

## A REVIEW OF STAINLESS STEEL USAGE FOR ARCHITECTURE IN INDIA

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### THE BEGINNINGS

The initiative to introduce stainless steel for architectural use was taken by Salem Steel Plant, Steel Authority of India in the mid-1980s. The first instance was the stainless steel cladding of six-meter tall columns at the entrance of the prestigious Madras Metropolitan Development Authority in the city of Madras (as Chennai was known then) and some

modest amount of stainless steel handrails there. This was executed in 1987 with improvised techniques, trials and elimination of errors, a lot of care, plenty of labour and huge cost to Salem Steel Plant. Fifteen years on, these columns look as good as new. The foundation for the use of stainless steel in architecture was laid.

In 1989 came the beautiful entranceway stainless steel-clad columns that attracted a large number of curious tourists to the Hussein Sagar Lake in Hyderabad. The 60,000 strong weekend crowds that paid two rupees per person soon justified the initial extra investment in the beautiful stainless steel cladding instead of drab concrete.

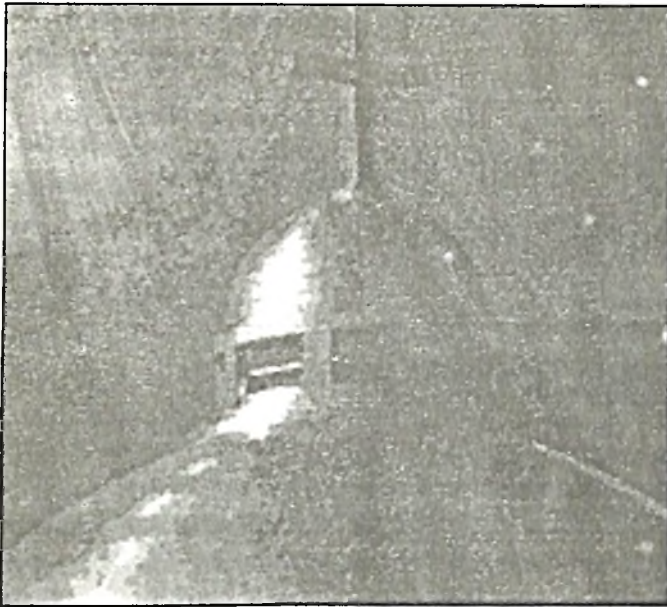
In 1991, things advanced a bit. The dome of the church and the Holy Cross on top of it at the Karunya Institute of Technology near Coimbatore, Tamil Nadu, was clad in stainless steel. In 1993-1995, two major hospitals in Chennai had the walls and ceilings of several of their operation theatres clad in stainless steel.

ISSDA launched itself into this architectural sector in 1996 with a series of workshops in all major cities with the help of NiDI consultants. This was just the time when a whole lot of small and large buildings started sporting stainless steel clad columns and handrails, and even exterior cladding, especially in Chennai.

The principal problem at that point of time was that there were a very limited number of fabricators available, mainly based in the south. They boldly went out and executed projects in Delhi, Mumbai and other



*Entrance at Hussein Sagar Lake*

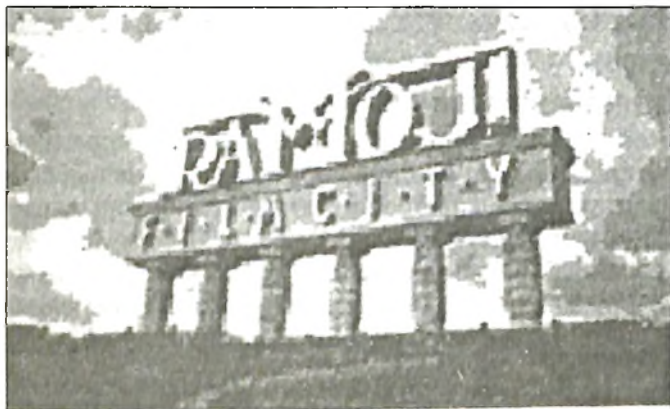


*Church dome and cross clad in stainless steel at Karunya*

far away places. This led to breeding of local talent in different parts of the country, especially in the metros.

