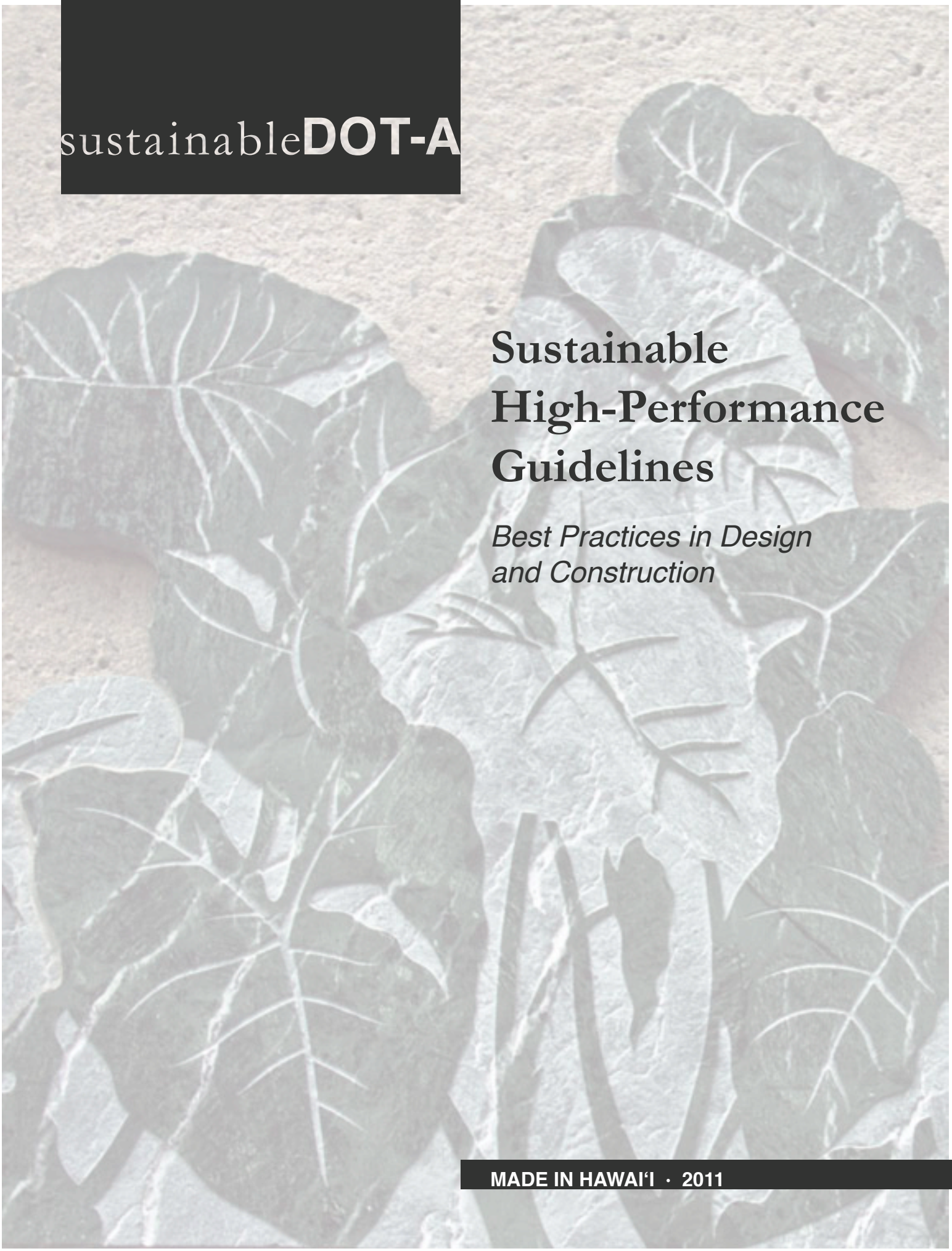
sustainable**DOT-A**

Sustainable High-Performance Guidelines

Best Practices in Design and Construction



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Sustainable High-Performance Guidelines

Identifying Best Practices in Design and Construction

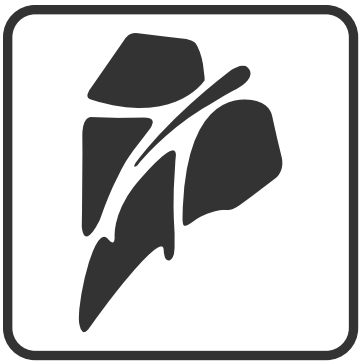
Other Resources by SustainableDOT-A

Program Profile

Hawai'i Sense-of-Place Primer

Cultural Appropriateness Guidelines

SustainableHNL Elements Baseline



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Created in partnership between the Department of Transportation-Airports Division and the KYA Sustainability Studio.

STATE OF HAWAI'I
2011
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Forms & Credit Submittal Sheets

Project Initiation Form
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Project Completion Form

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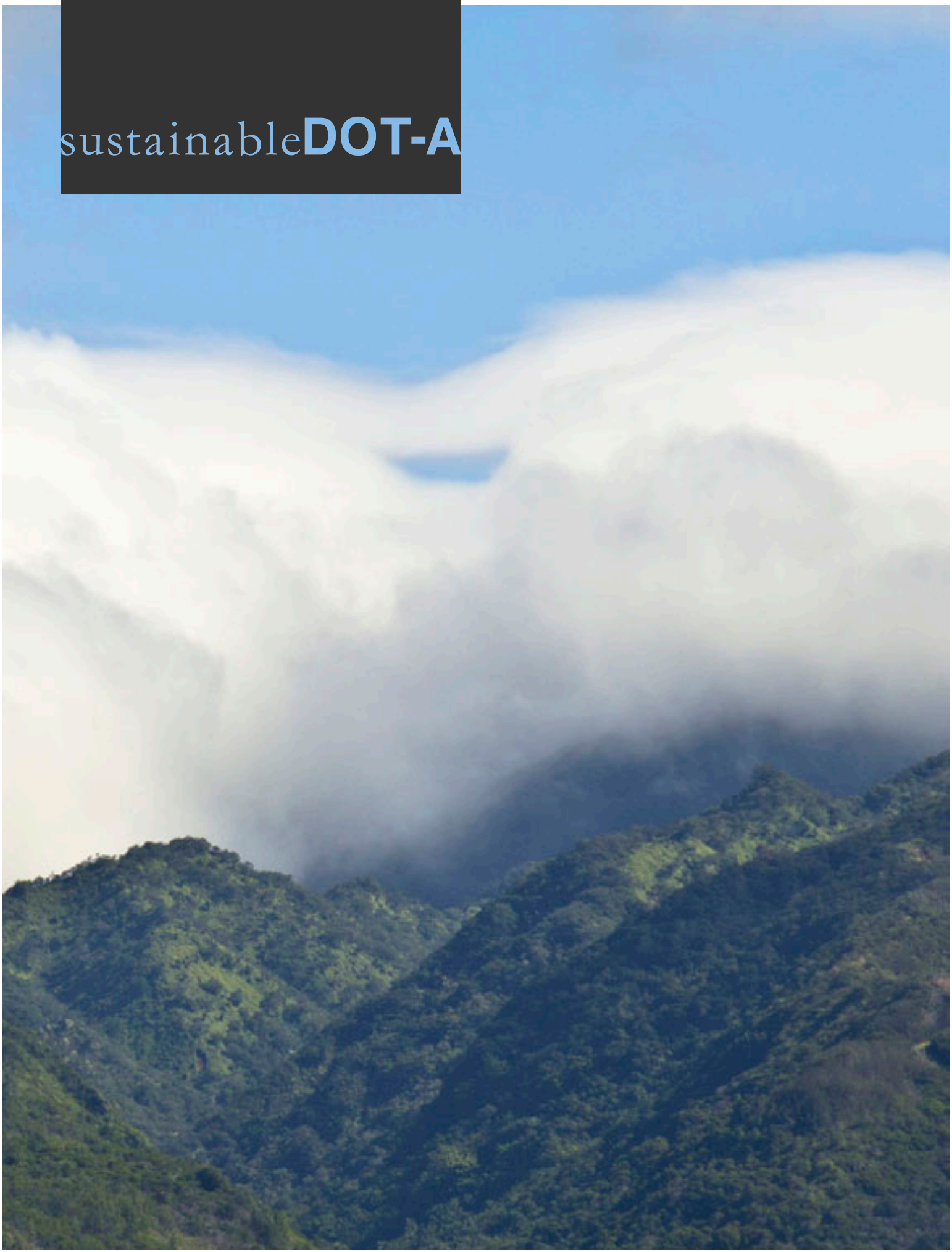


PURPOSE

The Sustainable High-Performance Guidelines (SHPG) is a comprehensive performance standard and rating system addressing airport sustainability. The SHPG provides an integrated process for standardizing high-performance best practices in design and construction, while engaging participation of all parties necessary to successfully deliver an airport project. These standards for high-performance include best practices for general construction, occupied buildings, support facilities, roads and runways, utilities and infrastructure, and other civil projects as they pertain to the economic viability, operational efficiency, natural resource conservation, and social responsibility of SustainableDOT-A (sDOT-A). In doing so, the guidelines presented in this document help validate the implementation of sustainable high-performance practices in Hawai'i in relation to the larger context airport sustainability. The SHPG supplements the protocols set forth in the *Cultural Appropriateness Guidelines* and *Hawai'i Sense-of-Place Primer*.

What is sustainable high-performance?

"High-performance" refers to the process of successfully implementing a best practice. In the context of airport sustainability, these practices address the economic viability, operational efficiency, natural resource conservation, and social responsibility of the airport in an integrated manner. While projects designed according to "green" standards typically focus solely on environmental stewardship—such as the reduction of energy, water, materials, and emissions—sustainable high-performance expands beyond the typical "green" considerations to include an **integrated decision-making process** that measures, evaluates, and tracks success in a way that informs the organizational structure of the performing entity.

DEVELOPMENT & APPLICABILITY

DOT-A recognizes the limitations in airport projects resulting from regulations, funding sources, location, and/or site and facility features unique to the system of an airport. While Hawai'i State law (HRS 196-9) requires each State agency, to the extent practicable, to design and construct all facilities to meet either the United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) Silver certification, a two Green Globes rating from the Green Building Institute (GBI), or other comparable state approved, consensus-based building-rating system, a significant amount of airport projects may not qualify for certification under currently available building-rating systems. In recognition of this, the SHPG has been designed to accommodate the gap in current rating systems while enabling airport projects to satisfy Hawai'i State requirements.

The SHPG has been developed to capture all planning, design, and construction activities of projects at HNL in a cohesive and effective manner. The guidelines draw specifically from the structure of the LEED rating system, as well as strategies and concepts of HNL's existing Storm Water Management Program Plan (SWMPP). Additional resources used to develop the SHPG include the following:

O'Hare International Airport developed a Sustainable Design Manual in 2003 to incorporate sustainable initiatives into all projects.

Los Angeles World Airports developed the Sustainable Airport Planning, Design and Construction Guidelines in 2007 to incorporate the highest possible LEED standards in all future construction projects at LAWA.

San Francisco International Airport implemented a variety of award-winning sustainability-related initiatives, taking a multi-disciplinary approach to foster synergy and increase performance between departments.

Oakland International Airport and the Port of Oakland has adopted a sustainability policy that has been cited as a notable example of urban sustainability at the 2005 United Nations World Environment Day conference in San Francisco.

The SHPG is designed to complement, not replace, existing standards, codes, guidelines, and rating systems in a streamlined and consolidated manner. These may include regulations by any of the following:

- Environmental Protection Agency (EPA)
- Customs and Border Protection (CBP)
- Department of Agriculture (DOA)
- Department of Homeland Security
- Transportation Security Administration (TSA)
- Federal Aviation Administration (FAA)
- State of Hawai'i
- Department of Transportation – Airports Division (DOT-A)
- DOT-A Storm Water Management Program (SWMPP)
- United States Green Building Council (USGBC)
- Green Building Institute (GBI)

If conflicts between the SHPG and existing regulations occur, the stricter of the regulations shall apply. If it is found through the process of compliance with the SHPG, that the guidelines' standard is in conflict, yet more beneficial to the overall sustainability intention, a recommendation shall be submitted to DOT-A for review and determination of action.

"The SHPG provides an integrated process for standardizing high-performance practices, so they may be documented, easily replicated, and engage all project stakeholders."

UNDERSTANDING THE SHPG: A COMPREHENSIVE RATING SYSTEM

The SHPG can be broken down into the following major components: (1) Project Type Categories, (2) Best Practice Categories, (3) Rating System, and (4) Forms, Checklists, and Credit Templates / Submittals

(1) PROJECT TYPE CATEGORIES

The SHPG is organized into six major project type categories. Each category represents considerations unique to specific project types that may not fully be addressed in the LEED rating system.

- SHPG-**G:** General Construction, and Maintenance
- SHPG-**O:** Occupied Buildings/Facilities
- SHPG-**U:** Unoccupied Buildings/Facilities
- SHPG-**L:** Civil – Landside
- SHPG-**A:** Civil – Airside
- SHPG-**T** Interior Tenant Improvement

(2) BEST PRACTICE CATEGORIES

The SHPG project type categories are evaluated according to 10 high-performance themes. Each category contains a suite of high-performance best practices, or credits, which may be applicable to one or more project type categories, characterized as either "Design" or "Construction".

1. Air Transportation Planning
2. Site and Ecosystem
3. Ground Transportation
4. Water
5. Energy
6. Materials Flows and Waste
7. Environmental Quality
8. Noise Pollution Reduction
9. Construction Management
10. Leadership in Innovation

(3) RATING SYSTEM

The successful implementation of the SHPG is documented via project forms and credit submittals, which are evaluated and rewarded based on the percentage of credits achieved, which reflect the project team's level of effort to implement sustainable high-performance in their projects. The percentage of level of efforts shall be interpreted as follows, represented by the number of kalo leaves. The use of the kalo leaf symbolizes the fruitfulness of the project, and the abundance achieving high-performance strives to perpetuate.

- 'Elima (eh-lee-ma): 5 kalo, 80-100%
- 'Ehā (eh-hah): 4 kalo, 60-79%
- 'Ekolu (eh-koh-loo): 3 kalo, 50-59%
- 'Elua (eh-loo-ah): 2 kalo, 40-49%
- 'Ekahi (eh-kah-hee): 1 kalo, 30-39%

(4) FORMS, CHECKLISTS, AND CREDIT TEMPLATES / SUBMITTALS

The following reviews the various components involved in using the SHPG for using the various forms, checklists, templates, and submittals that compose the SHPG:

- Project Initiation Forms
- Project Type Checklists
- Credit Templates
- Credit Submittal Sheet
- Project Completion Forms

Project Initiation Forms

Each project starts with a project initiation form, which should be filed upon completion of the first eco-charrette and updated as necessary during each milestone review. The form documents items such as:

- Project Initiation Date
- Project Name
- Project Number
- Project Scope Description
- Project Type
- Indication if project will pursue LEED
- Comments and Justification for Exceptions
- Proposed Project Goal
- Project Team: Company and Point of Contact

Project Type Checklists

The project team shall utilize the project type checklist throughout the project. The checklist should be updated continuously as the project moves from design to construction and as credit templates are completed:

- General Construction and Maintenance
- Occupied Buildings/Facilities (N/A for LEED Certification)
- Occupied Buildings/Facilities – Alternate (Applicable for LEED-NC/CS Certification)
- Unoccupied Buildings/Facilities
- Civil – Landside
- Civil – Airside
- Interior Tenant Improvement Projects (N/A for LEED Certification)
- Interior Tenant Improvement Projects – Alternate (Applicable for LEED-CI Certification)

The project type checklist contains the following:

- Indication of "design" or "construction" credit
- List of credits that are to be fulfilled
- Party responsible for credit requirements
- Parties associated with the work
- Credit points to be fulfilled by the project (to be completed by a DOT-A Representative)
- Actual points achieved by the project (to be completed by the project team)
- Indication if credit completion was verified (to be completed by a DOT-A Representative)

Credit Templates

Applicable credits shall be reviewed for implementation. They are broken down in the following sections:

Phase & Points
The phase indicates if the credit is design or construction, and the number of points available for the credit.

Intent
The intent identifies the main goal of the credit and should be the focus of all proposed strategies.

Benefits
The benefits draw upon EONS for compliance or inspiration to exceed compliance, as well as for the purpose of evaluating the credit if other credits are not achieved. In this manner, the most appropriate and beneficial credits can be implemented in each project.

Considerations
Limitation of each credit are listed so credits are thoroughly understood and considered for implementation. Credits should be analyzed from all angles, including any conflicting effects it may have on another credit's implementation.

Standards
Standards cite related standards from sources, such as LEED, HNL's SWMPP, that projects may potentially also have to comply with.

Requirements
Each credit may require one or more best management practice, specific data and calculations, or mandatory action items to be accomplished.

Strategies
These include suggested strategies for best management practices, which should be chosen per project.

Resources
Resources list helpful links and source information for each credit.

Credit Submittal Sheet

The credit submittal sheet is broken down in the following areas:

Credit Indication
Indication of the submittal sheet series and if the credit is "design" or "construction".

Application/Strategies Proposed
The responsible party shall narrate the proposed application and strategies to fulfill the intent of the credit. The narrative should address any EONS values that were used to conclude the selection of proposed strategies.

Application/Strategies Completed
The responsible party shall narrate confirmation of actions taken to complete the proposed strategies. If the proposed strategies were fulfilled, the narrative should list reasons of alteration and list actions taken to remedy the situation, if any.

Completion of Mandatory Requirements
Completion and compliance of mandatory requirements shall be indicated on the submittal sheet.

Signatures Required at Project Completion
Signatures of approval shall be made at the time the credit template is completed and verified.

Points
Points achieved for the credit based on completion of the proposed strategies.

Compilation and Assessment
All credit submittals shall be documented along with the project checklist and initiation/completion form and submitted to the DOT-A for assessment. Based on the completion of the credits and points accumulated, the DOT-A shall recognize the project for its efforts of accomplishing sustainable high-performance. The compiled document shall be submitted to the DOT-A Representative to be filed with the project contract documents.

Project Completion Forms

Each project ends with a project completion form, which concludes the SHPG process. The form documents items such as:

- Project Completion Date
- Comments and Justification for Exceptions
- Project Score Card
- Points Possible for the Project
- Points Achieved at Completion
- Project Goal Achieved
- Signatures

PROJECT TYPE CATEGORIES

SHPG-**G**

General Construction & Maintenance

Activities such as landscaping, sidewalk and street cleaning, airfield cleaning, clearing and maintenance, general remediation projects, storm water system management, oil/water separator maintenance, solid waste management, building maintenance, paving, asbestos removal, tank maintenance, ground vehicle and aircraft maintenance, lighting system and signage repair and maintenance, wildlife control, fuel system maintenance.

SHPG-**O**

Occupied Buildings / Facilities

New construction, renovation and upgrade of facilities such as passenger terminal, concourses, security posts, administration buildings, remote passenger gate facilities, utility plants, fire stations, and cargo facilities.

SHPG-**U**

Unoccupied Buildings / Facilities

Electrical vaults, ventilation buildings, baggage screening facilities, mechanical spaces, and fueling stations.

SHPG-**L**

Civil — Landside

Roads, bridges, storm drain systems, storm water detention facilities, electrical lighting systems, telecommunications systems and other airport utilities, parking lots, parking structures, signage, landscaping, and fencing.

SHPG-**A**

Civil — Airside

Runways, taxiways and shoulders, service roads, storm drain systems, storm water detention facilities, electrical lighting systems, and airport utilities.

SHPG-**T**

Interior Tenant Improvement

Interior projects executed by tenants of HNL.

BEST PRACTICES

Air Transportation Planning

Site and Ecosystem

Ground Transportation

Water

Energy

Materials flows and Waste

Environmental Qualitiy

Noise Pollution Reduction

Construction Management

Leadership in Innovation

HIGH-PERFORMANCE RATING SYSTEM

'Ekahi (one kalo)

Achieving 30-39% of available credits, the project **demonstrates an awareness** of sustainable high performance design and practice and have taken the step forward in implementation.

'Elua (two kalo)

Achieving 40-49% of available credits, the project **demonstrates development beyond awareness** of sustainable high performance practices.

'Ekolu (three kalo)

Achieving 50-59% of available credits, the project **demonstrates excellent progress** in establishing sustainable high performance development through current design and construction best management practices.

'Ehā (four kalo)

Achieving 60-79% of available credits, the project **demonstrates a commitment** toward industry leadership; recognizing the crucial importance of sustainable high performance practices.

'Elima (five kalo)

Achieving 80-100% of available credits, the project **demonstrates exceptional responsibility** toward industry leadership; perpetuating the crucial importance of sustainable high performance practices.

USING THE SHPG: WORKFLOW

The following outlines the typical workflow of the SHPG for a project, organized into the following components:

- Project Initiation
- Eco-Charrette
- Design & Construction Phases
- Milestone Reviews
- Project Completion

PROJECT INITIATION

Each project should strive to implement the highest level of sustainable practices. Efficacy of sustainable standards directly correlates with the stage at which those standards are introduced in the delivery process. The SHPG should be introduced at the earliest project phase to ensure successful implementation of sustainable high-performance practices.

DOT-A is responsible for packaging projects with a clear scope, schedule and budget. The earliest opportunity for the SHPG to be implemented is during this packaging phase. In the beginning of the projects, stakeholders will participate in the packaging efforts. Based on the project scope, the project team shall select the applicable project type category and administer the associated checklist to the project team for use during the pre-design and conceptual design phases.

ECO-CHARRETTE

An eco-charrette shall be conducted within the conceptual design phase to assess the project type checklist relative to the project scope. An eco-charrette is an intensely focused activity intended to establish a common perspective, build consensus among participants, develop specific design goals and objectives for a project in regards to sustainable high-performance, and motivate participants and stakeholders to be committed to reaching those goals. Participants are those who can influence the project design decisions (Eco-charrette guidelines have been provided in the Hawai‘i Sense of Place Primer to help facilitate the process).

The project team shall present the alternatives being developed during the conceptual basis of design phase for evaluation during the eco-charrette in accordance with DOT-A Sustainable High Performance Guidelines. Additional evaluation utilizing the eco-charrette process shall be conducted only when new alternatives are required by DOT-A. New alternatives are not revisions and refinements of previously evaluated concepts or designs. For the SHPG, an eco-charrette aims to accomplish the following objectives:

- Facilitate the implementation of DOT-A Sustainable High Performance Guidelines
- Provide a forum for those who can influence design decisions on a project to meet and begin planning the project
- Provide sustainable objectives and measures for evaluation as a basis to advance development of design solutions within the design process
- Establish a creative environment for identifying and incorporating design strategies and priorities regarding sustainable design
- Encourage agreement on project goals
- Promote enthusiasm for a project and result in early direction for the project outcome
- Save time and money by soliciting ideas, issues, and concerns for the project design to help avoid later iterative redesign activities

The SHPG is based on a sliding scale. Therefore project checklists are customized per individual project scope and may vary in point totals. Agency-level and airport-level representatives (at minimum the Chair) shall attend the eco-charrette to provide guidance and instruction to:

- » Assess what credits are applicable
- » Assess how many points in each credit the project is capable of pursuing (if applicable for multi-point credits)
- » Assess if the pursuit of LEED certification is applicable for the project
- » If applicable for LEED, the project should be registered with the USGBC and shall follow the LEED process concurrently with the SHPG process
- » If applicable for LEED, alternate checklists for the SHPG may be administered in addition to LEED

DESIGN & CONSTRUCTION PHASES

The project team will be required to prepare a Schematic Basis of Design (SBDR) Report as part of the design effort. The information gathered from the eco-charrette shall be compiled and included in the submittal. Subsequent to this report, design and construction templates should be utilized to document the integration of the SHPG into the project.

Design Credit Templates — *D*

During the schematic design and design development phases of the project, the project team will propose strategies for "design" credits, as applicable to the project checklist. DOT-A will review the credit strategy proposals. "Design" credit templates shall be completed and submitted at the end of the construction documents phase. This is beneficial so that the project team may receive helpful input to determine whether their proposed sustainable strategies are in line with agency and airport goals.

Construction Credit Templates — *C*

During the construction documents phase, and during the beginning of construction, the project team will propose strategies for the "construction" credit templates, as applicable to the project checklist. At the end of construction, all credit templates should be complete, compiled and submitted to a DOT-A representative.

MILESTONE REVIEWS

There are four major milestone reviews. Project reviews shall coincide with the milestone reviews of a typical DOT-A project. In both the Design Bid Build and the Design Build procurement process, the DOT-A representative will have opportunity to review the project development for compliance at standard review periods:

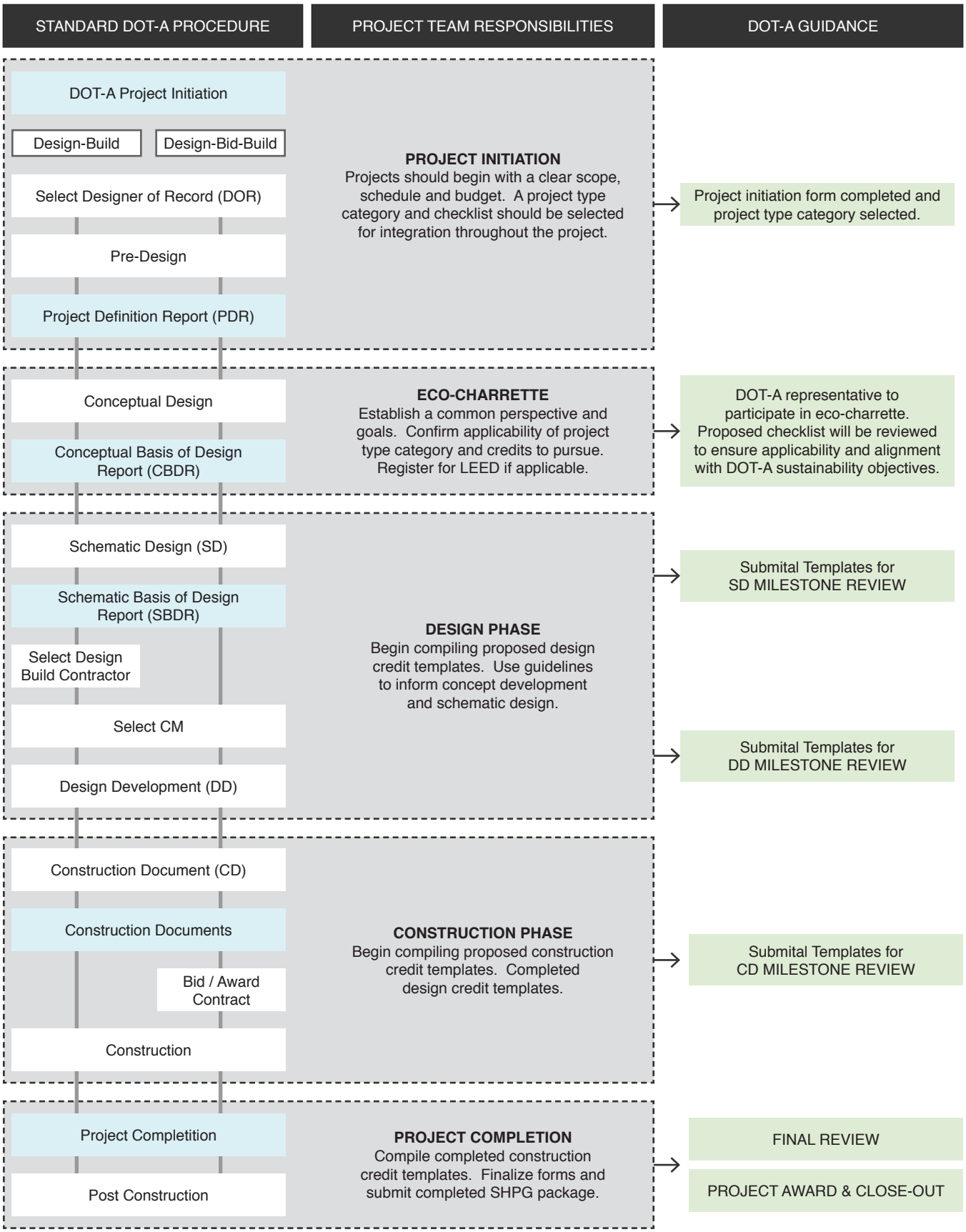
- » Schematic Design Milestone Review (30%)
- » Design Development Milestone Review (60%)
- » Construction Document Milestone Review (90%)
- » Final Review (100%)

Throughout the project, the parties responsible will complete the submittals required at the various stages of design and construction. For projects pursuing LEED, the project team shall notify the DOT-A representative when credits are submitted for Design Phase Review and Construction Phase Review.

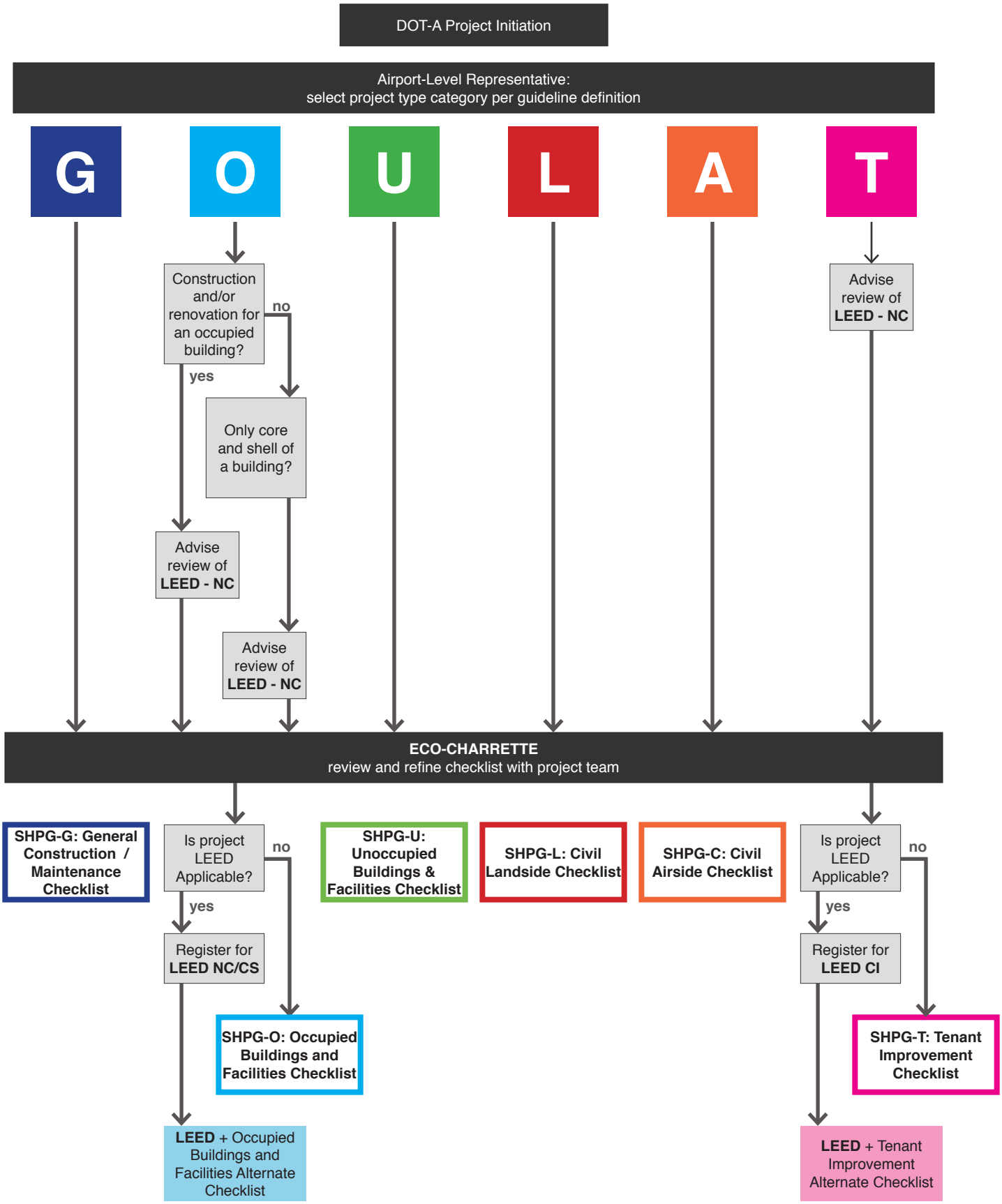
PROJECT COMPLETION

At the end of construction, a DOT-A representative will review the completed SHPG submission and LEED certification (if applicable) to determine if the project has fulfilled its sustainability goals. If the submission is found satisfactory, a certificate of completion and indication of level of achievement shall be signed and issued.

