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ABSA Assessor Procedures
Building Thermal Performance (Residential)

Version 0.7 – 1 May 2007

Contents

1. Introduction

1.1 Objective

1.1.1 This document defines mandatory procedures to be followed by ABSA Accredited Assessors when conducting Building Thermal Performance Assessments of residential buildings.

1.1.2 All ABSA Assessor *Procedure Documentation* is intended to facilitate accurate and consistent assessment practice, appropriate certification standards, and professional conduct of Assessors.

1.2 ABSA Procedure Documentation

1.2.1 The ABSA Procedure Documentation describes mandatory procedures and requirements that must be followed by all Building Thermal Performance Assessors when carrying out assessments. The ABSA Procedure Documentation includes:

- *ABSA Assessor Code of Practice* - This is the principle document that defines practice requirements for all ABSA assessors engaged in any type of sustainability assessment accredited by ABSA. It must be signed in agreement to its terms by all Assessors in order to obtain Accreditation.
- *Assessor Procedures – Residential Building Thermal Performance* – this document, outlines all procedures that must be followed when carrying out Building Thermal Performance assessments. This includes specific requirements related to specific Regulatory Frameworks (BCA or BASIX), State specific requirements, as well as specific requirements related to each software tool. Assessors must become familiar with the specific requirements related to both the State Regulations they are working within, and the tool they are using.
- *Practice Notes* - summarise all changes to ABSA Procedure Documentation at each revision release for quick reference.
- All Software documentation identified and referenced in Section 5.2 of this document - *"Assessment Software Procedures"* including:
  - ABSA Software Procedure Documents for 1st Generation Software (NatHERS, FirstRate)
  - Software instructions provided by the manufacturer/distributor.
- *ABSA Certificate Manager Users Manual v.2.20*
- Relevant Regulatory Documentation as referenced in this document including:
  - Building Code of Australia (BCA) – *BCA Volume 1 and 2*
  - *BASIX - BASIX Thermal Comfort Protocol* and BASIX online resources and definitions
- All other documents as referenced in this and other ABSA Procedure Documents.

1.2.2 All documents relating to the practice of ABSA Accredited Assessors are listed in the *ABSA Document Schedule*. This schedule also identifies the version number, revision date of latest documents.

1.2.3 All ABSA Assessor Procedure Documentation is available to Assessors from the ABSA web site *(www.absa.net.au > Login > Procedures)*. Documents provided on the ABSA web site will be current and include the most recent amendments, unless noted otherwise. Assessors that refer to printed copies of ABSA Documents must ensure that they maintain current editions of those documents.

1.2.4 ABSA Assessor Procedure documents, and referenced documents, may be amended by the ABSA Board. Assessors will be notified, by email, of any amendments to these documents.

1.2.5 It is the responsibility of Assessors to ensure that they are using current Assessor Procedure documents.

1.3 Scope

Regulatory Assessment Frameworks

1.3.1 ABSA Assessor Procedure Documentation has been developed for the carrying out of Thermal Performance Assessments and apply to all current Regulatory Assessment Frameworks implemented in all States in Australia, including:

- The Building Code of Australia (BCA), and
- BASIX (NSW)

1.3.2 They may also be used as a model set of procedures for the carrying out of assessments of a non-regulatory nature, such as when providing advice for design development or for assessment of the performance of existing dwellings.

1.3.3 When carrying out ratings in all Regulatory Frameworks Assessors must follow the National Simulation Protocols described in *Section 6 – National Simulation Protocols*.

1.3.4 Each Regulatory Framework (BCA or BASIX) has specific requirements on how assessments are to be carried out, as well as specific reporting requirements. Some States or Territories may also have specific variations that must be applied when carrying out ratings under the BCA in their jurisdictions. Separate Sections have been provided that detail Regulatory Framework requirements, as well as Sections on State specific variations to these Frameworks.

1.3.4.1 When out ratings in State and Territories that recognise the BCA please consult the following sections of this document:

- BCA - National Requirements - Section 17.0
- BCA - NSW Requirements - Section 18.0
- BCA - Western Australia Requirements - Section 19.0

1.3.4.2 For Assessors carrying out ratings in NSW under the BASIX Regulation please consult the following sections of this document:

- BASIX - NSW Requirements - Section 20.0

Approved Assessment tools

1.3.5 Building Thermal Performance assessments must be conducted with approved software programs.

1.3.6 Some Regulatory Assessment Frameworks have specific requirements for:

- Which software tools can be used - see "Approved Software Tools" - Section 4.3 for a list of approved software packages for each Regulatory Framework.
- How they should be used – consult the Sections about each Regulatory Framework (and State variations) described in point 1.3.4.1 above in regards to any software specific procedures.

1.3.7 Both ABSA Software Procedure documents and any software instructions provided with the software must be followed when carrying out ratings in all States. See *"Assessment Software Procedures" - Section 5.2* of this document for a full list of specific mandatory software procedures documents that are required to be followed when using each software package.

2. Support & contact details

When seeking support for the range of Assessor enquiries please ensure that your enquiry is directed to the correct party.

2.1 ABSA Building Thermal Performance Assessor Support

2.1.1 For enquiries relating to:

- Assessor accreditation and ABSA procedures;
- Assessor professional practice;
- Rating complex dwellings and the ABSA Advisory Group;
- ABSA Expert Panel;
- Audit submissions;
- Exam applications;
- ABSA administration;

contact: Andrew Tanzos – Technical Support Officer
Matt Fisher – ABSA Accreditation Manager,

email: support@absa.net.au (preferred method of contact)

post: Suite 2, Level 9,
418A Elizabeth Street
Surry Hills NSW 2010

phone: 1300 760 012 [9am – 5pm EST]
fax: (02) 9281 9514

2.2 After Hours Server problems

2.2.1 Recently there have been number of server related errors causing problems in certifying using the Certificate Manager. While this problem is quickly fixed during office hours it has in the past caused some frustration, especially on weekends when the office is unattended and Assessors are unable to report the issue.You can tell that the server has frozen if both the Certificate Manager returns an error and **ALSO** the ABSA website is down.

We have worked with our server provider to develop the following solution.

An email can be sent to the following address. support@hostingshop.com.au (cc: support@absa.net.au) Text to be included: “The Association of Building Sustainability Assessors (ABSA) Server IP 202.60.67.173 is down, could you please reboot.”

Within 10-20 minutes you should receive a reply that the server has been rebooted and you should be able to continue certifying.

2.3 Assessment support

2.3.1 For assistance with projects that rate poorly or are complex and difficult to assess (all software packages):

a) Check that your data entry is correct;

b) Check to see if your query is addressed in this *Assessor Procedures* document;

c) Check to see if your query is addressed in the software specific instructions provided with the software or ABSA Software Procedure manuals

d) Go to the ABSA Assessor Forum *(www.absa.net.au > login >forum)* and see if your query is addressed, or post a question to be answered by other Assessors or ABSA staff;

e) Contact ABSA if no answer is provide in these listed sources;

f) Contact ABSA for advice or support from the ABSA Advisory Group.

2.4 ABSA Advisory Group

2.4.1 The ABSA Advisory Group consists of experienced Assessors who have volunteered to assist other Assessors in providing advice on complex ratings, or dwellings with aspects beyond the Assessors experience.

2.4.2 There is no charge for assistance from the Advisory Group, for up to half an hour consultation. Most enquiries can be dealt with in this time. Advisory Group members are entitled to request professional fees for support beyond half an hour.

2.4.3 Support from the Advisory Group can be accessed by contacting ABSA staff who will refer you to an appropriate member of the Advisory Group. You will be required to provide:

- Dwelling drawings (preferably in digital format) and your rating assessment files.; and
- A concise explanation of the problem;

2.5 Assessment Software sales and support

2.5.1 All enquiries relating to assessment software should be directed to the assessment software distributor, including:

- Sales and registration;
- Software installation, software updates, and software benchmarking;
- Faults, error messages, crashes, conflicts, loss of data;
- Clarification of procedures for correct software operation, or definition of procedures for building features not described in instructions;
- Cases where the software gives inaccurate or improbable results;

Assessment software distributors are required to resolve faults in their software at no cost to the registered user. They are entitled to charge fees for providing advice and support not related to resolving faults.

2.5.2 ABSA does not provide any support for the operation of use of software for carrying out ratings. Software support including the definition of procedures for rating building circumstances not defined in the software instructions is the responsibility of the software manufacturer. An additional software support charge for this may apply with some software packages. Consult the software manufacturer details below for further details.

2.5.3 If assessment software distributors are unable to resolve software faults in a timely manner, please report this to ABSA.

2.5.4 Assessment software support contact details:

NatHERS Support

Energy Rating Software Support (ERSS), John Ballinger
post: PO Box 6097 Kangaroo Valley NSW 2577
email: support@johnballinger.com
web: www.johnballinger.com
(note: charges may apply)

Accurate Support

Energy Rating Software Support (ERSS), John Ballinger
email: john@erss.com.au
web: www.energyratingsoftwaresupport.com.au
(When using Accurate Assessors will be required to ensure that they are using the approved Accurate Construction libraries. Under the Maintenance conditions Assessors will be required take out at a minimum 'Standard Maintenance' to receive access to these approved Material Construction libraries. See *Section 6.1.5 – National Protocols - Construction Materials and Systems* for details of these requirements.
See www.hearne.com.au/accurate for further details of the Maintainence options.

FirstRate v.4.05 and FirstRate5 Support

Sustainability Victoria (SV) - FirstRate Helpdesk
post: Urban Workshop, Level 28, 50 Lonsdale Street
Melbourne, Victoria 3000
email: firstrate@sustainability.vic.gov.au
ph: (03) 8626 8700
web: www.sustainability.vic.gov.au
(note: charges may apply for support enquiries – see FirstRate Manual or contact Sustainability Victoria for further details)

BERS and **BERS Pro Support**

Dr Holger Willrath, Solar Logic
post: 162 Blackwood St, Mitchelton, QLD 4053
email: holger@solarlogic.com.au
ph: (07) 3355 2608
fax: (07) 3355 2608
web: www.solarlogic.com.au
(Annual licence fee includes all software updates and support. See the Solar Logic website for details.)

2.6 Building & Regulation enquiries

2.6.1 Enquiries about to specific building and development regulation requirements when conducting assessments should be directed to ABSA or the relevant regulatory authorities listed below.

National Regulatory Contacts:

2.6.2 General queries regarding issues in relation to the **Building Code of Australia** should be directed to:

Australian Building Codes Board

email: bca@abcb.gov.au.
phone: 1300 857 522
web: www.abcb.gov.au

2.6.3 NatHERS is an initiative of the Ministerial Council on Energy. The Scheme is administered by the Energy Efficiency Working Group and managed by the Australian Greenhouse Office. Their website provides a good overview of Building Thermal Performance requirements nationally.

General queries regarding issues in relation to the **Nationwide House Energy Rating SCHEME (NatHERS)** should be directed to:

Nationwide House Energy Rating SCHEME (NatHERS)

web: www.nathers.gov.au
email: buildings@deh.gov.au

State Regulatory Contacts:

2.6.4 General queries relating to building and development regulations in **Australian Capitol Territory** should be directed to the relevant regulatory authority:

ACT Planning and Land Authority (ACTPLA)

Contact: Adam Zaborszczyk
email: adam.zaborszczyk@act.gov.au
phone: 02 62 050 615
web: http://www.actpla.act.gov.au/

2.6.5 General queries relating to building and development regulations in **New South Wales** should be directed to the relevant regulatory authority:

BASIX Helpline (NSW)

NSW Department of Planning (DoP)
email: help@basix.nsw.gov.au
phone: 1300 650 908
web: www.basix.nsw.gov.au

DoP Policy Reform Helpline (for NSW planning policy related enquiries)
phone: (02) 9228 6435

Energy Smart Homes Program (NSW)

Department of Energy Utilities & Sustainability
Energy Smart Information Helpline
phone: 1300 138 638
web: www.energysmart.com.au

or the relevant local Council responsible for Development Approval.

Building Code of Australia (NSW application)

NSW Department of Planning (DoP) - BCA Advisory Service
phone: (02) 9762 8258 Tuesday to Thursday, 9.30am to 1.00pm

2.6.6 General queries relating to building and development regulations in **Northern Territory** should be directed to the relevant regulatory authority:

Building Sustainability Services

Northern Territory Department of Planning and Infrastructure
phone: (08) 89 247 073
fax: (08) 89 247 947
web: bss@nt.gov.au

2.6.7 General queries relating to building and development regulations in **Queensland** should be directed to the relevant regulatory authority:

Building Codes Queensland
email: buildingcodes@dlgp.qld.gov.au
phone: (07) 3239 6369
web: http://www.lgp.qld.gov.au/

2.6.8 General queries relating to building and development regulations in **South Australia** should be directed to the relevant regulatory authority:

Planning SA
Building Policy Branch
phone: (08) 8303 0602
web: http://www.planning.sa.gov.au/

Energy SA
phone: 1800 671 907 (freecall - country callers)
(08) 8204 1888
web: www.energy.sa.gov.au

2.6.9 General queries relating to building and development regulations in **Tasmania** should be directed to the relevant regulatory authority:

Workplace Standards Tasmania
Phone: (03) 6233 7657 (Outside Tasmania)
1300 366 322 (Inside Tasmania)
Fax: (03) 6233 8338
Email: wstinfo@justice.tas.gov.au

2.6.10 General queries relating to building and development regulations in **Victoria** should be directed to the relevant regulatory authority:

Sustainability Victoria
Urban Workshop
Level 28, 50 Lonsdale Street
Melbourne
Victoria 3000
phone: (03) 8626 8700
fax: (03) 9663 1007
web: www.sustainability.vic.gov.au
email: firstrate@sustainability.vic.gov.au

Building Commission
Level 27 Casseldon Place
2 Lonsdale Street,
Melbourne
Victoria 3000
Phone: (03) 9285 6400
Fax: (03) 9285 6464
Web: www.buildingcommission.com.au

2.6.11 General queries relating to building and development regulations in **Western Australia** should be directed to the relevant regulatory agencies:

Building Code of Australia (WA application)
Department of Housing and Works - Building Codes and Regulation
Tel: (08) 9222 4563
Email: buildingcontrol@dhw.wa.gov.au
Address: 108 Adelaide Tce, East Perth 6004
Fax: (08) 9222 4979

or

Sustainable Energy Development Office
Dr Neville Peterkin, Program Officer, Buildings
Level 9, 197 St Georges Terrace
Perth WA 6000
Tel: (08) 9420 5757
Fax: (08) 9420 5699
email: neville.peterkin@energy.wa.gov.au

or

Energy Smart Line 1300 658 158

or

the relevant local Council responsible for Development Approval.

3. Assessor Accreditation

3.1 ABSA Code of Practice

3.1.1 The *ABSA Code of Practice* is an agreement between ABSA and the Accredited Assessor. It is a requirement of Accreditation that the Accredited Assessor must provide a signed Code of Practice to ABSA prior to Accreditation being activated.

3.1.2 Under this Code of Practice Accredited Assessors, releases and indemnifies ABSA, and nominated Local, State, and Federal Governments departments, and all officers and agents of ABSA and nominated Local, State, and Federal Governments departments from and against all actions proceedings, claims and demands whatsoever directly resulting from or arising out of:

- Any negligence or other wrongful act or omission of the Assessor; and
- In connection with, or in the course of, the performance or breach of the COP

Nominated State Government Departments include but not limited to Department Energy Utilities and Sustainability (NSW), Sustainable Energy Development Office (WA).

Nominated Federal Government Departments include but not limited to the Australian Greenhouse Office, Department of the Environment and Heritage.

3.2 Accreditation fees

3.2.1 Assessors must pay annual ABSA Accreditation fees, due on the anniversary of initial Accreditation.

3.2.2 Assessors can pay their Accreditation fees online *(www.absa.net.au > LogIn > My Records > Accreditation)*. This is the preferred method of payment. The payment system provides a high level of consumer protection through encryption of all credit card details. This is handled using the 'Bendigo Payment Gateway'. No credit card details are collected or held by ABSA. If you are unable to pay using your credit card online please contact ABSA to arrange a tax invoice.

3.2.3 Accreditation Fees are calculated with an annual Accreditation 'base fee' ($275 ex GST) as well as a charge for the number of Certificates issued.

3.2.4 Certificates are bought in 'volume bands', with the cost per Certificate varying depending on which 'volume band' is purchased. Information about the current fee structure and costs can be found at: http://www.absa.net.au/logIn/myRecords/accred_renew.aspx . This fee structure was developed to provide an equitable schedule of fees for its members.

3.2.5 All Accreditation fees are not refundable (both Annual Accreditation base fee and unused Certificates purchased). If an Assessor no longer wishes to be accredited, or has their accreditation cancelled by ABSA, the remainder of their accreditation fee will not be refunded.

3.2.6 If Assessors do less work than their estimated volume band, the number of 'unused' assessments will be carried forward as a credit to the next year on the anniversary of accreditation date.

3.2.7 If Assessors that require more Certificates than their estimated volume band, they can 'top up' to the next volume band and pay the difference in accreditation fees (this will not incur an administration charge).

Please note the following important point:

- For multi-unit developments the volume component is based on the number of individual/groups of identical dwelling units assessed (as defined in this manual in Section

15.13 – Multi Unit Rating and Certification). For example if a 100 unit development has 5 groups of identical types (as defined in this manual) then 5 certificates will be charged to your account.

3.3 Professional Indemnity Insurance

3.3.1 Professional Indemnity insurance cover is a mandatory requirement for all practicing ABSA Accredited Assessors. This requirement forms part of the agreement terms as set out in the ABSA Code of Practice. Assessors must maintain insurance which provides appropriate cover for their liability as professionals providing specialist services and advice. Insurance offers protection for the Assessor and their clients in the event that an assessment is improperly carried out, resulting in additional costs to the client.

3.3.2 As a second part of the mandatory PI requirements Assessors must also declare the details of their insurance to ABSA.

3.3.3 Failure to have adequate insurance in place, and declared to ABSA within 30 days of Accreditation will lead to the Accreditation being Suspended until these requirements have been met.

ABSA PI Insurance Scheme

3.3.4 ABSA has secured a very competitive Professional Indemnity insurance Scheme. Assessors can purchase PI insurance through this Scheme on the ABSA website: http://www.absa.net.au/logIn/myRecords/insurance.aspx

The cover of the ABSA Scheme PI insurance extends to professional services where ABSA's accredited members act in accordance with all ABSA Procedures and are responsible for:

- Performing assessments of the thermal performance of buildings (under both BCA and BASIX regulatory frameworks)
- Providing advice regarding assessments, and the thermal performance of the building
- Providing BASIX related advice or Assessments

The ABSA Scheme PI Insurance is sold online on the ABSA website. You do not have to declare you insurance details as we will collect these through the website.

For further and technical information relating to the ABSA Scheme PI Insurance policy and its cover please send an email to the insurance broker directly at. Contact details are available from ABSA.

Obtaining Insurance from other 3rd Party

3.3.5 While having adequate PI Insurance cover is mandatory, Assessors can choose to make their own PI insurance arrangements. There is no minimum level of insurance cover defined by ABSA. It is the responsibility of the Assessor to ensure that their insurance cover is adequate for their role. The risks and extent of liability should be determined by each Assessor in consultation with their insurer. Generally, appropriate insurance is classified as Professional Indemnity. Other policies may also provide appropriate cover for the Assessor's services.

ABSA provides a standard definition of the role of Assessors to assist insurers determine appropriate policy requirements: *ABSA Assessor Description of Professional Services*, available from the ABSA web site (www.absa.net.au > Login > Procedures > General)

3.3.6 If an Assessor make their own PI insurance arrangements the Assessor **must** declare their PI Insurance details on the ABSA website *(www.absa.net.au > Login > My records > Insurance) including:*

- the name of the insurer;
- insurance policy number;
- insurance policy expiry date;

3.3.7 If an Assessor make their own PI insurance arrangements the Assessor **must also** provide a copy of the Certificate of Currency to ABSA (by email, mail, or fax) within 30 days of their declaration of their PI Insurance details on the ABSA website.

3.4 Qualification and Accreditation

3.4.1 ABSA Accreditation is required for all Assessors wishing to practice under the ABSA National Accreditation Scheme. The ABSA Accreditation Scheme is nationally recognised through the *Nationwide House Energy Rating Scheme Protocol for Assessor Accrediting Organizations.* ABSA Accreditation is offered to all Assessors that pass the ABSA Accreditation exam.

3.4.2 Accreditation for new candidates is now only offered in 2nd Generation software.

3.4.3 For all Assessors wishing to be Accredited to use 2nd Generation software, it is a minimum requirement that applicants need to successfully complete the National Qualification "*Short Course in Residential Building Thermal Performance"* and pass the ABSA Accreditation exam.

3.4.4 For existing ABSA Assessors currently Accredited to use 1st Generation software, your Accreditation will continue to be recognised. Assessors should note that 1st Generation software will cease to be recognised as determined by the State Regulatory bodies. ABSA recommends that all Assessors transition to using 2nd Generation software well before 1st Generation software ceases to be recognised. Existing Assessors will be required to complete the National Qualification "*Short Course in Residential Building Thermal Performance"* in order to be Accredited to use 2nd Generation software. Existing Assessors will not be required to complete the *Professional Practice* module of the training or be required to re-sit the ABSA Accreditation exam.

3.4.5 For additional information of the National Qualification "*Short Course in Residential Building Thermal Performance"* please consult the ABSA website *(www.absa.net.au > Becoming an Assessor)*.

