

# INTERNATIONAL RESIDENTIAL CODE REQUIREMENTS

INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING REQUIREMENTS

R301.2.1.1 DESIGN CRITERIA. CONSTRUCTION IN REGIONS WHERE THE BASIC WIND SPEEDS FROM FIGURE R301.2(4) EQUAL OR EXCEED 100 MILES PER HOUR IN HURRICANE PRONE REGIONS, OR 110 MILES PER HOUR ELSEWHERE, THE DESIGN OF BUILDINGS SHALL BE IN ACCORDANCE WITH ONE OF THE FOLLOWING METHODS:  
1) AMERICAN FOREST AND PAPER ASSOCIATION (AF&PA) WOOD FRAME CONSTRUCTION MANUAL (2001 WFCM) FOR ONE AND TWO FAMILY DWELLINGS.

R301.2.2 PROTECTION OF OPENINGS. WINDOWS IN BUILDINGS LOCATED IN WINDBORNE DEBRIS REGIONS SHALL HAVE GLAZED OPENINGS PROTECTED FROM WINDBORNE DEBRIS. GLAZED OPENING PROTECTION FOR WINDBORNE DEBRIS SHALL MEET THE REQUIREMENTS OF THE LARGE MISSILE TEST OF ASTM E1996 AND ASTM E1886 REFERENCED THEREIN. GARAGE DOOR GLAZED OPENING PROTECTION FOR WINDBORNE DEBRIS SHALL MEET THE REQUIREMENTS OF AN APPROVED IMPACT RESISTING STANDARD OR ANIST/DASMA 115.

EXCEPTION: WOOD STRUCTURAL PANELS WITH A MINIMUM THICKNESS OF 7/16-INCH AND A MAXIMUM SPAN OF 8-FEET SHALL BE PERMITTED FOR OPENING PROTECTION IN ONE AND TWO STORY BUILDINGS. PANELS SHALL BE PRE-CUT AND ATTACHED TO THE FRAMING SURROUNDING THE OPENING CONTAINING THE PRODUCT WITH THE GLAZED OPENING. PANELS SHALL BE PRE-DRILLED AS REQUIRED FOR THE ANCHORAGE METHOD AND SHALL BE SECURED WITH THE ATTACHMENT HARDWARE PROVIDED. ATTACHMENTS SHALL BE DESIGNED TO RESIST THE COMPONENT AND CLADDING LOADS DETERMINED IN ACCORDANCE WITH EITHER TABLE R301.2(2) OR ASCE 7. WITH THE PERMANENT CORROSION RESISTANT ATTACHMENT HARDWARE PROVIDED, AND ANCHORS PERMANENTLY INSTALLED ON THE BUILDING. A ATTACHMENT IN ACCORDANCE WITH TABLE R301.2.1.2 IS PERMITTED FOR BUILDINGS WITH A MEAN ROOF HEIGHT OF 33 FEET OR LESS WHERE WIND SPEEDS DO NOT EXCEED 130 MILES PER HOUR.

R302.5 DWELLINGS/GARAGE OPENING/PENETRATION PROTECTION. OPENINGS OR PENETRATIONS THROUGH THE WALLS OR CEILING/S PERATING THE DWELLING FROM THE GARAGE SHALL BE IN ACCORDANCE WITH SECTIONS R302.5.1 THROUGH R302.5.3.  
R302.5.1 OPENING PROTECTION. OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. OTHER OPENING BETWEEN THE GARAGE AND THE RESIDENCE SHALL BE EQUIPPED WITH SOLID WOOD DOORS NOT LESS THAN 1 3/8-INCHES IN THICKNESS, SOLID OR HONEYCOMB STEEL DOORS NOT LESS THAN 1 1/8-INCHES IN THICKNESS, OR 20-MINUTE FIRE RATED DOORS.

R302.6 DWELLINGS/GARAGE FIRE SEPERATION. THE GARAGE SHALL BE SEPERATED AS REQUIRED BY TABLE R302.6. OPENINGS IN GARAGE WALL SHALL COMPLY WITH SECTION R302.5. THIS PROVISION DOES NOT APPLY TO GARAGE WALLS THAT ARE PERPENDICULAR TO THE ADJACENT DWELLING UNIT WALL.

R302.7 UNDER-STAIR PROTECTION. ENCLOSED ACCESSIBLE SPACE UNDER STAIRS SHALL HAVE WALLS, UNDER-STAIR SURFACE AND ANY SOFFIT S PROTECTED ON THE ENCLOSED SIDE WITH 1/2" GYPSUM BOARD.

R302.11 FIREBLOCKING. IN COMBUSTIBLE CONSTRUCTION FIREBLOCKING SHALL BE PROVIDED TO CUT-OFF ALL CONCEALED DRAFT OPENINGS (BOTH VERTICLE AND HORIZONTAL) AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORES, AND BETWEEN A TOP STORY AND THE ROOF SPACE.

FIREBLOCKING SHALL BE PROVIDED IN WOOD FRAME CONSTRUCTION IN THE FOLLOWING LOCATIONS:  
1) IN CONCEALED SPACES OF STUD WALLS OR PARTITIONS, INCLUDING FURRED SPACES AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS.

