

HAFER

architects ■ designers ■ engineers

August 30, 2023

Mr. Christopher Bentzel
Superintendent
Christian County Public Schools
200 Glass Avenue
Hopkinsville, KY 42240

Re: Bid for Commissioning Services
Christian County High School
5185 Ft. Campbell Blvd.
Hopkinsville, KY 42240
KDE #: BG 22-104

Dear Mr. Bentzel:

After reviewing the bid documents, Hafer recommends award of the contract for commissioning services to Performance Commissioning Agency in the amount of Eighty-Three Thousand Three Hundred Forty Dollars and Zero Cents (\$83,340.00).

Should you have questions or need additional information, please feel free to contact me.

Sincerely:



Jess Park
Associate, Mechanical Engineer
Hafer, PSC

HOPKINSVILLE-CHRISTIAN COUNTY ACADEMY HOPKINSVILLE, KY

COMMISSIONING PROPOSAL

PROVIDED BY:



PERFORMANCE COMMISSIONING AGENCY

109 WIND HAVEN DRIVE

SUITE 201

NICHOLASVILLE, KY 40356

P: (859) 277-0191



**PERFORMANCE
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Project: Hopkinsville – Christian County
Academy
Hopkinsville, KY

Date: 8/28/2023

Specification: 230800

The amount below is the estimated cost for Performance Commissioning Agency ("PCA") to provide commissioning services per the contract documents. This cost quote is only for the services provided by PCA and does not include any services provided by the owner, architect, engineer, or contractors unless stipulated below.

Commissioning services included:

☒ HVAC ☒ Domestic Water ☒ Lighting ☐ Building Envelope Testing

Total: \$83,340.00

Remarks:

Price includes Commissioning plan, System Verification, functional performance test, And final commissioning report.

Excluded from this quote are the following:

1. Any costs associated with delayed or failed test by any commissioning team member
2. Any costs associated with existing systems deficiencies beyond our control
3. Any costs associated with any commissioning team member's failure to perform their due diligence

If this proposal is accepted, please sign below and return.

Sincerely,

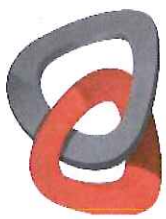
Steve Turner

Steve Turner, President, TBT, CXA
sturner@perfcx.com

Signature

Printed Name/Title

This quote is valid for 30 days from the date written above.



Systems to be commissioned:

- **VRF SYSTEMS**
- **EXHAUST FANS**
- **ROOFTOP UNITS**
- **WELDING & VEHICLE EXHAUST SYSTEMS**
- **HVAC CONTROLS**
- **KITCHEN EXHAUST & MAKE-UP AIR SYSTEMS**
- **DUCTLESS SPLIT SYSTEMS**
- **DUST COLLECTORS**
- **FUME HOODS**
- **DOMESTIC HOT WATER**
- **LIGHTING CONTROLS**

Additional services not included in the scope of work will be billed at \$115.00 per hour.

Once all equipment has been started and balanced, we will then begin functional testing. Functional performance tests will be created and carried out based on the design documents. PerfCx will functionally test all equipment above with the aid of the contractors to ensure that all equipment is operating at or as close as possible to design conditions.

Once all testing is complete, we will submit a detailed final report with our findings to the owner and engineer for review.

PERFORMANCE

COMMISSIONING AGENCY

COMPANY INFORMATION AND SUBMITTALS



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HISTORY

PERFORMANCE COMMISSIONING AGENCY (PCA) WAS ORIGINATED FROM 50 YEARS OF SERVICE IN THE TEST AND BALANCE INDUSTRY. IN THESE YEARS WE HAVE SEEN MANY COMMISSIONING PRACTICES AND KNEW THAT A BETTER PRODUCT COULD BE PROVIDED WITH LESS EXPENSE.

PERFORMANCE COMMISSIONING AGENCY WAS ESTABLISHED TO PROVIDE EACH CLIENT WITH AN EFFICIENT MEANS OF ESTABLISHING A HIGHLY EFFICIENT PRODUCT. OUR FIELD EXPERIENCE IN THE INDUSTRY CAN HELP STREAMLINE A COMMISSIONING PLAN WHICH WILL IN TURN BE MORE COST EFFECTIVE WHILE STILL ACHIEVING A HIGH PERFORMANCE BUILDING.

LEADERSHIP



STEVE W. TURNER **PRESIDENT, CxA, TBT**

OSHA 30 CERTIFIED
COMMISSIONING EXPERIENCE: 16 YEARS
BALANCE EXPERIENCE: 19 YEARS
STURNER@PERFCX.COM

I bring a real world approach to the commissioning field. My Knowledge and expertise come from over 30 years of working in the fields of HVAC and electrical. Early in my carrier I held a master HVAC license as well as being a licensed electrician and owning and operating my own sheet metal and electrical company. After working for myself 10 years I then entered the field of test and balance, and went to work for Thermal Balance Incorporated, where I spent the next fifteen years before taking over as President and CxA of Performance Commissioning Agency.



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ACG CERTIFICATIONS



Annual Membership Certificate

Awarded to

Performance Commissioning Agency, LLC

as a member in good standing of the AABC Commissioning Group for the year

2023

This company has met all requirements for membership and is entitled to all rights and privileges thereof. This certificate is renewable on an annual basis and expires December 31, 2023.

A handwritten signature in blue ink, reading 'Troy Byers', written over a horizontal line.

Troy N. Byers, P.E., CxA, President

A handwritten signature in blue ink, reading 'Ray Bert', written over a horizontal line.

