

| SHEET NAME | |
|------------|-----------------------------------|
| Sheet No. | SHEET NAME |
| SP-1 | SITE PLAN |
| A01 | OVERALL FLOOR PLAN - FIRST FLOOR |
| A02 | OVERALL FLOOR PLAN - SECOND FLOOR |
| A1 | FLOOR PLAN |
| A3 | ELEVATIONS - FRONT |
| A5 | ROOF PLAN / TRUSS LAYOUT |
| A6 | SECTIONS |
| S1 | STRUCT. NOTES |
| S1.1 | STRUT. DETAILS |
| S2 | ROOF FRAMING |
| S2.1 | TRUSS CALCULATIONS |
| CS-1 | MIN. CONSTRUCTION SPECIFICATIONS |

CODE COMPLIANCE

PROJECT DESIGNED BASED ON THE FOLLOWING CODES:
 2019 CALIFORNIA ELECTRICAL CODE (CEC)
 2019 CALIFORNIA MECHANICAL CODE (CMC)
 2019 CALIFORNIA PLUMBING CODE (CPC)
 2019 CALIFORNIA FIRE CODE (CFC)
 2019 CALIFORNIA BUILDING CODE (CBC)
 2017 NATIONAL ELECTRICAL CODE (NEC)
 2019 CALIFORNIA ENERGY CODE
 2019 CALIFORNIA GREEN BUILDING STANDARDS (CALGREEN)
 AND ALL CITY OF NATIONAL CITY AMENDMENTS.

SPECIFY AS INDICATED IN CF1R FORM (TITLE 24):

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SPECIFY AS INDICATED IN CF1R FORM (TITLE 24):

- DUCT SEALING (Y or N)
- REFRIGERANT CHARGE (Y or N)
- COOLING SYSTEM AIRFLOW (Y or N)
- COOLING SYSTEM UNIT FAN EFFICACY (Y or N)
- COOLING SYSTEM SEER AND/OR EER ABOVE MIN. (Y or N)
- WHOLE-BUILDING VENTILATION AIRFLOW (Y or N)
- BUILDING ENVELOPE AIR LEAKAGE (Y or N)
- QUALITY INSULATION INSTALLATION (Y or N)
- OTHER (SPECIFY BELOW)



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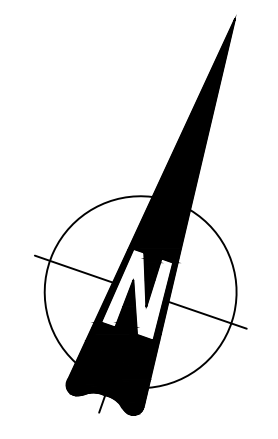


DANILO J. TULAGAN
TENANT IMPROVEMENT
 3400 E 8th St, NATIONAL CITY CA 91950
 APN: 669-101-09-00
 UTILITY: SDG&E
 AJH: NATIONAL CITY

COVER SHEET & SITE PLAN

1 SITE PLAN
 1"=20'

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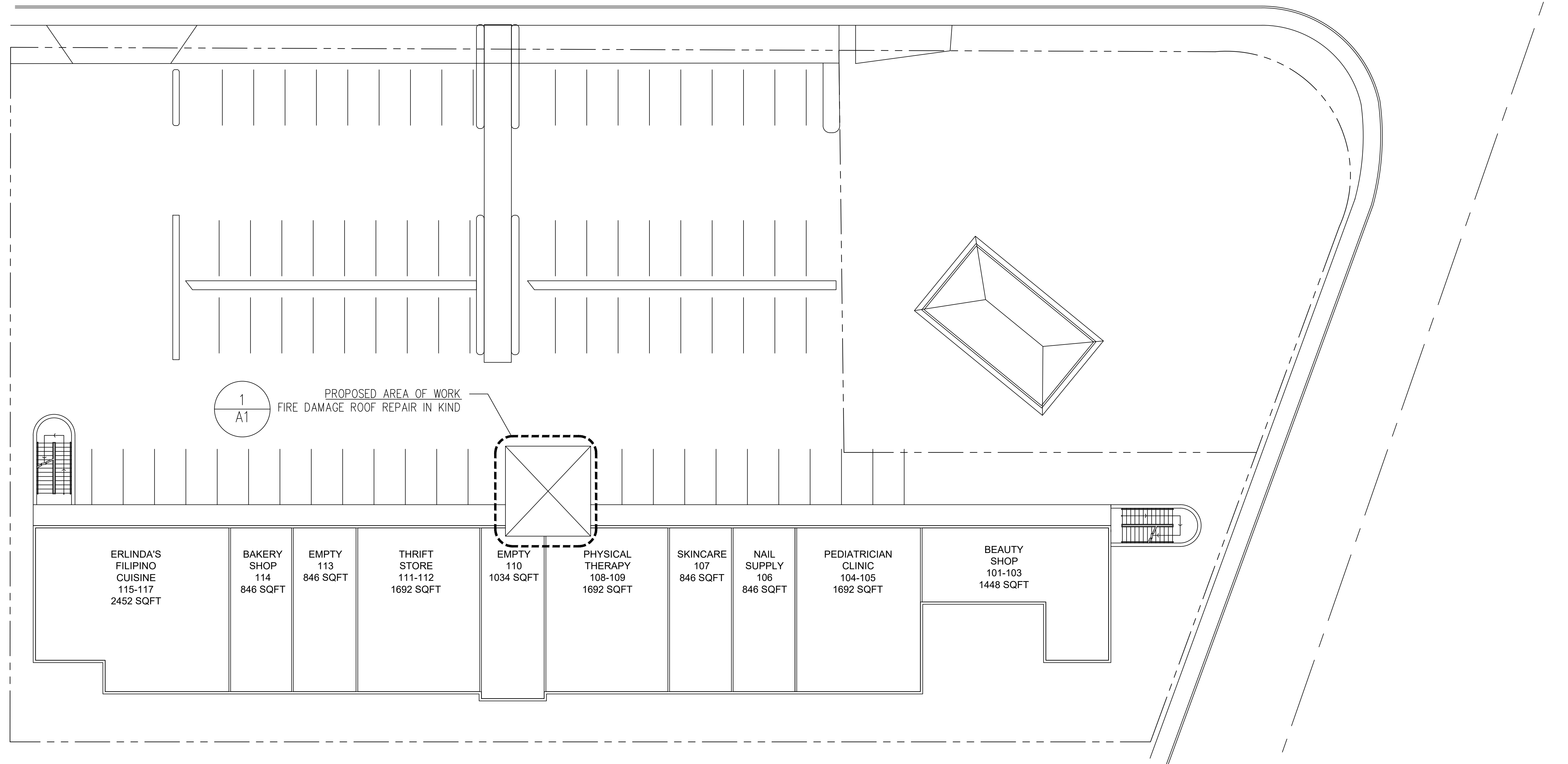


ENGINEERING SCALE: 1" = 20'

| VICINITY MAP | OWNER INFORMATION | CONTACT INFORMATION | PARCEL INFORMATION | PROJECT SCOPE | PERVIOUS AREA INFORMATION | IMPERVIOUS AREA INFORMATION | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | NAME: DANILO J. TULAGAN ADDRESS: 3400 E 8th St, NATIONAL CITY, 91950 PHONE: 619-939-8831 EMAIL: Pct.2020@GMAIL.COM | NAME: PETE TULAGAN ADDRESS: 2361 HUMMINGBIRD ST, CHULA VISTA, 91915 PHONE: 818-307-2732 EMAIL: Pct.2020@GMAIL.COM | APN: 669-101-09-00 SITE ADDRESS: 3400 E 8th St, NATIONAL CITY, 91950 ZONING: MXD-1 - H-35 BUILDING TYPE: V OCCUPANCY GROUP: B CONSTRUCTION TYPE: V | FIRE DAMAGE ROOF REPAIR IN KIND | <table border="1"> <thead> <tr> <th colspan="5">PERVIOUS SURFACE AREA TABLE</th> </tr> <tr> <th>SITE ID</th> <th>PERVIOUS ITEM</th> <th>DIMENSIONS</th> <th>AREA (sf)</th> <th>NOTES</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>PERVIOUS ELEMENT MANUFACTURER: _____ PERVIOUS ELEMENT SLOPE AND DIRECTION OF SLOPE: _____ MAINTENANCE PROGRAM: _____ PERVIOUS ELEMENT CROSS SECTION LOCATED IN SHEET: _____ CONSTRUCTED PERVIOUS SURFACES SHALL NOT BE SEALED</p> | PERVIOUS SURFACE AREA TABLE | | | | | SITE ID | PERVIOUS ITEM | DIMENSIONS | AREA (sf) | NOTES | | | | | | | | | | | | | | | | <table border="1"> <thead> <tr> <th colspan="5">IMPERVIOUS SURFACE AREA TABLE</th> </tr> <tr> <th>SITE ID</th> <th>IMPERVIOUS ITEM</th> <th>DIMENSIONS</th> <th>NEW OR REPLACED AREA (sf)</th> <th>EXISTING AREA (sf)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>STRUCTURE + OVERHANGS</td> <td>20'-4-1/2" x 24'-11-1/2"</td> <td>-</td> <td>508.5</td> </tr> <tr> <td>2</td> <td>SFD</td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>3</td> <td>DRIVEWAY</td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>4</td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> | IMPERVIOUS SURFACE AREA TABLE | | | | | SITE ID | IMPERVIOUS ITEM | DIMENSIONS | NEW OR REPLACED AREA (sf) | EXISTING AREA (sf) | 1 | STRUCTURE + OVERHANGS | 20'-4-1/2" x 24'-11-1/2" | - | 508.5 | 2 | SFD | | | | 3 | DRIVEWAY | | | | 4 | | | | |
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| 2 | SFD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | DRIVEWAY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| REVISION | | |
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| 0 | - | 02/09/2022 |
| 1 | - | 08/19/2022 |

PROJECT NO.
P0014
 SHEET NO.
SP-1



OVERALL FLOOR PLAN - FIRST FLOOR
 1/8" = 1'-0"

AZTEC DRAFTING & DESIGN
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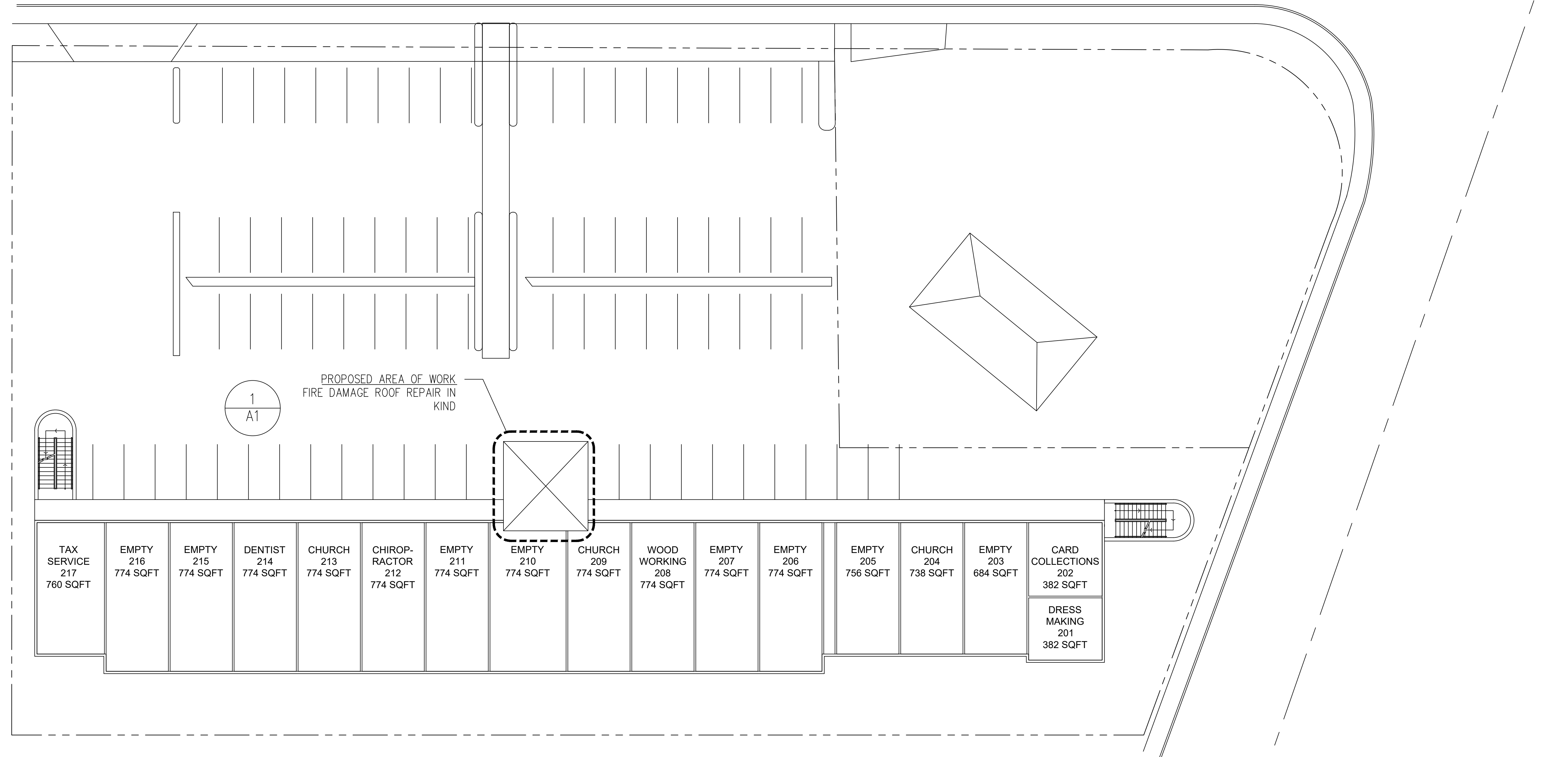
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**OVERALL FLOOR PLAN
 FIRST FLOOR**

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| 0 | - 02/09/2022 |
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PROJECT NO.
P0014

SHEET NO.
A01



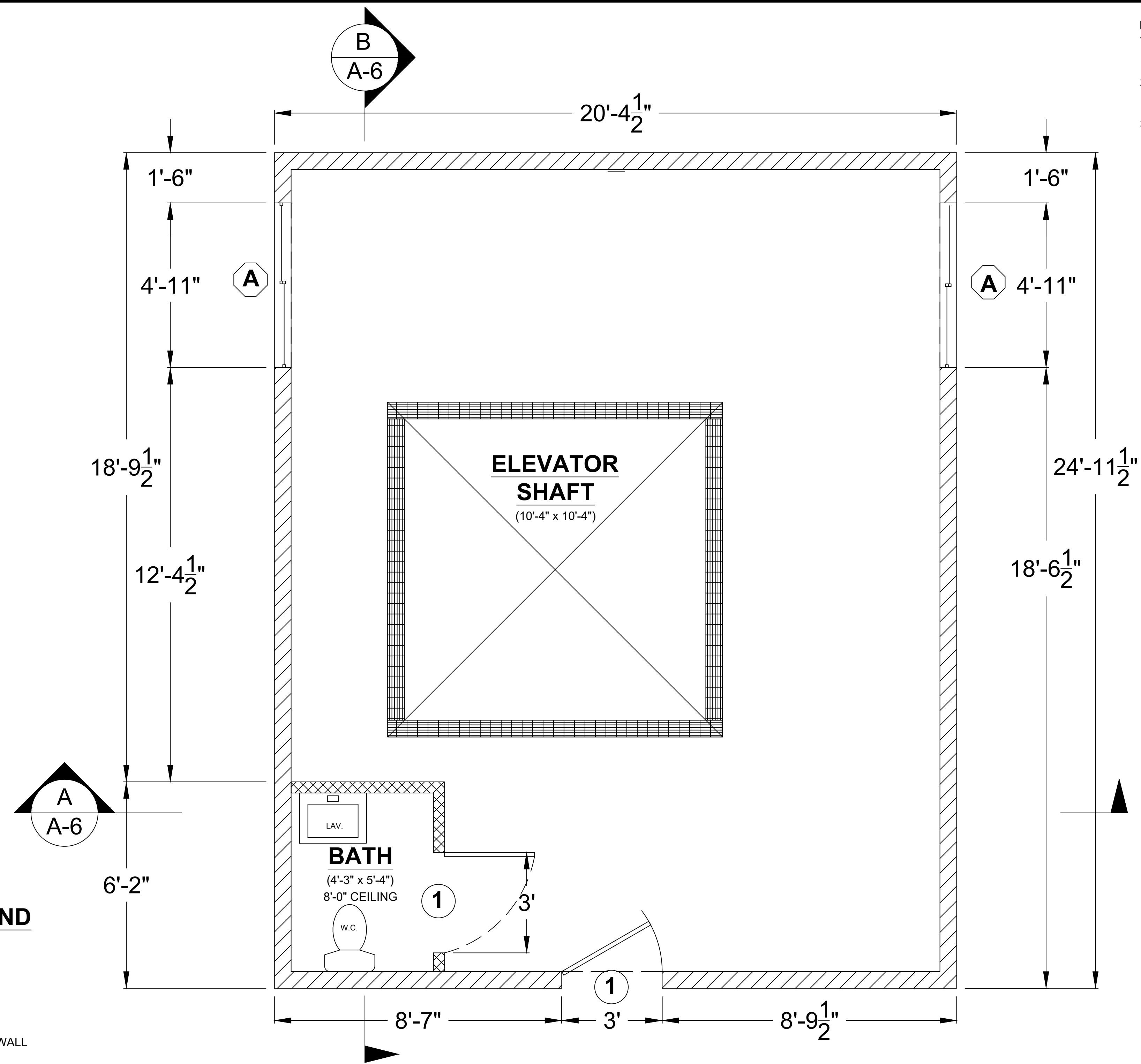
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|--------------------------------|--------------------------|--------------------------|----------------------------|---------------------------|-------------------------------------|--------------------------|--------------------------|---------------------------|------------------------------------|--------------------------|--------------------------|--------------------------|---------------------------|--------------------------|--|------------------------------------|
| TAX SERVICE 217 760 SQFT | EMPTY 216 774 SQFT | EMPTY 215 774 SQFT | DENTIST 214 774 SQFT | CHURCH 213 774 SQFT | CHIROP- RATOR 212 774 SQFT | EMPTY 211 774 SQFT | EMPTY 210 774 SQFT | CHURCH 209 774 SQFT | WOOD WORKING 208 774 SQFT | EMPTY 207 774 SQFT | EMPTY 206 774 SQFT | EMPTY 205 756 SQFT | CHURCH 204 738 SQFT | EMPTY 203 684 SQFT | CARD COLLECTIONS 202 382 SQFT | DRESS MAKING 201 382 SQFT |
|--------------------------------|--------------------------|--------------------------|----------------------------|---------------------------|-------------------------------------|--------------------------|--------------------------|---------------------------|------------------------------------|--------------------------|--------------------------|--------------------------|---------------------------|--------------------------|--|------------------------------------|

OVERALL FLOOR PLAN - SECOND FLOOR
 1/8" = 1'-0"

**OVERALL FLOOR PLAN
 SECOND FLOOR**

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| 0 | - 02/09/2022 |
| 1 | - 08/19/2022 |

PROJECT NO.
P0014
 SHEET NO.
A02



- NOTE:
- REBUILDING AND REPAIRING ROOF TRUSSES DUE TO FIRE DAMAGES
 - THIS AREA OF THE BUILDING IS NOT ACCESSIBLE TO ADA PEDESTRIANS
 - BUILDING DRAIN AND VENT PIPING MATERIALS SHALL COMPLY WITH SECTIONS 701.0 AND 903.0 OF THE CALIFORNIA PLUMBING CODE.

FLOOR PLAN NOTES

- EXTERIOR WALLS WITHIN 3 FEET OF PROPERTY LINE (SPRINKLERS) OR 5 FEET OF PROPERTY LINE (WITHOUT SPRINKLERS) REQUIRE 1-HOUR FIRE RATING FOR EXPOSURE TO BOTH SIDES
- PROJECTIONS:
 - PROHIBITED WITHIN 2 FEET OF PROPERTY LINE
 - 1-HOUR FIRE RATING ON THE UNDERSIDE WITHIN 3FT OF PROPERTY LINE (SPRINKLERS)
 - 1-HOUR FIRE RATING ON THE UNDERSIDE WITHIN 5FT OF PROPERTY LINE (WITHOUT SPRINKLERS)
- OPENINGS:
 - PROHIBITED WITHIN 3FT OF PROPERTY LINE
 - MAXIMUM 25% OF WALL AREA WITHIN 5 FEET OF PROPERTY LINE (WITHOUT SPRINKLERS)
- PENETRATIONS:
 - 1-HOUR FIRE-RATED PENETRATIONS OF WALLS WITHIN 3FT OF PROPERTY LINE (SPRINKLERS)
 - 1-HOUR FIRE-RATED PENETRATIONS OF WALLS WITHIN 5FT OF PROPERTY LINE (WITHOUT SPRINKLERS)
- CONCRETE LANDING WITH MIN 36" DEPTH AND A MAXIMUM OF 1-1/2" LOWER THAN TOP OF DOOR THRESHOLD

OPTIONAL ROLL-IN SHOWER PLAN NOTES

- SHOWER COMPARTMENT SEAT
 - MUST BE FOLDING TYPE, NOT TO EXCEED MORE THAN 6 INCHES FROM MOUNTING WALL WHEN FOLDED
 - LOCATED WITHIN 27 INCHES OF SHOWER CONTROLS
 - MOUNTED MINIMUM 17 INCHES AND MAXIMUM 19 INCHES ABOVE BATHROOM FINISHED FLOOR
 - SEAT INSTALLED ON SIDE WALL ADJACENT TO CONTROLS AND EXTENDING FROM BACK WALL TO POINT WITHIN 3 INCHES OF SHOWER COMPARTMENT ENTRY
 - STRUCTURAL ADEQUACY OF MOUNTING HARDWARE AND FASTENERS TO ACCOMMODATE 250 POUND POINT LOAD APPLIED AT ANY POINT ON THE GRAB BAR, FASTENER, MOUNTING DEVICE, OR SUPPORTING STRUCTURE
- SHOWER GRAB BARS
 - MOUNTED MINIMUM 33 INCHES AND MAXIMUM 36 INCHES ABOVE SHOWER FLOOR
 - NOT EXTENDING OVER SHOWER SEAT
 - IF CROSS SECTION IS CIRCULAR, MINIMUM 1-1/4" AND MAXIMUM 2" OUTSIDE DIAMETER
 - IF CROSS SECTION IS NON-CIRCULAR, MINIMUM 4" AND MAXIMUM 4.8" PERIMETER AND MAXIMUM 2-1/4" CROSS SECTION DIMENSION
 - GRAB BARS MOUNTED ADJACENT TO A WALL, 1-1/2" ABSOLUTE SPACE BETWEEN WALL AND GRAB BAR
 - MINIMUM 1-1/2" SPACE BETWEEN GRAB BAR AND PROJECTING OBJECTS BELOW AND AT ENDS
 - MINIMUM 12 INCH SPACE BETWEEN GRAB BAR AND PROJECTING OBJECTS ABOVE
 - SURFACE MATERIAL OF ANY WALLS OR OBJECTS ADJACENT TO GRAB BARS MUST BE FREE OF SHARP OR ABRASIVE ELEMENTS AND HAVE ROUNDED EDGES
 - STRUCTURAL ADEQUACY OF MOUNTING HARDWARE AND FASTENERS TO ACCOMMODATE 250 POUND POINT LOAD APPLIED AT ANY POINT ON THE GRAB BAR, FASTENER, MOUNTING DEVICE, OR SUPPORTING STRUCTURE
 - WALL REINFORCEMENT TO BE PROVIDED AT LOCATION OF GRAB BARS (E.G. BLOCKING)
- OPERABLE PARTS OF SHOWER CONTROLS AND FAUCETS:
 - INSTALLED ON BACK WALL OF SHOWER COMPARTMENT ADJACENT TO SEAT WALL
 - LOCATED MINIMUM 19 INCHES AND MAXIMUM 27 INCHES FROM SEAT WALL
 - LOCATED ABOVE GRAB BAR BUT NO HIGHER THAN 48 INCHES ABOVE SHOWER FLOOR
 - CENTERLINE AT MINIMUM 39 INCHES AND MAXIMUM 41 INCHES ABOVE SHOWER FLOOR
 - SINGLE-LEVER DESIGN
 - OPERABLE WITH MAXIMUM 5 POUNDS OF FORCE
 - OPERABLE WITH ONE HAND AND WITHOUT TIGHT GRASPING, PINCHING, OR TWISTING OF WRIST
- SPRAYER UNIT AND ASSOCIATED OPERABLE PARTS SHALL BE PROVIDED PER THE FOLLOWING:
 - OPERABLE PARTS, INCLUDING HANDLE, TO BE INSTALLED ON BACK WALL OF SHOWER COMPARTMENT MINIMUM 19 INCHES AND MAXIMUM 27 INCHES FROM SEAT WALL
 - OPERABLE PARTS LOCATED ABOVE GRAB BAR BUT NO HIGHER THAN 48 INCHES ABOVE SHOWER FLOOR, MEASURED TO TOP OF MOUNTING BRACKET
 - MINIMUM 59 INCH LONG HOSE
 - CAPABLE FOR USE AS FIXED SHOWER HEAD AND HAND HELD SHOWER
 - ON/OFF CONTROL WITH NON-POSITIVE SHUT OFF
 - ADJUSTABLE -HEIGHT SHOWER HEADS ON VERTICAL BAR SHALL NOT OBSTRUCT USE OF BATHTUB GRAB BARS
- WHERE SOAP DISHES ARE PROVIDED, MAXIMUM 40 INCHES ABOVE SHOWER FLOOR AND WITHIN REACH LIMITS FROM THE SHOWER SEAT
- MAXIMUM 2.1% SLOPE IN ALL DIRECTIONS OF ROLL-IN SHOWER FLOORS
- MAXIMUM 3/8" HIGH THRESHOLDS WITH MAXIMUM 50% BEVELED SLOPE AT ROLL-IN SHOWERS
- WHERE DRAINS ARE PROVIDED AT ROLL-IN SHOWERS, MAXIMUM 3/4" GRATE OPENINGS FLUSH WITH SHOWER FLOOR SURFACE