3.4.6 Existing Assessors will be exempted from attending the Professional Practice module of the training and will be given RPL status for this module based on their previous Accreditation examination that covers the competencies of this module.

3.4.7 Please note that any existing Assessor wanting to practice in NSW will be required to attend the 1 hour *BASIX Regulation* section of the *Professional Practice* module, and be required to pass a *BASIX Regulatory test.* There will be no charge for both the training or testing.

3.4.8 For additional information of the Accreditation requirements to use 2nd Generation software in NSW under the BASIX 2nd Generation Software Pilot please consult the ABSA website *(www.absa.net.au > Log In > Procedures > Policy Documents > BASIX - NSW 2nd Generation Software Pilot Documents)*.

3.5 Continuing professional development

3.5.1 Assessors must conduct and certify a minimum of two assessments during the one-year period commencing on the date of annual accreditation fees being due. If this requirement is not met ABSA may require proof of currency of competency.

3.5.2 Assessors must attend specific Professional Practice Briefings, as may be required by the ABSA Board, or demonstrate that the outcomes required of such Professional Practice Briefings have been met through means other than attendance as specified by the Board.

3.6 Auditing as specified by the Board

3.6.1 As a requirement of ABSA's recognition as a National Accreditation Organisation ABSA must undertake quality assurance auditing of its Assessors.

3.6.2 Assessors must, upon request from ABSA, submit assessments for auditing by ABSA. Auditing is an essential component of maintaining the quality of assessor services, enabling consumers and regulators to have confidence in the accuracy of assessments conducted by Accredited Assessors. Auditing also provides valuable feedback to Assessors on how their practice might be improved.

3.6.3 Audit submissions must follow carefully the requirements contained within the audit request documentation.

3.6.4 Auditing checks that the data in the assessment software file is consistent with the drawings and specifications and that the assessment was conducted in accordance with *Assessor Procedures*.

3.6.5 ABSA may cross-check specific assessment details with those submitted to Councils or other regulatory authorities.

3.6.6 Assessors will be notified, by ABSA, of the result of audits. Audits that find inaccuracies or omissions in assessments or failure to follow required procedures will result in the Assessor being notified of an Unsatisfactory Audit. The Assessor may be requested to submit additional assessments for auditing.

3.6.7 Evidence of repeated inaccuracies or omissions in assessments or failure to follow required procedures may result in the Assessor being required to undergo additional training and demonstrate required knowledge and skill.

3.6.8 Failure to supply the required information and documentation requested by ABSA for auditing will result in disciplinary action being taken, as defined in the ABSA *Assessor Code of Practice*.

3.6.9 Evidence that an Assessor has significantly infringed or consciously breached ABSA *Assessor Procedures* or the *Assessors Code of Practice*, will result in disciplinary action being taken, as defined in the ABSA *Assessor Code of Practice*.

3.7 Declaration of assessments

3.7.1 Assessors must declare, to ABSA, all assessments conducted as an Accredited Assessor.

3.7.2 This declaration of assessments is completed automatically when assessments are certified using the *ABSA Certificate Manager* and no further action is required. (refer to *Section 15.0 – Certification of Assessments* of this procedure manual).

3.7.3 In rare circumstances ABSA may permit Assessors to use an alternative Certification system to the Certificate Manager. If any other alternative ABSA approved system is used, copies of all Certificates issued must be submitted monthly by mail or email to ABSA, and must include the following details:

- the project address;
- assessor number, certificate number, date of assessment and regulatory framework;
- identification of software assessment file and assessed plans and specifications;
- specifications of materials upon which the assessment is based;
- outcome of assessment.

3.8 Records

3.8.1 Assessors must maintain records of assessments (either in electronic or hard format) for a minimum period of seven years, including copies of the following 3 items:

- A copy of the final Certified drawings and specifications (if present), with the Assessor Stamp and Specification Block attached, as provided to the client to be submitted to Council.
- The final software data file matching all information embodied in the stamped Certified drawings and specifications;
- A copy of the completed ABSA Assessor Certificate and Thermal Performance Specifications (digital or hard copy) as issued to the client.

3.8.2 The final Certified drawings and specifications (stamped and with Specification Block attached), and ABSA Certificate and Thermal Performance Specifications kept as the Assessors record of the Assessment, **must be identical to the final set issued to the client to be lodged with Council.** These documents are kept as a record in case it requested for auditing. It is not permissible to retain draft or working document sets for your records.

3.9 Licensed assessment software

3.9.1 Assessors are required to nominate the Accredited Assessment Software and version number that they are using to conduct building thermal performance assessments on their completed ABSA Assessor Certificate. Only approved versions that you are Accredited to use should be declared.

3.9.2 Assessors will soon be required to declare the software licence details of the software they are using. The required details will include:

- Accredited assessment software;
- Version number
- License/registration number,
- date of purchase or purchase invoice number

3.9.3 Registration numbers submitted may be supplied to software suppliers for verification. All personal details will remain confidential.

3.9.4 ABSA may Suspend the Accreditation of Assessors that can not show evidence of legal use of Accredited Assessment Software.

3.10 ABSA Membership

3.10.1 ABSA is a registered members based not-for-profit Association. ABSA also offers Accreditation for its Assessors.

3.10.2 Assessors should be aware that ABSA Accreditation is different to ABSA Membership. Accredited Assessors may or may not wish to become a member of ABSA. ABSA membership provides additional rights and benefits as defined in the ABSA Constitution, such as receiving discounts on training, the right to become elected as a Board Member, and the right to vote at Annual General meetings. For details about this please consult the *ABSA Association Constitution (www.absa.net.au > About Us > ABSA Board).*

3.10.3 You can elect to become a ABSA Member at any time online *(www.absa.net.au > LogIn >Membership)*.It is free for all Accredited ABSA Assessors.

3.11 Use of ABSA Logo

3.11.1 In addition to requirements specified in the ABSA Code of Practice in regards to the use of the ABSA logo, the following procedures must also be followed:

3.11.1.1 'The Logo' refers to the official logo of the Association of Building Sustainability Assessors Limited.

3.11.1.2 The Logo remains the property and copyright of the Association of Building Sustainability Assessors.

3.11.1.3 The Logo may be increased or reduced in size at the discretion of the user, but the width to height ratio must not be altered

3.11.1.4 The Logo must never be used in a manner which represents or could be construed to represent that the document produced is an official document of the Association of Building Sustainability Assessors

3.11.1.5 The Logo must not reproduced at a size larger than the individuals own logo

3.11.1.6 Should a person cease to be an Accredited Assessor or member of ABSA, they must immediately cease issuing any document that includes the use of the Logo

3.11.1.7 Upon using the Logo the member automatically accepts all terms and conditions issued by ABSA in its *Procedure Documents* in relation to Logo use, and agrees to be bound by them

4. Assessment Tools

4.1 Background

4.1.1 The science of building thermal performance is based on well established, proven laws of thermodynamics. Data relating to climate and the properties of building materials enable the thermal performance of a building to be predicted through a series of relatively simple individual calculations. However, the calculation of building thermal performance is the result of a complex interaction of many variables and the performance is dynamic – the result of the cumulative impact of variables over a period of time. Calculating this performance manually would require weeks of processing equations. Computer-based assessment tools enable these calculations to be performed in minutes or seconds.

Building thermal performance assessment software programs have been developed in Australia and internationally for more than thirty years. The first programming code for the calculation engine in current assessment software was written back in 1968 when computers filled whole rooms and calculations took several days to process. Since then they have continually evolved in complexity, capability and speed.

These are all based on a common calculation engine, Chenath, developed by CSIRO. The calculation engine processes the information entered relating to climate and building form and materials.

4.1.2 Assessment software have several distinct components, in addition to the calculation engine, that determine what is assessed and how the predicted performance is described. Each program includes:

- a unique interface that manages the building data entry. These vary in the elements and level of detail that can be specified and the method of entering data (alphanumeric or graphic);
- climate and material data used by the calculation engine;
- standardised occupancy profiles that define the periods of occupancy, occupant behaviour and operation of the building (such as opening and closing blinds or windows);
- performance indicators, required by relevant regulations. For example heating and cooling loads expressed in megajoules per M^2 of floor area per annum, or heating and cooling degree/hours per annum. These performance indicators may be extrapolated into other indicators such as star ratings.

It is important to understand the role of these different components when considering the performance of assessment tools. The outcomes of assessments are determined by science (the processing of proven thermodynamics equations by the calculation engine) and policy (definition of acceptable building performance and assumptions about occupant behaviour and operation of the building).

4.1.3 As of 2006/2007 there will be two classifications of software packages permitted for use in Australia. They are respectively called 1st Generation and 2nd Generation software tools.

4.1.4 There are currently three 1st Generation assessment software programs approved for use in Australia:

- NatHERS
- FirstRate
- BERS

4.1.5 There are currently three 2nd Generation residential building thermal performance assessment software programs that will be approved for use under the conditions of the BCA 2007 Protocol for House Energy Rating Software (2006.1). Several States have already approved their use. 2nd Generation software tools include:

- Accurate
- FirstRate 5
- BERS Pro

4.1.6 It is envisaged that 1st Generation software will be phased out in all states by the release of the BCA in May 2008. Some States may set an earlier phase out date to this. Please refer to communication provided by your State based Regulatory authority, or contact them directly, in regards to the current approval status of both 1st and 2nd Generation software.

4.1.7 Both 1st and 2nd Generation software will be permissible for use in all States and Territories until 1st Generation softwares are phased out. During this transition time ABSA advises Assessors to seek training in the use of 2nd Generation software at their earliest opportunity. See *Section 3.4 – Qualification and Accreditation* for further details.

4.2 Accreditation of assessment tools

4.2.1 Building and development Regulation Frameworks, that require building thermal performance assessments, include criteria for the approval of assessment tools that can be used. All software packages are approved by both Federal and State Governments. This includes recognition by the Australian Building Codes Board and specialist federal committees established under the authority of the Coalition of Australian Governments, as well as by individual State based Planning Bodies. See *Section 4.3 – Approved Assessment Tools* for full details of approved Software tools in your State.

4.2.2 ABSA does not accredit assessment software, it acknowledges accreditation of assessment software by relevant building and development regulations.

4.2.3 ABSA has specific requirements that assessment softwares must meet to enable ABSA to:

- provide support to Assessors using that software;
- maintain the accuracy and consistency of assessments conducted by ABSA Assessors;
- operate quality assurance and auditing schemes;
- maintain currency of ABSA procedural requirements.

4.2.4 When conducting assessments required by building and development regulations, Assessors may only use the assessment software specifically approved by the regulations (defined federally and varied on a State basis), and supported by ABSA. The following Section provides a summary of approved tools. Please also refer to communication provided by your State based Regulatory authority, or contact them directly, in regards to the current approval status of both 1st and 2nd Generation software.

4.2.5 Each State may have specific requirements for how tools are to be used, or ratings are to be reported. For definitions and requirements for software use under specific State Regulatory Schemes please also consult Sections 17-21 – Building Code of Australia, BASIX, and Energy Smart Homes Policy.

4.2.6 A condition of accreditation of assessment software, by regulatory authorities, is that the calculation methods and thermal properties of materials may not be added to or amended without prior notification and consent of the regulatory authority and / or ABSA. New versions or revisions of assessment software and material data files may not be used by Assessors until approved by ABSA. Only materials built into the software, or proxies approved by ABSA, or construction libraries approved by ABSA can be used. When using Accurate the approved Construction Libraries, as provided by ERSS, must be used for rating purposes. Assessors cannot create their own constructions when using Accurate for rating purposes.

4.3 Approved assessment tools

4.3.1 The listed **1st Generation tools** are permitted in the following Regulatory Frameworks:

Regulatory Framework:	**BASIX**
	Implemented by Councils in NSW under the direction of the NSW Department of Planning (DoP)
Accredited assessment tools:	**NatHERS Version v2.32B** **FirstRate v4.05** **BERS v3.2**
Accreditation criteria:	As defined in the *BASIX Thermal Comfort Protocol* .
Required Updates:	• A new version of the NatHERS file **postcode.bin** (27/04/05) has been released. This file must be used by all Assessors for Assessments carried out after July 1 2005. • A new version of the NatHERS file **Chenath.exe** file dated (20/02/05 or later) calculates the effect of Double Glazing more accurately. This file must be used by all Assessors for Assessments carried out after April 1 2005. • **2.32B (August 2005) update** must be used by all Assessors for Assessments carried out after October 1 2005.

Regulatory Framework	**Building Code of Australia**
	Implemented nationally, with state variations.
Accredited assessment tools	**NatHERS v2.32B (only supported by ABSA)** **FirstRate v.4.05 (only supported by ABSA)** **BERS v3.2**
Accreditation criteria	Compliance with the Protocol for House Energy Rating Software, version 2006.1, published by the Australian Building Codes Board.
State Variations	WA: FirstRate 4.05a version must be used as of 18/05/06 VIC and ACT: FirstRate 4.05 version must be used VIC: Where NatHERS is used additional procedures must be used – *See section 7.6 - State Based Requirements for NatHERS use* NT: No Simulation method permitted

4.3.2 The listed **2nd Generation tools** are permitted in the following Regulatory Frameworks:

Regulatory Framework	**BASIX**
	Implemented by Councils in NSW under the direction of the NSW Department of Planning (DoP)
Accredited assessment tools	**Accurate v. 1.1.3.0 (BASIX 2nd Generation Software Pilot)** **BERS Pro v. 4.1 (BASIX 2nd Generation Software Pilot)**
Accreditation criteria	As defined in the *BASIX Thermal Comfort Protocol* .
Required Updates:	• All current patches and updates must be installed to ensure it operates as described by the software supplier / support service. • FirstRate 5 will be assessed for approval by the DoP once released. Please consult the *BASIX Thermal Comfort Protocol* for current software approval.

Regulatory Framework	**Building Code of Australia**
	Implemented nationally, with state variations.
Accredited assessment tools	**Accurate v. 1.1.3.0 (adopted on a State by State basis)** **FirstRate 5 (adopted on a State by State basis)** **BERS Pro v.4.1 (adopted on a State by State basis)**
Accreditation criteria	Compliance with the Protocol for House Energy Rating Software, version 2007.1, published by the Australian Building Codes Board, May 2007.
State Variations	• Please consult communication provided by your State based Regulatory authority, or contact them directly, in regards to the current approval status of approved 2nd Generation software. • All current patches and updates must be installed to ensure it operates as described by the software supplier / support service. • NT: No Simulation method currently permitted

4.4 Software Limitations

4.4.1 Software limitations are provided where it has been found that a software is unable or inaccurate in its modelling for certain building configurations.

4.4.2 Where software limitations are nominated, an alternative approved software package must be used to rate that particular building configuration. Where all approved software tools nominate the software limitation for the particular building configuration the Expert Panel Opinion pathway should be used. Please consult *Section 11 – Assessment by Expert Panel and Expert Opinion* for further details.

4.4.3 For all NatHERS software limitations consult the following documents:

- Section 7 - Procedures when using NatHERS
- ABSA NatHERS (Version 2.32a & 2.32B) Modelling Procedures
- NatHERS User Guide, Version 2.32a & 2.32B provided with the NatHERS software

4.4.4 For all BERS v3.2 software limitations consult the latest BERS v.3.2 software manual.

4.4.5 For all FirstRate v4.05 software limitations consult the following documents:

- Section 8 - Procedures when using FirstRate 4.05 and 4.05a
- ABSA FirstRate (Version 4.01 & 4.05) Modelling Procedures
- FirstRate User Manual
- FirstRate Software Help (in software)

4.4.6 For all software limitations for 2nd Generation tools please consult the appropriate software instructions provided with the software, or advertised by the software supplier and support service.

5. Conducting an assessment

5.1 Assessment software operation

5.1.1 Assessors must ensure that they have the latest software installed including any patches or updates, and that it has been installed correctly. Assessors must follow all instructions issued by the software developer in this regard to ensure correct software installation and upgrading. Some software packages will require that you purchase 'Maintenance or support' packages in order to receive these updates and maintain current software. Please consult *Section 2.5 – Assessment Software Sales and Support* for further details.

5.1.2 It is vital that all Assessors achieve unified rating results. All Assessors should benchmark their installed software to ensure the software is installed correctly. Your software supplier should be able to supply you with a benchmarking file and the expected results. A difference of 5% is acceptable. If you do not achieve a benchmarked result please contact the software supplier.

5.1.3 Assessment software must be operated in accordance with all software procedure documents listed below.

5.2 Assessment software procedures

5.2.1 National Simulation Protocols must be followed by all Assessors in all States. These are detailed in *Section 6.0 – National Simulation Protocols* of this document.

5.2.2 Each software package provides software instructions and procedures that must be followed in their use. All procedures identified in the documents detailed below must be used by an Assessor when using these tools in all States. In addition ABSA has developed additional procedures for the use of the 1st Generation tools NatHERS (v.2.32b) and FirstRate (v.4.05). All procedures identified in the documents detailed below must be used by an Assessor when using these tools in all States.

5.2.3 Each Regulatory Framework (BCA or BASIX) may also have additional instructions when using specific rating tools. These are documented in the various Sections that describe State rating requirements *(Sections 17.0 - 21.0 of this document)*

5.2.4 The following listed Procedure documents should be used in all States:

	Assessment software	Document title / details
1st Generation	**BERS v3.2**	**BERS (version v3.2) User Manual** Instructions for software operation. Published by Solar Logic. All ABSA Assessors must follow these procedures when using BERS v. 3.2 in all States.
	FirstRate v.4.01 & v.4.05	**FirstRate User Manual** **FirstRate Software Help (in software)** Published by SEAV. These procedures must be used by all ABSA Assessors when using FirstRate 4.05 in all States
		ABSA FirstRate (Version 4.01 & 4.05) Modelling Procedures ABSA Document – describing procedures for assessing building features not specifically addressed by the assessment tool or that are subject to interpretation. This document contains mandatory procedures based on edited contents of the SEDO document *"Accredited Assessors Questions & Answers".* All ABSA Assessors must follow these procedures when using FirstRate v.4.05 in all States.

1st Generation	**NatHERS 2.32**	**No longer approved for use by ABSA Assessors**
	NatHERS 2.32a	**No longer approved for use by ABSA Assessors**
	NatHERS 2.32B	**NatHERS User Guide, Version 2.32a & 2.32B ABSA** Instructions for software operation. Published by RC&C Consulting. These procedures must be used by all ABSA Assessors when using NatHERS 2.32b in all States
		NatHERS (Version 2.32a & 2.32B) Modelling Procedures ABSA Document – describing procedures for assessing building features not specifically addressed by the assessment tool or that are subject to interpretation. These procedures must be used by all ABSA Assessors when using NatHERS 2.32b in all States.
		NatHERS Custom Walls & Proxies Manual ABSA document that lists current Proxies, Custom Wall data.
		NatHERS Custom Wall Data User Manual, Version 2.32a & 2.32B List of Custom Walls available in NatHERS and instructions for including Custom Walls in assessments. Published by RC&C Consulting.
	NFRC Windows Values	**ABSA NFRC Window Values_v01** Look up table of NFRC Whole of Window U/SHGC values for all Generic and Custom windows available in 1st Generation software – **to be used as of 1 May 2007**List of Custom Walls available in NatHERS and instructions for including Custom Walls in assessments. Published by RC&C Consulting. NFRC values for all windows when using 2nd Generation tools are available in the software tools themselves.

	Assessment software	**Document title / details**
2nd Generation	**Accurate**	**Accurate Software Help (in software)** **Additional Software Procedures provided by EERS** **Optional: Accurate Trainer CD ROM**
	FirstRate v.5	**FirstRate 5 User Manual** **FirstRate 5 Software Help (in software)** Instructions for software operation. Published by SEAV
	BERS Pro	**BERS Pro User Manual** Published by Solar Logic. **Additional Software Procedures provided by Solarlogic**

5.2.5 If details included in software instructions provided by the software supplier vary from Procedures defined this or other ABSA Assessor Procedures documents, then the procedures defined in ABSA Assessor Procedure documents will take precedence. Please contact ABSA related to any documentation inconsistencies.

5.2.6 If details included in software instructions provided by the software supplier, or detailed in ABSA procedure documents, vary from procedures provided by a Regulatory body then the procedures defined procedures provided by a Regulatory body. Please contact ABSA related to any documentation inconsistencies.

6. National Simulation Protocols

6.1.1 To ensure consistency of tool use nationally the *Nationwide House Energy Rating Scheme Protocol for Assessor Accrediting Organisations* defines procedures for interpreting plans and specifications, and simulation protocols that must be followed by all Assessors, in all States. These procedures were developed in order to maintain the uniformity and accuracy of building thermal performance assessments nationally.

The following section defines the procedures for interpreting drawings and specifications in order to ensure the uniformity and accuracy of Assessments. These procedures must be applied, except where a State Regulation provides procedures that specifically provide an alternative procedure definition. This is the case with BASIX, where some of these procedures conflict the procedures embodied in the *BASIX Thermal Comfort Protocol,* which take precedence.

6.1.2 Address and climate zone

All address details must be correct for the subject site. Alternative postcodes, which assign a different climate zone, can only be used with the permission of the applicable Jurisdiction or where alternative climate zones have been published by the Jurisdiction for specific locations.

6.1.3 Ground reflectance (if available)

The default setting used in the software for ground reflectance (if available) must be used regardless of the surfaces surrounding of the building. The default setting in Accurate is 0.2. This setting is not available in all other softwares (both 1st Generation or 2nd Generation)

6.1.4 Construction - General

Construction of the assessed building must be modelled as indicated on the drawings and specifications produced for the building control authority. Unusual construction systems must be clearly described with details (on the documentation certified).

