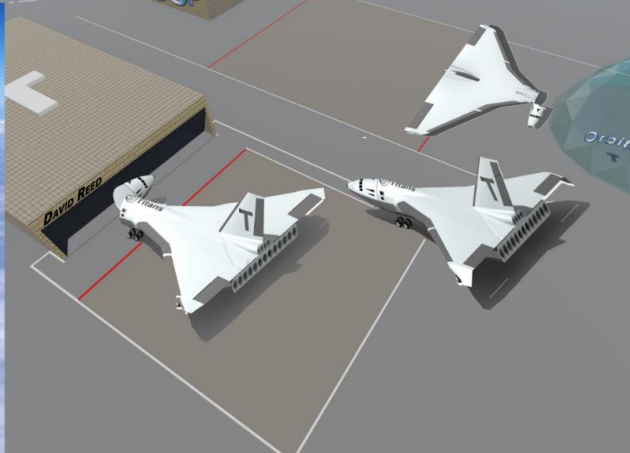
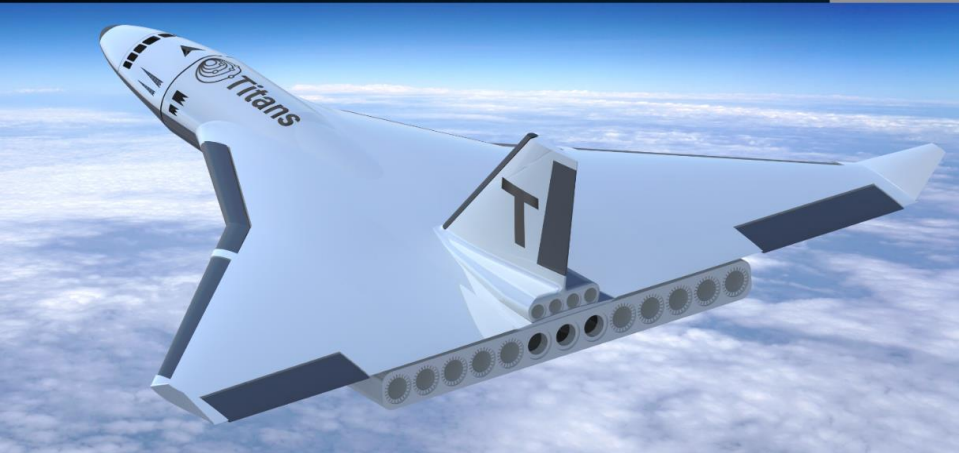
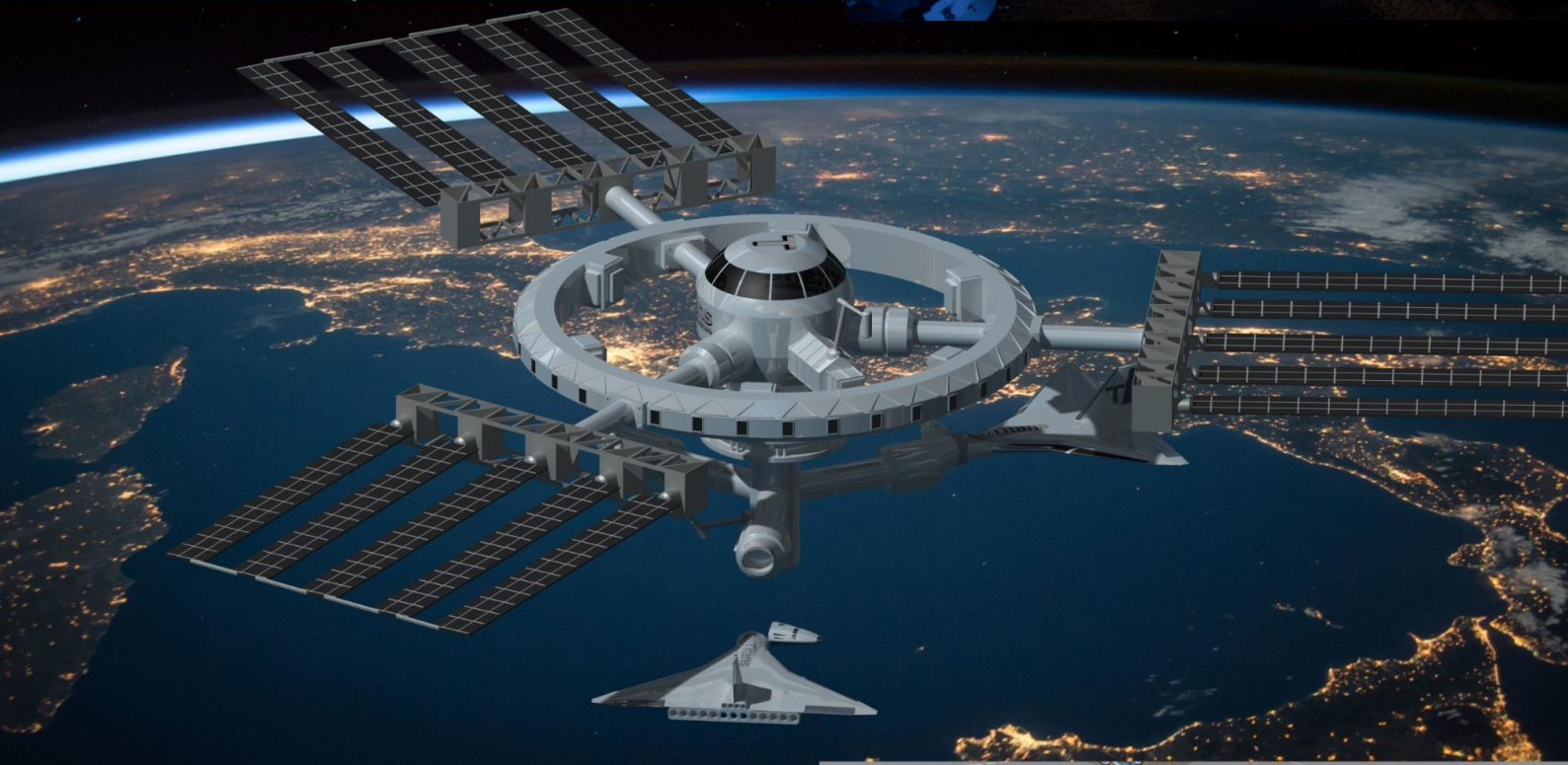




