ALF UPGRADE ADDS MOISTURE

BRANZ's Annual Loss Factor (ALF) tool – a free online aid to the thermal design of houses – has a useful new feature, a 'moisture tab' for predicting potential mould issues in residential designs.

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ALF has come a long way from its introduction as a paper-based calculation method back in the 1980s and 90s, through to software in the 2000s, to its current web version.

ALF helps thermal design of houses

ALF is a quick, simple and easy-to-use tool to aid architects and designers in the thermal design of houses. ALF 3.2 can also be used to demonstrate compliance with the Verification Method for clause H1 *Energy efficiency* in the New Zealand Building Code (NZBC).

ALF is designed for use on traditional, stand-alone housing. It calculates the thermal performance of a house design based on location, orientation, construction, insulation, materials, glazing, ventilation and thermal mass. The tool enables designers to assess the design and adjust it to enhance its thermal performance before final specification. A Building Performance Index (BPI) of 1.55 or less is deemed to comply with H1 under the Building Code Verification Method.

As ALF and the BPI are based on calculations over the heating season rather than a year-round simulation tool, more complex thermal simulation software is recommended to understand the effects of high mass, inclined glass and complex designs throughout the seasons.

Optional moisture tab predicts mould

The moisture tab was developed for ALF 3.2 after observations that some newer houses experience mould issues. Modern houses are typically more airtight than their older counterparts, so if windows are not opened for additional ventilation, moisture from indoor sources may be absorbed into furnishings and fabrics or condense on surfaces. This can lead to mould growth that occurs after prolonged periods of high surface relative humidity and can cause significant damage to materials and affect the health of occupants.

Figure 1: ALF 3.2 now incorporates a moisture tab for predicting mould growth on internal surfaces. (Image courtesy of Chrometoaster.)

The moisture tab enables designers to further improve indoor environments. Users simply create an ALF project as they normally would and then complete the moisture tab. This pulls through information about the materials, insulation levels and construction of the house, as well as active and passive ventilation and fixed heating in rooms. From this information, the moisture tab calculates the likelihood of mould growth on internal surfaces in rooms where moisture is most likely to be an issue.

As part of the moisture tab, additional ventilation questions have been added to improve the effective ventilation rate results for targeted rooms. The moisture tab is entirely optional and does not affect the BPI calculation.

Adequate ventilation and heating, well insulated walls and minimised thermal bridging reduce the likelihood of mould growth. The prevention of mould is important, leading to lower maintenance, less damage to finishes and a healthier indoor environment.

Getting started

New users can create an ALF 3.2 account for free on the web at http://alf.branz.co.nz. Once signed in, users are able to create projects in any New Zealand climate zone. Projects are stored securely on a central server and can be accessed from any computer with internet access.

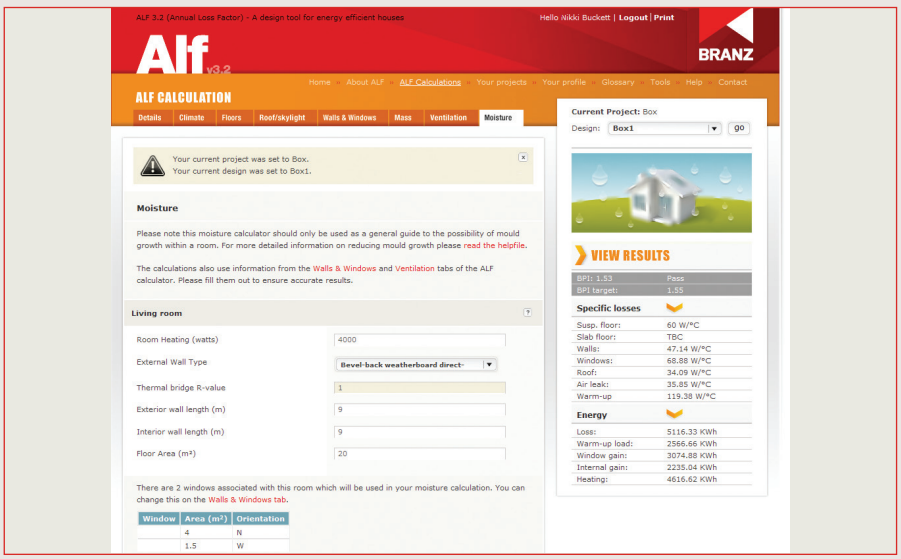

Figure 2: The new moisture tab enables users to check whether designs are likely to be affected by mould on internal surfaces.