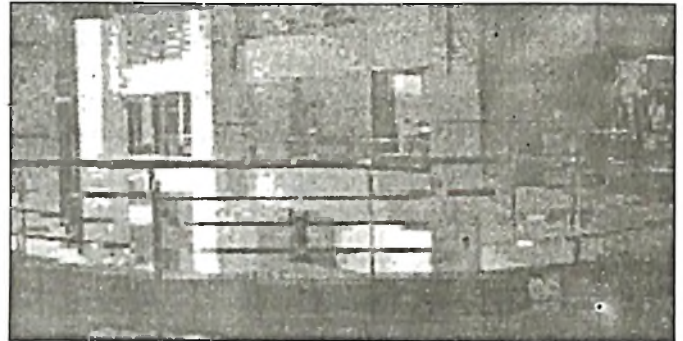
**ROLE OF NIDI AND ISSDA**

On our part, since 1996, NiDI and ISSDA, have held more than 40 small and large workshops, seminars, conferences and lectures in different parts of the country addressing students of architecture, practicing architects, fabricators and suppliers about all aspects of design criteria, grade selection, fabrication and election. We also contributed many articles to leading architectural magazines and magazines relating to metal industry about this subject. We are very thankful to M/s Jindal Strips Ltd, who, through the person of Mr.N.C. Mathur, President of ISSDA, have

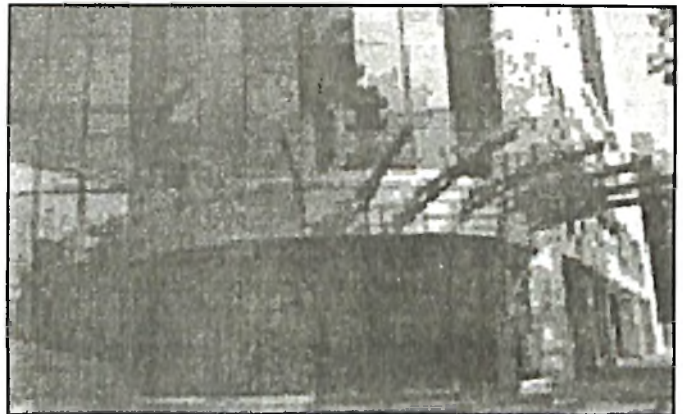


*Huge Stainless Steel Signage at Flim City Near Hyderabad. Four persons standing at the bottom of the 'i' give an indication of the magnitude*

contributed a lot to the awareness programme. This consistent activity over the years has certainly helped in creating greater awareness about the use of stainless steel in architecture. The late nineties witnessed the beginning of popular use of stainless steel for building and construction. This new century is witnessing a slow but steady growth in many parts of India.



*Long radius bends of hanrails at Bangalore*



*Canopy at the entrance of office building in Bangalore*

Central to this growth is the distribution of literally tens of thousands of NiDI publications and CDs relating to the use of stainless steel in the Architecture, Building and Construction sector, which are freely distributed to new customers, architects and fabricators from all over India. In addition, on the ground support in sourcing stainless steel products and services is readily provided. Individual member companies of ISSDA, especially Salem Steel Plant, contribute their mite to the growth of this sector with pioneering efforts like the Parliament Library Project, the Railway Platform roofing at Navi Mumbai.

We visit a large number of sites on a regular basis to assess the quality of installation and do our best



to share our knowledge with those in the business. We are also constantly on the look out for new products and equipment entering the market. Over a period of time, we have been collecting details of fabricators, whether large or small, and have a ready address list of fabricators and suppliers of various architecture-related products and equipment. These are freely distributed to any architect who contacts us.

