

Building (ACT Appendix to the Building Code—2010 edition) Determination 2010

Disallowable instrument DI2010—263

made under the

Building Act 2004, s 136 (2) (Building Code)

1 Name of instrument

This instrument is the *Building (ACT Appendix to the Building Code—2010 edition) Determination 2010*.

2 Commencement

This instrument commences the day after it is notified.

3 Instrument revoked

I revoke DI2009-26 (*Building (ACT Appendix to the Building Code—2008 and 2009 editions) Determination 2009*).

4 Making of ACT appendices

The Australian Capital Territory Appendix to the 2010 edition of the building code is the Australian Capital Territory Appendix to the building code published in the 2010 edition of the code, as amended by schedule 1.

5 Disapplication of notification requirement

The *Legislation Act 2001*, section 47 (5) does not apply to this instrument.

6 Access to referenced documents

A copy of the Australian Capital Territory Appendix to the Building Code of Australia is available for inspection by members of the public between 9am and 4.30pm on business days at the ACT Planning and Land Authority shopfront, Dame Patty Menzies House, 16 Challis Street, Dickson.

Andrew Barr MLA
Minister for Planning

14 October 2010

Schedule 1 to the Building (ACT Appendix to the Building Code—2010 edition) Determination 2010

Clause ACT 7

substitute

ACT 7 — SUSTAINABILITY

Note:

ACT legislation other than the BCA also regulates for sustainability when constructing or altering buildings, including their services. For example, the *Water and Sewerage Act 2000* has relevant provisions about water heaters, water and sanitary plumbing, and sanitary drainage, which are intended to facilitate a reduction in water usage and energy used to heat water, and greenhouse gas emission. If there is an inconsistency between requirements for the same aspect of water heaters in the BCA and the *Water and Sewerage Act 2000*, the latter prevails to the extent of the inconsistency.

The *Building (General) Regulation 2004* has provisions about applying certain BCA provisions and alternatives to those provisions, to pre-existing parts of certain buildings, aimed at increasing the energy efficiency of the pre-existing part, amongst other things, when the pre-existing building is substantially altered or extended.

Practitioners should ensure they check the latest version of relevant legislation, and the latest version of this appendix, available through the ACT legislation register at www.legislation.act.gov.au.

ACT Part 7.1 ENERGY EFFICIENCY OF BUILDING ALTERATIONS

Application:

ACT Part 7.1 applies to work in relation to adding to or extending a completed building that can be lawfully occupied or used, where there is not otherwise a requirement to bring into BCA compliance the unaltered part of the building.

Certain substantial alterations or extensions to completed buildings can trigger a requirement under ACT law to bring the unaltered part of the building into BCA compliance. **ACT Part 7.1** does not relate to any mandatory requirements to change the otherwise unaltered part of a building, but **ACT Part 7.1** can apply to the addition or extension and to unaltered parts where permitted by this part.

The BCA's provisions generally are intended to apply to construction of entire new buildings and are not inherently intended to apply to altering or extending completed buildings. Nevertheless, ACT law requires certain alterations and additions to pre-existing buildings to be done only in a way that produces a building, or affected part, that complies with the BCA.

For the purposes of applying **ACT Part 7.1**, it is taken as providing additional BCA requirements that only apply in the case of relevant additions and alterations.

Note:

The ABCB publishes non-mandatory, non-regulatory information handbooks, about BCA energy efficiency provisions, which clarify that State and Territory laws apply, or vary the application of, BCA provisions to pre-existing buildings or to alterations or additions to buildings. Some jurisdictions permit hypothetical simulation of upgrading elements of pre-existing buildings to facilitate the energy efficiency of new elements in a building extension, without requiring construction to match the simulation. For example, to suppose that glazing units in a dwelling will be upgraded to comparable performance levels of new glazing units in an extension to the dwelling, in order to reduce the burden on the new glazing that arises from having to compensate for the poorer performance of the old glazing. That is not the case in the ACT, and the older glazing's actual performance must be assessed where applicable, unless a relevant law provides otherwise.

