

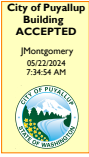
# Building Envelope Requirements List, pg 1 of 13

2021 WSEC Requirements for Commercial Buildings including Group R2, R3 & R4 over 3 stories & all R1 -- Administered by ©2024 NEEA, All rights reserved

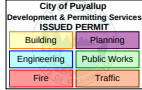
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Project:  
Wesley Bradley Park Phase 2 - Care Center - 2021 WSEC  
707 39th Ave. SE  
Puyallup, WA 98374



PRCNC20240424



Date: 2024-12-03

| Applies | Code Section | Component                               | Compliance Information Required In Permit Documentation                                                                                                                                                                                                                                       | Location in Documents                                                                                    | Building Department Notes |
|---------|--------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------|
| SCOPE   |              |                                         |                                                                                                                                                                                                                                                                                               |                                                                                                          |                           |
|         | C103         | Construction documents - General        | For a tenant space (first build-out) project, indicate if there is no envelope scope included in the project.                                                                                                                                                                                 | FULL SIZED LEDGIBLE COLOR REPORT IS REQUIRED TO BE PROVIDED BY THE PERMITTEE ON SITE FOR ALL INSPECTIONS |                           |
|         | C103         | Construction documents - General        | For an alteration project, indicate if there is no envelope scope included in the project.                                                                                                                                                                                                    |                                                                                                          |                           |
|         | C402.1.1.1   | Low energy spaces                       | Identify low energy enclosed spaces on plans; include calculations if applicable that demonstrate eligibility for envelope provisions exemption.                                                                                                                                              |                                                                                                          |                           |
|         | C402.1.1.2   | Semi-heated spaces                      | Identify semi-heated spaces on plans, include mechanical heating system type and capacity calculations that demonstrate eligibility for wall insulation exemption.                                                                                                                            |                                                                                                          |                           |
|         | C402.1.1.3   | Greenhouse spaces                       | Identify greenhouse spaces on plans; include vertical fenestration and glazed roof / skylight assembly information and mechanical heating system type if applicable, that demonstrates eligibility for envelope provisions exemption.                                                         |                                                                                                          |                           |
|         | C402.1.2     | Equipment buildings                     | Provide building sf area, average wall and roof U-factor, installed electric equipment power (W/sf); mechanical equipment type and capacity (btu/h*sf) and heating setpoint restriction ( $\leq 50^{\circ}\text{F}$ to demonstrate eligibility for envelope provisions exempt                 |                                                                                                          |                           |
|         | C402.1.2.1   | Standalone elevator hoistways           | Identify elevator hoistway on plans and indicate it does not serve or open into conditioned or semi-heated space; indicate dedicated HVAC system includes heating and cooling setpoints restrictions ( $\leq 40^{\circ}\text{F}$ and $\geq 95^{\circ}\text{F}$ , respectively) to demonstrate |                                                                                                          |                           |
|         | C410.3       | Walk-in cooler and freezer spaces       | Identify locations and floor area of each walk-in cooler and freezer space on plans; including site assembled, site constructed and prefabricated units.                                                                                                                                      |                                                                                                          |                           |
|         |              |                                         | Identify locations and floor sf area of warehouse cooler and freezer spaces on plans.                                                                                                                                                                                                         |                                                                                                          |                           |
|         | C101.4.1     | Mixed residential & commercial building | Identify spaces with different occupancy requirements on plans.                                                                                                                                                                                                                               |                                                                                                          |                           |
|         | C502.1       | Building additions                      | Indicate whether the building addition complies as a stand-alone project or if the addition and the existing building is combined into a single building to demonsrate compliance.                                                                                                            |                                                                                                          |                           |

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|  |        |                                          |                                                                                                                                                                                                                                                                 |  |  |
|--|--------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | C505.2 | Change in space conditioning alterations | Identify on plans existing unconditioned spaces changing to semi-heated or conditioned space, and existing semi-heated spaces changing to conditioned space; provide load calculations per Section C501.2.2 for new and existing to remain (if applicable) mech |  |  |
|  | C505.1 | Change in space conditioning alterations | Indicate whether the area under-going a change in space conditioning complies as a stand-alone project or if the alteration area is combined with all existing equivalent space conditioning areas in the building to demonstrate compliance.                   |  |  |
|  | C505.3 | Change in occupancy alterations          | Identify on plans existing F, S and U-occupancy spaces undergoing a change in occupancy and final occupancy type.                                                                                                                                               |  |  |
|  |        |                                          | Identify on plans existing Group R spaces permitted prior to July 1, 2002 that are undergoing a change to a commercial occupancy.                                                                                                                               |  |  |
|  |        |                                          | Identify on plans existing commercial (non-Group R) occupancy spaces undergoing a change to a Group R occupancy.                                                                                                                                                |  |  |
|  | C505.1 | Change in occupancy alterations          | Indicate whether the area under-going a change in occupancy complies as a stand-alone project or if the alteration area is combined with all existing equivalent occupancy areas in the building (as defined per Section C505.3) to demonstrate compliance.     |  |  |