WALL LEGEND

- 2x6 WALL
- 2x4 WALL
- 2x4 PONY WALL

| WINDOW SCHEDULE | | | | |
|-----------------|---------------|---------|----------|-------|
| MARK | DIMENSION | TYPE | TEMPERED | NOTES |
| (A) | 3'-0" x 4'-0" | SLIDING | | |

| DOOR SCHEDULE | | | | |
|---------------|---------------|----------|----------|-------------------|
| MARK | DIMENSION | TYPE | TEMPERED | NOTES |
| (1) | 3'-0" x 6'-8" | SWINGING | | 1-3/8" SOLID CORE |

EXTERIOR WINDOWS, EXTERIOR GLAZED DOORS, GLAZED OPENINGS WITHIN EXTERIOR DOORS, GLAZED OPENINGS WITHIN EXTERIOR GARAGE DOORS, AND EXTERIOR STRUCTURAL GLASS VENEER SHALL COMPLY WITH ONE OF THE FOLLOWING: (SELECT ONE)

- MULTI-PANE GLAZING WITH A MINIMUM OF ONE TEMPERED PANE MEETING THE REQUIREMENTS OF SECTION 2406 SAFETY GLAZING, AND WHERE ANY GLAZING FRAMES MADE OF VINYL MATERIALS SHALL HAVE WELDED CORNERS, METAL REINFORCEMENT IN INTERLOCK AREA, AND BE CERTIFIED TO AAMA/WDMA/CSA 101/I.S.2/A40
- MINIMUM 20-MIN FIRE-RESISTANCE-RATED.
- MEET PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-2

EXTERIOR DOORS SHALL COMPLY WITH ONE OF THE FOLLOWING: (SELECT ONE)

- EXTERIOR SURFACE OR CLADDING OF NON-COMBUSTIBLE OR IGNITION-RESISTANT MATERIAL
- SOLID CORE WOOD COMPLYING WITH THE FOLLOWING:
 - STILES AND RAILS MINIMUM 1-3/8 INCHES THICK
 - RAISED PANELS MINIMUM 1-1/4 INCHES THICK**EXCEPTION:** EXTERIOR PERIMETER OF RAISED PANEL MAY TAPER TO A TONGUE MINIMUM 3/8 INCHES THICK
- MINIMUM 20-MIN FIRE RATED WHEN TESTED PER NFPA 252
- MEET PERFORMANCE REQUIREMENTS OF SFM STANDARD 12-7A-1

FLOOR PLAN
1/2" = 1'-0"

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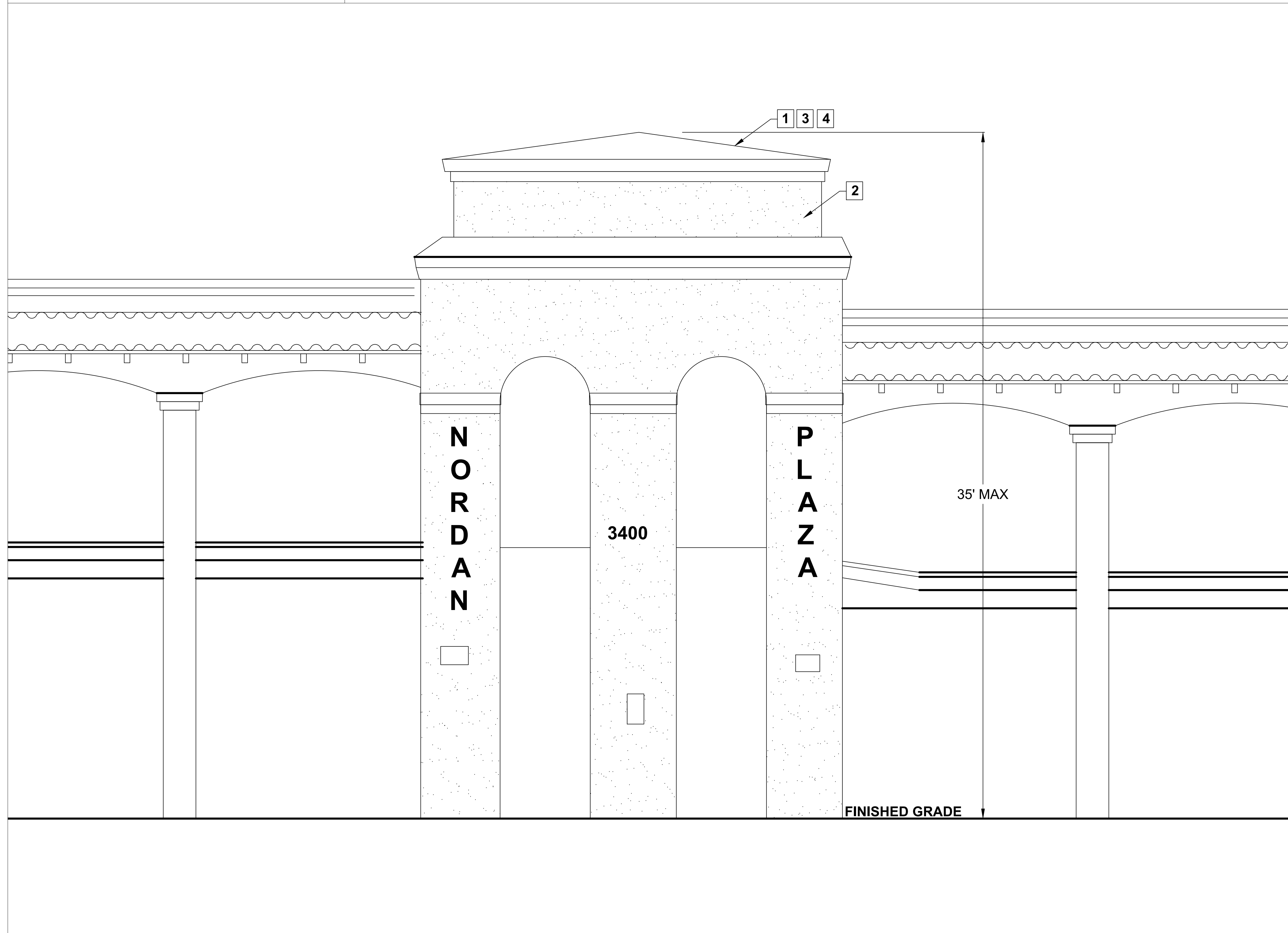
FLOOR PLAN

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A-1

GENERAL NOTE:

1. THE EXTERIOR SIGNAGE IS EXISTING
2. REPLACEMENT STRUCTURE HAS NO ATTIC SPACE
3. ROOF COVERING IS TYPE S CLASSIFICATION OF THE ROOFING CBC 1505.1



FRONT

ELEVATIONS

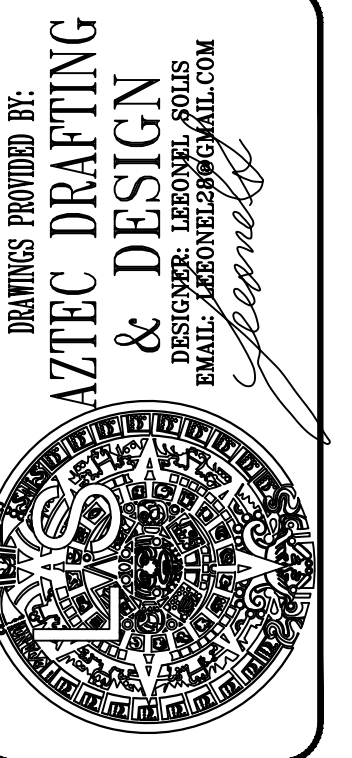
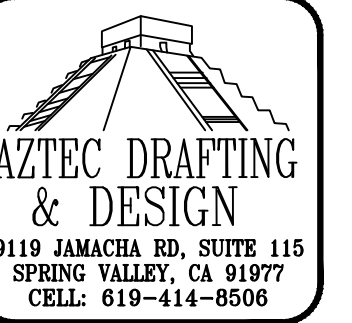
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ELEVATION KEY NOTES

1. ROOF: CLASS 'A' FIRE RATING -
ROOF MATERIAL: EAGLE LIGHT WEIGHT TILE
UNDERLAYMENT: 30 LBS FELT PAPER
2. EXTERIOR WALL FINISH: STUCCO TO MATCH EXISTING BUILDING (SEE NOTE 7 BELOW)
3. ROOF PITCH: 4:12
4. RADIANT BARRIER IS REQUIRED

WILDFIRE ZONE PLAN NOTES

1. IN ROOF COVERINGS WHERE THE PROFILE CREATES SPACE BETWEEN THE ROOF COVERING AND COMBUSTIBLE ROOF DECKING, SPECIFY ONE OF THE FOLLOWING MEANS OF PROTECTING SPACES AT EAVES ENDS.
 - a. FIRE-STOPPING WITH APPROVED MATERIALS
 - b. ONE LAYER OF 72 POUND (32.4 KG) MINERAL-SURFACED NON-PERFORATED CAP SHEET COMPLYING WITH ASTM D 3909 INSTALLED OVER THE COMBUSTIBLE DECKING
 - c. OTHERWISE CONSTRUCTED TO PREVENT INTRUSION OF FLAMES AND EMBERS
2. EXPOSED VALLEY FLASHINGS SHALL BE CONSTRUCTED WITH NOT LESS THAN 0.019-INCH (NO. 26 GALVANIZED SHEET GAGE) CORROSION-RESISTANT METAL INSTALLED OVER A MINIMUM 36-INCH-WIDE UNDERLAYMENT CONSISTING OF ONE LAYER OF NO. 72 ASTM CAP SHEET RUNNING THE FULL LENGTH OF THE VALLEY.
3. ANY ROOF GUTTERS SHALL BE PROVIDED WITH MEANS TO PREVENT ACCUMULATION OF LEAVES AND DEBRIS.
4. SKYLIGHTS SHALL BE TEMPERED GLASS.
5. ALL VENTS (ROOF, FOUNDATION, COMBUSTION-AIR, ETC) SHALL RESIST THE INTRUSION OF FLAMES AND EMBERS
6. VENTILATION OPENINGS FOR ENCLOSED ATTICS, EAVE SOFFIT SPACES, ENCLOSED RAFTER SPACES FORMED WHERE CEILINGS ARE APPLIED DIRECTLY TO THE UNDERSIDE OF ROOF RAFTERS, UNDERFLOOR VENTILATION OPENINGS, AND VENT OPENINGS IN EXTERIOR WALLS AND EXTERIOR DOORS SHALL BE LISTED TO ASTM E 2886 AND COMPLY WITH ALL OF THE FOLLOWING:
 - a. THERE SHALL BE NO FLAMING IGNITION OF THE COTTON MATERIAL DURING THE EMBER INTRUSION TEST
 - b. THERE SHALL BE NO FLAMING IGNITION DURING THE INTEGRITY TEST PORTION OF THE FLAME INTRUSION TEST
 - c. THE MAXIMUM TEMPERATURE OF THE UNEXPOSED SIDE OF THE VENT SHALL NOT EXCEED 662 DEGREES FAHRENHEIT (350 DEGREES CELSIUS)
7. EXTERIOR WALL FINISH SHALL COMPLY WITH ONE OF THE FOLLOWING:
 - a. NON-COMBUSTIBLE MATERIAL (STUCCO, CEMENT FIBER BOARD, ETC) - STUCCO AND CEMENT PLASTER USED AS AN EXTERIOR WALL COVERING SHALL BE 7/8-INCH THICK - NONCOMBUSTIBLE OR FIRE-RETARDANT-TREATED WOOD SHAKE USED AS AN EXTERIOR WALL COVERING SHALL HAVE AN UNDERLAYMENT OF MINIMUM 1/2-INCH FIRE-RATED GYPSUM SHEATHING THAT IS TIGHTLY BUTTED, OR TAPED AND MUDDED, OR AN UNDERLAYMENT OF OTHER IGNITION-RESISTANT MATERIAL APPROVED BY THE BUILDING OFFICIAL.
 - b. IGNITION-RESISTANT MATERIAL
8. PATIO COVER, CARPORT AND TRELLIS CONSTRUCTION WITH ALL EXPOSED ELEMENTS SHALL COMPLY WITH ANY OF THE FOLLOWING:
 - NON-COMBUSTIBLE MATERIAL
 - 1-HOUR FIRE-RESISTANT-RATED MATERIAL
 - APPROVED EXTERIOR FIRE-RETARDANT TREATED WOOD
 - MODIFIED HEAVY TIMBER (MIN 2X TONGUE-AND-GROOVE SHEATHING, 4X6 RAFTERS/BEAMS, 6X6 POSTS)
9. DECK, BALCONY, AND EXTERIOR STAIR CONSTRUCTION, WITH ALL EXPOSED ELEMENTS SHALL COMPLY WITH THE FOLLOWING:
 - a. FRAMING
 - NON-COMBUSTIBLE MATERIAL
 - 1-HOUR FIRE-RESISTANT-RATED MATERIAL
 - APPROVED EXTERIOR FIRE-RETARDANT TREATED WOOD
 - MODIFIED HEAVY TIMBER (MIN 4X8 JOISTS, 4X10 OR 6X8 BEAMS, 6X6 POSTS)
 - b. DECKING AND TREAD MATERIAL (ANY OF THE FOLLOWING):
 - NON-COMBUSTIBLE MATERIAL
 - 1-HOUR FIRE-RESISTANT-RATED MATERIAL
 - APPROVED EXTERIOR FIRE-RETARDANT TREATED WOOD
 - APPROVED ALTERNATIVE DECKING MATERIAL MEETING TESTS REQUIREMENTS OF COUNTY BUILDING CODE 92.1.709A.1.4)
10. EXTERIOR GARAGE DOORS SHALL RESIST THE INTRUSION OF EMBERS INTO THE GARAGE BY LIMITING THE SIZE OF ANY GAPS AT THE BOTTOM, SIDES, AND TOP OF THE DOOR TO 1/8 INCH OR LESS USING ONE OF THE FOLLOWING METHODS
 - a. WEATHER-STRIPPING PRODUCTS WITH TENSILE STRENGTH AND FLAMMABILITY RATING PER CBC 708A.4
 - b. DOOR OVERLAPS ONTO JAMBS AND HEADERS
 - c. GARAGE DOOR JAMBS AND HEADERS COVERED WITH METAL FLASHING
11. PAPER-FACED INSULATION PROHIBITED IN ATTICS OR OTHER VENTILATED SPACES.
12. FENCES OR ANY STRUCTURE WITHIN 5 FEET OF BUILDING SHALL BE CONSTRUCTED PER ONE OF THE FOLLOWING:
 - a. NON-COMBUSTIBLE MATERIAL
 - b. APPROVED EXTERIOR FIRE-RETARDANT TREATED WOOD
 - c. MATERIAL MEETING SAME FIRE-RESISTIVE STANDARDS AS EXTERIOR WALLS OF BUILDINGS

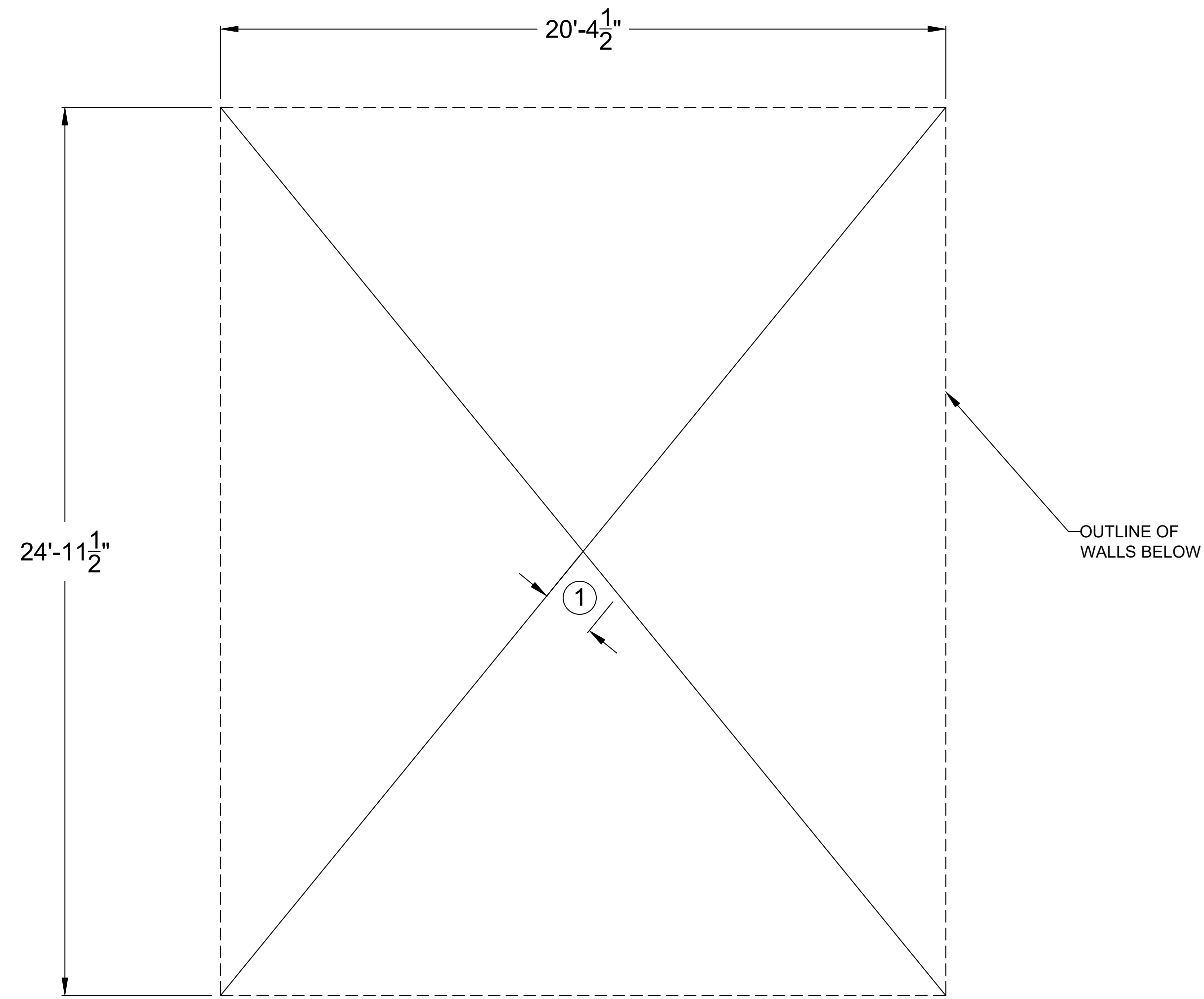


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ELEVATIONS

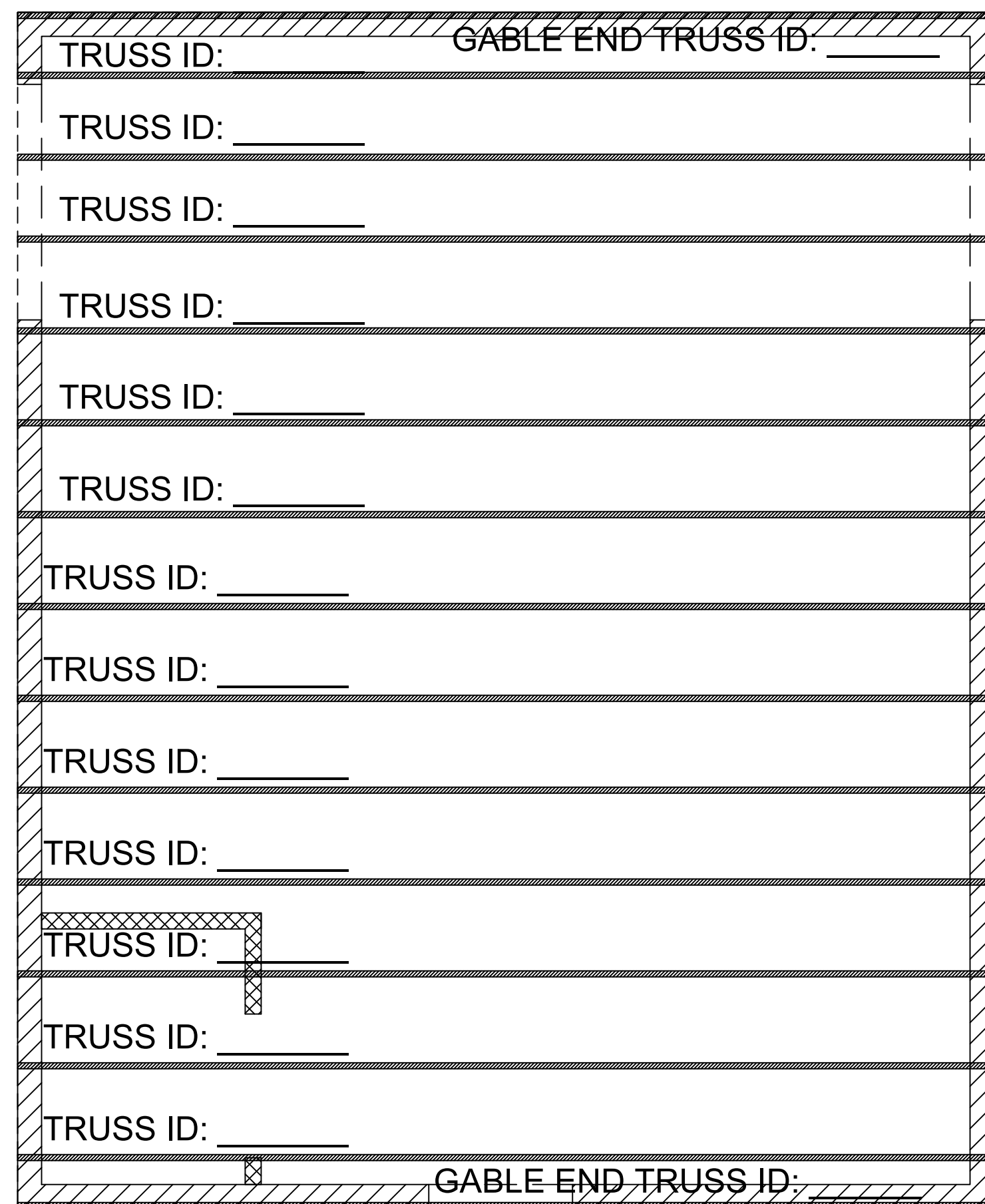
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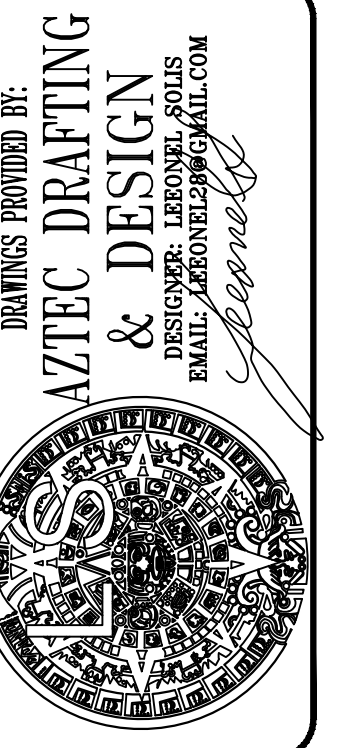
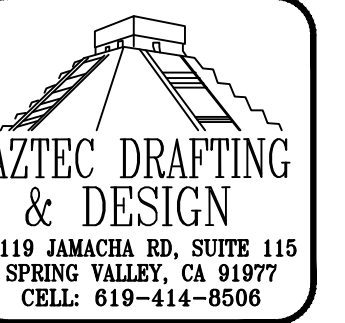


KEY NOTES

1. 1'-6" SMOKE VENTILATION SETBACK AT RIDGES
2. NO CEILING TO BE INSTALLED



ROOF PLAN / TRUSS LAYOUT
3/8" = 1'-0"

