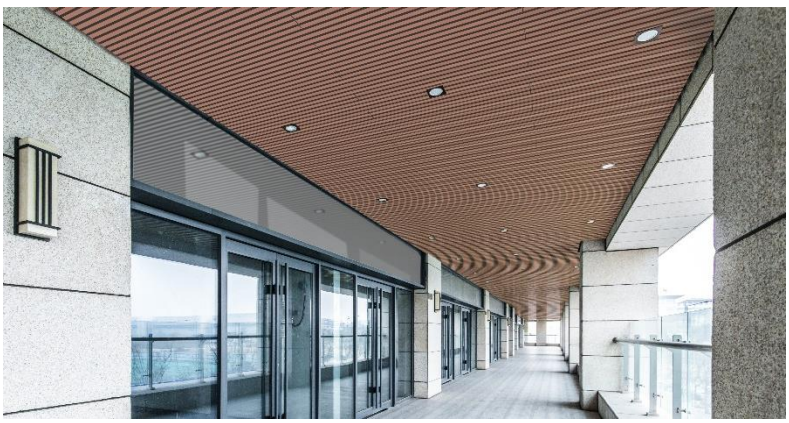
NOVANO

INSTALLATION GUIDE

NOVANO 3”RHOMBUS PROFILE

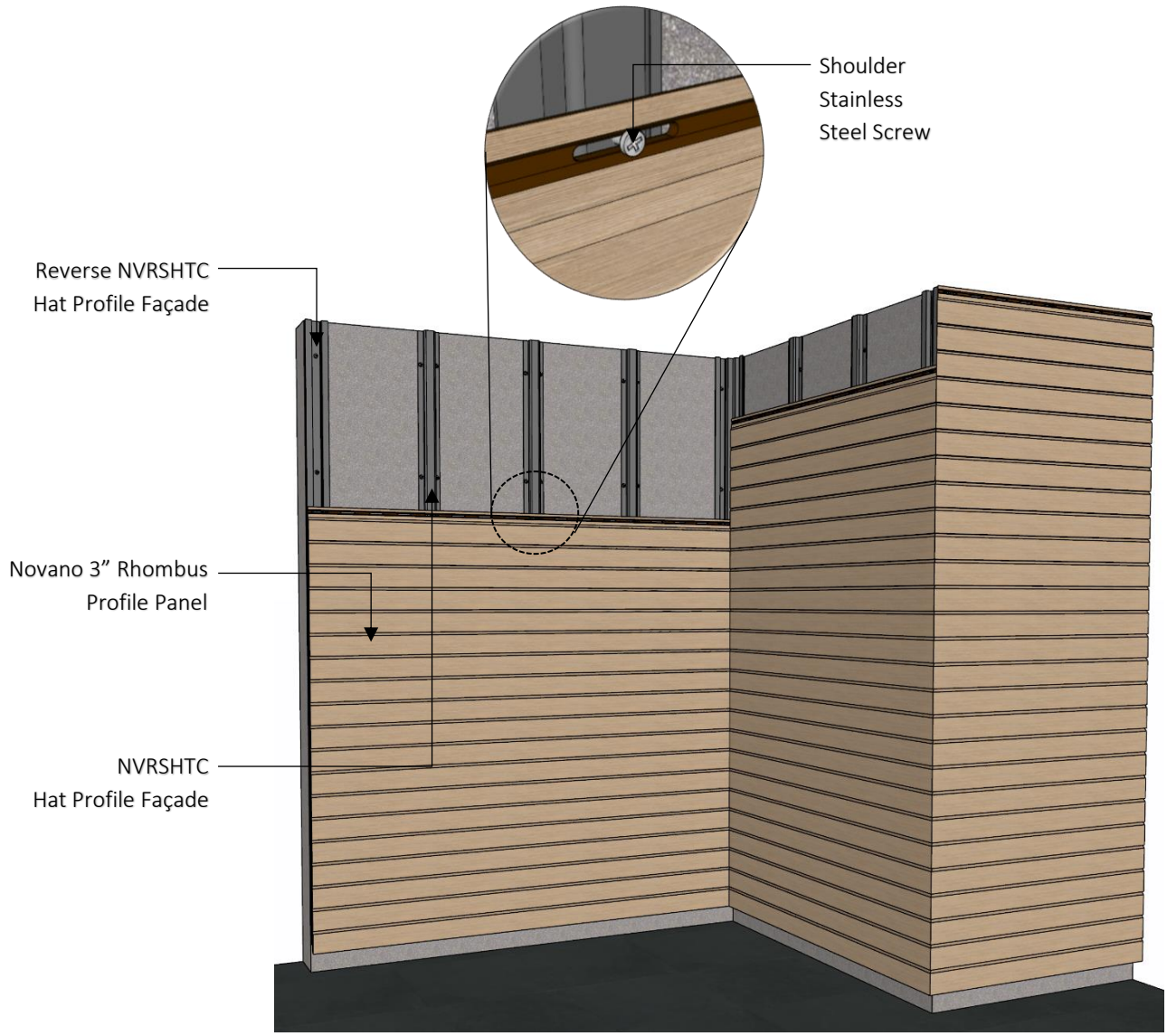


1. INTRODUCTION

NOVANO is an innovative replacement that represents a real game changer in sustainable house construction. The name NOVANO is made up of the words "Nova Ligno", which means something like "New Wood". It is a natural fiber that can also be recycled as a material. It is astonishingly similar to its original, but thankfully does not turn gray over time. Thanks to this new type of product, it is now possible to feel the warmth, homeliness and security that wood conveys without needing it in its natural form. This was and is the quintessential production of Novano.

SECTION 1 - Basics

OVERVIEW OF PARTS



ISOMETRIC VIEW

BASIC PARTS OF NOVANO 3” RHOMBUS PROFILE

SECTION 2 - Scope of Delivery

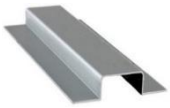
NO.	PRODUCT NAME AND SPECIFICATION	ISOMETRIC VIEW	UNIT	LENGTH	WEIGHT
1	**NVRPH701836C00** 70mm x 18mm Novano 3” Rhombus Profile Hollow Profile Uncoated		PCS	3,65 m	4,5 kg
2	**NVRPH701836Cxx** 70mm x 18mm Novano 3” Rhombus Profile Hollow Profile Coated		PCS	3,65 m	4,5 kg
3	**NVRSHTC40** A=18mm | W=38mm Hat Profile		PCS	4 m	0,9 kg
4	**NVRSHTCP40** A=18mm | W=38mm Perforated Hat Profile		PCS	4 m	0,9 kg
5	**NVJS04** A=22mm | B=30mm Starter J-Strip		PCS	4 m	0,45 kg
6	**NVRSS25** 1” TEC Shoulder Screw 3,5x25mm, V2A		1000 PCS	--	4,5 kg

Table 1.1 "Scope of Delivery"

NOTE: Table above shows products commonly used for Novano 3” Rhombus Profile Panel. To view a complete list of products, please refer to our Novano brochure or visit our web site https://www.novano-resysta.de/

IMPORTANT:

Four Major Bullet Points You Must Follow for a Successful Novano 3" Rhombus Profile Panel Installation

- **Screw Placement**
- **Room for Expansion and Contraction**
- **Hard Fastening of each Plank**
- **Top to Bottom Ventilation**

NOTE:

Proper planning of the Novano 3" Rhombus Profile panel layout is essential for ease of installation of rhombus boards and rhombus components. Thoroughly read the following rhombus assembly instructions and obtain all necessary building permits prior to starting your installation. Decide finishing and trimming options prior to starting the project to ensure rhombus finishing detail is uniform for all sides of the building. Installation is the sole responsibility of the installer. Novano Company assumes no responsibility whatsoever with respect to the installation. The information contained herein is provided for guidance purposes only and should not be relied upon as any absolute representation by Novano.

Safety Tips:

1. Always check for power, gas, and water lines before installing them.
2. Always wear safety glasses when operating power equipment.

Assembly Tips:

1. Battens should be flat and level to each other. Novano 3" Rhombus Profile will follow the contour of the wall.
2. Novano rhombus system is not a rain screen or water proof system. Novano rhombus is a water shed system.
3. Proper wall preparation according to local building codes and wall covering manufacture's recommendations should be adhered to. This includes but is not limited to flashing all openings.
4. All holes should be predrilled and installation holes should be slotted.
5. Only use construction fastening material and hardware suitable for outdoor use (e.g. stainless steel screws). Recommended is the use of shoulder screw.
6. Always consider the linear expansion of Novano, which is dependent on the temperature but not the air humidity. See Table 1.3 "Novano Expansion" for more information.
7. Cut-off pieces and/or abrasive dust must be disposed of separately. Please comply with regulations of your competent waste management. You may under no circumstances burn Novano material.
8. Cutting to length should be carried out at consistent material temperature. Therefore, the material should be stored in the shade or in areas where it is not exposed to direct sunlight. The material can warm up considerably in the sun, leading to an increased change in length. In the case of more distinct fluctuations in material temperature, cutting to length may have to be adapted accordingly.
9. Please store Novano products flat on level surface.

Code Compliant Batten Spacing

Part Number	Part Description	Batten Span (mm)
NVRPH701829C00	3" Rhombus Profile 70mm x 18mm	400
NVRPH701829Cxx	3" Rhombus Profile 70mm x 18mm	400

Table 1.2 "Batten Spacing Requirements"

Recommendation for Batten Spacing

If the Novano rhombus panel is being installed in a hot southern location and will be exposed to direct sunlight for the majority of each day and/or the panel will be stained a dark color, the batten spacing is suggested be reduced to 200mm or 300mm center-to-center for all rhombus profiles.

Expansion / Contraction of Novano 3" Rhombus Profile Panel

Novano Expansion – Contraction Guide	
Profile Length	**3,65 m**
Expansion / Contraction amount (approx..) 0.3% over 50°C variation in temperature)	11 mm

Table 1.3 Expansion – Contraction: Average expected expansion – contraction (this can vary based on geographical region).

Novano 3" Rhombus Profile Panel Gap Guide					
	Molding Gap of Panels				H-Shape Bar Panel Gap
Temperature at Installation	**Below 0°C**	**15°C**	**20°C**	**30°C**	
Amount for 6" Flat Profile Length of 3,65 m	11 mm	8 mm	3 mm	0 mm	6 mm

Table 1.4 "Novano Expansion" – Ensure a steady material temperature when cutting the panels to size, i.e. the cutting has to be done under constant conditions, e.g. inside or in shade.

Always consider linear expansion of Novano 3" Rhombus Profiles panel during the installation of the products. If temperatures fluctuate during the installation, the gaps placed between the ends of the panels and a corner, window, or door must change with the temperature. Use the guide above to gap boards during installation.

Expansion – Contraction Tips:

1) Control Piece
   at the start of the day cut a length of panel that is desired to be installed and keep this panel in the same area as the cutting and storage of the remaining panels. This panel will be a "Control Piece" to reference when cutting other panels to be installed. Throughout the day the "Control Piece" can be referenced and the saw cuts adjusted accordingly as the panels expand and/or contract. Heat from the sun will cause Novano rhombus panels to expand so if the material is stored in the shade keep the "Control Piece" in the shade as well.

Example:

If 4000mm panels are being installed put aside one 4000mm panel at the start of the day. Reference these panels throughout the day and adjust the cutting of the other panels to match.

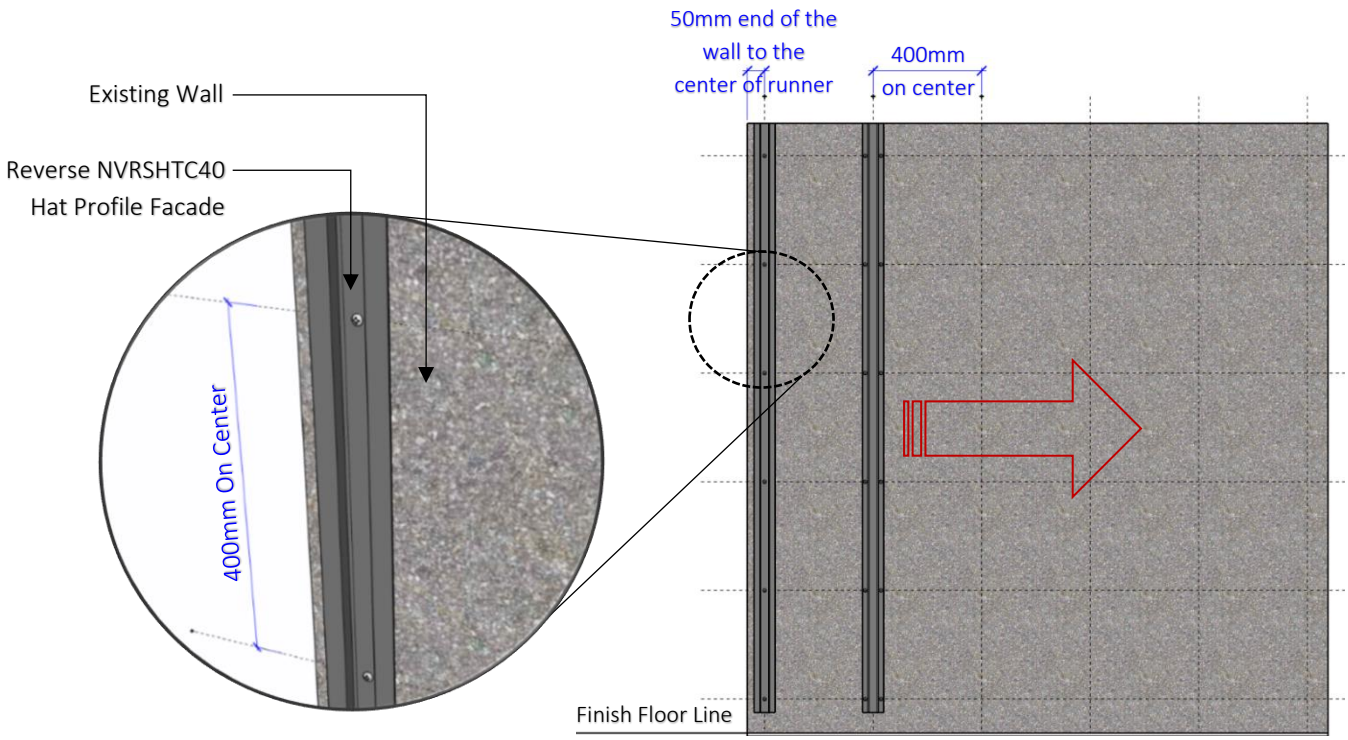
2) Control Gap
   at the start of the installation place the panel gap according to Table 1.4 and mark the first gap made. This gap will be a "Control Gap" to reference when gapping the remaining panels to be installed. Throughout the installation reference back to this "Control Gap" to match the other gaps being installed. This will ensure that all the gaps installed are the same.

2. INSTALLATION - PROCEDURE

SECTION 1 - Batten Substructure

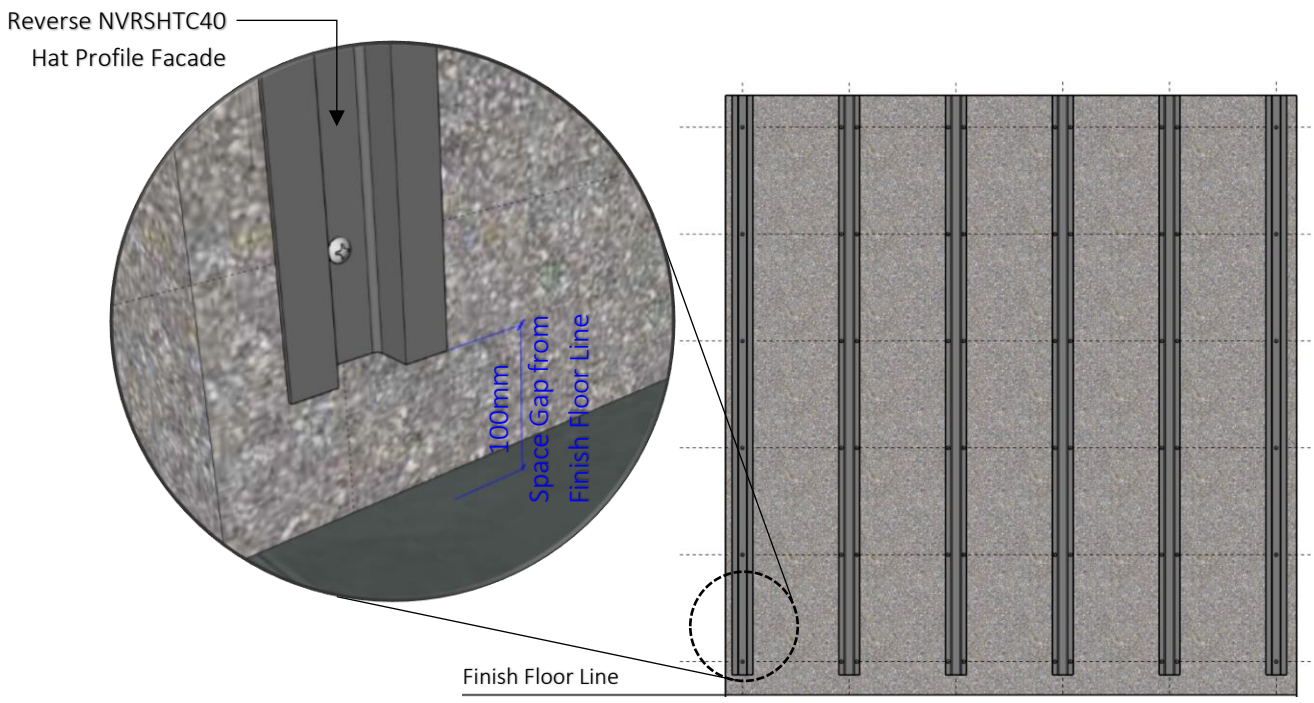
General Notes on Batten Substructure

Novano 3" rhombus profile panels can be installed in horizontal or vertical applications and the batten substructure should be planned to accommodate how the panels will be installed.



FRONT ELEVATION

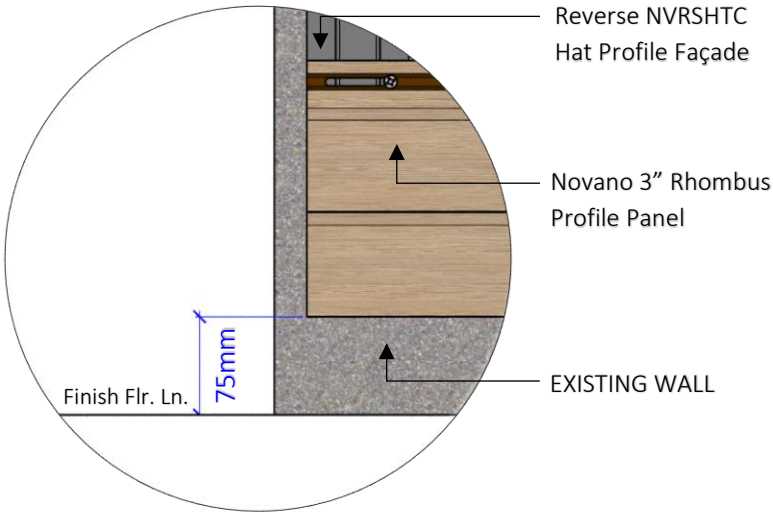
HORIZONTAL PANELS / VERTICAL BATTENS



FRONT ELEVATION

HORIZONTAL PANELS / VERTICAL BATTENS

Novano 3” Rhombus profile panel require a minimum of 75mm from the ground to the start of the Novano 3” Rhombus profile panel in horizontal installations. Plan the batten substructure and wall assembly accordingly to accommodate panel installation while adhering with local building code requirements.



DETAIL
BATTENS DETAIL

Novano Aluminum Batten Substructure

Install the battens and secure to the frame substructure in compliance with local building codes. Ensure that the installed battens do not exceed the “Batten Spacing Requirements” of Table 1.2. On walls where two panels will be used end-to-end, a minimum of two battens must be used to accommodate the fastening of the panels and any molding panel pieces desired to the batten substructure where the panels meet. Prior to installing the Novano 3” Rhombus profile panels, ensure that the batten installation provides a minimum 20mm air gap behind the panels and there is sufficient support for all panels and molding accessories. This is often achieved through the installation of battens with a minimum thickness of 20mm.

Battens should be installed on top of a code compliant sheathing with fasteners and fastener spacing sufficient to accommodate all loads imposed upon it by the Novano 3” Rhombus profile panels, molding components, and any other accessories attached to the battens. Novano 3” Rhombus profile panels must be attached to aluminum battens with Novano shoulder stainless steel screws taking care to not penetrate the weather barrier. If the weather barrier is going to be penetrated reference the weather barrier manufacture’s recommendations.

Notes on Novano Shoulder SS Screw

Novano Aluminum Batten Installation Guidelines

When using metal battens, either steel or aluminum, it is recommended to use the Screw which can be driven through the aluminum panel trim and into the metal batten. Trim should be fastened 400mm on center for either horizontal or vertical installations. If the batten substructure spacing is reduced for the panel, the trim should be fastened at the same interval as the panel. Be aware of fastener placement for the panel trim so as to not hinder the installation of the Novano 3” Rhombus Profile panel.

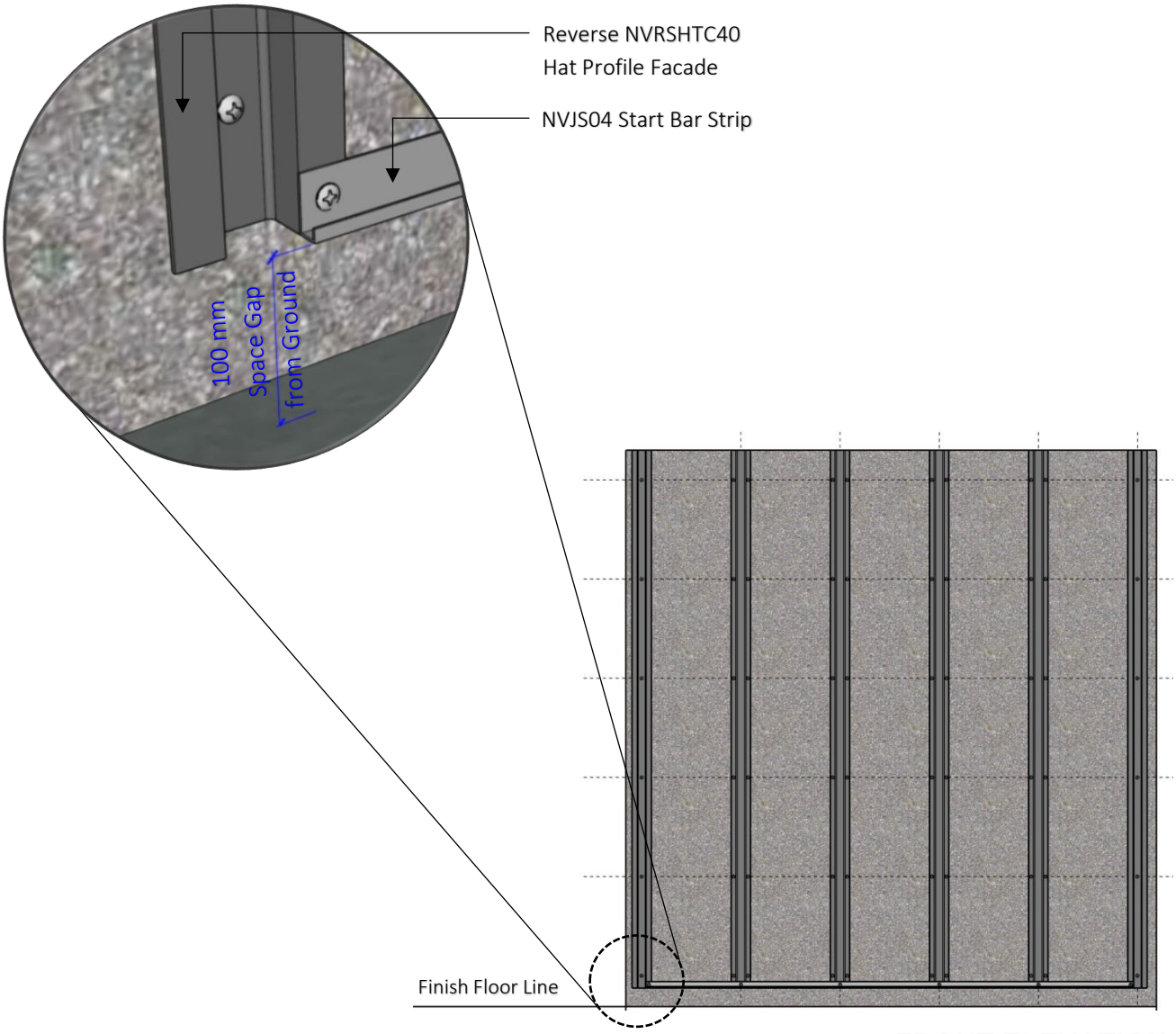
SECTION 2 – **Horizontal Panel Applications**

STEP 2.1

Pre apply all finishing trim accessories such as trim around corners, windows, and doors according to the pre plan layout and following the manufacture's recommendations. Ensure that all trim is level and square. Battens should be installed vertically.

STEP 2.2

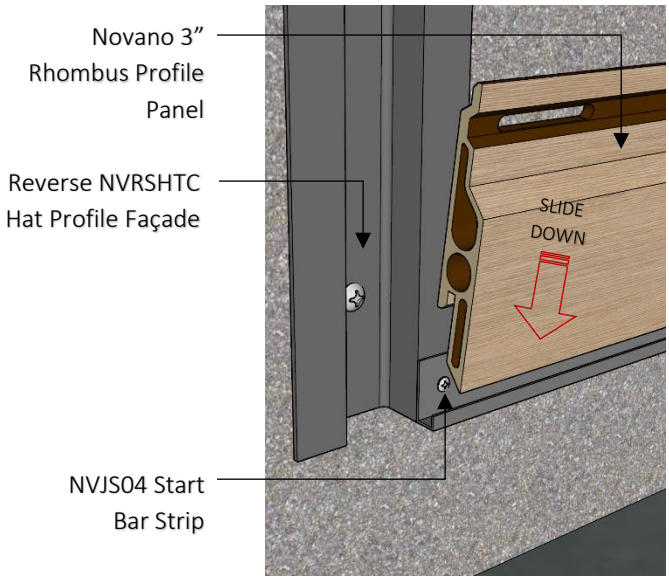
Aluminum starter bar strip is required to install the Novano 3" Rhombus profile panel. Attach the starter bar strip at the bottom of the battens following the fastener and spacing recommendations in Section 1. The Novano 3" Rhombus profile panel will hang 12mm below the bottom of the starter bar strip therefore the starter bar strip should be attached accordingly as per the pre plan layout.



FRONT ELEVATION
NOVANO HORIZONTAL PANEL

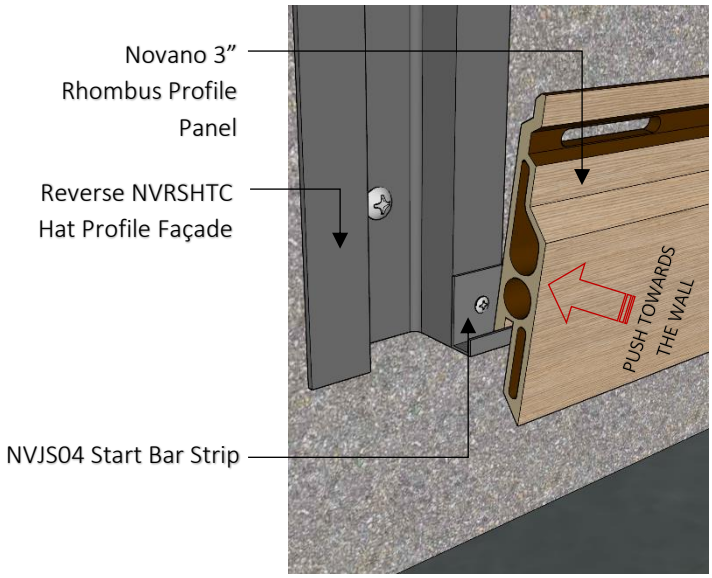
STEP 2.3

Hook the groove end of the first panel into the starter bar strip.



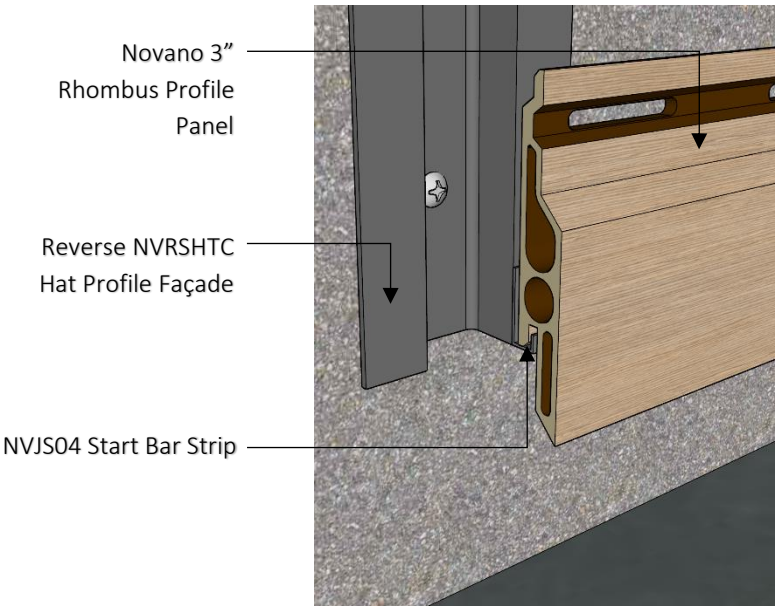
DETAIL
NOVANO HORIZONTAL PANEL

Step 1
Slide down the first Novano panel into starter bar strip.



DETAIL
NOVANO HORIZONTAL PANEL

Step 2
Hook the groove end of the first Novano panel into the starter bar strip with SS screw.

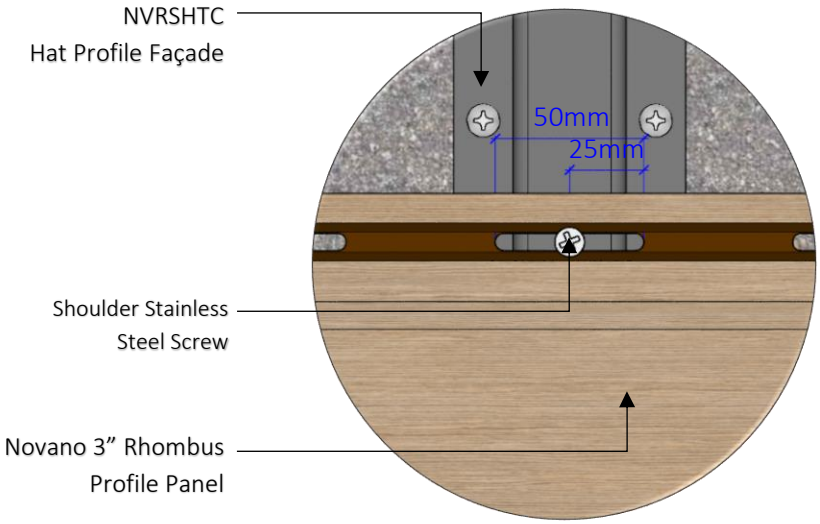


DETAIL
NOVANO HORIZONTAL PANEL

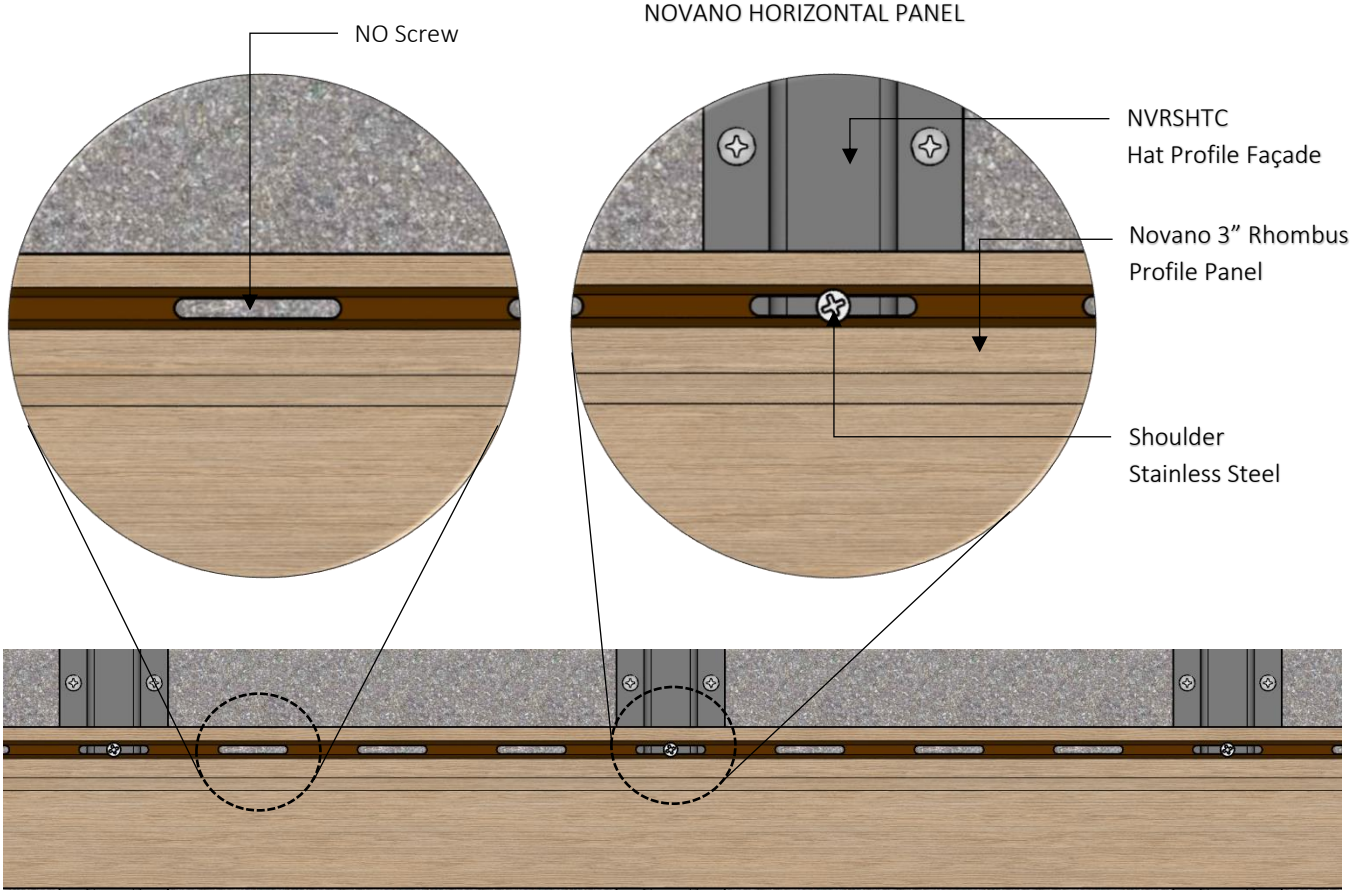
Step 3
Push the Novano panel perpendicular into the runner and screw direct to the groove.

STEP 2.4

Install screws into all slotted holes except the center hole. DO NOT over tighten the screws. The screws should be placed in the center of the slotted hole and loose enough to allow the panel to move freely from side to side to allow for expansion and contraction.



ISOMETRIC DETAIL
NOVANO HORIZONTAL PANEL



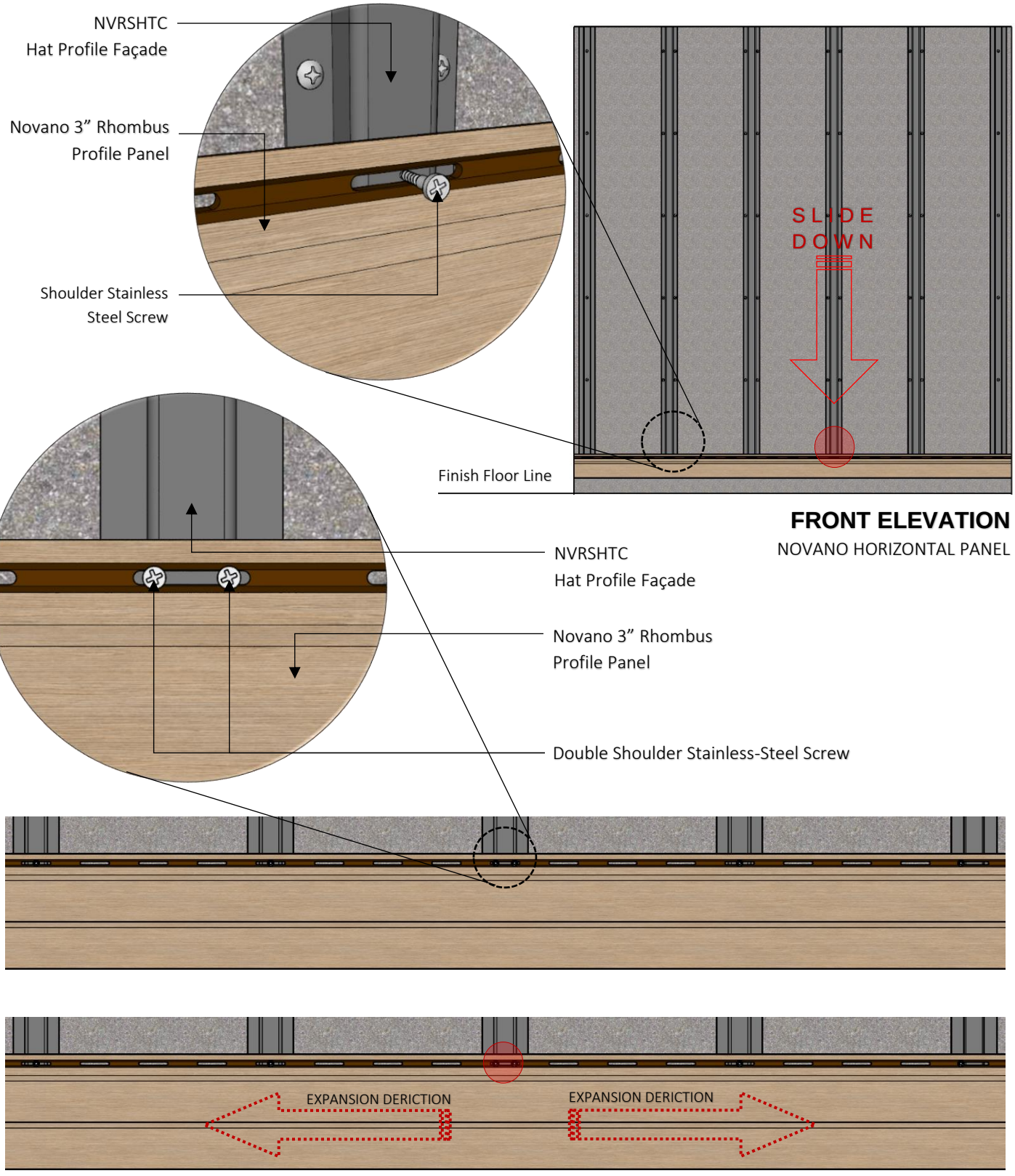
FRONT ELEVATION
NOVANO HORIZONTAL PANEL

Note

If installing more than one panel in width, please refer to Section 3 – Horizontal Multi -Panel Applications

