

Gaining Approval for MRTFC Projects Under BCA 96

Introduction

Multi-residential timber framed construction (MRTFC) was introduced to Australia in Amendment N° 7 of BCA 90. The method of construction for these developments was prescribed in the Code and was limited to a maximum of three storeys for Class 2 residential use, over a lower level of carparking and a maximum of two storeys for Class 3 buildings.

However, as a result of the release of the new performance based Building Code of Australia in 1996 (BCA 96) the limitations for MRTFC developments can now be expanded in various ways, such as increasing the number of storeys, changing the use (Class) of the structures or simply changing the methods of construction.

Listed below are some recent examples of MRTFC projects successfully developed using the performance criteria of BCA 96.

- A three storey Class 3 serviced apartment building;
- A Class 6 restaurant attached to a MRTFC serviced apartment building incorporating a non-fire isolated stair constructed with softwood timber;
- A three storey Class 2 apartment building built over a lower level used for commercial purposes and constructed of concrete and masonry.

The purpose of this Information Bulletin is to provide information to designers and applicants and outline how to go about gaining approval for innovative designs such as those described above.

The Building Code of Australia 1996

Since being introduced in 1996, all States and Territories have adopted the performance based Building Code of Australia (BCA 96). Compliance with this document is a mandatory requirement for gaining approval/consent to erect a building in Australia.

The major difference between BCA 96 and the previous Building Code of Australia (BCA 90) is that it is now written in performance terms.

This simply means that the document specifies the results that a building design must achieve and allows the designer to use any suitable methods to achieve those results.

For those designers who want to follow the prescriptive path, or aren't sure how to comply with the performance criteria, BCA 96 usually provides one or more suitable recipes, which is referred to as a deemed-to-satisfy solution.

These deemed-to-satisfy recipes are predominantly the prescriptive requirements of BCA 90. The MRTFC recipes presented in BCA 96 Specification C1.1, clauses 3.10 and 4.3 limit construction to a maximum of three storeys of Class 2 residential use over a lower level of carparking and Class 3 buildings to a maximum of two storeys.

However, under the BCA 96, when a designer chooses to produce a building which is different to that of the past, the new code allows the consent authority (e.g. the local council) to approve the innovative design, provided the authority is satisfied that the design meets the performance requirements of the Code.

What Regulations do Applicants Need to Consider?

In all States and Territories, buildings are controlled through legislation produced by the government, or by local authorities under powers given to them by the government. In building control systems there are administrative provisions, which set out requirements for matters such as lodging applications, paying fees, undertaking inspections. Also, there are technical provisions such as planning issues which set out 'what can be built where' and design and construction matters, such as those contained within BCA 96.

There may be a number of other Acts or Regulations applicable to the design and operation of the proposed building, for example licensing requirements of occupational health and safety matters. In some instances, the local authority may not be allowed to approve a particular application unless it obtains concurrence or reports from other authorities such as the Fire Brigades. The consent authority may also have specific requirements (e.g. planning, environment issues) additional to those in State legislation.

Prior to undertaking the detailed design of a building, it is essential that the designer compile a list of all legislation relevant to a particular building and then talk to the relevant authority about the proposal.

Designing a Building to Comply with BCA 96

The mandatory design criteria of the BCA 96 are the performance requirements and therefore, these become the 'targets' for a designer. Unless a proposed design meets the performance requirements, a consent authority will not approve an application.

Performance requirements are generally presented at the start of each Section of BCA 96, or in some cases, at the start of each Part of a Section. Compliance with these performance requirements can be met in a number of ways:

- comply with the nominated deemed-to satisfy provisions,
- develop an alternative solution to meet performance requirements,
- develop an alternative solution to at least equate to the deemed-to-satisfy provisions, or
- a combination of the above.

It is this 'combination' method which is likely to be the basis of most BCA 96 performance applications in the future, i.e. where a designer follows the deemed-to-satisfy provisions for the majority of a design and uses selected performance requirements to introduce innovation into only specific areas.

