



Promote Health | Protect the Environment

Eco-Toolkit

*Environmentally Responsible
Design and Construction Practices*

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KAISER PERMANENTE®



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Introduction: Kaiser Permanente Green Buildings Initiative

Issue

Building-related activities are responsible for impacts that have direct or indirect consequences on human health, the extent of which is becoming better understood as the interconnections between buildings, human health and environmental quality are subjected to rigorous analysis. Consider the following:

- Buildings account for 35% of CO₂ releases into the atmosphere, contributing to global warming;
- Buildings use over 75% of polyvinyl chloride, a product linked to dioxin, a highly toxic chemical that can cause cancer and birth defects;
- 25% of virgin wood is used in buildings, contributing to degradation of forest habitats and biodiversity;
- Buildings use about 40% of energy resources, which in turn generates greenhouse gas emissions
- Building construction and demolition generates about 25% of municipal solid wastes.

KP Response

KP is integrating environmental considerations, known as “green building” strategies, into all aspects of our design and construction activities. “We need to weave sustainable practices into our standards and practices rather than viewing this as a separate endeavor,” explains Tom Heller, Vice President, NFS and Co-chair of KP’s Environmental Stewardship Council. “We will pursue environmentally responsible practices in alignment with our commitment to build quality and affordable healthcare facilities.”

As hospitals are replaced in California over the next decade to meet seismic requirements, KP is in a unique position to optimize sustainable design and construction practices in all regions. We will redefine the way buildings are designed, built, and operated, and extend the conventional notion of building performance to include human health and environmental quality as essential cornerstones of quality and value.

KP’s Environmental Stewardship Council, created in March 2001, is charged with establishing a Programwide vision for environmental performance, and providing support in making KP’s business practices consistent with a healthy environment. Under the direction of Council, a Green Buildings Committee was convened in April 2001 to prioritize and implement appropriate strategies. Committee members include architects, engineers, planners, designers, and other internal and external experts. “KP’s practices already include many green building features, such as energy efficient building systems, low polluting paints, and recycled content building materials,” says Carol Antle, Capital Projects Director and Chair of the Green Buildings Committee. “We want to continue to evaluate and adopt practices that are environmentally sound.”

KP Position Statement on Green Buildings

(adopted 3/25/02 by KP's Green Buildings Committee)

“Kaiser Permanente’s mission is to improve the health of the communities we serve. In recognition of the critical linkages between environmental health and public health, it is KP’s desire to limit adverse impacts upon the environment resulting from the siting, design, construction and operation of our health care facilities. We will address the life-cycle impacts of facilities through design and construction standards, selection of materials and equipment, and maintenance practices.

Additionally, KP will require architects, engineers and contractors to specify commercially available, cost-competitive materials, products, technologies and processes, where appropriate, that have a positive impact, or limit any negative impact on environmental quality and human health.”

Benefits of Green Buildings

Green Buildings preserve occupant health (e.g., reduced indoor air quality problems, less exposure to hazardous materials), protect ecosystems, conserve energy, minimize waste, and prevent pollution. By using less toxic materials, we are not only protecting public health and the environment, but we’re creating healthier buildings for our members and staff, too.

It’s Smart for the Bottom Line

We are not sacrificing quality or cost priorities as we pursue sustainability. In fact, many green building strategies are smart economic strategies as well. Following are some examples of measures that have been incorporated into current projects that reduce costs while making a significant environmental contribution:

- Reduced site development area: saved over 10 acres from development, and saved \$2 million in construction costs
- Reduced number of stairs and elevators: saved over \$2 million in construction costs
- Added reflective roofs: over 50 acres of reflective roofing will continue to generate savings for 30-50 years

Some green building measures increase first costs but offer significant life-cycle cost benefits. We will continue to analyze overall savings as we assess our environmental strategies.

So, the real “bottom line” is that KP is integrating green building strategies into all aspects of our design and construction activities, and we are doing this in alignment with our commitment to provide quality and affordable healthcare.

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- Green Buildings Timeline for Design and Construction
- Examples of Specific Green Buildings Measures on Recent KP Projects
- Environmental Criteria for NPA Product Selection
- Sample Agreement for Managing Construction and Demolition Debris

Who Should Use The Eco-Toolkit

The Eco-Toolkit is intended primarily for internal use of Kaiser Permanente staff, design consultants, construction contractors, and others directly involved in the design and construction of KP healthcare facilities. This document is copyrighted.

Organization of the Eco-Toolkit

The organization of the Eco-Toolkit is based upon the American Society of Healthcare Engineering (ASHE) *Green Healthcare Construction Guidance Statement* developed in January 2002.

Each section begins with the **vision statement** developed by ASHE, which clarifies the intent of the section and provides a framework for why the goals, strategies, and actions are appropriate.

The vision statement is followed by a concise set of **goals** developed by ASHE that identify improvements to the environment (or reduced impacts) that could be achieved by projects by implementing the specific strategies, which follow.

The goals are followed by a matrix of ASHE's **suggested strategies**, relevant LEED criteria and Kaiser Permanente's actions relating to the suggested strategies. (LEED stands for Leadership in Energy and Environmental Design and is a criterion system developed by the U.S. Green Building Council.)

There are three types of KP Actions that are identified in the matrix:

- KP Standards that incorporate aspects of the ASHE suggested strategy;
- "current" KP practices that are not specifically identified in the standards; and
- "potential" actions for KP to implement in the future.

While there are an infinite number of potential actions, selected potential actions have been identified in the Eco-toolkit. These potential actions have been included to encourage creative thinking by all users of the Eco-toolkit and to remind us that even though we are currently doing many things to reduce the environmental impact of our buildings, there is a great deal more that can be done.

1) Integrated Design

Vision statement

Achieving an effective sustainable design requires a collaborative process engaging the multiple design disciplines, as well as users, construction managers, contractors and facility managers. The merging of ideas, perspectives and areas of expertise facilitated by an open communications process reaps multiple benefits, as the project team moves from the optimization of single systems in isolation to the optimization of the entire building enterprise. Establishing vertical support throughout the organization helps ensure success.

Goals

- Enhance cost-effectiveness by recognizing interrelationships between systems
- Enhance building performance by integrating design elements
- Encourage cross-disciplinary problem-solving
- Build support among key constituencies for sustainable design

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
Develop an environmental health vision statement for the project		<p>KP's Position Statement: Kaiser Permanente's mission is to improve the health of the communities we serve. In recognition of the critical linkages between environmental health and public health, it is KP's desire to limit adverse impacts upon the environment resulting from the siting, design, construction and operation of our health care facilities. We will address the life-cycle impacts of facilities through design and construction standards selection of materials and equipment, and maintenance practices.</p> <p>Additionally, KP will require architects, engineers and contractors to specify commercially available, cost-competitive materials, products, technologies and processes, where appropriate, that have a positive impact on environmental and public health.</p>
Reinforce corporate/institutional commitments to environmental health and community responsibility.		<p>Division 01—General Requirements SECTION 01100 – SUMMARY – DESIGN CRITERIA</p> <p>2. Caring with a Personal Touch: Design to strengthen KP's ties to the communities that it serves – work to improve the health of members and the community through green building and site design.</p> <p>Potential: Selection of new Alliance Partners based on Green Buildings expertise.</p>
Use cross discipline design, decision making, and charettes		<p>Current: Resource Team, Green Committees and Alliance Program is about collaboration across disciplines.</p>
Use goal setting workshops and build a team approach		<p>Current: Green Buildings Committee, individual green buildings training of each project team as part of set-up meetings.</p> <p>Potential: Alliance Partnership work sessions/training</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
Engage owner, staff, contractors, user groups and community groups, educating them on the benefits of green design and bringing them in to the design process		Current: Including Green Buildings discussion and training into all NFS set-up meetings with project teams participating in Green Buildings policy-making discussion and research with outside organizations such as Healthy Building Network, USGBC, ASHE, IFMA, IIDA, and AIA.
Use computer-modeling tools such as DOE-2, See Energy 10, Radiance to optimize the interactions of different elements (e.g., orientation, insulation, HVAC sizing)		Current: Alliance Partners are using DOE-2 for initial modeling

2) Site Design

Vision Statement

The introduction of a building to a site inevitably causes disruptions that affect the health of the local ecosystem. Good site design recognizes the ecological integrity of a site, whether it be a brownfield or a greenfield, and pursues strategies that minimize disruptions such as erosion and habitat displacement and, better, contribute to site restoration. Understanding the building as a series of flows enables the physical structure to achieve a good fit. Site location should reflect a consideration to lessen the ripple effect of the building on the surrounding community by enabling easy access by healthy transportation modes such as walking, bicycling and mass transit.

Goals

- Maintain and restore site biodiversity
- Minimize site development footprint
- Reduce storm water run-off
- Eliminate toxic chemical application for pest and vegetative control
- Optimize design for the local micro-climate and reduce dependence on mechanical systems for building operations
- Reduce reliance on single-occupancy vehicles
- Integrate design and orient building to take advantage of local micro-climate for heating, cooling, shading, ventilation and daylighting (*See also Energy*)
- Eliminate light trespass from the building site, improve night sky access, and reduce development impact on nocturnal environments