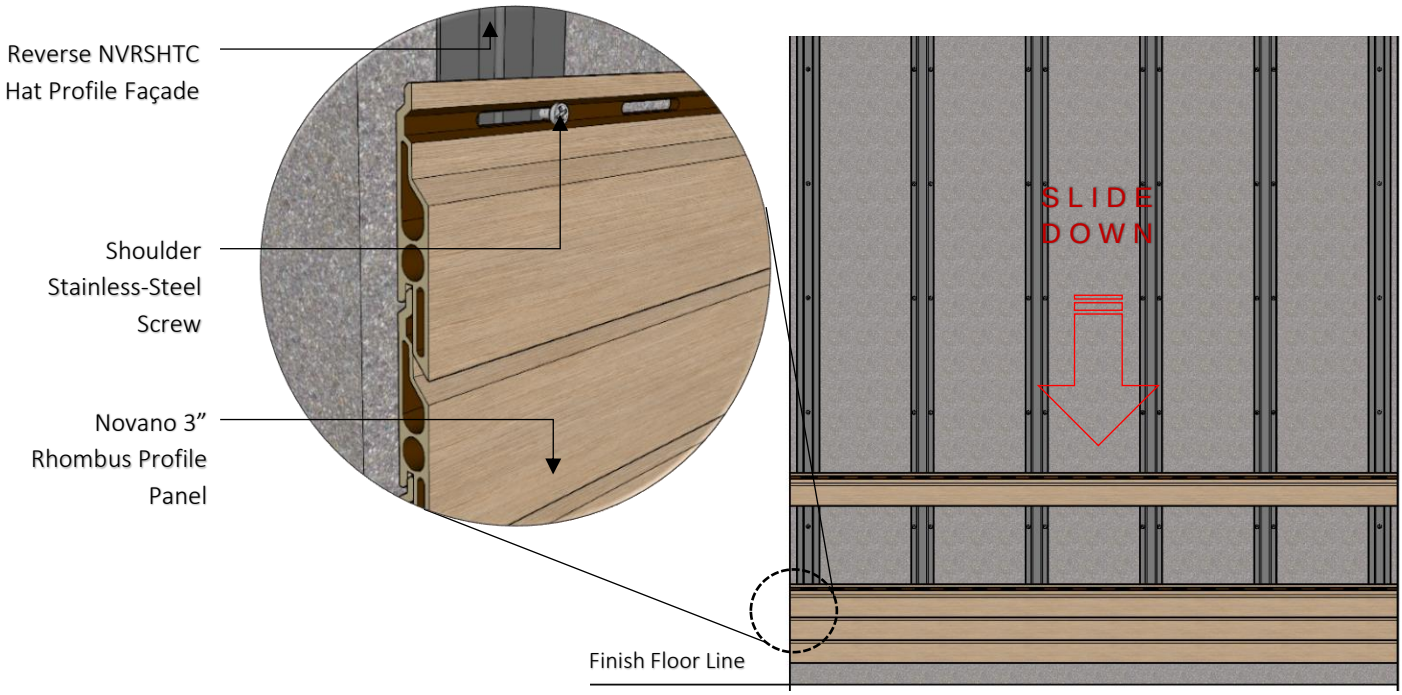
STEP 2.5

Install the final two screw in the slotted hole in the center of the panel. This will allow for expansion and contraction evenly to each side of the assembly.



Pinning Location

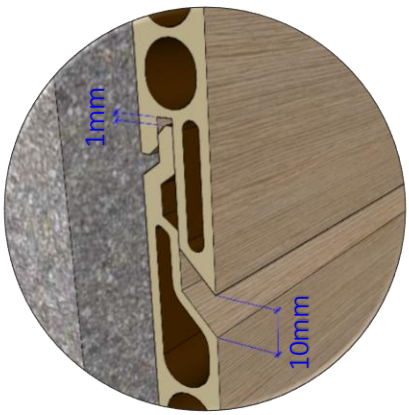
Every board should hard pin on the middle of the Novano 3” Rhombus profile panel allow for right or left side expansion direction.



FRONT ELEVATION
NOVANO HORIZONTAL PANEL

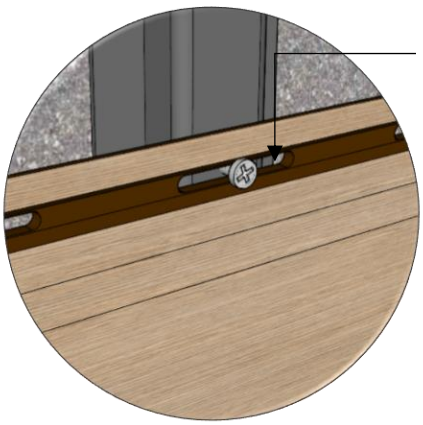
STEP 2.6

Hook the groove end of the next board onto the tongue of the installed Novano 3” Rhombus Profile.

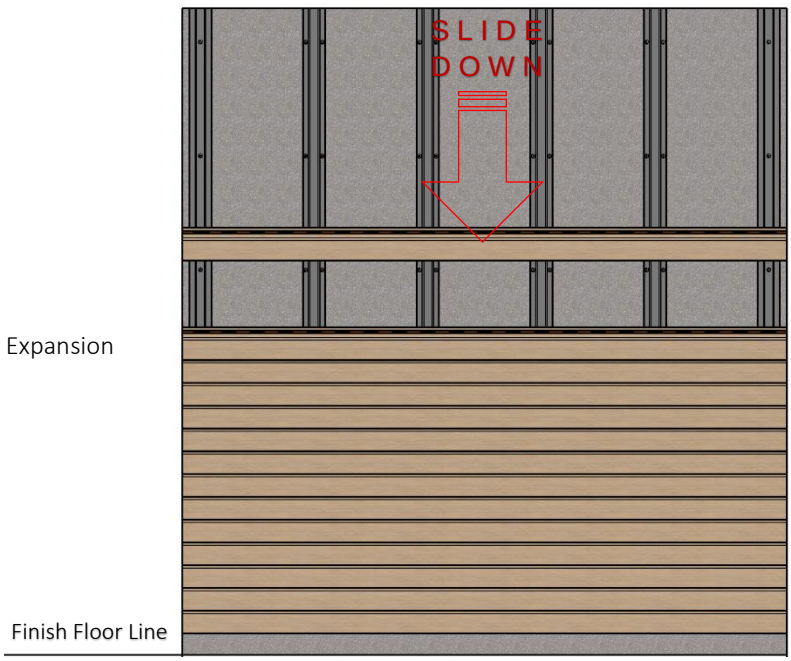


ISOMETRIC DETAIL
NOVANO HORIZONTAL PANEL

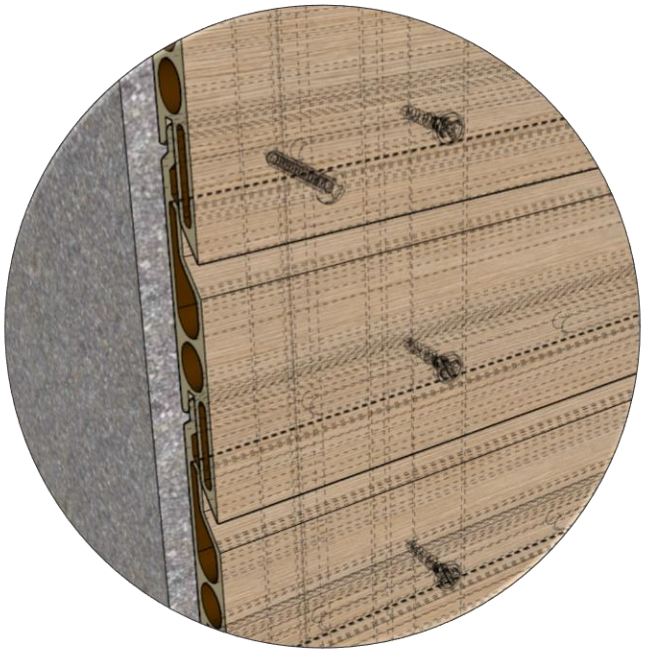
Note:
Ensure a 1mm gap expansion using shim with a space gap of 10mm from one panel to another panel.



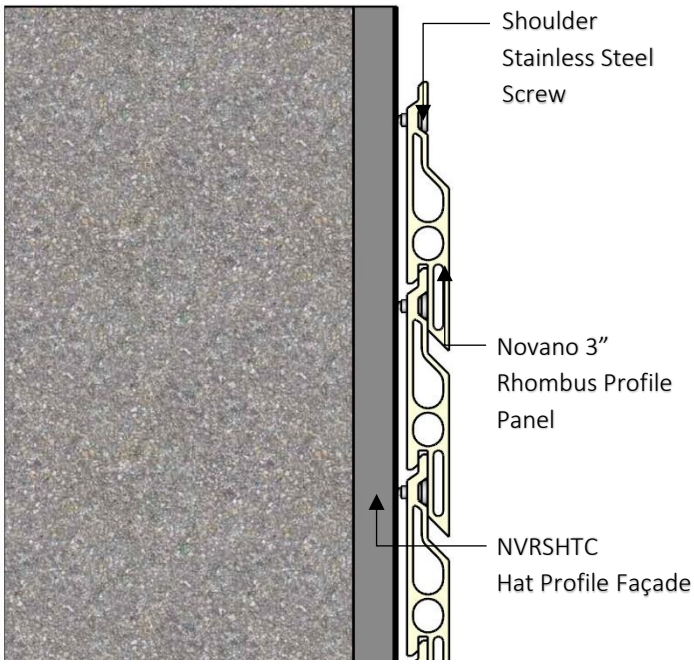
ISOMETRIC DETAIL
NOVANO HORIZONTAL PANEL



FRONT ELEVATION
NOVANO HORIZONTAL PANEL



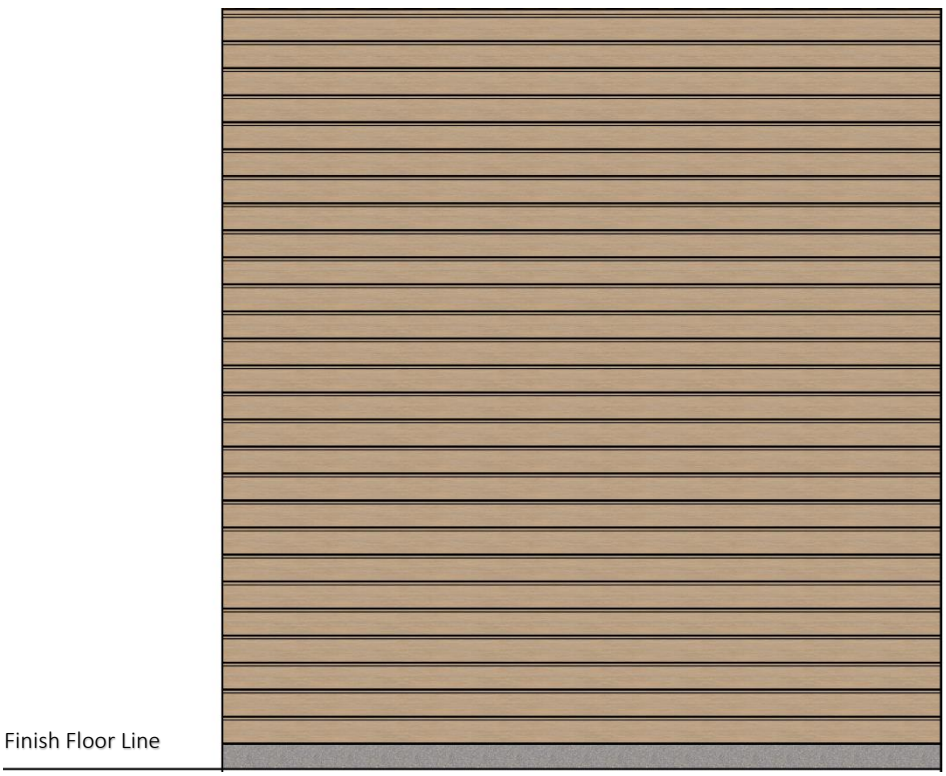
ISOMETRIC DETAIL
NOVANO HORIZONTAL PANEL



SECTION
NOVANO HORIZONTAL PANEL

STEP 2.7

Continue installing Novano 3” Rhombus Profile until installation is finished.

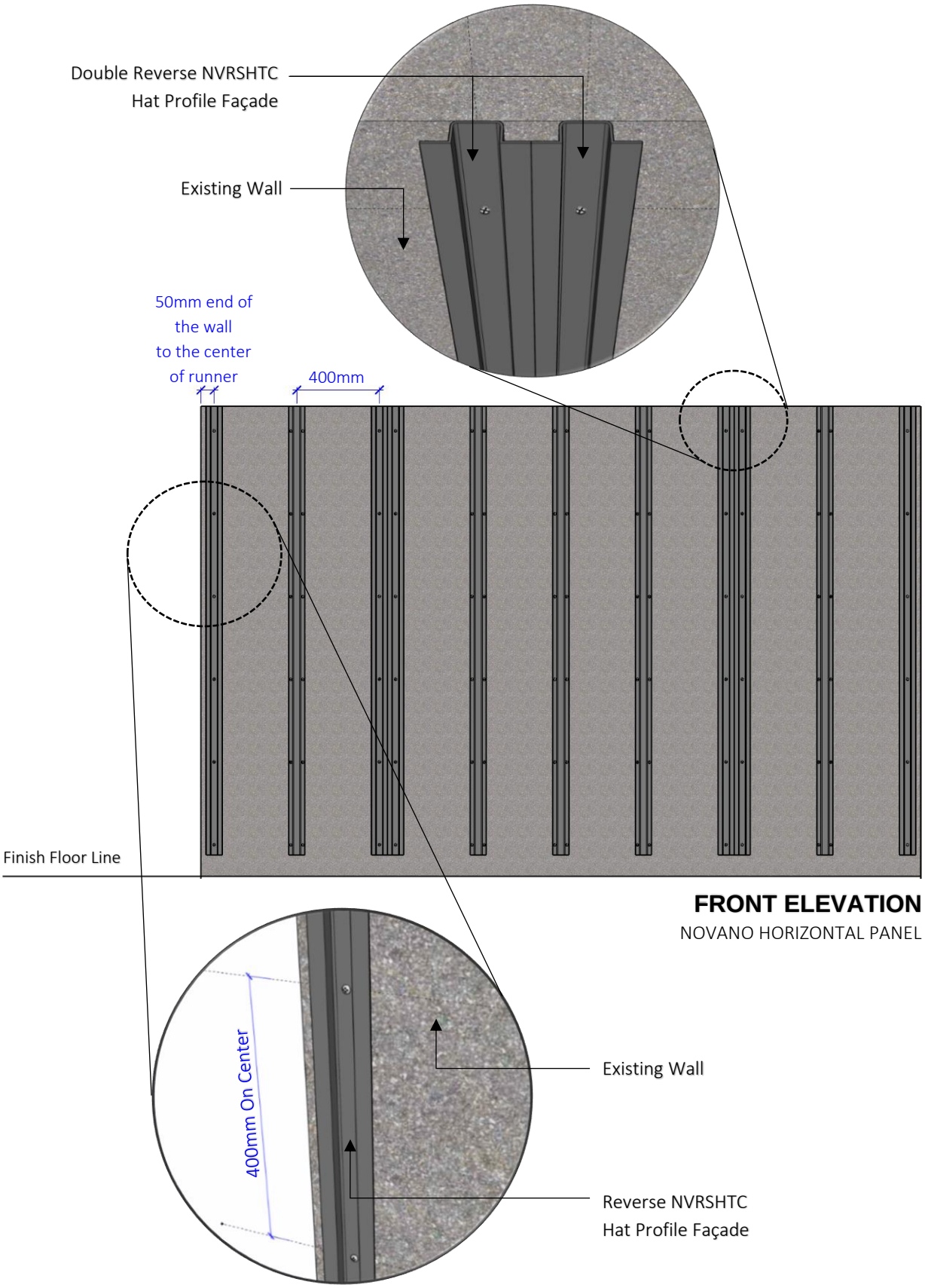


FRONT ELEVATION
NOVANO HORIZONTAL PANEL

SECTION 3 –Horizontal Multi-Panel Applications

STEPS 3.1

Ensure that two battens have been installed where panel are to be installed end to end.

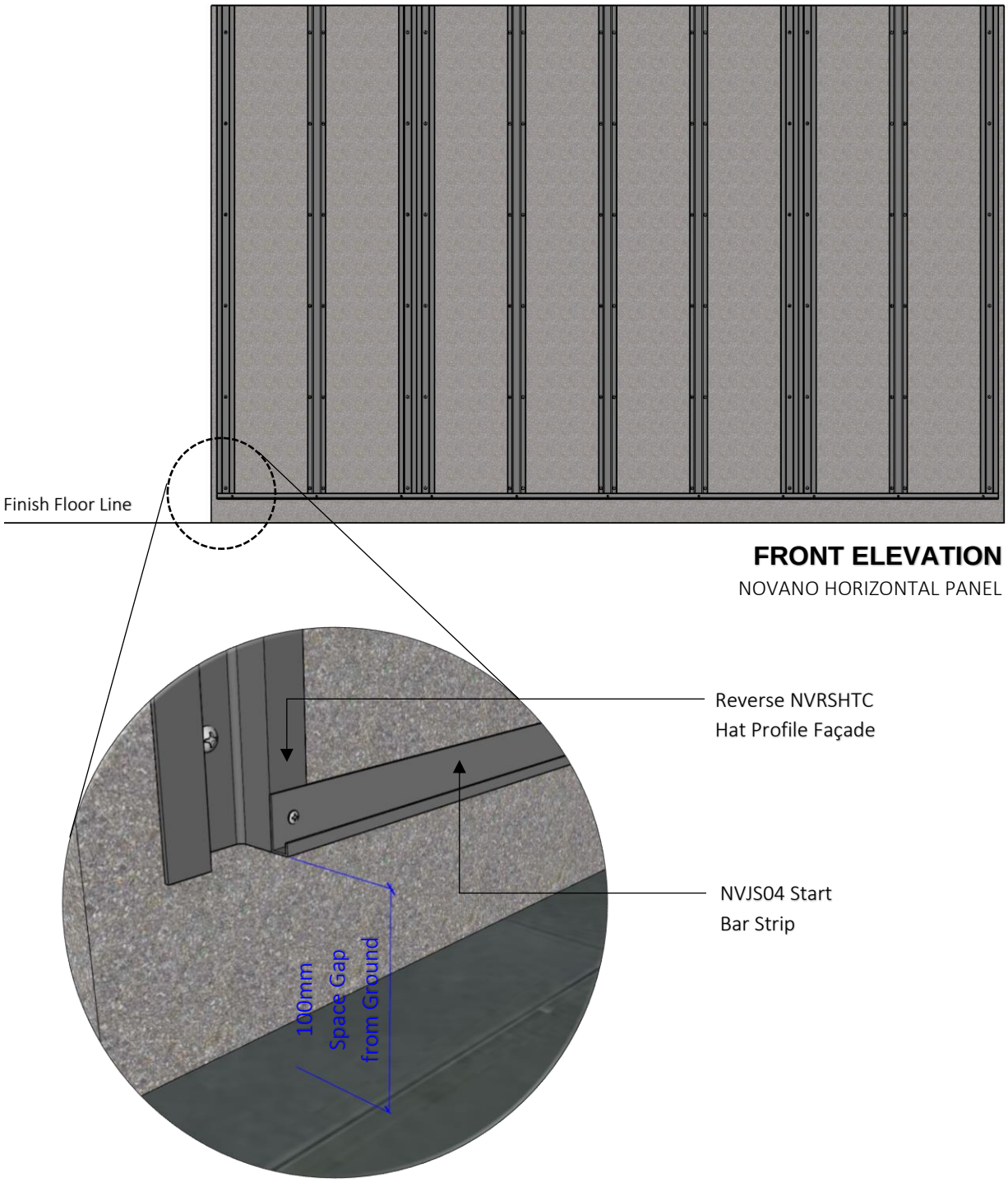


STEP 3.2

Pre apply all finishing trim accessories such as trim around corners, windows, and doors according to the pre plan layout and following the manufacture's recommendations. Ensure that all trim is level and square. Battens should be installed vertically.

