

Earl & Marguerite Duncan Jr.
6 Keith David Drive, Millbury MA



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Application for Special Permit

Application Review

Form E, Certified List of Abutters

Checklist, Submission of Special Permit

January 29, 2021

To the Millbury Planning Board,

We are requesting approval for an Accessory Dwelling Unit / In-Law Apartment to accommodate my wife's father William Caffone. He is a disabled veteran, and had a long career working for Worcester County.

We believe this to be the best move especially do to the current COVID-19 situation.

The following will be run from inside the existing home to the Accessory Dwelling Unit:

1. Sewer pipe, the current main pipe entering the existing home is 4" in diameter that can be stepped down to 3.5" pipe which will accommodate the bathroom and small kitchen drain needs.
2. Sub-Panel, a 100-amp sub-panel will run from the existing panel and be placed into the accessory dwelling unit.
3. Water, Aquarion Water Supply said that a ¾" supply line can be tapped off of the existing incoming pipe and will provide more than enough water and pressure for the new addition.
4. Gas line; will be provided from existing house to fuel a gas dryer and tankless hot water/furnace (all in one) unit.
5. Cable & Wi-Fi will also come from the existing home.

United Elevator Co Inc will be installing a Hoyt home elevator. They will provide the required state elevator permit, final acceptance test, state elevator permit and turnover to the customer.

The new addition will have an Air Conditioner / Heat Pump Mini Split system.

There will be landscaping (i.e. Shrubs, mulch etc. of the right side of the new addition. See first page of plans.

With the guidance from our surveyor, architect, plumber, electrician, contractor and the town of Millbury planning board I know we will create a beautiful addition that will not only look great but will appear as it was always there.

Thank you for your consideration.

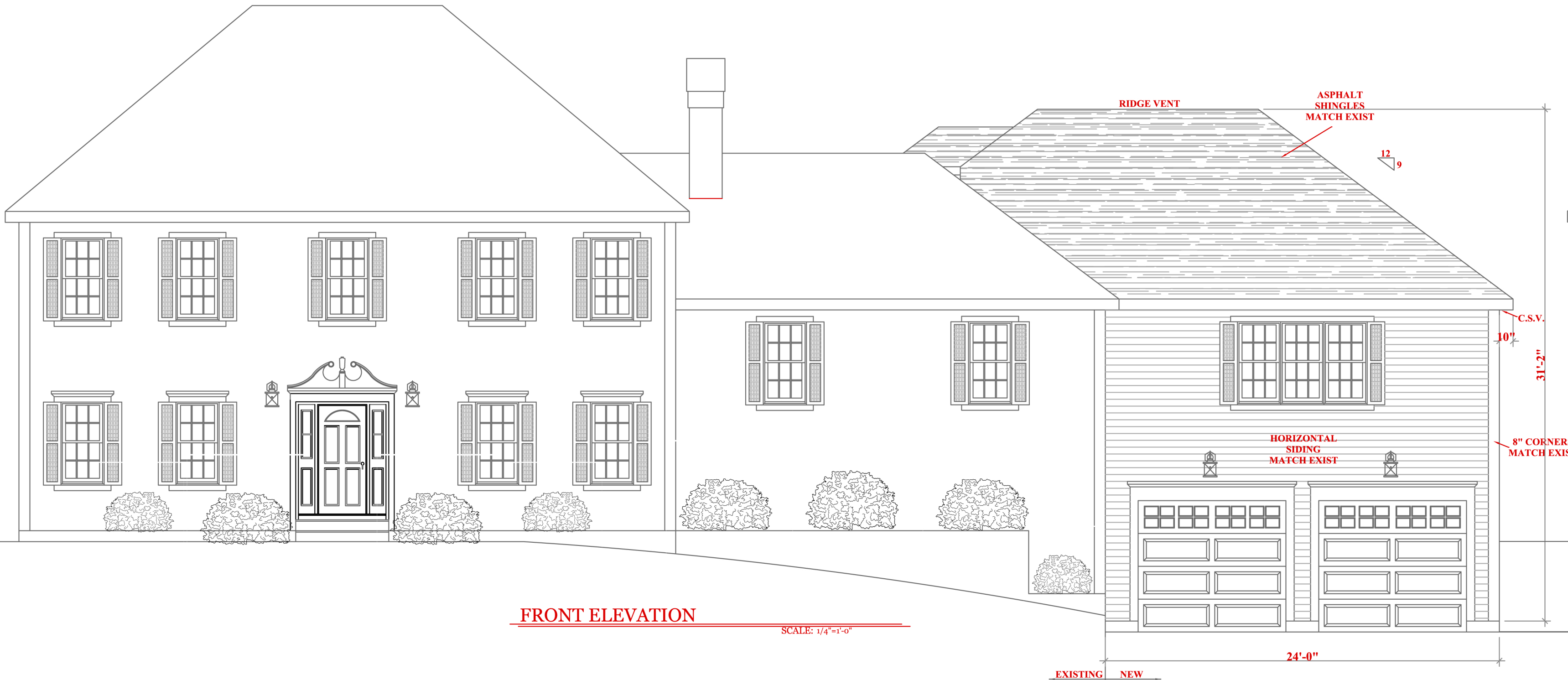
Earl & Marguerite Duncan
6 Keith David Drive
Millbury MA 01527
774-276-1332
Eduncan162@gmail.com

NOTES:

1. These plans are drawn as required for construction by an experienced licensed general contractor.
2. The General contractor shall fully comply with the 9TH Edition of the Massachusetts State Building Code, 2015 IRC, and all additional local requirements.
3. Written dimensions shall have precedence over scaled dimensions. The general contractor shall verify and is responsible for all dimensions (including rough openings) and conditions on the job and must notify this office of any variations from these drawings. Any defects in the construction documents shall be brought to the attention of this office before proceeding with work. Reasonable time not allowed this office to correct defects shall place the burden of cost and liability from such defects upon the contractor.

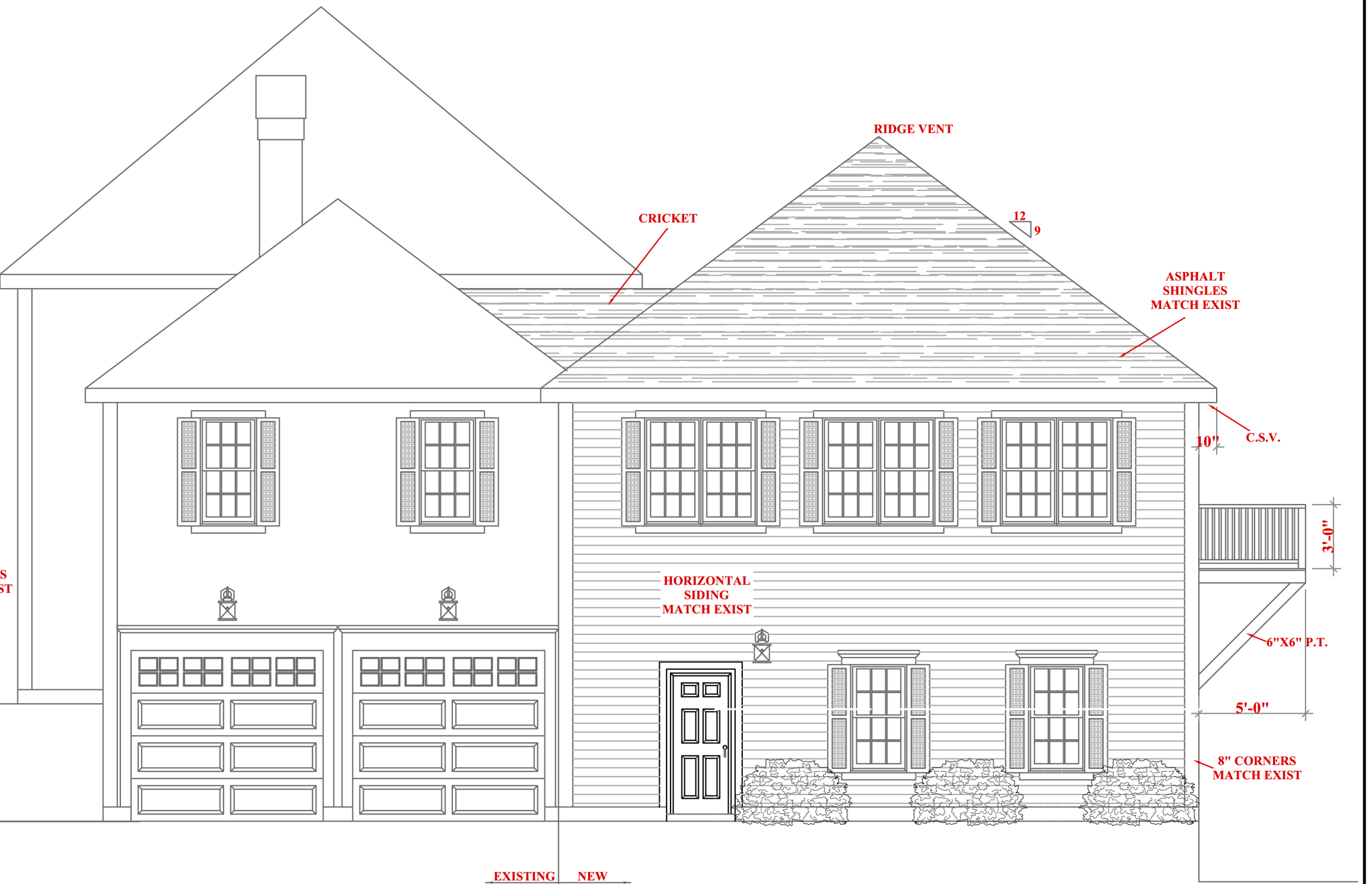
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 (508) 466-3202 Holden Ma.

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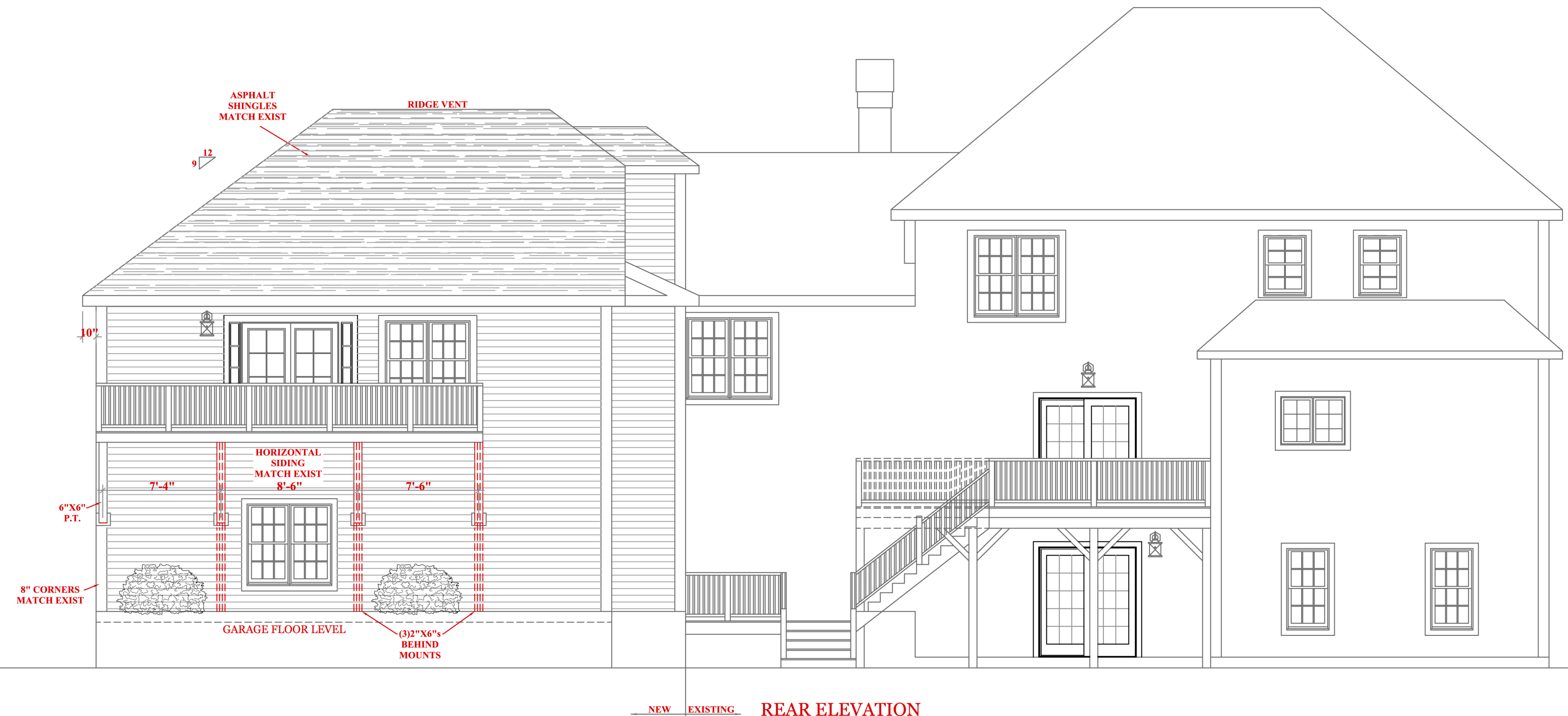
FRONT ELEVATION