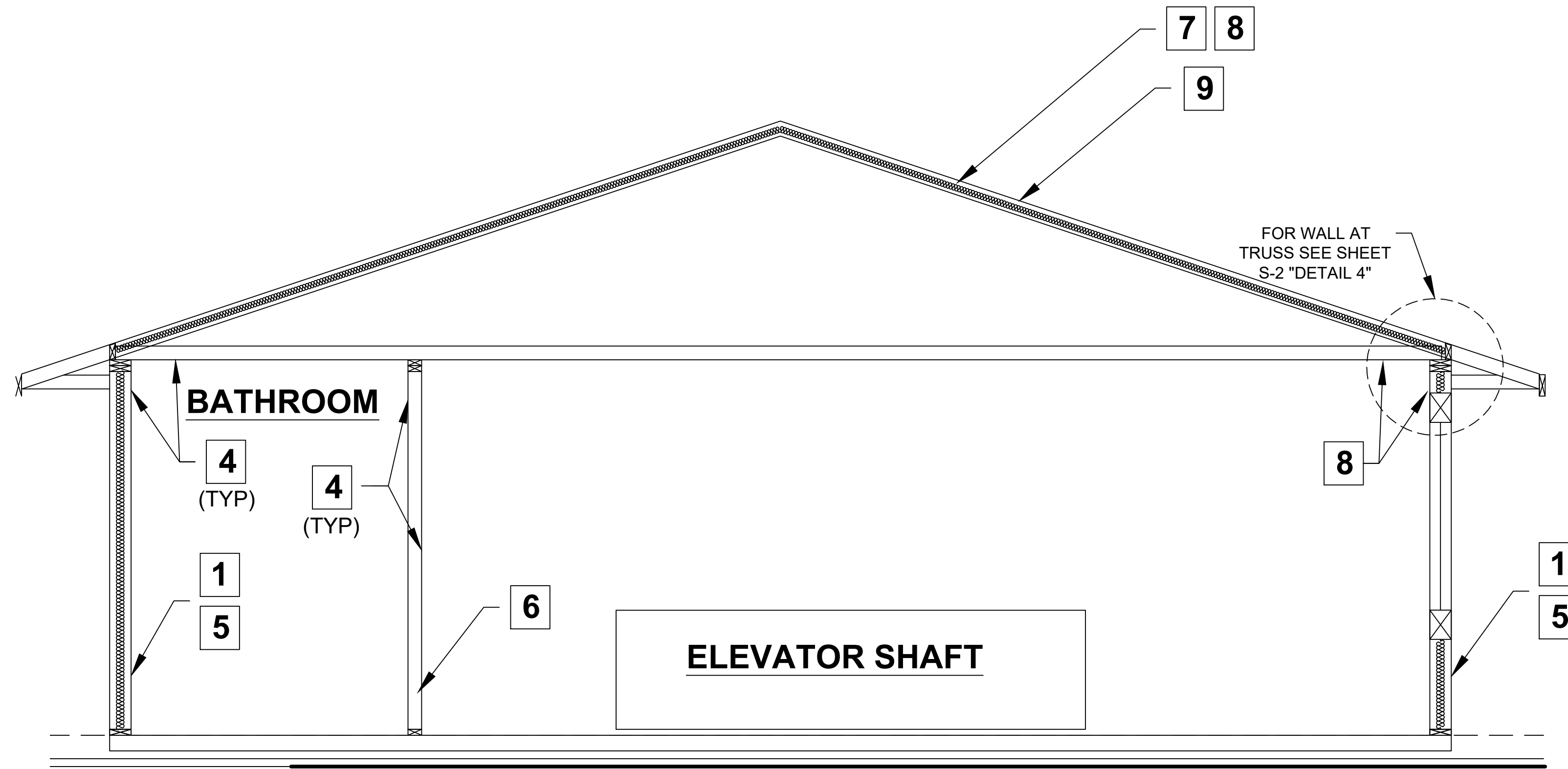


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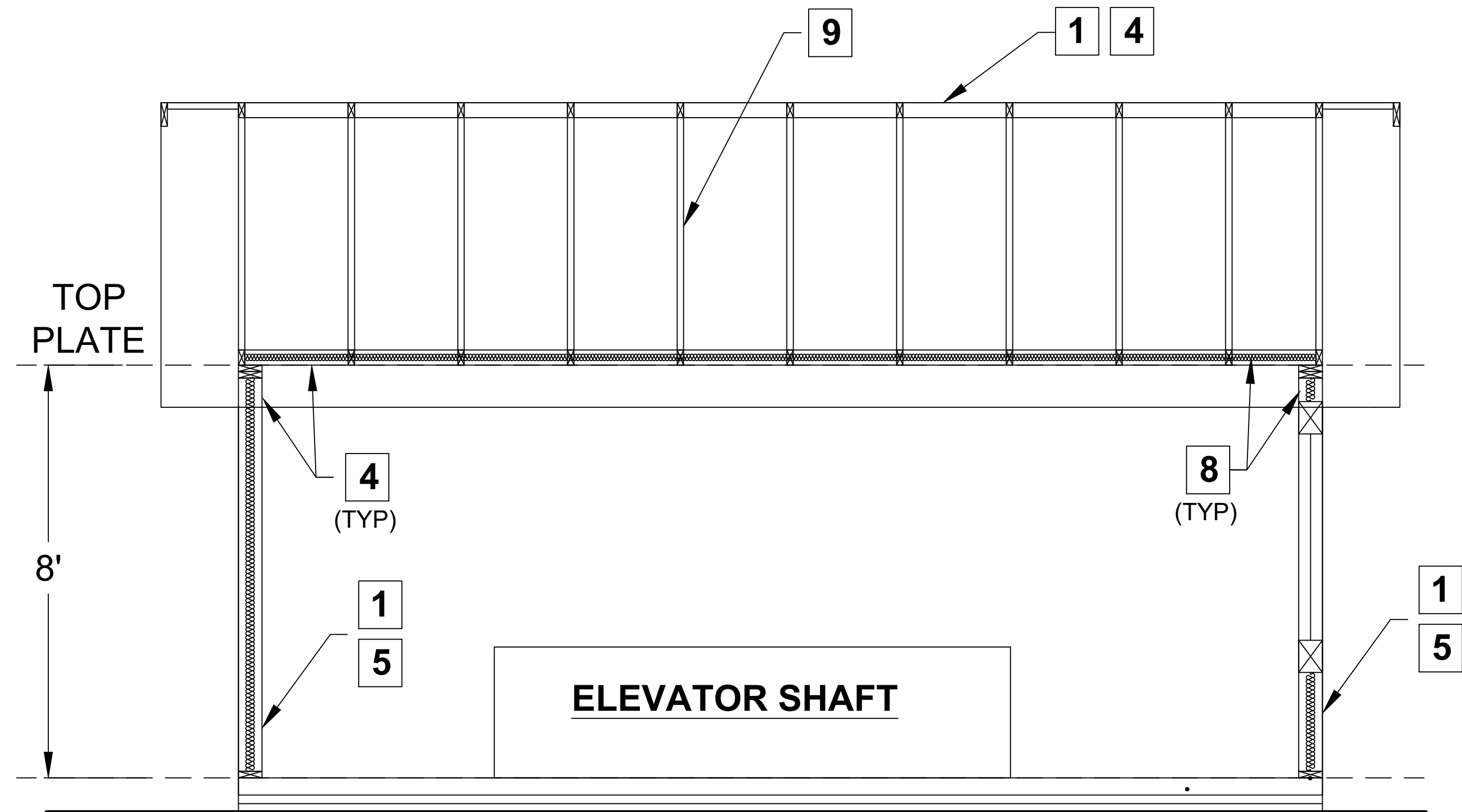
ROOF PLAN

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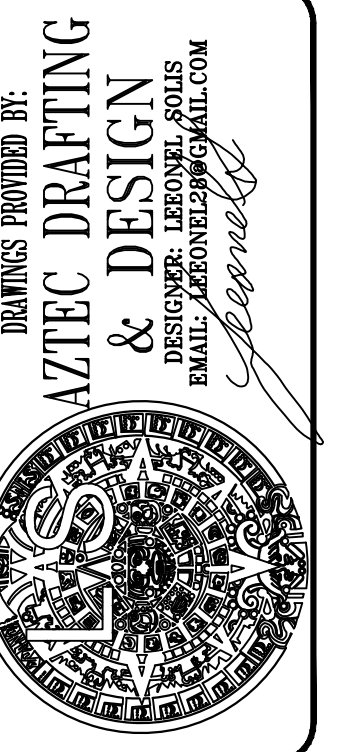
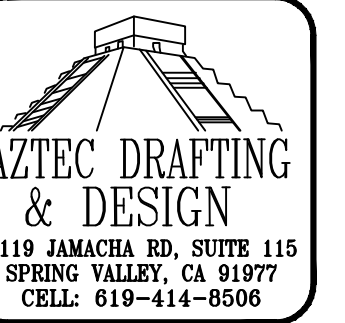
SECTION A-A



SECTION B-B

SECTION KEY NOTES

1. WALL INSULATION: _____
4. INTERIOR FINISH: ½" GYPSUM BOARD
6. INTERIOR WALL: 2X4 STUD WALL
7. RADIANT BARRIER IS REQUIRED
8. CLIMATE ZONE 14 PROJECT (Y or N) if yes, see below:
A CLASS I OR II VAPOR RETARDER SHALL BE INSTALLED ON THE CONDITIONED SPACE SIDE OF ALL INSULATION IN ALL EXTERIOR WALLS AND VENTED ATTICS
9. MANUFACTURED TRUSSES



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SECTION VIEW

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PROJECT NO.
P0014
SHEET NO.
A-6

C. TEMPORARY WORK AND SITE SAFETY:

1. THESE DRAWINGS SHOW THE REQUIREMENTS FOR PERMANENT COMPLETED STRUCTURE ONLY. TEMPORARY WORKS REQUIRED TO COMPLETE THE CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR DESIGN OR FIELD REVIEW OF TEMPORARY AND ANCILLARY WORK.

2. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY IN AND AROUND THE JOBSITE. PROPER AND SAFE METHODS OF CONSTRUCTION SHALL BE USED AT ALL TIMES INCLUDING GUYING AND BRACING OF INCOMPLETE STRUCTURES, FORMWORK, SHORING, RESHORING, FALSEWORK, PLATFORMS, SCAFFOLDING, BARRIERS, WALKWAYS, ETC. AND CONTROL THE INTENSITY, DURATION AND LOCATION OF CONSTRUCTION LOADS UPON CONSTRUCTION.

A. BASIS OF DESIGN

1. THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2016 CALIFORNIA BUILDING CODE (C.B.C.)
2. LIVE LOADS (REDUCED IN ACCORDANCE WITH THE 2016 C.B.C.)

| | |
|--|------------------|
| SLOPED ROOF FLOOR | 20 psf 40 psf |
| 3. LATERAL LOADS & CRITERIA | |
| BUILDING SITE CLASS | D |
| LATITUDE | 32.6834 |
| LONGITUDE | -117.1062 |
| SEISMIC DESIGN CATEGORY | D |
| S _s | 1.054 |
| S ₁ | 0.401 |
| S _{DS} | 0.7578 |
| S _{D1} | 0.4275 |
| R | 6.50 |
| Ω ₀ | 3.0 |
| C _d | 4.0 |
| C _t | 0.02 |
| X | 0.75 |

STRUCTURAL SYSTEM:
BEARING WALLS SYSTEM LIGHT FRAMED WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE OR STEEL SHEETS.
SEISMIC SOURCE TYPE B
SOIL PROFILE S_d
IMPORTANCE FACTOR 1.0
WIND EXPOSURE CATEGORY B
ROOF ANGLE 15°
BASIC WIND SPEED 110 mph

B. GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE STARTING ANY WORK AND NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY OF ANY DISCREPANCIES WITH THE ARCHITECTURAL DRAWINGS.
2. COORDINATE ELEVATIONS, SLOPES AND DRAINAGE REQUIREMENTS WITH THE ARCHITECTURAL DRAWINGS.
3. SPECIFIC NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
4. WHERE NO DETAILS ARE SHOWN OR NOTED IN ANY PART OF THE WORK THE DETAILS USED SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.
5. WHEN A DETAIL IS IDENTIFIED AS TYPICAL, THE CONTRACTOR IS TO APPLY THIS DETAIL IN ESTIMATING AND CONSTRUCTION TO EVERY LIKE CONDITION WHETHER OR NOT THE REFERENCE IS REPEATED IN EVERY INSTANCE.
6. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER OF ANY SITE CONDITIONS NOT REFLECTED ON THE WORKING DRAWINGS OR DIFFERENT FROM THE MAXIMUM OR MINIMUM DIMENSIONS INDICATED, INCLUDING CONFLICT IN GRADES, ADVERSE SOIL CONDITIONS, GROUND WATER PRESENT, DEEPEDED FOOTINGS, UNCOVERED AND UNEXPECTED UTILITY LINES, ETC.
7. ALL DRAWINGS ARE CONSIDERED TO BE A PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES THAT OCCUR SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO START OF CONSTRUCTION SO THAT A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE.
8. MATERIALS AND WORKMANSHIP SHALL CONFORM TO REQUIREMENTS OF THE CURRENT CALIFORNIA BUILDING CODE AS AMENDED BY THE GOVERNING AUTHORITY AND APPLICABLE REGULATIONS OF THE GOVERNING JURISDICTION, INCLUDING THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY.
9. DRAWINGS SHALL NOT BE SCALED. COORDINATE DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
10. ASTM SPECIFICATIONS ON THE DRAWINGS SHALL BE OF THE LATEST REVISION.
11. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOOR. LOADS SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT. PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE STRUCTURE HAS NOT ATTAINED DESIGN STRENGTH.

D. FOUNDATION

1. FOUNDATION DESIGN IS BASED ON THE 2016 CBC.
2. ALLOWABLE BEARING SOIL PRESSURE: **1,500 psf**
3. THE MAXIMUM ALLOWABLE SOIL BEARING PRESSURE SHALL BE 1,500 psf. ALLOWABLE BEARINGS MAY BE INCREASED BY 1/3 FOR WIND AND SEISMIC LOAD CASES.
4. BOTTOM OF FOOTING SHALL BE EMBEDDED AT LEAST 12 INCHES BELOW LOWEST ADJACENT FINISHED (PAD) GRADE.
5. FOOTING DEPTHS SHOWN ARE FOR BIDDING PURPOSES ONLY AND ARE ASSUMED TO BE IN SUITABLE BEARING MATERIALS. FOOTING DEPTHS MAY REQUIRE DEEPENING PER DIRECTION OF THE ENGINEER.
6. ABANDONED FOOTINGS, UTILITIES, ETC. THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REMOVED.
7. THE FOOTING EXCAVATIONS SHALL BE KEPT FREE FROM LOOSE MATERIAL AND STANDING WATER. CONTRACTOR SHALL PROVIDE FOR DE-WATERING OF EXCAVATIONS FROM SURFACE OR SEEPAGE WATER.
8. FOOTING AND UTILITY TRENCH BACKFILL SHALL BE MECHANICALLY COMPACTED IN LAYERS. FLOODING WILL NOT BE PERMITTED.
9. SUBMIT COMPACTION TEST REPORTS FOR ALL FILL BY A QUALIFIED TESTING LAB TO ENGINEER AND BUILDING DEPARTMENT PRIOR TO REQUESTING FOUNDATION INSPECTION.
10. CONTRACTOR SHALL PROVIDE FOR DESIGN AND INSTALLATION OF ALL CRIBBING, SHEATHING, UNDERPINNING, AND SHORING REQUIRED TO SAFELY RETAIN ALL GRADES AND STRUCTURES.
11. FOOTING ELEVATIONS SHOULD BE LOCATED SUCH THAT THE BASES OF THE FOUNDATIONS ARE A MINIMAL HORIZONTAL DISTANCE OF SEVEN FEET FROM THE FACE OF SLOPE.
12. SLAB ON GRADE RESTRAINING THE BOTTOM OF RETAINING WALLS SHALL BE IN PLACE PRIOR TO BACKFILLING OF WALLS.
13. WALLS RETAINING EARTH SHALL BE DRAINED TO DAYLIGHT OR DRAINAGE STRUCTURE AND BACKFILLED PER SOIL ENGINEER'S RECOMMENDATION.
14. FOUNDATIONS SUPPORTING WOOD SHALL EXTEND 8" MINIMUM ABOVE ADJACENT FINISH GRADE. PROVIDE 18" CLEARANCE UNDER WOOD JOISTS AND 18" CLEARANCE UNDER WOOD GIRDERS.

E. REINFORCING STEEL

1. DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS MUST FOLLOW THE A.C.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, A.C.I. 315-LATEST ED. U.O.N.
2. REINFORCING BARS SHALL CONFORM TO THE 2016 CBC AND THE STANDARD SPECIFICATION FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT, ASTM DESIGNATION A-615, GRADE 60, U.O.N.
3. LAPS AT BAR SPLICES SHALL BE: 42 BAR DIA. (18" MIN.) FOR CONCRETE U.O.N. 48 BAR DIA. (24" MIN.)
4. REINFORCING BARS SHALL BE PROVIDED WITH THE FOLLOWING CONCRETE COVER:

| | |
|--------------------------------------|--------|
| CONC. CAST AGAINST EARTH | 3" |
| FORMED CONC. EXPOSED TO EARTHWEATHER | |
| #5 OR LARGER | 1-1/2" |
| #6 OR LARGER | 2" |
| SLABS (#11 AND SMALLER) | 1" |
5. VERTICAL BARS SHALL BE ACCURATELY POSITIONED AT THE CENTER OF THE WALL, U.O.N. ON DETAILS, AND SHALL BE TIED IN PLACE AT THE TOP AND BOTTOM.
6. PROVIDE #3 SPACER TIES AT 30" (75 mm) ON CENTER IN ALL BEAMS AND FOOTINGS TO SECURE REINFORCING BARS IN PLACE, U.O.N.

F. REINFORCED CONCRETE (GENERAL)

1. CONCRETE CONSTRUCTION SHALL CONFORM WITH CHAPTER 19 OF THE CODE AND WITH THE PROVISIONS OF ACI 318, LATEST EDITION.
2. CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY AND APPROVED BY THE STRUCTURAL ENGINEER.
3. CEMENT SHALL CONFORM TO ASTM C-150 TYPE I OR II, ALKALI (2016 CBC).
5. READY MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C-94.
6. MINIMUM CONCRETE COMPRESSIVE STRENGTHS AT 28 DAYS, MAXIMUM SLUMPS, AND MAXIMUM WATER/CEMENT RATIOS SHALL BE AS FOLLOWS:

*CONCRETE HAS BEEN DESIGNED FOR 2,500 psi. NO INSPECTION IS REQUIRED.
7. WATER MAY BE ADDED ON SITE TO OBTAIN SPECIFIED SLUMPS ONLY IF IT IS ADDED WITHIN ONE HOUR OF BATCHING AND SPECIFIED ON THE BATCH REPORT. CONCRETE SHALL NOT BE PLACED BEYOND 1-1/2 HOURS FOLLOWING BATCHING.
8. NO PIPES OR DUCTS SHALL BE PLACED IN CONCRETE SLABS UNLESS SPECIFICALLY DETAILED. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL OPENINGS IN CONCRETE BEFORE PLACING. DO NOT CUT ANY REINFORCING WHICH MAY CONFLICT.
9. CONCRETE SHALL BE MAINTAINED IN A MOIST CONDITION FOR A MINIMUM OF SEVEN DAYS AFTER ITS PLACEMENT. APPROVED CURING COMPOUNDS MAY BE USED IN LIEU OF MOIST CURING.
10. CONCRETE SLAB-ON-GRADE THICKNESS SHOWN IS MINIMUM REQUIRED THICKNESS. FLOORS SHALL BE MONITORED BY TRANSIT LEVEL OR LASER DURING PLACEMENT TO MAINTAIN LEVEL FLOOR.
11. FLYASH SHALL BE LIMITED TO NO MORE THAN 15 PERCENT OF THE TOTAL WEIGHT OF CEMENTITIOUS CONCRETE, U.O.N.
12. CONCRETE EXPOSED TO WEATHER SHALL BE AIR ENTRAINED.

STRUCTURAL NOTES

13. PROVIDE 1-45 x 4'-0" LONG DIAGONAL BAR AT CORNERS OF WALL, FLOOR, AND ROOF OPENINGS AND INSIDE CORNERS OF CONCRETE FLOORS.
MAKING 45 DEGREES WITH ANY PARALLEL OR PENPENDICULAR LINE OF OPENING.
14. ALL CONSTRUCTION JOINTS IN STRUCTURAL MEMBERS TO BE REVIEWED FOR LOCATION AND DETAIL PRIOR TO CONSTRUCTION. FLEXURAL REINFORCEMENT TO CONTINUE UNINTERRUPTED THROUGH ALL CONSTRUCTION JOINTS. KEYS/WAYS TO BE PROVIDED PERPENDICULAR TO THE DIRECTION OF LOAD IN ALL JOINTS.
15. WHEN CONCRETE IS PLACED AGAINST EXISTING CONCRETE SURFACES, EXISTING CONCRETE SURFACES SHALL BE THOROUGHLY CLEANED AND THEN SANDBLASTED TO CREATE AN AMPLITUDE OF 1/4" MINIMUM. APPLY A CONCRETE BONDING ADJACENT TO IMPROVE BONDING QUALITY.

G. ROUGH CARPENTRY:

1. ROOF SHEATHING SHALL BE APA RATED AND SHALL CONFORM TO PRODUCT STANDARD PS 1, INTERIOR TYPE WITH EXTERIOR GLUE, IDENTIFICATION INDEX (240) UNLESS OTHERWISE NOTED. EQUIVALENT THICKNESS O.S.B. BOARD MAY BE USED IN LIEU OF PLYWOOD ROOF SHEATHING.
2. FLOOR SHEATHING, THICKNESS, GRADE, AND NAILING PER STRUCTURAL PLANS. PLYWOOD SHEATHING SHALL CONFORM TO PRODUCT STANDARD PS 1-80, TONGUE AND GROOVE, INTERIOR TYPE WITH EXTERIOR GLUE, IDENTIFICATION INDEX (32/16). O.S.B. BOARD SHALL NOT BE USED IN LIEU OF PLYWOOD FLOOR SHEATHING.
3. SHEATHING SHALL BE LAID PERPENDICULAR TO FRAMING FOR FLOORS AND ROOFS WITH 4" JOINTS STAGGERED AND CENTERED ON JOISTS. ALL OTHER JOINTS AT FLOORS SHALL BE BLOCKED.
4. PLYWOOD FLOOR SHEATHING SHALL BE GLUED TO ALL FRAMING MEMBERS WITH AN A.P.A. APPROVED ADHESIVE.
5. UNLESS OTHERWISE NOTED, ALL FRAMING LUMBER SHALL BE DOUGLAS FIR LARCH, GRADE-MARKED BY THE W.C.L.B. OR W.W.P.A. AS FOLLOWS:

| | |
|---------------------|--------------|
| 2X JOISTS & RAFTERS | NO. 1 |
| 4X & LARGER BEAMS | NO. 1 |
| ALL POSTS | NO. 1 |
| STUDS | NO. 2 |
| PLATES | NO. 2 |
| LEDGERS | NO. 1 |
| BLOCKING | NO. 3 |
| PLYWOOD | A.P.A. RATED |
| O.S.B. BOARD | A.P.A. RATED |
6. SILL PLATES SHALL BE TREATED DOUGLAS FIR OR FOUNDATION REDWOOD. EXTERIOR WALL SILL PLATES SHALL BE SECURED TO CONCRETE WITH 5/8" X 10" LONG ANCHOR BOLTS WITH 7" MINIMUM EMBEDMENT INTO CONCRETE AT A MAXIMUM SPACING OF 48" O.C. AND 12" FROM EACH END. PLATE WASHERS A MINIMUM OF 3 INCH BY 3 INCH BY 1/4 OF AN INCH THICK SHALL BE USED ON EACH BOLT. (FOR SPECIAL CONDITIONS, SEE SHEAR WALL SCHEDULE FOR SHEAR WALL ANCHORAGE).
7. DO NOT BORE OR NOTCH JOISTS, RAFTERS, OR BEAMS, EXCEPT WHERE SHOWN IN DETAILS. OBTAIN ENGINEER'S APPROVAL FOR ANY HOLES OR NOTCHES NOT DETAILED.
8. PROVIDE DOUBLE FLOOR JOISTS UNDER PARALLEL PARTITIONS, U.O.N.
9. PROVIDE 1/2 INCH MINIMUM CLEARANCE BETWEEN TOP PLATES OF INTERIOR NON-BEARING PARTITIONS AND THE BOTTOM CHORD OF TRUSSES.
10. NAILS SHALL BE COMMON WIRE. NAILING SHALL COMPLY WITH TABLE 23-11-B-1 OF THE 2016 C.B.C. NAILS EXPOSED TO WEATHER SHALL BE HOT-DIP GALVANIZED, U.O.N.
11. PROVIDE SOLID BLOCKING AT ENDS AND AT SUPPORTS OF FLOOR JOISTS AND ROOF RAFTERS UNDER PARTITIONS AND AT RIDGE LINE.
12. TOP PLATES OF ALL BEARING WOOD STUD WALLS SHALL BE TWO PIECES, SAME SIZE AS STUDS AND LAPPED 4'-0" MINIMUM WITH NOT LESS THAN 10-16d NAILS AT EACH SIDE OF TOP PLATE BREAK POINT SPACED AT 4' O.C. MAXIMUM UNLESS OTHERWISE NOTED.
13. INTERIOR AND EXTERIOR WOOD POSTS ATTACHED DIRECTLY TO CONCRETE SHALL BE SECURED WITH SIMPSON PB OR EPB POST BASES, AS APPLICABLE, UNLESS OTHERWISE NOTED.
14. STUDS SHALL HAVE FULL BEARING ON PLATE. ALL JOISTS, HEADERS, BEAMS, AND RAFTERS SHALL HAVE A MINIMUM SOLID LEVEL BEARING OF 1.5 INCHES AT EACH END.
15. NOT LESS THAN THREE (3) STUDS SHALL BE INSTALLED AT EVERY CORNER OF AN EXTERIOR OR INTERIOR BEARING WALL.
16. BEAMS, JOISTS, RAFTERS, ETC. SHALL BE INSTALLED WITH THE CROWN SIDE UP.
17. BOLT HOLES IN WOOD SHALL BE DRILLED 1/32" TO 1/16" IN DIAMETER LARGER THAN THE NOMINAL BOLT SIZE. RETIGHTEN ALL NUTS PRIOR TO CLOSING IN.
18. LAG BOLTS SHALL BE PRE-DRILLED TO A DIAMETER OF 60 PERCENT OF THE SHANK DIAMETER. THE BOLT SHALL BE TURNED BY A WRENCH AND NOT HAMMERED.
19. BOLTS SHALL HAVE A 7 DIA. MIN. END DISTANCE AND A 4 DIA. EDGE DISTANCE, U.O.N.
20. STANDARD CUT WASHERS SHALL BE USED UNDER ALL BOLT HEADS AND NUTS AGAINST WOOD. USE HEAVY PLATE OR MALLEABLE IRON WASHERS FOR ALL BOLTS DESIGNED TO ACT IN TENSION, SUCH AS LEDGERS AND HOLD DOWN ANCHORS.
21. PROVIDE FIRE BLOCKING OR JOINT BLOCKING BETWEEN STUDS AT NOT LESS THAN 8'-0" VERTICAL INTERVALS AND AT ALL PLYWOOD EDGES.
22. FRAMING ANCHORS, POST CAPS, COLUMN BASES, HANGERS, ETC. SHALL BE MANUFACTURED BY SIMPSON, OR APPROVED EQUAL.
23. PROVIDE 2X MINIMUM BACKING FOR ALL WALL HUNG CABINETS, HANDRAILS, SHELVSING, LIGHT FIXTURES, ACCESSORIES, ETC.
24. PRESURE TREATED DOUGLAS FIR SHALL BE NO. 2 MINIMUM AND BEAR "A.W.P.B." QUALITY MARK AND THE W.C.L.B.G. GRADE STAMP. CERTIFICATES ARE NOT ACCEPTABLE.
25. CUTS AND HOLES IN PRESSURE TREATED LUMBER SHALL BE TREATED PER A.W.P.A. M-84.

