



City of Milpitas

Building & Safety Department

DESIGN GUIDELINE

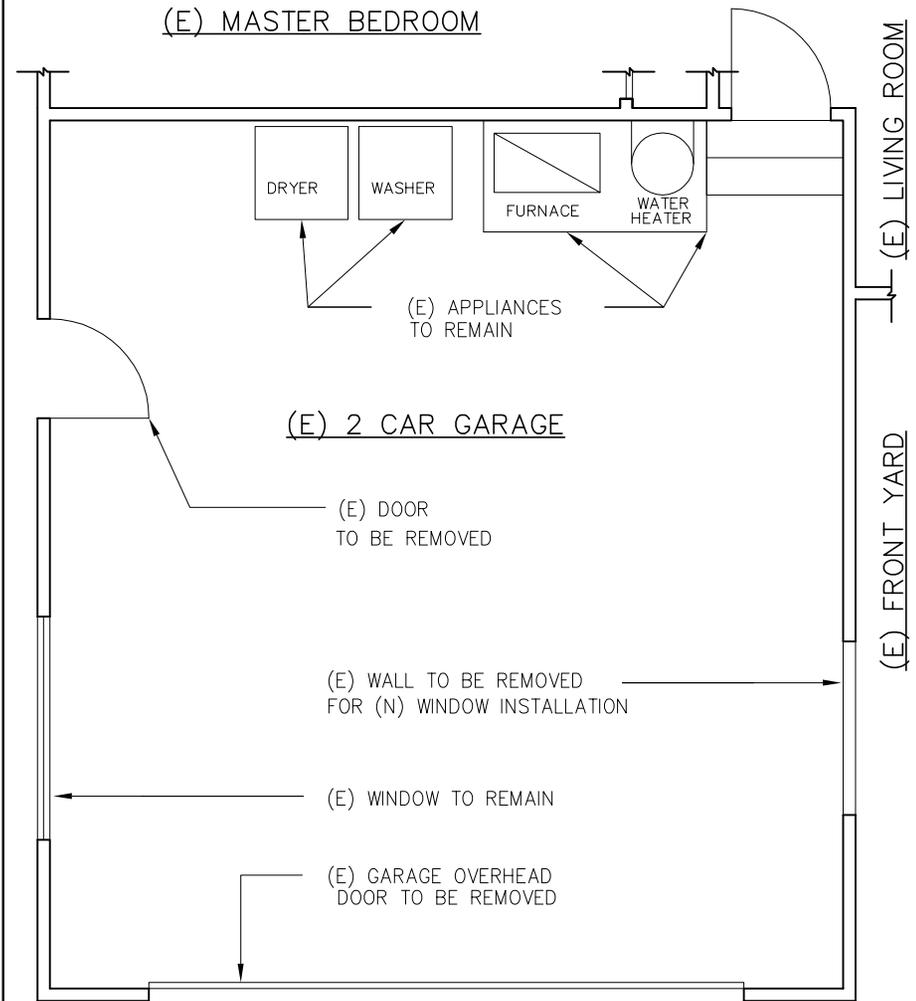
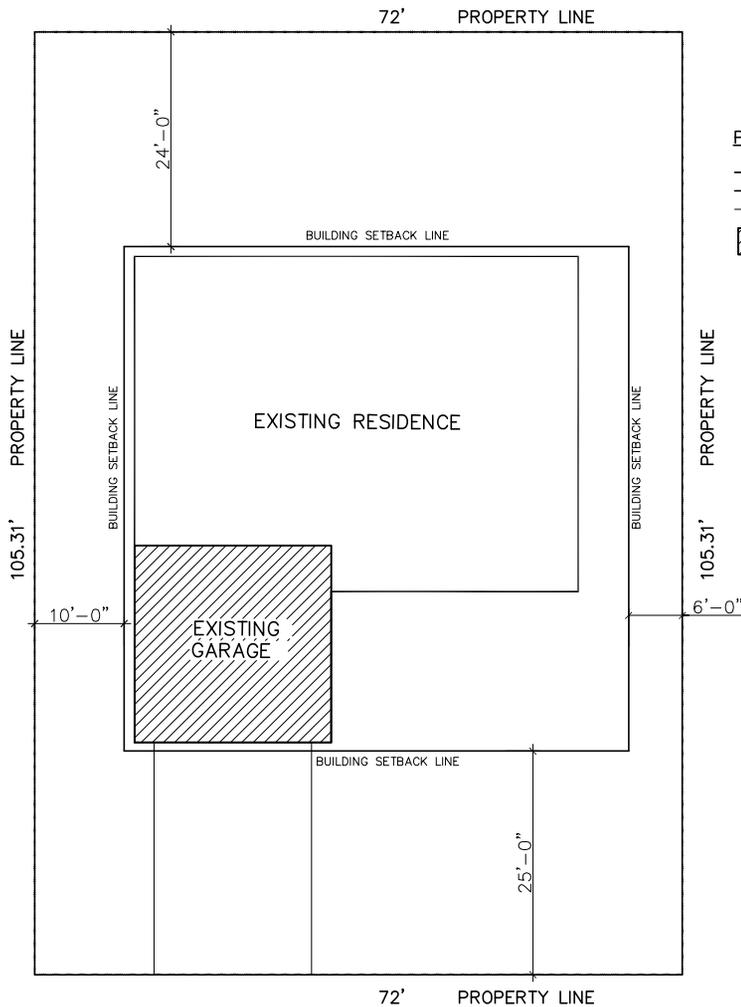
FOR

