



MATERIAL HANDLING SYSTEM 3D LAYOUT/LASER SCANNING

PROJECT SUMMARY

Production Modeling Corporation (PMC) collaborated with a leading global material handling system supplier to design, build, and install a new overhead conveyor system for a major Automotive OEM Assembly Plant. This system connects two different portions on the assembly plant and has requirements for downtime, maintenance intervals, and uptime. This requires coordination with other contractors who are responsible for the building, process work cells and utilities, as well as the labor union. The material handling system supplier is responsible to design, build and install the equipment with a project completion deadline as determined by the Automotive OEM vehicle production schedule for this location.

OPPORTUNITY

Traditionally, such a project is accomplished by using tape measures and 2D plan view symbolic drawings. On this project, 3D processes and laser scanning replaced these methods to allow the capture of true field conditions with one visit, and utilize this accurate information as the background for design and placement of the new equipment.

APPROACH

PMC provided laser scanning services that gave the material handling system supplier a 3-Dimensional Point Cloud of the area where the conveyor system was to be installed. A 3D Layout model was created using this formation in Autodesk Factory Design Suite software. This model provided the ability to check designs for clashes, fitment with the actual facility, as well as perform virtual flythroughs and design analysis.

SOLUTION

The overall project consisted of the following components:

- Capture the constructed facility with laser scanning
- Convert the laser scan data (Point Cloud) for use inside Autodesk software products
- Perform 3D Layout Design in Factory Design Suite software
- Using the laser scan data, validate clearances, show connecting equipment, and demonstrate the adherence to safety requirements
- Create installation drawings from the 3D CAD Model
- Install the new conveyor section

BENEFIT

- Reduce / Eliminate change orders in the field due to collisions in the design
- Reduced time spent to create 3D models
- Linked Sectioned and Elevations drawings from the 3D Model
- Engineering clarity for design team. The ability to find interferences and ensure functionality is done faster and with less error.
- Engineering Reviews for the customer are presented in an easy to understand, visually engaging, 3D environment. Cumbersome hard to read 2D representations are now a thing of the past.