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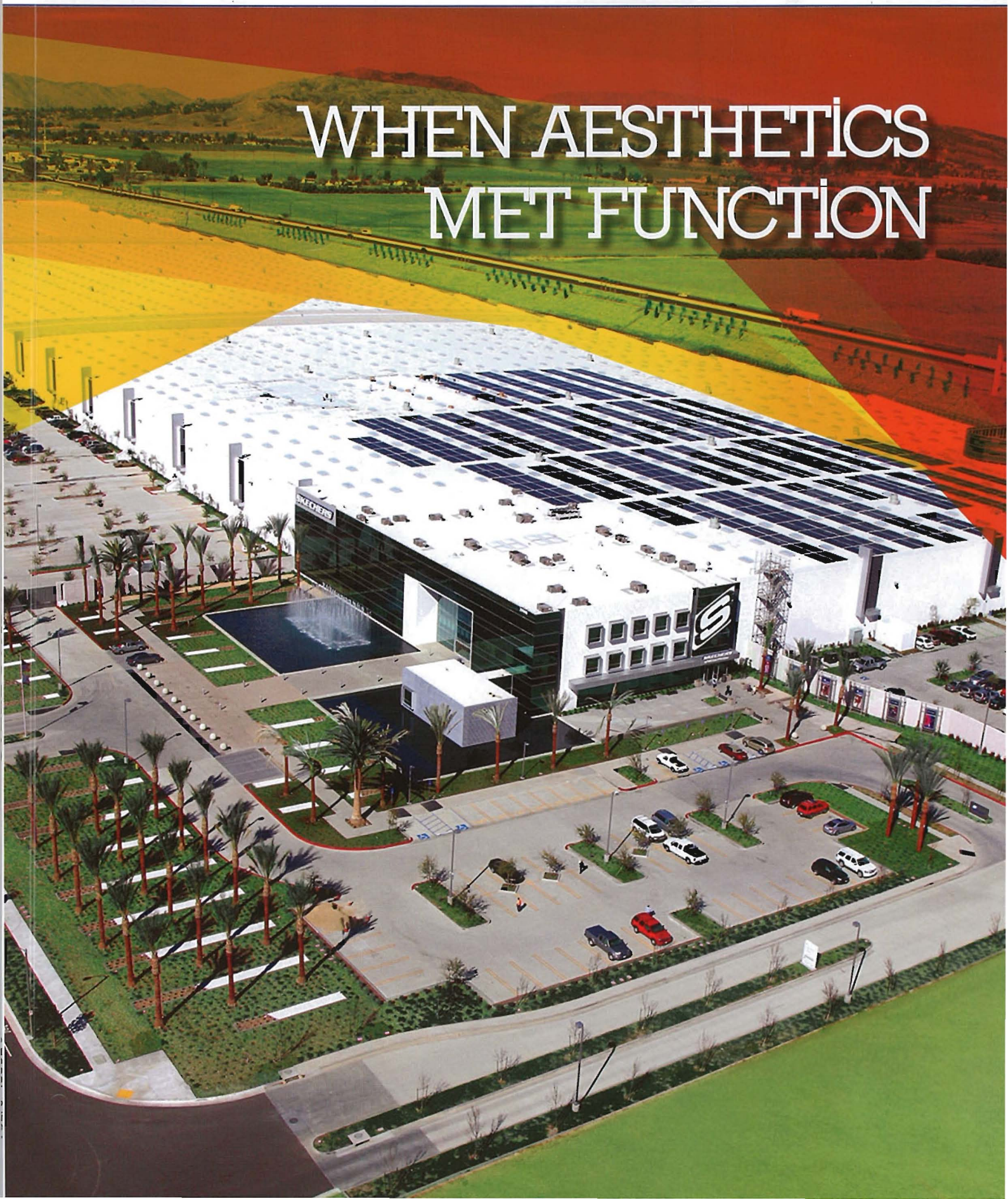
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**STEEL
STRUCTURES
& METAL
BUILDINGS**

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WHEN AESTHETICS MET FUNCTION



For steel to become a more used material in India, the structural design thinking from the professionals has to evolve at a faster pace than it is presently, as does the architectural design thinking. However, it is equally important for the construction methodology and training of the workmen to keep a steady pace with the design developments. As the steel industry has grown considerably because of the extensive use of steel in the industrial sector, it is just a matter of time before these developments start to infiltrate the commercial and residential design space, says, **Ar. Martand Khosla**, *Partner, Romi Khosla Design Studios*



STEEL EMPOWERS MULTIFARIOUS LEEWAY

Q What are the major advantages of using steel vis-à-vis conventional materials?

