Integration

Good design elevates any project with a thoughtful process that delivers beauty and function in balance. It binds all of the principles together with a big idea.

HIGH IMPACT DESIGN STRATEGIES

- Design a building to lift the spirits and delight the senses.
- Design for the engagement of natural and cultural environments.
- Use an integrated design process that respects and values multiple viewpoints. • Map, identify, and engage diverse project stakeholders throughout the integrated design process.

PROJECT GOALS

The big ideas..

RESOURCES

The Cube | Sustainability Library http://clarknexsen/libraries/Sustainability%20Wiki/Home.aspx

AIA | COTE Top Ten Award Recipients

https://www.aia.org/awards/7301-cote-top-ten-awards

AIA | Framework for Design Excellence https://www.aia.org/resources/6077668-framework-for-design-excellence

AIA | COTE SuperSpreadsheet

https://content.aia.org/sites/default/files/2022-09/COTE_Super_Spreadsheet_Version_3.1.2.xlsx

Water

Good design conserves and improves the quality of water as a precious resource.

HIGH IMPACT DESIGN STRATEGIES

 Establish a stakeholder map of the watershed your project is located within understand who is impacted by project-related water-use decisions.

- Develop a water budget analysis to determine the water resource available to the project, how much water is needed, and how the water system can work to minimize the usage of potable water, while balancing the needs of both outdoor and indoor water resources as a unified system.
- Benchmark indoor water use and use this baseline to set percent-reduction goals to target.
- Reduce or eliminate outdoor water use (irrigation reduction/elimination).
- Manage stormwater runoff with the goals of increasing on-site infiltration and improving water quality downstream.

PERFORMANCE METRICS

Potable Water Reduction (0% baseline - 100% very high)

Potable Water Used for Irrigation (0% baseline - 100% very high)

Rainwater Managed Onsite (0% baseline - 100% very high)

RESOURCES

LEED v4 Indoor Water Use Reduction Calculator https://www.usqbc.org/resources/leed-v4-indoor-water-use-reduction-calculator

EPA | WaterSense Simple Water Assessment Checklist https://www.epa.gov/sites/default/files/2017-01/documents/ws-commercial-water-assessment-checklist.pdf

BuildingGreen | Net-Zero Water and More: Moving Beyond "Low Flow" https://www.buildinggreen.com/feature/net-zero-water-and-more-moving-beyond-low-flow

Green Infrastructure Foundation | Living Architecture Performance Tool https://greeninfrastructurefoundation.org/lapt/#download-framework

Equitable Communities

Design solutions affect more than the client and current occupants. Good design positively impacts future occupants and the larger community.

HIGH IMPACT DESIGN STRATEGIES

- Work to create thriving communities.
- Plan for robust stakeholder engagement.
- Facilitate equitable gathering and connecting in the design and beyond buildings in the community.
- Organize the design team so that disciplines integrate and are not siloed.

PERFORMANCE METRICS

Walk Score (0% baseline - 100% very high)

Community Engagement (1 Manipulation - 5 Citizen Control)

Transportation Carbon Reduction (0% baseline - 100% very high)

Bike Infrastructure percent provided for occupants (0% baseline - 50% very high)

RESOURCES

AIA | Guides for Equitable Practice | Glossary https://content.aia.org/sites/default/files/2020-11/AIA_Guides_Glossary_2020.pdf

AIA | Architect's Role in Creating Equitable Communities

AIA | Equitable Development Frameworks

EPA | Environmental Justice Screening and Mapping Tool

Bike Friendly State Program

Walk Score

https://www.bikeleague.org/states

https://ejscreen.epa.gov/mapper/

https://www.walkscore.com/

Well-being

Good design supports health and well-being for all people, considering physical, mental, and emotional effects on building occupants and the surrounding community.

HIGH IMPACT DESIGN STRATEGIES

- Provide operable windows in regularly occupied spaces.

- Vary environments to promote physical activity.

PERFORMANCE METRICS

Quality Views (0% baseline - 100% very high)

Operable Windows (0% baseline - 100% very high)

Daylight Autonomy (0% baseline - 100% very high)

Daylight Sensors Installed? Yes No

Occupants Per Thermostat (0% baseline - 100% very high)

RESOURCES

Designing for Health + Wellness https://issuu.com/vmdoarchitects/docs/vmdo_designing_for_health__wellnes

WELL v2 Building Standard https://v2.wellcertified.com/en/v/overview

Urban Land Institute | Building Healthy Places Toolkit https://bhptoolkit.uli.org/

International Green Construction Code (IgCC) https://www.iccsafe.org/products-and-services/i-codes/2018-i-codes/igcc/

Fourteen Patterns of Biophilic Design https://www.terrapinbrightgreen.com/reports/14-patterns/

Ecosystems

Good design mutually benefits human and nonhuman inhabitants.

