



Classic Austin Approach to Designing and Constructing Classified Lockheed Martin Facilities

In the early 1990s, Lockheed Martin made the decision to move its research and development arm, known as “Skunk Works” from the Burbank facility to the company’s Palmdale campus, in the Antelope Valley north of Los Angeles. Sherm Mullin, then-president of Lockheed Advanced Development Company (LADC), committed to getting the design and construction finished in just three-and-a-half months.

That meant only 109 days to completely renovate an existing two-story, 61,000-square-foot building, and turn it into a modern, top-security, advanced technology aeronautics headquarters.

By the latter part of the 1990s, both Lockheed Martin and The Austin Company had established operations in Southern California. Lockheed’s Advanced Development Company (LADC) had been based in Burbank for 50 years (Lockheed would merge with Martin Marietta in 1995 to become Lockheed Martin); and The Austin Company was serving the Western U.S. out of Irvine.

This was a classic design and construction situation for The Austin Company. Austin is a global leader in facilities design and construction, including a long partnership with numerous aviation, aerospace and defense clients. Since its inception a century ago, the company’s patented Austin Method combines design, engineering and construction in a single firm, and has been vastly successful.

Mullins tapped The Austin Company for the Skunk Works project, and in August, 1992, the company was awarded the contract. A major renovation under extremely tight deadlines had become Austin’s hallmark, and it was up to the job.

The renovation of Building 608 (the administration building) at Palmdale Plant 10 within a very aggressive schedule was a major task, and included asbestos abatement; gutting the interior; rebuilding

it to conform to a new layout Austin had designed; meeting strict building codes to comply with the City of Palmdale and the L.A. County Fire Department; and, because of the highly classified work done by Lockheed, installing state-of-the-art security and communications.

Dan Wiegandt, Austin’s Irvine Office Manager of Engineering, served as the project architect for multiple Lockheed Martin Palmdale facilities, including Building 608. “That was a screaming fast job,” he said, recalling the quick work in taking the project from “cocktail napkin to construction completion”.

Wiegandt said one of the keys to meeting the aggressive schedule was having a team that made intelligent design decisions. He said that the project called for Austin’s design and procurement departments to literally work side-by-side. “We brought procurement in and



In 1992, The Austin Company completely transformed a 61,000 SF building into a modern, top-security, advanced technology aeronautics facility for Lockheed Martin.

had them ordering things like doors and door frames before we ever designed the rooms,” Wiegandt explained.

Another key was ingenuity.

Included in the renovation of Building 608 was the need to add an elevator for accessibility compliance. The typical timeframe to order an elevator is six weeks, with an additional 12 weeks to have it produced, delivered and installed.

“We clearly didn’t have time for that,” Wiegandt said. Incredibly, Austin’s procurement team found an elevator that had been ordered but wasn’t going to be used by another company. “We got the elevator and customized the building to fit it,” he added.

When the target date of Dec. 22, 1992 came for Lockheed to move into its new headquarters, not only was the building ready, but the construction had actually been completed two days ahead of schedule, on Dec. 19.

In a letter to The Austin Company shortly after the project was completed, the LADC’s Director of Facilities, Stan Kramer, wrote, “I have witnessed perhaps one of the most professionally, cooperatively and aggressively managed design/construction building projects since becoming the director.”

But the amazing transformation of Building 608 was just one of a slew of other projects that Austin would be tapped to design and construct for the aerospace giant over the next 30 years,

Origin of Skunk Works

Skunk Works is the official alias of Lockheed Martin’s Advanced Development Programs, formerly Lockheed Advanced Development Company (LADC). And while the work that’s done by this elite team of engineers and manufacturing wizards is essential to national security and is top secret, the team’s name can be traced back to a comic strip.

In June of 1943, a young, hand-picked team of the best and the brightest was put together by Lockheed at its Burbank, CA, facility to develop the U.S.’s first jet fighter, the XP-80 Shooting Star.



The Skunk Works facility in Palmdale, CA.

not only at Lockheed Martin’s Palmdale facility, but at its Sunnyvale campus, north of San Francisco, as well.

In Palmdale alone, The Austin Company has completed projects for Lockheed Martin including more than 500,000 square feet, supporting aircraft assembly, painting, avionics, research and

development labs, corporate, general usage, and engineering offices.

Including the renovation of Building 608, Austin completed multiple additional projects in Palmdale.

Austin provided the planning, design and engineering for Lockheed’s **Composites Manufacturing Facility**,



The Skunk Works logo appears on the side of the facility in Palmdale.

While the team was elite and its development work exceptional, it was 1943 and at the peak of the war effort. There was no space available for the team at the Lockheed facility. Undaunted, the team set up shop in a rented circus tent next to a manufacturing plant that produced a strong odor that permeated the canvas tent.

One of the engineers, Irv Culver, was a fan of Al Capp’s syndicated cartoon strip, “Li’l Abner,” in which there was a running joke about a mysterious and malodorous place deep in the forest called the “Skonk Works.” There, a gurgling still produced a pungent brew from skunks, old shoes and other strange ingredients.