Ray Bert, Executive Director



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hereby certifies that

Steve W. Turner, CxA

Performance Commissioning Agency, LLC

has met all prerequisites demonstrating independence and the technical, management, and communications skills required to implement the commissioning process in new and existing buildings, and passed the necessary examination to be awarded this certificate in recognition of their qualifications as an ACG

Certified Commissioning Authority

Registration number: 217-1509 . This certificate, valid only for the year 2023,
is renewable on an annual basis upon meeting all requirements
noted in the CxA Candidate Handbook.



Program #1215




Justin F. Garner, PE., CxA
Certification Council Chair


Ray Bert
ACG Executive Director

This certificate is the sole property of ACG and must be returned upon request.

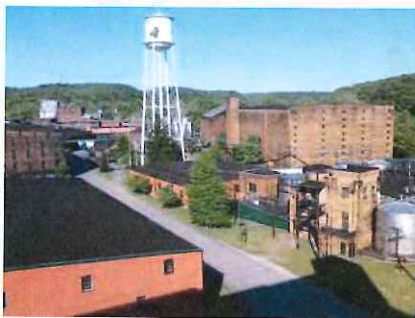
RECENT PROJECTS

LONE OAK MIDDLE SCHOOL
HVAC AND ELECTRICAL COMMISSIONING
PADUCAH, KY



ROCKCASTLE COUNTY HIGH SCHOOL
HVAC AND ELECTRICAL COMMISSIONING
MT. VERNON, KY

BAPTIST HEALTH MADISONVILLE PHARMACY RELOCATION
HVAC AND ELECTRICAL COMMISSIONING
MADISONVILLE, KY



BUFFALO TRACE DISTILLERY PROJECT TIRE
HVAC COMMISSIONING
FRANKFORT, KY

BOYLE COUNTY MIDDLE SCHOOL
HVAC AND ELECTRICAL COMMISSIONING
DANVILLE, KY



REFERENCES

HOLLY KING

Project Manager
Sherman Carter Barnhart
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JEFF HALVERSON

Engineer/Project Manager
Marcum Engineering
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BEN HOBBS

Mechanical Engineer
CMTA
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bhobbs@cmta.com

JAY JOHNSON

President
Thermal Balance
(859) 277-6158
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DAVID JACKSON

President
Hacker Brothers Inc
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JOSH MCRAE

Controls Project Manager
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KEVIN RICKMAN

Vice President
Automatic Building Concepts Inc
(270) 898-1385
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STEVE GRAVES

Project Manager
Triangle Enterprises
(270) 444-4995
sgraves@triangle-co.com

PURPOSE OF COMMISSIONING

BUILDING COMMISSIONING (Cx) IS THE PROCESS OF VERIFYING, IN NEW CONSTRUCTION, ALL (OR SOME, DEPENDING ON SCOPE) OF THE SUBSYSTEMS FOR MECHANICAL (HVAC), PLUMBING, ELECTRICAL, FIRE/LIFE SAFETY, BUILDING ENVELOPES, INTERIOR SYSTEMS (EXAMPLE LABORATORY UNITS), CO-GENERATION, UTILITY PLANTS, SUSTAINABLE SYSTEMS, LIGHTING, WASTEWATER, CONTROLS, AND BUILDING SECURITY TO ACHIEVE THE OWNER'S PROJECT REQUIREMENTS AS INTENDED BY THE BUILDING OWNER AND AS DESIGNED BY THE BUILDING ARCHITECTS AND ENGINEERS. RECOMMISSIONING IS THE METHODICAL PROCESS OF TESTING AND ADJUSTING THE AFOREMENTIONED SYSTEMS IN EXISTING BUILDINGS.

BUILDING COMMISSIONING IS A QUALITY-FOCUSED PROCESS NECESSARY FOR BOTH NON-COMPLEX AND COMPLEX MODERN CONSTRUCTION PROJECTS. NORMALLY THE INITIAL COMMISSIONING TEAM AND A TEAM LEADER (TYPICALLY KNOWN AS THE COMMISSIONING AUTHORITY OR CxA) IS INVOLVED FROM PROJECT INITIATION THROUGH ONE YEAR OF OCCUPANCY. IN MANY CASES AND IDEALLY, THERE IS AN ONGOING BUILDING ENHANCING AND COMMISSIONING PROGRAM AND TEAM FOR THE LIFE OF THE BUILDING. WHILE THE SERVICE METHOD CAN VARY FROM OWNER TO OWNER AND PROJECT TO PROJECT, THE BASIC FORMULA FOR A SUCCESSFUL BUILDING COMMISSIONING PROCESS INVOLVES A SYNERGY TEAM FROM PRE-DESIGN TO DEVELOP THE OWNER'S PROJECT REQUIREMENTS (OPR), COMMISSIONING SCOPE AND PLAN, INCLUDING BENCHMARKS FOR SUCCESS, REVIEW OF DESIGN DOCUMENTS AND CHECKLISTS FOR ACHIEVING THE OWNER'S PROJECT REQUIREMENTS (OPR), DEVELOPMENT OF CHECKLISTS AND VERIFYING A SAMPLE OF CONSTRUCTION CHECKLISTS AND SUBMITTALS, DEVELOPING TRAINING NEEDS AND EVALUATING TRAINING DELIVERED BY THE CONTRACTORS, WITNESSING AND VERIFYING CONSTRUCTION PHASE TESTS, AND PERIODIC SITE OBSERVATIONS DURING THE CONSTRUCTION PHASE, AND PERFORMING COMMISSIONING FUNCTIONAL TESTING AS THE PROJECT NEARS COMPLETION. WHILE THE PRACTICE OF BUILDING COMMISSIONING PROCESS IS STILL FAIRLY NEW IN THE CONSTRUCTION INDUSTRY, IT HAS QUICKLY BECOME COMMON PRACTICE AS BUILDING OWNERS AND DEVELOPERS TRY TO GET MORE OUT OF THEIR INVESTMENT. **THE COMMISSIONING PROCESS MAIN GOAL IS TO IMPROVE A PROJECT FROM THE DESIGN PHASE THROUGH POST CONSTRUCTION AND OCCUPANCY.**