For example, a building which will generally comply with the deemed-to-satisfy provisions of Specification C1.1, Clause 3.10, other than it is proposed to change the lower level from 'carparking' to commercial use such as shops or office space.

Consequently, the designer must satisfy the consent authority that the change in use to the lower level does not unduly influence the fire safety performance of the MRTFC construction of the upper levels, i.e.:-

- occupants time to escape
- fire brigade intervention
- avoid damage to other property.

Documentation should be provided to the consent authority in support of the proposal.

Assessing Compliance of Performance Based Designs

Under BCA 90, assessing building applications was a relatively simple exercise as the various components of a design were prescribed and rigid. However using performance requirements under BCA 96, the consent authority must now exercise professional judgement in assessing a proposal. In some instances this may be beyond the level of expertise of the assessing officer. It is therefore the applicants' responsibility to provide 'sufficient information' to the authority to allow an accurate assessment of a design to be made.

The key to expediting this process is determining exactly what is 'sufficient information'. In order to do this, the applicant, needs to meet with the approval authority to discuss the proposal and the approval process. This stage of the overall process is referred to as pre-lodgement consultation and it is considered to be essential for a successful application under the performance provisions of BCA 96.

Pre-lodgement discussions are also beneficial to the approval authority for they have an opportunity to gain an appreciation of a proposal at a conceptual stage rather than being required to determine the propriety of a design after it is fully developed. They also have an opportunity to establish the credentials of any experts proposed to be used by the applicant. At the completion of these discussions the applicant should be aware of the views of the approval authority and the extent and content of required support documentation. The viability of proceeding with a proposal can be subsequently assessed with an enhanced degree of knowledge and confidence.

To assist both the applicant and the approval authority, there are a number of support mechanisms available which can aid the assessment process.

These mechanisms include:

- registered testing authority reports, NBTC, CSIRO, NATA, BRANZ, etc;
- certificates of conformity or accreditation, ABCB or State Authorities;
- professional certification, appropriately qualified structural or fire engineer;
- JAS-ANZ product certification;
- SSL product listing, or
- any other form of documentary evidence.

The use of any of these mechanisms can either relieve the approval authority of the need to make a decision, or they can assist in convincing the authority of the propriety of an alternative solution. While many of these mechanisms are currently known to designers, it may assist to review some basic principles which should be applied to any submissions.

In general terms, submissions should have the following characteristics:

- **Clarity** – the approval authority needs to be able to understand what is being proposed, and why it is being proposed, in order to consider the consequences of the design. While these matters may be obvious to the designer, the authority may not have the same specific knowledge as the designer and therefore a clear description of the proposal is essential.
- **Simplicity** – the designer should be able to demonstrate that the proposal is a suitable method of meeting the performance requirement without being unduly excessive. In some instances, compliance with performance requirements may be achieved by other aspects of design. For example, sprinklers are required to be provided in buildings ‘where necessary’. If it can be satisfactorily demonstrated by the applicant that it is not necessary to install sprinklers, then compliance with the performance requirement has been achieved.
- **Validity** – the reasons for introducing the innovative design should be provided. These may be purely design related however, it is appropriate to have economic considerations as valid reasons for alternative solutions as this was one of the fundamental purposes for the introduction of BCA 96.
- **Substantiation** – the applicant is required to demonstrate to the approval authority that the proposal can be technically supported. There are many methods of substantiating design criteria, or alternative solutions, including some of the support mechanisms referred to previously. Additionally, computer technology is used extensively to substantiate alternative solutions under BCA 96, particularly the application of appropriate fire engineering software.

The fundamental objective in developing submissions in support of alternative solutions should be to leave no doubt. If you leave doubt, your application could be refused.

In some instances it would be beneficial for designers to seek some preliminary professional advice (a second opinion on what you propose and how you can support this proposal), prior to discussing a proposal with the consent authority.

