



The Customer:	Denton Independent School District	Job Name:	Denton ISD Lighting Retrofit Program
Address:	230 N. Mayhill Denton, TX 76208	Address:	230 N. Mayhill Denton, Texas 76208
Contact:	Mr. Paul Andress		
Phone No.:	(940) 369-0230	Date:	March 1, 2010
E-mail:	pandress@dentonisd.org	Proposal:	Denton ISD Lighting Retrofit Program

TDIndustries, Inc. is very pleased to have the opportunity to provide pricing to the Denton Independent School District (hereinafter referred to as the “the Customer”) through our contract 09/023DR08 with the Choice Facility Partners Purchasing Cooperative to provide a Lighting Retrofit Program as described in the following sections of this proposal:

Schedule 1--Scope of Work Schedule
Schedule 4--Term and Payment Schedule

- 1. SCOPE.** TDIndustries will provide the Customer with the work identified on Schedule 1 of this Contract (Scope of Work). TDIndustries will perform the Work in compliance with all applicable federal, state or local laws, regulations or codes. TDIndustries will supervise and direct the Work and will be solely responsible for all construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work under this Contract. TDIndustries will be responsible to pay for all labor, materials, equipment, tools, construction equipment and machinery, transportation, and other facilities and services necessary for the proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.
- 2. COMMENCEMENT DATE AND SUBSTANTIAL COMPLETION DATE.** The Commencement Date and the Substantial Completion Date for the Work will be as set forth in Schedule 4 of this Contract. Substantial completion means that TDIndustries has provided sufficient materials and services to permit the Customer to achieve the intended benefit from the Work.
- 3. PRICE AND PAYMENT.** The total price for TDIndustries Work under this Contract will be as set forth in Schedule 4 of this Contract. The Customer will make progress payments as set forth in Schedule 4 (which reflects an amount less 5% retainage), for all materials delivered to the project or to an off-site storage facility and for all Work performed on-site and off-site. Final payment, constituting the 5% retainage and any unpaid balance for the Work, will be made to TDIndustries within 30 days after the Substantial Completion Date. Payments may be withheld on account of any breach of this Contract by TDIndustries and claims by third parties including TDIndustries subcontractors and material suppliers), but only to the extent that TDIndustries has been paid, and written notice has been provided to TDIndustries and TDIndustries has failed, within ten days of the date of receipt of such notice, and to the extent that security provided hereunder is not adequate to protect the Customer from any loss, cost or expense related to such claims.
- 4. TAXES, PERMITS, AND FEES.** TDIndustries will be responsible for obtaining all permits and related permit fees associated with the Work and Services. TDIndustries will pay sales, consumer, use, and other similar taxes and



will secure and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for proper execution. The Customer will be responsible for securing any necessary approvals, easements, assessments, or zoning changes and will be responsible for real estate and personal property taxes where applicable. Further, the Customer will be responsible for assisting TDIndustries, to the extent required, in obtaining all necessary permits for the Work and Services. If the Customer is a tax-exempt entity, it will cooperate reasonably with TDIndustries to ensure purchases of materials or equipment required under this Contract to enjoy any reasonable favorable tax considerations available under applicable State or local law or regulation.

5. **WARRANTY.** TDIndustries warrants that materials and equipment furnished by TDIndustries will be of good quality and new; that the Work will be free from defects not inherent in the quality required or permitted; and that the design, engineering, and installation services it performs will be performed consistent with good engineering practices. TDIndustries warrants that the Work will be free from defects in material and workmanship arising from normal usage for a period of one year from the Substantial Completion Date. TDIndustries will assign all manufacturers' warranties capable of being assigned to the Customer upon the Substantial Completion Date. Upon written notice from the Customer, TDIndustries will, at its option, repair or replace the defective Work. These warranties do not extend to any Work that has been repaired by others, abused, altered, misused, or that has not been properly and reasonably maintained. **THESE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THOSE OF MERCHANTABILITY AND FITNESS FOR A SPECIFIC PURPOSE.**
6. **CLEANUP.** TDIndustries will keep the premises and the surrounding area free from accumulation of waste materials or rubbish caused by the Work and, upon completion of the Work, TDIndustries will supply on-site receptacles and remove all waste materials, rubbish, tools, construction equipment, machinery, and surplus materials.
7. **SAFETY.** TDIndustries will be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Work. TDIndustries will comply with all applicable laws, ordinances, rules, regulations, and lawful orders of public authorities related to safety of persons or property.
8. **HAZARDOUS MATERIALS.** Unless specifically noted in Schedule 1, TDIndustries obligations expressly exclude any Work or Services of any nature associated or connected with the identification, abatement, cleanup, control, removal, or disposal of hazardous materials or substances, including but not limited to asbestos or PCBs, in or on the premises. In the event that TDIndustries (i) encounters any friable asbestos which is in the immediate vicinity of its Work, or (ii) determines that its Work will result in the disturbance of asbestos containing material, or (iii) that the presence of asbestos containing material will impede its Work, TDIndustries will notify the Customer immediately of the same and the Customer will either, (1) amend the scope of Work under the Contract in accordance with Sections 18 and 21 to exclude such areas, and will revise the savings guarantee accordingly; or will (2) at its cost, cause the asbestos to be promptly and properly removed, enclosed, encapsulated or otherwise abated.



- 9. INSURANCE** Prior to commencing the Work, TDIndustries will provide a certificate of insurance to the Customer showing its insurance coverages and the Customer as an additional insured, and TDIndustries will maintain such insurance in full force and effect at all times until the Work has been completed, in the following minimum amounts:

COVERAGES	LIMITS OF LIABILITY
Workmen's Compensation or Self Insurance Including Employer's Liability	Statutory
Commercial General Liability Including Contractual	\$1,000,000 Each Occurrence \$5,000,000 Aggregate
Automobile Liability	\$1,000,000 Each Occurrence
Excess Liability	\$5,000,000 Each Occurrence \$5,000,000 Aggregate

The Customer may obtain builder's risk insurance if it desires to do so, and will name TDIndustries as an additional insured and assume full responsibility for any risk of loss to the Work not resulting from a negligent act or willful misconduct by TDIndustries. TDIndustries will be responsible for all materials, stored on or off site, until final Project acceptance. Nothing herein will be deemed to require the Customer to obtain builder's risk insurance.

- 10. INDEMNITY.** TDIndustries will indemnify and hold harmless the Customer, its employees, agents, and assigns against all claims, actions, damages, liabilities, and expenses, including attorney's fees, arising out of or related to any claims of patent infringement and any claims of construction or materialman's lien made by any subcontractors or materialman. TDIndustries will also indemnify and hold harmless the Customer, its employees, agents, and assigns against all claims, actions, damages, liabilities, and expenses, including attorney's fees, arising out of or related to personal injury or property damage to the extent caused by TDIndustries negligence or willful misconduct in connection with the performance of the Work.
- 11. DELAYS.** TDIndustries will not be liable for any delay in the performance of the Work for any reason beyond TDIndustries control and without TDIndustries negligence, including without limitation labor disputes, fire, riots, unusual delay in deliveries, abnormal adverse weather conditions, or by the failure of the Customer to perform its obligations under the Contract and Schedules or its failure to cooperate with TDIndustries in the timely completion of the Work. In the event of such delays, TDIndustries will be entitled to an extension of time to complete the contract. In addition, if delays to TDIndustries performance of the Work are caused by the Customer or an entity under the control or direction of the Customer, TDIndustries will be entitled to additional compensation, if applicable, in addition to an extension of time to complete the Contract. Any such request for compensation will conform to the requirements of Section 19 herein.
- 12. TDIndustries PROPERTY.** All materials - other than plans, drawings, and other design documents - that are used by TDIndustries personnel at the installation site, including documentation, schematics, test equipment, software, and associated media remain the exclusive property of TDIndustries. The Customer agrees not to use such materials for any purpose at any time. The Customer agrees to allow TDIndustries personnel to retrieve and to remove all such materials remaining after installation or maintenance operations have been completed. The Customer acknowledges that all TDIndustries software is proprietary and will be delivered only under the provisions of an appropriate Software License Agreement that will limit its use to the system purchased under this Contract.
- 13. LIABILITY.** Neither party will be liable for any incidental, indirect, special, punitive or consequential damages arising in any manner from the Work or Services. Notwithstanding any other provision of this Contract,



TDIndustries, its officers, employees, agents, affiliates, or sub-contractor's aggregate liability in contract, tort, or otherwise, without limitation, under this Contract, will in all cases be limited to the sum of the payments received by TDIndustries pursuant to this Contract

- 14. DISPUTES.** If a dispute arises under this Contract, the parties will promptly attempt in good faith to resolve the dispute by negotiation. All disputes not resolved by negotiation will be brought in a court of competent jurisdiction in the Customer, Texas, unless the parties, by mutual agreement, choose to pursue arbitration, or some other form of alternative dispute resolution. Should the parties choose arbitration, all disputes will be resolved in accordance with the Commercial Rules of the American Arbitration Association with such disputes to be decided by a single arbitrator. A decision will be rendered by the arbitrator no later than nine months after the demand for arbitration is filed, and the arbitrator will state in writing the factual and legal basis for the award. The arbitrator will issue a scheduling order that will not be modified except by the mutual agreement of the parties. Judgment may be entered upon the award in the highest state or federal court having jurisdiction over the matter. The prevailing party will recover all costs, including attorney's fees, incurred as a result of the dispute.
- 15. DEFAULTS BY THE CUSTOMER AND TDINDUSTRIES.** The Customer will be in default under this Contract upon the occurrence of any of the following:
- A. The Customer fails to pay when due any amount to be paid under this Contract and such failure continues for a period of five (5) working days after notice of overdue payment is delivered by TDIndustries to the Customer;
 - B. The Customer fails to perform or meet any of its required duties or obligations under this Contract and fails to cure such failure and the effects of such failure within thirty (30) days of receipt of written notice of default, unless such failures and effects cannot be completely cured within thirty (30) days after said written notice, in which case a default will exist only if the Customer does not commence and diligently pursue to cure such failure and effects as soon as possible, subject to approval by TDIndustries with such approval not to be unreasonably withheld;
 - C. The Customer goes into receivership, or makes an assignment for the benefit of creditors whether voluntary or involuntary, or a petition is filed by or against the Customer under any bankruptcy, insolvency or similar law.

