CIRA Commons

February 2021
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Executive Summary

This project will construct an approximately 5,000 gsf stand-alone conference and retreat center housing a large seminar and conference style classroom with a 90-seat capacity, conference exhibit space, a pre-function lobby, catering area and options for an elevated exterior deck. A separate project will allow for the remodel of the three 25-person meeting rooms currently in CIRA, converting them to offices to house the additional staff that has been hired over the last decade as funding becomes available.

The estimated budget is $2.5 M. The Office of the VP for University Operations committed $2M from University resources as part of CIRA’s successful 10-year Cooperative Institute competition. Additional funds will be from department resources.

The project has been designed and once necessary approvals are in place it is estimated to take approximately 10 months to complete. CSU anticipates a design-bid-build delivery method for the core and shell, with interior tenant finish work completed with in-house trades. Occupancy is expected in March 2022.

Justification

Program mission and history

The Cooperative Institute for Research in the Atmosphere (CIRA) serves as a nexus for multi-disciplinary cooperation between NOAA research scientists and Colorado State University research staff, faculty, and students, aligning NOAA-identified research theme areas with long-standing academic strengths of the University. CIRA began with a fundamental understanding that problems related to weather and climate benefited directly from the interaction between theoretical innovation associated with Academic Departments and the practical impetus that a NOAA Institute could provide. This was a visionary viewpoint at the time CIRA was founded in 1980 but it is a viewpoint that has held true for decades and is as true today as it was then. CIRA stands today, with manpower versed in weather, climate, data assimilation, and computational infrastructure, ready to realize future gains in Weather and Climate related research and application.

CIRA is a Cooperative Institute among NOAA’s National Environmental Satellite Data and Information Service (NESDIS) as well as its Office of Applied Research (OAR) and Colorado State University. Within the University, CIRA is collocated and draws heavily upon the Dept. of Atmospheric Science but has broad connections within the College of Engineering as well as Agricultural and Natural Sciences. In addition to the staff at its Fort Collins campus, a significant CIRA presence exists at NOAA’s Earth System Research Laboratory in Boulder focusing on modeling and data distribution with additional staff at NESDIS’ Center for Satellite Applications and Research (STAR) in College Park, Maryland working on satellite algorithm development and at NOAA’s Aviation Weather Testbed in Kansas City, MO.

In addition to its staff, CIRA has a number of research groups embedded within its structure. NOAA’s Regional and Mesoscale Meteorology Branch (RAMMB) is embedded at the Fort Collins facility where it conducts research in Tropical Cyclones, Severe Weather, Hazard Detection as well as Satellite Research and Application. CIRA also hosts the Geosciences and Atmospheric Research Center as well as a research group attached to the National Park Service and a representative from the Western Governors Association.
Physical Condition/functionality of Existing Space
CIRA currently has 3 smaller conference spaces that cannot accommodate large meetings and conferences. A new conference facility will allow hosting of large conferences.

New Space Requirements

<table>
<thead>
<tr>
<th>Room type</th>
<th>Number</th>
<th>Total GSF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom</td>
<td>1</td>
<td>1950</td>
</tr>
<tr>
<td>Seminar/Pre-function/Storage</td>
<td>1</td>
<td>1300</td>
</tr>
<tr>
<td>Catering</td>
<td>1</td>
<td>175</td>
</tr>
<tr>
<td>Building support/restrooms/circulation/stairs/ lift/ walls</td>
<td>1</td>
<td>1575</td>
</tr>
</tbody>
</table>

Equipment List
Equipment will include classroom and seminar room furnishings and classroom AV with adequate storage to accommodate flexibility of space use.

Alternative analysis
There is no existing space for conferences anywhere on Foothills Campus. There is also no easily accessible food service, thus the need for a catering kitchen. Without this project conferences and large seminars will continue to be scheduled on main campus, which is not ideal.

Benefits of the Project
CIRA, as a well-funded research organization, is in a position to lead major research initiatives. Over the past 5 years, CIRA has had the opportunity to lead the science on a number of satellite, satellite instrument, and large weather and climate initiatives proposals. A memorable large group meeting space would allow the routine hosting of conferences and meetings, enhancing our visibility and stature. It could also serve the broader Foothills research community.

Design Criteria
See conceptual floor plans and building elevations in Appendix.

