

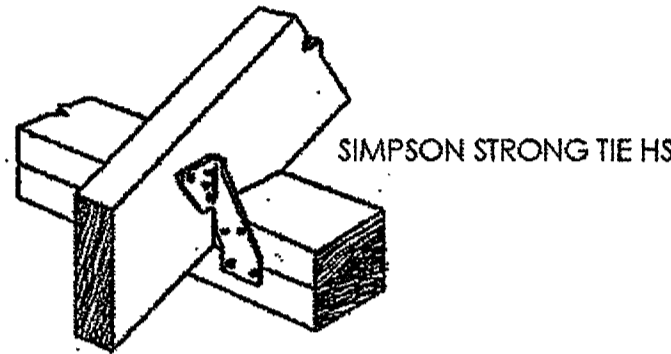
ENGINEERING LEGEND

- S.ST. - SIMPSON STRONG TIES (EQUIVALENT)
- \* - UPLIFT & SHEER NAIL PATTERN FULL WIDTH (SEE NOTE 6)
- \*\* - UPLIFT & SHEER NAIL PATTERN FULL WIDTH (SEE NOTE 6)
- O = STDH10 OR HTT2 - SIMPSON STRONG TIES (EQUIVALENT)
- ⊗ = STDH14 OR HTT OR PHD5 - SIMPSON STRONG TIES (EQUIVALENT)
- TB & C = TIMBER BEAM & COLUMN WINDOW FRAMING
- S.S.F. - STRUCTURAL STEEL FRAME
- B.H. - BEAM HANGERS

FRAMING SPECIFICATIONS DESIGN WINDLOAD - 110 MPH PER ASCE 7-02  
ENGINEERED FOR 2012 IRC  
WIND EXPOSURE "B"

Plans are designed for appropriate wind speed in accordance with IRS 2012 (ASCE-02)  
All work done shall comply with International Residential Code for One and Two Family  
Dwellings (2012 Edition) and International Building Code 2012 Edition where applicable.

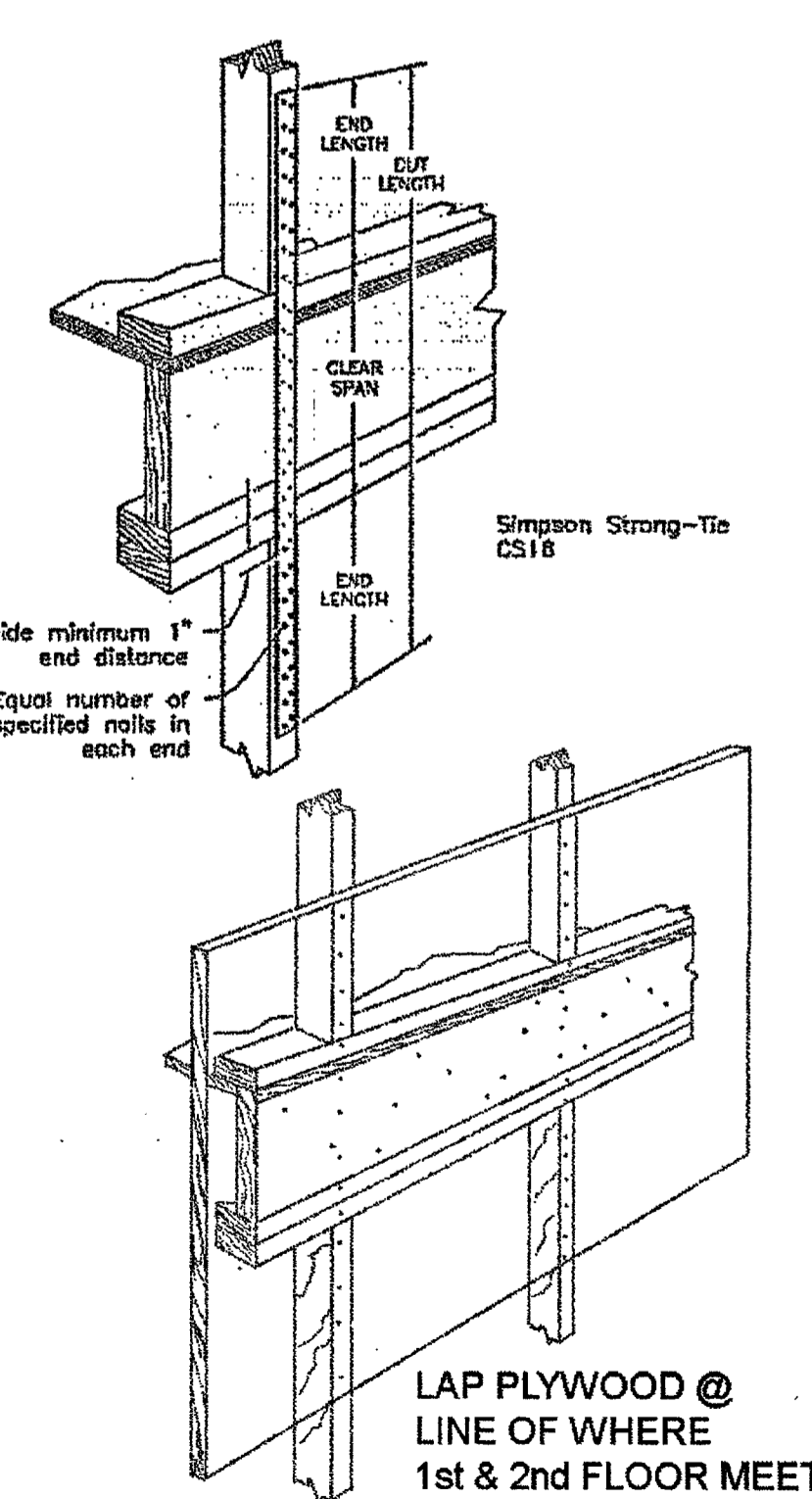
- ANCHOR BOLTS - ANCHOR FLOOR PLATES TO SLAB WITH 1/2" A307 ANCHOR BOLTS (3" LEG) WITH A MINIMUM EMBEDMENT OF 7" WITH 3"x3"x1/4" WASHERS SPACED @ 12" O.C. BEGINNING 12" FROM THE CORNER AND RUNNING FOR 4'-0". BEYOND 4'-0" FROM THE CORNER, SPACED THE BOLTS @ 33" O.C.
- WALLS:
  - ALL FRAMING LUMBER SHALL BE NO. 2 SOUTHERN PINE
  - TYPICAL WALLS SHALL BE 2x4 @ 16" O.C.
  - WET WALLS SHALL BE 2x6 @ 16" O.C.
  - BLOCK ALL WALLS OVER 6' TALL AT MID-HEIGHT
  - FASTEN BOTTOM PLATE OF INTERIOR WALLS WITH 1/4" POWER-DRIVEN NAILS @ 48" O.C.
- RAFTER STRAPPING - INSTALL SIMPSON STRONG TIES HB (OR EQUAL) AT EACH RAFTER - TOP PLATE, STUD - TOP PLATE.