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



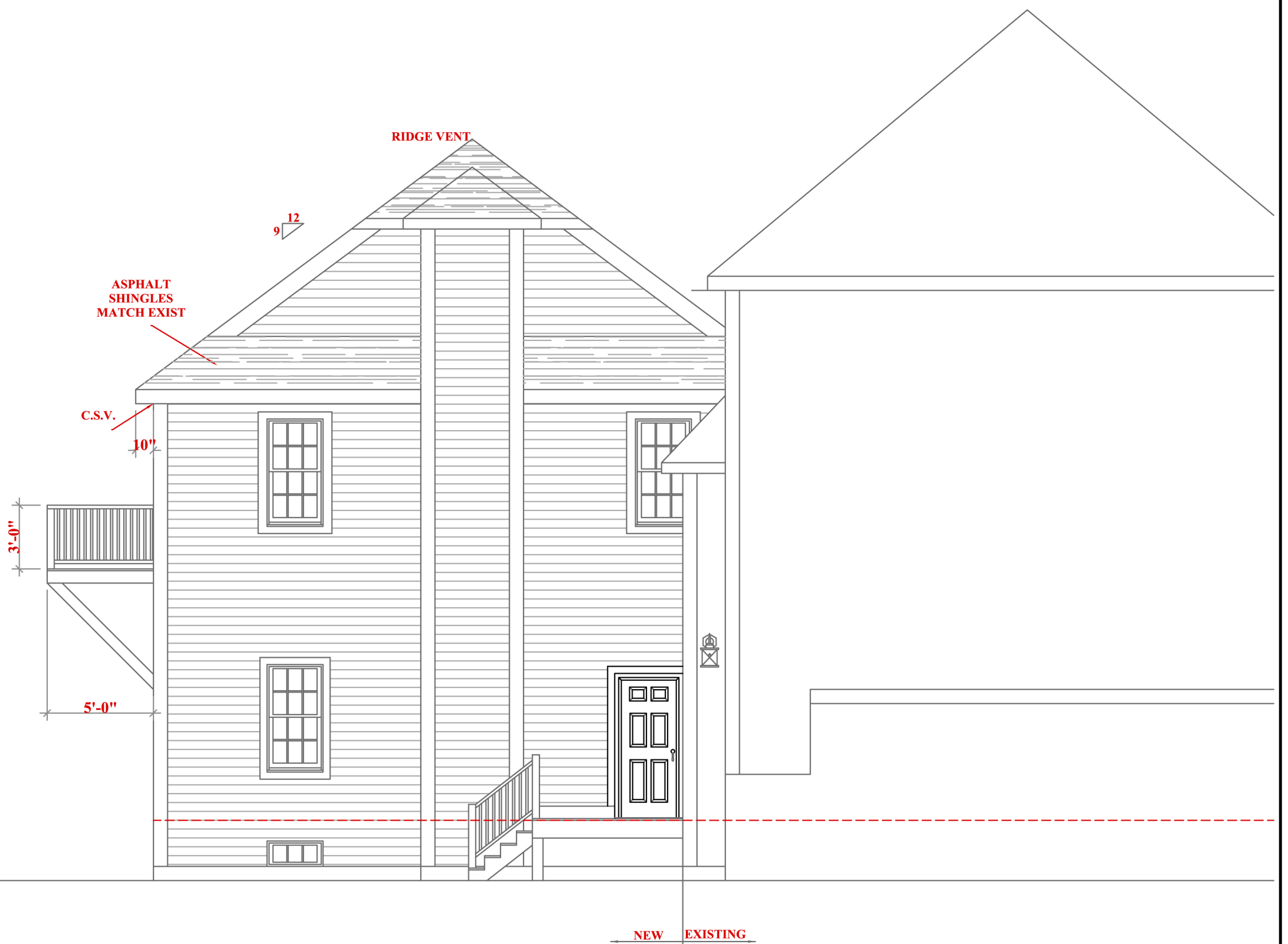
RIGHT ELEVATION

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



REAR ELEVATION

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



LEFT ELEVATION

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

6 KEITH DAVID DR
 ADDITION
 MILLBURY, MA

NEW
 ELEVATIONS

DA 6-20

DATE: 10/5/2020

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

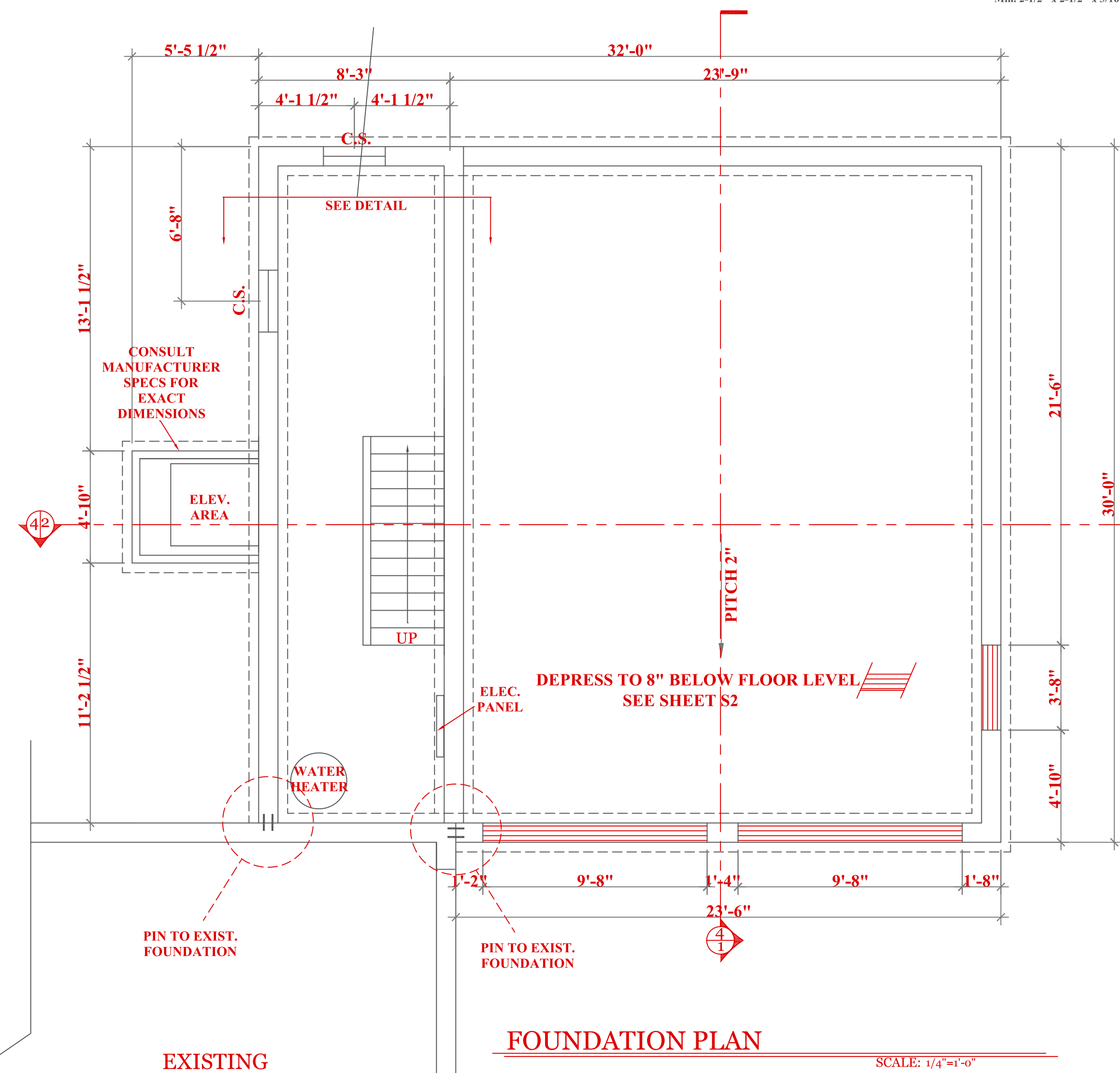
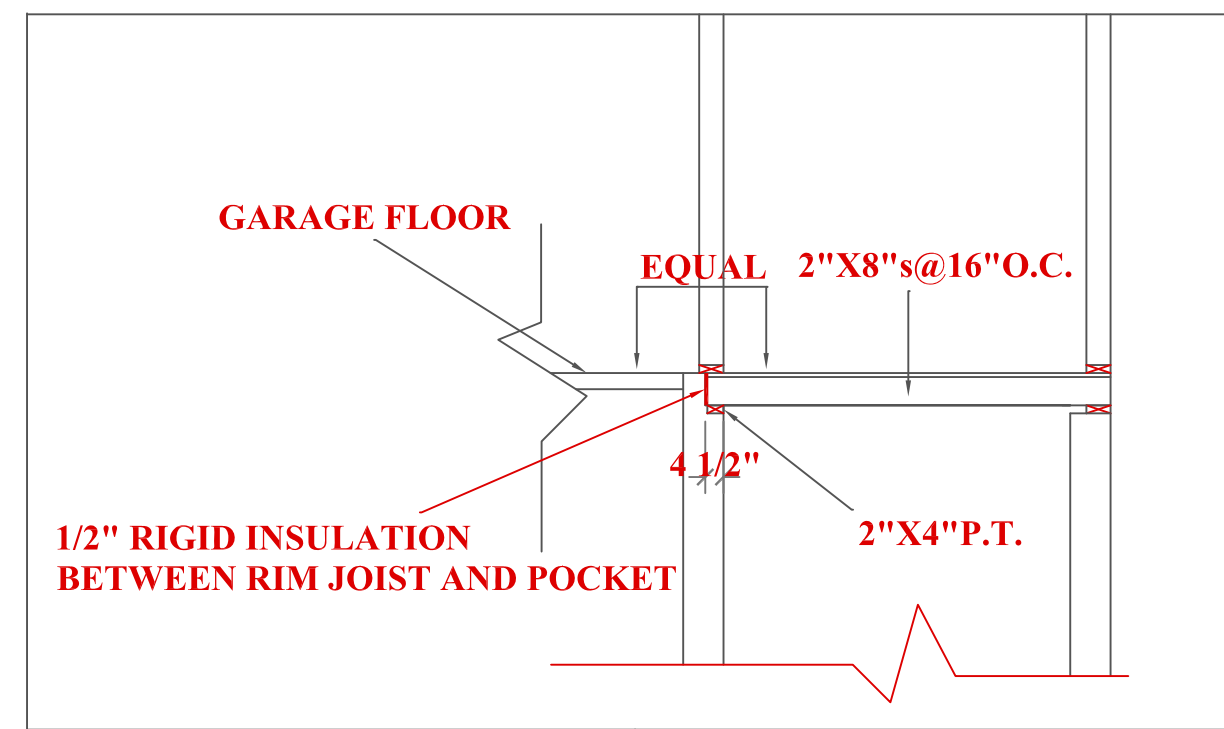
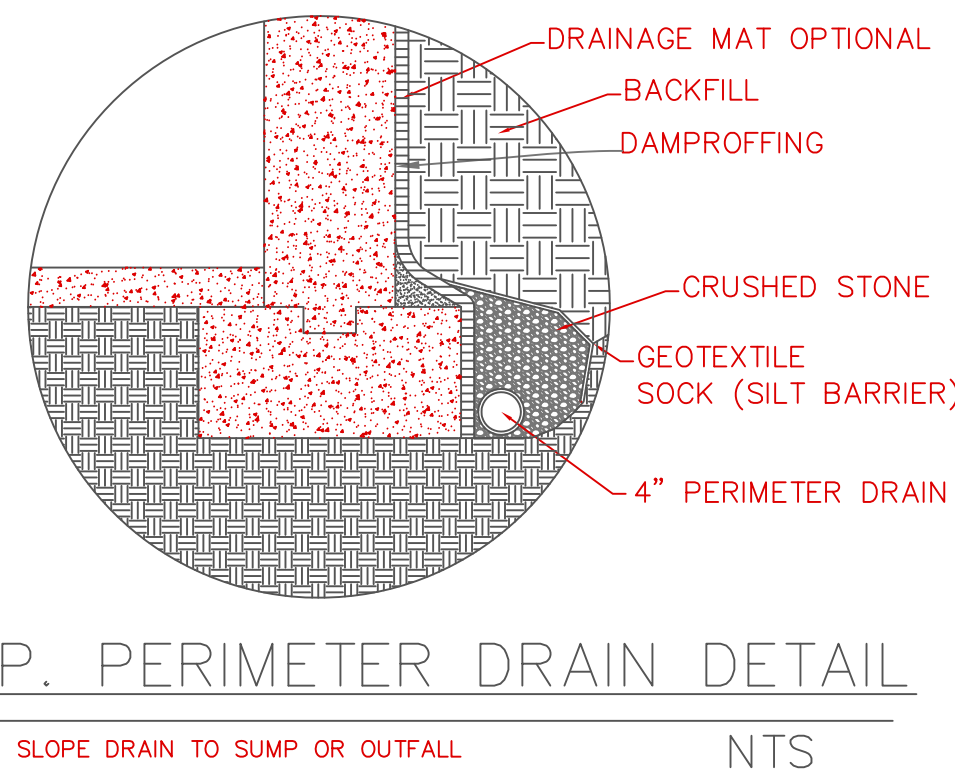
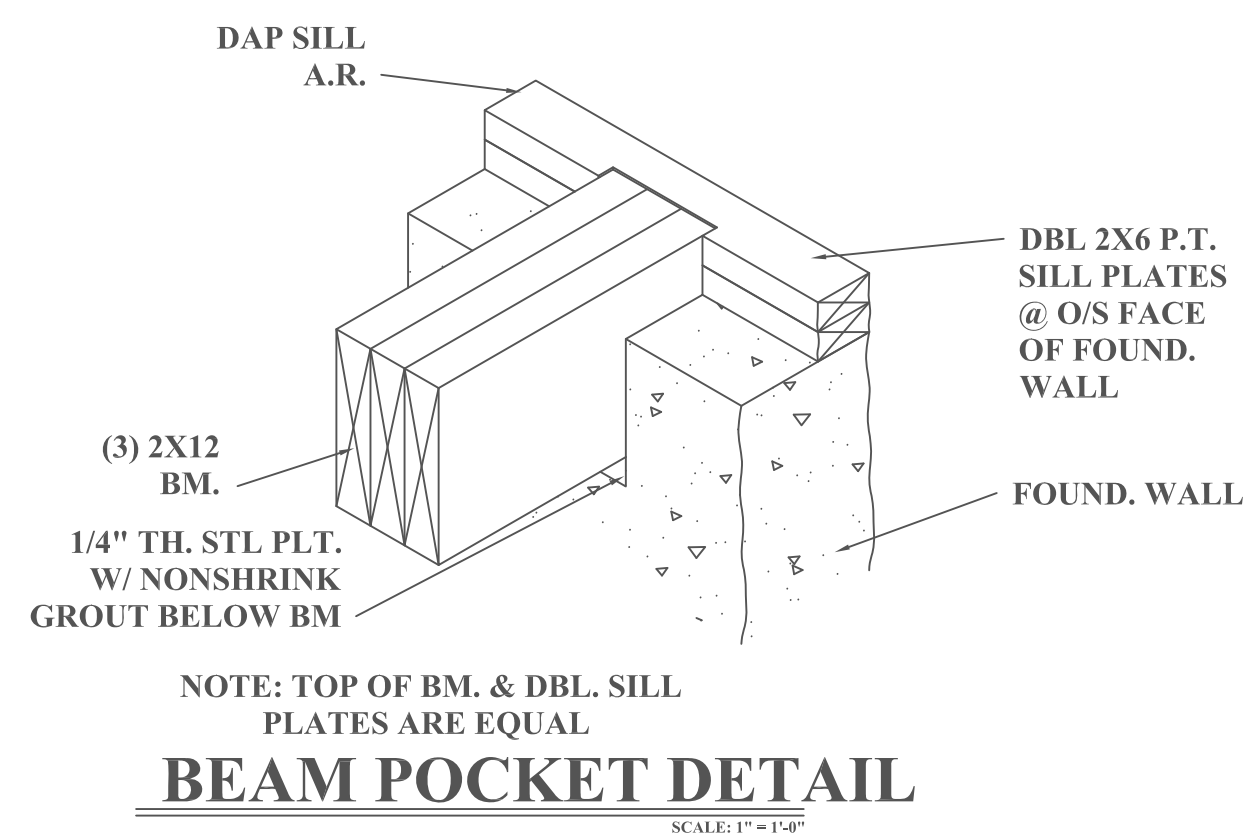
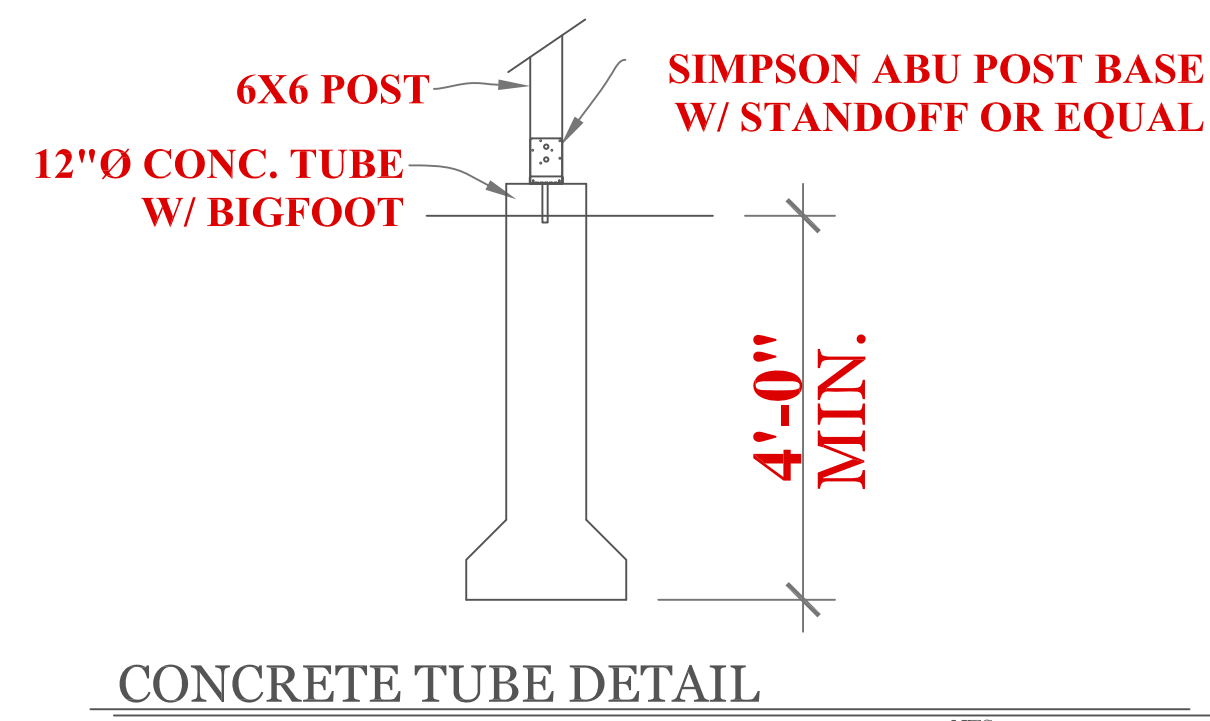
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CHECKED BY: RCS

