South Pole BIF

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U.S. Antarctic Program

South Pole Balloon Inflation Facility Replacement (BIF)

BIF has gone beyond it's life expectancy, is a source of many safety issues and the location of multiple injuries

Current building is sub-surface and structurally failing, which will force a move within one to two years to a new location

South Pole Balloon Inflation Facility

- Current Balloon Inflation Facility (BIF) was built in 1996 as a temporary “bridge” facility with four year life expectancy (18 years old)
- All tenants should plan for movement of equipment to new facility within one to two years – critical structural failure could occur earlier
- Snow load/ shifting could render the building unusable at any time
- NSF/NOAA are negotiating concepts and cost sharing for new replacement facility
- One concept under consideration is remodel of bay three of Cryo Facility, subject to NSF design team evaluation and approval
- Near term – administrative controls to mitigate safety concerns

South Pole Balloon Inflation Facility

Prior to CRYO plant construction

Post CRYO plant construction

Temporary Wall Support

Drift weight has caused walls to begin to buckle

Entrance Door Drifting

Door Drifting

Balloon facility requirements

- 24L x 20W x 24H
- Doors 22H x 16 W Maybe roll up rather than swing out.
- 41 deg F inflation room
- Down wind launch door orientation
- Proximity to lift gas storage (He) /or generation (H2)
- Roof mounted antenna w/ access
- Heated office area for sonde conditioning and computer operation.
- Eliminate Power Plant downwind carbon issues for sondes

BIF Design Ideas

BIF replacement using LDB design

New BIF could be mobile to deal with snow drift issues

Modular replacement into existing CRYO building bay. Similar to the picture but tall enough to support 22 foot doors.

Questions? Suggestions?