

# Welder Set-Up

## Welder Equipment

1. Use a current-generation automatic hot-air welding machine and a 10,000-watt voltage controlled generator minimum.
  - a. Outdated welding equipment and inadequate or fluctuating electrical power are the most common causes of poor seam welds.

## Equipment Settings

1. The correct speed and temperature settings for automatic welders are determined by preparing test welds at various settings. The welds are tested by application of pressure causing the seam to peel apart. A satisfactory weld will fail by exposing the scrim reinforcement called a “film tearing bond.” A deficient weld fails by separating between the two layers of the membrane.
2. Adjustments to Equipment Settings—many factors will affect the settings: thicker membranes, lower air temperatures, and overcast skies will generally require a slower speed than would be required with thinner membranes, higher air temperatures, and sunny skies. The slower speed provides additional heat energy to compensate for heat-draining conditions. The test weld procedure should be conducted at the beginning of every work period (i.e., morning and afternoon) using bag-fresh material and following a significant change in weather (i.e., air temperature, wind speed, cloud cover).

## Cautions and warnings:

1. Any attempt to run a robotic welder at a speed greater than 16 ft (9.6 m)/min. may result in defective seam welds.
2. Setting the speed of the welder too fast can also pose potential problems with the ability of the operator to maintain control of the welder. This is particularly true in reroofing or over uneven substrates.
3. Robotic welders running too fast may not allow the operator to monitor the 1.5" (38 mm) minimum weld and ensure that critical T-joint areas have been correctly creased.
4. The operator must keep in mind the relationship between ambient temperature and robotic welding speed in order to achieve a spec weld.
5. Increasing the speed of the robotic welder can also compromise the appearance of a non-bonded system.