Titans Spaceplanes
Preliminary outline for
Spaceport Buildings & Facilities



NSL & Co. LLC

Five Buildings for Titans Spaceplanes

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About Titans Space Industries

TSI was founded by a [group of partners](#) with a combined 450 years of experience. The founding team includes a PE fund manager who raised more than \$6 billion in capital, a Hall-of-Fame NBA basketball legend, a former Head of Business Development for Apple, a next-gen telecom pioneer, a multi-billion-dollar business strategist, a former Managing Director of a Big 4 Firm, and the former CFO of a Formula One racing team.

The team has worked more than a combined 200 years together on other projects. A few years ago, the team halted all other projects to mainly focus on TSI's space and directly related projects due to their time- and capital intensive nature.

TSI recently finalized its feasibility study for its spaceplanes project, and, based on the staggering conclusions, decided to spin off into a separate company: Titans Spaceplanes & Space Technologies (TSST - currently under formation). The TSI founding team consists of fifteen professionals; twelve of them became the founding members of TSST, and they have been joined by a number of experts, including [aerospace and rocketry expert Franklin Ratliff](#).

The [Titans Spaceplanes](#) were first envisioned for the large space tourism and orbital infrastructure [projects](#) that Titans Space Industries (TSI) is preparing, including its own commercial [space station](#). These projects require long-term routine operations comparable to commercial airline/ airfreight operations.

During the company's spaceplanes research that lasted more than fifteen months, we realized that we could dominate the space launch industry once we get the spaceplanes up and running.

The global space launch services market was estimated at US\$15.8 billion in 2023 and is projected to surpass around US\$38.93 billion in 2030, poised to grow at a CAGR of around 13.7% from 2023 to 2030. (Source: [Research & Markets](#))

TSST's business model regarding space launches is simple: By providing routine, airfreight-like space launch services with our safe and efficient spaceplanes rather than inefficient and unsafe rockets, we aim to engage at least 1/3rd of this \$39 billion annual market potential (by 2029), representing a guaranteed revenue stream of more than \$10 billion per year.

However, space launches represent just one of numerous potential revenue streams for our companies. TSI is the operator of TSST's business, where the company intends to build at least 50 spaceplanes in the near future. The company is preparing to pre-sell Titans Spaceplanes to heads of states, governments, and military. Further information is presently kept limited for business confidentiality reasons.

TSI will also focus on LEO space tourism with an offer of [orbital cruises](#), [suborbital zero-g flights](#), and [LEO Space Station](#) stays. The primary target market is the company's so-called [Titans Astronauts](#), a group of Ultra-High Net Worth Individuals who are the company's primary space tourists as well as equity owners. Further details about the Titans Astronauts can be found [here](#).

TSI and TSST will establish operations in at least four spaceports, two of which will be in the USA.

Requirement: Land for Five Buildings

This document concerns a brief outline of our plans for spaceport facilities. We intend to acquire 20 acres, and possible up to 50 acres, for our manufacturing purposes, mainly consisting of three buildings:

1. Office building and manufacturing building (factory) for the smaller Titans spaceplane version, the [Titans Space Shuttle](#) (see preliminary designs below)
2. Manufacturing (factory) building for the [Titans Spaceplane](#)
3. Machine & Engine Shop
4. Sound suppression building
5. Hangar (to park two or three of our planes)

The Machine/Engine shop would be home to 25-30 high-paying jobs (2 shifts; CNC machinists and welders etc.) and could be at a separate location than the two hangars/manufacturing buildings, even in another State. It will also have offices for the engine/propulsion engineers because of our desire to co-locate them with where the engines are being built. The shop will draw on engineering and technician talent from local universities.

The sound suppression building will be used for engine tests. We will, for example, conduct tests involving the afterburners. The sound suppression building suppressing the exhaust noise means we could do tests during most times of the day without risking being a nuisance to the area and without any restrictions.

The two manufacturing buildings (factories) will be home to approximately 500-700 highly paid specialists (in two shifts), ranging from fabrication and assembly technicians to Structural Design Engineers and Electrical Engineers. (For comparison, the [Learjet factory in Kansas](#) employed 250 people).

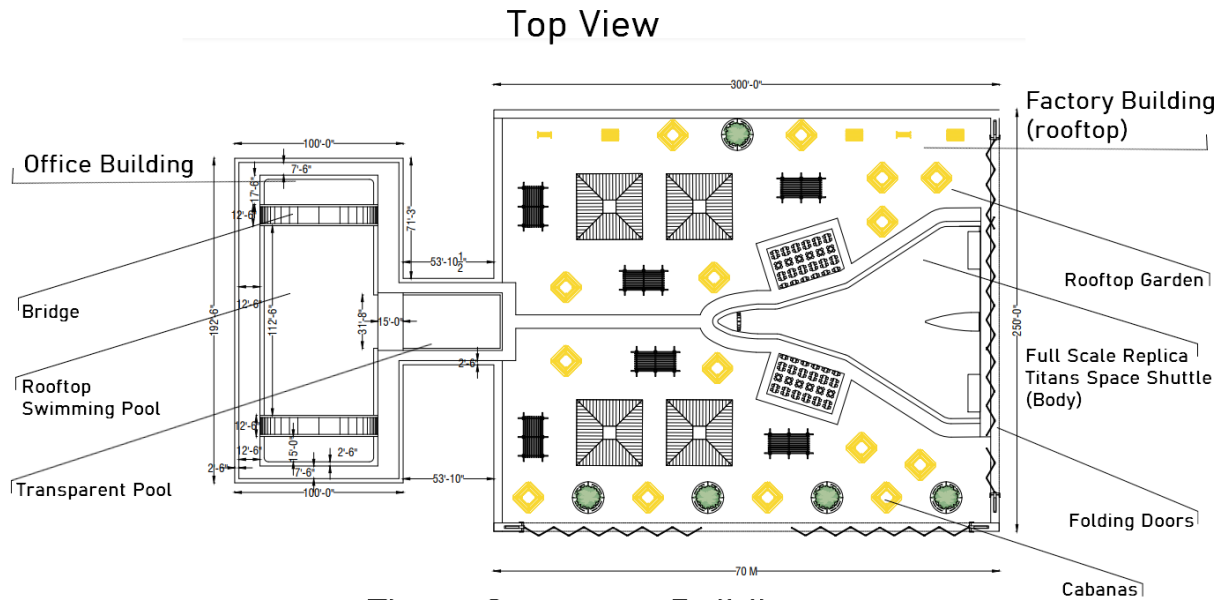
The office building is currently planned as an attachment to the Titans Space Shuttle factory (see designs below) and will be home to Titans Universe and TSI American headquarters, employing between 450 and 650 persons.

As of today, we have a Memorandum of Understanding (MoU) in place with a spaceport, and another MoU has been proposed while another is being considered. NDAs with multiple spaceports worldwide are in place. However, we have recently broadened our search to any city/region with an airport with long runways (3+ km) that are willing and able to accommodate us (e.g. with land adjacent to/offramp to the runways).

As of yet, we are considering the benefits of conducting our flight test program in the East coast vs the West Coast or elsewhere (USA). For the supersonic phase of flight testing, a high speed flight corridor is required. Out west that would be over the desert while in the East, that would be over the ocean. However, whether it's over the desert or over the ocean, the only safe places to land would still be a paved runway. The west would have the advantage of more days of clear weather but the East might actually have more runways.

As a company, we are also looking at the best incentives a local Economic Development organization can offer to TSI. We expect starting our Machine/Engine shop in Q1-2024, at which point agreements must be in place and land acquired.

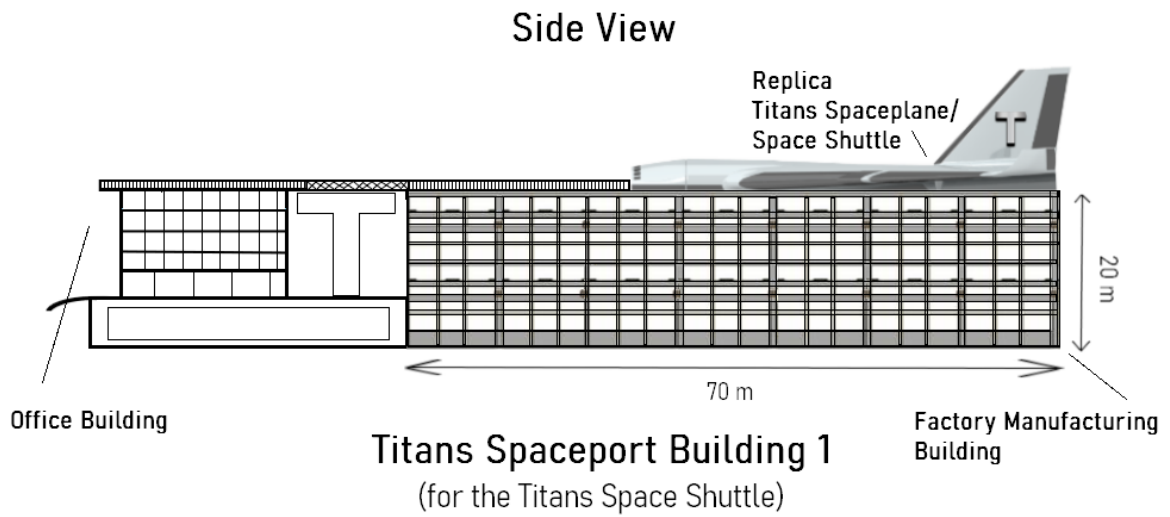
Spaceport Building: Offices and Factories



Titans Spaceport Building

- Office Building with Rooftop Swimming Pool
- Factory with a replica Titans Space Shuttle and Roof Terrace/Garden





Rooftop view | Factory | Manufacturing Building
(artist's concept)







Titan

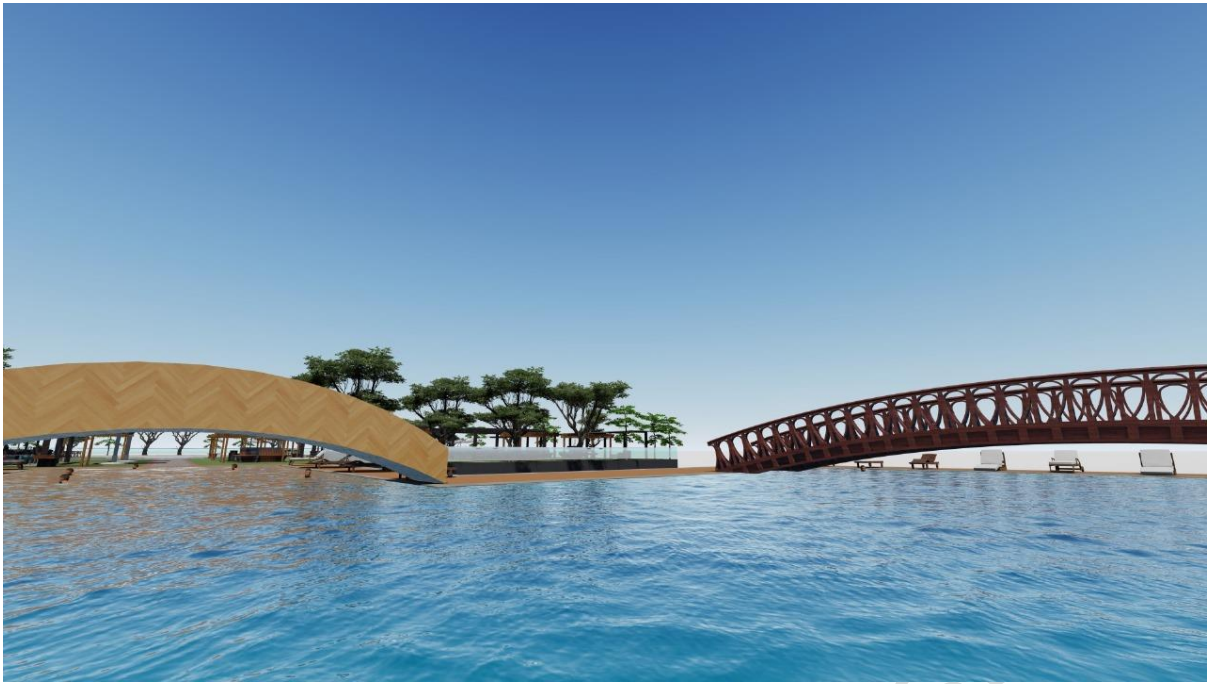


Rooftop view | Office Building | Swimming pool (artist's concept)





Titans Space Industries



Titanium

Comparable: Spaceplane Construction

This document can be read in conjunction with the [Titans Spaceplanes Design Summary](#).

