

MICHIGAN RESIDENTIAL CODE 2003

APPLICABILITY: A permit is required to construct, enlarge, alter, repair, move, demolish or change the occupancy of any structure. **EXCEPTION:** One story detached accessory structures if the floor area does not exceed 200 square feet.

- A. **WHEN CAN I START:** After issue of the Soil and Erosion Permit and the Land Use Permit clearing, grading, excavating, and forming may commence. Prior to concrete or in the case of a wood foundation, pea gravel being placed, a Building Permit is required to be in hand and posted on the job site. (Public Act 230, Section 125.1511)
- B. **PLAN REVIEW:** The purpose of the Plan Review is to ensure the proposed construction meets code requirements prior to actual construction. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinance, rules, and regulations, as determined by the building official. This includes indicating the size, description, and locations for all structural members. Also to be indicated on the plans is compliance with each item on this review sheet that is marked with a box. As a part of the construction documents submittal, site plans showing the size and location of new construction and any existing structures on the site and distances from lot lines shall be submitted. In complete plan submittals shall be returned to the applicant for revision. The building permit fee is based on one plan review, additional plan review time will be charged per the approved fee schedule. (R106.1.1, R106.2)
- C. **CALLING FOR INSPECTIONS:** It is the permit holder's responsibility to notify the building department, with **24 HOURS NOTICE**, for an inspection. Normally, there are 5 required inspections and approval is necessary for: (1) **FOOTING**, prior to placing concrete; (2) **BACKFILL**; before earth is placed, after drain tile, stone and damp proofing is installed; (3) **ROUGH FRAMING AND MASONRY INSPECTION**, after all required electrical, plumbing, and/or mechanical rough inspections have been performed, and prior to insulation, masonry inspections shall be made before the installation of masonry veneer and after the installation of base course flashing as specified in Section R703.7.5 and weather resistant sheathing paper as specified in Section R703.2; (4) **INSULATION** ; and (5) **FINAL**, prior to occupancy of the building structure. If a reinspection is necessary, it is the permit holder's responsibility to notify the construction code office when the construction is ready for the reinspection. A reinspection is required when construction is not ready for inspection, or when the construction fails to pass an inspection. **THIS WILL COST THE PERMIT HOLDER A REINSPECTION FEE.**
- D. **CERTIFICATE OF USE AND OCCUPANCY: A BUILDING/STRUCTURE MUST NOT BE OCCUPIED UNTIL A FINAL INSPECTION HAS BEEN PASSED AND A CERTIFICATE OF USE AND OCCUPANCY HAS BEEN ISSUED.** Approvals from the building, plumbing, electrical, mechanical and soil and erosion (if required) inspectors must be obtained before occupancy can occur. **OCCUPANCY OF A BUILDING/STRUCTURE WITHOUT A CERTIFICATE OF USE AND OCCUPANCY IS A VIOLATION OF THE LAW. (SECTION 13 PUBLIC ACT 230 OF 1972, AS AMENDED)**
- E. **TEMPORARY CERTIFICATE OF USE AND OCCUPANCY:** The building official is authorized to issue a Temporary Certificate of Occupancy before completion of the entire work covered by the building permit, provided that such portion or portions shall be occupied safely. The building official shall set a time period during which the temporary occupancy shall be valid. All safety requirements of the code are to be completed, such as, but not limited to: Handrails, guardrails, smoke detectors, egress requirements, fire, doors, and fire separation walls, firestopping, and final or temporary approvals from the plumbing, electrical & mechanical inspectors prior to the temporary occupancy permit being issued. (R110.4)

F. **PLEASE POST THE JOB WEATHER CARD (BUILDING PERMIT) IN A CONSPICUOUS PLACE, VISIBLE TO THE INSPECTORS.**

GROUND SNOW LOAD = 25 LBS. PER SQ. FT.