RESIDENTIAL GARAGE CONVERSION



455 E. Calaveras Blvd.
Milpitas, CA 95035
408-586-3240
www.ci.milpitas.ca.gov

REV. MAY 2014



A

SAMPLE PLOT PLAN

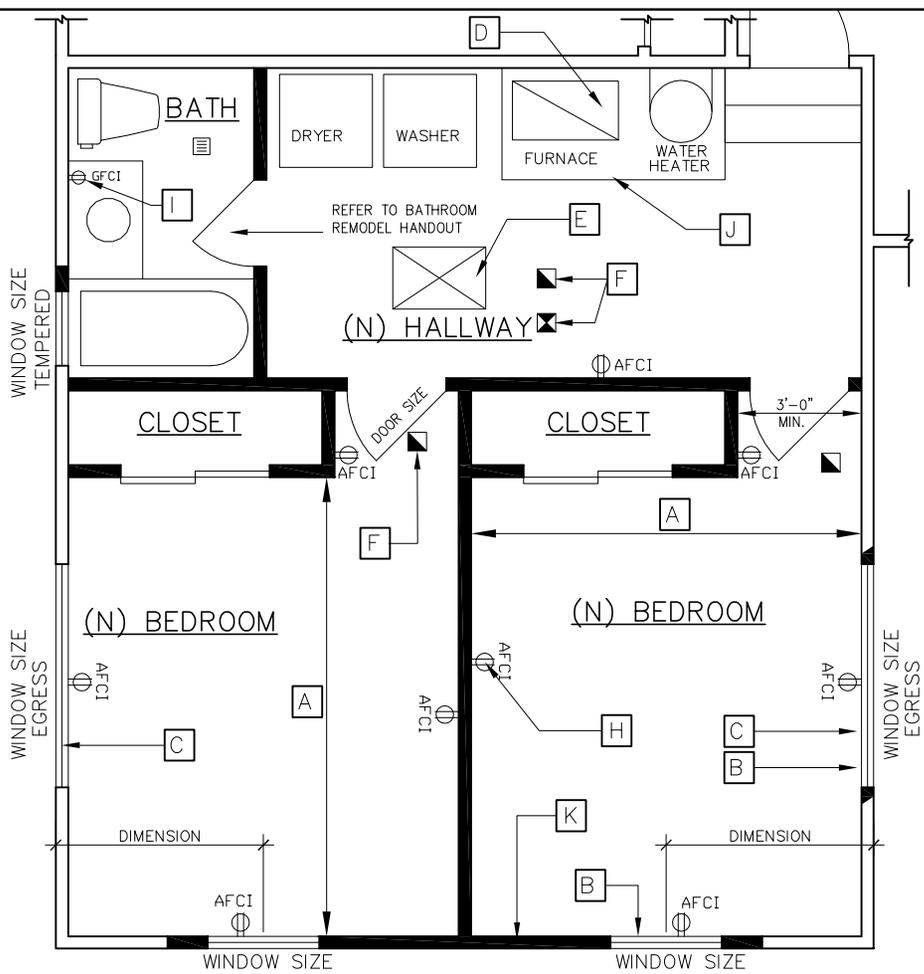
B

SAMPLE EXISTING / DEMO PLAN

REV.	DATE	BY:	SCALE: N.T.S.
1	1/2011	BYC	DATE: AUG 2009
			DRAWN BY: BK
			REVIEWED BY:

City of Milpitas
 Building & Safety Department
GARAGE CONVERSION
SAMPLE PLOT PLAN & EXISTING / DEMO PLAN

