**GENERAL NOTES:**

A. ALL CONSTRUCTION AND MATERIALS SHALL MEET OR EXCEED IRC 2015. LOCAL BUILDING CODES MAY HAVE DIFFERENT SPECIFICATIONS AND REQUIREMENTS THAN WHAT IS LISTED IN THE IRC 2015, THESE LOCAL REQUIREMENTS WILL SUPERSEDE THE IRC 2015. SEE THE LOCAL BUILDING DEPARTMENT FOR CHANGES.
B. CONTRACTOR TO CONFIRM THE SIZES, SPACING AND SPECIES OF LUMBER OF ALL STRUCTURAL AND FRAMING MEMBERS. ANY STRUCTURAL AND FRAMING MEMBERS NOT INDICATED ARE TO BE SIZED BY OWNER/CONTRACTOR.
C. THE OWNER/CONTRACTOR IS RESPONSIBLE FOR PREVENTIVE MEASURE OF THE BUILD UP OF MOISTURE OR MOLD
D. ALL PRODUCTS ARE TO BE INSTALLED PER THE MANUFACTURE'S RECOMMENDATIONS.
E. ALL MECHANICAL, PLUMBING, AND ELECTRICAL SYSTEMS ARE TO BE DESIGNED BY OTHERS.
F. ALL EXTERIOR STAIRS ARE SHOWN FOR CONCEPT, FINAL DESIGN DETERMINE ON SITE FOR FINAL GRADE.
G. THE FOLLOWING CODE INFORMATIONS IS INTENDED TO ASSIST AND INFORM YOU THROUGH CONSTRUCTION. THIS PROJECT HAS BEEN DRAWN TO PRESCIBE TO INDUSTRY STANDARDS.

**CHAPTER 3 (BUILDING PLANNING)**

A. BUILDING AND STRUCTURES, AND ALL PARTS THEREOF, SHALL BE CONSTRUCTED TO SAFELY SUPPORT ALL LOADS, INCLUDING DEAD LOADS, LIVE LOADS, ROOF LOADS, FLOOD LOADS, SNOW LOADS, WIND LOADS, AND SEISMIC LOADS AS PRESCRIBED BY THIS CODE (R301.1)
B. TABLE 301.2(1) IRC 2015. VALUES BASED FROM THE CITY OF DES MOINES, IOWA.

| GROUND SNOW LOAD | WIND DESIGN | | | | SEISMIC DESIGN CATEGORY | SUBJECT TO DAMAGE FROM | | | WINTER DESIGN TEMP. | ICE BARRIER UNDERLAYMENT REQUIRED | FLOOD HAZARDS | AIR FREEZING INDEX | MEAN ANNUAL TEMP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SPEED (mph) | TOPOGRAPHIC EFFECTS | SPECIAL WIND REGION | WIND-BORNE DEBRIS ZONE | | WEATHERING | FROST LINE DEPTH | TERMITE | | | | | |
| 30 PSF | 115 | NONE | NONE | NONE | A | SEVERE | 42" | MODERATE -HEAVY | -0 F | YES | MARCH 1984 | 1833 | 48.6 F |

C. MINIMUM LIVE LOADS. (R301.5) IRC 2015

| | |
|---|---|
| UNHABITABLE ATTIC WITH LIMITED STORAGE | 20 PSF |
| UNHABITABLE ATTIC WITHOUT STORAGE | 10 PSF |
| HABITABLE ATTIC AND SERVED WITH FIXED STAIRS | 30 PSF |
| DECKS AND EXTERIOR BALCONIES | 40 PSF |
| GUARDRAIL AND HANDRAILS | 200 PSF |
| ROOM OTHER THAN SLEEPING ROOMS | 40 PSF |
| SLEEPING ROOMS | 30 PSF |
| STAIRS | 40 PSF |

DEFLECTION CRITERIA

| | |
|---|---|
| FLOOR LIVE LOAD | L/480 |
| FLOOR TOTAL LOAD | L/360 |
| ROOF LIVE LOAD | L/360 |
| ROOF TOTAL LOAD | L/240 |
| WALL | H/180 |

ALL BEAMS SUPPORTING FLOOR OR ROOF LOADS ARE TO BE DESIGNED WITH THE ABOVE DEFLECTION CRITERIA

MINIMUM ROOF LIVE LOADS(R301.6)IRC 2015

| | |
|---|---|
| ROOF TRUSS LIVE LOAD(Lr) | 20 PSF |
| GROUND SNOW(Pg) | 30 PSF |
| FLAT ROOF SNOW (Pf) | 24 PSF |
| THERMAL CONDITION | Ct = 1.0 |
| TERRAIN EXPOSURE | B |
| DURATION OF LOAD-SNOW | 1.15 |

UNBALANCED AND SNOW DRIFT LOADING ACCORDING TO ASCE/SEI 7-10

| | |
|---|---|
| WIND DESIGN METHOD: | MWFRS/C-C HYBRID ACSE/SEI 7-10 |
| EXPOSURE CATEGORY | B |
| DURATION OF LOAD-WIND | 1.60 |

D. DEAD LOADS ADDITIONAL OR CHANGES TO MATERIAL NEEDS TO BE ADJUSTED TO THE BELOW CALCULATIONS.

**FLOOR-TOP CHORD**

| | |
|---|---|
| CARPET AND PAD | 1.5 PSF |
| 3/8" CERAMIC TILE/ 1/2" BACKER BD. | 10 PSF |
| 3/4" HARDWOOD FLOOR | 4.0 PSF |
| SUBFLOOR-3/4" OSB OR COM-PLYWOOD | 2.0 PSF |
| 1/2 FLOOR TRUSS/I-JOIST SYSTEM | 1.5 PSF |
| **TOTAL WITH CARPET/PAD** | 5.5 PSF |
| **TOTAL WITH TILE/BACKER BD.** | 13.5 PSF |
| **TOTAL WITH HARDWOOD FLOOR** | 7.5 PSF |

