

**AGENDA OF THE
UTAH STATE BUILDING BOARD MEETING**

**Monday, August 21, 2017
State Office Building, Suite 4112
350 N State Street
Salt Lake City, Utah 84114
8:00 am**

- (Action) 1. **Approval of Minutes from the June 7, 2017 Business Meeting**
- (Action) 2. **DFCM: Approval of Revolving Loan Fund for Snow College**
- (Action) 3. **Utah National Guard: West Jordan Airport Renovation (Non-State Funded)**
- (Action) 4. **DFCM: BATC Capital Improvement Reallocation Request**
- 5. **Future Agenda Items**

Notice of Special Accommodation During Public Meetings - In compliance with the Americans with Disabilities Act, individuals needing special accommodations (including auxiliary communicative aids and services) during this meeting should notify Patty Yacks 538-3010 (TDD 538-3696) at least three days prior to the meeting. *This information and all other Utah State Building Board information is available on DFCM web site at: <http://dfcm.utah.gov/dfcm/utah-state-building-board.html>*



Gary R. Herbert
Governor

Utah State Building Board

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Salt Lake City, Utah 84114
Phone (801) 538-3010
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MEMORANDUM

To: Utah State Building Board
From: Jeff Reddoor
Date: August 21, 2017
Subject: **Approval of Minutes from the June 7, 2017 Board Meeting**

Attached for your review and approval are the minutes from the June 7, 2017 Board meeting.

Utah State Building Board



MEETING

June 7, 2017

MINUTES

Members in Attendance:

Ned Carnahan, Chair
Lisa Barrager
Joe Burgess
David Fitzsimmons
Chip Nelson
Gordon Snow

Guests in Attendance:

Jeff Reddoor	Building Board
Patty Yacks	Building Board
Tyson Gregory	Building Board
Mike Smith	Building Board
Mike Kelley	Attorney General's Office
Mike Green	Attorney General's Office
Tani Downing	DAS - EDO
Jake Njord	DAS - EDO
Mathias Mueller	DFCM
Bruce Whittington	DFCM
Lee Fairbourn	DFCM
Jim Russell	DFCM
Cee Cee Niederhauser	DFCM
Bianca Shama	DFCM
Debbie Whitlock	DHS
Cecil Robinson	DHS
Don Brinkerhoff	DHS
Bret Hardy	DHS
Jodi Geroux	FFKR Architects
Mark Bagley	Gordian
Jim Child	JRCA Architects
DJ Hubler	Mckinstry
Julee Attig	Reaveley Engineers
Bob Askerlund	Salt Lake Community College

Tiffany Woods	Spectrum Engineers
Jade Teran	Spectrum Engineers
Tyler Brinkerhoff	UCAT
Greg Peay	UDC
Cory Higgins	University of Utah
Bob Simonton	University of Utah
Robin Burr	University of Utah
Ken Nye	University of Utah
Rich Amon	USHE
Ben Berrett	Utah State University

On Wednesday June 7, 2017, the Utah State Building Board held a regularly scheduled meeting in Room 250 of the Utah State Capitol, in Salt Lake City, Utah. The meeting was called into order at 9:00 a.m.

Prior to beginning with the regularly scheduled agenda Mr. Burgess, the newest member of the Board, took his Oath of Office. Mr. Burgess comes from Cedar City. After Mr. Burgess was sworn in, he took his position on the bench. Chair Carnahan also welcomed the Board's new counsel, Mike Kelley, with the Attorney General's Office. Chair Carnahan then proceeded with the regularly scheduled agenda.

☐ APPROVAL OF MINUTES FROM THE APRIL 5, 2017 BUSSINESS MEETING

Chair Carnahan asked for comments or corrections to the minutes from the April Business Meeting. No comments or corrections were brought forward.

MOTION: Mr. Snow moved to approve the minutes from the April 5, 2017 Business Meeting. The motion was seconded by Ms. Barrager and passed unanimously.

☐ APPROVAL OF MINUTES FROM THE MAY 3, 2017 BUILDING BOARD MEETING

Chair Carnahan asked for comments or corrections to the minutes from the May Building Board Meeting. No comments or corrections were brought forward.

MOTION: Mr. Fitzsimmons moved to approve the minutes from the May 3, 2017 Meeting. The motion was seconded by Ms. Barrager and passed unanimously.

☐ UTAH STATE DEVELOPMENTAL CENTER: BUILDING DEMOLITION REQUEST

Mr. Hardy, USDC Facilities Coordinator, presented a request to demolish three buildings located at the Utah State Developmental Center; two of which were built in 1935, the third was built in 1970. These buildings are beyond their useful life and have not been used in over 30 years. The total cost of demolition is \$57K, which will be paid from agency funds.

MOTION: Mr. Snow moved to approve the Utah State Developmental Center's request for demolition. The motion was second by Mr. Burgess and passed unanimously.

☐ DIVISION OF JUVENILE JUSTICE SERVICES: REQUEST FOR PROGRAMMING OF THE WASATCH YOUTH CENTER

Ms. Whitlock, JJS Deputy Director; Cecil Robinson, DJJS, Finance Director; and Jim Childs, Project Architect presented a request for programming for the Wasatch Youth Center. In August

2016, the Building Board toured Wasatch Youth Center and Training Academy and saw the existing facility deficits, which include roofing, semantic issues, outdated HVAC systems, ADA compliancy, ease of accessibility to the control room, and inadequate spaces for both youth intervention and family visitation. JRCA Architects performed an in-depth feasibility analysis and determined that remodeling the facility is neither cost effective, nor recommended. The cost to remodel and address these issues is approximately \$9M. Instead, DJJS would like to construct, on the current site, a new multi-use youth center, which would consolidate six programs DJJS offers throughout Salt Lake County. Today's request is for authorization to use \$376,871 of agency funds, previously transferred to DFCM for the roofing project at the JJS Training Center, to be used for programming of this proposed facility. Possible funds from the sale of the Weber Valley Detention Center and Decker Lake Youth Center could also potentially be contributed to the new facility.

Mr. Reddoor asked if any changes are expected to be made to last year's request, which was for approximately \$32.1 M and 84,000 sqft in size. Ms. Whitlock confirmed that the size has been increased 94,000 sqft. Mr. Reddoor also recommends that DJJS look into the use of funds from the sale of the Weber Detention Center and the Decker Lake Youth Center as this decision may require legislative action. Mr. Snow expressed his existing concerns on the location of this facility, which is located in an industrial area. He would like DJJS to present their reasoning on why this specific location would be the best option to consolidate and house these services. Mr. Snow also requested DJJS to report back on the anticipated amount of funds that the division plans to dedicate to programming.

Ms. Barrager inquired if the funds currently allocated to the roofing project would be adequate to cover the cost of programming. Ms. Whitlock confirmed that programming will be covered by the funds currently dedicated to the roofing project, should DJJS receive approval to move forward. Mr. Childs, project architect, informed the Board that programming is expected to take between 4-6 months to complete.

Mr. Nelson and Mr. Snow expressed their hesitancy to approve the request for programming at this time. Mr. Nelson recommended to table this request until the Board has completed their tour and upon receiving the capital development requests for this year. The Board recognizes the existing needs that are present within this facility. However, the development needs of the State must be reviewed in order to gain a clear understanding of where this project will be ranked amongst other requests.

PROPOSED

MOTION: Mr. Nelson moved to table the Division of Juvenile Justice Services request for programming of the Wasatch Youth Center until after the Building Board Tour in August and upon receiving the capitol development requests for the year.

There was continued discussion on if the receiving of capital development requests should be included in the motion, as these requests are due in July.

MOTION: Mr. Nelson moved to table the Division of Juvenile Justice Services request for programming of the Wasatch Youth Center until the September meeting. The motion was second by Mr. Snow and passed unanimously.

❑ DIVISION OF JUVENILE JUSTICE SERVICES: CAPITAL IMPROVEMENT TRANSFER REQUEST

Mr. Robinson presented this item. In FY 2016, the State Building Board approved \$175,240 to upgrade the fire alarm system at the Wasatch Youth Center. Shortly after this approval, the Division of Juvenile Justice Services received two separate reports regarding the structural integrity of Wasatch Youth Center. As a result of these reports and a subsequent feasibility study, the Division decided to request state funds to replace the facility and construct a new multi-use facility, as reviewed by Ms. Whitlock in the previous meeting item.

