GENERAL INFORMATION
Safety Information
WHEN CUTTING OR DRILLING, ALWAYS WEAR PROTECTIVE GLASSES OR GOGGLES AND A FACE MASK WHICH COVERS THE FACE AND MOUTH. Hearing protection is also recommended when using power tools.

TOOLS NEEDED
• V-notched Trowel 3/16 x 1/4” x 5/16” or one recommended by adhesive manufacturer
• Circular saw with fine tooth (>140 tooth) carbide tipped saw blade
• Straight edge
• Laser level or chalk line
• Ladder
• Jig-Saw
• Flat edge finishing tool (putty knife or equivalent)
• Skiving Knife (for welded seams - Mozart Model No. 965, image below)
• Tape measure
• Utility knife
• Six-penny nails or tool to measure spacing 1/8”
• Drop cloths and soap and water for clean-up
• Saw horses
• Plywood or flat work surface larger than panels
• Disposable vinyl gloves
• Painter’s tape
• Dry, lint free rags
• Hot Air PVC Welder (Leister Model Triac ST) with 4mm (Leister Part No. 106.990) or 5mm (Leister Part No. 106.991) PVC Welding Rod Nozzle depending on diameter of welding rod (images below)
• Soap and water solution spray bottle
• 1” Double Sided Mounting Tape
• Heated strip bender (image below)

IMPORTANT NOTE: If installation room has high humidity (65% or higher) then a portable low-cost dehumidifier unit is suggested.
MATERIALS NEEDED
• Palclad Pro HYG PVC Wall Panels
• A non-flammable water-based latex adhesive suitable for PVC wall panel installations which contains anti-microbial characteristics with no solvents or VOC’s.
• Color Coordinated Sealant/Caulk
• Palram Americas supplied color-matched PVC Welding Rod (image right)

STORAGE
Panels should be stored indoors on a solid, flat, dry surface other than the floor. Do not stack on concrete floor or any other surface that emits moisture. Lay panels flat with proper support on the ends of panels. Do not stand panels on edge. Palclad Pro HYG panels must be stored inside. Optimum storage conditions are 60° to 75° (16°C to 24°C) and 35% to 55% relative humidity.

INSTALLATION PREPARATION
Pre-Conditioning
Before beginning the installation, the installer must determine that the environment of the job site meets or exceeds all requirements specified in this installation guide. Prior to installing, remove the packaging and allow the panels to acclimate to the room temperature and humidity for 24 hours. Acclimation temperature range should be 60°F to 75°F (16°C to 24°C) and relative humidity should be 35% to 55%.

Ideally, both the room temperature and humidity during acclimation and installation should be the same as the final operating conditions.

Installation should not begin until building is enclosed (windows and doors are installed), permanent heating and cooling equipment is in operation, and residual moisture from plaster, concrete, or terrazzo work has dissipated. Installation temperature range should be 60°F to 75°F (16°C to 24°C) and relative humidity range should be 35% to 55%.

PAINTED OR PRIMED SURFACES
Painted surfaces will not allow adhesives to cure completely. Consequently, they will not achieve full bond strength. Painted surfaces must be perforated with a wallpaper removal tool to rough up the wall. All loose paint, dirt and residue must be removed prior to installation.

NEW GYPSUM BOARD OR DRYWALL
New gypsum should not be painted or primed. Tapered joints need only a fill and taped coating using a setting type joint compound. A finish coat is not necessary or desirable. Any extremely uneven areas should be filled. Remove all drywall dust.

CONCRETE BLOCK AND BRICK
Concrete block and brick wall surfaces are by nature uneven, and Palclad Pro HYG panels installed directly to these surfaces will likely develop loose spots, bulges and buckles. Palram suggests installing gypsum board, cement board or another appropriate substrate over the furring and then install Palclad Pro HYG panels according to the standard installation instructions.
NON-POROUS SURFACES
Non-porous surfaces (i.e., ceramic tile, glazed block, moisture resistant substrates, and metal panels) do not provide a good surface for adhesive bonding. General-purpose latex-based, polymer or solvent-based adhesives will not dry properly on a non-porous surface. Contact your Palram representative for further details on these types of the installations.

