CALENDAR YEAR 2018 PROJECTS:
ADMINISTRATIVE BUILDING / LUTHER STUDENT CENTER RENOVATIONS and PRESIDENT'S SUITE
ADDENDUM #1

CUSTOMER NAME: **Lake Land College**
DATE OF SUBMISSION: **March 12, 2018**

SCOPE OF WORK

Initial project focus will be the President's Suite renovations, providing space within the Administrative Building / Luther Student Center for staging and temporary relocation of College services and departments during the planned renovations. In preparation of the renovations and building addition to the Administrative Building / Luther Student Center, CTS will work with the College and Legat Architects to relocate campus utilities. As Legat Architects proceeds through design development, CTS will explore opportunities to complete portions of the building renovations yet this summer that can be completed in a reasonable sequence. We will support the College as the Program Manager for non-energy related projects, remaining the College's agent and advisor throughout the building renovations anticipated to start in fall of 2018 and carry through the summer of 2019. The Scope of Services have been identified below and will be presented to the Board of Trustees at the March 2018 meeting. Implementation of these projects will commence in the spring of 2018 and carry over through the following summer with the anticipated substantial completion of the Administrative Building / Luther Student Center renovations to be August 8, 2019 (*this will be greatly impacted by the early design developments with Legat Architects and meeting their milestone schedule dates*).

General Requirements
CTS will meet the CUSTOMER's intention to have a complete turnkey installation. The Scope of Work will be installed in a neat and workmanlike manner following all applicable building and seismic codes. CTS will provide owner training on systems installed through CTS. CTS will handle any necessary local permits and work with the CUSTOMER on any required ICCB documentation.

Construction Drawings & Submittals
The following applies to the planned renovations to the President's Suite and portions of the renovations that CTS provides to the existing Administrative Building / Luther Student Center:

A. For all equipment, systems and materials, CTS shall furnish submittals to LLC personnel. Before submitting, CTS shall check same against project conditions which may vary from dimensions on the drawings. Submittals shall bear evidence of having been checked by CTS prior to submission.
B. Architectural equipment, systems and materials can be transmitted in *pdf* format to the Director of Facilities or Vice President for Business Services.
C. LLC personnel will review shop drawings and submittals to see that they conform to the original drawings and specifications, but it shall be the responsibility of CTS to see that work complies with the Contract Documents, and fits to project conditions and to material installed later. CTS shall be responsible for dimensions and quantities.
D. Fabrication or installation of equipment, systems or materials shall not proceed until each respective submittal bears evidence of review by LLC personnel.

As-Built Drawings.
The following applies to the planned renovations to the President's Suite and portions of the renovations that CTS provides to the existing Administrative Building / Luther Student Center:

CTS shall, during progress of the work, record all changes or deviations from the original drawings and layout of the work and record critical dimensions of buried or concealed work. At the completion of the project CTS shall deliver to LLC one marked up set of "As-Built" drawings. CTS to provide AutoCAD architectural, mechanical, electrical and plumbing drawings.

SCOPE OF WORK
(Continued)

President's Suite:

Construction to be consistent with **JH Petty & Associates** Architectural and **WRF Engineers** Mechanical, Electrical & Plumbing Bid Documents, Drawings and Schedule. The overview below is specific to the work as identified on the design documents above.

CTS to provide a turn-key service for the Architectural and Engineering design, labor, material, and equipment for the construction / renovations to the existing Childcare Building, providing a 5,400-square foot President's Office & Suites. Site work will commence in April, with the anticipated building renovations completion in August of 2018.

The College will have the opportunity to review and approve final architectural plans, construction documents, and equipment schedules. All Work is to be completed in compliance with the International Building Code (IBC) 2012 and all applicable state and local building codes. CTS will lead a construction team to provide the energy related aspects of the project to optimize building efficiencies, lower future utility costs, and implement sustainable energy initiatives. This will include adding this building to the campus wide geothermal system. We have included air and water balance of the new systems installed as part of this contract. Final system training will be provided for the College staff, where all contractors will be present to ensure system operation as designed.

Final Design may impact overall contract pricing as we consider the College's preference in lighting, audio, visual, and room finishes. We have anticipated some of these cost, but the final pricing will be adjusted higher or lower based on the final selections by the College.

Because other activities of the College will be proceeding at the same time as the work covered by this Scope of Work, CTS shall cooperate with the College to ensure that all contract work progresses in a manner which does not conflict with other activities.