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
Evaluate brownfield sites to determine appropriate reuse for health care facilities	<u>Sustainable Sites</u> Credit 3 Brownfield Redevelopment	Potential: Consider brownfield sites and rehabilitate for re-use.
Reuse and renovate existing buildings	<u>Materials & Resources</u> Prereq 1 Storage & Collection of Recyclables Credit 1.1 Building Reuse, Maintain 75% of Existing Shell Credit 1.2 Building Reuse, Maintain 100% of Shell Credit 1.3 Building Reuse, Maintain 100% Shell & 50% Non-Shell	KP's standards include many provisions that make it easier to reuse buildings in the future. Current: 1. <i>KP guidelines increasing flexibility make our facilities easier to renovate and increase options to reuse.</i> 2. <i>Buy/build options are reviewed in business cases to consider reuse</i> 3. <i>Significant KP projects being implemented as reuse, including the Webvan conversion for pharmacy use the Optical services project, a skilled nursing facility conversion for KP use the Boeing warehouse conversion to KP administration building, and radiology school project.</i>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>Division 01—General Requirements SECTION 01100 – SUMMARY – DESIGN CRITERIA</p> <p>10. Flexibility and Adaptability Design our facilities to support current best medical and operational practices as well as to support changing or new technologies, models of care, business opportunities, changing member needs and expectations, real estate strategies, etc. In the future the space could be used for a totally new technology or model of care, used by KP for non-medical purposes, subdivided for multiple non-KP tenants, sold as part of a lease-back strategy, or sold for another use, etc.</p> <p>11. Soft vs. Hard Spaces Arrange “soft” vs. “hard” spaces to allow internal growth, renovation, and expansion of the facility without the necessity of relocating critical functions. The facility must have the ability to expand with little or no additional rework to existing structures or site features. Identify departments or zones most likely to expand and make provisions for their growth potential.</p> <p>33. Building Shell and Core Design Develop building layouts using a shell and core concept that utilizes regular bay sizes, co-located core services such as stairs, elevators, public toilets, wheelchair storage, drinking fountains, public and house telephones, electrical rooms, IT rooms, and mechanical shafts. Co-located or centralized core elements makes the building more flexible and adaptable and makes wayfinding simpler for the members.</p> <p>37. Structural Systems Steel Framing Locate braces in exterior walls or in permanent core elements such as toilet rooms, shafts, elevator walls, etc. Do not locate braces in typical interior partition walls—this limits future modification and adaptation of the spaces.</p>
Site buildings in urban areas with existing infrastructure	Sustainable Sites Credit 2 Urban Redevelopment	Potential: favor “town center” sites versus “fringe” sites
Avoid agricultural land, 100 year flood plains, threatened or endangered species habitat, wildlife corridors, wetlands	Sustainable Sites Credit 1 Site Selection	<p>Current: Added to KP Real Estate site selection criteria per LEED</p> <p>Potential: Exclude such sites from consideration for KP facilities.</p>
Orient buildings to make best use of solar energy for heating or daylighting		<p>Division 01—General Requirements SECTION 01100 – SUMMARY – DESIGN CRITERIA</p> <p>42. Building Orientation Where possible orient the building on an east-west axis. This will limit sun control problems on the west facade. Consider adding sun control devices on the west and south facades.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
<p>Orient buildings to encourage natural ventilation and passive cooling</p>		<p><i>Potential: Introduce passive solar heating into KP facilities.</i></p> <p>Division 01—General Requirements SECTION 01100 – SUMMARY – DESIGN CRITERIA</p> <p>42. Building Orientation Where possible orient the building on an east-west axis. This will limit sun control problems on the west facade. Consider adding sun control devices on the west and south facades.</p> <p>Division 02— Site Construction DESIGN INTENT/GENERAL INFORMATION</p> <p>14. Circulation Issues k) Covered Walkways Provide at least one path from patient drop-off into the building that is completely covered for times of inclement or hot weather. Coordinate the requirements of this section with the requirements of Division 7 – Moisture and Thermal Protection.</p> <p>Division 10—Specialties SECTION 10705 – EXTERIOR SUN CONTROL DEVICES - DESIGN CRITERIA</p> <p>Sun Control Include exterior sun control devices in the design of the exterior skin of the building. It is neither economical nor efficient to rely solely upon window tinting, low “E” glazing, interior shades and blinds to control excessive heat gain on the building interior. The degree of protection designed into the building skin will depend on the local climate and weather conditions. Consult with the Owner’s project representative and the facility-engineering department.</p> <p><i>Potential:</i> 1. Require parking structures to be open-sided, with natural cross-ventilation and daylighting where possible. 2. Allow for operable windows and natural ventilation in MOB’s by developing compatible HVAC systems</p>
<p>Design to reduce erosion and run off into sewer systems and/or air pollution</p>	<p>Sustainable Sites Prereq1 Erosion & Sedimentation Control</p> <p>Credit 6.1 Stormwater Management, Rate or Quantity</p> <p>Credit 6.2 Stormwater Management, Treatment</p>	<p>Division 02— Site Construction SECTION 02310 – GRADING</p> <p>2. Grading at Landscaped Areas Wherever possible, provide a maximum slope at landscaped areas of three horizontals to one vertical. In turf areas, provide a maximum slope of four horizontals to one vertical. A geotechnical engineer shall review slopes in excess of three horizontals to one vertical.</p> <p>3. Existing Topography Design the site plan so that existing topography is changed as little as possible.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>4. Erosion Control Provide erosion control measures for all disturbed site areas that are not to be covered by building, paving, or new planting.</p> <p><i>Potential: Limits cut and fill by developing more terraced sites with multiple entry levels.</i></p>
<p>Reduce building footprint, optimize layouts and reduce size of roads, parking and other site improvements to concentrate and limit total paving and other site disturbance</p>	<p>Sustainable Sites Credit 5.2 Reduced Site Disturbance, Development Footprint</p>	<p>Division 01—General Requirements SECTION 01100 – SUMMARY – DESIGN CRITERIA</p> <p>15. Programming: Approved vs. Actual Design the facility to be at or below the approved program building gross square feet (BGSF). Individual spaces and/or departments may be larger or smaller as long as the delta is less than 10%. Design all offices within 2% of the approved net square feet (NSF). Refer to the Building Grossing Memo.</p> <p>23. Circulation Pathways Minimize corridors and circulation pathways. Please refer to the Planning Allocation Rules and the Building Grossing Factors for more information on allowable circulation space. Design main circulation pathways to allow conversion to multi-tenant use should that ever be the desire of the Service Area. Provide double loaded corridors for maximum efficiency of space.</p> <p>25. Elevators Provide service elevators in inpatient facilities only. Do not provide elevators to the roof. Provide only the required number of elevators as determined by the NPA vendor. Additional shafts to serve shelled areas should also be shelled (no elevator cab provided). See Division 14 – Conveying Systems for additional information.</p> <p>29. Stairs Do not provide more than the code required number of stairs.</p> <p>40. Building Floor-plates Stack regularized floor-plates one on top of the other. Do <i>not</i> step the building back. Do <i>not</i> provide rooftop decks, balconies, or rooftop planting areas except as needed for adjacent functional areas. (Such as Physical Therapy, Inpatient Pediatrics, dining, etc.) Do <i>not</i> create larger upper floors that cantilever over smaller lower floors.</p> <p>Division 02— Site Construction DESIGN INTENT/GENERAL INFORMATION</p> <p>3. Site Development Develop only the part of the site that is absolutely required for the occupancy of the funded project scope. For example, provide parking that is sufficient for the number of Provider Offices or the number of beds. Refer to parking counts below. Do not provide additional parking or circulation. Where local</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>requirements exceed KP standards, obtain local approval to follow KP standards or submit an Overstandards Request (OSR) to the Resource Team. For conceptual site design, use 1 acre/10,000 bgsf.</p> <p>4. Site Parcelization Develop the site in such a way as to allow potential site parcelization. This allows KP to use the site effectively and efficiently. It also allows flexibility in responding to future real estate needs and business strategies. Parcelization also allows KP to leave unused portions of the site in a natural state. This saves KP money and allows the site to remain in a natural state as long as possible. If the site is large enough to break into several parcels, develop the parcel on one end leaving the remaining parcels together (contiguous). This allows KP to grow incrementally, use one or more adjacent parcels for different uses, or to dispose of one or more adjacent parcels. Do not develop a parcel in the middle of the site for initial KP use. Where irregular parcels exist, use irregular parcels for KP development. Save regular parcels for future use. Undeveloped area should have independent access from offsite. Use the smallest amount of the total site as possible for each phase of the project. Lot splits may be desirable where landscaping of undeveloped portions of a developed lot is locally required. This allows undeveloped portions of the site to be consolidated into a totally separate parcel with no landscaping requirements.</p> <p>5. Site Master Planning Arrange the master plan using as little of the site as possible, configured in a compact shape. Master plans often are significantly altered later or have significant portions of the plan that are never realized. The success of site development or planning for the current project must not depend on the construction of future phases.</p> <p><i>Potential: Design facilities with more stories and smaller footprints. Provide more structured parking (and less surface parking).</i></p>
<p>Minimize impervious cover by using open-grid and pervious paving materials</p>		<p>Division 02— Site Construction DESIGN INTENT/GENERAL INFORMATION</p> <p>14. Circulation Issues i) Emergency Vehicle Access Where emergency vehicle access is required around the building, consider the use of “turf-stone” or other driving surfaces that integrate landscaping materials in lieu of concrete or asphaltic concrete paving. Consider the use of recycled materials such as Grasspave 2.</p> <p><i>Potential: Substitute turf blocks for asphalt paving at some parking stalls (possibly the most remote, least used stalls)</i></p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
Maximize preservation and restoration of biodiverse open space/habitat		<p>Division 02— Site Construction SECTION 02900 – PLANTING – DESIGN CRITERIA</p> <p>Existing Plant Materials Whenever possible, maintain and integrate existing plant materials (especially large trees) in the landscape design.</p>
Use native trees, shrubs and plants		<p>Division 02— Site Construction SECTION 02900 – PLANTING - DESIGN CRITERIA</p> <p>Naturalized Plant Materials Use plants that are native or naturalized to the site. To better protect our natural resources, specify drought-resistant, water-conserving, disease-resistant, and low maintenance plant materials. Do not specify plant materials that require heavy dependence on chemical fertilizers and pesticides. Consult with the local authority having jurisdiction regarding pre-approved plant material lists.</p> <p>3. Avoid the Following Types of Plant Materials: Invasive Root Systems/Unwanted Sucker Growth/Surface Roots</p> <p>e) Do not specify trees with invasive root systems or abundant sucker growth such as the Populus species (Lombardy poplars); or surface roots such as camphors or Liquidambar styraciflua. Invasive root systems can damage subsurface utilities. Root barriers are often ineffective in preventing the unwanted spread of sucker growth. Surface roots can damage paved areas, curbs, foundations, walls, and utilities.</p>
Develop and implement an integrated pest management plan		<p>Division 02— Site Construction SECTION 02900 – PLANTING - DESIGN CRITERIA</p> <p>17. Variety Provide sufficient plant variety and diversity so that insect infestation, disease, unusual weather conditions, high winds, or other unforeseeable stress conditions will not adversely impact large unbroken areas of the landscaping.</p> <p>18. Pesticides and Fertilizers Specify plant materials that minimize or eliminate the need for chemical pesticides or fertilizers. Specify disease resistant varieties of plants.</p>
Use vegetative and other shading techniques to assist passive cooling and ventilation of buildings and public and paved areas	<p>Sustainable Sites Credit 7.1 Landscape & Exterior Design to Reduce Heat Islands, Non-Roof</p>	<p>Division 02— Site Construction SECTION 02900 – PLANTING - DESIGN CRITERIA</p> <p>7. Plant Screens Screen parking lots, trash areas, service zones, utilities, etc. with plant materials. Use screen planting also to provide wind breaks and shade, and to generally ameliorate existing, adverse site conditions.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>13. Planting for Building Shading Plant deciduous shade trees as close to the building(s) as possible to fully shade building elevations. Shade trees provide an inviting environment for both visitors and staff and help reduce solar gain to the building skin. This type of planting is especially important on the south and west sides of the building.</p>
<p>Site in proximity to transit options</p>	<p>Sustainable Sites Credit 4.1 Alternative Transportation, Public Transportation Access</p>	<p>Division 01—General Requirements SECTION 01100 – SUMMARY – DESIGN CRITERIA</p> <p>3. Convenient and Easy Provide convenient access to public and other forms of transit.</p> <p>Division 02— Site Construction</p> <p>15. Public Transit Provide clear, direct, and close access from public transit drop-off locations to the main entrance of the building. See Section 02800 - Site Improvements and Amenities for additional information.</p> <p>SECTION 02800 - SITE IMPROVEMENTS & AMENITIES - DESIGN CRITERIA</p> <p>Bus/Rapid Transit Shelters Where a bus or other transit stop exists on the site, provide a shelter from sun or weather protection for transit patrons. Consult with the local transit authorities to see if they will provide such an amenity at no cost to KP. Consult with local transit authorities to see if a transit stop can be located immediately adjacent to the building entry. Public transit use is encouraged for all KP projects.</p> <p><i>Potential: Require site adjacency to public transit.</i></p> <p><i>Current: Preference for public transit access added to KP Real Estate site selection criteria per LEED</i></p>
<p>Establish a transportation plan. Support alternatives to fossil fueled single occupancy vehicles (preferred van/carpool parking, bike parking and changing facilities, electric car charging and other alternate vehicle fueling, nearby transit access). Reduce paved parking area appropriately.</p>	<p>Sustainable Sites Credit 4.2 Alternative Transportation, Bicycle Storage & Changing Rooms</p> <p>Credit 4.3 Alternative Transportation, Alternative Fuel Refueling Stations</p> <p>Credit 4.4 Alternative Transportation, Parking Capacity</p>	<p>Division 02— Site Construction</p> <p>12. Parking Issues</p> <p>a) Transportation Information Center In a public place inside the facility (such as adjacent to the information desk), provide a transportation information center which identifies public transportation options, telephone numbers, routes, van and car pooling opportunities for staff, and ride share information.</p> <p>i) Staff Car Pool/Van Pool Spaces Coordinate the requirements of this section with the facility transportation coordinator (the local market area environmental health and safety staff), and the hierarchy of parking above.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>l) Inpatient Parking Counts Provide two parking spaces per inpatient bed plus one space per peak shift staff count. Parking counts may be reduced by a factor (say, 5%) to reflect high public transit usage. Numbers may need to be modified to reflect local market area conditions.</p> <p>m) Outpatient Parking Counts Provide six parking spaces per 1,000 bgsf. If there is an Ambulatory Surgery Unit (Outpatient Surgery Suite) in the building, provide an additional one parking space per OR. Parking counts may be reduced by a factor (say, 5%) to reflect high public transit usage. If numbers need to be modified to reflect local market area conditions, an Over-Standards Request (OSR) is required. Parking counts may be reduced by a factor to reflect high public transit usage.</p> <p>n) Divisional Building Parking Counts For Divisional buildings provide two parking spaces per 1,000 bgsf. If numbers need to be modified to reflect local market area conditions an OSR is required. Parking counts may be reduced by a factor (say, 5%) to reflect high public transit usage.</p> <p>o) Dental Building Parking Counts For dental buildings, provide three parking spaces per dental operator. If numbers need to be modified to reflect local market area conditions an OSR is required. Parking counts may be reduced by a factor (say, 5%) to reflect high public transit usage.</p> <p>r) Bicycle Parking/Storage Refer to Section 02870 – Site Furnishing – Design Criteria</p> <p>14. Circulation Issues (g) Bicycle Pathways When bicycle pathways are required, segregate them from vehicular traffic. This segregation provides a safe and pleasant path for bicycle travel.</p> <p>SECTION 02870 - SITE FURNISHINGS - DESIGN CRITERIA</p> <p>4. Bicycle Racks or Storage Boxes Provide secure bicycle racks and locking storage boxes immediately adjacent to building main entries. Reserve some percentage of locking storage boxes for physician/staff use. Base the exact number on local market area conditions. Bicycle transit should be encouraged by KP projects.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
<p>Design in accordance with Illuminating Engineering Society of North America (IESNA) footcandle requirements as stated in the Recommended Practice Manual: <i>Lighting for Exterior Environments</i>, and design interior and exterior lighting such that zero direct beam illumination leaves the building site.</p>	<p>Sustainable Sites Credit 8 Light Pollution Reduction</p>	<p>Division 02— Site Construction <i>SECTION 02580 – ELECTRICAL AND COMMUNICATION STRUCTURES</i></p> <p>Landscape Lighting Do not provide decorative site or landscape lighting. Provide only the required circulation and security lighting. Coordinated the requirements of this section with the requirements of Division 13 – Special Construction (Security) and Division 16 – Electrical.</p> <p>Division 16— Electrical <i>SECTION 16520 – EXTERIOR LUMINAIRES - DESIGN CRITERIA</i></p> <p>5. Specialty Fixtures Bollard lights, step lights, floodlights, and other specialty fixtures shall be reviewed and approved by the Owner's project representative and the facility Engineering and Security Departments. Do not provide in-ground recessed up-lights.</p> <p>Potential: <i>1. Require lighting cut-off to prevent spillage from parking garages.</i> <i>2. Adopt IESNA footcandle requirements and design interior and exterior lighting such that zero direct beam illumination leaves the building site.</i></p>

(See Water and Energy for more site design issues)

3) Water

Vision Statement

Water efficient design strategies balance water quality and quantity demands within a building and are responsive to the watershed's capacity as source and sink. Public works projects, such as treatment plants and sewage systems, are unable to adequately remove or process the toxic materials that infiltrate these systems, potentially threatening public health. Take a systematic look to identify potential water sources, how water is used in the building and how it flows around the building site to reduce water usage and wastewater discharges.

Goals

- Minimize the use of potable water while conserving water quality and availability
- Minimize off site treatment of wastewater
- Minimize storm water release from the site
- Maximize use of on-site water resources, (e.g., rainwater, greywater)
- Match water quality with end use requirements
- Maximize aquifer recharge

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
<p>Specify EPA Energy Star and high performance fixtures and equipment: e.g., low flow and pressure assist toilets and urinals; waterless urinals; low-flow showerheads and faucets; automatic use activation on sinks, toilets and urinals; Energy Star dishwashers and laundry equipment; ozone-injected laundry equipment</p>	<p>Water Efficiency Credit 3.1 Water Use Reduction, 20% Reduction Credit 3.2 Water Use Reduction, 30% Reduction</p>	<p>Division 15—Mechanical</p> <p>SECTION 15400 – PLUMBING - DESIGN CRITERIA</p> <p>3. Plumbing Fixtures</p> <p>a) Water Closets For ease of housekeeping and floor cleaning, specify wall-mounted water saver toilets with 1.6 gallon per flush valves. In leasehold facilities specify floor mounted water saver toilets with 1.6 gallon per flush flush-valves.</p> <p>b) Urinals Specify wall-mounted water saver urinals with low flow flush valves.</p> <p>Current: <i>Broadlane encourages the selection of energy star equipment and appliances.</i></p> <p>Potential:</p> <ol style="list-style-type: none"> 1. <i>Specify some waterless urinals</i> 2. <i>Increase use of sensors (also improves infections control)</i> 3. <i>Use water cooled condensers. Non-potable water could be recycled to the cooling tower.</i>
<p>Maximize water conservation in cooling towers by using non-potable site recycled water for cooling tower makeup, or use non-evaporative condenser heat rejection equipment (air cooled, or ground source)</p>	<p>Water Efficiency Credit 2 <i>Innovative Wastewater Technologies</i></p>	<p>Potential: <i>Add to KP standards</i></p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
<p>Specify native plants that are tolerant of local climate, soils and water</p>	<p><u>Water Efficiency</u> Credit 1.1 Water Efficient Landscaping, Reduce by 50%</p>	<p><i>Division 02— Site Construction</i> SECTION 02900 – PLANTING – DESIGN CRITERIA</p> <p>2. Naturalized Plant Materials Use plants that are native or naturalized to the site. To better protect our natural resources, specify drought-resistant, water-conserving, disease-resistant, and low maintenance plant materials. Do not specify plant materials that require heavy dependence on chemical fertilizers and pesticides. Consult with the local authority having jurisdiction regarding pre-approved plant material lists.</p> <p>5. Ground Cover vs. Lawn Areas Specify perennial or green groundcovers to eliminate long-term maintenance costs. Do not specify lawn or turf unless there is no other cost effective, maintenance-friendly solution. Where it must be used, minimize the amount of lawn and turf areas.</p> <p>6. Field Grasses Consider the extensive use of naturalized field grasses, which require little water and virtually no maintenance for KP projects. Consult with the Owner's project representative and the maintenance operations staff at the facility before field grasses are specified.</p> <p>8. Mulching Mulch all planting areas with organic mulch to compensate for the sparse look at initial installation time (before intended groundcover coverage is reached). Mulch is used also to preserve moisture, discourage weeds, and promote soil tilth. Do not use mulch that has been chemically treated with pesticides.</p> <p>18. Pesticides and Fertilizers Specify plant materials that minimize or eliminate the need for chemical pesticides or fertilizers. Specify disease resistant varieties of plants.</p>
<p>Install drip irrigation and high efficiency irrigation control (moisture sensors, weather based controllers)</p>	<p><u>Water Efficiency</u> Credit 1.1 Water Efficiency Landscaping, Reduce by 50%</p> <p>Credit 1.2 Water Efficiency Landscaping, No Potable Use or No Irrigation</p>	<p><i>Division 02— Site Construction</i> SECTION 02810 – IRRIGATION SYSTEM</p> <p>7. Sprinkler Heads/Zones/Water Conservation Consider low precipitation rate heads (drip systems) instead of overhead sprays. Do not allow overspray onto paved areas. Even in areas where water is abundant and water rates are relatively low, water conservation is a major part of KP's resource conservation effort.</p> <p>13. Moisture Sensors Provide moisture sensors to override the automatic irrigation time clock. Check with the local utility to confirm if rebates are available to offset the cost of the moisture sensors.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
Implement appropriate, safe strategies to recycle site waste water (e.g. gray water or condensate) and/or municipal secondary treated water for irrigation, sewage conveyance, and toilet flushing	<p>Water Efficiency Credit 3.1 Water Use Reduction, 20% Reduction</p> <p>Credit 3.2 Water Use Reduction, 30% Reduction</p>	<p>Division 02— Site Construction SECTION 02800 - SITE IMPROVEMENTS & AMENITIES - DESIGN CRITERIA</p> <p>2. Water Features If a water feature is provided, use reclaimed, recycled water if it is available.</p> <p>Potential: Use gray water for landscape irrigation.</p>
Collect storm water runoff from roofs and site and use for irrigation, sewage conveyance, toilet flushing and/or HVAC/process makeup water or recharge in to aquifer	<p>Sustainable Sites Credit 6.1 Stormwater Management, Rate or Quantity</p> <p>Water Efficiency Credit 2 Innovative Wastewater Technologies</p>	<p>Potential: Capture rainwater where possible for re-use.</p>
Minimize hardscapes and install permeable paving and other pervious surface materials	<p>Sustainable Sites Credit 7.1 Landscape & Exterior Design to Reduce Heat Islands, Non-Roof</p>	<p>Division 02— Site Construction DESIGN INTENT/GENERAL INFORMATION</p> <p>14. Circulation Issues 1) Emergency Vehicle Access Where emergency vehicle access is required around the building, consider the use of “turf-stone” or other driving surfaces that integrate landscaping materials in lieu of concrete or asphalt concrete paving. Consider the use of recycled materials such as Grasspave 2.</p>
Create wetlands or other systems to locally recharge underground water flows		<p>Current: Through CEQA mitigation</p>

(see Operations & Maintenance Section for additional Water issues)

4) Energy

Vision Statement

The burning of fossil fuels is the single largest contributor to global climate change, as well as a contributor to a host of toxic emissions that impair the environmental health of directly affected communities and the world. Rising energy prices impose a significant economic imperative that requires a careful examination of understanding how to best assure a comfortable healthy indoor environment supportive of patient recovery with a significantly reduced energy demand. Take a comprehensive, systematic look at the building and site’s energy flows to reduce energy bills, evaluate opportunities for reliance on renewable energy sources, and improve environmental health outcomes.

