This information bulletin describes the plan review and submittal requirements for additions and alterations to residential single dwelling units and duplexes. The information and sample drawings provided are suitable as a guide for most projects. Some projects may require additional documentation and information. In the event a conflict arises between the information in this bulletin and the requirements specified in the California State and local codes, the State and local requirements shall apply.

I. REVIEW PROCESS
A. Submitted Review
Most projects are reviewed through the Submitted Review process. Please refer to Section 2A of the Project Submittal Manual for requirements related to the submitted process.

B. Over-the-Counter Review (OTC)
Residential single dwelling unit or duplex projects meeting all of the following criteria may be reviewed OTC while the customer is present:
1. Single story room additions not exceeding 1,000 square feet in floor area.
2. Interior alterations.
3. Accessory structures such as single-story garages, carports, retaining walls, pools, spas, decks and patios.

Projects must conform to the conventional construction provisions of the current California Residential Code or the City of San Diego Standard Drawings (minor calculations may be reviewed OTC on a case by case basis). Structures containing unusual design features, framing irregularities or that do not otherwise comply with the conventional requirements of the California Residential Code must be designed by a registered design professional (licensed architect or engineer) and may not qualify for an OTC review.

For wood frame prescriptive provisions for one-story residential construction refer to Section VIII.

II. OPTIONS FOR SERVICE
A. Appointment
To schedule an appointment, call (619) 446-5300.

B. Walk-In Service
Visit the Development Services Check-In counter on the 3rd floor of the Development Services Center located at 1222 First Avenue.

Documents referenced in this Information Bulletin
- California Residential Code
- Land Development Code, (LDC)
- San Diego Municipal Code, (SDMC)
- Project Submittal Manual, Section 2A
- Information Bulletin 501, Fee Schedule Construction Permits - Structures
- Information Bulletin 589, Potential Historical Resource Review
- Information Bulletin 581, Designated Historical Resource Review
- Water Meter Data Card, DS-16
- Circuit Card, DS-1779
- Inspection Record Card, DS-1798
- General Application, DS-3032
- Owner-Builder Verification, DS-3042
- Building Newsletter 17-1, Special Inspection and Structural Observation Requirements on Plans
- California Code of Regulations, Title 24 Part 6
- San Diego Standard Drawings

Note: Appointments are strongly encouraged. Walk-in service is subject to staff availability and assigned on a first-come first-served basis.

III. FEES
Please refer to Information Bulletin 501 for fees.

IV. FORMS TO COMPLETE
A. General Application
A General Application form (DS-3032) must be submitted with all projects.

B. Owner-Builder Verification Form
This form is required if the property owner is acting as the general contractor. If you are not a licensed contractor and intend on performing the work yourself or hiring licensed subcontractors, an Owner-Builder Verification form (DS-3042) must be completed and submitted with your project documents.

C. Water Meter Data Card
A Water Meter Data Card must be completed if new plumbing fixtures are being added. This form is not required when replacing or relocating existing fixtures.
V. PLANS AND SPECIFICATIONS

Plans must be drawn to scale and be of sufficient clarity to indicate the location, nature and extent of the proposed work. Existing and proposed construction should be clearly labeled. Plans must show that all work conforms to the provisions of the current edition of the California Residential Code, Zoning Ordinances and all other relevant laws, ordinances and regulations applicable in the City of San Diego.

Note: If the proposed project is located in the Very High Fire Hazard Severity Zone, the provisions of California Residential Code, Section R327 apply. Visit the Development and Permit Information counter (DPI) on the 3rd floor of the Development Services Center to determine if your property is in the Very High Fire Hazard Severity Zone. The following plans and minimum information must be provided.

A. Site Plan and Vicinity Map
See Information Bulletin 122 for detailed information.

B. Foundation Plan and Floor Framing Plan
(See Figure 1)
1. Slab on Grade Construction
   a. Size, depth, and location of footings.
   b. Rebar size and spacing.
   c. Concrete compressive strength (min. 2500 psi).
   d. Concrete slab thickness (min. 3.5 in.)
2. Raised Floor Construction
   a. Location of continuous foundation and pier footings.
   b. Size and depth of footings.
   c. Size of stem walls.
   d. Size and spacing of girders (see Table 5).
   e. Location and size of floor joists (see Table 3).
   f. Location and size of crawl space access openings and vents.

C. Floor Plan
(See Figure 2)
1. Identify use and dimensions of all existing and proposed rooms.
2. Size and types of windows and doors.
3. Location and type of all plumbing fixtures.
4. Location and energy output (BTUs) of all heating equipment.
5. Location and type of bathroom exhaust vent fan(s).
6. Location and type of smoke and carbon monoxide alarms.
7. Attic access location.

