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2021 ORSC – SIGNIFICANT CHANGES AND TIMELINE

OHBA has summarized the new state of Oregon residential code changes. These new code changes will be adopted April 1, 2021 and be mandatory on October 1, 2021. During the six-month transition period between April and October, builders may use either the current or the new code. **October 1, 2021 contractors will need to comply with the provisions of the 2021 ORSC.** Please pay special attention to the new residential energy code requirements within this summary.

Simply stated – a new code, which may have significant changes from how you currently build, will be in effect no later than October of next year. Some of the changes in this new code may require changes in your building practices that will take all that time to implement. Many of the new code requirements for residential homes are mandated by the governor's executive order on climate change. This is an important code change to follow.

The following list does not include all the new proposed code changes. Some of those not listed may impact your specific construction practices. Check the Oregon Building Codes Division ORSC code adoption page for more details: https://www.oregon.gov/bcd/codes-stand/code-adoption/Pages/2020-orsc-adoption.aspx

SIGNIFICANT CHANGES:

SOLAR READY (Solar Interconnection Pathway)

This new code requirement is ALREADY IN EFFECT. Adopted October 1, 2020 and effective on any new permit submittal this was a mid-cycle change mandated by the Governor's Executive Orders on Energy.

The code language and clarifications from the Division can be found at this link:
https://www.oregon.gov/bcd/codes-stand/Documents/17orsc-solar-amendments.pdf

In general, the new code requires a conduit running from a metal junction box near the main electrical panel to a location either on the roof or in the attic (above the insulation) and labeled "Reserved for Solar".

There is an exception that allows the installation of cabling instead of the conduit and there is specific language around details for the boxes, conduit, etc. in the language of the new code section N1107.4 Solar Interconnection Pathway.

STRUCTURAL –

Wind, Snow Load and Seismic Design Maps:

2017 ORSC– Previous maps were formatted to show design criteria shifts aligned largely along county lines. The intent of this was to simplify permit submittals with consistent design values within single jurisdictions.

2021 ORSC – The new code proposes to rely on databases that provide much more geographically-specific design criteria than the old maps. For example, a large county like Lane that extends from the coast through the valley and into the Cascades should have high snow load values in the mountains but less so in the valley. And likewise, may have high seismic potential on the coast but far less in the mountains. Portions of some eastern Oregon counties like Crook, Grant, Harney and Malheur may be able to take advantage of Seismic Design Category B which has not previously been available in the state.

Next Steps – Builders and designers should review Wind and Seismic design loads at www.Hazards.atcouncil.org and snow loads at www.snowload.seao.org/lookup for their specific job site addresses to see if design adjustments are appropriate for 2021.

Other – The new code also provides some clarifying figures on configurations of irregular buildings that may trigger additional design.

Fire Separation:

2017 ORSC – previous codes have generally identified fire separation distances in terms of distance to property lines.

2021 ORSC – the new code, in recognition of legislation promoting increased density including ADUs provides guidance on fire separation distances between structures as opposed to structures and property lines.

Next Steps – In very general terms the new language effectively maintains current separation distances and practices. If you are building ADUs or other configurations of separated units on single lots, you may want to review these provisions in more detail.

Other – The new code clarifies that attached decks requiring permitting are considered “projections” under the townhouse provisions. Also, the new code emphasizes the current rules against utilities crossing townhouse separations.

Two Unit Townhomes:

2017 ORSC – to everyone’s surprise the previous code did not allow use of the townhome provisions in the code for fee-simple attached two-family dwellings

2021 ORSC – the new code affirms that two-family dwellings separated by a common property line can be built using the townhome provisions in the code.

Next Steps – Recent legislation, zoning changes, marketing trends, etc. mean more builders are building attached units for the first time. If that is you, take some time to review the townhome provisions in R302. Oregon spent a lot of time creating some easy to follow, prescriptive measures in R302 that will make your job much easier.

Stairways, Alternate Tread Devices, Ships Ladders:
2017 ORSC – the previous code allowed for use of ships ladders and alternate tread devices for access to some small habitable areas, lofts, mezzanines, etc. There were also interpretation issues with stairway requirements for non-egress stairways.