**FLOOR-BOTTOM CHORD**

| | |
|---|---|
| 1/2 FLOOR TRUSS/I-JOIST SYSTEM | 1.5 PSF |
| 5/8" GYPBOARD | 2.8 PSF |
| MINIMUM FOR MISC MECHANICAL/ELEC. | 0.7 PSF |
| **TOTAL** | 5.0 PSF |

**ROOF-TOP CHORDS**

| | |
|---|---|
| ROOFING-SHINGLES(220 LBS) 2 LAYER | 4.40 PSF |
| 30 LBS. FELT | 0.30 PSF |
| 1/2" OSB OR COMPLYWOOD | 1.65 PSF |
| 1/2 ROOF TRUSS-2X4 | 1.10 PSF |
| CORRECTION FOR SLOPE (12/12) | 1.55 PSF |
| **TOTAL** | 9.00 PSF |

**ROOF-BOTTOM CHORDS**

| | |
|---|---|
| 1/2 ROOF TRUSS-2X4 | 1.10 PSF |
| 5/8" GYPBOARD | 2.8 PSF |
| MINIMUM FOR MISC MECHANICAL/ELEC. | 1.5 PSF |
| 16" BATT/BLOWN INSULATION | 1.60 PSF |
| **TOTAL** | 7.00 PSF |

SECTION R303: LIGHT AND VENTILATION IN HABITABLE ROOMS, PROVIDE NATURAL LIGHT AND VENTILATION WITH OPERABLE WINDOWS. WINDOW GLAZING SHALL NOT BE LESS THAN 8% OF THE FLOOR AREA OF EACH ROOM. 1/2 THE REQUIRED WINDOW AREA SHALL BE OPERABLE TO THE EXTERIOR FOR NATURAL VENTILATION.
R303.3 BATHROOMS MAY HAVE AN OPERABLE WINDOW OF 3 S.F. IN AREA.
- EXCEPTION:
1. BATHROOM AND WATER CLOSET MAY BE VENTILATED WITH EXHAUST FANS AND ARTIFICIAL LIGHT.

SECTION R304: THE MINIMUM AREA OF ANY HABITABLE ROOM SHALL NOT BE LESS THAN 70 SQ. FEET, EXCEPT KITCHEN.
R304.2 THE MINIMUM LENGTH OR WIDTH OF ANY HABITABLE ROOM SHALL NOT BE LESS THAN 7'-0"

SECTION R305: CEILING HEIGHT HABITABLE SPACE, HALLWAYS, AND PORTION OF THE BASEMENT CONTAINING THESE SPACES SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7 FEET. BATHROOMS, TOILER ROOM, AND LAUNDRY ROOMS SHALL HAVE A CEILING HGT OF NOT LESS THAN 6'-8"
-EXCEPTION
1. FOR ROOMS WITH SLOPED CEILING, THE REQUIRED FLOOR AREA OF THE ROOM SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 5'-0" AND NOT LESS THAN 50% OF THE REQUIRED FLOOR AREA SHALL HAVE A CEILING OF LESS THAN 7'-0"
2. THE CEILING ABOVE A BATHROOM AND TOILET ROOM FIXTURES SHALL BE SUCH THAT THE FIXTURE IS CAPABLE OF BEING USED FOR ITS INTENDED PURPOSE. A SHOWER OR TUB EQUIPPED WITH A SHOWERHEAD SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 6'-8" ABOVE THE AREA OF NOT LESS THAN 30"X30" AT THE SHOWERHEAD.
3. BEAMS, GIRDERS, DUCTS, OR OTHER OBSTRUCTIONS IN BASEMENT CONTAINING HABITABLE SPACE SHALL BE PERMITTED TO PROJECT TO WITHIN 6'-4" OF THE FINISH FLOOR.
R305.1.1 BASEMENT PORTION OF BASEMENT THAT DO NOT CONTAIN HABITABLE SPACE OR HALLWAYS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 6'-8"
-EXCEPTION
1. BEAMS, GIRDERS, DUCTS, OR OTHER OBSTRUCTIONS IN BASEMENT CONTAINING HABITABLE SPACE SHALL BE PERMITTED TO PROJECT TO WITHIN 6'-4" OF THE FINISH FLOOR

SECTION R307.1 TOILET, BATH AND SHOWER SPACES. FIXTURES SHALL BE SPACED IN ACCORDANCE WITH FIGURE R307.1.
1. TOILET: MIN 15" FROM WALL OR TUB OR VANITY.
. MIN 21" CLEARANCE IN FRONT OF TOILET
2. VANITY: MIN 21" CLEARANCE IN FRONT OF VANITY

