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Re: IRC Regulations and Inspections

Subject: Minimum Requirements

To whom it may concern:

As of January 4, 2010, all residential construction in Galveston County in areas not subject to a city or municipal inspection is now subject to a Galveston County IRC inspection. Many other municipalities have also adopted this policy, such as Jefferson County, Brazoria County and Chambers County. This applies to rural areas that don't currently have city inspectors of their own, such as Crystal Beach, Port Bolivar, High Island, Gilchrist, Freddiesville, etc. This is for residential new construction and additions, or any alteration totaling \$10,000.00 or more.

Since Aran & Franklin Engineering, Inc. has been employed to perform these inspections by some of our clients in some areas, we felt the need to address some of the IRC requirements that you, as the owner/builder, are required to comply with in order to pass the IRC inspections, we do not service all areas for IRC inspections. Egress is an area not typically addressed by our firm, as we provide windstorm and structural services, but as a precaution we would like to provide you with some basic guidelines that you may utilize in order to comply with the current IRC code.

The final phase of the IRC inspections is when the window sizes and egress requirements will be evaluated in the structure. If the windows do not meet the egress requirements during the final inspection, you will not pass or be able to obtain your certificate of occupancy. If you have any question please contact us prior to purchase or installation of your windows. Please note that your usual windstorm inspections provided by Aran & Franklin throughout the construction process do not address issues such as egress. If we notice egress issues on the plans we try to point them out in advance.

Below is a simple description of what egress is, as well as the minimum egress requirements for your reference.

What is an Egress Window?

An egress window is a window that provides an emergency means of exiting a dwelling. Egress windows in dwellings must meet specific size specifications, as required by the International Residential Building Code (IRC), to enable easy exit in case of an emergency.

Where are Egress Windows Required?

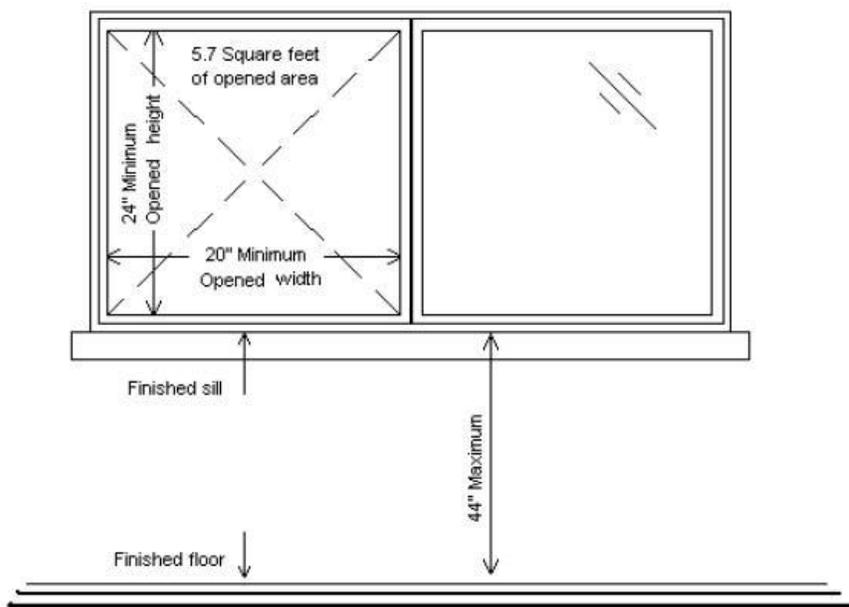
Egress windows are required in any room used for sleeping purposes. If you have an existing home and you add a sleeping room or finish a separate living space in the attic, the code requires that you install an egress window to serve these spaces.

Also all habitable rooms shall have an aggregated glazing area of not less than 8 percent of the floor area of such rooms. Sleeping rooms and habitable rooms shall be provided with natural ventilation by means of openable exterior openings with an area of not less than (4%) of the door area of such rooms with a min. of 5 sq. ft. Natural ventilation shall be through windows, doors, louvers or other approved openings to the outdoor air, unless a mechanical ventilation system is installed with adequate artificial lighting.