ENVIRONMENTAL CONSIDERATIONS
The following special conditions require additional preparation or installation techniques:

Direct Sunlight
Prolonged direct sunlight on Palclad Pro HYG panels may cause abnormal fading and/or rapid expansion depending upon amount of heat buildup. Use caution in these areas.

High Humidity Rooms
Acclimate panels in the operating humidity conditions. Failure to seal moisture entry points with silicone sealant can cause swelling of the substrate resulting in warping, curling, delamination or bond line separation. Use an adhesive that is recommended for high humidity conditions. A vapor barrier (e.g., 6 mil poly sheet) may be required. Follow the architect or owner’s specifications or check your local building codes for specific requirements. Panels should be limited to 4’ x 8’ in size.

Low Temperature Conditions
Acclimate panels in the operating temperature conditions. Use an adhesive that is recommended for low temperature conditions. A vapor barrier (e.g., 6 mil poly sheet) may be required. Follow the architect or owner’s specifications or check your local building codes for specific requirements. Panels should be limited to 4’ x 8’ in size.

Foam Insulation
An approved thermal barrier system (e.g., gypsum board) must be used between the Palclad Pro HYG panels and any foam insulation. Check your local building codes for specific requirements.

Near Heat Source
Palclad Pro HYG panels may discolor when installed behind or near a heat source which radiates temperatures exceeding 130°F (55°C). Keep all heat sources a minimum of 12” from the Palclad Pro HYG panels. Stainless steel is recommended for these types of areas.

PRE-INSTALLATION PLANNING
• Pre-fit and plan each panel before adhering in place.
• Never place a hot weld seam of Palclad Pro HYG panels in the corner of a room. Seams should only occur 12” or more from any corner. A seam should not be performed in the corner where two panels adjoin.
• Be sure to leave protective PE film on exposed side of Palclad Pro HYG sheet during installation process to protect against accidental damage to the panel.
• All cutting and drilling should be done prior to the application of adhesive.
• Using a straight edge in combination with a laser level, draw a horizontal line representing the bottom of where the Palclad Pro HYG panels will be adhered. If installing flush to the floor draw the line at the highest spot on the floor. Note: Many times when installing Palclad Pro HYG, structures are not perfectly square and this step is imperative to avoid issues further on in the install.
• Pre-plan for cove or base molding. Palclad Pro HYG panels should be installed so that the base moldings will not restrict normal panel movement during expansion and contraction. Cut panels 1/4” short of where the base molding will extend; poured acrylic floor with built-in base cove should be in place prior to installation.
CUTTING INSTRUCTIONS  
POSITION PANEL FACE DOWN ON A COVERED WORK AREA

When cutting with a circular saw, position the panel so that the saw blade enters the back side of panel first to avoid chipping or damage. Be certain to use a carbide tipped blade with >140 teeth.

The inside corners of all cut-outs must have a radius of at least 1/8” (3.2 mm). Failure to radius corners may result in stress cracking. For pilot holes, a 1/4” (6.36 mm) diameter drill bit may be used. Use a jig saw to complete the radius cut-out. Allow 1/8” (3.2 mm) clearance around all fixtures, electric boxes, piping, etc.

ATTACHING TO WALL
Palclad Pro HYG panels are to be installed using adhesive only. Utilizing mechanical fastening can harbor unwanted bacteria in sterile environments.

Wall Preparation
Every attempt is made to inspect panels for cosmetic and physical abnormalities prior to shipment, however, all panels should be inspected for any defects prior to installation. The installer assumes all responsibility for full inspection of product before installation. If panels are not acceptable, contact your Palram Representative immediately.

Palram Americas, Inc. is not responsible for installation or removal costs of unacceptable panels. Walls should be flat and even. Remove high spots and fill in low spots prior to beginning installation. Remove any foreign matter that may interfere with the adhesive bond.

The wall substrate must be dry and free from dirt, dust, and grease. Installation over uneven surfaces will result in little or no adhesion to the wall substrate, therefore bubbling due to air pockets will form behind the panel.