Goals

- Reduce building energy demand
- Reduce emissions from energy use
- Reduce reliance on energy generated by fossil fuels
- Maximize use of energy generated by renewable sources

ASHE’S Suggested Strategies	Relevant LEED criteria	KP’s Actions
<p>Use ASHRAE 90.1-1999 as basis of design to optimize thermal envelope performance and evaluate and document opportunities to exceed</p>	<p><u>Energy & Atmosphere</u> Prereq 2 Minimum Energy Performance</p> <p>Credit 1.1 Optimize Energy Performance, 20% New/10% Existing</p> <p>Credit 1.2 Optimize Energy Performance, 30% New/20% Existing</p> <p>Credit 1.3 Optimize Energy Performance, 40% New/30 Existing</p> <p>Credit 1.4 Optimize Energy Performance, 50% New/40% Existing</p> <p>Credit 1.5 Optimize Energy Performance, 60% New/50% Existing</p>	<p><i>Division 01—General Requirements</i> SECTION 01100 – SUMMARY – DESIGN CRITERIA</p> <p>36. Glazing To minimize heat gain and loss, minimize glazed areas especially on the south and west building elevations. Use punched windows for the majority of all window openings. To achieve energy savings and to reduce the cost of the building skin, limit the use of curtainwall to specialty areas only. Use curtainwall in public circulation or lobby areas only. Limit the variety and type of windows. Use curtain wall only in public circulation or lobby areas. Set windowsill heights between 3’-0” and 3’-6” above the finished floor. At curtainwall, set sill height at 18” above the finished floor to minimize the need for tempered glazing. Coordinate the requirements of Division 8 – Doors and Windows with the requirements of this section.</p> <p>39. Building Form Provide a simple, rectangular for the building envelope. Do not design major articulation (recesses, shadow lines, “facade modeling,” etc.) into the building skin. Avoid curves and protruding geometric elements. Reduce the amount of building skin to a minimum, to reduce both initial cost and the cost of maintenance over the life of the building. Limit light wells and courtyards.</p> <p><i>Division 08—Doors and Windows</i> SECTION 08600 - SKYLIGHTS - DESIGN CRITERIA</p> <p>2. Translucent, Insulated Products Use translucent, insulated panels (such as Kalwall) at all skylights, sloping glazed areas, glazed site walkways,</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>etc. Translucent panels do not require cleaning as often as clear panels. Insulated panels conserve energy and thus help reduce long term maintenance and operations costs. Do not use clear and/or single glazed skylights.</p> <p>SECTION 08800 - GLAZING - DESIGN CRITERIA</p> <p>4. Low-E Glass Wherever possible, specify efficient glazing such as low emissivity (LOE) or other coated/tinted glass products. These products help reduce energy consumption and therefore maintenance costs.</p> <p>5. Double Glazing/Triple Glazing Where additional energy cost control can be justified in terms of life cycle costs, consider the use of double or triple glazed windows. Double or triple glazing should be considered where there are special acoustical concerns. Coordinate the requirements of this section with the requirements of Division 15 - Mechanical.</p> <p>6. Clear Glass Limit the amount of clear exterior glass. Wherever possible use more energy efficient glazing products. SECTION 08900 - GLAZED CURTAINWALL - DESIGN CRITERIA</p> <p>2. Insulated Spandrel Panels Consider the use of insulated (opaque) glass or metal spandrel panels to enhance energy conservation.</p> <p>Division 15—Mechanical SECTION 15000 – MECHANICAL - DESIGN CRITERIA</p> <p>4. Energy Efficiency d) HVAC Load Calculations Size the heating and cooling systems based on the most recent ASHRAE Fundamental Handbook Climatic Design Information (CDI). For locations not listed in the ASHRAE Fundamental Handbook use local climatic data such as the most recent ASHRAE Climatic Data for Region X. Submit HVAC load and ventilation calculations with the Design Development submittal and Contract Documents submittal including the following: (3) Room Ventilation and Pressurization Summary Schedule tabulating the largest of Code and the most recent ASHRAE Application Handbook Chapter 7 requirements and actual design. Use a format similar to table below. Where VAV system is used, design shall comply with minimum ventilation rates for total air and outside air at both maximum and minimum terminal units set point (in table use two lines per room, one line for max. air set point and one line for min. air set point)</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
Use energy simulation tools, such as DOE2, Energy 10, Radiance, to optimize interactions between building elements and optimize design		<i>Current: DOE 2 Utilized by Alliance Partners</i>
Optimize layout and orientation of building to optimize energy performance		<p>Division 01—General Requirements SECTION 01100 – SUMMARY – DESIGN CRITERIA</p> <p>42. Building Orientation Where possible orient the building on an east-west axis. This will limit sun control problems on the west facade. Consider adding sun control devices on the west and south facades.</p> <p>Division 08—Doors and Windows SECTION 08460 - AUTOMATIC ENTRANCE DOORS – DESIGN CRITERIA</p> <p>2. Vestibules The travel distance between sets of automatic doors in vestibules (or other locations with pairs of automatic doors) shall not be less than 16'-0"; 20'-0" is preferred. This separation helps to prevent both sets of doors from opening simultaneously. Vestibule doors should not be parallel to each other. Arrange these doors so that they are at right angles to each other. This placement will prevent wind, rain, snow, and debris from blowing through both sets of doors into the building. Coordinate the requirements of this section with the requirements of Divisions 1 - General Requirements and 2 - Site Construction.</p>
Design for appropriate daylighting strategies that reduce heat gain and control glare and contrast		<p>Division 01—General Requirements SECTION 01100 – SUMMARY – DESIGN CRITERIA</p> <p>7. Skylights, Atria, Courtyards and Other Specialty Architectural Features Use architectural elements such as water features, skylight, atria, and courtyards only where they support functional operations, orientation or wayfinding. Limit their use to major public areas or staff areas where their inclusion is critical to functional efficiency. Develop, price, and present such items to the NFS Capital Projects Resource Team for evaluation.</p> <p>21. Natural Illumination (Daylighting) Make use of natural illumination (day lighting) whenever possible, particularly in patient care and staff work areas where people spend a good deal of their time (Exam Rooms, Waiting Rooms, Nurses' Stations, etc.). Wherever possible, use natural illumination as part of the wayfinding/visitor orientation systems. In outpatient medical units, do not place toilets, utility rooms storerooms, EVS closets, etc. on exterior walls where windows could occur.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>22. Protection from Glare Protect building users from glare, particularly in work areas where computers are used. Where appropriate, use indirect lighting, clerestory windows, tinted glazing, etc. to eliminate or reduce glare. Consider the location and orientation of windows when applying the room and workstation templates.</p> <p>41. Outpatient Building Depth Limit outpatient building depth to 150'-0" to allow greater penetration of natural light and to be consistent with commercial leasing dimensions. For depths greater than this, consult with the Resource Team.</p> <p>Division 02— Site Construction SECTION 02780 - UNIT PAVERS - DESIGN CRITERIA</p> <p>2. Paved Courtyards Where paved courtyards are part of the site design, specify light colored paving materials. Light reflectance from the paving materials can help improve the quality and amount of light reaching the interior of the building.</p> <p>Division 08—Doors and Windows SECTION 08500 – WINDOWS - DESIGN CRITERIA</p> <p>8. Windows vs. Computer Use In areas where computer use is anticipated (such as call centers, provider offices, and nurse stations), locate the windows in such a way as to avoid glare on computer screens. Where this is not possible, provide window coverings that reduce or eliminate glare. Coordinate the requirements of this section with the requirements of Division 12 – Furnishings.</p> <p>Division 10—Specialties SECTION 10705 – EXTERIOR SUN CONTROL DEVICES - DESIGN CRITERIA</p> <p>Sun Control Include exterior sun control devices in the design of the exterior skin of the building. It is neither economical nor efficient to rely solely upon window tinting, low “E” glazing, interior shades and blinds to control excessive heat gain on the building interior. The degree of protection designed into the building skin will depend on the local climate and weather conditions. Consult with the Owner’s project representative and the facility-engineering department.</p>
Specify efficient lighting fixtures		<p>Division 06 — Wood & Plastics SECTION 06400 - ARCHITECTURAL WOODWORK – DESIGN CRITERIA</p> <p>Task Lighting Use task lighting only for specific tasks and not as a general add-on to all upper casework units, or general undercounter ambient lighting. Lighting valances should be carefully coordinated with the placement of</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>equipment—especially the location of computer monitors. Often, the location of the lights conflicts with computers or other large equipment placement, making the lights unusable.</p> <p>Shield task lighting mounted on the underside of upper cabinets by a 2" valance. If the fixture is manufactured with an integral valance, care should be taken that the fixture is properly integrated into the design of the upper casework. Mount the undercounter fixture in such a way so as to maximize the foot-candle measurement at the edge of the countertop.</p> <p>Task lighting where heat-sensitive materials are to be stored requires special attention to the design so that heat is not transferred into the cabinet. Coordinate the requirements of this section with the requirements of Division 16 - Electrical.</p> <p>Division 12 – Furnishings SECTION 12440 - PORTABLE LAMPS</p> <p>2. Lamp Types To meet energy and safety concerns, where portable lamps cannot be avoided, the first choice are fluorescent lamps. Do not specify halogen lamps unless no other solution works. Because of the high operating temperature, halogen bulbs can pose a fire hazard. Do not specify halogen lamps without first consulting the owner's project representative and the facility maintenance operations staff.</p> <p>Division 16—Electrical SECTION 16510 - INTERIOR LUMINAIRES – DESIGN CRITERIA</p> <p>4. Fluorescent Fixtures Use fluorescent fixtures wherever possible. Lamp count and type (cool white vs. warm white) in each fixture should be consistent within the building and coordinated with other buildings on the campus, if they exist. Color output of non-fluorescent fixtures must be matched when fluorescent and non-fluorescent fixtures are used in close proximity to each other. Provide only electronic ballasts with THD less than or equal to 5%. Where no existing building standard exists, follow the guidelines set forth in the IEEE White Book. All lamps shall be ECO-type lamps (see also the National Purchase Agreement for lighting fixtures).</p> <p>SECTION 16520 - EXTERIOR LUMINAIRES – DESIGN CRITERIA</p> <p>2. Source Use high-pressure sodium lamps for all exterior fixtures. Metal halide lamps may be used where additions are being made to an existing site with metal halide fixtures. Luminaires shall be a maximum of 400 watts.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>6. Controls Control all exterior lighting by means of photocells and time clocks. Lights in the following hospital parking areas shall be on from dusk to dawn: Emergency Department, Employee Parking, Pedestrian Walkways, Traffic circulation paths, building exits, and other areas needing security. For all other areas, operate the lights only from dusk to one hour past visiting hours (or closing time) and from one hour before visiting or operating hours until dawn. Turn off the lighting at the perimeter of parking structures and on the top (unenclosed) deck of parking structures when these areas have sufficient daylight available.</p> <p>7. High/Low Fixtures For parking structures where the lights are to be left on 24 hours each day, consider the use of a fixture that provides for high/low levels of lighting. The system should be capable of switching to a low level of lighting for times and duration's determined by the facility. High levels of lighting shall be activated by motion in the parking structure. The system must be capable of zoning. A life cycle cost analysis should be done to compare initial procurement and installation costs against potential energy savings.</p> <p><i>Potential: Eliminate use of can down lights replace with standard 2 x 4 fluorescent fixtures</i></p>
Specify user controls and ambient condition lighting controls integrated with daylighting		<p>Division 12 – Furnishings SECTION 12490 - WINDOW TREATMENTS – DESIGN CRITERIA</p> <p>3. Roll-Down Shades Preferred Sun Control Roll-down shades are the preferred means of interior sun control. They can be specified in varying degrees of sun control and they are easier to maintain and keep clean than horizontal or vertical blinds.</p> <p>b) Manually Operable vs. Electrically Operable Use manually operable shades in all offices, exam rooms, and other individually staffed spaces such as nurse stations and laboratories. Shades are to be motorized and controlled by means of photoelectric sensors only in public areas such as lobbies, waiting areas, and atria with large expanses of glass (where there is no individual responsible for the space and where manual access is not possible).</p> <p>Division 16— Electrical Section 16510 - INTERIOR LUMINAIRES - DESIGN CRITERIA</p> <p>3. Switching a) Use occupancy sensors for all light switching in MOB's. Do not use occupancy sensors for ophthalmology exam rooms and other such spaces where they do not make sense.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>b) Make aggressive use of occupancy sensors and time switches in hospitals. Use them in admin areas, equipment rooms, storage rooms, med prep rooms, offices, clean/soiled utility rooms and other similar rooms that are frequently unoccupied.</p> <p>c) Control lighting in corridors with occupancy sensors. In patient wings, provide override controls at the nurses station.</p> <p>d) Provide two-level switching for all spaces 100 square feet or larger in which the connected lighting load exceeds 0.8 watts per square foot. The light switching shall be capable of a reasonably uniform reduction of illuminance.</p> <p>e) For daylit areas greater than 250 square feet, provide at least one control that controls only luminaries in the daylit area, and controls at least 50 percent of the lamps.</p>
<p>Specify efficient HVAC equipment (high efficiency, appropriately sized, low NOX)</p>		<p>Division 15—Mechanical SECTION 15000 - MECHANICAL – DESIGN CRITERIA</p> <p>2. Function and Economics For new construction or major system retrofits, the consultant shall conduct a life cycle cost analysis and cost comparisons on the various systems proposed for the building. Utilize programs that follow procedures outlined by the ASHRAE publications such as “DOE.” The Owner’s project representative and the facilities engineering department should review the analysis and cost comparisons, to select the system. The analysis should be based on:</p> <p>d) A minimum 20-year life cycle assumption.</p> <p>4. Energy Efficiency</p> <p>a) System Selection</p> <p>(1) As an earth friendly company, Kaiser Permanente cares about the environment and the negative role inefficient systems may have on global warming issues. Select systems that require minimum use of material and energy to build and operate. Submit a life cycle cost analysis report including system advantages and disadvantages for the owner’s project representative to review.</p> <p>(2) For departments with longer operating hours, coordinate adjacencies with the architect as much as possible so those departments may be served by a single air system, with the ability to shut down other systems after-hours. Such departments may include Pharmacy, Nurse Clinic, Urgent Care and Conference Classrooms.</p> <p>(3) Select and specify equipment and products to comply with the most recent ASHRAE Energy Standard efficiency criteria. In California, comply with the most recent Title 24, California Energy Code. For hospital projects in California, select and specify equipment and products to comply with the most recent Title 24, California Energy Code. Where specific requirements of this standard calls for higher efficiency selection criteria, use the higher efficiency criteria.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>7. Central Utility Plant and Self-Contained Systems c) Free Standing Buildings For freestanding buildings, evaluate the life cycle cost analysis and the feasibility of the chiller, boiler, and air-handling systems compared to roof-mounted, self-contained packaged systems. Confirm the use of DX in Group I Occupancy per applicable Codes. Refer to the NPA AIR HANDLING UNIT DECISION MATRIX at the end of this Standard.</p> <p>8. Perimeter Heating Use perimeter heaters only in locations where the winter outdoor design temperature is 10° F and lower or where wall/glass construction dictates high loads. Use perimeter heating system also to maintain winter set-back temperatures during unoccupied hours (nights, Holidays and weekends). The perimeter heating system shall be either in the form of floor-mounted, finned tube radiant heaters, or fan coil units.</p>
Specify EPA Energy Star electrical equipment and appliances		<p>Current: <i>Broadlane encourages the selection of energy star equipment and appliances.</i></p> <p>Division 15—Mechanical SECTION 15000 - MECHANICAL – DESIGN CRITERIA</p> <p>4. Energy Efficiency a) System Selection Select and specify equipment and products to comply with the most recent ASHRAE Energy Standard efficiency criteria. In California, comply with the most recent Title 24, California Energy Code. For hospital projects in California, select and specify equipment and products to comply with the most recent Title 24, California Energy Code. Where specific requirements of this standard calls for higher efficiency selection criteria, use the higher efficiency criteria.</p>
Specify solar water heating and low-flow hot water fixtures and appliances		<p>Potential: <i>Waterless urinals, solar heating or domestic/reheat should be considered.</i></p>
Specify zoning and controls for mechanical equipment to optimize use		<p>Division 15—Mechanical SECTION 15000 - MECHANICAL – DESIGN CRITERIA</p> <p>4. Energy Efficiency (2) For departments with longer operating hours, coordinate agencies with the architect as much as possible so those departments may be served by a single air system, with the ability to shut down other systems after-hours. Such departments may include Pharmacy, Nurse Clinic, Urgent Care and Conference Classrooms.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>7. Central Utility Plant and Self-Contained Systems</p> <p>c) Free Standing Buildings For freestanding buildings, evaluate the life cycle cost analysis and the feasibility of the chiller, boiler, and air-handling systems compared to roof-mounted, self-contained packaged systems. Confirm the use of DX in Group I Occupancy per applicable Codes. Refer to the NPA AIR HANDLING UNIT DECISION MATRIX at the end of this Standard.</p> <p>SECTION 15700 - HVAC EQUIPMENT - DESIGN CRITERIA</p> <p>1. Air Handling Units (AHU)</p> <p>g) Economizers dampers and controls Where return air is used, AHUs shall be equipped with economizer dampers and controls capable of providing "free cooling" during mild outdoor conditions. In systems where the economizer dampers are part of an engineered smoke evacuation system, the return air damper is exposed to outside air on one side and smoke on the other side. In that case the return air damper shall have the quality of a smoke damper.</p> <p>Temperature, Ventilation and Air Circulation Requirements</p> <p>7. Zoning Criteria</p> <p>a) Zoning Layout Include AHU and terminal unit zoning layering in the schematic design phase. Show fire zones and compartmentalization of building as an overlay to the HVAC zoning.</p> <p>b) Number of Rooms per Zone and Box</p> <p>(1) For MOB's, select one terminal unit for up to a maximum of eight spaces as long as they have similar functions and they are in the same exterior or interior zones.</p> <p>(2) For hospitals, provide a single CAV box with reheat coil for each patient room. If practical and to conserve energy, use a separate air handling unit (for after hours shut down capability) with VAV reheat terminals for spaces separated from patient care areas such as administration.</p> <p>c) After Hour Operation Coordinate with the architect and end-user to locate areas of the building that operates after regular hours. As much as practicable, arrange the mechanical system so that un-utilized areas are on the same air conditioning unit to be turned off after-hours.</p> <p>d) Zoning Keep the number of zones to a minimum, but do not combine exam rooms and provider offices in the same zone.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>e) Public Restrooms & Corridors Combine corridors and restrooms with other zones. Do <i>not</i> provide separate zoning for rest rooms and corridors.</p> <p>f) Single Toilets Where permitted by code and in place of supply air, provide ventilation make-up air to single toilet rooms and small janitor's closets through transfer grilles or undercuts at the doors.</p>
Specify EPA Energy Star™ roofing materials and/or green roofs to reduce cooling loads and heat island effect	<p>Sustainable Sites Credit 7.2 Landscape & Exterior Design to Reduce Heat Islands, Roof</p>	<p>Current: Reflective roofs now required - - - to be added to Div 1</p> <p>Potential: Specify energy star roofing materials.</p>
Develop a commissioning plan and hire an independent Commissioning Agent (See also Commissioning Section)	<p>Energy & Atmosphere Prereq 1 Fundamental Building Systems Commissioning</p> <p>Credit 3 Additional Commissioning</p>	<p>Div 17 - Under development – will include commissioning requirements.</p>
Specify HVAC, refrigeration & fire suppression equipment that do not utilize CFCs and halons. When reusing existing base building HVAC equipment, develop a comprehensive CFC phase out conversion. Balance ozone depletion potential (ODP) of HCFC alternatives with global warming potential (GWP) (Refer to Materials Section for further guidance concerning considerations on materials to avoid in energy related equipment and design, such as mercury and PVC).	<p>Energy & Atmosphere Prereq 3 CFC Reduction in HVAC&R Equipment</p> <p>Credit 4 Ozone Depletion</p>	<p>Division 15—Mechanical SECTION 15600 - REFRIGERATION/COOLING - DESIGN CRITERIA</p> <p>1. Refrigerants a) Preferred Refrigerants The refrigerant shall be fully compatible with all local, state, and federal regulations. Select equipment using the latest versions of ARI 550, 580 & 590 Standards, Green Seal GS-31 Standard and ASHRAE standards to ensure full compliance.</p> <p><i>Fire suppression equipment is water based sprinkler system which does not use Halons (15310-1)</i></p>
Evaluate feasibility for and specify cogeneration, fuel cells, renewable energy systems (such as photovoltaics, wind, biomass and low impact hydroelectric) and other alternative energy sources	<p>Energy & Atmosphere Credit 2.1 Renewable Energy, 5%</p> <p>Credit 2.2 Renewable, Energy, 10%</p> <p>Credit 2.3 Renewable Energy, 20%</p>	<p>Division 16—Electrical SECTION 16230 - STANDBY POWER - DESIGN CRITERIA</p> <p>7. Number Of Generators c) For hospitals and/or campus medical centers having multiple, paralleled generators, provide one additional, natural-gas fired generator with heat recovery. For smaller installations, use microturbines. For larger installations, use natural-gas fired generators. Coordinate the required emissions package with the local air quality</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>management district. Size the generator based on base heat load for the building. Provide a manual transfer switch to allow an electrical load to be fed from either the normal power source or the cogen unit. Ask the contractor for an add alternate to parallel the cogen generator onto the same bus with the code-required standby generators, together with controls for one or more transfer switches to be normally powered by the cogen unit via the paralleling switchgear.</p> <p><i>Current: KP uses cogeneration systems.</i></p> <p><i>Potential: Photovoltaic cells may be viable when supported by local utility company initiatives..</i></p>
<p>Design for continued monitoring and verification of system performance</p>	<p><u>Energy & Atmosphere</u> Credit 5 Measurement & Verification</p> <p><u>Indoor Environmental Quality</u> Credit 7.2 Thermal Comfort, Permanent Monitoring System</p>	<p><i>Current: KP monitors system performance through the use of automated building monitoring systems.</i></p>
<p>Purchase green energy where available that meets the Center for Resource Solutions Green-e products certification requirements.</p>	<p><u>Energy & Atmosphere</u> Credit 6 Green Power</p>	<p><i>Current: KP purchases 1,000,000 kwh each year of green power</i></p>
		<p><i>KP's Additional Strategies: Electrical Demand Reduction</i></p> <p>Division 02— Site Construction</p> <p>12. Parking Issues</p> <p>t) Parking Structures</p> <p>(5) Ceilings</p> <p>Provide exposed structure at parking garage ceilings. Do <i>not</i> use suspended gypsum board, lay-in acoustical tile or cement plaster ceilings unless insulation is required for occupied space above or to protect domestic water/sprinkler lines from freezing. Suspended ceiling systems are damaged by vehicle antennas and are soiled by dirt and moisture kicked up by vehicles. Architectural ceilings represent unnecessary cost and maintenance. Due to the potential for damage and soiling, do <i>not</i> specify suspended, lay-in ceiling tiles in parking structures. If insulation is to be installed, review options including initial and life cycle maintenance costs with the Owner's project representative and the facility maintenance operations staff. Paint ceilings white to increase reflectance and to lessen the need for artificial illumination. This will provide the facility with significant energy savings over the life of the parking structure.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>Division 08—Doors and Windows SECTION 08350 - FOLDING DOORS & GRILLES - DESIGN CRITERIA</p> <p>3. Manual Operation Panel folding doors shall be manually operated. Do not specify power-operated doors. Wherever possible specify doors that can be operated without special knowledge or tools.</p> <p>SECTION 08460 - AUTOMATIC ENTRANCE DOORS - DESIGN CRITERIA</p> <p>3. Doors at Corridors Do not use automatic entrance doors with motion sensors off corridors. Use slam switches or push buttons to activate the doors. The motion sensor is activated by traffic moving up and down the corridor causing the doors to repeatedly open and close.</p> <p>SECTION 08470 - REVOLVING ENTRANCE DOORS - DESIGN CRITERIA</p> <p>1. Manual Doors Revolving doors, where used, shall be manual-type doors. Electrically powered revolving entrance doors are not permitted. Electrically powered doors are expensive to purchase, install, and maintain.</p> <p>SECTION 08700 - HARDWARE - DESIGN CRITERIA</p> <p>5. Exit Stairs Provide hardware at all stair doors that will permit staff and visitors to exit through a stair door and re-enter on any floor. Hardware design at stair doors should encourage the use of the stairs rather than elevators for movement between floors.</p> <p>Division 10—Specialties SECTION 10400 - IDENTIFICATION DEVICES - DESIGN CRITERIA</p> <p>11. Stairs As they are used frequently for staff and visitor movement between floors, exit stairs should be clearly identified and easily visible from the corridors</p> <p>Division 14—Conveying Systems SECTION 14300 - ESCALATORS & MOVING WALKS – DESIGN CRITERIA</p> <p>Escalators & Moving Walks Do not specify escalators or moving walks. They are not to be used on KP projects. They are expensive to purchase, install, and maintain, and they are not appropriate for the KP environment.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>SECTION 14420 - WHEELCHAIR LIFTS - DESIGN CRITERIA</p> <p>Wheelchair Lifts Wheelchair lifts are not to be used on new construction. Provide ramps where accessibility is an issue. Provide wheelchair lifts in renovation of existing space only if access cannot be achieved by ramps due to space constraints.</p> <p>Potential: <i>Reduce or eliminate TV's in waiting rooms and lounges.</i></p>

