



Cooling where it matters most: “Spot cooling” in a steel plant

PROINVEST

Steel production

System installed

Direct Evaporative Cooling System

Supplier & Installer

WEST AIR

Equipment & Configuration

10 x Breezair units

Proinvest Group is a leading steel solutions provider in Romania, with multiple production facilities specialized in steel processing.

The company offers a wide range of steel products and customized services applicable to various industries such as construction, automotive or hydraulics.

Background

Maintaining comfortable temperatures in industrial halls is challenging, especially in summer. Also at Proinvest Group’s Special Steel Factory in Pascani, a 5,000 m² hall with a height of 10 meters dedicated to cold steel processing, several structural and operational factors create an extremely high thermal load. The hall has no insulation, includes multiple large access doors, and features a curved concrete roof that absorbs and retains heat. Internal heat sources, such as furnaces, sandblasting equipment, milling machines, lathes, three overhead cranes, and approximately 30 workers per shift, further increase the temperature, often pushing it to 40–45°C. Under these conditions, an effective cooling solution becomes essential for ensuring worker comfort, maintaining safety, and supporting consistent productivity.

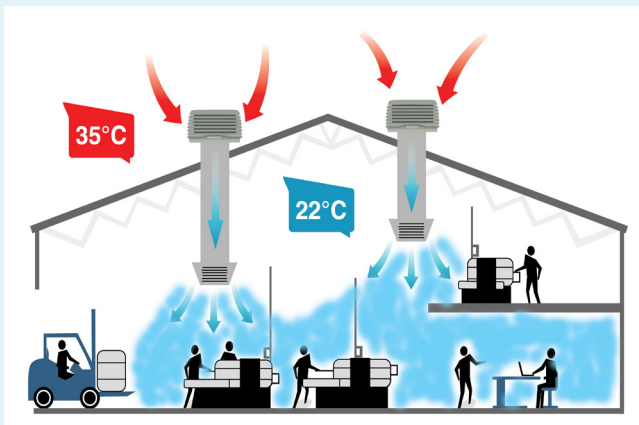
The solution

The challenge was the extremely high thermal load generated by the ovens, combined with the overhead cranes, which restricted the placement of pipes and ducting. Additionally, the small workforce was dispersed throughout a large hall. By observing that most labor activity was concentrated around specific machines, a targeted spot-cooling system was implemented to focus on these critical work areas.

Spot cooling

Often, as in this case, commercial and industrial buildings contain small areas that become excessively hot and uncomfortable due to heat generated by machinery, ovens, or other production processes. Traditional cooling systems, which aim to lower the temperature of an entire building, can be highly energy-intensive and inefficient under such conditions.

Evaporative cooling provides an ideal alternative by delivering a targeted flow of cool, high-velocity, fresh air directly to these “hot spots.” This ensures that workers experience improved comfort exactly where they need it most, without wasting energy on cooling large areas of the building that do not require it. This targeted method is known as spot cooling. With a ducted evaporative cooling system, the distribution of cooled air can be precisely controlled, allowing operators to concentrate airflow on high-activity zones and adapt effectively to the facility’s layout and workflow.



The result

Ten Breezair units now deliver cooled air via special diffusers mounted 4.5 m above the floor, providing effective, localized comfort where it was needed most, achieving more comfortable temperatures of 27–28°C in specific areas of the plant. Breezair proved to be a true lifesaver.

Unlike refrigerated systems, which would have been extremely energy-intensive and difficult to implement in an industrial setting like this, evaporative cooling turned out to be the ideal solution.