6.1.5 Construction - Materials and systems

Only construction materials that have been embedded in approved software may be modelled by Assessors.

Assessors must only model construction systems (ie, combinations of construction materials) that are embedded into approved software or have been approved by the ABSA. When developing construction systems, ABSA will give consideration to installation practices.

For Accurate this requirement means that Assessors must not create their own construction systems for rating purposes. Assessors must use the approved material libraries issued by ERSS Accurate Support. Assessors must have as a minimum 'Standard Maintenance' to receive these construction library files.

6.1.6 Construction - Sub-floor ventilation

Sub-floor spaces must be modelled as shown on the drawings. Enclosed sub-floor spaces includes those with enclosing walls with the minimum ventilation openings required by the BCA.

6.1.7 Construction - Floor coverings

Floor coverings must be assessed as shown on the drawings and specifications. If no floor covering or finish is specified, wet areas and kitchens are to be modelled with tiles and all other habitable rooms modelled with carpet.

Where a floor covering is nominated on the drawings and specifications, the floor covering must be used in the rating and nominated on the Assessor Certificate. If no floor covering or finish is specified on the drawings and specifications, the Assessor Certificate must nominate 'not specified' for the relevant floor covering.

In NSW the *BASIX Thermal Comfort Protocol* has some requirements that differ to National Protocol procedures defined for the inclusion of Floor coverings in ratings. The procedures defined in the document *BASIX Thermal Comfort Protocol* should be consulted and take precedence.

6.1.8 Construction - Curtains, pelmets and other internal window/glazed door treatments

Some Regulatory Frameworks have specific requirements that preclude the use of high performance internal window coverings in ratings. This is the case in NSW under BASIX, and may be the case in some States under variations to the BCA.

Where high performance internal window coverings are not permitted by a Regulatory Framework, regardless of the internal window or glazed door treatments nominated on the drawings and specifications, all windows, other than those in bathrooms and laundries must be modelled as having low performance Holland blinds. Internal window treatments must not be listed on the Assessor Certificate.

Insect screens (if available) must be modelled if nominated on the drawings or specifications.

6.1.9 Construction - External shading

External shading devices must not be modelled unless they are of exterior grade construction materials.

6.1.10 Colours - Roof colours

The external roof colour or shade (eg, light) must be modelled as nominated on the drawings and specifications. If a specific colour is to be modelled, its solar absorptance must be nominated, otherwise the solar absorptance in Table A1 must be modelled. If the external roof colour is not specified, 'medium' must be modelled.

The internal roof colour (if available) must be set to 'not specified' regardless of the colour nominated.

Table A1: Roof colour/shade and corresponding solar absorptance

Colour/shade	Solar absorptance
Light	< 0.475
Medium	0.475 to 0.70
Dark	> 0.70

6.1.11 Colours - Wall colours

The external wall colour or shade must be modelled as nominated on the drawings and specifications or set to 'not specified' if not specified. Where 'not specified' is not available as a software setting a default of 'medium' should be used where no colour is specified.

The Assessor certificate should specify 'not specified' in these cases.The internal wall colour (if available) must be set to 'not specified' regardless of the colour nominated.

6.1.12 Colours - External window and door frames (if available)

The colour of external window and door frames (if available) must be set to 'not specified' regardless of the colour nominated.

6.1.13 Insulation

For bulk insulation, the R-value of the product must be nominated on the Assessor Certificate and on the drawings and specifications. For foil insulation, the Assessor Certificate must nominate either the R-value of the product and construction combined or the type of insulation that enables the insulation to be clearly identified, eg 16mm double layer foil batts. The emissivity modelled must be as determined by AS/NZS 4859.1 for that product or be a generic value that is embedded in the approved software. It is important to include any necessary air gap and to ensure that bulk insulation is not compressed as required by BCA provisions relevant to all States and Territories.

6.1.14 Glazing - General

Windows, glazed doors, skylights and glazed roofs must be modelled according to the drawings and specifications. The drawings and specifications must have the detail required by in *Section 12.2 - Information required on plans and specifications* of this document.

6.1.15 Glazing - Openable proportion of windows (if available)

When using 2nd Generation software any window not clearly identified as being openable with either a label or showing openable panes must be modelled with 0% openable area.

6.1.16 Zoning – General – 2nd Generation software only

All parts of the building capable of being fully enclosed, including storage spaces, must be included in a zone. This includes spaces with openings required for the safe operation of a gas appliance. Open spaces, such as courtyards, verandahs, gazebos and the like, are not required to be included in a zone, except where it would improve the modelling of ventilation flows.

All spaces are to be included in separate zones except for bathrooms, ensuites, WCs, walk in robes, cupboards, storerooms pantries and the like that do not have a natural ventilation opening. Such spaces must be included in the same zone as the space from which they are accessed.

Spaces with different usage patterns must be modelled as separate zones even if there is no physical separation eg, bedsits or open plan studio apartments.

Adjoining spaces separated by apertures that are capable of being controlled, such as a doorway or the like, must be modelled as different zones. If 2 rooms are connected by a permanently open aperture you should rate the 2 rooms as one zone.

For zoning instructions for 1st Generation software please refer to software instructions, and ABSA 1st Generation software manuals.

6.1.17 Zoning - Spaces, zoning and heating/cooling – 2nd Generation software only

Table A2 sets out the requirements for zoning each part of a dwelling when using 2nd Generation software. It also details the circumstances in which they are to be nominated as 'heated' or 'cooled'.

Table A2: Space names, zoning and nomination of heated and cooled

Space Name	Zone Type - Accurate	Zone Type – BERS Pro	Heated and Cooled
Living, rumpus, family rooms etc.	Two largest living spaces described as Living zone, subsequent described as Other (daytime)	Living	Yes
Bedrooms	Bedroom zone	Sleeping	Yes
Kitchens	Kitchen zone or other zone with assumed kitchen loads. (Note: All dwellings must have at least one of these zones.)	Living/Kitchen	Yes
Hallways accessed from living spaces	Other (daytime)	Corridor	Yes if they cannot be completely closed off from heated and cooled zones. Either Yes or No if closed off.
Hallways accessed only from bedroom spaces	Other (night-time)	Corridor	Yes if they cannot be completely closed off from heated and cooled zones. Either Yes or No if closed off.
Bathrooms, laundries, WC with natural ventilation opening	Other (daytime)	Wet Area	No if no heating or cooling. Yes if heated or cooled.
Bathrooms, laundries, WC with natural ventilation opening	Other (daytime)	Wet Area	Yes
Ensuites with natural ventilation	Other (night-time)	Sleeping	No
Ensuites without natural ventilation	Other (night-time)	Sleeping	Yes
Store rooms	Other (daytime)	Depending on zone adjacency: Living, Living/Kitchen, Sleeping, Corridor, Wet Area	No
Walk-in wardrobes access from bedrooms	Other (night-time)	Sleeping	No
Spaces containing a pool	Other (daytime)	Living	Heated or cooled or neither depending on the system to be installed.
Garage	Garage	Garage	No
Sub-floor	Sub-floor zone	Defined by software	No
Roof space (other than skillion, raked or flat roofs)	Roof space zone	Defined by software	

6.1.18 Adjacent buildings

Walls shared with adjoining conditioned buildings shall be described as adjacent to 'neighbour'.

Walls, floors and ceiling/roof shared with adjoining non-conditioned buildings shall be described as external walls, floors and ceiling/roof with zero solar absorptance and an additional R0.5 insulation.

Where adjacent structures are existing or have development approval as indicated on the drawings, they must be modelled.

6.1.19 Trees and vegetation

Only protected trees (e.g. with a preservation order or heritage protection) may be included in modelling. Such trees (including canopy) and vegetation must be indicated on the drawings to scale or dimensioned. Vines or other vegetation intended to be grown over time cannot be modelled.

6.1.20 Building sealing

Assessors must model the dwelling in accordance with the BCA Deemed-to-Satisfy Provisions for building sealing (including State and Territory variations).

6.1.21 Heating and cooling appliances (BASIX only)

Mechanical heating and cooling appliances or systems (eg, ceiling fans, air-conditioning systems and the like) cannot be considered in an Assessment. Systems that form part of the building fabric and provide some heating and cooling benefit (eg, trombe walls and the like) may be considered through the Expert Referral System.

6.1.22 Limitations of Approved software - General

Assessors must conduct Assessments within the published limitations of the approved software used. Proxies and other prescribed methods of modelling circumstances outside the limitations of the software may be used only where approved by the AGO.

6.1.23 Limitations of Approved software – Use of Expert Referral System (BASIX only)

Assessors must refer buildings that are outside the limitations of the approved software to the Expert Referral System operated by the Accrediting Organisation.

7. Procedures when using NatHERS

7.1 NatHERS Modelling definitions

7.1.1 When using NatHERS only version 2.32B is approved for use by ABSA Assessors as defined in Section 4.3 – *Approved Assessment Tools*.

7.1.2 All procedure documents identified in Section 5.2 - *Assessment Software Procedures* must be followed when using NatHERS in all States.

7.1.3 Building features that are not specifically defined in assessment software may be modelled by the procedures outlined below. These procedures are applicable to NatHERS v2.32B and are detailed in referenced documents:

Assessment software	Document title / details
NatHERS 2.32 & 2.32a	**NatHERS (Version 2.32a, 2.32B) Modelling Procedures** ABSA Document – defines procedures for assessing building features not specifically addressed by the assessment tool or that are subject to interpretation. Includes Proxies, Custom Wall and Window data, conditions for Expert Panel Assessment

7.2 NatHERS Custom material data files

7.2.1 Assessment software distributors may from time to time provide updated material data files that cover specific building elements such as propriety window or wall constructions. These data files may not be used by Assessors unless approved by ABSA. The current, approved material data files are defined in the documents listed in the above table.

7.2.2 Custom Wall file is only available for NatHERS v2.32a and v2.32B.

7.3 NatHERS Proxies

7.3.1 If materials, construction systems or building forms are not specifically defined in the software, they may still be modelled by substituting a Proxy. Proxies define materials or procedures that have thermal properties approximately equal to the actual building feature that they are being used to represent.

7.3.2 Proxies enable an assessment to be conducted with acceptable accuracy. They are developed by suitably qualified persons (generally the software developer) and are approved for use by ABSA. Only those Proxies issued by ABSA can be used.

7.3.3 Approved Proxies, applicable to specific assessment software, are listed in the documents referenced above.

7.3.4 Any Proxy used in an assessment must be recorded on the ABSA Assessor Certificate (refer to *Section 15 - Certification of Assessments*).

7.4 Application for Proxy development

7.4.1 Assessors may apply to ABSA to have a Proxy developed for a building feature that:

- cannot be assessed by assessment software
- does not have a suitable Proxy already developed
- is not listed in as a Limitation of the assessment software (see below).

7.4.2 Applications for Proxy development must be submitted to ABSA on the form *Application for Proxy Development* which can be obtained from ABSA. ABSA will endeavour to have a proxy developed within two working days or may advise the Assessor that a Proxy cannot be developed.

7.4.3 Assessors wishing for a proxy to be developed must have NatHERS Helpdesk Support with EERS, or may be required to pay EERS a suitable fee for the development of a proxy.

7.5 NatHERS Limitations

7.5.1 If building features can not be modelled by assessment software, and an appropriate Proxy can not be developed, they are defined as Limitations of the software.

7.5.2 Dwellings which have materials, construction systems or building forms, listed as a Limitation of the assessment software, can not be modelled by that software. Such projects may be assessed by alternative approved software packages or by Expert Opinion.

7.5.3 Limitation of specific assessment software are listed in the NatHERS procedure documents defined in Section 5.2 - *Assessment Software Procedures*.

7.6 State Based Requirements for NatHERS use

7.6.1 Please consult State based requirements detailed in *Sections 17.0 – 23.0* when to check for any State based requirements when using NatHERS in a particular jurisdiction.

7.6.2 When using NatHERS in NSW Assessors must follow additional procedures defined in the *BASIX Thermal Comfort Protocol*.

7.6.3 When using NatHERS in Victoria Assessors must convert the MJ output to allow for 'Floor Area Adjustment'. A document that defines the prescribed use of NatHERS for Regulatory Purposes in Victoria is available from the Sustainability Victoria Website at: http://www.sustainability.vic.gov.au

7.7 Windows Specification

7.7.1 As of May 1 2007 when declaring U-values and SHGC values of glazing products on ABSA Certification, under all Regulatory Frameworks (BCA and BASIX), **all U/SHGC values declared to the Certificate Manager must use NFRC 100 whole of window values**. No other previously advertised values should be used.

7.7.2 **When using 1st Generation software** (FirstRate/NatHERS/BERS) U Values and SHGC **NFRC** whole of window values for all Generic and Custom window products in 1st Generation software are provided in the ABSA Document '*ABSA NFRC Window Values_v01".*When specifying U and SHGC values Assessors should look up the appropriate values from this document and enter them into the Certificate Manger for the windows used in the rating.

NatHERS – When entering windows using NatHERS Assessors should use either 'Generic options' in the Construction Form or use the Custom Window '4 digit Code' detailed in the *'ABSA NFRC Window Values_v01" document*. For further information for specifying Generic and Custom windows using NatHERS please consult the updated sections of the ABSA Document *'NatHERS (Version 2.32a, and 2.32B) Modelling Procedures'.*

7.7.3 The current ABSA Certificate however states that values are specified under ANAC conditions. As an interim work-around Assessors are asked to white out 'ANAC' and replace this with the text 'NFRC'. This will be updated in the next release. See *Section 15.14 Windows Specification – U/SHGC Values* for further details

8. Procedures when using FirstRate v4.05 and 4.05a

8.1 FirstRate v.4.01 & v4.05 Modelling definitions

8.1.1 When using 1st Generation FirstRate only version 4.05 and 4.05a is approved for use by ABSA Assessors as defined in Section 4.3 – *Approved Assessment Tools*.

8.1.2 All procedure documents identified in Section 5.2 - *Assessment Software Procedures* must be followed when using 1st Generation FirstRate in all States.

8.1.3 Building features that are not specifically defined in assessment software may be modelled by the procedures outlined below. These procedures are applicable to specific FirstRate software and are detailed in referenced documents:

Assessment software	Document title / details
FirstRate	**FirstRate (Version 4.01, 4.05) Modelling Procedures** **FirstRate Users Manual** **FirstRate Software Help** These document any procedures for assessing building features and materials not specifically addressed by the assessment tool or that are subject to interpretation.

8.2 FirstRate v.4.01 & v4.05 Limitations

8.2.1 Dwellings that have building features listed as limitations of the software in the above documents should not be rated using this software.

8.2.2 IN addition FirstRate v4.01 & 4.05 software should not be used where house designs:

- have a total window area of greater than 50% of the Net Conditioned Floor Area (NCFA)— SEAV research shows that less than 5% of homes will have glazing that exceeds 50% of NCFA
- include a single orientation where the window area is greater than 25% of the NCFA.
- It is recommended that NatHERS be used for houses that exceed these glazing limits.

8.2.3 The FirstRate software should not be used where the dwelling is fully sealed, and cannot receive any external ventilation and is mechanically conditioned (eg with sealed and air-conditioned rooms).

8.2.4 The BASIX regulation in NSW also has further limitations for the use of FirstRate in NSW. FirstRate is only permitted to be used to rate to rate separate dwelling houses and attached dwelling houses under BASIX. For further information where FirstRate must not be used for ratings carried out under BASIX please consult *Section 23.7 - FirstRate Installation and Use - BASIX*

8.2.5 Dwellings which have materials, construction systems or building forms, listed as a Limitation of the assessment software, can not be modelled by that software. Such projects may be assessed by alternative approved software packages or by Expert Opinion.

8.3 State Based Requirements for 1st Generation FirstRate use

8.3.1 Please consult State based requirements detailed in *Sections 17.0 – 23.0* when to check for any State based requirements when using FirstRate in a particular jurisdiction.

8.3.2 As of May 2006 only FirstRate version 4.05a is recognised as the only approved version for use in Western Australia.

8.3.3 When using FirstRate in NSW Assessors must follow additional procedures defined in the *BASIX Thermal Comfort Protocol*.

8.4 Windows Specification

8.4.1 As of May 1 2007 when declaring U-values and SHGC values of glazing products on ABSA Certification, under all Regulatory Frameworks (BCA and BASIX), **all U/SHGC values declared to the Certificate Manager must use NFRC 100 whole of window values**. No other previously advertised values should be used.

8.4.2 **When using 1st Generation software** (FirstRate/NatHERS/BERS) U Values and SHGC **NFRC** whole of window values for all Generic and Custom window products in 1st Generation software are provided in the ABSA Document '*ABSA NFRC Window Values_v01".*When specifying U and SHGC values Assessors should look up the appropriate values from this document and enter them into the Certificate Manger for the windows used in the rating.

8.4.3 FirstRate (v4.05 & 4.05a) - When entering windows using FirstRate Assessors should use either 'Generic' or 'Custom Window' options available in the software.

U Values and SHGC values provided in the FirstRate software are ANAC values. To specify NFRC values for all Generic and Custom Window Products should be determined using the reference document *"ABSA NFRC Window Values_v01"".*

8.4.4 The current ABSA Certificate however states that values are specified under ANAC conditions. As an interim work-around Assessors are asked to white out 'ANAC' and replace this with the text 'NFRC'. This will be updated in the next release. See *Section 15.14 Windows Specification – U/SHGC Values* for further details

9. Procedures when using Accurate

9.1 Accurate Modelling definitions

9.1.1 When using Accurate only approved versions can be used by ABSA Assessors as defined in Section 4.3 – *Approved Assessment Tools*.

9.1.2 All procedure documents identified in Section 5.2 - *Assessment Software Procedures* must be followed when using Accurate in all States.

9.1.3 As defined in the National Simulation Protocols only construction materials that have been embedded in approved software may be modelled by Assessors. New materials must be approved by the AGO before they are allowed to be embedded into approved software.

Assessors must only model construction systems (ie, combinations of construction materials) that are embedded into approved software or have been issued by the Accrediting Organisation. When developing construction systems, Accrediting Organisations must give consideration to installation practices.

For Accurate this requirement means that Assessors must not create their own construction systems for rating purposes. Assessors must use the approved material libraries issued by ERSS Accurate Support. Assessors must have as a minimum 'Standard Maintenance' to receive these construction library files.

9.2 Accurate Limitations

9.2.1 All limitations of the Accurate software will be detailed in the documents identified in Section 5.2 - *Assessment Software Procedures* or as defined by the software developer or support provider.

9.2.2 In these instances the software developer may develop a 'work-around' or recommend that dwelling situation defined as limitation of the software.

9.2.3 Dwellings which have materials, construction systems or building forms, listed as a Limitation of the assessment software, can not be modelled by that software. Such projects may be assessed by alternative approved software packages or by Expert Opinion.

9.3 State Based Requirements for Accurate use

9.3.1 Please consult State based requirements detailed in *Sections 17.0 – 23.0* to check for any State based requirements when using Accurate in a particular jurisdiction.

9.3.2 When using Accurate in NSW Assessors must follow additional procedures defined in the *BASIX Thermal Comfort Protocol*.

9.3.3 All Assessors using Accurate under the BASIX 2nd Generation Software Pilot must follow all requirements set out in the DoP document *"NSW 2nd Generation Pilot Procedures 2007".* ABSA has provided a Guide-note for Assessors to clarify all requirements for using Accurate under the BASIX Pilot. Both documents are available from the ABSA website *(Log In > Procedures > Policy Documents > BASIX - NSW 2nd Generation Software Pilot Documents)*

9.4 Entering Data to the Certificate Manager from Accurate

9.4.1 When declaring the 'Floor Area Adjusted Rating' into the Certificate Manager under the BCA requirements from Accurate Assessors should ensure the correct values are used.

9.4.2 For Accurate Heating and Cooling and Total Figures ADJUSTED for floor area are found in the Accurate Report under "Area-Adjusted Energy Requirements".

AREA-ADJUSTED ENERGY REQUIREMENTS (TRAINING VERSION: RESULTS NOT VALID)				
Heating	**Cooling (sensible)**	**Cooling (latent)**	**Total Energy**	**Units**
164.3	185.3	6.9	356.5	MJ/m².annum
Conditioned floor area		165.1m²		

9.5 Windows Specification - Accurate

9.5.1 All U-values and SHGC values of glazing products found in the Accurate software are NFRC 100 values.

9.5.2 When using Accurate, under all Regulatory Frameworks (BCA and BASIX), **all U/SHGC values declared to the Certificate Manager must use NFRC 100 whole of window values**. No other previously advertised values should be used.

9.5.3 U Values and SHGC **NFRC** values for all Generic and Custom window products in 2nd Generation software are available in the software itself.

9.5.4 AccuRate – When entering 'Generic' or 'Custom' windows using Accurate Assessors should use Total Window System NFRC U/SHGC Values that are found in the 'Constructions Tab' under 'System Data – U-value / SHGC). These are NFRC values.

9.5.5 NFRC values should be declared on ABSA Certification when using 2nd Generation tools. The current ABSA Certificate however states that values are specified under ANAC conditions. As an interim work-around Assessors are asked to white out 'ANAC' and replace this with the text 'NFRC'. This will be updated in the next release. See *Section 15.14 Windows Specification – U/SHGC Values* for further details

10. Procedures when using BERS Pro

10.1 BERS Pro Modelling definitions

10.1.1 When using BERS Pro only approved versions can be used by ABSA Assessors as defined in Section 4.3 – *Approved Assessment Tools*.

10.1.2 All procedure documents identified in Section 5.2 - *Assessment Software Procedures* must be followed when using BERS Pro in all States.