RECOMMENDED SHPG PROJECT WORK FLOW

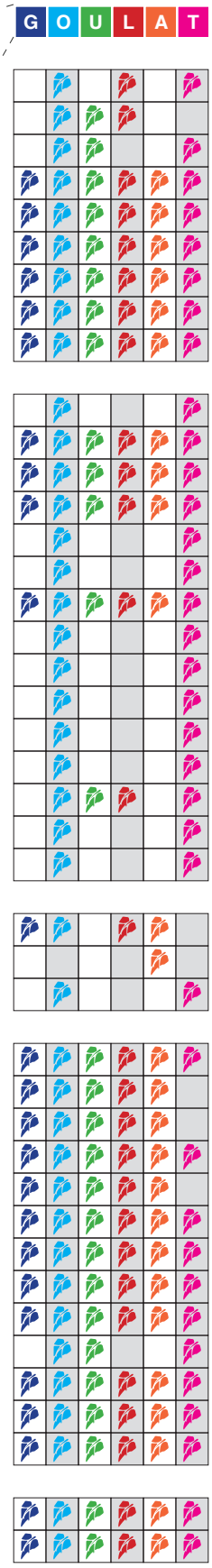


SHPG AND LEED DECISION TREE



SHPG MATRIX: PROJECT TYPE CATEGORY & BEST PRACTICE

CATEGORY						BEST PRACTICES	STANDARDS				
General Construction / Maintenance	Occupied Buildings / Facilities	Unoccupied Buildings / Facilities	Civil - Landside	Civil - Airside	Interior Tenant Improvement		LEED New Construction	LEED Existing Building	LEED Core and Shell	BMPs	Post Construction SWMPP
G	O	U	L	A	T		NC	EB	CS	BP	SW
				●		**01 AIR TRANSPORTATION PLANNING**					
				●		1.01 Runway / Taxiway / Terminal Design—Improved Taxiing Distances and Times					
	●					1.02 Airside Layout Design—Minimal Aircraft Delay					
	●					1.03 Provide Infrastructure for Pre-Conditioned Air					
	●					1.04 Provide Infrastructure for 400Hz					
	●					1.05 Provide Infrastructure for Hydrant Fueling for Aircraft					
●	●	●	●			**02 SITE AND ECOSYSTEM**					
●	●	●		●		2.01 Landside Site Development	*		*		*
●	●	●	●	●		2.02 Airside Site Development					
●	●	●	●	●		2.03 Erosion and Sedimentation Control	*	*	*		*
●	●	●	●	●		2.04 Stormwater Management—Rate and Quantity	*	*	*		*
●	●	●	●	●		2.05 Stormwater Management—Quality and Treatment	*	*	*	*	*
●	●	●	●	●		2.06 Landscape & Exterior Design—Reduce Heat-island, Non-Roof	*	*	*		
●	●	●	●			2.07 Landscape & Exterior Design—Reduce Heat-island, Roof	*	*	*		
●	●	●	●	●	●	2.08 Light Pollution Reduction—Exterior & Interior	*	*	*		
	●		●		●	**03 GROUND TRANSPORTATION MANAGEMENT**					
	●		●		●	3.01 Community Connectivity—Efficient Transportation Design	*	*	*		
	●		●		●	3.02 Alternative Transportation—Public Transportation Access	*	*	*		
	●		●		●	3.03 Alternative Transportation—Bicycle Storage & Changing Facility	*	*	*		
	●		●		●	3.04 Alternative Transportation—Energy Efficient Vehicles	*		*		
	●		●		●	3.05 Alternative Transportation—Carpooling & Parking Capacity	*	*	*		
●	●		●	●		**04 WATER**					
●	●		●	●		4.01 Discharge Water Compliance					
	●				●	4.02 Water Efficient Landscaping	*	*	*		
						4.03 Improved Water Use & Efficiency	*	*	*		
	●	●	●	●	●	**05 ENERGY**					
●	●	●	●	●	●	5.01 Commissioning of Building Energy Systems	*	*	*		
	●	●			●	5.02 Minimum Energy Performance	*	*	*		
●	●	●	●	●	●	5.03 CFC / HCFC Reduction	*	*	*		
						5.04 Optimize Energy Performance	*	*	*		
						5.05 Renewable Energy—On-Site	*	*	*		
						5.06 Energy Management—Measurement & Verification	*	*	*		
						5.07 Alternative Energy—Off-Site, Off-Grid	*	*	*		



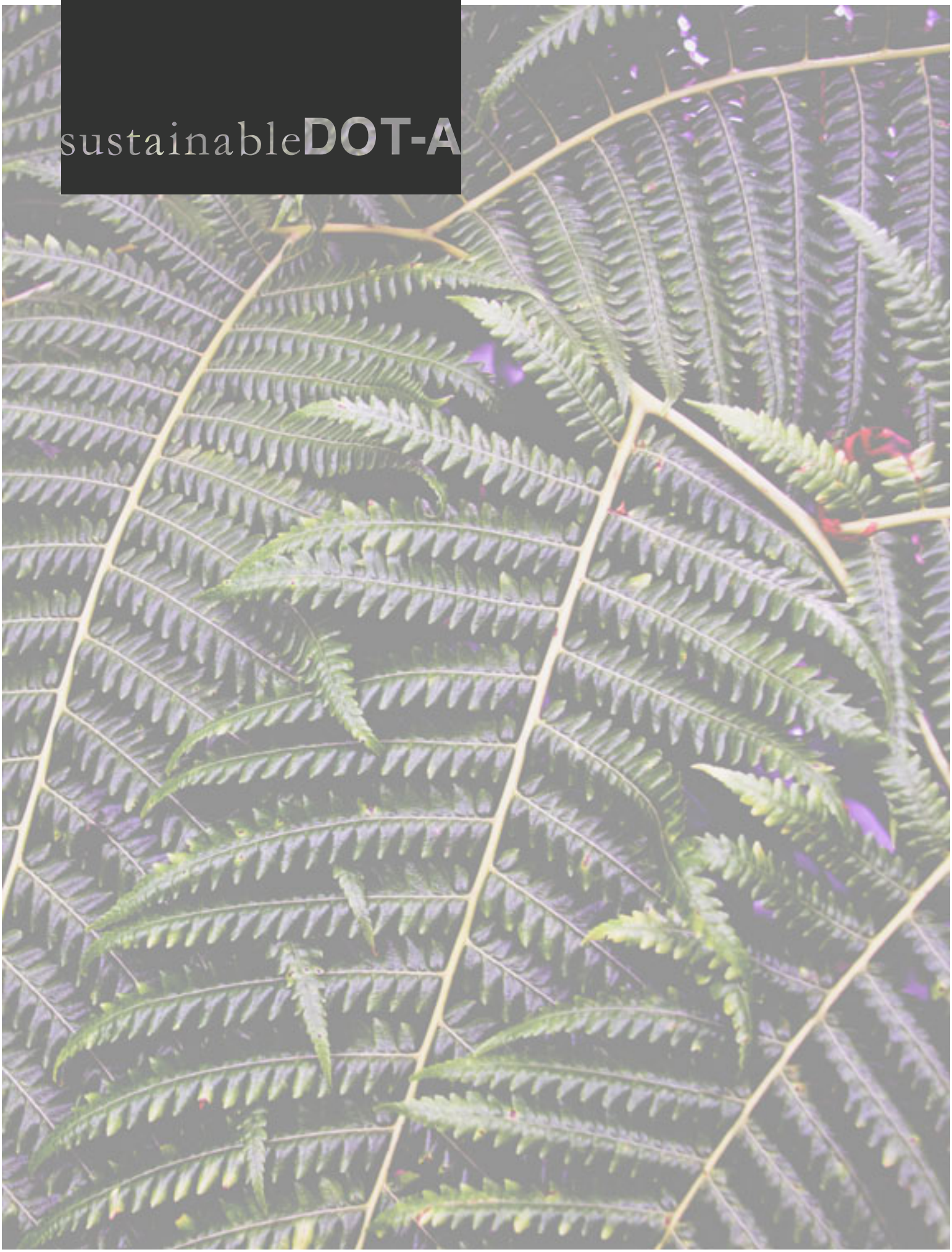
		NC	EB	CS	BP	SW
06	**MATERIALS FLOWS & WASTE**					
6.01	Storage of Recyclables—Landside & Airside	*	*	*		
6.02	Structure & Building Reuse—Exterior	*		*		
6.03	Structure & Building Reuse—Interior	*	*	*		
6.04	Resource Reuse	*	*	*		
6.05	Recycled Content	*	*	*		
6.06	Local / Regional Materials	*	*	*		
6.07	Rapidly Renewable Materials	*	*			
6.08	Certified Wood	*	*	*		
6.09	Design for Reuse & Recycling					
07	**ENVIRONMENTAL QUALITY**					
7.01	Indoor Air Quality Performance	*	*	*		
7.02	Environmental Tobacco Smoke Control	*	*	*		
7.03	Asbestos Removal					
7.04	Polychlorinated Biphenyl (PCB) Removal					
7.05	Outdoor Air Delivery Monitoring	*	*	*		
7.06	Effectiveness of Ventilation System	*	*	*		
7.07	Low-Emitting Materials	*	*	*		
7.08	Indoor Chemical & Pollutant Source Control	*	*	*		
7.09	Controllability of Lighting Systems	*	*			
7.10	Controllability of Thermal Systems	*	*	*		
7.11	Thermal Comfort Design	*	*	*		
7.12	Thermal Comfort Verification	*	*			
7.13	Daylight Design	*	*	*		
7.14	Views	*	*	*		
7.15	Fuel Vapor Monitoring					
08	**NOISE POLLUTION REDUCTION**					
8.01	Exterior Noise Quality Control—Non-Aircraft Sources					
8.02	Exterior Noise Quality Control—Aircraft Flight Paths					
8.03	Interior Noise Quality Control					
09	**CONSTRUCTION ACTIVITIES**					
9.01	Construction Scheduling & Sequencing				*	
9.02	Erosion & Sedimentation Control—During Construction	*		*	*	
9.03	Stormwater Management—During Construction				*	
9.04	Tracking Control				*	
9.05	Potential Pollutant Control				*	
9.06	Waste Management & Materials Pollution Control	*	*	*	*	
9.07	Construction Transportation & Vehicles					
9.08	Construction Roadways					
9.09	Construction Acoustic & Noise Control					
9.10	Construction IAQ Management	*	*	*		
9.11	Construction Water Conservation					
9.12	Temporary Lighting—During Construction					
9.13	Construction Health & Safety Plan					
10	**LEADERSHIP / INNOVATION**					
10.01	LEED Accredited Professional, LEED-AP	*	*	*		
10.02	Innovation in Design / Construction	*	*	*		

SHPG MATRIX: RECOMMENDED TEAM RESPONSIBILITIES

CATEGORY											BEST PRACTICES	
Project Phase	Submittal Template	Client	Architect / Planner	Landscape	Civil	Mechanical	Electrical	Commissioning	General Contractor	Construction Manager		
											Legend:	
											R = Recommended responsibility for credit **X** = Directly associated with work	
											D = Design project phase **C** = Construction project phase	
											A = Submittal template A **B** = Submittal template B **C** = Submittal template C	
											01	**AIR TRANSPORTATION PLANNING**
D	A	X	R		X						1.01	Runway / Taxiway / Terminal Design—Improved Taxiing Distances and Times
D	A	X	R		X						1.02	Airside Layout Design—Minimal Aircraft Delay
D	A	X	X			R					1.03	Provide Infrastructure for Pre-Conditioned Air
D	A	X					R				1.04	Provide Infrastructure for 400Hz
D	A	X			R						1.05	Provide Infrastructure for Hydrant Fueling for Aircraft
											02	**SITE AND ECOSYSTEM**
D	A	X	R	X	X						2.01	Landside Site Development
D	A	X	R	X	X						2.02	Airside Site Development
D	A			X							2.03	Erosion and Sedimentation Control
D	A			X							2.04	Stormwater Management—Rate and Quantity
D	A			X							2.05	Stormwater Management—Quality and Treatment
C	B			R	X						2.06	Landscape & Exterior Design—Reduce Heat-island, Non-Roof
D	A		R	X							2.07	Landscape & Exterior Design—Reduce Heat-island, Roof
D	A		X	X			R				2.08	Light Pollution Reduction—Exterior & Interior
											03	**GROUND TRANSPORTATION MANAGEMENT**
D	A	X	R								3.01	Community Connectivity—Efficient Transportation Design
D	A	X	R								3.02	Alternative Transportation—Public Transportation Access
D	A	X	R								3.03	Alternative Transportation—Bicycle Storage & Changing Facility
D	A	X	R		X						3.04	Alternative Transportation—Energy Efficient Vehicles
D	A	X	R		X						3.05	Alternative Transportation—Carpooling & Parking Capacity
											04	**WATER**
C	B		X			R					4.01	Discharge Water Compliance
D	A			R							4.02	Water Efficient Landscaping
D	A		X	R		R					4.03	Improved Water Use & Efficiency
											05	**ENERGY**
C	B	X	X			X	X	R	X		5.01	Commissioning of Building Energy Systems
D	A					X	R				5.02	Minimum Energy Performance
D	A					R					5.03	CFC / HCFC Reduction
D	A		X			X	R				5.04	Optimize Energy Performance
D	A						R				5.05	Renewable Energy—On-Site
D	A					R					5.06	Energy Management—Measurement & Verification
C	B						R				5.07	Alternative Energy—Off-Site, Off-Grid

Phase	Submittal	Client	Architect	Landscape	Civil	Mechanical	Electrical	Commissioning	Contractor	CM		
D	A	X	R								06	MATERIALS FLOWS & WASTE
C	B		R								6.01	Storage of Recyclables—Landside & Airside
C	B		R								6.02	Structure & Building Reuse—Exterior
C	B		R						X		6.03	Structure & Building Reuse—Interior
C	B		R						X		6.04	Resource Reuse
C	B		R						X		6.05	Recycled Content
C	B		R						X		6.06	Local / Regional Materials
C	B		R						X		6.07	Rapidly Renewable Materials
C	B		R						X		6.08	Certified Wood
D	A		R								6.09	Design for Reuse & Recycling
											07	ENVIRONMENTAL QUALITY
D	A					R					7.01	Indoor Air Quality Performance
D	A	X	R								7.02	Environmental Tobacco Smoke Control
C	B		R						X		7.03	Asbestos Removal
C	B		R						X		7.04	Polychlorinated Biphenyl (PCB) Removal
D	A					R					7.05	Outdoor Air Delivery Monitoring
D	A					R					7.06	Effectiveness of Ventilation System
C	B		R						X		7.07	Low-Emitting Materials
D	A			X		R					7.08	Indoor Chemical & Pollutant Source Control
D	A	X					R				7.09	Controllability of Lighting Systems
D	A					R					7.10	Controllability of Thermal Systems
D	A					R					7.11	Thermal Comfort Design
D	A	X				R					7.12	Thermal Comfort Verification
D	A		R								7.13	Daylight Design
D	A		R								7.14	Views
D	A					R					7.15	Fuel Vapor Monitoring
											08	NOISE POLLUTION REDUCTION
D	A	X	R								8.01	Exterior Noise Quality Control—Non-Aircraft Sources
D	A	X	R								8.02	Exterior Noise Quality Control—Aircraft Flight Paths
D	A	X	R			X					8.03	Interior Noise Quality Control
											09	CONSTRUCTION ACTIVITIES
C	B								X	R	9.01	Construction Scheduling & Sequencing
C	C								R	X	9.02	Erosion & Sedimentation Control—During Construction
C	C								R	X	9.03	Stormwater Management—During Construction
C	C								R	X	9.04	Tracking Control
C	C								R	X	9.05	Potential Pollutant Control
C	C								R	X	9.06	Waste Management & Materials Pollution Control
C	C								R	X	9.07	Construction Transportation & Vehicles
C	C								R	X	9.08	Construction Roadways
C	C								R	X	9.09	Construction Acoustic & Noise Control
C	C								R	X	9.10	Construction IAQ Management
C	C								R	X	9.11	Construction Water Conservation
C	C								R	X	9.12	Temporary Lighting—During Construction
C	C								R	X	9.13	Construction Health & Safety Plan
											10	LEADERSHIP / INNOVATION
C	B		R								10.01	LEED Accredited Professional, LEED-AP
*	*										10.02	Innovation in Design / Construction

sustainable**DOT-A**



BEST PRACTICES IN HIGH-PERFORMANCE


Air Transportation Planning


Site and Ecosystem


Ground Transportation Management


Water


Energy


Materials flows and Waste


Environmental Qualitiy


Noise Pollution Reduction


Construction Management


Leadership in Innovation

01 AIR TRANSPORTATION PLANNING

1.01
Runway / Taxiway / Terminal Design—
Improved Taxiing Distances and Times

1.02
Airside Layout Design—Minimal Aircraft Delay

1.03
Provide Infrastructure for Pre-Conditioned Air

1.04
Provide Infrastructure for 400Hz

1.05
Provide Infrastructure for Hydrant Fueling for Aircraft

PROJECT TYPE CATEGORY

G O U L A T

1.01

DESIGN
SUBMITTAL

RUNWAY / TAXIWAY / TERMINAL DESIGN— IMPROVED TAXIING DISTANCES AND TIMES

D

1
POINT

INTENT

New or modified airside facilities should be planned with the intent of reducing taxi distances and taxi times to the maximum extent practicable in order to reduce emissions of greenhouse gases, criteria and hazardous air pollutants.

BENEFITS

» Proper design of runways, taxiways and terminals can reduce the distance an airplane must taxi from its landing runway to its gate, ultimately reducing emissions.

» Reduced taxi/idle time will improve passenger experience by reducing flight times, promoting social responsibility and enhancing Hawai'i's tourism industry.

» Reduced taxi/idle time will reduce fuel consumption, resulting in cost savings to airlines.

CONSIDERATIONS

Land availability may limit reconfigurations of taxiways, runways, and terminals.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing efforts to reduce taxiing distances and times.

STRATEGIES

» To the extent practicable, design runway and taxiway systems such that aircraft are not required to cross a runway after landing.

» To the extent practicable, design parallel runways with sufficient separation to preclude the need for aircraft to hold for other aircraft.

» Design runway systems with high speed exits, end-around taxiways, centerline taxiways, or other facilities to maximize the efficient flow of aircraft.

» Conduct simulation modeling of various design concepts to quantify the taxi/idle times associated with each scenario.

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD3-AP-1 Design Runways, Taxiways & Terminals to Reduce Taxiing Distances & Times

PROJECT TYPE CATEGORY

G O U L A T

D

1 POINT

1.02

DESIGN SUBMITTAL

AIRSIDE LAYOUT DESIGN— MINIMAL AIRCRAFT DELAY

INTENT

New or modified airside layout should be planned and designed with the intent of reducing aircraft delay in order to reduce greenhouse gases, criteria and hazardous air pollutants.

BENEFITS

» Proper design of airside layout can reduce the distance an airplane must taxi from its landing runway to its gate, ultimately reducing emissions.

» Reduced taxi/idle time will improve passenger experience by reducing flight times, promoting social responsibility to enhance Hawai'i's tourism industry.

» Reduced taxi/idle time will reduce fuel consumption, resulting in cost savings to airlines.

CONSIDERATIONS

Land availability may limit reconfigurations of taxiways, runways, and terminals.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing efforts to reduce aircraft delay.

STRATEGIES

» Ensure airfield layout provides room for an aircraft to hold without delaying other aircraft.

» Where practicable, provide double-wide taxiways to facilitate the movement of aircraft.

» Where practicable, provide sufficient ramp area to reduce ramp congestion.

» Conduct simulation modeling of various design concepts to quantify the delay times associated with each scenario.

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD3-AP-2 Design Airside Layout to Reduce Aircraft Delay

PROJECT TYPE CATEGORY

G O U L A T

1.03

DESIGN
SUBMITTAL

PROVIDE INFRASTRUCTURE FOR PRE-CONDITIONED AIR

D

1
POINT

INTENT

Provide infrastructure for ground power in terminal buildings and gates to support the use of pre-conditioned air by aircraft as part of new construction, renovation and retrofit projects to reduce air emissions by gate parked aircraft.

BENEFITS

» The use of pre-conditioned air by parked aircraft will eliminate the need for aircraft to use fuel-powered auxiliary power units (APUs) or ground power units (GPUs) for electricity while they are at a gate, thus reducing the carbon emissions associated with the use of APUs and GPUs by gate parked aircraft.

MANDATORY REQUIREMENTS

+ Provide appropriate training for the operations and maintenance of all systems.

+ Interface with the Airport's Energy Monitoring and Control System (EMCS).

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives involving preparation of infrastructure for pre-conditioned air.

STRATEGIES

» Include requirements for pre-conditioned air units in all bid documents for terminal and gate design and renovation projects.

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD3-AP-3 Provide Infrastructure for Pre-Conditioned Air resource

PROJECT TYPE CATEGORY

G O U L A T

D

1 POINT

1.04

DESIGN SUBMITTAL

PROVIDE INFRASTRUCTURE FOR 400HZ

INTENT

Provide infrastructure in terminal buildings and gates to support the use of 400 Hz power by aircraft as part of new construction, renovation and retrofit projects to reduce air emissions by gate parked aircraft.

BENEFITS

» Installing 400Hz ground power at terminal gates will eliminate the need for aircraft to use fuel-powered auxiliary power units (APUs) or ground power units (GPUs) for electricity while they are at a gate, thus reducing the carbon emissions associated with the use of APUs and GPUs by gate parked aircraft

CONSIDERATIONS

Land availability may limit reconfigurations of taxiways, runways, and terminals.

MANDATORY REQUIREMENTS

+ Provide appropriate training for the operations and maintenance of all systems.

+ Interface with the Airport's Energy Monitoring and Control System (EMCS).

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives involving preparation of infrastructure for 400 Hz.

STRATEGIES

» Include requirements for 400Hz in all bid documents for terminal and gate design and renovation projects.

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD3-AP-3 Provide Infrastructure for Pre-Conditioned Air

PROJECT TYPE CATEGORY

G O U L A T

1.05

DESIGN
SUBMITTAL

PROVIDE INFRASTRUCTURE FOR HYDRANT FUELING FOR AIRCRAFT

D

1
POINT

INTENT

Provide hydrant fueling for aircraft parked at airport gates.

BENEFITS

» Hydrant fueling systems reduce or eliminate on-airport fuel truck operations and their associated air emissions.

» The reduction in fuel trucks results in increased airfield safety.

» Elimination of refueling by truck reduces environmental risks, including surface fuel spills.

» Modern hydrant systems are designed with environmental safeguards, including secondary containment, cathodic protection, leak detection, computerized tank overfill and inventory gauging systems, spill containment, and fuel reclamation management, which itself reduces hazardous waste generation.

MANDATORY REQUIREMENTS

+ Coordinate implementation with District Management.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives involving preparation of infrastructure for hydrant fueling.

STRATEGIES

» For new or renovated terminal facility projects, ensure that planning and design allow for the inclusion of hydrant fueling systems.

» Retrofit existing terminal areas with hydrant fueling systems.

» Work with tenant airlines and fuel providers to develop a privately-owned fuel consortium for airports where hydrant fueling does not currently exist.

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD3-AP-5 Provide Infrastructure for Hydrant Fueling for Aircraft

02 SITE AND ECOSYSTEM

2.01
Landside Site Development

2.02
Airside Site Development

2.03
Erosion and Sedimentation Control

2.04
Stormwater Management—Rate and Quantity

2.05
Stormwater Management—Quality and Treatment

2.06
Landscape & Exterior Design—
Reduce Heat-island, Non-Roof

2.07
Landscape & Exterior Design—Reduce Heat-island, Roof

2.08
Light Pollution Reduction—Exterior & Interior

PROJECT TYPE CATEGORY

G O U L A T

2.01

DESIGN
SUBMITTAL

LANDSIDE SITE DEVELOPMENT

D

3
POINT

INTENT

Preservation of existing vegetation involves protecting desirable plants and trees in any area subject to land-disturbing activities. The primary function of existing vegetation preservation is to provide an effective form of soil stabilization control, watershed protection, landscape beautification, dust control, pollution control, noise reduction, and shade, while reducing wildlife hazards to the airport environment utilizing appropriate wildlife management practices.

BENEFITS

- Minimizes need for sedimentation and erosion control measures.
- Preserves existing vegetation, eliminating the need for re-vegetation.
- On-site natural areas improve site aesthetics.
- Appropriate plants can shade buildings and reduce cooling loads.
- Shading of parking lots can reduce heat-island effect.
- Protect existing wildlife while minimizing wildlife hazards.

CONSIDERATIONS

Protection of existing vegetation requires planning, and may limit the area available for construction activities. Additionally, if land costs are high, it may not be practical to preserve areas of existing vegetation for a given project unless required by regulation. In this case, it may be appropriate to evaluate the existing vegetation for species type for use in landscaping plans. It is important to consider carefully any habitat modification as altering the habitat may make the habitat less attractive to one species, but inadvertently more attractive to another species. Adhere to the DOT-A's Wildlife Hazard Management Plan (WHMP) and other FAA regulations regarding protection of wildlife.

STANDARDS

Honolulu International Airport, Municipal Separate Storm Sewer System – Post-Construction Activities BMPs: PC1 Preservation of Existing Vegetation

LEED-Core & Shell Sustainable Sites 5.1: Protect or Restore Habitat, 5.2: Maximize Open Space

LEED-Existing Buildings: Maintenance and Operations Sustainable Sites 4.1/4.2: Reduce Site Disturbance

LEED-New Construction Sustainable Sites 5.1: Protect or Restore Habitat, 5.2: Maximize Open Space

Wildlife Hazard Management Plan (WHMP)

D

3
POINT

2.01

DESIGN
SUBMITTAL

LANDSIDE SITE DEVELOPMENT (CONT'D)

MANDATORY REQUIREMENTS

+ Consult the Wildlife Hazard Management Plan on removal and implementation of vegetation per suggested plant list.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing proper management of wildlife.

+ 1: Initiatives addressing proper management of land use and preservation, implementation and/or restoration of vegetation.

+ 1: Initiatives addressing drainage design and site disturbance.

STRATEGIES

» Minimize removal of existing approved trees and vegetation.

» Minimize site disturbance where possible.

» Obtain recommendations from a qualified, licensed landscape architect or certified arborist prior to altering grades around existing vegetation.

» Plans shall include the maintenance of existing grade around vegetation to be preserved.

» Provide open space area(s) that are equal to or greater than the development area or to extent possible.

» Conduct a topographical analysis of the site.

» Introduce natural drainage features if the site does not already contain them.

» When installing utility conduits, use trenchless technology to minimize site disturbance if appropriate and feasible.

» Indicate that staging locations and traffic will be limited to areas that will be paved.

» Plant approved vegetation on-site to replace disturbed site areas.

» When deciding on which vegetation to save, decisions should be based on the following considerations:

- Life expectancy
- Health and disease susceptibility
- Structural integrity
- Aesthetic values
- Comfort relative to site temperature variation and wind
- Compliance with Wildlife Management Plan
- Adaptability to the proposed project
- Survival needs of the vegetation
- Relationship to other vegetation

2.01

DESIGN
SUBMITTAL

LANDSIDE SITE DEVELOPMENT (CONT'D)

D

3
POINT

» The following are DOT-A suggested trees, flowers, and shrubs that are less likely to attract wildlife. Selection of other species of plants must submit a request of approval from DOT-A. The DOT-A suggested plant list includes:

- Norfolk Pine
- Coconut trees
- Italian Cypress
- Hibiscus
- Plumeria
- Palm trees
- Bird of Paradise
- Goudeniaceae or Naupaka (Beach)
- Cape Honeysuckle
- Ti Leaf
- Travelers Tree

RESOURCES

City and County of Honolulu, Department of Environmental Services. Best Management Practices Manual for Construction Sites in Honolulu, Second Printing, November 2000.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD5-SS-3 Site Protection & Restoration (Landside)

State of Hawai'i Department of Transportation Airports Division. Honolulu International Airport, Airport Certification Manual, Wildlife Hazard Management Plan (WHMP), May 2004.

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007. Data retrieved from: http://www6.Hawai'i.gov/dot/airports/hnl/swm/index.htm

U.S. Department of Agriculture, Animal and Plant Health Inspection Service. Honolulu International Airport Wildlife Hazard Assessment, January 2004.

U.S. Department of Agriculture Animal and Plant Health Inspection Service: Wildlife Services Program. Data retrieved from: http://www-mirror.aphis.usda.gov/lpa/pubs/fsheet_faq_notice/fs_wspgm.html

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

D

3
POINTS

2.02

DESIGN
SUBMITTAL

AIRSIDE SITE DEVELOPMENT

INTENT

Vegetation and wildlife management should be responsibly maintained and developed in an environmentally conscious manner while complying with FAA standards.

BENEFITS

» Creates synergy between vegetation strategies and wildlife management plans.
» Minimizes cost associated with wildlife and vegetation hazard mitigation.
» Avoids unintended consequences stemming from uncoordinated vegetation and wildlife management.
» Minimizes permits needed and associated cost and delays.
» Where feasible, protects non-hazardous rare wildlife on airfield sites.

CONSIDERATIONS

Protection of existing vegetation requires planning, and may limit the area available for construction activities. Additionally, if land costs are high, it may not be practical to preserve areas of existing vegetation for a given project unless required by regulation. In this case, it may be appropriate to evaluate the existing vegetation for species type for use in landscaping plans. It is important to consider carefully any habitat modification as altering the habitat may make the habitat less attractive to one species, but inadvertently more attractive to another species. Adhere to the Wildlife Hazard Management Plan (WHMP) and other FAA regulations regarding protection of wildlife.

MANDATORY REQUIREMENTS

+ Consult the Wildlife Hazard Management Plan on removal and implementation of vegetation per suggested plant list.

+ Stabilize soils around taxiways/runways to prevent/ reduce foreign object debris on pavement.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing proper management of wildlife.

+ 1: Initiatives addressing proper management of vegetation preservation, implementation and/or restoration.

+ 1: Initiatives addressing proper design and management of open water.

2.02

DESIGN
SUBMITTAL

AIRSIDE SITE DEVELOPMENT (CONT'D)

D

3
POINT

STRATEGIES

» Manage airfield sites to prevent use by hazardous wildlife.

» When planting, choose vegetation that does not attract hazardous wildlife.
- Check the Wildlife Hazard Management Plan for approved plant list.
- Check the Embry-Riddle Aeronautical University reference below for results from an ongoing Research and Development Project, sponsored by the FAA, investigating vegetative wildlife attractants at airports.

» In areas where trees are undesirable, favor long-term vegetation management for meadow or shrubs over periodic tree cutting.

» Avoid use of pesticides and herbicides whenever possible.

» Avoid creation of open water features on or near airfield sites. For stormwater management, consider use of perforated underground drains or dry wells to provide infiltration. (See HNL's Stormwater Management Plan)

» For existing open water bodies, favor management techniques that reduce the risk of wildlife injury or water quality impairment.

» Where rare wildlife habitat is present on an airfield and inter-tidal areas, manage vegetation to maintain this habitat, such as the Hawaiian (black-necked) stilt.

» Species specific population management include:
- Pacific Golden Plovers
- Barn Owls
- Cattle egrets and Black-crowned Night Herons
- Hawaiian (black-necked) Stilts

» Selection of plants other than DOT-A suggested plant list must submit a request of approval from DOT-A, and should not attract wildlife.

RESOURCES

Embry-Riddle Aeronautical University. Data retrieved from: http://wildlife.pr.erau.edu/RandD/current_projects.html#habitat_management

Federal Aviation Administration, Advisory Circulars. Operational Safety on Airports During Construction, AC Number: AC 150/5370-2E. Data retrieved from: http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD5-SS-4 Integrated Vegetation & Wildlife Management (Airside)

State of Hawai'i Department of Transportation Airports Division. Honolulu International Airport, Airport Certification Manual, Wildlife Hazard Management Plan (WHMP), May 2004.

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007. Data retrieved from: http://www6.Hawai'i.gov/dot/airports/hnl/swm/index.htm

U.S. Department of Agriculture, Animal and Plant Health Inspection Service. Honolulu International Airport Wildlife Hazard Assessment, January 2004.

U.S. Fish & Wildlife Services, Migratory Bird Treaty Act, 2005. Data retrieved from: http://www.fws.gov/migratorybirds/issues/nonnative/MBTA-protected&NonprotectedSpecies.htm

PROJECT TYPE CATEGORY

GOULAT

D

1
POINT

2.03

DESIGN
SUBMITTAL

EROSION & SEDIMENTATION CONTROL (PERMANENT INSTALLATION)

INTENT

Reduce pollution by controlling soil erosion, waterway sedimentation and airborne dust generation through permanently designed installations.

BENEFITS

» Siltation of streams and ponds causes habitat loss and water quality impairment.
» Proper soil stabilization prevents soil accumulation on roadways and associated cleanup costs.
» Keeping soil on site reduces the cost of bringing in additional soil.
» Soil deposits on roadways may cause accidents.

CONSIDERATIONS

Temporary strategies during construction are addressed in Section 8: Construction Practices. Some strategies can be considered both permanent and temporary, depending on the application and materials used. Some strategies have higher costs due to either material or labor costs. Proper investigation of applicability, benefits, limitations, and feasibility must always be conducted and weighed before deciding on an erosion and sedimentation control strategy.

STANDARDS

Honolulu International Airport, Municipal Separate Storm Sewer System – Post-Construction Activities BMPs:

- PC2 Permanent Seeding and Planting
- PC3 Permanent Mulching
- PC4 Permanent Geotextiles, Mats and Erosion Control Blankets
- PC10 Permanent Flared Culvert End Sections

LEED-Core & Shell Sustainable Sites Pre-Requisite 1: Construction Activity Pollution Prevention

LEED-Existing Buildings: Maintenance and Operations Sustainable Sites Pre-Requisite 1: Erosion and Sedimentation Control

LEED-New Construction Sustainable Sites Pre-Requisite 1: Construction Activity Pollution Prevention

2.03

DESIGN
SUBMITTAL

EROSION & SEDIMENTATION CONTROL (CONT'D)

D

1
POINT

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing permanent installations of erosion and sedimentation control.