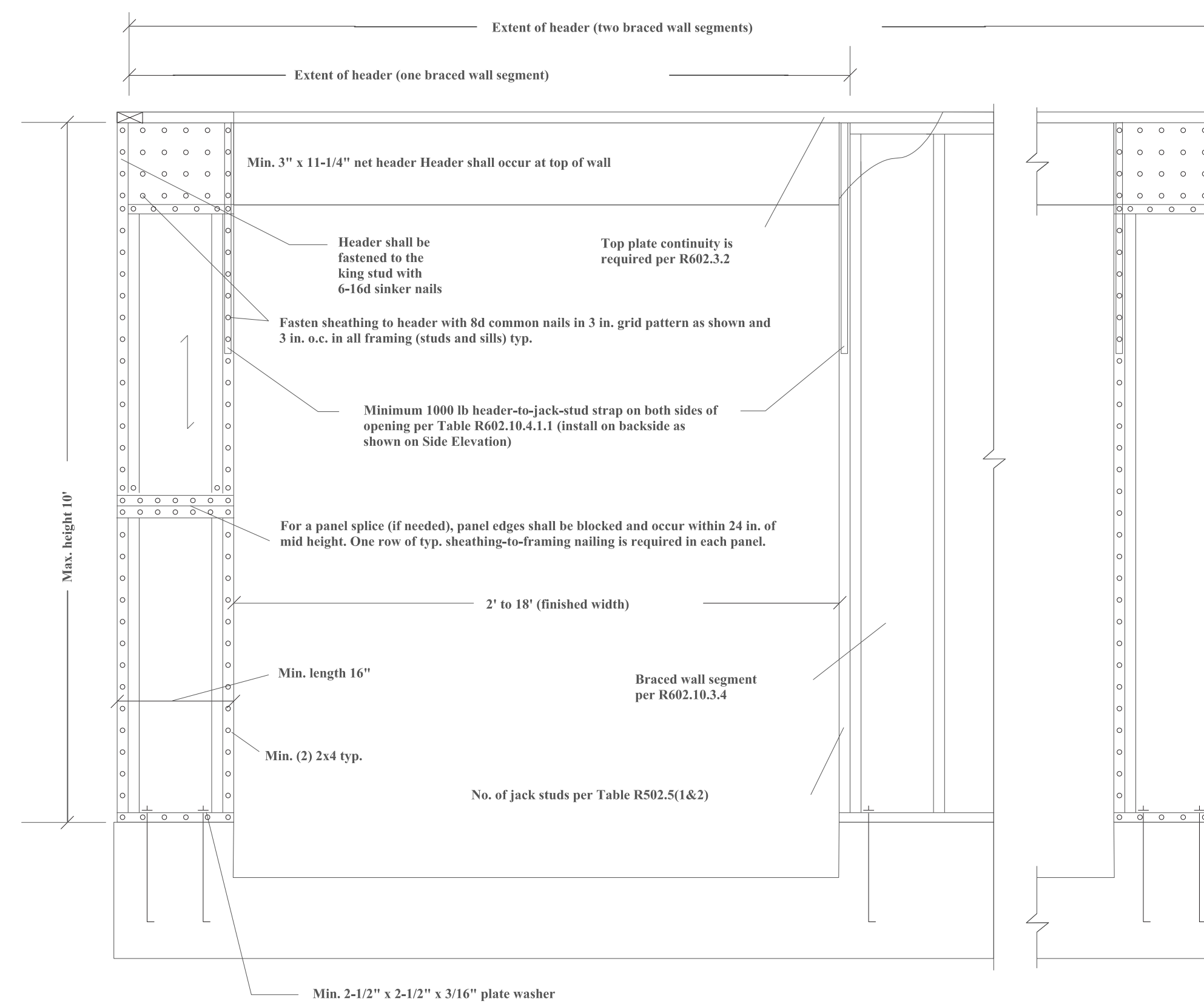
Sheet 1 OF 6

1

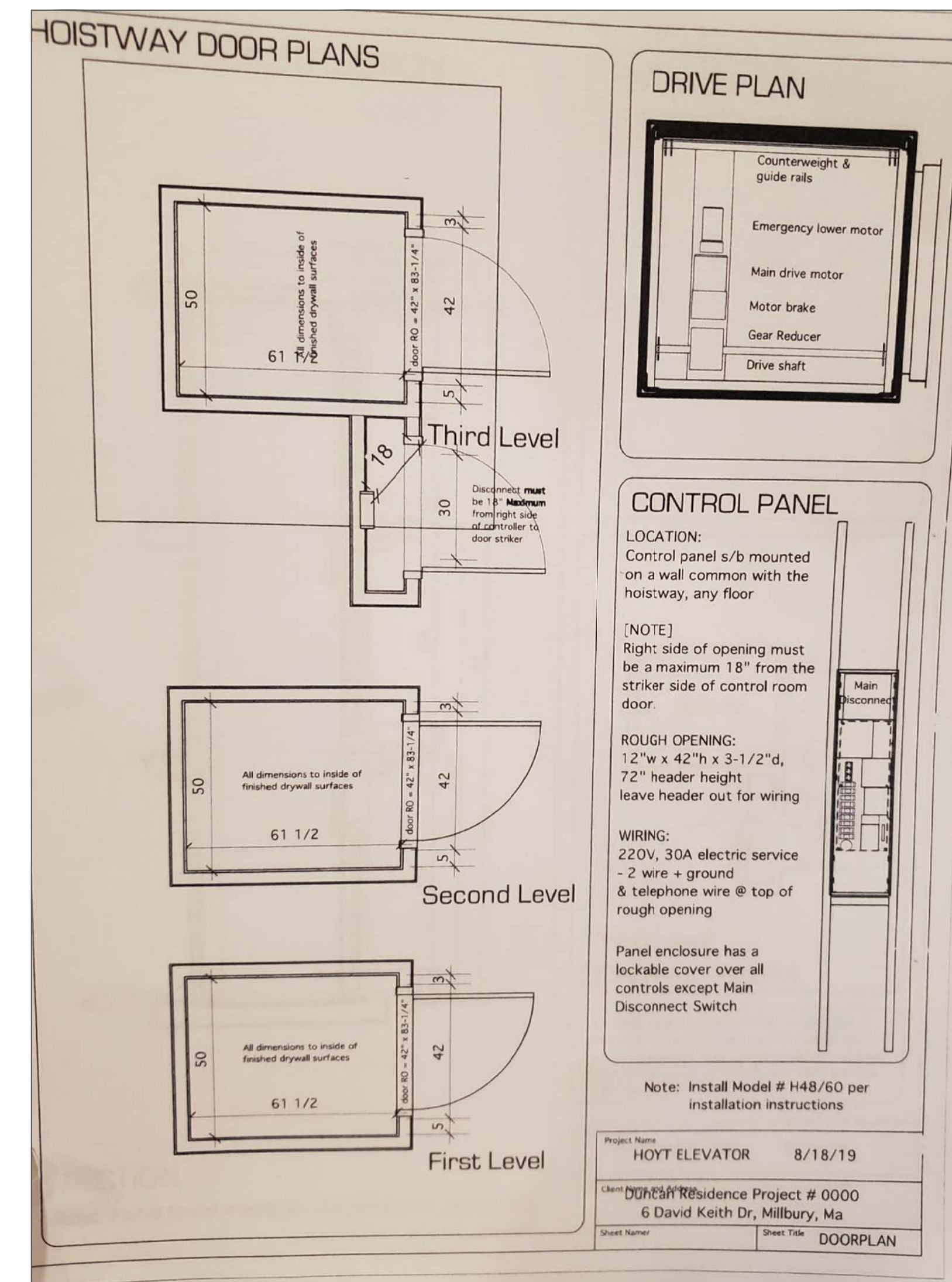
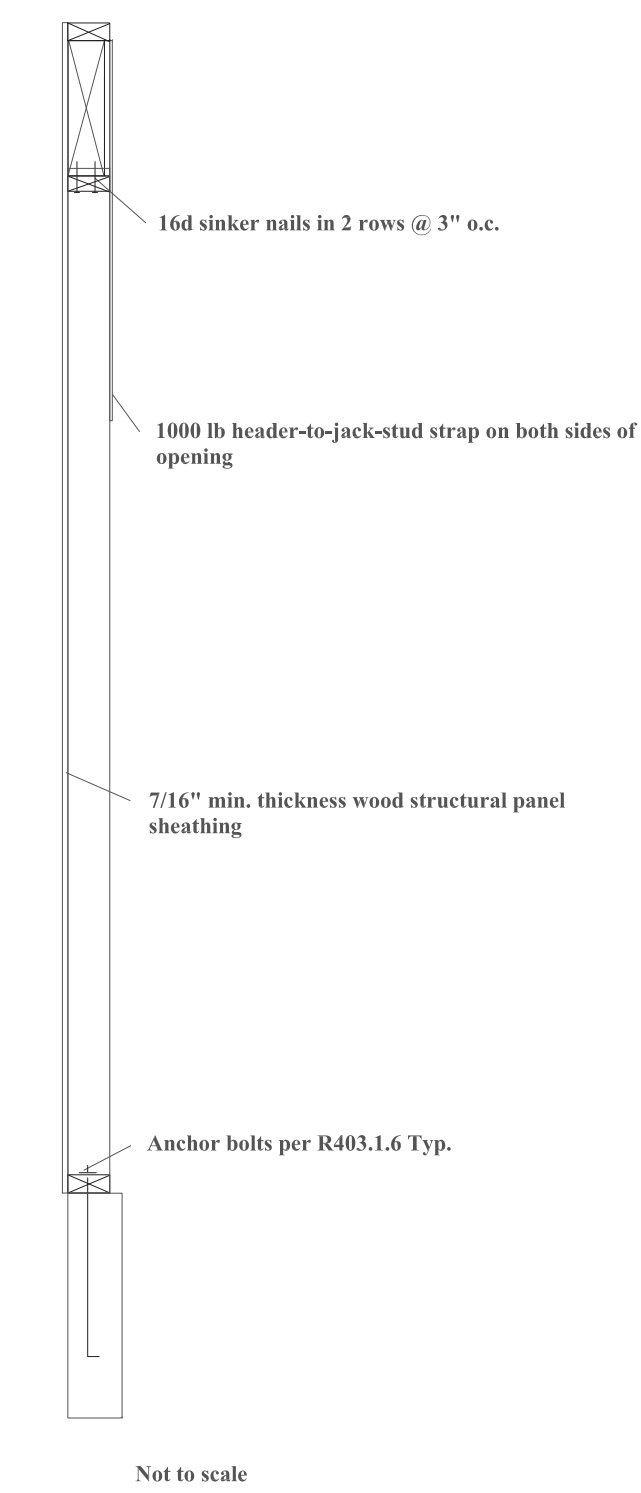
TYPICAL FOUNDATION DETAILS



Outside Elevation



Side Elevation



NOTES:

- FOUNDATION NOTES:**
- HOUSE FOUNDATION- 10"X7'-10" POUR ON 20"X10" CONTINUOUS KEYS FOOTING. FOOTING TO BE PLACED ON UNDISTURBED SOIL OR 95% COMPACTED GRAVEL FREE OF ORGANIC SOIL AND MATERIAL
 - GARAGE FOUNDATION- 8"X4'-0" MINIMUM POUR ON 16"X8" CONTINUOUS KEYS FOOTING. BOTTOM OF FOOTING TO BE 4'-0" MINIMUM BELOW GRADE. SOIL CONDITION SEE NOTE 1.
 - BASEMENT FLOOR-MINIMUM 4" CONCRETE (3,500 PSI)
 - GARAGE FLOOR-MINIMUM 4" CONCRETE (3,500PSI) WITH WELDED WIRE FABRIC REINFORCEMENT. FLOOR TO PITCH 2" TWARD OVERHEAD GARAGE DOOR
 - ANCHOR BOLTS 12" FROM CORNERS AND 6'-0" ON CENTER
 - ONE #4 REBAR WITHIN 12" OF THE TOP OF THE WALL STORY AND ONE #4 BAR NEAR MID-HEIGHT OF THE WALL STORY (TABLE R404.1.2(1) 2009 INTERNATIONAL RESIDENTIAL BUILDING CODE)

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6 KEITH DAVID DR
ADDITION
MILLBURY, MA

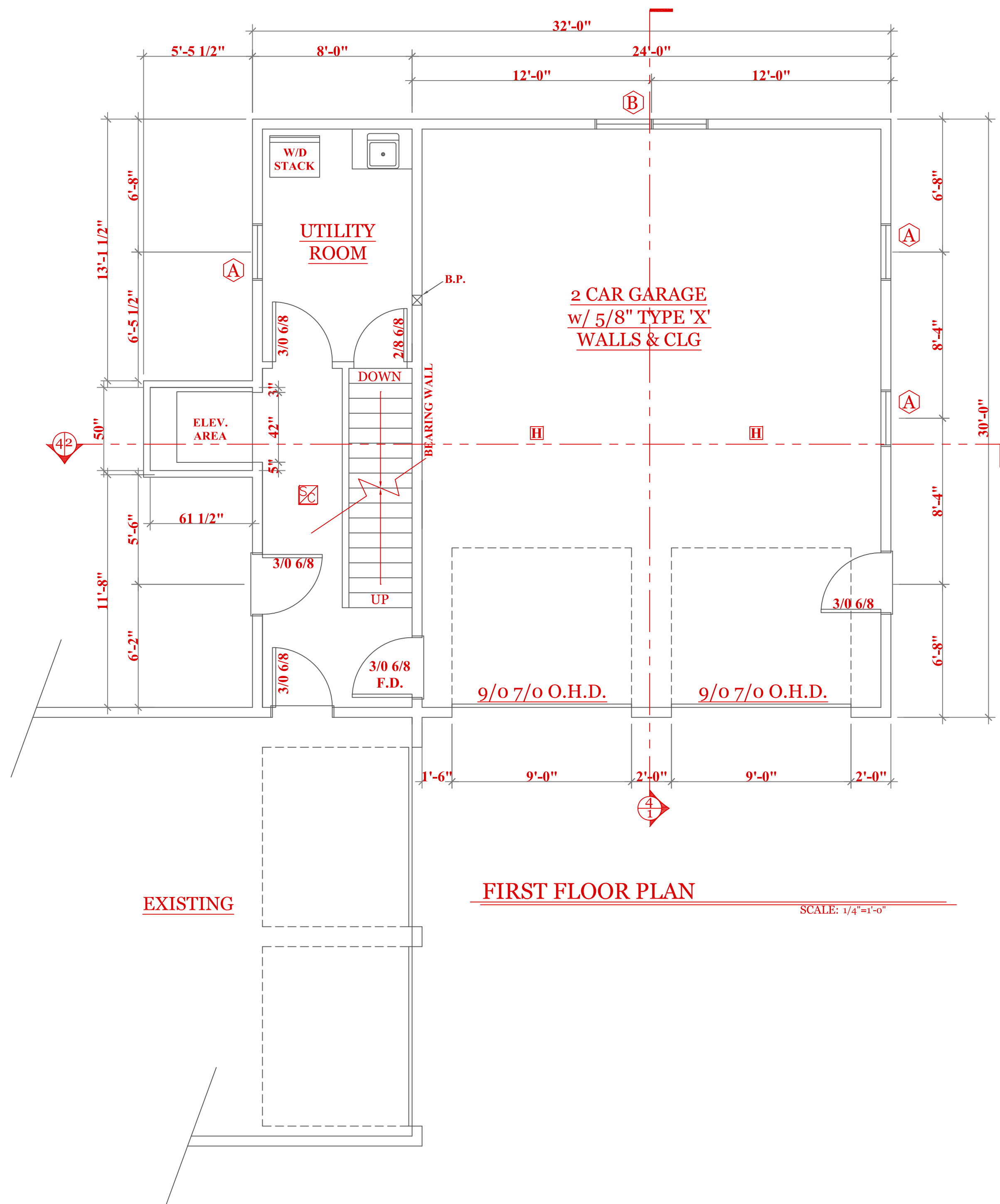
FOUNDATION
& ELEVATOR
PLAN

DA 6-20

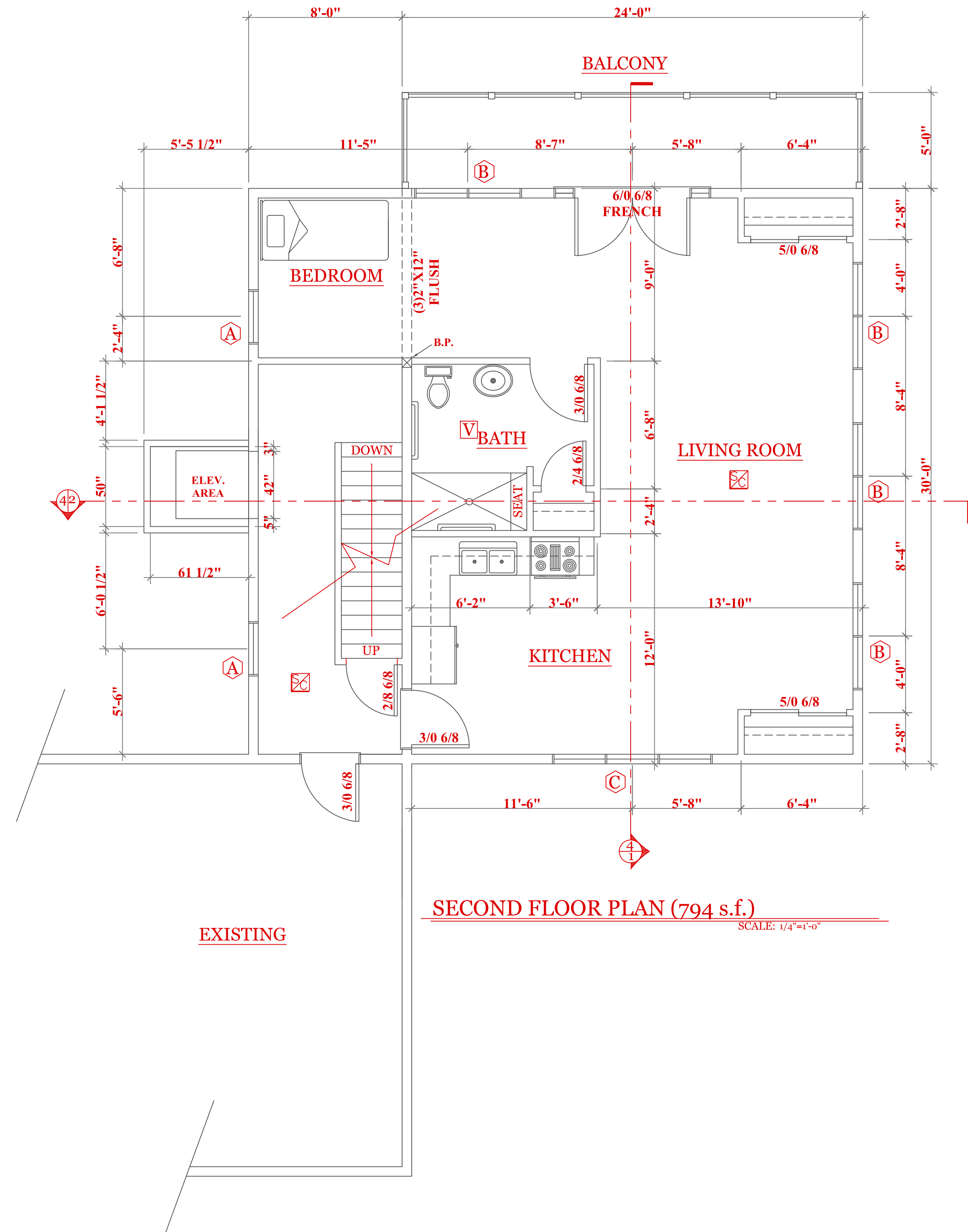
DATE: 10/5/2020
SCALE: 1/4" = 1'-0"
DRAWN BY: RWS
CHECKED BY: RCS

Sheet 2 OF 6

2



FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"



SECOND FLOOR PLAN (794 s.f.)
SCALE: 1/4" = 1'-0"

WINDOW SCHEDULE:			MFG: ANDERSEN
INDEX	QUA	CATALOG	ROUGH OPENING
A	5	244DH2846	2'-8 1/8" X 4'-6 1/8"
B	5	244DH2846(2)	5'-4 9/16" X 4'-6 1/8"
C	1	244DH2446(3)	8'-0 9/16" X 4'-6 1/8"

NOTE: CONSULT TABLE 603.7(1) JACKS AND HEADERS

NOTES:

- GENERAL NOTES:
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 2. The General contractor shall fully comply with the 9TH Edition of the Massachusetts State Building Code, 2015 IRC, and all additional local requirements.
 3. Written dimensions shall have precedence over scaled dimensions. The general contractor shall verify and is responsible for all dimensions (including rough openings) and conditions on the job and must notify this office of any variations from these drawings. Any defects in the construction documents shall be brought to the attention of this office before proceeding with work. Reasonable time not allowed this office to correct defects shall place the burden of cost and liability from such defects upon the contractor.

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6 KEITH DAVID DR
 ADDITION
 MILLBURY, MA

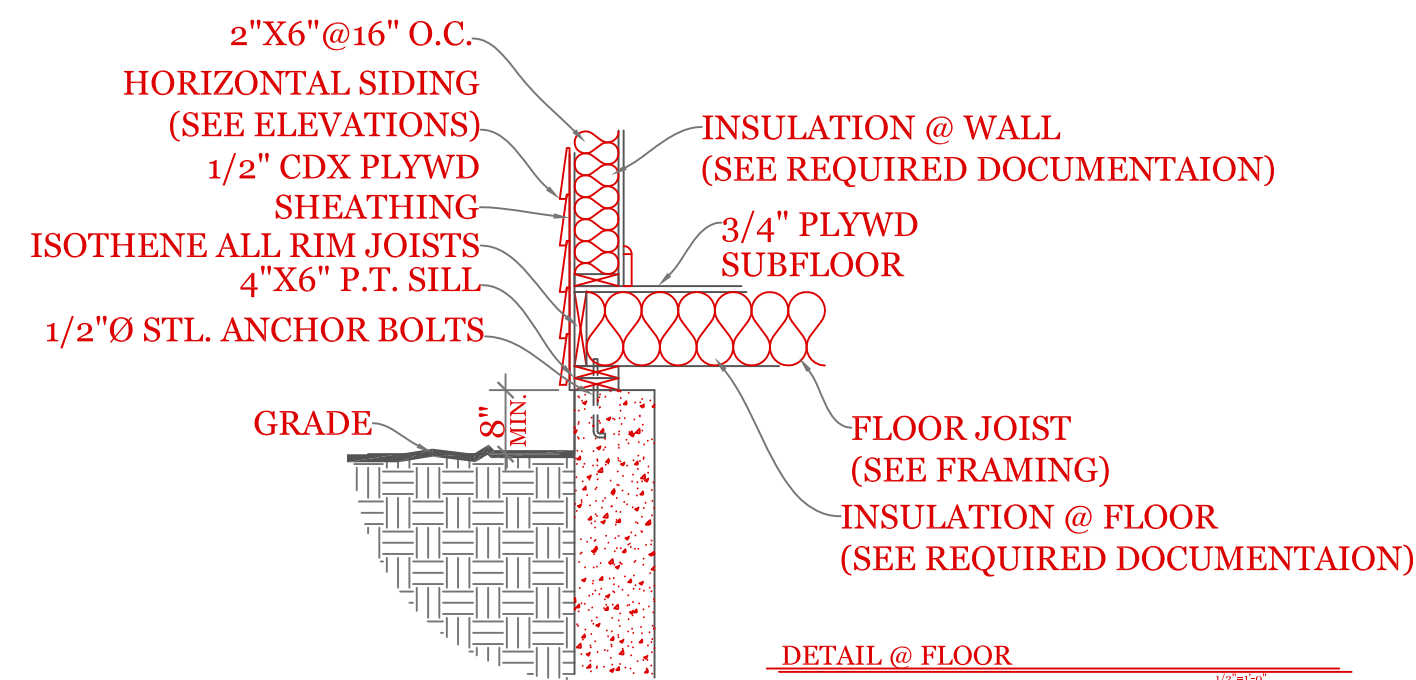
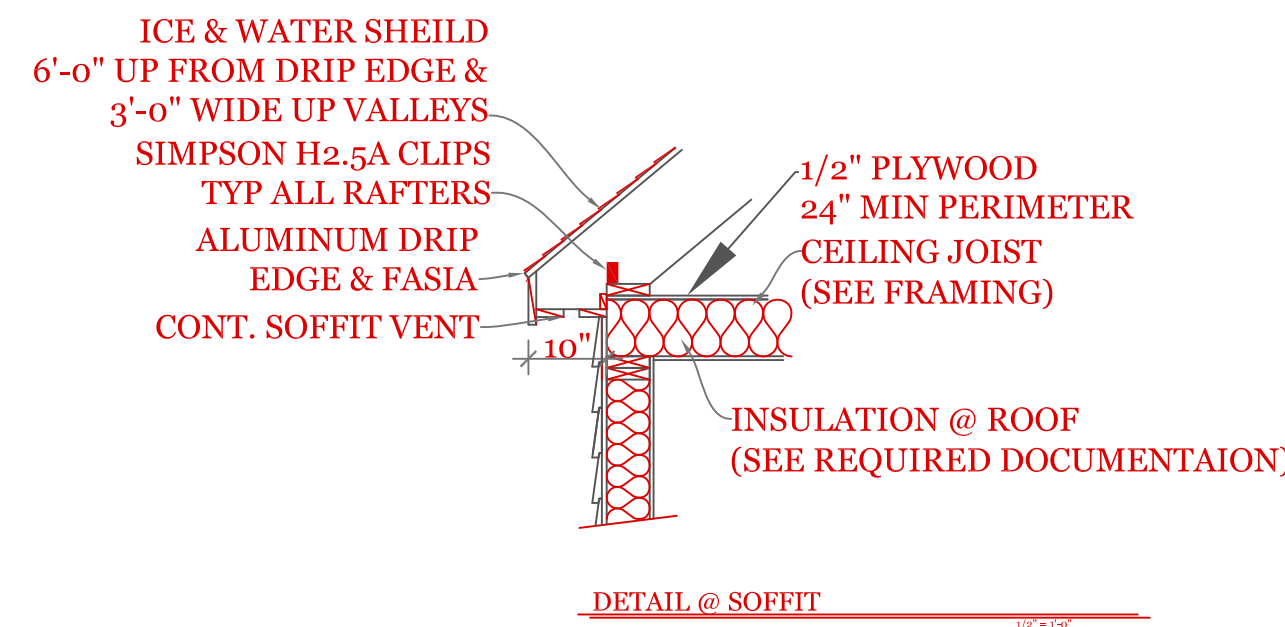
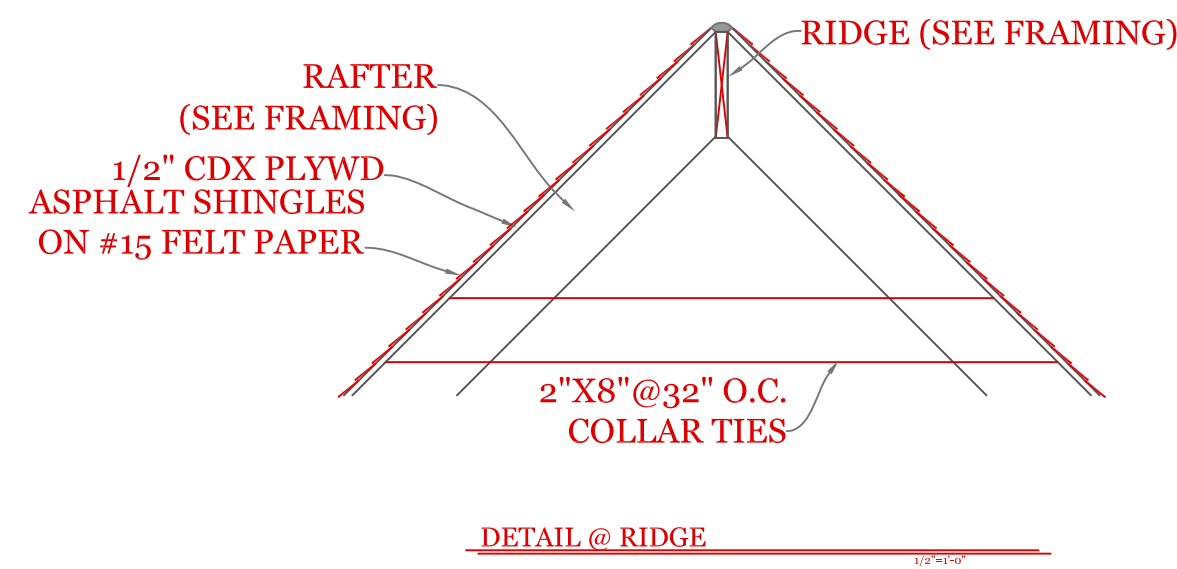
NEW
 FLOOR PLANS