One afternoon, Culver’s phone rang and he answered it, “Skonk Works, ... Culver speaking.” Fellow employees quickly adopted the oddly appropriate name and the mysterious division of Lockheed became known as “Skunk Works.”

a 200,000 square-foot facility, which develops and tests non-metallic military aircraft components. The pieces and parts are fabricated from plastics, composite and other non-metallic materials to replace standard metals normally used in aircraft construction. Austin’s design for this facility included a state-of-the-



Austin's rendering of the Lockheed Martin's Non Metallic Facility Building 636.

art central emissions control system. A centralized building management and control system to monitor the environmental-control equipment instantly alerts operators in the event of a malfunction. The facility houses the second-largest thermal oxidizer in the country.

One of the challenges of Building 611 was the secrecy of how Lockheed Martin uses the facility. Due to the classified work that takes place within Lockheed Martin's walls, Austin's team of architects, designers, engineers and contractors were not allowed to know what each room would contain or the objects that would be moved in and out of rooms.

"Lockheed Martin had about 90 different classified programs going on inside 611 and we couldn't easily get the information we needed to design the

building," Wiegandt said, explaining that they had to use analogies to learn the processes that were to be in the rooms. For example, one room was called the "Brick Room" because the materials being developed and researched in that room were made like an adobe brick.

"That's the analogy we used in order to get an understanding of the things that were going to be in the room. We didn't ever know officially what the room was used for," he said.

Similarly, Austin's team had to create 'three dimensional parts envelopes.' "We weren't allowed to know the objects or the classified program they were associated with," Wiegandt explained. "We had a generic shape to develop doorways, aisles, turning radiuses and to determine material handling equipment."

Austin also designed a Metallic

Fabrication Center nearby in Building 637. The new center was a 125,000-square-foot facility that provided enough flexibility to expand the sheet metal and other metal shops and the process area. That project included the design and installation of HVAC; oil mist filtration; particulate exhaust; solvent exhaust; ovens; cranes; and special access requirements. It also included chilled and cooling water systems.

Other Palmdale projects awarded to Austin over the years include an **Advanced Materials Laboratory**, an 18,000-square-foot lab used for electromagnetic, structural, instrumentation, general chemistry and ceramics research and development. Austin designed the lab as an addition

to an existing Nonmetallic Fabrication Center.

Design and construction were also Austin's duties in the building of a new 12,000-square-foot **Electromagnetic & Avionics Laboratory** on the Palmdale campus. That facility was comprised of labs that handled electromagnetics; optics; fiber optics; RF or radio frequency; instrumentation and research and development.

While The Austin Company's partnership with Lockheed Martin's Palmdale facility has been long and successful for both parties, Palmdale wasn't the only West Coast Lockheed Martin facility that benefitted from Austin's expertise.

South of San Francisco, at Lockheed



Austin's rendering of Lockheed Martin's Metallic Fab Center.

An exterior view of Lockheed Martin's Skunk Works facility.



Martin's Sunnyvale campus, Austin also made its mark. Much of Lockheed's missile and space work was done at the Sunnyvale location. With Austin's impressive work in Palmdale, Lockheed tapped the Company for work up north.

The most impressive was Austin's design of Building 54, a **Composites Manufacturing Facility** on the Sunnyvale campus. The 250,000-square-foot facility needed to be a state-of-the-art nonmetallic components production facility and include extensive security; shielding; an ACAS, or Access control and Security system; isolation and vibration

control; sound control; instrumentation and air quality controls; hazardous materials and explosion controls; and many additional high-tech features. Decentralized dust collectors and scrubbers with replaceable activated carbon absorption processes were included in the HVAC system.

The Austin Company continues its work with Lockheed Martin, and in 2017, the companies will celebrate a 30+ year partnership that continues to turn out high-quality facilities in record time, and on budget.

Sources:

The Austin Company archives

Dan Wiegandt, Manager of Engineering, The Austin Company (Irvine, CA)

https://en.wikipedia.org/wiki/Lockheed_Martin

<http://www.theaustin.com/case-study/lockheed-martin-palmdale-and-sunnyvale-califo>

<http://www.easyreadernews.com/75325/aerospace-chronicles-industry-built-south-bay/>

<http://www.library.ca.gov/crb/08/08-005.pdf>

http://military.wikia.com/wiki/Lockheed_Corporation

<http://wikimapia.org/4006738/Plant-42-Plant-10-Lockheed-Martin-Skunk-Works>

<http://www.thespacereview.com/article/938/1>

<http://www.lockheedmartin.com/content/dam/lockheed/data/corporate/photo/multimedia/Innovation-with-Purpose.pdf>

https://en.wikipedia.org/wiki/United_States_Air_Force_Plant_42

<http://www.lockheedmartin.com/us/aeronautics/skunkworks.html>

