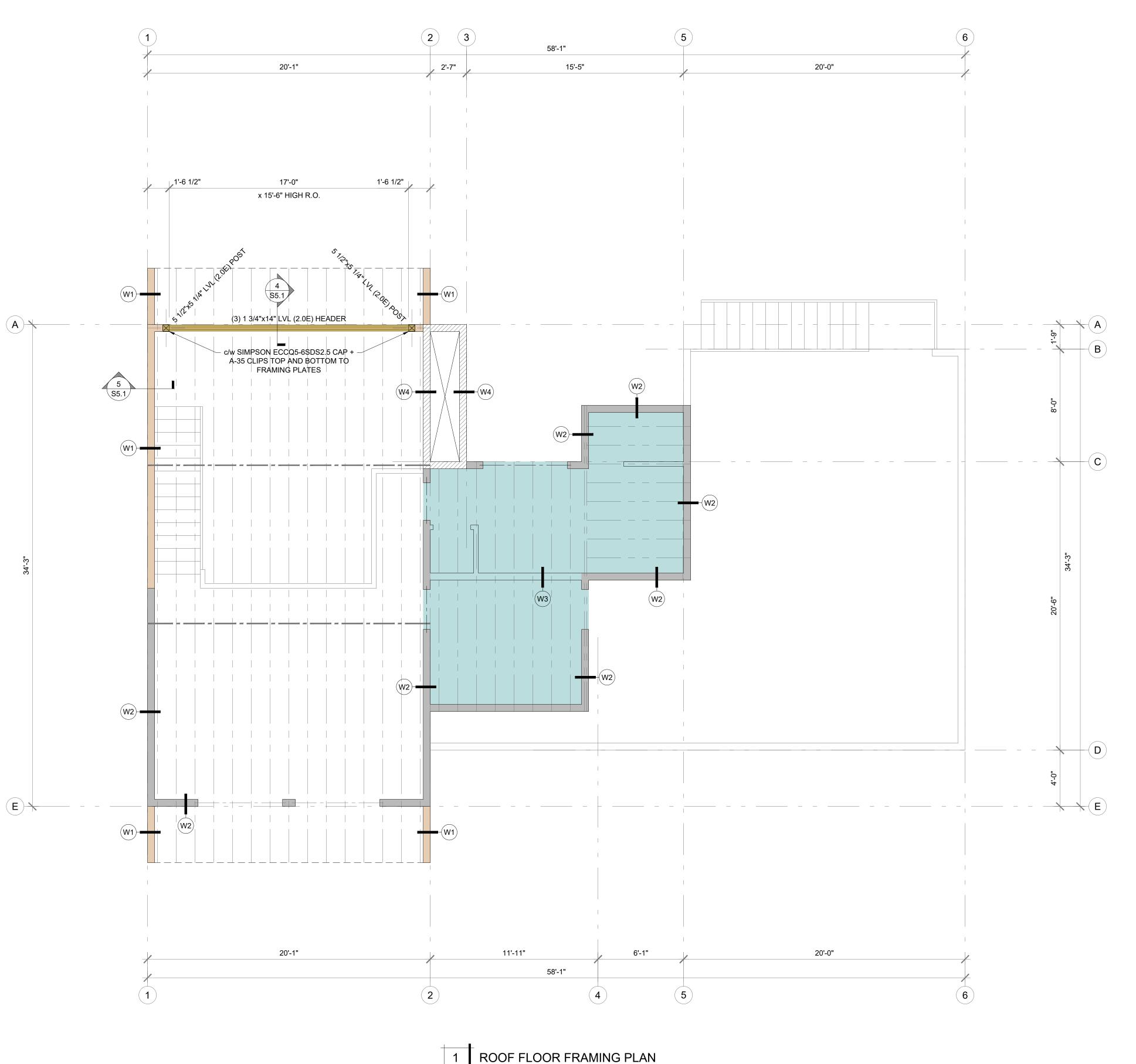
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ENGINEER CW