1. Mark the wall from ceiling to floor with a vertical plumb line (using a level) where the middle of the seam between the first 2 panels will occur. On each side of this line adhere to the wall the 1” wide double-sided mounting tape. Leave the tape backer on until ready to place the Palclad Pro HYG panel on the wall. Perform this step for each additional panel being installed only after installation of the previous Palclad Pro panel.

2. Carefully place 6 penny nails in the wall about 12” apart on the line drawn previously signifying the bottom of the Palclad Pro HYG panel. This will provide a

Carbide tipped blade > 140 teeth  
Corner radii > 1/8”

resting point during the process of placing the Palclad Pro panel on the wall.

**It is of extreme importance the first panel is perfectly plumb and level otherwise the rest of the panels will be out of plumb and level resulting in undesired finished results.**
3. Carefully place 6 penny nails in the wall along the vertical plumb line at the top middle and bottom of the panel seam. This will assist in accurate placement of the Palclad Pro HYG panel to the wall.

**Applying Adhesive**

Apply all work areas with a drop cloth to minimize the possibility of adhesive damage. Follow the adhesive manufacturer’s recommendations for trowel style (e.g. appropriate height of adhesive bead left by trowel). It is important to apply adhesive carefully and follow all directions to prevent problems that may result from using too little or too much adhesive. Apply the adhesive to within 1-1/2” to 2” of the vertical sides of the Palclad Pro HYG panel.

Adhesive should extend all the way to the top and bottom edges of the Palclad Pro HYG panel and should be applied directly to the back of each individual Palclad Pro HYG panel. Do not apply adhesive to wall.

**Spacing**

Like most building materials, Palclad Pro HYG panels have expansion characteristics due to changes in temperature that must be accounted for during installation with proper spacing around panel edges and around fixtures attached to the panel/wall. Adequate space must be allowed for panel expansion and contraction. A minimum gap of 1/4” is required at the top and bottom of each panel. Between the panels should have a target of 1/8”, with a minimum of 1/16” and a maximum of 3/16” to insure that the welded seam will properly adhere. It is recommended that panels do not exceed 48” width and 10” length to aid in ease of installation and ensure a satisfactory finished installation. When a moisture resistant installation is required, silicone sealant should be applied anywhere moisture may come in contact with the substrate.

**Placing Panel on Wall**

Once you are certain of the location of the panel and it is plumb and level, you are ready to place the panel on the wall.

1. Put on the disposable vinyl gloves to minimize adhesive transfer to the skin.
2. When applying panels over electrical or fixture cut-outs, place painter’s tape over the electrical outlet or fixture to prevent accidentally getting adhesive on the outlet or fixture. Be careful not to place painter’s tape anywhere that it will interfere with the Palclad Pro HYG panel adhering to the wall.
3. Remove the tape backing of one strip of double sided mounting tape on the side of the wall which the Palclad Pro HYG panel will be mounted.
4. With 2 people, one grabbing the bottom and one grabbing the top of the panel, allow the panel to “flop” out away from the wall when picking it up.
5. The bottom of the panel should be placed on the wall first. Set the panel on the 6 penny nails on the bottom of the wall while the top person insures the panel is rested tight against the 6 penny nails on the vertical seam.
6. Once panel is tight against the horizontal and vertical lines of 6 penny nails, starting at the bottom of the panel and working towards the top, adhere the panel to the wall.
7. Use a laminate roller to ensure all air pockets are removed between the Palclad Pro HYG panel and the wall and to ensure a good bond between the Palclad Pro HYG panel and the wall. Start in the top corner of the panel away from the leading edge. Begin rolling down and out towards the panel edge.
8. If the protective PE film inadvertently becomes rolled up during installation and adhesive gets directly on the finished side of the Palclad Pro HYG panel, wipe the adhesive off with IPA or lacquer thinner as soon as possible. The sooner the adhesive is removed the easier it is to remove.