D. Roof Framing Plan
(See Figure 3)
1. Size, spacing and full span supports for the existing roof framing impacted by the area of alteration.
2. Size and spacing of all new rafters and ceiling joists (See Table 1 and 2).
3. Size of headers above wall openings (See Table 4).
4. Special framing around roof openings such as skylights and chimneys.

E. Exterior Elevation Views
(See Figure 4)
1. Each exterior wall shown from the outside of the building.
2. Doors, windows and other openings.
3. Exterior finish of the walls and roof.
4. Wall bracing, shear panes or other means of obtaining required lateral bracing.
5. Pre-existing and finished grade and building height to the most restrictive grade.

Note: Roofs must be minimum Class “A” fire resistive rated. Refer to Information Bulletin 123 for requirements concerning renewal of roof covering.

F. Connection Details
Sufficient details must be shown to clearly explain the method of construction and means of connection. Refer to Figures 5 thru 12 and for typical information which should be shown on plans.

G. Truss Calculations
If prefabricated trusses are included as part of the roof framing system, two sets of truss calculations, stamped by a professional architect or registered engineer, licensed in the State of California must be provided. The truss calculation identification number must identify each truss type on the roof framing plan.

H. Special Inspection
Any construction methods (such as epoxy anchorage) that require special inspection should be identified and shown on plans. Refer to Technical Bulletin 17-1 for requirements concerning special inspections.

I. Stormwater Best Management Practices (BMP’s)
The following notes must be added to the plans:

Stormwater Quality Notes
Construction Best Management Practices (BMP’s)
This project shall comply with all requirements of the State permit; California Regional Water Quality Control Board, San Diego, Order No. R9-2007-001, NPDES, the City of San Diego Land Development Code, and Storm Water Standards Manual.

Notes below represent key minimum requirements for construction BMPs.
1. The Contractor shall be responsible for cleanup of all silt and mud on adjacent street(s) due to construction vehicles or
any other construction activity at the end of each work day or after a storm event that causes a breach in installed construction BMPs which may compromise Storm Water Quality within any street(s).

2. All stockpiles of soil and/or building materials that are intended to be left for a period greater than seven calendar days are to be covered. All removable BMP devices shall be in place at the end of each working day when five day rain probability forecast exceeds 40%.

3. A concrete washout shall be provided on all projects which propose the construction of any concrete improvements which are to be poured in place on site.

4. The contractor shall restore all erosion/sediment control devices to working order after each run-off producing rainfall or after any material breach in effectiveness.

5. All slopes that were recreated or disturbed by construction activity must be protected against erosion and sediment transport at all times.

6. The storage of all construction materials and equipment must be protected against any potential release of pollutants into the environment.

J. Title 24 Energy Requirements

All single dwelling units and duplex additions and alterations must comply with the California Energy Efficiency Standard for Low-Rise Residential Buildings contained in the California Code of Regulations, Title 24, Part 1. A number of compliance methods are described in the Residential Manual available from the California Energy Commission website or phone 1-800-772-3300.

The minimum acceptable requirements for the simplest method are shown in Table 9 below. In addition to the Mandatory Measures summary (MF-1R form) mentioned in section IV C, you may complete the required Certificate of Compliance (CF-1R form) using the information in this table. (Forms must be shown on the plans. Stapling is not permitted). Table 9 is based on Climate Zone 7. Some areas of San Diego are in Climate Zone 10. During your plan review appointment, you will be advised if your project is located in Climate Zone 10 and what alternative shading devices must be added to meet Climate Zone 10 requirements.

Manufactured fenestration (glazing) products must be labeled with certified U-factor, SHGC and infiltration certification. The rough opening and U-factor of all windows and doors with glass must also be noted on the plans (Title 24.3.2.2). At least half the installed wattage of luminaries in kitchens shall be high efficacy (table 6-1). Non high efficacy luminaries must be switched separately (Title 24.6.1.2).

K. Electrical

Electrical drawings are not required for single family or duplex residential projects. The electrical system must be installed per the current edition of the California Electric Code and will be verified at the time of inspection.

L. Plumbing

Plumbing fixtures need to be shown on the floor plan. Piping material must also be noted on the plans. Compliance with the City Water Utilities Retrofit Ordinance (SDMC 147.0403) must be shown for new plumbing fixtures as follows:

1. Ultra low flush toilets that use 1.28 gallons per flush or less.

2. Maximum lavatory faucets flow, 1.5, maximum kitchen faucet flow, 1.8 gallons per minute.

3. Maximum shower head flow, 2.0 gallons per minute.

VI. ZONING REGULATIONS

The following regulations typically apply to residential additions and alterations. Please consult the City of San Diego's Land Development Codes for all zoning regulations that may apply to your project.