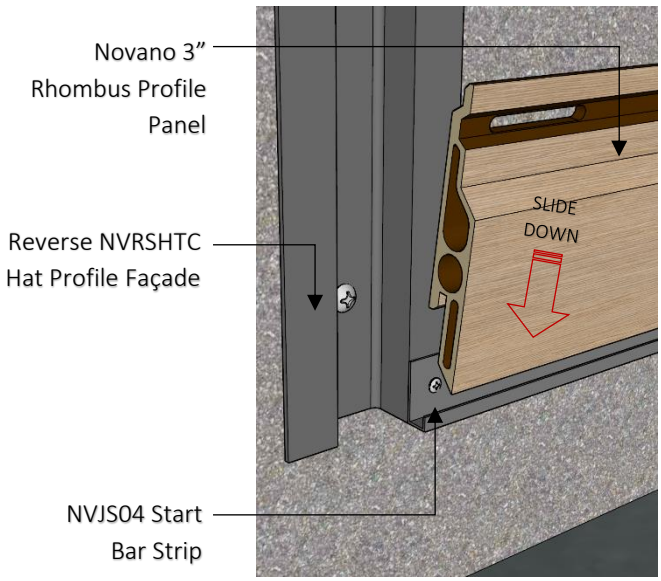
STEP 3.3

Aluminum starter bar strip is required to install the Novano 3" Rhombus Profile panel. Attach the starter bar strip at the bottom of the battens following the fastener and spacing recommendations in Section 1. The Novano 3" Rhombus Profile panel will hang 12mm below the bottom of the starter bar strip therefore the starter bar strip should be attached accordingly as per the pre plan layout.



STEP 3.4

Hook the groove end of the first panel into the starter bar strip.

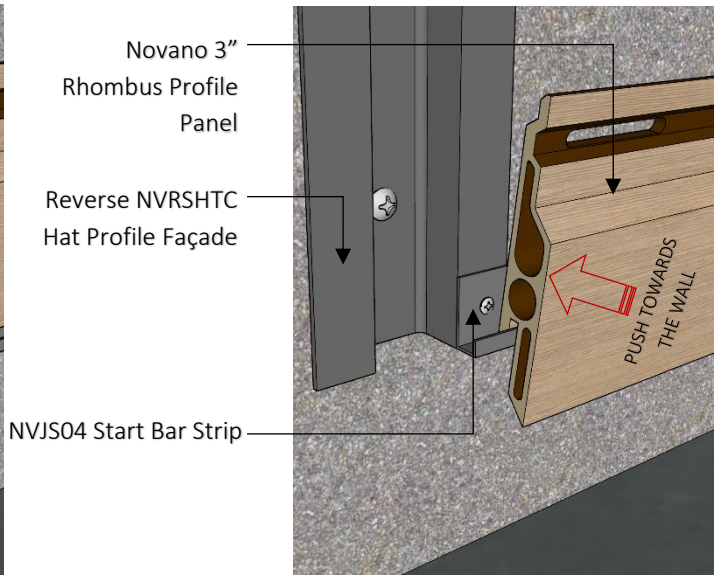


DETAIL

NOVANO HORIZONTAL RHOMBUS

Step 1

Slide down the first Novano panel into starter bar strip.

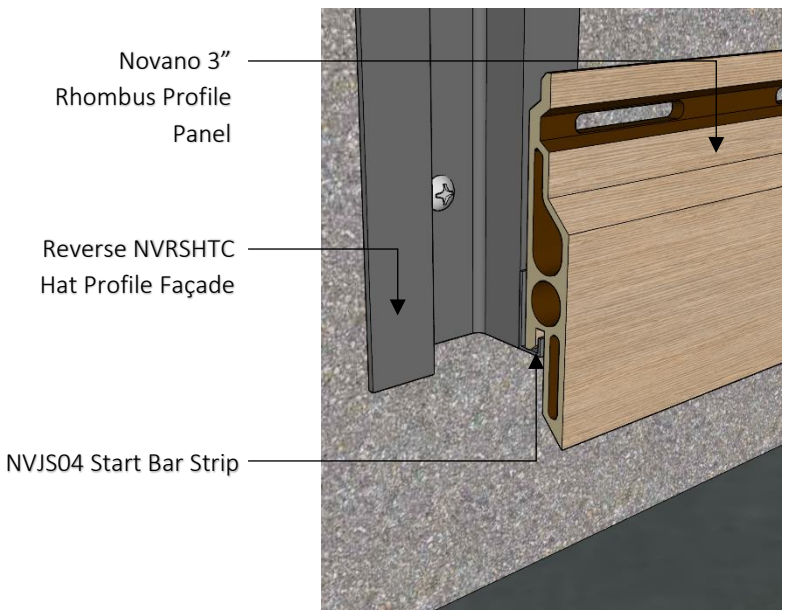


DETAIL

NOVANO HORIZONTAL RHOMBUS

Step 2

Hook the groove end of the first Novano panel into the starter bar strip with SS screw.



DETAIL

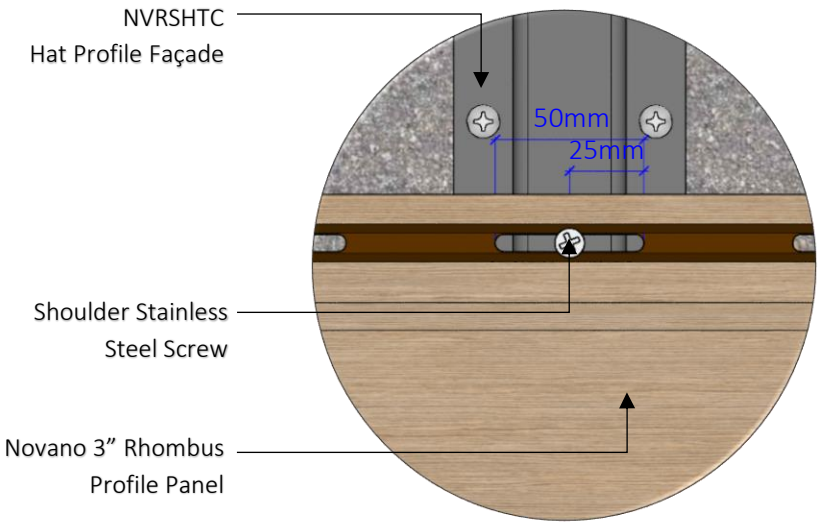
NOVANO HORIZONTAL RHOMBUS

Step 3

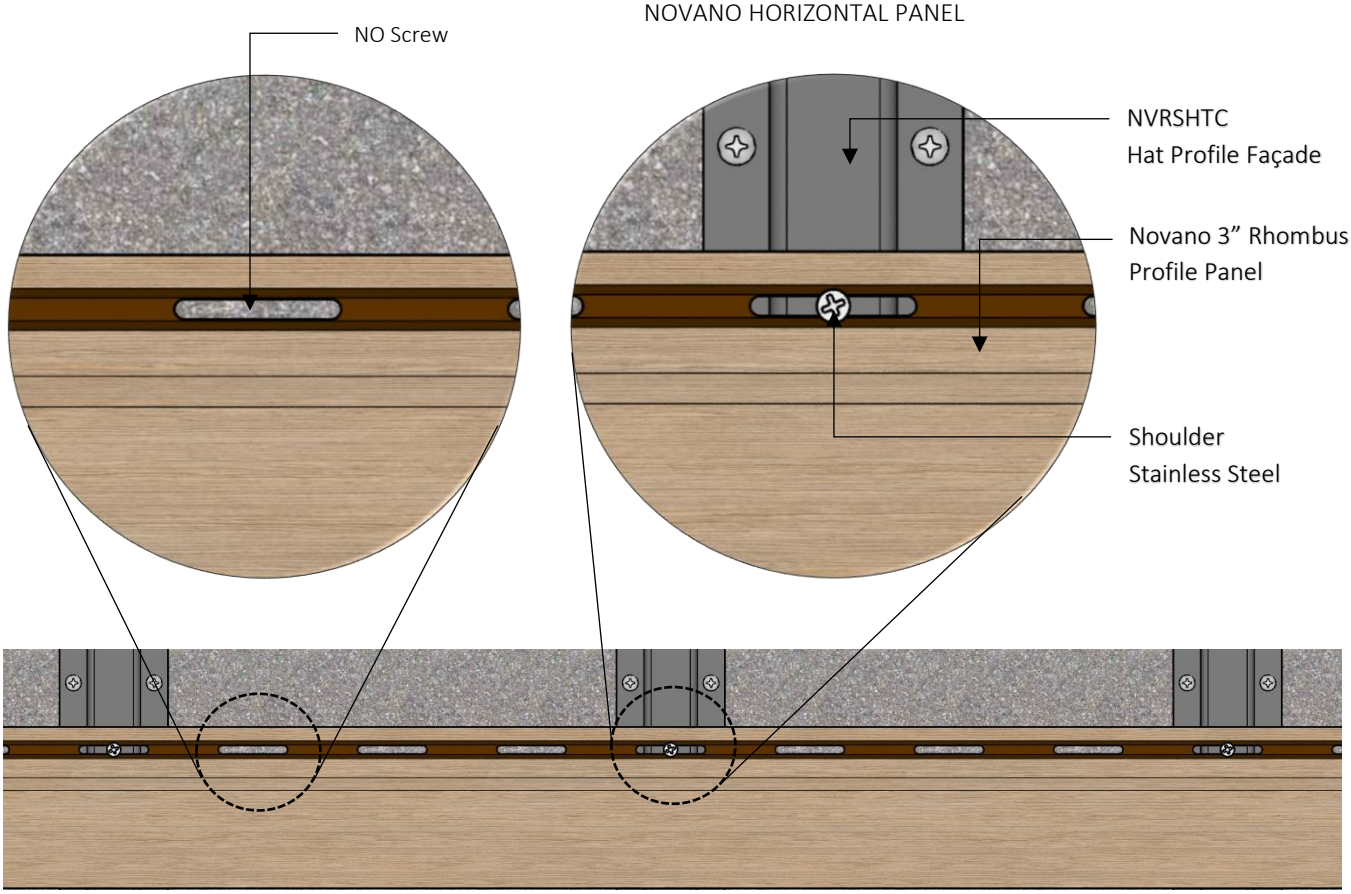
Push the Novano panel perpendicular into the runner and screw direct to the groove.

STEP 3.5

Install screws into all slotted holes except the center hole. DO NOT over tighten the screws. The screws should be placed in the center of the slotted hole and loose enough to allow the panel to move freely from side to side to allow for expansion and contraction.



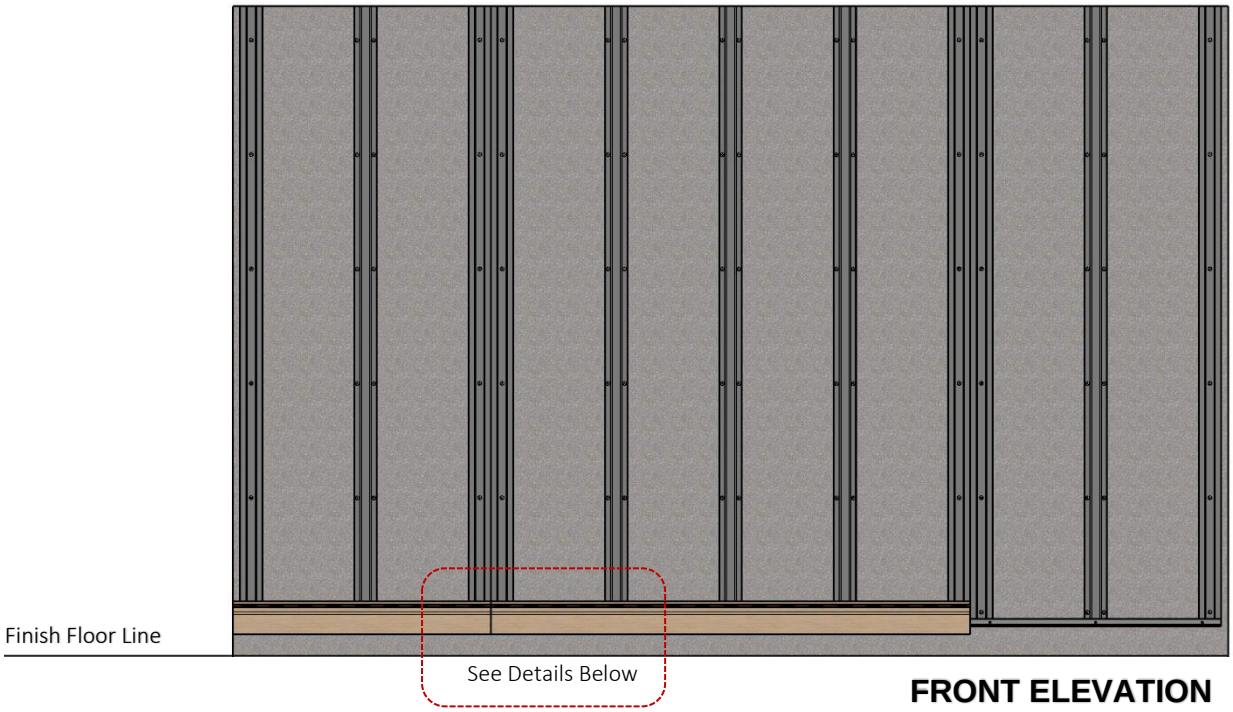
ISOMETRIC DETAIL
NOVANO HORIZONTAL PANEL



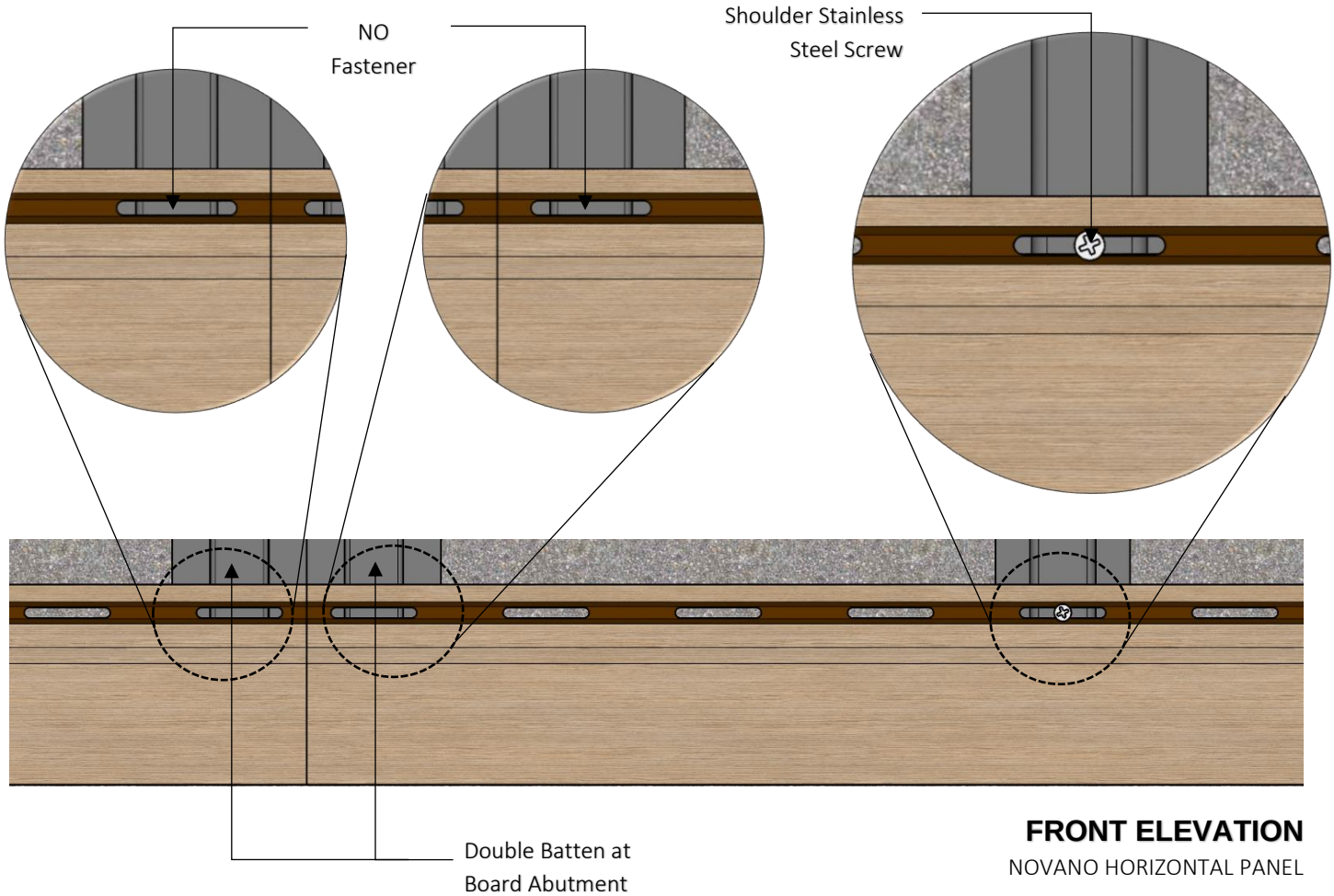
FRONT ELEVATION
NOVANO HORIZONTAL PANEL

STEP 3.6

Install screws into all slotted holes except the hole closest to the abutted joint on both panels. DO NOT over tighten the screws. The screws should be placed in the center of the slotted hole and loose enough to allow the panel to move freely from side to side to allow for expansion and contraction.



