TO: Mr. John Speer, Supt.
    Board of Education

DATE: December 19, 2016

FROM: Jim Rotter, Director of Business Services

SUBJECT: Commissioning Service

District Administrators, along with representatives of OPN and Design Engineers, interviewed two Commissioning Contractors on December 1, 2016 to consider proposals for commissioning service related to the planned work at Prairie High School. Both contractors have previously worked with OPN and Design providing quality service on projects similar to the planned renovations to Prairie High School.

Commissioning is a new professional service under consideration by the District although we have learned that this is becoming common practice in the opening of new schoolhouse buildings and re-design of current buildings and structures for K-12 District’s. (see relevant and related experience in both proposals)

The Scope of services is outlined in each proposal, beginning on page 7 of System Works LLC’s proposal and in Section 5 of Cornerstone’s proposal. Representatives from both firms, who would be doing the actual work, were in attendance at the interviews. Both firms provided relevant, reassuring information about their services and the scope of the project.

Due to the fact that System Works LLC has a larger body of K-12 relevant service in the state of Iowa and having their main office located in the state, it is recommended that the proposal of System Works be approved for commissioning service on the Prairie High School renovation project at a proposed price of $158,835.

C: file
COMMISSIONING SERVICES

Prairie High School Addition & Remodel

Cedar Rapids, Iowa

SystemWorks LLC
Commissioning Sustainable Buildings
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November 28, 2016

James Rotter  
Executive Director of Business Services  
College Community School District  
401 76th Avenue SW  
Cedar Rapids, IA 52404

Mechanical Systems Commissioning – Prairie High School Addition and Renovation

Thank you for the opportunity to present our qualifications and proposal to provide commissioning for Prairie High School. SystemWorks enjoys working with school districts and takes pride in delivering a quality product to the district at the end of project completion. We have been commissioning new construction and renovation projects for the Ames, Ankeny, Fort Dodge, Indianola, Iowa City, Johnston, Southeast Polk, Pella and West Des Moines school districts for nearly ten years, and we are excited about the opportunity to work with you!

I feel our team stands apart from other commission firms in the following ways:

- We are full-time Commissioning Agents. We are an independent, third-party agency and the only Building Commissioning Association Certified Commissioning Firm in the state.
- I believe it takes a team to commission a building, and we have established a team capable of commissioning every aspect of your project. SystemWorks is comprised of individuals with backgrounds in engineering, HVAC, BAS controls, hydronics, plumbing, building envelope, test and balance, and energy analysis.
- Our office is located in West Des Moines and we are frequently in Iowa City and Cedar Rapids, allowing us to easily accommodate fluctuations in the construction schedule and maintain a strong presence on site.
- Over the past 12 years, SystemWorks has built strong relationships with many of the school districts around the state. We have provided commissioning services for several of the projects, leading to a higher success rate for the schools. I encourage you to contact any of the references I have included in this response; I am confident they will speak highly of the level of service they received.

Commissioning can take many forms. At SystemWorks, we take a hands-on, ‘in the weeds’ approach, which is reflected in the scope of work we have provided. The fee we have developed is based on the equipment and a scope of work we feel will meet your expectations and deliver you a quality product. We look forward to working with you on the details to ensure our process meets your needs.

Thank you again for this opportunity. Please contact me if you have questions.

Sincerely,

[Signature]

Scott Talbot, Principal  
Scott.Talbot@systemworksllc.com  
515.975.0575 office
ONE

Firm Overview

SystemWorks LLC
Commissioning Sustainable Buildings
Firm Overview & Project Team

OFFICE LOCATION
SystemWorks LLC
409 Fifth Street
West Des Moines, IA 50265

PRINCIPALS
Garry Caldbeck
TABB Certified Cx and TABB Supervisor
Scott Talbot
CCP, CMVP, LEED AP

HISTORY
Founded in 2003
18 Professional and Technical Staff
Professional Engineers
Mechanical Engineers
Controls Engineers and Technicians
TABB Certified Technicians
Master State Licensees
   HVAC, Refrigeration, Hydronics,
   Electrical and Plumbing

SERVICES
Commissioning
LEED NC Commissioning
Sustainable Commissioning
Building Enclosure Commissioning
Electrical Commissioning
Retro-Commissioning
Continuous Commissioning

Facility Analysis
Energy Audits
Energy Modeling
Utility Bill Analysis and Benchmarking
Trend Data Analysis
Thermal Imaging
Indoor Air Quality Testing

Testing, Adjusting and Balancing
Air and Hydronics
Calibrations
Duct Leakage Testing
Air Handling Unit Leakage Testing

ABOUT SYSTEMWORKS
SystemWorks LLC is an independent, third-party commissioning firm. Since its establishment in 2003, SystemWorks has been engaged in over 165 LEED certified commissioning projects and over 150 sustainable/retro-commissioning projects. SystemWorks was instrumental in the commissioning of the first LEED rated facility in the state of Iowa which achieved a silver medal in the USGBC’s green building rating system. SystemWorks employs 18 full-time professionals and technicians with an average of 20 years’ experience in the industry.

We deliver buildings that work.

SystemWorks also offers certified testing, adjusting and balancing services, building envelope commissioning, facility analysis, eQuest energy modeling, utility bill analysis and BAS trend data analysis, thermal imaging, and indoor air quality testing.

FIRM ACCREDITATIONS
SystemWorks is the first and only firm in Iowa to earn the Certified Commissioning Firm certification from the Building Commissioning Association (BCA). The BCA offers nationally recognized certification through the independent Building Commissioning Certification Board.

SystemWorks is a third-party testing, adjusting and balancing firm certified by the Testing, Adjusting, and Balancing Bureau (TABB). TABB is endorsed by SMACNA and their certification process is ANSI-accredited (ISO Standard 17024).

AFFILIATIONS
Our company is a member of the U.S. Green Building Council, Building Commissioning Association, Association of Energy Engineers, American Society of Heating, Refrigerating and Air-Conditioning Engineers, Allied Member AIA Iowa Chapter, Air Barrier Association of America, Sheet Metal and Air Conditioning Contractor’s National Association, and Testing, Adjusting and Balancing Bureau.
K-12 Building Commissioning Experience

Ames Community School District
Administration Building/Sports Complex, High School, Edwards, Fellows, Meeker, Mitchell and Sawyer Elementary

In the last two years, the school district completed multiple Elementary Schools. SystemWorks has been working closely with the Ames Community School District as they move forward through their long-term facilities capital improvement plan. The commissioned equipment within these projects include air handling units, boilers, chillers, energy recovery units, exhaust fans, geothermal heat pumps, variable air volume boxes, and their related components.

Services: Enhanced Cx, Testing and Balancing, Cx Kickoff Meetings, Controls Review, Site Visits and Submittal Reviews.

Client Reference: Gerry Peters, Director of Facilities Planning and Management, Ames Community School District
515.239.3795, gerry.peters@ames.k12.ia.us

Indianola Community School District
Emerson, Irving, and Whittier Elementary Schools, and the Indianola High School and Stadium

SystemWorks partnered with the Indianola Community School District to develop HVAC standards early in their facilities improvement campaign. Our team has commissioned Emerson Elementary, Irving Elementary, Whittier Elementary and several other buildings within the District. Emerson and Whittier have been completely remodeled and retrofitted with geothermal heat pump systems, to improve comfort in the space and reduce energy costs long term.

Services: Enhanced Cx, Testing and Balancing, Design Reviews, Commissioning Kickoff Meetings and Submittal Reviews.

Client Reference: Rick Branson, Facilities Director, Indianola Community School District
515.205.1352, Rick.Branson@indianola.k12.ia.us

Iowa City Community School District
Alexander, Hoover East, Penn, Coralville Central, and Twain Elementary Schools, and Liberty High School (New)

The Iowa City Community School District has begun a 10-year capital improvement campaign to modernize existing buildings and build new schools to accommodate their growing enrollment. Both new and existing facilities will have geothermal-based HVAC systems with energy recovery units providing ventilation. In the last two years, the school district completed Alexander, Twain, and Penn Elementary Schools, and began the construction of Liberty High School and Hoover East Elementary. Liberty High School is a very complex building, with heat recovery chillers and specialized air handling equipment to serve the large gym, auditorium and common areas.


Client Reference: Duane Van Hemert, Director, ICCSD Facilities Management
319.688.1020, VanHemert.Duane@iowacityschools.org

Johnston Community School District
Lawson, Timber Ridge, and Beaver Creek Elementary Schools, Summit Middle School, Johnston High School (New)

SystemWorks has commissioned many new construction projects and is currently commissioning the new 350,000 square-foot high school. Our team has also been very effective in identifying under-performing systems, resolving comfort issues, increasing energy efficiency, and utilizing utility rebates to perform retro-commissioning work on existing buildings in the district.


Client Reference: George Smith, Director of Building and Grounds, Johnston Community School District
515.278.5874, gsmith@johnston.k12.ia.us
TWO

Fee Proposal

SystemWorks LLC
Commissioning Sustainable Buildings
Fee Proposal

By and Between: SystemWorks LLC
409 Fifth Street
West Des Moines, Iowa 50265

and

Prairie High School Renovation & Addition
College Community School District
401 76th Avenue SW
Cedar Rapids, Iowa 52404

We are pleased to provide the following budget for review and consideration. Our fee is comprehensive, and it reflects the services we feel are necessary to provide the level of involvement and high quality results expected throughout this multi-phase project. These services are detailed in the following section, Project Approach & Scope of Work.

We appreciate your consideration of this proposal and hope that we have the opportunity to join your team. Please contact us if you have any questions or concerns.

COMMISSIONING SERVICES

<table>
<thead>
<tr>
<th>Prairie High School Renovation and Addition</th>
<th>Fee</th>
<th>Reimbursables</th>
<th>Accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced Building Commissioning</td>
<td>$ 158,835</td>
<td>Included</td>
<td>Yes</td>
</tr>
</tbody>
</table>

SystemWorks' hourly rate is $130.00/hour per person plus material and expenses for any additional work requested. No additional work will be performed without prior approval from the District.

This proposal is effective through: December 30, 2016

SystemWorks LLC

Scott Talbot, Principal
Scott.Talbot@systemworksllc.com
515-975-0575 office

College Community School District

Approved By

__________________________
Title

__________________________
Date
THREE

Project Approach & Scope of Work

SystemWorks LLC
Commissioning Sustainable Buildings
Project Approach

Experience and Expertise – We have highly trained and experienced professionals on staff that bring knowledge from all facets of construction. SystemWorks’ staff includes professionals that average 20 years of experience in the construction industry. SystemWorks has the “hands on” experience to provide a very detailed level of commissioning. SystemWorks has worked in several mission critical buildings around the state of Iowa.

Integrating the Commissioning Process – SystemWorks can easily integrate the commissioning process into the overall project through onsite communication with contractors and the design team. SystemWorks has earned the respect and trust from the local contractors, code officials, and design professionals. Our staff brings a “can do” attitude to the project and strives to work collaboratively with the design and construction teams. When this occurs, we frequently have contractors pointing out potential issues when we arrive on the job. Our proactive approach minimizes the number of issues identified during commissioning, reduces the time spent resolving issues, and ultimately helps the project finish on time.

Local Commissioning Firm – SystemWorks is a large local commissioning firm, which allows the team to take a “boots on the ground” approach to commissioning. This enables our commissioning team to quickly react to changes in the construction schedule, perform site visits on short notice, and ensure that there is a commissioning presence throughout the project.

Everything Under One Roof – SystemWorks has the ability to complete all aspects of the commissioning process in house. SystemWorks’ team consists of individuals that hold a Masters license issued by the state of Iowa for the trades, Certified Commissioning Professionals, Certified TAB Technicians, building envelope professionals, and several engineers. Our commissioning firm is a multi-disciplined group that has the capability to take an in depth look into each system within the project.

Controls Review Meeting – This is one of our specialties that we use to “get down in the weeds” and help mitigate control issues before the end of the project. The purpose of this meeting is to review the building system’s sequence of operation with the mechanical engineer, owner, control contractor and commissioning agent. This offers an opportunity for the team to discuss, resolve questions and ensure that the controls programming is written with the engineer’s intent and owner’s requirements in mind. Our controls experience will be an asset to your team.

Design Team Experience – Our team has delivered a number of successful projects working with Design Engineers and OPN Architects. Some of these projects include the Kirkwood Regional Center at the University of Iowa Research Park, Iowa City Schools, and the American Enterprise Group Headquarters building, pictured above.
Scope of Work

SYSTEMS TO BE COMMISSIONED

HVAC Systems / Control

- HVAC Systems
  - Central Plant (Boilers, chillers, cooling towers, associated pumps, etc.)
  - Air Handling Units, Energy Recovery Units, Rooftop Units
  - Supply, Exhaust and General VAVs
  - Science Lab Exhaust Hood
  - Fan Coil Units, Blower Coil Units
  - Unit Heaters, Radiant In-floor Heat, Fin Tube Convection Heaters
  - Exhaust Fans, Transfer Fans & Relief Fans
  - Make-up Air Unit and Kitchen Exhaust

- Sample verification of TAB contractors work

- Verification of BAS Control System Features (Graphics, Trending, Alarming, Operations, etc.)

- Lighting Control Systems (daylighting, occupancy sensors, etc.)

100% of central plant systems, air handling equipment, and other unique systems will be tested. 100% of identical equipment will be tested via BAS summary, with a 25% sample field verified.

The following systems are excluded from the commissioning scope of work at this time:

- CopperTree Analytics Software
- Electrical Systems
- Fire/Smoke dampers and Fire Alarm System

DESIGN PHASE SCOPE

- Lead a commissioning scoping meeting with the owner and design team to define the project goals and role of commissioning.
- Write a commissioning specification, 01 9113, for inclusion in the construction documents.
- Develop a Commissioning Plan
  - This document will include signature forms which comply with the IECC 2012 requirements
- Conduct a commissioning design review of the Construction Documents at 95% CD
  - Our team will review the construction documents for functionality, overall efficiency, commissionability, and serviceability. We will be looking for inconsistencies between the construction documents and the sequences of operation that could result in improper operation or installation, increased energy usage, etc.
  - These comments will be documented in Bluebeam
  - SystemWorks will attend a design review meeting to discuss comments with the design team
- Perform a back-check review of the 100% CD documents
CONSTRUCTION PHASE SCOPE

- Lead and document a commissioning kick-off meeting with the design team and contractors. Review the commissioning requirements with the entire team.
  - Distribute and review the Commissioning Plan
  - Distribute and review the Construction Checklists
- Review and provide comments to the owner and A/E on the contractor submittals/shop drawings relative to systems being commissioned. Other communications (ITCs/RFIs, etc.) will be reviewed internally to generate accurate test procedures, or at the request of the design team.
- Develop Pre-Functional “Construction Checklist” forms separated by phase. These forms will include a start-up and system check out procedure for critical components. These forms will be completed by the appropriate installing contractor and reviewed by SystemWorks prior to commissioning each phase.
- Controls Review Meeting - This is one of the most beneficial meetings to insure the owner gets what they want. The purpose of this meeting is to review the sequence of operation of the building’s systems with the mechanical engineer, owner, control contractor and commissioning agent. This offers an opportunity for the team to discuss, resolve questions and ensure that the controls programming is written with the engineer’s intent and owner’s requirements in mind.
  - SystemWorks will review the control contractor submittal, design engineer plans, specifications, sequences of operation and prepare a log of detailed questions and concerns to review and discuss at the onsite control meeting. SystemWorks will prepare meeting minutes to document the agreed upon path forward for each item discussed and follow up official (ASI/ITC, Re-Submittal, etc.) documentation will be back checked to verify.
- Generate functional performance test procedures as required to verify functional performance and correct sequence of operation of the commissioned systems.
- Periodically visit the site during construction to review and observe the mechanical systems installation.
  - Emphasis will be placed on mechanical system installation details to identify potential issues during construction before installation is complete, systems are covered or filled.
  - SystemWorks will witness System Flushing or Equipment Start-Ups at discretion during site visits.
  - Site visits will be documented with images and a report sent to the owner, design and construction teams.
- Periodically attend construction job-site meetings. SystemWorks will also call in as needed to participate in construction meetings if a team member is not on site.

FIELD TESTING PHASE SCOPE

Upon completion of each phase, SystemWorks will verify that the building’s HVAC systems are installed, calibrated and performing per the control sequences and construction documents (CDs).

- Perform functional testing. SystemWorks will:
  - Coordinate testing with the associated contractors once start-up and TAB is complete
  - Review system installation compared with plans and approved drawings
  - Step through the controls programming to verify sequences of operation
  - Simulate alarm and failure conditions
  - Sample verification of sensor calibration and point to point mapping
  - Utilize our own NIST certified test equipment as needed during testing
  - Field review and verify a sampling of the TAB as performed by the TAB contractor
  - Opposite season testing has been included
• Certain systems, especially the central plant, will be part of the test procedures in subsequent phases.

• Generate and utilize an Issue Log to track deficiencies and verify corrections are accomplished. A separate Issue Log will be generated for each phase. Reasonable time has been included to track the Issue Log through to completion and retest systems as needed.

• Generate a ‘Lessons Learned’ document of system benefits, functions, operation and insights to pass on to the facilities team. SystemWorks will hold two meetings, one at each substantial completion milestone, to discuss the Lessons Learned.

**ACCEPTANCE PHASE SCOPE**

• **Owner Training** – SystemWorks will confirm that the training requirements have been provided and documented. SystemWorks will verify that equipment warranties meet Owner’s responsibilities and are clearly defined. SystemWorks has not included time to attend or lead each training session.

• **Final Commissioning Report** (two anticipated - one at each substantial completion milestone):
  - Executive Summary with the list of participants and roles, project description, overview of commissioning scope
  - Recommendations for any improvements to equipment or operations
  - Commissioning Plan, Commissioning Design Review and Controls Review (first report only), Complete Issue Logs, Meeting Minutes, Site Visit Reports, and other commissioning documents generated by the team
  - Completed Construction Checklists
  - Functional performance status including observations or conclusions from testing of the equipment
  - One electronic copy will be provided to the owner

**COMMISSIONING CLARIFICATIONS**

• SystemWorks has included reasonable time for issue log completion and retesting of systems which failed their initial tests. If desired, additional testing and site visits required until satisfactory performance is achieved shall be the responsibility of the appropriate contractors, as outlined in the commissioning specification 01.9113.

• SystemWorks will coordinate commissioning activities with the GC/CM. SystemWorks does not provide direction to subcontractors.

• Plans, specifications, shop drawings, RFIs, PRs, etc., shall be provided to SystemWorks at no cost.

• SystemWorks has not included time for other trades (mechanical, electrical, controls, etc.). SystemWorks will require assistance from the BAS contractor’s technician, mechanical contractor and equipment providers during function testing. The responsibilities of the other trades will be outlined in specification section 01.91.13.

• No time has been included for post-occupancy trend data review, or a ‘10-month warranty review’, as CopperTree will be utilized by others for this purpose.
IN-HOUSE TALENT

SystemWorks' competency lies in our ability to not only provide professional design document review, but also our hands-on experience in the field. SystemWorks will not utilize sub-consultants or testing agencies to perform this work. Scott Talbot will be supported by other SystemWorks' personnel with complementary skills. This approach ensures that the building is commissioned from multiple perspectives. All the team members listed above will be able to fulfill the responsibilities of this project with their current workloads.
Scott Talbot, CCP, LEED AP, CMVP - Principal

PROFILE

Mr. Talbot brings over 21 years of experience with controls and mechanical systems in mission critical facilities. His specialties include direct digital controls and systems commissioning. Scott has been instrumental in developing our commissioning process and documentation. He works with owners and team members to instill quality and integrity into each project.

Scott is a Certified Commissioning Professional (CCP) and member of the Building Commissioning Association (BCxA). Scott is also a LEED AP BD+C and a Certified Measurement and Verification Professional (CMVP). He has proven management, organizational and communication skills and has led many successful commissioning projects.

EDUCATION

A.A.S. Degree – Electronics / Laser Electro-Optic Technology
Indian Hills Community College, Ottumwa, IA (1989)

CERTIFICATIONS & LICENSES

LEED Accredited Professional - USGBC
Certified CX Professional - BCA
Certified Measurement & Verification Professional - AEE
Commissioning Supervisor - TABB
Certified Testing, Adjusting & Balancing Technician - TABB
Phoenix Controls - Lab Controls
Bell & Gossett – System Design Pump Setup
Johnson Controls Training: Metasys Installation and Commissioning,
HVAC Operations, Metasys GPL, DX9100 Programming, Level 3
certified on ASC devices, Project Management

PROJECT REFERENCES

Central College - Roe Center LEED Platinum; Vermeer Science Center
LEED Silver; Exercise Science Building; Maytag Student Center; Scholte Hall; Physical Plant
World Food Prize - LEED Platinum
U.S. Federal Courthouse, Cedar Rapids Commissioning
Grinnell College - Athletic and Fitness Center LEED Gold; Noyce Science Center LEED Silver; Campus Center LEED Certified
University of Iowa/UIHC - Clinical Cancer Center LEED Silver;
Ambulatory Surgery Center LEED Silver; Iowa River Landing LEED Silver

PROJECT TEAM | Page 12
PROFILE

Mr. Boozell is a Certified Commissioning Professional with 21 years of experience in the mechanical and control industry. Rick is also a LEED Accredited Professional receiving his LEED AP BD+C credential through the U.S. Green Building Council. Rick's work experience also includes testing, adjusting and balancing with certification as a TABB Supervisor through the Testing, Adjusting and Balancing Bureau. For the past ten years, Rick's focus has been on systems commissioning and mechanical/control integration.

EDUCATION

International Training Institute - 4-year Sheet Metal Apprentice Program

CERTIFICATIONS & LICENSES

LEED Accredited Professional - USGBC
Certified Commissioning Professional - BCA
Commissioning Supervisor - TABB
Certified Testing, Adjusting & Balancing Supervisor - TABB
Certified Sound and Vibration Analysis Engineer – TABB
Phoenix Controls - Lab Controls
State of Iowa Journeyman HVAC License

PROJECT REFERENCES

West Des Moines Community Schools - Commissioning and TAB for eight school buildings
Southeast Polk Junior High School - Building Commissioning
Noyce Science Center, Grinnell College - LEED Silver
Upper Iowa University Liberal Arts Building - LEED Silver
Principal Financial Group Child Development Center - LEED Gold
Iowa Orthopedic Center - Commissioning and TAB
Delta Dental of Iowa - Building Commissioning and TAB
Animal Rescue League - Building Commissioning and TAB
Franklin Avenue Library - LEED Platinum Commissioning and TAB
Andrew Bennett, Mechanical Engineer

PROFILE

Mr. Bennett graduated from the University of Iowa with his BS degree in Mechanical Engineering with an emphasis in Energy Systems and the Environment. Since joining SystemWorks 2013, Andrew has attended manufacturer courses in HVAC systems, products and building envelope air barrier design. He has commissioned LEED and non-LEED projects, and has also been involved with retro-commissioning studies and led LEED certification of Existing Buildings.

EDUCATION

The University of Iowa – Iowa City, IA
Bachelor of Science: Mechanical Engineering (2012) with Honors

CERTIFICATIONS & COURSES

NCEES
Engineer-in-Training
AIA
Understanding and Achieving Effective Air Barriers
ExoAir AVB
Applicator Training
Xylem Bell & Gossett Little Red Schoolhouse
Design and Application of Water-Based HVAC Systems

PROJECT REFERENCES

Delta Dental of Iowa - LEED Silver Office Expansion
Market One Historic Renovation - LEED Platinum Targeted
1420/1430 Locust Street Historic Renovation - LEED Certified
Van Meter, Inc. Carroll - LEED Silver New Construction
Principal Child Development Center – LEED for Existing Buildings, Gold
Indianola Community School District
- Whittier Elementary HVAC Renovation
- Emerson Elementary HVAC Renovation
Kum & Go LEED Volume Program
Gary Schwartztrauber, Commissioning Authority

PROFILE
Mr. Schwartztrauber has over 24 years of experience in the controls field. His specialties include Automated Logic Controls, direct digital controls and systems commissioning. His knowledge of building control systems is focused primarily in the retrofit and new construction. Gary is currently commissioning the Johnston High School, a large new construction project featuring displacement ventilation and a modular chiller.

EDUCATION
A.A.S. Degree – Electronics / Robotics
Des Moines Area Community College, Des Moines, IA (1990)

CERTIFICATIONS & LICENSES
Automated Logic Training:
  Project Design & Engineering
WebCTRL Installation and Commissioning
  Eikon Programming
  View Builder (Graphic Design)
  Site Builder (Database design)
  Equipment Integration

PROJECT REFERENCES
Iowa State Research Park
  - Vermeer Research Building
K-12 Schools
  - Johnston High School
  - West Des Moines Schools
  - Southeast Polk Schools
  - Pella Schools – Lincoln Elementary
Kemin Industries
  - Central Utilities Plant Expansion
Winterset Library

PROJECT ROLE
Gary will lead the Controls commissioning team for Prairie High School.

CONTACT INFORMATION
Gary.S@systemworksllc.com
515.975.5252 cell

CURRENT ASSIGNMENTS
Johnston Community School District
  Johnston High School New Construction
Clarke County Hospital Addition
  Osceola, Iowa
Floyd County Hospital
  Charles City, Iowa
Palo Alto Hospital
  Emmetsburg, Iowa
Kemin Industries
  Worldwide Headquarters Building
City of West Des Moines
  EMS / Fire Station #17
Prairie City-Monroe
  Multiple K-12 renovations
FIVE

Project References & Work Samples

SystemWorks LLC
Commissioning Sustainable Buildings
Project: Kirkwood Regional Center, Coralville

The Kirkwood Regional Center at the University of Iowa was recently completed in the University of Iowa’s Oakdale Research Park. The six-story, 100,000 square foot facility houses a unique partnership centered on STEM education and other technical careers.

SystemWorks was involved in the early stages of design by participating in design reviews of the mechanical systems and control sequences. During the construction phase, SystemWorks provided site visit reports documenting best practices and highlighting any areas of concern. SystemWorks worked alongside the mechanical, sheet metal, and controls contractors to function test the mechanical systems as well as the electrical systems, emergency generator, fire detection system, and the photovoltaic system. SystemWorks also performed air and hydronic testing and balancing for this building as well as building pressurization testing.

This project has been submitted for LEED Gold certification.

Project Location:  Coralville, Iowa  
Date Completed:  2015  

Client Reference:  
John Windolf – Ryan Companies US, Inc.  
625 First Street SE, Suite 175  
Cedar Rapids, Iowa 52401  
319.329.9772, John.Windolf@RyanCompanies.com

Construction Cost:  $30,000,000  
Project Type:  LEED NC, Educational Facility  
Architect Reference:  
Steven Knierim – OPN Architects  
200 5th Avenue SE, Suite 201  
Cedar Rapids, Iowa 52401  
319.363.6018, sknierim@opnarchitects.com

SystemWorks Project Leader: Scott Talbot  
Services Provided:  LEED Fundamental and Enhanced Commissioning, Testing and Balancing  
Systems Commissioned:  Geothermal heat pumps, geothermal loop pumps, water to water heat pumps, glycol make-up controls, makeup air units, fin tube, energy recovery units, fume hoods, boilers, domestic hot water, lighting and daylighting controls, photovoltaic system, fire alarm/fire smoke dampers, and building pressure control.
**Fellows Elementary – Ames Community School District**

SystemWorks began work at Fellows Elementary School during the design phase of the project in early 2014. The classrooms are conditioned by fan coil units, with energy recovery units providing ventilation air to the space via terminal boxes. A geothermal system and pumps provided heating water for the HVAC systems throughout the building, while a water cooled chiller and pumps provided the chilled water. SystemWorks performed site visits to review the installation of the fan coil units, energy recovery units, terminal units, exhaust fans, pumps, and documented the flush and fill of the geothermal well field. Testing, adjusting and balancing services were provided by SystemWorks, allowing our team to validate 100% of the building’s HVAC equipment as an independent third party. Functional testing identified areas of improvement in the control and confirmed for the school district that their building was operating according to the design intent.

SystemWorks was an integral part of the construction team from the design phase all the way through the acceptance phase of the project. SystemWorks worked closely with Gerry Peters and the Ames Community School District, general contractor, engineer and contractors to ensure that the Ames Community School District had a fully functional facility at the end of the project.

**Project Location:** Ames, Iowa  
**Date Completed:** August 2016  
**Project Type:** Elementary School  
**Client Reference:**  
Gerry Peters – Director of Facilities Planning and Management, Ames Community School District  
1621 Wilson Avenue  
Ames, Iowa 50010  
515.239.3795, Gerry.Peters@ames.k12.ia.us

**SystemWorks Project Leaders:** Rick Boozell – Cx Agent; John Vande Kamp – TAB Technician  
**Services Provided:** MEP Commissioning and Certified Testing, Adjusting and Balancing  
**Systems Commissioned:** Energy Recovery Units, Heat Recovery Chiller, Fan Coil Units, Terminal Units, Geothermal System, Pumps, Exhaust Fans, Cabinet Unit Heaters and BAS Controls
US Federal Courthouse, Northern District of Iowa

The U.S. Federal Courthouse for the Northern District of Iowa is situated on the Cedar River in downtown Cedar Rapids. It houses 19 governmental agencies and includes five courtrooms, judges' chambers, jury assembly space, grand jury suite, prisoner holding cells, and offices for the U.S. Marshals Service, U.S. Attorneys, and state senators and representatives.

In the early stages of the project, SystemWorks assisted the owner in selecting mechanical, electrical and controls contractors by participating in interviews and reviewing qualifications. SystemWorks provided pre-commissioning as well as air and hydronic testing and balancing services. SystemWorks participated in factory mock-up testing of the building automation controls interface with major pieces of equipment including boilers and magnetic frictionless chillers.

The TAB scope included reviewing construction documents, preparing a TAB Plan, leading a TAB meeting, generating a log to track deficiencies identified during field testing, and preparing a final TAB report for review by the Cx Authorit y. SystemWorks also provided testing and verification to support the commissioning agent during the smoke control, make-up air and stairwell pressurization testing. Construction on the 289,000 ft² building began in 2009 and completed in 2013, which required a substantial manpower commitment and is the largest public-sector project SystemWorks has completed.

Project Location: Cedar Rapids, Iowa
Date Completed: 2013
Client Reference: Brad Thomason – Ryan Companies US, Inc.
14001 University Avenue, Suite 300
Clive, Iowa 50325
319.389.9145, Brad.Thomason@RyanCompanies.com

Construction Cost: $150,000,000
Project Type: LEED NC, Office Building
Architect Reference: James Koch – OPN Architects
200 Fifth Avenue SE, Suite 201
Cedar Rapids, Iowa 52401
319.363.6018, jkoch@opnarchitects.com

SystemWorks Project Leaders: Scott Talbot, Garry Caldwell
Services Provided: Certified TAB and Pre-commissioning, contracted to Ryan Companies, the Construction Manager
Systems Commissioned: Magnetic frictionless chillers, boilers, heat exchangers for domestic hot water system, computer room units, dedicated outside air units, AHUs and VAVs with reheat, electrical and security systems, building envelope, lighting and daylighting controls, photovoltaic, holding cell pressurization, and building automation system.
PROPOSAL FOR COMMISSIONING SERVICES

College Community School District

Prairie High School Renovation

Cedar Rapids, IA
November 17, 2016

Mr. James Rotter  
Executive Director of Business Services  
College Community School District  
401 76th Avenue SW  
Cedar Rapids, IA 52404

Re: Commissioning Services Proposal  
Prairie High School Renovation, Cedar Rapids, IA

Mr. Rotter,

Cornerstone Commissioning is pleased to propose commissioning services for the above project. We have extensive experience with numerous commissioning projects in educational settings and will leverage this experience to deliver a facility that meets or exceeds your expectations. Cornerstone’s business model is relationship-based, and we look forward to working with your school district and build a lasting relationship built on exceptional service.

We welcome the opportunity to review our proposal with you at any time. If you should have any questions or require any clarifications, please do not hesitate to contact me at 603-727-8582.

Respectfully submitted,

Bo Petersson, PE, LEED-AP  
Director of Engineering Services  
603-727-8582  
bpetersson@cornerstonecx.com

Cc: Dan Frasier, PE, CCP Cornerstone Commissioning, Inc.  
Doug Kumph, PE, Cornerstone Commissioning, Inc.  
Dave Fisher, Cornerstone Commissioning, Inc.
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1. Firm Introduction

Since 2001, Cornerstone Commissioning, Inc. has successfully delivered more than 400 commissioning projects within a variety of industries. Our staff has a keen ability to integrate with the entire project team from design through occupancy.

A large portion of these projects have required LEED Enhanced Commissioning in order to deliver finely tuned systems with optimal operation for the end users, and achieve USGBC LEED certification status.

Our experience comes from commissioning highly complex facilities, but also from our work on industry standards committees and training industry professionals.

Firm Philosophy

**Foundation:** Cornerstone is a unique commissioning company. We use a highly comprehensive approach to projects as a third-party consultant. Our team brings an unbiased focus to environmental control for building commissioning projects of all types. Strengthened by our proven systems expertise, a dedicated, service-oriented team of professionals, and a solutions-oriented approach; Cornerstone provides a streamlined, tailor-fit building commissioning process that consistently and cost-effectively delivers buildings that are fully fit for their intended use.

**Communication:** Cornerstone’s ability to connect with our project teams is a key priority. Our approach is collaborative between all key stakeholders including Owners, Architects, Engineers and Construction Managers. The way we communicate is to first understand the owner’s objectives for the project and the design/implementation plan, then we offer suggestions on how to resolve any unidentified issues or present possibilities for cost savings.

**Collaborative Approach:** Cornerstone recognizes each group member plays a role in the success of the project. We don’t recognize ourselves as the end-all/be-all authorities, but rather as experts within our aspect of the work who need to work cohesively with the entire project team to deliver a successful project.

**Documentation:** Cornerstone gives significant attention to the development of the Commissioning Performance Verification Criteria document, the Commissioning Plan and the Commissioning Specifications so that we may describe roles, protocols, and expectations in a concise but detailed format. We also use a .unique database, which we developed, to compile and clearly report on all results.

**Coordination:** Cornerstone and the designated Construction Managers collaborate during the design and construction phases to provide the optimal integration of commissioning activities into
the construction schedule. Cornerstone has proven results on multiple projects for which final successful delivery occurred months ahead of the scheduled completion via this approach.

**Hands-on Approach:** Cornerstone is differentiated from most other firms by giving contractors the ability to concentrate on the most crucial installation details required to achieve facility performance the first time testing is run. Cornerstone uses a hands-on approach to complete testing. This non-traditional approach transfers commissioning time from contractors and has proven to be far more efficient and effective.

### 2. Commissioning Approach

**Key steps for effective MEP Commissioning**

**Commissioning Plan:** The Commissioning Plan describes which systems will be tested, when, how and by whom. The Commissioning Plan outlines responsibilities and commissioning protocols and procedures.

**Commissioning Performance Verification Criteria (CxPVC):** Cornerstone works with the Facility Owner and A/E team to develop the CxPVC to list essential operational/performance requirements & pass/fail criteria by which success will be measured.

**Pre-Functional Checklists (PFC):** Cornerstone prefers to perform pre-functional checks ourselves rather than delegate this to installing contractors. We have found this to provide better quality control, to be faster and potentially saves costs.

**Site Visits/Installation Inspections:** Cornerstone is on-site to observe the installation of systems and components from a commissioning perspective. Completion of Pre-functional checklists will be done in preparation for Functional Performance Testing.

**Acceptance Phase Activities:** Functional Performance Testing (FPT) and Integrated System Tests (ISTs) will be done on all commissioned systems, requiring interaction and involvement by all parties.

**Owner Training:** The owner's maintenance personnel will be trained on system during FPTs and ISTs, as well as through manufacturer training using relevant, effective O&M documentation.

**Final Commissioning Report:** A final commissioning report compiles all documentation to verify all commissioned systems have been started up and operate as required in all modes of operation, including failure scenarios. An electronic Systems Manual can also be provided with specific operational and preventative maintenance documentation.

**Turnover is Not Just a Hand-off:** Many of Cornerstone's projects can be considered as complex facilities. Therefore, we ensure owner’s operations and maintenance staff are well trained to manage their new facilities. We are often hired after turnover through the development of preventive maintenance to assist in this important hand-off.
Commissioning by Phase

Throughout the design, construction, acceptance and warranty phases of a project, Cornerstone's hands-on approach is dedicated to every last detail and is why we consistently deliver compliant projects that provide efficient and cost-effective performance.

Cornerstone provides comprehensive Commissioning for every phase

- **Design Phase Commissioning Approach:** Cornerstone's most successful projects occur when we have been hired between Schematic Design and Design Development documents. Typical Cornerstone input of greatest value includes such topics as:
  - System selections
  - Envelope design effects on sizing of mechanical systems
  - Oft-neglected significant and cost-effective energy saving opportunities
  - Unique laboratory design options
  - Integration and application of pertinent standards and guidelines

- **Construction Phase Commissioning Approach:** During construction, Cornerstone works closely with the project team, especially the Construction Manager, to integrate commissioning activities into their project schedule. We are also proactive in supporting the CM to prepare key subcontractors for testing, which includes observing and documenting all systems' performance to ensure systems are functioning in accordance with the Owner's objectives and the contract documents. Cornerstone is highly effective in leading the project team to efficient and conclusive issue resolution.

- **Acceptance / Turnover Phase Commissioning Approach:** Cornerstone stands out from other firms by relying less on contractors to perform Functional Performance Testing. Instead, we take a...
more hands-on approach to commissioning by utilizing Cornerstone’s experienced engineers and specialists to complete these tests. Responsible contractors are present initially to address issues before ongoing tests are completed, but after that, we perform the testing while they work on other systems or programming. This non-traditional approach transfers commissioning time from contractors to the Cornerstone team and has proven to be far more efficient and effective.

**Post Occupancy Phase**
Our team continues to focus on quality and performance long after turn-over, acceptance, and occupancy to provide our clients with optimal performance with longevity.

**Cornerstone – Key Qualifications**
Acting as an independent agent on behalf of the owner, Cornerstone Commissioning brings an unbiased focus on environmental control to building commissioning projects of all types. Strengthened by our proven systems expertise, a dedicated, service-oriented team of professionals, and a solutions-oriented approach; Cornerstone provides a streamlined, tailor-fit building commissioning process, which delivers buildings that are fully fit for their intended use.

- Highly Qualified Commissioning Engineers and Specialists with well-rounded Facility Performance Skills
- Strong Engineering Knowledge and Design Review Expertise
- Highly Effective Contractor Coordination Process
- Significant Background with Complex Building Systems Commissioning Requirements
- Key Positions held by a Registered Professional Engineers
3. **Designated Project Commissioning Team and Staffing Model**

The Cornerstone Commissioning team selected for this project matches the experience and expertise required for the complexity of the facility. Our staffing model is customer focused. Cornerstone has never caused project delays in our 15-year history delivering over 400 projects nationally.

```
Bo Petersson
Project Executive

Dave Fisher
Senior Commissioning Specialist

Brian Billman
Senior Commissioning Engineer

Lucas Fisher
Commissioning Technician

Doug Kumph
Director of Operations

Brandon Birk
Commissioning Technician
```

### Roles and Responsibilities of Key Personnel

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bo Petersson, PE, LEED AP</td>
<td>Director of Engineering</td>
<td>Project executive for this assignment, overseeing project management, commissioning process and commissioning documentation. Will perform design reviews with a focus on energy efficient design, control sequences and submittal reviews. Oversee and manage LEED documentation.</td>
</tr>
<tr>
<td>Dave Fisher</td>
<td>Senior Commissioning Specialist Project Manager</td>
<td>Project Management, System Commissioning Process Lead for site activities. System analysis, control system trouble-shooting, trend analysis, Cx process integration, streamline system tests, schedule coordination, documentation and turnover requirements.</td>
</tr>
<tr>
<td>Doug Kumph, PE, LEED AP</td>
<td>Director of Operations</td>
<td>Operations Management, staffing, talent and performance management, information management, standardization of systems and work processes, scheduling support.</td>
</tr>
<tr>
<td>Brian Billman, PE, LEED AP BD+C</td>
<td>Senior Commissioning Engineer</td>
<td>Design reviews, submittal reviews, commissioning execution and support.</td>
</tr>
<tr>
<td>Brandon Birk</td>
<td>Commissioning Specialist</td>
<td>Commissioning execution and support. Perform site visits, support testing, commissioning documentation, scheduling, installation reviews and commissioning documentation.</td>
</tr>
<tr>
<td>Lucas Fisher</td>
<td>Commissioning Technician</td>
<td>Commissioning execution and support. Perform site visits, support testing, commissioning documentation, scheduling, installation reviews and commissioning documentation.</td>
</tr>
</tbody>
</table>

www.cornerstonecx.com
4. Relevant Experience

<table>
<thead>
<tr>
<th>Iowa State University, Ames, IA</th>
<th>LEED Gold Certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biorenewable Complex Phase I and Phase II</td>
<td></td>
</tr>
<tr>
<td>Cornerstones Role</td>
<td>Commissioning Authority</td>
</tr>
<tr>
<td>Project Size</td>
<td>240,000 SF</td>
</tr>
<tr>
<td>Project Cost</td>
<td>$106 M</td>
</tr>
<tr>
<td>Key Highlights</td>
<td>✓ Led the effort to make this building perform in accordance with the design. ✓ Flexible scheduling process that adapted to changing circumstances</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BBN School; Cambridge, MA</th>
<th>Musgrave-Vaillant Middle School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornerstones Role</td>
<td>Commissioning Authority</td>
</tr>
<tr>
<td>Project Size</td>
<td>15,000 SF</td>
</tr>
<tr>
<td>Project Cost</td>
<td>$11 M</td>
</tr>
<tr>
<td>Key Highlights</td>
<td>✓ Upgrade of existing systems that were past their replacement age. ✓ Some work activities had to be scheduled around school activities.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>City of Ames; Ames, IA</th>
<th>Public Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornerstones Role</td>
<td>Commissioning Authority</td>
</tr>
<tr>
<td>Project Size</td>
<td>78,000 SF</td>
</tr>
<tr>
<td>Project Cost</td>
<td>$20 M</td>
</tr>
<tr>
<td>Key Highlights</td>
<td>✓ Tight construction schedule ✓ Extensive testing of troublesome heat recovery system ✓ Construction and commissioning with parts of building in operation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dartmouth Hitchcock Medical Center</th>
<th>Williamson Translational Research Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornerstones Role</td>
<td>Commissioning Authority</td>
</tr>
<tr>
<td>Project Size</td>
<td>162,000 SF</td>
</tr>
<tr>
<td>Project Cost</td>
<td>$95 M</td>
</tr>
<tr>
<td>Key Highlights</td>
<td>✓ Includes animal research areas ✓ Schedule challenges ✓ Attached to a hospital in operation</td>
</tr>
</tbody>
</table>
5. Scope of Services