SHEET
1
 OF 8 SHEETS



- LEGEND**
- (N) 2 X STUD WALL
 - (E) 2 X STUD WALL
 - (E) EXISTING
 - (N) NEW
 - EXHAUST FAN
 - RECEPTACLES WITH GROUND-FAULT CIRCUIT-INTERRUPTER PROTECTION
 - RECEPTACLES WITH ARC-FAULT PROTECTION
 - SMOKE DETECTOR
 - CARBON MONOXIDE DETECTOR

- A Room dimensions:** The minimum length and width of any habitable room shall not be less than 7'-0" clear. The minimum area of any habitable room shall not be less than 70 square feet. CRC R304.1 and R304.2.
- B Light and ventilation:** In habitable rooms, provide natural light and ventilation with operable windows. Windows shall not be less than 8% of the floor area of each room. One-half (1/2) the window area shall be operable to the exterior for ventilation. Bathrooms shall be provided with total glazing area of 3 sq ft min. with 1/2 operable or provide artificial light and exhaust fans with 50cfm (intermittent) or 20 cfm (continuous) directly exhausted to outside but not onto walkway. CRC R303.1 and R303.3.
- C Emergency escape windows:** Each new bedroom or sleeping room shall have an emergency escape window that is at least 20" in width (net), 24" in height (net) when open AND with an operable area of at least 5.0 square feet in area. Escape windows shall be installed with bottom of clear opening no more than 44" above the finish floor. CRC R310.
- D Heating:** All habitable rooms must have a heating system capable of maintaining a room temperature of 68 F at a location of 3 feet above the floor and 2 feet from exterior walls. Indicate on the plans the heating system or method to be used. CRC R303.9.
- E Attic access:** Provide access to attic space with an access opening at least 22" x 30" in size. Locate the access door where there is at least 30" of clear head space in the attic. CRC R807.
- F Smoke detectors and Carbon Monoxide detectors:** When the value of the work exceeds \$1000, smoke detectors in each bedroom in the house, in the hall between the kitchen and each bedroom and outside each bedroom door AND carbon monoxide detectors outside each bedroom door are required. In existing construction, detectors may be battery operated. In new construction detectors must be 120v operated with battery backup. CRC R314 & R315. **Spark arrestor:** When the value of the work exceeds \$1000, a spark arrestor must be installed on fireplace chimneys if one does not exist. MMC II-3.5-2.03
- G Exterior doors:** Each new exterior door requires an exterior level landing that extends out from the house at least 36" and a porch light switched from inside the door. CRC R311.3.
- H Convenience Outlets:** Indicate on the plans locations of all convenience receptacles or outlets. In habitable rooms, space outlets on each wall that is 2' or wider, not more than 6' from doors or openings and no more than 12' on center along walls. CEC 210-52. All receptacles in habitable rooms shall be arc-fault circuit interrupter protected. CEC 210-12
- I GFI protection:** All bathroom convenience outlets must be GFI protected. All exterior outlets must be GFI protected and waterproof (WP). CEC 210-8
- J Gas water heaters or furnaces:** Gas water heaters or furnaces may be installed in a bedrooms and bathrooms. CPC 505.1 & CMC 904.1 For more information regarding all mechanical requirements for appliances refer to Sheet 5
- K** For details related to new curb at garage refer to Sheet 7