BATTS OR BLANKETS OF MINERAL OR GLASS FIBER OR OTHER APPROVED NON-RIGID MATERIALS SHALL BE ALLOWED AS FIREBLOCKING IN WALLS CONSTRUCTED USING PARALLEL ROWS OF STUDS OR STAGGERED STUDS.

2) AT ALL INTERCONNECTIONS BETWEEN CONCEALED VERTICAL AND HORIZONTAL SPACES SUCH AS OCCUR AT SOFFITS, DROP CEILING, AND COVE CEILING.

3) IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF THE RUN. ENCLOSED SPACES UNDER STAIRS SHALL COMPLY WITH SECTION R302.7.

4) 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 FIRE RESISTANCE REQUIREMENT.

5) FOR THE FIREBLOCKING OF CHIMNEYS AND FIREPLACES. SEE SECTION R1003.19.

6) FIREBLOCKING OF CORNICES OF A TWO-FAMILY DWELLING IS REQUIRED AT THE LINE OF DWELLING UNIT SEPERATION.

R302.8 BATHUB AND SHOWER SPACES. BATHUBS AND SHOWER FLOORS AND WALLS ABOVE BATHUBS WITH INSTALLED SHOWER HEADS AND IN SHOWER COMPARTMENTS SHALL BE FINISHED WITH A NONABSORBANT SURFACE. SUCH WALL SPACES SHALL EXTEND TO A HEIGHT OF NOT LESS THAN 6 FEET ABOVE THE FLOOR.

R308.4 HAZARDOUS LOCATIONS. THE LOCATIONS DEEMED HAZARDOUS FOR GLAZING SHALL MEET THE REQUIRED PROVISIONS AND EXCEPTIONS OF THIS SECTION IN ITS ENTIRETY AND AS APPLICABLE.

R309.1 FLOOR SURFACE. GARAGE FLOOR SURFACES SHALL BE OF AN APPROVED NONCOMBUSTIBLE MATERIAL. 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 TOWARDS THE MAIN VEHICLE ENTRY DOOR.

R309.4 AUTOMATIC GARAGE DOOR OPENERS. AUTOMATIC GARAGE DOOR OPENERS, IF PROVIDED, SHALL BE LISTED IN ACCORDANCE WITH UL325.

R310.1 EMERGENCY ESCAPE AND RESCUE REQUIRED. BASEMENTS AND HABITABLE SPACES AND EVERY SLEEPING ROOM SHALL HAVE AT LEAST ONE OPERABLE EMERGENCY ESCAPE AND RESCUE OPENING. WHERE BASEMENTS CONTAIN ONE OR MORE SLEEPING ROOMS, EMERGENCY EGRESS AND RESCUE OPENINGS SHALL BE REQUIRED IN EACH SLEEPING ROOM. WHERE EMERGENCY ESCAPE AND RESCUE OPENINGS ARE PROVIDED THEY SHALL HAVE A STILL HEIGHT OF NOT MORE THAN 44-INCHES ABOVE THE FLOOR. WHERE A DOOR OPENING HAVING A THRESHOLD BELOW THE ADJACENT GROUND ELEVATION SERVES AS AN EMERGENCY ESCAPE AND RESCUE OPENING AND IS PROVIDED WITH A BULKHEAD ENCLOSURE, THE BULK-HEAD ENCLOSURE SHALL COMPLY WITH SECTION R310.3. THE NET CLEAR OPENING DIMENSION REQUIRED BY THIS SECTION SHALL BE OBTAINED BY THE NORMAL OPERATION OF THE WINDOW OR DOOR OPENING FROM THE INSIDE. EMERGENCY ESCAPE AND RESCUE OPENINGS WITH A FINISHED STILL HEIGHT BELOW THE ADJACENT GROUND ELEVATION SHALL BE PROVIDED WITH A WINDOW WELL IN ACCORDANCE WITH SECTION R310.2. EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL OPEN DIRECTLY INTO A PUBLIC WAY, OR TO A YARD OR COURT THAT OPENS TO A PUBLIC WAY.

R310.11 MINIMUM OPENING AREA. ALL EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL HAVE A MINIMUM NET CLEAR OPENING OF 57 SQUARE FEET.

R310.12 MINIMUM OPENING HEIGHT. THE MINIMUM NET CLEAR OPENING HEIGHT SHALL BE 24-INCHES.

R310.13 MINIMUM OPENING WIDTH. THE MINIMUM NET CLEAR OPENING WIDTH SHALL BE 20-INCHES.

R310.14 OPERATIONAL CONSTRAINTS. EMERGENCY ESCAPE AND RESCUE OPENINGS SHALL BE OPERATIONAL FROM THE INSIDE OF THE ROOM WITHOUT THE USE OF KEYS, TOOLS, OR SPECIAL KNOWLEDGE.

R311.3 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 MEASURED IN THE DIRECTION OF TRAVEL. EXTERIOR LANDINGS SHALL BE PERMITTED TO HAVE A SLOPE 1/4 UNITS VERTICAL IN 12 UNITS HORIZONTAL (2 PERCENT).

R311.7 STAIRWAYS. STAIRWAYS AND ASSOCIATED STAIR RAILING COMPONENTS SHALL COMPLY WITH THE PROVISIONS AND REQUIREMENTS SET FORTH IN THIS SECTION AS APPLICABLE.

R314.1 SMOKE DETECTION AND NOTIFICATION. ALL SMOKE ALARMS SHALL BE LISTED 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.

R314.3 LOCATION. SMOKE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS:

A) IN EACH SLEEPING ROOM  
B) OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS.

C) ON EACH ADDITIONAL STORY OF THE DWELLING INCLUDING BASEMENTS AND HABITABLE ATTICS BUT NOT INCLUDING CRAWL SPACES AND UNHABITABLE 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 SUPERSEDE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL. WHEN MORE THAN ONE SMOKE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING UNIT, THE ALARM DEVICES SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT.

R314.4 POWER SOURCE. SMOKE ALARMS SHALL RECEIVE THEIR PRIMARY POWER FROM THE BUILDING WIRING WHEN SUCH WIRING IS SERVED FROM A COMMERCIAL SOURCE, AND WHEN PRIMARY POWER IS INTERRUPTED, SHALL RECEIVE POWER FROM A BATTERY. WIRING SHALL BE PERMANENT AND WITHOUT A DISCONNECTING SWITCH OTHER THAN THOSE REQUIRED FOR OVERCURRENT PROTECTION. SMOKE ALARMS SHALL BE INTERCONNECTED.

R316.5.3 AND R314.5.4 ATTICS AND CRAWL SPACES. WITHIN ATTICS AND CRAWL SPACES WHERE ENTRY IS MADE ONLY FOR SERVICE OF UTILITIES, FOAM PLASTICS SHALL BE PROTECTED AGAINST IGNITION BY 1 1/2-INCH MINERAL FIBER INSULATION, 1/4-INCH WOOD STRUCTURAL PANELS, 3/8-INCH PARTIENBOARD, 1/4-INCH HARDBOARD, 3/8-INCH GYPSUM BOARD, OR CORROSION-RESISTANT STEEL HAVING A BARE METAL THICKNESS OF 0.016-INCH.

R317 PROTECTION OF WOOD AND WOOD BASED PRODUCTS AGAINST DECAY. THE PROTECTION OF WOOD FRAMING COMPONENTS AND WOOD BASED PRODUCTS AGAINST DECAY SHALL COMPLY WITH THE PROVISIONS AND REQUIREMENTS SET FORTH IN THIS SECTION AS APPLICABLE.

R318.1 SUBSTRANEAN TERMITE CONTROL METHOD. IN AREAS SUBJECT TO DAMAGE BY TERMITES AS INDICATED BY TABLE R301.2(1), METHOD OF PROTECTION SHALL BE ONE OF THE FOLLOWING METHODS OR A COMBINATION OF THESE METHODS  
1) CHEMICAL TERMITE TREATMENT, AS PROVIDED IN SECTION R318.2  
2) TERMITE BAITING SYSTEM INSTALLED AND MAINTAINED ACCORDING TO THE LABEL.  
3) PRESSURE-PRESERVATIVE-TREATED WOOD IN ACCORDANCE WITH THE PROVISIONS OF SECTION R317.1.

4) NATURALLY DURABLE TERMITE-RESISTANT WOOD.

5) PHYSICAL BARRIERS AS PROVIDED IN SECTION R318.3 AND USED IN LOCATIONS AS SPECIFIED IN SECTION R318.1.

6) COLD-FORMED STEEL FRAMING IN ACCORDANCE WITH SECTION R505.2.1 AND R603.2.1.

R319.1 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.

R322.1 FLOOD RESISTANT CONSTRUCTION. BUILDINGS AND STRUCTURES CONSTRUCTED IN WHOLE OR PART IN FLOOD HAZARD AREAS (INCLUDING A OR V ZONES) SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS CONTAINED IN THIS SECTION.

R322.1.6 PROTECTION OF MECHANICAL AND ELECTRICAL SYSTEMS. ELECTRICAL SYSTEMS, EQUIPMENT AND COMPONENTS, HEATING, VENTILATING, AIR CONDITIONING, PLUMBING APPLIANCES AND PLUMBING FIXTURES, DUCT SYSTEMS, AND OTHER SERVICE EQUIPMENT SHALL BE LOCATED AT OR ABOVE THE ELEVATION REQUIRED IN SECTION R322.2 (FLOOD HAZARD AREAS INCLUDING A ZONES) OR R322.3 (COASTAL HIGH-HAZARD AREAS INCLUDING V ZONES).

R322.2.2 ENCLOSED AREA BELOW DESIGN FLOOD ELEVATION. ENCLOSED AREAS, INCLUDING CRAWL SPACES, THAT ARE BELOW THE DESIGN FLOOD ELEVATION SHALL:

1) BE USED SOLELY FOR PARKING OF VEHICLES, BUILDING ACCESS, OR STORAGE.

2) BE PROVIDED WITH FLOOD OPENINGS THAT MEET THE FOLLOWING CRITERIA:  
2.1) THERE SHALL BE A MINIMUM OF TWO OPENINGS ON DIFFERENT SIDES OF EACH ENCLOSED AREA. IF A BUILDING HAS MORE THAN ONE ENCLOSED AREA BELOW THE DESIGN FLOOD ELEVATION, EACH AREA SHALL HAVE OPENINGS ON EXTERIOR WALLS.

