

# Controlling Classroom Temperature Discussed for Local Committee

Controlling the temperature in a classroom has been a problem for many years. Often times during the winter months, when heating systems are operating to near capacity, classroom windows are open to

provide better circulation of air. The same windows are open during the warmer months for better circulation, although the air being circulated may not be cool. This situation, however, may

be eliminated in future construction of classrooms with the more refined development and increasing use of the heat pump. Basically, the heat pump is a compressor, similar to a type in the regular refrigerator,

which removes cool or warm air from a given area. For example, if a room needs heat, the unit takes warmth from the outside air and circulates it in the room; if the room needs to be cooled, warm air is extracted from the room.

**Costs More Reasonable**  
Although not new, installation of a heat pump system of heating and cooling has been quite expensive until more recent years. Installation costs are now more reasonable, and heat pumps have been installed in many commercial buildings.

But only in more recent years has the heat pump been used in school plants. In Oregon, increased use of the heat pump in public schools has been chiefly the result of the work of Chester W. Jarrett, manager of public services, Portland, General Electric company, Portland.

Jarrett discussed heating and cooling systems at a meeting of the Medford school district's Citizens' Advisory Committee last week.

**Controlling the Temperature**  
He pointed out the importance of controlling the temperature of the classroom for more efficient learning.

Other reasons for controlling classroom temperatures were outlined by Delos Williams, assistant state superintendent of public instruction in charge of schoolhouse planning.

Williams pointed out that with controlled temperatures, better attendance was noted, fewer disciplinary problems were noted, and the amount of illness was reduced. Whether a student's achievement is higher in a controlled climate room has not yet been proven, Williams said, but indications are strong that achievement is higher.

Jarrett, in cooperation with six school districts in the Portland area, conducted a research project involving heating and cooling classrooms. Various types of heating systems and heat pump systems were installed, along with equipment to record temperature ranges, both inside and outside, the length of time the unit heated or cooled a particular room.

**Cooled More Than Heated**  
Charts drawn up from data gathered from the schools showed that most classrooms were cooled more than they were heated. Rooms were heated during the early morning hours, but after students arrived, and heat was generated from the sun and students, the heat pump automatically started cooling the rooms.

Jarrett pointed out that a classroom can be pre-heated before class starts when the temperature outside is zero degrees Fahrenheit.

After class starts in the room, it will require no more heat during the day because of the net gain in heat from the students, the sky and sun, and lights, Jarrett said. In fact, to hold the room temperature relatively even, the room will need to be cooled, even as the temperature outside remains low.

This is borne out in data collected in the six schools cooperating in the research project.

**Both Work at Once**  
Jarrett said that in many cases one or more rooms in a school may be heated at the same time other rooms are being cooled. This was the case in some of the research schools in which the climate was controlled by individual heat pumps for each classroom.

Cost of installation of a heating - cooling system is actually no greater when the units are put in during construction of new buildings, Jarrett noted. Changes in the construction plans can be made to offset the additional cost of the heat pump unit.

Operating costs, with a heating - cooling unit, are reasonable, the research project showed. Operating costs were compiled on the basis of cost per square foot, and ranged from 14.128 cents at Estacada High school, which had only heating units, to 3.7 cents at the new Milwaukie High school for heating and cooling.

**Learning Efficiency**  
Jarrett pointed out that the concern is not so much whether a student is comfortable as it

whether the student's learning efficiency decreases when he is uncomfortable.

A student's learning efficiency does drop when uncomfortable, but educators are not sure just how much. The range of loss of efficiency has been estimated between 15 and 60 per cent, depending upon conditions.

Jarrett used a figure of 10 per cent drop in efficiency as a basis for his research. Following this through, if it costs \$450 per year per student in high school, and the student is uncomfortable 57 per cent of the time, \$30 of the cost of educating the student has been wasted.

No valuation can be placed on the amount of learning the student has lost for life, Jarrett noted.

**Provide Comfortable Room**  
Providing a comfortable room through cooling would cost less than \$5 per student per year, he noted; comparing this to the conservative cost of loss of

learning efficiency, the cost of air conditioning is \$25 less on a per pupil basis.

Jarrett also mentioned that the extended school year — that is, classroom use throughout the 12 months rather than just nine — should also be considered when new school plants are discussed. He said school adminis-

trators in the not too distant future will face the question of using the school plant throughout the year.

