

STRUCTURAL ABBREVIATION INDEX

|        |  |           |                               |
|--------|--|-----------|-------------------------------|
| AB     | Anchor Bolt/Column Anchor Rod            | IF        | Inside Face                   |
| ACIP   | Augered Cast In Place                    | INT       | Interior                      |
| A/E    | Architect/Engineer                       | JB        | Joist Bearing Elevation       |
| A/ESS  | Architecturally Exposed Structural Steel | L         | Lintel                        |
| AFF    | Above Finished Floor                     | LAT       | Lateral                       |
| ALT    | Alternate                                | LD        | Load                          |
| AP     | Anchor Plate                             | LF        | Linear Foot                   |
| ARCH   | Architectural                            | LG        | Long                          |
| B.O.   | Bottom of                                | LLH       | Long Leg Horizontal           |
| BB     | Bond Beam                                | LLV       | Long Leg Vertical             |
| BFF    | Below Finished Floor                     | LOC'N     | Location                      |
| BL     | Brick Ledge                              | LP        | Low Point                     |
| BM     | Beam                                     | LT        | Light                         |
| BP     | Bearing Plate                            | LW        | Long Way                      |
| BRG    | Bearing                                  | MAX       | Maximum                       |
| BT     | Bent                                     | MECH      | Mechanical                    |
| C      | Centerline                               | MCJ       | Masonry Control Joint         |
| CANT   | Cantilever                               | MIN       | Minimum                       |
| C/C    | Center-to-Center                         | NS        | Near Side                     |
| CBP    | Column Base Plate                        | NTS       | Not To Scale                  |
| CJP    | Complete Joint Penetration Weld          | O/O       | Out-to-Out                    |
| CJ     | Construction Joint                       | OC        | On-Center                     |
| CJ     | Contraction Joint                        | OD        | Outside Diameter              |
| CJ     | Control Joint                            | OF        | Outside Face                  |
| CLR    | Clear                                    | OFD       | Overflow Drain                |
| CMU    | Concrete Masonry Unit                    | OH        | Opposite Hand                 |
| COL    | Column                                   | P         | Pier                          |
| CONC   | Concrete                                 | PEMB      | Pre-Engineered Metal Building |
| CONN   | Connection, Connect                      | PERP      | Perpendicular                 |
| CONT   | Continuous                               | P         | Plate                         |
| COORD  | Coordinate                               | PT        | Pressure Treated              |
| DBE    | Deck Bearing Elevation                   | R, RAD    | Radius                        |
| DA     | Deck Angle                               | RD        | Roof Drain                    |
| DB     | Deck Bar                                 | Reference | Reference                     |
| DIA, Ø | Diameter                                 | REINF     | Reinforce                     |
| DP     | Deck Plate                               | REQ'D     | Required                      |
| DWG    | Drawing(s)                               | RMW       | Reinforced Masonry Wall       |
| EA     | Each                                     | RTU       | Roof Top Unit                 |
| EF     | Each Face                                | RXN       | Reaction                      |
| EL     | Elevation                                | SC        | Slip Critical                 |
| EQ     | Equal                                    | SF        | Step Footing                  |
| ES     | Each Side                                | SIM       | Similar                       |
| EW     | Each Way                                 | SOG       | Slab On Grade                 |
| EX     | Existing                                 | SPCS      | Spaces                        |
| EXP    | Expansion                                | SS        | Stainless Steel               |
| EXT    | Exterior                                 | STL       | Steel                         |
| FD     | Floor Drain                              | SW        | Short Way                     |
| FF     | Finished Floor                           | T&B       | Top and Bottom                |
| FFE    | Finished Floor Elevation                 | TC        | Torque Controlled             |
| FDN    | Foundation                               | TCX       | Top Chord Extension           |
| FP     | Foundation Pier                          | T.O.      | Top of                        |
| FS     | For Side                                 | TOB       | Top of Beam                   |
| FTG, F | Footing                                  | TOF       | Top of Footing                |
| FV     | Field Verify                             | TOL       | Top of Ledge                  |
| GA     | Gauge                                    | TOM       | Top of Masonry                |
| GALV   | Galvanized                               | TOS       | Top of Steel                  |
| GB     | Grade Beam                               | TOW       | Top of Wall                   |
| GS     | Grout Solid                              | TYP       | Typical                       |
| GT     | Girder Truss                             | UNO       | Unless Noted Otherwise        |
| HD     | Hold Down Anchor                         | VERT      | Vertical                      |
| HORZ   | Horizontal                               | w/        | With                          |
| HP     | High Point                               | w/o       | Without                       |
| HS     | Headed Stud                              | WF        | Wall Footing                  |
| HT     | Height                                   | WP        | Working Point                 |
| ID     | Inside Diameter                          | WWF       | Welded Wire Fabric            |

GENERAL STRUCTURAL NOTES

- All work shall be performed in accordance with the contract documents. In case of a conflict within the contract documents, the more stringent condition shall govern, unless directed otherwise by the engineer of record. Prior to implementation, any discrepancies shall be reported to the architect for clarification.
- In the event that certain details of construction are not indicated or noted in the drawings, details for similar conditions that are indicated or noted shall be utilized, subject to the structural engineer's approval.
- The structure has been designed for the in-service loads only. The methods, procedures and sequences of construction are the responsibility of the contractor. Contractor shall take all necessary precautions to maintain and ensure the integrity of the structure at all stages of construction. Contractor shall immediately notify the structural engineer of any condition which, in his opinion, might endanger the stability of the structure or cause distress in the structure.
- All existing conditions and all related dimensions indicated in the contract documents shall be field verified prior to fabrication, erection and/or construction. Any condition that differs from that indicated in the contract documents shall be submitted to the architect for review prior to fabrication, erection and/or construction.
- Provide special inspection in accordance with chapter 17 of the Michigan Building Code and with project specifications.