- RAFTER, FLOOR JOISTS AND CEILING JOISTS SIZING - CONTRACTOR RESPONSIBLE TO BRACE AND SPACE FRAMING MEMBERS TO LIMIT SPANS AND SPACING OF JOISTS AND RAFTERS AS GIVEN IN THE AMERICAN WOOD COUNCIL "SPAN TABLES FOR JOISTS AND RAFTERS 2005)  
LIVE LOAD = 40 PSF  
DEAD LOAD = 10 PSF  
(WWW.AWC.ORG)

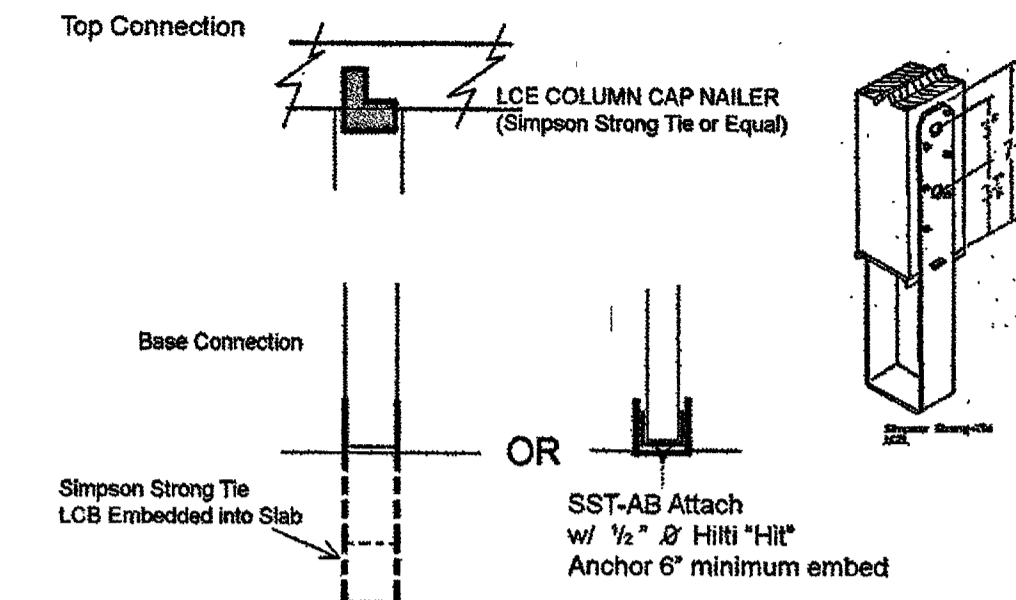
- EXTERIOR WALL SHEATHING:
  - FULLY SHEATH EXTERIOR WALLS WITH 7/16" THICK 32/16 RATED OSB OR PLYWOOD FROM THE TOP OF THE TOP PLATE TO THE BOTTOM OF THE BOTTOM PLATE.
  - NORMAL NAILING PATTERN - 6" O.C. ON EDGES AT 12" O.C. ON INTERIOR.
  - UPLIFT + SHEAR NAILING PATTERN - DOUBLE ROW OF NAILS AT 6" ON HORIZONTAL EDGES, 6" ON CENTER ON VERTICAL EDGES AND 12" ON INTERIOR OF PANEL.
  - USE 10d NAILS, 2-1/4" LONG
  - LAP SHEATHING 2" BELOW AND ABOVE 1st AND 2nd FLOOR.
  - LAP SHEATHING 12" BELOW GABLE END.

- \* = UPLIFT & SHEER NAIL PATTERN 4 FOOT WIDTH (SEE NOTE 6)
  - \*\* = UPLIFT & SHEER NAIL PATTERN FULL WIDTH (SEE NOTE 6) TYPICALLY FROM CORNER TO WINDOW
- 2nd TO 1st FLOOR STRAPPING - SIMPSON STRONG TIE STRAP (OR EQUAL) 24" LONG WITH 4-10d NAILS ON EACH END EVERY 3rd STUD (48" O.C.)