2021 ORSC – ships ladders and alternate tread devices are no longer allowed for accessing habitable spaces. Applications in tiny homes have been addressed separately by the legislature. New code language also clarifies that stairway requirements (geometry, rails, etc.,) apply to all stairways in a home, not just the designated egress path.

Next Steps – Users of alternate tread devices and/or ships ladders should review plans in light of tiny home legislation as well as the habitability of the space accessed under the 2021 ORSC. If you have been using out of compliance stairways in homes and using the loophole that they were not part of the designated egress path, well, time to change, that loophole is now closed

Habitable Attics:
2017 ORSC – The 2017 ORSC deleted the definition of a "habitable attic" from the code. This led to the unintended consequence of limiting habitable attics created by storage trusses or other means on top of three-story wood frame construction particularly in the City of Portland.

2021 ORSC – allows for the use of a "habitable attic" without consideration of an additional "story" on some structures.

R327 Wildfire Mitigation:
2017 ORSC – a mid-cycle adoption to the 2017 ORSC allowed for local adoption of R327 Wildfire Hazard Mitigation provisions. In essence this was intended for communities who wanted to require additional fire hardening of new structures built in urban wildfire interface zones

2021 ORSC – reaffirms the mid-cycle option for local adoption and includes it in the 2021 ORSC.

Next Steps – understandably given the wildfire disasters in many of our communities this year there is significant discussion around fire separation and fire hardening. We anticipate new basic hardening standards such as non-combustible roofs in-place statewide and then local adoption of R327 for complete fire-hardening practices. Please work with your local community.

R507 Decks:
2017 ORSC – recent code cycles have resulted in significant increases in requirements for deck construction and attachment following a serious of catastrophic failures, injuries and deaths.

2021 ORSC – the new code reflects continued stringency in deck safety requirements with a focus on allowed materials, footings and rails.

Next Steps – deck builders need to become familiar with the new provisions, particularly around guard rails. The way you have anchored your deck posts for years may no longer be allowed. For example, no more notching the bottom of your railing posts for attachment.

Cripple Walls:
2017 ORSC – previous code iterations have required sheathing on pony walls with studs less than 14" in height.

2021 ORSC – the new code recognizes a difference between "interior" and "exterior" pony walls. Short, interior pony walls will no longer be required to be sheathed.

Next Steps – talk to your framers, not sheathing short interior pony walls is not only a cost savings but can also improve ventilation and allow for easier routing of pipes in your crawlspace.

Roofing Recovery Layers:
2017 ORSC – previous codes have allowed a maximum of three layers of asphalt shingles on a home (re-roof over existing shingles twice).

2021 ORSC – limits the layers of shingles to two (a single overlay)

Next Steps – no one really does three layers of roofing. Most roofing warranties will not allow a single overlay, let alone two. Always remember to check manufacturers warranties and installation instructions. In many circumstances they may be more restrictive than code.

Portal Frame and Wall Bracing SAMs:
2017 ORSC – Oregon has long had popular and effective prescriptive portal framing and wall bracing alternate methods in the code.

2021 ORSC – Oregon is rescinding both the 97-01 Portal Frame Bracing and the 13-01 Wall Bracing Statewide Alternate Methods in favor the prescriptive methods in the International Residential Code.

Next Steps – the practical impact of this change is hundreds, if not thousands, of stock plans in Oregon that currently employ the two SAMs will need to be updated using the 2018 IRC methodology. If you or your designer are currently using the method in these SAMs for your lateral design, now is the time to start updating your plans.

RESIDENTIAL MECHANICAL CODE CHANGES:

Mechanical Ventilation:
2017 ORSC – previously mechanical ventilation (fresh air) systems could be "supply only" relying on passive exhaust through fan dampers or "exhaust only" relying on air leakage to supply make-up air.

2021 ORSC – requires a "balanced" ventilation system where "concurrently operating mechanical exhaust and mechanical supply" are within 10% of the same airflow rate.

