

## Response to TAC Comments

**EWB-USA Chapter Name:** Rensselaer Polytechnic Institute

**Project Location (Country):** Isla Popa II, Panama

**TAC Region (refer to TAC notes heading):** Northeast

### Review Process Timeline:

Comments and Responses	Date
TAC Presentation	7/10/14
TAC Hold Comments	7/17/14
Chapter Response to TAC Hold Comments	11/5/14
TAC Follow-up Comments	11/12/14
Chapter Response to TAC Follow-up Comments	11/20/14
TAC Follow-up Comments (2)	11/21/14
Chapter Response to TAC Follow-up Comments (2)	11/21/14
TAC Follow-up Comments (3)	11/24/14
<i>Continue as necessary for additional rounds of comments</i>	

### Chapter Response and TAC Follow-up:

*Chapter responses and TAC follow-up comments should be included in the table below. If you are submitting attachments, refer to them in your responses below and attach them to the email with this document. If you are required to resubmit your HASP, send it to the TAC HASP Reviewer, copy your Project Manager, and note that you have done so in your response below pertaining to HASP comments. The table can be expanded or contracted as needed to match the number of comments and the number of revisions that apply to your particular project.*

TAC Comment No. 1
<p>TAC Hold Comment:</p> <p><b>A drawing to show the final design of the tank stand, including framing for the platform, connections between post, platform and walls, and cross-bracing.</b></p>
<p>Chapter Response to TAC Hold Comment:</p> <p><b>A drawing of the final tank stand design is in Attachment A1, A2 and A3. This includes the framing for the platform, bolt connections between the posts, platform and walls, and cross bracing. The walls for the barrier are not shown in A1 and A2 for clarity but are shown in the final assembly in A3.</b></p>
<p>TAC Follow-up Comment:</p> <p>I have made several mark-ups on the plans (see attached). My two main concerns are:</p>

1. Weight is bearing on four posts with a gross area of about 0.44 sf, so the bearing pressure is about 5.7 tons/SF. You should provide concrete pads or encasement to decrease bearing to 1 or 1.5 tons/SF, or the tank will settle as it fills.
2. The joints between the “joists” and “posts” are entirely dependent on the connectors rather than bearing between elements. I have sketched a few alternatives, or you can look for joist hangers and connectors in country. Since the tank sits inside the outer frame, a very large portion (most) of the weight is on two cross-members and a few nails connecting them to the outer frame, and they will fail when the tank fills.

Please provide additional details and supporting calculations. As an alternative, consider a concrete pad and lower the tank.

Chapter Response to TAC Follow-up Comment: *Chapter should include subsequent response here.*

Cinder Block Footings will be used to decrease bearing. The drawings have been updated to show a ledge to distribute pressure from the tank and prevent shearing. All dimensions are actual sizes and the wood will be cut and purchased in the community. Connections on the barrier arms noted. The use of corrugated metal is not to prevent the tank from moving in the wind but because the community requested a way of securing the public water source, which is why we did not use tie-downs. As noted in the drawing, there will not be an open side but is shown this way to see construction details. Calculations for the footings below and remaining calculations were submitted in Attachment C of our 525.

600 gal water = 4998 lbs → about 5000 lb  
 4 posts → 1250 lb per post

Area of Cinderblock  
 16 in x 8 in = 128 in<sup>2</sup>

$1250 \text{ lb} / 128 \text{ in}^2 = 9.76 \text{ psi} = 0.7 \text{ tsf}$

TAC Follow-up Comment (2): *TAC should include any follow-up comments here, with clarification if any additional follow-up is required of the chapter.*

The ledgers to support the cross-members are a good addition, but the issue of the connection between the posts and the deck frame has not been addressed. Those connection are still dependent on the shear capacity of the connectors I had suggested notching the posts so that the frame could bear on the post, or using metal shear connectors; please explain why you have not made any changes to those connections.

I would strongly suggest that you use cast-in-place concrete for the footing rather than concrete block. A single block placed at the bottom of an excavation may be subject to shifting or rotating, but cast concrete will establish a much more uniform bearing against the soil. Also, post footings should be square so there is not a strong and weak axis. As the tank is loaded, I can see a block wanting to roll under the load if it is not perfectly level and solidly bedded, or if the post is even slightly off-center.

Responses are required to these two issues.

<p>Chapter Response (2): We changed the concrete block to a concrete pad (5'x5') and notched the column to increase shear capacity. Please see Attachment A Rev. 2 for the new drawing.</p>
<p>TAC Follow-up Comment (3): Thank you for modifying the post to beam connections. The slab should work, but I would suggest thickening it to 6 inches under the posts (for a one-foot square area centered on each post), and be sure that the slab extends at least six inches beyond each post. It appears that you are burying the slab, is that correct? If not, and the slab is to be on grade, then I would suggest that you have some connector between the posts and slab or that the posts be embedded in the slab so the structure cannot shift.</p> <p>Please clarify the slab burial or revise the detail appropriately. You might be able to find a prefab post base that could be embedded in the concrete, or perhaps you can embed some anchors in the slab and bolt down the posts (if the slab is not buried). Also consider using a wood preservative, especially if the posts will be buried.</p>
<p>We have thickened the square area under each post and will be treating the wood.</p>
<p><b>TAC Comment No. 2</b></p>
<p>TAC Hold Comment: <b>Response to comments in the attached HASP review form.</b></p>
<p>Chapter Response to TAC Hold Comment: <b>The comments made in the HASP review have been addressed, and the original comments are available for viewing in Attachment B. The updated HASP is available in Attachment C.</b></p>
<p>TAC Follow-up Comment:</p> <p>HASP is still under review but will be emailed to the chapter as soon as possible.</p>
<p>Chapter Response to TAC Follow-up Comment: <i>Chapter should include subsequent response here.</i> We have received a response from Kelly Latham acknowledging the HASP was approved. Thank you very much!</p>
<p>TAC Follow-up Comment (2): <i>TAC should include any follow-up comments here, with clarification if any additional follow-up is required of the chapter.</i></p>
<p><i>Continue as needed for TAC Comment No. 2.</i></p>

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### Project Approval Status:

The project continues to be on hold as the chapter addresses the remaining TAC comments.