VII. HISTORICAL REVIEW

If the property contains any structure 45 years or older, please refer to Information Bulletin 580, Potential Historical Resources Review. Copies of the County Assessor building record and photographs of each building elevation will be required at the time of submittal or over-the-counter review. The photographs must be submitted in printed form and electronically on a compact disc.

If the property is located in an Historic District or contains any building designated as historical, see Information Bulletin 581, Designated Historical Resource Review.

VIII. WOOD FRAME PRESCRIPTIVE PROVISIONS FOR ONE-STORY RESIDENTIAL CONSTRUCTION ONLY

The purpose of this section is to provide wood frame prescriptive provisions for additions and alterations to residential single dwelling units, duplexes, and townhouses of wood frame construction, not exceeding one story in height.

This information is for reference only and is not a substitute for accurate drawings prepared for each proposed construction project.
The number following “R” references the code section within the California Residential Code.

**A. FOOTINGS ON SOILS**

Footing systems on expansive soil shall be constructed in a manner that will minimize damage to the structure from movement of the soil. Requirements marked by (*) are for sites with expansive soils.

1. Depth of footings below the natural and finished grades shall not be less than 12 (*24) inches for exterior and 12 (*18) inches for interior footings.

2. Exterior walls and interior bearing walls shall be supported on continuous footings.

3. Footings shall be reinforced with 2 # 4 (*4 # 4) deformed reinforcing bars. Bars shall be placed 3 inches clear from top and bottom of the footing. Reinforcement shall have 3-inch concrete covers.

4. Concrete floor slabs on grade shall be placed on a 4-inch fill of coarse aggregate or on a 2-inch sand bed covered with a minimum 6 mil moisture barrier membrane. The slabs shall be at least 3-1/2 (*4) inches thick and shall be reinforced with #3 @ 18” (* #4 @ 16”). O.C. each way at mid depth.

5. The soil below an interior concrete slab shall be saturated with moisture to a depth of 18 inches prior to placing the concrete.

6. All drainage adjacent to exterior footings shall be conducted away from the structure by a 3-ft wide sloped apron draining into an approved non-erosive device.

See Figures 9 and 10 for typical details.
Figure 1 / Typical Raised Foundation Plan

Figure 2 / Floor Plan with Cross Referenced Section Views
Figure 3 / Typical Roof Framing Plan

Figure 4 / Typical Elevation
Figure 5 / Typical Cross Section View, Slab Floor with Ceiling Joist

Figure 6 / Typical Cross Section View, Slab Floor with Vaulted Ceiling
Figure 7 / Typical Cross Section View, Raised Floor with Ceiling Joist

2 X __ Ceiling joist @ __" O.C.

Pitch __ : 12
(Rise : Run)

1/2" Drywall typical

Plywood subfloor

2 X __ Floor joist @ __" O.C.

Floor to
ceiling height
(7' 6" minimum)

Insulation R - __

over _______ CDX plywood
(Roof Covering and Sheathing)

2 X __@ __" O.C. with 7/8" stucco over wire mesh and paper

Existing residence

Figure 8 / Typical Cross Section View, Slab Floor with Shed Roof

over _______ CDX plywood
(Roof Covering and Sheathing)

2 X ____ roof rafter/ceiling joist combination @ __" O.C.

Min. pitch
1/4" : 12"

Insulation R - __

2 X __@ __" O.C. with 7/8" stucco over wire mesh and paper

1/2" Drywall Typical

Floor to
Ceiling Height
(7' 6" minimum)

3 1/2" Min. thickness
NOTES:

1. Anchor bolts ½" x 10" embedded 7" and spaced maximum 6" with 0.229" x 3" x 3" plate washers, minimum 2 anchor bolts per piece, located not more than 12" or less than 7 bolt diameters from each end of the piece.
2. All foundation plates or sills and sleepers on a concrete or masonry slab, which is in direct contact with earth, and sills that rest on concrete or masonry foundations shall be preservative treated wood (AWPA U1) and field cut ends, notches, and drilled holes shall be field treated in accordance with AWPA M4. Fasteners (other than anchor bolts) in preservative treated wood or fire retardant treated wood shall be of hot dipped zinc coated galvanized steel or stainless steel.
4. Exterior walls, bearing walls and braced wall panels require continuous footings. R403.1
5. 23/32" plywood required for 24" joist spacing.
6. Where interior walls are shear walls, wall framing and sheathing shall extend to the roof sheathing.
7. Footings on or adjacent to slopes shall meet the requirements of Section R403.1.7.
8. Walls separating units in townhouses shall be provided with parapet in accordance with R302.2.2
9. Projects located in the Very High Fire Hazard Severity Zone (VHFHSZ) must also incorporate the requirements of Section R327 into the design.
10. Exterior walls of dwellings and accessory structures closer than 3 ft. (non-sprinklered) / 3 ft. (sprinklered) to the property line shall be 1-hr fire-resistance rated construction.
11. No openings other than approved foundation vents shall be permitted in the exterior walls of dwellings and accessory buildings where the exterior wall is less than 3 ft. to the property line.
12. The area of exterior wall openings of non-sprinklered dwellings and accessory buildings located < 3 ft. and < 5 ft. to the property line shall be limited to 25% of the wall area. Exterior wall openings are unlimited when exterior walls are located ≥ 3 ft. for non-sprinklered buildings and ≥ 3 ft. for sprinklered buildings.
13. Eaves shall be of 1-hr fire-resistive construction on the underside when located between 2 ft. and 5 ft. from the property line for non-sprinklered buildings and between 2 ft. and 3 ft. from the property line for sprinklered buildings. Detached garages within 2 ft. of a property line may have a maximum 4 inch eave, provided the eave does not extend over the property line and is allowed by the Zoning Code.
14. Exterior plaster (stucco) walls shall be provided with a corrosion resistant weep screed complying with Section R703.6.2.1
Figure 10 / Typical Details