H. PREMANUFACTURED ROOF TRUSSES

1. TRUSS DRAWINGS, CALCULATIONS AND THE LATEST ICC-ESR APPROVED TEST DATA FOR TRUSS METAL PLATE CONNECTORS SHALL BE SUBMITTED TO THE ARCHITECT AND/OR ENGINEER FOR REVIEW PRIOR TO FABRICATION. CALCULATIONS FOR GIRDER TRUSSES SHALL INCLUDE POINT LOADS FROM CARRIED TRUSS REACTIONS.
2. CALCULATIONS AND SHOP DRAWINGS SHALL BE SIGNED BY A CALIFORNIA REGISTERED CIVIL OR STRUCTURAL ENGINEER. IT SHALL BE THE RESPONSIBILITY OF THE MANUFACTURER TO OBTAIN APPROVALS OF FINAL CALCULATIONS AND SHOP DRAWINGS PRIOR TO FABRICATION.
3. TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST LOCAL APPROVED BUILDING CODES AND ORDINANCES FOR ALL LOADS IMPOSED, INCLUDING LATERAL LOADS. FABRICATOR SHALL REVIEW ALL DRAWINGS AND MEET PROFILES AS INDICATED.
4. THE MANUFACTURER SHALL BE RESPONSIBLE FOR THE DESIGN OF MEMBERS USED AS DRAG OR CHORD MEMBERS AND SHALL INSURE THAT SUCH MEMBERS ARE PLACED AS REQUIRED ON THE FRAMING PLANS. THE AMOUNT OF LOAD TO BE LATERALLY TRANSMITTED BY THE MEMBER SHALL BE A MINIMUM OF 2000 POUNDS U.O.N. ON THE FRAMING PLANS.
5. ROOF TRUSS DESIGN LOADS

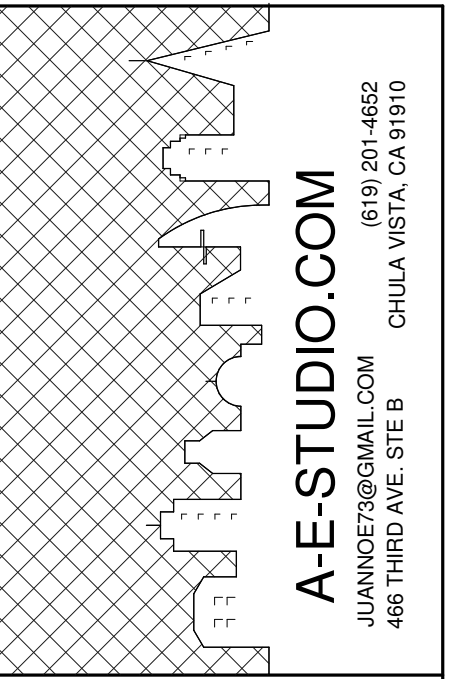
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|--------------------|-------------------------|
| DEAD LOAD | LIVE LOAD |
| TOP CHORD 17 PSF | 16 PSF (REDUCIBLE) |
| BOTTOM CHORD 5 PSF | 10 PSF (NON-CONCURRENT) |

*DESIGN ROOF TRUSSES TO SUPPORT A 500LB. CONCENTRATED LOAD AT ANY TOP CHORD PANEL.
6. MAXIMUM FLOOR AND ROOF DEFLECTIONS:

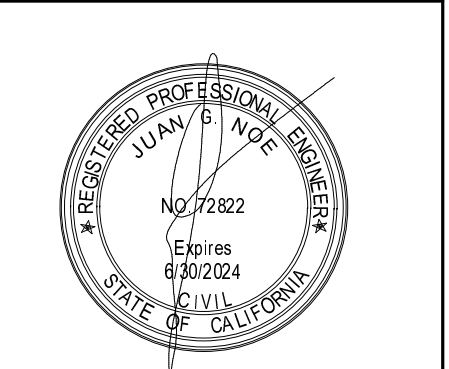
| | | |
|---------------------|-----------|------------|
| MAXIMUM DEFLECTIONS | | |
| LOCATION | LIVE LOAD | TOTAL LOAD |
| ROOF | L/360 | L/240 |
7. INCREASES IN ALLOWABLE STRESSES FOR REPETITIVE MEMBERS, ARE NOT PERMISSIBLE.
8. PROVIDE ADEQUATE CAMBER FOR DESIGNATED DESIGN LOADS.
9. TRUSS DESIGNER SHALL OVERSIZE PLATES FOR CHORD MEMBERS TO ACCOUNT FOR WOOD DEFECTS LIKE KNOTS, KNOT HOLES AND GREATLY DISTORTED GRAINS. MAXIMUM ALLOWABLE DEFECT SIZE PER MEMBER SHALL BE 2 SQUARE INCHES. NO DEFECTS ALLOWED UNDER PLATES FOR WEB MEMBERS.
10. TRUSS MANUFACTURER TO VERIFY ALL DIMENSIONS SHOWN ON STRUCTURAL DRAWINGS WITH ARCHITECTURAL DRAWINGS AND IN FIELD WITH WALL LAYOUT PRIOR TO FABRICATION. PROVIDE SHOP DRAWINGS WHICH SHALL INCLUDE PLAN DRAWING SHOWING TRUSS LOCATIONS AND TRUSS PROFILES, WITH DIMENSIONS REVIEWED AND APPROVED BY GENERAL CONTRACTOR, PRIOR TO FABRICATION.
11. GABLE END TRUSSES SHALL HAVE 2X VERTICALS AT 16" O.C. TYPICAL UNLESS OTHERWISE NOTED.
12. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER FOR REVIEW PRIOR TO FABRICATION AND WILL INCLUDE THE FOLLOWING MINIMUM INFORMATION:
 - a. PROJECT NAME AND LOCATION
 - b. DESIGN LOADS, CONFIGURATIONS, (2 OR 3 POINT BEARING) AND SHEAR TRANSFER.
 - c. MEMBER STRESSES, DEFLECTIONS, TYPE OF JOINT PLATES AND ALLOWABLE DESIGN VALUES. TRUSS JOINTS SHALL BE DESIGNED FOR 125% OF THE DESIGN STRESSES.
 - d. TYPE, SIZE, AND LOCATION OF HANGERS TO BE USED FOR THE PROJECT. HANGERS SHALL BE DESIGNED TO SUPPORT THE FULL VERTICAL LOAD AND A LATERAL LOAD EQUAL TO 20% OF THE VERTICAL REACTION. ALL CONNECTORS SHALL BE ISO APPROVED AND OF ADEQUATE STRENGTH TO RESIST STRESSES DUE TO THE LOADING INVOLVED.
13. ALL HARDWARE REQUIRED FOR CONNECTING TRUSSES (JACK TO HIP, HIP TO GIRDER OR GIRDER TO GIRDER, ETC.) SHALL BE DESIGNED, DETAILED AND PROVIDED BY TRUSS FABRICATOR.
14. THE TRUSS MANUFACTURER SHALL BE RESPONSIBLE FOR ALL TRUSS TO TRUSS CONNECTIONS. EACH TRUSS SHALL BE LEGIBLY MARKED WITH THE FOLLOWING INFORMATION WITHIN TWO FEET OF THE CENTER OF THE SPAN ON THE FACE OF THE BOTTOM OF THE CHORD:
 1. MANUFACTURER'S NAME
 2. DESIGN LOADS
 3. TRUSS SPACING
15. MULTIPLE CHORDS SHALL BE FACTORY LAMINATED.
16. CROSS BRIDGING AND/OR BRACING SHALL BE PROVIDED FOR, AND DETAILED BY, THE MANUFACTURER AS REQUIRED TO ADEQUATELY BRACE TRUSSES.
17. WHERE TRUSSES BLOCKING IS CALLED OUT, THE BLOCKING PIECE SHALL BE THE SAME DEPTH AS THE ADJOINING MEMBERS AND CAPABLE OF RESISTING A LATERAL LOAD EQUAL TO 500 POUNDS IN ITS PLANE. OR BE SHEATHED SOLID WITH 1/2" CDX PLYWOOD AND NAILED WITH 10d COMMON NAILS AT 6" (EN) U.O.N. ON THE FRAMING PLANS.
18. GENERAL CONTRACTOR TO PROVIDE TEMPORARY ERECTION BRACINGS AND WEB BRACING AS REQUIRED BY TRUSS MANUFACTURER'S DESIGN.

I. MACHINE APPLIED NAILING:

1. THE USE OF MACHINE NAILING IS SUBJECT TO A SATISFACTORY JOB SITE DEMONSTRATION AND THE APPROVAL OF THE PROJECT ENGINEER. THE APPROVAL IS SUBJECT TO CONTINUED SATISFACTORY PERFORMANCE.
2. NAIL HEADS SHALL NOT PENETRATE THE OUTER PLY MORE THAN WOULD BE NORMAL FOR A HAND HAMMER.
3. EDGE DISTANCES SHALL BE MAINTAINED. SHINERS SHALL BE REPLACED. IF NAIL HEADS PENETRATE THE OUTER PLY MORE THAN WOULD BE NORMAL FOR A HAND HAMMER, OR IF MINIMUM ALLOWABLE EDGE DISTANCES ARE NOT MAINTAINED THE PERFORMANCE WILL BE DEEMED UNSATISFACTORY.
4. MACHINE NAILING WILL NOT BE APPROVED FOR PLYWOOD 5/16" OR LESS IN THICKNESS.



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| Date | 8/8/2022 |
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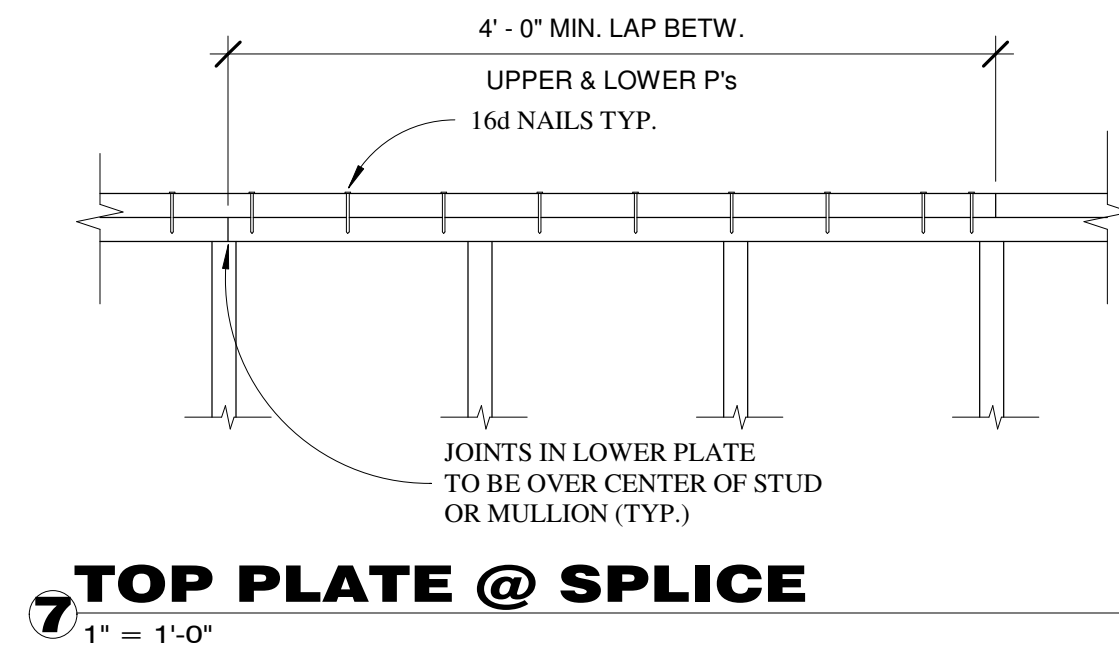


NORDAN PLAZA
 3400 E 8TH ST. NATIONAL CITY, CA 91950

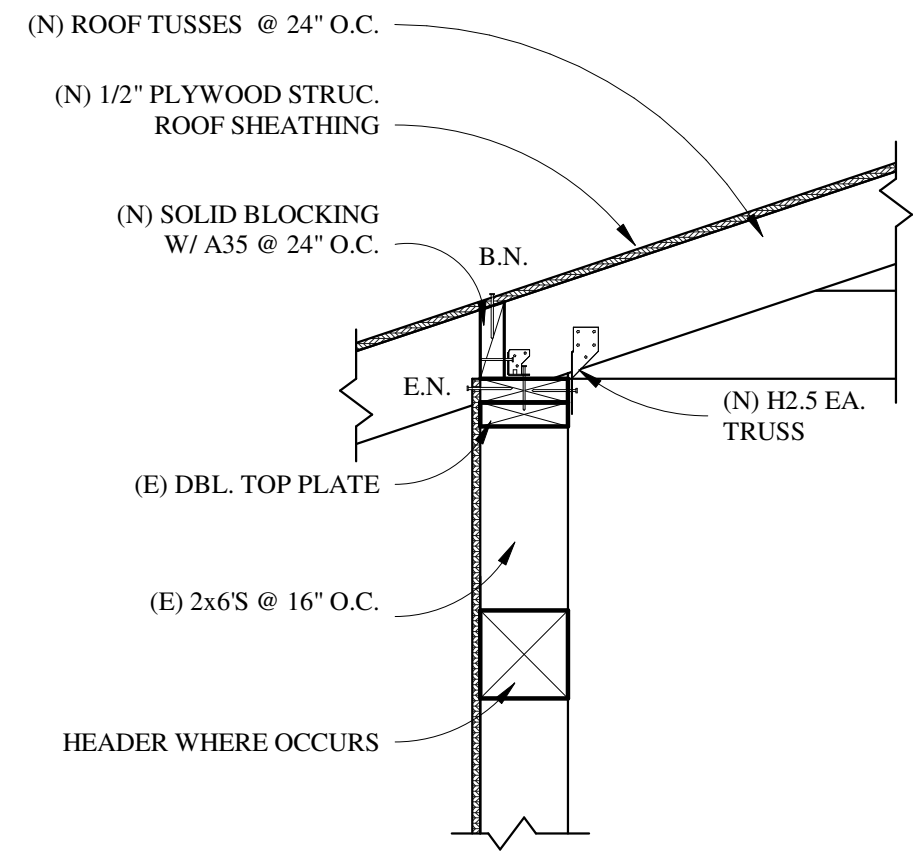
NORDAN PLAZA
Struct. Notes

S1

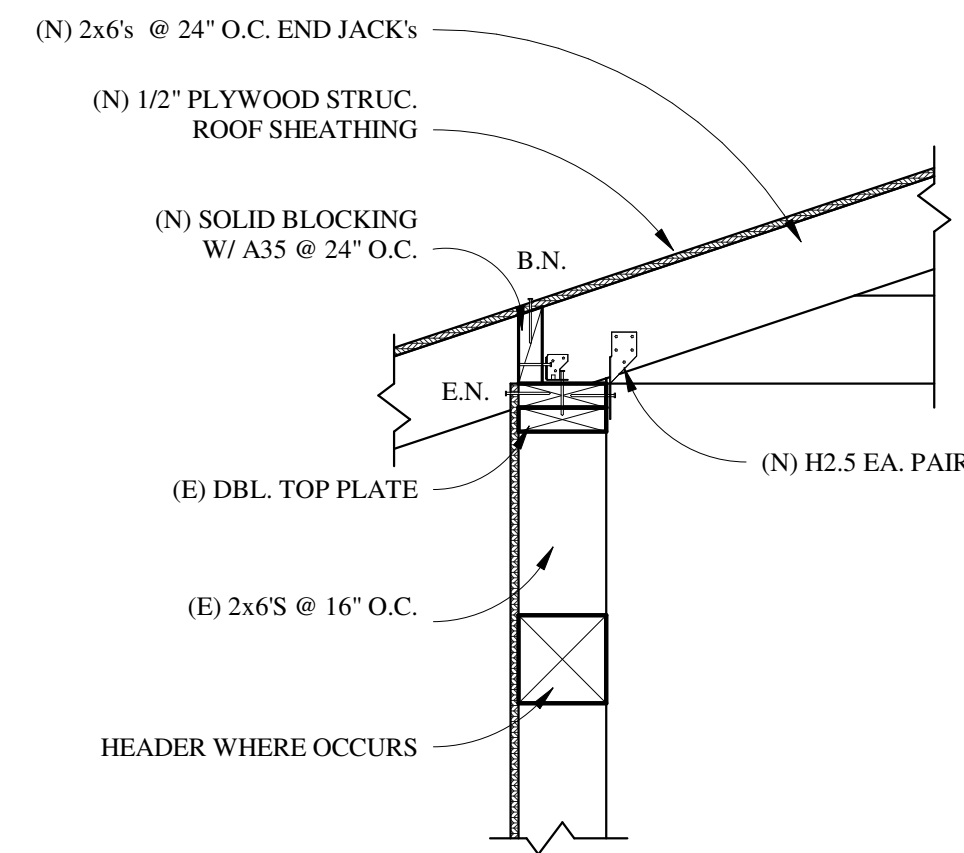
SHEET OF



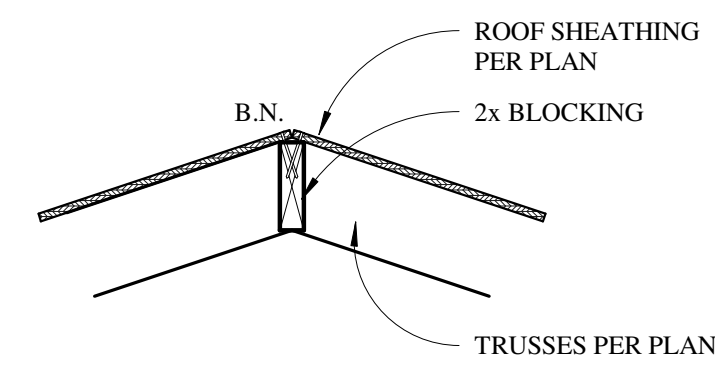
7 TOP PLATE @ SPLICE
1" = 1'-0"



4 WALL @ TRUSS
1" = 1'-0"



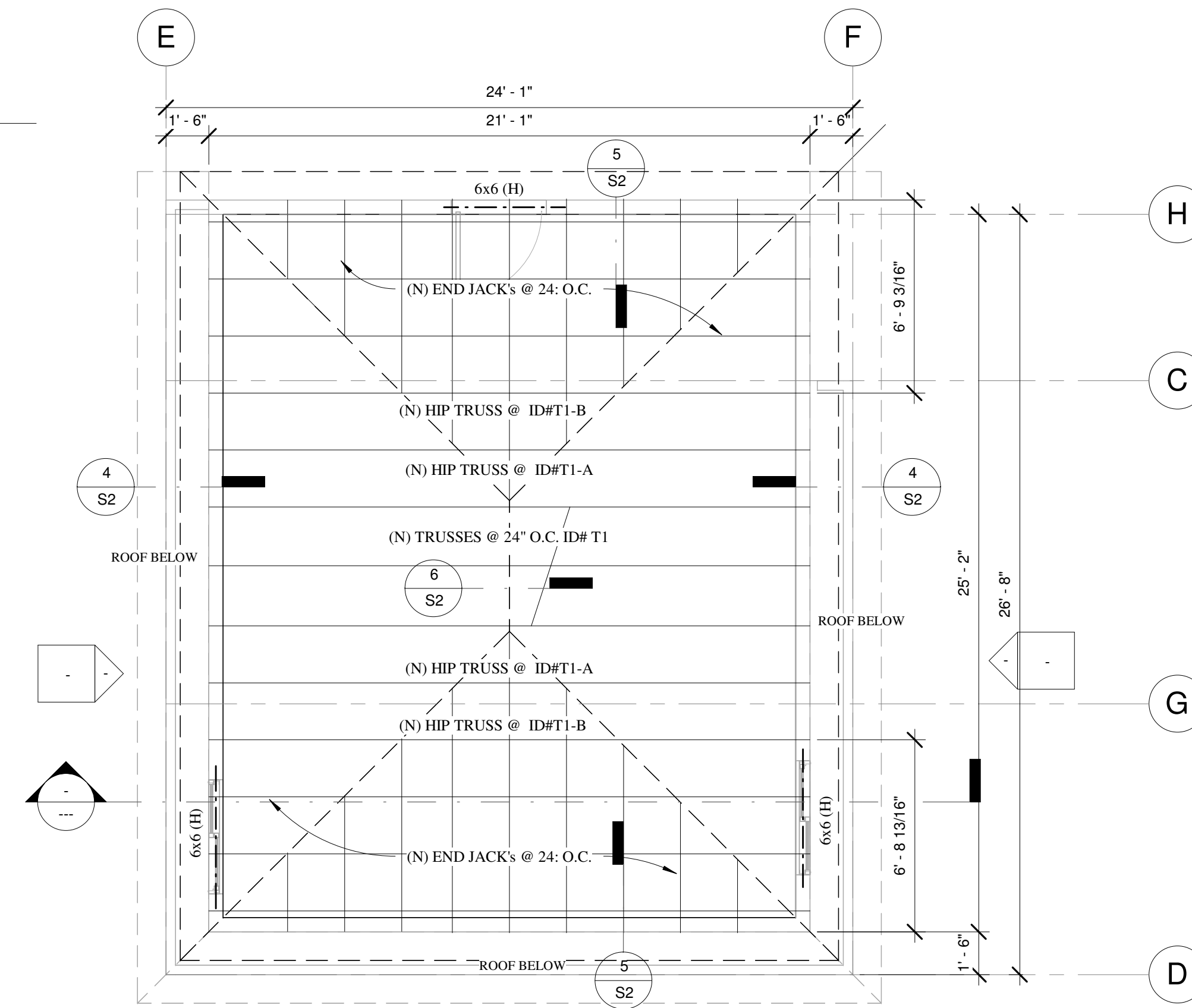
5 WALL @ END JACKS
1" = 1'-0"



6 RIDGE TO TRUSS
1" = 1'-0"

TYPICAL ROOF DIAPHRAGM
1/2" CDX PLYWD. 1 INDEX (32/16)
10d @ 4" E.N. & B.N. 10d @ 12" F.N.

