



Houston's George
Bush Intercontinental
Airport

Flies
High

**With I.A. Naman +
Associates, Inc.**

IAN+A used Bentley AutoPLANT to provide utility improvements for the fourth largest multi-airport system in the United States, saving countless design hours and expensive rework costs.

In today's global environment, many airlines

and airport operators face the same challenge – finding a sensible balance between the need for stricter airport and aircraft security and the need to maintain operational efficiencies and minimize passenger inconvenience. Airports like George Bush Intercontinental Airport (IAH) in Houston, Texas, are busy working on expansion plans to accommodate the global travel community.

Located on more than 10,000 acres, IAH is Houston's largest airport, the fourth largest multi-airport system in the United States, and the ninth busiest commercial airport in the United States. It offers nonstop service to 152 cities worldwide and served 35 million passengers in 2001. There are a number of improvements currently in construction or in the planning stages that promise to keep IAH as the South Central United States' international passenger gateway of choice and further enhance Houston's prominent position as a world trade center.

IAH contracted with I.A. Naman + Associates, Inc. (IAN+A) to provide utility improvements on both new and existing IAH terminals. Houston-based IAN+A consultants design, monitor construction, and provide engineering support for mechanical, electrical, and plumbing systems.

Charting a new course

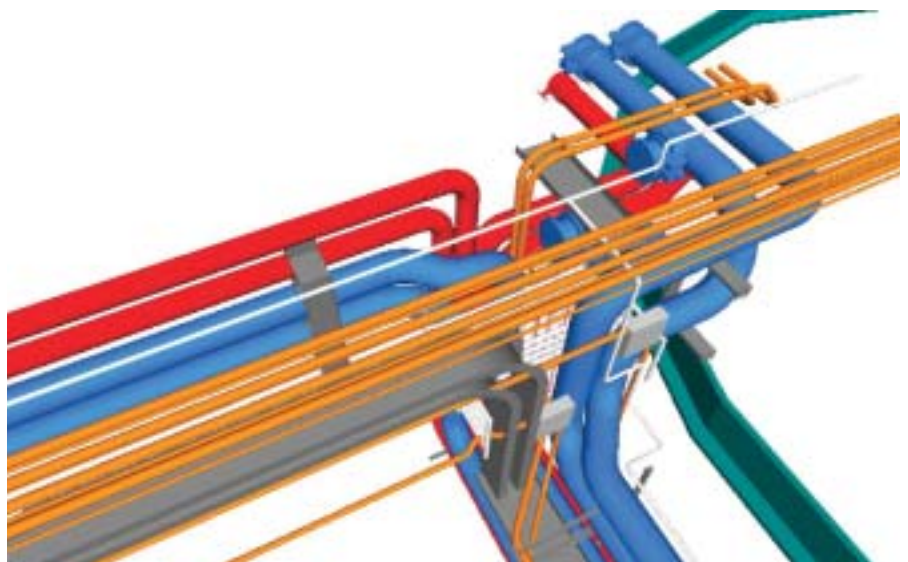
To continue providing the growing number of passengers using the airport with an unsurpassed level of service, and to ensure that the airport remains a powerful, economic engine, the Houston Airport System has embarked on an