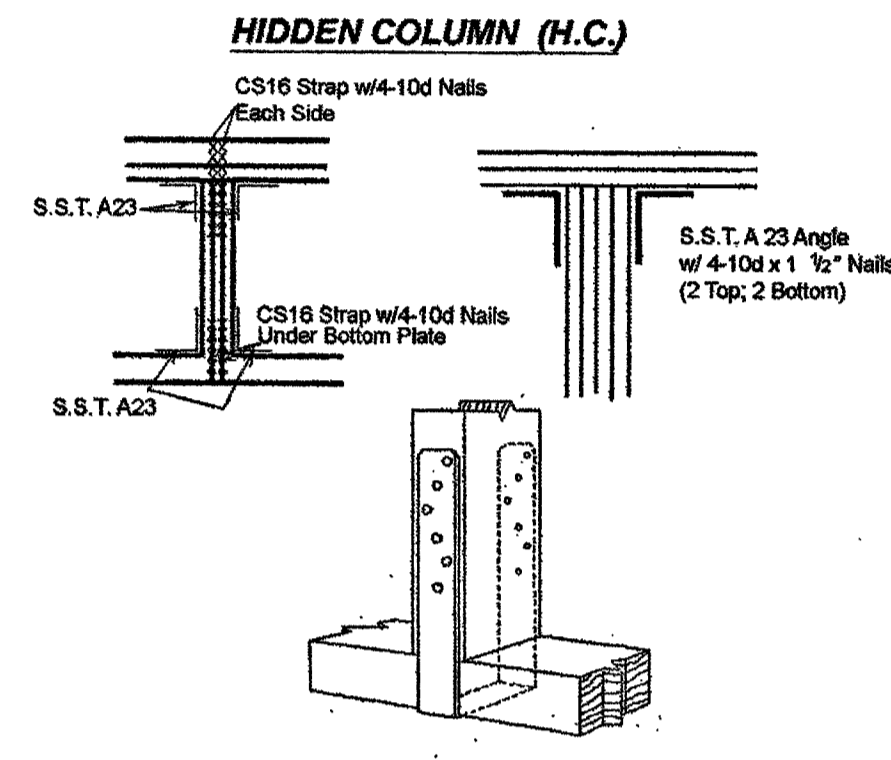


- FLOOR BLOCKING - FULL DEPTH BLOCKING IN THE FIRST TWO SPACES BETWEEN THE FLOOR JOISTS AND THE EXTERIOR WALLS.