DJJS is requesting the Building Board to approve transferring \$61,931 of the \$175,240 to a newly identified life safety issue at Salt Lake Valley Detention Center. This facility opened in 1997, and was operated by a private contractor until late 2015, when the Division took over operations. DJJS has recently discovered that the facility's fire alarm system and duress system are combined into one system. The inability to differentiate between a fire, which would require the evacuation of the building, and a duress, which requires an immediate staff response, puts lives at risk. The Utah State Fire Marshall has also indicated that the duress system should be removed from the fire alarm system in order to bring the building into mandated compliance with the national and state fire and building codes. The \$113,309 in remaining funds will be returned to the capital improvement pool and be redistributed to other existing capital improvement needs.

Mr. Snow inquired if the Salt Lake Valley Detention Center was one of the 6 facilities planned for relocation to the Wasatch Youth Center. Mr. Robinson confirmed there are no plans to relocate this facility.

MOTION: Mr. Burgess moved to approve the capital improvement transfer request for \$61,931. The remainder of the capital improvement allocation, which is \$113,309 will be transfer back into the capital improvement pool. The motion second by Ms. Barrager and passed unanimously.

❑ DFCM: CAPITAL IMPROVEMENT TRANSFER REQUEST FOR THE UTAH STATE DEVELOPMENTAL CENTER

Mr. Davis, DFCM Project Manager, presented a request to cancel the FY18 Capital Improvement Project "Human Services - USDC Auditorium AHU Replacement" in the amount of \$107,500. Mr. Davis confirmed that this request is no longer needed because a replacement was funded with agency funds after the AHU failed last Fall. These funds will be transferred to a FY15 Capital Improvement Project #15223410 "USDC Quailrun Mechanical Upgrade", which is underfunded by approximately \$135K. This project was delayed due to improvements to the Ash Building, which needed to be completed as occupants of the Quail Run Building will be moved to the Ash Building. Mr. Davis confirmed that DFCM Project Reserves will be used to fund the remainder of this project as this transfer alone will not cover the entirety of funds needed.

MOTION: Mr. Fitzsimmons moved to approve Capital Improvement transfer request for the Utah State Developmental Center. The motion was second by Mr. Nelson and passed unanimously.

❑ UNIVERISTY OF UTAH: REQUEST FOR APPROVAL OF ENERGY EFFICIENCY IMPROVEMENTS

Ms. Burr, Chief of Design and Construction; Mr. Nye, Director of Facilities Management Business Services; Mr. Simonton, Director of Capital Projects; and Mr. Hubler from Mckinstry, presented a request to construct energy efficiency improvements that will reduce energy costs and emissions for at least 18 campus buildings comprising almost 4 million square feet of patient care and research space. These replacements involve space that is separate from the School of Medicine, where a large Capital Development project is currently taking place. The project will address both

heating and cooling systems including evaporative cooling, fume hood upgrades, HVAC controls, energy management systems, installation of high efficiency boilers, and improvements in the chilled water delivery system. A summary of potential energy improvements is included below with those shaded in green and yellow being the most likely ones to be pursued. An investment grade audit is now being finalized which will guide final decisions on which specific improvements are cost effective. The total estimated cost for these improvements is \$30M, of which \$18M will be dedicated to upgrades to cooling systems and fume hoods, \$9M will be dedicated to high efficiency boiler systems, and \$3M will be set aside for soft costs.

MOTION: Mr. Burgess moved to approve the Energy Efficiency Improvements for the University of Utah. The motion second by Mr. Fitzsimmons and passed unanimously.

❑ UNIVERISTY OF UTAH: REQUEST FOR APPROVAL OF THE JON M. HUNTSMAN CENTER SCOREBOARD REPLACEMENT

Mr. Nye presented the request to replace the current scoreboard located in the Jon M. Huntsman Center. The current scoreboard is approximately 10 years old and has reached the end of its useful life. The scoreboard has failed to work at key events such as last year's commencement ceremony. The size of the current scoreboard is 120 sqft on each side. The replacement scoreboard will increase in size up to 403 sqft. on each side. New LED boards will also replace outdated scoreboards around the baseline, above the entrance at center court, and along each corner of the new ceiling grid. The LED scoreboards will improve the ability to show individual score and statistics as well as provide more opportunities for advertising and sponsorships at events. The total estimated cost for this project is \$4.1M, of which \$3.35M will cover construction and the purchase of new boards, \$ 750K will be set aside for soft costs. This project will be built using a design/build process. The University of Utah is hoping to select a contractor this month and is anticipating completion of this project to occur in November. Funding for this project is being derived from donations from the Huntsman's and Eccles as well as revenues from the auxiliary and athletic programs.

MOTION: Mr. Snow moved to approve the Jon M. Huntsman Center Scoreboard Replacement. The motion second by Mr. Nelson and passed unanimously.

Mr. Nelson requested an update on the Crocker Science Center. Ms. Burr confirmed that this project is on track for substantial completion in October and will be ready for class use in January. Mr. Nelson would like this facility to be included in the Building Board Tour in August.

❑ UTAH STATE BUILDING BOARD: FACILITY CONDITION ASSESSMENT PROGRAM AND PREVENTATIVE MAINTENANCE AUDIT ANNUAL REPORT

Mr. Smith and Mr. Gregory presented this item. To this date a total of 1,143 Preventative Maintenance Audits have been completed. This total is expected to rise to 1,200 by fiscal year end, which is approximately 60% of the state facilities every year. Each state facility is visited on a bi-annual basis at a minimum. Below are the results from the Preventative Maintenance Audit, the requirement to maintain delegation is 90 points.

FY17 Audit Results by Agency					
	Audited/Scheduled	% of Buildings	Total Square Feet	% Sq.Ft.	Agency Avg.
Administrative Services	61	36%	2,115,514	29%	94.07
Corrections	37	23%	652,028	33%	88.42
Fairpark	46	100%	371,826	100%	77.70
Higher Education	343	75%	13,967,411	64%	91.09
Human Services	80	55%	1,092,051	68%	93.54
National Guard	3	20%	316,918	19%	91.80
Natural Resources	345	46%	751,102	56%	92.21
USDB	10	91%	113,274	73%	89.80
UDOT	118	81%	513,986	29%	89.60
Veterans Affairs	0	0%	0	0%	0.00
Statewide Totals	1043	53%	19,894,110	57%	89.80

Total Audit Results by Agency									
	FY14	FY15	FY16	FY17	FY17% of Buildings	FY17 Average	Total Buildings	Total Square Feet	Agency Average
Administrative Services	37	97	79	61	36%	94.07	274	12,623,554	94.20
Corrections	7	14	51	37	23%	88.42	109	3,577,047	89.08
Fairpark	45	45	45	46	100%	77.70	181	1,487,304	76.62
Higher Education	109	498	357	343	75%	91.09	1307	45,308,664	91.57
Human Services	12	134	117	80	55%	93.54	343	3,709,187	92.31
National Guard	4	8	8	3	20%	91.80	23	2,196,268	91.91
Natural Resources	218	176	294	345	46%	92.21	1033	2,466,993	92.27
Schools for the Deaf and Blind	11	11	11	10	91%	89.80	43	580,596	89.80
UDOT	20	52	108	118	81%	89.60	298	2,153,547	88.78
Veterans Affairs	1	2	4	0	N/A	N/A	7	281,000	93.99
Statewide Totals	464	1,037	1,074	1,043	59%	89.80	3,618	74,384,160	90.05

A four-year summary was also provided to identify agencies that have improved. Mr. Smith noted that changes were made to both scoring and standards in 2015, which caused many scores to drop around that time period. The scoring weight given to the physical condition of the building was raised to 46% of the total score. The consequences of failing to achieve a passing score is that the agency's maintenance delegation may be revoked and turned over to DFCM, which will occur at the Utah State Developmental Center starting July 1, 2017. However, Higher-ed and the CPB are exempt from DFCM oversight. 300+ of the audits completed for FY17 have been for Higher-ed institutions. The Board may look into a self-auditing process for these institutions as a way to obtain feedback on their preventative maintenance efforts.

Chair Carnahan inquired if there are any critical areas that the Board should focus on. Mr. Smith confirmed that most agencies are responsive to correcting the findings identified in our audits. The Fairpark has failed to pass an audit in the last 20 years, which is negatively effecting the statewide total. DFCM manages the leasing of the Fairpark property. However recent statue has turned over the maintenance responsibilities to the Fairpark, which operates as an independent entity as confirmed by Mr. Green, who has served as counsel for the Fairpark. Although the Fairpark is an independent entity, they still must adhere to the State's maintenance standards, as they are not exempt from DFCM oversight.

The Utah Department of Corrections has implemented appropriate preventive maintenance standards at both the CUCF Gunnison and Draper Prison sites. Remote sites and smaller AP&P offices do not have a functioning CMMS in place. Administrative requirements mandate a data-based log book or CMMS be in place for all facilities regardless of size. UDC has been planning to implement a standard system for these smaller facilities but has yet to meet that requirement. Due to the lack of a CMMS and often lack of manpower there are numerous deficiencies that have yet to be addressed by the managing agency. Mr. Peay with the Department of Corrections confirmed that UDC is in the beginning stages of issuing an RFP for a CMMS. However, he inquired if the Board would examine their current weighing factors as the remote sites and smaller AP&P offices that do not have a functioning CMMS in place only count for 5 out of 200 buildings that UDC occupies.

To date 865 buildings and 11 parking structures have received FCA assessments since 2011. For FY17 the existing FCA contract was modified to include the assessment and GIS mapping of the state's infrastructure systems. Infrastructure work is expected to be completed in FY18.

Almost 20,000 statewide deficiencies have been identified through year 2027, totaling \$640,720,912. The Board has required 80% of the capital improvement requests to come from these identified deficiencies.

Chair Carnahan thanked Mr. Smith and Mr. Gregory for presenting their findings to the Board.

❑ ADMINISTRATIVE REPORTS FROM THE UNIVERSITY OF UTAH AND UTAH STATE UNIVERSITY

Mr. Nye delivered the administrative report for the University of Utah. There were 14 professional service agreements and 8 constructions contracts issued. There are no significant items to report on.

Residual funds from the Social & Behavioral Science – Seismic Upgrade at Basement & Part of Classroom Levels totaling \$92,889 were transferred into the Project Reserve Fund. There are no decreases. This leaves a current balance of \$871,362, which has been determined to be an adequate amount in reserve for potential demands. There were no increases to the Contingency Reserve Fund and three decreases:

- Project 21582; Energy Projects Associated Work: The transfer of \$60,071 covers the cost of several unforeseen conditions and design omissions. The most substantial involved reliance on as-built drawings from previous projects that proved to be inaccurate and the deficiencies were missed in the investigations during design. This project is substantially complete and we do not expect substantial additional draws from contingency.
- Project 21642; HTW Distribution Completion: The transfer of \$330,099 covers the cost of 19 unforeseen conditions, two design omissions, and three scope adjustments to allow University operations to continue during the work. The triple wall pipe that is being direct buried through this project has a very low tolerance for adjustments in the field with anything but a very small deviation requiring fabrication of replacement pipe at a substantial delay and cost. In order to mitigate this constraint, two key strategies have been employed. First, in an effort to avoid other buried utilities, the design provided for placing new pipe above the existing pipe whenever possible. Second, the route of the pipe is excavated prior to the final order for fabricating pipe in order to address any routing changes before the pipe is fabricated
- Project 21923; Replace Science Area Chiller Plant: This transfer of \$155,404 covers the cost of unforeseen conditions and design flaws. The majority of this draw, \$87,045, covers the cost of constructing an enclosure outside of the building to house the chemical storage tank after it was determined during construction that the tank would not fit inside the building as planned. The other large item consists of \$40,689 to modify the routing of a storm drain pipe after an existing concrete encased duct bank was discovered that required a substantial increase in excavation and structural fill.

This leaves a current balance of \$2,533,402. An analysis indicates that this balance is adequate to complete projects that have been authorized and does not reflect an excess balance.

Mr. Berrett delivered the administrative report for Utah State University. 4 Professional Contracts and 11 Construction Contracts were issued. Highlights include; the third and final phase of a reroofing project being completed at the South Wing, which is nearing completion, and the University Inn to Widstoe Steamline Project, which will replace some of the last sections of steamline that haven't been replaced in over 15 years.

There were three draws to the Contingency totaling \$209,535. The largest draw was for asbestos abatement of the USUE Career Center in the amount of \$171,904. This leaves a balance of \$438,191. There was one increase to the Project Reserve Fund for \$11,218 for and one draw in for \$1,988. This leaves a balance of \$393,262. Mr. Berrett reports that both the Contingency and Project Reserve are in good order.

Chair Carnahan inquired if the Board had any questions on the administrative reports for the University of Utah and Utah State University. None were brought forward.

❑ ADMINISTRATIVE REPORT FROM DFCM

Mr. Russell presented the administrative report for DFCM. 24 professional service agreements were issued, which consists of 15 for design and 9 for other professional services. 36 construction contracts were issued consisting of 4 for new space, 20 for remodeling, 5 for paving/roofing, and 7 for other services:

- Item #15, Green River Golf Course Clubhouse Re-roof
Additional funds from unallocated roofing were used to award contract
- Item #16, Goblin Valley State Park Overlook Restrooms Replacement
Project Reserve Funds were used to award construction contract
- Item #24, SUU New Business Building
This is a CM/GC agreement, the balance of the construction costs will be added by future change orders.

Capital Development started period with \$4,184,213 and ended with \$3,418,464, with 8 transfers to projects totaling \$765,749. Capital Improvement started period with \$5,738,487 and ended with \$5,501,395, with 18 transfers to projects totaling \$237,092 and 0 transfers to the fund.

The Project Reserve had one increase of \$101,768 and one decrease of \$250,000, which was allocated to the Fairpark Arena, leaving an ending with a balance of \$1,137,624. The capital improvement project reserve fund had 9 transfers to the fund of \$94,079 and 7 transfers out totaling \$744,644, \$200K of which was allocated to the chiller replacement for Snow College, leaving an ending with a balance of \$4,701,269.

The Contingency Reserve Fund Analysis currently shows a deficit balance of (\$3,259,316) this quarter. Over the past few months there have been more decreases to fund than increases. While this raises concerns, there is a lot of activity occurring. A large contributor to this deficit was a \$1.5M well replacement for the University of Utah's chilling capacity. Since the new quarter began, the fund shows a positive balance of \$1.3M. It is projected that the fund will build again, however DFCM will continue to monitor activity to determine if this is a trend or the result of a flow process.

Mr. Reddoor highlighted an agency scope change for DXATC in the amount of \$564,447. Mr. Russell confirmed that this change order was coded incorrectly and would be updated to either a DFCM Scope or an FFE.

❑ FUTURE AGENDA ITEMS

- Deadline for Capital Development requests is July 14
- Deadline for Capital Improvement requests is September 29

- Operations and maintenance reporting will begin in mid-July. The deadline to have these costs submitted is September 1.
- The Building Board Tour has been moved from August 16 and 17 to August 21 and 22
- Mr. Snow would like DFCM to consider reducing the amount of printed material included in their administrative report by developing an executive level summary
- The next Building Board meeting will occur on July 12

□ ADJOURNMENT

MOTION: Mr. Snow moved to adjourn the meeting. The motion was second by Mr. Nelson and passed unanimously.

The meeting adjourned at 11:35 A.M.



Gary R. Herbert
Governor

Utah State Building Board

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Salt Lake City, Utah 84114
Phone (801) 538-3010
Fax (801) 538-3844

MEMORANDUM

To: Utah State Building Board
Date: August 21, 2017
Subject: **DFCM: Approval of Revolving Loan Fund for Snow College**
Presenter: Bianca Shama, DFCM Energy Program Manager

RECOMMENDATION

As per the administrative rules for the State Facility Energy Efficiency Fund, the State's energy revolving loan fund, each project seeking funding requires Building Board approval prior to moving forward. DFCM recommends that the Building Board review the request from Snow College. This application has been reviewed and approved by the State Building Energy Efficiency Program Director and is submitted for your approval.

BACKGROUND

Attached is an application pending approval for Snow College. Snow College is requesting a loan in the amount of \$82,144. The funds will be used to schedule and re-tune airside equipment in the Humanities Building as well as integrate chiller controls. The improved control of this building will result in significant energy and natural gas savings to the college. The payback for this project will be 3.4 years. The estimated loan repayment schedule will begin by the end of 2017. There is a solid plan for M&V on this project. The project will result in significant energy savings and cost savings.

Attachment:
Loan application and supporting documentation

State of Utah

State Facility Energy Efficiency Fund Loan Application

A. State Agency:

Snow College, Ephraim Campus

B. Building name & location: Snow College Humanities Building

200 East 100 North
Ephraim, UT 84627

C. Building description (use, seasonal variations, square footage):

Snow College's Humanities building is located on the main campus in Ephraim and has an approximate area of 75,000 square feet. Baseline electric utility data was not available for this building. However, the baseline modeled energy use is considered reasonable when compared against data in the Commercial Buildings Energy Consumption Survey (CBECS). The building has classroom and office space with a few lounges and study rooms. These spaces are primarily occupied between 8 am and 5 pm, Monday through Friday. The maintenance staff indicated that the building is lightly occupied on Friday afternoons and rarely occupied on weekends.