STEEL NOTES

- Structural steel shall be finished as follows:
  - Non-fireproofed interior steel shall be shop painted with min. 1.5 mil dry film thickness of a rust inhibiting primer.
- Beam and lintel bearing on concrete and masonry wall shall be 8" unless otherwise shown. Provide beam bearing plates as required.
- Beams without a specified camber shall be oriented such that any incidental camber is upward.
- Bolts connections not specified to be slip critical shall be tightened snug tight (all metal surfaces in contact).
- All gusset plates to be minimum 3/8" thick. Unless noted otherwise, all column and beam web stiffeners and gusset plates shall be 3/8" thick.

STEEL SPEC NOTES

- All steel shall be fabricated, detailed, and erected in accordance with AISC Code of Standard Practice, ASTM A6 "Specification for General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use", and Research Council on Structural Connections (RCS) "Specifications for Structural Joints Using ASTM A325 or A490 Bolts."
- Provide shop drawing submittal laying out and detailing structural steel and bolts.
- Inspect all steel in accordance with Michigan Building Code and AISC requirements. At a minimum visually inspect all fillet welds, non-destructively test all full penetration welds, inspect all bolted connections, etc.
- All welding shall be done in accordance with AWS D1.1 "Structural Welding - Steel."

WOOD NOTES

- Comply with National Design Specification (NDS), American Forest Products Association (AFPA), and American Institute of Wood Construction (AIWC).
- Bolt beam plates with 1/2" diameter bolts at 24" o.c., staggered.
- When treated lumber is in contact with steel (bolts, nails, fasteners, hangers, etc.), steel shall be G-185 galvanized or stainless. Dimensional lumber bolted to steel beams and columns shall be untreated, or protective coatings equivalent to G-185 shall be applied to the steel. Unless noted otherwise, do not countersink bolts or fasteners into wood. Provide washers with bolts that are a minimum of 2 times the diameter of the bolt.
- Unless noted otherwise, refer to International Building Code Table 2304.9.1 for minimum nailing requirements. All nails shall be common wire nails.

SCOPE OF PROJECT NOTE:

These drawings and this project are intended to improve upon the state of the existing roof structure of the building. The retrofits are not intended to bring the roof in full compliance with current building codes. Rather, the project is intended to make improvements to the condition of various components and increase strength of components where they were deemed to be severely deficient. Stresses in existing structural elements will be reduced if the existing clay tile roof is replaced with lighter materials.

ENGINEERING DATA

|                 |                                     |   |
|-----------------|-------------------------------------|---|
| Design stresses |                                     |   |
| Steel           | W shapes                            | Fy = 50000 psi  |
|                 | Rectangular HSS shapes (A500)       | Fy = 46000 psi  |
|                 | Round HSS & Pipe shapes (A500)      | Fy = 42000 psi  |
|                 | All other shapes                    | Fy = 36000 psi  |
|                 | Structural bolts                    | ASTM A325   |
|                 | Welding electrode                   | E70XX   |
| Lumber          | Dimension lumber (SPF #2 or better) | Fb = 850 psi<br>Fv = 135 psi                                  |
|                 | Engineered lumber (LVL)             | Fb = 2600 psi<br>Fv = 285 psi                                 |
|                 | Engineered lumber (PSL)             | E = 1900 ksi<br>Fb = 2900 psi<br>Fv = 290 psi<br>E = 2000 ksi |

Structural design requirements

|                                    |                    |
|------------------------------------|--------------------|
| Roof live load                     | 20 psf             |
| Risk Category                      | II                 |
| Roof snow load                     |                    |
| Ground snow load (Pg)              | 25 psf             |
| Flat roof snow load (Pf)           | 20 psf + Drift     |
| Snow exposure (Ce)                 | 1.0                |
| Snow load importance factor (Is)   | 1.0                |
| Thermal factor (Ct)                | 1.1                |
| Wind Load                          |                    |
| Ultimate design wind speed (3 sec) | 115 mph            |
| Nominal design wind speed (3 sec)  | 90 mph             |
| Wind exposure category             | B                  |
| Internal Pressure coeff (GCpi)     | 0.18               |
| Components & cladding (varies)     | varies - per ASCE7 |

Specific Design Loads

|                                      |                          |
|--------------------------------------|--------------------------|
| Roof dead loads                      |                          |
| Clay tile                            | 20                       |
| Asphalt shingles or built up roofing | 8                        |
| Insulation                           | 5                        |
| Trusses                              | 3                        |
| Roof sheathing                       | 3                        |
| Ceiling (plaster)                    | 10                       |
| M/E/P                                | 2                        |
| Misc                                 | 2                        |
|                                      | 45 psf Total (Clay Tile) |
|                                      | 33 psf Total (Asphalt)   |

|                                       |                 |
|---------------------------------------|-----------------|
| Roof truss design loads               |                 |
| Bottom chord dead load                | 15 psf          |
| Top chord dead load                   | 30 psf          |
| Top chord snow load:                  |                 |
| Balanced                              | 20 psf balanced |
| Unbalanced (see Fig 7-5 of ASCE 7-10) |                 |
| Windward                              | N/A             |
| Leeward                               | N/A             |
| Leeward ridge                         | N/A             |

|                       |                             |
|-----------------------|-----------------------------|
| Design codes          |                             |
| General building code | Michigan Building Code 2015 |
| Steel                 | AISC 360 - ASD              |
| Wood                  | NDS                         |