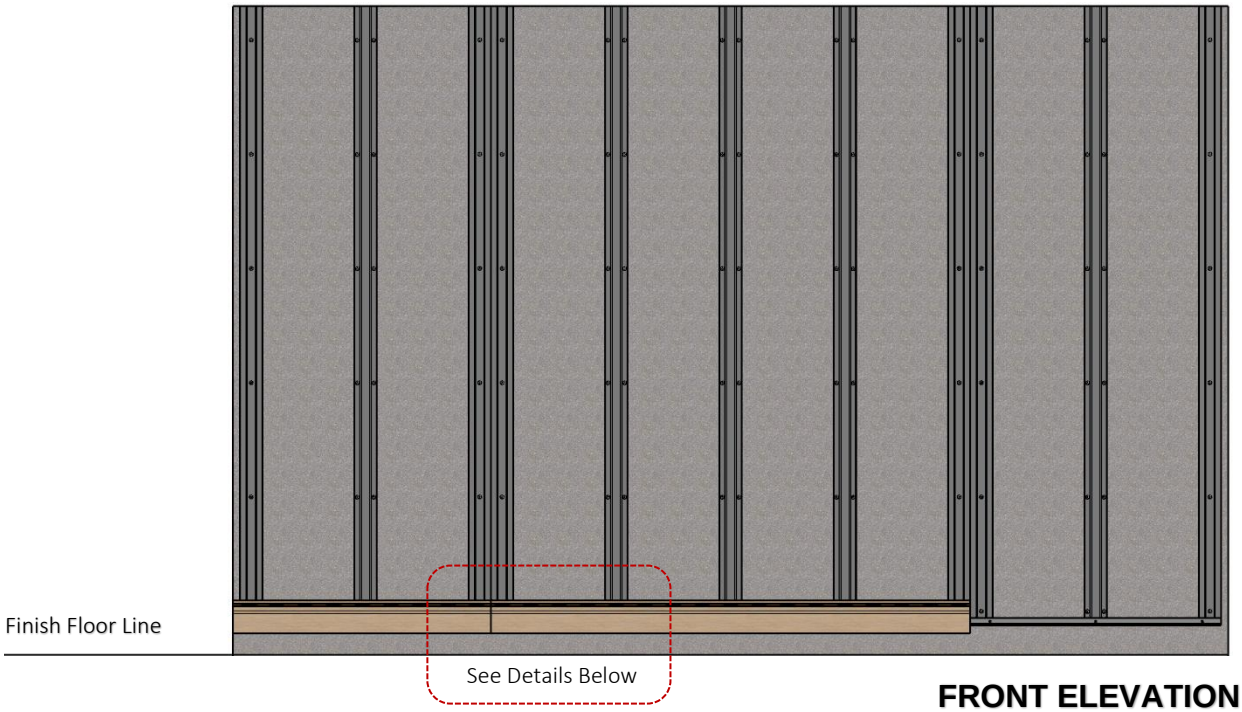
FRONT ELEVATION
NOVANO HORIZONTAL PANEL



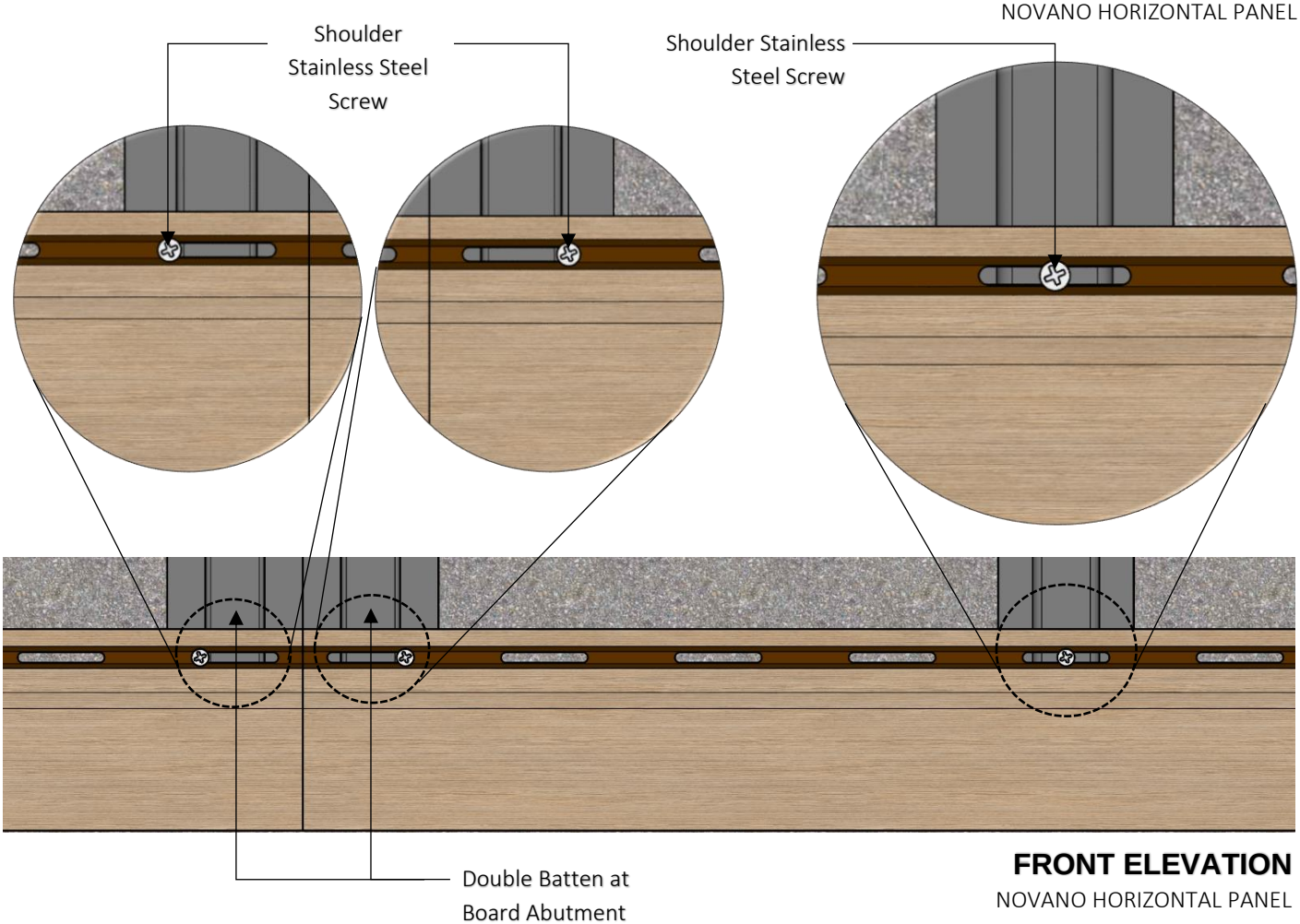
FRONT ELEVATION
NOVANO HORIZONTAL PANEL

STEP 3.7

Install one screw in the slotted hole closest to the abutted joint on both panels. The panel should be secured down at the double batten location with the fastener a maximum of 50mm away from the edge. This will control expansion and contraction evenly to the outside of the panels while keeping the abutting joint snug.



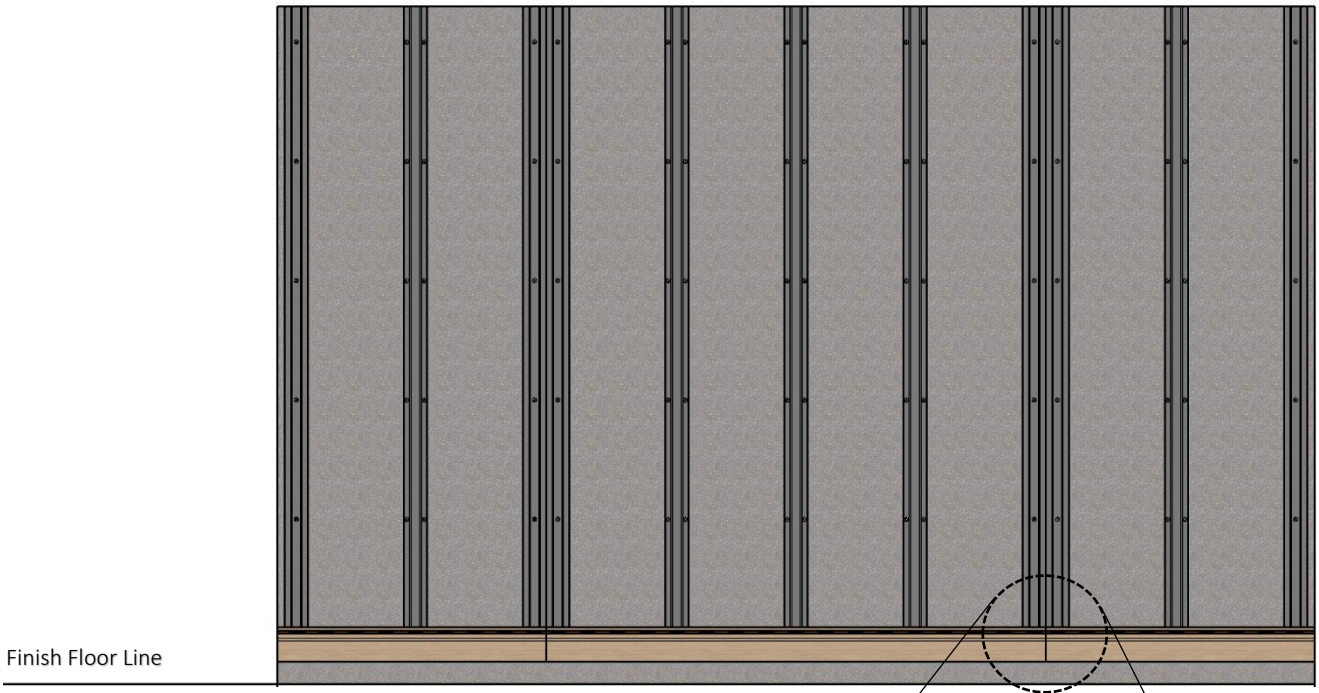
FRONT ELEVATION
NOVANO HORIZONTAL PANEL



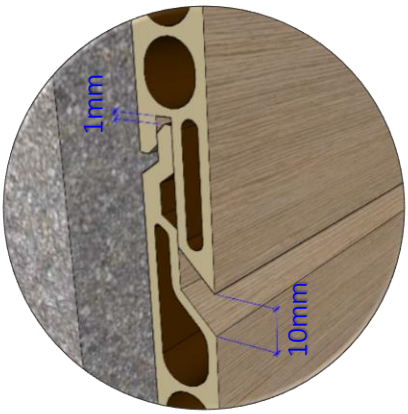
FRONT ELEVATION
NOVANO HORIZONTAL PANEL

STEP 3.8

Hook the groove end of the next panel onto the tongue of the installed panel.

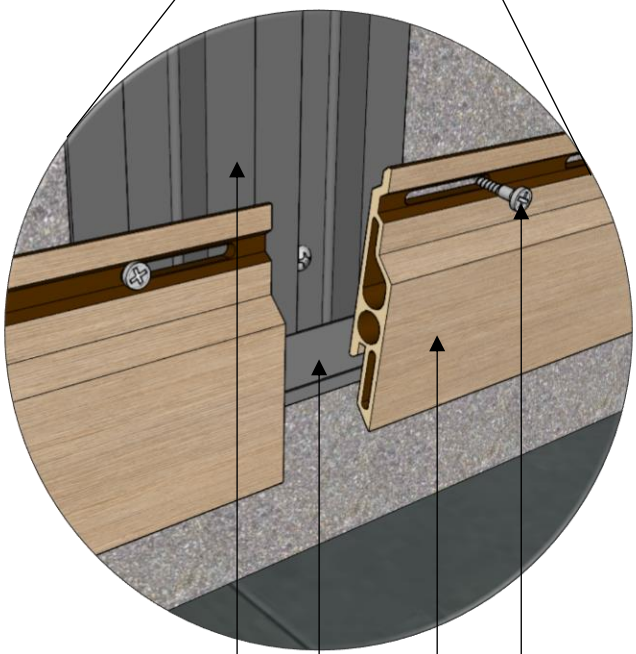


FRONT ELEVATION
NOVANO HORIZONTAL PANEL

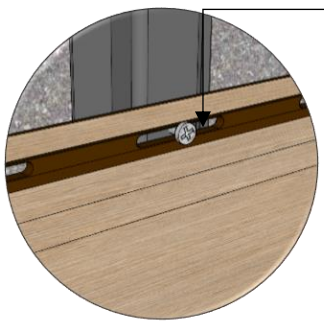


ISOMETRIC DETAIL
NOVANO HORIZONTAL PANEL

Note:
Ensure a 1mm gap expansion using shim with a space gap of 10mm from one panel to another panel.



Thermal Expansion Hole



ISOMETRIC DETAIL
NOVANO HORIZONTAL PANEL

Reverse NVRSHTC Hat Profile Façade

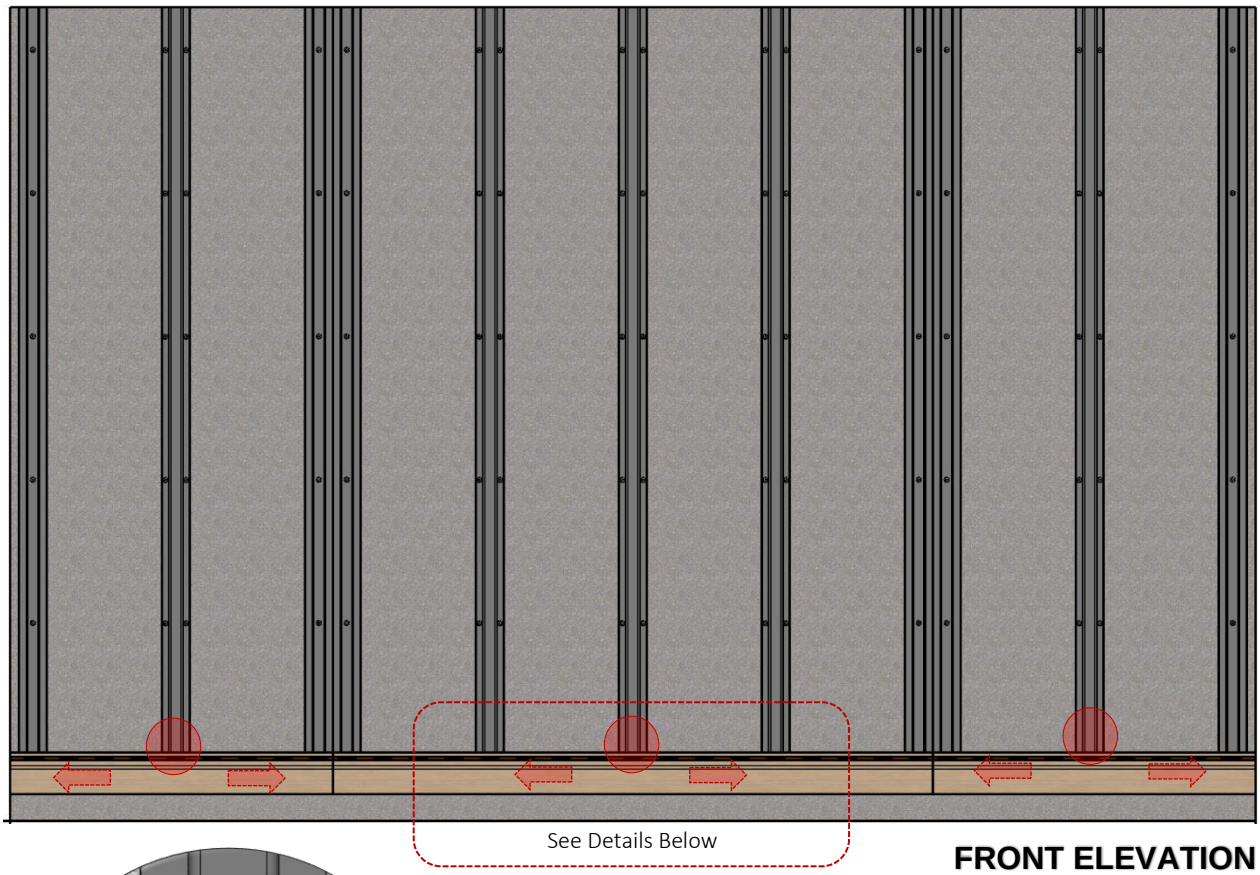
NVJS04 Start Bar Strip

Novano 3" Rhombus Profile Panel

Shoulder Stainless Steel Screw

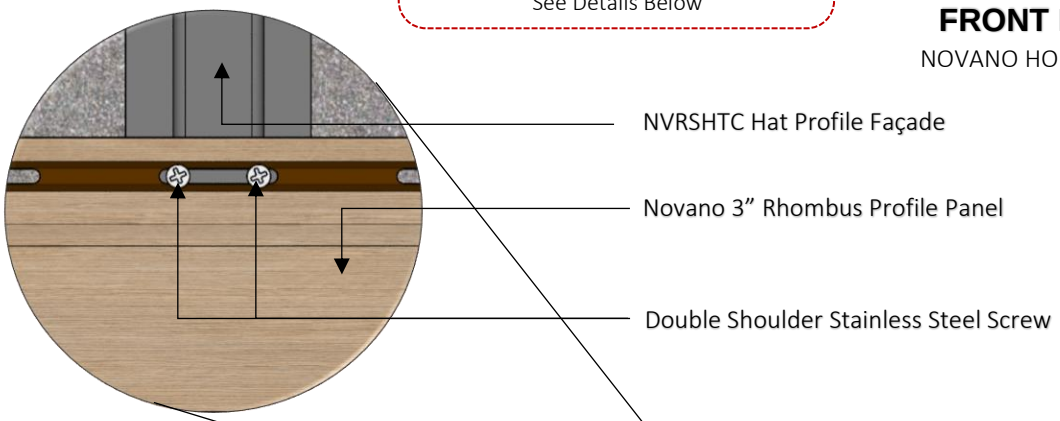
ISOMETRIC DETAIL
NOVANO HORIZONTAL PANEL

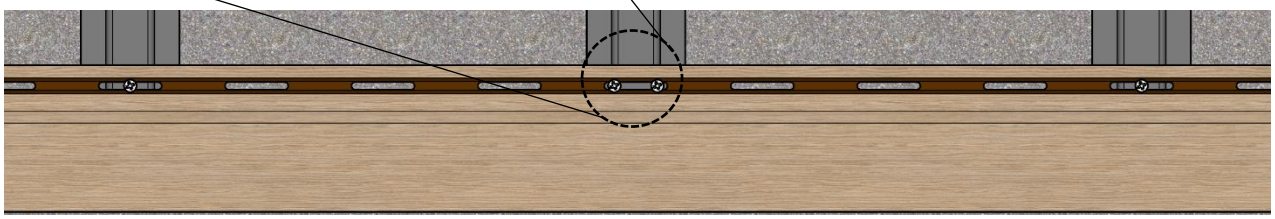
Pinning is a way to control the direction of expansion of the Novano 3" Rhombus profile panel, each panel needs to be fixed at the middle of the panel.

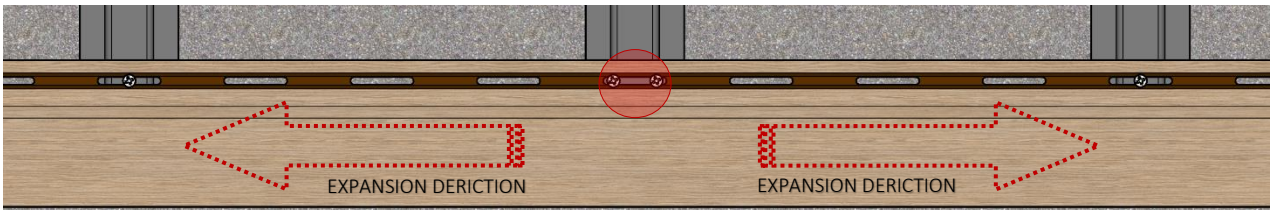


FRONT ELEVATION

NOVANO HORIZONTAL PANEL





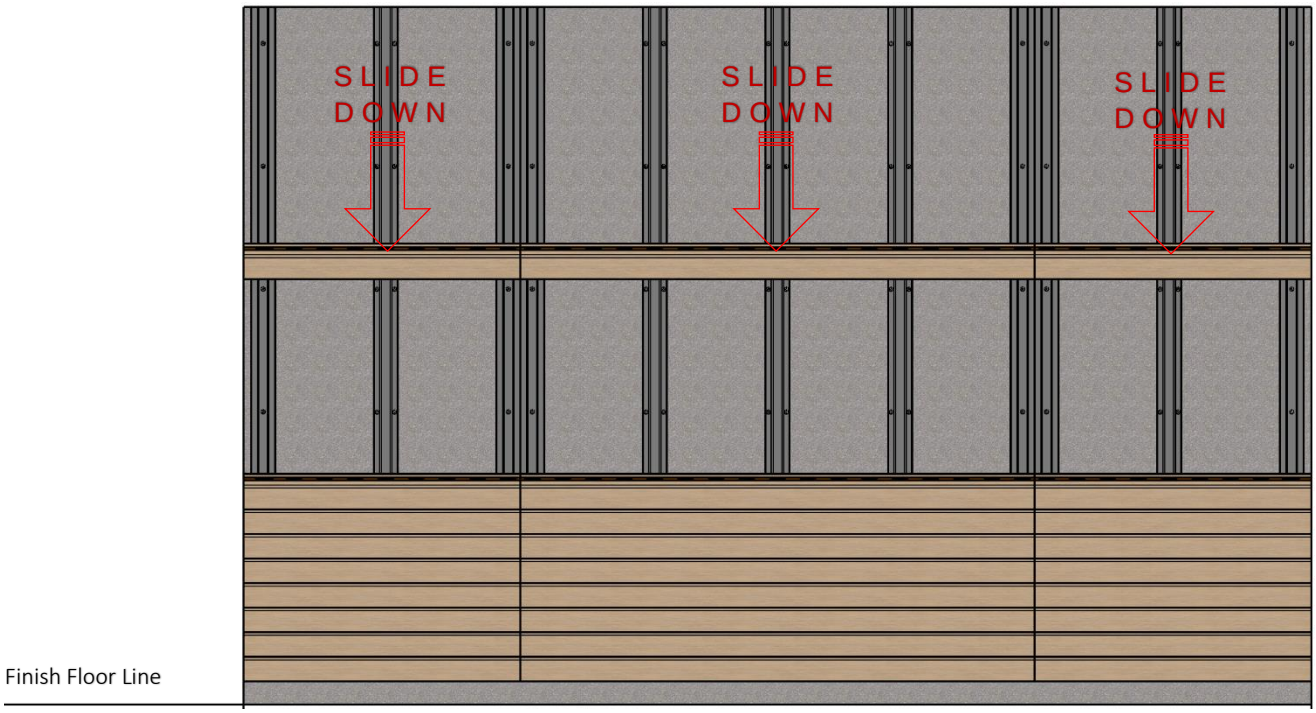


Pinning Location

Every panel should hard pin on the middle of the Novano 3" Rhombus profile panel allow for right or left side expansion direction.

