



SYSTEMS
3D LASER SCAN
& ENGINEERING

SYSTEMS

50
YEARS

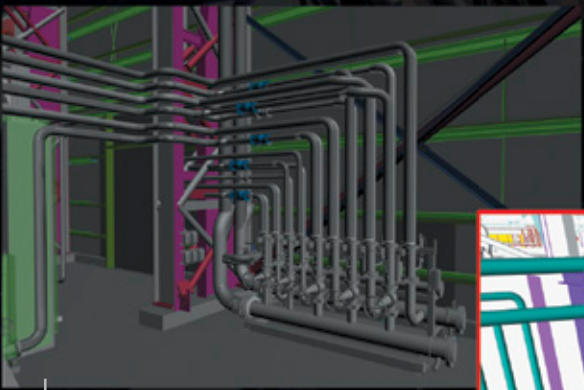


SCAN MODEL BUILD

- Laser Scanning
- P E Engineering
- Smart 3-D Modeling

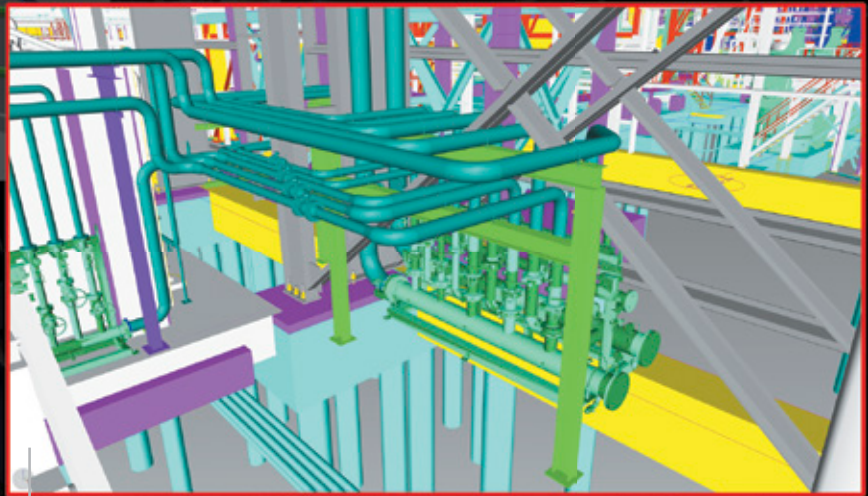
SYSTEMS
3D LASER SCAN

The Systems Difference.



Typical OEM or General Engineering Firm

- a. Unusable pipe routing
- b. Valves that cannot be accessed
- c. Pipe running through structural steel and equipment
- d. Unsupported pipe
- e. Inability for 'easy' future maintenance



The Systems Difference

- Rooms for Vents, Drains, or PSV's
- Meters Accessible
- Pipes Supported

- Our models are 'smart' down to schedule of pipe, types of valves, and even bolt sizes.

WE FIND ALL THE ISSUES BEFORE IT'S BUILT

- Minimize Rework
- Cut Change Orders
- Faster Install

Systems has been installing process piping for over 50 years, meaning we know what works and what doesn't. When we first started installing pipe for the Steel Industry, we learned very quickly that what a typical OEM or General Engineering firm provides is completely unusable out in the field for installation (we learned this the hard way!). We've taken our 50 years of experience and built out a whole new engineering team that can design greenfield or brownfield projects. With greenfield projects, our team can model every aspect of your plant; after installation, we can laser scan the install to make sure it matches what has been modeled. With brownfield projects, our team starts with a laser scan, then builds a model of the upgrade fitted to existing connections. Our model review process makes it easy to request changes and tweak designs before installation starts happening in the field.

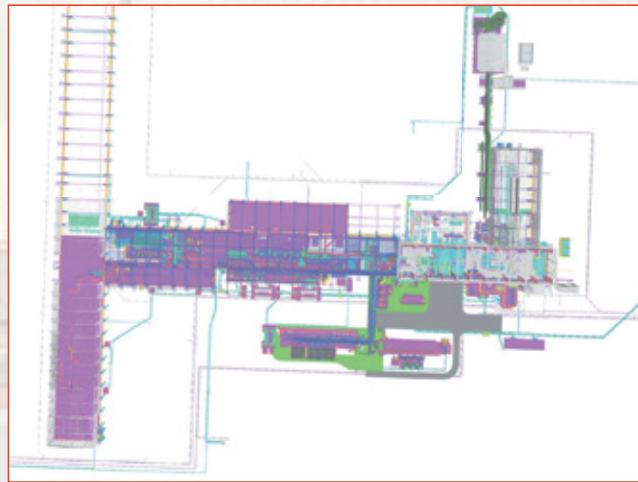


It starts with the scan.



