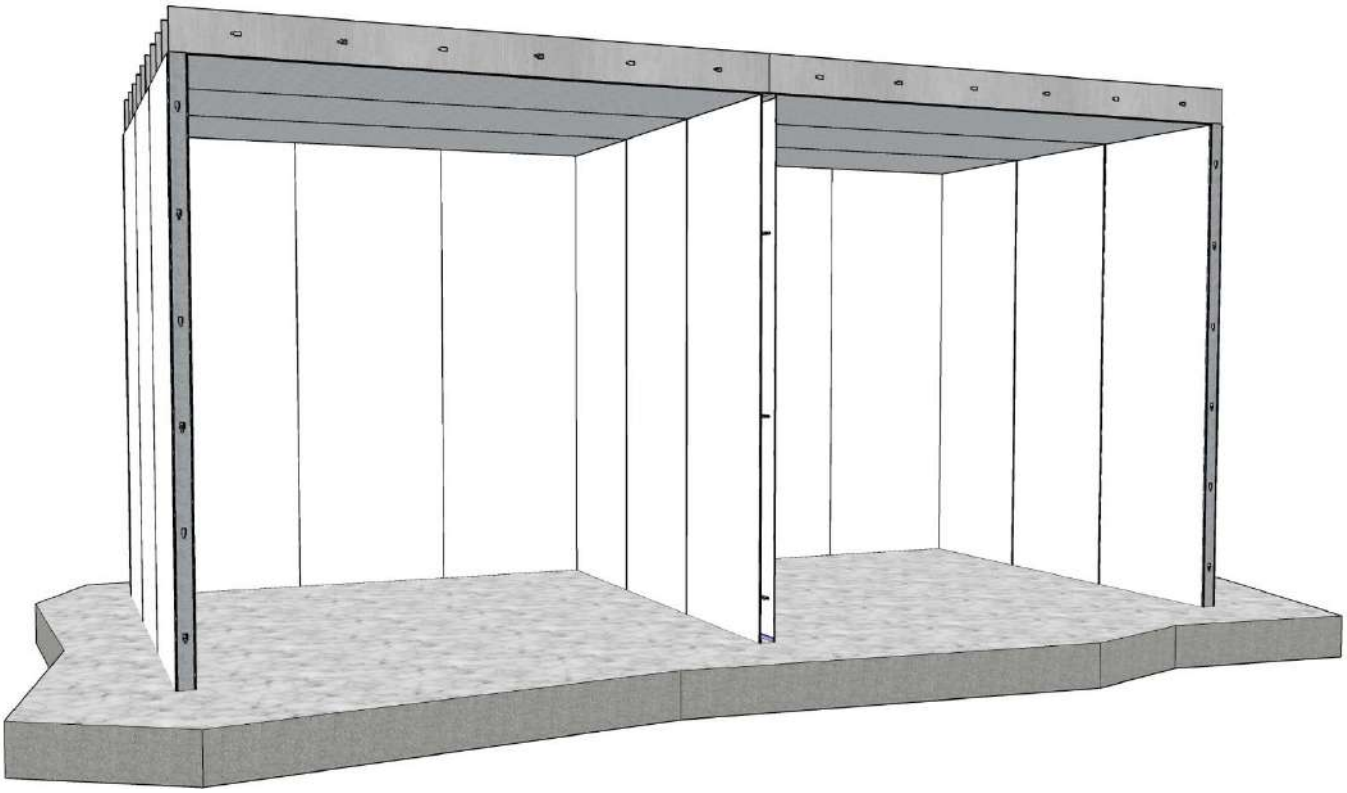
Arcoplast Acryloyl (Engineered Polymer) Modular Panel System Installation Manual – V.3



BSL-3, ABSL-3, BSL-4 - High Containment Facilities

Arcoplast **Acryloyl (Engineered Polymer)** Modular Panel System Installation Manual

Introduction

Arcoplast Acryloyl (Engineered Polymer) (AEPC) interior finishes were developed specifically for applications in high containment facilities, food, and beverage processing plants, pharmaceutical, nutraceutical, animal and health care facilities and biosafety laboratories that require long term, high performance sanitary surface finishes.

Whether you are working on a new or retrofit project, Arcoplast architectural composites for interior finishes are truly simple to work with. The Acryloyl (Engineered Polymer) wall and ceiling panels, ceiling tiles, beam and chase covers, door and window units are all cut, drilled, sanded, polished, and fastened with common industry tools and the same installation principles and craftsmanship apply.

Prior experience in BSL-3, ABSL-3, BSL-4, and cGMP construction is highly recommended and excellent technical skills in interior finishing will ensure a successful and state-of-the-art installation.

This installation manual is a help guide and reviews best installation practices and gives practical tips for the installer that wants to deliver the highest level of finish work in the art of Acryloyl (Engineered Polymer) panel installation.

There are many variables on each project that may require a different approach to the installation of Arcoplast Acryloyl (Engineered Polymer) materials and Arcoplast bears no responsibility for any procedure changed, modified, or omitted. This installation guide is intended to support, enhanced and further the contractor's and the mechanic's installation experience.

If you have any questions or require additional support material, please contact Arcoplast Technical Services at 636-978-7781 www.arcoplast.com

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Chapter One : Job Conditions –

Environmental, physical and job preparedness conditions are critical to a successful Arcoplast installation. Contrary to conventional construction materials where the installation process is leading up to a finish product, whether through the application of laminates, paints or textile coverings, the fundamental difference with Arcoplast Acryloyl (Engineered Polymer) interior finishes is that you are now working with a permanent high gloss surface finish product that will only require more and more attention to details and craftsmanship. If you encounter a situation where you have questionable doubts as to the application or product limitation that you believe will not yield a perfect finish, stop immediately and take corrective measure. Any delayed action will only result in difficult and costly corrective measures in the future. Every procedure herein described will become a permanent and finished step to a very special and innovative environment.

It is important to read the installation manual throughout prior to the start of the panel installation. Many steps and different procedures could require immediate action that may or may not be associated with the current instructions.

1. Prepare a spreadsheet with a check item list and ensure that the owner/owner representative, project manager and subcontractor trades are all in a state of preparedness for the start of the wall and ceiling panel installation.
2. Ensure building is enclosed with an installation temperature between 60^0 to 80^0 F (15^0 to 25^0 C) with relative humidity 30 to 50 (%) Optimal temperature should be similar to the serviceable life of the proposed future environment.
3. Control draft and air movement to prevent infiltration and flow of contaminants.
4. Ensure building's temporary lighting, heating, cooling, and ventilation are proper and acceptable for the installation of the Arcoplast wall and ceiling liner panel systems.
5. Review with the project manager to ensure MEP, fire suppression systems, alarms, door and monitoring controls and equipment are completed and in preparedness for wall and ceiling application.
6. Verify that services interfacing with the Arcoplast wall and ceiling panel system are at the proper location and depth to ensure proper fit.
7. Verify locations and cut out of access panels, lighting units and diffuser panels.
8. Coordinate with the project manager and sub-trades the sequence of the installation and cut out and final detailing of the penetrations, accessories, and equipment.
9. Locate a material stocking /warehousing area for the Arcoplast panels, sealants and accessories, tooling, and equipment.
10. Ensure that all material data and SDS sheets are submitted to the project manager for review, posting and distribution.
11. Request adequate work area and cut station to ensure worker's safety and minimize dust and noise disturbance for human and animal welfare.
12. Ensure means for disposal and recycling of excess material, crating, and packaging material.

Chapter Two : Quality Control -

To achieve Regulatory Compliance and ensure a quality installation, a Quality Control Program (QCP) is an indispensable tool. There are many different types and levels of clean room environments, however a quality installation will invariably testify to the rigors of a Quality Control Program.

1. Appoint a Quality Assurance (QA) person to ensure the installation procedure, craftsmanship and application is in conformance to requirement.
2. Prepare and post a Quality Control Program (QCP) log sheet in each room. Verify and log each step of the installation and completion for each individual room, hallways, and process areas.
3. QCP log sheet should include trades interfacing with the Arcoplast wall and ceiling finishes.
4. For BSL-3, BSL-4 construction it is recommended to implement a photo gallery of each wall elevation and ceiling plan before closing walls and ceilings areas and remit to the project manager in close out submittal.
5. Ensure installation personnel have proper training and skill sets required to install Acryloyl (Engineered Polymer) interior finishes in high containment facilities.
6. Ensure installation personnel have proper training in construction, equipment handling, comply with environmental and security requirements and preferably have completed the OSHA Construction Industry Outreach Training Program.
7. Ensure installation personnel are acquainted with Biosafety in Microbiological and Biomedical Laboratories (BMBL) BSL-3, BSL-4 & cGMP guidelines.

8. Example of Arcoplast BSL – 3 High Containment Quality Control Worksheet:

ARCOPLAST BSL - HIGH CONTAINMENT WALL & CEILING PANEL INSTALLATION QUALITY CONTROL WORKSHEET								
		ROOM # 202	CEILING	N WALL	S WALL	E WALL	W WALL	ACTION REQUIRED
REVIEW	METAL FRAMING & PREP		X	X	X	X	X	VERIFIED / COMPLIANT
	SUBSTRATE INSPECTION & PREP							
	MECHANICAL		X	X	X	X	X	CEILING DUCT WORK FLANGE NOT FLUSH
	ELECTRICAL		X	X	X	X		GANG BOX NOT PLUMB
	PLUMBING							
	SPRINKLERS							NOT COMPLETE
	ALARMS							
	MONITORING SYSTEMS							
	LAB EQUIPMENT							
	DOOR / WINDOW FRAMES							
	FLOOR / CURB DETAIL							
	PHOTO DOCUMENTATION							
COMPLETION	ADHESIVE TEST & VERIFICATION							
	SURFACE PREPARATION							
	PRIMER AND ADHESIVE APPLICATION							
	PANEL PREPARATION & CUT OUTS							
	PANEL INSTALLATION TRUE / PLUMB							
	PANEL INSPECTION							
	CONTROL JOINTS							
	JOINT TAPE PREPARATION							
	FINISHING COMPOUND JOINT/COVE							
	FINISHING COMPOUND DOOR/WINDOW							NOT WELL EXECUTED
	FINISHING COMPOUND INSPECTION							
	FINISHING COMPOUND FLOOR BASE							
	FINISHING COMPOUND MEP SEALS		X	X	X	X	X	100 % COMPLETED
APPROVED:								DATE:

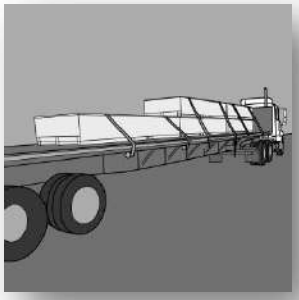
Chapter Three : Mechanical, Electrical and Plumbing Review -

Early review of the Mechanical, Electrical and Plumbing (MEP) at the preconstruction meeting will eliminate costly mistakes and facilitate coordination amongst all trades. Describing how the Arcoplast modular panel interfaces with various MEP products and the importance of proper sealants and application methods will simplify and accelerate the installation process and ensure a quality installation.

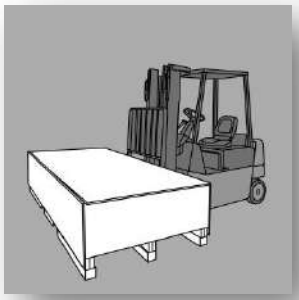
1. Ensure that MEP products interfacing with the Arcoplast finishes have been addressed and the mock-up samples and test reports have also been submitted and approved by the project manager.
2. Report to the project manager all MEP services, outlets, apparatus, piping, and exposed services that are not level, in plane and proper depth for the sealant and trim device.
3. Verify MEP's substrate compatibility with the Arcoplast Bio-Seal (A-1010) Finishing Compound.
4. It is recommended that MEP and all related services interfacing with the Arcoplast finishes be located and marked by the respected trades. However, the Arcoplast panel cut outs and Arcoplast Bio-Seal (A-1010) Finishing Compound application should be executed by the Arcoplast panel installer.
5. MEP contractors, lab equipment technicians, various alarms and monitoring systems installers and all surface mounted accessories and services that require perforations or fastening in the Arcoplast modular panel finishes need to consult with the Arcoplast modular panel installer to ensure proper fastening methods and installation procedures.
6. Ensure all MEP equipment such as gang/device boxes, light housings, mechanical duct work flanges, access doors and varied apparatus are cleansed of oils and contaminants. Clean thoroughly with IPA 50/50 water solution prior to the Arcoplast Bio-Seal (A-1010) Finishing Compound application.
7. MEP and various equipment subject to thermal cycling need to be reviewed with the various trades, equipment manufacturer and Arcoplast panel installer to ensure proper seal and application method.

Chapter Four : Handling, Transporting and Storing Arcoplast Panels -

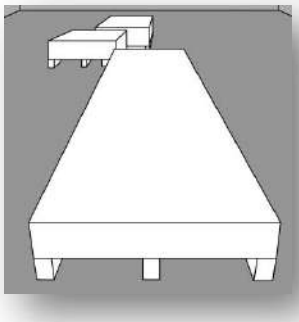
Proper handling and use of moving equipment will facilitate lifting, handling, and the transport of Arcoplast composite panels. More importantly it will greatly decrease potential injuries and diminish material damages during handling, installation, and transportation.



1. Arcoplast modular 9.5 mm panel weigh an average 3.2 pounds per square feet and should be handled with sufficient manpower to ensure safe handling.
2. A protective 4 mm plastic sheeting is factory applied to protect the Arcoplast panel from surface damage during handling, transporting and through the installation process.
3. Arcoplast modular 9.5 mm panels are packaged and shipped in a closed wood crate to protect against freight and handling damages.
4. Average panel crate is approximately 4,000 lbs. (2,000) kilos. Caution – Ensure the lifting equipment capacity is commensurate to the load weights.
5. Panel crates are numbered and documented with content for easy and quick reference.



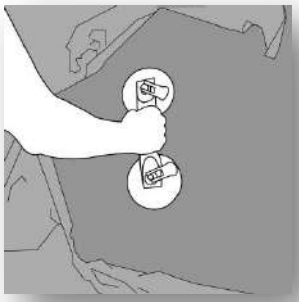
6. It is not recommended to handle crates from the ends, if required, safely use extended forks and ensure proper lifting capacity.
7. Panel crates exceeding 16'-0" in length should be handle with 2 handling units.
8. Arcoplast modular 9.5 mm panels need to be acclimated to the intended service life for a minimum of 48 hours prior to start of installation.
9. Whenever possible move the entire shipping crate into the building. You may leave the Arcoplast panels in their original shipping container and remove top and sides to acclimate and for easy panel removal.



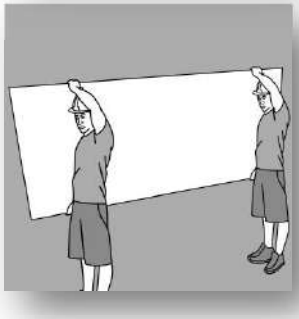
10. When removing the panels from the shipping crate to store in a dedicated holding area, ensure the panels are laid flat with the protective leaf between the panels as stored in the shipping crate.
11. When Arcoplast composite wall and ceiling panels are loaded individually on a project site, the panels should be stored on a flat wooden skid. Do not lay panels flat directly on the concrete surface.
12. Protect Arcoplast panel edges from damage while stored on the job site by providing temporary barricade.

13. Arcoplast composite panels should never be stacked vertically against existing walls, columns, elevator shafts, etc.
14. Drywall handling cart is a very effective tool to move Arcoplast modular panels securely.
    Caution: Place rubber mats on the cart floor and rails for panel edge and face protection.
    Note: Do not stack more than 3 panels on a single drywall cart. Exceeding 3 panels on the cart could potentially tilt the cart and seriously injure workers and tradespeople.

15. Vacuum holding cups are recommended for handling and positioning panel in place.

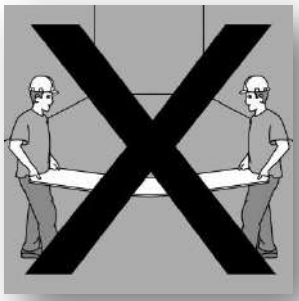


16. When lifting and carrying Arcoplast composite panel, always tilt panel to the handler's shoulder.



17. Do not handle Arcoplast panels that will generate a bow or sag in the panel, the stresses created by tension or compression could break the panel.

18. It is not recommended to load and store panels in the room prior to the installation. You will need access with scaffolds, drywall lifts and drywall carts. A clean and clear of obstacle floor space is the optimal job condition.



Chapter Five : Handling and Storing of Accessories and Chemical Products -

Arcoplast makes every effort to design its products to be user friendly and minimize any hazardous product exposure to humans, animals, and the environment. However, some products may necessitate careful handling and application methods. Carefully review the SDS when involved in handling and working with hazardous chemical products.

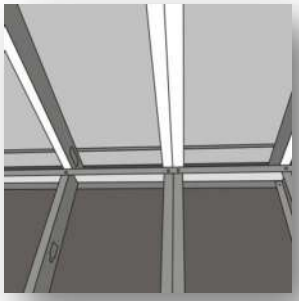
Excess materials and empty containers must be disposed with conservation and environmental considerations. Consult the project manager to secure a proper room/locker for chemical products that may be required in the cleaning, preparation, and installation of the Arcoplast panels.

1. Ensure SDS sheets are posted for everyone to access and reference.
2. Ensure ventilation and fire suppression systems are present and functional.
3. Ensure proper cleaning station and proper disposal of waste material.
4. It is preferable to keep items such as adhesives, sealants, chemicals, accessories, tools and equipment under lock and key.
5. Caution: Do not use flammable products such as cleaners, primers, promoters and adhesives near open flames or high heat source such as work lamps, heaters, etc..
6. Post appropriate and regulatory compliance posters and labels when and wherever required.

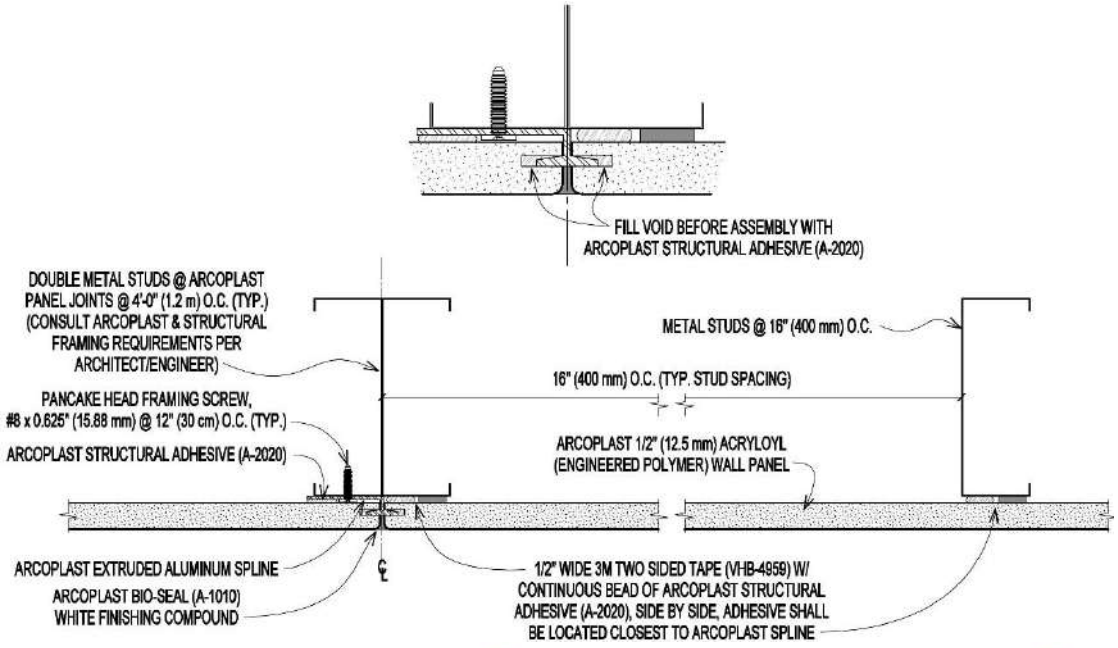
Chapter Six : Steel Stud Framing, Furring Channels and Insulation Blankets -

Most large size projects will have a commissioned metal framing contractor supply and install the wall and ceiling steel stud or furring channels. However, it is not uncommon on smaller projects to have the Arcoplast wall and ceiling panel contractor execute this portion of the work.

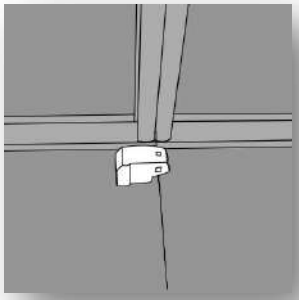
Steel Stud Framing -



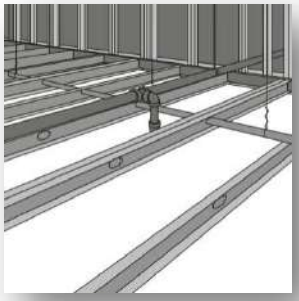
1. Ensure the location and installation of the framing members are consistent with the proposed panel layout.
2. Ensure metal gauge thickness, member spacing, reinforcements and blocking are compliant and in proper position.
3. Wherever possible, have the ceiling panel joint line up with the wall liner panel, this should be reflected in the metal framing lay-out for both wall and ceiling planes.
4. Review the design and type of floor base transition and elevation to ensure metal stud framing will correspond to the wall liner/partition panel installation requirements.
5. Steel stud and furring channel member recommended spacing is 16” (400 mm) c/c rhythm with one additional framing member at every panel joint. The seismic aluminum spline will be mechanically fastened to the first steel stud and the second steel stud provides reinforcement and added protection against potential surface impact on that panel’s edge.



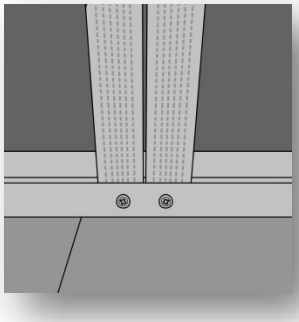
6. For aesthetics, end panels on wall run should not be less than 24” (600 mm). Verify wall elevations for compliance.
7. For increased strength, insert an additional steel stud at interior and exterior corner junctions, door and window frames and free-standing openings.
8. Ensure the steel stud framing/ furring and metal strips are following the panel placement and layout for each wall elevation and reflected ceiling layout. Reference drawings for proper and accurate placement.
9. Ensure metal framing is secure, plumb and in alignment. Also verify control joint and slip connections are following the drawings.



10. A 1-1/2” steel carrier channel reinforcement inserted horizontally in the steel stud punch-outs on 4’-0” (1200 mm) c/c is recommended to help maintain steel stud alignment, strengthen for lateral loads, and provide hanger attachment for suspended ceiling framing grid assembly.
11. Verify opening dimensions, positions, alignments and locations for all MEP services, alarms and monitoring systems, fire suppression systems, etc. **Note: The overall thickness of the Arcoplast wall and ceiling liner panel systems for the 3/8” (9.5 mm) panel is 1/2” (12.7 mm) and 1/2” (12.7 mm) panel is 5/8” (15.9 mm) from the face of the substrate (steel stud or furring channel) to the finish face of the Arcoplast panel.**



12. Verify doorways and window and glazing units for placement, level/plumb accuracy and adequate spacing for panel insertion or panel abutting against door and window frame housing, processing, and lab equipment.
13. Verify proper positioning of cutouts for laboratory equipment, through-wall embeds, airlocks, autoclave, cage wash equipment, etc.
14. Ensure that there are no components that would prohibit the allowable thickness tolerances, such as protruding screws, metal sliver, stud not well aligned, VHB tape folded, metal track, furring not well positioned or mouthing out of steel stud and track that could potentially position the panel out of plane once installed.



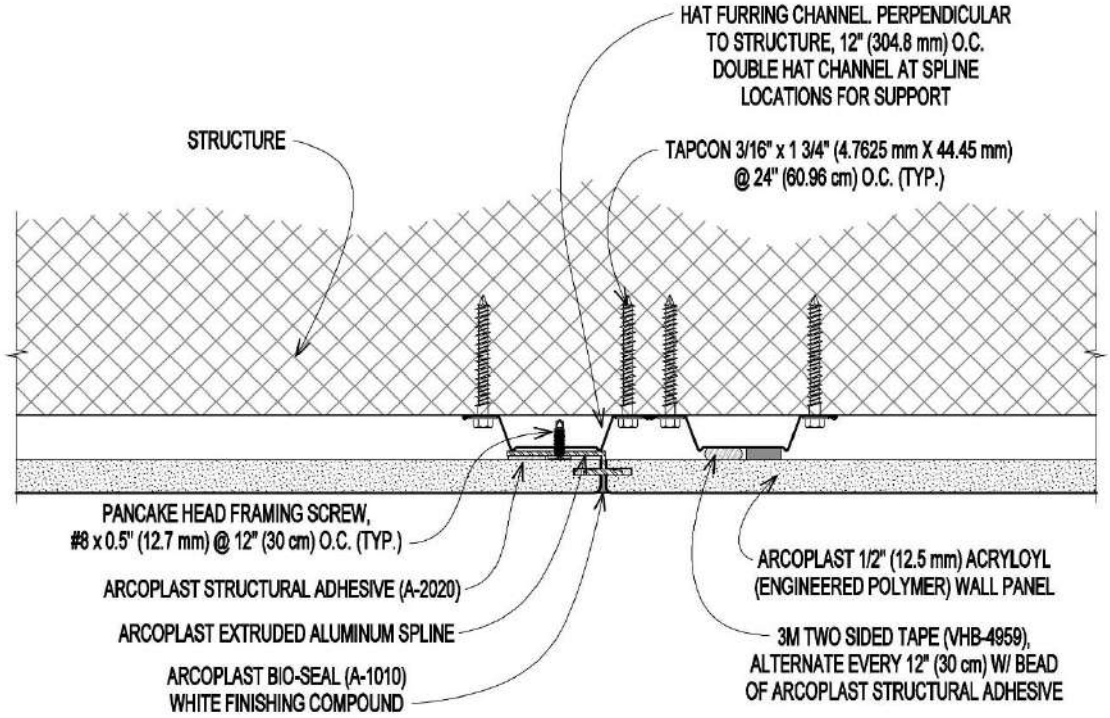
15. Fasteners attaching steel studs to metal track, furring and metal strips, reinforcement, and cross bracing as well as metal blocking must not protrude or exceed thickness of 1/8” (3 mm) and 1/16” (1.6 mm) depending on type of double face adhesive tape utilized.
16. Consult with the project manager to ensure that all the services in each room have been approved for wall and ceiling panel installation, Ex. Mechanical, Electrical, Monitoring Alarms, Fire Suppression System, Lighting, Air, Gas, Pneumatics, etc.
17. Ensure control joints and slip connections are constructed at designated locations. Refer to architectural drawings for locations.
18. Remove oils, grease, and contaminants on the metal framing members with appropriate degreaser. Consult manufacturer for recommended cleaning agents.
19. Proceed to wipe down with IPA 50/50 water solution and allow to dry thoroughly just prior to application of primer for 3M tape and Arcoplast Structural Adhesive (A-2020).

20. Ensure that the sound attenuation blankets are properly in place and that they will not interfere with the Arcoplast modular panel installation. Insulation blankets may swell after time and could potentially interfere with Arcoplast modular panel bond to the substrate.

21. Consult with the project manager to ensure reinforcement backer plates are properly located and installed for MEP, accessories, equipment, guard rails, door, and window blocking.
22. Ensure the reinforcement/blocking will not interfere with the Arcoplast panel and mechanical spline installation.
23. Report to the project manager any discrepancies and request corrective action before proceeding with the panel installation.

Steel Hat Furring Channel -

1. Furring channels for wall and partition surfaces are generally installed vertically on 16” (400 mm) c/c rhythm spacing and doubled at each Arcoplast modular panel joints on 4’-0” (1200 mm) c/c.



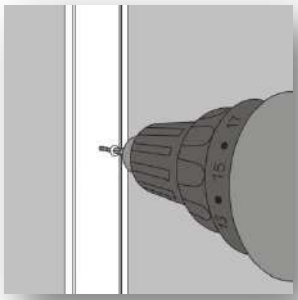
2. Install furring channels horizontally at floor and at the termination strip height for the base of the panel and termination strip reinforcement. Fasten at 16” (400 mm) c/c with proper mechanical fastener to suite substrate.
3. Ensure that fastening system will not interfere with the mechanical spline attachments and 3M VHB tape.
4. With a clean cloth and proper cleaning agents remove oils, grease, and contaminants on the metal framing members. Consult manufacturer for recommended cleaning agents.
5. Proceed to wipe down with IPA 50/50 water solution and allow to dry thoroughly just prior to application of primer for 3M tape and Arcoplast Structural Adhesive (A-2020).
6. Arcoplast modular ceiling panels can be installed parallel or perpendicular to the furring strips. However, maintain a 16” (400 mm) c/c interval. It is not required to double the furring channel when the panel is installed perpendicular to the furring strips.

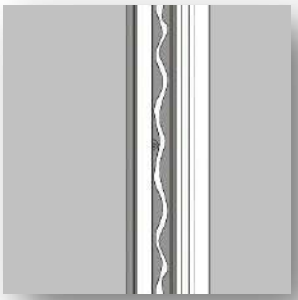
Masonry Wall / Poured Concrete –

Masonry blocks and poured concrete wall systems should be plumb, level and in plane. Grouted joints should be flush and not hinder the installation of the Arcoplast composite panels and the seismic aluminum spline.

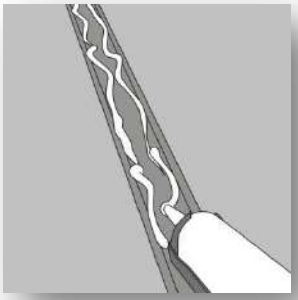
1. Inquire to the project manager if the masonry block has a surface coat that will provide a sound base for tape and liquid adhesion. Refer to test panel for substrate compatibility.
2. High performance coatings and paints vary considerably in surface tension. Ensure proper bond strength and primer/promoter compatibility prior to the 3M VHB tape and Arcoplast Structural Adhesive (A-2020).
3. Ensure door and window frames, through-wall embeds and lab equipment are clean and free of cement grout and foreign particulates that could interfere with the Arcoplast panel installation and obstruct the smooth tooling of the Arcoplast Bio-Seal (A-1010) Finishing Compound.
4. Mechanical fasteners for the aluminum spline and the J starter strip molding will require a plastic shield and flat head metal screw, typical #10 screw with a #8 to 10 plastic shield. You must first pre-drill the aluminum spline and the J starter strip to receive the flat head metal screw. With the aluminum spline and the J starter strip as a template, mark the location for the plastic shield. Remove the aluminum spline from the panel kerf and with a 3/16” (4.5 mm) concrete / masonry bit, drill the locations marked for the plastic shield. Proceed to insert the plastic shields and re-position the aluminum spline matching with the plastic shield inserts and fasten with the mechanical screws.
5. If the integrity of the existing surface finishes is in doubt or the adhesive tests are not satisfactory, it is then recommended to install a continuous 3” (75 mm) x 16 gauge continuous flat galvanized metal strip vertically at every 16” (400 mm) c/c. Fasten with appropriate anchor and fastener.
6. At every panel joint, 4’-0” (1200 mm) c/c, ensure the continuous 3” (75 mm) x 16 gauge galvanized flat metal strip installed does not interfere with the aluminum spline molding for the panel joint. The metal strip should be installed flush to the panel edge and abutting to the aluminum spline.