D. Existing building systems and energy usage:

See attached report.

E. Project Description:

Eligible Measure / Materials to be installed	Estimated Cost of Measure	Projected Annual Energy Savings	Projected Annual Cost Savings
Schedule and retune Airside Equipment		138,256 kWh / 10,159 therms	\$19,879
Integrate Chiller Controls		46,253 kWh	\$3,931
TOTAL	\$82,143		\$23,811

F. Rebates and Incentives:

Provider and type of rebate or incentive	Estimated Amount of incentive
Questar Gas	0
Rocky Mountain Power	0
TOTAL	0

G. Payback

Estimated total cost of upgrade \$ 82,144

Energy Savings 184,509 kWh

Natural Gas Savings 10,159 therms

Annual Energy Cost Savings \$ 23,811 per year

Simple Payback 3.4 years

Return on Investment (ROI) 29%

H. Description of energy costs savings measurement and verification:

See attached report.

I. Commissioning procedures. This must include a method of monitoring actual savings resulting from energy efficiency measures implemented using loan money from the fund, using objective and verifiable post-construction measures, if available:

The Humanities building does not have a utility sub-meter installed to accurately determine building energy use. Baseline energy use and energy savings were determined as described in Section 3 above. To verify measure implementation and confirm energy savings, the following parameters should be recorded at 15-minute intervals for a minimum of two weeks. Ideally, this monitoring period will occur in either the Spring or the Fall to demonstrate proper operation of both heating and cooling systems.

- Outside air temperature • Economizer position (All AHUs)
- Heating and cooling valve position (All AHUs, random sample of VAVs)
- Fan status (All AHUs)
- Coil pump status (All AHUs, random sample of VAVs)
- VAV discharge air temperature (random sample of VAVs)
- Chiller status
- Chilled water pump status

The following set points should be recorded in a single spot-check.

- Boiler lockout temperature
- Chiller lockout temperature

Using the data points listed above, the initial calculations may be updated to confirm total energy savings. This measurement and verification plan is in accordance with Option B. Retrofit Isolation as described in the International Performance Measurement & Verification Protocol (IPMVP) written by the U.S. Department of Energy. We recommend installing a utility sub-meter for enhanced resolution of energy consumption at the Humanities building.

J. Other benefits to the environment, community, agency, or State of Utah

Increased occupant comfort and controllability by campus

K. Total eligible costs to be financed by this loan:

Estimated costs:	\$82,144,
Other funds to be used on project:	\$0
Total proposed loan amount:	\$82,144

L. Attachments

Snow College Humanities Energy Audit

Snow College Humanities Building Energy Audit Report



Utah Division of
Facilities Construction
and Management

200 East 100 North
Ephraim, UT 84627

Prepared by:



05/23/2017

Project Contacts

Name	Role	Organization	Contact Information
Bianca Sharma	Energy Program Manager	Utah DFCM	bshama@utah.gov
Jeff Wrigley	Energy Manager	Utah DFCM	jeffwrigley@utah.gov
Leslee Cook	Director, Campus Services	Snow College	leslee.cook@snow.edu
Lincoln Harmer	Lead Engineer	kW Engineering	lharmer@kw-engineering.com
Stephen Lucich	Report Preparer	kW Engineering	slucich@kw-engineering.com

Disclaimer

The intent of this energy analysis report is to estimate energy savings associated with recommended upgrades at Snow College’s Humanities Building. Appropriate detail is included in this report to make decisions about implementing energy efficiency measures at the facility. However, this report is not intended to serve as a detailed engineering design document. The descriptions of the improvements are only diagrammatic in nature in order to document the basis of cost estimates and savings, and to demonstrate the feasibility to construct the improvements. It should be noted that detailed design efforts may be required in order to implement several of the improvements evaluated as part of this energy analysis. As appropriate, costs for those design efforts are included as part of the cost estimate for each measure.

While the recommendations in this report have been reviewed for technical accuracy and are believed to be reasonably accurate, the findings are estimates and actual results may vary. As a result, kW Engineering, Inc. is not liable if projected estimated savings or economics are not actually achieved. All savings and cost estimates in the report are for informational purposes, and are not to be construed as a design document or as guarantees.

In no event will kW Engineering, Inc. be liable for the failure of the customer to achieve a specified amount of energy savings, the operation of customer’s facilities, or any incidental or consequential damages of any kind in connection with this report or the installation of recommended measures.

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1 Executive Summary

The purpose of this energy audit is to identify potential high-value energy savings projects including low-cost and capital intensive opportunities. Using this report as a guide, kW Engineering encourages Snow College to consider implementing the following Energy Efficiency Measures (EEMs).

1. Schedule and Recommission Airside Equipment Sequences of Operation
2. Integrate Chiller Controls into Building Automation System

Both measures will require an upgrade to the automation controls in the building. Much of the current system relies on a legacy platform that is no longer supported by the manufacturer and the college no longer has the software necessary to change the programming. A planned upgrade now could avoid an emergency upgrade in the future.

The costs and estimated energy savings associated with this project are shown in Table 1.1 below.

Table 1.1: Summary of project economics

Estimated total cost of upgrade	\$ 82,144
Energy Savings	184,509 kWh
Natural Gas Savings	10,159 therms
Annual Energy Cost Savings	\$ 23,811 per year
Simple Payback	3.4 years
Return on Investment (ROI)	29%

2 Project Background & Facility Information

Snow College's Humanities building is located on the main campus in Ephraim and has an approximate area of 75,000 square feet. Baseline electric utility data was not available for this building. However, the baseline modeled energy use is considered reasonable when compared against data in the Commercial Buildings Energy Consumption Survey (CBECS).

The building has classroom and office space with a few lounges and study rooms. These spaces are primarily occupied between 8 am and 5 pm, Monday through Friday. The maintenance staff indicated that the building is lightly occupied on Friday afternoons and rarely occupied on weekends.

The Humanities building contains three air handling units (AHUs) that meet the building's ventilation and conditioning needs. These AHUs are served by an air-cooled chiller that provides chilled water while in cooling mode, and a boiler that provides hot water while in heating mode. The building also has three make-up air units (MAUs) that replenish air that is exhausted through restroom exhaust fans and welding shop. All equipment was in reasonably good condition; however, the following issues were either discovered during the energy audit, or indicated by the facilities staff.

- Control components for the airside equipment is obsolete and difficult to replace. The HVAC controls operate on a Johnson controls Metasys legacy N2 system with mostly pneumatic actuators.

- AHUs are not scheduled and several ineffective control sequences related to their coil pumps were observed.
- The chiller plant is not connected to the central building automation system (BAS). This unit can only be controlled locally. As a result, the glycol pumps operate continuously regardless of cooling load on the building.
- MAUs frequently trip off when the OAT drops below freezing and must be reset locally. These units should utilize glycol as the working fluid in through their coils and should not shut off due to low outside air temperatures.
- Several variable air volume (VAV) boxes have leaky valves that are ineffective at regulating the flow of hot water through their coils. This wastes energy and causes occupant comfort issues.

Addressing the points listed above will result in significant energy savings, as well as improved occupant comfort. Furthermore, replacing the obsolete controls components will avoid an unexpected upgrade in the future if any components fail. The next section of this report details the recommended energy efficiency measures, annual energy savings, and the estimated implementation cost.

3 Energy Efficiency Opportunities

The following table summarizes the measures that are recommended for this facility. Costs shown are based on quotes provided by American Mechanical Systems (one of Snow College’s Preferred Contractors).

Table 3.1: Summary of energy efficiency opportunities

	Energy Savings (kWh/yr)	Natural Gas Savings (therms)	Cost Savings (\$/yr)
EEM-1: Schedule and Re-tune Airside Equipment	138,256	10,159	19,879
EEM-2: Integrate Chiller Controls	46,253	-	3,931
Total:	184,509	10,159	23,811

Note: Most of the project cost is associated with an upgrade to the building’s controls. As such, it does not make sense to implement only one of the above measures and it is not possible to fully separate the cost per measure.

A summary of the project costs is shown in the table below. Please see the attached quotes for a full breakdown of the project costs, installed parts, labor, and deliverables.

Table 3.2: Summary of total project cost

Source	Description	Estimate
AMSS Quote	Parts, Install Labor & Programming	\$ 74,676.00
	Subtotal	\$ 74,676.00
	Contingency (10%)	\$ 7,467.60
	Implementation Total	\$ 82,143.60

Overall, the simple payback for this project is under four (4) years using current utility rates.