EXTERIOR COLUMN DETAILS  
SOLID RECTANGULAR WOODEN COLUMNS



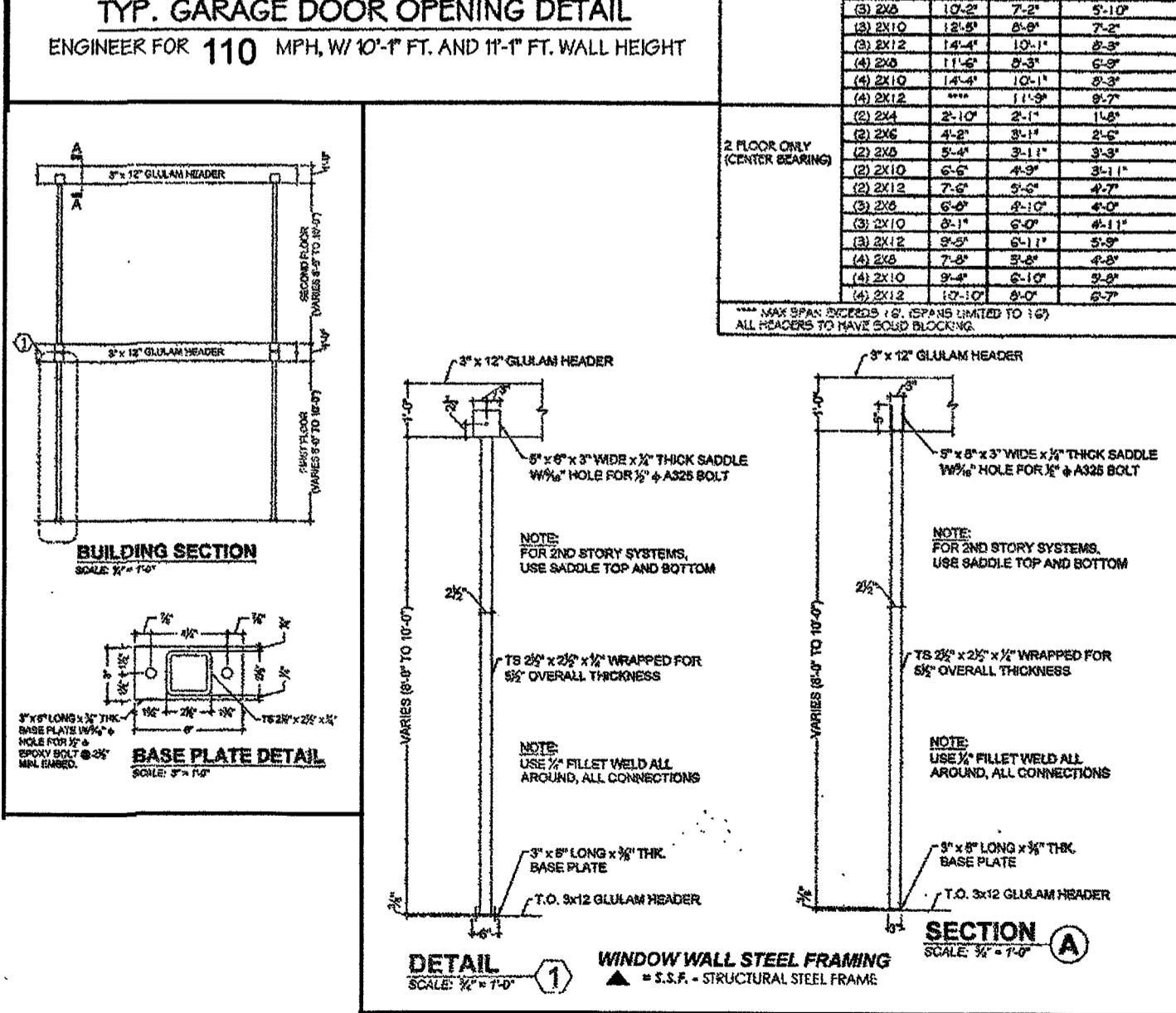
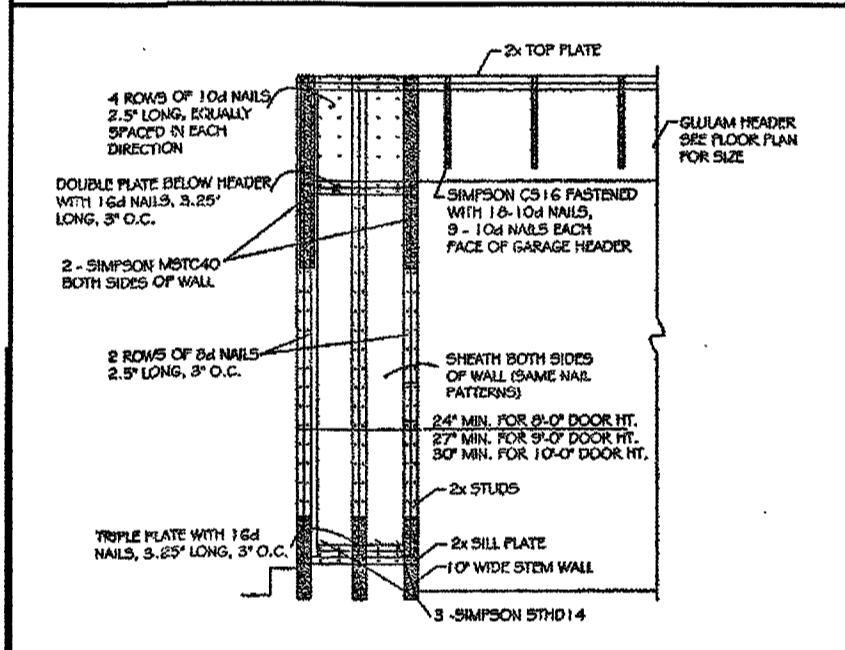
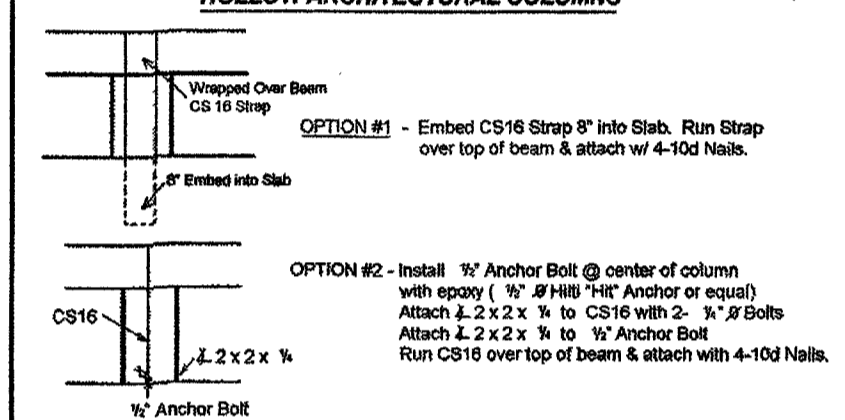
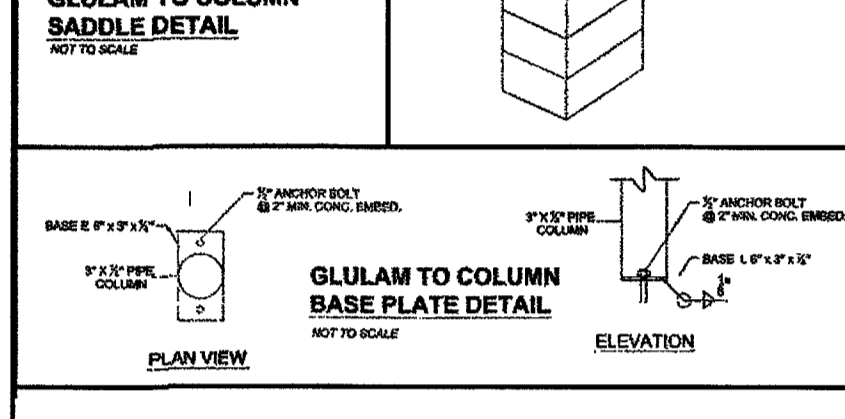
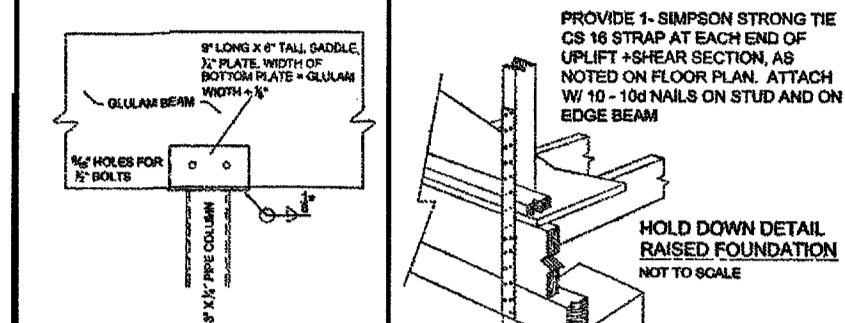
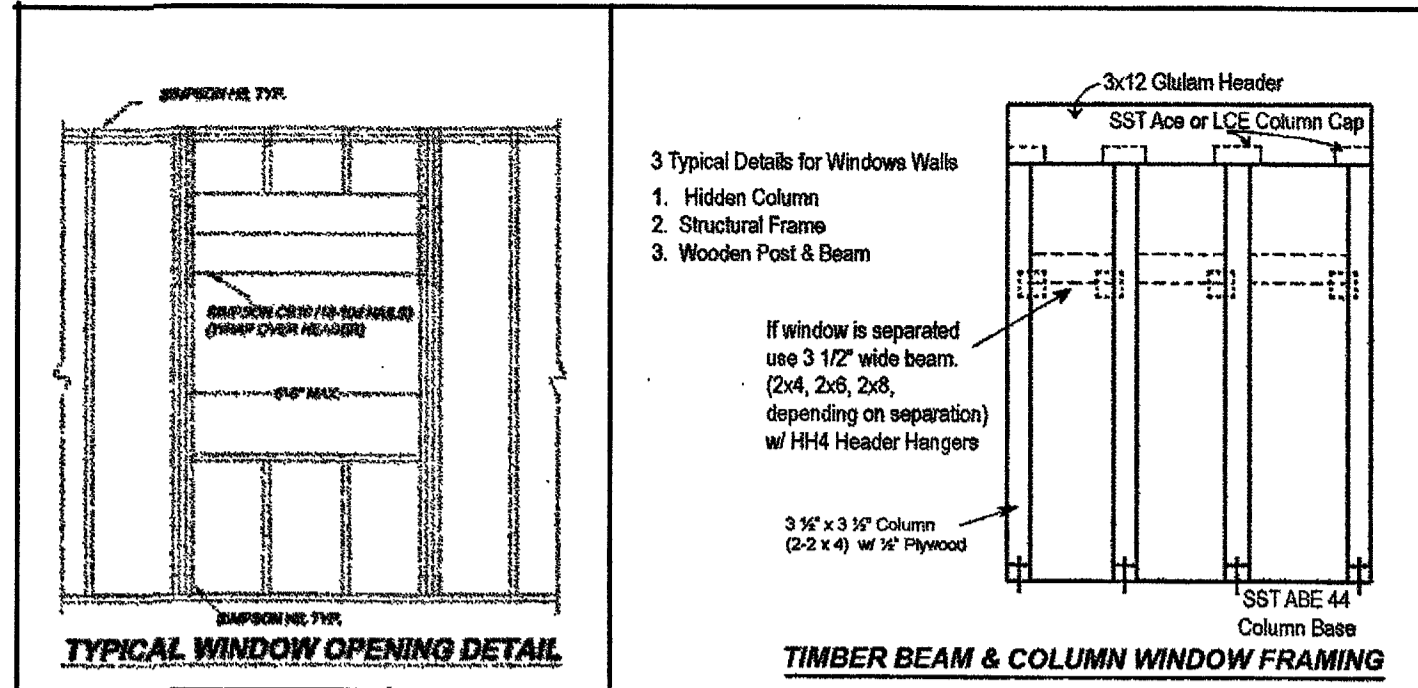
- BEAM SUPPORT - PROVIDE 3-STD COLUMN AT BEARING OF ALL BEAMS OR DOUBLED JOISTS
- "HIDDEN COLUMN" (H.C.) CONSTRUCT IN LOCATIONS MARKED ON THE FLOOR PLAN AND AS SHOWN ON DETAILS.