Our reading of the current situation is that at least some of the fabricators, say 5-6 of them in our reckoning, have honed their skills and have kept improving their capabilities with each new project. There are probably many others good as well as indifferent fabricators in the business whom we do not know about, but we would certainly like to know about them. We can add to our knowledge pool from the good ones and we can get them good projects. We are more than ready and willing to help the not-so-good ones improve their quality. We request the architect and builder community to help us make a comprehensive directory to include fabricators whom we are not aware of.

**VISIBILITY HELPS**

In Delhi, we had a difficult time introducing stainless steel as the architects did not feel confident that the execution would be good enough. The Ansal



*Ansal Plaza Columns, Delhi*

Plaza in Delhi, having over 90 large RCC columns clad in stainless steel came up in 1998. Although due to various reasons, this is not the best of execution, it made many architects visiting this hot spot of Delhi, to realize that stainless steel usage is a feasible thing. This gave the much-needed push to stainless steel

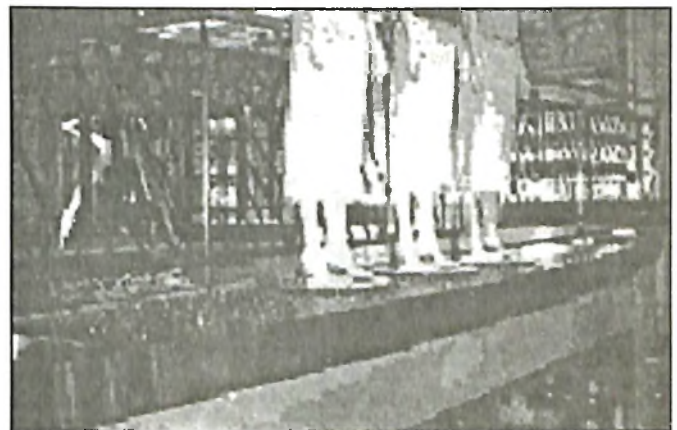
usage for cladding, handrails, signage, etc., in and around Delhi. To our relief, Mumbai, the commercial capital of India, also finally got going.

**SHOPS AND OFFICES**

Use of stainless steel for interiors and exteriors has become a trend in Delhi, especially in new



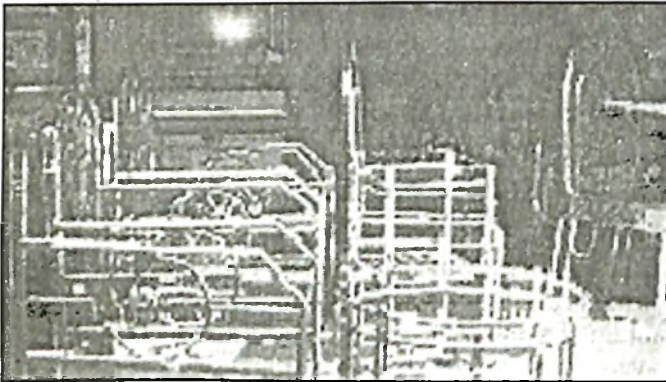
*Wills showroom, Delhi, Signage and entrance*



*Laser-cut stainless steel platform for mannequins, Wills showroom construction. Many new shops, boutiques, shopping malls in Gurgaon, departmental stores, restaurants &*

pubs, etc., boldly use stainless steel for a variety of functions. The same trend is witnessed in other major cities—for instance, the *Crossroads* in Mumbai and several other locations. The 70-odd outlets of Wills sportswear use a lot of stainless steel in their interiors. Many companies have started using stainless steel in their corporate offices. This is especially the case with IT-related firms.

