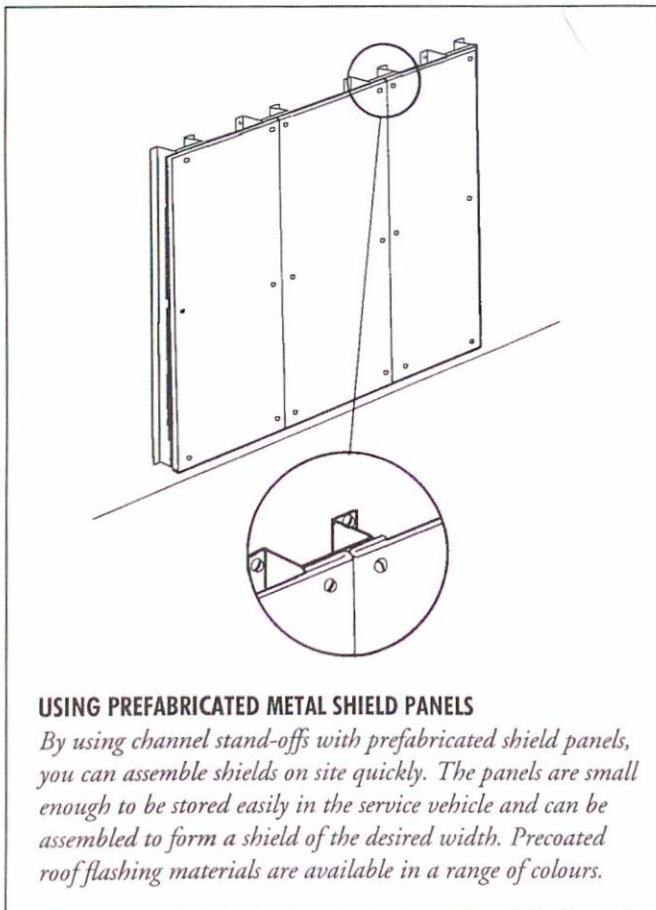


5.4 Shielding Materials

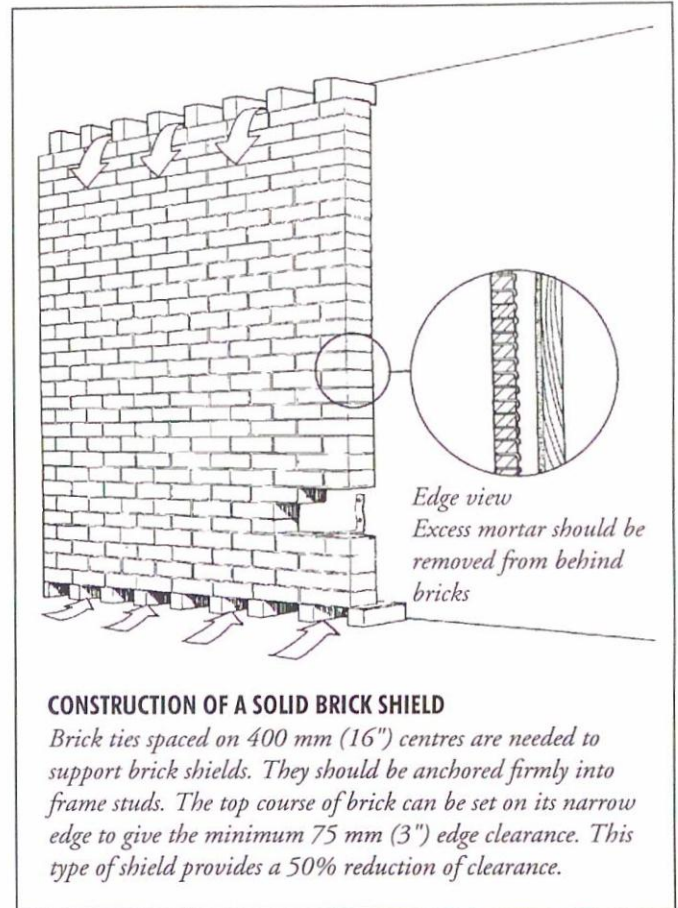
A variety of materials may be used in the construction of air cooled radiation shields. Sheet metal with a minimum thickness of 29 gauge is the most basic and inexpensive shielding material. Note that 29 gauge sheet metal is extremely thin. Unless such thin material is well supported or is used only for small shields, it could buckle and sag. A steel thickness of at least 28 gauge is recommended for shields exceeding 600 mm (24") in any dimension. Colour coated steel sheets can be used to produce attractive yet inexpensive shields.

Sheet metal shields may distort because of uneven heating. Distortion could cause the shield to buckle toward the wall and eliminate the all-important air space. If you install a shield behind a large appliance and avoid locating mounting hardware in the path of the most intense heat, part of the shield may be unsupported. One way to prevent buckling is to use shielding materials with sufficient rigidity. However, when relatively thin sheet metal is used, it should be formed in several relatively narrow panels with folded edges to provide greater stiffness. Shallow cross brakes can also help resist buckling



USING PREFABRICATED METAL SHIELD PANELS

By using channel stand-offs with prefabricated shield panels, you can assemble shields on site quickly. The panels are small enough to be stored easily in the service vehicle and can be assembled to form a shield of the desired width. Precoated roof flashing materials are available in a range of colours.



CONSTRUCTION OF A SOLID BRICK SHIELD

Brick ties spaced on 400 mm (16") centres are needed to support brick shields. They should be anchored firmly into frame studs. The top course of brick can be set on its narrow edge to give the minimum 75 mm (3") edge clearance. This type of shield provides a 50% reduction of clearance.

in thin shields. Finally, drill slightly oversized mounting screw holes in metal shields so that the slight expansion of a shield does not cause binding and stress at mounting points.

For those customers who don't find sheet metal pleasing to the eye, other more attractive materials can be used. If the floor is supported properly, a solid brick wall can be built behind the appliance to act as a radiation shield. It must, however, stand away from the wall at least 21 mm ($\frac{7}{8}$ ") because without the cooling air flow, brick does not make an effective radiation shield.

It is usually easier to build a solid brick shield farther from the wall than 21 mm ($\frac{7}{8}$ "). The bottom course of bricks can be oriented 90° to the wall with one end against the wall. This base course is spaced so that it supports the joints in the second course and spaces are left for the entry of convection air flow. The succeeding courses are laid at the front edge of the bottom course, leaving about 50 mm (2") of air space behind. This extra space makes construction of the wall much easier.