

Tribal Green Building Codes

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Context

- My interest
- EPA: Tribal Green Building
 - Tribal Green Building Codes (TGBC) Development Guidance
 - <http://www.epa.gov/region9/greenbuilding/codes/index.html>
 - TGBC Workgroup
 - Tribes, Tribal Orgs, Federal Agencies, National Labs, Non-Profit, & Private
 - Monthly Calls
 - Subgroups
 - <http://www.epa.gov/region9/greenbuilding/tribal-workgroup.html>

TGBC Workgroup

■ Tribes/Tribal Organizations

- Acoma Pueblo
- BDL Residential
- Hualapai Tribe
- Intertribal COUP
- La Jolla Band
- Muscogee Creek Nation
- NAIHC
- NCAI
- NILL/NARF
- Navajo Nation
- Nez Perce
- Paiute Indian Tribe – Utah
- Pinoleville Pomo Nation
- Pokagon Band of Potawatomi
- Redwood Valley Rancheria
- Sault Tribe of Chippewa
- Snoqualmie Tribe
- Spirit Lake Tribe
- Stockbridge-Munsee Community
- Sustainable Development Institute
- Sustainable Nations
- Thunder Valley, Pine Ridge
- United South & Eastern Tribes, Inc.
- N.A.T.I.V.E
- Bik'eh Hozho Community Development Corp.
- Tohono O'odham Community College
- Yankton Sioux Tribe
- 7 Directions Architects/Planners

TGBC Workgroup Members, cont.

■ Federal Agencies/ National Labs

- BIA
- FEMA
- USDA
- US DOE
- US HUD
- US EPA
- IHS
- NREL
- Pacific NW National Labs
- Sandia National Labs

