

Refrigeration Cools Congress

Engineering

"Twenty degrees cooler inside." This sign, while always somewhat exaggerated for artistic psychological effect, may now be posted not only on Washington movies, but on the U. S. Capitol building as well.

Members of the House of Representatives, in fact, for the past two sessions have been provided with the cleanest air possible to obtain by artificial means, and have had the temperature of the room in which they work held to a steady average of 70 to 73 degrees Fahrenheit in the winter months, regardless of nipping winds or snow outside.

Now that Washington's torrid summer is here, the refrigerating possibilities of the new ventilating system are being tested. A steady temperature of from seven to ten degrees lower than outdoor thermometer registrations is being maintained. Because the excess moisture is being removed from the air before it is circulated in the House chamber and galleries, its temperature actually seems cooler than it is, and a poll of guesses from tourists and Congressmen would estimate the temperature to be around 72 or 73 degrees, whereas a thermometer indicates it to be 80 or 82 degrees Fahrenheit, on "ninety-degree" days.

The U. S. Public Health Service, which has cooperated with the Capitol Engineers' Office in handling the new ventilating system, states that while it is a common impression that a house temperature of around seventy degrees would be ideal both winter and summer, that this is actually not the case, inasmuch as this would mean too great a change in summer, when one comes in from the outer air.

Manufacturers of the apparatus by which the air in the House is now regulated are careful to insist that the system is not exactly a ventilating system, but rather an "air conditioning system." Such a system embraces not only circulation of air, and increasing or decreasing its temperature, and washing it to make it pure, but

goes even further than this, and provides the air with the amount of moisture said to be most healthful. Sometimes this means that the air must be humidified; at other times, it must be dehumidified.

Dehumidifying the air in the summer time, it is explained, makes its heat less noticeable, which is a matter of common knowledge, due to the prevalence of the old complaint: "It isn't the heat, it's the humidity."

It is explained that the cold air which enters into the Capitol in winter may be saturated with moisture, but becomes rather deficient in moisture content when it is heated. As it passes over the oil filters in the tunnel in Capitol Park, before it enters the Capitol, most of the dust and dirt is removed. It then goes through water sprays which are kept constantly at a temperature of about 42 degrees either winter or summer. Naturally, it either takes up or drops moisture, depending upon its temperature and degree of saturation when it entered. It always emerges from this water spray with a certain definite amount of moisture per cubic foot. Heating of this air to 64 degrees is the last step before it is sent to the House chamber and the galleries.

"The purpose of these systems," says David Lynn, architect of the Capitol, "is to give ample ventilation at all times without drafts—to give temperature regulation in all parts of the House, including the gallery,

which shall be independent of outside conditions in summer as well as in winter.

"To give an appreciation of the magnitude of the undertaking, certain requirements of the House chamber may be cited:

"There is now supplied to the floor of the House and gallery 72,000 cubic feet of air per minute, thoroughly cleaned and with its temperature and humidity regulated to give the desired conditions in the Chamber. This air supply can be visualized as nearly one-fourth the entire cubic contents of this Chamber supplied every minute. Or, to express it another way, the air in the Chamber is completely changed about once every four minutes.

"It is often necessary to cool in winter as well as in summer. Scientists have shown that the average human being dissipates continuously more heat than two 50-watt electric bulbs. With the galleries and floor filled with persons, there is enough heat being given off to raise the entire amount of air introduced nearly 6 degrees."

The method of air distribution is new, Mr. Lynn also explains. It is diffused over the entire floor of the Chamber through invisible outlets in the panels of the ceiling, and is exhausted in like amount from suitable openings near the floor.

Recent tests conducted by engineers at the Capitol showed that the apparatus had taken 4 cubic feet of dirt from the air in 648 hours of operation, or representing a period of about 4 weeks. This dirt weighed one-fourth ton.

Since tests in New York theaters showed about eleven cubic feet of dirt removed from the air in one week's operation, Washington concludes that its atmosphere is in general comparatively clean.

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