2.2) THE TOTAL NET AREA OF ALL OPENINGS SHALL BE AT LEAST 1 SQUARE INCH FOR EACH SQUARE FOOT OF ENCLOSED AREA.

2.3) THE BOTTOM OF EACH OPENING SHALL BE 1-FOOT OR LESS ABOVE THE ADJACENT GROUND LEVEL.

2.4) OPENINGS SHALL BE AT LEAST 3-INCHES IN ANY DIRECTION IN THE PLANE OF THE WALL.

2.5) ANY LOUVERS, SCREENS, OR OTHER OPENING DEVICES SHALL ALLOW THE AUTOMATIC FLOW OF FLOODWATERS INTO AND OUT OF THE ENCLOSED AREA.

2.6) OPENINGS IN DOORS AND WINDOWS, THAT MEET REQUIREMENTS 2.1 THROUGH 2.5, ARE ACCEPTABLE. HOWEVER DOORS AND WINDOWS WITHOUT INSTALLED OPENINGS DO NOT MEET THE REQUIREMENTS OF THIS SECTION.

R322.3 ENCLOSED AREAS BELOW DESIGN FLOOD ELEVATION. ENCLOSED AREAS BELOW THE DESIGN FLOOD ELEVATION SHALL BE USED SOLELY FOR PARKING OF VEHICLES, BUILDING ACCESS, OR STORAGE.

R401.2 (FOUNDATION) REQUIREMENTS. FOUNDATIONS CONSTRUCTION SHALL BE CAPABLE OF ACCOMODATION 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 FOOTINGS USED FOR WOOD FOUNDATIONS SHALL COMPLY WITH SECTION R403 (SEE TABLE R403.1). MINIMUM WIDTH OF CONCRETE, PRECAST OR MASONRY FOOTINGS "WHEN SUPPORTING CONVENTIONAL LIGHT FRAME CONSTRUCTION).

R402.2 CONCRETE. CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE STRENGTH AS SHOWN IN TABLE R402.2, AND SHALL ALSO MEET THE REQUIREMENTS OF TABLES R301(2)(1) AND R402.2 AS APPLICABLE.

R403.1 GENERAL. ALL EXTERIOR WALLS SHALL BE SUPPORTED ON CONTINUOUS SOLID OR FULLY GROUTED MASONRY OR CONCRETE FOOTINGS. CRUCHED STONE FOOTING CONSTRUCTION OR OTHER ARTS FOUNDATIONAL SYSTEM WHICH SHALL BE OF SUFFICIENT DESIGN TO ACCOMMODATE ALL LOADS ACCORDING TO SECTION R301 AND TO TRANSMIT THE RESULTING LOADS TO THE SOIL WITHIN THE LIMITS AS DETERMINED BY THE CHARACTER OF THE SOIL. FOOTINGS SHALL BE SUPPORTED ON UNDISTURBED NATURAL SOILS OR ENGINEERED FILL. CONCRETE FOOTINGS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF SECTION R403 OR IN ACCORDANCE WITH AC1332.

R403.1.1 MINIMUM SIZE. MINIMUM SIZES FOR CONCRETE AND MASONRY FOOTINGS SHALL BE SET FORTH IN TABLE R403.1 AND R403.1(1). THE FOOTING WIDTH SHALL BE BASED ON THE LOAD-BEARING VALUE OF THE SOIL ACCORDING TO TABLE R401.4.1.

R403.1.3.2 SLAB-ON-GROUND WITH TURNED-DOWN FOOTING. SLABS-ON-GROUND WITH TURNED-DOWN FOOTINGS SHALL HAVE A MINIMUM OF ONE #4 REBAR AT THE TOP AND BOTTOM OF THE FOOTING.

EXCEPTION: FOR SLABS-ON-GROUND CAST MONOLITHICALLY WITH THE FOOTING. LOCATING ONE #5 REBAR OR TWO #4 REBAR LOCATED IN THE MIDDLE THIRD OF THE FOOTING DEPTH SHALL BE PERMITTED AS AN ALTERNATIVE TO PLACEMENT AT THE FOOTING TOP AND BOTTOM.

R403.1.4 MINIMUM DEPTH. ALL EXTERIOR FOOTINGS SHALL BE PLACED AT LEAST 12-INCHES BELOW THE UNDISTURBED GROUND SURFACE. WHERE APPLICABLE THE DEPTH OF THE FOOTING SHALL ALSO CONFORM TO SECTIONS R403.1.4.1 THROUGH R403.1.4.2.