Project Clean Up:

CTS and our Contractors will be responsible for daily and weekly clean-up of any item resulting from their work. CUSTOMER will notify CTS if they are delinquent on the clean-up of their items. If CTS' Contractors does not immediately comply, CUSTOMER will have their debris cleaned up and deduct the costs for this work from their contract.

Exclusions:

1. We understand that there is no glycol in the existing chilled water, hot water, or geothermal systems in this building, and it is Lake Land Colleges desire to keep this systems glycol free. We specifically exclude glycol from this contract. There are control sequences in place to help protect against freezing, but these sequences alone do not protect against freezing in all situations.
2. Window Furnishings and Office Furniture, unless clearly specified in the Construction Documents.
3. CTS to provide electronic door strikes on main entrance doors. College to provide security and remote access control through Others.
4. Phone, Data, Intercom, kitchen appliances covered by College.

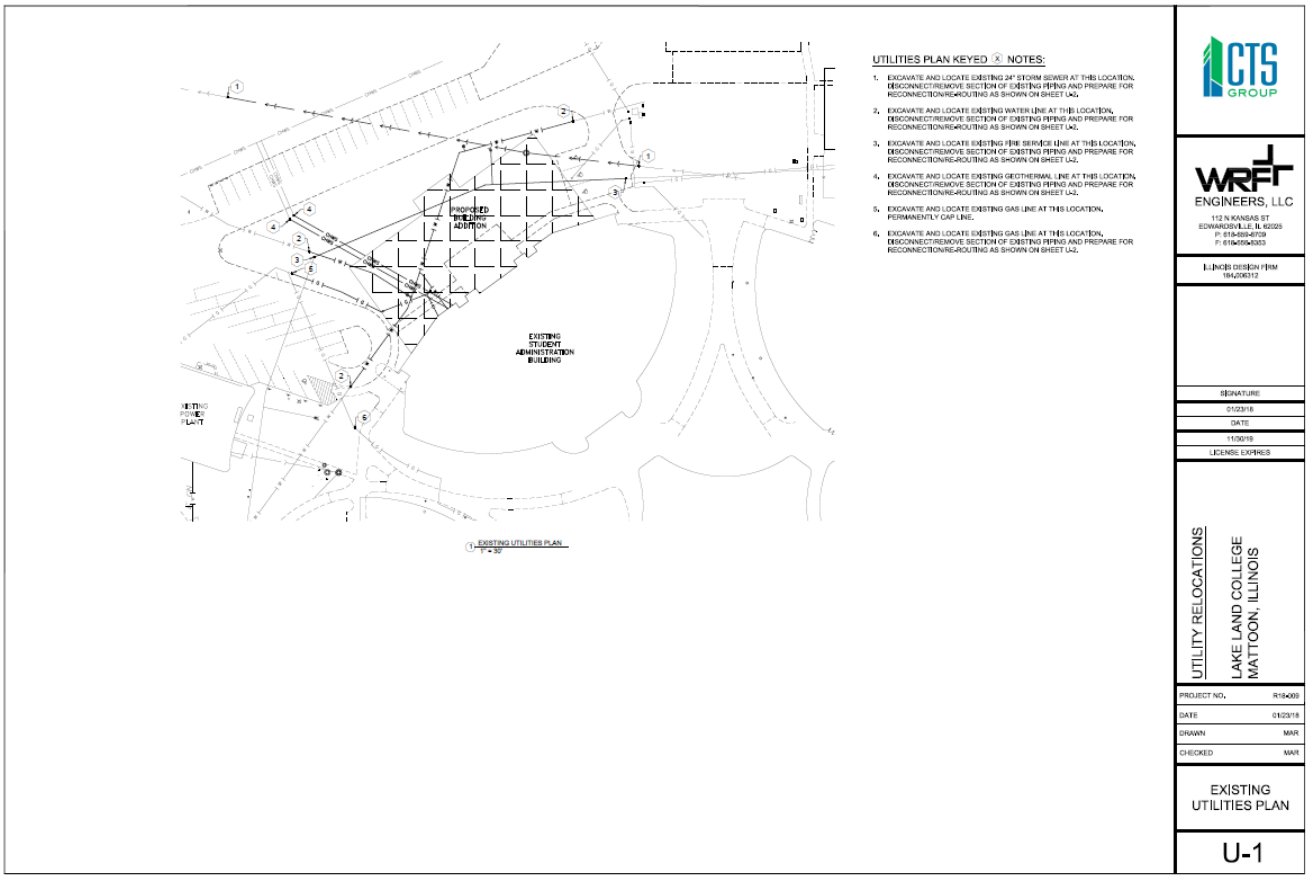
Price for President's Suite & Offices: $1,745,896

Does not include ALLOWANCE for Audio/Video, Board Room "Hidden Stations", and Video Conferencing - Suggest the College carry $75,000 for these items.