7. Prior to the installation of the metal strip, remove oils, grease, and contaminants on the metal framing members. Consult the steel manufacturer for recommended degreasing agents.

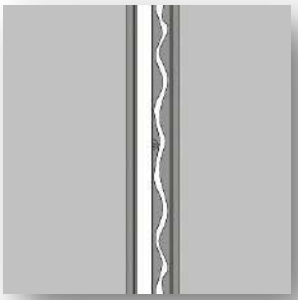




8. Proceed to wipe down with IPA 50/50 water solution and allow to dry thoroughly prior to application of primer for 3M tape and Arcoplast Structural Adhesive (A-2020).
9. Fasten the 3” (75 mm) x 16 gauge galvanized metal strip with two beads of continuous Arcoplast Structural Adhesive (A-2020) and mechanically fasten the metal strip with concrete fasteners 3/16” (4.7 mm) x 1-1/4” (31 mm) on 16” (400 mm) c/c.

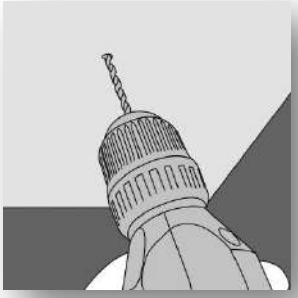


10. Ensure fasteners do not protrude more than 1/16” (1.6 mm) from the metal strip surface as this will prevent the backside of the panel from contacting the 3M VHB #4956 tape of 1/16” (1.6 mm) thick.



11. Apply the 3M VHB #4956 double face tape and Arcoplast Structural Adhesive (A-2020) on the vertical strips continuous side by side.
12. Proceed with the panel installation as described in Chapter 12 Panel Installation.

13. Fasten Arcoplast panel mechanically with 3/16” (4.5 mm) x 1-1/4” (45 mm) concrete screw such as Tapcon or Rawl type fasteners. Use a White color Philips concrete flat head screw below the floor base line, at ceiling line and interior/exterior junctions. Countersink panel and fastened with concrete screws. Verify that the Arcoplast finishing cove application at the ceiling line and interior/exterior junction will cover the countersunk screws, if necessary, increase the spoon size to yield a larger radius or prefill the screw heads as mentioned in the next step.

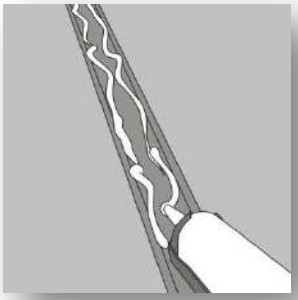


14. You may have to pre-fill the countersunk screw heads if your countersink hole is too close to the featheredge of the finishing compound and leaves a print. This can be done by applying (pre-filling) the countersink screw head with a dab of Arcoplast Bio-Seal (A-1010) Finishing Compound and tooled flat with a putty knife. Ensure that there is no residual film left on the surface and clean thoroughly with the Thermaclean cleaner. Pre-filling should be completed 24 hours prior to the application of the Arcoplast Bio-Seal (A-1010) Finishing Compound in the cove section.

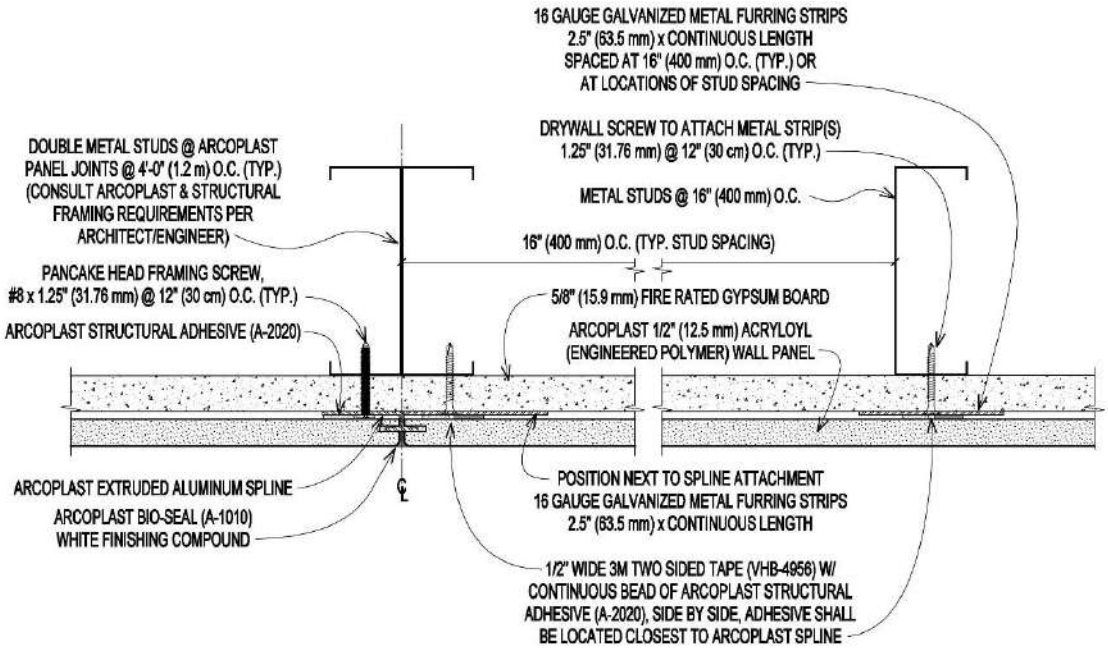
Existing / New Drywall Application -

Arcoplast modular panels can be installed over new or existing gypsum board / drywall construction. However, because of the weak bonding substrate, Arcoplast requires the installation of a flat metal furring strip over the gypsum board.

1. Ensure the existing painted surfaces are well cleaned and free of dust and contaminants.
2. Whenever building codes require a fire rated gypsum wallboard on the wall and ceiling planes, a flat metal furring strip should be installed prior to the installation the Arcoplast modular panel.



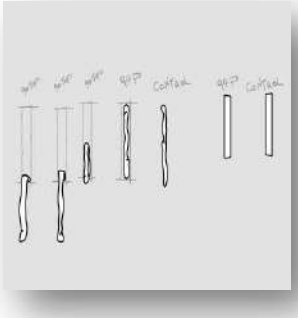
3. Preceding the installation of the Arcoplast wall panel, install a continuous #16 gauge galvanized flat metal furring strip 3” (75 mm) in width by required length. Fasten the flat metal strip with two beads of continuous Arcoplast Structural Adhesive (A-2020) and then mechanically fastened with metal screws through the gypsum board and the metal framing.
4. Ensure the fastening screws do not protrude more than 1/16” (1.6 mm) from the metal strip surface as this will prevent the backside of the panel from contacting the 3M VHB #4956 tape of 1/16” (1.6 mm) thick.
5. The metal strip should be installed over the existing framing members on 16”c/c (400 mm).

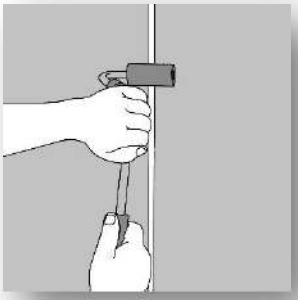


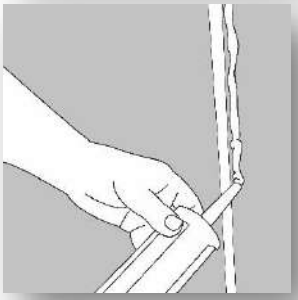
6. At the completion of the metal strip installation apply the 3M VHB #4956 double face tape and Arcoplast Structural Adhesive (A-2020) on the vertical strips continuous side by side.
7. At every panel joint, 4'-0" (1200 mm) c/c, ensure the continuous 3" (75 mm) x 16 gauge galvanized flat metal strip installed does not interfere with the aluminum spline molding for the panel joint. The metal strip should be installed flush to the panel edge and abutting to the aluminum spline.
8. Remove oils, grease, and contaminants on the surface of the flat metal furring strip. Consult the metal manufacturer for recommended degreasing agents.
9. Proceed to wipe down with IPA 50/50 water solution and allow to dry thoroughly prior to application of the primer for 3M VHB tape and adhesive.
10. Fasten the Arcoplast panel with mechanical fasteners below the floor base line, at the ceiling line and interior/exterior corner junctions. Countersink the panel and fastened with fine self-drilling drywall screws. Verify that the Arcoplast finishing cove application at wall to ceiling and wall to wall (interior corners) will cover the countersunk screws, if necessary, increase the spoon size to yield a larger radius or prefill the screw heads as mentioned in the next step.
11. You will need to pre-fill the countersunk screw heads if your countersink hole is too close to the featheredge of the finishing compound. This can be done by applying (pre-filling) the countersink screw head with a dab of Arcoplast Bio-Seal (A-1010) Finishing Compound and tooled flat with a putty knife. Ensure that there is no residual film left on the surface and clean thoroughly with the Thermaclean cleaner. Pre-filling should be completed 24 hours prior to the application of the Arcoplast Bio-Seal (A-1010) Finishing Compound in the cove section.

Existing Ceramic Surfaces -

1. Ensure the existing ceramic surface is sound and well bonded to the substrate and structure.
2. Providing the ceramic surfaces are sound and well bonded to the masonry/concrete, Arcoplast modular panels can be installed directly over the ceramic finishes.
3. Thoroughly clean ceramic surfaces with IPA 50/50 water solution and allow to dry thoroughly prior to the application of the 3M primer.
4. Proceed with the bond test to validate the type of primer/promoter to be used.
5. Apply the 3M VHB tape primer to the ceramic substrate with a 1/2" (12.5 mm) brush, allow drying time and proceed to install the 3M #4959 VHB tape.
6. Apply the 3M #4959 VHB tape vertically on 16" (400 mm) centerline spacing. Leave the film protector on the VHB tape at this time. With a two-hand roller apply pressure throughout the tape to ensure good surface contact.
7. Apply beside the tape a continuous 3/8" (9.5 mm) bead of Arcoplast Structural Adhesive (A-2020).
8. Fasten the Arcoplast panel with concrete screws 3/16" (4.5 mm) x 1-1/4" (45 mm) such as Tapcon or Rawl fasteners. Preferably use a White color Philips concrete flat head screw below the floor base line, at ceiling line and interior/exterior junctions. Countersink panel and fastened with concrete screws. Verify that the Arcoplast finishing cove application at wall to ceiling and wall to wall interior corners will cover the countersunk screws, if necessary, increase the spoon size to yield a larger radius or prefill the screw heads as mentioned in the next step.
9. You may have to prefill the countersunk screw heads if your countersink hole is too close to the featheredge of the finishing compound and leaves a print. This can be done by applying (pre-filling) the countersink screw head with Arcoplast Bio-Seal (A-1010) Finishing Compound and tooled flush with a putty knife. Ensure that there is no residual film left on the surface and clean thoroughly with the Thermaclean cleaner. Pre-filling should be completed 24 hours prior to the application of the Arcoplast Bio-Seal (A-1010) Finishing Compound in the cove section.

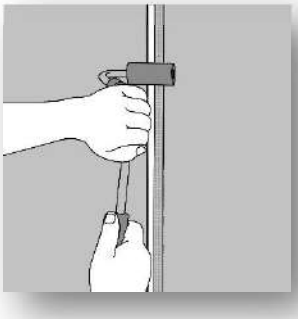


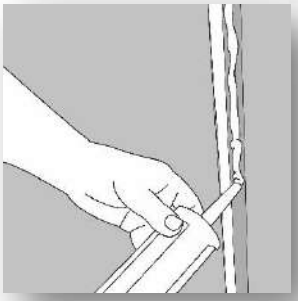


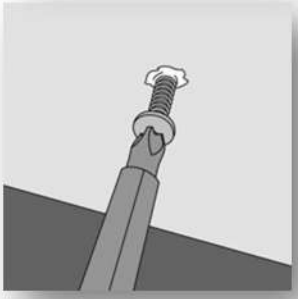


Existing Metal Wall Cladding -

1. Ensure the existing metal surface are well bonded or mechanically fastened to the substrate and structure.
2. Arcoplast modular panels can be installed and directly attached over smooth or lightly grooved painted, galvanized and stainless steel metal finishes.
3. Thoroughly clean metal surfaces with IPA 50/50 water solution and allow to dry thoroughly prior to the application of the 3M primer.
4. Proceed with the bond test to validate the type of primer and adhesive to be used.
5. Apply the 3M VHB tape primer to the metal surfaces with a 1” (25 mm) brush and proceed to install the 3M #4959 VHB tape immediately.
6. Apply the 3M #4959 VHB tape vertically on 16” (400 mm) centerline spacing. Leave the film protector on the VHB tape at this time. With a two-hand roller apply pressure throughout the tape to ensure good surface contact.
7. Apply beside the tape a continuous 3/8” (9.5 mm) bead of Arcoplast Structural Adhesive (A-2020).
8. At the ceiling line and interior/exterior junctions countersink panel and fastened with flat head metal screws. Verify that the Arcoplast finishing cove application at wall to ceiling and wall to wall interior corners will cover the countersunk screws, if necessary, increase the spoon size to yield a larger radius or prefill the screw heads as mentioned in the next step.
9. You may have to prefill the countersunk screw heads if your countersink hole is too close to the featheredge of the finishing compound and leaves a print. This can be done by applying (pre-filling) the countersink screw head with Arcoplast Bio-Seal (A-1010) Finishing Compound and tooled flush with a putty knife. Ensure that there is no residual film left on the surface and clean thoroughly with the Thermaclean cleaner. Pre-filling should be completed 24 hours prior to the application of the Arcoplast Bio-Seal (A-1010) Finishing Compound in the cove section.
10. Proceed to countersink and fasten the Arcoplast panel below the floor base height with # 6 x 1-1/4” (31 mm) self-drilling drywall screws 16” (400 mm) c/c. Fill the screw head with Arcoplast Bio-Seal (A-1010) Finishing Compound and tool flush with a putty knife to eliminate print thru in the floor coving material.

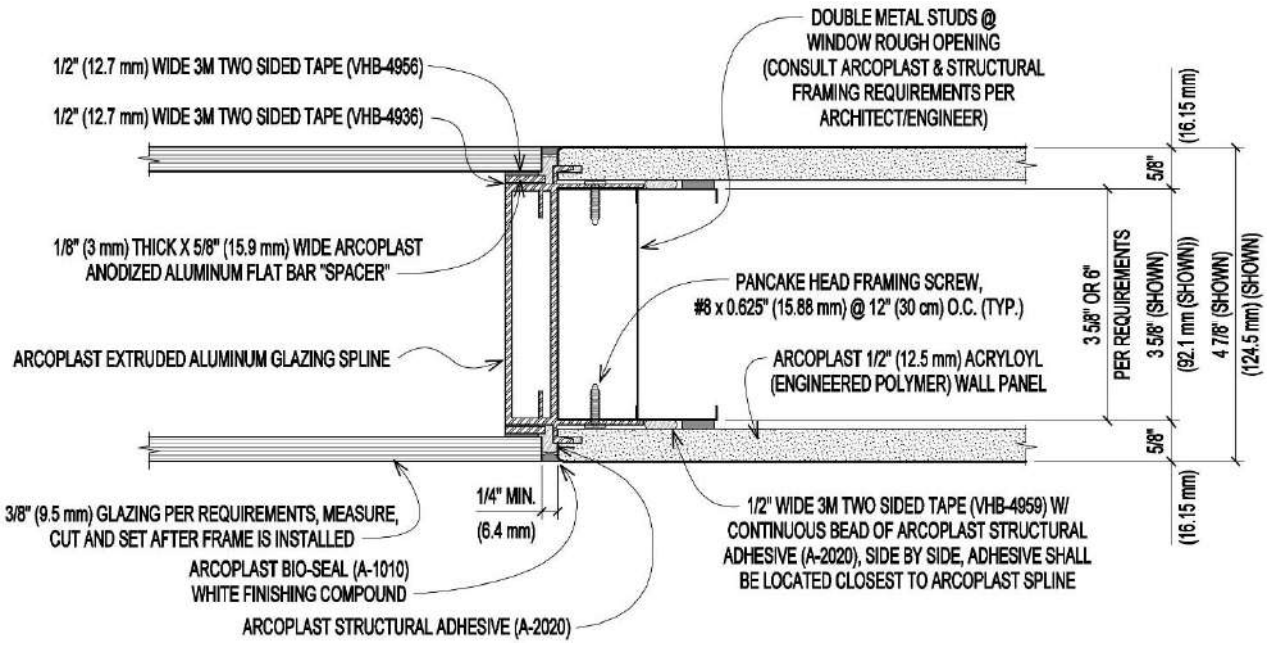






Chapter Seven : Integrated Aluminum Window Housings

Arcoplast flush glazed interior windows are completely sealed using a fully integrated extrusion. This innovative design offers unlimited window dimensions and integrates into standard metal framing construction. The windows are fully integrated into the Arcoplast system and is bonded together and sealed in one step with a two-component mix of high-strength Arcoplast Structural Adhesive (A-2020). Innovative extruded aluminum housing sections enables a flush window glazing application integrated with the Arcoplast modular panel system.



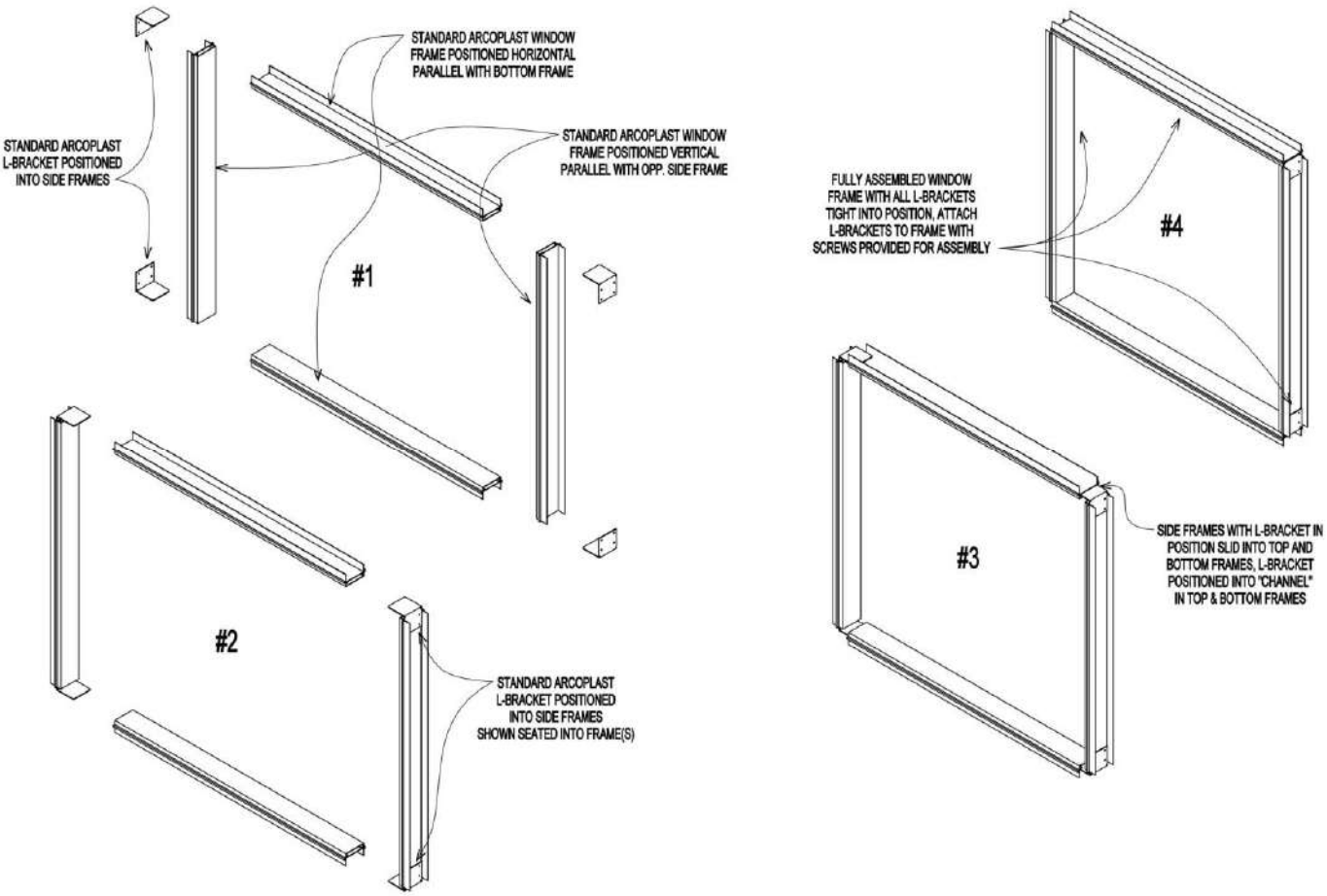
Note: Arcoplast extruded aluminum frame sections can be ordered and shipped pre-assembled. However for reasons of scheduling, assembly, crating and freight cost, it may be advantageous for the client to receive the frame in stock lengths and assembling the frame on job site.

Arcoplast aluminum window extrusion options:

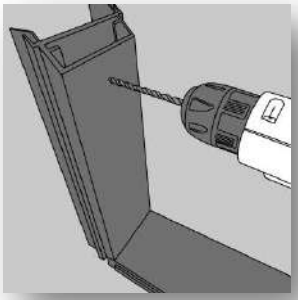
A. Arcoplast aluminum window extrusions are available for 3-5/8” and 6” (92 and 150 mm) steel studs
B. Extruded aluminum frame shipped in stock length to suit user requirement.
C. Extruded aluminum frame pre-cut to desired length.
D. Extruded aluminum frame factory pre-assembled, crated and shipped for easy on-site installation.

On-site assembly procedure:

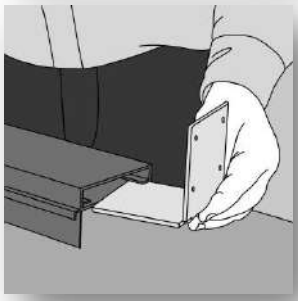
1. The header and sill are cut to desired glazing opening, typically to match Arcoplast modular panel width of 47-15/16”. However, the aluminum window extrusions can be cut to any dimension and can be mounted in a standard 3-5/8” and 6” (92 and 150 mm) metal or wooden stud system. Note: A carbide 100 tooth x 12” diameter saw blade with a 4000 RPM miter saw will provide the best results.



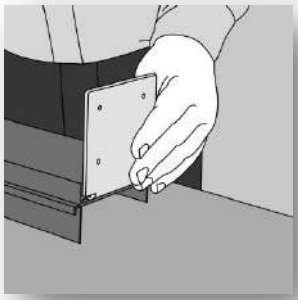
2. Proceed to cut both right and left jamb sections to required length (height) for the desired glazing dimension.
3. In the center of the left and right jamb extrusion, drill a weep hole 1/6” (1.6 mm) diameter. Note: Drill only the face side of the wall cavity, this weep hole will allow any moisture build-up between the glazing panes to be absorbed by the silica desiccant packs that will be stored in the extrusion wall cavity.



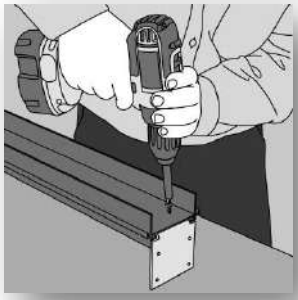
4. Insert corner brackets (non-drilled leaf section) in the slotted portion of the extrusion - sill and header members only.



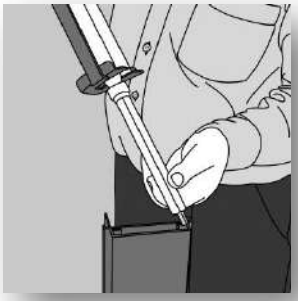
5. Ensure the brackets are well inserted and snug at the end cuts.



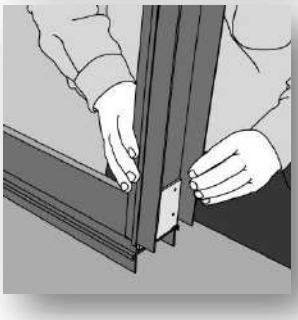
6. Turn the top header and sill extrusion over and drill 2 pilot holes 1/8” (3 mm) through the back of the extrusion and through the steel corner bracket. Pre-fill the drill holes with sealant and secure in place with two # 8 x .0625 self-drilling ultra-thin wafer head screws.



7. Proceed to dry fit both left and right jamb to the sill and header extrusions. When ensured a good and accurate fit, proceed to apply a bead of Arcoplast Structural Adhesive A-2020 on one end of the left and right jamb extrusion.

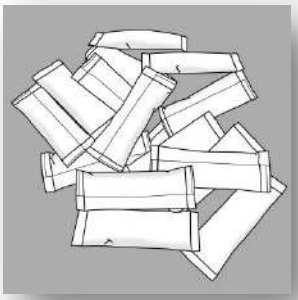


8. Place both left and right jamb sections on the sill extrusion and secure temporarily with hand grips. Ensure the window housing corners section are square.

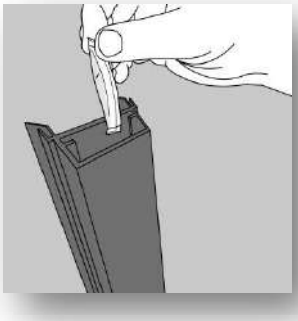


9. With a drill bit, drill 4 pilot holes 1/8” (3 mm) through the first wall extrusion in the predetermined hole locations of the corner bracket. Pre-fill the drill holes with the adhesive/sealant A-2020 two component methacrylate and fasten the sill corner bracket to the jamb extrusion with 4 - # 8 x .0625 self-drilling ultra-thin wafer head screws.

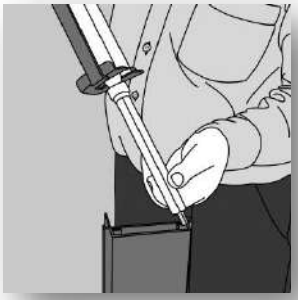
10. Silica desiccant packs are required for the aluminum window housing with double glazing seal application. Note: Single glazing window unit do not require silica desiccant moisture absorbent packs. A total of (25) packs are required in each jamb section (left and right) for a typical 4’-0” x 4’-0” (1.2m x 1.2m) square opening. If there are many variable openings, contact technical services for estimated quantities per window frames.



11. Insert the silica desiccant packs in the cavity of both the left and right jamb.



12. Proceed to apply a bead of A-2020 methacrylate adhesive/sealant on the remaining end of the left and right jamb extrusion.



13. Complete the assembly by positioning the header over the left and right jamb sections. Secure to the header extrusion temporarily with hand grips. Ensure the window housing is align and square. Proceed to drill 4 pilot holes 1/8" (3 mm) through the first wall extrusion in the predetermined hole locations of the corner bracket. Pre-fill the drill holes with the A-2020 methacrylate adhesive/sealant two component and fasten the header corner bracket to the jamb extrusion with 4 - # 8 x .0625 self-drilling ultra-thin wafer head screws.

14. Remove all exceeding sealant and clean thoroughly.
15. Allow 24 hours for the frame corner backets to weld securely and ensure the window frame is stored temporarily in a plumb and square position.
16. Position in place, plumb, level and square the pre-assembled window frame and secure the frame's left and right jamb extrusion to the steel stud by fastening through the face of the extrusion to the steel stud member with # 8 x .0625 self-drilling ultra-thin wafer head screws.

17. With the window frame positioned in place and at the right height, proceed to install the steel stud in the header and sill extrusion members. Secure the window extrusion to the steel stud at the header and sill member by fastening through the face of the extrusion to the steel stud member with # 8 x .0625 self-drilling ultra-thin wafer head screws.

18. With the completed window housing installation, proceed with the Arcoplast modular panel installation as described in Chapter 12. Panel Installation. The plate glass installation is best suited after the panel installation. Refer to Chapter 13 Glazing Installation.

Chapter Eight : Surface Preparation & Supplies -

Surface preparation and cleaning materials -

1. Degreaser – new metal framing members have traces of oils and grease. Consult the metal fabricator for recommendations on degreaser product and application method. After removing oils, grease and contaminants clean with IPA with 50/50 water mixture and allow to dry thoroughly.
2. Isopropyl Alcohol (IPA) is available at most retail stores, it is usually a 70/30 mixture of IPA and water. Mix the IPA with water 50/50. This will allow more time for your cleaning process before the product dissipates. This mixture is also used to clean the back side of the Arcoplast modular panels and existing substrates such as the steel stud framing members, furring strips, painted and ceramic surfaces.
3. Use a spray bottle with IPA mixture, mist spray surfaces to be cleaned and wipe dry with a clean cloth.
4. Cleaning towels – rough surfaces will require a cotton cloth and smooth surfaces can be cleaned with disposable wipes.
5. Personal protective equipment, gloves and eye wear are required.
6. Caution: Do not use cleaning products near open flames or high heat source such as work lamps, heaters, etc.

Chapter Nine : Fastening Systems & Supplies -

Arcoplast modular panel primer, adhesive, and fasteners -.

1. 3M Adhesion Promoters
   a. 3M # 94 - a clear liquid primer used to promote adhesion of 3M VHB tapes to the back side of Arcoplast panels and metal substrates such as steel studs, furring channels, and metal strips. Primer # 94 is available in quart and gallon size container.
   b. 3M # P591 black liquid primer is a low viscosity adhesion promoter recommended for use on aluminum framing members, back side of the Arcoplast modular panels and difficult surfaces to bond to. Primer P591 is available in 8.4 US fl. oz. (250ml) metal container.
   c. 3M # 90 HD spray adhesive promoter used to enhance the bond of 3M VHB tapes to masonry substrates. 90 HD spray is available in spray can, net weight 17.6 oz. (500 g).

Caution: Do not use primers, promoters near open flames or high heat source such as work lamps, heaters, etc.