TDIndustries will be in default under this Contract upon the occurrence of the following:

- A. TDIndustries fails to perform or meet any of its required duties or obligations under this Contract and fails to cure such failure or effects of such failure within thirty (30) days of receipt of written notice of default, unless such failure or effects cannot be completely cured within thirty (30) days after said written notice, in which case a default will exist only if TDIndustries does not commence and diligently pursue to cure such failure as soon as possible, subject to approval by the Customer with such approval not to be unreasonably withheld.
- 16. REMEDIES FOR DEFAULTS.** In the event the Customer defaults under this Contract:
- A. TDIndustries may bring actions for any remedies available at law or in equity or other appropriate proceedings for the recovery of direct damages, (including amounts past due), and/or bring an action in equity for specific performance; and
 - B. Without recourse to legal process, TDIndustries may terminate this Contract by delivery of written notice of termination.

In the event TDIndustries defaults under this Contract, the Customer may terminate this Contract and bring an action in law for direct damages.

- 17. MODIFICATIONS.** Additions, deletions, and modifications to this Contract and its Schedules may be made in writing upon the mutual agreement of the parties, and subject to the agreement of the Customer, such additions may include proposals from TDIndustries for additional Project Development Contract Schedules, Work, and Services.



18. NOTICES. All notices or communications related to this Contract will be in writing and will be deemed served if and when sent by facsimile or mailed by certified or registered mail to TDIndustries at TDIndustries, 13850 Diplomat Drive, Dallas, TX 75234 and to the Customer at the address listed on page 1 of this Contract.

19. ADDITIONAL TERMS.

- A. Any failure of a party to require strict performance by the other party, or any waiver by a party of any requirement of the other party under this Contract, does not consent to or waive any subsequent failure or breach.
- B. If any provision of this Contract is invalid under any applicable law, that provision will not apply, but the remaining provisions will apply as written, unless the result would be manifestly inequitable or unconscionable.
- C. The captions and titles in this Contract are for convenience only and will not affect the interpretation or meaning of this Contract.
- D. This Contract is the full Agreement between TDIndustries and the Customer as of the date it is signed. All previous conversations, correspondence, agreements, or representations related to this Contract are not part of this Contract between TDIndustries and the Customer. No modifications are binding on either party unless made in writing.
- E. This Contract will be construed in accordance with the laws of the state of the principal place of Business of the Customer at the time of the execution of this Contract.
- F. If there is more than one the Customer named in this Contract, the liability of each will be joint and several.
- G. The Customer's obligations and liabilities under this Contract are not affected by the expiration or termination of this Contract.

20. SCOPE OF WORK ADDITION AND CHANGES. Additional improvements or services throughout the multi-year term of the Contract or during the course of installing the improvements described in Schedule 1 and/or performing the services described in Schedule 3 may be of mutual benefit to the Customer and TDIndustries. Provided these meet agreed upon criteria, TDIndustries will submit them to the Customer for approval, either by the Customer's request or voluntarily. These will be a "change order" to this contract. The quantity, quality, dimensions, type or other characteristics of the Scope of Work may be changed only by written consent of the Customer and TDIndustries via the execution of a Change Order Form.

Dated _____

Denton Independent School District

TDIndustries, Inc.

Signature: _____

Signature: _____

Printed Name: _____

Printed Name: _____

Title: _____

Title: _____

Date: _____

Date: _____



Schedule 1 - SCOPE OF WORK

SCOPE. TDIndustries will provide the Customer with the work (Work) identified on this Schedule. TDIndustries will supervise and direct the Work and will be responsible for construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work under this Contract. TDIndustries will be responsible to pay for all labor, materials, equipment, tools, construction equipment and machinery, transportation, and other services necessary for the proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

SUMMARY OF WORK: The following summarizes the Scope of Work Provided by TDIndustries under this Contract:

Scope of Work Summary:
1. Lighting System Improvements
2. HVAC Retrofit / Building Automation Controls – Guyer High School Cooling Tower
3. Building Automation System Retrofit – Denton High School Gym / Locker Room Areas
4. Intelligent Irrigation control – Guyer High School

1. Lighting System Improvements:

TDIndustries has conducted a detailed audit of the Customer’s facility and has found that there is a significant opportunity for lighting system efficiency improvements. TDIndustries proposes to install new energy efficient lighting fixtures, as well as modifying existing fluorescent fixtures to increase their efficiency. In addition, TDIndustries will install new Classroom motion sensors, digital timer switches and emergency lighting fixtures as detailed in Table 1, which includes existing and proposed fixture types, quantities, for each area included in the energy audit.

In order to maximize the overall electric savings, TDIndustries proposes to optimize the existing light systems throughout the facility. This will include retrofitting and/or replacing a total of 602 lighting fixtures with more efficient T8 or compact fluorescent lamp technology.

It is also the responsibility of TDIndustries, acting as an agent for the Customer, to ensure the proper disposal of hazardous waste in accordance with the Federal, State and Local laws and regulations. If PCB light ballasts are found, they will be disposed of accordingly listing the Customer as the “Owner” and “Generator” of the ballast waste. A 3% stock of ballasts and 3% stock of lamps will be provided by TDIndustries after completion of installation to help accommodate any warranty period failures. The Customer will be responsible for installation of warranted Lighting devices.

1.0 Lighting Scope:

- 1) TDIndustries shall furnish and install the materials, equipment and labor to retrofit the lighting at the Customer site per the below specific scope of work and in accordance with a schedule approved by the Customer.
- 2) Any apparatus, appliance, accessory, material, appurtenance or labor that may be necessary to complete the work in accordance with the intent or purpose of these documents shall be required and provided as part of the work and included in the Construction Amount.
- 3) All work will meet local, area, state, and national codes for the proper installation of all retrofits.



- 4) TDIndustries will be responsible for all required permits, fee and licenses for the complete installation of this project. It will be TDIndustries responsibility to verify prior to commencing work.
- 5) TDIndustries will be responsible for all equipment handling.
- 6) TDIndustries shall provide a list of all names of all personnel working on project. Personnel will be required to dress in a professional manner wearing normal dress attire that clearly identifies all workers to be employees of TDIndustries or it'd Subcontractors. Personnel may be subject to a background check and drug test.
- 7) Prior to contract, the TDIndustries shall provide submittals, detailing the specifications for ballast's, lamps, etc. to be installed.
- 8) Prior to commencement of any work, TDIndustries will furnish the Customer with room-by-room audits and audit-numbered floor-plans for each building where work will be performed.

2.0 Working Hours / Access

- 1) All work will be performed with no interference of daily activities within the project sites. All work will be coordinated, with the Customer representatives and TDIndustries project manager to ensure the most efficient and professional installation.
- 2) Building access credentials will be issued to TDIndustries, as deemed necessary by the Customer. Any keys provided by the Customer will be the sole responsibility of the TDIndustries. All areas will be properly secured prior to completing work in that area each day. Access to secure areas will be coordinated with the Customer, and may require special time-of-day requirements.
- 3) All work will be performed in such away as to not disrupt normal work flow in the schools. Exact project schedule will be coordinated before any work on site begins.

3.0 Site Conditions

- 1) It is TDIndustries responsibility to review all areas of the project and familiarize itself with all systems, intent, and equipment prior to starting work so that the TDIndustries work plan will include provisions for all requirements.
- 2) TDIndustries shall protect all floors, walls and other items from damage. TDIndustries shall be responsible for any damage made during the retrofit.
- 3) TDIndustries will be responsible for all clean up of areas work is being performed in. No equipment will be allowed to remain unsecured prior to commencement of the Customer activities. All ladders, tools, etc. will be kept in an orderly fashion throughout the workday.
- 4) TDIndustries will be responsible for the proper storage of all equipment being furnished for this project and will keep secure all equipment until time of such equipment installation. All equipment stored at project site will be closely coordinated with the Customer's representative so as not to interfere with the daily activities of the project sites. TDIndustries may be required to furnish portable storage.
- 5) TDIndustries is responsible for field-verifying voltage before material ordering.



4.0 Disposal of Equipment and Hazardous Material

- 1) TDIndustries is not responsible for the removal of asbestos, PCB Ballasts and any other hazardous material discovered on the immediate work site. TDIndustries will cease Work on the area until the condition noted is remedied. All existing lamps will be disposed of by TDIndustries. TDIndustries warrants compliance with all Federal, state and local environmental laws and regulations for each material constituting or contained in the Work, and that the Work will be completed in accordance with all such Federal, state and local environmental laws. Prior to final billing, TDIndustries will deliver to the Customer the disposal invoices and certificates to evidence all such materials are disposed of as required by law.
- 2) TDIndustries will dispose of all equipment removed in performing specified retrofits. TDIndustries will furnish required containers for all removed equipment to include furnishing required dumpsters. Dumpsters will be located on project as directed by the Customer's representatives.

5.0 Warranty and Training

- 1) TDIndustries shall provide three (3) year material warrantee on newly installed lamps. There shall be a five (5) year warrantee on ballast's and during such time the manufacturer shall supply replacement ballast's.
- 2) TDIndustries will warranty all work performed for a period of one year from date of Final Completion.
- 3) TDIndustries shall supply 3% spare lamps and ballasts at the completion of the installation. This material will act as the supply for future failures during the remainder of the warrantee period.
- 4) TDIndustries will furnish expressed written warranties in the O&M manuals at the completion of the project to include the following:
- 5) Ballasts: five-year warranty on materials with \$12.00 labor replacement credit to the Customer at time of replacement.
- 6) All other materials furnished on this project will be covered by manufacturer's standard warranty.
- 7) TDIndustries shall prepare operation and maintenance manuals, schedule training for personnel on the operation and maintenance of the energy retrofits, and provide consultation during operation and installation.