SECTION R308 GLAZING. EXCEPT AS INDICATED IN SECTION R308.1.1 EACH PANE OF GLAZING INSTALLED IN HAZARDOUS LOCATION DEFINED IN SECTION
R308.4 SHALL BE PROVIDED WITH A MANUFACTURING'S DESIGNATION SPECIFYING WHO APPLIED DESIGNATION, DESIGNATING THE TYPE OF GLASS AND THE SAFETY GLAZING STANDARD.
R308.4.2 GLAZING ADJACENT TO DOORS. GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL ADJACENT TO A DOOR SHALL BE CONSIDERED TO BE A HAZARDOUS LOCATION WHERE THE BOTTOM EXPOSED EDGE OF THE GLAZING IS LESS THAN 60" ABOVE THE FLOOR OR WALKING SURFACE AND MEETS EITHER OF THE FOLLOWING CONDITIONS:
1. WHERE THE GLAZING IS WITHIN 24 INCHES EITHER SIDE OF THE DOOR IN THE PLANE OF THE DOOR IN A CLOSED POSITION.
2. WHERE THE GLAZING IS ON THE WALL PERPENDICULAR TO THE PLANE OF THE DOOR IN A CLOSED POSITION AND WITHIN 24" OF THE HINGE SIDE OF AN IN-SWINGING DOOR.
-EXCEPTION
1. DECORATIVE GLASS
2. WHERE THERE IS AN INTERVENING WALL OR OTHER PERMANENT BARRIER BETWEEN DOOR AND THE GLAZING
3. WHERE ACCESS THROUGH THE DOOR IS TO A CLOSET OR STORAGE AREA 3 FEET OR LESS IN DEPTH
4. GLAZING THAT IS ADJACENT TO A FIXED PANEL OF PATIO DOORS,
R308.4.3 GLAZING IN WINDOWS. GLAZING IN AN INDIVIDUAL FIXED OR OPERABLE PANEL THAT MEETS ALL OF THE FOLLOWING CONDITIONS.
1. THE EXPOSED AREA OF AM INDIVIDUAL PLAN IS LARGER THAN 9 SQUARE FEET
2. THE BOTTOM EDGE OF THE GLAZING IS LESS THAN 18" ABOVE THE FLOOR
3. THE TOP EDGE OF THE GLAZING IS MORE THAN 36" ABOVE THE FLOOR: AND
4. ONE OR MORE WALKING SURFACE ARE WITHIN 36", MEASURED HORIZONTALLY AND IN A STRAIGHT LINE, OF THE GLAZING
-EXCEPTION
1. DECORATIVE GLASS
2. WHERE HORIZONTAL RAIL IS INSTALLED.
R308.4.5 GLAZING IN WET SURFACES. GLAZING IN WALLS, ENCLOSURES OR FENCES CONTAINING OR FACING HOT TUBS, SPAS, WHIRLPOOL, SAUNAS, STEM ROOMS, BATHTUBS, SHOWERS AND INDOOR OR OUTSIDE POOLS WHERE THE BOTTOM EXPOSED EDGE OF GLAZING IS LESS THAN 60" MEASURED VERTICALLY ABOVE THE STANDING OR WALKING SURFACE
R308.4.6 GLAZING ADJACENT TO STAIRS AND RAMPS.GLAZING WHERE THE BOTTOM EDGE OF THE GLAZING IS LESS THAN 36" ABOVE THE PLANE OF THE ADJACENT WALKING SURFACE OF THE STAIRWAY, LANDING BETWEEN FLIGHTS OF STAIRS AND RAMPS.
-EXCEPTIONS
1. WHERE RAILING IS INSTALLED ON THE ACCESSIBLE SIDE OF THE GLAZING 34" TO 38" ABOVE WALKING SURFACE.

SECTION R310. EMERGENCY ESCAPE AND RESCUE OPENING. BASEMENT, HABITABLE ATTICS AND EVERY SLEEPING ROOM SHALL HAVE AN EMERGENCY ESCAPE AND RESCUE OPENING.
-EXCEPTION. STORM SHELTERS ANDS BASEMENT USED ONLY TO HOUSE MECHANICAL EQUIPMENT NOT EXCEEDING A TOTAL FLOOR AREA OF 200 SQUARE FEET.
R310.2.1 MINIMUM OPENING AREA: EMERGENCY AND ESCAPE OPENING SHALL HAVE A NET CLEAR OPENING OF NOT LESS THAN 5.7 SQUARE FEET. THE NET CLEAR AREA DIMENSIONS REQUIRED BY THIS SECTION SHALL BE OBTAINED BY NORMAL OPERATION FROM THE INSIDE. THE NET CLEAR HEIGHT OPENING SHALL NOT BE LESS THAN 24" AND THE NET CLEAR WIDTH SHALL NOT BE LESS THAN 20"
R310.2.2 WINDOW SILL HEIGHT. WHERE THE WINDOW IS PROVIDED AS THE EMERGENCY ESCAPE AND RESCUE OPENING, IT SHALL HAVE A SILL HEIGHT OF NOT MORE THEN 44" ABOVE THE FLOOR
R310.2.3 WINDOW WELLS: THE HORIZONTAL AREA OF THE WINDOW WELL SHALL NOT BE LESS THAN 9 SQ. FT., WITH THE HORIZONTAL PROJECTION AND WIDTH OF NOT LESS THAN 36" THE AREA OF THE WINDOW WELL SHALL ALLOW THE EMERGENCY ESCAPE AND RESCUE OPENING TO BE FULLY OPENED.
-EXCEPTION
1. THE LADDER OR STEPS SHALL BE PERMITTED TO ENCROACH NOT MORE THAN 6".
R310.2.3.1 WINDOW WELLS WITH A VERTICAL STEP GREATER THAN 44" SHALL BE EQUIPPED WITH A PERMANENT LADDER NOT LESS THAN 12" WIDE

SECTION 311
R311.7.1 STAIRWAYS. STAIRWAY ARE TO BE NOT LESS THAN 36" WIDE IN CLEAR WIDTH AT ALL POINTS ABOVE THE PERMITTED HANDRAIL HEIGHT. HANDRAILS SHOULD PROJECT MORE THAN 4 1/2" ON EITHER SIDE OF THE STAIRWAY.
R311.7.5 HEADROOM. THE HEADROOM IN THE STAIRWAY SHALL BE NOT LESS THAN 6'-8" MEASURED VERTICALLY FROM THE SLOPED LINE ADJOINING THE TREAD NOSING OR FROM THE FLOOR SURFACE OF THE LANDING
R311.7.3 VERTICAL RISE: A FLIGHT OF STAIRS SHALL NOT HAVE A VERTICAL RISE LARGER THAN 12'-3"
R311.7.5 THE MAXIMUM RISER IS 7 3/4" WITH A MINIMUM RUN OF 10".
R311.7.8 HANDRAILS SHALL BE ON NOT LESS THAN ONE SIDE OF EACH CONTINUES RUN OF TREADS