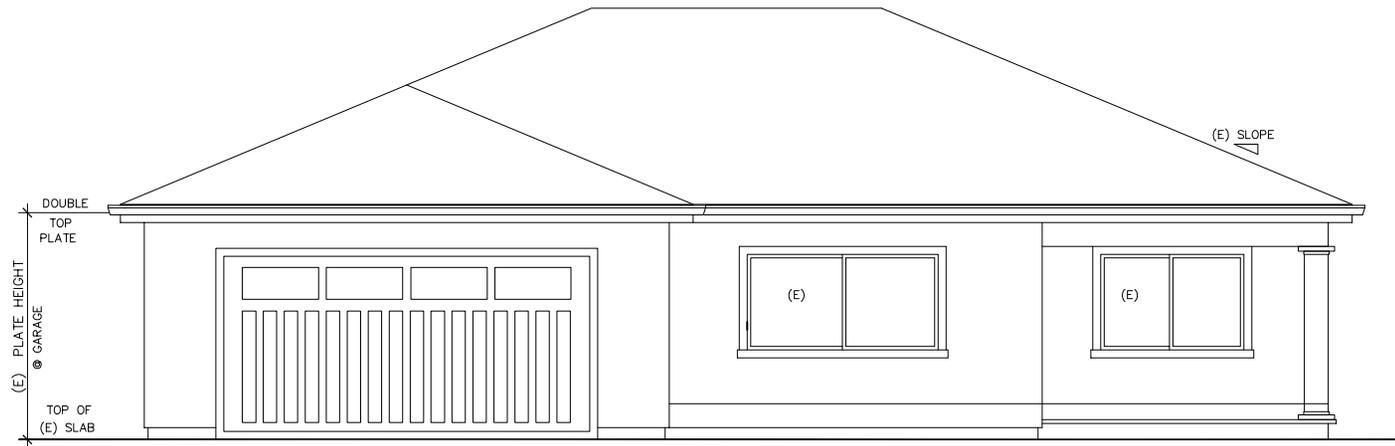
A

SAMPLE PROPOSED PLAN

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GARAGE CONVERSION
SAMPLE PROPOSED PARTIAL FLOOR PLAN

SHEET
2
 OF 8 SHEETS



A EXISTING FRONT ELEVATION



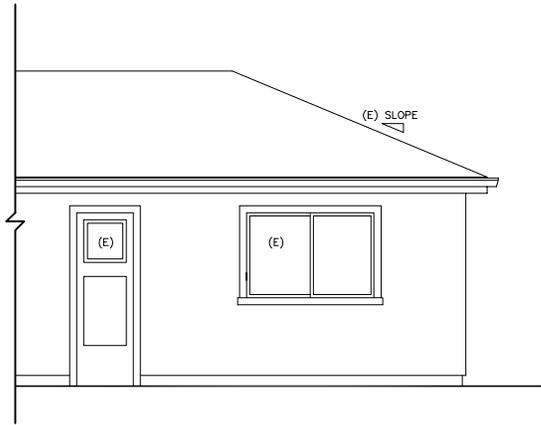
Note:
If there is any changes to front elevation, provide complete Existing and New Front Elevation

B REVISED FRONT ELEVATION

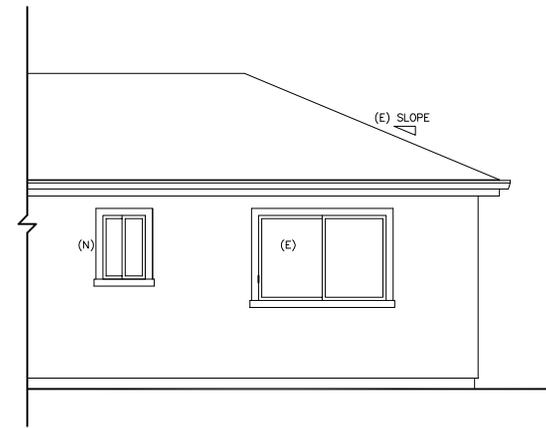
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SAMPLE EXTERIOR ELEVATION