REASONING FOR THIRD PARTY COMMISSIONING

AN INDEPENDENT, CERTIFIED, COMMISSIONING AUTHORITY UNDER CONTRACT TO THE OWNER IS THE PREFERRED CONTRACTUAL ARRANGEMENT BETWEEN A COMMISSIONING PROVIDER AND BUILDING OWNER. **A THIRD PARTY PROFESSIONAL BRINGS OBJECTIVITY AND PRACTICAL EXPERIENCE TO THE PROJECT TO ENSURE THAT THE OWNER WILL TRULY GET THE BUILDING PERFORMANCE THAT HE OR SHE EXPECTS.** ACG MEMBERS MUST BE INDEPENDENT.

ALTHOUGH CONTRACTORS MAY HAVE THE KNOWLEDGE AND CAPABILITY TO TEST THE EQUIPMENT THEY INSTALL, THEY MAY NOT BE SKILLED AT TESTING OR DIAGNOSING INTEGRATION PROBLEMS. IN ADDITION, SOME CONTEND THAT IT IS DIFFICULT FOR CONTRACTORS TO OBJECTIVELY TEST AND ASSESS THEIR OWN WORK, ESPECIALLY SINCE REPAIRING DEFICIENCIES FOUND THROUGH COMMISSIONING MAY INCREASE THEIR COSTS.

IT IS IMPORTANT TO INVOLVE THE INDEPENDENT COMMISSIONING AUTHORITY AS EARLY IN THE PROJECT AS POSSIBLE. THIS ALLOWS THE PROVIDER THE OPPORTUNITY TO REVIEW THE DESIGN INTENT FOR THE PROJECT, BEGIN SCHEDULING COMMISSIONING ACTIVITIES, AND BEGIN WRITING SPECIFICATIONS INTO BID DOCUMENTS FOR OTHER CONTRACTORS.

SAMPLE REPORT DOCUMENTS



**PERFORMANCE
COMMISSIONING AGENCY**
Partnering in Design Execution



HVAC COMMISSIONING SYSTEM VERIFICATION/START-UP CHECKLIST HOT WATER BOILER

PROJECT: _____

Equipment Name/Tag: _____ Location: _____

ITEM	✓	COMMENTS
PRE-START-UP INSPECTION		
Commissioning lock-out procedures reviewed	<input type="checkbox"/>	
Operation and maintenance information	<input type="checkbox"/>	
Boiler certificate / registration (copy attached)	<input type="checkbox"/>	
Mounting/support system	<input type="checkbox"/>	
Seismic restraints	<input type="checkbox"/>	
Maintenance clearance	<input type="checkbox"/>	
Local valving/piping correct (including expansion tanks and make-up water).	<input type="checkbox"/>	
Chemical cleaning and treatment (report attached)	<input type="checkbox"/>	
Temperature and pressure gauges	<input type="checkbox"/>	
Pressure relief valve	<input type="checkbox"/>	
Pressurization and leak tests	<input type="checkbox"/>	
Blowdown system	<input type="checkbox"/>	
Safety interlocks- low water and high temperature	<input type="checkbox"/>	
Combustion air supply and ventilation	<input type="checkbox"/>	
Insulation/lagging	<input type="checkbox"/>	
Stack and breaching	<input type="checkbox"/>	
Combustion chamber inspection	<input type="checkbox"/>	
Fuel system (including emergency shutdown and gas inspection certificate)	<input type="checkbox"/>	
Electrical wiring	<input type="checkbox"/>	
Overload protection (sized correctly)	<input type="checkbox"/>	
Disconnect switch (tested)	<input type="checkbox"/>	
Control system - point to point checks complete	<input type="checkbox"/>	
START-UP		
Start HWS pumps to create load.	<input type="checkbox"/>	
Start boiler circulation pumps.	<input type="checkbox"/>	
Boiler startup by supplier	<input type="checkbox"/>	
Supplier certificate or log provided for start-up and all specified and regulatory tests.	<input type="checkbox"/>	

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**HVAC COMMISSIONING
SYSTEM VERIFICATION/START-UP CHECKLIST
EXHAUST FAN**

PROJECT: _____

Equipment

Name/Tag: _____ Location: _____

ITEM	✓	COMMENTS
PRE-START-UP INSPECTION		
Commissioning lock-out procedures reviewed	<input type="checkbox"/>	
Operation and maintenance information	<input type="checkbox"/>	
Mounting/support system and vibration isolation	<input type="checkbox"/>	
Flexible connections	<input type="checkbox"/>	
Seismic restraints	<input type="checkbox"/>	
Equipment guards	<input type="checkbox"/>	
Alignment & V-belt tension	<input type="checkbox"/>	
Freedom of rotation	<input type="checkbox"/>	
Lubrication	<input type="checkbox"/>	
Plenum/volute clean and free of loose material	<input type="checkbox"/>	
Duct system tested and cleaned	<input type="checkbox"/>	
Fire & balance dampers positioned	<input type="checkbox"/>	
Exhaust louvers tested (gravity or motorized)	<input type="checkbox"/>	
Building & fan room cleanliness	<input type="checkbox"/>	
Electrical wiring	<input type="checkbox"/>	
Motor rated for VSD service	<input type="checkbox"/>	
Overload protection (sized correctly)	<input type="checkbox"/>	
Disconnect switch (tested)	<input type="checkbox"/>	
Control system - point to point checks complete	<input type="checkbox"/>	
START-UP		
Start-up by manufacturer's rep. (report attached)	<input type="checkbox"/>	
Direction of rotation	<input type="checkbox"/>	
Electrical interlocks - stop/start	<input type="checkbox"/>	
Local air leakage acceptable	<input type="checkbox"/>	
Vibration & noise level acceptable	<input type="checkbox"/>	
Motor Amps - Rated : _____ Actual : _____	<input type="checkbox"/>	
Motor Volts - Rated : _____ Actual : _____	<input type="checkbox"/>	



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HVAC COMMISSIONING FUNCTIONAL PERFORMANCE TEST PUMPS

PROJECT:

Equipment Name/Tag: P#

Location: Room #

System/Area Served: Area #

Related:

Occupied Mode:

Note

Verify pump start using control system command ON	YES	NO
Verify pump start using control system command AUTO	YES	NO
Verify pump start using control system command OFF	YES	NO
Verify inlet pressure drop across strainer	___	PSIG
Verify outlet pressure drop across strainer	___	PSIG

Verify pump inlet pressure reading with comparison to TAB and design conditions.

Design Pump inlet pressure	___	PSIG
TAB Pump inlet pressure	___	PSIS
Actual Pump inlet pressure	___	PSIG
Design Pump Outlet Pressure	___	PSIG
TAB Pump Outlet Pressure	___	PSIG
Actual Pump Outlet Pressure	___	PSIG

Operate pump at shutoff and at minimum flow or when all components are in full by-pass. Plot test readings on pump curve and compare results against readings taken from flow measuring devices.

Pump Inlet Pressure SHUTOFF	___	PSIG
Pump Inlet Pressure 100 Percent	___	PSIG
Pump Outlet Pressure SHUTOFF	___	PSIG
Pump Outlet Pressure 100 Percent	___	PSIG
Pump Flow Rate SHUTOFF	___	GPM
Pump Flow Rate 100 Percent	___	GPM



HVAC COMMISSIONING FUNCTIONAL PERFORMANCE TEST PUMPS

Operate pump at shutoff and at minimum flow or when all components are in full by-pass. Plot test readings on pump curve and compare results against readings taken from flow measuring devices

Pump Inlet Pressure SHUTOFF	_____	PSIG
Pump Inlet Pressure 100 Percent	_____	PSIG
Pump Outlet Pressure SHUTOFF	_____	PSIG
Pump Outlet Pressure 100 Percent	_____	PSIG
Pump Flow Rate SHUTOFF	_____	GPM
Pump Flow Rate 100 Percent	_____	GPM

Verify motor amperage each phase and voltage phase to phase and phase to ground for both the full flow and the minimum flow conditions.

FULL FLOW

Phase 1 Amperage	_____	A
Phase 2 Amperage	_____	A
Phase 3 Amperage	_____	A
Phase 1 Voltage	_____	V
Phase 2 Voltage	_____	V
Phase 3 Voltage	_____	V
Phase 1 Voltage to Ground	_____	V
Phase 2 Voltage to Ground	_____	V
Phase 3 Voltage to Ground	_____	V

MINIMUM FLOW

Phase 1 Amperage	_____	A
Phase 2 Amperage	_____	A
Phase 3 Amperage	_____	A
Phase 1 Voltage	_____	V
Phase 2 Voltage	_____	V



HVAC COMMISSIONING FUNCTIONAL PERFORMANCE TEST PUMPS

Phase 3 Voltage	_____	V
Phase 1 Voltage to Ground	_____	V
Phase 2 Voltage to Ground	_____	V
Phase 3 Voltage to Ground	_____	V

Comments

SAVED





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HVAC COMMISSIONING FUNCTIONAL PERFORMANCE TEST ENERGY RECOVERY VENTILLATOR

PROJECT:

Equipment Name/Tag: ERV #

Location: Room #

System/Area Served: Area #

Related:

Start Up

Note

B.A.S. energizes ERV	YES	NO
When ERV energizes, Outside Air and Exhaust Air dampers open	YES	NO
Confirm that when OA damper is open, Supply Fan starts	YES	NO
When supply airflow proven, confirm that Exhaust Fan starts	YES	NO
Verify energy wheel rotation	YES	NO
Supply Fan Motor Nameplate FLA	_____	A
Supply Fan Motor Measured Amperage	_____	A
	_____	A
	_____	A
Exhaust Fan Motor Nameplate FLA	_____	A
Exhaust Fan Motor Measured Amperage	_____	A
	_____	A
	_____	A
Design Supply Airflow	_____	CFM
TAB reported Supply Airflow	_____	CFM
PCA Measured Supply Airflow	_____	CFM
Design Exhaust Airflow	_____	CFM
TAB reported Exhaust Airflow	_____	CFM
PCA Measured Exhaust Airflow	_____	CFM

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HVAC COMMISSIONING FUNCTIONAL PERFORMANCE TEST ENERGY RECOVERY VENTILLATOR

Temperature

Entering Supply Air Temperature	_____	°F
Leaving Supply Air Temperature	_____	°F
Entering Exhaust Air Temperature	_____	°F
Leaving Exhaust Air Temperature	_____	°F

Alarm Status

Simulate SF Failure, confirm SF alarm generated	YES	NO
Simulate EF Failure, confirm EF alarm generated	YES	NO

Comments

SAMPLE

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**HVAC COMMISSIONING
FUNCTIONAL PERFORMANCE TEST
ROOF TOP UNIT**

PROJECT:

Equipment Name/Tag: RTU #
System/Area Served: Area #

Location: Room #
Related:

Occupied Mode:

Note

Confirm that SF is ON YES NO

When heating is required, confirm that:

MAD is positioned to minimum OA setpoint (value set by TAB agency). YES NO

DX cooling if OFF YES NO

GB cycles ON/OFF to maintain space heating temp. setpoint. YES NO

Record the following data:

OA temperature _____ °F

Max. space temp., when GB stops _____ °F

Min. space temp., when GB starts _____ °F

Max. supply air temp. (SAT) _____ °F

Min. SAT _____ °F

When heating is not required, and free cooling can maintain space temp below cooling setpoint, confirm that:

GB and DX cooling are both OFF. YES NO

MAD modulates from min. OA position to 100% open to OA, to maintain space cooling setpoint _____ °F

When cooling is required, confirm that:

MAD is positioned to minimum OA setpoint (value set by TAB agency). YES NO

DX cooling cycles ON/OFF to maintain space cooling temp. setpoint. YES NO

Record the following data:

OA temp. _____ °F

Max. space temp., when DX starts _____ °F

Min. space temp., when DX stops _____ °F





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HVAC COMMISSIONING FUNCTIONAL PERFORMANCE TEST ROOF TOP UNIT

Max. supply air temp. (SAT) _____ °F
Min. SAT _____ °F

Unoccupied mode:

When space temp. > night setback heating setpoint, confirm that:

MAD is tightly closed to OA.	YES	NO
Heating and cooling are both OFF	YES	NO
Supply fan (SF) is OFF.	YES	NO

When space temp. < night setback heating, confirm that:

MAD stays tightly closed to OA and cooling stays OFF.	YES	NO
SF is started	YES	NO
Gas heating (GB) fires	YES	NO
When space temp. rises to > night setback heating setpoint, confirm GB and SF turn OFF.	YES	NO

Comments

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THERMOGRAPHY INFORMATION



BUILDING COMMISSIONING
CERTIFIED THERMOLOGIST



ELECTRICAL
CERTIFIED THERMOLOGIST



WATER INTRUSION
CERTIFIED THERMOLOGIST



Roof Scan
CERTIFIED THERMOLOGIST



BUILDING SCIENCE
CERTIFIED THERMOLOGIST



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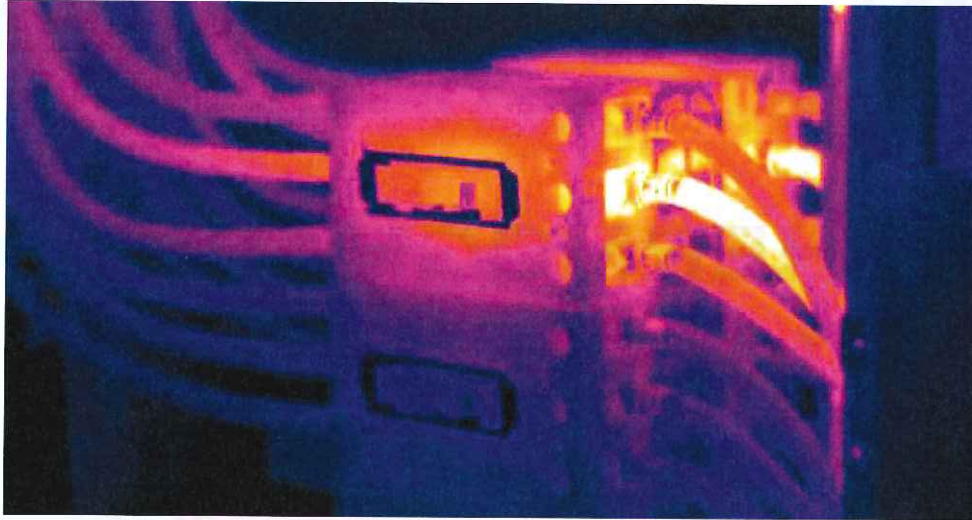
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ELECTRICAL SYSTEMS



THERMAL IMAGING IS A LOW COST, EFFECTIVE METHOD OF PROTECTING YOUR BUSINESS'S ASSETS AND GIVING YOU PEACE OF MIND. IT IS AN ESSENTIAL PART OF EVERY COMMERCIAL AND INDUSTRIAL BUSINESS'S PREVENTATIVE MAINTENANCE PLAN. AN ELECTRICAL HOT SPOT CAN RESULT IN EXTENSIVE DAMAGE TO YOUR SYSTEMS AND YOUR EQUIPMENT OR EVEN A CATASTROPHIC LOSS FROM FIRE. OUR ELECTRICAL SURVEYS WILL HELP REDUCE DOWN TIME, REPAIR COSTS, AND ALLOW FOR A TIMELY & SCHEDULED REPAIR VERSUS A COSTLY SHUT-DOWN. OUR THERMOGRAPHY METHODS CAN HELP IDENTIFY LOOSE CONNECTIONS, OVERLOADED EQUIPMENT, AS WELL AS BAD BREAKERS.

WATER INTRUSION

EXCESSIVE MOISTURE DESTROYS THE STRUCTURAL INTEGRITY OF ANY BUILDING AND CAN CREATE EXPENSIVE PROBLEMS LIKE MOLD AND MILDEW WHICH CAN CAUSE SERIOUS HEALTH CONCERNS OR LAWSUITS. OFTEN, MOISTURE INTRUSION PROBLEMS ARE NOT OBVIOUS UNTIL IT'S TOO LATE. MOISTURE CAN COME FROM LEAKY ROOFING, PIPING, WINDOWS, TOILETS, EVEN HVAC EQUIPMENT. LET PERFCX USE THERMAL IMAGING TO NOT ONLY FIND THE AFFECTED AREA BUT THE SOURCE OF THE LEAK.



