



2021 International Residential Code –
<https://codes.iccsafe.org/content/IRC2021P2>

Local Amendments -

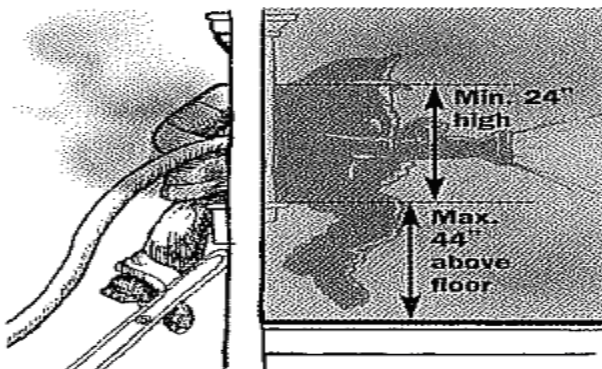
https://library.municode.com/tx/austin/codes/land_development_code?nodeId=TIT25LADE_CH25-12TECO_ART11RECO

Updated 03/17/2022

✓ **EGRESS REQUIREMENTS**

Bedroom Window Egress

The second exit required in a bedroom is usually a window. The dimensions of the openings are to ensure the residents an escape route, but equally important, they are designed to allow a firefighter with a backpack to enter. The opening must be at least 24" high and at least 20" wide, with a net area at least 5.7sq.ft., per T15. The window sill must not be higher than 44" from the floor.



Emergency escape and rescue required

Basements, habitable attics, and every sleeping room shall have at least one operable emergency escape and rescue opening with a window sill height of not more than 44 inches above finished floor (AFF). *Reference* R310.1 and R310.2.3.

Minimum opening area

All emergency escape and rescue openings shall have a minimum net clear opening of 5.7 sq. ft. **Exception:** *Grade floor* or below grade openings (bottom of the clear opening \leq 44" above the floor) shall have a minimum net clear opening of 5 sq. ft. *Reference* R310.2.1 and R310.2.3

Minimum opening height

The minimum net clear opening height shall be not less than 24 inches. *Reference* R310.2.2

Minimum opening width

The minimum net clear opening width shall be not less than 20 inches. *Reference* R310.2.2

Door type and size

The required egress door shall be a single-hinged door not less than 32" clear in width and 78" inches clear in height (Typically must be a 3'0" wide x 6'8" high door to meet requirements). *Reference* R311.2

Retrofit Windows

Requirements for Retrofit Windows, *Reference* 2021 IRC Appendix AJ, Subsection AJ102.4.3: Replacement windows for emergency escape and rescue openings.

Floors and landings at exterior doors

There shall be a landing or floor on each side of each exterior door with a minimum width of the door served. The width of the landing shall be no less than the width of the door served and shall have a dimension of at least 36" measured in the direction of travel.

The slope shall not exceed 2% (1/4 vertical unit in 12 horizontal units). The landings at the required egress door will not be more than 1 ½” inches lower than the top of the threshold. Exterior landings may not be more than 7 ¾” below the top of the threshold provided the door does not swing over the landing. *Reference R311.3*

✓ MINIMUM ROOM AREAS/CEILING HEIGHT

Minimum area

Habitable rooms shall have a floor area of not less than 70 sq. ft. *Reference R304.1*

Exception: Kitchens

Minimum dimensions

Habitable rooms shall not be less than 7 feet in any horizontal dimension. *Reference R304.2*

Exception: Kitchens

Height effect on room area

Portions of a room with a sloping ceiling measuring less than 5’ or furred ceiling measuring less than 7’ above finished floor (AFF) shall not be considered as contributing to the minimum required habitable area for that room. *Reference R304.3*

Minimum height

Habitable space, hallways, and portions of basements containing these spaces shall have a height of not less than 7 feet. Bathrooms, toilet rooms and laundry rooms shall have a ceiling height of not less than 6’-8”.