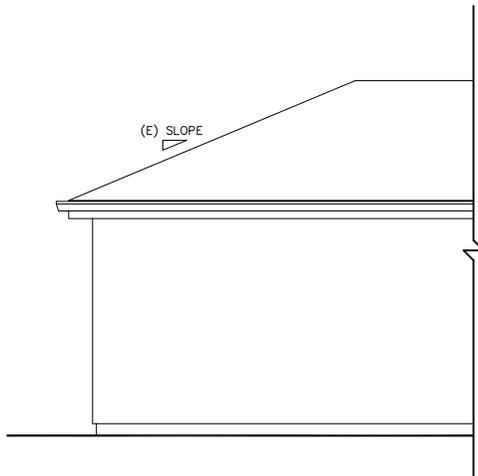
SHEET
3
OF 8 SHEETS



A (E) LEFT SIDE ELEVATION

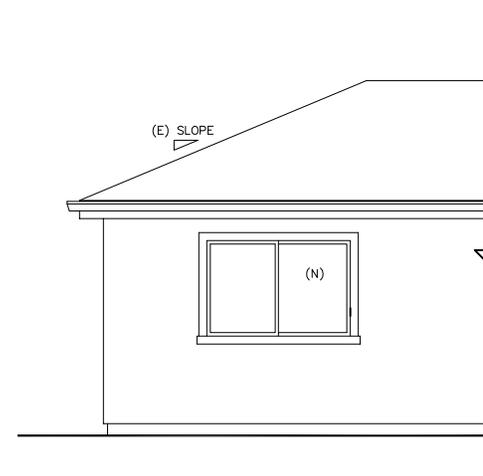


B (N) LEFT SIDE ELEVATION



Note:
Partial Elevations are acceptable for side views

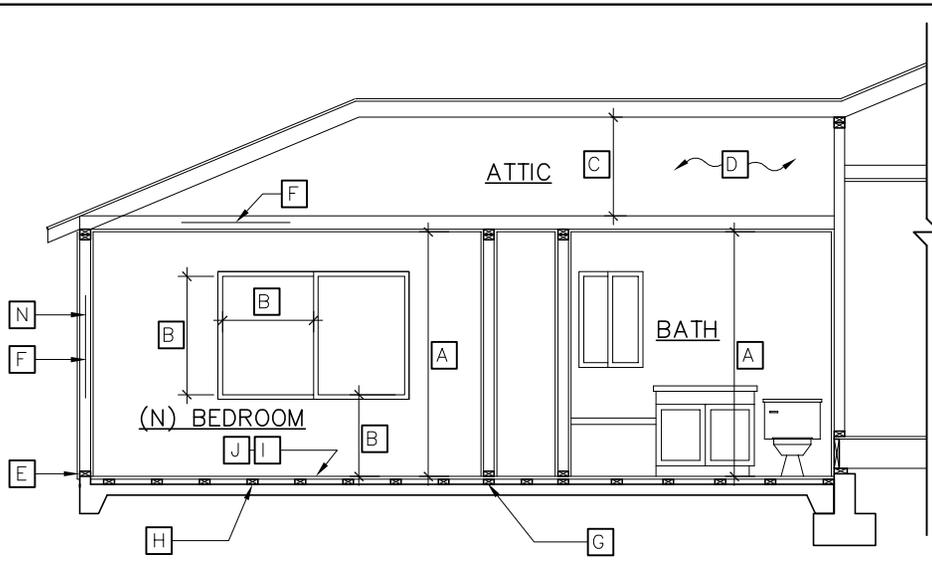
C (E) RIGHT SIDE ELEVATION



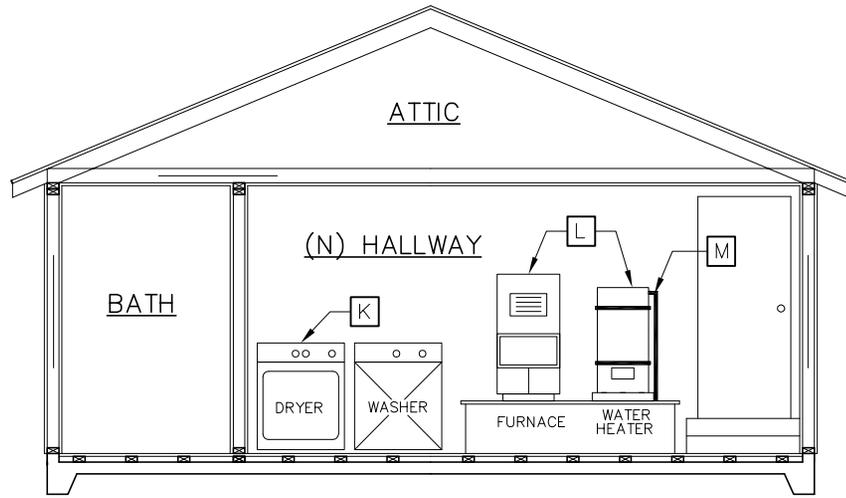
D (N) RIGHT SIDE ELEVATION

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 GARAGE CONVERSION
 SAMPLE EXTERIOR ELEVATION



A SAMPLE CROSS SECTION

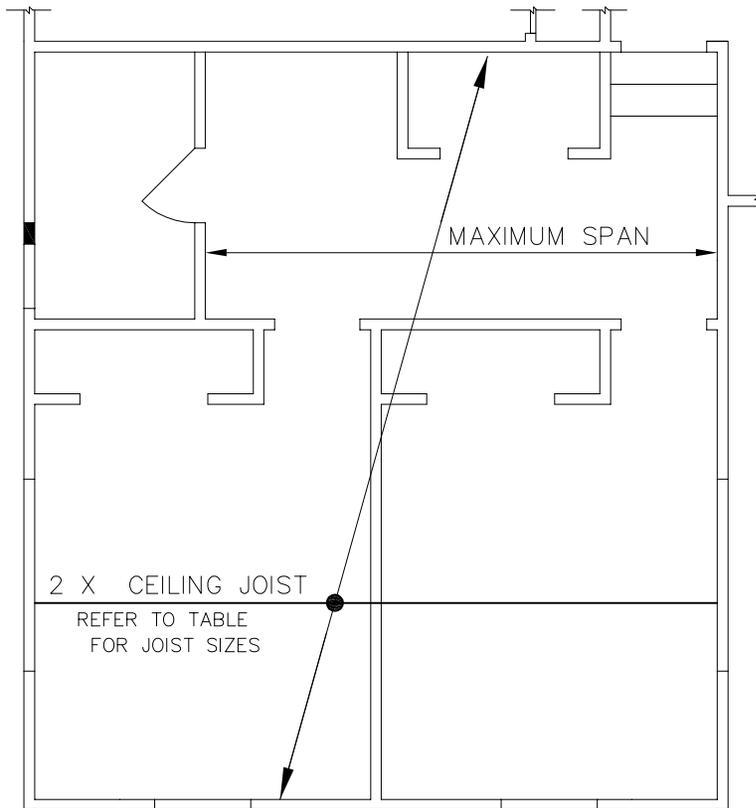


B SAMPLE CROSS SECTION

- A **Ceiling heights:** shall be at least 7'-0" in habitable rooms (bedrooms, living rooms, dining rooms). CRC R305.1
- B **Emergency escape windows:** Each new bedroom or sleeping room shall have an emergency escape window that is at least 20" in width (net), 24" in height (net) when open AND with an operable area of at least 5.0 square feet in area. Escape windows shall be installed with bottom of clear opening no more than 44" above the finish floor. CRC R310.
- C **Attic access:** Provide access to attic space with an access opening at least 22" x 30" in size. Locate the access door where there is at least 30" of clear head space in the attic. CRC R807.
- D **Attic ventilation:** Attics must be ventilated with total area of attic vents at least 1.0 s.f. (Net) for each 150 s.f. of attic area to be ventilated. Indicate on the plans the size, location and type of each vent. CRC R806.1.
- E **Sill plates:** Sill plates for new walls in a garage conversion must be pressure-treated wood or Foundation Grade (FG) Redwood. CRC R317.1.
- F **Insulation.** Indicate on the plans exterior wall insulation and ceiling insulation. Minimum wall insulation is R-13 and minimum ceiling insulation is R-30.
- G Provide solid blocking under all new interior walls.