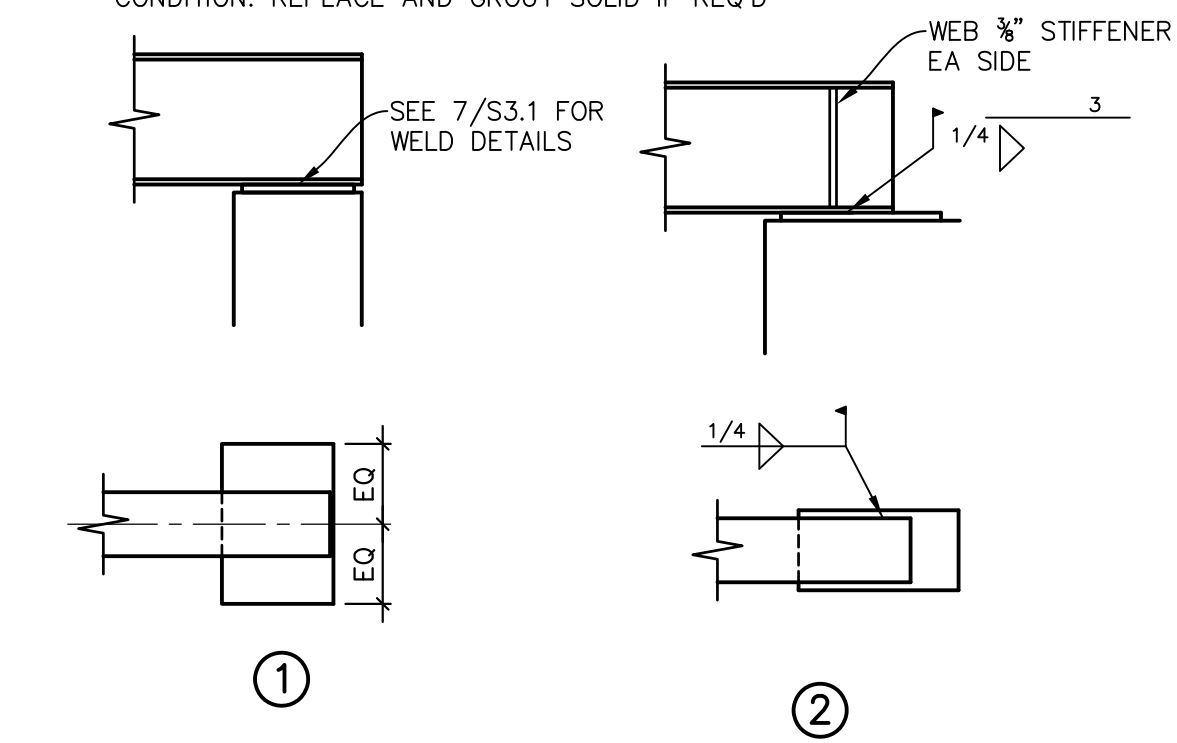
**EXISTING BUILDING SURVEY NOTE:**  
COMPLETE CONSTRUCTION DRAWINGS FOR THE EXISTING BUILDING WERE UNAVAILABLE. THEREFORE, AN ATTEMPT HAS BEEN MADE TO ANTICIPATE CONDITIONS IN THE EXISTING STRUCTURE. STRUCTURAL COMPONENTS MAY OR MAY NOT HAVE BEEN EXPOSED TO VIEW DURING STRUCTURAL SURVEYS. ALL EXISTING STRUCTURAL INFORMATION, INCLUDING SIZES AND DIMENSIONS, SHALL BE FIELD VERIFIED. NOTIFY A/E IF ACTUAL CONDITIONS DIFFER FROM THE CONTRACT DOCUMENTS.

**CONTRACTOR NOTE:**  
IF CONDITIONS ARE FOUND TO BE QUESTIONABLE FOR LONG-TERM SUPPORT OR INTEGRITY (ADDITIONAL DRYROT, SPLITTING OF WOOD MEMBERS, INADEQUATE SUPPORT), NOTIFY A/E FOR RESOLUTION

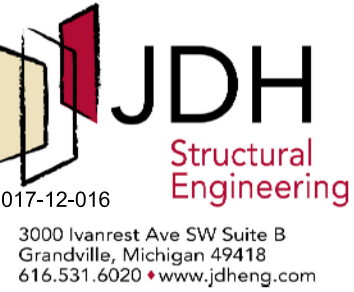
| BEARING PLATE SCHEDULE |             |                |        |
|------------------------|-------------|----------------|--------|
| MARK                   | SIZE        | HEADED ANCHORS | DETAIL |
| BP1                    | 3/4"x8"x16" | N/A            | ①      |
| BP2                    | 3/4"x8"x24" | N/A            | ②      |

NOTES:

- GROUT ALL BEAM POCKETS SOLID.
- PROVIDE 1/2" SETBACK OF BRG FROM FACE OF MASONRY, UNO
- CONFIRM THAT EXISTING BRICK UNDER BRG IS IN GOOD CONDITION. REPLACE AND GROUT SOLID IF REQ'D