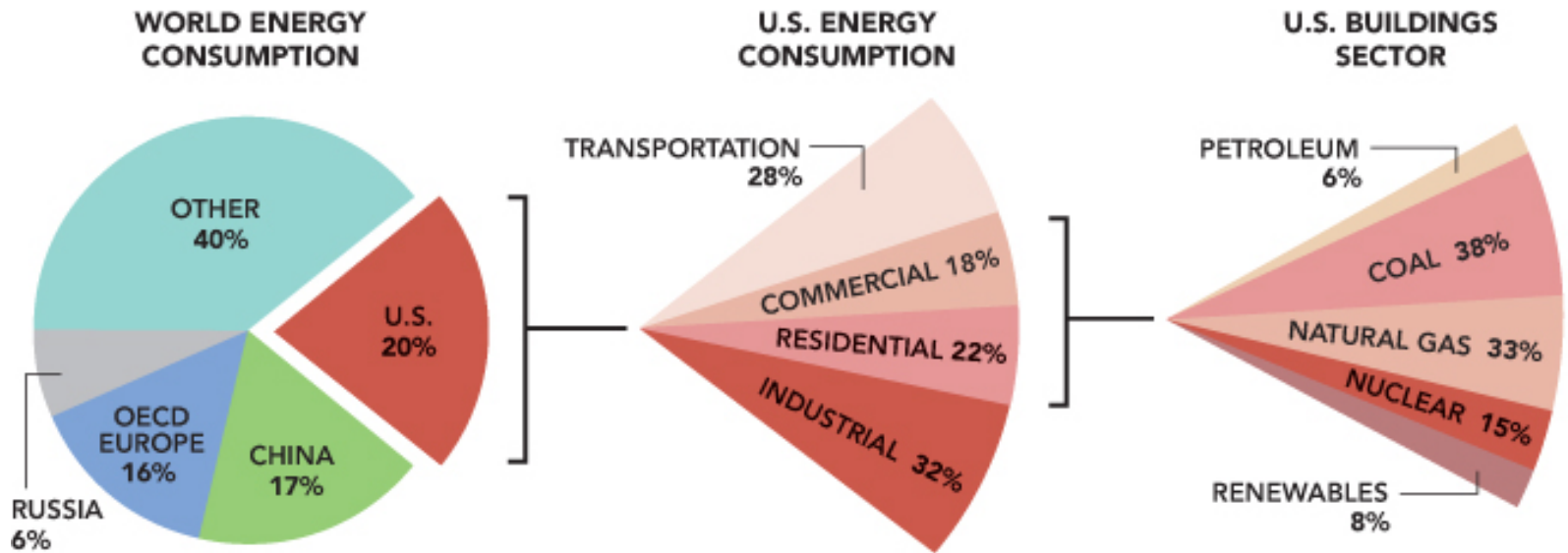
■ Non-Profit/Private

- BNIM
- Builder's Without Borders
- Cold Climate Housing Research Center
- DCAT
- DesignBluff
- Green Weaver Inc.
- Hobbs Straus Dean & Walker
- The Landsward Institute – NAU
- Native CARES
- Photonica
- Red Feather Development Group
