

The logo for Firestone Building Products is centered on a light beige background with a subtle, abstract pattern. The word "Firestone" is written in a large, bold, red, sans-serif font. Below it, the words "BUILDING PRODUCTS" are written in a smaller, bold, black, sans-serif font, underlined with two horizontal lines. The entire logo is framed by a curved, dark red border that sweeps across the top and bottom of the image.

Firestone

BUILDING PRODUCTS



TPO

Lap Splicing

Firestone
BUILDING PRODUCTS

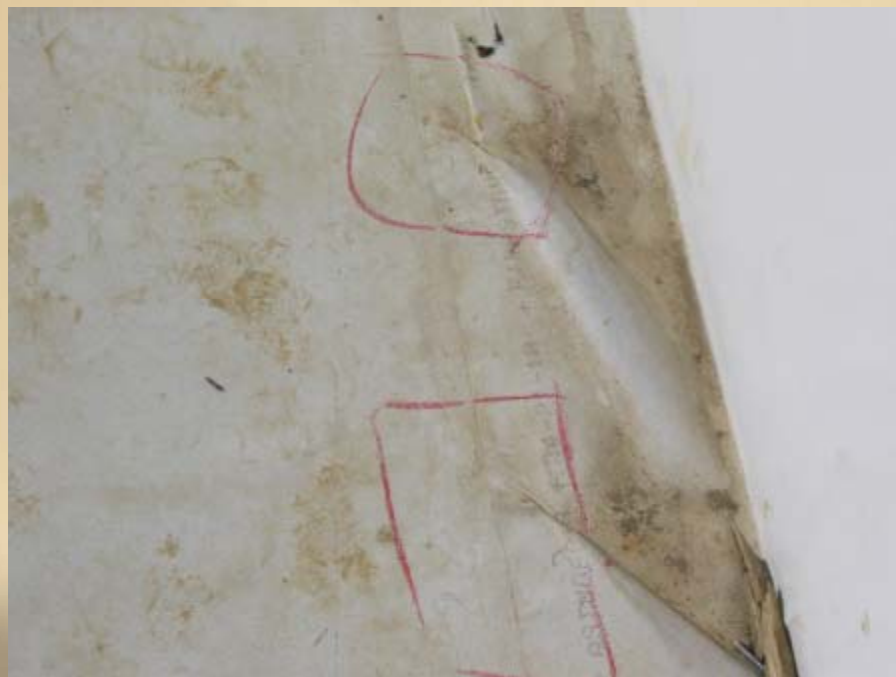


Lap Splicing

- Lap splicing on a TPO system is defined as joining two separate sheets, by way of heat welding, into one monolithic sheet. This includes field membrane as well as details.
- This can be achieved by using a robotic welder or a hand welder
 - A 1.5" wide weld is required with the use of a robotic welder and a 2" wide weld is required with the use of a hand welder
- A robotic welder is important for having uniform seams that are quick and easy to perform.
- Robotic welders have a range of setting depending on manufacturer, ambient conditions, thickness of membrane and experience of installer.
- Test samples are needed at the start-up of everyday to assure the robot is working properly.



