

# RELi 3.0 HP & HA Tornado Shelter

– Prerequisite for service structures the public requires. Optional credit for all other structures –

**Assumptions:** Hospitals, police, fire, utility, communications, and other structures the public requires must operate continuously or almost so in order to effectively serve their mandated public need. Accordingly, for critical facilities, tornado shelter is still a RELi prerequisite but the hardness of the structure is modified to cost-effectiveness for the risk protected against.

Existing Shelter Design Requirements	Proposed 3.0 Update
<p><b>Prerequisite:</b> HP Req. 2.0 Tornadoes U.S. Small Business Administration/PrepareMyBusiness.Org checklist: Tornado Preparedness</p> <p><b>Prerequisite:</b> HA Req. 4.0</p> <p><b>Tornadoes:</b> Projects in FEMA Wind Zones III or IV with public/community uses and multifamily housing facilities must include safe rooms designed and constructed to standards detailed in <a href="#">FEMA P-361 Design and Construction Guidance for Community Safe Rooms, 2015 edition</a>.</p> <p>Projects in FEMA Wind Zones III and IV without community uses must include refuge areas designed and constructed to standards detailed in <a href="#">FEMA P-431 Tornado Protection: Selecting Refuge Areas in Buildings</a>.</p> <p style="text-align: right;">USGBC Inc. © 2018 35</p> <p><b>HA:</b> Hazard Mitigation + Adaptation</p> <p style="text-align: right;">RELi 2.0</p> <p><u>OR</u></p> <p>If a tornado shelter is installed, it is recommended that it meet the requirements of FEMA 320 "Taking Shelter From the Storm: Building a Safe Room For Your Home or Small Business," FEMA 361 "Design and Construction Guidance for Community Safe Rooms," or the International Code Council + National Storm Shelter Association (ICC/NSSA) - ICC-500 "Standard on the Design and Construction of Storm Shelters."</p> <p><b>Optional Credit:</b> HA 1.0</p> <p><b>HA:</b> Hazard Mitigation + Adaptation</p> <p style="text-align: right;">RELi 2.0</p> <p><b>Tornadoes</b></p> <p>Projects in FEMA Wind Zones III or IV with public/community uses and multifamily housing facilities must include safe rooms designed and constructed to standards detailed in <a href="#">FEMA P-361 Design and Construction Guidance for Community Safe Rooms, 2015 edition or most recent version</a>. (4 points)</p> <p>Projects in FEMA Wind Zones III and IV without community uses must include refuge areas designed and constructed to standards detailed in <a href="#">FEMA P-431 Tornado Protection: Selecting Refuge Areas in Buildings</a>.</p> <p><u>OR</u></p> <p>If a tornado shelter is installed, it is recommended that it meet the requirements of FEMA 320 "Taking Shelter From the Storm: Building a Safe Room For Your Home or Small Business," FEMA 361 "Design and Construction Guidance for Community Safe Rooms," or the International Code Council + National Storm Shelter Association (ICC/NSSA) - ICC-500 "Standard on the Design and Construction of Storm Shelters." (4 points)</p>	<p><u>Prerequisite:</u> HP Req. 2.0 remains as is.</p> <p><u>Prerequisite</u> HA Req. 4.0 is changed as follows:</p> <p>Critical service structures without community uses must meet MN Department of Public Safety specs:</p> <ul style="list-style-type: none"> <li>Basements with no windows, or windows designed to withstand winds up to 129 mph which is Cat. 3 hurricane speed, since there are reasonably priced, commercially available windows for that speed. F1 tornado wind speed is 73-112 mph, &amp; F2 is 113-157 mph.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Rooms constructed of reinforced concrete, brick or block with no windows and a heavy concrete floor or roof system overhead. Any windows must meet the preceding performance spec for basements.</li> </ul> <p>All other shelter areas in structures not designed for tornados, are marginally effective and thus not entitled to RELi credit.</p> <p><u>Optional Credit:</u> HA 1.0 remains as is.</p> <p>Climate change is making tornados more intense, larger, with higher wind speeds.</p>