- Notching & Boring: Floor, Joist, Rafters & Ceiling Joint
  - Notching not permitted in middle 1/3 of joist span
  - Notching or boring not permitted when joint is not in end
  - Holes shall not be located within 2" of a notch

- Exterior Walls and Bearing Partitions
  - Exterior walls and bearing walls may have bored holes between 40 and 50 percent when stud is doubled and not more than two successive double studs are bored (R802.7.1, R802.8)

- Roof Framing
  - 2 x 1/2" slope w/2 layers type 15 felt
  - 2 x 1/2" or greater slope w/2 layers type 15 felt

- Ceiling Joist Details
  - 2 x GI gusset @ 8" OC
  - 2 x GI gusset @ 32" OC

- Roof Rafters
  - B-N, R55@16 OC

- Rafter Tie Connection
  - See Table 6
  - B-N, R55@16 OC

- Edge Nail
  - U-9@16 OC

- Rafter Span (See Table 1)
  - 2x blocking w/ 4x6@16" each blocking
  - Bridged wall panel

- Interior Shear Wall at Attic
  - 2x blocking @ 32 OC

- Gable Bracing
  - 2x blocking @ 32 OC

- Braced Rafter Construction (R802.5.1)
  - 2x blocking @ 32 OC
  - 2x doubled top plate
  - 2x studs

- Bearing Partition / Interior Shear Wall
  - header (see Table 4 & 5 for span)
  - 2x sill plate

- Anchor Bolts
  - Minimum 2 anchor bolts per braced wall panel, max. 12" & min. 4" from each end of the plate section
  - Thicken footing as required for bolt emebdenment depth
Figure 11 / Lateral Bracing Information

### BRACING REQUIREMENTS BASED ON SEISMIC DESIGN CATEGORY

#### Minimum Total Length of Braced Wall Panels Required

<table>
<thead>
<tr>
<th>Seismic Design Category (SDC)</th>
<th>Story Location</th>
<th>Braced Wall Line Length</th>
<th>Methods GB, and PCP, Method WSP, Method ABW</th>
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(a). Method GB (Gypsum Board) = ½-in. minimum thickness gypsum board with 1-1/2-in. galvanized roofing nail, or 1-1/4-in. screws, Type W or 5 for exterior sheathing, or 5d cooler nail, 0.086-in. diameter, 1-5/8-in. long, 15/64-in head for interior gypsum board. Maximum fastener spacing shall be 7-in. o.c. at panel edges, including top and bottom plates, and along intermediate supports. When method GB panels are applied to only one face of a braced wall panel, the minimum total length in the table shall be doubled.

(b). Method PCP (Portland Cement Plaster) = 7/8-in. minimum thickness Portland cement plaster with 1-1/2-in., 11-gage, 7/16-in. head nails at 6-in. spacing (16-in stud spacing required). ½-in. minimum gypsum wallboard shall be installed on the side of the wall opposite the bracing material, except when the minimum total length of braced wall panel in the Table is multiplied by a factor of 1.5.

(c). Method WSP (Wood Structural Panel) = 3/8-in. minimum thickness wood structural panel with 8d common (2-1/2-in x 0.131-in.) nails at 6-in. spacing along panel edges, 12-in. spacing at intermediate supports, and 3/8-in. distance to panel edge. ½-in. minimum thickness gypsum wall board shall be installed on the side of the wall opposite the bracing material, except when the minimum total length of braced wall panel in the Table is multiplied by a factor of 1.5.

(d). Method GB and PCP braced wall panel height to width ratio (h/w) shall not exceed 1:1.

(e). Method ABW (Alternate Braced Wall) = 3/8" min wood structural panel w/8d @6"/12", DBL Studs at end w/1800 # uplift capacity holdown. Minimum length of each ABW = 2'-10".