5) Indoor Environmental Quality

Vision Statement

Growing awareness about the relationship between indoor environmental quality – materials, lighting, thermal comfort – and human health and productivity has catalyzed substantial research to support healthier buildings. Eliminating materials identified as allergens, mutagens, carcinogens and endocrine disruptors, while providing access to daylight and comfortable indoor climate, are fundamental green building elements. Engage in a design process that balances the objectives of a well daylit, comfortable, energy efficient and non-toxic indoor environment and results in improved productivity and patient outcomes.

Goals

- Provide an environment for occupants that is healthy and encourages rapid patient recovery and staff productivity
- Minimize production and distribution of pollutants
- Provide occupants with access to daylight and views
- Provide energy efficient thermal comfort
- Provide occupant environmental controls (light, view, thermal, ventilation)
- Provide appropriate air changes with sufficient percentage of fresh air

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
<p>Ensure high quality indoor air by meeting or exceeding ASHRAE 62-1999 as a basis of design</p>	<p>Indoor Environmental Quality Prereq 1 Minimum IAQ Performance Credit 2 Increase Ventilation Effectiveness</p>	<p>Division 15—Mechanical SECTION 15000 – MECHANICAL – DESIGN CRITERIA</p> <p>Current: ASHRAE 62-1999 is incorporated in California Title 24. Therefore, all California projects meet or exceed ASHRAE 62-1999.</p> <p>4. Energy Efficiency d) HVAC Load Calculations Size the heating and cooling systems based on the most recent ASHRAE Fundamental Handbook Climatic Design Information (CDI). For locations not listed in the ASHRAE Fundamental Handbook use local climatic data such as the most recent ASHARE Climatic Data for Region X. Submit HVAC load and ventilation calculations with the Design Development submittal and Contract Documents submittal including the following: (3) Room Ventilation and Pressurization Summary Schedule tabulating the largest of Code and the most recent ASHRAE Application Handbook Chapter 7 requirements and actual design. Where VAV system is used, design shall comply with minimum ventilation rates for total air and outside air at both maximum and minimum terminal units set point (in table use two lines per room, one line for max. air set point and one line for min. air set point)</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
<p>Ensure thermal comfort by meeting or exceeding ASHRAE 55-1992 as a basis of design</p>	<p><u>Indoor Environmental Quality</u> Credit 7.1 Thermal Comfort, Comply with ASHRAE 55-1992</p>	<p><i>Division 15—Mechanical</i> SECTION 15000 – MECHANICAL – DESIGN CRITERIA</p> <p>4. Energy Efficiency d) HVAC Load Calculations Size the heating and cooling systems based on the most recent ASHRAE Fundamental Handbook Climatic Design Information (CDI). For locations not listed in the ASHRAE Fundamental Handbook use local climatic data such as the most recent ASHARE Climatic Data for Region X. Submit HVAC load and ventilation calculations with the Design Development submittal and Contract Documents submittal including the following:</p> <p>(1) Size heating systems based on the ASHRAE CDI 'minimum annual extreme daily temperature' and uses a 20% safety/peak-up-load factor. With ASHARE Region X, use the median of extreme temperature, and use the same 20% safety/peak-up-load factor.</p> <p>(2) Size cooling systems based on the ASHRAE CDI 0.4% dry bulb and wet bulb temperatures and a 10% load safety factor. With ASHARE Region X, use 0.1% design conditions for Hospitals and 0.5% design conditions for free standing MOB's. Special equipment loads shall be fully accounted for in the calculations.</p>