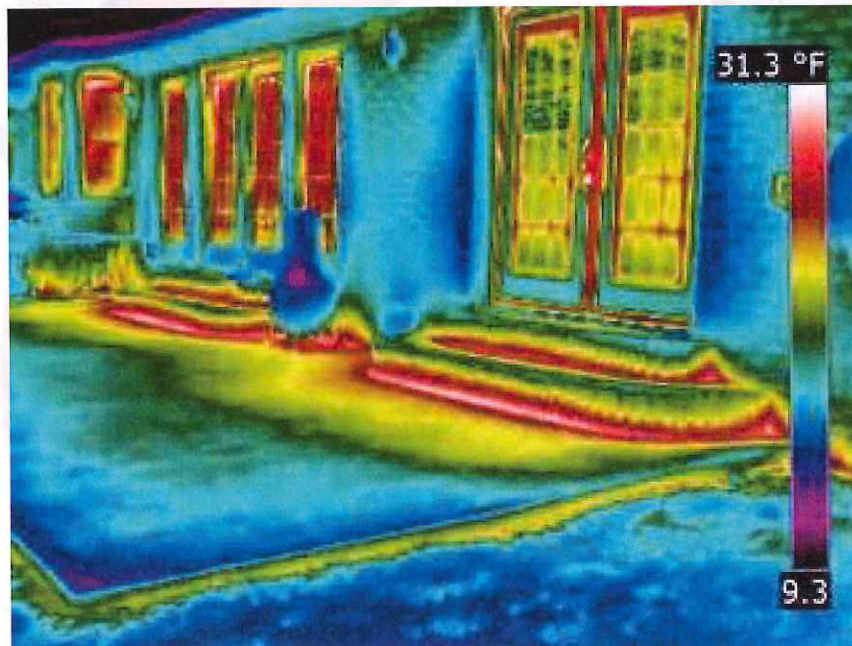
ROOF SCAN



NON-DESTRUCTIVE INVESTIGATIONS SAVE TIME AND MONEY ALL WHILE TAKING THE GUESS WORK OUT OF COSTLY REPAIRS. OUR SCANS ALLOW YOU TO REDUCE YOUR ROOF BUDGET BY HELPING YOU KEEP DRY UNDAMAGED INSULATION INTACT. DON'T SPEND UNNECESSARY AMOUNTS ON FULLY REPLACING A ROOF THAT DOESN'T NEED IT! PERFCX CAN IDENTIFY AREAS THAT ARE INFILTRATED BY MOISTURE, AND IDENTIFY AREAS THAT ARE DRY. THIS ALLOWS THE OWNER TO REPLACE ONLY THE AFFECTED AREAS, SAVING THEM THOUSANDS IF NOT MILLIONS OF DOLLARS.

ENERGY LOSS

AIR LEAKAGE FROM LARGE BUILDINGS IS JUST LIKE THROWING YOUR MONEY OUT THE WINDOW. INFRARED THERMOGRAPHY IS A PROVEN DIAGNOSTIC TECHNIQUE RECOMMENDED BY THE US DEPARTMENT OF ENERGY FOR IDENTIFYING AREAS OF HEAT LOSS. CONSIDERING YOUR HEATING AND COOLING LOAD CAN BE UP TO 50% OF YOUR ACTUAL ENERGY BILL, OUR SPECIALIZED IMAGING SERVICE OF YOUR PROPERTY CAN IDENTIFY WHERE THOSE WASTED DOLLARS ARE GOING REGARDLESS OF WHAT TYPE OF HEATING OR COOLING SYSTEM YOU HAVE.



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Partnering in Design Execution

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NICHOLASVILLE, KY 40356
WWW.PERFCX.COM
(859) 277-0191