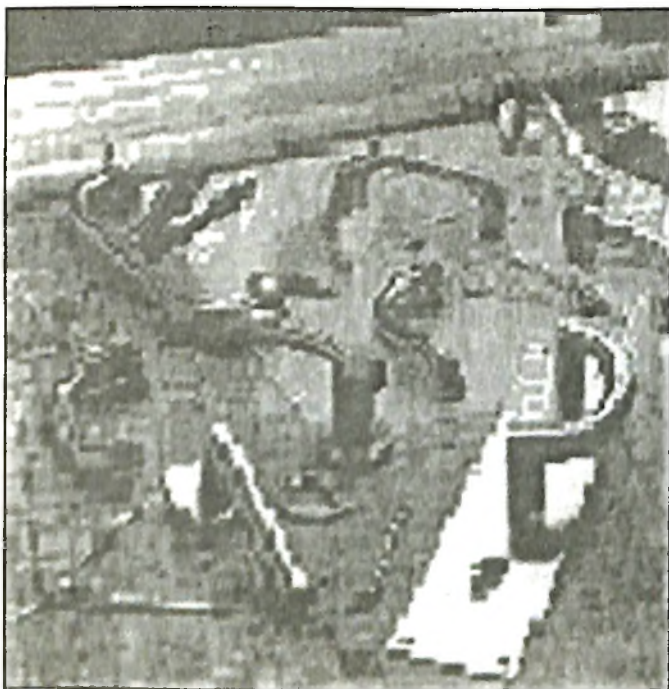
## FURNITURE



*Furniture at a shop in Mumbai*

Use of stainless steel for furniture started as a trickle and now coffee shops like Barista, Café Day and some fast food joints exclusively use stainless steel furniture. This is the norm in other metros also.

## BUILDING HARDWARE

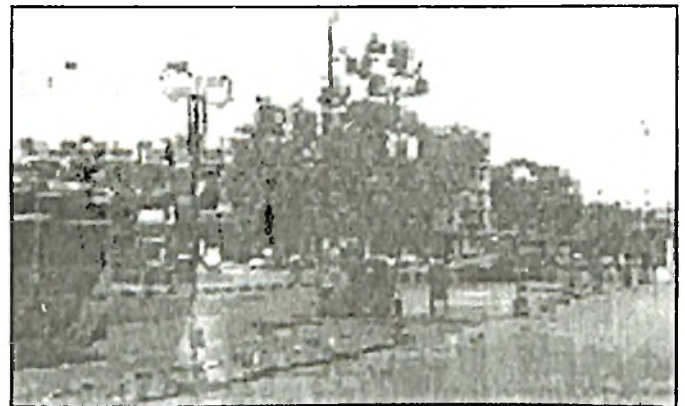


*Building hardware in stainless steel*

All over India, there is widespread use of stainless steel cramps for supporting stone work on concrete walls. Stainless steel fasteners, hinges, tower bolts, door handles, mosquito netting for doors and windows, etc., are available off the shelf in major cities. They cater both to the exclusive ones and the ones who are price-sensitive. Woven products, wire ropes and fittings are also increasingly available.

## STREET FURNITURE

Street lamps, signage, park benches, bus stops, hand railings on the street and garbage bins in stainless steel. These may sound mundane, but here is where the tonnage is. These are the ones that lend a sparkle to the environment. Add to this the airports and railway stations. Jindal Strips Ltd. is in talks with the Delhi government for allotting specific shopping areas for installation of street furniture on a commercially viable basis. Once a couple of them spring up in different metros, I am sure many other



*Street lamps and side-walk protection in stainless steel, Chennai*

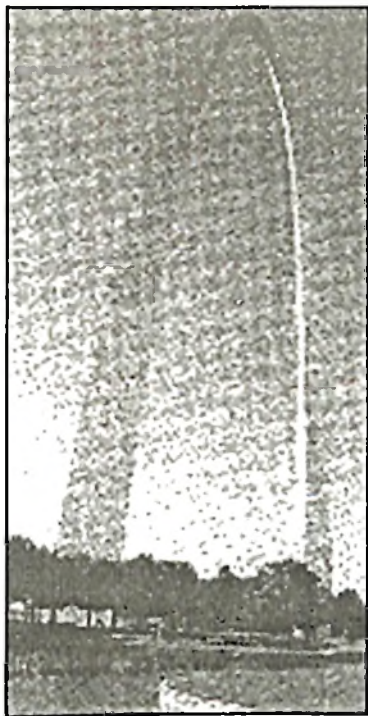
big corporations would like to earn a name as socially responsible organizations, and also get visibility for themselves.

