### Design Submittal Sustainability Report : Concepts

Project Information	
Project Name	Sacramento Kings Arena
Project Address	
AECOM Project Number	

Project Teem Info	Contact	Company
Owner		Sacramento Kings
Project Manager		ICON Venue Group
General Contractor		Turner Construction
LEED Consultant		AECOM
Architect		AECOM
Mechanical Engineer		AECOM
Civil Engineer		AECOM
Electrical Engineer		AECOM
Landscape Architect		AECOM
Commissioning Agent		AECOM
Contractor		
Specialist Consultant		
Specialist Consultant		

Propert Information	
Report Date	9/18/2013
Project Phase	Concepts

Sustainability Gents	Target	Actual
Energy Reduction	30.0%	~
Water Reduction	35.0%	-
% On-site Renewables	1.0%	÷
Lighting Power Density	0.0%	
Recycled Content	20.0%	-
Regional Materials	10.0%	
Certified Wood	0.0%	
Construction Waste	95.0%	-

LEED Internation		
LEED Online Reference #		
Total Project Cost		
Total Building sq ft		
Full Time Equivelant		
LEED Certification -		
BD&C	GOLD	GOLD

EED Design Phase Scholue	Target	a constant.	Sommente	EED Construction Phase Schedule		Comments
Concepts LEED Review				LEED Kick-Off Meeting		
OPR / BOD Review				Submittal LEED Review		
SD Submittal LEED Review				Construction IAQ Management Plan Review		
DD Submittal LEED Review				Construction Waste Management Plan Review		
Specification LEED Review / Development				Commissioning Plan Review		
CD Submittal LEED Review				Construction Application Submittal		
Design Application Submittal				Construction Clarifications Received		
Design Clarifications Received				Construction Clarifications Submitted		
Design Clarifications Submitted				Construction Final Review Received		
Design Final Review Received				Construction Final Review Accepted		
Design Final Review Accepted						

Decision Private J EEO Pandem Superson	i arg		Submitted					
Design Phase LEED Review Summary								
Sacramento Kings Arena	0	0	TBD	TBD	TBD	TBD	TBD	TD
Construction Phase LEED Review Summary	Targ	eted	Submitted					Aconcored
Sacramento Kings Arena	0	0	TBD	TBD	TBD	TBD	TBD	TBD

LEED Point Summary		L. Post.	Unitiety	N	Point total change since last issue
Sustainable Sites	22	2	2	0	
Water Efficiency	5	2	3	0	
Energy and Atmosphere	14	4	17	0	
Materials and Resources	5	1	1	7	
Indoor Env. Quality	9	2	2	2	
Innovation in Design	6	0	0	0	
Regional Priority	3	0	1	0	