DA 6-20
 DATE: 10/5/2020
 SCALE: 1/4" = 1'-0"
 DRAWN BY: RWS
 CHECKED BY: RCS

Sheet 3 OF 6

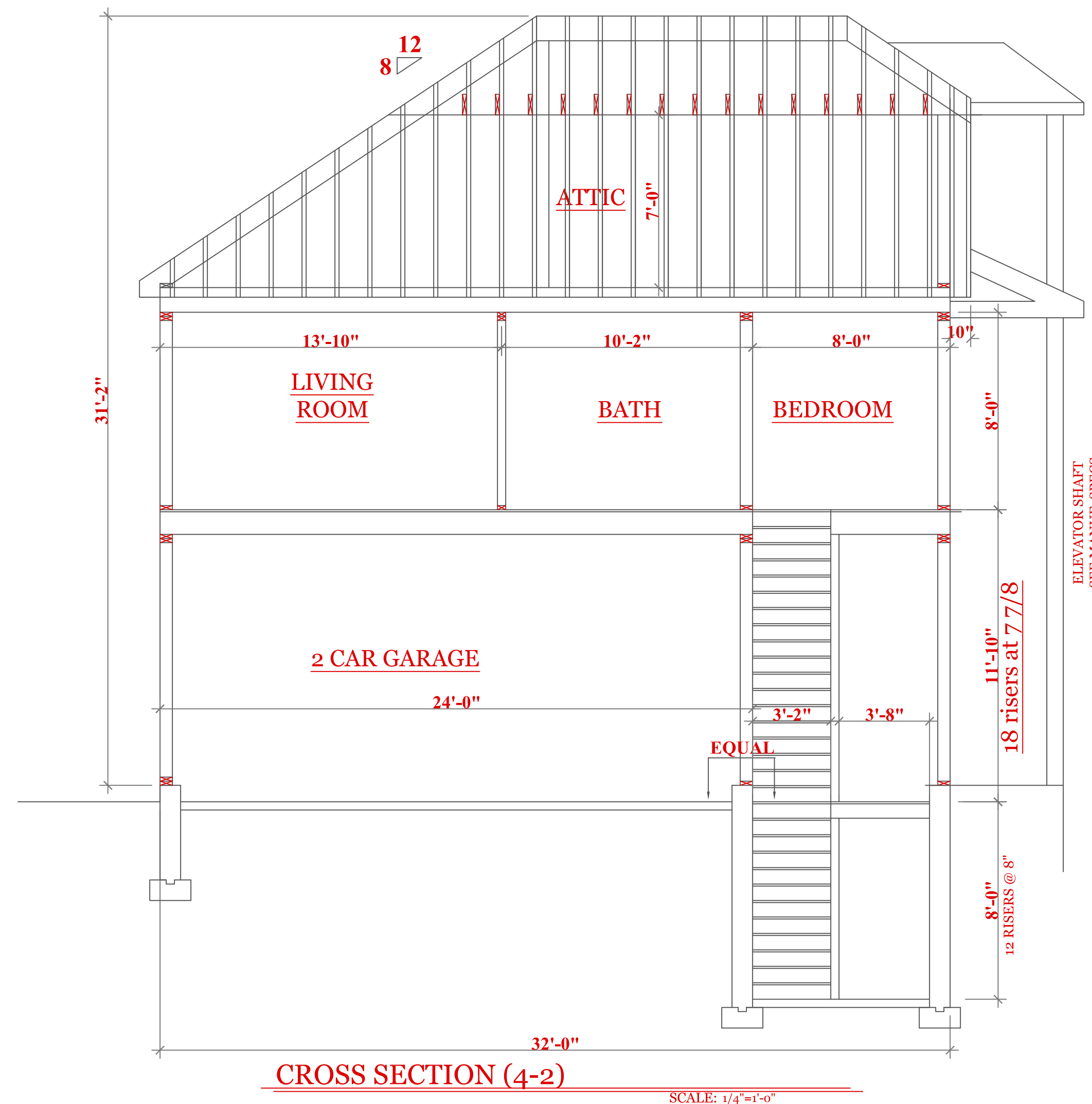
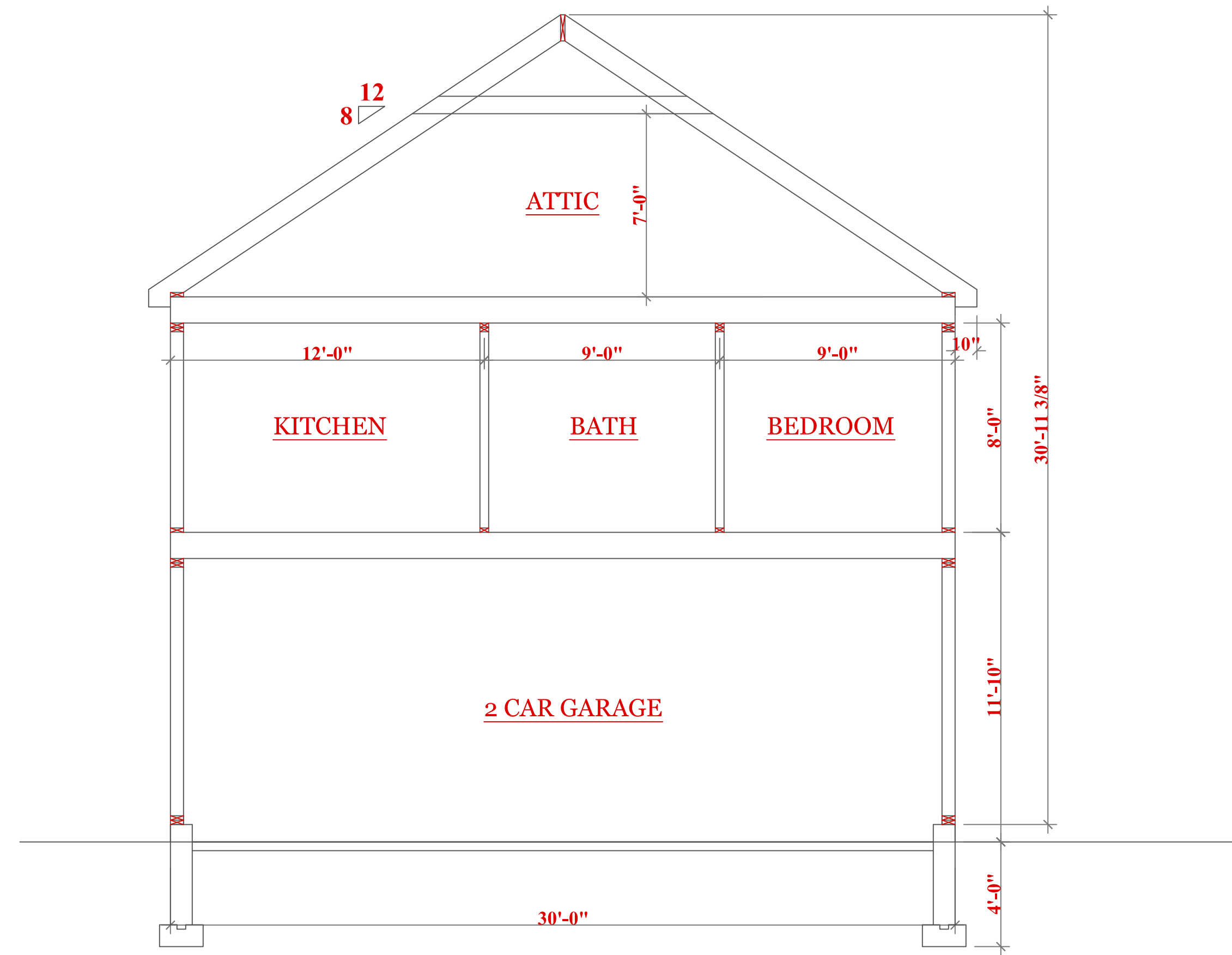
3

TYPICAL BUILDING SECTION



CONSTRUCTION SCHEDULE:		(UNLESS NOTED OTHERWISE ON PLAN)
1	RIDGE BOARD:	N/A
2	ROOF MATERIAL:	ASPHALT SHINGLES ON 15# ROOF FELT
3	ROOF SHEATHING	1/2" SHEATHING W/ SEAM CLIPS
4	ROOF RAFTER:	ROOF TRUSSES @ 24" O.C.
5	COLLAR TIES:	NA.
6	DRIP EDGE	ALUMINUM DRIP EDGE
7	SOFFIT:	CONT. SOFFIT VENT
8	CEILING JOIST	TRUSS BOTTOM CHORD
9	INSULATION@CEIL:	R-38 FILL CAVITY FULL DEPTH ISOETHENE
10	EXT WALL:	2"X6" @ 16" O.C.
11	EXT. SHEATHING	1/2" ZIP SHEATHING
12	EXT. FINISH	SEE ELEVATIONS
13	INSULATION@WALL	R-21
14	INTERIOR WALL	2"X4"@16"O.C.
15	SUB FLOOR:	3/4" ADVANTEK GLUED & NAILED
16	JOIST:	SEE FRAMING PLAN
17	SILL:	4"X6" DBL P.T. SILL
18	INSULATION @ FLOOR	R-30
19	ANCHOR:	1/2"Ø STL ANCHOR BOLTS
20	BEAM:	SEE FRAMING PLAN
21	COLUMN:	3 1/2" L.C.
22	FND. WALL:	10"X4'-0" CONC. WALL
23	SLAB:	SEE FOUNDATION NOTES
24	FOOTING:	20"X10" CONT. KEYED FTNG
25	CONC. PAD:	30"X30"X15" CONC. PAD

NOTES: -ISOETHENE ALL RIM JOISTS & SUNROOM CEILING
-ICE & WATER SHIELD 6'-0" UP FROM DRIP EDGE & 3'-0" WIDE UP VALLEYS
-SIMPSON H2.5A CLIPS TYP ALL TRUSSES



NOTES:

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6 KEITH DAVID DR
ADDITION
MILLBURY, MA