SEAL

SHEET NUMBER





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

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> BRINTNELL RESIDENCE

PROJECT

RENOVATION 2721 17th STREET NE Salmon Arm, BC

DRAWING

ROOF FRAMING PLAN

19-079

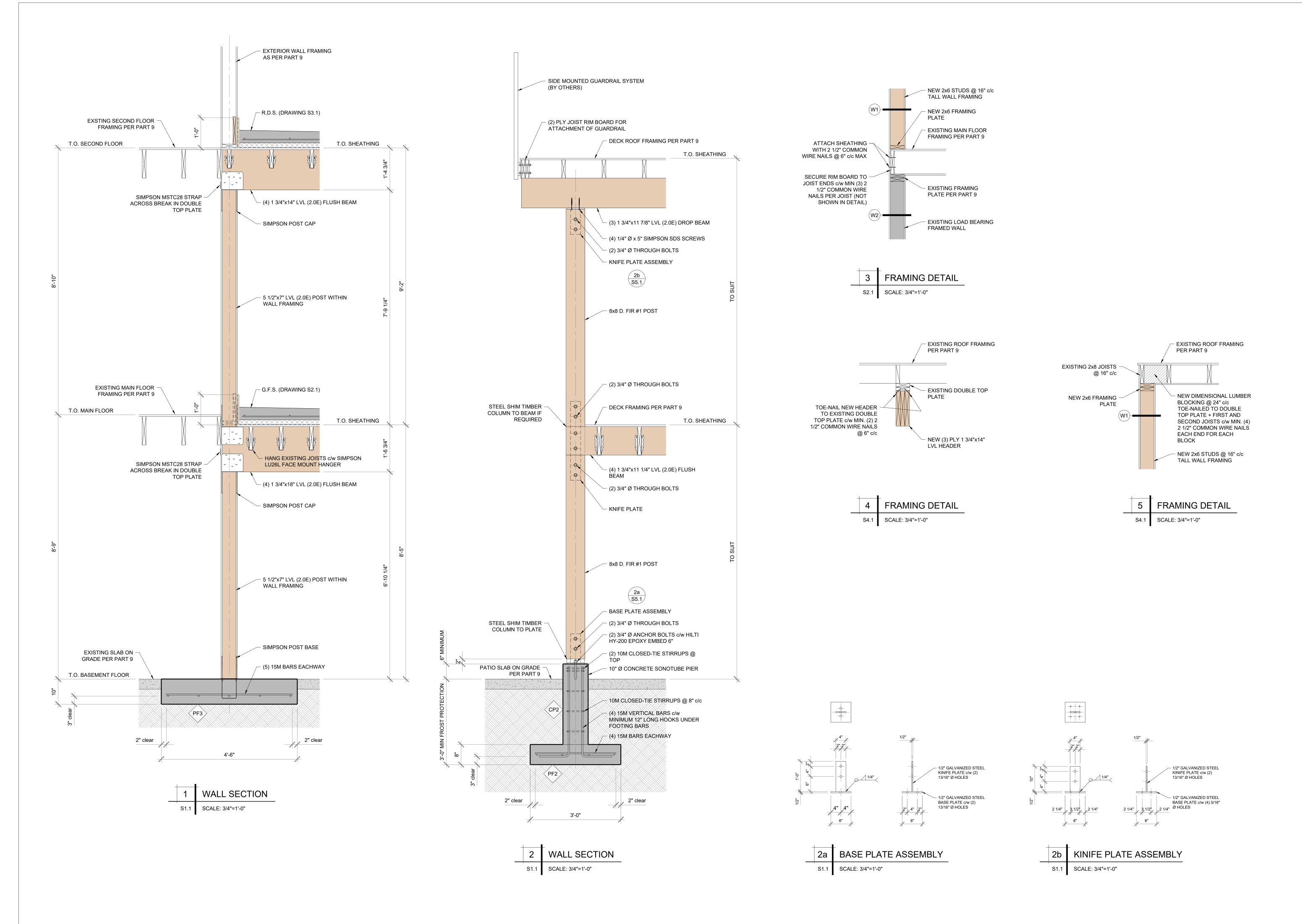
18 MARCH 2020 SCALE 1/4" = 1'-0"

> DESIGN BH

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PROJECT

BRINTNELL RESIDENCE RENOVATION 2721 17th STREET NE Salmon Arm, BC

DRAWING

WALL SECTIONS

FRAMING DETAILS

FILE 19-079

DATE 18 MARCH 2020 SCALE

3/4" = 1'-0" DESIGN

BH

ENGINEER CW

SEAL

SHEET NUMBER

S5.1