- Rocky Mountain Institute
- SWEEP
- Sustainable Native Communities Collaborative
- UA – Indigenous Peoples Law Clinic
- UC Berkeley

Overview

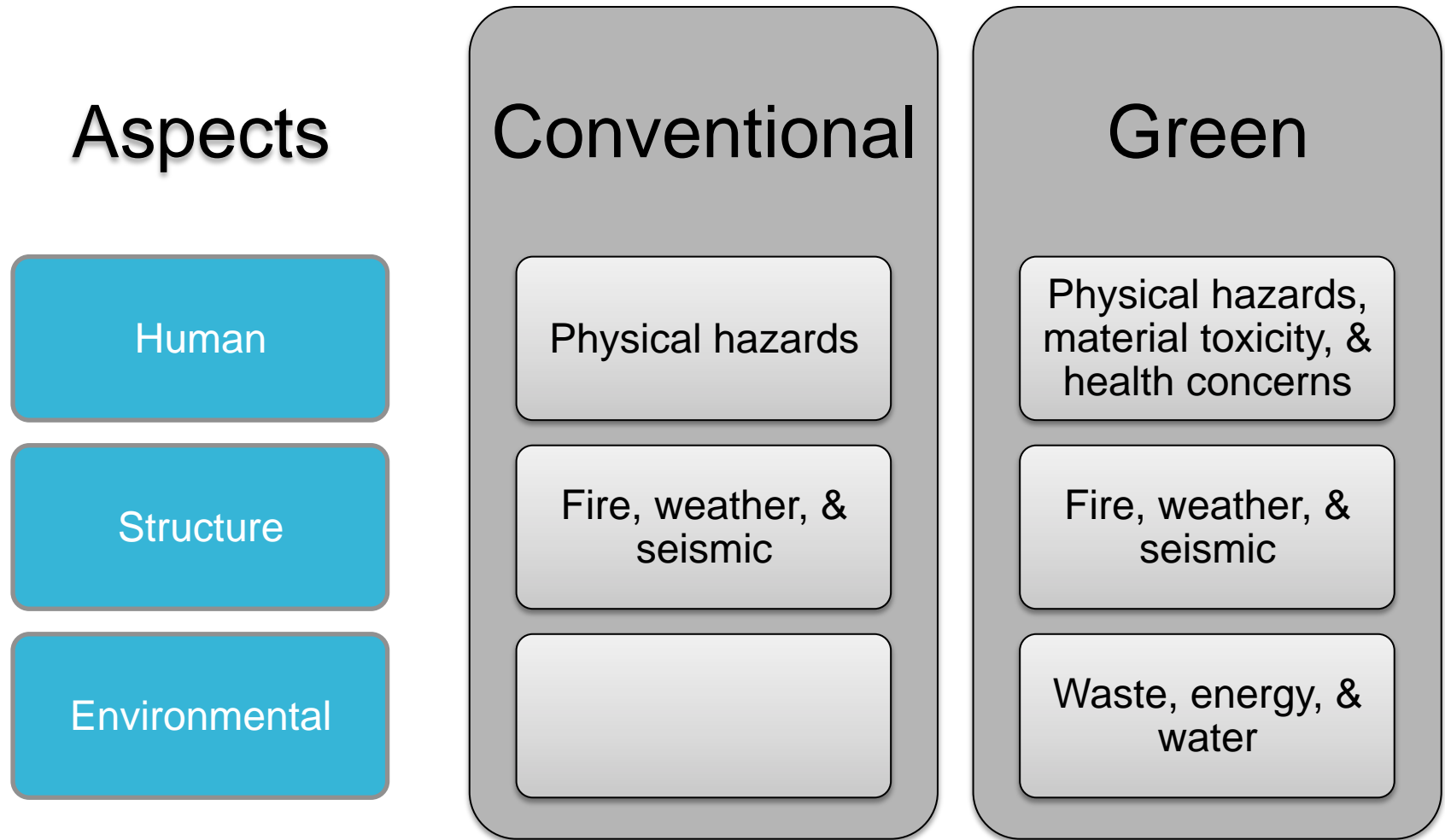
- U.S. Buildings
- Building Codes
- Spectrum
- Case Study: Pinoleville Pomo Nation
- Conclusion