Explanatory information:

ACT Part 7.1 is intended to help make designs for house extensions comply with the intent of the BCA's main energy efficiency provisions. It provides a range of extra options to achieve, compliance, in addition to the BCA's options. Some of the options cannot be used in combination with others, but others can be used in combination, as explained in the respective clauses. The options are summarised below, and provide for:

- Allowing the extension to the house to be assessed using house energy rating software, rather than that software only being applicable to the whole of a house (see **ACT 7.1.2**).
- Allowing the house extension to meet the elemental provisions (insulation levels, window performance, sealing, etc) of the BCA's energy efficiency provisions, rather than the BCA's house energy rating requirements (see **ACT 7.1.3**).
- Allowing the effect of window treatments such as blinds, curtains and pelmets to be taken account of when assessing the thermal performance of pre-existing windows (see **ACT 7.1.4 (a)**).
- Excluding assessment of thermal performance of a pre-existing window if it is treated with a solar control film (see **ACT 7.1.4 (b)** and the dispensation under the ACT's *Building (General) Regulation 2008*, section 29 (1), which is about windows not having to comply with the BCA if they have the prescribed film applied).
- Excluding assessment of thermal performance of a pre-existing window if it is thermally isolated from windows that must be assessed (see **ACT 7.1.4 (b)** and the dispensation under the ACT's *Building (General) Regulation 2008*, section 29 (2), which is about isolated windows not having to comply with the BCA if they are separated from windows that have to be assessed by prescribed walls, floors, ceilings and doors).
- Allowing the use of the ABCB 2009 glazing calculator or later to determine window thermal performance compliance where northerly glazing is impractical to provide in a house extension (see **ACT 7.1.4 (c)**).

ACT 7.1.1 Application of Part 3.12

- (a) Subject to **(b)** alterations additions and extensions to completed buildings must comply with **Part 3.12** except where—
- (i) application is inconsistent with this part, and then the building need not comply with **Part 3.12** for the extent of the inconsistency if this part is complied with instead for the extent of inconsistency; or
 - (ii) it is impossible to comply because a provision of **Part 3.12** can only apply to a whole building rather than being capable of being applied to an addition or extension.
- (b) In the case mentioned at **(a) (ii)**, the **Part 3.12** provisions apply as far as they are practical to apply, unless this part provides another solution to the same matter addressed by an aspect of a **Part 3.12** provision, or adapts with modification **Part 3.12** or part of it, in which case the relevant provisions of this part applies.

ACT 7.1.2 Heating and cooling loads

- (a) Subject to **(b)** to **(e)**, **3.12.0.1** may apply to—
- (i) a whole dwelling as added to or as extended; or
 - (ii) a house-like addition or extension as if **3.12.0.1** expressly indicated it applied to a large part of a building and as if the rating scheme and protocol mentioned in **3.12.0.1** applied to rating large additions or extensions to buildings rather than rating a whole building.
- (b) For **(a) (ii)**, an addition or extension is not house-like unless—
- (i) it has a contiguous floor area of at least 100m² including any contiguous pre-existing floor area up to no more than 50m² of the unaltered part of the building, that needs to be incorporated into the rating to minimise inaccuracy due to the effect of nearby elements of the unaltered parts, and
 - (ii) it has at least 1 kitchen within the floor area mentioned in **(i)**; and
 - (iii) the floor area mentioned in **(i)** is isolated from other buildings and from the remainder of the unaltered part of the building by a draft-proof barrier such as walls, floor, ceiling and a draft-sealed door, all of which comply with 3.12.3.