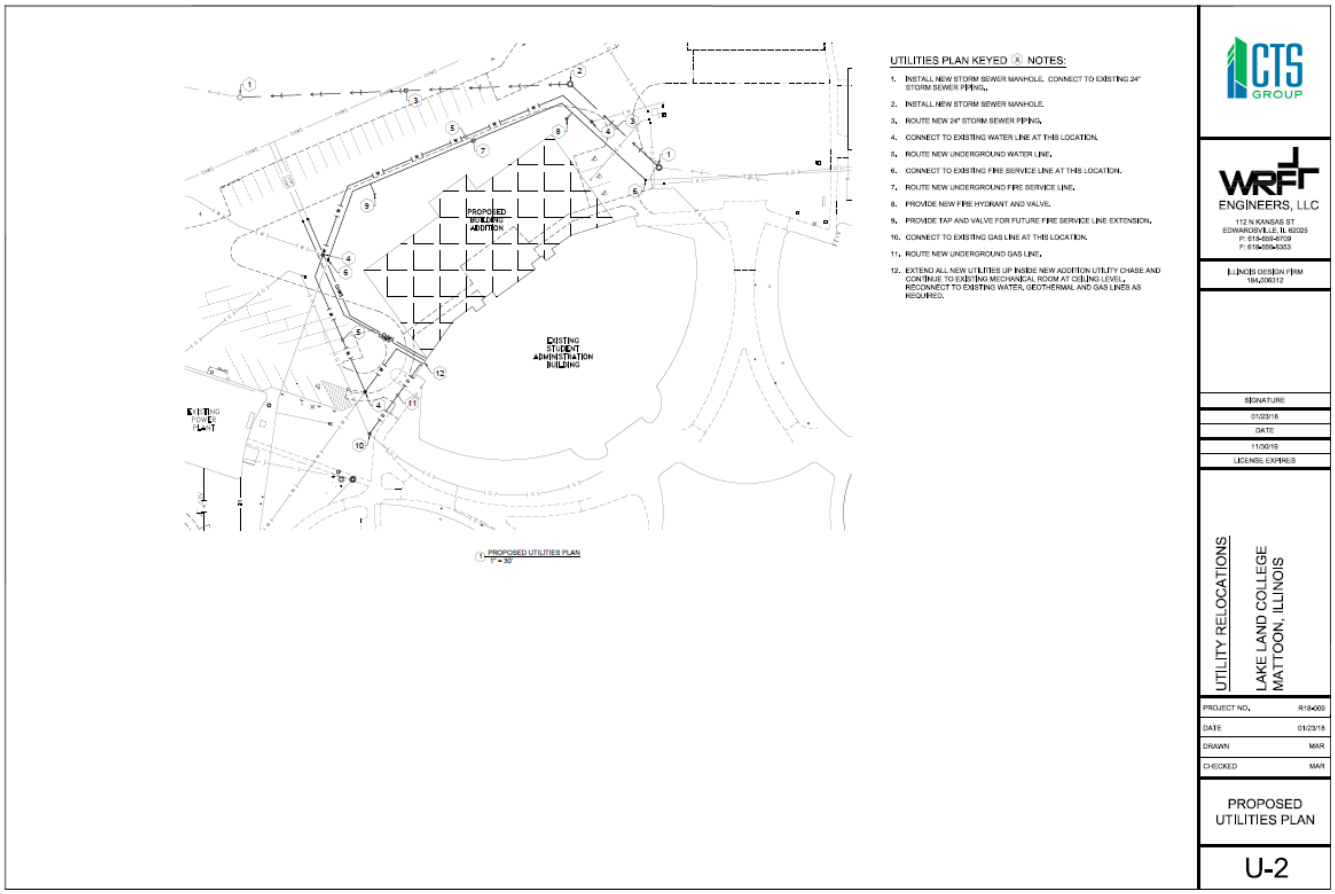
SCOPE OF WORK
(Continued)

Site Utilities:

CTS has worked with **WRF Engineers** to consider site utilities that will be impacted by the planned building addition of the Administrative Building / Luther Student Center. CTS will work with local trades to provide the planned relocation of site utilities as detailed in the design documents / drawings depicted below, and attached with the final contract.