- GABLE BRACING - PROVIDE 2x6 CROSS BRACING @ 32" O.C.

- ROOF SHEATHING - USE 40/36 RATED OSB OR PLYWOOD PANELS 7/16" MINIMUM THICKNESS ATTACH WITH 8d RING SHANK (2"-6" LONG x 1/2" DIAMETER) NAILS AT 4" O.C. ON ANY PANEL ADJACENT TO A GABLE END AND 6" O.C. ELSEWHERE

- ROOF UNDERLAYMENT - 30# FELT WITH A MINIMUM 2" OVERLAP AND A 6" END LAP NAIL SPACING OF 6" ALONG THE LAPS AND 12" IN THE INTERIOR OF EACH STRAP USE LOW PROFILE NAIL WITH LOAD DISTRIBUTION DISKS.
- ROOF COVERING - SYSTEM MUST WITHSTAND A DESIGN 3 - SECOND 130 MPH GUST.
- WINDOW PROTECTION - USE 7/16" PLYWOOD OR O.S.B. TO COVER WINDOWS. ATTACH WITH #10 MASONRY OR WOOD SCREWS @24" O.C. MAXIMUM.



- Bathub and shower spaces. Bathub and shower floors and walls above bathtubs with installed shower heads and in shower compartments shall be finished with a nonabsorbent surface. Such wall surfaces shall extend to a height of not less than 6 feet (1829 mm) above the floor.
- Carports. Carports shall be open on at least two sides. Carport floor surfaces shall be of approved noncombustible material. Carports not open on at least two sides shall be considered a garage and shall comply with the provisions of this section for garages.

