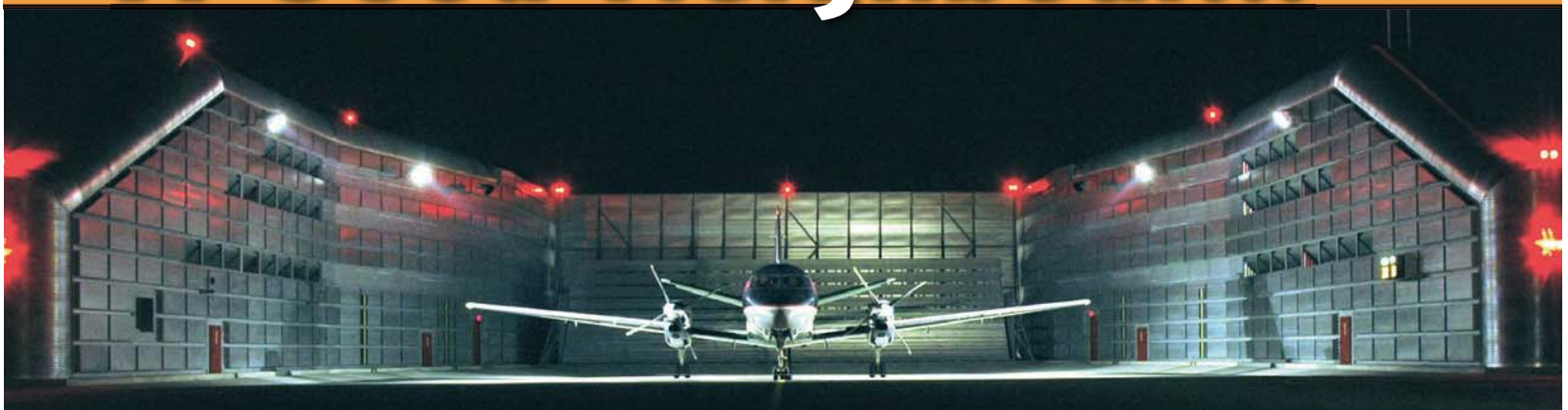
A Good Neighbour...



Don Bergin, Sales Director for Blast Deflectors Inc. explains how Albany has taken steps to be a good neighbour

When the site of the Albany International Airport (ALB) was selected in 1928, airport officials went to great lengths to maintain a positive relationship with the surrounding community. The local religious group of Watervliet Shakers who sold the land to the airport board gladly loaned its workers tractors and tools to build with. One wonders if they would have been quite so enthusiastic had they had to listen to 200 take-offs and landings every day, this being the current traffic level at ALB. Compounding the noise associated with take-offs and landings are ground movements and maintenance activities. In an effort to continue its history of being a good neighbour, the noise impact on the local community has become a major consideration for the airport's operators, the Albany County Airport Authority (ACAA). It has a long-standing programme of acquiring noise-impacted properties located nearby, within the 65 DnL contour, this being defined by the FAA and the Department of Housing and Urban Development as the benchmark normally compatible with residential land use. Since 1979, over 50 properties deemed noise-sensitive and non-airport compatible have been purchased and returned to 'green field' condition.

The ACAA has long recognized the importance of noise reduction and has worked diligently to observe FAA guidelines while addressing the concerns of airport neighbours. An on-line form allows local community members to file detailed noise complaints, and each is followed by up the airport's operations office. Although most daytime airport noise is caused by take-offs and landings, the ACAA has successfully met the additional challenge of reducing noise from on-site aircraft maintenance operations. Certain maintenance procedures require operating aircraft engines at high power settings, which can create as much noise as a take-off – and for a longer period. More than 85% of the ground run-ups at ALB take place at night when aircraft are available for maintenance and when there are very few take-offs and landings – essentially a recipe for noise complaints from the community surrounding the airport.

In 1995, the airport began examining facilities to mitigate noise produced during ground run-ups in an effort to further reduce their impact on the surrounding community. Working with an acoustic engineer from Rensselaer Polytechnic Institute in Troy, New York, a 'hush house' was built, created from 17,000 bales of local hay stacked in a three-sided configuration. The hay bale facility, built by airport staff, provided outstanding noise absorption during turboprop aircraft run-ups but was not suitable for use with jet engines. The structure, dismantled in 2002 to make room for a new hangar, demonstrated to airport staff and tenants that it was possible to mitigate ground run-up noise by using a facility with noise-absorbing properties.

