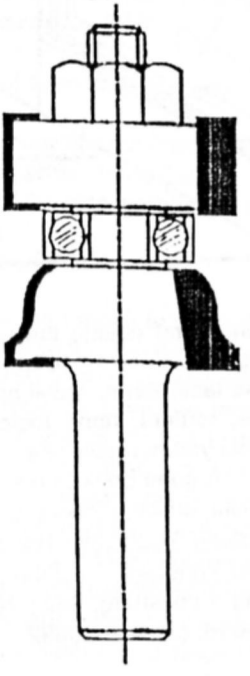
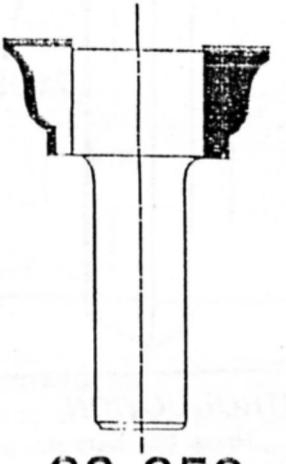
freud®

Sash Building System

99-051





99-050

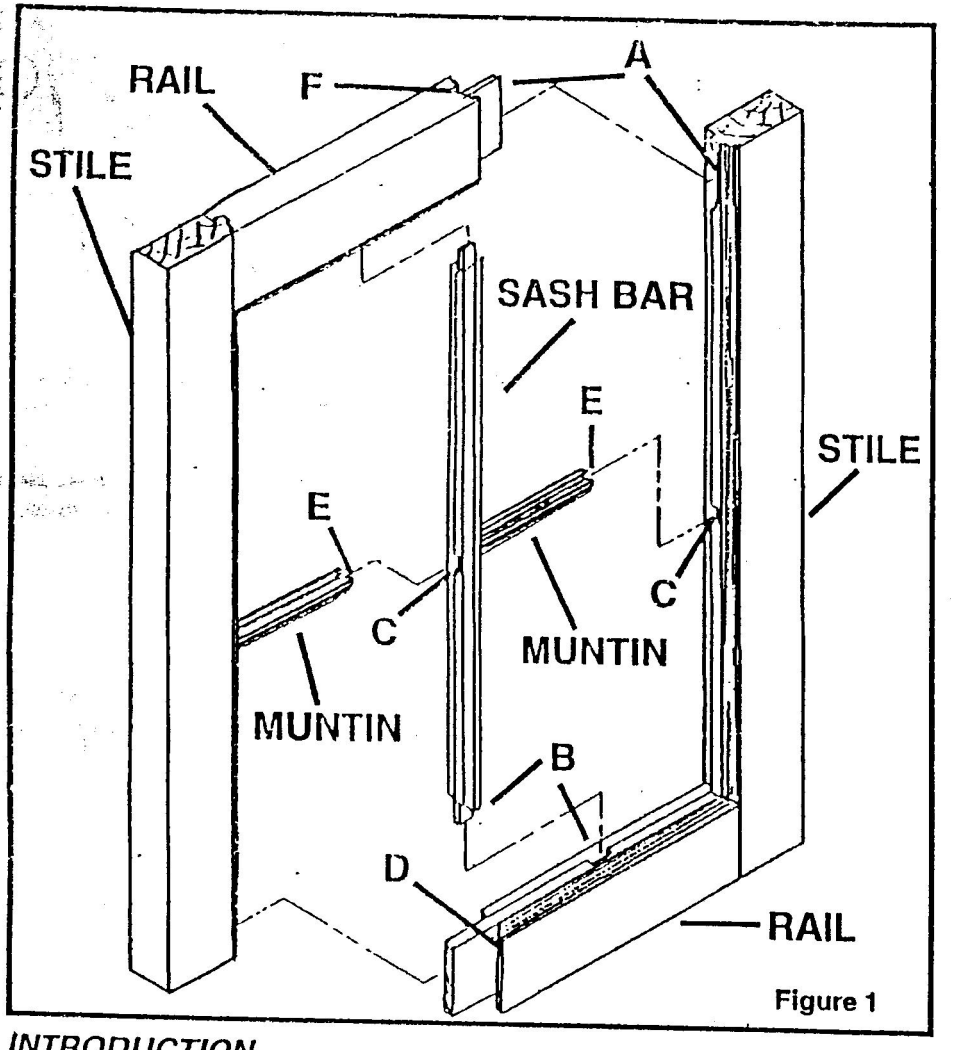


Figure 1

INTRODUCTION

These bits were designed to reduce the steps required to build custom sashes. If you have never used this type of bit before, please read all the instructions contained in this manual. If you have never made a sash before, it may be helpful to make a small trial sash out of scrap lumber prior to making your first finished sash.

Before you can begin to use the Sash Building System several other operations must be completed using other equipment. These operations are sizing the material, cutting the components to length, cutting the mortise and tenon joints, and cutting the notches for the muntins. To do these operations you can use table saws, radial arm saws, planers, routers, hand tools, or whatever tools you normally use.

A good book to read to learn more about building doors and windows is Making Your Own Handcrafted Doors and Windows, By John Birchard; Sterling Publishing, Inc.; New York, NY 10016; (800)367-9692.

MATERIAL SELECTION

The material for the sash should be dry. It should be clear, and free of defects and knots over 1/4" diameter. The stock should be accurately machined to 1 3/8" thick.

CUTTING THE SASH COMPONENTS

The material for the rail and stile should be ripped to the same width, and the material for the sash bar and muntins should be ripped to the same width. The rail, stile, sash bar, and muntins should be cut to length. The length of the parts can be determined using these equations:

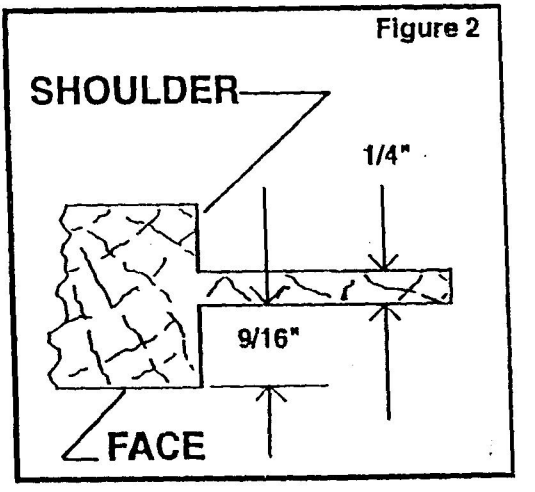
stile length = length of the sash
rail length = width of the sash - twice the width of the stile material + the length of the tenons* + 7/16"
sash bar length = stile length - twice the width of rail material - the length of the tenons* + 7/16"
muntin length = S / T
Q= width of sash bar material - 1/2"
R= the number of sash bars x Q
S= width of sash - twice the width of the stile material - R+ 1/2"
T= number of sash bars + 1

* The length of the tenons is up to the individual and will depend on the width of the material used in the rail and stile. However the distance from the tenon shoulder on one end of the rail to the tenon shoulder on the other end should equal the width of the sash minus twice the width of the stile materials, plus 1/2". The distance from the tenon shoulder on one end of the sash bar to the tenon shoulder on the other end should equal the length of the sash minus twice the width of the rail material, plus 1/2".

The stiles should be mortised 9/16" from the face of the sash and 5/16" deeper than the length of the of the 1/4" thick tenons on the end of the rails (Figure 1, A and Figure 2). Similarly, the rail should be mortised 9/16" from the face of the sash to accept 1/4" tenons on the end of the sash bar (Figure 1, B). The sash bar and stile should be mortised, to accept the muntins, 9/16" from the face of the sash and 1/4" wide. This mortise should be 1/4" deep (Figure 1, C).

