



# Installation Guidelines

**nduline**<sup>®</sup>

Lightweight Roofing Systems

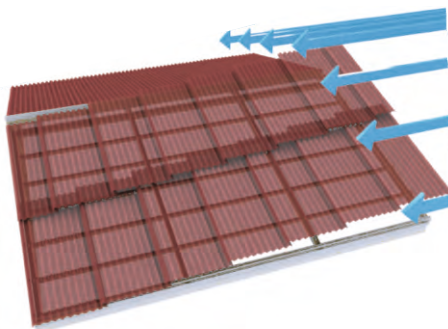
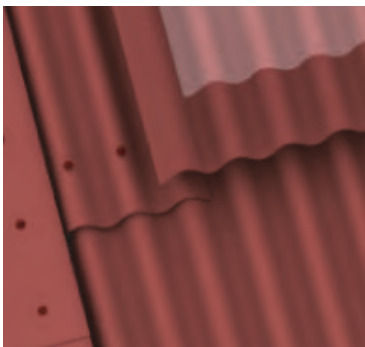
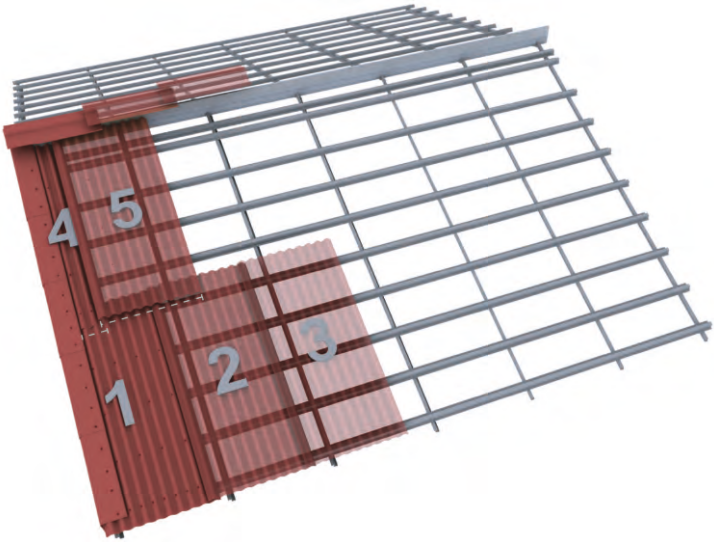
# Installation principles

## SHEET LAYOUT

**!** The installation here shown is for ONDULINE® CLASSIC. The same installation principles apply for ONDULINE® DURO 235 as well.

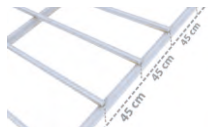
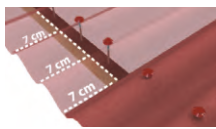
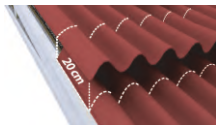
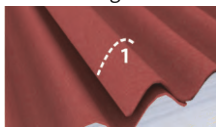
### GENERAL

- Start fixing sheets at the opposite end of the roof from prevailing winds.
- Start every second row with a sheet cut in half vertically, in order to avoid side overlaps in the same line on all length of the roof, thus creating a broken bond pattern.
- Using a broken bond pattern, reduces the overall thickness of the overlapping.

