
Subject: Are These Edges Okay Or Not?

Posted by [beagley](#) on Wed, 03 Oct 2012 14:42:50 GMT

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Hi,

I am new to this.

I've designed a grating (holes in walls) using semicircles that connect at the points. There is NO gap. The points meet.

Are these edges (where the semicircles meet at the corners) okay for Shapeways?

Will my object print okay?

Thanks!

ATTACHED: Two images of my grating, as seen on a red surface. The gray area are holes.

File Attachments

1) [EdgesOkayOrNot.png](#), downloaded 73 times

2) [EdgesFaceOn.png](#), downloaded 60 times

Subject: Re: Are These Edges Okay Or Not?

Posted by [Youknowwho4eva](#) on Wed, 03 Oct 2012 14:44:59 GMT

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If the corners just touch you will get non-manifold issues. The holes either need to intersect a little, or not at all. What's your intended material?

Subject: Re: Are These Edges Okay Or Not?

Posted by [beagley](#) on Wed, 03 Oct 2012 14:49:27 GMT

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Plastic. Or any material.

Thanks for your reply. I was reading the how-to article on manifold stuff and I thought, "Uh-oh. I think I'm doing that!"

This is one example, I actually do it in lots of places when I want holes in my walls.

Perhaps I will have them overlap .25 mm or something. Or have the holes overlap .25 mm. Think that would work?

(Or I'll just design something else. Plenty of ways of making an attractive grate without this!)

Subject: Re: Are These Edges Okay Or Not?
Posted by [Youknowwho4eva](#) on Wed, 03 Oct 2012 15:03:48 GMT
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The rule with manifold is, no more than 2 surfaces can share the same edge. By having the corners touch, you end up having 4 walls sharing the same edge. You can move it out .00001 and it will work as it separates their edges. Then you'll just need to follow the individual materials rules for holes, wall thickness and separation.

Subject: Re: Are These Edges Okay Or Not?
Posted by [beagley](#) on Wed, 03 Oct 2012 15:12:02 GMT
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Okay, .0001 mm would be nice and invisible... but: How do I find out minimum "separation"? That is not on the materials specs.

Is that "Min Wall Free"?

Subject: Re: Are These Edges Okay Or Not?
Posted by [Youknowwho4eva](#) on Wed, 03 Oct 2012 15:32:09 GMT
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This should be considered a detail. So follow any rules listed for details. You will probably have to use plastic for this. I don't think it would work for any of the other materials.

Subject: Re: Are These Edges Okay Or Not?
Posted by [beagley](#) on Wed, 03 Oct 2012 15:47:15 GMT
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Hmm...

When I visit the specs for Strong and Flexible Plastics, I see numbers for "Embossed Detail" and "Engraved Detail". This is neither of those things, I don't think. I also see "Accuracy" so maybe I should use that number?

I don't see how far apart two shapes, or two holes, need to be.

I liked the way you said it! What's the minimum "separation"?

Subject: Re: Are These Edges Okay Or Not?
Posted by [Youknowwho4eva](#) on Wed, 03 Oct 2012 15:59:34 GMT
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For the accuracy, that means you could expect those sections to either be a little thicker, or a little thinner. I'm not seeing it on the page, but this should be considered a detail, which in the plastic materials you generally want to have at least 1:1 meaning a detail can have a wall under the minimum (.7mm for WSF) as long as it is no larger than it is thick. So say a tooth on a T-rex. If it's only .5mm thick, it can only be .5mm long. Your model should follow this, and also has the added benefit of not being free standing (as it is connected). So over all, I am 95% sure you'd be able to do this for WSF. To be a little extra certain, email you model to support, and they'll scan it over and tell you anything you may need to adjust.

Subject: Re: Are These Edges Okay Or Not?
Posted by [stonysmith](#) on Wed, 03 Oct 2012 21:10:09 GMT
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Unless I mis-understood the original question, the inquiry was how to keep four surfaces from generating a "non-manifold error".

This solution here is not an issue with, nor dependent upon the printer. You don't have to worry with what the printer is "capable of".

The .0001 offset is purely a mathematical/geometrical need, and is not related to the abilities of the

printer.

It could be a .0001 gap, or a .0001 overlap.. the need is only not to have them identical.

This is because the computer software can't figure out which you intend.. the .0001 change is to give the software a "hint" as to how to arrange the surfaces.

Subject: Re: Are These Edges Okay Or Not?
Posted by [beagley](#) on Thu, 04 Oct 2012 13:35:13 GMT
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I guess my question was two-part... 1. would my shape be rejected, and more importantly 2. would it be rejected for a good reason (i.e., it wouldn't print well). I can upload the shape to answer #1 but not #2.

I now understand that I can pass the manifold error check by separating or joining my holes by whatever minimal amount my software supports. (.01 mm I think, as I am in Tinkercad).

I HOPE your comment also implies that the printer won't have any problem creating these walls.