acg
AABC
Commissioning
Group

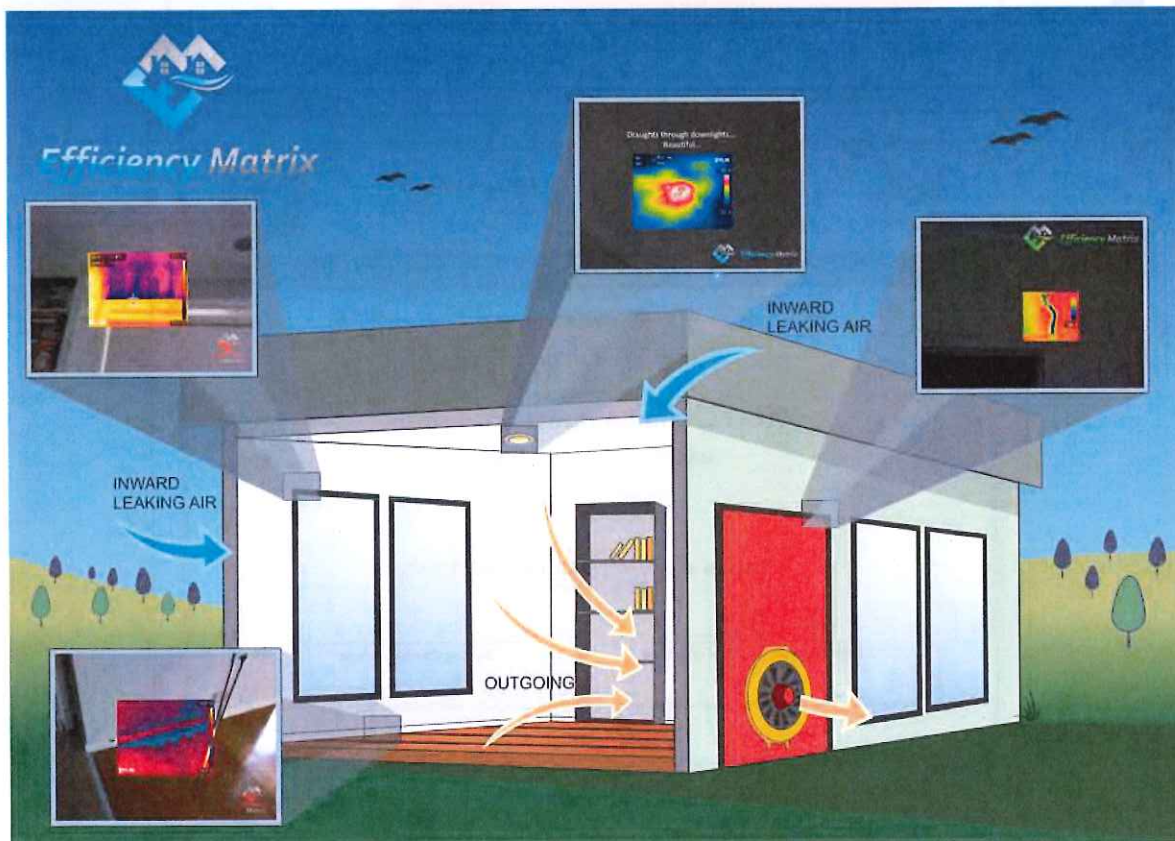
BLOCK WALL SCAN



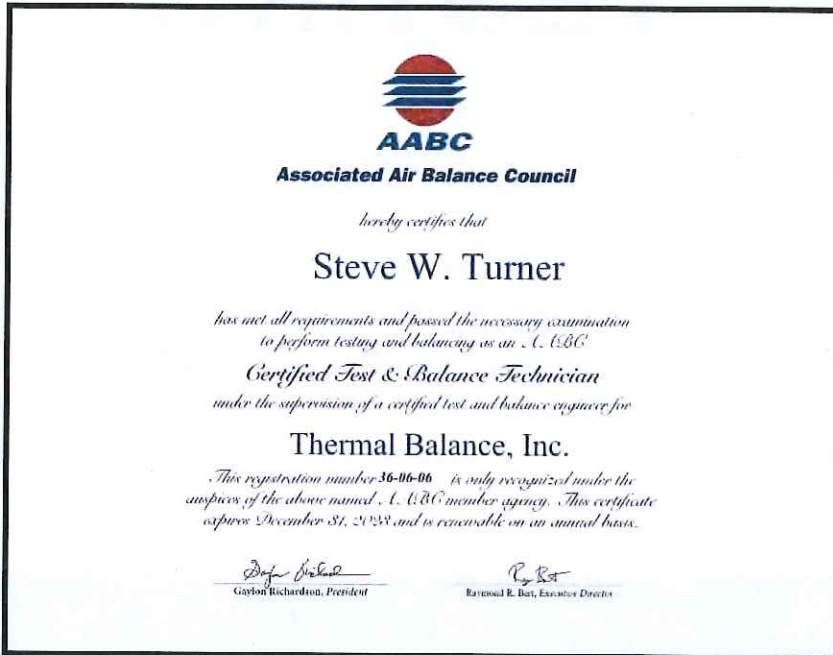
IMAGING OF NEWLY GROUTED CMU WALLS WILL PROVIDE PROPER INSTALLATION AND ALSO LOCATE DEFICIENCIES. IF DEFICIENCIES ARE LOCATED THEN THEY CAN EASILY BE REPAIRED WITHOUT THE DESTRUCTION OF EXCESSIVE MATERIALS. THIS IS A MUST TO HAVE AS A QC CONFIRMATION PRIOR TO INSTALLING ROOF SYSTEMS OR THE DEFICIENCIES MAY RESULT IN SHORT OR LONG TERM FAILURE.

BUILDING ENVELOPE TESTING

BUILDING ENVELOPE TESTING IS THE PROCESS OF TESTING THE PHYSICAL SEPARATOR BETWEEN THE INTERIOR AND EXTERIOR OF A BUILDING TO DETERMINE IF THERE ARE ANY AIR, WATER, OR THERMAL LEAKS WITHIN THE STRUCTURE. THESE DIFFERENT INTRUSIONS CAN RESULT FROM AN IMPROPERLY BUILT OR MAINTAINED BUILDING ENVELOPE. ENVELOPE TESTING WILL ENSURE A PROPER SEAL IS MADE BETWEEN THE INSIDE AND THE OUTSIDE, AND REQUIRED FOR SOME LEED GREEN BUILDING RATINGS



EMPLOYEE CERTIFICATIONS



Steve Turner

THERMOLOGIST #18003
HAS SUCCESSFULLY COMPLETED THE
REQUIREMENTS AND TESTING PROCEDURES
FOR THE CERTIFICATION OF:

BLOCK WALL THERMOLOGIST
KENTUCKY THERMAL INSTITUTE

FLIR

Kentucky Thermal Institute
EDUCATION · EQUIPMENT · TRAINING

Handwritten Signature

FOUNDER / LEVEL 2 THERMOGRAPHER

Handwritten Signature

EDUCATION COORDINATOR / LEVEL 1 THERMOGRAPHER

CERTIFICATION DATE
10/10/2018-10/13/2018

Steve Turner

THERMOLOGIST #18003
HAS SUCCESSFULLY COMPLETED THE
REQUIREMENTS AND TESTING PROCEDURES
FOR THE CERTIFICATION OF:

Energy Loss Thermologist
KENTUCKY THERMAL INSTITUTE

FLIR

Kentucky Thermal Institute
EDUCATION · EQUIPMENT · TRAINING

Handwritten Signature

FOUNDER / LEVEL 2 THERMOGRAPHER

Handwritten Signature

EDUCATION COORDINATOR / LEVEL 1 THERMOGRAPHER

CERTIFICATION DATE
10/10/2018-10/13/2018

Steve Turner

THERMOLOGIST #18003
HAS SUCCESSFULLY COMPLETED THE
REQUIREMENTS AND TESTING PROCEDURES
FOR THE CERTIFICATION OF:

BUILDING SCIENCE THERMOLOGIST
KENTUCKY THERMAL INSTITUTE

FLIR

Kentucky Thermal Institute
EDUCATION · EQUIPMENT · TRAINING

Handwritten Signature

FOUNDER / LEVEL 2 THERMOGRAPHER

Handwritten Signature

EDUCATION COORDINATOR / LEVEL 1 THERMOGRAPHER

CERTIFICATION DATE
10/10/2018-10/13/2018

Jess Park

From: sturner@perfcx.com
Sent: Wednesday, August 30, 2023 8:45 AM
To: Jess Park; 'Joshua Childs'
Subject: RE: Commissioning Proposal for Hopkinsville-Christian Co. Academy

Yes, I did receive all is included.