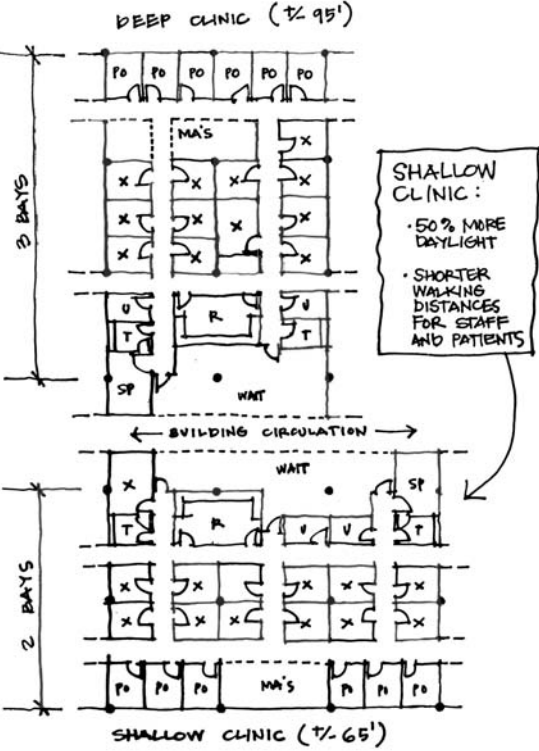
ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
<p>Specify low VOC / low toxic finishes and materials, such as Green Seal-certified paints; composite wood and agrifiber products with no added urea-formaldehyde resins; carpet systems certified by Carpet & Rug Institute Green Label Program; adhesives meeting South Coast Air Quality Management District guidelines; flooring, ceiling wall covering, paints and other interior finishes and materials meeting Washington State indoor air quality guidelines</p>	<p>Indoor Environmental Quality Credit 4.1 Low-Emitting Materials, Adhesives & Sealants Credit 4.2 Low-Emitting Materials, Paints Credit 4.3 Low-Emitting Materials, Carpet Credit 4.4 Low-Emitting Materials, Composite Wood</p>	<p>Division 08—Doors and Windows SECTION 08210 - WOOD DOORS - DESIGN CRITERIA</p> <p>3. Finishes All doors are to be pre-finished in the factory.</p> <p>SECTION 08500 - WINDOWS - DESIGN CRITERIA</p> <p>1. Aluminum Sills Specify either painted or anodized aluminum interior windowsills. Sill extensions shall also be aluminum. This material is inexpensive, easy to obtain and install, and relatively maintenance free. When the aluminum is to be painted, it shall be factory finished with a durable finish such as powder coating, baked enamel, etc. Field painting is not acceptable.</p> <p>SECTION 09600 - FLOORING - DESIGN CRITERIA (FLOOR/BASE)</p> <p>1. Moisture Vapor Emissions Moisture vapor emissions from concrete slabs-on-grade and concrete decks above grade are problematic with adhesives that are volatile organic compound (VOC) compliant. Petroleum based products are therefore eliminated, leaving water based products. Most finish floor product manufacturers will not guarantee materials or installations where the moisture vapor emissions are “excessive”. Even older concrete floors can be found to have unacceptably high moisture vapor emissions. Consider providing damp-proofing or other moisture blocks to prevent flooring from “bubbling” or losing adhesion. This is particularly critical where sheet vinyl is specified. Primers and special mastics (e.g., two-part epoxy adhesive for vinyl composition tile) should be considered. Proper wet curing of concrete slabs can also help to minimize this problem in new construction.</p> <p>5. Resilient Flooring j) In Intensive Care Nurseries, Laboratories and other areas where chemical odors or vapors cannot be tolerated, specify waxless flooring materials. This eliminates the need for floor stripping chemicals (and the strong chemical odors that they often generate) during routine maintenance.</p> <p>6. Carpet e) Adhesives must be certified as odorless. The Volatile Organic Compound (VOC) content and odor issues associated with adhesives must comply with applicable Federal, State, or Local air quality requirements. Consult with environmental health & safety.</p> <p>SECTION 09700 - WALL FINISHES - DESIGN CRITERIA (WALLS)</p> <p>3. Paints And Coatings a) Use products with low volatile organic compound (VOC) contents. Specific allowable levels of VOC's</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>may be set by Federal, State or Local air quality requirements. Consult with environmental health and safety.</p> <p>b) Do not use paints or coatings that will become hazardous waste if discarded.</p> <p>f) Do not use multi-color-coating systems (e.g., Zolatone, Polomy(r), Polomyx, etc.) unless they have been reviewed and approved by the Owner's project representative and the engineering and environmental services departments at the facility. Although this paint is very durable and can be repaired, solvent-based multi-color coatings produce strong fumes, which tend to be a problem when patching, repair or re-painting becomes necessary. Water-based multi-color coatings do not have this odor problem. This paint also requires special equipment and specially trained technicians for the initial installation and patch and repair work. The expected service life of many of these types of coatings is approximately 9-10 years. Consequently, there may be applications where the life-cycle cost savings make this a wall finish material that is more economical than "standard" paint finishes.</p> <p>j) Use water-based paints. Oil-based paints are <i>not</i> acceptable due to problems with off-gassing (high volatile organic compound content). In some areas of the country, paints with high volatile organic compound contents may not be used due to air quality standards. The typical application should be one primer coat and two finish coats as a minimum standard. The actual field conditions and the substrate may require more preparation or additional finish coats to assure an acceptable finished painted surface.</p>
<p>Minimize use of carpets and other materials that attract, absorb and re-release indoor pollutants.</p>		<p>As identified in Division 9 - Finishes, Table 9.3, carpet is allowed in less than 20% of types of the rooms listed.</p>
<p>Specify permeable wall covering and other materials to prevent trapping of water and microbial growth</p>		<p>Division 09—Finishes SECTION 09200 - PLASTER & GYPSUM BOARD – DESIGN CRITERIA (WALLS)</p> <p>2. WR Board At walls with light moisture (e.g. at lavatories, drinking fountains, urinals, water closets, eye-wash stations, etc.), use water resistant (WR or "green board") gypsum board. Regular gypsum board will begin to swell and delaminate in these types of wet conditions. Regular gypsum board used in these areas can be the source of microbial growth, which can adversely impact indoor air quality.</p> <p>3. Cementitious Board Use cementitious backing board at walls and ceilings with moderate to heavy moisture or humidity (e.g., at showers, hydrotherapy rooms, or cart wash areas, do not use gypsum board or water resistant gypsum board). Water-resistant gypsum board will begin to swell and de-</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>laminated in these types of wet conditions. Even water-resistant gypsum board used in these areas can be the source of microbial growth, which can adversely impact indoor air quality.</p> <p>SECTION 09700 - WALL FINISHES – DESIGN CRITERIA (WALLS)</p> <p>1. Wall Covering a) Do <i>not</i> use vinyl wall covering, fabric wall covering or wallpaper. Applied vinyl decorative border strips at the ceiling may be used as accents in specialty areas such as pediatric exam rooms, and mammography imaging rooms. . . .Vinyl wall covering can trap moisture between the interior finish and the gypsum board substrate. This moisture can promote the growth of mold and other microbial organisms.</p>
<p>Establish green housekeeping protocols <i>(See Operations & Maintenance section)</i></p>		
<p>Design to reduce pest infestation opportunities</p>		<p>Division 08—Doors and Windows</p> <p>3. Bird Roosting The design of windows and skylights shall discourage roosting and nesting birds and still allow for effective cleaning and disinfection. Bird litter is unsanitary and creates a difficult maintenance problem for the facility. Consult with local authorities having jurisdiction regarding bird and roosting controls. Some jurisdictions prohibit any activities that might interfere with bird nesting activities.</p> <p>9. Insect Screens Specify insect screens at all operable windows.</p>
<p>Install permanent entryway systems (e.g., grates) to trap dirt and particulates.</p>	<p>Indoor Environmental Quality Credit 5 Indoor Chemical & Pollutant Source Control</p>	<p>Division 12 – Furnishings SECTION 12480 – RUGS & MATS</p> <p>1. Entrance Mats a) Frames and Inserts Provide extruded aluminum frame entry mats recessed in the floor at all primary entrances to the facility. Treads shall have carpet, vinyl, abrasive, vinyl/abrasive, or serrated aluminum inserts.</p> <p>b) Recessed Mats with Drains Recess mats into the adjacent flooring surface. Provide drain pans. The need for drains shall be determined after review by the owner's project representative and the facility maintenance operations staff. Coordinate the requirements of this section with the requirements of Division 15 – Mechanical.</p> <p>c) Support Cushions Provide support cushions at the bottom of each tread rail. These cushions help reduce metal-to-concrete or metal-to-metal noise.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>d) Recycled Materials Specify recessed entry mats made from recycled materials whenever they are quality and price neutral.</p> <p>e) Location of Mats Consider placing recessed entry mats immediately outside the main entries (where canopies or other exterior cover has been provided) in addition to inside vestibules or inside the main lobby. When used with walk-off mats, this location offers a higher probability that visitor's shoes will be completely dry before they encounter a hard flooring surface.</p>
<p>Position air intakes to prevent contamination from vehicle exhaust and other sources paying attention to prevailing winds</p>	<p>Indoor Environmental Quality Credit 5 Indoor Chemical & Pollutant Source Control</p>	<p>Division 02— Site Construction DESIGN INTENT/GENERAL INFORMATION</p> <p>20. Prevailing Winds Shield building entries from prevailing winds. Refer to Division 1 – General Requirements. Locate loading docks and other noxious, fume-generating functions downwind of the building entries. Exhaust from idling vehicles can also create indoor air quality problems. Maintain adequate separation between loading dock areas and HVAC air intake vents and louvers. Coordinate the requirements of this section with the requirements of Division 11 – Equipment (Loading Dock Equipment), and Division 15 – Mechanical.</p> <p>Division 15—Mechanical SECTION 15000 – MECHANICAL – DESIGN CRITERIA</p> <p>4. Energy Efficiency e) Ventilation and Indoor Air Quality (IAQ) 2) Avoid locating the outside air intakes adjacent to loading docks, bus stops, generator exhaust, or street level, where car exhaust and dust from traffic can cause indoor air quality problems.</p>
<p>Assure easy access to inspect and clean filters and ductwork in each straight run</p>		<p>Division 09—Finishes SECTION 09500 – CEILINGS/DESIGN CRITERIA (CEILINGS)</p> <p>3. 2' x 5' Corridors If there is sufficient square footage, 2' x 5' lay-in tiles with 2' x 4' lighting fixtures may be used (in 5'-0" wide corridors). Their proposed use should be reviewed by the Owner's project representative and the engineering and environmental services departments at the facilities. With sufficiently large square footage, these tiles can simplify initial ceiling installation. The larger size is also more convenient for maintenance access.</p> <p>4. Tegular Tiles "Tegular" ceiling tiles may be used. Tegular tile should not be used in any areas where ceiling access is regularly required (e.g., areas where valves, filters, dampers, VAV boxes, etc., are located.). Use standard ceiling tiles in "back-of-house" areas (e.g., exam rooms, provider offices, staff and patient corridors adjacent to exam or office spaces).</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>Division 15—Mechanical SECTION 15000 – MECHANICAL – DESIGN CRITERIA</p> <p>3. Maintainability b) Components Access (1) Design systems with easy to reach access to all components requiring maintenance. These components include (but are not limited to) shut-off, balancing and control valves, smoke and fire dampers and detectors, filters, and terminal boxes. Coordinate with other disciplines to insure all equipment and components are accessible.</p>
<p>Ventilate enclosed parking areas and other source areas (smoking areas, housekeeping, copying rooms, hazardous waste)</p>	<p>Indoor Environmental Quality Credit 5 Indoor Chemical & Pollutant Source Control</p>	<p><i>Potential: Separate photocopy areas and food preparation areas to limit possible contamination.</i></p>
<p>If building cannot be 100% non smoking, provide total environmental separation for non smokers and assure no feed in to ventilation system</p>	<p>Indoor Environmental Quality Prereq 2 Environmental Tobacco Smoke (ETS) Control</p>	<p><i>All Kaiser Permanente Buildings are 100% Non-Smoking</i></p>
<p>Provide building occupants access to daylight, views and operable windows where appropriate</p>	<p>Indoor Environmental Quality Credit 6.1 Controllability of Systems, Perimeter</p> <p>Credit 8.1 Daylight & Views, Daylight 75% of Spaces</p> <p>Credit 8.2 Daylight & Views, Views for 90% of Spaces</p>	<p><i>See Section 4 for additional Energy Daylighting information</i></p> <p>Division 01—General Requirements General Information SECTION 01100 – SUMMARY – DESIGN CRITERIA</p> <p>21. Natural Illumination (Daylighting) Make use of natural illumination (day lighting) whenever possible, particularly in patient care and staff work areas where people spend a good deal of their time (Exam Rooms, Waiting Rooms, Nurses' Stations, etc.). Wherever possible, use natural illumination as part of the wayfinding/visitor orientation systems. In outpatient medical units, do not place toilets, utility rooms storerooms, EVS closets, etc. on exterior walls where windows could occur. See Sketch No. 6 (shallow clinic)</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		 <p>41. Outpatient Building Depth Limit outpatient building depth to 150'-0" to allow greater penetration of natural light and to be consistent with commercial leasing dimensions. For depths greater than this, consult with the Resource Team.</p> <p>Division 08—Doors and Windows <i>SECTION 08500 - WINDOWS - DESIGN CRITERIA</i></p> <p>5. Natural Light in Exam Rooms Try to provide natural light in exam rooms where daylighting is critical, such as dermatology. Color corrected lighting may also be required. Coordinate the requirements of this section with the requirements of Division 16. Where windows are provided, specify window coverings to protect patient privacy. Where exam rooms occur on the ground floor, consider providing clerestory windows (with the sill at 5'-6" or higher above the finished floor elevation) to preserve patient privacy.</p> <p>7. Windows in Group Rooms Provide exterior windows in rooms that are used for group psychiatric or Chemical Dependency Recovery Program (CDRP) counseling wherever possible. The absence of windows in such spaces can make it more difficult to achieve positive patient outcomes.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>9. Daylighting Schemes Although natural daylight is desirable in most staff and patient areas, do not use light shelves, custom corridor ceilings (such as vaulted ceilings), or other special designs. The expense of these items is difficult to justify and quantify in terms of actual staff and patient benefit. Open office areas at the window wall, the use of extensive glass walls between perimeter offices and corridors, and the use of transoms and clerestory windows are much more economical and effective means of introducing natural light deeper into the building. Refer to Division 1 – General Requirements.</p> <p>10. Windows in Extended Use Spaces Provide windows or other means of natural lighting in spaces that are used over extended periods of time (such as infusion clinics and breast feeding rooms) by either staff or patients.</p> <p>Code requires operable windows in patient rooms</p>
Provide user controls for airflow, temperature, light (integrated with daylighting – see also Energy section)	<p>Indoor Environmental Quality Credit 6.2 Controllability of Systems, Non-Perimeter</p>	<p>Division 06 — Wood & Plastics SECTION 06470 - SCREENS, BLINDS & SHUTTERS - DESIGN CRITERIA</p> <p>1. Shades Manual or motorized roll-down shades, mini-blinds, tinted/obscure glazing products or exterior sun shading screens (that are part of the building architecture) are preferred solutions to privacy or sun shading issues.</p>
Provide carbon dioxide monitoring system to provide feedback on space ventilation performance	<p>Indoor Environmental Quality Credit 6.1 Controllability of Systems, Perimeter</p>	<p>Current: CO2 monitoring not currently in KP standards; however, CO2 monitoring to be included in standards, in the next Division 15 release.</p>
Specify materials, products, mechanical systems and design features to attenuate sound and vibration, and not to exceed Room Criteria (RC) ratings listed for Hospital and Clinics in Table 34 of Chapter 46, Sound and Vibration Control, 1999 ASHRAE Application Handbook		<p>Division 15—Mechanical SECTION 15070 - SOUND ATTENUATION AND VIBRATION CONTROL</p> <p>1) Sound Attenuation Equipment schedule shall show the maximum noise level the designer anticipates from each equipment unit. After the maximum level is established sound attenuation shall be designed to meet the occupied space noise level then scheduled and specified.</p> <p>b) Use of Fiberglass</p> <ol style="list-style-type: none"> 1) Do not use fiberglass internally in the supply air system downstream of filters is prohibited. 2) Use only Mylar encapsulated sound attenuators downstream of the final filters. Use Fiberglass packed sound attenuators may only be placed upstream of the filters. <p>c) Pack-less Sound Attenuators Do not use pack-less sound attenuators in the air distribution system. Despite the additional cost and added static pressure, they have proven to have little muffling affect.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>d) Active Silencers Evaluate the feasibility of providing a white noise system or active electronic silencers versus sound traps in the air system.</p> <p>e) Sound Levels Design systems to meet the design Guidelines for HVAC- Related Background Sound in the most recent ASHRAE Application Handbook.</p>
		<p><i>KP's Additional Strategies: Outdoor air quality</i></p> <p><i>Division 02— Site Construction</i> SECTION 02900 - PLANTING - DESIGN CRITERIA</p> <p>3. Avoid the Following Types of Plant Materials:</p> <p>a) Pollen Producing Avoid plant materials that produce pollen and other mucous membrane irritants such as <i>Acacia baileyana</i> (acacia) can adversely affect visitors and staff with allergies and asthma. Consult the Owner's project representative and a facility allergist before plant materials are finalized.</p>
		<p><i>KP's Additional Strategies: Reduce dust build-up</i></p> <p><i>Division 06 — Wood & Plastics</i> SECTION 06400 - ARCHITECTURAL WOODWORK - DESIGN CRITERIA</p> <p>21. Soffits Soffit closure at the top of upper casework (at the ceiling) shall be filler panels matching the cabinet finish. Where ceilings are over 9'-0" high, provide sloped dust tops. In no event are the tops of the cabinets to be left either open or without dust tops. This helps maintain a clean and uncluttered work environment.</p> <p>SECTION 06470 - SCREENS, BLINDS & SHUTTERS - DESIGN CRITERIA</p> <p>2. Screens & Shutters Wood screens, blinds, and shutters are not preferred for KP facilities. These items are difficult to clean and therefore can become a health consideration. They are also difficult and costly to repair and/or replace if damaged. If they are to be used, their use should be limited to main building entry lobbies and waiting areas. They should not be used as standard sun shading devices at windows or window walls. The location and scope of these items should be reviewed and approved by the Owner's project representative and the facility Engineering and Environmental Service Departments.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>Division 08—Doors and Windows SECTION 08500 - WINDOWS - DESIGN CRITERIA</p> <p>11. Windows in Stair Towers Windows in stair towers are encouraged, but consideration must be given to cleaning dust from such window sills that are often difficult to access. Review window cleaning strategies with the Owner's project representative and the facility environmental services department at the facility.</p> <p>Division 10—Specialties SECTION 10500 - LOCKERS - DESIGN CRITERIA</p> <p>4. Tops Provide lockers with sloped "dust" tops.</p>