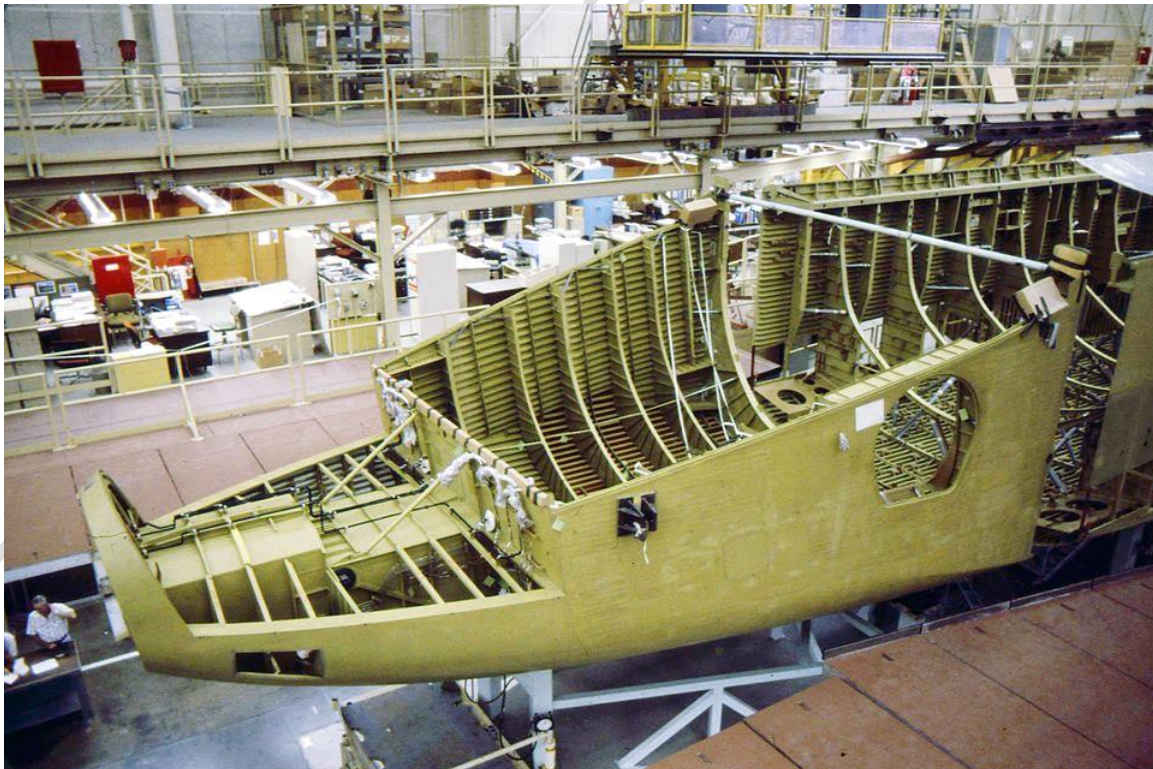
The two manufacturing buildings (factories) will be home to approximately 500-700 highly paid specialists (in two shifts), ranging from technicians to Structural Design Engineers to Electrical Engineers. (For comparison, the [Learjet factory in Kansas](#) employed 250 people).

Some specific factory roles

Aeronautical engineers; Aerospace engineers; Aircraft assemblers/installers; Civil engineers; Electrical engineers; Electrical installers/technicians; Information systems specialists; Inspectors (quality control); Machine tool operators; Manufacturing engineers; Mechanical engineers; Operations supervisors; Quality control technician; Sheet metal fabricators; Technicians (avionics/electronics); Test pilots; Tool, jig, and fixture maker.

Shuttle forward fuselage under construction

Like the shuttle the basic construction of Titans Spaceplanes fuselages will be aluminum with the skin riveted to ribs and stringers.



