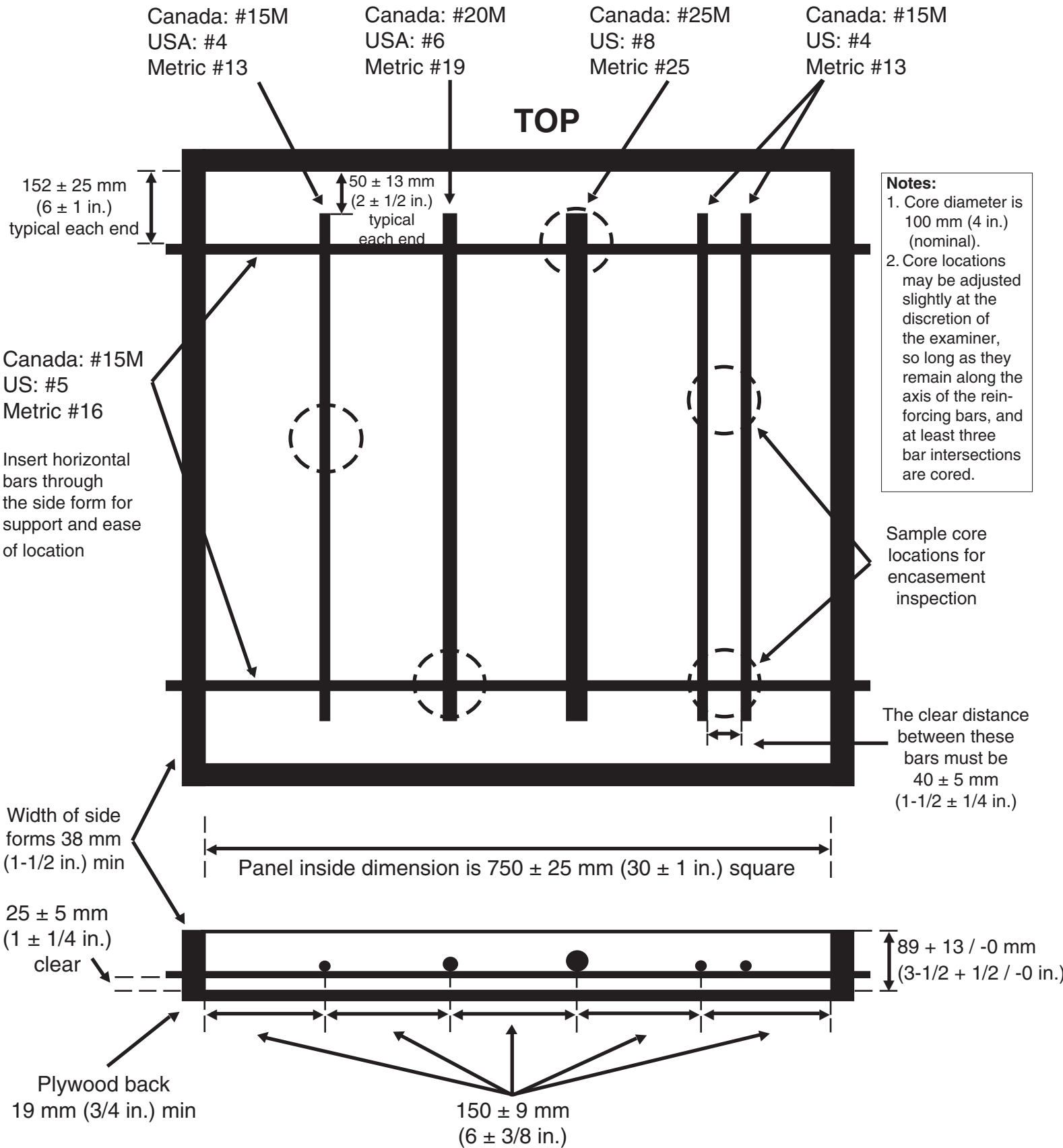


APPENDIX I



Reinforced test panel layout with core sampling locations -- Includes proposed construction method.

APPENDIX III

SECURING TEST PANELS

- I. Vertical panels:
 - A. Vertical panels are to be positioned within 0 to 10 degrees of vertical at or near grade.
 - B. Backing or bracing and foundation support must be rigid enough to preclude excessive vibrations and guard against panel tipping either forward or backward.
 - C. Dynamic forces against the panel vary with equipment used, but should resist a horizontal force of at least 100 lb minimum.

- II. Overhead panels:
 - A. Overhead panels are to be positioned horizontally at an elevation approximately 2.5 meters (8 ft) from grade.
 - B. On average, the total weight of a full shotcreted test panel will weigh 350 to 425 lb. In addition, a weight of 50 to 100 lb is often added on top of the empty panel before shooting to minimize vibration. (See drawing of a typical overhead setup at the end of this *Appendix*).

The number of panels and their spacing will then dictate the size and load-carrying capacity of the support framework. When multiple panels are to be shot in the same session, it is important to either allow adequate space between panels, or provide some means of protecting adjacent panels from over-spray.

- C. Metal scaffolding or shoring systems are the most common support methods used. These will usually come with recommended load capacity data. A safety factor of at least 3 times expected loads (or more, if OSHA or local safety authorities require) is recommended.
- D. For wood systems, 4 x 4 in. wood posts, along with horizontal beams sized (by calculation) for proposed spans, have been used.
- E. For any of the above noted systems, lateral/sway bracing is also extremely important. This needs to be taken into account when designing the systems so as to allow ready access under the panels for the nozzleman.
- F. The loads involved are substantial, therefore if there is any doubt or uncertainty about the load carrying capacity of a system, it should either be proof-loaded or designed by a P.E.

Drawing of a typical overhead setup follows on the next page.

APPENDIX III

ACI SHOTCRETE NOZZLEMAN CERTIFICATION - TYPICAL OVERHEAD SET-UP -