R403.1.6 FOUNDATION ANCHORAGE. SILL PLATES AND WALLS SUPPORTED DIRECTLY ON CONTINUOUS FOUNDATIONS SHALL BE ANCHORED TO THE FOUNDATION IN ACCORDANCE WITH THIS SECTION. WOOD SOLE PLATES AT ALL EXTERIOR WALLS ON MONOLITHIC SLABS, WOOD SOLE PLATES OF BRACED WALL PANELS AT BUILDING INTERIORS ON MONOLITHIC SLABS AND ALL WOOD SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WITH ANCHOR BOLTS SPACED A MAXIMUM OF 4- FEET ON CENTER. BOLTS SHALL BE AT LEAST 1/2-INCH IN DIAMETER AND SHALL EXTEND A MINIMUM OF 7-INCHES INTO CONCRETE OR GROUTED CELL OF CONCRETE MASONRY UNITS. A NUT AND WASHER SHALL BE TIGHTENED ON EACH ANCHOR BOLT. THERE SHALL BE A MINIMUM OF TWO BOLTS PER PLATE SECTION WITH ONE BOLT LOCATED NOT MORE THAN 12-INCHES OR LESS THAN 7-BOLT DIAMETERS FROM EACH END OF THE PLATE SECTION. SILL PLATES AND SOLE PLATES SHALL BE PROTECTED AGAINST DECAY AND TERMITES WHERE REQUIRED BY SECTIONS R317 AND R318.

R404.11 DESIGN OF MASONRY FOUNDATION WALLS. CONCRETE MASONRY FOUNDATIONS SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF THIS SECTION OR IN ACCORDANCE WITH THE PROVISIONS OF AC1330/ASCE 5/TMS 402 OR NCMA TR68-A.

R404.1.2.3.7 REINFORCEMENT. STEEL REINFORCEMENT SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A615, A706, OR A996.

R404.1.2.3.7.4 SUPPORT AND COVER. REINFORCEMENT SHALL BE SECURE IN THE PROPER LOCATION IN THE FORMS WITH TIE WIRE OR OTHER BAR SUPPORT SYSTEM TO PREVENT DISPLACEMENT DURING THE CONCRETE PLACEMENT OPERATION. STEEL REINFORCEMENT IN CONCRETE CAST IN REMOVABLE FORMS THAT WILL BE EXPOSED TO THE EARTH OR THE WEATHER SHALL BE 1 1/2-INCHES FOR #5 BARS AND SMALLER, AND 2-INCHES FOR #6 BARS AND LARGER. STEEL REBAR FOR FOUNDATIONS WALLS SHALL HAVE CONCRETE COVER PER AC 318.

R408.2. OPENINGS FOR UNDER-FLOOR VENTILATION. THE MINIMUM NET AREA OF VENTILATION OPENINGS SHALL NOT BE LESS THAN ONE SQUARE FOOT FOR EACH 150-SQUARE FEET OF UNDER-FLOOR AREA. ONE VENT OPENING SHALL BE WITHIN 3 FEET OF EACH CORNER OF THE BUILDING. VENT OPENINGS SHALL BE COVERED WITH ANY OF THE FOLLOWING PROVIDED THE LEAST DIMENSION OF THE OPENING SHALL NOT EXCEED 1/4-INCH:  
1) PERFORATED SHEET METAL PLATES NOT LESS THAN 0.070-INCH THICK.

2) EXPANDED SHEET METAL PLATES NOT LESS THAN 0.047-INCH THICK.

3) CAST IRON SPILL OR CRACKING.

4) EXTRUDED LOAD BEARING BRICK VENTS.

5) HARDWARE CLOTH OF 0.035-INCH WIRE OR HEAVIER.

6) CORROSION-RESISTANT WIRE MESH, WITH THE LEAST DIMENSION BEING 1/8-INCH.

R408.4 ACCESS. ACCESS SHALL BE PROVIDED TO ALL UNDER-FLOOR SPACES. ACCESS OPENING THROUGH THE FLOOR SHALL BE A MINIMUM OF 18-INCHES BY 24-INCHES. OPENING THROUGH A PERIMETER WALL SHALL BE NOT LESS THAN 16-INCHES BY 24-INCHES.

R408.7 FLOOD RESISTANCE. FOR BUILDINGS LOCATED IN AREAS PRONE TO FLOODING AS ESTABLISHED IN TABLE R301.2(1):  
1) WALLS ENLOSING THE UNDER-FLOOR SPACE SHALL BE PROVIDED WITH FLOOD OPENINGS IN ACCORDANCE WITH SECTION R322.2.2.  
2) THE FINISHED GROUND LEVEL OF THE UNDER-FLOOR SPACE SHALL BE EQUAL TO OR HIGHER THAN THE OUTSIDE FINISHED GROUND LEVEL ON AT LEAST ONE SIDE.

R502.8.1 SAWN LUMBER. NOTCHES IN SOLID LUMBER JOISTS, RAFTERS, AND BEAMS SHALL NOT EXCEED ONE-SIXTH OF THE DEPTH OF THE MEMBER. SHALL BE 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 END OF MEMBERS SHALL NOT EXCEED ONE-FOURTH OF THE DEPTH OF THE MEMBER. THE TENON SIDE OF MEMBERS 4-INCH 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 MEMBER. HOLES SHALL NOT BE CLOSER THAN 2-INCHES 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 TO THE NOTCH.

R502.8.2 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 MANUFACTURERS RECOMMENDATIONS OR WHERE THE EFFECTS OF SUCH ALTERATIONS ARE SPECIFICALLY CONSIDERED IN THE DESIGN OR THE MEMBER BY A REGISTERED DESIGN PROFESSIONAL.

