

**IECC Commercial Energy:
Existing Buildings Plan Review Checklist**

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|---|--|
| Identify the project scope and refer to the appropriate checklist. If using this checklist on a computer, you may click the appropriate link below as a shortcut. | |
| <input type="checkbox"/> | Historic Building alterations |
| <input type="checkbox"/> | Addition to an existing building |
| <input type="checkbox"/> | Alteration to an existing building |
| <input type="checkbox"/> | Repairs |
| <input type="checkbox"/> | Change in occupancy |

DRAFT

Existing Commercial Buildings IECC Plan Review Checklist – Historic Buildings

HISTORIC BUILDINGS

- Complies
- Does not comply
- Not applicable

C501.6 Historic buildings. If the applicant is taking an energy code exemption, a **report, signed by a registered design profession, or a representative of the Philadelphia Historical Commission**, demonstrating that compliance with that provision would threaten, degrade or destroy the historic form, fabric or function of the building. Otherwise, refer to the [ALTERATIONS](#) checklist.

Existing Commercial Buildings IECC Plan Review Checklist – Additions

ADDITIONS

C502.1 Additions to an existing building, building system or portion thereof must be treated like new construction for envelope, mechanical, service hot water, and electric power & lighting, except for the fenestration requirements below. Complete the vertical fenestration and skylight checklist below, then use the *IECC Commercial Plan Review Checklist* for all other components.

Windows

C502.2 Compliance options (select the applicable scenario):

- New vertical fenestration resulting in a **total building vertical fenestration area $\leq 30\%$** may use Prescriptive, COMcheck, or Performance
- New vertical fenestration resulting in a **total building fenestration area $>30\%$ but less than 40%** , or additions that have a **vertical fenestration area $>30\%$ but less than 40%** may use Prescriptive (provided daylighting requirements are met), COMcheck, or Performance.
- New vertical fenestration resulting in a **total building fenestration area $>40\%$** must use COMcheck or Performance.

- Prescriptive
- COMcheck
- Performance

Identify the chosen compliance path

- Complies
- Does not comply

The chosen compliance path is acceptable give the limitations describe above.

Prescriptive

- Complies
- Does not comply

Vertical fenestration **SHGCs** are ≤ 0.36 or meet the values in IECC Table C402.4 where the applicant demonstrates window orientation and overhang Projection Factor.

- Complies
- Does not comply

Vertical fenestration **SHGCs** are less than or equal to the values in IECC Table C402.4. If SHGC exceeds 0.36, applicant demonstrates window orientation and overhang projection factor.

- Complies
- Does not comply
- Not applicable

C402.2.1.1 Where insulation is located entirely above deck, **skylight curbs** have R-5 insulation

- Complies
- Does not comply
- Not applicable

Vertical fenestration air leakage rates do not exceed the values in Table C402.5.2

- Complies
- Does not comply
- Not applicable

New vertical fenestration resulting in a **total building fenestration area $>30\%$ and $\leq 40\%$** , or additions that have a **vertical fenestration area $>30\%$ and $\leq 40\%$** , comply with Section C402.4.1.1 *Increased vertical fenestration area with daylight responsive controls*:

1. In buildings 2 stories or less, at least 50% of the floor area is within a daylight zone
2. In buildings 3 stories or more, at least 25% of the floor area is within a daylight zone
3. Lighting within daylight zones is controlled with daylight responsive controls per C405.2.3.1
4. Visible transmittance (VT) of vertical fenestration is at least 1.1X the SHGC (VT / SHGC ≥ 1.1)

COMcheck

- Complies

COMcheck certificate: Vertical fenestration areas, U-factors, and SHGCs match the plans and the certificate says PASS

Existing Commercial Buildings IECC Plan Review Checklist – Additions

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|---|--|
| <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Vertical fenestration air leakage rates do not exceed the values in Table C402.5.2 |
| Performance (C407) | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Software-generated performance report: Vertical fenestration areas, U-factors, and SHGCs match the plans and the energy cost of the <i>proposed design</i> is \leq the energy cost of the <i>reference design</i> |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Vertical fenestration air leakage rates do not exceed the values in Table C402.5.2 |
| Skylights | |
| C502.2 Compliance options (select the applicable scenario): | |
| <input type="checkbox"/> New skylight area resulting in a total building skylight area \leq3% may use Prescriptive, COMcheck, or Performance <input type="checkbox"/> New skylight area resulting in a total building skylight area $>$3% and \leq6% and additions with $>$3% and \leq6% skylight area may use Prescriptive (provided daylighting requirements are met), COMcheck, or Performance <input type="checkbox"/> New skylight area resulting in a total building skylight area $>$6% must use COMcheck, or Performance | |
| Prescriptive | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Skylight U-factors are \leq U-0.50 |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Skylight SHGCs are \leq U-0.40 |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | C402.2.1.1 Where insulation is located entirely above deck, skylight curbs are shown to have R-5 insulation |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Additions with new skylight area resulting in a total building skylight area $>$3% and \leq6% and additions with $>$3% and \leq6% skylight area comply with Section C402.4.1.2 <i>Increased skylight area with daylight responsive</i> controls: Lighting in all toplit zones under new skylights is provided with daylight responsive controls. |
| COMcheck | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | COMcheck certificate: Skylight areas, U-factors, and SHGCs match the plans and the certificate says PASS |