(f). Multiply required braced wall panel lengths specified in the table by 1.2 when combined Roof Ceiling Dead load is between 15 psf and 25 psf.
Figure 12 / Typical Information

**SEISMIC STRAPS:** TWO MIN.

T&P VALVE PIPED TO EXTERIOR
3/4" MIN., PIPE, NO THREADS ALLOWED IN BOTTOM PIPING.

NOTE: NO GAS-FIRED WATER HEATER ALLOWED IN BEDROOMS, BATHROOMS, CLOTHES CLOSETS, OR ANY SPACE OPENING INTO A BEDROOM OR BATHROOM.

WATER HEATERS

WATER HEATERS VENT AND ACCESS REQUIREMENTS

THE FOLLOWING WINDOW SIZES ARE THE MINIMUM ALLOWED FOR 5.0 SF.

- SINGLE CASMENT: 24 X 40, 24 X 36
- DOUBLE CASMENT: 48 X 40, 36 X 36
- CASEMENT/SLIDING COMBO: 72 X 40
- A WING & SLIDING COMBO
- NONE W/ MANUF. DATA

NOTE: SIZES ARE TAKEN FROM DATA SUPPLIED BY WINDOW MANUFACTURERS. HOWEVER, THESE ARE GENERAL DIMENSIONS AND MUST BE VERIFIED WITH ACTUAL WINDOWS INSTALLED TO MEET MINIMUM EGRESS REQUIREMENTS.

EMERGENCY ESCAPE/RESCUE OPENING (R315)

TRENCHES AT FOOTINGS
Figure 13 / Typical Information

Minimum Room Dimensions: (R304 & R305)
1. At least one habitable room shall have not less than 120 SF, and other habitable rooms shall have a floor area of not less than 70 SF.
2. Habitable rooms shall not be less than 7' in any horizontal dimension.
3. Habitable space, hallways, bathrooms, toilet rooms, and laundry rooms shall have a ceiling height of not less than 7.5 feet.

Light: (R302) All rooms require natural light by means of exterior windows or skylights min. 8% of the floor area of the room.

Ventilation: (R303) All rooms require natural light by means of openable windows min. 4% of the floor area of the room. Bathrooms, water closet compartment, and similar rooms shall be provided with aggregate glazing area in windows of not less than 3 SQ FT. One half of which must be operable when mechanical ventilation is not provided.

Under-floor spaces shall be ventilated by openings into the under-floor space exterior walls. Such openings shall have a net area of not less than 1 SQ FT for each 100 square feet of under-floor area. One ventilation opening shall be located within 5 feet of each corner of the building and provide cross ventilation. Ventilation openings shall be covered with corrosion-resistant mesh (at least dimension not exceeding 1/4).

The net free ventilating area of enclosed attics and enclosed batter spaces shall not be less than 1/100 of the area of the space ventilated, except that reduction of total area to 1/200 is permitted provided that at least 50% of the required ventilating area is provided by vents located in the upper portion of the space to be ventilated at least 3 feet above each opening in the attic, and so that the balance of the required ventilation is provided by a ventilation system as an alternative. The net free cross-ventilation area may be reduced to 1/200 when a class 1 or 2 vapor barrier installed on the upper inside side of the ceiling, a minimum of 1/4 inch clearance shall be provided between the vapor barrier and the roof sheathing.

6 HIGH NONABSORBENT SURFACE
@ SHOWERS WALLS (R302.2)
IF LESS THAN 60% ABOVE STANDING SURFACE (R306.4)
WINDOWS AT SHOEROS & 1/BARS SHALL BE TEMPERED.

Shower doors shall be swing out, net area of shower receptors shall be 0.60 of the floor area, and encompass 30 IN. (PC 417.3)

16' x 24' UNDERGROUND ACCESS THROUGH A PERIMETER WALL (R306.6)

Garage shall meet the following:
- UL-Factor = 0.32 MAX, SHECD 0.25 MAX

Door shall be a self-closing & self-arching 1-3/8" THICK SOLID WOOD OR SOLID OR HOLLOW CORE STEEL DOOR OF 20 MIN. FIRE RATED DOOR (R302.3)

1. An automatic residential fire sprinkler shall be designed and installed in accordance with Section R313.3 of NFPA 13D for new one and two-family dwellings and townhouses (R313).

For additions & alterations to existing sprinklered home refer to information bulletin 134.