BEARING PLATE DETAILS



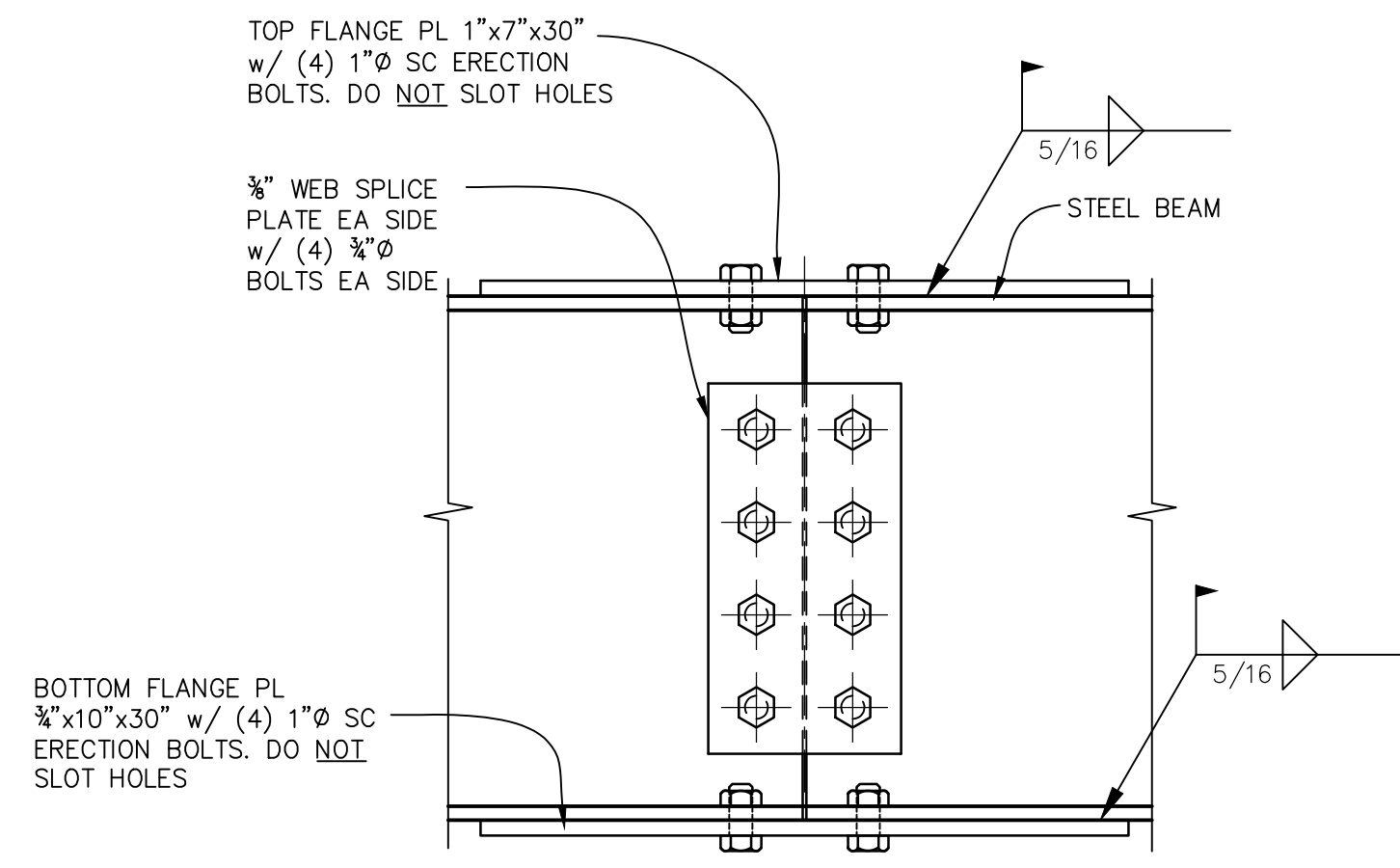
MASONIC TEMPLE RETROFITS

STRUCTURAL NOTES

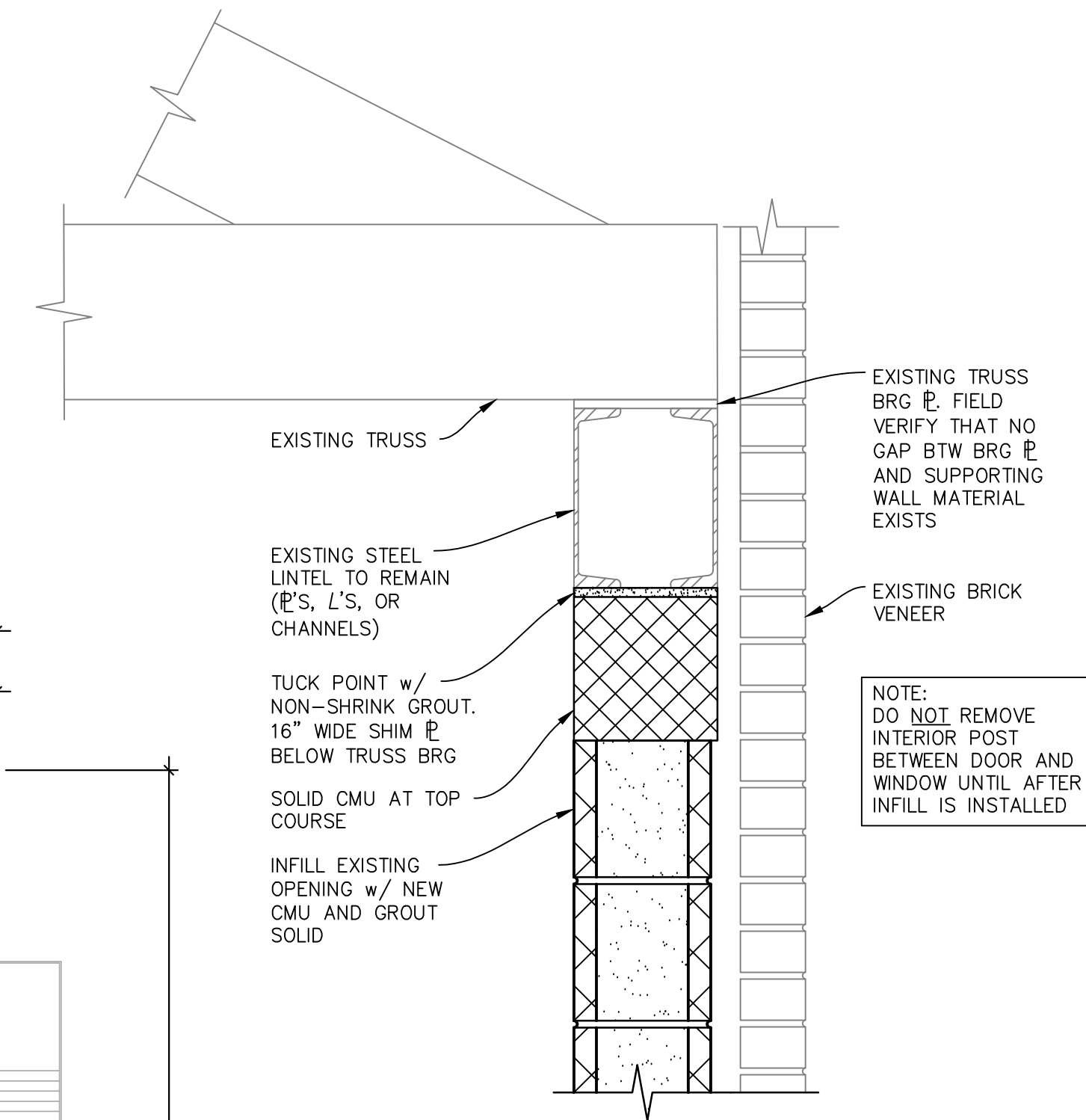
RECORD

|               |                          |
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| FILE NUMBER:  | 2017-12-016              |
| SHEET NUMBER: | S0.1                     |

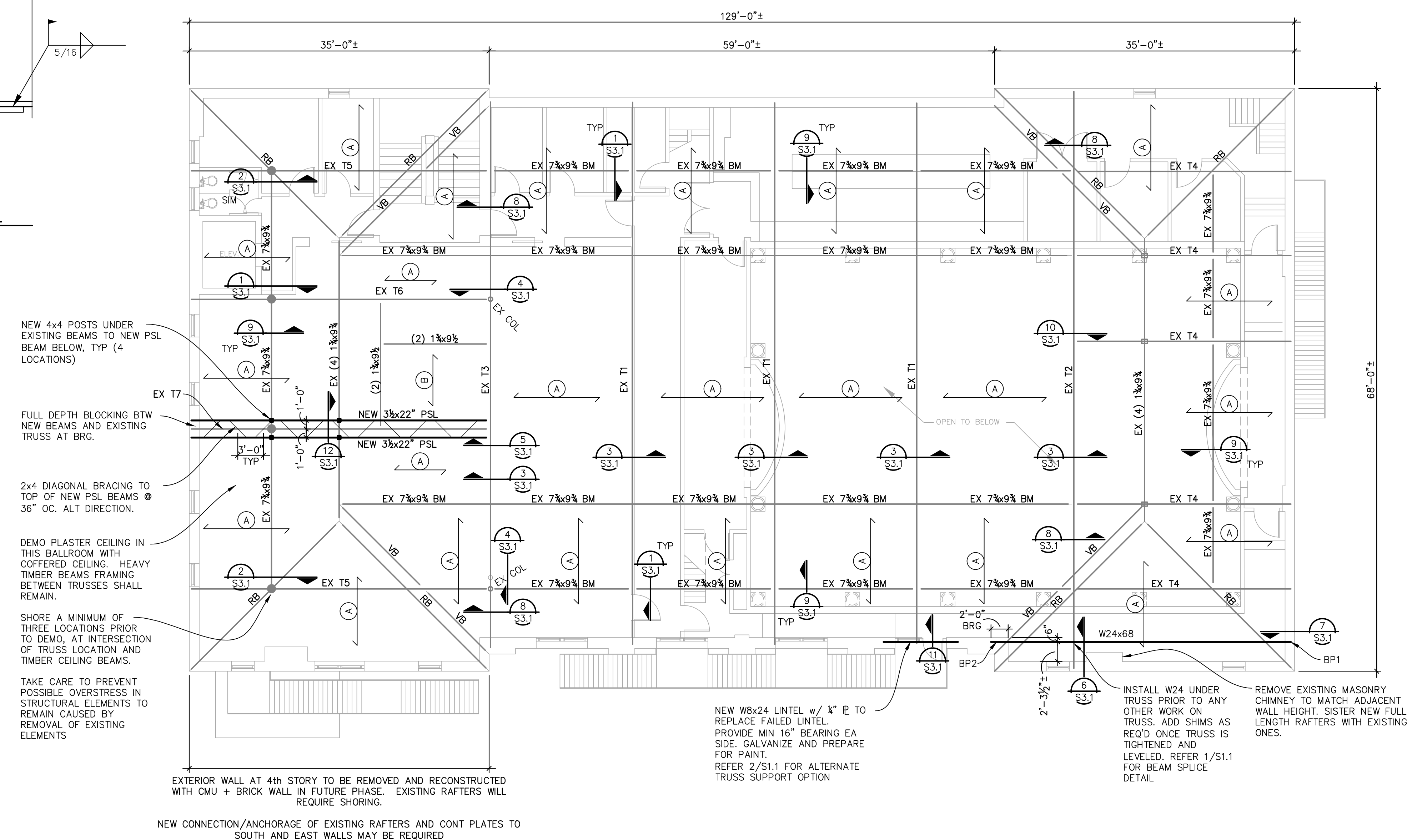
146 WEST CORTLAND ST  
JACKSON, MI



1 BEAM SPLICE DTL  
NOT TO SCALE



2 ALTERNATE FAILED LINTEL SUPPORT DETAIL  
NOT TO SCALE



ROOF FRAMING PLAN  
SCALE 1/8" = 1'-0"

- RECOMMENDED SEQUENCING:
1. Remove interior finishes as directed by architect.
  2. Remove clay tile roof to lighten loads on existing structural elements.
  3. Shore structure as required and straighten/tighten trusses per structural design documents.
  4. Install structural reinforcement per details in structural design documents.
  5. Re-construct roof envelope as directed by architect.
- At the contractor's option, repairs could be phased rather than doing each sequence for the entire roof at once. Construction sequencing and means and methods of construction are the responsibility of the contractor.