An approved mechanical ventilation system should be capable of producing 0.35 air change per hour in the room which it is installed. A whole house system may also be installed and should be capable of supplying outdoor ventilation of 15 cubic ft. per minute.

What are the Requirements for an Egress Window?

The window must have a minimum net clear opening of 5.7 sq. ft. "Net clear opening" refers to the actual free and clear space that exists when the window is open. It is not the rough opening size or the glass panel size, but the actual opening a person can crawl through. The code was designed to allow a firefighter, loaded with gear, to escape quickly thru this exit. The window opening must be operational from the inside without keys or tools.



EMERGENCY EGRESS WINDOW CODE REQUIREMENTS

1. 20" Min. width (when open)
2. 24" Min. height (when open)
3. 5.7 Sq. ft. net clear opening minimum (see exception below)
4. 44" Max vertical height to finished sill of window

COMMON WINDOWS USED FOR EGRESS

- Sliding:
 5'-0" wide x 3'-0" high
 4'-0" wide x 4'-0" high
- Single hung:
 3'-0" wide x 5'-0" high

The chart below summarizes the minimum window dimensions that may achieve a 5.7 square foot opening.

Minimum Width/Height Requirements for Emergency Escape and Rescue Windows (inches)

Width	27.5	28	28.5	29	29.5	30	30.5	31	31.5	32	32.5	33	33.5	34	34.2
Height	29.8	29.3	28.8	28.3	27.8	27.4	26.9	26.5	26.1	25.7	25.3	24.9	24.5	24.1	24

Width	20	20.5	21	21.5	22	22.5	23	23.5	24	24.5	25	25.5	26	26.5	27
Height	41	40	39.1	38.2	37.3	36.5	35.7	34.9	34.2	33.5	32.8	32.2	31.6	31	30.4

Aside from egress requirements, there are specific glazing requirements for windows located in “hazardous areas”. There are several areas of the home that are classified as “hazardous areas”, but basically windows larger than 9 sq. ft., which are located less than 18 in. from the floor and the top of the window is located more than 36” above the floor are required to be tempered. Sliding doors are included in the “hazardous areas” as well. Sidelights which are located less than 60 in. above the finished floor must also be tempered or impact rated. The glass must be permanently marked for impact rating unless an affidavit or certificate is provided by the manufacturer. For further information regarding this requirement, refer to R308.1. Contractors should contact the window manufacturer prior to purchase to verify code compliance.

IRC Section R310

- Egress At A Glance -

- Sill height of window above floor: Not to exceed 44"
- Minimum opening area: 5.7 sq. ft. (5.0 sq. ft. when an opening is at Ground Level)
- Minimum opening height 24"
- Minimum opening width: 20"

Section R31 0.1.1 Minimum opening area:

All emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet (0.530 mm). Exception: Grade floor openings shall have a minimum net clear opening of 5 square feet (0.465mm).

Section R31 0.1.2 Minimum opening height:

The minimum net clear opening height shall be 24 inches (610 mm).

Section R31 0.1.3 Minimum opening width:

The minimum net clear opening width shall be 20 inches (508 mm).

Section R31 0.1 .4. Operational constraints:

Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools.

The windows that you select for your home should be both TDI approved and meet or exceed the required design pressure. When purchasing windows, be careful that you do not exceed the maximum size specified by TDI for that product, but; also be sure that you address the egress and any "hazardous areas" requirements with your contractor or vendor.

A few other areas of concern, other than windows, which we have seen issues with recently are breaker box location, handrail requirements, and electrical classifications.