2. Adhesive
   a. Arcoplast Bio-Seal (A-1010) Finishing Compound – a two-part aliphatic urethane sealant/adhesive used to bond and seal the Arcoplast modular panel joints, cove sections at wall to wall, wall to floor/ceiling junctions Available in twin cartridges 400ml. Low VOCs - Color White.
   b. Arcoplast Structural Adhesive (A-2020) – a two-part methacrylate, structural bonding adhesive designed for structural bonding of interior architectural finishes such as wall and ceiling panels, finishing trims, moldings, complex shapes, and applications, eliminating the need for exposed fasteners Available in twin cartridges 400ml Low VOCs - Color Amber
   c. 3M VHB tape
      1. 3M #4959 double face acrylic foam tape (White) 1/8” (3 mm) thick x 1” (25 mm) wide in rolls of 36 yards is used to bond and provide immediate fixture time for the Arcoplast modular panel.
      2. 3M #4956 double face closed cell acrylic foam tape (Dark Grey) 1/16” (1.6 mm) x 1” (25 mm) wide in rolls of 36 yards is used to bond and provide immediate fixture time for the Arcoplast modular panel to the 2 ½” (63 mm) wide metal strip that is mechanically fastened to gypsum board and masonry/concrete wall and ceiling structures.
      3. 3M #4936F double face closed cell acrylic foam (Dark Grey) 1/16” (1.6 mm) x 1/2” (12.5 mm) wide in rolls of 72 yards is used to bond the termination strip to the Arcoplast modular panel at the floor/curb junction.

3. Mechanical attachment
   a. Aluminum seismic spline for Arcoplast panel seams – continuous aluminum mill finish extrusion with T intersection fitting in the Arcoplast panel kerf keeping the two panels in plane and secure by the extended dog leg fastened mechanically to the existing substrate. The standard 3/8” (9.5 mm) spline is used for both the 3/8” and 1/2” (9.5 and 12.5 mm) thick Arcoplast modular panel Standard aluminum spline length 9’-0” (2.75 m). The aluminum spline is installed at every Arcoplast panel seam and can be fastened to a variety of substrate with the appropriate fasteners.
   b. Aluminum J starter trim is a continuous aluminum mill finish extrusion shaped in a J form. This aluminum starter trim is used for supporting the end of panels (top or bottom), above floor coves, at the start of wall runs, door and window frame junctions, and wherever a concealed and continuous panel fastener is required. The long dog leg section is attached mechanically to the substrate such as metal framing sections, masonry/concrete, gypsum board, ceramic, and metal wall liners. The Arcoplast modular panel with the panel edge kerfed is inserted in the small leg portion to the starter trim. Dimension – J starter trim 3/8” (9.5 mm) is used for both the standard 3/8” and 1/2” (9.5 and 12.5 mm) thick Arcoplast modular panel.
4. Fasteners
   a. Ultra-thin wafer head screws – Modified truss head Philip self-drilling screw hardened zinc plated and baked. Dimension # 8 x .0625” for fastening the aluminum spline and aluminum starter trim piece. The screw tip is designed to drill into the aluminum trim and existing substrates such as metal strips, steel stud framing members and furring channels. The ultra-thin wafer head screw provides the precise thickness allowance enabling the panel, when position over the screw heads, to glide directly into the spline/starter strip short dog leg.
   b. Flat head metal screws with plastic anchors - #10 x 1-1/4” (32 mm) Philips flat head zinc plated screw used to fasten aluminum spline, aluminum starter trim and galvanized 2-1/2” (63 mm) metal strip to existing substrate such as masonry/concrete walls.
   c. Concrete fastener such as Tapcon or Rawl – 3/16” (4.5 mm) diameter x 1-3/4” (45 mm) long, coated finish color White. The Philip flat head screw is designed for existing substrate such as masonry/concrete.
   d. Drywall self-drilling screws - #6 x 1-1/2” (38 mm) self-drilling fine thread Philip head screws is used to attach the Arcoplast modular panel to the existing substrates. Design to drill into the metal strips, steel stud framing members and furring channels.

Prior to the adhesive application, verify and ensure the bond strength to the substrate and the Arcoplast panels. When uncertain as to the proper selection of primer/promoter, adhesive, and fasteners, select a test method and a test area on the substrate. Proceed with a mock-up sample testing the proposed primer/promoter, adhesives, and fasteners to evaluate and determine the best bond and peel strength and select the best product and application method.

Document and record the peel strength of the tape and adhesive beads. Preferably a cohesive failure is the best expected result.

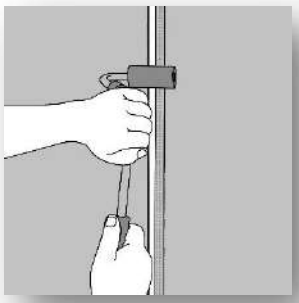
1. Room temperature 60^0F to 80^0F (15^0 C to 24^0C) is recommended for the application of 3M VHB tapes and Arcoplast Structural Adhesive (A-2020).
2. Field test the primer, adhesive and fasteners per manufacturer's recommendation. Record and document for working time, application time and cure time.
3. Different substrate may require different primers thus enforcing the need to test each substrate for surface adhesion compatibility.
4. Determine the peel strength by use of simple tools and repeat the same technique for all test coupons.
5. A minimum of two test coupons for each different substrate is required.
6. Results for the primer and adhesive test (tape & liquid) to be submitted to the project manager for approval.
7. Note: If the bond strength is not suitable for the substrate, contact Arcoplast technical services.

3M VHB Double Face Tape Application -

1. Apply the 3M VHB tape onto the substrate (existing surfaces) on which the Arcoplast panel will be bonded to.
2. Metal framing members, clean substrate thoroughly with proper degreaser. Remove oil, dust, and chemicals, with Isopropyl Alcohol (IPA) 50/50 water mixture and allow to the surface to dry thoroughly.
3. For painted surfaces clean and wipe down with damp cloth with IPA 50/50 and water mixture and allow surface to dry thoroughly. Note: For new or existing drywall substrate, refer to Chapter 6, section Existing/New Drywall Application, and item 1 through 12 inclusively for proper procedure for the application of the 3M double face tape.
4. For new masonry, brick and concrete walls, brush surfaces to remove any loose particulates and remove all dust by vacuum and wipe down with damp cloth.

5. When installing Arcoplast modular panels over existing masonry/concrete walls that have old and decayed paint, ensure the surface is scraped or sandblasted to remove loose paint chips and particles. If this procedure proves environmentally challenging or cost prohibitive, refer to metal strip furring as described in Chapter 6, section Masonry Wall/Poured Concrete items 6 -15 inclusively.
6. On the back side of the Arcoplast panel, remove all dust generated by panel cuts and clean thoroughly with IPA and 50/50 water mixture and allow the surface to dry thoroughly.
7. Apply primer to both areas, on the substrate and on the back side of the Arcoplast modular panel where the 3M VHB tape will come in contact. Note: Different substrates may require different primer/promoter – refer to trial adhesion test mock-up.
8. When using and applying the 3M VHB tape always keep the roll of tape well protected to prevent surface contamination which will greatly reduce the bond strength.
9. On steel stud framing members, horizontal floor and ceiling tracks, furring channels, metal strips and cross brace framing members the 3M VHB tape is applied continuous.

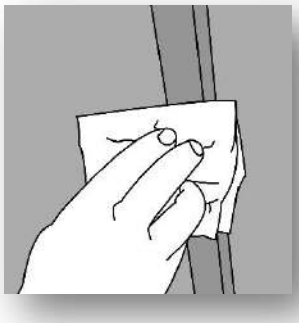
10. On solid substrates such as ceramic, glazed bloc, epoxy coated masonry or poured concrete the 3M VHB tape is applied continuous at the required spacing, typically 16” c.c..
11. To apply the 3M VHB tape to the substrate, remove the protective tape on one side only. Position in place and apply moderate pressure with a two-hand roller and proceed to roll the 3M VHB tape to ensure full contact and adhesion.



12. At this time, on the face side of the 3M VHB tape, leave the film protector one.

Note: Only remove the face protective film just prior to the panel installation.

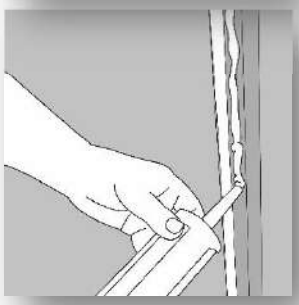
Arcoplast Structural Adhesive (A-2020) -



1. On metal framing members remove oil, grease, and contaminants with appropriate degreaser. Complete with a final wash using IPA 50/50 water mixture and wipe clean and allow surface to dry thoroughly.

2. Application of Arcoplast Structural Adhesive (A-2020) on new or existing drywall substrate, painted and decayed masonry and concrete surfaces, refer to Chapter 6, section Existing/New Drywall Application and Masonry Wall/ Poured Concrete items 6 -15 inclusively.
3. For new masonry, brick and concrete walls, brush surfaces to remove any loose particles and remove all dust by vacuum, wipe down with a damp cloth to remove all dust.

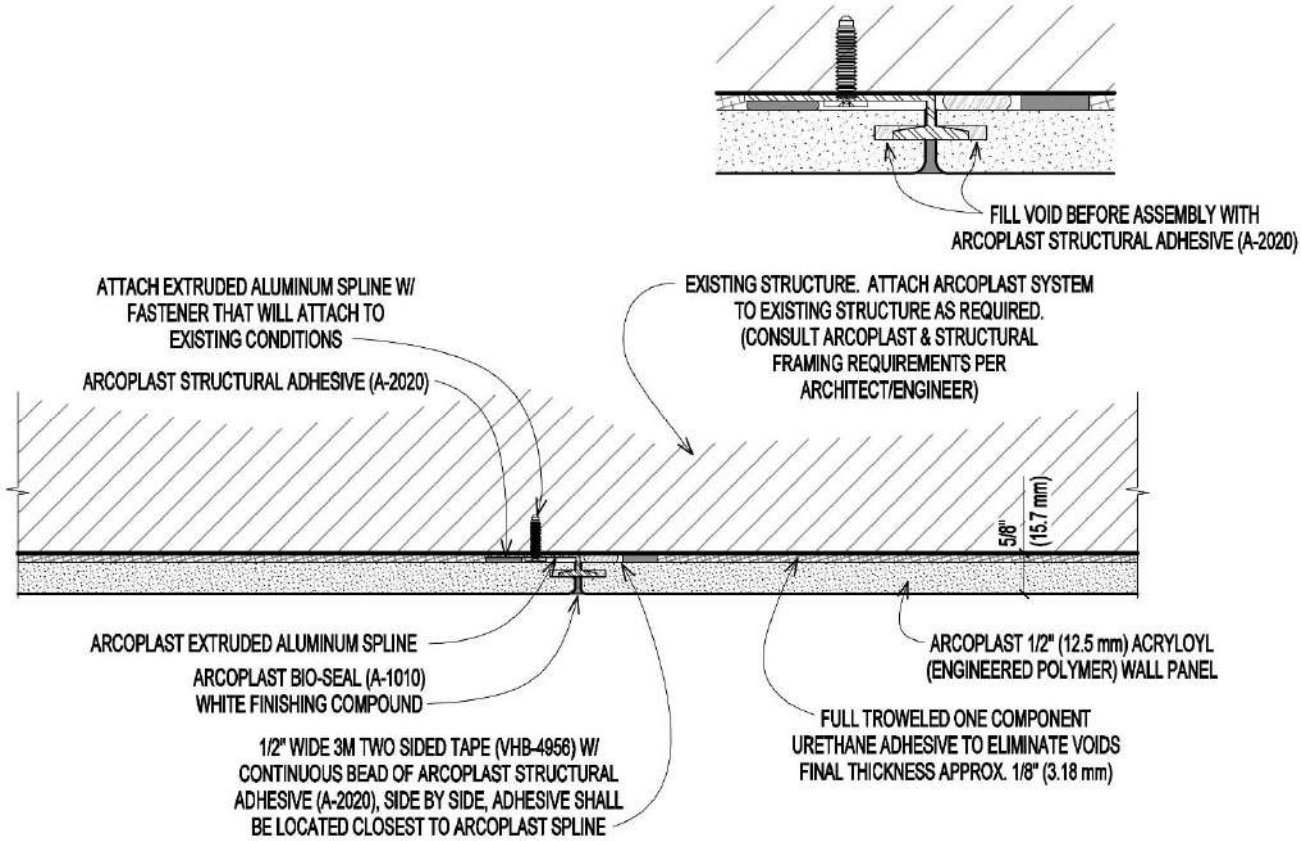
4. Clean thoroughly the back side of the Arcoplast panel. Dust and dirt particles need to be fully removed to enable good wet out of the 3M tape primer and a clean surface for the tape and Arcoplast Structural Adhesive (A-2020).



5. Apply the Arcoplast Structural Adhesive (A-2020) in a continuous 3/8” (9.5 mm) diameter bead form. This will ensure that when panel is pressed against the double face tape the Arcoplast Structural Adhesive (A-2020) will be spread out on the substrate ensuring the same thickness as the 3M VHB tape and resulting in a good adhesive wet-out. The liquid adhesive bead flattened by the panel pressure should yield a ¾” width of flattened bead full surface contact.

6. Apply the Arcoplast Structural Adhesive (A-2020) just prior to the panel installation. This will prevent the liquid adhesive from skin drying. This application method will result in a good wet out contact and deliver maximum bond strength to the back side of the Arcoplast panel.

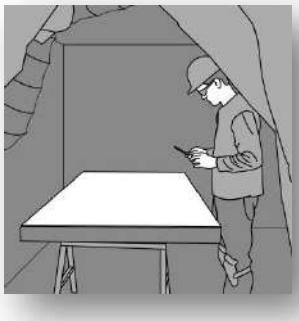
7. Some applications in specific industries will require the cavity behind the panel to be filled. In these instances, apply a full bed of mastic adhesive and trowel with a 1/4” (6 mm) U notched tool throughout the full panel similar to ceramic tile installations. Note: The spacing and application of the metal furring strip and 3M VHB tape remains the same.



Chapter Ten : Panel Preparation, Cut and Cleaning Station -

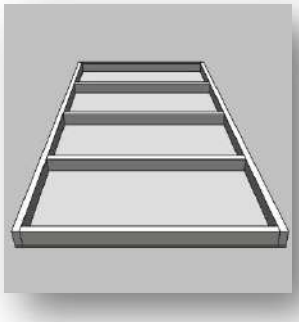
Designate and secure an area for the panel preparation. The area must be secured with environmental safeguards and most importantly the safety and well-being of co-workers, and employee residents.

1. Arcoplast Acryloyl (Engineered Polymer) modular panels have a mirror like finish surface. Ensure the panels are not scratch or damaged by contaminated work bench, tool belts, cutting equipment, rub marks from handling carts, lifting equipment, etc..
2. Designate a secure area for the inspection, preparation and cutting of the Arcoplast modular panel. If it is not possible to secure a designated area, a temporary work area can be constructed with clear plastic film attached to metal or aluminum stud framing. A prefabricated gazebo party tent is ideal in for these applications. These makeshift environments can provide adequate protection and reduce the risk of contamination.
3. Properly seal the enclosure of the preparation and cut area. This will prevent dust escaping and possibly contaminating or compromising the construction site.

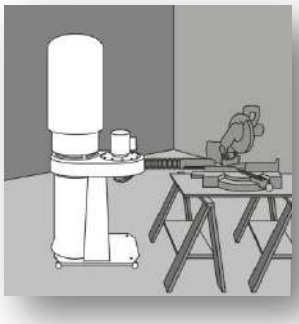


4. Ensure proper services such as, air, ventilation, lighting, electrical outlets, and dust collection systems are adequate and available.

5. In preparation for the cutting of Arcoplast composite panels, build a dust box with 2”x4” (50 x 100 mm) wood framing members on 24” (600 mm) c/c with a 1/8” (3 mm) solid backer such as particle board to the bottom of the wood members.
6. Dust box should be 4’-0” (1,200 mm) wide x length to accommodate the average wall panel length.
7. When cutting larger panels, such as ceiling panels, ensure that the cut lines, cut-outs, and drilling areas are over the framed area allowing the dust to be collected in the box and preventing most of the dust to be airborne.
8. The dust box collector should be installed on solid work benches capable of bearing the weight of the box and the Arcoplast modular panel.



9. A mobile vacuum system works best to capture the dust generated by the tooling cuts, routing, drilling, and sanding.

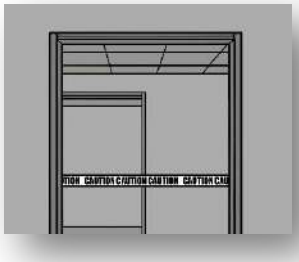


10. A mobile workstation is also recommended for equipment and product storage.

Note: Good housekeeping is essential for a cleaner and safer work environment.

Chapter Eleven : Room Preparation and Set Up -

1. The Arcoplast modular panels should be installed in the temperature range equal to that of the room's working temperature. Ensure the rooms outside openings and the building's roof is closed in and maintain the temperature range during the installation at 60^0F-80^0F (15^0-24^0C).
2. Confirm with the project manager that all MEP and services are completed and ready for ceiling and wall panel installation.
3. Ensure door and window frames, access doors, lighting and diffusers have the proper depth and throat opening to accommodate the Arcoplast panel thickness.
4. Remove unnecessary materials and equipment from floor, wall, and ceiling surfaces.



5. Install proper lighting and provide adequate power supply.
6. Ensure ceiling and wall framing members, furring channels and existing substrates are properly cleaned and ready to receive adhesive primer / promoter. Ref. Chapter 8 Surface Preparation & Supplies.

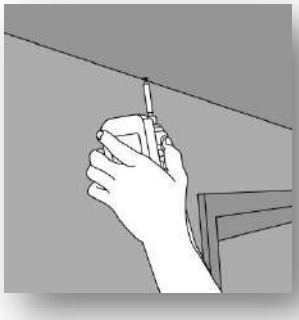
7. Mark proper location for the primer for 3M VHB tape and Arcoplast Structural Adhesive (A-2020) application. A jig ruler will ensure consistent dimension and placement.
8. Prepare and make ready the primer, adhesive, and mechanical fasteners for the panel installation.
9. Erect proper scaffolding and provide adequate handling and bracing equipment. Inspect they are safe and in good working order and at hands reach for the installation.

Chapter Twelve : Panel Installation -

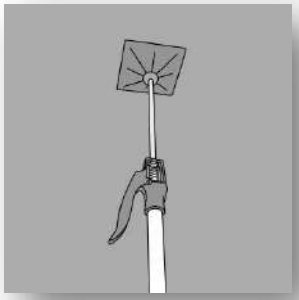
Arcoplast Acryloyl (Engineered Polymer) modular panels are manufactured to exacting dimensions. However, it is advisable to order panels 1” (25 mm) longer to compensate for any damaged end, accidental miss cuts, or irregularities in floor, wall, and ceiling measurements.

Ceiling Panel Installation -

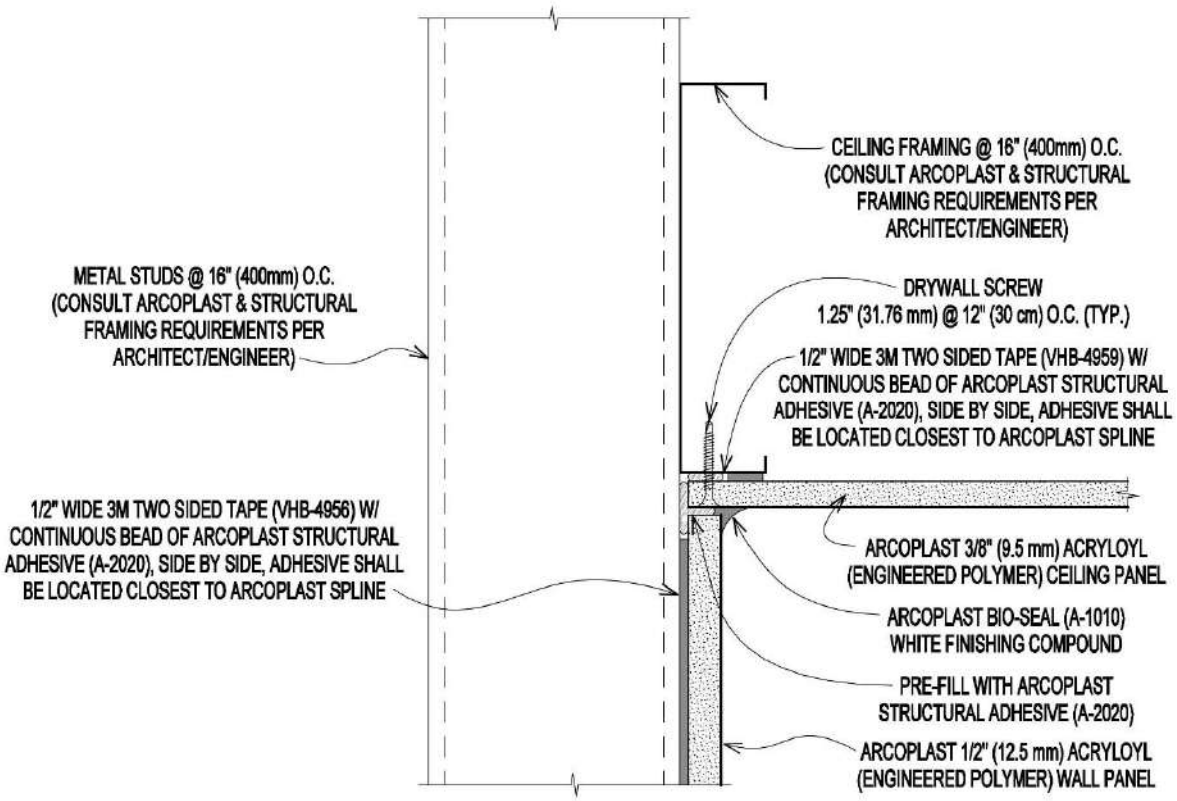
1. Install ceiling panels first –
   a. Ceiling panels are usually cut to the full length of the room’s width or length. The orientation of the ceiling panel is usually indicated on the reflected ceiling plan. Tight tolerances, handling and lifting of the panels in place could potentially friction and damage the already installed wall panels, it is therefore preferable to install the ceiling panels first.
   b. By installing the ceiling panel first, the panel can be cut shorter by 1/4” (6 mm). This will facilitate the panel lifting, handling, and positioning in place making the panel installation easier. Note when positioning the panel for installation allow 1/8” (3 mm) space at each wall end extremities.
   c. Installing the ceiling panels first also allows the fastening of the panel with screws at the panel’s perimeter. The mechanical fasteners should be installed at no more than 1/2” (12.5 mm) from the substrates edge such as steel stud or existing substrate.



   d. Installing the ceiling panel first enables the application of third hand jacks to prop-up and keep positive pressure on the ceiling panel pending the curing of the liquid adhesive. Plan in advance to ensure the third hand jacks will not interfere with the moving in of panels and equipment as well as the installation of the next panels.
   e. Installing ceiling panels first will also facilitate the MEP trades with their respective installation.



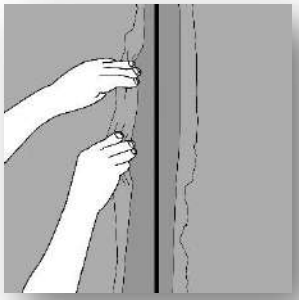
f. Installing the ceiling panels first enables the wall panels to be installed with a 1/8” (3 mm) gap at the top of the wall liner. The designed horizontal gap at the top of the wall panel creates a ledge for the Arcoplast Bio-Seal (A-1010) Finishing Compound to sit on, thus greatly reducing sagging at the application. And finally, the wall panel installed with the 3M #4959 VHB adhesive tape and the aluminum spline totaling 1/2” (12.5 mm) thickness projects the Arcoplast modular panel far enough to cover the screw heads that were installed at the perimeter on the ceiling panel and consequently not interfere with the application and tooling of the Arcoplast Bio-Seal (A-1010) Finishing Compound.



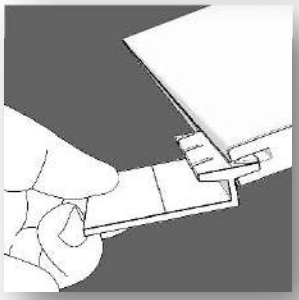
2. Define the location for the first ceiling panel to be installed, it is preferable to start at one end of a room because:
   a. The ceiling panel system is a progressive system and will require planning for the sequence of the panel installation.
   b. The third hand jacks supporting the ceiling panel for a minimum of 4 hours (when adhered with the A-2020 structural adhesive) could limit your access to the room and make it very difficult to maneuver scaffolds, equipment, and the installation of the next panel.

c. Planning the progressive ceiling panel installation will be dictated by the access and exit paths to the room. Planning the sequence of the ceiling panel installation will also facilitate relocation of the services such as temporary lights, lifting equipment and scaffolds.
d. Deciding on the start location and panel sequence of the ceiling installation should be done in concert with the MEP trades.
e. In large areas or in long hallways, it is possible to start the ceiling panel installation in the center of the room and proceed with the panel installation in either direction simultaneously.

3. Take the panel final cut dimensions and the cut-out dimension for the MEP services.
4. Keep the protective plastic film on the Arcoplast modular panel during handling, marking, cutting, drilling and installation of the panel.
5. Lay the modular panel flat on the work bench with the exposed surface and plastic film protector facing up. This will enable the inspection of the panel surface and panel edges.
6. Verify the panel for trueness and ensure the panel surface and molded edges are clean and the panel groove is kerf properly. Peel back the plastic film protector a few inches to facilitate the inspection of the edges and panel finish.



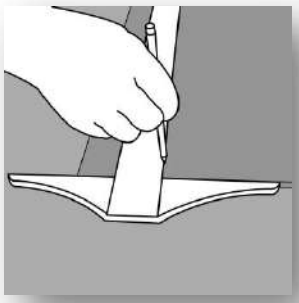
7. Verify that the panel groove is kerfed properly and there is no foreign matter in the groove that could potentially prevent the spline from seating properly in the kerf. This is best achieved by gliding a short section of the aluminum spline along the panel's groove.



8. In the event a panel edge has been damaged in the transportation or handling or inadvertently miss cut, the panel may be relocated, cut, and utilized at door or window locations, or used at other intersections of the room requiring a narrower panel. If the panel cannot be utilized at another location or room, a panel repair may be required. See Chapter 18 Acryloyl (Engineered Polymer) Repair.

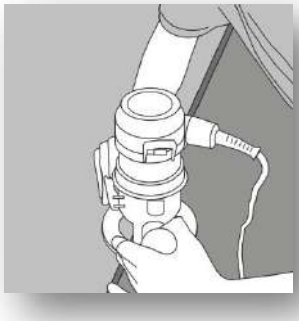
9. Inspecting the face side of the Arcoplast modular composite panel. Transfer the marking for the dimensional cuts and MEP cut outs. Note: It is preferable not to mark the panel for the primer/promoter location at this time, the markings could be misread as a cut line.

10. With a felt marker pen, mark the field dimension cut lines and MEP cut outs. Also mark the panel for any door and window openings and equipment such as autoclaves and pass thrus.



11. When taking field measurements, allow 1/8" (3 mm) gap at the wall to ceiling junction, 1/8" (3 mm) gap at the wall to floor junction, 1/8" (3 mm) gap at wall-to-wall junction and 1/8" (3 mm) gap around MEP penetrations. This will ensure adequate spacing for the insertion and application of the Arcoplast Bio-Seal (A-1010) Finishing Compound.

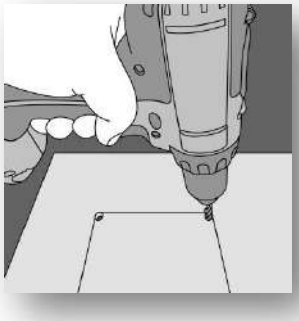
12. Proceed to mark the panel edges and panel ends that will require routing for a starter strip such as existing baseboards or panels abutting to different finishes. Also, in large areas some panels will have to be abutted end to end, the butting ends of these panels will require a routed groove to receive the aluminum spline that will join the two panels together.
13. In this critical step, it is recommended to have a third party check the measurements and location for the proposed cuts prior to the final cutting action.



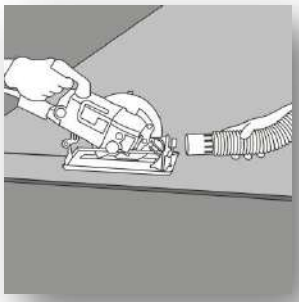
Note: Acryloyl (Engineered Polymer) modular panels are best cut, routed and drilled with sharp carbide cutting tools. Example, a 96 carbide tooth setting for a 12" (300mm) diameter saw blade and/or a 60 carbide tooth setting for a 7-1/4" (184mm) circular saw will yield a clean and smooth cut. See a list of tools and equipment - Chapter 19.

14. Always wear Personal Protective Equipment (PPE) when cutting, routing, drilling, and sanding Arcoplast Acryloyl (Engineered Polymer) modular panels.
15. Do not apply excessive pressure on the tools or use high speed when cutting, routing, drilling, or sanding Arcoplast Acryloyl (Engineered Polymer) modular panels.
16. When cutting at intersecting lines, do not overcut but rather complete the cuts with a router bit or a sharp drill bit.

17. When cutting out openings in the field of a panel, position a cut-out template over the proposed opening and proceed to cut out the area with a plunge router and carbide bit 3/8” (9.5mm). This will prevent panel fissures and chipping at the intersection cuts.
18. Projects with multiple protrusions that cannot be relocated, conditions often related to renovations, consult Chapter 17 MEP Penetration Cut Outs & Sealants for various methods of application.
19. Verify the Arcoplast modular panel is well positioned over the dust box. This will ensure that the dust generated by the cutting action will be captured and contained in the dust box.

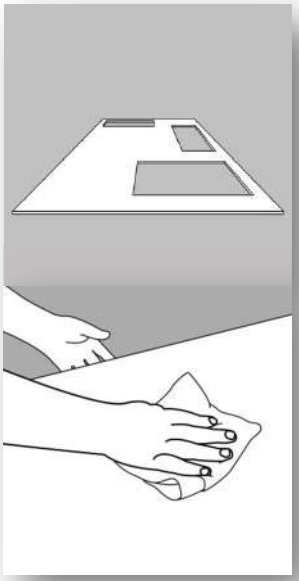


20. Whilst cutting, routing, drilling, and sanding the Arcoplast modular panels utilize tools with a vacuum hose to capture all dust generated on the surface of the panel. (If the tool is not equipped with a dust collector, have an assistant with a dust hose such as a Shop Vac assist and follow the cutting tool to capture most of the airborne dust. Dust and particles generated by the cutting action underneath the panel will be captured in the dust box. The dust generated by this action can then be vacuumed clean immediately after the panel is removed for installation.

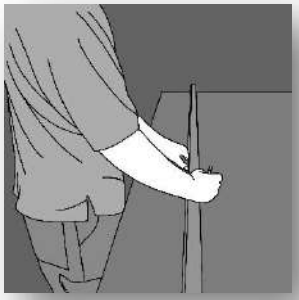


21. Cut, drill, and sand the Arcoplast modular panels in a secure area where the dust collection can be effective. Minimize the spread of contaminants by sealing the area properly and by keeping negative pressure in the room.
22. If a panel cut is not quite accurate or the panel fit is too tight, you can easily shave-off some of the dimension with a diamond saw blade or with a 3” x 20” (75 mm x 500 mm) portable belt sander with a # 50 grit paper.

23. With the panel cut to required length, width and cut-outs completed, carefully turn the panel exposed face side down (face side having the protective film). Clean thoroughly the back side of the panel with IPA 50/50 and water solution and allow the panel to dry thoroughly. Do not overlook cleaning the panel edges thoroughly as the bond strength is contingent on a dust and contaminant free surface. Special attention should be paid to the panel spline kerf and this can be easily accomplished with a moist rag over the tip of a flat screwdriver inserted in the panel groove and moved along the full length of the kerf.

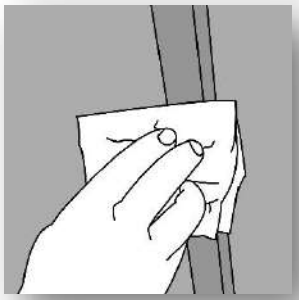


24. On the back side of the panel, mark the vertical location on 16” (400 mm) c/c that will correspond to the steel stud, furring channel layout. Also mark the bottom and top end of the panel corresponding to the floor and ceiling track for 3M primer/promoter that will be required for the 3M-#4959 double face adhesive tape. This location needs to correspond to the same location on the substrate, steel stud or furring channel.
    Note: Only apply 3M primer 94 where the 3M VHB tape is applied.

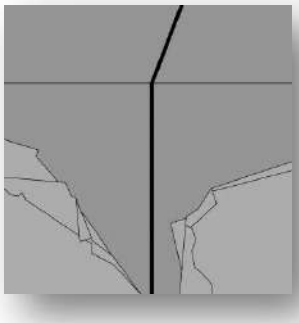


25. On the back of the Arcoplast composite panel apply the 3M primer/ promoter #94 with a 1/2” (12.5 mm) paint brush. This brushed on 3M #94 primer area should correspond to the same area on the substrate, steel stud, furring strip, etc.. This is to be a continuous application from top to bottom.
    Note: Only apply 3M primer 94 where the 3M VHB tape is applied.

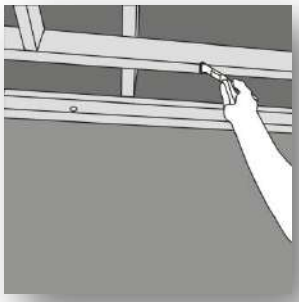
26. As the Arcoplast panel is being prepped for installation, proceed to have the substrates, steel studs, metal furring strips, etc., thoroughly cleaned with IPA 50/50 water solution and allow the surfaces to dry thoroughly.



27. On the substrate, steel stud or furring channel mark the vertical and horizontal locations for the 3M #94 primer. The areas should match identically with the projected location on the back side of the panel.
28. Mark on both wall and ceiling substrate, steel track, furring channels the panel joint centers on 4’-0” (1.2m) c/c for wall and ceiling panels. This will ensure the wall and ceiling panel joint lines will match up and provide consistent dimension and reduce measurement creep occasionally seen in long runs such as large rooms and long hallways.
29. Wherever possible match wall and ceiling joint lines for a clean aesthetic look.



30. On the substrate, steel stud and track or furring channels, apply the 3M primer/ promoter #94 with a 1/2" (12.5 mm) paint brush. This brushed on 3M #94 primer area should correspond to the same area on the back of the Arcoplast panel.
    Note: Only apply 3M primer 94 where the 3M VHB tape is applied.

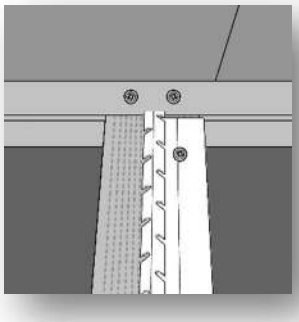


31. Apply the 3M VHB #4959 double face tape in continuous strips on the framing members and perimeter track. Leave the protective film on the face of the double face tape at this time. See Chapter 9 - 3M VHB double face tape application.

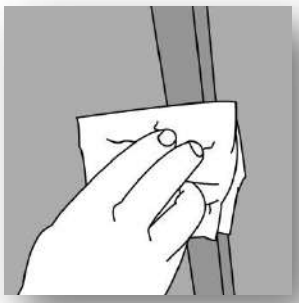
32. With a two-hand roller apply adequate pressure to ensure the tape has good contact to the substrate, steel studs or furring channels.

33. Place the panel exposed face down on the drywall lift. Proceed to lift and dry fit the ceiling panel in place making sure the location and cut outs for the lights, MEP openings, access doors, alarms and monitoring systems precisely match the openings prior to the final adhesive application.

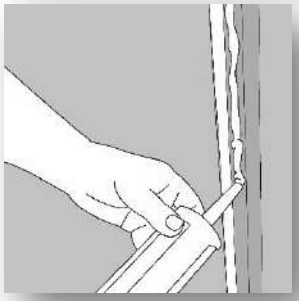
34. Measure the seismic aluminum spline from the steel track edge to steel track edge. On the ceiling application, do not extend the aluminum spline from wall to wall and on the wall application, do not extend the aluminum spline from floor to under ceiling panel because the spline would overlap the thin flat head screws that attaches mechanically the steel stud to the track. This would result in an uneven layout of the spline making the panel groove and aluminum spline insertion difficult.



35. With a fine-tooth metal blade cut to desired length the aluminum spline. A fine-tooth metal jig saw blade will also cut the aluminum spline properly. Remove oils and contaminants on the aluminum spline with IPA and 50/50 water solution. Allow to dry thoroughly.

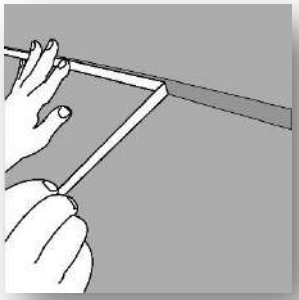


36. Apply the Arcoplast Structural Adhesive (A-2020) only when the panel preparation is complete and the panel is ready for immediate installation. Do not allow the adhesive bead to skin over as this will inhibit a perfect wet out and diminish the bond strength.
37. Dispense the Arcoplast Structural Adhesive (A-2020) with manual or pneumatic dispenser. Ensure the bead is a continuous minimum 3/8” (9 mm) diameter. As the panel is being pressed in place, the 3/8” (9.5 mm) bead of liquid adhesive will be compressed to meet the 1/8” (3 mm) tape thickness ensuring that the bead will be 100% in contact with both surfaces and spread out to 3/4” (75 mm) wide adhesive strip.



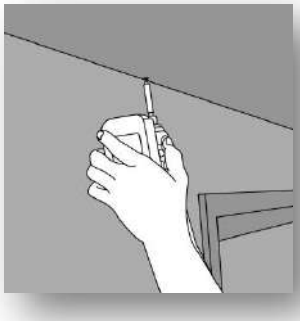
38. Always ensure good wet out and proper bonding to the substrates. Review working time for the Arcoplast Structural Adhesive (A-2020) and sealants as these products are influenced by temperature, relative humidity, and application time.

39. Remove the protective film on the 3M VHP tape.

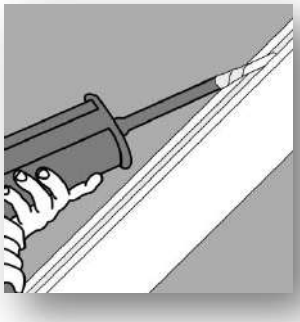


40. For the first ceiling panel installation, starting at the far end of the room, move the lifting apparatus (drywall lift) in place, load and lift the panel carefully in position.

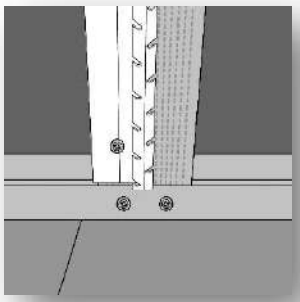
41. Position the ceiling panel in place and apply pressure to contact the adhesive tape and liquid adhesive. Fasten the perimeter of the panel immediately with self-drilling drywall screws on 16” (400 mm) c/c. There is no need to countersink the panel. However, the screw head must not exceed 1/2” (12.5 mm) distance from the perimeter substrate or steel stud track, furring channel, etc. The exposed fastening screw (not countersunk) provides the proper spacing 1/8” (3 mm) between the ceiling and wall panel creating the right gap (ledge) for the application of the Arcoplast Bio-Seal (A-1010) Finishing Compound. However, the screw head must not exceed 1/2” (12.5mm) distance from the perimeter substrate or steel stud track, furring channel, etc., as the coving compound finish will not cover adequately the head of the fastener.



42. Prior to inserting the aluminum spline, dispense a fine continuous bead of Arcoplast Structural Adhesive (A-2020) in the panel kerf. This is best achieved with a manual gun dispenser and a standard static mixer nozzle coupled with lock nut and stainless steel dispensing needle that can be inserted in the panel groove. Do not overfill. Ref. Chapter 16 Part 6.

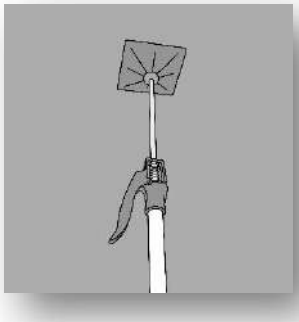


43. Position the seismic aluminum spline between the two ceiling framing tracks, this prevents the aluminum spline from overlapping the flat screw heads that attach the steel stud to the steel track. Insert the small dog leg in the kerf of the panel. Ensure the spline molding is well seated against panel and substrate/framing member. Fastened with # 8 x .0625 ultra-thin self-drilling wafer head screw, ensure that the screw heads are flat against the spline attachment. It is important that the screw head be set in depth and flat against the aluminum spline or starter strip. The fastening screws provide the exact height for the next panel to glide into the second portion of the dog leg. Note: Multiple cut pieces of spline can be installed in a panel groove, however, do not leave gaps in between the splines. Any voids in between the spline moldings will create blistering in the Arcoplast Bio-Seal (A-1010) Finishing Compound application and can only be detected once the finishing compound is in the curing process.



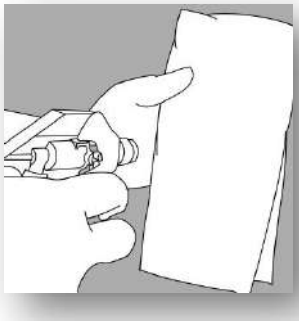
44. The aluminum spline is designed with grooves to allow the flow of the structural adhesive, any surplus of adhesive overflow along the spline molding must be immediately removed. If it is not properly removed, the excess adhesive will harden and will prevent the next panel edge from seating properly in the spline. Furthermore, if the spline molding is not properly cleaned, the smooth and continuous application of the finishing compound could be at risk and result in unsightly finish joints.

45. Immediately apply temporary “third hand” jacks and make sure the panel is well propped against the A-2020 structural adhesive and the 3M VHB tape. The third hand jacks should be positioned in the center of the panel spaced on 4’-0” (1.2m) c/c. Allow minimum of 4 hours of propping time (when using A-2020 structural adhesive) before removing the third hand jacks. **Note: When installing the temporary third hand jacks do not apply excessive force as you could bend or twist the framing members and force the panels out of plane.**



46. Wherever required, immediately apply the mini bar clamps (Irwin Quick Grip) to all the MEP/HVAC opening cut outs. Position in line with the 3M VHB tape. This will prevent distortion in the panel if excessive force is applied. As in the third hand jacks, allow 4 hours of prop time (when using A-2020 structural adhesive) to ensure proper bond.

47. Immediately fasten the panel’s perimeter edges abutting to walls with self-drilling drywall screws 16” (400 mm) c/c. There is no need to countersink the panel for the screws. The screws heads sticking out conveniently provide the required spacing 1/8” (3 mm) for the seating of the Arcoplast Bio-Seal (A-1010) Finishing Compound.
48. When the ceiling panel is secured in place, lower, remove and relocate the drywall lift for the next panel installation.
49. Whenever possible, inspect the back side of the panel to ensure the panel has full contact with adhesive and that there are no obstruction prohibiting the panel bond to the substrate.

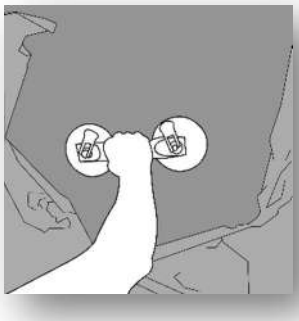


50. Immediately remove the excess Arcoplast Structural Adhesive (A-2020) from the joint line. The excess structural adhesive not removed will later interfere with the application and tooling of the Arcoplast Bio-Seal (A-1010) Finishing Compound. With the Thermaclean cleaner wipe the surfaces thoroughly. Clean the area in three individual cleaning passes using a new wipe each time, this will prevent diluted structural adhesive smear marks.
51. The ceiling panel installation can be described as a progressive system. It is possible to start the first panel installation in the center of the room and then continue with the panel installation in both directions, especially in long rooms such as hallways. However, this could prove challenging in confined areas or narrow hallways because the temporary “third hand” jacks could limit access to the work area.

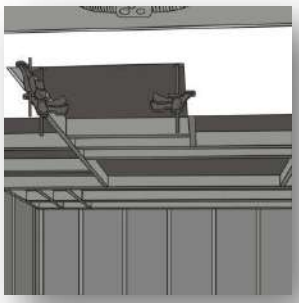
52. The ceiling panel installation can be described as a progressive system. It is possible to start the first panel installation in the center of the room and then continue with the panel installation in both directions, especially in long rooms such as hallways. However, this could prove challenging in confined areas or narrow hallways because the temporary "third hand" jacks could limit access to the work area.

53. Continue with the ceiling panel installation. With the use of the lifting apparatus carefully position the ceiling panel in place. Do not contact the 3M VHB tape and Arcoplast Structural Adhesive (A-2020) at this time. Position the panel at a slight angle with the edge of the Arcoplast modular panel directly over the screw heads attaching the aluminum spline to the substrate, this will allow to glide the panel directly into the small dog leg portion of the aluminum spline.

54. To position the panel in place, the use of vacuum cups is required.



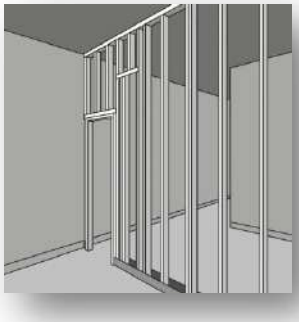
55. Start inserting the panel in the small dog leg portion of the spline at one end of the panel and progressively glide the panel working your way to the other end of the panel. Push the panel in place with the spline fully inserted in the panel groove. With the lifting apparatus, lift the panel firmly against the 3M VHB tape and Arcoplast Structural Adhesive (A-2020). Hold in place until the third hand jacks are propped in place. Press the panel in place with the two-hand roller firmly roll after making sure the panel joint spacing is in line and consistent throughout the joint.



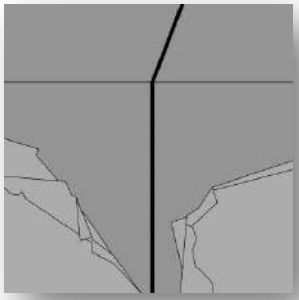
56. Where possible, examine the back side of the Arcoplast panel to ensure it has full contact with the adhesive. Install the "third hand" jacks and mini bar clamps wherever required. With the two-hand roller, apply constant pressure with the roller throughout the panel to ensure contact with the 3M VHB tape and Arcoplast Structural Adhesive (A-2020). Fasten the panel perimeter abutting to the walls with self-drilling screws on 16" (400 mm) c/c. At MEP openings and through ceiling embeds and wherever flanged units are installed it is recommended to seal and fasten mechanically the panel flange portion providing the openings will be finished with a finish trim in order to conceal the fasteners. This finish trim will later be sealed with the Arcoplast Bio-Seal (A-1010) Finishing Compound for air, moisture, and gas tight installation.
57. Proceed and complete the ceiling panel installation.

Wall Liner Panel Installation –

1. The Arcoplast wall liner panel installation can also be described as a progressive system. However, it is possible to start the panel installation in the center of a room and advance with the panel installation in both directions. Door openings, window frames and the locations of equipment will likely dictate your start position.



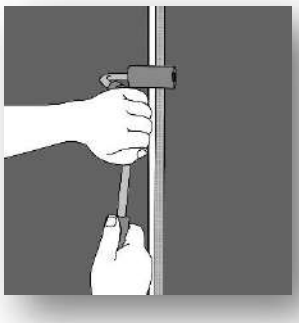
2. Before starting the installation of the Arcoplast wall liner panel, verify that the framing sections and surface preparation correspond with the wall to floor base curb design and architectural drawings. Ref. Chapter 14 Wall to Floor Curb Details.
3. As referenced in Article 29 on page 40 at the start of the ceiling panel installation, the center for the ceiling and wall panel joints were marked on the substrate, steel track or furring channels on 4'-0" (1.2m) c/c. Following these marks for the wall panel installation will ensure that the panel joint lines will match up with the ceiling panels.

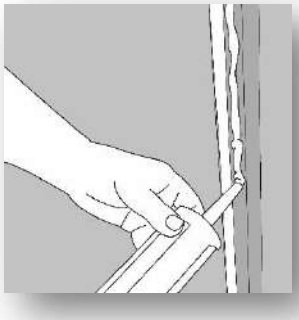


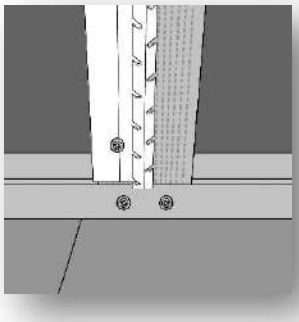
4. Wherever possible match wall and ceiling joint lines for a clean aesthetic look.

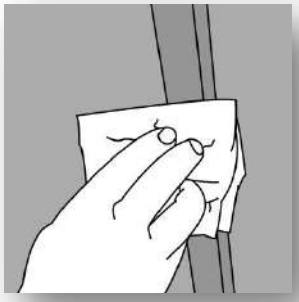
5. On the substrate, steel stud and track or furring channels, apply the 3M #94 primer with a 1/2" (12.5 mm) paint brush. This brushed on 3M #94 primer area should correspond to the same area on the back of the Arcoplast panel. **Note: Only apply 3M primer 94 where the 3M VHB tape is applied.**

6. Apply the 3M #4959 VHB tape 1/2” (12.5 mm) strips continuously on the existing substrate, metal framing, or furring channel. Do not remove the protective film on the double face tape at this time.
7. With a two-hand roller apply pressure throughout the rolling motion to ensure the tape makes good contact to the substrates.
8. Prior to the application of the Arcoplast Structural Adhesive (A-2020), dry fit the cut panel to ensure a perfect fit with the multiple penetrations. Make sure the MEP accessories, door and window openings are installed at the proper depth to receive the liner panel. Note: The overall thickness of the Arcoplast wall and ceiling liner panel systems for the 3/8” (9.5 mm) panel is 1/2” (12.5 mm), that is the distance from the face of the substrate, steel stud or furring channel to the face finish of the Arcoplast panel.
9. Apply the Arcoplast Structural Adhesive (A-2020) only when the panel preparation is complete and ready for installation.
   Note: Do not allow adhesive beads to skin over as this will inhibit a perfect wet out and diminish bond strength.
10. Dispense the Arcoplast Structural Adhesive (A-2020) on the substrate, steel stud and furring channels alongside with the 3M VHB tape in a continuous 3/8” (9 mm) diameter bead.
11. For maximum bond strength review the working, set up and cure time for the liquid adhesive. Do not allow the adhesive bead to skin over as this will greatly reduce the wet out and significantly diminish the bond strength.
12. The aluminum spline should be fitted from the steel track edge to steel track edge. Do not extend the aluminum spline from floor to ceiling because the spline will overlap the thin flat head screw that attaches the steel stud to the track. This would result in an uneven layout of the spline making the panel groove and aluminum spline insertion difficult if not impossible.
13. Cut to desired length the aluminum spline with a fine-tooth blade for metals. A jig saw with a fine-tooth metal jig saw blade will also cut the aluminum spline properly. With a clean cloth, wash thoroughly with IPA and 50/50 water solution and allow to dry thoroughly.
14. Depending on the substrate you will be fastening to and the type of screw you will be fastening with, you may be required to pre-drill the aluminum spline. If so required, pre-drill appropriate hole size with metal drill bit to accommodate the screw size.

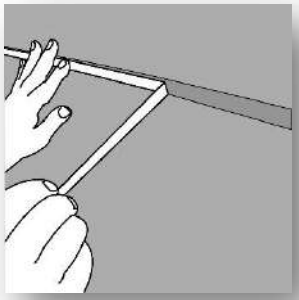




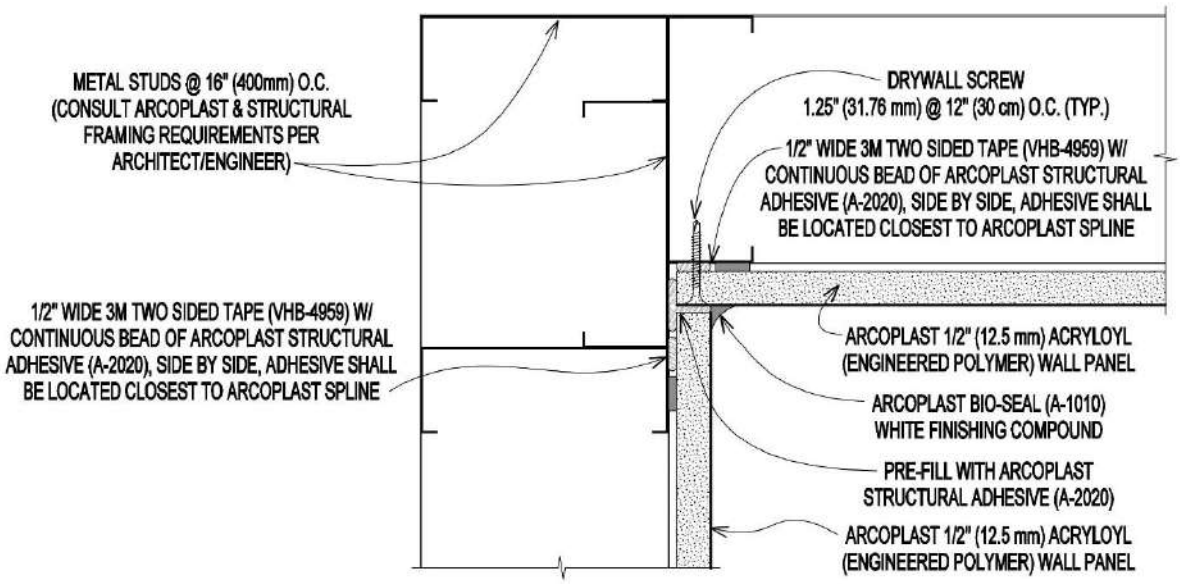




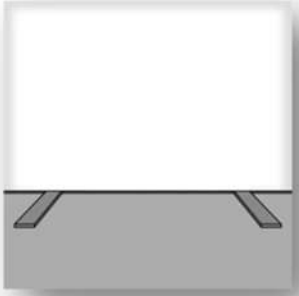
15. When all the preparation steps have been completed, remove the protective film on the VHP tape and position the panel in place.



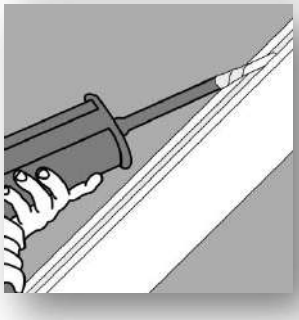
16. Position and align the wall panel with the marked center line or the ceiling panel already installed. Level, plumb and press the panel in place. With a two-hand roller apply pressure on the face of the panel along the areas that have adhesive strips 16” (400 mm) c/c. In the case of the first panel installed at an interior/exterior corner junction, position and align with ceiling panel marks, level, and plumb and press the panel in place. Fasten the cut edge of the panel with drywall self-drilling screws. It is not necessary to countersink the panel for the fastening screws because the adjacent panel to be installed has an overall total thickness of 1/2” (12.5 mm) which will cover the fastening screw. The exposed fastening screw head allows the adjacent panel to leave a space 1/8” (3 mm) gap required for the application of the Arcoplast Bio-Seal (A-1010) Finishing Compound.



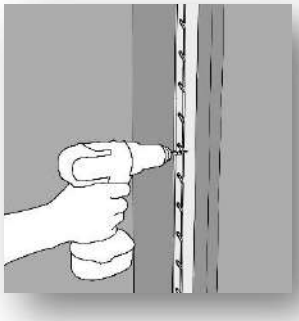
17. Insert plastic shims at wall intersections and floor to ensure a 1/8” (3 mm) continuous gap. This will allow sufficient space for the Arcoplast Bio-Seal (A-1010) Finishing Compound to fill the gap creating a better seal, panel bonding and stronger joint assembly.



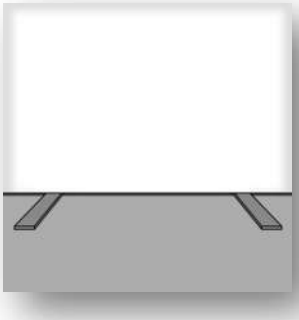
18. With the panel positioned in place, proceed to dispense a fine bead of Arcoplast Structural Adhesive (A-2020) in the panel kerf. This is best achieved with a pneumatic gun dispenser with a standard static mixer nozzle fitted with a lock nut and stainless steel needle dispensing tip that fits perfectly in the panel groove. Reference Chapter 16 Application and Tooling of Finishing Compound.



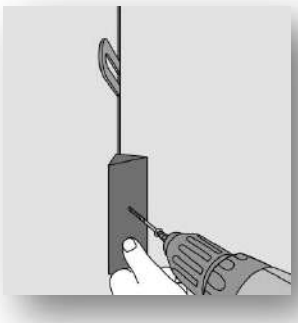
19. Insert the small dog leg portion of the aluminum spline in the kerf of the panel. Ensure the spline molding is well seated against the panel and the substrate or framing members. Fasten with ultra-thin wafer head self-drilling screws. Make certain the screw heads are flat against the spline attachment enabling the next panel to glide easily into the second portion of the dog leg. Remove immediately the excess Arcoplast Structural Adhesive (A-2020) seeping out from the panel kerf. This procedure will allow the uninterrupted and unobstructive application of the Arcoplast Bio-Seal (A-1010) Finishing Compound at the finishing stage.



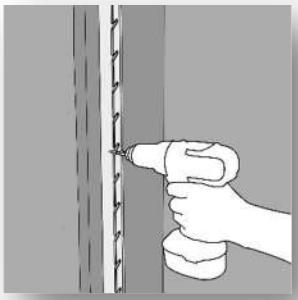
20. Wherever the panel intersects with the adjoining wall, ceiling, floor, and penetrations, allow 1/8” (3 mm) gap. This will ensure a ledge and sufficient space for the Arcoplast Bio-Seal (A-1010) Finishing Compound to seep- in. This results in a much stronger seal and panel bond joint junction. Shim at floor 1/8” (3 mm) as shown above.



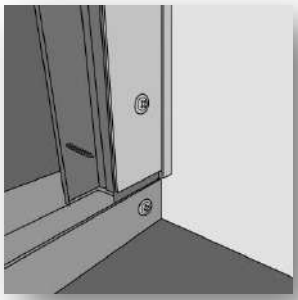
21. The last panel installed at a corner junction can be fastened with countersunk flat head screws. If mechanical fasteners are used, pre-drill the panel and do not over tighten the mechanical fasteners. The panel can also be temporarily propped in place with a corner block (wedge) fastened with a 3” (75 mm) drywall screw at a 45^0 angle. Shim at wall intersection 1/8” (3 mm).
22. Remove the corner block (wedge) after the panel is fully secured with the adhesive, typically 8 hours cure time. The screw hole left in the panel joint will later be filled with the Arcoplast Bio-Seal (A-1010) Finishing Compound as the cove is tooled in place.



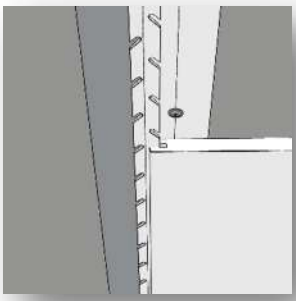
23. Whenever installing a new wall section that is starting from a different substrate, such as stainless steel, ceramic tiles, masonry block or glass, a starter strip will be required. The aluminum starter strip molding retains the panel firmly in place without the need for exposed fasteners.



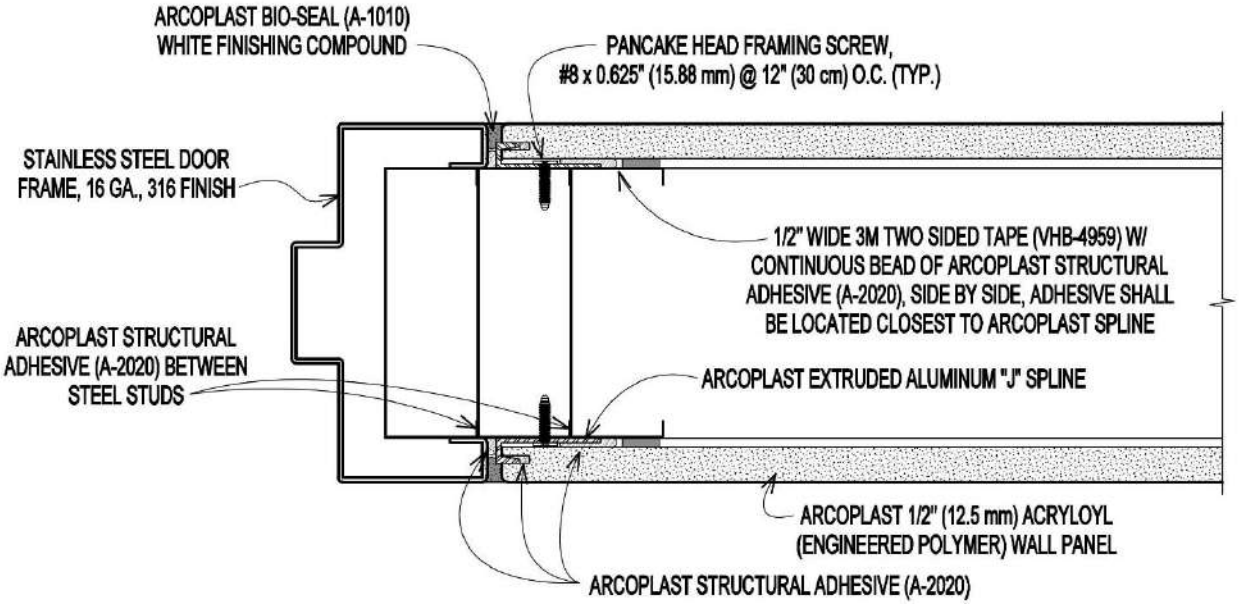
24. Measure from track to track and cut to length the aluminum starter strip. With # 8 x .0625 ultra-thin self-drilling wafer head screw s fastened the starter strip to the steel stud or furring channel. Make sure the ultra-thin wafer head screws are flat against the aluminum spline. If the flat head screws are not well seated and flat against the aluminum spline, the next panel will not glide into place because of the tight tolerances in the panel groove. Note: Also make sure that the starter strip does not extends over the floor and ceiling track, this will eliminate bulging out of the starter strip due to the additional thickness of the screw head making the installation of the panel almost impossible.