U.S. Buildings



Building Codes

- Prescriptive/Performance

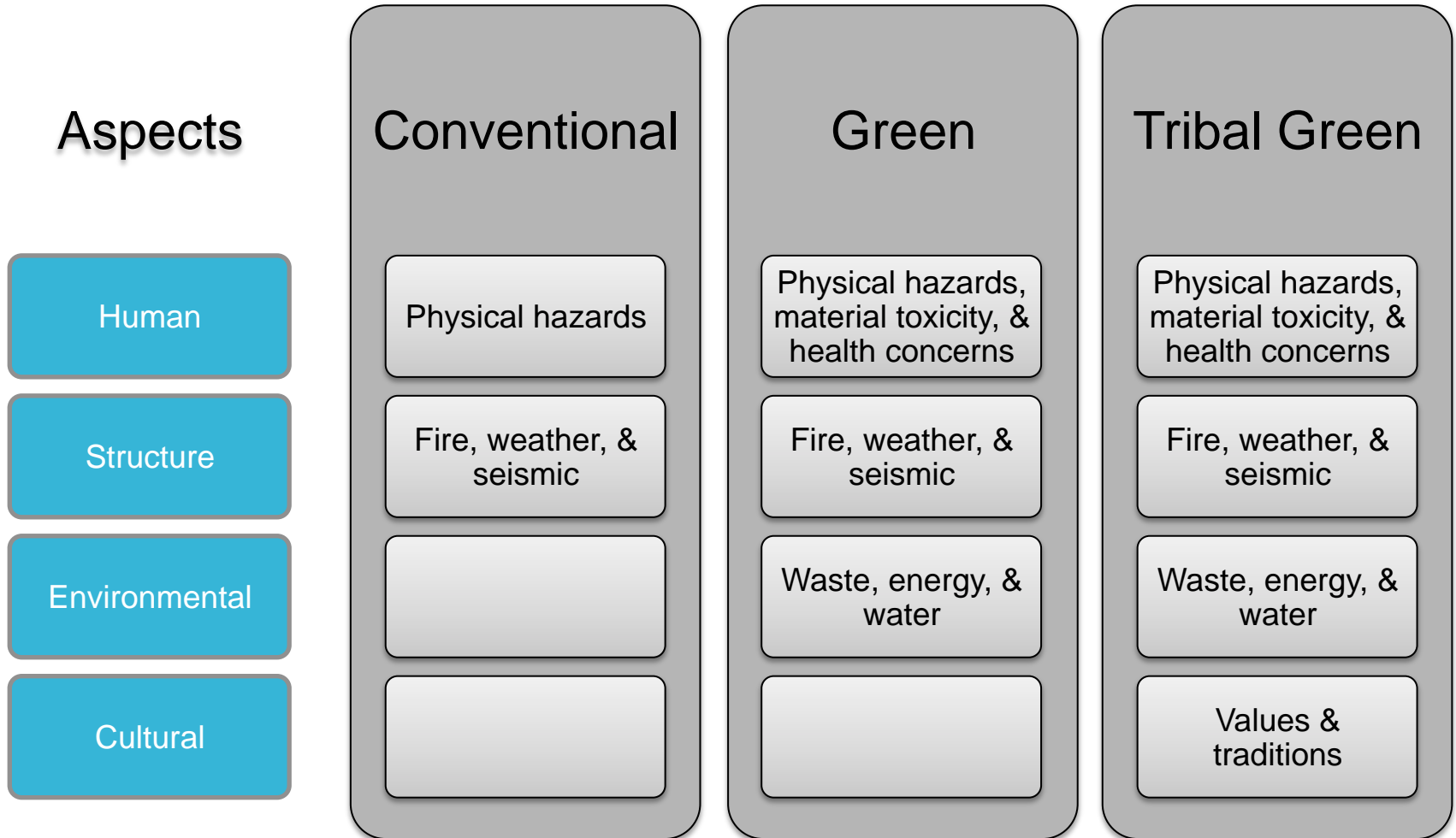


Green Comparison

- Commercial LEED Gold
 - 25% less energy
- LEED & CO₂
 - 2011: 0.35% less
 - 2030: 4.92% less
- Other Considerations
 - Less water
 - Lower maintenance costs
 - Higher occupant satisfaction

~2% initial cost increase
→ ~20% life cycle cost savings

Tribal & Green Building Codes



Tribal & Green Comparison

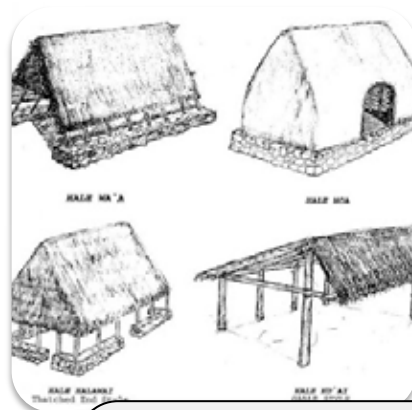
- Defined by tribe
 - Comprehensive
 - Site-specific
 - Unique to needs
- Benefits
 - Cultural development
 - Community development
 - Economic development
 - Tribal sovereignty