Specific Documentation to Support MRTFC Construction

The timber construction techniques utilised in MRTFC buildings have been documented by the National Association of Forest Industries, following an extensive testing regime conducted through the CSIRO. The MRTFC publications are available to practitioners as support submissions to building applications. The literature is available from the State Timber Associations listed on the back page.

In essence, this support documentation is generally adequate to satisfy consent authorities that the BCA deemed-to-satisfy provisions are achieved. The MRTFC publications may also be useful to support modifications to the deemed to satisfy provisions.

Additionally, Industry associations are likely to have experience with previously successful applications and may be able to assist with other support documentation or advice on material use or specific construction technology.

Irrespective of the forms of assistance available, it is necessary to appreciate that the extent of support documentation required may vary depending on the complexity of the project and the knowledge and experience of the approval authorities. The extent and content of the support documentation should be established through discussions with the approval authority at the beginning.

Summary

If applicants are proposing the development of a completely innovative design, or simply proposing a small change to a traditional design, the BCA 96 provides an opportunity for acceptance by approval authorities.

The extent of opportunity available may depend on the degree of innovation being introduced and the extent of consultation undertaken with the approval authority. Applicants need to be aware of the processes which are required to be followed and the support mechanisms which are available to assist in following those processes.

A wider variety of MRTFC projects can now be successfully developed. Take advantage of the opportunities that BCA 96 presents and be sure to utilise the professional expertise, experience, advice and assistance that is now available to you.

Technical Advice

Further technical information and assistance is available from the following Timber Advisory Services.

NEW SOUTH WALES

Timber Development Association NSW Ltd.
13 - 29 Nichols Street, Surry Hills NSW 2010.
Tel: (02) 9360 3088. Fax: (02) 9360 3464.

QUEENSLAND

Timber Research and Development Advisory Council
of Queensland.
500 Brunswick Street, Fortitude Valley Qld 4006.
Tel (07) 3358 1400. Fax: (07) 3358 1411.

VICTORIA

Timber Advisory Centre.
180 Whitehorse Road Blackburn VIC 3130.
Tel: (03) 9877 2011. Fax: (03) 9877 6663.

SOUTH AUSTRALIA

Timber Development Association of SA Inc.
113 Anzac Highway, Ashford, SA 5035.
Tel: (08) 8297 0044. Fax: (08) 8297 2772.

WESTERN AUSTRALIA

Timber Advisory Centre.
Cnr Salvado Road & Harborne Street,
Wembly WA 6014.
Tel: (08) 9380 4411. Fax: (08) 9380 4477.

TASMANIA

Tasmanian Timber Promotion Board.
c/- University of Tasmania.
PO Box 1214, Launceston, TAS 7250.
Tel/Fax: (03) 6324 3688.

PINE AUSTRALIA

830 High Street, Kew East, Vic 3102.
Tel: 1800 00 PINE. (1800 00 7463).
Fax: (03) 9859 2466.

PLYWOOD ASSOCIATION OF AUSTRALIA

3 Dunlop Street, Newstead, Old 4006.
Tel: (07) 3854 1228. Fax: (07) 3252 4769.

Members of the National Timber Development Council

- Forest and Wood Product Research and Development Corporation.
- Australian Timber Importers Federation.
- Timber Development Association (NSW) Ltd.
- Forest Products Association.
- Victoria Association of Forest Industries.
- Timber Promotion Council of Victoria.
- Plywood Association of Australia.
- Forest Industries Association of Tasmania.
- Tasmanian Timber Promotion Board.
- National Association of Forest Industries.
- Timber Research and Development Advisory Council.
- Queensland Timber Board.
- Timber Development Association (SA).
- Pine Australia.
- Forest Industries Federation (WA).
- Timber Promotion Council (WA).

Important Notice

The information and advice provided in the publication is intended as a guide only.

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