WIND SPEED = 90 MPH

SEISMIC CATEGORY = C

WEATHERING – SEVERE

ASSUMED SOIL BEARING CAPACITY = 2000 LBS. IN SAND, 1500 LBS. IN CLAY

FLOOR LOADS: 40 PSF NON-SLEEPING AND 40 PSF DECKS AND 50 PSF GARAGE FLOORS

CHAPTER 4 FOUNDATIONS

R402.1 FOR WOOD FOUNDATIONS SEE WOOD FOUNDATION BOOKLET.

- **R403.1.4 FOUNDATION SYSTEMS** shall extend below the frost line 42”.

EXCEPTION: The footings in detached accessory structures not exceeding 400 sq. ft. in area or 10 feet in height shall extend 12” below grade to undisturbed soil. All vegetation and topsoil shall be removed for accessory structures.

- **R403.1 THE MIN. WIDTH OF CONCRETE FOOTINGS** based on 2000 PSF soils (sand): 1 story = 12”, 2 story = 12”, and 3 story = 17”. The min. width of concrete footings based on 1500 PSF soils (clay): 1 story = 12”, 2 story = 15” and 3 story = 23”.
- **R403.1.1 SPREAD FOOTINGS** shall be a min. of 6” in thickness. Footing projections shall be a min. of 2” and not exceed the thickness of the footing.

R402.2 MIN. CONCRETE STRENGTH; Basement walls, foundations and other concrete not exposed to the weather. Basement slabs and interior slabs on grade, except garage floor slabs = 2500 PSI at 28 days. (a)

Basement walls, foundation walls, exterior walls and other vertical concrete work exposed to the weather = 3000 PSI at 28 days. (a)

Porches, carport slabs and steps exposed to the weather, and garage floor slabs = 3500 PSI at 28 days. (b)

- (a) Concrete in these locations that may be subject to freezing and thawing during construction shall be air entrained concrete in accordance with (b) below.
- (b) Concrete shall be air entrained. Total air content (percent by volume of concrete) shall not be less than 5% or more than 7%.

R401.3 DRAINAGE the grade away from foundation walls shall fall a min. of 6” within the first 10’.

EXCEPTION: Where lot lines, walls slopes or other physical barriers prohibit 6” of fall within 10’, drains or swales shall be provided to ensure drainage away from the structure.

R401.4 SOILS TESTING in areas likely to have expansive, compressible, shifting or other unknown soil characteristics the building official shall require soil tests to determine the soils’ characteristics at a particular location. This testing shall be made by an approved agency using an approved method.

- **R403.1.6 MIN. SIZE SILL PLATE AND ANCHOR BOLTS.** Sill plates shall be a min. of 2X4 nominal lumber with ½” anchor bolts, embedded a min. of 7”, spaced at a max. of 6’ on center and located within 12” from the ends of each plate section.

EXCEPTION: Foundation anchor straps, spaced as required to provide equivalent anchorage to ½” anchor bolts.

- **R406.1 CONCRETE AND MASONRY FOUNDATION DAMPPROOFING.** Except where required to be waterproofed by Section 406.2 foundation walls that retain earth and enclose habitable or usable spaces located below grade shall be damproofed from the top of the footing to the finished grade. Masonry walls shall have not less than 3/8” Portland cement parging applied to the exterior of the wall. The parging shall be damproofed with bituminous coating; 3 lbs. per square yard of acrylic modified cement, 1/8” coat of surface-bonding mortar complying with ASTM C 887 or any material permitted for waterproofing in Section R406.2. Concrete walls shall be damproofed by applying any one of the above listed damproofing materials or any one of the waterproofing materials listed in Section R406.2 to the exterior of the wall.
- **R406.2 CONCRETE AND MASONRY WATERPROOFING.** In areas where a high water table or other severe soil-water conditions are known to exist, exterior foundation walls that retain grade shall be waterproofed with a membrane extending from the top of the footing to the finished grade. The membrane shall consist of 2 ply hot mopped felts, 55 pound roll roofing, 6 mil polyvinyl chloride, 6 mil polyethylene or 40 mil polymer-modified asphalt. The joints in the membrane shall be lapped and sealed with an adhesive compatible with the waterproofing membrane.
- **R506.1 CONCRETE SLAB FLOORS.** Shall be a min. of 3 ½” thick.
- **R506.2.3. VAPOR RETARDER.** An approved vapor retarder with joints lapped not less than 6” shall be placed between the ground and concrete slab.

