# FRESNO UNIFIED SCHOOL DISTRICT
# FORT MILLER MIDDLE SCHOOL LIGHTING UPGRADE
# SCOPE OF WORK

## PART 1 - GENERAL

A. Summary of Work:

1. The work of this contract includes but is not limited to, the demolition and disposal of existing interior light fixtures and installation of new district supplied light fixtures as required in contract documents and per NEC code regulations.

2. The following buildings are included in this contract: Buildings A,B,C,D,E,F,G,H,I,J,K,LM,N Refer to Site Key Plan for building location.

B. Related Specification Sections & Documents:

1. Site Key Plans
2. Detail A – Fixture T-Bar Mounting Detail
3. Section 2600 – Basic Electrical Materials

C. For the purpose of the contract, the terms Owner and District shall mean the Fresno Unified School District.

## PART 2 – CONTRACTOR RESPONSBILITIES

A. Contractor shall provide District Project Manager with a written report on a weekly basis outlining the work that has been completed.
B. Contractor shall clean interior of each classroom space prior to conclusion of project and shall return each classroom space and interior finishes to conditions that existed prior to proceeding with work.
C. Contractor shall verify proper functioning of new lighting fixtures and shall troubleshoot as necessary until proper function is achieved.
D. The mounting of all fixtures shall abide by details and specifications and conform to NEC regulations and all other applicable building codes.
E. Contractor shall identify all lights containing Polychlorinated Biphenyl(PCB’s) and shall be responsible for proper disposal of all hazardous materials.
F. District trash bins/dumpsters shall not be used for disposal of any kind.
G. All work shall be done on swing shift, 2:00pm to 10:00pm, except during any District holidays

PART 3 – LIGHT FIXTURES

A. Products

1. Fixture CC-KT-LED27HID-EX39-840-D/G2
2. Fixture-K- Keystone Future Fit
3. Fixture -KE- Keystone Emrg-Led-12-1200 Kit
4. Fixture-W- Metallux WSNLED-Ld4
5. Fixture-TR- Metallux-cruze-retro kit-2x4
6. Fixture-TRE Metallux-cruze-retro kit 2x4 EM
7. Fixture-HB Metallux VHB LED High Bay
8. Fixture-V- Fail-safe HVSL8-LD4
9. Fixture-U- Fail-safe UCLV LD4-LED Under Cabinet

B. Fixtures Required

1. Building A:
    a. Replace 3 Surface fixture with new W fixture
    b. Replace 30 Troffer lights with new TR retro kit
2. Building B:
    a. Replace 50 surface fixture with new W fixture.
    b. Replace 40 Troffer with new TR retro fix kit
    c. Replace 6 wall mount fixture with new U fixture
    d. Replace 2 Emergency fixture with new TRE kit
3. Building C:
    a. Replace 3 surface fixture with new V fixture
    b. Replace 60 troffer fixture with new TR retro kit
    c. Replace 5 emergency fixture with ne TRE retro kit
4. Building D:
    a. Replace 3 Surface fixtures with 3 new V fixture
    b. Replace 60 troffer fixture with new TR retro kit
    c. Replace 5 emergency fixture with new TRE retro kit
5. Building E:
    a. Replace 3 surface fixture with new V fixture.
    b. Replace 60 troffer fixture with new TR retro kit
    c. Replace 5 emergency fixture with new TRE retro kit
6. Building F:
    a. Replace 3 surface fixture with new V fixture
    b. Replace 60 troffer fixture with new TR retro kit
    c. Replace 5 emergency fixture with new TRE retro
7. Building G:
    a. Replace 50 troffer fixture with new TR retro kit.
    b. Replace 10 emergency fixtures with new TRE. retro kit
    c. Replace 15 recess 1x4 fixture with new K retro fit kit
    d. Replace 8 recess 1x4 emergency fixtures with new KE retro fit kit

