



# Residential Technical Review Checklist

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This document is intended for internal use by reviewers, however it is being provided as a reference tool for our customers. The following are some of the basic or frequently overlooked code requirements. This list is not intended to be exhaustive of all possible requirements. The more comprehensive list is contained in the 2015 International Residential Code and City of Austin local amendments. Neither this checklist nor the adopted building codes may be construed to allow deed restriction violation.

## GENERAL

- Check for professional designer/engineer seal – engineers and architects are required to stamp documents prepared by them for regulatory approval.
- Construction documents submitted for building permit approval shall be address specific with the exception of master set prototypes submitted for Volume Builder Program approval
- Check scale
- Verify if text disclaimer will void arch plans
- Application completeness (BSPA/AWU/Demo)
- Expired permits check
- Verify Job Valuation
- Owner's Letter of Authorization
- Additions and/or Interior Remodel applications with greater than 50% of exterior walls demolished shall comply with the Demolition Notification requirements

## ARCHITECTURAL SETS: SEALED AND UNSEALED

### MIN. SUBMITTAL REQUIREMENTS: BCM 4.4.0

- Plot Plan
- Floor Plans & Elevations
- Structural (see structural checklist)
- Prototypical designs: Orientation (L or R) of all plan matches. Options clearly selected

**VISIBILITY R 320**, Local Amendments to the Residential Code. (100% New construction with habitable space in the first floor only)

- Architect or Certified Building Designer (RDP)
- Visitable Entrance clearly indicated
- Visitable Exterior Route
- Visitable Exterior Route WAIVER when applicable
- Prof. Land Surveyor Survey
- RDP Substantiation required
- Slope waiver: slope greater than 10% between highest point to lowest point prior to development
- Switchback waiver includes calculations from all viable points of origination (garage, driveway, sidewalk, street) demonstrating that the provision of a compliant ramp is not possible without a switchback.

## EXTERIOR WALL/ PROJECTION LOCATION

(TABLES R302.1 (1) AND (2))

- Refer to Table R302.1(1) or (2) for fire rating requirements and opening restrictions (unlimited, 25%, not allowed)
- No fire resistance rating if  $\geq 5'$ , or  $\geq 3'$  with sprinklers
- Unprotected roof overhangs allowed with fireblocking at less than 5ft but not less than 2ft from lot line
- No overhangs allowed at less than 2ft of lot line  
Exception: detached garage accessory to a dwelling within 2ft of lot line may have a 4" max. roof eave projection
- Approved assembly identified (1hr tested in accordance with ASTM E119 or UL 263): assembly and detail

## TOWNHOUSES R302.2

- Separation Requirements:
  - 1hr common wall shared by two townhouses
    - Rated from both sides
    - (no plumbing, mech. equipment, ducts or vents)
    - Extending to and tight against exterior walls and underside of roof sheathing
  - Or 2 fire rated wall assemblies as required by table R302.1(2) for exterior walls
- Wall section from foundation to roof (roof parapet) showing fire rated wall assembly
- Approved assembly identified (1hr tested in accordance with ASTM E119 or UL 263): assembly and detail
- Wall section matches UL Assembly
- UL rated assembly shown is for the right condition
- Wall section and details reflect correct orientation of trusses in truss layout
- Continuity R302.2.1: Fire resistant rating extends full length of wall and wall extensions separating attached accessory structures
- 30" Parapet required or exception R302.2.2
- fire sprinkler system required

### **TWO-FAMILY DWELLINGS R302.3**

- Separation by a wall and/or floor/ceiling assembly 1-hr rating
  - 1/2hr rating allowed with sprinklers
  - Wall assemblies not extending through attic comply with R302.3 Exception 2
- R302.3.1 Construction supporting a fire rated floor assembly (i.e. bearing walls) has equal or greater fire rating
- Continuity: Fire rated floor/ceiling assemblies extend to and are tight against exterior wall and wall assemblies extend from foundation to underside of roof deck
- Fire rated wall and floor/ceiling assembly shown in section and details. Approved assembly identified (UL, Gypsum Association, or IBC 722 assembly)

### **ARCHITECTURAL NOT SEALED BY ARCH. / CBD**

#### **GARAGE SEPARATIONS R302.5**

- Zero penetrations to sleeping rooms
- Solid wood door 1-3/8" min. thickness, Solid or honeycomb core steel door 1-3/8" min. thickness, or 20 minutes fire rated door
- Self-closing device on garage to home door
- Walls and ceilings with attic space above: 1/2" gyp board.
- Ceilings with habitable rooms above – 5/8" Type-X gypsum board
- Garages less than 3' from dwelling unit on same lot: 1/2" gyp bd. on interior side of exterior walls

#### **FIRE PROTECTION OF FLOORS R302.13**

- Floor assemblies not required to be rated have 1/2" gypsum or 5/8" wood structural panel or equivalent on underside of floor framing members

#### **LIGHT, VENTILATION R303**

- Ventilation – Ducted? Window opening 4% floor
- Illumination – Glazing min 8% floor area
- Bathroom glazing – min 3 sqft, one half openable

#### **MINIMUM ROOM AREAS R304**

- Habitable rooms ≥ 70 sqft
- Habitable room walls ≥ 7'
- Sloping ceiling < 5' or furred < 7' AFF shall not contribute to habitable area

#### **CEILING HEIGHT R305**

- Min height 7'
- Bathrooms and laundry rooms: min. 6'-8"
- Sloped ceilings: required floor area has ceiling height ≥ 5'. 50% of req. area has a ceiling height ≥ 7'
- Basements w/o habitable space: min. 6'-8"
- Ceiling obstructions like beams and ducts in basements: 6'-4"

### **TOILET, BATH AND SHOWER SPACES R307**

- Refer to 2012 UPC for shower pan size (1,024 sq. in. & fit min 30" circle), water closet spacing (15" clear from center, 21" clear from front, 24" from front per UPC)
- Refer to 2015 UPC starting September 13, 2017

### **HAZARDOUS GLAZING R308**

- Glazing in doors
- Glazing adjacent to doors when < 60" above floor or walking surface and:
  - Glazing is within 24" of door in the same plane of the door in closed position OR
  - Glazing perpendicular to door in closed position within 24" of hinge side when door swings towards the glazing and not away from it
- Glazing in guards and railings
- Glazing surrounding wet surfaces: within 60" horizontally in all directions under 60" vertically
- Glazing in windows when all below is met:
  - In excess of 9 sf
  - bottom less than 18" above floor
  - top more than 36" above floor
  - walking surface within 36" horizontally
- Skylights, roofs, and sloped glazing
- Adjacent to stairs and ramps and bottom less than 36"
- Adjacent to bottom of stair landing when lower than 36", and within a 60" horizontal arc. (Fig. R308.4.7)

### **EMERGENCY AND RESCUE OPENINGS R310**

- Basements, habitable attics and every sleeping room
- Opens to public way, yard (defined in code), or court opening to a public way
- Sill max. height: 44" aff.
- Min net clear opening 5.7sf (821 sq. in.),
- Grade floor openings\*and below-grade openings: min. net clear opening 5sf (720 sq. in.) (\*sill height not more than 44" above or below finished ground level adjacent to opening)
- Min opening height 24"
- Min opening width 20"
- (typical: 2650 @ Grade floor openings; 3050 everywhere else)

### **MEANS OF EGRESS R311**

- Continuous, and unobstructed vertical and horizontal path from all portions of dwelling
- Exit door side hinged, min clear width 32" and clear height 78" (3'0" x 6'8") opening to public way, yard or court
- Min width of hallway 36"
- Egress door landings:
  - width = width of door min
  - depth: 36" min. in direction of travel
  - Interior side < 1 1/2" drop from threshold
  - Exterior side < 7 3/4" drop from threshold
  - 2% max slope
  - Exterior landing is anchored to structure or self-supported. No nails or toe-nails

**STAIRWAYS R311.7**

- Minimum width  $\geq 36$ "
- Handrails do not project more than 4-1/2"
- Headroom: 6'-8"
- Minimum landing width = stair width
- Minimum landing depth = 36"
- Max rise  $7 \frac{3}{4}$ ", variation no more than 3/8"
- Tread depth  $\geq 10$ "
- Landings at top and bottom
- Vertical rise  $\leq 147$ " (12'-3")
- Open risers over 30" from floor or grade, max. 4" openings
- Alternating Thread devices and Ship Ladders not used as a means of egress

**HANDRAILS R311.7.8**

- Height not  $< 34$ " or  $> 38$ "
- Required for stairs with 4 or more risers
- Required on one side. Required at both sides in Ship Ladders and Alternating Thread devices
- Continuous for full length of flight

**SPIRAL STAIRS R311.7.10.1**

- Clear width 26"
- Walkline radius 24-1/2"
- Thread depth min. 6-3/4" at walkline
- Identical threads
- Risers 9-1/2" max.
- Headroom 6'-6" min.
- No opening limitation on risers

**ALTERNATING TREAD DEVICES AND SHIP LADDERS**

- Shall NOT be used as an element of a means of egress
- Handrails required at both sides
- Refer to R311.7.11 for Alternating Tread Devices requirements
- Refer to R311.7.12 for Ships Ladders requirements

**GUARDRAILS R312.1**

- Porches, balconies, ramps, raised floor surfaces 30" above floor or grade
- Height  $\geq 36$ ". On open side of stairs  $\geq 34$ ".
- When serving as handrails height is 34"-38"
- Height measured from adjacent walking surfaces (adj. fixed seating excluded)
- Maximum 4" opening