Spectrum



Adopting
existing
codes

- Kayenta
Township



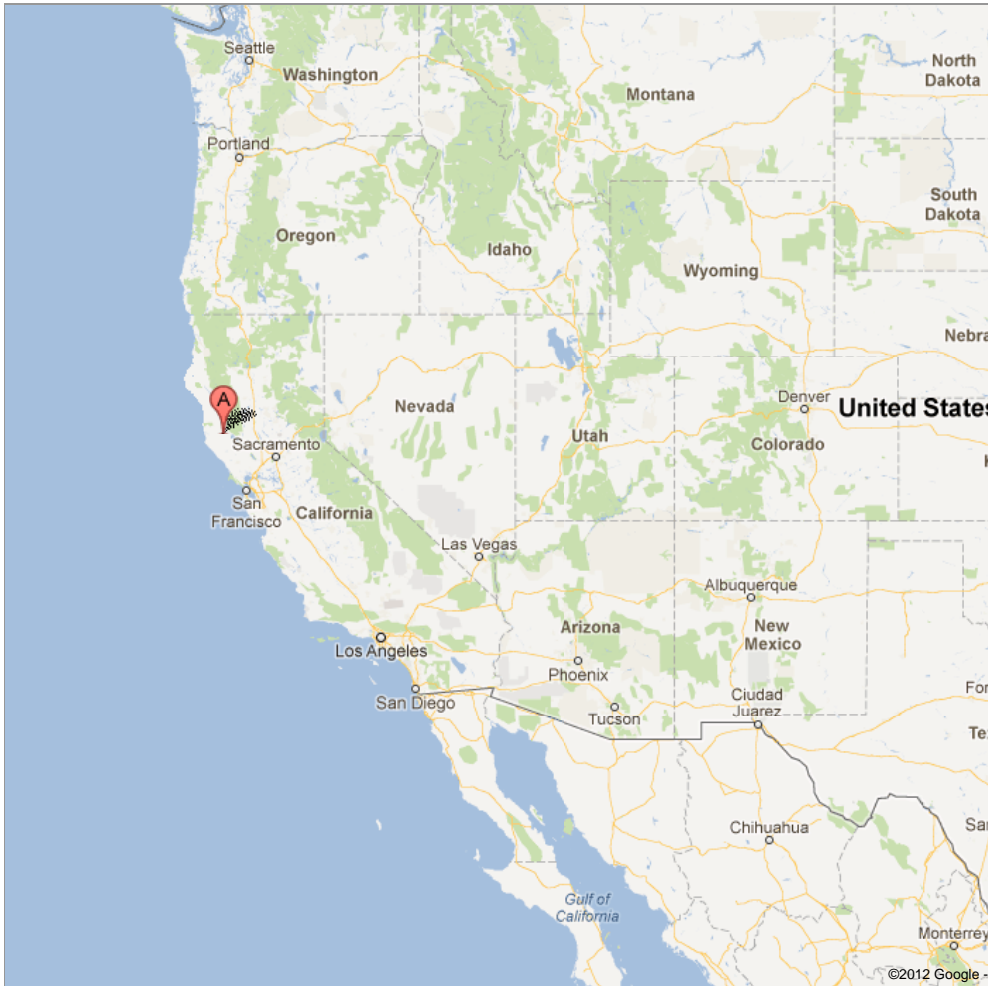
Amending &
adapting
codes

- Hawaii – Maui
County



New codes

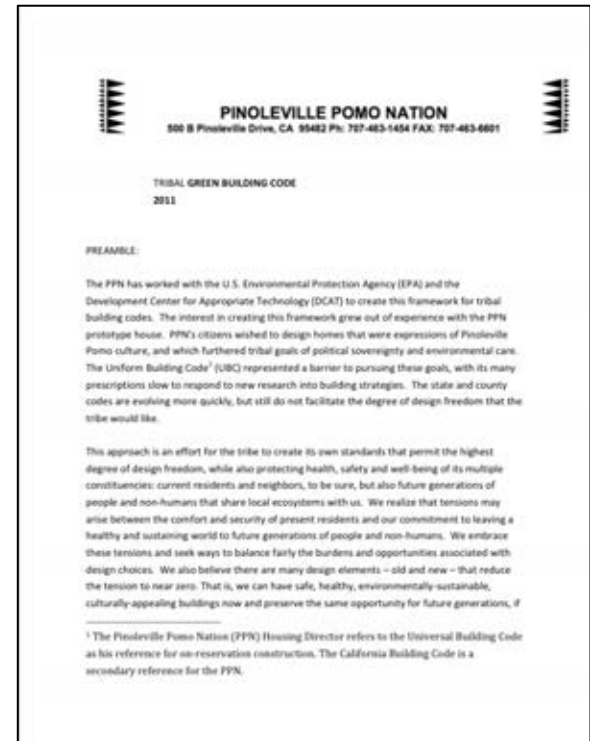
- Pinoleville
Pomo Nation



PINOLEVILLE POMO NATION