(See also Operations and Maintenance)

6) Materials & Products

Vision statement

Use of sustainable materials can significantly enhance a building's environmental health performance. The sustainable harvest of materials enhances the health of habitats and increases biodiversity. The Memorandum of Understanding between the US EPA and AHA establishes minimizing production of persistent and bioaccumulative toxics (PBTs) and reducing waste as priorities for the health care industry. Review material specifications to eliminate those that contribute to harmful health affects.

Goals

- Reduce resource depletion
- Reduce embodied energy
- Reduce toxics generated throughout the life cycle of materials
- Reduce waste
- Reduce impact of reuse or disposal of building

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
Reuse existing structures		<i>(See notes under 2) "Reuse and renovate existing buildings"</i>
Specify materials free from ozone depleting substances and/or equipment using CFCs, HCFCs, and halons, balancing ozone depletion potential (ODP) with global warming potential (GWP)	Energy & Atmosphere Prereq 3 CFC Reduction in HVAC&R Equipment	Current: 1. <i>KP in negotiations for new NPA agreements for chillers and rooftop AC units (DX units) we are requiring the most environmentally-friendly refrigerant on the market</i> 2. <i>Halon systems not used by KP .</i>
Specify materials free from toxic chemicals and that do not release toxic byproducts throughout their life cycle, particularly those toxins that are carcinogenic, persistent or bioaccumulative. Key materials to avoid include mercury (switching equipment), arsenic (pressure treated wood), urea formaldehyde (engineered wood), PVC (floors, wall coverings, furniture, roof membranes, plumbing pipe, electrical wire), and asbestos		Division 07—Thermal & Moisture Protection SECTION 07600 - FLASHING & SHEET METAL - DESIGN CRITERIA 5. Where flanged type flashing is installed integrally with the roof system, utilize metals that have a relatively low coefficient of expansion and contraction, i.e., wherever possible, avoid the use of lead in flashing or other roofing applications. Lead is classified as a hazardous material. In re-roofing, handling and disposal of lead roof components will be more costly. Current: <i>Asbestos control program</i> Potential: 1. <i>Studying synthetic rubber flooring in lieu of vinyl flooring as the KP standard.</i> 2. <i>Substituting clay and copper for PVC piping</i>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
<p>Specify materials and products that are: Recycled (preferably with high post consumer content), reused/ salvaged, remanufactured or from rapidly renewing sustainable sources</p>	<p><u>Materials & Resources</u> Credit 4.1 Recycled Content, Specify 25%</p> <p>Credit 4.2 Recycled Content, Specify 50%</p>	<p>Current: All NPA vendors are evaluated on environmental practice and policy as part of the selection scoring system in renegotiations of the Carpet NPA agreements, our primary emphasis is sustainability</p> <p>KP uses steel structures, which are high in recycled content (According to TAE Steel Recycling Institute, 95% of TAE Steel used in structural beam and plates is recycled).</p> <p>Division 02— Site Construction</p> <p>12) Parking Issues (q) Wheel Stops ... Where wheel stops cannot be avoided, consider the use of recycled products such as recycled carpet wheel stops by Collins and Aikman.</p> <p>SECTION 02870 - SITE FURNISHINGS - DESIGN CRITERIA</p> <p>3. Planter, Table, Chair, Waste Receptacle, Tree Guard, and Bench Finishes ...Consider the use of recycled plastic lumber products.</p> <p>Division 12 – Furnishings SECTION 12480 - RUGS & MATS</p> <p>1. Entrance Mats d) Recycled Materials Specify recessed entry mats made from recycled materials whenever they are quality and price neutral.</p>
<p>Specify materials and products that are: Sustainably harvested</p>	<p><u>Materials & Resources</u> Credit 7 Certified Wood</p>	<p>Division 12 – Furnishings SECTION 12510 – OFFICE FURNITURE</p> <p>3. Woods from Renewable Sources Specify woods for furniture from renewable sources. Do not specify woods from rare, nearly exhausted sources, or woods from rain forests. Coordinate the requirements of this section with the requirements of Division 6 – Wood and Plastics.</p> <p>Potential: Specify FSC Certified Wood Products</p>
<p>Specify materials and products that are: Obtained from local sources</p>	<p><u>Materials & Resources</u> Credit 5.1 Local/Regional Materials, 20% Manufactured Locally Credit 5.2 Local/Regional Materials, of 20% Above, 50% Harvested Locally</p>	<p>Division 01—General Requirements SECTION 01100 – SUMMARY – DESIGN CRITERIA</p> <p>32. Locally Accessible Materials Specify materials that are readily accessible locally and responsive to local climate considerations.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
Specify materials and products that are: Low in embodied energy		
Specify materials and products that are: Durable		<p>Division 01—General Requirements SECTION 01100 – SUMMARY – DESIGN CRITERIA</p> <p>4. Affordable Provide designs that support staff in providing high quality healthcare services to members for the lowest possible cost. Specify materials and finishes that are durable and easily maintainable. Make design decisions that include life-cycle (operational) costs. Design tight, efficient, compact facilities that enhance our ability to respond to changing technology, delivery models, business imperatives, and real estate strategies.</p> <p>31. Maintainable & Durable Finishes Provide finishes for the interior and exterior of the facility that are simple, easy to maintain, durable, and affordable. Limit types and quantities of materials to facilitate repair and maintenance. Refer to Division 9 – Finishes for additional information</p> <p>Division 06 — Wood & Plastics SECTION 06400 – ARCHITECTURAL WOODWORK – DESIGN CRITERIA</p> <p>16. Reception Desks a) Plastic laminate is the preferred finish material at the face and top of custom-designed reception desks. This material is durable and mar resistant. It requires very little on-going maintenance. Wood and wood veneers are <i>not</i> preferred materials, especially for the vertical surfaces of casework where scratching from purses, and belt buckles and gouging from wheelchairs and strollers is a problem. b) Consider solid surfacing materials such as Corian for specialty countertops in highly visible, public areas, such as reception desks/volunteer desks in the main building lobby, and security stations in the main building lobby. The location and extent proposed for this material must be discussed with the Owner's project representative, Facility Environmental Services, and Engineering Departments.</p> <p>17. Counter Edges a) Snap-on solid surfacing materials such as Corian edge trim, integral solid surfacing edge trim, or resilient PVC edge banding are excellent counter edge materials. Solid surfacing materials are extremely durable. They help to eliminate chips and nicks in the plastic laminate finish. The higher initial cost of these materials can easily be offset by reduced maintenance costs during the life of the facility.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>b) Do <i>not</i> use wood at counter edges. Painted wood at counter edges is subject to scratches and excessive paint wear. Clear sealant or polyurethane at hardwood bullnoses is difficult and costly to reapply. Coordinate the requirements of this section with the requirements of Division 9 – Finishes.</p> <p>SECTION 06450 – STANDING & RUNNING TRIM – DESIGN CRITERIA</p> <p>2. Handrails & Guardrails Use Premium grade wood for handrails and guardrails. Use a clear, durable finish such as polyurethane. They are not to be painted. The location and extent of these materials should be reviewed and approved by the Owner's project representative and the facility Engineering and Environmental Service Departments.</p> <p>Division 07—Thermal & Moisture Protection SECTION 07300 – SHINGLES, ROOF TILES & ROOFING COVERINGS – DESIGN CRITERIA</p> <p>Asphalt Shingles Utilize only premium quality, heavy duty dimensional shingles. Anything less than a 30 year warranty must be discussed with the Owner's project representative. Refer to warranty discussion of Section 07500 Membrane Roofing below.</p> <p>Division 08—Doors and Windows SECTION 08210 – WOOD DOORS – DESIGN CRITERIA</p> <p>4. Exterior Doors Do not specify wood doors at exterior locations.</p> <p>Division 12 – Furnishings SECTION 12050 – FABRICS – DESIGN CRITERIA</p> <p>4. Fabric Selection Guidelines c) Upholstery Fabric Selection Wool . . . acceptable upholstery fabrics to use at KP facilities. Fabric selections must meet a minimum high wear durability of 60,000 double rubs. Do not use 100% cotton. This material will not wear well, is more difficult to clean, and is subject to shrinkage. Use medium to dark colors for upholstery fabrics. Darker colors and patterned fabrics hide soil and stains.</p> <p>SECTION 12520 – SEATING</p> <p>1. General d) Chair Finishes Specify finishes with long term durability in mind. Arm rests wherever possible shall be either wood capped or synthetic materials that resist wear. Do not use upholstered armrests. When wood is used, consider specifying light or medium-colored wood in lieu of dark-colored wood for chairs. The lighter</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		wood is less likely to show nicks and scrapes, and consequently is easier to maintain. Refer to Wood From Renewable Resources in Section 12510 – Office Furniture.
Specify materials and products that are: Low in VOC and/or other chemical emissions in use (see IEQ section)		<p>Potential:</p> <ol style="list-style-type: none"> 1. Specify products with low or no formaldehyde content. 2. Find substitutes for PVC products (piping, bumper rails, furniture, etc.) 3. Comply with California 1350 special environmental quality standard specification for interior finish materials 4. Comply with appropriate certifications (green seal, etc.)
Specify materials and products that are: Low maintenance and not requiring toxic materials to maintain and/or operate		<p>Division 01—General Requirements SECTION 01100 – SUMMARY – DESIGN CRITERIA</p> <p>31. Maintainable & Durable Finishes Provide finishes for the interior and exterior of the facility that are simple, easy to maintain, durable, and affordable. Limit types and quantities of materials to facilitate repair and maintenance. Refer to Division 9 – Finishes for additional information</p> <p>Division 06 — Wood & Plastics SECTION 06200 – FINISH CARPENTRY – DESIGN CRITERIA</p> <p>1. Wood Paneling b) Do <i>not</i> use wood paneling in areas that experience cart, gurney, wheelchair, stroller or equipment traffic. Wood paneling is <i>not</i> a preferred material for Kaiser facilities because of the requirement for continual maintenance. Wood is subject to damage in a medical environment. For wood finishes and sealers refer to the requirements of Division 9 - Finishes.</p> <p>SECTION 06600 - PLASTIC FABRICATIONS - DESIGN CRITERIA</p> <p>2. Finishes Where plastic laminate is used, specify an “eggshell” or semigloss finish. These matte finishes help conceal scratches and soil. High gloss, plastic laminate finish is not to be used for Kaiser facilities. The high gloss products are easily damaged and show dirt and finger prints immediately.</p> <p>5. Light Colors Use light to medium plastic laminate colors. These ranges tend to be more neutral and are easier to maintain. They also impart a “clean” and “bright” look to the facility. Do not use dark colors.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>Division 07—Thermal & Moisture Protection</p> <p>9. Coordination Coordinate the requirements of this section with the requirements of Division 2 - Site Work.</p> <p>Division 08—Doors and Windows</p> <p>7. Cubicle Curtains for Privacy Provide a privacy swing for typical exam and procedure rooms as indicated in the National Facilities Services (NFS) Room Templates. Do not use privacy hinges (such as continuous piano hinges) at exam or procedure rooms. These hinges are costly, and privacy issues can be addressed adequately without their use. Do not provide ceiling-mounted cubicle curtain tracks and curtains at doors for privacy unless unavoidable (in spaces such as mammography). Although cubicle curtain tracks and curtains are not expensive items to purchase and install, they require continual maintenance which becomes costly for the facility. Coordinate the requirements of this section with the requirements of Divisions 10 - Specialties and 12 – Furnishings.</p> <p>SECTION 08260 - SLIDING WOOD & PLASTIC DOORS - DESIGN CRITERIA</p> <p>Sliding Doors Avoid the use of sliding doors. They have little or no acoustical value and are generally not acceptable in fire rated assemblies. Avoid the use of pocket doors. They can be difficult and costly to maintain and repair. Exposed sliding doors may be used in demountable partition systems. See Division 12 – Furnishings for additional information.</p> <p>SECTION 08330 - COILING DOORS & GRILLES - DESIGN CRITERIA</p> <p>1. Coiling Fire Doors Due to excessive purchase and installation costs and ongoing maintenance costs, avoid the use of coiling fire doors (roll-down) whenever possible. If coiling fire doors cannot be avoided, make the openings as small as possible. Wherever possible, use double doors on magnetic hold-open in place of coiling fire doors.</p> <p>SECTION 08500 – WINDOWS - DESIGN CRITERIA</p> <p>1. Aluminum Sills Specify either painted or anodized aluminum interior window sills. Sill extensions shall also be aluminum. This material is inexpensive, easy to obtain and install, and relatively maintenance free. When the aluminum is to be painted, it shall be factory finished with a durable finish such as powder coating, baked enamel, etc. Field painting is not acceptable.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>2. Painted Gypsum Board Sills, Plastic Laminate Faced Sills, Solid Surface Material Sills, Wood Sills, and Stone/Terra Cotta Sills Do not use painted gypsum board interior window sills. Gypsum board is subject to abuse and damage from moisture. Gypsum board sills are not as easy to maintain or keep clean as aluminum interior window sills. Do not use plastic laminate faced, solid surfacing material (such as Corian), wood, or terra cotta interior sills. Plastic laminate is easily chipped and is difficult to repair. The substrate may also be subject to delamination and swelling from moisture at the window. Although solid surfacing materials are extremely durable, they are too costly and inappropriate to use as sill material. Wood is expensive to maintain and is subject to warping and swelling due to excessive moisture and/or heat. Terra cotta is expensive and is not an appropriate use of construction funds.</p> <p>3. Steel Exterior Windows Do not specify steel for exterior window frames. This material is generally more expensive than aluminum frames and requires continual upkeep.</p> <p>Division 10—Specialties SECTION 10150 – COMPARTMENTS & CUBICLES - DESIGN CRITERIA</p> <p>2. Toilet Partitions Use ceiling-mounted toilet partitions for KP facilities. They allow greater ease of cleaning floors and are less subject to damage from cleaning equipment. Where handicapped toilet stalls extend at right angles beyond the line of the other toilet stalls, provide one leg of the partition system that goes all the way to the floor. This provides additional stability and prevents the doors on the stalls from popping open when the partitions deflect. There may be other ways to provide the desired stability—review options with the Owner's project representative.</p> <p>SECTION 10400 – IDENTIFICATION DEVICES - DESIGN CRITERIA</p> <p>4. Surface Applied Graphics Avoid surface-applied letters or graphics where signage is accessible to visitors. These items are subject to vandalism.</p> <p>Division 12 – Furnishings SECTION 12050 – FABRICS – DESIGN CRITERIA</p> <p>4. Fabric Selection Guidelines b) Upholstery Cleaning and Maintenance Use <i>only</i> upholstery fabrics that can be cleaned by a water extraction process. Investigate with maintenance operations and environmental services the use of fabric soil and stain treatment for high traffic/high abuse areas. All upholstery shall be</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>approved for ease of maintenance by environmental services.</p> <p>SECTION 12100 – ART</p> <p>9. Maintenance Always select artwork that can be easily cleaned and maintained. Consider how ceiling hung pieces will be cleaned.</p> <p>SECTION 12520 – SEATING</p> <p>1. General g) Wall Saver Feature Where possible (especially in areas where chairs are moved frequently or in waiting areas), specify chairs that are designed to keep the chair back away from the wall. This will decrease maintenance costs that result from wall scuffing. If a wall saver is not available, specify a chair with an upholstered back.</p> <p><i>Potential: Specify non-fiberglass insulation</i></p>
Specify materials and products that are: Easily reusable, recyclable, compostable, or otherwise biodegradable on disposal	Materials & Resources Credit 6 Rapidly Renewable Materials	<i>Potential: Consider new carpet fibers that are infinitely recyclable.</i>
Design for efficient material use i.e., less material use and standard sizes to reduce waste		<p>Division 02— Site Construction DESIGN INTENT/GENERAL INFORMATION</p> <p>12. Parking Issues (t) Parking Structures (5) Ceilings Provide exposed structure at parking garage ceilings. . . . Architectural ceilings represent unnecessary cost and maintenance. Due to the potential for damage and soiling, do <i>not</i> specify suspended, lay-in ceiling tiles in parking structures. . . .</p>
Design for adaptability of building design as user needs change (e.g., reusable movable office divider walls and raised floor systems to enhance future flexibility)		<p>(See notes under 2) “ Reuse and renovate existing buildings”</p> <p>Division 06 — Wood & Plastics SECTION 06400 – ARCHITECTURAL WOODWORK – DESIGN CRITERIA</p> <p>1. Built-In Vs. Furnishings At reception stations, information desks, volunteers’ stations, nurses’ stations, and main lobby security stations, ergonomically adjustable work surfaces are to be used rather than built-in, custom casework. In the changing healthcare environment, furnishings are much more flexible and ultimately less expensive to modify, reconfigure, remove, or repair. Adjustable work surfaces offer the visitor and the staff maximum convenience and flexibility.</p>