Existing Commercial Buildings IECC Plan Review Checklist – Additions

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|--|---|
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Skylight air leakage rates are ≤ 0.2 cfm/ft ² (0.3 for skylights with condensation weepage openings) |
| Performance | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Software-generated performance report: Vertical fenestration areas, U-factors, and SHGCs match the plans and the energy cost of the <i>proposed design</i> is \leq the energy cost of the <i>reference design</i> |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Vertical fenestration air leakage rates are ≤ 0.2 cfm/ft ² (0.3 for skylights with condensation weepage openings) |
| Other Building Components | |
| For the remaining components of the addition, use the <i>IECC Commercial Plan Review Checklist</i> as you would for new construction to verify: <ul style="list-style-type: none"> • Envelope (C402) • Mechanical Systems (C403) • Service Hot Water (C404) • Electric Power & Lighting (C405) | |

Existing Commercial Buildings IECC Plan Review Checklist – Alterations

| ALTERATIONS | |
|--|---|
| General | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | C503.1 The alteration or alterations do not make the existing structure less energy efficient |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | C503.2 Change in space conditioning. Any unconditioned or low-energy space that is converted to a conditioned space is in full compliance with the IECC for new construction (IECC Ch. 4 [CE]). Refer to the <i>IECC Commercial Plan Review Checklist</i> . Exceptions: <ol style="list-style-type: none"> 1. When using COMcheck, the proposed UA is $\leq 110\%$ the target UA 2. When using total building performance (C407), the energy cost of the proposed design is $\leq 110\%$ of the reference design |
| Building Thermal Envelope | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | C503.3 New thermal building envelope components that are part of the alteration comply as they would for new construction (C402.1 through C402.5). Refer to the <i>IECC Commercial Plan Review Checklist</i> . |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | C503.1 Existing ceiling, wall, and floor cavities exposed during construction are filled with insulation. (Existing cavities <u>do not</u> need to meet the R-value requirements for new construction.) |
| Roof recovers and replacements | |
| Exempt from energy requirements | C503.1 Alterations to roofs comprised of installing an <u>additional covering over an existing roof</u> without removing the existing covering |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | C503.3.1 Alterations to roofs comprised of <u>removing the existing roof covering</u> , repairing any damaged substrate and installing a new roof covering meet the insulation requirements for new construction by using either the R-value method (C402.1.3), U-factor method(C402.1.4), COMcheck (C402.1.5), or Performance (C407). |
| Window Replacements | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply | Plans clearly indicate all fenestration U-factors and solar heat gain coefficients (SHGC) |
| C502.2 Compliance options (select the applicable scenario): | |
| <input type="checkbox"/> Alterations that <u>do not increase</u> the total vertical fenestration area of the existing building may use Prescriptive, COMcheck, or Performance | |
| <input type="checkbox"/> Alterations where the total building fenestration area is increased but remains $\leq 40\%$ may use Prescriptive (provided daylighting requirements are met), COMcheck, or Performance. | |
| <input type="checkbox"/> Alterations where the total building fenestration is increased to $>40\%$ must use COMcheck or Performance. | |
| <input type="checkbox"/> Prescriptive <input type="checkbox"/> COMcheck <input type="checkbox"/> Performance | Identify the chosen compliance path |
| <input type="checkbox"/> Complies | The chosen compliance path is acceptable give the limitations describe above. |