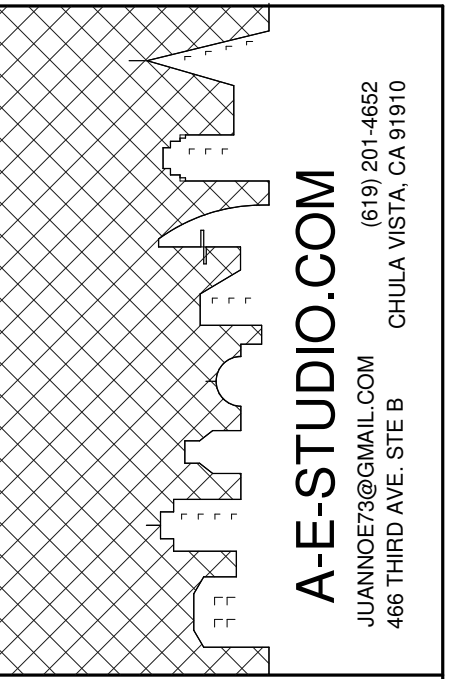
*DIAPHRAGM SHEATHING NAILS OR OTHER APPROVED SHEATHING CONNECTORS SHALL BE DRIVEN SO THAT THEIR HEAD OR CROWN IS FLUSH WITH THE SURFACE OF THE SHEATHING



1 ROOF FRAMING PLAN
1/4" = 1'-0"

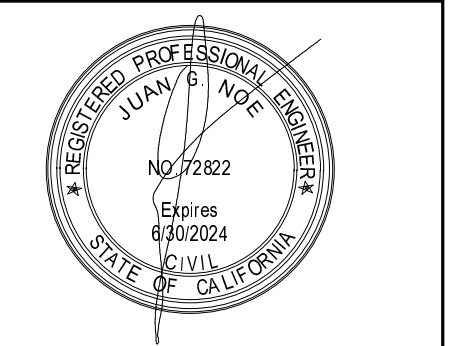
- NOTES:**
- REFER TO SHEETS S1 & S1.1 FOR GENERAL NOTES & STANDARD DETAILS. THESE NOTES & DETAILS SHALL BE USED WHERE APPLICABLE WHETHER SPECIFICALLY REFERENCED OR NOT. REFER TO ARCHITECTURAL DRAWINGS FOR THE FOLLOWING: A). ALL DIMENSIONS NOT SHOWN. B). ALL OPENINGS NOT SHOWN. C). ALL NON-BEARING WALL NOT SHOWN. INTERIOR STUDS- 2x4's @ 16" O.C. WOOD STUDS U.N.O.
 - INDICATES SHEAR WALL MARK FROM THIS LEVEL TO LEVEL ABOVE PER SHEAR WALL SCHEDULE ON S1.1 PROVIDE NON-SHEAR PLYWOOD ADJACENT TO SHEAR PANELS IN ORDER TO PROVIDE A FLUSH FINISH.
 - INDICATES SHEAR WALL PANEL APPROX. MIN. LENGTH IF NOT SHOWN, THEN PROVIDE PLYWOOD ON ENTIRE FACE.
 - INDICATES SHEAR WALL PANEL NUMBER PER STRUCTURAL CALCULATIONS
 - (B). INDICATES BEAM DIRECTLY BELOW JOISTS.
(F). INDICATES BEAM FLUSH W/ JOISTS.
(H). INDICATES HEADER.
(L). INDICATES LINTEL.
 - FOR POSTS, POST TO BEAM CONNECTION SEE S1.1 UNO.
 - DO NOT CUT, NOTCH, DRILL, BORE, SHAVE, TAPER OR FOR ANY REASON MODIFY PRE-ENGINEERED/MANUFACTURED STRUCTURAL ELEMENTS SUCH AS GLUED-LAMINATED MEMBERS, PARALAMS, MICROLAMS, I-JOIST, LIGHT GAUGE METAL MEMBERS AND OTHER SIMILAR TIMBER OR STEEL PRODUCTS OR A LETTER OF CERTIFICATION FROM THE MANUFACTURER'S ENGINEER WITH DETAIL SIGNED AND STAMPED IS ISSUED AND AUTHORIZED BY THE PROJECT ENGINEER OF RECORD AND APPROVED BY THE CITY OF SAN DIEGO BUILDING OFFICIAL.
 - DAMAGE TOP PLATE TO BE REPLACED IN KIND PER DETAIL 7 THIS SHEET.

3 ROOF FRAM'G NOTES
N.T.S.



Date 8/8/2022

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NORDAN PLAZA
3400 E 8TH ST. NATIONAL CITY, CA 91950

NORDAN PLAZA
Roof Fram'g Plan

S2

SHEET OF



MITek USA, Inc.
 MITek USA, Inc.
 400 Sunrise Avenue, Suite 270
 Roseville, CA 95661
 Telephone 916-755-3571

Re: nordan

The truss drawing(s) referenced below have been prepared by MITek USA, Inc. under my direct supervision based on the parameters provided by Pacific Truss (El Cajon).

Pages or sheets covered by this seal: R72048983 thru R72048985

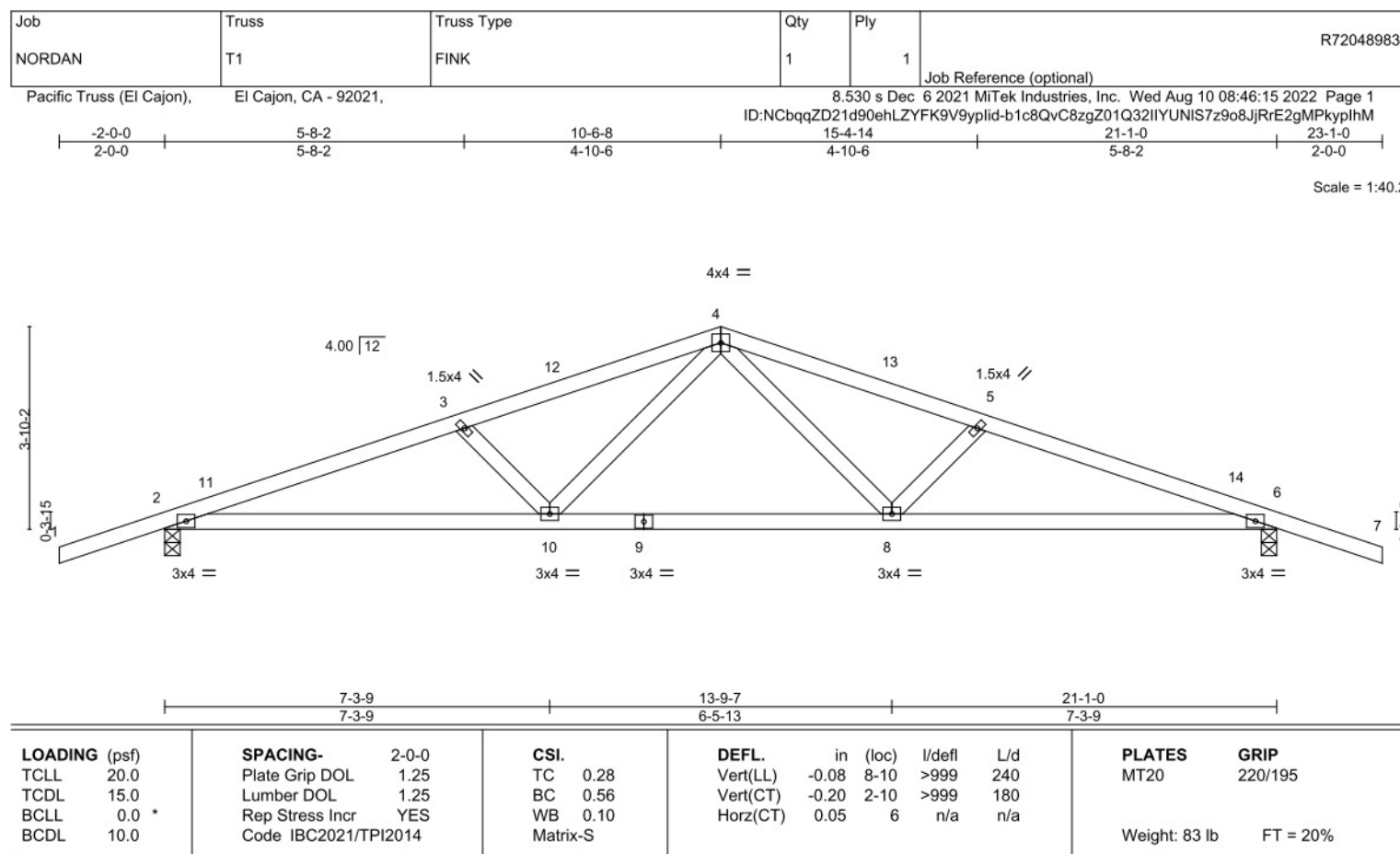
My license renewal date for the state of California is June 30, 2024.



August 10, 2022

Baxter, David

IMPORTANT NOTE: The seal on these truss component designs is a certification that the engineer named is licensed in the jurisdiction(s) identified and that the designs comply with ANSIT/PT 1. These designs are based on parameters shown (e.g., loads, supports, dimensions, shapes and design codes), which were given to MITek or TRENCO. Any project specific information included is for MITek's or TRENCO's customer for reference purposes only, and was not taken into account in the preparation of these designs. MITek or TRENCO has not independently verified the applicability of the design parameters or the designs for any particular building. Before use, the building designer should verify applicability of design parameters and properly incorporate these designs into the overall building design per ANSIT/PT 1, Chapter 2.



LOADING (psf)
 TOLL 20.0
 TCCL 15.0
 BCLL 0.0
 BCCL 10.0

SPACING
 Plate Grip DOL 1.25
 Lumber DOL 1.25
 Rep Stress Incr YES
 Code IBC2021/TP2014

CSI
 TC 0.28
 BC 0.56
 WB 0.10
 Matrix-S

DEFL
 in (loc) idell L/d
 Vert(LL) -0.08 8-10 >999 240
 Vert(CT) -0.20 2-10 >999 180
 Horiz(CT) 0.05 6 n/a n/a

PLATES
 MT20
 220/195

GRIP
 220/195

Weight: 83 lb FT = 20%

LUMBER:
 TOP CHORD 2x4 DF No.2
 BOT CHORD 2x4 DF No.2
 WEBS 2x4 DF No.2

BRACING:
 TOP CHORD Structural wood sheathing directly applied or 4-0-15 oc purins.
 BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS:
 (size) 2x0-3-8, 6x0-3-8
 Max Horz 2=30(LC 1)
 Max Grav 2=168(LC 1), 6=108(LC 1)

FORCES: (lb) - Max. Comp. Max. Ten. - All forces 250 (lb) or less except when shown.
 TOP CHORD 2-3=214/48, 3-4=1868/32, 4-5=1868/32, 5-6=214/48
 BOT CHORD 2-10=10185, 6-10=101339, 6-8=0/195
 WEBS 3-10=360/97, 4-10=0/70, 4-8=0/70, 5-9=380/87

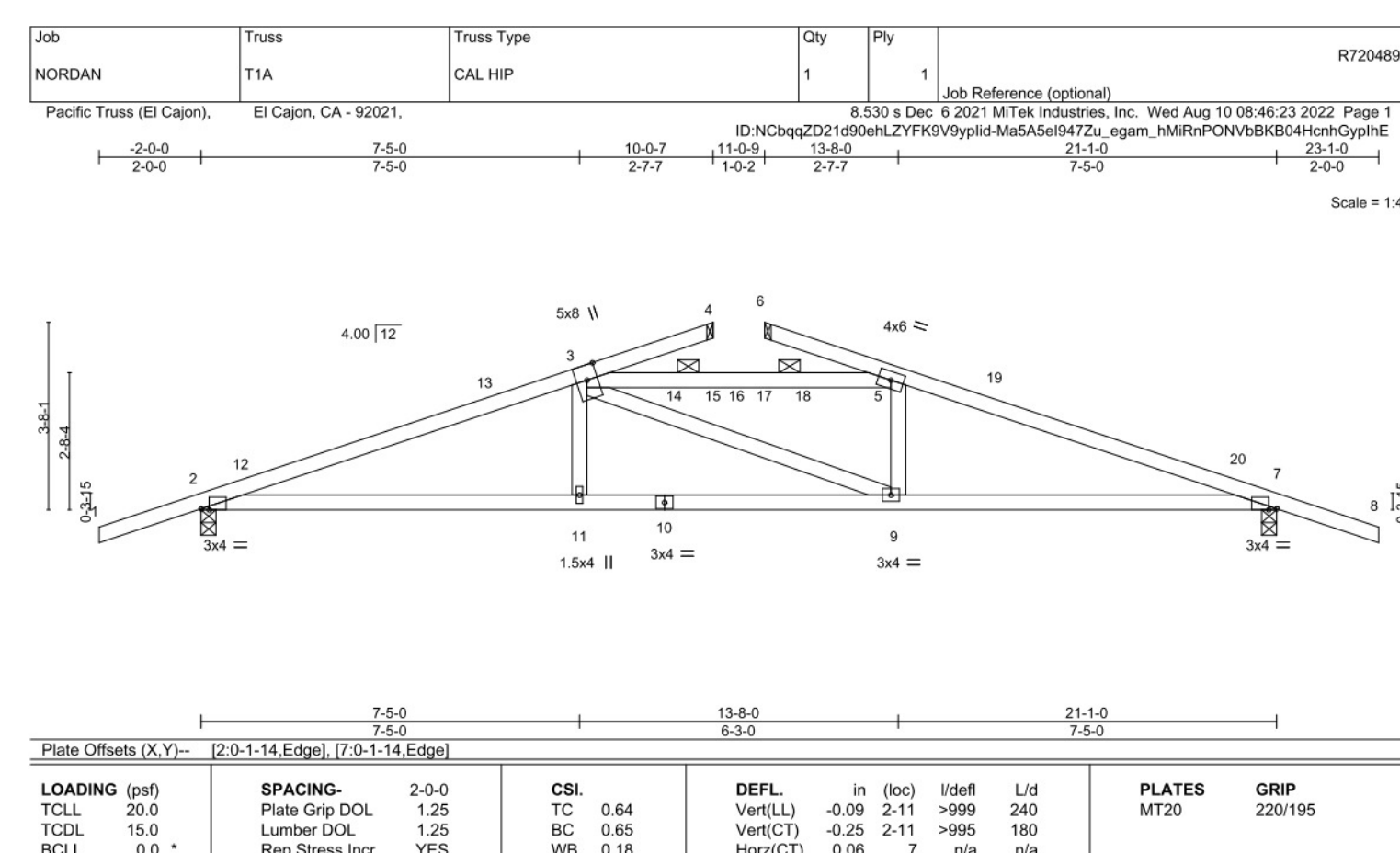
NOTES:
 1) Unbalanced roof live loads have been considered for this design.
 2) Wind: ASCE 7-16, Vult=90mph (3-second gust) V=50 ft/min. TCCL=6.0psf, BCCL=6.0psf, h=25ft; B=45ft; L=24ft; eave=4ft; Cat. II; Exp. C; Enclosed; MWFRS (directional) and C-C Exterior(ZE) 2-0-0 to 1-0-0; Interior(I) 1-0-0 to 1-0-0; Exterior(ER) 10-8-0 to 13-6-8; Interior(I) 13-6-8 to 23-1-0 zone; cantilever left and right exposed; end vertical left and right exposed-C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
 3) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
 4) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.



August 10, 2022

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 Design valid for use only with MITek connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see ANSIT/PT Quality Criteria, D58-89 and BCSJ Building Component Safety Information available from Truss Plate Institute, 2670 Crane Highway, Suite 203 Waldorf, MD 20687

MITek
 MITek USA, Inc.
 400 Sunrise Avenue, Suite 270
 Roseville, CA 95661



LOADING (psf)
 TOLL 20.0
 TCCL 15.0
 BCLL 0.0
 BCCL 10.0

SPACING
 Plate Grip DOL 1.25
 Lumber DOL 1.25
 Rep Stress Incr YES
 Code IBC2021/TP2014

CSI
 TC 0.64
 BC 0.65
 WB 0.18
 Matrix-S

DEFL
 in (loc) idell L/d
 Vert(LL) -0.09 2-11 >999 240
 Vert(CT) -0.25 2-11 >999 180
 Horiz(CT) 0.06 7 n/a n/a

PLATES
 MT20
 220/195

GRIP
 220/195

Weight: 86 lb FT = 20%

LUMBER:
 TOP CHORD 2x4 DF No.2
 BOT CHORD 2x4 DF No.2
 WEBS 2x4 DF No.2

BRACING:
 TOP CHORD Structural wood sheathing directly applied or 3-1-1 oc purins, except 2-0-0 oc purins (3-10-15 max.) 3-5.
 BOT CHORD Rigid ceiling directly applied or 9-0-0 oc bracing.

REACTIONS:
 (size) 2x0-3-8, 7x0-3-8
 Max Horz 2=29(LC 10)
 Max Uplift 2=36(LC 12), 7=36(LC 12)
 Max Grav 2=116(LC 1), 7=116(LC 1)

FORCES: (lb) - Max. Comp. Max. Ten. - All forces 250 (lb) or less except when shown.
 TOP CHORD 2-3=237/485, 3-5=2182/575, 5-7=237/485
 BOT CHORD 2-11=4662/191, 6-11=4722/152, 7-9=3962/191
 WEBS 3-11=0/287, 3-9=265/266, 5-9=0/287

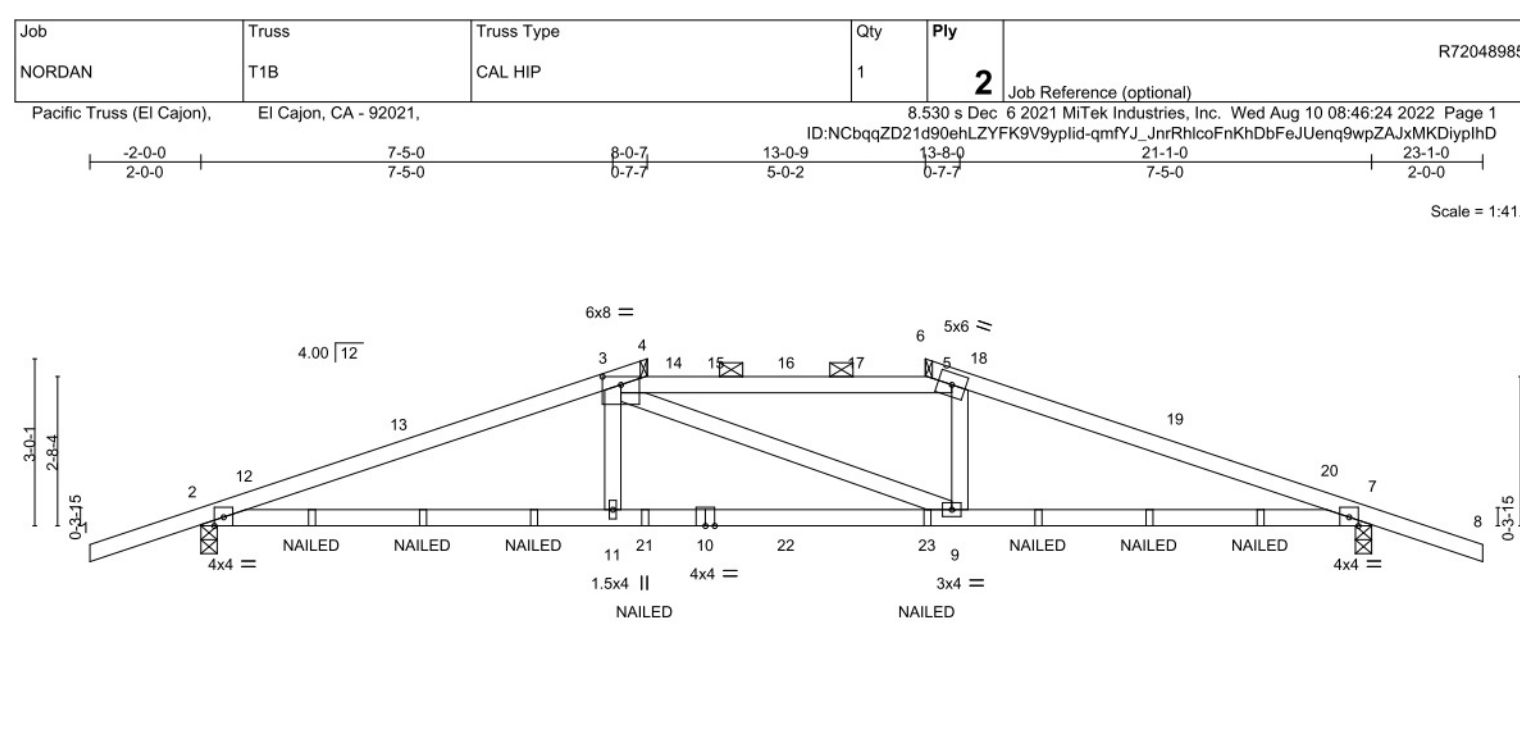
NOTES:
 1) Unbalanced roof live loads have been considered for this design.
 2) Wind: ASCE 7-16, Vult=90mph (3-second gust) V=50 ft/min. TCCL=6.0psf, BCCL=6.0psf, h=25ft; B=45ft; L=24ft; eave=4ft; Cat. II; Exp. C; Enclosed; MWFRS (directional) and C-C Exterior(ZE) 2-0-0 to 1-0-0; Interior(I) 1-0-0 to 10-0-7; Exterior(ER) 7-6-12 to 11-9-11; Interior(I) 11-9-11 to 13-6-4; Exterior(ER) 11-9-0 to 15-3-8; Interior(I) 15-3-8 to 23-1-0 zone; cantilever left and right exposed; end vertical left and right exposed-C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
 3) Provide adequate drainage to prevent water ponding.
 4) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
 5) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
 6) One RT4 MITek connectors recommended to connect truss to bearing walls due to UPLIFT at (6) 2 and 7. This connection is for uplift only and does not consider lateral forces.
 7) Graphical purin representation does not depict the size or the orientation of the purin along the top and/or bottom chord.