6.0 Material Specifications

- 1) All fluorescent lamps shall be Sylvania.
- 2) 1-foot lamps shall be F13T8/CW, 13-watt, 4100k
- 3) 1.5-foot lamps shall be F15T8/CW, 15-watt, 4100k
- 4) 2-foot lamps shall be FO17/841/ECO, 17-watt, 4100k
- 5) 3-foot lamps shall be FO25/841/XP/ECO, 25-watt, 4100k
- 6) 4-foot lamps shall be FO32/841/XP/ECO, 32-watt, 4100k
- 7) Ballasts shall be Sylvania Quicktronic T8 instant start, premium efficient universal voltage.
- 8) Reflector kit for 2'x4' fixtures shall be U.S. Energy Sciences SKLF1 series reflector kit.
- 9) High bay fluorescent fixtures for gymnasiums shall be XtraLight FHB series, model FHB40632MNXXUIHO33O or equal.
- 10) High bay fluorescent fixtures for Facilities Warehouse shall be US Energy Sciences OHB series, model OHBL-632-EA, equipped with wire guards or approved equal.
- 11) All replacement lamps will be marked in an agreed to manner for ease of future identification by the Customer's Maintenance staff.



Ceiling Mounted Occupancy Sensor – based on WattStopper DT-200 Series

1. The Dual Technology sensor shall be capable of detecting presence in the control area by detecting doppler shifts in transmitted ultrasound and passive infrared heat changes.
2. Sensors shall use patent pending ultrasonic diffusion technology that spreads coverage to a wider area.
3. Sensor shall utilize Dual Sensing Verification Principle for coordination between ultrasonic and PIR technologies. Detection verification of both technologies must occur in order to activate lighting systems. Upon verification, detection by either shall hold lighting on.
4. Sensor shall have a retrigger feature in which detection by either technology shall retrigger the lighting system on within 5 seconds of being switched off.
5. Sensors shall be ceiling mounted with a flat, unobtrusive appearance and provide 360° coverage.
6. Ultrasonic sensing shall be volumetric in coverage with a frequency of 40 KHz. It shall utilize Advanced Signal Processing that automatically adjusts the detection threshold dynamically to compensate for changing levels of activity and airflow throughout controlled space.
7. To avoid false ON activations and to provide immunity to RFI and EMI, Detection Signature Analysis shall be used to examine the frequency, duration, and amplitude of a signal, to respond only to those signals caused by human motion.
8. The PIR technology shall utilize a temperature compensated, dual element sensor and a multi-element Fresnel lens. The lens shall be Poly IR4 material to offer superior performance in the infrared wavelengths and filter short wavelength IR, such as those emitted by the sun and other visible light sources. The lens shall have grooves facing in to avoid dust and residue build up which affects IR reception.
9. DT-200 and DT-205 sensors shall operate at 24 VDC/VAC and halfwave rectified and utilize a Watt Stopper power pack.
10. Sensors shall utilize SmartSet™ technology to optimize time delay and sensitivity settings to fit occupant usage patterns. The use of SmartSet shall be selectable with a DIP switch.
11. Sensors shall have a time delay that is adjusted automatically (with the SmartSet setting) or shall have a fixed time delay of 5 to 30 minutes, set by DIP switch. The initial setting for these devices will be 30 minutes.
12. Sensors shall feature a walk-through mode, where lights turn off 3 minutes after the area is initially occupied if no motion is detected after the first 30 seconds.
13. The DT-200 sensors shall have a built-in light level sensor that works from 10 to 300 foot candles.
14. The DT-200 sensors shall have a manual on function that is facilitated by installing a momentary switch.
15. Sensors shall have eight occupancy logic options that give the ability to customize control to meet application needs.
16. The sensors shall feature terminal style wiring, which makes installation easier.
17. DT-300 sensor shall have an additional single-pole, double throw isolated relay with normally open, normally closed and common outputs. The isolated relay is for use with HVAC control, data logging, and other control options.
18. Each sensing technology shall have an LED indicator that remains active at all times in order to verify detection within the area to be controlled. The LED can be disabled for applications that require less sensor visibility.
19. To ensure quality and reliability, sensor shall be manufactured by an ISO 9002 certified manufacturing facility and shall have a defect rate of less than 1/3 of 1%.
20. Sensors shall have standard 5 year warranty and shall be UL and CUL listed.



Power Pack for Occupancy Sensors – Based on WattStopper BZ-50 Power Pack

1. Power pack shall be a self contained transformer and relay module measuring 1.75"x2.75"x1.5".
2. For ease and speed of installation, power pack shall have 1/2" snap-in nipple for 1/2" knockouts and mounting on outside of enclosure.
3. Power pack shall have dry contacts capable of switching 20 amp ballast and incandescent load @ 120 VAC, 60 Hz; 20 amp ballast @ 277 VAC, 60 Hz; 1 hp @ 120-250 VAC, 60Hz.
4. Power pack shall have primary dual-voltage inputs of 120/277 VAC.
5. Power pack shall provide a 24 VDC, 150 mA output, with the relay connected.
6. Power pack shall be capable of parallel wiring without regard to AC phases on primary.
7. Power pack can be used as a standalone, low voltage switch, or can be wired to sensor for auto control.
8. Power pack shall have hold-ON and hold-OFF inputs for integration with lighting control panels, BMS and other building systems.
9. Power pack shall have overcurrent protection if the low voltage current drawn exceeds 150 mA. In the event of an overcurrent, the low voltage output current shuts down and the LED will blink to indicate a fault condition.
10. Power pack shall have an LED to indicate status of relay.
11. Power pack shall be UL 2043 plenum rated and shall have low voltage Teflon coated leads, rated for 300 volts.
12. Power pack shall utilize Zero Crossing Circuitry to protect from the effects of inrush current and increase product longevity.
13. To ensure quality and reliability, power pack shall be manufactured by an ISO 9002 certified manufacturing facility and shall have a defect rate of less than 1/3 of 1%.
14. Power pack shall have a 5 year warranty.
15. Power pack shall be UL and CUL listed.



Digital Time Switches – based on WattStopper TS-400 Digital Time Switch:

1. The digital time switch shall be programmable to turn lights off after a preset time.
2. Time switch shall be a completely self-contained control system that replaces the standard toggle switch. It shall have a ground wire and ground strap for safety. Switching mechanism shall be a latching air gap relay.
3. Zero Crossing Circuitry shall be used to increase the relay life, protect from the effects of inrush current, and increase the switch's longevity.
4. Time switch shall be compatible with all electronic ballasts, motor loads, compact fluorescent and inductive loads. Triac and other harmonic generating devices shall not be allowed.
5. Time switch shall operate at universal voltages of 100-300 VAC; 50/60 Hz.
6. Time switch shall have no minimum load requirement and shall be capable of controlling 0 to 800 watt incandescent, fluorescent @ 100/120 VAC, 50/60 Hz; 0 to 1200 watts fluorescent @ 230/277 VAC, 50/60 Hz; 1/6 hp @ 125 VAC.
7. Time scroll feature shall allow manual overriding of the preset time-out period. Selecting time scroll UP shall allow time-out period to scroll up throughout the timer possibilities to the maximum. Time scroll DN (down) shall allow time-out period to scroll down to minimum.
8. Time switch shall have the option for a one second light flash warning at five minutes before the timer runs out and twice when the countdown reaches one minute (when used to control lighting loads).
9. Time switch shall have the option for a beep warning that shall sound every five seconds once the time switch countdown reaches one minute.
10. Time switch shall have manual feature for timer reset where pressing the ON/OFF switch for more than 2 seconds resets the timer to the programmed time-out period.
11. Time switch shall have an electroluminescent backlit Liquid Crystal Display that shows the timer's countdown.
12. Time switch shall fit behind a decorator style faceplate. The calibration switch for setting time-out, time scroll, one second light flash, and beep warning shall be concealed to prevent tampering of adjustments and hardware.
13. Time-out period shall be adjustable in increments of 5 minutes from 5 minutes to 1 hour, and in increments of 15 minutes from 1 hour to 12 hours. Initial setting will be one (1) hour.
14. Time switch shall be capable of operating as an ON/OFF switch.
15. For ease of installation and cleaner wiring, the switch shall utilize terminal style wiring.
16. The time switch shall not protrude more than 1/8" from the wall and should blend in aesthetically.
17. For safety, the time switch shall have a 100% OFF override switch with no leakage current to the load.
18. For safety, in the event there is an open circuit in the AC line such as a ballast or lamp failure, the time switch shall automatically switch to OFF mode.
19. To ensure quality and reliability, time switch shall be manufactured by an ISO 9002 certified manufacturing facility and shall have a defect rate of less than 1/3 of 1%.
20. Time switch shall have 5 year warranty and shall be UL and CUL listed.



7.0 Lighting Fixture Retrofit Schedule

See schedule below for a description of existing fixtures and energy retrofit.

7.1 Light Fixture Schedule

Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
A2	160	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
A2R	3094	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
A2T	1204	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
A2TR	4	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	Replace optical reflector.
A2TSM	1	2-lamp x 4', surface mounted fixture with T8 Lamps and electronic ballast with acrylic lens	No Retrofit
A3	822	2' x 4' lay-in fixture with three 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient normal ballast factor electronic ballast with quick disconnect. Install optical reflector.
A3T	3190	2' x 4', lay-in fixture with three 4' T8 lamps, electronic ballast and acrylic lens.	De-lamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
A3TSM	2	2' x 4', surface mounted fixture with three 4' T8 lamps, electronic ballast and acrylic lens.	De-lamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
A4	274	2' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps, premium efficient normal ballast factor electronic ballast with quick disconnect and optical reflector.
A44	23	2' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with four 4' T8 lamps, premium efficient low ballast factor electronic ballast with quick disconnect and optical reflector.
A4T	2700	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
A4TBAT	1	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
B2	3	1' x 4' recessed fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.



Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
B2T	40	1' x 4' recessed fixture with two 4' T8 lamps and electronic ballast.	Relamp with two T8 lamps.
C	4	2' x 2' lay-in fixture with two U-bend T12 lamps, magnetic ballast and acrylic lens.	Refit with 2 F17T8 lamps and premium efficient normal ballast factor electronic ballast. Install optical reflector.
C2T	98	2' x 2' lay-in fixture with two 2' T8 lamps and electronic ballast.	No Retrofit.
CF	21	Compact fluorescent fixture	No retrofit
CF13	12	13 watt compact fluorescent screw-in fixture.	No Retrofit.
CF15	4	15 watt compact fluorescent screw-in fixture.	No Retrofit.
CF42/4	170	Compact fluorescent fixture	No retrofit
CFQ26/1	5	Compact fluorescent fixture	No retrofit
CFQ26/2	390	Compact fluorescent fixture	No retrofit
CFT18/2	24	Compact fluorescent fixture	No retrofit
CFT23	7	Compact fluorescent fixture	No retrofit
CFT42/1	27	Compact fluorescent fixture	No retrofit
CFT42/2	21	Compact fluorescent fixture	No retrofit
CP1F	18	Cake Pan style fixture with one circline fluorescent lamp.	No Retrofit.
CT	83	2' x 2' lay-in fixture with two U-shaped T8 lamps and electronic ballast.	Refit with two 2' T8 lamps and electronic ballast with quick disconnect and optical reflector.
D4	19	4' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with four 4' T8 lamps, premium efficient low ballast factor electronic ballast with quick disconnect.
D4T	4	4' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
D6	16	4' x 4', lay-in fixture with six 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with four 4' T8 lamps, electronic ballast with quick disconnect and two optical reflectors.
D8-2	34	4' x 4', lay-in fixture with eight 4' T12 Lamps, two magnetic ballast and acrylic lens.	Refit with four 4' T8 lamps, electronic ballast with quick disconnect and two optical reflectors.
F4075D	24	75 watt screw in incandescent flood fixture on dimmer.	No Retrofit
F65	2	65 watt screw in incandescent flood fixture on dimmer.	No Retrofit.



Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
F65D	2	65 watt screw in incandescent flood fixture on dimmer.	No Retrofit.
FP3875	20	75 watt screw in PAR incandescent flood fixture on dimmer.	No Retrofit
H	15	Decorative fixture with halogen lamp.	No Retrofit.
I150	1	150 watt screw in incandescent fixture.	No Retrofit.
I60	109	60 watt screw in incandescent fixture.	No Retrofit.
I65	8	65 watt screw in incandescent fixture.	No Retrofit.
I75	15	75 watt screw in incandescent fixture.	No Retrofit
M100	10	100 watt metal halide fixture.	Refit with 42 watt compact fluorescent lamp.
M175	34	175 watt metal halide fixture.	Refit with 42 watt compact fluorescent lamp.
M250	24	Hi bay fixture with 250 watt metal halide lamp.	Replace fixture with high bay fluorescent fixture with four 4' T8 lamps and one 4-lamp high powered electronic ballasts with quick disconnects and optical reflector.
M400	229	Hi bay fixture with 400 watt metal halide lamp.	Replace fixture with high bay fluorescent fixture with six 4' T8 lamps and two 3-lamp high powered electronic ballasts with quick disconnects and optical reflector.
M400W	74	Hi bay fixture with 400 watt metal halide lamp.	Replace fixture with high bay fluorescent fixture with six 4' T8 lamps and two 3-lamp high powered electronic ballasts with quick disconnects and optical reflector.
M75	120	75 watt metal halide fixture.	Replace fixture with new recessed downlight compact fluorescent fixture with two 23 watt compact fluorescent lamps.
OHB6T8	16	High bay fluorescent fixture with six T8 lamps and electronic ballast	No Retrofit
P2T	4	2' x 4' lay-in fixture with two 4' T8 lamps, electronic ballast and parabolic lens.	No Retrofit.
P3E	1	2' x 4', lay-in with three 4' T12 Lamps, electronic ballast and parabolic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
P3T	212	2' x 4', lay-in fixture with three 4' T8 Lamps, electronic ballast and parabolic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
P4T	7	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and parabolic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.



Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
PC3T	129	2' x 4', lay-in fixture with three 4' T8 Lamps, electronic ballast and paracube lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
PC4T	72	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and paracube lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
S11	1	1' strip fixture with one 1' T12 lamp and magnetic ballast.	Refit with one T8 lamp and premium efficient low ballast factor electronic ballast and quick disconnect.
S11.5	1	18" strip fixture with one 18" T12 lamp and magnetic ballast.	Refit with one 18" T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
S11.5T	3	18" strip fixture with one 18" T8 lamp and electronic ballast.	No Retrofit.
S11T	2	1' strip fixture with one 1' T8 lamp and electronic ballast.	No Retrofit.
S13	3	3' strip fixture with one 3' T12 lamps and magnetic ballast.	Refit with one 3' T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
S1R	54	4' strip fixture with one 4' T12 lamp, magnetic ballast and reflector.	Refit with one 4' T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
S1T	4	4' strip fixture with one 4' T8 lamp and electronic ballast.	No Retrofit.
S2	386	4' strip fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
S21	2	1' strip fixture with two 1' T12 lamps and magnetic ballast.	Refit with two 1' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
S21.5	42	1' strip fixture with two 1' T12 lamps and magnetic ballast.	Refit with two 1' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
S22	3	2' strip fixture with two 2' T12 lamps and magnetic ballast.	Refit with two 2' T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
S22T	7	2' strip fixture with two 2' T8 lamps and electronic ballast.	No Retrofit.
S23	63	3' strip fixture with two 3' T12 lamps and magnetic ballast.	Refit with two 3' T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.



Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
S23T	8	3' strip fixture with two 3' T8 lamps and electronic ballast.	No Retrofit.
S23TVT	2	3' vapor tight strip fixture with two 3' T8 lamps and electronic ballast.	No Retrofit.
S23VT	1	3' vapor tight strip fixture with two 3' T12 lamps and magnetic ballast.	Refit with two 3' T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
S24	5	8' strip fixture with two 4' T12 lamps end-to-end and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
S26T	18	8' strip fixture with two 8' T8 lamps and electronic ballast.	No Retrofit.
S28	24	8' strip fixture with two 8' T12 ES lamp (75w) and magnetic ballast.	Refit with two 4' T8 lamps end-to-end, premium efficient normal ballast factor electronic ballast with quick disconnect and reflector.
S28T	2	8' strip fixture with two 8' T8 lamps and electronic ballast.	No Retrofit.
S2E	1	4' strip fixture with two 4' T12 lamps and electronic ballast.	Refit with two 4' T8 lamps. Keep existing electronic ballast.
S2R	18	4' strip fixture with two 4' T12 lamps, magnetic ballast, and reflector.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
S2T	622	4' strip fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
S2TVT	1	4' vapor tight fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
S2TWG	13	2-lamp x 4' strip fixture with T8 lamps, electronic ballast and wire guard	No retrofit
S2VT	31	4' vapor tight fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient high ballast factor electronic ballast with quick disconnect.
S3	2	4' strip fixture with three 4' T12 lamps and magnetic ballast.	Refit with three 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
S3T	12	4' strip fixture with three 4' T12 lamps and magnetic ballast.	No Retrofit.



Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
S3TVT	48	4' strip fixture with three 4' T12 lamps and magnetic ballast.	No Retrofit.
S4T	4	4', strip fixture with four 4' T8 Lamps and electronic ballast.	No Retrofit.
S4TWG	3	4-lamp x 4', strip fixture with T8 Lamps, electronic ballast and wire guard	No retrofit
W1	190	4' surface mounted fixture with one 4' T12 lamp, magnetic ballast and acrylic wrap lens.	Refit with one 4' T8 lamp and electronic ballast with quick disconnect.
W2	89	4' surface mounted fixture with two 4' T12 lamps, magnetic ballast and acrylic wrap lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
W22T	13	2' fixture with two 2' T8 lamps, electronic ballast and acrylic wrap lens.	No Retrofit.
W2T	269	4' surface mounted fixture with two 4' T8 lamps, electronic ballast and acrylic wrap lens.	No Retrofit.
W4	50	4' surface mounted fixture with four 4' T12 lamps, magnetic ballast and acrylic wrap lens.	Refit with four 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
W4T	10	4' surface mounted fixture with four 4' T8 lamps, electronic ballast and acrylic wrap lens.	No Retrofit.
X	223	Exit fixture with two, 20 watt incandescent lamps.	Replace with LED Exit Sign
XF	91	Exit fixture with 1, 8 watt fluorescent lamp.	Replace with LED Exit Sign
XL	177	Exit fixture with LED lamps.	No Retrofit
Grand Total	16101		