SCOPE OF WORK
(Continued)



CTS recommends the College defer the final relocation of electrical transformer until the start of the construction of the Luther Student Center building addition.

Site utilities present challenges with depth and sizing, as many of these items are unknown until excavation begins. We have included $36,281 Allowance for unforeseen conditions. This will be managed by a Job Construction Log and the unused fund balance will be credited to the College.

Price for Relocation of Site Utilities: $520,031

$ 428,919 Design Development & Projected Site Utility Relocation Cost
$ 36,281 Unforeseen Site Conditions ALLOWANCE
$ 54,830 Final Electrical Transformer Relocation

SCOPE OF WORK
(Continued)

Administrative Building / Luther Student Center Renovations & Construction:

1. *Building Renovations*:

A previous phase of Performance Contracting campus renovations included HVAC modifications to Neal Hall and Administrative Building / Luther Student Center to provide geothermal air conditioning at both buildings. CTS will work with the College to consider expanding this work to include space heating and domestic hot water from new geothermal systems for Administrative Building / Luther Student Center. This will increase the energy efficiency of equipment connected to the geothermal loop and improve the balance of the condenser loop and wellfield.

The College is currently working with Legat Architects on designing the renovations & building addition for the Administrative Building / Luther Student Center. CTS has worked with Administration and Staff to consider renovations to the existing building space that can be combined with the proposed HVAC renovations and integrated with the building addition/renovation efforts with Legat Architects.

HVAC Systems ***(Completed throughout Construction 2018 & 2019)***
The existing VAV boxes, boilers and five air handlers will have to be modified/replaced to provide heating, like work recently performed at the original West Building. Expansion to include heating will require additional water-to-water heat pumps, modifications to the pumping and piping, as well as temperature control and electrical changes. Final Design of Systems will be impacted by renovations plans by Legat Architects. CTS believes the following work can be completed summer 2018 without impeding on the design efforts and minimum interruptions to College activities:

- Replace Air Handling Unit #4, serving the auditorium.

BUDGET Price for HVAC Renovations to Existing Building: $2,197,000

Contract will be adjusted upon final design of renovations by Legat Architects and may include HVAC renovations to the building addition at the College's discretion.

Replace Roof, Auditorium Riser & Cap Stone ***(Completed in summer 2019)***
Proposed scope of services would be consistent with previous work performed at LRC, Webb Hall and Northeast Building. Scope of Services entails:

- tear existing roofing down to metal deck,
- add 2 layers of 1 ½" 25 PSI iso insulation to metal deck,
- install a 060-mil white fully adhered TPO roof system,
- remove concrete coping at parapet walls and install a 2 x wood nailer on top of parapet – flash walls,
- install an aluminum term bar at top of flashing at interior walls,
- install a 24 ga prefinished metal counter flashing over term bar,
- install a 2 pc 24 ga prefinished metal fascia system at parapet walls,
- Power wash Auditorium Walls - stripping in seams and voids
- Prime walls and install base and top coat of Sika Coating.

BUDGET Price for Replace Roof, Auditorium Riser & Cap Stone: $594,000

At the College's discretion this project could be removed from the Scope of Work and fully credited with notice to CTS by January 15, 2019.

SCOPE OF WORK
(Continued)

2. *Program Management Services*:

CTS will perform as "Program Manager" for non-energy related projects, remaining the College's agent and advisor throughout the building renovations. As a Program Manager, CTS will provide construction insight and functionality to the future proposed building renovations, and support/lead the implementation of any non-energy related building renovations.

Pre-Construction Phase.
CTS will work with the College's existing Architect (Legat Architect) to oversee construction schedule and "constructability" of the proposed building renovations. CTS will review:

- 75% Construction Document Estimates with College and Architect,
- and will review 95% Construction Documents prior to release of bid documents.

CTS shall advise the College and Architect if it appears that the Cost of the Work may exceed the College's budget and make recommendations for corrective action and cooperate with the College and Architect in making such adjustments.