Next steps – if you are not already providing a balanced fresh air ventilation system it is time to huddle up with your HVAC contractor to design one. There are several off-the-shelf control systems that will

simultaneously trigger an intake damper, supply fan and exhaust fan to provide the required ventilation. However, there are also many hybrid systems that will accomplish the same thing but may be a better fit with your existing systems.

Exhaust Ducts:
2021 ORSC – the new code clarifies exhaust duct joints be sealed with "listed" tape and removes language around mechanical connections from the previous code. Screws or other fasteners are still not allowed to protrude into the interior of exhaust ducts despite changes in model code.

More – the new code specifies that dryer exhaust ducts enclosed in wall or ceiling cavities must be installed "without deformation". In other words, while "oval" pipe may be allowed, crushing a 4" duct to fit into a 3 ½ inch wall cavity is not allowed.

Recirculating Hoods:
2017 ORSC – since the Construction Claims Task Force all kitchen exhaust hoods have been required to vent to the outside.

2021 ORSC – the new code provides an exception allowing recirculating hoods again provided that the home is provided with continuous manual exhaust of 20 cfm and a "natural ventilation opening" is provided.

Make-up Air Dampers:
2017 ORSC – Previously when a kitchen exhaust hood of over 400 cfm was installed it was required to have an interconnected make-up air supply.

2021 ORSC – the new code allows that make-up air supply to come from a gravity operated damper that will automatically open when the fan is activated.

Mechanical Ventilation Rate:
2021 ORSC Proposed Provision Change – for those of you following the adoption process there was previously a proposed 30% reduction in required ventilation rate for a "distributed" ventilation system. This exception tied into a proposed mandatory HRV requirement except in cases where the distributed ventilation system exception was used.

At the October Residential and Manufactured Structures Board code adoption meeting the Board decided to remove both the requirement for an HRV and the 30% ventilation rate reduction allowance for distributed systems.

Result – an HRV is not required under the new code. No reduction is available for the required ventilation rate of the whole-house mechanical ventilation system. There is an exception allowing intermittent operation of the system versus continuous if:

- The system has controls that enable operation for not less than 25% of each 4 hours period
- The required ventilation rate is multiplied by a factor provided in the code (Table M1505.4.3(2))

The minimum whole-house ventilation rate is calculated by:

- Ventilation Rate in CFM = (0.01x square feet of home) +(7.5x (number of bedrooms+1))
- For example, a 2000 square foot home with 3 bedrooms will require a ventilation rate of 50 cubic feet per minute running continuously. Or 50 cfm times the factor in M1505.5.3(2) if run intermittently.

Next Steps – include a discussion of continuous versus intermittent and how you will document ventilation rate in your conversation with your HVAC contractor in designing your new whole-house balanced mechanical ventilation strategy. Or confirm the one you currently use follows the new provisions.

Exhaust Fans in Rooms WITHOUT Bathing Facilities:
2017 ORSC – since the Construction Claims Task Force Oregon code has required automatic controls (timers, humidistats, motion sensors, etc.) for exhaust fans in rooms with bathing facilities to facilitate the removal of moisture which can contribute to mold growth. Bathrooms without bathing facilities were exempted from the requirement.

2021 ORSC – the new code extends the requirement for automatic controls to bathrooms without bathing facilities (powder baths for example). Unlike the reasoning for rooms with bathing facilities, which was to encourage extended operation of the exhaust fans to facilitate moisture removal, the reasoning for the new provision is to limit operation time of the fan by automatically turning it off at some point thereby saving energy which could be lost from fans left on indefinitely.

Next Steps – coordinate with you electrician and/or HVAC contractor for installation of some form of automatic control for all bath fans by next October.

Ductwork Sealing:
2017 ORSC – existing code still contains an exception allowing the use of duct tape for sealing metal duct under some circumstances.

2021 ORSC – removes the exception and prohibits the uses of duct tape as a sealing method for metal duct and between metal and flexible ducts.

Next Steps – many HVAC contractors eliminated tape in favor of mastic duct sealing years ago and their crews are very familiar with its usage. If your HVAC contractor is still using duct tape it is time to make the transition.

