



# forest management note

Note No. 25

Northern Forest Research Centre

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## AN INEXPENSIVE PORTABLE FOREST FIREFINDER

Forest fire detection has undergone a shift in emphasis from fixed detection systems (lookout towers) to air patrols. Many lookout towers are now being manned only during periods of high-to-extreme fire danger. These lookouts are often vandalized while unattended, usually resulting in the firefinder being damaged or destroyed. The Saskatchewan Department of Tourism and Renewable Resources asked the Northern Forest Research Centre (NoFRC) to design an inexpensive firefinder that would be small and light enough to be carried up and down a tower to facilitate its removal for safekeeping during periods of inactivity. The resulting firefinder is similar in concept to one used in some Australian secondary towers (Foster 1976) and operates in a manner consistent with established lookout procedures.

The purpose of this note is to describe the construction and installation of the NoFRC firefinder. Complete mechanical drawings of the individual components (Fig. 1) are available from the authors on request.

The NoFRC firefinder is mounted on an aluminum rod that is adjustable to a maximum height of 1.37 m (4.5 ft.). It weighs less than 5 kg and uses a standard 25.4-cm (10-in.) plastic protractor as a sight-bearing ring. The protractor is sufficiently accurate (to within  $0.5^{\circ}$ ) for fire detection purposes, considering that fire control action is commonly initiated by aerial tankers or helicopter-transported personnel. This reduces many of the fire location problems that might be encountered by a fire

crew traveling overland along a lookout bearing. The remainder of the firefinder is made of readily available materials, and construction can be completed in half a day at a competent machine shop. Costs will vary but should normally be \$50-75 for materials and \$150-200 for labor.

Installation of the NoFRC firefinder in a lookout cupola requires drilling holes in selected spots in the cupola floor for each permanently positioned mount. Two mounts are needed so that the firefinder can be shifted from one to the other, minimizing the blind areas caused by the cupola window frames. Each mount must be oriented separately by reading correctly on at least two unknown bearings, and the mounts are then fastened to the floor with wood screws or bolts and nuts. Figure 2 illustrates the optimum positions for the mounts in an octagonal cupola.

In the past 3 years, six Osborne-type firefinders were damaged by vandals in Saskatchewan. NoFRC firefinders are now being used in these lookouts at a substantial saving with little or no reduction in performance reliability.

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## REFERENCE

- Foster, T. 1976. Bushfire: history, prevention and control. A.H. and A.W. Reed Pty. Ltd., Sydney, Australia.