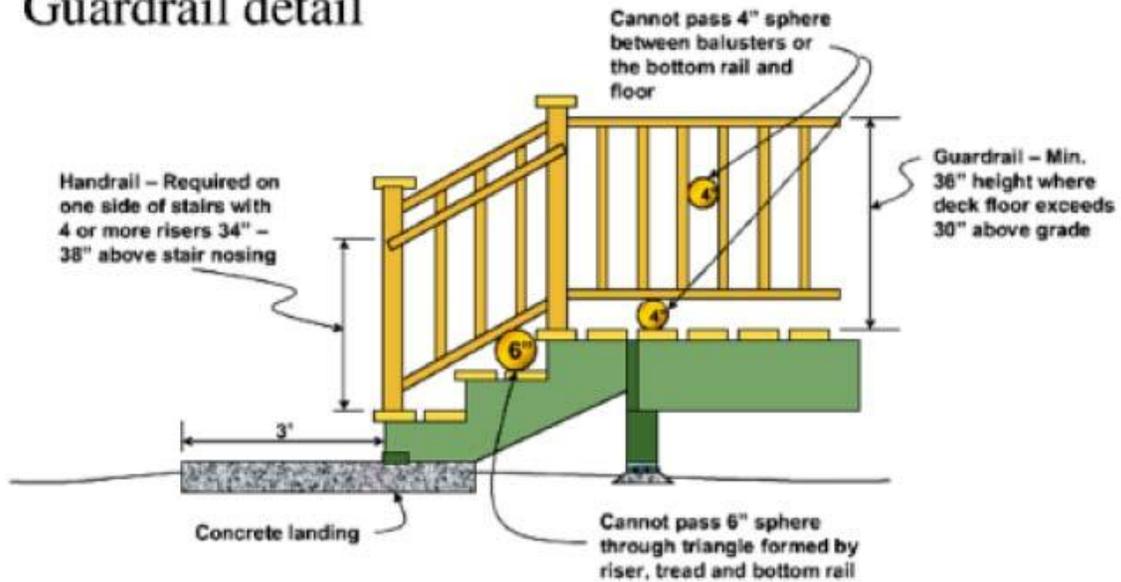
According to Chapter 36 of the IRC, breaker boxes shall not be located in the vicinity of easily ignitable material such as in clothes closets, in bathrooms, or in locations where they will be exposed to physical damage. Boxes installed in wood frame walls must be flush with the finished surface of the wall. You may also refer to section E3305 for appropriate work space clearance in and around the breaker box or panel board area. If you would like ideas of appropriate places you can place your breaker boxes, please contact your IRC inspector for guidance.

The electrical, code is very specific about outlet voltage, placement, circuits, etc. If you are not familiar with the IRC regulations and requirements, you should either review the codes before construction or hire an experienced electrician who knows the requirements in that area.

GFCI circuits are required in areas such as bathrooms, kitchens, laundry, utility, bar sinks, and garage storage/storage areas. Outdoor receptacles require these circuits as well. The only exemptions to garage/storage or outdoor outlets is if the outlets are covered, not readily accessible, only supply a permanently installed fire or burglar alarm or it is a single or duplex receptacle for (2) appliances located within a dedicated space for each appliance that is in normal use and is not easily moved from one place to another, such as a refrigerator or oven. All other outlets should be AFCI circuited. Please contact an experienced professional if you have any questions regarding this issue.

Another problem area that we have noticed during our current IRC inspections is handrail heights and dimensions. According to section R312-Guards in IRC 2006, porches, balconies, ramps, raised floor surfaces, which should be areas such as lofts or bunk areas, surfaces located 30" or more above the floor or grade below should have handrails no less than 36" in height. Open sides of stairs that have a total rise of over 30" should make handrails of no less than 34" in height, measured from the nose of the tread. All handrails or guards, regardless of location, should have intermediate rails and ornamental closures, or balusters which do not allow passage of a 4" sphere. The triangular openings formed by the riser, tread and bottom rail of a stair should not allow the passage of a 6" sphere, Please be aware of these requirements and address them during both the design process and during construction.

Guardrail detail



We hope that this information is helpful, if you have any questions please feel free to contact our office or your windstorm inspector in your area who can direct your questions to the appropriate IRC inspector.

Thank You,

Chandra Franklin Womack,
P.E. President