## NEW PROJECTS UNDER WAY

In commemoration of the 300th anniversary of Sikh religion, a large project liberally specifying stainless steel for roofing, handrails, building hardware and other applications is under way near Chandigarh. The architects are from Boston, USA.

An imposing police memorial arch (something similar to the Gateway Arch at St. Louis, USA, which





*Gateway Arch, St. Louis, U.S.A.*

is shown here) in stainless steel at Chanakya Puri in Delhi is under serious consideration. The job has been entrusted to the Central Public Works Department, Delhi.

Another very interesting project is shaping up in Lucknow under the UP Rajkiya Nirman Nigam. According to the Chief Architect of the project, Mr. D.S. Bhui, a 30-metre tall obelisk designed to last a 1,000 years is to come up shortly at the Baba Saheb Dr. Bhimrao Ambedkar International Library & Museum of Social Change. Stainless steel grade 316L is the natural choice for such life expectancy. This will rival the Emperor Ashoka's iron pillar in Delhi.

### WHAT NEEDS TO BE DONE TO ACCELERATE GROWTH?

We have come a long way since 1987 very slowly in a typically Indian way. We have not quite arrived, but getting there, slowly but surely. What we need now is for large construction firms, like the ECC Division of Larsen & Toubro Ltd. for instance, to establish cells with a focus on stainless steel erection at site. In my opinion, such large firms should enter into technical collaboration with overseas companies having expertise in roofing, curtain walling, etc. Such

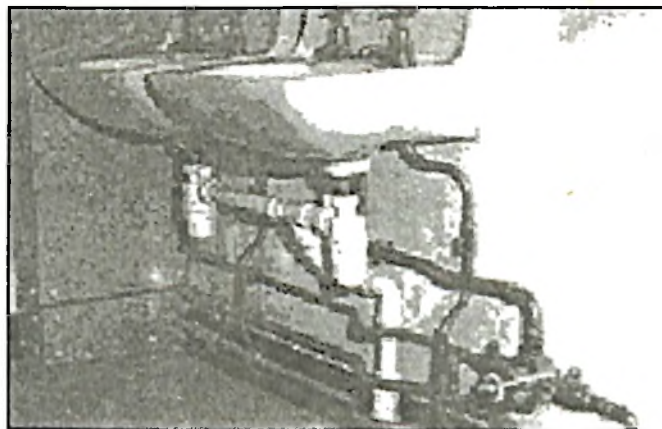
collaborations already exist in other areas of construction. Why not for stainless steel construction?

Secondly, there are many firms specializing in mild steel construction. The techniques used for mild steel can easily be adapted to stainless steel. This initiative must be taken for their own good, because the future lies in stainless steel.

Only such bold steps by the construction industry will encourage architects to confidently specify stainless steel for large projects. Only then we can boast of a skyline that becomes attractive. Witness the developments in China; conservatism and short-sightedness have never helped any one grow.