SECTION 314 SMOKE ALARMS. SMOKE ALARMS SHALL COMPLY WITH NFPA 72 AND UL 217
R314.3 LOCATION
1. IN EACH SLEEPING ROOM
2. OUTSIDE EACH SEPARATE SLEEPING AREA
3. ON EACH ADDITIONAL STORY OF THE DWELLING, INCLUDING BASEMENT AND HABITABLE ATTICS
4. SMOKE ALARMS SHALL BE INSTALLED NOT LESS THAN 3'-0" HORIZONTALLY FROM THE DOOR OR OPENING OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER UNLESS THIS WOULD PREVENT PLACEMENT OF A SMOKE ALARM IN THAT LOCATION.
R314.3.1 SMOKE ALARMS SHALL NOT BE INSTALLED IN THE FOLLOWING AREAS
1. IONIZATION SMOKE ALARMS SHALL NOT BE INSTALLED LESS THAN 20'-0" HORIZONTALLY FROM A PERMANENTLY INSTALLED COOKING APPLIANCE
2. IONIZATION SMOKE ALARMS WITH AN ALARM-SILENCING SWITCH SHALL NOT BE INSTALLED LESS THAN 10'-0" HORIZONTALLY FROM A PERMANENTLY INSTALLED APPLIANCE
3. PHOTOELECTRIC SMOKE ALARMS SHALL NOT BE INSTALLED LESS THAN 6'-0" HORIZONTAL FROM A PERMANENTLY INSTALLED COOKING APPLIANCE.
SECTION R315 CARBON MONOXIDE ALARMS: SHALL COMPLY WITH UL 2034. COMBINATION CARBON MONOXIDE AND SMOKE ALARMS SHALL BE LISTED IN ACCORDANCE WITH UL 2034 AND UL 217
R315.2.1 CARBON MONOXIDE SHALL BE PROVIDED IN DWELLING UNITS WHERE EITHER OR BOTH OF THE FOLLOWING CONDITION EXIST:
1. CONTAINS A FUEL-FIRED APPLIANCE
2. ATTACHED GARAGE WITH AN OPENING THAT COMMUNICATES WITH THE DWELLING
SECTION 317 PROTECTION OF WOOD AND WOOD BASED PRODUCTS AGAINST DECAY.
R317.1 LOCATION REQUIRED. PROTECTION OF WOOD AND WOOD-BASED PRODUCTS FROM DECAY SHALL BE PROVIDING IN THE FOLLOWING LOCATIONS BY USE OF NATURALLY DURABLE WOOD OR WOOD THAT IS PRESERVATIVE-TREATED IN ACCORDANCE WITH AWPA U1 FOR THE SPECIES, PRODUCT, PRESERVATIVE AND END USE.
1. WOOD JOIST OR BOTTOM OF A WOOD STRUCTURAL FLOOR WHEN CLOSER THAN 18" OR WOOD GIRDERS WHEN CLOSER THAN 12" TO THE EXPOSED GROUND IN CRAWL SPACES OR UNEXCAVATED AREAS LOCATED WITHIN THE PERIPHERY OF THE BUILDING FOUNDATION.
2. WOOD FRAMING MEMBERS THAT REST ON CONCRETE OR MASONRY EXTERIOR FOUNDATION WALLS AND ARE LESS THAN 8" FROM EXPOSED GROUND.
3. SILLS AND SLEEPERS ON A CONCRETE OR MASONRY SLAB THAT IS IN DIRECT CONTACT WITH THE GROUND UNLESS SEPARATED FROM SUCH SLAB BY AN IMPERVIOUS MOISTURE BARRIER.
4. THE ENDS OF A WOOD GIRDER ENTERING CONCRETE WALLS HAVING CLEARANCE OF LESS THAN 1/2" ON TOPS, SIDES AND ENDS.
5. WOOD SIDING, SHEATHING AND WALL FRAMING ON THE EXTERIOR OF A BUILDING HAVING A CLEARANCE OF LESS THAN 6" FROM THE GROUND OR LESS THAN 2" MEASURED VERTICALLY FROM CONCRETE STEPS, PORCH SLABS, AND SIMILAR HORIZONTAL SURFACES EXPOSED TO THE WEATHER.
6. WOOD STRUCTURAL MEMBERS SUPPORTING MOISTURE-PERMEABLE FLOORS OR ROOFS THAT ARE EXPOSED TO THE WEATHER, SUCH AS CONCRETE SLABS.
7. WOOD FURRING STRIPS OR OTHER WOOD FRAMING MEMBERS ATTACHED DIRECTLY TO THE INTERIOR OF EXTERIOR MASONRY OR CONCRETE WALLS BELOW GRADE EXCEPT WHERE AN APPROVED VAPOR RETARDER IS APPLIED BETWEEN WALL AND THE FURRING STRIP.
R317.3.1 FASTENERS OF PRESERVATIVE-TREATED WOOD. FASTENERS, INCLUDING NUTS AND WASHERS, FOR PRESERVATIVE-TREATED WOOD SHALL BE OF HOT-DIPPED, ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER.COATING TYPES AND WEIGHTS FOR CONNECTORS IN CONTACT WITH PRESERVATIVE-TREATED WOOD SHALL BE ACCORDANCE WITH THE CONNECTOR MANUFACTURER'S RECOMMENDATIONS.

**CHAPTER 4 (FOUNDATIONS)**

SECTION 401.4 SOIL TEST: WHERE QUANTIFIABLE DATA CREATED BY ACCEPTABLE SOIL SCIENCE METHODOLOGIES INDICATE EXPANSIVE, COMPRESSIBLE, SHIFTING OR OTHER UNKNOWN SOIL CHARACTERISTICS, THE BUILDING OFFICIAL SHALL DETERMINE WHETHER A SOIL TEST IS REQUIRED.