Other Stuff:
PEX Pipe Hangers – spacing requirements change with the new code; you will need to use more supports for PEX installation

Appliance Shut-Off Valve Locations – the new code clarifies that gas appliance shut-off valves located behind “moveable appliances” are considered accessible for purposes of the code

Crawlspace Ventilation and Building Tightness Method for Radon – the new code will maintain Oregon’s alternative path for radon mitigation in required counties. The method substitutes a vapor barrier,

sufficient crawlspace ventilation and verified air-sealing of the home. A clarification in the new code specifies that you cannot use the crawlspace ventilation reduction for use of a vapor barrier in conjunction with this method

NEW RESIDENTIAL ENERGY CODE CHANGES:

2017 ORSC – previously builders were required to comply with all prescriptive envelope requirements in Table N1101.1(1) and select TWO ADDITIONAL MEASURES from Table N1101.1(2).

2021 ORSC – the new code amends both tables:

- N1101.1(1) Prescriptive Envelope Requirements – the significant change to this table is that U-Values for windows go from U-0.30 to U-0.27
- N1101.1(2) Additional Measures – the significant change here is that only ONE additional measure is required in the 2021 ORSC. However, significant changes have been made to the entire table, not the least of which is that some previously "Additional" measures will now be base code requirements:
    - Duct sealing – duct sealing tape no longer allowed under base code (effectively requires mastic) so no credit for advanced duct sealing in the additional measures
    - **Ducts in Conditioned Space** – ducts in conditioned space (or "deep bury") will be required under the upcoming code. So, again, no longer available as an additional measure
    - Air Sealing – now required element so, likewise, unavailable as an "additional measure"
    - 2 new additional measures were added in the interest of increasing design flexibility:
        - Glazing area (less than 12% of the conditioned floor area
        - Air Leakage and Efficient Ventilation – a tested ACH-50 of 3.0 or less and an HRV with a minimum sensible heat recovery efficiency of 0.66

Next Steps – The changes to the energy tables and the mandatory requirements for duct sealing, ducts inside and air sealing are going to require significant changes for many builders. Those involved in third-party certification programs or who have implemented other above-code practices are likely already doing these things but those who have not have some learning curve over the next 11 months. OHBA intends to roll out training soon on these new measures. It is very important for those who have not done ductwork in conditioned space already that they start looking at it now. Done correctly it will not only impact HVAC plans and practices but also structural considerations including joist material selections and layouts, changes in bearing strategies to allow passage of ducts and additional interior soffits. Not to mention carving out a sufficient size mechanical closet in a location within the home conducive to that duct layout. The "deep bury" alternative allowed by the new code may be preferred by some over transitioning to ducts-inside but the details for it may be problematic as well. Builders not currently using ducts-inside need to take a close look at both alternatives now in order to have a well-designed system in place by next October. It really does take time to implement properly and avoid unintended consequences with existing systems.

Similarly, but to a lesser extent, the air sealing checklist will require a learning curve for builders who have not previously focused on air sealing. The checklist is loosely based around Energy Star's Thermal Bypass Checklist so those familiar with that process should have no problems.

Duct sealing, as mentioned before, may be a significant shift for some builders and/or HVAC contractors but many contractors have already made the transition to mastic and for them the new code requirement will be business as usual.

Other:
Ventilation Intake as well as exhaust fans will have to be Energy Star rated under the new code

Hot Water Service Pipe Insulation – the first 8' of piping in and first 8' of piping out of a water heater must be insulated under the new code.

Final Thoughts:
The new Solar Ready provisions (Interconnection Pathway) went into effect on October 1, 2020. New permit applications must comply with these provisions now. Check with your local building official as to whether they are recognizing the typical 90-day grace period for the Solar ready provisions.

Some of the upcoming changes in the 2021 ORSC, in particular to energy and mechanical provisions, will require significant design, material and method revisions for some builders. Place close attention to the requirements for ducts in the conditions space. **Many builders may need to make significant design changes and/or subcontractor education to comply with this new mandate.** OHBA and others will be providing training and we urge builders, particularly those already not installing ducts-inside or using air sealing checklists to start that process now.