



Commissioning Services Proposal for:

Lakeview Public Schools

RA Morton

April 23, 2021





April 23, 2021

Mr. Brad Bednar
RA Morton
bradb@RAMorton.com

RE: Lakeview Public Schools Cx 2021 Facility Upgrades

Dear Mr. Bednar, Mr. Goemann, and Mr. Dolejs,

KFI Engineers (KFI) is excited for the opportunity to provide commissioning services for Rochester Public Schools Secure Entry Renovation Projects. ***We understand the importance of providing a safe and secure environment for all building occupants.*** Our proposed team members have extensive hands-on building operation and maintenance experience and are committed to making certain your renovated entry systems function properly. ***We are familiar with the district having provided commissioning on the elementary addition and renovation, and our team can hit the ground running.***

We are truly experts in all of the solicited areas of work and ***have the expertise, depth of staff, and ability to foster team cooperation necessary to deliver successful project results.*** We understand the nature and complexities that can be associated with performing technical commissioning within K-12 schools, and more importantly, we know how to address them.

The following is what sets KFI apart and allows us to provide exceptional performance and value:

- 1) ***KFI's education experience is unmatched.*** We have been providing commissioning services for over 20 years and are at the forefront of advanced system optimization and Owner representation in educational environments.
- 2) We are ***National Environmental Balancing Bureau (NEBB)*** certified for commissioning as well as test and balance (TAB) for air and hydronic systems. Additionally, we hold ASHRAE certification for commissioning services.
- 3) Our ***full-time commissioning staff*** includes licensed professional engineers, master plumbers, former controls technicians, and sheet metal workers who can interpret installation quality and practical functionality. All of our commissioning staff work in the field and operate building control systems and utilize HVAC testing instruments on a continual basis.
- 4) Our inventory of test equipment for all air, water, noise, vibration, air quality, and psychrometric conditions, allows us to provide quick and accurate evaluation of performance problems in systems. ***KFI also owns and has team members trained to use an ion meter as referenced in the RFP to verify desired levels are achieved.***

KFI prides itself on technical commissioning. We believe it is imperative as the Owner's Commissioning Agent that we ***spend the majority of our time in the field performing inspections and physically testing equipment ourselves.***

Thank you for the opportunity to submit our proposal, we look forward to working with you on this important project. Should you have any questions regarding our qualifications or submittal, please do not hesitate to contact me at crbatenhorst@kfi-eng.com or 651-771-0880.

Sincerely,

KFI ENGINEERS

A handwritten signature in black ink that reads 'Casey Batenhorst'.

Casey Batenhorst, PE
Commissioning Engineer



FIRM OVERVIEW

KFI Engineers (KFI) is an engineering and commissioning firm that provides services for a wide range of customers including educational, industrial, commercial, institutional, retail, and healthcare organizations.

KFI has been providing commissioning services since 1998 and is at the forefront of commissioning work in education environments. We are proud to have successfully executed hundreds of millions of dollars in retrofits and new construction. To this day, we adhere to a diligent standard of care for our clients, getting involved during the design stage to establish the level of quality expected on our projects. We understand the difference between a proper installation and a marginal one and establish the required level of quality early in construction. There is no substitute for measurement and testing. Our NEBB certified commissioning staff utilizes KFI's fleet of trucks that contain calibrated testing equipment necessary to provide real-time information on system performance.

Our philosophy is simple and consistent, whether commissioning our own designs or the designs of others: treat contractors with respect while remaining firm, fair and timely with complex field situations. We believe in structured test protocols, point-to-point testing of control systems, the engagement of Owner's operations staff and the relentless pursuit of punchlist completion.

"I've worked with several people at KFI over the years, and everyone's been quite consistent – their goal has been to make sure the school district's desired outcome is met. It is obvious the entire firm values serving the customers' needs. They're responsive, they listen, they strive to meet our goals for system operations, budget, schedule, and consider future operational impacts."

Jim Gerber - Robbinsdale Area Schools (retired 2018)

EXPERTISE:

- Commissioning and recommissioning
- Mechanical and electrical engineering
- Central systems
- Energy audits
- Voice and data systems
- Budgets and detailed cost estimates
- Critical-path scheduling
- Control system design
- Preventative maintenance manuals
- Client training

SERVICES WE OFFER:

- Commissioning, recommissioning and retrocommissioning
- Controls system design
- Building infrastructure
- Utility systems design
- Process and chemical engineering
- Integrated energy modeling

Unique Qualifications

Our staff has experience in the operations of building HVAC and control systems along with ASHRAE and NEBB certifications. KFI also has extensive design experience from renovations to new construction and understands the level of effort required to meet project goals.

Dedicated Commissioning Team

At KFI, we have a dedicated commissioning department with full-time engineers and technicians who fully understand all aspects of the commissioning process. We believe this is a distinct advantage over other firms whose commissioning team members only intermittently oversee commissioning projects. KFI's commissioning staff is in the field on a daily basis testing and troubleshooting systems, which allows us to quickly look for and address issues that can be typical pitfalls for installing contractors.

Building Start

KFI uses Building Start's AirNab Test & Balance and Building Test commissioning software platforms for documentation management. Some of the features of these platforms include:

- The Owner and project management team have the ability to see stat-tracking dashboards to identify the active percentage of tests and checklists completed, number of active open issues (and whose responsibility they are), rate of issues identified and completed, as well as other performance metrics.
- Allows contractors to utilize a web interface to execute construction checklists and pre-functional and functional test procedures. Multiple users can access their portions of checklists at once to keep pace in the field instead of handing off completed lists between parties.
- Issues are logged and tracked in real-time as test forms are executed. All parties can see and respond to the issues lists via the web interface to have constant access to the most up-to-date issues log.

Commissioning Certification

KFI's commissioning staff is knowledgeable of the industry standards for delivering a quality, successful commissioning project to the Owner. KFI has staff members holding both ASHRAE - Building Commissioning Professional (BCxP), and NEBB - Building Systems Commissioning (BSC) and Commissioning Process Professional (CxPP) certifications. Additionally, KFI staff is active within the NEBB BSC certification program, providing technical updates and instructing at NEBB sponsored seminars. Our certifications, associated continuing education, and NEBB BSC leadership ensure that we are leading the industry, not following it.

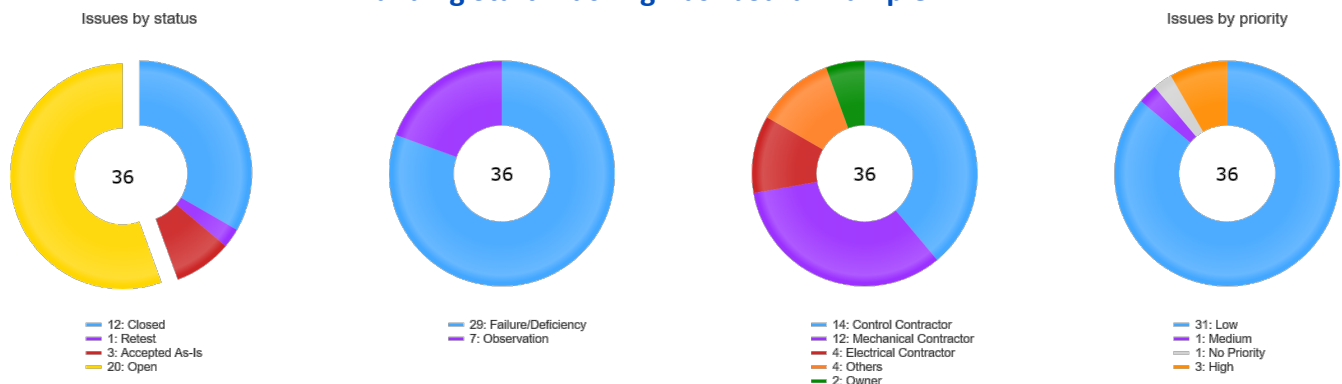
Test & Balance Certification

KFI is a NEBB test and balance (TAB) certified firm for both air and hydronic systems. NEBB TAB certification involves both written and practical (hands-on) examinations. Our staff is proficient in industry standard TAB procedures, required reporting, and the use and applications of the TAB instrumentation. KFI has the background to identify deficiencies and, if necessary, perform independent investigation into air-side or hydronic issues to assist with identifying solutions.

Controls Design

With experienced programmers on staff, we understand the details necessary to control a building. Ten of our staff members hold Niagara AX/N4 certifications. Our expanded control design allows us to deliver what is needed for equipment to perform in concert. Our control strategies are simulated and tested in our control's lab prior to release. We excel at creating well defined, industry standard, written sequences of operation and basic schematics. In addition, we uniquely offer documents beyond these to also include schematics, enhanced with control arcs, function block diagrams, graphical user interface layouts and installation drawings. Finally, when building control is paramount, KFI will write the actual programming code alongside the system designers to ensure that nothing is lost in translation.

Building Start Tracking Dashboard Example



PROJECT APPROACH

KFI practices the technical commissioning methodology, and has done so since our company's inception. Technical commissioning places an emphasis on the commissioning authority and the commissioning technicians actively performing and witnessing the construction, installation, and operational tests in the field, in lieu of simply creating checklists for contractors to fill out themselves. This style of commissioning provides an unbiased, independent review of the commissioned systems, delivering true value to the District and the project. Included below are several key aspects to our commissioning approach.

KFI's biggest benefit to the project comes from proactively identifying issues as early as possible. To implement this practice, a commissioning team needs expertise in all areas of design and construction. Our team has unique industry diversity and experience that other firms cannot match:

- Our commissioning department contains a unique blend of commissioning engineers, controls technicians, former design engineers, facility engineers, as well as tradesmen experienced in sheet-metal and pipe-fitting.
- We have multiple commissioning personnel who are TAB certified, and routinely execute TAB work.
- KFI's commissioning team routinely performs retrocommissioning and system troubleshooting projects

in existing facilities. These projects require our team to diagnose the root cause of issues, and either correct them ourselves, or design the solution to the issue.

Our team leverages its field experience immediately on the project. A thorough construction phase installation review is paramount to preventing turnover delays during testing. KFI's commissioning agents' responsibilities go beyond creating construction checklists and attending construction meetings. Our personnel actively inspect systems to identify installation deficiencies while they are still easy to correct. In addition to ensuring construction details and specifications are met, we also:

- Ensure manufacturer requirements are maintained. The ever-evolving technology in building systems requires continued research by our commissioning personnel to ensure that equipment is installed properly to allow optimal performance.
- Verify equipment access is maintained. This is critical not only for future Owner maintenance needs, but to ensure all equipment can be thoroughly accessed during TAB and start-up processes.
- Use our experience as installation professionals to ensure quality workmanship is maintained.

A poorly executed TAB process can be as devastating to facility operations as a bad controls installation. KFI will review the final TAB report for both completeness and



accuracy to the project documents, as well as conformance to the plan, process, and demonstration results. We will also ensure that critical data such as calibration factors, and system differential setpoints are documented in the report for future Owner reference. This has proven critical in the past if a controls system suffers a critical component failure and loses all existing setpoints.

The heart of the commissioning process is functional performance testing. KFI implements a robust testing process that goes far beyond simple setpoint adjustment to test sequences and reviewing automation trend logs. KFI believes that real commissioning is a technical, comprehensive process that involves hands-on physical inspection, technical knowledge of the controlled systems, devices, and their appropriate applications. We utilize our troubleshooting proficiency in order to identify the issues that were not identified by the contractors themselves. KFI has the ability to identify the root cause of an issue, instead of simply documenting a failure.

Our multi-step testing process includes:

Requiring the contractor to perform preliminary self-checkout prior to functional performance testing with our team. This step shakes out minor issues by the contractor, so our personnel can focus on optimizing the system.

Physical verification of the controlled devices and sensors to confirm their installations comply with manufacturer requirements for optimal performance.

Review of Building Automation System (BAS) graphics to ensure the animated graphical displays match the actual locations of sensors and devices in the systems or equipment.

Alarm verification: Alarm devices will be tripped to verify alarms are properly displayed, and the appropriate shutdown sequences are followed.

Sequence verification: This includes initial setpoint adjustments and overrides to prove immediate functions. A critical follow-up step is to review trends of the sequences after the facility is occupied to ensure the automation system properly controls the functions under load, without significant overshoot or hunting problems. Sequence testing includes normal mode, alarm sequences, and applicable emergency modes of operation.

After all of the above tests are conducted, and issues corrected, integrated systems testing is conducted to ensure the facility functions properly as a whole.

We will utilize key trend review and point verifications at the terminal level to provide best value to the District while identifying issues prior to turnover.

All issues are tracked on KFI's standard forms, and issued at the end of each testing session. KFI does not accept corrections until they are verified by our team.

Our commissioning personnel are experts in collaborating with engineers and contractors on issues that may arise. This is of the utmost importance because a unified project team, who works together to resolve issues in a timely manner, better provides the desired results the Owner is seeking. We encourage contractors to be present and assist with the functional performance testing. This leads to the understanding, and acceptance, of issues discovered.

KFI understands that we are not the engineer of record, nor do we try to be. There may be instances in which we find solutions that differ from the project documents. In these cases, we will provide suggestions to the design architect or engineer for consideration. In the end, we ensure all direction related to our issue's logs come from the architect, engineer, or the Owner, not the commissioning authority.

In summary, KFI's technical commissioning approach works. Our commissioning services result in the delivery of a quality project. Our thorough post-construction efforts ensure these results continue to be achieved.



Project Understanding

The project includes the replacement of packaged rooftop units. Construction budget is approximately \$2,000,000, and is anticipated to be turned over in August 2021.

Scope of Work

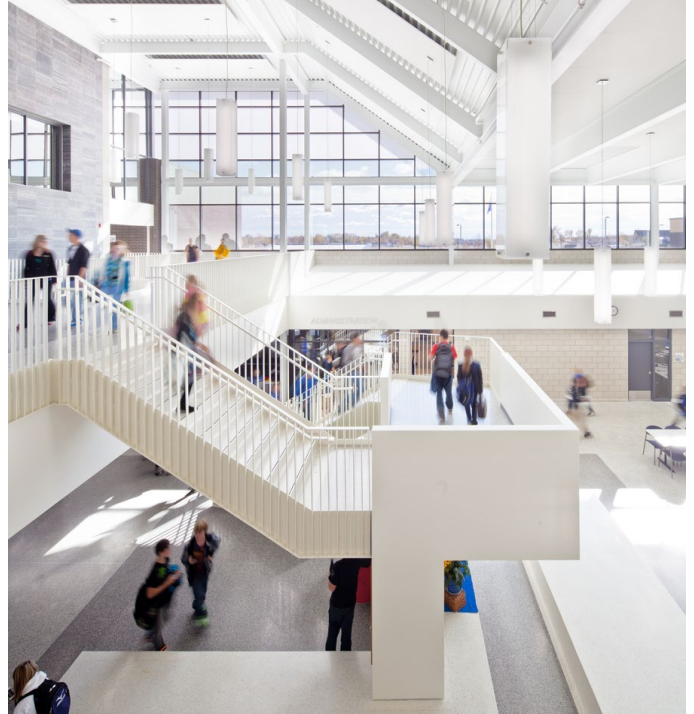
The following systems will be commissioned at each site, as applicable to the project scope:

1. HVAC Systems and Associated Controls (100% testing unless noted otherwise)
 - New RTUs (35 total; 26 with energy recovery)
 - Existing RTUs (9)
 - Indirect-Fired Units (2)
 - Air to Air Recovery Units (2)
 - Duct Furnaces (4)
 - Powered Roof Ventilators (16)
 - New Air Purification Units (9)
 - Test & Balance Review (sampling verification; refer to scope of work for rates)

The commissioning tasks to be performed are:

Construction & Acceptance Phases

1. Develop a Commissioning (Cx) Plan. Update the Cx Plan throughout the project. The Cx Plan will identify members of the Cx team, roles and responsibilities of each team member, the Cx schedule, and provide a narrative of Cx tasks.
2. Review project schedule, and provide the construction team Cx milestones and task durations for inclusion in the official project schedule.
3. Attend and lead Cx kickoff meeting to assist with Cx coordination. We anticipate this kickoff to be executed virtually.
4. Review initial equipment submittals for the commissioned systems concurrent with the design team. Submittal review comments will be forwarded to the design team for consideration and official inclusion in their submittal review comments.
 - Participate in a temperature controls workshop with the design team, owner, and contractors to review the controls submittal.
5. Develop custom construction checklists after all submittals have been approved by the design team. KFI will review the checklists' information in the field to verify accuracy. Checklists include:
 - Delivery acceptance criteria to confirm supplied equipment matches submittals.
6. Installation verification checks to ensure details, specifications, and manufacturer requirements are maintained.
7. Contractors will complete any contract document required for pre-functional verifications that verify equipment startups, BAS point-to-point verifications and preliminary sequence checks.
6. Perform one (1) construction site visit during the project. We anticipate this to occur during RTU start-up phase. During the site visit we anticipate the following tasks:
 - Review contractor progress on the construction checklists.
 - Review equipment and system installations for conformance to the construction documents, industry standards, manufacturer recommendations, and KFI experience. Document deficiencies on observation reports, and forward to the project team for review and action.
7. Review start-up plan from contractors (and provide comments), review start-up documentation for completeness and accuracy (and provide comments).
8. After reviewing and accepting the controls contractor self-testing (pre-functional testing) documents, KFI will execute functional performance testing at the sampling rates identified above. Testing includes the following tasks:



- Point-to-point verification (including sensor calibrations, input/output verification).
- Review graphics for accuracy to systems, menu operability, links, and schematic accuracy.
- Perform sequence testing through a combination of setpoint adjustments, trend reviews, and manual overrides. We anticipate remote BAS access to review sequences of operation or contractor-provided trend data from the BAS to prove sequences of operation.

KFI anticipates approximately three (3) trips during this phase to perform functional testing and TAB verification.

9. Provide one seasonal testing trip of HVAC systems to ensure review sequence testing of equipment under appropriate loads in all seasons.
10. Document functional test deficiencies on the Master Issue Tracking List and work with project team to ensure corrective actions are performed. After written notification of correction, KFI will retest deficiencies. KFI has budgeted one two-day trip to perform retesting. Additional time on site required for retesting will be billed to the responsible contractor.
11. Execute a TAB review. KFI's review includes the following tasks:
 - Conduct a TAB coordination meeting to review the TAB Plan with the project team.
 - Witness contractor procedures in the field.
 - Confirm minimum OA flow rates for 10% field sample with TAB technician, 100% verification via airflow performance calculation.
 - Randomly sample up to 10% of TAB values in the field at the conclusion of TAB work.
 - Review the completed TAB report.
12. Execute a performance review of new bipolar ionization (BPI) air purification equipment through independent sampling of ion level measurements. KFI's review will sample 5% of zones served by BPI equipment to verify minimum ion levels are achieved.

Closeout Phase

13. Provide a final commissioning report in PDF format at the conclusion of the project:
 - Provide a summary of the commissioning process (including a summary of any open issues & associated documentation), a building/system description, review of the tasks executed, and a brief summary of the testing methods executed for future reference by the owner.

- Include all commissioning documentation from the tasks identified above.
- Provide a summary of equipment deficiencies with regards to: performance/efficiency, executed documentation, and training.
- Provide recommendations for any of the systems.

14. Submit a letter to the School District for submittal to the building code official verifying that the facility's heating, ventilation, and air conditioning system has been installed and operates according to design specifications and applicable ventilation codes. If, in the opinion of the system inspector, the HVAC systems are not complete and/or operating properly, the letter to the district shall indicate the deficiencies and also state that the overall HVAC system provides the minimum amount of outdoor air as specified by code as indicated in a preliminary testing and balancing report.
15. Provide a warranty review walk-through with the owner's staff at the 11 month point of occupancy.

ALTERNATES

1. Alternate #1 Post-Occupancy Coordination Meetings: KFI has found that it has been beneficial to hold monthly commissioning coordination meetings throughout the first season of occupancy (September 1st through January 31st). We have found that these meetings have helped facilitate communication between the mechanical, TAB, controls contractors, and design team. Typical discussion points are:
 - Review schedule for any work to be completed
 - Review issues list status
 - Allow for immediate response/direction from the design team to any contractor questions

We propose five (5) conference call meetings.

CLARIFICATIONS

1. KFI reserves the right to copy the Owner on all Commissioning correspondence.
2. Due to the high number of RTUs on this project, KFI has revised scope of work to only witness 10% of OA flows set by the balancer. The control documents indicate that all RTUs will have airflow measuring stations, so through a combination of BAS trend review and TAB report documentation of flow station calibration we can verify outside air volumes are set.
3. Distribution of commissioning related review comments, issues logs, and checklists will be through KFI's forms or web-tools. We have not included time for reformatting our documents into other software platforms.

PROJECT TEAM

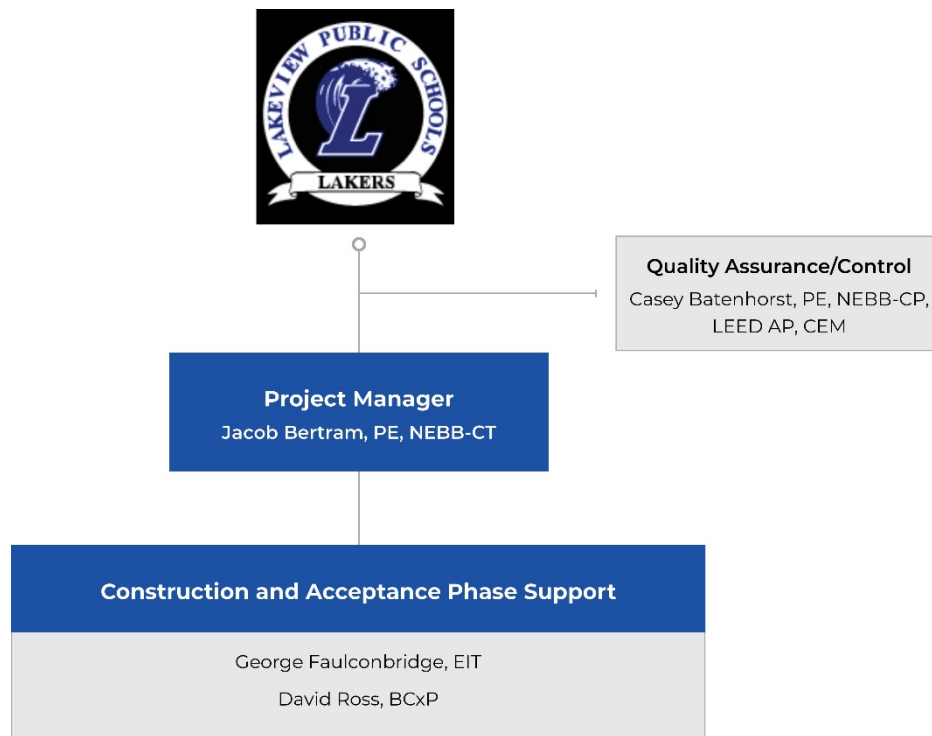
To ensure the school's building systems are complete and functioning properly upon occupancy, we have brought together individuals proficient in executing commissioning tasks in a thorough and efficient manner. Each proposed team member is dedicated full-time to our Building Performance Group, which is dedicated to hands-on, technical commissioning, re/retrocommissioning, TAB, and building automation controls.

Casey Batenhorst, PE will serve as the quality assurance/quality control resource for this project. Casey has been providing commissioning services for the last 15 years. He will provide high-level oversight of the project and involve himself whenever necessary to ensure the District is receiving the highest possible value and quality.

Jacob Bertram, PE will serve as the project manager for this project. Jacob is a licensed mechanical engineer with over 5 years of commissioning, re/retrocommissioning, equipment optimization, and energy improvement experience. Jacob was involved with the functional testing on our previous Lakeview Public Schools project. Jacob works closely with project teams to identify and resolve complex system issues to successfully deliver buildings that meet or exceed the operational and efficiency needs of our clients.

George Faulconbridge, EIT and Dave Ross, BCxP, will provide construction, acceptance and post acceptance phase commissioning services for this project. Both George and Dave specialize in the performance testing and issue resolution for K12 projects. Dave is an ASHRAE certified BCxP and has served as a commissioning agent for K-12 projects totaling over 6,000,000 square feet. Together they boast over 40 years of commissioning experience.

All of the proposed team members have successfully completed projects throughout Minnesota and fully understand the level of effort necessary to respond and address project issues promptly.



REFERENCES

Having provided consulting services for over 23 years, KFI has an extensive list of project experience. We strive to provide our clients with the highest possible value. Our clients' best interests are at the forefront of everything we do. Our advocacy covers a lot of ground, not just with our clients, but with their clients as well. They know that when we walk into a meeting with stakeholders, we will be prepared, effective communicators who inspire confidence. And in the field, working with contractors, we make sure they deliver. KFI has many clients who will attest to our owner advocacy and performance. We encourage you to reach out the references provided below.

Red Wing Public Schools

Mr. Kevin Johnson
Director of Buildings and Grounds
(p) 651-385-4507
(e) kjohnson@rwps.org

Roseville Area Schools

Ms. Shari Thompson
Business Manager
(p) 651-635-1615
(e) shari.thompson@isd623.org

Eastern Carver County Schools

Mr. Jim Muenzenmeyer
Building and Grounds Director
(p) 952-556-6292
(e) muenzenmeyerj@district112.org

Mounds View Public Schools

Mr. Chris Paquette
Assistant Director of Operations
(p) 651-621-6090
(e) chris.paquette@moundsvIEWSchools.org

North Branch Area Public Schools

Mr. Art Tobin
Building and Grounds Director
(p) 651-674-1091
(e) atobin@isd138.org

New London-Spicer Schools

Mr. Darren "Woody" Rutledge
Maintenance Supervisor
(p) 320-212-3552
(e) rutledged@nls.k12.mn.us



PROPOSED FEE

KFI will provide commissioning services described in the scope of work section for the base fee provided below. Direct and reimbursable costs are included in our base fee.

Task	Proposed Fee
Base Commissioning	\$49,950.00

Alternates	Proposed Fee
Alternate #1 – Post Occupancy Coordination Meetings	\$3,200.00



APPENDIX A – Firm Experience Form

Appendix A

Commissioning Agent Qualifications

KFI Engineers	Casey Batenhorst, PE	Commissioning Engineer	
Company Name	Contact Person	Title	
670 County Road B West	St. Paul	MN	55113-4527
Address	City	State	Zip/Postal Code
651.771.0880	651.771.0878	crbatenhorst@kfi-eng.com	
Telephone	Fax	E-Mail	

Description of Business

Commissioning Activities

Percentage of overall business devoted to commissioning services. 25 %

How long has the firm offered commissioning services? 22 Years

Average number of commissioning projects performed each year? 95 Projects

Systems (technologies) for which firm has provided commissioning services (check all that apply):

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Pkg or split HVAC | <input checked="" type="checkbox"/> Day lighting | <input checked="" type="checkbox"/> Commercial refrig |
| <input checked="" type="checkbox"/> Chiller system | <input checked="" type="checkbox"/> Electrical, general | <input checked="" type="checkbox"/> Telecommunications |
| <input checked="" type="checkbox"/> Boiler system | <input checked="" type="checkbox"/> Electrical, emerg. Power | <input checked="" type="checkbox"/> Thermal Energy Storage |
| <input checked="" type="checkbox"/> Energy Mgmt. System | <input checked="" type="checkbox"/> Envelope | <input checked="" type="checkbox"/> Labs & Clean Rooms |
| <input checked="" type="checkbox"/> Variable Freq. Drives | <input checked="" type="checkbox"/> Fire/Life Safety | <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Lighting Controls | <input checked="" type="checkbox"/> Plumbing | <input type="checkbox"/> |

Number of qualified professionals on staff who have directed commissioning projects: 15

List Qualifications: Professional Engineers - 5, EIT - 1, NEBB Certified Provider Cx & TAB - 4, NEBB Cx Process Professional - 1, NEBB Certified Tech TAB - 5, ASHRAE Building Cx Professional - 1, ACG CxP - 2, Niagara 4/AX Certified - 9, LEED AP - 2, Certified Energy Manager - 1

Prior Projects of a similar nature

Building Name	Location	Type of Project (new, additions or remodeling)	Contact Name	Contact Phone Number
Roseville Area Schools	Roseville, MN	New, Additions, and Remodels	Shari Thompson	651-635-1615
Red Wing Public Schools	Red Wing, MN	New, Additions, and Remodels	Kevin Johnson	651-385-4507
Alexandria Area Schools	Alexandria, MN	Remodels	Trevor Peterson	320-762-2141
North Branch Public Schools - 8 Buildings	North Branch, MN	Additions and Remodels	Art Tobin	651-674-1091