10.2 BERS Pro Limitations

10.2.1 All limitations of the BERS Pro software will be detailed in the documents identified in Section 5.2 - *Assessment Software Procedures* or as defined by the software developer or support provider.

10.2.2 In these instances the software developer may develop a 'work-around' or recommend that dwelling situation defined as limitation of the software.

10.2.3 Dwellings which have materials, construction systems or building forms, listed as a Limitation of the assessment software, can not be modelled by that software. Such projects may be assessed by alternative approved software packages or by Expert Opinion.

10.3 State Based Requirements for BERS Pro use

10.3.1 Please consult State based requirements detailed in *Sections 17.0 – 23.0* when to check for any State based requirements when using BERS Pro in a particular jurisdiction.

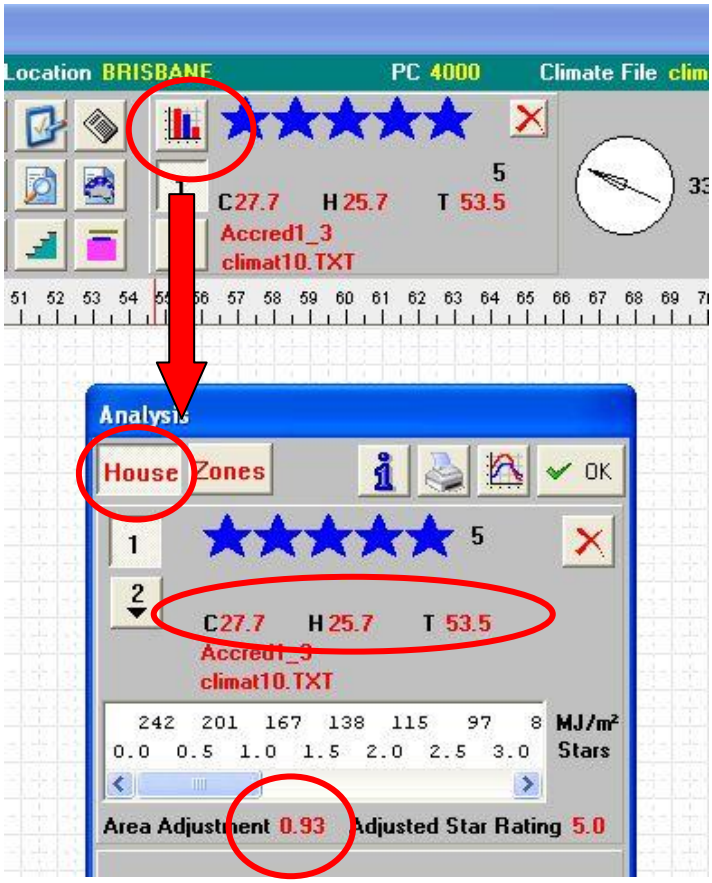
10.3.2 When using BERS Pro in NSW Assessors must follow additional procedures defined in the *BASIX Thermal Comfort Protocol*.

10.3.3 All Assessors using BERS Pro under the BASIX 2nd Generation Software Pilot must follow all requirements set out in the DoP document *"NSW 2nd Generation Pilot Procedures 2007".* ABSA has provided a Guide-note for Assessors to clarify all requirements for using BERS Pro under the BASIX Pilot. Both documents are available from the ABSA website *(Log In > Procedures > Policy Documents > BASIX - NSW 2nd Generation Software Pilot Documents)*

10.4 Entering data to the Certificate Manager from BERS Pro

10.4.1 When declaring the 'Floor Area Adjusted Rating' into the certificate Manager from BERS Pro under the BCA requirements Assessors should ensure the correct values are used.

10.4.2 For BERS Pro please follow the instructions below:



To get Heating and Cooling loads ADJUSTED for floor area from BERS Pro:

1.  Hit the 'Analyse' Button
2.  Look at whole of 'House' values
3. Multiply the Heating and Cooling Loads displayed by the 'Area Adjustment' factor displayed. Round up to 1 decimal point.

In this example:

Loads ADJUSTED for floor area.

Cooling: 27.7 x 0.93 = 25.8 MJ/m2/yr
Heating: 25.7 x 0.93 = 23.9 MJ/m2/yr

10.5 Windows Specification – BERS Pro

10.5.1 All U-values and SHGC values of glazing products found in the BERS Pro software are NFRC 100 values.

10.5.2 When using BERS Pro, under all Regulatory Frameworks (BCA and BASIX), **all U/SHGC values declared to the Certificate Manager must use NFRC 100 whole of window values**. No other previously advertised values should be used.

10.5.3 U Values and SHGC **NFRC** values for all Generic and Custom window products in 2nd Generation software are available in the software itself.

10.5.4 For BERS Pro – Total Window System NFRC U/SHGC Values are found in the 'Custom Windows Selector' Window. This window is opened using the 'Display Details' button (the magnifying-glass) from the window selector window (opened when you right click any window or access windows through the 'Default for Level'' window). U and SHGC values should be declared for the total window system as found in the row 'Window'. These are NFRC values.

10.5.5 NFRC values should be declared on ABSA Certification when using 2nd Generation tools. The current ABSA Certificate however states that values are specified under ANAC conditions. As an interim work-around Assessors are asked to white out 'ANAC' and replace this with the text 'NFRC'. This will be updated in the next release. See *Section 15.14 Windows Specification – U/SHGC Values* for further details

11. Assessment by Expert Panel and Expert Opinion

11.1.1 Dwellings that are defined as not being able to be modelled by any approved assessment software may be assessed by the Expert Panel or by the Expert Opinion service, according to requirements that are specific to particular building or planning regulations.

11.1.2 The role of assessment by these alternative pathways is specific to regulatory frameworks:

a) For assessments conducted under BCA, assessment by these alternative pathways *assists* consent authorities in determining compliance with planning or building controls. They are not compelled to accept such assessment as evidence of compliance – they may seek alternate expert advice.

b) For assessments conducted under BASIX specific procedures are defined for conducting assessment by these alternative pathways ***must*** be accepted by consent authorities.

11.1.3 For full details of the Expert Panel and Expert Opinion process please consult the revised document *ABSA Guidelines for Assessment by Expert Panel and Expert Opinion (www.absa.net.au > Log in > Procedures > Expert Assessment).*

ABSA Expert Panel

11.1.4 The Expert Panel members represent design, industry and academic experience, and appointed by ABSA under conditions of approval by the National Framework for Energy Efficiency, and other regulatory frameworks.

11.1.5 The Expert Panel is appointed by ABSA under conditions of approval recognised by the various regulatory frameworks.

11.1.6 Under BASIX, only the ABSA Expert Panel, is currently recognised by DoP as being eligible to provide expert assessment of building thermal performance.

11.1.7 The conditions applicable for ABSA Expert Panel Assessment are specific to assessment software and are listed in the referenced software documents and manuals. The Expert Panel will only offer Assessments of dwellings where a Quality Assured and repeatable Assessment Procedure can be developed and is deemed suitable by the ABSA Board.

11.1.8 Applications for ABSA Expert Panel Assessment must be in accordance with the procedures defined in the document *ABSA Guidelines for Assessment by Expert Panel and Expert Opinion.*

11.1.9 Application for Expert Panel assessment can only be submitted by an Accredited Assessor.

Expert Opinion – Suitably qualified person

11.1.10 If the ABSA Expert Panel is not able to offer assessment, the Assessor may choose to seek alternate Expert Opinion from a suitably qualified person as nominated by the Expert Panel. Known examples of such instances, applicable to specific assessment software, are listed in the referenced software documents and manuals.

11.1.11 Applications for assessment by Expert Opinion – Suitably qualified person, must be in accordance with the process defined in *ABSA Guidelines for Assessment by Expert Panel and Expert Opinion.* Note: BASIX currently only recognises Expert Opinion Assessments conducted by the ABSA recognised Experts, not by other Suitably Qualified Persons.

11.1.12 The time and cost associated with assessment by Expert Opinion are borne by the applicant and may be significant.

12. Documentation required for assessment

12.1 Documentation required for assessment

12.1.1 All sets of plans which are certified by an Assessor, and returned to the client must have a ABSA Specification Block affixed and be stamped as required in *Section 15.0 Certification of Assessments*, unless this is specifically deemed optional for the State jurisdiction you are carrying out ratings in (See Sections 17.0 – 23.0).

12.1.2 All documents certified by the Assessor must reflect in entirety the data entered in the rating file. As specified in *Section 15.5 – Thermal Performance Specification - Plan Block* the Specification Block can be used to add information for a limited number of items. There must be no conflicting information between that provided on the final certified documents and that contained in the ABSA Specifications Sheet and Specification Block.

12.1.3 Certified assessments will often require several sets of plans and specifications that include the Assessor's stamp, signature and Specification Block (refer to Section 15.0 - Certification of Assessments) including:

- one or more copies supplied to the client to be submitted to Council or a Private Certifying Authority
- one copy to be retained by the client;
- one copy to be retained by the Assessor.

12.1.4 It is recommended that clients initially be requested to submit *two* copies of plans and specifications for assessment. One copy can be used for rating purposes, the second copy can be returned to the client either:

- not Certified – marked-up to indicate additional information required or recommended changes to be made prior to being returned to the Assessor for stamping once updated or
- Certified – stamped and signed with the Specification Block affixed. This Certified copy can then be photocopied by the client to provide additional Certified copies for Council.

12.1.5 It is therefore recommended that the client only be supplied with one final Certified copy of plans. This can then photocopied by the client to provide the several sets for a Council submission. This ensures that all sets supplied to Council have a Specification Block attached and are stamped.

12.1.6 If a client requests that the Assessor Certify and supply multiple sets of Certified plans the Assessor will either have to carry out the photocopying themselves, or stamp and sign all sets as defined in Section *Certification of assessments*.

12.1.7 As specified in *Section - 3.8 Records*, the Certified drawings and specifications (stamped and with Specification Block attached) which is kept by the Assessor as the record of the Assessment, **must be identical to the final set issued to the client to be lodged with Council.**

12.2 Information required on plans and specifications

12.2.1 Certified assessments must be accompanied by plans and specifications which define ***all*** features of the building that the rating assessment is based upon, unless stated otherwise within this document. Assessors should, therefore, encourage clients to include all relevant information on plans and specifications submitted for assessment.

12.2.2 The drawings supplied by your client must be of an adequate standard in terms of accuracy, clarity and containing the information required for a rating to be carried out as listed below. If you are supplied with a drawing set which if inaccurate (inconsistent information) or unclear you must request the client to amend and re-issue accordingly. Drawings must either be dimensioned or able to be scaled off (generally 1:100 or larger scale).

12.2.3 Assessors are encouraged to provide their clients with a checklist of information that is required to be submitted for assessment.

12.2.4 The following information **must** be included on drawings and specifications, unless stated otherwise. Some details may be added to the documentation set using the *ABSA Plan Specification block* if adequate definition can be provided (refer to *Section 15.0 Certification of Assessments*). This list is slightly changed from previous Procedure documentation and should be carefully studied.

Element	**Detail**
Orientation	a. True north. b. Relationship of building to true north.
Terrain category	Wind exposure conditions.
Topography	Site contours and/or relative levels of site and floors.
Overshadowing	Location and height of forms, that are not part of the assessed building, that overshadow glazing of the assessed building. These may include: a. existing buildings; b. approved buildings (with DA consent but yet to be built and shown on plans being rated); c. fences and screens; d. landforms; e. established trees (with tree preservation order).
Zones	Names of rooms or spaces shown on plans to identify use e.g.: living, kitchen. bath, etc. Connecting doors, openings, stair voids etc.
Typical Construction	May be indicated with industry standard.
Unusual Construction	Must be specifically detailed.
Fixed shading (eaves, pergolas, verandahs, window awnings, shutters, louvers, and skylight shading devices)	a. Location, type and dimensions shown on drawings. b. Sufficient detail to enable sun blocking factor of all external shading structures to be assessed. c. A detail for pergolas including structure and any battens if they are to be considered as a shading device. d. Whether the device is fixed or adjustable. e. Material properties such as shading coefficient for polycarbonate sheeting or shading factor for sail cloth, or for window external shading devices.
Eaves	Width (horizontal projection) Offset (distance from eave to window head).
External walls	a. Height and length dimensions and / or scalable drawing (1:100 or larger and accurate to within 5%). b. Material. c. Insulation type, indication if foil is present, added R value and

	location. d. Colour and/or Solar absorptance where a specific colour is modelled
Internal walls	a. Height and length dimensions and / or scalable drawing (1:100 or larger and accurate to within 5%). b. Material. c. Insulation type, added R value and location.
Windows (and other glazed elements)	a. Location and orientation. b. Height and width dimensions and / or scalable drawing (1:100 or larger and accurate to within 5%). c. Insect Screens noted if modelled d. External Shading. e. Glass type (including any films used). f. Frame material and type. g. Window Type (eg, sliding, double hung) or openable panes clearly drawn to determine openable proportions. h. Where glass is single clear – description of glass and frame. i. Where glass is not single clear - **NFRC Solar Heat Gain Coefficient (SHGC) and U-value** of complete glazing unit (glass and frame combined). These may be based on generic values.
Window internal covering	Not Permitted to be used in rating in any State, other than a low performance default of 'Holland blinds' as permitted.
Skylights, glazed roofs and polycarbonate roofs above an enclosed space.	a. Location, type and dimensions shown on drawings. b. Where constructed of moulded plastic – description of the construction. c. Where glass is single clear – description of glass and frame. d. Where glass is not single clear - NFRC Solar Heat Gain Coefficient (SHGC) and U-value of complete glazing unit (glass and frame combined). These may be based on generic values. e. Shaft type, insulation and length. f. Sufficient information or detail to determine openable proportions, or venting properties.
Roof	a. Pitch. b. Ventilation openings (roofspace, passive and mechanical openings) c. Material. d. Insulation type, indication if foil is present, added R value and location e. Specific external colour or shade (light, medium or dark) and solar absorptance.
Ceilings	a. Material b. Insulation type, indication if foil is present, added R value and location
Floors	a. Material. b. Covering (optional). c. Insulation type, indication if foil is present, added R value and location. d. Sub-floor ventilation openings.

Cross and stack ventilation	Dimensions and location of external and internal openings that create air movement paths. (only required for BASIX. For details of *BASIX Cross ventilation bonus*, see *BASIX Thermal Comfort Protocol*)
Building Sealing (Infiltration)	Complying with BCA Deemed-to-Satisfy Provisions (including State and Territory variations), for: a. Weather seals to windows and doors. b. Exhaust fans without dampers. c. Roof lights and skylights. d. Open fireplaces without dampers. e. Vented downlights. f. Wall and ceiling vents.

13. Providing Advice to Clients

13.1 Consider Buildability and Cost Implications

13.1.1 It is anticipated that Accredited Assessors will be often asked for advice on how to improve the energy rating of the house that may not achieve the required standard. Remember to be careful about the advice given to clients. Assessors should aim to provide advice that is specific to the design, considers the cost of the proposed changes, and considers any construction issues that may arise, and is within the level of expertise held by the Assessor. In many cases this will be small modifications or improvements to the building fabric.

13.1.2 When providing advice for improving ratings make sure you are adequately informed and consider cost or buildability implications.

13.1.3 Alternatives should not be purely driven by a 'trial and error' approach, but should be based on a methodical and sensible understanding of building thermal performance theory.

13.1.4 If you are unsure about cost implications you can consult standard cost listing publications such as '*Cordells Building Cost Guide*' or '*Rawlinsons Construction Cost Guide*'.

13.1.5 If you are unsure about buildability implications of any possible modification please consult suppliers of such products, or qualified trades people. Assessors should aim to develop adequate expertise in these areas to ensure that their advice is as competent as possible.

13.1.6 It is especially important when specifying insulation that there is a large enough cavity for the insulation product that you are specifying can be installed correctly.

13.2 Involve your client in the design modification process

13.2.1 It is important to involve your client in discussions about how and why their building rated as it did (especially if it did not meet required standards). Building Thermal Performance Rating Schemes, Thermal Performance theory, and simulation software are often very unfamiliar concepts to the general public.

It is important for Assessors to explain where possible the context and history of the Scheme, and also to explain how the software determines the rating outcome, and how their dwelling performed. This will help them develop an understanding of what process they are involved in.

13.2.2 Whenever possible always provide a range alternatives to your client, allowing them to have a final decision about how they wish to proceed. When suggesting proposed modifications for a dwelling that does not meet the required standard initially it is important to involve the client in some discussion to ensure they are happy with the modifications you suggest. There has been some complaint that a few Assessors did not provide alternatives from which the clients could choose, or proposed modifications that the client or designer did not feel were appropriate to their design.

14. Guidelines for Improving Ratings

14.1.1 The following sections provide simple guidelines for improving the thermal performance of residential buildings. For additional assistance, refer to:

- the ABSA Advisory Group;
- the Your Home CD, technical manual or website www.yourhome.gov.au ;
- the Energy Smart Information Centre www.energysmart.com.au
- Sustainability Victoria - Energy Smart Housing Manual

14.2 Analyse performance

14.2.1 **Check the heating and cooling loads.** Is the dwelling too hot, too cold, or both?

Different strategies impact on heating or cooling. For example increasing shading to windows will may reduce cooling loads but increase heating loads. Double glazing specific windows may reduce heating loads but increase cooling loads by trapping in heat. Analysing the heating and cooling loads will enable you to select the appropriate strategies.

14.2.2 **Consider the climate in which the dwelling is located**. Is it dominated by heating or cooling demands. A strategy that may work in one climate may not work in another.

14.2.3 **Visualise the building's thermal performance.** Try to perceive what may be happening to the dwelling throughout the year e.g. the path of the sun and solar access to the dwelling; weak points in the building fabric that allow most heat transfer; the storage and release of heat from internal thermal mass throughout different times of the day and night; ventilation and draughts. Use software analysis tools to examine and isolate the weakest parts of the dwellings performance.

14.2.4 **Assess the impact of one variable at a time**. To understand the impact on thermal performance of different variables, conduct multiple assessments where only one element is changed. Record the results of each run and compare the benefits. Changing multiple variables in one assessment may hide the element that has most impact or the impact of changing different elements may counter each other.

14.3 Insulation

14.3.1 Adding insulation may, in most instances improve thermal performance. When seeking the addition of appropriate insulation levels the standards defined in the BCA DTS Provisions will serve as a good minimum guide.

14.3.2 Do not specify insulation which won't fit in the construction system. Bulk insulation with R-values greater than 1.5 may be too thick to install in common wall construction – check insulation thickness with the manufacturer, builder, or architect if you are unsure.

14.4 Glazing

14.4.1 Glazing, in a well insulated building, can account for 80% of the heat gain and 40% of the heat loss.

14.4.2 **Glazing area** impacts significantly on building thermal performance. It may be difficult to achieve the required thermal performance for dwellings with large areas of glazing. Areas of glazing may have to be reduced, or performance glazing may have to be specified.

- for a lightweight dwelling – greater than 25% glass to conditioned floor area ratio, with standard windows may find it hard to achieve a satisfactory rating;
- for dwellings with concrete slab on ground – greater than 30% glass to conditioned floor area ratio.

14.4.3 **Shading** glass from direct solar heat gain is the most effective way to reduce cooling loads. Allowing solar access to windows in winter can significantly reduce heating loads.

Both outcomes can be achieved by providing selective shading that allows solar access in winter when heating is required, but blocks solar access in summer when cooling is required.

The sun's path, relative to the building, varies through the seasons – it appears lower in the sky in winter than in summer. This difference in position enables shading to be designed that lets winter sun in, but keeps summer sun out. Selective shading can most easily be achieved with fixed eaves or awnings on the northern elevation of a building. Eaves with a width approximately 40% of the distance from the eave to a window sill (depending on latitude) will allow solar access to northern windows in winter, but shade those windows in summer. Windows on the east and west elevations may require operable shading, such as pull-down awnings, to allow selective shading from summer or winter sun.

14.4.4 **Glazing properties** can be used to vary heating and cooling loads. Different glass and frames have varying ability to resist heat transfer. These properties are defined by:

- the U value of the glazing unit – which defines the amount of heat conducted through the window from the air outside to the air inside. For example, a standard single-clear-glazed window with an aluminium frame has a U value of approximately 6. A double-glazed, timber-framed window has a U value of approximately 3, which means it conducts about half the heat compared to the single-glazed, aluminium-framed window.
- the Solar Heat Gain Co-efficient (SHGC) which defines the amount of radiant solar heat admitted by the window. The SHGC is a ratio of the amount of solar heat gain through a specific window compared with clear glass with no frame. For example, 3mm clear glass has a SHGC of 1. A standard single-clear-glazed window with an aluminium frame has a SHGC value of approximately 0.8. The same window with toned glass may have a SHGC value of approximately 0.6 which means the solar heat gain is 25% less.

If a building is too hot, because of excessive solar heat gain, then choosing glazing units with a lower SHGC will benefit most. If windows are shaded and the excessive heat gain is due to air-to-air heat transfer, not direct solar access, then lower U values will be beneficial.

If a building is too cold it is most probable that the weaknesses are inadequate solar heat gain and excessive air-to-air heat loss from the building. Glazing units with a lower SHGC will let in less solar heat and may have a detrimental impact, increase the heating loads. Lower U values will be most effective at reducing heat loss.

For further information about how to select suitable windows for specific situations, refer to Technical Note produced by the Australian Windows Association (www.awa.org.au/energy3.htm)

14.5 Thermal mass

14.5.1 Thermal mass, such as concrete floor slabs and masonry internal walls, can benefit building thermal performance by stabilising internal temperatures, with less difference between day and night time internal air temperatures, as well as seasonal extremes. This is due to the 'time lag' taken for thermal mass to heat up and cool down. When used carefully it can keep a space cool on a hot summers day, or be used to store heat to keep spaces warm on a cold day or at night.