Existing Commercial Buildings IECC Plan Review Checklist – Alterations

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|--|---|--|
| <input type="checkbox"/> Does not comply | | |
| Prescriptive | | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply | Vertical fenestration U-factors are less than or equal to the values in IECC Table C402.4 | Fixed windows ≤ 0.38 Operable windows ≤ 0.45 Entrance doors ≤ 0.77 Skylights ≤ 0.50 |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply | Vertical fenestration SHGCs are ≤ 0.36 or meet the values in IECC Table C402.4 where the applicant demonstrates window orientation and overhang Projection Factor. | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Vertical fenestration air leakage rates do not exceed the values in Table C402.5.2 | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | For buildings with $>30\%$ total building vertical fenestration and $\leq 40\%$, lighting in daylight zones adjacent to new vertical fenestration has daylight-responsive controls | |
| COMcheck | | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | COMcheck certificate: Vertical fenestration areas, U-factors, and SHGCs match the plans and the certificate says PASS | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Vertical fenestration air leakage rates do not exceed the values in Table C402.5.2 | |
| Performance (C407) | | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Software-generated performance report: Vertical fenestration areas, U-factors, and SHGCs match the plans and the energy cost of the <i>proposed design</i> is \leq the energy cost of the <i>reference design</i> | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Vertical fenestration air leakage rates do not exceed the values in Table C402.5.2 | |
| Skylights | | |
| C502.2 Compliance options (select the applicable scenario): | | |
| <input type="checkbox"/> New skylight area resulting in a total building skylight area $\leq 3\%$ may use Prescriptive, COMcheck, or Performance | | |
| <input type="checkbox"/> New skylight area resulting in a total building skylight area $>3\%$ and $\leq 6\%$ and additions with $>3\%$ and $\leq 6\%$ skylight area may use Prescriptive (provided daylighting requirements are met), COMcheck, or Performance | | |
| <input type="checkbox"/> New skylight area resulting in a total building skylight area $>6\%$ must use COMcheck, or Performance | | |
| Prescriptive | | |

Existing Commercial Buildings IECC Plan Review Checklist – Alterations

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|--|--|
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Skylight U-factors are $\leq U-0.50$ |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Skylight SHGCs are $\leq U-0.40$ |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | C402.2.1.1 Where insulation is located entirely above deck, skylight curbs have R-5 insulation |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Alterations with new skylight area resulting in a total building skylight area >3% and $\leq 6\%$ comply with Section C402.4.1.2 <i>Increased skylight area with daylight responsive controls</i> : Lighting in all toplit zones under new skylights is provided with daylight responsive controls. |
| COMcheck | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | COMcheck certificate: Skylight areas, U-factors, and SHGCs match the plans and the certificate says PASS |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Skylight air leakage rates are ≤ 0.2 cfm/ft ² (0.3 for skylights with condensation weepage openings) |
| Performance | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Software-generated performance report: Vertical fenestration areas, U-factors, and SHGCs match the plans and the energy cost of the <i>proposed design</i> is \leq the energy cost of the <i>reference design</i> |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | Vertical fenestration air leakage rates are ≤ 0.2 cfm/ft ² (0.3 for skylights with condensation weepage openings) |
| Heating and Cooling Systems | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | C503.4 New heating, cooling, and duct systems that are a part of the alteration comply as they would for new construction (C403). Refer to the <i>IECC Commercial Plan Review Checklist</i> . |
| Service Hot Water Systems | |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | C503.4 New service hot water systems that are a part of the alteration comply as they would for new construction (C404). Refer to the <i>IECC Commercial Plan Review Checklist</i> . |
| Lighting Systems | |

Existing Commercial Buildings IECC Plan Review Checklist – Alterations

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|--|---|
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | C503.4 New lighting systems that replace $\geq 10\%$ of luminaires in a space comply as they would for new construction (C405). Refer to the <i>IECC Commercial Plan Review Checklist</i> . |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | C503.4 New lighting systems that replace <10% of luminaires in a space are exempt provided they do not increase the installed interior lighting power. |

Existing Commercial Buildings IECC Plan Review Checklist – Alterations

REPAIRS

| | |
|--|---|
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | <p>C504, C501.3 The following items are considered repairs and need only to comply with the code under which the component was built:</p> <ol style="list-style-type: none"> 1. Glass-only replacements in an existing sash and frame 2. Roof repairs 3. Roof air barriers provided the repair does not include an alteration, renovation or repair to the remainder of the roof 4. Replacement of existing exterior doors – No vestibule required, provided an existing vestibule is not removed 5. Bulb, ballast or both replaced within an existing luminaire, provided the replacement does not increase interior lighting power |
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CHANGE OF OCCUPANCY OR USE

| | |
|--|---|
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | <p>C505.1 Spaces undergoing a change of occupancy that would result in an increase in energy demand meet the energy code as they would for new construction. Refer to the <i>IECC Commercial Plan Review Checklist</i>.</p> <p>Considerations:</p> <ul style="list-style-type: none"> • Equipment size increase • Lighting connected load increase • Occupant density increase |
| <input type="checkbox"/> Complies <input type="checkbox"/> Does not comply <input type="checkbox"/> Not applicable | <p>C505.1 Spaces undergoing a change of use from one use to another in the lighting power density tables C405.3.2(1) or C405.3.2(2) do not exceed the installed lighting power allowance for the new use type</p> |