## ENVELOPE ASSEMBLIES

|  |          |                                  |                                                                                                                                                                                                                                                                 |  |  |
|--|----------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | C103.6.3 | Thermal envelope compliance path | Indicate envelope thermal performance compliance path taken (prescriptive or component performance) and provide corresponding WSEC envelope compliance reports in project documentation                                                                         |  |  |
|  |          |                                  | If complying prescriptively, demonstrate that each opaque envelope assembly complies via either the minimum prescriptive R-value per Table C402.1.3 or the maximum prescriptive U-factor/F-factor per Table C402.1.4; include U-factor/F-factor source in compl |  |  |
|  |          |                                  | If complying via component performance, demonstrate that the Proposed Total UxA is equal to or less than the Allowable Total UxA; also demonstrate that the Proposed Total SHGCxA is equal to or less than the Allowable SHGCxA.                                |  |  |
|  |          |                                  | If complying via total building performance, provide a list of all proposed envelope component types, areas and U-values in energy model documentation.                                                                                                         |  |  |

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|  |                                |                                            |                                                                                                                                                                                                                                                                 |  |  |
|--|--------------------------------|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | C303.1.1                       | General insulation installation            | Indicate installation methods, thicknesses, densities and clearances to achieve the intended R-value of all insulation materials                                                                                                                                |  |  |
|  |                                |                                            | Where two or more layers of rigid insulation will be used, indicate that edge joints between layers are staggered, or exception taken.                                                                                                                          |  |  |
|  | C303.1.1<br>C303.1.2           | Insulation identification                  | For insulation materials that are provided with a manufacturer's R-value identification mark, indicate that the insulation shall be installed such that the mark is readily observable during inspection.                                                       |  |  |
|  | C303.1.1<br>C303.1.2           | Insulation identification                  | For insulation materials that are not installed with an R-value identification mark, indicate that an insulation certificate per Section C303.1.1 shall be provided immediately after installation in a conspicuous location in the building so it is readily a |  |  |
|  | C303.1.3<br>C402.4.3           | Fenestration product rating                | Indicate fenestration products shall be labeled with NFRC U-factor, SHGC, VT and leakage rating, if fenestration products do not have an NFRC rating, indicate applicable Chapter 3 default values.                                                             |  |  |
|  | C103.2<br>C402.2.1             | Roof assembly insulation                   | Indicate R-value(s) of cavity and / or continuous insulation on roof sections and WSEC envelope compliance reports                                                                                                                                              |  |  |
|  |                                |                                            | Where insulation thickness varies by greater than 1 inch, provide area weighted average U-factor calculation                                                                                                                                                    |  |  |
|  |                                |                                            | Indicate framing materials and framing depths on roof sections.                                                                                                                                                                                                 |  |  |
|  |                                |                                            | For ceilings below vented attics and vaulted ceilings, indicate framing method (standard or advanced) per Section A102.2.                                                                                                                                       |  |  |
|  |                                |                                            | For roof assemblies with insulation entirely above deck that is tapered, indicate effective U-factors of tapered insulation per Section A102.2.6; include roof configuration and slope, maximum R-value at peak and minimum R-value at low point for all roof s |  |  |
|  |                                |                                            | For metal building roofs, indicate R-values for thermal spacers and each insulation layer, and liner system (LS) method.                                                                                                                                        |  |  |
|  | C402.2.1.3                     | Skylight curb insulation                   | Indicate skylight curb insulation R-value on roof section, if not included in skylight NFRC rating.                                                                                                                                                             |  |  |
|  | C402.2.1.4                     | Rooftop HVAC equipment curbs               | Indicate rooftop HVAC equipment curb insulation R-value on roof section.                                                                                                                                                                                        |  |  |
|  | C103.2<br>C402.2.2<br>C402.2.5 | Above/below grade wall assembly insulation | Indicate R-value(s) of cavity and / or continuous insulation on wall sections and WSEC envelope compliance reports                                                                                                                                              |  |  |

