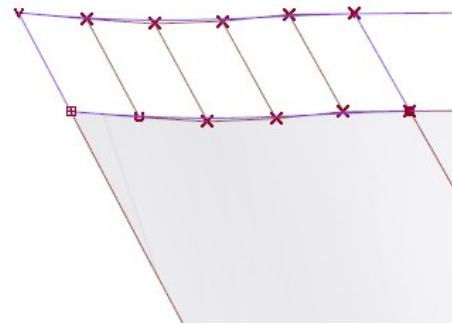
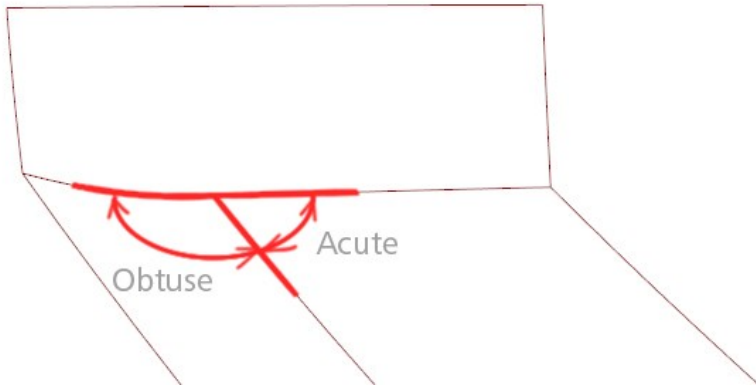
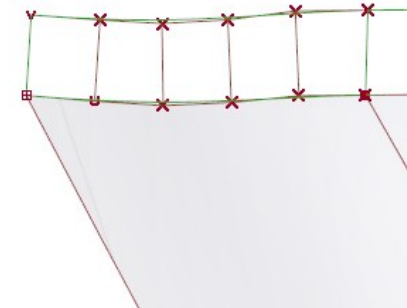


# A3.14 : Chordal Fillet and Internal Continuity

A Surface Fillet is built across a set of surfaces with acute and obtuse angles between the primary surface patches. This tutorial examines how the angle drives the flow of CVs in the fillet and causes problems with the internal continuity. The angle also becomes important when measuring the minimum radius of the final fillet.

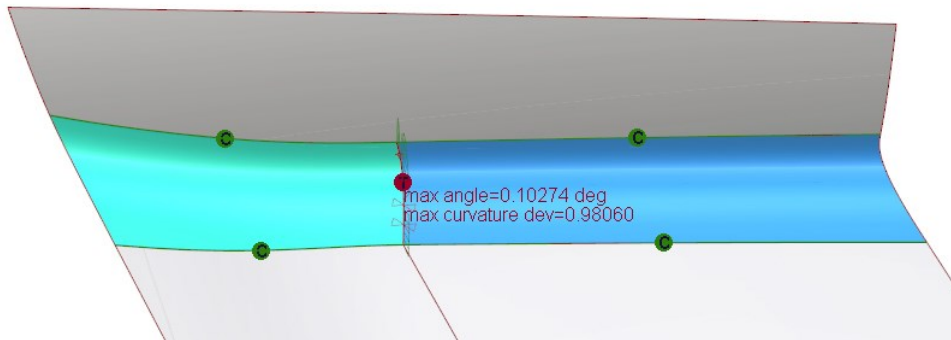


CV Layout in the **Linear Direction** from the edge

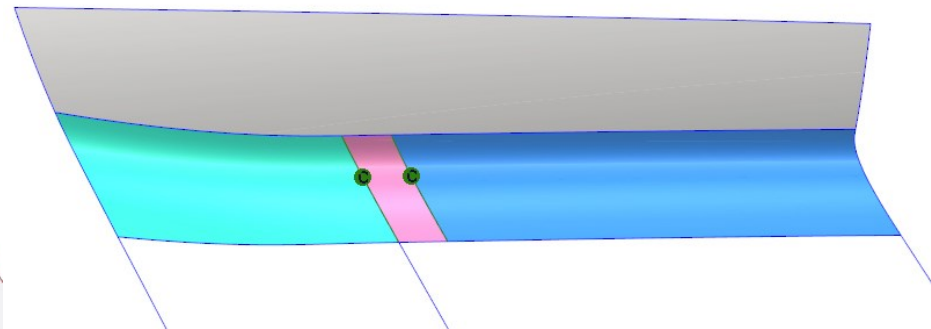


CV Layout in the **Radial Direction** of the edge

The continuity problem lies between the two patches created by the Surface Fillet tool. The solution is to use the Edge Align option, but some preparatory work is required on the surfaces to control the alignment to create the best flow of CVs. The shape of the outer edge of the fillet is improved by using a Chordal Fillet.



The problem



The solution

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Time	Topic	Menu/Palette	Tool	Options
0.46	Building the Surface Fillet	Surfaces > Multi-Surface Fillet	<b>Surface Fillet</b>	
1.13	Checking Internal Continuity	Evaluate > Continuity	<b>Surface Continuity</b>	
1.40	Edge Align option at the start and the end of the surface fillet	Surfaces > Multi-Surface Fillet	<b>Surface Fillet</b>	<i>Edge Align – Start End</i>
2.08	Analyzing the CV flow to discover the cause of the continuity error			
2.37	Try the Interior Edge Align option in Surface Fillet, but it doesn't solve the problem	Surfaces > Multi-Surface Fillet	<b>Surface Fillet</b>	<i>Edge Align - Interior</i>
3.26	Analysing the flow of CVs in the smaller fillet surface			
3.48	Using Non-Proportional viewing to emphasize the CV flow			
4.36	Explaining why the continuity break occurs			
5.03	Using the Chordal option in Surface Fillet to improve the Tangent edge	Surfaces > Multi-Surface Fillet	<b>Surface Fillet</b>	<i>Chordal</i>
5.19	Deciding on the right value for the Chordal Length			
5.35	Measuring the Chordal size of the existing radius fillet	Locators > Deviation	<b>Curve-Curve</b>	
6.11	Improved boundary from the Chordal Fillet			
7.39	Manually controlling the CV flow by building cutting planes			
8.52	Measuring the closest point to the plane	Locators > Deviation	<b>Closest Point</b>	
9.00	Offset the second plane			
9.14	Split the primary surfaces by intersect/trimming with the planes			
9.52	Create transitional surface with Freeform Blend	Surfaces > Multi-Surface Blend	<b>Freeform Blend</b>	
10.07	Analyzing the CV flow on the transitional surface			
11.00	Manually adjusting the CVs to improve the transition surface flow			<i>Normal</i>
14.30	Minimum Radius Check	Control Panel > Display	<b>Curvature U</b>	
15.15	The importance of direction when measuring minimum radius			
15.33	Using Diagnostic Shading to find minimum radius	Diagnostic Shading	<b>Surface Curvature</b>	<i>Principal Max</i>

16.45	Using Query Edit with the Curvature Shader to measure Minimum Radius	Object Edit	<b>Query Edit</b>	
17.16	Conclusion			