EXCEPTION: The vapor retarder may be omitted:

1. From detached garages, utility buildings and other unheated accessory structures.
2. From driveways, walks, patios, and other flatwork not likely to be enclosed and heated at a later date.
3. Where approved by the building official, based on local site conditions.

R405.1 FOUNDATION DRAINS FOR CONCRETE OR MASONRY FOUNDATIONS. Drains shall be provided around all concrete or masonry foundations that retain earth and enclose habitable or usable spaces located below grade.

EXCEPTION: A drainage system is not required when the foundation is installed on well drained ground. (Group 1 soils)

R408.0 UNDER FLOOR SPACE (Crawl space construction)

- **R408.1 VENTILATION.** The underfloor space between the bottom of the floor joists and the earth under any building (except space occupied by a basement or cellar) shall be provided with ventilation openings through the foundation walls or exterior walls at a rate of 1 sq. ft. of opening per 150 sq. ft. of floor area. One such opening shall be located within 3’ of each corner of the building.

EXCEPTIONS:

1. Where warranted by climatic conditions, ventilation openings to the outdoors are not required if ventilation openings to the interior are provided.

2. The total ventilation openings may be reduced to 1 sq. ft. of opening per 1,500 sq. ft. of floor area if the floor area is covered with an approved vapor barrier and the openings are placed to provide cross ventilation.
 3. Ventilation is not required if the crawl space is used as an underfloor supply plenum.
 4. Ventilation openings are not required if the space is mechanically ventilated at a rate of 1CFM for each 50 sq. ft. of floor area, and the ground surface is covered with an approved vapor barrier.
- **R408.3 ACCESS.** An access opening 18" X 24" through the floor or 16" X 24" through a perimeter wall shall be provided to the crawl space.

R408.4 REMOVAL OF DEBRIS. All vegetation, organic materials, wood forming materials, and construction debris shall be removed prior to a building being occupied.

CHAPTER 5 - FLOORS

- **R501.2 REQUIREMENTS.** Floor construction shall be capable of accommodating all loads according to Section R301 and of transmitting the resulting loads to the supporting structural elements.

502.1 GENERAL. Load bearing dimensional lumber for joists, beams and girders shall be identified by a grade mark of an approved lumber grading or inspection agency.

- **R502.3.3 FLOOR CANTILEVERS.** Floor cantilevers spans shall not exceed the nominal depth of the wood floor joist. Table 502.3.3(1) and 502.3.3(2) provides some exceptions to this rule.

R502.6.1 FLOOR SYSTEMS. Joists framing from opposite sides over a bearing support shall lap a min. of 3" and shall be nailed together with a min. of three 10D face nails.

R502.6.2 JOIST FRAMING. Joists framing into the side of a wood girder shall be supported by approved framing anchors or on ledgers strips not less than nominal 2" by 2".

R502.8.2 ENGINEERED WOOD PRODUCTS. Cuts, notches and holes bored in trusses, laminated veneer lumber, glue laminated members, or I-joists are not permitted unless the effects of such penetrations are specifically considered in the design of the member. *(ENGINEERED FLOOR FRAMING SYSTEMS SHALL BE ACCOMPANIED BY APPROVED SHOP DRAWINGS, CALCULATIONS, AND/OR SPAN TABLES FROM THE MANUFACTURER.)*

R502.12 DRAFTSTOPPING REQUIRED. Floors – where ceilings are suspended below solid wood joists or suspended or attached directly to the bottom of open web wood floor trusses, the space between the ceiling and floor shall be divided into approximately equal areas not exceeding 1000 sq. ft.

R502.12.1 DRAFTSTOPPING MATERIALS. Draftstopping materials shall be not less than ½" gypsum board, 3/8" wood structural panels, 3/8" type 2-M-W particle board or other approved materials adequately supported. Draftstopping shall be applied parallel to the floor framing members unless otherwise approved by the building official. The integrity of all draftstops shall be maintained.