- The area of floor used for parking of automobiles or other vehicles shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.
- Floors and landings at exterior doors. There shall be a landing or floor on each side of each exterior door. The width of each landing shall not be less than the door served. (Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel. Exterior landings shall be permitted to have a slope not to exceed 1/4 unit vertical in 12 units horizontal (2-percent).
- Smoke detection and notification. All smoke alarms shall be listed and labeled in accordance with UL 217 and installed in accordance with the provisions of this code and the household fire warning equipment provisions of NFPA 72.

- Smoke alarms shall be installed in the following locations:
  - In each sleeping room.
  - Outside each separate sleeping area in the immediate vicinity of the bedrooms.
  - On each additional story of the dwelling, including basements and habitable attics but not including crawl spaces and uninhabitable attics. In dwellings or dwelling units with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full story below the upper level.

The provisions of this section shall govern the materials, design, application, construction and installation of foam plastic materials.

- Address numbers. Buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall be a minimum of 4 inches (102 mm) high with a minimum stroke width of 1/2 inch (12.7 mm). Where access is by means of a private road and the building address cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure.

- Requirements. Foundation construction shall be capable of accommodating all loads according to Section R301 and of transmitting the resulting loads to the supporting soil. Fill soils that support footings and foundations shall be designed, installed and tested in accordance with accepted engineering practice. Gravel fill used as footings for wood and precast concrete foundations shall comply with Section R403.

- Foundation elevation. On graded sites, the top of any exterior foundation shall extend above the elevation of the street gutter at point of discharge or the inlet of an approved drainage device a minimum of 12 inches (305 mm) plus 2 percent. Alternate elevations are permitted subject to the approval of the building official, provided it can be demonstrated that required drainage to the point of discharge and away from the structure is provided at all locations on the site.

- Notches in solid lumber joists, rafters and beams shall not exceed one-sixth of the depth of the member, shall not be longer than one-third of the depth of the member and shall not be located in the middle one-third of the span. Notches at the ends of the member shall not exceed one-fourth the depth of the member. The tension side of members 4 inches (102 mm) or greater in nominal thickness shall not be notched except at the ends of the members. The diameter of holes bored or cut into members shall not exceed one-third the depth of the member. Holes shall not be closer than 2 inches (51 mm) to the top or bottom of the member, or to any other hole located in the member. Where the member is also notched, the hole shall not be closer than 2 inches (51 mm) to the notch.

- Engineered wood products. Cuts, notches and holes bored in trusses, structural composite lumber, structural glue-laminated members or I-joists are prohibited except where permitted by the manufacturer's recommendations or where the effects of such alterations are specifically considered in the design of the member by a registered design professional.

- Drilling and notching of studs shall be in accordance with the following:
  - Notching. Any stud in an exterior wall or bearing partition may be cut or notched to a depth not exceeding 25 percent of its width. Studs in nonbearing partitions may be notched to a depth not to exceed 40 percent of a single stud width.

- Drilling. Any stud may be bored or drilled, provided that the diameter of the resulting hole is no more than 60 percent of the stud width, the edge of the hole is no more than 5/8 inch (16 mm) to the edge of the stud, and the hole is not located in the same section as a cut or notch. Studs located in exterior walls or bearing partitions drilled over 40 percent and up to 60 percent shall also be doubled with no more than two successive doubled studs bored. See Figures R602.6(1) and R602.6(2).

- Exception: Use of approved stud shoes is permitted when they are installed in accordance with the manufacturer's recommendations.
- Fireblocking required. Fireblocking shall be provided in accordance with Section R302.11. Fireblocking shall be provided in wood-frame construction in the following locations:
  - In concealed spaces of stud walls and partitions, including furred spaces and parallel rows of studs or staggered studs, as follows:
    - Vertically at the ceiling and floor levels.
    - Horizontally at intervals not exceeding 10 feet (3048 mm).
  - At all interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings.
  - In concealed spaces between stair stringers at the top and bottom of the run. Enclosed spaces under stairs shall comply with Section R302.7.
  - At openings around vents, pipes, ducts, cables and wires at ceiling and floor level, with an approved material to resist the free passage of flame and products of combustion. The material filling this annular space shall not be required to meet the ASTM E 136 requirements.
  - For the fireblocking of chimneys and fireplaces, see Section R1003.19.
  - Fireblocking of cornices of a two-family dwelling is required at the line of dwelling unit separation.

- Asphalt shingles shall be used only on roof slopes of two units vertical in 12 units horizontal (2:12) or greater. For roof slopes from two units vertical in 12 units horizontal (2:12) up to four units vertical in 12 units horizontal (4:12), double underlayment application is required in accordance with Section R905.2.2 Slope.
- Asphalt shingles shall be used only on roof slopes of two units vertical in 12 units horizontal (2:12) or greater. For roof slopes from two units vertical in 12 units horizontal (2:12) up to four units vertical in 12 units horizontal (4:12), double underlayment application is required in accordance with Section R905.2.7.
- Asphalt shingles shall have the minimum number of fasteners required by the manufacturer, but not less than four fasteners per strip shingle or two fasteners per individual shingle. Where the roof slope exceeds 21 units vertical in 12 units horizontal (21:12, 175-percent slope), shingles shall be installed as required by the manufacturer.