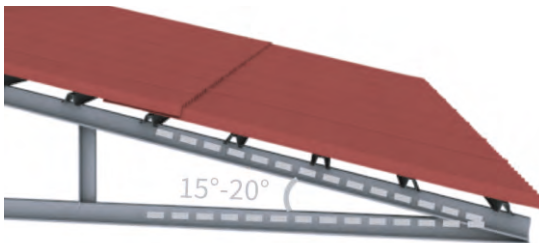
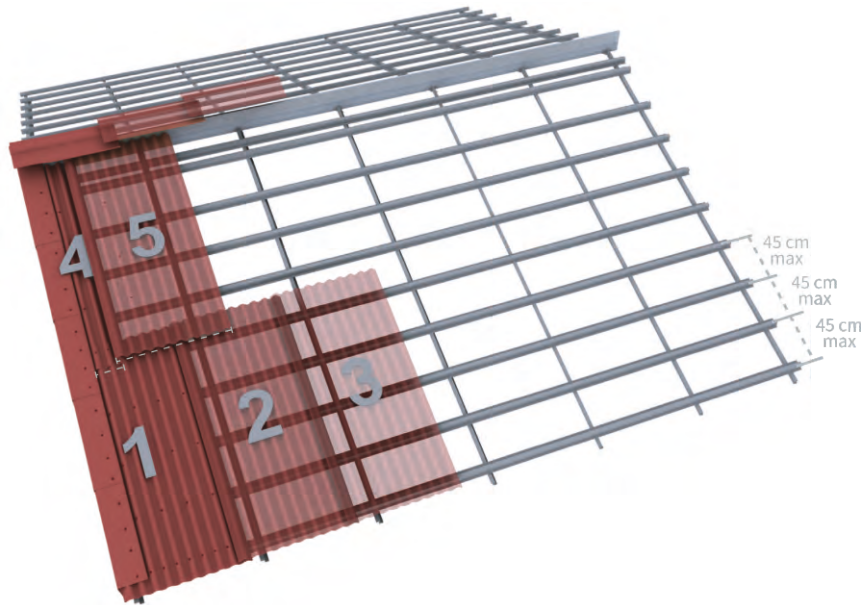


## OVERLAPPING RULES

Following the overlapping rules is important to ensure a total waterproofing over a period of time. Side and end overlapping vary according to the roof pitches.

ROOF PITCHES	Maximum purlin distance	Overhang at eaves	Minimum end overlap	Minimum side overlap
>15°	45 cm 	7 cm 	20 cm 	1 corrugation 

## METAL FRAME WITH ROOF PITCHES >15°



### FRAME

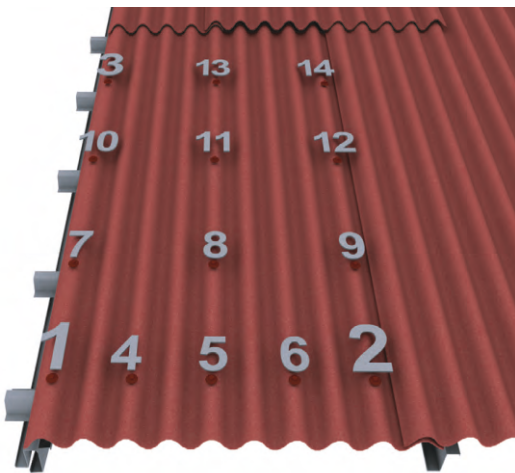
For roof pitches >15°, ONDULINE® sheet shall be supported by purlins with maximum width distance of **45 cm.**

### FIXING

**14 screws** should be drilled per sheet.

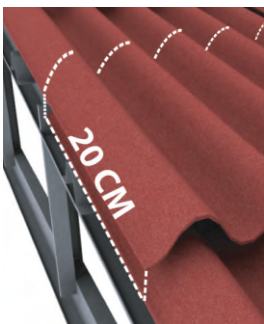
- 5 screws at each corrugation at the end overlap or eaves.
- 3 screws at first intermediate purlin of the sheet.
- 3 screws at second intermediate purlin of the sheet.
- 3 screws at third intermediate purlin of the sheet.
- Screws should be drilled at each corrugation at the end overlap and side overlap.

To have a longlasting and guaranteed roof, it is mandatory to follow the nailing order and pattern.