STRATEGIES

» Develop and maintain an erosion and sediment control plan consistent with EPA document no. EPA 832/R-92-005 or local ESC standards and controls if applicable.

» Minimize disturbed areas, and keep pre-existing vegetation intact.

» Develop an inventory of topsoil for potential re-use.

» Minimize impervious areas.

» Use vegetated roof systems to reduce runoff from buildings.

» Use rainwater harvesting systems to store roof runoff for alternate uses.

» Use Low Impact Development (LID) techniques to preserve the pre-existing site hydrology and minimize site impact.

» The site shall be evaluated to select the appropriate vegetation and planting strategy, considering the following:

- Soil type and condition
- Site topography
- Climate and season
- Types of vegetation suited to the site
- Maintenance concerns
- Aesthetic considerations
- Water, fertilizer, and herbicide requirements

» Permanent vegetation used shall be self-sustaining, need low maintenance, and be compatible with the surrounding environment.

» Irrigate the vegetation as needed based on rainfall conditions.

» If soil moisture is deficient, new vegetation is to be supplied with supplemental water until firmly established.

» Use mulching to reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff. Mulching is the process of applying loose bulk materials to the soil surface as a permanent or temporary cover. Common types of mulch are: green material, hydraulic matrices, hydraulic mulches made from recycled paper or wood fiber, stone and aggregate, vegetable fibers (hay or straw), and wood/bark chips. Criteria for choosing the appropriate type of mulch:

- Cost – material, preparation, and installation cost
- Effectiveness – reduction of erosion, flow velocity, and runoff
- Acceptability – environmental compatibility, visual impact, institutional acceptability

EROSION & SEDIMENTATION CONTROL (CONT'D)

- Vegetation Enhancement – native plant compatibility, germination rate, growth rate, moisture retention, temperature modification, open space/coverage, nutrient uptake
- Installation – durability, longevity, ease of installation, safety
- Operation and Maintenance – maintenance frequency, need for fertilization or irrigation

» Use matting made of natural or synthetic material to permanently stabilize soil. These products are to be considered at any sites where disturbed soils must be stabilized.

» Utilize flared culvert end sections at the inlets and outlets of pipes and channels to help prevent scour and minimize erosion. Such end sections can also improve the hydraulic operation and retain the embankment near pipe conveyances.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

City and County of Honolulu, Department of Environmental Services. Best Management Practices Manual for Construction Sites in Honolulu, Second Printing, November 2000.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD6-SM-1 Prevent Downstream Erosion

Section 402(p) of the Clean Water Act – 40 Part 122.26 NPDES permit program.

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007. Data retrieved from: http://www6.Hawai'i.gov/dot/airports/hnl/swm/index.htm

USEPA. Greenscapes. Data retrieved from www.epa.gov/greenscapes

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

2.04

DESIGN
SUBMITTAL

STORMWATER MANAGEMENT— RATE & QUANTITY

D

1
POINT

INTENT

Limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration, and managing stormwater runoff through permanently designed installations.

BENEFITS

» Preserves pre-existing site hydrology.
» Promotes infiltration of stormwater, which replenishes groundwater table.
» Reduces potential for erosion and flooding on and off site.
» Moderates surface water levels.

CONSIDERATIONS

Proper investigation of applicability, benefits, limitations and feasibility must always be conducted and weighed before deciding on a stormwater management strategy. Limitations in particular to consider are:

- Locations of earth dikes, drainage swales and lined ditches must be outside runway safety area (within FAA guidelines).
- Altering existing waterways or clearing existing vegetation may require permits from the Hawai'i Department of Health, or the U.S. Army Corps of Engineers.
- Severe erosion may result when slope drains fail by over topping or pipe separation.
- Subsurface drains may remove fine soils, which can result in slope failure.
- Ditches/berms are not sediment trapping devices. If it is anticipated that sediment-laden water will be discharged to the diversion structure, a detention basin or other means to settle and collect soil particles needs to be provided.
- Roughening may increase grading costs and lead to sloughing in certain soil types.
- Roughening alone as a temporary erosion control or surface preparation measure is of limited effectiveness in intense rainfall events.
- A level spreader is not a sediment trapping or filtering device.
- Very porous soils provide low removal of dissolved pollutants, which can increase the risk of ground water contamination.
- Retention basins can be effectively used only where the soil porosity and evapotranspiration capacity are adequate to dispose of the required quantity of storm water within a reasonable period of time, typically 5 days or less.
- Retention basins may not be suitable near drinking water wells, foundations, septic tanks, drain fields, fill sites or steep, unstable slopes or areas where hazardous chemical spills may occur.

D

1
POINT

2.04

DESIGN
SUBMITTAL

STORMWATER MANAGEMENT— RATE & QUANTITY (CONT'D)

STANDARDS

Honolulu International Airport, Municipal Separate Storm Sewer System – Post-Construction Activities BMPs:

- PC6 Permanent Earth Dikes, Drainage Swales, and Lined Ditches
- PC7 Permanent Slope Drains and Subsurface Drains
- PC8 Permanent Top and Toe of Slope Diversion Ditches/Berms
- PC9 Permanent Outlet Protection/Velocity Dissipation Devices
- PC11 Permanent Slope Roughening/Terracing/Rounding
- PC12 Permanent Level Spreader
- PC14 Permanent Retention Basin

LEED-Commercial Interiors Sustainable Sites 1B: Stormwater Management: Rate & Quantity

LEED-Core & Shell Sustainable Sites 6.1: Stormwater Design, Quantity Control

LEED-Existing Buildings: Operations and Maintenance Sustainable Sites 5.1/5.2: Stormwater Management: Rate & Quantity Reduction

LEED-New Construction Sustainable Sites 6.1: Stormwater Design, Quantity Control

MANDATORY REQUIREMENTS

+ Avoid sheet flow and ponding on and around taxiways, runways and ramps.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing permanent installations of permanent installations of stormwater management in terms of rate and quantity.

STRATEGIES

» Design projects to ensure no net increase in rate and quantity of stormwater runoff.
» Install pervious pavements for roadways, shoulders, non-traffic pavements, maintenance roads, utility yards, airside and landside parking facilities, where possible.
» Demo and recycle/reuse superfluous pavement not needed for future development.
» Install landscaping and plant materials that will reduce runoff rates.
» Install rainwater cisterns for use in landside irrigation.
» Use vegetated green roofs to intercept stormwater.
» Install permanent earth dikes, drainage swales, and lined ditches in proper locations (avoid close proximity to taxiways/runways).

2.04

DESIGN
SUBMITTAL

STORMWATER MANAGEMENT— RATE & QUANTITY (CONT'D)

D

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POINT

- » Install permanent slope drains and subsurface drains, to intercept and direct surface runoff or ground water into a stabilized water course, trapping device or other stabilized area.
- » Install permanent top and toe slope diversion ditches/berms, to minimize sheet flow over slope surfaces and reduce sedimentation by conveying collected runoff to a protected drainage system.
- » Install permanent outlet protection/velocity dissipation devices, to reduce velocity and/or energy of existing water, prevent scour and minimize potential for downstream erosion.
- » Install permanent slope roughening, terracing, and rounding techniques, to create down slope unevenness on bare soil in order to decrease runoff velocity, reduce the length of sheet flow, trap sediment, and increase infiltration of water into the soil.
- » Install a permanent level spreader, as an outlet for dikes and diversions that disperse the runoff discharge from the slope.
- » Install a permanent retention basin, to capture the runoff volume for disposal through evaporation and percolation in order to remove pollutants, recharge or replenish ground water, reduce stream bank erosion and other adverse impacts to stream habitats.
- » Ensure paved and unpaved areas are graded or leveled to promote runoff or drainage to reduce/eliminate ponding of fresh water which acts as an attractant for wildlife.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

City and County of Honolulu, Department of Environmental Services. Best Management Practices Manual for Construction Sites in Honolulu, Second Printing, November 2000.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD6-SM-2 Minimize Impervious Area

Section 402(p) of the Clean Water Act – 40 Part 122.26 NPDES permit program.

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007. Data retrieved from: http://www6.Hawai'i.gov/dot/airports/hnl/swm/index.htm

U.S. Department of Agriculture, Animal and Plant Health Inspection Service. Honolulu International Airport Wildlife Hazard Assessment, January 2004.

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

D

1
POINT

2.05

DESIGN
SUBMITTAL

STORMWATER MANAGEMENT— QUALITY & TREATMENT

INTENT

Reduce or eliminate water pollution by reducing impervious cover, increasing on-site infiltration, eliminating sources of contaminants, and removing pollutants from stormwater runoff through permanently designed installations.

BENEFITS

» Reduces water quality impacts to down gradient water bodies.
» Replenishes groundwater and reduces off-site flooding impacts.
» Reduces the need for stormwater conveyance infrastructure (e.g. catch basins, drain pipes).
» Where stormwater utilities exist, fees are based on presence or absence of on-site stormwater treatment. Proper on-site stormwater treatment can reduce stormwater utility fees.

CONSIDERATIONS

Proper investigation of applicability, benefits, limitations and feasibility must always be conducted and weighed before deciding on a stormwater management strategy. Limitations in particular to consider are:

- Rock berms may be difficult to remove, which limit their usefulness in landscaped areas.
- Ponding will occur at a protected storm drain inlet, with possible short term flooding.
- Storm drain inlet protection must not create a potential hazard to traffic.
- Site conditions may limit the use and design of vegetated buffer strips and channels.
- Vegetated buffer strips are most economical when existing vegetation can be retained to serve as the buffer strip or when a landscaped area can serve as a buffer strip is incorporated into the site design.
- Underlying soils need specific infiltration rates, which are tested with geotechnical borings.
- Infiltration cannot be located on slopes greater than 15% or within fill soils.
- If upstream erosion is not properly controlled, extended detention basins can be maintenance intensive with respect to sediment removal, nuisance odors, and insects (i.e. mosquitoes), etc.
- Permanent sand filters require frequent maintenance, and underground and perimeter versions of these practices are easily forgotten because they are out of sight.
- The design loading rate for oil/grit separators is low; therefore, they can only be cost-effectively sized to detail and treat nuisance and low flows (small storm or first flush events). Sizing to accommodate an average to larger storm results in a large sized facility and is not economical.

2.05

DESIGN
SUBMITTAL

STORMWATER MANAGEMENT— QUALITY & TREATMENT (CONT'D)

D

1
POINT

STANDARDS

Honolulu International Airport, Municipal Separate Storm Sewer System – Construction Activities BMPs:

- C11 Brush or Rock Filter
- C12 Strom Drain Inlet Protection
- Honolulu International Airport, Municipal Separate Storm Sewer System – Post-Construction Activities BMPs:
- PC5 Permanent Vegetated Buffer Strips and Channels
- PC13 Permanent Infiltration Trench
- PC15 Permanent Detention Basin
- PC16 Permanent Wet Extended Detention Pond
- PC17 Permanent Construction Wetlands
- PC18 Permanent Bioretention
- PC19 Permanent Sand Filters
- PC20 Permanent Oil/Grit Separator
- PC21 Permanent Continuous Deflective Separation (CDS)

LEED-Commercial Interiors Sustainable Sites 1C: Stormwater Management: Treatment

LEED-Core & Shell Sustainable Sites 6.2: Stormwater Design: Quality Control

LEED-New Construction Sustainable Sites 6.2: Stormwater Design: Quality Control

MANDATORY REQUIREMENTS

+ Avoid sheet flow and ponding on and around taxiways, runways and ramps.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing permanent installations of stormwater management in terms of quality and treatment.

STRATEGIES

» Install first flush systems including slotted edge drawings connected to underground holding tanks. (DOT-A oil/water separators pump to evaporation ponds)

» Harvest stormwater for irrigation of landscaping. This avoids both the cost of stormwater treatment and irrigation.

» Strip and stockpile good topsoil during construction for use in surface preparation prior to planting.

» Plant vegetation as soon as possible after the area has been graded.

» Irrigate vegetation as needed to supplement rainfall until established.

D

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POINT

2.05

DESIGN
SUBMITTAL

STORMWATER MANAGEMENT— QUALITY & TREATMENT (CONT'D)

- Install bioswales along roadways and parking areas to encourage groundwater infiltration of stormwater runoff. On airside projects, these strategies must be designed so that they do not provide wildlife habitat.
- Minimize current treatment of all stormwater by reducing runoff.
- Introduce nitrogen-fixing vegetation in fertilized areas.
- Use vegetated green roofs to intercept and treat stormwater, where applicable and feasible.
- Install a brush barrier composed of brush (usually obtained during the site clearing) wrapped in filter cloth and anchored to the toe of the slope OR install a rock filter berm and place along a level contour where sheet flow may be detained and ponded, promoting sedimentation.
- Select the appropriate type of inlet protection and design as referred to or as described herein described below (however, other effective methods that are proprietary devices exist and may be selected with proper approval):
    - Filter Fabric Fence: Appropriate for drainage basins less than one acre with less than a 5 percent slope
    - Block and Gravel Filter: Appropriate for flows greater than 0.5 cubic feet per second (cfs)
    - Gravel and Wire Mesh Filter: Appropriate for curb or drop inlets where construction equipment may drive over the inlet
    - Sand Bag Barrier: Appropriate for a small sediment trap upstream of inlets on sloped, paved streets
    - Excavated Drop Inlet Sediment Trap: Appropriate for creating an excavated area around the inlet to trap sediment
- Install vegetated buffer strips and channels.
- Install infiltration trenches.
- Install a permanent detention basin to collect and temporarily detain the initial volume of storm water runoff for a specified period of time.
- Install a permanent wet extended detention pond to allow for the settling of fine particles and pollutants before they are discharged into streams or the ocean.
- Create constructed wetlands built specifically for treating storm water runoff. Constructed wetlands are not wetlands created as mitigation for the loss of natural wetlands.
- Create a bioretention, combining open space with storm water treatment in vegetated areas where runoff is directed through vegetation and soils for filtration.
- Install sand filters, which are usually designed as two-chambered storm water practices; the first is a settling chamber, and the second is a filter bed filled with sand or another filtering media.
- Install oil/grit separators, which are permanent treatment control devices designed to remove contaminants.

2.05

DESIGN
SUBMITTAL

STORMWATER MANAGEMENT— QUALITY & TREATMENT (CONT'D)

D

1
POINT

» Use Continuous Deflective Separation (CDS) technologies to direct solid pollutants into a lower catchment chamber and floatables to the surface of the upper chamber using a non-mechanical, non-blocking screen technology for grow pollutant removal.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

City and County of Honolulu, Department of Environmental Services. Best Management Practices Manual for Construction Sites in Honolulu, Second Printing, November 2000.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD6-SM-3 Provide Stormwater Treatment

Section 402(p) of the Clean Water Act – 40 Part 122.26 NPDES permit program.

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007. Data retrieved from: http://www6.Hawai'i.gov/dot/airports/hnl/swm/index.htm

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.0

PROJECT TYPE CATEGORY

G O U L A T

C

1
POINT

2.06

CONSTRUCTION
SUBMITTAL

LANDSCAPE & EXTERIOR DESIGN— REDUCE HEAT-ISLAND, NON-ROOF

INTENT

Reduce heat-islands to minimize impact on microclimate and human and wildlife habitat.

BENEFITS

» Reduces the urban heat-island effect.
» Reduces the energy use and cooling loads associated with temperature gradients.
» Reduces the stormwater drainage requirements through use of pervious surfaces.
» Increases atmospheric carbon storage (i.e. reduce global warming) through landscaping and reduce local air temperatures through evapotranspiration.

CONSIDERATIONS

When specifying vegetation, be mindful of attracting wildlife and compliance with FAA regulations. Coordinate with FAA when designing/installing PV panels and technology around the airport. Projects utilizing solar reflective surfaces must be conditionally approved by the FAA.

STANDARDS

LEED-Commercial Interiors Sustainable Sites 1D: Heat-island Reduction: Non-Roof

LEED-Core & Shell Sustainable Sites 7.1: Heat-island Effect: Non-Roof

LEED-New Construction Sustainable Sites 7.1: Heat-island Effect: Non-Roof

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing heat-island reduction through landscape and exterior design on non-roof surfaces.

2.06

CONSTRUCTION
SUBMITTAL

LANDSCAPE & EXTERIOR DESIGN—REDUCE HEAT-ISLAND, NON-ROOF (CONT'D)

C

1
POINT

STRATEGIES

» Maximize light-colored pavement for roadways, parking lots, and sidewalk areas.

» For landside projects, plant trees to shade dark colored impervious surfaces.

» Consider the use of solar panels where applicable and feasible.

» For landside applications, install approved trees to provide shade for dark colored impervious surfaces (target at least 30% coverage of all dark colored impervious surfaces).

» Provide any combination of the following strategies for the site hardscape:

- Shade
- Paving materials with a Solar Reflectance Index (SRI) of at least 29
- Open grid pavement system

» Place parking spaces under cover (structures or underground).

» Require roofs used to shade or cover parking and dark pavements to have an SRI of at least 29.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

City and County of Honolulu, Department of Environmental Services. Best Management Practices Manual for Construction Sites in Honolulu, Second Printing, November 2000.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD9-HI-2 Heat-island Reduction – Non-Roof

State of Hawai'i Department of Transportation Airports Division. Honolulu International Airport, Airport Certification Manual, Wildlife Hazard Management Plan (WHMP), May 2004.

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007. Data retrieved from: http://www6.Hawai'i.gov/dot/airports/hnl/swm/index.htm

U.S. Army Corps of Engineers. Sustainable Project Rating Tool (SPiRiT), June 2002.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

D

1
POINT

2.07

DESIGN
SUBMITTAL

LANDSCAPE & EXTERIOR DESIGN— REDUCE HEAT-ISLAND, ROOF

INTENT

Reduce heat-islands to minimize impact on microclimate, humans, and wildlife.

BENEFITS

» Reduces urban heat-island effect.
» Reduces air temperature through usage of high albedo or "green" (vegetated) roof systems.
» Increases lifetime by two or three times the standard roof through protection from mechanical damage, UV-rays, hail and extreme temperature fluctuations.

CONSIDERATIONS

When specifying vegetation, be mindful of attracting wildlife and compliance with FAA regulations. Solar collector technologies, such as heliostats, will produce glare. However, amorphous film and flexible systems that lay flat on roof tops and behave like roof membranes will have the lowest reflectivity and glare because their surface is more dimpled and not glossy. All other PV technologies, concentrated and/or flat plate will have the potential for glare because they have higher reflectivity surfaces due to the use of glass or similar surface material. Care must be taken in locating the installation on the airport property and must be coordinated with DOT-A and FAA.

STANDARDS

LEED-Commercial Interiors Sustainable Sites 1D: Heat-island Reduction: Roof

LEED-Core & Shell Sustainable Sites 7.2: Heat-island Effect: Roof

LEED-New Construction Sustainable Sites 7.2: Heat-island Effect: Roof

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing heat-island reduction through landscape and exterior design on roof surfaces.

2.07

DESIGN
SUBMITTAL

LANDSCAPE & EXTERIOR DESIGN— REDUCE HEAT-ISLAND, ROOF (CONT'D)

D

1
POINT

STRATEGIES

- » Use an Energy Star compliant roofing system.
- » Use a "green" vegetated roof system, where feasible and appropriate.
- » Use roofing materials having a Solar Reflectance Index (SRI) equal to or greater than: Low Sloped Roof (Slope ≤ 2:12) SRI=78 OR Steep Sloped Roof (Slope > 2:12) SRI=29
  - Apply coating to the surface of a conventional roof membrane to comply with SRI.
- » Use metal roofs with industrial grade coating with high reflectance and emittance.
- » Utilize a combination of vegetated and high albedo surfaces.
- » Consider the use of solar panels and technology where applicable and feasible.
- » Investigate all conditions and duration of roof warranties.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

City and County of Honolulu, Department of Environmental Services. Best Management Practices Manual for Construction Sites in Honolulu, Second Printing, November 2000.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD9-HI-1 Heat-island Reduction – Roof

State of Hawai'i Department of Transportation Airports Division. Honolulu International Airport, Airport Certification Manual, Wildlife Hazard Management Plan (WHMP), May 2004.

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007.

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

D

1
POINT

2.08

DESIGN
SUBMITTAL

LIGHT POLLUTION REDUCTION— EXTERIOR & INTERIOR

INTENT

Minimize light trespass from the building and site, reduce sky-glow to increase night sky access, improve night time visibility through glare reduction, and reduce impact on nocturnal environments.

BENEFITS

» Increases quality of life in communities surrounding project site.
» Reduces energy consumption and long-term operating costs.
» Decreases glare impact at night.
» Reduces environmental impact on nocturnal species.

CONSIDERATIONS

Take all lighting aspects into consideration (energy, maintenance, safety, life-cycle costs).

STANDARDS

LEED-Commercial Interiors Sustainable Sites 1E: Light Pollution Reduction

LEED-Core & Shell Sustainable Sites 8: Light Pollution Reduction

LEED-Existing Buildings: Maintenance and Operations Sustainable Sites 7: Light Pollution Reduction

LEED-New Construction Sustainable Sites 8: Light Pollution Reduction

Hawai'i County Outdoor Lighting Ordinance

MANDATORY REQUIREMENTS

+ Comply with the Hawai'i County Outdoor Lighting Ordinance for all roadways, walkways and parking lots.

+ Comply with all FAA Advisory Circulars.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing light pollution reduction at exterior and interior sources.

STRATEGIES

Exterior:

» Implement lighting design to minimize off-site impacts.
» Consider full cutoff luminaries, low-reflectance, non-specular surfaces and low angle spotlights for roadway and building lighting.
» Adopt site lighting criteria to maintain safe levels while avoiding off-site lighting and night sky pollution.
» The maximum candela value of all exterior lighting shall fall within the property.

2.08

DESIGN
SUBMITTAL

LIGHT POLLUTION REDUCTION— EXTERIOR & INTERIOR (CONT'D)

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POINT

» Use Low Pressure Sodium lamps for all outdoor lighting in which general illumination of the grounds is the primary concern.

» Minimize site lighting where possible; use lighting for safety, access, and building identification only.

» Design for monitoring exterior lighting system regularly to maintain proper illumination and minimize off-site impacts.

» Utilize LED lighting for taxiways, exterior lighted signs, and runways (as technology becomes available).

» Utilize solar powered lighting fixtures.

Interior:

» The maximum candela value of all interior lighting shall only fall within the building.

» Utilize CFLs/LEDs in lieu of incandescent lamps for areas with low ceiling heights, minimal light requirements, interior signs, stairs and signals.

» Use high frequency electronic ballasts with typical size fluorescent tubular lamps.

» Provide low mercury/low lead lamps.

» Coordinate electrical lighting with daylighting to maximize effectiveness of lighting system.

» Provide manual override capability for after hours use.

» Specify recyclable lamps.

» Design for monitoring of maximum candela value.

» Monitor interior lighting system regularly to maintain proper illumination and minimize off-site impacts.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

City and County of Honolulu, Department of Environmental Services. Best Management Practices Manual for Construction Sites in Honolulu, Second Printing, November 2000.

County of Hawai'i, Hawai'i County's Outdoor Lighting Ordinance. Data retrieved from: http://www.cfht.Hawai'i.edu/ObsInfo/IslandLights/ordinance.html

Federal Aviation Administration, Advisory Circulars. Data retrieved from: http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD10-LQ-1 Exterior Light Pollution Reduction; PD10-LQ-2 Interior Light Pollution Reduction

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007.

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

03 GROUND TRANSPORTATION MANAGEMENT

3.01
Community Connectivity—Efficient Transportation Design

3.02
Alternative Transportation—Public Transportation Access

3.03
Alternative Transportation—Bicycle Storage & Changing Facility

3.04
Alternative Transportation—Energy Efficient Vehicles

3.05
Alternative Transportation—Carpooling & Parking Capacity

PROJECT TYPE CATEGORY

G O U L A T

3.01

DESIGN
SUBMITTAL

COMMUNITY CONNECTIVITY—EFFICIENT TRANSPORTATION DESIGN

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POINT

INTENT

Enhance traffic flow through the project site.

BENEFITS

» Reduces carbon emissions.
» Increases the efficiency of land development, reducing impacts from automobile use.
» Minimizes traffic congestion and idling.
» Increases local public transportation opportunities, reducing parking space requirements.

CONSIDERATIONS

Assess the energy consumption/feasibility of people mover systems such as mass transit, moving sidewalks or automated driverless vehicles to transport people along limited, fixed routes.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing community connectivity and efficient transportation design.

STRATEGIES

» Provide facilities that are for public transportation connections to the airport.
» Install a people mover system from remote parking lots, rental car facilities, employee parking, etc. to reduce traffic and vehicles on terminal roadways.
» Implement on-demand system for taxi management.
» Provide incentives for shared rides in taxis.
» Provide a waiting area for vehicles that are conducting passenger pick-up.
» Provide remote check-in facilities.
» Use traffic flow monitoring and modeling for planning at beginning of the planning and design process.
» Consolidate rental car facilities and shuttle transportation to minimize congestion on terminal roadways.
» Use Zero-Emission Vehicles (ZEV) shuttle transportation to minimize congestion on terminal roads and reduce carbon footprint.
» Use an off-site delivery-consolidation center to reduce delivery traffic and carbon footprint.
» Enact minimum delivery volume restrictions to minimize number of daily deliveries.
» Analyze any design impacts on the automatic vehicle identification system.

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD4-LP-1 Minimize Roadway Congestion

PROJECT TYPE CATEGORY

G O U L A T

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1
POINT

3.02

DESIGN
SUBMITTAL

ALTERNATIVE TRANSPORTATION— PUBLIC TRANSPORTATION ACCESS

INTENT

Reduce pollution and land development impacts from automobile use.

BENEFITS

» Reduces carbon emissions.
» Increases the efficiency of land development, reducing impacts from automobile use.
» Minimizes traffic congestion and and emissions from idling.
» Increases local public transportation opportunities, reducing parking space requirements.

CONSIDERATIONS

The City and County of Honolulu's The Bus system currently allows only one (1) 24" x 18" x 12" medium sized suitcase per person. (Other islands may vary).

STANDARDS

LEED-Commercial Interiors Sustainable Sites 3.1 Alternative Transportation: Public Transportation Access

LEED-Core & Shell Sustainable Sites 4.1: Alternative Transportation: Public Transportation Access

LEED-Existing Buildings: Maintenance and Operations Sustainable Sites 3.1 Alternative Transportation: Public Transportation Access

LEED-New Construction Sustainable Sites 4.1: Alternative Transportation: Public Transportation Access

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives promoting the use of public transportation as alternative transportation.

STRATEGIES

» Coordinate convenient access and proper signage to the airport's bus/transportation services.
» Consolidate rental car facilities and shuttle transportation to minimize congestion on terminal roadways.
» Provide/coordinate satellite check-in facilities (such as downtown location or near major hotels) to minimize congestion on terminal and access roadways and encourage the use of public transportation.

3.02

DESIGN
SUBMITTAL

ALTERNATIVE TRANSPORTATION— PUBLIC TRANSPORTATION ACCESS (CONT'D)

D

1
POINT

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD4-LP-3 Public Transportation Access

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

D

1
POINT

3.03

DESIGN
SUBMITTAL

ALTERNATIVE TRANSPORTATION—BICYCLE STORAGE & CHANGING FACILITY

INTENT

Reduce pollution and land development impacts from automobile use.

BENEFITS

» Reduces carbon emissions.
» Increases the efficiency of land development, reducing impacts from automobile use.
» Minimizes traffic congestion and emissions from idling.
» Increases local public transportation opportunities, reducing parking space requirements.

CONSIDERATIONS

Shower facilities should only be constructed where feasible and appropriate. The amount of bicycle racks should be based on number of regular building occupants.

STANDARDS

LEED-Commercial Interiors Sustainable Sites 3.2: Alternative Transportation: Bicycle Storage & Changing Rooms

LEED-Core & Shell Sustainable Sites 4.2: Alternative Transportation: Bicycle Storage & Changing Rooms

LEED-Existing Buildings: Maintenance and Operations Sustainable Sites 3.2: Alternative Transportation: Bicycle Storage & Changing Rooms

LEED-New Construction Sustainable Sites 4.2: Alternative Transportation: Bicycle Storage & Changing Rooms

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives promoting the use of bicycles as alternative transportation for full-time equivalents.

STRATEGIES

» Provide safe bicycle lanes and paths.
» Provide convenient facilities for secure bicycle storage for regular building occupants.
» Provide convenient changing and shower areas near bicycle storage.
» Consider airport security trends when designing bicycle storage and changing/shower areas.

3.03

DESIGN
SUBMITTAL

ALTERNATIVE TRANSPORTATION—BICYCLE STORAGE & CHANGING FACILITY (CONT'D)

D

1
POINT

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD4-LP-4 Bicycle Storage & Changing Rooms

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

D

1
POINT

3.04

DESIGN
SUBMITTAL

ALTERNATIVE TRANSPORTATION—ENERGY EFFICIENT VEHICLES

INTENT

Reduce pollution and land development impacts from automobile use. Support development and adoption of energy efficient vehicles.

BENEFITS

» Reduce carbon emissions.
» Reduce natural resources consumption and dependency on foreign oil.
» Reduces environmental impacts from oil extraction and refinement.
» Increases use of alternative fuel vehicles.
» Reduces cost of alternative fuel vehicles.
» Expands alternative fuel infrastructure.

CONSIDERATIONS

Coordinate design and development with existing programs/incentives regarding alternative fuel vehicles. One of the action items being pursued by the State of Hawai'i Lead By Example (LBE), in response to legislative and executive mandates to change the way State agencies uses energy in operations and facilities, is fuel diversification of State vehicles. The intent is to reduce petroleum consumption by 12% by 2015 (based on FY 2005 consumption).

Parking "incentives" for all airport controlled parking shall only refer to parking passes provided at discounted rates. The "preferred parking stall" strategy is not permitted for airport controlled parking areas. All other airport property is allowed to utilize any and all "preferred parking incentives" as the project sees fit.

STANDARDS

LEED-Core & Shell Sustainable Sites 4.3: Alternative Transportation: Low Emitting & Fuel Efficient Vehicles

LEED-Existing Buildings Sustainable Sites 3.3: Alternative Transportation: Alternative Fuel Vehicles

LEED-New Construction Sustainable Sites 4.3: Alternative Transportation: Low Emitting & Fuel Efficient Vehicles

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives promoting the use of energy efficient vehicles as alternative transportation.

STRATEGIES

» Enhance existing programs for alternative fuel vehicles within the airport operations.
» Provide alternative fuel refueling stations for airside use at airports.

RESOURCES

3.04

DESIGN
SUBMITTAL

ALTERNATIVE TRANSPORTATION— ENERGY EFFICIENT VEHICLES (CONT'D)

D

1
POINT

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD4-LP-6 Support Alternative Fuel Vehicles

Department of Business, Economic Development & Tourism, Model Year 2008 "Energy Efficient" Vehicles. Data retrieved from:

http://Hawai'i.gov/dbedt/info/energy/efficiency/state/2008%20EE%20Vehicles-FFV-HEV-FEV.pdf

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

D

1 POINT

3.05

DESIGN SUBMITTAL

ALTERNATIVE TRANSPORTATION—CAR POOLING & PARKING CAPACITY

INTENT

Reduce pollution and land development impacts from automobile use.

BENEFITS

» Reduces carbon emissions.
» Reduces environmental impacts from oil extraction and refinement.
» Reduces land development impacts from automobile.
» Reduces parking space requirements.
» Reduces heat-island effect from parking lots.
» Reduces air and water pollution from combustion process.
» Minimizes traffic congestion.
» Encourages use of mass transit.

CONSIDERATIONS

Parking incentives for all airport controlled parking shall only refer to parking passes provided at discounted rates. All other airport property is allowed to utilize any and all preferred parking incentives as the project sees fit.

STANDARDS

LEED-Commercial Interiors Sustainable Sites 3.4: Alternative Transportation: Parking Availability

LEED-Core & Shell Sustainable Sites 4.4: Alternative Transportation: Parking Capacity

LEED-Existing Buildings Sustainable Sites 3.4: Alternative Transpiration: Carpooling & Telecommuting

LEED-New Construction Sustainable Sites 4.4: Alternative Transportation: Parking Capacity

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives promoting car pooling and managing parking capacity.

STRATEGIES

» Provide preferred parking for carpools or vanpools.
» Provide signage for preferred parking stalls.
» Encourage telecommuting and off-site work; restructure organization to minimize travel requirements.
» Plan for the development of preferred parking and/or lot locations for alternative fuel rental vehicles, carpools and vanpools.
» Plan for installation of parking pay-by-foot or pay-and-go machines.
» Utilize traffic flow monitoring.
» Do not add new parking.

3.05

DESIGN
SUBMITTAL

ALTERNATIVE TRANSPORTATION—CAR POOLING & PARKING CAPACITY (CONT'D)

D

1
POINT

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD4-LP-5 Parking Capacity

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

04

WATER

4.01
Discharge Water Compliance

4.02
Water Efficient Landscaping

4.03
Improved Water Use & Efficiency

PROJECT TYPE CATEGORY

GOULAT

4.01 DISCHARGE WATER COMPLIANCE

DESIGN SUBMITTAL

C

1 POINT

INTENT

Protect natural habitats, waterways and water from pollutants carried in building discharge water.

BENEFITS

» Controls water pollution by regulating point sources that discharge pollutants into U.S. waters.

» Minimizes impact on public waters and habitats.

» Keeps property values from falling due to polluted water.

