Are we Using Materials Fit for their Intended Purpose?

When one considers the enormous cost resulting from our Kiwi-grown Leaky home syndrome, and now in the light of sometimes extreme risk-aversion by Councils and Building Consent Authorities, it is easy to see why a Government would be concerned that building materials and methods are ”Fit For Their Intended Purpose”.

My talk today is intended to provide some background to this fascinating subject, including some information covering the legislative framework, who is entitled to determine which materials are “Fit For Purpose”, a little description about the how criteria is chosen, a discussion on who ought to or not determine whether a material or system or method is considered Fit For Purpose and finally which products ought to be used in the first place.

So let us ask the question, what is meant by Fit For Purpose...

One dictionary states:

"something that is fit for purpose is good enough to do the job it was designed to do " - and most other definitions follow a similar line.
The use of the term is most often associated with consumer law and recently has become used in many other areas, construction law being one of them.

The term Fit for Purpose is in fact used in the Building Act 2004 under a section covering implied *terms of contract*, stating in Section 397 titled 'Implied warranties for building work in relation to household units' - ...any materials used in the building work will—
(i) be *reasonably* fit for that purpose; or
(ii) be of such a nature and quality that they might reasonably be expected to achieve that result.
What is interesting here is the addition of the word 'reasonably'...but you get what is required.

In any case since all building work necessitates considering how a Court would view a particular issue, then we need to consider any definition as one that the legal profession would call *durable*. Therefore my definition of a building product or method that is *Fit for Purpose* is:
“a product or method that will meet the performance requirements set out in the New Zealand Building Code”.

For some this definition will be pretty obvious, since many of us will interchange the meaning of Fit for Purpose, with the commonly used phrase 'demonstrating compliance with the (NZ) Building Code'. This latter statement is what almost all Councils and Building Consent Authorities are seeking whenever presented with a new building product or method included in a Building Consent application.

In other words, while we use the term 'compliant with the Building Code' we also mean 'Fit For Purpose'.

Later we will look at the issues of demonstrating how a building product or method is deemed to be compliant or otherwise, but in the meantime we will look at who is able to decide whether or not a product or method is considered compliant or not, together with the legislative framework that governs their work.

So first we look at what Parliament intended in terms of Fit For Purpose by looking at **S17 of the Building Act** which states: “All building work must comply with the building code to the extent required by this Act, whether or not a building consent is required in respect of that building work.”

S18 goes on to state that building work *is not required* to achieve performance (to a) criteria additional to or more restrictive than building code...for legal reasons.

S19 goes then explains five methods of how compliance with the Building Code can be established.

The Building Code for those not familiar with it, is a part of the Building Regulations 1992 and the amendments, and is a document comprising of 37 categories of requirements.

However from a practical point of view the most useful categories start with Clause B1 covering the performance requirements for structural aspects of building work, followed by Clause B2 covering the durability requirements of materials used in building, and ending with Clause H1 covering the energy performance requirement of all new building work, according to the type of use. These clauses cover just about every type of building work one would to come across.

The Building Act then states under **S40** that except for maintenance work, all other building work shall require a Building Consent approval, and that approval shall be sought from a Building Consent Authority or 'Council' as we know them as.

To summarise, Parliament's intention then, was that all building work needs to meet the requirement generally described under each relevant clause of the Building Code, according to the type of building and the nature of building work and that Councils will be responsible for deciding whether or not a product or method complies. On the face of it, fairly straight forward, at least in theory.

So now lets see how this works in practice.

S44 of the Building Act states that the owner of a building to be built, must before the building work begins, apply for a Building Consent. OK.

S45 goes on to state that it is the responsibility of the owner to supply “other information that the Building consent authority reasonably requires”. In other words the owner is required to provide sufficient information about every material or

product intended to be used in a building project and that it is up to the consenting authority to accept the information or not.