25. Carefully position the Arcoplast modular panel over the ultra-thin self-drilling screw heads. Guide the panel groove into the dog leg of the aluminum starter trim and with the help of the vacuum cups glide the panel in position. If starting with less than a full panel, the cut edge of the panel will require to be routed on site.

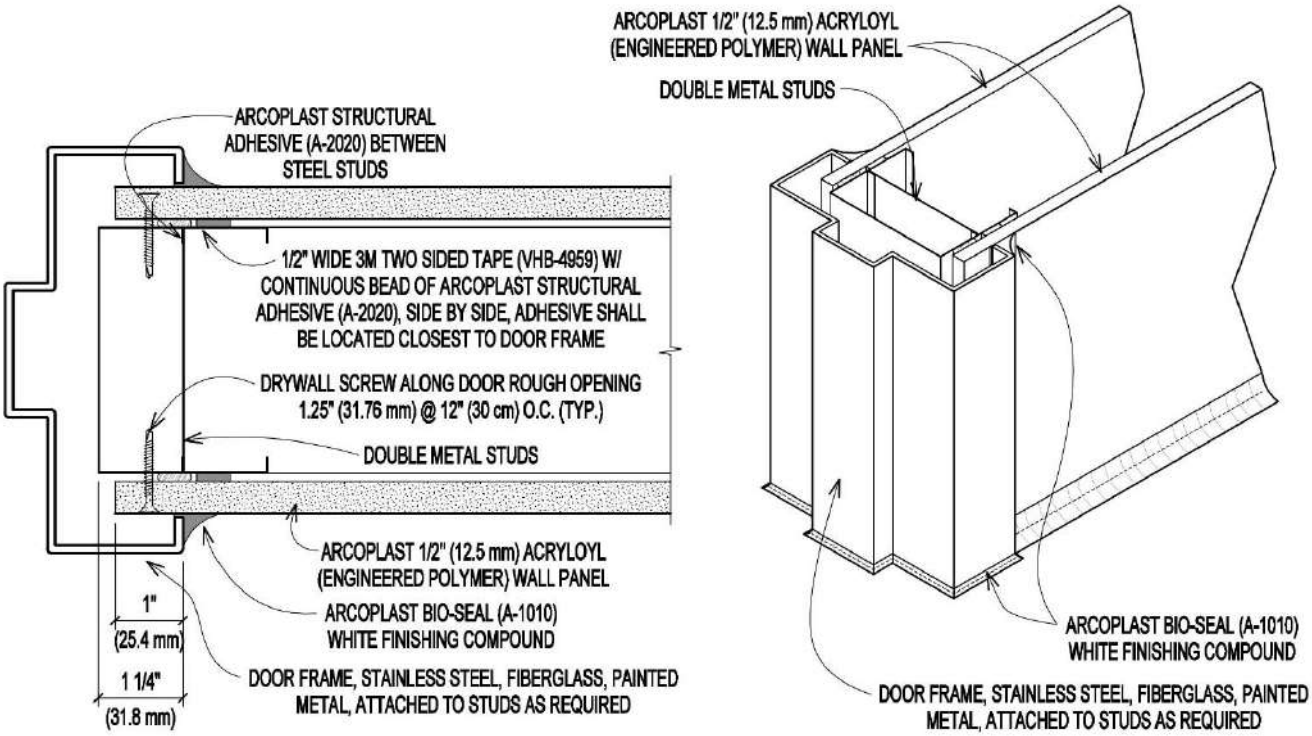


26. Around the door and window frames where the "throat opening" (the distance between the substrate, steel stud or, furring channel and the door frame return) will not allow the insertion of the modular panel, install a "J" starter strip molding. Butt the "J" starter strip to the sides, top and bottom of the frame. The "J" starter strip molding will secure the panel firmly in place without the need for exposed fasteners.

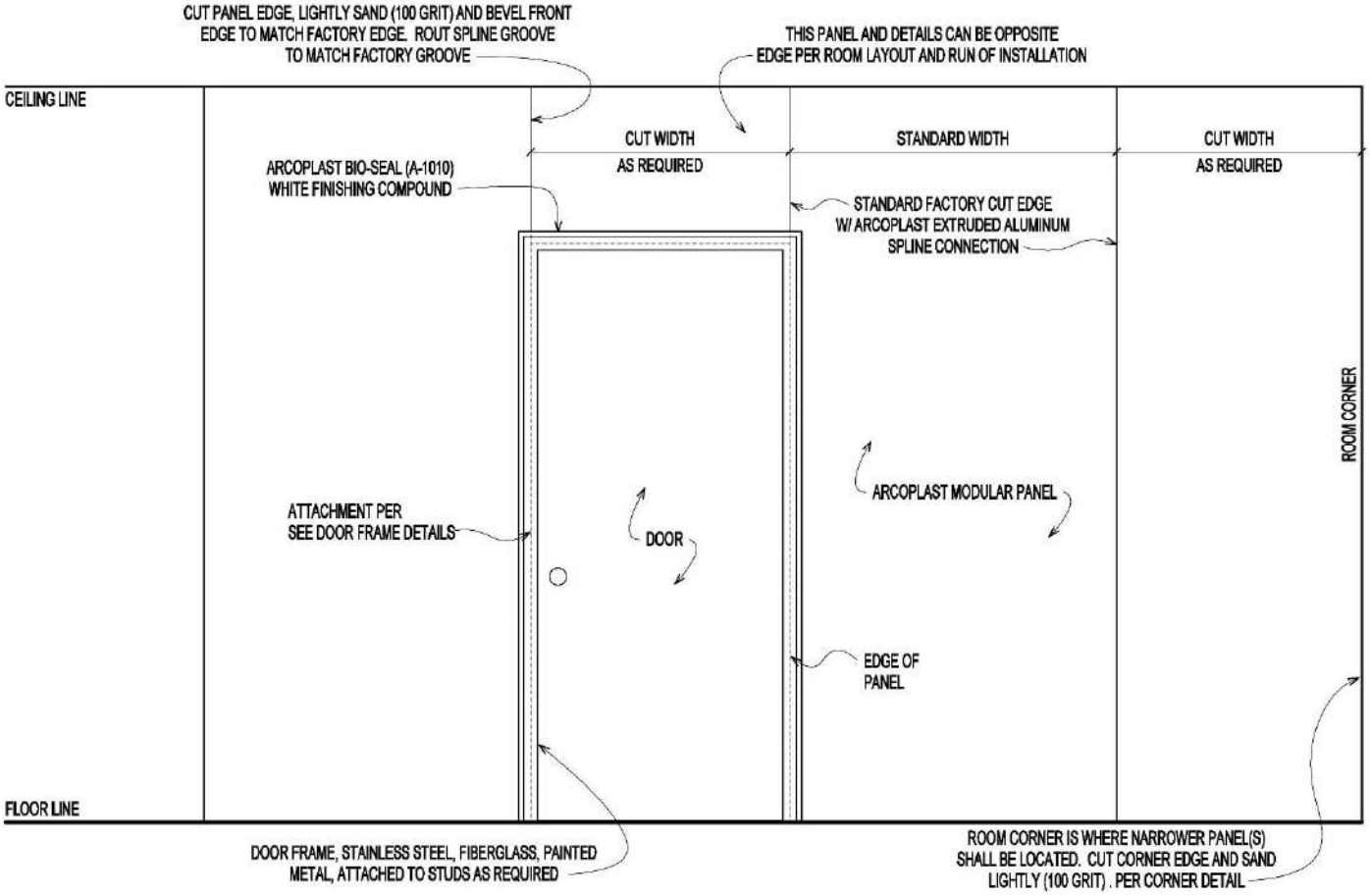


27. Install the "J" starter strip molding around the door and window frames. Fastened the "J" trim with ultra-thin wafer head self-drilling screws on 16" (400 mm) c/c. Cut and groove the panel to required configuration and dimension. With a # 100 grit sandpaper and bloc, sand, and bevel lightly the edge of the panel cut edge. This will provide a smooth lightly beveled edge for the Arcoplast Bio-Seal (A-1010) Finishing Compound detailing. Position in place and insert the panel in the small portion of the dog leg of the (J) starter trim.

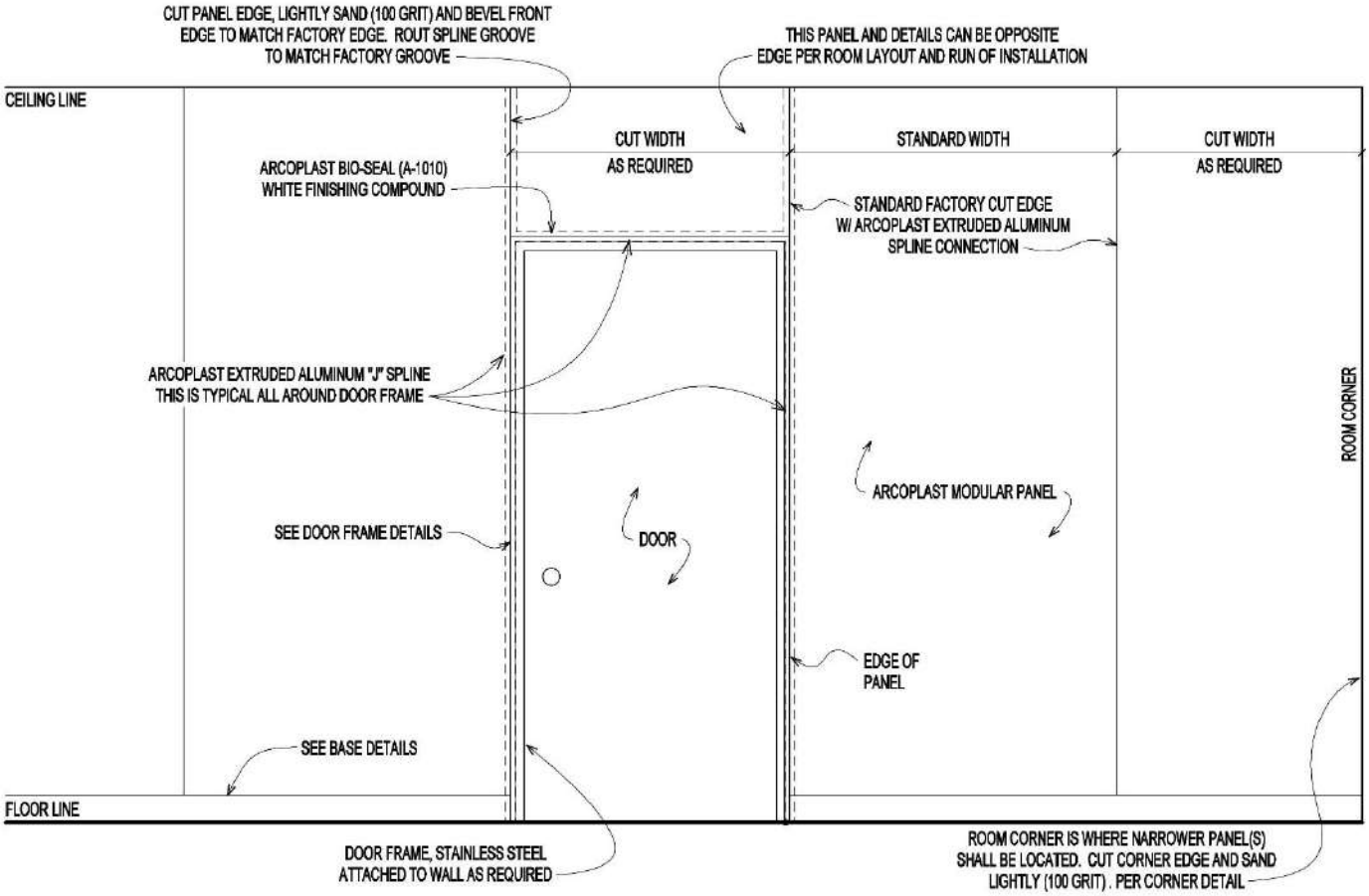
28. For door and window frames with sufficient throat opening, cut the panel to required dimension. Position and glide the panel behind the face of the frame carefully avoiding contacting the 3M VHB adhesive tape. When properly positioned in place, press, and apply pressure with a two-hand roller. Secure the panel in place with the aluminum spline. Temporarily wedge the panel with plastic shims around the door and window frame opening until the Arcoplast Structural Adhesive (A-2020) sets, typically 4 hours.



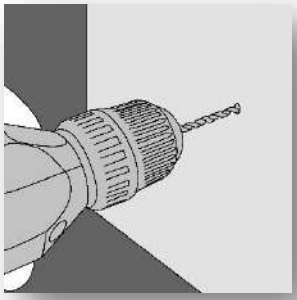
29. When installing a recessed transom panel above a door and window frame, cut the panel to required dimension. Groove both sides of the transom to receive the aluminum spline attachment. Make sure the panel edges are sanded and lightly beveled to receive the Arcoplast Bio-Seal (A-1010) Finishing Compound.



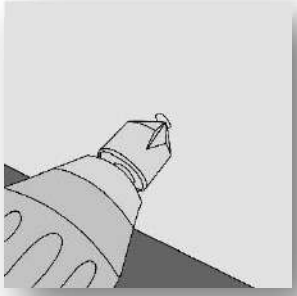
30. If installing a transom panel in line with the door and window frame opening, cut the transom panel to required dimension and groove both sides to receive the aluminum spline attachment. Make sure the panel edges are sanded and lightly beveled to receive the Arcoplast Bio-Seal (A-1010) Finishing Compound. Make sure mechanical spline attachment above the door or window frame is in line with the J starter strip installed at the door and window frame.



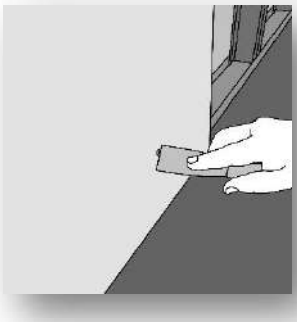
31. Proceed to remove wedges/ shims once the panel is well bonded. Typically, 4 hours for fixture time when using Arcoplast Structural Adhesive (A-2020).



32. When the panel is positioned in place, countersink and fasten the panel below the projected base “curb” height.



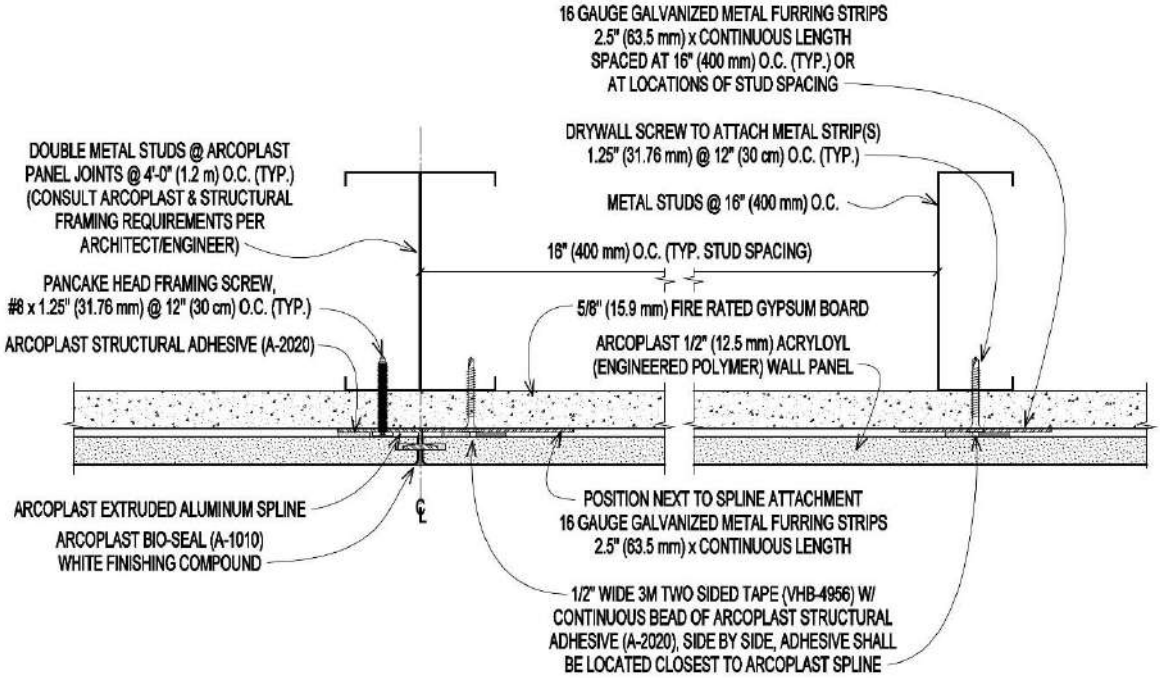
33. With a 1” (25 mm) putty knife, fill the countersunk screw heads with the excess Arcoplast Bio-Seal (A-1010) Finishing Compound generated by the tooling and detailing of the flat joints or cove sections. Pre-filling in the screw heads will prevent a print thru in the floor coving material.



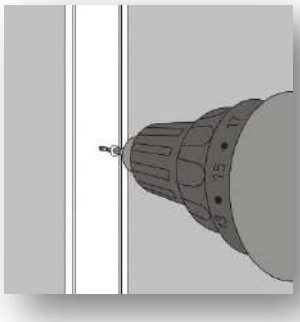
34. Once the panel installation is completed, peel back the plastic film around the perimeter of the panel for approximately 6” (150 mm). This will provide sufficient work area for the application of the 3M low tack protective tape and for the detailing of the Arcoplast Bio-Seal (A-1010) Finishing Compound. See. Chapter 17 Application and Tooling of Finishing Compound.

Installation over Gypsum Wallboard -

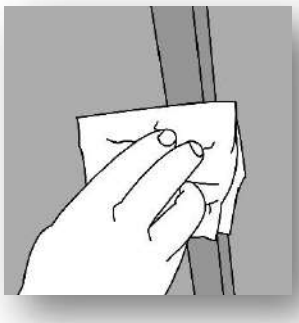
The Arcoplast modular panels can be successfully installed over new or existing gypsum wallboard. However, because of the poor bond strength to the wallboard, a metal furring strip fastened with screws over the gypsum wallboard is required.



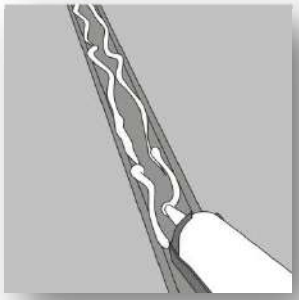
1. Before the start of the installation of the Arcoplast modular panels, make sure that all the MEP, monitoring and alarm systems are in place. Ensure the services and device boxes are installed at the proper depth, plumb and square.
   Note: The overall thickness of a 3/8" (9.5 mm) Arcoplast wall and ceiling liner is 1/2" (12.5 mm) and the 1/2" Arcoplast panel is 5/8" (15.9 mm) overall. That is from the face of the gypsum board (drywall) to the face of the Arcoplast panel.
2. For new and existing wallboard construction, install a continuous 3" (75 mm) x 16-gauge flat galvanized metal strip over the gypsum wallboard. The 3" (75 mm) continuous metal strips should be installed with adhesive and fastened mechanical with screws. Follow the same rhythm of the metal framing structure, typically spaced on 16" (400 mm) c/c.
3. Pre-drill the flat metal furring strip 12" (300 mm) c/c.



4. Clean thoroughly the 3” (75 mm) galvanized metal strip on both sides with IPA and 50/50 water solution to remove oils and contaminants. Allow to dry thoroughly.

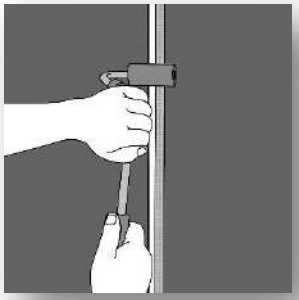


5. Apply two continuous 3/8” (9.5 mm) beads of Arcoplast Structural Adhesive (A-2020) on the back side of the metal strip.



6. Position and fasten the metal strip over the existing metal framing members situated behind the gypsum wallboard/drywall. Fasten with flat head screws # 10 x 1 1/4” (31 mm) long. Note: Depending on the framing substrate, a different mechanical fastener may be required.

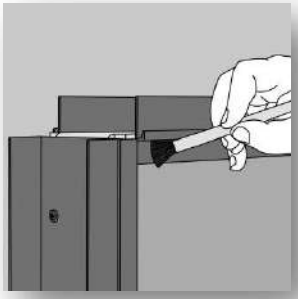
7. Apply the 3M #4959 VHB tape 1/2” (12.5 mm) strips continuously on the existing substrate, metal framing, or furring channel. Do not remove the protective film on the double face tape at this time.
8. With a two-hand roller apply pressure over the panel. With a rolling motion apply pressure throughout the panel to ensure the panel is making good contact with the adhesive.



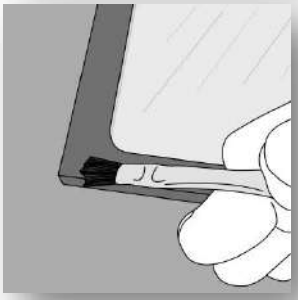
9. Complete the Arcoplast wall and ceiling panel installation as described earlier in this chapter.

Chapter Thirteen : Glazing Installation –

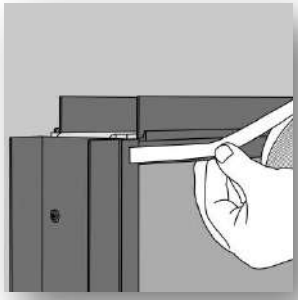
1. On the extrusion edge, apply a thin coat of 3M tape primer # 94 and allow to dry. A 1/2” (12.5 mm) paint brush is best suited for the application.



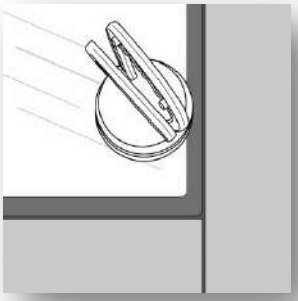
2. Glazing section: With a 1/2” (12.5 mm) paint brush, carefully apply a thin coat of the primer 3M # 94 to the back side of the glazing section and allow to dry. Do not exceed the glazing printed perimeters.



3. Apply the 3M VHB double face tape #4979F x 1/2” (12.5 mm) wide x 1/16” (1.6 mm) in thickness along the aluminum extruded edge for a glazing thickness of 8 mm. Apply the 3M tape neatly following the edge of the window extrusion. Note: Various glazing thickness will require corresponding tape thickness. Note: Do not remove the protective tape film until final glazing preparation and installation is ready.

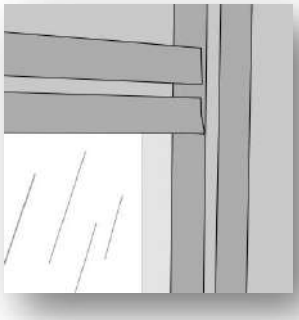


4. It is recommended to dry fit the plate glass prior to removing the protective film on the adhesive tape. Apply a 1/8” (3 mm) shim plate on the extrusion edge, preferably on all four sections, sill, header, left and right jamb and position the plate glass to ensure a perfect fit.



5. Proceed to remove the protective film on the 3M adhesive tape and leave the shim plates in place. Reposition the plate glass in place and apply moderate pressure all around ensuring a good bond to the adhesive tape. Remove the shim plates only when ready to apply the Arcoplast Bio-Seal (A-1010) Finishing Compound.

6. Proceed to apply the protective tape 3M #2460 on both the panel edge and glass edge leaving 1/4” (6 mm) to match the panel joint width.



7. Clean thoroughly - Prefill the deep cavity with the A-2020 structural adhesive. This procedure will significantly reduce the potential of air pockets developing in the A-1010 Bio-Seal finishing compound. This is best achieved with a pneumatic gun dispenser with a standard static mixer nozzle fitted with a lock nut and stainless steel needle dispensing tip that fits perfectly in the groove. Reference Chapter 16 Application and Tooling of Finishing Compound. Proceed to tool the A-2020 at approximately 1/8” (3 mm) lower than the glazing and panel surface. This procedure will enable the application of the Arcoplast Bio-Seal (A-1010) Finishing Compound Allow the A-2020 to cure for a minimum of 4 hours after application.

8. Dispense the Arcoplast A-1010 Bio Seal finishing compound and tool the first pass lightly with a 3M squeegee. Apply a second pass with the squeegee applying the adequate pressure to achieve a smooth, non-obstructed continuous flat joint. Allow to cure for 12 hours to achieve fingerprint free and a maximum 72 hours for fully cured joint finish.

9. Remove the tape immediately, pulling away from the finish joint at 45 degrees. This will eliminate pulling the wet finishing compound and contaminating the clean finish.

10. With a sharp putty knife remove any excess finishing compound and clean the surfaces thoroughly with Thermaclean.

Chapter Fourteen : Wall to Floor Curb Details -

New or retrofit projects, variables in floor materials and finishes, floor and building movement, sanitation/decontamination requirements all influence the type of coving details at the junction of wall to floor finishes.

The Arcoplast installation manual will describe the installation methods for the (3) three most common wall to floor curb base details -

1. Termination / transition strip application
2. Flush base application
3. Recessed coving application

Termination / Transition Strip Application -

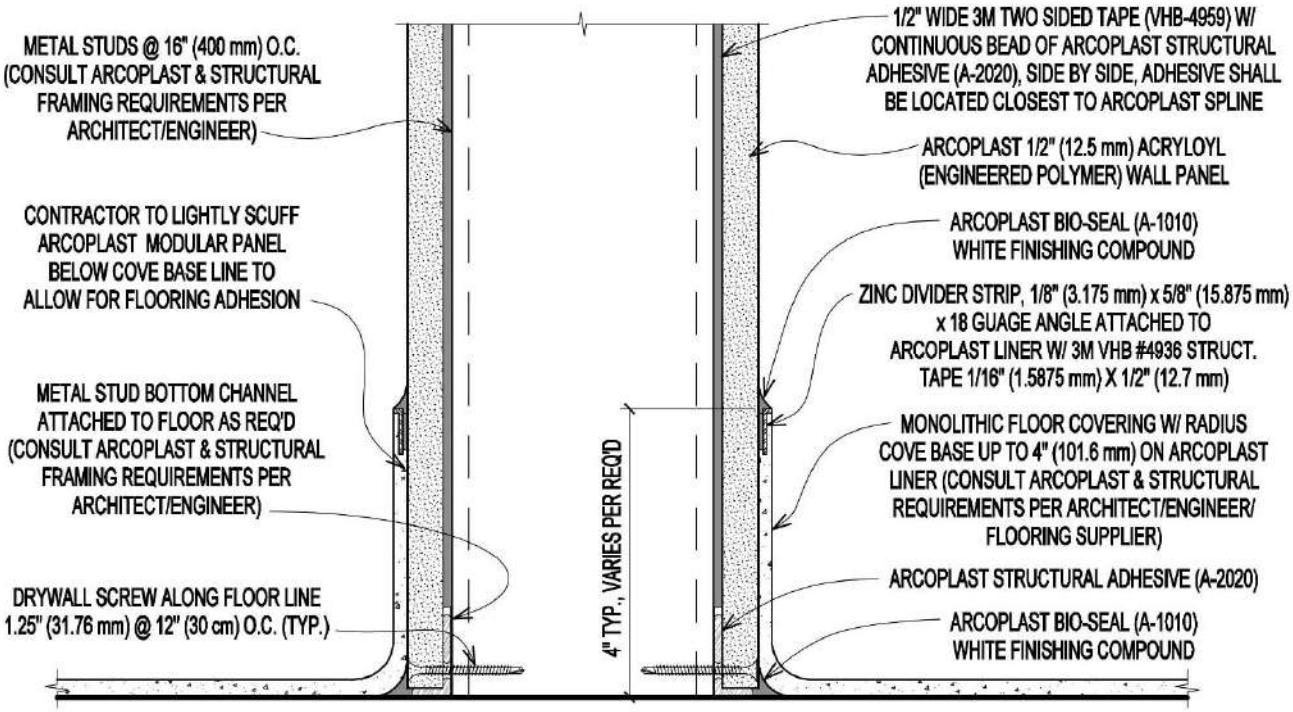
The Arcoplast modular panel with a termination strip application should have already been included in the Architectural design and specifications. However, consult with the project manager for final approval on the type and height location of the termination strip.

The use of a termination strip is an excellent way to transition from the Arcoplast wall panels to the flooring cove base materials. Arcoplast highly recommends the panel contractor prepare the wall surfaces and install the termination strip in readiness for the application of the flooring materials

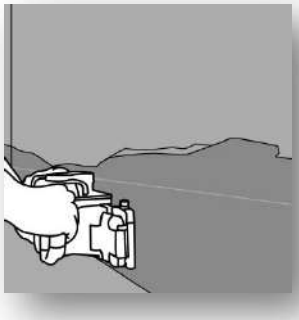
Justification:

a. Arcoplast wall panel contractor has the appropriate tools
b. Arcoplast wall panel contractor has the specified product
c. Arcoplast wall panel contractor has the knowledge and skills required for the preparation and application methodology

The standard termination strip for the Arcoplast composite wall systems is 1/8” (3 mm) x 5/8” (15.9 mm) galvanized metal angle. The termination strip provides a sleek and continuous straight border line that allows the flooring product to be troweled and finished with a consistent dimension and a clean look. The termination strip when applied with the 3M VHB #4936 tape provides a thin ledge for the application of the Arcoplast Bio-Seal (A-1010) Finishing Compound and provides an excellent and durable housekeeping seal.



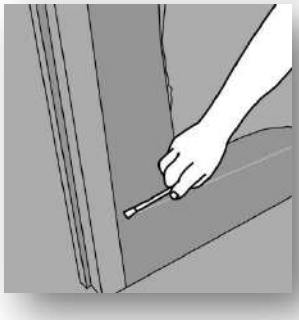
1. Start by peeling back and cutting off the excess of the plastic film protector 6” (150 mm) above the proposed termination strip height.
2. Mark with the use of chalk line or laser system the desired termination strip height. Note: Mark the bottom of the termination strip position only.
3. With a powered 3” belt sander and # 80 grit sand paper proceed to lightly sand (dull) the panel surface below the proposed termination strip height. Only remove the gloss surface finish.