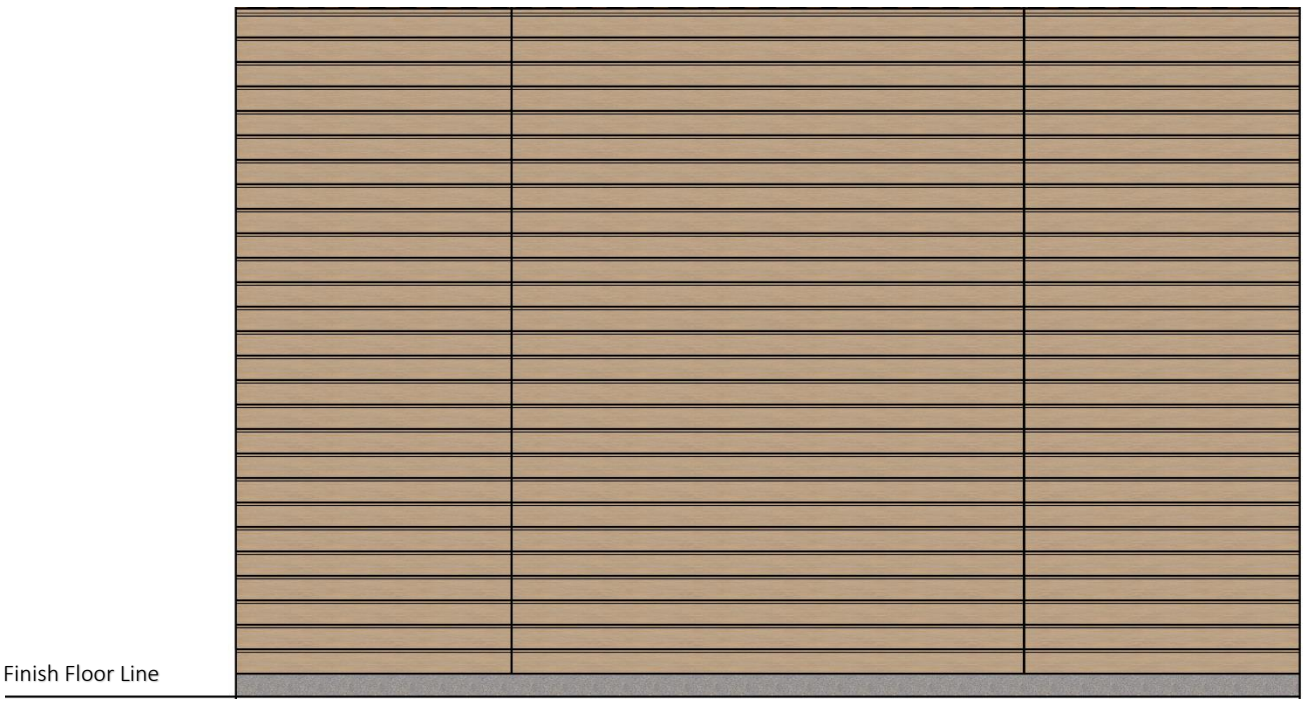
STEP 3.9

Continue installing Novano rhombus panels until panel is finished.



FRONT ELEVATION

NOVANO HORIZONTAL PANEL



FRONT ELEVATION

NOVANO HORIZONTAL PANEL

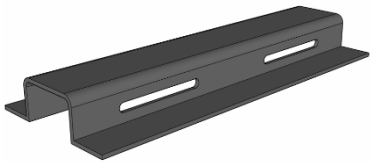
SECTION 4 - Vertical Panel Applications

STEP 4.1

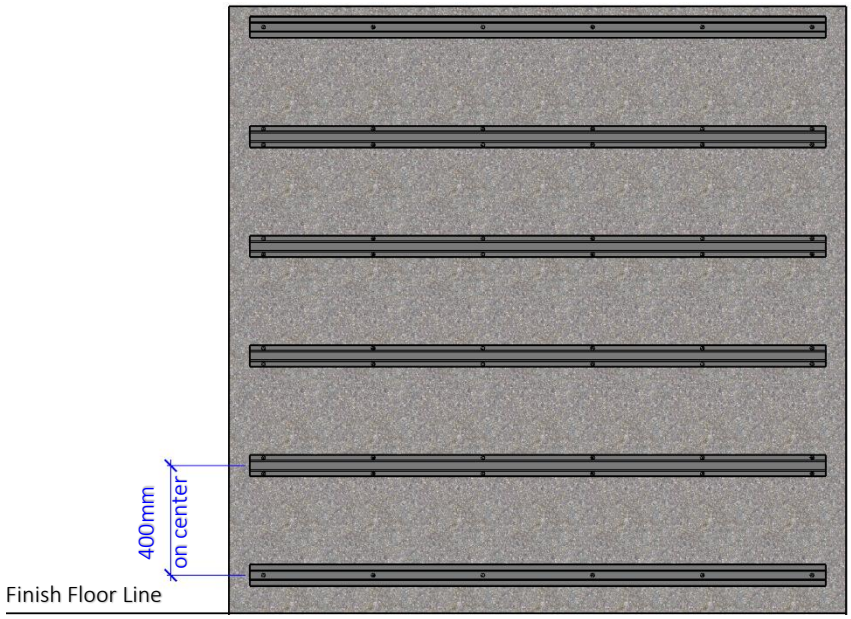
Pre apply all finishing panel accessories such as molding around corners, windows, and doors according to the pre plan layout and following the manufacture's recommendations. Ensure that all molding is level and square. Battens should be installed horizontally.

STEP 4.2

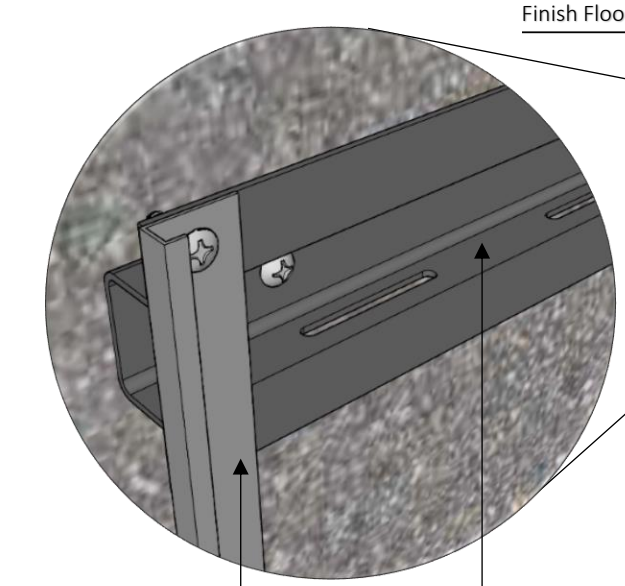
A starter bar strip is required to install the Novano 3" Rhombus profile panel. Attach the starter bar strip vertically at one end of the batten substructure following the fastener and spacing recommendations in Section 1. The Novano 3" Rhombus profile panel will hang 12mm beyond the starer bar strip therefore the star bar strip should be attach accordingly as per the pre plan layout. If the panel is starting in a corner the corner attachment and the starter bar strip should be attached at the same time.

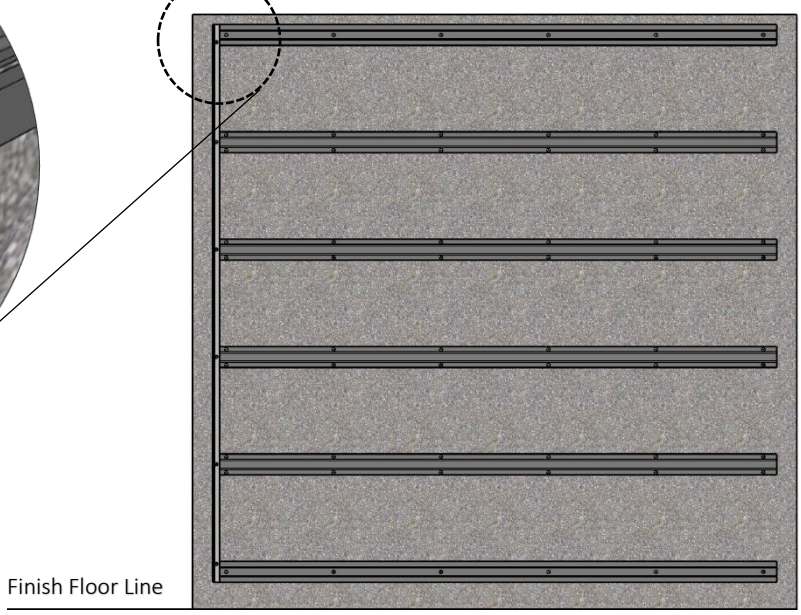


Note: *For Vertical Panel Installation a Perforated Hat Profile Facade must be used to allow airflow and drainage of water.*



FRONT ELEVATION
NOVANO VERTICAL PANEL

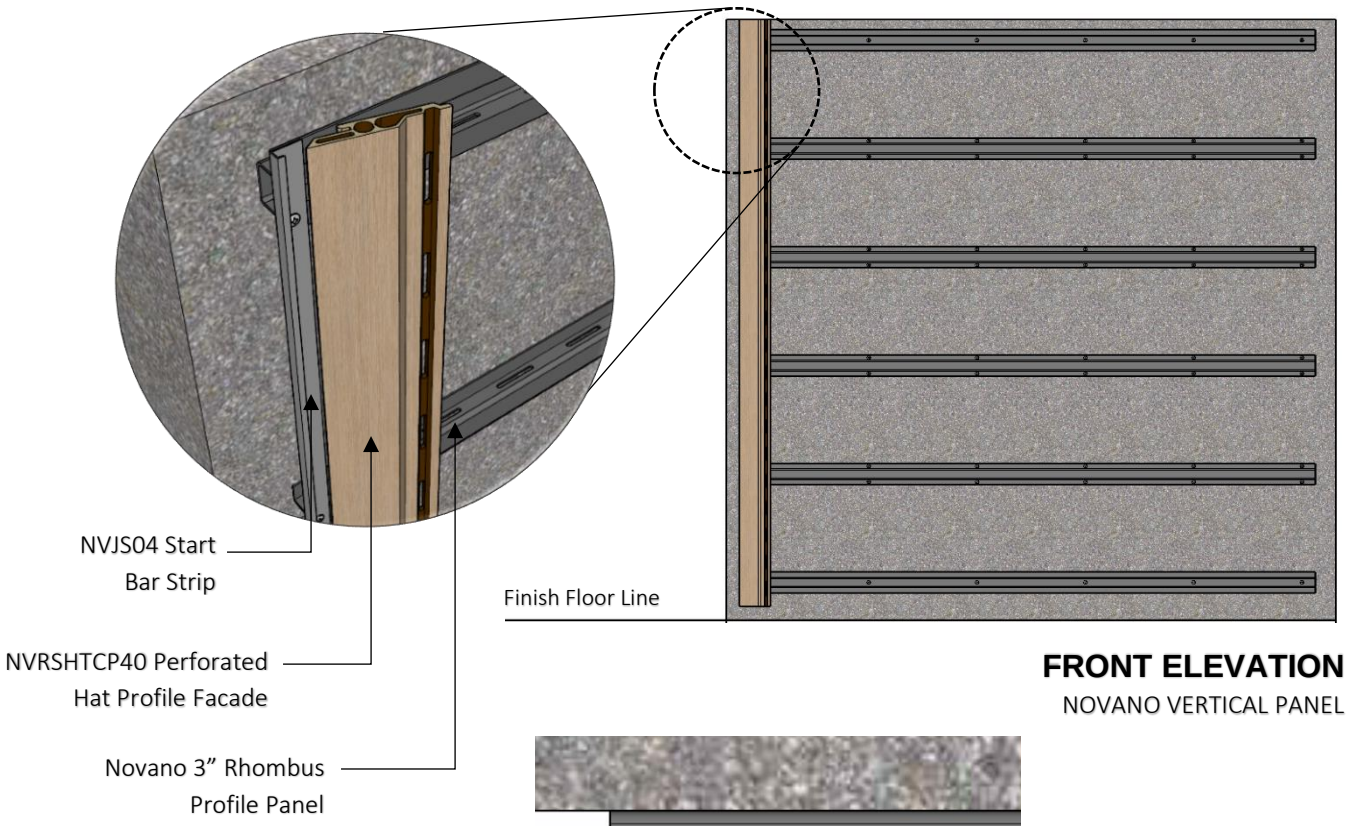




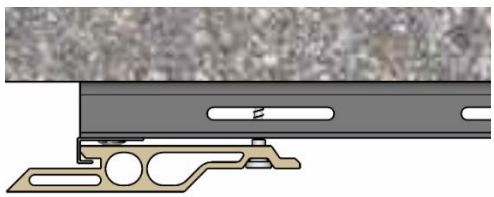
FRONT ELEVATION
NOVANO VERTICAL PANEL

STEP 4.3

Hook the groove end of the first Novano 3” Rhombus profile panel into the starer bar strip.



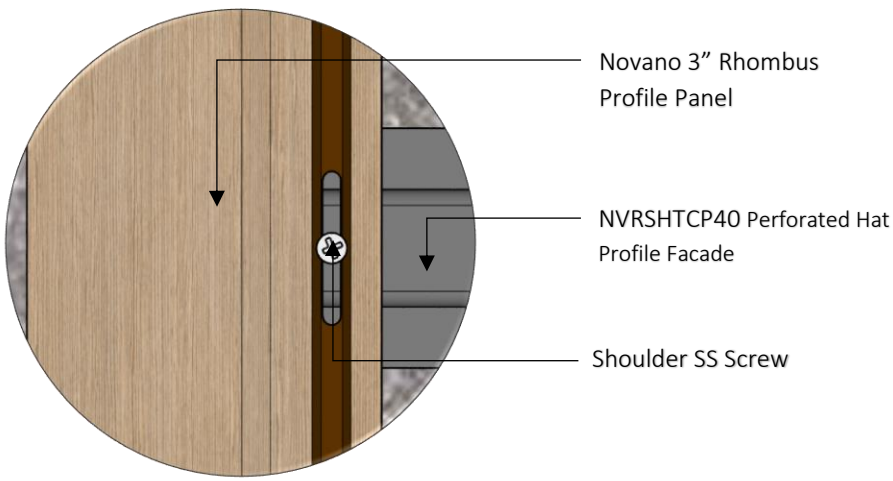
FRONT ELEVATION
NOVANO VERTICAL PANEL



TOP VIEW DETAIL
NOVANO VERTICAL PANEL

STEP 4.4

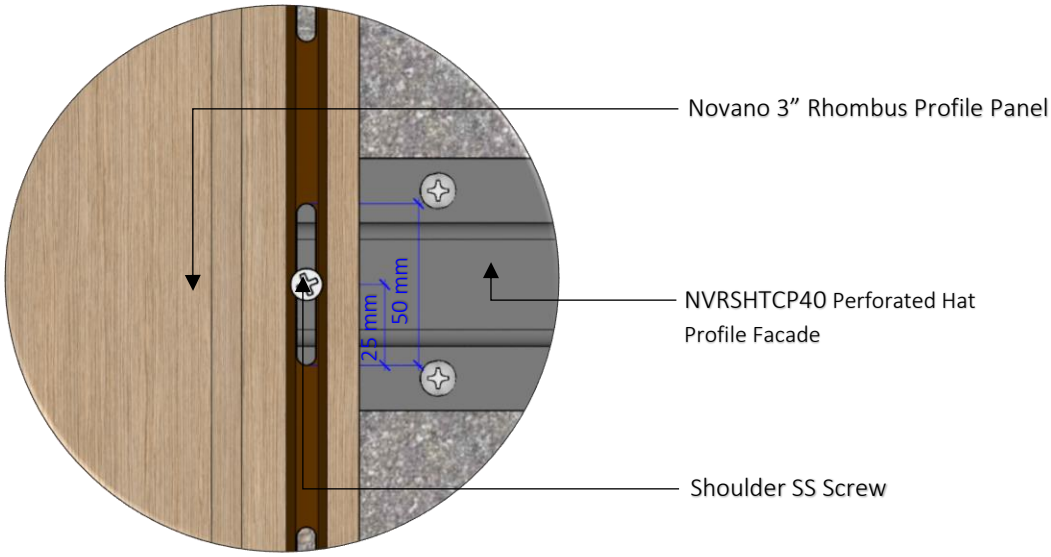
Install shoulder stainless steel screw or a #8 screw into the slotted hole at the top of the Novano panel. DO NOT over tighten this screw. This screw should be placed at the top of the slotted hole and loose enough to allow the board to move freely in the vertical direction allowing for expansion and contraction.



FRONT ELEVATION DEATIL
NOVANO VERTICAL PANEL

STEP 4.5

Install shoulder stainless steel screw or #8 screws into the remaining slotted holes. DO NOT over tighten the screws. These screws should be placed in the center of the slotted hole and loose enough to allow the panels to move freely in the vertical direction allowing for expansion and contraction.



FRONT ELEVATION DEATIL
NOVANO VERTICAL PANEL

Special Requirement

By following these installation guides for vertical installation methods ALL expansion and contraction will happen at the bottom of the board. Gap the bottom of the board properly based on installation needs.

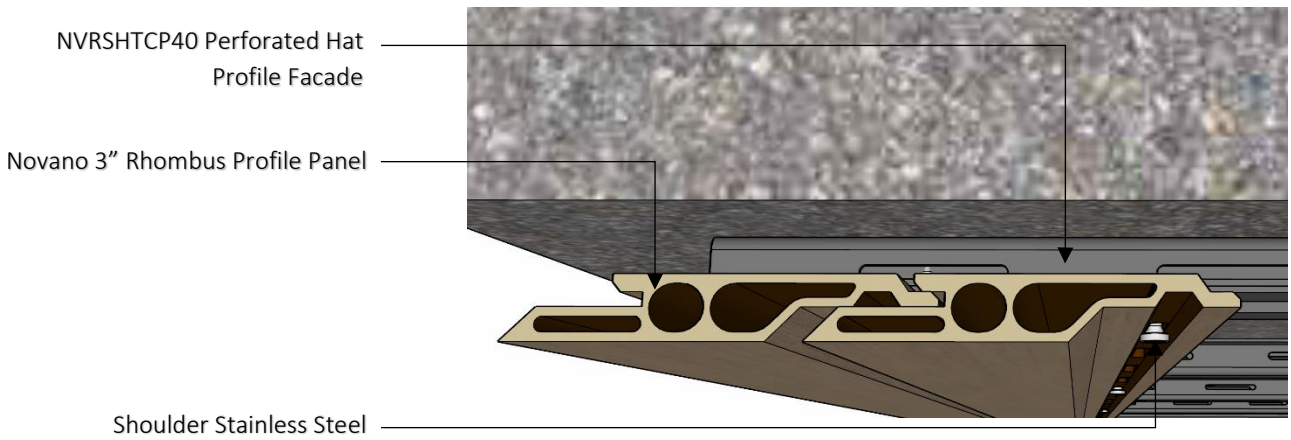
Note *If installing more than one board in height, please refer to Section 5 – Vertical Multi-Panel Applications*

STEP 4.6

Hook the groove end of the next panel onto the tongue of the installed panel.