R602.6 DRILLING AND NOTCHING - STUDS. DRILLING AND NOTCHING STUDS SHALL BE IN ACCORDANCE WITH THE FOLLOWING:  
1) 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 NON-BEARING PARTITIONS MAY BE NOTCHED TO A DEPTH NOT TO EXCEED 40 PERCENT OF A SINGLE STUD WIDTH.  
2) DRILLING: ANY STUD MAY BE BORED OR DRILLED PROVIDED THAT THE DIAMETER OF THE RESULTING HOLE IS NO GREATER THAN 60 PERCENT OF THE STUD WIDTH, THE EDGE HOLE IS NO MORE THAN 5/8-INCH 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 DOUBLE STUDS BORED. SEE FIGURES R602.6(1) AND R602.6(2).

EXCEPTION: USE OF APPROVED STUD SHIMS IS PERMITTED WHEN THEY ARE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.

R602.6.1 DRILLING AND NOTCHING OF TOP PLATE. WHEN PIPING OR DUCT WORK IS PLACED IN OR PARTLY IN AN EXTERIOR WALL OR INTERIOR, BRACED OR LOAD BEARING WALL, NECESSITATING A CUTTING, DRILLING, OR NOTCHING OF THE TOP PLATE TO BE MORE THAN 50 PERCENT OF ITS WIDTH, A GALVANIZED METAL TIE NOT LESS THAN 0.094-INCH (16 GAUGE) AND 1 1/2-INCHES WIDE SHALL BE FASTENED ACROSS AND TO THE PLATE AT EACH SIDE OF THE OPENING WITH NOT LESS THAN EIGHT 10# HAVING A MINIMUM LENGTH OF 1 1/2-INCHES AT EACH SIDE OR EQUIVALENT. THE METAL TIE MUST EXTEND A MINIMUM OF 6-INCHES PAST THE OPENING. SEE FIGURE R602.6.1.

EXCEPTION: WHEN THE ENTIRE SIDE OF THE WALL WITH THE NOTCH OR CUT IS COVERED BY WOOD STRUCTURAL PANEL SHEATHING.

R602.8 FIREBLOCKING REQUIRED. FIREBLOCKING SHALL BE PROVIDED IN ACCORDANCE WITH SECTION R302.11.

R604 WOOD STRUCTURAL PANELS

R604.1 IDENTIFICATION AND GRADE. WOOD STRUCTURAL PANELS SHALL CONFORM TO DOC P5 1 OR DOC P5 2 OR, WHEN MANUFACTURED IN CANADA, CSA Q437 OR CSA Q325. ALL PANELS SHALL BE IDENTIFIED BY A GRADE MARK OR CERTIFICATE OF INSPECTION ISSUED BY AN APPROVED AGENCY.

R604.2 ALLOWABLE SPANS. THE MAXIMUM ALLOWABLE SPAN FOR WOOD STRUCTURAL PANEL WALL SHEATHING SHALL NOT EXCEED THE VALUES SET FORTH IN TABLE R602.

R604.3 INSTALLATION. WOOD STRUCTURAL PANELS WALL SHEATHING SHALL BE ATTACHED TO FRAMING IN ACCORDANCE WITH TABLE R602.3(1). WOOD STRUCTURAL PANELS MARKED EXPOSURE 1 OR EXTERIOR ARE CONSIDERED WATER-REPELLANT SHEATHING UNDER THE CODE.

R606.1 GENERAL. MASONRY CONSTRUCTION SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF THIS SECTION OR IN ACCORDANCE WITH THE PROVISIONS OF AC 930 / ASCE 5 / TMS 402.

R606.2 THICKNESS OF MASONRY. THE NOMINAL THICKNESS OF MASONRY WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION R606.2.1 THROUGH R606.2.4.

R606.6 PIERS. THE UNSUPPORTED HEIGHT OF MASONRY PIERS SHALL NOT EXCEED TEN TIMES THEIR LEAST DIMENSION. WHEN STRUCTURAL CLAY TILE OR HOLLOW CONCRETE MASONRY UNITS ARE USED FOR ISOLATED PIERS TO SUPPORT BEAMS AND GIRDERS, THE CELLULAR SPACES SHALL BE FILLED SOLIDLY WITH CONCRETE OR TYPE M OR S MORTAR, EXCEPT THAT UNFILLED HOLLOW PIERS MAY BE USED IF THEIR UNSUPPORTED HEIGHT IS NOT MORE THAN FOUR TIMES THEIR LEAST DIMENSION. WHERE HOLLOW MASONRY UNITS ARE FILLED WITH CONCRETE OR TYPE S OR N MORTAR, THE ALLOWABLE COMPRESSIVE STRESS SHALL BE PERMITTED TO BE INCREASED AS PROVIDED IN TABLE R606.9.

R606.6 PIER CAP. HOLLOW PIERS SHALL BE CAPPED WITH FOUR INCHES OF SOLID MASONRY OR CONCRETE OR SHALL HAVE CAVITIES OF THE TOP COURSE FILLED WITH CONCRETE OR GROUT OR OTHER APPROVED METHOD.