2. Carbon Monoxide Alarms (CMA) and Smoke Alarms (SA) are required for alterations, repairs or additions where a permit valuation exceeds $1,000.
   a. Carbon Monoxide Alarms shall be provided in existing dwellings or sleeping units that have attached garages or fuel-burning appliances. Locate such alarms outside of each separate dwelling unit sleeping area in the immediate vicinity of the bedrooms, and one at every level of dwelling unit including basement (R315).
   b. Smoke Alarms shall be installed in each sleeping room and outside of each separate sleeping area in the immediate vicinity of the bedrooms (R314).

3. Garage floor surface shall be of approved non-combustible material (R303).
4. Penetrating walls or ceilings separating the dwelling from the garage shall be constructed of a min. 26 gauge sheet metal, or approved material (R303.5).

Every interior door in a doorway through which occupants pass shall have a minimum width of 32".
6. All lavatory faucets should have a maximum flow of 1.5 gallons per minute (GPM),
7. All showers should have a maximum flow of 2.0 gallons per minute (GPM),
8. Permanent vanities shall be included with all new side islands.
9. All toilets should be "Ultra Low Flow" type.
10. All kitchen faucets should have a maximum flow of 1.5 gallons per minute (GPM).
### TABLE 1
ALLOWABLE SPANS FOR DF #2 ROOF RAFTERS (DF-LARCH)
Dead Load: up to 14/20(Shingles/Tiles) psf Total (Including roofing)
Max. Roofing Load: 6/12 psf (Shingles/Tiles)
Live Load: 20 psf L/Δ = 240 (T-R802.5.1(2))

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<th>RAFTER SIZE</th>
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### TABLE 2
ALLOWABLE SPANS FOR DF #2 CEILING JOIST (DF-LARCH)
Dead Load: 10 psf
Live Load: 20 psf (Light Storage L/Δ = 240 (T-R802.4(2))

### TABLE 3
ALLOWABLE SPANS FOR DF #2 FLOOR/DECK JOIST (DF-LARCH)
Dead Load: 10 psf
Live Load: 40 psf L/Δ = 360 (T-R502.3.1(2))

### TABLE 4
ALLOWABLE SPANS FOR DF #2 ROOF BEAMS / HEADERS FOR EXTERIOR & INTERIOR BEARING WALLS (DF-LARCH)
Max. Dead Load: 25 psf
Max Live Load: 20 psf (T-R502.5(1))

<table>
<thead>
<tr>
<th>SIZE</th>
<th>20-ft Building Width (a)</th>
<th>NJ (b)</th>
<th>28-ft Building Width (a)</th>
<th>NJ (b)</th>
<th>36-ft Building Width (a)</th>
<th>NJ (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-2x6</td>
<td>5'-5&quot;</td>
<td>1</td>
<td>4'-8&quot;</td>
<td>1</td>
<td>4'-2&quot;</td>
<td>1</td>
</tr>
<tr>
<td>2-2x8</td>
<td>6'-10&quot;</td>
<td>1</td>
<td>5'-11&quot;</td>
<td>2</td>
<td>5'-4&quot;</td>
<td>2</td>
</tr>
<tr>
<td>2-2x10</td>
<td>8'-5&quot;</td>
<td>2</td>
<td>7'-3&quot;</td>
<td>2</td>
<td>6'-6&quot;</td>
<td>2</td>
</tr>
<tr>
<td>2-2x12</td>
<td>9'-9&quot;</td>
<td>2</td>
<td>8'-5&quot;</td>
<td>2</td>
<td>7'-6&quot;</td>
<td>2</td>
</tr>
<tr>
<td>3-2x8</td>
<td>8'-4&quot;</td>
<td>1</td>
<td>7'-5&quot;</td>
<td>1</td>
<td>6'-8&quot;</td>
<td>2</td>
</tr>
<tr>
<td>3-2x10</td>
<td>10'-6&quot;</td>
<td>1</td>
<td>9'-1&quot;</td>
<td>2</td>
<td>8'-2&quot;</td>
<td>2</td>
</tr>
<tr>
<td>3-2x12</td>
<td>12'-2&quot;</td>
<td>2</td>
<td>10'-7&quot;</td>
<td>2</td>
<td>9'-5&quot;</td>
<td>2</td>
</tr>
</tbody>
</table>

a. Building width is perpendicular to ridge measured to exterior walls.
b. NJ – Number of jacks required to support each end of header.
### TABLE 5

**ALLOWABLE SPANS FOR DF #2 FLOOR / DECK BEAMS**

Max. Floor Dead Load: 15 psf  
(T-R502.5(2))

