DESCRIPTION OF PERMANENT IMPROVEMENT PROJECT FOR CONSIDERATION

September 1, 2022

CLEMSON UNIVERSITY

PROJECT NAME: Women's Sports Program Expansion (Gymnastics/Lacrosse)
REQUESTED ACTION: Increase Budget (Phase II)
REQUESTED ACTION AMOUNT: $36,500,000
Internal Projected Cost: *$37,000,000*
INITIAL CHE APPROVAL DATE: March 03, 2022 (Phase I)

Project Budget	Previous	Change	Revised
Professional Services Fees	$ 500,000	$ 2,000,000	$ 2,500,000
New Construction	--	24,300,000	24,300,000
Other Capital Outlay	--	1,000,000	1,000,000
Other: Inspections, Proj Mgmt, AV Costs, Support Fees	--	5,500,000	5,500,000
Contingency	--	3,700,000	3,700,000
Total	*$ 500,000*	*$ 36,500,000*	*$ 37,000,000*

Source of Funds	Previous	Change	Revised
Athletic Gifts and Donations	$ 500,000	$ 26,500,000	$ 27,000,000
Athletic Revenue Bonds	--	10,000,000	10,000,000
Total	*$ 500,000*	*$ 36,500,000*	*$ 37,000,000*

DESCRIPTION:

Clemson University is seeking a recommendation from the Commission on Higher Education to begin the construction phase of a project to construct two new facilities: a 21,000-square foot women's gymnastics facility and a 9,000-square foot lacrosse operations facility; and construct a 10,000-square foot addition to the rowing center to serve as a women's athlete recovery training center.

According to the university, the women's gymnastics training facility will include coaches' offices, a locker room, a student-athlete lounge, and sports medicine room. The women's lacrosse facility will be equipped with an artificial turf field and stadium seating along with amenities for the athletes. Finally, the recovery training center will focus on strength and conditioning, nutrition, and wellness and recovery for the athletes.

Clemson included this project in its 2021 CPIP submittal.

SOURCE OF FUNDS:

The following outlines the funding source for the construction of the project:

- $27,000,000 from Athletic Gifts and Donations; and
- $10,000,000 from a new issuance of Athletic Revenue Bonds

Athletic Gifts and Donations are funds received from individual, corporate, and other donors for athletic programs, some of which may be restricted for certain purposes.

Clemson University has a $200 million statutory cap on athletic revenue bonds. According to university staff, the university's outstanding principal balance is approximately $184 million as of June 30, 2022. With this proposed $10.0 million issuance, the university will still be below its statutory cap. Clemson

University does not charge an athletics student fee; its athletics program is fully supported by other sources.

The estimated construction cost for this project in March 2022 was $27.5 million, or $9.5 million less than this request. The entire amount of the increase is being funded with gifts and donations. According to the university, the higher estimated costs is a result of updated equipment for the two athletic programs and inflationary pressures in the construction market.

According to multiple rating agencies, Clemson has an AA/AA2 revenue bond rating.

MAINTENANCE NEEDS:

Clemson funds maintenance of its athletics auxiliary facilities using its Athletic Improvement Fund, which as of June 30, 2022, had a balance of $10.1 million. This fund is replenished annually from the approximately $140.0 million athletic revenue collected during the academic year.

ANNUAL OPERATING COSTS/SAVINGS:

Clemson anticipates additional annual costs of $260,000 needed to maintain and operate these new facilities. The university will fund these costs from its existing athletics' operating budget.

8. ESTIMATES OF NEW/REVISED PROJECT COSTS

PROJECT #	9957

1.		Land Purchase ---->	Land:	Acres
2.		Building Purchase ---->	Floor Space:	Gross Square Feet
3.	2,500,000.00	Professional Services Fees		
4.		Equipment and/or Materials ---->	Information Technology	
5.		Site Development		
6.	24,300,000.00	New Construction ---->	Floor Space: 40,000	Gross Square Feet
7.		Renovations - Building Interior ---->	Floor Space:	Gross Square Feet
8.		Renovations - Utilities		
9.		Roofing - ____ Roof Age		
10.		Renovations - Building Exterior		
11.		Other Permanent Improvements		
12.		Landscaping		
13.		Builders Risk Insurance		
14.	1,000,000.00	Other Capital Outlay		
15.		Labor Costs		
16.		Bond Issue Costs		
17.	5,500,000.00	Other: Inspections, Proj Mgmt, AV Costs, Support Fees		
18.	3,700,000.00	Contingency		
	$37,000,000.00	TOTAL PROJECT BUDGET		

ENVIRONMENTAL HAZARDS

Identify all types of significant environmental hazards (including asbestos, PCB's, etc.,) present in the project and the financial impact they will have on the project.

Type: _____

Cost Breakdown

Design Services	$
Monitoring	$
Abate/Remed	$
Total Costs	$ 0.00

9. PROPOSED SOURCE OF FUNDING

Source	Previously Approved Amount	Increase/Decrease	Original/Revised Budget	Transfer to/from Proj. #	Rev Object Code	Treasurer's ID Number	Rev Sub Fund	Exp Sub Fund
(0) CIB, Group			0.00 0.00		8115		3043	3043
(1) Dept. CIB, Group			0.00 0.00		8115		3143	3143
(2) Institution Bonds			0.00 0.00					3235
(3) Revenue Bonds		10,000,000.00	10,000,000.00 0.00		8212	38800108		3393
(4) Excess Debt Service			0.00 0.00					3497
(5) Capital Reserve Fund			0.00 0.00		8895		3603	3603
(6) Appropriated State			0.00 0.00		8895	68800100	1001	3600
(7) Federal			0.00 0.00			78800100		5787
(8) Athletic			0.00 0.00			88800100		3807
(9) Other (Specify) Athletic Gifts and Donations	500,000.00	26,500,000.00	27,000,000.00 0.00 0.00		7201	98800100	4243	3907
TOTAL BUDGET	$500,000.00	$36,500,000.00	$37,000,000.00					

10. SUBMITTED BY: Anthony E. Wagner, Exec VP, Finance/O — 7/21/22

Signature of Authorized Official and Title — Date

11. APPROVED BY: _____ _____

(For Department Use Only) Authorized Signature and Title — Date

Revised 3/30/16

FOR DEPARTMENT USE ONLY	
CHE	
JBRC	
SFAA	
JBRC Staff	
ADMIN Staff	
A-1 Form Mailed	
SPIRS Date	
Summary	

(For Department Use Only)
SUMMARY NUMBER
FORM NUMBER

PERMANENT IMPROVEMENT PROJECT REQUEST

1. AGENCY
   Code H12 Name Clemson University

   Contact Person John McEntire Phone 864-656-1238

2. PROJECT
   Project # 9957 Name Women's Sports Program Expansion (Gymnastics/Lacrosse)

   Facility # _____ Facility Name _____

County Code	39 - Pickens	**Project Type**	2 - Construct Additional Facilities
New/Revised Budget	$37,000,000.00	**Facility Type**	6 - Athletic/Recreational

3. CPIP PROJECT APPROVAL FOR CURRENT FISCAL YEAR
   CPIP priority number 7 of 8 for FY 2022.

4. PROJECT ACTION PROPOSED (Indicate all requested actions by checking the appropriate boxes.)

Establish Project		**Decrease Budget**		**Close Project**	
Establish Project - CPIP		**Change Source of Funds**		**Change Project Name**	
Increase Budget	X	**Revise Scope**		**Cancel Project**	

5. PROJECT DESCRIPTION AND JUSTIFICATION
   (Explain and justify the project or revision, including what it is, why it is needed, and any alternatives considered. Attach supporting doucmentation/maps to fully convey the need for the request.)

This request is to establish the Phase II construction budget to construct new facilities for women's athletics programs, including gymnastics and lacrosse, adjacent to the existing women's rowing facility. Women's gymnastics and women's lacrosse were announced as new sport additions in June 2021.

The project will provide a new women's gymnastics training facility of approximately 21,000 square feet. The gym training facility will include coaches' offices, a locker room, a student-athlete lounge, and a sports medicine room. The project will also include a new women's lacrosse operations facility of approximately 9,000 square feet and an artificial turf field with stadium seating. The lacrosse operations facility will include coaches' offices, a locker room, a student-athlete lounge, a film room, and a sports medicine room.

An approximately 10,000 square foot addition will include amenities for women's gymnastics, lacrosse, and rowing, including strength and conditioning, nutrition, and athlete wellness and recovery areas. These facilities are expected to support 135 female student-athletes and provide new competition and training facilities for use by the new additional teams. Additional sites were reviewed in the feasibility study, but locating the proposed facilities adjacent to the rowing facility was determined to be most cost efficient and effective.

The total projected cost of the project has increased from the Phase I internal estimated cost due primarily to a refinement of the equipment required for lacrosse and gymnastics during Phase I, as well as continued unprecedented construction cost escalation.

6. OPERATING COSTS IMPLICATIONS
   Attach Form A-49 if any additional operating costs or savings will result from this request. This includes costs to be absorbed with current funding.

7. ESTIMATED PROJECT SCHEDULE AND EXPENDITURES
   Estimated Start Date: March 2022 Estimated Completion Date: March 2025
   Estimated Expenditures: Thru Current FY: $22,200,000.00 After Current FY: $14,800,000.00

ADDITIONAL ANNUAL OPERATING COSTS / SAVINGS RESULTING FROM PERMANENT IMPROVEMENT PROJECT

1. AGENCY Code H12 Name Clemson University

2. PROJECT Project # 9957 Name Women's Sports Program Expansion (Gynmastics / Lacrosse)

3. ADDITIONAL ANNUAL OPERATING COSTS / SAVINGS. (Check whether reporting costs or savings.)

☒ COSTS ☐ SAVINGS ☐ NO CHANGE

4.

TOTAL ADDITIONAL OPERATING COSTS / SAVINGS Projected Financing Sources				
(1) Fiscal Year	(2) General Funds	(3) Federal	(4) Other	(5) Total
1) FY 24-25	$	$	$ 260,000.00	$ 260,000.00
2) FY 25-26	$	$	$ 267,800.00	$ 267,800.00
3) FY 26-27	$	$	$ 275,834.00	$ 275,834.00

5. If "Other" sources are reported in Column 4 above, itemize and specify what the other sources are (revenues, fees, etc.).
Athletic Operating Funds

6. Will the additional costs be absorbed into your existing budget? ☒ YES ☐ NO
If no, how will additional funds be provided?

7. Itemize below the cost factors that contribute to the total costs or savings reported above in Column 5 for the first fiscal year.

	COST FACTORS	AMOUNT
1.	Utilities	$130,000.00
2.	Maintenance	130,000.00
3.		
4.		
5.		
6.		
7.		
8.		
	TOTAL	$260,000.00

8. If personal services costs or savings are reported in 7 above, please indicate the number of additional positions required or positions saved. _____

9. Submitted By: Anthony E. Wagner, Exec VP, Finance/Op
Signature of Authorized Official and Title

7/21/22
Date

admin
THE SOUTH CAROLINA
DEPARTMENT of ADMINISTRATION

PERMANENT IMPROVEMENT PROJECTS

REQUIRED INFORMATION FOR
PHASE II CONSTRUCTION BUDGET

1. Provide the total projected cost of the project. Attach a summary of the costs prepared during the A&E pre-design phase to support the total cost.

$37,000,000 for Women's Sports Program Expansion (Gymnastics and Lacrosse)

2. Identify the source(s) of funds for construction. If any private or federal funds are included, attach a letter guaranteeing the availability of the funds.

Athletic Facilities Revenue Bonds and Athletic Gifts and Donations

3. Describe and define each fund source to be used for construction. Cite any statutory authority, including the code section other provision of law for use of the funds for permanent improvement projects. If the source includes any fee, provide the name of the fee, the fee amount, the frequency of collection and when the fee was first implemented.

Athletic Facilities Revenue Bonds are long-term debt instruments issued by the State Treasurer's Office in the name of the University and are pledged to be repaid with a combination of Athletic net revenues, ticket surcharges, private (IPTAY) gifts and contributions.

Athletic Gifts and Donations are amounts received from individuals, corporations and other entities that are to be expended for their restricted purposes.

4. Provide the current uncommitted balance of funds for each source described above.

There is currently no bond balance for Athletic Facilities Revenue Bonds. The bond resolution will be submitted for approval by the Joint Bond Review Committee and State Fiscal Accountability Authority concurrently with the Phase II construction budget approval.

Athletic Gifts and Donations as of 6/30/22 - $27,000,000 for this project

5. If institution or revenue bonds are included as a source, provide when the bonds were issued. If not issued yet, provide when the bond resolution is expected to be brought for State Fiscal Accountability Authority approval.

The bond resolution will be submitted for approval by the Joint Bond Review Committee and State Fiscal Accountability Authority concurrently with the Phase II construction budget approval in October 2022.

6. If a student fee is used to fund debt service, provide the current amount of the fee collected annually or by semester. Specify which.

State Institution Bond debt service is funded by tuition per state statute. FY 21-22 tuition was $860 per in-state student per semester. Of this fee, approximately $340 per student per semester will be used to pay debt service in FY 21-22.

7. Indicate whether or not the use of any funds for construction will require an increase in any student fee or tuition. Describe any increase in student fees effected in prior years that has contributed to the availability of these funds.

No student tuition or fee increase will be required for construction of this project. Existing tuition and fees, which did not increase for FY 21-22, are sufficient to cover any costs associated with this project, although this project is not funded with any student tuition or fees.

8. If the project qualifies for the JBRC policy requirement to meet the LEED certification/Green Globes certification as the conservation measure, please attach the findings of a cost-benefit analysis showing the anticipated energy savings over the life of the project. Additionally, attach the checklist of items to be included to achieve LEED points or a description of the energy measures to achieve LEED.

The project will be constructed to Green Globe Two Globes certification.

9. If the project does not qualify for the JBRC policy requirement to meet the LEED certification/Green Globes certification as the construction measure, provide what savings/conservation measures will be implemented within the project. Explain the energy savings measures to be implemented as part of this project. If there are no energy savings measures included, state that and explain why.

N/A - See question 8 above.

10. Provide the projected date (month and year) for execution of the construction contract.

January 2023

11. Provide the projected date (month and year) for completion of construction.

December 2023

12. Describe the programs that will use the constructed or renovated space.

The new facilities will provide spaces for the new women's gymnastics and lacrosse programs and spaces to be jointly used by these programs and the women's rowing team. Women's gymnastics and women's lacrosse were announced as new sports additions in June 2021.

13. Provide the total square footage of the building to be renovated or constructed.

This project includes the construction of an approximately 21,000 square foot women's gymnastics training facility, an approximately 9,000 square foot women's lacrosse operations facility, and an approximately 10,000 square foot women's athlete recovery training center.

14. If a portion of the building is to be renovated, provide the square footage of the portion that will be included in the renovation.

N/A - This project is for construction of a women's gymnastics training facility, a women's lacrosse operations facility, and a women's athlete recovery training center.

15. Provide the current age of the building and building systems to be renovated or replaced.

N/A - This project is for construction of women's gymnastics and lacrosse facilities and a women's athlete recovery training center.

16. If any new space is being added to the facility, provide demand and usage data to support the need.

The women's gymnastics and lacrosse programs were both announced as new women's sports programs in June 2021. Facilities are needed to provide training, office, locker room and other support spaces for these new sports. Some of the new spaces will also be used by women's rowing which has facilities adjacent to the new gymnastics and lacrosse facilities.

17. Provide an estimate of the numbers of students, faculty, staff and clients that are expected to utilize the space associated with the project or building.

Approximately 135 female student athletes will use the space associated with these new facilities. That includes 20 gymnastics student athletes, 35 lacrosse student athletes and 80 rowing student athletes. In addition, 5 gymnastics staff, 6 lacrosse staff, 6 rowing staff and 4 training staff, totaling 20 staff, will use the new facilities.

18. If the construction cost increased significantly from the internal estimate and/or from the total estimated cost provided on the CPIP (30% or more), provide what factors caused the cost to increase.

The total projected cost of the project has increased from the Phase I internal cost estimate due primarily to a refinement of the equipment required for gymnastics and lacrosse during Phase I, as well as continued unprecedented construction cost escalation.

19. If the contingency is more than 10%, explain why.

N/A

20. If funds are being transferred from another project, provide the current status of the project from which funds are being transferred.

N/A

21. Indicate whether or not the project has been included in a previous year's CPIP. If so, provide the last year the project was included and year for which it was proposed.

This project was included in the 2021 and 2022 CPIPs as a Year One project.

22. Provide the economic impact of the project or project request, including job creation and retention. If there is no economic impact, provide an explanation.

The economic impact of this project will be substantial. Approximately $37 million in new construction will provide jobs for a substantial number of architects, engineers, builders and tradesmen.

23. Discuss how maintenance of this facility construction/renovation will be addressed and funded.

Maintenance of these facilities will be provided through annual operations, utilizing the existing Athletic Improvement Fund.

24. Provide the name of any account from which costs of deferred maintenance are addressed and its current uncommitted balance. Indicate the sources used to fund the account.

As required by bond covenants, an Athletic Improvement Fund has been established and is funded with Athletic operations funds to maintain and renovate facilities constructed with Athletic Facilities Revenue Bonds. As of 7/5/22, the Athletic Improvement Fund had a balance of approximately $5,155,343.

25. If funding for maintenance of this facility construction/renovation has not yet been determined, discuss the steps that have been taken to address and fund maintenance of this and other facilities owned or managed by the agency or institution.

N/A - See response to question 23.

TO BE PROVIDED FOR HIGHER EDUCATION PROPOSALS

1. Indicate whether or not the use of any funds for construction will require an increase in any student fee or tuition. Describe any increase in student fees effected in prior years that has contributed to the availability of these funds.

No student tuition or fee increase will be required for construction of these facilities. Existing tuition and fees, which did not increase for FY 21-22, are sufficient to cover any costs associated with this project, although no student tuition or fees will be used to fund the project. Please see the answer to question 3 for a history of the student tuition and fees. Previous fee increases have provided funding for the University's comprehensive portfolio of E&G facility needs, including not only the University's CPIP, but also continued commitment to preventive maintenance and asset stewardship, renewal, and reinvestment. These investments have enabled Clemson to cost effectively steward and maximize the useful life of its existing assets.

2. If the use of any funds for construction includes any student fee, provide the name of the fee, the fee amount, the frequency of collection and when the fee was first implemented.

This project will be funded with Athletic Facilities Revenue Bonds and Athletic Gifts and Donations, which does not include any student tuition or fees. However, for information, State Institution Bonds are long-term debt instruments issued by the State Treasurer's Office in the name of the University and are pledged to be repaid with tuition fees. Maintenance and Stewardship Funds consist of tuition, matriculation, and debt retirement fees that are not formally obligated to fund debt service in the current period and that are responsibly transferred to and managed by the State Treasurer until the time of their State Treasurer approved use. These fees are collected each semester and have been in place for more than 20 years. The current per-semester fees for full-time in-state students are as follows:

Tuition: $860
Matriculation: $5
Other Debt Retirement & Plant Fund Transfers: $140
Total: $1,005

3. Provide a nine-year history of each component within the institution's tuition and fee structure designated or utilized for permanent improvements. Identify the tuition or fee component per

student, per semester; the total revenue collected during the academic year; and the fund balance at fiscal year end, all delineated by academic year. Include a projection for the ensuing academic year, and any future academic years in which the fee is projected to increase. Use the following format in responding to this question and provide as many tables as are necessary to promote a clear understanding of the relationship of tuition and fee revenue designated by the institution for permanent improvements, maintenance and other facility-related expense, including debt service.

Academic Year	Amount per student per semester	Total Revenue Collected During Academic Year	Amount Expended for Permanent Improvements	Fund Balance at Year End
2014-15	$738	$35,140,000	$40,628,000	$55,021,000
2015-16	$800	$39,504,000	$26,633,000	$68,452,000
2016-17	$823	$41,742,000	$56,095,000	$53,131,000
2017-18	$924	$48,143,000	$50,461,000	$52,613,000
2018-19	$948	$50,958,000	$34,116,000	$69,454,000
2019-20	$1,005	$56,418,000	$70,228,000	$49,788,000
2020-21	$1,005	$58,871,000	$55,919,000	$52,740,000
2021-22	$1,005	$60,048,000*	$37,214,000*	$75,575,000*
2022-23*	$1,005	$61,249,000*	$86,659,000*	$50,165,000*

*Projection

Amount expended for permanent improvements include amounts that have been designated for existing projects.

Fund balance reflects the balance not designated for existing projects.

4. Identify any other funds not specifically designated that may be utilized or redirected for permanent improvements, maintenance and other facility-related expense, including debt service. Provide a nine-year history of total collections, by fund; amounts applied to or for permanent improvements, maintenance and other facility-related expense, including debt service; and the fund balance at fiscal year end, delineated by academic year. Include a projection for the ensuing academic year, and any future academic years in which the revenue is projected to increase. Describe any portion of the source that originates from any tuition or fee component. Include all permanent improvements without regard to Joint Bond Review Committee or State Fiscal Accountability approval requirements. Use the following format in responding to this question and provide as many tables as are necessary to provide a complete and comprehensive response for each fund.

   Fund Source or Name: Auxiliary Improvement Funds; Fund Source: Auxiliary Net Revenues
   Description:

Academic Year	Total Revenue Collected During Academic Year	Portion Collected From Tuition or Fee Revenues	Amount Expended for Permanent Improvements	Fund Balance at Year End
2014-15	$58,635,000	$52,201,000	$25,144,000	$25,505,000
2015-16	$62,317,000	$55,462,000	$30,307,000	$19,144,000
2016-17	$68,185,000	$60,684,000	$33,172,000	$11,830,000
2017-18	$70,107,000	$62,395,000	$35,767,000	$1,252,000
2018-19	$90,157,000	$80,240,000	$30,530,000	$13,653,000
2019-20	$77,834,000	$70,051,000	$23,951,000	$16,885,000
2020-21	$67,786,000	$61,007,000	$22,055,000	$45,871,000**
2021-22	$95,502,000*	$85,951,000*	$29,152,000*	$43,673,000*
2022-23	$98,367,000*	$88,530,000*	$34,433,000*	$42,436,000*

*Projection

Portion Collected from Tuition and Fee Revenues represents estimated collections from student fees based on fund source. Not all auxiliary revenues generated by students are mandatory. For example, parking fees, bookstore purchases, vending purchases, upperclassmen housing, and upperclassmen dining meal plans are voluntary purchases.

**While this fund balance is uncommitted at year end, it is already internally designated to upcoming projects in Clemson's CPIP. The increase between FY 19-20 and FY 20-21 was due to the influx of federal Covid stimulus funds.

Auxiliary Improvement Funds are funds established to maintain and reinvest in the University's Auxiliary facilities. These funds are deposited from the net revenues of the University's auxiliary enterprises (Housing, Dining, Bookstore, Vending, etc.) after payment of debt service associated with Auxiliary Revenue Bond debt service. The table above illustrates the historical and estimated auxiliary revenues as well as permanent improvement project expenditures (including debt service).

Fund Source or Name: Athletic Net Revenues; Fund Source: Athletic Net Revenues used to maintain and reinvest in Athletic Facilities
Description:

Academic Year	Total Revenue Collected During Academic Year	Portion Collected From Tuition or Fee Revenues	Amount Expended for Permanent Improvements	Fund Balance at Year End
2014-15	$88,338,000	$0	$5,407,000	$12,345,000
2015-16	$114,796,000	$0	$11,806,000	$17,035,000
2016-17	$153,329,000	$0	$48,563,000	$16,397,000
2017-18	$134,886,000	$0	$20,160,000	$18,081,000
2018-19	$136,369,541	$0	$11,405,000	$9,634,000
2019-20	$140,679,000	$0	$26,033,000	$14,078,000
2020-21	$122,432,000	$0	$12,832,000	$16,117,000
2021-22	$132,650,000	$0	$28,145,000	$10,100,000
2022-23	$139,950,000*	$0	$40,905,000*	$10,000,000*

*Projection

5. Describe the fund sources reflected above that will be utilized to support the project that is the subject of this Phase I proposal.

This project will be funded with Athletic Facilities Revenue Bonds and Athletic Gifts and Donations.

Athletic Facilities Revenue Bonds are long-term debt instruments issued by the State Treasurer's Office in the name of the University and are pledged to be repaid with a combination of Athletic net revenues, ticket surcharges, private (IPTAY) gifts and contributions.

Athletic Gifts and Donations are amounts received from individuals, corporations and other entities that are to be expended for their restricted purposes.

GARVINDESIGNGROUP

July 20, 2022

Jennifer Wood, Project Manager
Clemson University Capital Projects
University Facilities Center, Building A
280 Seneca Creek Road
Clemson, SC 29634

Re: Women's Sports Program Expansion
JBRC Roof Project Questionnaire

OSE Project No: H12-9957-JM
GDG Project No: C648.22

Jennifer,

Garvin Design Group is pleased to provide the following information in response to the JBRC Roof Project Questionnaire for the New Women's Sports Program Expansion:

A. Existing Roof:

The proposed Athletic Recovery Center/Lacrosse Building is New Construction, therefore there is no existing roof replacement associated with this project.

B. Replacement/New Roofing:

1. Identify the type of new roof proposed and how and why the roofing material was selected.

There is one proposed roofing system for the new Athletic Recovery Center/Lacrosse Building as follows:

The selected system is a Vertical-Rib, Sealed Joint, Standing-Seam Metal Roof Panel System. This system was selected for various reasons including anticipated life expectancy of the system, configuration and slope of the building roof, and the look and quality of the system. Due to the anticipated utilization of a pre-engineered structural frame in the building for reasons of economy and constructability, the preference of the University and the design team is to utilize the Standing-Seam Metal Roof Panel System due to compatibility, durability and aesthetic considerations.

1209 Lincoln Street (29201)
PO Box 18
Columbia, SC 29202

803.212.1032 p
803.764.0716 f
garvindesigngroup.com

GARVIN BUCHMANN TIMBES SICKINGER

2. **If the current roof system failed prior to warranty expiration and the planned roof replacement is of the same type, explain what factors will ensure the roof system will not prematurely fail again.**
   There is no current roofing system being replaced. The new roof will be properly detailed and installed to ensure that the system will not prematurely fail including the use of flashing, counter-flashing, waterproofing, roof sloping, and proper drainage.

3. **Specify the lengths and types of warranties to be provided on the new roofing system.**
   The new Roofing System will have a 2-year Installer's warranty and a 20-year warranty that includes repair or replacement of the metal roof panel system. A 20-year finish warranty is also included.

4. **Explain how roof inspections and preventive maintenance are performed to ensure Compliance with warranty terms.**
   The roofing system should be inspected once a year, to identify any changes to the performance of the roofing systems. A roof report shall be generated that includes the following:

   a. Photo documentation of the condition of the roof.
   b. Identify any leaks that have occurred during the previous year.
   c. Note any changes or repairs to the roofing system.
   d. Clean the roof to remove any debris.

   The University shall notify the warranty holder, including the original installer and the manufacturer prior to making any repairs or changes to the installed roof to ensure that no new work violates the terms of the warranty.

5. **Agency confirms that it will adhere to the Licensing Laws of Title 40 of the South Carolina Code of Laws as Amended, the standards of Responsibility set forth in the Consolidated Procurement Code and Regulations, and the procedures and requirements for determining contractor responsibility set forth in the Manual for Planning and Execution of State Permanent Improvements when awarding a contract with the goal of selecting a contractor whose professional credentials, financial capability, experience, and reputation provide reasonable assurance that the contractor will be able to perform its warranty obligations for the duration of the warranty.**

   Clemson University has charged Garvin Design Group as Architect of Record to comply with all applicable State Laws regarding the procurement and installation of all building Components and systems including the roof system. The roofing specifications include the following requirements to ensure that a quality roofing system is installed:

a. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

b. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with installation requirements of the manufacturer and the specifications.

c. Submittal Requirements: Shop drawings including plans, elevations, sections, and details of the entire system shall be submitted to the Architect to review and approval prior to the ordering of any materials for the project. This shall also include a review of sample products for all components installed in the roof.

d. Pre-Installation Meeting: Required prior to installation of the Roofing Systems, a meeting with the Owner, Architect, Contractor, Owner's insurer if applicable, testing and inspecting agency representative, roofing installer, roofing system manufacturer's representative, deck installer, and installers whose work interfaces with or affects roofing including installers of roof accessories. This meeting will cover methods and procedures related to roofing installation, including manufacturer's written instructions for roofing installation as well as flashing, counterflashing, roof drainage, penetrations, and any specialty details.

e. Testing: A qualified testing agency shall inspect substrate conditions, surface preparation, roofing application, flashings, protection, and drainage components, and shall furnish reports to the Architect.

6. **Roofing consultant has specified approved manufacturers for the roofing assembly whose history, experience, and reputation indicate that those manufacturers or any successors in in interest are likely to maintain their existence and abilities to perform under the warranty for its duration.**

   Preapproved manufacturers are listed in the specifications and include only those manufacturers that are reputable companies that have been in the roofing industry for many years with a proven history. Any roofing system substitution or change in manufacturer must be submitted to the Architect in writing for approval prior to acceptance.

The above information has been provided in response to the JBRC Roof Project Questionnaire and is intended to outline the responsibilities of the Architect in designing and specifying the roof system for the Athletic Recovery Center/Lacrosse Building for Clemson University. The University shall be responsible for the maintenance and repair of the roofing systems over the life of the building in consultation with the installer and manufacturer to comply with the warranty requirements.

Jennifer Wood
July 20, 2022

Please feel free to contact Garvin Design Group with any questions or concerns.

Sincerely,

Terry Buchmann, AIA, LEED AP
Principal
Garvin Design Group

July 20, 2022

Jennifer Wood, Project Manager
Clemson University Capital Projects
University Facilities Center, Building A
280 Seneca Creek Road
Clemson, SC 29634

Re: Women's Sports Program Expansion
JBRC Roof Project Questionnaire

OSE Project No: H12-9957-JM
GDG Project No: C648.22

Jennifer,

Garvin Design Group is pleased to provide the following information in response to the JBRC Roof Project Questionnaire for the New Women's Sports Program Expansion:

A. Existing Roof:

The proposed Gymnastics Building is New Construction, therefore there is no existing roof replacement associated with this project.

B. Replacement/New Roofing:

1. Identify the type of new roof proposed and how and why the roofing material was selected.

There is one proposed roofing system for the new Gymnastics Building as follows:
The selected system is a Vertical-Rib, Sealed Joint, Standing-Seam Metal Roof Panel System. This system was selected for various reasons including anticipated life expectancy of the system, configuration and slope of the building roof, and the look and quality of the system. Due to the anticipated utilization of a pre-engineered structural frame in the building for reasons of economy and constructability, the preference of the University and the design team is to utilize the Standing-Seam Metal Roof Panel System due to compatibility, durability and aesthetic considerations.

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2. **If the current roof system failed prior to warranty expiration and the planned roof replacement is of the same type, explain what factors will ensure the roof system will not prematurely fail again.**
   There is no current roofing system being replaced. The new roof will be properly detailed and installed to ensure that the system will not prematurely fail including the use of flashing, counter-flashing, waterproofing, roof sloping, and proper drainage.

3. **Specify the lengths and types of warranties to be provided on the new roofing system.**
   The new Roofing System will have a 2-year Installer's warranty and a 20-year warranty that includes repair or replacement of the metal roof panel system. A 20-year finish warranty is also included.

4. **Explain how roof inspections and preventive maintenance are performed to ensure Compliance with warranty terms.**
   The roofing system should be inspected once a year, to identify any changes to the performance of the roofing systems. A roof report shall be generated that includes the following:

   a. Photo documentation of the condition of the roof.
   b. Identify any leaks that have occurred during the previous year.
   c. Note any changes or repairs to the roofing system.
   d. Clean the roof to remove any debris.

   The University shall notify the warranty holder, including the original installer and the manufacturer prior to making any repairs or changes to the installed roof to ensure that no new work violates the terms of the warranty.

5. **Agency confirms that it will adhere to the Licensing Laws of Title 40 of the South Carolina Code of Laws as Amended, the standards of Responsibility set forth in the Consolidated Procurement Code and Regulations, and the procedures and requirements for determining contractor responsibility set forth in the Manual for Planning and Execution of State Permanent Improvements when awarding a contract with the goal of selecting a contractor whose professional credentials, financial capability, experience, and reputation provide reasonable assurance that the contractor will be able to perform its warranty obligations for the duration of the warranty.**

   Clemson University has charged Garvin Design Group as Architect of Record to comply with all applicable State Laws regarding the procurement and installation of all building Components and systems including the roof system. The roofing specifications include the following requirements to ensure that a quality roofing system is installed:

a. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

b. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with installation requirements of the manufacturer and the specifications.

c. Submittal Requirements: Shop drawings including plans, elevations, sections, and details of the entire system shall be submitted to the Architect to review and approval prior to the ordering of any materials for the project. This shall also include a review of sample products for all components installed in the roof.

d. Pre-Installation Meeting: Required prior to installation of the Roofing Systems, a meeting with the Owner, Architect, Contractor, Owner's insurer if applicable, testing and inspecting agency representative, roofing installer, roofing system manufacturer's representative, deck installer, and installers whose work interfaces with or affects roofing including installers of roof accessories. This meeting will cover methods and procedures related to roofing installation, including manufacturer's written instructions for roofing installation as well as flashing, counterflashing, roof drainage, penetrations, and any specialty details.

e. Testing: A qualified testing agency shall inspect substrate conditions, surface preparation, roofing application, flashings, protection, and drainage components, and shall furnish reports to the Architect.

6. **Roofing consultant has specified approved manufacturers for the roofing assembly whose history, experience, and reputation indicate that those manufacturers or any successors in in interest are likely to maintain their existence and abilities to perform under the warranty for its duration.**

   Preapproved manufacturers are listed in the specifications and include only those manufacturers that are reputable companies that have been in the roofing industry for many years with a proven history. Any roofing system substitution or change in manufacturer must be submitted to the Architect in writing for approval prior to acceptance.

The above information has been provided in response to the JBRC Roof Project Questionnaire and is intended to outline the responsibilities of the Architect in designing and specifying the roof system for the Gymnastics Building for Clemson University. The University shall be responsible for the maintenance and repair of the roofing systems over the life of the building in consultation with the installer and manufacturer to comply with the warranty requirements.

Jennifer Wood
July 20, 2022

Please feel free to contact Garvin Design Group with any questions or concerns.

Sincerely,

Terry Buchmann, AIA, LEED AP
Principal
Garvin Design Group

GARVINDESIGNGROUP

July 20, 2022

Jennifer Wood, Project Manager
Clemson University Capital Projects
University Facilities Center, Building A
280 Seneca Creek Road
Clemson, SC 29634

Re: Women's Sports Program Expansion
JBRC Roof Project Questionnaire

OSE Project No: H12-9957-JM
GDG Project No: C648.22

Jennifer,

Garvin Design Group is pleased to provide the following information in response to the JBRC Roof Project Questionnaire for the New Women's Sports Program Expansion:

A. Existing Roof:

The proposed Lacrosse Stadium is New Construction, therefore there is no existing roof replacement associated with this project.

B. Replacement/New Roofing:

1. Identify the type of new roof proposed and how and why the roofing material was selected.

There are two proposed roofing systems for the new Lacrosse Stadium as follows:

a. **Press Box roof and exposed support area roof:** The selected system is a Vertical-Rib, Sealed Joint, Standing-Seam Metal Roof Panel System. This system was selected for various reasons including anticipated life expectancy of the system, configuration and slope of the building roof, and the look and quality of the system. In order to compliment and coordinate with the adjacent Lacrosse Building, the preference of the University and the design team is to utilize the same Standing-Seam Metal Roof Panel System due to compatibility, durability and aesthetic considerations.

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b. **Non-exposed roofing system over support space beneath bleacher seating:** The selected system is a thermoplastic polyolefin (TPO) membrane roofing system. This system will not be visible to the public. It is required to provide a waterproof envelope to the accessory functions below the bleacher seating area including restrooms, locker rooms, concessions, etc. This system was selected for various reasons including anticipated life expectancy of the system, configuration and slope of the roof, ease of installation and long-term maintenance.

2. **If the current roof system failed prior to warranty expiration and the planned roof replacement is of the same type, explain what factors will ensure the roof system will not prematurely fail again.**

There is no current roofing system being replaced. The new roof will be properly detailed and installed to ensure that the system will not prematurely fail including the use of flashing, counter-flashing, waterproofing, roof sloping, and proper drainage.

3. **Specify the lengths and types of warranties to be provided on the new roofing system.**

The new Metal Roofing System will have a 2-year Installer's warranty and a 20-year warranty that includes repair or replacement of the metal roof panel system. A 20-year finish warranty is also included.

The new TPO Membrane Roofing System will have a 1-year Installer's warranty and a 20-year warranty that includes repair or replacement of the TPO roof system.

4. **Explain how roof inspections and preventive maintenance are performed to ensure Compliance with warranty terms.**

The roofing system should be inspected once a year, to identify any changes to the performance of the roofing systems. A roof report shall be generated that includes the following:

a. Photo documentation of the condition of the roof.
b. Identify any leaks that have occurred during the previous year.
c. Note any changes or repairs to the roofing system.
d. Clean the roof to remove any debris.

The University shall notify the warranty holder, including the original installer and the manufacturer prior to making any repairs or changes to the installed roof to ensure that no new work violates the terms of the warranty.

5. **Agency confirms that it will adhere to the Licensing Laws of Title 40 of the South Carolina Code of Laws as Amended, the standards of Responsibility set forth in the Consolidated**

Procurement Code and Regulations, and the procedures and requirements for determining contractor responsibility set forth in the Manual for Planning and Execution of State Permanent Improvements when awarding a contract with the goal of selecting a contractor whose professional credentials, financial capability, experience, and reputation provide reasonable assurance that the contractor will be able to perform its warranty obligations for the duration of the warranty.

Clemson University has charged Garvin Design Group as Architect of Record to comply with all applicable State Laws regarding the procurement and installation of all building Components and systems including the roof system. The roofing specifications include the following requirements to ensure that a quality roofing system is installed:

a. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

b. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with installation requirements of the manufacturer and the specifications.

c. Submittal Requirements: Shop drawings including plans, elevations, sections, and details of the entire system shall be submitted to the Architect to review and approval prior to the ordering of any materials for the project. This shall also include a review of sample products for all components installed in the roof.

d. Pre-Installation Meeting: Required prior to installation of the Roofing Systems, a meeting with the Owner, Architect, Contractor, Owner's insurer if applicable, testing and inspecting agency representative, roofing installer, roofing system manufacturer's representative, deck installer, and installers whose work interfaces with or affects roofing including installers of roof accessories. This meeting will cover methods and procedures related to roofing installation, including manufacturer's written instructions for roofing installation as well as flashing, counterflashing, roof drainage, penetrations, and any specialty details.

e. Testing: A qualified testing agency shall inspect substrate conditions, surface preparation, roofing application, flashings, protection, and drainage components, and shall furnish reports to the Architect.

6. **Roofing consultant has specified approved manufacturers for the roofing assembly whose history, experience, and reputation indicate that those manufacturers or any successors in in interest are likely to maintain their existence and abilities to perform under the warranty for its duration.**

Jennifer Wood
July 20, 2022

Preapproved manufacturers are listed in the specifications and include only those manufacturers that are reputable companies that have been in the roofing industry for many years with a proven history. Any roofing system substitution or change in manufacturer must be submitted to the Architect in writing for approval prior to acceptance.

The above information has been provided in response to the JBRC Roof Project Questionnaire and is intended to outline the responsibilities of the Architect in designing and specifying the roof system for the Lacrosse Stadium for Clemson University. The University shall be responsible for the maintenance and repair of the roofing systems over the life of the building in consultation with the installer and manufacturer to comply with the warranty requirements.

Please feel free to contact Garvin Design Group with any questions or concerns.

Sincerely,

Terry Buchmann, AIA, LEED AP
Principal
Garvin Design Group

SUSTAINABILITY COST BENEFIT ANALYSIS

Clemson WSE – ARC + Lacrosse

2022.07.18

Whole Building Systems has completed a Cost Benefit Analysis for the Clemson WSE Lacrosse + Athletic Recovery Center (ARC) project at the request of Garvin Design Group. Attached are two documents, the Energy Star Target Finder Report used to determine baseline energy use for a conventional facility of this type, and a companion set of analysis spreadsheets in which the cost benefit analysis is determined. It is based on typical premiums and associated utility/maintenance savings derived from pursuing a 2 Globes certification level in the Green Globes rating system.

RESULTS

According to our analysis, the project would provide the University with a net payback of $63,533 over the thirty-year period following it being built based on total annual savings of $9,850. The analysis indicates that the projected energy, water, and maintenance cost savings more than offset the initial certification and construction costs associated with sustainability strategies inherent in Green Globes Certification. Total project cost premiums used were based on several reports highlighting the sustainability construction cost premium for LEED and Green Globes projects and actual consultant fees.

NOTES

1. There are several qualifying context notes in the cost-benefit analysis, simply due to the early stage of the project given what we know today.

2. Project details entered into EnergyStar related to occupancy, space usage, and related hours of operation are reasonably estimated based on the Schematic Design drawings dated 2022.06.30 and construction cost data is based on cost estimates prepared by Palacio dated 2022.06.15. These figures may not reflect final design and construction metrics and costs.

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Project Sustainability
Cost Benefit Analysis Overview

Project:	Clemson WSE - ARC + Lacrosse	
Date:	July 18th, 2022	
Certification Level:	2 to 3	Green Globes (Pending) [1]
Building Area:	18,871	gsf
Prepared By:	Whole Building Systems	

Administrative and Equipment Cost Summary

Certification Costs [2]

Registration Fees	$	1,500
Green Globes NC Design Review and On-Site Assessment	$	9,750
Assessor - Travel (Flat Fee)	$	1,500
Plaque (16x16")	$	1,075

Enhanced Design/Construction Support [3]

Green Globes Administration/Consulting Costs	$	32,000
Energy Modeling	$	12,000
Full Building Commissioning (Includes:)	$	22,000
Design and Submittal Review		
OPR, BOD and Commissioning Plan Development Assistance		
Functional Testing of HVAC, BAS, Lighting Controls, Plumbing		
Systems Manual and Commissioning Report		

Increased Equipment and Construction Costs [4]

Hard Cost Premium Estimate	$	152,141

Total Cost for Certification	$	231,966

Project Sustainability
Cost Benefit Analysis Overview

Project:	Clemson WSE - ARC + Lacrosse	
Date:	July 18th, 2022	
Certification Level:	2 to 3	Green Globes (Pending) [1]
Building Area:	18,871	gsf
Prepared By:	Whole Building Systems	

Operational Cost / Savings Summary

Baseline Annual Building Operation Costs [5]	Annual Costs	30 Year Cost
Building Systems Utility Costs	$ 21,562	$ 646,870
Potable Water	$ 3,391	$ 101,720
Building Maintenance	$ 8,303	$ 249,097
	30 Year Baseline Cost	**$ 997,687**

Certified Building Estimated Operational Costs [6]	Annual Costs	30 Year Cost
Building Systems Utility Costs (25% Reduction)	$ 16,172	$ 485,153
Potable Water (35% Reduction)	$ 3,018	$ 90,531
Building Maintenance (20% Reduction)	$ 6,643	$ 199,278
Commissioning Energy Impact (15% Reduction) [7]	$ (2,426)	$ (72,773)
	30 Year Proposed Cost	**$ 702,188**

30 Year Savings Estimate	$ 295,499

Simple Payback Analysis

30 Year Savings	$ 295,499
Total Administrative and Equipment Costs	$ (231,966)
30 Year Net Payback	$ 63,533

Project Sustainability
Cost Benefit Analysis Overview

Project:	Clemson WSE - ARC + Lacrosse
Date:	July 18th, 2022
Certification Level:	2 to 3 Green Globes (Pending) [1]
Building Area:	18,871 gsf
Prepared By:	Whole Building Systems

Notes and Data Sources

1 - Due to the preliminary nature of the design, final certification levels are not known at this time.

2 - Certifications based on actual quote from GBCI.

3 - Based on a mix of typical fees and actual proposals specific to this project.

4 - Initial construction costs are based on an estimate provided to WBS prepared by Palacio and dated 2022.06.15. Costs for systems affecting energy performance (e.g. lighting, HVAC, insulation, etc.) were then extracted from the total building cost and summed. Based on a study completed by Drexel University in 2014, Green Globes construction cost premiums for projects were assessed at 1.5% of total project costs. To develop conservative estimate due to the preliminary nature of this project's design, a premium of 4.5% (3x the Drexel study estimate) was applied to all energy impacting system construction costs and included as the cost premium for this analysis.

5 - Baseline utility costs were developed by entering building data into EPA's Energy Star Target Finder tool and converting resulting energy consumption estimates into project costs using Clemson University FY22/23 published rates. Water consumption is based on CBECS 2012 data for typical facilites, and water cost information from actual Project data from 2017-2019. Maintenance costs represent non-salary costs for custodial, repair, and "other" costs as outline by the American School and University 38th Annual Maintenance and Operations Cost Study.

6 - Savings estimates for energy, water, and maintenance are based on studies provided by the US Green Building Council that can be accessed here: https://www.usgbc.org/articles/green-building-facts

7 - Savings estimates for commissioning are based on a Lawrence Berkeley National Lab report that can be accessed here: https://www.bcxa.org/ncbc/2005/proceedings/19_Piette_NCBC2005.pdf

Project Sustainability
Utility Savings Details

Project:	Clemson WSE - ARC + Lacrosse	
Date:	July 18th, 2022	
Certification Level:	2 to 3	Green Globes (Pending) [1]
Building Area:	18,871	gsf
Prepared By:	Whole Building Systems	

Project Data

Total Project Area	**18,871**	**gsf**
Gymnasium/Recreation	6,503	gsf
Office	5,868	
Medical Office	6,500	gsf

Notes

These areas do not precisely match the SD Drawings dated 2022.06.30, but were what was used to input into Energy Star Portfolio Manager to generate energy use estimates. Storage and ancillary spaces were assigned to the space types based on their proportion to the overall facility.

Energy System Costs

Systems that Impact Utility Consumption			**Cost Estimate** (06.17.2022)
Envelope and Insulation		$	1,790,307
Plumbing		$	201,905
HVAC		$	822,810
Electrical		$	565,890
	Subtotal	**$**	**3,380,912**
4.5% Hard Cost Premium for Efficient Systems		**$**	**152,141**

Notes

Drexel University developed a comprehensive construction cost impact study that determined typical costs premiums are ~1.5% over conventional practices for LEED or Green Globes projects. To provide a conservative estimate given the early stage of design, WBS triples this premium and to 4.5% and applies to all systems that affect facility energy use. Drexel Study used to develop cost premiums can be located here: https://www.thegbi.org/content/misc/Drexel_Building_Study_2014.pdf

Project Sustainability
Utility Savings Details

Project:	Clemson WSE - ARC + Lacrosse	
Date:	July 18th, 2022	
Certification Level:	2 to 3	Green Globes (Pending) [1]
Building Area:	18,871	gsf
Prepared By:	Whole Building Systems	

Utility Consumption Estimates

Energy	**kBtu**	**kWh**		**Cost**
Median Energy Use (kBtu)	705,376	206,734	$	21,562
Proposed Energy Use (kBtu)	529,032	155,050	$	16,172
Savings (25% per USGBC report)	*176,344*	*51,683*	$	5,391
Cx Savings (15% per LBNL Report)	79,355	23,258	$	2,426

Water	**Gals/gsf**	**Gallons**		**Cost**
Median Water Use	18.6	351,001	$	3,391
Proposed Water Use	16.6	312,391	$	3,018
Savings (11% per USGBC report)	*2.0*	*38,610*	$	373

Maintenance		**$/gsf**		**Cost**
Median Maintenance Cost	$	0.44	$	8,303
Proposed Maintenance Cost	$	0.35	$	6,643
Savings (20% per USGBC report)	*$*	*0.09*	*$*	*1,661*

Total Annual Savings	**$**	**9,850**

Notes

"Median" energy use based on entering project data into EnergyStar's Target Finder and converting site energy use results to kWh.

"Median" water use based on CBECS 2012 data for water use per GSF for "public assembly" of approx 18.6/gals/gsf/year: https://www.eia.gov/consumption/commercial/reports/2012/water/xls/water%20consumption_w1.xlsx

"Median" maintenance costs are based on ASU Magazine 38th Annual Maintenance and Operations Cost Study for Colleges. Costs assume $0.44/gsf for "Custodial/Maintenance Equipment & Supplies", "Grounds Equipment and Supplies" and "Other" and excludes costs for salaries for maintenance personnel.

Savings estimates for commissioning are based on a Lawrence Berkeley National Lab report that can be accessed here: https://www.bcxa.org/ncbc/2005/proceedings/19_Piette_NCBC2005.pdf

Electricity costs based on published Clemson University Rates for 2022/23 Fiscal Year of $0.1043/kWh. No demand charges or minimum bill costs are included.

Water costs based on combined water/sewer rate of $9.66/1000 gal ($0.00966/gal) from Clemson University's FY2022/23 rates. Minimum bill costs are ignored.

Typical savings estimates for Energy (25%) and Water (11%) are based on USGBC Reporting for green building savings: https://www.usgbc.org/articles/green-building-facts

SUSTAINABILITY COST BENEFIT ANALYSIS

Clemson University WSE – ARC + Lacrosse

PORTFOLIO MANAGER ASSUMPTIONS AND RESULTS

PROPERTY USE DETAILS

These figures were derived from the SD drawings. They do not precisely match the categories listed in the SD Drawings as Energy Star has different space type categories sets than what is listed in the drawings. WBS entered data for the ARC and Lacrosse buildings into a single Energy Star "project". WBS also assigned circulation, support, and storage spaces to each space type based on the proportion of that space type to the overall building (e.g. office space for both buildings is ~31% of the total building, so it was assigned 31% of the mechanical and support spaces).

Assumptions about hours, users, computers, etc. were inferred from project descriptions and program and default assumptions built into Energy Star. Student and staff counts are based on reasonable interpretation of drawings, not code allowable occupancy which is typically much higher than actual use.

Fitness Center/Health Club/Gym Use Edit Name **Delete**

Fitness Center/Health Club/Gym refers to buildings used for recreational or professional athletic training and related activities.

Gross Floor Area should include all space within the building(s), including weight and cardio equipment areas, personal training areas, courts, locker rooms, restrooms, indoor swimming pools, sauna and spa areas, retail areas, administrative/office space, mechanical rooms, storage areas, elevator shafts, and stairwells.

Property Use Detail	Value
Gross Floor Area	* 6,503 Sq. Ft.
Weekly Operating Hours	84
Number of Workers on Main Shift	6
Number of Computers	6

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SUSTAINABILITY COST BENEFIT ANALYSIS

Clemson University WSE – ARC + Lacrosse

Office Use Edit Name **Delete**

Office refers to buildings used to conduct commercial or governmental business activities. This includes administrative and professional offices.

Gross Floor Area (GFA) should include all space within the building(s) including offices, conference rooms and auditoriums, break rooms, restrooms, kitchens, lobbies, fitness areas, basements, storage areas, stairways, and elevator shafts.

If you have restaurants, retail, or services (dry cleaners) within the Office, you should most likely include this square footage and energy in the Office Property Use. There are 4 exceptions to this rule when you should create a separate Property Use:

If it is a Property Use Type that can get an ENERGY STAR Score (note: Retail can only get a score if it is greater than 5,000 square feet)
If it accounts for more than 25% of the property's GFA
If it is a vacant/unoccupied Office
If the Hours of Operation differ by more than 10 hours from the main Property Use

More on this rule.

Property Use Detail	Value
★ Gross Floor Area	* 5,868 Sq. Ft.
★ Weekly Operating Hours	84 ☐ Use a default
★ Number of Workers on Main Shift	6 ☐ Use a default
★ Number of Computers	6 ☐ Use a default
Percent That Can Be Heated	50 % or more ☐ Use a default
★ Percent That Can Be Cooled	50 % or more ☐ Use a default

★ This Use Detail is used to calculate the 1-100 ENERGY STAR Score.

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SUSTAINABILITY COST BENEFIT ANALYSIS

Clemson University WSE – ARC + Lacrosse

Medical Office Use Edit Name **Delete**

Medical Office refers to buildings used to provide diagnosis and treatment for medical, dental, or psychiatric outpatient care.

Gross Floor Area should include all space within the building including offices, exam rooms, operating rooms for outpatient surgical procedures, laboratories, lobbies, atriums, conference rooms and auditoriums, employee break rooms and kitchens, restrooms, elevator shafts, stairways, mechanical rooms, and storage areas. If you have restaurants, retail (pharmacy), or services (dry cleaners) within the Medical Office Building, we recommend you include this square footage in the Medical Office Property Use.

*The medical office score does not apply to veterinary offices or standalone ambulatory surgical centers.

Property Use Detail	Value
★ Gross Floor Area	* 6,500 Sq. Ft.
★ Weekly Operating Hours	84 ☐ Use a default
Number of Computers	10 ☐ Use a default
★ Number of Workers on Main Shift	10 ☐ Use a default
Surgery Center Floor Area	0 Sq. Ft.
★ Number of Surgical Operating Beds	0 ☐ Use a default
★ Number of MRI Machines	0 ☐ Use a default
Percent That Can Be Heated	All of it - 100% ☐ Use a default
Percent That Can Be Cooled	All of it - 100% ☐ Use a default

★ This Use Detail is used to calculate the 1-100 ENERGY STAR Score.

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SUSTAINABILITY COST BENEFIT ANALYSIS

Clemson University WSE – ARC + Lacrosse

BASELINE AND 25% ENERGY IMPROVEMENT RESULTS COMPARISON

Note that WBS took these raw energy results of the "Median Property" and applied cost data from published Clemson University FY22/23 utility rates to determine total costs and expected savings, which explains why these figures do not precisely line up with estimated savings and paybacks elsewhere in this report (i.e. the EnergyStar "Energy Cost" listed below is using generic utility cost rates that are not specific to the project).

Metric	Design Project	Design Target*	Median Property*	Property Measurement in Use
ENERGY STAR score (1-100)	Not Available	Not Available	50	Not Available
Source EUI (kBtu/ft²)	Not Available	67.0	89.3	Not Available
Site EUI (kBtu/ft²)	Not Available	28.0	37.4	Not Available
Source Energy Use (kBtu)	Not Available	1,263,502.5	1,684,670.0	Not Available
Site Energy Use (kBtu)	Not Available	529,032.3	705,376.4	Not Available
Energy Cost ($)	Not Available	13,549.30	18,065.74	Not Available
Total GHG Emissions (Metric Tons CO2e)	0.0	43.1	57.5	Not Available

* To perform calculations for your design target, we use the fuel mix that you've entered for your design energy estimates. If you have not entered estimated design energy, we'll use the average for your state. To perform calculations for the national median, we will assume the fuel mix and operational details of your property measurement in use, if available. Otherwise, we will use your design estimates.

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SUSTAINABILITY COST BENEFIT ANALYSIS

Clemson WSE – Gymnasium

2022.07.18

Whole Building Systems has completed a Cost Benefit Analysis for the Clemson WSE Gymnasium project at the request of Garvin Design Group. Attached are two documents, the Energy Star Target Finder Report used to determine baseline energy use for a conventional facility of this type, and a companion set of analysis spreadsheets in which the cost benefit analysis is determined. It is based on typical premiums and associated utility/maintenance savings derived from pursuing a 2 Globes certification level in the Green Globes rating system.

RESULTS

According to our analysis, the project would provide the University with a net payback of $275,906 over the thirty-year period following it being built based on total annual savings of $16,351. The analysis indicates that the projected energy, water, and maintenance cost savings more than offset the initial certification and construction costs associated with sustainability strategies inherent in Green Globes Certification. Total project cost premiums used were based on several reports highlighting the sustainability construction cost premium for LEED and Green Globes projects and actual consultant fees.

NOTES

1. There are several qualifying context notes in the cost-benefit analysis, simply due to the early stage of the project given what we know today.

2. Project details entered into EnergyStar related to occupancy, space usage, and related hours of operation are reasonably estimated based on the Schematic Design drawings dated 2022.06.30 and construction cost data is based on cost estimates prepared by Palacio dated 2022.06.15. These figures may not reflect final design and construction metrics and costs.

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Project Sustainability
Cost Benefit Analysis Overview

Project:	Clemson WSE - Gymnastics Facility
Date:	July 18th, 2022
Certification Level:	2 to 3 Green Globes (Pending) [1]
Building Area:	24,051 gsf
Prepared By:	Whole Building Systems

Administrative and Equipment Cost Summary

Certification Costs [2]

Registration Fees	$	1,500
Green Globes NC Design Review and On-Site Assessment	$	9,750
Assessor - Travel (Flat Fee)	$	1,500
Plaque (16x16")	$	1,075

Enhanced Design/Construction Support [3]

Green Globes Administration/Consulting Costs	$	32,000
Energy Modeling	$	12,000
Full Building Commissioning (Includes:)	$	26,000
Design and Submittal Review		
OPR, BOD and Commissioning Plan Development Assistance		
Functional Testing of HVAC, BAS, Lighting Controls, Plumbing		
Systems Manual and Commissioning Report		

Increased Equipment and Construction Costs [4]

Hard Cost Premium Estimate	$	130,799

Total Cost for Certification	$	214,624

Project Sustainability
Cost Benefit Analysis Overview

Project:	Clemson WSE - Gymnastics Facility
Date:	July 18th, 2022
Certification Level:	2 to 3 Green Globes (Pending) [1]
Building Area:	24,051 gsf
Prepared By:	Whole Building Systems

Operational Cost / Savings Summary

Baseline Annual Building Operation Costs [5]	Annual Costs	30 Year Cost
Building Systems Utility Costs	$ 37,956	$ 1,138,685
Potable Water	$ 4,321	$ 129,642
Building Maintenance	$ 10,582	$ 317,473
	30 Year Baseline Cost	**$ 1,585,800**

Certified Building Estimated Operational Costs [6]	Annual Costs	30 Year Cost
Building Systems Utility Costs (25% Reduction)	$ 28,467	$ 854,013
Potable Water (35% Reduction)	$ 3,846	$ 115,381
Building Maintenance (20% Reduction)	$ 8,466	$ 253,979
Commissioning Energy Impact (15% Reduction) [7]	$ (4,270)	$ (128,102)
	30 Year Proposed Cost	**$ 1,095,271**

30 Year Savings Estimate	$ 490,529

Simple Payback Analysis

30 Year Savings	$ 490,529
Total Administrative and Equipment Costs	$ (214,624)
30 Year Net Payback	$ 275,906

Project Sustainability
Cost Benefit Analysis Overview

Project:	Clemson WSE - Gymnastics Facility	
Date:	July 18th, 2022	
Certification Level:	2 to 3	Green Globes (Pending) [1]
Building Area:	24,051	gsf
Prepared By:	Whole Building Systems	

Notes and Data Sources

1 - Due to the preliminary nature of the design, final certification levels are not known at this time.

2 - Certifications based on actual quote from GBCI dated 2022.06

3 - Based on a mix of typical fees and actual proposals specific to this project.

4 - Initial construction costs are based on an estimate provided to WBS prepared by Palacio and dated 2022.06.15. Costs for systems affecting energy performance (e.g. lighting, HVAC, insulation, etc.) were then extracted from the total building cost and summed. Based on a study completed by Drexel University in 2014, Green Globes construction cost premiums for projects were assessed at 1.5% of total project costs. To develop conservative estimate due to the preliminary nature of this project's design, a premium of 4.5% (3x the Drexel study estimate) was applied to all energy impacting system construction costs and included as the cost premium for this analysis.

5 - Baseline utility costs were developed by entering building data into EPA's Energy Star Target Finder tool and converting resulting energy consumption estimates into project costs using Clemson University FY22/23 published rates. Water consumption is based on CBECS 2012 data for typical facilites, and water cost information from actual Project data from 2017-2019. Maintenance costs represent non-salary costs for custodial, repair, and "other" costs as outline by the American School and University 38th Annual Maintenance and Operations Cost Study.

6 - Savings estimates for energy, water, and maintenance are based on studies provided by the US Green Building Council that can be accessed here: https://www.usgbc.org/articles/green-building-facts

7 - Savings estimates for commissioning are based on a Lawrence Berkeley National Lab report that can be accessed here: https://www.bcxa.org/ncbc/2005/proceedings/19_Piette_NCBC2005.pdf

Project Sustainability
Utility Savings Details

Project:	Clemson WSE - Gymnastics Facility	
Date:	July 18th, 2022	
Certification Level:	2 to 3	Green Globes (Pending) [1]
Building Area:	24,051	gsf
Prepared By:	Whole Building Systems	

Project Data

Total Project Area	**24,051**	**gsf**
Gymnasium/Recreation	19,074	gsf
Office	4,194	
Medical Office	783	gsf

Notes

These areas do not precisely match the SD Drawings dated 2022.06.30, but were what was used to input into Energy Star Portfolio Manager to generate energy use estimates. Storage and ancillary spaces were assigned to the space types based on their proportion to the overall facility.

Energy System Costs

Systems that Impact Utility Consumption		**Cost Estimate** (06.17.2022)
Envelope and Insulation	$	1,187,946
Plumbing	$	215,800
HVAC	$	868,660
Electrical	$	634,230
Subtotal	**$**	**2,906,636**
4.5% Hard Cost Premium for Efficient Systems	**$**	**130,799**

Notes

Drexel University developed a comprehensive construction cost impact study that determined typical costs premiums are ~1.5% over conventional practices for LEED or Green Globes projects. To provide a conservative estimate given the early stage of design, WBS triples this premium and to 4.5% and applies to all systems that affect facility energy use. Drexel Study used to develop cost premiums can be located here: https://www.thegbi.org/content/misc/Drexel_Building_Study_2014.pdf

Project Sustainability
Utility Savings Details

Project:	Clemson WSE - Gymnastics Facility	
Date:	July 18th, 2022	
Certification Level:	2 to 3	Green Globes (Pending) [1]
Building Area:	24,051	gsf
Prepared By:	Whole Building Systems	

Utility Consumption Estimates

Energy	**kBtu**	**kWh**		**Cost**
Median Energy Use (kBtu)	1,241,673	363,914	$	37,956
Proposed Energy Use (kBtu)	931,254	272,935	$	28,467
Savings (25% per USGBC report)	*310,419*	*90,979*	$	9,489
Cx Savings (15% per LBNL Report)	139,688	40,940	$	4,270
Water	**Gals/gsf**	**Gallons**		**Cost**
Median Water Use	18.6	447,349	$	4,321
Proposed Water Use	16.6	398,140	$	3,846
Savings (11% per USGBC report)	*2.0*	*49,208*	$	475
Maintenance		**$/gsf**		**Cost**
Median Maintenance Cost	$	0.44	$	10,582
Proposed Maintenance Cost	$	0.35	$	8,466
Savings (20% per USGBC report)	*$*	*0.09*	*$*	*2,116*
Total Annual Savings			**$**	**16,351**

Notes

"Median" energy use based on entering project data into EnergyStar's Target Finder and converting site energy use results to kWh.

"Median" water use based on CBECS 2012 data for water use per GSF for "public assembly" of approx 18.6/gals/gsf/year: https://www.eia.gov/consumption/commercial/reports/2012/water/xls/water%20consumption_w1.xlsx

"Median" maintenance costs are based on ASU Magazine 38th Annual Maintenance and Operations Cost Study for Colleges. Costs assume $0.44/gsf for "Custodial/Maintenance Equipment & Supplies", "Grounds Equipment and Supplies" and "Other" and excludes costs for salaries for maintenance personnel.

Savings estimates for commissioning are based on a Lawrence Berkeley National Lab report that can be accessed here: https://www.bcxa.org/ncbc/2005/proceedings/19_Piette_NCBC2005.pdf

Electricity costs based on published Clemson University Rates for 2022/23 Fiscal Year of $0.1043/kWh. No demand charges or minimum bill costs are included.

Water costs based on combined water/sewer rate of $9.66/1000 gal ($0.00966/gal) from Clemson University's FY2022/23 rates. Minimum bill costs are ignored.

Typical savings estimates for Energy (25%) and Water (11%) are based on USGBC Reporting for green building savings: https://www.usgbc.org/articles/green-building-facts

SUSTAINABILITY COST BENEFIT ANALYSIS

Clemson University WSE – Gymnasium

PORTFOLIO MANAGER ASSUMPTIONS AND RESULTS

PROPERTY USE DETAILS

These figures were derived from the SD drawings. They do not precisely match the categories listed in the SD Pricing Set as Energy Star has different space type categories sets than what is listed in the drawings. WBS also assigned circulation, support, and storage spaces to each space type based on the proportion of that space type to the overall building (e.g. the Gym is 79% of the building, so 79% of the miscellaneous storage and support spaces were assigned to that use type).

Assumptions about hours, users, computers, etc. were inferred from project descriptions and program and default assumptions built into Energy Star. Student and staff counts are based on reasonable interpretation of drawings, not code allowable occupancy which is typically much higher than actual use.

Fitness Center/Health Club/Gym Use Edit Name **Delete**

Fitness Center/Health Club/Gym refers to buildings used for recreational or professional athletic training and related activities.

Gross Floor Area should include all space within the building(s), including weight and cardio equipment areas, personal training areas, courts, locker rooms, restrooms, indoor swimming pools, sauna and spa areas, retail areas, administrative/office space, mechanical rooms, storage areas, elevator shafts, and stairwells.

Property Use Detail	Value
Gross Floor Area	* 19,074 Sq. Ft.
Weekly Operating Hours	84
Number of Workers on Main Shift	2
Number of Computers	2

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SUSTAINABILITY COST BENEFIT ANALYSIS

Clemson University WSE – Gymnasium

Office Use Edit Name **Delete**

Office refers to buildings used to conduct commercial or governmental business activities. This includes administrative and professional offices.

Gross Floor Area (GFA) should include all space within the building(s) including offices, conference rooms and auditoriums, break rooms, restrooms, kitchens, lobbies, fitness areas, basements, storage areas, stairways, and elevator shafts.

If you have restaurants, retail, or services (dry cleaners) within the Office, you should most likely include this square footage and energy in the Office Property Use. There are 4 exceptions to this rule when you should create a separate Property Use:

If it is a Property Use Type that can get an ENERGY STAR Score (note: Retail can only get a score if it is greater than 5,000 square feet)
If it accounts for more than 25% of the property's GFA
If it is a vacant/unoccupied Office
If the Hours of Operation differ by more than 10 hours from the main Property Use

More on this rule.

Property Use Detail	Value
Gross Floor Area	* 4,194 Sq. Ft.
Weekly Operating Hours	84 Use a default
Number of Workers on Main Shift	6 Use a default
Number of Computers	6 Use a default
Percent That Can Be Heated	50 % or more Use a default
Percent That Can Be Cooled	50 % or more Use a default

This Use Detail is used to calculate the 1-100 ENERGY STAR Score.

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SUSTAINABILITY COST BENEFIT ANALYSIS

Clemson University WSE – Gymnasium

Medical Office Use Edit Name **Delete**

Medical Office refers to buildings used to provide diagnosis and treatment for medical, dental, or psychiatric outpatient care.

Gross Floor Area should include all space within the building including offices, exam rooms, operating rooms for outpatient surgical procedures, laboratories, lobbies, atriums, conference rooms and auditoriums, employee break rooms and kitchens, restrooms, elevator shafts, stairways, mechanical rooms, and storage areas. If you have restaurants, retail (pharmacy), or services (dry cleaners) within the Medical Office Building, we recommend you include this square footage in the Medical Office Property Use.

*The medical office score does not apply to veterinary offices or standalone ambulatory surgical centers.

Property Use Detail	Value
★ Gross Floor Area	* 783 Sq. Ft.
★ Weekly Operating Hours	84 ☐ Use a default
Number of Computers	1 ☐ Use a default
★ Number of Workers on Main Shift	1 ☐ Use a default
Surgery Center Floor Area	0 Sq. Ft.
★ Number of Surgical Operating Beds	0 ☐ Use a default
★ Number of MRI Machines	0 ☐ Use a default
Percent That Can Be Heated	All of it - 100% ☐ Use a default
Percent That Can Be Cooled	All of it - 100% ☐ Use a default

★ This Use Detail is used to calculate the 1-100 ENERGY STAR Score.

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SUSTAINABILITY COST BENEFIT ANALYSIS

Clemson University WSE – Gymnasium

BASELINE AND 25% ENERGY IMPROVEMENT RESULTS COMPARISON

Note that WBS took these raw energy results of the "Median Property" and applied cost data from published Clemson University FY22/23 utility rates to determine total costs and expected savings, which explains why these figures do not precisely line up with estimated savings and paybacks elsewhere in this report (i.e. the EnergyStar "Energy Cost" listed below is using generic utility cost rates that are not specific to the project).

Metric	Design Project	Design Target*	Median Property*	Property Measurement in Use
ENERGY STAR score (1-100)	Not Available	Not Available	50	Not Available
Source EUI (kBtu/ft²)	Not Available	84.0	112.0	Not Available
Site EUI (kBtu/ft²)	Not Available	38.7	51.6	Not Available
Source Energy Use (kBtu)	Not Available	2,020,416.0	2,693,888.0	Not Available
Site Energy Use (kBtu)	Not Available	931,254.8	1,241,673.0	Not Available
Energy Cost ($)	Not Available	21,223.63	28,298.17	Not Available
Total GHG Emissions (Metric Tons CO2e)	0.0	71.6	95.5	Not Available

* To perform calculations for your design target, we use the fuel mix that you've entered for your design energy estimates. If you have not entered estimated design energy, we'll use the average for your state. To perform calculations for the national median, we will assume the fuel mix and operational details of your property measurement in use, if available. Otherwise, we will use your design estimates.

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CONSOLIDATED SCHEDULE OF VALUES

BRASFIELD & GORRIE GENERAL CONTRACTORS

Clemson WSPE RFP General Conditions

Clemson University
Clemson, SC
June 17, 2022

TOTAL PROJECT

ID	Item of Work	Sitework	LAX Field	LAX Grandstands and Press Box	GYM Building	LAX Building	ARC Athletic Recovery Center	Total Cost	% of Total
049	Preconstruction Services	$7,164	$3,256	$8,439	$15,909	$8,279	$6,953	$50,000	0.2%
051	General Conditions - Monthly	$119,720	$54,415	$141,029	$265,866	$138,359	$116,204	$835,592	3.7%
200	Demolition	$30,009	-	-	-	-	-	$30,009	0.1%
205	Grading	$1,001,110	-	-	-	-	-	$1,001,110	4.4%
210	Utilities	$783,986	-	-	-	-	-	$783,986	3.4%
215	Paving	$276,321	-	-	-	-	-	$276,321	1.2%
220	Curb and Gutter	$99,290	-	-	-	-	-	$99,290	0.4%
225	Site Concrete	$163,229	-	-	-	-	-	$163,229	0.7%
235	Retaining Walls	$147,499	-	-	-	-	-	$147,499	0.6%
240	Landscaping	$161,920	-	-	-	-	-	$161,920	0.7%
241	Hardscapes	$48,090	-	-	-	-	-	$48,090	0.2%
243	Fencing	$58,520	-	-	-	-	-	$58,520	0.3%
245	Decorative Fencing	-	$39,013	-	-	-	-	$39,013	0.2%
250	Athletic Field	-	$951,074	-	-	-	-	$951,074	4.2%
300	Concrete	-	-	$123,450	$606,275	$154,443	$113,167	$997,335	4.4%
400	Masonry	-	-	$581,825	-	-	-	$581,825	2.5%
500	Stairs	-	-	$14,902	$33,300	-	-	$48,202	0.2%
600	Carpentry	-	-	$5,526	$24,146	$9,191	$8,906	$47,768	0.2%
610	Wood Siding	-	-	-	$101,074	-	-	$101,074	0.4%
650	Millwork	-	-	$40,581	$72,975	$43,865	$24,308	$181,730	0.8%
700	Waterproofing	-	-	$33,119	$24,146	$9,191	$8,906	$75,362	0.3%
705	Metal Wall Panels	-	-	$406,996	-	$22,224	-	$429,220	1.9%
715	Roofing	-	-	$38,193	-	$14,537	-	$52,730	0.2%
716	SubRoof	-	-	$182,160	-	-	-	$182,160	0.8%
800	Doors/Frames/Hardware	-	-	$69,341	$53,291	$46,193	$31,635	$200,460	0.9%
805	Overhead Coiling Doors	-	-	$9,108	$18,216	-	-	$27,324	0.1%
810	Glass & Glazing	-	-	$49,568	$631,011	$191,320	$336,972	$1,208,871	5.3%
900	Finishes	-	-	$123,838	$734,644	$374,492	$235,445	$1,468,419	6.4%
905	Drywall	-	-	$15,301	$141,648	$184,729	$88,603	$430,281	1.9%
910	Painting	-	-	$5,526	$24,146	$9,191	$8,906	$47,768	0.2%
1000	Accessories	-	-	$78,632	$26,530	$31,033	$4,878	$141,073	0.6%
1010	Signage	-	-	$2,763	$12,073	$4,595	$4,453	$23,884	0.1%
1100	Lockers	-	-	-	$66,792	$115,368	-	$182,160	0.8%
1300	Grandstand & Bleachers	-	-	$789,183	-	-	-	$789,183	3.4%
1350	PEMB	-	-	-	$1,453,718	$950,177	$805,745	$3,209,639	14.0%
1400	Elevators	-	-	$101,200	-	-	-	$101,200	0.4%
1500	Fire Protection	-	-	$45,540	$151,800	$70,840	$70,840	$339,020	1.5%

CONSOLIDATED SCHEDULE OF VALUES

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Clemson University
Clemson, SC
June 17, 2022

TOTAL PROJECT

ID	Item of Work	Sitework	LAX Field	LAX Grandstands and Press Box	GYM Building	LAX Building	ARC Athletic Recovery Center	Total Cost	% of Total
1525	Plumbing	-	-	$321,816	$223,045	$143,379	$138,927	**$827,167**	3.6%
1550	HVAC	-	-	$165,766	$1,097,584	$424,594	$411,752	**$2,099,696**	9.2%
1600	Electrical	-	-	$308,660	$1,087,900	$632,500	$581,900	**$2,610,960**	11.4%
1610	Site Lighting	$227,700	-	-	-	-	-	**$227,700**	1.0%
1620	Field Lighting and Videoboard Power	-	$379,500	-	-	-	-	**$379,500**	1.7%
1650	Low Voltage	-	-	$17,958	$78,476	$29,871	$28,943	**$155,248**	0.7%
2000	Final Clean	-	-	$18,659	$28,900	$20,675	$20,518	**$88,753**	0.4%
2001	Pressure Wash Parking Lots	$15,620	-	-	-	-	-	**$15,620**	0.1%
99010	Contractor Insur & Risk Mgmt	$39,347	$17,931	$46,381	$87,290	$45,512	$38,221	**$274,682**	1.2%
99011	Builders Risk Insurance	$1,771	$807	$2,087	$3,928	$2,048	$1,720	**$12,361**	0.1%
99016	G.C. Payment / Perform Bond	$18,309	$8,344	$21,582	$40,619	$21,178	$17,785	**$127,818**	0.6%
	Subtotal	**$3,199,604**	**$1,454,339**	**$3,769,128**	**$7,105,301**	**$3,697,785**	**$3,105,686**	**$22,331,843**	97.6%
	Fee	**$79,973**	**$36,446**	**$94,270**	**$177,418**	**$92,505**	**$77,684**	**$558,296**	2.4%
	Totals	**$3,279,578**	**$1,490,785**	**$3,863,397**	**$7,282,719**	**$3,790,291**	**$3,183,370**	**$22,890,140**	100.0%

PROJECT MANAGEMENT	Maximum Points: 100	Expected Points	Applicable Points		Notes
1.1 Team & Owner Planning	**45**				
1.1.1 Performance & Green Design Goals	20	**13**	20	WBS	WBS will facilitate OPR for Design Metrics / Assumes no post occ assessment
1.1.2 Integrated Design Process	14	14	14	GDG	Will need meeting minutes and attendance for meetings/WBS will schedule the necessary meetings for GG
1.1.3 Site and Building Resilience	11	0	11	CU	Was a risk assessment created prior to deciding to locate the facilities on this land for extreme events? / Assumes no shelter in place or operation manual for extreme events
1.2 Environmental Management During Construction	**8**	8	8	WBS	WBS is revising Sustainability Specifications to include new 2021 Requirements
1.3 Life Cycle Cost Analysis or Building Service Life Planning	**12**	12	12	WBS	WBS will provide a Life Cycle Cost Analysis
1.4 Moisture Control Analysis	**6**	3	6	GDG	Need a moisture control report for areas next to showers / areas of added moisture and above grade portions of envelope
1.5 Commissioning or Systems Manual & Training	**29**	28	28	WBS	Commissioning will be performed on HVAC, Dom H20, lighting, irrigation, Comm systems & envelope
		78	99		

SITE	Maximum Points: 150	Expected Points	Applicable Points		
2.1 Development Area	**35**				
2.1.1 Urban Infill and Urban Sprawl	10	**0**	10		Building is located on previously undeveloped land,
2.1.2 Greenfields, Brownfields and Floodplains	25	0	25	LPA/CU	Not a brownfield and technically in a Flood Plain - making note that Lake Hartwell is dammed - can we get more info on how this works?
2.2 Transportation	**31**	11	31	CU	Will electric charging, covered bike rack or inside storage, or shelter for passenger pick up possible? How close to bike path or public transport
2.3 Construction Impacts	**34**				
2.3.1 Site Erosion	5	**5**	5	LPA	Need signed stamped erosion plan
2.3.2 Site Disturbance	5	**0**	5	GDG	Can construction be limited to 40ft beyond the building perimeter and within 5 ft of roads and utility right of way? (Unless improving the natural integrity of the site?
2.3.3 Tree and Shrub Preservation	6	**0**	6	GDG/LPA/GC	Can 50% or more of the existing trees on the site be retained? - Who is handling?
2.3.4 Mitigating Heat Island Effect	14	**0**	14	GDG	Is more than 50% of the Roof SRI >78 / >25% hardscape > 29 or permeable , 75% of opaque exterior walls are SRI 29 or greater
2.3.5 Bird Strikes	4	**3**	4	GDG	Project has exterior faux wood shading on glass storefront windows - will try for these points
2.4 Stormwater Management	**21**	0	21	LPA	Will the site retain at least the 95th percentile storm volume / meet a min of 80 TSS/ Is the building and walkways more than 100 ft from the Lake? Can Stormwater be used for any indoor uses or exterior uses such as cooling towers, dust control, etc.
2.5 Landscaping	**21**	13	21	LPA/GC	Landscape plan must show light conditions, soil types, 50% + noninvasive/drought tolerant and 50+ of vegetative are = native
2.6 Exterior Light Pollution	**5**	5	5	Belka	Need MLO calculations for BUG ratings that must show compliance with IES
2.7 Wildland- Urban Interface Site Design	**3**	0	3		
		37	150		

ENERGY	Maximum Points: 260	Expected Points	Applicable Points		
3.1 Energy Performance	**180**	100	180	WBS	Based on assumption model will perform 25% better than baseline 90.1 2010
3.2 Non-Modeled Energy Efficiency Impacts	**15**				
3.2.1 Vertical, Horizontal, and Inclined Transport Systems - Efficiency Measures	5	**0**	0		NA No elevators or people moving equipment on the project
3.2.2 Load Shedding	5	**0**	5	CU	Is Clemson able to reduce power through manual or automated load shedding for lighting and/or HVAC?
3.2.3 Plug Load and Process Energy Management	5	3	5	Belka	Belka pt Provide inventory of hard wired/plug load equipment & location/Purchase ES equipment / No to sensor controlled receptacles
3.3 Metering, Monitoring, and Measurement	**25**				
3.3.1 Metering	10	**5**	10	CU	5 pts for building metering / What is Clemson currently submetering?
3.3.2 Monitoring and Reporting	5	0	5	CU	Can we get a copy of Clemson's Energy Mgt. Plan to see what is being tracked and reported and how that is used for improvements?
3.3.3 Verification	10	0	10	CU	Would need to follow IPMVP protocol after operation of one year / No

3.4	**Renewable Sources of Energy**	**40**				
3.4.1	On-Site Renewable Energy	30	**0**	30	CU	5 pts if study conducted / If cost effective and implemented up to 25 points. If not cost effective and not implement 25 pts removed from denominator
3.4.2	Off-Site Renewable Energy Credits	10	0	10	CU	Can buy these if needed to achieve 2 green globes
			108	255		

WATER EFFICIENCY	**Maximum Points: 190**		**Expected Points**	**Applicable Points**		
4.1	**Indoor Domestic Plumbing**	**54**				
4.1.1	Plumbing Fixture and Fitting Standards	52	**52**	52	SA	All fixtures and fittings must comply with EPA WaterSense/ANSI/ASHRAE/ICC/USGBC/IES 189.1 2017
4.1.2	Residential Indoor Appliances	2	0	2	SA	Is the project using and residential Clothes or dishwashers? If yes 2 points if CW is ES 8.0 & WF 4.3 or less/ DW ES 6.0 and 3.5 gal/cycle
4.2	**Cooling Towers**	**22**	0	0	SA	NA
4.3	**Boilers and Hot Water Systems**	**9**				
4.3.1	Boilers and Water Heaters	3	**0**	0	SA	No Boilers / Water heaters must be less than 50 BHP
4.3.2	Domestic Hot Water Systems	6	0	6	SA	Taking these points, SA to design for efficient piping and hot water recirc that reduces waste to sinks, showers by 90%
4.4	**Water Intensive Applications**	**19**				CAN WE GET A LIST AND CUT SHEETS FOR OWNER SUPPLIED EQUIPMENT?
4.4.1	Commercial Food Service Equipment	5	**0**	0	SA	Per SA unlikely CFSE such as Combo ovens, prerinse spray valves, ice makers, dishwashers and Boiler less/connectionless food steamers
4.4.2	Laboratory and Medical Equipment	2	0	0	SA	NA - Assumes no lab or medical equipment for ARC/Lacrosse
4.4.3	Laundry Equipment	6	0	6	SA	? Self service washers, programmed tunnel washers, max 1gal/lb., has a recycling system, max IWF of 4.0?
4.4.4	Water Features and Pools	6	0	6	SA	Need cut sheets for Spas or water treatment equipment such as ice baths (recirc/splash out troughs/alternate make up water source/filtration)
4.5	**Water Treatment**	**4**	0	0	SA	Confirm no water treatment (have not seen water treatment used on any other Clemson project)
4.6	**Alternate Sources of Water**	**25**				
4.6.1	Alternate Water Sources for Indoor Uses	12	**0**	12	LPA/SA	What % of indoor water use could be met using stormwater system / Will any alternative system (SW, Graywater, rainwater, recycled, etc. be preplumbed during construction?
4.6.2	Alternate Water Sources for Non-Domestic for Non-Potable Use	12	0	12	LPAGC	Can Stormwater be used for irrigation, surface washing or dust control?
4.6.3	Graywater Treatment	1	0	1	SA	Is there a graywater system and compliant with NSF/ANSI 350?
4.7	**Metering**	**10**	**0**	10	CU	Pts for sub metering comm. Water equip, irrigation, tied to BAS, Chiller meters, / Need to understand what is metered & submetered
4.8	**Leak Detection**	**5**	0	5	SA	Pts for irr leak detection, leak det tied to BAS, comm equip, loops
4.9	**Irrigation**	**27**	11	27	LPA/GC	LPA to create irrigation plan compliant with GG requirements /use WaterSense Tool to calculate demand reduction (up to 15 pts)/ Inspect system prior to site visit
			52	112		

MATERIALS	**Maximum Points: 150**		**Expected Points**	**Applicable Points**		
5.1	**Whole Building Life Cycle Assessment**	**20**	0	20	GDG	Can GDG review earlier designs submitted to see if the selected design has a lower environmental impact (CO2, Ozone, smog and others)
5.2	**Product Life Cycle**	**39**	22	29	GDG/GC	Assumes minimum of 28% of products have EPDs that evaluate cradle to gate by cost of the total product costs
5.3	**Product Risk Assessment**	**10**	8	10	GDG/GC	Assumes min 8 products have EPDs c2g and 5 formulated products have Occupant Exposure Reports per ASTM E3182-20
5.4	**Sustainable Materials Attributes**	**15**	8	15	GDG/GC	Assumes project achieves 25% of materials on Sustainable Materials Index (pre&post recycle/biomass/forestry/Eco-certified
5.5	**Reuse of Existing Structures and Materials**	**30**				
5.5.1	Structural Systems and Non-Structural/Interior Elements	22	**0**	22	GDG	Assumes no external or internal materials are used from an existing building on the site
5.5.2	Material Reuse from Off-Site or within project	8	**0**	4	GDG	Assumes not materials are re-used from another site. / NA no existing project onsite
5.6	**Waste**	**26**				
5.6.1	Construction Waste	20	**20**	20	GC	Assumes construction waste plan/construction waste diverted 1.2lbs/ft2 and 75% recycled/verified by third party facility
5.6.2	Post Occupancy Solid Waste Recycling	2	**2**	2	CU	Assume .035 CY per full time employees and one bin per floor/exterior units screened on 3 sides
5.6.3	Supply Chain Waste Minimization	4	**0**	4	GDG	Percent of products that come from facilities with Zero Waste Certification or follow UL2799 2017
5.7	**Resource Conservation**	**10**				
5.7.1	Off-Site Fabrication for Construction Optimization	4	**3**	4	GDG	Assumes 15% elements are prefabricated or modular construction (cubicles/walls, partitions/screens/modular or reconfigurable furniture
5.7.2	Design for Deconstruction (DfD)	6	**0**	6	GDG	Design team provides owner with a DfD plan - Design for Deconstruction - 6 points if we need them…
			63	136		

INDOOR ENVIRONMENT		Maximum Points: 150	Expected Points	Applicable Points		
6.1	**Air Ventilation and Quality**	**35**				
6.1.1	Ventilation Air Quantity	9	**9**	9	SA	Yes- 62.1
6.1.2	Air Change Effectiveness	9	9	9	SA	SA to design and write sequence for compliance with .9 Ez / WBS will provide GG requirement to SA
6.1.3	Air Handling Equipment	11	11	11	SA	MERV 13 required for air handling equipment / MERV 8 for terminal equipment/ Confirm duct liners are not used that could grow mold
6.1.4	CO2 Sensing and Ventilation Control Equipment	6	6	6	SA	Per SA project is using DCV
6.2	**Source Control and Measurement of Indoor Pollutants**	**34**				
6.2.1	Volatile Organic Compounds	17	**17**	17	GC	90% of materials must meet VOC content limits and 70% must meet emission limits - WBS to edit specs to include all requirements
6.2.2	Pre-Occupancy Indoor Air Quality Testing	6	6	6	WBS	6 pts for VOC and PM / WBS to provide a price to GDG or CU for IAQ Testing for consideration
6.2.3	Carbon Monoxide Monitoring	1	1	1	SA	Confirm CO monitoring is used in any spaces where combustion is possible (gas water heaters)
6.2.4	Legionellosis Mitigation in the Building Water Systems	3	3	3	CU	Does CU have a FM policy for Legionellosis Risk Management (ASHRAE 188-2018). Specific to potable water and spa applications?
6.2.5	Pest and Contamination Control	2	2	2	CU	Need CU Campus Policy on pest control
6.2.6	Other Indoor Pollutants (Tobacco, Radon)	5	3	5	CU	Will a radon study be completed of the site? Was one done for the rowing facility Yes to smoking/pollutant separation
6.3	**Lighting Design and Systems**	**32**				
6.3.1	Daylighting and Views	12	**1**	12	GDG	5 pts for 75% DL Factor / 3pts 90% Views / 1-2 pt shading / sensors for cont. DLF 2 = GDG will need to provide calcs
6.3.2	Lighting Design Quantity	9	0	9	Belka	% Meets IES Lighting Handbook 10th Edition / task lighting /glare, etc.
6.3.3	Lighting Design Quality	6	0	6	Belka	Meets CRU of 80 Temp between 2700 - 4500K - <50% direct only lighting / 90% of occupants can control workspace/ dimming
6.3.4	Lighting Sustainability	5	0	5	Belka	Lighting maintenance - still has 70% of output after 35k hours / luminaires RoHS EU 2011/65 compliant 9mercury, etc.)/maint plan
6.4	**Thermal Comfort**	**23**				
6.4.1	Thermal Control Zones	14	**14**	14	SA	Confirm that thermal control zones are less than 1500 sf. offices will share VAVs
6.4.2	Thermal Comfort Design	9	9	9	SA	Project confirms to ASHRAE 55
6.5	**Acoustic Comfort**	**26**				Get assessment costs if necessary to achieve points
6.5.1	Noise Limits and Masking Sound Level	12	**0**	12	GDG	3 pts 75% + spaces ANSI S12.60 compliant/systems-utilities = ANSI 11.5.11 / transient noise - pts require acoustical assessments /sound masking system?
6.5.2	Acoustic Insulation and Vibration Isolation	6	0	6	SA	What % of space is 5 dBA less than the masking sound/ speech privacy = Sound Transmission Class Rating (STC)
6.5.3	Reverberation Time or Ceiling Noise Reduction Coefficient (NRC)	4	0	4	GDG	AE Design to be compliant with max reverb time (T60) to get these points. Review at DD/CD
			91	146		

	Expected Points	Applicable Points	
TOTAL:	429	898	48%

PROJECT MANAGEMENT	Maximum Points: 100	Expected Points	Applicable Points		Notes
1.1 Team & Owner Planning	**45**				
1.1.1 Performance & Green Design Goals	20	**13**	20	WBS	WBS will facilitate OPR for Design Metrics / Assumes no post occ assessment
1.1.2 Integrated Design Process	14	14	14	GDG	Will need meeting minutes and attendance for meetings/WBS will schedule the necessary meetings for GG
1.1.3 Site and Building Resilience	11	0	11	CU	Was a risk assessment created prior to deciding to locate the facilities on this land for extreme events? / Assumes no shelter in place or operation manual for extreme events
1.2 Environmental Management During Construction	**8**	8	8	WBS	WBS is revising Sustainability Specifications to include new 2021 Requirements
1.3 Life Cycle Cost Analysis or Building Service Life Planning	**12**	12	12	WBS	WBS will provide a Life Cycle Cost Analysis
1.4 Moisture Control Analysis	**6**	3	6	GDG	Need a moisture control report for areas next to showers / areas of added moisture and above grade portions of envelope
1.5 Commissioning or Systems Manual & Training	**29**	28	28	WBS	Commissioning will be performed on HVAC, Dom H20, lighting, irrigation, Comm systems & envelope
		78	99		

SITE	Maximum Points: 150	Expected Points	Applicable Points		
2.1 Development Area	**35**				
2.1.1 Urban Infill and Urban Sprawl	10	**0**	10		Building is located on previously undeveloped land,
2.1.2 Greenfields, Brownfields and Floodplains	25	0	25	LPA/CU	Not a brownfield and technically in a Flood Plain - making note that Lake Hartwell is dammed - can we get more info on how this works?
2.2 Transportation	**31**	11	31	CU	Will electric charging, covered bike rack or inside storage, or shelter for passenger pick up possible? How close to bike path or public transport
2.3 Construction Impacts	**34**				
2.3.1 Site Erosion	5	**5**	5	LPA	Need signed stamped erosion plan
2.3.2 Site Disturbance	5	**0**	5	GDG	Can construction be limited to 40ft beyond the building perimeter and within 5 ft of roads and utility right of way? (Unless improving the natural integrity of the site?
2.3.3 Tree and Shrub Preservation	6	**0**	6	GDG/LPA/GC	Can 50% or more of the existing trees on the site be retained? - Who is handling?
2.3.4 Mitigating Heat Island Effect	14	**0**	14	GDG	Is more than 50% of the Roof SRI >78 / >25% hardscape > 29 or permeable , 75% of opaque exterior walls are SRI 29 or greater
2.3.5 Bird Strikes	4	**3**	4	GDG	Project has exterior faux wood shading on glass storefront windows - will try for these points
2.4 Stormwater Management	**21**	0	21	LPA	Will the site retain at least the 95th percentile storm volume / meet a min of 80 TSS/ Is the building and walkways more than 100 ft from the Lake? Can Stormwater be used for any indoor uses or exterior uses such as cooling towers, dust control, etc.
2.5 Landscaping	**21**	13	21	LPA/GC	Landscape plan must show light conditions, soil types, 50% + noninvasive/drought tolerant and 50+ of vegetative are = native
2.6 Exterior Light Pollution	**5**	5	5	Belka	Need MLO calculations for BUG ratings that must show compliance with IES
2.7 Wildland- Urban Interface Site Design	**3**	0	3		
		37	150		

ENERGY	Maximum Points: 260	Expected Points	Applicable Points		
3.1 Energy Performance	**180**	100	180	WBS	Based on assumption model will perform 25% better than baseline 90.1 2010
3.2 Non-Modeled Energy Efficiency Impacts	**15**				
3.2.1 Vertical, Horizontal, and Inclined Transport Systems - Efficiency Measures	5	**0**	0		NA No elevators or people moving equipment on the project
3.2.2 Load Shedding	5	**0**	5	CU	Is Clemson able to reduce power through manual or automated load shedding for lighting and/or HVAC?
3.2.3 Plug Load and Process Energy Management	5	3	5	Belka	Belka pt Provide inventory of hard wired/plug load equipment & location/Purchase ES equipment / No to sensor controlled receptacles
3.3 Metering, Monitoring, and Measurement	**25**				
3.3.1 Metering	10	**5**	10	CU	5 pts for building metering / What is Clemson currently submetering?
3.3.2 Monitoring and Reporting	5	0	5	CU	Can we get a copy of Clemson's Energy Mgt. Plan to see what is being tracked and reported and how that is used for improvements?
3.3.3 Verification	10	0	10	CU	Would need to follow IPMVP protocol after operation of one year / No

3.4	**Renewable Sources of Energy**	**40**				
3.4.1	On-Site Renewable Energy	30	**0**	30	CU	5 pts if study conducted / If cost effective and implemented up to 25 points. If not cost effective and not implement 25 pts removed from denominator
3.4.2	Off-Site Renewable Energy Credits	10	0	10	CU	Can buy these if needed to achieve 2 green globes
			108	255		

WATER EFFICIENCY	**Maximum Points: 190**		**Expected Points**	**Applicable Points**		
4.1	**Indoor Domestic Plumbing**	**54**				
4.1.1	Plumbing Fixture and Fitting Standards	52	**52**	52	SA	All fixtures and fittings must comply with EPA WaterSense/ANSI/ASHRAE/ICC/USGBC/IES 189.1 2017
4.1.2	Residential Indoor Appliances	2	0	2	SA	Is the project using and residential Clothes or dishwashers? If yes 2 points if CW is ES 8.0 & WF 4.3 or less/ DW ES 6.0 and 3.5 gal/cycle
4.2	**Cooling Towers**	**22**	0	0	SA	NA
4.3	**Boilers and Hot Water Systems**	**9**				
4.3.1	Boilers and Water Heaters	3	**0**	0	SA	No Boilers / Water heaters must be less than 50 BHP
4.3.2	Domestic Hot Water Systems	6	0	6	SA	Taking these points, SA to design for efficient piping and hot water recirc that reduces waste to sinks, showers by 90%
4.4	**Water Intensive Applications**	**19**				CAN WE GET A LIST AND CUT SHEETS FOR OWNER SUPPLIED EQUIPMENT?
4.4.1	Commercial Food Service Equipment	5	**0**	0	SA	Per SA unlikely CFSE such as Combo ovens, prerinse spray valves, ice makers, dishwashers and Boiler less/connectionless food steamers
4.4.2	Laboratory and Medical Equipment	2	0	0	SA	NA - Assumes no lab or medical equipment for ARC/Lacrosse
4.4.3	Laundry Equipment	6	0	6	SA	? Self service washers, programmed tunnel washers, max 1gal/lb., has a recycling system, max IWF of 4.0?
4.4.4	Water Features and Pools	6	0	6	SA	Need cut sheets for Spas or water treatment equipment such as ice baths (recirc/splash out troughs/alternate make up water source/filtration)
4.5	**Water Treatment**	**4**	0	0	SA	Confirm no water treatment (have not seen water treatment used on any other Clemson project)
4.6	**Alternate Sources of Water**	**25**				
4.6.1	Alternate Water Sources for Indoor Uses	12	**0**	12	LPA/SA	What % of indoor water use could be met using stormwater system / Will any alternative system (SW, Graywater, rainwater, recycled, etc. be preplumbed during construction?
4.6.2	Alternate Water Sources for Non-Domestic for Non-Potable Use	12	0	12	LPAGC	Can Stormwater be used for irrigation, surface washing or dust control?
4.6.3	Graywater Treatment	1	0	1	SA	Is there a graywater system and compliant with NSF/ANSI 350?
4.7	**Metering**	**10**	**0**	10	CU	Pts for sub metering comm. Water equip, irrigation, tied to BAS, Chiller meters, / Need to understand what is metered & submetered
4.8	**Leak Detection**	**5**	0	5	SA	Pts for irr leak detection, leak det tied to BAS, comm equip, loops
4.9	**Irrigation**	**27**	11	27	LPA/GC	LPA to create irrigation plan compliant with GG requirements /use WaterSense Tool to calculate demand reduction (up to 15 pts)/ Inspect system prior to site visit
			52	112		

MATERIALS	**Maximum Points: 150**		**Expected Points**	**Applicable Points**		
5.1	**Whole Building Life Cycle Assessment**	**20**	0	20	GDG	Can GDG review earlier designs submitted to see if the selected design has a lower environmental impact (CO2, Ozone, smog and others)
5.2	**Product Life Cycle**	**39**	22	29	GDG/GC	Assumes minimum of 28% of products have EPDs that evaluate cradle to gate by cost of the total product costs
5.3	**Product Risk Assessment**	**10**	8	10	GDG/GC	Assumes min 8 products have EPDs c2g and 5 formulated products have Occupant Exposure Reports per ASTM E3182-20
5.4	**Sustainable Materials Attributes**	**15**	8	15	GDG/GC	Assumes project achieves 25% of materials on Sustainable Materials Index (pre&post recycle/biomass/forestry/Eco-certified
5.5	**Reuse of Existing Structures and Materials**	**30**				
5.5.1	Structural Systems and Non-Structural/Interior Elements	22	**0**	22	GDG	Assumes no external or internal materials are used from an existing building on the site
5.5.2	Material Reuse from Off-Site or within project	8	**0**	4	GDG	Assumes not materials are re-used from another site. / NA no existing project onsite
5.6	**Waste**	**26**				
5.6.1	Construction Waste	20	**20**	20	GC	Assumes construction waste plan/construction waste diverted 1.2lbs/ft2 and 75% recycled/verified by third party facility
5.6.2	Post Occupancy Solid Waste Recycling	2	**2**	2	CU	Assume .035 CY per full time employees and one bin per floor/exterior units screened on 3 sides
5.6.3	Supply Chain Waste Minimization	4	**0**	4	GDG	Percent of products that come from facilities with Zero Waste Certification or follow UL2799 2017
5.7	**Resource Conservation**	**10**				
5.7.1	Off-Site Fabrication for Construction Optimization	4	**3**	4	GDG	Assumes 15% elements are prefabricated or modular construction (cubicles/walls, partitions/screens/modular or reconfigurable furniture
5.7.2	Design for Deconstruction (DfD)	6	**0**	6	GDG	Design team provides owner with a DfD plan - Design for Deconstruction - 6 points if we need them…
			63	136		

INDOOR ENVIRONMENT		Maximum Points: 150	Expected Points	Applicable Points		
6.1	**Air Ventilation and Quality**	**35**				
6.1.1	Ventilation Air Quantity	9	**9**	9	SA	Yes- 62.1
6.1.2	Air Change Effectiveness	9	9	9	SA	SA to design and write sequence for compliance with .9 Ez / WBS will provide GG requirement to SA
6.1.3	Air Handling Equipment	11	11	11	SA	MERV 13 required for air handling equipment / MERV 8 for terminal equipment/ Confirm duct liners are not used that could grow mold
6.1.4	CO2 Sensing and Ventilation Control Equipment	6	6	6	SA	Per SA project is using DCV
6.2	**Source Control and Measurement of Indoor Pollutants**	**34**				
6.2.1	Volatile Organic Compounds	17	**17**	17	GC	90% of materials must meet VOC content limits and 70% must meet emission limits - WBS to edit specs to include all requirements
6.2.2	Pre-Occupancy Indoor Air Quality Testing	6	6	6	WBS	6 pts for VOC and PM / WBS to provide a price to GDG or CU for IAQ Testing for consideration
6.2.3	Carbon Monoxide Monitoring	1	1	1	SA	Confirm CO monitoring is used in any spaces where combustion is possible (gas water heaters)
6.2.4	Legionellosis Mitigation in the Building Water Systems	3	3	3	CU	Does CU have a FM policy for Legionellosis Risk Management (ASHRAE 188-2018). Specific to potable water and spa applications?
6.2.5	Pest and Contamination Control	2	2	2	CU	Need CU Campus Policy on pest control
6.2.6	Other Indoor Pollutants (Tobacco, Radon)	5	3	5	CU	Will a radon study be completed of the site? Was one done for the rowing facility Yes to smoking/pollutant separation
6.3	**Lighting Design and Systems**	**32**				
6.3.1	Daylighting and Views	12	**1**	12	GDG	5 pts for 75% DL Factor / 3pts 90% Views / 1-2 pt shading / sensors for cont. DLF 2 = GDG will need to provide calcs
6.3.2	Lighting Design Quantity	9	0	9	Belka	% Meets IES Lighting Handbook 10th Edition / task lighting /glare, etc.
6.3.3	Lighting Design Quality	6	0	6	Belka	Meets CRU of 80 Temp between 2700 - 4500K - <50% direct only lighting / 90% of occupants can control workspace/ dimming
6.3.4	Lighting Sustainability	5	0	5	Belka	Lighting maintenance - still has 70% of output after 35k hours / luminaires RoHS EU 2011/65 compliant 9mercury, etc.)/maint plan
6.4	**Thermal Comfort**	**23**				
6.4.1	Thermal Control Zones	14	**0**	14	SA	Are thermal zones less than 1500 SF?
6.4.2	Thermal Comfort Design	9	9	9	SA	Project confirms to ASHRAE 55
6.5	**Acoustic Comfort**	**26**				Get assessment costs if necessary to achieve points
6.5.1	Noise Limits and Masking Sound Level	12	**0**	12	GDG	3 pts 75% + spaces ANSI S12.60 compliant/systems-utilities = ANSI 11.5.11 / transient noise - pts require acoustical assessments /sound masking system?
6.5.2	Acoustic Insulation and Vibration Isolation	6	0	6	SA	What % of space is 5 dBA less than the masking sound/ speech privacy = Sound Transmission Class Rating (STC)
6.5.3	Reverberation Time or Ceiling Noise Reduction Coefficient (NRC)	4	0	4	GDG	AE Design to be compliant with max reverb time (T60) to get these points. Review at DD/CD
			77	146		

	Expected Points	Applicable Points	
TOTAL:	415	898	46%