He pointed out that air conditioning of schools today is economically feasible as well as warranted from the standpoint of providing the best environment for learning.



**PROMOTE AUCTION**—Dick Hawkins, a member of the board of directors of the Medford YMCA and owner of Medford Construction company, is shown at the wheel of this 1915 Ford which he drove around Medford promoting the annual YMCA auction today. The auction will be held at the B and B Auction yard on the pany, is shown at the wheel of this 1915 Ford Jacksonville highway this afternoon.



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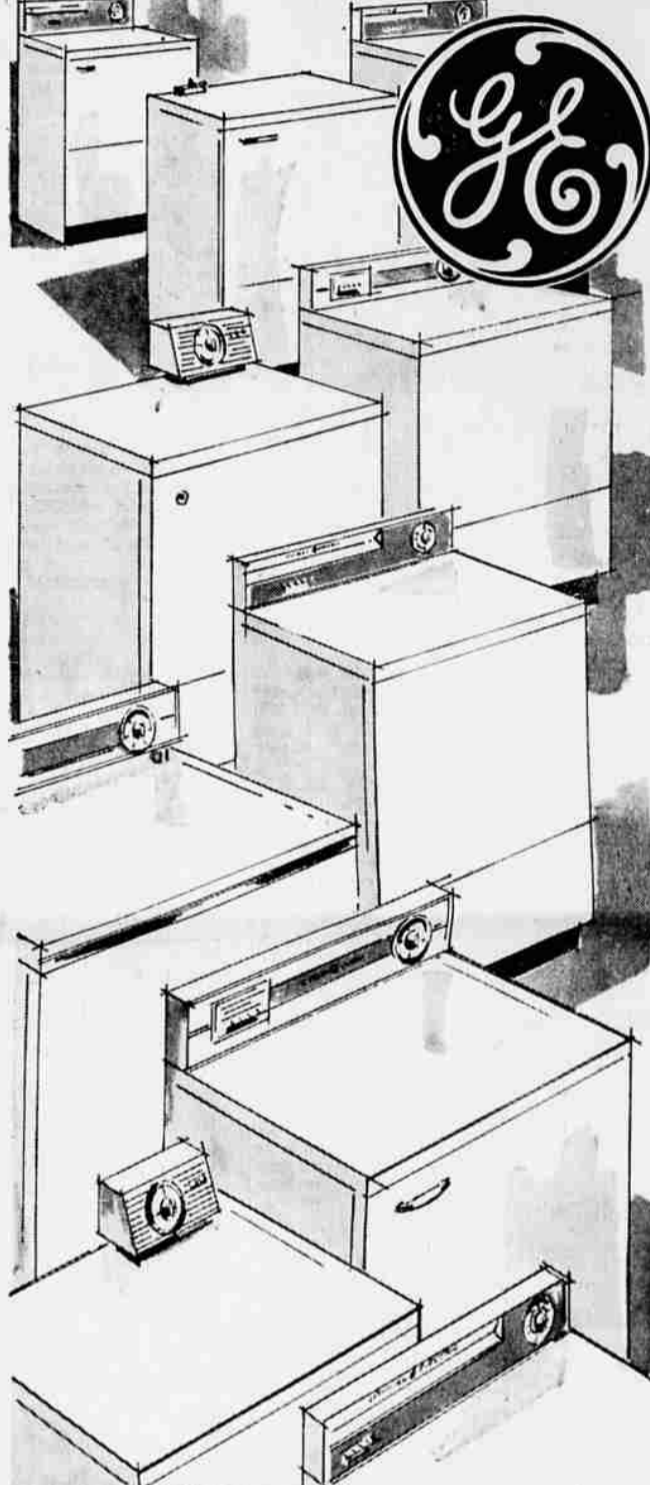
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### Extension of Road Opens for Traffic

Highland dr extension was opened to vehicle traffic Wednesday when contractor's crews finished installation of asphalt paving, according to Vernon Thorpe, Medford public works director.  
The street extension project was designed to provide easy access between East Main st. and Barnett rd. The major contractor for the project was M. C. Lininger and Sons. Total cost was \$28,000.  
Thorpe also announced completion of paving work on Siskiyou blvd. Except for a 1,000-foot section in the center which was covered with an oil mat, the paving extends from 10th st. to Willamette ave. M. C. Lininger and Sons also was contractor for the project.