3-D model gives accurate information

SEE YOUR PROJECT COME TO LIFE



QUALITY CONTROL TO ENSURE INSTALL MATCHES MODEL

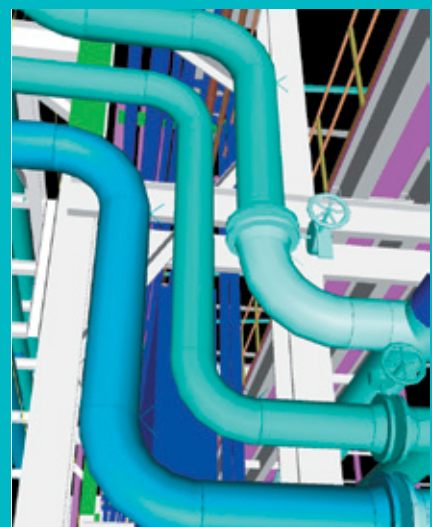
MODEL SHARING

- Accurate Elevations
- Used By All Disciplines
- Accuracy For Construction/ Equipment Placement
- Ability To Xref/Combine Multiple Models



GREENFIELD PROJECT

MODELED ← → INSTALLED ← → SCAN AS-BUILT



NYS2 PROJECT

MODELED ← → INSTALLED ← → SCAN AS-BUILT

ACCURATE information saves hours. 1 Hour of Shop Work = 2.18 Hours of Field Work

Quicker Field Install

Gives Systems ACCURATE information to produce by using 'smart' modeling software

Model Sharing gives the Ability to XRef/Combine Multiple Models

BENEFITS OF 3-D LASER SCAN MODELS

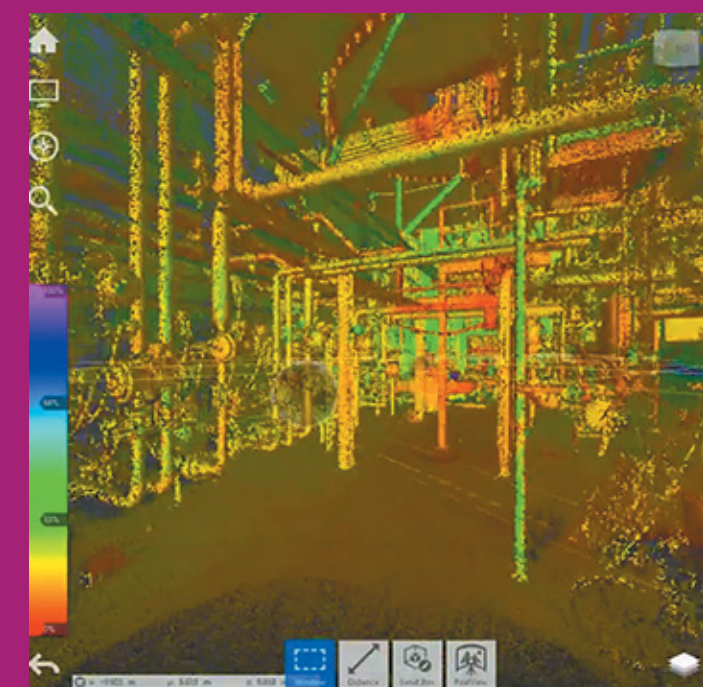
Smart Models
-- Not just images
-- All components

Field install foremen have ACCURATE
• Routing
• Installation ISO's
• Spool Drawings
• Bill of Materials
• 3-D Model

Matching Cartesian Coordinates give ACCURATE Measurements for Elevations and Construction Equipment placement



BROWNFIELD PROJECT



System uses multiple 3-D scan locations that give billions of points of data that is accurate down to 2mm.

Item	Description	Quantity	Unit	Material	Notes
1	1/2" Schedule 40 Carbon Steel Pipe	100	ft	CS	
2	3/4" Schedule 40 Carbon Steel Pipe	50	ft	CS	
3	1" Schedule 40 Carbon Steel Pipe	20	ft	CS	
4	1 1/2" Schedule 40 Carbon Steel Pipe	10	ft	CS	
5	2" Schedule 40 Carbon Steel Pipe	5	ft	CS	

Item	Description	Quantity	Unit	Material	Notes
6	3" Schedule 40 Carbon Steel Pipe	3	ft	CS	
7	4" Schedule 40 Carbon Steel Pipe	2	ft	CS	
8	6" Schedule 40 Carbon Steel Pipe	1	ft	CS	
9	8" Schedule 40 Carbon Steel Pipe	1	ft	CS	
10	10" Schedule 40 Carbon Steel Pipe	1	ft	CS	

Command HQ is a custom-built project management application that allows our Engineering team to work in tandem with our Construction installation crews. It can automatically pull material information from our models for purchasing and prevents material overbuys and underbuys. It also tracks installation progress against what has been modeled amongst other features.

The Complete Package.

Your Complete Package includes:

- Smart 3-D Model
- 3-D Drawings
- Regular Drawings
- Isometric Drawings
- Spool Drawings
- Bill of Materials and full drawing/ISO/spool package
- Allows you to train new operators from a safe environment



SCAN TO WATCH
THE VIDEO

SMART PRINT SHACK

We outfit our super-intendents and general foremen with engineering grade laptops for model reviews with our customers and internal team. Our field offices are equipped with large TVs to help facilitate this process.

- Regular model reviews with customers
- Ability to catch issues before install

Out in the field, whether greenfield and solar powered or inside an existing mill, we deploy 'smart' print shacks, outfitted with engineering grade laptops to run 3D models, large TVs for large group meetings, and of course a printer! Our foremen also have access to the project model and drawings on their iPads.

- Daily reviews with install crews.
- Available for other contractors.





THE SYSTEMS GROUP

Systems has taken over 50 years of process piping experience and built out an engineering team with capabilities unheard of in our industry. Our engineers and pipe designers can take your project to a whole new level of excellence.

- Laser Scanning
- PE Engineering
- 3D Modeling
- Greenfield Projects
- Brownfield Projects
- Pipe Modeling
- Equipment Modeling
- Structural Steel Modeling
- Pipe Spooling