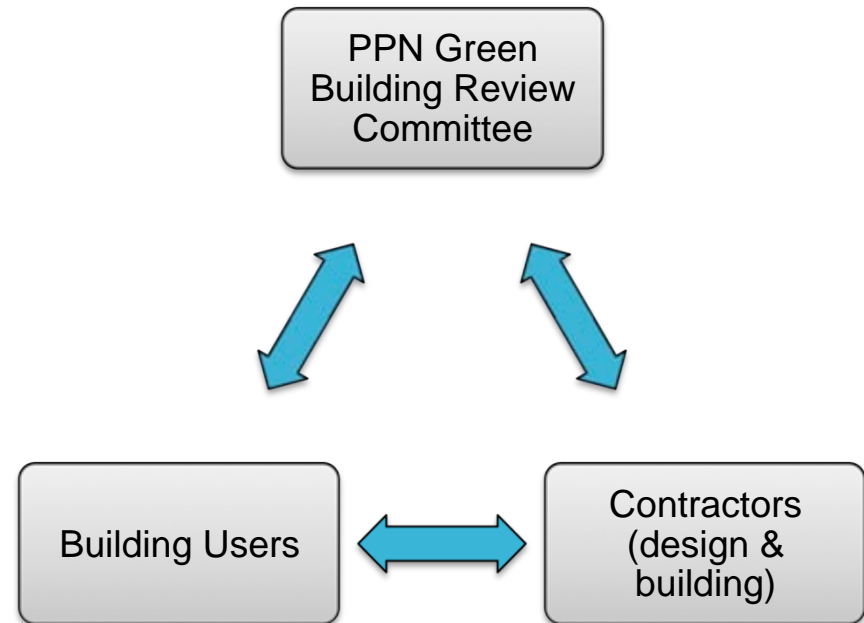
Process

- Green housing project
- Research
 - Housing design project notes
 - Existing performance standards & codes
 - Partnerships: EPA & DCAT
 - Tribal membership
- Tribal Participation
 - Council
 - Tribal member law students
- Tribal Support