Site Constraints
Several sites at the Atmospheric Hill complex were evaluated. The selected site offers compelling views from the proposed elevated deck, promotes a walk out basement condition using the thermal mass of the earth for insulation in the majority of the lower level and has good proximity to other related facilities both at the upper and lower levels. The soils are highly expansive and require caisson and grade beam construction with lower level structural slab to prevent building movement and differential settlement issues.

Flood Mitigation Analysis
Not applicable to anticipated building site. See flood plain map in appendix. Storm water quality and associated management are anticipated in the scope of work.
LEED Goal
Senate Bill 07-051 directs that state buildings undergoing substantial renovation or new construction conform to the High Performance Certification Program. The Office of the State Architect has stated that USGBC LEED-NC Gold is the targeted standard of this program, or at a minimum, the highest obtainable LEED standard. The most current LEED publication at the time of design will be used. The inclusion of high performance standards is an integral part of the project, beginning at the program plan stage.

This project is waived from LEED certification due to the size and the limited program associated with the facility. The project will however meet the 2018 International Energy Conservation Code which requires a highly insulated thermal envelope, energy efficient fenestration systems and energy star mechanical equipment as well as water conserving plumbing fixtures.

Architectural
The building sits into and blends with the site. Exterior design anticipates a horizontality in roof expression with vertical stone planes to articulate the building entrance. Fenestration patterns and control joints in the exterior enclosure are intended to reinforce the horizontal lines provided by the roof planes with extended eaves. The building will integrate similar finishes as other buildings in the Atmospheric Hills complex including stone, stucco, glass and metal fabrications. The proposed framing system is Cross Laminated Timber (CLT) with associated wood beams and columns. Cross laminated timber allows for significant spans with a minimal depth of spanning member. Initial research indicates ability to span 25’ with CLT plank depth of 9 5/8”. The long spans are critical to the classroom and seminar function of the building, minimizing columns that would impede line of sight and flexibility of use.
The resulting interior architecture will consist of exposed Cross Laminated beams, columns and planks providing inviting wood finishes similar to those shown below.
Structural

Due to highly expansive soils, the building concept anticipates caissons with grade beams, and steel framed structural floor with metal deck and concrete topping slab on the lower level. Cross laminated timbers will form the remainder of the structural system.

Mechanical Narrative

The building will have operable windows for passive ventilation and light commercial-grade furnace systems for heating and associated condensing units for cooling. The project will tie to existing electrical, water and sanitary utilities.

CSU Standards

The CSU Building Construction Standards Manual is available at: http://www.fm.colostate.edu/constr_standards

The CSU Standards are to be used as guidelines for design. They are divided into 3 parts for use by Architects and Engineers: the first part is administrative; the second part discusses requirements for design and deliverables at each stage of the design process; the third part consists of the technical standards arranged by CSI division. The Standards are a work in progress, and as such, any question about the applicability of a standard should be discussed with the project manager. The Standards should never be referenced or copied in Contract Documents – the design is expected to embody and conform to the Standards. Contractors are not to be directed to review the Standards as a contract requirement.

CSU INCLUSIVITY STANDARDS-as applicable to Foothills Campus

Colorado State University requires all capital construction projects to provide inclusive facilities. These facilities are consistent with CSU Strategic Plan, Climate Action Plan (CAP) and Principles of Community that “create and nurture inclusive environments,” and “welcome, value and affirm members of our community, including their various identities, skills, ideas, talents, and contributions.” Standards for each room type are located at: https://www.fm.colostate.edu/sites/default/files/standards/II-Chapter-34.Requirements_By_Space_Type.pdf.

CSU Accessibility Standards outline additional ADA requirements. In addition, Lactation rooms, Commuter Showers and Reflection spaces should be considered as applicable to the Foothills Campus. The seminar space can be used for a reflection room.

List of applicable codes –

Approved building codes and standards have been adopted by the Office of the State Architect (herein referred to as State Buildings Program (SBP)) and other state authorities, and are identified below as the minimum requirements to be applied to all construction projects at state agencies and institutions of higher education owned facilities.

The 2018 edition of the International Building Code (IBC) (As adopted by the Colorado State Buildings Program as follows: Chapter 1 as amended, Chapters 2-35 and Appendices C and I)

The 2018 edition of the International Existing Building Code (IEBC)
(As adopted by the Colorado State Buildings Program as follows: Chapters 2-16, Appendices A-C and Resource A) Effective July 1, 2016.