3.1 EEM-1: Schedule and Recommission Airside Equipment

During the initial site visit, the following observations were made regarding the controls and operations of the building three AHUs.

- Fans are scheduled on 24 hours per day, seven days per week (Figure 3.1-3.3).
- Air handling economizers are not sequenced or programmed correctly resulting in excess cooling energy usage (Figure 3.4).
- Air handling units cycle between heating and cooling frequently.
- Coil pumps are scheduled, but should also be controlled based upon demand.
- Several VAV heating valves were observed with leaks. This makes it difficult to control conditions within the space (Figure 3.5).

Repairing all three of these issues will result in 138,256 kWh per year in electricity savings and 10,159 therms of natural gas savings. At an estimated cost of \$0.085 per kWh and \$0.80 per therms, this translates to \$19,879 in reduced energy costs each year. Additional implementation notes are included below.

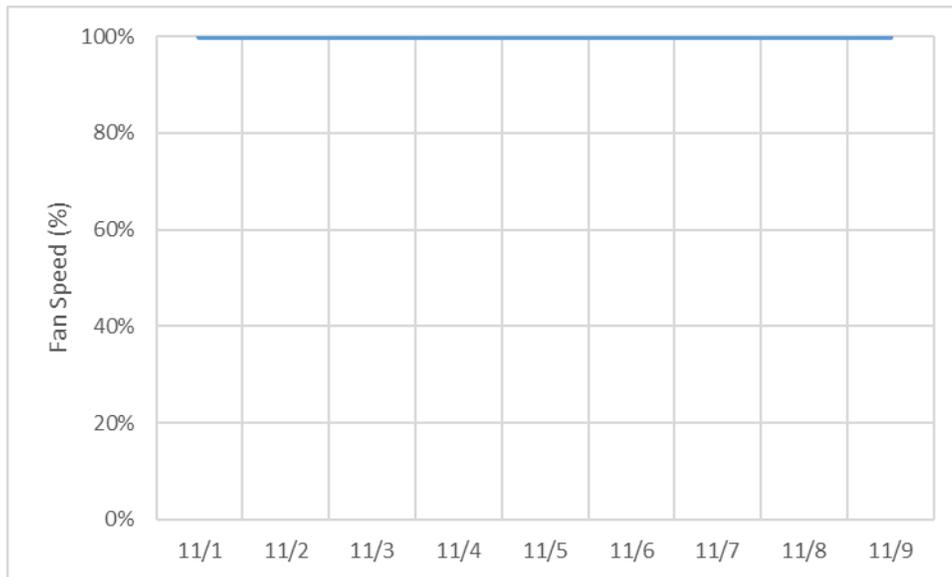


Figure 3.1: Recorded fan speed for AHU-1

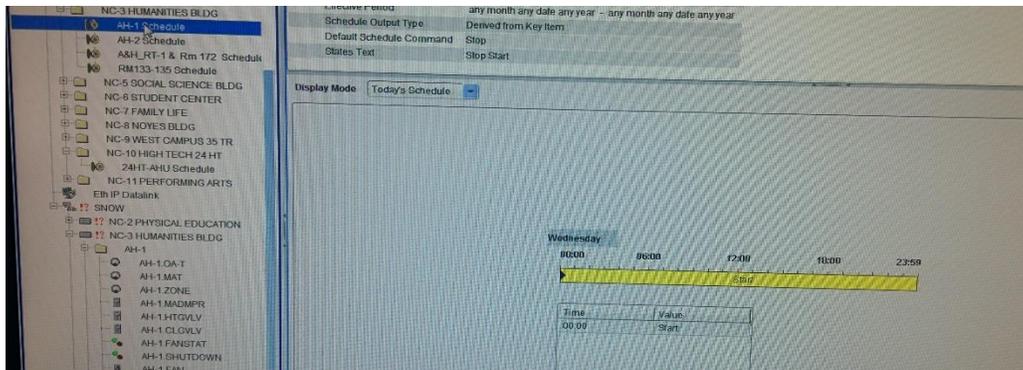


Figure 3.2: AHU-1 schedule from BAS programmed to be on 24/7

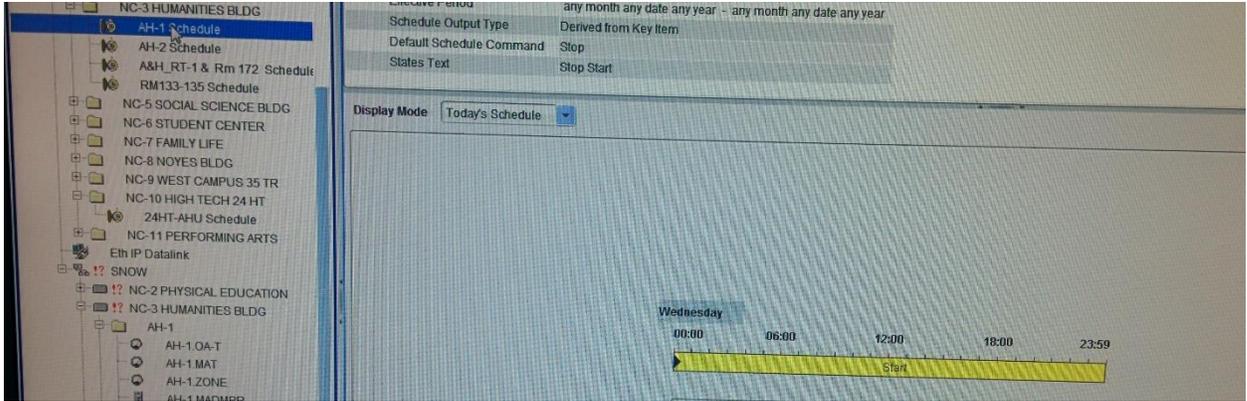


Figure 3.3: AHU-2 schedule from BAS programmed to be on 24/7

The following image shows trend data collected from the BAS for AHU-1. The data clearly shows that economizer (blue line) is not functioning properly as the outside temperature (teal line) is below 50°F for much of the trending period and the unit is still calling for cooling (red line). Furthermore, the unit is quickly cycling between heating (black line) and the cooling (red line) which wastes energy.

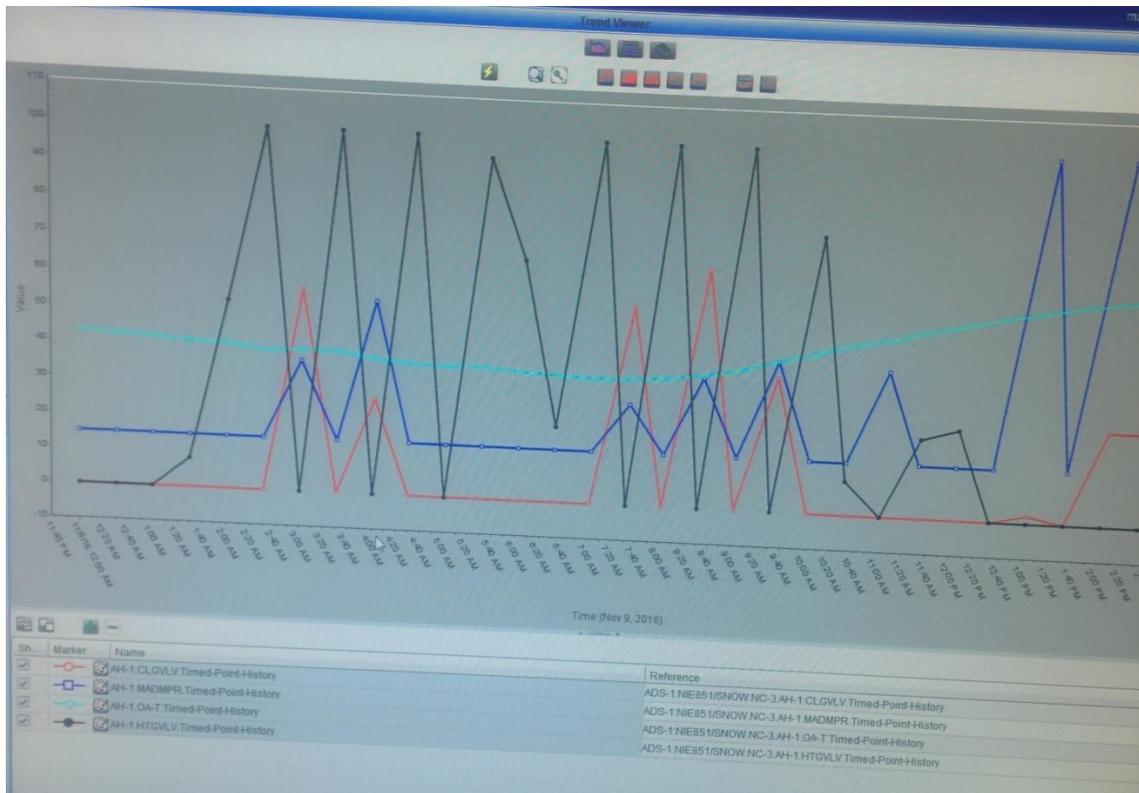


Figure 3.4: Economizer (blue), cooling (red), and heating (black) trends for AHU-1