See code for exceptions. *Reference R305.1*

✓ SMOKE ALARMS REQUIREMENTS

Listings

Smoke alarms shall be listed in accordance with UL 217. *Reference R314.1.1*

Location

Smoke alarms shall be installed in the following locations: **Each sleeping room, outside each sleeping area** in the immediate vicinity of the bedrooms, **on each additional story** of the dwelling, and not less than 3 feet from a door to a bathroom with tub or shower except when this requirement would prevent the installation of a smoke alarm in a required location. **Note:** When more than one smoke alarm is required to be installed, the devices shall be hard-wired and interconnected, with battery back-up. Interconnection not required when listed wireless alarms are installed and they all sound upon activation of one. *Reference R314.3, R314.4 and R314.6*

Alterations, repairs and additions

When alterations, repairs or additions requiring a permit occur, or when one or more sleeping rooms are added or created in existing dwellings, the individual dwelling unit shall be equipped with smoke alarms located as required for new dwellings; smoke alarms shall be permitted to be battery powered. **Exceptions:** Exterior work such as roofing or siding, replacement or addition of windows and doors, addition of a porch or deck, and alterations/repairs to mechanical and plumbing systems are exempted from providing smoke alarms as required for new construction. *Reference R314.2.2 and R314.6 Exception 2.*

✓ CARBON MONOXIDE ALARMS REQUIREMENTS

Listings

Carbon monoxide alarms shall be listed in accordance with UL 2034. *Reference R315.1.1*

Where Required

For new construction, carbon monoxide alarms shall be installed in dwelling units within which fuel-fired appliances are installed and in dwelling units that have attached garages with a door that connects the garage with the residence. Carbon monoxide alarms shall be hard wired with battery backup, except for CO alarms in buildings without commercial power which can be battery operated. Where more than one CO alarm is required they shall be interconnected, except where listed wireless alarms are installed and all sound upon activation of one. *Reference R315.2, R315.5 and R315.6*

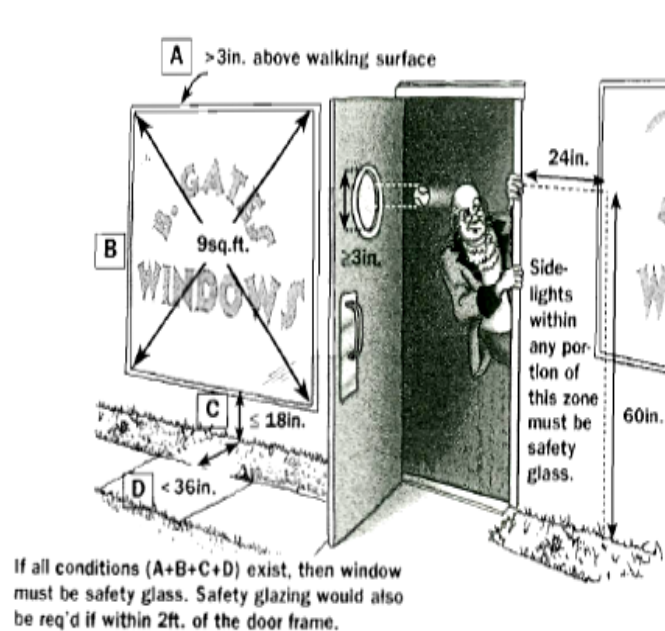
Locations

Carbon monoxide alarms shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms. Required inside bedrooms with fuel burning appliances within the bedroom or attached bathroom. *Reference* R315.3

Alteration, repairs and additions

Where work requiring a permit occurs, carbon monoxide alarms shall be installed as required for new dwellings. **Exceptions:** Exterior work such as roofing or siding, replacement or addition of windows and doors, addition of a porch or deck, alterations/repairs to plumbing systems and to mechanical systems that are not fuel fired, are exempted from the above. Interconnection not required where alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure unless where there is an attic, crawl space or basement available that could provide access for interconnection without the removal of interior finishes. Carbon monoxide alarms for alterations, repairs and additions can be battery powered. *Reference* R315.2.2, R315.5 and R315.6.

✓ SAFETY GLAZING



Safety glazing is required when a walk-through hazard exists, defined as meeting **ALL** of the following:

- Exposed area of glazing >9sq ft. +
- Bottom edge <18in above floor or ground +
- Top edge >36in above floor or ground +
- Within 36in horizontal of walking surface
- **Exception:** Min 1½in high protective guard installed 34–38in above floor

Hazardous locations requiring safety glazing *Reference* R308.4

The following locations/uses (but not limited to) require tempered safety glass:

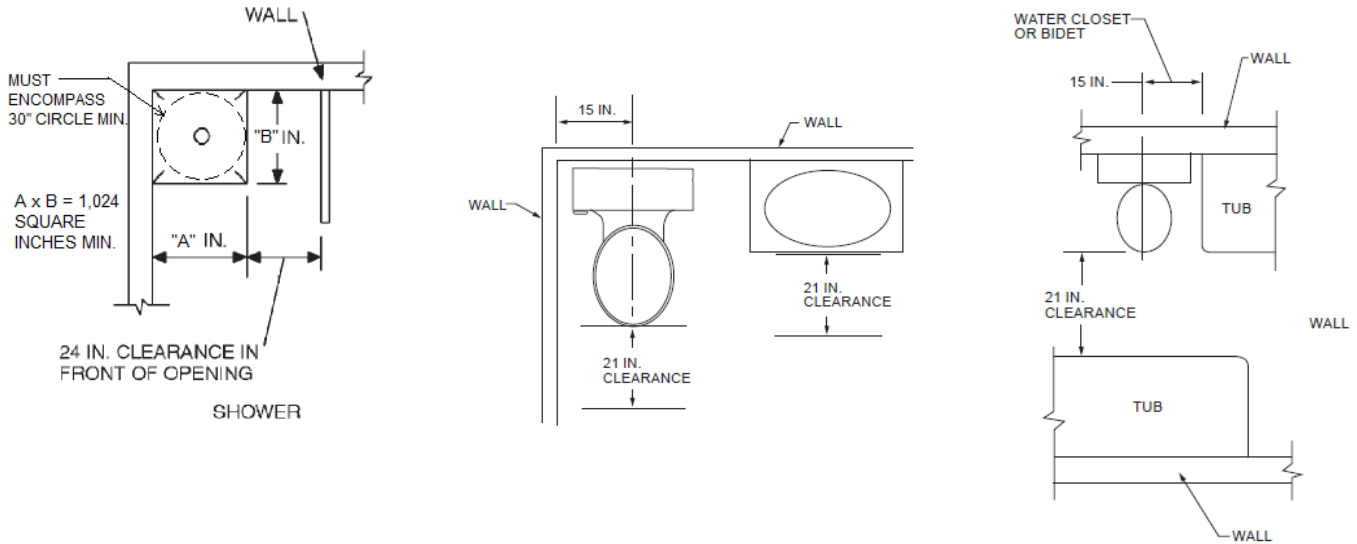
- Glazed openings in doors through which a 3” dia. sphere can pass. See R308.4.1 for exceptions.
- Glazing adjacent to door that is less than 60” above the walking surface provided that panel is in the same plane of the door in a closed position and within 24 inches of either side of the door, or where the panel is less than 180 degrees from the plane of the door in closed position and within 24” of the hinge side of an in-swinging door. See R308.4.2 for exceptions.
- Panels in windows where individual panel exceeds 9sf, and bottom of glazing is 18” above floor, and to edge is over 36” above floor, and a walking surface is within 36” of glazing measured horizontally and in straight line. See R308.4.3 for exceptions.
- Guards and railings
- Wet surfaces: walls, enclosures or fences containing or adjacent to hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs, showers and swimming pools where bottom of edge of glazing is less than 60” from walking surface. **Exception:** Glazing more than 60” measured horizontally from edge of bathtub, hot tub, spa, whirlpool or pool, shower, sauna, or steam room.
- Glazing less than 36” above a stair landing and within 60” from landing measured horizontally
- Skylights and Sloped Glazing

Note: The above is a condensed list of the most common safety glazing locations. There are many variables and exceptions not listed above which can be found in the 2021 IRC Section R308.4: Hazardous Locations.

✓ TOILET, BATH AND SHOWER SPACES

Space required

Fixtures shall be spaced as per figure below. Reference 2021 IRC R307 Figure R307.1 and 2021 UPC 408.6



✓ HANDRAILS/GUARDRAILS

Handrails

Provided on at least one side of each continuous run of treads or flight with four or more risers. Reference R311.7.8

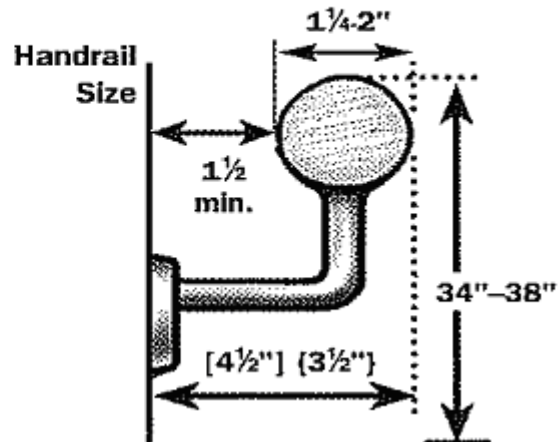
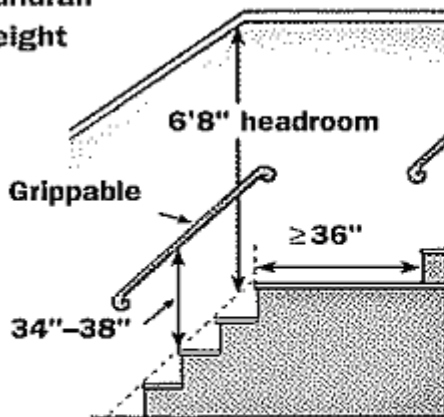
Height

