



Left: an artist's view of sheltered urban life as it will be experienced by the citizens of Fermont.

Below: a model of the new town, showing the "windscreen building principle" first used in the arctic regions of Sweden.



formers built to rigid specifications by ASEA, Canadian member of the Swedish-based world group. The transformers are the first produced for the mining industry at ASEA's new plant at Varennes, which opened in October 1971 and filled its first export order, to Colombia in South America, in 1973.

Windscreen building

One of the most interesting features of Fermont is the "windscreen building principle" first used by architect Ralph Erskine in town design for Sweden's Arctic regions.

In earlier times, primitive man used simple windbreaks and the protection of trees as rudimentary barriers against extreme conditions. Tests show that a windscreen obstructing the flow of wind creates a zone of shelter, mainly on the leeward side but to a lesser extent to windward. According to Professor Schoenhauer's estimate, "the wind is abated over a distance approximately equal to 40 times the height of the wind-

screen, one-quarter of the protected area being on the windward side and three-quarters downwind of the barrier."

The wind reduction, says Professor Schoenhauer, provides a local or "micro-climate" in the sheltered area. "As anyone who has taken shelter against the wind will know, this is very different in character from the feel of the climate where the wind has full play."

In Fermont's case, the "wind shadow" or climatic abatement offered by the 55-foot-high windscreen building should moderate conditions for almost two-thirds of the townsite area. The concentration of population through compactness of planning and the use of stretches of black spruce forest to shelter other residential precincts will combine to protect homes outside the "wind shadow" area.

Snowfall averages 150 to 200 inches a year in the area, but the windbreak and southern exposure will assist the sun's action in melting the snow.

The Fermont experience is seen as of special value to the Canadian building industry at a time when northern con-

struction—involving climatic problems and environmental questions not encountered in southern areas—is resulting in spiralling costs. Despite these costs discoveries of natural gas, oil and metallic mineral discoveries are tending to open the Arctic regions much more quickly than was thought likely even five years ago.

To Prof. Schoenhauer, Fermont represents a more advanced concept than any sub-Arctic community known to him, including those in the Soviet Union and Sweden. Russian Arctic cities differ little from ordinary Russian cities, it is said, while Fermont is more closely adapted to the North American lifestyle than Sweden's Arctic cities of Kiruna and Swappavara. Partly through the influence of women on the committee advising Fermont's planners, there are some differences between the new town and Southern Canadian communities. For instance, garage floors consist of concrete slabs supported on gravel beds eight feet thick. Driveways are restricted to less than 24 feet in length to reduce the amount of snow clearing. Sidewalks on east-west streets are built on the north side only, permitting snow to be pushed to the south side. Water mains are buried 10 feet underground and looped to keep water circulating.

Broadly, the compact-planning concept recognises that northern communities simply do not require the big gardens, sweeping driveways and luxurious lawns favoured in the south of Canada.

Another planning concept involves a climate-controlled pedestrian access route indoors linking homes to community facilities such as restaurants, recreation centres and shopping plazas. But an alternate outdoor route is seen as providing biological and psychological benefits.

Fermont's windscreen building will have at ground level a pedestrian mall linking community facilities grouped to form three main centres. These are an education centre comprising elementary and secondary school amenities centre including shops, hotel and entertainment facilities, and a recreation area encompassing hockey rink, curling club, bowling alleys and indoor swimming pool.

Essentially, the windscreen building and its services is expected to prove the heart of the new community—the town centre, in fact.

The community is being built by the Quebec Cartier Mining Company as part