- H All sleepers for new subfloor must be pressure-treated wood.
- I Provide vapor barrier if carpet is directly installed on concrete slab.
- J Per City of Milpitas , Building and Safety Department Policy No. BDP-BLG 25 , item 3: In a garage conversion, the requirement of minimum 18" clearance for crawl space at raised floor may be waived provided the minimum under floor ventilation as required by CRC R408.1 is met and floor joists, sleepers or sill plates and interior partitions sill plates are naturally durable or preservative-treated wood.
- K Provide vent to outdoor for dryer . Vent ducts shall not exceed a total combined horizontal and vertical length of fourteen (14) feet , including two (2) 90 degree elbows. Two (2) feet shall be deducted for each 90 degree elbow in excess of two.
- L Provide combustion air for all natural gas appliances.
- M Water heater T&P (Temprature & Pressure) Valve should be drained to outside
- N **Energy compliance.** Refer to sheet 8 for Energy compliance requirements.

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 GARAGE CONVERSION
 SAMPLE BUILDING CROSS SECTIONS



CEILING JOIST SPACING (inches)	SPECIES & GRADE	DEAD LOAD = 5 POUND PER SQUARE FOOT			
		2 X 4	2 X 6	2 X 8	2 X 10
		MAXIMUM CEILING JOIST SPANS			
		(ft - in)	(ft - in)	(ft - in)	(ft - in)
16	Douglas Fir-Larch SS	11-11	18-9	24-8	NOTE a
	Douglas Fir-Larch #1	11-6	18-1	23-10	NOTE a
	Douglas Fir-Larch #2	11-3	17-8	23-0	NOTE a
	Douglas Fir-Larch #3	9-5	13-9	17-5	21-3
24	Douglas Fir-Larch SS	10-5	16-4	21-7	NOTE a
	Douglas Fir-Larch #1	10-0	15-9	20-1	24-6
	Douglas Fir-Larch #2	9-10	14-10	18-9	22-11
	Douglas Fir-Larch #3	7-8	11-2	14-2	17-4

NOTE a: Span exceeds 26 feet in length. Check sources for availability of lumber in lengths greater than 20 feet.