TABLE R401.4.1

| CLASS OF MATERIAL | LOAD BEARING PRESSURE |
|---|---|
| SAND, SILTY SAND, CLAYEY SAND, SILTY GRAVEL AND CLAYEY GRAVEL | 2,000 POUNDS PER SQ FT |
| CLAY, SANDY, SILTY CLAY, CLAYEY SILT, SILT, AND SANDY SILT CLAY | 1,500 POUNDS PER SQ FT |

THIS DESIGN IS BASED ON 2,000 POUNDS PER SQ FT, UNLESS NOTED OTHERWISE. IT IS THE BUILDER OR HOMEOWNER RESPONSIBLE TO LET PLUM DESIGN SERVICE KNOW IF THE CONDITION IN THE FIELD ARE DIFFERENT.

R402.2 CONCRETE: FROM TABLE R402.2
-FOUNDATION CONCRETE WALLS SHALL HAVE A MIN. STRENGTH OF 3000 PSI
-GARAGE FLOOR SLABS SHALL BE 3,500 PSI
-PORCHES, CARPORT SLABS AND STEPS EXPOSED TO THE WEATHER SHALL BE 3,500 psi AT 28 DAYS
-BASEMENT SLABS 2,500 PSI
(CONCRETE SHALL BE AIR ENTRAINED WITH 5%-7% TOTAL AIR CONTENT).

R403 ALL FOOTING SHALL BE PLACED ON UNDISTURBED SOIL OR CONTROLLED COMPACTED FILL. MINIMUM FOOTING TO BE 16" WIDE X 8"DEEP FOR A 2 STORY BUILDING AND 20" WIDE X 8" DEEP FOR A 3 STORY BUILDING (TABLE 403.1) BOTH WITH 2 CONTINUOUS HORIZONTAL #4 REBAR.
R403.1.6 ALL ANCHOR BOLTS SHALL BE APPROVED 1/2" IN DIAMETER AND SHALL EXTEND A MINIMUM OF 7" INTO CONCRETE. USE TWO BOLTS PER SILL PLATE WITH BOLTS SPACED AT A MAXIMUM OF 6 FEET ON CENTER WITH A MINIMUM OF ONE BOLT NOT MORE THAN 12 INCHES FROM THE END BUT AT LEAST 3 1/2 INCHES FROM END OF SILL PLATE. THE BOLTS SHALL BE LOCATED IN THE MIDDLE THIRD OF THE WIDTH OF THE PLATE.
- ALTERNATE FOUNDATION STRAPS MAY BE USED, SPECIFICATION TO PROVIDE EQUIVALENT ANCHOR TO A 1/2" DIAMETER ANCHOR BOLTS.
R404 CONCRETE FOUNDATION WALLS SHALL BE CONSTRUCTED AS SET FORTH IN TABLE R404.1.2(3). REFER TO TYPICAL WALL SECTION IN THIS PLAN FOR SPECIFICATION.
R406 FOUNDATION WATERPROOFING AND DAMPPROOFING
EXCEPT WHERE REQUIRED IN SECTION R406.2 TO BE WATERPROOFED, FOUNDATION WALLS THAT RETAIN EARTH AND ENCLOSED INTERIOR SPACES AND FLOORS ABOVE GRADE SHALL BE DAMPPROOFING FROM THE HIGHER OF THE TOP OF THE FOOTING, TO THE FINISHED GRADE.
R408 UNDER FLOOR SPACE
THE UNDER-FLOOR SPACE BETWEEN THE BOTTOM OF THE JOIST AND THE EARTH UNDER ANY BUILDING SHALL HAVE VENTILATION OPENING THROUGH THE FOUNDATION WALLS OR EXTERIOR WALLS. MIN. NET AREA OF VENTILATION SHALL NOT BE LESS THAN 1 SQ FT FOR EACH 150 SQ FT OF AREA UNDER THE FLOOR.
R408.4 ACCESS THROUGH THE FLOOR IS REQUIRED TO BE 18" X 24"

**CHAPTER 5 (FLOORS)**

FRAMING MATERIALS GRADES
A. ROOF, FLOOR, AND WALL SHEATHING: APA RATED SHEATHING. (LEAVE 1/8" SPACING AT PANEL ENDS AND EDGES)
B. WALL STUDS: DOUGLAS FIR #2 OR BETTER.
C. WALL PLATES: SPRUCE PINE FIR #2 OR BETTER.
D. DIMENSIONAL HEADERS: DOUGLAS FIR #2 OR BETTER.
E. LVL HEADERS: 2900 Fb/2.0E MINIMUM.
F. STEEL ASTM SPECIFICATION A992 GRADE-50 OR EQUAL
R502.4 JOIST UNDER PARALLEL BEARING PARTITIONS SHALL BE OF ADEQUATE SIZE TO SUPPORT THE LOAD.
R502.6 THE ENDS OF EACH JOIST, BEAM, OR GIRDER SHALL HAVE NOT LESS THAN 1.5 INCHES OF BEARING ON WOOD OR METAL AND NOT LESS THAN 3 INCHES ON CONCRETE.
R502.8 NO CUTS, NOTCHES, AND HOLES BORED INTO TRUSSES, STRUCTURAL COMPOSITE LUMBER, GLUE-LAMINATED MEMBERS, OR I-JOIST ARE PROHIBITED EXCEPT WHERE PERMITTED BY THE MANUFACTURER'S RECOMMENDATION OR DESIGN BY PROFESSIONAL.
R502.11 WOOD TRUSSES SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH ANSI/TPI-1. REFER TO THE INDIVIDUAL TRUSS DESIGN DRAWINGS FOR WEB BRACING AND MULTI-CONNECTION OF GIRDERS. BSCI SHOULD BE REFER TO FOR HANDLING INSTALLATION AND BRACING OF METAL PLATE TRUSSES.
R507.2 EXTERIOR DECKS/DECK LEDGER CONNECTION TO BAND JOIST. DECK LEDGER CONNECTION TO BAND JOIST SHALL BE IN ACCORDANCE WITH THIS SECTION TABLE R507.2 AND R507.2.1, AND FIGURES R507.2.1(1) AND R507.2.1(2)

