Going beyond the traditional tops in global design

Peter Stutchbury Architecture was chosen by a prominent jury of world class architects as winner of the 2008 Living Steel international architecture competition, the first Australian firm to top the contest since it was launched in 2005.

Living Steel is a five-year program managed by the International Iron and Steel Institute (IISI) to stimulate innovative and responsible housing design and construction. The program was developed to help address the unprecedented pressure on infrastructure, communities and the quality of people's lives as urban populations balloon.

The architectural practice won out of 12 finalists chosen from 246 proposals from 52 countries, decided for the first time with the benefit of entrants presenting directly to the jury, this year convened in Helsinki, Finland.

The winning company's principal said it was a golden opportunity to explain what exactly the thinking was behind each entry.

"This type of entry presentation is rare for these award programs, but very appropriate as, in many cases, it really was about going beyond traditional ways of working with steel," Mr Stutchbury said.

While the jury deliberated, the architects took part in a design workshop on the master plan for the remote and rugged Russian community where the homes will be sited. The workshop was also a first for the competition.

Another distinguishing factor Mr Stutchbury noted was that the program focused on "finding great solutions to real problems".

Architects were asked to create energy efficient, single family detached homes for employees of SeverStal JSC in Cherepovets. The construction had to minimise greenhouse gas emissions and withstand temperatures ranging from minus 49 degrees to 39 degrees Celsius. The homes also had to be affordable to build and buy within a modest budget of about A$100,000.

As Mr Stutchbury explained, while generally entrants used steel in the traditional sense as a framing material, his entry treated steel more as a flexible medium recognising that steel has qualities quite apart from its strengths as a structural component.

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Steel was assimilated into the construction of the building only where considered strictly appropriate. Internal thermal walls use steel for its radiant and conductive qualities. Steel used in the flooring provides for effectively distributed radiant heat.

Conversely, the use of steel piles in the winning design concept allowed double walls of steel sheets to be filled with earth, effectively insulated and water tight whilst accommodating utility services within.

The design entry's passive design approach aimed to utilise all available appliance heat emissions possible and limit loss.

Heat bays allowed heat transfer and competent insulation without leakage.

"It's now an international responsibility to lessen energy use as our current building stock is very energy consumptive," he said.

"Largely by using continuous air ducting within the primary radiant wall that is part filled with sand in all void areas and capture stores and balancing heat, energy loads can be reduced by up to 70 percent."

The design even encompasses measures to utilise heat generated by cooking, baths, lighting, people, cars and wastewater.

Peter Stutchbury Architecture begins working with SeverStal and a local Russian (and/or Finnish) architect to define the design for construction of 500 variants in Cherepovets this September. Living Steel plans to demonstrate this building on site in Russia in late 2009.

Another Australian firm, Bligh Voller Nield Architecture and Canadian architects, RVTR Toronto received honorable mentions from the jury.

Mr Stutchbury was the first architect ever to win both the top National Australian Architecture Awards from the Royal Australian Institute of Architects for residential and non-residential projects in 2003, and again in 2005.