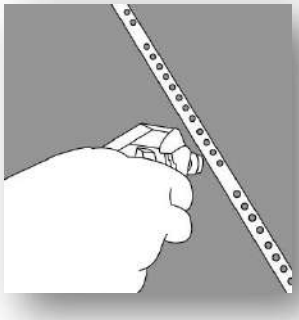
4. Do not sand the panel surface where the 3M #4936 double face adhesive tape will contact the Arcoplast panel for the termination strip.

5. With IPA and 50/50 water solution wipe and remove the dust and contaminants from the sanded panel surface. With a vacuum cleaner, remove the dust and contaminants at the junction of the wall and floor surface.

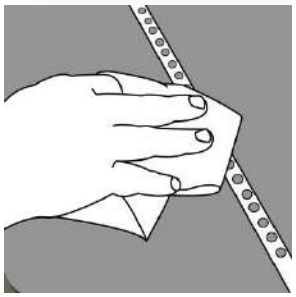
6. At the predetermined height apply the 3M # 94 surface primer on the panel with a small paint brush.



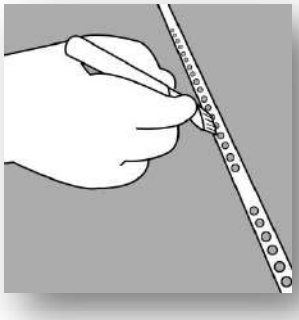
7. Spray the termination strip with IPA and 50/50 water solution on both face and back side.



8. With clean wipes remove any oils and contaminants and allow to dry thoroughly.

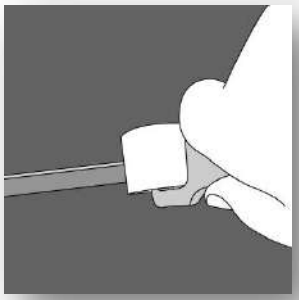


9. Apply 3M # 94 surface primer on the back side of the termination strip with a small paint brush and allow to dry thoroughly.

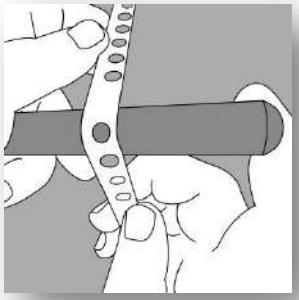


10. Apply the 3M VHB #4936 - 1/16” x (1.5875 mm) thick x 1/2” (12.5 mm) wide tape on the termination /transition strip. Do not remove the film protector at this time.

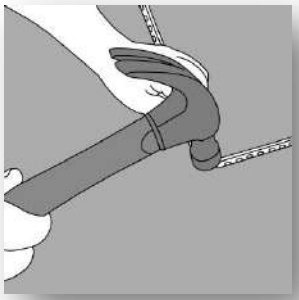
11. With a 2” (500 mm) roller apply pressure throughout. Make sure the 3M VHB #4936 tape is well adhered to the termination strip.



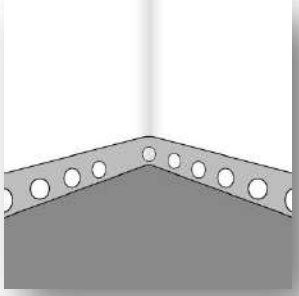
12. For the interior and exterior corner junctions, based on a 3/4” (19 mm) diameter KitchenAid measuring spoon /stainless steel tooling bar, form the shape of the termination strip to match the radius by lightly bending the molding over a 1/2” steel or wooden dowel.



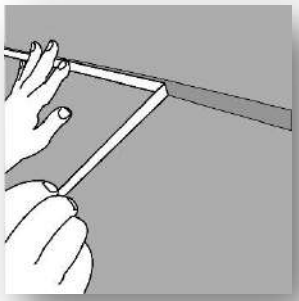
13. Once the shape is 90^0 degrees, lay the termination strip on a flat hard surface. With a hammer lightly tap on the top of the trim to flatten the edge of the termination strip that was stressed by the shaping of the radius.



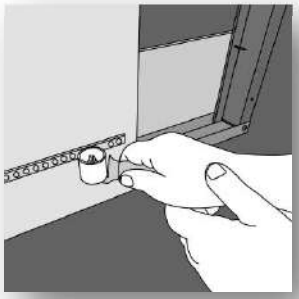
14. Start the installation of termination/transition strip at the inside and outside corners, and then complete the installation with the required lengths.



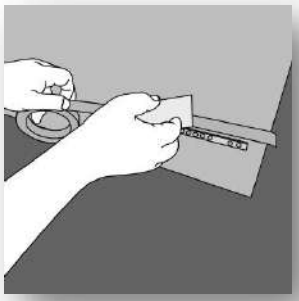
15. Remove the protective tape and install the termination strips at the predetermined finished height. Make sure the termination strip is in full contact on the flat panels as well as in radius of the panels.



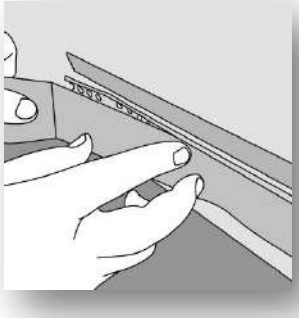
16. With a small roller apply pressure along the termination/transition strip to ensure proper contact to the Arcoplast wall panel.



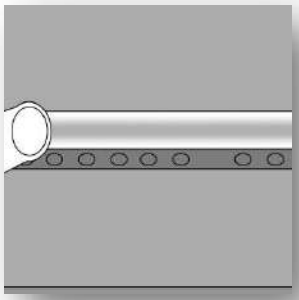
17. To prepare for the application of the Arcoplast Bio-Seal (A-1010) Finishing Compound, apply a low tack 1” (25 mm) protective 3M #2460 tape on the Arcoplast Acryloyl panel at 1/2” (6 mm) above the nose of the termination strip. This application is best achieved with an Arcoplast ruler / mark plastic applicator that enables you to constantly keep the same measurement as well as smoothly pressing out the tape in place.



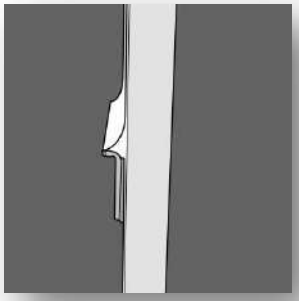
18. Apply a 2” (50 mm) blue masking tape on the termination strip just below the nose of the termination strip. This protective tape will greatly facilitate the cleaning process after the application of the finishing compound.



19. Dispense a continuous bead of Arcoplast Bio-Seal (A-1010) Finishing Compound at the top of the termination strip. Make sure that there are no voids or bubbles in the application. With the proper spoon/tooling bar size, tool in place the desired radius resulting in a clean, sharp feather edge finish.

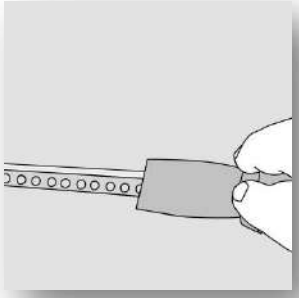


20. Thoroughly inspect the coved joints for any finish defects. If necessary, dispense and additional bead of compound and re-tool to get the desired level of finish.



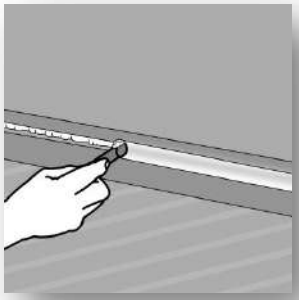
21. Remove immediately the 3M #2460 protective pink tape. Pull the tape away at a slight angle being careful not to pull excess finishing compound on the freshly tooled in place coving section.

22. With a sharp flat putty knife carefully glide over the termination strip edge to remove excess finishing compound. Note: Use the excess finishing compound to fill screw heads below the termination/transition molding or wherever countersunk holes need to be filled.



23. Remove the 2” (50 mm) protective masking tape and clean area thoroughly.
24. Finally, to complete the seal at the floor and wall junction, apply a 2” (50 mm) protective masking tape on the wall panel and the concrete floor. Install the tape at 17/32” (13.5 mm) distance from the opposing surfaces. This is a standard measurement for a 1/4” teaspoon/tool.

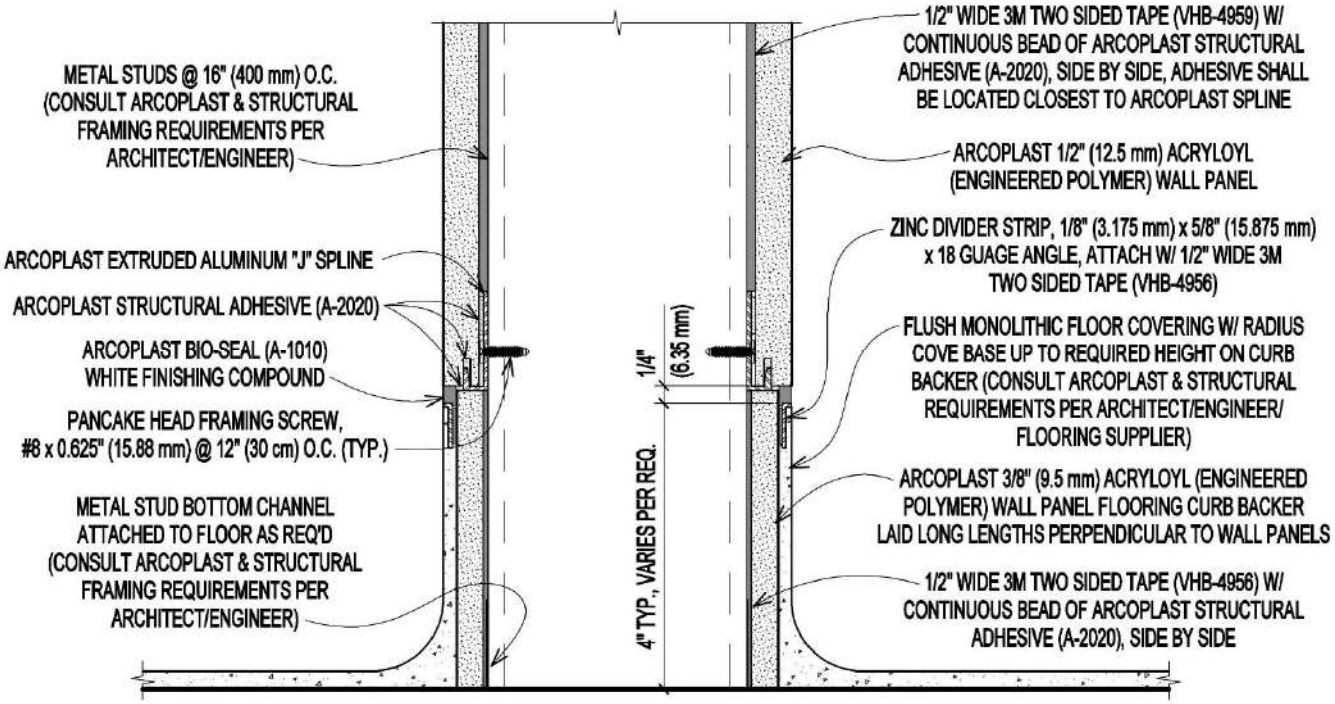
25. Floor and wall junction - Dispense a continuous 3/8” (9.5 mm) bead of Arcoplast Structural Adhesive A-2020. Make sure the structural adhesive fills the 1/8” (3 mm) gap between Arcoplast panel and the concrete floor. Immediately cove and tool in place.



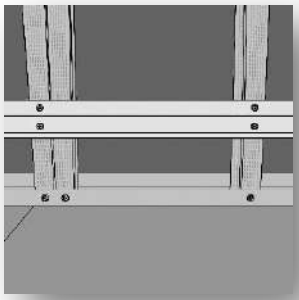
26. Remove the 2” (50 mm) protective masking tape at the wall and floor section. Remove excess materials and clean area with a clean towel and Thermaclean cleaner.
27. Secure and quarantine the area. Do not allow any traffic or trades to do any work in this area for a minimum of 8 hours. This will prevent dust, particles and any mishaps that could potentially contaminate the finish joint section.

Flush Wall/Base Application -

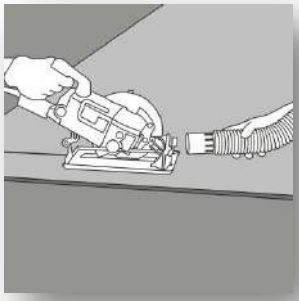
The construction of a flush wall to floor base must be predetermined before the start of the Arcoplast wall panel installation. As described in Chapter 6 Steel Stud Framing, Furring Channels and Insulation Blankets and Chapter 12 Panel Installation, the floor base, and cove design will dictate the sequence and construction methodology for the wall panel installation.



1. Determine the height of the proposed floor base curb. This will provide the measurement for the continuous floor base backer and the installation height for the "J" starter strip molding to receive the Arcoplast modular wall panel.
2. With a chalk line or laser alignment mark the height for the top of the floor base line. This line will determine the height of the "J" starter strip molding. Install at the prescribed height the "J" starter strip molding and fasten with a thin truss wafer head Philip self-drilling screw # 8 x .0625" on studs, 16" (400 mm) c/c.



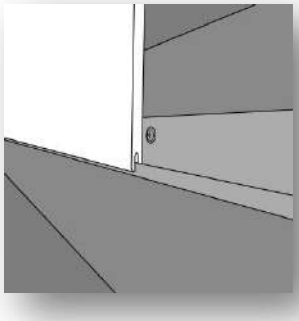
3. Cut the panel to length and make sure the edges are cut clean free of chips. Change carbide saw blades as required to ensure clean cuts.



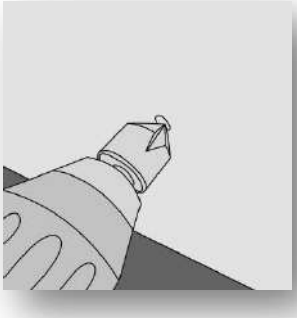
4. With a router and carbide router bit, groove the bottom of the Arcoplast panel to allow the panel to sit and be retained in the starter strip molding. This routing procedure is usually done at the factory. However, the routing process must be specified on the purchase order.

5. With a sand bloc and a #100 grit sandpaper lightly bevel the exposed face side, bottom edge of the panel.

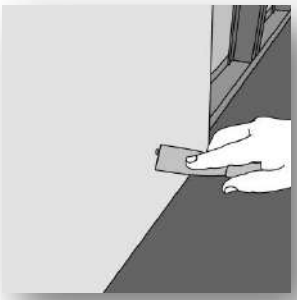
6. Position the panel and carefully glide the bottom of the panel in place inserting the panel kerf in the small leg portion of the ”J” starter trim. This will secure firmly the bottom of the panel and eliminates any need for exposed fastener. Note: This routing procedure is usually done at the factory. However, the routing process must be specified on the purchase order.
7. Continue the modular panel installation as described in Chapter 12 Panel Installation



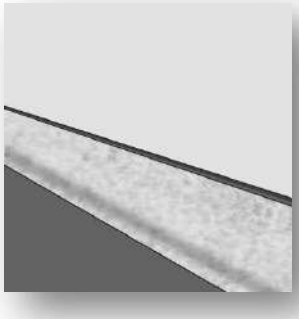
8. With the Arcoplast panel installation completed, install the temporary joint spacers below the “J” starter trim. The temporary spacers will provide the exacting and consistent joint dimension as shown on the curb drawings.
9. Measure and cut the floor base backer board, in this case Arcoplast Acryloyl (Engineered Polymer), 3/8” (9.5 mm) is being used. Cut to fit and lay in perpendicular to the wall panels. Attach to studs using the Arcoplast Structural Adhesive (A-2020) on the steel stud alongside with the 3M VHB tape in a continuous 3/8” (9 mm) diameter bead. Install as described in Chapter 12 Panel
10. Countersink the Acryloyl (Engineered Polymer) coving backer board and fasten the Acryloyl (Engineered Polymer) backer board to the metal framing with # 6 x 1” (25 mm) drywall screws.



11. Fill the countersink screw head with Arcoplast Bio-Seal (A-1010) Finishing Compound. This step can be completed when tooling the flat joints and the cove sections. Excess finishing compound from tooling of the joints and cove sections can be utilized for this application. Filling in the screw holes will prevent print-thru in the flooring/curb finish.
12. In preparation for the installation of the termination strip, apply the 3M # 94 primer to the backer board substrate. Allow to dry thoroughly.
13. Prepare the termination/transition strip and application as described in Chapter 14 Wall to Floor Curb Details - Termination / Transition Strip Application., Articles #2-#22.

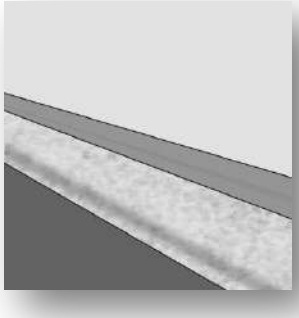


Note: The application of the Arcoplast Bio-Seal (A-1010) Finishing Compound or flexible sealant in the cove base/ Arcoplast flush panel transition joint can be applied prior or after the application of the flooring coving material. If the flooring cove base material is to be smooth in finish, then the joint application is best completed after the floor coving material is installed. If the proposed flooring coving material is to be aggressive in texture, it is then preferable to have the transition joint filled prior to the floor cove finish application.

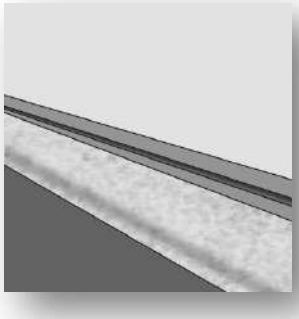


If the transition joint is to be filled after the flooring cove base is installed, ensure that proper protection of the termination strip is in place to prevent from being contaminated by the flooring installation. Residual material such as the resin and aggregates will create an almost impossible clean application of the Arcoplast Bio-Seal (A-1010) Finishing Compound. It is critical to have an unobstructed clean termination/transition molding free of any foreign matters. To ensure the termination/transition strip is clean, protect the termination joint by applying a protective low tack tape prior to the application of the floor coving material. Once the floor coving material is installed, remove the protective tape and with a sharp flat putty knife, glide along the termination strip and remove any matters that could potentially prevent a smooth clean line in the application and tooling of the finishing compound.

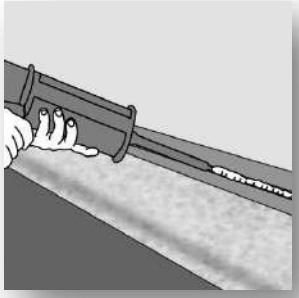
14. Once the finished floor base material has been applied and properly cured, apply a 3” 3M #2460 detailing low tack protective tape centered over the joint.



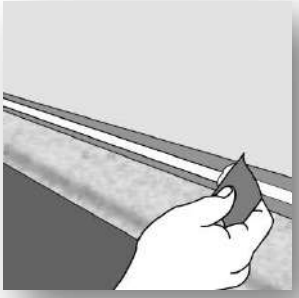
15. With a razor blade, carefully cut the protective tape by gliding the blade on the termination strip. Make sure that no resin or aggregate from the floor application contaminated the edges. Then proceed to cut the tape along the Arcoplast /starter strip molding by gliding the blade along the starter strip. This procedure will leave a clean finish line on both the floor base finish and bottom of the Arcoplast wall panel.



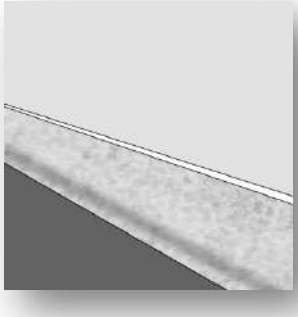
16. Fill in the joint cavity with the Arcoplast A-1010 Bio-Seal finishing compound ensuring there are no air voids.



17. With a flat 3M squeegee applicator tool along the joint line. Apply light pressure to the 3M squeegee over the panel edges only. This application method will result in a flat joint with clean edge lines. (Do not apply pressure over the center line as this will create a concave joint). If a flat 3M squeegee is not available, a plastic card or putty knife will also work. Inspect the filled and tooled joint for a perfect finish.

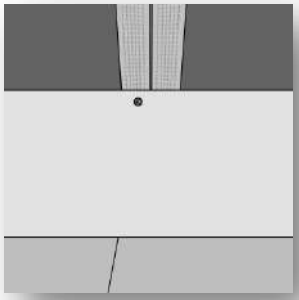


18. Carefully remove the upper and lower protective tapes. Pull the tape away at a slight angle to enable a clean release.
19. With a clean sharp putty knife remove excess sealant and clean area thoroughly with a clean towel and Thermaclean cleaner.
20. Quarantine the area and do not allow any traffic or trades in the work area for a minimum of 12 hours. This will prevent dust, air particles and any mishaps to soil or contaminate the finish joint section.

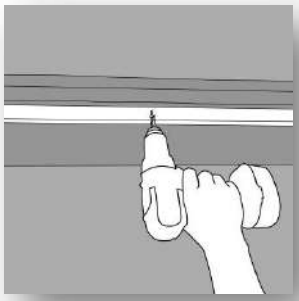


Recessed Coving Application -

A reverse coving application is truly the best solution in retrofit construction where the floor coving already exists. The reverse coving is also very effective in new construction where the desired design calls for a recess floor base at the wall and floor junction.



1. Determine the height of the "J" starter trim molding. In retrofit construction, apply the starter strip molding directly to the substrate. For new construction, make sure proper backing for the starter strip molding is in place. A 16 G galvanized metal backer plate to the framing members can be used. Fastened the sheet metal backer plate with a thin truss wafer head Philip self-drilling screw # 8 x .0625". The sheet metal backer plate should extend from the floor to the top of the termination strip
2. Determine the desired cove radius. This radius dimension will dictate the elevation at which the "J" starter strip molding shall be installed. Typically, the starter strip molding is installed 1/2" (12.5 mm) above the floor base finish. This will allow a tooling of 2" (50 mm) diameter (Tablespoon size) for a proper seal and optimal detailing finish.

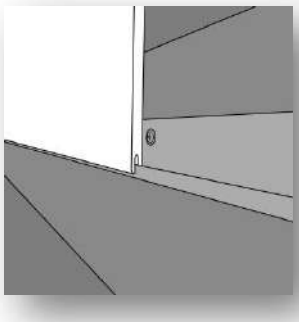


3. With a chalk line or laser alignment mark the height for the "J" starter strip molding. Install at the prescribe height the "J" starter strip molding and fasten with a thin truss wafer head Philip self-drilling screw # 8 x .0625" on 16" (400 mm) c/c.
4. At the predetermine height, proceed to install the "J" starter strip molding. Fasten with appropriate screws on 16"c/c (400 mm).
5. When installing the starter strip molding to concrete, brick, masonry surfaces, you must predrill the aluminum starter strip with a 7/64" (3 mm) drill bit. With the predrill aluminum starter strip as a template, position over the substrate and mark the predrilled holes onto the existing substrate. With a masonry bit 3/16" (4.763 mm) predrill the substrate and insert the plastic shield # 6-8 x 1" (25 mm). Position the starter strip and fastened with flat head # 10 x 1-1/4" (31.750 mm) screws.

6. With a router and diamond router bit, groove the bottom of the Arcoplast panel. This kerf will allow the small leg portion of the "J" starter strip to be inserted into the panel groove securing firmly the bottom of the panel and eliminating any need for exposed fastener. Note: This routing procedure is usually done at the factory. However, the routing process must be requested on the purchase order.

7. With a sand bloc and #100 grit sandpaper lightly bevel the bottom edge (exposed face side) of the of the panel.

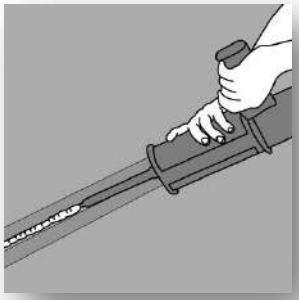
8. Position the Arcoplast panel over the starter strip and carefully glide the panel in place. Ensure the panel is well seated in the starter strip with the small leg portion of the "J" starter strip well positioned in the panel groove.
9. Complete the panel installation as referenced in Chapter 12 Panel Installation.

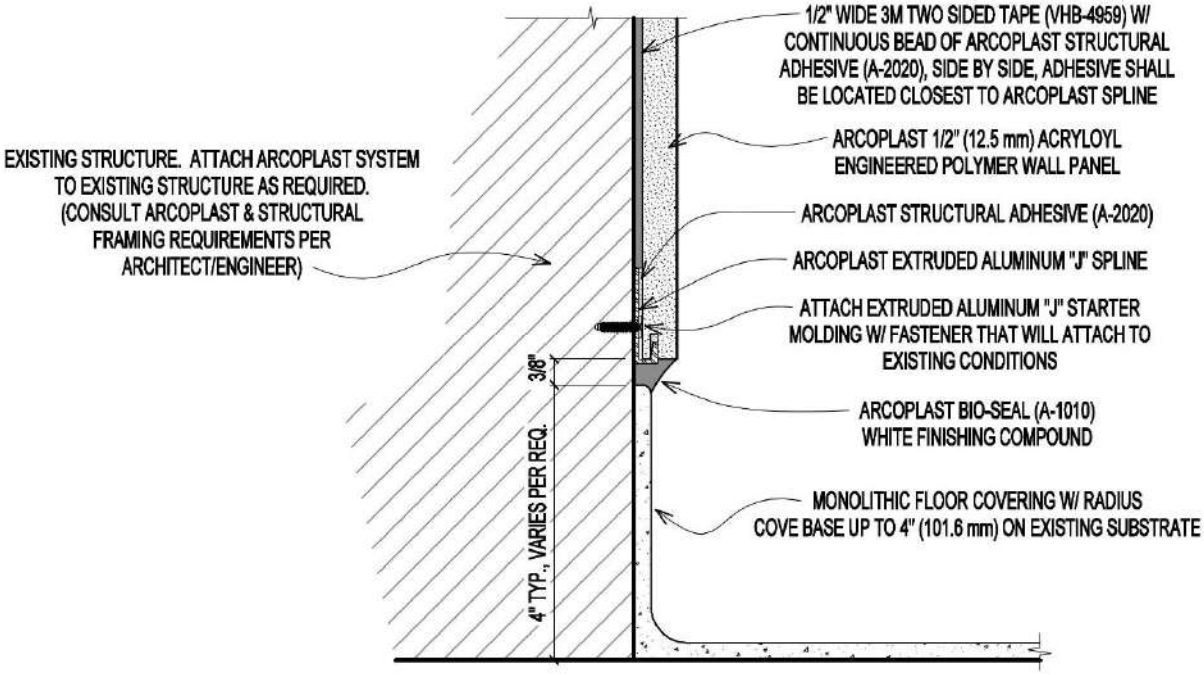


10. Having completed the panel installation, clean thoroughly the underneath section of the recessed cove section, panel edge and floor cove surface with IPA 50/50 and water solution. Wipe clean and allow to dry thoroughly.
11. Apply the protective 3M #2460 x 1" (25 mm) low tack protective tape along the edge of the bottom of the Arcoplast panel. Leave exposed only 1/16" (1.5 mm) of the bottom edge of the panel.
12. Apply a second protective low tack painter's tape 2" (50 mm) on the floor coving section. Carefully apply the protective tape just on the top portion of the cove that will coincide with the tip of the spoon/tooling bar typically ½" (12.5 mm).
13. Note: Whenever the existing or new cove base surface is extremely aggressive, apply multiple layers of the 2" (50 mm) masking tape. The multiple layers of tape will make the tooling spoon glide over surface finish a lot smoother. This method will minimize the transfer of energy through the spoon/tooling bar resulting in a smoother detailed cove section.
14. In a wet wash down environment it is preferable to complete the reverse coving detail after the floor cove finish has been installed.

15. The reverse coving is tooled in place with a KitchenAid spoon or a stainless steel tooling bar. Select the appropriate diameter to achieve desired radius and finished look.

16. Dispense the Arcoplast Bio-Seal (A-1010) Finishing Compound in a continuous bead form ensuring there are no voids. Tool immediately using the proper spoon/tooling bar. Note: Most floor base elevations are very low. A small mirror will help visualize, inspect, and quality control the application and detailing of the cove section.
17. Once the Arcoplast Bio-Seal (A-1010) Finishing Compound has been tooled in place, remove the excess compound from the face of the panel with clean sharp putty knife. Position the blade flatty against the panel and glide over the 3M #2460 protective tape removing the excess compound and the remove the excess compound on the cove section.





18. After the cove tooling is complete, remove the 3M #2460 protective tape on the Arcoplast panel. Pull the tape at an upward angel and then remove the second protective tape on the floor coving section by carefully pulling down the tape at a slight angle. This will prevent dragging the freshly tooled compound and contaminating the surrounding surfaces.
19. Secure the area and do not allow any traffic or trades to do any work in the quarantine work area for a minimum of 12 hours. This will prevent dust, air particles and any mishaps to contaminate the finish joint section.

Chapter Fifteen : Finishing Details -

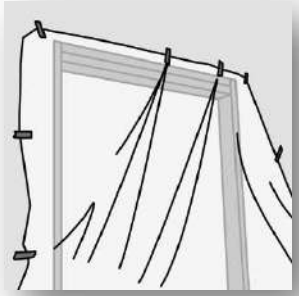
For BSL-3, ABSL-3, BSL-4 and high containment construction, it is recommended to set up a small mock-up room with a completed panel to panel joint, a wall-to-wall interior/exterior corner junction, a wall to ceiling and a wall to floor junction including the MEP seals. This mock-up room should also be tested for compliance with negative/positive air pressure decay requirements.

The approved mock-up room should be designated as the benchmark for quality in craftsmanship, aesthetic, and high performance. Preferably this mock-up room can be incorporated in the future floor plan layout.

In preparation for the application and the detailing of the Arcoplast Bio-Seal (A-1010) Finishing Compound/sealant, follow these simple steps and procedures.

1. Remove unnecessary tools and equipment from the work area. Isolates the area to prevent other trades, traffic and air flow movements that could potentially contaminate the application and compromise the detailing of the Arcoplast Bio-Seal (A-1010) Finishing Compound.

2. Tape and seal window and door openings, skylights, air supply and exhaust fans, floor drains, etc.



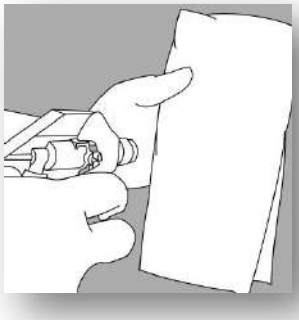
3. Vacuum floor and cove section. Mop/sponge floor to remove dust particles.

4. Peel back and cut off “4 (100 mm) of the protective plastic film at the perimeter of the Arcoplast modular panel. Use caution to not cut into exposed face panel surface.