The non-energy related projects will be competitively bid direct to the College through trade contractors. CTS' role in this process may include some, all, or none of the following:

1) advise the College on site selection and on the selection of materials, building systems, and equipment,
2) participate in project design review meetings with the College and Architect,
3) make recommendations whenever design details might adversely affect costs, schedule, or constructability,
4) review 75% Construction Document Cost Estimate and recommend corrective action if the costs might exceed the budget,
5) review of 95% Construction Documents for completeness, clarity and construct ability,
6) provide input into site planning, sequencing and staging – work with Architect to schedule project construction related activities,
7) make recommendations to the College, regarding division of work in order to facilitate competitive bidding and awarding of subcontracts,
8) assist the College and Architect in advertising for bids and publishing the specifications,
9) work with Architect to conduct pre-bid conferences with subcontractors,
10) analyze the contractors' bids and make recommendations to the College on contract awards,
11) assist the College in selecting special consultants and testing laboratories,
12) work with Architect to prepare and execute subcontracts and purchase orders with sub-contractors, (College to issue contracts).

SCOPE OF WORK
(Continued)

Construction Phase Administration

CTS will provide a staffing plan to include one or more representatives who shall provide Project Site Supervision during Construction. CTS to provide on-site administration of the contracts for construction in cooperation with the Architect. CTS to provide administrative, management and related services to coordinate scheduled activities and responsibilities of the multiple prime contractors.

1) coordinate and direct the work of the subcontractors in lieu of a General Contractor, including holding weekly contractor meetings and two weeks look ahead scheduling. Update overall schedule every month,
2) work with Architect to conduct a general pre-construction meeting with subcontractors prior to the start of construction,
3) provide site security and control site access, (OTHERS to provide necessary site chain link perimeter fence with gates and designated area for trailers),
4) work with Architect to review and process shop drawings and other submittals, (Architect provide final approval),
5) establish, monitor and regularly update the construction schedule,
6) work with Architect and contractors to maintain and provide "as-built" record drawings,
7) review requests for changes, challenge the cost of the subcontractors as necessary, and make recommendations to the College and Architect,
8) work with Architect to review and process pay request applications by the subcontractors,
9) develop and monitor a comprehensive safety program for the Project,
10) conduct meetings with the College's and Architect representatives to review construction progress, scheduling, problems etc.,
11) Establish and maintain Quality Control and Quality Assurance standards.

SCOPE OF WORK
(Continued)

Compensation for Program Management Services

CTS request a down payment for general mobilization and work performed to date of contract approval.

Initial payment of $10,000

Pre-Construction Services:

CTS provided Pre-Construction Services will be reimbursed for direct cost incurred to support the College, per the itemized billing below (**Price or Pre-Construction Services Not to Exceed $46,000)**

Construction Phase Services:

It is anticipated Construction Services will coincide with the President's Suite Construction and HVAC/Interior Renovations of existing Luther Student Center. As result, CTS will waive a percentage fee cost structure and will be reimbursed for direct cost incurred to support the College with the construction of the Luther Student Center Addition and Renovations.

General Superintendent…… $114.50 per hour
Assistant Superintendent……$105.00 per hour
Travel Expenses……..$1.00 per mile

Compensation for Additional Services *(CMa Multiplier of 1.05):*

Project Engineer……..	$92 per hour
Administrative Assistant……	$45 per hour
Overnight Accommodations…….	NTE $ 400 / Week
Progress Photos……	$1,000
Safety……	$1,500
Office Supplies……	$2,700
Construction Job Trailer……	$800 / Month
Reimbursables ……..	Billed at Cost *with above CMa Multiplier*

PAYMENT SCHEDULE

Summary of Project Cost

Price for President's Suite & Offices:		$1,745,896
Price for Relocation of Site Utilities:		$ 520,031
Price for HVAC Renovations to Existing Building:	$2,197,000	
Price for Replace Roof, Auditorium Riser & Cap Stone:		$ *594,000*
Compensation for Program Management Services:		$ 10,000
And billable hours and reimbursables		
		$5,066,927

The College anticipates the Luther Student Center addition and renovations completed by August 2019.

The Architect foresees the release of three bid packages for Luther Student Center:

- Site Package by August 28, 2018
- Envelope / Interior Package by October 5, 2018

The following will be invoiced upon contract execution.

- A mobilization fee of 5% of the contract price for President's Suite Renovations
- Initial Payment of the Pre-Construction Services of Student Luther Center of $10,000

The balance of the payments will be invoiced during Construction of the Project.
The project shall be invoiced on a monthly basis for the work completed and equipment ordered for the project, per Schedule of Values. These progress invoices shall be submitted on the last day of each month. All invoices shall be billed as net thirty (30) days.

SCHEDULE OF SAVINGS

The Master Contract Savings is amended to reflect the planned renovations to the President's Suite.