COPING THE SASH COMPONENTS

Figure 2



To cope the sash components, Freud Router Bit 99-050 is used. (CAUTION: The tip of this bit is some what fragile, and care should be taken when installing and removing this bit.) The bit should be set up in the table mounted router so the top of the bit is flush with the tenon on the rail (the face of the rail should be face down on the table) (Figure 3). The face shoulder of the end of the rail should be coped 1/4" deep (Figure 1, D). The sash bar should be coped the same way. The end of the muntins should be coped 1/4" deep with the face down on the table (Figure 1, E and Figure 4).

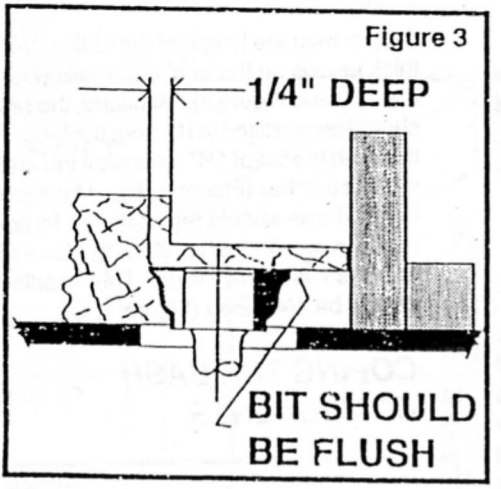


Figure 3

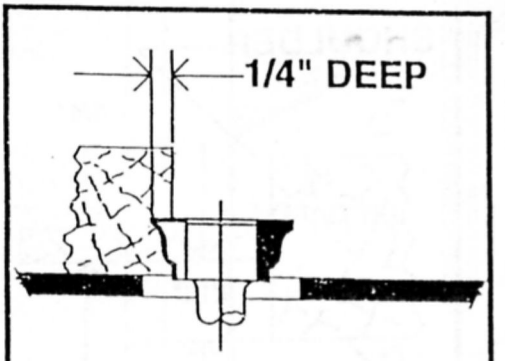


Figure 4

STICKING THE SASH COMPONENTS

Disconnect the power to the router and carefully remove the 99-050 router bit. Install sticking bit, Freud Router Bit 99-051, in the router. Adjust the height so the bottom edge of the top square cutter is the same height as the top of the tenons (Figure 5). Use a hold down fixture to hold the material down and against the cutter. (**CAUTION:** Always keep hands clear of the bit while in operation.) Run the inside edges of the stile and rail through the cutter with the face side down on the table. Run both sides of the sash bar and muntins through the cutter also with the face side down.

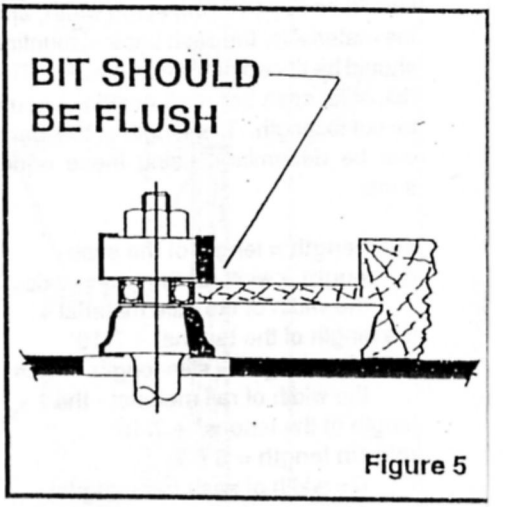


Figure 5

COMPLETING THE SASH

To complete the sash use a chisel to remove the wood on the outside edges of the rails so they fit together properly (Figure 1, E). Dry assemble the complete sash to check the fit of all the joints. Final assembly should be glued with waterproof glue.

freud®

218 Feld Avenue
High Point, NC 27264
(910)434-3171

7450 Pacific Circle
Mississauga, Ontario L5T 2A3
(905)670-1025

960402d

Made In Italy - Printed In USA