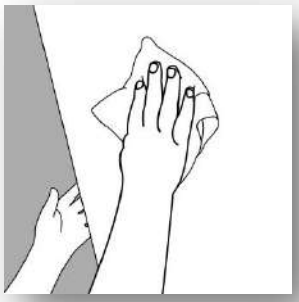
Note: For ceiling liner panels, it is preferable to remove the entire plastic film prior to the application of the Arcoplast Bio-Seal (A-1010) Finishing Compound. For wall liner panels you can elect to leave or remove the plastic film before the application of the finishing compound. If you do decide to remove the protective film, you will have to be very careful to not damage the panel surface with equipment or tools and not drop or smear any finishing compound onto the wall surfaces when tooling the ceiling joints and coving sections.

Note: If you decide to leave the protective plastic film on the panel, ensure the protective film is free of dust. The static surfaces will draw the dust particles and contaminate the Arcoplast Bio-Seal (A-1010) Finishing Compound.

5. With a damp soft towel or cloth, clean thoroughly the Arcoplast panel joints and panel intersections with the Arcoplast Thermaclean solution. The Arcoplast Thermaclean water base solution is an excellent surface prep and a very effective cleaning product.



6. Remove all dust particles and contaminants at the panel joints and at the interior/exterior corner junctions. The slightest foreign matter will show through the Arcoplast Bio-Seal (A-1010) Finishing Compound. This is especially important at panel intersections and coving sections. Because the finishing compound is featheredged at the cove extremities, it becomes more translucent as the sealant applied becomes thinner, highlighting areas that have not been well cleaned and well prepared.

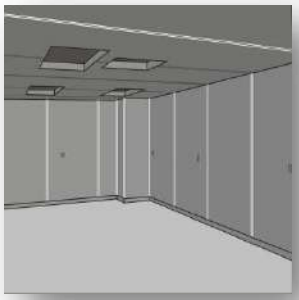


7. Inspect for surface imperfections that could create an obstacle when tooling the Arcoplast Bio-Seal (A-1010) Finishing Compound.
8. Use a putty knife for flat joints and plastic spoon for the radius coving in corner junctions and glide the tools lightly along the length of the panel joints and along the interior corner sections. The tool must glide freely without any obstacles or nicks on the panel. Contaminants or surface imperfection that can be felt with the tool will be transferred in the finishing compound by the tooling at the application resulting in unsightly cosmetic finish.
9. Correct any nicks or surface imperfection prior to the application of the 3M #2460 protective tape. With sharp razor blade scraper excess contaminants or with a light sanding paper lightly (1,000 grit) sand the surface imperfection. Polish the area with 3M buffing compound. Ref. Chapter 18 Acryloyl (Engineered Polymer) Repair – Type A Repair Surface Imperfections.
10. Ensure the panel joints and panel intersections are thoroughly dry prior to the application of the 3M #2460 protective tape.
11. The 3M #2460 protective tape is a yellow tape allowing the applicator to see where the tape is being applied on the backdrop of the white high gloss finish Acryloyl panel. The 3M #2460 tape is extremely thin enabling a seamless transition of the Arcoplast Bio-Seal (A-1010) Finishing Compound to the panel's surface. The 3M #2460 tape is also a low tack tape making it easy to remove leaving no residual markings.
12. When handling and installing the 3M #2460 tape, always keep the roll of tape in a clean protected plastic bag. Do not lay the roll of tape on its side on contaminated surfaces and equipment. Store the 3M #2460 tape in a plastic bag when not in use. This will prevent any contaminants from adhering to the cut edge of the roll of tape. If not protected, small particles that adhere to the side of the roll of tape will be transferred and will stick to the sealant being applied and be permanently embedded in the edges of the finished joints.

13. The application of the 3M #2460 x 1” (25 mm) wide protective tape should be completed in three phases:

Note: Variance in room dimension, room height, quantity of openings and type of services will greatly influence the workflow. The following steps herein described apply to a normal laboratory environment of 400 square feet (35 meters square).

a) Phase I –First, start with the panel-to-panel joints on wall and ceiling surfaces by applying the 3M #2460 x 1” (25 mm) protective tape on the edges of the panel. This is referred to as the “flat joints”. Secondly, proceed to apply the 3 M #2460 x 1” (25 mm) protective tapes at the vertical panel to panel interior/exterior corner sections. This is referred to as the vertical coving sections. In the third step, proceed with the application and detailing of the Arcoplast Bio-Seal (A-1010) Finishing Compound. At every joint and cove sections completed, immediately remove the protective tape, and allow the joint and cove section to cure for a minimum of 12 hrs. See Chapter 16 Application and Tooling of Finishing Compound.

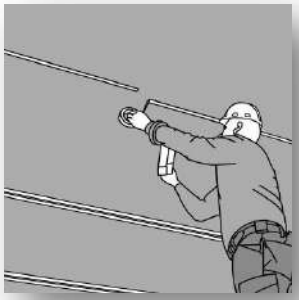


b) Phase II – In the second phase, apply the 3M #2460 x 1” (25 mm) wide protective tape at the top of the wall panels around the perimeter of the room and on the ceiling panels along the ceiling perimeter at the wall junction. This is referred to as the “crown detailing”. The tape should be applied only when the flat vertical joints and flat ceiling joints and vertical coved corners have been completed with the sealant and cured sufficiently to not damage the sealant bead and coving. Secondly, proceed to apply the 3M #2460 x 1” (25 mm) wide protective tape around door and window frames, MEP accessories and equipment. In the third step, proceed with the installation of the Arcoplast Bio-Seal (A-1010) Finishing Compound and allow to cure for a minimum of 12 hrs. See Chapter 16 Application and Tooling of Finishing Compound.

c) Phase III – The third step is the application of the 3M #2460 x 1” (25 mm) low tack protective tape over the floor base termination strip. Determine the desired cove radius over the transition molding and with a jig measurement proceed to install the protective tape. Finally apply 2” (50 mm) low tack painter’s masking tape over the termination strip just below the finish edging. Proceed with the application of the Arcoplast Bio-Seal (A-1010) Finishing Compound and tool accordingly. Note: The different types of walls to floor cove base finishes will dictate the type of joint finish, however they will still be part of the Phase III installation procedure. See Chapter 14 Wall to Floor Curb Details.

On the panel joints, apply the 3M #2460 x 1” (25 mm) wide protective tape carefully following the panel’s edge. Do not apply the tape in the radius edge of the panel. Ensure there are no crimps in the tape or large air blisters that could create a distortion in the finished application of the sealant. It is also preferable not to splice the 3M #2460 tape.

14. Tape on each side of the panel joint. The tape should be parallel and straight allowing the future joint compound to be consistent in dimension and reflect nice straight uniform lines. Tape spacing is defined by the panel joint tightness, typical joint tape spacing can vary from 1/4” (6 mm) to 3/8” (9 mm).



15. When applying the protective tapes always extend the tape by 1” (25 mm). This will create a “tab” longer than the end of the panel joints. Also extend the same length on the tape at interior and exterior coving sections. These extended “tabs” will greatly facilitate the removal of the protective tape.
16. For the coving and detailing of the interior wall to wall and wall to ceiling junctions, the 3M #2460 protective tape should be applied at 17/32” (13.5 mm) distance from the opposing surface. This measure is a standard for a 1-5/32” (30 mm) 1/4” teaspoon measurement.
    Note: Different type of spoons/tooling bars should be measured to get accurate spacing.
17. When applying the 3M #2460 low tack protective tape, an Arcoplast clear plastic measuring “jig” card works best. Mark or slit the edge of the plastic card for the spacing of the protective tape. Position the protective tape underneath the plastic card at the marked location. Glide the card along the panel whilst distributing the protective 3M #2460 tape at the same time. This application method will provide constant and accurate location of the protective tape in one simple step.

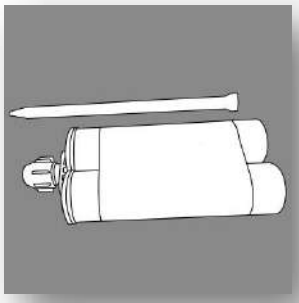
Chapter Sixteen : Application and Tooling of Finishing Compound -

The Arcoplast Bio-Seal (A-1010) Finishing Compound is a two-component equal mix, bright white, high strength aliphatic urethane adhesive/sealant. The finishing compound is used to bond and seal the Arcoplast Acryloyl (Engineered Polymer) panels and bonds to acrylics, aluminum, and stainless steel. The Arcoplast Bio-Seal (A-1010) Finishing Compound is a non-porous, non-yellowing, high gloss, moisture sensitive compound. It is environmentally neutral after curing and has no odor even while curing.

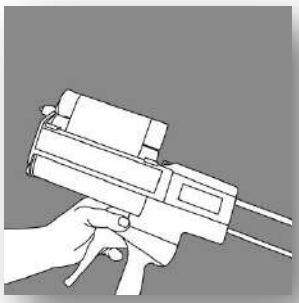
Note: Read product and SDS information before use.

The Arcoplast Bio-Seal (A-1010) Finishing Compound foil packet contains:

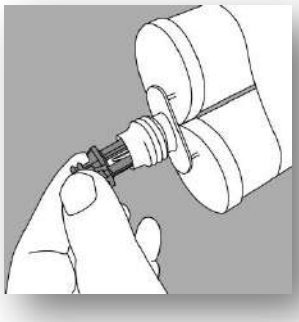
1. Twin cartridge 200 ml
2. Static dispenser nozzle
3. Static dispenser nozzle lock nut



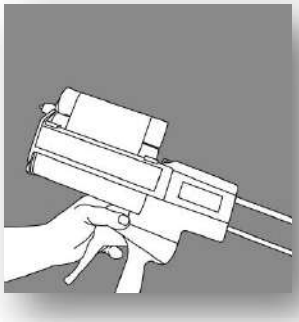
The Arcoplast Bio-Seal (A-1010) Finishing Compound is dispensed with a twin cartridge 400ml manual or a pneumatic tool.



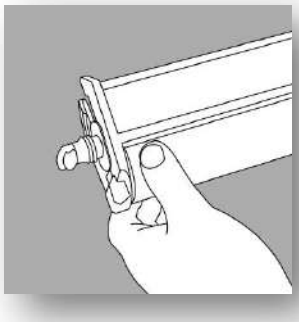
1. The application and detailing of the Arcoplast Bio-Seal (A-1010) Finishing Compound is best when applied at the temperature range equal to that of the service life of the intended environment. If the intended service life of the room is to be 70^0 Fahrenheit (20 C) degrees, then the application is best at the same temperature range.
2. The temperature, relative humidity and moisture influence the work, tooling, and cure times. A typical installation at 70^0 F (21c) and 40% relative humidity will average 30 minutes of work time. The handling time (print free) is approximately 12 hours. An installation at 90^0 F (32C) and 60% relative humidity may average 15 minutes of work time. Handling time is approximately 6 hours. The maximum and full cure time is achieved at 72 hours.
3. Each dual cartridge is packaged and sealed in an aluminum foil pack. Remove the cartridge from its original packaging only when ready to use.
4. Remove the cartridge nozzle nut and detach the safety clip and remove the nozzle plug.



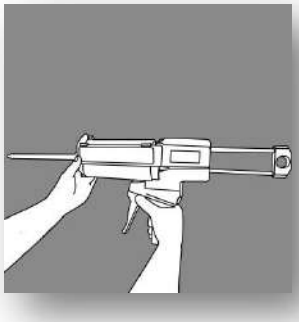
5. Engaged the twin cartridges in the dispenser by gliding the cartridge nozzle ridge in the dispenser groove section of the tool. Push the twin cartridge firmly in place. Note: When not using or dispensing the Arcoplast Bio-Seal (A-1010) Finishing Compound always ensure that the plunger is released. For a manual dispenser, release by holding the lock lever down and pulling the plunger back. For the pneumatic dispenser, depress the red pressure button situated at the back of the handle and the plunger will automatically retrieve. To replace a cartridge, on the manual dispenser pull out the empty cartridge. On the pneumatic dispenser, depress the lock button situated under the dispenser and glide the twin cartridge out.



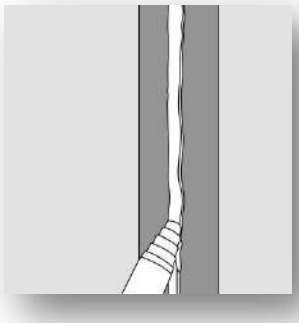
6. Prior to installing the static mixer nozzle, place the unit over a waste basket, start dispensing the finishing compound until both part A and part B are equally dispensed at the end of the cartridge nozzle opening. Wipe the excess at the end of the cartridge nozzle.



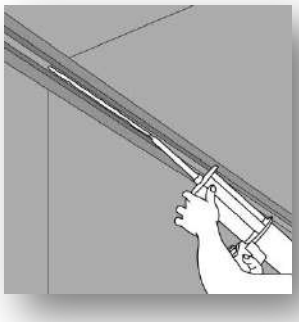
7. Install the static mixer nozzle that is included in the aluminum foil pack. Secure the nylon static mixer with the cartridge nylon nut.
8. With the static mixer nozzle fully secured, dispense in a waste basket approximately 1” (25 mm) bead of Arcoplast Bio-Seal (A-1010) Finishing Compound. This procedure ensures that the part A and part B are mixed equally. Release the plunger and wipe clean. Apply the finishing compound in the panel joint and coving corners. Note: If the cartridge is idle or not dispensing material through the static mixer nozzle for a short period of time (approximately 10 minutes) it will require the installation of a new nozzle. Plan well your application and tooling time to make the most use of the application nozzle. Various joint sizes may require you to cut the static nozzle to achieve proper bead size.



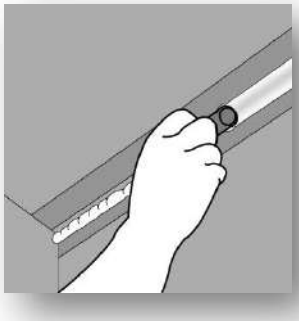
9. On the flat panel to panel joints and the cove intersections, dispense the Arcoplast Bio-Seal (A-1010) Finishing Compound with a pneumatic tool. When dispensing the finishing compound create the least number of knuckles or bulges in the application. This is best achieved with a constant equal movement of the tool with the arm movement motion from top to bottom. Note: It is always best to “Pull” the finishing compound then to “Push” the finishing compound. This application method will help avoid air entrapment that could potentially form a blister or bubble in the compound during the curing process.

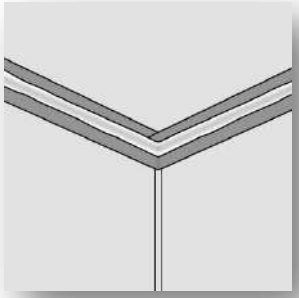


10. Dispensing and tooling the Arcoplast Bio-Seal (A-1010) Finishing Compound is best achieved in two phases.
11. On the first day, complete the flat joints on both wall and ceilings panels. Then complete the vertical interior and exterior coving sections. If there are no intersecting joints at door and window frame sections, time permitting, complete these coving sections as well. Note: Completing Intersecting joints with the finishing compound such as a four ways or tri corner junction is impossible to achieve in the same day. For that reason, it is best to complete the flat and vertical cove joints. Allow the application to cure for 12 hours before tooling over joint crossings or intersecting junctions. These difficult sections become easy to tool once the intersecting joint has cured.
12. On the second day proceed to apply and cove the wall to ceiling junction referred to as the “crown sections” and the coving of the termination strip at the floor base.

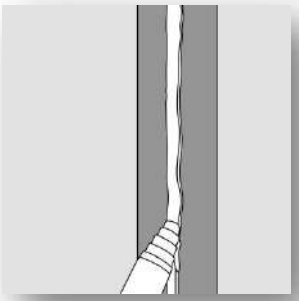


13. Arcoplast Bio-Seal (A-1010) Finishing Compound is best tooled with a KitchenAid plastic measuring spoon or stainless-steel tooling ball. Various shapes and sizes can be used in the application to achieve the desired shape, dimension, and aesthetics.



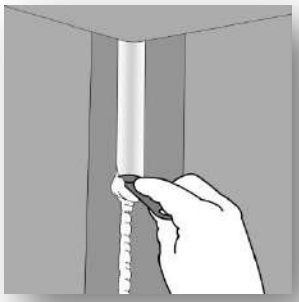


14. For the flat joints and coving sections, make sure the nozzle size will dispense a bead large enough to fully fill the gap. Do not apply multiple layers or multiple small beads of Arcoplast Bio-Seal (A-1010) Finishing Compound in a joint. This will generate air entrapment resulting in blistering or aerated issues.



15. For tooling and detailing, a flat 3M squeegee applicator works best for flat joints. A plastic card or putty knife will also work if the 3M flat squeegee applicator is not available. Do not apply pressure over the panel joint as this will create a concave joint. It is best to apply pressure on the applicator directly over the edge of the Arcoplast panel, this will result in a flat well feathered crisp joint line.

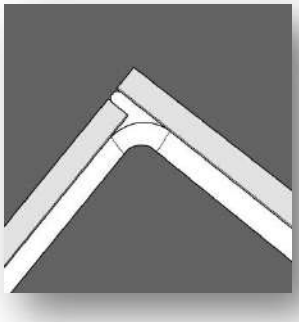
16. The radius cove at wall to wall, wall to ceiling and wall to floor is best achieved with a round plastic spoon. The edge of the spoon must be clean and sharp enabling a smooth free flowing perfectly shaped radius delivering a clean feathered edge joint line. Preferred spoon tool is the Kitchen Aid brand. Note: If the spoon edges are not perfectly smooth, use a 1500 wet sandpaper and lightly rub the spoon edges to obtain a very smooth tool edge.



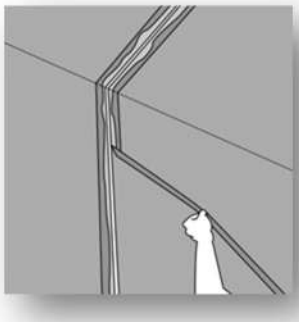
17. For the best results on detailing a flat or cove section, a two-pass step process will produce the best results. On the first pass, apply light pressure on the detailing tool and glide the tool along the joint or cove section with a constant uninterrupted motion. Proceed with this method for the entire length of the joint or cove section. This step allows the spread of the Arcoplast Bio-Seal (A-1010) Finishing Compound evenly and picks up the excess compound. Do not be concern with the overflowing of the finishing compound over the protective tape. The excess material will be removed with the removal of the protective tape. Remove the excess finishing compound from your tool and clean the tool thoroughly with Thermaclean and wipe dry. Immediately repeat this application in a second pass, this time with moderate pressure again moving uninterruptedly along the joint and cove section.

18. When noticing a lack of finishing compound through the tooling process, stop and immediately re-dispense a small and continuous bead of finishing compound for the entire length of the joint. Repeat detailing procedure # 17.

19. If a blister should develop in the joints, it is best to immediately remove the Arcoplast Bio-Seal (A-1010) Finishing Compound and re-apply a new bead of compound and retool the joint. If there are several blistering issues, clean out the entire joint and re-apply a new bead of finishing compound and retool for a perfect finish.
20. As specified in the panel installation, a 1/8” (3 mm) gap in the panel junction of wall to wall and wall to ceiling and wall to floor was designed to receive the Arcoplast Bio-Seal (A-1010) Finishing Compound. Make sure to fill the joint by keeping the nozzle well in place and the dispensing motion pushes the finishing compound deep into the gap for the full thickness of the panel.

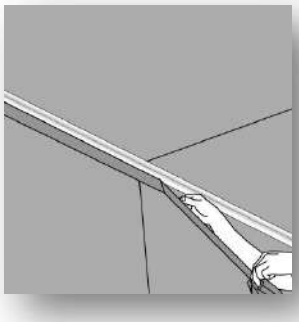


21. Important note on prefilling coving section. If a space/gap in the coving sections at wall to wall and wall to ceiling and wall to floor is larger than 1/8” (3 mm) it is best to prefill the coving section gap. This is best achieved by inserting the small nozzle section in the gap and proceed to fill the gap the full 3/8” (9.5 mm) depth along the entire coving section. Do not overfill at this time as this will interfere with the second application and tooling of the Arcoplast Bio-Seal (A-1010) Finishing Compound. Once the gap has been filled, you may proceed immediately with a second application, however if you notice this second application of the finishing compound tends to sag, immediately stop and allow the prefill to cure and complete the coving section the following day.
22. Do to not dispense the Arcoplast Bio-Seal (A-1010) Finishing Compound more than the ability to tool and detail the application. To best manage the application, appoint a technician for dispensing of the finishing compound. A second technician for tooling and detailing the joint. A third technician to remove the protective 3M #2460 tape and to assist the other technicians with product and equipment flow.
23. Immediately remove the 3M protective tape. Remove the tape by pulling away from the surface at a 45^0 angle. With a sharp 1-1/2” (37 mm) painters putty knife removes excess finishing compound that could have overspill on the Arcoplast panel. Clean the surface thoroughly with the Thermaclean cleaner. Be careful to not leave any smear marks. (This usually happens when the cleaning towel/rag is not changed at every wipe). Any unclean smear marks will remain permanent.

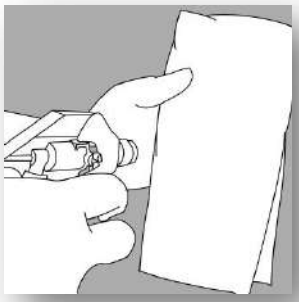


24. Carefully remove the 3M #2460 protective tape at the coving sections by pulling away from the surface at a 45^0 angle. Do not leave long sections of tape loose, the static generated will pull the tape to the panel and possibly soil the panel surface.

25. Once the protective tape has been removed, inspect the finishing details carefully. If there are any tape lines left by the excess finishing compound, remove immediately with a clean sharp putty knife. A 1-1/2” (37 mm) painters putty knife works best. Remove the excess by carefully gliding the clean sharp blade along the very edge where the tooling spoon rubbed on panel surface. Follow the joint line carefully scraping up all excess compound. Scrape and remove excess until both sides of the joint are completely clean leaving a clean featheredge finish. The Arcoplast Thermaclean Wipe Bright 095-0082 works best for this cleaning application.

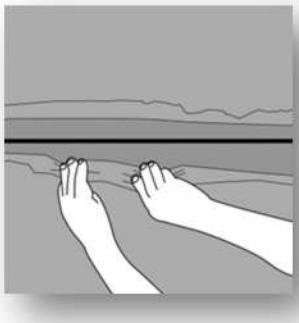


26. When removing excess Arcoplast Bio-Seal (A-1010) Finishing Compound it is important to clean the area two to three times using a new cloth or Arcoplast Critical Wipes. This procedure is necessary until you are sure there are no smears or traces of diluted compound.



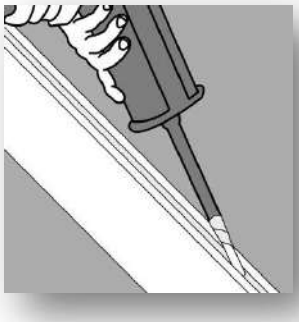
27. With every pass/strike of a tool, always wipe off excess finishing compound picked up with the tool, this ensures a clean tool for the next pass/strike.

28. After a complete and satisfactory review of the completed application of the finishing compound allow to dry and cure for 12 hours based on a 70^0 F (21C) ambient temperature.
29. If you had elected to not remove the plastic film prior to the application of the finishing compound, proceed to now remove the protective plastic film on the Arcoplast panel surface by starting with the ceiling panels first and then the wall panels.



30. Proceed with a final inspection of the Arcoplast Modular Panels. If any scratches or surface defects are found, proceed to repair, and polish. See Chapter 16 Acryloyl (Engineered Polymer) Repair.

31. Some applications will require specific dispensing needle tips that are easily attached to a static mixer nozzle. Example - Filling of a panel kerf prior to inserting the aluminum spline or prefilling deep joint cavities. The custom needle tips will make the dispensing easier and more accurate, resulting in less cleaning time.



Note: The Arcoplast finishing compound must be applied and tooled in a controlled environment. The room must be maintained in a positive pressure or at the very least, prevent air infiltration from interstitial spaces. Failure to maintain the room in positive pressure could generate air blisters in the finishing compound joints and coving sections.

Chapter Seventeen : MEP – Penetrations, Cut-Outs and Sealants -

One of the more challenging tasks in the construction of high containment facilities is addressing the application of sealants for a wide-ranging variety of services. Substrate compatibility and surface adhesion for a large variation of metals, plastics, and Acryloyl (Engineered Polymer) materials is critical for a high-performance seal capable of meeting BSL-3, ABSL-3 and BSL-4 and cGMP compliance.

Points to consider in the construction of high containment facilities:

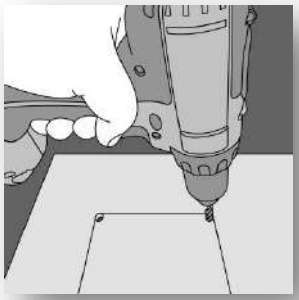
1. Substrate compatibility to different MEP products
2. Expansion, contraction, and vibrations of various services
3. Backer materials to reduce void fillings
4. Test reports on various applications
5. Primer selection and sealant application
6. Form, dimension, and aesthetics
7. Tooling method for the various applications

Electrical Box Style Penetrations –

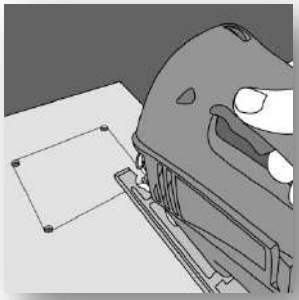
In high level containment construction, there are essentially two methods of treating the services interfacing with the primary barrier surfaces. Most of these services deal with electrical, alarm and monitoring devices that require surface mount or concealed gang box installations. To achieve a moisture, air, and gas tight installation of concealed or surface mount devices interfacing with the Arcoplast modular panels, follow these simple steps:

1. Ensure the gang/service device boxes are properly located, installed square, plumb with proper depth.
2. Mark the location and dimension of the penetrations on the panel. Allow 1/8” (3 mm) clearance between the accessory and the Arcoplast panel cut-out creating a proper seating for the Arcoplast Bio-Seal (A-1010) Finishing Compound.
3. Connect the multiple penetrations by a cut line, extending the cut line to the outer border of the penetrations.

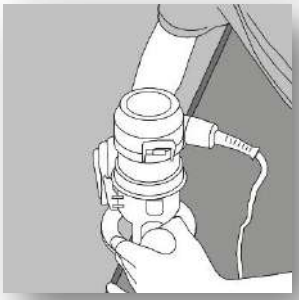
4. With a drill and proper carbide bit size, bore a hole at each intersecting line.



5. Smaller cut outs can be accomplished with a jig saw and carbide fine tooth count jig saw blade.



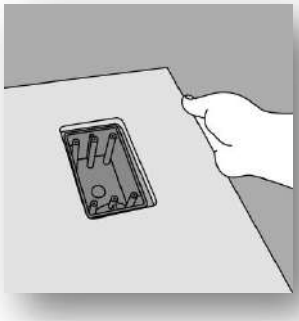
6. On large projects with multiple penetrations, it is recommended to use a template guide with a plunge router, router collar and carbide cutter. This method will increase your production time, deliver accurate dimensional cut-outs and consistent quality finish. A template guide can be easily developed for all types of cut-outs.
7. Circular saw cut outs can be completed with plunge router and template guide.
8. With a sand block and 100 grit sandpaper lightly sand the edges of the cut out.



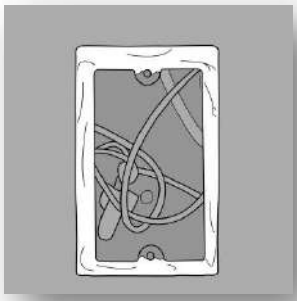
9. With a clean towel or Arcoplast critical wipes and IPA / water 50/50 solution remove all dust and contaminants from the back of the panel, panel edges and exposed face finish surface.

10. Remove any oils and contaminants on the face and the perimeter of the gang/service device box wherever the Arcoplast Bio-Seal (A-1010) Finishing Compound will be in contact. Allow to dry thoroughly.

11. Proceed to complete the panel preparation for installation as described in Chapter 12 Panel Installation.
12. Prop in place the Arcoplast composite panel with the cut out positioned precisely in line with the service (gang) box and allow adhesive to cure for 4 hrs.

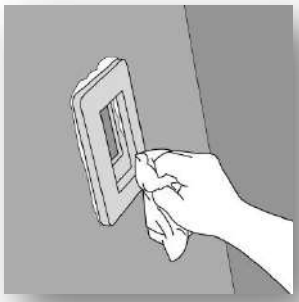


13. Once the Arcoplast panel bond has been ensured, seal the utility (gang) box with the Arcoplast Bio-Seal (A-1010).

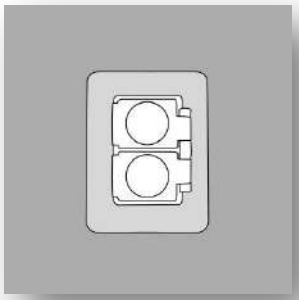


14. Clean thoroughly the face/trim plate and immediately apply a bead of Arcoplast Bio-Seal (A-1010).to the back of the face/trim plate.

15. Position the Arcoplast face/trim plate sleeve connection and press firmly in place over the gang/service device box. Ensure full contact and a perfect fit.



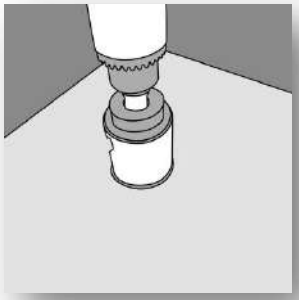
16. Temporarily secure in place the Arcoplast face/trim plate/sleeve connection. This can be accomplished by mechanically fastening to the device box or taping the trim piece to the Arcoplast panel. Allow to set and cure, typically 12 hours. Remove excess structural adhesive at the junction of the trim sleeve and the device box. Finally clean thoroughly the edges of the face/ trim plate interfacing with the panel surface.



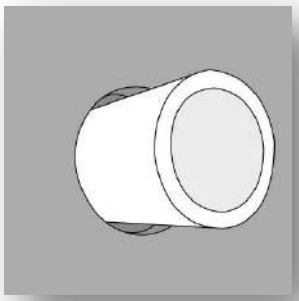
Piping Style Penetrations -

1. Proceed to mark the location of the penetration on the exposed surface finished face of the panel.

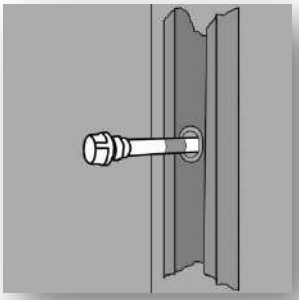
2. With a drill and proper carbide keyhole size proceed to cut the opening. Cutting from the face side is usually recommended, however with caution, the cut can also be completed from the panel's backside.



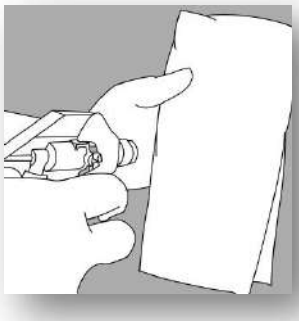
3. Large diameter openings can be completed with plunge router and template guide.
4. Bore or cut at 1/8" (3 mm) larger all around the protrusion. This allows seating for the Arcoplast Bio-Seal (A-1010) Finishing Compound.