CONSIDERATIONS

If the facility is not regulated by a NPDES Permit, this credit is achieved; indicate on the checklist, a submittal sheet is not needed.

STANDARDS

LEED-Existing Buildings: Maintenance and Operations Water Efficiency Pre-Requisite 2

EPA National Pollution Discharge Elimination System (NPDES)

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Demonstrate NPDES permit compliance.

STRATEGIES

» If regulated by EPA National Pollution Discharge Elimination System (NPDES) Clean Water Act requirements, demonstrate NPDES permit compliance including use of any required oil separators, grease interceptors and other filtration for in-building generated discharges and proper disposal of any wastes collected.

RESOURCES

Section 402(p) of the Clean Water Act – 40 Part 122.26 NPDES permit program.

USEPA, 1972 Clean Water Act. Data retrieved from: http://www.epa.gov/lawsregs/laws/cwa.html

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

PROJECT TYPE CATEGORY

G O U L A T

D

3
POINT

4.02

DESIGN
SUBMITTAL

WATER EFFICIENT LANDSCAPING

INTENT

Limit or eliminate the use of potable water, or other natural surface or subsurface water resources available on or near the project site, for landscape irrigation.

BENEFITS

» Conserves potable water.
» Reduces consumption of natural resources.
» Reduces demand on water treatment facilities.

STANDARDS

LEED-Commercial Interiors Sustainable Sites 1G, 1H: Water Efficient Irrigation

LEED-Core & Shell Water Efficiency 1.1/1.2: Water Efficient Landscaping

LEED-Existing Buildings: Maintenance and Operations Water Efficiency 1.1/1.2: Water Efficient Landscaping

LEED-New Construction Water Efficiency 1.1/1.2: Water Efficient Landscaping

MANDATORY REQUIREMENTS

+ Consult the HNL Wildlife Hazard Management Plan on removal and implementation of vegetation per suggested plant list.

POINTS AVAILABLE

Quantify the reduction of potable water use in the project compared to a baseline calculation.

AND

Provide a narrative describing best management practices implemented in the project that reduce potable water use for landscaping.

% POTABLE WATER USE REDUCTION

+ 1: 50%

+ 2: 75%

+ 3: 100%

STRATEGIES

» Use non-potable water for irrigation. Do not install an irrigation system supplied by potable water. Coordinate with Airport.
» Capture stormwater and/or graywater for use in irrigation.
» Segregate drought-resistant vegetation from conventional vegetation.
» Use only approved drought tolerant grasses/vegetation that does not attract wildlife.
» Install efficient irrigation systems, such as a slow-drip, sub-soil irrigation.

4.02

DESIGN
SUBMITTAL

WATER EFFICIENT LANDSCAPING (CONT'D)

D

3
POINT

- » Perform a soil and climate analysis.
- » Increase shade for vegetation to help retain water.
- » Use mulching or composting to increase water retention.
- » Use xeriscaping where appropriate.
- » Landscaped areas should be watered at night when most wildlife are inactive.
- » Plants selections not found in existing DOT-A suggested plant lists must be submitted for approval from DOT-A, and should not attract wildlife.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Honolulu International Airport. Airport Certification Manual, Wildlife Hazard Management Plan (WHMP), May 2004.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD7-LD-1 Reduce Potable Water Use for Landscaping; PD7-LD-2 Eliminate Potable Water Use for Landscaping

State of Hawai'i Department of Health Wastewater Branch. Guidelines for the Treatment and Use of Recycled Water, May 2002. Data retrieved from: http://Hawai'i.gov/health/environmental/water/wastewater/pdf/reuse-final.pdf

U.S. Department of Agriculture, Animal and Plant Health Inspection Service. Honolulu International Airport Wildlife Hazard Assessment, January 2004.

USEPA. Greenscapes. Data retrieved from: www.epa.gov/greenscapes

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

D

4 POINTS

4.03

DESIGN SUBMITTAL

IMPROVED WATER USE & EFFICIENCY

INTENT

Reduce generation of wastewater and potable water demand while increasing the local aquifer recharge. Maximize water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.

BENEFITS

» Conserves limited water resources.
» Reduces natural resources consumption.
» Reduces environmental impacts and the demand on water treatment facilities.
» Reduces need to extract water from other regions.
» Minimizes impact on local water processing.
» Reduces unnecessary potable water demand and usage.
» Conserves and preserves integrity of the local aquifer.
» Promotes wetland habitats and groundwater recharge.
» Reduces on-site stormwater runoff through harvest for non-potable needs.
» Saves costs on potable water by reusing stormwater and graywater for uses such as sewage conveyance.
» Minimizes energy used to treat water that is used for non-potable needs.
» Minimizes burden on municipal sewer infrastructure.

CONSIDERATIONS

Waterless urinals and electronic sensors should be considered for non-high traffic areas only due to maintenance concerns.

STANDARDS

LEED-Commercial Interiors Sustainable Sites 1I: Innovative Wastewater Technologies, 1J/1.1/1.2: Water Use Reduction

LEED-Core & Shell Water Efficiency 2: Innovative Wastewater Technologies, 3.1/3.2: Water Use Reduction

LEED-Existing Buildings: Maintenance and Operations Water Efficiency Pre-Requisite 1: Minimum Water Efficiency, 2: Innovative Wastewater Technologies, 3.1/3.2: Water Use Reduction

LEED-New Construction Water Efficiency 2: Innovative Wastewater Technologies, 3.1/3.2: Water Use Reduction

POINTS AVAILABLE

Quantify the reduction of water use in the project compared to a baseline calculation.

AND

Provide a narrative describing best management practices implemented in the project that reduce potable water use and increase water use efficiency.

% POTABLE WATER USE REDUCTION

4.03

DESIGN
SUBMITTAL

IMPROVED WATER USE & EFFICIENCY (CONT'D)

D

4
POINTS

+ 1: 10%

+ 2: 20%

+ 3: 30%

+ 4: 40%

STRATEGIES

» Reduce use of potable water for building sewage conveyance:
  - Install high-efficiency plumbing fixtures and valves; utilize electronic sensors in lavatories, urinals and faucets.
  - Utilize plumbing fixtures such as ultra low flow toilets (0.8 gal/flush), low flow toilets (1.1 gal/flush), ultra low flow urinals (0.5 gal/flush) and dual flush toilets
  - See the EPA website for a high efficient toilet product listing.

» Evaluate use of reclaimed water for cooling tower makeup.

» Evaluate pulsed-power electromagnetic water treatment, ultraviolet treatment, or ozone treatment for cooling tower water.

» Collect and reuse stormwater for non-potable uses.

» Capture graywater for sewage conveyance or on-site wastewater treatment systems.

» Construct on-site wastewater treatment facilities.

» Treat wastewater on-site to tertiary standards if reasonable and feasible.

» Use tank-less hot water heaters

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD8-WE-2 Water Use Efficiency; PD8-WE-3 Water & Wastewater Reuse

Port Authority of New York and New Jersey, Engineering Department. Sustainable Design Guidelines, New Construction, July 2004.

State of Hawai'i Department of Health Wastewater Branch. Guidelines for the Treatment and Use of Recycled Water, May 2002. Data retrieved from: http://Hawai'i.gov/health/environmental/water/wastewater/pdf/reuse-final.pdf

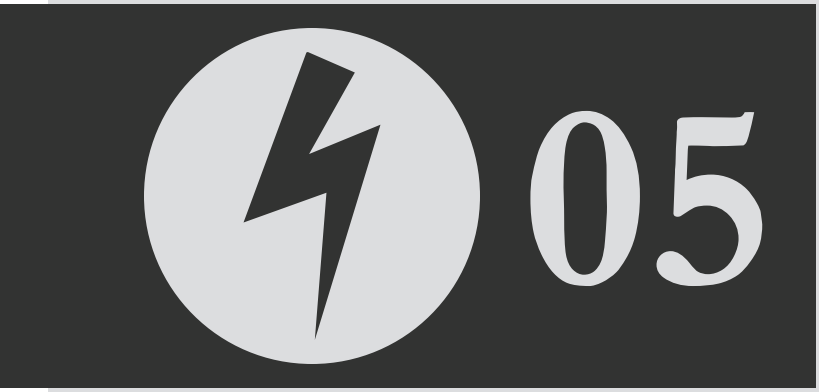
USEPA. WaterSense Program. Data retrieved from http://www.epa.gov/watersense/

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.



05 ENERGY

5.01
Commissioning of Building Energy Systems

5.02
Minimum Energy Performance

5.03
CFC / HCFC Reduction

5.04
Optimize Energy Performance

5.05
Renewable Energy—On-Site

5.06
Energy Management—Measurement & Verification

5.07
Alternative Energy—Off-Site, Off-Grid

PROJECT TYPE CATEGORY

G O U L A T

5.01

CONSTRUCTION
SUBMITTAL

COMMISSIONING OF BUILDING ENERGY SYSTEMS

C

1
POINT

INTENT

Verify that the building's energy related systems are installed, calibrated and performing according to the client's project requirements, basis of design, and construction documents.

BENEFITS

» Ensures all processes are functioning as specified per project requirements.
» Reduces energy consumption.
» Decreases carbon footprint.
» Reduces consumption of excess natural and non-renewable resources.
» Reduces environmental impacts related to energy production.

CONSIDERATIONS

The DOT-A may allow, on a project-by-project basis, commissioning to be conducted by a party within the project team.

STANDARDS

LEED-Commercial Interiors Energy and Atmosphere Pre-Requisite 1: Fundamental Commissioning of Building Energy Systems, 2: Enhanced Commissioning

LEED-Core & Shell Energy and Atmosphere Pre-Requisite 1: Fundamental Commissioning of Building Energy Systems, 3: Enhanced Commissioning

LEED-Existing Buildings: Maintenance and Operations Energy and Atmosphere Pre-Requisite 1: Existing Building Commissioning

LEED-New Construction Energy and Atmosphere Pre-Requisite 1: Fundamental Commissioning of Building Energy Systems, 3: Enhanced Commissioning

MANDATORY REQUIREMENTS

+ Complete a commissioning report.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Commissioning to be performed on all projects. Provide a narrative for implementing a systems commissioning of building energy systems.

C

1 POINT

5.01

CONSTRUCTION SUBMITTAL

COMMISSIONING OF BUILDING ENERGY SYSTEMS (CONT'D)

STRATEGIES

» Designate a third party consultant to be the commissioning agent and lead the commissioning process early in the project.

» Develop owner's project requirements early in the design process.

» Review the design intent and the basis of design (BOD).

» Incorporate commissioning requirements into the construction documents.

» Develop and utilize a commissioning plan.

» Verify installation, functional performance, training, operations and maintenance documentation.

» Establish systems commissioning requirements consistent with sustainable design to ensure optimal performance of systems. Consider the following systems:

- Central Building Automation System
- All HVAC system equipment
- Lighting controls and sensors
- Site Lighting
- Vertical Transport
- Building Envelope
- Emergency Power Generators and Automatic Transfer Switching
- Uninterruptible Power Supply systems
- Life Safety systems; Fire protection Fire alarm, Egress pressurization
- Lighting Protection
- Domestic and Process water pumping and mixing systems
- Equipment sound control systems
- Data and Communication systems
- Paging systems
- Security systems
- Irrigation systems
- Plumbing

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD12-EC-3 Energy Systems Commissioning

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

5.02

DESIGN
SUBMITTAL

MINIMUM ENERGY PERFORMANCE

D

1
POINT

INTENT

Establish the minimum level of energy efficiency for the proposed building and systems.

BENEFITS

» Reduces energy costs and buffers against volatile energy markets.
» Decreases carbon footprint in compliance with state and federal requirements.
» Reduces consumption of excess natural and non-renewable resources.
» Reduces environmental impacts related to energy production.
» Develops plan to continually reduce energy as new technologies become available.

STANDARDS

Act 234, Session Laws of Hawai'i: "Global Warming Solutions Act"

LEED-Commercial Interiors Energy and Atmosphere Pre-Requisite 2: Minimum Energy Performance

LEED-Core & Shell Energy and Atmosphere Pre-Requisite 2: Minimum Energy Performance

LEED-Existing Buildings: Maintenance and Operations Energy and Atmosphere Pre-Requisite 2: Minimum Energy Performance

LEED-New Construction Energy and Atmosphere Pre-Requisite 2: Minimum Energy Performance

MANDATORY REQUIREMENTS

+ Develop an energy use budget for the project for the first year.

+ Interface with the Airport Energy Monitoring and Control System (EMCS).

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Design and confirm the building project complies with ANSI/ASHRAE/IESNA Standard 90.1-2007 AND develop baseline energy consumption by itemizing sources of energy use.

D

1
POINT

5.02

DESIGN
SUBMITTAL

MINIMUM ENERGY PERFORMANCE (CONT'D)

STRATEGIES

- » Meet local Energy Conservation Code.
- » Design buildings to comply with ANSI/ASHRAE/IESNA Standard 90.1-2007 or latest version.
- » For runways, roadways, and stormwater systems, design site systems to comply with the intents of ANSI/ASHRAE/IESNA Standard 90.1-2007 related to energy savings goal.
- » Provide baseline energy consumption by itemizing sources of energy use.
- » Provide a computer energy simulation model.
- » Design energy efficient buildings in order to reduce energy consumption and carbon footprint of buildings that exceed Hawai'i's Global Warming Solutions Act 234.
- » Interface with the existing EMCS system.
- » Use a maintenance log to track energy use processes, problems, and ideas.
- » Identify strategies that can be used to reduce energy consumption below the energy use budget established for the first year.
- » Provide studies and life cycle analyses for implementing renewable technologies, such as solar, wind, geothermal, tidal, in coordination with Credit 5.05: On-site Renewable Energy.
- » Investigate all rebates for reduced energy consumption initiatives.

RESOURCES

Act 234, Session Laws of Hawai'i: "Global Warming Solutions Act", 2007. Data retrieved from: http://Hawai'i.gov/dbedt/info/energy/greenhouse/

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Department of Business, Economic Development & Tourism. State of Hawai'i. Hawai'i Model Energy Code. Data retrieved from: http://Hawai'i.gov/dbedt/info/energy/

Department of Business, Economic Development & Tourism, Strategic Industries Division. State of Hawai'i Agencies Energy Initiatives. Lead by Example. FY 2006-07: Data retrieved from: http://www.Hawai'i.gov/dbedt/info/energy/efficiency/state/lbe

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD12-EC-2 Minimum Energy Baseline

U.S. Department of Energy, ANSI/ASHRAE/IESNA Standard 90.1-2007 Energy Standards for Buildings Except Low-Rise Residential Buildings, 2008.

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

5.03

DESIGN
SUBMITTAL

CFC / HCFC REDUCTION

D

1
POINT

INTENT

Reduce the use of gases and chemicals that contribute to ozone depletion.

BENEFITS

» Reduces ozone degradation and global warming.

» Streamlines compliance or exemption from South Coast Air Quality Management District (SCAQMD) Refrigerant requirements (as found in LEED).

STANDARDS

LEED-Commercial Interiors Energy and Atmosphere Pre-Requisites 3: CFC Reduction in HVAC&R Equipment

LEED-Core & Shell Energy and Atmosphere Pre-Requisites 3: Fundamental Refrigerant Management, 4: Enhanced Refrigerant Management

LEED-Existing Buildings: Maintenance and Operations Energy and Atmosphere Pre-Requisite 3: Ozone Protection, Energy and Atmosphere 4: Additional Ozone Protection

LEED-New Construction Energy and Atmosphere Pre-Requisites 3: Fundamental Refrigerant Management, 4: Enhanced Refrigerant Management

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Ensure new building HVAC equipment does not use CFC or HCFC refrigerants. Use proper recapture and disposal methods and procedures for existing refrigerants.

STRATEGIES

» For existing or retrofit HVAC systems, inventory equipment that uses CFC and HCFC refrigerants and adopt a replacement schedule for these refrigerants.

» Use evaporative cooling.

» Select refrigerants and HVAC&R that minimize or eliminate the emission of compounds that contribute to ozone depletion and global warming.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Clean Air Act, Section 608 Refrigerant Recycling and Emissions Reduction Regulations. Data retrieved from: http://epa.gov/air/caa/caa608.txt

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD13-EI-1 Refrigerant Management / Ozone Protection

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

D

10
POINTS

5.04

DESIGN
SUBMITTAL

OPTIMIZE ENERGY PERFORMANCE

INTENT

Increase levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.

BENEFITS

» Reduces energy costs and buffers against volatile energy markets.
» Decreases carbon footprint in compliance with state and federal requirements.
» Reduces consumption of excess natural and non-renewable resources.
» Reduces environmental impacts related to energy production.

CONSIDERATIONS

To achieve this credit, the project must comply with Credit 5.02: Minimum Energy Performance.

Lighting design for the project should coordinate with Credit 1.08: Light Pollution Reduction.

When implementing natural ventilation solutions and maximizing openings, consider noise and exterior air quality impacts relative to the project location (i.e. exposure to jet fumes, slippery surfaces due to wind driven rain, trade winds, Kona trade winds, National Weather Service (NWS) data, etc.).

STANDARDS

Act 234, Session Laws of Hawai'i: "Global Warming Solutions Act"

LEED-Commercial Interiors Energy and Atmosphere 1: Optimize Energy Performance

LEED-Core & Shell Energy and Atmosphere 1: Optimize Energy Performance

LEED-Existing Buildings: Maintenance and Operations Energy and Atmosphere 1: Optimize Energy Performance

LEED-New Construction Energy and Atmosphere 1: Optimize Energy Performance

MANDATORY REQUIREMENTS

+ All projects shall obtain a 12% reduction in energy use at minimum.

+ Provide appropriate training for the operations and maintenance of all systems.

+ Interface with the HNL Energy Monitoring and Control System (EMCS).

POINTS AVAILABLE

5.04

DESIGN
SUBMITTAL

OPTIMIZE ENERGY PERFORMANCE (CONT'D)

D

10
POINTS

Design the project to exceed compliance of ANSI/ASHRAE/IESNA Standard 90.1-2007. Quantify energy performance of the project compared to the baseline calculated in Credit 5.02: Minimum Energy Performance.

AND

Provide a narrative describing best management practices implemented in the project that optimize energy performance beyond the minimum level of efficiency.

NEW BUILDINGS	EXISTING BUILDINGS
+ 1: up to 12%	**+ 1: up to 8%**
+ 2: 16%	**+ 2: 12%**
+ 3: 20%	**+ 3: 16%**
+ 4: 24%	**+ 4: 20%**
+ 5: 28%	**+ 5: 24%**
+ 6: 32%	**+ 6: 28%**
+ 7: 36%	**+ 7: 32%**
+ 8: 40%	**+ 8: 36%**
+ 9: 44%	**+ 9: 40%**
+ 10: 48%	**+ 10: 44%**

STRATEGIES

» Minimize use of mechanical systems where possible. Incorporate natural ventilation to greatest extent possible.
» Use computer simulation models to assess energy performance and identify the most cost effective energy measures.
» Provide high-efficiency motors and systems.
» Provide energy efficient lighting systems.
» Organize lighting and building systems so that individual areas are separately controlled.
» Orient building for passive solar/daylight penetration and natural ventilation.
» Use light colored paints and interiors to reflect lighting.
» Maximize day lighting and avoid glare issues.
» Use motion sensors to turn off equipment when occupants are not present where possible.
» Implement the following technologies and strategies for buildings and structures:
  - Energy efficiency upgrades to relocated facilities
  - Use LED or CFL fixtures for lighting, signage, taxiways and runways

D

10 POINTS

5.04

DESIGN SUBMITTAL

OPTIMIZE ENERGY PERFORMANCE (CONT'D)

- Provide daylight harvesting control systems
- Optimize use of lighting controls
- Integrate lighting systems with building automation systems
- Use high performance glazing and window systems
- Use under floor air distribution systems if appropriate
- Maximize levels of insulation and thermal mass
- Specify Variable Frequency Drive (VFD) motors

» Reduce after-hour energy consumption.

» Incorporate sensors that adjust lighting based on incoming light levels.

» Develop open office plan if applicable.

» Consider ease of maintenance when designing lighting and HVAC systems.

» Evaluate a multiple-chiller system with units of varying size.

» Utilize absorption cooling.

» Tie lighting, temperature and ventilation in public areas of terminals to flight schedules.

» Design terminal areas considering a variety of light and sound levels.

» Provide studies and life cycle analyse for implementing renewable technologies, such as solar, wind, geothermal, tidal, etc. in coordination with Credit 5.05: On-site Renewable Energy.

» Investigate all rebates for reduced energy consumption initiatives.

RESOURCES

Act 234, Session Laws of Hawai'i: "Global Warming Solutions Act", 2007. Data retrieved from: http://Hawai'i.gov/dbedt/info/energy/greenhouse/

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD12-EC-4 Energy Optimization

U.S. Department of Energy, ANSI/ASHRAE/IESNA Standard 90.1-2007 Energy Standards for Buildings Except Low-Rise Residential Buildings, 2008.

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

5.05

DESIGN
SUBMITTAL

RENEWABLE ENERGY—ON-SITE

D

4
POINTS

INTENT

Increase levels of on-site renewable energy self-supply in order to reduce environmental and economic impacts associated with fossil fuel energy use.

BENEFITS

» Reduces energy cost.
» Reduces carbon footprint.
» Reduces air pollution.
» Helps stabilize energy dependent economy.
» Supports efforts in developing additional alternative energy sources.
» Helps reduce environmental impacts related to energy production.

CONSIDERATIONS

Solar collector technologies, such as heliostats, produce glare. However, amorphous film and flexible systems that lay flat and behave like roof membranes will have the lowest reflectivity and glare because their surface is more dimpled and not glossy. All other PV technologies, concentrated and/or flat plate will have the potential for glare because they have higher reflectivity surfaces due to the use of glass or similar surface material. Care must be taken in locating the installation on airport property and must be coordinated with DOT-A and FAA.

STANDARDS

LEED-Commercial Interiors Sustainable Sites 1K: On-Site Renewable Energy

LEED-Core & Shell Energy and Atmosphere 2: On-Site Renewable Energy

LEED-Existing Buildings: Maintenance and Operations Energy and Atmosphere 2.1-2.4: Renewable Energy

LEED-New Construction Energy and Atmosphere 2: On-Site Renewable Energy

State of Hawai'i Renewable Portfolio Standard

MANDATORY REQUIREMENTS

+ Provide appropriate training for the operations and maintenance of all systems.

+ Interface with the HNL Energy Monitoring and Control System (EMCS).

D

4 POINT

5.05

DESIGN SUBMITTAL

RENEWABLE ENERGY—ON-SITE (CONT'D)

POINTS AVAILABLE

Design the project to utilize on-site renewable energy systems. Quantify the amount of energy consumed by the project from renewable energy sources on-site.

AND

Provide a narrative describing best management practices implemented in the project that utilize renewable energy.

% RENEWABLE ENERGY USED IN THE PROJECT:

+ 1: less than 2.5%

+ 2: 2.5%

+ 3: 7.5%

+ 4: 12.5%

STRATEGIES

» Determine readily available sources of renewable sources of renewable or alternative energy such as defined above.

» Use discrete photovoltaic power source for outlying equipment, ancillary buildings, and parking and site lighting.

» Use solar hot water.

» Use building-integrated photovoltaics.

» Use solar powered signs and lighting.

» Use wind power where appropriate and applicable. Coordinate location with DOT-A.

» Utilize fuel cells.

» Provide studies and life cycle analyse for implementing renewable technologies.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD12-EC-6 On-site Alternative & Renewable Energy

State of Hawai'i, Act 95, Session Laws of Hawai'i, Renewable Portfolio Standard, 2004. Data retrieved from: http://www.dsireusa.org/library/includes/incentive2.cfm?Incentive_Code=HI06R&state=HI&CurrentPageID=1&RE=1&EE=1

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

Investigate all rebates for reduced energy consumption initiatives.

PROJECT TYPE CATEGORY

GOULAT

5.06

DESIGN
SUBMITTAL

ENERGY MANAGEMENT— MEASUREMENT & VERIFICATION

D

1
POINT

INTENT

Provide for the ongoing accountability of building energy consumption over time.

BENEFITS

» Reduces energy costs.
» Decreases carbon footprint.
» Develops plan to continually reduce energy as new technologies become available.

CONSIDERATIONS

Coordinate with Airport's Energy Monitoring & Control System (EMCS) which monitors power consumptions and controls the lights and ventilation at the airport; areas of the system may be outdated or under-utilized.

STANDARDS

LEED-New Construction Energy and Atmosphere 5: Measurement & Verification

LEED-Commercial Interiors Energy and Atmosphere 3: Energy Use, Measurement & Payment Accountability

LEED-Core & Shell Energy and Atmosphere 5.1/5.2: Measurement & Verification

LEED-Existing Buildings: Maintenance and Operations Energy and Atmosphere 5.1-5.3: Performance Measurement

MANDATORY REQUIREMENTS

Use continuous metering equipment for the following:

+ Variable frequency drive operation

+ Chiller efficiency at variable loads

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing energy management.

D

1 POINT

5.06

DESIGN SUBMITTAL

ENERGY MANAGEMENT— MEASUREMENT AND VERIFICATION (CONT'D)

STRATEGIES

» Use continuous metering equipment for any or all of the following:
- Lighting systems and controls
- Constant and variable motor loads
- Cooling load
- Air and water economizer and heat recovery cycles
- Air distribution static pressures and ventilation air volumes
- Building-related process energy systems and equipment
- Indoor water risers and outdoor irrigation

» Follow a Measurement and Verification Plan that incorporates the monitoring information from the above end users and consistent with Option B or D of the 2001 International Performance Measurement & Verification Protocol IPMVP.

» Inventory data that will support Energy Management Plan.

» Install sub-metering equipment to measure and record energy uses within tenant spaces.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Department of Business, Economic Development & Tourism, Strategic Industries Division. State of Hawai'i Agencies Energy Initiatives. Lead by Example. FY 2006-07.

International Performance Measurement & Verification Protocol (IPMVP). Volume III, Part I: Concepts and Practices for Determining Energy Savings in New Construction, 2001.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD12-EC-1 Energy Management Plan

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

5.07

DESIGN
SUBMITTAL

ALTERNATIVE ENERGY—OFF-SITE, OFF-GRID

D

1
POINT

INTENT

Encourage the development and use of grid-source, renewable energy technologies on a net zero pollution basis.

BENEFITS

» Reduces energy cost.
» Reduces carbon footprint.
» Reduces air pollution.
» Helps stabilize energy dependent economy.
» Supports efforts in developing additional alternative energy sources.
» Helps reduce environmental impacts related to energy production.

STANDARDS

LEED-Commercial Interiors Energy and Atmosphere 4: Green Power

LEED-Core & Shell Energy and Atmosphere 6: Green Power

LEED-New Construction Energy and Atmosphere 6: Green Power

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives to utilize green power from off-site, off-grid sources.

STRATEGIES

» Purchase power from a utility providing 'green power' electricity generated from biomass, wind energy systems or other renewable sources off-site of the project and off grid.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD12-EC-7 On-Grid Renewable Energy

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

06

MATERIALS FLOWS & WASTE

6.01
Storage of Recyclables—Landside & Airside

6.02
Structure & Building Reuse—Exterior

6.03
Structure & Building Reuse—Interior

6.04
Resource Reuse

6.05
Recycled Content

6.06
Local / Regional Materials

6.07
Rapidly Renewable Materials

6.08
Certified Wood

6.09
Design for Reuse & Recycling

PROJECT TYPE CATEGORY

G O U L A T

6.01

DESIGN
SUBMITTAL

STORAGE OF RECYCLABLES— LANDSIDE & AIRSIDE

D

1
POINT

INTENT

Facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills.

BENEFITS

» Increases quantities of materials diverted from landfills and incineration to recycling.

CONSIDERATIONS

Recycling efforts should be planned in coordination with HNL.

STANDARDS

State of Hawai'i Department of Health, Hawai'i Beverage Container Deposit Program

LEED-Commercial Interiors Materials and Resources Pre-Requisite 1: Storage & Collection of Recyclables

LEED-Core & Shell Materials and Resources Pre-Requisite 1: Storage & Collection of Recyclables: Source Reduction & Waste Management

LEED-Exiting Buildings: Maintenance and Operations Material and Resources Pre-Requisite 1.2

LEED-New Construction Materials and Resources Pre-Requisite 1: Storage & Collection of Recyclables

MANDATORY REQUIREMENTS

+ Coordinate storage locations for recyclables with HNL District Management.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: At minimum, provide easily accessible areas for collection and storage of all the following waste materials:

- Paper
- Cardboard
- Glass
- Plastics
- Aluminum

STRATEGIES

» Review existing facilities to identify optimal location(s) for recyclables storage (airside and landside).

» Incorporate collection rooms for recycling where appropriate.

» Coordinate recyclable collection infrastructure with hauler capability.

D

1
POINT

6.01

DESIGN
SUBMITTAL

STORAGE OF RECYCLABLES— LANDSIDE & AIRSIDE (CONT'D)

» Provide an easily accessible area that serve tenant spaces and is dedicated to the collection and storage of non-hazardous materials for recycling.

» Specify cardboard balers, aluminum can crushers, recycling chutes, and other technologies to enhance recycling activities.

» Instruct users and occupants on recycling procedures.

» Consider providing storage areas for the following additional waste materials if appropriate:

- Food Waste
- Gas & Oil Filters
- Motor Oil and Anti-freeze
- Scrap metal
- Batteries
- Light bulbs
- Tires
- Electrical wiring
- E-waste, i.e. electronics including monitors
- Hazardous Materials and Spent Solvents
- Wood Pallets

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD14-MR-2 Storage & Collection of Recyclable

State of Hawai'i Department of Health, Solid and Hazardous Waste Branch, Office of Solid Waste Management. Minimizing Construction and Demolition Wastes, 2007. Data retrieved from: http://Hawai'i.gov/health/environmental/waste/sw/pdf/constdem07.pdf

State of Hawai'i Department of Health, Hawai'i Beverage Container Deposit Program. Data retrieved from: http://Hawai'i.gov/health/environmental/waste/sw/sw/hi5/index.html

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

6.02

CONSTRUCTION
SUBMITTAL

STRUCTURE & BUILDING REUSE—EXTERIOR

C

1
POINT

INTENT

Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impact of new buildings as they relate to materials manufacturing and transport.

BENEFITS

» Potential capital construction cost savings.
» Minimizes the loss of embodied energy.

CONSIDERATIONS

Consider all aspects of functionality, feasibility, efficiency, healthfulness, etc.

STANDARDS

LEED-Core & Shell Materials and Resources 1.1/1.2: Building Reuse

LEED-New Construction Materials and Resources 1.1/1.2: Building Reuse

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives to reuse/relocate existing structures and buildings.

If an existing structure/runway cannot be reused, provide a narrative describing the factors considered and reasons for not implementing this strategy (i.e. The existing structure was of a hazardous nature and inefficiencies would be too high to accomplish a retrofit high performance structure.)

STRATEGIES

» Reuse existing structures if possible and appropriate.
» Relocate existing structures if possible and appropriate.
» Reuse existing runway and infrastructure if possible and appropriate.

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD14-MR-5 Building Reuse

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

C

1 POINT

6.03

CONSTRUCTION SUBMITTAL

STRUCTURE & BUILDING REUSE—INTERIOR

INTENT

Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impact of new buildings as they relate to materials manufacturing and transport.

BENEFITS

» Potential capital construction cost savings.
» Minimizes the loss of embodied energy.

CONSIDERATIONS

Consider all aspects of functionality, feasibility, efficiency, healthfulness, etc.

STANDARDS

LEED-Commercial Interiors Materials and Resources 1.2/1.3: Building Reuse

LEED-Core & Shell Materials and Resources 1.3: Building Reuse

LEED-New Construction Materials and Resources 1.3: Building Reuse

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives to reuse/relocate existing infrastructure and interior non-structural elements.

If existing infrastructure and interior non-structural elements cannot be reused, provide a narrative describing the factors considered and reasons for not implementing this strategy (i.e. The existing infrastructure was of a hazardous nature and the existing inefficiencies would be too high to accomplish high performance design.)

STRATEGIES

» Reuse/relocate existing infrastructure.
» Reuse/relocate existing interior non-structural elements.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD14-MR-5 Building Reuse

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

6.04

CONSTRUCTION
SUBMITTAL

RESOURCE REUSE

C

3
POINTS

INTENT

Reuse building materials and products in order to reduce demand for virgin materials and to reduce waste, thereby reducing impacts associated with the extraction and processing of virgin resources.

BENEFITS

» Potential capital construction cost savings.
» Minimizes the loss of embodied energy.
» Minimize use of fossil and other non-renewable energy sources in the harvesting of raw materials, the manufacture of components and their transport to the project site.

CONSIDERATIONS

Consider all aspects of functionality, feasibility, efficiency, healthfulness, etc.

STANDARDS

LEED-Commercial Interiors Materials and Resources 3.1/3.2/3.3: Resource Reuse

LEED-Core & Shell Materials and Resources 3: Material Reuse

LEED-Existing Buildings: Maintenance and Operations Materials and Resources 2 (partial): Optimize Use of Alternative Materials

LEED-New Construction Materials and Resources 3.1/3.2: Material Reuse

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Provide a narrative describing best management practices (regardless of quantity) implemented in the project that promote resource reuse, regardless of quantity.

+ 2: Meet the requirements of LEED-NC Credit 3.1: Materials Reuse (5% total, based on cost) and submit LEED documentation requirements of this credit.

