

TO: Builders, Contractors
FROM: Lower Swatara Township
Code Enforcement Department
SUBJECT: Residential Building Code, 2009 Edition

On December 31, 2009, the standards for residential construction in the Commonwealth of Pennsylvania and Lower Swatara Township changed from the 2006 Edition of the International Residential Code for One- and Two-Family Dwellings to the updated and revised 2009 Edition of the International Residential Code. Complete permit applications submitted or permits issued before December 31, 2009 will remain under the 2006 Edition of the IRC. A lawfully executed contract between two or more parties to construct a new building (structure) or perform renovations to an existing building which was entered into by December 31, 2009 and which is presented at the time the permit application is filed will be reviewed, approved, constructed, inspected, and CO'd to the 2006 IRC. Applications for new construction submitted after December 31, 2009 must be in compliance with the 2009 Edition.

There are a number of changes in the 2009 Code, some minor and some significant. A few of the changes are listed below. Some requirements have exceptions, but in the interest of space, they are not listed here.

- Habitable Attics – A finished attic or unfinished attic with a floor area of 70 ft² or more with head room of 7 feet is considered a habitable attic and must meet the following requirements. [R202]
 - Fixed stairs to the story below
 - Floor joists sized to ≥ 30 pound live load
 - Permanent source of heating
 - Emergency escape window
 - Smoke detector
 - Carbon monoxide detector
- Limited Storage Attics – In attics constructed with trusses, if a rectangle 42-inches high by 24-inches wide can fit between the top of the bottom chord and any other truss member for two adjacent trusses with the same configuration, the following requirements must be met. [Table R301.5]
 - Attic accessible by a pull-down stairway or a rough framed opening 22-inches by 30-inches.
 - Bottom chord pitch must have a pitch of 2:12 or less
 - Insulation depth meeting the energy requirements less than the depth of the bottom chord
 - Bottom chord of truss designed for actual imposed load or 10 psf

- Fire blocking around vents, pipes, ducts, etc. does not need to meet ASTM E136 but must resist free passage of flames and products of construction. [R302.11]
- Positive anchorage to the house is required for exterior landings, decks, balconies, and stairs. If positive anchorage cannot be provided and/or confirmed by inspection, the landing, deck, balcony, or stairs shall be free-standing. [R311.5.1]
- Guards are required for surfaces \geq 30-inches above grade to any point within 36-inches horizontally of the open side. [R312]
- Carbon Monoxide Alarms – CO alarms were already required by Lower Swatara Township Ordinance. The IRC now has more restrictive requirements and they must be located outside of each separate sleeping area in any new home using any fuel appliance, in any existing home using any fuel appliance requiring a permit to perform work, and any dwelling with an attached garage. [R315.1]
- Site Address – Street numbers clearly visible from the street are required. The numbers must contrast with the background, be Arabic numbers/alphabet letters, and be at least 4-inches high with a minimum stroke of $\frac{1}{2}$ inch. [R319.1]
- Foundation Anchorage – Anchors must be embedded in grout in the hollow core of block and not in mortar joints. [R403.1.6]
- Concrete Foundation Wall Reinforcement – In addition to vertical reinforcing previously required, the following additional reinforcement is required in poured concrete walls. [R404.1.2(1)]
 - For all walls, one No. 4 bar is required horizontally within 12-inches of the top of the wall story.
 - For walls \leq 8 feet, one No. 4 bar is required horizontally near mid height of the wall story.
 - For walls $>$ 8 feet, one No. 4 bar horizontally near third points of the wall story.
 - Vertical reinforcement of the same size must be placed on both sides of any wall opening interrupting vertical reinforcement.
 - Vertical and horizontal reinforcement shall be the longest length possible. Splices shall be in conformance with Table R611.5.4(1).
- Precast Concrete Foundation panels shall be identified by a certificate of an approved third-party agency (in-plant inspection). [R404.5.3]
- Decks – Deck construction became much more restrictive. The Township has developed specification sheets just for deck construction to assist in ensuring the new/revised codes are met. Specific requirements for ledger connections, fastener spacing, and lateral load connections are just some of the changes. [R502.2.2]