CHAPTER 6 - WALL CONSTRUCTION

- **R601.2 REQUIREMENTS.** Wall construction shall be capable of accommodating all loads imposed according to Section R301 and of transmitting the resulting loads to the supporting structural elements.

R602.1 IDENTIFICATION. Load-bearing dimension lumber for studs, plates and headers shall be identified by an approved grade mark of a lumber grading or inspection agency.

R602.3.2 TOP PLATE. Wood stud walls shall be capped with a double top plate installed to provide overlapping at corners and intersections with bearing partitions. End joints in top plates shall be offset at least 24". Plates shall be a nominal 2" depth and have a width at least equal to the studs.

R602.3.3 BEARING STUDS. Where joists, trusses, or rafters are spaced more than 16" on center and the bearing studs below are spaced 24" on center, such members shall bear within 5" of the studs beneath.

- **TABLE R602.3(5), MAX. STUD SPACING**
 - 2 x 4 @ 24" OC Supporting Roof and Ceiling Only
 - 2 x 4 @ 16" OC Supporting One Floor, Roof and Ceiling
 - 2 x 6 @ 16" OC Supporting Two Floors, Roof and Ceiling

R602.8 FIREBLOCKING REQUIRED. Fireblocking shall be provided to cut off all concealed draft openings (both horizontal and vertical) and to form an effective fire barrier between stories, 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 and partitions, including furred or studded off spaces of masonry or concrete walls, at the ceiling and floor or roof levels.
2. At all interconnections between vertical and horizontal spaces such as occur at soffits over cabinets, drop ceilings, cove ceilings.
3. In concealed spaces between stair stringers at the top and bottom of the run.
4. At openings around vents, pipes, and ducts at ceiling and floor levels with approved materials.
6. Fireblocking of cornices of a two family dwelling is required at the line of dwelling unit separation.

R602.8.1 FIREBLOCKING MATERIALS. Except as provided in Section 602.8, Item 4, Fireblocking shall consist of 2: nominal lumber, or two thicknesses of 1" nominal lumber with broken lap joints, or one thickness of 23/32" wood structural panel, or one thickness of 3/4" particle board with joints backed with 3/4" particle board, 1/2" gypsum board or 1/4" cement-based millboard. Batts or blankets of mineral wool or glass fiber or other approved materials installed in such a manner as to be securely retained in place shall be permitted as an acceptable fire block. Loose fill insulation material shall not be used as a fireblock unless specifically tested in the form and manner intended for use to demonstrate its ability to remain in place and to retard the spread of fire and hot gasses.

R602.8.1.1 UNFACED FIBERGLASS. Unfaced fiberglass batt insulation used as fireblocking shall fill the entire cross section of the wall cavity to a min. height of 16" measured vertically. When piping, conduit or similar obstructions are encountered, the insulation shall be packed tightly around the obstruction.

- **R602.10.1 BRACED WALL LINES.** All exterior walls shall be braced by an approved method at each corner, and at least every 25' thereafter, not less than 16% of braced wall.
- **R703.2 WEATHER-RESISTIVE SHEATHING PAPER.** A minimum of one layer No. 15 asphalt felt complying with ASTM D226, as listed in Chapter 43, for Type 1 felt or other approved weather-resistive materials shall be applied over all exterior walls. See Table R703.4. Such felt or material shall be applied horizontally, with the upper layer lapped not less than 2". Where joints occur, felt shall be lapped not less than 6". Building paper or other approved material shall be continuous up to the underside of the rafter or truss top

chord and terminated at penetrations and building appendages in such a manner to meet the requirements of the exterior wall envelope as described in R703.1.

EXCEPTION: Such felt or material is permitted to be omitted in detached accessory buildings.