- (c) If **(a) (ii)** is applied, the following must be included as part of determining the rating mentioned in **(a) (ii)**—
- (i) the relevant properties of any pre-existing and unaltered roof, internal wall, or external wall that is taken as being part of the thermal envelope of the contiguous floor area of the addition or extension; and
 - (ii) the remainder of the unaltered part of the building must be taken as a separate building adjoining the addition or extension, if it adjoins the part of the building being rated.
- (d) **ACT 7.1.2** does not apply if compliance with it would result in a building (or part thereof), as extended or altered, having its energy efficiency reduced below—
- (i) the relevant statutory minimum, which is the minimum energy efficiency requirement, if any, that all or part of the building, respectively, was required to achieve when constructed or altered; or
 - (ii) for a building that has not been altered or extended, the current energy efficiency of the building, which is the lesser of its energy efficiency determined using the factors **Part 3.12** covers, or the energy efficiency it would be required to achieve under **Part 3.12** if it was to be built; or
 - (iii) for the following parts of a building—an unaltered, unextended, altered, or extended part—the energy efficiency for the part as per **(ii)** as if **(ii)** applied to the part.
- (e) Dispensations in an ACT building law, however described, that may allow pre-existing elements to not comply with the BCA under a deemed-to-satisfy method must not be applied to an energy efficiency rating under **3.12.0.1** or **ACT 7.1.2**. All relevant pre-existing elements must be assessed in respect of their actual performance without dispensation.

Explanatory information—example for ACT 7.1.2 (d):

A house constructed in 1980 was not required to be energy efficient. However, recently R 4.0 bulk thermal insulation batts were installed in the roof space. **Part 3.12** covers thermal insulation performance of roofs. **ACT 7.1.2** does not apply to removing the bulk thermal insulation for use in an extension to the house. The house was extended in 2008 (the 1st extension). The 1st extension was required to comply with BCA 2008. A proposed 2nd extension will shade northerly glazing in the 1st extension, bringing the 1st extension out of compliance with BCA 2008. Therefore, **ACT 7.1.2** does not apply to shading the window without offsetting the detrimental effect that shading would have to the 1st extension's energy efficiency even though the 1st extension does not comply with the current requirements of current **Part 3.12**.

Explanatory information:

The energy rating scheme and protocol mentioned in **3.12.0.1** are intended to only apply to whole houses, not to only an addition or extension to a house, nor to part of a house that is less than the entire thermal envelope of the house. However, they can apply to attached houses to rate one or other attached house separately. Thus, they can produce reasonably reliable information about an extension to a house if the extension is comparable to adding an additional house to the pre-existing house to form 2 attached houses.

If only an addition or extension to a house is rated, the rating is not necessarily a reflection of the house's overall rating. Although area correction factors are included in relevant energy rating software, the accuracy of ratings can decrease with reduced size and number of rooms rated. Therefore, **ACT 3.12.6.2** limits use of a rating to large additions or extensions.

As the energy rating scheme mentioned in **3.12.0.1** is intended to apply to a whole building, an assessment in regulatory mode must include a kitchen zone. In order to avoid the pretence of applying false heating and cooling loads to a zone, **ACT 3.12.6.2** is limited to house additions or extensions containing a kitchen in the rated area. This can include a pre-existing or new kitchen area.

ACT 3.12.6.2 permits small parts of a pre-existing house to be incorporated into the addition or extension, to take account of draft-proof barriers that are not located at the interface between the pre-existing building and the addition or extension. The construction details of any pre-existing part incorporated into an addition or extension for rating purposes must not be assessed as having the same relevant details as the remainder of the addition or extension unless they are actually the same in both. For example, if the pre-existing part is bounded by an internal wall with no bulk thermal insulation added, that wall must not be assessed as having the same properties as the remainder of the insulated bounding walls, unless they actually have the same properties, (see **Figure ACT 7.1.1**).

Figure ACT 7.1.1

Example 1—compliance with certain requirements of ACT 7.1.2 (a) (ii) and (b), without incorporating floor area of a pre-existing dwelling into the relevant floor area of an addition or extension to the dwelling.