+ 3: Meet the requirements of LEED-NC Credit 3.2: Materials Reuse (additional 5% beyond MR Credit 3.1, 10% total, based on cost) and submit LEED documentation requirements of this credit.

C

3
POINTS

6.04

CONSTRUCTION
SUBMITTAL

RESOURCE REUSE (CONT'D)

STRATEGIES

» Advertisement of salvage activities prior to demolition activities to encourage salvaged materials re-use.

» Use of a public information site or other means to list salvaged materials to offer for sale or donation.

» Use salvaged, refurbished or used materials.

» Use salvaged, refurbished or used furniture and furnishings.

» Reuse the following major components to extent possible:

- Aggregate and fly-ash in cast-in-place concrete
- Bituminous concrete pavement
- Unit pavers
- Soil and vegetation
- Steel reinforcement
- Structural and miscellaneous steel
- Steel fencing and furnishings
- Unit masonry
- Ductile iron pipe
- Aluminum products
- Site-generated broken concrete for gabions
- Steel doors and frames
- Aluminum doors and windows
- Plaster
- Terrazzo
- Acoustical ceilings
- Drywall
- Carpet and resilient flooring
- Toilet and shower compartments
- Equipment
- Sheet metal ductwork
- Site lighting

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD14-MR-6 Material Reuse

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

6.05

CONSTRUCTION
SUBMITTAL

RECYCLED CONTENT

C

3
POINTS

INTENT

Increase demand for building products that incorporate recycled content materials, thereby reducing impacts from the extraction and processing of virgin materials.

BENEFITS

» Minimizes loss of embodied energy from the discarding of materials that could be recycled/remanufactured/ downcycled.

» Minimize use of fossil fuels and other non-renewable energy sources in the harvesting of raw materials and the manufacture of components.

CONSIDERATIONS

Consider all aspects of functionality, feasibility, efficiency, healthfulness, etc.

STANDARDS

LEED-Core & Shell Materials and Resources 4.1/4.2: Recycled Content

LEED-New Construction Materials and Resources 4.1/4.2: Recycled Content

LEED-Existing Buildings: Maintenance and Operations Materials and Resources 2 (partial): Optimize Use of Alternative Materials

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Provide a narrative describing best management practices (regardless of quantity) implemented in the project that utilizes materials with recycled content.

+ 2: Meet the requirements of LEED-NC Credit 4.1: Recycled Content (10% of total value of materials in the project) and submit LEED documentation requirements of this credit.

+ 3: Meet the requirements of LEED-NC Credit 4.2: Materials Reuse (additional 10% beyond MR Credit 4.1, 20% total, based on cost) and submit LEED documentation requirements of this credit.

C

3
POINTS

6.05

CONSTRUCTION
SUBMITTAL

RECYCLED CONTENT (CONT'D)

STRATEGIES

» Establish the appropriate project goals for recycled content materials.

» Consider the following major building components:

- Aggregate in cast-in-place concrete
- Fly ash in cast-in-place concrete
- Aggregate in pre-cast concrete
- Bituminous concrete pavement
- Unit pavers
- Steel
- Miscellaneous steel
- Steel fencing and furnishings
- Unit masonry
- Ductile iron pipe
- Aluminum products
- Site-generated broken concrete for gabions
- Steel doors and frames
- Aluminum doors and windows
- Plaster
- Terrazzo
- Acoustical ceilings
- Drywall
- Finish flooring including carpet, resilient flooring, and terrazzo
- Toilet and shower compartments
- Special finishes
- Equipment
- Sheet metal ductwork
- Site lighting

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD14-MR-7 Recycled Content

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

6.06

CONSTRUCTION
SUBMITTAL

LOCAL / REGIONAL MATERIALS

C

3
POINTS

INTENT

Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

BENEFITS

» Reduces the use of fossil fuels in the transport of materials and components.
» Help reduce embodied energy.
» Stimulates the growth of Hawai'i's economy.

CONSIDERATIONS

Consider all aspects of functionality, feasibility, efficiency, healthfulness, etc.

STANDARDS

LEED-Commercial Interiors Materials and Resources 5.1/5.2: Regional Materials

LEED-Core & Shell Materials and Resources 5.1/5.2: Regional Materials

LEED-Existing Buildings: Maintenance and Operations Materials and Resources 2 (partial): Optimize Use of Alternative Materials

LEED-New Construction Materials and Resources 5.1/5.2: Regional Materials

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Provide a narrative describing best management practices (regardless of quantity) implemented in the project that utilizes materials and products that were manufactured in the State of Hawai'i.

+ 2: Meet the requirements of LEED-NC Credit 5.1: Regional Materials (10% of total value of materials in the project) and submit LEED documentation requirements of this credit.

+ 3: Meet the requirements of LEED-NC Credit 5.2: Materials Reuse (additional 10% beyond MR Credit 5.1, 20% total, based on cost) and submit LEED documentation requirements of this credit.

C

3
POINT

6.06

CONSTRUCTION
SUBMITTAL

LOCAL / REGIONAL MATERIALS (CONT'D)

STRATEGIES

» Establish the appropriate project goal for regional materials utilization.

» Evaluate materials for their potential origin from local sources including:

- Concrete
- Architectural precast concrete
- Asphalt
- Unit masonry
- Stone masonry
- Concrete pipe
- Manholes and handholes
- Electrical ductbanks
- Landscape material and seed
- Lava rock
- Wood

» Specify materials and products made in Hawai'i to extent possible.

» Allow longer lead times for local companies to supply materials if necessary.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD14-MR-8 Regional Materials

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

6.07

CONSTRUCTION
SUBMITTAL

RAPIDLY RENEWABLE MATERIALS

C

2
POINTS

INTENT

Reduce the use and depletion of finite raw materials and long-cycle renewable materials by replacing them with rapidly renewable materials.

BENEFITS

» Reduces the use of long-cycle renewable materials and thereby reduces the depletion of these materials.

CONSIDERATIONS

Consider all aspects of sustainable efforts when selecting material and products (i.e. consider products' after life, embodied energy, etc.).

STANDARDS

LEED-New Construction Materials and Resources 6: Rapidly Renewable Materials

LEED-Commercial Interiors Materials and Resources 6: Rapidly Renewable Materials

LEED-Existing Buildings: Maintenance and Operations Materials and Resources 2 (partial): Optimize Use of Alternative Materials

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Provide a narrative describing best management practices (regardless of quantity) implemented in the project that utilizes rapidly renewable materials and products.

+ 1: Meet the requirements of LEED-NC Credit 6: Rapidly Renewable Materials (2.5% of total value of materials in the project) and submit LEED documentation requirements of this credit.

C

2
POINTS

6.07

CONSTRUCTION
SUBMITTAL

+

RAPIDLY RENEWABLE MATERIALS (CONT'D)

STRATEGIES

» Establish the appropriate project goal for renewable materials utilization.

» Consider temporary construction materials (i.e. formwork, bracing, scaffolding, sidewalk protection and guard rails).

» Incorporate rapidly renewable materials where appropriate for both permanent and temporary construction materials:

- Formwork, temporary construction and underlayment
- Poplar oriented structural board (OSB)
- Straw board or "agri-board"
- Bamboo flooring
- Cork
- Wool carpets and fabrics
- Cotton-batt insulation
- Linoleum flooring
- Bio-based plastics
- Sunflower seed board
- Wheat grass or straw board cabinetry

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD14-MR-9 Rapidly Renewable Material

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

6.08

CONSTRUCTION
SUBMITTAL

CERTIFIED WOOD

C

2
POINTS

INTENT

Encourage environmentally responsible forest management.

BENEFITS

» Sustainable forestry ensures sufficient supply of forest-based products and materials, primarily wood.
» Encourages sustainable forest management practices.
» Reduced deforestation is important in global efforts to curb greenhouse gas emissions.

CONSIDERATIONS

Consider all aspects of sustainable efforts when selecting materials and products (i.e. consider products' after life, embodied energy, etc.)

STANDARDS

LEED-Commercial Interiors Materials and Resources 7: Certified Wood

LEED-Core & Shell Materials and Resources 7: Certified Wood

LEED-Existing Buildings: Maintenance and Operations Materials and Resources 2 (partial): Optimize Use of Alternative Materials

LEED-New Construction Materials and Resources 7: Certified Wood

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Provide a narrative describing best management practices (regardless of quantity) implemented in the project that utilizes wood products that come from environmentally responsible forests.

+ 1: Meet the requirements of LEED-NC Credit 7: Certified Wood (50% of wood based materials and products) and submit LEED documentation requirements of this credit.

C

2
POINTS

6.08

CONSTRUCTION
SUBMITTAL

CERTIFIED WOOD (CONT'D)

STRATEGIES

» Establish a FSC certified wood products goal for the project and identify suitable suppliers.

» Use FSC certified products in construction materials, finish products and temporary construction materials such as formwork, bracing, scaffolding, sidewalk protection and guard rails. Temporary formwork that is reused need not comply with this credit. However, virgin-sourced formwork should be FSC certified.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD14-MR-10 Certified Wood

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

6.09

DESIGN
SUBMITTAL

DESIGN FOR REUSE & RECYCLING

D

1
POINT

INTENT

Reduce environmental impacts from resource extraction and manufacturing related to future building needs, upgrades and rebuilding on site by designing structures with modular, reusable, easily recyclable and deconstructable components. This performance standard applies to both buildings and infrastructure.

BENEFITS

» Diverts construction waste from landfill.
» Reduces tipping fees.
» Reduces future liability for waste.
» Reduces need to produce new construction products and materials.
» Decreases future building costs.
» Increases possibility of reuse/reorganization of structures.
» Encourages repair/replacement/reuse of standardized parts.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing the design of structure and building components for future reuse and recycling.

STRATEGIES

» Design structures that are flexible to be structurally reconfigured, and made of parts designed to be easily removed and reused.
» Evaluate potential future uses for the structure and building components.
» Create a narrative guide to future structure uses; include instructions and plans for internal reconfigurations to meet projected needs, instructions for additions and subtractions to the structure and instructions for disassembly, reuse and recycling of building components.
» Project drawings should detail all systems designed to be deconstructed, emphasizing location and specs of connections.
» Material data sheets designed to be recycled easily.
» Consider the future value of materials and systems during selection.
» Use homogenous material whenever possible.
» Consider structure and component life cycle.

RESOURCES

King County. Guide to Design for Deconstruction. Data retrieved from: http://www.metrokc.gov/dnrp/swd/greenbuilding/documents/Design_for_Disassembly-guide.pdf

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD14-MR-14 Design for Deconstruction, Reuse & Recycling

07

ENVIRONMENTAL QUALITY

7.01
Indoor Air Quality Performance

7.02
Environmental Tobacco Smoke Control

7.03
Asbestos Removal

7.04
Polychlorinated Biphenyl (PCB) Removal

7.05
Outdoor Air Delivery Monitoring

7.06
Effectiveness of Ventilation System

7.07
Low-Emitting Materials

7.08
Indoor Chemical & Pollutant Source Control

7.09
Controllability of Lighting Systems

7.10
Controllability of Thermal Systems

7.11
Thermal Comfort Design

7.12
Thermal Comfort Verification

7.13
Daylight Design

7.14
Views

7.15
Fuel Vapor Monitoring

PROJECT TYPE CATEGORY

G O U L A T

7.01

DESIGN
SUBMITTAL

INDOOR AIR QUALITY PERFORMANCE

D

1
POINT

INTENT

Establish minimum indoor air quality (IAQ) performance to enhance indoor air quality for the comfort and well-being of the occupants.

BENEFITS

» Increases occupancy productivity through improved occupant health and comfort.
» Reduces health risks associated with stagnant air.
» Enhances occupant experience.

CONSIDERATIONS

Employ strategies that are appropriate and feasible relative to the project scope and budget. Design options should carefully evaluate outdoor air sources around the airport and consider pollutants such as jet fumes, vog, smog, noise pollution, etc. Consideration should also be given to unique environmental conditions such as Kona trade winds.

STANDARDS

LEED-Commercial Interiors Indoor Environmental Quality Pre-Requisite 1: Minimum IAQ Performance

LEED-Core & Shell Indoor Environmental Quality Pre-Requisite 1: Minimum IAQ Performance

LEED-New Construction Indoor Environmental Quality Pre-Requisite 1: Minimum IAQ Performance

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Meet the minimum requirements of Sections 4 – 7 of ASHRAE 62.1-2004, Ventilation for Acceptable Indoor Air Quality. Naturally ventilated buildings shall comply with ASHRAE 62.1-2004, Paragraph 5.1. If the project does not meet the minimum ASHRAE requirements, provide a narrative describing the factors that compromised this achievement (i.e. contaminated outdoor air sources).

D

1
POINT

7.01

DESIGN
SUBMITTAL

INDOOR AIR QUALITY PERFORMANCE (CONT'D)

STRATEGIES

» Identify potential indoor air quality problems on the site and locate air intakes away from contaminants, including loading areas, exhaust fans and cooling towers.

» Locate air intakes for protection from potential attacks.

» Use carbon or electrostatic filters.

» Provide security monitoring for outdoor air intakes for terminal buildings.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD15-IQ-1 Minimum Indoor Air Quality (IAQ) Performance

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

7.02

DESIGN
SUBMITTAL

ENVIRONMENTAL TOBACCO SMOKE CONTROL

D

1
POINT

INTENT

Minimize exposure of building occupants, construction workers, indoor surfaces, and ventilation air distribution systems to Environmental Tobacco Smoke (ETS).

BENEFITS

» Increases occupant productivity.
» Increases occupant experience.
» Reduces health risks associated to ETS.

STANDARDS

LEED-Commercial Interiors Indoor Environmental Quality Pre-Requisite 2: Environmental Tobacco Smoke Control

LEED-Core & Shell Indoor Environmental Quality Pre-Requisite 2: Environmental Tobacco Smoke Control

LEED-Existing Buildings: Maintenance and Operations Indoor Environmental Quality Pre-Requisite 2: Environmental Tobacco Smoke Control

LEED-New Construction Indoor Environmental Quality Pre-Requisite 2: Environmental Tobacco Smoke Control

MANDATORY REQUIREMENTS

+ Comply with the Act 295, "Smoke Free Hawai'i" Law.

- *In enclosed or partially enclosed facilities:*
  - *Owned by the state or the counties*
  - *Open to the public. This includes private businesses*
  - *That are places of employment*
- *In Hawai'i airports, from cabin to curb.*
- *Within 20 feet of doorways, windows and ventilation intakes for the prevention of secondhand smoke drifting into enclosed areas.*

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing ETS control.

D

1
POINT

7.02

DESIGN
SUBMITTAL

ENVIRONMENTAL TOBACCO SMOKE CONTROL (CONT'D)

STRATEGIES

» Prohibit smoking in the public areas of buildings and locate any exterior designated smoking areas away from entries and operable windows.

» Require all parts of the construction sites to be non-smoking areas.

» Provide designated exterior smoking areas.

» Provide adequate signage for designated smoking areas, coordinated with DOT-A if necessary.

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: CN4-IA-1 Construction Environmental Tobacco Smoke Control

State of Hawai'i Department of Transportation Airports Division. Hawai'i Administrative Rules, Public Conduct at Public Airports, March 2007. Data retrieved from: http://www.state.hi.us/dot/airports/adminrules/19-14%20Public%20Conduct.pdf

State of Hawai'i. Hawai'i Smoke-Free Law. Data retrieved from: http://www.hawaiismokefree.com/the_law.html

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

State of Hawai'i Department of Transportation Airports Division. Honolulu International Airport, Airport Certification Manual, Wildlife Hazard Management Plan (WHMP), May 2004.

PROJECT TYPE CATEGORY

GOULAT

7.03

CONSTRUCTION
SUBMITTAL

ASBESTOS REMOVAL

C

1
POINT

INTENT

Reduce the potential exposure of building occupants to asbestos and prevent associated harmful effects of asbestos in existing buildings.

BENEFITS

» Reduces asbestos exposure risk to occupants.
» Reduces risk of releasing asbestos fibers.

STANDARDS

LEED-Existing Buildings: Maintenance and Operations Pre-Requisite 3: Asbestos Removal or Encapsulation

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Follow regulatory requirements of asbestos removal.

STRATEGIES

» Reference records indicating where asbestos is located in various terminals. For example, see reference below.

RESOURCES

State of Hawai'i Department of Transportation Airports Division. Honolulu International Airport, Airport Asbestos Inspection Report, November 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

PROJECT TYPE CATEGORY

GOULAT

D

1
POINT

7.04

CONSTRUCTION
SUBMITTAL

POLYCHLORINATED BIPHENYL (PCB) REMOVAL

INTENT

Reduce the potential exposure of building occupants to PCBs and PCB combustion byproducts in case of fire.

BENEFITS

» Reduces asbestos exposure risk to occupants.
» Reduces environmental risk from leakage due to deterioration or damage of the equipment.
» Reduces risk of exposure to hazardous combustion by-products in the case of fire.

CONSIDERATIONS

All transformers with PCBs have been removed from the HNL airport in the early 1990's and the current specifications have no PCB provisions in them. However, tenant spaces may still have some PCBs in their area.

STANDARDS

LEED- Existing Buildings: Maintenance and Operations Pre-Requisite 4: PCB Removal

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Remove all equipment containing PCBs.

STRATEGIES

» Identify the applicable regulatory requirements.

RESOURCES

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

PROJECT TYPE CATEGORY

G O U L A T

7.05

DESIGN
SUBMITTAL

OUTDOOR AIR DELIVERY MONITORING

D

2
POINTS

INTENT

Provide capacity for ventilation system monitoring to sustain occupant comfort and well being.

BENEFITS

» Enhances occupant productivity and experience through improved comfort.
» Reduces health risks associated with stagnant air.
» Increases airflow to disperse stagnant and unclean air.

CONSIDERATIONS

Employ appropriate and feasible strategies for the relative to the project scope and budget.

STANDARDS

LEED-Commercial Interiors Indoor Environmental Quality 1: Outside Air Delivery Monitoring

LEED-Core & Shell Indoor Environmental Quality 1: Outside Air Delivery Monitoring

LEED-Existing Buildings: Maintenance and Operations Indoor Environmental Quality 1: Outside Air Delivery Monitoring

LEED-New Construction Indoor Environmental Quality 1: Outside Air Delivery Monitoring

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Install permanent carbon dioxide monitoring systems and integrate these sensors with the building automation system.

+ 1: Provide for real-time control of terminal unit (VAX box) flow rates and total outdoor air flow rates based on carbon dioxide levels.

STRATEGIES

» For Mechanically Ventilated Spaces: Monitor carbon dioxide concentrations within all densely occupied spaces (25 people or more per 1000 sf) where feasible.
» For Naturally Ventilated Spaces: Monitor CO2 concentrations with sensors where feasible.

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD15-IQ-2 Air Quality Monitoring

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

D

1
POINT

7.06

DESIGN
SUBMITTAL

EFFECTIVENESS OF VENTILATION SYSTEM

INTENT

Provide additional outdoor air ventilation capability to improve indoor air quality for improved occupant comfort, well-being and productivity.

BENEFITS

» Increases occupancy productivity through improved occupant health and comfort.
» Reduces health risks associated with stagnant air.
» Enhances occupant experience.
» Enhances adequate airflow to disperse stagnant and unclean air.

CONSIDERATIONS

Employ strategies that are appropriate and feasible relative to the project scope and budget. Design options should carefully evaluate outdoor air sources around the airport and consider pollutants such as jet fumes, vog, smog and noise pollution, etc. Consideration should also be given to unique environmental conditions such as Kona trade winds.

STANDARDS

LEED-Commercial Interiors Indoor Environmental Quality 2: Increased Ventilation

LEED-Core & Shell Indoor Environmental Quality 2: Increased Ventilation

LEED-Existing Buildings: Maintenance and Operations Indoor Environmental Quality 2: Increased Ventilation

LEED-New Construction Indoor Environmental Quality 2: Increased Ventilation

7.06

DESIGN
SUBMITTAL

EFFECTIVENESS OF VENTILATION SYSTEM (CONT'D)

D

1
POINT

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives to provide ventilation effectiveness.

STRATEGIES

» For Mechanically Ventilated Spaces: Install air diffusers, particularly office and terminal spaces, following the recommended design approaches in the ASHRAE 2001 Fundamentals, Chapter 32, Space Air Diffusion.

» For Naturally Ventilated Spaces: Follow the 8 design steps from the Carbon Trust Good Practice Guide 237 to extent possible.

» Increase air change effectiveness using:

- Displacement ventilation in terminal areas
- Underfloor air distribution in office areas
- Operable windows and skylights in buildings
- Increase air movement in facilities with ceiling fans

» Install trickle ventilators in cargo facilities if applicable and feasible.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD15-IQ-3 Increased Effective Ventilation

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

C

5 POINTS

7.07

DESIGN SUBMITTAL

LOW-EMITTING MATERIALS

INTENT

Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

BENEFITS

» Reduces emission into the atmosphere of volatile organic compounds (VOCs) that have a negative impact on indoor air quality and the Earth's atmosphere.

» Reduces the potential in absenteeism due to respiratory-related illness.

STANDARDS

LEED-Commercial Interiors Indoor Environmental Quality 4.1-4.5: Low Emitting Materials

LEED-Core & Shell Indoor Environmental Quality 4.1-4.4: Low Emitting Materials

LEED-Existing Buildings: Maintenance and Operations Materials and Resources 3: Low Emitting Materials

LEED-New Construction Indoor Environmental Quality 4.1-4.4: Low Emitting Materials

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Use low-emitting adhesives complying with strategies listed below.

+ 1: Use low-emitting paints and coatings complying with strategies listed below.

+ 1: Use low-emitting carpet systems complying with strategies listed below.

+ 1: Use low-emitting composite wood and agrifiber systems complying with strategies listed below.

+ 1: Use low-emitting furniture and fixtures complying with strategies listed below.

STRATEGIES

ADHESIVES:

» All adhesives and sealants used on the interior of the building shall comply with the requirements of the following reference standards: Adhesives, Sealants and Sealant Primers: South Coast Air Quality Management District (SCAQMD) Rule #1168. Aerosol adhesives: Green Seal Standard for Commercial Adhesives GS-36 requirements.

» Ensure that all shop finished materials meet the VOC emission requirements. Materials to consider are:

- Finished millwork

PAINTS AND COATINGS:

7.07

DESIGN
SUBMITTAL

LOW-EMITTING MATERIALS (CONT'D)

D

5
POINTS

All paints and coatings used on the interior of the building shall comply with the requirements of the following reference standards:

- Architectural paints, coatings and primers applied to interior walls and ceilings do not exceed GreenSeal Standard GS-11: Flats: 50g/L, Non-flats: 150 g/L
- Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates do not exceed Green Seal standard GC-03: 250 g/L
- Clear wood finishes, floor coatings, stains, sealers, and shellacs applied to interior elements do not exceed SCAQMD Rule #1113:
    - Clear wood finishes - varnish: 350 g/L, lacquer: 550 g/L
    - Floor coatings: 100 g/L
    - Sealers: waterproof sealers 250 g/L; sanding sealers 275 g/L; all other sealers 200 g/L
    - Shellac: clear 730g/L; pigmented 550 g/L
    - Stains: 250 g/L

» Ensure that all shop finished materials meet the VOC emission requirements. Materials to consider are:

- Finished millwork
- Primed steel
- Finished metals including aluminum
- Finished steel and wood doors and windows

CARPET SYSTEMS:

» All carpets used on the interior of the building shall comply with the requirements of the following reference standards: Carpet and Rug Institute (CRI) Green Label Plus program; Carpet adhesives shall meet the requirements listed above.

COMPOSITE WOOD AND AGRIFIBER SYSTEMS:

» All composite wood and agrifiber products used on the interior of the building shall contain no added urea-formaldehyde resins. Laminate adhesives shall contain no added urea-formaldehyde resins. These are defined as: particleboard, medium density fiberboard, plywood, wheatboard, strawboard, panel substrates and door cores.

» Ensure that all shop finished materials meet the VOC emission requirements. Materials to consider are:

- Finished millwork
- Wood doors and windows

FURNITURE AND FIXTURES:

» Specify the use of furniture systems that are Greenguard certified.

» Stipulate applicable LEED credits for each type of furniture, fixture or component (sustainable forestry practices for wood, low/no-VOC paint and coatings, readily recyclable metals for fittings, etc.)

» Specify the use of recycled furniture.

C

5
POINTS

7.07

DESIGN
SUBMITTAL

LOW-EMITTING MATERIALS (CONT'D)

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD14-MR-12 Low-emitting Materials; PD14-MR-13 Furniture & Fixtures

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

7.08

DESIGN
SUBMITTAL

INDOOR CHEMICAL & POLLUTANT SOURCE CONTROL

D

2
POINTS

INTENT

Minimize exposure of building occupants and maintenance personnel to potentially hazardous particulates and chemical pollutants which adversely impact air quality, health, building finishes, building systems and the environment.

BENEFITS

» Increases productivity through improved occupant health and comfort.
» Reduces health risks due to uncontrolled exposure to hazardous particulates and chemical pollutants.
» Enhances occupant experience.

CONSIDERATIONS

Employ appropriate and feasible strategies for the project scope and budget.

STANDARDS

LEED-Commercial Interiors Indoor Environmental Quality 5: Indoor Chemical & Pollutant Source Control

LEED-Core & Shell Indoor Environmental Quality 5: Indoor Chemical & Pollutant Source Control

LEED-Existing Buildings: Maintenance and Operations Indoor Environmental Quality 5.1/5.2: Indoor Chemical & Pollutant Source Control, 10.1: Green Cleaning – Entryway Systems, 10.2: Isolation of Janitorial Closets

LEED-New Construction Indoor Environmental Quality 5: Indoor Chemical & Pollutant Source Control

MANDATORY REQUIREMENTS

+ Install finish materials and assemblies that resist mold growth.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing indoor chemical and pollutant source control.

+ 1: Specify use of non-toxic cleaning supplies.

STRATEGIES

» Evaluate plumbing for appropriate disposal of liquid wastes.
» Designate central locations in terminal and office buildings for storage of concentrated cleaning chemicals and other pollutant sources.
» Install separate exhaust and plumbing systems for areas with contaminants.
» Install a grate or mat to decrease dirt tracked into the building.

D

2
POINTS

7.08

DESIGN
SUBMITTAL

INDOOR CHEMICAL & POLLUTANT SOURCE CONTROL (CONT'D)

- » Provide doors for all spaces to avoid high exhaust rates.
- » Identify all hazardous products or processes that will use hazardous products.
- » Prohibit the indoor use of combustion engine-based devices without direct exterior exhaust and make-up air.
- » Use electric vehicles in indoor facilities.
- » Use non-absorptive flooring and walls.
- » Use indoor toxic-absorptive vegetation.
- » Avoid plants, trees, and bushes in building entrance areas.
- » Eliminate plants that require pesticides.
- » Provide utility outlets such as water and electricity for cleaning.
- » Isolation of Janitorial Closets (structural deck to deck partitions with separate outside exhausting, no air re-circulation and negative pressure in all janitorial closets)

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD15-IQ-4 Indoor Chemical & Pollutant Source Control

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

7.09

DESIGN
SUBMITTAL

CONTROLLABILITY OF LIGHTING SYSTEMS

D

1
POINT

INTENT

Provide a high level of lighting system control by individual occupants or by specific groups in multi-occupant spaces to promote the productivity, comfort and well-being of building occupants.

BENEFITS

» Decreased energy use.
» Increases occupancy productivity and experience through improved comfort.

CONSIDERATIONS

Employ appropriate and feasible strategies relative to the project scope and budget.

STANDARDS

LEED-Commercial Interiors Indoor Environmental Quality 6.1: Controllability of Systems - Lighting

LEED-Existing Buildings: Maintenance and Operations Indoor Environmental Quality 6.1: Controllability of Systems - Lighting

LEED-New Construction Indoor Environmental Quality 6.1: Controllability of Systems - Lighting

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing the controllability of lighting systems.

STRATEGIES

» Correlate lighting in public areas of terminals to flight schedules.
» Coordinate with existing Energy Monitoring and Control System.
» Design terminal and public areas with adjustable light and sound levels.
» Install task lighting or more light switching zones in office areas.
» Install controls that dim or turn lights off at times when daylight is sufficient, such as photoelectric controls.
» Integrate all building electrical systems.
» Use direct digital control systems for greater accuracy, flexibility, and operator interface compared to pneumatic systems.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD15-IQ-6 Lighting Control

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

D

1
POINT

7.10

DESIGN
SUBMITTAL

CONTROLLABILITY OF THERMAL SYSTEMS

INTENT

Provide a high level of thermal system control by individual occupants or by specific groups in multi-occupant spaces to promote the productivity, comfort and well-being of building occupants.

BENEFITS

» Decreased energy use.
» Increases occupancy productivity and experience through improved comfort.

CONSIDERATIONS

Employ appropriate and feasible strategies for the project scope and budget. Exceptions will be made for airport common areas (i.e. Baggage claims, ticketing areas, gates, etc.).

STANDARDS

LEED-Commercial Interiors Indoor Environmental Quality 6.2: Controllability of Systems – Thermal Comfort

LEED-Core & Shell Indoor Environmental Quality 6.2: Controllability of Systems – Thermal Comfort

LEED-Existing Buildings: Maintenance and Operations Indoor Environmental Quality 6.2: Controllability of Systems – Temperature & Ventilation

LEED-New Construction Indoor Environmental Quality 6.2: Controllability of Systems – Thermal Comfort

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing the controllability of thermal systems.

7.10

DESIGN
SUBMITTAL

CONTROLLABILITY OF THERMAL SYSTEMS (CONT'D)

D

1
POINT

STRATEGIES

- » Integrate micro switches of operable windows with HVAC operation.
- » Include thermal controls for large rooms.
- » If feasible, use direct digital control systems for greater accuracy, flexibility, and operator interface (compared to pneumatic systems).
- » Integrate occupancy sensors with HVAC operation.
- » Install operable windows in areas that are not noise-sensitive and are not exposed to jet fumes.
- » Coordinate with existing Energy Monitoring and Control System.
- » Install under floor air distribution systems with individual diffusers in office areas.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD15-IQ-5 Thermal Control

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

D

1
POINT

7.11

DESIGN
SUBMITTAL

THERMAL COMFORT DESIGN

INTENT

Provide a comfortable thermal environment that supports the productivity and well-being of building occupants.

BENEFITS

» Increases occupancy productivity through improved comfort.
» Enhances occupant experience.

CONSIDERATIONS

Employ strategies that are appropriate and feasible relative to the project scope and budget. When specifying vegetation such as green roofs and green walls, be mindful of attracting wildlife and FAA regulations.

STANDARDS

LEED-New Construction Indoor Environmental Quality 7.1: Thermal Comfort - Design

LEED-Commercial Interiors Indoor Environmental Quality 7.1: Thermal Comfort - Compliance

LEED-Core & Shell Indoor Environmental Quality 7.1: Thermal Comfort - Design

LEED-Existing Buildings: Maintenance and Operations Indoor Environmental Quality 7.1: Thermal Comfort - Compliance

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Design HVAC systems and the building envelope to meet the requirements of ASHRAE Standard 55-2004 Thermal Comfort Conditions for Human Occupancy.

7.11

DESIGN
SUBMITTAL

THERMAL COMFORT DESIGN (CONT'D)

D

1
POINT

STRATEGIES

- » Incorporate natural ventilation to extent possible where noise levels and air quality permits.
- » Install ceiling fans or natural ventilation.
- » Evaluate humidification in HVAC systems serving office and terminal areas.
- » For spaces with humidification, install humidistats.
- » Use thermal storage heating and cooling systems.
- » Install thermally-efficient glass.
- » Install light-colored roofing material.
- » Install green roofs and/or green walls with consideration of attracting hazardous wildlife.
- » Incorporate air curtains or revolving doors at entrances where applicable and appropriate.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD15-IQ-7 Thermal Comfort

State of Hawai'i Department of Transportation Airports Division. Honolulu International Airport, Airport Certification Manual, Wildlife Hazard Management Plan (WHMP), May 2004.

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

D

1
POINT

7.12

DESIGN
SUBMITTAL

THERMAL COMFORT VERIFICATION

INTENT

Provide for the assessment of building thermal comfort over time.

BENEFITS

» Ensure occupants are provided with comfortable indoor conditions that support their productivity and well-being.

CONSIDERATIONS

This credit applies only for office buildings and enclosed ticketing lobbies.

STANDARDS

LEED-Commercial Interiors Indoor Environmental Quality 7.2: Thermal Comfort - Monitoring

LEED-Existing Buildings: Maintenance and Operations Indoor Environmental Quality 7.2: Thermal Comfort – Permanent Monitoring System

LEED-New Construction Indoor Environmental Quality 7.2: Thermal Comfort - Verification

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Commit to perform verification of thermal comfort in designed spaces.

STRATEGIES

» Agree to implement a thermal comfort survey of building occupants within a period of 6 to 18 months after occupancy.

» Agree to develop a plan for corrective action if the survey results indicate that more than 20% of the occupants are dissatisfied with thermal comfort in the building.

» This plan should include measurement of relevant environmental variables in problem areas in accordance with ASHRAE Standard 55-2004.

RESOURCES

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

7.13

DESIGN
SUBMITTAL

DAYLIGHT DESIGN

D

1
POINT

INTENT

Provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight into the regularly occupied areas of the building.

BENEFITS

» Increases occupancy productivity through improved comfort.
» Increases occupant experience.
» Reduces energy with daylighting instead of electric light sources.