R703.7.8 FLASHING. Approved corrosion resistant flashing shall be provided in the exterior wall envelope in such a manner to prevent entry of water into the wall cavity or penetration of water to the building structural framing components. The flashing shall extend to the surface of the exterior wall finish and shall be installed to prevent water from reentering the exterior wall envelope, flashing shall extend to, or beyond, the finished exterior face of the wall. Approved corrosion-resistive flashing shall be installed at all of the following locations.

1. At the top of all exterior window and door openings in such a manner as to be leakproof, except that self-flashing windows having a continuous lap of not less than 1 1/8" over the sheathing material around the perimeter of the opening, including corners, do not require additional flashing; jamb flashing may also be omitted when specifically approved by the building official.
2. At the intersection of chimneys or other masonry construction with frame or stucco walls, with projecting lips on both sides under stucco copings.
3. Under and at the 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 intersections.
7. At built-in gutters.

CHAPTER 8 - ROOF CEILING CONSTRUCTION

- **R801.2 REQUIREMENTS.** Roof and ceiling construction shall be capable of accommodating all loads imposed according to section R301 and of transmitting the resulting loads to the supporting structural elements.

R802.3 FRAMING DETAILS. Rafters shall be framed to a ridge board or to each other with a gusset plate as a tie. The ridge board shall be not less than 1" in nominal thickness and not less in depth than the cut end of the rafter. At all valleys and hips there shall be a valley or hip rafter not less than 2" in nominal thickness and not less in depth than the cut end of the rafters.

- **R802.3.1 CEILING JOIST AND RAFTER CONNECTIONS.** Ceiling joists and rafters shall be attached to each other and the assembly shall be nailed to the top plate. Where ceiling joists or rafter ties are not provided at the top plate, the ridge formed by these rafters shall also be supported by a girder designed in accordance with accepted engineering practice.

R802.8 LATERAL SUPPORT. Rafters and ceiling joists having a depth to thickness ratio exceeding 5 to 1 based on nominal dimensions shall be provided with lateral support at points of bearing to prevent rotation.

R802.10.1 TRUSS DESIGN DRAWINGS. Truss design drawings shall be provided to the building official and approved prior to installation.

R802.10.5 TRUSS TO WALL CONNECTION . Trusses shall be connected to wall plates by the use of approved connectors having a resistance to uplift of not less than 175 pounds and shall be installed in accordance with the manufacturer’s specifications..

- **R806.1 ROOF VENTILATION REQUIRED.** Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside roof rafter shall be cross ventilation for each separate space by ventilation openings protected against the entrance of rain or snow. Ventilation openings shall be provided with corrosion resistant wire mesh, with 1/8” min. to 1/4” max. openings.

R806.2 MIN. AREA. The total net free ventilating area shall be not less than 1/50 of the area of the space ventilated except that the total area is permitted to be reduced to 1/300 provided at least 50% and not more than 80% of the required ventilating areas is provided by vents located in the upper portion of the space to be ventilated at least 3’ above eaves or cornice vents with the balance of the required ventilation provided by eaves or cornice vents. As an alternative, the net free cross-ventilation area may be reduced to 1 to 300 when a vapor retarder having a transmission rate not exceeding one perm is installed on the warm side of the ceiling.

R806.3 VENT CLEARANCE. Where eave or cornice vents are installed, insulation shall not block the free flow of air. A min. of a 1” space shall be provided between the insulation and the roof sheathing at the location of the vent.

- **R807.1 ATTIC ACCESS.** Provide a minimum 22” x 30” access opening to attic areas that exceed 30 sq. ft. and have a vertical height of 30” or greater. The attic access shall be located in a hallway or other readily accessible location.
- **R905.2.7 ICE PROTECTION.** An ice barrier that consists of at least two layers of underlayment cemented together, or a self-adhering polymer modified bitumen sheet, shall extend from the eaves edge to a point at least 24” inside the exterior wall line of the building. Asphalt shingles; shall not be installed on roof slopes below 2:12. Double underlayment shall be required on roof slopes below 4:12. Single layer underlayment is required on all other roof slopes. Asphalt shingles shall be secured to the roof with not less than four fasteners per strip shingle, or not less than two fasteners per individual shingle. Shingle headlap shall not be less than 2”.