BUILDING
SECTIONS &
DETAILS

DA 6-20

DATE: 10/5/19

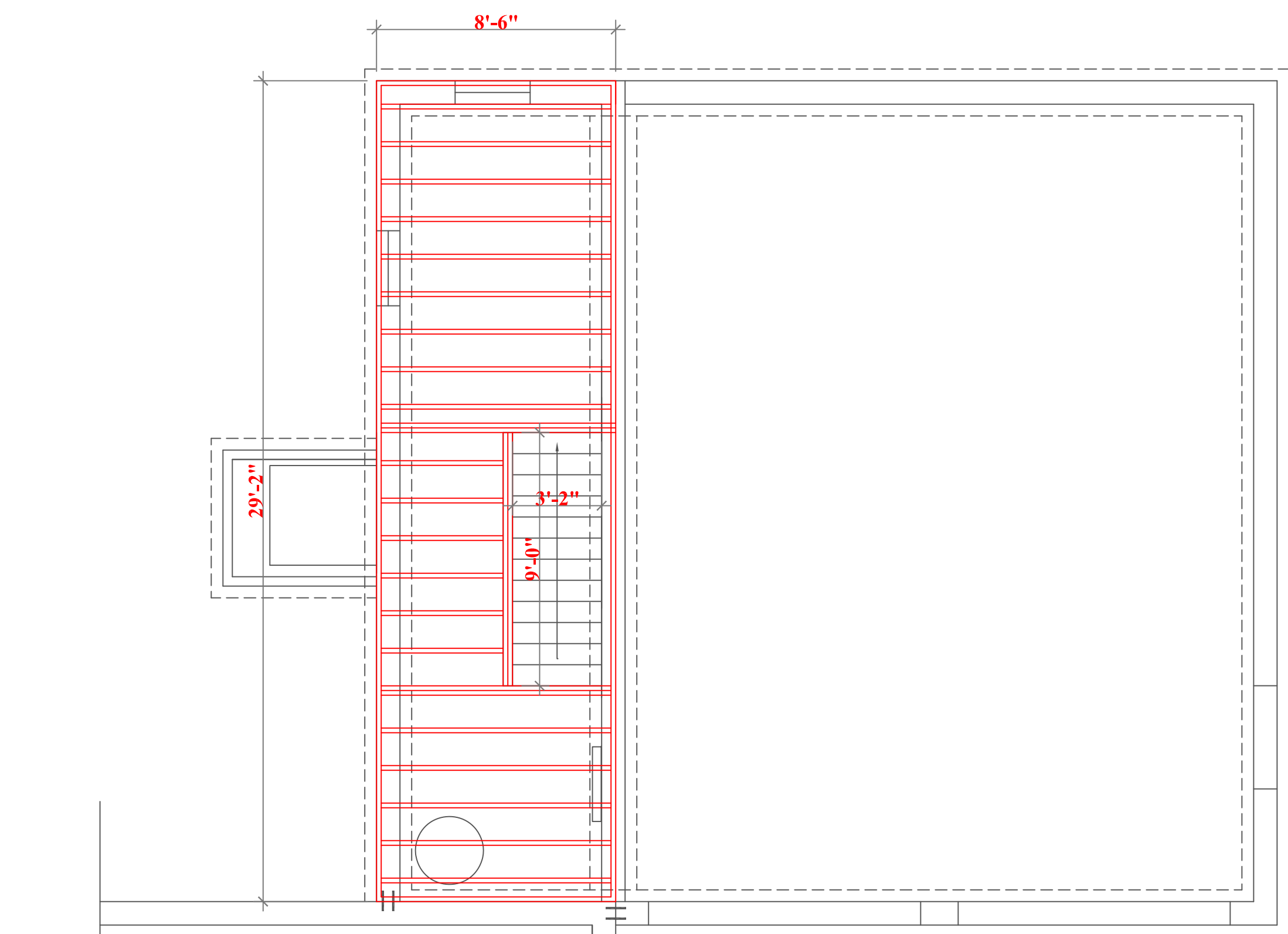
SCALE: AS NOTED

DRAWN BY: RWS

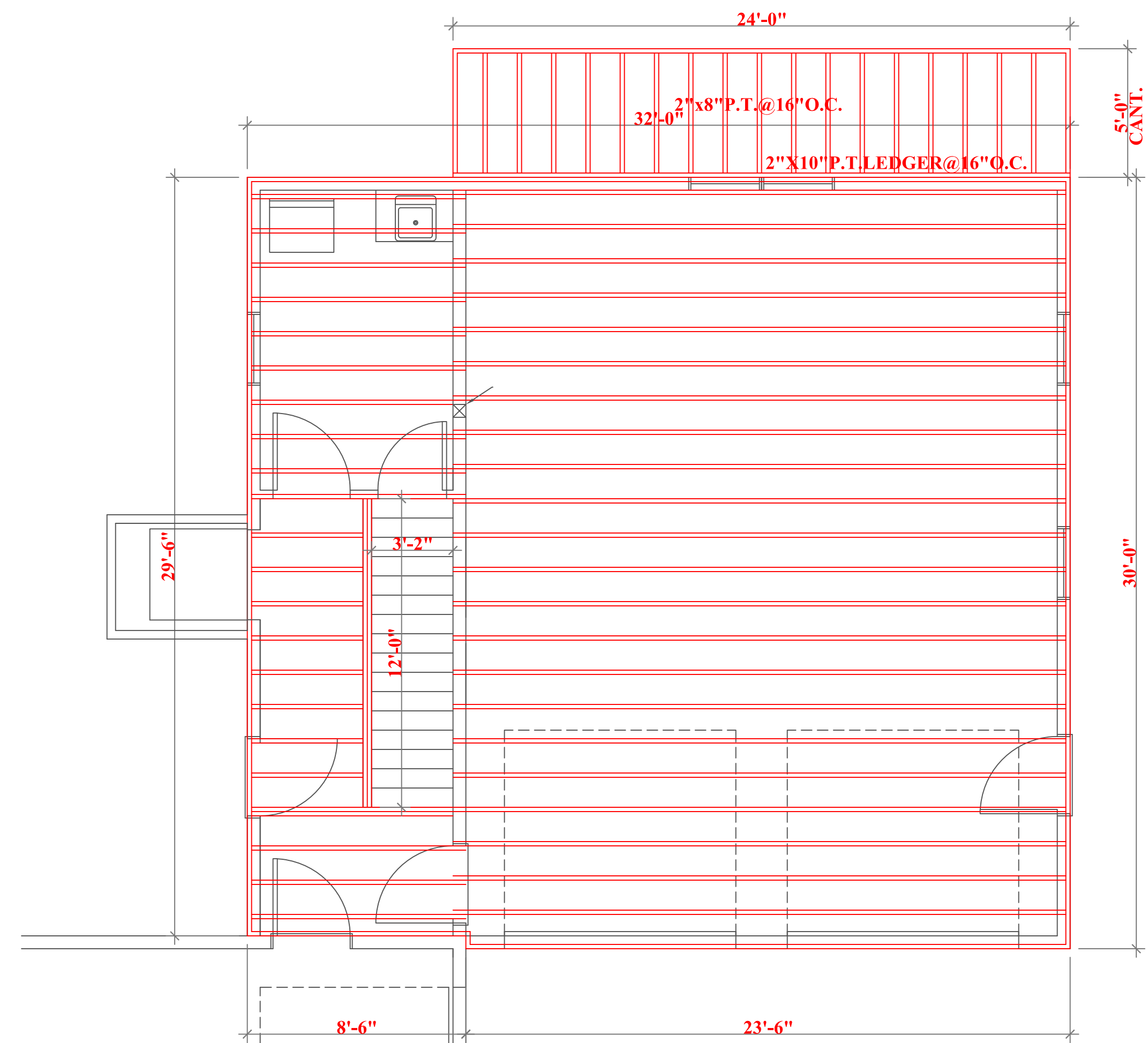
CHECKED BY: RCS

Sheet 4 OF 6

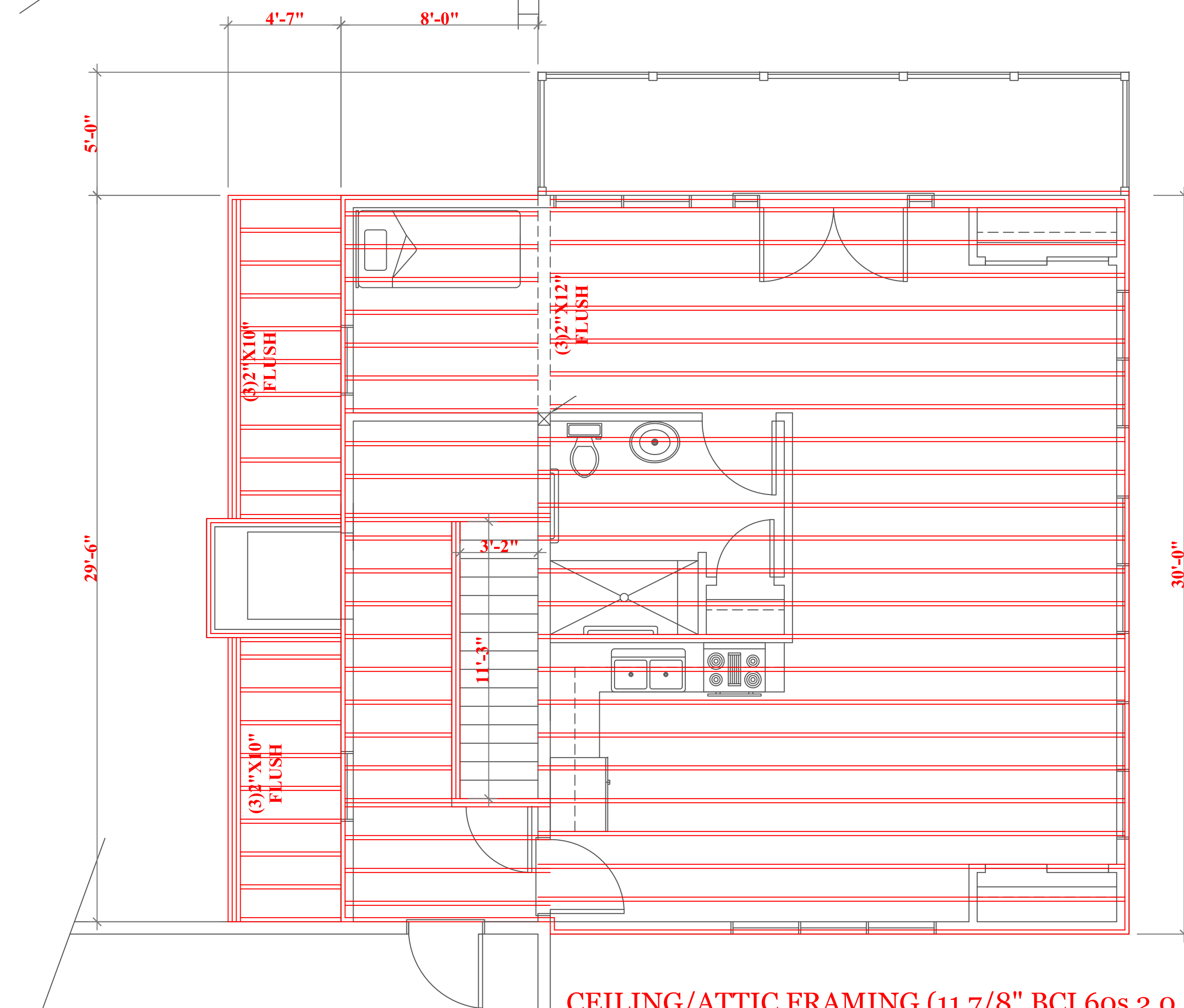
4



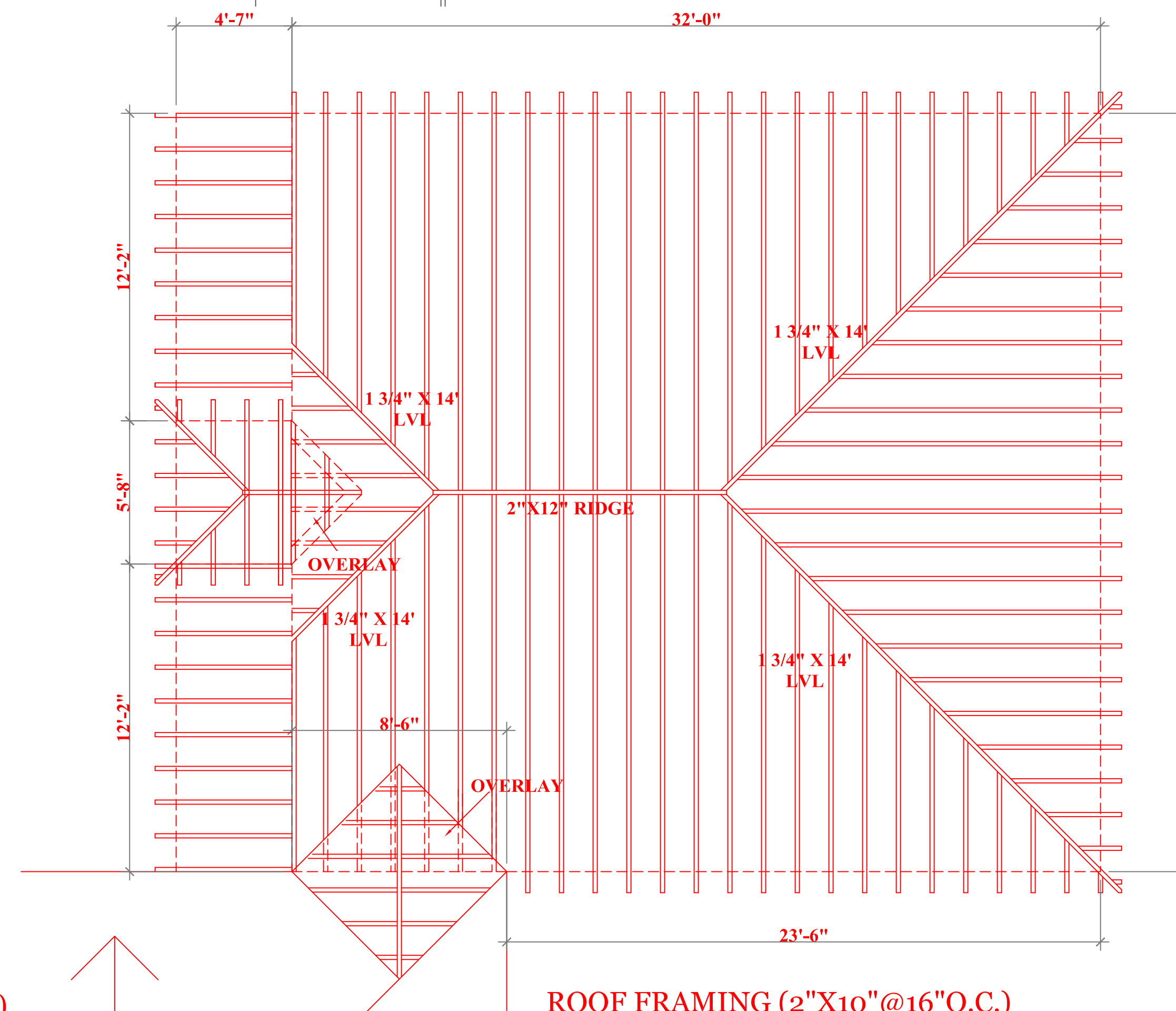
FIRST FLOOR FRAMING (2"X8"@16"O.C.)
SCALE: 1/4"=1'-0"



SECOND FLOOR FRAMING (11 7/8" BCI 90s 2.0 @ 16" O.C.)
SCALE: 1/4"=1'-0"



CEILING/ATTIC FRAMING (11 7/8" BCI 60s 2.0 @16"O.C.)
SCALE: 1/4"=1'-0"



ROOF FRAMING (2"X10"@16"O.C.)
SCALE: 1/4"=1'-0"

NOTES:

- FRAMING NOTES:
1. Bridging between joists at mid-span.
 2. Box out all plumbing fixtures with double joists. Consult with plumber on chase prior to framing.
 3. 3/4" T&G plywood sub floor to be glued and nailed.
 4. Dbl joists under all partition walls.
 5. 5/8" firecode Gypsum board on house walls and ceiling in garage area.
 6. expandable foam insulation required at all window and door frames and rough openings.

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6 KEITH DAVID DR.
ADDITION
MILLBURY, MA

FRAMING
PLANS

DA 6-20

DATE: 10/6/2020

SCALE: AS NOTED

DRAWN BY: RWS

CHECKED BY: RCS

Sheet 5 OF 6

5

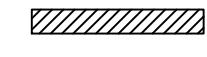
**BRACED WALL PANEL CONSTRUCTION METHODS
(IRC TABLE R602.10.4)**

**LENGTH REQUIREMENTS FOR BRACED
WALL PANELS AT WALL OPENINGS (IRC TABLE R602.10.5)**

**LENGTH REQUIREMENTS FOR BRACED
WALL PANELS (IRC TABLE R602.10.4)**

NOTES:

SHEAR WALL DESIGN LEGEND



- LIB NOMINAL ONE BY 4 CONTINUOUS BD. LET IN TO TOP & BOTTOM PLATES & INTERVENING STUD NO MORE THAN 60 & LESS THAN 45 DEGREES FROM HORIZ.
- WSP WOOD STRUCTURAL PANEL 15/32 CDX PLY WD. SHEATHING ON 16" STUD SPACING PANELS INSTALLED VERTICALLY
W/ 6d COMMON NAIL 6" O.C. @ EDGES & 12" O.C. INTERMEDIATE SUPPORTS
- ABW WOOD STRUCTURAL PANEL 15/32 CDX PLY WD. SHEATHING ON 16" STUD SPACING PANELS INSTALLED VERTICALLY
W/ 6d COMMON NAIL 2" O.C. @ EDGES & 6" O.C. INTERMEDIATE SUPPORTS
- GB 1/2 GYPSUM BOARD ON MAX 24" STUD SPACING PANELS INSTALLED
W/ 5d ANNULAR RINGED COOLER NAIL 1 1/8" LONG 15/16" HEAD GYP NAIL 4" O.C. @ EDGES & 7" O.C. INTERMEDIATE SUPPORTS

NOTE: SEE FLOOR PLANS FOR MORE INFO.

FOR BRACING NEXT TO OPENINGS REFER TO CHART BELOW

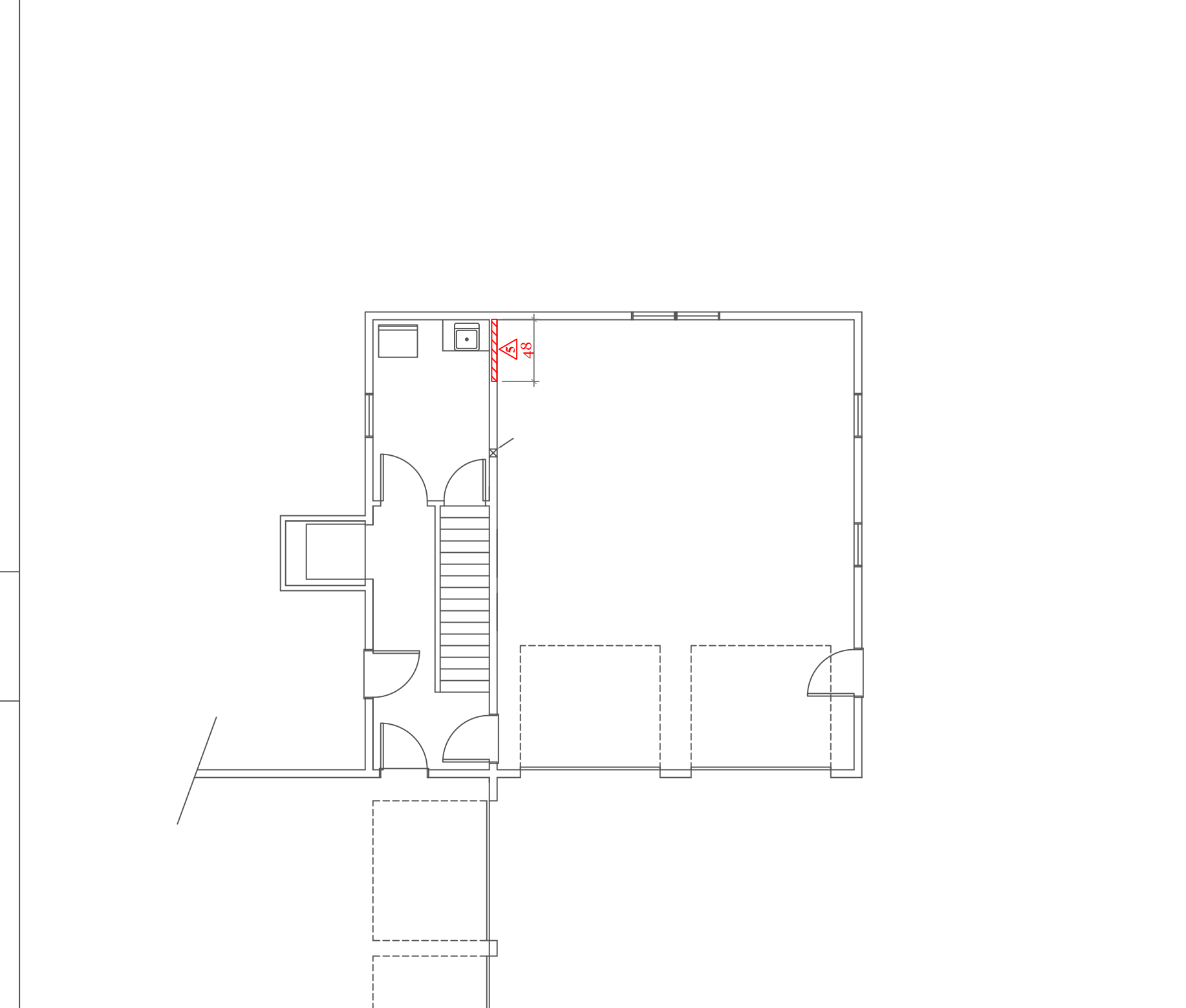
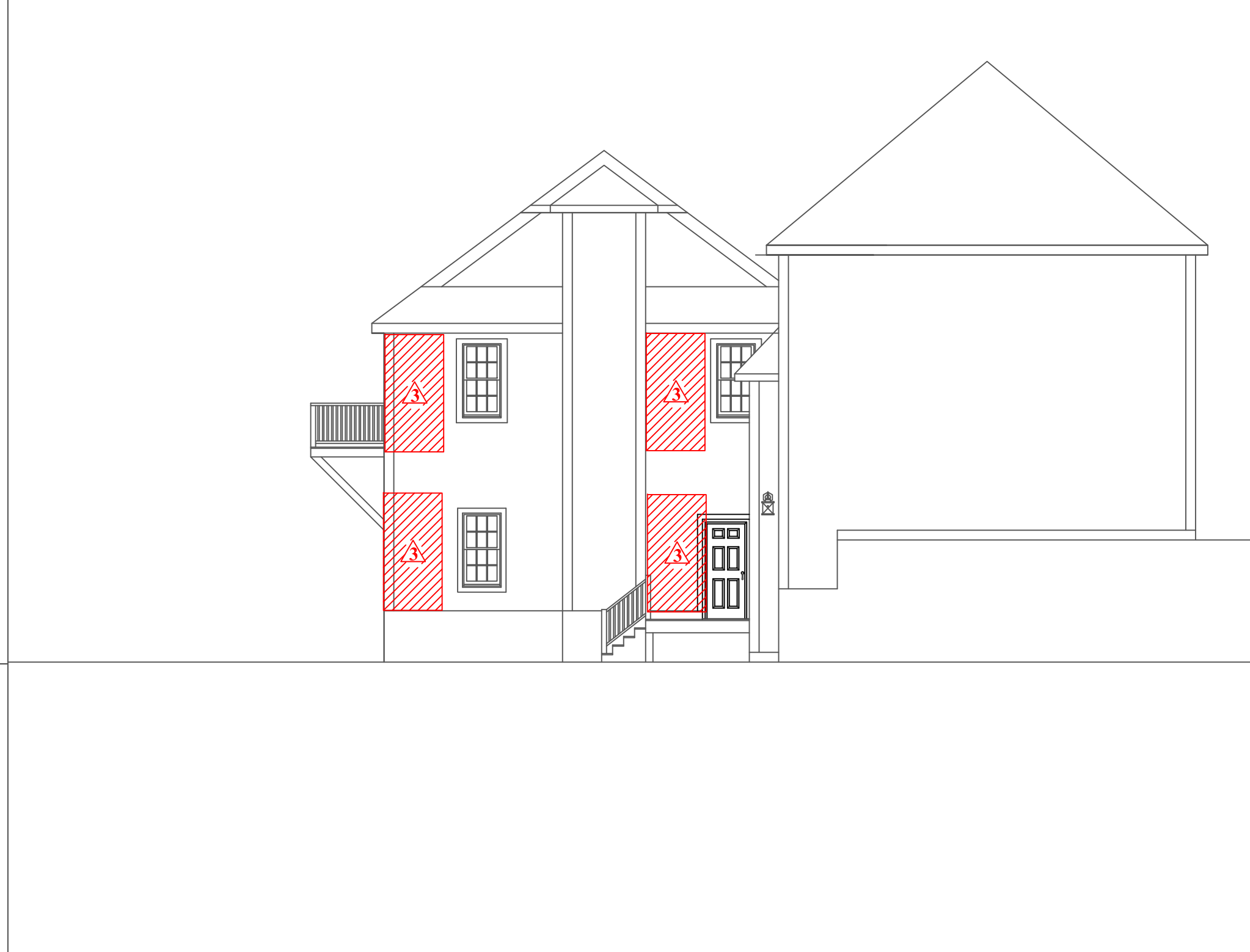
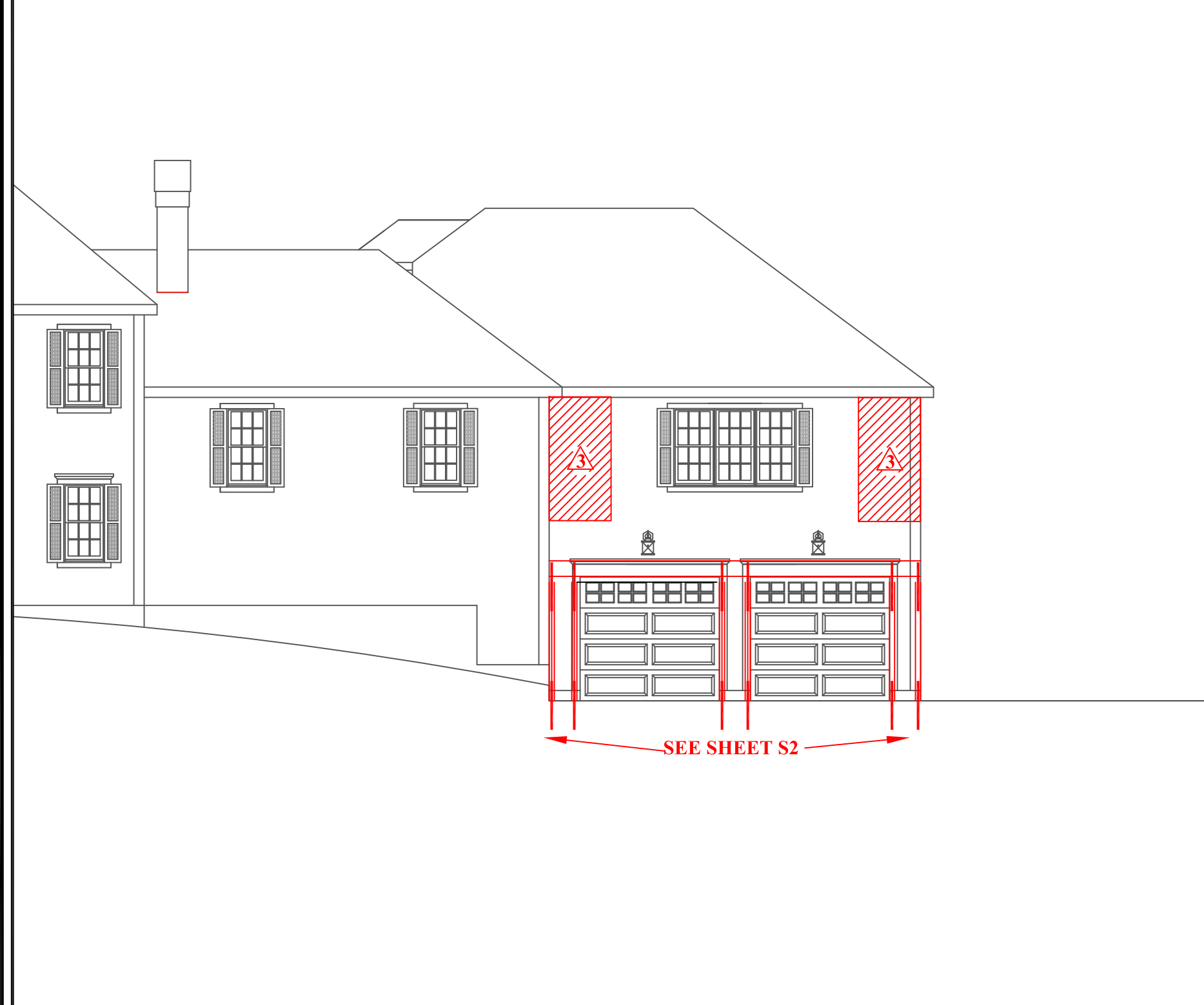
AMOUNT OF BRACING BY WALL LENGTH - MINIMUM 24"