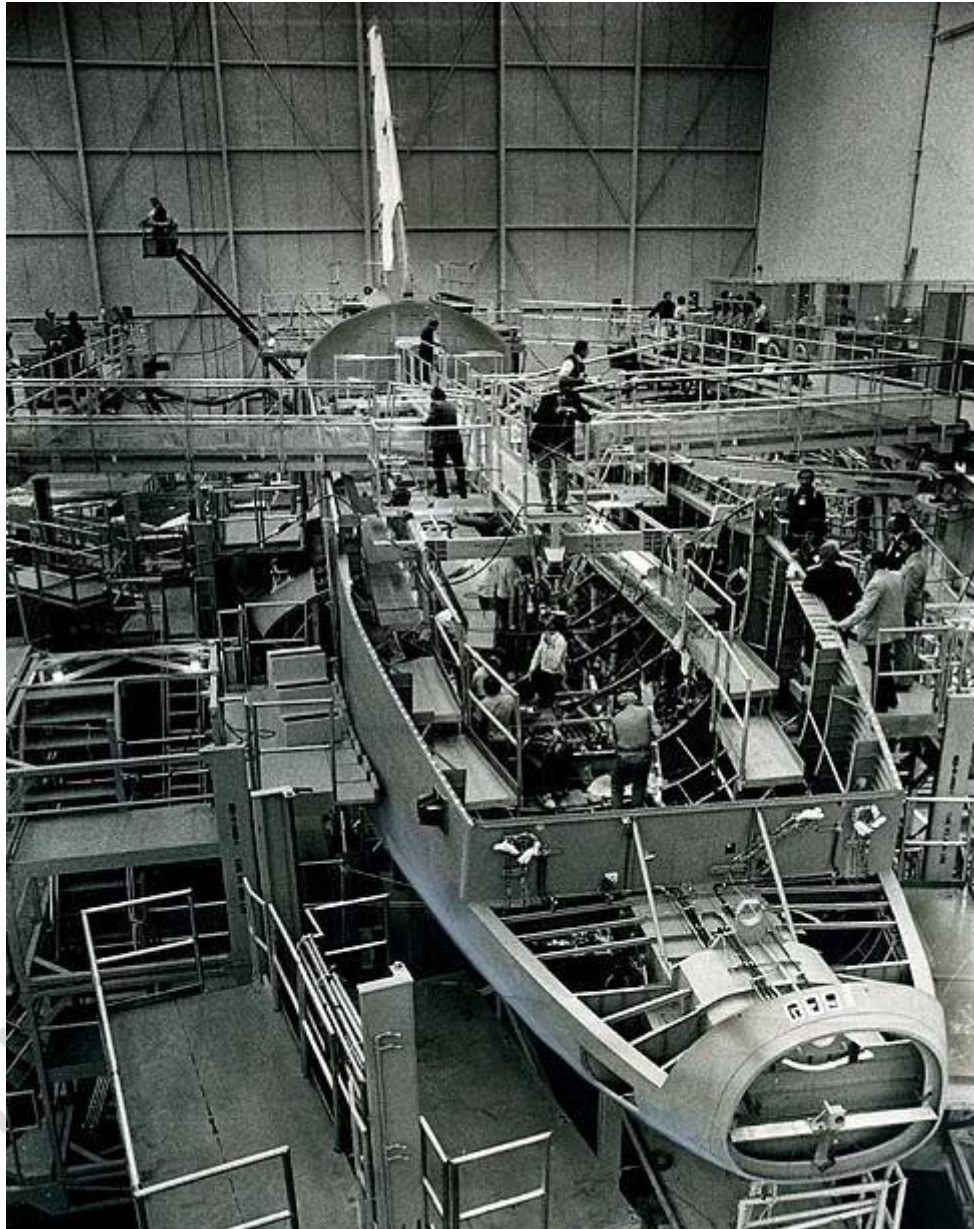
Soviet Buran shuttles under construction

The factory floor for assembling Titans Spaceplanes will look similar to this photo of Soviet Buran shuttles being constructed.