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
		<p>2. Fixed Limit custom or manufactured casework to areas where ergonomically adjustable furnishings cannot meet the functional requirements of the end-users. Fixed casework often has a relatively short life span due to functional changes or changes in the model of practice.</p> <p>19. Shelving/Wall Mounted Cabinets</p> <ul style="list-style-type: none"> a) Provide shelving units with adjustable rather than fixed shelves. Adjustable shelves shall be ¾" thick for spans up to 31" and 1" thick for spans between 31" and 42". Shelving should not exceed a 42" span. b) Wherever possible, provide adjustable height, upper wall-mounted cabinets. c) Glass cabinet doors must have tempered or laminated glass. <p>Division 10—Specialties SECTION 10615 – DEMOUNTABLE PARTITIONS – DESIGN CRITERIA</p> <p>Demountable Partitions The project team should investigate the possibility of using demountable partitions in general office areas and other areas as deemed appropriate. Demountable partitions allow the end-users to reconfigure and remodel areas without excessive expense, with a minimum of disruption, and in a very short amount of time. Demountable partitions may be especially appropriate for leasehold spaces. The initial cost of demountable partitions may be roughly equivalent to a typical gypsum board partition (when all applicable trades are considered). Installation of demountable partitions can be faster than for typical gypsum board partitions and as a result, shorter schedules may be possible. For remodel projects, demountable partitions are significantly less expensive and require relatively little time or special knowledge to reconfigure.</p> <p>Division 12 – Furnishings SECTION 12710 - SYSTEM FURNITURE</p> <p>1. General</p> <ul style="list-style-type: none"> b) Furniture vs. Built-in Casework At all times, specify furniture in lieu of built-in casework. If casework is the only possible alternative, coordinate the requirements of this section with the requirements of Division 6 - Wood and Plastics. <p>Potential:</p> <ul style="list-style-type: none"> 1. Improve green performance of casework 2. Review products for "pragmatic life-cycle", considering upstream and down stream impacts
Design for disassembly and recycle or reuse at end of building life		

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
Prioritize sensitive areas (e.g., neonatal intensive care units, pediatrics, and maternity departments)		
Specify a careful product substitution review procedure to insure that environmental health performance is not degraded by contractor substitutions		Current: Considered by Alliance Partners and KP field team.

7) Construction Practices

Vision Statement

The construction process affects every facet of design, from site, to materials, to mechanical systems, to indoor environmental quality, and to waste generation. Construction practices will have a significant direct impact on the health of the local environment during construction and will determine if the building achieves its long term health and sustainability goals. The construction team, including construction management, general contractor, and subcontractors are all integral to achieving these goals. The team in place during Construction Administration needs to be fully informed of and, preferably, have a role in developing, the project's sustainable design vision and goals.

Goals

- Establish a partnering relationship between all parties; engage subs and crews
- Maximize reduction, reuse or recycling of construction, demolition and land clearing debris
- Establish appropriate protocols for safe, appropriate management of toxins associated with renovation and demolition.
- Eliminate use of toxic substances, particularly those that are persistent and bioaccumulative
- Protect materials from contamination
- Ensure good indoor air quality
- Control erosion to reduce negative impacts on water and air quality

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
Implement a waste management plan for separation and recycling or reuse (including composting, chipping, mulching) of construction, demolition and land clearing debris (CD&L) and proper disposal of residual materials. Crush and reuse demolished concrete, asphalt and masonry for beneficial on-site or off-site use	<u>Materials & Resources</u> Credit 2.1 Construction Waste Management, Divert 50% Credit 2.2 Construction Waste Management, Divert 75% Credit 3.1 Resource Reuse, Specify 5% Credit 3.2 Resource Reuse, Specify 10%	On the LAMC project the concrete from demolition is planned to be crushed on-site. It will be used as excavation back fill and as a road base. It will just about balance the volume of imported material which otherwise be needed for backfill. This way we are saving on export of concrete debris as well as on import of backfill material. See sample agreement for Managing Construction & Demolition Debris. See sample agreement for managing construction and demolition debris in appendix. Potential: Increase Alliance Partners accountability in this area.
Survey for hazardous materials in demolition or renovations (mercury, asbestos and lead) and plan for safe remediation or removal and disposal		Current: Standard KP procedure.

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
Minimize packaging waste and reuse or return packaging waste to suppliers or manufacturers for reuse/recycling; recycle all packaging that cannot be reused or returned.		<i>Potential: Include to NPA agreements and Alliance Partners practices.</i>
Sequence work phases to minimize negative impacts on habitat and on ambient and indoor air quality	<u>Indoor Environmental Quality</u> Credit 3.1 Construction IAQ Management Plan, During Construction	
Implement a site sedimentation and erosion control plan		Division 02— Site Construction SECTION 02310 – GRADING 4. Erosion Control Provide erosion control measures for all disturbed site areas that are not to be covered by building, paving, or new planting.
Follow the SMACNA (Sheet Metal & Air Conditioning Contractors National Association) IAQ Guidelines for Occupied Buildings Under Construction (e.g., dust control measures, protection of absorptive materials from moisture damage, sequencing installation of interior materials to avoid absorption of volatile organic compounds)		
Allocate time, prior to occupancy, for building flush-out appropriate to climate using new filtration media to assure removal of initial outgassing emissions	<u>Indoor Environmental Quality</u> Credit 3.2 Construction IAQ Management Plan, Before Occupancy	<i>Potential: Adopt proposed off-gassing policy.</i>
Engage crews, including subcontractor crews, in education sessions to familiarize them with the reasons for and importance of green design and construction practices and to solicit their feedback		

8) Commissioning

Vision

The commissioning process ensures the building owner and occupants that all mechanical, electrical and plumbing equipment are operating consistent with the Design Intent Document, and exceeds conventional testing and balancing procedures. An independent third-party commissioning agent offers an objective review and should be part of the design team from the earliest stages.

Goals

- Assure that building elements are installed and calibrated properly to meet the project’s environmental health goals in addition to mechanical, electrical and plumbing system performance parameters
- Assure that building occupants are appropriately trained and that thorough and explicit written materials are in easily identifiable and accessible places to ensure proper operating and maintaining of building systems to meet goals

ASHE’S Suggested Strategies	Relevant LEED criteria	KP’s Actions
Contract an independent commissioning agent	<u>Energy & Atmosphere</u> Prereq 1 Fundamental Building Systems Commissioning Credit 3 Additional Commissioning	Current: KP Contracts with independent commissioning agents. Potential: Increase the level of commissioning on KP projects.
Clearly document design intent		
Specify commissioning requirements, including a commissioning plan		Potential: KP prepare commissioning guidelines
Review carefully at construction documents and occupancy phases		
Develop an O&M manual for systems operations and ongoing monitoring and calibration		Current: O&M manuals for systems operations and ongoing monitoring and calibration are prepared and used.
Verify installation, operation to specifications, training, documentation and access to documentation		Current: Verify installation, operation to specifications, training, documentation and access to documentation is part of KP’s commissioning process
Evaluate post-occupancy commissioning at 6 month or 1 year intervals to ensure continued system effectiveness		Potential: Reinstate post-occupancy evaluations.

9) Operations & Maintenance

Vision Statement

The planning and implementation of a building's operations and maintenance are essential to benefit from the building's healthy green design features. Buildings are designed to last many decades. Practices employed during the life of the building should reflect a commitment to the hallmarks of sustainable building: high performing mechanical systems, healthy indoor air quality, continual recognition of life cycle impacts of materials and methods employed.

Goals

- Reduce the "ecological footprint" associated with materials and methods used during a building's occupancy phase
- Commit to a process of continuous improvement to enhance the building's environmental health performance
- Educate the community

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
Program and design adequate dedicated storage and flow space to facilitate recycling and composting of waste.		Current: Waste Management Policy (See separate document)
Program and design adequate dedicated storage and flow space and cleaning/sanitation facilities to facilitate reuse of items such as medical products, linens, and food service items to replace disposables and reduce waste.		Current: In full compliance with applicable regulations and industry standards, many KP facilities collect certain disposable medical devices for reprocessing by an outside reprocessor. Reusing these products reduces the consumption of non-renewable resources and reduces solid waste. To date, these activities have diverted 10,000 pounds of waste from landfills.
Program and design adequate dedicated storage and flow space for separation and management of hazardous wastes		Current: By substituting less toxic materials for hazardous materials, and by recycling solvents at some locations, a reduction in hazardous waste volume of up to 75% has been achieved. This has significantly reduced the need for handling and storage of hazardous wastes.
Provide educational opportunities (meetings, newsletters) for all building staff on the building's green design features – the direct and indirect benefits of green design and their role to optimize its performance		Current: Activities of Green Building Committee.

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
Prepare building operating manuals, to include:		
Contacts of all involved in design and construction		Current: Job posters are kept by KP field teams.
Design Intent documents and as built construction drawings		Current: As built drawings are required for close-out of every KP construction project.
Manuals for all mechanical and electrical systems including how to maximize their efficient operation and how they interact with other building elements		Current: KP prepares manuals for all mechanical and electrical systems including how to maximize their efficient operation and how they interact with others buildings elements.
System performance monitoring and inspection schedules and protocols, and other ongoing commissioning requirements		Current: System performance monitoring and inspection schedules and protocols, and other ongoing commissioning requirements is provided on some KP sites in Southern California.
Green cleaning and maintenance protocols for mechanical equipment, glazing, finish surfaces, lighting and plumbing fixtures and all other housekeeping responsibilities		Performed inside AHU's
Manufacturers and service/repair contacts for all components		Current: KP has manufacturer and service/repair contacts for all components
Integrated Pest Management practices		
Provide community education (press releases, newsletters, meetings, tours, interpretive displays) on the building's green features		Current: Activities of Green Buildings Committee and Field Teams

10) Innovation

Vision

Every building is a unique blend of site, program, people, budget, with a unique set of challenges and opportunities. Innovative, integrative design practices recognize that new solutions emerge from a process that engenders creative problem solving and "thinking out of the box". We encourage you to delve into an exploratory process to discover new benchmarks for 21st century health care facilities.