- Underlayment application. For roof slopes from two units vertical in 12 units horizontal (17-percent slope), up to four units vertical in 12 units horizontal (33-percent slope), underlayment shall be two layers applied in the following manner. Apply a 19-inch (483 mm) strip of underlayment felt parallel to and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36-inch-wide (914 mm) sheets of underlayment, overlapping successive sheets 19 inches (483 mm), and fastened sufficiently to hold in place. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. For roof slopes of four units vertical in 12 units horizontal (33-percent slope) or greater, underlayment shall be one layer applied in the following manner. Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches (51 mm), fastened sufficiently to hold in place. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. End laps shall be offset by 6 feet (1829 mm).

- Underlayment and high winds. Underlayment applied in areas subject to high winds (above 110 mph (49 m/s) in accordance with Figure R301.2(4)A) shall be applied with corrosion-resistant fasteners in accordance with manufacturer's installation instructions. Fasteners are to be applied along the overlap not farther apart than 36 inches (914 mm) on center.

- Underlayment installed where the basic wind speed equals or exceeds 120 mph (54 m/s) shall comply with ASTM D 226 Type II, ASTM D 4869 Type IV, or ASTM D 6757. The underlayment shall be attached in a grid pattern of 12 inches (305 mm) between side laps with a 6-inch (152 mm) spacing at the side laps. Underlayment shall be applied in accordance with Section R905.2.7 except all laps shall be a minimum of 4 inches (102 mm). Underlayment shall be attached using metal or plastic cap nails with a head diameter of not less than 1 inch (25.4 mm) with a thickness of at least 32-gauge sheet metal. The cap-nail shank shall be a minimum of 12 gauge (0.105 inches) with a length to penetrate through the roof sheathing or a minimum of 3/4 inch (19 mm) into the roof sheathing.

- Exception: As an alternative, adhered underlayment complying with ASTM D 1970 shall be permitted.
- Listing. Factory-built chimneys shall be listed and labeled and shall be installed and terminated in accordance with the manufacturer's installation instructions.
- General. R1004.1 General. Factory-built fireplaces shall be listed and labeled and shall be installed in accordance with the conditions of the listing. Factory-built fireplaces shall be tested in accordance with UL 127.

- Hearth extensions. Hearth extensions of approved factory-built fireplaces shall be installed in accordance with the listing of the fireplace. The hearth extension shall be readily distinguishable from the surrounding floor area. Listed and labeled hearth extensions shall comply with UL 1618. R1004.4 Unvented gas log heaters. An unvented gas log heater shall not be installed in a factory-built fireplace unless the fireplace system has been specifically tested, listed and labeled for such use in accordance with UL 127. P2720.1 Access to pump. Access shall be provided to circulation pumps in accordance with the future or pump manufacturer's installation instructions. Where the manufacturer's instructions do not specify the location and minimum size of field-fabricated access openings, an opening of not less than 12-inches by 12-inches (305 mm by 305 mm) shall be installed for access to the circulation pump. Where pumps are located more than 2 feet (610 mm) from the access opening, an opening of not less than 18 inches by 18 inches (457 mm by 457 mm) shall be installed. A door or panel shall be permitted to close the opening. In all cases, the access opening shall be unobstructed and be of the size necessary to permit the removal and replacement of the circulation pump.

- The Thermal Resistance (R-Value) shall be indicated on all insulation and the insulation installed such that the R-Value can be verified during inspection or a certification of the installed R-Value shall be provided at the job site by the insulation installer. Where blown-in or sprayed insulation is applied in walls, the installer shall provide a certification of the installed density and R-Value. Where blown-in or sprayed insulation is applied to roof ceiling assembly, the installer shall provide a certification of the installed thickness, settled thickness, coverage area and number of bags of insulating material installed. Markers shall be provided for every 300 square feet of attic area, attached to the trusses, rafters or joists and indicated in "1" high numbers the installed thickness of the insulation (R-Values) are required to be included on the drawings.)

- Communications circuits and equipment shall be installed in a neat and workmanlike manner. Cables shall be supported by the building structure in such a manner that the cable will not be damaged by normal building use. FPN: One way to determine accepted industry practice is to refer to nationally recognized standards such as commercial building telecommunications cable standard, ANSI/EIA/TIA 568-A-1995. Commercial buildings standard for telecommunications pathways and spaces.

| THERMAL COMPONENT CRITERIA (U-FACTOR AND R-VALUE) |                         |       |       |       |              |
|---------------------------------------------------|-------------------------|-------|-------|-------|--------------|
| MAX. GLAZING U-FACTOR                             | MIN. INSULATION R-VALUE |       |       |       |              |
|                                                   |                         | CLGS. | WALLS | FIRS. | BSMNT. WALLS |
|                                                   |                         | R-30  | R-13  | R-11  | R-5          |
| .040                                              |                         |       |       |       |              |

| HEADER NAILING SCHEDULE    |                      |                     |                               |
|----------------------------|----------------------|---------------------|-------------------------------|
| DESCRIPTION                | NUMBER OF COM. NAILS | NUMBER OF BOX NAILS | SPACING                       |
| HEAD TO HEAD (FACE-NAILED) | 8d                   | 10d                 | 6" O.C. EDGES/ 12" O.C. FIELD |

| HEADER SPANS - EXPOSURE B FOR EXTERIOR LOADBEARING WALLS |        |                                                  |  |
|----------------------------------------------------------|--------|--------------------------------------------------|--|
| HEADER SIZE                                              | SPAN   | NUMBER OF FULL HEIGHT STUDS REQUIRED AT EACH END |  |
| (2) 2x4                                                  | 4'-7"  | 2                                                |  |
| (2) 2x6                                                  | 5'-6"  | 3                                                |  |
| (2) 2x8                                                  | 6'-1"  | 3                                                |  |
| (2) 2x10                                                 | 6'-8"  | 3                                                |  |
| (2) 2x12                                                 | 7'-1"  | 3                                                |  |
| (3) 2x12                                                 | 8'-8"  | 3                                                |  |
| (3) 2x12                                                 | 8'-8"  | 3                                                |  |
| (4) 2x8                                                  | 8'-7"  | 3                                                |  |
| (4) 2x10                                                 | 9'-6"  | 3                                                |  |
| (4) 2x12                                                 | 10'-0" | 4                                                |  |