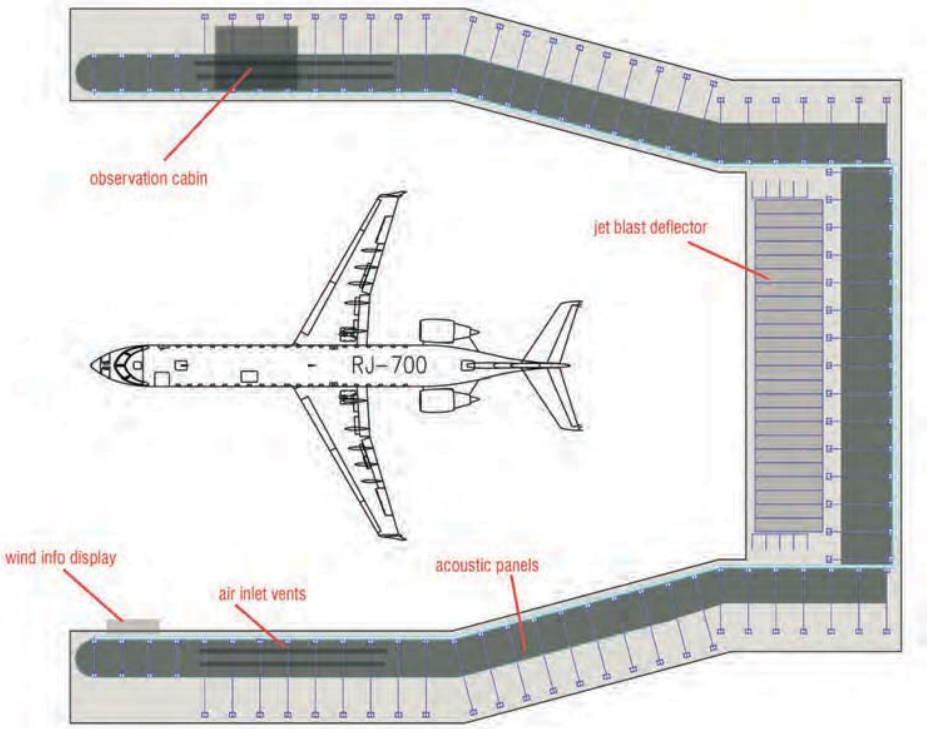
In 2004 the number of turboprop and jet aircraft ground run-ups at the airport was rising, due in large part to increased volume at one airline's regional maintenance facility. The ACAA launched a plan to install a new run-up enclosure. Specialty consultant Kimley-Horn of New York was enlisted to provide guidance in site selection, facility orientation and Ground Run-up Enclosure (GRE) configuration. The new facility needed to be suitable for use with both turboprop and jet aircraft. It also had to be a heavy-duty design, with aerodynamic features to allow its use in variable wind conditions. A new hay facility was ruled out due to various factors, including maintenance requirements (hay deteriorates), incompatibility with jet aircraft, lack of aerodynamic features and the potential fire hazard arising from a hay structure.

A photo of each run-up is automatically generated and logged in the control system of the Albany GRE. Other details automatically logged include duration of run-up, wind speed, wind direction and noise levels. (ALL - ALBANY INT AIRPORT)

Designed specifically for regional jets and turboprop aircraft, the Albany GRE is the smallest facility of its kind BDI has built to date.

Design Challenges

- The GRE needed to allow a minimum average annual usability of 85%.
- It had to be a durable structure with minimal maintenance requirements, and suitable for use with both turboprop and regional jet aircraft



In early 2005, Blast Deflectors, Inc. (BDI), of Reno, Nevada, began work on Albany's three-sided GRE design, which measured 140ft x 180ft with a height of 33ft 4in. The patented BDI Stabile Flow facility met both the design challenges and the ACAA's budgetary requirements. Large enough to accommodate a CRJ700, which has a wingspan of 76ft 4in, the completed GRE is oriented with the open end facing 90° azimuth from true north perpendicular to Runway 1-19, which presented an aerodynamic challenge given that this orientation is 90° to the prevailing winds. The GRE design proposed by BDI incorporated aerodynamic features such as a sloped entry, roll top and vented sides to provide a usability level of approximately 85% throughout the year.