CHAPTER 3 - BUILDING PLANNING

The definition of a habitable space is: A space in a building for living, sleeping, eating, or cooking. Bathrooms, toilet rooms, closets, halls, storage, or utility spaces and similar areas are not considered habitable spaces. Therefore, an unfinished basement is not considered a habitable space.

- **R303.1 NATURAL LIGHT AND VENTILATION.** Habitable rooms shall be provided with an aggregate glazing area of not less than 8% of the floor area of such room. The min. openable area to the outdoors shall be 4% of the floor being ventilated.
- **R304.1 MIN. ROOM SIZE.** A min. of one room with not less than 120 sq. ft. of floor area is required.
- **R304.2** Other habitable rooms, other than kitchens, must have a min. of 70 sq. ft of floor area.
- **R304.3** All habitable rooms, other than kitchens, shall not be less than 7’ in any horizontal direction.

R305.1 MIN. CEILING HEIGHT. Habitable rooms, hallways, corridors, bathrooms, toilet rooms, laundry rooms, and basements shall have a ceiling height of not less than 7'. The required height shall be measured from the finish floor to the lowest projection from the ceiling.

EXCEPTIONS:

1. Beams and girders spaced not less than 4' on center may project not more than 6" below the required ceiling height.
2. Ceilings in basements without habitable spaces may project to within 6'-8" of the finished floor, and beams, girders, ducts or other obstructions may project to within 6'-4" of the finished floor.
3. Not more than 50% of the required floor area of a room or space is permitted to have a sloped ceiling less than 7' in height with no portion of the required floor area less than 5' in height.
4. **Bathrooms shall have a minimum ceiling height of 6'-8" over the fixture and at the front clearance area for fixtures as shown in Figure R307.2. A shower or tub equipped with a shower head shall have a minimum ceiling height of 6'-8" above a minimum area 30" by 30" at the showerhead.**

R309 GARAGES AND CARPORTS

- **R309.1 OPENINGS FROM A PRIVATE GARAGE** directly into a room used for sleeping purposes shall not be permitted. Other openings between a garage and a residence shall be equipped with solid wood doors not less than 1 3/8" in thickness, solid or honeycomb core steel doors not less than 1 3/8" in thick, or 20 minute fire-rated doors.

R309.1.1 DUCTS IN THE GARAGE and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a min. of No. 26 gage sheet steel or other approved material and shall have no openings into the garage.

- **R309.2 SEPARATION REQUIRED.** The garage shall be separated from the residence and its attic area by not less than 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than 5/8" type X gypsum board or equivalent. Where the separation is a floor ceiling assembly, the structure supporting the separation shall also be protected by not less than 1/2" gypsum board or equivalent.

R309.3 GARAGE FLOOR SURFACES shall be of approved noncombustible material and shall be sloped to facilitate the movement of liquids to a drain or toward the main vehicle entry doorway.

R309.4 CARPORTS shall be open on at least two sides. Carports not open on at least two sides shall be considered a garage and shall comply with the provisions for garages. Asphalt surfaces shall be permitted at ground level in carports.

R310 EMERGENCY ESCAPE AND RESCUE OPENINGS

- **R310.1 BASEMENTS THAT HAVE HABITABLE SPACE AND EVERY SLEEPING ROOM** shall have at least 1 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, but shall not be required in adjoining areas of the basement. Where emergency escape and rescue openings are provided, they shall have a sill height of no more than 44" 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 bulkhead enclosure shall comply with Section R310.3. The net clear opening dimensions required by this

section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside. Emergency escape and rescue window openings with a finished sill height below the adjacent ground elevation shall be provided with a window well in accordance with Section R310.2.

R310.1.1 ALL EMERGENCY ESCAPE AND RESCUE OPENINGS shall have a min. net clear opening of 5.7 sq. ft.

EXCEPTION: GRADE FLOOR OPENINGS shall have a min. net clear opening of 5 sq. ft.

R310.1.2 Min. net clear opening height is 24”.