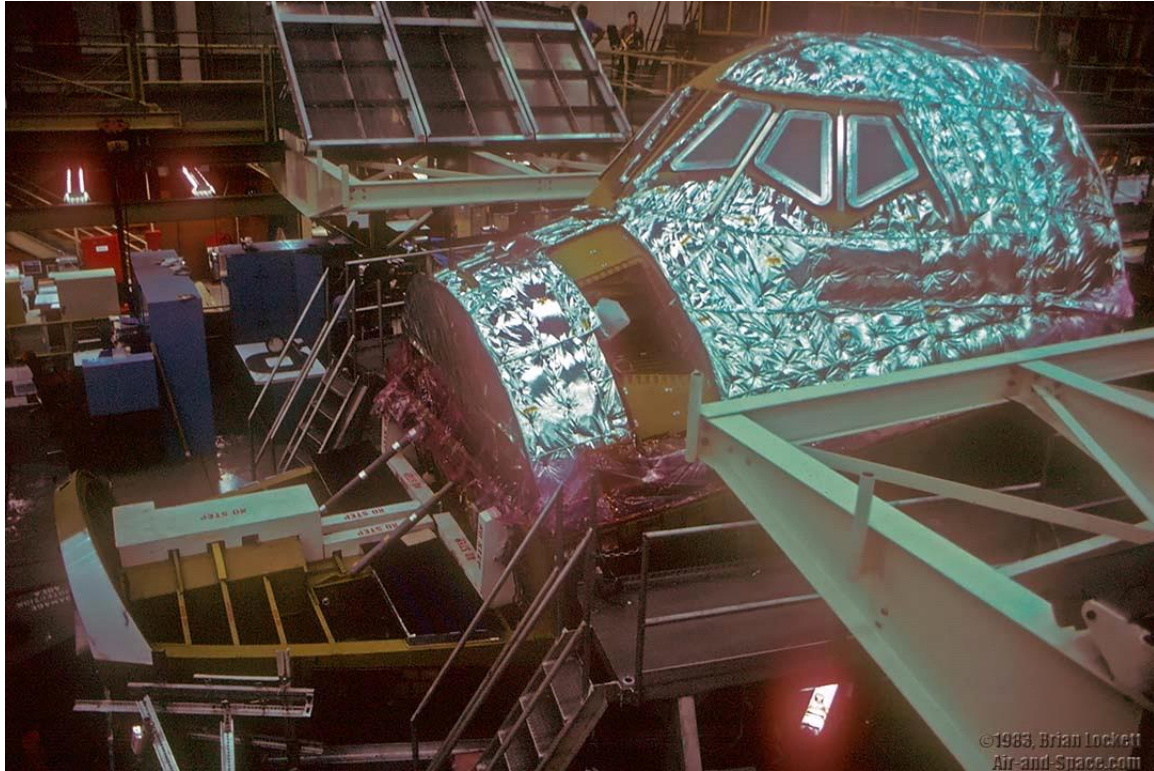
Space Shuttle under construction

Although the shuttle fuselage was a hybrid of different construction methods, the forward fuselage was conventional aluminum aircraft construction very similar to what Titans Spaceplanes will be using.



Space Shuttle crew cabin being fitted in forward fuselage

In this photo you can see the fixture used to precisely position the shuttle crew cabin while it was being fitted into the forward fuselage.



Space Shuttle crew cabin being fitted in fuselage

This photo shows the shuttle crew cabin being hoisted by crane into the forward fuselage. When people look at the front of a completed shuttle what they're actually seeing is the aeroshell that encloses the crew cabin.



Titanium

Space Shuttle payload bay door being installed

Instead of clamshell doors like the shuttle payload bay Titans Spaceplanes will use a hinged nose that swings open.



Space Shuttle fuselage with crew cabin installed

The nose of the Titans Spaceplanes will use a similar approach where the cockpit/crew cabin is an insulated pressure vessel mounted inside the aeroshell.



Soviet Buran's smaller windscreen panes

The Soviet Buran used much smaller windscreen panes than those on the American shuttle.



Titans

Soviet Buran Interior

This photo of the interior of a Soviet Buran shows how small the windscreen panes were relative to those on the American shuttle. The Titans spaceplane will be using a "glass" cockpit similar to modern airliners where the cockpit instruments are largely replaced by video displays.



Titan

Machine/Engine Shop

The Machine/Engine shop would be home to 25-30 high-paying jobs (2 shifts; CNC machinists and welders etc.) and could be at a separate location than the two hangars/manufacturing buildings. It will also have offices for the engine/propulsion engineers because of our desire to co-locate them with where the engines are being built.

The sound suppression building will be used for engine tests. We will, for example, conduct tests involving the afterburners. The sound suppression building suppressing the exhaust noise means we could do tests during most times of the day without risking being a nuisance to the area and without any restrictions.

In CNC machining systems after parts are designed using CAD programs the files are imported into the CNC machine where the part is machined.

Example of Modern CNC Machine Shop



Example CNC Machining Systems



Machine shop with CNC machining systems



Factory production floor with CNC machining systems



Industrial sheet metal roller machines

Industrial sheet metal roller machines will be used to make the ramjets and afterburners for the airbreathing engines in the plane's propulsion system.





An example of the kind of industrial sheet metal roller machine that will be used in Titan's Engine Shop for making ramjets and afterburners.

Contact Details

For extensive information, please visit TitansSpace.com/Titans-Spaceplanes and TitansSpace.com/FAQ.

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