



# STANDARDS FOR OFFSITE CONSTRUCTION - ARE THEY ADEQUATE?

There has been much talk recently about the lack of test standards for modular construction. This lack of standards has a two-fold effect; it gives permission for manufacturers not to verify their panel performance, and causes problems with regards assessment by the warranty bodies as to what is acceptable system performance.

The 2018 Hackitt review predominately deals with standards relating to fire but does reference overall test standards. The report recommends that manufacturers should provide an increased level of test performance rather than a calculation or desk study:

“A clearer, more transparent and more effective specification and testing regime of construction products must be developed, including products as they are put together as part of a system.”

There are some standards available which can be used to deal with specific aspects of factory built systems. Primarily, these are the Eurocodes which cover the design of frames: EC 3 for the lightweight steel frames also incorporating any hot rolled sections, EC 5 for timber frame construction and EC 1 which gives guidance on general loadings acting on buildings. However, these standards are limited in their use, and do not include connections at foundation level, at roof levels or wall to wall; these are all critical areas that will produce a successful or unsuccessful system design. If we look for standards that allow us to assess the composite performance of the system, we do not get very far. We are back to individual documents that enable us to examine at the individual components that make up the system, e.g. we can assess the performance of the ancillary components like channel ties, floor hangers, straps and sheathing boards, but we cannot see

how they work when built into the system.

When considering the European Technical Assessments (ETAs), there are again, a number of documents available which encompass frame design: ETAG 024 Concrete Frame Building Kits and ETAG 025 Metal Frame Building Kits. Similar to the Eurocodes, these allow only the frame to be designed and assessed, but do have the advantage that this route would enable the frame to be CE marked. Nevertheless, this again does not allow the system to be assessed along with its connections and interactions.

ETAG 023 deals with prefabricated buildings and does allow a full building to be CE marked if following the complete standard and covers all aspects, i.e. structural, durability, safety and fire. Unfortunately, the standard covers too much and is applicable to any design of pre-

fabricated building, and as such, goes into no detail for specific systems. The standard is not prescriptive enough and broadly suggests that certain aspects should be proved like the structural performance, but does not give advice on how to achieve any of the criteria. This inevitably leads back to either a search for individual component standards, desk studies or a 'non-declared performance' which gives no information to the system assessor further down the line.

It is important to understand the whole performance of the system under all of the aspects that may affect the building during its lifespan, including structural, durability and environmental performance. Examining the performance of individual components that make up the system is not sufficient. Until there are standards in place, or a standardisation of interfaces, connections and facades, there will be a continued struggle to convince

warranty providers of the quality of the build. This also gives a charter to the more unscrupulous manufacturers to avoid their due diligence in producing a quality product.

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