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|  |                                         |                                                                |                                                                                                                                                                                                                                                                 |  |  |
|--|-----------------------------------------|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  |                                         |                                                                | For mass walls, indicate material density category, wall thickness, weight and heat capacity.                                                                                                                                                                   |  |  |
|  |                                         |                                                                | For integral insulated ASTM C90 concrete masonry walls eligible for wall insulation exception, indicate loose-fill core insulation material and percentage of cores filled including grouted cores, bond beams, vertical fills, headers and any other grouted c |  |  |
|  |                                         |                                                                | For wall assemblies that include wall furring, indicate the framing materials and framing depths on wall sections.                                                                                                                                              |  |  |
|  |                                         |                                                                | For exposed exterior basement / crawlspace walls, indicate method of protection of insulation.                                                                                                                                                                  |  |  |
|  |                                         |                                                                | For wood-framed wall assemblies, indicate on plans the framing depth and method (standard, intermediate or advanced) per Section A103.2.                                                                                                                        |  |  |
|  | C103.2<br>C402.2.2<br>C402.2.5          | Above grade wall assembly insulation                           | For steel-framed and metal building wall assemblies, indicate framing depth on plans.                                                                                                                                                                           |  |  |
|  | C402.1.4.3<br>Table<br>C402.1.4<br>Foot | Thermal resistance of mechanical equipment penetrations        | Where mechanical systems include through-wall penetrations, indicate penetration locations on plans and provide calculation of the total percent sf area of mechanical penetrations                                                                             |  |  |
|  | C402.1.4.3<br>Table<br>C402.1.4<br>Foot | Thermal resistance of mechanical equipment penetrations        | If total sf area of through-wall penetrations exceeds 1% of the above grade wall area, the proposed wall assembly U-factor shall be calculated by area-weighting the proposed wall assembly type U-factor with a default U-factor of U-0.50 for the mechanical  |  |  |
|  | Table<br>C402.1.3<br>Footnote h<br>Tabl | Peripheral edges of intermediate concrete floors $\frac{1}{2}$ | Indicate that the total sf area of the peripheral edges of intermediate concrete floors (slab thickness multiplied by perimeter length) is accounted for as a separate above grade mass wall assembly for prescriptive or component performance compliance: ref |  |  |
|  | C103.2<br>C402.4.4                      | Opaque doors                                                   | For solid opaque doors and doors with $\leq 50\%$ integral glazed area, indicate rated U-factor for swinging (per NFRC-100) and non-swinging doors on wall sections or in door schedules, and WSEC envelope compliance reports.                                 |  |  |
|  | C103.2<br>C402.4.4                      | Garage doors                                                   | Indicate rated U-factor for opaque sectional, roll-up, tilt-up, metal coiling and sliding garage doors on wall sections or in door schedules, and WSEC envelope compliance reports.                                                                             |  |  |

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|  |                                        |                                                                 |                                                                                                                                                                                                                                                                    |  |  |
|--|----------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | C103.2<br>C303.1.3<br>C402.4.4<br>Tabl | Garage doors                                                    | For garage doors with $\leq 50\%$ integral glazed area, indicate glazing configuration (single or multiple row), percentage of glazed area and rated U-factor (per NFRC 100, ANSI/DASMA 105 or eligibilty for exception) on wall sections or in door schedules, an |  |  |
|  | C103.2<br>C402.2.3                     | Floor assembly (over outdoor or unconditioned space) insulation | Indicate R-value(s) of cavity and/or continuous insulation on floor sections and WSEC envelope compliance reports                                                                                                                                                  |  |  |
|  |                                        |                                                                 | For floor joists, indicate framing material and framing depth on floor sections.                                                                                                                                                                                   |  |  |
|  |                                        |                                                                 | For mass floors, indicate material density category, floor thickness, weight and heat capacity.                                                                                                                                                                    |  |  |
|  | C402.2.8                               | Above-grade exterior concrete slabs                             | Indicate on plans the locations of all decks, balconies and other above-grade concrete slabs that penetrate the building thermal envelope; indicate the total sf area (slab thickness multiplied by the perimeter length) is accounted for as a separate above     |  |  |
|  | C402.2.8                               | Above-grade exterior concrete slabs                             | For prescriptive compliance, indicate a minimum R-10 thermal break at all above-grade exterior concrete slab locations (or applicable exception); for component performance compliance, indicate code target U-factor for a mass wall and proposed U-factor as     |  |  |
|  |                                        |                                                                 | Indicate R-value of continuous insulation on wall section or foundation detail and WSEC envelope compliance reports                                                                                                                                                |  |  |
|  |                                        |                                                                 | Indicate method of protection of exposed exterior slab edge insulation                                                                                                                                                                                             |  |  |
|  |                                        |                                                                 | For un-heated slab-on-grade floors, to comply prescriptively indicate insulation extends down vertically and / or horizontally the required distance from top of slab; for component performance provide effective F-factor.                                       |  |  |
|  |                                        |                                                                 | For heated slab-on-grade floors, to comply prescriptively indicate insulation extends down vertically from top of slab and then horizontally under the entire slab; for component performance provide effective F-factor for a heated slab.                        |  |  |
|  |                                        |                                                                 | Indicate on plans the locations and configuration of all mass transfer deck slabs; indicate the total sf area (slab thickness multiplied by the length of the edge condition) is accounted for as a separate above grade wall assembly; indicate compliance is     |  |  |

