

# **Guaranteed Energy Savings Contract**

*Between*

*Henderson County Board of Education*

*and*

*Trane U.S. Inc.*

**Trane Contract No. P6-18026**

**February 19, 2018**



**Henderson County Schools**  
**Guaranteed Energy Savings Contract**  
**BG #18-133**  
**February 19, 2018**

Fiscal Year	Bond Payment (Total P+I)	Support Services	Total Cost	Energy Savings	Operational Savings	Total Savings	Capital Cost Avoidance	Excess Revenue
2019	\$ 58,038	\$ 4,280	\$ 62,318	\$ 129,161	\$ 15,475	\$ 144,636	\$ -	\$ 82,318
2020	62,738	4,408	67,146	134,973	15,785	150,758	0	83,612
2021	67,338	4,541	71,878	141,047	16,100	157,147	0	85,269
2022	66,838	4,677	71,514	147,394	16,422	163,816	0	92,302
2023	71,338	4,817	76,155	154,027	16,751	170,777	0	94,623
2024	75,588	4,962	80,549	160,958	17,086	178,044	0	97,494
2025	79,713	5,111	84,823	168,201	17,428	185,628	0	100,805
2026	83,613	5,264	88,876	175,770	17,776	193,546	0	104,670
2027	87,263	5,422	92,684	183,680	18,132	201,811	0	109,127
2028	90,638	5,584	96,222	191,945	18,494	210,439	0	114,218
2029	93,850	5,752	99,602	200,583	18,864	219,447	0	119,845
2030	96,900	5,925	102,825	209,609	19,242	228,850	0	126,026
2031	99,788	6,102	105,890	219,041	19,626	238,668	0	132,778
2032	107,338	6,285	113,623	228,898	20,019	248,917	0	135,294
2033	109,538	6,474	116,011	239,199	20,419	259,618	0	143,606
2034	116,563	6,668	123,231	249,962	20,828	270,790	0	147,560
2035	123,000	6,868	129,868	261,211	21,244	282,455	0	152,587
2036	129,063	7,074	136,137	272,965	21,669	294,634	0	158,498
2037	134,750	7,286	142,036	285,249	22,102	307,351	0	165,315
2038	140,063	7,505	147,568	298,085	22,545	320,629	0	173,062
<b>Total</b>	<b>\$ 1,893,950</b>	<b>\$ 115,005</b>	<b>\$ 2,008,955</b>	<b>\$ 4,051,955</b>	<b>\$ 376,008</b>	<b>\$ 4,427,963</b>	<b>\$ -</b>	<b>\$ 2,419,008</b>

Total Project Costs	\$ 3,920,000	Energy Escalation Rate	4.50%
Bond Issuance Costs	\$ 55,000	First Year Operational Savings	\$ 15,475
Cash Down Payment	\$ 2,700,000	Operational Savings Escalation Rate	2%
Financing Amount	\$ 1,275,000	Average Capital Cost Avoidance	\$ -
First Year Support Services Cost		Contract Term in Years	20
Support Service Escalation Rate	3%	Net Interest Cost	3.55%
First Year Projected Energy Savings	\$ 129,161	Estimated Bonding Potential Impact	\$ -

ECM Savings Summary Henderson County Schools - Henderson, KY Project P6-18026 February 19, 2018																	
Note: Calculated savings dollars come from the tool used in the calculation method. In the case that an ECM results in an increase in consumption (negative savings), it may not be possible to calculate the dollars saved from the Guaranteed energy units and the applied utility rate.																	
Building ECM	Calculation Method	Calculated		Guaranteed Savings	% Total Util. Cost	Guaranteed			Bldg. data			ECI					Notes
		Savings (Dollars \$)	Safety Factor			kWh Saved	kW Saved	therms Saved	Sq. Ft.	Utility Costs	BTU ft2	\$/ft2 Before	\$/ft2 Projected	\$/ft2 Guaranteed	BTU/ft2 Guaranteed	% of Base \$ Guaranteed	
Henderson County HS ECM 1 HVAC Upgrades ECM 2 Lighting Upgrades ECM 3 DHW Tank Insulation Total Savings	Trace 700 Audit Calculation Calculation Calculation	\$ 17,681 \$ 43,917 \$ 151 \$ - \$61,749	20% 5% 0% 20%	\$14,145 \$41,721 \$151 \$0 \$56,017	0.0% 0.0% 0.0% 0.0% 0.0%	223,230 556,289 - - 779,519	39 1,252 - - 1,291	(4,317) - 233 - (4,084)	347,665	\$306,076	59,119	\$ 0.88	\$ 0.70	\$ 0.72	52,643	18.3%	
Building ECM	Calculation Method	Calculated		Guaranteed Savings	% Total Util. Cost	Guaranteed			Bldg. data			ECI					Notes
		Savings (Dollars \$)	Safety Factor			kWh Saved	kW Saved	therms Saved	Sq. Ft.	Utility Costs	BTU ft2	\$/ft2 Before	\$/ft2 Projected	\$/ft2 Guaranteed	BTU/ft2 Guaranteed	% of Base \$ Guaranteed	
Multifacility Lighting Upgrades North MS South MS Bend Gate ES South Heights ES Total Savings	Audit Calculation Audit Calculation Audit Calculation Audit Calculation	\$ 1,692 \$ 1,614 \$ 4,985 \$ 523 \$8,814	5% 5% 5% 5%	\$1,607 \$1,533 \$4,736 \$497 \$8,373	0.0% 0.0% 0.0% 0.0% 0.0%	22,327 21,299 65,779 6,901 116,306	39 37 112 18 206	- - - - -									
Building ECM	Calculation Method	Calculated		Guaranteed Savings	% Total Util. Cost	Guaranteed			Bldg. data			ECI					Notes
		Savings (Dollars \$)	Safety Factor			kWh Saved	kW Saved	therms Saved	Sq. Ft.	Utility Costs	BTU ft2	\$/ft2 Before	\$/ft2 Projected	\$/ft2 Guaranteed	BTU/ft2 Guaranteed	% of Base \$ Guaranteed	
Multifacility Lighting Upgrades Bus Garage Board Office  Total Savings	Audit Calculation Audit Calculation	\$ 396 \$ 1,519  \$1,915	5% 5%	\$376 \$1,443  \$1,819	0.0% 0.0%  0.0%	3,619 20,049  23,668	76 54  130	- -  -									
Building ECM	Calculation Method	Calculated		Guaranteed Savings	% Total Util. Cost	Guaranteed			Bldg. data			ECI					Notes
		Savings (Dollars \$)	Safety Factor			kWh Saved	kW Saved	therms Saved	Sq. Ft.	Utility Costs	BTU ft2	\$/ft2 Before	\$/ft2 Projected	\$/ft2 Guaranteed	BTU/ft2 Guaranteed	% of Base \$ Guaranteed	
Multifacility Water Conservation Water Conservation - Multi Facility Thelma J. LC - Water Leak  Total Savings	Audit Calculation Audit Calculation	\$ 46,682 \$ 10,535  \$57,217	5% 0%	\$44,348 \$10,535  \$54,883	0.0% 0.0%  0.0%	1,762 -  1,762	- -  -	7,054 -  7,054									4,307 kgal of water savings 1,407 kgal of water savings due to fix of underground water leak
Building ECM	Calculation Method	Calculated		Guaranteed Savings	% Total Util. Cost	Guaranteed			Bldg. data			ECI					Notes
		Savings (Dollars \$)	Safety Factor			kWh Saved	kW Saved	therms Saved	Sq. Ft.	Utility Costs	BTU ft2	\$/ft2 Before	\$/ft2 Projected	\$/ft2 Guaranteed	BTU/ft2 Guaranteed	% of Base \$ Guaranteed	
Misc Facility ECMs Bend Gate Chiller Replacement North MS - VFDs South MS - VFDs  Total Savings	Calculation Calculation Calculation	\$ 2,469 \$ 2,586 \$ 3,308  \$8,363	0% 5% 5%	\$2,469 \$2,457 \$3,143  \$8,068	0.0% 0.0% 0.0%  0.0%	34,291 35,921 45,949  116,161	- - -  -	- - -  -									
Grand Total / Avg.		\$138,058		\$129,161		1,037,416	1,627	2,970	347,665	\$306,076	59,119	\$0.88	\$0.48	\$0.51	52,643	42.2%	

# Kentucky Department of Education Version of **AIA** Document A141™ – 2004

## *Standard Form of Agreement Between Owner and Design-Builder*



This version of AIA Document A141™–2004 is modified by the Kentucky Department of Education. Publication of this version of AIA Document A141–2004 does not imply the American Institute of Architects' endorsement of any modification by the Kentucky Department of Education. A comparative version of AIA Document A141–2004 showing additions and deletions by the Kentucky Department of Education is available for review on the Kentucky Department of Education Web site.

Cite this document as "AIA Document A141™–2004, Standard Form of Agreement Between Owner and Design-Builder — KDE Version," or "AIA Document A141™–2004 — KDE Version."



# Kentucky Department of Education Version of AIA® Document A141™ – 2004

## *Standard Form of Agreement Between Owner and Design-Builder*

AGREEMENT made as of the 19th day of February  
in the year 2018  
(In words, indicate day, month and year.)

BETWEEN the Owner:  
(Name, legal status, address and other information)

Henderson County Board of Education  
1805 Second St.  
Henderson, KY 42420

and the Qualified Provider:  
(Name, legal status, address and other information)

Trane U.S. Inc.  
12700 Plantside Drive  
Louisville, KY 40299

for the following Project:  
(Name, location and detailed description)

Henderson County Schools Guaranteed Energy Savings Contract  
1805 Second St., Henderson, KY 42420

- Henderson County High School - HVAC, Controls, VFDs, Interior LED lighting, Exterior LED lighting, Water conservation
- Henderson County North Middle School - Cooling tower fan motors, VFDs, Exterior LED lighting, Water conservation
- Henderson County South Middle School - Cooling tower fan towers, VFDs, Exterior LED lighting
- Bend Gate Elementary School - Chiller replacement, Exterior LED lighting, Water conservation
- South Heights Elementary School - Exterior LED lighting, Water conservation
- AB Chander ES / Cairo ES / Niagra ES / East Heights ES / Learning Center / Athletic Complex - Water conservation
- Bus Garage / Maintenance Building - Interior LED lighting, Exterior LED lighting
- Board Office - Interior LED lighting, Exterior LED lighting, Water conservation



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This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Consultation with an attorney is also encouraged with respect to professional licensing requirements in the jurisdiction where the Project is located.

The Owner and Qualified Provider agree as follows.

Init.

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### ARTICLE 1 THE CONTRACT DOCUMENTS

§ 1.1 The Contract Documents form the Guaranteed Energy Savings Contract. The Contract Documents consist of this Agreement between Owner and Qualified Provider (hereinafter, the "Agreement") and its attached Exhibits, including Owner's direct Purchase Orders, if any; Supplementary and other Conditions; Addenda issued prior to execution of the Agreement; the Project Criteria, including changes to the Project Criteria proposed by the Qualified Provider and accepted by the Owner, if any; the Qualified Provider's Proposal and written modifications to the Proposal accepted by the Owner, if any; other documents listed in this Agreement; and Modifications issued after execution of this Agreement. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Architect and Owner, (2) between the Owner and a Contractor or Subcontractor, or (3) between any persons or entities other than the Owner and Qualified Provider, including but not limited to any consultant retained by the Owner to prepare or review the Project Criteria. An enumeration of the Contract Documents, other than Modifications, appears in Article 8.

§ 1.2 The Guaranteed Energy Savings Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral.

§ 1.3 The Guaranteed Energy Savings Contract may be amended or modified only by a Modification. A Modification is (1) a written amendment to the Guaranteed Energy Savings Contract signed by both parties.

### ARTICLE 2 THE WORK OF THE GUARANTEED ENERGY SAVINGS CONTRACT

§ 2.1 The Qualified Provider shall fully execute the Work described in the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others.



### ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice issued by the Owner.  
*(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)*

See Addendum No.1

If, prior to the commencement of Work, the Owner requires time to sell bonds or obtain approval from the Kentucky Department of Education The Owner's time requirement shall be as follows:  
*(Insert Owner's time requirements.)*

See Addendum No.1

§ 3.2 The Contract Time shall be measured from the date of commencement, subject to adjustments of this Contract Time as provided in the Contract Documents.  
*(Insert an amount, if any, for liquidated damages relating to failure to complete on time only if timely completion is critical to the Owner.)*

§ 3.2.1 **Liquidated Damages.** As actual damages for delay in completion of the Work are impossible to determine, the Qualified Provider and his Surety shall be liable for and shall pay to the Owner the sum of  
Zero dollars (\$0.00 ),  
not as a penalty, but as fixed, agreed and liquidated damages for each calendar day of delay until the Work is substantially completed as defined in Exhibit A, Section A.9.8. The Owner shall have the right to deduct liquidated damages from money in hand otherwise due, or to become due, to the Qualified Provider, or to sue and recover compensation for damages for failure to substantially complete the Work within the time stipulated herein. Said liquidated damages shall cease to accrue from the date of Substantial Completion.

§ 3.3 The Qualified Provider shall achieve Substantial Completion of the Work not later than  
( ) from the date of commencement, or as follows:  
*(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. Unless stated elsewhere in the Contract Documents, insert any requirements for earlier Substantial Completion of certain portions of the Work. Either list insurance and bond information here or refer to an exhibit attached to this Agreement.)*

**Portion of Work**  
- Ready for Occupancy - Henderson County High School  
and Bend Gate Elementary HVAC Operational  
- Project Substantial Completion described in Exhibit D  
of this Agreement

**Substantial Completion Date**  
August 6, 2018

### ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Qualified Provider the Contract Sum in current funds for the Qualified Provider's performance of the Guaranteed Energy Savings Contract. The Contract Sum shall be a Stipulated Sum in accordance with Section 4.2 below less the Owner's Direct Purchase Orders, if any, for Project materials or equipment.

## § 4.2 Stipulated Sum

§ 4.2.1 The Stipulated Sum shall be Three Million Nine Hundred Twenty Thousand Dollars (\$3,920,000.00 ), subject to additions and deductions as provided in the Contract Documents.

*(List the total construction cost and sum of Owner's direct Purchase Orders. The Contract Sum shall equal the sum of Total Construction Cost, less Owner direct Purchase Orders.)*

	Amount
Total Construction Cost	\$ 3,920,000.00
Sum of Owner's direct Purchase Orders	\$ 407,932.00
Contract Sum (total construction cost less Owner direct Purchase Orders)	\$ \$3,512,068.00

§ 4.2.2 (Not Used)

§ 4.2.3 (Not Used)

§ 4.2.4 (Not Used)

§ 4.2.5 Assumptions or qualifications, if any, on which the Stipulated Sum is based, are as follows:

## ARTICLE 5 PAYMENTS

### § 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Owner by the Qualified Provider, the Owner shall make progress payments on account of the Contract Sum to the Qualified Provider as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received not later than the 10th day of month, the Owner shall make payment to the Qualified Provider not later than the last day of the following month. If an Application for Payment is received by the Owner after the application date fixed above, payment shall be made by the Owner not later than thirty ( 30 ) days after the Owner receives the Application for Payment.

- .1 State law (KRS 371.405) requires the Owner to pay undisputed Applications for Payment within forty-five (45) business days following receipt of the invoices. If the Owner fails to pay the Qualified Provider within forty-five (45) business days following the receipt of an undisputed Application for Payment, state law requires the Owner shall pay interest to the Qualified Provider beginning on the forty-sixth business day after receipt of the Application for Payment, computed at the rate required by state law, or as stated in Section 7.7.2 herein.

§ 5.1.4 (Not Used)

§ 5.1.5 With each Application for Payment the Qualified Provider shall submit the most recent schedule of values in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. Compensation for design services shall be shown separately. The schedule of values shall



be prepared in such form and supported by such data to substantiate its accuracy as the Owner may require. This schedule of values, unless objected to by the Owner, shall be used as a basis for reviewing the Qualified Provider's Applications for Payment.

**§ 5.1.6** In taking action on the Qualified Provider's Applications for Payment, the Owner shall be entitled to rely on the accuracy and completeness of the information furnished by the Qualified Provider and shall not be deemed to have made a detailed examination, audit or arithmetic verification of the documentation submitted in accordance with Sections 5.1.4 or 5.1.5, or other supporting data; to have made exhaustive or continuous on-site inspections; or to have made examinations to ascertain how or for what purposes the Qualified Provider has used amounts previously paid on account of the Agreement. Such examinations, audits and verifications, if required by the Owner, will be performed by the Owner's accountants acting in the sole interest of the Owner.

**§ 5.1.7** Except with the Owner's prior approval, the Qualified Provider shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

## **§ 5.2 Progress Payments—Stipulated Sum**

**§ 5.2.1** Applications for Payment where the Contract Sum is based upon a Stipulated Sum shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

**§ 5.2.2** Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of  
ten percent ( 10 %) on the Work, other than services provided by design professionals and other consultants retained directly by the Qualified Provider.
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of  
ten percent ( 10%);
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Owner has withheld payment from or nullified an Application for Payment as provided in Section A.9.5 of Exhibit A, Terms and Conditions.

**§ 5.2.3** The progress payment amount determined in accordance with Section 5.2.2 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Owner shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Qualified Provider, any additional amounts payable in accordance with Section A.9.10.3 of Exhibit A, Terms and Conditions.

**§ 5.2.4** Reduction or limitation of retainage, if any, under Sections 5.2.2 and 5.2.3 shall be as follows:

- .1 When Owner direct Purchase Orders are used, retainage that would otherwise be held on materials and equipment shall transfer to the Qualified Provider, and the material suppliers will be paid the full amount of their invoices. Except for payment of services by design professionals and other consultants retained directly by the Qualified Provider, the Owner shall retain ten percent (10%) from each Application for Payment, and an amount equal to ten percent (10%) of approved Purchase Order payments, up to fifty percent (50%) completion of the Work, then, provided the Work is on schedule and satisfactory, and upon written request of the Qualified Provider together with consent of surety, the Owner shall approve a reduction in retainage to five percent (5%) of the Contract Sum plus Purchase Orders, if any. No part of the five percent (5%) retainage shall be paid until after Substantial Completion of the Work, as defined in Section A.9.8 of Exhibit A, Terms and Conditions. After Substantial Completion of the Work or designated portion thereof, and with consent of Surety, the Owner shall release applicable retainage except for Work that is incomplete or deficient. The minimum lump sum retainage shall be twice the estimated cost to correct deficient or incomplete Work.

**§ 5.3** (Not Used)

**§ 5.4** (Not Used)



### § 5.5 Final Payment

Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Qualified Provider no later than 30 days after the Qualified Provider has fully performed the Contract, including the requirements in Section A.9.10 of Exhibit A, Terms and Conditions, except for the Qualified Provider's responsibility to correct non-conforming Work discovered after final payment or to satisfy other requirements, if any, which extend beyond final payment.

## ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 The parties appoint the following individual to serve as a Neutral pursuant to Section A.4.2 of Exhibit A, Terms and Conditions:

*(Insert the name, address and other information of the individual to serve as a Neutral. If the parties do not select a Neutral, then the provisions of Section A.4.2.2 of Exhibit A, Terms and Conditions, shall apply.)*

§ 6.2 If the parties do not resolve their dispute through mediation pursuant to Section A.4.3 of Exhibit A, Terms and Conditions, the method of binding dispute resolution shall be the following:

*(If the parties do not select a method of binding dispute resolution, then the method of binding dispute resolution shall be by litigation in a court of competent jurisdiction. Check one.)*

- ☐ Arbitration pursuant to Section A.4.4 of Exhibit A, Terms and Conditions
- ☒ Litigation in a court of competent jurisdiction where the Project is located
- ☐ Other: *(Specify)*

### § 6.3 Arbitration

§ 6.3.1 If Arbitration is selected by the parties as the method of binding dispute resolution, then any claim, dispute or other matter in question arising out of or related to this Agreement shall be subject to arbitration as provided in Section A.4.4 of Exhibit A, Terms and Conditions.

## ARTICLE 7 MISCELLANEOUS PROVISIONS

§ 7.1 The Architect, other design professionals and consultants engaged by the Qualified Provider shall be persons or entities duly licensed to practice their professions in the jurisdiction where the Project is located and are listed as follows:

*(Insert name, address, license number, relationship to Qualified Provider and other information. Either list this information here or refer to an exhibit attached to this Agreement.)*

Name and Address	License Number	Relationship to Qualified Provider	Other Information
Baccus Oliver Marcum Engineering 500 South 17th Street Paducah, KY 42002-0120	19897	NA	NA

§ 7.2 Consultants, if any, engaged directly by the Owner, their professions and responsibilities are listed below:  
*(Insert name, address, license number, if applicable, and responsibilities to Owner and other information. Either list this information here or refer to an exhibit attached to this Agreement.)*

NA

Name and Address	License Number	Responsibilities to Owner	Other Information
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§ 7.3 Separate contractors, if any, engaged directly by the Owner, their trades and responsibilities are listed below:  
*(Insert name, address, license number, if applicable, responsibilities to Owner and other information. Either list this information here or refer to an exhibit attached to this Agreement.)*

NA

Name and Address	License Number	Responsibilities to Owner	Other Information
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§ 7.4 The Owner's Designated Representative:  
*(Insert name, address and other information.)*

Ms. Marganna Stanley, Superintendent  
Henderson County Board of Education  
1805 Second Street  
Henderson, KY 42420



§ 7.4.1 The Owner's Designated Representative identified above shall be authorized to act on the Owner's behalf with respect to the Project.

§ 7.5 The Qualified Provider Designated Representative:  
*(Insert name, address and other information.)*

Ty Vierling, Energy Services Business Leader  
Trane U.S. Inc.  
12700 Plantside Drive  
Louisville, KY 40299

§ 7.5.1 The Qualified Provider's Designated Representative identified above shall be authorized to act on the Qualified Provider's behalf with respect to the Project.

§ 7.6 Neither the Owner's nor the Qualified Provider's Designated Representative shall be changed without ten days written notice to the other party.

§ 7.7 Other provisions:  
*(The Qualified Provider shall comply with the provisions of KRS 45A.352 (2), (3), (7), (8) and (9). The definitions in KRS 45A.445 apply to KRS 45A.352.)*

§ 7.7.1 Where reference is made in this Agreement to a provision of another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 7.7.2 Payments due and unpaid under the Guaranteed Energy Savings Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.  
*(Insert rate of interest agreed upon, if any.)*

*(Usury laws and requirements under the Federal Truth in Lending Act, similar state and local consumer credit laws and other regulations at the Owner's and Qualified Provider's principal places of business, the location of the Project and elsewhere may affect the validity of this provision. Legal advice should be obtained with respect to deletions or modifications, and also regarding requirements such as written disclosures or waivers.)*

## ARTICLE 8 ENUMERATION OF THE CONTRACT DOCUMENTS

§ 8.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated as follows:

§ 8.1.1 The Agreement is this executed edition of the AIA Document A141-2004, Standard Form of Agreement Between Owner and Design-Builder — KDE Version.

**§ 8.1.2** The Supplementary and other Conditions of the Agreement, if any, are as follows:  
*(Either list applicable documents below or refer to an exhibit attached to this Agreement.)*

Document	Title	Pages
Exhibit A	Terms and Conditions	
Exhibit B (Not Used)		
Exhibit C	Insurance and Bonds	
Exhibit D	Scope of Services and Energy Conservation Measures.	
Exhibit E	Energy Savings Guarantee	
Exhibit F	Annual Reconciliation Statement	
Exhibit G	Support Services	
Exhibit H	BG-1 Form and Method and Cost of Financing	
Addendum No. 1	Addendum No. 1 to AIA 141-2004	
Attachment A	Sample Application and Certificate of Financing	
Attachment B	Purchase Orders and Equipment Proposals	
Attachment C	Description of Premises	
Attachment D	Notice to Proceed	
Attachment E	Hazardous Materials	

**§ 8.1.3** The Project Criteria, including changes to the Project Criteria proposed by the Qualified Provider, if any, and accepted by the Owner, consist of the following:  
*(Either list applicable documents and their dates below or refer to an exhibit attached to this Agreement.)*

Title	Date
Exhibit D of this Agreement	February 19, 2018
Scope of Services and Energy Conservation Measures	

§ 8.1.4 The Qualified Provider's Proposal, dated  
consists of the following:

*(Either list applicable documents below or refer to an exhibit attached to this Agreement.)*

§ 8.1.5 Amendments to the Qualified Provider's Proposal, if any, are as follows:

*(Either list applicable documents below or refer to an exhibit attached to this Agreement.)*

§ 8.1.6 The Addenda, if any, are as follows:

*(Either list applicable documents below or refer to an exhibit attached to this Agreement.)*

Addendum No. 1 to AIA 141-2004

Number

Date

Pages

§ 8.1.7 Exhibit A, Terms and Conditions.

*(If the parties agree to substitute terms and conditions other than those contained in AIA Document A141-2004, Exhibit A, Terms and Conditions — KDE Version, then identify such terms and conditions and attach to this Agreement as Exhibit A.)*

§ 8.1.8 (Not Used)

§ 8.1.9 Exhibit C, Insurance and Bonds, if applicable.

*(Complete AIA Document A141-2004, Exhibit C, Insurance and Bonds — KDE Version or indicate "not applicable.")*



**§ 8.1.10** Other documents, if any, forming part of the Guaranteed Energy Savings Contract Documents are as follows:  
(Either list applicable documents below or refer to an exhibit attached to this Agreement. List other Exhibits, including Owner's Direct Purchase Orders utilizing the KDE Purchase Order Summary Form, if any.)

Kentucky Department of Education Purchase Order form for Trane equipment  
Kentucky Department of Education Purchase Order Summary Form  
Trane Equipment Proposal to Henderson County Schools, dated February 19, 2018

This Agreement entered into as of the day and year first written above.

\_\_\_\_\_  
OWNER (Signature)

Ms. Marganna Stanley, Superintendent

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
QUALIFIED PROVIDER (Signature)

Mr. Rafael A. Garibay, Sr. Project Developer

\_\_\_\_\_  
(Printed name and title)

Init.

# Kentucky Department of Education Version of AIA Document A141™ – 2004 Exhibit A

## *Terms and Conditions*

for the following PROJECT:

*(Name and location or address)*

Henderson County Schools Guaranteed Energy Savings Contract  
1805 Second St., Henderson, KY 42420

### THE OWNER:

*(Name, legal status and address)*

Henderson County Board of Education  
1805 Second St.  
Henderson, KY 42420

### THE QUALIFIED PROVIDER:

*(Name, legal status and address)*

Trane U.S. Inc.  
12700 Plantside Drive  
Louisville, KY 40299

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This version of AIA Document A141–2004 Exhibit A is modified by the Kentucky Department of Education. Publication of this version of AIA Document A141 Exhibit A does not imply the American Institute of Architects' endorsement of any modification by the Kentucky Department of Education. A comparative version of AIA Document A141–2004 Exhibit A showing additions and deletions by the Kentucky Department of Education is available for review on the Kentucky Department of Education Web site.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Consultation with an attorney is also encouraged with respect to professional licensing requirements in the jurisdiction where the Project is located.



## **ARTICLE A.1 GENERAL PROVISIONS**

### **§ A.1.1 Basic Definitions**

#### **§ A.1.1.1 The GUARANTEED ENERGY SAVINGS CONTRACT Documents**

The Guaranteed Energy Savings Contract Documents are identified in Section 1.1 of the Agreement.

#### **§ A.1.1.2 Project Criteria**

The Project Criteria are identified in Section 8.1.3 of the Agreement and may describe the character, scope, relationships, forms, size and appearance of the Project, materials and systems and, in general, their quality levels, performance standards, requirements or criteria, and major equipment layouts.

#### **§ A.1.1.3 Architect**

The Architect is the person lawfully licensed to practice architecture or an entity lawfully practicing architecture identified as such in the Agreement and having a direct contract with the Qualified Provider to perform design services for all or a portion of the Work, and is referred to throughout the Contract Documents as if singular in number. The term "Architect" means the Architect or the Architect's authorized representative.

#### **§ A.1.1.4 Contractor**

A Contractor is a person or entity, other than the Architect, that has a direct contract with the Qualified Provider to perform all or a portion of the construction required in connection with the Work. The term "Contractor" is referred to throughout the Contract Documents as if singular in number and means a Contractor or an authorized representative of the Contractor. The term "Contractor" does not include a separate contractor, as defined in Section A.6.1.2, or subcontractors of a separate contractor.

#### **§ A.1.1.5 Subcontractor**

A Subcontractor is a person or entity who has a direct contract with a Contractor to perform a portion of the construction required in connection with the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor.

#### **§ A.1.1.6 The Work**

The term "Work" means the design, construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Qualified Provider to fulfill the Qualified Provider's obligations. The Work may constitute the whole or a part of the Project.

#### **§ A.1.1.7 The Project**

The Project is the total design and construction of which the Work performed under the Contract Documents may be the whole or a part, and which may include design and construction by the Owner or by separate contractors.

#### **§ A.1.1.8 Neutral**

The Neutral is the individual appointed by the parties to decide Claims and disputes pursuant to Section A.4.2.1.

### **§ A.1.2 Compliance with Applicable Laws**

**§ A.1.2.1** If the Qualified Provider believes that implementation of any instruction received from the Owner would cause a violation of any applicable law, statute, ordinance, building code, rule or regulation, the Qualified Provider shall notify the Owner in writing. Neither the Qualified Provider nor any Contractor or Architect shall be obligated to perform any act which they believe will violate any applicable law, ordinance, rule or regulation.

**§ A.1.2.2** The Qualified Provider shall be entitled to rely on the completeness and accuracy of the information contained in the Project Criteria, but not that such information complies with applicable laws, regulations and codes, which shall be the obligation of the Qualified Provider to determine. In the event that a specific requirement of the Project Criteria conflicts with applicable laws, regulations and codes, the Qualified Provider shall furnish Work which complies with such laws, regulations and codes. In such case, the Owner shall prepare a Modification to the Agreement for compliance with such laws by the Qualified Provider unless the Qualified Provider recognized such non-compliance prior to execution of this Agreement and failed to notify the Owner.

### **§ A.1.3 Capitalization**

Terms capitalized in these Terms and Conditions include those which are (1) specifically defined, (2) the titles of numbered articles and identified references to sections in the document, or (3) the titles of other documents published by the American Institute of Architects.



#### § A.1.4 Interpretation

§ A.1.4.1 In the interest of brevity, the Contract Documents frequently omit modifying words such as “all” and “any” and articles such as “the” and “an,” but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ A.1.4.2 Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

#### § A.1.5 Execution of the Design-Build Documents

§ A.1.5.1 The Contract Documents shall be signed by the Owner and Qualified Provider.

§ A.1.5.2 Execution of the Guaranteed Energy Savings Contract by the Qualified Provider is a representation that the Qualified Provider has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

#### § A.1.6 Ownership and Use of Documents and Electronic Data

§ A.1.6.1 Drawings, specifications, and other documents including those in electronic form, prepared by the Architect and furnished by the Qualified Provider are Instruments of Service. The Qualified Provider, Qualified Provider’s Architect and other providers of professional services individually shall retain all common law, statutory and other reserved rights, including copyright in those Instruments of Services furnished by them. Drawings, specifications, and other documents and materials and electronic data are furnished for use solely with respect to this Project.

§ A.1.6.2 Upon execution of the Guaranteed Energy Savings Contract, the Qualified Provider grants to the Owner a non-exclusive license to reproduce and use the Instruments of Service solely in connection with the Project, including the Project’s further development by the Owner and others retained by the Owner for such purposes, provided that the Owner shall comply with all obligations, including prompt payment of sums when due, under the Contract Documents. Subject to the Owner’s compliance with such obligations, such license shall extend to those parties retained by the Owner for such purposes, including other design professionals. The Qualified Provider shall obtain similar non-exclusive licenses from its design professionals, including the Architect. The Owner shall not otherwise assign or transfer any license herein to another party without prior written agreement of the Qualified Provider. Any unauthorized reproduction or use of the Instruments of Service by the Owner or others shall be at the Owner’s sole risk and expense without liability to the Qualified Provider and its design professionals. Except as provided in Section A.1.6.4, termination of this Agreement prior to completion of the Qualified Provider’s services to be performed under this Agreement shall terminate this license.

§ A.1.6.3 Prior to any electronic exchange by the parties of the Instruments of Service or any other documents or materials to be provided by one party to the other, the Owner and the Qualified Provider shall agree in writing on the specific conditions governing the format thereof, including any special limitations or licenses not otherwise provided in the Contract Documents.

§ A.1.6.4 If this Agreement is terminated for any reason other than the default of the Owner, each of the Qualified Provider’s design professionals, including the Architect, shall be contractually required to convey to the Owner a non-exclusive license to use that design professional’s Instruments of Service for the completion, use and maintenance of the Project, conditioned upon the Owner’s written notice to that design professional of the Owner’s assumption of the Qualified Provider’s contractual duties and obligations to that design professional and payment to that design professional of all amounts due to that design professional and its consultants. If the Owner does not assume the remaining duties and obligations of the Qualified Provider to that design professional under this Agreement, then the Owner shall indemnify and hold harmless that design professional from all claims and any expense, including legal fees, which that design professional shall thereafter incur by reason of the Owner’s use of such Instruments of Service. The Qualified Provider shall incorporate the requirements of this Section A.1.6.4 in all agreements with its design professionals.

§ A.1.6.5 Submission or distribution of the Qualified Provider’s documents to meet official regulatory requirements or for similar purposes in connection with the Project is not to be construed as publication in derogation of the rights reserved in Section A.1.6.1.



## ARTICLE A.2 OWNER

### § A.2.1 General

§ A.2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Owner" means the Owner or the Owner's authorized representative. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all Project matters requiring the Owner's approval or authorization. The Owner shall render decisions in a timely manner and in accordance with the Qualified Provider's schedule submitted to the Owner.

§ A.2.1.2 The Owner shall furnish to the Qualified Provider within 15 days after receipt of a written request information necessary and relevant for the Qualified Provider to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

### § A.2.2 Information and Services Required of the Owner

§ A.2.2.1 Information or services required of the Owner by the Design-Build Documents shall be furnished by the Owner with reasonable promptness. Any other information or services relevant to the Qualified Provider's performance of the Work under the Owner's control shall be furnished by the Owner after receipt from the Qualified Provider of a written request for such information or services.

§ A.2.2.2 If requested by Qualified Provider as necessary for the Project, The Owner shall provide surveys describing physical characteristics, legal limitations, and utility locations for the site of this Project, and a written legal description of the site. The surveys and legal information shall include, as applicable, grades and lines of streets, alleys, pavements, and adjoining property and structures; adjacent drainage; rights-of-way, restrictions, easements, encroachments, zoning, deed restriction, boundaries, and contours of the site; locations, dimensions, and necessary data pertaining to existing buildings, other improvements and trees; and information concerning available utility services and lines, both public and private, above and below grade, including inverts and depths. All the information on the survey shall be referenced to a Project benchmark.

§ A.2.2.3 The Owner shall provide, to the extent available to the Owner and if not required by the Contract Documents to be provided by the Qualified Provider, the results and reports of prior tests, inspections or investigations conducted for the Project involving structural or mechanical systems, chemical, air and water pollution, hazardous materials or environmental and subsurface conditions and information regarding the presence of pollutants at the Project site.

§ A.2.2.4 The Owner may obtain independent review of the Qualified Provider's design, construction and other documents by a separate architect, engineer, and contractor or cost estimator under contract to or employed by the Owner. Such independent review shall be undertaken at the Owner's expense in a timely manner and shall not delay the orderly progress of the Work.

§ A.2.2.5 The Owner shall cooperate with the Qualified Provider in securing building and other permits, licenses and inspections. The Owner shall not be required to pay the fees for such permits, licenses and inspections unless the cost of such fees is excluded from the responsibility of the Qualified Provider under the Contract Documents.

§ A.2.2.6 The services, information, surveys and reports required to be provided by the Owner under Section A.2.2, shall be furnished at the Owner's expense, and the Qualified Provider shall be entitled to rely upon the accuracy and completeness thereof, except as otherwise specifically provided in the Contract Documents or to the extent the Owner advises the Qualified Provider to the contrary in writing.

§ A.2.2.7 If the Owner observes or otherwise becomes aware of a fault or defect in the Work or non-conformity with the Contract Documents, the Owner shall give prompt written notice thereof to the Qualified Provider.

§ A.2.2.8 The Owner shall, at the request of the Qualified Provider, prior to execution of the Guaranteed Energy Savings Contract and promptly upon request thereafter, furnish to the Qualified Provider reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Design-Build Documents.

§ A.2.2.9 The Owner shall communicate through the Qualified Provider with persons or entities employed or retained by the Qualified Provider, unless otherwise directed by the Qualified Provider.

§ A.2.2.10 The Owner shall furnish the services of geotechnical engineers or other consultants, if not required by the Contract Documents to be provided by the Qualified Provider, for subsoil, air and water conditions when such services



are deemed reasonably necessary by the Qualified Provider to properly carry out the design services provided by the Qualified Provider and the Provider's Architect. Such services may include, but are not limited to, test borings, test pits, determinations of soil bearing values, percolation tests, evaluations of hazardous materials, ground corrosion and resistivity tests, and necessary operations for anticipating subsoil conditions. The services of geotechnical engineer(s) or other consultants shall include preparation and submission of all appropriate reports and professional recommendations.

§ A.2.2.11 The Owner shall promptly obtain easements, zoning variances, and legal authorizations regarding site utilization where essential to the execution of the Owner's program.

### § A.2.3 Owner Review and Inspection

§ A.2.3.1 The Owner shall review and approve or take other appropriate action upon the Qualified Provider's submittals, including but not limited to design and construction documents, required by the Contract Documents, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Owner's action shall be taken with such reasonable promptness as to cause no delay in the Work or in the activities of the Qualified Provider or separate contractors. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details, such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Qualified Provider as required by the Contract Documents.

§ A.2.3.2 Upon review of the design documents, construction documents, or other submittals required by the Contract Documents, the Owner shall take one of the following actions:

- .1 Determine that the documents or submittals are in conformance with the Contract Documents and approve them.
- .2 Determine that the documents or submittals are in conformance with the Contract Documents but request changes in the documents or submittals which shall be implemented by a Change in the Work.
- .3 Determine that the documents or submittals are not in conformity with the Contract Documents and reject them.
- .4 Determine that the documents or submittals are not in conformity with the Contract Documents, but accept them by implementing a Modification to the Agreement.
- .5 Determine that the documents or submittals are not in conformity with the Contract Documents, but accept them and request changes in the documents or submittals which shall be implemented by Modification to the Agreement.

§ A.2.3.3 The Qualified Provider shall submit to the Owner for the Owner's approval, pursuant to Section A.2.3.1, any proposed change or deviation to previously approved documents or submittals. The Owner shall review each proposed change or deviation to previously approved documents or submittals which the Qualified Provider submits to the Owner for the Owner's approval with reasonable promptness in accordance with Section A.2.3.1 and shall make one of the determinations described in Section A.2.3.2.

§ A.2.3.4 Notwithstanding the Owner's responsibility under Section A.2.3.2, the Owner's review and approval of the Qualified Provider's documents or submittals shall not relieve the Qualified Provider of responsibility for compliance with the Contract Documents unless a) the Qualified Provider has notified the Owner in writing of the deviation prior to approval by the Owner or, b) the Owner has approved a Modification to the Agreement reflecting any deviations from the requirements of the Contract Documents.

§ A.2.3.5 The Owner may visit the site to keep informed about the progress and quality of the portion of the Work completed. However, the Owner shall not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. Visits by the Owner shall not be construed to create an obligation on the part of the Owner to make on-site inspections to check the quantity or quality of the Work. The Owner shall neither have control over or charge of, nor be responsible for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Qualified Provider's rights and responsibilities under the Contract Documents, except as provided in Section A.3.3.7.

§ A.2.3.6 The Owner shall not be responsible for the Qualified Provider's failure to perform the Work in accordance with the requirements of the Contract Documents. The Owner shall not have control over or charge of and will not be responsible for acts or omissions of the Qualified Provider, Architect, Contractors, or their agents or employees, or any other persons or entities performing portions of the Work for the Qualified Provider.



§ A.2.3.7 The Owner may reject Work that does not conform to the Contract Documents. Whenever the Owner considers it necessary or advisable, the Owner shall have authority to require inspection or testing of the Work in accordance with Section A.13.5.2, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Owner nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Owner to the Qualified Provider, the Architect, Contractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ A.2.3.8 The Owner may appoint an on-site project representative to observe the Work and to have such other responsibilities as the Owner and the Qualified Provider agree to in writing.

§ A.2.3.9 The Owner shall conduct inspections to determine the date or dates of Substantial Completion and the date of final completion.

#### § A.2.4 Owner's Right to Stop Work

If the Qualified Provider fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Section A.12.2 or persistently fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Qualified Provider to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Qualified Provider or any other person or entity, except to the extent required by Section A.6.1.3.

#### § A.2.5 Owner's Right to Carry Out the Work

If the Qualified Provider defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may after such seven-day period give the Qualified Provider a second written notice to correct such deficiencies within a three-day period. If the Qualified Provider within such three-day period after receipt of such second notice fails to commence and continue to correct any deficiencies, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case, an appropriate Modification to the Agreement shall be issued deducting from payments then or thereafter due the Qualified Provider the reasonable cost of correcting such deficiencies. If payments due the Qualified Provider are not sufficient to cover such amounts, the Qualified Provider shall pay the difference to the Owner.

### ARTICLE A.3 QUALIFIED PROVIDER

#### § A.3.1 General

§ A.3.1.1 The Qualified Provider is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Qualified Provider shall be a person or business experienced in the design, implementation, and installation of energy, water, and wastewater conservation measure and is determined to be qualified by the Owner. The Qualified Provider shall be responsible for and shall provide the Owner with the following information regarding guaranteed energy, water, and wastewater savings contracts: Project design and specifications, construction management, construction, commissioning, on-going services as require, measurement and verification of savings for guaranteed energy, water, and wastewater savings contracts, and annual reconciliation statements as provided in KRS 45A.352(8). Qualified Provider The term "Qualified Provider" means the Qualified Provider or the Qualified Provider's authorized representative. The Qualified Provider's representative is authorized to act on the Qualified Provider's behalf with respect to the Project.

§ A.3.1.2 The Qualified Provider shall perform the Work in accordance with the Design-Build Documents.

#### § A.3.2 Design Services and Responsibilities

§ A.3.2.1 When applicable law requires that services be performed by licensed professionals, the Qualified Provider shall provide those services through the performance of qualified persons or entities duly licensed to practice their professions. The Owner understands and agrees that the services performed by the Qualified Provider's Architect and the Qualified Provider's other design professionals and consultants are undertaken and performed in the sole interest of and for the exclusive benefit of the Qualified Provider.

§ A.3.2.2 The agreements between the Qualified Provider and Architect or other design professionals identified in the Agreement, and in any subsequent Modifications, shall be in writing. These agreements, including services and financial arrangements with respect to this Project, shall be promptly and fully disclosed to the Owner upon the Owner's written request.



§ A.3.2.3 The Qualified Provider shall be responsible to the Owner for acts and omissions of the Qualified Provider's employees, Architect, Contractors, Subcontractors and their agents and employees, and other persons or entities, including the Architect and other design professionals, performing any portion of the Qualified Provider's obligations under the Contract Documents.

§ A.3.2.4 The Qualified Provider shall carefully study and compare the documents, plans, materials and other information provided by the Owner pursuant to Section A.2.2, shall take field measurements of any existing conditions related to the Work, shall observe any conditions at the site affecting the Work, and report promptly to the Owner any errors, inconsistencies or omissions discovered.

§ A.3.2.5 The Qualified Provider shall provide to the Owner for Owner's written approval design documents sufficient to establish the size, quality and character of the Project; its architectural, structural, mechanical and electrical systems; and the materials and such other elements of the Project to the extent required by the Contract Documents. Deviations, if any, from the Contract Documents shall be disclosed in writing.

§ A.3.2.6 Upon the Owner's written approval of the design documents submitted by the Qualified Provider, the Qualified Provider shall provide construction documents for review and written approval by the Owner. The construction documents shall set forth in detail the requirements for construction of the Project. The construction documents shall include drawings and specifications that establish the quality levels of materials and systems required. Deviations, if any, from the Contract Documents shall be disclosed in writing. Construction documents may include drawings, specifications, and other documents and electronic data setting forth in detail the requirements for construction of the Work, and shall

- .1 be consistent with the approved design documents;
- .2 provide information for the use of those in the building trades; and
- .3 include documents customarily required for regulatory agency approvals.

§ A.3.2.7 The Qualified Provider shall meet with the Owner periodically to review progress of the design and construction documents.

§ A.3.2.8 Upon the Owner's written approval of construction documents, the Qualified Provider, with the assistance of the Owner, shall prepare and file documents required to obtain necessary approvals of governmental authorities having jurisdiction over the Project. The Owner's approval of construction documents shall be by Board Order.

§ A.3.2.9 The Qualified Provider shall obtain from each of the Qualified Provider's professionals and furnish to the Owner certifications with respect to the documents and services provided by such professionals (a) that, to the best of their knowledge, information and belief, the documents or services to which such certifications relate (i) are consistent with the Project Criteria set forth in the Contract Documents, except to the extent specifically identified in such certificate, (ii) comply with applicable professional practice standards, and (iii) comply with applicable laws, ordinances, codes, rules and regulations governing the design of the Project; and (b) that the Owner and its consultants shall be entitled to rely upon the accuracy of the representations and statements contained in such certifications.

§ A.3.2.10 If the Owner requests the Qualified Provider, the Architect or the Qualified Provider's other design professionals to execute certificates other than those required by Section A.3.2.9, the proposed language of such certificates shall be submitted to the Qualified Provider, or the Architect and such design professionals through the Qualified Provider, for review and negotiation at least 14 days prior to the requested dates of execution. Neither the Qualified Provider, the Architect nor such other design professionals shall be required to execute certificates that would require knowledge, services or responsibilities beyond the scope of their respective agreements with the Owner or Qualified Provider.

### § A.3.3 Construction

§ A.3.3.1 The Qualified Provider shall perform no construction Work prior to the Owner's approval. The Qualified Provider shall perform no portion of the Work for which the Contract Documents require the Owner's review of submittals, such as Shop Drawings, Product Data and Samples, until the Owner has approved each submittal.

§ A.3.3.2 The construction Work shall be in accordance with approved submittals, except that the Qualified Provider shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Owner's approval of design and construction documents or other submittals such as Shop Drawings, Product Data, Samples or other submittals unless the Qualified Provider has specifically informed the Owner in writing of such deviation at the time of submittal and (1) the Owner has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Qualified



Provider shall not be relieved of responsibility for errors or omissions in design and construction documents or other submittals such as Shop Drawings, Product Data, Samples or other submittals by the Owner's approval thereof.

**§ A.3.3.3** The Qualified Provider shall direct specific attention, in writing or on resubmitted design and construction documents or other submittals such as Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Owner on previous submittals. In the absence of such written notice, the Owner's approval of a resubmission shall not apply to such revisions.

**§ A.3.3.4** When the Contract Documents require that a Contractor provide professional design services or certifications related to systems, materials or equipment, or when the Qualified Provider in its discretion provides such design services or certifications through a Contractor, the Qualified Provider shall cause professional design services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professionals, if prepared by others, shall bear such design professional's written approval. The Owner shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals.

**§ A.3.3.5** The Qualified Provider shall be solely responsible for and have control over all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Design-Build Documents.

**§ A.3.3.6** The Qualified Provider shall keep the Owner informed of the progress and quality of the Work.

**§ A.3.3.7** The Qualified Provider shall be responsible for the supervision and direction of the Work, using the Qualified Provider's best skill and attention. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Qualified Provider shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Qualified Provider determines that such means, methods, techniques, sequences or procedures may not be safe, the Qualified Provider shall give timely written notice to the Owner and shall not proceed with that portion of the Work without further written instructions from the Owner. If the Qualified Provider is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Qualified Provider, the Owner shall be solely responsible for any resulting loss or damage.

**§ A.3.3.8** The Qualified Provider shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

#### **§ A.3.4 Labor and Materials**

**§ A.3.4.1** Unless otherwise provided in the Contract Documents, the Qualified Provider shall provide or cause to be provided and shall pay for design services, labor, materials, equipment, tools, construction equipment and machinery, , transportation and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

- .1 The Owner shall provide and pay for water, gas and electricity used by the Qualified Provider for Work of facility alterations, system modifications or replacements, except temporary wiring, piping, hoses required to complete the Work shall be provided and paid for by the Qualified Provider.

**§ A.3.4.2** When a material is specified in the Contract Documents, the Qualified Provider may make substitutions only with the consent of the Owner.

**§ A.3.4.3** The Qualified Provider shall enforce strict discipline and good order among the Qualified Provider's employees and other persons carrying out the Contract. The Qualified Provider shall not permit employment of unfit persons or persons not skilled in tasks assigned to them, and, consistent with the intent of KRS 160.38, Subsection (3), shall prohibit employment of violent offenders or workers convicted of a felony sex crime.

#### **§ A.3.5 Warranty**

The Qualified Provider warrants to the Owner that materials and equipment furnished under the Contract Documents will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted by law or otherwise, and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Qualified Provider's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Qualified Provider, improper



or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Owner, the Qualified Provider shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

#### **§ A.3.6 Taxes**

The Qualified Provider shall pay all sales, consumer, use and similar taxes for the Work provided by the Qualified Provider which had been legally enacted on the date of the Agreement, whether or not yet effective or merely scheduled to go into effect. If utilized, Owner-direct Purchase Orders for Project materials and equipment are exempt from Kentucky Sales and Use Tax.

#### **§ A.3.7 Permits, Fees and Notices**

**§ A.3.7.1** The Qualified Provider shall secure and pay for building and other permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the Contract and which were legally required on the date the Owner accepted the Qualified Provider's proposal.

**§ A.3.7.2** The Qualified Provider shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities relating to the Project.

**§ A.3.7.3** It is the Qualified Provider's responsibility to ascertain that the Work is in accordance with applicable laws, ordinances, codes, rules and regulations.

**§ A.3.7.4** If the Qualified Provider performs Work contrary to applicable laws, ordinances, codes, rules and regulations, the Qualified Provider shall assume responsibility for such Work and shall bear the costs attributable to correction.

#### **§ A.3.8 (Not Used)**

#### **§ A.3.9 Qualified Provider's Schedule**

**§ A.3.9.1** The Qualified Provider, promptly after execution of the Contract, shall prepare and submit for the Owner's information the Qualified Provider's schedule for the Work. The schedule shall not exceed time limits and shall be in such detail as required under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, shall provide for expeditious and practicable execution of the Work and shall include allowances for periods of time required for the Owner's review and for approval of submissions by authorities having jurisdiction over the Project.

#### **§ A.3.9.2 (Not Used)**

**§ A.3.9.3** The Qualified Provider shall perform the Work in general accordance with the most recent schedules submitted to the Owner.

#### **§ A.3.10 Documents and Samples at the Site**

The Qualified Provider shall maintain at the site for the Owner one record copy of the drawings, specifications, addenda, and Modifications, in good order and marked currently to record field changes and selections made during construction, and one record copy of Shop Drawings, Product Data, Samples and similar required submittals. These shall be delivered to the Owner upon completion of the Work.

#### **§ A.3.11 Shop Drawings, Product Data and Samples**

**§ A.3.11.1** Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Qualified Provider or a Contractor, Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

**§ A.3.11.2** Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Qualified Provider to illustrate materials or equipment for some portion of the Work.

**§ A.3.11.3** Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

**§ A.3.11.4** Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required by the Contract Documents the way by which the Qualified Provider proposes to conform to the Contract Documents.



**§ A.3.11.5** The Qualified Provider shall review for compliance with the Contract Documents and approve and submit to the Owner only those Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

**§ A.3.11.6** By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Qualified Provider represents that the Qualified Provider has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

#### **§ A.3.12 Use of Site**

The Qualified Provider shall confine operations at the site to areas approved by the Owner and permitted by law, ordinances, permits and the Contract Documents, and shall not store materials on roofs or unreasonably encumber the site with materials or equipment.

#### **§ A.3.13 Cutting and Patching**

**§ A.3.13.1** The Qualified Provider shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

**§ A.3.13.2** The Qualified Provider shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction or by excavation. The Qualified Provider shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Qualified Provider shall not unreasonably withhold from the Owner or a separate contractor the Qualified Provider's consent to cutting or otherwise altering the Work.

#### **§ A.3.14 Cleaning Up**

**§ A.3.14.1** The Qualified Provider shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Qualified Provider shall remove from and about the Project waste materials, rubbish, the Qualified Provider's tools, construction equipment, machinery and surplus materials.

**§ A.3.14.2** If the Qualified Provider fails to clean up as provided herein, the Owner may do so and the cost thereof shall be charged to the Qualified Provider.

#### **§ A.3.15 Access to Work**

The Qualified Provider shall provide the Owner access to the Work in preparation and progress wherever located.

#### **§ A.3.16 Royalties, Patents and Copyrights**

The Qualified Provider shall pay all royalties and license fees. The Qualified Provider shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required or where the copyright violations are contained in drawings, specifications or other documents prepared by or furnished to the Qualified Provider by the Owner. However, if the Qualified Provider has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Qualified Provider shall be responsible for such loss unless such information is promptly furnished to the Owner.

#### **§ A.3.17 Indemnification**

**§ A.3.17.1** To the fullest extent permitted by law, the Qualified Provider shall indemnify and hold harmless the Owner, Owner's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death or to injury to or destruction of tangible property other than the Work itself, but only to the extent caused by the negligent acts or omissions of the Qualified Provider, Architect, a Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section A.3.17.



§ A.3.17.2 In claims against any person or entity indemnified under this Section A.3.17 by an employee of the Qualified Provider, the Architect, a Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section A.3.17.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Qualified Provider, the Architect or a Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

## ARTICLE A.4 DISPUTE RESOLUTION

### § A.4.1 Claims and Disputes

§ A.4.1.1 **Definition.** A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Qualified Provider arising out of or relating to the Contract. Claims must be initiated by written notice. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ A.4.1.2 **Time Limits on Claims.** Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims must be initiated by written notice to the other party.

§ A.4.1.3 **Continuing Performance.** Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section A.9.7.1 and Article A.14, the Qualified Provider shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ A.4.1.4 **Claims for Concealed or Unknown Conditions.** If conditions are encountered at the site which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then the observing party shall give notice to the other party promptly before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Owner shall promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Qualified Provider's cost of, or time required for, performance of any part of the Work, shall negotiate with the Qualified Provider an equitable adjustment in the Contract Sum or Contract Time, or both. If the Owner determines that the conditions at the site are not materially different from those indicated in the Design-Build Documents and that no change in the terms of the Design-Build Contract is justified, the Owner shall so notify the Qualified Provider in writing, stating the reasons. Claims by the Qualified Provider in opposition to such determination must be made within 21 days after the Owner has given notice of the decision. If the conditions encountered are materially different, the Contract Sum and Contract Time shall be equitably adjusted, but if the Owner and Qualified Provider cannot agree on an adjustment in the Contract Sum or Contract Time, the adjustment shall proceed pursuant to Section A.4.2.

§ A.4.1.5 **Claims for Additional Cost.** If the Qualified Provider wishes to make Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section A.10.6.

§ A.4.1.6 If the Qualified Provider believes additional cost is involved for reasons including but not limited to (1) an order by the Owner to stop the Work where the Qualified Provider was not at fault, (2) a written order for the Work issued by the Owner, (3) failure of payment by the Owner, (4) termination of the Contract by the Owner, (5) Owner's suspension or (6) other reasonable grounds, Claim shall be filed in accordance with this Section A.4.1.

### § A.4.1.7 Claims for Additional Time

§ A.4.1.7.1 If the Qualified Provider wishes to make Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Qualified Provider's Claim shall include an estimate of the time and its effect on the progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ A.4.1.7.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ A.4.1.8 **Injury or Damage to Person or Property.** If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable



time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

#### **§ A.4.1.9 (Not Used)**

**§ A.4.1.10 Claims for Consequential Damages.** Qualified Provider and Owner waive Claims against each other for consequential damages arising out of or relating to the Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses and for losses of use; and
- .2 damages incurred by the Qualified Provider for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article A.14. Nothing contained in this Section A.4.1.10 shall be deemed to preclude an award of liquidated direct damages, when applicable, in accordance with the requirements of the Documents.

**§ A.4.1.11** If the enactment or revision of codes, laws or regulations or official interpretations which govern the Project cause an increase or decrease of the Qualified Provider's cost of, or time required for, performance of the Work, the Qualified Provider shall be entitled to an equitable adjustment in Contract Sum or Contract Time. If the Owner and Qualified Provider cannot agree upon an adjustment in the Contract Sum or Contract Time, the Qualified Provider shall submit a Claim pursuant to Section A.4.1.

#### **§ A.4.2 Resolution of Claims and Disputes**

**§ A.4.2.1 Decision by Neutral.** If the parties have identified a Neutral in Section 6.1 of the Agreement or elsewhere in the Contract Documents, then Claims, excluding those arising under Sections A.10.3 through A.10.5, shall be referred initially to the Neutral for decision. An initial decision by the Neutral shall be required as a condition precedent to mediation of all Claims between the Owner and Qualified Provider arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Neutral with no decision having been rendered by the Neutral. Unless the Neutral and all affected parties agree, the Neutral will not decide disputes between the Qualified Provider and persons or entities other than the Owner.

**§ A.4.2.2 Decision by Owner.** If the parties have not identified a Neutral in Section 6.1 of the Agreement or elsewhere in the Contract Documents then, except for those claims arising under Sections A.10.3 and A.10.5, the Owner shall provide an initial decision. An initial decision by the Owner shall be required as a condition precedent to mediation of all Claims between the Owner and Qualified Provider arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Owner with no decision having been rendered by the Owner.

**§ A.4.2.3** The initial decision pursuant to Sections A.4.2.1 and A.4.2.2 shall be in writing, shall state the reasons therefore and shall notify the parties of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject first to mediation under Section A.4.3 and thereafter to such other dispute resolution methods as provided in Section 6.2 of the Agreement or elsewhere in the Contract Documents.

**§ A.4.2.4** In the event of a Claim against the Qualified Provider, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Qualified Provider's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

**§ A.4.2.5** If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines prior to initial resolution of the Claim.

#### **§ A.4.3 Mediation**

**§ A.4.3.1** Any Claim arising out of or related to the Contract, except those waived as provided for in Sections A.4.1.10, A.9.10.4 and A.9.10.5, shall, after initial decision of the Claim or 30 days after submission of the Claim for initial decision, be subject to mediation as a condition precedent to arbitration or the institution of legal or equitable or other binding dispute resolution proceedings by either party.

**§ A.4.3.2** The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Mediation Rules of the American Arbitration Association currently in effect at the time of the mediation. Request for mediation shall be filed in writing with the other party to the Contract and with the American Arbitration Association. The request may be made concurrently with the



filing of a demand for arbitration or other binding dispute resolution proceedings but, in such event, mediation shall proceed in advance thereof or of legal or equitable proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order.

**§ A.4.3.3** The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

#### **§ A.4.4 Arbitration**

**§ A.4.4.1** Claims, except those waived as provided for in Sections A.4.1.10, A.9.10.4 and A.9.10.5, for which initial decisions have not become final and binding, and which have not been resolved by mediation but which are subject to arbitration pursuant to Sections 6.2 and 6.3 of the Agreement or elsewhere in the Contract Documents, shall be decided by arbitration which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently in effect at the time of the arbitration. The demand for arbitration shall be filed in writing with the other party to the Design-Build Contract and with the American Arbitration Association.

**§ A.4.4.2** A demand for arbitration may be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when institution of legal or equitable proceedings based on such Claim would be barred by the applicable statute of limitations as determined pursuant to Section A.13.6.

**§ A.4.4.3** An arbitration pursuant to this Section A.4.4 may be joined with an arbitration involving common issues of law or fact between the Owner or Qualified Provider and any person or entity with whom the Owner or Qualified Provider has a contractual obligation to arbitrate disputes which does not prohibit consolidation or joinder. No other arbitration arising out of or relating to the Guaranteed Energy Savings Contract shall include, by consolidation, joinder or in any other manner, an additional person or entity not a party to the Contract or not a party to an agreement with the Owner or Qualified Provider, except by written consent containing a specific reference to the Design-Build Contract signed by the Owner and Qualified Provider and any other person or entities sought to be joined. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent or with a person or entity not named or described therein. The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by the parties to the Agreement shall be specifically enforceable in accordance with applicable law in any court having jurisdiction thereof.

**§ A.4.4.4 Claims and Timely Assertion of Claims.** The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

**§ A.4.4.5 Judgment on Final Award.** The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

#### **ARTICLE A.5 AWARD OF CONTRACTS**

**§ A.5.1** Unless otherwise stated in the Contract Documents or proposal requirements, the Qualified Provider, as soon as practicable after award of the Contract, shall furnish in writing to the Owner the names of additional persons or entities not originally included in the Qualified Provider's proposal or in substitution of a person or entity (including those who are to furnish design services or materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Owner will promptly reply to the Qualified Provider in writing stating whether or not the Owner has reasonable objection to any such proposed additional person or entity. Failure of the Owner to reply promptly shall constitute notice of no reasonable objection.

**§ A.5.2 (Not Used)**

**§ A.5.3 (Not Used)**

**§ A.5.4** The Qualified Provider shall not change a person or entity previously selected if the Owner makes reasonable objection to such substitute.

#### **§ A.5.5 Contingent Assignment of Contracts**

**§ A.5.5.1** Each agreement for a portion of the Work is assigned by the Qualified Provider to the Owner provided that



- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section A.14.2 and only for those agreements which the Owner accepts by notifying the contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Guaranteed Energy Savings Contract.

§ A.5.5.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Contractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

## **ARTICLE A.6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**

### **§ A.6.1 Owner's Right to Perform Construction and to Award Separate Contracts**

§ A.6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces and to award separate contracts in connection with other portions of the Project or other construction or operations on the site. The Qualified Provider shall cooperate with the Owner and separate contractors whose work might interfere with the Qualified Provider's Work. If the Qualified Provider claims that delay or additional cost is involved because of such action by the Owner, the Qualified Provider shall make such Claim as provided in Section A.4.1.

§ A.6.1.2 The term "separate contractor" shall mean any contractor retained by the Owner pursuant to Section A.6.1.1.

§ A.6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the work of the Qualified Provider, who shall cooperate with them. The Qualified Provider shall participate with other separate contractors and the Owner in reviewing their construction schedules when directed to do so. The Qualified Provider shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Qualified Provider, separate contractors and the Owner until subsequently revised.

### **§ A.6.2 Mutual Responsibility**

§ A.6.2.1 The Qualified Provider shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities and shall connect and coordinate the Qualified Provider's construction and operations with theirs as required by the Contract Documents.

§ A.6.2.2 If part of the Qualified Provider's Work depends for proper execution or results upon design, construction or operations by the Owner or a separate contractor, the Qualified Provider shall, prior to proceeding with that portion of the Work, promptly report to the Owner apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Qualified Provider so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Qualified Provider's Work, except as to defects not then reasonably discoverable.

§ A.6.2.3 The Owner shall be reimbursed by the Qualified Provider for costs incurred by the Owner which are payable to a separate contractor because of delays, improperly timed activities or defective construction of the Qualified Provider. The Owner shall be responsible to the Qualified Provider for costs incurred by the Qualified Provider because of delays, improperly timed activities, damage to the Work or defective construction of a separate contractor.

§ A.6.2.4 The Qualified Provider shall promptly remedy damage wrongfully caused by the Qualified Provider to completed or partially completed construction or to property of the Owner or separate contractors.

§ A.6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described in Section A.3.13.

### **§ A.6.3 Owner's Right to Clean Up**

If a dispute arises among the Qualified Provider, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Owner shall allocate the cost among those responsible.

## **ARTICLE A.7 CHANGES IN THE WORK**

### **§ A.7.1 (Not Used)**

### **§ A.7.2 (Not Used)**



### § A.7.3 (Not Used)

### § A.7.4 Minor Changes in the Work

The Owner shall have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Design-Build Documents. Such changes shall be effected by written order and shall be binding on the Qualified Provider. The Qualified Provider shall carry out such written orders promptly.

## ARTICLE A.8 TIME

### § A.8.1 Definitions

§ A.8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ A.8.1.2 The date of commencement of the Work shall be the date stated in the Agreement unless provision is made for the date to be fixed in a notice to proceed issued by the Owner.

§ A.8.1.3 The date of Substantial Completion is the date determined by the Owner in accordance with Section A.9.8.

§ A.8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

### § A.8.2 Progress and Completion

§ A.8.2.1 Time limits stated in the Contract Documents are of the essence of the Guaranteed Energy Savings Contract. By executing the Design-Build Contract, the Qualified Provider confirms that the Contract Time is a reasonable period for performing the Work.

§ A.8.2.2 The Qualified Provider shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence construction operations on the site or elsewhere prior to the effective date of insurance required by Article A.11 to be furnished by the Qualified Provider and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by the Contract Documents or a notice to proceed given by the Owner, the Qualified Provider shall notify the Owner in writing not less than five days or other agreed period before commencing the Work to permit the timely filing of mortgages, mechanic's liens and other security interests.

§ A.8.2.3 The Qualified Provider shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

### § A.8.3 Delays and Extensions of Time

§ A.8.3.1 If the Qualified Provider is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or of a separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Qualified Provider's control, or by delay authorized by the Owner pending resolution of disputes pursuant to the Contract Documents, or by other causes which the Owner determines may justify delay, then the Contract Time shall be extended by Modification to the Contract for such reasonable time as the Owner may determine.

§ A.8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Section A.4.1.7.

§ A.8.3.3 This Section A.8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

## ARTICLE A.9 PAYMENTS AND COMPLETION

### § A.9.1 Contract Sum

The Contract Sum is stated in the Contract Documents and, including authorized adjustments, is the total amount payable by the Owner to the Qualified Provider for performance of the Work under the Guaranteed Energy Savings Contract.

### § A.9.2 Schedule of Values

Before the first Application for Payment, where the Contract Sum is based upon a Stipulated Sum, the Qualified Provider shall submit to the Owner an initial schedule of values allocated to various portions of the Work prepared in



such form and supported by such data to substantiate its accuracy as the Owner may require. This schedule, unless objected to by the Owner, shall be used as a basis for reviewing the Qualified Provider's Applications for Payment. The schedule of values may be updated periodically to reflect changes in the allocation of the Contract Sum.

#### **§ A.9.3 Applications for Payment**

**§ A.9.3.1** At least ten days before the date established for each progress payment, the Qualified Provider shall submit to the Owner an itemized Application for Payment for operations completed in accordance with the current schedule of values. Such application shall be notarized, if required, and supported by such data substantiating the Qualified Provider's right to payment as the Owner may require, such as copies of requisitions from Contractors and material suppliers, and reflecting retainage for in the Contract Documents.

**§ A.9.3.2** Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Qualified Provider with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

**§ A.9.3.3** The Qualified Provider warrants that title to all Work other than Instruments of Service covered by an Application for Payment will pass to the Owner no later than the time of payment. The Qualified Provider further warrants that, upon submittal of an Application for Payment, all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Qualified Provider's knowledge, information and belief, be free and clear of liens, Claims, security interests or encumbrances in favor of the Qualified Provider, Contractors, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

#### **§ A.9.3.4 (Not Used)**

#### **§ A.9.5 Decisions to Withhold Payment**

**§ A.9.5.1** The Owner may withhold a payment in whole or in part to the extent reasonably necessary to protect the Owner due to the Owner's determination that the Work has not progressed to the point indicated in the Application for Payment or that the quality of Work is not in accordance with the Contract Documents. The Owner may also withhold a payment or, because of subsequently discovered evidence, may nullify the whole or a part of an Application for Payment previously issued to such extent as may be necessary to protect the Owner from loss for which the Qualified Provider is responsible, including loss resulting from acts and omissions, because of the following:

- .1 Defective Work not remedied;
- .2 Third-party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Qualified Provider;
- .3 Failure of the Qualified Provider to make payments properly to Contractors or for design services labor, materials or equipment;
- .4 Reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 Damage to the Owner or a separate contractor;
- .6 Reasonable evidence that the Work will not be completed within the Contract Time and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 Persistent failure to carry out the Work in accordance with the Contract Documents.

**§ A.9.5.2** When the above reasons for withholding payment are removed, payment will be made for amounts previously withheld.

#### **§ A.9.6 Progress Payments**

**§ A.9.6.1** The Owner shall make payment of the amount, in the manner and within the time provided in the Contract Documents and as required by State law.

**§ A.9.6.2** The Qualified Provider shall promptly pay the Architect, each design professional and other consultants retained directly by the Qualified Provider, upon receipt of payment from the Owner, out of the amount paid to the Qualified Provider on account of each such party's respective portion of the Work, the amount to which each such party is entitled.



§ A.9.6.3 The Qualified Provider shall promptly pay each Contractor, upon receipt of payment from the Owner, out of the amount paid to the Qualified Provider on account of such Contractor's portion of the Work, the amount to which said Contractor is entitled, reflecting percentages actually retained from payments to the Qualified Provider on account of the Contractor's portion of the Work. The Qualified Provider shall, by appropriate agreement with each Contractor, require each Contractor to make payments to Subcontractors in a similar manner.

§ A.9.6.4 The Owner shall have no obligation to pay or to see to the payment of money to a Contractor except as may otherwise be required by law.

§ A.9.6.5 Payment to material suppliers shall be treated in a manner similar to that provided in Sections A.9.6.3 and A.9.6.4.

§ A.9.6.6 A progress payment, or partial or entire use or occupancy of the Project by the Owner, shall not constitute acceptance of Work not in accordance with the Contract Documents.

#### § A.9.7 Failure of Payment

If for reasons other than those enumerated in Section A.9.5.1, the Owner does not issue a payment within the time period required by Section 5.1.3 of the Agreement, then the Qualified Provider may, upon seven additional days' written notice to the Owner, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Qualified Provider's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

#### § A.9.8 Substantial Completion

§ A.9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or use the Work or a portion thereof for its intended use. The ability to occupy and utilize the Work or designated portion thereof may require an occupancy permit issued by the Kentucky Department of Housing, Building, and Construction and other other agencies having statutory authority and approval requirements.

§ A.9.8.2 When the Qualified Provider considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Qualified Provider shall prepare and submit to the Owner a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Qualified Provider to complete all Work in accordance with the Contract Documents.

§ A.9.8.3 Upon receipt of the Qualified Provider's list, the Owner shall make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Owner's inspection discloses any item, whether or not included on the Qualified Provider's list, which is not substantially complete, the Qualified Provider shall complete or correct such item. In such case, the Qualified Provider shall then submit a request for another inspection by the Owner to determine whether the Qualified Provider's Work is substantially complete.

§ A.9.8.4 In the event of a dispute regarding whether the Qualified Provider's Work is substantially complete, the dispute shall be resolved pursuant to Article A.4.

§ A.9.8.5 When the Work or designated portion thereof is substantially complete, the Qualified Provider shall prepare for the Owner's signature an Acknowledgement of Substantial Completion which, when signed by the Owner, shall establish (1) the date of Substantial Completion of the Work, (2) responsibilities between the Owner and Qualified Provider for security, maintenance, heat, utilities, damage to the Work and insurance, and (3) the time within which the Qualified Provider shall finish all items on the list accompanying the Acknowledgement. When the Owner's inspection discloses that the Work or a designated portion thereof is substantially complete, the Owner shall sign the Acknowledgement of Substantial Completion. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Acknowledgement of Substantial Completion.

§ A.9.8.6 Upon execution of the Acknowledgement of Substantial Completion and consent of surety the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

#### § A.9.9 Partial Occupancy or Use

§ A.9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Qualified Provider, provided such occupancy or use is



consented to by the insurer, if so required by the insurer, and authorized by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Qualified Provider have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for completion or correction of the Work and commencement of warranties required by the Contract Documents. When the Qualified Provider considers a portion substantially complete, the Qualified Provider shall prepare and submit a list to the Owner as provided under Section A.9.8.2. Consent of the Qualified Provider to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Qualified Provider.

**§ A.9.9.2** Immediately prior to such partial occupancy or use, the Owner and Qualified Provider shall jointly inspect the area to be occupied or portion of the Work to be used to determine and record the condition of the Work.

**§ A.9.9.3** Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

#### **§ A.9.10 Final Completion and Final Payment**

**§ A.9.10.1** Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Owner shall promptly make such inspection and, when the Owner finds the Work acceptable under the Contract Documents and fully performed, the Owner shall, subject to Section A.9.10.2, promptly make final payment to the Qualified Provider.

- .1 Upon receipt and approval of the final Application for Payment, for the Contract and each Purchase Order, if any, the Qualified Provider will prepare, and with the Owner complete their portion of the Kentucky Department of Education BG-4 Contract Closeout Form – 2013, and forward the board-approved BG-4 form to the Kentucky Department of Education with a copy of the final Application for Payment upon the Board authorizing the BG-4 form, accepting the Work, and approving final payment to the Contractor or Material Supplier.

**§ A.9.10.2** Neither final payment nor any remaining retained percentage will become due until the Qualified Provider submits to the Owner (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be cancelled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Qualified Provider knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety to final payment, and (5) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Guaranteed Energy Savings Contract, to the extent and in such form as may be designated by the Owner. If a Contractor refuses to furnish a release or waiver required by the Owner, the Qualified Provider may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Qualified Provider shall refund to the Owner all money that the Owner may be liable to pay in connection with the discharge of such lien, including all costs and reasonable attorneys' fees.

**§ A.9.10.3** If, after the Owner determines that the Qualified Provider's Work or designated portion thereof is substantially completed, final completion thereof is materially delayed through no fault of the Qualified Provider or by issuance of a Change Order or a Construction Change Directive affecting final completion, the Owner shall, upon application by the Qualified Provider, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Qualified Provider. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

**§ A.9.10.4** The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests or encumbrances arising out of the Contract Documents and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.



§ A.9.10.5 Acceptance of final payment by the Qualified Provider, a Contractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

## ARTICLE A.10 PROTECTION OF PERSONS AND PROPERTY

### § A.10.1 Safety Precautions and Programs

§ A.10.1.1 The Qualified Provider shall be responsible for initiating and maintaining all safety precautions and programs in connection with the performance of the Guaranteed Energy Savings Contract.

### § A.10.2 Safety of Persons and Property

§ A.10.2.1 The Qualified Provider shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site or under the care, custody or control of the Qualified Provider or the Qualified Provider's Contractors or Subcontractors; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

§ A.10.2.2 The Qualified Provider shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ A.10.2.3 The Qualified Provider shall erect and maintain, as required by existing conditions and performance of the Contract Documents, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ A.10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Qualified Provider shall notify the Owner in writing ten (10) days in advance of such action and exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ A.10.2.5 The Qualified Provider shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections A.10.2.1.2 and A.10.2.1.3 caused in whole or in part by the Qualified Provider, the Architect, a Contractor, a Subcontractor, or anyone directly or indirectly employed by any of them or by anyone for whose acts they may be liable and for which the Qualified Provider is responsible under Sections A.10.2.1.2 and A.10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or anyone directly or indirectly employed by the Owner, or by anyone for whose acts the Owner may be liable, and not attributable to the fault or negligence of the Qualified Provider. The foregoing obligations of the Qualified Provider are in addition to the Qualified Provider's obligations under Section A.3.17.

§ A.10.2.6 The Qualified Provider shall designate in writing to the Owner a responsible individual whose duty shall be the prevention of accidents.

§ A.10.2.7 The Qualified Provider shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.

### § A.10.3 Hazardous Materials

§ A.10.3.1 If reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Qualified Provider, the Qualified Provider shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner.

§ A.10.3.2 Unless there is a hazardous materials survey on record, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Qualified Provider and, in the event such material or substance is found to be present, to verify that it has been rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Qualified Provider the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Qualified Provider shall promptly reply to the Owner in writing stating whether or not the Qualified Provider has reasonable objection to the persons or entities proposed by the Owner. If the Qualified Provider has an objection to a person or



entity proposed by the Owner, the Owner shall propose another to whom the Qualified Provider has no reasonable objection. When the material or substance has been rendered harmless, work in the affected area shall resume upon written agreement of the Owner and Qualified Provider. The Contract Time shall be extended appropriately, and the Contract Sum shall be increased in the amount of the Qualified Provider's reasonable additional costs of shutdown, delay and start-up, which adjustments shall be accomplished by a Modification to the Contract.

**§ A.10.3.3** To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Qualified Provider, Contractors, Subcontractors, Architect, Architect's consultants and the agents and employees of any of them from and against Claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance exists on site as of the date of the Agreement, is not disclosed in the Design-Build Documents and presents the risk of bodily injury or death as described in Section A.10.3.1 and has not been rendered harmless, provided that such Claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death or to injury to or destruction of tangible property (other than the Work itself) to the extent that such damage, loss or expense is not due to the negligence of the Qualified Provider, Contractors, Subcontractors, Architect, Architect's consultants and the agents and employees of any of them.

**§ A.10.4** The Owner shall not be responsible under Section A.10.3 for materials and substances brought to the site by the Qualified Provider unless such materials or substances were required by the Contract Documents.

**§ A.10.5** If, without negligence on the part of the Qualified Provider, the Qualified Provider is held liable for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Qualified Provider for all cost and expense thereby incurred.

#### **§ A.10.6 Emergencies**

In an emergency affecting safety of persons or property, the Qualified Provider shall act, at the Qualified Provider's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Qualified Provider on account of an emergency shall be determined as provided in a Modification to the Contract.

### **ARTICLE A.11 INSURANCE AND BONDS**

**§ A.11.1** Except as may otherwise be set forth in the Agreement or elsewhere in the Contract Documents, the Owner and Qualified Provider shall purchase and maintain the following types of insurance with limits of liability and deductible amounts and subject to such terms and conditions, as set forth in this Article A.11.

#### **§ A.11.2 Qualified Provider's Liability Insurance**

**§ A.11.2.1** The Qualified Provider shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Qualified Provider from claims set forth below that may arise out of or result from the Qualified Provider's operations under the Guaranteed Energy Savings Contract and for which the Qualified Provider may be legally liable, whether such operations be by the Qualified Provider, by a Contractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Qualified Provider's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Qualified Provider's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Qualified Provider's obligations under Section A.3.17.

**§ A.11.2.2** The insurance required by Section A.11.2.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment.



**§ A.11.2.3** Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. These certificates and the insurance policies required by this Section A.11.2 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment as required by Section A.9.10.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Qualified Provider with reasonable promptness in accordance with the Qualified Provider's information and belief.

#### **§ A.11.3 Owner's Liability Insurance**

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

#### **§ A.11.4 Property Insurance**

**§ A.11.4.1** Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk, "all-risk" or equivalent policy form in the amount of the initial Contract Sum (and Owner-direct Purchase Orders if utilized), plus the value of subsequent Design-Build Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section A.9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section A.11.4 to be covered, whichever is later. This insurance shall include interests of the Owner, Qualified Provider, Contractors and Subcontractors in the Project.

**§ A.11.4.1.1** Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Qualified Provider's services and expenses required as a result of such insured loss.

**§ A.11.4.1.2** If the Owner does not intend to purchase such property insurance required by the Guaranteed Energy Savings Contract and with all of the coverages in the amount described above, the Owner shall so inform the Qualified Provider in writing prior to commencement of the Work. The Qualified Provider may then effect insurance that will protect the interests of the Qualified Provider, Contractors and Subcontractors in the Work, and, by appropriate Modification to the Contract, the cost thereof shall be charged to the Owner. If the Qualified Provider is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above without so notifying the Qualified Provider in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

**§ A.11.4.1.3** If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

**§ A.11.4.1.4** This property insurance shall cover portions of the Work stored off the site and also portions of the Work in transit.

**§ A.11.4.1.5** Partial occupancy or use in accordance with Section A.9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use, by endorsement or otherwise. The Owner and the Qualified Provider shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

**§ A.11.4.2 Boiler and Machinery Insurance.** The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Qualified Provider, Contractors and Subcontractors in the Work, and the Owner and Qualified Provider shall be named insureds.

**§ A.11.4.3 Loss of Use Insurance.** The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Qualified Provider, Architect, the Qualified Provider's other design professionals,



if any, Contractors and Subcontractors for loss of use of the Owner's property, including consequential losses due to fire or other hazards, however caused.

**§ A.11.4.4** If the Qualified Provider requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Qualified Provider by appropriate Modification to the Contract.

**§ A.11.4.5** If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section A.11.4.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

**§ A.11.4.6** Before an exposure to loss may occur, the Owner shall file with the Qualified Provider a copy of each policy that includes insurance coverages required by this Section A.11.4. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire and that its limits will not be reduced until at least 30 days' prior written notice has been given to the Qualified Provider.

**§ A.11.4.7 Waivers of Subrogation.** The Owner and Qualified Provider waive all rights against each other and any of their consultants, separate contractors described in Section A.6.1, if any, Contractors, Subcontractors, agents and employees, each of the other, and any of their contractors, subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section A.11.4 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Qualified Provider, as appropriate, shall require of the separate contractors described in Section A.6.1, if any, and the Contractors, Subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, even though the person or entity did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

**§ A.11.4.8** A loss insured under Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section A.11.4.10. The Qualified Provider shall pay Contractors their just shares of insurance proceeds received by the Qualified Provider, and, by appropriate agreements, written where legally required for validity, shall require Contractors to make payments to their Subcontractors in similar manner.

**§ A.11.4.9** If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach. If after such loss no other special agreement is made and unless the Owner terminates the Guaranteed Energy Savings Contract for convenience, replacement of damaged property shall be performed by the Qualified Provider after a Modification to the Contract.

**§ A.11.4.10** The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power.; The Owner as fiduciary shall, in the case of a decision or award, make settlement with insurers in accordance with directions of a decision or award. If distribution of insurance proceeds by arbitration is required, the arbitrators will direct such distribution.

#### **§ A.11.5 Performance Bond and Payment Bond**

The Qualified Provider shall furnish bonds covering faithful performance of the Guaranteed Energy Savings Contract and payment of obligations arising thereunder, including payment to design professionals engaged by or on behalf of the Qualified Provider, specifically required in the Agreement or elsewhere in the Contract Documents on the date of execution of the Guaranteed Energy Savings Contract. A surety company authorized to do business in Kentucky shall execute bonds, and the cost thereof shall be included in the Contract Sum. Unless otherwise provided, the amount of each bond shall be equal to 100% of the Contract Sum plus Owner-direct Purchase Orders if utilized.



## **ARTICLE A.12 UNCOVERING AND CORRECTION OF WORK**

### **§ A.12.1 Uncovering of Work**

**§ A.12.1.1** If a portion of the Work is covered contrary to requirements specifically expressed in the Contract Documents, it must be uncovered for the Owner's examination and be replaced at the Qualified Provider's expense without change in the Contract Time.

**§ A.12.1.2** If a portion of the Work has been covered which the Owner has not specifically requested to examine prior to its being covered, the Owner may request to see such Work and it shall be uncovered by the Qualified Provider. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Modification to the Contract, be at the Owner's expense. If such Work is not in accordance with the Design-Build Documents, correction shall be at the Qualified Provider's expense unless the condition was caused by the Owner or a separate contractor, in which event the Owner shall be responsible for payment of such costs.

### **§ A.12.2 Correction of Work**

#### **§ A.12.2.1 Before or After Substantial Completion**

**§ A.12.2.1.1** The Qualified Provider shall promptly correct Work rejected by the Owner or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing, shall be at the Qualified Provider's expense.

#### **§ A.12.2.2 After Substantial Completion**

**§ A.12.2.2.1** In addition to the Qualified Provider's obligations under Section A.3.5, if, within one year after the date of Substantial Completion or after the date for commencement of warranties established under Section A.9.8.5 or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Qualified Provider shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Qualified Provider a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Qualified Provider and give the Qualified Provider an opportunity to make the correction, the Owner waives the rights to require correction by the Qualified Provider and to make a claim for breach of warranty. If the Qualified Provider fails to correct non-conforming Work within a reasonable time during that period after receipt of notice from the Owner, the Owner may correct it in accordance with Section A.2.5.

**§ A.12.2.2.2** The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work.

**§ A.12.2.2.3** The one-year period for correction of Work shall not be extended by corrective Work performed by the Qualified Provider pursuant to this Section A.12.2.

**§ A.12.2.3** The Qualified Provider shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Qualified Provider nor accepted by the Owner.

**§ A.12.2.4** The Qualified Provider shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Qualified Provider's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

**§ A.12.2.5** Nothing contained in this Section A.12.2 shall be construed to establish a period of limitation with respect to other obligations the Qualified Provider might have under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section A.12.2.2 relates only to the specific obligation of the Qualified Provider to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Qualified Provider's liability with respect to the Qualified Provider's obligations other than specifically to correct the Work.

### **§ A.12.3 Acceptance of Nonconforming Work**

If the Owner prefers to accept Work not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be equitably adjusted by Modification to the Contract. Such adjustment shall be effected whether or not final payment has been made.



## ARTICLE A.13 MISCELLANEOUS PROVISIONS

### § A.13.1 Governing Law

The Guaranteed Energy Savings Contract shall be governed by the law of the place where the Project is located.

§ A.13.1.1 None of the Contract Documents for this project shall be construed against the party preparing documents on the grounds that the party prepared or drafted the document, or any portion thereof.

### § A.13.2 Successors and Assigns

§ A.13.2.1 The Owner and Qualified Provider respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents.

### § A.13.3 Written Notice

Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if sent by registered or certified mail to the last business address known to the party giving notice.

### § A.13.4 Rights and Remedies

§ A.13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ A.13.4.2 No action or failure to act by the Owner or Qualified Provider shall constitute a waiver of a right or duty afforded them under the Contract Documents, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

### § A.13.5 Tests and Inspections

§ A.13.5.1 Tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time. Unless otherwise provided, the Qualified Provider shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Qualified Provider shall give timely notice of when and where tests and inspections are to be made so that the Owner may be present for such procedures.

§ A.13.5.2 If the Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section A.13.5.1, the Owner shall in writing instruct the Qualified Provider to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Qualified Provider shall give timely notice to the Owner of when and where tests and inspections are to be made so that the Owner may be present for such procedures. Such costs, except as provided in Section A.13.5.3, shall be at the Owner's expense.

§ A.13.5.3 If such procedures for testing, inspection or approval under Sections A.13.5.1 and A.13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures, shall be at the Qualified Provider's expense.

§ A.13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Qualified Provider and promptly delivered to the Owner.

§ A.13.5.5 If the Owner is to observe tests, inspections or approvals required by the Contract Documents, the Owner will do so promptly and, where practicable, at the normal place of testing.

§ A.13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

### § A.13.6 Commencement of Statutory Limitation Period

§ A.13.6.1 As between the Owner and Qualified Provider:

1. **Before Substantial Completion.** As to acts or failures to act occurring prior to the relevant date of Substantial Completion, any applicable statute of limitations shall commence to run and any alleged



cause of action shall be deemed to have accrued in any and all events not later than such date of Substantial Completion;

- .2 **Between Substantial Completion and Final Application for Payment.** As to acts or failures to act occurring subsequent to the relevant date of Substantial Completion and prior to issuance of the final Application for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of issuance of the final Application for Payment; and
- .3 **After Final Application for Payment.** As to acts or failures to act occurring after the relevant date of issuance of the final Application for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of any act or failure to act by the Qualified Provider pursuant to any Warranty provided under Section A.3.5, the date of any correction of the Work or failure to correct the Work by the Qualified Provider under Section A.12.2, or the date of actual commission of any other act or failure to perform any duty or obligation by the Qualified Provider or Owner, whichever occurs last.

## **ARTICLE A.14 TERMINATION OR SUSPENSION OF THE GUARANTEED ENERGY SAVINGS CONTRACT**

### **§ A.14.1 Termination by the QUALIFIED PROVIDER**

§ A.14.1.1 The Qualified Provider may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Qualified Provider or a Contractor, Subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Qualified Provider, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction which requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency which requires all Work to be stopped;
- .3 The Owner has failed to make payment to the Qualified Provider in accordance with the Contract Documents; or
- .4 The Owner has failed to furnish to the Qualified Provider promptly, upon the Qualified Provider's request, reasonable evidence as required by Section A.2.2.8.

§ A.14.1.2 The Qualified Provider may terminate the Contract if, through no act or fault of the Qualified Provider or a Contractor, Subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Qualified Provider, repeated suspensions, delays or interruptions of the entire Work by the Owner, as described in Section A.14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ A.14.1.3 If one of the reasons described in Sections A.14.1.1 or A.14.1.2 exists, the Qualified Provider may, upon seven days' written notice to the Owner, terminate the Contract and recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead, profit and damages.

§ A.14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Qualified Provider or a Contractor or their agents or employees or any other persons performing portions of the Work under a direct or indirect contract with the Qualified Provider because the Owner has persistently failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Qualified Provider may, upon seven additional days' written notice to the Owner, terminate the Contract and recover from the Owner as provided in Section A.14.1.3.

### **§ A.14.2 Termination by the Owner For Cause**

§ A.14.2.1 The Owner may terminate the Contract if the Qualified Provider

- .1 persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Contractors for services, materials or labor in accordance with the respective agreements between the Qualified Provider and the Architect, other design professionals and Contractors;
- .3 persistently disregards laws, ordinances or rules, regulations or orders of a public authority having jurisdiction; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ A.14.2.2 When any of the above reasons exist, the Owner may without prejudice to any other rights or remedies of the Owner and after giving the Qualified Provider and the Qualified Provider's surety, if any, seven days' written notice, terminate employment of the Qualified Provider and may, subject to any prior rights of the surety,



- .1 take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Qualified Provider;
- .2 accept assignment of contracts pursuant to Section A.5.5.1; and
- .3 finish the Work by whatever reasonable method the Owner may deem expedient. Upon request of the Qualified Provider, the Owner shall furnish to the Qualified Provider a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ A.14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section A.14.2.1, the Qualified Provider shall not be entitled to receive further payment until the Work is finished.

§ A.14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Qualified Provider. If such costs and damages exceed the unpaid balance, the Qualified Provider shall pay the difference to the Owner.

#### § A.14.3 Suspension by the Owner for Convenience

§ A.14.3.1 The Owner may, without cause, order the Qualified Provider in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ A.14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section A.14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Qualified Provider is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

#### § A.14.4 Termination by the Owner for Convenience

§ A.14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ A.14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Qualified Provider shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing contracts and purchase orders and enter into no further contracts and purchase orders.

§ A.14.4.3 In the event of termination for the Owner's convenience prior to commencement of construction, the Qualified Provider shall be entitled to receive payment for design services performed, costs incurred by reason of such termination and reasonable overhead and profit on design services not completed. In case of termination for the Owner's convenience after commencement of construction, the Qualified Provider shall be entitled to receive payment for Work executed and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.



# Kentucky Department of Education Version of AIA Document A141™ – 2004 Exhibit C

## Insurance and Bonds

### for the following PROJECT:

(Name and location or address)

Henderson County Schools Guaranteed Energy Savings Contract  
1805 Second St., Henderson, KY 42420

### THE OWNER:

(Name, legal status and address)

Henderson County Board of Education  
1805 Second St.  
Henderson, KY 42420

### THE QUALIFIED PROVIDER:

(Name, legal status and address)

Trane U.S. Inc.  
12700 Plantside Drive  
Louisville, KY 40299

### ARTICLE C.1

The Owner and Qualified Provider shall provide policies of liability insurance as required by the Contract Documents, or as follows:

*(Specify changes, if any, to the requirements of the Contract Documents, and for each type of insurance identify applicable limits and deductible amounts. Either list liability insurance requirements here or refer to an exhibit attached to this Agreement.)*

C.1.1 Insurance required by Exhibit A — KDE Version, Article A.11, shall be no less than the following limits, or greater if required by law:

.1 Worker's Compensation:

- |                        |           |
|------------------------|-----------|
| a. State               | Statutory |
| b. Applicable Federal  | Statutory |
| c. Employer' Liability | \$500,000 |

.2 Comprehensive or Commercial General Liability (including Premises-Operations; Independent Contractor's Protection; Product Liability and Completed Operations; Broad Form Property Damage);

- |  |             |
|--|-------------|
| a. General Aggregate (except Products-Completed Operations)  | \$1,000,000 |
| b. Products-Completed Operations Aggregate   | \$1,000,000 |
| c. Personal/Advertising Injury (per person/organization)   | \$1,000,000 |
| d. Each Occurrence (Bodily Injury and Property Damage)   | \$1,000,000 |
| e. Limit per Person Medical Expense  | \$10,000    |
| f. Exclusions of Property in Contractor's Care, Custody or Control shall be eliminated.                        |             |
| g. Property Damage Liability Insurance shall provide Coverage for Explosion, Collapse, and Underground Damage. |             |



This version of AIA Document A141–2004 is modified by the Kentucky Department of Education. Publication of this version of AIA Document A141 does not imply the American Institute of Architects' endorsement of any modification by the Kentucky Department of Education. A comparative version of AIA Document A141–2004 showing additions and deletions by the Kentucky Department of Education is available for review on the Kentucky Department of Education Web site.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Consultation with an attorney is also encouraged with respect to professional licensing requirements in the jurisdiction where the Project is located.



- .3 Contractual Liability:
  - a. General Aggregate \$1,000,000
  - b. Each Occurrence (Bodily Injury and Property Damage) \$1,000,000
- .4 Automobile Liability:
  - a. Bodily Injury \$500,000 each person  
\$1,000,000 each accident
  - b. Property Damage \$500,000 each accident,  
or a combined single  
limit of \$1,000,000
- .5 Liability coverage for the Owner shall be provided by endorsement as additional insureds on the Qualified Provider's Liability Policy.
- .6 Excess Liability Umbrella Form:
  - a. General Aggregate \$1,000,000
  - b. Each Occurrence \$1,000,000
- .7 There shall be an endorsement in each of the above policies as follows: "It is hereby agreed that in the event of a claim arising under this policy, the company may not deny liability by reason of the insured being a state, county, municipal corporation or governmental agency."

#### ARTICLE C.2

The Qualified Provider shall provide surety bonds as follows:

*(Specify type and penal sum of bonds. Either list insurance and bond information here or refer to an exhibit attached to this Agreement.)*

Type	Penal Sum (\$0.00)
Performance and Payment Bonds written on AIA Document A312-2010, Performance Bond and Payment Bond — KDE Version	100% of the Contract Sum plus Owner's Direct Purchase Orders, if any, for Project materials and equipment.

§ C.2.1 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Agreement, the Qualified Provider shall promptly furnish a copy of the bonds or shall permit a copy to be made.



**EXHIBIT D**  
**Scope of Services and Energy Conservation Measures**

The Services are defined as the following:

As more fully set forth in the tables and figures set forth in this Exhibit D with respect to each facility making up the Premises:

**Henderson County High School**

**HVAC Equipment Upgrade**

This energy conservation measure is centered around the replacement of multiple rooftop units and the replacement of a chilled water system that serves the main gym.

The scope includes removing 12 existing rooftop units (RTUs) and replacing them with 14 new, more efficient RTUs. All existing units in question will be replaced with single units (one-for-one replacements) with the exception of the Band and Choir areas and classroom T205. The Band and Choir areas will each receive their own smaller units rather than have one unit serving both areas. Classroom T205 will be removed from an existing rooftop system and be put on its own individual RTU. All new RTUs will have higher efficiency ratings as well as modulating compressors and modulating supply air fans for better space temperature control and less energy consumption. The existing RTUs serving three Career and Technical Education (CTE) classrooms and the CTE lobby are currently equipped with electric heaters. The new units serving the CTE areas will be equipped with natural gas heat exchangers. For most unit replacements, existing supply and return air ductwork will be reused. New duct systems will be installed in the band room, choir room, CTE lobby and classroom T205. All refrigerant from existing units will be recovered in available storage cylinders and turned over to the owner.

The existing chiller and air-handling units (AHUs) serving the main gym will be replaced by two packaged RTUs with natural gas heat. These packaged units proposed to serve the gym will have five stages of compressors. Two existing exhaust fans and their supports in the gymnasium will be removed and their openings will be blanked off.

The following table lists the new RTUs and the areas served:

Henderson County High School - New Rooftop Units				
Area Served	MFR.	Model	Size	Nominal Cooling Tons
Auditorium	TRANE	YHD	240	20
Band Area	TRANE	YZD	150	12.5
Choir Area	TRANE	YZC	90	7.5
Band/Choir Storage	TRANE	YZC	60	5
Gym East	TRANE	YCH	420	35
Gym West	TRANE	YCH	420	35
AD Office/Nurse	TRANE	YCZ	90	7.5
Locker Rooms / Offices	TRANE	YZD	180	15
ROTC/Bank Area	TRANE	YZD	150	12.5
Media Center	TRANE	YHD	240	20
Red School Lobby/Office	TRANE	YZC	90	7.5
CTE Classroom T208	TRANE	YZC	72	6
CTE Classroom T205	TRANE	YZC	36	3
CTE Classroom T203	TRANE	YZC	36	3
CTE Classroom T201	TRANE	YZC	36	3
CTE Lobby	TRANE	YZC	48	4



#### HVAC Demolition Scope:

- Disconnect power from (12) existing rooftop units, (1) chiller and associated condenser, (1) pump and (2) air handlers and de-energize
- Disconnect natural gas lines from existing roof top units
- Recover refrigerant from existing chiller and RTUs to-be-removed in provided storage cylinders and return to owner
- Demo and remove from site (12) existing rooftop units, (1) chiller and associated condenser, (1) pump and (2) air handlers and de-energize
- Demo and remove from site existing hot water and chilled water piping as shown in Area D that serves the existing gymnasium AHUs and cap/insulate at main
- Remove (2) existing AHUs, ductwork, piping, catwalks, and supports in the main gymnasium
- Remove existing gym exhaust fans and their associated supports and fill opening with insulation and seal patch air tight
- Blank off two existing outside openings for louvers and patch walls
- Demo and remove from site supply air ductwork and return air diffusers where shown on drawings in Band and Choir areas (Area E)
- Remove ductwork, diffusers, and grilles to above ceiling in Copy CTR room (Area E)
- Remove all supply air ductwork, grilles, and diffusers in CTE classrooms T-205 and CTE lobby (T-101-X)
- Disconnect and remove duct heater in CTE classrooms T-203 and T-205
- Demo existing ceiling tiles in the band/choir room, CTE lobby and CTE classroom T-205

#### HVAC Installation Scope:

- Provide and install (16) new high efficiency rooftop units
- Provide and install associated new curb adaptors, roof curbs or roof rails as noted on the drawings
- Provide and install all structural support for new rooftop units
- Connect electrical power to the new rooftop units
- Reconnect natural gas lines to the new rooftop units as noted on the drawings
- Install new gas line on roof in CTE area (Area B) to connect to new RTUs 112, 113, 114, 115
- Patch roofing around new rooftop units as noted on the drawings
- Connect existing supply and return air ductwork to new RTUs and modify ductwork if required as noted on the drawings
- Provide and install new fabric supply air duct in the main gym
- Provide and install new D-shaped fabric ductwork in the band room
- Provide and install new sheet metal duct, grilles and diffusers in the choir room, CTE lobby and CTE classroom T-205
- Balance all supply air diffusers and return air grilles in applicable spaces to the flows that the drawings specify
- Provide and install new ceiling tiles in the following locations: CTE lobby, classroom T205 (Area B), Band and Choir rooms (Area E)
- Install new mini-split AC unit to serve copy center room
- Install new systems per engineered/stamped drawings and specifications



## **HVAC Controls Upgrade**

The controls upgrade represents a replacement of many of the critical components with newer and enhanced technology. The existing building control units (BCUs) are the main access and control point to the building and are now obsolete and out of production. The programmable control modules (PCMs), located in the mechanical rooms, monitor and control boilers, pumps and related devices. These are also obsolete and repair parts cannot be obtained. The new HVAC equipment being added to the building is equipped to communicate on the latest industry standard communication protocol, BACnet. In addition, we are incorporating wireless communication between devices to speed installation, lower installed cost and improve communication reliability. These new communication features are not compatible with the present system and, therefore, require an upgrade. The upgrade will also provide many enhancements to security, usability, accessibility and productivity. The details of the upgrade are as follows:

- Replace (3) BCUs with new Trane Tracer SCs. A fourth SC will be added to the CTE area to pick up the new HVAC equipment.
- Replace (3) mechanical room PCMs with UC600 programmable controllers. All sequences for control of these spaces will be reviewed and replicated, enhanced if needed.
- New HVAC rooftop equipment will have factory-mounted wireless controls which will interface with new wireless coordinators installed throughout the space. New wireless sensors will be installed for control of the rooftop units.
- Communication bridges will be installed as an interface between old technology controllers and the new Tracer Ensemble™. This will allow for communication across both old and new platforms without loss of functionality or control. As new equipment is added in the future, those devices would come off the Bridge and be added to the wireless network.

## **Misc. Upgrades**

### Building Envelope Upgrades:

- All exterior doors to the building will have new weather stripping and new door brush sweeps to ensure a tighter building envelope.
- The six single pane windows in the Band and Choir areas will be replaced with new double pane Graylite 14 tint windows with thermally-broken frames to provide better building envelope.
- The four existing exterior doors of door system #12 serving the main CTE lobby entrance will be replaced with new Kawneer Tuffline doors with Paneline exit devices.
- The two existing doors of door system #18 will be replaced with new Kawneer Tuffline doors with Paneline exit device.

### Domestic Hot Water Upgrade:

- The existing domestic hot water tank in the main mechanical room will be covered with insulation to prevent heat loss. The domestic hot water tank is currently uninsulated.



## Lighting Upgrades

- Remove existing lighting fixtures
- Install new high efficiency lighting fixtures per the following Henderson County H.S. lighting scope table.

Henderson County: Henderson County H.S. - Lighting Scope			
Area	Retrofit Fixture Description	Qty	Fixture Wattage
Main hall	27CDLA8/840/277V 12W	2	12
Level1: Blue Unit	24CZRK-LD4-40-UNV-L840-CD1-U	201	36
Level1: Blue Unit	22CZRK-LD4-34-UNV-L840-CD1-U	1	31
Level1: Blue Unit	13T8/4F/840/DIR-310 degree-2051-2L	22	26
Level1: Blue Unit	24CZRK-LD4-50-UNV-L840-CD1-U	29	46
Blue Unit	13T8/4F/840/DIR-310 degree-2051-4L	1	52
Blue Unit	24CZRK-LD4-40-UNV-L840-CD1-U	2	36
Level2: Blue Unit	24CZRK-LD4-40-UNV-L840-CD1-U	211	36
Level2: Blue Unit	13T8/4F/840/DIR-310 degree-2051-2L	11	26
Level2: Blue Unit	24CZRK-LD4-50-UNV-L840-CD1-U	21	46
Level2: Blue Unit	22CZRK-LD4-34-UNV-L840-CD1-U	3	31
Blue Unit	24CZRK-LD4-40-UNV-L840-CD1-U	1	36
Blue Unit	13T8/4F/840/DIR-310 degree-2051-4L	1	52
Colonel Gym Zone	24CZRK-LD4-50-UNV-L840-CD1-U	43	46
Colonel Gym Zone	13T8/4F/840/DIR-310 degree-2051-2L	59	26
Colonel Gym Zone	2L-TLED-4' -16.5W-2100LM	1	33
Colonel Gym Zone	13T8/4F/840/DIR-310 degree-2051-4L	3	52
Colonel Gym Zone	24CZRK-LD4-40-UNV-L840-CD1-U	103	36
Colonel Gym Zone	22CZRK-LD4-34-UNV-L840-CD1-U	2	31
Colonel Gym Zone	13T8/4F/840/DIR-310 degree-2050-1L	13	13
Main hall	24CZRK-LD4-40-UNV-L840-CD1-U	82	36
Main Hall	24CZRK-LD4-40-UNV-L840-CD1-U	126	36
Red Unit Office	24CZRK-LD4-40-UNV-L840-CD1-U	34	36
Red Unit Office	22CZRK-LD4-34-UNV-L840-CD1-U	5	31
Red Unit-level 1	24CZRK-LD4-40-UNV-L840-CD1-U	135	36
Red Unit-level 1	13T8/4F/840/DIR-310 degree-2051-2L	2	26
Red Unit-level 1	S-WR-4-40L-40K-10V	14	36
Red Unit-level 1	24CZRK-LD4-50-UNV-L840-CD1-U	9	46
Red Unit-Level2	24CZRK-LD4-40-UNV-L840-CD1-U	126	36
Red Unit-Level2	24CZRK-LD4-50-UNV-L840-CD1-U	15	46
Red Unit-Level2	13T8/4F/840/DIR-310 degree-2051-2L	1	26
Red Unit-Level2	S-WR-4-40L-40K-10V	14	36
Main Hall	22CZRK-LD4-34-UNV-L840-CD1-U	1	31
Main Hall	13T8/4F/840/DIR-310 degree-2051-4L	10	52
Main Hall	13T8/4F/840/DIR-310 degree-2050-1L	12	13
Main Hall	13T8/4F/840/DIR-310 degree-2051-2L	5	26
Main Hall	24CZRK-LD4-50-UNV-L840-CD1-U	29	46
Main hall	24CZRK-LD4-40-UNV-L840-CD1-U	209	36
Main hall	ENC-24-4-LD2-45-40-CA125-UNV-EDD1	55	47
Main hall	ENC-24-4-LD2-54-40-CA125-UNV-EDD1	10	55
Main hall	13T8/4F/840/DIR-310 degree-2051-4L	11	52
Main hall	22CZRK-LD4-34-UNV-L840-CD1-U	3	31
Main hall	13T8/4F/840/DIR-310 degree-2050-1L	2	13
Main hall	13T8/4F/840/DIR-310 degree-2051-2L	1	26
Green Unit	24CZRK-LD4-40-UNV-L840-CD1-U	532	36
Green Unit	13T8/4F/840/DIR-310 degree-2051-2L	4	26
Green Unit	13T8/4F/840/DIR-310 degree-2050-1L	2	13
Green Unit	22CZRK-LD4-34-UNV-L840-CD1-U	10	31
Green Unit	24CZRK-LD4-50-UNV-L840-CD1-U	111	46
Green Unit	13T8/4F/840/DIR-310 degree-2051-4L	1	52
Green Unit	S-WR-4-40L-40K-10V	15	36
Green Unit	24T5HO/4F/840/DIR-4L 3050lm	1	96



Henderson County: Henderson County H.S. - Lighting Scope (Continued)			
Area	Retrofit Fixture Description	Qty	Fixture Wattage
Stadium Athletic Building	SYL VAPOR1B/040UNVD8400/48EC/GR	143	40
Stadium Athletic Building	S-WR-4-40L-40K-10V	5	36
Stadium Athletic Building	13T8/4F/840/DIR-310 degree-2051-2L	14	26
Stadium Athletic Building	28399-10.5T8/4F/840/DIR-10.5W 1700lm - 4L	3	42
Tech & Career	24CZRK-LD4-40-UNV-L840-CD1-U	235	36
Tech & Career	13T8/4F/840/DIR-310 degree-2051-2L	25	26
Tech & Career	38.5STRIPDIM/840/277V	1	39
Tech & Career	28399-10.5T8/4F/840/DIR-10.5W 1700lm - 4L	1	42
Tech & Career	13T8/4F/840/DIR-310 degree-2051-4L	1	52
Tech & Career	S-WR-4-40L-40K-10V	63	36
C.T.E	24CZRK-LD4-40-UNV-L840-CD1-U	125	36
C.T.E	13T8/4F/840/DIR-310 degree-2051-2L	7	26
C.T.E	22CZRK-LD4-34-UNV-L840-CD1-U	9	31
C.T.E	24CZRK-LD4-50-UNV-L840-CD1-U	69	46
C.T.E	2L-TLED-4) -16.5W-2100LM	34	33
C.T.E	13T8/4F/840/DIR-310 degree-2051-4L	3	52
Band and Choir zone	24CZ-LD5-40-UNV-L840-CD1-U (Cruze troff)	17	33
Band and Choir zone	24CZRK-LD4-40-UNV-L840-CD1-U	45	36
Band and Choir zone	24CZ-LD5-50-UNV-L840-CD1-U (Cruze troff)	20	33
Band and Choir zone	24CZ-LD5-40-UNV-L840-CD1-U (Cruze troff)	14	47
Band and Choir zone	24CZ-LD5-50-UNV-L840-CD1-U (Cruze troff)	16	47
Stadium Athletic Building	FFLED26	3	30
Stadium Athletic Building	ENTRA12N	11	14
Stadium Athletic Building	VANLED20N	4	23
Stadium Athletic Building	WP2LED37-traditional look	3	37
Exterior	NAV-AF-02-D-UNV-T5WQ-10K-XX-XX	11	129
Exterior	NAV-AF-03-D-UNV-T5WQ-10K-XX-XX	8	191
Exterior	NAV-AF-02-D-UNV-T3-10K-XX-XX	6	129
Exterior	FFLED26TN	3	30
Exterior	ENTRA12N	10	14
Exterior	45CDLA9.5/840/277V 23.5W	2	24
Exterior	WP2LED37-traditional look	6	37
Exterior	FFLED26N	3	30
Exterior	FXLED78SFN	1	79
Exterior	NAV-AF-02-D-UNV-T4W-10K-XX-XX	6	129
Exterior	VANLED20N	14	23
Athletic Building Exterior	NAV-AF-03-D-UNV-T3-10K-XX-XX	6	191
Athletic Building Exterior	NAV-AF-03-D-UNV-T4W-10K-XX-XX	14	191



## **North Middle School**

### **Upgrades to WSHP Loop Pumps and Cooling Tower Fan Motor**

This energy conservation measure (ECM) involves replacing the (2) existing motors that drive the water source heat pump (WSHP) loop pumps with (2) new high efficiency motors. The pumps will also be equipped with new variable frequency drives (VFDs) for more optimal pump control.

The existing cooling tower fans will be equipped with new variable frequency drives (VFDs) and VFD rated fan motors to allow for varying the speed of the fan. The VFD will also allow for soft start capabilities yielding a longer useful life for the fan and belts.

### **HVAC Renovation**

- Disconnect power from existing equipment and de-energize
- Remove (2) existing WSHP pump motors
- Remove (2) existing cooling tower fan motors
- Provide and install (2) new high efficiency motors for the WSHP pumps
- Provide and install (2) new VFDs for the WSHP pump motors
- Provide and install (2) new cooling tower fan VFD rated motors
- Provide and install (2) new VFDs for the cooling tower fan motors
- Reconnect power to new equipment

### **Controls**

- Tie WSHP pump VFDs and cooling tower fan VFDs into existing Trane controls network

### **Lighting Upgrades**

- Remove existing lighting fixtures
- Install new high efficiency lighting fixtures per the following North M.S. lighting scope table.

<b>Henderson County: North M.S. - Lighting Scope</b>			
<b>Area</b>	<b>Retrofit Fixture Description</b>	<b>Qty</b>	<b>Fixture Wattage</b>
IT Support Building	YBLED26	1	28
IT Support Building	VANLED20N	2	23
Exterior pole	NAV-AF-02-D-UNV-T4FT-10K-XX-XX	4	129
Exterior	ENTRA12N	3	13.9
Exterior	NAV-AF-02-D-UNV-T3-10K-XX-XX	6	129
Exterior	VANLED20N	10	23
Exterior	WP2LED37-traditional look	9	37
Exterior	BR LAMP	3	9



## **South Middle School**

### **Upgrades to WSHP Loop Pumps and Cooling Tower Fans**

This energy conservation measure (ECM) involves replacing the (2) existing motors that drive the water source heat pump (WSHP) pumps with (2) new high efficiency motors. The pumps will also be equipped with new variable frequency drives (VFDs) for more optimal pump control.

The existing cooling tower fans will be equipped with new variable frequency drives (VFDs) and VFD rated fan motors to allow for varying the speed of the fan. The VFD will also allow for soft start capabilities yielding a longer useful life for the fan and belts.

### **HVAC Renovation**

- Disconnect power from existing equipment and de-energize
- Remove (2) existing WSHP pump motors
- Remove (2) existing cooling tower fan motors
- Provide and install (2) new high efficiency motors for the WSHP pumps
- Provide and install (2) new VFDs for the WSHP pump motors
- Provide and install (2) new cooling tower fan VFD rated motors
- Provide and install (2) new VFDs for the cooling tower fan motors
- Reconnect power to new equipment

### **Controls**

- Tie WSHP pump VFDs and cooling tower fan VFDs into existing Trane controls network

### **Lighting Upgrades**

- Remove existing lighting fixtures
- Install new high efficiency lighting fixtures per the following South M.S. lighting scope table.

<b>Henderson County: South M.S - Lighting Scope</b>			
<b>Area</b>	<b>Retrofit Fixture Description</b>	<b>Qty</b>	<b>Fixture Wattage</b>
Exterior	NAV-AF-02-D-UNV-T3-10K-XX-XX	2	129
Exterior	NAV-AF-02-D-UNV-T4FT-10K-XX-XX	3	129
Exterior	NAV-AF-02-D-UNV-T4W-10K-XX-XX	6	129
Exterior	VANLED20N	14	23
Exterior	WP2LED37-traditional look	7	37
Exterior	FFLED26N	1	30

## **Bend Gate Elementary School**

### **Chiller Replacement**

This energy conservation measure (ECM) involves replacing the existing air-cooled chiller with a new Trane CGAM130 high efficiency air-cooled chiller.

- Disconnect power from existing equipment and de-energize
- Recover refrigerant from chiller and place in storage cylinders and return to owner
- Remove existing chiller and chilled water piping as noted on the drawings
- Provide and install new CGAM130 air-cooled chiller and place in area designated by drawings
- Provide new chilled water piping where specified in drawings
- Provide and install new insulation on new chilled water piping
- Reconnect power to new equipment
- Install new systems per engineered/stamped drawings and specifications

### **Controls**

- Tie new air cooled chiller into existing Trane controls network

### **Lighting Upgrades**

- Remove existing lighting fixtures
- Install new high efficiency lighting fixtures per the following Bend Gate E.S. lighting scope table.

<b>Henderson County: Bend Gate E.S. - Lighting Scope</b>			
<b>Area</b>	<b>Retrofit Fixture Description</b>	<b>Qty</b>	<b>Fixture Wattage</b>
exterior	NAV-AF-03-D-UNV-T3-10K-XX-XX	16	191
exterior	NAV-AF-03-D-UNV-T4W-10K-XX-XX	4	191
exterior	VANLED20N	22	23
exterior	WP2LED24-traditional look	4	24
exterior	VANLED40N	2	38
exterior	CORN COB - 27HID/840/277V/EX39/R-57936-3150LM-27W	3	27
exterior	WP2LED37-traditional look	2	37
exterior	ENTRA12N	7	13.9
exterior	CORN COB - 27HID/840/277V/EX39/R-57936-3150LM-27W	1	27

## **South Heights Elementary School**

### **Lighting Upgrades**

- Remove existing lighting fixtures
- Install new high efficiency lighting fixtures per the following South Heights E.S. lighting scope table.

<b>Henderson County: South Heights E.S. - Lighting Scope</b>			
<b>Area</b>	<b>Retrofit Fixture Description</b>	<b>Qty</b>	<b>Fixture Wattage</b>
EXTERIOR	WP2LED37-traditional look	7	37
EXTERIOR	VANLED20N	2	23
EXTERIOR	PAR LAMP-13PAR30DIM/940FL40-13W-1100LM	2	13
EXTERIOR	NAV-AF-03-D-UNV-T5WQ-10K-XX-XX	1	191
EXTERIOR	NAV-AF-03-D-UNV-T4W-10K-XX-XX	3	191



## **Board Office**

### **Lighting Upgrades**

- Remove existing lighting fixtures
- Install new high efficiency lighting fixtures per the following Board Office lighting scope table.

<b>Henderson County: Board of Education - Lighting Scope</b>			
<b>Area</b>	<b>Retrofit Fixture Description</b>	<b>Qty</b>	<b>Fixture Wattage</b>
INTERIOR	24CZRK-LD4-40-UNV-L840-CD1-U	88	36
INTERIOR	13T8/4F/840/DIR-310 degree-2051-2L	8	26
INTERIOR	13T8/4F/840/DIR-310 degree-2051-4L	10	52
INTERIOR	24CZRK-LD4-50-UNV-L840-CD1-U	10	46
INTERIOR	27CDLA8/840/277V 12W	2	12
INTERIOR	22CZRK-LD4-34-UNV-L840-CD1-U	1	31
exterior	27CDLA8/840/277V 12W	2	12

## **Bus Garage**

### **Lighting Upgrades**

- Remove existing lighting fixtures
- Install new high efficiency lighting fixtures per the following Bus Garage lighting scope table.

<b>Henderson County: Bus Garage - Lighting Scope</b>			
<b>Area</b>	<b>Retrofit Fixture Description</b>	<b>Qty</b>	<b>Fixture Wattage</b>
INTERIOR	S-WR-4-40L-40K-10V	11	36
INTERIOR	24CZRK-LD4-40-UNV-L840-CD1-U	3	36
INTERIOR	22CZRK-LD4-34-UNV-L840-CD1-U	4	31
INTERIOR	HBLED-LD5-15SE-W-UNV-L850-ED1	15	99.2
INTERIOR	4L-TLED-4'-16.5T8 LED/48-4000	8	80
INTERIOR	2L GE 62349 LED36T8/G/8/840	9	60
INTERIOR	WP2LED37-traditional look	5	37
INTERIOR	38.5STRIPDIM/840/277V	1	38.5
INTERIOR	2L-TLED-4'-16.5T8 LED/48-4000	2	40

## Water Conservation Scope

Building Name	Total Existing Fixtures Analyzed	A1	T1	U1	A2	P1	P2	DW1	U2	IRR1	T1FV	NOSAV	DONOT
HIGH SCHOOL MAIN CAMPUS	269	35	47	24	8	4	4	1	2	1	32	90	21
ATHLETIC COMPLEX	135	24	27	0	0	3	4	0	1	0	0	55	21
BEND GATE ELEMENTARY	108	29	35	12	22	3	2	1	0	0	0	3	1
THELMA JOHNSON LEARNING CTR	104	0	0	0	20	1	1	0	0	0	0	79	3
SOUTH HEIGHTS ELEMENTARY	99	30	29	10	17	3	2	1	0	0	5	1	1
NORTH MIDDLE	98	4	0	4	0	2	4	1	0	0	0	73	10
NIAGRA ELEMENTARY	92	19	29	7	21	3	4	1	0	0	0	2	6
CAIRO ELEMENTARY	85	21	27	9	19	3	4	1	0	0	0	0	1
EAST HEIGHTS ELEMENTARY	85	27	13	9	10	2	2	1	0	0	0	20	1
AB CHANDLER ELEMENTARY	80	18	19	8	26	3	3	1	0	0	0	1	1
PROFESSIONAL DEVELOPMENT CTR	14	0	0	0	0	2	0	0	0	0	0	12	0
BOARD ADMIN BLDG	11	3	4	1	0	0	0	0	0	0	0	2	1
<b>TOTALS</b>	<b>1407</b>	<b>251</b>	<b>260</b>	<b>99</b>	<b>147</b>	<b>32</b>	<b>33</b>	<b>8</b>	<b>3</b>	<b>1</b>	<b>38</b>	<b>430</b>	<b>105</b>

Scope Summary Upgrade Legend	
Code	Upgrade Type
A1	Restroom Faucet - Installation of 0.5 GPM flow restrictor
T1	Water Closet - Installation of new 1.6 GPF water closet and flush valve
U1	Urinals - Installation of new 0.5 or 1.0 GPF flush valve (dependent on urinal type)
A2	General Purpose Faucet - Installation of 1.5 GPM flow restrictor
P1	Sinks - Installation of Pedal Valve model S2A/S2B on Sink
P2	Sinks - Installation of Pedal Valve model S2A/S2B on Sink + 1.5 GPM flow restrictor
DW1	Install Rinse Jets and pressure gauge/regulation on final rinse cycle
U2	Convert constant flow trough urinal to snap-valve type
IRR1	Sewer credit retrofit for sports' fields
T1FV	Water Closet - Installation of new 1.6 GPF flush valve on existing low flow china
NOSAV	No Savings to be gained by doing a retrofit - already low flow or low usage
DONOT	Do Not Retrofit (no retrofit available or inadequate information for retrofit or bad payback)



## **District Intelligent Services Scope**

### **Henderson County High School:**

- Furnish and install (2) electric meters and (2) gas meters

### **North Middle School:**

- Furnish and install (1) electric meter and (1) gas meter

### **South Middle School:**

- Furnish and install (1) electric meter and (1) gas meter

### **AB Chandler Elementary School:**

- Furnish and install (1) electric meter and (1) gas meter

### **Cairo Elementary School:**

- Furnish and install (1) electric meter and (1) gas meter

### **Niagara Elementary School:**

- Furnish and install (1) electric meter and (1) gas meter

## **Owner Responsibility**

- Owner shall provide lay down space as needed at each site.
- Owner shall provide access to the required building areas where the services are being performed during construction hours.
- Owner is responsible for resolving pre-existing code issues that are not part of this project's scope of work, and for causing the Premises to conform to applicable building codes other than with respect to retrofitted or replaced fixtures that are specifically set forth in this Exhibit D as Contractor's responsibility.

**EXHIBIT D.1**  
**Certificate of Substantial Completion**

**Certificate of Substantial Completion and Acceptance**

**Henderson County Board of Education**

**Trane Project No.: P6-18026**

**Date Certificate Submitted to Owner: \_\_\_\_\_**

The Work performed pursuant to the **STANDARD FORM OF AGREEMENT BETWEEN OWNER AND DESIGN BUILDER AIA141-2004**, by and between Henderson County Board of Education ("Owner") and Trane U.S. Inc., ("Qualified Provider") dated as of February 19, 2018 (together with any Exhibits, Attachments and Addenda thereto, and as amended, supplemented or modified from time to time, the "Agreement"), have been inspected by the undersigned Owner, have been determined to be substantially complete, and Owner accepts the same.

The Date(s) of Substantial Completion for the Work noted below is/are hereby established as the earlier of (i) the date Owner executes this Certificate, as noted below, or (ii) fourteen (14) calendar days after the date noted above as the date this Certificate is submitted to Owner.

The Warranty Period, pursuant to Section 14 of Addendum No. 1 to the Agreement, commences as of the Warranty Commencement Date stated below with respect to the following corresponding Equipment or Work:

Facility	Services: Description of Equipment or Work	Warranty Commencement Date
Henderson County High School	HVAC Upgrades – Rooftop Installation (16) <ul style="list-style-type: none"><li>• Gymnasium (2)</li><li>• Career Technical Education lobby (1)</li><li>• Career Technical Education classrooms (4)</li><li>• Auditorium (1)</li><li>• Band Room (1)</li><li>• Bsnd storage (1)</li><li>• Choir Room (1)</li><li>• Media Center (1)</li><li>• Red School Lobby Office (1)</li><li>• Nurse / Bookstore (1)</li><li>• ROTC / Bank (1)</li><li>• Locker Rooms (1)</li><li>• Domestic Hot Water Tank Insulation</li></ul>	
Henderson County High School	Building Automation System (Controls) Upgrade	
Henderson County High School Board Office Bus Garage / Maintenance Building	Interior LED Lighting	
Bend Gate Elementary School	Chiller Replacement	
Henderson County North Middle Henderson County South Middle	Variable Frequency Drives	
Henderson County High School Henderson County North Middle Henderson County South Middle Bend Gate Elementary School South Heights Elementary School Board Office Bus Garage / Maintenance Building	Exterior LED Lighting	
Multiple Facilities	Water conservation measures	



Owner, by and through the undersigned duly authorized representative, accepts the listed Work as substantially complete and assumes full possession thereof as of the Date of Substantial Completion.

**Henderson County Board of Education**

\_\_\_\_\_  
By: Ms. Marganna Stanley

Its: Superintendent

Date of Owner's Signature: \_\_\_\_\_

**EXHIBIT D.2**  
**Certificate of Final Completion**

**Certificate of Final Completion and Acceptance**

**Henderson County Board of Education**

**Trane Project No.: P6-18026**

**Date Certificate Submitted to Owner: \_\_\_\_\_**

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The Work performed pursuant to the **STANDARD FORM OF AGREEMENT BETWEEN OWNER AND DESIGN BUILDER AIA141-2004**, by and between Henderson County Board of Education ("Owner") and Trane U.S. Inc., ("Qualified Provider") dated as of February 19, 2018 (together with any Exhibits, Attachments and Addenda thereto, and as amended, supplemented or modified from time to time, the "Agreement"), has been inspected by the undersigned Owner and have been determined to be finally complete.

The Date of Final Completion is hereby established as the earlier of (i) the date Owner executes this Certificate, as noted below, or (ii) fourteen (14) calendar days after the date noted above as the date this Certificate is submitted to Owner.

Owner, by and through the undersigned duly authorized representative, accepts the Work as finally complete and assumes full possession thereof as of the Date of Final Completion.

**Henderson County Board of Education**

\_\_\_\_\_  
By: Ms. Marganna Stanley

Its: Superintendent

Date of Owner's Signature: \_\_\_\_\_



**EXHIBIT E**  
**Energy Savings Guarantee & Operational Savings**

**Section 1. Energy Savings Guarantee.** Subject to the terms and conditions of this Exhibit E and the sub-Exhibits hereof, Qualified Provider guarantees that, as a result of the Services Qualified Provider will furnish hereunder, Owner will realize the energy savings shown in Table 1 (the "Energy Savings"), in each consecutive twelve-month period following the Commencement Date (each such twelve-month period, a "Guarantee Year") for the Guarantee Term (collectively, the "Energy Savings Guarantee"). The Energy Savings Guarantee is for energy savings in the aggregate, not on a per building basis, per energy conservation measure ("ECM"), or by fuel type, notwithstanding the presentation of the Energy Savings in this Exhibit or sub-Exhibits hereto.

In addition to Energy Savings, Qualified Provider and Owner agree that Owner will realize Operational Savings as a result of Qualified Provider's performance of the Services, as more fully described in Section 5 and in the applicable sub-Exhibits hereof.

Table 1 below sets forth the monetary value of Energy Savings and Operational Savings (calculated utilizing the Adjusted Base Utility Rate(s) and applicable annual Operational Savings escalation).

**Table 1 – Monetary Value of Annual Energy Savings with 4.5% Annual Utility Escalation and Operational Savings Calculated Utilizing the Applicable Adjusted Base Utility Rate and Applicable Annual Operational Savings Escalation of 2%**

Total Savings (\$)				
Year	Energy Savings	Operational Savings (stipulated)	Capital Cost Avoidance	Total Savings and Capital Cost Avoidance
1	\$129,161	\$15,475	\$0	\$144,636
2	\$134,973	\$15,785	\$0	\$150,758
3	\$141,047	\$16,100	\$0	\$157,147
4	\$147,394	\$16,422	\$0	\$163,816
5	\$154,027	\$16,751	\$0	\$170,777
6	\$160,958	\$17,086	\$0	\$178,044
7	\$168,201	\$17,428	\$0	\$185,628
8	\$175,770	\$17,776	\$0	\$193,546
9	\$183,680	\$18,132	\$0	\$201,811
10	\$191,945	\$18,494	\$0	\$210,439
11	\$200,583	\$18,864	\$0	\$219,447
12	\$209,609	\$19,242	\$0	\$228,850
13	\$219,041	\$19,626	\$0	\$238,668
14	\$228,898	\$20,019	\$0	\$248,917
15	\$239,199	\$20,419	\$0	\$259,618
16	\$249,962	\$20,828	\$0	\$270,790
17	\$261,211	\$21,244	\$0	\$282,455
18	\$272,965	\$21,669	\$0	\$294,634
19	\$285,249	\$22,102	\$0	\$307,351
20	\$298,085	\$22,545	\$0	\$320,629
<b>Grand Total</b>	<b>\$4,051,955</b>	<b>\$376,008</b>	<b>\$0</b>	<b>\$4,427,963</b>

**Section 2. Measurement and Verification of Energy Savings.** Four (4) different methods may be utilized to measure and verify (“M&V”) Energy Savings. Each method is in accordance with the International Performance Measurement and Verification Protocol (IPMVP), 2002. The four (4) M&V methods are summarized below. The complete IPMVP can be found at: <http://www.nrel.gov/docs/fy02osti/31505.pdf>

**Option A. Partially Measured Retrofit Isolation.** The verification techniques for Option A determine energy savings by measuring the capacity or efficiency of a system before and after a retrofit, and multiplying the difference by an agreed-upon or “stipulated” factor, such as hours of operation or load on the system. Careful review of ECM design and installation ensure that stipulated values fairly represent the probable actual value.

**Option B. Retrofit Isolation. (*This option not used*)** Verification techniques for Option B are designed for projects where long-term continuous measurement of performance is desired. Under Option B, individual loads are continuously monitored to determine performance, and this measured performance is compared with a baseline to determine savings. Option B M&V techniques provide long-term persistence data on ECM operation and performance. This data can be used to improve or optimize the operation of the equipment on a real-time basis, thereby improving the benefit of the retrofit. Option B also relies on the direct measurement of affected end uses.

**Option C. Whole Facility. (*This option not used*)** Verification techniques for Option C determine savings by studying overall energy use in a facility and identifying the effects of energy projects from changes in overall energy use patterns. This approach is intended for measurements of the whole-facility or specific meter baseline energy use, and measurements of whole-facility or specific meter post-implementation (Post) energy use can be measured. The methodology to establish baseline and Post parameter identification, modeling approach and baseline or model adjustments will be defined in the applicable sub-Exhibit. Periodic inspections of baseline energy usage, operating practices, and facility and equipment, and meter measurements of the will be necessary to verify the on-going efficient operation of the equipment, systems, practices and facility, and saving attainment.

**Option D. Calibrated Simulation. (*This option not used*)** Option D is intended for energy retrofits where calibrated simulation of baseline energy use and calibrated simulations of post-installation energy consumption are used to measure savings from the retrofit. Option D can involve measurements of energy use both before and after the retrofit for specific equipment/systems or whole-building data for calibrating the simulation(s). Simulation routines must be demonstrated to adequately model actual energy performance measured in the facility. This option usually requires considerable skill in calibrated simulation. Energy use simulation is calibrated with hourly or monthly utility billing data and/or end use metering.



**Section 3. Summary of Energy Savings and applicable M&V.** The type and location of energy conservation measures installed determine which M&V calculation method shall be utilized. Table 2 sets forth the M&V method utilized, by building, ECM or ECM type, as applicable, and the Energy Savings Guarantee applicable thereto. Specific M&V methodologies and stipulations for each savings strategy and applicable M&V method are detailed in the applicable sub-Exhibits to this Exhibit E.

**Table 2 – Annual Energy Savings Guarantee per Building, ECM or ECM Type**

<b>Building, ECM or ECM Type</b>	<b>M&amp;V Type and Applicable Energy Savings</b>			
	<b>Option A: Partially Measured Retrofit Isolation</b>			
	<b>kWh Saved</b>	<b>kW Saved</b>	<b>Therms Natural Gas Saved</b>	<b>kGals Saved (Water)</b>
<b>Henderson County HS</b>	779,519	1,291	-2,474	1,930
<b>North MS</b>	58,248	39	552	112
<b>South MS</b>	67,248	37		
<b>Bend Gate ES</b>	100,070	112	707	301
<b>A.B Chandler ES</b>			572	242
<b>Cairo ES</b>			506	206
<b>East Heights ES</b>			1,079	408
<b>Niagra ES</b>			488	190
<b>South Heights ES</b>	6,901	18	982	503
<b>Athletic Complex</b>	1,762			289
<b>Board of Education Building</b>	20,049	54	26	27
<b>Bus Garage</b>	3,619	76		
<b>Professional Development Center</b>			55	11
<b>Thelma Johnson Learning Center</b>			482	1,488
	<b>Option B: Retrofit Isolation (not used)</b>			
	<b>kWh Saved</b>	<b>kW Saved</b>	<b>Therms Saved</b>	<b>kGals Saved (water)</b>
	<b>Option C: Whole Facility (not used)</b>			
	<b>kWh Saved</b>	<b>kW Saved</b>	<b>Therms Saved</b>	<b>kGals Saved (water)</b>
	<b>Option D: Calibrated Simulation (not used)</b>			
	<b>kWh Saved</b>	<b>kW Saved</b>	<b>Therms Saved</b>	<b>kGals Saved (water)</b>
<b>Grand Total Energy Savings Guarantee (annual)</b>	<b>1,037,416</b>	<b>1,627</b>	<b>2,975</b>	<b>5,707</b>

*Due to rounding of numbers, some numbers in the table above may vary slightly from similar energy references within this Agreement.*

**Section 4. Calculated Monetary Value of Energy Savings.** The monetary value of Energy Savings is derived by multiplying the applicable units of Energy Savings as outlined in Table 2 by the applicable Base Utility Rate as defined and described in Section 8. Table 3 sets forth the calculated monetary value of the Energy Savings Guarantee in the first Guarantee Year per building, ECM or ECM type for each M&V method.

**Table 3 – Calculated Monetary Value of Annual Energy Savings Per Building or ECM**

Building or ECM (Exhibit ID#)	Guarantee Options				Total Energy Savings
	Option A	Option B	Option C	Option D	
	Partially Measured Retrofit Isolation	Retrofit Isolation	Building or ECM (Exhibit ID#)	Guarantee Options	
Henderson County HS	\$77,302				\$77,302
North MS	\$5,341				\$5,341
South MS	\$4,676				\$4,676
Bend Gate ES	\$10,128				\$10,128
A.B. Chandler ES	\$3,233				\$3,233
Cairo ES	\$1,557				\$1,557
East Heights ES	\$4,036				\$4,036
Niagra ES	\$1,447				\$1,447
South Heights ES	\$5,244				\$5,244
Athletic Complex	\$2,489				\$2,489
Board of Education Building	\$1,686				\$1,686
Bus Garage	\$376				\$376
Professional Development Center	\$126				\$126
Thelma Johnson Learning Center	\$11,515				\$11,515
<b>Total</b>	<b>\$129,156</b>				<b>\$129,156</b>

\* Some of the dollar amounts in the table above may vary slightly from similar dollar amounts within this Agreement due to rounding.

**Section 5. Operational Savings.** Owner and Qualified Provider agree that, as a direct result of the Services, as of the Commencement Date, Owner shall achieve annual operational cost savings in the amounts set forth in Table 1 (“Operational Savings”) during the Guarantee Term. Owner and Qualified Provider worked together to identify and quantify the Operational Savings based upon past and projected expenditure data provided by the Owner. Operational Savings may include the categories set forth below (as applicable).

- a. **Direct Cost Avoidance.** Reduction or elimination of costs or expenses in connection with existing or planned service contracts, materials, supplies, energy costs and labor expenditures. Direct cost avoidance Operational Savings may include savings achieved through a reduction in fuel and/or electricity rates (“Energy Rate Optimization Savings”) by one or more of the following means:
  - (i) Improved rate from local electric utility company, natural gas company, or fuel company;
  - (ii) Direct purchase of natural gas or electricity; and/or
  - (iii) Bulk purchase of fuel.



- b. Indirect Cost Avoidance. Owner valuation, including such items as re-deployed labor resources and reduction in overhead; and
- c. Capital Cost Avoidance. Capital outlay funds expended by a local public agency or school district as defined in KRS 45A.345(2).

Throughout the Guarantee Term, Operational Savings (in the amounts set forth in Table 1) will be realized in each Guarantee Year and will be deemed to escalate at a rate of 2 percent (2%) per year as set forth in Table 1. The parties agree that the 2% escalation rate is a reasonable projection of future Operational Savings based upon past inflation experience, escalation in the cost of energy, goods and services experienced by Owner and the parties' expectations. The Operational Savings are detailed in the applicable sub-Exhibits. Operational Savings are stipulated by the parties and will not be measured, monitored or verified.

**Section 6. Installation Period Savings.** Energy Savings will accrue as the Services progress during the installation period until the Commencement Date. Qualified Provider will calculate and document such Energy Savings as they accrue in accordance with the sub-Exhibit(s) (such savings referred to as "Installation Period Savings").

**Section 7. Commencement Date and Guarantee Term.** The "Commencement Date" shall be the first calendar day of the month following the month in which the Date of Final Completion occurs, unless the Date of Final Completion falls on the first calendar day of a month, in which event the Commencement Date shall be the first calendar day of that month. The Energy Savings Guarantee shall begin as of the Commencement Date and, unless this Agreement shall terminate earlier, shall expire on the day immediately preceding the 20-year anniversary of the Commencement Date (hereinafter the "Guarantee Term").

**Section 8. Base Utility Rates.** The Base Utility Rates are the utility rates set forth below and are used to calculate the initial monetary value of Energy Savings. The Base Utility Rate shall be increased annually during the Guarantee Term by 4 percent (4.5%) per year, compounded annually (the "Adjusted Base Utility Rates"). The parties agree that such an adjustment is a reasonable projection of future increases in utility rates based on past inflation experience, applicable to utility rates and Owner's budgetary analysis. In calculating the monetary value of the Energy Savings for the purpose of the Energy Savings Guarantee reconciliation, Qualified Provider will use the greater of (i) the then current applicable utility rate unit cost and (ii) the Adjusted Base Utility Rates.

The following are the Base Utility Rates:

**Cost of Electricity**

**Table 4** *Electric Rate Structure*

<b><u>Henderson Municipal Power &amp; Light - Rate: Schedule HCS</u></b>		
SERVICE CHARGE, per month	\$	7.69
ENERGY CHARGE For all kWh (includes fuel adjustment charge), per kWh	\$	0.072
<b><u>Kenergy - Rate: Non-Residential 3-Phase</u></b>		
SERVICE CHARGE, per month	\$	45.52
DEMAND CHARGE (per kW above 10 kW) Per kW on monthly peak Billing Demand	\$	5.78
ENERGY CHARGE First 200 kWh per kW, per kWh	\$	0.08749
Next 200 kWh per kW, per kWh	\$	0.06710
All over 400 kWh per kW, per kWh	\$	0.05940
<b><u>Kentucky Utilities - Rate: Single Phase and 3-Phase General Service</u></b>		
SERVICE CHARGE Single Phase, per month	\$	50.40
3-Phase, per month	\$	31.50
ENERGY CHARGE For all kWh (includes fuel adjustment, environmental, and DSM charges)	\$	0.104



**Table 4** *Electric Rate Structure (continued)*

<b>Kentucky Utilities - Rate: Time-of-Day Secondary Service - Schools</b>		
SERVICE CHARGE, per month	\$	200.00
For all kWh (includes fuel adjustment, environmental, and DSM charges)	\$	0.03006
DEMAND CHARGE (maximum load charge per kW per demand period)		
Base Demand Period	\$	4.83
Intermediate Demand Period	\$	4.25
Peak Demand Period	\$	5.76
Demand Billing Period Hours		
(May Through September)		
Base:	All hours	
Intermediate:	10 A.M. – 10 P.M.	
Peak:	1 P.M. – 7 P.M.	
(October Through April)		
Base:	All hours	
Intermediate:	6 A.M. – 10 P.M.	
Peak:	6 A.M. – 12 Noon	

**Cost of Fuel(s)****Table 4.1.** *Gas Rate Structure*

<b>Natural Gas Rate Structure – City of Henderson</b>		
<u>January through December</u>		
All therms (\$/therms)	\$	0.65

## Cost of Water/Sewer

**Table 4.2**

Facility	Water Rate (\$/kGal)	Sewer Rate (\$/kGal)
Henderson County HS	First 37.4 kgal: \$3.67/kgal Over 37.4 kgal: \$2.82/kgal	First 37.4 kgal: \$7.35/kgal Over 37.4 kgal: \$5.34/kgal
North MS	First 37.4 kgal: \$3.67/kgal Over 37.4 kgal: \$2.82/kgal	First 37.4 kgal: \$7.35/kgal Over 37.4 kgal: \$5.34/kgal
A.B. Chandler ES	first 30 kgal: \$204.78 >30 kgal: \$5.94/kgal	\$5.87/kgal*
Bend Gate ES	First 37.4 kgal: \$3.67/kgal Over 37.4 kgal: \$2.82/kgal	First 37.4 kgal: \$7.35/kgal Over 37.4 kgal: \$5.34/kgal
Cairo ES	first 50 kgal: \$323.58 >50 kgal: \$5.94/kgal	N/A
East Heights ES	First 37.4 kgal: \$3.67/kgal Over 37.4 kgal: \$2.82/kgal	First 37.4 kgal: \$7.35/kgal Over 37.4 kgal: \$5.34/kgal
Niagra ES	first 50 kgal: \$323.58 >50 kgal: \$5.94/kgal	N/A
South Heights ES	First 37.4 kgal: \$3.67/kgal Over 37.4 kgal: \$2.82/kgal	First 37.4 kgal: \$7.35/kgal Over 37.4 kgal: \$5.34/kgal
Athletic Complex	First 37.4 kgal: \$3.67/kgal Over 37.4 kgal: \$2.82/kgal	First 37.4 kgal: \$7.35/kgal Over 37.4 kgal: \$5.34/kgal
Board Office	First 37.4 kgal: \$3.67/kgal Over 37.4 kgal: \$2.82/kgal	First 37.4 kgal: \$7.35/kgal Over 37.4 kgal: \$5.34/kgal
Professional Development Center	First 37.4 kgal: \$3.67/kgal Over 37.4 kgal: \$2.82/kgal	First 37.4 kgal: \$7.35/kgal Over 37.4 kgal: \$5.34/kgal
Thelma Johnson Learning Center	First 37.4 kgal: \$3.67/kgal Over 37.4 kgal: \$2.82/kgal	First 37.4 kgal: \$7.35/kgal Over 37.4 kgal: \$5.34/kgal

\*Rate schedule has calculated sewage rate per usage amount. Value based on average rate from previous year of utility data.

**Section 9. Building Operation.** The following operational parameters were collaboratively agreed upon by Owner and Qualified Provider and form the basis for calculating Energy Savings. Owner bears the risk of decreased Energy Savings if the facilities are operated outside of these operational parameters. Variation from these parameters will permit Qualified Provider to make an adjustment to the Baseline as indicated in Exhibit F, Section 2.



**Table 5 – Operational Parameters****Henderson County High School**

<b>Area</b>	<b>Weekdays</b>	<b>Weekends</b>	<b>Room Temperatures ( within <math>\pm 2^{\circ}</math> F )</b>
<b><u>August thru May</u></b> Auditorium / Band / Choir / Athletic Office / Media Center Red Office / CTE Classrooms	Occupied Hrs: 6am-6pm Unoccupied Hrs: 6pm – 6am	Unoccupied: All Hours	Occupied Clg: 72° F Unoccupied Clg: 80° F Occupied Htg: 71° F Unoccupied Htg: 65° F
<b><u>June thru July</u></b> Auditorium / Band / Choir / Athletic Office / Media Center Red Office / CTE Classrooms	Occupied Hrs: 7am-3pm Unoccupied Hrs: 3pm – 7am	Unoccupied: All Hours	Occupied Clg: 72° F Unoccupied Clg: 80° F Occupied Htg: 71° F Unoccupied Htg: 65° F
<b><u>August thru May</u></b> Gym / Locker Rooms	Occupied Hrs: 6am-9pm Unoccupied Hrs: 9pm – 6am	Occupied Hrs: 8am-3pm & Games & Special Events  Unoccupied Hrs: 3pm – 8am	Occupied Clg: 72° F Unoccupied Clg: 80° F Occupied Htg: 71° F Unoccupied Htg: 65° F
<b><u>June thru July</u></b> Gym / Locker Rooms	Occupied Hrs: 7am-3pm Unoccupied Hrs: 3pm – 7am	Occupied Hrs: 8am-3pm & Games & Special Events  Unoccupied Hrs: 3pm – 8am	Occupied Clg: 72° F Unoccupied Clg: 80° F Occupied Htg: 71° F Unoccupied Htg: 65° F
<b><u>August thru May</u></b> ROTC Area	Occupied Hrs: 6am-9pm Unoccupied Hrs: 9pm – 6am	Unoccupied: All Hours	Occupied Clg: 72° F Unoccupied Clg: 80° F Occupied Htg: 71° F Unoccupied Htg: 65° F
<b><u>June thru July</u></b> ROTC Area	Occupied Hrs: 7am-3pm Unoccupied Hrs: 3pm – 7am	Unoccupied: All Hours	Occupied Clg: 72° F Unoccupied Clg: 80° F Occupied Htg: 71° F Unoccupied Htg: 65° F

Owner is responsible to perform the updates to the control system to conform to the above table

**Section 10. Guarantee Reconciliation. (See Exhibit F, Section 1)****Section 11. Adjustments to Baseline. (See Exhibit F, Section 2)**

**Section 12. Owner Responsibilities:** Owner acknowledges that it has an integral role in achieving Energy Savings and agrees to perform the following responsibilities:

- Properly maintain, repair, and replace all energy consuming equipment with equipment of equal or better energy and operational efficiencies and promptly notify Qualified Provider of the repair and /or replacement, but no later than within fourteen (14) calendar days from the commencement thereof;
- Make available to Qualified Provider upon its request copies of maintenance records and procedures regarding maintenance of the Premises;
- Promptly provide Qualified Provider with notice of system and building alterations at the Premises that impact energy consumption, including but not limited to: energy management systems, automatic door operation, structural, occupancy sensors, photocell/timer control of exterior lighting and heat recovery systems;
- Log any utility meters and the operation of any energy consuming devices or equipment as directed by Qualified Provider and furnish copies of such logs to Qualified Provider within thirty (30) calendar days after preparation of the logs;
- Provide to Qualified Provider true, accurate and complete copies of all energy related bills within ten (10) days after Owner's receipt of such bills. The parties stipulate that, in each event that Owner fails to provide an energy related bill within thirty (30) days after the end of the Billing Period to which the bill relates, Owner shall be deemed to have realized that portion of the Total

Energy Savings prorated for the utility billing period to which said energy related bill relates and for such subsequent utility billing periods as are affected by an increase in energy and/or demand use that could have been avoided had Qualified Provider been provided with the energy related bill in a timely manner. In the event Qualified Provider subsequently receives or obtains the untimely energy related bill and such bill discloses that savings were achieved in an amount greater than had been stipulated hereunder, such greater savings will be used in calculating Actual Savings;

- f. Provide to Qualified Provider true, accurate and complete descriptions of all energy consuming devices within seven (7) days after installation and start up of such equipment. This equipment includes, but is not limited to heating, cooling or ventilating equipment, computers and other electronics, water heaters, kitchen equipment, laundry equipment, mobile trailer units, portable hospital equipment. The parties stipulate that, in each event that Owner fails to provide this information within thirty (30) days after the start up of such equipment, Owner shall be deemed to have realized that portion of the Energy Savings prorated for the utility billing period to which said energy related bill relates and for such subsequent utility billing periods as are affected by an increase in energy and/or demand use that could have been avoided had Qualified Provider been provided with the energy related information in a timely manner. In the event Qualified Provider subsequently receives or obtains the untimely energy related bill and such bill discloses that savings were achieved in an amount greater than had been stipulated hereunder, such greater savings will be used in calculating Actual Savings;
- g. Furnish to Qualified Provider true, accurate and complete copies of any utility rate schedules or tariffs promptly upon Qualified Provider's request for the same and, in any event, within thirty (30) calendar days after Owner's receipt of notice of a utility rate change;
- h. Maintain in effect and fully perform its maintenance obligations throughout the duration of the Guarantee Term; and
- i. During the Term of the Agreement, permit only Qualified Provider and/or Owner approved personnel to repair, adjust or program equipment, systems, and/or controls covered by this Agreement or affecting equipment, systems, and/or controls covered by this Agreement, except in the event of an emergency, in which event Owner shall immediately notify Qualified Provider of the existence of the emergency no later than within twenty-four (24) hours of the commencement of the emergency condition.

**Section 13.** Exclusions from Qualified Provider's Responsibilities: Qualified Provider shall not be responsible for any of the following:

- a. Any shortfalls in Energy Savings, failure to satisfy the Energy Savings Guarantee, or for loss, damage or malfunction to equipment, systems, controls or building(s) structures resulting from non-Qualified Provider personnel examining, adjusting or repairing equipment, systems, or controls;
- b. Any failure of Owner to achieve or realize Operational Savings;
- c. Any damage or malfunction resulting from freezing, corrosion or erosion on the water side of the equipment or caused by scale or sludge on equipment;
- d. Problems or damages caused by utility service or damage sustained by equipment or systems;
- e. Furnishing any items of equipment, material, or labor, or performing tests recommended or required by insurance companies or federal, state, or local governments; and



- f. Failure or inadequacy of any structure or foundation supporting or surrounding equipment or work or any portion thereof.

**Section 14. Independent Audit. (See Exhibit F, Section 3)**

**Section 15. Detailed Energy Analysis. (This section not applicable)** The “Detailed Energy Analysis,” dated DATE, presented by Qualified Provider, is incorporated herein for the limited purposes of presenting a description of existing conditions and the methodologies used for calculating projected energy savings with respect to the energy conservation measures comprising the Scope of Services in Exhibit B. Statements of savings contained in the Detailed Energy Analysis are projections only and do not constitute, and shall not in any way modify, the statements of Qualified Provider’s Guarantee contained in this Exhibit E and the sub-Exhibits.

**EXHIBIT E.1**  
**Guarantee**  
**HVAC & BAS Upgrade – Henderson County High School**

**1.0 Agreed Upon Parameters:**

*The following are mutually agreed upon parameters that form the basis of this performance guarantee.*

a) Applicability:

This performance guarantee applies to the energy conservation measure involving the installation of new rooftop units to replace existing rooftop units and a chiller serving the main gym. The existing constant volume rooftop units will be replaced with single zone VAV rooftop units. The chiller serving the main gym will be replaced with new single zone VAV rooftop units. The BAS system will be upgraded for optimizing operations of the new HVAC equipment at Henderson County High School.

b) Existing Conditions:

For the purposes of this Agreement, the air handlers, heating and cooling equipment, and all related appurtenances (pumps, etc.) operate and consume energy as per the TRACE™ 700 building modeling software analysis. The Qualified Provider based this building simulation on extensive survey and analysis. The Owner and Qualified Provider collaboratively agreed upon its assumptions and results throughout the modeling process.

c) Existing HVAC Equipment Efficiency & Operation:

Analysis has determined the efficiency and operations for the existing HVAC equipment, which is provided in the table below:

**Table 1**

Existing Equipment	Qty.	Existing System Cooling Efficiency	Existing System Heating Efficiency
Main Gym Chiller	1	1.3 kW/ton	NA
Auditorium Rooftop Unit	1	8.5 EER	78%
Band Room / Choir Room Rooftop Unit	1	8.5 EER	78%
Band/Choir Storage Room Rooftop Unit	1	8.5 EER	78%
AD Office / Nurse / Bookstore Rooftop Unit	1	8.1 EER	78%
Locker Room / Office Rooftop Unit	1	8.1 EER	78%
ROTC / Bank Area Rooftop Unit	1	8.1 EER	78%
Media Center Rooftop Unit	1	8.5 EER	78%
Red School Office Rooftop Unit	1	8.1 EER	78%
CTE Classroom T208 Rooftop Unit	1	8.1 EER	78%
CTE Classroom T205 Rooftop Unit	1	8.5 EER	100%
CTE Classroom T203 Rooftop Unit	1	8.5 EER	100%
CTE Classroom T201 Rooftop Unit	1	8.5 EER	100%
CTE Lobby Rooftop Unit Rooftop Unit	1	8.5 EER	100%

These values form the basis of the pre-retrofit condition and are used in the TRACE™ 700 modeling efforts to recreate the existing energy consumption profile. The values in the Table are mutually agreed to by Owner and Qualified Provider for the purposes of this Agreement.



## 2.0 **Pre-Retrofit Consumption Data:**

*The pre-retrofit consumption data was established utilizing the following methodology agreed to by Owner and Qualified Provider.*

a) **Measurement Methodology:**

TRACE™ 700 building simulation software was used to model the energy consumption of the areas served by the existing rooftop units and main gym chiller. Known parameters such as local weather data, internal building loads (people and equipment), occupancy data, utility costs, percent outside air, etc., were all utilized in the modeling of the base case. Its assumptions and results were collaboratively agreed upon by Owner and Qualified Provider throughout the modeling process. The measurement of the pre-installation equipment performance data is based on the methodology defined in IPMVP 2002 Section 3.4.1.

The pre-retrofit condition can be characterized as a situation where the efficiency of the existing rooftop units and chiller are degrading due to equipment age.

## 3.0 **Post-Retrofit Measurements:**

*The following describes the agreed to methodology for computing Energy Use Savings.*

a) **Measurement Methodology:** Upgraded BAS

The Qualified Provider has completed an engineering analysis for this conservation measure utilizing TRACE™ 700 building simulation software. The energy savings due to this conservation measure are related to maintaining the control strategies such as demand control modulation of ventilation air, free cooling economizing and maintaining proper occupied and unoccupied temperature schedules. The complete list of control strategies is listed in Table 2 and Table 3 below.

**Table 2**

<b>Control Strategy</b>	<b>Validation Methodology</b>
Demand Control Ventilation	DDC system report showing that the ventilation air dampers are modulating based on CO2 sensors
Free Cooling Outside Air Economizers	DDC system report showing that the free cooling is being utilized when outside air conditions are appropriate
Occupied and Unoccupied Temperature Control	DDC system report showing occupied temperature and unoccupied temperature setback

**Table 3**

Area	Weekdays	Weekends	Room Temperatures ( within $\pm 2^{\circ}$ F )
<u><b>August thru May</b></u> Auditorium / Band / Choir / Athletic Office / Media Center Red Office / CTE Classrooms	Occupied Hrs: 6am-6pm Unoccupied Hrs: 6pm – 6am	Unoccupied: All Hours	Occupied Clg: 72° F Unoccupied Clg: 80° F Occupied Htg: 71° F Unoccupied Htg: 65° F
<u><b>June thru July</b></u> Auditorium / Band / Choir / Athletic Office / Media Center Red Office / CTE Classrooms	Occupied Hrs: 7am-3pm Unoccupied Hrs: 3pm – 7am	Unoccupied: All Hours	Occupied Clg: 72° F Unoccupied Clg: 80° F Occupied Htg: 71° F Unoccupied Htg: 65° F
<u><b>August thru May</b></u> Gym / Locker Rooms	Occupied Hrs: 6am-9pm Unoccupied Hrs: 9pm – 6am	Occupied Hrs: 8am-3pm & Games & Special Events  Unoccupied Hrs: 3pm – 8am	Occupied Clg: 72° F Unoccupied Clg: 80° F Occupied Htg: 71° F Unoccupied Htg: 65° F
<u><b>June thru July</b></u> Gym / Locker Rooms	Occupied Hrs: 7am-3pm Unoccupied Hrs: 3pm – 7am	Occupied Hrs: 8am-3pm & Games & Special Events  Unoccupied Hrs: 3pm – 8am	Occupied Clg: 72° F Unoccupied Clg: 80° F Occupied Htg: 71° F Unoccupied Htg: 65° F
<u><b>August thru May</b></u> ROTC Area	Occupied Hrs: 6am-9pm Unoccupied Hrs: 9pm – 6am	Unoccupied: All Hours	Occupied Clg: 72° F Unoccupied Clg: 80° F Occupied Htg: 71° F Unoccupied Htg: 65° F
<u><b>June thru July</b></u> ROTC Area	Occupied Hrs: 7am-3pm Unoccupied Hrs: 3pm – 7am	Unoccupied: All Hours	Occupied Clg: 72° F Unoccupied Clg: 80° F Occupied Htg: 71° F Unoccupied Htg: 65° F

Since all external variables (weather, hours of operation, utility rates, building envelope values, occupancy, percent outdoor air, etc.) have been established, the remaining items to validate are that the control system truly controls to the strategies listed in Table 2 and Table 3.

In order to validate the performance of this conservation measure, the Qualified Provider will monitor the operation of the equipment and the internal environmental conditions using the building automation system. The DDC system will generate a report validating the control strategies listed in Table 2 and Table 3.

b) Measurement Methodology: New HVAC Equipment

The Qualified Provider has completed an engineering analysis for this conservation measure utilizing the TRACE™ 700 building simulation software. The bulk of energy savings due to this conservation measure are related to installing new high efficiency equipment that uses less energy than the existing equipment for cooling and heating the spaces.

Since all external variables (weather, hours of operation, utility rates, building envelope values, occupancy, etc.) have been established, the remaining items to validate are that the true efficiency of the new equipment matches that listed below in Table 4. To accomplish this, the equipment manufacturer will provide a certified analysis from the proper rating agencies or the efficiency of the equipment will be measured by Qualified Provider after installation.



**Table 4**

New Equipment	Qty.	New Equipment System Cooling Efficiency	New Equipment System Heating Efficiency
Gym Rooftop Units	2	10.5 EER/10.6 EER	80%
Auditorium Rooftop Unit	1	11.0 EER	80%
Band Room Rooftop Unit	1	12.4 EER	80%
Choir Room Rooftop Unit	1	12.8 EER	81%
Band/Choir Storage Room Rooftop Unit	1	12.5 EER	80%
AD Office / Nurse / Bookstore Rooftop Unit	1	12.8 EER	81%
Locker Room / Office Rooftop Unit	1	12.5 EER	80%
ROTC / Bank Area Rooftop Unit	1	12.4 EER	80%
Media Center Rooftop Unit	1	11.0 EER	80%
Red School Office Rooftop Unit	1	12.8 EER	81%
CTE Classroom T208 Rooftop Unit	1	12.8 EER	81%
CTE Classroom T205 Rooftop Unit	1	13.0 EER	80%
CTE Classroom T203 Rooftop Unit	1	13.0 EER	80%
CTE Classroom T201 Rooftop Unit	1	13.0 EER	80%
CTE Lobby Rooftop Unit Rooftop Unit	1	13.6 EER	80%

#### 4.0 **Computation of Savings:**

*The following describes the agreed to methodology for computing Energy Use Savings based on the validated output from the BAS system.*

a) **Computation of Energy Use Savings: Upgraded BAS**

The following describes the stipulated methodology for computing Energy Use Savings as a result of control strategies such as demand control ventilation, economizing and temperature schedules.

The building automation system will be used to generate a report showing that control strategies for the demand control ventilation, economizing and temperature schedules have been implemented. This report will consist of 24-hour trending logs run quarterly during the term of the Agreement, and will constitute the documentation showing the system saves the amount of energy predicted by the TRACE™ 700 building simulation.

b) **Computation of Energy Use Savings: New HVAC Equipment**

Once the new HVAC equipment efficiency is certified or measured, actual annual Energy Use Savings will be calculated. To accomplish this, the Qualified Provider will enter the certified or measured efficiency of the new HVAC units into the analysis tool previously used to calculate savings based on the projected (future) operation. The building simulation will only be rerun if the efficiency is less than the efficiency noted below in the Minimum Efficiency Threshold in Table 5 and Table 6.

**Table 5**

<b>Equipment</b>	<b>Tested Efficiency being provided (as noted in Section 3.0)</b>	<b>Minimum Cooling Efficiency Threshold</b>
Gym Rooftop Units	10.5 EER/10.6 EER	9.45 EER/9.54 EER
Auditorium Rooftop Unit	11.0 EER	9.9 EER
Band Room Rooftop Unit	12.4 EER	11.16 EER
Choir Room Rooftop Unit	12.8 EER	11.52 EER
Band/Choir Storage Room Rooftop Unit	12.5 EER	11.25 EER
AD Office / Nurse / Bookstore Rooftop Unit	12.8 EER	11.52 EER
Locker Room / Office Rooftop Unit	12.5 EER	11.25 EER
ROTC / Bank Area Rooftop Unit	12.4 EER	11.16 EER
Media Center Rooftop Unit	11.0 EER	9.9 EER
Red School Office Rooftop Unit	12.8 EER	11.52 EER
CTE Classroom T208 Rooftop Unit	12.8 EER	11.52 EER
CTE Classroom T205 Rooftop Unit	13.0 EER	11.7 EER
CTE Classroom T203 Rooftop Unit	13.0 EER	11.7 EER
CTE Classroom T201 Rooftop Unit	13.0 EER	11.7 EER
CTE Lobby Rooftop Unit Rooftop Unit	13.6 EER	12.24 EER

**Table 6**

<b>Equipment</b>	<b>Tested Efficiency being provided (as noted in Section 3.0)</b>	<b>Minimum Heating Efficiency Threshold</b>
Gym Rooftop Units	80%	72%
Auditorium Rooftop Unit	80%	72%
Band Room Rooftop Unit	80%	72%
Choir Room Rooftop Unit	81%	73%
Band/Choir Storage Room Rooftop Unit	80%	72%
AD Office / Nurse / Bookstore Rooftop Unit	81%	73%
Locker Room / Office Rooftop Unit	80%	72%
ROTC / Bank Area Rooftop Unit	80%	72%
Media Center Rooftop Unit	80%	72%
Red School Office Rooftop Unit	81%	73%
CTE Classroom T208 Rooftop Unit	81%	73%
CTE Classroom T205 Rooftop Unit	80%	72%
CTE Classroom T203 Rooftop Unit	80%	72%
CTE Classroom T201 Rooftop Unit	80%	72%
CTE Lobby Rooftop Unit Rooftop Unit	80%	72%

c) Presentation of Savings:

The energy conservation measure described herein will result in the following effect on energy usage:

Total Annual Guaranteed kWh Energy Use Savings: 223,230 kWh

Total Annual Guaranteed kW Energy Use Savings: 39 kW

Total Annual Guaranteed Therms Energy Use Savings: -4,317



**EXHIBIT E.2**  
**Guarantee**  
**Insulation for Domestic Hot Water Storage Tank – Henderson County High School**

## 1.0 Agreed Upon Parameters:

*The following are mutually agreed upon parameters that form the basis of this performance guarantee.*

a) Applicability:

This performance guarantee applies to the energy conservation measure involving the installation of new insulation for an existing uninsulated domestic hot water storage tank. This will improve the efficiency of the tank's hot water storage capabilities.

b) Existing Conditions:

For the purposes of this Agreement, the calculation of energy savings due to the installation of new insulation for the domestic hot water tank will be based on Fourier's law of heat transfer.

## 2.0 Computation of Savings:

*The following describes the agreed to methodology for computing Energy Use Savings.*

a) Computation of Energy Use Savings:

The calculation of energy savings due to installation of new insulation for the domestic hot water tank is based on Fourier's law of heat transfer. The following table lists tank specifications necessary to calculate savings.

Tank Height (ft)	6
Tank Diameter (ft)	2
Hot Water Heater Efficiency	80%

b) Presentation of Savings:

The following illustrates the savings calculation based on Fourier's law.

Scenario	Area of Tank Surface (Sq. Ft.)	U-Value	Delta T (Hot Water Temp - Space Temp)	Standby Loss (Btu/hr)	Total Hours	Total Btu Use	Total Gas Use (Therms)	Gas Savings (Therms)
Existing Tank w/o Insulation	43.98	1.2	70	3,695	8,760	40,455,012	416.69	
Insulated Tank	43.98	0.66	70	2,032	8,760	17,800,205	183.34	233.34

It is mutually agreed that no further measurement or verification is necessary for this energy conservation measure and will not be done. The ECM described herein will result in the following reduction of energy usage:

Total Annual Guaranteed Therms Energy Use Savings: 233 therms

**EXHIBIT E.3**  
**Energy Savings Guarantee**  
**Lighting Upgrade – Henderson County High School**

**1.0 Agreed Upon Parameters:**

*The following are mutually agreed upon parameters that form the basis of this Energy Savings Guarantee.*

a) Applicability:

This Energy Savings Guarantee applies to the high efficiency lighting upgrade energy conservation measure installed by Qualified Provider at Henderson County High School as described in Tables 1 and 2.

**2.0 Pre-Retrofit Consumption Data:**

*The following describes the methodology for proving per-fixture wattage of each existing lighting fixture prior to the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the pre-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

a) Measurement Methodology:

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The purpose of this section is to validate the wattage assumed in these estimates through actual measurement.

Different types of existing fixtures were encountered during the detailed survey. The tables in Section 2.0.b provides a brief description of each fixture, a space for estimated fixture wattage, and notes the quantity of each fixture.

In order to validate the wattage estimates of the existing fixtures, Qualified Provider will measure the actual wattage consumed by a sample of each. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider.



## Pre-ECM Installation Wattage Measurement Sample Size Determination

The lighting fixture types and quantities to be measured prior to installation are based on the methodology defined in the IPMVP 2012 Volume 1 Section B.3. The first step was to determine at each site which fixture(s) make up at least 70% of the existing total lighting load.

The sample criterion for lighting was based on 95% confidence and 5% precision. The quantities for these chosen fixtures were entered into a spreadsheet that uses the initial sample size formula defined by the IPMVP. Based on 95% confidence and 5% precision and with a coefficient of variation to be 0.3, the initial sample size is calculated to be 24.

$$n_0 = \frac{z^2 * cv^2}{e^2}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$z$  = the standard normal distribution value from the t-Table, with an infinite number of readings, and for the desired confidence level (95% = 1.96)

$e$  = the desired level of precision

$cv$  = the coefficient of variance, which is defined by the standard deviation of the readings divided by the mean. Until the mean and standard deviation of the population can be estimated from actual samples, 0.3 will be used as an initial estimate for the  $cv$ .

$$n_0 = \frac{1.64^2 * 0.3^2}{0.1^2} = 24$$

Small sample population test - if the actual fixture counts (population) for the type being sampled is less than 484 (24 x 20), then the "Finite Population Adjustment" as outlined in the aforementioned IPMVP 2012 Volume 1 Section B.3. The fixture count is inserted into the Finite Population Adjustment formula to adjust initial sample size estimate for small populations. The example below uses a fixture count of 237 total fixtures in the building.

$$n = \frac{n_0 * N}{n_0 + N}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$n$  = the new, adjusted sample size for small populations

$N$  = Total population size

$$n = \frac{24 * 237}{24 + 237} = 22$$

Finalized Sample Size – The initial sample size ( $n_0$ ) is determined by using an assumed  $cv$ , so the actual  $cv$  must be calculated in order to find out the exact number of samples needed. If the actual  $cv$  turns out to be less than the initial  $cv$  (0.3), then the required sample size will be unnecessarily large to meet the precision goals. Conversely, if the actual  $cv$  turns out to be larger than the initial assumed  $cv$ , then the sample size would, theoretically, increase beyond the initial computed sample size.

When sampling, the mean and the standard deviation should be computed with each reading, and, in turn, the cv and the required sample size should be recalculated with each sample reading. The re-computation may allow for an early curtailment of the sampling process. Due to cost constraints in the M&V process, the maximum allowable sampling will be the initial sampling estimate before any readings are conducted. If the maximum is reached, then the savings report will note the actual precision achieved by the sampling.

Pre-Installation Sampling Plan – the fixture types that will be sampled will be highlighted in yellow for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that particular building.

b) Pre-Retrofit Fixture Table:

For the purposes of this Agreement, the lighting fixture quantities were surveyed by Qualified Provider and these quantities are collaboratively agreed upon by the Owner and Qualified Provider and are stipulated in this Section 2.0 of Exhibit E.3.

Qualified Provider reserves the right to adjust the Baseline for the pre- and post-retrofit quantities to reflect actual quantities and types of fixtures encountered during the retrofit; however, the Energy Use Savings expected to be achieved will not be less than the Energy Use Savings represented by the difference in consumption between the fixtures and quantities in the pre-retrofit table in this Section 2.0 of this Exhibit E.3 and the post-retrofit table in Section 3.0 of this Exhibit E.3.

The following tables illustrate the pre-retrofit (existing) fixtures and for the purposes of this agreement are stipulated and hereby collaboratively agreed to by the Owner and Qualified Provider:

**Table 1 – Existing Fixture Description/Quantity**

Henderson County: Henderson County H.S - Pre Installation				
Fixture Type	Qty	Watts/Fixture	Total Load	% of Total Load
F32T8 4' 32W 3L	2105	86	181,030	55%
F32T8 4' 32W 4L	609	106	64,554	20%
400W Mogul Base	56	460	25,760	8%
F40T12 4' 40W 2L	104	175	18,200	6%
F32T8 4' 32W 2L	232	62	14,384	4%
F40T12 4' 34W 2L	55	156	8,580	3%
F40T12 4' 34W 4L	22	156	3,432	1%
F40T12 4' 34W 2L	43	78	3,354	1%
175W Mogul Base	12	210	2,520	1%
F32T8 U 2L	28	68	1,904	1%
70W Med. Base	18	93	1,674	1%
60W Incandescent	21	60	1,260	0%
F32T8 4' 32W 1L	34	33.2	1,129	0%
F40T12 4' 34W 4L	5	127	635	0%
F40T12 4' 40W 2L	7	88	616	0%
250W Mogul Base	2	295	590	0%
75W Med. Base	4	95	380	0%
70W Med. Base	4	91	364	0%
F40T12 4' 34W 2L	4	78	312	0%
175W Med/Mogul Base	1	208	208	0%
	3366		330,886	100%



**Table 1.1 – Pre-installation Sample Size**

Fixture Description	Quantity	Initial Sample Size Calc.	Finite Population Adjustment	Confidence Level	Precision Level	t-Table Number of Readings	% of Qty Sampled	Initial Estimate of Qty to be Measured
F32T8 4' 32W 3L	2105	61	60	95%	5%	Infinite	3%	61
F32T8 4' 32W 4L	609	61	56	95%	5%	Infinite	10%	61

### 3.0 **Post-Retrofit Measurements:**

*The following describes the methodology for proving per-fixture wattage reductions as a result of the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the post-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

#### a) **Measurement Methodology:**

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The detailed survey/scope of work incorporated herein, illustrates the types of retrofits installed, and *estimates* the wattage of the retrofits. The purpose of this section is to validate these estimates through actual wattage measurement.

Different types of retrofit strategies are employed in the applicable areas. The tables in this Section 3.0.b of this Exhibit E.3 lists the retrofit types, and provides a brief description of the retrofit.

In order to validate the wattage estimates of the lighting retrofits, Qualified Provider will measure the actual wattage consumed by a sample of the different retrofits. This measurement will occur once, following installation of the lighting retrofit. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements after 100 burn hours, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider. It is anticipated that a sufficient representative sample of each retrofit type will be measured and documented within 60 days of completion of the lighting retrofit.

Post-Installation Sampling Plan – the fixture types that will be sampled will be **highlighted in yellow** for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that building. The post wattage measurement size determination method is the same as the pre-measurement determination with the exception of the coefficient of variance. The coefficient of variance used was 0.2 instead of 0.3.

b) Post-Retrofit Fixture Table:

The following table illustrates the post-retrofit (proposed) fixtures:

**Table 2 – Proposed Fixture Description/Quantity**

Henderson County: Henderson County H.S - Post Installation				
Fixture Type	Qty	Watts/Fixture	Total Load	% of Total Load
24CZRK-LD4-40-UNV-L840-CD1-U	2167	36	78,012	62%
24CZRK-LD4-50-UNV-L840-CD1-U	326	46	14,996	12%
SYL VAPOR1B/040UNVD8400/48EC/GR	143	40	5,720	5%
S-WR-4-40L-40K-10V	111	36	3,996	3%
13T8/4F/840/DIR-310 degree-2051-2L	151	26	3,926	3%
NAV-AF-03-D-UNV-T4W-10K-XX-XX	14	191	2,674	2%
ENC-24-4-LD2-45-40-CA125-UNV-EDD1	55	46.8	2,574	2%
13T8/4F/840/DIR-310 degree-2051-4L	31	52	1,612	1%
NAV-AF-03-D-UNV-T5WQ-10K-XX-XX	8	191	1,528	1%
NAV-AF-02-D-UNV-T5WQ-10K-XX-XX	11	129	1,419	1%
2L-TLED-4') -16.5W-2100LM	35	33	1,155	1%
NAV-AF-03-D-UNV-T3-10K-XX-XX	6	191	1,146	1%
22CZRK-LD4-34-UNV-L840-CD1-U	34	31	1,054	1%
NAV-AF-02-D-UNV-T3-10K-XX-XX	6	129	774	1%
NAV-AF-02-D-UNV-T4W-10K-XX-XX	6	129	774	1%
24CZ-LD5-50-UNV-L840-CD1-U (Cruze troff)	16	46.5	744	1%
24CZ-LD5-40-UNV-L840-CD1-U (Cruze troff)	14	46.56	652	1%
24CZ-LD5-50-UNV-L840-CD1-U (Cruze troff)	20	32.55	651	1%
24CZ-LD5-40-UNV-L840-CD1-U (Cruze troff)	17	32.55	553	0%
ENC-24-4-LD2-54-40-CA125-UNV-EDD1	10	54.6	546	0%
VANLED20N	18	23	414	0%
13T8/4F/840/DIR-310 degree-2050-1L	29	13	377	0%
WP2LED37-traditional look	9	37	333	0%
ENTRA12N	21	13.9	292	0%
28399-10.5T8/4F/840/DIR-10.5W 1700lm - 4L	4	42	168	0%
24T5HO/4F/840/DIR-4L 3050lm	1	96	96	0%
FFLED26	3	30	90	0%
FFLED26TN	3	30	90	0%
FFLED26N	3	30	90	0%
FXLED78SFN	1	78.7	79	0%
45CDLA9.5/840/277V 23.5W	2	23.5	47	0%
38.5STRIPDIM/840/277V	1	38.5	39	0%
27CDLA8/840/277V 12W	2	12	24	0%
	3278		126,644	100%

**Table 2.1 – Post Installation Sample Size**

Fixture Description	Quantity	Initial Sample Size Calc.	Finite Population Adjustment	Confidence Level	Precision Level	t-Table Number of Readings	% of Qty Sampled	Initial Estimate of Qty to be Measured
24CZRK-LD4-40-UNV-L840-CD1-U	2167	15	15	95%	5%	Infinite	1%	15
24CZRK-LD4-50-UNV-L840-CD1-U	326	15	15	95%	5%	Infinite	5%	15

Measurements based on the fixture type and quantities defined in Tables 2 will be taken at the fixture, switch or circuit. Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% level.

Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% Precision level.

Measured Value	Precision	Confidence	Z	Assumed cv
Power, Watts	5%	95%	1.96	0.15



For each different type of fixture retrofit to be measured, before measurements begin, it must be determined whether or not the measurements will be taken at an individual fixture or a circuit but not both.

Based on the results of the measurements the relative and absolute precision will be calculated to confirm that the desired confidence and precision target has been reached.

The following steps must be taken to calculate relative and absolute precision:

1. The total of the readings must be summed together for a total value.
2. The total value will be divided by the number of readings to calculate the mean value.
3. For each reading the difference between the reading and the mean must be calculated.
4. Each mean/reading difference must then be squared.
5. The squares must be totaled.
6. Variance,  $S^2$ , can then be calculated.
  - a.  $S^2 = \text{sum of squares} / (\text{number of readings} - 1)$
7. Standard Deviation is the square root of Variance  $S^2$ .
8.  $C_v = \text{Standard Deviation} / \text{average measured value}$
9. Refer to Table 2.3 t distribution table @ 95% confidence from Pg.90 IPMVP shown in Table 3.
  - a. Based on number of sample measurements select t-value that corresponds to number of measurements minus 1.
10. Absolute precision = standard error x T-value
11. Relative precision = absolute precision / mean value

**Table 3 – T-Distribution Table IPMVP**

<b>T-Table IPMVP Number Readings</b>	<b>95%</b>
2	4.30
3	3.18
4	2.78
5	2.57
6	2.45
7	2.36
8	2.31
9	2.26
10	2.23
11	2.20
12	2.18
13	2.16
14	2.14
15	2.13
16	2.12
17	2.11
18	2.10
19	2.09
21	2.08
23	2.07
25	2.06
27	2.05
31	2.04
35	2.03
41	2.02
49	2.01
60	2.00
120	1.98
Infinity	1.96

The result will be a calculated mean value for each set of measurements and the relative precision %. The calculated mean value will be compared to the projected watts per fixture in Table 2. The mean value should be equal to or less than the project value along with the relative precision being 5% or less. If the relative precision is less than 5%, more measurements will need to be taken for that fixture type.

## 4.0 **Computation of Savings:**

*The following describes the methodology for computing Actual Energy Use Savings based on validated wattage and presents guaranteed Energy Use Savings.*

### a) Computation and Presentation of Energy Use Savings:

Once the true pre- and post-retrofit, per fixture wattage have been established and documented in the appropriate Tables of this Exhibit, the values will be inserted into the appropriate columns of the detailed audit/scope of work spreadsheets. These actual values will supersede the estimated values currently represented in the spreadsheet. Hence, the resulting spreadsheets will represent the “as-built” conditions.

If the actual wattages differ from the previous estimates by less than or equal to 5%, it is considered to be within an acceptable tolerance based on Qualified Provider’s conservative safety factors for this energy conservation measure, and therefore satisfies the Energy Savings Guarantee.

If the actual wattages differ by more than 5%, the pre- and post-retrofit tables will be adjusted to reflect the actual wattages of the fixtures.

The calculations do not take into account any HVAC interaction.

### b) Presentation of Savings:

The energy conservation measure described herein will result in the following effect on energy usage:

Total Annual Guaranteed kWh Energy Use Savings: 556,289 kWh

Total Annual Guaranteed kW Energy Use Savings: 1,252 kW



**EXHIBIT E.4**  
**Guarantee**  
**North Middle School – Water Source Heat Pump Loop Pump Optimization**

## 1.0 **Agreed Upon Parameters:**

*The following are mutually agreed upon parameters that form the basis of this performance guarantee.*

a) Applicability:

This performance guarantee applies to the energy conservation measure involving the replacement of motors on two water source heat pump (WSHP) loop pumps and the addition of variable frequency drives to the same WSHP loop pumps at North Middle School.

b) Annual Hours of Operation:

The annual hours of operation for the pumping systems were collaboratively agreed upon by Owner and Qualified Provider.

c) Existing Pumping System Efficiency:

The survey of the facility has established the basis for the pumping system motor horsepower and motor efficiency. The horsepower and efficiency of the existing pump motors is provided in the table below:

**Table 1**

<b>Building</b>	<b>Motor Horsepower</b>	<b>Motor Efficiency (%)</b>
North MS – WSHP Loop Pump 1	15	91.0
North MS – WSHP Loop Pump 2	15	91.0

The values in the Table 1 are mutually agreed to by Owner and Qualified Provider for the purposes of this Agreement.

## 2.0 **Pre-Retrofit Consumption Data:**

*The pre-retrofit consumption data was established utilizing the following methodology agreed to by Owner and Qualified Provider.*

a) Measurement Methodology:

The motor horsepower and efficiency values in Table 1 and agreed to operation hours of the pumping systems form the basis of the pre-retrofit condition are used to recreate the existing energy consumption profile of the pumping systems. The existing operational hours of the pumping systems was verified through site review of the existing BAS schedules controlling the systems pump motors. These values are mutually agreed to by Owner and Qualified Provider for the purposes of this Agreement.

### 3.0 **Post-Retrofit Measurements:**

*The following describes the methodology for proving the energy savings for scheduling optimization of the pumping systems at North Middle School.*

#### a) **Measurement Methodology:**

The energy savings due to this conservation measure are related to scheduling optimization of the pumping systems. Currently the pumping systems operate during hours when the students are not in the facility; such as nights, weekends and holidays. The variable frequency drives will allow for the pumping systems to be ramped down when the facilities are unoccupied. There will also be some savings associated with improving the motor efficiency of the pumps.

In order to validate the performance of this conservation measure, Qualified Provider will monitor the operation of variable frequency drives using the building automation system. Throughout the term of this Agreement, Qualified Provider will validate that the variable frequency drives are ramping down during night hours, weekend hours and holiday hours.

### 4.0 **Computation and Presentation of Savings:**

*The following describes the methodology for computing Energy Use Savings based on scheduling optimization of the water source loop pumping systems.*

#### a) **Computation of Energy Use Savings:**

The following describes the stipulated methodology for computing Energy Use Savings as a result of installing variable frequency drives on the the WSHP loop pumps.

The building automation system will be used to generate a report showing that the control strategies for the pump variable frequency drives have been implemented. This report will consist of 24-hour trending logs run quarterly during the term of the Agreement, and will constitute the documentation showing the system saves the amount of energy predicted. The following is the savings calculation for both pumps receiving VFDs and new motors. Since only one pump operates at a time (set up for redundancy), this calculation will cover the savings for both pumps.

**Table 2**

North Middle School - WSHP Loop Pump										
Existing Pump Information						New Pump Information				
Month	Pump HP	Existing Pump Operational Hours	Existing Motor Eff. (%)	Existing Pump kW	Existing Pump Operation Consumption (kWh)	New Pump Operational Hours	New Motor Eff. (%)	New Pump kW	New Pump Operation Consumption (kWh)	Electric Savings (kWh)
January	15	744	91.0%	12	9,149	744	93.0%	12	8,952	197
February	15	672	91.0%	12	8,263	672	93.0%	12	8,086	178
March	15	744	91.0%	12	9,149	450	93.0%	12	5,415	3,734
April	15	720	91.0%	12	8,854	350	93.0%	12	4,211	4,642
May	15	744	91.0%	12	9,149	350	93.0%	12	4,211	4,937
June	15	720	91.0%	12	8,854	450	93.0%	12	5,415	3,439
July	15	744	91.0%	12	9,149	450	93.0%	12	5,415	3,734
August	15	744	91.0%	12	9,149	450	93.0%	12	5,415	3,734
September	15	720	91.0%	12	8,854	450	93.0%	12	5,415	3,439
October	15	744	91.0%	12	9,149	350	93.0%	12	4,211	4,937
November	15	720	91.0%	12	8,854	350	93.0%	12	4,211	4,642
December	15	744	91.0%	12	9,149	744	93.0%	12	8,952	197
<b>Totals</b>		<b>8,760</b>			<b>107,719</b>	<b>5,810</b>			<b>69,907</b>	<b>37,812</b>

#### b) **Presentation of Energy Use Savings:**

Total Annual Guaranteed kWh Energy Use Savings: 35,921 kWh

**EXHIBIT E.5**  
**Energy Savings Guarantee**  
**Lighting Upgrade – North Middle School**

**1.0 Agreed Upon Parameters:**

*The following are mutually agreed upon parameters that form the basis of this Energy Savings Guarantee.*

a) Applicability:

This Energy Savings Guarantee applies to the high efficiency lighting upgrade energy conservation measure installed by Qualified Provider at North Middle School as described in Tables 1 and 2.

**2.0 Pre-Retrofit Consumption Data:**

*The following describes the methodology for proving per-fixture wattage of each existing lighting fixture prior to the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the pre-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

a) Measurement Methodology:

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The purpose of this section is to validate the wattage assumed in these estimates through actual measurement.

Different types of existing fixtures were encountered during the detailed survey. The tables in Section 2.0.b provides a brief description of each fixture, a space for estimated fixture wattage, and notes the quantity of each fixture.

In order to validate the wattage estimates of the existing fixtures, Qualified Provider will measure the actual wattage consumed by a sample of each. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider.



## Pre-ECM Installation Wattage Measurement Sample Size Determination

The lighting fixture types and quantities to be measured prior to installation are based on the methodology defined in the IPMVP 2012 Volume 1 Section B.3. The first step was to determine at each site which fixture(s) make up at least 70% of the existing total lighting load.

The sample criterion for lighting was based on 95% confidence and 5% precision. The quantities for these chosen fixtures were entered into a spreadsheet that uses the initial sample size formula defined by the IPMVP. Based on 95% confidence and 5% precision and with a coefficient of variation to be 0.3, the initial sample size is calculated to be 24.

$$n_0 = \frac{z^2 * cv^2}{e^2}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$z$  = the standard normal distribution value from the t-Table, with an infinite number of readings, and for the desired confidence level (95% = 1.96)

$e$  = the desired level of precision

$cv$  = the coefficient of variance, which is defined by the standard deviation of the readings divided by the mean. Until the mean and standard deviation of the population can be estimated from actual samples, 0.3 will be used as an initial estimate for the  $cv$ .

$$n_0 = \frac{1.64^2 * 0.3^2}{0.1^2} = 24$$

Small sample population test - if the actual fixture counts (population) for the type being sampled is less than 484 (24 x 20), then the "Finite Population Adjustment" as outlined in the aforementioned IPMVP 2012 Volume 1 Section B.3. The fixture count is inserted into the Finite Population Adjustment formula to adjust initial sample size estimate for small populations. The example below uses a fixture count of 237 total fixtures in the building.

$$n = \frac{n_0 * N}{n_0 + N}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$n$  = the new, adjusted sample size for small populations

$N$  = Total population size

$$n = \frac{24 * 237}{24 + 237} = 22$$

Finalized Sample Size – The initial sample size ( $n_0$ ) is determined by using an assumed  $cv$ , so the actual  $cv$  must be calculated in order to find out the exact number of samples needed. If the actual  $cv$  turns out to be less than the initial  $cv$  (0.3), then the required sample size will be unnecessarily large to meet the precision goals. Conversely, if the actual  $cv$  turns out to be larger than the initial assumed  $cv$ , then the sample size would, theoretically, increase beyond the initial computed sample size.

When sampling, the mean and the standard deviation should be computed with each reading, and, in turn, the cv and the required sample size should be recalculated with each sample reading. The re-computation may allow for an early curtailment of the sampling process. Due to cost constraints in the M&V process, the maximum allowable sampling will be the initial sampling estimate before any readings are conducted. If the maximum is reached, then the savings report will note the actual precision achieved by the sampling.

Pre-Installation Sampling Plan – the fixture types that will be sampled will be highlighted in yellow for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that particular building.

b) Pre-Retrofit Fixture Table:

For the purposes of this Agreement, the lighting fixture quantities were surveyed by Qualified Provider and these quantities are collaboratively agreed upon by the Owner and Qualified Provider and are stipulated in this Section 2.0 of Exhibit E.5.

Qualified Provider reserves the right to adjust the Baseline for the pre- and post-retrofit quantities to reflect actual quantities and types of fixtures encountered during the retrofit; however, the Energy Use Savings expected to be achieved will not be less than the Energy Use Savings represented by the difference in consumption between the fixtures and quantities in the pre-retrofit table in this Section 2.0 of this Exhibit E.5 and the post-retrofit table in Section 3.0 of this Exhibit E.5.

The following tables illustrate the pre-retrofit (existing) fixtures and for the purposes of this agreement are stipulated and hereby collaboratively agreed to by the Owner and Qualified Provider:

**Table 1 – Existing Fixture Description/Quantity**

<b>Henderson County: North M.S. - Pre Installation</b>				
<b>Fixture Type</b>	<b>Qty</b>	<b>Watts/Fixture</b>	<b>Total Load</b>	<b>% of Total Load</b>
400W Mogul Base	10	460	4,600	60%
70W Med. Base	20	91	1,820	24%
175W Mogul Base	2	210	420	6%
Incandescent 100W	3	100	300	4%
150W Mogul Base	1	188	188	2%
150W Med. Base	1	188	188	2%
70W Med. Base	1	93	93	1%
	38		7,609	100%

**Table 1.1 – Pre-installation Sample Size**

<b>Fixture Description</b>	<b>Quantity</b>	<b>Initial Sample Size Calc.</b>	<b>Finite Population Adjustment</b>	<b>Confidence Level</b>	<b>Precision Level</b>	<b>t-Table Number of Readings</b>	<b>% of Qty Sampled</b>	<b>Initial Estimate of Qty to be Measured</b>
400W Mogul Base	10	61	9	95%	5%	Infinite	86%	9
70W Med. Base	20	61	15	95%	5%	Infinite	75%	15

### 3.0 **Post-Retrofit Measurements:**

*The following describes the methodology for proving per-fixture wattage reductions as a result of the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the post-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

a) **Measurement Methodology:**

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The detailed survey/scope of work incorporated herein, illustrates the types of retrofits installed, and *estimates* the wattage of the retrofits. The purpose of this section is to validate these estimates through actual wattage measurement.

Different types of retrofit strategies are employed in the applicable areas. The tables in this Section 3.0.b of this Exhibit E.5 lists the retrofit types, and provides a brief description of the retrofit.

In order to validate the wattage estimates of the lighting retrofits, Qualified Provider will measure the actual wattage consumed by a sample of the different retrofits. This measurement will occur once, following installation of the lighting retrofit. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements after 100 burn hours, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider. It is anticipated that a sufficient representative sample of each retrofit type will be measured and documented within 60 days of completion of the lighting retrofit.

Post-Installation Sampling Plan – the fixture types that will be sampled will be **highlighted in yellow** for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that building. The post wattage measurement size determination method is the same as the pre-measurement determination with the exception of the coefficient of variance. The coefficient of variance used was 0.2 instead of 0.3.

b) **Post-Retrofit Fixture Table:**

The following table illustrates the post-retrofit (proposed) fixtures:



**Table 2 – Proposed Fixture Description/Quantity**

<b>Henderson County: North M.S. - Post Installation</b>				
<b>Fixture Type</b>	<b>Qty</b>	<b>Watts/Fixture</b>	<b>Total Load</b>	<b>% of Total</b>
NAV-AF-02-D-UNV-T3-10K-XX-XX	6	129	774	39%
NAV-AF-02-D-UNV-T4FT-10K-XX-XX	4	129	516	26%
WP2LED37-traditional look	9	37	333	17%
VANLED20N	12	23	276	14%
ENTRA12N	3	13.9	42	2%
YBLED26	1	28	28	1%
BR LAMP	3	9	27	1%
	38		1,996	100%

**Table 2.1 – Post Installation Sample Size**

Fixture Description	Quantity	Initial Sample Size Calc.	Finite Population Adjustment	Confidence Level	Precision Level	t-Table Number of Readings	% of Qty Sampled	Initial Estimate of Qty to be Measured
NAV-AF-02-D-UNV-T3-10K-XX-XX	6	15	4	95%	5%	Infinite	72%	4
NAV-AF-02-D-UNV-T4FT-10K-XX-XX	4	15	3	95%	5%	Infinite	79%	3
WP2LED37-traditional look	9	15	6	95%	5%	Infinite	63%	6

Measurements based on the fixture type and quantities defined in Tables 2 will be taken at the fixture, switch or circuit. Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% level.

Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% Precision level.

<b>Measured Value</b>	<b>Precision</b>	<b>Confidence</b>	<b>Z</b>	<b>Assumed cv</b>
Power, Watts	5%	95%	1.96	0.15

For each different type of fixture retrofit to be measured, before measurements begin, it must be determined whether or not the measurements will be taken at an individual fixture or a circuit but not both.

Based on the results of the measurements the relative and absolute precision will be calculated to confirm that the desired confidence and precision target has been reached.

The following steps must be taken to calculate relative and absolute precision:

1. The total of the readings must be summed together for a total value.
2. The total value will be divided by the number of readings to calculate the mean value.
3. For each reading the difference between the reading and the mean must be calculated.
4. Each mean/reading difference must then be squared.
5. The squares must be totaled.
6. Variance, S2, can then be calculated.
  - a.  $S2 = \text{sum of squares} / (\text{number of readings} - 1)$
7. Standard Deviation is the square root of Variance S2.
8.  $Cv = \text{Standard Deviation} / \text{average measured value}$

9. Refer to Table 2.3 t distribution table @ 95% confidence from Pg.90 IPMVP shown in Table 3.
  - a. Based on number of sample measurements select t-value that corresponds to number of measurements minus 1.
10. Absolute precision = standard error x T-value
11. Relative precision = absolute precision / mean value

**Table 3 – T-Distribution Table IPMVP**

<b>T-Table IPMVP Number Readings</b>	<b>95%</b>
2	4.30
3	3.18
4	2.78
5	2.57
6	2.45
7	2.36
8	2.31
9	2.26
10	2.23
11	2.20
12	2.18
13	2.16
14	2.14
15	2.13
16	2.12
17	2.11
18	2.10
19	2.09
21	2.08
23	2.07
25	2.06
27	2.05
31	2.04
35	2.03
41	2.02
49	2.01
60	2.00
120	1.98
Infinity	1.96

The result will be a calculated mean value for each set of measurements and the relative precision %. The calculated mean value will be compared to the projected watts per fixture in Table 2. The mean value should be equal to or less than the project value along with the relative precision being 5% or less. If the relative precision is less than 5%, more measurements will need to be taken for that fixture type.

## 4.0 **Computation of Savings:**

*The following describes the methodology for computing Actual Energy Use Savings based on validated wattage and presents guaranteed Energy Use Savings.*

### a) Computation and Presentation of Energy Use Savings:

Once the true pre- and post-retrofit, per fixture wattage have been established and documented in the appropriate Tables of this Exhibit, the values will be inserted into the appropriate columns of the detailed audit/scope of work spreadsheets. These actual values will supersede the estimated values currently represented in the spreadsheet. Hence, the resulting spreadsheets will represent the “as-built” conditions.

If the actual wattages differ from the previous estimates by less than or equal to 5%, it is considered to be within an acceptable tolerance based on Qualified Provider’s conservative safety factors for this energy conservation measure, and therefore satisfies the Energy Savings Guarantee.

If the actual wattages differ by more than 5%, the pre- and post-retrofit tables will be adjusted to reflect the actual wattages of the fixtures.

The calculations do not take into account any HVAC interaction.

### b) Presentation of Savings:

The energy conservation measure described herein will result in the following effect on energy usage:

Total Annual Guaranteed kWh Energy Use Savings: 22,327 kWh

Total Annual Guaranteed kW Energy Use Savings: 39 kW



**EXHIBIT E.6**  
**Guarantee**  
**South Middle School – Water Source Heat Pump Loop Pump Optimization**

## 1.0 **Agreed Upon Parameters:**

*The following are mutually agreed upon parameters that form the basis of this performance guarantee.*

a) Applicability:

This performance guarantee applies to the energy conservation measure involving the replacement of motors on two water source heat pump (WSHP) loop pumps and the addition of variable frequency drives to the same WSHP loop pumps at South Middle School.

b) Annual Hours of Operation:

The annual hours of operation for the pumping systems were collaboratively agreed upon by Owner and Qualified Provider.

c) Existing Pumping System Efficiency:

The survey of the facility has established the basis for the pumping system motor horsepower and motor efficiency. The horsepower and efficiency of the existing pump motors is provided in the table below:

**Table 1**

<b>Building</b>	<b>Motor Horsepower</b>	<b>Motor Efficiency (%)</b>
South MS – WSHP Loop Pump 1	20	91.0
South MS – WSHP Loop Pump 2	20	91.0

The values in the Table 1 are mutually agreed to by Owner and Qualified Provider for the purposes of this Agreement.

## 2.0 **Pre-Retrofit Consumption Data:**

*The pre-retrofit consumption data was established utilizing the following methodology agreed to by Owner and Qualified Provider.*

a) Measurement Methodology:

The motor horsepower and efficiency values in Table 1 and agreed to operation hours of the pumping systems form the basis of the pre-retrofit condition are used to recreate the existing energy consumption profile of the pumping systems. The existing operational hours of the pumping systems was verified through site review of the existing BAS schedules controlling the systems pump motors. These values are mutually agreed to by Owner and Qualified Provider for the purposes of this Agreement.

### 3.0 Post-Retrofit Measurements:

*The following describes the methodology for proving the energy savings for scheduling optimization of the pumping systems at South Middle School.*

a) Measurement Methodology:

The energy savings due to this conservation measure are related to scheduling optimization of the pumping systems. Currently the pumping systems operate during hours when the students are not in the facility; such as nights, weekends and holidays. The variable frequency drives will allow for the pumping systems to be ramped down when the facilities are unoccupied. There will be no savings associated with replacing the pump motors because there is no significant change in motor efficiency.

In order to validate the performance of this conservation measure, Qualified Provider will monitor the operation of variable frequency drives using the building automation system. Throughout the term of this Agreement, Qualified Provider will validate that the variable frequency drives are ramping down during night hours, weekend hours and holiday hours.

### 4.0 Computation and Presentation of Savings:

*The following describes the methodology for computing Energy Use Savings based on scheduling optimization of the water source loop pumping systems.*

a) Computation of Energy Use Savings:

The following describes the stipulated methodology for computing Energy Use Savings as a result of installing variable frequency drives on the the WSHP loop pumps.

The building automation system will be used to generate a report showing that the control strategies for the pump variable frequency drives have been implemented. This report will consist of 24-hour trending logs run quarterly during the term of the Agreement, and will constitute the documentation showing the system saves the amount of energy predicted. The following is the savings calculation for both pumps receiving VFDs and new motors. Since only one pump operates at a time (set up for redundancy), this calculation will cover the savings for both pumps.

**Table 2**

South Middle School - WSHP Loop Pump										
		Existing Pump Information				New Pump Information				
Month	Pump HP	Existing Pump Operational Hours	Existing Motor Eff. (%)	Existing Pump kW	Existing Pump Operation Consumption (kWh)	New Pump Operational Hours	New Motor Eff. (%)	New Pump kW	New Pump Operation Consumption (kWh)	Electric Savings (kWh)
January	20	744	91.0%	16	12,198	744	91.0%	16	12,198	-
February	20	672	91.0%	16	11,018	672	91.0%	16	11,018	-
March	20	744	91.0%	16	12,198	450	91.0%	16	7,378	4,820
April	20	720	91.0%	16	11,805	350	91.0%	16	5,738	6,066
May	20	744	91.0%	16	12,198	350	91.0%	16	5,738	6,460
June	20	720	91.0%	16	11,805	450	91.0%	16	7,378	4,427
July	20	744	91.0%	16	12,198	450	91.0%	16	7,378	4,820
August	20	744	91.0%	16	12,198	450	91.0%	16	7,378	4,820
September	20	720	91.0%	16	11,805	450	91.0%	16	7,378	4,427
October	20	744	91.0%	16	12,198	350	91.0%	16	5,738	6,460
November	20	720	91.0%	16	11,805	350	91.0%	16	5,738	6,066
December	20	744	91.0%	16	12,198	744	91.0%	16	12,198	-
<b>Totals</b>		<b>8,760</b>			<b>143,625</b>	<b>5,810</b>			<b>95,258</b>	<b>48,367</b>

b) Presentation of Energy Use Savings:

Total Annual Guaranteed kWh Energy Use Savings: 45,949 kWh

**EXHIBIT E.7**  
**Energy Savings Guarantee**  
**Lighting Upgrade – South Middle School**

**1.0 Agreed Upon Parameters:**

*The following are mutually agreed upon parameters that form the basis of this Energy Savings Guarantee.*

a) Applicability:

This Energy Savings Guarantee applies to the high efficiency lighting upgrade energy conservation measure installed by Qualified Provider at South Middle School as described in Tables 1 and 2.

**2.0 Pre-Retrofit Consumption Data:**

*The following describes the methodology for proving per-fixture wattage of each existing lighting fixture prior to the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the pre-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

a) Measurement Methodology:

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The purpose of this section is to validate the wattage assumed in these estimates through actual measurement.

Different types of existing fixtures were encountered during the detailed survey. The tables in Section 2.0.b provides a brief description of each fixture, a space for estimated fixture wattage, and notes the quantity of each fixture.

In order to validate the wattage estimates of the existing fixtures, Qualified Provider will measure the actual wattage consumed by a sample of each. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider.



## Pre-ECM Installation Wattage Measurement Sample Size Determination

The lighting fixture types and quantities to be measured prior to installation are based on the methodology defined in the IPMVP 2012 Volume 1 Section B.3. The first step was to determine at each site which fixture(s) make up at least 70% of the existing total lighting load.

The sample criterion for lighting was based on 95% confidence and 5% precision. The quantities for these chosen fixtures were entered into a spreadsheet that uses the initial sample size formula defined by the IPMVP. Based on 95% confidence and 5% precision and with a coefficient of variation to be 0.3, the initial sample size is calculated to be 24.

$$n_0 = \frac{z^2 * cv^2}{e^2}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$z$  = the standard normal distribution value from the t-Table, with an infinite number of readings, and for the desired confidence level (95% = 1.96)

$e$  = the desired level of precision

$cv$  = the coefficient of variance, which is defined by the standard deviation of the readings divided by the mean. Until the mean and standard deviation of the population can be estimated from actual samples, 0.3 will be used as an initial estimate for the  $cv$ .

$$n_0 = \frac{1.64^2 * 0.3^2}{0.1^2} = 24$$

Small sample population test - if the actual fixture counts (population) for the type being sampled is less than 484 (24 x 20), then the "Finite Population Adjustment" as outlined in the aforementioned IPMVP 2012 Volume 1 Section B.3. The fixture count is inserted into the Finite Population Adjustment formula to adjust initial sample size estimate for small populations. The example below uses a fixture count of 237 total fixtures in the building.

$$n = \frac{n_0 * N}{n_0 + N}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$n$  = the new, adjusted sample size for small populations

$N$  = Total population size

$$n = \frac{24 * 237}{24 + 237} = 22$$

Finalized Sample Size – The initial sample size ( $n_0$ ) is determined by using an assumed  $cv$ , so the actual  $cv$  must be calculated in order to find out the exact number of samples needed. If the actual  $cv$  turns out to be less than the initial  $cv$  (0.3), then the required sample size will be unnecessarily large to meet the precision goals. Conversely, if the actual  $cv$  turns out to be larger than the initial assumed  $cv$ , then the sample size would, theoretically, increase beyond the initial computed sample size.

When sampling, the mean and the standard deviation should be computed with each reading, and, in turn, the cv and the required sample size should be recalculated with each sample reading. The re-computation may allow for an early curtailment of the sampling process. Due to cost constraints in the M&V process, the maximum allowable sampling will be the initial sampling estimate before any readings are conducted. If the maximum is reached, then the savings report will note the actual precision achieved by the sampling.

Pre-Installation Sampling Plan – the fixture types that will be sampled will be highlighted in yellow for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that particular building.

b) Pre-Retrofit Fixture Table:

For the purposes of this Agreement, the lighting fixture quantities were surveyed by Qualified Provider and these quantities are collaboratively agreed upon by the Owner and Qualified Provider and are stipulated in this Section 2.0 of Exhibit E.8.

Qualified Provider reserves the right to adjust the Baseline for the pre- and post-retrofit quantities to reflect actual quantities and types of fixtures encountered during the retrofit; however, the Energy Use Savings expected to be achieved will not be less than the Energy Use Savings represented by the difference in consumption between the fixtures and quantities in the pre-retrofit table in this Section 2.0 of this Exhibit E.8 and the post-retrofit table in Section 3.0 of this Exhibit E.8.

The following tables illustrate the pre-retrofit (existing) fixtures and for the purposes of this agreement are stipulated and hereby collaboratively agreed to by the Owner and Qualified Provider:

**Table 1 – Existing Fixture Description/Quantity**

Henderson County: South M.S - Pre Installation				
Fixture Type	Qty	Watts/Fixture	Total Load	% of Total Load
400W Mogul Base	11	465	5,115	66%
100W Mogul Base	9	130	1,170	15%
70W Med. Base	9	91	819	11%
100W Med. Base	3	128	384	5%
175W Mogul Base	1	210	210	3%
	33		7,698	100%

**Table 1.1 – Pre-installation Sample Size**

Fixture Description	Quantity	Initial Sample Size Calc.	Finite Population Adjustment	Confidence Level	Precision Level	t-Table Number of Readings	% of Qty Sampled	Initial Estimate of Qty to be Measured
400W Mogul Base	11	61	9	95%	5%	Infinite	85%	9
100W Mogul Base	9	61	8	95%	5%	Infinite	87%	8

### 3.0 **Post-Retrofit Measurements:**

*The following describes the methodology for proving per-fixture wattage reductions as a result of the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the post-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

a) **Measurement Methodology:**

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The detailed survey/scope of work incorporated herein, illustrates the types of retrofits installed, and *estimates* the wattage of the retrofits. The purpose of this section is to validate these estimates through actual wattage measurement.

Different types of retrofit strategies are employed in the applicable areas. The tables in this Section 3.0.b of this Exhibit E.8 lists the retrofit types, and provides a brief description of the retrofit.

In order to validate the wattage estimates of the lighting retrofits, Qualified Provider will measure the actual wattage consumed by a sample of the different retrofits. This measurement will occur once, following installation of the lighting retrofit. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements after 100 burn hours, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider. It is anticipated that a sufficient representative sample of each retrofit type will be measured and documented within 60 days of completion of the lighting retrofit.

Post-Installation Sampling Plan – the fixture types that will be sampled will be **highlighted in yellow** for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that building. The post wattage measurement size determination method is the same as the pre-measurement determination with the exception of the coefficient of variance. The coefficient of variance used was 0.2 instead of 0.3.

b) **Post-Retrofit Fixture Table:**

The following table illustrates the post-retrofit (proposed) fixtures:

**Table 2 – Proposed Fixture Description/Quantity**

<b>Henderson County: South M.S - Post Installation</b>				
<b>Fixture Type</b>	<b>Qty</b>	<b>Watts/Fixture</b>	<b>Total Load</b>	<b>% of Total Load</b>
NAV-AF-02-D-UNV-T4W-10K-XX-XX	6	129	774	38%
NAV-AF-02-D-UNV-T4FT-10K-XX-XX	3	129	387	19%
VANLED20N	14	23	322	16%
WP2LED37-traditional look	7	37	259	13%
NAV-AF-02-D-UNV-T3-10K-XX-XX	2	129	258	13%
FFLED26N	1	30	30	1%
	33		2,030	100%



**Table 2.1 – Post Installation Sample Size**

Fixture Description	Quantity	Initial Sample Size Calc.	Finite Population Adjustment	Confidence Level	Precision Level	t-Table Number of Readings	% of Qty Sampled	Initial Estimate of Qty to be Measured
NAV-AF-02-D-UNV-T4W-10K-XX-XX	6	15	4	95%	5%	Infinite	72%	4
NAV-AF-02-D-UNV-T4FT-10K-XX-XX	3	15	3	95%	5%	Infinite	84%	3
VANLED20N	14	15	7	95%	5%	Infinite	52%	7

Measurements based on the fixture type and quantities defined in Tables 2 will be taken at the fixture, switch or circuit. Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% level.

Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% Precision level.

Measured Value	Precision	Confidence	Z	Assumed cv
Power, Watts	5%	95%	1.96	0.15

For each different type of fixture retrofit to be measured, before measurements begin, it must be determined whether or not the measurements will be taken at an individual fixture or a circuit but not both.

Based on the results of the measurements the relative and absolute precision will be calculated to confirm that the desired confidence and precision target has been reached.

The following steps must be taken to calculate relative and absolute precision:

1. The total of the readings must be summed together for a total value.
2. The total value will be divided by the number of readings to calculate the mean value.
3. For each reading the difference between the reading and the mean must be calculated.
4. Each mean/reading difference must then be squared.
5. The squares must be totaled.
6. Variance, S<sup>2</sup>, can then be calculated.
  - a.  $S^2 = \text{sum of squares} / (\text{number of readings} - 1)$
7. Standard Deviation is the square root of Variance S<sup>2</sup>.
8.  $Cv = \text{Standard Deviation} / \text{average measured value}$
9. Refer to Table 2.3 t distribution table @ 95% confidence from Pg.90 IPMVP shown in Table 3.
  - a. Based on number of sample measurements select t-value that corresponds to number of measurements minus 1.
10. Absolute precision = standard error x T-value
11. Relative precision = absolute precision / mean value

**Table 3 – T-Distribution Table IPMVP**

<b>T-Table IPMVP Number Readings</b>	<b>95%</b>
2	4.30
3	3.18
4	2.78
5	2.57
6	2.45
7	2.36
8	2.31
9	2.26
10	2.23
11	2.20
12	2.18
13	2.16
14	2.14
15	2.13
16	2.12
17	2.11
18	2.10
19	2.09
21	2.08
23	2.07
25	2.06
27	2.05
31	2.04
35	2.03
41	2.02
49	2.01
60	2.00
120	1.98
Infinity	1.96

The result will be a calculated mean value for each set of measurements and the relative precision %. The calculated mean value will be compared to the projected watts per fixture in Table 2. The mean value should be equal to or less than the project value along with the relative precision being 5% or less. If the relative precision is less than 5%, more measurements will need to be taken for that fixture type.

## 4.0 **Computation of Savings:**

*The following describes the methodology for computing Actual Energy Use Savings based on validated wattage and presents guaranteed Energy Use Savings.*

### a) Computation and Presentation of Energy Use Savings:

Once the true pre- and post-retrofit, per fixture wattage have been established and documented in the appropriate Tables of this Exhibit, the values will be inserted into the appropriate columns of the detailed audit/scope of work spreadsheets. These actual values will supersede the estimated values currently represented in the spreadsheet. Hence, the resulting spreadsheets will represent the “as-built” conditions.

If the actual wattages differ from the previous estimates by less than or equal to 5%, it is considered to be within an acceptable tolerance based on Qualified Provider’s conservative safety factors for this energy conservation measure, and therefore satisfies the Energy Savings Guarantee.

If the actual wattages differ by more than 5%, the pre- and post-retrofit tables will be adjusted to reflect the actual wattages of the fixtures.

The calculations do not take into account any HVAC interaction.

### b) Presentation of Savings:

The energy conservation measure described herein will result in the following effect on energy usage:

Total Annual Guaranteed kWh Energy Use Savings: 21,299 kWh

Total Annual Guaranteed kW Energy Use Savings: 37 kW



**EXHIBIT E.8**  
**Guarantee**  
**Chiller Upgrade – Bend Gate Elementary School**

**1.0 Agreed Upon Parameters:**

*The following are mutually agreed upon parameters that form the basis of this performance guarantee.*

a) Applicability:

This performance guarantee applies to the energy conservation measure involving the installation of an air cooled chiller to replace an existing air-cooled chiller. The new chiller will be integrated into the existing BAS system at Bend Gate Elementary School.

b) Annual Hours of Operation:

The annual hours of operation for the chiller system were collaboratively agreed upon by Owner and Qualified Provider.

c) Existing HVAC Equipment Efficiency & Operation:

Analysis has determined the efficiency and operations for the existing equipment, which is provided in the table below:

**Table 1**

Existing Equipment	Qty.	Existing System Full Load Efficiency	Existing Part Load Efficiency
RTAA 125 Air-cooled Chiller	1	9.8 EER	11.0 IPLV

The values in the Table 1 are mutually agreed to by Owner and Qualified Provider for the purposes of this Agreement.

**2.0 Pre-Retrofit Consumption Data:**

*The pre-retrofit consumption data was established utilizing the following methodology agreed to by Owner and Qualified Provider.*

a) Measurement Methodology:

The existing chiller efficiency values in Table 1 and agreed to operation hours of the chiller form the basis of the pre-retrofit condition and are used to recreate the existing energy consumption profile of the chiller. The existing chiller efficiency was verified through manufacturer cataloged information. These values are mutually agreed to by Owner and Qualified Provider for the purposes of this Agreement.

### 3.0 **Post-Retrofit Measurements:**

*The following describes the agreed to methodology for computing Energy Use Savings.*

a) **Measurement Methodology:** New Air-Cooled Chiller

The Qualified Provider has completed an engineering analysis for this conservation measure utilizing the TRANE Chiller Efficiency Payback Calculator. The energy savings due to this conservation measure are related to installing a new high efficiency chiller that uses less energy than the existing chiller to cool the chilled water loop.

To accomplish the validation of the chiller efficiency listed in Table 2, the equipment manufacturer will provide a certified analysis from the proper rating agencies or the efficiency of the equipment will be measured by Qualified Provider after installation.

**Table 2**

Equipment	Qty.	New Chiller Full Load Efficiency	New Chiller Part Load Efficiency
New CGAM 130 Air-cooled Chiller	1	10.43 EER	16.55 IPLV

### 4.0 **Computation and Presentation of Savings:**

*The following describes the agreed to methodology for computing Energy Use Savings.*

a) **Computation of Energy Use Savings:** New Air-cooled Chiller

The following describes the stipulated methodology for computing Energy Use Savings as a result of replacing the existing chiller with a new high efficiency chiller. The existing chiller efficiency, the new chiller efficiency and cooling load hours were entered into TRANE Chiller Efficiency Payback Calculator. Table 3 lists the energy savings generated by the TRANE Chiller Efficiency Payback Calculator based upon the agreed to chiller efficiencies and cooling load hours

**Table 3**

Existing Chiller Efficiency	New Chiller Efficiency	Cooling Load Hours	Energy Savings
11 IPLV	16.55 IPLV	750	34,291 kWh

b) **Presentation of Savings:**

The energy conservation measure described herein will result in the following effect on energy usage:

Total Annual Guaranteed kWh Energy Use Savings: 34,291 kWh

**EXHIBIT E.9**  
**Energy Savings Guarantee**  
**Lighting Upgrade – Bend Gate Elementary School**

**1.0 Agreed Upon Parameters:**

*The following are mutually agreed upon parameters that form the basis of this Energy Savings Guarantee.*

a) Applicability:

This Energy Savings Guarantee applies to the high efficiency lighting upgrade energy conservation measure installed by Qualified Provider at Bend Gate Elementary School as described in Tables 1 and 2.

**2.0 Pre-Retrofit Consumption Data:**

*The following describes the methodology for proving per-fixture wattage of each existing lighting fixture prior to the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the pre-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

a) Measurement Methodology:

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The purpose of this section is to validate the wattage assumed in these estimates through actual measurement.

Different types of existing fixtures were encountered during the detailed survey. The tables in Section 2.0.b provides a brief description of each fixture, a space for estimated fixture wattage, and notes the quantity of each fixture.

In order to validate the wattage estimates of the existing fixtures, Qualified Provider will measure the actual wattage consumed by a sample of each. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider.



## Pre-ECM Installation Wattage Measurement Sample Size Determination

The lighting fixture types and quantities to be measured prior to installation are based on the methodology defined in the IPMVP 2012 Volume 1 Section B.3. The first step was to determine at each site which fixture(s) make up at least 70% of the existing total lighting load.

The sample criterion for lighting was based on 95% confidence and 5% precision. The quantities for these chosen fixtures were entered into a spreadsheet that uses the initial sample size formula defined by the IPMVP. Based on 95% confidence and 5% precision and with a coefficient of variation to be 0.3, the initial sample size is calculated to be 24.

$$n_0 = \frac{z^2 * cv^2}{e^2}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$z$  = the standard normal distribution value from the t-Table, with an infinite number of readings, and for the desired confidence level (95% = 1.96)

$e$  = the desired level of precision

$cv$  = the coefficient of variance, which is defined by the standard deviation of the readings divided by the mean. Until the mean and standard deviation of the population can be estimated from actual samples, 0.3 will be used as an initial estimate for the  $cv$ .

$$n_0 = \frac{1.64^2 * 0.3^2}{0.1^2} = 24$$

Small sample population test - if the actual fixture counts (population) for the type being sampled is less than 484 (24 x 20), then the "Finite Population Adjustment" as outlined in the aforementioned IPMVP 2012 Volume 1 Section B.3. The fixture count is inserted into the Finite Population Adjustment formula to adjust initial sample size estimate for small populations. The example below uses a fixture count of 237 total fixtures in the building.

$$n = \frac{n_0 * N}{n_0 + N}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$n$  = the new, adjusted sample size for small populations

$N$  = Total population size

$$n = \frac{24 * 237}{24 + 237} = 22$$

Finalized Sample Size – The initial sample size ( $n_0$ ) is determined by using an assumed  $cv$ , so the actual  $cv$  must be calculated in order to find out the exact number of samples needed. If the actual  $cv$  turns out to be less than the initial  $cv$  (0.3), then the required sample size will be unnecessarily large to meet the precision goals. Conversely, if the actual  $cv$  turns out to be larger than the initial assumed  $cv$ , then the sample size would, theoretically, increase beyond the initial computed sample size.

When sampling, the mean and the standard deviation should be computed with each reading, and, in turn, the cv and the required sample size should be recalculated with each sample reading. The re-computation may allow for an early curtailment of the sampling process. Due to cost constraints in the M&V process, the maximum allowable sampling will be the initial sampling estimate before any readings are conducted. If the maximum is reached, then the savings report will note the actual precision achieved by the sampling.

Pre-Installation Sampling Plan – the fixture types that will be sampled will be highlighted in yellow for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that particular building.

b) Pre-Retrofit Fixture Table:

For the purposes of this Agreement, the lighting fixture quantities were surveyed by Qualified Provider and these quantities are collaboratively agreed upon by the Owner and Qualified Provider and are stipulated in this Section 2.0 of Exhibit E.9.

Qualified Provider reserves the right to adjust the Baseline for the pre- and post-retrofit quantities to reflect actual quantities and types of fixtures encountered during the retrofit; however, the Energy Use Savings expected to be achieved will not be less than the Energy Use Savings represented by the difference in consumption between the fixtures and quantities in the pre-retrofit table in this Section 2.0 of this Exhibit E.9 and the post-retrofit table in Section 3.0 of this Exhibit E.9.

The following tables illustrate the pre-retrofit (existing) fixtures and for the purposes of this agreement are stipulated and hereby collaboratively agreed to by the Owner and Qualified Provider:

**Table 1 – Existing Fixture Description/Quantity**

Henderson County: Bend Gate E.S. - Pre Installation				
Fixture Type	Qty	Watts/Fixture	Total Load	% of Total Load
400W Mogul Base	36	460	16,560	75%
100W Med. Base	19	125	2,375	11%
100W Med. Base	14	129	1,806	8%
175W Mogul Base	5	210	1,050	5%
100W Med. Base	3	128	384	2%
	77		22,175	100%

**Table 1.1 – Pre-installation Sample Size**

Fixture Description	Quantity	Initial Sample Size Calc.	Finite Population Adjustment	Confidence Level	Precision Level	t-Table Number of Readings	% of Qty Sampled	Initial Estimate of Qty to be Measured
400W Mogul Base	36	61	23	95%	5%	Infinite	63%	23

### 3.0 Post-Retrofit Measurements:

*The following describes the methodology for proving per-fixture wattage reductions as a result of the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the post-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

a) Measurement Methodology:

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The detailed survey/scope of work incorporated herein, illustrates the types of retrofits installed, and *estimates* the wattage of the retrofits. The purpose of this section is to validate these estimates through actual wattage measurement.

Different types of retrofit strategies are employed in the applicable areas. The tables in this Section 3.0.b of this Exhibit E.9 lists the retrofit types, and provides a brief description of the retrofit.

In order to validate the wattage estimates of the lighting retrofits, Qualified Provider will measure the actual wattage consumed by a sample of the different retrofits. This measurement will occur once, following installation of the lighting retrofit. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements after 100 burn hours, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider. It is anticipated that a sufficient representative sample of each retrofit type will be measured and documented within 60 days of completion of the lighting retrofit.

Post-Installation Sampling Plan – the fixture types that will be sampled will be **highlighted in yellow** for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that building. The post wattage measurement size determination method is the same as the pre-measurement determination with the exception of the coefficient of variance. The coefficient of variance used was 0.2 instead of 0.3.

b) Post-Retrofit Fixture Table:

The following table illustrates the post-retrofit (proposed) fixtures:

**Table 2 – Proposed Fixture Description/Quantity**

Henderson County: Bend Gate E.S. - Post Installation				
Fixture Type	Qty	Watts/Fixture	Total Load	% of Total Load
NAV-AF-03-D-UNV-T3-10K-XX-XX	16	191	3,056	64%
NAV-AF-03-D-UNV-T4W-10K-XX-XX	4	191	764	16%
VANLED20N	22	23	506	11%
CORN COB - 27HID/840/277V/EX39/R-57936-3150LM-27W	4	27	108	2%
ENTRA12N	7	13.9	97	2%
WP2LED24-traditional look	4	24	96	2%
VANLED40N	2	38	76	2%
WP2LED37-traditional look	2	37	74	2%
	61		4,777	100%



**Table 2.1 – Post Installation Sample Size**

Fixture Description	Quantity	Initial Sample Size Calc.	Finite Population Adjustment	Confidence Level	Precision Level	t-Table Number of Readings	% of Qty Sampled	Initial Estimate of Qty to be Measured
NAV-AF-03-D-UNV-T3-10K-XX-XX	16	15	8	95%	5%	Infinite	49%	8
NAV-AF-03-D-UNV-T4W-10K-XX-XX	4	15	3	95%	5%	Infinite	79%	3

Measurements based on the fixture type and quantities defined in Tables 2 will be taken at the fixture, switch or circuit. Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% level.

Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% Precision level.

Measured Value	Precision	Confidence	Z	Assumed cv
Power, Watts	5%	95%	1.96	0.15

For each different type of fixture retrofit to be measured, before measurements begin, it must be determined whether or not the measurements will be taken at an individual fixture or a circuit but not both.

Based on the results of the measurements the relative and absolute precision will be calculated to confirm that the desired confidence and precision target has been reached.

The following steps must be taken to calculate relative and absolute precision:

1. The total of the readings must be summed together for a total value.
2. The total value will be divided by the number of readings to calculate the mean value.
3. For each reading the difference between the reading and the mean must be calculated.
4. Each mean/reading difference must then be squared.
5. The squares must be totaled.
6. Variance, S<sup>2</sup>, can then be calculated.
  - a.  $S^2 = \text{sum of squares} / (\text{number of readings} - 1)$
7. Standard Deviation is the square root of Variance S<sup>2</sup>.
8.  $Cv = \text{Standard Deviation} / \text{average measured value}$
9. Refer to Table 2.3 t distribution table @ 95% confidence from Pg.90 IPMVP shown in Table 3.
  - a. Based on number of sample measurements select t-value that corresponds to number of measurements minus 1.
10. Absolute precision = standard error x T-value
11. Relative precision = absolute precision / mean value

**Table 3 – T-Distribution Table IPMVP**

<b>T-Table IPMVP Number Readings</b>	<b>95%</b>
2	4.30
3	3.18
4	2.78
5	2.57
6	2.45
7	2.36
8	2.31
9	2.26
10	2.23
11	2.20
12	2.18
13	2.16
14	2.14
15	2.13
16	2.12
17	2.11
18	2.10
19	2.09
21	2.08
23	2.07
25	2.06
27	2.05
31	2.04
35	2.03
41	2.02
49	2.01
60	2.00
120	1.98
Infinity	1.96

The result will be a calculated mean value for each set of measurements and the relative precision %. The calculated mean value will be compared to the projected watts per fixture in Table 2. The mean value should be equal to or less than the project value along with the relative precision being 5% or less. If the relative precision is less than 5%, more measurements will need to be taken for that fixture type.

## 4.0 Computation of Savings:

*The following describes the methodology for computing Actual Energy Use Savings based on validated wattage and presents guaranteed Energy Use Savings.*

### a) Computation and Presentation of Energy Use Savings:

Once the true pre- and post-retrofit, per fixture wattage have been established and documented in the appropriate Tables of this Exhibit, the values will be inserted into the appropriate columns of the detailed audit/scope of work spreadsheets. These actual values will supersede the estimated values currently represented in the spreadsheet. Hence, the resulting spreadsheets will represent the “as-built” conditions.

If the actual wattages differ from the previous estimates by less than or equal to 5%, it is considered to be within an acceptable tolerance based on Qualified Provider's conservative safety factors for this energy conservation measure, and therefore satisfies the Energy Savings Guarantee.

If the actual wattages differ by more than 5%, the pre- and post-retrofit tables will be adjusted to reflect the actual wattages of the fixtures.

The calculations do not take into account any HVAC interaction.

### b) Presentation of Savings:

The energy conservation measure described herein will result in the following effect on energy usage:

Total Annual Guaranteed kWh Energy Use Savings: 65,779 kWh

Total Annual Guaranteed kW Energy Use Savings: 112 kW



**EXHIBIT E.10**  
**Energy Savings Guarantee**  
**Lighting Upgrade – South Heights Elementary School**

**1.0 Agreed Upon Parameters:**

*The following are mutually agreed upon parameters that form the basis of this Energy Savings Guarantee.*

a) Applicability:

This Energy Savings Guarantee applies to the high efficiency lighting upgrade energy conservation measure installed by Qualified Provider at South Heights Elementary School as described in Tables 1 and 2.

**2.0 Pre-Retrofit Consumption Data:**

*The following describes the methodology for proving per-fixture wattage of each existing lighting fixture prior to the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the pre-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

a) Measurement Methodology:

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The purpose of this section is to validate the wattage assumed in these estimates through actual measurement.

Different types of existing fixtures were encountered during the detailed survey. The tables in Section 2.0.b provides a brief description of each fixture, a space for estimated fixture wattage, and notes the quantity of each fixture.

In order to validate the wattage estimates of the existing fixtures, Qualified Provider will measure the actual wattage consumed by a sample of each. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider.

## Pre-ECM Installation Wattage Measurement Sample Size Determination

The lighting fixture types and quantities to be measured prior to installation are based on the methodology defined in the IPMVP 2012 Volume 1 Section B.3. The first step was to determine at each site which fixture(s) make up at least 70% of the existing total lighting load.

The sample criterion for lighting was based on 95% confidence and 5% precision. The quantities for these chosen fixtures were entered into a spreadsheet that uses the initial sample size formula defined by the IPMVP. Based on 95% confidence and 5% precision and with a coefficient of variation to be 0.3, the initial sample size is calculated to be 24.

$$n_0 = \frac{z^2 * cv^2}{e^2}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$z$  = the standard normal distribution value from the t-Table, with an infinite number of readings, and for the desired confidence level (95% = 1.96)

$e$  = the desired level of precision

$cv$  = the coefficient of variance, which is defined by the standard deviation of the readings divided by the mean. Until the mean and standard deviation of the population can be estimated from actual samples, 0.3 will be used as an initial estimate for the  $cv$ .

$$n_0 = \frac{1.64^2 * 0.3^2}{0.1^2} = 24$$

Small sample population test - if the actual fixture counts (population) for the type being sampled is less than 484 (24 x 20), then the "Finite Population Adjustment" as outlined in the aforementioned IPMVP 2012 Volume 1 Section B.3. The fixture count is inserted into the Finite Population Adjustment formula to adjust initial sample size estimate for small populations. The example below uses a fixture count of 237 total fixtures in the building.

$$n = \frac{n_0 * N}{n_0 + N}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$n$  = the new, adjusted sample size for small populations

$N$  = Total population size

$$n = \frac{24 * 237}{24 + 237} = 22$$

Finalized Sample Size – The initial sample size ( $n_0$ ) is determined by using an assumed  $cv$ , so the actual  $cv$  must be calculated in order to find out the exact number of samples needed. If the actual  $cv$  turns out to be less than the initial  $cv$  (0.3), then the required sample size will be unnecessarily large to meet the precision goals. Conversely, if the actual  $cv$  turns out to be larger than the initial assumed  $cv$ , then the sample size would, theoretically, increase beyond the initial computed sample size.

When sampling, the mean and the standard deviation should be computed with each reading, and, in turn, the cv and the required sample size should be recalculated with each sample reading. The re-computation may allow for an early curtailment of the sampling process. Due to cost constraints in the M&V process, the maximum allowable sampling will be the initial sampling estimate before any readings are conducted. If the maximum is reached, then the savings report will note the actual precision achieved by the sampling.

Pre-Installation Sampling Plan – the fixture types that will be sampled will be highlighted in yellow for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that particular building.

b) Pre-Retrofit Fixture Table:

For the purposes of this Agreement, the lighting fixture quantities were surveyed by Qualified Provider and these quantities are collaboratively agreed upon by the Owner and Qualified Provider and are stipulated in this Section 2.0 of Exhibit E.10.

Qualified Provider reserves the right to adjust the Baseline for the pre- and post-retrofit quantities to reflect actual quantities and types of fixtures encountered during the retrofit; however, the Energy Use Savings expected to be achieved will not be less than the Energy Use Savings represented by the difference in consumption between the fixtures and quantities in the pre-retrofit table in this Section 2.0 of this Exhibit E.10 and the post-retrofit table in Section 3.0 of this Exhibit E.10.

The following tables illustrate the pre-retrofit (existing) fixtures and for the purposes of this agreement are stipulated and hereby collaboratively agreed to by the Owner and Qualified Provider:

**Table 1 – Existing Fixture Description/Quantity**

Henderson County: South Heights E.S - Pre Installation				
Fixture Type	Qty	Watts/Fixture	Total Load	% of Total Load
400W Mogul Base	4	460	1,840	62%
70W Med. Base	7	91	637	22%
100W Med. Base	2	125	250	8%
100W Med. Base	1	128	128	4%
70W Med. Base	1	93	93	3%
	15		2,948	100%

**Table 1.1 – Pre-installation Sample Size**

Fixture Description	Quantity	Initial Sample Size Calc.	Finite Population Adjustment	Confidence Level	Precision Level	t-Table Number of Readings	% of Qty Sampled	Initial Estimate of Qty to be Measured
400W Mogul Base	4	61	4	95%	5%	Infinite	94%	4
70W Med. Base	7	61	6	95%	5%	Infinite	90%	6



### 3.0 **Post-Retrofit Measurements:**

*The following describes the methodology for proving per-fixture wattage reductions as a result of the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the post-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

a) **Measurement Methodology:**

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The detailed survey/scope of work incorporated herein, illustrates the types of retrofits installed, and *estimates* the wattage of the retrofits. The purpose of this section is to validate these estimates through actual wattage measurement.

Different types of retrofit strategies are employed in the applicable areas. The tables in this Section 3.0.b of this Exhibit E.10 lists the retrofit types, and provides a brief description of the retrofit.

In order to validate the wattage estimates of the lighting retrofits, Qualified Provider will measure the actual wattage consumed by a sample of the different retrofits. This measurement will occur once, following installation of the lighting retrofit. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements after 100 burn hours, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider. It is anticipated that a sufficient representative sample of each retrofit type will be measured and documented within 60 days of completion of the lighting retrofit.

Post-Installation Sampling Plan – the fixture types that will be sampled will be **highlighted in yellow** for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that building. The post wattage measurement size determination method is the same as the pre-measurement determination with the exception of the coefficient of variance. The coefficient of variance used was 0.2 instead of 0.3.

b) **Post-Retrofit Fixture Table:**

The following table illustrates the post-retrofit (proposed) fixtures:

**Table 2 – Proposed Fixture Description/Quantity**

<b>Henderson County: South Heights E.S - Post Installation</b>				
<b>Fixture Type</b>	<b>Qty</b>	<b>Watts/Fixture</b>	<b>Total Load</b>	<b>% of Total Load</b>
NAV-AF-03-D-UNV-T4W-10K-XX-XX	3	191	573	52%
WP2LED37-traditional look	7	37	259	24%
NAV-AF-03-D-UNV-T5WQ-10K-XX-X	1	191	191	17%
VANLED20N	2	23	46	4%
PAR LAMP-13PAR30DIM/940FL40-13	2	13	26	2%
	15		1,095	100%

**Table 2.1 – Post Installation Sample Size**

Fixture Description	Quantity	Initial Sample Size Calc.	Finite Population Adjustment	Confidence Level	Precision Level	t-Table Number of Readings	% of Qty Sampled	Initial Estimate of Qty to be Measured
NAV-AF-03-D-UNV-T4W-10K-XX-XX	3	15	3	95%	5%	Infinite	84%	3
WP2LED37-traditional look	7	15	5	95%	5%	Infinite	69%	5

Measurements based on the fixture type and quantities defined in Tables 2 will be taken at the fixture, switch or circuit. Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% level.

Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% Precision level.

Measured Value	Precision	Confidence	Z	Assumed cv
Power, Watts	5%	95%	1.96	0.15

For each different type of fixture retrofit to be measured, before measurements begin, it must be determined whether or not the measurements will be taken at an individual fixture or a circuit but not both.

Based on the results of the measurements the relative and absolute precision will be calculated to confirm that the desired confidence and precision target has been reached.

The following steps must be taken to calculate relative and absolute precision:

1. The total of the readings must be summed together for a total value.
2. The total value will be divided by the number of readings to calculate the mean value.
3. For each reading the difference between the reading and the mean must be calculated.
4. Each mean/reading difference must then be squared.
5. The squares must be totaled.
6. Variance, S<sup>2</sup>, can then be calculated.
  - a.  $S^2 = \text{sum of squares} / (\text{number of readings} - 1)$
7. Standard Deviation is the square root of Variance S<sup>2</sup>.
8.  $Cv = \text{Standard Deviation} / \text{average measured value}$
9. Refer to Table 2.3 t distribution table @ 95% confidence from Pg.90 IPMVP shown in Table 3.
  - a. Based on number of sample measurements select t-value that corresponds to number of measurements minus 1.
10. Absolute precision = standard error x T-value
11. Relative precision = absolute precision / mean value

**Table 3 – T-Distribution Table IPMVP**

<b>T-Table IPMVP Number Readings</b>	<b>95%</b>
2	4.30
3	3.18
4	2.78
5	2.57
6	2.45
7	2.36
8	2.31
9	2.26
10	2.23
11	2.20
12	2.18
13	2.16
14	2.14
15	2.13
16	2.12
17	2.11
18	2.10
19	2.09
21	2.08
23	2.07
25	2.06
27	2.05
31	2.04
35	2.03
41	2.02
49	2.01
60	2.00
120	1.98
Infinity	1.96

The result will be a calculated mean value for each set of measurements and the relative precision %. The calculated mean value will be compared to the projected watts per fixture in Table 2. The mean value should be equal to or less than the project value along with the relative precision being 5% or less. If the relative precision is less than 5%, more measurements will need to be taken for that fixture type.



## 4.0 **Computation of Savings:**

*The following describes the methodology for computing Actual Energy Use Savings based on validated wattage and presents guaranteed Energy Use Savings.*

### a) Computation and Presentation of Energy Use Savings:

Once the true pre- and post-retrofit, per fixture wattage have been established and documented in the appropriate Tables of this Exhibit, the values will be inserted into the appropriate columns of the detailed audit/scope of work spreadsheets. These actual values will supersede the estimated values currently represented in the spreadsheet. Hence, the resulting spreadsheets will represent the “as-built” conditions.

If the actual wattages differ from the previous estimates by less than or equal to 5%, it is considered to be within an acceptable tolerance based on Qualified Provider’s conservative safety factors for this energy conservation measure, and therefore satisfies the Energy Savings Guarantee.

If the actual wattages differ by more than 5%, the pre- and post-retrofit tables will be adjusted to reflect the actual wattages of the fixtures.

The calculations do not take into account any HVAC interaction.

### b) Presentation of Savings:

The energy conservation measure described herein will result in the following effect on energy usage:

Total Annual Guaranteed kWh Energy Use Savings: 6,901 kWh

Total Annual Guaranteed kW Energy Use Savings: 18 kW

**EXHIBIT E.11**  
**Energy Savings Guarantee**  
**Lighting Upgrade – Board of Education Building**

**1.0 Agreed Upon Parameters:**

*The following are mutually agreed upon parameters that form the basis of this Energy Savings Guarantee.*

a) Applicability:

This Energy Savings Guarantee applies to the high efficiency lighting upgrade energy conservation measure installed by Qualified Provider at the Board of Education Building as described in Tables 1 and 2.

**2.0 Pre-Retrofit Consumption Data:**

*The following describes the methodology for proving per-fixture wattage of each existing lighting fixture prior to the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the pre-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

a) Measurement Methodology:

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The purpose of this section is to validate the wattage assumed in these estimates through actual measurement.

Different types of existing fixtures were encountered during the detailed survey. The tables in Section 2.0.b provides a brief description of each fixture, a space for estimated fixture wattage, and notes the quantity of each fixture.

In order to validate the wattage estimates of the existing fixtures, Qualified Provider will measure the actual wattage consumed by a sample of each. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider.

## Pre-ECM Installation Wattage Measurement Sample Size Determination

The lighting fixture types and quantities to be measured prior to installation are based on the methodology defined in the IPMVP 2012 Volume 1 Section B.3. The first step was to determine at each site which fixture(s) make up at least 70% of the existing total lighting load.

The sample criterion for lighting was based on 95% confidence and 5% precision. The quantities for these chosen fixtures were entered into a spreadsheet that uses the initial sample size formula defined by the IPMVP. Based on 95% confidence and 5% precision and with a coefficient of variation to be 0.3, the initial sample size is calculated to be 24.

$$n_0 = \frac{z^2 * cv^2}{e^2}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$z$  = the standard normal distribution value from the t-Table, with an infinite number of readings, and for the desired confidence level (95% = 1.96)

$e$  = the desired level of precision

$cv$  = the coefficient of variance, which is defined by the standard deviation of the readings divided by the mean. Until the mean and standard deviation of the population can be estimated from actual samples, 0.3 will be used as an initial estimate for the  $cv$ .

$$n_0 = \frac{1.64^2 * 0.3^2}{0.1^2} = 24$$

Small sample population test - if the actual fixture counts (population) for the type being sampled is less than 484 (24 x 20), then the "Finite Population Adjustment" as outlined in the aforementioned IPMVP 2012 Volume 1 Section B.3. The fixture count is inserted into the Finite Population Adjustment formula to adjust initial sample size estimate for small populations. The example below uses a fixture count of 237 total fixtures in the building.

$$n = \frac{n_0 * N}{n_0 + N}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$n$  = the new, adjusted sample size for small populations

$N$  = Total population size

$$n = \frac{24 * 237}{24 + 237} = 22$$

Finalized Sample Size – The initial sample size ( $n_0$ ) is determined by using an assumed  $cv$ , so the actual  $cv$  must be calculated in order to find out the exact number of samples needed. If the actual  $cv$  turns out to be less than the initial  $cv$  (0.3), then the required sample size will be unnecessarily large to meet the precision goals. Conversely, if the actual  $cv$  turns out to be larger than the initial assumed  $cv$ , then the sample size would, theoretically, increase beyond the initial computed sample size.



When sampling, the mean and the standard deviation should be computed with each reading, and, in turn, the cv and the required sample size should be recalculated with each sample reading. The re-computation may allow for an early curtailment of the sampling process. Due to cost constraints in the M&V process, the maximum allowable sampling will be the initial sampling estimate before any readings are conducted. If the maximum is reached, then the savings report will note the actual precision achieved by the sampling.

Pre-Installation Sampling Plan – the fixture types that will be sampled will be highlighted in yellow for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that particular building.

b) Pre-Retrofit Fixture Table:

For the purposes of this Agreement, the lighting fixture quantities were surveyed by Qualified Provider and these quantities are collaboratively agreed upon by the Owner and Qualified Provider and are stipulated in this Section 2.0 of Exhibit E.11.

Qualified Provider reserves the right to adjust the Baseline for the pre- and post-retrofit quantities to reflect actual quantities and types of fixtures encountered during the retrofit; however, the Energy Use Savings expected to be achieved will not be less than the Energy Use Savings represented by the difference in consumption between the fixtures and quantities in the pre-retrofit table in this Section 2.0 of this Exhibit E.11 and the post-retrofit table in Section 3.0 of this Exhibit E.11.

The following tables illustrate the pre-retrofit (existing) fixtures and for the purposes of this agreement are stipulated and hereby collaboratively agreed to by the Owner and Qualified Provider:

**Table 1 – Existing Fixture Description/Quantity**

Henderson County: Board of Education - Pre Installation				
Fixture Type	Qty	Watts/Fixture	Total Load	% of Total Load
F40T12 4' 34W 4L	22	156	3,432	27%
F40T12 4' 34W 2L	33	78	2,574	20%
F32T8 4' 32W 4L	17	106	1,802	14%
F32T8 4' 32W 2L	27	62	1,674	13%
F40T12 4' 34W8L	4	312	1,248	10%
F40T12 4' 34W 4L	9	127	1,143	9%
F40T12 4' 34W 2L	5	78	390	3%
Incandescent 65w	4	65	260	2%
F40T12 4' 34W 2L	1	156	156	1%
F34T12 U 2L 34W	2	67	134	1%
	124		12,813	100%

**Table 1.1 – Pre-installation Sample Size**

Fixture Description	Quantity	Initial Sample Size Calc.	Finite Population Adjustment	Confidence Level	Precision Level	t-Table Number of Readings	% of Qty Sampled	Initial Estimate of Qty to be Measured
F40T12 4' 34W 4L	22	61	16	95%	5%	Infinite	74%	16
F40T12 4' 34W 2L	33	61	21	95%	5%	Infinite	65%	21
F32T8 4' 32W 4L	17	61	13	95%	5%	Infinite	78%	13
F32T8 4' 32W 2L	27	61	19	95%	5%	Infinite	69%	19

### 3.0 Post-Retrofit Measurements:

*The following describes the methodology for proving per-fixture wattage reductions as a result of the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the post-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

a) Measurement Methodology:

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The detailed survey/scope of work incorporated herein, illustrates the types of retrofits installed, and *estimates* the wattage of the retrofits. The purpose of this section is to validate these estimates through actual wattage measurement.

Different types of retrofit strategies are employed in the applicable areas. The tables in this Section 3.0.b of this Exhibit E.11 lists the retrofit types, and provides a brief description of the retrofit.

In order to validate the wattage estimates of the lighting retrofits, Qualified Provider will measure the actual wattage consumed by a sample of the different retrofits. This measurement will occur once, following installation of the lighting retrofit. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements after 100 burn hours, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider. It is anticipated that a sufficient representative sample of each retrofit type will be measured and documented within 60 days of completion of the lighting retrofit.

Post-Installation Sampling Plan – the fixture types that will be sampled will be **highlighted in yellow** for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that building. The post wattage measurement size determination method is the same as the pre-measurement determination with the exception of the coefficient of variance. The coefficient of variance used was 0.2 instead of 0.3.

b) Post-Retrofit Fixture Table:

The following table illustrates the post-retrofit (proposed) fixtures:

**Table 2 – Proposed Fixture Description/Quantity**

<b>Henderson County: Board of Education - Post Installation</b>				
<b>Fixture Type</b>	<b>Qty</b>	<b>Watts/Fixture</b>	<b>Total Load</b>	<b>% of Total</b>
24CZRK-LD4-40-UNV-L840-CD1-U	88	36	3,168	71%
13T8/4F/840/DIR-310 degree-2051-4L	10	52	520	12%
24CZRK-LD4-50-UNV-L840-CD1-U	10	46	460	10%
13T8/4F/840/DIR-310 degree-2051-2L	8	26	208	5%
27CDLA8/840/277V 12W	4	12	48	1%
22CZRK-LD4-34-UNV-L840-CD1-U	1	31	31	1%
REMOVE FIXTURE	0	0	0	0%
	121		4,435	100%

**Table 2.1 – Post Installation Sample Size**

Fixture Description	Quantity	Initial Sample Size Calc.	Finite Population Adjustment	Confidence Level	Precision Level	t-Table Number of Readings	% of Qty Sampled	Initial Estimate of Qty to be Measured
24CZRK-LD4-40-UNV-L840-CD1-U	88	15	13	95%	5%	Infinite	17%	15

Measurements based on the fixture type and quantities defined in Tables 2 will be taken at the fixture, switch or circuit. Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% level.

Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% Precision level.

Measured Value	Precision	Confidence	Z	Assumed cv
Power, Watts	5%	95%	1.96	0.15

For each different type of fixture retrofit to be measured, before measurements begin, it must be determined whether or not the measurements will be taken at an individual fixture or a circuit but not both.

Based on the results of the measurements the relative and absolute precision will be calculated to confirm that the desired confidence and precision target has been reached.

The following steps must be taken to calculate relative and absolute precision:

1. The total of the readings must be summed together for a total value.
2. The total value will be divided by the number of readings to calculate the mean value.
3. For each reading the difference between the reading and the mean must be calculated.
4. Each mean/reading difference must then be squared.
5. The squares must be totaled.
6. Variance, S<sup>2</sup>, can then be calculated.
  - a.  $S^2 = \text{sum of squares} / (\text{number of readings} - 1)$
7. Standard Deviation is the square root of Variance S<sup>2</sup>.
8.  $Cv = \text{Standard Deviation} / \text{average measured value}$
9. Refer to Table 2.3 t distribution table @ 95% confidence from Pg.90 IPMVP shown in Table 3.
  - a. Based on number of sample measurements select t-value that corresponds to number of measurements minus 1.
10. Absolute precision = standard error x T-value
11. Relative precision = absolute precision / mean value

**Table 3 – T-Distribution Table IPMVP**

<b>T-Table IPMVP Number Readings</b>	<b>95%</b>
2	4.30
3	3.18
4	2.78
5	2.57
6	2.45
7	2.36
8	2.31
9	2.26
10	2.23
11	2.20
12	2.18
13	2.16
14	2.14
15	2.13
16	2.12
17	2.11
18	2.10
19	2.09
21	2.08
23	2.07
25	2.06
27	2.05
31	2.04
35	2.03
41	2.02
49	2.01
60	2.00
120	1.98
Infinity	1.96

The result will be a calculated mean value for each set of measurements and the relative precision %. The calculated mean value will be compared to the projected watts per fixture in Table 2. The mean value should be equal to or less than the project value along with the relative precision being 5% or less. If the relative precision is less than 5%, more measurements will need to be taken for that fixture type.



## 4.0 **Computation of Savings:**

*The following describes the methodology for computing Actual Energy Use Savings based on validated wattage and presents guaranteed Energy Use Savings.*

### a) Computation and Presentation of Energy Use Savings:

Once the true pre- and post-retrofit, per fixture wattage have been established and documented in the appropriate Tables of this Exhibit, the values will be inserted into the appropriate columns of the detailed audit/scope of work spreadsheets. These actual values will supersede the estimated values currently represented in the spreadsheet. Hence, the resulting spreadsheets will represent the “as-built” conditions.

If the actual wattages differ from the previous estimates by less than or equal to 5%, it is considered to be within an acceptable tolerance based on Qualified Provider’s conservative safety factors for this energy conservation measure, and therefore satisfies the Energy Savings Guarantee.

If the actual wattages differ by more than 5%, the pre- and post-retrofit tables will be adjusted to reflect the actual wattages of the fixtures.

The calculations do not take into account any HVAC interaction.

### b) Presentation of Savings:

The energy conservation measure described herein will result in the following effect on energy usage:

Total Annual Guaranteed kWh Energy Use Savings: 20,049 kWh

Total Annual Guaranteed kW Energy Use Savings: 54 kW

**EXHIBIT E.12**  
**Energy Savings Guarantee**  
**Lighting Upgrade – Bus Garage**

**1.0 Agreed Upon Parameters:**

*The following are mutually agreed upon parameters that form the basis of this Energy Savings Guarantee.*

a) Applicability:

This Energy Savings Guarantee applies to the high efficiency lighting upgrade energy conservation measure installed by Qualified Provider at the Bus Garage as described in Tables 1 and 2.

**2.0 Pre-Retrofit Consumption Data:**

*The following describes the methodology for proving per-fixture wattage of each existing lighting fixture prior to the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the pre-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

a) Measurement Methodology:

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The purpose of this section is to validate the wattage assumed in these estimates through actual measurement.

Different types of existing fixtures were encountered during the detailed survey. The tables in Section 2.0.b provides a brief description of each fixture, a space for estimated fixture wattage, and notes the quantity of each fixture.

In order to validate the wattage estimates of the existing fixtures, Qualified Provider will measure the actual wattage consumed by a sample of each. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider.

## Pre-ECM Installation Wattage Measurement Sample Size Determination

The lighting fixture types and quantities to be measured prior to installation are based on the methodology defined in the IPMVP 2012 Volume 1 Section B.3. The first step was to determine at each site which fixture(s) make up at least 70% of the existing total lighting load.

The sample criterion for lighting was based on 95% confidence and 5% precision. The quantities for these chosen fixtures were entered into a spreadsheet that uses the initial sample size formula defined by the IPMVP. Based on 95% confidence and 5% precision and with a coefficient of variation to be 0.3, the initial sample size is calculated to be 24.

$$n_0 = \frac{z^2 * cv^2}{e^2}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$z$  = the standard normal distribution value from the t-Table, with an infinite number of readings, and for the desired confidence level (95% = 1.96)

$e$  = the desired level of precision

$cv$  = the coefficient of variance, which is defined by the standard deviation of the readings divided by the mean. Until the mean and standard deviation of the population can be estimated from actual samples, 0.3 will be used as an initial estimate for the  $cv$ .

$$n_0 = \frac{1.64^2 * 0.3^2}{0.1^2} = 24$$

Small sample population test - if the actual fixture counts (population) for the type being sampled is less than 484 (24 x 20), then the "Finite Population Adjustment" as outlined in the aforementioned IPMVP 2012 Volume 1 Section B.3. The fixture count is inserted into the Finite Population Adjustment formula to adjust initial sample size estimate for small populations. The example below uses a fixture count of 237 total fixtures in the building.

$$n = \frac{n_0 * N}{n_0 + N}$$

Where:

$n_0$  = the initial estimate of the required sampling size, before sampling begins

$n$  = the new, adjusted sample size for small populations

$N$  = Total population size

$$n = \frac{24 * 237}{24 + 237} = 22$$

Finalized Sample Size – The initial sample size ( $n_0$ ) is determined by using an assumed  $cv$ , so the actual  $cv$  must be calculated in order to find out the exact number of samples needed. If the actual  $cv$  turns out to be less than the initial  $cv$  (0.3), then the required sample size will be unnecessarily large to meet the precision goals. Conversely, if the actual  $cv$  turns out to be larger than the initial assumed  $cv$ , then the sample size would, theoretically, increase beyond the initial computed sample size.

When sampling, the mean and the standard deviation should be computed with each reading, and, in turn, the cv and the required sample size should be recalculated with each sample reading. The re-computation may allow for an early curtailment of the sampling process. Due to cost constraints in the M&V process, the maximum allowable sampling will be the initial sampling estimate before any readings are conducted. If the maximum is reached, then the savings report will note the actual precision achieved by the sampling.

Pre-Installation Sampling Plan – the fixture types that will be sampled will be highlighted in yellow for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that particular building.

b) Pre-Retrofit Fixture Table:

For the purposes of this Agreement, the lighting fixture quantities were surveyed by Qualified Provider and these quantities are collaboratively agreed upon by the Owner and Qualified Provider and are stipulated in this Section 2.0 of Exhibit E.12.

Qualified Provider reserves the right to adjust the Baseline for the pre- and post-retrofit quantities to reflect actual quantities and types of fixtures encountered during the retrofit; however, the Energy Use Savings expected to be achieved will not be less than the Energy Use Savings represented by the difference in consumption between the fixtures and quantities in the pre-retrofit table in this Section 2.0 of this Exhibit E.12 and the post-retrofit table in Section 3.0 of this Exhibit E.12.

The following tables illustrate the pre-retrofit (existing) fixtures and for the purposes of this agreement are stipulated and hereby collaboratively agreed to by the Owner and Qualified Provider:

**Table 1 – Existing Fixture Description/Quantity**

Henderson County: Bus Garage - Pre Installation				
Fixture Type	Qty	Watts/Fixture	Total Load	% of Total Load
400W Mogul Base	16	460	7,360	55%
250W Mogul Base	7	295	2,065	15%
F40T12 4' 34W 4L	7	156	1,092	8%
F96T12 8' 60W ES SLIM 2L	9	115.2	1,037	8%
F32T8 4' 32W 4L	6	106	636	5%
F32T8 4' 32W4L	5	106	530	4%
F40T12 4' 34W 2L	6	78	468	3%
F34T12 U 2L 34W	4	67	268	2%
	60		13,456	100%

**Table 1.1 – Pre-installation Sample Size**

Fixture Description	Quantity	Initial Sample Size Calc.	Finite Population Adjustment	Confidence Level	Precision Level	t-Table Number of Readings	% of Qty Sampled	Initial Estimate of Qty to be Measured
400W Mogul Base	16	61	13	95%	5%	Infinite	79%	13
250W Mogul Base	7	61	6	95%	5%	Infinite	90%	6



### 3.0 Post-Retrofit Measurements:

*The following describes the methodology for proving per-fixture wattage reductions as a result of the installation of energy efficient lighting equipment. Actual wattage measurements are taken to validate the post-retrofit, per-fixture wattage as represented in the lighting audits and analyses performed to date.*

a) Measurement Methodology:

Qualified Provider has proposed to retrofit existing fixtures with energy efficient products. The detailed survey/scope of work incorporated herein, illustrates the types of retrofits installed, and *estimates* the wattage of the retrofits. The purpose of this section is to validate these estimates through actual wattage measurement.

Different types of retrofit strategies are employed in the applicable areas. The tables in this Section 3.0.b of this Exhibit E.12 lists the retrofit types, and provides a brief description of the retrofit.

In order to validate the wattage estimates of the lighting retrofits, Qualified Provider will measure the actual wattage consumed by a sample of the different retrofits. This measurement will occur once, following installation of the lighting retrofit. Appropriate representatives of Owner should be present to witness the measurement. The measurements will be taken utilizing an accurate, properly calibrated, power factor corrected wattmeter. A qualified electrician will take the measurements after 100 burn hours, witnessed by Owner (at its option) and Qualified Provider. The cost of this measurement and the responsibility for the provision of a qualified electrician will be borne entirely by Qualified Provider. It is anticipated that a sufficient representative sample of each retrofit type will be measured and documented within 60 days of completion of the lighting retrofit.

Post-Installation Sampling Plan – the fixture types that will be sampled will be **highlighted in yellow** for ease of review. The fixture types measured will represent over 70% of the total lighting kW load in that building. The post wattage measurement size determination method is the same as the pre-measurement determination with the exception of the coefficient of variance. The coefficient of variance used was 0.2 instead of 0.3.

b) Post-Retrofit Fixture Table:

The following table illustrates the post-retrofit (proposed) fixtures:

**Table 2 – Proposed Fixture Description/Quantity**

<b>Henderson County: Bus Garage - Post Installation</b>				
<b>Fixture Type</b>	<b>Qty</b>	<b>Watts/Fixture</b>	<b>Total Load</b>	<b>% of Total</b>
HBLED-LD5-15SE-W-UNV-L850-ED1-U	15	99.2	1,488	41%
4L-TLED-4'-16.5T8 LED/48-4000 46314	8	80	640	18%
2L GE 62349 LED36T8/G/8/840	9	60	540	15%
S-WR-4-40L-40K-10V	11	36	396	11%
WP2LED37-traditional look	5	37	185	5%
22CZRK-LD4-34-UNV-L840-CD1-U	4	31	124	3%
24CZRK-LD4-40-UNV-L840-CD1-U	3	36	108	3%
2L-TLED-4'-16.5T8 LED/48-4000 4631	2	40	80	2%
38.5STRIPDIM/840/277V	1	38.5	39	1%
REMOVE	2	0	0	0%
	60		3,600	100%

**Table 2.1 – Post Installation Sample Size**

Fixture Description	Quantity	Initial Sample Size Calc.	Finite Population Adjustment	Confidence Level	Precision Level	t-Table Number of	% of Qty Sampled	Initial Estimate of Qty to be Measured
HBLED-LD5-15SE-W-UNV-L850-ED1-U	15	15	8	95%	5%	Infinite	51%	8
4L-TLED-4'-16.5T8 LED/48-4000 463141-2500LM	8	15	5	95%	5%	Infinite	66%	5
2L GE 62349 LED36T8/G/8/840	9	15	6	95%	5%	Infinite	63%	6

Measurements based on the fixture type and quantities defined in Tables 2 will be taken at the fixture, switch or circuit. Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% level.

Sample size is determined by following the IPMVP sample sizing standards based on the achieving power readings at a 95% confidence and 5% Precision level.

Measured Value	Precision	Confidence	Z	Assumed cv
Power, Watts	5%	95%	1.96	0.15

For each different type of fixture retrofit to be measured, before measurements begin, it must be determined whether or not the measurements will be taken at an individual fixture or a circuit but not both.

Based on the results of the measurements the relative and absolute precision will be calculated to confirm that the desired confidence and precision target has been reached.

The following steps must be taken to calculate relative and absolute precision:

1. The total of the readings must be summed together for a total value.
2. The total value will be divided by the number of readings to calculate the mean value.
3. For each reading the difference between the reading and the mean must be calculated.
4. Each mean/reading difference must then be squared.
5. The squares must be totaled.
6. Variance, S<sup>2</sup>, can then be calculated.
  - a.  $S^2 = \text{sum of squares} / (\text{number of readings} - 1)$
7. Standard Deviation is the square root of Variance S<sup>2</sup>.
8.  $Cv = \text{Standard Deviation} / \text{average measured value}$
9. Refer to Table 2.3 t distribution table @ 95% confidence from Pg.90 IPMVP shown in Table 3.
  - a. Based on number of sample measurements select t-value that corresponds to number of measurements minus 1.
10. Absolute precision = standard error x T-value
11. Relative precision = absolute precision / mean value

**Table 3 – T-Distribution Table IPMVP**

<b>T-Table IPMVP Number Readings</b>	<b>95%</b>
2	4.30
3	3.18
4	2.78
5	2.57
6	2.45
7	2.36
8	2.31
9	2.26
10	2.23
11	2.20
12	2.18
13	2.16
14	2.14
15	2.13
16	2.12
17	2.11
18	2.10
19	2.09
21	2.08
23	2.07
25	2.06
27	2.05
31	2.04
35	2.03
41	2.02
49	2.01
60	2.00
120	1.98
Infinity	1.96

The result will be a calculated mean value for each set of measurements and the relative precision %. The calculated mean value will be compared to the projected watts per fixture in Table 2. The mean value should be equal to or less than the project value along with the relative precision being 5% or less. If the relative precision is less than 5%, more measurements will need to be taken for that fixture type.

## 4.0 **Computation of Savings:**

*The following describes the methodology for computing Actual Energy Use Savings based on validated wattage and presents guaranteed Energy Use Savings.*

### a) Computation and Presentation of Energy Use Savings:

Once the true pre- and post-retrofit, per fixture wattage have been established and documented in the appropriate Tables of this Exhibit, the values will be inserted into the appropriate columns of the detailed audit/scope of work spreadsheets. These actual values will supersede the estimated values currently represented in the spreadsheet. Hence, the resulting spreadsheets will represent the “as-built” conditions.

If the actual wattages differ from the previous estimates by less than or equal to 5%, it is considered to be within an acceptable tolerance based on Qualified Provider’s conservative safety factors for this energy conservation measure, and therefore satisfies the Energy Savings Guarantee.

If the actual wattages differ by more than 5%, the pre- and post-retrofit tables will be adjusted to reflect the actual wattages of the fixtures.

The calculations do not take into account any HVAC interaction.

### b) Presentation of Savings:

The energy conservation measure described herein will result in the following effect on energy usage:

Total Annual Guaranteed kWh Energy Use Savings: 3,619 kWh

Total Annual Guaranteed kW Energy Use Savings: 76 kW



**EXHIBIT E.13**  
**Energy Savings Guarantee**  
**Water Conservation Retrofit – Multiple Buildings**

**1.0 Agreed Upon Parameters:**

*The following are mutually agreed upon parameters that form the basis of this Energy Savings Guarantee. These parameters are hereby stipulated for the purposes of this Agreement as fact and will not be measured, monitored or adjusted.*

a) Applicability:

This performance guarantee applies to the water conservation retrofit measures installed by Qualified Provider in Henderson County Schools.

**2.0 Pre-Retrofit Consumption Data:**

*The following describes the methodology for proving per-fixture water consumption of each existing fixture prior to the installation of the water conservation retrofit. Actual water consumption measurements are taken to validate the pre-retrofit, per-fixture consumption as represented in the water consumption audits and analyses performed to date.*

a) Measurement Methodology:

Qualified Provider has proposed to retrofit existing plumbing fixtures with more efficient products. The purpose of this section is to validate the water consumption assumed in these estimates through actual measurement.

Several different types of existing fixtures were encountered during the detailed survey. The tables in Section 2.0.b lists fixture types, pre-retrofit consumption, and notes the quantity of each fixture.

In order to validate the water consumption estimates of the existing fixtures, Qualified Provider will measure the actual water consumed by a sample of each fixture. Appropriate representatives of Owner should be present to witness the measurement. A sufficient number of fixtures, not to exceed five (5) typical fixtures, will be measured for water consumption so that an accurate representation (average of the measurements) has been established. The cost of this measurement and the responsibility for the provision of a qualified technician will be borne entirely by Qualified Provider. It is anticipated that a sufficient representative sample of each retrofit type will be measured and documented prior to the retrofit installation being completed.

b) Pre-Retrofit Fixture Table:

For the purposes of this Agreement, the plumbing fixture quantities were surveyed by Qualified Provider and its consultant and these quantities are collaboratively agreed upon by the Owner and Qualified Provider and are stipulated in this Section 2.0 of Exhibit E.13.

Qualified Provider reserves the right to adjust the baseline for the pre- and post-retrofit quantities to reflect actual quantities and types of fixtures encountered during the retrofit; however, the energy use savings expected to be achieved will not be less than the energy use savings represented by the difference in consumption between the fixtures and quantities in the pre-retrofit table in this Section 2.0 of this Exhibit E.13 and the post-retrofit table in Section 3.0 of this Exhibit E.13.

The following tables illustrate the pre-retrofit (existing) fixtures and for the purposes of this agreement are stipulated and hereby collaboratively agreed to by the Owner and Qualified Provider:

**Table 1a**

HCHS Main Campus				
Fixture Type	Pre-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	2.17			35
General Purpose Sinks	2.24			8
Fixture Type	Pre-Retrofit Flow (gpf)			Qty
Toilets	4.50			1
Toilets	3.50			46
Toilets (existing low-flow china)	3.50			32
Urinals (capable of 0.5 diaphragm)	1.50			20
Urinals (capable of 1.0 diaphragm)	1.50			4
Trough / Constant Flow Urinals	N/A			2
Fixture Type	Pre-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	20	195	4
Food Svc Pot Wash	4	60	195	4
Miscellaneous	Pre-Retrofit Flow (gpm)	Pre-Retrofit Energy Use (MMBtu/yr)		Qty
Dish Washer	3.20	49.96		1
Rate Change	Pre-Rate Change Consumption (kgal/yr)			Instances
Irrigation on sports fields	884			1

**Table 1b**

North Middle				
Fixture Type	Pre-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	2.00			2
Push Button Delay Spigot	1.00			2
Fixture Type	Pre-Retrofit Flow (gpf)			Qty
Urinals	1.50			4
Fixture Type	Pre-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	15	195	1
Hand Wash / Food Svc Hand	2.2	15	195	1
Food Svc Rest Room	2.2	30	195	2
Food Svc Prep Sinks	4.0	30	195	2
Miscellaneous	Pre-Retrofit Flow (gpm)	Pre-Retrofit Energy Use (MMBtu/yr)		Qty
Dish Washer	3.20	49.96		1

Table 1c

A.B. Chandler ES				
Fixture Type	Pre-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	2.00			18
General Purpose Sinks	2.35			26
Fixture Type	Pre-Retrofit Flow (gpf)			Qty
Toilets	3.50			19
Urinals	1.50			8
Fixture Type	Pre-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	15	195	1
Hand Wash / Food Svc Hand	2.2	15	195	1
Food Svc Rest Room	2.2	15	195	1
Food Svc Prep Sinks	4.0	15	195	2
Food Svc Pot Wash	4.0	30	195	1
Miscellaneous	Pre-Retrofit Flow (gpm)	Pre-Retrofit Energy Use (MMBtu/yr)		Qty
Dish Washer	3.20	49.96		1

Table 1d

Bend Gate ES				
Fixture Type	Pre-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	2.20			29
General Purpose Sinks	2.21			22
Fixture Type	Pre-Retrofit Flow (gpf)			Qty
Toilets	3.50			35
Urinals	1.50			12
Fixture Type	Pre-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	20	195	1
Hand Wash / Food Svc Hand	2.2	20	195	1
Food Svc Rest Room	4.0	30	195	2
Food Svc Prep Sinks	4.0	45	195	1
Miscellaneous	Pre-Retrofit Flow (gpm)	Pre-Retrofit Energy Use (MMBtu/yr)		Qty
Dish Washer	3.20	49.96		1

Table 1e

Cairo ES				
Fixture Type	Pre-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	2.01			21
General Purpose Sinks	2.42			19
Fixture Type	Pre-Retrofit Flow (gpf)			Qty
Toilets	3.50			27
Urinals (capable of 0.5 diaphragm)	1.50			1
Urinals (capable of 1.0 diaphragm)	1.50			8
Fixture Type	Pre-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	15	195	1
Hand Wash / Food Svc Hand	2.2	10	195	2
Food Svc Rest Room	2.2	15	195	1
Food Svc Prep Sinks	4.0	15	195	1
Food Svc Pot Wash	4.0	15	195	2
Miscellaneous	Pre-Retrofit Flow (gpm)	Pre-Retrofit Energy Use (MMBtu/yr)		Qty
Dish Washer	3.20	49.96		1

Table 1f

East Heights ES				
Fixture Type	Pre-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	2.06			27
General Purpose Sinks	2.20			10
Fixture Type	Pre-Retrofit Flow (gpf)			Qty
Toilets	3.50			10
Tank Toilets	3.50			3
Urinals	1.50			5
Fixture Type	Pre-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Hand Wash / Food Svc Hand	2.2	30	195	2
Food Svc Prep Sinks	4.0	90	195	2
Miscellaneous	Pre-Retrofit	Pre-Retrofit Energy		Qty
Dish Washer	3.20	49.96		1

Table 1g

Niagra ES				
Fixture Type	Pre-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	2.09			19
General Purpose Sinks	2.46			21
Fixture Type	Pre-Retrofit Flow (gpf)			Qty
Toilets	3.50			29
Urinals	1.50			7
Fixture Type	Pre-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	10	195	2
Hand Wash / Food Svc Hand	2.2	15	195	1
Food Svc Rest Room	2.2	15	195	1
Food Svc Prep Sinks	4.0	15	195	1
Food Svc Pot Wash	4.0	10	195	2
Miscellaneous	Pre-Retrofit	Pre-Retrofit Energy		Qty
Dish Washer	3.20	49.96		1

Table 1h

South Heights ES				
Fixture Type	Pre-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	2.00			30
General Purpose Sinks	2.00			8
Lab Sink - Hot and Cold	2.00			9
Fixture Type	Pre-Retrofit Flow (gpf)			Qty
Toilets	3.50			29
Toilets (existing low-flow china)	3.50			5
Urinals (capable of 0.5 diaphragm)	1.50			4
Urinals (capable of 1.0 diaphragm)	1.50			6
Fixture Type	Pre-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Hand Wash / Food Svc Hand	2.2	30	195	2
Food Svc Rest Room	2.2	30	195	2
Food Svc Prep Sinks	2.2	60	195	1
Food Svc Pot Wash	4	45	195	1
Miscellaneous	Pre-Retrofit Flow (gpm)	Pre-Retrofit Energy Use (MMBtu/yr)		Qty
Dish Washer	3.20	49.96		1



**Table 1i**

Athletic Complex				
Fixture Type	Pre-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	2.19			4
Push Button Delay Spigot	2.20			20
Fixture Type	Pre-Retrofit Flow (gpf)			Qty
Toilets	3.50			27
Constant Flow Urinals	N/A			1
Fixture Type	Pre-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	30	25	1
Hand Wash / Food Svc Hand	2.2	30	25	3
Food Svc Prep Sinks	4	60	25	3

**Table 1j**

Board of Education Building				
Fixture Type	Pre-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	2.13			3
Fixture Type	Pre-Retrofit Flow (gpf)			Qty
Toilets	3.50			4
Urinals	1.50			1

**Table 1k**

Professional Development Center				
Fixture Type	Pre-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Food Svc Prep Sinks	4	15	195	2

**Table 1l**

Thelma Johnson Learning Center				
Fixture Type	Pre-Retrofit Flow (gpm)			Qty
General Purpose Sinks	2.20			20
	(gpm)	(min/day)	(days/yr)	
Hand Wash / Food Svc Hand	2.2	30	195	1
Food Svc Pot Wash	4.0	90	195	1

The Thelma Johnson Early Learning Center was also experiencing a water leak on its premises. This leak was observed and corrected. The following table demonstrates the water usage before and after the leak fix. It was documented that the leak was fixed near the end of June 2017.

**Table 1m**

	2016		2017		Difference (2016-2017)		
	CF Water	Cost \$ (water + sewage)	CF Water	Cost \$ (water + sewage)	CF Water	Cost \$ (water + sewage)	
<i>Jan</i>	19,490	\$ 1,158.20	23,830	\$ 1,476.49	(4,340)	\$ (318.29)	
<i>Feb</i>	22,700	\$ 1,333.15	22,390	\$ 1,393.40	310	\$ (60.25)	
<i>Mar</i>	24,670	\$ 1,440.52	21,580	\$ 1,346.66	3,090	\$ 93.86	
<i>Apr</i>	20,550	\$ 1,215.98	22,710	\$ 1,411.87	(2,160)	\$ (195.89)	
<i>May</i>	22,040	\$ 1,297.18	25,010	\$ 1,544.58	(2,970)	\$ (247.40)	% Decrease after Leak Fix
<i>Jun</i>	19,600	\$ 1,232.42	13,310	\$ 920.24	6,290	\$ 312.18	CF Water
<i>Jul</i>	18,460	\$ 1,166.64	1,470	\$ 121.28	16,990	\$ 1,045.36	92%
<i>Aug</i>	19,210	\$ 1,209.92	2,980	\$ 245.85	16,230	\$ 964.07	84%
<i>Sep</i>	24,300	\$ 1,503.61	6,690	\$ 515.76	17,610	\$ 987.85	72%
<i>Oct</i>	22,850	\$ 1,419.95	5,250	\$ 427.78	17,600	\$ 992.17	77%
<i>Nov</i>	24,200	\$ 1,497.84	6,170	\$ 483.99	18,030	\$ 1,013.85	75%
<i>Dec</i>	20,160	\$ 1,264.73	4,330	\$ 357.23	15,830	\$ 907.50	79%
						Minimum Observed Reduction:	72%

In green are the values taken directly from the utility bills that illustrate the difference in usage after the leak was fixed near the end of June 2017.

### 3.0 Post-Retrofit Measurements:

*The following describes the methodology for proving per-fixture water consumption reductions as a result of the installation of the more efficient retrofit equipment. Actual consumption measurements are taken to validate the post-retrofit, per-fixture consumption as represented in the audits and analyses performed to date.*

#### a) Measurement Methodology:

Qualified Provider has proposed to retrofit existing plumbing fixtures with energy efficient products. The detailed survey/scope of work incorporated herein, illustrates the types of retrofits installed, and *estimates* the consumption of the retrofits. The purpose of this section is to validate these estimates through actual consumption measurement.

The table in this Section 3.0.b of this Exhibit E.13 lists fixture types, post-retrofit consumption, and quantity of each retrofit.

In order to validate the water consumption estimates of the existing fixtures, Qualified Provider will measure the actual water consumed by a sample of each fixture. Appropriate representatives of Owner should be present to witness the measurement. A sufficient number of fixtures, not to exceed five (5) typical fixtures, will be measured for water consumption so that an accurate representation (average of the measurements) has been established. The cost of this measurement and the responsibility for the provision of a qualified technician will be borne entirely by Qualified Provider. It is anticipated that a sufficient representative sample of each retrofit type will be measured and documented after the retrofit installation has been completed.

b) Post-Retrofit Fixture Table:

The following table illustrates the post-retrofit (proposed) fixtures:

**Table 2a**

HCHS Main Campus				
Fixture Type	Post-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	0.50			35
General Purpose Sinks	1.50			8
Fixture Type	Post-Retrofit Flow (gpf)			Qty
Toilets	1.60			1
Toilets	1.60			46
Toilets (existing low-flow china)	1.60			32
Urinals (capable of 0.5 diaphragm)	0.50			20
Urinals (capable of 1.0 diaphragm)	1.00			4
Trough / Constant Flow Urinals	1.00			2
Fixture Type	Post-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	7	195	4
Food Svc Pot Wash	4	30	195	4
Miscellaneous	Post-Retrofit Flow (gpm)	Post-Retrofit Energy Use (MMBtu/yr)		Qty
Dish Washer	2.49	38.88		1
Rate Change	Post-Rate Change Consumption (kgal/yr)			Instances
Irrigation on sports fields	884			1

**Table 2b**

North Middle				
Fixture Type	Post-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	0.50			2
Push Button Delay Spigot	0.50			2
Fixture Type	Post-Retrofit Flow (gpf)			Qty
Urinals	0.50			4
Fixture Type	Post-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	5	195	1
Hand Wash / Food Svc Hand	2.2	5	195	1
Food Svc Rest Room	2.2	10	195	2
Food Svc Prep Sinks	4.0	15	195	2
Miscellaneous	Post-Retrofit Flow (gpm)	Post-Retrofit Energy Use (MMBtu/yr)		Qty
Dish Washer	2.49	38.88		1

Table 2c

A.B. Chandler ES				
Fixture Type	Post-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	0.50			18
General Purpose Sinks	1.50			26
Fixture Type	Post-Retrofit Flow (gpf)			Qty
Toilets	1.60			19
Urinals	1.00			8
Fixture Type	Post-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	5	195	1
Hand Wash / Food Svc Hand	2.2	5	195	1
Food Svc Rest Room	2.2	5	195	1
Food Svc Prep Sinks	4.0	8	195	2
Food Svc Pot Wash	4.0	15	195	1
Miscellaneous	Post-Retrofit Flow (gpm)	Post-Retrofit Energy Use (MMBtu/yr)		Qty
Dish Washer	2.49	38.88		1

Table 2d

Bend Gate ES				
Fixture Type	Post-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	0.50			29
General Purpose Sinks	1.50			22
Fixture Type	Post-Retrofit Flow (gpf)			Qty
Toilets	1.60			35
Urinals	1.00			12
Fixture Type	Post-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	7	195	1
Hand Wash / Food Svc Hand	2.2	7	195	1
Food Svc Rest Room	4.0	15	195	2
Food Svc Prep Sinks	4.0	23	195	1
Miscellaneous	Post-Retrofit Flow (gpm)	Post-Retrofit Energy Use (MMBtu/yr)		Qty
Dish Washer	2.49	38.88		1



Table 2e

Cairo ES				
Fixture Type	Post-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	0.50			21
General Purpose Sinks	1.50			19
Fixture Type	Post-Retrofit Flow (gpf)			Qty
Toilets	1.60			27
Toilets (existing low-flow porcelain)	0.50			1
Urinals	1.00			8
Fixture Type	Post-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	5	195	1
Hand Wash / Food Svc Hand	2.2	3	195	2
Food Svc Rest Room	2.2	5	195	1
Food Svc Prep Sinks	4.0	8	195	1
Food Svc Pot Wash	4.0	8	195	2
Miscellaneous	Post-Retrofit Flow (gpm)	Post-Retrofit Energy Use (MMBtu/yr)		Qty
Dish Washer	2.49	38.88		1

Table 2f

East Heights ES				
Fixture Type	Post-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	0.50			27
General Purpose Sinks	1.50			10
Fixture Type	Post-Retrofit Flow (gpf)			Qty
Toilets	1.60			10
Tank Toilets	1.60			3
Urinals	0.50			5
Fixture Type	Post-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Hand Wash / Food Svc Hand	2.2	10	195	2
Food Svc Prep Sinks	4.0	45	195	2
Miscellaneous	Post-Retrofit	Post-Retrofit Energy		Qty
Dish Washer	2.49	38.88		1

Table 2g

Niagra ES				
Fixture Type	Post-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	0.50			19
General Purpose Sinks	1.50			21
Fixture Type	Post-Retrofit Flow (gpf)			Qty
Toilets	1.60			29
Urinals	0.13			7
Fixture Type	Post-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	3	195	2
Hand Wash / Food Svc Hand	2.2	5	195	1
	2.2	5	195	1
Food Svc Rest Room	4.0	8	195	1
Food Svc Prep Sinks	4.0	5	195	2
Miscellaneous	Post-Retrofit	Post-Retrofit Energy		Qty
Dish Washer	2.49	38.88		1

Table 2h

South Heights ES				
Fixture Type	Post-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	0.50			30
General Purpose Sinks	1.50			8
Lab Sink - Hot and Cold	1.50			9
Fixture Type	Post-Retrofit Flow (gpf)			Qty
Toilets	1.60			29
Toilets (existing low-flow china)	1.60			5
Urinals (capable of 0.5 diaphragm)	0.50			4
Urinals (capable of 1.0 diaphragm)	1.00			6
Fixture Type	Post-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Hand Wash / Food Svc Hand	2.2	10	195	2
Food Svc Rest Room	2.2	10	195	2
Food Svc Prep Sinks	4	30	195	1
Food Svc Pot Wash	4	23	195	1
Miscellaneous	Post-Retrofit Flow (gpm)	Post-Retrofit Energy Use (MMBtu/yr)		Qty
Dish Washer	2.49	38.88		1

Table 2i

Athletic Complex				
Fixture Type	Post-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	0.50			4
Push Button Delay Spigot	0.50			20
Fixture Type	Post-Retrofit Flow (gpf)			Qty
Toilets	1.60			27
Constant Flow Urinals	1.00			1
Fixture Type	Post-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Med Hand Sinks	2.2	10	25	1
Hand Wash / Food Svc Hand	2.2	10	25	3
Food Svc Prep Sinks	2.4	30	25	3

Table 2j

Board of Education Building				
Fixture Type	Post-Retrofit Flow (gpm)			Qty
Std 4 & 8 inch Hot and Cold	0.50			3
Fixture Type	Post-Retrofit Flow (gpf)			Qty
Toilets	1.60			4
Urinals	0.50			1

Table 2k

Professional Development Center				
Fixture Type	Post-Retrofit Usage			Qty
	(gpm)	(min/day)	(days/yr)	
Food Svc Prep Sinks	4	8	195	2

**Table 2l**

<b>Thelma Johnson Learning Center</b>				
<b>Fixture Type</b>	<b>Post-Retrofit Flow (gpm)</b>			<b>Qty</b>
General Purpose Sinks	1.50			20
	<b>(gpm)</b>	<b>(min/day)</b>	<b>(days/yr)</b>	
Hand Wash / Food Svc Hand	2.2	10	195	1
Food Svc Pot Wash	4.0	45	195	1

The following table illustrates the savings calculation for the fixed water leak at the Thelma Johnson Early Learning Center using the minimum observed reduced water percentage from Table 1m and the most current water and sewage rates. The water usage savings for this leak fix are totally stipulated and agreed upon.

**Table 2m**

	<b>2016/2017 Average Base Data</b>		<b>Projected Usage/Cost After Leak Fix (using minimum observed reduction)</b>		<b>Projected Savings</b>	
	<b>CF Water</b>	<b>Cost \$ (using current water/sewage rates)</b>	<b>CF Water</b>	<b>Cost \$ (using current water/sewage rates)</b>	<b>CF Water</b>	<b>Cost \$ (water + sewage)</b>
<b>Jan</b>	21,660	\$ 1,323.43	6,065	\$ 449.96	15,595	\$ 873.46
<b>Feb</b>	22,545	\$ 1,377.50	6,313	\$ 468.35	16,232	\$ 909.15
<b>Mar</b>	23,125	\$ 1,412.94	6,475	\$ 480.40	16,650	\$ 932.54
<b>Apr</b>	21,630	\$ 1,321.59	6,056	\$ 449.34	15,574	\$ 872.25
<b>May</b>	23,525	\$ 1,437.38	6,587	\$ 488.71	16,938	\$ 948.67
<b>Jun</b>	19,600	\$ 1,197.56	5,488	\$ 407.17	14,112	\$ 790.39
<b>Jul</b>	18,460	\$ 1,127.91	5,169	\$ 383.49	13,291	\$ 744.42
<b>Aug</b>	19,210	\$ 1,173.73	5,379	\$ 399.07	13,831	\$ 774.66
<b>Sep</b>	24,300	\$ 1,484.73	6,804	\$ 504.81	17,496	\$ 979.92
<b>Oct</b>	22,850	\$ 1,396.14	6,398	\$ 474.69	16,452	\$ 921.45
<b>Nov</b>	24,200	\$ 1,478.62	6,776	\$ 502.73	17,424	\$ 975.89
<b>Dec</b>	20,160	\$ 1,231.78	5,645	\$ 418.80	14,515	\$ 812.97
				<b>Total Annual Savings:</b>	<b>188,111</b>	<b>\$ 10,535.77</b>

This analysis projects an annual savings of 188,111 ft<sup>3</sup> of water. This is equal to approximately 1,407 kgal annually.

## 4.0 Computation of Savings:

*The following describes the methodology for computing Actual Energy Use Savings based on validated consumption and presents guaranteed Energy Use Savings.*

### a) Computation and Presentation of Energy Use Savings:

To measure the flushometer volume (gallons per flush) a digital inline flow meter will be used. The flow meter will be installed in series with the flushometer. All water that passes through the flushometer also passes through the meter, which in turn provides an accurate accounting of the flush volume.

To measure lavatory sink flow (gallons per minute) a flow-through measuring unit will be placed on the outlet of the sink. All water that passes through the outlet of the sink also passes through the flow-through measuring unit, which in turn provides an accurate accounting of the flow rate.

Once the true pre- and post-retrofit, per fixture consumption has been established and documented in the appropriate tables of this exhibit, the values will be inserted into the appropriate columns of the detailed audit/scope of work spreadsheets. These actual values will supersede the estimated values currently represented in the spreadsheet. Hence, the resulting spreadsheets will represent the "as-built" conditions.

If the actual per fixture consumptions differ from the estimated consumptions by less than or equal to 5%, it is considered to be within an acceptable tolerance based on Qualified Provider's conservative safety factors for this energy conservation measure, and therefore satisfies the Energy Savings Guarantee.

### b) Presentation of Savings:

The energy conservation measure described herein will result in the following effect on energy usage:

HCHS - Total Annual Guaranteed Water Gallons Savings:	1,930 kGal
HCHS - Total Annual Guaranteed kWh Savings:	1,610 therms
North MS - Total Annual Guaranteed Water Gallons Savings:	112 kGal
North MS - Total Annual Guaranteed Therm Savings:	552 therms
AB Chandler ES - Total Annual Guaranteed Water Gallons Savings:	242 kGal
AB Chandler ES - Total Annual Guaranteed kWh Savings:	572 kWh
Bend Gate ES - Total Annual Guaranteed Water Gallons Savings:	301 kGal
Bend Gate ES - Total Annual Guaranteed Therm Savings:	707 therms
Cairo ES - Total Annual Guaranteed Water Gallons Savings:	206 kGal
Cairo ES - Total Annual Guaranteed Therm Savings:	506 therms
East Heights ES - Total Annual Guaranteed Water Gallons Savings:	408 kGal
East Heights ES - Total Annual Guaranteed kWh Savings:	1,079 therms
Niagra ES - Total Annual Guaranteed Water Gallons Savings:	190 kGal
Niagra ES - Total Annual Guaranteed Therm Savings:	488 therms
South Heights ES - Total Annual Guaranteed Water Gallons Savings:	503 kGal
South Heights ES - Total Annual Guaranteed kWh Savings:	982 therms
Athletic Complex - Total Annual Guaranteed Water Gallons Savings:	289 kGal
Athletic Complex - Total Annual Guaranteed kWh Savings:	1,762 kWh



Board of Education - Total Annual Guaranteed Water Gallons Savings:	27 kGal
Board of Education - Total Annual Guaranteed kWh Savings:	26 therms
Prof. Dev. Center - Total Annual Guaranteed Water Gallons Savings:	11 kGal
Prof. Dev. Center - Total Annual Guaranteed kWh Savings:	55 therms
Thelma Johnson - Total Annual Guaranteed Water Gallons Savings:	1,488 kGal
Thelma Johnson - Total Annual Guaranteed kWh Savings:	482 therms

**EXHIBIT E.14**  
**Energy Savings Guarantee**  
**Direct Cost Avoidance Operational Savings**

**1.0 Agreed Upon Parameters:**

*The following mutually agreed upon parameters are hereby stipulated for the purposes of this Agreement as fact and will not be measured, monitored or adjusted.*

a) Applicability:

This part of the performance guarantee applies to the stipulated Operational Savings realized by Owner as a result of direct cost avoidance.

b) Existing Condition:

As per the calculations set forth below, Qualified Provider and Owner based direct cost avoidance Operational Savings calculation on extensive survey and analysis. The Owner and Qualified Provider collaboratively agreed upon its, methods, figures, assumptions and results throughout the calculation process.

**2.0 Methodology of Determining Stipulated Operational Savings from Repair of Controls, HVAC, Lighting & Plumbing:**

The pre-retrofit operational costs for HVAC repairs, plumbing repairs, replacement and maintenance and lighting repairs were established utilizing actual historical expenditures from the Owner's operational budget and budgeted costs for planned HVAC equipment replacement. Applicable budget line items identified by Owner as being eliminated as a result of the Work performed by Qualified Provider were added together. Two years of data were utilized in arriving at the stipulated Operational Savings. Savings are estimated and agreed upon by Owner and Qualified Provider based on the scope of Qualified Provider's Work and the estimated resulting reduction in operational repair costs to the Owner. To maintain a conservative estimate, certain budget line items which will be partially reduced as a result of the Work were not included. The stipulated operational savings detail relating to controls, HVAC, lighting, and plumbing repair are set forth on the following pages in Tables 1, 2, and 3.

Table 1

Fiscal Year 2015-16			
Operational Item Analyzed	Annual Expense	Savings Credit	Savings
<b>HVAC</b>			
Henderson County High School	\$17,475.94	50%	\$8,737.97
Henderson County North Middle	\$7,017.18	0%	\$0.00
Henderson County South Middle	\$7,676.66	0%	\$0.00
Bend Gate Elementary	\$4,006.59	20%	\$801.32
<b>HVAC Total</b>	<b>\$36,176.37</b>		<b>\$9,539.29</b>
<b>Lighting</b>			
Henderson County High School	\$1,415.54	100%	\$1,415.54
Henderson County North Middle	\$533.32	25%	\$133.33
Henderson County South Middle	\$445.72	25%	\$111.43
Bend Gate Elementary	\$139.50	25%	\$34.88
South Heights Elementary	\$3,504.02	25%	\$876.01
Board of Education Office	\$1.56	100%	\$1.56
Bus Garage	\$0.00	100%	\$0.00
Maintenance	\$1.56	100%	\$1.56
<b>Lighting Total</b>	<b>\$6,041.22</b>		<b>\$2,574.30</b>
<b>Water</b>			
Henderson County High School	\$3,592.81	75%	\$2,694.61
Henderson County North Middle	\$482.05	75%	\$361.54
Henderson County South Middle	\$861.69	75%	\$646.27
A.B. Chandler Elementary	\$860.19	0%	\$0.00
Bend Gate Elementary	\$250.60	75%	\$187.95
Cairo Elementary	\$213.87	0%	\$0.00
East Heights Elementary	\$978.60	75%	\$733.95
Niagara Elementary	\$0.00	0%	\$0.00
South Heights Elementary	\$1,126.32	75%	\$844.74
Thelma Johnson Learning Center	\$6.90	75%	\$5.18
Board of Education Office	\$22.57	75%	\$16.93
Maintenance	\$0.00	0%	\$0.00
<b>Water Total</b>	<b>\$8,395.60</b>		<b>\$5,491.16</b>
<b>Grand Total</b>	<b>\$50,613.19</b>		<b>\$17,604.74</b>

**Table 2**

<b>Fiscal Year 2016-17</b>			
<b>Operational Item Analyzed</b>	<b>Annual Expense</b>	<b>Savings Credit</b>	<b>Savings</b>
<b><u>HVAC</u></b>			
Henderson County High School	\$9,657.52	50%	\$4,828.76
Henderson County North Middle	\$1,108.17	0%	\$0.00
Henderson County South Middle	\$3,443.01	0%	\$0.00
Bend Gate Elementary	\$1,621.87	20%	\$324.37
<b>HVAC Total</b>	<b>\$15,830.57</b>		<b>\$5,153.13</b>
<b><u>Lighting</u></b>			
Henderson County High School	\$500.86	100%	\$500.86
Henderson County North Middle	\$133.36	25%	\$33.34
Henderson County South Middle	\$607.65	25%	\$151.91
Bend Gate Elementary	\$201.50	25%	\$50.38
South Heights Elementary	\$960.99	25%	\$240.25
Board of Education Office	\$0.00	100%	\$0.00
Bus Garage	\$0.00	100%	\$0.00
Maintenance	\$0.00	100%	\$0.00
<b>Lighting Total</b>	<b>\$2,404.36</b>		<b>\$976.74</b>
<b><u>Water</u></b>			
Henderson County High School	\$2,505.12	75%	\$1,878.84
Henderson County North Middle	\$1,266.23	75%	\$949.67
Henderson County South Middle	\$1,577.87	75%	\$1,183.40
A.B. Chandler Elementary	\$164.70	0%	\$0.00
Bend Gate Elementary	\$476.87	75%	\$357.65
Cairo Elementary	\$497.64	0%	\$0.00
East Heights Elementary	\$657.17	75%	\$492.88
Niagara Elementary	\$0.00	0%	\$0.00
South Heights Elementary	\$167.63	75%	\$125.72
Thelma Johnson Learning Center	\$288.01	75%	\$216.01
Board of Education Office	\$2,682.32	75%	\$2,011.74
Maintenance	\$0.00	0%	\$0.00
<b>Water Total</b>	<b>\$10,283.56</b>		<b>\$7,215.92</b>
<b>Grand Total</b>	<b>\$28,518.49</b>		<b>\$13,345.78</b>

**Table 3**

Fiscal Year 2015-16	\$17,605
Fiscal Year 2016-17	\$13,346
<b>Fiscal Year Average</b>	<b>\$15,475</b>
<b>Calculated Operatinal Savings</b>	<b>\$15,475</b>



**EXHIBIT F**  
**Annual Reconciliation Statement**

**Section 1. Guarantee Reconciliation.** Subject to Owner's obligations to furnish the data and information required hereunder and in Exhibit E, Section 12, within ninety (90) days after the final month of each Guarantee Year, Qualified Provider will determine and reconcile the actual Energy Savings (the "Actual Savings") in accordance with Exhibit E and the applicable sub-Exhibits thereto and provide a written report to Owner (the "Reconciliation Report"). Owner shall review the Reconciliation Report within fourteen (14) days following submittal by Qualified Provider thereof and either accept or reject such report in writing. If Owner timely rejects the Reconciliation Report, Owner shall provide Qualified Provider with detailed reasons thereof and the parties shall negotiate in good faith to correct or reconcile any deficiencies. If a mutual agreement is reached, Qualified Provider shall submit an updated Reconciliation Report to Owner. If the parties are unable to reach agreement, Owner may request an independent audit in accordance with Section 3 hereof. If Owner fails to reject the Reconciliation Report within the fourteen (14) day period outlined above, Owner shall be deemed to have accepted the Reconciliation Report.

Following issuance of the Reconciliation Report, the following shall apply:

- a. If the Actual Savings meet or exceed the Energy Savings Guarantee in any Guarantee Year, the Energy Savings Guarantee shall be deemed satisfied for such Guarantee Year. If the Actual Savings exceed the Energy Savings Guarantee in any Guarantee Year, Qualified Provider may apply the amount by which the Actual Savings exceed the Energy Savings Guarantee (the "Excess Savings") to subsequent or preceding Guarantee Years, as set forth in Section 1.d. below.
- b. If the Actual Savings, together with any Installation Period Savings or Excess Savings that have not been previously applied against any shortfall in Energy Savings in accordance with Section 1.d. below, are less than the Energy Savings Guarantee, Qualified Provider shall have the option to correct any issues relating to the Services or implement, with Owner's approval, additional energy saving measures and thereafter re-perform the Measurement and Verification and generate a new Reconciliation Report. If, following Qualified Provider's corrective measures, the Actual Savings meet or exceed the Energy Savings Guarantee in the Guarantee Year, the Energy Savings Guarantee shall be deemed satisfied for such Guarantee Year and Qualified Provider may apply any Excess Savings to subsequent or preceding Guarantee Years in accordance with Section 1.d below.
- c. If the Actual Savings, together with any Installation Period Savings or Excess Savings that have not been previously applied against any shortfall in Energy Savings in accordance with Section 1.d. below, are less than the Energy Savings Guarantee and Qualified Provider has not elected or was unable to apply sufficient corrective measures, if any, or install additional energy savings measures pursuant to Section 1.b. above, then Qualified Provider will pay Owner the difference between the Actual Savings and the Energy Savings Guarantee. Upon agreement of Qualified Provider and Owner, instead of payment, Qualified Provider may provide services and/or product, equal to the value of the payment required hereunder.
- d. Excess Savings, together with any unused Installation Period Savings, may be applied by Qualified Provider prospectively to the immediately succeeding Guarantee Year or retroactively to any shortfall previously paid by Qualified Provider for any preceding Guarantee Years, in accordance with KRS 45A.352(8). In the event Excess Savings are applied retroactively and Qualified Provider paid Owner (or implemented additional energy conservation measures) for any shortfall, Owner shall reimburse Qualified Provider for any such Excess Savings up to the amount of any shortfall previously paid by Qualified Provider in accordance with KRS 45A.352(8).

**Section 2. Adjustments to Baseline.** Qualified Provider may, with the approval of customer (which will not be unreasonably withheld), make adjustments to the Baseline using standard and sound engineering principles as follows:

- a. Building Utilization: The total number of building occupants is a variable that may be adjusted for if the number of occupants differs from the Baseline quantity;
- b. Building Occupancy Hours: The hours the building(s) is/are occupied and/or equipment and/or lighting is utilized is a variable which may be adjusted for if the hours (quantity or time-of-day) differs from the hours identified in this Exhibit E and its sub-Exhibits. Buildings that have Qualified Provider energy management equipment will be monitored by Qualified Provider to verify hours of equipment operation. Buildings without energy management systems will have to have equipment operation logged by Owner's building staff as specified in Section 17, Owner Responsibilities, of Exhibit E;
- c. Weather: Utility bills will be adjusted for weather;
- d. Building Changes: The Baseline may be adjusted to account for any building square footage changes, remodeling, and addition of equipment or change in usage. Owner agrees to contact Qualified Provider within seven (7) calendar days of commencement of any changes or additions of equipment or environments; and
- e. Unforeseen Parameters. At Qualified Provider's discretion, the Baseline may be adjusted based on data or other information newly discovered or otherwise not readily available at the time the Baseline was prepared; and/or
- f. Customer's Responsibilities: The Baseline may be adjusted for failures by Owner to perform its obligations under Section 12 of Exhibit E or in the event any representation or warranty made by Customer under the Agreement is false or misleading.

Baseline Adjustment: Any adjustment in the baseline model of the building created as part of the engineering study appropriate to represent operation of the building if it had been designed, constructed, and/or operated in accordance with local and national codes in place as of the date of the Agreement. Such adjustments can include, but are not limited to, increased ventilation rates for code compliance and the addition of heating and/or air-conditioning to areas that previously had no environment conditioning. The adjustments included for this project on account of such issues are estimated to result in an energy increase of 0 kWh, an increase of 0 kW and an energy increase of 0 therms.

**Section 3. Independent Audit.** Within thirty (30) days after each anniversary of the Commencement Date, Owner may provide written notice to Qualified Provider that Owner intends to have performed an audit of the savings calculations and billings for the immediately preceding Guarantee Year. Owner and Qualified Provider shall thereupon select agreed upon experienced and qualified energy engineering auditors to complete and submit to the parties an audit of the savings calculations and billings for the immediately preceding Guarantee Year. Owner shall pay for the entire cost of the audit. The audit shall be completed within thirty (30) days of selection of the auditor. Exercise of the right to request an audit shall in no way relieve Owner of its continuing obligation to make current payments pursuant to this Agreement. Any payments between the parties necessary to resolve any agreed upon irregularities identified in the audit will be made within sixty (60) days after submission of the audit to the parties.

**Section 4. Agreed Upon Parameters.** Owner agrees that the parameters set forth in Exhibit E and its sub-Exhibits (used for Options A, B, C & D) are mutually agreed upon and form the basis of the Energy Savings Guarantee. These parameters are hereby recognized, for the purposes of this Agreement, as fact and will not be measured, monitored or adjusted. These parameters apply to Energy Savings that shall be computed as specified in Exhibit E and its relevant sub-Exhibits.

**EXHIBIT G**  
**Performance Period Services**

Qualified Provider will furnish the Performance Period Services described in this Exhibit G upon the terms and conditions contained herein. In the event of an inconsistency or conflict between the terms and conditions of this Exhibit G and the terms and conditions of the balance of the Agreement, the terms and conditions of this Exhibit G shall control.

1. **Generally.** Performance Period Services shall include periodic measurement and verification of the Guarantee in accordance with Exhibit E and the sub-Exhibits thereto (the "M&V Services") and/or periodic maintenance of Owner's Premises, plant or equipment (the "Maintenance Services") in accordance with the provisions of this Exhibit G.
2. **Scope of Performance Period Services**
  - A. **M&V Services.** Qualified Provider shall provide the M&V Services with respect to the ECMs installed by Qualified Provider under the Agreement in accordance with the methods and procedures outlined in Exhibit E and the sub-Exhibits thereto. The M&V Services shall include the preparation and submittal by Qualified Provider of a Reconciliation Report in accordance with Section 10 of Exhibit E.
  - B. **Maintenance Services.** In addition to the M&V Services, Qualified Provider shall provide the Maintenance Services with respect to the Covered Equipment as set forth in Schedules A and B of Exhibit G.
3. **Performance Period Services Price and Annual Adjustment.** The Performance Period Services Price is set forth below as an annual amount that is subject to the annual adjustments provided for herein. Qualified Provider will invoice the Performance Period Services Price once each year, semi-annually, or quarterly, as it determines in its sole discretion, and each such invoice shall be due and payable in advance of performance of the Performance Period Services for the period covered by such invoice. Qualified Provider reserves the right to add to any account outstanding for more than 30 days a service charge equal to the lesser of the maximum allowable legal interest rate or 1.5% of the principal amount due at the end of each month. Qualified Provider may discontinue Performance Period Services whenever payment is overdue. Unless otherwise expressly agreed in writing, Owner shall pay, in addition to the stated Performance Period Services Price, all taxes not legally required to be paid by Qualified Provider or, alternatively, shall provide Qualified Provider with an acceptable, valid certificate of tax exemption. Owner shall pay all costs (including attorneys' fees) incurred by Qualified Provider in attempting to collect amounts due. Effective upon each annual anniversary of the Performance Period Services Commencement Date, the annual Performance Period Services Price shall be adjusted upward by the Annual Adjustment Rate; thereafter, upon each anniversary of the Performance Period Services Commencement Date, the Annual Adjustment Rate shall be applied to the annual Performance Period Services Price as previously adjusted.

First Year Annual Performance Period Services Price:	\$1,780
Any Applicable Tax* and Freight:	N/A
First Year Annual Performance Period Services Price Total:	\$1,780

Annual Adjustment Rate: 3%  
(\*\$0.00 tax is contingent upon Owner furnishing evidence to Qualified Provider of valid applicable exemption from sales/use or other applicable taxes.)

**Price aforementioned above reflects a \$2,500.00 credit for a concurrent Intelligent Services program provided to Owner. The Intelligent Services program is being provided under a separate contract with Harshaw Trane, dated February 19, 2018. Non-acceptance or cancellation of such Intelligent Service program contract will result in removal of this credit and a \$2,500 increase to the M&V Service annual prices set forth herein.**

**Term.** Qualified Provider's obligations to furnish the Performance Period Services shall commence upon the Date of Final Completion (the "Performance Period Services Commencement Date") and, unless this Agreement is terminated earlier, shall end upon expiration of the Guarantee Term set forth in Exhibit E. In the event of any extension of the construction period(s) specified in the Agreement, Qualified Provider and Owner will mutually agree which services will commence prior to the Date of Final Completion and any modification to the price therefor required in light of the the circumstances existing at such time. Owner and Qualified Provider will agree to a scope and price or rate for those services and execute an amendment to this Exhibit G in respect thereof. Owner may terminate the Performance Period Services upon not less than sixty (60) days advance written notice to Qualified Provider. If Owner terminates the M&V Services prior to the expiration of the Guarantee Term, this Agreement (together with the Guarantee) shall be deemed terminated and of no further force and effect as of the expiration of the Guarantee Year immediately preceding the effective date of such termination. If the effective date of the termination of this Agreement by Owner occurs during any Guarantee Year, Owner shall pay Qualified Provider (or be entitled to a refund in the case of a prepayment) the proportionate share of the applicable Performance Period Services Price.

#### **Additional Terms and Conditions**

**Performance.** Qualified Provider shall perform the Performance Period Services described in the schedules included with this Exhibit G with respect to the listed Covered Equipment with reasonable promptness in a workmanlike manner in accordance with industry standards generally applicable in the area. Except as otherwise expressly stated, Performance Period Services will be performed during Qualified Provider's normal business hours and any after-hours services shall be billed separately according to then prevailing overtime or emergency labor rates. Qualified Provider's duty to perform Performance Period Services is subject to Events of Force Majeure, and contingent upon the ability to procure materials from the usual sources of supply. This Agreement presupposes that all major pieces of equipment are in proper operating condition as of the date hereof. Owner shall perform required restoration at its cost prior to Qualified Provider being obligated to perform hereunder. Performance Period Services furnished hereunder are premised on the Covered Equipment being in a maintainable condition. If initial or seasonal startup is included in the Performance Period Services, or an inspection by Qualified Provider prior to commencement of the Performance Period Services indicates repairs are required in order for Performance Period Services to commence, Owner shall authorize Qualified Provider to perform such repairs at Owners expense pursuant to a quote for the repairs provided by Qualified Provider. During the Term, Qualified Provider may elect to install/attach to Owner equipment (including Covered Equipment) or provide portable devices (hardware and/or software) for execution of control or diagnostic procedures. Such devices shall remain the personal proprietary property of Qualified Provider and shall in no event become a fixture of Owner locations. Owner shall not acquire any interest, title or equity in any hardware, software, processes, and other intellectual or proprietary rights to devices used in connection with providing service on Covered Equipment. Qualified Provider reserves the right to remove such items at its discretion.

**Owner Obligations.** Throughout the Guarantee Term, Owner shall:

- a. Provide Qualified Provider reasonable and safe access to all Covered Equipment;
- b. Follow manufacturer recommendations concerning teardown and internal inspection, major overhaul, restoration, or refurbishing of the Equipment; unless expressly stated in the Scope of



Services statement, Qualified Provider is not performing any manufacturer recommended teardown and internal inspection, major overhaul, restoration, or refurbishing of the equipment; Qualified Provider shall not be responsible to perform any subsequent repairs to the Equipment necessitated by Owner's failure to follow such manufacturer recommendations;

- c. Reimburse Qualified Provider for services, repairs, and/or replacements performed by Qualified Provider beyond the scope of Performance Period Services or otherwise excluded hereunder. Such reimbursement shall be at the then prevailing overtime/holiday rates for labor and prices for materials and may at Qualified Provider's option be subject to a separate written agreement prior to its undertaking such work;
- d. Promptly notify Qualified Provider of any unusual performance of Covered Equipment;
- e. Permit only Qualified Provider personnel to repair or adjust Covered Equipment and/or controls during the Term;
- f. Utilize qualified personnel to properly operate the Covered Equipment in accordance with the applicable operating manuals and recommended procedures; and
- g. Unless water treatment is expressly included in the Performance Period Services, provide professional cooling tower water treatment in accordance with any reasonable recommendations provided by Qualified Provider.

**Exclusions.** Unless expressly included in "Scope of Services" or "Equipment Coverage," the services to be provided by Qualified Provider do not include, and Qualified Provider shall not be liable for, any of the following:

- a. Any guarantee of room conditions or system performance, except as expressly stated in Exhibit E to the Agreement;
- b. Inspection, maintenance, repair, replacement of or services for: chilled water and condenser water pumps and piping; electrical disconnect switches or circuit breakers; motor starting equipment (that is not factory mounted) and interconnecting power wiring; recording or portable instruments, gauges or thermometers; non-moving parts or non-maintainable parts of the system, including, but not limited to, storage tanks; pressure vessels; shells, coils, tubes, housings, castings, casings, drain pans, panels, ductwork; piping: hydraulic, hydronic, pneumatic, gas, or refrigerant; insulation; pipe covering; refractory material; fuses; unit cabinets; electrical wiring; ductwork or conduit; electrical distribution system; hydronic ; structural supports; and similar items; the appearance of decorative casing or cabinets; damage sustained by other equipment or systems; and/or any failure, misadjustment or design deficiencies in other equipment or systems;
- c. Repairs or replacement of parts made necessary as a result of electrical power failure, low voltage, burned out main or branch fuses, low water pressure, vandalism, misuse or abuse, improper operation, unauthorized alteration of Equipment, accident, negligence of Owner or others, damage due to freezing weather, calamity or malicious act;
- d. Any damage or malfunction resulting from vibration, electrolytic action, freezing, contamination, corrosion, erosion, or caused by scale or sludge on internal tubes except where water treatment protection services are provided by Qualified Provider as part of this Agreement;
- e. Furnishing any items of equipment, material, or labor, or performing special tests recommended or required by insurance companies or federal, state, or local governments;
- f. Failure or inadequacy of any structure or foundation supporting or surrounding the Equipment or any portion thereof;
- g. Building access or alterations that might be necessary to repair or replace Owner's existing equipment;
- h. The normal function of starting and stopping the Equipment or the opening and closing of valves, dampers or regulators normally installed to protect the Equipment against damage;
- i. Valves that are not factory mounted: balance, stop, control, and other valves external to the device unless specifically included in the Agreement;
- j. Any responsibility for design or redesign of the system or the Equipment, obsolescence, safety tests, or removal or reinstallation of valve bodies and dampers;
- k. Any services, claims, or damages arising out of Owner's failure to comply with its obligations under this Agreement;

- l. Failure of Owner to follow manufacturer recommended guidelines concerning overhaul and refurbishing of the Equipment;
- m. Any claims, damages, losses, or expenses, arising from or related to conditions that existed in, on, or upon the premises before the effective date of this Agreement ("Pre-Existing Conditions"), including, without limitation, damages, losses, or expenses involving pre-existing building envelope issues, mechanical issues, plumbing issues, and/or indoor air quality issues involving mold/mould and/or fungi;
- n. Replacement of refrigerant is excluded, unless replacement of refrigerant is expressly stated as included within the scope of Qualified Provider's Services, in which case, replacements shall in no event exceed ten percent (10%) of the rated system charge per year unless a greater percentage is expressly included within the scope of Services. Owner shall be responsible for the cost of any additional replacement refrigerant;
- o. Operation of the equipment; and
- p. Any claims, damages, losses, or expenses, arising from or related to work done by or services provided by individuals or entities that are not employed by or hired by Qualified Provider.

**Performance Period Services Warranties.** (a) Qualified Provider manufactured material supplied is warranted be free from defect in material and manufacture for a period of twelve months from date of start-up or replacement and Qualified Provider's obligation under this warranty is limited to repairing or replacing the defective part at its option; (b) labor is warranted (to have been properly performed) for a period of 90 days from completion and Qualified Provider's obligation under this warranty is limited to correcting any improperly performed labor; and (c) Equipment and/or parts that are not manufactured by Qualified Provider are not warranted by Qualified Provider and shall have such warranties as are extended to Qualified Provider by the respective manufacturer. **THE WARRANTY AND LIABILITY SET FORTH IN THIS SECTION ARE IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES, WHETHER IN CONTRACT OR IN NEGLIGENCE, EXPRESS OR IMPLIED, IN LAW OR IN FACT, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL QUALIFIED PROVIDER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL (INCLUDING WITHOUT LIMITATION LOST PROFITS), OR PUNITIVE DAMAGES. NO REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS OF PURPOSE IS MADE REGARDING PREVENTION BY THE SCOPE OF SERVICES, OR ANY COMPONENT THEREOF, OF MOLD, FUNGUS, BACTERIA, MICROBIAL GROWTH, OR ANY OTHER CONTAMINATES. QUALIFIED PROVIDER SPECIFICALLY DISCLAIMS ANY LIABILITY IF THE SCOPE OF SERVICES OR ANY COMPONENT THEREOF IS USED TO PREVENT OR INHIBIT THE GROWTH OF SUCH MATERIALS.**

### **General Data Access Terms and Conditions**

**Terms Applicability.** These General Data Access Terms and Conditions state that Owner consents to Qualified Provider's connection to Owner's equipment and/or building controls as a part of delivering product and/or services to Owner. These General Data Access Terms and Conditions are supplemental to the other terms and conditions in the Agreement and are an integral part of Qualified Provider's offer and agreement to sell. The terms of the Agreement and these General Data Access Terms and Conditions are intended to be complementary and construed as a whole. However, in the event of an irreconcilable conflict, these General Data Access Terms and Conditions shall control.

**Electronic Monitoring.** Any electronic monitoring Qualified Provider performs is undertaken solely to enable Qualified Provider to collect the data and perform any analysis included in its services. Owner agrees that Qualified Provider is not liable for losses that may occur in cases of malfunction or nonfunctioning of equipment, the energy management system, failure to identify equipment or system performance issues, failure to recommend corrective action, or otherwise related to the monitoring of Owner's equipment and building systems.

**Ownership of Data.** All data relating to the performance and condition of Owner's building systems that Qualified Provider collects in connection with its performance hereunder shall be owned by

Owner, provided that Owner is granting to Qualified Provider the irrevocable, perpetual, nonexclusive, worldwide, royalty-free right and license to use, reproduce, display, distribute internally or externally and prepare derivative works based upon any such data Qualified Provider collects from Owner. Qualified Provider shall not use or publish such data in any way that identifies Owner as the source of that data without Owner's prior written consent except to the extent required by law. The data Owner makes available to Qualified Provider will not include any "personal information" defined as such by applicable law.

**Data Privacy and Security.** Owner is responsible for maintaining the confidentiality of Owner's user name(s) and password(s). Owner is responsible for all uses of Owner's password(s), whether or not authorized by Owner. Owner must inform Qualified Provider immediately of any unauthorized use of Owner's user name(s) or password(s). Transmission of data over the Internet by its nature entails the use of systems under the control of third parties, and as a result Qualified Provider cannot ensure total control of the security of such systems. Owner acknowledges that the very nature of communication via the Internet restricts Qualified Provider from offering any guarantee of the privacy or confidentiality of information relating to Owner or to any personally identifiable information that may reside in Owner's systems or data when communicate or transmitted by or through the Internet or any electronic device. In gaining access via the Internet, Owner also acknowledges and accepts that electronic communication may not be free from interference by unauthorized persons and may not remain confidential. Owner therefore accepts that access to and storage of data by Qualified Provider and persons under its direction and control, or on equipment provided or used thereby, is at Owner's own risk. Qualified Provider will notify Owner of any breach in security of which Qualified Provider becomes aware. Any breach in privacy of which Owner becomes aware should be reported by Owner to Qualified Provider immediately. Qualified Provider does not disclose Owner's information to third parties for their marketing purposes, but Qualified Provider does use third party software and services to assist it with collecting and analyzing information. Qualified Provider may also disclose Owner's information if required to do so by law, regulation or as required by any governmental body with jurisdiction over it, in which case, Qualified Provider would inform Owner of such disclosure to the extent legally permissible.

**Ownership of Intellectual Property.** Notwithstanding any provision to the contrary, as between Owner and Qualified Provider, Qualified Provider owns and retains all title and ownership of all intellectual property rights in the software, firmware, analytics, and service processes used to provide services, and consequently both Owner and Qualified Provider agree that these Data Usage Terms and Conditions do not constitute and may under no circumstances be construed as the granting of any license to such intellectual property rights.

**Disclaimer of Warranty; Limitation of Liability.** The Intelligent Services provided, including any reports Qualified Provider provides, are intended to provide operational assessments and recommendations only and are intended to supplement, but not replace, manual inspections of Owner's equipment and building systems. **THE INTELLIGENT SERVICES ARE PROVIDED ON AN "AS IS" BASIS WITHOUT WARRANTIES OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF TITLE OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, OTHER THAN THOSE WARRANTIES WHICH ARE IMPLIED BY AND INCAPABLE OF EXCLUSION, RESTRICTION OR MODIFICATION UNDER THE LAWS APPLICABLE TO THIS AGREEMENT. WITHOUT LIMITING THE FOREGOING, QUALIFIED PROVIDER IS NOT LIABLE FOR GAPS IN DATA COLLECTED.**

**TO THE MAXIMUM EXTENT ALLOWED BY LAW, QUALIFIED PROVIDER SHALL NOT BE LIABLE FOR ANY OF THE FOLLOWING: DAMAGES OR INJURY (OTHER THAN PERSONAL INJURY CAUSED BY QUALIFIED PROVIDER'S NEGLIGENCE) REGARDLESS OF THE CAUSE OR DURATION; FOR ANY ERRORS, INACCURACIES, OMISSIONS, OR OTHER DEFECTS IN THE INTELLIGENT SERVICES; FAILURE OF PERFORMANCE; INTERRUPTION, DELETION, DEFECT, DELAY IN OPERATION OR TRANSMISSION; OWNER'S NETWORK SECURITY; COMPUTER VIRUS; COMMUNICATION FAILURE; THEFT OR DESTRUCTION OF DATA; OR UNAUTHORIZED ACCESS TO OWNER'S DATA OR COMMUNICATIONS NETWORK.**

**Communications – Analog Modem Facilities.** Owner authorizes Qualified Provider to utilize Owner's telephone line to provide the services and acknowledges that, unless an exclusive telephone line has been provided for performance of the services, the telephone line may be unavailable for Owner's use for extended periods of time while data is being collected from Owner's building systems and equipment. Qualified Provider is not responsible for any adverse impact to Owner's communications infrastructure or daily operations. Owner understands that Qualified Provider will not be able to collect data when the telephone line or other transmission mode is not operating or has been cut, interfered with or is otherwise damaged or if Qualified Provider is unable to acquire, transmit or maintain a connection over your telephone service.

**Communications – Ethernet.** Owner authorizes Qualified Provider to utilize Owner's network infrastructure to provide the contracted services and acknowledges that Qualified Provider is not responsible for any adverse impact to Owner's communications infrastructure. Owner understands that Qualified Provider will not be able to collect data when network issues do not allow for successfully communications between Qualified Provider's data collection devices and the data sources. Interruption of external Internet communications of longer than 24 hours may result in loss of data and degradation of service levels. Interruption of communications can be classified as failure of transmitting or receiving packet transmissions, interfered with or is otherwise damaged or if Qualified Provider is unable to acquire, transmit or maintain a connection over network or the internet for any reason including network or ISP outage or other network/ISP problems such as congestion or downtime, routing problems, or instability of signal quality.

**Logging and Data Mining.** Owner grants Qualified Provider the unrestricted right, but not the obligation, to log web addresses and/or mine other information and/or data relating to services and information accessed or requested (a) to provide better support, services and/or products to users of Qualified Provider's products and services, (b) to verify compliance with the terms of the Agreement and the Supplemental Terms and Conditions, (c) for use by Qualified Provider for statistical or other analysis of the collective characteristics and behavior of users, (d) to backup user and other data or information and/or provide remote support and/or restoration, (e) to provide or undertake: engineering analysis; failure analysis; warranty analysis; energy analysis; predictive analysis; service e analysis; product usage analysis; and/or other desirable analysis, including histories or trending of any of the foregoing, and (f) to otherwise understand and respond to the needs of the users of Qualified Provider's products and services.

**OWNER ACCEPTANCE OF EXHIBIT G:**

Signature: \_\_\_\_\_

Ms. Marganna Stanley

Title: Superintendent

Date: \_\_\_\_\_



## Schedule A to Exhibit G SCOPE AND DESCRIPTION OF MAINTENANCE SERVICES

Table 1 – Scope of Services

Building	Intelligent Services - Energy Performance Services	Intelligent Services - Building Performance Services	Intelligent Services – Tech Support Helpdesk & Intelligent Dispatch	Intelligent Services - Consultation Reporting Services	Intelligent Services - Building Automation System (ICS) Services	Intelligent Services - Onsite Equipment Inspection Services	Intelligent Services - Remote Inspection Services (“Virtual Services”)	Measurement and Verification	Tracer ES Software Maintenance Plan	Owner Training
Henderson Co HS								X		
Henderson Co North MS								X		
Henderson Co South MS								X		
A.B. Chandler Elementary								X		
Bend Gate Elementary								X		
Cairo Elementary								X		
Niagara Elementary								X		
South Heights Elementary								X		
Bus Garage / Maintenance								X		
Board Office								X		

**Notes:**

- Only those services specifically marked with an “X” in Schedule A of Exhibit G apply to the corresponding buildings within this contract’s scope of services.
- Intelligent Services is provided using third party software that is provided on a subscription basis. Owner agrees to the terms and conditions applicable to such subscription. Owner access to energy and performance reporting and/or associated dashboards residing outside of the Owner’s site will be terminated upon termination of the subscription.
- Data collected by Qualified Provider is subject to the attached General Data Access Terms and Conditions in Exhibit G. Termination of Intelligent Services does not include the termination of the Measurement & Verification (M&V) program. M&V is a service that is separate and distinct from Intelligent Services and is an integral part of the Guarantee. M&V must be provided during the Guarantee Term set forth in Exhibit E, pursuant to KRS 45A.345, KRS 45A.352, and KRS 45A.353.
- Provision of Intelligent Services is conditioned upon Owner providing Qualified Provider with “Site-to-Site” remote access to all systems included within the Intelligent Services monitoring coverage and assuring that the onsite IT network infrastructure and building automation system(s) remains operational.
- The systems and equipment to be monitored as part of the scope of this Exhibit are limited to the available data points exposed to Qualified Provider via the buildings’ existing Trane and/or Tridium building automation system(s).
- Intelligent Services Energy Performance Services require the owner to supply and/or grant access to the monthly energy bills for each building included within the scope of this service.
- The Covered Equipment in each building and schedule of services for the Covered Equipment is provided in Schedule B.

## DESCRIPTION OF SERVICES IN TABLE 1

- 1) **INTELLIGENT SERVICES – ENERGY PERFORMANCE SERVICES (NOT APPLICABLE)**  
Analysis of the Owner's energy usage, costs and trends. Services include:
  - Utility bill and rate structure analysis
  - Energy usage intensity (EUI) analysis
  - Energy cost index (ECI) analysis
  - Demand profiling (for facilities with meters integrated to the BAS only)
  - Benchmarking against industry standards
  - Recommendations for improved efficiency/optimization
- 2) **INTELLIGENT SERVICES – BUILDING PERFORMANCE SERVICES (NOT APPLICABLE)**  
Analysis of the Owner's equipment and systems' performance trends and characteristics in order to identify inefficiencies and risk of failure. Services include:
  - Collection and trending of performance data
  - Analysis of collected data to help identify inefficient operation
  - Triage of identified performance issues
  - Comparison of actual performance against the system design and ASHRAE standards
  - Recommendations for optimization and/or improvements
- 3) **INTELLIGENT SERVICES – TECHNICAL SUPPORT HELPDESK (NOT APPLICABLE)**  
Remote assistance, triage and critical alarm analytics services, which include:
  - Technical support helpdesk services available from 8 a.m. to 5:00 p.m. EST during regular working hours (holidays and weekends excluded).
  - Intelligent dispatch services include 24/7 critical alarm triage and analytics. The applicable alarms and response procedures will be documented on an associated Service Level Agreement ("SLA"). Onsite repair services beyond standard warranty are not included within this coverage.
- 4) **INTELLIGENT SERVICES – INTELLIGENT DISPATCH (NOT APPLICABLE)**  
Remote assistance, triage and critical alarm analytics services, which include:
  - Includes critical alarm setup, tracking and reporting
  - Intelligent dispatch services include 24/7 critical alarm triage and analytics. The applicable alarms and response procedures will be documented on an associated Service Level Agreement ("SLA"). Onsite repair services beyond standard warranty are not included within this coverage.
- 5) **INTELLIGENT SERVICES – CONSULTATION REPORTING SERVICES (NOT APPLICABLE)**  
Consultation reports delivered on a pre-determined schedule per Schedule B of Exhibit G, which include:
  - Development and delivery of reports summarizing key operational metrics and observations
  - Reports will provide recommendations of building operational improvements and optimization measures beyond the original PACT project's scope of work as described in Exhibit B of this contract
  - Consultations will include operational financial metrics, benchmarks and comparisons
- 6) **INTELLIGENT SERVICES – BUILDING AUTOMATION (ICS) SERVICES (NOT APPLICABLE)**

**7) INTELLIGENT SERVICES – ONSITE EQUIPMENT INSPECTION SERVICES**

**(NOT APPLICABLE)**

Onsite Equipment Inspection Services will be performed on a pre-determined schedule per Schedule B of Exhibit G.

**8) INTELLIGENT SERVICES – REMOTE INSPECTION SERVICES (NOT APPLICABLE)**

**9) TRACER ES SOFTWARE MAINTENANCE PLAN (“ES/ENSEMBLE-SMP”)**

**(NOT APPLICABLE)**

Up to two software version upgrades per year will be implemented as released by the Trane Building Automation Services Division. As Tracer ES/Ensemble® software revisions (i.e. service packs, image files) are released, workstations will be upgraded via remote access.

**Additional Considerations**

- It is assumed that the owner will maintain the ES/Ensemble server to comply with Trane's minimum requirements, including SQL operating system versions and capacity. Prior to performing an ES/Ensemble upgrade, Qualified Provider will verify that the client's server meets the minimum requirements and, if out of spec, will advise the owner for corrective action outside of this agreement's scope of coverage.
- The owner is expected to allow access to Qualified Provider via a remote connection to the site (preferably a site-to-site VPN connection). Any connectivity or owner's computer system issues that result in a site visit to perform the upgrade will be billed to the Owner as an additional service charge at the current service agreement holder rate.
- Remote access requires service through a third party Internet Service Provider (ISP). Client is solely responsible for entering into and maintaining any contract for service with an ISP. The ISP is not a party to this agreement.
- Software installation does not cover issues related to computer system capacity or configuration issues.
- Software upgrades **do not include upgrades to higher platforms.**

**10) OWNER TRAINING SERVICES (NOT APPLICABLE)**

Ongoing owner training services will be mutually determined by Henderson County Schools and Qualified Provider.

**11) MEASUREMENT AND VERIFICATION (M&V) SERVICES**

Qualified Provider shall provide the M&V Services with respect to the energy conservation measures installed by Qualified Provider under the Agreement in accordance with the methods and procedures outlined in Exhibit E and the sub-Exhibits thereto. The M&V Services shall include the preparation and submittal by Qualified Provider of a Reconciliation Report in accordance with Section 10 of Exhibit E.

**Schedule B to Exhibit G  
Covered Equipment/Systems and Schedule of Maintenance Services**

**(NOT APPLICABLE)**



PROJECT IDENTIFICATION Initial: \_\_\_\_\_ Revised: X Emergency: \_\_\_\_\_District Name: Henderson County District Code: 251 Facility Name: Multiple Facilities School Code: \_\_\_\_\_Grade Level Served: PS-12 Current Student Capacity: \_\_\_\_\_ District Facilities Plan Date: \_\_\_\_\_Project Name: Henderson County Schools Guaranteed Energy Savings Contract Building ID Number: \_\_\_\_\_Project Site 1805 Second St., Henderson KY Henderson  
Physical Address: Street CityConstruction Delivery Method: ☐ General Contractor ☐ Construction Mgr. ☒ Guaranteed Energy Savings ContractDistrict's Procurement Standard: ☐ Model Procurement (KRS 45A) ☐ Bid Law (KRS 424.260)

## 1. DESCRIPTION AND SCOPE OF PROPOSED PROJECT

## A. Check and complete the applicable items:

- ☐ 1. New Building
- ☐ 2. Addition
- ☒ 3. Major Renovation (Describe) HVAC Upgrades, Controls, LED Lighting, Variable Frequency Drives (VFD's), Building Envelope Upgrades, Water Conservation, Energy and Performance Monitoring
- ☐ 4. New Relocatable Classroom Number \_\_\_\_\_ Size \_\_\_\_\_
- ☐ 5. Equipment/Furnishings Procurement (Describe) \_\_\_\_\_
- ☐ 6. Minor Project (Describe) \_\_\_\_\_
- ☐ 7. Site (Complete the Following)
- a. New Site Acquisition \_\_\_\_\_ Expansion \_\_\_\_\_ Number of Acres \_\_\_\_\_
- b. A site has been acquired in accordance with 702 KAR 4:050 requirements. \_\_\_\_\_
- c. Location \_\_\_\_\_
- d. Proposed site currently owned by District ☐ Yes ☐ No If no, list site owner: \_\_\_\_\_

## B. Compliance with 702 KAR 4:180 and 702 KAR 4:160

This application is being submitted for (refer to current District Facility Plan):

1. Priority Category: \_\_\_\_\_
2. Discretionary Item Number: \_\_\_\_\_
3. Minor project not listed on Facility Plan: \_\_\_\_\_

## C. Provide a complete narrative of the proposed project.

Henderson County High School - HVAC, Controls, VFDs, Interior LED Lighting, Exterior LED lighting, Water conservation

Henderson County North Middle School - Cooling tower fan motors, VFDs, Exterior LED lighting, Water conservation

Henderson County South Middle School - Cooling tower fan motors, VFDs, Exterior LED lighting

Bend Gate Elementary - Chiller replacement, Exterior LED lighting, Water conservation

South Heights Elementary - Exterior LED lighting, Water conservation

AB Chander ES / Cairo ES / Niagra ES / East Heights ES / Learning Center / Athletic Complex - Water conservation

Bus Garage / Maintenance Building - Interior LED Lighting, Exterior LED lighting

Board Office - Interior LED Lighting, Exterior LED lighting, Water conservation

## D. Proposed work related to the project but excluded from the scope of this BG1: \_\_\_\_\_

SCHOOL DISTRICT: Henderson Initial: \_\_\_\_\_ Revised: X BG# 18-133

PROJECT NAME: Henderson County Schools Guaranteed Energy Saving Contract

## II. PROPOSED PLAN TO FINANCE APPLICATION

A. Statement of Probable Costs:

1. Total Construction Cost		\$3,920,000.00
2. Architect/Engineer Fee		
3. Construction Manager Fee		
4. Bond Discount		\$25,500.00
5. Fiscal Agent Fee		\$13,750.00
6. Construction Contingencies		
7. Site Acquisition		
8. Equipment/Furnishings		
9. Equipment/Computers		
10. Technology Network Sys. (KETS)		
11. Other*	Bank Fee	\$3,500.00
12. Other*	Rating Fee	\$8,000.00
13. Other*	Rounding	\$4,250.00
14. Other*		
Total Project Cost		\$3,975,000.00

B. Funds Available:

1. SFCC Cash Req.	
2. SFCC Bond Req.	
3. SFCC Bond Sale	
4. Local FSPK Bond Sale	
5. Local Gen. Fund Bond Sale	
6. Cash - General Fund	
7. Cash - Capital Outlay	
8. Cash - Building Fund	\$2,700,000.00
9. Cash - Inv. Earnings	
10. KETS	
11. KYTC Reimbursement	
12. Other* GESC Bonds	\$1,275,000.00
13. Other*	
14. Other*	
Total Funds Available	\$3,975,000.00

\*Define

\*Define

THE ABOVE INFORMATION IS A STATEMENT OF PROBABLE COST AND FUNDS AVAILABLE AND IS REQUIRED TO BE REVISED TO CORRESPOND TO ACTUAL BIDS RECEIVED PRIOR TO THE SIGNING OF CONSTRUCTION CONTRACTS.

**TO BE COMPLETED ON INITIAL & REVISED APPLICATION:** The signing of this financial document certifies the above stated funds are available and designated for this project during this fiscal year.

\_\_\_\_\_ Superintendent \_\_\_\_\_ Date

\_\_\_\_\_ Finance Officer \_\_\_\_\_ Date

\_\_\_\_\_ Chairman \_\_\_\_\_ Date

NOTE: Any district anticipating the financing of this and/or other projects in a combined school revenue Bond should discuss the financing with the Director/Branch Manager, KDE - District Financial Management.

TO BE COMPLETED ON INITIAL APPLICATION:

This building project application is approved by the KDE - District Facilities Branch indicating compliance with current District Facility Plan or minor project under 702 KAR 4:180.

Comments: \_\_\_\_\_

---

Branch Manager, KDE - District Facilities Branch
Date

TO BE COMPLETED ON INITIAL & REVISED APPLICATION:

Tentative financial approval based upon information provided to this office in support of projected cost.

Comments: \_\_\_\_\_

KDE - District Financial Management

Date: \_\_\_\_\_

TO BE COMPLETED ON INITIAL APPLICATION:

This building project application is hereby approved according to the conditions outlined in the application. Proceed in accordance with the attached submittal checklist.

Comments

KDE - District Support

Date: \_\_\_\_\_

**HENDERSON COUNTY BOARD OF EDUCATION  
TRANE CONTRACT NO. P6-18026**

**ADDENDUM NO. 1 TO STANDARD FORM OF AGREEMENT BETWEEN OWNER AND DESIGN  
BUILDER AIA141-2004**

This **ADDENDUM NO. 1 TO STANDARD FORM OF AGREEMENT BETWEEN OWNER AND DESIGN BUILDER AIA141-2004** (this "Addendum No. 1") entered into this 19<sup>th</sup> day of February 2018, by and between TRANE U.S. INC. ("Qualified Provider"), and HENDERSON COUNTY BOARD OF EDUCATION ("Owner").

**WITNESSETH:**

WHEREAS, Owner and Qualified Provider are parties to that certain STANDARD FORM OF AGREEMENT BETWEEN OWNER AND DESIGN BUILDER AIA141-2004, dated as of February 19, 2018 (the "Agreement"); and

WHEREAS, Owner and Qualified Provider desire to set forth certain terms and conditions of the Agreement in this Addendum No. 1.

NOW, THEREFORE, in consideration of the mutual covenants herein contained and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Owner and Qualified Provider, intending to be legally bound, hereby agree to the following:

- 1. Defined Terms.** Capitalized terms used in this Addendum No. 1 which are not specifically defined herein, have the meanings given to such terms in the Agreement.
- 2. Priority; List of Attachments.** This Addendum No. 1 is intended to supplement the Agreement. To the extent there is any inconsistency between the Agreement (together with its Exhibits) and this Addendum No. 1 (together with its Attachments), the terms of this Addendum No. 1 shall be given precedence, as provided in Section 7.7.1 of the Agreement.
  - Attachment A: Sample Application and Certificate for Payment
  - Attachment B: Owner's Direct Purchase Orders and Equipment Proposals
  - Attachment C: Description of the Premises
  - Attachment D: Form of Notice to Proceed
  - Attachment E: Hazardous Materials
- 3. Term.** The term ("Term") of this Agreement shall commence as of the Effective Date and shall end upon expiration of the 20-year Guarantee Term pursuant to, and as defined in Exhibit E, unless earlier terminated pursuant to the provisions hereof.
- 4. Premises.** The Work to be performed by Qualified Provider under the Agreement shall be performed at Owner's premises (the "Premises") identified in Attachment C hereto.
- 5. Commencement of the Work; Section 3.1 of the Agreement.** The date for the commencement of the Work under Section 3.1 of the Agreement shall be the date set forth on the Notice to Proceed issued by Owner in the form of Attachment D hereof. Owner intends to finance all or a portion of the Stipulated Sum by issuing bonds. Accordingly, Qualified Provider shall not be required to perform, any of the Work until and unless Owner has closed on its financing (the "Financing Closing"). Owner shall provide Qualified Provider, upon request, copies of the fully executed contract documents for financing of the Stipulated Sum and, if applicable, evidence of funding of any escrow account required under the financing documents. Owner will achieve Financing Closing on or before March 30, 2018, or such later date as may be agreed to in writing by Qualified Provider. Within five (5) calendar days of the Financing Closing, Owner shall execute and issue a written Notice to Proceed

(substantially in the form of Attachment D hereto) to Qualified Provider. In the event Owner does not achieve Financing Closing on or before the date specified in the preceding sentence, or such later date as may be agreed to in writing by Qualified Provider, Qualified Provider may terminate this Agreement upon fourteen (14) calendar days prior written notice to Owner. Termination of this Agreement by Qualified Provider in accordance herewith shall be deemed termination by Owner for convenience in accordance with Section A14.4 of the Agreement. In addition, notwithstanding such termination, Owner shall be obligated to immediately compensate Qualified Provider for the amount set forth in any Letter of Commitment, project development agreement, or comparable agreement between Owner and Qualified Provider.

- 6. Neutral Election; Section 6.1 of the Agreement.** The Parties elect not to select a Neutral for the purpose of Section 6.1 of the Agreement.
- 7. Qualified Provider's Proposal; Sections 8.1.4 and 8.1.5.** The terms of Sections 8.1.4 and 8.1.5 of the Agreement are not applicable and are hereby deleted in their entirety.
- 8. Qualified Provider's Compensation in the Event of Termination for Convenience by Owner.** In the event Owner terminates the Agreement for convenience in accordance with Section A14.4 of the Agreement, Qualified Provider shall be entitled, in addition to the amounts outlined in Section A14.4.3 of the Agreement, to any damages sustained by Qualified Provider, including the cost of terminating orders or subcontracts for labor or material and price of any specially manufactured items or equipment.
- 9. Exclusions from the Work.** Excluded from the Work are any modifications or alterations to the Premises (not expressly included within the Work as defined) that may be required by operation of the Americans with Disabilities Act or any other law or building code(s).
- 10. Additional Representations, Warranties and Covenants of Owner.** Owner hereby represents, warrants and covenants to Qualified Provider that:
  - a. Owner has furnished, or caused others to furnish, and, for the Term hereof, will continue to furnish to Qualified Provider, promptly as information becomes available, accurate and complete data concerning energy usage for, and other information pertaining to, the Premises, including but not limited to the following:
    - i. utility records for the 36-month period preceding the date hereof and throughout the Term;
    - ii. occupancy and usage information, including current representative tenant leases, for the 36-month period preceding the date hereof and throughout the Term;
    - iii. written surveys or descriptions of heating, cooling, lighting or other systems or energy requirements and any changes thereto;
    - iv. descriptions of all energy consuming or saving equipment used on or affecting the Premises;
    - v. any energy or environmental audits relating to all or any part of the Premises;
    - vi. any service or maintenance agreement(s) regarding any heating, cooling, lighting or other building systems, or part thereof;
    - vii. construction drawings ("as-builts") in existence as of the date hereof or developed during the Term; and



- viii. a description of energy management procedures presently utilized by Owner for the Premises and any revisions thereto throughout the Term.
- b. Owner has provided Qualified Provider with all records heretofore requested by Qualified Provider and the information set forth therein is, and all information in other records to be subsequently provided pursuant to this Agreement will be, true and accurate in all material respects except as may be disclosed to Qualified Provider by Owner in writing; and
  - c. Owner has not entered into any contracts or agreements with other persons or entities regarding the provision of energy management services or with regard to any servicing of any of the energy related equipment located on the Premises, except as heretofore disclosed to Qualified Provider in writing by Owner; and
  - d. During the term of this Agreement, Owner will not enter into any agreements with other persons or entities regarding the provision of energy management services or with regard to any servicing of any of the energy related equipment furnished by Qualified Provider hereunder, without prior written consent of Qualified Provider; and
  - e. Owner presently intends to continue to use the Premises in a manner similar to its present use, except as may have been disclosed to Qualified Provider by Owner in writing; and
  - f. No part of the systems controlled by Qualified Provider will be placed in a permanent "on" operating mode or manually controlled and, during the Term of this Agreement, Owner shall permit only Qualified Provider personnel or other qualified providers to repair, adjust or program equipment, systems, and/or controls, except in the event of an emergency, in which event Owner may remedy the emergency and shall notify Qualified Provider as soon as possible of the existence of the emergency and measures taken by Owner; and
  - g. Owner has disclosed in writing to Qualified Provider the existence and location of all known or suspected asbestos and other Hazardous Materials on the Premises; and
  - h. Owner will provide Qualified Provider with copies of any successor or additional contracts for management or servicing of preexisting equipment that may be executed from time to time hereafter within ten (10) days after execution thereof and information or services under Owner's control shall be furnished promptly by Owner; and
  - i. The execution, delivery and performance by Owner of this Agreement does not violate any provision of law and does not conflict with or result in a breach of any order, writ, injunction or decree of any court or governmental instrumentality, domestic or foreign, or Owner's respective charter or by-laws or create a default under any agreement, bond, note or indenture to which Owner is a party or by which Owner is bound or to which any of Owner's property is subject; and Owner has no knowledge of any facts or circumstances that, but for the passage of time, would materially, adversely affect either party's ability to perform its respective obligations hereunder and, if Owner is a governmental entity or instrumentality thereof, Owner has complied with all laws and regulations relative to bidding or procurement of the Services hereunder; and
  - j. The Agreement has been duly authorized, executed and delivered by Owner, and constitutes the valid and legally binding obligation of Owner, enforceable in accordance with its terms, except as may be limited by bankruptcy, insolvency, reorganization or other laws or equitable principles of general application relating to or affecting the enforcement of creditor's rights and remedies;
  - k. Owner shall notify Qualified Provider within twenty-four (24) hours of Owner's receipt of actual or constructive notice of (1) any material malfunction in the operation of the equipment

installed or equipment affected by the Work provided pursuant to this Agreement and/or (2) any interruption or alteration of the energy supply to the Premises; and

- l. Owner acknowledges and agrees that the Performance Period Services will be performed by Qualified Provider or on behalf of Qualified Provider by a Qualified Provider authorized service provider; and
- m. Owner is the fee owner of the Premises and the real estate upon which the Premises are located.

#### **11. Asbestos and Hazardous Materials.**

- a. Except as expressly stated in Exhibit D of the Agreement, Qualified Provider's Work expressly excludes any work connected or associated with Hazardous Materials. Hazardous Material means any pollutant, contaminant, toxic or hazardous substance, material or waste, any dangerous, potentially dangerous, noxious, flammable, explosive, reactive or radioactive substance, material or waste, urea formaldehyde, asbestos, asbestos-containing materials ("ACM's"), polychlorinated biphenyl ("PCB"), and any other substance, the manufacture, preparation, production, generation, use, maintenance, treatment, storage, transport, disposal, handling, or ownership of which is regulated, restricted, or prohibited, by any federal, state, or local statute, law, ordinance, code, rule or regulation now or at any time hereafter in effect, and as may be amended from time to time, including but not limited to, the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. §§ 9601 et seq.), the Hazardous Materials Transportation Act (49 U.S.C. §§ 1801 et seq.), the Resource Conservation and Recovery Act (42 U.S.C. §§ 6901 et seq.), the Federal Water Pollution Control Act (33 U.S.C. §§ 1251 et seq.), the Clean Air Act (42 U.S.C. §§ 7401 et seq.), the Toxic Substances Control Act, as amended (15 U.S.C. §§ 2601 et seq.), and the Occupational Safety and Health Act (29 U.S.C. §§ 651 et seq.).
- b. Qualified Provider shall not perform any identification, abatement, cleanup, removal, transport, treatment, storage or disposal of Hazardous Materials on Owner's premises. Owner warrants and represents that, except as expressly, and by reference to this Section, set forth in Attachment E (Hazardous Materials), there are no Hazardous Materials on the Premises in areas within which Qualified Provider will be performing any part of the Services or Owner has disclosed to Qualified Provider the existence and location of any Hazardous Materials in all areas within which Qualified Provider will be performing any part of the Services. Qualified Provider's responsibility, if any, for any Hazardous Materials, shall be limited to and as expressly set forth in Attachment E and Owner shall, at all times, be and remain the owner and generator of any and all Hazardous Materials on the Owner's premises and responsible for compliance with all laws and regulations applicable to such Hazardous Materials.
- c. Should Qualified Provider become aware of or suspect the presence of Hazardous Materials in the course of performing the Services that are not disclosed in Exhibit D of the Agreement or Attachment E hereof, or which present or may present a hazard to or endanger health welfare or safety, Qualified Provider shall have the right to immediately stop work in the affected area and shall notify Owner. Owner will be responsible for taking any and all action necessary to remove or render harmless the Hazardous Materials in accordance with all applicable laws and regulations. Qualified Provider shall be required to resume performance of the Services in the affected area only in the absence of Hazardous Materials or when the affected area has been rendered harmless; if the area has not been or cannot be rendered harmless within thirty (30) days of discovery of the Hazardous Material, Qualified Provider may terminate this Agreement and such termination shall be deemed termination for convenience by Owner under Section A14.4 of the Agreement. Owner shall compensate Qualified Provider for any additional costs incurred by Qualified Provider as a result of work stoppage, including demobilization and remobilization. In addition to any other indemnity

obligation of Owner to Qualified Provider, to the maximum extent permitted by law, Owner shall indemnify, defend, and hold harmless Qualified Provider, its officers, directors, beneficiaries, shareholders, partners, agents, representatives, and employees (collectively referred to as "Qualified Provider" for purposes of this Section 20) and Qualified Provider's subcontractors from all fines, suits, actions, claims, penalties, and proceedings of every kind, and all costs associated therewith (including attorneys' and consultants' fees) arising out of or in any way connected with or related to: (1) any leak, deposit, spill, discharge, or release or disposal of Hazardous Materials in connection with the performance of this Agreement, except to the extent such Hazardous Materials were brought onto the Premises by Qualified Provider; and/or (2) Owner's failure to identify and disclose Hazardous Materials and to fully comply with all federal, state, and local statutes, laws ordinances, codes, rules and regulation now or at any time hereafter in effect regarding Hazardous Materials.

**12. Workmanship and Equipment Warranty.** Notwithstanding any of the terms and conditions of the Agreement and in lieu of any warranties listed therein, Qualified Provider warrants that, for a period of one year from the date of Final Completion (the "Warranty Period"), Qualified Provider-manufactured equipment installed hereunder and the installation work included within the Work (i) shall be free from defects in material, manufacture, and workmanship and (ii) shall have the capacities and ratings set forth in Qualified Provider's catalogs and bulletins. Notwithstanding the foregoing, with respect to Work Elements identified in Exhibit D.1 (Certificate of Substantial Completion and Acceptance), Qualified Provider shall have the option of commencing the Warranty Period upon the date of Substantial Completion with respect to such Work Element. For Qualified Provider-manufactured equipment not installed by Qualified Provider the Warranty Period is the lesser of 12 months from initial start-up or 18 months from the date of shipment. Equipment and/or parts that are not manufactured by Qualified Provider are not warranted by Qualified Provider and have such warranties as may be extended by the respective manufacturer.

**13. Warranty Remedy.** If Owner files a claim with respect to a defect in Qualified Provider-manufactured equipment or the installation work within the Warranty Period, Qualified Provider will correct the defect or furnish replacement equipment (or, at its option, parts therefor) and, if said Qualified Provider-manufactured equipment was installed pursuant hereto, labor associated with the replacement of parts or equipment not conforming to this warranty. No liability whatsoever shall attach to Qualified Provider until said equipment and Services have been paid for in full. Qualified Provider's sole liability and Owner's sole and exclusive remedy with respect to any warranty claim shall be limited, at Qualified Provider's option, to Qualified Provider's cost to correct the defective equipment or work and/or replace equipment shown to be defective. Qualified Provider's warranties expressly exclude any remedy for damage or defect caused by corrosion, erosion, or deterioration, abuse, modifications or repairs not performed by Qualified Provider, improper operation, or normal wear and tear under normal usage. Qualified Provider shall not be obligated to pay for the cost of lost refrigerant.

The foregoing does not apply to Support Services and the warranties for Support Services are separately stated on Exhibit G of the Agreement.

**THE WARRANTY, LIABILITY AND REMEDIES SET FORTH IN THIS SECTION ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, LIABILITIES, OR REMEDIES SET FORTH HEREIN OR ELSEWHERE IN THE AGREEMENT, WHETHER IN CONTRACT OR IN NEGLIGENCE, EXPRESS OR IMPLIED, IN LAW OR IN FACT, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL QUALIFIED PROVIDER BE LIABLE FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING WITHOUT LIMITATION LOST PROFITS), OR PUNITIVE DAMAGES. NO REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR FITNESS OF PURPOSE IS MADE REGARDING PREVENTION BY THE SCOPE OF SERVICES, OR ANY COMPONENT THEREOF, OF MOLD, FUNGUS, BACTERIA, MICROBIAL GROWTH, OR ANY OTHER CONTAMINATES. QUALIFIED PROVIDER SPECIFICALLY DISCLAIMS ANY LIABILITY IF THE SCOPE OF SERVICES OR ANY**

**COMPONENT THEREOF IS USED TO PREVENT OR INHIBIT THE GROWTH OF SUCH MATERIALS.**

- 14. Limitation of Liability.** NOTWITHSTANDING ANY PROVISION TO THE CONTRARY, NEITHER PARTY SHALL BE LIABLE TO THE OTHER FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING WITHOUT LIMITATION LOST REVENUE AND LOST PROFITS) OR PUNITIVE DAMAGES REGARDLESS OF WHETHER SUCH LIABILITY ARISES FROM BREACH OF CONTRACT, TORT OR ANY OTHER THEORY. IN NO EVENT SHALL QUALIFIED PROVIDER BE LIABLE FOR ANY DAMAGES (WHETHER DIRECT OR INDIRECT) RESULTING FROM MOLD, FUNGUS, BACTERIA, MICROBIAL GROWTH, OR OTHER CONTAMINATES OR AIRBORNE BIOLOGICAL AGENTS.
- 15. Bonds.** Should payment and performance bonds be provided hereunder, in no event shall such bonds cover any energy savings guarantees. Additionally, the bonds shall not cover any warranties beyond one year from Final Completion. For purposes of any performance bond issued hereunder, faithful performance of the Work are deemed satisfied upon Final Completion.
- 16. Owner's Direct Purchase Order; Payments.** Concurrently with the execution of the Agreement , Owner shall execute and deliver the Owner's Direct Purchase Orders, Trane Equipment Proposal and Harshaw Trane Equipment Proposal, all attached hereto as Attachment B. Owner shall pay for the equipment and materials ordered pursuant to the Owner's Direct Purchase Orders in accordance with Attachment A. All equipment and materials orders under the Owner's Direct Purchase Orders shall be delivered pursuant to the terms and conditions set forth therein.
- 17. Integration.** All other provisions of Agreement, except as specifically amended hereby, shall remain in full force and effect and are incorporated herein.
- 18. Validity.** If any term or condition of the Agreement as supplemented by this Addendum No. 1 is invalid, illegal or capable of being enforced by any rule of law, all other terms and conditions of the Agreement, as supplemented by this Addendum No. 1 will nevertheless remain in full force and effect as long as the economic or legal substance of the transaction contemplated hereby is not affected in a manner adverse to any party hereto.
- 19. Execution in Counterparts.** This Addendum No. 1 may be executed one or more counterparts, each of which shall be deemed to be an original and shall constitute one and the same instrument. This Addendum No. 1 may be executed by facsimile, and each such facsimile signature shall be deemed to be an original.

**IN WITNESS THEREOF**, the Parties hereto, intending to be legally bound, have executed this ADDENDUM NO. 1 TO STANDARD FORM OF AGREEMENT BETWEEN OWNER AND DESIGN BUILDER AIA141-2004 as of the date first written above.