8. Building H:
    a. Replace 30 surface fixtures with new W fixture
    b. Replace 50 troffer fixture with new TR retro kit
    c. Replace 5 emergency fixtures with new TRE retro kit
    d. Replace 10 1x4 fixtures with new K retro kit
9. Building I
    a. Replace 15 surface fixture with new W fixture
    b. Replace 50 troffer fixture with new TR retro kit
    c. Replace 5 emergency fixture with new TRE retro kit
10. Building J
    a. Replace 8 surface fixtures with new W fixture
    b. Replace 65 troffer fixture with new TR retro kit
    c. Replace 6 emergency fixture with new TRE retro kit
11. Building K:
    a. Replace 100 surface fixtures with new W fixture
    b. Replace 30 troffer fixture with new TR retro kit
    c. Replace 5 emergency fixture with new TRE retro kit
12. Building L
    a. Replace 25 fluorescent fixture in basketball gym with new HB fixture
    b. Replace 20 surface fixtures with new W fixture
    c. Replace 15 LPS lamps with new CC type lamp
13. Building M
    a. Replace 35 surface fixture with new W fixture
    b. Replace 24 surface fixture with. new V fixture
14. Building N
    a. Replace 35 surface fixture with new W fixture
    b. Replace 29 surface fixture with new V fixture

**SECTION 26 00 00**

**GENERAL ELECTRICAL**

PART 1 GENERAL

1.01 RELATED DOCUMENTS:

Contact requirements of the foregoing GENERAL CONDITIONS, SPECIAL CONDITIONS and supplements thereto and all requirements of Division 1 of these Specifications shall form a part of this Section with the same force and effect as though repeated herein. The provisions of this Section shall apply to all of the following Sections of Division 26 of these Specifications. All applicable portions of the work under Division 26 shall conform fully to all provisions of all other Division 26 Sections along with other Sections of these Specifications including, but not limited to the following:

1.02 SUMMARY OF WORK:

The Contractor shall provide all materials, tools, equipment, labor and services necessary to furnish and install complete working electrical systems as shown on the plans and described within these Specification. All systems, at project completion and before final acceptance, shall be demonstrated to have a complete and working functional operation. The work includes but is not specifically limited to items indicated on Drawings and specified herein.

1.03 DESCRIPTION AND INSTALLATION OF SYSTEMS:

A. The electrical drawings are diagrammatic and do not necessarily show all raceway, wiring, number or types of fittings, offsets, bends or exact locations of items required by the electrical systems. Items not shown or indicated which are clearly necessary for proper operation, payment or installation of systems shown shall be provided at no-increase in contract price.

B. The exact routing of systems and location of devices and equipment shall be governed by coordination with other trades, structural and architectural conditions. The Architect or Electrical Engineer reserves the right, at no increase in contract price, to make reasonable changes in location of electrical equipment or wiring systems; so as to coordinate with other systems, group them into orderly relationships, or to increase their utility. Contractor shall verify requirements in this regard prior to roughing in.

C. Install electrical work in cooperation with other trades and make proper provisions to avoid interferences and coordinate with structural and architectural features, in a manner approved by the Architect or Electrical Engineer. All changes caused by neglect to make such provisions shall be at Contractor's expense. Provide offsets and special fittings, as required to facilitate installation of the work.

D. When a particular product or type of product is specified with a manufacturer's designation, the latest published specifications, installation, and construction information of the manufacturer shall constitute the minimum acceptable standard. Any substitutions shall be made in accordance with Section 1.09 SUBSTITUTIONS.

1.04 RELATED DOCUMENTS:

A. Codes and Regulations: All electrical equipment and material and its installation shall conform to the current requirements of the following authorities and Section for CODES AND STANDARDS:

1. Occupational Safety and Health Act (OSHA).

2. 2019 California Electric Code (CEC),

3. California Code of Regulations (CCR).

a. Title 8, Safety Orders.

b. Title 19, Fire and Panic Safety Standard.

c. Title 24, Part 1, Administrative Regulations.

4. 2019 California Fire Code (Based on the International Fire Code by NFPA).

5. 2019 California Building Code (Based on the International Building Code,, now incorporated as CCR-T24, Part 2.)