7.2 Light Fixtures by Building

Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Ann Windle School for Young Children				
	A3T	12	2' x 4', lay-in fixture with three 4' T8 lamps, electronic ballast and acrylic lens.	De-lamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	A4	1	2' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps, premium efficient normal ballast factor electronic ballast with quick disconnect and optical reflector.
	CF	21	Compact fluorescent fixture	No retrofit
	CF42/4	170	Compact fluorescent fixture	No retrofit
	CP1F	18	Cake Pan style fixture with one circline fluorescent lamp.	No Retrofit.
	CT	45	2' x 2' lay-in fixture with two U-shaped T8 lamps and electronic ballast.	Refit with two 2' T8 lamps and electronic ballast with quick disconnect and optical reflector.
	H	15	Decorative fixture with halogen lamp.	No Retrofit.
	I60	8	60 watt screw in incandescent fixture.	No Retrofit.
	P3E	1	2' x 4', lay-in with three 4' T12 Lamps, electronic ballast and parabolic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	P3T	210	2' x 4', lay-in fixture with three 4' T8 Lamps, electronic ballast and parabolic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	P4T	7	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and parabolic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
	S22T	6	2' strip fixture with two 2' T8 lamps and electronic ballast.	No Retrofit.
	S28T	2	8' strip fixture with two 8' T8 lamps and electronic ballast.	No Retrofit.
	S2T	8	4' strip fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
	XL	15	Exit fixture with LED lamps.	No Retrofit
Ann Windle School for Young Children Total		539		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Borman Elementary School				
	A2R	66	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	A4	1	2' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps, premium efficient normal ballast factor electronic ballast with quick disconnect and optical reflector.
	X	2	Exit fixture with two, 20 watt incandescent lamps.	Replace with LED Exit Sign
Borman Elementary School Total		69		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Calhoun Middle School				
	A2	8	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	A2R	194	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	A2T	125	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	A2TSM	1	2-lamp x 4', surface mounted fixture with T8 Lamps and electronic ballast with acrylic lens	No Retrofit
	A3	136	2' x 4' lay-in fixture with three 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient normal ballast factor electronic ballast with quick disconnect. Install optical reflector.
	A3T	404	2' x 4', lay-in fixture with three 4' T8 lamps, electronic ballast and acrylic lens.	De-lamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	A3TSM	2	2' x 4', surface mounted fixture with three 4' T8 lamps, electronic ballast and acrylic lens.	De-lamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	A4	1	2' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps, premium efficient normal ballast factor electronic ballast with quick disconnect and optical reflector.
	A4T	151	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
	B2T	6	1' x 4' recessed fixture with two 4' T8 lamps and electronic ballast.	Relamp with two T8 lamps.
	CF13	6	13 watt compact fluorescent screw-in fixture.	No Retrofit.
	CFQ26/2	7	Compact fluorescent fixture	No retrofit
	D4	16	4' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with four 4' T8 lamps, premium efficient low ballast factor electronic ballast with quick disconnect.
	F65	2	65 watt screw in incandescent flood fixture on dimmer.	No Retrofit.
	I60	6	60 watt screw in incandescent fixture.	No Retrofit.



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Calhoun Middle School				
	M400	57	Hi bay fixture with 400 watt metal halide lamp.	Replace fixture with high bay fluorescent fixture with six 4' T8 lamps and two 3-lamp high powered electronic ballasts with quick disconnects and optical reflector.
	M75	1	75 watt metal halide fixture.	Replace fixture with new recessed downlight compact fluorescent fixture with two 23 watt compact fluorescent lamps.
	P3T	2	2' x 4', lay-in fixture with three 4' T8 Lamps, electronic ballast and parabolic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	PC3T	24	2' x 4', lay-in fixture with three 4' T8 Lamps, electronic ballast and paracube lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	S1R	54	4' strip fixture with one 4' T12 lamp, magnetic ballast and reflector.	Refit with one 4' T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
	S2	43	4' strip fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
	S2E	1	4' strip fixture with two 4' T12 lamps and electronic ballast.	Refit with two 4' T8 lamps. Keep existing electronic ballast.
	S2R	18	4' strip fixture with two 4' T12 lamps, magnetic ballast, and reflector.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
	S2T	60	4' strip fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
	S2VT	17	4' vapor tight fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient high ballast factor electronic ballast with quick disconnect.
	W2	1	4' surface mounted fixture with two 4' T12 lamps, magnetic ballast and acrylic wrap lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	W2T	2	4' surface mounted fixture with two 4' T8 lamps, electronic ballast and acrylic wrap lens.	No Retrofit.



	X	8	Exit fixture with two, 20 watt incandescent lamps.	Replace with LED Exit Sign
	XL	50	Exit fixture with LED lamps.	No Retrofit
Calhoun Middle School Total		1403		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Crownover Middle School				
	A2T	320	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	A3T	1092	2' x 4', lay-in fixture with three 4' T8 lamps, electronic ballast and acrylic lens.	De-lamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	B2T	12	1' x 4' recessed fixture with two 4' T8 lamps and electronic ballast.	Relamp with two T8 lamps.
	D4T	3	4' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	M400	66	Hi bay fixture with 400 watt metal halide lamp.	Replace fixture with high bay fluorescent fixture with six 4' T8 lamps and two 3-lamp high powered electronic ballasts with quick disconnects and optical reflector.
	S2T	66	4' strip fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
	W2T	162	4' surface mounted fixture with two 4' T8 lamps, electronic ballast and acrylic wrap lens.	No Retrofit.
	W4T	3	4' surface mounted fixture with four 4' T8 lamps, electronic ballast and acrylic wrap lens.	No Retrofit.
	X	53	Exit fixture with two, 20 watt incandescent lamps.	Replace with LED Exit Sign
Crownover Middle School Total		1777		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
EP Rayzor Elementary School				
	A2T	108	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	A4T	678	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
	CFQ26/2	102	Compact fluorescent fixture	No retrofit
	I60	4	60 watt screw in incandescent fixture.	No Retrofit.
	PC4T	24	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and paracube lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
	S26T	6	8' strip fixture with two 8' T8 lamps and electronic ballast.	No Retrofit.
	S2T	35	4' strip fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
	S3TVT	27	4' strip fixture with three 4' T12 lamps and magnetic ballast.	No Retrofit.
	XF	28	Exit fixture with 1, 8 watt fluorescent lamp.	Replace with LED Exit Sign
EP Rayzor Elementary School Total		1012		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Evers Park Elementary School				
	A2R	500	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	A2T	22	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	A2TR	1	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	Replace optical reflector.
	A3T	143	2' x 4', lay-in fixture with three 4' T8 lamps, electronic ballast and acrylic lens.	De-lamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	A4	25	2' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps, premium efficient normal ballast factor electronic ballast with quick disconnect and optical reflector.
	A4T	4	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
	B2T	3	1' x 4' recessed fixture with two 4' T8 lamps and electronic ballast.	Relamp with two T8 lamps.
	CFQ26/2	2	Compact fluorescent fixture	No retrofit
	I60	12	60 watt screw in incandescent fixture.	No Retrofit.
	I75	8	75 watt screw in incandescent fixture.	No Retrofit
	M175	25	175 watt metal halide fixture.	Refit with 42 watt compact fluorescent lamp.
	M75	23	75 watt metal halide fixture.	Replace fixture with new recessed downlight compact fluorescent fixture with two 23 watt compact fluorescent lamps.
	PC3T	18	2' x 4', lay-in fixture with three 4' T8 Lamps, electronic ballast and paracube lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	S13	3	3' strip fixture with one 3' T12 lamps and magnetic ballast.	Refit with one 3' T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
	S2	69	4' strip fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
	S21	2	1' strip fixture with two 1' T12 lamps and magnetic ballast.	Refit with two 1' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Evers Park Elementary School				
	S22	1	2' strip fixture with two 2' T12 lamps and magnetic ballast.	Refit with two 2' T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
	S22T	1	2' strip fixture with two 2' T8 lamps and electronic ballast.	No Retrofit.
	S23	30	3' strip fixture with two 3' T12 lamps and magnetic ballast.	Refit with two 3' T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
	S28	18	8' strip fixture with two 8' T12 ES lamp (75w) and magnetic ballast.	Refit with two 4' T8 lamps end-to-end, premium efficient normal ballast factor electronic ballast with quick disconnect and reflector.
	S2T	51	4' strip fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
	W2	1	4' surface mounted fixture with two 4' T12 lamps, magnetic ballast and acrylic wrap lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	W22T	13	2' fixture with two 2' T8 lamps, electronic ballast and acrylic wrap lens.	No Retrofit.
	W4	2	4' surface mounted fixture with four 4' T12 lamps, magnetic ballast and acrylic wrap lens.	Refit with four 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	X	6	Exit fixture with two, 20 watt incandescent lamps.	Replace with LED Exit Sign
	XF	8	Exit fixture with 1, 8 watt fluorescent lamp.	Replace with LED Exit Sign
	XL	15	Exit fixture with LED lamps.	No Retrofit
Evers Park Elementary School Total		1006		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Facilities Warehouse				
	M400	74	Hi bay fixture with 400 watt metal halide lamp.	Replace fixture with high bay fluorescent fixture with six 4' T8 lamps and two 3-lamp high powered electronic ballasts with quick disconnects and optical reflector.
	S4T	4	4', strip fixture with four 4' T8 Lamps and electronic ballast.	No Retrofit.
	X	3	Exit fixture with two, 20 watt incandescent lamps.	Replace with LED Exit Sign
Facilities Warehouse Total		81		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Fred Moore High School				
	M400	16	Hi bay fixture with 400 watt metal halide lamp.	Replace fixture with high bay fluorescent fixture with six 4' T8 lamps and two 3-lamp high powered electronic ballasts with quick disconnects and optical reflector.
	X	2	Exit fixture with two, 20 watt incandescent lamps.	Replace with LED Exit Sign
Fred Moore High School Total		18		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Ginnings Elementary School				
	A2	34	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	A2R	285	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	A2T	28	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	A2TR	3	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	Replace optical reflector.
	A4	33	2' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps, premium efficient normal ballast factor electronic ballast with quick disconnect and optical reflector.
	A4T	246	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
	CF15	1	15 watt compact fluorescent screw-in fixture.	No Retrofit.
	D8-2	28	4' x 4', lay-in fixture with eight 4' T12 Lamps, two magnetic ballast and acrylic lens.	Refit with four 4' T8 lamps, electronic ballast with quick disconnect and two optical reflectors.
	I150	1	150 watt screw in incandescent fixture.	No Retrofit.
	I60	1	60 watt screw in incandescent fixture.	No Retrofit.
	OHB6T8	16	High bay fluorescent fixture with six T8 lamps and electronic ballast	No Retrofit
	S2	2	4' strip fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
	S2TWG	13	2-lamp x 4' strip fixture with T8 lamps, electronic ballast and wire guard	No retrofit
	S4TWG	3	4-lamp x 4', strip fixture with T8 Lamps, electronic ballast and wire guard	No retrofit
	W1	190	4' surface mounted fixture with one 4' T12 lamp, magnetic ballast and acrylic wrap lens.	Refit with one 4' T8 lamp and electronic ballast with quick disconnect.



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Ginnings Elementary School				
	W2	6	4' surface mounted fixture with two 4' T12 lamps, magnetic ballast and acrylic wrap lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	W2T	74	4' surface mounted fixture with two 4' T8 lamps, electronic ballast and acrylic wrap lens.	No Retrofit.
	X	27	Exit fixture with two, 20 watt incandescent lamps.	Replace with LED Exit Sign
Ginnings Elementary School Total		994		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Hodge Elementary School				
	A2R	625	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	A2T	1	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	A3	1	2' x 4' lay-in fixture with three 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient normal ballast factor electronic ballast with quick disconnect. Install optical reflector.
	A3T	22	2' x 4', lay-in fixture with three 4' T8 lamps, electronic ballast and acrylic lens.	De-lamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	A4	53	2' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps, premium efficient normal ballast factor electronic ballast with quick disconnect and optical reflector.
	CF15	3	15 watt compact fluorescent screw-in fixture.	No Retrofit.
	F4075D	13	75 watt screw in incandescent flood fixture on dimmer.	No Retrofit
	I60	6	60 watt screw in incandescent fixture.	No Retrofit.
	I65	5	65 watt screw in incandescent fixture.	No Retrofit.
	M175	9	175 watt metal halide fixture.	Refit with 42 watt compact fluorescent lamp.
	M250	20	Hi bay fixture with 250 watt metal halide lamp.	Replace fixture with high bay fluorescent fixture with four 4' T8 lamps and one 4-lamp high powered electronic ballasts with quick disconnects and optical reflector.
	M75	39	75 watt metal halide fixture.	Replace fixture with new recessed downlight compact fluorescent fixture with two 23 watt compact fluorescent lamps.
	S2	91	4' strip fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
	S21.5	7	1' strip fixture with two 1' T12 lamps and magnetic ballast.	Refit with two 1' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Hodge Elementary School				
	S23	20	3' strip fixture with two 3' T12 lamps and magnetic ballast.	Refit with two 3' T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
	W2	3	4' surface mounted fixture with two 4' T12 lamps, magnetic ballast and acrylic wrap lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	W4	24	4' surface mounted fixture with four 4' T12 lamps, magnetic ballast and acrylic wrap lens.	Refit with four 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	XF	31	Exit fixture with 1, 8 watt fluorescent lamp.	Replace with LED Exit Sign
Hodge Elementary School Total		973		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
McMath Middle School				
	A2T	266	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	A3	10	2' x 4' lay-in fixture with three 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient normal ballast factor electronic ballast with quick disconnect. Install optical reflector.
	A3T	975	2' x 4', lay-in fixture with three 4' T8 lamps, electronic ballast and acrylic lens.	De-lamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	B2	3	1' x 4' recessed fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	B2T	3	1' x 4' recessed fixture with two 4' T8 lamps and electronic ballast.	Relamp with two T8 lamps.
	CF13	6	13 watt compact fluorescent screw-in fixture.	No Retrofit.
	CFQ26/2	65	Compact fluorescent fixture	No retrofit
	CFT23	7	Compact fluorescent fixture	No retrofit
	D4	3	4' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with four 4' T8 lamps, premium efficient low ballast factor electronic ballast with quick disconnect.
	D4T	1	4' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	D6	16	4' x 4', lay-in fixture with six 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with four 4' T8 lamps, electronic ballast with quick disconnect and two optical reflectors.
	F65D	2	65 watt screw in incandescent flood fixture on dimmer.	No Retrofit.
	I60	8	60 watt screw in incandescent fixture.	No Retrofit.
	M400	66	Hi bay fixture with 400 watt metal halide lamp.	Replace fixture with high bay fluorescent fixture with six 4' T8 lamps and two 3-lamp high powered electronic ballasts with quick disconnects and optical reflector.
	M75	3	75 watt metal halide fixture.	Replace fixture with new recessed downlight compact fluorescent fixture with two 23 watt compact fluorescent lamps.



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
McMath Middle School				
	PC3T	68	2' x 4', lay-in fixture with three 4' T8 Lamps, electronic ballast and paracube lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	S2T	178	4' strip fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
	S2VT	5	4' vapor tight fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient high ballast factor electronic ballast with quick disconnect.
	S3	2	4' strip fixture with three 4' T12 lamps and magnetic ballast.	Refit with three 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
	W2T	25	4' surface mounted fixture with two 4' T8 lamps, electronic ballast and acrylic wrap lens.	No Retrofit.
	XL	54	Exit fixture with LED lamps.	No Retrofit
McMath Middle School Total		1766		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
McNair Elementary School				
	A2R	643	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	A3	1	2' x 4' lay-in fixture with three 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient normal ballast factor electronic ballast with quick disconnect. Install optical reflector.
	A4	65	2' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps, premium efficient normal ballast factor electronic ballast with quick disconnect and optical reflector.
	A4T	22	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
	F4075D	11	75 watt screw in incandescent flood fixture on dimmer.	No Retrofit
	M250	4	Hi bay fixture with 250 watt metal halide lamp.	Replace fixture with high bay fluorescent fixture with four 4' T8 lamps and one 4-lamp high powered electronic ballasts with quick disconnects and optical reflector.
	M75	54	75 watt metal halide fixture.	Replace fixture with new recessed downlight compact fluorescent fixture with two 23 watt compact fluorescent lamps.
	S11.5	1	18" strip fixture with one 18" T12 lamp and magnetic ballast.	Refit with one 18" T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
	S11T	2	1' strip fixture with one 1' T8 lamp and electronic ballast.	No Retrofit.
	S2	100	4' strip fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
	S21.5	18	1' strip fixture with two 1' T12 lamps and magnetic ballast.	Refit with two 1' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
	S23	13	3' strip fixture with two 3' T12 lamps and magnetic ballast.	Refit with two 3' T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
	S24	5	8' strip fixture with two 4' T12 lamps end-to-end and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
McNair Elementary School				
	W2	1	4' surface mounted fixture with two 4' T12 lamps, magnetic ballast and acrylic wrap lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	W4	24	4' surface mounted fixture with four 4' T12 lamps, magnetic ballast and acrylic wrap lens.	Refit with four 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	X	29	Exit fixture with two, 20 watt incandescent lamps.	Replace with LED Exit Sign
	XL	1	Exit fixture with LED lamps.	No Retrofit
McNair Elementary School Total		994		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Pecan Creek Elementary School				
	A2T	103	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	A4	36	2' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps, premium efficient normal ballast factor electronic ballast with quick disconnect and optical reflector.
	A4T	679	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
	CFQ26/1	5	Compact fluorescent fixture	No retrofit
	CFQ26/2	77	Compact fluorescent fixture	No retrofit
	CFT42/1	14	Compact fluorescent fixture	No retrofit
	I60	10	60 watt screw in incandescent fixture.	No Retrofit.
	PC4T	24	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and paracube lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
	S11.5T	3	18" strip fixture with one 18" T8 lamp and electronic ballast.	No Retrofit.
	S1T	2	4' strip fixture with one 4' T8 lamp and electronic ballast.	No Retrofit.
	S23TVT	2	3' vapor tight strip fixture with two 3' T8 lamps and electronic ballast.	No Retrofit.
	S23VT	1	3' vapor tight strip fixture with two 3' T12 lamps and magnetic ballast.	Refit with two 3' T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
	S26T	6	8' strip fixture with two 8' T8 lamps and electronic ballast.	No Retrofit.
	S28	6	8' strip fixture with two 8' T12 ES lamp (75w) and magnetic ballast.	Refit with two 4' T8 lamps end-to-end, premium efficient normal ballast factor electronic ballast with quick disconnect and reflector.
	S2T	35	4' strip fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
	S3TVT	21	4' strip fixture with three 4' T12 lamps and magnetic ballast.	No Retrofit.
	X	13	Exit fixture with two, 20 watt incandescent lamps.	Replace with LED Exit Sign
	XL	19	Exit fixture with LED lamps.	No Retrofit
Pecan Creek Elementary School Total		1056		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Rayzor Elementary School				
	A2R	514	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	A2T	70	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	A3	2	2' x 4' lay-in fixture with three 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient normal ballast factor electronic ballast with quick disconnect. Install optical reflector.
	A3T	191	2' x 4', lay-in fixture with three 4' T8 lamps, electronic ballast and acrylic lens.	De-lamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	A4	59	2' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps, premium efficient normal ballast factor electronic ballast with quick disconnect and optical reflector.
	A44	23	2' x 4', lay-in fixture with four 4' T12 Lamps, magnetic ballast and acrylic lens.	Refit with four 4' T8 lamps, premium efficient low ballast factor electronic ballast with quick disconnect and optical reflector.
	B2T	6	1' x 4' recessed fixture with two 4' T8 lamps and electronic ballast.	Relamp with two T8 lamps.
	C	4	2' x 2' lay-in fixture with two U-bend T12 lamps, magnetic ballast and acrylic lens.	Refit with 2 F17T8 lamps and premium efficient normal ballast factor electronic ballast. Install optical reflector.
	CFQ26/2	15	Compact fluorescent fixture	No retrofit
	CFT18/2	24	Compact fluorescent fixture	No retrofit
	CT	38	2' x 2' lay-in fixture with two U-shaped T8 lamps and electronic ballast.	Refit with two 2' T8 lamps and electronic ballast with quick disconnect and optical reflector.
	D8-2	6	4' x 4', lay-in fixture with eight 4' T12 Lamps, two magnetic ballast and acrylic lens.	Refit with four 4' T8 lamps, electronic ballast with quick disconnect and two optical reflectors.
	I60	10	60 watt screw in incandescent fixture.	No Retrofit.
	P2T	4	2' x 4' lay-in fixture with two 4' T8 lamps, electronic ballast and parabolic lens.	No Retrofit.
	S2	14	4' strip fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
	S23T	8	3' strip fixture with two 3' T8 lamps and electronic ballast.	No Retrofit.