August 10, 2022

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 MITek USA, Inc.
 400 Sunrise Avenue, Suite 270
 Roseville, CA 95661



LOADING (psf)
 TOLL 20.0
 TCCL 15.0
 BCLL 0.0
 BCCL 10.0

SPACING
 Plate Grip DOL 1.25
 Lumber DOL 1.25
 Rep Stress Incr NO
 Code IBC2021/TP2014

CSI
 TC 0.99
 BC 0.16
 WB 0.04
 Matrix-S

DEFL
 in (loc) idell L/d
 Vert(LL) -0.13 9-11 >999 240
 Vert(CT) -0.28 9-11 >999 180
 Horiz(CT) 0.07 7 n/a n/a

PLATES
 MT20
 220/195

GRIP
 220/195

Weight: 160 lb FT = 20%

LUMBER:
 TOP CHORD 2x4 DF No.2
 BOT CHORD 2x4 DF No.2
 WEBS 2x4 DF No.2

BRACING:
 TOP CHORD Structural wood sheathing directly applied or 4-10-9 oc purins, except 2-0-0 oc purins (3-6-2 max.) 3-5.
 BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS:
 (size) 2x0-3-8, 7x0-3-8
 Max Horz 2=34(LC 11)
 Max Uplift 2=124(LC 12), 7=124(LC 12)
 Max Grav 2=236(LC 19), 7=236(LC 19)

FORCES: (lb) - Max. Comp. Max. Ten. - All forces 250 (lb) or less except when shown.
 TOP CHORD 2-3=417/973, 3-5=600/743, 5-7=417/973
 BOT CHORD 2-11=837/5824, 9-11=650/5803, 7-9=642/5824
 WEBS 3-11=0/488, 5-9=0/488

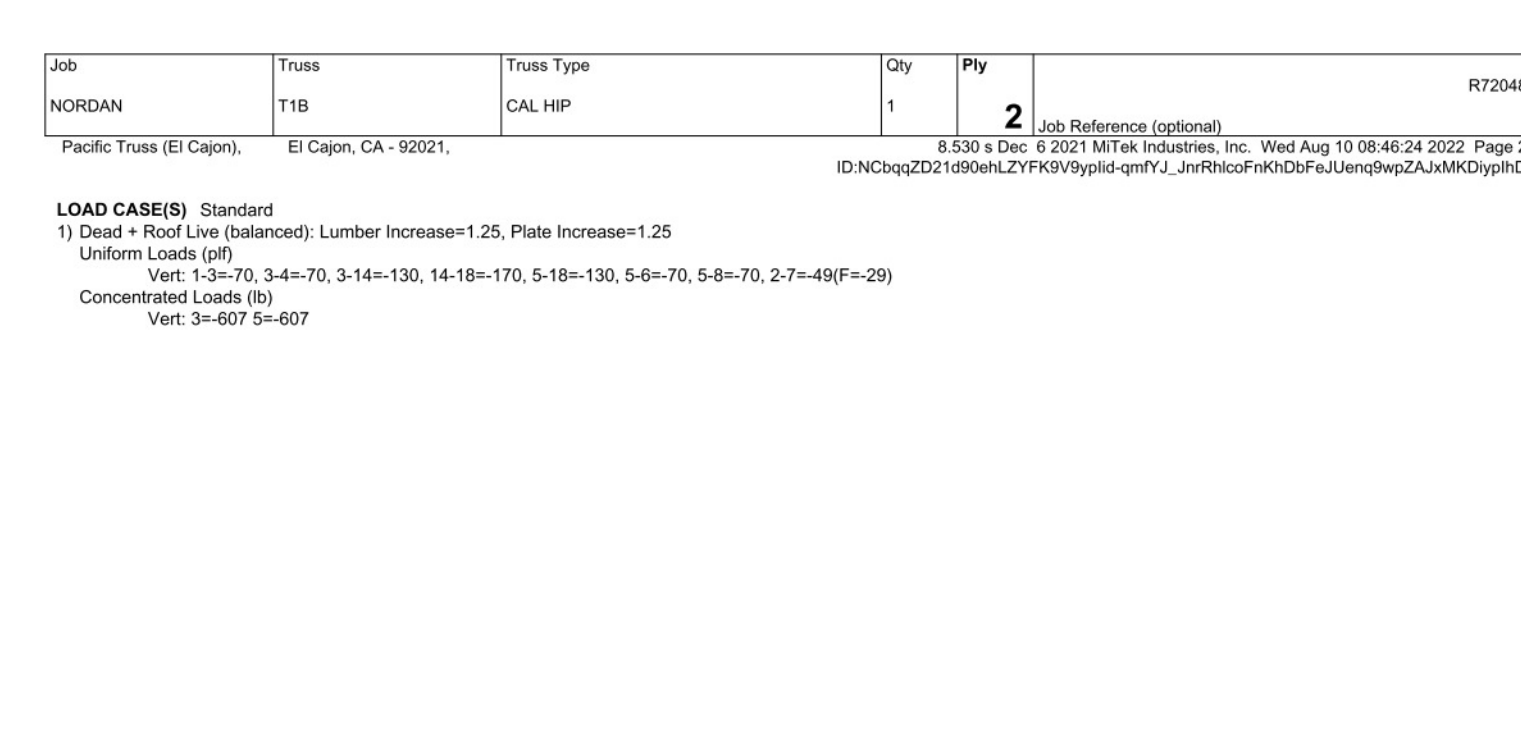
NOTES:
 1) 2-ply truss to be connected together with 10d (0.131"x3") nails as follows:
 Top chords connected as follows: 2x4 - 1 row at 0-9-0 oc.
 Bottom chords connected as follows: 2x4 - 1 row at 0-9-0 oc.
 Webs connected as follows: 2x4 - 1 row at 0-9-0 oc.
 2) All loads are considered equally applied to all plies, except if noted as front (F) or back (B) face in the LOAD CASE(S) section. Ply to ply connections have been provided to distribute only loads noted as (F) or (B), unless otherwise indicated.
 3) Unbalanced roof live loads have been considered for this design.
 4) Wind: ASCE 7-16, Vult=90mph (3-second gust) V=50 ft/min. TCCL=6.0psf, BCCL=6.0psf, h=25ft; B=45ft; L=24ft; eave=4ft; Cat. II; Exp. C; Enclosed; MWFRS (directional) and C-C Exterior(ZE) 2-0-0 to 1-0-0; Interior(I) 1-0-0 to 8-0-7; Exterior(ER) 7-6-12 to 11-9-11; Interior(I) 11-9-11 to 13-6-4; Exterior(ER) 13-0-0 to 17-3-7; Interior(I) 17-3-7 to 23-1-0 zone; cantilever left and right exposed; end vertical left and right exposed-C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
 5) Provide adequate drainage to prevent water ponding.
 6) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
 7) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
 8) One RT4 MITek connectors recommended to connect truss to bearing walls due to UPLIFT at (6) 2 and 7. This connection is for uplift only and does not consider lateral forces.
 9) Gilder carries hip end with 8-0-0 end setback.
 10) Graphical purin representation does not depict the size or the orientation of the purin along the top and/or bottom chord.
 11) "NAILED" indicates 3-10d Nails (0.148" x 3") low-nails per NDS guidelines.
 12) Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 750 lb down and 202 lb up at 13-6-4 and 750 lb down and 202 lb up at 7-6-12 on top chord. The designation of such connection device(s) is the responsibility of others.



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 MITek USA, Inc.
 400 Sunrise Avenue, Suite 270
 Roseville, CA 95661



LOADING (psf)
 TOLL 20.0
 TCCL 15.0
 BCLL 0.0
 BCCL 10.0

SPACING
 Plate Grip DOL 1.25
 Lumber DOL 1.25
 Rep Stress Incr NO
 Code IBC2021/TP2014

CSI
 TC 0.99
 BC 0.16
 WB 0.04
 Matrix-S

DEFL
 in (loc) idell L/d
 Vert(LL) -0.13 9-11 >999 240
 Vert(CT) -0.28 9-11 >999 180
 Horiz(CT) 0.07 7 n/a n/a

PLATES
 MT20
 220/195

GRIP
 220/195

Weight: 160 lb FT = 20%

LUMBER:
 TOP CHORD 2x4 DF No.2
 BOT CHORD 2x4 DF No.2
 WEBS 2x4 DF No.2

BRACING:
 TOP CHORD Structural wood sheathing directly applied or 4-10-9 oc purins, except 2-0-0 oc purins (3-6-2 max.) 3-5.
 BOT CHORD Rigid ceiling directly applied or 10-0-0 oc bracing.

REACTIONS:
 (size) 2x0-3-8, 7x0-3-8
 Max Horz 2=34(LC 11)
 Max Uplift 2=124(LC 12), 7=124(LC 12)
 Max Grav 2=236(LC 19), 7=236(LC 19)

FORCES: (lb) - Max. Comp. Max. Ten. - All forces 250 (lb) or less except when shown.
 TOP CHORD 2-3=417/973, 3-5=600/743, 5-7=417/973
 BOT CHORD 2-11=837/5824, 9-11=650/5803, 7-9=642/5824
 WEBS 3-11=0/488, 5-9=0/488

NOTES:
 1) 2-ply truss to be connected together with 10d (0.131"x3") nails as follows:
 Top chords connected as follows: 2x4 - 1 row at 0-9-0 oc.
 Bottom chords connected as follows: 2x4 - 1 row at 0-9-0 oc.
 Webs connected as follows: 2x4 - 1 row at 0-9-0 oc.
 2) All loads are considered equally applied to all plies, except if noted as front (F) or back (B) face in the LOAD CASE(S) section. Ply to ply connections have been provided to distribute only loads noted as (F) or (B), unless otherwise indicated.
 3) Unbalanced roof live loads have been considered for this design.
 4) Wind: ASCE 7-16, Vult=90mph (3-second gust) V=50 ft/min. TCCL=6.0psf, BCCL=6.0psf, h=25ft; B=45ft; L=24ft; eave=4ft; Cat. II; Exp. C; Enclosed; MWFRS (directional) and C-C Exterior(ZE) 2-0-0 to 1-0-0; Interior(I) 1-0-0 to 8-0-7; Exterior(ER) 7-6-12 to 11-9-11; Interior(I) 11-9-11 to 13-6-4; Exterior(ER) 13-0-0 to 17-3-7; Interior(I) 17-3-7 to 23-1-0 zone; cantilever left and right exposed; end vertical left and right exposed-C-C for members and forces & MWFRS for reactions shown; Lumber DOL=1.60 plate grip DOL=1.60
 5) Provide adequate drainage to prevent water ponding.
 6) This truss has been designed for a 10.0 psf bottom chord live load nonconcurrent with any other live loads.
 7) * This truss has been designed for a live load of 20.0psf on the bottom chord in all areas where a rectangle 3-6-0 tall by 2-0-0 wide will fit between the bottom chord and any other members.
 8) One RT4 MITek connectors recommended to connect truss to bearing walls due to UPLIFT at (6) 2 and 7. This connection is for uplift only and does not consider lateral forces.
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 10) Graphical purin representation does not depict the size or the orientation of the purin along the top and/or bottom chord.
 11) "NAILED" indicates 3-10d Nails (0.148" x 3") low-nails per NDS guidelines.
 12) Hanger(s) or other connection device(s) shall be provided sufficient to support concentrated load(s) 750 lb down and 202 lb up at 13-6-4 and 750 lb down and 202 lb up at 7-6-12 on top chord. The designation of such connection device(s) is the responsibility of others.

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MITek
 MITek USA, Inc.
 400 Sunrise Avenue, Suite 270
 Roseville, CA 95661

Symbols
 PLATE LOCATION AND ORIENTATION
 Center plate on joint unless x, y offset is indicated. Dimensions Apply plates to both sides of truss and fully embed both.

BEARING
 Indicates location where bearings (reaction) occur. Indicate every joint member where bearings occur. Min. size shown to fit existing only.

INDUSTRY STANDARDS
 National Design Specification for Metal Connections (AISC 360)
 Plate Connected Wood Truss Construction Building Component Safety Information, Guide to Good Practice for Building Connected Wood Trusses

PLATE SIZE
 The first dimension is the plate width minus the hole diameter. Second dimension is the length parallel to side.

LATERAL BRACING LOCATION
 Indicated by symbol shown and/or by text in the bracing section of the drawing. If bracing is indicated, it is shown in the drawing.

PLATE DETAIL AVAILABLE IN MITK-2020 SOFTWARE OR UPON REQUEST.

Numbering System
 Dimensions shown in feet-infractions (Drawing not to scale)

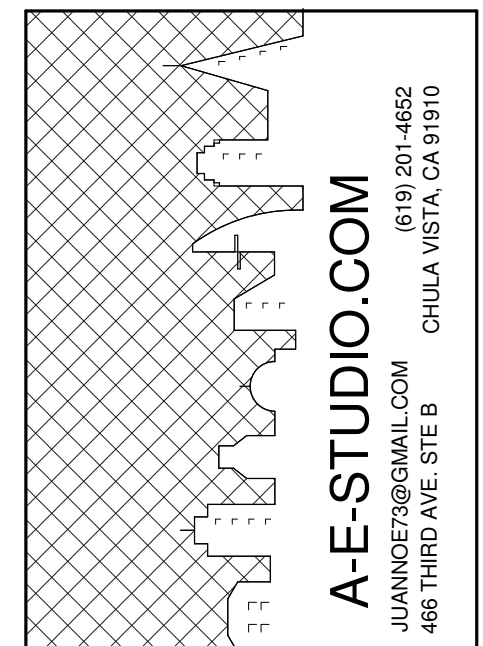
General Safety Notes
 Failure to Follow Could Cause Property Damage or Personal Injury

PRODUCT CODE APPROVALS
 ICC-ES ESR-3282, ESR-1392, ESR-1989, ESR-3907, ESR-2882, ESR-1997, ESR-3282

JOINTS ARE GENERALLY NUMBERED, LETTERED AND/OR DIMENSIONED TO IDENTIFY THE TRUSS STARTING AT THE JOINT FARTHEST TO THE MEMBER. MEMBERS ARE IDENTIFIED BY END JOINT NUMBERS/LETTERS.

TRUSSES ARE DESIGNED FOR WIND LOADS IN THE PLANE OF THE TRUSS UNLESS OTHERWISE SHOWN.
 Lumber design values are in accordance with ANSIT/PT 1. These truss designs rely on lumber values established by others.

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Date 8/8/2022

| REVISIONS | |
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August 10, 2022

WARNING: Verify design parameters and READ NOTES ON THIS AND INCLUDE MITEK REFERENCE PAGE No. 7473 rev. 5/16/2020 BEFORE USE.
 Design valid for use only with MITek connectors. This design is based only upon parameters shown, and is for an individual building component, not a truss system. Before use, the building designer must verify the applicability of design parameters and properly incorporate this design into the overall building design. Bracing indicated is to prevent buckling of individual truss web and/or chord members only. Additional temporary and permanent bracing is always required for stability and to prevent collapse with possible personal injury and property damage. For general guidance regarding the fabrication, storage, delivery, erection and bracing of trusses and truss systems, see ANSIT/PT Quality Criteria, D58-89 and BCSJ Building Component Safety Information available from Truss Plate Institute, 2670 Crane Highway, Suite 203 Waldorf, MD 20687

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Truss Calculations

S2.1

SHEET OF

8/12/2022 11:04:00 AM

A. General
Applicable codes. All projects shall comply with the 2019 California Building Code (CBC) and/or California Residential Code (CRC) 2019 California Green Building Standards Code (CalGreen), 2019 California Electrical Code (CEC), 2019 California Mechanical Code (CMC), 2019 California Plumbing Code (CPC), 2019 California Fire Code (CFC), 2019 California Building Energy Efficiency Standards (CBEES), and all County of San Diego amendments.

A. Electrical, Plumbing, and Mechanical

- Exterior lighting.** All projects shall comply with the County of San Diego lighting ordinance.
- GFCI outlets.** Ground Fault Circuit Interrupter (GFCI) outlets are required in bathrooms, at kitchen countertops, at laundry and wet bar sinks, in garages, in crawlspaces, in unfinished basements, and outdoors. (CEC 210.8)
- AFCI outlets.** Electrical circuits in bedrooms, living rooms, dining rooms, dens, closets, hallways, or similar rooms must be protected by Arc Fault Circuit Interrupters (AFCI). (CEC 210.12)
- Luminaire requirements.** Installed luminaires shall meet the efficacy and fixture requirements of CBEES 150.0(k).
- Smoke detectors in building remodels.** Smoke detectors are required in each existing sleeping room, outside each separate sleeping area in the immediate vicinity of sleeping rooms, and on each story of a dwelling including basements. Battery-operated detectors are acceptable in existing areas with no construction taking place and in alterations not resulting in removal of interior wall or ceiling finishes and without access via an attic, crawl space, or basement. (CRC R315.3)
- Water heater seismic strapping.** Minimum two 3/4-inch-by-24-gauge straps required around water heaters, with 1/4-inch-by-3-inch lag bolts attached directly to framing. Straps shall be at points within upper third and lower third of water heater vertical dimension. Lower connection shall occur minimum 4 inches above controls. (CPC 507.2)
- Gas appliances in garages.** Water heaters and heating/cooling equipment capable of igniting flammable vapors shall be placed on minimum 18-inch-high platform unless listing report number provided showing ignition-resistant appliance. (CPC 507.13 and CMC 305.1)
- Impact protection of appliances.** Water heaters and heating/cooling equipment subject to vehicular impact shall be protected by bollards or an equivalent measure. (CPC 507.13.1 and CMC 305.11)
- Water closet clearance.** Minimum 30-inch-wide by 24-inch-deep clearance required at front of water closets. (CRC 402.5)
- Shower size.** Shower compartments shall have minimum area of 1024 square inches and be able to encompass a 30-inch-diameter circle. Shower doors shall have a minimum 22-inch unobstructed width. (CPC 408.5 and CPC 408.6)
- Fireplace appliances.** Fireplaces with gas appliances are required to have the flue damper permanently fixed in the open position and fireplaces with LPG appliances are to have no "pil" or "sump" configurations. (CMC 303.7.1)
- Chimney clearance.** Minimum 2-foot chimney clearance required above building within 10-foot horizontally of chimney. The chimney shall extend minimum 3 feet above highest point where chimney passes through roof. (CRC R1003.9)

C. Mechanical Ventilation and Indoor Air Quality (ASHRAE 62.2-2010)

- Transfer air.** Ventilation air shall be provided directly from the outdoors and not transfer air from adjacent dwelling units or other spaces, such as garages, unconditioned crawlspaces, or unconditioned attics. (CBEES 150.0(o))
- Instructions and labeling.** Ventilation system controls shall be labeled and the home owner shall be provided with instructions on how to operate the system. (CBEES 150.0(o))
- Combustion and solid-fuel burning appliances.** Combustion appliances shall be properly vented and air systems shall be designed to prevent back drafting. (CBEES 150.0(o))
- Garages.** The wall and openings between occupiable spaces and the garage shall be sealed. HVAC systems that include air handlers or return ducts located in garages shall have total air leakage of no more than 6% of total fan flow when measured at 0.1 in. w.c. using California Title 24 or equivalents. (CBEES 150.0(o))
- Minimum filtration.** Mechanical systems supplying air to occupiable space through ductwork shall be provided with a filter having a minimum efficiency of MERV 6 or better. (CBEES 150.0(o))
- Air inlets.** Air inlets (not exhaust) shall be located away from known contaminants. (CBEES 150.0(o))
- Air moving equipment.** Air moving equipment used to meet either the whole-building ventilation requirement or the local ventilation exhaust requirement shall be rated in terms of airflow and sound. (CBEES 150.0(o))
 - Continuously operating fans shall be rated at a maximum of 1.0 sone.
 - Intermittently operated whole-building ventilation fans shall be rated at a maximum of 1.0 sone.
 - Intermittently operated local exhaust fans shall be rated at maximum of 3.0 sone.
 - Remotely located air-moving equipment (mounted outside of habitable spaces) need not meet sound requirements if at least 4 feet of ductwork between fan and intake grill.

D. Foundation and Underfloor

- Foundation reinforcement.** Continuous footings and stem walls shall be provided with a minimum two longitudinal No. 4 bars, one at the top and one at the bottom of the footing. (CRC R403.1.3.3)
- Shear wall foundation support.** Shear walls shall be supported by continuous foundations. (CRC 403.1.2)
- Concrete slabs-on-grade.** Slabs-on-grade shall be minimum 3-1/2-inches thick. (CRC R506.1)
- Vapor retarder.** A 6-mil polyethylene or approved vapor retarder with joints lapped minimum 6 inches shall be placed between a concrete slab-on-grade and the base course or subgrade. (CRC 506.2.3)
- Anchor bolts and sills.** Foundation plates or sills shall be bolted or anchored to the foundation or footing wall per the following (CRC R403.1.6 and CRC R602.11.1):
 - Minimum 1/2-inch-diameter steel bolts
 - Bolts embedded at least 7 inches into concrete or masonry
 - Bolts spaced maximum 6 feet on center
 - Minimum two bolts per plate/sill piece with one bolt located maximum 12 inches and minimum 7 bolt diameters from each end of each sill plate/piece
 - Minimum 3 bolts by 3-inch by 0.299-inch steel plate washer between sill and nut on each bolt
- Hold-downs.** All hold-downs must be tied in place prior to foundation inspection.
- Protection of wood against decay.** Naturally durable or preservative-treated wood shall be provided in the following locations (CRC R317.1):
 - All wood in contact with ground, embedded in concrete in direct contact with ground, or embedded in concrete exposed to weather
 - Wood joists within 18 inches and wood girders within 12 inches of the exposed ground in crawl spaces shall be of naturally durable or preservative-treated wood
 - Wood framing members that rest on concrete or masonry exterior foundation walls and are less than 8 inches from exposed earth shall be of naturally durable or preservative-treated wood
 - Wood framing, sheathing, and siding on the exterior of the building and having clearance less than 6 inches from the exposed ground or less than 2 inches vertically from concrete steps, porches, patio slabs, and similar horizontal surface exposed to weather
- Sills and sleepers on concrete or masonry slab in direct contact with ground unless separated from such slab by impervious moisture barrier**

D. Foundation and Underfloor (Continued)

- Ends of wood girders entering masonry or concrete walls with clearances less than 1/2 inch on tops, sides, and ends
 - Wood structural members supporting moisture-permeable floors or roofs exposed to weather, such as concrete or masonry slabs, unless separated from such floors or roofs by an impervious moisture barrier
 - Wood furring strips or other wood framing members attached directly to interior of exterior concrete or masonry wall grade except where vapor retarder applied between wall and furring strips or framing members
- Underfloor ventilation.** Underfloor areas shall have ventilation openings through foundation walls or exterior walls, with minimum net area of ventilation openings of 1 square foot for each 150 square feet of underfloor area. On such ventilating opening shall be within 3 feet of each corner of the building. (CRC R408.1)
 - Underfloor access.** Underfloor areas shall be provided with a minimum 18-inch by 24-inch access opening. (CRC R408.4)

E. Wood Framing

- Fastener requirements.** The member, size, and spacing of fasteners connecting wood members/elements shall not be less than that set forth in CRC Table R602.3(1). (CRC R502.9, CRC R602.3, and CRC R802.2)
- Stud size, height, and spacing.** The size, height, and spacing of studs shall be in accordance with CRC Table R602.3(5). (CRC R602.3.1)
- Sill plate.** Studs shall have full bearing on nominal 2-inch thick or larger sill plate with width at least equal to stud width. (CRC R602.3.4)
- Bearing studs.** Where joists, lusses, or rafters are spaced more than 16 inches on center and the bearing studs below are spaced 24 inches on center, such members shall bear within 5 inches of the studs beneath. (CRC R602.3.3)
- Drilling and notching of studs.** Any stud in an exterior wall or bearing partition may be cut or notched to a depth not exceeding 25% of its width. Studs in nonbearing partitions may be notched to a depth not to exceed 40% of a single stud width. Any stud may be bored or drilled, provided the diameter of the resulting hole is no more than 60% of the stud width, the edge of the hole is no more than 5/8 inch to the edge of the stud, and the hole is not located in the same section as a cut or notch. Studs located in exterior wall or bearing partitions drilled over 40% and up to 60% shall also be doubled with no more than two successive studs bored. (CRC R602.6)
- Top plate.** Wood stud walls shall be capped with a double top plate installed to provide overlapping corners and at intersections with other partitions. End joints in double top plates shall be offset at least 24 inches. Joints in plates need not occur over studs. Plates shall be minimum nominal 2 inches thick and have width at least equal to width of studs. (CRC R602.3.2)
- Top plate splices.** Top plate lap splices shall be face-nailed with minimum 8 16d nails on each side of splice. (CRC R602.10.8.1)
- Drilling and notching of top plate.** When piping or ductwork is placed in or partly in an exterior wall or interior load-bearing wall, necessitating cutting, drilling, or notching of the top plate by more than 50% of its width, a galvanized metal tie not less than 0.054-inch thick and 1-1/2 inches shall be fastened across and to the plate at each side of the opening with not less than 8 16d nails having a minimum length of 1-1/2 inches at each side or equivalent. The metal tie must extend minimum 6 inches past the opening. (CRC R602.6.1)
- Cripple walls.** Foundation cripple walls shall be framed of studs not less in size than the studs above. Cripple walls more than 4 feet in height shall have studs sized as required for an additional story. Cripple walls with stud height less than 14 inches shall be sheathed on at least one side with a wood structural panel fastened to both the top and bottom plates in accordance with Table R602.3(1), or the cripple walls shall be constructed of solid blocking. Cripple walls shall be supported on continuous foundations. (CRC R602.9)
- Wall bracing.** Buildings shall be braced in accordance with the methods allowed per CRC R602.10.2, CRC R602.10.4, and/or CRC R602.10.5.
- Braced wall line spacing.** Spacing between braced wall lines shall not exceed 20 feet or alternate provisions of CRC R602.10.1.3.
- Shear wall cumulative length.** The cumulative length of shear walls within each braced wall line shall meet the provisions of CRC Table R602.10.3(1) for wind loads and CRC Table R602.10.3(2) for seismic loads. (CRC R602.10.1.1)
- Shear wall spacing.** Shear walls shall be located not more than 25 feet on center. (CRC R602.10.2.2)
- Shear wall offset.** Shear walls may be offset out-of-plan not more than 4 feet from the designated braced wall line and not more than 8 feet from any other offset wall considered part of the same braced wall line. (CRC R602.10.1.2)
- Shear wall location.** Shear walls shall be located at the ends of each braced wall line or meet the alternate provisions of CRC R602.10.2.2.
- Individual shear wall length.** Shear walls shall meet minimum length requirements of CRC R602.10.6.5.1.
- Cripple wall bracing.** Cripple walls shall be braced per CRC R602.10.11.
- Shear wall and diaphragm nailing.** All shear walls, roof diaphragms, and floor diaphragms shall be nailed to supporting construction per CRC Table R602.3(1). (CRC R604.3)
- Shear wall joints.** All vertical joints in shear wall sheathing shall occur over, and be fastened to, common studs. Horizontal joints in shear walls shall occur over, and be fastened to, minimum 1-1/2-inch-thick blocking. (CRC R602.10.10)
- Framing over openings.** Headers, double joists, or trusses of adequate size to transfer loads to vertical members shall be provided over window and door openings in load-bearing walls and partitions. (CBC 2304.3.2)
- Joists under bearing partitions.** Joists under parallel bearing partitions shall be of adequate size to support the load. Double joists, sized to adequately support the load, that are separated to permit the installation of piping or vents shall be full-depth solid blocking with minimum 2-inch nominal lumber spaced at maximum 4 feet on center. Bearing partitions perpendicular to joists shall not be offset from supporting girders, walls, or partitions more than the joint depth unless such joists are of sufficient size to carry the additional load. (CRC R502.4)
- Joists above or below shear walls.** Where joists are perpendicular to a shear wall above or below, a rim joist, band joist, or blocking shall be provided along the entire length of the shear wall. Where joists are parallel to a shear wall above or below, a rim joist, end joist, or other lateral framing shall be provided directly above and/or below the shear wall. Full-depth blocking at 16-inch spacing shall be provided between the parallel framing members to each side of the shear wall. (CRC R602.10.8)
- Floor member bearing.** The ends of each floor joist, beam, or girder shall have minimum 1-1/2 inches of bearing on wood or metal and minimum 3 inches of bearing on masonry or concrete except where supported on a 1-inch-by-4-inch ribbon strip and nailed to the adjoining stud or by the use of approved joist hangers. (CRC R502.6)
- Floor joist lap.** Floor joists framing opposite sides over a bearing support shall lap minimum 3 inches and shall be nailed together within minimum 3 1/4 face nails. A wood or metal splice with strength equal to or greater than that provided by the lap is permitted. (CRC R502.6.1)
- Floor joist-to-girder support.** Floor joists framing into the side of a wood girder shall be supported by approved framing anchors or on ledger strips minimum nominal 2 inches by 2 inches. (CRC R502.6.2)
- Floor joist lateral restraint.** Floor joists shall be supported laterally at ends and each intermediate support by minimum 2-inch full-depth blocking, by attachment to full-depth header, band joist, or rim joist, to an adjoining stud, or shall be otherwise provided with lateral support to prevent rotation. (CRC R602.7)
- Floor joist bridging.** Floor joists exceeding nominal 2 inches by 12 inches shall be supported laterally by solid blocking, diagonal bridging (wood or metal), or a continuous 1-1/4-inch-by-2-inch strip nailed across the bottom of joists perpendicular to joists at maximum 8-foot intervals. (CRC R502.7.1)
- Framing of floor openings.** Openings in floor framing shall be framed with a header and trimmer joists. When the header joist span does not exceed 4 feet, the header joist may be a single member the same size as the floor joist. Single trimmer joists may be used to carry a single header joist located within 3 feet of the trimmer joist bearing. When the header joist span exceeds 4 feet, the trimmer joists and header joist shall be doubled and of sufficient cross section to support the floor joists framing into the header. Approved hangers shall be used for the header-joist-to-trimmer-joist connections when the header joist span exceeds 6 feet. Tail joists over 12 feet long shall be supported at the header by framing anchors or on ledger strips minimum 2 inches by 2 inches. (CRC R502.10)