HIGH IMPACT DESIGN STRATEGIES

- Develop a project-specific indexing framework that assesses attributes of the surrounding predevelopment, quantitatively and qualitatively.
- Design landscaping composed of 100% native plantings, especially species that attract pollinators. Avoid all decorative turf grass.
- Integrate bird collision deterrent design strategies.
- Create natural nighttime habitat conditions by eliminating unnecessary artificial light and sounds while no humans are present

PERFORMANCE METRICS

Vegetated Site Area

post development (0% baseline - 100% very high)

Native Plantings percent of vegetation (0% baseline - 50% very high)

RESOURCES

Bird-Friendly Building Design

https://abcbirds.org/wp-content/uploads/2019/04/Bird-Friendly-Building-Design_Updated-April-2019.pdf

Seven Design Principles of Xeriscaping https://en.wikipedia.org/wiki/Xeriscaping#Principles

Climate Positive Design | Pathfinder Tool https://climatepositivedesign.com/pathfinder/

https://content.aia.org/sites/default/files/2022-10/Architects_Role_in_Creating_Equitable_Communities-R1.pdf

https://content.aia.org/sites/default/files/2021-11/2021-10_AIA-Equitable-Development-Framework-Comparison-1.pdf

• Give occupants control over their immediate thermal and lighting systems. • Maximize air quality through increased outside air and pollutant mitigation. • Include biophilic elements that engage a variety of senses.

Resources

Good design depends on informed material selection, balancing priorities to achieve durable, safe, and healthy projects with an equitable, sustainable supply chain.

HIGH IMPACT DESIGN STRATEGIES

- Focus on salvaged, or transparent materials (EPD, HPD, declare label, etc.). • Minimize embodied carbon related to wood, concrete, and steel, minimizing
- the extent of aluminum used, and not using XPS or sprayfoam insulation. • Save material resources by optimizing building reuse, space efficiency,
- building longevity and adaptability, and structural systems. • Healthy materials: Choose one or a few chemicals of concern to eliminate
- in firm standard specifications or a project's materials. Start with your firm's most commonly used materials and provide good/better/best options.

PERFORMANCE METRICS

Reused Floor Area (0% baseline - 100% very high)

Embodied Energy

EPDs Collected

RESOURCES

Miller Hull | Red List

mindful MATERIALS (mM) Portal

https://portal.mindfulmaterials.com/

Building Transparency | Embodied Carbon in Construction Calculator (EC3) https://www.buildingtransparency.org/

http://millerhull.com/wp-content/uploads/Miller-Hull-Red-List-v3.0.pdf

AIA | Retrofitting Existing Buildings Guide

AIA | Design for Adaptability, Deconstruction, and Reuse

https://content.aia.org/sites/default/files/2019-07/RES19_227853_Retrofitting_Existing_Buildings_Report_Guide_V3.pdf

Zero Waste Design | Waste Calculator

https://www.zerowastedesign.org/waste-calculator/

CARE Tool | Carbon Avoided: Retrofit Estimator https://caretool.org/

https://content.aia.org/sites/default/files/2020-03/ADR-Guide-final_0.pdf

Energy

Good design reduces energy use and eliminates dependence on fossil fuels while improving building performance, function, comfort, and enjoyment

HIGH IMPACT DESIGN STRATEGIES

- Benchmark and set an energy use intensity (EUI) and/or lighting power density (LPD) goal and work towards that goal throughout the design process.
- Incorporate passive design strategies based on the project's climate and program opportunities.
- Model for energy performance, iteratively, throughout the project.
- Establish an optimum window-to-wall ratio and building orientation for the project.
- Design solar-ready and all-electric buildings.
- Conduct post-occupancy evaluations and commissioning.

