



BASIX GUIDE :

Using Simulation for Alterations and Additions

Introduction

This guide describes the process for applying to use Simulation for alterations and additions projects.

Simulation can allow greater design flexibility by trading performance between new building elements, and may be appropriate in situations where there are practical or legal constraints preventing full compliance with the BASIX requirements for alterations and additions. This could include:

- heritage considerations
- structural limitations
- strata restrictions in unit buildings.

This guide does not cover situations where a construction type or product type is not available in the drop-down selections. Check with the BASIX helpdesk and they will be able to help you determine if you are eligible to use the Alternative Assessment process.

Application process

Before you start running simulations, we recommend that you contact the BASIX helpdesk to check whether Simulation will be permitted for your project.

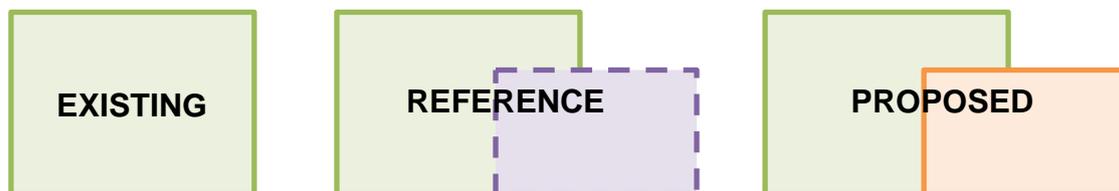
To use Simulation for your alterations and additions project:

1. Identify clearly why you believe that your project cannot fully comply with the BASIX Construction and Glazing commitments. At this stage, Simulation for alterations and additions is not available for:
 - design flexibility in the absence of specific heritage, structural or legal restrictions; or
 - purely aesthetic reasons.
2. Contact the BASIX helpdesk and request permission to use Simulation for your alterations and additions project. You will be required to justify your request.
3. If the BASIX helpdesk advises that you may use Simulation, run the Simulations in accordance with the following section.
4. Once you have completed the Simulations and demonstrated acceptable thermal performance, submit the documentation to the BASIX helpdesk. The documentation required is listed in the final section of this guide.
5. If the analysis and documentation is satisfactory, you will be given further instructions on how to apply for Alternative Assessment.

Modelling process

The modelling process for alterations and additions is much more involved than for a new dwelling. You will need to run three separate simulations:

1. **Existing:** model the existing dwelling, and document all assumptions about the thermal performance of the existing building fabric.
2. **Reference:** model the entire existing dwelling and the alterations and additions, with all new work complying with the relevant BASIX Construction and Glazing commitments. You must not change the assumed performance of the existing building fabric.
3. **Proposed:** model the entire existing dwelling and the alterations and additions, but with the actual proposed performance for the new building elements. Only change the performance of the parts of the existing building fabric where new work is being done such as installing additional insulation or replacing a window.



You will need to demonstrate that the alteration or addition does not reduce the overall thermal performance of the dwelling, and that the proposal performs at least as well as if it had been in accordance with the BASIX Construction and Glazing commitments. That is:

- the total loads calculated for the **proposed** model must be less than or equal to the total loads calculated for the **existing** model; and
- the total loads calculated for the **proposed** model must be less than or equal to the total loads calculated for the **reference** model.

Documentation requirements

If the thermal loads meet the criteria described in the *Modelling Process* section, you will need to collect the following documentation:

- the simulation output generated by Approved Software for the **existing**, **reference**, and **proposed** models;
- a record of all assumptions made about the building fabric of the existing dwelling, signed by the applicant;
- supporting evidence such as a letter from council, an engineer's report or a letter from the building or strata manager;
- plans and specifications for the proposed work; and
- photos of the existing dwelling.

The required simulation outputs from the existing and reference models are the interim/diagnosis reports and building data reports from the simulation software and/or the online system from the software provider.

The required simulation output from the proposed model is the NatHERS universal certificate issued from the online generation system by the software provider.