E. Wood Framing (Continued)

- Girders.** Girders for single-story construction or girders supporting loads from a single floor shall not be less than 8 inches for spans 6 feet or less, provided that girders are spaced not more than 8 feet on center. Other girders shall be designed to support the loads specified in the CBC. Girder end joints shall occur over supports. When a girder is spliced over a support, an adequate tie shall be provided. The ends of beams or girders supported on masonry or concrete shall not have less than 3 inches of bearing. (CRC 2308.7)
 - Ridges, hips, and valleys.** Rafters shall be framed to a ridge board or to each other with a gusset plate as a tie. Ridge boards shall be minimum 1-inch nominal thickness and not less in depth than the cut end of the rafter. At all valleys and hips, there shall be a valley or hip rafter not less than 2-inch nominal thickness and not less in depth than the cut end of the rafter. Hip and valley rafters shall be supported at the ridge by a brace to a bearing partition or be designed to carry and distribute the specific load at that point. Where the roof pitch is less than 3:12 slope (25% gradient), structural members that support rafters and ceilings joists, such as ridges, hips, and valleys, shall be designed as beams. (CRC R602.3)
 - Ceiling joist and rafter connections.** Ceiling joists and rafters shall be nailed to each other per CRC Table R602.5.1(9), and the rafter shall be nailed to the wall top plate per CRC Table R602.3(1). Ceiling joists shall be continuous or securely joined per CRC Table R602.5.1(9) where they meet over interior partitions and are nailed to adjacent rafters to provide a continuous tie across the building when such joists are parallel to rafters. Where ceiling joists are not connected to the rafters at the wall top plate, joists connected higher in the attic shall be installed as rafter ties, or rafter ties shall be installed to provide a continuous tie. Where ceiling joists are not parallel to rafters, rafter ties shall be installed. Rafter ties shall be minimum 2 inches by 4 inches nominal, installed per CRC Table R602.5.1(9), or connections of equivalent capacities shall be provided. Where ceiling joists or rafters ties are not provided, the ridge formed by these rafters shall be supported by a wall or engineer-designed girder. (CRC R602.3.1)
 - Ceiling joists lapped.** Ends of ceiling joists shall be lapped minimum 3 inches or butted over bearing partitions or beams and toenailed to the bearing element. Where ceiling joists provide resistance to rafter thrust, lapped joists shall be nailed together per CRC Table R602.3(1) and butted joists shall be tied together in a manner to resist such thrust. (CRC R602.3.2)
 - Collar ties.** Collar ties or ridge straps to resist wind uplift shall be connected in the upper third of the attic space. Collar ties shall be a minimum 1 inch by 4 inches nominal and spaced at maximum 4 feet on center. (CRC R602.3.1)
 - Purlins.** Purlins installed to reduce the span of rafters shall be sized not less than the required size of the rafters they support. Purlins shall be continuous and shall be supported by 2-inch-by-4-inch nominal braces installed to bearing walls at a minimum 45-degree slope from horizontal. The braces shall be spaced maximum 4 feet on center with a maximum 8-foot unbraced length. (CRC R602.5.1)
 - Roof/ceiling member bearing.** The ends of each rafter or ceiling joist shall have not less than 1-1/2 inches of bearing on wood or metal and not less than 3 inches of bearing on masonry or concrete. (CRC R602.6)
 - Roof/ceiling member lateral support.** Roof framing members and ceiling joists with a nominal depth-to-thickness ratio exceeding 5:1 shall be provided with lateral support at points of bearing to prevent rotation. (CRC R602.8)
 - Roof/ceiling bridging.** Rafters and ceiling joists with a nominal depth-to-thickness ratio exceeding 5:1 shall be supported laterally by solid blocking, diagonal bridging (wood or metal), or a continuous 1-1/4-inch-by-2-inch wood strip nailed across the rafters or ceiling joists at maximum 8-foot intervals. (CRC R602.8.1)
 - Framing of roof/ceiling openings.** Openings in roof and ceiling framing shall be framed with a header and trimmer joists. When the header joist span does not exceed 4 feet, the header joist may be a single member the same size as the ceiling joist or rafter. Single trimmer joists may be used to carry a single header joist located within 3 feet of the trimmer joist bearing. When the header joist span exceeds 4 feet, the trimmer joists and header joist shall be doubled and of sufficient cross section to support the ceiling joists or rafters framing into the header. Approved hangers shall be used for the header-joist-to-trimmer-joist connections when the header joist span exceeds 6 feet. Tail joists over 12 feet long shall be supported at the header by framing anchors or on ledger strips minimum 2 inches by 2 inches. (CRC R502.10)
 - Roof framing above shear walls.** Rafters or roof trusses shall be connected to top plates of shear walls with blocking between the rafters or trusses. (CRC R602.10.8)
 - Roof diaphragm under fill framing.** Roof plywood shall be continuous under California fill framing.
 - Roof diaphragm at ridges.** Minimum 2-inch nominal blocking required for roof diaphragm nailing at ridges.
 - Blocking of roof trusses.** Minimum 2-inch nominal blocking required between trusses at ridge lines and at points of bearing at exterior walls.
 - Truss clearance.** Minimum 1/2-inch clearance required between top plates of interior non-bearing partitions and bottom chords of trusses.
 - Drilling, cutting, and notching of roof/ceiling framing.** Notches in solid lumber joists, rafters, blocking, and beams shall not exceed one-sixth the member depth, shall be not longer than one-third the member depth, and shall be located in the middle one-third of the span. Notches at member ends shall not exceed one-fourth the member depth. The tension side of members 4 inches or greater in nominal thickness shall not be notched except at member ends. The diameter of holes bored or cut into members shall not exceed one-third the member depth. Holes shall be not closer than 2 inches to the top or bottom of the member or to any other hole located in the member. Where the member is also notched, the hole shall not be closer than 2 inches to the notch. (CRC R502.8.1)
 - Exterior landings, decks, balconies, and stairs.** Such elements shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal. (CRC R311.3)
 - Fireblocking.** Fireblocking shall be provided in the following locations (CRC R302.11 and CRC R1003.19):
 - In concealed spaces of stud walls and partitions, including furred spaces, and parallel rows of studs or staggered studs, as follows:
 - Vertically at the ceiling and floor levels
 - Horizontally at intervals not exceeding 10 feet
 - At all interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings, and cove ceilings
 - In concealed spaces between stair stringers at the top and bottom of the run
 - At openings around vents, pipes, ducts, cables and wires at ceiling and floor level, with an approved material to resist the free passage of flame and products of combustion
 - At chimneys and fireplaces per Item E.49
 - At corners of a two-family dwelling at the line of dwelling-unit separation
- Fireblocking materials.** Except as otherwise specified in items E.48 and E.49, fireblocking shall consist of the following materials with the integrity maintained (CRC R302.11.1):
 - Two-inch nominal lumber
 - Two thicknesses of one-inch nominal lumber with broken lap joints
 - One thickness of 23/32-inch wood structural panel with joints backed by 23/32-inch wood structural panel
 - One thickness of 3/4-inch particleboard with joints backed by 3/4-inch particleboard
 - 1/2-inch gypsum board
 - 1/4-inch cement-based millboard
 - Batts or blankets of mineral or glass fiber or other approved materials installed in such a manner as to be securely retained in place. Batts or blankets of mineral or glass fiber or other approved non-rigid materials shall be permitted for compliance with the 10-foot horizontal fireblocking in walls constructed using parallel rows of studs or staggered studs. Unfaced fiberglass batt insulation used as fireblocking shall fill the entire cross-section of the wall cavity to a minimum height of 16 inches measured vertically. When piping, conduit, or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction. Loose-fill insulation material shall not be used as a fireblock unless specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and to retard the spread of fire and hot gases.
- Fireblocking at openings around vents, pipes, ducts, cables, and wires at ceiling and floor level.** Such openings shall be fireblocked with an approved material to resist the free passage of flame and products of combustion. (CRC R302.11)

E. Wood Framing (Continued)

- Fireblocking of chimneys and fireplaces.** All spaces between chimneys and floors and ceilings through which chimneys pass shall be fireblocked with noncombustible material securely fastened in place. The fireblocking of spaces between chimneys and wood joists, beams, or headers shall be self-supporting or be placed on strips of metal or metal lath laid across the spaces between combustible material and the chimney. (CRC R1003.19)
- Draftstopping.** In combustible construction where there is usable space both above and below the concealed space of a floor/ceiling assembly, draftstops shall be installed so that the area of the concealed space does not exceed 1000 square feet. Draftstopping shall divide the concealed space into approximately equal areas. Where the assembly is enclosed by a floor membrane above and a ceiling membrane below, draftstopping shall comply with the following (CALGreen 4.304.1):
 - Ceiling is suspended under the floor framing
 - Floor framing is constructed of truss-type open-web or perforated members
- Draftstopping materials.** Draftstopping shall not be less than 1/2-inch gypsum board, 3/8-inch wood structural panels, or other approved materials adequately supported. Draftstopping shall be installed parallel to the floor framing members unless otherwise approved by the building official. The integrity of draftstops shall be maintained. (CRC R302.12)
- Combustible insulation clearance.** Combustible insulation shall be separated minimum 3 inches from recessed luminaires, fan motors, and other heat-producing devices. (CRC R302.14)

F. General Material Specifications

- Lumber.** All joists, rafters, beams, and posts 2-inches to 4-inches thick shall be No. 2 grade Douglas Fir-Larch or better. All posts and beams 5 inches and thicker shall be No. 1 grade Douglas Fir-Larch or better. Studs not more than 8 feet long shall be stud-grade Douglas Fir-Larch or better when supporting not more than one floor, roof, and ceiling. Studs longer than 8 feet shall be No. 2 grade Douglas Fir-Larch or better.
- Concrete.** Concrete shall have a minimum compressive strength of 2,500 psi at 28 days and shall consist of 1 part cement, 3 parts sand, 4 parts 1-inch maximum size rock, and not more than 7-1/2 gallons of water per sack of cement. (CRC R402.2)
- Mortar.** Mortar used in construction of masonry walls, foundation walls, and retaining walls shall conform to ASTM C 270 and shall consist of 1 part portland cement, 2-1/4 to 3 parts sand, and 1/4 to 1/2 part hydrated lime. (CBC 2103.2)
- GROUT.** Grout shall conform to ASTM C 476 and shall consist of 1 part portland cement, 1/10 part hydrated lime, 2-1/4 to 3 parts sand, and 1 to 2 parts gravel. Grout shall attain a minimum compressive strength of 2,000 psi at 28 days. (CBC 2103.3)
- Masonry.** Masonry units shall comply with ASTM C 90 for load-bearing concrete masonry units. (CBC 2103.1)
- Reinforcing steel.** Reinforcing steel used in construction of reinforced masonry or concrete structures shall be deformed and comply with ASTM A 615. (CBC 2103.4)
- Structural steel.** Steel used as structural shapes such as wide-flange sections, channels, plates, and angles shall comply with ASTM A36. Pipe columns shall comply with ASTM A53. Structural tubes shall comply with ASTM A500, Grade B.
- Fasteners for preservative-treated wood.** Fasteners for preservative-treated wood and fire-retardant-treated wood - including nuts and washers - shall be of hot dipped zinc-coated galvanized steel, stainless steel, silicon bronze, or copper. (CRC R317.3.1)
Exception: 1/2-inch diameter or greater steel bolts
Exception: Fasteners other than nails and timber rivets may be of mechanically deposited zinc-coated steel with coating weights in accordance with ASTM B 695, Class 55 minimum
Exception: Plain carbon steel fasteners acceptable in SBX/DOT and zinc borate preservative-treated wood in an interior, dry environment
- Fasteners for fire-retardant-treated wood.** Fasteners for fire-retardant-treated wood used in exterior applications or wet or damp locations shall be of hot dipped zinc-coated galvanized steel, stainless steel, silicon bronze, or copper. (CRC R317.3.3)

G. Roofing and Weatherproofing

- Roof covering.** All roof covering shall be installed per applicable requirements of CBC 1507. Roof coverings shall be at least Class A, rated in accordance with ASTM E 108 or UL 790, which shall include coverings of slate, clay or concrete roof tile, exposed concrete roof deck, ferrous or copper shingles or sheets. (County Building Code 92.1.1505.1)
- Roof flashing.** Flashing shall be installed at wall and roof intersections, at gutters, wherever there is a change in roof slope or direction, and around roof openings. Where flashing is of metal, the metal shall be corrosion-resistant with a thickness of not less than 0.019 inch (No. 26 galvanized sheet). (CRC R903.2.1)
- Crickets and saddles.** A cricket or saddle shall be installed on the ridge side of any chimney or penetration more than 30 inches wide as measured perpendicular to the slope. Cricket or saddle covering shall be sheet metal or the same material as the roof covering. (CRC R903.2.2)
- Water-resistive barrier.** A minimum of one layer of No. 15 asphalt felt shall be attached to studs or sheathing of all exterior walls. Such felt or material shall be applied horizontally, with the upper layer lapped over the lower layer minimum 2 inches. Where joints occur, felt shall be lapped minimum 6 inches. The felt shall be continuous to the top of walls and terminated at penetrations and building appendages in a manner to maintain a weather-resistant exterior wall envelope. (CRC R703.2)
- Wall flashing.** Approved corrosion-resistant flashing shall be applied shingle fashion at the following locations to prevent entry of water into the wall cavity or penetration of water to the building structural framing components (CRC R703.8):
 - Exterior door and window openings, extending to the surface of the exterior wall finish or to the water-resistive barrier for subsequent drainage
 - At the intersection of chimneys or other masonry construction with frame or stucco walls, with projecting joints on both sides under stucco copings
 - Under and at the ends of masonry, wood, or metal copings and sills
 - Continuously above all projecting wood trim
 - Where exterior porches, decks, or stairs attach to a wall or floor assembly of wood-frame construction
 - At wall and roof intersections
 - At built-in gutters
- Dampproofing.** Dampproofing materials for foundation walls enclosing usable space below grade shall be installed on the exterior surface of the wall, and shall extend from the top of the footing to finished grade. (CRC R406.1)
- Weep screed.** A minimum 0.019-inch (No. 26 galvanized sheet) gage, corrosion-resistant weep screed or plastic weep screed with a minimum vertical attachment flange of 3-1/2 inches shall be provided at or below the foundation plate line on exterior stud walls in accordance with ASTM C 92. The weep screed shall be placed a minimum 4 inches above the earth. 2 inches above paved areas and shall be of a type allowing trapped water to drain to the exterior of the building. (CRC R703.7.2.1)

H. Grading and soils

- Grading permit.** Grading permit required if volume of earth moved exceeds 200 cubic yards or if any cuts or fills exceed 8 feet in height/depth. (County Grading Ordinance 2002)
- Compaction report.** Compaction report required for fill material 12 inches or more in depth. (CBC 1803.5.8)

I. Green Building Standards Code (CALGreen) Requirements

- Applicability.** CALGreen residential mandatory measures shall apply to every newly constructed building or structure and within any addition or alteration increasing a building's conditioned area, volume, or size. (CALGreen 101.3, CALGreen 301.1.1)
Exception: All residential buildings undergoing permitted alterations, additions, or improvements shall replace noncompliant plumbing fixtures with water-conserving plumbing fixtures per CALGreen 301.1.1 and CALGreen 4.303.1

I. (CALGreen) Requirements (Continued)

- Water conserving plumbing fixtures and fittings.** Plumbing fixtures and fittings shall comply with the following per CALGreen 4.303.1:
 - Water closets: Maximum 1.28 gallons per flush
 - Urinals: Maximum 0.5 gallons per flush
 - Single showerheads: Maximum flow rate of 2.0 gallons per minute at 80 psi
 - Multiple showerheads serving one shower: Maximum combined flow rate of 2.0 gallons per minute at 80 psi
 - Lavatory faucets: Maximum flow rate of 1.2 gallons per minute at 60 psi, minimum flow rate of 0.8 gallons per minute at 20 psi
 - Kitchen faucets: Maximum flow rate of 1.8 gallons per minute at 60 psi
Exception: Temporary increase allowed to maximum 2.2 gallons per minute at 60 psi if faucet defaults back to maximum 1.8 gallons per minute at 60 psi
- Irrigation controllers.** Weather- or irrigation system controllers for landscaping shall comply with the following (CALGreen 4.304.1):
 - Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' needs as weather conditions change.
 - Weather-based controllers without integral rain sensors or communication systems that account for local rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s). Soil moisture-based controllers are not required to have rain sensor input.
- Joints and openings.** Openings in the building envelope separating conditioned space from unconditioned space needed to accommodate utility and other penetrations must be sealed in compliance with the California Energy Code. (CALGreen 4.406.1)
Exception: Annular spaces around pipes, electric cables, conduits or other openings in plates at exterior walls shall be protected against the passage of rodents by closing such opening with cement mortar, concrete masonry or a similar method acceptable to the enforcing agency.
- Construction waste reduction, disposal, and recycling.** Reduce and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition debris. (CALGreen 4.408.1)
Exception: Excavated soil and land-clearing debris.
Exception: Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not readily reasonably close to the jobsite
The County of San Diego, Department of Public Works, Construction & Demolition (C&D) Facilities Guide is online at: http://www.sdcounty.ca.gov/recycling/Files/Construction_Guide_SJ8_Pgs_1-27.pdf.
- Construction waste management plan.** A construction waste management plan shall be prepared and available on site during construction. Documentation demonstrating compliance with the plan shall be accessible during construction for the enforcing agency. (CALGreen 4.408.2)
 - Identify the construction and demolition waste materials to be diverted from disposal by recycling, reuse on the project or salvage for future use or sale
 - Specify if construction and demolition waste materials will be sorted on-site (source-separated) or bulk mixed (single stream)
 - Identify diversion facilities where the construction and demolition waste materials will be taken
 - Identify construction methods employed to reduce the amount of construction and demolition waste generated
 - Specify that the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both
- Operation and maintenance manual.** Prior to final inspection, a manual, compact disc, web-based reference, or other acceptable media which includes all of the following shall be placed in the building (CALGreen 4.410.1):
 - Directions to owner or occupant that manual shall remain with the building throughout the life cycle of the structure.
 - Operation and maintenance instructions for the following:
 - Equipment and appliances, including water-saving devices and systems, HVAC system, photovoltaic systems, water-heating systems and other major appliances and equipment.
 - Roof and yard drainage, including gutters and downspouts.
 - Space conditioning systems, including condensers and air filters.
 - Landscape irrigation systems.
 - Water reuse systems.
 - Information from local utility, water, and waste recovery providers on methods to further reduce resource consumption, including recycle programs and locations.
 - Public transportation and/or carpool options available in the area.
 - Educational material on the positive impacts of an interior relative humidity between 30-60 percent and what methods an occupant may use to maintain the relative humidity level in that range.
 - Information about water-conserving landscape and irrigation design and controllers which conserve water.
 - Instructions for maintaining gutters and downspouts and the importance of diverting water at least 5 feet away from the foundation.
 - Information on required routine maintenance measures, including, but not limited to, caulking, painting, grading around the building, etc.
 - Information about state solar energy and incentive programs available.
 - A copy of all special inspection verifications required by the enforcing agency or code.
- Covering of duct openings and protection of mechanical equipment during construction.** At the time of rough installation or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheetmetal or other methods acceptable to the enforcing agency to reduce the amount of dust or debris which may collect in the system. (CALGreen 4.504.1)
- Adhesives, sealants, caulks, paints, and coatings pollutant control.** Adhesives (including carpet adhesives), sealants, caulks, paints, and coatings shall comply with VOC limits per CALGreen 4.504.2. Verification of compliance shall be provided at the request of the enforcing agency. (CALGreen 4.504.2.1)
- Carpet systems.** All carpet installed in the building interior shall meet the testing and product requirements of one of the following CALGreen (CALGreen 4.504.3):
 - Carpet and Rug Institute's Green Label Plus Program (all carpet cushion must meet the requirements of this program)
 - California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350).
 - NSF/ANSI 140 at the Gold level.
 - Scientific Certifications Systems Indoor Advantage™ Gold.
- Resilient flooring systems.** At least 80 percent of the floor area receiving resilient flooring shall comply with one or more of the following (CALGreen 4.504.4):
 - VOC emission limits defined in the Collaborative for High Performance Schools (CHPS) High Performance Products Database
 - Products compliant with CHPS criteria certified under the Greenguard Children & Schools program
 - Certification under the Resilient Floor Covering Institute (RFCI) FloorScore program
 - Meet the California Department of Public Health, "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers," Version 1.1, February 2010 (also known as Specification 01350)
- Composite wood products.** Hardwood plywood, particleboard and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.) by or before the dates specified in those sections, as shown in CALGreen Table 4.504.5. The following limits are in parts per million (CALGreen 4.504.5):
 - Hardwood plywood veneer core 0.05
 - Hardwood plywood composite core 0.05
 - Particle board 0.09
 - Medium-density fiberboard (MDF) 0.11
 - Thin MDF (5/16 inch or less) 0.13

I. (CALGreen) Requirements (Continued)

- Moisture content of building materials.** Building materials with visible signs of water damage shall not be installed. Wall and floor framing shall not be enclosed when the framing members exceed 19 percent moisture content. Moisture content shall be verified in compliance with the following (CALGreen 4.505.3):
 - Moisture content shall be determined with either a probe-type or contact-type moisture meter.
 - Moisture readings shall be taken at a point 2 feet to 4 feet from the grade stamped end of each piece to be verified.
 - At least three random moisture readings shall be performed on wall and floor framing with documentation acceptable to the enforcing agency provided at the time of approval to enclose the wall and floor framing. Insulation products which are visibly wet or have high moisture content shall be replaced or allowed to dry prior to enclosure in wall or floor cavities. Wet-applied insulation products shall follow the manufacturers' drying recommendations prior to enclosure.
- Bathrooms with a bathtub and/or shower shall be mechanically ventilated per the following**

STRUCTURAL DESIGN

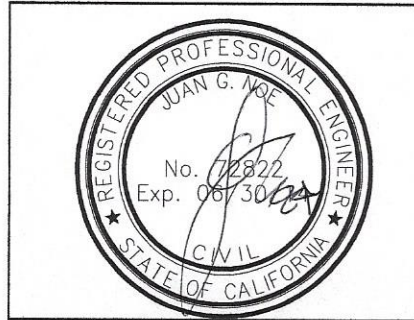
Project:

Nordan Plaza Roof Fire Damage Repair In Kind

Project No. 22-00-50

August 9, 2022

Registration:



Project Data

Client: 3400 E 8th. Street

Project Location: National City, CA 91950

Design Code(s): 2019 California Building Code

Materials of Construction

| | |
|-------------------|--------------------------|
| Wood | - NDS 2018, ASCE 7-16 |
| Reinforcing Steel | - ASTM A615, Grade 60 |
| Concrete | - ACI 318 Latest Edition |

