

GAINING ALTITUDE

Development of new airports is seeing an emergence of new materials and designs.

BY TEAM CW



When the government launched the UDAN-RCS (regional connectivity scheme), it gave hope to millions of Indians who always wanted to fly, but could not afford to. The scheme has two components, of which the main component was to develop new and enhance existing ones thus increasing the number of operational ones. This spelt good news to the common man and also to the numerous companies who cater mainly to the development and construction of airports.

Explaining the intricacies of what constitutes an airport, **Ajay Rattan, GM, sales, construction & engineering LYSAGHT business, Tata Bluescope Steel**, says, "Airports are no longer

mere transportation hubs; they are iconic in terms of transit experiences for a traveller, a landmark for the city dweller and modern architectural expression of a progressive country. The requirements of this sector are both complex and unique. A geometrical design or shape of a contemporary airport structure determines the complexity of the project. More and more architects today opt for non-conventional shapes that ensure more open spaces and aesthetics."

Modern airports are getting smarter, and not just bigger. Airports too need to improve profitability and for this reason are



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AJAY RATTAN



▲ Profiles made from COLORBOND steel are corrosion resistant and thermally efficient.



▲ Tata Bluescope Steel's LYSAGHT offers improved strength, design flexibility, aesthetics and durability and are ideal for modern airport structures.



▲ Wipro Consumer Care and Lighting range of ensures that the lux levels are adequate at every point of an airport.

being driven towards operational efficiency and cost reduction. Considering that most airports around the world face capacity constraints, the best way is to introduce new technologies to improve efficiencies.

Some of the technologies that are fast becoming part of the civil aviation ecosystem are the Internet of Things (IoT), automation, big data, robots, artificial intelligence, and virtual reality, and all this along with integrated data collection and better real-time communications channels. Technologies will not only safeguard airports, but what the authorities need to do is make the most of them and put in place processes that will simplify and speed up collaboration within aviation communities.

In terms of automation, the Chhatrapati Shivaji International Airport (CSIA) has introduced surface surveillance software to act as the eyes of the control centre. The software provides real time data on position of aircraft and terminal area movements on the twin runways at the airport. Commissioned in March, the Surface Awareness and Guidance at Airport or SAGA developed by France-based ALTYYS Technologies has helped improve reaction time to any emergency at the airport.

BUILD THEM BETTER

In terms of development and construction of airports, the emergence of new and novel materials is also leading to construction of iconic airport buildings and infrastructure. **Anuj Dhir, VP & business head, Wipro Commercial Lighting Busi-**



WITH OUR SMART AND
CONNECTED PRODUCTS
WE CAN CREATE AN
ENVIRONMENT IDEAL

FOR PASSENGERS. ”

ANUJ DHIR

ness, Wipro Consumer Care and Lighting, says, "Through our platform of Internet of Lighting (IoL), we offer solutions to enable a good experience for the passengers. With our Smart and Connected range of products we can create an environment ideal for passengers in the various zones inside and outside the airport. Good illumination impacts the airport operations, security and brand of the airport."

Most airports today have modern facilities. For instance, Singapore's Changi airport is putting in place a Jewel façade that will use more than 9,000 pieces of glass with each one specially manufactured. The façade will also feature more than 18,000 pieces of steel beams and over 6,000 steel nodes. Given the unique measurements of each glass panel, the installation process warrants precise coordination to ensure that each panel is fitted into the correct 'grid' placement that it is planned for.

Huge urbanisation potential, relatively young population and increasing educational opportunities will continue the India growth story for years to come. Large metro cities would continue to rise higher, while rapid growth in smaller towns would transform them into new large cities of tomorrow. One elevator company that has been an active partner in several prestigious infrastructure projects in India is Schindler. It has played a key role in the MIAL's T2, the Chennai International Airport, the Delhi Airport Metro, and the Kolkata International Airport. In an interview earlier to Construction Week, Uday Kulkarni, president, Schindler – India & South Asia, had said that the company is a pioneer in developing and applying sustainable technologies for clean urban mobility solutions. To improve energy efficiency, Schindler uses materials that have a lower environmental impact and can be disposed in an ecologically sound manner. The development of much lighter components has resulted in fur-



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ther energy savings.

Dhir of Wipro Consumer Care and Lighting says, "Lighting for land side includes airport approach road lighting with SkylineLED, landscape lighting with our premium Whistling LED bollards and UrbanoLED pathways. These bring out the outdoor architectural element enhanced. We also have Smart Outdoor solutions through which we can control the lux levels, energy consumption patterns, metering and scheduling as per the traffic conditions. For airport parking areas, our surface/pendant mounted totally enclosed CapsuleLED luminaire can be used."

For bigger infrastructure projects, it is imperative to pay attention rising operational costs and energy efficiency. Wipro's Power over Ethernet (PoE) based lighting solutions for offered under the brand identity of Internet of Lighting (IoL)M provide for smart & connected, effective space management and utilisation, enables system integration with performance tracking and study of analytics for system improvisation for in-airport usage. Smart & connected outdoors can be achieved through lighting on smart poles with WiFi connectivity, smart screens, public address arrangement, motion sensors, CCTV cameras, weather sensors etc.

Rattan of Tata Bluescope Steel says, "Over the years, airport structures have evolved and are known for their immense focus on design innovations and aesthetic appeal. Add to its longevity, unmatched quality and unique construction methods, this revolutionary aspect of technology-aided design creation, makes it possible to construct the exact form and dimension conceptualized by the architect. LYSAGHT profiles offer design flexibility for those seeking signature styled architecture, not limiting ones imagination. Roofing installations for airport terminals or hangars call for working at heights that are practically impossible to reach without a sound safety system.

Tata BlueScope Steel's well-trained team of experts ensure world class safety practices on site while installation is in progress."

Space optimisation is one the biggest consideration while planning the architecture to house all elements of public utility arenas. Structural performance that adequately supports wind load, elevation, long spans too is of vital concern. It is also important to introduce new technologies that address tropical atmospheric conditions of our country which come with different challenges as compared to other countries.

Tata BlueScope Steel's Building Products division offers specialised requirements of B2B sector and have been at the forefront of introducing solutions that cater to these complex demands through its Brand LYSAGHT. Due to its improved strength, design flexibility, aesthetics and durability, LYSAGHT's advanced roofing solutions are ideal for modern, architecturally superior airport structures. Profiles made from COLORBOND steel are corrosion resistant, thermally efficient and available in a wide range of colours with high SRI values. Meeting extreme engineering, challenging construction and design requirements, LYSAGHT FLEX-LOK 400 system is highly recommended for this segment. The profile is available in tapered, concave and convex curved shaped profiles, crafting roofs with outstanding performance and pleasing aesthetics. Moreover, being a concealed fixed roofing system it helps provide weather tightness and superior resistance to wind uplift, extremely critical for the hangars pitched near the runways. It is the most recommended roof systems for tropical, rainy, snowy or high wind (cyclonic) regions.

Many sustainable aspects are kept in mind before designing an airport. Major airports have been re-designed to ensure they adhere to the highest international standards of sustainability. **EW**