**CHAPTER 6 (WALL CONSTRUCTION)**

R602..1 SAWN LUMBER SAWN LUMBER SHALL BE IDENTIFIED BY A GRADE MARK OF AN ACCREDITED LUMBER GRADING OR INSPECTION AGENCY AND HAVE DESIGN VALUES CERTIFIED BY ACCREDITATION AGENCY THAT COMPLIES WITH DOC PS 20
R602.3 REFER TO TABLE R602.3(1) THROUGH TABLE R602.3(4) FOR FRAMING MEMBER FASTENING
R602.6 DRILLING AND NOTCHING- REFER TO FIGURE R602.6 (1) AND R602.6 (2)-SEE DETAIL PAGE OF PLAN FOR FIGURES.
R602.7 THE ALLOWABLE SPANS OF GIRDERS/HEADERS FABRICATED FROM DIMENSIONAL LUMBER ON EXTERIOR WALLS SHALL NOT EXCEED THE VALUES OF TABLE R602.7(1)
R602.8 FIRE BLOCKING SHALL BE PROVIDED TO CUT OFF ALL CONCEALED DRAFT OPENING (BOTH VERTICAL AND HORIZONTAL) AND TO FORM AN EFFECTIVE FIRE BARRIER BETWEEN STORIES, AND BETWEEN A TOP STORY AND ROOF SPACE.
R602.10 WALL BRACING. BUILDING SHALL BE BRACE IN ACCORDANCE WITH SECTION OR R602.12 (SIMPLIED METHOD). FROM TABLE R602.10.4. USE CS-WSP BRACING METHOD WITH MIN 3/8" SHEATHING.

**CHAPTER 7 (WALL COVERING)**

R702.1 GENERAL INTERIOR COVERING OR WALL FINISHES SHALL BE INSTALLED IN ACCORDANCE WITH THIS CHAPTER AND TABLE R702.1(1), TABLE R702.1(2), TABLE R702.1(3) AND TABLE R702.3.5. INTERIOR MASONRY VENEER SHALL COMPLY WITH THE REQUIREMENTS OF SECTION R703.7.1 FOR SUPPORT AND SECTION R703.7.4 FOR ANCHORAGE. INTERIOR FINISHES AND MATERIAL SHALL CONFORM TO THE FLAME SPREAD AND SMOKE DEVELOPMENT REQUIREMENTS OF SECTION R302.9
R703.1 GENERAL: EXTERIOR WALL SHALL PROVIDE THE BUILDING WITH A WEATHER-RESISTANT EXTERIOR WALL ENVELOPE. THE EXTERIOR WALL ENVELOPE SHALL INCLUDE FLASHING AS DESCRIBED IN SECTION R703.4
R303.1.1 WATER RESISTANCE. THE EXTERIOR WALL ENVELOPE SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT PREVENTS THE ACCUMULATION OF WATER WITHIN THE WALL ASSEMBLY BY PROVIDING A WATER-RESISTANT BARRIER BEHIND THE EXTERIOR VENEER AS REQUIRED IN SECTION R703.2 AND A MEANS OF DRAINING TO THE EXTERIOR WATER THAT ENTERS THE ASSEMBLY.
R703.1.2 WIND RESISTANCE. WALL COVERINGS, BACKING MATERIALS AND THEIR ATTACHMENT SHALL BE CAPABLE OF RESISTING LOADS IN ACCORDANCE WITH TABLE R301.2(2) AND R301.2(3).
R703.2 WATER-RESISTIVE BARRIER. APPROVED WATER-RESISTIVE BARRIER SHALL BE APPLIED OVER STUDS OR SHEATHING OF ALL EXTERIOR WALLS. SUCH MATERIAL SHALL BE APPLIED HORIZONTALLY, WITH UPPER LAPPED OVER THE LOWER NOT LESS THAN 2" INCHES. WHERE JOINT OCCUR, LAPPED NOT LESS THAN 6".
R703.3 NOMINAL THICKNESS AND ATTACHMENTS. THE MINIMUM THICKNESS AND ATTACHMENT OF EXTERIOR WALL COVERING SHALL BE IN ACCORDANCE WITH TABLE R703.3(1) AND THE WALL COVERING MATERIAL MANUFACTURER'S INSTALLATION REQUIREMENTS.
R703.4 FLASHING. APPROVED CORROSION-RESIANT FLASHING SHALL BE APPLIED SHINGLE-FASHION IN A MANNER TO PREVENT ENTRY OF WATER INTO WALL CAVITY OR PENETRATION OF WATER TO THE BUILDING STRUCTURAL FRAMING COMPONENTS.
1. EXTERIOR WINDOWS AND DOORS OPENINGS. (SEE MANUFACTURE OF PRODUCT FOR INSTALLATION DETAILS)
2. AT INTERSECTION OF CHIMNEYS OR OTHER MASONRY CONSTRUCTION WITH FRAME OR STUCCO WALLS, WITH PROJECTING LIPS ON BOTH SIDES UNDER STUCCO OPENINGS.
3. UNDER AND AT ENDS OF MASONRY, WOOD OR METAL COPINGS AND SILLS.
4. CONTINUOUSLY ABOVE ALL PROJECTING WOOD TRIM
5. WHERE EXTERIOR PORCHES, DECKS OR STAIRS ATTACH TO A WALL OR FLOOR ASSEMBLY OF WOOD-FRAME CONSTRUCTION
6. AT WALL AND ROOF INTERSECTION