ASHE'S Suggested Strategies	Relevant LEED criteria	KP's Actions
	<p><u>Innovation & Design Process</u></p> <p>Credit 1.1 Innovation in Design: Specific Title</p> <p>Credit 1.2 Innovation in Design: Specific Title</p> <p>Credit 1.3 Innovation in Design: Specific Title</p> <p>Credit 1.4 Innovation in Design: Specific Title</p>	

Promote Health | Protect the Environment

Appendix

Introducing Green Building Elements into the Design Construction Process

Site Selection Acquisition	Pre-Design		Schematic Design	Design Development	Construction Documents	Construction
	Master Site Planning	Building Block Diagrams				
Selected transit-oriented site						
Minimize Site Area						
Transportation Systems Management (vehicle trip reduction; staff and members)						
	Minimize Building and Paving Areas					
	Plan building geometry for material & energy savings					
	Consider natural or daylighting concepts					
	Develop landscape concepts					
	Plan for water conservation					
		Investigate alternative energy source (heat sink, solar, cogen)				
			Develop building skin options Investigate roof options			
			Plan for durability and adaptability (wall protection, etc.)			
			Plan for easy replacement (reroofing, painting, recarpeting)			
			Investigate glazing materials			
			Reuse equipment and furniture			
			Specify rechargeable batteries			
			Specify mercury-free equipment			
			Specific Energy-Star equipment			
				Specify occupancy sensors		
				Specify insulation		
				Specify certified sustainably harvested wood		
				Avoid materials that generate VOC/HCF during mfg. or use		
				Reuse of materials & fixtures		
						Runoff Management
						Divert demolition debris from landfill (recycle, donate)
						Purchase recycled materials
						Reduce cut-off waste

Current KP Practices, 2001-2002
(Not all measures listed are standard practices)

General Green Buildings Measures

- Review site/building massing
- Water efficient landscaping
- Building commissioning
- Storage & collection of recyclables
- Construction waste policy
- Recycled content in building materials
- Emphasize alternative transportation
- Tobacco smoke control
- Erosion control
- Variable Air Volume systems in MOBS to match air volume to demand

Vendors

- Request For Proposal (RFP) process requires environmental statement from vendors be asked as part of selection criteria
- Armstrong ceilings - recycled content in ceiling tile
- Collins & Aikman Carpet - recycled content, including 100% recycled backing

Energy Conservation Measures

- Energy efficient lighting & occupancy sensors
- Computer controlled energy management systems to prevent over heating & over cooling
- Some cogeneration of energy (4 facilities)
- Window tinting
- Roof and wall insulation
- Lighting Retrofits
- High Efficiency Motors
- Thermal Energy Storage
- Variable Flow Conversions
- Variable Frequency Drives
- Condensing boilers
- High efficiency steam boilers
- Energy recovery systems
- Building automation systems
- Cogeneration systems
- Photo-voltaic systems

Examples of Specific Green Buildings Measures on Recent KP Projects

East LA MOB (Builder's Emporium demolition)

- 1,008 tons of asphalt debris reused for roadbed
- 1,708 tons of concrete debris reused for roadbed and backfill
- 896 tons of brick debris resold and reused
- 84 tons of steel debris melted down to make new steel

Folsom MOB

- Sidelights and transom windows bring daylight into interior spaces
- Utility system designed to tie into future co-generation equipment

LAMC Sunset Rebuild Hospital

- Water elements use reclaimed/recycled water
- Paint products low in VOCs to reduce emissions
- Some awning fabrics and screening devices include recycled content
- Glazing with high visible light transmittance to conserve energy
- Selective surface films to control heat gain and loss
- Recycled glass products used for decorative glass
- Design for efficient segregation, collection and transport of materials from the point of generation to final disposition
- Paving materials use recycled content, including reuse of existing onsite material
- Demolition debris that can be reused in the project will be salvaged and refurbished
- Demolition debris that can be used by others will be donated charity

Northwest Region Lab

- Polyflor sheet vinyl flooring that does not require waxing as part of normal maintenance
- Siemens liquid-ring-type vacuum pump that does not require dumping of seal water down the drain on a continuous basis, saving approximately 790,000 gallons per year and reducing sewer charges

Panorama City 2nd Floor MOB Remodel

- Diverted 297 tons of demolition debris from landfill through recycling
- Donated 11 tons of equipment and furnishing worth \$11,300 as a community investment
- Determined that the purchase of recycled-content materials can reduce costs
- Demonstrated that using green building strategies can be cost neutral and need not impact project timing
- (Case study available from Kathy Gerwig at 510/625-2624)

Salmon Creek MOB

- Storm water runoff retained and treated for release in a virgin state

Santa Rosa MOB

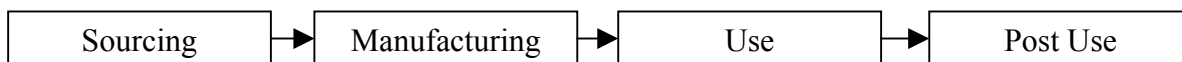
- Storm water runoff retained and treated for release in a virgin state
- Casework panels, carpeting and ceiling tile for green properties
- Exterior sunscreens to control solar gain
- Skylights for daylighting
- Onsite retention on storm water runoff
- Stormceptor to filter oils and other pollutants from water draining off paved areas
- Forest Stewardship Council certified Ecocolors wood particle board in lieu of plastic laminate panels at the reception desks
- Rubber flooring in lieu of sheet vinyl in Optical Sales

Environmental Criteria for NPA Product Selection

July 2002

The following criteria are linked to the life cycle of products, and represent the most critical information for the purposes of making a product selection. Not all criteria are applied to all product decisions. A specific list is developed for each product under consideration.

Product life cycle:



1. Product content (Sourcing):
 - Free of polyvinyl chloride (PVC)
 - Free of mercury
 - No other persistent bioaccumulative toxins (PBTs) or carcinogens
 - Post consumer recycled content
 - Forest Stewardship Council (FSC) certified wood
2. Sustainable manufacturing practices:
 - Minimize waste
 - Minimize water use
 - Minimize use of non-renewable energy
 - Reduced air emissions during manufacturing
3. Indoor air quality (Use)
 - CHPS 1350 emissions testing (Collaborative for High Performance Schools Best Practices Manual Section 1350)
 - Meets CHPS carcinogen standards
 - Green Seal certified or equivalent certification
 - Maintenance of product does not require the use of chemicals or processes that cause adverse IAQ impacts.
4. Performance (Use)
 - Meets or exceeds performance standards for durability, reparability and maintenance
5. Recyclability (Post-use)
 - Closed loop recyclable (e.g., carpet to carpet)
 - Readily down-cyclable (recycled into other products; eventually to landfill)
 - Supplier facilitates end of life disposition

Sample Agreement for Managing Construction and Demolition Debris

1.1 DESCRIPTION

A. This Section Includes: Procedures for ensuring optimal diversion of solid resources generated by the Work within the limits of the Construction Schedule, Contract Sum, and available materials, equipment, and products.

1. CONTRACTOR shall participate in promoting efforts of the DEVELOPER or its representative to create a resource-efficient and environmentally-sensitive structure and to effect optimum control of solid waste and recoverable resources generated in the Work.
2. The DEVELOPER has adopted Recycled Product Procurement policies and the CONTRACTOR shall use products with post-consumer recycled content to the greatest extent feasible.

B. Related Documents: Documents affecting work of this Section include, but are not necessarily limited to, the following Contract Specifications:

1. Site Clearing
2. Demolition
3. Asbestos Removal
4. Earthwork

1.2 DEFINITIONS

- A. Class III Landfill:** A landfill that accepts non-hazardous resources such as household, commercial, and industrial waste, resulting from construction, remodeling, repair, and demolition operations. A Class III landfill must have a solid waste facilities permit from the California Integrated Waste Management Board (CIWMB) and is regulated by the Local Enforcement Agency (LEA).
- B. Construction and Demolition Waste:** Includes all non-hazardous solid resources resulting from construction, remodeling, alterations, repair, and demolition operations.
- C. Disposal.** Acceptance of solid wastes at a legally operating facility for the purpose of landfilling. Includes Class III landfills and inert fills.
- D. Inert Backfill Site:** A location, other than inert fill or other disposal facility, to which inert materials are taken for the purpose of filling an excavation, shoring, or others soils engineering operation.
- E. Inert Fill:** A facility that can legally accept inert waste such as asphalt and concrete exclusively for the purpose of disposal.

- F. Inert Solids/Inert Waste:** Non-liquid solid resources including, but not limited to, soil and concrete, that does not contain hazardous waste or soluble pollutants at concentrations in excess of water-quality objectives established by a regional Water Board pursuant to Division 7 (Section 13000 et seq.) of the California Water Code and does not contain significant quantities of decomposable solid resources.
- G. Mixed Debris:** Loads that include commingled recyclable and non-recyclable materials generated at the construction site.
- H. Mixed Debris Recycling Facility:** A solid resources processing facility that accepts loads of commingled construction and demolition debris for the purpose of recovering re-usable and recyclable materials and disposing the non-recyclable residual materials.
- I. Permitted Waste Hauler:** A company that possesses a valid and current permit from the Department of Public Health, to collect and transport solid wastes from individuals or businesses for the purpose of recycling or disposal in the County.
- J. Recycling:** The process of sorting, cleansing, treating and reconstituting materials for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating or thermally destroying solid waste.
- 1. On-site Recycling:** Materials that are sorted and processed for use in an altered form in the Work, (e.g. concrete is crushed for use as base for a parking lot on the site).
- 2. Off-site Recycling:** Materials hauled to a location and used in an altered form in the manufacture of a new product.
- K. Recycling Facility.** An operation that can legally accept materials for the purpose of processing the materials into an altered form for the manufacture of a new product. Depending on the types of materials accepted and operating procedures, a recycling facility may or may not be required to have a Solid Waste Facilities permit from the CIWMB or be regulated by the local agency.
- L. Re-use:** Materials that are recovered for use in the same form. This includes materials that are re-used on-site or off-site. Refers also to **Salvage**, in which materials recovered for re-use and sold or donated to a third party.
- M. Source-Separated Materials:** Materials that are sorted at the site of generation by individual material type for the purpose of re-use or recycling, i.e., loads of concrete that are source-separated for delivery to a base course recycling facility.

- N. **Solid Waste:** Materials that have been designated as non-recyclable and are discarded for the purposes of disposal.
- O. **Transfer Station.** A facility that can legally accept solid wastes for the purpose of temporarily storing the materials for re-loading onto other trucks and transporting them to a landfill for disposal, or recovering some materials for re-use or recycling. Transfer stations must be permitted by the CIWMB and regulated by the local agency.

1.3 SUBSTITUTIONS

Should the CONTRACTOR desire to use materials, equipment, or products which meet the requirements of these specifications but are more environmentally sensitive, the CONTRACTOR shall submit these substitutions in accordance with **SUBSTITUTIONS** and **“OR EQUAL” SUBMITTAL** of the General Requirements.

1.4 SUBMITTALS

A. Solid Resources Management Plan:

1. CONTRACTOR shall conduct a site assessment and estimate the types and quantities of materials under the Work that are anticipated to be feasible for on-site processing, source separation for recycling or re-use, and shall note the procedures intended for a recycling, re-use, or salvage program. Refer to the most recent issue of "Construction and Demolition Waste Recycling Guide," and the "Wood You Recycle?" guide, published by the Integrated Solid Waste Management Office of the City of Los Angeles, for a partial list of facilities that accept these materials for recycling.
2. After award of Contract and prior to the commencement of the Work, the DEVELOPER or its representative shall schedule and attend a meeting with and the CONTRACTOR, to discuss the CONTRACTOR'S proposed Solid Resources Management Plan. This Plan shall be submitted for information purposes, and to allow the DEVELOPER or its representative and the CONTRACTOR an opportunity to develop a mutual understanding regarding the recycling, re-use, and recycled-content procurement programs. Not more than 20 working days after the meeting, CONTRACTOR shall prepare and submit to the DEVELOPER or its representative, a written Solid Resources Management Plan including, but not limited to the following (submit in format provided herein as Attachment A):
 - a. Contractor and project identification information
 - b. Procedures to be used
 - c. Materials to be re-used and recycled
 - d. Estimated quantities of materials
 - e. Names and locations of re-use and recycling facilities/sites

3. Per the DEVELOPER or its representative's review and comment, revise and resubmit Solid Resources Management Plan.
 - a. The DEVELOPER or its representative's review and comment on the CONTRACTOR's Solid Resources Management Plan will not otherwise relieve the CONTRACTOR of responsibility for adequate and continuing control of pollutants and other environmental protection measures.

B. Required Submittal of Summary of Diversion and Disposal With Each Application for Progress Payment: A summary shall be submitted with each progress payment of recyclables and solid resources generated by the construction and demolition operations on the form provided herein (Attachment B). Failure to submit the form and its supporting documentation may render the application for progress payment incomplete and delay progress payments. Include manifests, weight tickets, receipts, and invoices specifically identifying the Project and materials sent to:

1. Source Separated Recycling Facilities
2. Mixed Debris Recycling Facilities
3. Class III Landfills
4. Inert Materials accepted at Class III Landfills as daily cover
5. Inert Fills
6. Inert Backfill Sites other than Inert Fills

With each submittal of CONTRACTOR'S application for process payment, the CONTRACTOR is required to submit to the DEVELOPER or its representative the attached, "Summary of Solid Waste Diversion and Disposal," quantifying all materials generated in the Work, disposed in Class III Landfills, or diverted from disposal through recycling. Indicate zero (0) if there is no quantity to report for a type of material. As indicated on the form:

- a. Report disposal or recycling either in tons or in cubic yards: if scales are available at disposal or recycling facility, report in tons; otherwise, report in cubic yards.
- b. Indicate locations to which materials are delivered for disposal, recycling, accepted as daily cover, or taken for inert backfill.
- c. The Summary Form must be accompanied by legible copies of weigh tickets, receipts, or invoices that specifically identify the project generating the material. Said documents must be from recyclers and/or disposal site operators that can legally accept the materials for the purpose of re-use, recycling, or disposal.
- d. Indicate the Project title, Project Work Order Number; progress payment number; name of the company completing the Summary Form and compiling backup documentation; the printed name, signature, and daytime phone number of the person completing the

form, the beginning and ending dates of the period covered on the Summary Form; and the date that the Summary Form is completed.

1.5 RECYCLING, RE-USE, AND SALVAGE PROCEDURES

A. Recycling, Re-Use, and Salvage Facilities: For information on facilities, contact the City's Solid Waste Management Office.

B. Development and Implementation of Recycling Procedures: Based upon the Contract Documents, the CONTRACTOR'S Solid Resources Management Plan, estimated quantities of available materials, and availability of recycling facilities, CONTRACTOR shall develop and implement procedures to re-use, salvage, and recycled materials **to the greatest extent feasible**. Procedures shall include source separated recycling, as well as mixed recycling efforts. Procedures shall include consideration of on-site recycling.

1. On-site or Off-site Recycling Source-Separated Materials: CONTRACTOR shall develop and implement a program to include source separation of solid resources, **to the greatest extent feasible**, of the following types:

- a. Asphalt
- b. Concrete, concrete block, slump stone (decorative concrete block), and rocks
- c. Dirt
- d. Metal, ferrous and non-ferrous
- e. Wood
- f. Green materials (i.e. tree trimmings)
- g. Other materials, as appropriate, such as red clay brick and corrugated cardboard

Off-site recyclables shall be legally transported to a source separated or mixed debris recycling facility. On-site recycling program shall produce a quality product to meet specifications identified in the Contract Documents, subject to approval of the DEVELOPER or its representative. On-site recycling plans shall also estimate the amount to be used in the Work and include a program for off-site recycling of any excess material that cannot be used in the Work.

2. Mixed Debris Recycling: Develop and implement a program to transport loads of commingled construction and demolition materials that cannot be feasibly source separated to a mixed recycling facility.

3. Salvageable Items. Perform a site pre-assessment, identify materials that are feasible for salvage, determine requirements for site storage, and transportation of materials to a salvage facility.

4. Disposal Operations:

- a. Using a permitted waste hauler or its own trucking services, CONTRACTOR shall legally transport and dispose of materials that cannot be delivered to a source separated or mixed recycling facility, to a transfer station or disposal facility that can legally accept the materials for the purpose of disposal.
- b. Do not burn, bury or otherwise dispose of solid waste on the project job site.

5. Hauling:

- a. CONTRACTOR is responsible for arranging collection of materials, by a permitted waste hauler or using its own trucks, to facilities that can legally accept construction and demolition materials for purpose of re-use, recycling, or disposal.
- b. Prior to delivering materials, CONTRACTOR shall familiarize itself with the specifications for acceptance of construction and demolition materials at recycling facilities.

C. Participate in Re-Use Programs: Implement a re-use program *to the greatest extent feasible*. Alternatives include:

1. California Materials Exchange (CAL-MAX) Program sponsored by the California Integrated Waste Management Board. CAL-MAX is a free service provided by the California Integrated Waste Management Board, designed to help businesses find markets for materials that traditionally would be discarded. The premise of the CAL-MAX Program is that material discarded by one business may be a resource for another business. To obtain a current Materials Listings Catalog, call CAL-MAX/California Integrated Waste Management Board at (916) 255-2369 or (800) 553-2962.
3. Habitat for Humanity, a non-profit housing organization that rehabilitates and builds housing for low income families. HFH sites requiring donated materials vary.
4. Other re-use organizations or activities as identified by facility public affairs department.

D. Revenue: Revenues or other savings obtained from recycled, re-used, or salvaged materials shall accrue to CONTRACTOR unless otherwise noted in the Contract Documents.