In colder climates thermal mass can be useful to store solar heat gains to reduce heating demands. This 'passive solar approach' requires glazing to admit the sun during the day (typically in winter) which will re-radiate to the internal spaces providing comfort. Through careful design of shading devices (eaves, pergolas etc) it is often advisable to prevent solar gain in summer that will lead to summer overheating in all but the most southerly cooler climate zones.

In warmer climates when buildings have the tendency to get too hot, thermal mass can help keep a space cool. Due to the time lag for thermal mass to heat up it can stabilise internal temperatures and reduce cooling demands. It is critical when thermal mass is used to keep a building cool that is kept adequately shaded, to prevent to prevent the mass heating up. Good ventilation at night time will help remove any heat absorbed during the day if outdoor night-time temperatures are cooler than internal temperatures.

Thermal mass will also absorb heat and dissipate internal heat loads. If the thermal mass is in contact with the ground (such as a slab on ground), some of that heat can be dispersed to the ground. Heat absorbed and stored by the mass will be released into the internal spaces once air temperatures drop. To prevent ongoing heat retention where outdoor temperatures are cooler than internal temperatures allowing ventilation to dissipate heat gained by the thermal mass will be of benefit. This will ensure that the thermal mass is cooled ready for the following days cycle.

14.6 Building Sealing and Ventilation

14.6.1 Depending on the climatic region that you are rating in the impact of building sealing (draft exclusion) and ventilation should be considered to improve building performance. Generally in colder climates building sealing will improve winter performance. In warmer climates the use of controlled ventilation is an important strategy to reduce summer cooling requirements.

14.7 Envelope ratio

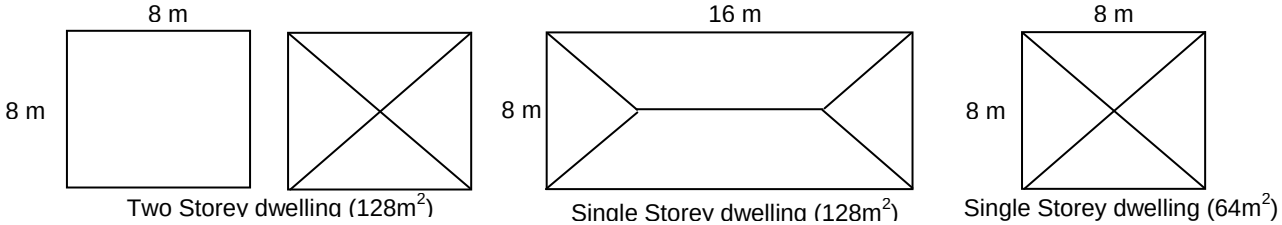
14.7.1 In climate zones where winter heat loss is a factor the surface area of a dwelling has a significant impact on thermal performance. The greater the surface area, the more heat can be lost.

Minimising the ratio of surface to floor area will, in most instances, reduce heating loads.

Building forms with low ratios of external surface area to floor area include:

- compact, square buildings;
- two storey buildings;
- buildings with walls, floors or ceilings adjacent to neighbours;
- buildings with large floor areas.

The diagram below illustrates examples of the impact of building form and size on the ratio of surface to floor areas.



Two Storey dwelling (128m^2)

Walls = 153.6
Roof = 64.0
Total = 217.6 m^2

Surface to floor ratio

170%

Single Storey dwelling (128m^2)

Walls = 115.2
Roof = 128.0
Total = 243.2 m^2

Surface to floor ratio

190%

Single Storey dwelling (64m^2)

Walls = 76.8
Roof = 64.0
Total = 140.8 m^2

Surface to floor ratio

220%

14.7.2 In warmer climates, especially where ventilation provides important comfort, narrow building plans, and good provision for cross ventilation is advantageous, reducing the need for additional artificial cooling.

15. Certification of assessments

15.1 Objective

15.1.1 Assessments conducted by Accredited Assessors must be Certified in accordance with the following procedures to:

- ensure that regulatory requirements are met;
- ensure that the project documentation includes adequate detail to ensure that the project is constructed in accordance with the details upon which the assessment was based;
- identify to consumers and Certifying Authorities, that the assessment has been conducted by a suitably qualified person who is subject to ABSA professional practice requirements and quality assurance.

15.2 Certificate Manager

15.2.1 The ABSA Certificate Manager is a database application that facilitates the issuing of Assessor Certificates and Specifications. It also facilitates the mandatory declaration of assessments by assessors (refer to *Section 3.7 Declaration of Assessments*) and assists ABSA manage quality assurance and auditing.

15.2.2 The current version of the ABSA Certificate Manager must be used to issue ABSA Certification. Assessors will be advised of any version updates. Please check the ABSA website for the latest version.

15.2.3 The current version of the Certificate Manager is available from the ABSA web site (www.absa.net.au > Login > Procedures > Certification).

A network version of the Certificate Manager is available upon request, from ABSA. This version will not receive technical support relating to its network installations and issues that may arise as a result.

15.2.4 Assessors **must** utilise the Certificate Manager to generate Certificates, unless other procedures are specified by ABSA.

The Certificate Manger must be used in accordance with the procedures detailed in the document *ABSA Certificate Manager Guide* which is available from the ABSA web site (www.absa.net.au > Login > Procedures > Certification).

Once all required information has been entered into the Certificate Manger it produces three documents required for Certification:

- Assessor Certificate;
- Thermal Performance Specifications;
- Thermal Performance Specifications – Plan block.

15.2.5 The Certificate Manager is linked to the Accreditation fee structure in which Assessors pay according to the number of dwellings they assess and Certify in a year. The Certificate Manager is used to calculate and record the number of Certificates issued by an Assessor.

15.2.6 The Certificate Manager can only be used by currently Accredited Assessors to Certify Certificates. If your Accreditation lapses you will not be able to Certify until Accreditation fee payment has been made online.

15.2.7 Superseded Certificates are re-credited to your account.

15.3 Assessor Certificate

15.3.1 The Assessor Certificate must be included with Development Applications as evidence of meeting minimum building thermal performance requirements.

15.3.2 The Assessor must complete all Mandatory fields in the Certificate Manager including:

- Assessor's name, Accredited assessor number, address and contact details;
- Assessor's declaration of interests;
- client's name, address and contact details;
- project location, local government area and owner (or applicant for approval);
- regulatory framework under which the assessment is conducted;
- assessment date, assessor's job ID, assessment data file name;
- a unique Certificate number;
- assessment software name, version and climate zone assessed;
- description and code for any proxies included in the assessment;
- identification of the assessed plans and specifications. This description must be able to describe that unique drawing set that was used to carry out the rating and could include information such as project name, drawing numbers, date of issue, amendment # etc
- identification of the drawing page number that the thermal performance specifications are included on;
- annual heating and cooling loads predicted by the assessment software;
- any applicable adjustments or concessions
- any specific rating as required by specific regulations.

15.4 Thermal Performance Specifications

15.4.1 The Thermal Performance Specifications must be attached to the Assessor Certificate and included with Development Applications (preferably printed on the reverse side of the Assessor Certificate). It must include the same Certificate number as the Assessor Certificate.

15.4.2 The Thermal Performance Specifications define materials and building features upon which the assessment is based. It becomes the principle document to be referenced by Certifying Authorities and clients, when determining if the building is constructed in accordance with the thermal performance assessment.

It includes definitions of:

- Fixed shading (eaves, pergolas, verandas, awnings)
- External walls material, insulation, colour;
- Internal walls material, insulation
- Windows area, glazing and frame type, internal and external cover, U value and SHGC;
- Skylights area and type;
- Roof material, insulation, colour;
- Ceilings material, insulation;
- Floors material, insulation, covering;
- Exposure, ventilation and infiltration.

15.4.3 Assessors must ensure that the details provided on the Thermal Performance Specification <u>are logical, accurate and concise</u>.

If details included in Thermal Performance Specification vary from other drawings or written specifications, the Thermal Performance Specification shall take precedence.

If only one specification option is detailed for a building element, that specification **must** apply to all instances of that element for the whole project (eg. when there is only one external wall type). In the notes column **'throughout'** should be noted.

If more than one specification type are present for a building element, the location and extent of alternate specifications must be detailed on the Thermal Performance Specification and / or clearly indicated on referenced drawings and project specifications.

If there is not adequate space on the Thermal Performance Specification to accurately describe the range of elements present, there should be adequate detail or notes provided on drawings or specifications. On the Thermal Performance Specification a clear reference should be included that specifications for that element appear on the drawings or specifications (eg. “As per Drawings”, or “as per Window Schedule, page 3”.)

15.5 Thermal Performance Specifications – Plan block

15.5.1 The Thermal Performance Specifications – Plan Block includes the information detailed in the Thermal Performance Specifications and must be affixed to **at least one page of all sets** of the assessed plans provided to the applicant. The purpose of the Plan block is to ensure that drawings are not interpreted differently to the Thermal Performance Specifications. [This requirement is optional in Western Australia].

15.5.2 The Specification Block must where possible be affixed to the front of a drawing sheet. It should be preferably affixed on the first page of drawings, or a page that includes the ground floor plan). The drawing page number or title, that it is affixed to, must be nominated on the Assessor Certificate.

If in the rare occurrence the Specification Block has to be affixed to the rear of a drawing sheet (insufficient space on the supplied drawings) the Assessor may affix the Specification Block to the rear of the plans. The Assessor must also stamp the front of a drawing sheet and provide a clear note beside their ABSA stamp stating clearly with the text: *“ABSA Specification Block is affixed on the rear of this page. Please ensure that if this document set is copied that the ABSA Specification Block attached to the rear of this sheet is included in the copied document set.”.* The ABSA Certificate must also clearly state that the Specification Block is affixed to the ’rear’ of the page nominated as having the Specification Block attached.

15.5.3 The Specification Block must be affixed in a permanent fashion (glued or on sticky-back transparency film). It is not permitted to be attached using a method where it could become separated from the drawing set (such as stapling or similar).

15.5.4 Including the plan block on drawings can be difficult if there is inadequate space. Assessors should encourage their clients to format drawings with specific space for the plan block. (120mm wide, 175mm high)

The Certificate Manager can produce the plan block in digital (.pdf) format that can be inserted by clients into CAD drawings or PDF drawings before printing or returning to the client.

15.5.5 Assessors should use the plan block generated by the Certificate Manager, but they may create their own on the condition that it:

- includes exactly the same information that appears on the Thermal Performance Specification attached to the Assessor Certificate;
- includes the Certificate number shown on the Assessor Certificate and Thermal Performance Specification;
- is a similar format to assist easy recognition by Certifying Authorities and clients.

15.6 Drawing and specification requirements

15.6.1 All aspects of the building design and construction used in the software assessment must be included on project documentation stamped and signed by the Assessor.

This information must be provided:

- on drawings and written specifications included on drawings, and / or
- in specifications included in the Thermal Performance Specification plan block issued by the Assessor and affixed to plans.

This information must be consistent with:

- written specifications provided with drawings, and
- Thermal Performance Specifications issued by the Assessor and attached to the Assessor Certificate.

15.6.2 The specific information required to be included in project documentation is defined in *Section 12.2 Information required on plans and specifications*.

15.6.3 If specifications included in the Thermal Performance Specifications issued by the Assessor (attached to the Assessor Certificate and affixed to plans) vary from those included on drawings and other specifications, the specifications included in the Thermal Performance Specifications are defined as taking precedence.

15.6.4 However, Assessors must ensure that specifications included in the project documentation **do not conflict** with the Thermal Performance Specifications issued by the Assessor. Allowing conflicting, superseded specifications, within project documentation, presents a significant risk that the project may be constructed according to incorrect, superseded specifications. An example of this is where the supplied document set specifies R1.5 ceiling insulation, and the Assessor increases this to R2.5 in the rating and declares this on the Thermal Performance Specifications.

In these cases the documentation must be amended or revised documentation, to ensure that there are no conflicting specifications and details, prior to the Assessor stamping and signing the documentation. See *Section 15.9 - Annotating or amending drawings and specifications* for requirements.

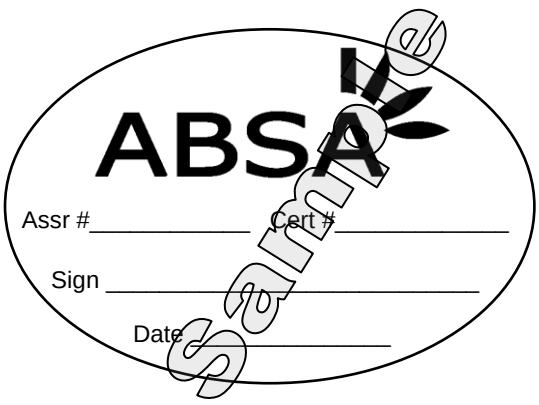
15.6.5 The Thermal Performance Specifications and Specification Block (attached to the Assessor Certificate and affixed to plans) issued by the Assessor may be used to include minor *additional* details that were *not included* on the drawings and written specifications. Please note that under BASIX limitations of what information can be added using the Specification Block exist. Please consult the *BASIX Thermal Comfort Protocol* for details.

15.7 Assessor Stamp

15.7.1 Assessments are not deemed to be certified by the Assessor until they are stamped and signed by the Assessor.

The ABSA Assessor stamp must be affixed to **all** copies of:

- the Assessor Certificate;
- the Thermal Performance Specifications;
- the single page of the drawing set where the Thermal Performance Specifications Plan Block is attached, after it is permanently affixed to the drawings, with the stamp half on the edge of the plan block – half on the drawing sheet;
- other documents upon which the assessment was based and which have been referenced on the Assessor Certificate (such as a Specification or Concession supporting documentation).
- Some Councils may require the stamp to be affixed to additional drawing pages.



15.7.2 All applications of the stamp must include as a minimium:

- the Assessor number;
- the Certificate number (optional in some States);
- the Assessor's signature;
- the date of signing.

The Certificate number may be omitted if the stamp is affixed directly to a document that includes the Certificate number, such as the Specification Block.

15.7.3 Before signing the Assessor stamp, Assessors MUST ensure that all information included on stamped documents is accurate and complete.

15.7.4 Once stamped documents are signed by the Assessor. By signing the documents the Assessor certifies that:

- the information included on those documents is consistent with the details used in the assessment;
- the information included on those documents provides adequate detail to enable the project to be constructed in accordance with the details used in the assessment.

Failure to do so may make the assessor liable for costs incurred as a result of inaccurate or incomplete documentation.

15.8 Electronic stamping and adding digital information

15.8.1 Both the Specification Block and the ABSA stamp can be added digitally to permit a paperless documentation process. The following procedures must be followed if information is added digitally:

1. Drawings are stamped and signed by the Assessor to certify that they have checked and ensure that the information recorded on the drawings are accurate and reflect the information included in the rating. It is required that Assessors sign, date and have the certificate number of the project included in the stamp included in the drawings. A jpeg or pdf of a signed stamp would be inserted into the document.
2. It is also required that the drawings returned to the client are supplied in a non-editable form (ie .pdf or similiar) so that the stamp cannot be copied and re-used by a non-accredited member of the public. The drawings must have password protection that prevents copying or editing information from the document.
3. It is finally required that the electronic stamp must not be distributed in any other way, or used for any other purpose than described here.

15.9 Annotating or amending drawings and specifications

15.9.1 Assessors must not amend or annotate drawings and specifications without specific authorisation by the client. This includes amendments or additions to specifications made by affixing the Thermal Performance Specification plan block to drawings.

15.9.2 Such authorisation may be in the form of written, emailed or faxed correspondence confirming any amendments or additions to the drawings or specifications.

It may also be in the form of a cover letter, provided by the Assessor, delivered to the client with the completed assessment and stamped project documentation, which includes wording to the effect:

"The attached project documentation, stamped and signed by [Assessor name and number] includes [additional specifications / annotation or amendments of drawings or specifications] required to achieve the building thermal performance requirements of [BCA, BASIX, Energy Smart Homes DCP]:

[list of additions, amendments, alterations and annotations]

Once submitted to Council, these specifications will become a condition of consent and must be included in the built works.

If you do not want to include these requirements, or need further information, please contact [Assessor].

15.9.3 Any authorisation obtained should be recorded on the Certificate Manager in the available fields.

15.9.4 The purpose of this procedure is to ensure that clients are aware of the changes required and their impact on construction, cost or appearance. It also ensures that any changes are included in all copies of project documentation that the client may produce.

15.9.5 Assessors are encouraged to provide preliminary or draft assessments. One set of plans and specifications can be returned to the client, uncertified, with mark-ups to indicate additional information required or recommended changes. The client can then submit amended plans for Certification.

15.9.6 Failure to abide by this procedure may make Assessors liable for the cost of:

- rectifying incorrect construction resulting from inconsistent project documentation;
- including materials or features specified by the Assessor.

15.9.7 It is not permitted for any plans to be hand annotated to add extra notes, by either the client or Assessor.

15.10 Additional Documents

15.10.1 Any documentation that includes information upon which the assessment is based, that will for part of the application must be:

- stamped and signed by the Assessor
- referenced on the Assessor Certificate.

15.10.2 Assessors should encourage clients to include all details on drawings and written specifications included in drawings, rather than on attached documents.

15.11 Software Reports

15.11.1 Reports which are generated by the Software (eg a NatHERS or FirstRate report) must not be issued with certified assessments unless specifically required by Councils.

The reasons for not issuing software reports are:

- Certifying Authorities and clients should refer to the Assessor Certificate and Thermal Performance Specifications to ensure that the assessment has been conducted by an Accredited Assessor;
- Regulations and reporting procedures require information to be presented that is not included in software reports;
- Regulations require adjustment to the heating and cooling loads and ratings included on software reports;
- Specifications of building materials, included on software reports are inadequate or misleading.

15.12 Multi-unit rating and certification

15.12.1 A Development Application that includes multiple dwellings must be accompanied by only **one** Assessor Certificate that includes details of **all** dwellings that are included in that application.

15.12.2 To issue a multi-unit Assessor Certificate Assessors must:

- conduct software assessments of each dwelling (or group of identical dwellings, see below)
- enter the required information for each dwelling (or group of identical dwellings) into the Certificate Manager and Certify that assessment. The Certificate Manager will issue a unique Certificate number for that dwelling (or group of identical dwellings).
- record the Certificate number and assessment details for each dwelling (or group of identical dwellings) on the Multi-unit Assessor Certificates – a Microsoft Word document template that is available from the ABSA web site (www.absa.net.au > Login > Procedures > Certification).
- use the Certificate Number of the unit with the lowest number (e.g. Unit 1 or Unit A) as the Certificate Number to be nominated as the number for the Assessor Certificate.
- complete the Thermal Performance Specifications (attached to the Assessor Certificate and affixed to plans). Multi-unit developments may have specifications that are too complex to include in these forms. If so, those specifications must be included as schedules on drawings and referenced on the Thermal Performance Specifications.

Multi-unit assessment – definition of identical dwellings

15.12.3 Identical units within a multi-unit development may be grouped. Dwellings within that group may be:

- assessed by one software assessment;
- entered once into the Certificate Manager as one series of dwellings and given one Certificate Number (e.g. Units 1 to 6, 9,13,25: Certificate number 12345678);
- recorded on the Multi-unit Assessor Certificate as one series of dwellings with one Certificate Number and the same heating and cooling loads and star rating if applicable.

15.12.4 Units may be considered identical if there is less than 5% variation in all of the building variables below:

- orientation
- areas of the same material that are part of the building envelope;
- area of envelope adjacent to a neighbour;
- floor, external wall, internal wall and ceiling areas;
- areas of zones;
- window areas, openable proportion and extent of shading, and window orientation;
- area of external colours.
- overshadowing by adjacent buildings or other structure

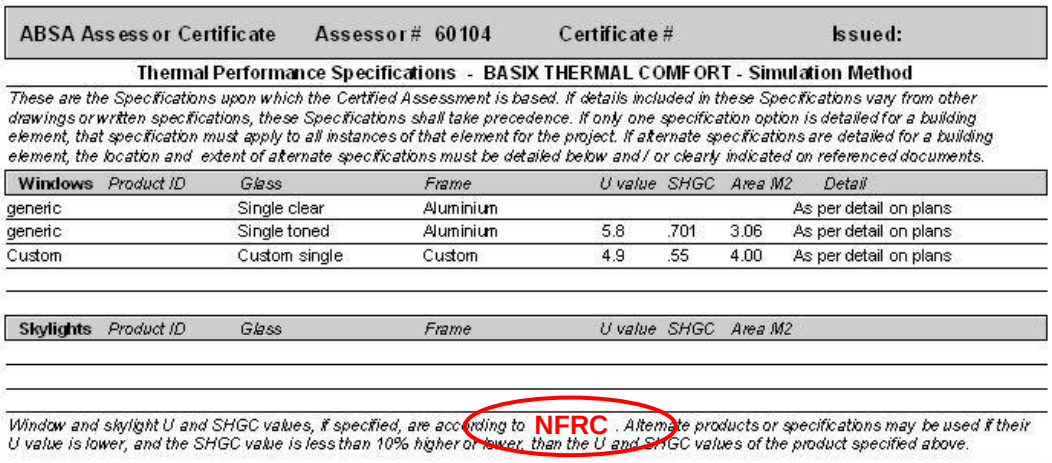
15.13 Windows Specification - U/SHGC Values

15.13.1 As of May 1 2007 when declaring U-values and SHGC values of glazing products on ABSA Certification, under all Regulatory Frameworks (BCA and BASIX), **all U/SHGC values declared to the Certificate Manager must use NFRC 100 whole of window values**. No other previously advertised values should be used.