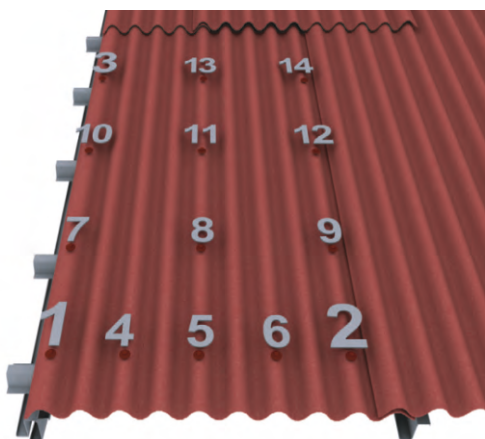


### OVERLAP

- For the end overlap, use minimum **20 cm.**
- For the side overlap, use minimum **1 corrugation.**



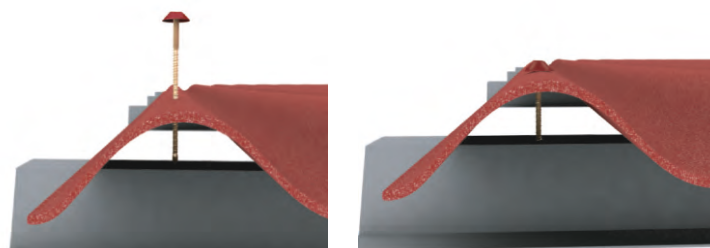
## DETAILED FIXING STEPS



- To have a long lasting and guaranteed roof, it is mandatory to follow the fixing order and pattern.

**!** Use only ONDULINE® recommended fasteners

- Fix every corrugation at eaves, sheets overlaps and either side of vertical joints.
- Fix every corrugation on intermediate purlins.
- Fastening must always be carried out at the top of corrugation.
- Select the correct type of drill screw to suit purlin type.
- Drive the drill screw through the top of the corrugation.
- Be careful to avoid over compressing of the corrugation.

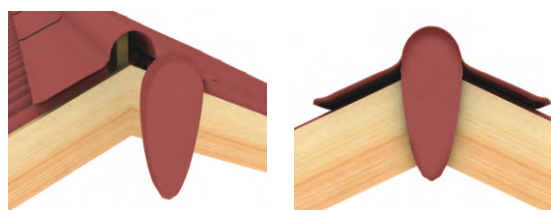
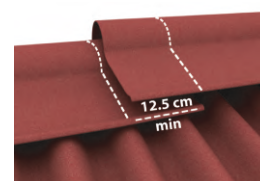
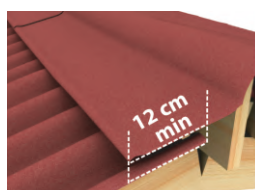
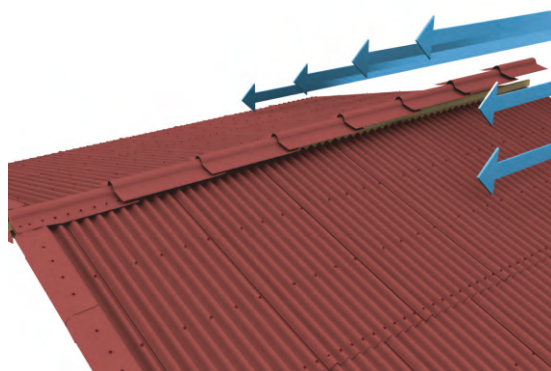


## RIDGES

- Use a ridge plank to support the ridge.
- The ridge element should be fastened at each corrugation of the overlapped sheet.
- Add an extra purlin when necessary if, the distance between the last purlin and the ridge is too wide.