All new & renovated buildings

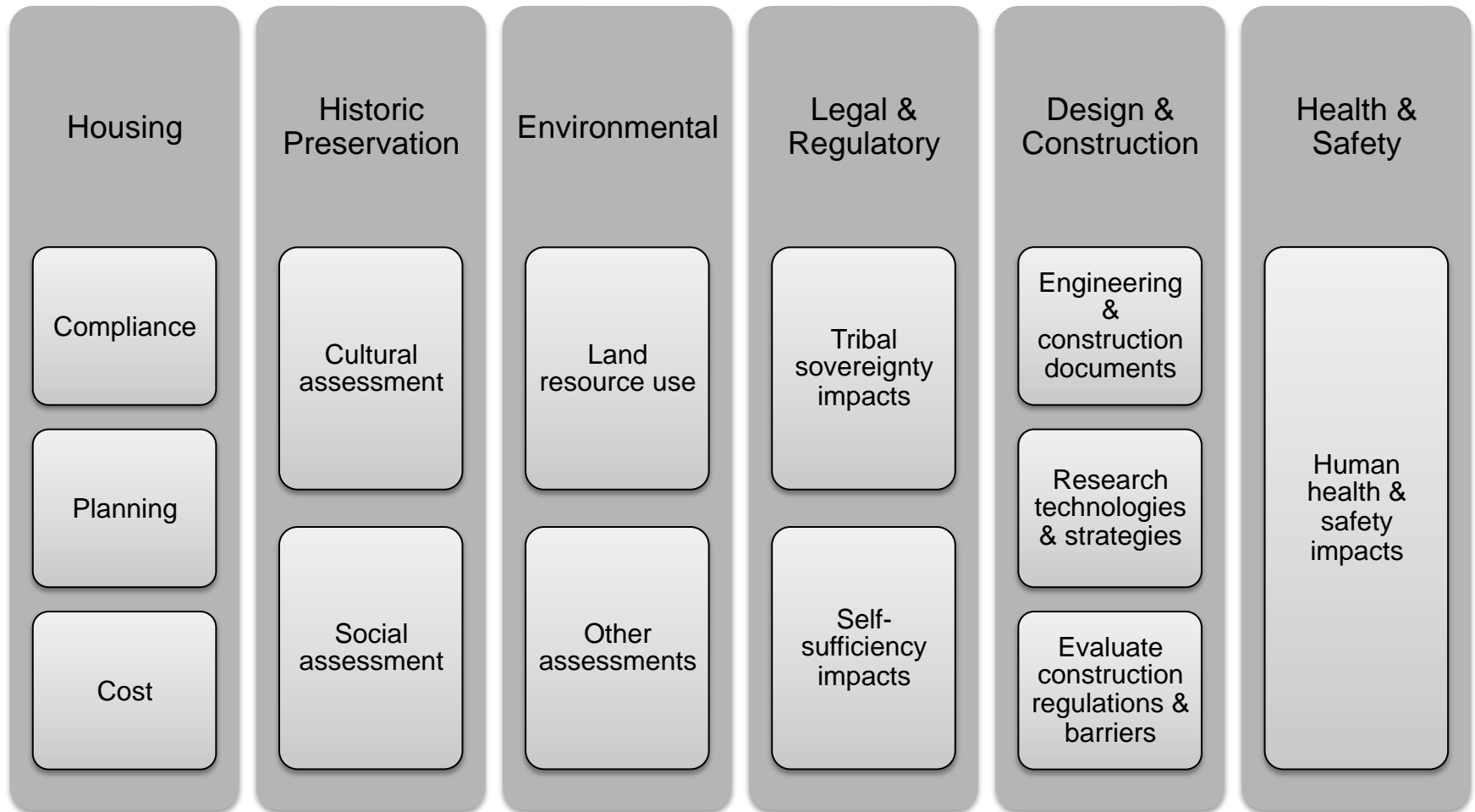
- Performance standards
- Compliance
- Design Freedom
 - Reduce tension
 - Dynamic as possible
 - Community participation & capacity
 - Relationships & partnerships
 - “Landscape-level view”