<table>
<thead>
<tr>
<th>SIZE</th>
<th>20-ft Building Width (a)</th>
<th>NJ (b)</th>
<th>28-ft Building Width (a)</th>
<th>NJ (b)</th>
<th>36-ft Building Width (a)</th>
<th>NJ (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-2x6</td>
<td>4'-6&quot;</td>
<td>1</td>
<td>3'-11&quot;</td>
<td>1</td>
<td>3'-6&quot;</td>
<td>1</td>
</tr>
<tr>
<td>2-2x8</td>
<td>5'-9&quot;</td>
<td>1</td>
<td>5'-0&quot;</td>
<td>2</td>
<td>4'-5&quot;</td>
<td>2</td>
</tr>
<tr>
<td>2-2x10</td>
<td>7'-0&quot;</td>
<td>2</td>
<td>6'-1&quot;</td>
<td>2</td>
<td>5'-5&quot;</td>
<td>2</td>
</tr>
<tr>
<td>2-2x12</td>
<td>8'-1&quot;</td>
<td>2</td>
<td>7'-0&quot;</td>
<td>2</td>
<td>6'-3&quot;</td>
<td>2</td>
</tr>
<tr>
<td>3-2x8</td>
<td>7'-2&quot;</td>
<td>1</td>
<td>6'-3&quot;</td>
<td>1</td>
<td>5'-7&quot;</td>
<td>2</td>
</tr>
<tr>
<td>3-2x10</td>
<td>8'-9&quot;</td>
<td>1</td>
<td>7'-7&quot;</td>
<td>2</td>
<td>6'-9&quot;</td>
<td>2</td>
</tr>
<tr>
<td>3-2x12</td>
<td>10'-2&quot;</td>
<td>2</td>
<td>8'-10&quot;</td>
<td>2</td>
<td>7'-10&quot;</td>
<td>2</td>
</tr>
</tbody>
</table>

a. Building width is distance between bearing points  
b. NJ – Number of jacks required to support each end of header

### TABLE 6

**RAFTER TIE CONNECTION**  
**ROOF LIVE LOAD 20-psf [Table R802.5.1(9)]**

Minimum number of 16d common nails at rafter tie connection.

<table>
<thead>
<tr>
<th>Rafter Slope</th>
<th>Tie Spacing (in)</th>
<th>Roof Span (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>3:12</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>7</td>
</tr>
<tr>
<td>4:12</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>5</td>
</tr>
<tr>
<td>5:12</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>4</td>
</tr>
</tbody>
</table>

1. When nails are clinched, nailing may be reduced by 25 percent.  
2. Roof span is measured between exterior walls

### TABLE 7

**ALLOWABLE SPANS AND LOADS FOR WOOD STRUCTURAL PANEL, FLOOR & ROOF SHEATING CONTINUOUS OVER TWO OR MORE SPANS WITH STRENGTH AXIS PERPENDICULAR TO SUPPORTS**  
**NOTE: APPLIES TO PANELS 24" OR WIDER (T-R503.2.1.1(1))**

<table>
<thead>
<tr>
<th>PANEL SPAN RATING Roof/Floor Span</th>
<th>SHEETING GRADES</th>
<th>MINIMUM PANEL THICKNESS (INCHES)</th>
<th>MAXIMUM SPAN (INCHES)</th>
<th>LOADS (PSF)</th>
<th>MAX. SPAN (INCHES)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ROOF</td>
<td>EDGE SUPPORT</td>
<td>NO EDGE SUPPORT</td>
<td>TOTAL LOAD</td>
<td>LIME LOAD</td>
</tr>
<tr>
<td></td>
<td>FLOOR</td>
<td></td>
<td></td>
<td></td>
<td>Panel edges with tongue and groove joints or with blocking</td>
</tr>
<tr>
<td>24/0</td>
<td></td>
<td>3/8</td>
<td>24</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>24/16</td>
<td></td>
<td>7/16</td>
<td>24</td>
<td>24</td>
<td>50</td>
</tr>
<tr>
<td>32/16</td>
<td></td>
<td>15/32, 1/2</td>
<td>32</td>
<td>28</td>
<td>40</td>
</tr>
<tr>
<td>40/20</td>
<td></td>
<td>19/32, 5/8</td>
<td>40</td>
<td>32</td>
<td>40</td>
</tr>
<tr>
<td>48/24</td>
<td></td>
<td>23/32, 3/4</td>
<td>48</td>
<td>36</td>
<td>45</td>
</tr>
</tbody>
</table>
## TABLE 8 – Nailing Schedule