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Rayzor Elementary School				
	S2T	109	4' strip fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
	S2VT	4	4' vapor tight fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient high ballast factor electronic ballast with quick disconnect.
	X	14	Exit fixture with two, 20 watt incandescent lamps.	Replace with LED Exit Sign
	XF	16	Exit fixture with 1, 8 watt fluorescent lamp.	Replace with LED Exit Sign
Rayzor Elementary School Total		1131		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Rivera Elementary School				
	A2	103	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	A3	672	2' x 4' lay-in fixture with three 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient normal ballast factor electronic ballast with quick disconnect. Install optical reflector.
	CFQ26/2	12	Compact fluorescent fixture	No retrofit
	I60	14	60 watt screw in incandescent fixture.	No Retrofit.
	M100	10	100 watt metal halide fixture.	Refit with 42 watt compact fluorescent lamp.
	S1T	2	4' strip fixture with one 4' T8 lamp and electronic ballast.	No Retrofit.
	S2	58	4' strip fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
	S21.5	17	1' strip fixture with two 1' T12 lamps and magnetic ballast.	Refit with two 1' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
	S22	2	2' strip fixture with two 2' T12 lamps and magnetic ballast.	Refit with two 2' T8 lamp and premium efficient low ballast factor electronic ballast with quick disconnect.
	S2T	1	4' strip fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
	W2	1	4' surface mounted fixture with two 4' T12 lamps, magnetic ballast and acrylic wrap lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	X	19	Exit fixture with two, 20 watt incandescent lamps.	Replace with LED Exit Sign
	XL	1	Exit fixture with LED lamps.	No Retrofit
Rivera Elementary School Total		912		



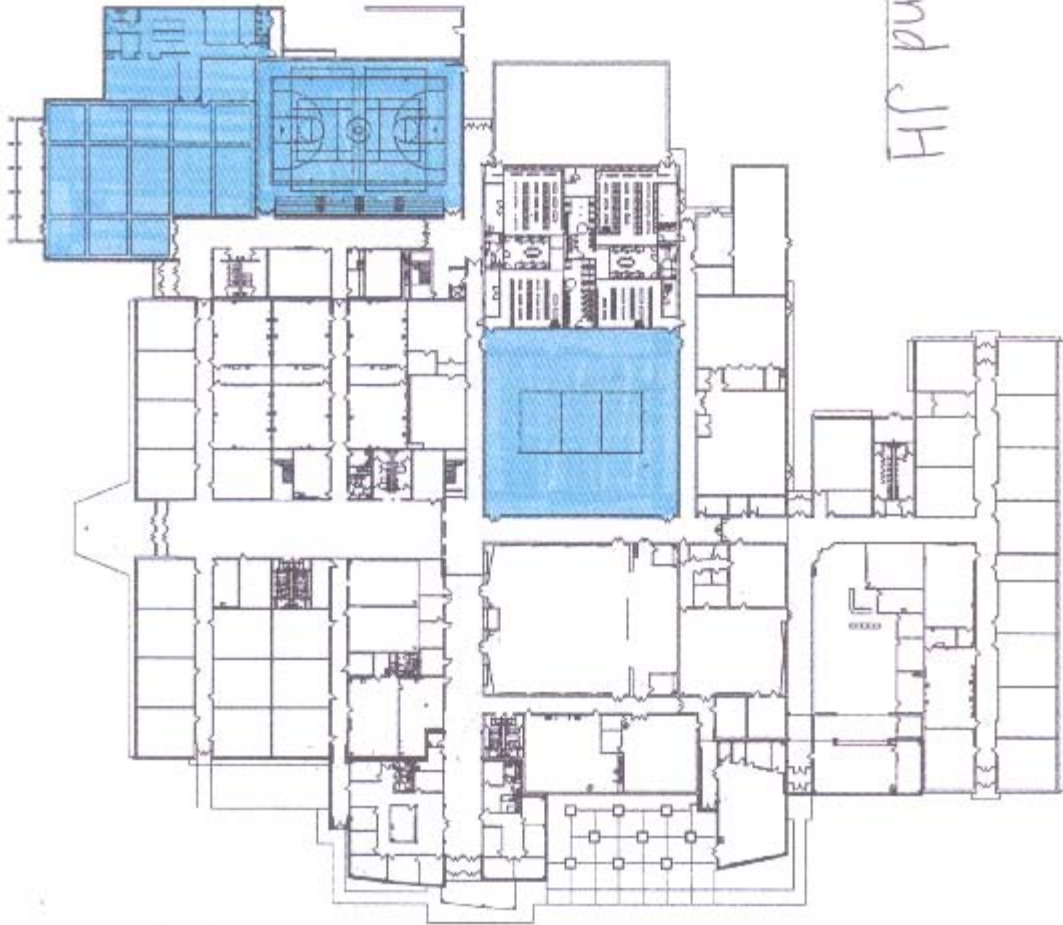
Note: See Page 41 For Floorplan of Areas to be retrofit under this program

Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Strickland Middle School				
	A2T	26	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	A3T	103	2' x 4', lay-in fixture with three 4' T8 lamps, electronic ballast and acrylic lens.	De-lamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	C2T	98	2' x 2' lay-in fixture with two 2' T8 lamps and electronic ballast.	No Retrofit.
	I60	13	60 watt screw in incandescent fixture.	No Retrofit.
	M400	24	Hi bay fixture with 400 watt metal halide lamp.	Replace fixture with high bay fluorescent fixture with six 4' T8 lamps and two 3-lamp high powered electronic ballasts with quick disconnects and optical reflector.
	S2	4	4' strip fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
	S2VT	4	4' vapor tight fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient high ballast factor electronic ballast with quick disconnect.
	W2	76	4' surface mounted fixture with two 4' T12 lamps, magnetic ballast and acrylic wrap lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	W2T	6	4' surface mounted fixture with two 4' T8 lamps, electronic ballast and acrylic wrap lens.	No Retrofit.
	XF	8	Exit fixture with 1, 8 watt fluorescent lamp.	Replace with LED Exit Sign
Strickland Middle School Total		362		



Appendix A

Strickland JH



17480 Dallas Parkway, Suite 215 • Dallas, Texas 75287 • Phone 214-461-1700 • www.pconergy.com



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Wilson Elementary School				
	A2	15	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	A2R	267	2' x 4' lay-in fixture with two 4' T12 lamps, magnetic ballast and acrylic lens.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect.
	A2T	18	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	A3T	247	2' x 4', lay-in fixture with three 4' T8 lamps, electronic ballast and acrylic lens.	De-lamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	A4T	295	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
	B2T	9	1' x 4' recessed fixture with two 4' T8 lamps and electronic ballast.	Relamp with two T8 lamps.
	CFQ26/2	25	Compact fluorescent fixture	No retrofit
	CFT42/2	21	Compact fluorescent fixture	No retrofit
	FP3875	20	75 watt screw in PAR incandescent flood fixture on dimmer.	No Retrofit
	I60	11	60 watt screw in incandescent fixture.	No Retrofit.
	I75	7	75 watt screw in incandescent fixture.	No Retrofit
	PC3T	19	2' x 4', lay-in fixture with three 4' T8 Lamps, electronic ballast and paracube lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	S11	1	1' strip fixture with one 1' T12 lamp and magnetic ballast.	Refit with one T8 lamp and premium efficient low ballast factor electronic ballast and quick disconnect.
	S2	5	4' strip fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient low ballast factor electronic ballast with quick disconnect. Install optical reflector.
	S2T	47	4' strip fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
	S2TVT	1	4' vapor tight fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
	S2VT	1	4' vapor tight fixture with two 4' T12 lamps and magnetic ballast.	Refit with two 4' T8 lamps and premium efficient high ballast factor electronic ballast with quick disconnect.