NOTE: Where two or more codes or designs conflict, the most restrictive shall apply. Nothing in these Plans and Specifications shall be construed to permit work not conforming to applicable codes.

B. Tests and Standards: The tests, standards, or recommended procedures of the following agencies shall relate to all parts of these Specifications and shall be considered a minimum:

1. American National Standards Institute (ANSI).

2. Underwriters Laboratories, Inc. (UL).

3. National Electric Manufacturers Association (NEMA).

4. Electrical Testing Laboratories (ETL).

5. National Fire Protection Association (NFPA).

6. Insulated Power Cable Engineers Association (IPCEA).

7. Institute of Electrical and Electronic Engineers (IEEE).

8. Illumination Engineering Society (IES).

1.05 EXAMINATION OF DOCUMENTS AND SITE:

Before submitting a proposal, each bidder shall carefully examine the electrical, mechanical,

architectural, and structural drawings and specifications. He shall also visit the site and fully inform himself as to all existing conditions and limitations applying to the work. If, after such examination and study, it appears that any change from the drawings and specifications should be allowed, the bidder shall so state in writing together with any change in cost involved.

By the act of submitting a proposal, each bidder shall be deemed to have made such examinations of the drawings and specifications and premises, and it will be assumed that he is therefore familiar with the entire scope of the project and has based his proposal upon the work described in the Plans and Specifications and upon all existing conditions and limitations applying to his work.

1.06 EXECUTION:

A. Workmanship: The work shall be performed by competent workmen, skilled in the particular phase of the work entailed. The work shall be first class throughout, neat, accurate and in full accordance with the intent of these Specifications and the satisfaction of the Architect or Electrical Engineer.

B. Safety: All standard safety procedures as set forth by OSHA, CCR, and California Division of Industrial Safety shall be strictly adhered to.

C. Coordination: The Contractor shall familiarize himself with the work of other crafts so as to be able to provide electrical service of correct size and voltage and other requirements to any equipment to be installed. The installations shall be coordinated as to location and time, and interference causing delays and non-acceptable construction shall be avoided.

Prior to commencing construction the Electrical Contractor shall arrange a conference with the Mechanical and Plumbing Contractors and sub-contractors as well as equipment suppliers and shall verify types, sizes, locations, requirements, controls, and diagrams of all equipment furnished by them. Prior to roughing in, he shall, in writing, inform the Architect or Electrical Engineer that all phases of coordination of this equipment have been covered. Exact equipment rough-in locations shall be verified from shop drawings.

D. Cutting and Repairing: The Electrical Contractor shall do all cutting necessary for the proper installation of his work, repair any damage done by himself or his workmen, and coordinate his work with that of others. Do no cutting or patching without approval of the Architect or Electrical Engineer. Round holes through concrete slabs or walls shall be core drilled with a diamond drill, rectangular openings shall be cut with a diamond saw. In no case shall any concrete beam or column be cut.

E. Sleeves and Openings: Electrical Contractor shall be responsible for all sleeves and openings through walls and floors required by electrical work. All openings around conduits in sleeves shall be sealed with a material of equal fire rating as the surface penetrated. Openings not utilized shall be temporarily sealed in a similar manner. All required sleeves shall be furnished to and coordinated with the General Contractor.

F. Cleaning and Painting: All exposed work shall be thoroughly cleaned upon completion of work. All panelboards and equipment not located in electrical or mechanical rooms or closets shall be field painted per painting specifications, finish M2, color as selected by Architect. Panelboard enclosures, fixtures, and equipment, where finish has been marred in shipment or installation, shall be completely refinished. Minor finish damage shall be rectified as indicated by the Architect or Electrical Engineer. Contractor shall remove all waste and rubbish resulting from his work from the site.

1.07 QUALITY CONTROL:

A. Supervision: The Contractor shall personally, or through a competent representative, constantly supervise the work from beginning to completion and final acceptance. He shall cooperate fully with the inspection authorities in the provision of information and access to the work. He shall, to the best of his ability, maintain the same job foreman throughout the life of the project unless a replacement is requested or authorized by the Architect or Electrical Engineer.