15.13.2 **When using 1st Generation software** (FirstRate/NatHERS/BERS) **NFRC** whole of window U and SHGC values should be declared for all Generic and Custom window products included in ratings. These values are provided in the ABSA Document '*ABSA NFRC Window Values_v01".*When specifying U and SHGC values Assessors should look up the appropriate values from this document. See *Section 7.7 – Procedures when using NatHERS* and *Section 8.4 – Procedures when using FirstRate* which describe how to define NFRC U/SHGC values when using 1st Generation software.

15.13.3 When using **2nd Generation software** **NFRC** whole of window U and SHGC values should be declared for all Generic and Custom window products included in ratings. NFRC values are provided in the 2nd Generation software itself. See *Section 9.4 – Procedures when using Accurate* and *Section 10.4 – Procedures when using BERS Pro* which describe how to find NFRC U/SHGC values within 2nd Generation software.

15.13.4 NFRC values should be declared on ABSA Certification when using 2nd Generation tools. The current ABSA Certificate however states that values are specified under ANAC conditions. As an interim work-around Assessors are asked to white out 'ANAC' and replace this with the text 'NFRC'. This will be updated in the next release of the Certificate Manager.



ABSA Assessor Certificate Assessor # 60104 Certificate # Issued:

Thermal Performance Specifications - BASIX THERMAL COMFORT - Simulation Method

These are the Specifications upon which the Certified Assessment is based. If details included in these Specifications vary from other drawings or written specifications, these Specifications shall take precedence. If only one specification option is detailed for a building element, that specification must apply to all instances of that element for the project. If alternate specifications are detailed for a building element, the location and extent of alternate specifications must be detailed below and / or clearly indicated on referenced documents.

Windows	Product ID	Glass	Frame	U value	SHGC	Area M2	Detail
generic		Single clear	Aluminium				As per detail on plans
generic		Single toned	Aluminium	5.8	.701	3.06	As per detail on plans
Custom		Custom single	Custom	4.9	.55	4.00	As per detail on plans

Skylights	Product ID	Glass	Frame	U value	SHGC	Area M2

Window and skylight U and SHGC values, if specified, are according to NFRC *. Alternate products or specifications may be used if their U value is lower, and the SHGC value is less than 10% higher or lower, than the U and SHGC values of the product specified above.*

15.13.5 For windows available in any software package that do not have NFRC values listed in this ABSA NFRC reference document, Assessors should have values supplied by the Australian Windows Association (AWA) that run the WERS Scheme. Contact ABSA for details.

15.13.6 Where values differ to any values advertised on a manufacture or industry groups website only the values provided in the ABSA NFRC reference document should be used.

15.13.7 Clients can select alternative products to the windows declared on the ABSA certificate. The windows installed on-site should perform 'at the same or better standard' as those included in the rating, and declared on the ABSA Certification/BA documentation. It is a requirement that in order to 'perform 'at the same or better standard' all windows installed on-site must have relative a whole of window:

- U-Value the same or lower than that the U-value declared on the ABSA Certification/BA documentation (ie performs better); and
- a SHGC value within 10% than that the SHGC value declared on the ABSA Certification/BA documentation.

16. Assessment frameworks

16.1.1 Building thermal performance assessments are required by various building and development Regulatory Frameworks. In Australia these include:

- The Building Code of Australia (BCA), implemented nationally, with state variations.
- BASIX State Environmental Planning Policy implemented in NSW
- Energy Smart Homes Development Control Plans implemented by Councils in NSW [now superseded by BASIX].

Building thermal performance assessments may also be provided in non-regulatory contexts, such as assisting in the design development process or determining the performance of existing dwellings.

16.1.2 When conducting ratings under all Assessment Frameworks the National Simulation Protocols (described in *Section 6 – National Simulation Protocols)* should be used, except where a State Regulation provides procedures that specifically provide an alternative procedure definition.

16.1.3 When using any software tool Assessors must follow software instructions listed in Section 5.2 - *Assessment Software Procedures*.

16.1.4 Each Regulatory Framework (BCA or BASIX) has specific requirements on how assessments are to be carried out, as well as specific reporting requirements. Some States or Territories may also have specific variations that must be applied when carrying out ratings under the BCA in their jurisdictions. Separate Sections have been provided that detail Regulatory Framework requirements, as well as Sections on State specific variations to these Frameworks.

16.1.4.1 When carrying out ratings in State and Territories that recognise the BCA please consult the following sections of this document:

- BCA - National Requirements - Section 17.0
- BCA - NSW Requirements - Section 18.0
- BCA - Western Australia Requirements - Section 19.0

16.1.4.2 For Assessors carrying out ratings in NSW under the BASIX Regulation please consult the following sections of this document:

- BASIX - NSW Requirements - Section 20.0

16.1.5 Procedures required by regulations implemented in some States and Territories may differ from these Assessor Procedures. Procedures defined by the Regulatory authority of the jurisdiction always take precedence. If any discrepancy is found Assessors should contact ABSA.

16.2 Preliminary assessments – design development

16.2.1 Preliminary, or draft, assessments are not required to comply with the reporting and certification procedures defined in this document, however, Assessors must:

- abide by the professional practice requirements defined in the *Assessor Code of Practice*;
- declare, to the client and ABSA if so requested, assessment procedures that have been implemented.
- Follow the relevant Regulatory Framework rating requirements to ensure the method of rating and advice offered is based on how the final rating will be carried out.

16.2.2 Good building thermal performance can most easily be achieved through attention to aspects of the building design such as orientation, form and the size, location and shading of glazing. These are determined well before completion of development plans and specifications. Once plans are completed, the cost and inconvenience of changing these design aspects increases significantly. Other options for improving thermal performance may become more limited, less effective and more expensive.

16.2.3 Assessors are encouraged to provide preliminary assessments of buildings early in the design development process. This may involve establishing procedures with clients that enable draft plans to be assessed and preliminary assessment reports to be issued with advice on design strategies that will improve the building thermal performance.

16.3 Existing dwellings

16.3.1 The assessment of the thermal performance of existing dwellings and the 'Mandatory Disclosure' or the rating result is required, by regulation, when selling a home in the ACT. No other states or territories currently have this regulatory requirement, though some may introduce such a requirement in the coming years.

16.3.2 Where there is no formalised thermal performance assessment Scheme for assessing existing dwellings, such assessments are not required to comply with the reporting and certification procedures defined in this document, however if Assessors provide such a service, Assessors must:

- abide by the professional practice requirements defined in the *Assessor Code of Practice*;
- declare, to the client and ABSA if so requested, the assessment procedures that have been implemented.
- Provide suitable and adequate reporting to the client of the rating result.

16.4 Building inspection & certification

16.4.1 Assessors have, on occasion, been requested to provide on-site inspection of buildings to certify that it is constructed in accordance with conditions of Development or Construction approval.

16.4.2 It is the advice of ABSA that Assessors should not conduct such inspections and certification unless they are also qualified as a Building Certifier, under the relevant regulations, to provide such services. ABSA offers no accreditation for such services.

This advice is given on the basis that ABSA Accredited Assessors are not specifically trained or qualified or required to carry out this type of work – it is the responsibility of Certifying Authorities. ABSA Assessors may also not have appropriate insurance required to cover professional indemnity or injury sustained while conducting on-site assessments. On both counts this type of work has the potential to significantly increase liabilities through the carrying out of work beyond the Assessors qualifications and potentially without adequate insurance cover.

17. BCA - National Regulatory Requirements

17.1 Background

17.1.1 The Building Code of Australia (BCA) provides uniform national regulation of building construction. It is implemented through the regulatory frameworks of each State and Territory, which have the opportunity to include specific variations to the national regulations.

17.1.2 In 2003, the BCA introduced Energy Efficiency Requirements for Class 1 and 10 buildings, which addressed:

- the thermal performance of the building fabric;
- the insulation of hot water system piping, central heating water piping and air conditioning ductwork.

Determining compliance with the requirements for the thermal performance of the building fabric can be achieved through complying with Deemed to Satisfy Provisions or the Verification Method, which requires assessment by approved software.

17.1.3 In 1 May 2005, the BCA introduced Energy Efficiency Requirements for Class 2,3 and 4 buildings, which addressed:

- the thermal performance of the building fabric;
- air-conditioning and ventilating systems, artificial lighting and power and hot water systems.

Determining compliance with the requirements for the thermal performance of the building fabric can be achieved through complying with Deemed to Satisfy Provisions or the Verification Method, which requires assessment by approved software.

17.1.4 In 1 May 2006, the BCA introduced Energy Efficiency Requirements for Class 5, 6, 7, 8 and 9 buildings, which addressed:

- the thermal performance of the building fabric;
- air-conditioning and ventilating systems, artificial lighting and power and hot water systems.

Determining compliance with the requirements for the thermal performance of the building fabric can be achieved through complying with BCA Deemed to Satisfy Provisions or the Verification Method, which requires assessment by approved software.

There is currently no formalised Accreditation or procedure definition beyond all requirements contained within the BCA for the Energy Efficiency Requirements for Class 5, 6, 7, 8 and 9 buildings. Assessors who have the relevant training and/or experience to carry out such assessments can provide their details to ABSA for referral purposes.

17.1.5 The ABCB have produced handbooks on the energy efficiency provisions of BCA 2006 for both Volume One and Volume Two. Copies of the handbooks can be downloaded from the Australian Building Code Board's website www.abcb.gov.au under 'What's New?'

17.2 Application

17.2.1 The stringency and application of the BCA Verification Method are varied State by State. For full details of these State Variations please consult the current BCA document.

17.2.2 When carrying out ratings in all States under the BCA Regulation Assessors must follow the National Simulation Protocols described in Section 6 of this document. Notes on State Variations relevant to the practice of ABSA Assessors appear in the following Sections.

18. BCA – New South Wales Requirements

18.1 Application - NSW

18.1.1 All states and territories, except NSW, have implemented the BCA Energy Efficiency requirements, with minor variations.

18.1.2 The NSW variation excludes most BCA Energy Efficiency requirements. The NSW Department of Planning (DoP) determined that building thermal performance would be regulated through state-based planning controls (BASIX) at Development Application stage, rather than the BCA at Construction Certificate stage.

18.1.3 Assessors should be aware that the requirements of the BCA NSW variation must be met in addition to the requirements of BASIX and ESHP. For full details please consult the current BCA document. A summary is included below.

18.1.4 BASIX and ESHP requirements relevant to Assessors are included in the following *Section 18.0 – NSW BASIX Requirements*, and Section 24.0 NSW – Energy Smart Homes Policy Requirements.

18.2 Energy Efficiency Requirements

While BASIX supersedes the majority of the Energy Efficiency requirements in NSW, Assessors should be aware that there are still some requirements relevant to their work. A summary is included below. Please consult the current BCA document for the actual requirements that must be followed in NSW. The Department of Planning have provided useful explanatory Guide-notes as to annual amendments. Links to these documents can be found in Section 18.2.12 of this document.

18.2.1 All Class 1 and 10 residential developments (houses and attached garages) must comply with the BCA requirements, summarised below. Assessors should familiarise themselves with the full requirements as specified in the BCA.

18.2.2 The requirements are specific to six different climate zones, defined in the BCA. The requirements of the NSW Variations to the BCA are included in:

- Volume 1, NSW Section J;
- Volume 2, NSW Additions

18.2.3 **Insulation**

The levels of insulation will be determined by the BASIX regulation. The NSW BCA provisions define acceptable procedures for installing the insulation.

18.2.4 The BCA, through reference to AS 4859.1, specifies the testing and labelling of R values of Reflective Insulation according to the construction in which it is installed and the reflective airspace that is created. Reflective insulation will have different R values in different construction systems so it is important to check the manufacturer's stated R value for reflective insulation, according to the construction system that it is to be installed in.

18.2.5 Bulk insulation must be installed to ensure it maintains its position and thickness as per the manufacturers specifications. Compressing bulk insulation reduces its R-value. Adequate space must be provided to allow the insulation to loft back to the specified thickness once installed, as required by BCA provisions. Also note that required air gaps must be maintained.

18.2.6 **Building Sealing**

The BCA NSW provisions require the sealing of chimneys and flues, external windows and doors, and exhaust fans. It also requires sealing of roofs, external walls and floors to minimise draughts.

18.2.7 The provisions apply to only conditioned spaces in Climate Zones 2 and 5 and to all habitable rooms in BCA Climate Zones 4,6,7 and 8 (conditioned and unconditioned).

18.2.8 Services

18.2.9 These provisions set requirements for the insulation of piping for hot water systems and central heating systems that distribute hot water and ducting of heating and cooling systems.

18.2.10 The NSW BCA provisions set requirements for connecting piping to a hot water service through reference to the energy efficiency sections of AS 3500 Parts 4 and 5. The standard sets requirements for insulation of a section of the cold water inlet piping, external outlet piping, some internal piping, and circulating ring mains. The Standard also requires heat traps to be installed on new storage hot water systems.

18.2.11 Volumes 1 and 2 of the BCA have provisions for air-conditioning ductwork and piping for heating and cooling systems, applicable to specific classes of buildings.

18.2.12 Class 2 Dwellings

Wall Insulation - The Building Code of Australia (BCA) requires that external walls of Class 2 buildings of Type A or B construction be 'non-combustible'. This means any insulation in the external wall must comply with AS1530.1. At present, ABSA is aware of compliance for glasswool and rockwool bulk insulation only, although other insulation types may have certification. *Any insulation that does not have certification of AS1530.1 compliance should not be specified for Type A or B construction*. This has significant impacts on the wall construction system that can be used in multi-unit dwellings.

Design options include:

- Use any wall system and don't use insulation – if compliance can be achieved
- Use a framed wall system that can accommodate thick glasswool batts. Wall systems with a thin (eg 32mm) furring channel won't accommodate glasswool and compression of batts is not permitted under the BCA.
- Use a wall system with a high inherent R-value. For example, some developers are using external cavity brick and internal autoclaved aerated concrete (AAC) to address both thermal and acoustic insulation issues.

Floor Insulation - Be aware of services that may be located within or under framed floors and concrete floors. In many carparks the network of services (eg sprinkler systems and ventilation ducts) can mean it is extremely difficult to insulate under the floor. If floor insulation is required for compliance, it may be necessary for the insulation to be on top of the floor structure depending on the location of services.

18.2.13 **For further information:**

Refer to the BCA Volumes 1 & 2. NSW Acceptable Construction Practice is provided as Explanatory Information in Volume throughout Addition NSW 2.

- NSW DoP advisory Notes - http://www.planning.nsw.gov.au/planningsystem/brans.asp
  - BRAN 232 - Building Code of Australia 2004 Amendment - March 2004 at http://www.planning.nsw.gov.au/planningsystem/pdf/brans/bran_232.pdf
  - BRAN 237 - Energy efficiency Regulation Documents - December 2004 http://www.planning.nsw.gov.au/planningsystem/pdf/brans/bran_237.pdf
  - BRAN 239 - Building Code of Australia 2005 Amendment - 1 March 2005
  - http://www.planning.nsw.gov.au/planningsystem/pdf/brans/bran_239.pdf
  - BS 06-003 – Changes to the BCA 2006 – April 2006 http:/www.planning.nsw.gov.au/planningsystem/pdf/brans/bs06_003_bca06.pdf

19. BCA - Western Australia Requirements

19.1 Application - WA

19.1.1 The WA variation has no changes to the standard requirements of the BCA.

19.1.2 Class 1a (Single dwelling): are covered under the BCA Energy Efficiency Performance Provisions (Part 2.6 Volume 2). Under the Verification Method (clause V2.6) an approved software tool may be used to rate Class 1 buildings for compliance with Performance Requirements. The BCA requires that all Class 1a buildings in Western Australia must have:

- An energy rating of not less than **5 stars** determined using a thermal calculation method that complies with the ABCB Protocol for House Energy Rating Software.

A Class 1a dwelling is defined in the BCA as:

a. A detached house

b. One or more attached dwellings, each being a building, separated by a fire-resisting wall, including a row house, terrace house or villa unit which is not located above or below another dwelling or another Class of building other than a private garage.

19.1.3 Class 1b - are covered under the BCA Energy Efficiency Performance Provisions (Part P2.6 Volume 2). Under the Verification Method (clause V2.6) an approved software tool may be used to rate Class 1 buildings for compliance with Performance Requirements. The BCA requires that all Class 1a buildings in Western Australia must have:

- An energy rating of not less than **5 stars** determined using a thermal calculation method that complies with the ABCB Protocol for House Energy Rating Software.

A Class 1b building is defined as Boarding house, guest house, hostel, hotel or the like with a total area not exceeding 300m^2 and 12 persons who would ordinarily be resident of.

19.1.4 Class 1 (Additions and Additions): are covered under the BCA Energy Efficiency Performance Provisions (Part P2.6).

- Where the addition is minor or is not likely to have a significant impact on the thermal comfort of the remainder of the house, it is recommended that the Deemed to Satisfy Provisions (part 3.12) be followed.
- Ratings on additional less that 100 m^2 may not be valid, so in these cases the **entire** home should be simulated.

An *Addition* is defined as a separate enclosed room or rooms.

An *Alteration* may include a discrete addition/extension and / or modification to the existing building.

An *Extension i*s defined as an increase in the area of an existing room or rooms.

19.1.5 Class 2 -

Under the Verification Method (clause JV1) an approved software tool may be used to rate Class 2 multi residential buildings for compliance with Performance Requirement JP1. The BCA requires that a Class 2 building in Western Australia must have:

1) an annual energy load equivalent to not less than 3 stars for individual units; and
2) an average annual energy load of all the residential apartments equivalent to not less than:
    - 3 ½ stars in climate zones 1 & 3; and
    - 4 stars in climate zones 4 to 6.

An individual rating must be carried out for each separate dwelling or group of identical dwellings as defined in Section "Multi-unit rating and certification" of this procedure document. The star rating of these ratings are declared as defined in the following Section *"Certification".*

To assess the overall average rating of the whole building or development, take the average of the FirstRate point scores that were determined for each apartment. (The point scores are displayed on the main screen of FirstRate when a climate is selected). For Perth the point score bands are:

STARS	1	2	3	4	5	6
POINT SCORE	-155	-99	-59	-34	-20	-13

For example, you may have 5 apartments (A-E) which were individually rated:

A. -70 points (2 *)
B. -40 points (3 ½ *)
C. -10 points (4 ½ *)
D. 1 point (5 *)
E. 9 points (5 *)

Calculate the simple average of the point scores: -22.2 points
That means the average rating for the development is: 4 stars (-22 > -34)
Note that apartment A is below the minimum rating permitted for each individual unit. The rating would have to be improved to bring it up to the required minimum of 3 stars.

19.1.6 Class 4 – are covered under the BCA Energy Efficiency Performance Provisions in Section J of the BCA Volume 1. Under the Verification Method (clause JV1) an approved tool may be used to rate a Class 4 building for compliance with Performance Requirement. For all Class 4 buildings in Western Australia the BCA requires that:

- Each sole-occupant unit has an annual energy load equivalent to and energy rating of not less than 3 stars; and
- an average annual energy load of all the residential apartments equivalent to not less than:
    - 3 ½ stars in climate zones 1 and 3; and
    - 4 stars in climate zones 4 to 8

19.1.7 For all other BCA Building Classes a Verification Method assessment is not applicable.

19.2 Approved Software

19.2.1 When using 1st Generation FirstRate software only v4.05a of FirstRate is permitted to be used as determined by SEDO and ABSA

19.2.2 *FirstRate* must be used with 'Regulation' selected (CTRL+E) and not in *QuickRate* mode.

19.2.3 When using 2nd Generation software tools in Western Australia, SEDO has communicated that it is their advice that "ABSA accredited assessors should seek advice from the appropriate local Government authority whether alternate second generation software to AccuRate will be accepted to demonstrate compliance with the Performance requirements of the BCA"

As of May 2006 The Protocol for House Energy Rating Software (2006.1) issued by the Australian Building Codes Board (ABCB) and referenced in the 2007 BCA references a basis for allowing the use of 2nd Generation house energy rating software to demonstrate compliance with the Performance requirements of the Building Code of Australia (BCA).

Please consult communication provided by your State based Regulatory authority, or your certifying body directly, in regards to the current approval status of approved 2nd Generation software.

19.2.4 Assessors must be trained and Accredited in the use of 2nd Generation software prior to their use as detailed in *Section 3.4 Qualification and Accreditation*. All Assessors that are Accredited to use 2nd Generation software will be listed on a register on the 'Find an Assessor page'.

19.2.5 SEDO has advertised that FirstRate v4.05a can continue to be used until May 2008. At which time all Assessors will have to be qualified and using 2nd Generation software.

19.3 Additional Software Instructions and Procedures

19.3.1 The SEAV Software Users manual and the FirstRate software Help are referenced Procedure Documents that all Assessors must follow when carrying out ratings using 1st Generation FirstRate.

19.3.2 Further procedures for the use of 1st Generation FirstRate are contained in the ABSA document *ABSA FirstRate (Version 4.01 & 4.05) Modelling Procedures*. This document includes edited contents of the Western Australian document *"Accredited Assessors Question & Answers".* These procedures have been embodied into ABSA procedures to maintain the WA Scheme rating process. This content has been edited, removing out of date information, and are included in the *Section "Additional Rating Procedures"* of this ABSA FirstRate procedure document. These procedures form mandatory procedures for all ABSA Accredited Assessors when using FirstRate.