R606.12.3.3 MINIMUM REINFORCEMENT FOR MASONRY COLUMNS. LATERAL TIES IN MASONRY COLUMNS SHALL NOT BE SPACED MORE THAN 8-INCHES ON CENTER AND SHALL BE AT LEAST 3/8-INCH DIAMETER, AND SHALL BE EMBEDDED IN THE MORTAR.

R606.12.3.5 LATERAL TIE ANCHORAGE. STANDARD HOOKS FOR LATERAL TIE ANCHORAGE SHALL BE EITHER 135-DEGREE STANDARD HOOK OR 180-DEGREE STANDARD HOOK.

R607.11 FOUNDATION WALLS. MASONRY FOUNDATION WALL CONSTRUCTED AS SET FORTH IN TABLES R4.11(1) THROUGH R404.11(1) (4) AND MORTAR SHALL BE TYPE M OR S.

R609.4 REINFORCED HOLLOW UNIT MASONRY. REINFORCED HOLLOW UNIT MASONRY SHALL CONFORM TO ALL THE REQUIREMENTS OF SECTION R609.1 AND THE REQUIREMENTS OF THIS SECTION.

R702.3 GYPSUM BOARD

R702.3.1 MATERIALS. ALL GYPSUM BOARD MATERIALS AND ACCESSORIES SHALL CONFORM TO ASTM C76, C79, C475, C514, C630, C931, C990, C1002, C1047, C1177, C1178, C1278, C1395, C1396, OR C1658 AND SHALL BE INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THIS SECTION. ADHESIVES FOR THE INSTALLATION OF GYPSUM BOARD SHALL CONFORM TO ASTM C957.

R703.7 STONE AND MASONRY VENEER. GENERAL. STONE AND MASONRY VENEER SHALL BE INSTALLED IN ACCORDANCE WITH THIS CHAPTER, TABLE R703.4 AND FIGURE R703.7. THESE VENEERS INSTALLED OVER A BACKING OF WOOD OR COLD-FORMED STEEL SHALL BE LIMITED TO THE FIRST STORY ABOVE-GRADE AND SHALL NOT EXCEED 9-INCHES IN THICKNESS. SEE SECTION R602.12 FOR WALL BRACING REQUIREMENTS FOR MASONRY VENEER OR WOOD FRAMED CONSTRUCTION AND SECTION R603.9.5 FOR WALL BRACING REQUIREMENTS FOR MASONRY VENEER FOR COLD-FORMED STEEL CONSTRUCTION.

R703.7.3 LINTELS. MASONRY VENEER SHALL NOT SUPPORT ANY LOAD OTHER THAN THE DEAD LOAD OF THE VENEER ABOVE. VENEER ABOVE OPENINGS SHALL BE SUPPORTED ON LINTELS OF NON-COMBUSTIBLE MATERIAL. THE LINTELS SHALL HAVE A LENGTH EXCEEDING OF NOT LESS THAN FOUR-INCHES. STEEL LINTELS SHALL BE SHOP COATED WITH A RUST-INHIBITIVE PAINT. EACH PIECE SHALL BE SPACED NO MORE THAN 24-INCHES ON CENTER HORIZONTALLY AND VERTICALLY AND SHALL SUPPORT NOT MORE THAN 2.67 SQUARE FEET OF WALL AREA. BE SPACED NOT MORE THAN 24-INCHES ON CENTER HORIZONTALLY AND VERTICALLY AND SHALL SUPPORT NOT MORE THAN 2.7-SQUARE FEET OF WALL AREA.

R703.7.4 ANCHORAGE. MASONRY VENEER SHALL BE ANCHORED TO THE SUPPORTING WALL WITH CORROSION-RESISTANT METAL TIES EMBEDDED IN MORTAR OR GROUT AND EXTENDING INTO THE VENEER A MINIMUM OF 1 1/2-INCHES, WITH NOT LESS THAN 5/8-INCH MORTAR OR GROUT COVER TO OUTSIDE FACE. WHERE VENEER IS ANCHORED TO WOOD BACKINGS BY CORRUGATED SHEET METAL TIES, THE DISTANCE SEPARATING THE VENEER FROM THE SHEATHING MATERIAL SHALL BE A MAXIMUM OF NOMINAL 1-INCH. WHERE VENEER IS ANCHORED TO WOOD BACKINGS USING METAL STRAND WIRE TIES, THE DISTANCE SEPARATING THE VENEER FROM THE SHEATHING MATERIAL SHALL BE A MAXIMUM OF 4 1/2-INCHES. WHERE THE VENEER IS ANCHORED TO COLD-FORMED STEEL BACKINGS, ADJUSTABLE METAL STRAND WIRE TIES SHALL BE USED. WHERE THE VENEER IS ANCHORED TO COLD-FORMED STEEL BACKINGS, THE DISTANCE SEPARATING THE VENEER FROM THE SHEATHING MATERIAL SHALL BE A MAXIMUM OF 4 1/2-INCHES.

R703.7.4.1 SIZE AND SPACING. VENEER TIES, IF STRAND WIRE, SHALL NOT BE LESS THAN No. 9 5-GAUGE WIRE AND SHALL HAVE A HOOK EMBEDDED IN THE MORTAR JOINT, OR IF SHEET METAL, SHALL BE NOT LESS THAN No. 22 US GAGE BY 7/8-INCHES CORRUGATED. EACH TIE SHALL BE SPACED NO MORE THAN 24-INCHES ON CENTER HORIZONTALLY AND VERTICALLY AND SHALL SUPPORT NOT MORE THAN 2.67 SQUARE FEET OF WALL AREA. BE SPACED NOT MORE THAN 24-INCHES ON CENTER HORIZONTALLY AND VERTICALLY AND SHALL SUPPORT NOT MORE THAN 2.7-SQUARE FEET OF WALL AREA.

R703.7.4.2 AIR SPACE. THE VENEER SHALL BE SEPERATED FROM THE SHEATHING BY AN AIR SPACE OF A MINIMUM OF A NOMINAL 1-INCH BUT NOT MORE THAN 4 1/2-INCHES.

R703.8 FLASHING. APPROVED CORROSION-RESISTANT FLASHING SHALL BE INSTALLED IN ACCORDANCE WITH THIS SECTION.

R703.9 EXTERIOR INSULATION AND FINISH SYSTEM (EIFS)/EIFS WITH DRAINAGE. EXTERIOR INSULATION FINISH SYSTEMS (EIFS) SHALL COMPLY WITH THIS CHAPTER AND SECTION R703.9.1 AND R703.9.3. EIFS WITH DRAINAGE SHALL COMPLY WITH THIS CHAPTER AND SECTIONS R703.9.2, R703.9.3, AND R703.9.4.

R703.10 FIBER CEMENT SIDING

R703.10.2 LAB SIDING. FIBER CEMENT SIDING LAB SIDING HAVING A MAXIMUM WIDTH OF 12-INCHES SHALL COMPLY WITH THE REQUIREMENTS OF ASTM C1186, TYPE A, MINIMUM GRADE II. LAP SIDING SHALL BE LAPPED A MINIMUM OF 1 1/4-INCH AND LAP SIDING NOT HAVING A MINIMUM GRADE II SHALL HAVE THE ENDS SEATED WITH CALKING. INSTALLED WITH AN H-SECTION JOINT COVER, LOCATED OVER A STRIP OF FLASHING, OR SHALL BE DESIGNED TO COMPLY WITH SECTION R703.1. LAP SIDING COURSES MAY BE INSTALLED WITH THE FASTER HEADS EXPOSED OR CONCEALED, ACCORDING TO TABLE R703.4 OR APPROVED MANUFACTURERS' INSTALLATION INSTRUCTION.

R703.11 VINYL SIDING. VINYL SIDING SHALL BE CERTIFIED AND LABELED AS CONFORMING TO THE REQUIREMENTS OF ASTM D3679, OR BY AN APPROVED QUALITY CONTROL AGENCY.

R703.11.1 INSTALLATION. VINYL SIDING, SOFFIT AND ACCESSORIES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS' INSTALLATION INSTRUCTIONS.

R802.1 IDENTIFICATION. LOAD-BEARING DIMENSIONAL LUMBER FOR RAFTERS, TRUSSES, AND CEILING JOISTS SHALL BE IDENTIFIED BY A GRADE MARK OF A LUMBER GRADING OR INSPECTION AGENCY THAT HAS BEEN APPROVED BY AN ACCREDITATION BODY THAT COMPLIES WITH DOC P520.

R802.1.4 STRUCTURAL GLUED LAMINATED TIMBERS. GLUE LAMINATED TIMBERS SHALL BE MANUFACTURED AND IDENTIFIED AS REQUIRED IN ANIST/ATC A190.1 AND ASTM D3737.

R802.3.1 CEILING JOIST AND RAFTER CONNECTIONS. CEILING JOISTS AND RAFTERS SHALL BE NAILED TO EACH OTHER IN ACCORDANCE WITH TABLE R802.5.1(9), AND THE RAFTER SHALL BE NAILED TO THE TOP WALL PLATE IN ACCORDANCE WITH TABLE R602.3(1). CEILING JOISTS SHALL BE CONTINUOUS OR SECURELY JOINED IN ACCORDANCE WITH TABLE R802.5.1(9) WHERE THEY MEET OVER INTERIOR PARTITIONS AND ARE NAILED TO ADJACENT RAFTERS TO PROVIDE A CONTINUOUS TIE ACROSS THE BUILDING WHEN SUCH JOISTS ARE PARALLEL TO THE RAFTERS.

COLLAR TIES OR RIDGE STRAPS TO RESIST WIND UPLIFT SHALL BE CONNECTED IN THE UPPER THIRD OF THE ATTIC SPACE IN ACCORDANCE WITH TABLE R602.3(1).

COLLAR TIES SHALL BE A MINIMUM OF 1-INCH BY 4-INCH NOMINAL, SPACED NOT MORE THAN 4- FEET ON CENTER.

R802.4 ALLOWABLE CEILING JOIST SPANS. SPANS FOR CEILING JOISTS SHALL BE IN ACCORDANCE WITH TABLES R802.4(1) AND R802.4(2).

R802.5 ALLOWABLE RAFTER SPANS. SPANS FOR RAFTERS SHALL BE IN ACCORDANCE WITH TABLES R802.5.1(1) THROUGH R802.5.1(8).

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