



# Ma'aden Aluminum Project Ras Az Zawr

## Case History



PROJECT:  
LOCATION:  
THE COLT SOLUTION:  
COLT PRODUCTS USED:

Ma'aden Aluminum Project  
Ras Az Zawr  
Gravity ventilation  
Colt Labyrinth



### PROJECT OVERVIEW

The Ras Az Zawr site comprises a plot of land 90km north of Jubail on the coast of the Arabian gulf. A segment of the site is proposed to be used for the construc-

tion of the alumina refinery, aluminium smelter, rolling mill and related infrastructure for the Aluminium Complex. Bauxite ore transported by rail to Ras

Az Zawr will be refined to produce 1.8 million mtpy of alumina, which will in turn be processed in the smelter on site to produce 740,000 mtpy of aluminium.



Bechtel has been appointed as EPC contractor for the Ma'aden Aluminum Project.

Bechtel provides engineering, procurement, and construction services for the smelter. Colt has been appointed by Bechtel as the contractor for delivery of static roof ventilators.

## BEST PRACTICAL MEANS

Due to the location of the new project, special attention is given to:

- Ambient design temperature +55°C during summer;
- Typical Middle East environment: marine conditions and dust;
- The use of high material quality aluminium/stainless steel fasteners.

In order to predict in advance the climate conditions inside the potroom during metal production, Colt carried out a survey using Computational Fluid Dynamics (CFD) to show the capability of the roof ventilators. The CFD simulates flows, heat transfers and temperatures on different levels within the buildings.

## STATE OF THE ART VENTILATION

The new smelter will benefit from maximum ventilation and the best price/quality performance ratio while achieving low temperatures on the operating floor, thus creating better working conditions for the employees.

## INSTALLATION OF ROOF VENTILATOR

Large modules of the Labyrinth roof ventilator will be assembled at ground level and lifted to the roof.

The unique design of the modules makes it possible to do the fixing to the supporting steel structure just from the outside. This type of fixing makes sure there are no activities needed inside the building and results in reduced erection time and minimal disruption to work within the building.