B. Inspection and Tests: The Contractor shall furnish all labor and test equipment required to fully test and adjust the equipment installed under this specification and demonstrate its proper operation.

1. Arrange for all tests and inspections and provide minimum 48 hours notice to the Architect or Electrical Engineer.

2. A test must demonstrate that each piece of equipment, outlet, fixture, device, and appurtenance is in sound operating condition and in proper cooperative relation to associated equipment.

3. All tests shall be conducted under supervision of the Architect or Electrical Engineer, and any defects of any nature which are apparent as a result of such test shall be made correct to the satisfaction of the Architect or Electrical Engineer before final acceptance is made.

4. No equipment shall be tested, or operated for any other purpose, such as checking motor rotation, until it has been fully checked in accordance with the manufacturer's instructions.

5. Check and tighten nuts, bolts, lugs, and similar elements of equipment; switchboards, motor control centers, busways, panels, etc.

6. Submit complete test reports with maintenance manual submission.

C. Guarantee: The Contractor agrees to replace or repair, to the satisfaction of the Owner, any part of the installation which may fail due to defective material and/or workmanship or failure to follow Plans and Specifications, for a period of one year after final acceptance. Any damage to other work resulting from such failure or the correction thereof shall be remedied at the Contractor's expense. The Contractor shall, further, secure from the manufacturers of special equipment, such as signal systems, their respective guarantees and deliver same to Owner. Guarantees

between Contractor and his suppliers shall not affect guarantees between Contractor and Owner.

1.08 GROUNDING:

A. The conduit system supports, cabinets, switchboards, etc., and neutral conductors must be permanently and effectively grounded by means of approved ground clamp, in accordance with the electrical safety orders of the Department of Industrial Relations of the State of California.

B. This Contractor shall exercise every precaution to obtain good contacts at all panel boxes, pull boxes, etc. Where it is not possible to obtain good contacts, the conduit shall be bonded around the boxes with a #6B&S gauge, rubber covered, double braided wire with ground clamps.

C. Equipment and raceway bonding procedures shall be rigidly maintained and meet all jurisdictional requirements of codes and regulations.

D. A separate grounding conductor shall be run in all PVC conduit runs.

1.09 SUBSTITUTIONS:

A. The Specifications or Plans are in no way to be construed as being proprietary toward one product. Those products, or types of products, listed are intended to set the standard for quality, design, and installation procedure. However, no right is implied upon the part of the Contractor to substitute other materials, products or systems without the written approval of the Architect or Engineer.

B. All requests for substitution shall be made in accordance with Section of the General requirements - SUBSTITUTIONS.

C. All requests for substitutions shall be in writing, recieved at least 10 days prior to bid date, and shall indicate all information required thereon including differences from the specified item. The request for substitution shall be accompanied by cuts, product literature, performance data, specifications, drawings, samples or other means as may be required for proper evaluation by the Architect or Electrical Engineer.

D. All proposed substitutions shall be standard product of the firm under current manufacture and be a catalog item at time of bid.

E. Acceptance of substitution shall not relieve the Contractor from responsibility for complying with requirements of the Contract Documents. The Contractor shall be responsible for changes in other parts of the work occasioned by his substitutions and shall bear their expense.

F. Representative samples may be required for determination of equality.

1.10 SUBMITTAL:

A. Make submittal for all material to be used on the project, whether as specified or

substitutions, within five (5) days after award of Contract by the Owner, in accordance with the following:

1. All submittal shall be neat and bound in a suitable folder or binder.

2. Identify each item by manufacturer, brand, trade, name, number, size, rating, and whatever other data is necessary to properly identify and check materials and equipment. Words "as specified" are not sufficient identification.

3. Identify each submittal item by reference to specifications section paragraph in which item is specified, or Drawings and Detail Number.

4. All submittal shall be submitted in coherent groups, e.g. all light fixtures at one time. No partial, or incomplete submittal will be accepted.