R310.1.3 Min. net clear opening width is 20”.

R310.1.4 EMERGENCY ESCAPE AND RESCUE OPENINGS shall be operational from the inside of the room without the use of keys or tools.

- **R310.2 WINDOW WELLS.** The minimum horizontal area of the window well shall be 9 sq. ft., with a minimum horizontal projection and width of 36”. The area of the window well shall allow the emergency escape and rescue opening to be fully opened.

EXCEPTION: THE LADDER OR STEPS required by Section R310.2.1 shall be permitted to encroach a max. of 6” into the required dimensions of the window well.

- **R310.2.1 LADDER AND STEPS.** Window wells with a vertical depth greater than 44” shall be equipped with a permanently affixed ladder or steps usable with the window in the fully open position. Ladders or steps required by this section shall not be required to comply with Sections R311.5 and R311.6. Ladders or rungs shall have an inside width of at least 12”, shall project at least 3” from the wall and shall be spaced not more than 18” on center vertically for the full height of the window well.

R311 MEANS OF EGRESS

- **R311.3 HALLWAYS.** The min. width of a hallway shall be 3 ft.
- **R311.4 EXIT DOOR REQUIRED.** Not less than 1 exit door conforming to this section shall be provided for each dwelling unit. The required exit door shall provide for direct access from the habitable portions of the dwelling to the exterior without requiring travel through a garage.
- **R311.4.2 TYPE AND SIZE.** The required exit door shall be a side swinging door, 3 ft. wide and 6’-8” in height.
- **R311.4.3 LANDINGS AT DOORS.** There shall be a floor or landing at each side of each exterior door.

EXCEPTION: The landing at an exterior door shall not be more than 8” below the top of the threshold, provided that the door, other than an exterior storm or screen door, does not swing over the landing.

EXCEPTION: Where a stairway of two or fewer risers is located on the exterior side of a door, other than the required exit door, a landing is not required for the exterior side of the door.

- **R312.2 SIZE.** The width of each landing shall not be less than the stairway of the door served. Every landing shall have a min. dimension of 36” measured in the direction of travel.

R311.5 STAIRWAYS

- **R311.5.1 WIDTH.** Min stairway width is 36”.
- **R311.5.2 HEADROOM.** The min. headroom on all parts of a stairway shall not be less than 6’-8” measured vertically from the sloped plane adjoining the tread nosing or from the floor surface or platform.
- **R311.5.3.1(2) TREADS AND RISERS.** Max. riser height is 8-1/4” and min. tread depth is 9”. The greatest riser height and the greatest tread depth shall not exceed the smallest by 3/8”.
- **R311.5.3.3 PROFILE.** A nosing not less than 3/4” and not more than 1-1/4” shall be provided on all stairs having solid risers. Open risers are permitted, provided the opening between treads does not exceed 4”.

EXCEPTIONS:

1. A nosing is not required where tread depth is a min. of 11”.
 2. The opening between adjacent treads is not limited on stairs with a total rise of 30” or less.
- **R311.5.3.2 WINDERS.** Winders are permitted, provided that the width of the tread at a point not more than 12” from the side where the treads are narrower is not less than 10” and the min. width of any tread at the narrower edge is 6”. With any flight of stairs, the greatest winder tread depth at the 12” walk line shall not exceed the smallest by more than 3/8”.
 - **R311.2.2 UNDER STAIR PROTECTION.** Enclosed accessible space under stairs shall have walls, under stair surface, and any soffits protected on the enclosed side with 1/2” gypsum board.
 - **R311.5.6.2 HANDRAILS.** Handrails shall be provided on at least one side of each flight of stairs with 4 or more risers. Handrails shall be located at 34” to 38”, measured vertically from the nosing of the treads and shall be provided on at least one side of the stairway. All required handrails shall be continuous from a point directly over the top riser to a point directly over the lowest riser. Ends shall be returned or shall terminate in a newel post or safety terminal. Handrails adjacent to a wall shall have a space of not less than 1 1/2” between the wall and the handrail.