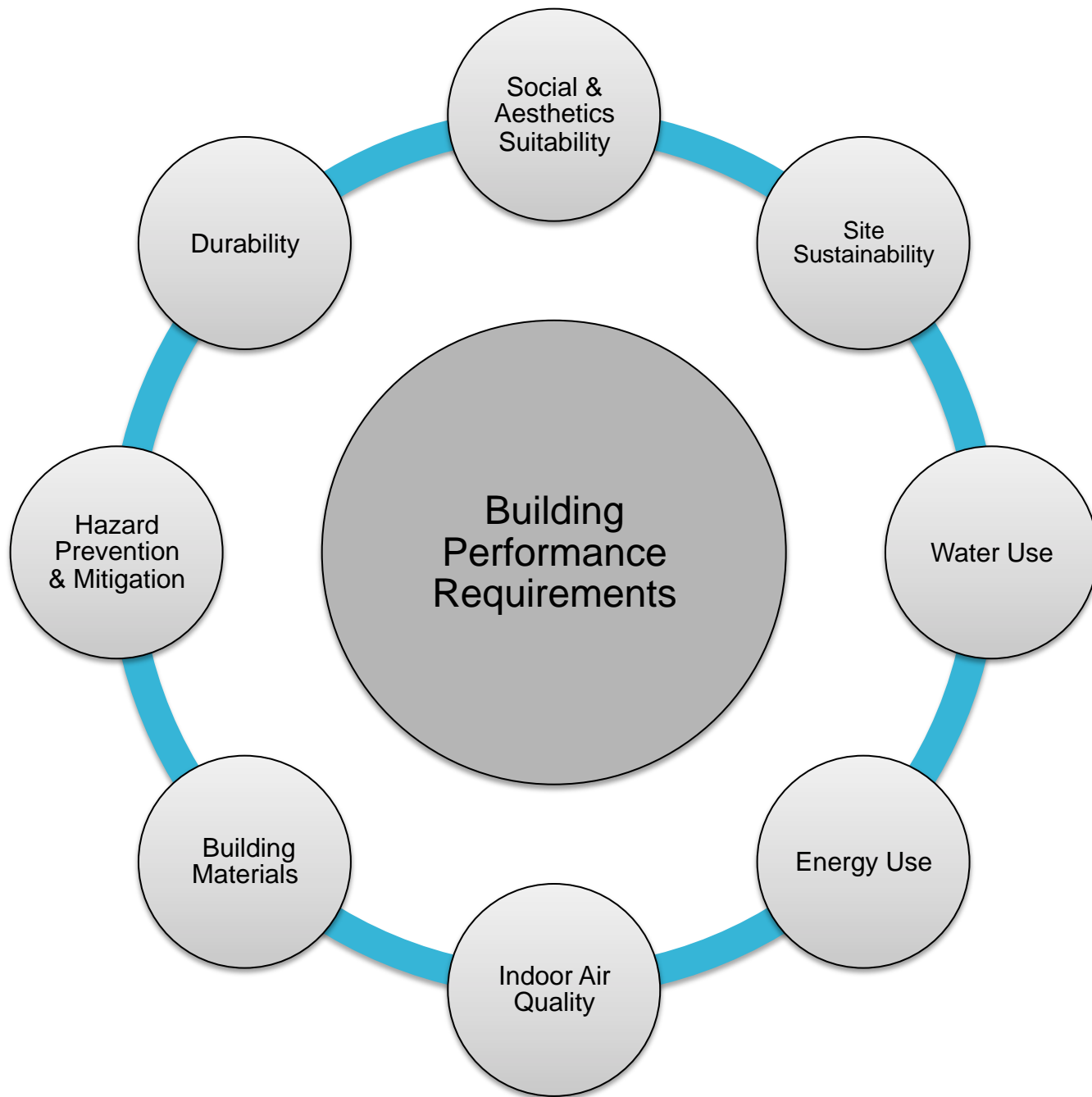


PPN Green Building Review Committee

- Nominated 2-year terms (up to 5 terms)
- Tribal council approval
- Responsibilities
 - Review & approve proposals
 - Facilitate dialogue
 - Evaluate building performance & compliance
 - Research & assess new strategies & technologies
 - Assess financing options
 - Identify & evaluate building projects
 - Collect & assess social, economic, & political conditions

Committee Members







Social & Aesthetic Suitability

- “Large kitchens to support family gatherings for social and ceremonial events.”
- “East-facing windows in the kitchen or other common rooms to facilitate morning prayer.”
- “Agricultural potential inside and outside the building for growth of food, medicine, and fibers...”
- “Building operation costs should be within budget of least wealthy occupant.”



Site Sustainability

- “Limitation of impermeable surfaces...”
- “Limited negative impact on view sheds of neighboring properties.”
- “Preservation of existing landscape features of importance to the tribe, including plant and animal communities, water features, or cultural structures.”

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Water Use

- “An evaluation of water volume available over twelve month period from the sources that will be used by the proposed building.”
 - Delivery method
 - 10-year projection
 - Water quality levels
- “Capacity to harvest and utilize rainwater.”
- “Capacity to recycle gray water.”



Energy Use

- “A viable plan to obtain 100 percent of the building’s energy need from local and/or renewable sources through a combination of conservation and generation.”



Indoor Air Quality

- “Documentation that no product or material emissions of any EPA listed chemicals exceed safe limits, as defined in the Performance Standards List, including cumulative and synergistic impacts of emissions.”



Building Materials

- “The use of locally sourced materials...”
- “The use of commercially-produced sustainable or natural materials should include certification of sustainable production from a nationally recognized certifier if available.”
- “The use of materials that are produced without negative impacts on social equity, especially indigenous land rights, cultural expression, or livelihoods.”



Hazard Prevention & Mitigation

- “All exits must be usable by building occupants regardless of their biomechanical and mental capabilities.”
- “Evaluation of material performance, structural integrity, social and aesthetic functioning, and durability under conditions of [different weather conditions].”



Durability

- “Mechanism for dissipating moisture in all spaces where moisture tends to accumulate.”
- “Estimated schedule of expected lifetimes of mechanical systems, energy systems, water systems, wastewater systems, lighting systems, ventilation and air quality systems, and heating and cooling systems.”

Overall Conclusion

- Opportunity to “do it right the from the beginning”
- Importance on communication & partnership
- Sustainability & security
- Ownership
 - Community participation
 - Expression of tribal & cultural sovereignty