A Every material has its pros and cons, and as such these material properties, should define their application. Steel like several others has its own advantages and disadvantages, however in India often inappropriate materials are used in construction instead of the appropriate ones, there is a great deal of use of concrete in our construction industry, and as a result, steel is highly underutilized as a building material.

Its advantages lie in its short construction cycle, its inherent strength that allows for lighter structures and longer spans. Steel behaves well under compression and tension and as such is extremely versatile for tall buildings and large spans. And of course at the end of life of steel building, most of the cost of steel is recovered from recycling, making it an extremely environmentally friendly material.

Q How structural steel can be innovatively used in construction to provide design aesthetics and at the same time offer economical solution?

A So far the architectural language of steel has not been adequately explored in India, as it has in some other parts of the world. Early steel buildings expressed the steel junctions in cast iron details and decorative motifs, and in the early part of the 20th century, steel structures were expressed as in the column detail in the Barcelona pavilion and towards the 1970's a new expression of steel emerged with buildings like the Pompidou Centre where an engineering aesthetic merged with an architectural design intent.

So in an extremely compressed history of over a century, I am trying to demonstrate how steel has evolved as a material and architectural language. This evolutionary journey is still, at its very early stages of development in India, but I am certain it will evolve rapidly as it did in China and South East Asia where the material has been appropriated and made culturally relevant.

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Q What is your take on the variety of sections/grades provided by our steel producers for various demands of creativity?

A As the steel industry will evolve, so will the technical specifications, components and design opportunities. If we can't find particular sections, we fabricate them, and as such there is a great joy in designing from scratch without being limited to market availability. One of the great design opportunities in India, is the availability of relatively low labor costs. This allows for architects and engineers to be able to develop sections and details that are not necessarily straight off the shelf, but provide bespoke design solutions to each building.

When we were working on the Volvo-Eicher headquarters, we used all the steel that was available in India, except the decking sheets for which we had to go outside the country. We were unable to find the correct grade of steel and profile for this. This was understandable as there is very limited use of these sheets, however, it would be good to see them available in the future.

Q What trend are we going to witness in next 5-7 years, as far as designing structures with steel is concerned?

A I wish I could tell the future, but if I was to hazard a guess, I would like to see greater expression and use of steel within the non-industrial buildings, from housing and commercial to institutional buildings. I also look forward to more innovate structural

design solutions for steel from the structural design community, and I look forward to more engagement of the steel industry with the architectural design community to help create interesting architecture throughout the country.

Q What should be the strategy of industry in promoting structural steel construction in India?

A Let all the members of the industry mandate making all their own corporate, institutional and personal buildings in steel for a start! No better way to demonstrate its virtues than by using it extensively and exclusively for themselves. This of course has to go hand in hand with the development of the structural engineering industry, and the architectural community.

We as the architectural community would be very glad to interact with the steel industry, however, so far, we have had limited interactions. I think that the steel industry would also benefit from not only looking at scale of construction and the time cycle as the only criteria for promoting steel. It is important for the industry to dedicate a small part of their resources to look at how steel can be integrated within the architectural language of India. For this, there has to be greater outreach to the architectural and engineering fraternity.

Q Which are the iconic steel-specific projects executed by you?

A I have always wanted to work with steel, and when I was a student in 3rd year of college, I designed my first building, which was a holiday home for my parents in the mountains. The entire building was a steel building (where the walls were made of stone and sundried mud bricks). Subsequently, after I started RKDS (Romi Khosla Design Studios) with my father, my first building, the Castro Cafeteria was also a steel building. Subsequently we built some composite steel structures like the Goel house in Delhi and more recently the corporate headquarter for Volvo-Eicher in Gurgaon was a completely dry construction in steel with a LEED platinum rating. We, in the studio continue to look for opportunities to design in steel. ■