CONSIDERATIONS

Balance the amount of daylighting being designed in with the amount of heat load infiltrating the space.

STANDARDS

LEED-Commercial Interiors Indoor Environmental Quality 8.1/8.2: Daylight & Views

LEED-Core & Shell Indoor Environmental Quality 8.1: Daylight & Views

LEED-Existing Buildings: Maintenance and Operations Indoor Environmental Quality 8.1/8.2: Daylight & Views

LEED-New Construction Indoor Environmental Quality 8.1: Daylight & Views

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing daylighting design.

D

1
POINT

7.13

DESIGN
SUBMITTAL

DAYLIGHTING DESIGN (CONT'D)

STRATEGIES

» Maximize interior daylight. Consider:
  - Building orientation
  - Shallow floor plates
  - Increased building perimeter
  - Floor to ceiling heights
  - Ceiling configurations
  - Design the building to maximize view opportunities

» Provide sky or clerestory lighting as appropriate in facilities.

» Coordinate daylight strategy with building automation system and lighting control system.

» Provide exterior and/or interior permanent shading devices.

» Provide spectrally selective glazing to maximize daylight while minimizing heat gain.

» Install photo-integrated light sensors to dim artificial lights.

» Predict daylighting via calculations or model daylighting strategies to assess foot-candle levels and daylight factors achieved.

» Use light colored interior finishes to help reflect light.

» Provide insulated windows to improve thermal performance and reduce heat gain.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD15-IQ-8 Daylight & Views

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

7.14 VIEWS

DESIGN
SUBMITTAL

D
1
POINT

INTENT

Provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of views into the regularly occupied areas of the building.

BENEFITS

» Increases occupancy productivity through improved comfort.
» Increases occupant experience.

CONSIDERATIONS

Balance the amount of fenestrations being designed in with the amount of heat load infiltrating the space.

STANDARDS

LEED-Commercial Interiors Indoor Environmental Quality 8.3: Daylight & Views

LEED-Core & Shell Indoor Environmental Quality 8.2: Daylight & Views

LEED-Existing Buildings: Maintenance and Operations Indoor Environmental Quality 8.3/8.4: Daylight & Views

LEED-New Construction Indoor Environmental Quality 8.2: Daylight & Views

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing incorporation of views.

STRATEGIES

» Design partitioned offices to be located in the center of floor plans with windows to maintain direct view of fenestrations.
» Use open workstation cubicles or cubical walls lower than 4 feet.
» Avoid HVAC or electrical wiring within 5 feet of outer walls so that ceiling height can be modified to increase viewable fenestration.
» Design building to maximize view opportunities.
» Use shallow floor plates.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD15-IQ-8 Daylight & Views

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

G O U L A T

D

1
POINT

7.15

DESIGN
SUBMITTAL

FUEL VAPOR MONITORING

INTENT

Protect building occupants from exposure to fuel vapors created by jet engine operation.

BENEFITS

» Increases occupancy productivity through improved comfort.
» Enhances occupant experience.
» Prevents adverse health effects for customers and employees.
» Helps analyze where building fenestrations should be located.

CONSIDERATIONS

Locations of air intakes should carefully evaluate outdoor air sources around the airport and consider pollutants such as jet fumes, vog, smog, noise pollution, etc. Consideration should also be given to unique environmental conditions such as Kona trade winds.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing fuel vapor monitoring.

STRATEGIES

» Require fuel vapor monitoring systems in sub-grade wells near terminal buildings and other public areas, per existing NFPA requirements.
» Use remote monitoring systems for detection of Jet-A vapors.
» Locate air intakes to avoid delivery of impacted air to the buildings occupants.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD15-IQ-9 Fuel Vapor Monitoring.

NOISE POLLUTION REDUCTION

8.01
Exterior Noise Quality Control—Non-Aircraft Sources

8.02
Exterior Noise Quality Control—Aircraft Flight Paths

8.03
Interior Noise Quality Control

PROJECT TYPE CATEGORY

G O U L A T

D

1
POINT

8.01

DESIGN
SUBMITTAL

EXTERIOR NOISE QUALITY CONTROL—NON-AIRCRAFT SOURCES

INTENT

Develop acoustical control measures to reduce exterior noise levels from stationary and mobile noise sources.

BENEFITS

» Reduces the overall exterior noise levels from stationary and mobile sources.
» Improves the ambient noise quality for nearby affected land uses of the completed project.

CONSIDERATIONS

Employ appropriate and feasible strategies for the project scope and budget.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing exterior noise and acoustical quality control from non-aircraft sources.

STRATEGIES

» Install acoustical enclosures, silencers, barriers, earthen berms.
» Replace noisier equipment with quieter units, mufflers, and wrap exterior HVAC duct work with sound deadening materials, etc.
» Conduct an independent exterior noise level measurements audit for the completed project.
» Utilize sound barriers, rubberized pavements, or innovative pavement treatments to reduce noise resulting from traffic.
» Program locations of mechanical equipment and other sources of noise away from exterior spaces designed for use.

RESOURCES

ASTM. ASTM E1014 -84: Standard Guide for Measurement of Outdoor A-Weighted Sound Levels, 2000.

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD11-NP-1 Exterior Noise & Acoustical Control (Non-Aircraft)

USDOT. Measurement of Highway-Related Noise, FHWA-PD-96 -046 DOT-VNTSCFHWA-96 -5, May 1996.

USEPA. Noise Control Act 1972. Data retrieved from http://www.epa.gov/history/topics/nca/index.htm

PROJECT TYPE CATEGORY

G O U L A T

8.02

DESIGN
SUBMITTAL

EXTERIOR NOISE QUALITY CONTROL—AIRCRAFT FLIGHT PATHS

D

1
POINT

INTENT

Develop acoustical control measures to reduce exterior noise levels from aircraft noise sources in consideration of neighbors.

BENEFITS

» Reduces overall exterior noise levels from aircraft sources.
» Avoids unnecessary redesign and construction delays.
» Improves the ambient noise quality for nearby affected land uses of the completed project.

CONSIDERATIONS

Employ appropriate and feasible strategies for the project scope and budget.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing exterior noise and acoustical quality control from aircrafts in consideration of surrounding neighbors.

STRATEGIES

» Projects affecting the movement of aircraft on the ground or their flight tracks through the air should be designed and constructed to achieve the target noise levels and land use compatibility standards established in Table 1. Local or county noise standards more stringent than those presented in Table 1 take precedence.
» FAA Order 1050.1E, Environmental Impacts: Policies and Procedures; defines the threshold of "significant impact" for evaluating a proposed airport development project: if a parcel of noise sensitive land use is exposed to a project-related increase in noise level of 1.4 dB or more DNL (day-night average sound level), and that location lies within the DNL 65 noise contour for the "with action" condition; the location is considered to be significantly impacted by noise and must be identified as such in environmental evaluations; Incompatible land uses include residences, schools, hospitals, places of worship and other uses as specified in Table 1.

RESOURCES

Federal Aviation Regulations: CFR 14 Part 150 Noise Compatibility Program: Estimate effects of significant noise exposure on people.

Federal Aviation Administration. Order 1050.1E, Environmental Impacts: Policies and Procedures, June 2004.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD11-NP-2 Exterior Noise & Acoustical Quality Control (Aircraft)

D

1 POINT

8.02

DESIGN SUBMITTAL

EXTERIOR NOISE QUALITY CONTROL— AIRCRAFT FLIGHT PATHS (CONT'D)

Table 1: Land Use Compatibility with Yearly Day-Night Average Sound						
Land Use	**Yearly day-night average sound level in decibels**					
	< 65	**65-70**	**70-75**	**75-80**	**80-85**	**> 85**
Residential						
Residential, other than mobile homes and transient lodgings	**Y**	**N (1)**	**N (1)**	**N**	**N**	**N**
Mobile home parks	**Y**	**N**	**N**	**N**	**N**	**N**
Transient lodgings	**Y**	**N (1)**	**N (1)**	**N (1)**	**N**	**N**
Public Use						
Schools	**Y**	**N (1)**	**N (1)**	**N**	**N**	**N**
Hospitals, nursing homes	**Y**	**25**	**30**	**N**	**N**	**N**
Churches, auditoriums, and concert halls	**Y**	**25**	**30**	**N**	**N**	**N**
Government services	**Y**	**Y**	**25**	**30**	**N**	**N**
Transportation	**Y**	**Y**	**Y (2)**	**Y (3)**	**Y (4)**	**Y (4)**
Parking	**Y**	**Y**	**Y (2)**	**Y (3)**	**Y (4)**	**N**
Commercial Use						
Offices, business and professional	**Y**	**Y**	**25**	**30**	**N**	**N**
Wholesale and retail- building materials, hardware and farm equipment	**Y**	**Y**	**Y (2)**	**Y (3)**	**Y (4)**	**N**
Retail trade-general	**Y**	**Y**	**25**	**30**	**N**	**N**
Utilities	**Y**	**Y**	**Y (2)**	**Y (3)**	**Y (4)**	**N**
Communication	**Y**	**Y**	**25**	**30**	**N**	**N**
Manufacturing and Production						
Manufacturing, general	**Y**	**Y**	**Y (2)**	**Y (3)**	**Y (4)**	**N**
Photographic and optical	**Y**	**Y**	**25**	**30**	**N**	**N**
Agriculture (except livestock) and forestry	**Y**	**Y (6)**	**Y (7)**	**Y (8)**	**Y (8)**	**Y (8)**
Livestock farming and breeding	**Y**	**Y (6)**	**Y (7)**	**N**	**N**	**N**
Mining and fishing, resource production and extraction	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**
Recreational						
Outdoor sports arenas and spectator sports	**Y**	**Y (5)**	**Y (5)**	**N**	**N**	**N**
Outdoor music shells, amphitheaters	**Y**	**N**	**N**	**N**	**N**	**N**
Nature exhibits and zoos	**Y**	**Y**	**N**	**N**	**N**	**N**
Amusements, parks, resorts, and camps	**Y**	**Y**	**Y**	**N**	**N**	**N**
Golf courses, riding stables and water recreation	**Y**	**Y**	**25**	**30**	**N**	**N**

EXTERIOR NOISE QUALITY CONTROL—AIRCRAFT FLIGHT PATHS (CONT'D)

Key to Table 1	
Y (YES)	Land Use and related structures compatible without restrictions.
N (NO)	Land Use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35	Land use and related structures generally compatible; measures to achieve NLR of 5, 30 or 35 dB must be incorporated into design and construction of structure.
(1)	Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 0 dB, thus, the reduction requirements are often stated as 5, 0 or 5 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
(2)	Measures to achieve NLR of 5 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(3)	Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(4)	Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(5)	Land use compatible provided special sound reinforcement systems are installed.
(6)	Residential buildings require an NLR of 25.
(7)	Residential buildings require an NLR of 30.
(8)	Residential buildings not permitted.
	The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 50 are not intended to substitute Federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

PROJECT TYPE CATEGORY

G O U L A T

D

1
POINT

8.03

DESIGN
SUBMITTAL

INTERIOR NOISE QUALITY CONTROL

INTENT

Develop acoustical control measures during the design and to reduce noise levels from interior and exterior noise sources.

BENEFITS

» Reduces overall interior noise levels from both interior and exterior noise sources.
» Improves the ambient noise quality for regular occupants of the completed project.

CONSIDERATIONS

Employ strategies that are appropriate and feasible relative to the project scope and budget. Interior noise quality must be carefully balanced with naturally ventilated spaces and exterior air quality.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing interior noise and acoustical quality control.

STRATEGIES

» Locate glazing and other noise transmission surfaces away from the most noise-sensitive spaces.
» Orient building such that glazed surfaces are not directed toward noise.
» Use laminated glazing or double pane windows to reduce noise transmission.
» Design building, lighting, and HVAC systems to mitigate interior noise levels.
» Conduct an interior noise level measurements audit for the completed project.
» Place noise transmissive surfaces away from the sensitive spaces.
» Program locations of mechanical equipment and other sources of noise away from areas of occupancy.
» Utilize acoustical ceiling tiles, flooring and walls.
» Develop an insulation plan.

RESOURCES

ASTM. ASTM E336-05 Standard Test Method for Measurement of Airborne Sound Insulation in Buildings, 2003.

ASTM. ASTM E1332-90: Standard Classification for Determination of Outdoor-Indoor Transmission Class, 2003.

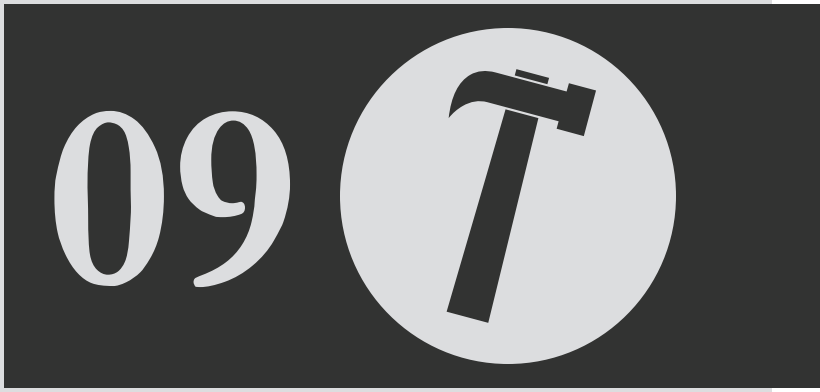
ASTM. ASTM C423-07a: Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method, 2007.

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Harris, C.M. Handbook of Acoustical Measurements and Noise Control, 3rd ed. McGraw-Hill, New York, 1991.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: PD11-NP-3 Interior Noise & Acoustical Quality Control (Aircraft)

CONSTRUCTION MANAGEMENT



9.01
Construction Scheduling & Sequencing

9.02
Erosion & Sedimentation Control—During Construction

9.03
Stormwater Management—During Construction

9.04
Tracking Control

9.05
Potential Pollutant Control

9.06
Waste Management & Materials Pollution Control

9.07
Construction Transportation & Vehicles

9.08
Construction Roadways

9.09
Construction Acoustic & Noise Control

9.10
Construction IAQ Management

9.11
Construction Water Conservation

9.12
Temporary Lighting—During Construction

9.13
Construction Health & Safety Plan

T

PROJECT TYPE CATEGORY

GOULAT

C

1
POINT

9.01

CONSTRUCTION
SUBMITTAL

CONSTRUCTION SCHEDULING & SEQUENCING

INTENT

Reduce impacts due to unnecessary on-site storage of materials during construction (including moisture exposure and physical damage). Prevent impacts to surrounding environment from construction activities. Restore the site to pre-construction conditions.

BENEFITS

» Reduces impacts from replacement of damaged materials.
» Reduces impacts from construction activities during bad times.
» Minimizes impacts on airport activities and landside passenger traffic.

STANDARDS

Honolulu International Airport, Municipal Separate Storm Sewer System - Construction Activities BMPs: C1 Scheduling

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing construction scheduling and sequencing.

STRATEGIES

» Closely coordinate deliveries with installation times.
» Schedule and coordinate construction activities to reduce noise and vibration impacts.
» Prioritize disturbed areas in the vicinity of water bodies, wetlands, steep grades, long slopes, etc. for effective stabilization within 7 days of disturbance.
» Schedule construction activities to minimize the impact on airside and landside airport activities.
» Avoid rainy periods. Schedule major grading operations during dry months.
» Allow enough time before rainfall begins to stabilize the soil with vegetation or physical means or to install temporary sediment trapping devices.
» Minimize area of soil exposed at any one time. Schedule projects to disturb only small portions of the site at a time. Complete grading as soon as possible.
» Immediately stabilize the disturbed portion before grading the next portion. Practice stage seeding-revegetated cut and fill slopes as the work progresses.
» Close and stabilize open trenches as soon as possible. Sequence trenching projects so that most open portions of the trench are closed before excavating new trenching.

9.01

CONSTRUCTION
SUBMITTAL

CONSTRUCTION SCHEDULING & SEQUENCING (CONT'D)

C
1
POINT

RESOURCES

City and County of Honolulu, Department of Environmental Services. Best Management Practices Manual for Construction Sites in Honolulu, Second Printing, November 2000.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: CN1-PM-4 Construction Scheduling & Sequencing

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007. Data retrieved from: http://www6.Hawai'i.gov/dot/airports/hnl/swm/index.htm

T

PROJECT TYPE CATEGORY

G O U L A T

C

1
POINT

9.02

CONSTRUCTION
SUBMITTAL C

EROSION & SEDIMENTATION CONTROL—DURING CONSTRUCTION

INTENT

Reduce pollution from construction activities by controlling soil erosion, waterway sedimentation and airborne dust generation.

BENEFITS

» Siltation of streams and ponds causes habitat loss and impair water quality.
» Proper soil stabilization prevents soil accumulation on roadways and associated cleanup costs.
» Keeping soil on site reduces the cost of bringing in additional soil.
» Soil deposits on roadways may cause accidents, lead to complaints from abutters and result in work stoppages.

CONSIDERATIONS

Site conditions can make it difficult and expensive to preserve existing vegetation while constructing the needed site improvements.

STANDARDS

LEED-Core & Shell Sustainable Sites Pre-Requisite 1: Construction Activity Pollution Prevention

LEED-Existing Buildings: Maintenance and Operations Sustainable Sites Pre-Requisite 1: Erosion & Sedimentation

LEED-New Construction Sustainable Sites Pre-Requisite 1: Construction Activity Pollution Prevention

Honolulu International Airport, Municipal Separate Storm Sewer System - Construction Activities BMPs: C2 Preservation of Existing Vegetation; C3 Location of Potential Sources of Sedimentation; C6 Dust Control; C7 Topsoil Management; C8 Geotextiles and Mats; C9 Seeding and Planting; C13 Sediment Trap; C14 Silt Fence

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing temporary erosion and sedimentation control during construction.

STRATEGIES

» Create and implement an Erosion and Sedimentation Control (ESC) Plan for all construction activities associated with the project. The ESC Plan shall conform to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit OR local erosion and sedimentation control standards and codes, whichever is more stringent.
» Incorporate temporary sedimentation basins, temporary ditch checks, diversion dikes, temporary ditches, and/or pipe slope drains into construction plans.
» Establish temporary and permanent mulching and seeding plans to provide soil stabilization for all distributed areas.

9.02

CONSTRUCTION
SUBMITTAL **C**

EROSION & SEDIMENTATION CONTROL— DURING CONSTRUCTION (CONT'D)

C
1
POINT

- » Monitor water quality impacts before and during construction, especially after significant storm events.
- » During site disturbance activities, stockpile and protect topsoil for re-use.
- » Minimize disturbed areas, and keep pre-existing vegetation intact whenever feasible.
- » Clearly mark, flag or fence areas where vegetation and trees are to be preserved.
- » Prepare landscaping plans, which preserve as much existing vegetation as possible and require proper care of this vegetation both during and after construction.
- » Locate stockpiles away from waterways or low spots.
- » Use proper dust control measures to stabilize soil from wind erosion, and reduce dust generated by construction activities.
- » Use coverings made of natural or synthetic material for temporarily or permanently stabilize soil.
- » Seeding of grasses and planting of trees, shrubs, vines, and ground covers provide long-term stabilization of soil. In some areas, with suitable climates, grasses can be planted for temporary stabilization.
- » Utilize a silt fence, made of a filter fabric which has been entrenched, attached to supporting poles, and sometimes backed by a wire fence for support to detain sediment laden water, promoting sedimentation behind the fence.
- » Restrict traffic flows to stabilized construction roads and limit travel speed to 15 MPH.
- » Require cover for trucks transporting material to and from site.
- » Schedule construction activities to minimize exposed areas.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

City and County of Honolulu, Department of Environmental Services. Best Management Practices Manual for Construction Sites in Honolulu, Second Printing, November 2000.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: CN2-SM-1 Erosion & Sedimentation Control Measures; CN2-SM-2 Dust Control

Section 402(p) of the Clean Water Act – 40 Part 122.26 NPDES permit program.

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007. Data retrieved from: http://www6.Hawai'i.gov/dot/airports/hnl/swm/index.htm

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

T

PROJECT TYPE CATEGORY

GOULAT

C

1
POINT

9.03

CONSTRUCTION
SUBMITTAL SERIES C

STORMWATER MANAGEMENT— DURING CONSTRUCTION

INTENT

Reduce or eliminate water pollution by reducing impervious cover, increasing on-site infiltration, eliminating sources of contaminants, and removing pollutants from stormwater runoff.

BENEFITS

» Prevents or reduces releases of pollutants, saving downstream water resources.
» Provides for quick and effective response in the event of a spill or pollutant release.
» Prevents loss of valuable topsoil from the construction site.
» Prevents complaints from neighbors.

CONSIDERATIONS

Select BMPs carefully. The identification of a BMP may differ with weather conditions, construction phase, and materials currently in use.

STANDARDS

Honolulu International Airport, Municipal Separate Storm Sewer System - Construction Activities BMPs: C4 Temporary Earth Dike; C5 Temporary Drains and Swales; C10 Sand Bag Barrier

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing temporary stormwater management strategies during construction.

STRATEGIES

» Coordinate equipment and material storage with contractors.
» Prepare a spill prevention plan for construction activities.
» Prepare a hydrology report to document typical rainfall, drainage patterns, flow rates, and run-in/runoff expected during storms.
» Prepare a soil report to document drainage characteristics, soil stability, and design constraints.
» From the hydrology and soil report, prepare a preliminary grading and drainage plan, which records slopes, areas of cut and fill, areas of soil disturbance, and protection of existing vegetation.
» Delineate site perimeter to prevent disturbance beyond construction area.
» Practice good housekeeping – this will prevent potential pollutants from coming in contact with stormwater.
» Store materials and construction waste in areas sheltered from rain and runoff.
» Inspect site frequently to ensure compliance with DOT-A's Stormwater Management Program Plan (SWMPP) and BMPs.
» Train on-site personnel in pollution prevention procedures and always make the SWMPP available at the construction site for review.

9.03

CONSTRUCTION
SUBMITTAL

STORMWATER MANAGEMENT—DURING CONSTRUCTION (CONT'D)

C
1
POINT

- Collect and treat and/or properly dispose of water used for vehicle washing.
- Use non-potable water for dust control.
- Use a temporary earth dike (a temporary berm or ridge of compacted soil) to divert runoff or channel water to a desired location.
- Use temporary drains and swales to divert off-site runoff around the construction site, divert runoff from stabilized areas around disturbed areas, and direct runoff into sediment basins or traps.
- Stack sand bags along a level contour to create a barrier which detains sediment-laden water, ponding water upstream of the barrier and promoting sedimentation.

RESOURCES

City and County of Honolulu, Department of Environmental Services. Best Management Practices Manual for Construction Sites in Honolulu, Second Printing, November 2000.

Construction Handbook. California Stormwater Quality Association, September 2004.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: CN2-SM-3 Stormwater Pollution Prevention Plan

Section 402(p) of the Clean Water Act – 40 Part 122.26 NPDES permit program.

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007. Data retrieved from: http://www6.Hawai'i.gov/dot/airports/hnl/swm/index.htm

T

PROJECT TYPE CATEGORY

GOULAT

C

1
POINT

9.04

CONSTRUCTION
SUBMITTAL

TRACKING CONTROL

INTENT

To prevent or reduce vehicles tracking of sediment from entering storm waters, drainage systems, or receiving waters.

BENEFITS

» Prevents or reduces releases of pollutants, saving downstream water resources.
» Prevents loss of valuable topsoil from the construction site.

CONSIDERATIONS

The effectiveness of a stabilized construction entrance is limited by the type and moisture content of construction site soils, by whether or not a wash rack is included, and by the level of care taken to remove sediment from vehicles and equipment if a wash rack is used. Management of construction traffic is subject to air quality control measures.

STANDARDS

Honolulu International Airport, Municipal Separate Storm Sewer System - Construction Activities BMPs: C15 Stabilized Construction Entrance; C16 Construction Road Stabilization

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing tracking control during construction.

STRATEGIES

» Construct stabilized construction entrances on level ground where possible.
» Grade the entrance to prevent runoff from leaving the construction site.
» Provide ample turning radii as part of the stabilized entrance.
» If a wash rack is provided, washing is to be done on paved or crushed stone pad that drains into a properly constructed sediment trap or basin.
» Access roads, subdivision roads, parking areas, and other on-site vehicle transportation routes should be stabilized immediately after grading and frequently maintained to prevent erosion and control dust.
» For tenant improvement projects, ensure construction entrances are properly maintained and routine clean up is enforced.
» For tenant improvement projects, ensure construction entrances are protected from public walkways.

RESOURCES

City and County of Honolulu, Department of Environmental Services. Best Management Practices Manual for Construction Sites in Honolulu, Second Printing, November 2000.

Section 402(p) of the Clean Water Act – 40 Part 122.26 NPDES permit program.

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007. Data retrieved from: http://www6.Hawai'i.gov/dot/airports/hnl/swm/index.htm

PROJECT TYPE CATEGORY

GOULAT

T

9.05

CONSTRUCTION
SUBMITTAL

POTENTIAL POLLUTANT CONTROL

C

1
POINT

INTENT

Source control to prevent or reduce potential pollutants from non-storm water sources before entering drainage systems or receiving waters by way of stormwater.

BENEFITS

» Prevents or reduces releases of pollutants, saving downstream water resources.
» Prevents loss of valuable topsoil from the construction site.
» Reduces environmental impacts to air and water.
» Provides a less hazardous work environment.
» Increases employee health and productivity.

CONSIDERATIONS

Less hazardous alternative products may not be available, suitable, or effective in every case. Be certain that actions to protect storm water quality are consistent with State and Federal safety (OSHA) and air and water quality regulations.

STANDARDS

Honolulu International Airport, Municipal Separate Storm Sewer System - Construction Activities BMPs: C17 Dewatering Operations; C18 Paving Operations; C19 Structure Construction and Painting; C20 Construction Vehicle and Equipment Cleaning; C21 Construction Vehicle and Equipment Refueling; C22 Construction Vehicle and Equipment Maintenance

MANDATORY REQUIREMENTS

+ Use biodiesel based oils that can biodegrade naturally.

+ Contain and clean all chemical spills properly and dispose of clean up supplies properly.

+ Avoid using excessive chemicals when unnecessary.

+ Recycle/dispose according to applicable laws and regulations for residual paints, solvent, lumber and other materials to the maximum extent practical.

+ Prevent fuel spills and leaks, and reduce their impacts to storm water by using off-site facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ Initiatives addressing potential pollutant control during construction.

T

C

1
POINT

9.05

CONSTRUCTION
SUBMITTAL

POTENTIAL POLLUTANT CONTROL (CONT'D)

STRATEGIES

» Reduce variety of chemical supplies.

» Require contractors to submit pre-construction plan to recycle oil and use environmentally friendly maintenance agents during construction.

» Use biodegradable hydraulic fluid and non-toxic lubricants.

» Replace old equipment with new low emission engines and combustion units where technologically feasible.

» Consider the use of alternative fuels for the construction equipment.

» Keep vehicles and equipment clean; don't allow excessive build-up of oil and grease.

» Perform routine maintenance and engine rebuilds to maintain original equipment emission levels.

» Maintain inventory of all equipment and relate electricity usage.

» Use off-site vehicle wash racks or commercial washing facilities as much as possible. These facilities are more adequately equipped to handle and dispose of the wash waters properly. However, keep in mind tracking.

» Use sediment controls to remove sediment from water generated by dewatering.

» Check with the State Department of Health (DOH) for testing requirements and disposal options.

» Avoid paving during wet weather.

» Store materials away from drainage courses to minimize contact with storm water runoff.

» Place drip pans or absorbent materials under paving equipment when not in use. Clean up spills with absorbent materials rather than burying.

» Prevent or reduce the discharge of pollutants to stormwater from structure repair/construction and painting by enclosing or providing secondary containment around material storage areas, using good housekeeping practices, using less hazardous alternative products, and training employees.

» Clean painting equipment in a sink that is connected to the sanitary sewer.

» Mix paints in a covered, contained area whenever possible, in case of a spill.

9.05

CONSTRUCTION
SUBMITTAL

POTENTIAL POLLUTANT CONTROL (CONT'D)

C
1
POINT

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

City and County of Honolulu, Department of Environmental Services. Best Management Practices Manual for Construction Sites in Honolulu, Second Printing, November 2000.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: CN7-CE-1 Construction Equipment Maintenance; CN7-CE-2 Low-Emission Construction Equipment

Section 402(p) of the Clean Water Act – 40 Part 122.26 NPDES permit program.

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007. Data retrieved from: http://www6.Hawai'i.gov/dot/airports/hnl/swm/index.htm

T

PROJECT TYPE CATEGORY

GOULAT

C

1
POINT

9.06

CONSTRUCTION
SUBMITTAL

WASTE MANAGEMENT & MATERIALS POLLUTION CONTROL

INTENT

Divert construction and demolition debris from disposal in landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.

BENEFITS

» Reduces the total waste generated by construction.
» Reduces demand for virgin resources.
» Increases quantities of materials diverted from landfill.

CONSIDERATIONS

Hawai'i has a limited amount of recycling centers. Being an isolated island, majority of the collected recycled materials are shipped overseas (domestic and international) and recycling centers may therefore take back materials at cost.

STANDARDS

LEED-Commercial Interiors Materials and Resources 3.1/3.2: Construction Waste Management

LEED-Core & Shell Materials and Resources 2.1/2.2: Construction Waste Management

LEED-Existing Buildings: Maintenance and Operations Materials and Resources 1.1/1.2: Construction, Demolition & Renovation Waste Management

LEED-New Construction Materials and Resources 2.1/2.2: Construction Waste Management

Honolulu International Airport, Municipal Separate Storm Sewer System - Construction Activities BMPs: C24 Construction Material Delivery and Storage; C25 Construction Material Use; C26 Protection of Stockpiles; C27 Hazardous Waste Management; C28 Solid (Construction) Waste Management; C29 Contaminated Soil Management; C30 Concrete Waste Management; C31 Sanitary/Septic Waste Management; C32 Spill Prevention and Control; C33 Spill Response Practices

Honolulu International Airport, Municipal Separate Storm Sewer System - Maintenance BMPs: M7 Spill Prevention and Response Practices

MANDATORY REQUIREMENTS

+ Develop and implement a construction waste management plan in coordination with the airport district manager, identifying the materials to be diverted from disposal and whether the materials will be sorted on site or commingled.

+ Evaluate (at a minimum) the following waste for recycling:

- Land clearing debris (green waste)
- Cardboard
- Metal

9.06

CONSTRUCTION
SUBMITTAL

WASTE MANAGEMENT & MATERIALS POLLUTION CONTROL (CONT'D)

C
1
POINT

- Concrete
- Asphalt
- Plastic
- Glass
- Pallets

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing construction and demolition waste management and materials pollution control.

STRATEGIES

» Develop a balanced earthwork plan - keep as much excavated earth on-site as possible to reduce off-site hauling.

» Evaluate the following waste for recycling:
- Brick
- Clean wood
- Gypsum wallboard
- Carpet
- Insulation

» Require haulers to cover truck beds for dust suppression.

» Require truck beds to maintain at least two feet of freeboard for dust suppression.

» Recycle or reuse construction and demolition waste whenever practical. Re-use of project waste as a resource to another project such as:
- Concrete
- Asphalt
- Land and clearing debris
- Small ancillary buildings or structures
- Building components

» Track recycling efforts throughout the construction process.

» Evaluate creating a public information site to list salvaged materials to offer for sale or donation.

» See the State of Hawai'i Department of Health website for Construction and Demolition Waste Management Facilities.

» Prevent or reduce the discharge of pollutants to storm water from material delivery and storage by minimizing the storage of hazardous materials on-site, installing secondary containment, conducting regular inspections, and training employees.

» Designate areas of the construction site for material delivery and storage.

» Select designated waste collection areas on-site.

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1
POINT

9.06

DESIGN
SUBMITTAL

WASTE MANAGEMENT & MATERIALS POLLUTION CONTROL (CONT'D)

» Locate storage areas near construction entrances and away from waterways.
» Use less hazardous, alternative materials as much as possible.
» Measures are to be taken to mitigate the potential for erosion of stockpiles.
» Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.
» Arrange for regular waste collection before containers overflow.
» Avoid mixing excess amounts of fresh concrete or cement on site to minimize waste.
» Perform washout of concrete trucks off site or in designated areas only.
» Prevent or reduce discharge of pollutants to stormwater from leaks and spills by:
  - reducing the chance of spills
  - stopping the source of spills
  - containing and cleaning up spills
  - properly disposing of spilled materials
  - training employees.

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

City and County of Honolulu, Department of Environmental Services. Best Management Practices Manual for Construction Sites in Honolulu, Second Printing, November 2000.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: CN5-WM-1 Recycle & Reuse of Construction Materials; CN5-WM-2 Salvage Materials & Resources

State of Hawai'i Department of Health, Solid and Hazardous Waste Branch, Office of Solid Waste Management. Hawai'i 2000 Plan for Integrated Solid Waste Management, July 2000.

State of Hawai'i Department of Health, Solid and Hazardous Waste Branch, Office of Solid Waste Management. Minimizing Construction and Demolition Wastes, 2007. Data retrieved from: http://Hawai'i.gov/health/environmental/waste/sw/pdf/constdem07.pdf

State of Hawai'i Department of Transportation Airports Division. Storm Water Management Program Plan Honolulu International Airport, Small Municipal Separate Storm Sewer System, May 2007. Data retrieved from: http://www6.Hawai'i.gov/dot/airports/hnl/swm/index.htm

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

T

9.07

CONSTRUCTION
SUBMITTAL

CONSTRUCTION TRANSPORTATION & VEHICLES

C

1
POINT

INTENT

Reduce emissions from construction vehicles including criteria pollutants, hazardous air pollutants (HAP) and greenhouse gases (GHG). Reduce overall fuel consumption.