STEP 4.7

Continue installing panels until finished.

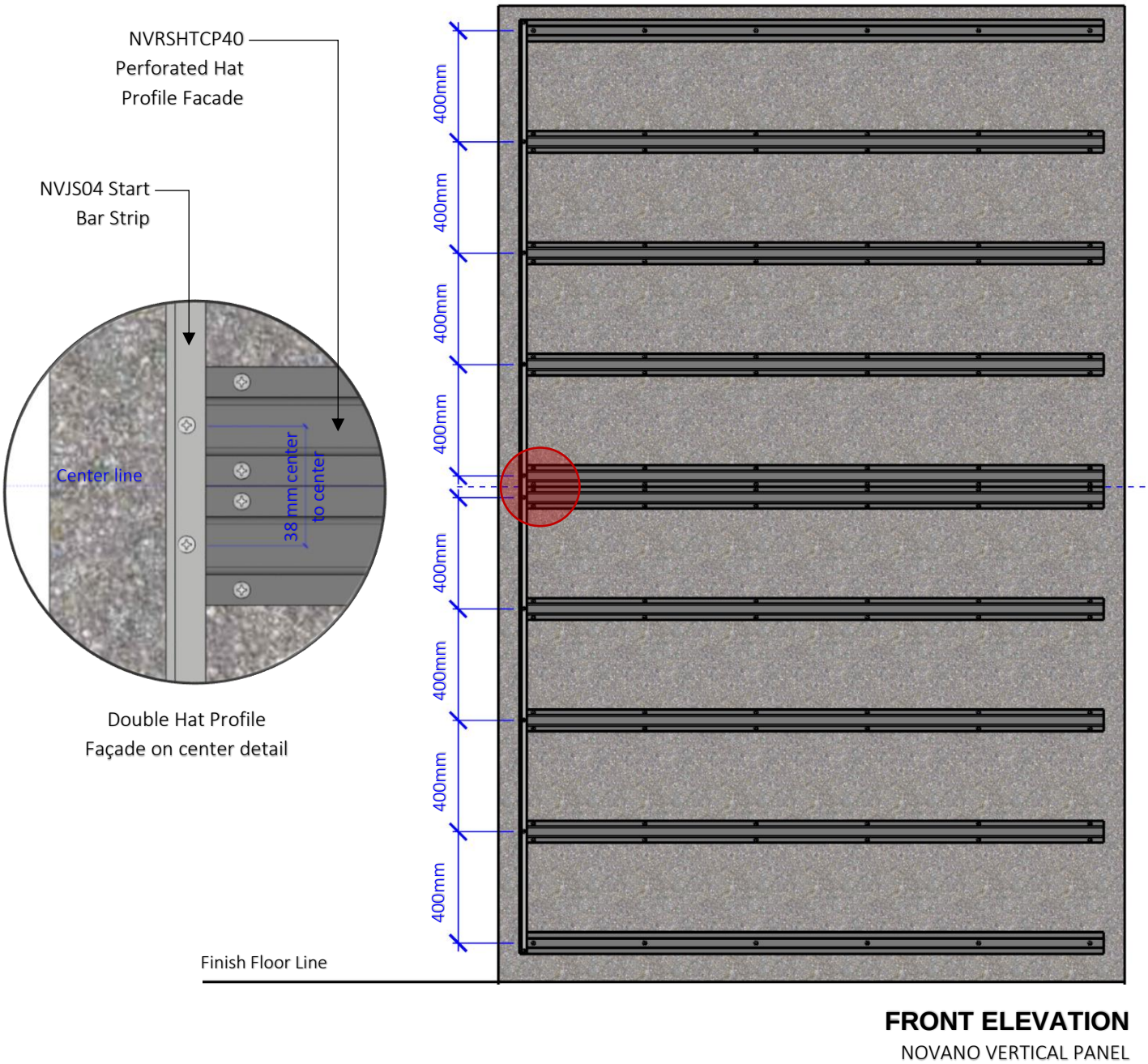


TOP VIEW DETAIL
NOVANO VERTICAL PANEL

2-Panels High Installation (7.32meters max width)

STEP 5.1

Ensure that two battens have been installed where Novano panels are to be installed end to end.

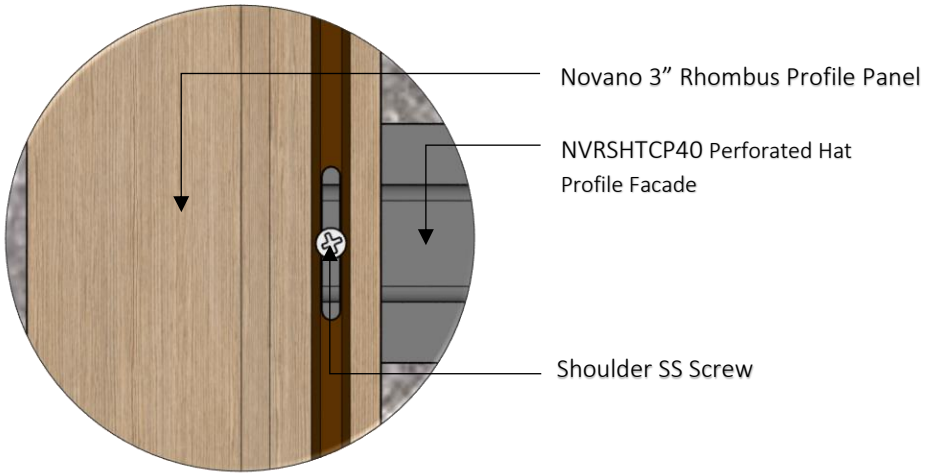


STEP 5.2

Follow Steps 4.1, 4.2, and 4.3 from Section 4 to install finishing molding panel, star bar strip, and hook in the first Novano 3” Rhombus profile panel.

STEP 5.3

Install the bottom Novano 3” Rhombus profile panel, first using shoulder stainless steel screw or a #8 screw into the slotted hole at the top of the Novano panel. This screw should be placed at the top of the slotted hole and snug to the Novano panel to allow the panel to move freely in the vertical direction allowing for expansion and contraction.

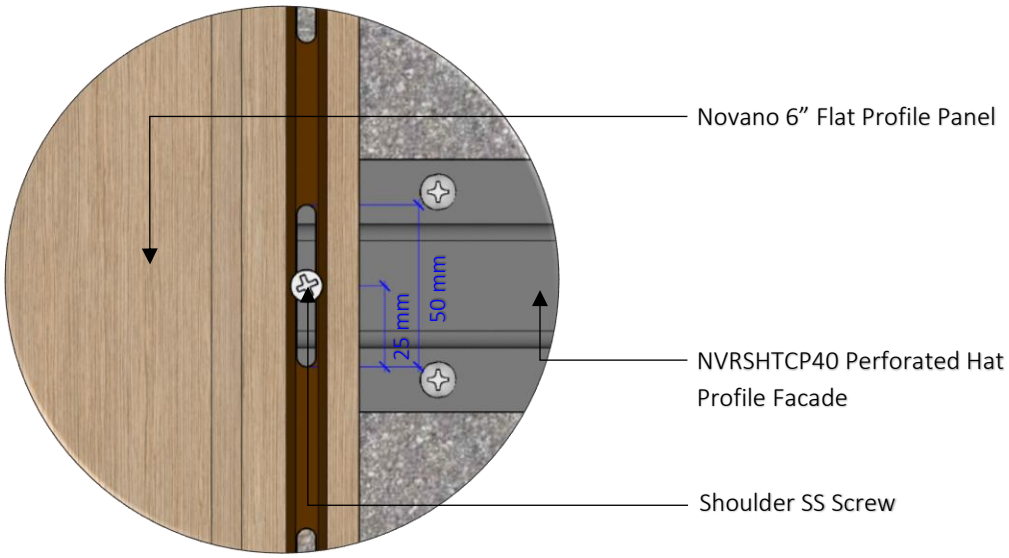


FRONT ELEVATION DEATIL

NOVANO VERTICAL PANEL

STEP 5.4

Install shoulder stainless steel screws into the remaining slotted holes for the bottom panel. DO NOT over tighten the screws. These screws should be placed in the center of the slotted hole and loose enough to allow the panel to move freely in the vertical direction allowing for expansion and contraction.

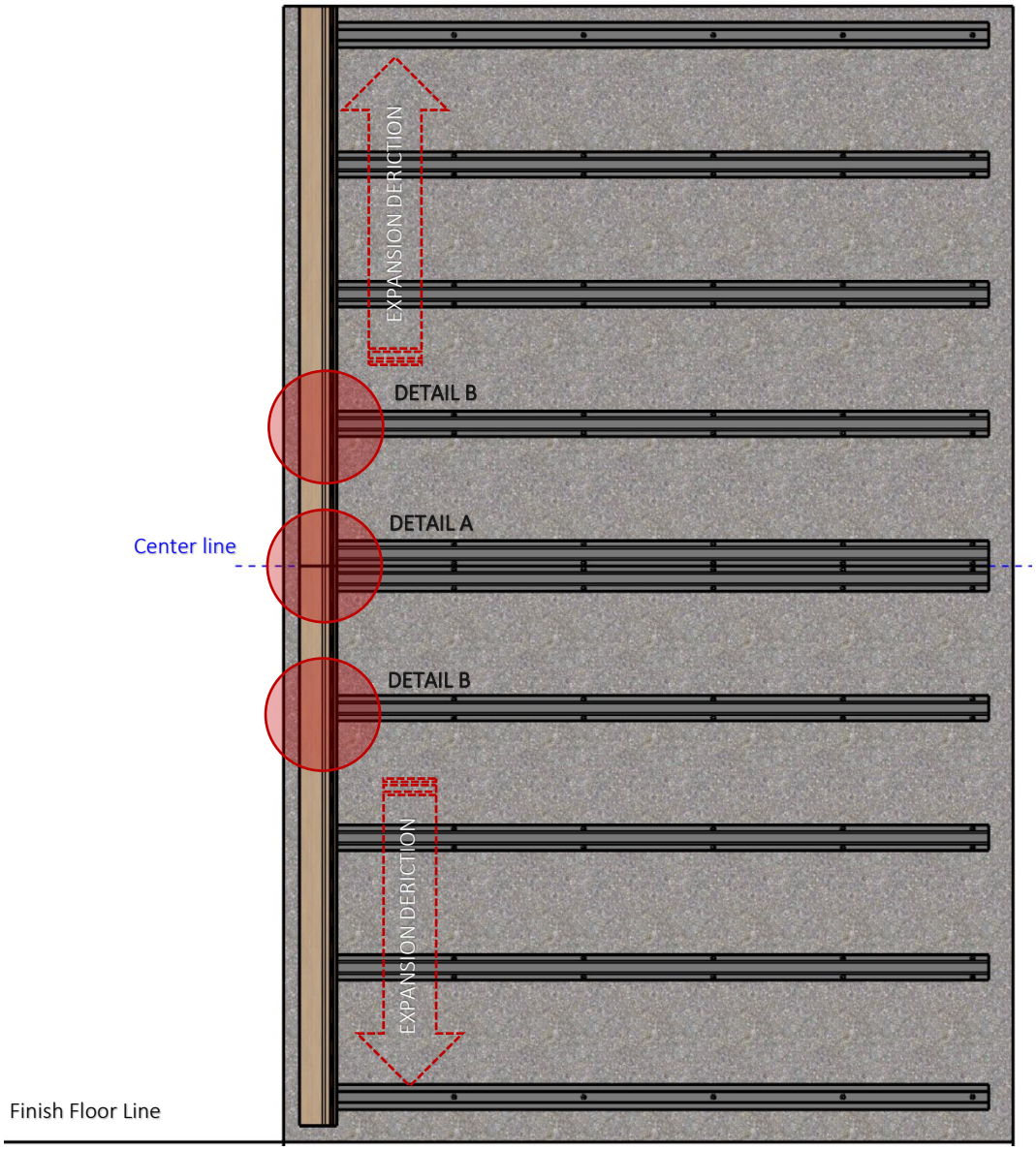


FRONT ELEVATION DEATIL

NOVANO VERTICAL PANEL

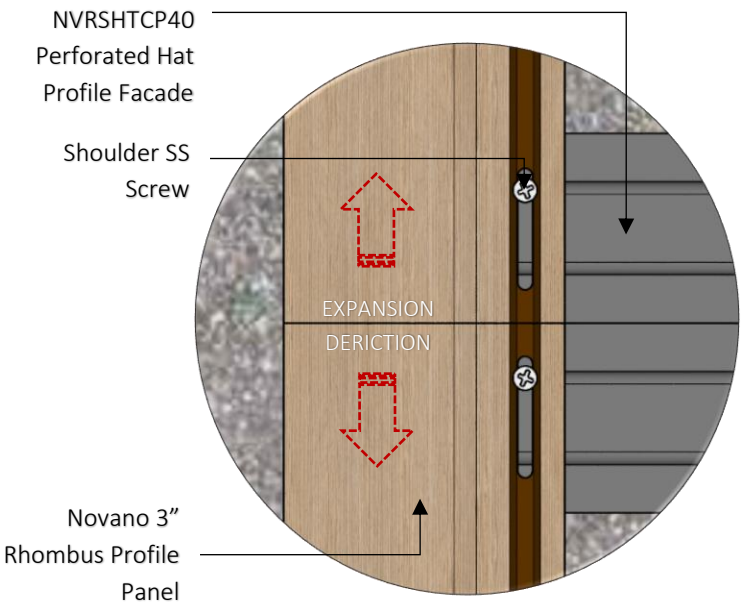
STEP 5.5

Install the top Novano 3” Rhombus profile panel by butting it against the bottom panel and securing shoulder stainless steel screw into the slotted hole at the bottom of the panel. This screw should be placed at the top of the slotted hole and snug to the panel to allow the panel to move freely in the vertical direction allowing for expansion and contraction.



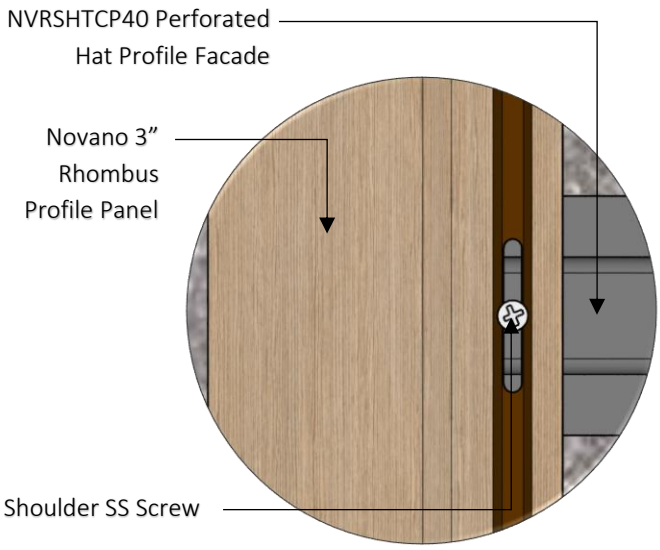
FRONT ELEVATION

NOVANO VERTICAL PANEL



Detail A

Hard fasten the screw in the center of the Hat Profile Facade but on the top most part of the Novano panel slotted

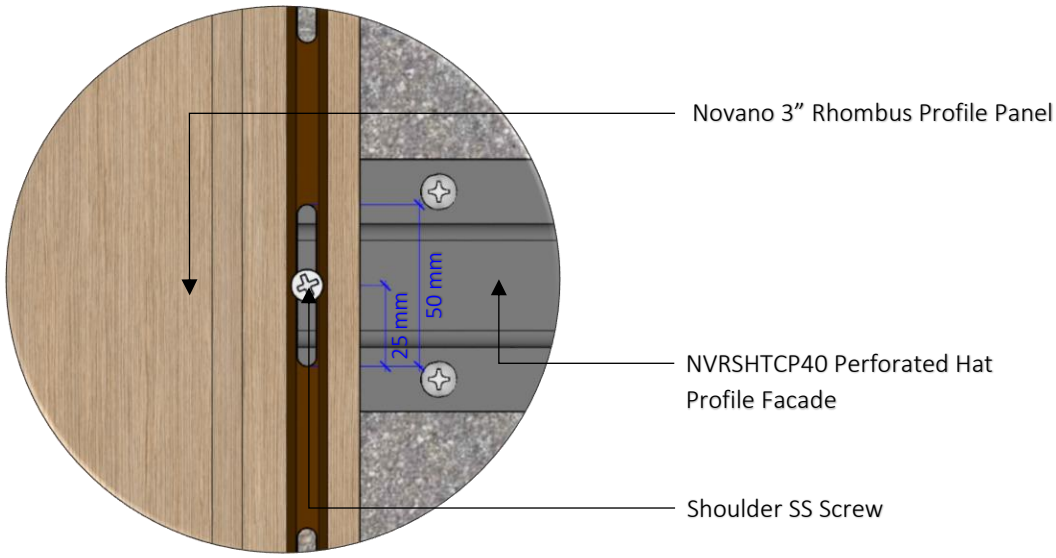


Detail B

Loose fasten the screw in the center of the Hat Profile Facade and Novano panel slotted hole.

STEP 5.6

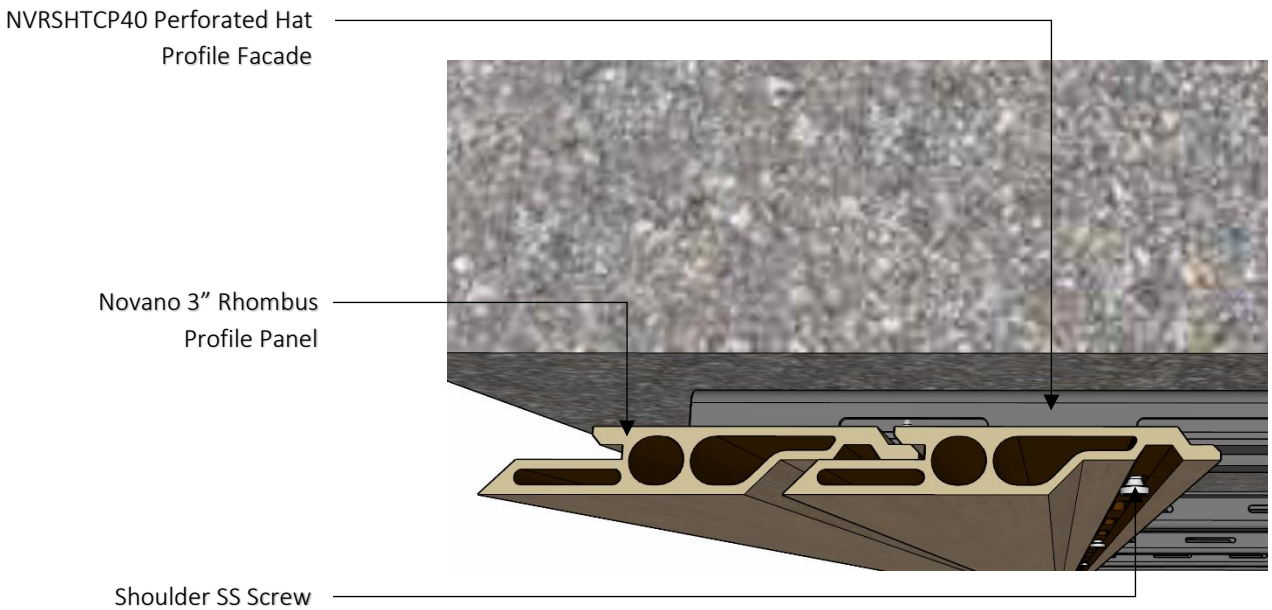
Install shoulder SS screws into the remaining slotted holes for the top Novano 3” Rhombus profile panel. DO NOT over tighten the screws. These screws should be placed in the center of the slotted hole and loose enough to allow the panels to move freely in the vertical direction allowing for expansion and contraction.