EXCEPTIONS:

1. Handrails shall be permitted to be interrupted by a newel post at a turn.
2. The use of a volute, turnout or starting easing shall be allowed over the lowest tread.

R311.5.6.3 HANDRAIL GRIP SIZE. The hand gripping portion of handrails shall be graspable. See attached sheet. Edges shall have a min. radius of 0.011”.

- **R312.1 GUARDS REQUIRED.** Porches, balconies or raised floor surfaces located more than 30” above the floor or grade below shall have guards not less than 36” in height. Open sides of stairs with a total rise of more than 30” above the floor or grade below shall have guards not less than 34” in height measured vertically from the nosing of the treads.
- **R312.2 GUARD OPENING LIMITATIONS.** Required guards on open sides of stairways, raised floor areas, balconies and porches shall have intermediate rails or ornamental closures that do not allow passage of a 4” diameter sphere.

EXCEPTIONS:

1. The triangular opening formed by the riser, tread and bottom rail of a guard at the open side of the stairway are permitted to be of such a size that a sphere 6" cannot pass through.
2. **Openings for required guards on the sides of stair treads shall not allow a sphere 4-3/8" to pass through.**

R313.1 SMOKE ALARMS shall be installed in the following locations:

1. In each sleeping room.
2. Outside of each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional story of the swelling, including basements and cellars, but not including crawlspaces and uninhabitable attics.

R313.2 POWER SOURCE. In new construction, where more than one detector is required to be installed, the detectors shall be wired in such a manner that the actuation of one alarm will actuate all of the alarms. Smoke detectors shall be installed and tested in accordance with NFIPA 72. Power supply shall be ac w/battery backup. Smoke alarms shall be permitted to be battery operated when installed in buildings without commercial power or in buildings that undergo alterations, repairs, or additions regulated by Section R313.1.1.

- **R318.1 VAPOR BARRIER.** In all framed walls, floors and roof/ceilings compromising elements of the building thermal envelope, a vapor retarder shall be installed on the warm-in-winter side of the insulation.

EXCEPTION: Where the framed cavity or space is ventilated to allow moisture to escape.

- **R319.1** When wood joists or the bottom of a wood structural floor without joists are closer than 18", or wood girders are closer than 12" to the exposed ground in crawl spaces or unexcavated areas located within the perimeter of the building foundation, the floor assembly, including posts, girders, joists and subfloor shall be of approved naturally durable or preservative-treated wood.
- **R319.2** All wood sill or plates that rest on concrete or masonry exterior walls and are less than 8" from exposed earth shall be of approved naturally durable or preservative-treated wood.
- **R323.3** Sills and sleeper on a concrete or masonry slab which is in direct contact with earth shall be of approved naturally durable or preservative-treated wood.
- **R323.4** The ends of wood girders entering exterior masonry or concrete walls shall be provided with 1/2" air space on top sides and end, unless approved naturally durable or preservative-treated wood is used.
- **R323.5** Clearance between wood siding, sheathing, and wall framing and earth on the exterior of a building shall not be less than 6" except where approved naturally durable or preservative-treated wood is used for siding, sheathing, and wall framing.
- **R323.6** Wood structural members supporting moisture permeable floors or roofs that are exposed to the weather shall be naturally durable or preservative treated wood unless separated from such floors or roofs by an impervious moisture barrier.

R321.1 PREMISES IDENTIFICATION. Approved numbers or addresses shall be provided for all new buildings in such a position as to be plainly visible and legible from the street or road fronting the property.

- **RULE 408.30401 ENERGY CODE.** Provide calculations/documentation to show the exterior envelope of the proposed construction complies with the exterior envelope requirements of the Michigan Uniform Energy Code Part 10 rules.

NOTE THE PRECEDING CODE RELATED ITEMS ARE NOT ALL INCLUSIVE AND THERE MAY BE OTHER CODE RELATED ITEMS THAT MAY APPLY TO YOUR PROJECT. THE WORK MUST MEET ALL CODE REQUIREMENTS.

AS OF: FEBRUARY 29, 2004

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