19.3.3 Approved instructions or the use of all other software packages are detailed in Section 5.2 - *Assessment Software Procedures*

19.3.4 Where any instructions are in conflict with ABSA procedure documents ABSA procedures should be followed. Please contact ABSA staff with details of any conflicting requirements.

19.4 Certification

19.4.1 ABSA Assessors Certificates are to be issued for Class 1, 2, 4 buildings that meet the standards defined above, and are rated using the final building plans (not at the planning permit stage.)

19.4.2 Every Page of all document sets from which information was drawn to perform the energy assessment must be stamped and signed by the Assessor, declaring that the information of the drawings matches the information used for rating purposes, prior to certification, and delivery back to the client.

19.4.3 A minimum of 3 copies of all plans, specifications and any other documents must by stamped and signed by the assessor. Two signed copies are to be submitted to the approving body (Building Regulations 1989 Part 4 Regulation 11) and one signed copy must be retained by the assessor for a minimum of seven years.

19.4.4 The affixing of the Specification Block is optional in Western Australia. If it is affixed all procedures detailed in Section *"Thermal Performance Specifications – Plan block"* must be followed.

19.4.5 It is recommended that Software Reports from the software should not be issued as part of the Certification documentation. Some Councils may require this documentation and as the final approval body may reserve the right to do so.

19.4.6 For a development that has one individual Class 1 dwelling – the following Certification procedure should be followed:

1. Carry out rating
2. Enter rating data into the Certificate Manager.
3. Certify and produce the following documentation using the Certificate Manager
   - ABSA Certificate - Page 1.
   - Assessor Certificate - Page 2 (Thermal Performance Specifications). This Certificate is mandatory and is to be submitted with the Building Application.
   - (Optional) Specification Block - 1 x A5 page. Although this is optional it is recommended that you permanently affix the specification block to one of the drawings (on the back if there is no room on the front). It is expected that the specification block will help the Building Surveyor process the application.
4. Stamp/ sign plans and ABSA certificate using the ABSA stamp (2 copies). Every Page of all document sets from which information was drawn to perform the energy assessment must be stamped and signed by the Assessor, declaring that the information of the drawings matches the information used for rating purposes, prior to certification, and delivery back to the client.
5. (Optional) Attach Specification Block and stamp the specification block which will help the Building Surveyor process the application. (2 copies).
6. It is recommended that Software Reports from the software should not be issued as part of the Certification documentation. Some Councils may require this documentation and as the final approval body may reserve the right to do so.

19.4.7 For a development that has more than one Class 1 or 2 buildings – the following 'Multi Dwelling Certification Procedure should be followed:

A Development Application that includes multiple dwellings must be accompanied by only **one** Assessor Certificate that includes details of **all** dwellings that are included in that application.

The current version of the Certificate Manager is not able to issue certification documents for multi-unit assessments.

To issue a multi-unit Assessor Certificate Assessors:

1. Conduct software assessments of each dwelling (or group of identical dwellings, see definition below)
2. Enter the required information for each dwelling (or group of identical dwellings) into the Certificate Manager and Certify that assessment. The Certificate Manager will issue a unique Certificate number for that dwelling (or group of identical dwellings).
3. Record the Certificate number and assessment details for each dwelling (or group of identical dwellings) on the Multi-unit Assessor Certificate – a Microsoft Word document template that is available from the ABSA web site (www.absa.net.au > Login > Procedures > Certification).
4. Use the Certificate Number of the unit with the lowest number (e.g. Unit 1 or Unit A) as the Certificate Number to be nominated as the number for the Assessor Certificate.
5. Complete the Thermal Performance Specifications (Specification Sheet attached to the Assessor Certificate, and Specification Block affixed to plans - optional). Multi-unit developments may have specifications that are too complex to include in these forms. If so, those specifications must be included as notes or schedules on drawings and referenced on the Thermal Performance Specifications.

Multi-unit assessment – definition of identical dwellings. Identical units within a multi-unit development may be grouped as follows.

Units may be considered grouped as 'identical' if there is less than 5% variation in:

- orientation
- areas of the same material that are part of the building envelope;
- area of envelope adjacent to a neighbour;
- floor, external wall, internal wall and ceiling areas;
- areas of zones;
- window areas, openable proportion and extent of shading, and window orientation;
- area of external colours.
- overshadowing by adjacent buildings or other structure

Dwellings within that group may be:

- assessed by one software assessment;
- entered once into the Certificate Manager as one series of dwellings and given one Certificate Number (e.g. Units 1 to 6 or Units 9,13,25: Certificate number 12345678);
- recorded on the Multi-unit Assessor Certificate as one series of dwellings with one Certificate Number and the same heating and cooling loads and star rating if applicable.

19.5 Window Specification

19.5.1 From 1 May 2007 the declaration of U-value and SHGC of the total glazing system (frame and glass) is **mandatory** for all ratings carried out in WA.

19.5.2 As of May 1 2007 when declaring U-values and SHGC values of glazing products on ABSA Certification, under all Regulatory Frameworks (BCA and BASIX), **all U/SHGC values declared to the Certificate Manager must use NFRC 100 whole of window values**. No other previously advertised values should be used.

19.5.3 **When using 1st Generation software** (FirstRate/NatHERS/BERS) **NFRC** whole of window U and SHGC values should be declared for all Generic and Custom window products included in ratings. These values are provided in the ABSA Document '*ABSA NFRC Window Values_v01".*When specifying U and SHGC values Assessors should look up the appropriate values from this document. See *Section 7.7 – Procedures when using NatHERS* and *Section 8.4 – Procedures when using FirstRate* which describe how to define NFRC U/SHGC values when using 1st Generation software.

19.5.4 When using **2nd Generation software NFRC** whole of window U and SHGC values should be declared for all Generic and Custom window products included in ratings. NFRC values are provided in the 2nd Generation software itself. See *Section 9.4 – Procedures when using Accurate* and *Section 10.4 – Procedures when using BERS Pro* which describe how to find NFRC U/SHGC values within 2nd Generation software.

19.5.5 NFRC values should be declared on ABSA Certification when using 2nd Generation tools. The current ABSA Certificate however states that values are specified under ANAC conditions. As an interim work-around Assessors are asked to white out 'ANAC' and replace this with the text 'NFRC'. This will be updated in the next release. See *Section 15.14 Windows Specification – U/SHGC Values* for further details

19.5.6 Clients can select alternative products to the windows declared on the ABSA certificate. The windows installed on-site should perform 'at the same or better standard' as those included in the rating, and declared on the ABSA Certification/BA documentation. It is a requirement that in order to 'perform 'at the same or better standard' all windows installed on-site must have relative a whole of window:

- U-Value the same or lower than that the U-value declared on the ABSA Certification/BA documentation (ie performs better); and
- a SHGC value within 10% than that the SHGC value declared on the ABSA Certification/BA documentation.

19.5.7 The following information must be provided on the ABSA Certification/BA documentation for all glazing included in the software rating:

A description of each Window Type must be provided in the following manner:

- For Generic windows this description must include:
    - *"Generic"* specified in the *"Product ID or Generic"* field of the Certificate Manager (CM)
    - Glass type (as listed in the software) specified in the *"Glazing"* field of the Certificate Manager (CM) eg: *"Toned"* or *"SG T"*, *"Double 6/12/6 Toned"* or *"DGT2"*
    - Frame type (as listed in the software) specified in the *"Frame"* field of the Certificate Manager (CM) eg: *"Aluminium improved"* or *"AL IMP"*
    - Where the Frame Type of Glass type does not fit into the fields provided this can be suitably abbreviated.

- For Custom Windows this description must include:
    - Manufacturer name (as listed in the software) specified in the *"Product ID or Generic"* field of the Certificate Manager (CM)
    - product ID (as listed in the software) also specified in the *"Product ID or Generic"* field of the Certificate Manager (CM)
    - Glass Type nominated as *'Custom Single'* or *'Custom Double'*
    - Frame Type nominated as *'Custom'*

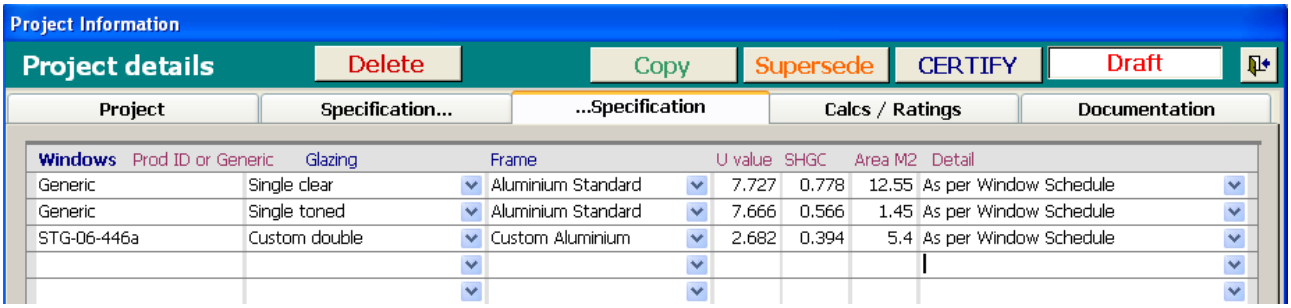
- Where the manufactures name/Product ID does not fit into the fields provided this can be suitably abbreviated.

19.5.8 Where there is more than one Window Type the Total Areas of each Window Type must be declared to the Certificate Manager. Where only one Glass Type is specified 'Throughout' instead can be specified in the 'Detail' field.

19.5.9 An explicit description of the location of the Window Type (s) can be provided in the "Details" field. This shall include one of the following descriptor options:

- Throughout
- by Level – eg to upper story
- by Orientation– eg to West
- by Window number – eg to W 1,2,3
- or 'as per Window Schedule' or similar.

For Example:



19.5.10 Where there is more than one Type of window the Window Type and their location must be clearly documented on the project documentation, either as notations on the plans and elevations, in a window schedule, or in a written specification.

20. BASIX – NSW Requirements

20.1 Background

20.1.1 The Building Sustainability Index, or BASIX, is a web-based planning tool developed by the NSW Department of Planning (DoP). It is designed to assess the potential performance of residential developments against a range of sustainability indices. The first stage of BASIX focuses on Water and Energy.

20.1.2 BASIX has been introduced through the Environmental Planning and Assessment Amendment (Building Sustainability Index) Regulation 2004 and State Environmental Planning Policy 75 - Building Sustainability Index. It is a mandatory component of the development approval process in NSW under the Environmental Planning and Assessment Act 1979.

20.1.3 BASIX explicitly overrides other Council controls that address issues regulated by BASIX.

20.1.4 Additional information is available at the BASIX web site (http://www.basix.nsw.gov.au).

20.2 Regulatory Requirements

20.2.1 Development Applications and Complying Development Certificates for residential development must be accompanied by a BASIX Certificate which confirms compliance with BASIX requirements:

- Between 0-40% less potable water consumption than average dwellings in the same region and with the same number of bedrooms in the Sydney Metropolitan area. Please consult the DoP website for more information, requirements by area, and zone maps for the water requirement details.
- Between 5-40% less greenhouse gas emissions than average detached single dwellings in the same region and with the same number of bedrooms. Please consult the DoP website for more information, requirements by area, and zone maps for the Energy requirement details.
- Minimum standards of building thermal performance.

20.2.2 Building thermal performance can be determined by three methods:

- Simulation Method – computer-based assessment with approved assessment software, carried out by an Accredited Assessor
- The Rapid method provided on the BASIX online tool
- The DIY method provided on the BASIX online tool

20.2.3 There are no Accreditation requirements for persons to conduct BASIX assessments other than Simulation Method assessments of building Thermal Performance. Simulation Method assessments can only be provided by ABSA Accredited Assessors and must be certified in accordance with the procedures detailed in the Section Certification of assessments in this procedure manual.

20.2.4 BASIX does not use Star Ratings to define building thermal performance – it uses heating and cooling loads, per annum, per m^2 of conditioned floor area.

20.2.5 The predicted annual heating and cooling loads are used by BASIX to estimate the potential greenhouse gas emissions resulting from the use of heating and cooling appliances to maintain conditions of thermal comfort.

20.2.6 For single dwellings BASIX has two thermal performance requirements (‘CAPS’) that must be met:

- maximum permissible total annual heating load, and
- maximum permissible total annual cooling load

20.2.7 For multi-unit developments there are be 2 separate sets of load 'Caps' which must be met:

- There are maximum permissible total annual Heating and Cooling load Caps for each individual dwelling,
- as well as a combined overall "Average Heating and Cooling load Cap" for the whole development.

20.2.8 BASIX Alterations and Additions will become mandatory across NSW on 1 October 2006. The scheme will apply to certain Development Applications (DA) or applications for a Complying Development Certificate (CDC) for the alteration, enlargement and/or extension of an existing dwelling, and ancillary developments such as new swimming pools.

From 1 October, 2006, BASIX Alterations and Additions will apply to projects that are valued at or more than $100,000 as well as large swimming pools. From 1 July 2007, BASIX Alterations and Additions will apply to projects valued at, or more than $50,000.

Minor developments, including garages, storerooms, car ports, gazebos, verandahs and awnings, will be exempt from BASIX.

20.3 Application

20.3.1 BASIX in NSW has been implemented in stages:

- 1 July 2004 – single dwellings and dual-occupancies (with separate title) in the Sydney metropolitan area;
- 1 July 2005 – single dwelling developments throughout NSW, multi-dwelling developments BASIX is 'optional'
- 1 October 2005 - single dwelling developments and multi-dwelling developments throughout NSW;
- 1 October 2006 – alterations and additions throughout NSW above $100,000
- 1 July 2007 - alterations and additions throughout NSW above $50,000

Building classes

20.3.2 For specific requirements of building Classes and types that BASIX is applicable to please consult the BASIX website or contact the BASIX helpline.

20.3.3 For advice on what how BASIX and the EP&A Act should be interpreted and whether a development should be Assessed under BASIX please contact the DoP helpline (and ask for legal interpretation of the EP&A Act as applied to your development) or contact the Policy Reform helpline. DoP has also informed ABSA that it is Local Councils that has the final role to interpret the EP&A Act and BASIX requirements.

20.3.4 Information regarding energy performance requirements of transportable, relocatable, relocated houses, and mobile homes can be found on the DoP BASIX website.

20.4 BASIX Thermal Comfort Protocol

20.4.1 The *'BASIX Thermal Comfort Protocol'* is a key DoP document that must be read in conjunction with ABSA Procedure requirements. It specifies important rating procedures that all Assessors must follow when conducting ratings under the Simulation Method pathway of the Thermal Comfort section of BASIX. This document can be found in the Resources section of the BASIX website.

20.4.2 It is vital that all Assessors that carry out Assessments under BASIX read and understand the requirements of the *BASIX Thermal Comfort Protocol*. This document can be downloaded from the BASIX website. Contact DoP for any clarification of this document.

20.5 Approved Software

20.5.1 Approved software for assessments carried out under the Simulation pathway of BASIX are listed in the *BASIX Thermal Comfort Protocol*.

20.5.2 Currently approved 1st Generation software includes: NatHERS v 2.32B, BERS v.3.2, and FirstRate v 4.05.

20.5.3 Under the conditions of the BASIX 2nd Generation software Pilot both Accurate v 1.1.3.0, and BERS Pro v.4.1 are permitted for use. See *Section 23.8 - BASIX 2nd Generation Software Pilot Requirements* for further details.

20.6 NatHERS Installation and Use

20.6.1 As of July 01 2005 only NatHERS version 2.32B is recognised as the only approved version of NatHERS. NatHERS v2.32 and v2.32a is no longer an approved software versions for BASIX.

20.6.2 DoP has made changes have to some of the NSW postcode-climate zone associations. A new version of the NatHERS file postcode.bin has been released. This file must be used by all Assessors for Assessments carried out for BASIX after July 1 2005.

20.6.3 A new Chenath.exe file dated (20/02/05 or later) calculates the effect of Double Glazing more accurately. This file must be used by all Assessors for Assessments carried out for BASIX after April 1 2005.

20.6.4 As of October 1 a 2005 NatHERS v2.32B (August 2005) update must be installed and used for all ratings. This enables the use of the Full Custom Windows specification.

20.6.5 For the vast majority of NSW, the BASIX Simulation Method caps are derived from the postcode, i.e. entering this same postcode into NatHERS, BERS and First Rate will assign the same climate zone as BASIX.

However, for three NSW postcodes that cover multiple NatHERS climate zones, BASIX uses a combination of postcode and council to determine the caps. In some cases, this is different to the zone assigned by NatHERS.

The following information shows when to use the suggested alternative postcode in NatHERS to ensure the correct climate zone is assigned. **This is only to be used for these postcode and council combinations.** Assessors should continue to enter the correct postcode of the dwelling on the Assessors Certificate and in BASIX, not the alternative used to ensure the correct climate zone is used.

Postcode 2831 (western inland)

	BASIX Climate Zone is:
Dubbo City Council	14
Gilgandra Shire Council	14
Warrumbungle Shire Council	14
Wellington Council	14

Select a different postcode (eg. 2842) to ensure zone 14 is used in NatHERS.

Postcode 2652 (south west NSW)

	BASIX Climate Zone is:
Carrathool Shire Council	14
Tumbarumba Shire Council	24

Select a different postcode (eg. 2842 for 14 or 2653 for 24) to ensure the correct zone is used in NatHERS.

Postcode 2324 (north of Newcastle and southern NSW)

	BASIX Climate Zone is:
Yass Valley Council	24

Select a different postcode (eg. 2653) to ensure zone 24 is used in NatHERS. It is not known why this postcode is used for locations not adjacent to one another.

20.7 FirstRate Installation and Use - BASIX

20.7.1 As of July 01 2005 only FirstRate version 4.05 is recognised as the only approved version of FirstRate for use under BASIX. This is available for use by Assessors already Accredited by bordering State Schemes (ACT and Victoria), and also examined and Accredited by ABSA.

20.7.2 FirstRate is only permitted to be used to rate to rate separate dwelling houses and attached dwelling houses. For further information where FirstRate must not be used for ratings carried out under BASIX. For further details please contact the Department of Planning (DoP).

20.7.3 When using FirstRate for BASIX the zoning rules as defined in the *BASIX Thermal Comfort Protocol* of Conditioned and Unconditioned spaces must be used.

20.7.4 Area Data entered into FirstRate is measured differently to other software packages approved for use under BASIX. When declaring the Net Conditioned Floor area for BASIX it must be manually calculated to match the measurement standards set by NatHERS. This is calculated by entering the data as described in the Users Manual and then deducting from the Net Conditioned Floor Area declared in the Software report;

- and the (floor) area of internal walls included in the model,
- and (floor) area of any internal walls adjacent to the Unconditioned zone.

20.7.5 When declaring the area of the Unconditioned zone this is calculated manually from the supplied plans by measuring the area of the Unconditioned zones (as defined in the *BAISX Thermal Comfort Protocol*), measured to the inside of internal walls.

20.7.6 When declaring total area of “external walls and doors” to the Certificate Manager, the area of external walls and doors of is calculated separately including areas of external walls and doors Unconditioned zones,

20.7.7 Latent Cooling is entered as zero to the Certificate Manager.

20.7.8 Wall colour is declared as “software default” to the Certificate Manager.

20.7.9 Roof colour is declared as “software default” to the Certificate Manager.

20.7.10 Offset from North is declared to the nearest orientation quadrant.

20.8 BASIX 2nd Generation Software Pilot Requirements

20.8.1 Under the conditions of the BASIX 2nd Generation Software Pilot Assessors may use 2nd Generation software. Assessors must be trained and Accredited in the use of 2nd Generation software prior to their use of 2nd Generation Software as detailed in *Section 3.4 Qualification and Accreditation*.

20.8.2 Approved instructions or the use of 2nd Generation software packages are detailed in Section 5.2 - *Assessment Software Procedures*

20.8.3 The Department of Planning have required that all Assessors using Accurate under the BASIX 2nd Generation Software Pilot must follow all requirements set out in the DoP document *"NSW 2nd Generation Pilot Procedures 2007".* ABSA has provided a Guide-note for Assessors to clarify all requirements for using Accurate under the BASIX Pilot. Both documents are available from the ABSA website *(Log In > Procedures > Policy Documents > BASIX - NSW 2nd Generation Software Pilot Documents).*

20.8.4 All Assessors that are Accredited to use 2nd Generation software will be listed on a register on the 'Find an Assessor page'.

20.8.5 Assessors should note that the method for calculating Heating and Cooling loads, the application of concessions, the application of the BASIX Cross Flow Ventilation Bonus and ABSA Certification requirements must follow these procedures defined in the DoP document *"NSW 2nd Generation Pilot Procedures 2007"*.

20.9 BASIX Requirements

20.9.1 The rating of residential building thermal performance, by current assessment software is based on calculating heating and cooling loads, per annum, per m^2 of Net Conditioned Floor Area (NCFA). It is recognised that smaller buildings tend to have higher loads per m^2, because the ratio of the building envelope area to floor area increases as floor area decreases.

20.9.2 BASIX adjusts the maximum permissible heating and cooling loads permitted (CAPS) according to the NCFA of the dwelling (e.g. a small dwelling is allowed higher heating and cooling loads per m^2 of NCFA than a larger dwelling). You do not make deductions for Floor Area Adjustment before recording your predicated heating and cooling loads. This is done for you by the BASIX online tool when you enter the NCFA of the dwelling into the BASIX online tool. This procedure applies to all ratings carried out using 1st Generation software, and does not apply when using 2nd Generation software. Please consult the DoP document *"NSW 2nd Generation Pilot Procedures 2007"* for the methodology of calculating heating and cooling CAPS and software outputs when using 2nd Generation software.