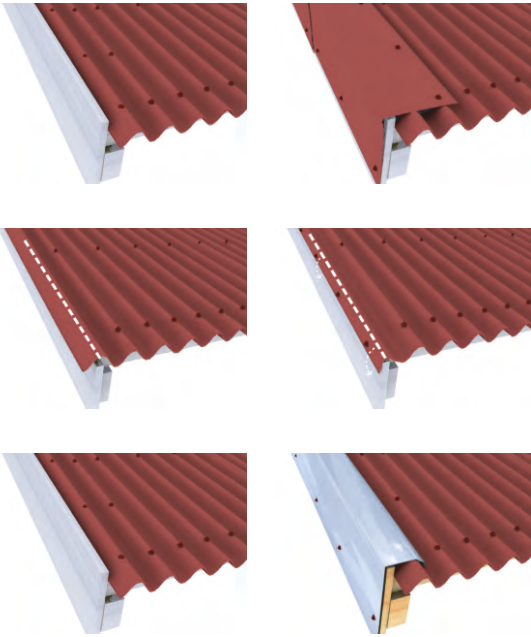
- Start fixing the ridge element opposite to the prevailing winds end, of the roof.
- The ridge element should overlap the ONDULINE® sheet at minimum 12 cm.
- Lay ridge elements with a minimum overlap of 12.5 cm.



- A ridge cap can be cut out of the flat part of a ridge element.

## VERGES

Optimize aesthetic, waterproofing, and wind uplift resistance by using a verge element. Fix it first into the sidewall, then on the top of the corrugation.



### COVERING WITH AN ONDULINE® VERGE ELEMENT

- Fasten bargeboard level with top of ONDULINE® sheet.
- The ONDULINE® verge is then overlaid and nailed into position.
- It is possible to use a ridge element for this purpose.

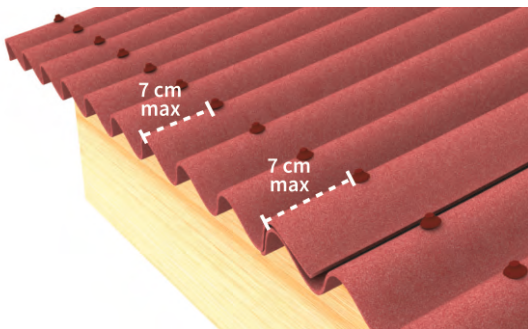
### COVERING WITH AN ONDULINE® SHEET CORRUGATION

- Fasten bargeboard level with top of finished ONDULINE® roof.
- Covering with the metal verge unit is then overlaid and nailed into position.

### COVERING WITH A METAL FLASHING VERGE UNIT

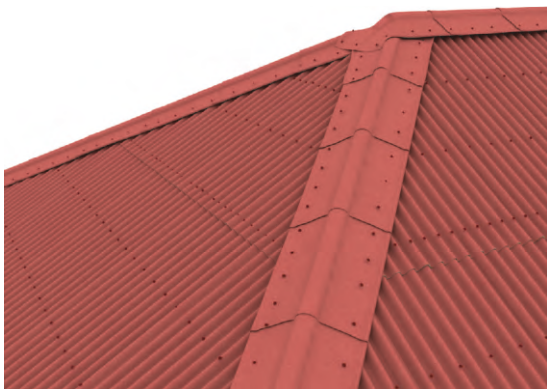
- Fasten bargeboard level with top of finished ONDULINE® roof.
- Covering with the metal verge unit is then, overlaid and nailed into position.

## EAVES

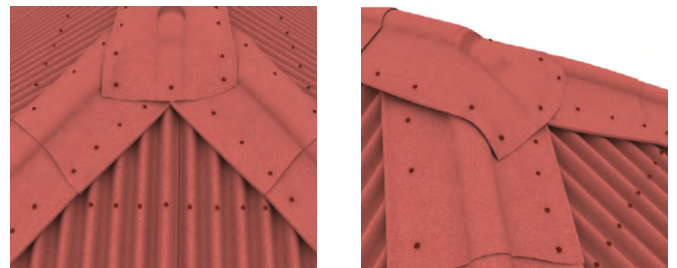


The sheets overhang at the eaves should **not be more than 7 cm**. Please set this distance while elaborating the roof project.