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|  |                      |                                                                         |                                                                                                                                                                                                                                                                 |  |  |
|--|----------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | C402.2.6             | Radiant heating system panels insulation                                | Indicate on plans the insulation R-value behind radiant panels, U-bend/headers and bottom surface of radiantly heated floors (other than heated slab-on-grade).                                                                                                 |  |  |
|  | C402.4<br>C303.1.3   | Vertical fenestration assembly performance factors                      | Indicate U-factors, SHGC and VT values in fenestration schedules and WSEC envelope compliance reports                                                                                                                                                           |  |  |
|  |                      |                                                                         | Indicate if an area-weighted U-factor is used for multiple fenestration types within the same fenestration category per Table C402.4; provide area-weighted U-factor calculation                                                                                |  |  |
|  |                      |                                                                         | Indicate if U-factor, SHGC and VT values are NFRC or default; if default then specify frame type, glazing layers, gap width, low-e coatings, gas-fill.                                                                                                          |  |  |
|  | C402.4.3.3           | Dynamic glazing performance factors                                     | Indicate U-factors, variable SHGCs and VT values for dynamic glazing products in fenestration schedules and WSEC envelope compliance reports; indicate automatic controls that modulate solar gain in multiple steps; dynamic glazing cannot be area-weighted w |  |  |
|  | C402.4.3             | Permanent shading projection factor (PF)                                | For vertical fenestration shaded by building element overhangs or permanent external shading devices, provide projection factor calculations per Equation 4-6 for each fixed and operable vertical fenestration type with similar permanent shading geometry.   |  |  |
|  | C402.2.9             | Vertical fenestration intersection with opaque walls $\leq \frac{1}{2}$ | For vertical fenestration within wall assemblies with continuous insulation (CI), indicate in wall sections that the exterior glazing layer and thermal break are aligned laterally within 2-inches of the CI layer.                                            |  |  |
|  | C402.2.9             | Vertical fenestration intersection with opaque walls $\leq \frac{1}{2}$ | For vertical fenestration within wall assemblies without continuous insulation, indicate in wall sections that the exterior glazing layer and thermal break are aligned laterally within 2-inches of the exterior face of the outermost insulation layer.       |  |  |
|  | C402.2.9             | Vertical fenestration intersection with opaque walls $\leq \frac{1}{2}$ | "For vertical fenestration that is inset from the exterior face of the opaque wall rough opening, indicate in wall sections that the exposed exterior portion of the rough opening is covered with a material with an R-value of at least R-3 (insulation, 1-1/ |  |  |
|  | C402.4.1<br>C502.2.1 | Vertical fenestration maximum area                                      | For window-to-wall ratio (WWR) calculation, provide total net sf area of all above grade wall assemblies and total rough opening sf area of all vertical fenestration assemblies in the building; each space conditioning category in the building shall be cal |  |  |