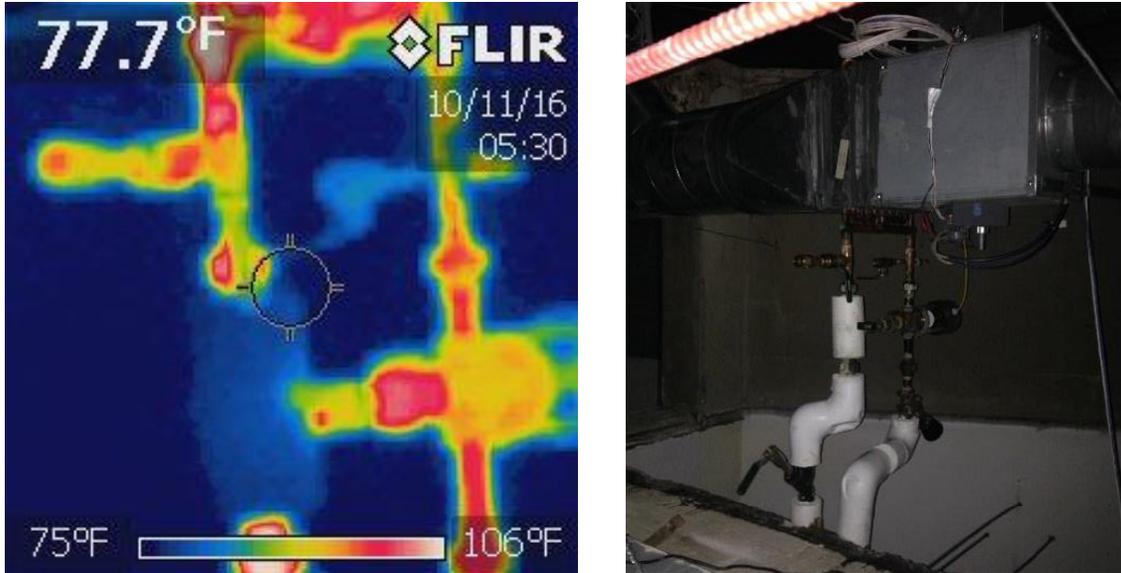


Figure 3.5: IR imaging reveals continuous HW flow through reheat valve which has been commanded off

Implementation Notes:

1. All legacy N2 controllers should be upgraded to new BACnet compatible controllers and integrated into the campus automation system.
2. Install discharge air temperature sensors on fan coils and VAV boxes. This will facilitate quick identification of leaky reheat valves in the future.
3. Fix Economizer Malfunctions:
 - a. Enable economizer control anytime the outside air temperature is less than return air temperature.
 - b. Ensure that the outdoor air and mixed air actuators can stroke through their entire operating range.
 - c. Lockout the cooling coil anytime the outside air temperature is below 50°F.
 - d. Modulate the mixed air damper to achieve the mixed air setpoint (2°F less than the SAT setpoint).
 - e. Replace faulty actuators and linkages
4. Eliminate Simultaneous Heating/Cooling:
 - a. Replace faulty actuators and valves and reprogram the sequences to ensure the system is in either heating or cooling mode at any one time and not both.
 - b. Each control valve should be programmed to control to the same setpoint using the same temperature sensor. Other averaging sensors should be used to prevent coils from freezing or to alert building operators of operational faults.
5. We recommend that the sequences of operations and controls schematics for all AHUs be reviewed or redeveloped if missing. When developing the control sequences and schematics the following should be performed:
 - a. The control schematic for each AHU should include an equipment schedule and points list.
 - b. The control schematic should be laminated and placed in the control panel for each AHU.

- c. All input and output for the controller(s) should be labeled and align with the point list on the control schematic.
- d. The sequences of operation should be included with the control schematics and describe the operating modes and control functions for each of the AHUs. The description should include a clear and accurate description of the sequential relationship between each process variable (temperature, pressure, flow, humidity) and the positions of the controlled devices for the different operating modes.
- e. These sequences should be stored in locked control panels for each AHU and be accessible through the BAS.

To maximize the persistence of energy savings, implementation best practice includes not only an upgrade of the physical controls equipment, but also development of detailed controls drawings, specifications, and a sequence of operation. Once all equipment is installed and operating, the commissioning process should include function testing to ensure it is operating as designed. Detailed drawings, specifications, and sequences of operations are invaluable when troubleshooting problems at the building. It is also important to note that proper implementation will result in reduced energy use, as well as improved occupant comfort.

3.2 EEM-2: Integrate Chiller Controls

Currently the building's chilled water system is not connected to the BAS. As a result, control of this system is performed locally using the chiller's internal control system. This frequently leads to excessive energy use because the plant remains operational even when the outside air temperature is below 40 °F. The building is equipped with a dry cooler that should be able to meet all cooling needs when the outside air temperature is mild (Figure 3.6).

The constant speed glycol pumps (shown below) are used by the chiller plant to circulate fluid to the HVAC equipment for cooling. One of the 7.5 HP pumps was observed to be operating continuously during the audit when outside temperatures were below 40°F.



Figure 3.6: Evaporative Dry Cooler



Figure 3.7: Chilled Glycol Pumps (Lead/Lag)

Connecting the building's chiller to the BAS and recommissioning the control sequences will result in approximately 46,253 kWh per year in energy savings in addition to reduced maintenance cost. At an estimated cost of \$0.085 per kWh, this translates to \$3,931 in reduced energy cost each year. Additional implementation notes are included below.

Implementation Notes:

1. All waterside equipment (Chillers, pumps, valves, etc.) should be integrated with the BAS using BACnet.
2. Lockout the chiller when outside air temperature drop below 50 °F and rely on the evaporative condenser for waterside economizing if necessary.
3. Chilled glycol pumps should operate only while there is a call for cooling in the building.

To maximize the persistence of energy savings, implementation best practice includes not only an upgrade of the physical controls equipment, but also development of detailed controls drawings, specifications, and a sequence of operation. Once all equipment is installed and operation, the commissioning process should include function testing to ensure it is operating as designed. Detailed drawings, specifications, and sequences of operations are invaluable when troubleshooting problems at the building. It is also important to note that proper implementation will result in reduced energy use, as well as improved occupant comfort.

4 Measurement and Verification

The Humanities building does not have a utility sub-meter installed to accurately determine building energy use. Baseline energy use and energy savings were determined as described in Section 3 above. To verify measure implementation and confirm energy savings, the following parameters should be recorded at 15-minute intervals for a minimum of two weeks. Ideally, this monitoring period will occur in either the Spring or the Fall to demonstrate proper operation of both heating and cooling systems.

- Outside air temperature
- Economizer position (All AHUs)
- Heating and cooling valve position (All AHUs, random sample of VAVs)
- Fan status (All AHUs)
- Coil pump status (All AHUs, random sample of VAVs)
- VAV discharge air temperature (random sample of VAVs)
- Chiller status
- Chilled water pump status

The following set points should be recorded in a single spot-check.

- Boiler lockout temperature
- Chiller lockout temperature

Using the data points listed above, the initial calculations may be updated to confirm total energy savings. This measurement and verification plan is in accordance with **Option B. Retrofit Isolation** as described in the International Performance Measurement & Verification Protocol (IPMVP) written by the U.S. Department of Energy. We recommend installing a utility sub-meter for enhanced resolution of energy consumption at the Humanities building.

Appendix A – Baseline Energy Consumption

Per the Commercial Buildings Energy Consumption Survey (CBECS), the energy breakdown for a typical education building is shown in Figure A.1.

