Building 100 was designed by H. S. Kirlin and built by the H. S. Ferguson Company of Cleveland, Ohio. The architects designed this facility using seminars principles commonly used in the U.S. and Canada. The building had a surprisingly modernist style, with a strong influence from the work of Frank Lloyd Wright.

The building's main entrance is located on the south side of the property. It features large glass doors that provide access to the lobby area. The lobby is well-lit and features a curved reception desk. From the lobby, the main hallway leads to various office spaces, conference rooms, and the control room.

The control room is located on the north side of the building and is accessible from the main hallway. It is designed to house and operate the rocket engine testing equipment. The control room is equipped with state-of-the-art technology and is staffed by experienced engineers.

The basement level of the building contains additional office space, storage areas, and a large utility room. The basement is well-lit and features large windows that allow natural light to enter the space.

Building 100 is a significant piece of architectural history and is a testament to the ingenuity and innovation of its time.
BUILDING 100 - CONTROL BUILDING

The Rocket Engine Test Facility control room was the location, remote from the Building 202 test cell, where engineers and operators could safely program, observe, and regulate engine tests. Facilities for controlling fuel and oxidizer flow, and for measuring and recording temperatures, pressures, and engine performance during tests, are also located in this facility.

The main control and instrument consoles are located in the center of the room. The vertical model board that shows the operating status of all major valves, pumps, motors, actuators, and exhaust scrubbers in the system faces the operator's position at the control consoles. The control console and the model board display schematic representations of the physical layout of the system. Color-coded lines and symbols represent the pipes that conduct reactants to the engine being tested. Pilot lights in the various schematic lines show the locations and operating position of control valves in the system.

The main control console is similar to the model board, but it is labeled and positioned to be accessible to the test operator. Color-coded lines depict a schematic piping diagram of the system. Switches that remotely control valves, actuators, and motors at the test stand are located at appropriate points along the schematic of reactant flow lines. In case of an emergency requiring immediate shut down, the operator could push a "panic button" on the console to end the run. Closed-circuit television and dedicated telephone lines allowed the control room personnel to observe tests and communications with operating personnel at the test cell.

The operating time of the engineer working during the test was generally limited to a few minutes. Significant transient events causing longer performance could occur during a test, and slow human reaction time made manual sequencing of an engine test almost impossible. Additionally, real-time observation of a test by operators and engineers would yield limited data. Consequently, operation of engine tests was controlled by electro-mechanical timers, binary-coded thumbwheel switches, or subsequently by programmable logic controllers. Data acquisition was also automated. The records of a run, including input factors such as timing and reactant flow, was later analyzed and plotted against outputs such as engine thrust, temperatures, pressures, and other performance criteria.

When the test facility went on line in 1957, operators manually entered control and reduced paper charts of run data using slide rules and manual computation. As the facility evolved over time, data analysis became increasingly automated.

Originally, the performance data of a run were recorded on magnetic tape, thermal paper line recorders, multicolor pen recorders, or Honeywell "Vicamors." These instruments could simultaneously record the timeline of most events and conditions, including valve opening times, ignition point, engine thrust, temperature, or pressure transient, on a paper chart for later analysis. The control room performed a vital function in testing experimental rocket engines and acquiring useful data.
Exterior Photo Key for Building 100
Interior Photo Key for Building 100