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Protocol for structural software

There has recently been a lot of publicity about building products that do not conform or comply with the Building Code of Australia. Many industry bodies, state regulators and even the Federal Senate have expressed considerable concern and begun action to address this matter. While most of their attention has been on the physical products supplied, it is equally important to note that the design of trusses must also comply with the BCA.

In GN Guidelines No 177, Robert Tan discussed how the "ABCB Protocol for Structural Software" is referenced in the BCA. The document is maintained by the ABCB (Australian Building Codes Board) and is available free of charge from abcb.gov.au.

It defines the minimum requirements any software used by non-engineers to produce structural designs for building approval has to meet in order to comply with the deemed-to-satisfy provisions of the code. Nailplate manufacturers spend a considerable amount of time and money each year to maintain their software compliance.

Users of structural software are equally obliged to make sure that they comply with the Protocol. As a truss designer, you should know what your responsibilities are.

KNOW YOUR LIMITS

The Protocol sets out basic geometric limits of building size in its scope. These are:

- The distance from ground level to the underside of eaves must not exceed 6.0m;
- The distance from ground level to the highest point of the roof, neglecting chimneys, must not exceed 8.5m;
- The building width including roofed verandahs, excluding eaves, must not exceed 16.0m;
- The building length must not exceed five times the building width; and
- The roof pitch must not exceed 35°.

You may recognise these identical limitations in AS 1684 and AS 4055. In addition to these limits in the Protocol, there will be other limitations imposed by the software producer and it's important for you to be familiar with what they are. Ask your software supplier for a copy of their compliance certificate, scope and terms and conditions of use if you're unsure.

Wherever possible, good software should produce a warning or error to assist users when any limitation is exceeded, but a user cannot rely on that as an excuse for ignorance of the stated terms and conditions of use.

When it is necessary to use the software beyond the scope of the Protocol, additional input and certification should be obtained from a professional engineer.

KEEP UP WITH TRAINING

The Protocol requires every user to have completed software training before their submitted designs are acceptable. This includes regularly updating their knowledge with every new version. Approving authorities may require proof of training,

such as a verifiable user number or a training certificate indicating the software name and version, so have your resume handy.

Users may also find supplementary training on building technology and advanced software features very helpful. Some TAFE and registered training organisations offer such certificate courses and formal qualifications.

SUPPLY ADEQUATE DOCUMENTATION

The Protocol requires suitable documentation to be produced and presented with each job. The truss certificate, layout and software computations should clearly show the input parameters used. All design assumptions should be clearly identified, and bracing requirements provided along with installation instructions.

Naturally, the software version you use should be compatible with the prevailing edition of the BCA, and that should be shown on the printed output. See also GN Guidelines No 179 for BCA compliance timeline.

The name of the person responsible for the software outputs should also be shown on the certificate for the approving authority's verification.

TICK OFF THE CHECKLIST

The Protocol provides several helpful checklists in the Appendix, and the one for software users is reproduced here. If you are uncertain about anything regarding compliance, please do not hesitate to contact your truss engineer for further advice and/or certification. **T**

Appendix B - suggested checklist
Checklist for software user

ITEM	Yes	No
1. Is the software appropriate for the application and has it been used within the documented limits of the software?		
2. Have input sources been checked?		
3. Do the inputs to the software match the design documentation?		
4. Are the assumptions made in the software reasonable and match the design documentation?		
5. Have critical components been checked?		
6. Has documentation of any additional checks deemed to be warranted been included?		
7. List any major assumptions and provide comments on them (eg, internal walls as supports, special hold-down requirements, top chord restraints, overhang support, etc).		

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