

Dalplex roof: a safe structure

by Peter Hayes

In response to an article that was run a couple of weeks ago on Dalhousie's new sports and recreation complex, the **Gazette** received an enquiry from an interested student wondering just how safe the air-supported stainless steel roof will be, especially in light of the roof cave-in on the Hartford Civic Center about two months ago. While the two covers are not at all alike, and comparison is impossible, the roof at Hartford should have supported an average Halifax snowfall.

Jim Sykes, Dalhousie's Director of Planning and Development, immediately dismissed any comparisons between the Hartford Center and Dalplex, saying we have "a one of a kind" roof, and that none of the planning was done thinking that the structure would always be sound and secure. All planning and tests were done following a philosophy that one must be prepared for the worst. This has been done all the way to the roof going from convex to concave.

The structure will be made of a 1/16 inch thick stainless steel "membrane", to be supported by the pressure of the air inside the building, much the same way as a balloon keeps its shape. The pressure will be greater than the weight of the roof, like the pressure in car tires that support the car and its passengers. There will be three fans pumping air inside the complex, although only one is needed to maintain proper pressure for roof support under normal circum-

stances.

The pressure can be varied according to how much weight needs to be supported. Assuming that weight comes from snow accumulation on the surface, the pressure can be increased and, in addition, a "snow melting mode" could be turned on prior to the snowfall. This circulates superheated dry air on the inside of the roof, acting much the same way as a defroster in a car. After taking into account sprinklers, lights, and anything else hanging from the roof, it will still support approximately twelve pounds per square foot. When the snow piles up faster than it can be melted (as would sometimes be the case), it is possible to put people and snowblowers or even a small tractor on top of the structure so that the snow could be mechanically removed. Since the steel surface of the complex is very slippery, snow would only be able to accumulate in any appreciable amount in the absence of wind.

If the power to Dalplex was shut off for some reason (a storm, for example, whether it be winter or summer), there will be a back-up diesel generator to keep the fans working and the pressure steady. The power (lights, heating, etc.) will be controlled by Dalhousie's JV-80 energy-saving computer, and will feature an instrument to measure wind velocities which may cause roof movement. In this case the pressure could be increased to hold the roof stationary. This movement would not likely be noticed by people inside Dalplex.

Hypothetically, the worst thing that could happen would be as follows: Both sources of power are cut off with snow accumulating on the roof. The roof gets gradually flatter and flatter, until its shape reverses itself, in which case it would hang like a bowl with its center about twelve to fourteen feet above the main floor. At this point, and at all points during the collapse itself, it is still possible to mechanically remove the snow. However, if the snow melted, the water would all run to the center of the "bowl" and the weight would exert a tremendous amount of pressure on the center. If this pressure were to become great enough, it would not pull the complete roof in on top of the playing floor. Instead, a pressure lock would be released, opening a "hatch" and letting the water spill onto the main floor,

creating a messy clean-up job instead of a very, very expensive repair job. Once power was restored, the roof could simply be blown up again.

Hopefully this would never happen, but if it did there would be a minimum amount of damage done - not to the roof itself necessarily, but to such things as the sprinkler system and the wiring systems.

To prevent something like this from happening, in addition to the precautions already mentioned, the structure will be watched very carefully; in fact, Dalhousie is going to employ a person to live in a house either on the Dalplex site or across the street for about the first 2 years whose job will be troubleshooting and correcting anything that might go wrong at any time of the day or night.

Skiers to Lake Placid

The Dalhousie Ski Team returned home Sunday from a week of training at the excellent Station de Ski Val d'Irene, Vallee Matapedia, Quebec in preparation for Series II CAN-AM IAS, 1978. Series II for the men includes a downhill, giant slalom and a slalom and for the women a giant slalom and slalom. The races will take place on Whiteface Mountain in Lake Placid, N.Y. starting on Monday and continuing until Friday, March 10.

During the six day training session weather and hill conditions were ideal, according to Coach Barrington, who expressed satisfaction with the seasonable temperatures and the thick coating of hard packed snow. "This hill is a coach's dream", Barrington remarked one sunny morning.

Four members of the men's team and two women logged miles of

gates daily in preparation for next week's races. The four men were Gregory J. Larsen, Richard Deacon, Rudy Shloopi, and Peter Langille, along with Jane Mitchell and Susan Hutchinson. Team members, though quite vocal when asked to comment on the week's activities, were naturally difficult to understand given the intensity and total absorption the sport demands. Comments varied from Larsen's compelling "Queen of Sheba" to Deacon's revealing "The view of the Chic-Chocs was impressive." Langille's remarks were limited to "vest".

L'Express du l'équipe de ski Dalhousie, the Dalhousie Ski Team Express, partis, leaves, 0900 heures, 9 a.m., samedi le 4 mars, Saturday March 4, pour Lake Placid, N.Y. for Lake Placid, N.Y.

AUAA Volleyball results

Women's Section

U.N.B.	3	Acadia	0
U de M	3	U.N.B.	0
U.N.B.	3	Dal	0
U.N.B.	3	MUN	0
U de M	3	Acadia	2
Dal	3	Acadia	2
Acadia	3	MUN	0
U de M	3	Dal	2
U de M	3	MUN	0
Dal	3	MUN	0

Men's Section

St. F.X.	3	Dal	1
St. F.X.	3	U de M	0
U.N.B.	3	St. F.X.	1
St. F.X.	3	MUN	0
Dal	3	U de M	1
U.N.B.	3	Dal	2
MUN	3	Dal	2
U.N.B.	3	U de M	2
U de M	3	MUN	0
U.N.B.	3	MUN	0

Final Standings

1st	U de M
2nd	U.N.B.
3rd	Dal
4th	Acadia
5th	MUN

Final Standings

1st	UNB
2nd	St. F.X.
3rd	Dal
4th	U de M
5th	Memorial

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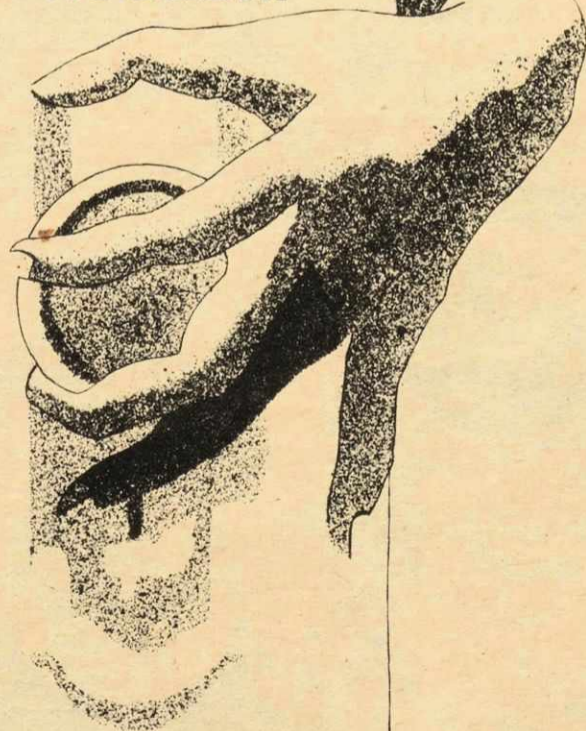
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