

Toyota Motor Manufacturing de Baja California, Inc.

Tecate, B.C., Mexico

- **Engineering Firm:**

IAASE S.A. de C.V.
Mexicali, B.C. Mexico

- **Mechanical Contractor:**

ISAR, S.A. de C.V.
Tijuana, B.C., Mexico

- **Greenheck Representative:**

Aquasistemas Integrales, S.A. de C.V.
Mexicali, B.C., Mexico



Toyota Motor Manufacturing de Baja California, Inc. Tecate, B.C., Mexico.

The Challenge

- **Ensure manufacturing workers' comfort by supplying 100 % outdoor air and by exhausting stale air.**
- **Exhaust excessively heated air from a new machinery room containing air compressors and industrial air dryers.**
- **Design a safe, explosion-resistant ventilation system for a painting storage room.**
- **Provide a complete kitchen exhaust and supply system in the dining area to accommodate more than 600 employees.**

Toyota Motor Manufacturing de Baja California (TMMBC), Baja California, Mexico, is Toyota's first manufacturing plant in Mexico. In 2006, the plant began a major renovation, including the addition of 81,429 square feet (7,565 m²) of manufacturing space to accommodate an increase in production capacity. The production area required ventilating the space by supplying 100% outside air. Due to the chemicals and hazardous materials in the painting storage room, reliable exhaust equipment with explosion proof motors and

spark resistant fan wheels were required.

The additional production capacity allowed the company to hire 300 new employees – which required a renovation project for a larger kitchen area and dining room with complete ventilation and fire suppression systems.

A second machinery room with several industrial air dryers and compressors was also added to the plant and required exhausting hot air produced by the machines.

Greenheck's Solution

- **Two Greenheck Kitchen Hoods, Model GHCW**
- **Two Tube Axial Fans, Model TBI-FS**
- **Five Utility Centrifugal Fans, Models SWB/SFB**
- **One Ceiling Exhaust Fan, Model SP**
- **Five Hooded Propeller Roof Fans, Models RBE**
- **One Make-Up Air Unit, Model IGX**

A total of 16 Greenheck air movement and control units were carefully sized and selected to sustain the most favorable operating environment for the



Greenheck's indirect gas Make-Up Air unit, Model IGX.

Toyota plant's new addition. Greenheck hooded propeller roof fans, Model RBE-3L42, were installed to deliver more than 163,000 cfm of fresh outdoor air for optimal ventilation in the production area. Because these fans were delivered with specified roof curbs, the contractor only needed to reinforce the roof surface. In addition, easy access to fan components will reduce future maintenance and service costs. The tube axial fans, Model TBI-FS, were used to exhaust the hot air generated by the air compressors and dryers in the machinery room. One utility centrifugal fan with a spark-proof resistant fan wheel and explosion-proof motor was installed to safely exhaust fumes from the paint storage room.

In the expanded kitchen area, a tempered make-up air unit, Model IGX, two Greenheck kitchen hoods, Model GHCW, with front supply plenums and ANSUL R-102 wet chemical



One of five hooded propeller fans being set in place on a roof curb.

fire suppression systems, and one utility centrifugal fan were installed to ensure comfortable indoor air environments for both food preparers and employee diners. The remaining utility centrifugal fans and one ceiling exhaust fans were installed to provide bathroom ventilation.

All Greenheck ventilation equipment utilized in this project is licensed to bear the AMCA Seal for Sound and Air Performance. The kitchen ventilation system has UL-762 certification and also meets NFPA-96 guidelines.

The Results

- According to ISAR, the mechanical contractor on this project, the Greenheck make-up air unit and all Greenheck exhaust and supply fans are operating at 96% of specified performance. All rooftop ventilation units have small footprints making the roof

space less crowded — ideal for maintenance, inspection and servicing the units. "Greenheck certainly provided us with adequate equipment to satisfy all our customer needs for this particular project. We are very pleased with the performance of the Greenheck fans," says Javier

Velazquez, project manager for ISAR, S.A. de C.V. In 2008, TMMBC was awarded the Gold Plant Award for Quality among all North and South American automotive manufacturing plants.