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|  |                                     |                                                                              |                                                                                                                                                                                                                                                                 |  |  |
|--|-------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | C402.4.1<br>C502.2.1                | Vertical fenestration maximum area                                           | If WWR exceeds the prescriptive maximum allowed, indicate alternate compliance method applied (component performance calculation with target area adjustment, vertical fenestration high performance prescriptive alternate, or both).                          |  |  |
|  | C402.1.5                            | Vertical fenestration maximum area                                           | If component performance with target area adjustment (TAA) will be used to account for vertical fenestration area in excess of the prescriptive maximum allowed; include TAA calculation in WSEC envelope compliance reports.                                   |  |  |
|  | C402.4.1.1<br>C402.4.1.1.1<br>C502. | Vertical fenestration prescriptive alternate - Optimized daylighting         | Provide calculations that demonstrate at least 50% of the total conditioned floor area is within a daylight zone; demonstrate compliance for each space conditioning category in the building separately                                                        |  |  |
|  |                                     |                                                                              | Indicate in project plans that all lighting fixtures located within daylight zones shall be provided with daylight responsive controls per Section C405.2.4.1                                                                                                   |  |  |
|  |                                     |                                                                              | Indicate that the visible transmittance (VT) of all vertical fenestration in the building is at least 1.1 times the required SHGC per Table C402.4 or no less than VT-0.50, whichever is greater.                                                               |  |  |
|  | C402.4.1.1<br>C402.4.1.1.2<br>C502. | Vertical fenestration prescriptive alternate - High performance fenestration | Indicate high performance U-factors and SHGC values in fenestration schedules and WSEC envelope compliance reports                                                                                                                                              |  |  |
|  |                                     |                                                                              | Indicate if an area-weighted U-factor is used for multiple high performance fenestration elements within the same fenestration category per Table C402.4; provide area-weighted U-factor calculation.                                                           |  |  |
|  | C402.4<br>C303.1.3                  | Skylight (horizontal fenestration) assembly performance factors              | Indicate U-factors, SHGC and VT values in fenestration schedules and WSEC envelope compliance reports; indicate if values are NFRC or default                                                                                                                   |  |  |
|  | C402.4.3.4                          | Skylight (horizontal fenestration) assembly performance factors              | Indicate if an area-weighted U-factor is used for multiple skylight types; provide area-weighted U-factor calculation.                                                                                                                                          |  |  |
|  | C402.4.1<br>C502.2.2                | Skylight maximum area                                                        | For skylight-to-roof ratio (SRR) calculation, provide total net sf area of roof and total rough opening sf area of all skylight assemblies in the building; each space conditioning category in the building shall be calculated separately; include SRR in WSE |  |  |
|  | C402.4.1<br>C402.1.5<br>C502.2.2    | Skylight maximum area                                                        | If SRR exceeds the prescriptive maximum allowed, indicate compliance method applied is component performance calculation with target area adjustment.                                                                                                           |  |  |

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|  |          |                                                                         |                                                                                                                                                                                                                                                                 |  |  |
|--|----------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | C402.1.5 | Wall / vertical fenestration and roof / skylight target area adjustment | If target area adjustment (TAA) will be used to account for vertical fenestration and/or skylight area in excess of the prescriptive maximum allowed, include TAA calculations in WSEC envelope compliance reports.                                             |  |  |
|  | C402.4.2 | Single story spaces requiring skylights                                 | Provide list of enclosed, single story spaces located directly under a roof that exceed 2,500 sf floor area and have a ceiling height ≥ 15 ft for at least 75% of the ceiling area within the space; for each space identify the space use, floor area, floor   |  |  |
|  |          |                                                                         | For each space required to comply with the skylight provision, provide calculations for percentage of conditioned floor area located within a toplit daylight zone (minimum is 50%); if exception is taken for spaces where the total floor area minus the side |  |  |
|  |          |                                                                         | Indicate compliance method applied to each space (minimum ratio of skylight area to toplit daylight zone area is ≥ 3%, OR minimum skylight effective aperture is ≥ 1% per Equation C4-5); provide compliance method calculations for each space                 |  |  |
|  |          |                                                                         | Indicate haze factor of skylight glazing material or diffuser.                                                                                                                                                                                                  |  |  |
|  | C410.2   | Walk-in and warehouse cooler and freezer envelope                       | Indicate insulation R-values for cooler and freezer wall and ceiling assemblies in plans and WSEC envelope compliance reports                                                                                                                                   |  |  |
|  |          |                                                                         | Indicate cooler and freezer door insulation R-values in plans and WSEC envelope compliance reports; indicate method of minimizing air infiltration (strip doors, curtains, spring-hinged doors, etc); provide automatic door closure (or note exception taken)  |  |  |
|  |          |                                                                         | For transparent reach-in doors and fixed windows, indicate number of glass panes (double or triple pane); indicate whether the interstitial spaces between panes is filled with inert gas or if panes are heat-reflective treated glass.                        |  |  |

ENVELOPE ASSEMBLIES - ADDITIONAL ENERGY EFFICIENCY MEASURE

|  |           |                                       |                                                                                                                                                                                                                                                             |  |  |
|--|-----------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | C406.2.12 | Enhanced thermal envelope performance | To comply with this additional efficiency measure, indicate thermal envelope compliance is via component performance; provide WSEC envelope compliance reports that demonstrate Proposed Total UxA is 15% lower than the Allowable (Code Target) Total UxA. |  |  |
|--|-----------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