Common Problems



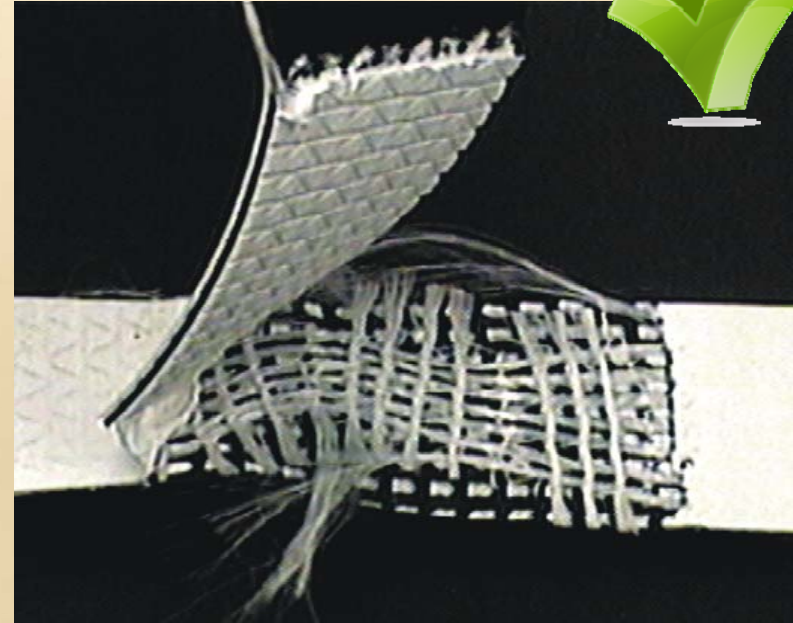
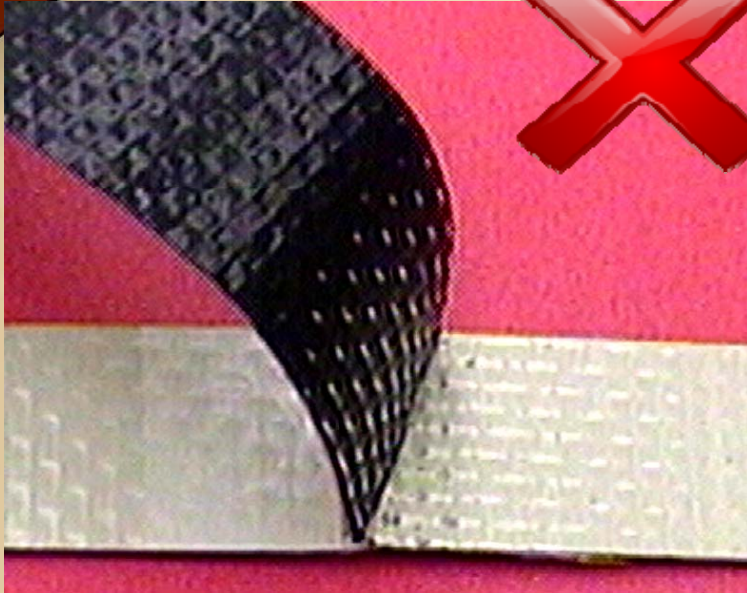


Proper Lap Splicing





Testing seam integrity



- It is important to do test welds to assure the robot set-up for each day as well as quality assurance of hand welding.
- Sample on the left fails because there is no true weld formed and will separate easily over time.
- Sample on the right is correct because the top sheet has fully attached to the bottom sheet, creating a monolithic sheet.



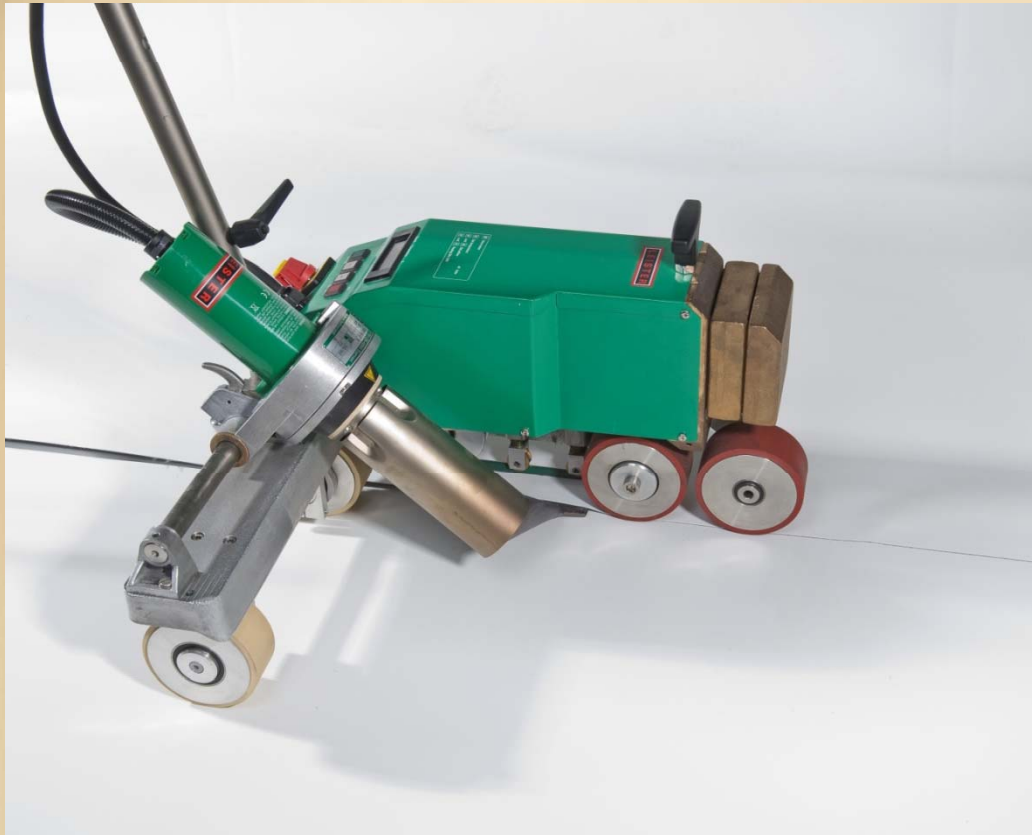
Additional Seam Testing



- Probing of all seams completed in the day are required to be probed at the end of the day.
- Be sure the weld has cooled before probing.
- Apply sufficient force to truly see if it is a proper weld.
 - False welds with “pass” with a light probe.



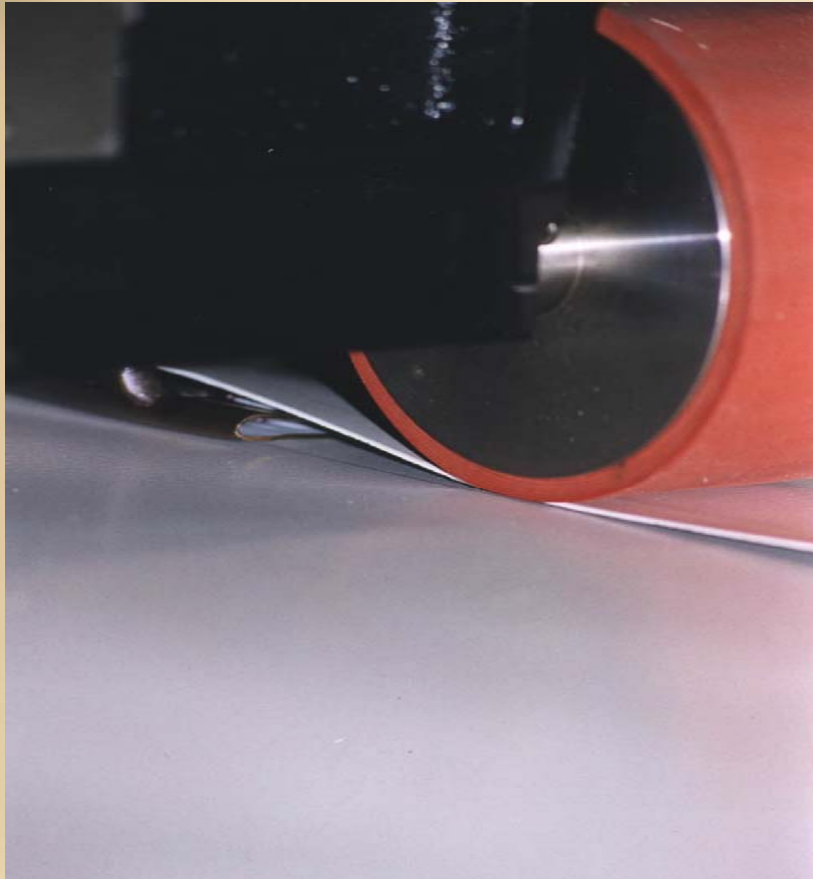
Robotic Heat Welding



- Various manufactures.
- Adjustable settings.
- Different configurations.
- Quickest and most efficient way to create field seams.



