

Bristol Aerospace Ltd. JSF Enclosure

Magellan Aerospace Ltd.

Winnipeg, Manitoba



Project Description

KGS completed the structural, mechanical, and electrical design for a new 17,000 SF environmental enclosure designed to house sophisticated aircraft machining equipment. This equipment required strict environmental control which limited space temperature swings to $\pm 1^{\circ}\text{C}$. Capital Cost \$2 Million

Structural Design:

Structural design of the entire enclosure incorporating freezer panels and high speed vehicle doors. Special supports were designed to support mechanical/electrical equipment such as lighting, ductwork, etc. since the freezer panels had limited load carrying capability. Design of a steel platform supporting the HVAC equipment at roof level.

Mechanical Design:

Complete HVAC design for the air handling unit and duct distribution system. The unit incorporated electric heat with SCR control and DX refrigeration with outdoor condenser rated for operation down to -40°C .

Room temperature controls were PLC based, designed by KGS, and implemented feed-forward control loops to anticipate large equipment heat loads. A room temperature feedback loop provides a final trim signal to the main temperature control loop. Detailed test and commissioning procedures were prepared for start-up of the control system.

Design of compressed air services and sprinkler fire protection system for the enclosure were also completed.

Electrical Design:

Main 600 VAC and 480 VAC feeders were provided to service milling equipment. Lighting design incorporated low profile T5HO fixtures to provide clearance for the overhead crane.