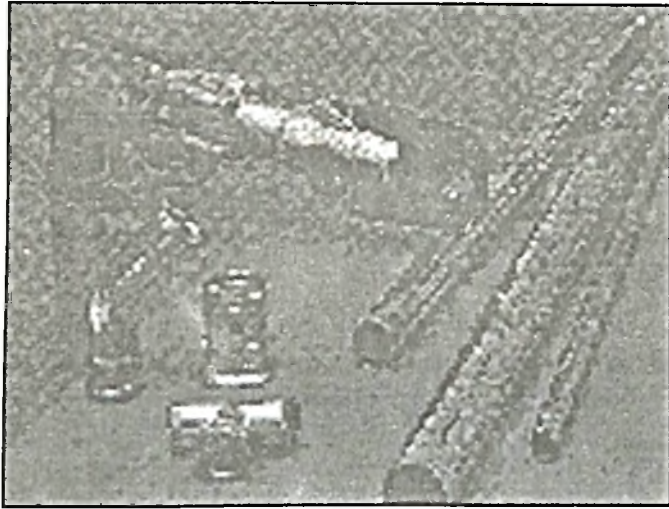
### PLANS FOR THE FUTURE

**Domestic plumbing** in stainless steel is a much-



*Indoor plumbing in stainless steel*

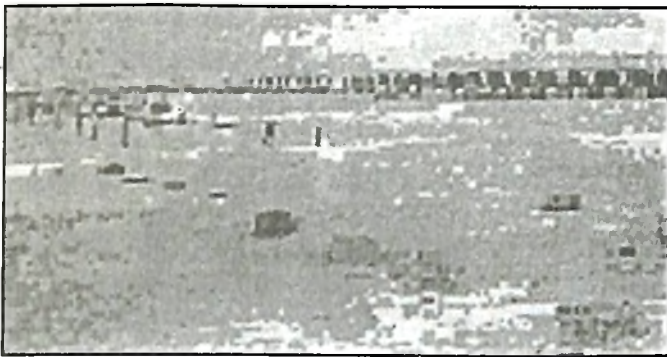
needed product. With GI, the problem is that the design life is 25 years, but the buildings are designed to last at least 50-years. Invariably, because of poor water quality and workmanship, the plumbings give way much sooner than the expected 25 years, to the great dismay, financial loss and disruption of lives of occupants. Surely, copper is in the market. We would like to position stainless steel plumbing as a very durable, hygienic and environmentally friendly product that can be assembled very easily in seconds, giving trouble-free, life long service. I expect that the cost of stainless steel thin walled plumbing will be about twice that of GI plumbing. It is hoped that the product (especially thin walled fittings - welded tubes and pipes are available in plenty) will be available through



*Equipment and fittings for thin-walled stainless steel plumbing*

the import route in a matter of months. Local manufacture of quality thin-walled pipe-fittings will take a bit longer.

**Rolling shutters** in stainless steel are sure to find



*Two concrete piers: The one in the foreground was built with carbon steel reinforcing bars about 30 years ago. We can only see its remains. The one in the background was built 60 years ago with stainless steel rebar. Location, Progreso, Mexico.*

mass following. The product is under development.

Stainless steel **reinforcement bar** for concrete is a product that is readily available from one or two

manufacturers. Stainless steel rebar would guarantee a life of 125 years for the infrastructure. The resistance seems to be the initial cost of stainless steel rebar. Short-term goals and benefits seem to prevent specifiers from specifying stainless steel rebar. What is not taken into account is the massive cost of repairs and the disruption of life of an entire population of cities using these roads daily, when other rebar materials are used. Depending on the design, the cost escalation of the project can be anywhere between 1% to 10% of the overall project cost. Compare this with the monumental cost of repair.

**Water supply mains** in stainless steel is a project we are working on. We are in the process of trying to reduce the initial cost by adopting ingenious



*A 320-meter long stainless steel water main pipeline at Mettur, Tamil Nadu. On the right we can see a part of the original main in cast iron. Compare the size.*

designs. Water is a precious commodity. Every thing should be done to conserve water and make it available to future generations. □

**CORRIGENDUM**

*In the October 2003 issue of IIW Journal on page 4, the name of Sri M.K. Biswas has been printed as the Controller of Examinations. Prof. Joshi M. Das has taken over as the Controller of Examinations in July-Aug. 2003 itself and hence his name should have appeared there. Kindly note the change. The error is deeply regretted.*

From the Editor