Elements Designed by Others: N/A

Geotechnical Report: N/A

Roof Dead Load

| | |
|---------------------------|---------------|
| Roofing | 10.0 psf |
| 1/2 PLYWOOD | 3.0 psf |
| Pre-Fab Trusses or Joists | 3.0 psf |
| Insulation | 1.0 psf |
| 1/2 Drywall | 3.0 psf |
| Misc. | 0.0 psf |
| Total Dead Load | 20 psf |

Roof Live Load

2019 CBC Live load (roof pitch < 4:12) **20.0 psf**

Total Roof Load = 40 psf

Roof Snow Load

Snow Load **0.0 psf**

Floor Dead Load

| | |
|------------------------------|--------------|
| Flooring | 0.0 psf |
| 3/4 Plywood | 0.0 psf |
| 2X Joist @ 16" | 0.0 psf |
| Insulation | 0.0 psf |
| Misc. | 0.0 psf |
| Total Floor Dead Load | 0 psf |

Floor Live Load

Stair Live Load **0.0 psf**

Total Floor Load = 0 psf

Exterior Wall Loads

Stucco 12.0 psf

Total Wall Dead Load **12.0 psf**

Total Wall Dead Load = 12 psf

Interior Wall Loads

Drywall 3.0 psf

Total Wall Dead Load **3.0 psf**

Total Wall Dead Load = 3 psf

2019 CBC/ASCE 7-16 Seismic Load

Table 20.3-1 Site Class Definitions IBC Table 1613.5.2

| Definitions | Site Class |
|--|------------|
| Hard Rock | A |
| Rock | B |
| Very dense soil or soft rock | C |
| Stiff soil | D |
| Soft clay soil | E |
| Soils requiring site specific analysis | F |

Building Site Class **D** (assumed)

Importance Factors

IBC Table 1613.5.3(1)

| Occupancy Category | I |
|--------------------|------|
| I or II | 1.0 |
| III | 1.25 |
| IV | 1.5 |

Table 1-1 Occupancy Category IBC Table 1604.5

| | |
|---|-----|
| Agricultural, Temporary and Minor Storage Facilities | I |
| Other buildings not in Category I, III or IV | II |
| Buildings that represent a substantial hazard to human life | III |
| Buildings designated as essential facilities | IV |

Occupancy Category **II**

Importance Factor, I = 1.00

Global Latitude: 32.6710 (from google earth)

Global Longitude: -117.0930 (from google earth)

Short Period Response S_s 1.2332 (from USGS Seismic Hazard Software)

1-sec Period Response S_1 0.4633 (from USGS Seismic Hazard Software)

Table 11.4-1
 Site Coefficient, F_A IBC Table 1613.5.3(1)

| Site Class | $S_s \leq 0.25$ | $S_s = 0.5$ | $S_s = 0.75$ | $S_s = 1.0$ | $S_s \geq 1.25$ |
|------------|--------------------|-------------|--------------|-------------|-----------------|
| A | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| B | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| C | 1.2 | 1.2 | 1.1 | 1.0 | 1.0 |
| D | 1.6 | 1.4 | 1.2 | 1.1 | 1.0 |
| E | 2.5 | 1.7 | 1.2 | 0.9 | 0.9 |
| F | See Section 11.4.7 | | | | |

F_A (from interpolation) = 1.007

Adjusted Short Period Response, S_{MS}

$$S_{MS} = F_a S_s = 1.241$$

Design Short Period Response, S_{DS}

$$S_{DS} = 2/3 S_{MS} = 0.828$$

Table 11.4-2
 Site Coefficient, F_v IBC Table 1613.5.3(2)

| Site Class | $S_1 \leq 0.1$ | $S_1 = 0.2$ | $S_1 = 0.3$ | $S_1 = 0.4$ | $S_1 \geq 0.5$ |
|------------|--------------------|-------------|-------------|-------------|----------------|
| A | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| B | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| C | 1.7 | 1.6 | 1.5 | 1.4 | 1.3 |
| D | 2.4 | 2.0 | 1.8 | 1.6 | 1.5 |
| E | 3.5 | 3.2 | 2.8 | 2.4 | 2.4 |
| F | See Section 11.4.7 | | | | |

F_v (from interpolation) = 1.537

Adjusted 1-sec Period Response, S_{M1}

$$S_{M1} = F_v S_1 = 0.712$$

Design 1-sec Period Response, S_{D1}

$$S_{D1} = 2/3 S_{M1} = 0.475$$

Table 11.6-1
Seismic Design Category based on Short
Period Response Accelerations IBC Table 1613.5.6(1)

| Value of S_{DS} | Occupancy Category | | | |
|------------------------------|--------------------|----|-----|----|
| | I | II | III | IV |
| $S_{DS} < 0.167g$ | A | A | A | A |
| $0.167g \leq S_{DS} < 0.33g$ | B | B | B | C |
| $0.33g < S_{DS} < 0.5g$ | C | C | C | D |
| $0.5g \leq S_{DS}$ | D | D | D | D |

Seismic Design Category based on Short Period Response, SDC = **D**

Table 11.6-2
Seismic Design Category based on 1-second
Period Response Accelerations IBC Table 1613.5.6(2)

| Value of S_{D1} | Occupancy Category | | | |
|-------------------------------|--------------------|----|-----|----|
| | I | II | III | IV |
| $S_{D1} < 0.067g$ | A | A | A | A |
| $0.067g \leq S_{D1} < 0.133g$ | B | B | B | C |
| $0.133g < S_{D1} < 0.2g$ | C | C | C | D |
| $0.2g \leq S_{D1}$ | D | D | D | D |

Seismic Design Category based on 1-Sec. Period Response, SDC = **D**

- Building Structural System Factor R 6.50
- Structural Overstrength Factor Ω_o 3.0
- Deflection Amplification Factor C_d 4.0
- Seismic Damping Coefficient C_t 0.020
- Seismic Damping Coefficient α 0.750

- Building Height h_n 30.00 ft

STRUCTURAL SYSTEM:

A.13 Bearing wall system with light-framed walls sheathed with wood structural panels rated for shear resistance or steel sheets

12.8 Equilient Lateral Force Procedure

Building Period:

Equation (12.8-7) Structure period $T = C_t(h_n)^x = 0.256 \text{ sec}$

Static Base Shear:

Equation (12.8-2) $V = \frac{SDS}{R/I} W = 0.127 W$

Equation (12.8-3) $V = \frac{SD1}{T(R/I)} W = 0.285 W$

Equation (12.8-5) $V = 0.01 W = 0.01 W$

$V = 0.127 W$ **Strength Level Base Shear**

$V_{wsd} = V \times 0.7 = 0.089 W$ **Working Stress Base Shear**

SDC = D Seismic Design Category

Project Title:
 Engineer:
 Project ID:
 Project Descr:

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Wood Beam

Lic. # : KW-06008411

Description : 4X12 RIDGE BEAM SPAN 16'

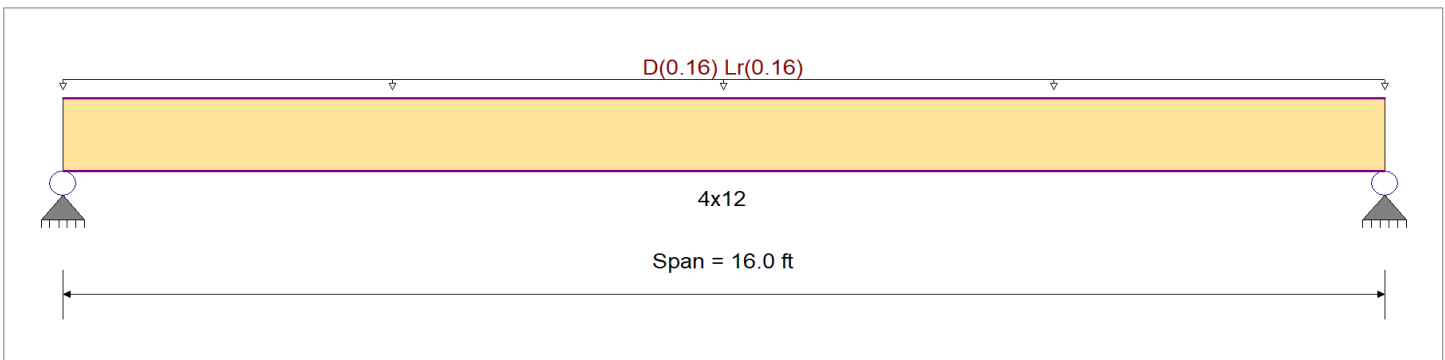
CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16

Load Combination Set : ASCE 7-16

Material Properties

| | | | | |
|--|-----------|----------|---------------------------|----------|
| Analysis Method : Allowable Stress Design | Fb + | 1350 psi | E : Modulus of Elasticity | |
| Load Combination ASCE 7-16 | Fb - | 1350 psi | Ebend- xx | 1600ksi |
| | Fc - Prll | 925 psi | Eminbend - xx | 580ksi |
| Wood Species : Douglas Fir-Larch | Fc - Perp | 625 psi | | |
| Wood Grade : No.1 | Fv | 170 psi | | |
| | Ft | 675 psi | Density | 31.21pcf |
| Beam Bracing : Beam is Fully Braced against lateral-torsional buckling | | | | |



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads

Uniform Load : D = 0.160, Lr = 0.160 , Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

| | | | |
|-----------------------------------|------------------|-------------------------------|------------------|
| Maximum Bending Stress Ratio = | 0.921 : 1 | Maximum Shear Stress Ratio = | 0.416 : 1 |
| Section used for this span = | 4x12 | Section used for this span = | 4x12 |
| fb : Actual = | 1,708.79psi | fv : Actual = | 88.43 psi |
| FB : Allowable = | 1,856.25psi | Fv : Allowable = | 212.50 psi |
| Load Combination = | +D+Lr | Load Combination = | +D+Lr |
| Location of maximum on span = | 8.000ft | Location of maximum on span = | 15.066 ft |
| Span # where maximum occurs = | Span # 1 | Span # where maximum occurs = | Span # 1 |
| Maximum Deflection | | | |
| Max Downward Transient Deflection | 0.357 in | Ratio = | 537 >=360 |
| Max Upward Transient Deflection | 0.000 in | Ratio = | 0 <360 |
| Max Downward Total Deflection | 0.733 in | Ratio = | 261 >=180 |
| Max Upward Total Deflection | 0.000 in | Ratio = | 0 <180 |

Maximum Forces & Stresses for Load Combinations

| Load Combination | Segment Length | Span # | Max Stress Ratios | | | | | | | | | | Moment Values | | | Shear Values | | | | | | | |
|------------------|------------------|--------|-------------------|-------|----------------|------------------|----------------|----------------|----------------|----------------|----------------|------|---------------|------|-------|--------------|---------|------|------|------|------|-------|--------|
| | | | M | V | C _d | C _{F/N} | C _i | C _r | C _m | C _t | C _L | M | fb | F'b | V | fv | F'v | | | | | | |
| D Only | Length = 16.0 ft | 1 | 0.656 | 0.296 | 0.90 | 1.100 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 5.39 | 876.59 | 1336.50 | 0.00 | 0.00 | 0.00 | 1.19 | 45.36 | 153.00 |
| +D+Lr | Length = 16.0 ft | 1 | 0.921 | 0.416 | 1.25 | 1.100 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 10.51 | 1,708.79 | 1856.25 | 0.00 | 0.00 | 0.00 | 2.32 | 88.43 | 212.50 |
| +D+0.750Lr | Length = 16.0 ft | 1 | 0.808 | 0.365 | 1.25 | 1.100 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 9.23 | 1,500.74 | 1856.25 | 0.00 | 0.00 | 0.00 | 2.04 | 77.66 | 212.50 |
| +0.60D | Length = 16.0 ft | 1 | 0.221 | 0.100 | 1.60 | 1.100 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 3.24 | 525.95 | 2376.00 | 0.00 | 0.00 | 0.00 | 0.71 | 27.22 | 272.00 |

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 Engineer:
 Project ID:
 Project Descr:

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Description : 4X12 RIDGE BEAM SPAN 16'

Overall Maximum Deflections

| Load Combination | Span | Max. "-" Defl | Location in Span | Load Combination | Max. "+" Defl | Location in Span |
|------------------|------|---------------|------------------|------------------|---------------|------------------|
| +D+Lr | 1 | 0.7333 | 8.058 | | 0.0000 | 0.000 |

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

| Load Combination | Support 1 | Support 2 |
|------------------|-----------|-----------|
| Overall MAXimum | 2.628 | 2.628 |
| Overall MINimum | 1.280 | 1.280 |
| D Only | 1.348 | 1.348 |
| +D+Lr | 2.628 | 2.628 |
| +D+0.750Lr | 2.308 | 2.308 |
| +0.60D | 0.809 | 0.809 |
| Lr Only | 1.280 | 1.280 |

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 Engineer:
 Project ID:
 Project Descr:

Wood Beam

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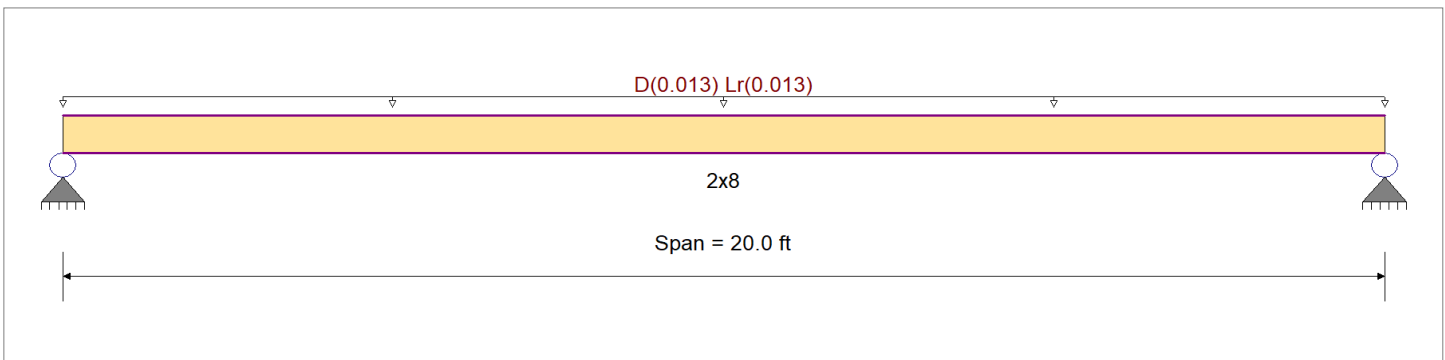
Description : 2X8@16" O.C. C.J. SPAN 20'

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

| | | | |
|--|-----------|-------------|---------------------------|
| Analysis Method : Allowable Stress Design | Fb + | 1,350.0 psi | E : Modulus of Elasticity |
| Load Combination ASCE 7-16 | Fb - | 1,350.0 psi | Ebend- xx |
| | Fc - Prll | 925.0 psi | Eminbend - xx |
| Wood Species : Douglas Fir-Larch | Fc - Perp | 625.0 psi | |
| Wood Grade : No.1 | Fv | 170.0 psi | |
| | Ft | 675.0 psi | Density |
| Beam Bracing : Beam is Fully Braced against lateral-torsional buckling | | | 31.210pcf |



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Uniform Load : D = 0.0130, Lr = 0.0130, Tributary Width = 1.0 ft

DESIGN SUMMARY

Design OK

| | | | | | | | |
|-----------------------------------|---|--------------|-----|-----------------------------|---|--------------|-------|
| Maximum Bending Stress Ratio | = | 0.586 | 1 | Maximum Shear Stress Ratio | = | 0.159 | : 1 |
| Section used for this span | | 2x8 | | Section used for this span | | 2x8 | |
| fb : Actual | = | 1,187.16 | psi | fv : Actual | = | 33.77 | psi |
| FB : Allowable | = | 2,025.00 | psi | Fv : Allowable | = | 212.50 | psi |
| Load Combination | | +D+Lr | | Load Combination | | +D+Lr | |
| Location of maximum on span | = | 10.000 | ft | Location of maximum on span | = | 0.000 | ft |
| Span # where maximum occurs | = | Span # 1 | | Span # where maximum occurs | = | Span # 1 | |
| Maximum Deflection | | | | | | | |
| Max Downward Transient Deflection | | 0.618 | in | Ratio = | | 388 | >=360 |
| Max Upward Transient Deflection | | 0.000 | in | Ratio = | | 0 | <360 |
| Max Downward Total Deflection | | 1.235 | in | Ratio = | | 194 | >=180 |
| Max Upward Total Deflection | | 0.000 | in | Ratio = | | 0 | <180 |

Maximum Forces & Stresses for Load Combinations

| Load Combination | Segment Length | Span # | Max Stress Ratios | | | | | | | | Moment Values | | | Shear Values | | | | | |
|------------------|------------------|--------|-------------------|-------|----------------|-----------------|----------------|----------------|----------------|----------------|----------------|------|----------|--------------|------|------|------|------|--------|
| | | | M | V | C _d | C _{FV} | C _i | C _r | C _m | C _t | C _L | M | fb | F'b | V | fv | F'v | | |
| D Only | Length = 20.0 ft | 1 | 0.407 | 0.110 | 0.90 | 1.200 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.65 | 593.58 | 1458.00 | 0.00 | 0.00 | 0.00 | 0.00 | 153.00 |
| +D+Lr | Length = 20.0 ft | 1 | 0.586 | 0.159 | 1.25 | 1.200 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.30 | 1,187.16 | 2025.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| +D+0.750Lr | Length = 20.0 ft | 1 | 0.513 | 0.139 | 1.25 | 1.200 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.14 | 1,038.76 | 2025.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| +0.60D | Length = 20.0 ft | 1 | 0.137 | 0.037 | 1.60 | 1.200 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.39 | 356.15 | 2592.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Overall Maximum Deflections

| Load Combination | Span | Max. "-" Defl | Location in Span | Load Combination | Max. "+" Defl | Location in Span |
|------------------|------|---------------|------------------|------------------|---------------|------------------|
| +D+Lr | 1 | 1.2353 | 10.073 | | 0.0000 | 0.000 |

Project Title:
Engineer:
Project ID:
Project Descr:

Wood Beam

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Description : 2X8@16" O.C. C.J. SPAN 20'

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

| Load Combination | Support 1 | Support 2 |
|------------------|-----------|-----------|
| Overall MAXimum | 0.260 | 0.260 |
| Overall MINimum | 0.130 | 0.130 |
| D Only | 0.130 | 0.130 |
| +D+Lr | 0.260 | 0.260 |
| +D+0.750Lr | 0.228 | 0.228 |
| +0.60D | 0.078 | 0.078 |
| Lr Only | 0.130 | 0.130 |

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Wood Beam

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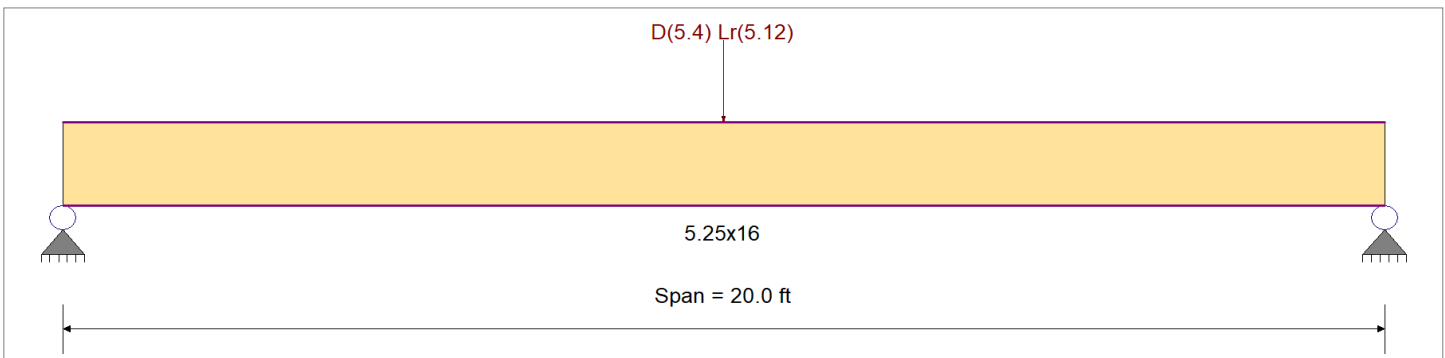
Description : 5 1/4 X 16 VERSALAM SPAN 20'

CODE REFERENCES

Calculations per NDS 2018, IBC 2018, CBC 2019, ASCE 7-16
 Load Combination Set : ASCE 7-16

Material Properties

| | | | |
|--|-----------|----------|---------------------------|
| Analysis Method : Allowable Stress Design | Fb + | 2800 psi | E : Modulus of Elasticity |
| Load Combination ASCE 7-16 | Fb - | 2800 psi | Ebend- xx |
| | Fc - Prll | 3000 psi | Eminbend - xx |
| Wood Species : Boise Cascade | Fc - Perp | 750 psi | |
| Wood Grade : Versa Lam 2800 | Fv | 285 psi | |
| | Ft | 2100 psi | Density |
| Beam Bracing : Beam is Fully Braced against lateral-torsional buckling | | | 41.76pcf |



Applied Loads

Service loads entered. Load Factors will be applied for calculations.

Beam self weight calculated and added to loads
 Point Load : D = 5.40, Lr = 5.120 k @ 10.0 ft

DESIGN SUMMARY

Design OK

| | | | | | |
|-----------------------------------|---|------------------|-----------------------------|---|------------------|
| Maximum Bending Stress Ratio | = | 0.824 : 1 | Maximum Shear Stress Ratio | = | 0.274 : 1 |
| Section used for this span | | 5.25x16 | Section used for this span | | 5.25x16 |
| fb : Actual | = | 2,883.11 psi | fv : Actual | = | 97.71 psi |
| FB : Allowable | = | 3,500.00 psi | Fv : Allowable | = | 356.25 psi |
| Load Combination | | +D+Lr | Load Combination | | +D+Lr |
| Location of maximum on span | = | 10.000ft | Location of maximum on span | = | 0.000ft |
| Span # where maximum occurs | = | Span # 1 | Span # where maximum occurs | = | Span # 1 |
| Maximum Deflection | | | | | |
| Max Downward Transient Deflection | | 0.414 in | Ratio = | | 580 >=360 |
| Max Upward Transient Deflection | | 0.000 in | Ratio = | | 0 <360 |
| Max Downward Total Deflection | | 0.875 in | Ratio = | | 274 >=180 |
| Max Upward Total Deflection | | 0.000 in | Ratio = | | 0 <180 |

Maximum Forces & Stresses for Load Combinations

| Load Combination | Segment Length | Span # | Max Stress Ratios | | | | | | | | | Moment Values | | | Shear Values | | | | | | | | |
|------------------|------------------|--------|-------------------|-------|----------------|------------------|----------------|----------------|----------------|----------------|----------------|---------------|------|------|--------------|----------|---------|------|------|------|------|-------|--------|
| | | | M | V | C _d | C _{F/N} | C _i | C _r | C _m | C _t | C _L | M | fb | F'b | V | fv | F'v | | | | | | |
| D Only | Length = 20.0 ft | 1 | 0.600 | 0.203 | 0.90 | 1.000 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 28.22 | 1,511.68 | 2520.00 | 0.00 | 0.00 | 0.00 | 0.00 | 51.99 | 256.50 |
| +D+Lr | Length = 20.0 ft | 1 | 0.824 | 0.274 | 1.25 | 1.000 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 53.82 | 2,883.11 | 3500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 97.71 | 356.25 |
| +D+0.750Lr | Length = 20.0 ft | 1 | 0.726 | 0.242 | 1.25 | 1.000 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 47.42 | 2,540.25 | 3500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 86.28 | 356.25 |
| +0.60D | Length = 20.0 ft | 1 | 0.202 | 0.068 | 1.60 | 1.000 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 16.93 | 907.01 | 4480.00 | 0.00 | 0.00 | 0.00 | 0.00 | 31.20 | 456.00 |

Project Title:
 Engineer:
 Project ID:
 Project Descr:

Wood Beam

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Description : 5 1/4 X 16 VERSALAM SPAN 20'

Overall Maximum Deflections

| Load Combination | Span | Max. "-" Defl | Location in Span | Load Combination | Max. "+" Defl | Location in Span |
|------------------|------|---------------|------------------|------------------|---------------|------------------|
| +D+Lr | 1 | 0.8746 | 10.073 | | 0.0000 | 0.000 |

Vertical Reactions

Support notation : Far left is #1

Values in KIPS

| Load Combination | Support 1 | Support 2 |
|------------------|-----------|-----------|
| Overall MAXimum | 5.504 | 5.504 |
| Overall MINimum | 2.560 | 2.560 |
| D Only | 2.944 | 2.944 |
| +D+Lr | 5.504 | 5.504 |
| +D+0.750Lr | 4.864 | 4.864 |
| +0.60D | 1.766 | 1.766 |
| Lr Only | 2.560 | 2.560 |