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EXPERIMENTAL INVESTIGATION INTO HIGH STRENGTH STEEL COLUMNS OF Q690 WELDED H-SECTIONS

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Abstract. *Owing to high strength to self-weight ratios in Q690 steel materials, there is a strong desire for design and construction engineers to use these high strength steel materials in construction, especially to those heavily loaded structures and long spanning structures. This paper reports a comprehensive research programme on effective use of Q690 steel materials in building construction, and the following tests have been carried out successfully:*

a) Standard tensile tests on Q690 steel materials;
b) Stocky columns of welded H-sections made of Q690 steel plates under i) compression, and ii) combined compression and bending; and
c) Slender columns of welded H-sections made of Q690 steel plates under i) compression, and ii) combined compression and bending.

The experimental investigation provides fundamental information on the structural behaviour of Q690 steel materials and members, and design and construction engineers are encouraged to explore the benefits offered by these high strength steel materials in construction projects.