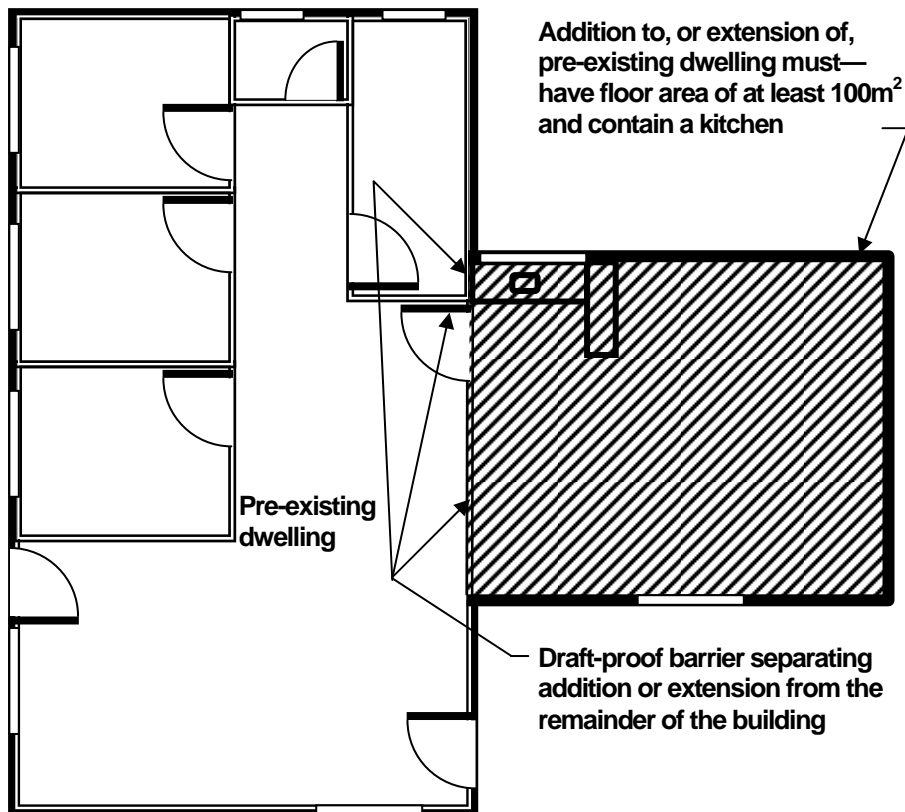
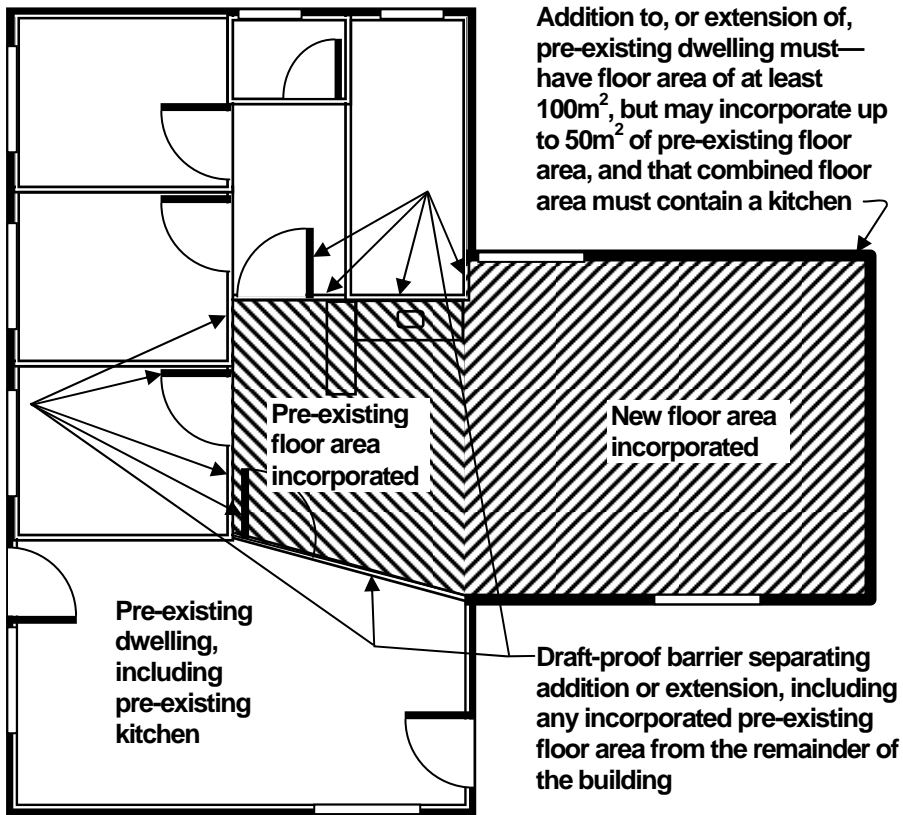


Figure ACT 7.1.1

Example 2—compliance with certain requirements of ACT 7.1.2 (a) (ii) and (b), incorporating a small amount of floor area of a pre-existing dwelling into the relevant floor area of an addition or extension to the dwelling.