Points Total	~ ^				
	64	11	26	9	

# AECOM

Project Name	Sacramento Kings Arena
Report Date	9/18/2013
Project Phase	Concepts

Ko Kes No Kesy	Certification Target GOLD
64 11 26 9 Project Totals (Pre-certification Estimate)	Anticipated GOLD
	S 1 1 7 Materiality and Reconstructs
22 2 2 <b>0</b> <sup>2</sup> and all a distribution of the second	5 1 1 7
SSp1 Construction Activity Pollution Prevention	MRp1 Storage & Collection of Recyclables
SSc1 Site Selection	MRc1.1 Building Reuse Maintain 55%; 75%; 95% of Existing Walls, Floors & Roof
SSc2 Development Density & Community Connectivity	MRc1.2 Building Reuse Maintain Interior Non-Structural Elements
SSc3 Brownfield Redevelopment	R MRc2 Construction Waste Management Divert 50%; 75% from Disposal
SSc4.1 Alternative Transportation Public Transportation Access	MRc3 Materials Reuse 5%; 10%
R SSc4.2 Alternative Transportation Bicycle Storage & Changing Rooms	0 MRc4 Recycled Content 10%; 20%
SSc4.3 Alternative Transportation Low-Emitting & Fuel-Efficient Vehicles	MRc5 Regional Materials 10%; 20%
SSc4.4 Alternative Transportation Parking Capacity	MRc6 Rapidly Renewable Materials
SSc5.1 Site Development Protect or Restore Habitat	MRc7 Certified Wood
SSc5.2 Site Development Maximize Open Space	9 2 2 2 1 Indexe Bootsenate Guality
R SSc6.1 Stormwater Design Quantity Control	IEQp1 Minimum IAQ Performance
SSc6.2 Stormwater Design	IEQp2 Environmental Tobacco Smoke (ETS) Control
Quality Control SSc7.1 Heat Island Effect	IEQc1 Outdoor Air Delivery Monitoring
Non-Roof SSc7.2 Heat Island Effect	IEQc2 Increased Ventilation
Roof SSc8 Light Pollution Reduction	R IEQc3.1 Construction IAQ Management Plan
5 2 3 0 Marco Officiano y	During Construction IEQc3.2 Construction IAQ Management Plan
Prereq 1 Water Use Reduction	Before Occupancy IEQc4.1 Low-Emitting Materials
WEc1 Water Efficient Landscaping	Adhesives & Sealants
Reduce by 50%; 100% WEc2 Innovative Wastewater Technologies	Paints & Coatings
WEc3 Water Use Reduction,	Flooring Systems
30%; 35%; 40% Reduction	Composite Wood & Agrifiber Products
14 4 17 0 Encry and Annochine EAp1 Fundamental Commissioning	IEQc6.1 Controllability of Systems
EAp2 Minimum Energy Performance	Lighting IEQc6.2 Controllability of Systems
EAp3 Fundamental Refrigerant Management	Thermal Comfort
EAst Optimize France Defension	R IEGC7.1 Thermal Confinit, Design
EAC1 Optimize Energy Performance	IEQC8.1 Daylight & Views, Daylight 75% of Spaces
E4x2 Enhanced Commissioning	IEQc6.2 Daylight & Views, Daylight / 50% of Spaces
Find Enhanced Defilement Management	
EAC5 Measurement & Verification	6 0 0 0 imevalian clinitian
EAC6 Green Power	IDC1.2 Innovation in Design: FDD
EACO Green Former	
	IDc1.4 Innovation in Design: Integrated Pest Management Plan
	IDo2 I EED Accordited Professional
	3     0     1     0     Hereinal Printing       1     1     1     1     RPC1.1     Regional Priority: EAc4.1
	RPc1.2 Regional Priority: SSc7.1
	RPc1.3 Regional Priority: EAc2.1

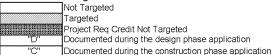
RPc1.4 Regional Priority: WEc2 or WEc3 @ 40%)

SSc8

Light Pollution Reduction

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Prepared By:	A. MacGregor
Checked By:	C. Snee

#### **Credit Reference Legend**



Credit Reference								Criedit Strategy		nsibility	
SSp1	Construction Activity Pollution Prevention	R	Reg	1	0	0	c	Incorporate requirements for C.A.P.P into design package.	Civil Engineer /Contractor	Civil Engineer /Contractor	No
u up i		<u>+ ``</u>	1.04	<u> </u>	<u> </u>	<u> </u>	Ť	The site is in a compliant location and will not negatively impact habitat, water	LEED Consultant	LEED Consultant	<u> </u>
SSc1	Site Selection		1	1	0	0	p	bodies, wetlands, farmland, or parkland. Document as a Campus Credit.			No
SSc2	Development Density & Community Connectivity		5	5	0	0	a	Project appears to be compliant as there are over ten public amenities and residential zones with greater than one unit per acre.	LEED Consultant	LEED Consultant	No
0002	Development Density & Community Connectivity							Initial investigations suggest that it is brownfield site.	LEED Consultant / Contractor	LEED Consultant	No
SSc3	Brownfield Redevelopment		1	1	0	0	0				
SSc4 1	Alternative Transportation - Public Transportation Access		6	6	0	0	D	There are multiple public bust stops within .25 miles from the site. Need to confirm if there is a Transportation Management Plan (TMP) as wit will help aid in ID credit documentation.	LEED Consultant / Architect	LEED Consultant	No
SS04.2	Alternative Transportation - Bike Storage and Changing	R	1	1	0	0	D	Stadium's and Arena's typically use a Bike Valet approach per CIR ruling 5802. To determine bike parking demand, conduct a survey of existing ticket holders and staff or consult a local bike advocacy organization. The project team must also	LEED Consultant / Architect	LEED Consultant / Architect	No
SSo4 3	Alternative Transportation - Low-Emitting Vehicles	R	3	3	0	0	0	Provide low emitting and fuel efficient vehicles for 5% of the total parking spaces or provide electric vehicle charging stations for 3% of the total parking spaces. Coordinate with CALGreen Req. If EV charging, need to provide 1 ADA compliant	LEED Consultant / Architect	LEED Consultant / Architect	No
SSc4 4	Alternative Transportation - Parking Capacity	R	2	2	0	0	p	Parking must not exceed minimum zoning requirements and 5% of the total spaces must be designated as carpool spaces. Document as a Campus Credit. Coordinate with CALGreen Req.	LEED Consultant / Architect	Architect	No
SSc5 1	Site Development - Protect or Restore Habitat		1	0	0	1	c	Confirmation of the open space design is needed. The plant palette must include vegetation options for open space areas and bioswales that are either native or adaptive and promote habitat restoration.	LEED Consultant / Landscape Arch	Landscape Architect	No
SSc5.2	Site Development - Maximize Open Space		1	0	1	0	0	Confirm if there is an Open Space zoning requirement. Confirmation of the open space design is needed. Elevated Green open space at roof levels can contribute.	LEED Consultant / Architect	Landscape Architect / Owner	No
SSc6 1	Stormwater Design - Quantity Control	R	1	0	1	0	D	Confirm Sacramento requirements for combined sewer system. Confirmation of the stormwater strategy is needed. Rainwater capture may help in reducing stormwater runoff and also help to reduce the potable water demand of the building.		Civil Engineer	No
SSc6.2	Stormwater Design - Quality Control	R	1	1	0	0		Confirm Sacramento requirements for combined sewer system. Confirmation of the stormwater strategy is needed. Civil engineer to confirm if structural BMPs alone satisfy the requirements?	1	Civil Engineer	No
SSc7 1	Heat Island Effect - Non-Roof		1	1	0	0	c	A parking garage will be constructed to support the parking needs of the site so the project will comply by shading more that 50% of the parking spaces.	LEED Consultant / Civil Engineer	Civil Engineer	No
SSc7 2	Heat Island Effect - Roof		1	1	0	0	D	Design roof to leverage a SRI compliant roof color and material	Architect	Architect	No
8568	Light Pollution Reduction		1		0			Confirm Sacramento code requirements. Comply with lighting power requirements in the California Energy Code, CCR, Part 6. LEED Requirements and CALGreen requirements are different	Electrical Engineer	Electrical Engineer	No

D requirements are different.

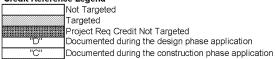
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26 22 2 2

Section Total

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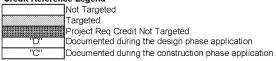


- An Shaany	Gredit Reference	anna far	A sectores esectores	New	an an	United	Credit Strategy	Respo		
WEp1	Water Use Reduction	R	Req	1	0	0	<b>u</b>	Ų	Plumbing Engineer	No
WEc1	Water Efficient Landscaping - Reduction by 50%; 100%	R	4	2	2	0	Landscape Architect to confirm if vegetation will require permanent irrigation. Goal is to minimize irrigation need and potentially leverage non-potable water source.		Landscape Architect	No
WEc2	Innovative Waste Water Technologies		2	0	0	2	Utilize a grey water reuse or rainwater to flush toilets and urinals. It may be possible to achieve the credit if grey water is used to only flush a certain percentage of toilets. Consider Living Machine.		Plumbing Engineer	No
WEc3	Water Use Reduction -30%; 35%; 40% reduction	R	4	3	0	1		Ŭ	Plumbing Engineer	No
	Section Total		10	5	2	3				

	tnosphere	1	1	1	1				0.4	IQ.4	
								CalGreen commissioning services will be provided for the project.	СхА	СхА	No
EAp1	Fundamental Commissioning	R	Req	0	0	0	<u> </u>				<u> </u>
								See EAc1. A variety of ECMs are being considered such as increased daylighting,	Energy Modeler	Energy Modeler	
		_						occupancy & daylight sensors, building envelope, VAV, and cooling tower.			No
EAp2	Minimum Energy Performance	R	Req	0	0	0	D				ļ
1								Compliant refrigerants will be required.	Mechanical	Mechanical	
									Engineer	Engineer	No
EAp3	Fundamental Refrigerant Management	R	Req	0	0	0	0				L
								The project should strive to perform at least 30% better than baseline. Code	Energy Modeler	Energy Modeler	
							1	requirement is 15% better than Title 24 2012, which is approximately 25 - 30%			
							1	better than ASHRAE 90.1 2007. Enhanced PV and / or CoGen could push the			No
								number of achievable points.			
						_					
EAc1	Optimized Energy Performance (12-48% by units of 2)	R	19	10	0	9	0		fills stails all	TTIt-i I	──
								Likely that PV Solar will be required to achieve LEED Gold. Recommend goal of	Electrical	Electrical	
			_					allowing equivalent to 10% of the consumption be incorporated into the design, but	Engineer	Engineer	No
EAc2	On-Site Renewable Energy (1-13% by units of 2)	R	<u> </u>	1	0	6	10	with at least 1% in the cost plan. Preliminary estimate is that 10% would equate to			
							1	CalGreen commissioning services will be provided for the project.	СхА	СхА	1
		_									No
EAc3	Enhanced Commissioning	R	2	0	0	2	C		<b>.</b>		
								If the system is oversized as is the case with a traditional solution the project might	Mechanical	Mechanical	I
									Engineer	Engineer	No
EAc4	Enhanced Refrigerant Management	R	2	0	2	0	·	is completed.			
								Should be targeted, however confirmation of the Measurement and Verification	Mechanical	LEED Consultant	
								strategy is needed. Consider implementing AECOM EnergyPulse solution	Engineer / LEED		No
EAc5	Measurement and Verification		3	3	0	0	C		Consult.		ļ
								The credit will be pursued if required to achieve higher level of Certification, or if	LEED Consultant	LEED Consultant	
								necessary to lock in Gold.			No
EAc6	Green Power	_	2	0	2	0	C			<u></u>	<u> </u>
	Section Tota	1	35	14	4	17	J				

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#### Credit Reference Legend



	Credit Reference							Credii Strategy	Respo		
	3 Resources										
					Τ		Г	Confirm recycling storage areas have been incorporated into building.	Architect / Owner	Architect	No
MRp1	Storage and Collection of Recyclables	R	Reg	0	0	0	D				INO
	,						1	Not achievable	NA	NA	
MRc1.1	Building Reuse: 55%; 75%; 95% of existing walls, floors and i		3	0	0	0	c				No
	Building Reuse. 33 %, 73 %, 33 % of existing waits, noors and						ľ	Not achievable	NA	NA	+-
			.								No
MRc1.2	Building Reuse, Maintain Interior Non-Structural Elements		1	0	0	0	<u> </u>	Contractor will investigate the possibility of achieving a 95% diversion rate, with	Contractor	Contractor	
								minimum of 75%	Contractor	Contractor	No
MRc2	Construction Waste Management: Divert 50%; 75%	R	2	2	0	0	C	N 1 - 1' - 1'			
								Not achievable	NA	NA	No
MRc3	Material Reuse: 5%; 10%		2	0	0	0	C				110
								Specify materials to maximize recycled content. Based on the building type, 20%	Architect /	Architect /	
MRc4	Recycled Content: 10%; 20%		2	2	0	0	C	recycled content should relatively easy to achieve. Exemplary Performance should be pursued.	Contractor	Contractor	No
							$\uparrow$	Specify materials to maximize regional content. 20% credit may prove difficult	Architect /	Architect /	1
MRc5			2					given the amount of steel in the building.	Contractor	Contractor	No
WINC23	Regional Materials: 10%; 20%		2			0	<u> </u>	While some rapidly renewable materials may be possible, it is unlikely to achieve	Architect /	Architect /	
								the % required	Contractor	Contractor	No
MRc6	Rapidly Renewable Materials		1	0	0	0	C		A hite -t /	Architert (	
								Specify at least 50% FSC wood. Investigate if wood basketball courts can be made from FSC certified wood.	Architect / Contractor	Architect / Contractor	No
MRc7	Certified Wood		1	0	0	1	C				
	Section Total		14	5	1	1	]				



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Checked By:	C. Snee

#### Credit Reference Legend

	Not Targeted
	Targeted
	Project Req Credit Not Targeted
"D"	Documented during the design phase application
"C"	Documented during the construction phase application

					-			ocumented during the construction phase application				
Credit Reference								Credil Strategy		nisility		
Indoor Environme	nial Civality											
IEQp1	Minimum IAQ Performance		Req	1	0	0	p	The project will comply with ASHRAE 62.1 to provide a high quality of comfort and well-being for the occupants.	Mechanical Engineer	Mechanical Engineer	No	
IEQp2	Environmental Tobacco Smoke (ETS) Control		Req	1	0	0	D	Designate outside smoking areas at least 25 feet from building entrances and windows.	Architect	Architect	No	
IEQc1	Outdoor Air Delivery Monitoring		1	1	0	0	D	CO2 and Outdoor Air monitoring will be provided within DDC system.	Mechanical Engineer	Mechanical Engineer	No	
IEQc2	Increased Ventilation		1	1	0	0	p	Due to the local weather this credit can be achieved without a significant negative impact to energy performance.	Mechanical Engineer	Mechanical Engineer	No	
IEQc3 1	Construction IAQ Management Plan: During Construction	R	1	1	0	0	c	Incorporate requirements for IAQ management into specifications. The project will follow SMACNA Guidance during construction.	Contractor	Contractor	No	
IEQc3.2	Construction IAQ Management Plan: Before Occupancy		1	1	0	0	c	Incorporate requirements for building flush specifications. If the building flush out cannot be provided due to schedule conflicts, air quality testing will be provided to ensure the credit is achieved.	Contractor	Contractor	No	
IEQc4.1	Low-Emitting Materials: Adhesives and Sealants	R	1	1	0	0	c		Architect / Contractor	Contractor	No	
IEQc4 2	Low-emitting Materials: Paints and Coatings	R	1	1	0	0	c		Architect / Contractor	Contractor	No	
IEQc4 3	Low-Emitting Materials: Flooring Systems	R	1	1	0	0	c		Architect / Contractor	Contractor	No	
IEQc4.4	Low-Emitting Materials: Composite Wood and Agrifiber Products	R	1	1	0	0	c	Incorporate requirements for no added urea-formaldehyde criteria into specifications and product data will be collected during construction to ensure compliance.	Architect / Contractor	Contractor	No	
IEQc5	Indoor Chemical & Pollutant Source Control		1	0	1	0	D		Architect / Mechanical Engineer	Architect / Mechanical Engineer	No	
IEQc6 1	Controllability of Systems: Lighting		1	0	0	1	D	Unlikely given the function of the space	Electrical Engineer	Electrical Engineer	No	
IEQc6.2	Controllability of Systems: Thermal Systems		1	0	0	1	p	Unlikely given the function of the space	NA	NA	No	
IEQc7 1	Thermal Comfort: Design	R	1	0	1	0	D	Credit could be tricky given the different occupants. Also, not available with a traditional bowl hvac solution.	Mechanical Engineer	Mechanical Engineer	No	
IEQc7.2	Thermal Comfort: Verification		1	1	0	0	c	Provide an occupant survey 6-18 months after occupancy. AECOM has a standard survey and Corrective Action Plan.	LEED Consultant	LEED Consultant	No	
IEQc8.1	Daylight & Views: Daylight 75% of spaces		1	0	0	0	p	, ,	Architect / Daylight Modeler	Architect / Daylight Modeler	No	
IEQc8.2	Daylight & Views: Views for 90% of spaces		1	0	0	0	D	Not Achievable due to extent of internal space w/o daylight	Architect	Architect	No	
	Section Total		15	8	2	2						

#### LEED Credit Strategies

100-0-010-0-01 O.

IDc1 1

IDc1.2

IDc1.3

IDc1.4

IDc1.5

IDc2

RPc1.1

RPc1.2

RPc1.3

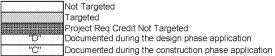
RPc1.4

Regional Priority

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Regional Priority: WEc2 or WEc3 @ 40%)

#### Credit Reference Legend



Credil Reference				Alour	United		Child Sifaleny	Respon		
							Urban Farming / 100% Underground Parking / TBC	LEED Consultant		
Innovation in Design: TBD		1	1	0	0	D				No
	1						Develop Green Education Program.	LEED Consultant	LEED Consultant	
lanaustian in Danimu Orran Educatian										No
 Innovation in Design: Green Education		1	1	0	0	D	Transportation Management Plan is being developed.	LEED Consultant	LEED Concultant	
							Transportation Management Flam is being developed.	CEED Constitution	CEED Consultant	No
Innovation in Design: SSc4.1		1	1	0	0	0				
							Provide an Integrated Pest Management.	LEED Consultant	LEED Consultant	
										No
 Innovation in Design: Integrated Pest Management Plan		1	1	0	0	0	Provide a Green Cleaning Program.	LEED Consultant		
							Frovide a Green Gleaning Frogram.	CEED Consultant		No
Innovation in Design: Green Cleaning		1	1	0	0	D				
							Multiple LEED APs on Design Team.	LEED Consultant	LEED Consultant	
LEED Accredited Professional	R	4	4	0	0	c				No
Section Total		6	6	0	ō	ГŬ				L
	1	-	-	-						
	Τ						{Possible RP credits based on 95814 zip code: EAc2 1%, IEQc8.1, SSc4.1 6pts,	LEED Consultant	LEED Consultant	
							SSc7.1, WEc2, WEc3 40%}. SSc4.1 achieved			No
 Regional Priority: EAc4.1	ļ	1	1	0	0					
							SSc7.1 can be achieved	LEED Consultant	LEED Consultant	No
Regional Priority: SSc7.1		1	1	0	0	D				NO
				<u> </u>			EAc2.1 is likely to require greater than 1% in order to achieve gold, however	LEED Consultant	LEED Consultant	
							assume at least 1% is achieved.			No
Regional Priority: EAc2.1	ļ	1	1	0	0	۵				
							Regional Priority credit is not feasible unless the project can use grey water or rain	LEED Consultant	LEED Consultant	

water to flush toilets.

1 0

0 0

4 3

0 1

Section Total

## AECOM

No