Commissioning Activities

Design Phase:
1. Perform one design review of 90% DD set. All comments will be submitted in writing.
2. Participate in design review meetings.
3. Provide a draft Commissioning Plan to describe process, roles, responsibilities, and schedule.
4. Provide a draft Commissioning Performance Verification Criteria Document (CxpVCD) that defines pass / fail criteria for testing.
5. Perform a back check of final CD Review set. Submit all comments in writing.
6. Prepare a Commissioning Specification to be included with the Construction Documents. The Commissioning Specification will define requirements of other contractors related to commissioning, and also define tasks required to meet the requirements of substantial completion.
7. Review and comment on proposed construction schedule from a commissioning perspective.

Construction Phase:
1. Update the Commissioning Plan, and CxpVCD documents.
2. Conduct Commissioning kickoff meeting to review the commissioning process and documentation with all relevant parties.
3. Review submittals for all equipment associated with commissioning. Provide comments in writing to be included in engineer of record submittal review. Cornerstone turns submittal review comments around within 3 business days to minimize delays in the engineer’s review.
4. Create Pre-Functional Installation Checklists (PFC) for all equipment associated with the project. Perform checks on site.
   Please note that Cornerstone prefers to self-perform these checks as opposed to delegating to the contractors as is customary. We have found this to provide better quality control, quicker completion and has proven to save overall project costs.
5. Hold commissioning meetings. Frequency of the meetings will increase as the project nears completion. Twenty-four (24) meetings envisioned for this project.
6. Develop and maintain a commissioning issues log and review with the team at each commissioning meeting.
8. Attend select equipment startups.
9. Perform functional performance testing to verify sequences and performance. All test results to be documented by Cornerstone.
10. Review TAB report. Provide commentary and list of deficiencies that do not meet the design or may cause operational issues.
11. Review contractor equipment startup plans and reports.
12. Review training schedule for compliance with specifications and owner requirements.
13. Review operation & maintenance manuals for all commissioned equipment.
14. Issue a commissioning report that documents all commissioning activities, tests, reports, open issues, and recommendations for future actions.

**Post Acceptance Phase:**
1. Perform seasonal testing

**List of Systems to be commissioned**

**Mechanical Systems**
- Air handlers and Rooftop units
- Air handlers with heat recovery
- Make up air unit
- Exhaust systems
- Pumps
- Heating water system including boilers
- Chilled water system including chillers
- Condenser water system including cooling towers and free cooling
- HVAC zone testing
  a. 25% random sampling of repetitive and non-critical zones. Higher percentage sampling in the beginning of the project to establish test parameters.
  b. 100% testing of critical and unique zones
  c. 100% of radiant slab zones
- Verify BMS sensor calibrations
- Terminal units such as fan coil units, cabinet unit heaters, etc.
- Test and Balancing (TAD) Review. Spot checking some areas with our own equipment

**Building Management System**
- All control sequences within the project scope will be verified.
- BMS interface with other systems such as boilers and chillers

**Electrical Systems**
- IR testing of electrical switchgear
✓ Lighting Controls System and Occupancy Sensors (25% sample testing)
✓ Integration of fire alarm system with HVAC systems

Plumbing Systems
✓ Domestic hot water systems
✓ Elevator sump pumps

Assumptions, Clarifications and Exclusions:
1. This is not a LEED project
2. TAB by others
3. It is our understanding that this project does not include a smoke evacuation system.
4. Fire alarm (FA) testing by others. Except for interface with the Building Management System (BMS) which will be tested by us
5. Testing of access control system not included in this scope
6. Testing of Audio Visual system by others.
7. Testing of IT system by others.
8. Certification of fume hoods by others. We will however test the functionality of the hoods.
6. Commissioning Fees and Rates

Fee (INCLUDING EXPENSES):

<table>
<thead>
<tr>
<th>Commissioning Phase</th>
<th>Commissioning Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Phase MEP Commissioning</td>
<td>$12,600</td>
</tr>
<tr>
<td>Construction and Acceptance Phase</td>
<td>$148,800</td>
</tr>
<tr>
<td>Warranty Phase</td>
<td>$5,100</td>
</tr>
<tr>
<td><strong>TOTAL COST</strong></td>
<td><strong>$166,400</strong></td>
</tr>
</tbody>
</table>

Fee above based on the assumption that the final phase of the project will be complete in late 2020.

**Hourly Rates**

<table>
<thead>
<tr>
<th>CORNERSTONE COMMISSIONING</th>
<th>Hourly Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name and Title</td>
<td></td>
</tr>
<tr>
<td>Directors</td>
<td>$155</td>
</tr>
<tr>
<td>Senior Commissioning Engineers</td>
<td>$145</td>
</tr>
<tr>
<td>Commissioning Engineers</td>
<td>$140</td>
</tr>
<tr>
<td>Senior Commissioning Specialist</td>
<td>$140</td>
</tr>
<tr>
<td>Commissioning Specialist</td>
<td>$130</td>
</tr>
<tr>
<td>Admin Assistance</td>
<td>$60</td>
</tr>
</tbody>
</table>

**Insurance Coverage:**
Cornerstone Commissioning insurance coverage summary:
- General Liability: $3,000,000
- Professional Liability: $3,000,000
- Automobile: $1,000,000
- Umbrella Liability: $4,000,000
- Workers' Comp.: $1,000,000

*Proof of insurance will be provided as part of contract award.*