CBA Level III grille

If you are about to embark on the CBA level III grille project, there are some supplies that you will need to gather before you start.

Stock requirements:

The grille uses three main sizes of steel, and a couple of small lengths of other sizes:
- ¼-inch by ¾-inch flat bar for the scrolls and water leaves
- 3/8-inch by ¾-inch flat bar for the screen frame and center divide
- ½-inch by ¾-inch flat bar for the upset corners and portions of the scroll
- 3/8-inch square stock for the welded collars
- 5/8 or ¾-inch square stock for the central collar

I recommend tongs for each size, with my preference being box jaw tongs for flat stock and V-bit tings for square stock

It can be useful to have a pair of open jaw tongs for ½-inch material to aid in forging the upset square corners.

The Grille Drawing:

The drawing, downloaded from the resource's menu of the CBA website, will be transferred onto a piece of slightly rusty sheet steel.

It is useful if the sheet steel has some small holes in the corners to accept thumb tacks, enabling you to tack the drawing to the sheet steel.

Transferring the drawing gives you the ability to offer up the hot scrolls as you are working on them, and check their fit to the drawing.

A piece of blackboard chalk, some thumb tacks and a red ball-point pen will also be required for the drawing transfer. Some brown paper, such as a used paper bag from the supermarket can be useful in the drawing transfer. The brown paper is chalked on one side and placed between the drawing and the rusty sheet steel – and makes for a softer surface for the ball-point pen.

A small pair of dividers or compasses will be needed to take measurements from the drawing. A map measuring tool (Opisometer) reading in inches can be a little more accurate if you're the type of person that obsesses on the details (that's me).

A calculator for volume calculations.

The Water Leaves:

A leafing hammer with a 3/8-inch thick peen.

A crimping tool with a ½-inch, half round recess.

A leafing stake – which can be as simple as a ¾-inch to 1-inch wide piece of pipe (4-inch diameter is fine) with a section of the wall cut out and replaced with a 'V'-shaped piece of steel (see photograph).

Top & Bottom Tools:

A heading block or swage block to make the bottom and top swages needed for the collar and welded balls. You can make the block or purchases it ready made. Here is a link to a YouTube showing how to make your own https://youtu.be/g3ON7rRTRp4. Ball and Chain Forge make a commercially available heading block (ballandchainforge.com) or you can get something like a Centaur Forge Swage block (pattern B) and have that mounted to a stand.

The bottom swages are made from short lengths (4 ½-inches for me) of 1 ¼-inch square mild or cold rolled steel. Tongs to suit are an advantage, as are ¾-inch or 1-inch V-bit tongs for holding onto the draw down peg of the swage when working on the block.

A 3/8-inch fuller or length of 3/8-inch round bar for creating a 3/8-inch half-round groove for the welded collar, and a ½-inch fuller (or round bar) for the central collar.

A short length (10-inches) of ½-inch thick by 1-inch wide flat bar is also required when making the swages for the welded collar.

As the scrolls are of the beveled type, you will not be able to use a scroll-jig. A pair of scrolling wrenches, with one locked in the vise and the other in the hand, are required for turning the scrolls.

Stock:
- ¼-inch by ¾-inch flat bar – 20ft
- 3/8-inch by ¾-inch flat bar – 20ft
- ½-inch by ¾-inch flat bar – 20ft
- 1 ¼-inch square bar – 3ft
- 3/8-inch square bar (for welded collars) 3ft
- ¾-inch square stock (for central collar)

Tools:
- Drill for drilling rivet holes in the frame and scroll with a ¼-inch drill-bit
- ¼-inch diameter rivets ¾-inches long
- Flux and flux spoon
- Scrolling wrenches
- Top tool for collar material
- Leafing hammer
- Crimping stake
- Leafing stake
- Monkey tool (5/16-inch) for the frame
- Some form of tenon making equipment for making the tenons of the frame
- A round punch for punching the holes in the frame