Measured vertically from the sloped plane of stairs or ramp shall not be less than 34 inches and not more than 38 inches. Reference R311.7.8.1

Continuity

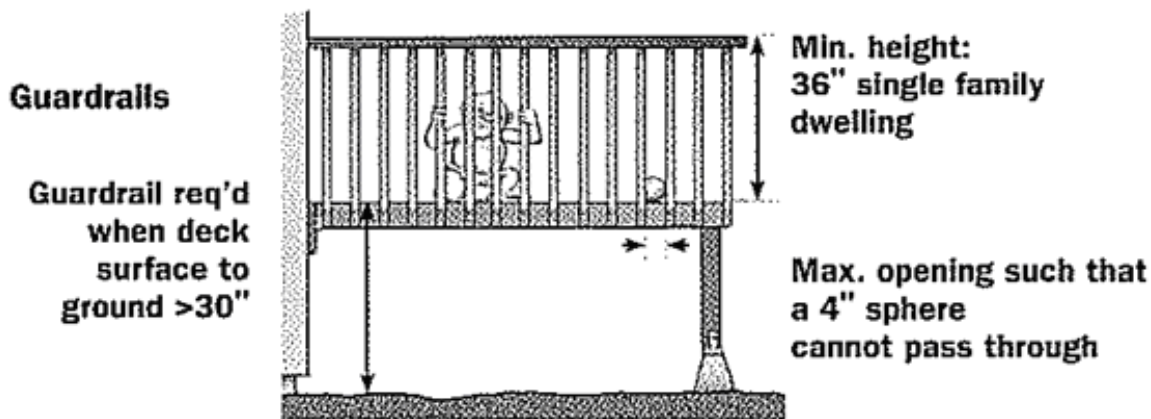
Shall be continuous for the full length of the flight, from directly above the top riser to directly above the lowest riser and shall be returned. Reference R311.7.8.4

Handrail Height



Guardrails

Porches, balconies, ramps or raised floor surfaces located more than 30 inches above floor or grade below at any point within 36" horizontally to the edge shall have guards not less than 36 inches in height with a maximum 4 inch opening. *Reference* R312.1



✓ STAIRWAYS

Width

Shall be not less than 36 inches in clear width above handrail height and below headroom height. Handrails shall not project more than 4.5 inches on either side and minimum clear width shall not be less than 31.5 inches where handrail is provided on one side and 27 inches where handrails are provided on both sides. *Reference* R311.7.1 and R311.7.8.2

Headroom

Minimum headroom in all parts of the stairway shall not be less than 6 feet 8 inches. *Reference* R311.7.2

Vertical Rise

A flight of stairs shall not have a vertical rise larger than 12'-7" between floor levels or landings. *Reference* R311.7.3

Riser height

Maximum riser height shall be 7 ¾ inches. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch. *Reference* R311.7.5. 1

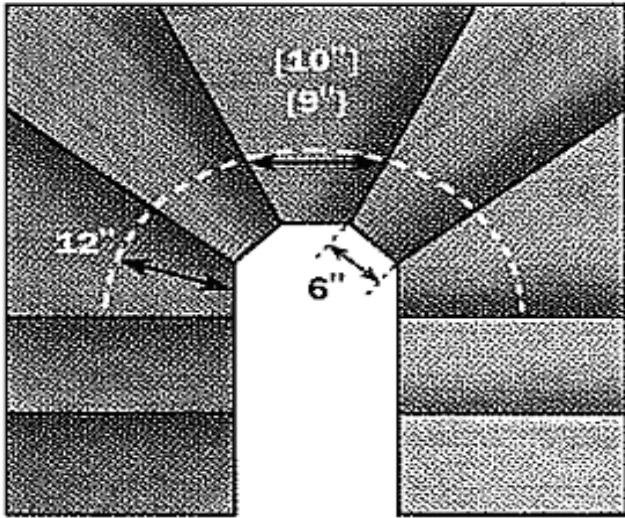
Tread depth

Minimum tread depth shall be 10 inches. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch. *Reference* R311.7.5. 2