- GENERAL NOTES
1. Ensure truss type T1 has (2) 2"Ø rods running along bottom chord. Report to A/E if found otherwise.
  2. Ensure truss type T2 & T3 have (4) 2"Ø rods running along bottom chord. Report to A/E if found otherwise.
  3. Refer to S2.1 & S2.2 for existing truss elevations
  4. Contractor to verify that all existing structural members are sound and in good condition without indications of rot or moisture. Report to A/E if found otherwise
  5. Contractor to tighten all truss connections until all members are snug and in full contact with each other. Tighten rods evenly, starting from end of truss and working toward middle.
  6. Where significant deflection of the existing trusses is noted, raise trusses until they are level and install shims over columns as required to maintain height.

- PLAN KEY:
- (A) 1 1/2"x9 1/2" RAFTERS @ 16" OC
  - (B) 1 1/2"x7 1/4" RAFTERS @ 16" OC
  - "RB" Ridge beam
  - "VB" Valley beam
  - Temporary shoring location while ceiling is being removed

|               |             |
|---------------|-------------|
| ISSUED FOR:   | RECORD      |
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| DRAWN BY:     | JTV         |
| FILE NUMBER:  | 2017-12-016 |
| SHEET NUMBER: | S1.1        |

| ISSUED FOR               | DATE    | DRAWN BY |
|--------------------------|---------|----------|
| Root Bldg & Construction | 3/28/18 | JTV      |

| DATE    | ISSUED FOR               |
|---------|--------------------------|
| 3/28/18 | Root Bldg & Construction |

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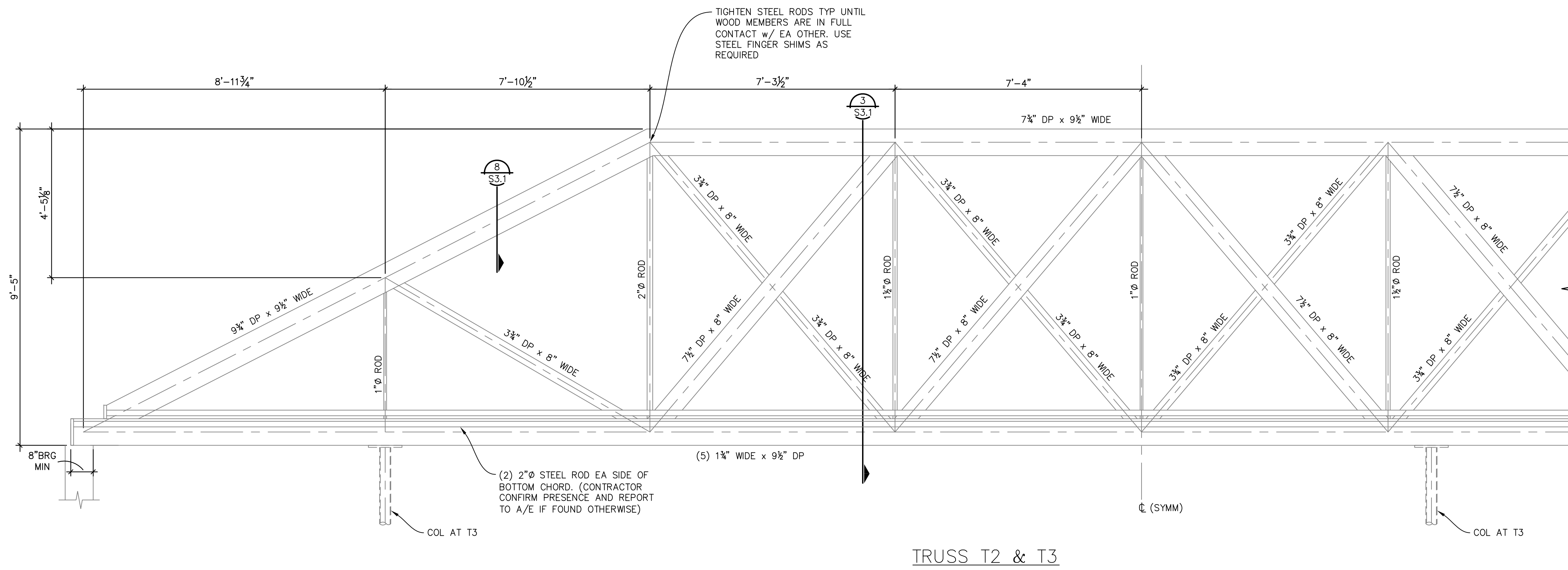
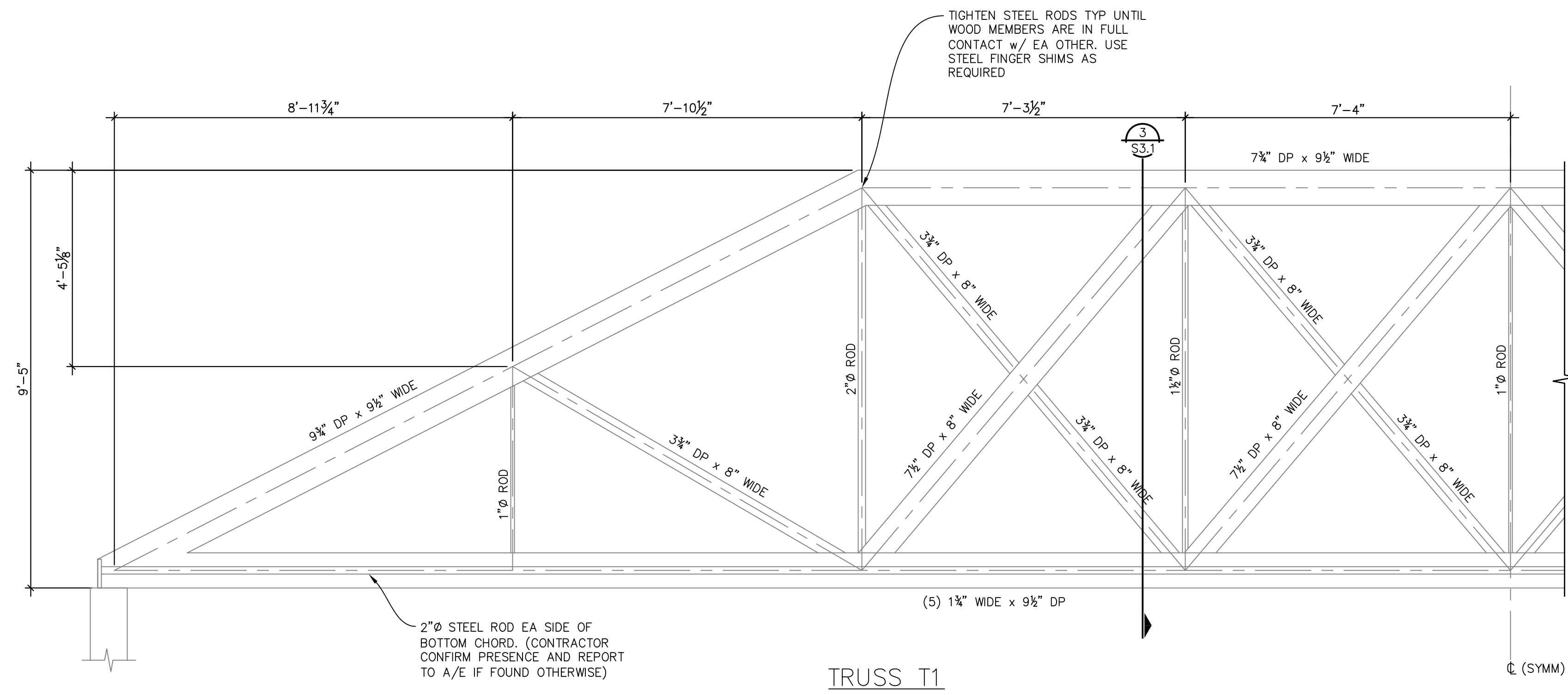
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SHEET NUMBER:

S2.1

SHEET NUMBER:

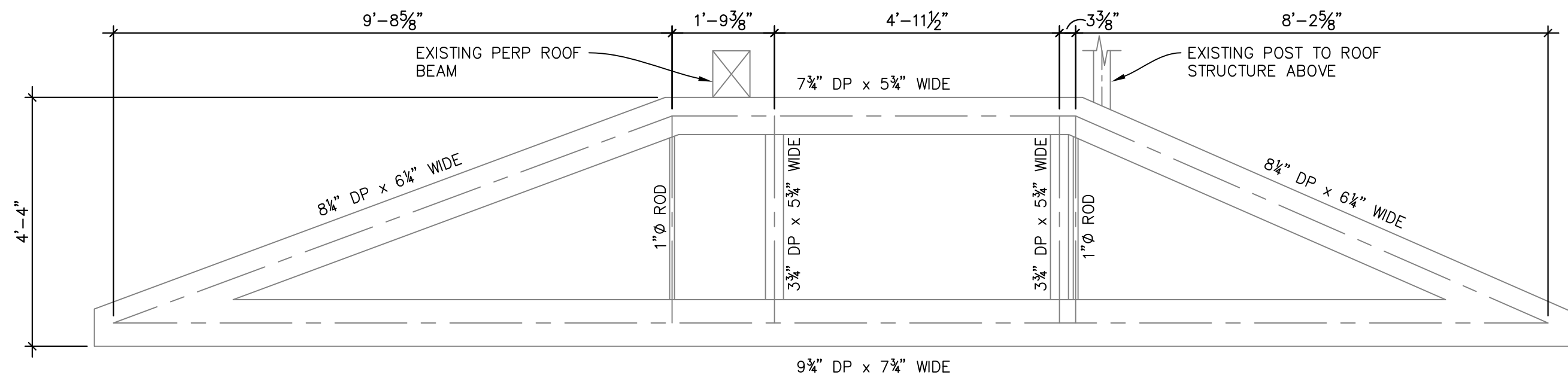
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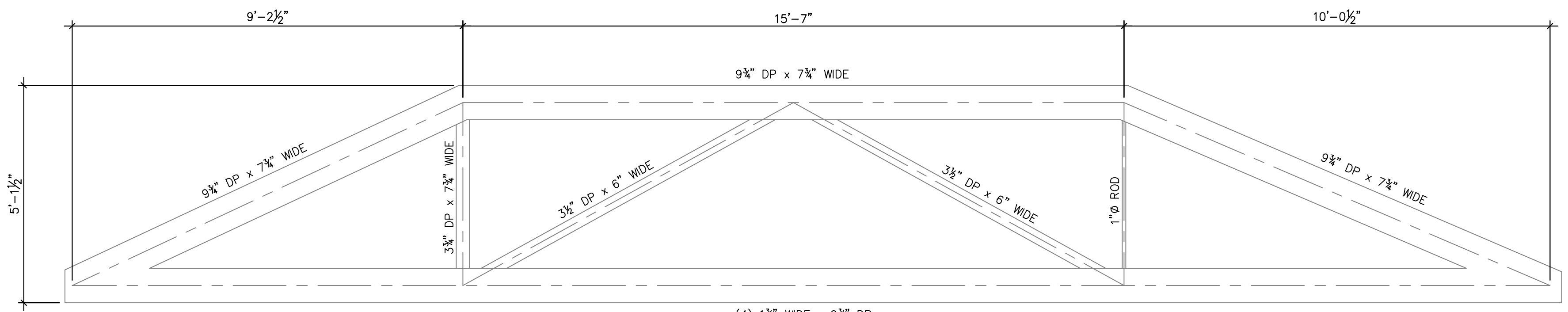
NOTE:  
ALL DIMENSIONS AND MEMBER SIZES SHALL BE CONSIDERED TO BE ±