**Trane U.S. Inc.**

**Henderson County Board of Education**

By:\_\_\_\_\_

By:\_\_\_\_\_

Name: Rafael A. Garibay

Name: Ms. Marganna Stanley

Its: Sr. Project Developer

Its: Superintendent





# AIA Document G732™ - 2009

## Application and Certificate for Payment, Construction Manager as Adviser Edition

TO OWNER: Henderson County BOE  
1805 Second St.  
Henderson, KY 42420

FROM: VIA CONSTRUCTION  
MANAGER: Harshaw Trane

CONTRACTOR: Trane U.S. Inc.  
4833 White Bear Parkway  
Saint Paul, MN 55109

CONTRACT FOR: VIA ARCHITECT: Marcum Engineering LLC

PROJECT: Henderson County PAC  
Multiple

APPLICATION NO: 001

PERIOD TO: 02/19/18

CONTRACT DATE: 02/19/18

PROJECT NOS: P6-18 / 026 /

DISTRIBUTION TO:  
OWNER ☒  
CONSTRUCTION MANAGER ☐  
ARCHITECT ☐  
CONTRACTOR ☐  
FIELD ☐  
OTHER ☐

### CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract AIA Document G703™, Continuation Sheet, is attached.

1. ORIGINAL CONTRACT SUM.....	\$ 3,512,068.00
2. NET CHANGES IN THE WORK.....	\$ 0.00
3. CONTRACT SUM TO DATE (Line 1 + 2).....	\$ 3,512,068.00
4. TOTAL COMPLETED AND STORED TO DATE (Column G on G703).....	\$ 0.00
5. RETAINAGE:	
a. 10 % of Completed Work.....	\$ 0.00
b. % of Stored Material.....	\$ 0.00

Total Retainage (Lines 5a + 5b, or Total in Column I on G703)..... \$ 0.00

6. TOTAL EARNED LESS RETAINAGE..... \$ 0.00

(Line 3 minus Line 5 Total)

7. LESS PREVIOUS CERTIFICATES FOR PAYMENT.....	\$ 0.00
(Line 6 from prior Certificate)	
8. CURRENT PAYMENT DUE.....	\$ 0.00
9. BALANCE TO FINISH, INCLUDING RETAINAGE.....	\$ 3,512,068.00
(Line 3 minus Line 6)	

### CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on evaluations of the Work and the data comprising this application, the Construction Manager and Architect certify to the Owner that to the best of their knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED..... \$

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

CONSTRUCTION MANAGER:

By: \_\_\_\_\_ Date: \_\_\_\_\_

ARCHITECT: *NOTE: If Multiple Prime Contractors are responsible for performing portions of the Project, the Architect's Certification is not required.*

By: \_\_\_\_\_ Date: \_\_\_\_\_

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

SUMMARY OF CHANGES IN THE WORK	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$	\$
Total approved this month, including Construction Change Directives	\$	\$
TOTALS	\$	\$
NET CHANGES IN THE WORK	\$	\$

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# AIA Document G743™ – 2015

## Continuation Sheet for a Design-Build Project

AIA Document G743™, 2015, Application and Certificate for Payment,

containing Design-Build's signed certification is attached.

In tabulations below, amounts are in U.S. dollars.

Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO: 001

APPLICATION DATE:

PERIOD TO:

OWNER'S PROJECT NO: P6-18026

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		F MATERIALS PRESENTLY STORED (Not in D or E)	G TOTAL COMPLETED AND STORED TO DATE (D + E + F)	H BALANCE TO FINISH (C - G)	I RETAINAGE (If variable rate)
			FROM PREVIOUS APPLICATION (D - E)	THIS PERIOD				
1	Design & Engineering	\$116,600.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
2	Construction Safety & Project Ma	\$190,590.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
3	Mechanical & Electrical Systems	\$1,015,569.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
4	Mechanical & Elec. Systems Inst	\$1,573,914.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
5	Start Up, Programming & Commiss	\$615,395.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
6	Equip Billing Separate \$407,932	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
	GRAND TOTAL	\$3,512,068.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	

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Board of Education: Henderson County  
Schools \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**BG#** 18-133

District PO Number: \_\_\_\_\_

**(THIS PURCHASE ORDER NUMBER MUST APPEAR ON ALL PACKAGES, INVOICES AND SHIPPING PAPERS)**

Project Name: Henderson County Schools Guaranteed Energy Savings Contract

Kentucky Sales Tax Exemption Number: \_\_\_\_\_

Henderson County Schools  
Guaranteed Energy Savings Contract,  
Dated February 19, 2018

Bid Package No.: \_\_\_\_\_

Date of Order: \_\_\_\_\_

Specification Section: Attachment B  
(IF APPLICABLE)

Vendor Name: Trane U.S., Inc.

Material Description  
/ Category: \_\_\_\_\_

Vendor Address: 1024 E. Sycamore Street  
Evansville, IN 47714

Facility Name: Henderson Co HS; Bend Gate ES

Requested By: \_\_\_\_\_

Vendor Phone: (812) 421-8725

**AUTHORIZATION**

THE ATTACHED TERMS & CONDITIONS ARE HEREBY  
ACKNOWLEDGED AND MADE PART OF THIS ORDER.

Vendor Email: johnburrows@trane.com

Bill To: Henderson County Board of Educ.

Owner Authorized Name: Marganna Stanley,  
Superintendent

Bill to Address: 1805 Second Street  
Henderson, KY 42420

Owner Authorized Signature: \_\_\_\_\_

Owner Authorization Date: \_\_\_\_\_

Ship To: \_\_\_\_\_

Ship to Address: \_\_\_\_\_

Vendor Authorized Name: John Burrows

Vendor Authorized Signature: \_\_\_\_\_

Attention of: Marganna Stanley, Superintendent

Vendor Authorization Date: February 19, 2018

**The following project contacts must be notified 48 hours in advance of delivery to jobsite.**

Contact Name	Phone Number	Contact Name	Phone Number
<b>Marganna Stanley</b>	<b>(270) 831-5000</b>	<b>Billy</b>	<b>(270) 831-5132</b>

Furnish the necessary materials to complete the following bid package(s) / specification section(s) in its entirety. All materials shall be in accordance with the requirements of the Contract.

ITEM NO.	QUANTITY	ITEM DESCRIPTION	UNIT PRICE	TOTAL
A1	3	Packaged 3-Ton Gas/Elec Rooftop Unit		
A2	1	Packaged 4-Ton Gas/Elec Rooftop Unit		
A3	1	Packaged 5-Ton Gas/Elec Rooftop Unit		
A4	1	Packaged 6-Ton Gas/Elec Rooftop Unit		
A5	2	Packaged 7.5-Ton Gas/Elec Rooftop Unit		
A6	1	Packaged 7.5-Ton Gas/Elec Rooftop Unit		
B1	1	Packaged 12.5-Ton Gas/Elec Rooftop Unit		

ITEM NO.	QUANTITY	ITEM DESCRIPTION	UNIT PRICE	TOTAL
B2	1	Packaged 12.5-Ton Gas/Elec Rooftop Unit		
B3	1	Packaged 15-Ton Gas/Elec Rooftop Unit		
B4	2	Packaged 20-Ton Gas/Elec Rooftop Unit		
C1	2	Packaged 35-Ton Gas/Elec Rooftop Unit		
D1	1	Ductless Mini-Splits Systems		
E1	1	Nominal 130-Ton Air-Cooled Scroll Chiller		
		Bid Package(s):	L. S.	\$407,932.00
		Specification Section(s):	L. S.	
		<b>SPECIMEN COPY ONLY</b>		

---

**TERMS & CONDITIONS OF PURCHASE ORDER**

1. Drawings, catalogs, cut sheets, or samples shall be submitted for approval.
2. All invoices shall be sent to the contractor/subcontractor designated on the purchase order for approval. No invoices shall be sent directly to the Board of Education (Owner) for payment.
3. All invoices shall reference the purchase order number.
4. No change in, modification of, or revision of this order shall be valid unless in writing and signed by the Owner.
5. Vendor agrees to observe and comply with all applicable federal, state and locals laws, rules, ordinances and regulations in performance of this order.
6. Vendor shall not assign this order or any right hereunder without first having obtained the written consent of the Owner.
7. Deliveries are to be made in accordance with the Owner's schedule, as directed by the General Contractor (GC), Construction Manager (CM) or Qualified Provider (QP).
8. The Owner may cancel this purchase order in whole or in part in the event that the vendor fails or refuses to deliver any of the items purchased, within the time provided, or otherwise violates any of the conditions of this purchase order, or if it becomes evident that the vendor is not providing materials in accordance with the specifications or with such diligence as to permit delivery on or before the delivery date.
9. The vendor agrees to deliver the items to the supplied hereunder free and clear of all liens, encumbrances and claims.
10. If any of the goods covered under this purchase order are found to be defective in material or workmanship, or otherwise not in conformity with the requirements of this order, the Owner, in addition to the other rights which it may have under warranty or otherwise, shall have the right to reject the same or require that such articles or materials be corrected or replaced promptly with satisfactory materials or workmanship.
11. By acknowledging receipt of this order, by performing the designated work or any portion thereof, or by shipping the designated goods, the vendor agrees to the terms and conditions outlined.
12. This purchase order shall be governed in all respects by the laws of the Commonwealth of Kentucky.
13. In the event the quantities of materials supplied via this purchase order are insufficient to complete the work, the GC, CM or QP shall, at no expense to the Owner, provide such materials as necessary to complete the work.
14. In the event that at the completion of the work the vendor has not submitted invoices totaling the value of this purchase order, this purchase order shall be considered complete and closed.



**BG#** 18-133 **Date Submitted** 2/19/2018  
**District Code** 251 **District Name** Henderson County  
**School Code** Mutiple **Facility Name** Henderson Co HS / Bend Gate ES

**Delivery Method**  
☐ GC ☒ GESC  
☐ CM  
**PO Certification Statement Phase**  
☒ Initial Statement ☐ Final Statement  
☐ Change Order Stmt.

Contractor Name	PO Number	Bid. Pack. #	Specification Section No.	Purchase Order Description	Vendor Name	Initial PO Amount	Change Order Amount To Date	Reason For Change	Final PO Amount
Trane				HVAC Equipment	Trane	\$407,932.00			407,932.00
									-
									-
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									-
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									-
									-
									-
									-
<b>Initial PO Total</b>						<b>\$ 407,932.00</b>	<b>\$ -</b>	<b>Final PO Total</b>	<b>\$ 407,932.00</b>

All signatures below are required based upon the appropriate PO certification statement phase. (Initial / Final)

**Initial Certification Statement**

To the best of my knowledge, I certify that all materials listed within this document will be purchased in accordance with 103 KAR 26:070 and 702 KAR 4:160.

Owner's Signature \_\_\_\_\_ Date \_\_\_\_\_

GESC Qualified Provider \_\_\_\_\_ Date \_\_\_\_\_

NA  
Architect's Signature \_\_\_\_\_ Date \_\_\_\_\_

**Final Certification Statement**

To the best of my knowledge, I certify that all materials listed within this document have been purchased in accordance with 103 KAR 26:070 and 702 KAR 4:160.

Owner's Signature \_\_\_\_\_ Date \_\_\_\_\_

General Contractor's / Construction Manager's Signature \_\_\_\_\_ Date \_\_\_\_\_

Architect's Signature \_\_\_\_\_ Date \_\_\_\_\_



## Attachment B – Trane Proposal

(Valid for 30 days from Proposal date)

*PROPRIETARY AND CONFIDENTIAL PROPERTY OF Trane U.S. Inc.*  
*DISTRIBUTION TO OTHER THAN THE NAMED RECIPIENT IS PROHIBITED*  
© 2018 Trane U.S. Inc., All rights reserved

**Prepared For:**  
Henderson County Schools

**Date:** February 19, 2018

**Proposal Number:** P6-27747-3

**Job Name:**  
Henderson Co Schools  
Guaranteed Energy Savings Contract

**Engineer:** Harshaw Trane & Marcum Engineering

**Delivery Terms:**  
Freight Allowed and Prepaid - F.O.B. Factory

**Payment Terms:**  
Net 30 Days

Trane U.S. Inc. is pleased to provide the following proposal for your review and approval.

### **Henderson County High School**

#### **Tag Data - 3-10 Ton R410A PKGD Unitary Gas/Electric Rooftop (Qty: 9)**

Item	Tag(s)	Qty	Description	Model Number
A1	RTU-112, RTU-113, RTU-114	3	3-Ton eFlex Gas/Elec RTU (208/3/60)	YZC036E3RHA--K6C1C2B700AEA00000000 000000
A2	RTU-115	1	4-Ton eFlex Gas/Elec RTU (208/3/60)	YZC048F3RHA--K6C1C2B700AEA00000000 000000
A3	RTU-104	1	5-Ton eFlex Gas/Elec RTU (460/3/60)	YZC060E4RHA--K6C1C2A700AEA00000000 000000
A4	RTU-111	1	6-Ton eFlex Gas/Elec RTU (208/3/60)	YZC072F3RHA--K6C1C2B700AEA00000000 000000
A5	RTU-106, RTU-110	2	7.5-Ton eFlex Gas/Elec RTU (208/3/60)	YZC090F3RHA--K6C1C2B700AEA00000000 000000
A6	RTU-103	1	7.5-Ton eFlex Gas/Elec RTU (460/3/60)	YZC090F4RHA--K6C1C2A700AEA00000000 000000

#### **Product Data - 3-10 Ton R410A PKGD Unitary Gas/Electric Rooftop**

##### **All Units**

- DX cooling, gas heat
- Ultra high efficiency
- Trane eFlex Variable Speed Inverter VFD Compressors
- Convertible configuration
- Microprocessor controls
- High gas heat
- Low Leak Econ-dry bulb 0-100% with Barometric Relief
- Single Zone VAV Controls Sequence
- Hinged Access Panels
- 2-Inch pleated filters Merv 8 (one set only)
- Standard condenser coil
- Condenser Coil Hail Guard Panels

Through the base gas & electrical  
Circuit breaker electrical disconnect switch  
Air-Fi wireless communication interface (WCI)  
Return air smoke detector  
Clogged filter switch, fan failure & Condensate Drain Pan Overflow Switch  
Demand control ventilation  
CO2 (AirFi) Wireless Sensor (Fld)  
Wireless zone sensor (Fld)  
Humidity wall mounted sensor (Fld)  
Low Ambient Cooling down to 0 F Ambient

**Services and Warranties included are:**

Rooftop Unit Startup Service  
1<sup>st</sup> Year Parts & Labor Warranty – Whole Unit  
10-Year Compressor Parts ONLY Warranty  
10-Year Heat Exchanger Parts ONLY Warranty

**Item: A1 Qty: 3 Tag(s): RTU-112, RTU-113, RTU-114**

3 Ton  
208-230/60/3  
**Powered convenience outlet**  
**Standard 14" High Roof Curb (Fld)**

**Item: A2 Qty: 1 Tag(s): RTU-115**

4 Ton  
208-230/60/3  
**Powered convenience outlet**  
**Standard 14" High Roof Curb (Fld)**

**Item: A3 Qty: 1 Tag(s): RTU-104**

5 Ton  
460/60/3  
**Unpowered convenience outlet**  
**Adapter/Transition Roof Curb (Fld)**

**Item: A4 Qty: 1 Tag(s): RTU-111**

6 Ton Single compressor  
208-230/60/3  
**Powered convenience outlet**  
**Adapter/Transition Roof Curb (Fld)**

**Item: A5 Qty: 2 Tag(s): RTU-106, RTU-110**

7.5 Ton Single compressor  
208-230/60/3  
**Powered convenience outlet**  
**RTU-106 gets Adapter/Transition Roof Curb (Fld)**  
**RTU-110 gets Adapter/Transition Roof Curb (Fld)**

**Item: A6 Qty: 1 Tag(s): RTU-103**

7.5 Ton Single compressor  
460/60/3  
**Unpowered convenience outlet**  
**Vibration Isolation Roof Curb (Fld)**

**Tag Data - Packaged Gas/Electric Rooftop Units (Qty: 5)**

Item	Tag(s)	Qty	Description	Model Number
B1	RTU-102	1	12.5-Ton eFlex Gas/Elec RTU (460/3/60)	YZD150F4RHC--K6C1C2B700AEA00000000 000000
B2	RTU-108	1	12.5-Ton eFlex Gas/Elec RTU (208/3/60)	YZD150F3RHC--K6C1C2B700AEA00000000 000000
B3	RTU-107	1	15-Ton eFlex Gas/Elec RTU (208/3/60)	YZD180F3RHC--K6C1C2B700AEA00000000 000000
B4	RTU-101, RTU-109	2	20-Ton eFlex Gas/Elec RTU (208/3/60)	YHD240G3RHB--K8C1C2B700AEA00000000 0000000

**Product Data - Packaged Gas/Electric Rooftop Units****All Units**

Gas/Electric  
 Downflow  
 Ultra high efficiency  
 Trane eFlex Variable Speed Inverter VFD Compressors  
 Reliatel Microprocessor Controls  
 Gas Heat - High  
 Low Leak Economizer, Dry Bulb w/ Barometric Relief  
 Hinged Access Panels  
 2-Inch pleated filters Merv 8  
 Standard condenser coil  
 Condenser Coil Hail Guard Panels  
 Single Zone VAV Controls Sequence  
 Through the base electric/gas  
 Unit Mounted Circuit Breaker  
**Powered convenience outlet**  
 Air-Fi wireless communication interface (WCI)  
 Clogged filter, fan failure switch, and condensate overflow  
 Demand ventilation controls  
 CO2 (AirFi) Wireless Sensor (Fld)  
 Wireless zone sensor (Fld)  
 Humidity wall mounted sensor (Fld)  
 Low Ambient Cooling down to 0 F Ambient

**Services and Warranties included are:**

Rooftop Unit Startup Service  
 1<sup>st</sup> Year Parts & Labor Warranty – Whole Unit  
 10-Year Compressor Parts ONLY Warranty  
 10-Year Heat Exchanger Parts ONLY Warranty

**Item: B1 Qty: 1 Tag(s): RTU-102**

12.5 Ton  
 460/60/3  
**Vibration Isolation Roof Curb (Fld)**

**Item: B2 Qty: 1 Tag(s): RTU-108**

12.5 Ton  
 208-230/60/3  
**Standard 14" High Roof Curb (Fld)**

**Item: B3 Qty: 1 Tag(s): RTU-107**

15 Ton  
 208-230/60/3  
**Adapter/Transition Roof Curb (Fld)**

**Item: B4 Qty: 2 Tag(s): RTU-101, RTU-109**

20 Ton  
 208-230/60/3

RTU-101 gets Vibration Isolation Roof Curb (Fld)  
 RTU-109 gets Adapter/Transition Roof Curb (Fld)

**Tag Data - Packaged Rooftop, Cooling / Heating Units (Qty: 2)**

Item	Tag(s)	Qty	Description	Model Number
C1	RTU-105A, RTU-105B	2	35-Ton eStage Gas/Elec RTU (460/3/60)	YCH420B4P-1B2DF6-BC-E--HHB0-K0R-000-00 00X---*-----2

**Product Data - Packaged Rooftop, Cooling / Heating Units**

**Item: C1 Qty: 2 Tag(s): RTU-105A, RTU-105B**

DX Cooling with Natural Gas Heat

**Horizontal Supply and Horizontal Return**

**35 Ton Unit**

460/3/60 Power Supply

**High Efficiency eStage Unit – (5) Stages of Cooling**

High Modulating Natural Gas Heating

Barometric Relief

2" MERV 8 High Efficiency, Throwaway Filter (one set only)

10 Hp Supply Motor

700/583 Supply Fan Drive

0-100% Economizer, Dry Bulb Control with Low Leak Fresh Air Damper

Single Zone VAV Control Sequence

Supply Fan VFD

Thru-The-Base Electrical Provision

Non-Fused Disconnect Switch

**FACTORY Powered Ground Fault 120-Volt Convenience Outlet**

Hinged Service Access

Louvered condenser coil hail guards

BACnet MS/TP Control Interface with Wireless Comm. Interface (WCI)

Clogged filter switch

Demand ventilation controls

Wall mounted humidity sensor (Fld)

Ventilation module - SZVAV (Fld)

CO2 (AirFi) Wireless Sensor (Fld)

Wireless zone sensor (Fld)

Low Ambient Cooling down to 0 F Ambient

**These Units get Equipment Rails since they are Side S/A and R/A Duct Connections**

**Services and Warranties included are:**

Rooftop Unit Startup Service

1<sup>st</sup> Year Parts & Labor Warranty – Whole Unit

10-Year Compressor Parts ONLY Warranty

10-Year Heat Exchanger Parts ONLY Warranty

**Tag Data - Ductless Mini-Splits Systems (Qty: 1)**

Item	Tag(s)	Qty	Description	Model Number
D1	HPDSS-1	1	1.5 Ton Heat Pump High Wall Evap DSS	4TXK1618A10N0A-4MXW1618A10N0A

**Product Data - Ductless Mini-Splits Systems**

**Item: D1 Qty: 1 Tag(s): HPDSS-1**

High Wall Outdoor Unit - (R-410A)-

Outdoor Unit

Heat Pump Inverter

Single Refrigerant Port

16 SEER

18000 Btu/h

208-230/60/1

-High Wall Indoor Unit - (R-410A) -

Indoor Unit

Heat Pump Inverter



High Wall Unit  
 16 SEER  
 18000 Btu/h  
 208-230/60/1  
 Wired Controller (Fld)  
 Drain Pump High Wall and Conv (Fld)  
**Outdoor Unit gets Roof Curb with Piping Portal (Fld)**

**Warranties & Services Include:**

Ductless Split System Startup Service  
 1<sup>st</sup> Year Parts & Labor Warranty – Whole System  
 5 Year Compressor Parts ONLY Warranty

**Bend Gate Elementary School**

**Tag Data - Air-Cooled Scroll Chiller (Qty: 1)**

Item	Tag(s)	Qty	Description	Model Number
E1	CH-1	1	130-Ton CGAM Chiller	CGAM130

**Product Data - Air-Cooled Scroll**

**Item: E1 Qty: 1 Tag(s): CH-1**

Air-Cooled Scroll Packaged Chiller  
 130 nominal tons  
 460/3/60 Power Supply  
 High efficiency/performance  
 Full factory refrigerant charge (HFC-410A)  
 With factory installed freeze protection  
 Refrigerant isolation valves (discharge valve)  
 UL listed to US and Canadian safety standard  
 ASHRAE 90.1 all versions up to 2016  
 AHRI certified  
 Factory installed flow switch - set point 60 cm/sec  
 Phase reversal protection  
 Std cooling (40 to 65F/4.44 to 18C)  
 Grooved pipe connection  
 Factory insulation 0.75" - all cold parts  
 Performance based on water  
 Wide ambient (0 to 125F/-18 to 52C)  
 Lanced aluminum fins  
 Across the line starter/direct on line  
 Single point connection main line unit power-ancillary items require other power  
 Circuit breaker  
 Enclosure type UL 1995 rated for outdoor applications  
 LonTalk/Tracer Summit interface (Trane Comm 5)  
 External chilled/hot water and demand limit setpoint - 4-20mA  
 With % capacity  
 Default A short circuit rating  
 Elastomeric isolators  
 With water strainer factory installed  
 Comprehensive acoustic package (lowest sound package available)  
 Architectural louvered panels

**Warranties & Services Included are:**

Chiller Startup by Trane  
 1<sup>st</sup> Year Parts, Labor, and Refrigerant Warranty – Whole Unit  
 10-Year Compressor Parts ONLY Warranty

**Total Net Price (Excluding Sales Tax) .....\$ 407,932.00**

Tax Status: Taxable <input type="checkbox"/>	IF EXEMPT PLEASE SUBMIT COMPLETED TAX EXEMPTION CERTIFICATE WITH YOUR SIGNED PROPOSAL OR WITH YOUR PURCHASING DOCUMENTS, KEEP YOUR ORIGINAL ON FILE IN THE OFFICE. YOU WILL BE CHARGED TAX IF A VALID EXEMPTION CERTIFICATE IS NOT ON FILE BEFORE EQUIPMENT, PARTS OR SERVICES ARE PROVIDED. SEE <a href="http://WWW.TAXSITES.COM/STATE-LINKS.HTML">WWW.TAXSITES.COM/STATE-LINKS.HTML</a> FOR TAX FORMS.
--	--

**This proposal and pricing are based on shipment of all products (not including field labor) by no later than 2nd quarter of 2018 year.**

**John W Burrows - Trane U.S. Inc.**

1024 E. Sycamore Street  
Evansville, IN 47714  
Phone: (812) 421-8725  
Cell: (859) 638-3326  
Fax: (812) 421-8735

**AGREED AND ACCEPTED:**

**Henderson County Board of Education**

By: \_\_\_\_\_  
Ms. Marganna Stanley  
Title: Superintendent  
Date: \_\_\_\_\_

**This proposal is subject to your acceptance of the attached Trane terms and conditions.**

**TERMS AND CONDITIONS - COMMERCIAL EQUIPMENT**

"Company" shall mean Trane Canada ULC for sales in Canada and Trane U.S. Inc. for sales in the United States.

**1. Acceptance.** These terms and conditions are an integral part of Company's offer and form the basis of any agreement (the "Agreement") resulting from Company's proposal (the "Proposal") for the sale of the described commercial equipment and any ancillary services (the "Equipment"). **COMPANY'S TERMS AND CONDITIONS ARE SUBJECT TO PERIODIC CHANGE OR AMENDMENT.** The Proposal is subject to acceptance in writing by the party to whom this offer is made or an authorized agent ("Customer") delivered to Company within 30 days from the date of the Proposal. If Customer accepts the Proposal by placing an order, without the addition of any other terms and conditions of sale or any other modification, Customer's order shall be deemed acceptance of the Proposal subject to Company's terms and conditions. If Customer's order is expressly conditioned upon Company's acceptance or assent to terms and/or conditions other than those expressed herein, return of such order by Company with Company's terms and conditions attached or referenced serves as Company's notice of objection to Customer's terms and as Company's counter-offer to provide Equipment in accordance with the Proposal and the Company's terms and conditions. If Customer does not reject or object in writing to Company within 10 days, Company's counter-offer will be deemed accepted. Customer's acceptance of the Equipment will in any event constitute an acceptance by Customer of Company's terms and conditions. This Agreement is subject to credit approval by Company. Upon disapproval of credit, Company may delay or suspend performance or, at its option, renegotiate prices and/or terms and conditions with Customer. If Company and Customer are unable to agree on such revisions, this Agreement shall be cancelled without any liability.

**2. Title and Risk of Loss.** All Equipment sales with destinations to Canada or the U.S. shall be made as follows: FOB Company's U.S. manufacturing facility or warehouse (full freight allowed). Title and risk of loss or damage to Equipment will pass to Customer upon tender of delivery of such to carrier at Company's U.S. manufacturing facility or warehouse.

**3. Pricing and Taxes.** Following acceptance without addition of any other terms and condition of sale or any other modification by Customer, the prices stated are firm provided that notification of release for immediate production and shipment is received at Company's factory not later than 3 months from order acceptance. If such release is received later than 3 months from order acceptance date, prices will be increased a straight 1% (not compounded) for each 1 month period (or part thereof) beyond the 3 month firm price period up to the date of receipt of such release. If such release is not received within 6 months after the date of order acceptance, the prices are subject to renegotiation or at Company's option, the order will be cancelled. Any delay in shipment caused by Customer's actions will subject prices to increase equal to the percentage increase in list prices during that period of delay and Company may charge Customer with incurred storage fees. In no event will prices be decreased. The price of Equipment does not include any present or future foreign, federal, state, or local property, license, privilege, sales, use, excise, value added, gross receipts or other like taxes or assessments. Such amounts will be itemized separately to Customer, who will make prompt payment to Company. Company will accept valid exemption documentation for such from Customer, if applicable. All prices include packaging in accordance with Company's standard procedures. Charges for special packaging, crating or packing are the responsibility of Customer.

**4. Delivery and Delays.** Delivery dates are approximate and not guaranteed. Company will use commercially reasonable efforts to deliver the Equipment on or before the estimated delivery date will notify Customer if the estimated delivery dates cannot be honored, and will deliver the Equipment and services as soon as practicable thereafter. In no event will Company be liable for any damages or expenses caused by delays in delivery.

**5. Performance.** Company shall be obligated to furnish only the Equipment described in the Proposal and in submittal data (if such data is issued in connection with the order). Company may rely on the acceptance of the Proposal, and in submittal data as acceptance of the suitability of the Equipment for the particular project or location. Unless specifically stated in the Proposal, compliance with any local building codes or other laws or regulations relating to specifications or the location, use or operation of the Equipment is the sole responsibility of Customer. If Equipment is tendered that does not fully comply with the provisions of this Agreement, and Equipment is rejected by Customer, Company will have the right to cure within a reasonable time after notice thereof by substituting a conforming tender whether or not the time for performance has passed.

**6. Force Majeure.** Company's duty to perform under this Agreement and the Equipment prices are contingent upon the non-occurrence of an Event of Force Majeure. If the Company shall be unable to carry out any material obligation under this Agreement due to an Event of Force Majeure, this Agreement shall at Company's election (i) remain in effect but Company's obligations shall be suspended until the uncontrollable event terminates or (ii) be terminated upon 10 days notice to Customer, in which event Customer shall pay Company for all parts of the Work furnished to the date of termination. An "Event of Force Majeure" shall mean any cause or event beyond the control of Company. Without limiting the foregoing, "Event of Force Majeure" includes: acts of God; acts of terrorism, war or the public enemy; flood; earthquake; tornado; storm; fire; civil disobedience; pandemic insurrections; riots; labor/labour disputes; labor/labour or material shortages; sabotage; restraint by court order or public authority (whether valid or invalid); and action or non-action by or inability to obtain or keep in force the necessary governmental authorizations, permits, licenses, certificates or approvals if not caused by Company; and the requirements of any applicable government in any manner that diverts either the material or the finished product to the direct or indirect benefit of the government.

**7. Limited Warranty.** Company warrants the Equipment manufactured by Company for a period of the lesser of 12 months from initial start-up or 18 months from date of shipment, whichever is less, against failure due to defects in material and manufacture and that it has the capacities and ratings set forth in Company's catalogs and bulletins ("Warranty"). **Equipment manufactured by Company that includes required start-up and sold in North America will not be warranted by Company unless Company performs the Equipment startup.** Exclusions from this Warranty include damage or failure arising from: wear and tear; corrosion, erosion, deterioration; modifications made by others to the Equipment; repairs or alterations by a party other than Company that adversely affects the stability or reliability of the Equipment; vandalism; neglect; accident; adverse weather or environmental conditions; abuse or improper use; improper installation; commissioning by a party other than Company; unusual physical or electrical or mechanical stress; operation with any accessory, equipment or part not specifically approved by Company; refrigerant not supplied by Company; and/or lack of proper maintenance as recommended by Company. Company shall not be obligated to pay for the cost of lost refrigerant or lost product. Company's obligations and liabilities under this Warranty are limited to furnishing replacement equipment or parts, at its option, FCA (Incoterms 2000) factory or warehouse (f.o.b. factory or warehouse for US domestic purposes) at Company-designated shipping point, freight-allowed to Company's warranty agent's stock location, for all non-conforming Company-manufactured Equipment (which have been returned by Customer to Company. Returns must have prior written approval by Company and are subject to restocking charge where applicable. Equipment, material and/or parts that are not manufactured by Company are not warranted by Company and have such warranties as may be extended by the respective manufacturer. **COMPANY MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, REGARDING PREVENTION OF MOLD/MOULD, FUNGUS, BACTERIA, MICROBIAL GROWTH, OR ANY OTHER CONTAMINATES.** No warranty liability whatsoever shall attach to Company until Customer's complete order has been paid for in full and Company's liability under this Warranty shall be limited to the purchase price of the Equipment shown to be defective. Additional warranty protection is available on an extra-cost basis and must be in writing and agreed to by an authorized signatory of the Company. **EXCEPT FOR COMPANY'S WARRANTY EXPRESSLY SET FORTH HEREIN, COMPANY DOES NOT MAKE, AND HEREBY EXPRESSLY DISCLAIMS, ANY WARRANTIES, EXPRESS OR IMPLIED CONCERNING ITS PRODUCTS, EQUIPMENT OR SERVICES, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF DESIGN, MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, OR OTHERS THAT ARE ALLEGED TO ARISE FROM COURSE OF DEALING OR TRADE.**

**8. Indemnity.** To the fullest extent permitted by law, Company and Customer shall indemnify, defend and hold harmless each other from any and all claims, actions, costs, expenses, damages and liabilities, including reasonable attorneys' fees, resulting from death or bodily injury or damage to real or personal property, to the extent caused by the negligence or misconduct of their respective employees or other authorized agents in connection with their activities within the scope of this Agreement. Neither party shall indemnify the other against claims, damages, expenses or liabilities to the extent attributable to the acts or omissions of the other party. If the parties are both at fault, the obligation to indemnify shall be proportional to their relative fault. The duty to indemnify will continue in full force and effect, notwithstanding the expiration or early termination hereof, with respect to any claims based on facts or conditions that occurred prior to expiration or termination.

**9. Insurance.** Upon request, Company will furnish evidence of its standard insurance coverage. If Customer has requested to be named as an additional insured under Company's insurance policy, Company will do so but only subject to Company's manuscript additional insured endorsement under its primary Commercial General Liability policies. In no event does Company waive any rights of subrogation.

**10. Customer Breach.** Each of the following events or conditions shall constitute a breach by Customer and shall give Company the right, without an election of remedies, to terminate this Agreement, require payment prior to shipping, or suspend performance by delivery of written notice: (1) Any failure by Customer to pay amounts when due; or (2) any general assignment by Customer for the benefit of its creditors, or if Customer becomes bankrupt or insolvent or takes the benefit of any statute for bankrupt or insolvent debtors, or makes or proposes to make any proposal or arrangement with creditors, or if any steps are taken for the winding up or other termination of Customer or the liquidation of its assets, or if a trustee, receiver, or similar person is appointed over any of the assets or interests of Customer; (3) Any representation or warranty furnished by Customer in connection with this Agreement is false or misleading in any material respect when made; or (4) Any failure by Customer to perform or comply with any material provision of this Agreement. Customer shall be liable to the Company for all Equipment furnished and all damages sustained by Company (including lost profit and overhead).

**11. Limitation of Liability.** **NOTWITHSTANDING ANYTHING TO THE CONTRARY, IN NO EVENT SHALL COMPANY BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT CONSEQUENTIAL, OR PUNITIVE OR EXEMPLARY DAMAGES (INCLUDING WITHOUT LIMITATION REFRIGERANT LOSS, BUSINESS INTERRUPTION, LOST DATA, LOST REVENUE, LOST PROFITS) EVEN IF A PARTY HAS BEEN ADVISED OF SUCH POSSIBLE DAMAGES OR IF SAME WERE REASONABLY FORESEEABLE AND REGARDLESS OF WHETHER THE CAUSE OF ACTION IS FRAMED IN CONTRACT, NEGLIGENCE, ANY OTHER TORT, WARRANTY, STRICT LIABILITY, OR PRODUCT LIABILITY).** In no event will Company's liability in connection with the provision of products or services or otherwise under this Agreement exceed the entire amount paid to Company by Customer under this Agreement.

**12. Nuclear Liability.** In the event that the Equipment sold hereunder is to be used in a nuclear facility, Customer will, prior to such use, arrange for insurance or governmental indemnity protecting Company against all liability and hereby releases and agrees to indemnify Company and its suppliers for any nuclear damage, including loss of use, in any manner arising out of a nuclear incident, whether alleged to be due, in whole or in part to the negligence or otherwise of Company or its suppliers.

**13. Intellectual Property; Patent Indemnity.** Company retains all ownership, license and other rights to all patents, trademarks, copyrights, trade secrets and other intellectual property rights related to the Equipment, and, except for the right to use the Equipment sold, Customer obtains no rights to use any such intellectual property. Company agrees to defend any suit or proceeding brought against Customer so far as such suit or proceeding is solely based upon a claim that the use of the Equipment provided by Company constitutes infringement of any patent of the United States of America, provided Company is promptly notified in writing and given authority, information and assistance for defense of same. Company will, at its option, procure for Customer the right to continue to use said Equipment, or modify it so that it becomes non-infringing, or replace same with non-infringing Equipment, or to remove said Equipment and to refund the purchase price. The foregoing will not be construed to include any Agreement by Company to accept any liability whatsoever in respect to patents for inventions including more than the Equipment furnished hereunder, or in respect of patents for methods and processes to be carried out with the aid of said Equipment. The provision of Equipment by Company does not convey any license, by implication, estoppel, or otherwise, under patent claims covering combinations of said Equipment with other devices or elements. The foregoing states the entire liability of Company with regard to patent infringement. Notwithstanding the provisions of this paragraph, Customer will hold Company harmless against any expense or loss resulting from infringement of patents or trademarks arising from compliance with Customer's designs or specifications or instructions.

**14. Cancellation.** Equipment is specially manufactured in response to orders. An order placed with and accepted by Company cannot be delayed, canceled, suspended, or extended except with Company's written consent and upon written terms accepted by Company that will reimburse Company for and indemnify Company against loss and provide Company with a reasonable profit for its materials, time, labor, services, use of facilities and otherwise. Customer will be obligated to accept any Equipment shipped, tendered for delivery or delivered by Company pursuant to the order prior to any agreed delay, cancellation, suspension or extension of the order. Any attempt by Customer to unilaterally revoke, delay or suspend acceptance for any reason whatever after it has agreed to delivery of or accepted any shipment shall constitute a breach of this Agreement. For purposes of this paragraph, acceptance occurs by any waiver of inspection, use or possession of Equipment, payment of the invoice, or any indication of exclusive control exercised by Customer.

**15. Invoicing and Payment.** Equipment shall be invoiced to Customer upon tender of delivery thereof to the carrier. Customer shall pay Company's invoices within net 30 days of shipment date. Company reserves the right to add to any account outstanding for more than 30 days a service charge equal to the lesser of the maximum allowable legal interest rate or 1.5% of the principal amount due at the end of each month. Customer shall pay all costs (including attorneys' fees) incurred by Company in attempting to collect amounts due and otherwise enforcing these terms and conditions. If requested, Company will provide appropriate lien waivers upon receipt of payment. Company may at any time decline to ship, make delivery or perform work except upon receipt of cash payment, letter of credit, or security, or upon other terms and conditions satisfactory to Company. Customer agrees that, unless Customer makes payment in advance, Company will have a purchase money security interest in all Equipment to secure payment in full of all amounts due Company and its order for the Equipment, together with these terms and conditions, form a security agreement (as defined by the UCC in the United States and as defined in the Personal Property Security Act in Canada). Customer shall keep the Equipment free of all taxes and encumbrances, shall not remove the Equipment from its original installation point and shall not assign or transfer any interest in the Equipment until all payments due Company have been made. The purchase money security interest granted herein attaches upon Company's acceptance of Customer's order and on receipt of the Equipment described in the accepted Proposal but prior to its installation. The parties have no agreement to postpone the time for attachment unless specifically noted in writing on the accepted order. Customer will have no rights of set off against any amounts, which become payable to Company under this Agreement or otherwise.

**16. Claims.** Company will consider claims for concealed shortages in shipments or rejections due to failure to conform to an order only if such claims or rejections are made in writing within 15 days of delivery and are accompanied by the packing list and, if applicable, the reasons in detail why the Equipment does not conform to Customer's order. Upon receiving authorization and shipping instructions from authorized personnel of Company, Customer may return rejected Equipment, transportation charges prepaid, for replacement. Company may charge Customer any costs resulting from the testing, handling, and disposition of any Equipment returned by Customer which are not found by Company to be nonconforming. All Equipment damaged during shipment and all claims relating thereto must be made with the freight carrier in accordance with such carrier's policies and procedures. Claims for Equipment damaged during shipment are not covered under the warranty provision stated herein.

**17. Export Laws.** The obligation of Company to supply Equipment under this Agreement is subject to the ability of Company to supply such items consistent with applicable laws and regulations of the United States and other governments. Company reserves the right to refuse to enter into or perform any order, and to cancel any order, under this Agreement if Company in its sole discretion determines that performance of the transaction to which such order relates would violate any such applicable law or regulation. Customer will pay all handling and other similar costs from Company's factories including the costs of freight, insurance, export clearances, import duties and taxes. Customer will be "exporter of record" with respect to any export from the United States of America and will perform all compliance and logistics functions in connection therewith and will also comply with all applicable laws, rules and regulations. Customer understands that Company and/or the Equipment are subject to laws and regulations of the United States of America which may require licensing or authorization for and/or prohibit export, re-export or diversion of Company's Equipment to certain countries, and agrees it will not knowingly assist or participate in any such diversion or other violation of applicable United States of America laws and regulations. Customer agrees to hold harmless and indemnify Company for any damages resulting to Customer or Company from a breach of this paragraph by Customer.

**18. General.** Except as provided below, to the maximum extent provided by law, this Agreement is made and shall be interpreted and enforced in accordance with the laws of the state of New York for Equipment shipped to a U.S. location and the laws of the province to which Equipment is

shipped within Canada, without regard to its conflict of law principles that might otherwise call for the application of a different state's or province's law, and not including the United Nations Convention on Contracts for the International Sale of Goods. Any action or suit arising out of or related to this Agreement must be commenced within one year after the cause of action has accrued. To the extent the Equipment is being used at a site owned and/or operated by any agency of the Federal Government, determination of any substantive issue of law shall be according to the Federal common law of Government contracts as enunciated and applied by Federal judicial bodies and boards of contract appeals of the Federal Government. This Agreement contains all of the agreements, representations and understandings of the parties and supersedes all previous understandings, commitments or agreements, oral or written, related to the subject matter hereof. This Agreement may not be amended, modified or terminated except by a writing signed by the parties hereto. No documents shall be incorporated herein by reference except to the extent Company is a signatory thereon. If any term or condition of this Agreement is invalid, illegal or incapable of being enforced by any rule of law, all other terms and conditions of this Agreement will nevertheless remain in full force and effect as long as the economic or legal substance of the transaction contemplated hereby is not affected in a manner adverse to any party hereto. Customer may not assign, transfer, or convey this Agreement, or any part hereof, or its right, title or interest herein, without the written consent of the Company. Subject to the foregoing, this Agreement shall be binding upon and inure to the benefit of Customer's permitted successors and assigns. This Agreement may be executed in several counterparts, each of which when executed shall be deemed to be an original, but all together shall constitute but one and the same Agreement. A fully executed facsimile copy hereof or the several counterparts shall suffice as an original.

**19. Equal Employment Opportunity/Affirmative Action Clause.** Company is a federal contractor that complies fully with Executive Order 11246, as amended, and the applicable regulations contained in 41 C.F.R. Parts 60-1 through 60-60, 29 U.S.C. Section 793 and the applicable regulations contained in 41 C.F.R. Part 60-741; and 38 U.S.C. Section 4212 and the applicable regulations contained in 41 C.F.R. Part 60-250 Executive Order 13496 and Section 29 CFR 471, appendix A to subpart A, regarding the notice of employee rights in the United States and with Canadian Charter of Rights and Freedoms Schedule B to the Canada Act 1982 (U.K.) 1982, c. 11 and applicable Provincial Human Rights Codes and employment law in Canada.

**20. U.S. Government Work.**

**The following provision applies only to direct sales by Company to the US Government.** The Parties acknowledge that Equipment ordered and delivered under this Agreement are Commercial Items as defined under Part 12 of the Federal Acquisition Regulation (FAR). In particular, Company agrees to be bound only by those Federal contracting clauses that apply to "commercial" suppliers and that are contained in FAR 52.212-5(e)(1).

**The following provision applies only to indirect sales by Company to the US Government.** As a Commercial Item Subcontractor, Company accepts only the following mandatory flow down provisions: 52.219-8; 52.222-26; 52.222-35; 52.222-36; 52.222-39; 52.247-64. If the sale of the Equipment is in connection with a U.S. Government contract, Customer certifies that it has provided and will provide current, accurate, and complete information, representations and certifications to all government officials, including but not limited to the contracting officer and officials of the Small Business Administration, on all matters related to the prime contract, including but not limited to all aspects of its ownership, eligibility, and performance. Anything herein notwithstanding, Company will have no obligations to Customer unless and until Customer provides Company with a true, correct and complete executed copy of the prime contract. Upon request, Customer will provide copies to Company of all requested written communications with any government official related to the prime contract prior to or concurrent with the execution thereof, including but not limited to any communications related to Customer's ownership, eligibility or performance of the prime contract. Customer will obtain written authorization and approval from Company prior to providing any government official any information about Company's performance of the work that is the subject of the Proposal or this Agreement, other than the Proposal or this Agreement.

**21. Limited Waiver of Sovereign Immunity.** If Customer is an Indian tribe (in the U.S.) or a First Nation or Band Council (in Canada), Customer, whether acting in its capacity as a government, governmental entity, a duly organized corporate entity or otherwise, for itself and for its agents, successors, and assigns: (1) hereby provides this limited waiver of its sovereign immunity as to any damages, claims, lawsuit, or cause of action (herein "Action") brought against Customer by Company and arising or alleged to arise out of the furnishing by Company of any product or service under this Agreement, whether such Action is based in contract, tort, strict liability, civil liability or any other legal theory; (2) agrees that jurisdiction and venue for any such Action shall be proper and valid (a) if Customer is in the U.S., in any state or United States court located in the state in which Company is performing this Agreement or (b) if Customer is in Canada, in the superior court of the province or territory in which the work was performed; (3) expressly consents to such Action, and waives any objection to jurisdiction or venue; (4) waives any requirement of exhaustion of tribal court or administrative remedies for any Action arising out of or related to this Agreement; and (5) expressly acknowledges and agrees that Company is not subject to the jurisdiction of Customer's tribal court or any similar tribal forum, that Customer will not bring any action against Company in tribal court, and that Customer will not avail itself of any ruling or direction of the tribal court permitting or directing it to suspend its payment or other obligations under this Agreement. The individual signing on behalf of Customer warrants and represents that such individual is duly authorized to provide this waiver and enter into this Agreement and that this Agreement constitutes the valid and legally binding obligation of Customer, enforceable in accordance with its terms.

1-26.130-4 (0614)  
Supersedes 1-26.130-4(0214)



**Attachment C**  
**Description of the Premises**

The Premises are described as follows:

**Henderson County High School**

Grades 09-12  
Est. Teachers 117, Est. Enrollment 2046  
2424 Zion Rd.  
Henderson, KY 42420

**Henderson County North Middle School**

Grades 06-08  
Est. Teachers 47, Est. Enrollment 868  
1707 Second St.  
Henderson, KY 42420

**Henderson County South Middle School**

Grades 06-08  
Est. Teachers 43, Est. Enrollment 758  
800 S. Alves St.  
Henderson, KY 42420

**A.B. Chandler Elementary School**

Grades P-05  
Est. Teachers 20, Est. Enrollment 338  
11215 U.S. 60 W.  
Corydon, KY 42406

**Bend Gate Elementary School**

Grades P-05  
Est. Teachers 29, Est. Enrollment 553  
920 Bend Gate Rd.  
Henderson, KY 42420

**Cairo Elementary School**

Grades K-05  
Est. Teachers 16, Est. Enrollment 300  
10694 Hwy. 41-A  
Henderson, KY 42420

**East Heights Elementary School**

Grades P-05  
Est. Teachers 30, Est. Enrollment 611  
1776 Adams Ln.  
Henderson, KY 42420

**Niagara Elementary School**

Grades K-05  
Est. Teachers 17, Est. Enrollment 317  
13043 Hwy. 136 E.  
Henderson, KY 42420

**South Heights Elementary School**

Grades K-05

Est. Teachers 31, Est. Enrollment 575

1199 Madison St.

Henderson, KY 42420

**Thelma B. Johnson Early Learning Center**

Grades Pre-K

Est. Teachers 14, Est. Enrollment 356

631 N. Green St.

Henderson, KY 42420

**Henderson County Board of Education**

1805 Second St.

Henderson, KY 42420

**Bus Garage / Maintenance Building**

5704 Airline Rd.

Henderson, KY 42420

**Attachment D**  
**Notice to Proceed**

**Henderson County Board of Education**  
**Trane Project No.: P6-18026**

Henderson County Board of Education ("Owner") has closed on its financing (the "Financing Closing") of the **STANDARD FORM OF AGREEMENT BETWEEN OWNER AND DESIGN BUILDER AIA141-2004**, between Owner and Trane U.S., Inc. ("Qualified Provider") dated February 19, 2018 (together with Addendum No. 1 thereto and all Exhibits and Attachments thereof, the "Agreement") as evidenced by the attached fully executed contract documents for financing of the Stipulated Sum and funding of any escrow account provided for by the financing documents.

The entity providing funding to Customer:

Company Name: Ross Sinclair & Associates  
Address: 325 West Main Street Suite 300  
Lexington, Kentucky 40507  
Contact Name: Joe Nance  
Telephone No.: (859) 977-6600  
Email: [jnance@rsamuni.com](mailto:jnance@rsamuni.com)

Pursuant to Section 5 of Addendum No. 1 of the Agreement, Owner hereby executes and issues this written Notice to Proceed authorizing Qualified Provider to immediately commence performance of the Work in accordance with the Agreement.

**Henderson County Board of Education**

By: Mr. Marganna Stanley

Title: Superintendent

Dated: \_\_\_\_\_

***Attachment E***  
***Hazardous Materials***

Pursuant to Section 13 of Addendum No. 1 to the Agreement, the existence of the following Hazardous Materials has been disclosed by Customer and/or otherwise identified prior to the execution of the Agreement:

- Any PCB containing ballasts and mercury containing lamps which are discovered shall be replaced by Qualified Provider and disposed of by Qualified Provider's licensed subcontractor; provided, however, Owner shall at all times remain the owner/generator of the Hazardous Material.