In the spirit of sustainability on the Lake Land College Campus, the wasteful process of demolition and reconstruction is being avoided with the adaptive reuse and transformation of the unoccupied Child Care facility into the new Administration Offices for the College. The environmental benefits combined with energy savings are major factors of this sustainable development. The new systems are an integral component of the new building renovations and reflect the energy components of the building additions.

The avoided $1,935,407 Planned Capital Expenditures, per the Legat Architects Cost Estimate are as follows.

President's Suite				
	Unit (sq. ft.)	***Unit Cost***	***sub-total***	
Demolition	3072	$10	$ 30,720	
Renovation	3072	$150	$ 460,800	
Fire Protection / Sprinkler	5358	$5	$ 26,790	
Addition (new construction)	2286	$300	$ 685,800	
Parking	0	$15	$ -	
Site Allowance			$ 30,000	
Sub-Total			**$ 1,234,110**	
	% increase		***item cost***	***cumulative cost***
Phasing / Temporary Work	5%		$ 61,706	$ 1,295,816
General Conditions	10%		$ 129,581.55	$ 1,425,397
Bonds & Insurance	2%		$ 28,507.94	$ 1,453,905
Overhead and Profit	6%		$ 87,234.30	$ 1,541,139
Design / Construction Contingency	15%		$ 231,170.89	$ 1,772,310
Escalation - year 1	4.5%		$ 79,753.96	$ 1,852,064
Escalation - year 2	4.5%		$ 83,342.89	$ 1,935,407
Sub-Total			**$ 701,297**	
President's Suite - Total Cost			**$ 1,935,407**	

Measurement and Verification Methodology(s)

Energy Conservation Measure	Electric Savings Verification Method	Fuel Savings Verification Method	Other Utility Savings Verification Method
ECM #1: New HVAC Ground Source Heat Pump System, Lighting, and Controls	**Option D**	**Option D**	**N/A**

"Option D" is a verification technique where calibrated simulations of the baseline energy use and/or calibrated simulations of the post-installation energy consumption are used to measure Savings for the Energy Conservation Measures. Option D can involve measurements of energy use both before and after the Retrofit for specific equipment or energy end use as needed to calibrate the simulation program. Periodic inspections of the equipment may also be warranted. Energy consumption is calculated by developing calibrated hourly simulation models of whole-building energy use, or equipment sub-systems in the baseline mode and in the post-installation mode and comparing the simulated annual differences for either an average year or for conditions that correspond to the specific year during either the baseline or post-installation period.

eQUEST Energy Model Overview

To quantify the energy impact of the systems being installed in the repurposed facility, eQuest, a commonly used, open source energy modeling software tool was utilized. The building was modeled in the software considering all of its energy efficient building envelope upgrades, LED lighting, building automation and with the Heating, Ventilation and Air-Conditioning (HVAC) System options.

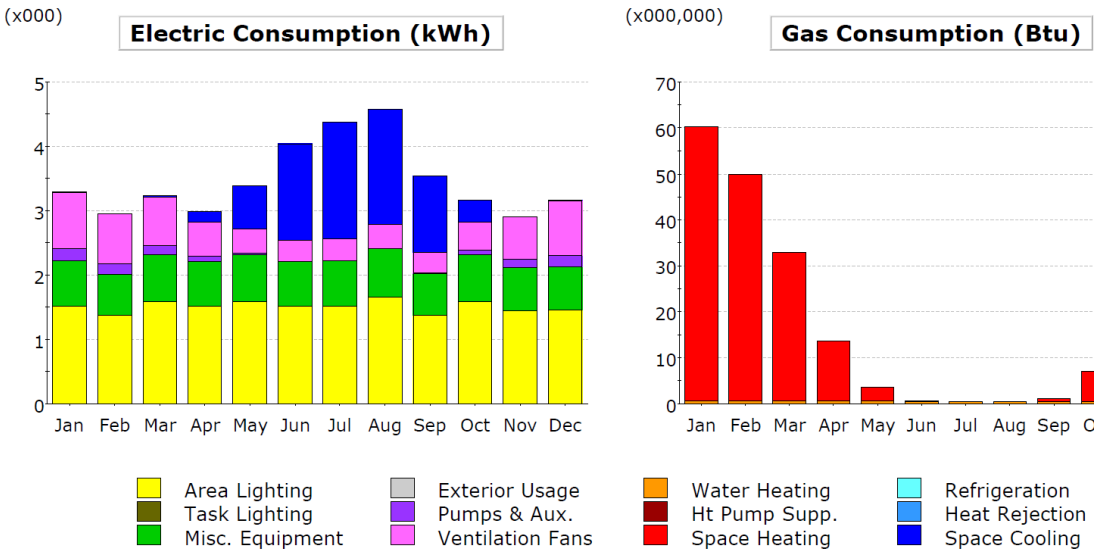
The initial modeling exercise considered utilizing natural gas-fired furnaces with DX Cooling provided by remote air-cooled condensing units, which are similar to the systems that were present in the facility for the Childcare operation. The results of this analysis indicated that the new Administration facility would consume 41,610 kwh of electricity and 2,441 therms of natural gas over the course of a calendar year. Utilizing the campus utility rates of $0.53/therm and $0.101/kwh, the annual energy costs for the facility would be $5,496. This translates to an Energy Use Index (EUI) of 90.52 kbtuh/SF.

Next, the model was reconfigured utilizing heat pump equipment that was connected to the existing campus ground loop infrastructure. The natural gas service to the facility will be eliminated by extending the campus geothermal system to the building and with the installation of ground source HVAC equipment. An electric domestic hot water heater will source hot water to the lavatories and sinks. The results of the modeling analysis indicated that the Administration Offices would consume 45,770 kwh of electricity over the course of a year. This translates to an annual utility cost of $4,623 and an EUI of 36.6 kbtuh/SF.

By adding the new Administration Office facility to the existing campus Geothermal infrastructure, Lake Land College will realize $873 in annual energy savings, which represents a 16% reduction in utility costs. The 53.92 kbtuh/SF difference in EUI represents a 147% decrease in energy utilization, that is, the Geothermal Systems will consume less units of energy and be far more energy efficient than a conventional HVAC system.

The eQuest results follow:

Conventional System Utilization



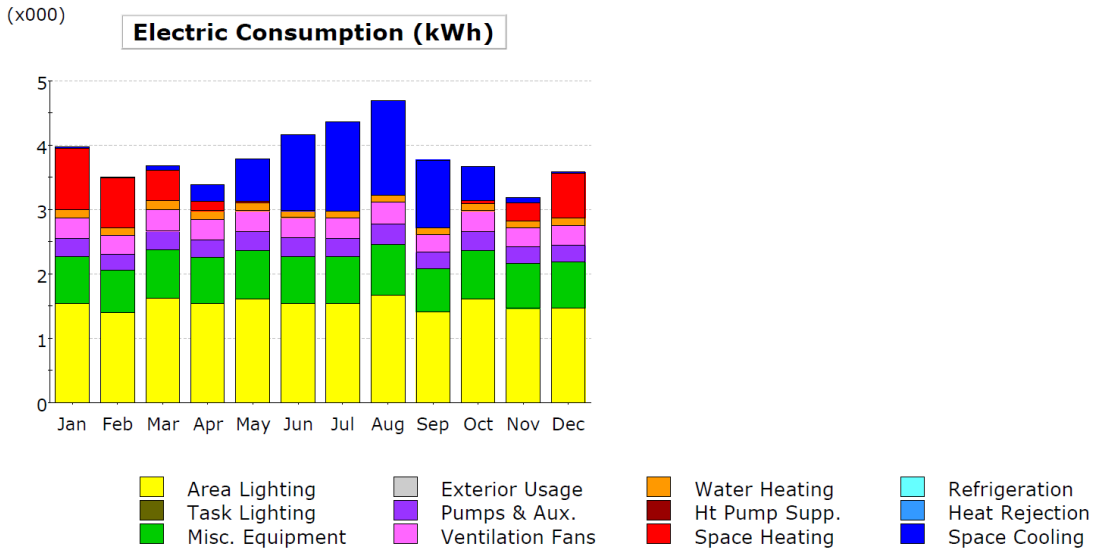
Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.01	0.00	0.02	0.17	0.67	1.50	1.83	1.79	1.19	0.35	0.01	0.01	7.55
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	-	-	-	-	-	-	-	-	-	-	-	-	-
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	-	-	-	-	-	-	-	-	-	-	-	-	-
Vent. Fans	0.87	0.78	0.75	0.53	0.37	0.33	0.33	0.37	0.31	0.44	0.65	0.85	6.59
Pumps & Aux.	0.18	0.16	0.15	0.08	0.02	-	-	-	0.01	0.06	0.14	0.18	0.98
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	0.70	0.63	0.73	0.70	0.73	0.70	0.70	0.76	0.64	0.73	0.67	0.67	8.36
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	1.52	1.37	1.59	1.52	1.59	1.52	1.52	1.66	1.38	1.59	1.45	1.45	18.13
Total	3.28	2.95	3.23	2.99	3.39	4.04	4.38	4.58	3.54	3.17	2.91	3.16	41.61