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
Wilson Elementary School				
	W4T	7	4' surface mounted fixture with four 4' T8 lamps, electronic ballast and acrylic wrap lens.	No Retrofit.
	X	47	Exit fixture with two, 20 watt incandescent lamps.	Replace with LED Exit Sign
	XL	1	Exit fixture with LED lamps.	No Retrofit
Wilson Elementary School Total		1064		



Building	Fixture Code	# of Fixtures	Existing fixture code	Retrofit Description
WS Ryan Elementary School				
	A2T	117	2' x 4', lay-in fixture with two 4' T8 Lamps, electronic ballast and acrylic lens.	No Retrofit.
	A3T	1	2' x 4', lay-in fixture with three 4' T8 lamps, electronic ballast and acrylic lens.	De-lamp to two 4' T8 lamps. Install optical reflector. Keep existing electronic ballast.
	A4T	625	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
	A4TBAT	1	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and acrylic lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
	B2T	1	1' x 4' recessed fixture with two 4' T8 lamps and electronic ballast.	Relamp with two T8 lamps.
	CFQ26/2	85	Compact fluorescent fixture	No retrofit
	CFT42/1	13	Compact fluorescent fixture	No retrofit
	I60	6	60 watt screw in incandescent fixture.	No Retrofit.
	I65	3	65 watt screw in incandescent fixture.	No Retrofit.
	PC4T	24	2' x 4', lay-in fixture with four 4' T8 Lamps, electronic ballast and paracube lens.	Delamp to two 4' T8 lamps. Install optical reflector. Keep existing ballast.
	S26T	6	8' strip fixture with two 8' T8 lamps and electronic ballast.	No Retrofit.
	S2T	32	4' strip fixture with two 4' T8 lamps and electronic ballast.	No Retrofit.
	S3T	12	4' strip fixture with three 4' T12 lamps and magnetic ballast.	No Retrofit.
	XL	21	Exit fixture with LED lamps.	No Retrofit
WS Ryan ES Total		947		
Grand Total All Buildings		16101		



7.3 Dual Technology Motion Sensor / Power Pack / Digital Time Switch / Hawkeye Fixture Schedule

Ann Windle SFYC	Qty.
Occupancy Sensors	21
Digital Time Switches	33
Hawkeye Fixtures	97
Total	

Newton Rayzor ES	Qty.
Occupancy Sensors	42
Digital Time Switches	31
Hawkeye Fixtures	176
Total	

Calhoun MS	Qty.
Occupancy Sensors	45
Digital Time Switches	36
Hawkeye Fixtures	217
Total	

Pecan Creek ES	Qty.
Occupancy Sensors	68
Digital Time Switches	25
Hawkeye Fixtures	143
Total	

EP Rayzor ES	Qty.
Occupancy Sensors	52
Digital Time Switches	21
Hawkeye Fixtures	153
Total	

Rivera ES	Qty.
Occupancy Sensors	38
Digital Time Switches	19
Hawkeye Fixtures	153
Total	

Evers Park ES	Qty.
Occupancy Sensors	42
Digital Time Switches	19
Hawkeye Fixtures	168
Total	

Strickland MS	Qty.
Occupancy Sensors	56
Digital Time Switches	44
Hawkeye Fixtures	67
Total	

Hodge ES	Qty.
Occupancy Sensors	43
Digital Time Switches	17
Hawkeye Fixtures	161
Total	

Wilson ES	Qty.
Occupancy Sensors	50
Digital Time Switches	32
Hawkeye Fixtures	164
Total	

McMath MS	Qty.
Occupancy Sensors	59
Digital Time Switches	36
Hawkeye Fixtures	313
Total	

WS Ryan ES	Qty.
Occupancy Sensors	42
Digital Time Switches	35
Hawkeye Fixtures	145
Total	



McNair ES	Qty.
Occupancy Sensors	64
Digital Time Switches	14
Hawkeye Fixtures	164
Total	

Fred Moore Gym	Qty.
Occupancy Sensors	0
Digital Time Switches	0
Hawkeye Fixtures	4
Total	

Facilities Building	Qty.
Occupancy Sensors	0
Digital Time Switches	0
Hawkeye Fixtures	0
Total	

Borman ES	Qty.
Occupancy Sensors	45
Digital Time Switches	15
Hawkeye Fixtures	0
Total	

Ginnings ES	Qty.
Occupancy Sensors	43
Digital Time Switches	27
Hawkeye Fixtures	0
Total	

Crownover MS	Qty.
Occupancy Sensors	72
Digital Time Switches	53
Hawkeye Fixtures	0
Total	

Totals	Qty.
Occupancy Sensors	818
Digital Time Switches	457
Hawkeye Fixtures	2351
Total	



7.4 HVAC Retrofit / Building Automation Controls – Guyer High School Cooling Tower

We propose to install two (2) new Variable Frequency Drives (VFDs) on cooling tower at Guyer High School to include:

1. Demo two existing starters from cooling tower.
2. Install two new 25HP Variable Frequency Drives. The new VFD's will have the following characteristics:
 - a) (2) 25 HP Yaskawa model E7BRB034X, 480 V, 3 phase E7 drives
 - b) • Manual bypass
 - c) • UL listing and CSA approval
 - d) • 30 character alpha numeric display
 - e) • RS485 serial communication
 - f) • (2) analog inputs
 - g) • (5) programmable digital inputs
 - h) • (1) programmable analog output
 - i) • (2) programmable digital relay outputs
 - j) • KWh meter
 - k) • Elapsed time meter
 - l) • Motor overload relay
 - m) • Factory authorized start-up
 - n) DC line reactor
 - o) NEMA 3R enclosure
 - p) • (3) years parts, labor & travel warranty
3. Make all necessary terminations.
4. Control wiring to the new drives
5. Startup of controls and programming the new sequence of operation
6. Modification of system graphics
7. Test, label, and verify proper operation of all equipment and sequences.



7.5 DDC Control Retrofit – Denton High School

We propose to install new DDC controls on a quantity of ten (10) existing Rooftop Packages HVAC systems in the Denton High School Gym and Locker Room areas. We propose to provide the following scope of work:

1. Mount and wire control devices
2. Make all necessary terminations
3. Control wiring to the new devices
4. Startup of controls and programming the new sequence of operation
5. Modification of system graphics
6. Test, label, and verify proper operation of all equipment and sequences
7. Denton Independent School District will provide and furnish the necessary TAC / Schneider Electric I-Net controllers to TDIndustries

Denton ISD – Denton High School DDC Controls Retrofit Input / Output Summary for Packaged Rooftop HVAC Units with 2 Stage Heating / 2 Stage Cooling						
Point	Type	DI	AI	DO	AO	Device / Comment
Space Temperature	Temperature		10			Wall mounted temperature sensor
Discharge Air	Temperature		10			Duct mounted temperature sensor
DX Cooling	Stages On/Off			20		Direct to Unit
Heating	Stages On/Off			20		Direct to Unit
Fan	Start / Stop / Status	10	10			Direct to Unit / Current Xformer
Smoke or CR tie in	Enable / Disable	10				Tied to fire relay or smoke detector



7.6 Intelligent Irrigation Control – Guyer High School

We propose to install intelligent Irrigation control for 180 Zones at GHS and add this functionality to the existing Web Supervisor, which is included in the Denton ISD Pre-K Job:

1. Schedule shutdown of system
2. Provide labor to expose irrigation water piping
3. Provide Two water meters and meter boxes
4. Backfill
5. .Note: Denton ISD will need to provide (4) wired network drop.
6. Startup of controls and programming the new sequence of operation
7. Modification of system graphics
8. Test, label, and verify proper operation of all equipment and sequences



Schedule 4 - TERM AND PAYMENT SCHEDULE

This Term and Payment Schedule applies only to the Scope of Work described in Schedule 1 of this Contract.

1. **PRICE.** The total amount of this project will be:

\$1,320,668.00 (One Million, Three Hundred Twenty Thousand, Six Hundred Sixty Eight Dollars and 00/100 Cents

2. **INVOICING.** TDIndustries Invoicing will be as follows:

The total Project billed amount will not exceed the Draw Schedule as set forward in this Schedule of this Contract. The milestones for Draws #3-6 will be determined upon completion of a master project schedule with the Owner's representative after contract authorization:

Payment Request	Payment Due Date	Amount
1	Due Upon Contract Authorization	\$415,215.00
2	Draw #2	\$275,178.00
3	Draw #3	\$225,178.00
4	Draw #4	\$150,180.00
5	Draw #5	\$100,000.00
6	Draw #6	\$94,770.00
7	Final Retainage	\$60,147.00
Total		\$1,320,668.00

3. **PAYMENT APPROVAL & PAYMENT.** Payment Approval Request will be submitted on the 15th day of each month, with the final Payment Approval Request for the 5% retainage and any unpaid balance submitted upon receipt of the Certificate of Substantial Completion. Payment Approval will be completed within no more than 5 working days after receipt of the monthly Request for Payment. A check for the Approved Payment will be delivered to TDIndustries no later than the last day of the month that the Request for Payment is submitted.

4. **TERM AND COMMENCEMENT DATE.** The term of this Contract shall begin on the Commencement Date, which shall be the date of this Contract. If the Work is divided into phases or individual projects for which individual prices have been negotiated, then separate Commencement Dates shall apply to each phase or individual project. The Work shall be completed by the Substantial Completion Date.

5. **SUBSTANTIAL COMPLETION DATE.** The Substantial Completion Date shall be the date on which the Customer executes a Certificate of Substantial Completion. If the Work is divided into phases or individual projects for which individual prices have been negotiated, then separate Substantial Completion Dates shall apply to each phase or individual project.

6. **DELAYS.** TDIndustries shall not be liable for any delay in the performance of the Work for any reason beyond TDIndustries control and without TDIndustries negligence, including without limitation labor disputes, fire, riots, unusual delay in deliveries, abnormal adverse weather conditions, or by the failure of the Customer to perform its obligations under the Contract and Schedules or its failure to cooperate with TDIndustries in the timely completion of the Work. In the event of such delays, TDIndustries shall be entitled to an extension of time to complete the



contract. In addition, if delays to TDIndustries performance of the Work are caused by the Customer or an entity under the control or direction of the Customer, TDIndustries shall be entitled to additional compensation, if applicable, in addition to an extension of time to complete the Contract.

- 7. CERTIFICATE OF SUBSTANTIAL COMPLETION.** The Certificate of Substantial Completion to be executed by the Customer shall include:
- a. An acknowledgment by the Customer of the buildings substantially completed and the Substantial Completion Date for each building.
 - b. An acknowledgment by the Customer of receipt of manuals and training provided by TDIndustries under the Contract.
 - c. An acknowledgment by the Customer of the warranty start date and warranty period.
 - d. A punchlist of items remaining to be completed by TDIndustries.
 - e. An acknowledgment by the Customer that:
 - (i) TDIndustries does not warrant against system malfunction caused by improper use, misuse or wrong entry of data by the Customer, and TDIndustries shall not be liable for situations or damages that are the direct result of user-generated databases.

This Schedule is attached to and made a part of the Contract between TDIndustries and the Customer, dated _____

The Customer

TDIndustries, Inc.

Signature: _____

Signature: _____

Printed Name: _____

Printed Name: _____

Title: _____

Title: _____

Date: _____

Date: _____