**SMOKE ALARMS R314**

- Hard-wired, interconnected, battery backup (Battery powered allowed at remodels). Wireless alarms allowed when one triggers the others.
- In each sleeping room
- Outside each sleeping area in immediate vicinity
- On each additional story within the dwelling unit including basements, habitable attics

- Min. distance 3' from full bathroom door unless not possible
- Ionization smoke alarms not allowed within 20' of cooking appliance or within 10' with silencing switch.
- Photoelectric alarm not allowed within 6' from cooking appliance
- Fire alarm system complying with NFPA 72 installed as a permanent fixture plus smoke detectors, in lieu of smoke alarms

**CO ALARMS R315**

- Hard-wired, interconnected, battery backup
- Battery powered at remodels and buildings without commercial power
- Dwelling unit with attached garage with an opening communicating to the dwelling
- Dwelling unit with fuel-fired appliances
- Locations: immediate vicinity of sleeping areas
- Inside bedroom where fuel-burning appliance is located in bedroom or attached bath

**MEZZANINES R325**

- Definition: Intermediate level between floor and ceiling of any story. A Loft is a Mezzanine (see local amendments- loft definition)
- Ceiling Height:  $\geq 7$  ft.
- Area limitation:  $\leq 1/3$  of room
- Compliance with R311 egress requirements
- Must open to room. Exceptions:
  - 10% or less can be enclosed;
  - Openness not required if  $\leq 2$  stories above grade plane with sprinkler system, or if 2 or more means of egress are provided

**ATTICS R807.1**

- Min access 22"x30" rough opening
- Ventilation - 1/150th of total area (1/8" wire mesh)
- Live loads limit check (Table R301.5)
- Ceiling joists or floor joists? Determine use
- Habitable Attic? Egress, stairs, SD, CO

\*\*\*FOR STRUCTURAL REVIEW CHECKLIST SEE NEXT PAGE\*\*\*

## STRUCTURAL CHECKLIST – SEALED DRAWINGS

- Check for engineer seal on foundation plans
- Check for architect or engineer seal on framing and bracing plans
- Foundation plan matches orientation and outline of floor plan
- Foundation details including anchorage to foundation
- Floor framing plans
- Roof framing plans
- Truss layout (direction and spacing)
- Truss support structure (headers, beams, walls, columns)
- Typical framing details (wall-to-floor, wall-to-roof)
- Braced wall plan with braced wall lines (Ref. IRC R106.1.3 and BCM 4.4.4.3)
- Bracing information (Ref. R106.1.3):
  - methods used (fasteners/nail pattern, specific bracing method details, portal frame details)
  - location and length of braced wall panels
  - foundation requirements of braced wall panels at top and bottom

## STRUCTURAL CHECKLIST – UNSEALED DRAWINGS: BELOW AND RIGHT

### ENGINEER SEAL REQUIRED

Engineer stamp required for the following (BCM 4.4.4.4):

- Foundation Plans and Details on expansive soils
- Unsupported spans greater than 24 feet
- Pre-engineered systems and components

### ENGINEER OR ARCHITECT SEAL REQUIRED

- Framing plans and details, wall bracing plans and details for buildings that are:
  - More than one story
  - Do not meet prescriptive methods
  - Designed as per IBC
  - Decks over 4 feet in height measured vertically at any point within 36" horizontally

### FOOTING PLANS R403.1.4

- Footing material depth and dimensions (depth below surface min 12")
- Footing locations/dimensions
- Footing details
- Connection details

\*\*\*slabs on expansive soil shall be designed by a registered engineer\*\*\*

\*\*\*piers and masonry piers shall be designed by a registered engineer per R404.1.9.4\*\*\*

### WOOD FRAMED WALLS

- Stud spacing/wood grade - R602.3
- Headers – size/span/material - R602.7
- Typical wall details
- Foundation/floor/ceiling connection details

- Foundation anchorage – R403.1.6

### WOOD FRAMED FLOORS

- Live loads supported – Table R301.5
- Joist size, spacing, wood grade – R502.3
- Girders – R502.5
- Floor sheathing – R503.1
- Framing layout – Figure R502.2

### WOOD FRAMED ROOFS

- Live load supported – Table R301.6
- Ceiling joist size, spacing and grade – R802.4
- Rafter size, spacing and grade – R802.5
- Roof sheathing – R803.1
- Rafter Ties and Collar Ties – R802.3.1
- Purlins – R802.5.1

### WALL BRACING R602.10

- Braced wall lines layout – Fig. R602.10.1.1
- Braced wall methods used – Table R602.10.4
- Braced wall panel locations – R602.10.2
- Minimum length of braced wall panels – R602.10.5
- End requirements for continuous sheathing – R602.10.7
- Sheathing attachment – Table R602.3(3)
- Details for portal frames – R602.10.6