Gas Consumption (Btu x000,000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	-	-	-	-	-	-	-	-	-	-	-	-	-
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	59.82	49.38	32.34	13.04	3.11	0.01	-	-	0.78	6.53	23.59	49.77	238.39
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	0.54	0.51	0.58	0.55	0.52	0.46	0.42	0.43	0.36	0.44	0.44	0.48	5.74
Vent. Fans	-	-	-	-	-	-	-	-	-	-	-	-	-
Pumps & Aux.	-	-	-	-	-	-	-	-	-	-	-	-	-
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	-	-	-	-	-	-	-	-	-	-	-	-	-
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	60.37	49.89	32.93	13.59	3.63	0.47	0.42	0.43	1.14	6.97	24.03	50.26	244.13

Geothermal System Utilization



Electric Consumption (kWh x000)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool	0.01	0.02	0.07	0.26	0.66	1.19	1.40	1.47	1.06	0.54	0.08	0.02	6.75
Heat Reject.	-	-	-	-	-	-	-	-	-	-	-	-	-
Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-	-
Space Heat	0.95	0.77	0.47	0.15	0.02	-	-	-	0.00	0.04	0.28	0.70	3.38
HP Supp.	-	-	-	-	-	-	-	-	-	-	-	-	-
Hot Water	0.14	0.13	0.14	0.13	0.13	0.11	0.10	0.10	0.09	0.11	0.11	0.12	1.41
Vent. Fans	0.32	0.29	0.33	0.32	0.33	0.32	0.32	0.35	0.29	0.33	0.30	0.30	3.78
Pumps & Aux.	0.28	0.26	0.29	0.27	0.29	0.28	0.28	0.31	0.26	0.29	0.26	0.27	3.33
Ext. Usage	-	-	-	-	-	-	-	-	-	-	-	-	-
Misc. Equip.	0.73	0.66	0.77	0.73	0.76	0.73	0.73	0.79	0.68	0.76	0.70	0.71	8.73
Task Lights	-	-	-	-	-	-	-	-	-	-	-	-	-
Area Lights	1.54	1.39	1.61	1.54	1.61	1.54	1.54	1.68	1.40	1.61	1.47	1.47	18.39
Total	3.97	3.51	3.68	3.38	3.78	4.17	4.37	4.70	3.77	3.67	3.19	3.59	45.77

Gas Consumption (Btu)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Space Cool													
Heat Reject.													
Refrigeration													
Space Heat													
HP Supp.													
Hot Water													
Vent. Fans													
Pumps & Aux.													
Ext. Usage													
Misc. Equip.													
Task Lights													
Area Lights													
Total													

PROJECT ACCEPTANCE

CTS

FINAL DELIVERY AND ACCEPTANCE CERTIFICATE

Project Name _____

Agreement Effective Date: _____

Scope-of-Work (SOW) Item/Energy Conservation Measure (ECM): _____

To: CTS

Reference is made to the above listed Agreement between the undersigned and CTS, Inc. and to the Scope of Work as defined in Scope of Work herein. In connection therewith, we confirm to you the following:

1. The Scope of Work (SOW) Item/ Energy Conservation Measure (ECM) referenced above of the Agreement has been demonstrated to the satisfaction of the Owner's Representative as being substantially complete, including all punch list items generated during the Project Acceptance Procedure.

2. All of the Work has been delivered to and received by the undersigned and that said Work has been examined and /or tested and is in good operating order and condition and is in all respects satisfactory to the undersigned and as represented, and that said Work has been accepted by the undersigned and complies with all terms of the Agreement. Consequently, you are hereby authorized to invoice for the Final Payment.

Owner Name: _____

By: _____
(Authorized Signature)

_____
(Printed Name and Title)

_____
(Date)

APPROVALS:

The parties hereby execute this Agreement as of the date first set forth herein by the signatures of their duly authorized representatives:

CTS		**Lake Land College**	
By	_____	By	_____
Name	_____	Name	_____
Title	_____	Title	_____
Date	_____	Date	_____