**CHAPTER 8 (ROOF-CEILING)**

SECTION R802.10.2 DESIGN. WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE. THE DESIGN AND MANUFACTURE OF METAL-PLATED WOOD TRUSS SHALL COMPLY WITH ANSI/TP1.
R802.10.3 BRACING. TRUSSES SHALL BE BRACED TO PREVENT ROTATION AND PROVIDE LATERAL STABILITY. REFER TO THE INDIVIDUAL TRUSS DESIGN DRAWINGS AND SBCA'S BCSI GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING AND BRACING OF METAL PLATE CONNECTED WOOD TRUSSES.
R802.11.1.1 TRUSS UPLIFT. TRUSSES SHALL BE ATTACHED TO SUPPORTING WALL ASSEMBLIES BY CONNECTION CAPABLE OF RESISTING FORCES SPECIFIED ON THE TRUSS DESIGN DRAWINGS.
SECTION R806 ROOF VENTILATION. ENCLOSED ATTIC AND ENCLOSED RAFTER SPACES FORMED WHERE CEILING ARE APPLIED DIRECTLY TO THE UNDERSIDE OF THE ROOF RAFTERS SHALL HAVE CROSS VENTILATION FOR EACH SEPARATE SPACE BY VENTILATING OPENINGS PROTECTED AGAINST THE ENTRANCE OF RAIN OR SNOW. REQUIRED VENTILATION OPENINGS SHALL BE DIRECTLY TO THE OUTSIDE AIR.
R806.2 MINIMUM VENT AREA. THE MINIMUM NET FREE VENTILATION SHALL BE 1/300 (EXCEPTION 1 TAKEN)

SECTION R807 ATTIC ACCESS. BUILDING WITH COMBUSTIBLE CEILING OR ROOF CONSTRUCTION SHALL HAVE AN ATTIC ACCESS OPENING TO ATTIC AREA THAT HAVE A VERTICAL HEIGHT OF 30" OR GREATER.
1. THE ROUGH-FRAMED OPENING SHALL NOT BE LESS THAN 22"X30"
2. SHALL BE LOCATED IN A HALLWAY OR OTHER READILY ACCESSIBLE LOCATION
3. MINIMUM UNOBSTRUCTED HEAD ROOM IN THE ATTIC SPACE SHALL BE 30" MEASURED VERTICALLY FROM BOTTOM OF CEILING MEMBER

**CHAPTER 9 (ROOF ASSEMBLIES)**

SECTION 903
R903.1 GENERAL. ROOF DECKS SHALL BE COVERED WITH THE APPROVED ROOF COVERING SECURED TO THE BUILDING OR STRUCTURE IN ACCORDANCE WITH THE PROVISION OF THIS CHAPTER. ROOF ASSEMBLIES SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURE'S INSTRUCTIONS.
R903.2 FLASHING. FLASHING SHALL BE INSTALLED IN MANNER THAT PREVENTS MOISTURE FROM ENTERING THE WALL AND ROOF THROUGH JOINTS IN COPING, THROUGH MOISTURE PERMEABLE MATERIALS AND AT INTERSECTION WITH PARAPET WALLS AND OTHER PENETRATIONS THROUGH THE ROOF PLANE.
R903.2.1 LOCATION. FLASHING SHALL BE I INSTALLED AT WALL AND ROOF INTERSECTIONS, WHEREVER THERE IS A CHANGE IN ROOF OR DIRECTION AND AROUND ROOF OPENINGS.
SECTION 905
R905.1 ROOF COVERING APPLICATION. ROOF COVERING SHALL BE APPLIED IN ACCORDANCE WITH THE WITH THE APPLICABLE PROVISIONS OF THIS SECTION AND THE MANUFACTURE'S INSTALLATION INSTRUCTIONS.
R905.1.1 UNDERLAYMENT. UNDERLAYMENT FOR ASPHALT SHINGLES, CLAY, AND CONCRETE TILE, METAL ROOF SHINGLES, MINERAL SURFACED ROLL ROOFING, SLATE AND SLATE-TYPE SHINGLES, WOOD SHINGLES AND METAL ROOF PANELS SHALL CONFORM TO THE APPLICABLE STANDARDS LISTED IN THIS CHAPTER. UNDERLAYMENT MATERIALS REQUIRED TO COMPLY WITH ASTM D 226, D 1970, D 4869 AND D 6757 SHALL BEAR A LABEL INDICATING COMPLIANCE. UNDERLAYMENT SHALL BE ATTACHED IN ACCORDANCE WITH TABLE R905.1.1(3)
R905.1.2 ICE BARRIERS. IF AREAS WHERE THERE HAS BEEN A HISTORY OF ICE FORMING ALONG EAVES CAUSING BACKUP OF WATER AS DESIGNATED IN TABLE R301.2(1), AN ICE BARRIER SHALL BE INSTALLED. THE ICE BARRIER SHALL CONSIST OF TWO LAYERS OF UNDERLAYMENT OR SELF-ADHERING POLYMER-MODIFIED BITUMEN SHEET SHALL BE USED IN PLACE OF NORMAL UNDERLAYMENT AND EXTEND NOT LESS THAN 24" INSIDE THE EXTERIOR WALL. ON ROOFS OVER 8/12, THE ICE BARRIER SHALL BE APPLIED NOT LESS THAN 36".
R905.2 ASPHALT SHINGLES, THE INSTALLATION OF ASPHALT SHINGLES SHALL COMPLY WITH THIS SECTION AND MANUFACTURE'S INSTALLATION.
R905.2.2 SLOPE. ASPHALT SHINGLES SHALL BE USED ON ROOF SLOPES OF 2/12 OR GREATER. FOR SLOPES FROM 2/12 UP TO 4/12, DOUBLE UNDERLAYMENT APPLICATION IS REQUIRED IN ACCORDANCE WITH SECTION R905.1.1
R905.2.8 FLASHING. FLASHING FOR ASPHALT SHINGLES SHALL COMPLY WITH THIS SECTION