B

SAMPLE CEILING FRAMING PLAN

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 GARAGE CONVERSION
SAMPLE CEILING FRAMING PLAN & JOIST SIZES

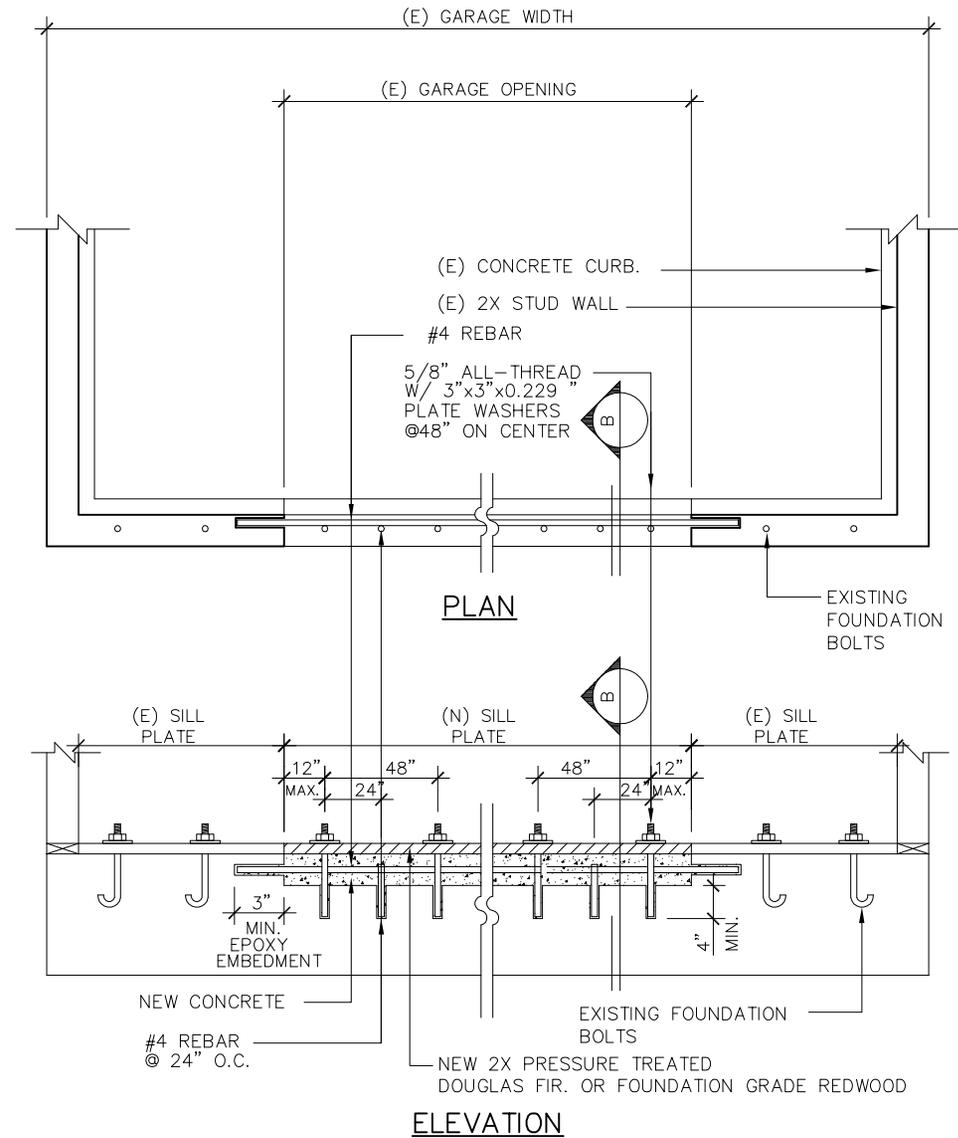
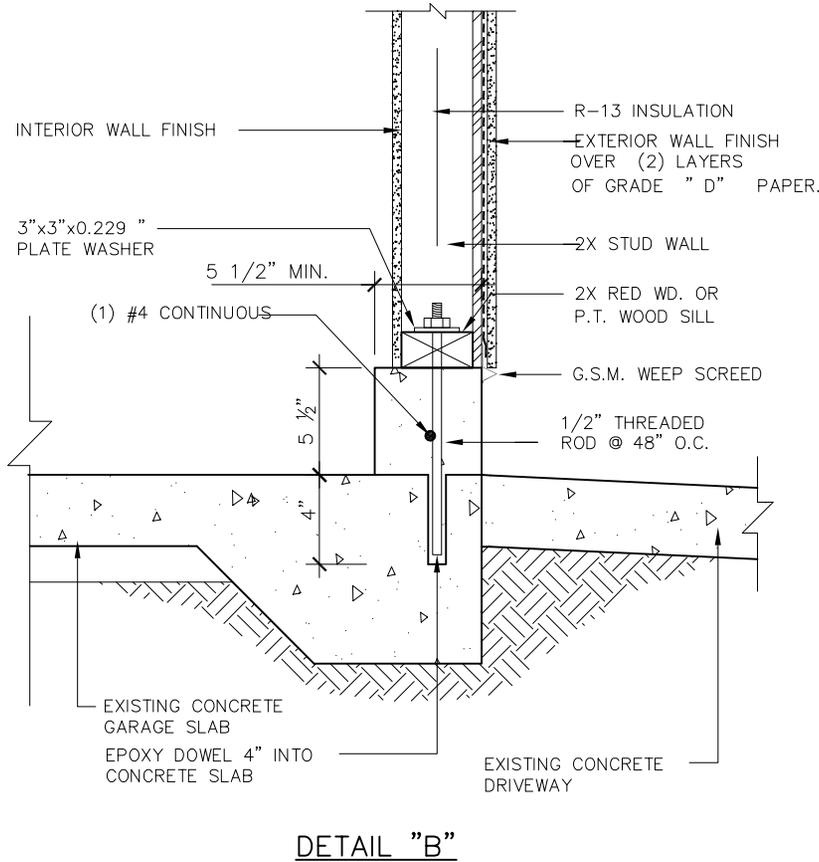
SHEET