- Vapor Retarders
 - Not required under slabs for detached garages, carports, and unheated storage rooms < 70 ft². [R506.2.3]
 - Classification system identifies acceptable vapor retarders for the various wall materials. [R601.3]
- Fastener Schedule – The fastener table has been completely reorganized and numbered to make it more user-friendly. [Table R602.3(1)]
- Wall Studs shall be continuous from the support at the sill plate to a support at the top plate to resist loads perpendicular to the wall. The support shall be a foundation or a floor, ceiling, or roof diaphragm, or designed in accordance with acceptable engineering practice. [R602.3]
- Top Plate Notching – Metal ties (16-gage, 1.5-inches wide) across notched top plates still require 8 nails on each side but they may be 10d instead of the previously required 16d. [R602.6.1]
- Wall Bracing – The previous 6 pages of wall bracing requirements have been increased to 28 pages. This section is too large to reasonably condense to fit in this letter so the builder is expected to become familiar and comply with the IRC requirements. Multiple bracing methods are permitted and not all exterior walls must be treated as braced wall lines - interior braced wall lines will allow for greater flexibility. But dimensions, location, fastening, and joints have specific requirements and must be followed. [R602.10]
- Masonry Veneer – Ties must be embedded a minimum of 1 ½ inches into the veneer with not less than 5/8 inch coverage of the outside face with mortar or grout. The veneer must be separated from sheathing by a minimum air space of 1 inch unless filled with mortar or grout, which must be separated from sheathing or studs by a water resistive barrier. [R703.7.4]
- Vinyl Siding – Vinyl siding applied over foam insulation shall be attached directly to framing members unless the foam sheathing is installed over wood structural panels. [R703.11.2]
- Soffit – Soffit panels must be fastened to a supporting component such as a nailing strip, fascia, or sub-fascia component. [R703.11.1]
- Wood Frame Wall Insulation – The wood frame wall insulation requirement has been increased from R-19 to R-20. [Table N1102.1]
- REScheck – Trade-offs for high efficiency heating and cooling equipment have been eliminated. The benefits of the REScheck energy efficiency pathway have been essentially eliminated.
- Attic and Crawl Space Hatches and Doors – Hatches and doors between conditioned and unconditioned spaces must be weather stripped and insulated to the levels equivalent to the surrounding surfaces. [N1102.2.3]
- Piping Insulation – Mechanical systems piping capable of containing fluids ≤ 55°F or ≥ 105°F require insulation of a minimum of R-3. [N1103.0]

- Light Bulbs – A minimum of 50% of lamps in permanently installed fixtures shall be high efficiency. [N1104.1]
- Recessed Lighting – The only option for recessed luminaires within the building thermal envelope will be IC-rated, air tight (≤ 2.0 CFM) fixtures. [N1102.4.5]
- Air Tightness Test – The builder chooses which of the two options shall be used to confirm building envelope air tightness. A third-party agency, acceptable to the Township shall be used for either option.
 - Option 1 – Blower Door Test – Pressurizing the house to 0.2 “ w.g. and measuring air flow through a fan with sensor on blower and digital manometer, with conversion to air changes per hour. [N1102.4.2.1]
 - Option 2 – Visual Inspection – Twenty-four item checklist. [Table N1102.4.2]
- Duct Sealing – Supply ducts shall be insulated (R-8 in attics, all others R-6 except ducts completely within the building thermal envelope) and tested for leakage. A third-party agency acceptable to the Township shall perform the confirmation testing by one of the following methods.
 - Post Construction Test [N1103.2.2.1]
 - Rough-In Test [N1103.2.2.2]
- Appliances – Appliances shall not be installed in a location subject to vehicle damage except where protected by approved barriers. [M1307.3.1]
- Clothes Dryer Exhaust Ducts – The diameter is now required to be 4-inches nominal. The maximum equivalent length remains at 25-feet except for gas dryers at 35-feet. If the duct is concealed within building construction, the equivalent length shall be identified on a permanent label or tag within 6-feet of the exhaust duct connection. [M1502.4]
- Dryer Duct Protection – Protective shield plates shall be provided where nails or screws could penetrate the dryer exhaust duct. [M1502.5]
- Range Hoods – Exhaust hood systems capable of exhausting > 400 cfm shall be provided with make-up air approximately equivalent to the exhaust air rate and have automatic closers that start and operate with the exhaust system. [M1503.4]
- Gas Piping – Gas piping shall not penetrate the foundation wall below grade. [G2415.4]
- Cook Tops – New vertical clearance requirements to combustible materials and metal cabinets of ≥ 30 -inches, 24-inches under certain conditions. [G2447.5]
- Outdoor Receptacles – One receptacle not $> 6 \frac{1}{2}$ feet above the walking surface is required in the perimeter of decks, balconies, and porches with a useable area of ≥ 20 ft². [E3901.7]
- Arc Fault Protection – Combination type arc fault protection is now required on all receptacles in family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms closets,