ACT 7.1.3 Building fabric—application of Part 3.12.1

Where **Part 3.12.1** requires building elements such as walls to have thermal insulation that forms a continuous thermal barrier, but an addition or extension opens directly, or by a common door, onto the unaltered part of building, the thermal barrier need not extend into the unaltered part of the building, except where contrary intention appears in **Part 3.12.1**.

ACT 7.1.4 External glazing—application of Part 3.12.2

- (a) Subject to **(b)**, in applying **Part 3.12.2** to an addition or extension all glazing on the respective storey, including the addition or extension and any pre-existing glazing in the unaltered part of the building must be addressed where **Part 3.12.2** indicates the whole storey must be assessed. However, the *Total U-Value* of a pre-existing *glazing* unit in the unaltered part of the building can take account of any of the kinds of the window treatments listed in **Table ACT 7.1.4.1**, to the extent provided in that table, where the glazing unit incorporates the respective treatment in compliance with the notes to that table.
- (b) Where an ACT building law provides dispensation, however described, for certain pre-existing windows so as they need not comply with the BCA's energy efficiency provisions if they comply with alternative requirements, **(a)** does not apply to those windows if the dispensation is exercised in respect of the windows thermal performance. Also, **(a)** does not apply to windows otherwise dealt with under **(c)**.
- (c) If an addition or alteration fails to incorporate a wall that can contain glazing at least 1m wide, not overshadowed by a building in winter, and orientated within the north sector shown in **Figure 3.12.2.1**, then all glazing (pre-existing or otherwise) in the storey need not comply with the requirements of **3.12.2.1** that relate to aggregate conductance of the glazing if—
 - (i) the addition or alteration has a total floor area not exceeding 50m²; and
 - (ii) compliance with the requirements of **3.12.2.1** that relate to aggregate conductance of the glazing would result in a building (or part thereof), as extended or altered, having its energy efficiency reduced below—
 - A the relevant statutory minimum, which is the minimum energy efficiency requirement, if any, that all or part of the building, respectively, was required to achieve when constructed or altered; or

- B for a building that has not been altered or extended, the current energy efficiency of the building, which is the lesser of its energy efficiency determined using the factors **Part 3.12** covers, or the energy efficiency it would be required to achieve under **Part 3.12** if it was to be built; or
 - C for the following parts of a building—an unaltered, unextended, altered, or extended part—the energy efficiency for the part as per **(ii)** as if **(ii)** applied to the part; and
- (iii) the aggregate conductance of the glazing is in accordance with BCA requirements that applied in the ACT immediately before or anytime after the adoption of BCA 2010 in the ACT; and
 - (iv) bulk thermal insulation has been added to the roof of the unaltered part of the building, in accordance with the requirements of **3.12.1.2** that apply to roofs with an upper surface solar absorptance value of not more than 0.4.

