

# Net-Positive Design: Standards & Strategies

<p><b>Carbon Neutral Design Strategies</b></p> <p>The Society of Building Science Educators</p> <ol style="list-style-type: none"> <li>1. Reduce loads/demand first (passive solar design, daylighting, shading, orientation, use of natural ventilation, site design, and materiality, etc.)</li> <li>2. Meet loads efficiently and effectively (energy-efficient/effective lighting, high-efficiency/effective Mechanical, Electrical and Plumbing equipment, controls, etc.)</li> <li>3. Use on-site generation/renewable to meet energy needs (doing the above steps before will result in the need for much smaller renewable energy systems, making carbon neutrality achievable.)</li> <li>4. Use Purchased Offsets as a last resort when all other means have been looked at on-site.</li> </ol> <p><b>AIA Committee on the Environment (COTE)</b></p> <p>Top Ten Toolkit Phase 1 June 2018</p> <ol style="list-style-type: none"> <li>1. Energy Benchmarking</li> <li>2. Energy Modeling</li> <li>3. Predicted Energy Use Intensity (pEUI) / Metered Energy Use Intensity (EUI)</li> <li>4. Passive Design Features</li> <li>5. On-Site Renewable (Solar-Wind)</li> <li>6. Climate Responsive Design</li> </ol>	<p><b>CLIMATE CONSULTANT 6.0</b></p> <p>Minneapolis Minnesota: January-December Design Strategies July 5 2018</p> <ol style="list-style-type: none"> <li>1. Comfort[able] 8.9%</li> <li>2. Sun Shading of Windows 6.8%</li> <li>3. High Thermal Mass - Night Flushed 2.4%</li> <li>4. Internal Heat Gain 19.2%</li> <li>5. Passive Solar Direct Gain Low Mass 8.2%</li> <li>6. Wind Protection of Outdoor Spaces 3.8%</li> <li>7. Dehumidification Only 6.1%</li> <li>8. Cooling, add Dehumidification if needed 3.4%</li> <li>9. Heating, add Humidification if needed 56.2%</li> </ol> <p><b>ASHRAE Standard 189.1</b></p> <ol style="list-style-type: none"> <li>1. Sustainable site</li> <li>2. Water use efficiency</li> <li>3. Energy efficiency</li> <li>4. Indoor air quality</li> <li>5. The building impact on the atmosphere</li> <li>6. Material and resources</li> <li>7. Construction</li> <li>8. Operation plan</li> <li>9. Metering, data collection, storage, and retrieval</li> </ol>	<p><b>DGNB System</b></p> <p>German Sustainable Building Council</p> <p><b>1. Environmental Quality</b></p> <ul style="list-style-type: none"> <li>-Global and local environmental impacts</li> <li>-Resource consumption and waste generation</li> </ul> <p><b>2. Economic Quality</b></p> <ul style="list-style-type: none"> <li>- Life Cycle Costs (LCC)</li> <li>- Financial Performance</li> </ul> <p><b>3. Socio Cultural and Functional Quality</b></p> <ul style="list-style-type: none"> <li>- Health, comfort, and user-friendly</li> <li>- Functionality</li> <li>- Aesthetic Quality</li> </ul> <p><b>4. Technical Quality</b></p> <ul style="list-style-type: none"> <li>- Quality of technical implementation</li> </ul> <p><b>5. Process Quality</b></p> <ul style="list-style-type: none"> <li>- Planning quality</li> <li>- Construction Quality</li> </ul> <p><b>6. Site Quality</b></p>	<p><b>Active House : Smart Nearly Zero Energy Building</b></p> <p>Politecnico, Milano, 2018</p> <p><b>Comfort</b></p> <ul style="list-style-type: none"> <li>- a building that provides an indoor climate that promoted health, comfort and sense of well being</li> <li>- a building that ensures good indoor air quality, adequate thermal climate and appropriate visual and acoustical comfort</li> <li>- a building that provides an indoor climate that is easy for occupants to control and at the same time encourage responsible environmental behavior</li> </ul> <p><b>Energy</b></p> <ul style="list-style-type: none"> <li>-a building that is energy efficient and easy to operate</li> <li>- a building that substantially exceeds the statutory minimum in terms of energy efficiency</li> <li>- a building that exploits a variety of energy sources integrated in overall design</li> </ul> <p><b>Environmental</b></p> <ul style="list-style-type: none"> <li>- a building that exerts the minimum impact on environmental and cultural resources</li> <li>- a building that avoids ecological damage</li> <li>- a building that constructed of materials with focus on re-use</li> </ul> <p><b>Regenerative Development and Design</b></p> <p>Man, Reed</p> <ol style="list-style-type: none"> <li>1. Place and potential (co-evolution)</li> <li>2. Goals focus on the regenerative capacity</li> <li>3. Partnership with place</li> <li>4. Progressive harmonization</li> </ol>	<p><b>UN Sustainable Development Goals</b></p> <p>The 2030 Agenda for Sustainable Development</p> <p><b>Sustainable Development Goals</b></p> <p>Goal 1. End poverty in all its forms everywhere Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture Goal 3. Ensure healthy lives and promote well being for all at all ages Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all Goal 5. Achieve gender equality and empower all women and girls Goal 6. Ensure availability and sustainable management of water and sanitation for all Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation Goal 10. Reduce inequality within and among countries Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable <b>Goal 12. Ensure sustainable consumption and production patterns</b> Goal 13. Take urgent action to combat climate change and its impacts* Goal 14. Conserve and sustainable use the oceans, seas and marine resources for sustainable development Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainability manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development</p>
<p><a href="https://www.tboake.com/carbon-aia/strategies.html">https://www.tboake.com/carbon-aia/strategies.html</a></p> <p>AIA COTE: <a href="https://network.aia.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=3b309447-1472-66d9-f689-283d66865779&amp;forceDialog=0">https://network.aia.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=3b309447-1472-66d9-f689-283d66865779&amp;forceDialog=0</a></p>	<p>Climate Consultant: <a href="http://www.energy-design-tools.aud.ucla.edu/climate-consultant/request-climate-consultant.php">http://www.energy-design-tools.aud.ucla.edu/climate-consultant/request-climate-consultant.php</a></p> <p><a href="https://www.ashrae.org/technical-resources/standards-and-guidelines">https://www.ashrae.org/technical-resources/standards-and-guidelines</a></p>	<p><a href="https://drive.google.com/open?id=1Tkia8_CAmV5ORh_SXqQPOaXBOHe8ZFXN">https://drive.google.com/open?id=1Tkia8_CAmV5ORh_SXqQPOaXBOHe8ZFXN</a></p>	<p><a href="https://link-springer-com.ezp3.lib.umn.edu/content/pdf/10.1007%2F978-3-319-90814-4.pdf">https://link-springer-com.ezp3.lib.umn.edu/content/pdf/10.1007%2F978-3-319-90814-4.pdf</a></p>	