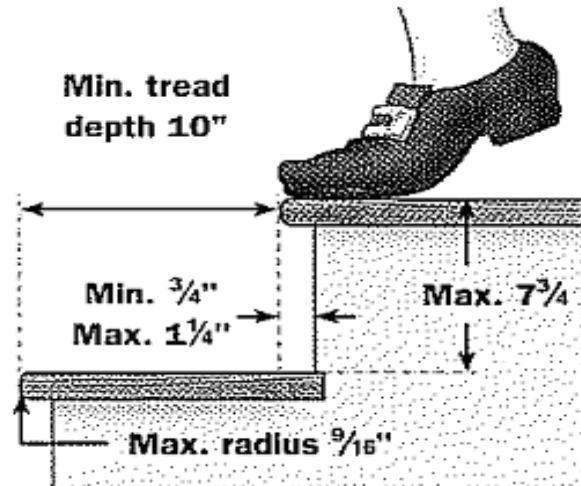
Landings

There shall be a floor or landing at the top and bottom of each stairway. The width of each landing shall not be less than the width of the stairway served and shall have a minimum dimension of 36 inches in the direction of travel. **Exception:** A floor or landing is not required at the top of an interior flight of stairs, including the stairs in an enclosed garage, provided that a door does not swing over the stair. *Reference* R311.7.6

Winding Stairs



Stair Profile



✓ EXTERIOR WALLS

Exterior wall location References IRC Table R302.1(1) and R302.1(2)

Construction, projections, openings and penetrations of exterior walls of dwellings and accessory buildings shall comply with table below. These provisions shall not apply to walls, projections, openings or penetrations in walls that are perpendicular to the line used to determine fire separation distance.

Exceptions: Detached tool sheds and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line. Detached garages accessory to a dwelling located within 2 feet (610 mm) of a lot line are permitted to have roof eave projections not exceeding 4 inches (102 mm). Foundation vents installed in compliance with this code are permitted.

TABLE R302.1(1)
EXTERIOR WALLS

EXTERIOR WALL ELEMENT		MINIMUM FIRE-RESISTANCE RATING	MINIMUM FIRE SEPARATION DISTANCE
Walls	Fire-resistance rated	1 hour—tested in accordance with ASTM E119, UL 263 or Section 703.3 of the <i>International Building Code</i> with exposure from both sides	0 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Projections	Not allowed	NA	< 2 feet
	Fire-resistance rated	1 hour on the underside, or heavy timber, or fire-retardant-treated wood ^{a, b}	≥ 2 feet to < 5 feet
	Not fire-resistance rated	0 hours	≥ 5 feet
Openings in walls	Not allowed	NA	< 3 feet
	25% maximum of wall area	0 hours	3 feet
	Unlimited	0 hours	5 feet
Penetrations	All	Comply with Section R302.4	< 3 feet
		None required	3 feet

For SI: 1 foot = 304.8 mm.

NA = Not Applicable.

a. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the eave overhang if fireblocking is provided from the wall top plate to the underside of the roof sheathing.

b. The fire-resistance rating shall be permitted to be reduced to 0 hours on the underside of the rake overhang where gable vent openings are not installed.

✓ VISITABILITY

Visitability applies to new dwellings units subject to the IRC with habitable space in the first floor.

Detailed plans must be prepared by a Texas-Registered Architect or Certified Building Designer holding a National Council of Building Designers Certification seal. Drawings and notes must be provided specific to project.

- Visitable Dwelling Entrance: No-step entrance with a minimum 32" clear width (36" door) with a beveled threshold 1/2" or less and landing.
- Visitable Bathroom Route: accessible route with 32" min. clear width from no-step entrance through living/dining/kitchen to the visitable bathroom.
- Visitable Bathroom: one visitable bathroom or half bath shall be provided on the first floor. The visitable bathroom door shall have a net clear opening of at least 30 inches (32" door) 2x6 blocking shall be provided in the wall @ 34" height from finished floor for grab bars. Door swings shall not impede a 30" x 30" clear floor space within the visitable bathroom necessary for wheelchair access. In many cases, compliance can be achieved by making the visitable bathroom door swing away from the bathroom.
- Visitable light switches, receptacles and environmental controls on the first floor shall be mounted no higher than 48" and outlets and receptacles shall be no lower than 15" above the floor.
- Exterior Visitable Route: a route originating from garage, driveway, public street or public sidewalk to visitable entrance. Certain lots may qualify for a waiver of this requirement under the following conditions:
 - Lot has a 10% or greater slope prior to development
 - Property for which compliance cannot be achieved without the use of a switchback ramp
 - An exterior route waiver request shall be submitted with the permit application. Exterior route waiver requests require a survey prepared by a Texas Registered Land Surveyor and the Visitability Waiver Request Exhibit shall be prepared by a Texas Registered Architect or Certified Building Designer holding a National Council of Building Designer Certification seal.