Table ACT 7.1.4.1 Glazing unit U-Values		Improved U-Values with window treatments				
Glazing unit (not taking account of any window treatments)		A	B	C	D	E
U-Value	R-Value	Holland blinds only	Closed weave curtains only	Heavy drapes only	Closed weave curtains + pelmet	Heavy drapes + pelmet
7.8	0.13	6.32	6.32	5.46	4.20	2.18
7.6	0.13	6.19	6.19	5.36	4.14	2.17
7.4	0.14	6.06	6.06	5.26	4.08	2.15
7.2	0.14	5.92	5.92	5.16	4.02	2.13
7.0	0.14	5.79	5.79	5.05	3.95	2.11
6.8	0.15	5.65	5.65	4.95	3.89	2.10
6.6	0.15	5.51	5.51	4.84	3.82	2.08
6.4	0.16	5.37	5.37	4.73	3.76	2.06
6.2	0.16	5.23	5.23	4.62	3.69	2.04
6.0	0.17	5.08	5.08	4.51	3.61	2.01
5.8	0.17	4.94	4.94	4.40	3.54	1.99
5.6	0.18	4.79	4.79	4.28	3.47	1.97
5.4	0.19	4.65	4.65	4.16	3.39	1.94
5.2	0.19	4.50	4.50	4.04	3.31	1.91
5.0	0.20	4.35	4.35	3.92	3.23	1.89
4.8	0.21	4.20	4.20	3.80	3.14	1.86
4.6	0.22	4.04	4.04	3.67	3.05	1.83
4.4	0.23	3.89	3.89	3.54	2.96	1.79
4.2	0.24	3.73	3.73	3.41	2.87	1.76
4.0	0.25	3.57	3.57	3.28	2.78	1.72
3.8	0.26	3.41	3.41	3.14	2.68	1.69
3.6	0.28	3.25	3.25	3.01	2.58	1.65
3.4	0.29	3.09	3.09	2.86	2.47	1.60
3.2	0.31	2.92	2.92	2.72	2.37	1.56
3.0	0.33	2.75	2.75	2.58	2.26	1.51
2.8	0.36	2.58	2.58	2.43	2.14	1.46
2.6	0.38	2.41	2.41	2.27	2.02	1.40
2.4	0.42	2.24	2.24	2.12	1.90	1.34
2.2	0.45	2.06	2.06	1.96	1.77	1.27
2.0	0.50	1.89	1.89	1.80	1.64	1.20
1.8	0.56	1.71	1.71	1.64	1.50	1.13
1.6	0.63	1.53	1.53	1.47	1.36	1.05
1.4	0.71	1.34	1.34	1.30	1.21	0.96
1.2	0.83	1.16	1.16	1.13	1.06	0.86
1.0	1.00	0.97	0.97	0.95	0.90	0.75
0.8	1.25	0.78	0.78	0.77	0.74	0.63
0.6	1.67	0.59	0.59	0.58	0.56	0.50

Notes:

1. Values in the table may be interpolated to more accurately reflect U-Values.
2. Closed weave curtains have threads or yarns that generally abut, producing a fabric with negligible interstices. Thus, light, air and water pass through a closed weaved cotton fabric, but with significant filtering, unless the fabric is treated to block their passage; and they prevent visual detail being seen by eye through their fabric if woven from opaque thread or yarn. Closed weave curtains do not include open weave curtains, as open weave fabric is woven so that warp threads rarely abut each other, leaving interstices in the fabric, which includes lace, sheer or net fabrics. Open weave curtains provide negligible change to window U-values.
3. Heavy drapes permit no or negligible visible or UV light to pass through their fabric, which may include a composite of layered materials. They also do not readily allow air to pass through. They include closed weave heavy fabrics, such as velvet or velour or heavy cotton or comparable synthetics, with a rubber, acrylic, or similar, solar blocking backing layer bonded to the fabric. The presence of a light source, including the sun, cannot be detected by eye through the fabric. A key requirement of heavy drapes is to have sufficient inertia to maintain a barrier to air movement by remaining relatively stationary in a draft.
4. Drapes or curtains must fully cover the window and form part of an enclosure of the layer of air between the drape or curtain and window to minimise air movement caused by convection air currents and air movement caused by HVAC systems, fans, or use of the room. That can be achieved, as follows—

unless the curtains or drapes are fully within and abut the window recess (reveals) and abut the reveals, head and sill, they must overlap side edges of the window by at least 150mm or abut a return wall if the window is in a re-entrant corner. Where drapes or curtains extend down to a sill, floor or floor covering to cover a window, the gap between the top of the sill, floor or floor covering and the bottom of the drape or curtain must be 10mm or less. Openable parts of the curtains or drapes must close together with no, or with negligible, gaps.
5. Pelmet must be box pelmet and must work in combination with the curtain or drape to enclose the top of a curtain or drape to prevent air plunging by convection from beside or above the pelmet to the window, and must extend to the width of the window plus any required curtain overlap of the window edge. It must overlap the top of the curtain by 50mm or more.