<table>
<thead>
<tr>
<th>CONNECTION (T-R602.3(1))</th>
<th>FASTENING</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ROOF</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blocking between joists or rafters to top plate</td>
<td>3-8d (2-1/2&quot; x 0.113&quot;)</td>
<td>Toe nail</td>
</tr>
<tr>
<td>Ceiling joist to plate</td>
<td>3-8d (2-1/2&quot; x 0.113&quot;)</td>
<td>Toe nail</td>
</tr>
<tr>
<td>Ceiling Joist not attached to parallel rafter, laps over partitions</td>
<td>3-10d (3&quot; x 0.128&quot;)</td>
<td>Toe nail</td>
</tr>
<tr>
<td>Collar tie rafter, face nail or 20-gage ridge strap</td>
<td>3-10d (3&quot; x 0.128&quot;)</td>
<td></td>
</tr>
<tr>
<td>Rafter to plate</td>
<td>2-16d (3-1/2&quot; x 0.15&quot;)</td>
<td>Toe nail</td>
</tr>
<tr>
<td>Roof rafters to ridge, valley or hip rafters:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toe nail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Face nail</td>
<td>4-16d (3-1/1&quot; x 0.135&quot;)</td>
<td></td>
</tr>
<tr>
<td>WALL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Built-up corner studs</td>
<td>10d (3&quot; x 0.128&quot;)</td>
<td>24&quot; o.c.</td>
</tr>
<tr>
<td>Built-up header two pieces with ½&quot; spacer</td>
<td>16d (3-1/1&quot; x 0.135&quot;)</td>
<td>16&quot; o.c. along each edge</td>
</tr>
<tr>
<td>Continuous Header two pieces</td>
<td>16d (3-1/1&quot; x 0.135&quot;)</td>
<td>16&quot; o.c. along each edge</td>
</tr>
<tr>
<td>Continuous header to stud</td>
<td>4-8d (2-1/2&quot; x 0.113&quot;)</td>
<td>Toe nail</td>
</tr>
<tr>
<td>Double Studs</td>
<td>10d (3&quot; x 0.128&quot;)</td>
<td>24&quot; o.c.</td>
</tr>
<tr>
<td>Double top plates</td>
<td>10d (3&quot; x 0.128&quot;)</td>
<td>24&quot; o.c. Face nail</td>
</tr>
<tr>
<td>Double top plates, minimum 24-inch offset of end joints, face nail in lapped area</td>
<td>8-16d (3-1/1&quot; x 0.135&quot;)</td>
<td>Face nail</td>
</tr>
<tr>
<td>Sole plate to joist or blocking</td>
<td>16d (3-1/1&quot; x 0.135&quot;)</td>
<td>16&quot; o.c. Face nail</td>
</tr>
<tr>
<td>Sole plate to joist or blocking at braced wall panels</td>
<td>3-16d (3-1/1&quot; x 0.135&quot;)</td>
<td>16&quot; o.c.</td>
</tr>
<tr>
<td>Stud to sole plate</td>
<td>3-8d (2-1/2&quot; x 0.113&quot;) or 2-16d (3-1/2&quot; x 0.135&quot;)</td>
<td>Toe nail</td>
</tr>
<tr>
<td>Top or sole plate to stud</td>
<td>2-16d (3-1/2&quot; x 0.135&quot;)</td>
<td>End nail</td>
</tr>
<tr>
<td>Top plates, lap at corners and intersections</td>
<td>2-10d (3&quot; x 0.128&quot;)</td>
<td>Face nail</td>
</tr>
<tr>
<td><strong>FLOOR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joist to sill or girder</td>
<td>3-8d (2-1/2&quot; x 0.113&quot;)</td>
<td>Toenail</td>
</tr>
<tr>
<td>Rim Joist to top plate (roof application also)</td>
<td>8d (2-1/2&quot; x 0.113&quot;)</td>
<td>6&quot; o.c.</td>
</tr>
<tr>
<td>Built-up girders and beams, 2-inch lumber layers</td>
<td>10d (3&quot; x 0.128&quot;)</td>
<td>Nail each layer as follows: 32&quot; o.c. at top and bottoms and staggered. Two nails at ends and at each splice</td>
</tr>
<tr>
<td>Ledger strip supporting joists or rafters</td>
<td>3-16d (3-1/2&quot; x 0.135&quot;)</td>
<td>At each joist or rafter</td>
</tr>
</tbody>
</table>

### Table 9 - Title 24 Energy Requirements - (prescriptive) (Climate Zone 7 & 10)

<table>
<thead>
<tr>
<th>Insulation:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling</td>
<td>R-30</td>
<td></td>
</tr>
<tr>
<td>Wall</td>
<td>R-13 Cavity + R5 Cont. &gt; 700 s.f.</td>
<td></td>
</tr>
<tr>
<td>Floor</td>
<td>R-19</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Glass:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Dual Pane</td>
<td>Dual Pane</td>
</tr>
<tr>
<td>Sq.Ft.</td>
<td>max. 50</td>
<td>20% of FA total</td>
</tr>
<tr>
<td></td>
<td>UF .32 or lower</td>
<td>SHGC .25 or lower</td>
</tr>
<tr>
<td></td>
<td>5% west</td>
<td></td>
</tr>
</tbody>
</table>

*The area of any glass removed, as a direct result of the room addition, may be added to the 20% total. Radiant barrier is required in new roof.*