

Notes in ref report : CAR 15070-1 – ONDULINE wind uplift (metal purlins)

The wind uplift test was performed with ONDULINE CLASSIC DR sheets installed on metal purlins and fastened with fastened with ONDULINE screws (4.2 x L =65 (+3) mm).

The test was performed according to ETAG 006 guidance which consists in applying depression cycles by steps of +500 Pascal (Pa) until roof (sheets) failure.

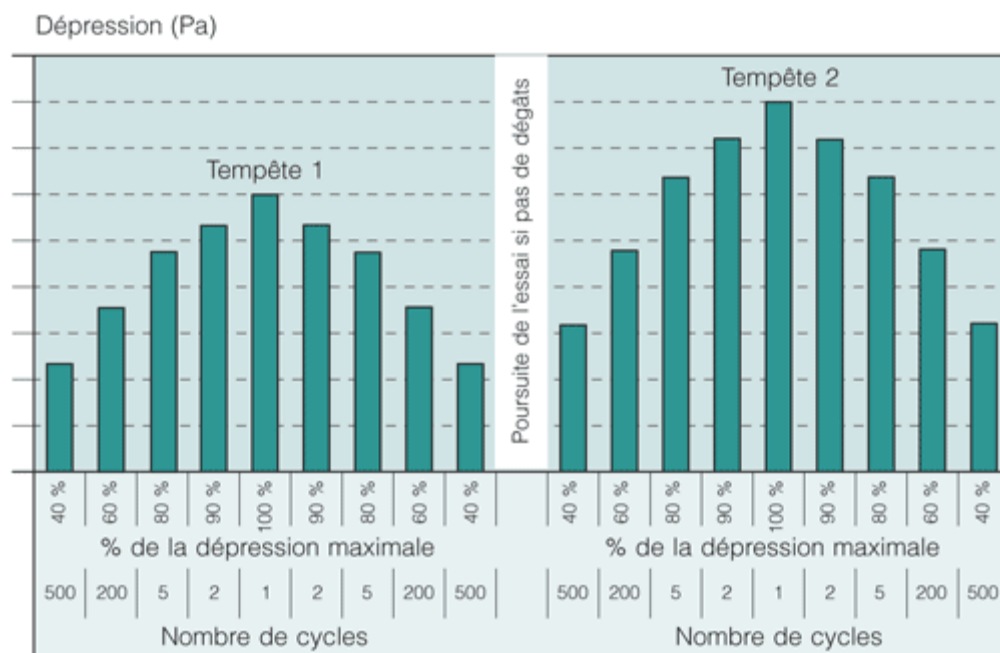
The test starts by applying 3 storms at 1000 Pa + fluctuations (stabilization of the mockup).

Then at each further step (re- starting at 1000 Pa), a storm (various % of Qmax) is simulated.

1st Step at 1000 Pa (Qmax = 1000 Pa):

1415 blasts of wind distributed as :

- 500 at 40% x Qmax)
- 200 at 60% x Qmax
- 5 at 80% x Qmax
- 2 at 90% x Qmax
- 1 at 100 x Q max
- 2 at 90% x Qmax
- 5 at 80% x Qmax
- 200 at 60% x Qmax
- 500 at 40% x Qmax



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Testing is continued until failure occurs.
 The Qmax value recorded is the one before failure
 The type of Failure is appreciated.

Nombre de tempêtes	Dépression maximale Q _{100%}	Remarques
4	1000 Pa	No remark
1	1500 Pa	No remark
1	2000 Pa	No remark
1	2500 Pa	No remark
1	3000 Pa	No remark
1	3500 Pa	failure

Results : maximum depression before failure Qmax : 3000 Pa

Failure : Q = 3500 Pa

Type of failure : punching of the sheet by the fastener head.

The value considered is the depression of the blast before failure (so 3000 Pa) .

Appendix (apart testing report CAR15070-1) : equivalence pressure (Q1) / wind speed
Safety Coefficient applied : 0.8 (wind speed indicated is 80% theoretical speed calculated)

Wind speed km/h	Pressure (Pa)	Wind speed km/h	Pressure (Pa)
50	148	170	1710
60	213	180	1917
70	290	190	2136
80	379	200	2367
90	479	210	2609
100	592	225	3000
110	716	230	3130
120	852	240	3408
130	1000	250	3698
140	1160	260	4000
150	1331	270	4314
160	1515	280	4639

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Speeds are valuable for plain squared roofs and for products just installed.

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In bold red : speed corresponding Qmax before failure : 225 km/h or 140 mph

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