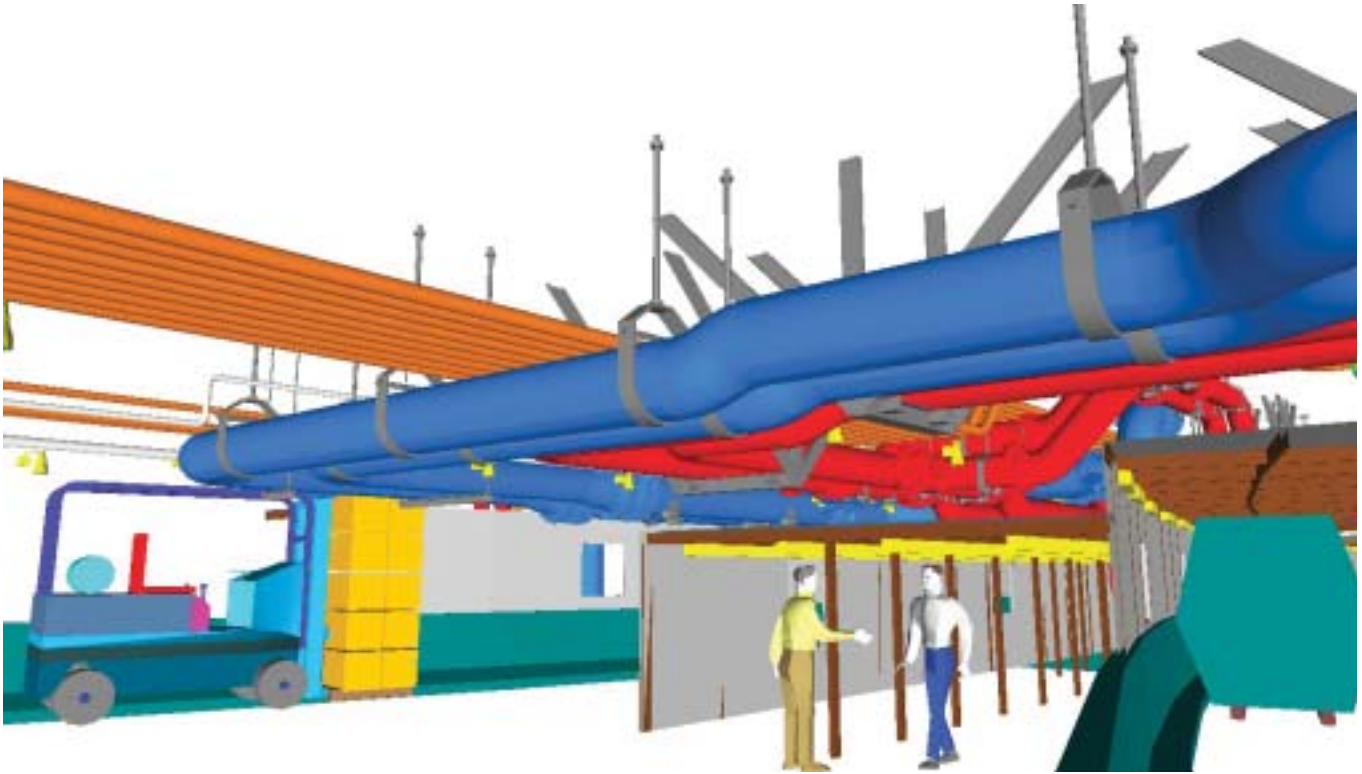


ambitious airport development program. IAN+A performed an

upgrade to the chilled and hot water utility distribution system for all existing terminals. In the past, IAN+A relied on 2D design methods to get the job done. However, when IAN+A engineers began planning the details of the upgrade, they realized there was a lot of work to be completed within a very small and constricted environment. The documentation and un-intelligent designs done in 2D did not detail the changes that occur in the facility and did not show the many constrictions within a confined space.

The project required a fast-track design and construction schedule to serve the new Terminal "E" and FIS building. Since IAN+A engineers were also going to be working in a tight space, they decided to integrate a 3D design program into their solution. After researching many possibilities, the firm chose Bentley AutoPLANT. IAN+A engineering graduates Clayton Bankson





and Vance Shofner introduced themselves slowly to the AutoPLANT program. They began with simple models and grew very quickly to modeling larger components of the project. They ended up using AutoPLANT to design the entire project down to the nuts and bolts, including documenting the building, structural beam members, and existing utilities.

Saving design time and costly rework

The work began onsite at the existing plant and tunnel system that controls the IAH terminals. Two engineering graduates were deployed to the field and spent approximately 600 hours surveying the existing tunnel to create a model of the existing conditions. When they returned to the office, they spent an additional 600 hours each creating the 3D design model in AutoPLANT. Using conventional 2D procedures, IAN+A estimates that a project of this size and detail would normally require 10-12 CAD workers to get the job done.

“By modeling in AutoPLANT 3D, we were able to save significant time on the project, which allowed us to meet the accelerated design and construction schedule,” said Clayton Bankson, engineering graduate, IAN+A.

Presenting 3D model walkthroughs during the design phases to the client and other members of the design team saved time and expensive rework. Having an inclusive 3D model allowed all client changes to be easily incorporated throughout the design. The design team was impressed with the quality of the AutoPLANT products.

“The set of documents and models that we were able to create were impressive to not only ourselves but also the clients, other design team members, and contractors that we worked with,” stated Bankson. “Our client liked the quality, and for us quality stands out more than anything else we do.”

A new design plan

IAN+A also used AutoPLANT Explorer/ID, a solution revolutionizing the design review process by offering collaborative communication and interactive viewing of large 3D plant models. The engineering team upgraded their desktop systems to include multiple monitors.

“As we were drawing, we were rendering,” said Bankson. “As we worked, we would load the content and then review the model. AutoPLANT

“By modeling in AutoPLANT 3D, we were able to save significant time and money on the project,”

Clayton Bankson, engineering graduate, IAN+A.

Explorer/ID was a huge hit for the engineering team; we love the product and find it essential in all our current and future projects.”

Bankson reports that the client was very pleased that he could see the work being done and what he was buying before it was built.

IAN+A was also impressed with the use of AutoPLANT Explorer/ID in meetings with other potential clients. AutoPLANT Explorer/ID allowed IAN+A to record fly throughs, add artistic elements such as sound and color, and save the AVI file on CD for easy distribution. The model allows IAN+A to show prospects the types of work they have done in a very interactive and graphical interface.

Benefits extend past the designer and on to the contractor. The mechanical contractor used IAN+A drawings to prepare the final coordination and pipe

I.A. Naman + Associates, Inc. expanding to meet client needs

IAN+A, a mechanical and electrical engineering practice established in 1947, provides services related to the design of new residential and commercial facilities including, office buildings, universities, data centers, central plants, light manufacturing facilities, retail establishments, hotels, high rise residential condominiums, and hospitals. IAN+A provides solutions for remodeling existing buildings, system surveys, construction services, and continued operational and training services after project systems are operational.

fabrication drawings. This greatly sped up the construction progress.

Runway To Future Projects

As the airport renovation program continues, IAN+A is optimistic in being involved in future expansion projects related to new terminals and renovation of the old terminals. This could mean new projects based on IAN+A's original designs.

IAN+A engineers feel they have a competitive advantage and are on the cutting edge within the commercial industry due to the work they can do with AutoPLANT.

“We wish we would have implemented AutoPLANT earlier for use on previous projects,” said Bankson. “We are excited to learn more about AutoPLANT’s capabilities and to begin implementing it within other areas of our organization.”

For more information on Bentley, please contact us.

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