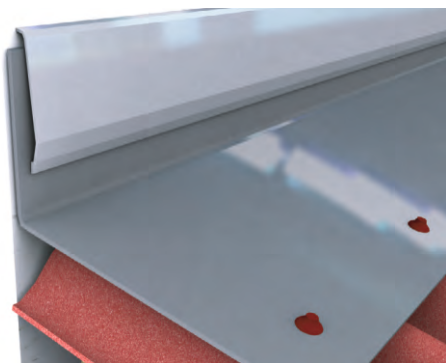
## HIP DETAIL



- Fix the hips before the ridge element.
- Overlay with the hip elements and fix it as shown on the picture.

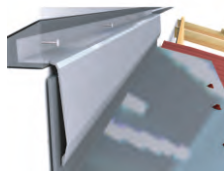


## END WALL ABUTMENTS

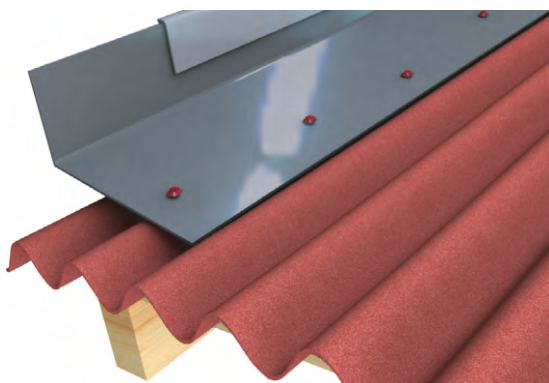


### 3<sup>RD</sup> PARTY FLASHING

- Use pre-formed plate of metal to seal end wall abutment enabling the ventilation.
- Use a separate cover flashing for the wall.

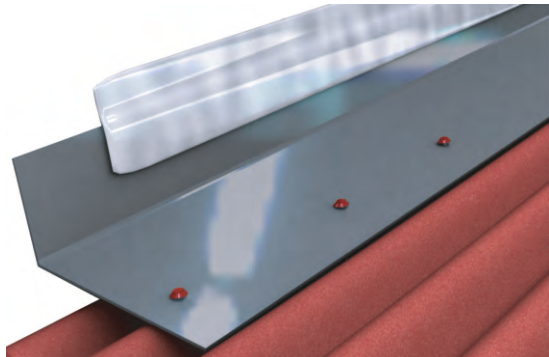
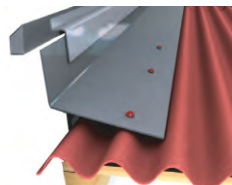


## SIDE WALL ABUTMENTS



### HARD COVER FLASHING TO WALL

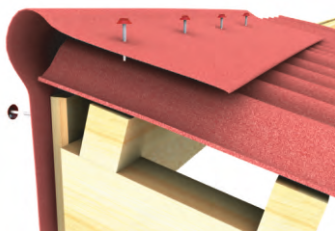
- Use a pre-formed plate of metal flashing to seal side wall abutment. Take into consideration the possible dilation while drilling.



### ONDULINE® FLASHING TAPE TO WALL

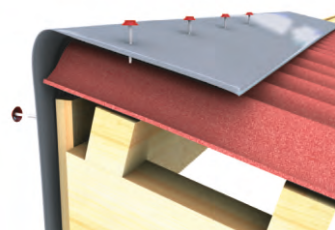
- Use a pre-formed plate of metal flashing to seal side wall abutment.
- Take into consideration or possible dilation while drilling.
- Use ONDULINE® flashing tape (ONDUBAND®) as cover flashing to the wall.

## END ROOF



### USING ONDULINE® RIDGE UNIT

- Fit ridge board and purlin. The ONDULINE® ridge unit is then overlaid and nailed or screwed into position.