**RECORD**

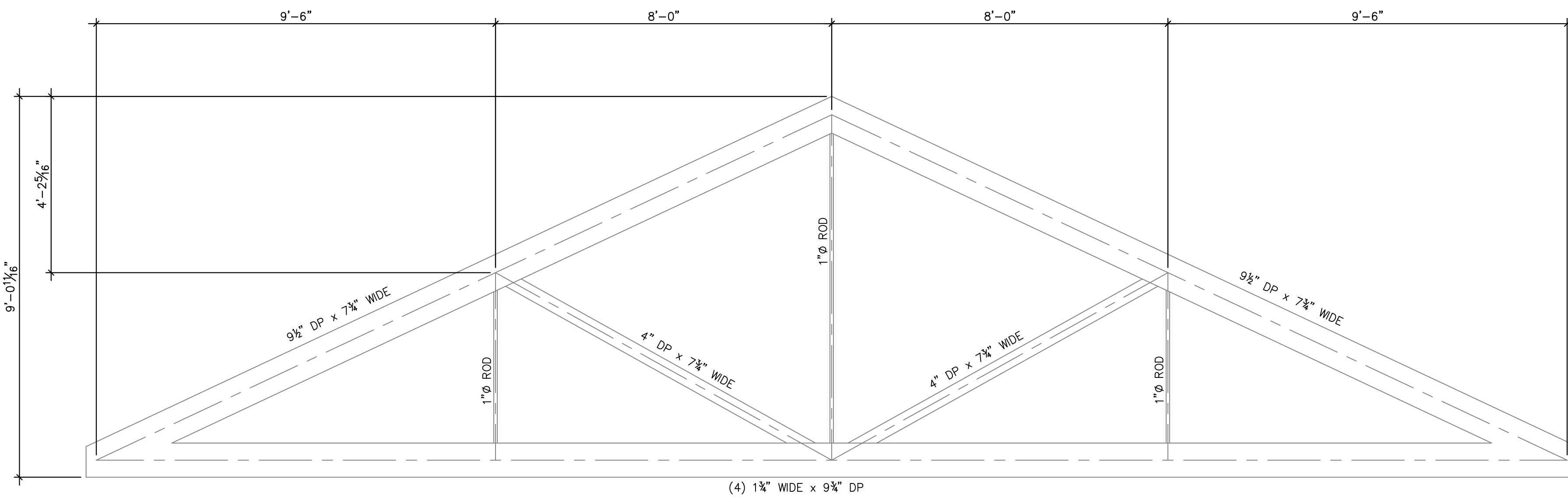
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| SHEET NUMBER: | S2.2                     |



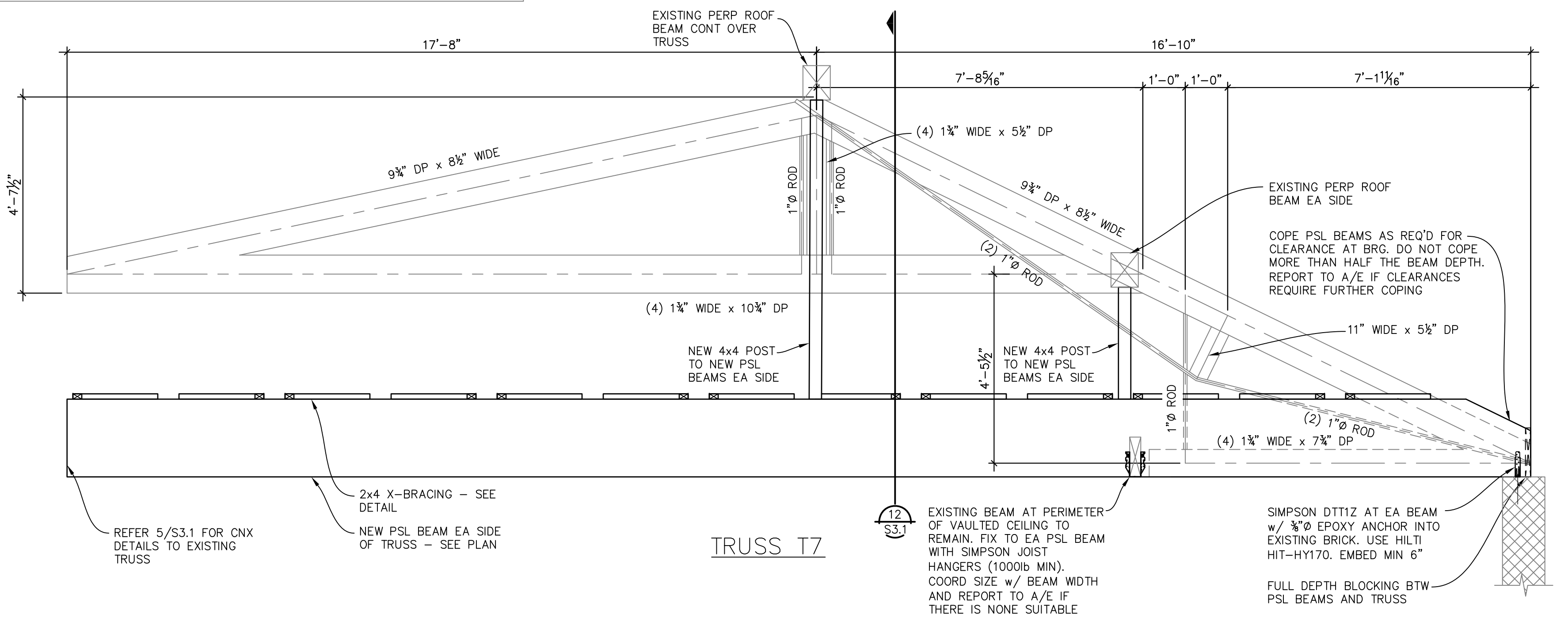
TRUSS T4



TRUSS T5



TRUSS T6



TRUSS T7

NOTE:  
ALL DIMENSIONS AND  
MEMBER SIZES SHALL BE  
CONSIDERED TO BE ±