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**PALRAM**

[Image of Placing Panel on Wall]
Panel Seam Process
When using PVC welding rods to seam the panels, all panels are installed prior to the seam process. It is suggested to practice hot air welding on panel scraps prior to performing the seaming process on the wall. This will allow for proper temperature settings of the hot air welding tool. It will also allow the installer to become familiar with equipment.

1. Prior to beginning the actual hot air welding process, be certain there is no adhesive inbetween the panel seam. If adhesive is visible, use a knife to cut and scrape it out of the seam. The PVC welding material will not adhere to the adhesive.

2. Prior to welding be certain that the protective PE film is peeled back approximately 2" on the vertical edges of the Palclad Pro HYG sheet. The PVC welding material will not adhere to the protective PE film.

3. Feed the PVC welding rod material through the nozzle on the hot air welder once the welder is at proper operating temperature.

4. Place the PVC welding rod material in the panel seam starting at the top of the seam. In a slow and steady motion, move down the seam applying pressure to ensure the welding rod material is filling in the area of the seam.

5. When you get to the floor during the seaming process you will realize that the size of the hot air welder will prevent the application of the PVC welding material all the way to the bottom of the panel. This is OK and normal. Stop and cleanly cut the welding rod at the seam.

6. Starting from the bottom of the same seam and working upwards, perform another weld process until you reach the previous weld. Run the weld over top of the previous weld for 1/2", then stop. Where the two welds overlap, with a new, sharp razor knife, make a straight clean cut. This should allow for a practically unnoticeable butt joint of the weld.

7. Prior to trimming the excess off of the welding material, take the soapy water solution and spray it down the welded seam. This serves two purposes. It acts as a coolant to cool off the welding material prior to finishing, and it also acts as a lubricant during the trimming process.

8. Using the skiving knife with a spacer between a new blade and the welding material, trim off the excess welding material. This is a two part process. Next remove the spacer on the skiving knife and trim the same weld smooth to the wall. The result is the finished seam.

9. Repeat the above process on all remaining Palclad Pro HYG panel seams.

10. In the event a seam gap becomes too wide or narrow and the weld material does not adhere properly, cut out the part that isn’t adhered to the seam and repeat steps 3 through 8.

11. In the event that a small area of weld cannot be properly corrected, the application of a color matched caulk in this area can resolve the issue.
FORMING Palclad Pro HYG PANELS

One major advantage of Palclad Pro HYG panels is the ability to perform a “seamless” installation. This means that there should never be any place during installation that two panels butt directly up against each other. This results in a hygienic installation not allowing for the harboring of deadly bacteria.

Prior to performing any finished bending it is highly recommended to practice on scrap material to become familiar with the forming process and bending equipment. Measure the distance on the wall of the area which you are going to be covering. You should take and record measurements at the bottom, middle and top of wall section.

1. Once you have measured the wall, cut the Palclad Pro HYG panel to the appropriate length for the height of the wall.

2. Being certain not to end the panel seam in a corner (minimum 12” from any corner), mark the Palclad Pro HYG panel with the distance measurement at the top and bottom of the panel. For inside corners you need to subtract 2mm from the measurements to account for the thickness of the Palclad Pro HYG panel. For outside corners you need to add 2mm to the measurements.

3. Make sure that the heat strip bender is at least as long as the bend you are performing and that the top surface of the strip bender is flush with the surface of the table supporting the Palclad Pro HYG sheet. Place the backside of the Palclad Pro HYG panel on the bender. Place the marks made on the top and bottom edges of the panel at the center-line of the heater element.

4. After 30-45 seconds (depends on temperature of strip bender) you will see a line form on the Palclad Pro HYG panel where the heating element is heating the surface of the Palclad Pro HYG panel. Once this line appears, it’s time to remove the panel from the strip bender.

5. With two people, one at each end, remove the panel and place it on a large flat work area. Bend the panel completely in half back onto itself in the direction you want the bend to go. Then quickly stand the bent portion back up to a 90 degree angle (or the angle of the wall you are covering) and hold it there until the panel cools. Approximately 90 seconds. The panel should now stay bent on its own and be ready to place on the wall following the steps mentioned previously in this document.