STRAIGHT TALK

Q What is your take on 355 high strength hollow section and how beneficial you think it will be for the İndian construction industry?

These sections are preferred by engineers and architects for their superior aesthetic appeal and reduced dead-weight. We will certainly see a significant increase in their popularity in the near future. However, we must see improvement in their availability and reduction in their cost per tonne. If the industry gives design support such as guides and tables along with sample design calculations, etc., it will encourage designers to evaluate the alternatives using high-strength hollow sections. It will be easier to convince the clients.

KAMAL HADKER
Managing Director
Sterling Engineering Consultancy Services Pvt. Ltd.

The 355 grade hollow sections provide two distinct advantages, higher material strength and optimum sectional properties. Any engineer would prefer to use these sections as it results in optimum bill of quantities. Although, the cost of 355 grade will be higher, the amount of quantity saved is much more than its additional cost over 250 grade steel. There are several challenges for pipe sections as of now in India. There are limited producers of these sections and its availability in different sizes at any given point of time needs to be assessed before implementation. The connections with pipe material require special skilled labor for cutting and welding. Pipe sections will be most useful if there is substantial quantity to be fabricated of the same size. Use of variety of pipe sections and smaller quantity will result in considerable wastage if the entire length of the section is not fully utilized and will affect the economics of the project. Unlike China, which is major producer and consumer of pipe sections, India is yet to catch up for the use of pipe sections. In summary, the use of high strength pipe sections is certainly beneficial as it provides best economic advantages due to optimum use of material. The cost-benefit will largely depend on quantity, availability of variety of sections, similarity in members, availability of skilled labor and erectors.

JIGNESH CHOKSHI
Dy. General Manager, L&T Sargent & Lundy Limited

When I started my career only 250 grade steel was available. The available standard Indian sections were bulky and aesthetically less attractive. The onset of high grade hollow sections has led to sleek member sizes with a striking finish encouraging the architects and structural designers to use steel. Structural façade, canopies, bracings, trusses and lightly loaded columns are now preferred in with high grade hollow sections. Due to their beautiful finish and symmetric properties, hollow sections have changed the face of airport design as well. Furthermore, in the rehabilitation of structures, they are one of the designer's preferred choice. The Indian construction industry is already benefitting from hollow sections as it has found its niche. The limitation with these sections is that they cannot be used for heavily loaded columns. However, TATA is currently developing larger hollow sections of 450 grade that are intended to be used in multi-storey buildings and as columns which can be filled with concrete as well. There are special bolts called hollo bolts that can be used for connections in hollow sections. With further advancements like these, the inclination of the Indian construction industry is definitely grow towards structural steel.

VINOD JAIN, Managing Director, Vintech Consultants

Structural steel sections have been used since ages for the building industry. the geometry of these sections has changed significantly over ages. Starting with wires, cables, solid rods and bars, hollow circular tubes, to rolled steel sections and parallel flange sections, to the latest square and rectangular hollow sections. The structural design demand has motivated invention and use of these modified sections in order to enhance flexural and torsional capacities and stability requirements. Steel sections are now widely used in building industry for low rise and high rise buildings and special structures. The area of steel material is well distributed around all the axes, and thus, leads to economy of design by controlling weight/strength ration and slenderness. Also, the torsional rigidity is much enhanced. In a recent project design, we have observed that 5 per cent saving in weight can be achieved by changing grade from 250mpa to 350mpa. Also, the overall area of section is reduced, weight of structure is reduced. Curved structures are beautiful and can be better achieved using high strength SHS/RHS. Corrosion is reduced due to closed section and the welding needs to be done using special electrodes. But, with modern workshop equipped with latest tools and technology, this has become convenient. Availability and pricing needs to be controlled and made comfortable, and connection detailing needs special library.

DR. ABHAY GUPTA
Director - Skeleton Consultants Pvt. Ltd.
& ESCOM Consultants Pvt. Ltd.

Construction industry is dependent principally on architectural, engineering, construction ease, time and cost. If 355 MPa with sizes range of 200mm to 450mm with various thickness available then for architects it will use less space in terms of width, depth, will save on carpet area and give floor efficiency, aesthetic appeal with corner radii. For engineers high load capacity with less sizes, normalize, fine grain, free from internal stresses, material cost saving, easy yet sturdy connections. For contractors will have light weight members reducing erection cost, fully killed so excellent weldability, simple connections, less time for construction as less fabrications and erection. As an end product clients will get aesthetics, engineered, easy constructions, less time and less cost of construction with high strength box sections. We have been able to span 110m clear span with high strength box of 300x300x8/12/16 for aircraft MRO facilities at Hyderabad. We faced problem of non-availability of material as an alternative arrangement we have used high strength plates to fabricate box sections.

VIVEK GARG
Managing Director, Global Engineering Services