NOTE: BUILDING WIDTH IS MEASURED PERPENDICULAR TO THE RIDGE. FOR WIDTHS BETWEEN THOSE SHOWN, SPANS ARE PERMITTED TO BE INTERPOLATED. ALL HEADERS TO HAVE SOLID BLOCKING.

| JACK STUD REQUIREMENTS FOR INTERIOR LOADBEARING WALLS |            |                 |        |        |                          |        |      |        |      |        |      |        |   |
|-------------------------------------------------------|------------|-----------------|--------|--------|--------------------------|--------|------|--------|------|--------|------|--------|---|
| HEADER SUPPORTING                                     | SPAN (FT.) | ROOF SPAN (FT.) |        |        |                          |        |      |        |      |        |      |        |   |
|                                                       |            | 12 FT.          | 24 FT. | 36 FT. | NO. OF JACK STUDS REQ'D. |        |      |        |      |        |      |        |   |
|                                                       |            | 3'4.5"          | 5'6"   | 3'4.5" | 5'6"                     | 3'4.5" | 5'6" | 3'4.5" | 5'6" | 3'4.5" | 5'6" | 3'4.5" |   |
| ONE FLOOR (CENTER BRACING)                            | 2          | 1               | 1      | 1      | 1                        | 1      | 1    | 1      | 1    | 1      | 1    | 1      | 1 |
|                                                       | 4          | 1               | 1      | 1      | 1                        | 1      | 1    | 1      | 1    | 1      | 1    | 1      | 1 |
|                                                       | 6          | 1               | 1      | 1      | 1                        | 1      | 1    | 1      | 1    | 1      | 1    | 1      | 1 |
|                                                       | 8          | 1               | 1      | 1      | 1                        | 1      | 1    | 1      | 1    | 1      | 1    | 1      | 1 |
|                                                       | 10         | 1               | 1      | 1      | 1                        | 1      | 1    | 1      | 1    | 1      | 1    | 1      | 1 |
|                                                       | 12         | 1               | 1      | 1      | 1                        | 1      | 1    | 1      | 1    | 1      | 1    | 1      | 1 |
|                                                       | 14         | 1               | 1      | 1      | 1                        | 1      | 1    | 1      | 1    | 1      | 1    | 1      | 1 |
|                                                       | 16         | 1               | 1      | 1      | 1                        | 1      | 1    | 1      | 1    | 1      | 1    | 1      | 1 |
| 2 FLOOR ONLY (CENTER BRACING)                         | 2          | 1               | 1      | 1      | 1                        | 1      | 1    | 1      | 1    | 1      | 1    | 1      | 1 |
|                                                       | 4          | 1               | 1      | 1      | 1                        | 1      | 1    | 1      | 1    | 1      | 1    | 1      | 1 |
|                                                       | 6          | 2               | 1      | 1      | 1                        | 1      | 1    | 1      | 1    | 1      | 1    | 1      | 1 |
|                                                       | 8          | 2               | 1      | 1      | 1                        | 1      | 1    | 1      | 1    | 1      | 1    | 1      | 1 |
|                                                       | 10         | 2               | 1      | 1      | 1                        | 1      | 1    | 1      | 1    | 1      | 1    | 1      | 1 |
|                                                       | 12         | 3               | 2      | 2      | 2                        | 2      | 2    | 2      | 2    | 2      | 2    | 2      | 2 |
|                                                       | 14         | 3               | 2      | 2      | 2                        | 2      | 2    | 2      | 2    | 2      | 2    | 2      | 2 |
|                                                       | 16         | 4               | 3      | 2      | 2                        | 2      | 2    | 2      | 2    | 2      | 2    | 2      | 2 |

| SILL OR BOTTOM PLATE TO FOUNDATION CONNECTIONS RESISTING SHEAR LOADS 120 MPH WINDS EXP. "B" |                                                   |                                   |                                |
|---------------------------------------------------------------------------------------------|---------------------------------------------------|-----------------------------------|--------------------------------|
| BOTTOM PLATE FOUND. TO FOUNDATION SUPPORT CONNECTION RESISTING                              | FOUND. TO FOUNDATION SUPPORT CONNECTION RESISTING | MAX. ANCHOR BOLT SPACING (INCHES) | MAX. ANCHOR BOLT DIA. (INCHES) |
| UPLIFT LOADS                                                                                | 1-3 STOREYS                                       | 30                                | 45                             |

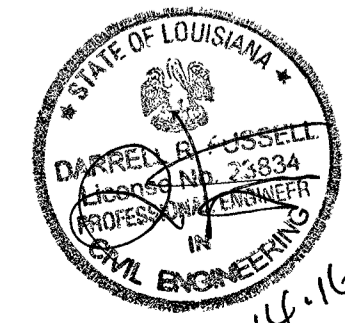
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110 MPH PER ASCE 7-02 - 2012 IRC WIND EXPOSURE "B"



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Engineering Notes  
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