STUD HEIGHT	MAXIMUM OPENING HEIGHT NEXT TO BRACED WALL PANEL	MINIMUM LENGTH OF BRACED WALL PANEL		MAXIMUM WALL LENGTH	MINIMUM AMOUNT OF BRACED WALL
8'-0"	100% = 96"	48"	ONE STORY	24'-0"	5'-6"
	85% = 81.6"	32"		20'-0"	4'-0"
	65% = 62.4"	24"			
9'-0"	100% = 108"	54"	TWO STORY	20'-0"	4'-0"
	85% = 91.6"	42"			
	65% = 70.2"	27"			

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

LEFT SIDE ELEVATION SCALE: 1/8" = 1'-0"

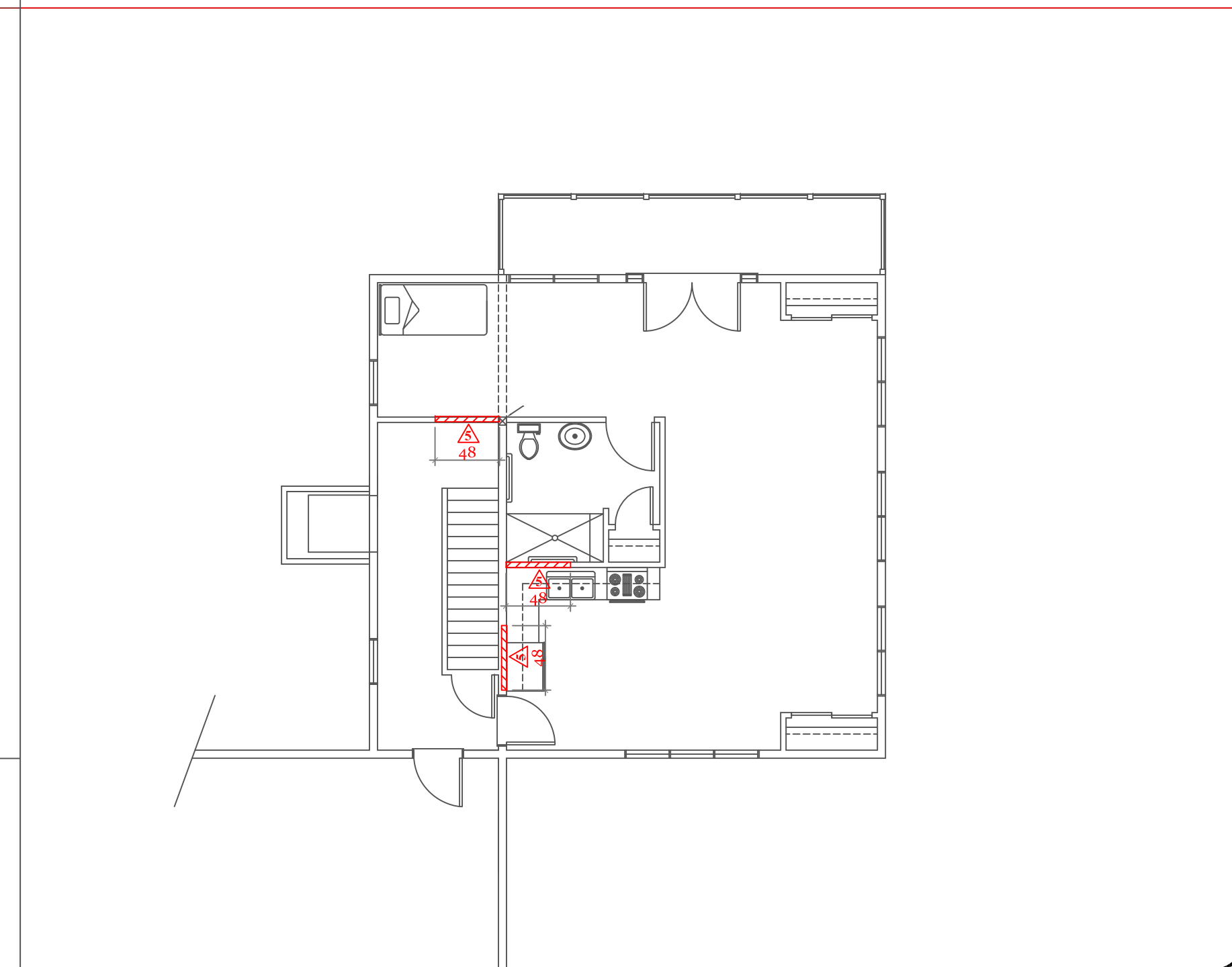
FIRST FLOOR SHEAR WALLS SCALE: 1/8" = 1'-0"



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

RIGHT SIDE ELEVATION SCALE: 1/8" = 1'-0"

SECOND FLOOR SHEAR WALLS SCALE: 1/8" = 1'-0"



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6 KEITH DAVID DR
MILLBURY, MA

BRACING
METHODS

DA 6-20

DATE: 10/6/2020
SCALE: AS NOTED
DRAWN BY: RWS
CHECKED BY: RCS

Sheet 6 OF 6

S1



Single 11-7/8" BCI® 90s-2.0

PASSED

J01 (Joist)

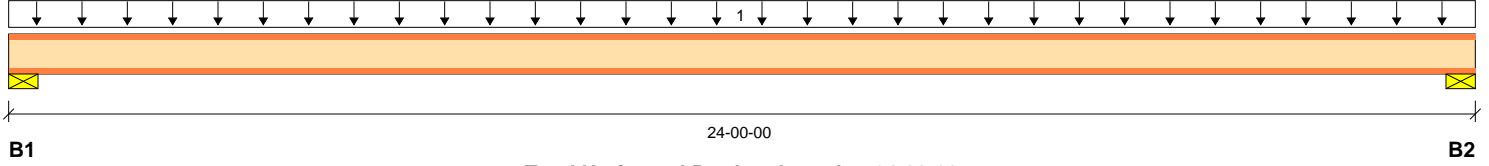
BC CALC® Member Report

Dry | 1 span | No cant. | 16 OCS | Repetitive | Glued & nailed

October 9, 2020 11:35:54

Build 7787

 Job name: ADDITION
 Address: 6 KEITH DAVID DRIVE
 City, State, Zip: MILLBURY, MA, 01527
 Customer: DUNCAN
 Code reports: ESR-1336

 File name:
 Description:
 Specifier:
 Designer: RICK STEPIEN
 Company: R.C.SEARLES ASSOCIATES, INC.


Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Roof Live
B1, 5-1/2"	480 / 0	160 / 0			
B2, 5-1/2"	480 / 0	160 / 0			

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	100%	90%	115%	160%	Roof Live 125%	OCS
1	11 7/8" BCI 90s 2.0 @16"O.C.	Unf. Area (lb/ft²)	L	00-00-00	24-00-00	Top	30	10				16

Controls Summary

	Value	% Allowable	Duration	Case	Location
Pos. Moment	3591 ft-lbs	37.6%	100%	1	12-00-00
End Reaction	640 lbs	35.6%	100%	1	00-00-00
End Shear	616 lbs	28.6%	100%	1	00-05-08
Total Load Deflection	L/558 (0.499")	43.0%	n/a	1	12-00-00
Live Load Deflection	L/744 (0.374")	64.5%	n/a	2	12-00-00
Max Defl.	0.499"	49.9%	n/a	1	12-00-00
Span / Depth	23.5				

Bearing Supports

	Dim. (LxW)	Value	% Allow Support	% Allow Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	640 lbs	n/a	35.6%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	640 lbs	n/a	35.6%	Unspecified

BC FloorValue® Summary

 BC FloorValue®: Subfloor: 3/4" OSB, Glue + Nail
 Minimum Enhanced Premium Subfloor Rating: Premium
 Controlling Location: 12-00-00

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets User specified (L/480) Live load deflection criteria.
 Design meets arbitrary (1") Maximum Total load deflection criteria.
 BC CALC® analysis is based on IBC 2015.
 Composite EI value based on 3/4" thick OSB sheathing glued and nailed to member.
 Design based on Dry Service Condition.
 Calculations assume member is fully braced.

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

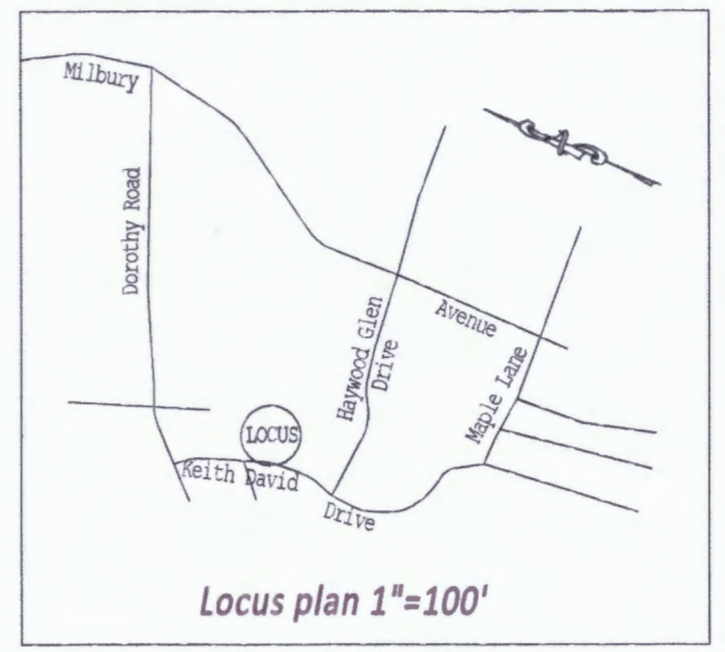
Based on Plan Book 699 Plan 9

N/F
Steven M. Wright
Book 18297 Page 323
Lot 33 - Parcel 22/57
Plan Book 699 Plan 9

Zoning District
S-IV / Suburban IV
Frontage - 150'
Front Yard - 25'
Side Yard - 10'
Rear Yard - 10'
Building Height - 30'

Open Space Community

N/F
William P. Demaria
Book 28418 Page 168
Lot D - Parcel 22/54
Plan Book 699 Plan 9



Locus plan 1"=100'