- Albany is a harsh environment with freezing temperatures and an average of more than 60 inches (1500mm) of snowfall annually. The facility required materials designed to withstand this extreme weather over the 40+ years of useful life expected for the facility.
- The GRE design was required to produce an arithmetic average insertion loss (reduction of A-weighted noise level) of at least 14 dBA measured at specified locations.
- Apart from the noise protection required by the surrounding community, airport offices immediately adjacent to the facility also needed particularly effective protection from run-ups in the GRE.

In early 2005, Blast Deflectors, Inc. (BDI) of Reno, Nevada, started work on a three-sided GRE design measuring 140ft (43m) across and 180ft (55m) in length, with a height of 33ft 4in (10.2m). The patented BDI Stabile Flow™ facility met both the design challenges and the ACAA's budgetary requirements. Large enough to accommodate a CRJ700, which has a wingspan of 76ft 4 in (23.24m), the completed GRE is oriented with the open end facing 90° azimuth from true north perpendicular to Runway 1-19, which presented an aerodynamic challenge given that this orientation is 90° to the prevailing winds. The GRE design proposed by BDI incorporated aerodynamic features such as a sloped entry, roll top and vented sides to provide a usability level of approximately 85% throughout the year.

"Of all the GRE facilities we have built over the past 15 years, this is the first designed specifically for regional jets and turboprops," said Mark Boe, President of BDI. "We think Albany will be the first of many run-up enclosures built at mid-sized US airports with maintenance facilities. Regional jets and turboprops can create major noise issues in local communities and a GRE is a very effective way to address a primary source of night-time noise complaints."

BDI is presently building GRE facilities in Norfolk (Virginia), Dubai and Malaysia. The facility being constructed in Norfolk is virtu-

ally identical to the Albany GRE in terms of aircraft applications and configuration.

Completed in August 2005, construction of the Albany GRE took approximately nine months. Prior to full acceptance, it was thoroughly tested to prove it met the specified aerodynamic and acoustic requirements. A SAAB 340B, which is typical of the aircraft undergoing maintenance at ALB, was used in the proof test. Noise levels were measured at various pre-specified points around the airport and in the local community during an open field full power run-up outside the GRE. Afterwards, the aircraft was run at full power inside the GRE while noise levels were measured at the same points relative to the centre of the aircraft. The results showed an 18dBA insertion loss, which is a full 4dBA better than the specification.

The high acoustic performance of the Stabile Flow™ GRE is attributable to BDI's patented Noise Blotter™ sound panels, which line the inside of the facility. The Albany GRE has over 450 of these unique panels, each measuring 32in x 72in (813x1829mm) and filled with a highly absorbent acoustic material designed to retain the low frequency noise produced by aircraft engines operating at high power settings. Specifically designed for aircraft test applications, they effectively block noise transmission, absorb sound and minimize sound reflection. The back of the facility is equipped with a heavy-duty 19ft (5.79m) high jet blast deflector which safely redirects engine exhaust out of the facility.

Although the GRE currently receives regular use from various airport tenants, airport officials expect a major increase in the number of ground run-ups before the end of 2007. In October 2006 the ACAA broke ground on a new aircraft maintenance facility that will be leased to Eclipse Aviation for use as its Albany Factory Service Center to service the new

In 1995, the airport constructed a 'hush house', created from 17,000 bales of local hay stacked in a three-sided configuration. The hay bale facility provided outstanding noise absorption during turboprop aircraft run-ups, but was not suitable for use with jet engines.

Construction of the Albany GRE took approximately nine months. It was completed in August 2005.

Eclipse 500, which is powered by two Pratt & Whitney Canada engines, each with 900lb of thrust. This ground-breaking new aircraft will be marketed to air taxi services and corporations for approximately US$ 1.52 million. Scheduled for completion in mid-2007, the Albany maintenance facility will accommodate up to eight Eclipse 500s, which means that ground run-ups will be carried out regularly. The Albany GRE is capable of accommodating the Eclipse 500.

Albany GRE Features

- Automated system to log each run-up, including photo documentation of aircraft.
- Internet accessible webcam for users to determine facility availability.
- High performance facility lighting for night use.
- Heated observation cabin to house electrical components and provide maintenance workers with a comfortable place to prepare paperwork.
- Wind speed/direction display easily visible to the aircraft operators.