BENEFITS

» Reduces emissions of criteria pollutants, HAPs, GHGs.
» Reduces consumption (and impacts from consumption) of non-renewable, fossil fuels, including impacts from oil and gas production.
» Reduces health impacts associated with diesel particulate matter, including asthma and acute bronchitis.

CONSIDERATIONS

Enforcement of limiting vehicle idling.

MANDATORY REQUIREMENTS

+ Use bio-diesel based oils that can biodegrade naturally.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ Initiatives that help reduce the environmental impact of construction transportation and vehicles.

STRATEGIES

» Ensure construction activities do not require significant amounts of vehicle idling.
» When idle for more then 3 minutes, vehicles should be turned off.
» Ensure that newer vehicle engines using recent idling and emission reduction technologies are implemented whenever technologically feasible.
» Use clean fuel construction vehicles.
» Replace aging equipment with new low emission models when available and technologically feasible.
» Contain and clean all chemical spills properly and dispose of clean up supplies properly.
» Avoid using excessive chemicals when unnecessary.
» Require contractors to submit pre-construction plan to recycle oil and use environmentally friendly maintenance agents during construction.

T

C

1
POINT

9.07

CONSTRUCTION
SUBMITTAL

CONSTRUCTION TRANSPORTATION & VEHICLES (CONT'D)

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: CN6-CV-1 Reduced Vehicle Idling Plan; CN6-CV-2 Low-Emission Construction Vehicles; CN6-CV-3 Retrofit Construction Vehicles; CN6-CV-4 Alternative Transportation During Construction

State of Hawai'i, Department of Health Administrative Rules. Amendment and Compilation of Chapter 11-60.1-34: Motor Vehicles. Data retrieved from: http://gen.doh.Hawai'i.gov/sites/har/AdmRules1/11-60-1.pdf

PROJECT TYPE CATEGORY

GOULAT

T

9.08

CONSTRUCTION
SUBMITTAL

CONSTRUCTION ROADWAYS

C

1
POINT

INTENT

Prevent or reduce major traffic congestion in the surrounding streets during construction. Prevent disadvantages to the surrounding communities due to road damage during the project construction process.

BENEFITS

» Minimizes adverse impact to local community from construction-related traffic by managing the flow of traffic, roads and haul-ways, and traffic hours.
» Minimizes Stop Work incidences.
» Increases community support for project.
» Minimizes liability for accidents caused by roadway damage.
» Reduces necessity of larger repairs due to delayed maintenance.

MANDATORY REQUIREMENTS

+ Any accidents involving construction related vehicles must be reported immediately and resulting roadway damage shall be repaired immediately by the responsible party.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing protection and consideration of construction roadways.

STRATEGIES

» The importance of managing the traffic should be emphasized as early in the project planning process as is feasible.
» Equipment with tractor treads should avoid driving on roadways to the extent possible.

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: CN14-CR-1 Construction Traffic Control; CN14-CR-2 Prevent & Repair Roadway Damage During Construction

T

PROJECT TYPE CATEGORY

GOULAT

D

1
POINT

9.09

CONSTRUCTION
SUBMITTAL

CONSTRUCTION ACOUSTIC & NOISE CONTROL

INTENT

Develop acoustical control measures to reduce noise levels from construction activities.

BENEFITS

» Reduces overall construction noise levels from stationary, mobile and power actuated construction equipment.

» Avoids unnecessary redesign and construction delays that may otherwise occur due to neighbor complaints.

MANDATORY REQUIREMENTS

+ Observe all posted or required airport speed limits.

+ Contractors to perform construction noise and vibration control in coordination with DOT-A.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing construction acoustic and noise control.

STRATEGIES

» Contractors to perform best management practices of sound reduction in construction.

» Program locations of mechanical equipment and other sources of noise away from exterior spaces designed for use.

» Require mufflers on all construction equipment.

» Noise control measures shall use, but not be limited to using portable and permanent barriers, earthen berms; replacing noisier equipment with quieter units, and using rubber tired equipment in lieu of track equipment.

RESOURCES

ASTM. E1014 -84. Standard Guide for Measurement of Outdoor A-Weighted Sound Levels, 2000.

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: CN10-NC-1 Construction Noise & Acoustical Quality Control Plan; CN10-NC-2 Construction Noise Levels

USDOT. FHWA, Bulletin – Highway Construction Noise: Measurement, Prediction and Mitigation.

USDOT. FHWA, Roadway Construction Noise Model (RCN), January 2006.

PROJECT TYPE CATEGORY

G O U L A T

T

9.10

CONSTRUCTION
SUBMITTAL

CONSTRUCTION IAQ MANAGEMENT

C

1
POINT

INTENT

Reduce indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and building occupants.

BENEFITS

» Keep workers and occupants safe and comfortable.
» Increases worker productivity.
» Minimizes the risk for mold and other IAQ problems.
» Management of sources of indoor air quality problems will promote healthy environments for the permanent occupants of the project.

CONSIDERATIONS

Construction schedules may not always allow enough time for proper building flush outs and procedures.

STANDARDS

LEED-New Construction Indoor Environmental Quality 3.1/3.2: Construction IAQ Management Plan

LEED-Core & Shell Indoor Environmental Quality 3: Construction IAQ Management Plan

LEED-Commercial Interiors Indoor Environmental Quality 3.1/3.2: Construction IAQ Management Plan

LEED-Existing Buildings: Maintenance and Operations Indoor Environmental Quality 3: Construction IAQ Management Plan

MANDATORY REQUIREMENTS

+ Prepare a Construction IAQ Management Plan.

+ Meet or exceed the recommended Design Approaches of the Sheet Metal and Air Conditioning National Contractors' Association (SMACNA) IAQ, Chapter 3.

+ If permanently installed air handlers are used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 must be used at each return air grill, as determined by ASHRAE 52.2 - 1999.

+ Protect stored onsite or installed absorptive materials from moisture damage.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

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C

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POINT

9.10

CONSTRUCTION
SUBMITTAL

CONSTRUCTION IAQ MANAGEMENT (CONT'D)

+ Initiatives addressing construction indoor air quality (IAQ) management.

STRATEGIES

» Limit the operation of air-handling equipment during construction.
» Sequence the installation of materials to avoid contamination.
» Replace all filtration media immediately prior to occupancy, subsequent to flush out.
» Evaluate conducting a two-week building flush out with 100% outside air.
» Educate personnel on the effects of poor IAQ.
» Appoint an IAQ manager who will identify problems and methods of mitigation.
» Monitor airflow within the contaminated area.
» Isolate contamination areas by blocking return air grilles or by adding filtration.

RESOURCES

American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), ANSI/ASHRAE 52.2-1999: Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size. Data retrieved from: www.ashrae.org

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: CN4-IA-2 Construction IAQ Management Plan – During Construction; CN4-IA-3 Construction IAQ Management Plan – Before Occupancy

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

T

9.11

CONSTRUCTION
SUBMITTAL

CONSTRUCTION WATER CONSERVATION

C

1
POINT

INTENT

Minimize use of potable water and increase the use of recycled water. Optimize the utilization of water resources on the job site.

BENEFITS

» Minimizes the depletion of reservoirs and aquifers.
» Improves the integrity and recharge of watershed catchments.
» Reduces burden on public infrastructure by minimizing unnecessary energy use to draw, treat and distribute water.
» Reduces the costs and environmental impacts to extract water from other regions.
» Reduces stormwater runoff during construction and related infrastructure costs.

CONSIDERATIONS

Graywater with soap content can affect the strength of concrete and may have additional repercussions if other foreign agents are present. Any non-potable water used in concrete mixing needs to meet the requirements of ASTM C94 and ASTM C1620.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing construction water conservation.

STRATEGIES

» Consider the use of non-potable water or graywater for the following purposes:
  - Soil compaction
  - Dust suppression and control
  - Concrete mixing and aggregate wash down (upon approval of licensed structural engineer)
  - Consolidation of backfill material around potable/non-potable pipelines
  - Irrigation of landscaping on construction sites
» Use non-potable water for vehicle washing and recycle the used water.

RESOURCES

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: CN3-WC-1 Reduce Potable Water Use During Construction

T

PROJECT TYPE CATEGORY

GOULAT

C

1
POINT

9.12

CONSTRUCTION
SUBMITTAL

TEMPORARY LIGHTING—DURING CONSTRUCTION

INTENT

Reduce lighting energy consumption during construction.

BENEFITS

» Reduces pollution and environmental impacts due to production of energy.
» Reduces cost associated with energy use.
» Reduces dependence on coal, oil, and natural gas for energy production.

CONSIDERATIONS

Temporary lighting on airside should avoid directing toward runways or upward toward the sky.

MANDATORY REQUIREMENTS

+ Consider full cutoff luminaries, low-reflectance, non-specular surfaces and low angle spotlights for roadway and building lighting.

+ Comply with all FAA Advisory Circulars.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing energy efficient temporary lighting during construction.

STRATEGIES

» Reduce construction at night where appropriate.
» Use fluorescent or LED lighting when low light levels are needed.
» Adopt site lighting criteria to maintain safe light levels while avoiding off-site lighting and night sky pollution.
» Establish a schedule for when lighting is required and develop a policy to reduce lighting when not needed.
» Limit lighting in protected ecological areas to mitigate impacts on wildlife.
» Minimize site lighting where safety and security allows.
» The maximum candela value of all interior lighting shall fall within the building (not out through windows) and the maximum candela value of all exterior lighting shall fall within the property.
» Where acceptable, use LED lights instead of High Pressure Sodium (HPS) lamps or Metal Halide (MH) lamps.

T

9.12

CONSTRUCTION
SUBMITTAL

TEMPORARY LIGHTING—DURING CONSTRUCTION (CONT'D)

C

1
POINT

RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Federal Aviation Administration, Advisory Circulars. Data retrieved from: http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: CN11-CL-1 Construction Light Pollution Reduction; CN11-CL-2 Energy Efficient Temporary Lighting During Construction

Harder, Susan. 2007. Data retrieved from: http://www.darkskysociety.org/handouts/white_papermh_vs_hps.pdf

T

PROJECT TYPE CATEGORY

GOULAT

C

1
POINT

9.13

CONSTRUCTION
SUBMITTAL

CONSTRUCTION HEALTH & SAFETY PLAN

INTENT

Provide the construction team with project-specific health and safety management, hazard awareness, hazard prevention techniques, and a healthy and safe atmosphere.

BENEFITS

» Increases awareness of hazards.
» Increases personal use of protective equipment.
» Secures hazardous areas from public access.
» Provides emergency contacts and directions to emergency facility.
» Compiles health and safety incidences to prevent similar occurrences in the future.

MANDATORY REQUIREMENTS

+ Develop a site-specific health and safety plan that identifies all potential hazards and steps taken to mitigate accidents.

+ Appoint a site health and safety manager.

+ Establish an emergency notification program.

+ Record and submit weekly reports summarizing all accidents as well as all incidences which may have resulted in an accident and evaluating what steps can be taken to prevent those incidences in the future.

+ Address health and safety in design and planning stages.

+ Conduct safety observations to ensure workers are abiding by the health and safety plan.

+ Require that all workers have proper safety certifications.

+ Develop job-specific hazard analyses that outline all potential hazards within a certain job and ways to mitigate accidents.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: Initiatives addressing the construction health and safety plan for the project.

9.13

CONSTRUCTION
SUBMITTAL

CONSTRUCTION HEALTH & SAFETY PLAN (CONT'D)

C
1
POINT

STRATEGIES

» Require one member of the construction field team to have CPR/First Aid certification.
» Minimize night work where appropriate.
» Determine conclusively if toxic dusts or fumes exist or will enter breathing space during construction, especially during renovation of buildings.
» Provide reusable or ventilated respirators and masks for worker comfort.
» Provide signs reminding workers of long term health risks due to exposure to particulates and the unknown toxics attached to particulates.
» Monitor dust emissions and employee respirator and mask usage.
» Require employees to wear respirators and masks when dust emissions are visible.

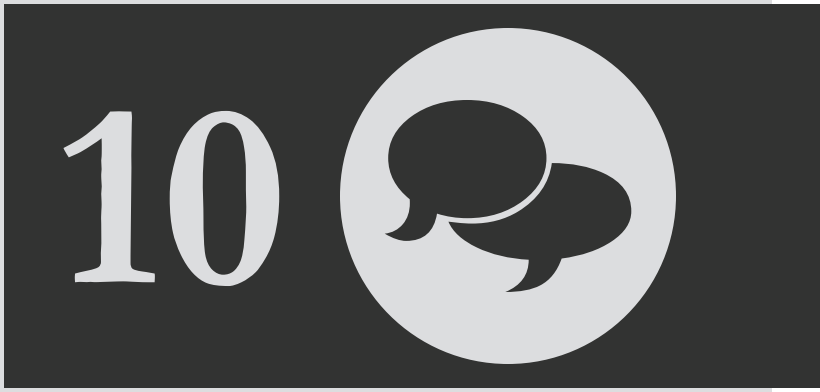
RESOURCES

City of Chicago, O'Hare Modernization Program. Sustainable Design Manual, December 2003.

Los Angeles World Airports. Sustainable Airport Planning, Design and Construction Guidelines Version 3.1, January 2008: CN13-HS-1 Construction Health & Safety Plan; CN13-HS-1 Dust Hazard

Pentagon Renovation and Construction Office and Pennsylvania State University. Field Guide for Sustainable Construction, June 2004.

LEADERSHIP IN INNOVATION



10.1
LEED Accredited Professional, LEED-AP

10.2
Innovation in Design / Construction

PROJECT TYPE CATEGORY

GOULAT

10.01

CONSTRUCTION
SUBMITTAL

LEED ACCREDITED PROFESSIONAL, LEED-AP

C
3
POINTS

INTENT

To support and encourage the integration of sustainable concepts and practices in the design and construction processes as required by these guidelines and to streamline the implementation and documentation process.

BENEFITS

» For those projects required to pursue LEED certification, a LEED Accredited Professional (AP) would help expedite the implementation, documentation, and submittal process.

» Provides in-house expertise.

» Monitors progress through design and construction phases and resolves conflicts early to meet overall project objectives.

STANDARDS

LEED-Commercial Interiors Innovation in Design 2: LEED Accredited Professional

LEED-Core & Shell Innovation in Design 2: LEED Accredited Professional

LEED-Existing Buildings: Maintenance and Operations Innovation in Design 2: LEED Accredited Professional

LEED-New Construction Innovation in Design 2: LEED Accredited Professional

MANDATORY REQUIREMENTS

+ Provide the names, company, and role of the LEED APs

+ Provide a copy of the LEED APs certificate

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1: At least one principal participant to be LEED Accredited on the Design team.

+ 1: At least one principal participant to be LEED Accredited on the Construction Management (CM) team.

+ 1: At least one principal participant to be LEED Accredited on the Contractor's team.

D

1
POINT

10.01

CONSTRUCTION
SUBMITTAL

LEED ACCREDITED PROFESSIONAL, LEED-AP (CONT'D)

STRATEGIES

» Encourage design team and construction team members to take the LEED AP exam, if they are not already certified.

» Assign LEED APs on the team to review the project at critical points in coordination with the DOT-A Sustainability Committee.

RESOURCES

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

PROJECT TYPE CATEGORY

GOULAT

10.02

DESIGN/CONSTRUCTION
SUBMITTAL

INNOVATION IN DESIGN / CONSTRUCTION

D/C

4
POINTS

INTENT

To provide projects the opportunity to be awarded points for exceptional performance and unique and creative solutions and/or practices not specifically addressed in the guidelines.

BENEFITS

» Encourages the use of evolving sustainable strategies in design and construction practices.
» Exceptional elements and/or strategies become an example for future projects.
» Exceptional elements and/or strategies give the airport recognition in sustainable initiatives.

STANDARDS

LEED-Commercial Interiors Innovation in Design 1.1-1.4

LEED-Core & Shell Innovation in Design 1.1-1.4

LEED-Existing Buildings Innovation in Design 1.1-1.4

LEED-New Construction Innovation in Design 1.1-1.4

MANDATORY REQUIREMENTS

+ Identify the intent of the proposed innovation credit.

+ Identify the proposed requirements for compliance.

+ Identify the proposed design strategies that might be used to meet the requirements.

+ Identify who will verify completion of the proposed strategy.

POINTS AVAILABLE

Provide a narrative describing best management practices implemented in the project:

+ 1-4: Initiatives addressing best management practices that goes beyond these guidelines.

D/C

4
POINTS

10.02

DESIGN/CONSTRUCTION
SUBMITTAL

INNOVATION IN DESIGN / CONSTRUCTION (CONT'D)

STRATEGIES

» Educate the public in sustainability through the strategies incorporated into the project.

» Identify the intent of the proposed innovation credit, the proposed requirement for compliance, the proposed submittals to demonstrate compliance, and the design approach (strategies) that might be used to meet the requirements.

RESOURCES

USGBC. LEED for Commercial Interiors Version 2.0, December 2005.

USGBC. LEED for Core and Shell Development Version 1.0 First Edition, June 2006.

USGBC. LEED for Existing Buildings Version 2.0 Second Edition, October 2006.

USGBC. LEED for New Construction and Major Renovations Version 2.2 Second Edition, September 2006.

sustainableDOT-A

PROJECT TYPE CATEGORY CHECKLISTS

SHPG-G:
General Construction / Maintenance

SHPG-O:
Occupied Buildings/Facilities

SHPG-O (For LEED)

SHPG-U:
Unoccupied Buildings/Facilities

SHPG-L:
Civil – Landside

SHPG-A:
Civil – Airside

SHPG-T:
Interior Tenant Improvement

SHPG-T (For LEED)

G

SHPG-G:
GENERAL CONSTRUCTION / MAINTENANCE CHECKLIST

PROJECT NAME

= optional credit

REVIEW DATE

BEST PRACTICE		possible	projected	milestone reviews: SD	DD	CD	PAU!	verify complete	NOTES
		POINTS							
01	**AIR TRANSPORTATION PLANNING**	**##**							
1.01	Runway / Taxiway / Terminal Design	1						◎	
1.02	Airside Layout Design—Minimal Aircraft Delay	1						◎	
1.03	Provide Infrastructure for Pre-Conditioned Air	1						◎	
1.04	Provide Infrastructure for 400 Hz	1						◎	
1.05	Provide Infrastructure for Hydrant Fueling for Aircraft	1						◎	
02	**SITE / ECOSYSTEM**	**##**							
2.01	Landside Site Development	**3**						◎	
2.02	Airside Site Development	**3**						◎	
2.03	Erosion and Sedimentation Control	**1**						◎	
2.04	Stormwater Management—Rate and Quantity	**1**						◎	
2.05	Stormwater Management—Quality and Treatment	**1**						◎	
2.06	Landscape & Exterior Design—Heat-islands, Non-Roof	**1**						◎	
2.07	Landscape & Exterior Design—Heat-islands, Roof	**1**						◎	
2.08	Light Pollution Reduction—Exterior / Interior	**1**						◎	
03	**GROUND TRANSPORTATION MANAGEMENT**	**##**							
3.01	Community Connectivity—Efficient Transportation Design	1						◎	
3.02	Alt. Transportation—Public Transportation Access	1						◎	
3.03	Alt. Transportation—Bicycle Storage & Changing Facility	1						◎	
3.04	Alt. Transportation—Energy Efficient Vehicles	1						◎	
3.05	Alt. Transportation—Carpooling & Parking Capacity	1						◎	
04	**WATER**	**##**							
4.01	Discharge Water Compliance	**1**						◎	
4.02	Water Efficient Landscaping	**3**						◎	
4.03	Improved Water Use & Efficiency	4						◎	
05	**ENERGY**	**##**							
5.01	Commissioning of Building Energy Systems	1						◎	
5.02	Minimum Energy Performance	**1**						◎	
5.03	CFC / HCFC Reduction	1						◎	
5.04	Optimize Energy Performance	**10**						◎	
5.05	Renewable Energy—On-Site	**4**						◎	
5.06	Energy Management—Measurement & Verification	**1**						◎	
5.07	Alternative Energy—Off-Site, Off-Grid	1						◎	
06	**MATERIALS FLOWS & WASTE**	**##**							
6.01	Storage of Recyclables—Landside & Airside	1						◎	
6.02	Structure & Building Reuse—Exterior	1						◎	
6.03	Structure & Building Reuse—Interior	1						◎	
6.04	Resource Reuse	**3**						◎	
6.05	Recycled Content	**3**						◎	
6.06	Local / Regional Materials	**3**						◎	
6.07	Rapidly Renewable Materials	**2**						◎	
6.08	Certified Wood	**2**						◎	
6.09	Design for Reuse & Recycling	**1**						◎	

SHPG-G:
GENERAL CONSTRUCTION / MAINTENANCE CHECKLIST

G

BEST PRACTICE		POINTS possible	projected	milestone reviews SD	DD	CD	PAU!	verify complete	NOTES
07	**ENVIRONMENTAL QUALITY**	**##**							
7.01	Indoor Air Quality Performance	1						◎	
7.02	Environmental Tobacco Smoke Control	**1**						◎	
7.03	Asbestos Removal	**1**						◎	
7.04	Polychlorinated Biphenyl (PCB) Removal	**1**						◎	
7.05	Outdoor Air Delivery Monitoring	2						◎	
7.06	Effectiveness of Ventilation System	1						◎	
7.07	Low-Emitting Materials	**5**						◎	
7.08	Indoor Chemical & Pollutant Source Control	2						◎	
7.09	Controllability of Lighting Systems	1						◎	
7.10	Controllability of Thermal Systems	1						◎	
7.11	Thermal Comfort Design	1						◎	
7.12	Thermal Comfort Verification	1						◎	
7.13	Daylight Design	1						◎	
7.14	Views	1						◎	
7.15	Fuel Vapor Monitoring	1						◎	
08	**NOISE POLLUTION REDUCTION**	**##**							
8.01	Exterior Noise Quality Control—Non-Aircraft Sources	**1**						◎	
8.02	Exterior Noise Quality Control—Aircraft Flight Paths	1						◎	
8.03	Interior Noise Quality Control	1						◎	
09	**CONSTRUCTION ACTIVITIES**	**##**							
9.01	Construction Scheduling & Sequencing	**1**						◎	
9.02	Erosion & Sedimentation Control—During Construction	**1**						◎	
9.03	Stormwater Management—During Construction	**1**						◎	
9.04	Tracking Control	**1**						◎	
9.05	Potential Pollutant Control	**1**						◎	
9.06	Waste Management & Materials Pollution Control	**1**						◎	
9.07	Construction Transportation & Vehicles	**1**						◎	
9.08	Construction Roadways	**1**						◎	
9.09	Construction Acoustic & Noise Control	**1**						◎	
9.10	Construction IAQ Management	1						◎	
9.11	Construction Water Conservation	**1**						◎	
9.12	Temporary Lighting—During Construction	**1**						◎	
9.13	Construction Health & Safety Plan	**1**						◎	
10	**LEADERSHIP / INNOVATION**	**##**							
10.01	LEED Accredited Professional, LEED-AP	**3**						◎	
10.02	Innovation in Design / Construction	**1**						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	

PROJECT CATEGORY CHECKLIST (2 OF 2)

O

SHPG-O:
OCCUPIED BUILDINGS / FACILITIES CHECKLIST

PROJECT NAME

= optional credit

REVIEW DATE

BEST PRACTICE		POINTS	possible	projected	milestone reviews: SD	DD	CD	PAU	verify complete	NOTES
01	**AIR TRANSPORTATION PLANNING**	**##**								
1.01	Runway / Taxiway / Terminal Design	1							◎	
1.02	Airside Layout Design—Minimal Aircraft Delay	1							◎	
1.03	Provide Infrastructure for Pre-Conditioned Air	**1**							◎	
1.04	Provide Infrastructure for 400 Hz	**1**							◎	
1.05	Provide Infrastructure for Hydrant Fueling for Aircraft	**1**							◎	
02	**SITE / ECOSYSTEM**	**##**								
2.01	Landside Site Development	**3**							◎	
2.02	Airside Site Development	**3**							◎	
2.03	Erosion and Sedimentation Control	**1**							◎	
2.04	Stormwater Management—Rate and Quantity	**1**							◎	
2.05	Stormwater Management—Quality and Treatment	**1**							◎	
2.06	Landscape & Exterior Design—Heat-islands, Non-Roof	**1**							◎	
2.07	Landscape & Exterior Design—Heat-islands, Roof	**1**							◎	
2.08	Light Pollution Reduction—Exterior / Interior	**1**							◎	
03	**GROUND TRANSPORTATION MANAGEMENT**	**##**								
3.01	Community Connectivity—Efficient Transportation Design	**1**							◎	
3.02	Alt. Transportation—Public Transportation Access	**1**							◎	
3.03	Alt. Transportation—Bicycle Storage & Changing Facility	**1**							◎	
3.04	Alt. Transportation—Energy Efficient Vehicles	**1**							◎	
3.05	Alt. Transportation—Carpooling & Parking Capacity	**1**							◎	
04	**WATER**	**##**								
4.01	Discharge Water Compliance	**1**							◎	
4.02	Water Efficient Landscaping	**3**							◎	
4.03	Improved Water Use & Efficiency	**4**							◎	
05	**ENERGY**	**##**								
5.01	Commissioning of Building Energy Systems	**1**							◎	
5.02	Minimum Energy Performance	**1**							◎	
5.03	CFC / HCFC Reduction	**1**							◎	
5.04	Optimize Energy Performance	**10**							◎	
5.05	Renewable Energy—On-Site	**4**							◎	
5.06	Energy Management—Measurement & Verification	**1**							◎	
5.07	Alternative Energy—Off-Site, Off-Grid	**1**							◎	
06	**MATERIALS FLOWS & WASTE**	**##**								
6.01	Storage of Recyclables—Landside & Airside	**1**							◎	
6.02	Structure & Building Reuse—Exterior	**1**							◎	
6.03	Structure & Building Reuse—Interior	**1**							◎	
6.04	Resource Reuse	**3**							◎	
6.05	Recycled Content	**3**							◎	
6.06	Local / Regional Materials	**3**							◎	
6.07	Rapidly Renewable Materials	**2**							◎	
6.08	Certified Wood	**2**							◎	
6.09	Design for Reuse & Recycling	**1**							◎	

PROJECT CATEGORY CHECKLIST (1 OF 2)

SHPG-O:
OCCUPIED BUILDINGS / FACILITIES CHECKLIST

O

BEST PRACTICE		POINTS possible	projected	milestone reviews SD	DD	CD	PAU!	verify complete	NOTES
07	**ENVIRONMENTAL QUALITY**	**##**							
7.01	Indoor Air Quality Performance	**1**						◎	
7.02	Environmental Tobacco Smoke Control	**1**						◎	
7.03	Asbestos Removal	**1**						◎	
7.04	Polychlorinated Biphenyl (PCB) Removal	**1**						◎	
7.05	Outdoor Air Delivery Monitoring	**2**						◎	
7.06	Effectiveness of Ventilation System	**1**						◎	
7.07	Low-Emitting Materials	**5**						◎	
7.08	Indoor Chemical & Pollutant Source Control	**2**						◎	
7.09	Controllability of Lighting Systems	**1**						◎	
7.10	Controllability of Thermal Systems	**1**						◎	
7.11	Thermal Comfort Design	**1**						◎	
7.12	Thermal Comfort Verification	**1**						◎	
7.13	Daylight Design	**1**						◎	
7.14	Views	**1**						◎	
7.15	Fuel Vapor Monitoring	**1**						◎	
08	**NOISE POLLUTION REDUCTION**	**##**							
8.01	Exterior Noise Quality Control—Non-Aircraft Sources	**1**						◎	
8.02	Exterior Noise Quality Control—Aircraft Flight Paths	1						◎	
8.03	Interior Noise Quality Control	**1**						◎	
09	**CONSTRUCTION ACTIVITIES**	**##**							
9.01	Construction Scheduling & Sequencing	**1**						◎	
9.02	Erosion & Sedimentation Control—During Construction	**1**						◎	
9.03	Stormwater Management—During Construction	**1**						◎	
9.04	Tracking Control	**1**						◎	
9.05	Potential Pollutant Control	**1**						◎	
9.06	Waste Management & Materials Pollution Control	**1**						◎	
9.07	Construction Transportation & Vehicles	**1**						◎	
9.08	Construction Roadways	**1**						◎	
9.09	Construction Acoustic & Noise Control	**1**						◎	
9.10	Construction IAQ Management	**1**						◎	
9.11	Construction Water Conservation	**1**						◎	
9.12	Temporary Lighting—During Construction	**1**						◎	
9.13	Construction Health & Safety Plan	**1**						◎	
10	**LEADERSHIP / INNOVATION**	**##**							
10.01	LEED Accredited Professional, LEED-AP	**3**						◎	
10.02	Innovation in Design / Construction	**1**						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	

PROJECT CATEGORY CHECKLIST (2 OF 2)

O

SHPG-O (LEED-NC):
OCCUPIED BUILDINGS / FACILITIES CHECKLIST

PROJECT NAME

= optional credit

REVIEW DATE

BEST PRACTICE		POINTS	possible	projected	milestone reviews: SD	milestone reviews: DD	milestone reviews: CD	milestone reviews: PAU!	verify complete	NOTES
01	**AIR TRANSPORTATION PLANNING**	**##**								
1.01	Runway / Taxiway / Terminal Design	1							◎	
1.02	Airside Layout Design—Minimal Aircraft Delay	1							◎	
1.03	Provide Infrastructure for Pre-Conditioned Air	**1**							◎	
1.04	Provide Infrastructure for 400 Hz	**1**							◎	
1.05	Provide Infrastructure for Hydrant Fueling for Aircraft	**1**							◎	
02	**SITE / ECOSYSTEM**	**##**								
2.01	Landside Site Development	**3**							◎	
2.02	Airside Site Development	**3**							◎	
2.03	Erosion and Sedimentation Control	**1**							◎	
2.04	Stormwater Management—Rate and Quantity	**1**							◎	
2.05	Stormwater Management—Quality and Treatment	**1**							◎	
2.06	Landscape & Exterior Design—Heat-islands, Non-Roof	**1**							◎	
2.07	Landscape & Exterior Design—Heat-islands, Roof	**1**							◎	
2.08	Light Pollution Reduction—Exterior / Interior	**1**							◎	
03	**GROUND TRANSPORTATION MANAGEMENT**	**##**								
3.01	Community Connectivity—Efficient Transportation Design	**1**							◎	
3.02	Alt. Transportation—Public Transportation Access	**1**							◎	
3.03	Alt. Transportation—Bicycle Storage & Changing Facility	**1**							◎	
3.04	Alt. Transportation—Energy Efficient Vehicles	**1**							◎	
3.05	Alt. Transportation—Carpooling & Parking Capacity	**1**							◎	
04	**WATER**	**##**								
4.01	Discharge Water Compliance	**1**							◎	
4.02	Water Efficient Landscaping	**3**							◎	
4.03	Improved Water Use & Efficiency	**4**							◎	
05	**ENERGY**	**##**								
5.01	Commissioning of Building Energy Systems	**1**							◎	
5.02	Minimum Energy Performance	**1**							◎	
5.03	CFC / HCFC Reduction	**1**							◎	
5.04	Optimize Energy Performance	**10**							◎	
5.05	Renewable Energy—On-Site	**4**							◎	
5.06	Energy Management—Measurement & Verification	**1**							◎	
5.07	Alternative Energy—Off-Site, Off-Grid	**1**							◎	
06	**MATERIALS FLOWS & WASTE**	**##**								
6.01	Storage of Recyclables—Landside & Airside	**1**							◎	
6.02	Structure & Building Reuse—Exterior	**1**							◎	
6.03	Structure & Building Reuse—Interior	**1**							◎	
6.04	Resource Reuse	**3**							◎	
6.05	Recycled Content	**3**							◎	
6.06	Local / Regional Materials	**3**							◎	
6.07	Rapidly Renewable Materials	**2**							◎	
6.08	Certified Wood	**2**							◎	
6.09	Design for Reuse & Recycling	**1**							◎	

PROJECT CATEGORY CHECKLIST (1 OF 2)