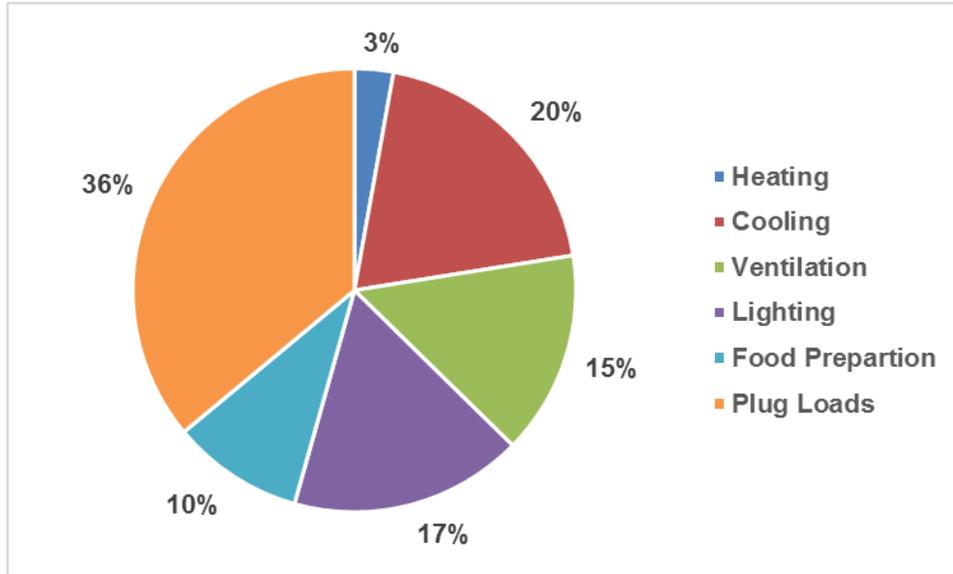


Figure A.1: Energy breakdown for an education building

kW Engineering conducted a site audit to collect nameplate and operational data for energy consuming equipment and to identify potential energy efficiency measures. During the site visit we were also able to collect operational data for a mixture of the site's equipment. Utility data was not available for this individual building.

We used a bin analysis approach with TMY3 weather data for Vernal, Utah to estimate what percentage of the building's energy use is consumed by the various components of the HVAC system, as well as energy savings potential. A Vernal, UT TMY3 weather file was utilized to calculate savings as it has the most similar climate to Sanpete county from the available weather files. The baseline energy calculations indicate there is significant opportunity for energy savings at the Humanities Building.

Note: Since utility data is not available for this site, these calculations rely on previous experience and professional engineering judgement to ensure they are reasonable.

Appendix B – Calculation Output

Rocky Mountain Power
 Snow College Humanities Bldg
 Energy System Savings

Energy Usage [kWh/yr]	Baseline	RCx-1: AHU RCx	RCx-2: Chiller Controls Integration	
Chillers [CH]	171,846	171,846	125,593	kWh
Primary Chilled Water Pumps [CHWP]	25,670	25,670	25,670	kWh
Dry Cooler [DC]	10,425	10,425	10,425	kWh
AHU 1, 2 & 3	348,490	210,234	210,234	kWh
Total	556,432	418,175	371,922	kWh
Energy Savings [kWh/yr]	Baseline	RCx-1: AHU RCx	RCx-2: Chiller Controls Integration	
Chillers [CH]	N/A	-	46,253	kWh
Primary Chilled Water Pumps [CHWP]	N/A	-	-	kWh
Dry Cooler [DC]	N/A	-	-	kWh
AHU 1, 2 & 3	N/A	138,256	-	kWh
Total	N/A	138,256	46,253	kWh

Natural Gas Usage [therms/yr]	Baseline	RCx-1: AHU RCx	RCx-2: Chiller Controls Integration	
Chillers [CH]	-	-	-	therms
Primary Chilled Water Pumps [CHWP]	-	-	-	therms
Dry Cooler [DC]	-	-	-	therms
AHU 1, 2 & 3	109,862.9	99,703.4	99,703.4	therms
Total	109,862.9	99,703.4	99,703.4	therms
Natural Gas Savings [therms/yr]	Baseline	RCx-1: AHU RCx	RCx-2: Chiller Controls Integration	
Chillers [CH]	N/A	-	-	therms
Primary Chilled Water Pumps [CHWP]	N/A	-	-	therms
Dry Cooler [DC]	N/A	-	-	therms
AHU 1, 2 & 3	N/A	10,159.5	-	therms
Total	N/A	10,159.5	-	therms

Appendix C - Quote



PROJECT PROPOSAL & AGREEMENT

Proposal Date	Proposal Number	Contract Number
May 19, 2017	051917-1	

BY AND BETWEEN:

American Mechanical Systems
Service, LLC
7530 South State Street
Midvale, Utah 84047

CONTRACTOR

KW Engineering
10 West Broadway, Suite 800 I
Salt Lake City, UT 84101
Lincoln Harmer
801-657-4497

CUSTOMER

LOCATION OF PROJECT:
Snow College

DESCRIPTION OF PROJECT:
Humanities Building Controls
See enclosed specifications

PRICE: \$74,676.00

CONTRACTOR
Abel Nagy

Signature
Customer Service Rep. 05-19-17

Title & Date

CUSTOMER

Signature

Title & Date



PROJECT PROPOSAL & AGREEMENT SCOPE

Proposal shall include:

All labor and material to install the following:

- AMSS to supply and install new JCI Metasys controllers to replace the existing JCI N2 controllers. **NOTE: The quantity of the devices was determined by what devices were currently pulled in and communicating with the existing JCI front end controllers. If during the installation of the new controls additional devices are found, a separate written proposal will be given to replace, program, and commission these additional devices.**

Mechanical Room # 3: Chilled-Hot Water Plant:

- The mechanical room currently has a new JCI NCE and FEC BACnet controllers installed in the existing control panel. Devices are pulled into the campus ADS system. AMSS will work with KW Engineering to evaluate and change the "Sequence of Operation" regarding the staging and controlling of the chilled and hot water system for the building. At this time there are no new controllers proposed for this mechanical room, just re-programming and commissioning.

Mechanical Room # 2: Existing AHU's:

- AMSS will remove the existing JCI N2 controllers for the 2 ea. AHU's. Will replace with new JCI FEC and IOM controllers.
- Will reuse existing chilled and hot water valves, as well as temperature sensors.
- AHU 1 is a constant volume unit. Will work with KW on control sequence.
- AHU 2 is a VAV system. Will work with KW on new control sequence. Will reuse existing VSD, valves, coil pumps, and sensors.
- AMSS will pull a new network cable from the existing NAE 55 located in electrical room # 2. Will program FC BUS 2 on NAE for BACnet. Will pull all points into NAE after start-up and commissioning.

Mechanical Room # 1: Steam-Hot Water Controller:

- AMSS will remove the existing DX9100 controller from the existing control cabinet.
- Will install a new JCI FEC and IOM controllers.
- AMSS will work with KW on new control sequence and reset schedule for the hot water loop control.
- AMSS will reuse existing valves, pumps, and sensors.
- Check, test, and start: AMSS will verify proper system operation and control
- AMSS will pull new BACnet network down to new controllers. Will pull new controllers into the existing NAE 55 mentioned above.

7530 South State Street, Midvale Utah 84047
Telephone (801) 428-0400 • Fax (801) 428-0401



PROJECT PROPOSAL & AGREEMENT SCOPE

All labor and material to install the following:

RTU -1: Roof:

- AMSS will remove the existing JCI N2 controller from the existing McQuay DX rooftop unit.
- AMSS will supply and install a new JCI FEC and IOM controller in the unit.
- AMSS will verify and terminate all control wiring from the unit.
- Will work with KW in a control sequence for the unit.
- AMSS will check, test, and start the unit verifying proper unit and control operation. Will verify economizer damper rotation, as well as hot water reheat coil operation.
- AMSS will pull a new BACnet network up to the rooftop unit, connected to the existing NAE 55, mentioned above.

MAU -1 & 2: Roof:

- AMSS will remove the existing JCI UNT N2 controllers from the MAU control cabinets located below the roof line in the fresh air plenum feeding the existing fan coil units.
- AMSS will reuse the existing VSD's, Hot Water Valves, sensors, and damper actuators.
- AMSS will work with KW on control sequence for MAU's.
- Check, test, and start: AMSS will verify proper unit operation, temperature and status inputs from each unit.
- AMSS will run a new BACnet network wire from the existing NCE controller located in mechanical room 3. Will address devices, and pull in all points into the NCE.

VAV's: South East and West side in Building:

- AMSS will locate and replace the existing JCI VAV N2 controllers in each VAV found in the existing NCM controller, total of 11.
- Will install a new JCI VMA controller onto each VAV. Will use existing hot water valves.
- AMSS will add a new discharge air sensor, as well as a new JCI zone sensor with display, similar to existing.
- AMSS will program in OCC-UNOCC temperature and CFM set points, based on original set points. If needed, AMSS will adjust based on zone being served.
- Will work with Snow College personnel on the naming or numbering of the zones, then AMSS will pull all new VAV controllers into the existing NAE 55. All boxes will be named or numbered per Snow.
- Check, test, and start: AMSS will verify proper damper rotation, as well as hot water valve. Will program in correct K-factor and area into each controller. Will verify CFM and temperature readings.