ENVELOPE ASSEMBLIES - LOAD MANAGEMENT MEASURES

# Building Envelope Requirements List, pg 9 of 13

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|  |          |                       |                                                                                                                                                                                                                                                                 |  |  |
|--|----------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | C406.3.3 | Automated shading     | To comply with this additional efficiency measure, provide calculations that demonstrate window-to-wall ratio (WWR) on south & west facing exposures exceed 20%; indicate method of shading (movable exterior shading or dynamic glazing) on plans for all sunl |  |  |
|  | C406.3.3 | Automated shading     | Indicate automatic controls are connected to a central DDC system having digital input capable of being activated by an external utility signal; where utility real-time demand or pricing program exists, indicate system configured to utilize this signal; o |  |  |
|  | C406.3.7 | Building thermal mass | To comply with this additional efficiency measure, indicate building includes mass wall and floor assemblies with indoor facing mass surfaces that communicate directly with the conditioned indoor air (wall board and hard surface flooring are permitted wit |  |  |
|  | C406.3.7 | Building thermal mass | Indicate HVAC systems serving areas with building thermal mass are configured with summer mode night flush sequence control of air economizers to pre-cool the building during unoccupied periods                                                               |  |  |
|  | C406.3.7 | Building thermal mass | Indicate automatic controls are connected to a central DDC system having digital input capable of being activated by an external utility signal; where utility real-time demand or pricing program exists, indicate system configured to utilize this signal; o |  |  |

## AIR BARRIER & AIR LEAKAGE TEST

|  |                        |                                                                             |                                                                                                                                                                                                                                                                 |  |  |
|--|------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | C402.5.1.1             | Air barrier construction and sealing                                        | Identify location and provide diagram of continuous air barrier in plans and sections                                                                                                                                                                           |  |  |
|  |                        |                                                                             | Provide details for all joints, transitions in materials, penetrations in air barrier and note method of sealing (caulked, gasketed, or other approved method)                                                                                                  |  |  |
|  | C402.5.5<br>C402.5.1.1 | Rooms containing fuel burning space conditioning appliances                 | For room(s) located within the conditioned space that contain non-direct vent fuel-burning appliances that require outdoor air for combustion, indicate method of isolation from the conditioned space; include sealing of walls, floor and ceiling of room, do |  |  |
|  |                        |                                                                             | Indicate walls, floor and ceiling of the room envelope are insulated to the same level required for an exterior envelope; indicate combustion air ductwork that passes through conditioned space is provided with at minimum R-16 insulation.                   |  |  |
|  | C402.5.6               | Doors and access openings to shafts, chutes, stairways and elevator lobbies | Indicate locations of all doors and access openings to shafts, chutes, stairways and elevator lobbies on plans                                                                                                                                                  |  |  |

# Building Envelope Requirements List, pg 10 of 13

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|  |                                      |                                                  |                                                                                                                                                                                                                                                                              |  |  |
|--|--------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  |                                      |                                                  | Indicate method of sealing of these openings (gasketing, weatherstripping, other sealing method); or exception taken.                                                                                                                                                        |  |  |
|  | C402.5.7                             | Outdoor air intakes, exhaust and relief openings | Indicate locations of all stairway enclosure, elevator shaft and building pressurization relief openings, outside air intakes and exhaust openings on plans                                                                                                                  |  |  |
|  |                                      |                                                  | Indicate in air barrier documentation and mechanical plans that all relief, outside air intake and exhaust openings shall be provided with dampers in accordance with Mechanical Section C403.7.8.                                                                           |  |  |
|  | C402.5.10                            | Recessed lighting in building envelope           | Indicate method of sealing between light fixture housing and wall or ceiling                                                                                                                                                                                                 |  |  |
|  |                                      |                                                  | Indicate in air barrier documentation and lighting fixture schedules that all recessed lighting fixtures shall be IC rated and have an air leakage rating not greater than 2 cfm per ASTM E283 test.                                                                         |  |  |
|  | C402.5.8                             | Loading dock seals                               | Indicate weather seal at cargo and loading dock doors.                                                                                                                                                                                                                       |  |  |
|  | C402.5.9                             | Vestibules                                       | Indicate locations and dimensions of vestibules for building entrances; also indicate vestibule information for exit-only doors in buildings where separate doors for entering and exiting are provided                                                                      |  |  |
|  |                                      |                                                  | Indicate locations of all building entrances and exit-only doors provided with an air curtain in lieu of a vestibule; indicate air curtain performance complies with requirements per C402.5.9 Exception 7                                                                   |  |  |
|  |                                      |                                                  | Indicate exception and criteria utilized for all building entrances and exit-only doors that do not have a vestibule or air curtain                                                                                                                                          |  |  |
|  |                                      |                                                  | For unconditioned vestibules, indicate which vestibule envelope assembly (interior or exterior) complies with the thermal envelope performance requirements for a conditioned space.                                                                                         |  |  |
|  | C103.2<br>C402.5.1.2C<br>402.5.1.2.1 | Building enclosure air leakage test              | Indicate in project documents that building enclosure air leakage testing is required for WSEC compliance                                                                                                                                                                    |  |  |
|  |                                      |                                                  | Provide area calculations that account for all six sides of the air barrier boundaries                                                                                                                                                                                       |  |  |
|  |                                      |                                                  | For commercial buildings, indicate that building enclosure air leakage testing shall be performed per ASTM C779 (or equivalent method approved by the code official) and the target leakage rate is 0.25 cfm/ft <sup>2</sup> (1.5 L/s*m <sup>2</sup> ) at 0.3 in. wg (75 Pa) |  |  |