Let's take a typical situation where a builder, acting on behalf of a client or themselves, makes an application for a Building Consent. Here is what a Building Consent application form from Auckland Council looks like. As we can see on pages 4 & 5 there are a list of all the clauses of the Building Code for which some form of evidence is sought.
Clearly a builder doesn't have the expertise to develop and provide the detail of data required to demonstrate compliance – so we have here an assumption by the writers of the Building Act that the builder will obtain this information from the relevant suppliers and manufacturers. Well I suppose that's not unreasonable, so let's now look briefly where suppliers and manufacturers obtain this information. The legislation doesn't say where or how unless a product or method has what is called a "CodeMark certificate". However apart from about ten products that do have a CodeMark certificate we can say that there are several thousand products that do not have one, and so there is a dilemma as to who is to determine compliance and what qualified persons from a Building Consent authority are able to decide whether the information supplied as part of the Building Consent application is appropriate, or likely to be 'Fit For Purpose'.

S40 of the Act makes it clear that deciding on acceptance of such information is the sole responsibility of the Building Consent Authority (which I shall refer to as a BCA). No argument here. Whether they have the necessary competence to decide that the information supplied to them is reliable and therefore demonstrates compliance, as we are all aware – is one of the significant problems the industry has with this approval model.

As we are now also aware, the Government is now looking at reforming the Building Act to improve efficiency and reduce red tape. But has the Government looked at the material/product/ method approval model? Apparently they are looking at options, but regardless of which option they chose, it is fairly obvious that the entity must have very highly qualified technical experts employed, or, there either needs to be approved product assessment bodies that can be relied upon for determining compliance. I think everyone here will agree that relying on Councils or BCAs will NOT be a step forward. This then leaves the other option. That is, approved product assessment bodies.

Interestingly this concept was part of the Bill that preceded the passage of the reformed Building Act 2004, but for some yet to be explained reason, was dropped. The building industry in my opinion has paid a high price over the years for this oversight.

Over the years the government through the Department of Building * Housing, has made numerous attempts to providing "guidance" on how to demonstrate compliance. Essentially these documents have described several "pathways' for suppliers and manufacturers to prove compliance with each of the relevant clauses of the Building Code.
Here is one of these documents.

As many will know, these guidance documents have been only partly helpful, with the biggest criticism coming from Building consent authorities, on the basis that the pathways are still not reliable for demonstrating compliance. Not one that they can rely on, they say. Several Building consent authorities have told me that all building materials and products should be made to have a CodeMark to relieve them from having to make these technical decisions. For the purposes of this talk we will leave that subject for another day.

Sufficient to say that product suppliers and manufacturers are left with little in the way of a simple, straight forward and inexpensive process for demonstrating compliance. As I've suggested, one option that is open to the Government is to consider having approved 'product assessment bodies' who possess both the technical expertise and experience for this type of work for which the fees would be less onerous than having to get a CodeMark certificate, which Parliament had a different use for.

So now let's look at what suppliers and manufacturers or building products currently do to demonstrate compliance.

As you can appreciate there simply are not enough recognised standards to cover all the different building products, or systems, or methods, used in construction. By and large the two main test houses based in NZ follow a similar approach which I will approach here.

The first issue when assessing which clauses are likely to be relevant, is to ask: what features or performance characteristics does the product or system have? For example a window could be described as having the following performance characteristics -

1. Must withstand strong winds – A Structural requirement, Clause B1
2. Must remain durable for the life of the building, subject to required maintenance, - a Durability requirement, Clause B2
3. Must keep rain and wind out – a Weathertight requirement, Clause E2.

In this way every building product or system can be characterized in a way that decides which clauses are relevant.

Having decided which clauses are relevant, the next step is to determine what criteria should be used. If we look at the window example. Then for Clause B1, which covers structural requirements, we would find several standards are used to assess window's ability to withstand strong winds and other structurally related requirements. The most common standard used in NZ is called NZS4211.

This particular standard has fortunately also been written in a way that also covers the performance requirement of Clause E2, as can be seen in Section 12. Clause B2 covering durability is covered in the joint New Zealand/Australian Standard AS/NZS2728, which includes among other tests, accelerated testing for corrosion resistance.

For an importer or local manufacturer of windows, their current process for demonstrating compliance is to have their products tested to the standards and

obtain from a test house, a Test Report describing whether or not the product meets the criteria described in the standard. For most BCA's, this is sufficient to demonstrate compliance with the relevant clauses of the Building Code. In my company we call this the Compliance Verification Procedure.
The following diagram illustrates the process for demonstrating compliance.

Review the product / systems requirements / characteristics.

List relevant Clauses of the NZBC.

List the relevant criteria that can be used to demonstrate compliance e.g. Standards.

List which testing or other method of assessment is appropriate.

Obtain the Test Reports or other documentation that can be used to demonstrate compliance.

Obtain where appropriate (for high risk issues) independent expert opinion on the data or documentation provided.

Interestingly there are some BCA's who believe it is not their role to have to assess such documentation, despite all the guidance and support documentation provided to them and their obligation under the Building Act. It would appear on the face of it that being presented with good reliable data would make the job of a BCA easy and absolve much responsibility from BCAs. Again as many can testify this has not always been the case.

So now lets look at a class of products used widely across the country, and for which BCAs insist on proof of compliance, for which there are no specific standards, as an example of how compliance (FFP) can be demonstrated, and what has happened in practice.
As you would be aware, many buildings both residential and commercial, are designed and built with almost flat roofs and decks. In most situations where the roofer or deck is not intended to be walked on, or have minimal traffic, a sheet membrane is often applied as the waterproofing material. On the other hand for those areas that are intended to be walked on, there is a growing trend to use what are called liquid-applied waterproofing membranes. These products have a number of features that make their use an alternative to the use of sheet membranes.

If we use the Compliance Verification Process described earlier, these are the steps that would be needed to follow in order to demonstrate compliance or FFP.

1. Review the product / systems requirements / characteristics e.g. Need to be wind resistance, able to withstand the effects of the sun, waterproof, & may need to resist foot traffic

2. List relevant Clauses of the NZBC e.g. Clauses B1 for wind resistance, B2 for resistance to UV, and E2 for water resistance.

3. List the relevant criteria that can be used to demonstrate compliance.

In this case there is an absence of a NZ based criteria. Although there is an industry sector group known as the Membrane Group (NZ) – www..membrane.org.nz - little has been done by Government to assist them develop a relevant standard, along with a Code of Practice, which in turn could be used for BCITO training material. Having such standards and Codes of Practices for every sector of the building industry is essential if there is to be consistent quality of design and installed products across the country, and that can be shown as being Fit For Purpose.

What the Test Houses, are who are employed to provide independent expert opinions that BCAs can rely on, are required to do in practice, is research all of the overseas developed criteria and apply the ones considered appropriate, to the product or system, as the means of deciding what overall criteria needs to be met. From here, the supplier (often the importer) or manufacturer, must demonstrate with test data, that their product or system conforms with these criteria.

Really this is not much different to the Compliance Verification Process followed where a NZ or Australian standard (criteria) is used. As one can see, this is a relatively straight-forward process – providing all parties with a reliable pathway to demonstrating FFP. The pity of this, is that many BCA's are to risk averse to accept even this proven and reliable approach.

Finally let's now look at the issue of whether or not a particular material, product or system OUGHT to be used for a particular building project.
First, the Building Act does not address this issue other than to require products to meet the performance requirement of the Building Code. In practice any product that is shown to meet the Building Code ought to be suitable – for any building work.
Second, it is only with the benefit of hindsight that we know about the performance of some materials, which could not be determined with certainty when they were first introduced into the marketplace. Untreated timber being a good example. Today however, the rigour that is applied by Test Houses in demonstrating compliance is significantly more stringent, with legal accountability being a key motivator. From my perspective, admittedly with prodding from the Government, the suppliers and manufacturers of building materials have raised their standards to the point where provided the material has been properly assessed, and there is a robust quality management system covering installers in place, the likelihood of a

failure, is nearly zero.
In other words the question as to whether or not a material or product or system OUGHT to be used, is no longer a question that needs to be asked, if there is reliable evidence that it will meet the performance requirements of the Building Code. But as I've already alluded to, the pathway to demonstrating compliance is NOT straight forward. This is where the Government's intentions to reform the current Building Act can be focused.

Thank you.