SHPG-O (LEED-NC):
OCCUPIED BUILDINGS / FACILITIES CHECKLIST

O

BEST PRACTICE		POINTS possible	projected	milestone reviews SD	DD	CD	PAU!	verify complete	NOTES
07	**ENVIRONMENTAL QUALITY**	**##**							
7.01	Indoor Air Quality Performance	**1**						◎	
7.02	Environmental Tobacco Smoke Control	**1**						◎	
7.03	Asbestos Removal	**1**						◎	
7.04	Polychlorinated Biphenyl (PCB) Removal	**1**						◎	
7.05	Outdoor Air Delivery Monitoring	**2**						◎	
7.06	Effectiveness of Ventilation System	**1**						◎	
7.07	Low-Emitting Materials	**5**						◎	
7.08	Indoor Chemical & Pollutant Source Control	**2**						◎	
7.09	Controllability of Lighting Systems	**1**						◎	
7.10	Controllability of Thermal Systems	**1**						◎	
7.11	Thermal Comfort Design	**1**						◎	
7.12	Thermal Comfort Verification	**1**						◎	
7.13	Daylight Design	**1**						◎	
7.14	Views	**1**						◎	
7.15	Fuel Vapor Monitoring	**1**						◎	
08	**NOISE POLLUTION REDUCTION**	**##**							
8.01	Exterior Noise Quality Control—Non-Aircraft Sources	**1**						◎	
8.02	Exterior Noise Quality Control—Aircraft Flight Paths	1						◎	
8.03	Interior Noise Quality Control	**1**						◎	
09	**CONSTRUCTION ACTIVITIES**	**##**							
9.01	Construction Scheduling & Sequencing	**1**						◎	
9.02	Erosion & Sedimentation Control—During Construction	**1**						◎	
9.03	Stormwater Management—During Construction	**1**						◎	
9.04	Tracking Control	**1**						◎	
9.05	Potential Pollutant Control	**1**						◎	
9.06	Waste Management & Materials Pollution Control	**1**						◎	
9.07	Construction Transportation & Vehicles	**1**						◎	
9.08	Construction Roadways	**1**						◎	
9.09	Construction Acoustic & Noise Control	**1**						◎	
9.10	Construction IAQ Management	**1**						◎	
9.11	Construction Water Conservation	**1**						◎	
9.12	Temporary Lighting—During Construction	**1**						◎	
9.13	Construction Health & Safety Plan	**1**						◎	
10	**LEADERSHIP / INNOVATION**	**##**							
10.01	LEED Accredited Professional, LEED-AP	**3**						◎	
10.02	Innovation in Design / Construction	**1**						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	

PROJECT CATEGORY CHECKLIST (2 OF 2)

U

SHPG-U:
UNOCCUPIED BUILDINGS / FACILITIES CHECKLIST

PROJECT NAME

= optional credit

REVIEW DATE

BEST PRACTICE		possible	projected	milestone reviews SD	DD	CD	PAU!	verify complete	NOTES
		POINTS							
01	**AIR TRANSPORTATION PLANNING**	**##**							
1.01	Runway / Taxiway / Terminal Design	1						◎	
1.02	Airside Layout Design—Minimal Aircraft Delay	1						◎	
1.03	Provide Infrastructure for Pre-Conditioned Air	1						◎	
1.04	Provide Infrastructure for 400 Hz	1						◎	
1.05	Provide Infrastructure for Hydrant Fueling for Aircraft	1						◎	
02	**SITE / ECOSYSTEM**	**##**							
2.01	Landside Site Development	**3**						◎	
2.02	Airside Site Development	**3**						◎	
2.03	Erosion and Sedimentation Control	**1**						◎	
2.04	Stormwater Management—Rate and Quantity	**1**						◎	
2.05	Stormwater Management—Quality and Treatment	**1**						◎	
2.06	Landscape & Exterior Design—Heat-islands, Non-Roof	**1**						◎	
2.07	Landscape & Exterior Design—Heat-islands, Roof	**1**						◎	
2.08	Light Pollution Reduction—Exterior / Interior	**1**						◎	
03	GROUND TRANSPORTATION MANAGEMENT	##							
3.01	Community Connectivity—Efficient Transportation Design	1						◎	
3.02	Alt. Transportation—Public Transportation Access	1						◎	
3.03	Alt. Transportation—Bicycle Storage & Changing Facility	1						◎	
3.04	Alt. Transportation—Energy Efficient Vehicles	1						◎	
3.05	Alt. Transportation—Carpooling & Parking Capacity	1						◎	
04	**WATER**	**##**							
4.01	Discharge Water Compliance	1						◎	
4.02	Water Efficient Landscaping	3						◎	
4.03	Improved Water Use & Efficiency	4						◎	
05	**ENERGY**	**##**							
5.01	Commissioning of Building Energy Systems	**1**						◎	
5.02	Minimum Energy Performance	**1**						◎	
5.03	CFC / HCFC Reduction	**1**						◎	
5.04	Optimize Energy Performance	**10**						◎	
5.05	Renewable Energy—On-Site	**4**						◎	
5.06	Energy Management—Measurement & Verification	**1**						◎	
5.07	Alternative Energy—Off-Site, Off-Grid	**1**						◎	
06	**MATERIALS FLOWS & WASTE**	**##**							
6.01	Storage of Recyclables—Landside & Airside	1						◎	
6.02	Structure & Building Reuse—Exterior	**1**						◎	
6.03	Structure & Building Reuse—Interior	**1**						◎	
6.04	Resource Reuse	**3**						◎	
6.05	Recycled Content	**3**						◎	
6.06	Local / Regional Materials	**3**						◎	
6.07	Rapidly Renewable Materials	**2**						◎	
6.08	Certified Wood	**2**						◎	
6.09	Design for Reuse & Recycling	**1**						◎	

SHPG-U:
UNOCCUPIED BUILDINGS / FACILITIES CHECKLIST

U

	BEST PRACTICE	possible	projected	milestone reviews: SD	milestone reviews: DD	milestone reviews: CD	milestone reviews: PAU!	verify complete	NOTES
		POINTS							
07	**ENVIRONMENTAL QUALITY**	**##**							
7.01	Indoor Air Quality Performance	1						◎	
7.02	Environmental Tobacco Smoke Control	**1**						◎	
7.03	Asbestos Removal	**1**						◎	
7.04	Polychlorinated Biphenyl (PCB) Removal	**1**						◎	
7.05	Outdoor Air Delivery Monitoring	2						◎	
7.06	Effectiveness of Ventilation System	1						◎	
7.07	Low-Emitting Materials	**5**						◎	
7.08	Indoor Chemical & Pollutant Source Control	2						◎	
7.09	Controllability of Lighting Systems	1						◎	
7.10	Controllability of Thermal Systems	1						◎	
7.11	Thermal Comfort Design	1						◎	
7.12	Thermal Comfort Verification	1						◎	
7.13	Daylight Design	**1**						◎	
7.14	Views	1						◎	
7.15	Fuel Vapor Monitoring	1						◎	
08	**NOISE POLLUTION REDUCTION**	**##**							
8.01	Exterior Noise Quality Control—Non-Aircraft Sources	1						◎	
8.02	Exterior Noise Quality Control—Aircraft Flight Paths	1						◎	
8.03	Interior Noise Quality Control	1						◎	
09	**CONSTRUCTION ACTIVITIES**	**##**							
9.01	Construction Scheduling & Sequencing	**1**						◎	
9.02	Erosion & Sedimentation Control—During Construction	**1**						◎	
9.03	Stormwater Management—During Construction	**1**						◎	
9.04	Tracking Control	**1**						◎	
9.05	Potential Pollutant Control	**1**						◎	
9.06	Waste Management & Materials Pollution Control	**1**						◎	
9.07	Construction Transportation & Vehicles	**1**						◎	
9.08	Construction Roadways	**1**						◎	
9.09	Construction Acoustic & Noise Control	**1**						◎	
9.10	Construction IAQ Management	**1**						◎	
9.11	Construction Water Conservation	**1**						◎	
9.12	Temporary Lighting—During Construction	**1**						◎	
9.13	Construction Health & Safety Plan	**1**						◎	
10	**LEADERSHIP / INNOVATION**	**##**							
10.01	LEED Accredited Professional, LEED-AP	**3**						◎	
10.02	Innovation in Design / Construction	**1**						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	

PROJECT CATEGORY CHECKLIST (2 OF 2)

L

SHPG-L:
CIVIL—LANDSIDE CHECKLIST

PROJECT NAME

= optional credit

REVIEW DATE

BEST PRACTICE		possible	projected	milestone reviews: SD	DD	CD	PAU!	verify complete	NOTES
		POINTS							
01	**AIR TRANSPORTATION PLANNING**	**##**							
1.01	Runway / Taxiway / Terminal Design	1						◎	
1.02	Airside Layout Design—Minimal Aircraft Delay	1						◎	
1.03	Provide Infrastructure for Pre-Conditioned Air	1						◎	
1.04	Provide Infrastructure for 400 Hz	1						◎	
1.05	Provide Infrastructure for Hydrant Fueling for Aircraft	1						◎	
02	**SITE / ECOSYSTEM**	**##**							
2.01	Landside Site Development	**3**						◎	
2.02	Airside Site Development	3						◎	
2.03	Erosion and Sedimentation Control	**1**						◎	
2.04	Stormwater Management—Rate and Quantity	**1**						◎	
2.05	Stormwater Management—Quality and Treatment	**1**						◎	
2.06	Landscape & Exterior Design—Heat-islands, Non-Roof	**1**						◎	
2.07	Landscape & Exterior Design—Heat-islands, Roof	**1**						◎	
2.08	Light Pollution Reduction—Exterior / Interior	**1**						◎	
03	**GROUND TRANSPORTATION MANAGEMENT**	**##**							
3.01	Community Connectivity—Efficient Transportation Design	**1**						◎	
3.02	Alt. Transportation—Public Transportation Access	**1**						◎	
3.03	Alt. Transportation—Bicycle Storage & Changing Facility	**1**						◎	
3.04	Alt. Transportation—Energy Efficient Vehicles	**1**						◎	
3.05	Alt. Transportation—Carpooling & Parking Capacity	**1**						◎	
04	**WATER**	**##**							
4.01	Discharge Water Compliance	**1**						◎	
4.02	Water Efficient Landscaping	**3**						◎	
4.03	Improved Water Use & Efficiency	4						◎	
05	**ENERGY**	**##**							
5.01	Commissioning of Building Energy Systems	**1**						◎	
5.02	Minimum Energy Performance	**1**						◎	
5.03	CFC / HCFC Reduction	1						◎	
5.04	Optimize Energy Performance	**10**						◎	
5.05	Renewable Energy—On-Site	**4**						◎	
5.06	Energy Management—Measurement & Verification	**1**						◎	
5.07	Alternative Energy—Off-Site, Off-Grid	**1**						◎	
06	**MATERIALS FLOWS & WASTE**	**##**							
6.01	Storage of Recyclables—Landside & Airside	**1**						◎	
6.02	Structure & Building Reuse—Exterior	**1**						◎	
6.03	Structure & Building Reuse—Interior	1						◎	
6.04	Resource Reuse	**3**						◎	
6.05	Recycled Content	**3**						◎	
6.06	Local / Regional Materials	**3**						◎	
6.07	Rapidly Renewable Materials	**2**						◎	
6.08	Certified Wood	**2**						◎	
6.09	Design for Reuse & Recycling	**1**						◎	

PROJECT CATEGORY CHECKLIST (1 OF 2)

SHPG-L:
CIVIL—LANDSIDE CHECKLIST

L

BEST PRACTICE		POINTS possible	projected	milestone reviews SD	DD	CD	PAU!	verify complete	NOTES
07	**ENVIRONMENTAL QUALITY**	**##**							
7.01	Indoor Air Quality Performance	1						◎	
7.02	Environmental Tobacco Smoke Control	**1**						◎	
7.03	Asbestos Removal	**1**						◎	
7.04	Polychlorinated Biphenyl (PCB) Removal	**1**						◎	
7.05	Outdoor Air Delivery Monitoring	2						◎	
7.06	Effectiveness of Ventilation System	1						◎	
7.07	Low-Emitting Materials	**5**						◎	
7.08	Indoor Chemical & Pollutant Source Control	2						◎	
7.09	Controllability of Lighting Systems	1						◎	
7.10	Controllability of Thermal Systems	1						◎	
7.11	Thermal Comfort Design	1						◎	
7.12	Thermal Comfort Verification	1						◎	
7.13	Daylight Design	**1**						◎	
7.14	Views	1						◎	
7.15	Fuel Vapor Monitoring	1						◎	
08	**NOISE POLLUTION REDUCTION**	**##**							
8.01	Exterior Noise Quality Control—Non-Aircraft Sources	**1**						◎	
8.02	Exterior Noise Quality Control—Aircraft Flight Paths	1						◎	
8.03	Interior Noise Quality Control	1						◎	
09	**CONSTRUCTION ACTIVITIES**	**##**							
9.01	Construction Scheduling & Sequencing	**1**						◎	
9.02	Erosion & Sedimentation Control—During Construction	**1**						◎	
9.03	Stormwater Management—During Construction	**1**						◎	
9.04	Tracking Control	**1**						◎	
9.05	Potential Pollutant Control	**1**						◎	
9.06	Waste Management & Materials Pollution Control	**1**						◎	
9.07	Construction Transportation & Vehicles	**1**						◎	
9.08	Construction Roadways	**1**						◎	
9.09	Construction Acoustic & Noise Control	**1**						◎	
9.10	Construction IAQ Management	**1**						◎	
9.11	Construction Water Conservation	**1**						◎	
9.12	Temporary Lighting—During Construction	**1**						◎	
9.13	Construction Health & Safety Plan	**1**						◎	
10	**LEADERSHIP / INNOVATION**	**##**							
10.01	LEED Accredited Professional, LEED-AP	**3**						◎	
10.02	Innovation in Design / Construction	**1**						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	

PROJECT CATEGORY CHECKLIST (2 OF 2)

A

SHPG-A:
CIVIL—AIRSIDE CHECKLIST

PROJECT NAME

= optional credit

REVIEW DATE

BEST PRACTICE		POINTS	possible	projected	milestone reviews: SD	DD	CD	PAU!	verify complete
01	**AIR TRANSPORTATION PLANNING**	**##**							
1.01	Runway / Taxiway / Terminal Design	**1**							◎
1.02	Airside Layout Design—Minimal Aircraft Delay	**1**							◎
1.03	Provide Infrastructure for Pre-Conditioned Air	1							◎
1.04	Provide Infrastructure for 400 Hz	1							◎
1.05	Provide Infrastructure for Hydrant Fueling for Aircraft	1							◎
02	**SITE / ECOSYSTEM**	**##**							
2.01	Landside Site Development	3							◎
2.02	Airside Site Development	**3**							◎
2.03	Erosion and Sedimentation Control	**1**							◎
2.04	Stormwater Management—Rate and Quantity	**1**							◎
2.05	Stormwater Management—Quality and Treatment	**1**							◎
2.06	Landscape & Exterior Design—Heat-islands, Non-Roof	**1**							◎
2.07	Landscape & Exterior Design—Heat-islands, Roof	1							◎
2.08	Light Pollution Reduction—Exterior / Interior	**1**							◎
03	**GROUND TRANSPORTATION MANAGEMENT**	**##**							
3.01	Community Connectivity—Efficient Transportation Design	1							◎
3.02	Alt. Transportation—Public Transportation Access	1							◎
3.03	Alt. Transportation—Bicycle Storage & Changing Facility	1							◎
3.04	Alt. Transportation—Energy Efficient Vehicles	1							◎
3.05	Alt. Transportation—Carpooling & Parking Capacity	1							◎
04	**WATER**	**##**							
4.01	Discharge Water Compliance	**1**							◎
4.02	Water Efficient Landscaping	**3**							◎
4.03	Improved Water Use & Efficiency	4							◎
05	**ENERGY**	**##**							
5.01	Commissioning of Building Energy Systems	**1**							◎
5.02	Minimum Energy Performance	**1**							◎
5.03	CFC / HCFC Reduction	1							◎
5.04	Optimize Energy Performance	**10**							◎
5.05	Renewable Energy—On-Site	**4**							◎
5.06	Energy Management—Measurement & Verification	**1**							◎
5.07	Alternative Energy—Off-Site, Off-Grid	**1**							◎
06	**MATERIALS FLOWS & WASTE**	**##**							
6.01	Storage of Recyclables—Landside & Airside	1							◎
6.02	Structure & Building Reuse—Exterior	1							◎
6.03	Structure & Building Reuse—Interior	1							◎
6.04	Resource Reuse	**3**							◎
6.05	Recycled Content	**3**							◎
6.06	Local / Regional Materials	**3**							◎
6.07	Rapidly Renewable Materials	**2**							◎
6.08	Certified Wood	**2**							◎
6.09	Design for Reuse & Recycling	**1**							◎

NOTES

PROJECT CATEGORY CHECKLIST (1 OF 2)

SHPG-A:
CIVIL—AIRSIDE CHECKLIST

A

BEST PRACTICE		POINTS possible	projected	milestone reviews SD	DD	CD	PAU!	verify complete	NOTES
07	**ENVIRONMENTAL QUALITY**	##							
7.01	Indoor Air Quality Performance	1						◎	
7.02	Environmental Tobacco Smoke Control	1						◎	
7.03	Asbestos Removal	1						◎	
7.04	Polychlorinated Biphenyl (PCB) Removal	1						◎	
7.05	Outdoor Air Delivery Monitoring	2						◎	
7.06	Effectiveness of Ventilation System	1						◎	
7.07	Low-Emitting Materials	5						◎	
7.08	Indoor Chemical & Pollutant Source Control	2						◎	
7.09	Controllability of Lighting Systems	1						◎	
7.10	Controllability of Thermal Systems	1						◎	
7.11	Thermal Comfort Design	1						◎	
7.12	Thermal Comfort Verification	1						◎	
7.13	Daylight Design	1						◎	
7.14	Views	1						◎	
7.15	Fuel Vapor Monitoring	1						◎	
08	**NOISE POLLUTION REDUCTION**	##							
8.01	Exterior Noise Quality Control—Non-Aircraft Sources	1						◎	
8.02	Exterior Noise Quality Control—Aircraft Flight Paths	1						◎	
8.03	Interior Noise Quality Control	1						◎	
09	**CONSTRUCTION ACTIVITIES**	##							
9.01	Construction Scheduling & Sequencing	1						◎	
9.02	Erosion & Sedimentation Control—During Construction	1						◎	
9.03	Stormwater Management—During Construction	1						◎	
9.04	Tracking Control	1						◎	
9.05	Potential Pollutant Control	1						◎	
9.06	Waste Management & Materials Pollution Control	1						◎	
9.07	Construction Transportation & Vehicles	1						◎	
9.08	Construction Roadways	1						◎	
9.09	Construction Acoustic & Noise Control	1						◎	
9.10	Construction IAQ Management	1						◎	
9.11	Construction Water Conservation	1						◎	
9.12	Temporary Lighting—During Construction	1						◎	
9.13	Construction Health & Safety Plan	1						◎	
10	**LEADERSHIP / INNOVATION**	##							
10.01	LEED Accredited Professional, LEED-AP	3						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	
								◎	
								◎	
								◎	

PROJECT CATEGORY CHECKLIST (2 OF 2)

T

SHPG-T:
INTERIOR TENANT IMPROVEMENT CHECKLIST

PROJECT NAME

= optional credit

REVIEW DATE

BEST PRACTICE		possible	projected	milestone reviews SD	DD	CD	PAU!	verify complete	NOTES
01	**AIR TRANSPORTATION PLANNING**	**##**							
1.01	Runway / Taxiway / Terminal Design	1						◎	
1.02	Airside Layout Design—Minimal Aircraft Delay	1						◎	
1.03	Provide Infrastructure for Pre-Conditioned Air	1						◎	
1.04	Provide Infrastructure for 400 Hz	1						◎	
1.05	Provide Infrastructure for Hydrant Fueling for Aircraft	1						◎	
02	**SITE / ECOSYSTEM**	**##**							
2.01	Landside Site Development	3						◎	
2.02	Airside Site Development	3						◎	
2.03	Erosion and Sedimentation Control	1						◎	
2.04	Stormwater Management—Rate and Quantity	1						◎	
2.05	Stormwater Management—Quality and Treatment	1						◎	
2.06	Landscape & Exterior Design—Heat-islands, Non-Roof	1						◎	
2.07	Landscape & Exterior Design—Heat-islands, Roof	1						◎	
2.08	Light Pollution Reduction—Exterior / Interior	**1**						◎	
03	**GROUND TRANSPORTATION MANAGEMENT**	**##**							
3.01	Community Connectivity—Efficient Transportation Design	**1**						◎	
3.02	Alt. Transportation—Public Transportation Access	**1**						◎	
3.03	Alt. Transportation—Bicycle Storage & Changing Facility	**1**						◎	
3.04	Alt. Transportation—Energy Efficient Vehicles	**1**						◎	
3.05	Alt. Transportation—Carpooling & Parking Capacity	**1**						◎	
04	**WATER**	**##**							
4.01	Discharge Water Compliance	1						◎	
4.02	Water Efficient Landscaping	3						◎	
4.03	Improved Water Use & Efficiency	**4**						◎	
05	**ENERGY**	**##**							
5.01	Commissioning of Building Energy Systems	**1**						◎	
5.02	Minimum Energy Performance	**1**						◎	
5.03	CFC / HCFC Reduction	**1**						◎	
5.04	Optimize Energy Performance	**10**						◎	
5.05	Renewable Energy—On-Site	**4**						◎	
5.06	Energy Management—Measurement & Verification	**1**						◎	
5.07	Alternative Energy—Off-Site, Off-Grid	**1**						◎	
06	**MATERIALS FLOWS & WASTE**	**##**							
6.01	Storage of Recyclables—Landside & Airside	**1**						◎	
6.02	Structure & Building Reuse—Exterior	1						◎	
6.03	Structure & Building Reuse—Interior	**1**						◎	
6.04	Resource Reuse	**3**						◎	
6.05	Recycled Content	**3**						◎	
6.06	Local / Regional Materials	**3**						◎	
6.07	Rapidly Renewable Materials	**2**						◎	
6.08	Certified Wood	**2**						◎	
6.09	Design for Reuse & Recycling	**1**						◎	

PROJECT CATEGORY CHECKLIST (1 OF 2)

SHPG-T:
INTERIOR TENANT IMPROVEMENT CHECKLIST

T

BEST PRACTICE		possible	projected	milestone reviews SD	DD	CD	PAU!	verify complete	NOTES
		POINTS							
07	**ENVIRONMENTAL QUALITY**	**##**							
7.01	Indoor Air Quality Performance	**1**						◎	
7.02	Environmental Tobacco Smoke Control	**1**						◎	
7.03	Asbestos Removal	**1**						◎	
7.04	Polychlorinated Biphenyl (PCB) Removal	**1**						◎	
7.05	Outdoor Air Delivery Monitoring	**2**						◎	
7.06	Effectiveness of Ventilation System	**1**						◎	
7.07	Low-Emitting Materials	**5**						◎	
7.08	Indoor Chemical & Pollutant Source Control	**2**						◎	
7.09	Controllability of Lighting Systems	**1**						◎	
7.10	Controllability of Thermal Systems	**1**						◎	
7.11	Thermal Comfort Design	**1**						◎	
7.12	Thermal Comfort Verification	**1**						◎	
7.13	Daylight Design	**1**						◎	
7.14	Views	**1**						◎	
7.15	Fuel Vapor Monitoring	**1**						◎	
08	**NOISE POLLUTION REDUCTION**	**##**							
8.01	Exterior Noise Quality Control—Non-Aircraft Sources	1						◎	
8.02	Exterior Noise Quality Control—Aircraft Flight Paths	1						◎	
8.03	Interior Noise Quality Control	**1**						◎	
09	**CONSTRUCTION ACTIVITIES**	**##**							
9.01	Construction Scheduling & Sequencing	**1**						◎	
9.02	Erosion & Sedimentation Control—During Construction	1						◎	
9.03	Stormwater Management—During Construction	1						◎	
9.04	Tracking Control	**1**						◎	
9.05	Potential Pollutant Control	1						◎	
9.06	Waste Management & Materials Pollution Control	**1**						◎	
9.07	Construction Transportation & Vehicles	**1**						◎	
9.08	Construction Roadways	**1**						◎	
9.09	Construction Acoustic & Noise Control	**1**						◎	
9.10	Construction IAQ Management	**1**						◎	
9.11	Construction Water Conservation	**1**						◎	
9.12	Temporary Lighting—During Construction	**1**						◎	
9.13	Construction Health & Safety Plan	**1**						◎	
10	**LEADERSHIP / INNOVATION**	**##**							
10.01	LEED Accredited Professional, LEED-AP	**3**						◎	
10.02	Innovation in Design / Construction	**1**						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	
								◎	
								◎	
								◎	

PROJECT CATEGORY CHECKLIST (2 OF 2)

T

SHPG-T (FOR LEED-CI):
INTERIOR TENANT IMPROVEMENT CHECKLIST

PROJECT NAME

= optional credit

REVIEW DATE

BEST PRACTICE		possible	projected	milestone reviews: SD	milestone reviews: DD	milestone reviews: CD	milestone reviews: PAU!	verify complete	NOTES
		POINTS							
01	**AIR TRANSPORTATION PLANNING**	**##**							
1.01	Runway / Taxiway / Terminal Design	1						◎	
1.02	Airside Layout Design—Minimal Aircraft Delay	1						◎	
1.03	Provide Infrastructure for Pre-Conditioned Air	1						◎	
1.04	Provide Infrastructure for 400 Hz	1						◎	
1.05	Provide Infrastructure for Hydrant Fueling for Aircraft	1						◎	
02	**SITE / ECOSYSTEM**	**##**							
2.01	Landside Site Development	3						◎	
2.02	Airside Site Development	3						◎	
2.03	Erosion and Sedimentation Control	1						◎	
2.04	Stormwater Management—Rate and Quantity	1						◎	
2.05	Stormwater Management—Quality and Treatment	1						◎	
2.06	Landscape & Exterior Design—Heat-islands, Non-Roof	1						◎	
2.07	Landscape & Exterior Design—Heat-islands, Roof	1						◎	
2.08	Light Pollution Reduction—Exterior / Interior	1						◎	
03	**GROUND TRANSPORTATION MANAGEMENT**	**##**							
3.01	Community Connectivity—Efficient Transportation Design	1						◎	
3.02	Alt. Transportation—Public Transportation Access	1						◎	
3.03	Alt. Transportation—Bicycle Storage & Changing Facility	1						◎	
3.04	Alt. Transportation—Energy Efficient Vehicles	1						◎	
3.05	Alt. Transportation—Carpooling & Parking Capacity	1						◎	
04	**WATER**	**##**							
4.01	Discharge Water Compliance	1						◎	
4.02	Water Efficient Landscaping	3						◎	
4.03	Improved Water Use & Efficiency	4						◎	
05	**ENERGY**	**##**							
5.01	Commissioning of Building Energy Systems	1						◎	
5.02	Minimum Energy Performance	1						◎	
5.03	CFC / HCFC Reduction	1						◎	
5.04	Optimize Energy Performance	10						◎	
5.05	Renewable Energy—On-Site	4						◎	
5.06	Energy Management—Measurement & Verification	1						◎	
5.07	Alternative Energy—Off-Site, Off-Grid	1						◎	
06	**MATERIALS FLOWS & WASTE**	**##**							
6.01	Storage of Recyclables—Landside & Airside	1						◎	
6.02	Structure & Building Reuse—Exterior	1						◎	
6.03	Structure & Building Reuse—Interior	1						◎	
6.04	Resource Reuse	3						◎	
6.05	Recycled Content	3						◎	
6.06	Local / Regional Materials	3						◎	
6.07	Rapidly Renewable Materials	2						◎	
6.08	Certified Wood	2						◎	
6.09	Design for Reuse & Recycling	1						◎	

SHPG-T (FOR LEED-CI):
INTERIOR TENANT IMPROVEMENT CHECKLIST

T

BEST PRACTICE		POINTS possible	projected	milestone reviews SD	DD	CD	PAU!	verify complete	NOTES
07	**ENVIRONMENTAL QUALITY**	**##**							
7.01	Indoor Air Quality Performance	**1**						◎	
7.02	Environmental Tobacco Smoke Control	**1**						◎	
7.03	Asbestos Removal	**1**						◎	
7.04	Polychlorinated Biphenyl (PCB) Removal	**1**						◎	
7.05	Outdoor Air Delivery Monitoring	**2**						◎	
7.06	Effectiveness of Ventilation System	**1**						◎	
7.07	Low-Emitting Materials	**5**						◎	
7.08	Indoor Chemical & Pollutant Source Control	**2**						◎	
7.09	Controllability of Lighting Systems	**1**						◎	
7.10	Controllability of Thermal Systems	**1**						◎	
7.11	Thermal Comfort Design	**1**						◎	
7.12	Thermal Comfort Verification	**1**						◎	
7.13	Daylight Design	**1**						◎	
7.14	Views	**1**						◎	
7.15	Fuel Vapor Monitoring	**1**						◎	
08	**NOISE POLLUTION REDUCTION**	**##**							
8.01	Exterior Noise Quality Control—Non-Aircraft Sources	1						◎	
8.02	Exterior Noise Quality Control—Aircraft Flight Paths	1						◎	
8.03	Interior Noise Quality Control	**1**						◎	
09	**CONSTRUCTION ACTIVITIES**	**##**							
9.01	Construction Scheduling & Sequencing	**1**						◎	
9.02	Erosion & Sedimentation Control—During Construction	1						◎	
9.03	Stormwater Management—During Construction	1						◎	
9.04	Tracking Control	**1**						◎	
9.05	Potential Pollutant Control	1						◎	
9.06	Waste Management & Materials Pollution Control	1						◎	
9.07	Construction Transportation & Vehicles	**1**						◎	
9.08	Construction Roadways	**1**						◎	
9.09	Construction Acoustic & Noise Control	**1**						◎	
9.10	Construction IAQ Management	**1**						◎	
9.11	Construction Water Conservation	**1**						◎	
9.12	Temporary Lighting—During Construction	**1**						◎	
9.13	Construction Health & Safety Plan	**1**						◎	
10	**LEADERSHIP / INNOVATION**	**##**							
10.01	LEED Accredited Professional, LEED-AP	**3**						◎	
10.02	Innovation in Design / Construction	**1**						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	
10.02	Innovation in Design / Construction	1						◎	
								◎	
								◎	
								◎	

PROJECT CATEGORY CHECKLIST (2 OF 2)

sustainableDOT-A

FORMS & CREDIT SUBMITTAL SHEETS

Project Initiation Form

Design Credit Submittal Template

Construction Credit Submittal Template

Project Completion Form

SHPG

PROJECT **INITIATION**

PART ONE

PROJECT NAME

INITIATION DATE (MM-DD-YYYY) **PROJECT NUMBER**

PROJECT SCOPE DEFINITION

PROJECT TYPE CATEGORY

SHPG-G **SHPG-O** **SHPG-U** **SHPG-L** **SHPG-A** **SHPG-I**

LEED RATING (IF APPLICABLE)

NC EBOM CS CI

CERTIFICATION LEVEL

NOTES (COMMENTS / JUSTIFICATION / SPECIAL CIRCUMSTANCES)

‘ELIMA
(80-100)

‘EHĀ
(60-79)

‘EKOLU
(50-59)

‘ELUA
(40-49)

‘EKAHI
(30-39)

PROPOSED PROJECT RATING

SHPG

PROJECT **INITIATION**

PART TWO

PROJECT TEAM (COMPANY / CONTACT)

MASTER ARCHITECT

CIVIL

LANDSCAPE

STRUCTURAL

MECHANICAL

ELECTRICAL

OTHER

DOT-A

DOT-A REPRESENTATIVE

PROJECT CHAMPION

D

DESIGN CREDIT SUBMITTAL

PROJECT NUMBER & NAME

CREDIT NUMBER & NAME

MILESTONE REVIEW

SD DD **DATE** **POINTS**

All mandatory Requirements for this credit have been met.

There are no mandatory requirements for this credit.

NARRATIVE OF APPLICATION / STRATEGY PROPOSED

PROJECT SIGNATURES

PROJECT TEAM REPRESENTATIVE DATE

DOT-A REPRESENTATIVE DATE

PROJECT CHAMPION DATE

OTHER DATE

C CONSTRUCTION CREDIT SUBMITTAL

PROJECT NUMBER & NAME

CREDIT NUMBER & NAME

MILESTONE REVIEW

CD FINAL **DATE** **POINTS**

All mandatory Requirements for this credit have been met.

There are no mandatory requirements for this credit.

NARRATIVE OF APPLICATION / STRATEGY PROPOSED

PROJECT SIGNATURES

CONTRACTOR DATE

DOT-A REPRESENTATIVE DATE

PROJECT CHAMPION DATE

OTHER DATE

SHPG

PROJECT **COMPLETION**

PART ONE

PROJECT NAME

INITIATION DATE (MM-DD-YYYY) **PROJECT NUMBER**

PROJECT SCOPE DEFINITION

Theme	Goal	Achieved
Air Transportation Planning		
Site and Ecosystem		
Ground Transportation Management		
Water		
Energy		
Materials Flows		
Environmental Quality		
Noise Pollution Mitigation		
Construction Management		
Leadership and Innovation		
TOTAL		

PROJECT TYPE CATEGORY

SHPG-G **SHPG-O** **SHPG-U** **SHPG-L** **SHPG-A** **SHPG-I**

LEED RATING (IF APPLICABLE)

NC EBOM CS CI

CERTIFICATION LEVEL

NOTES (COMMENTS / JUSTIFICATION / SPECIAL CIRCUMSTANCES)

‘ELIMA
(80-100)

‘EHĀ
(60-79)

‘EKOLU
(50-59)

‘ELUA
(40-49)

‘EKAHI
(30-39)

PROJECT RATING AWARDED

PROJECT SIGNATURES

PROJECT TEAM REPRESENTATIVE DATE

DOT-A REPRESENTATIVE DATE

PROJECT CHAMPION DATE

OTHER DATE

SHPG

PROJECT **COMPLETION**

PART TWO

PROJECT TEAM (COMPANY / CONTACT)

MASTER ARCHITECT

CIVIL

LANDSCAPE

STRUCTURAL

MECHANICAL

ELECTRICAL

OTHER

PAU