5. Organize submittal in same sequence as they appear in specification sections, articles or paragraphs.

B. Product Data: Submit eight copies, in groups, as follows:

1. Conduits and raceway types required, including fittings

2. Electric Wire, cable and connectors

3. Electrical boxes and fittings

4. Wiring devices

5. Power distribution boards, panels, transformers, disconnects, and switchboards.

C. Shop Drawings: Shop drawings shall show physical arrangement, wiring diagram, construction details, finishes, materials used in fabrication, provisions for conduit entrance, access requirements for installation and maintenance, physical size, electrical characteristics, foundation and support details, weight, power sources, circuit numbers, and shall be compatible with the Contract Drawings and Specifications.

Show wiring as actually installed, connected, and identified for this specific project. Include identification of cables and cable conductors.

Shop and instruction drawings shall cover the equipment or device to be installed and not merely the general class of such equipment or device.

1.11 DOCUMENTATION:

A. Construction Record Drawings: The Contractor shall furnish to the Architect or Engineer, in accordance with the GENERAL REQUIREMENTS, a complete set of "as constructed" drawings which clearly indicate all deviations from the basic contract drawings, including exact dimension locations and depths for all stubbed conduits,

location and size of spare conduits, & conductors, all new and uncovered existing work outside the buildings, power feeder runs, and communications "primary" conduit runs. Corrections and changes shall be kept up to date at all times.

B. All submittal and shop drawings will be resubmitted with record drawings showing all revisions and changes made, clearly marked with field termination wire so as to reflect actual construction record conditions. Revisions and changes will be enumerated and new dates of drawings shown.

1.12 EARTHWORK:

A. Scope: Do all earthwork required for installation of the underground electrical work in accordance with Trench Excavation and Backfill Specifications and the following:

B. Existing Utilities: Prior to performing any excavation, Contractor shall establish all existing utilities in area.

C. Patching and Paving: General Contractor to patch and pave all surfaces involved with underground utilities after fill compacted by Contractor to specified values.

D. After Excavation: Raceways shall be installed as quickly as possible and the excavation backfilled in order to reduce hazards. Barricades, construction signs, battery operated flashing lights and guards, as required, shall be placed and maintained during the progress of the construction to protect persons from injury and to avoid property damage as per General Conditions.

1.13 EXISTING SUB-SURFACE STRUCTURES:

A. The civil plans indicate all known electrical and major sewer and water systems on the site, underground. No exact recorded information is available on any and/or all buried systems on the site. Responsibility for absolute accuracy of site data indicated on electrical plans is not assumed by the Architect or Electrical Engineer.

B. It shall be the Contractor's responsibility to protect all underground systems and structures while excavating and installing the electrical distribution system. Any damage done to the existing system during the course of the electrical work shall be repaired to the satisfaction of the Owner and the utility or agency involved, at the expense of the Contractor.

1.14 PORTABLE OR DETACHABLE PARTS:

The Contractor shall retain in his possession and shall be responsible for all portable and detachable parts or portions of the installation such as fuses, keys, locks, adapters, locking clips, and inserts until final completion of his work. These parts shall be itemized and delivered to the Owner at Project Closeout.

1.15 OPERATION AND SERVICE MANUALS:

A. Contractor shall prepare manuals describing the operations, servicing, and maintenance requirements of all electrical equipment provided and complete parts

lists, in accordance with Section Operating and Maintenance Data.

B. Equipment: Equipment described in the manual shall include all equipment listed under "Submittal", and on all other auxiliary miscellaneous systems.

C. Information contained in the manual shall consist of 8-1/2" x 11" size catalog data on each item, together with parts lists, description of operation, maintenance information, shop drawings, wiring and riser diagrams and test reports as installed. Catalogs and data in the manuals shall be neat, clean copies. Drawings shall be accordion folded to letter size and installed in an envelope within the manual. An index shall be provided, which shall list all contents in an orderly manner with the respective equipment supplier's name, address and telephone number, and the manufacturer's recommended servicing instructions. Diagrams shall be complete for each system installed. Provide divider sheets with identifying tabs between each category.

**END OF SECTION**