The 2018 edition of the International Mechanical Code (IMC)
(As adopted by the Colorado State Buildings Program as follows: Chapters 2-15 and Appendix A)

(As adopted by the Colorado State Buildings Program)

The 2020 edition of the National Electrical Code (NEC) (NFPA 70®)
(As adopted by the Colorado State Electrical Board) Effective August 1, 2020

The 2018 edition of the International Plumbing Code (IPC), first printing (August 2017) (As adopted by the Colorado Examining Board of Plumbers)

The 2018 edition of the International Fuel Gas Code (IFGC) first printing (August 2017) (As adopted by the Colorado Examining Board of Plumbers)

The National Fire Protection Association Standards (NFPA)
(As adopted by the Department of Public Safety/Division of Fire Prevention and Control)

The 2018 edition of the International Fire Code (IFC)
(The 2015 edition continues to be adopted by the Department of Public Safety/Division of Fire Prevention and Control (DFPC). Projects requiring DFPC review should be designed with the most restrictive requirements)

The 2015 edition of the ASME Boiler and Pressure Vessel Code
(As adopted by the Department of Labor and Employment/Boiler Inspection Section) Effective July 1, 2017.

The 2017 edition of the National Boiler Inspection Code (NBIC)
(As adopted by the Department of Labor and Employment/Boiler Inspection Section) Effective July 1, 2017.


(As adopted by the Department of Labor and Employment/Boiler Inspection Section) Effective July 1, 2017.

The 2013 edition of ASME A17.1 Safety Code for Elevators and Escalators
(As adopted by the Department of Labor and Employment/Conveyance Section) Effective April 1, 2017

The 2005 edition of ASME A17.3 Safety Code for Existing Elevators and Escalators
(As adopted by the Department of Labor and Employment/Conveyance Section

The 2011 edition of ASME A18.1 Safety Standard for Platform Lifts and Stairway Chairlifts
(As adopted by the Department of Labor and Employment/Conveyance

The current edition of the Rules and Regulations Governing the Sanitation of Food Service Establishments
(As adopted by the Department of Public Health and Environment/Colorado State Board of Health)

Project schedule, cost estimates and financing

Schedule/phasing
The project has been designed and once necessary approvals are in place it is estimated to take 10 months to complete. CSU anticipates a design-bid-build delivery method for the core and shell, with tenant finish through in-house resources. Occupancy is expected in March 2022.

Financing
The estimated budget is $2.5 M. The Office of the VP for University Operations committed $2M from University resources as part of CIRA’s successful 10-year Cooperative Institute competition. Additional funds will be from department resources.

Cost estimate/methodology
Cost estimates were developed by Facilities Management staff. CSU standards specify that the A/E document 20% of the construction budget in bid alternates, to cover potential volatility in the construction market as the project progresses.

Appendices
A. Site and utility map
B. Floor plans
C. Elevations
D. Foothills Campus Flood Plain
E. Budget Estimate
This map is a user generated static output from the City of Fort Collins FCMaps Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.
<table>
<thead>
<tr>
<th>Professional Services</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>Site Survey, Geotechnical</td>
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<tr>
<td>Consultants - Architects, Engineers, Vibration, Acoustics</td>
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<td>Commissioning and Advertisements</td>
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<td>FM project development fee</td>
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<tr>
<td>New Space - 5000 gsf</td>
<td>1,964,000</td>
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<tr>
<td>Site Work Service/Utilities</td>
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<td>Site Improvements/Landscaping</td>
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<td>CSU Communications/AV</td>
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<td>Classroom AV</td>
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<tr>
<td>CSU Notifyer system</td>
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<td><strong>Total Equipment and Furnishings Costs</strong></td>
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**Subtotal Project Cost**                                     **2,415,040**

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<tr>
<td><strong>Total Contingency</strong></td>
<td><strong>87,600</strong></td>
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**Budget- Occupancy in Jan 2022**                             **$ 2,502,640**

This opinion of probable cost is made on the basis of experience, qualifications and best judgement of a professional cost consultant familiar with the construction industry, combined with the professional experience of Facilities Management. FM cannot guarantee that proposals, bids or actual construction costs will not vary from this cost estimate due to market conditions at the time of the bid.

**Total Project Cost / sqft--Jan 2022**                       **$ 500.53**

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**COLORADO STATE UNIVERSITY**

Facilities Planning Design and Construction