

Severe Bush Fire test at over 1000°C endorses Steel Framed Houses

BACKGROUND

The National Association of Steel Housing (NASH) designed a purpose-built house constructed mainly with steel to test and examine the resistance of steel framed housing to bush fire. The test indicated: --

- Houses designed with steel – including steel framing - have the strength and durability to potentially save lives in severe bushfires
- The intense frontal peak of a fire-storm - as severe as those in Victoria in 2009 – creates a temperature of about 1000°C
- Steel melts at about 1400°C to 1500°C
- The important factor is here is time: the test house indicated that steel withstood the intensity of a fire for much longer than would be expected in the passage of a typical fire front
- CSIRO undertook the flame testing of the house; it was constructed with steel frames as well as steel outer walls, under-floors and roof cavities
- CSIRO researchers, led by bushfire expert Justin Leonard, sees this design to be an effective low-cost solution for construction of fire resistant housing, particularly in bushfire-prone areas in Australia
- This test will assist with research into effective construction methods for building and re-building in bushfire regions. The aim is to meet new building codes introduced by the Royal Commission following the Victorian bushfires in February 2009. These new building codes specify that: A building that is constructed in a designated bushfire prone area must be designed and constructed to reduce the risk of ignition from a bushfire while the fire front passes.



FRAMECAD Steel Frames ideal for Australian conditions

- Strength: cyclone proof - non-warping, non-twisting
- Termite proof
- Galvanised: rust/water/rain resistant
- Faster construction versus traditional methods
- Cheaper/cost effective to construct: as much as 30% over traditional methods
- Lightweight to erect: ideal for remote areas
- Lightweight, compact and cheaper to transport (i.e. assembled on site): ideal for remote areas
- Safer to construct (i.e. less OH&S concerns than establishing traditional wood frames with nail guns etc)
- Greater design flexibility: suitable for low cost housing, two storey homes, modular homes and multi-storey commercial buildings
- The environmental benefits of steel: all by-products from steel construction are reused and the steel can be recycled.

FRAMECAD™

F300i-315i

FRAMECAD and FRAMEMASTER

- The FRAMECAD design and sustainable building process incorporates the intelligence of the FRAMECAD system and FrameMaster manufacturing equipment. The new FRAMECAD F300i and F315i have been designed to be world leading light steel frame manufacturing plants. With high throughput, reliability, ease of maintenance and simple operation a focus of the design, these new integrated manufacturing plants will deliver high productivity, high quality and accurate output.
- The FRAMECAD F300i and F315i systems are designed for manufacturers of framing and trusses across many applications, typically producing 89mm or 150mm C profiles. With a gauge range of between .55mm and 1.2mm, the new F300i and F315i machines offer flexibility as stand alone plants or in multiple machine configurations for a broader range of manufacturing options (profile and gauge ranges are model dependent).
- FRAMECAD now offers a better option for reliable, fast and flexible end-to-end steel frame design and build solutions across a wide range of construction applications: Residential and affordable housing; Workforce accommodation; Truss production; Portable and modular buildings; Commercial and industrial construction; Internationally certified building system
- FRAMECAD Australian Sales Manager, Peter Blythe said: “FRAMECAD is ‘Meccano-like’ in its simplicity of assembly due to the precise computer controlled production of every piece of framing. This means we can construct almost any building - from a low cost disaster-relief building to resource-based outback housing to the suburban family home and exclusive luxury designer homes. “In all cases FRAMECAD will save significant total construction time, improve quality and reduce cost. The precise steel frame fabrication system uses low skilled labour for low cost, faster, safer construction.”

BACKGROUND

About the flame testing: The fire-test house was designed to represent a basic domestic house, constructed with thermal insulation and plaster walls and ceilings. Fire resistance improves when these materials are layered with the steel components to offer a sound building system that would offer some protection to occupants. A rural bushfire was simulated with the assistance of the Rural Fire Service at Mogo on the New South Wales South Coast. Gas burners placed metres away from the test house were used to create the approaching fire, growing to three metre flames in under two minutes. More written information on the testing is available from NASH. Assessment of the full effect of the fire continues.

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