terior insulation. These synthetic products have very different properties. Polyurethane is charred by fire, but produces no flame, whereas polystyrene melts when heated. These materials can withstand flames as long as the air space between the paneling and the wall does not exceed 25 mm. A wider gap would cause the air mass to promote oxidation of any charred polyurethane, which would then catch fire. Also, any melting polystyrene might also catch fire.

Experts at NRC recommend that the insulating layer be covered with panels of gypsum board. Their results have shown that no other material provides better fire resistance. A 13 mm layer of ordinary gypsum delays flame penetration by 30 min., and a 16 mm layer by 45 min. Neither the polystyrene nor the polyurethane will burn as long as the gypsum board holds out.

As a rule, insulating materials located beneath the roofing have little influence on fire intensity or propagation. However, if they catch fire or burn slowly, they might weaken some of the main beams and contribute to structural collapse.

Fire prevention experts endorse all types of safety coatings, fire stops, and flame retardants. These help contain the source of the fire. Results have shown that proper planning and construction help ensure that thermal insulation does not increase the risk of fire in buildings.

Science for Every Student

Science instruction in Canadian schools isn't a disaster, but it has a long way to go before it will help students in their daily lives, says Graham Orpwood, one of the coordinators of a report on science education released early in May by the Science Council of Canada.

Science for Every Student took four years to complete and presents 47 recommendations to upgrade the quality of science taught in Canadian classrooms. For at least two of these recommendations, increasing the Canadian content in science lessons and orienting them more towards the modern world, *Science Dimension* is a useful tool, according to Orpwood.

"*Science Dimension* provides an answer to the question 'so what are Canadian scientists doing?' and links what students are learning in the classroom to the real world," he says.

The report states that many elementary school children don't receive any instruction in science at all, and recommends they get at least 45 minutes a day. A lot of elementary school teachers haven't taken science courses since high school, and the report suggests ways to upgrade their teaching skills.

If the recommendations are implemented, girls would receive greater encouragement to study science, and students who excel in science would attend special high schools devoted to science and technology.

The study was prompted by complaints by people such as Dr. David Suzuki (for elaboration see *Science Dimension* 1984/2) that students coming out of high schools today are ill equipped to consider the issues of science, says Orpwood.

"We surveyed 4000 teachers in 1227 schools and examined many science textbooks now in use to see if the complaints were valid. We found that they were."

Next, Orpwood says, they went to the people — conferences were set up across Canada, which included parents, teachers, engineers and others to discuss the problem.

The result of the surveys and conferences is *Science for Every Student*. It is up to each individual school board to adopt the recommendations, and Orpwood says some have already been implemented by school boards all over Canada.

Full implementation of the recommendations across the country would cost $155 million over the next five years. That breaks down to $31 million each year, or $6.28 per student per year — not a lot when compared to the $20 billion total expenditure on elementary and secondary education in 1983/84.

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