Thanks

“Team work Makes the Dream Work”

Steven Turner, President, CXA, TBT, Thermologist

Performance Commissioning Agency
109 Wind Haven Dr., Suite 201
Nicholasville, KY 40356
Ph (859)277-0191
Cell (270)564-7360



From: Jess Park <jpark@haferdesign.com>
Sent: Wednesday, August 30, 2023 8:35 AM
To: Joshua Childs <jchilds@perfcx.com>
Cc: Steve Turner <sturner@perfcx.com>
Subject: RE: Commissioning Proposal for Hopkinsville-Christian Co. Academy

Josh, I am reviewing the bid as we speak. Can you verify Performance Commissioning Agency received Addendum 001 sent August 24th and these items are included in the price submitted? This was emailed to Steve Turner on 8/24.

JESS PARK, PE

Associate, Mechanical Engineer
Hafer

P: 270.926.1331 / C: 270.823.6646

From: Joshua Childs <jchilds@perfcx.com>
Sent: Monday, August 28, 2023 8:36 AM
To: christopher.bentzel@christian.kyschools.us; tgeegan@alliancecorporation.com; Jess Park <jpark@haferdesign.com>
Cc: Steve Turner <sturner@perfcx.com>
Subject: Commissioning Proposal for Hopkinsville-Christian Co. Academy

Attached please find our commissioning quotation for the project listed above. If there are any questions please let us know.

--

Josh Childs
Performance Commissioning Agency
109 Wind Haven Dr., Suite 201
Nicholasville, KY 40356
859-277-0191



Facility Commissioning Group

158 Burt Road | Lexington, KY 40503 | Tel. (859) 278-5552
2611 Waterfront Parkway, Suite 340 | Indianapolis, IN 46214 | Tel. (317) 536-2618

August 29, 2023

Christopher Bentzel
Christian County Public Schools, Superintendent
200 Glass Ave.
Hopkinsville, KY 42240

RE: Christian County Schools - Hopkinsville Christian County Academy
Proposal for Commissioning Services

Mr. Bentzel,

A fee breakdown for commissioning is shown at the end of this document. We have considered the following parameters:

- The project consists of the construction of a new two-story high school, approximately 331,505 SF in size, which includes classrooms, cafeteria, kitchen, gymnasium, auditorium, etc. The commissioning scope of work does not include the surrounding buildings as requested by the RFP.
- Our fee was developed from the system information in the construction documents dated May 2023, Addendums 1, 2, 3, 4 and 5, as well as deliverables from the Commissioning RFP dated August 11, 2023, and Commissioning RFP Addendum 1.
- The commissioning scope of work will meet the requirements shown in project Specifications 019113 and 230800. The commissioned systems include HVAC, HVAC Controls, Lighting Controls, and Domestic Hot Water. We have included pricing for Alternate No. 1.
- FCG has included meeting time for One (1) Cx Kickoff Meeting and Fourteen (14) additional meetings for this project.
- FCG will perform Functional Performance Tests (FPT) for commission systems at a 100% sampling rate per Commissioning Addendum 1.
- Each contractor must include in their proposal time to perform stipulated tests as required in the Specifications. The costs associated with any other contractor's work are not included in the Facility Commissioning Group fee.
- Any contractor not adhering to the commissioning schedule will assume responsibility for lost time of other participating contractors, consultants, and owner personnel.
- Failed tests resulting from concealed conditions or due to design or installation negligence will be retested at the responsible party's expense.



Facility Commissioning Group

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- Commissioning work will be performed in sequence with the actual phasing of the project, to the extent possible.
- We have provided durations for commissioning deliverables, some of which will be coordinated with contractors based on system readiness and completion.
- Acceptance phase commissioning work including Functional Performance Tests typically extends into the 30-day period following Substantial Completion. Commissioning Report submission to be expected within 2 weeks following this 30-day period.

Commissioning Deliverables	Estimated Duration
Commissioning Meetings/Site Observation	15 Meetings
Commissioning Plan Preparation	Three (3) Weeks
TAB Verification	One (1) Week
HVAC Functional Performance Tests	Ten (10) Weeks
DHW Functional Performance Tests	Four (4) Weeks
Lighting Controls Functional Performance Tests	Two (2) Weeks
O&M Manuals/Training Plan Review	(3) Days
Commissioning Report	One (1) Week

Please contact us with any questions or comments about this proposal or the commissioning process.

Sincerely,

FACILITY COMMISSIONING GROUP, INC.

V. Todd Yates, PE
President



Facility Commissioning Group

158 Burt Road | Lexington, KY 40503 | Tel. (859) 278-5552
2611 Waterfront Parkway, Suite 340 | Indianapolis, IN 46214 | Tel. (317) 536-2618

**Christian County Schools
Hopkinsville Christian County Academy
Hopkinsville, KY**

Commissioning Fee

Commissioning Base Bid TOTAL	\$128,930.00
Accepted Alternate No.1 – Add-On Area-B Gymnasium	\$18,455.00
Commissioning Total	\$147,385.00

THIS PROPOSAL IS ACCEPTED:

BY:

TITLE:

DATE:

PRINTED NAME:

ORGANIZATION NAME:

