Case Study

Amazon beats the stifling heat of Nagpur with HMX-IDEC

Background

Amazon.com, Inc. is an American electronic commerce and cloud computing company with headquarters in Seattle, Washington. It is the largest internet-based retailer in the United States. Amazon launched its operations in India in the year 2013. Amazon India is headquartered in Bengaluru with fulfilment centres located at Delhi, Gurgaon, Kolkata, Jaipur, Ahmadabad, Mumbai, Pune, Chennai, and Bengaluru.

Challenges

In order to expand its base, Amazon set up a new fulfilment centre at Nagpur in 2015 to provide warehousing as well as order fulfilment for third party sellers. This fulfilment centre is spread over 75,000 square feet.

Nagpur is located in the centre of India where the temperature frequently gets to around 48°C in the summer. The extremely high temperature not only affects the comfort level of the employees, but also affects the shelf life of the stored items. Amazon needed good cooling solutions to maintain the desired ambient conditions.

Solution

Conventional air conditioners were ruled out because of their high operating expenses to maintain comfortable conditions over such a large area. For Amazon, though the choice was easy: having experienced the benefits of, and being highly satisfied with, the performance of HMX's Indirect Direct Evaporative Cooling System (IDEC) installed in its Ahmedabad fulfilment centre, it took them no time to decide to go for IDEC for their Nagpur centre as well. HMX's patented technology makes possible a non-refrigerant based, energy efficient, and economical solution.

After a detailed study, based on HMX's proposal, Amazon installed four IDEC systems of 50,000 CFM each at this facility. This was done keeping in mind the heat index (a combination of temperature and RH % that estimates people comfort) at every location inside the fulfillment centre.

Result

The HMX-IDEC systems were commissioned August 2015, which is traditionally one of the wettest months in the year for Nagpur. The temperature maintained inside was very comfortable, in spite of the incessant rain.

Figure 1: HMX-IDEC at Amazon, Nagpur

Unit details	Date and time	Ambient	Room
	26.08.2015	DBT (°C)	DBT (°C)
HMX - IDEC	2.15 pm	33.00	30.00
(50 K CFM)	04.30 pm	32.00	28.00

Temperature recordings taken during the monsoon season on 26.08.15

HMX completed the installation, commissioning, and testing of all the four IDEC machines in a record time of 9 days against the planned period of 20 days. Amazon highly appreciated this herculean effort put in by HMX team. The project manager from Amazon, Mr. Siddharth Khare, expressed his deep satisfaction with the performance of the HMX-IDEC. Now Amazon is looking forward to summer, when they know they'll experience the right amount of cooling.

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