- hallways, or similar rooms unless ground-fault protection is required at that location. AFCI circuit breakers must have both parallel and series arc detection (combination AFCI). [E3902.11]
- Tamper Resistant Receptacles – Listed tamper-resistant receptacles shall be installed in all kitchens, bathrooms, family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreation rooms, closets, hallways, laundry rooms, outdoor locations, basements, and garages. This child protection feature employs a shutter system that allows plugs into the receptacle but not keys or other objects. [E4002.14]
 - Luminaires in Clothes Closets – Surface mounted florescent or LED luminaires identified as suitable for installation in a storage area may now be used in clothes closets. [E4003.12]
 - Pools (any pool, hot tub, spa, etc. capable of holding ≥ 24 -inches of water)
 - Automatic time switch pool heater controls are required along with accessible on-off switches.
 - Heated pools require a pool cover that is vapor retardant. Pools heated over 90°F require a cover rated to R-12.
 - Entrapment protection is required.
 - Electrical disconnection requirements are specific.
 - Residential Sprinklers
 - Required in any townhouse built starting January 1, 2010
 - Required in single-family dwellings and in duplexes starting January 1, 2011
 - Shall be designed in accordance with NFPA 13D or IRC Section P2904.
 - Not required in attics, crawl spaces, closets, and unoccupied spaced without fuel-fired spaces
 - Not required in closets and pantries $< 24 \text{ ft}^2$ or < 3 feet in the smallest dimension
 - Not required in bathrooms $\leq 55 \text{ ft}^2$
 - Not required in garages, carports, porches, or unheated entrance areas
 - By code, the supply may be separate from the domestic water supply or may share a common supply if sized properly. Public water service laterals shall comply with United Water PA regulations.
 - Pre-concealment and final inspections are required. Signage and an owner's manual are required. [P2904.7]
 - Sprinklers must be included in any addition if the existing dwelling already has a sprinkler system. [PA UCC]

The Pennsylvania Construction Codes Academy offers a few one-day courses that cover the changes in the 2009 Edition of the Code and are recommended. A copy of the course manual is available for your review in the Lower Swatara Township Code Enforcement Office.

You are urged to purchase your own copy of the International Residential Code, 2009 Edition to learn the new requirements and to keep as a reference. The manual is the only comprehensive source of the standards you must, by law, follow during construction. A copy may be obtained from the International Code Council at their ICC store at <http://www.iccsafe.org/>. In December 2009 the cost was \$103.75 for a loose-leaf version, and \$88.00 for a soft cover version.

Pennsylvania State Association of Township Supervisors (telephone number 763-0930) at 4855 Woodland Road, Enola, PA or www.psats.org is another source of the code books.

Reminders

- Unless submitted plans include a soil-bearing report from an approved agency, the default soil bearing of 1,500 psf will be used for all calculations and tables.
- Items needed for performing inspections must be provided by the builder. For example, a step ladder should be on site to allow attic access and to check elevated items during the rough-in and final inspections. If smoke detectors are not able to be tested with an integral test button, any special activation items such as magnets or aerosol smoke must be provided by the builder during the final inspection.
- Crawl spaces, if any, need to be open and accessible for inspection.
- Labels – Windows, doors, garage doors and other items must have U-value labels still affixed during inspection.

The construction of a new home is a long and complex process. Plan reviews will usually detect items of non-conformance so they may be corrected before construction begins. Because a Township inspector is not on the job site to witness every board cut or every nail driven, inspections will provide indications of compliance, but cannot be expected to confirm complete compliance with the Code. Whether an item is detected during the plan review or not, and whether and item is inspected or not, the builder is responsible to ensure all construction meets or exceeds the International Residential Code, 2009 Edition.

We look forward to working with you in the construction of good quality housing for the residents of Lower Swatara Township.

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Lower Swatara Township

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Lower Swatara Township