Submittal Updates for New Home Construction
New Requirements

- Wall Bracing Plan
- Energy Conservation Plan
• Required for both Prescriptive and Engineered Plans

• Prescriptive table found in R602.10.2
  • Check wind speeds as all designs in IRC are limited to less than Vult=140 mph Exposure B
  • Table R602.10.3 & Adjustment Table R602.10.3

• Handout is available online and in back.
Manual J, S, and D are now required for both the Prescriptive and UA alternative approach (REScheck).

All heating sources require load calculations to determine size. This requirement now includes Boilers and Electric Heat too.

Values used for calculating the heat load need to be consistent between plan drawings, Manual J&S, and REScheck.
Cross-section showing the thermal envelope makes this review much easier and is encouraged. If not found or if the values differ on the drawings, plan review comments are likely.
Prescriptive Manual J Values Per County Amendment IRC Table 301.2 (1)

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</thead>
<tbody>
<tr>
<td>4,935</td>
<td>40° North</td>
<td>4° F</td>
<td>91° F</td>
<td>.85</td>
<td>72° F</td>
<td>75° F</td>
<td>68° F</td>
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<td>Cooling Temp Difference</td>
<td>Wind Velocity Heating</td>
<td>Wind Velocity Cooling</td>
<td>Coincident Wet Bulb</td>
<td>Daily Range</td>
<td>Winter Humidity</td>
<td>Summer Humidity</td>
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<tr>
<td>16° F</td>
<td>15 mph</td>
<td>7.5 mph</td>
<td>62° F</td>
<td>High (H)</td>
<td>50%</td>
<td>50%</td>
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</tbody>
</table>
Rim joists of basements and crawl spaces shall be air-sealed and insulated to R19 minimum OR to R-13 minimum if using spray foam insulation.

Show all Roof Snow Load (RSL) reductions on the drawings. All structures except green houses have a minimum RSL of 30 psf.
Significant I-Code Changes from 2015 to 2018
Residential pergolas (arbors) added to list of structures exempt from building permits if more than 67% of roof is open, per Larimer County Amendment to IRC Section R105.5 #17.
Wind exposure category shall be Exposure C except for site-specific analysis by design professional and only if approved by the Building Official per IRC table 301.2(1) footnote d or IBC Section 1609.4.
Greenhouses may take roof snow load reductions below 30 PSF if they follow ASCE 7-16 (IRC/IBC) per IRC table 301.2(1) footnote O.
Reinstates requirement to install smoke and CO alarms when alterations or repairs are made to heating/ water heating appliances requiring a permit (IRC Sections R314.2.2 and R315.2.2).

For alteration or repairs to mechanical systems, CO and smoke alarms do not need to be interconnected

(IRC amendments R314.4 and 315.5 exception #2.)
Allows underfloor area of I-joists above fuel-fired appliances in a new basement or crawlspace to not be protected by a fire sprinkler system or drywall if the appliances are direct vent with both the intake and exhaust continuous to the outside. IRC R302.13
For non-direct heating or water-heating appliances installed under wooden I-joists in crawl spaces or basements you must

(1) install fire sprinkler underfloor, or

(2) enclose heating appliances within an 80 sq ft max. mechanical room with ½” drywall, or equivalent, for walls and ceiling, with a 1⅜” thick solid or fire-rated self closing, fully sealed door, and fire blocking.

Per amendment R302.13 exception 3.
Entire section for photovoltaic systems (R324.3) has been updated. Changes include section layout, ridge setbacks and access pathway sizes.

Per County Amendment, PV systems may meet Class C fire-rated roof assembly countywide even in the Class B roofing area. Amendment IRC R324.4.2
Two access pathway required but only one pathway required from street or driveway side and is allowed above garage doors.

Setbacks from ridge adjusted due to total size of arrays.

If arrays cover no more than 66% of the plan view total roof area, setback is reduced to 18” on both sides of ridge.

If arrays cover more than 66%, a 36” setback required on both sides of ridge.

IRC 324.6.2
Roof access, pathways, and setbacks need not be provided where the code official has determined that rooftop operations will not be employed.

In Poudre Fire Authority’s (PFA) jurisdiction only, the following ruling has been made:

PFA has determined that rooftop operations for fighting a fire will not be deployed. As such, for one- and two-family dwellings with panels installed on ONE side of the ridge allowing access to opposite side, access pathways are not required. Setback from ridge is allowed to be reduced to one foot (12") minimum.

If panels are on both sides of ridge, then the general code requirements apply.
• Amend Wildfire Hazard Area requirements in both IBC and IRC to require 3’ noncombustible ground cover OR 3’ noncombustible siding, but not both, per amendment section R327.5

• #2. Clarify the scoping exception for detached accessory structures up to 600’ maximum for barns, sheds and greenhouses (IRC loafing sheds can be unlimited size) per amendment R327.2 exception. Garages/shops not exempt.
Max. size for an unheated accessory structure on a monolithic slab is 600 sq ft, unless a frost-protected shallow foundation is installed. Amendment IRC R403.1.4.1 Exception #4
Entire deck section R507 reorganized and design tables added for use up to 40 psf ground snow load (5,500’ elevation). Local tables in deck handout go to 70 psf (8,000’).

All wood for decks must be pressure-preservative-treated or naturally durable, not just wood close to grade. per IRC R507.2.1.
Solid roof deck now defined by local amendment as having maximum 1/8” gap between sheathing (IRC/IBC) in chapter 2 in the definitions.
Ice barrier underlayment required countywide for specific roof coverings, rather than only in the class B roof area (IRC Table 301.2.(1), IBC 1507.1.2 as amended)

An ice barrier is required from eave to 2' minimum inside conditioned space.
Require compliance with at least 2012 REScheck since 2009 is no longer available, per county amendment to IRC N1101.3. Manual J&S required with UA Alternative approach like REScheck
Increased ceiling insulation requirements to R-49 (N1102.1.2), Kept basement/crawlspace wall minimum requirement at R10/R13
Rim joists of basements and crawl spaces shall be air-sealed and insulated to R19 minimum OR to R-13 minimum if using spray foam insulation. County amendment IRC N1102.2.9.
Alterations where roof/wall cavity is found to be uninsulated need to fully fill cavity, not meet current code. The cavity must be filled with the greatest R value available: R-15 in a 2x4 wall and R-20 in a 2x6 wall is the minimum per county amendment N1109.1.1 #2.
By amendment, deleted conflicting code section IRC R1601.1.1 #7 allowing building air cavities to be used for return air, which is prohibited in the energy provisions of section IRC N1103.3.5
Percentage of permanent light fixtures required to be efficient goes from 50 to 75% (code now says 90%) per amendment to IRC N1104.1.
Whole house mechanical ventilation manual override must be clearly labeled by text or symbol (IRC, section M1505.4.2).
A fuel-fired clothes dryer is allowed in a residential bathroom IF it has a permanent opening with an area of not less than 100 square inches that communicates with a space outside of a sleeping room, bathroom, toilet room or storage closet. Electric dryers allowed. Amendment to IRC G2406.2 #4
Allow gluing PVC to CPVC only at water service entrance and PVC to ABS only at building drain/sewer connection, using an approved transition glue (IRC 3003.13.4).
A water-hammer arrestor shall be installed where quick-closing valves are utilized. IRC P2903.5 and IPC 604.9
Where provided, thermal expansion tanks must be independently supported in accordance with the manufacturer's instructions and not supported by piping IRC P2903.4
Clarify that all new habitable and conditioned commercial buildings require air leakage testing per 2018 IECC, C402.5.
Adopted IRC Appendix F (Radon Mitigation) reference standard for radon mitigation systems.

Where radon systems required by development approval conditions, installation must be per this standard.
Adopted IRC Appendix M and altered related IBC scoping sections to clarify that in-home family day cares with over 5 children do not require a fire sprinkler system and remain under the scope of the IRC (as well as state licensing rules).
Adopted IRC Appendix Q to offer flexibility for Tiny Houses on foundations regarding ceiling heights, stairs to lofts, guards and egress windows.
Adopted IRC Appendix R for Light Straw-Clay Construction and Appendix S for Strawbale Construction.
End of significant changes to the 2018 I-codes.
Any questions?
Hold-down Inspection

This is a required inspection prior to installing WRB or siding. It is not a separate inspection; it is to be done at the Porch Framing or Framing inspection.

Make sure the cast-in-place straps are installed with the proper nails. Simpson straps require 16D nails which are not the same as the nails used to install the OSB.
Larimer County does not require a general drywall inspection unless there are certain design conditions.

Interior Shear Walls made of drywall or OSB require their own inspection.

If there is living space above a garage, we require a drywall inspection of the garage to verify \( \frac{5}{8}'' \) type X at minimum is installed on the ceiling, \( \frac{1}{2}'' \) minimum on bearing walls and elements, and to review the screw spacing. Inspection needed before taping this drywall.
Duct Leakage Test

This is not a new requirement per code, just a new enforcement.

When ducts are run outside the thermal envelope a duct leakage test is required.

Two acceptable tests:

- Rough In Test
- Postconstruction Test.

This is a report that is submitted to the Inspector.

Per IRC N1103.3.4