# Building Envelope Requirements List, pg 11 of 13

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|  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |  |
|--|--|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  |  |  | For a commercial or Group R occupancy area weighted test, indicate that tested portions of the building shall include all spaces directly under the roof, all spaces that have a building entrance, exposed floor, loading dock or are below grade plane, and representative above-grade areas that total $\geq 25\%$ of the building total above-grade wall area; indicate in project documents that the weighted average air leakage rate of the building thermal envelope shall not exceed 0.25 cfm/ft <sup>2</sup> (1.27 L/s*m <sup>2</sup> ) when measured at a pressure differential of 0.3 in. wg (75 Pa). |  |  |
|  |  |  | For a Group R occupancy building where dwelling units, sleeping units or other condition spaces are accessed directly from the outdoors, indicate that each testing unit, or a representative sampling of units, shall be tested separately via an un-guarded blower door test; indicate in project documents that the weighted average air leakage rate of all testing units combined shall not exceed 0.25 cfm/ft <sup>2</sup> (1.27 L/s*m <sup>2</sup> ) when measured at a pressure differential of 0.2 in. wg (50 Pa).                                                                                       |  |  |
|  |  |  | If the building is mixed residential / commercial and three stories or less above grade plane, indicate which building enclosure air leakage test procedure will be used for the Group R-2 / R-3 areas (Section R402.4.1.2 or C402.5.1.2); if per R402.4.1.2, i                                                                                                                                                                                                                                                                                                                                                   |  |  |
|  |  |  | Include the following requirements in project documents: (1) Submit building enclosure air leakage test reports to jurisdiction and owner; (2) If initial test result exceeds 0.25 cfm/ft <sup>2</sup> (1.5 L/s*m <sup>2</sup> ), indicate that inspection and all practical corrective                                                                                                                                                                                                                                                                                                                           |  |  |

## AIR LEAKAGE TEST - ADDITIONAL ENERGY EFFICIENCY MEASURES

|  |                          |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |
|--|--------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | C406.9                   | Reduced air infiltration     | To comply with additional efficiency credit, indicate in project documents that the building enclosure air leakage test results shall not exceed 0.17 cfm/ft <sup>2</sup> at 0.3 in. wg (75 Pa); all documentation requirements per C103.2 and C402.5.1.2 apply                                                                                                                                                                                                              |  |  |
|  | C406.2.13<br>C406.2.13.2 | Enhanced reduced air leakage | To comply with this additional efficiency measure, indicate in project documents that the measured air leakage rate of the building thermal envelope for the total conditioned floor area of the whole building or fully isolated building addition or tenant space, shall not exceed 0.0825 cfm/ft <sup>2</sup> (0.419 L/s*m <sup>2</sup> ) when measured at a pressure differential of 0.3 in. wg (75 Pa); all documentation requirements per C103.2 and C402.5.1.2 apply. |  |  |