PERFORMANCE METRICS

Energy Use Intensity (EUI) - Benchmark kBTU/sf/yr

Projected Energy Use Intensity (PEUI) kBTU/sf/yr

Lighting Power Density (LPD) W/sf

RESOURCES

Climate Consultant Download from CN Software Center

AIA | Embodied Carbon Toolkit for Architects

https://www.aia.org/resources/6445061-aia-clf-embodied-carbon-toolkit-for-archit AIA | Architect's Guide to Building Performance

https://content.aia.org/sites/default/files/2019-06/AIA_BPSGuide_2019_FINAL.pdf

Zero Tool | Energy Baseline and Target Calculator https://zerotool.org/zerotool/

PVWatts | Renewable Energy Production Estimation Tool https://pvwatts.nrel.gov/

2030 Palette | Sustainable Design Database http://2030palette.org/

Change

Adaptability, resilience, and reuse are essential to good design, which seeks to enhance usability, functionality, and value over time.

HIGH IMPACT DESIGN STRATEGIES

- Have a resilience charrette with your client and stakeholders to discuss the performance goals for the project during a disaster event-continuity of operations, community resource, quick recovery, or temporary relocation.
- Identify how projects can support immediate recovery in the first days and weeks of crisis and facilitate long-term recovery.
- Identify the flexible or adaptable features of your design.
- Identify how your project is integrated and strengthens the community infrastructure and overall community resilience.

PERFORMANCE METRICS

Functionality Without Power (0% baseline - 100% very high)

Building Design Lifespan (30 years baseline - 200 years very high)

RESOURCES

Predictive Weather Modeling - Design for Rising Temperatures Contact: Brian Turner / bturner@clarknexsen.com

AIA | Resilient Project Process Guide

https://content.aia.org/sites/default/files/2022-06/AIA46_Resilient_Process_061422.pdf

AIA | Key regional climate issues: A Guide for architects to drive change https://www.aia.org/pages/6474842-key-regional-climate-issues-a-guide-for-ar

U.S. Climate Resilience Toolkit

https://toolkit.climate.gov/

Whole Building Design Guide | Design Recommendations

FEMA | Flood Map Service Center

https://www.wbdg.org/design/design-recommendations

https://msc.fema.gov/portal/home

EPA | Climate Change Adaptation Resource Center https://www.epa.gov/arc-x/your-climate-adaptation-search

NOAA | Sea Level Rise Viewer https://coast.noaa.gov/slr/#/layer/slr

Economy

Good design adds value for owners, occupants, community, and planet, regardless of project size and budget.

HIGH IMPACT DESIGN STRATEGIES

- Reuse an existing building if possible.
- possible while managing design for change.

PERFORMANCE METRICS

Building Area

Project Budget

Project Budget Estimate

RESOURCES

Willdan | Energy Design Assistance Contact: Blake Latham / blatham@willdan.com / (704) 707-5999 https://energyassistance.willdan.com/

AIA | ROI: The economic case for resilient design https://www.aia.org/pages/6514515-roi-the-economic-case-for-resilient-design

AIA | Guide to Building Life Cycle Assessment in Practice <u> https://content.aia.org/sites/default/files/2016-04/Building-Life-Cycle-Assessment-Guide.pdf</u>

BuildingGreen | How to Build Green At No Added Cost https://www.buildinggreen.com/feature/how-build-green-no-added-cost

ARUP | Circular Economy in the Built Environment https://www.arup.com/perspectives/publications/research/section/circular-economy-in-the-built-environment

Database of State Incentives for Renewables & Efficiency https://www.dsireusa.org/

Discovery

Every project presents a unique opportunity to apply lessons learned from previous projects and gather information to refine the design and construction process.

HIGH IMPACT DESIGN STRATEGIES

- Assist in the development and recording of the Owner's Project Requirements (OPR) during design as a means of recording performance expectations and owner direction.
- Benchmarking: Review the goals and metrics selected from each Framework Principle utilized on the project. Were they carried through the design process, construction process, and into occupancy?
- Assess what worked and what could have been done better. Record and share that information with project team members, the office, and the profession.
- After the project has been occupied for 6-12 months, ask the owner if the project is meeting their expectations. Have they made any changes? Are the occupants using spaces as planned? Do the occupants have feedback?

PERFORMANCE METRICS

What were the project challenges/successes?

What is the story to tell?

RESOURCES

Berkeley Center for the Built Environment (CBE) https://cbe.berkeley.edu/research/

BuildingGreen | Post Occupancy

https://www.buildinggreen.com/post-occupancy

Whole Building Design Guide | Post Occupancy Evaluations https://www.wbdg.org/resources/post-occupancy-evaluations

• Edit your palette and keep the total number of materials to a minimum. • Rightsize the program early and keep the square footage as efficient as

OWNER

PROJECT NAME

Address









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