Reference R320 local amendments to the 2021 International Residential Code:

https://library.municode.com/tx/austin/codes/land_development_code?nodeId=TIT25LADE_CH25-12TECO_ART11RECO

Note: Refer to **Building Criteria Manual section 4.4.7 Visitability** for additional information:

https://library.municode.com/tx/austin/codes/building_criteria_manual?nodeId=S4RECO_4.4.0RESURE_4.4.7VI

✓ CRITERIA FOR STRUCTURAL PLANS

Suspended Foundations:

- Pier/Footing locations/dimensions
- Pier/footing sizes and depth below grade
- Footing details (materials, reinforcing, etc.)
- Joist/beam layout (size and spacing)
- Details for anchorage of structure to foundation
- Foundation requirements at braced wall panels
- Connection to existing foundation where applicable

Slab-on-grade Foundations:

- Slab layout (beam locations, changes in slab elevation, slab openings)
- Beam sizes (width and depth)
- Concrete compressive strength
- Reinforcing details
- Details for anchorage of structure to foundation
- Foundation requirements at braced wall panels
- Connection to existing foundation where applicable

Footings (for decks, pergolas, carports, etc.):

- Footing locations/dimensions
- Footing sizes and depth below grade

- Footing details (materials, reinforcing, etc.)
- Connection details for superstructure to foundation

Wood Framed Walls:

- Stud spacing/ wood grade
- Headers – size/span/material type
- Foundation/floor/ceiling connection details
- Anchor requirements to foundation

Wood Framed Floors:

- Live loads supported
- Joist sizes
- Joist layout/spacing
- Intermediate girder size and location
- Floor sheathing information (type, thickness)

Wood Framed Roofs:

- Live load supported
- Ceiling joist size/layout/spacing
- Rafter size/layout/spacing
- Ridge boards
- Roof sheathing information (type, thickness)
- Collar ties
- Rafter ties

Trusses/I-joists:

- Truss layout and spacing
- Support structure framing (headers, beams, walls, columns)
- Truss package due at field inspections

Wind Bracing Plans:

- Braced wall lines layout
- Braced wall methods used
- Braced wall panel locations
- Fasteners/nail pattern
- Details for methods used

A Texas Registered Professional Engineer is required for foundations on expansive soils, unsupported spans greater than 24 feet and pre-engineered systems or components. A Texas Registered Professional Engineer or Architect is required for Structural Framing and Wind Bracing of structures over one story, decks over 4 feet height, and structural design not meeting the prescriptive requirements of the 2021 International Residential Code.

✓ **STRUCTURAL VERIFICATIONS**

A Structural Verification Report, completed by a Texas Registered Architect or Engineer, may be submitted in lieu of structural drawing requirements for the following conditions:

- 1) Conversion of a carport with an existing foundation, open on no more than 2 sides, to a single-story habitable space.
- 2) Projects eligible for a Remodel/Repair permit where no additions to the proposed building are proposed
- 3) Change of use with remodel work only where no additions to the building are proposed
- 4) Verification of existing foundations less than 10 years in age
- 5) Verification of existing framing and wall bracing for structures between 5 to 10 years of age
- 6) As required by the reviewer to complete a review for technical code compliance

This verification should include at the minimum:

- 1) Date of the site visit
- 2) Areas of the property observed
- 3) Detailed foundation and framing information of existing structure
- 4) Current condition of existing structure
- 5) Engineer's/Architect's opinion of the adequacy of the existing structure to support the anticipated loads
- 6) Engineer's/Architect's repair plan, if required, to bring the structure up to the adequacy required to support the anticipated loads.

The Structural Verification Report Form can be found at:

https://library.municode.com/tx/austin/codes/building_criteria_manual?nodeId=S4RECO_4.4.0RESURE_4.4.4STPL_4.4.4.7STVERERE