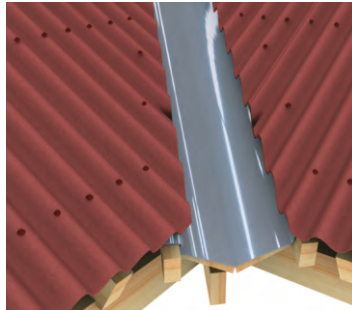
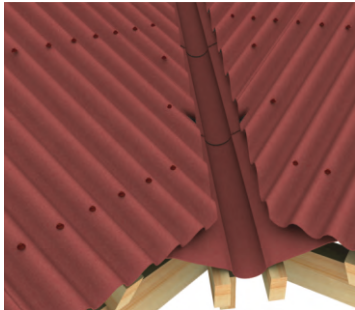


### USING A PIECE OF METAL RIDGE ELEMENT

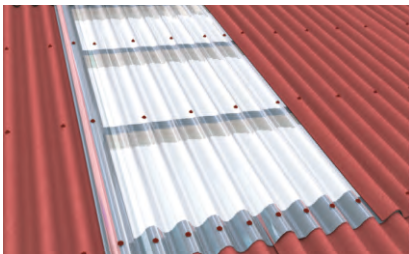
- Fit metal ridge element and purlin. The metal ridge element is then overlaid and nailed or screwed into.

## VALLEY

- Fix valley board / trim purlin and line with metal pre-formed unit.
- The vertical valley depth should be sufficient to allow the water to flow.
- The sheets are cut across (parallel to the valley line). The overhang is max 4 cm.
- You can use ONDULINE® valley or a metal valley.



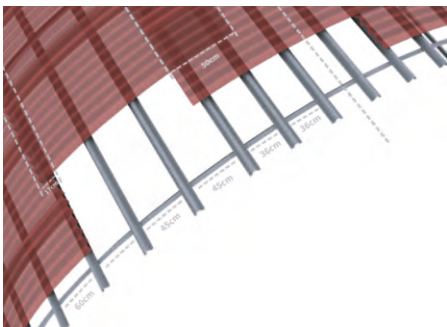
## SKYLIGHT - ONDUCLAIR® PC



- Perfect complement to the ONDULINE® corrugated sheet.



## CURVED ROOFS / DOMES

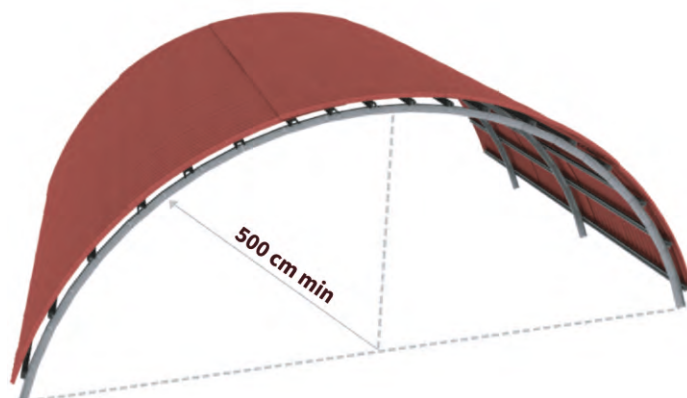


When the frame design is established, continuously setup the lines courses to get the right positions of purlins :

- Top dome : (pitch < 17%) - maximum span is 36 cm.
- 17% < pitch < 27% - maximum span is 45 cm.
- Pitch > 35% - maximum span is 60 cm.

At rooftop (slope = 0%)

- Avoid sheet overlap (lay the top sheet centered in its middle).
- No sheet overhang more than 7 cm.
- Side lap: 2 corrugations.



**OFIC Building Materials India Pvt. Ltd.**

CIN No. : U45309KA2008PTC048153

Unit 307, 2nd floor, Prestige Plaza,

Yelahanka New Town Main Road, Yelahanka,

Bengaluru - 560 065

Tel: +91 91080 00444

+91 95136 17160

Email: sales@ondulineindia.com

**in.onduline.com**



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