**CHAPTER 10-43**

REFER TO THE CHAPTERS IN THE IRC 2015 FOR THE DESIGN AND REQUIREMENTS OF THESE ITEMS.
CHAPTER 10 CHIMNEYS AND FIREPLACE
CHAPTER 11 ENERGY EFFICIENCY
CHAPTER 12&13 MECHANICAL & GENERAL MECHANICAL SYSTEMS REQUIREMENTS
CHAPTER 14 HEATING AND COOLING EQUIPMENT AND APPLIANCES
CHAPTER 15 EXHAUST SYSTEMS
CHAPTER 16 DUCT SYSTEMS
CHAPTER 17 COMBUSTION AIR
CHAPTER 18 CHIMNEYS AND VENTS
CHAPTER 19-22 SPECIAL APPLIANCE, WATER HEATERS, HYDRONIC PIPING AND SPECIAL PIPING
CHAPTER 23 SOLAR THERMAL ENERGY SYSTEMS
CHAPTER 24 FUEL GAS
CHAPTER 25-33 PLUMBING RELATED ITEMS
CHAPTER 35-43 ELECTRICAL RELATED ITEMS

**STRUCTURAL MATERIAL**

MEMBERS SIZED ON PLANS ARE BASED ON THESE DESIGN VALUES:
A. ROOF, FLOOR, AND WALL SHEATHING: APA RATED SHEATHING. (LEAVE 1/8" SPACE BETWEEN PANEL EDGE AND END JOINTS.)
B. WALLS STUDS: DOUGLAS FIR #2 OR BETTER.
C. LSL STUDS: 1.35E GRADE
D. WALL PLATES: SPRUCE PINE FIR #2 OR BETTER.
E. DIMENSIONAL LUMBER: DOUGLAS FIR #2 OR BETTER.
F. TREATED LUMBER: SYP#2 OR BETTER
G. POSTS/COLUMNS: SYP#1 OR BETTER
H. LVL HEADERS: 2950Fb/2.0E MINIMUM
I. LSL HEADERS: 1.55E GRADE
J. STEEL: ASTM SPECIFICATION A992 GRADE-50 OR EQUAL

REFER TO SECTION 317 FOR PROTECTION OF WOOD AND WOOD-BASED PRODUCTS FROM DECAY.

## ABBREVIATIONS

| | |
|---|---|
| ADJ | ADJUSTABLE |
| AFF | ABOVE FINISHED FLOOR |
| AWN. | AWNING |
| BTM. | BOTTOM |
| BSMT. | BASEMENT |
| BTW. | BETWEEN |
| CA | CASEMENT |
| CANT. | CANTILEVER |
| CAB. | CABINET |
| ℄ | CENTER LINE |
| CLG | CEILING |
| C.O. | CASED OPENING |
| COL. | COLUMN |
| CONC. | CONCRETE |
| D | DRYER |
| DF | DOUGLAS FIR |
| DIA. | DIAMETER |
| DN | DOWN |
| DH | DOUBLE HUNG |
| DW | DISHWASHER |
| F | FIXED |
| F.D. | FLOOR DRAIN |
| F/G | FIBERGLASS |
| FLR. | FLOOR |
| FTG. | FOOTING |
| FURN. | FURNACE |
| HDR. | HEADER |
| HDWD | HARDWOOD |
| HH | HEADER HEIGHT |
| INSUL. | INSULATION |
| JS | JACK STUD(S) |
| JST. | JOIST |
| KS | KING STUD(S) |
| LSL | LAMINATED STRAND LUMBER |
| LVL | LAMINATED VENEER LUMBER |
| LIN. | LINEN |
| MAX. | MAXIMUM |
| MIN. | MINIMUM |
| O/C | ON CENTER |
| O.H.D. | OVERHEAD DOOR |
| OPNG. | OPENING |
| PED. | PEDESTAL |
| N.T.S. | NOT TO SCALE |
| REF | REFRIGERATOR |
| REQ. | REQUIRED |
| RO | ROUGH OPENING |
| RM | ROOM |
| R/S | ROD/SHELF |
| SH | SINGLE HUNG |
| S.F. | SQUARE FEET |
| SLDR | SLIDER |
| S.P. | SUMP PIT |
| STL | STEEL |
| SYP | SOUTHERN YELLOW PINE |
| TYP. | TYPICAL |
| T | TRANSOM |
| TG | TEMPERED GLASS |
| TRTD | TREATED |
| UNEXC. | UNEXCAVATED |
| VAN. | VANITY |
| W | WASHER |
| W/ | WITH |
| W.H. | WATER HEATER |

## MISC. SYMBOLS

FROST PROOF HOSE BIB
FLOOR LINE ABOVE
STRUCTURAL BEAM / HEADER OR GIRDER TRUSS
LOAD BEARING WALL
SOLID BLOCKING FROM CONCENTRATED LOAD
CONCENTRATED LOAD FROM ABOVE. SOLID BLOCK TO FOUNDATION OR BEAM/HEADER BELOW.
SD SMOKE DETECTOR
CO CARBON MONOXIDE AND SMOKE DETECTOR COMBO

## DRAWING LIST

| | |
|---|---|
| A0 | Cover Page |
| A1 | Elevations |
| A2 | Elevations |
| A3 | Foundation |
| A4 | Main Floor |
| A6 | Building Sections |
| A7 | Building Sections |
| A8 | Details |
| A9 | Wall Bracing |

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