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Sill plates: Sill plates for new walls in a Garage conversion must be pressure-treated wood or FG Redwood. CRC R317.1.

New wall at Garage door between driveway and Garage, provide a concrete curb on which the wall shall bear. The curb shall be at least 5 1/2" high x 5 1/2" wide with 1-#4 continuous steel reinforcing bar. Include a #4 dowel at 24" on center embedded and epoxied 4" into existing concrete floor slab. Extend each 2nd dowel through the sill plate with a 2"x 2" x 3/16" plate washers.



A NEW CONCRETE CURB AT GARAGE DOOR

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 GARAGE CONVERSION
 NEW CONCRETE CURB AT GARAGE DOOR

SHEET
7
 OF 8 SHEETS

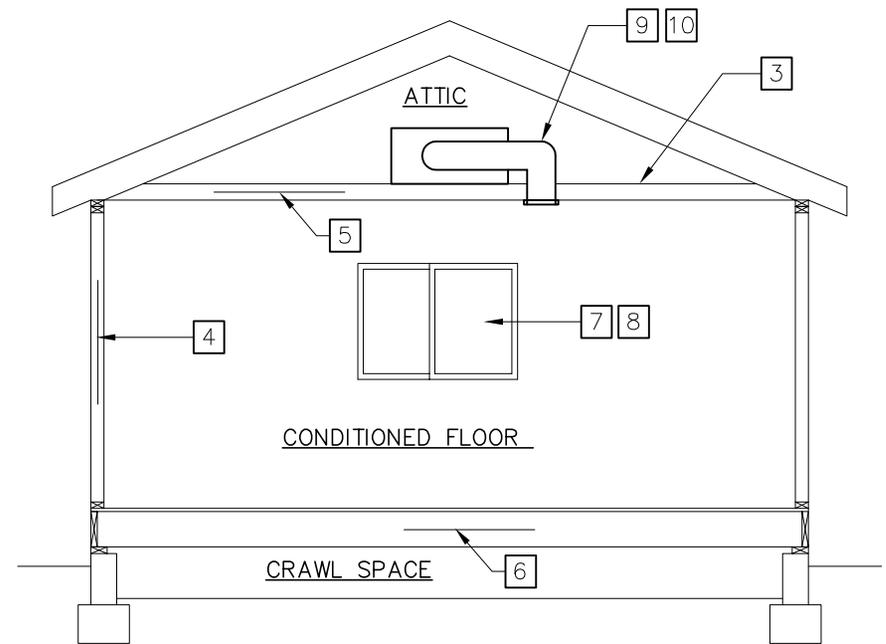
Energy Compliance:

Provide energy and heat loss calculations and reproduce on the plans CEC Forms CF-1R and MF-1R.
As an alternate to providing calculations, conform to State of California 'Package D' requirements.

What is the requirements for Package "D" ?

Buildings that comply with the prescriptive package "D" shall be designed, constructed, and equipped to meet all of these requirements.

- 1- Maximum Allowed West Facing Fenestration 5% of total conditioned floor area.
- 2- Maximum Allowed Total Fenestration 20% of total conditioned floor area.
- 3- Radiant Barrier is required.
- 4- Minimum insulation in wood framed wall = R-13
- 5- Minimum insulation in wood framed ceiling = R-30
- 6- Minimum insulation in wood framed raised floor = R-19
- 7- Maximum U factor for fenestration = 0.40
- 8- Maximum Solar Heat Gain Coefficient (SHGC) = 0.40
- 9- Minimum Duct Insulation = R-6
- 10- Duct sealing is required.



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 GARAGE CONVERSION
SAMPLE ENERGY COMPLIANCE & PACKAGE "D" REQUIREMENTS

SHEET
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