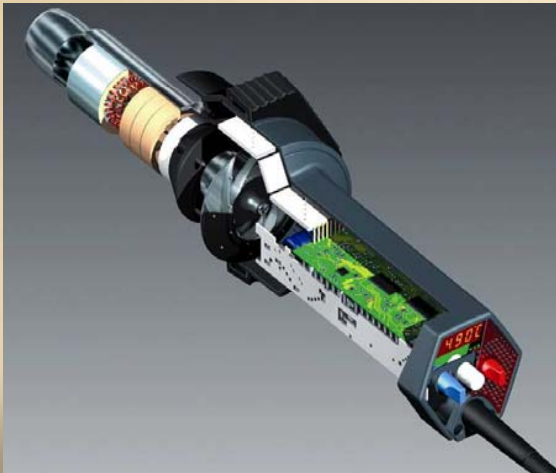
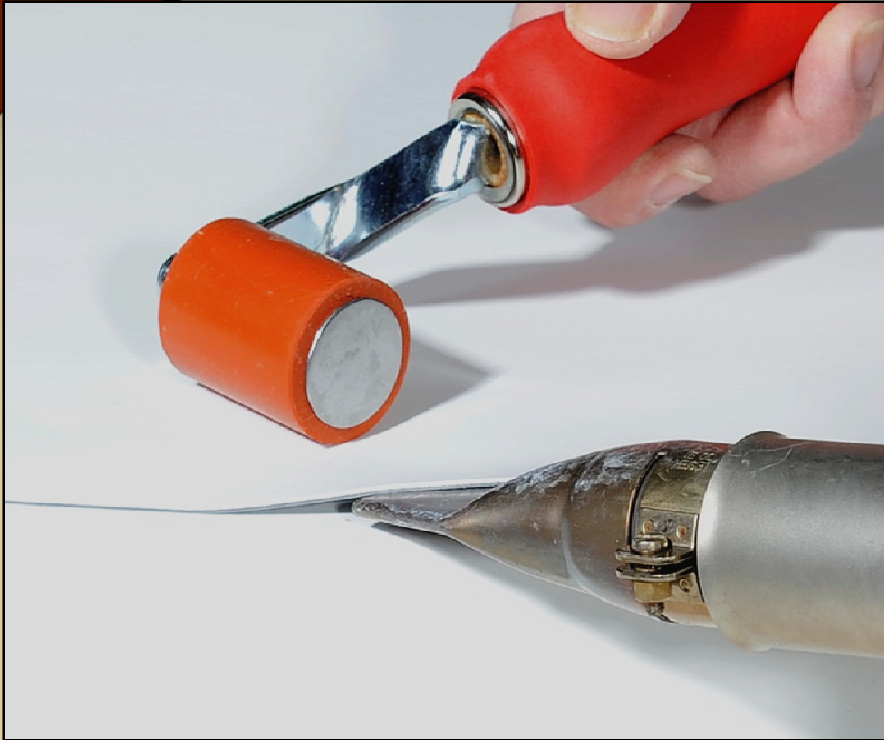
Robotic Heat Welder Set-up and Requirements



- Tracking guide
 - Wheel 1/8" over edge
- Nozzle
 - Placement into seam
 - Height off surface
 - Shoe angle
 - Distance to wheel
- Weight
 - Varies with machines
- Requires at least 7500 Watts
 - Preferred dedicated generator
- Parts need maintenance to assure proper operation
 - Air Dam
 - Silicone Wheels
 - Heating Element
 - Drive Belt
 - Nozzle clean



Hand Welding



- 2" weld required.
- Temperature settings vary from user to user.
- Speed is controlled by the user.
- All hand welds need to be checked at the end of each day.
- Several hand welder brands.
- Various tips for different applications.
- Slower and less efficient compared to robotic welders.
- Lots of practice required to weld proficiently.



Common Problems



Caused by incorrect tracking and how the robot is "placed" onto the sheet.



Cause by the stop of the robot and the start of hand welding.



Reasons to practice hand welding!