PROJECT PROPOSAL & AGREEMENT SCOPE

All labor and material to install the following:

Fan Coil Units: Common area in Building:

- AMSS will remove the existing JCI UNT N2 controllers from a total of 14 fan coil units; will also remove the 2 ea. TEC controllers from the newer fan coil units feeding the Art Studio and the Art classroom, replace with FEC's.
- AMSS will supply and install a new JCI FEC controller to each unit.
- Will supply and install a new zone sensor to each unit. Will verify wiring and correct box in each area. Will pull new wire if needed.
- AMSS will supply and install new discharge air sensors for each unit. AMSS will reuse the existing hot water and chilled water pneumatic valves on each unit. **NOTE: The discharge sensor will aid in monitoring the unit valve operation. If any valves are found not functional, a separate written proposal will be given with our recommendation for repair.**
- AMSS will pull a new BACnet network wire to each fan coil unit
- Will work with Snow College personnel on the naming or numbering of the zones, then AMSS will pull all new Fan Coil controllers into the existing NCE controller. All units will be named or numbered per Snow.
-

Front End ADS supervisor programming:

- AMSS will verify that all new controls and control points will be pulled in and visible in the existing ADS front end located at Snow College.
- AMSS will remove the existing NCM from the tree in the ADS, the existing NCE and NAE are already communicating and are located on the tree in the ADS. AMSS will be programming the NAE and NCE, then verifying at the ADS.

Network and Control Wiring:

- All temperature and controls communication wiring to meet the requirements of Snow College. All control wiring will be installed per NEC and the industry standard.



PROJECT PROPOSAL & AGREEMENT SCOPE

This proposal excludes the following:

- Existing mechanical issues with all mechanical devices listed above, i.e. valves, motors, fans, pumps, heat exchangers, compressors, blowers etc....If any issues are found during the control retrofit, a separate written proposal will be given with our recommendation for repair or replacement.
- Fire and Smoke System: AMSS excludes all fire and smoke devices and programming. AMSS will reuse existing relays or contact points currently used on the existing controllers and control system. AMSS will program a shut down on a contact closure or a contact opening. AMSS will not determine when the fire system will change state; it will react to a change of state from the fire and smoke system.
- Existing VAV's: Currently we found a total of 14 existing BACnet JCI VAV controllers pulled into the existing NAE 55, (NAE-07 on the ADS tree). We are under the assumption that the devices are operating correctly at this time. AMSS will locate the end of the network wiring going to these devices and determine if we can use this location to connect to AHU 1 and 2. If not, we will use trunk 2 on the NAE. AMSS will work with Snow to determine the zone and the controller feeding the zone to clarify what the college is seeing and adjusting. If program issues are noted, a separate written proposal will be given to reprogram the devices as needed. This proposal does not include reprogramming the devices at this time. These controllers are separate from the 11 ea. Proposed above.
- Fan Coil Unit Hot and Chilled Valves: As noted above, AMSS will add a discharge air sensor to each fan coil. This will aid in noting or verifying a faulty valve, either not opening or closing. At that time, a separate written proposal will be given for the replacement of the valves. NOTE: Fan Coil feeding existing zone 149A had a DX coil installed in the duct work. We were not shown the condenser at the time of the walk through. We have enough outputs in the FEC to control the condenser, need to verify from the college if the unit is still in operation.
- After hours work: All work proposed is during normal business hours, Monday through Friday, 8 am to 5 pm. If after hours work is required, a separate written proposal will be given reflecting an after hours rate.

Price firm for 60 days



Gary R. Herbert
Governor

Utah State Building Board

3120 State Office Building
Salt Lake City, Utah 84114
Phone (801) 538-3010
Fax (801) 538-3844

MEMORANDUM

To: Utah State Building Board
Date: August 21, 2017
Subject: **Utah National Guard: West Jordan Airport Renovation (Non-State Funded)**
Presenter: Col. Tyler Smith, Utah National Guard

RECOMMENDATION

The Utah National Guard seeking permission to utilize federal funds to renovate the existing Army Aviation Support Facility (AASF) in West Jordan Utah at Airport #2. This request is in accordance with Utah Code Section 63a-5- 104(3)(b). All contracting will be completed through DFCM.

BACKGROUND

The current facility was constructed in 1972 for Huey Helicopters. These helicopters were much smaller and required significantly less maintenance than the current AH-60 Blackhawks and the AH-64 Apache Longbows. The facility cannot support the maintenance and pilot training duties that are required to meet missions today. The facility is not compliant to meet storage requirements or to provide flight line observations or oversight.

All funds will be provided by the Federal Government. This facility is leased thru the State but all lease and operation costs are paid through the Federal Government Cooperative Agreement with the State of Utah. No additional costs for maintenance funds will be attributed to the State of Utah as the Federal Government will continue to pay all associated fees. This renovation and future use of this facility is in line with the Utah National Guard Master Plan. This project will not create any adverse effect to the State of Utah or any of its agencies.

Attachment:
Memorandum from Utah National Guard



UTAH NATIONAL GUARD
JOINT FORCE HEADQUARTERS
12953 MINUTEMAN DRIVE
DRAPER, UT 84020

8 August 2017

MEMORANDUM FOR Chairman Ned Carnahan, State Building Board, State of Utah, State Capital, Salt Lake City, Utah.

Subject: Permission to expend Federal Funds to renovate National Guard Facility in West Jordan Utah.

1. This memo is in regards to the Utah National Guard seeking permission to utilize Federal Funds to renovate the existing Army Aviation Support Facility (AASF) in West Jordan Utah at Airport #2. This request is in accordance with Utah Code Section 63a-5-104(3)(b). All contracting will be done thru DFCM.
2. The Utah National Guard has received permission to renovate the AASF facility located in West Jordan, Utah with funds from the Federal Government. The cost of the project is \$7 Million. The project has been designed using Federal dollars. The current facility houses all Helicopter assets of the Utah National Guard.
3. The current facility was constructed in 1972 for Huey Helicopters. These helicopters were much smaller and required significant less maintenance than the current AH-60 Blackhawks and the AH-64 Apache Longbows. The facility cannot support the maintenance and pilot training duties that are required to meet missions today. The facility is not compliant to meet storage requirements or to provide flight line observations or oversight.
4. This facility also has no fire suppression in the building or hangar. The hangar has one "manually operated" water cannon that requires a person to stay behind and fight the fire from a fixed position inside the hangar. The facility does not meet current codes for any fire suppression, ADA access or compliance, State or Federal energy standards, seismic requirements, operational requirements, or the required storage for these units. There is also one large section of the facility that was previously used for a firing range and has been closed due to the inability to remove all lead contamination. This section will be removed and rebuilt as part of this project, allowing use of the lost facility.
5. All funding will be provided by the Federal Government. This facility is leased thru the State but all lease and operation costs are paid thru the Federal Government Cooperative Agreement with the State of Utah. No additional costs for maintenance funds will be attributed to the State of Utah as the Federal Government will continue to pay all associated fees. This renovation and future use of this facility is in line with the Utah National Guard Master Plan. This project will not create any adverse effect to the State of Utah or any of its agencies.
6. For any additional information or questions please contact Mr. Darek Sagers at (801) 432-4448 or at darek.sagers.nfg@mail.mil.

Sincerely

Tyler B. Smith
COL, GS
Director, CFMO
UTNG



Gary R. Herbert
Governor

Utah State Building Board

3120 State Office Building
Salt Lake City, Utah 84114
Phone (801) 538-3010
Fax (801) 538-3844

MEMORANDUM

To: Utah State Building Board
Date: August 21, 2017
Subject: **DFCM: BATC Capital Improvement Reallocation Request**
Presenter: Darrell Hunting, DFCM Construction Manager

RECOMMENDATION

This request is to reallocate FY18 Capital Improvement funding in the amount of \$350,000 that was approved for the Brigham City Campus – Facility Improvements to the HVAC-Life Safety Improvement project that was also approved using FY18 Capital Improvement funding. Please note that BATC has two additional HVAC projects on their FY18 Request list that were not funded in FY18. This reallocation will help ensure that all life safety issues related to HVAC on the main campus can be corrected at this time.

BACKGROUND

The FY18 Capital Improvement Request for the Brigham City Campus – Facility Improvements was made with the understanding that Public Safety would be moving out of the building and into a new location. It has now been determined that Public Safety will not be moving into this new location and will remain in the Brigham City Center for at least another 2 years.