FRONT ELEVATION DEATIL
NOVANO VERTICAL PANEL

STEP 5.7

Hook the groove end of the next panel onto the tongue of the panel.



TOP VIEW DETAIL
NOVANO VERTICAL PANEL

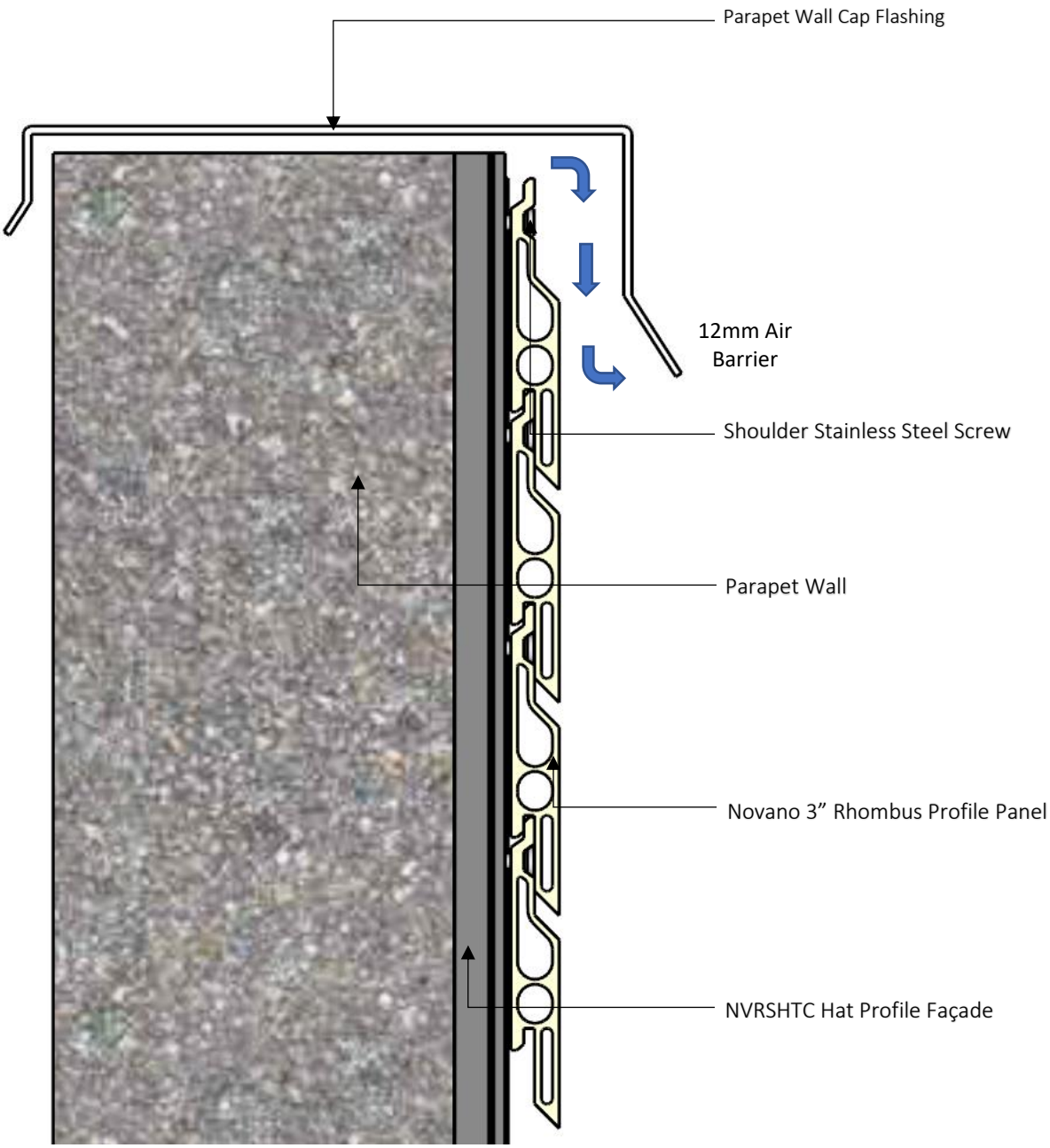
STEP 5.8

Continue installing Novano 3” Rhombus profile panel until panel is finished.

SECTION 6 – Air Barrier – Requirements

For all of the installation options it is crucial to allow the uninterrupted flow of air from the bottom to the top of the wall system. This creates a chimney effect which provides not only moisture wicking but also cooling behind the Resysta siding.

Air flow must be able to release at the top of the construction. For that reason, a 12mm gap between the top of the Novano panel and the Parapet Wall Cap Flashing is necessary. The same size gap is needed between the face of the Novano panel and the Parapet Wall Cap Flashing. This should also be followed when using the J channel at the top of the wall.

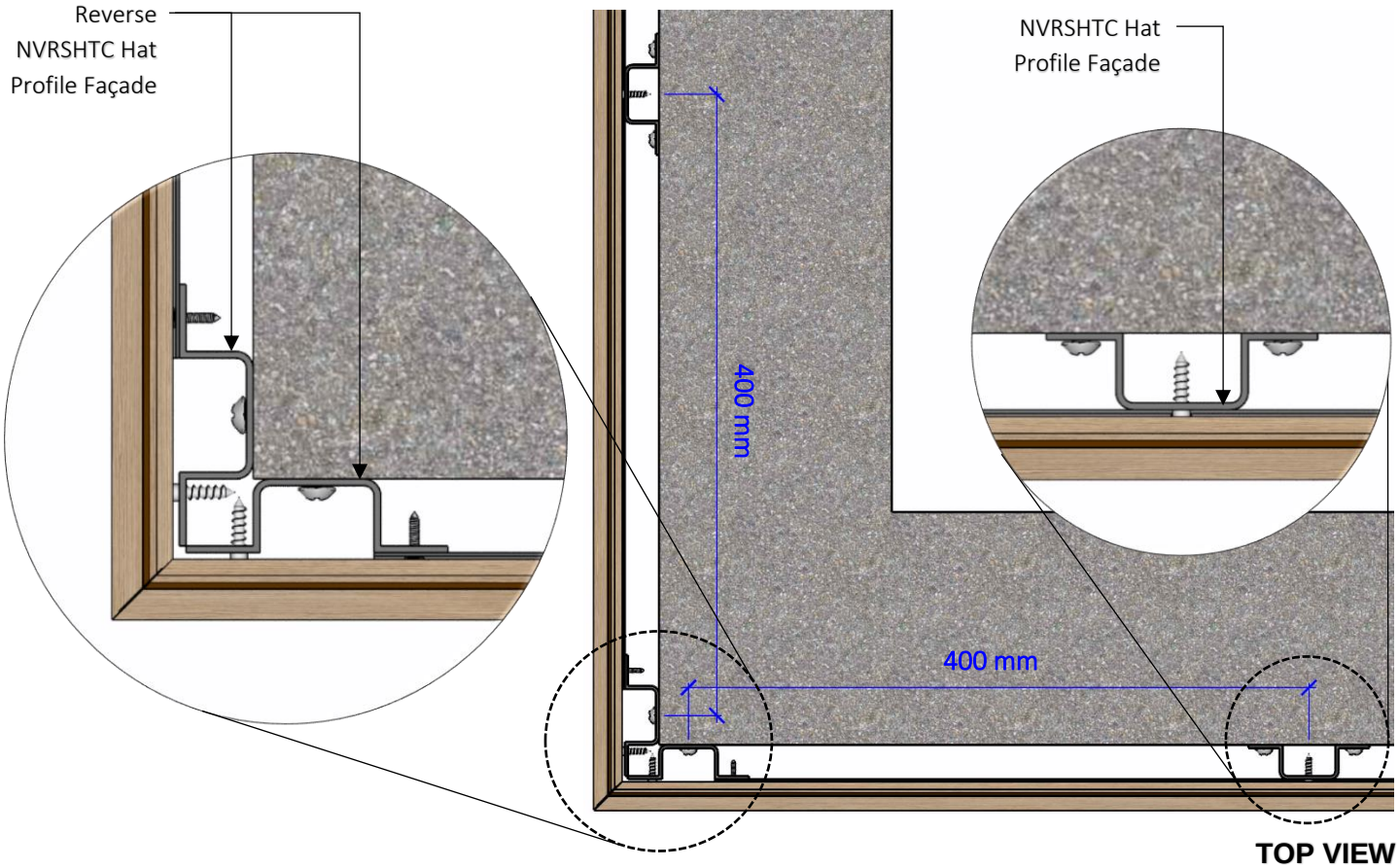


SIDE ELEVATION

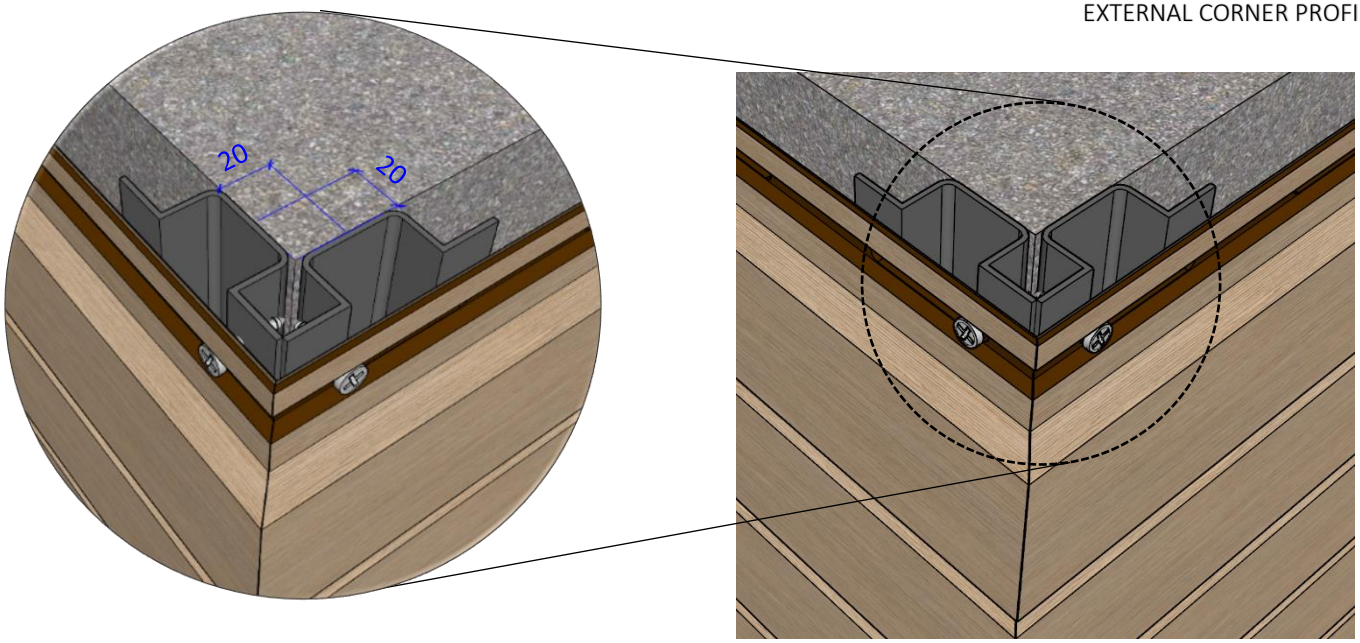
SECTION 7 – Finishing Corner Details

HORIZONTAL OUTSIDE CORNERS

Outside corner trim should be pre applied prior to installing panels. The panel end should be miter cut at a 45 degree angle to match up with the outside corner internal web. Follow the gap guide when installing the panel to allow for expansion and contraction within the outside corner trim. Install horizontal panel per previous sections. When using aluminum hat profile facade for outside corner application, installer should reverse and attached hat channel so that the flanges meet.



TOP VIEW
EXTERNAL CORNER PROFILE



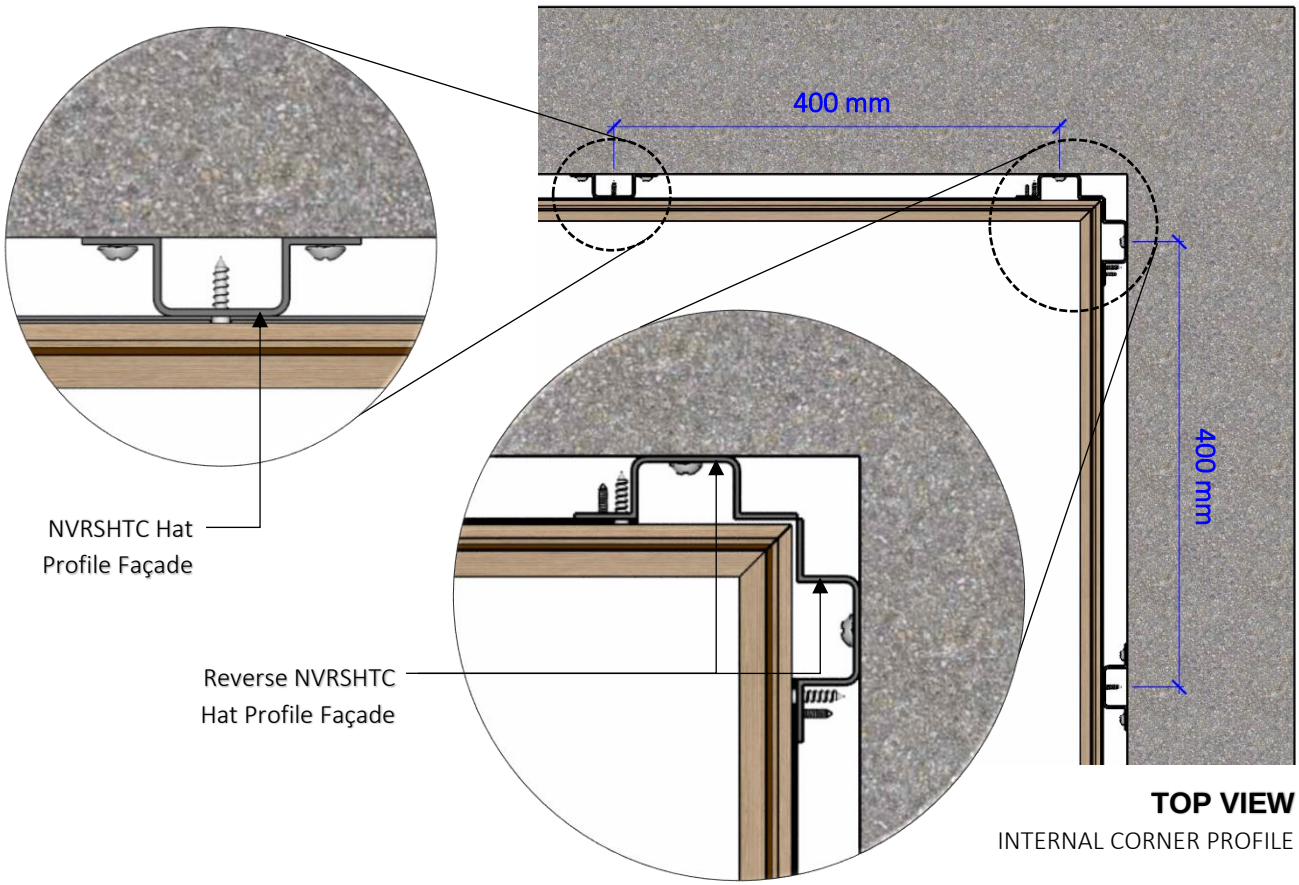
ISOMETRIC VIEW DETAIL
EXTERNAL CORNER PROFILE

HORIZONTAL INSIDE CORNERS

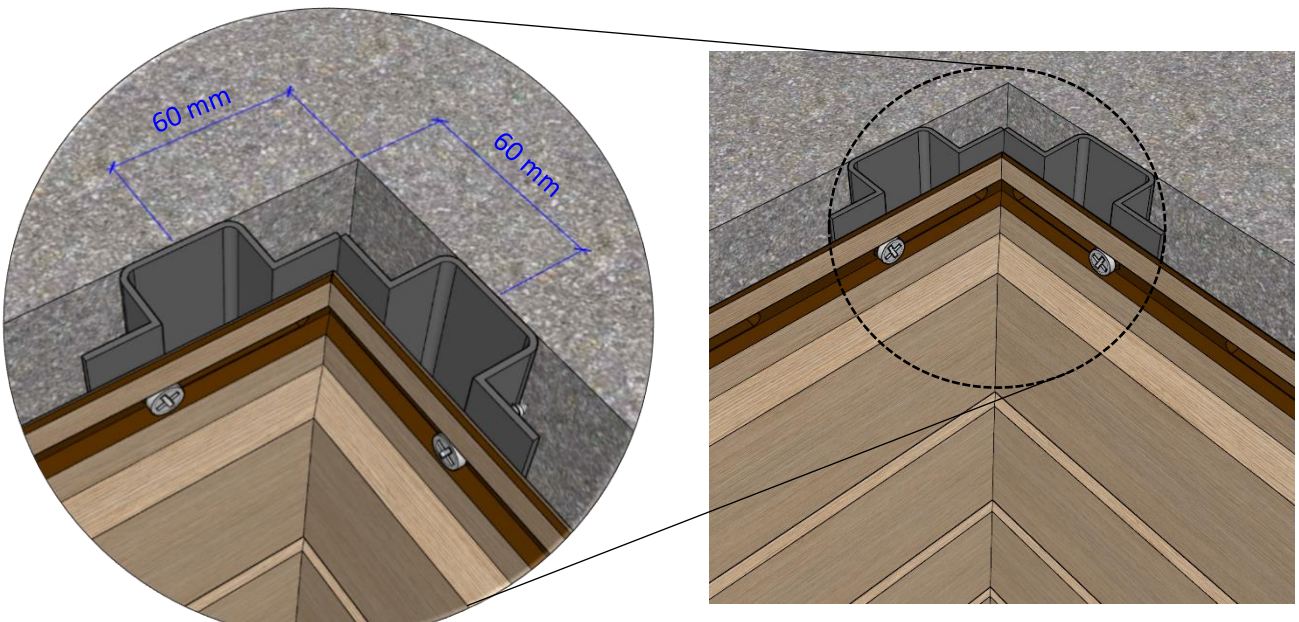
Inside corner trim should be pre-applied prior to installing panel. The starter bar strip for the first panel should be installed butted against the corner trim, not overlapping the corner trim attachment flange. Follow the gap guide when installing the panel to allow for expansion and contraction within the inside corner trim. Install horizontal panel per previous sections.

Note

The corners of the Novano Rhombus inside of the trim need to be mitered. This gives more room for expansion inside of the trim and leaves more of the face of the panel when it contracts.



TOP VIEW
INTERNAL CORNER PROFILE



ISOMETRIC VIEW DETAIL
INTERNAL CORNER PROFILE

SECTION 8 – Primer and Stain System

Novano recommends using approved water-based stain and sealant system.

3. Product inquiries and inquiries

If you are not familiar with the processing of the product or have any questions, please contact:

info@novano-resysta.de