Bryan G. Parmenter 1/8/2021

Site Plan of Land

Showing Proposed New Addition
and Existing Conditions

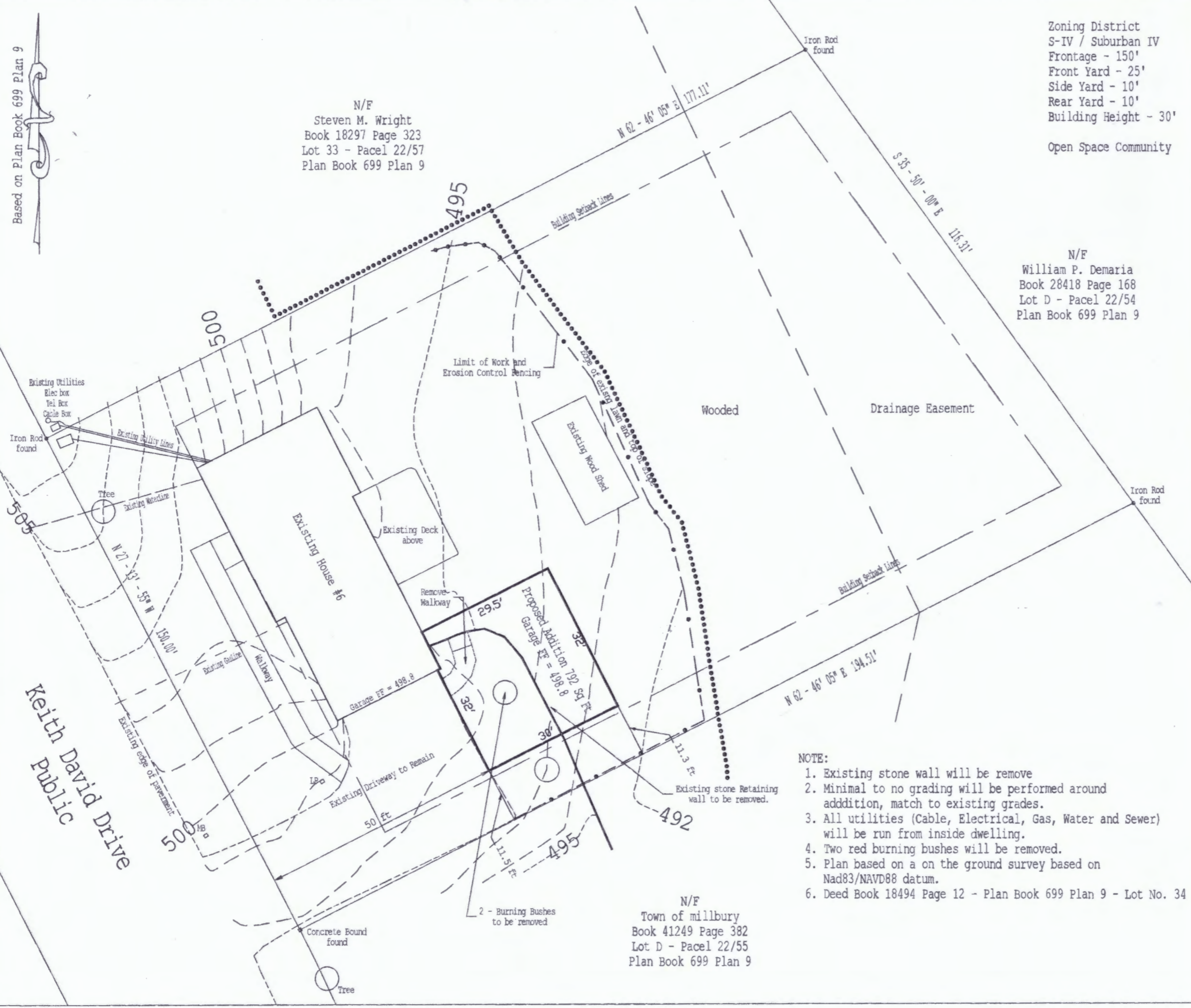
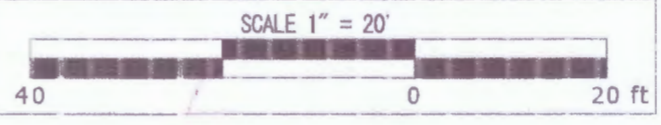
Earl E & Marguerite Duncan
6 Keith David Drive
Millbury, Ma.
01527

Hr Scale: 1" = 20' Vt Scale: n/a

Drawn By: MK Chkd By: BP

Revision History

Revision	1	DD/MM/YYYY	Initials
Revision			
Revision			
Revision			



- NOTE:
- Existing stone wall will be remove
 - Minimal to no grading will be performed around addition, match to existing grades.
 - All utilities (Cable, Electrical, Gas, Water and Sewer) will be run from inside dwelling.
 - Two red burning bushes will be removed.
 - Plan based on a on the ground survey based on Nad83/NAVD88 datum.
 - Deed Book 18494 Page 12 - Plan Book 699 Plan 9 - Lot No. 34

N/F
Town of millbury
Book 41249 Page 382
Lot D - Parcel 22/55
Plan Book 699 Plan 9

6 Keith David Drive, Millbury, MA 01527 (LOT 34)



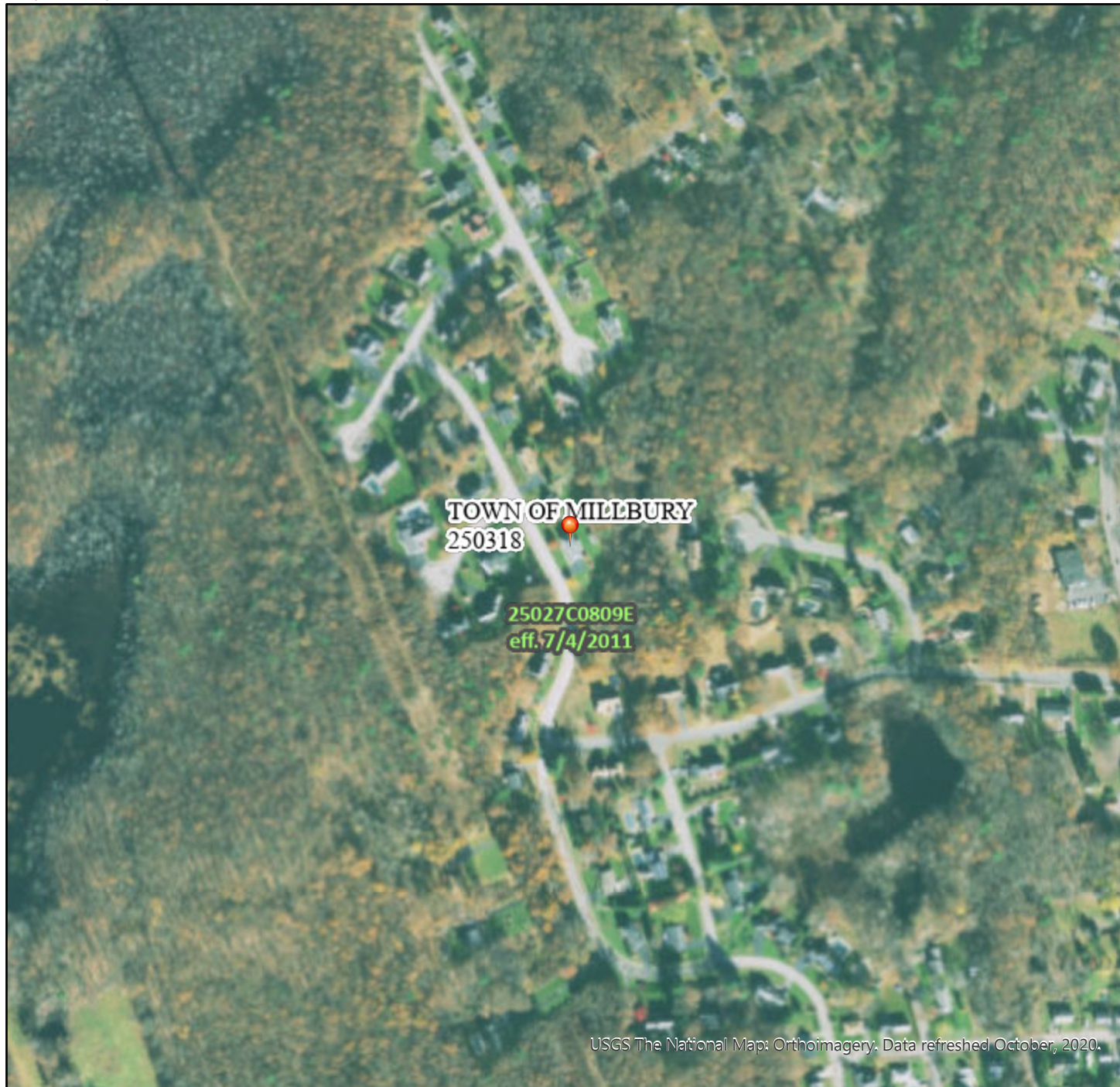
6 Keith David Drive, Millbury, MA 01527 (LOT 34) Page 2



National Flood Hazard Layer FIRMMette



71°46'2"W 42°12'51"N



USGS The National Map: Orthoimagery. Data refreshed October, 2020.



71°45'24"W 42°12'25"N

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard <i>Zone D</i>
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **10/23/2020 at 10:41 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources or small AEs. The Community Map Application should be consulted for possible updates or additional flood hazard information.

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or Floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that incorporates the FIS. Users should be aware that BFEs shown on the FIS Report include elevation data that are not intended for Flood Insurance rating purposes only and should not be used as the sole source of flood elevation information. Floodway data presented in the FIS Report should be utilized in conjunction with the FIS for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on the map apply only to landward of 500 North American Vertical Datum of 1988 (NAVD 88). Areas of the FIS that should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for the jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIS.

Elevations of the Floodways were computed at cross sections and interpolated between cross-sections. The Floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for the jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for the jurisdiction.

The projection used in the preparation of this map was Massachusetts State Plane Mercator Zone 18F (Zone 2011). The horizontal datum was NAD 83 (GDS 1983) spheroid. Differences in datum, spheroid, projection or UTM areas used in the production of FISs for adjacent jurisdictions may result in slight boundary differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIS.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be converted to datum and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov>.

NGS Information Services
NGA, NAD 83
National Geodetic Survey
SSAC 5, #602
1215 East-West Highway
Silver Spring, Maryland 20910-3082
(301) 713-3242

To obtain current elevation, description, and/or location information for bench marks shown on this map, please contact the information services branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

Base map information shown on the FIS was derived from digital orthorectified imagery. Base map files were provided in digital format by Massachusetts Geographic Information Systems (MassGIS). Ortho imagery was produced at a scale of 1:5,000. Aerial photography is dated April 2005.

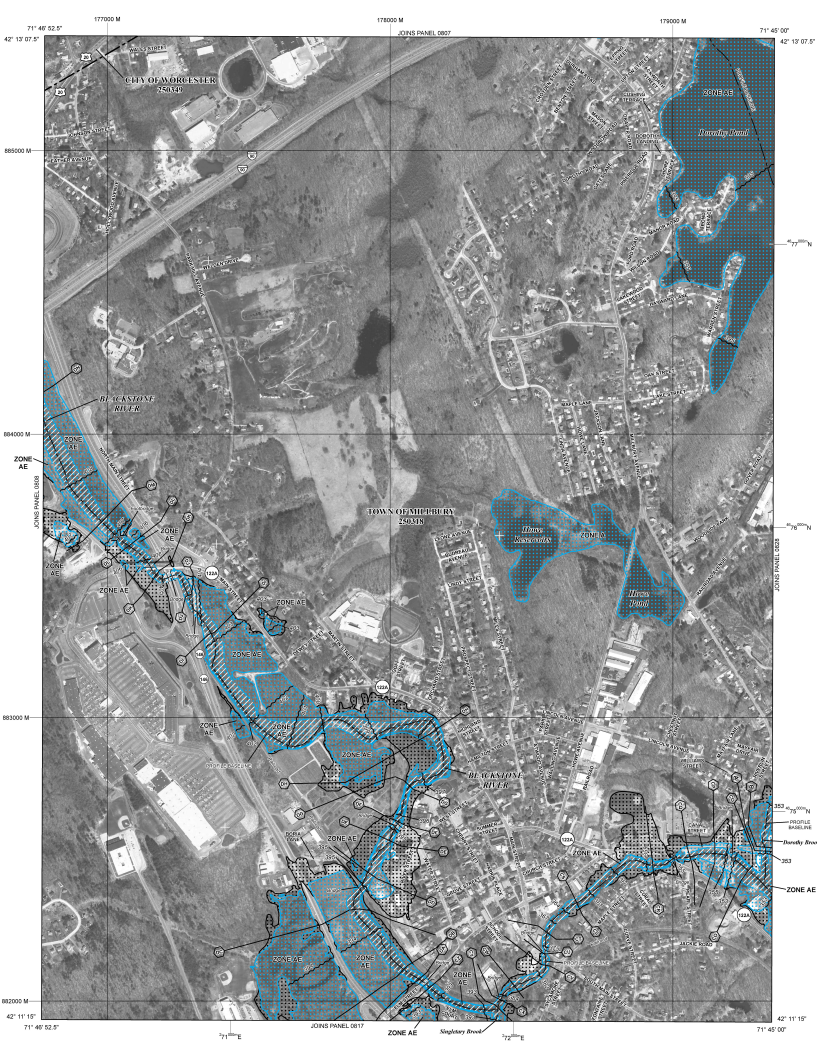
The profile boundaries depicted on this map represent the hydraulic modeling boundaries that result from the FIS report. As a result of improved topographic data the profile boundaries in some cases may deviate significantly from the channel centerline as shown on the FIS.

Corporate limits shown on this map are based on the best data available at the time of publication. Boundary changes due to annexation or de-annexation may have occurred after this map was published; map users should contact appropriate community officials to verify current corporate boundaries.

Please refer to the separately printed Map Index for an overview map of the county showing the extent of flood areas; currently may require additional and a Listing of Communities table containing National Flood Insurance Program data for each community as well as a listing of the parcels on which each community is located.

For information on available products associated with this FIS visit the Map Service Center (MSC) website at <http://www.fema.gov>. Available products include hard copy printouts of the FIS, FIS Report, Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have questions about this map, how to order products, or the National Flood Insurance Program, please contact the FEMA Map Information eXchange (MXI) at 1-877-FEMA-Map (1-877-364-6277), or visit the FEMA website at <http://www.fema.gov>.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
The 1% annual chance flood (ACF) is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Areas (SFHAs) are defined by the 1% annual chance flood. Areas of Special Flood Hazard are shown by the following symbols:

- ZONE A** - All Base Flood Elevations determined.
- ZONE AE** - Base Flood Elevations determined.
- ZONE AO** - Flood depths of 1 to 3 feet (lowest areas of ponding); Base Flood Elevations determined.
- ZONE AR** - Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control structure that was determined to be obsolete. Zone AR areas are protected from the 1% annual chance flood by a flood control structure that was determined to be obsolete.
- ZONE AN** - Areas in proximity to the 1% annual chance flood that are protected from the 1% annual chance flood by a flood control structure that was determined to be obsolete.
- ZONE AV** - Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
- ZONE VE** - Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE
The Floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of obstructions.

OTHER FLOOD AREAS

- ZONE X** - Areas of 0.2% Annual Chance Flood; slope of the 1% annual chance flood with assumed depth of 1 foot; slope of the 1% annual chance flood with assumed depth of 1 foot; slope of the 1% annual chance flood with assumed depth of 1 foot.
- OTHER AREAS**
- ZONE X** - Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE C** - Areas in which flood hazards are considered to be minimal.
- COASTAL MARSH RESOURCES SYSTEM (CMRS) AREAS**
- OTHERWISE PROTECTED AREAS (OPAs)**

CMRS areas and OPAs are normally marked with an adjacent to Special Flood Hazard Areas.

- 1% Annual Chance Floodplain Boundary
- 0.2% Annual Chance Floodplain Boundary
- Floodway boundary
- Zone boundary
- CMRS and OPA boundary
- Boundary showing Special Flood Hazard Areas (Zone A and Zone AE) and Floodway Areas (Zone AO, Zone AR, Zone AN, Zone AV, Zone VE)
- Base Flood Elevation (see value, elevation in feet)
- Base Flood Elevation value when culture within zone, elevation in feet

Referenced to the North American Vertical Datum of 1988

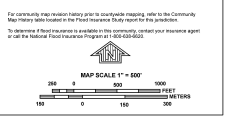
- Cross section line
- Stationing
- Current
- Proposed
- Water

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Vertical Datum

- 1000-foot scale (unrounded) State Plane Mercator Zone 18F (Zone 2011), Lambert Conformal Conic projection
- 1000-foot scale (rounded) Transverse Mercator zone 18F (Zone 2011)
- Scale: 1 inch = 1000 feet
- North arrow
- North arrow orientation in relation to true north of the FISR panel
- Map Application
- Map Application
- Map Application

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP: JUNE 2011

EFFECTIVE DATES OF REFERENCES TO THIS PANEL:



NATIONAL FLOOD INSURANCE PROGRAM

FIRM FLOOD INSURANCE RATE MAP WORCESTER COUNTY, MASSACHUSETTS (ALL JURISDICTIONS)

PANEL 009 OF 1075
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

COORDINATES: COMBINED NUMBER PANEL SHEETS
WORCESTER COUNTY 2009E 1000 2

NEEDS TO USE: The Map Number shown below should be used when placing map orders, the Community Number, when shown, should be used on insurance applications for the subject community.

MAP NUMBER 25027C009E
EFFECTIVE DATE JULY 4, 2011

Federal Emergency Management Agency