20.9.3 BASIX now has 3 dwelling types - Separate dwelling house, Attached dwelling house, and Unit building. These 3 dwelling types all have different permissible heating and cooling load adjustment figures.

20.9.4 The Simulation Method from 1 July 2005 will have both Heating and Cooling Caps for each climate zone.

20.9.5 For multi-unit developments there will be 2 separate sets of 'Caps' which must be met. There are Heating and Cooling Caps for each individual dwelling, as well as a combined overall "Average Heating and Cooling Caps" for the whole development. The Average Heating and Cooling Caps for the whole development acknowledges the difficulty in designing all dwellings with a high level of performance. Therefore, the caps for Individual Dwellings in a multi-unit development are higher than for the Average of all Dwellings. Some dwellings will need to be below the Average caps to compensate for the ones that are above. Assessors should note that if every single dwelling of the development only just passes each individual cap the development overall will fail the average cap.

20.9.6 To determine the applicable maximum permissible heating and cooling loads for a dwelling with a specific floor area, Assessors can obtain an Excel spreadsheet from DoP. Please contact DoP to obtain a copy.

20.10 Definition of the Conditioned Zone

20.10.1 The *BASIX Thermal Comfort Protocol* defines what spaces should be included in Conditioned zones (Living, Bed, Other Conditioned), and Unconditioned zones.

20.10.2 These procedures must be followed for all ratings carried out under BASIX (including the use of 2nd Generation software).

20.10.3 For further clarification of these zoning requirements as defined in the *BASIX Thermal Comfort Protocol* please contact the DoP.

20.11 Suspended Floor Concession

20.11.1 It is recognised that some proposed dwellings are subject to specific conditions that have adverse impacts on their thermal performance. Overcoming the impact of these conditions, in order to achieve the minimum required thermal performance, may require construction practices that may be significantly more expensive or impractical. In these cases the minimum thermal performance requirement are adjusted to reflect acceptable performance given the unavoidable site constraints. This adjustment is referred to as a 'Concession'.

20.11.2 BASIX currently permits a Concession for dwellings with 'Suspended Floors' where there is little or no choice but to have a suspended floor due to site constraints as a result of:

- *Site slope > 10% below ground* floor - the dwelling has a suspended floor below the ground floor or part of the ground floor and the site slope directly below that floor is greater than 10%.
- *Required due to flood prone area* - the dwelling is required to have a suspended floor due to it being located in a floor prone area. This concession can only be claimed where the suspended floor is above a subfloor or carport and not when it is above conditioned or unconditioned space or a garage. Evidence to support the requirement for a suspended floor must be provided to the consent authority.
- *Mine Subsidence* - The dwelling is required to have a suspended floor due to it being located in a mine subsidence area. Evidence to support the requirement for a suspended floor must be provided to the consent authority

For further information consult the BASIX website.

20.11.3 Requirements for a Concession to be claimed

- The dwelling must meet the Concession requirements as defined in the BASIX tool.
- The ABSA Certificate indicates that a Concession can been applied.
- The eligibility for concessions must be documented and submitted with your DA application as defined on the BASIX tool

20.11.4 If a dwelling is eligible for a concession, this is elected on the BASIX online tool, which adjusts the maximum permissible heating and cooling loads required to be met. You do not make deductions for Concessions before recording your predicated heating and cooling loads. This is done for you by the BASIX online tool.

20.11.5 The Overshadowing Concession has been removed from BASIX and can no longer be applied.

20.11.6 Concessions cannot be claimed when using 2nd Generation software. Please consult the DoP document *"NSW 2nd Generation Pilot Procedures 2007"* for full details.

20.12 Internal window coverings

20.12.1 The *BASIX Thermal Comfort Protocol* defines that internal coverings to glazing may not be considered in a Simulation under BASIX, except for a default low performance curtain (Open Weave or Holland Blind). Open Weave curtains and Holland blinds can be included in any rating regardless of whether they are nominated on the application plans or not.

20.12.2 The Open Weave curtains and Holland blinds used in the rating do not have to be included in the built dwelling.

20.12.3 High performance coverings (e.g. heavy drapes and/or pelmets) can be installed in the building – but not included in the rating.

20.13 Floor coverings

20.13.1 The *BASIX Thermal Comfort Protocol* defines that all floor coverings nominated or specified on documentation must be used in the Simulation.

20.13.2 Where no floor covering is nominated, carpet must be used as the default setting in the Simulation for all floor types.

20.13.3 Where Carpet, Vinyl or Timber covering is nominated on drawings these should be used in the simulation. The extent of all floor coverings (including tiles) must be explicitly shown on the plans using conventional drawing standards.

20.14 Tiled floors

20.14.1 BASIX set a maximum area of Tiled Floor covering that can be used in a rating, in a building with concrete or AAC floors. This procedure applies to all ratings carried out using 1st Generation software only. It does not apply when using 2nd Generation software. Please consult the DoP document *"NSW 2nd Generation Pilot Procedures 2007"* for full details.

20.14.2 Tiled Floor covering, where on concrete or AAC floors (on ground or suspended) a maximum of 35% of the slab floor area may be simulated as being covered with tiles regardless of the area nominated on the plans, the remainder must be simulated as covered with carpet.

20.14.3 This requirement is for simulation purposes only; the area on the plans does not need to be modified.

20.14.4 This does not apply in climate zones 24 (Canberra) or 25 (Alpine) or to dwellings with the required shading for cross ventilation as per 4.3.5.

20.14.5 Where a tiled floor covering exists on suspended framed floors the full area is to be nominated.

20.15 Material Colours

20.15.1 The *BASIX Thermal Comfort Protocol* requires that roof colour (light,medium,dark) must be declared on the ABSA certificate, and nominated on the drawings. Colours are based on the following Solar Absorptance ranges:

- Light : < 0.475
- Medium : 0.475 – 0.70
- Dark : > 0.70

20.15.2 The roof colour range (light, medium or dark) and the solar absorption range associated with that colour as provided in the BASIX Definition must be nominated on the ABSA Certificate. This forms a Commitment under the Schedule of Commitments on the Assessor Certificate. The actual material installed in the built dwelling will have to be certified to meet this Commitment. On site certification will have to be provided by the manufacturer to provide evidence of meeting this colour Commitment. Material solar absorption factors for actual materials specified on the plans must be obtained from Manufacturers by the builder.

20.15.3 Wall colours are optional to be specified under the BASIX regulation. If Assessors specify wall colour on ABSA Certification they can either be specified as a 'default' or as the actual colour range. If the 'default' is selected, the software setting 'medium' must be used, and 'default must be nominated on the Assessor Certificate. If the benefit of dark or light walls is desired these settings can be used in the software rating. These selected settings must be nominated on the Assessor certificate. No default is available for roofs.

20.15.4 Default material colours must be used when carrying out ratings using FirstRate as previously described in *Section 23.7 FirstRate Installation and Use – BASIX*.

20.15.5 For further clarification in regards to on-site certification requirements for roof colour please contact DoP.

20.16 Window Specification

20.16.1 The *BASIX Thermal Comfort Protocol* requires that ABSA Certification/DA documentation must explicitly declare all windows that will be included in the dwelling rated.

20.16.2 While the software may require you to amalgamate several window Types ABSA Certification/DA documentation must list all windows which are of a different Type and have different U/SHGC values.

20.16.3 Under BASIX it is a mandatory requirement to declare whole of window U and SHGC values.

20.16.4 As of May 1 2007 when declaring U-values and SHGC values of glazing products on ABSA Certification, under all Regulatory Frameworks (BCA and BASIX), **all U/SHGC values declared to the Certificate Manager must use NFRC 100 whole of window values**. No other previously advertised values should be used.

20.16.5 **When using 1st Generation software** (FirstRate/NatHERS/BERS) **NFRC** whole of window U and SHGC values should be declared for all Generic and Custom window products included in ratings. These values are provided in the ABSA Document '*ABSA NFRC Window Values_v01".*When specifying U and SHGC values Assessors should look up the appropriate values from this document. See *Section 7.7 – Procedures when using NatHERS* and *Section 8.4 – Procedures when using FirstRate* which describe how to define NFRC U/SHGC values when using 1st Generation software.

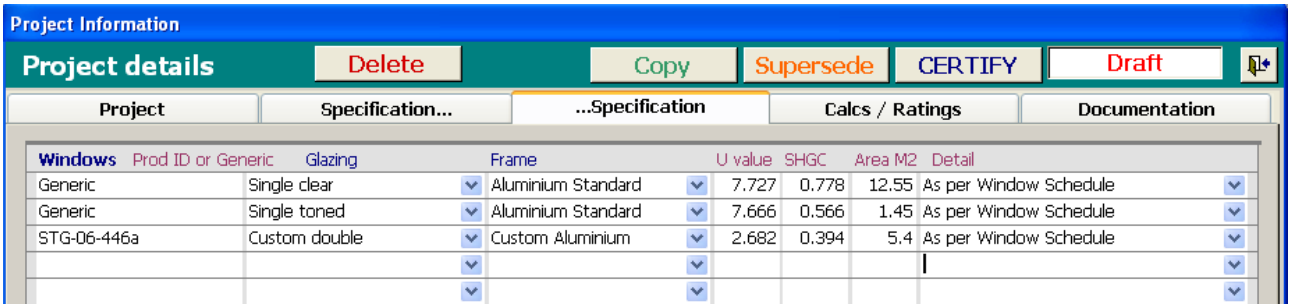
20.16.6 When using **2nd Generation software** **NFRC** whole of window U and SHGC values should be declared for all Generic and Custom window products included in ratings. NFRC values are provided in the 2nd Generation software itself. See *Section 9.4 – Procedures when using Accurate* and *Section 10.4 – Procedures when using BERS Pro* which describe how to find NFRC U/SHGC values within 2nd Generation software.

20.16.7 NFRC values should be declared on ABSA Certification when using 2nd Generation tools. The current ABSA Certificate however states that values are specified under ANAC conditions. As an interim work-around Assessors are asked to white out 'ANAC' and replace this with the text 'NFRC'. This will be updated in the next release. See *Section 15.14 Windows Specification – U/SHGC Values* for further details

20.16.8 The following information must be provided on the ABSA Certification/DA documentation.

- A description of each Window Type must be provided in the following manner:
  - For Generic windows this description must include:
    - *"Generic"* specified in the *"Product ID or Generic"* field of the Certificate Manager (CM)
    - Glass type (as listed in the software) specified in the *"Glazing"* field of the Certificate Manager (CM) eg: *"SG Clear"* , *"DG 5/6/5 Toned"*
    - Frame type (as listed in the software) specified in the *"Frame"* field of the Certificate Manager (CM) eg: *"Al thermally improved"* , *"Timber"*
    - Where the Frame Type of Glass type does not fit into the fields provided this can be suitably abbreviated.
  - For Custom Windows this description must include:
    - Manufacturer name (as listed in the Custom Windows Manual) specified in the *"Product ID or Generic"* field of the Certificate Manager (CM) and
    - product ID (as listed in the Custom Windows Manual) also specified in the *"Product ID or Generic"* field of the Certificate Manager (CM)
    - Glass Type nominated as *'Custom Single'* or *'Custom Double'*
    - Frame Type nominated as *'Custom'*
    - Where the manufactures name/Product ID does not fit into the fields provided this can be suitably abbreviated.

For Example:



- The U-value and SHGC of the total glazing system (frame and glass) for all glazing including single glazed clear (previously exempt).
- The Total Areas of each Window Type must be declared to the Certificate Manager. Where only one Glass Type is present this is the total Area of Windows and Doors in the software report. Where there is more than one the areas will have to be calculated manually.
- These U/SHGC values must be declared in the Certificate Manager with the text 'or equivalent' included. At this time these values can be entered in the Details field.
- An explicit description of the location of the Window Type if required (see below). This shall include one of the following descriptor options:
  - Throughout
  - by Level – eg to upper story
  - by Orientation Sector – eg to all W sector (using BASIX orientation Sectors)
  - by Window number – eg to W 1,2,3
  - or 'as per detail on plans' or similiar.

- If an explicit location descriptor cannot be defined all window Types and their location must be clearly documented on the project documentation, either as notations on the plans and elevations, in a window schedule, or in a written specification.

- The Specification Block can be used to provide the above information where it can fulfil the BASIX documentation requirements specified below, and there is no conflicting information between the Block and information contained in the document set.

20.16.9 To meet the BASIX documentation requirements the following procedures should be used.

1. When glazing is one type throughout (eg pyrolytic low-e throughout), including single glazed clear (standard) throughout:
    - Describe Glass and Frame Type as described above;
    - Nominate **whole of window NFRC** U-and SHGC-values of Window Type on ABSA Certificate (and Specification Block). Additional descriptions can also be provided but are not mandatory;
    - Declare Total Area of Window Type on ABSA Certificate (and Specification Block);
    - Declare 'Throughout' in the Details/Location field of the Certificate Manager;
    - No additional notes need appear on the drawings as the *BASIX Thermal Comfort Protocol* determines that this information can be contained in the Specification Block.

2. When there is more than one glass Type present in the dwelling (eg single glazed clear and pyrolytic low-e):
    - Declare all Glass Types as described above;
    - Nominate **whole of window NFRC** U-and SHGC-values of all Glass Types on ABSA Certificate (and Specification Block). Additional descriptions can also be provided but are not mandatory.
    - Declare Total Area of each Glass Type on ABSA Certificate (and Specification Block).
    - Provide an explicit description of the location of the Window Type as described above). If an explicit location descriptor cannot be defined all Window Types, their location must be clearly documented on the project documentation (using a Window Schedule of list). In this case 'as per project documentation' (or similar) should be declared in the Details/Location field of the Certificate Manager.
    - In addition to information included in the Specification Block it is a BASIX required that the stamped plans, for dwellings where more than one Window Type is present, to clearly indicate on the drawings for each window its:
        - Window Type. The document set must declare NFRC U value and SHGC values for all different Window Types. This requirement to specify Window Type can be achieved as notation on plans/elevations (with a key), explicit Specification descriptors on the drawings for all Window Types (as defined above), or using a Window Schedule.
        - Window Area. Windows can be dimensioned, scalable (minimum scale 1:100), or notated in a Window Schedule,
        - Window Location and Orientation. This information can be documented in the plans/elevations drawings or documented in a Window Schedule where windows are not visible or where it is unfeasible to properly annotate the plans.

20.16.10 Where U/SHGC values are declared on documentation Assessors should advise their clients to include a standard note stating 'Windows specified use NFRC U- and SHGC values. Windows as specified or equivalent should be installed on-site'.

20.16.11 These details form Commitments under BASIX and this have has very proscriptive documentation requirements defined by DoP. Building certifiers will be required to check these details against the built building and Onsite Certification of fitted windows provided by the glazing supplier or builder.

It should be noted that the windows installed on-site should perform 'at the same or better standard' as those included in the rating, and declared on the ABSA Certification/DA documentation. It is a requirement that in order to 'perform 'at the same or better standard' all windows installed on-site must have:

- a U-Value the same or lower than that the U-value declared on the ABSA Certification/DA documentation (ie performs better); and
- a SHGC value within 10% than that the SHGC value declared on the ABSA Certification/DA documentation.

20.16.12 Assessors should ensure that their client is made aware of these documentation, BASIX Commitment, and onsite Certification requirements. Assessors should also ensure that their client is made aware of the probable order of costs associated with any recommended performance glazing. Assessors should recommend that adequate cost estimates are sought.

20.17 Shading Specification

20.17.1 *The BASIX Thermal Comfort* Protocol requires that for all Shading devices the ABSA Certification must list:

- Device Type (pergola, eave, horizontal projection, window shading, skylight shading etc), Projection distance, and
- Orientation (except for eaves).

20.17.2 For varying eaves widths – all different projection distances be nominated on the Certificate or nominated as 'varying'. If varying is nominated eaves widths must be provided on the drawings and/or specifications.

20.17.3 Details that affect the assumed shading level (i.e. pergola schedules) must be nominated on the plans or specifications. Pergolas, skylight shading and non standard window shading devices must have drawn details (sections or similar) on the approved plans so that the shading co-efficient can be determined. For example, a pergola detail must be provided to support the assumed pergola schedule.

20.18 Cross Ventilation Bonus

20.18.1 Responding to the reported poor ability for NatHERS software to model the benefit of cross ventilation BASIX has included a Cross Ventilation Bonus. This will replace the current Expert Panel Provision – PS01 Assessment for High Levels of Beneficial Ventilation for BASIX Assessments. Cross Flow Ventilation Bonus

20.18.2 The Cross Ventilation Bonus can be claimed for dwellings in all climate zones. Coastal climate zones receive a much more generous bonus. If the dwelling complies with the Cross Ventilation criteria, the entered cooling loads will be reduced by a certain amount depending on the number of breeze-paths nominated. The entered and corrected cooling loads will be nominated on the BASIX Certificate.

20.18.3 To qualify for the Cross Ventilation bonus, the dwelling must have both adequate shading and cross ventilation. The shading criteria are as defined in the *BASIX Thermal Comfort Protocol*. If Assessors wish to claim this bonus they must carefully check that the dwelling complies with the Cross Ventilation bonus requirements defined in the *BASIX Thermal Comfort Protocol* document.

20.18.4 Important additional requirements:

- If your client wishes to claim this Bonus the Assessor must verify that the dwelling meets the shading requirement and that the shading details appear on the drawings and on the Certificate Manager.
- Once verified the ABSA Certificate must indicate that the shading criteria have been met if you are to claim the When claiming the Cross Ventilation Bonus. A field is provided on the *Project Details* page of the Certificate Manager.
- Details of the shading which meet the criteria must appear in the required detail on the plans. These shading devices are included in the NatHERS rating.
- When claiming the Cross Ventilation Bonus the NatHERS setting “can windows and doors be opened to provide Cross Ventilation” **must** be set to “NO” when carrying out the rating. The cross ventilation criteria are selected and Bonus is claimed within the BASIX online tool (either by the Assessor or your client).

20.18.5 It is the responsibility of the applicant to provide the additional information relating to Breeze Paths. This can be provided as an additional service by Assessors if they wish. For all information or enquiries in relation to the Ventilation Bonus and Breeze Paths please consult the BASIX website or contact DoP for clarification.

20.18.6 This procedure applies to all ratings carried out using 1st Generation software, and does not apply when using 2nd Generation software. 2nd Generation software models ventilation in a sophisticated manner and the BASIX Cross Flow Ventilation Bonus cannot be claimed. Please consult the DoP document *“NSW 2nd Generation Pilot Procedures 2007”* for full details.

20.19 Certification procedures

20.19.1 All Documentation and Certification for BASIX must follow the requirements of the *BASIX Thermal Comfort Protocol* and the procedures defined in this document (see *Section 12.0 - Documenting an Assessment* and *Section 15.0 - Certification of assessments*).

20.19.2 Additional Certification Procedures have been defined for Assessors using 2nd Generation software under the BASIX 2nd Generation Software Pilot. Please consult the DoP document *“NSW 2nd Generation Pilot Procedures 2007”* for full details.

20.20 Interim Certification Procedures

20.20.1 The previously described ‘interim’ Certification procedures have now been superseded by the latest release of the Certificate Manager (version 2.20). The ‘interim’ procedures previously described should no longer be used.

20.21 Amended BASIX Certificates

20.21.1 Where a development application, lodged with Council with a BASIX Certificate issued before 1 July 2006, requires changes to be made to the BASIX commitments, as part of the development assessment and certification process, you can apply to the Department of Planning to access the pre-1 July 2006 BASIX tool. This will give you access to the regulatory requirements of the pre-1 July 2006 BASIX tool, which were the regulatory requirements that your DA should be assessed under.

The Department is currently finalising a standard application form for applicants wanting access to the pre-1 July 2006 BASIX tool. The application must be accompanied by evidence of lodgement of a development application with the initial BASIX Certificate. Contact the BASIX Help Line for more information.

Persons wishing to access the previous tool to seek an updated Certificate can contact the BASIX helpline and request a form to be sent to them.

21. Energy Smart Homes Policy – NSW

21.1 Background

21.1.1 The Energy Smart Homes Policy (ESHP) was implemented as Development Control Plans (DCP) by NSW Councils. These DCP have been based on a model planning policy that was developed in 1998 by the Sustainable Energy Development Authority (SEDA), which has now been amalgamated into the NSW Department of Energy, Utilities and Sustainability (DEUS).

21.1.2 The ESHP has been superseded by BASIX (see below).

- Prior to July 2004, the ESHP was implemented by approximately 80 Councils, covering over 80% of new residential development in NSW.
- In July 2004, the ESHP was superseded by BASIX for single or dual occupancy residential developments in the Sydney metropolitan area.
- In July 2005, the ESHP was superseded by BASIX for single or dual occupancy residential developments throughout NSW. BASIX is 'optional' for multi-unit residential developments throughout NSW until October 2005.
- In October 2005 the ESHP was superseded by BASIX for multi-unit residential developments throughout NSW.
- In the October 2006, the ESHP provisions for Alterations and Additions were superseded by BASIX throughout NSW. Through this last stage of BASIX rollout the ESHP will cease to be a current Scheme for Residential Building Thermal Performance Assessment in NSW.

21.2 Application

21.2.1 For dwellings previously lodged with Council under the Energy Smart Homes Policy requirements, which have been amended but are being lodged under the same Development Application, may be able to continue to be assessed under these same regulatory conditions. Please consult the relevant approval authority, as to whether your development can continue to be assessed under the same under ESHP requirements.

21.2.2 For all information regarding previous ESHP rating procedure requirements please contact ABSA.