## ELEVATORS - ADDITIONAL ENERGY EFFICIENCY MEASURE

# Building Envelope Requirements List, pg 12 of 13

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|                                                                      |           |                                                              |                                                                                                                                                                                                                                                                 |  |  |
|----------------------------------------------------------------------|-----------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|                                                                      | C406.2.18 | Efficient elevator equipment                                 | For buildings ≥ 3 stories above grade, to comply with this additional efficiency measure identify on plans which floors are served by elevators that are rated ISO 25745-2 Energy Efficiency Class A; if not all floors are served by this elevator class, p    |  |  |
| <b>KITCHEN &amp; LAUNDRY - ADDITIONAL ENERGY EFFICIENCY MEASURES</b> |           |                                                              |                                                                                                                                                                                                                                                                 |  |  |
|                                                                      | C406.2.14 | ENERGY STAR commercial kitchen equipment <sup>1/2</sup>      | Indicate building area that this additional efficiency measure is being applied to is Group A-2 or other occupancy where the primary business requires the use of commercial kitchen equipment; include kitchen equipment schedule on plans; indicate project i |  |  |
|                                                                      | C406.2.15 | ENERGY STAR kitchen appliances serving Group R-1 & R-2       | For Group R-1 & R-2 occupancies, to comply with this additional efficiency measure indicate ≥ 90% of all residential dishwashers, refrigerators and freezers specified are ENERGY STAR Most Efficient qualified models; include kitchen equipment schedule o    |  |  |
|                                                                      | C406.2.16 | ENERGY STAR in-unit laundry appliances serving Group R-2     | For Group R-2 occupancies, to comply with this additional efficiency measure indicate ≥ 90% of all in-unit residential clothes washers and dryers specified are ENERGY STAR Most Efficient qualified models; include laundry equipment schedule on plans; if    |  |  |
|                                                                      | C406.2.17 | ENERGY STAR heat pump clothes dryers serving Group R-1 & R-2 | For Group R-1 & R-2 occupancies, to comply with this additional efficiency measure indicate ≥ 90% of all clothes dryers specified are ENERGY STAR qualified heat pump dryers; includes dryers located in-unit and within central multi-family use laundry ro    |  |  |
| <b>ENVELOPE ALTERATIONS</b>                                          |           |                                                              |                                                                                                                                                                                                                                                                 |  |  |
|                                                                      | C503.1    | Roof alteration - insulation                                 | For a roof alteration where existing ceiling cavities are exposed, indicate cavities are insulated to full depth at a minimum nominal value of R-3.0 per inch.                                                                                                  |  |  |
|                                                                      |           |                                                              | For a roof covering replacement where insulation is installed entirely above the roof deck, or the existing roof contains no insulation, indicate insulation complies with requirements for new construction per Tables C402.1.3 or C402.1.4.                   |  |  |
|                                                                      | C503.1    | Wall and floor alteration - insulation                       | For a wall or floor alteration (floor over outdoor or unconditioned space) where existing envelope cavities are exposed, indicate cavities are insulated to full depth at a minimum nominal value of R-3.0 per inch.                                            |  |  |

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|  |                                        |                                                                    |                                                                                                                                                                                                                                                                 |  |  |
|--|----------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | C503.3.2                               | Addition of vertical fenestration                                  | Where the addition of new vertical fenestration results in a window-to-wall ratio (WWR) exceeding the prescriptive maximum allowed per C402.4.1, demonstrate method of compliance (prescriptive vertical fenestration alternate, component performance with tar |  |  |
|  | C503.3.3                               | Addition of skylights                                              | Where the addition of new skylights results in a skylight-to-roof ratio (SRR) exceeding the prescriptive maximum allowed per C402.4.1, demonstrate method of compliance (component performance compliance with target area adjustment for the alteration area a |  |  |
|  | C103.2<br>C103.6.3<br>C505.1<br>C505.4 | Change in space conditioning or occupancy envelope compliance path | For areas under-going a change in space conditioning or occupancy, indicate envelope thermal performance compliance path applied to the building alteration area (prescriptive compliance or component performance with 110% target UxA allowance); provide cor |  |  |
|  | C103.2<br>C103.6.3<br>C505.1<br>C505.4 | Change in space conditioning or occupancy envelope compliance path | If complying via total building performance with 110% allowance, provide a list of all proposed envelope component types, areas and U-values in energy model documentation.                                                                                     |  |  |

PROJECT CLOSE OUT

|  |        |                                          |                                                                                                                                                                                                                                                                 |  |  |
|--|--------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | C103.6 | Documentation and submittal requirements | Indicate in plans that project close out documentation is required including envelope record construction documents, applicable calculations, WSEC envelope compliance reports, and fenestration NFRC rating certificates.                                      |  |  |
|  | C401.4 | Thermal envelope certificate             | Indicate in plans that a thermal envelope certificate is required at project close out; indicate that information on this certificate shall include the rated R-values of all opaque assembly insulation, U-factors & SHGCs for all fenestration assemblies and |  |  |

If "no" is selected for any question, provide explanation.