GANG-NAIL GUIDELINES No.139

ANOTHER MITEK ADVANTAGE

'WHOLEHOUSE' SOFTWARE - FACT OR FICTION

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Over the past few years, improvements in engineering software provided by nail-plate suppliers has been progressing at an ever increasing rate as new and more complicated building and manufacturing practices have been developed.

The term 'WholeHouse' is currently one of the buzz words gaining ground in the industry and is seen as the next stage in the evolution of house estimating and detailing.

Some would argue that current software already covers the WholeHouse issue as you can transfer information from one piece of software to another in order to create a workflow, allowing the WholeHouse to be designed.

However the true intent of WholeHouse is to introduce a new paradigm to the way we work, enabling us to realise new efficiency gains.

To achieve this goal a new suite of software needs to be developed - the 'next generation software'.

The core to efficiency gains in WholeHouse is the idea of a single complete computer model of the entire house as opposed to the current range of software, which models the house in separate pieces (e.g. floors in one model, walls in another etc.).

This new single model is "intelligent"; it knows about itself and all of its components and their relationship/interconnections with each other; the components themselves understand what they are and what they can do e.g. a load bearing outside wall will be programmed to enable it to be used only as a load bearing outside wall.

In the broader construction industry this concept is commonly referred to as Building Information Modeling (BIM) and it is becoming more widely used as it provides efficiency gains, while reducing manufacturing risks and assembly issues.

For example if a wall is moved, the model knows it needs to modify and reframe the walls, floors, beams etc. that are associated with it, throughout the entire structure.

This is all triggered automatically, with no further intervention on the part of the user.

This type of functionality is not available in the current generation of software.

It can be emulated by double handling and/or multiple import/export cycles.

However, this is not efficient and does not provide the full benefits of single model "intelligence".

Because this is all a single model, operations can be carried out and visualized in either 2D or 3D, or in both, which offers the user the ability to work in whichever mode they are most comfortable with.

The single model also allows further efficiency gains in the analysis of the structure.

As components know what they are and what they can do, it is possible to analyse and apply load paths from the roof through to the foundation without the need to move and reapply loads in multiple programs.

In addition, the ability to manipulate and view the house as a single model brings with it improved spatial awareness.

By working with a single WholeHouse model, users can visualise and develop a sense of the space being occupied by the structural elements within the house.

Interfering or misplaced elements can be more easily identified and corrected.

This approach means the model is easier to understand and work with, thus reducing the risk of mistakes through capturing how the structure comes together.

This is especially beneficial in complex areas, a good example of which is stairwells where head heights are sometimes miscalculated.

As you can see from the above examples, current software offerings struggle to match the potential offered by single model based WholeHouse.

To truly achieve these benefits a new generation of software will have to be written from scratch.

This in turn will bring potential for many other possibilities, such as better integration with architects and builders as they adopt BIM type software. TTN