5. For the application of the Arcoplast Bio-Seal (A-1010) Finishing Compound, apply a 3M #2460 protective tape or blue painter's tape. Allow proper size opening in the tape for tooling the sealant. The protective tape will make the cleaning process easier.



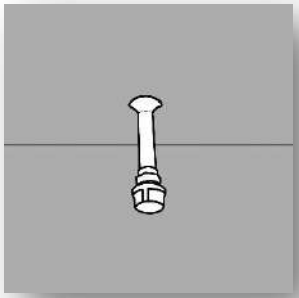
6. Carefully clean the panel surfaces, the panel cut-outs, and the protruding services with IPA and 50/50 water solution. Allow to dry thoroughly.



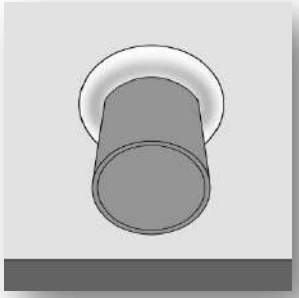
7. With a handheld dispenser, apply a 3/8” (9.5 mm) bead of Arcoplast Bio-Seal (A-1010) Finishing Compound around the conduit and equipment. Ensure that the finishing compound has been pushed in the 1/8” (3 mm) gap for a perfect and robust seal.

8. With proper tooling dimension (spoon size/tooling bar) proceed to detail the cove in place.

9. Remove the protective tape. With a clean putty knife, remove the excess of finishing compound and clean the area thoroughly with a clean cloth and Thermaclean cleaner.



10. Arcoplast completed coving section for pipe and conduit penetrations.



Surface Mounted Style Mounting Penetrations -

Surface Mounted Services such as Lighting Fixtures, Electrical Conduits, Plumbing Fixtures, Water Lines, Alarms and Monitoring Systems, Rail and Protective Guards will require sealed mechanical attachments.

Screw penetrations -

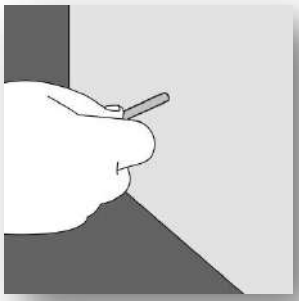
In a controlled and sealed environment, every penetration will require to be sealed. The perforations in the Arcoplast panel (primary barrier) will require meticulous care in ensuring the pilot holes are bored with the corresponding drill bit diameter and the pilot hole properly cleaned and filled with the Arcoplast Bio-Seal (A-1010) Finishing Compound prior to fastening the mechanical screws to ensure leak tightness.

Arcoplast Fastener Chart –

FASTENER TYPE - RECOMMENDED PILOT HOLE - PULL OUT STRENGTH TEST DATA		
Fastener ID	**Pilot Hole**	**Straight-line Pull Tests**
No. 6 x 1" Pan Phillips Zinc Self Drilling	7/64"	573 Avg.
No. 6 X 1" Pan Phillips Zinc	7/64"	543 Avg.
No. 8 x 1" Pan Phillips Zinc Self Drilling	1/8"	610 Avg.
No. 8 x7/8" Pan Phillips Zinc	1/8"	670 Avg.
No. 10 x 1" Pan Phillips Zinc Self-Drilling	9/64"	707 Avg.
No. 10 x 1" Pan Phillips Zinc Self-Drilling	9/64"	665 Avg.
No. 12-14 x 1" Hex Washer Self-Drilling Screws Zinc	5/32'	752 Avg.
No. 12 x 1" Pan Phillips Zinc	5/32"	633 Avg.
No. 6 x 1 1/4" Phillips Drywall Self Drilling	7/64"	638 Avg.
No. 6 x 1 1/4" Phillips Fine Thread	7/64"	630 Avg.
No. 6 x 1 5/8" Phillips Coarse Thread	7/64"	605 Avg.
Fab-Lock Fastener P/N FAC-10-8	5/16"	1000 Avg.

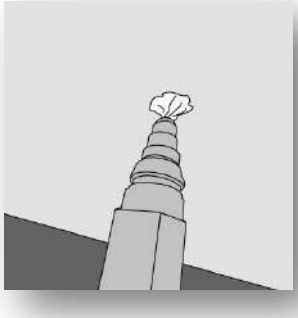
1. Determine the location and proper pilot hole size for the fasteners. Drill hole in panel using care to use high quality and sharp drill bits.

2. With a pipe cleaner saturated in IPA solution, insert the pipe cleaner in the perforation and make sure the opening is thoroughly cleaned. Allow to dry thoroughly.

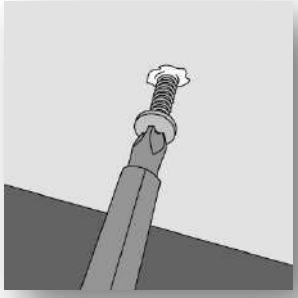


3. Wipe surface area with a clean dry towel.

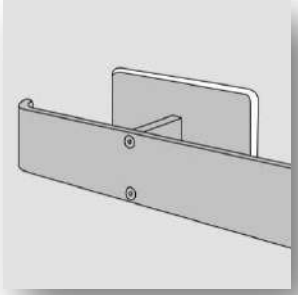
4. With the handheld dispenser insert the Arcoplast Bio-Seal (A-1010) Finishing Compound in the opening.

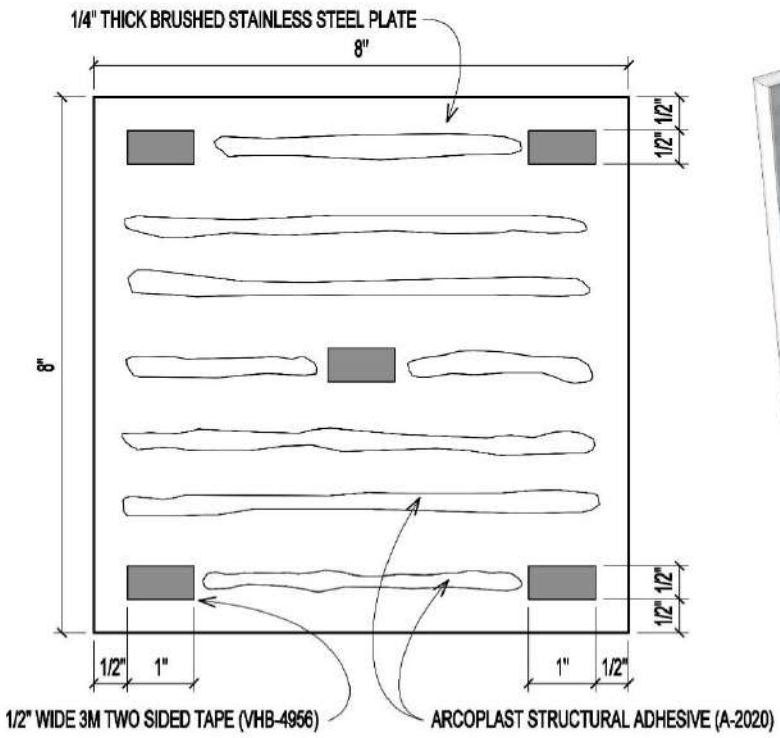


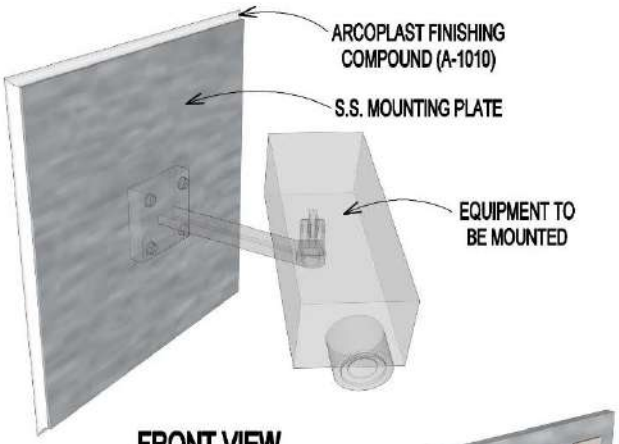
5. Position in place the screw and fasten in place. Do not over tighten the fastener.

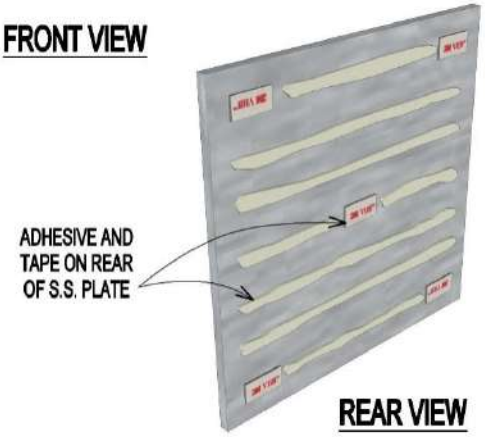


6. For surface mounted plates, brackets, surface mounted light fixtures, etc. adhere fixture to substrate with 3M #4956 VHB adhesive tape and Arcoplast Structural Adhesive (A-2020). Support fixture for proper curing time and clean excess adhesive immediately.
7. Once the fixture is set, proceed to dispense a continuous 3/8" (9.5 mm) bead of Arcoplast Bio-Seal (A-1010) Finishing Compound around fixture.
8. With the proper tool (spoon size/tooling bar), tool and detail the coving section.



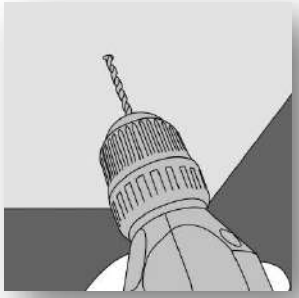




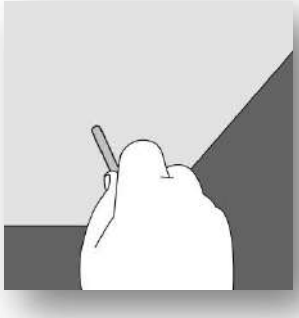


Lighting Fixtures -

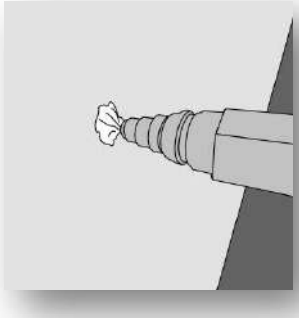
1. Position the lighting fixture in place. Mark the mechanical fastener locations and the hole for the wiring feed to the fixture. Remove the lighting fixture and proceed to drill pilot holes for the fixture's holding screws.



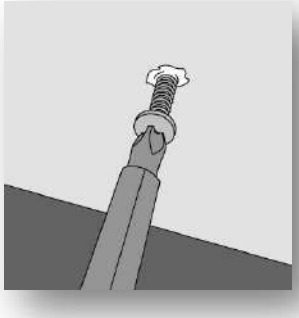
2. Bore the proper size hole for the electrical wiring feed allow 1/8" (3 mm) gap for the application of the Arcoplast Bio-Seal (A-1010) Finishing Compound.
3. Clean the pilot holes and the electrical wiring feed opening. With a pipe cleaner saturated with IPA solution clean and allow to dry completely.



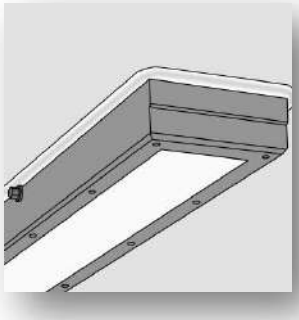
4. Fill the pilot holes, pull in place the wire feed and seal with the Arcoplast Bio-Seal (A-1010) Finishing Compound.



5. Position and fasten the lighting fixture in place.
6. Remove the excess finishing compound and clean area thoroughly.



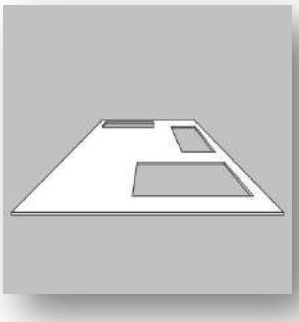
7. With the lighting fixture permanently in place, apply the 3M #2460 protective low tack tape around the perimeter of the light fixture. Also, a second 3M #2460 tape on the ceiling panel. Leave sufficient space for the ½" (12.5 mm) radius coving = 1/4 (1.25ml) teaspoon.
8. Once the tape has been applied to the fixture housing and on the ceiling surface around the lighting fixture, proceed to dispense a continuous 3/8" (9.5 mm) bead of Arcoplast Bio-Seal (A-1010) Finishing Compound.



9. With the proper tool (spoon size/tooling bar), tool and detail the coving section.
10. Carefully remove protective tape pulling the tape at a 45^0 angle. Remove any excess of finishing compound with a sharp-edged putty knife and clean the surfaces thoroughly with the Arcoplast Thermaclean cleaner.
11. Inspect for a perfect finish and seal. The Arcoplast Bio-Seal (A-1010) Finishing Compound will be tack free in 12 hours. Maximum cure time 72 hours.

Note: Surface mounted light and MEP fixtures can also be installed with the help of 3M VHB tapes and Arcoplast Structural A-2020 Methacrylate adhesives eliminating all mechanical fasteners. The fixtures are then sealed with the Arcoplast Bio-Seal (A-1010) Finishing Compound. Ref. Page 94.

For existing services, equipment and protrusions that are permanently affixed and cannot be removed or relocated follow these simple steps:



1. Take precise measurements of the penetrations and location of the existing services.
2. Transfer the readings on the exposed face surface of the panel.
3. Determine the most favorable cut angles and method of installing the panel in reference to the protruding equipment and services.
4. Cut out the protrusion and cut the angle lines leading to the edge of the panel.
5. With a sanding bloc, sand and lightly bevel the cut edges on both the panel and the filler piece.
6. Small cut out sections do not require a spline attachment. Large filler pieces 16” (400 mm) or greater will require the edges to be kerfed to receive an aluminum spline attachment.
7. Clean the panel back, edges and face side with IPA and 50/50 water solution.
8. Apply a 3M # 94 primer to both the substrate and the back of the Arcoplast panel.
9. Position the 3M VHB #4959 tape and with a two-hand roller apply pressure throughout to ensure full contact with the substrate.
10. Prior to installing the liquid adhesive, dry fit the panel and filler piece to ensure a good fit.
11. Install liquid adhesive and remove the film protector on the 3M VHB tape.
12. Position and install the panel. Prop in place and allow for adhesive cure time.
13. Position and install the filler piece. Prop in place and allow for adhesive cure time.
14. Once the panel and filler piece are adhered and fastened securely, proceed with the application of the 3M #2460 protective tape.
15. Apply, tool, and detail the Arcoplast Bio-Seal (A-1010) Finishing Compound.
16. Remove the protective tape and clean the surface area thoroughly.

Chapter Eighteen : Acryloyl (Engineered Polymer) Repair -

In the event of panel damage, Arcoplast Acryloyl (Engineered Polymer) modular panel surfaces can be easily repaired and restored to their new high gloss finish.

The Arcoplast Acryloyl (Engineered Polymer) surface has a barcol of 58, a surface finish very resistant to impacts. However, the panel surfaces can be scratched with equipment, carts, and sharp tools. The Acryloyl (Engineered Polymer) is a solid matrix throughout, therefore surface imperfections, stains and light scratches can be removed with light sanding and polished back to its original gloss.

Assessing panel surface damage. There are basically three types of repairs:

- Type A - Light scratches that can be sanded and polished.
- Type B – Deep scratches, chipped surfaces or small perforations similar to pilot holes for mechanical fastening that require paste filler and surface restoration.
- Type C - Major damaged area that will require a section of the panel replaced or in extreme cases, a full panel replacement.

Note: The repair techniques herein described are suitable for all high gloss Arcyloyl (Engineered Polymer) panel surfaces including wall and ceiling panels, beam covers, utility chases, doors, and window housings finishes.

Arcoplast Engineered Polymer Repair Kit A-5050 has also many uses and applications:

- Filling and taping mechanical fasteners
- Removing light scratches
- Repairing damaged surfaces, such as deep scratches, gouges and panel fissures

Repair Kit Includes:

- 50mm cartridge methacrylate base compound
- Sanding discs – 600, 1000, 1200
- Satex Buffing bar – brown and blue
- 3M Buffing pad
- MSDS & Instruction Sheets

Tools Required:

- Orbital 5” (125mm) disc sander
- Razor scraper knife
- Masking tape
- 7” – 9” Variable Speed Buffer/Grinder
- 8” (200mm) Wool Compounding Pad

Safety equipment: Arcoplast recommends the use of protective eyewear, gloves, and dust mask.

For your safety and further instructions please carefully read the MSDS sheets included in with the Arcoplast Engineered Polymer Repair Kit.

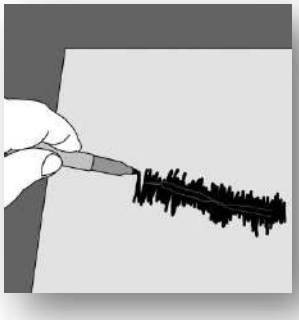
Important: Do not use or dispose of the adhesive near open flames or hot elements.

Note: For craftsmen not familiar with the art of Acryloyl (Engineered Polymer) panel repair, a trial repair on a sample panel is highly recommended.

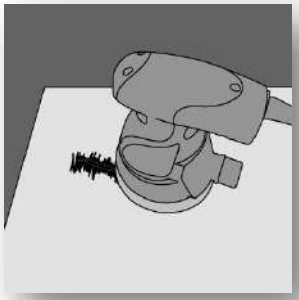
Type “A” Repair -

Light surface scratch

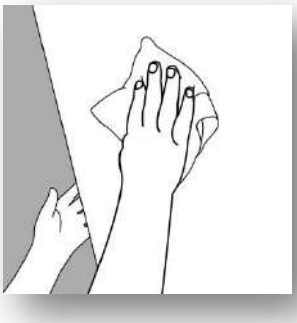
1. With a black felt marker highlight the scratch area.



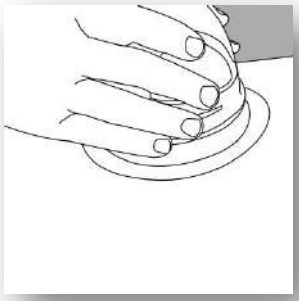
2. With an orbital sander and 600 grit sandpaper, carefully sand down the panel surface until the black mark is no longer visible.



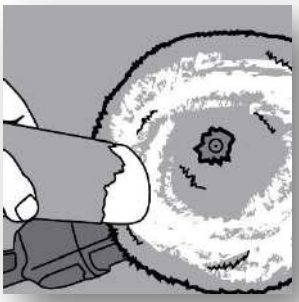
3. Remove dust and wipe area clean.
4. With 1,000 grit sand paper lightly sand over the previously sanded area while extending slightly onto the non-sanded area blending in the two surfaces. Remove the dust and wipe clean.
   Repeat the same procedure with a 1200 grit sand paper. Extend the sanding diameter up to 6” (150 mm) around the previously sanded area carefully blending the two different surfaces together. Remove the dust and wipe area clean.

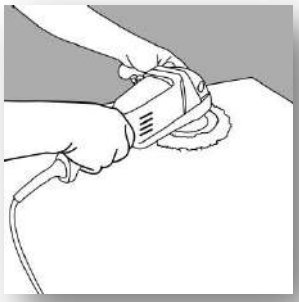


5. To start the surface gloss restoration, use a buffer/grinder equipped with a semi rigid backer plate fitted with a wool bonnet. The first step starts with applying the brown bar rubbing compound onto the wool bonnet. This is best achieved by activating the buffer with a moderate revolution and with moderate pressure apply the brown buffer bar to the wool pad allowing the transfer of the brown buffing compound to the wool pad. Place the buffing pad flat on the sanded area of the panel and start the buffer holding on firmly to the buffer tool and increased the speed to moderate (1000 rpm). Work the buffer tool in a constant cardinal motion moving the buffer tool from North to South and East to West and increasing the radius of the work area gradually. Do not leave the buffer pad in the same area and do not apply high speed or extreme pressure as this will cause the high gloss surface to overheat and yellow the panel surface. Wipe area with a clean cloth.



6. For the second application, start with a new wool pad or if you have a double-sided pad, reverse the pad and apply/transferring the blue bar rubbing compound onto the wool bonnet. Again, this is best achieved by activating the buffer with a moderate revolution and with moderate pressure applying the blue buffer bar to the wool pad allowing the transfer of the blue buffing compound to the wool pad. With the buffing pad placed flatly to the panel’s surface, start buffing the surface in the same motion pattern as described in paragraph 6. Complete this procedure and review the surface every few minutes to examine the gloss restoration and if necessary (gloss not being satisfactorily restored to the adjacent original gloss), you can re-start the process by adding/transferring more of the blue buffer compound to the wool pad and buff the surface until the gloss is restored to match the original surface finish. Wipe area with a clean cloth.





Type "B" Repair -

Deep scratches, chip marks and pilot holes:

1. Clean the surface thoroughly with IPA (Isopropyl Alcohol) or Acetone.
   a. For deep scratches, gouges and countersunk fasteners use the A-5050 compound.
   b. For light scratches, small pilot/screw holes and small nicks, fill with the A-5050 adhesive provided by Arcoplast. The adhesive A-5050 compound will harden in approximately 30 minutes
2. Typical Application:
   a. For minor repair of surface scratches and nicks apply the A-5050 paste (White). For deep scratches, gouges and countersunk fasteners, use the A-5050 paste adhesive.
   b. Fill the cavities with the two-component adhesive A-5050 paste. Dispense with a hand dispenser and slightly overfill the cavity. Ensure there are no air entrapment/voids.
   c. Allow the A-5050 adhesive paste to harden, approximately 30 minutes to one hour.
      1. Proceed with the same restoration technique as described in article: Type A - light scratches, items 4 through 7.
      2. Wipe area with a clean cloth.

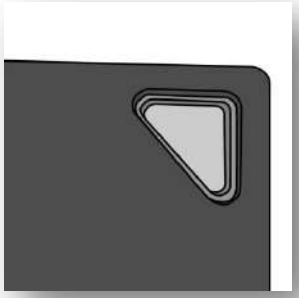
Note: The A-5050 adhesive / paste filler is available in a two-component dispensing 50 mm cartridge form. The cartridge filler paste is dispensed with a manual dispenser. The repair kit is conveniently and securely packed for safe handling and shipping.

Type "C" Repair –

Panel damaged area needing full replacement:

The repair technique consists of cutting out the damaged area and replacing with a panel "plug". The panel plug is made up of the same panel construction (preferably a panel from the initial construction) and inserted in the cut-out section.

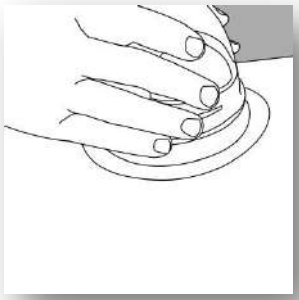
1. Clean the surface thoroughly with IPA (Isopropyl Alcohol).
2. Assess and mark the area to be cut out to determine the size and shape of the new panel replacement.



3. Once the area has been defined, prepare a cut-out template for the area to be removed.
4. Apply the cut-out template to the panel surface and secure in place with hot stick glue and clamps.
5. Proceed to cut out the area with a router and bevel router bit, ensure the cut-out is smooth and free of any nicks, hairline cracks, and irregular edge cuts.
6. Prepare a template for cutting the "plug" replacement panel.
7. Proceed to cut a panel for the plug replacement with a router and dovetail carbide bit.
8. Dry-fit the panel plug to ensure a perfect fit. The replacement plug should be snug in place and plug surface exceeds the panel surface by 1/32" (1mm).

9. Proceed by applying a generous bead of A-5050 adhesive around the perimeter of the panel plug. Ensure the adhesive bead is continuous to prevent any voids or gaps in the adhesion bead.
10. Insert the panel plug in the cut-out and position in place perfectly.
11. Apply positive pressure to the panel plug by means of a clamp.
12. Do not remove the excess adhesive that will exceed from the plug insertion and allow to cure.

13. Allow the adhesive paste to cure for 2 hours and with a sharp chisel or knife, carefully remove excess of hardened A-5050 adhesive. Inspect the surface to ensure there are no air entrapment/voids, if so, insert some MMA adhesive to eliminate voids as they will show up in your finished surface repair and allow time for adhesive cure.
14. With an orbital sander and 600 grit sandpaper, sand the plug panel area down to match the adjoining panel surface.
15. When the plug panel surface is sanded down to meet the adjoining panel surface proceed with the same restoration technique as described in article: Type A - light surface scratches, items 2 through 7.
16. Proceed and wipe area with a clean cloth.



Note. For cleanroom facilities with stringent environmental controls the sanding operation can be completed with 3M wet sanding disc.

17. Temporary enclosure:
    a. Temporary enclosures are quickly and easily constructed. They can be sealed in place with a 6mm clear polyethylene sheets and held in place with third hand post. Once the repair is completed, it can be dismantle and easily disposed.
18. Disposal of debris and waste:
    a. Mix together (dispense on scrap panel) any remaining or unnecessary A-5050 adhesive paste to create solid waste for disposal.

3. Storage of Arcoplast Engineered Polymer Repair Kit:
    a. For future applications, store the excess A-5050 in their original container in a cool area and liquid hardener in its original container and in a safe dry area.
    b. The A-5050 liquid adhesive storage temperature 40^0 F (5C).
    c. A-5050 adhesive paste shelf life is approximately 2 to 3 months at 40^0 F (5C).

24 Hour Emergency For emergency assistance call CHEMTREC 1-800-424-9300

Chapter Nineteen : Tools and Equipment

ELECTRIC POWER TOOLS	EPT ACCESSORIES	HAND TOOLS	MISC. ACCESSORIES	EQUIPMENT	PERSONAL PROTECTIVE EQPT.	MANUALS
4" Tile Saw	4" Carbide Blae	1" Putty Knifes	1" Paint Brush	1 HP Dust Collector	Ear Protection	MSDS Sheets
7" Circular Saw	7" Carbide Blade	12" Bar Clamps	2mil Plastic Film Roll	6 Gal. Portable Air Compressor	Hard Hat	
12" HD Compound Miter Saw	12" Carbide Blade	2' Level	5" Nozzle Mix	Double Vacuum Cups	Long Sleeve Clothing	Gel Coat Repair Kit
Router - 1/2" Shank	Router Bit Carbide 0.10	3M Plastic Applicator	Composite Shims	Drywall Cart	Protective Face & Eye Wear	
Plunge Router - 1/2" Shank	Router Bit Carbide .25 - .375 - .50					
Belt Sander 3" X 21"	3" # 100 Sand Paper Belt	4' Level	Garbage Bags 42 Gal.	Drywall Lift Jack	Protective Glove Wear	Installation Manual
	Countersink Set	6" Bar Clamps	Isopropyl Alcohol 70%	Dust Box	Respirator/Dust Mask	
Cordless Drill 3/8"	Drill Bit Sets	Caulking Gun 10 oz.	Masking Tape 2" Blue	Fork Lift - 5 Ton Capacity	Steel Toe Cap Shoes	
Hammer Drills 3/8"	Concrete Drill Bit Sets	Flat Pry-bar	Paper Towels	Hand Dispenser Twin Cartridge 400ml		
	Hole Saw Bit Set	General Purpose Scissors	Plastic Anchors/Screws	Heavy Duty Punch Set		
Top Handle Jig Saw	Jig Saw Blades	Laminate 'J' Roller 12"	Plastic Cards	Heavy Duty Tool Box		
Dremel Multi-Max Oscillating Tool Kit	Diamond Blade	Laminate Pressure Roller 12"	Plastic Spoons	Lightweight Air Hose		
Dremel Rotary Tool Kit		Measuring Tape	Sharpie Markers	Photo Camera		
		Single Edge Blade Scraper	Shop Vac Bags	Manual Dispenser Twin Cartridge 200ml		
Random Orbital 5" Sander	1000 - 1200 Sand Paper	Speed Square	Single Edge Blades	Pneumatic Dispenser Twin Cartridge 200ml		
6" Random Orbital Polisher	Polishing Wool Pad	Steel Spring Clamps	Tapcon Screws / White 3/16"	Scaffold System		
Buffer 7"/Grinder or	Polishing Wool Pad	Straight Edge	ThermaClean Cleaner	Shop Vac		
Right Angle Drill 3" Buffer/Grinder	Polishing Wool Pad	T Square	Wet Sand Paper 1000/1500	Step Ladders		
	Extension Cords	Third Hand Supports		Utility Cart		
		Utility Knife		Work Bench		
		View Mirror		Work Lights		

Chapter Twenty : Personal Protective Equipment (PPE) -

When cutting, routing, drilling, sanding, and installing Arcoplast Acryloyl (Engineered Polymer) products always wear Personal Protective Equipment (PPE) such as safety glasses, dust mask, gloves, hard hat, garments, and ear protection.

Arcoplast recommends installation contractor to complete the OSHA training / certification program.

Contact Arcoplast technical services for inquiries on the BSL installation & certification program.

DISCLAIMER

This manual is provided for informational purposes only. Arcoplast, Inc.'s (hereinafter "Arcoplast") information contained in this manual represents the current views of Arcoplast on the issues discussed as of the date of publication. These opinions, as expressed, should not be interpreted to be a commitment on the part of Arcoplast, and Arcoplast cannot guarantee the accuracy of any information presented after the date of publication. The user assumes the entire risk as to the accuracy and the use of this document.

This manual provides a basic guide for the installation of Arcoplast's Modular Panel and is intended to supplement, rather than replace, the basic construction knowledge of the construction professional. All installations of Arcoplast's modular panels must be in accordance with all applicable building codes.

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IMPORTANT: FAILURE TO INSTALL THIS PRODUCT IN ACCORDANCE WITH ARCOPLAST'S INSTALLATION MANUAL MAY LEAD TO PERSONAL INJURY, PROPERTY DAMAGE AND/OR AFFECT PERFORMANCE OF ARCOPLAST'S MODULAR PANEL(S).

In no respect shall Arcoplast incur any liability for any damages, including, but limited to, direct, indirect, special, or consequential damages arising out of, resulting from, or any way connected to the use AND/OR INSTALLATION of its Modular Panel(s), whether or not based upon warranty, contract, tort, STATUTORY PROVISION or otherwise; whether or not injury was sustained by person, property or otherwise; and whether or not loss was sustained from, arose out of, OR the result of Arcoplast's Modular Panel(s).

NOTE: No installation manual can anticipate all the questions that might arise during installation of Arcoplast's Modular Panel(s) product. Recognizing this, Arcoplast focused on the tools and techniques used to complete typical installations. Where appropriate, Arcoplast also included alternative approaches for specific installation steps. If you encounter a unique installation problem not covered in this manual, we suggest you contact Arcoplast directly at 1-888-736-2726.

For additional information contact our technical services (888) 736-2726

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