

### COMPARATOR BUILDING OF THE DOMINION LAND SURVEY.

FOR some years the need has been keenly felt of proper facilities to test subsidiary standard tapes for the Dominion Land Surveyors. By the Dominion Land Surveys Act, the Surveyor-General is required to provide the surveyors with subsidiary standards tested and certified by him as correct. In order that these tapes might be properly tested and re-tested from time to time it was necessary to erect a building equipped with the most up-to-date apparatus for this purpose.

**Building.**—The building was of necessity of special design as it was of extreme importance that the tempera-

base of the wall) are arranged so that the quantity of air admitted can be regulated and during the tests can be completely shut off. Supported from the ceiling at each end of the room is an electric blower fan (shown in Figs. 2 and 3), used to circulate the air and so insure a uniform temperature throughout. The ceiling ventilators can be closed completely or opened any desired amount for ventilation. The exit into the outer room is of special construction, consisting of two doors with a 4-ft. air space between. The outer door is of the ordinary type, whilst the inner one is an insulating air-tight door of the refrigerator design.

In order to protect the apparatus from frost and moisture and also to raise the temperature to near

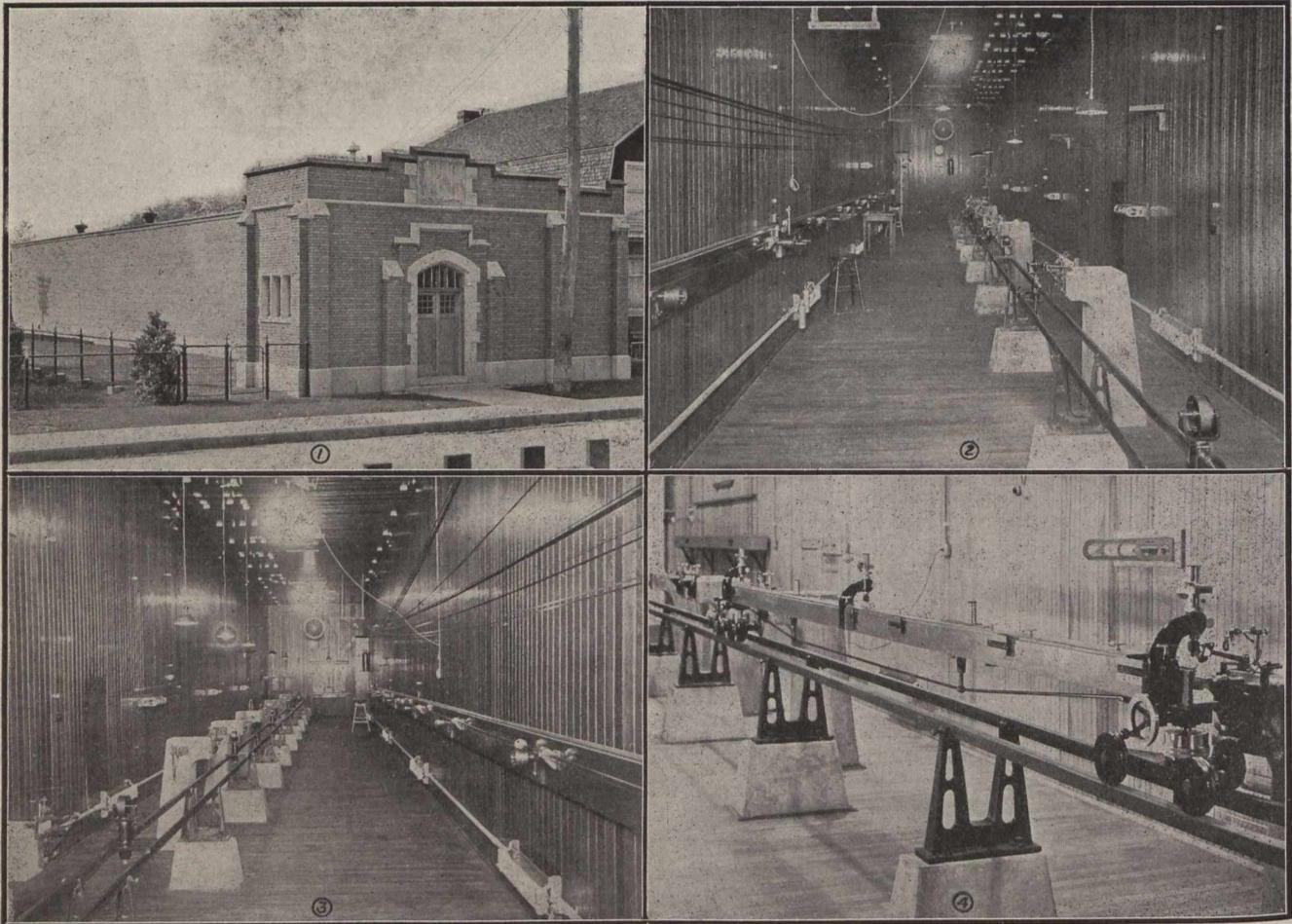


Fig. 1.—Exterior, Comparator Building; Figs. 2 (and 3).—Interior of Tape-testing Room, Looking North (and South); Fig. 4.—Meter Invar Bar in Position for Reading.

ture inside the building should vary as little as possible with any variation of outside temperature. It consists of two rooms, one a small room used as office and vestibule, and the other used for the testing. The inside dimensions of the main room are 150 feet long by 10 feet 6 inches wide with 12-foot ceiling. The walls are approximately 4 feet thick and consist of five thicknesses of brick, a 1-inch air space, sheeting, tar paper, 18 inches of shavings, 1 inch sheeting, 4 inch air space, tar paper and finally double sheeting. Between the ceiling and roof is a layer of shavings 4 ft. thick and beneath the floor a layer 2 ft. in thickness, under this cinders to a depth of 5 ft. to the solid rock. The only openings besides the door are two air intakes, one at each end of the room, and four ventilators in the ceiling. The air intakes (which are at the

standard temperature (62° F.) during the colder periods of the year an electric heating system was installed. Of necessity any system adopted must heat the testing room as uniformly as possible. A large number of small special heaters were used, placed around the walls near the floor. A double heater was also placed in each air intake in order to heat the fresh air admitted. The heaters are of the three-heat type, giving low, medium and high heat. They may be controlled closely from a Vermont marble switchboard, the arrangement being designed so that different circuits may be regulated as to heat generated. The heaters with the conduit wiring may be noticed just above the floor in Figs. 2 and 3.

**Apparatus.**—Generally speaking, the existing bases for standardization of wires and tapes are of two types: