



April 30, 2014

Mr. Eugene Marraccini
Director of Business Affairs
Plum Borough School District
900 Elicker Road
Plum, Pa. 15239

**Re: Plum Borough School District
Proposal for Commissioning Services
Holiday Park Elementary School**

Dear Mr. Marraccini,

Thank you for the opportunity to submit a proposal to provide Commissioning Services for Holiday Park Elementary School. This proposal has several important clarifications based upon our past experience with commissioning and our knowledge of this project.

- Testing and Balancing (TAB) is part of the Mechanical Contractors scope of work and therefore not included in this proposal.
- Assisting with Commissioning was not included in the contractor's scope of work; therefore to prevent the likelihood of change orders from contractors we have allowed additional time to complete the functional testing.
- Sampling rates can greatly affect commissioning costs. We have provided a commissioning proposal based on realistic sampling rates.

While the above clarifications will affect Tower Engineering's fee, we have maintained sufficient time in our proposal to insure that Plum Borough School District ultimately takes ownership of a newly constructed facility that operates properly and as the design professionals intended. Our goal is not to cut important commissioning tasks to the point where the overall effectiveness of the process is put in jeopardy. For example, there are 53 unit ventilators on this project, our proposal has a sampling rate of 25%. Randomly sampling fewer UV's still gives a representative view of the installation and operation of the system but will reduce the commissioning costs. We did not reduce the sampling rate for systems and equipment we view as critical to the overall operation of building systems. (i.e.: Boilers, chillers, exhaust fans, access control, CCTV, etc.)

Commissioning is a systematic process that ensures that building systems perform interactively according to the contract documents, the design intent, and the owner's operational needs. Commissioning activities continue through the construction phase involving actual performance testing and conclude with acceptance by the owner and the contractor's warranty period that extends into occupancy.

When commissioning is properly executed, operational cost savings due to optimized equipment performance can be substantial. In addition to energy performance, the commissioning process enhances occupant productivity and performance. Ultimately, the owner benefits when building systems work properly by reducing energy costs, reducing occupant complaints, and allowing the building's occupants to enjoy a healthier and more productive indoor environment.

Tower Engineering coordinates and directs the commissioning activities in a logical, sequential, and efficient manner using consistent protocols and forms, centralized documentation, clear and regular communications and consultation with all parties, frequently updated timelines, schedules and technical expertise.

We are confident that Tower Engineering's participation in the commissioning activities for the Holiday Park Elementary School will significantly contribute to the project's overall success. Tower Engineering's goal is not to unnecessarily embarrass the project's contractors in an attempt to prove our value to a project. Our goal is for the project to be successful for all entities and to eliminate costly and troublesome problems that occur when the commissioning process does not occur properly.

Why Tower Engineering?

For a variety of reasons, we are convinced that Tower Engineering is uniquely qualified to provide commissioning services for the Plum Borough School District.

Experience overseeing Testing Adjusting, and Balancing Activities

We understand that the Commissioning Scope of Work for the Holiday Park Elementary School does NOT include Testing, Adjusting, and Balancing of the HVAC system (TAB). However, we are convinced that our experience in taking responsibility for these activities will enhance our capability to insure that the HVAC Contractor's TAB Subcontractor performs their job properly.

Commissioning Experience

Since 2001, Tower Engineering has been providing commissioning services for a variety of projects. Refer to the attached commissioning brochure that identifies many of our projects. In addition to the projects listed, we are currently providing commissioning services for the following:

- Moon School District – new High School
- Moon School District – renovated Middle School
- Department of Energy Record Storage Facility in Morgantown. This 60,000 s.f. building achieved a LEED certification and includes critical record storage space (tight temp and humidity control), office space and a data center.
- Kaufmann Program Center in Pittsburgh. This 19,411 s.f. building achieved a LEED certification and includes a performing arts stage and a two level seating area.
- Blue Ridge Community and Technical College.
- Marshall University Applied Engineering Complex.
- Highland Middle School – Blackhawk School District
- Penn Hills Elementary School

- Retro-commissioning of Penn Hills High School

Design Capabilities

Unlike many commissioning agents who lack in-house design capabilities professional engineering registration, Tower Engineering is a full staff professional engineering firm that has over seventy years of design experience. Our design experience, engineering knowledge, and ethical approach ensure that the commissioning services are executed with the same level of professionalism provided for all of Tower Engineering's clients.

Experience working with K-12 Clients

Tower Engineering has vast experience providing design and commissioning services for K-12 clients throughout Pennsylvania and West Virginia. We understand the unique requirements that are inherent in K-12 projects. Refer to the attached listing of Tower Engineering's K-12 clients.

Proximity

Tower Engineering is located in the Northern suburbs of Pittsburgh, approximately 30 minutes away from the project site.

Personal Approach to Project Management

With 31 full time employees, we fall into the category of a medium-sized professional firm. We feel that this provides a number of significant advantages. Unlike a small firm, our office can easily accommodate the rigorous design schedules of a major project without significant disruption. Unlike a large firm, Tower Engineering stresses active principal involvement in all projects and does not require the involvement of "middle-level" employees whose responsibility is to convey information between the client and staff. Our principals are not devoted primarily to marketing activities, allowing ALL projects to include significant design participation of at least one of our three principals.

Proposed Tower Engineering Commissioning Team

We propose to provide our services with a combination of in-house personnel and technicians as follows:

Principal in Charge: James N. Kosinski, PE
Project Manager and Primary Commissioning Agent: Daniel J. Kendra, PE
Secondary Mechanical Commissioning Agent: David J. Kuretich, PE
Electrical/ Technology Commissioning Agent: Douglas L. Cogley

See attached resumes for our entire team.

Our Project Manager and Primary Commissioning Agent, Dan Kendra, has been involved in the HVAC industry for 27 years. Dan's experience includes installation, startup, commissioning, retrofit, estimating, ordering, engineering, and sales.

Scope of Work

Our Commissioning Scope of Work will be as required to properly and professionally commission the Holiday Park Elementary School:

Construction Phase

1. We will develop a commissioning plan that includes the following:
 - Overview of the commissioning process.
 - List of commissioned features and systems
 - An outline of the commissioning process scope including document review, observation, testing, training, operation, and maintenance documentation and warranty period activities.
2. Review construction documents for items that will affect the commissioning process and provide summary review for the construction team.
3. Review equipment submittals for information affecting the commissioning process.
4. Establish and maintain a system for tracking issues needing resolution
5. Review the project schedule periodically to ensure commissioning activities are properly incorporated; provide Owner feedback as needed.
6. We have included 10 prefunctional inspection site visits, to monitor correct component and equipment installation; including controls point-to-point checkouts. Document all observations.
7. Review and inspect, on a sample basis, the testing, adjusting and balancing work that is carried out by TAB subcontractor.
8. For each site visit we will create a site visit report and provide to Owner and CM.
9. Other related work.
 - Spot check and document pipe cleaning, flushing and chemical treatment of hydronic system
 - Compose, format, and use commissioning forms.

Acceptance Phase

1. Review the testing, adjusting and balancing documentation that is provided by the TAB subcontractor. Provide report on any findings that need further review.
2. Conduct prefunctional and functional performance testing of sub-systems, systems, and interactions between systems, leading to acceptance of the completed work. Document results of all tests witnessed.
3. Verification that O&M personal were trained on commissioned equipment as specified.
4. The following is the list of equipment that will be included in the commissioning process. :

Proposal - Items to be commissioned

	Total	# Commissioned
Air Handling Units	2	2
Unit Ventilators	53	12
Cabinet Unit Heaters	2	1
Radiant Panels	8	2
Convectors	3	1
Computer Room A/C	1	1
Remote Cond. Unit	12	3
Exhaust Fans	15	4
HW Boilers	2	2

Chillers	1	1
DHW Heater	2	2
Pumps	6	6
Expansion Tanks	4	4
Shot Feeders/filter	2	2
DHW Tempering Valves	94	94
Emergency Generator	1	1
Card Readers	7	7
LCD Keypads	4	4
Magnetic Door Contacts	18	18
CCTV-Cameras	43	43
Security key pad	4	4
Lighting-Motion Detect.	110	110
Daylight sensors	30	30
Exterior Lighting Controls	1	1
ATC Work Station	1	1

Post-Occupancy Phase

1. Conduct functional performance testing of sub-systems, systems, and interactions between systems that could not be carried out prior to acceptance due to unsuitable weather conditions.
2. Prepare and submit a final commissioning report.
3. We have including four additional site visits after commissioning and occupancy to be used when requested by the Owner.
4. A 10 month warranty review is included
 - a. We will return to the site at 10 months into the 12-month warranty period. Review with facility staff the current building operation and the condition of outstanding issues related to the original and seasonal commissioning. Also interview facility staff and identify problems or concerns they have with operating the building as originally intended. Make suggestions for improvements and document these changes. Identify areas that may come under warranty or under the original construction contract. Assist facility staff in developing reports and documents and requests for services to remedy outstanding problems.

The following additional information/clarifications/limitations will apply to our work.

1. For training, we did not include attendance at each training session. We only include verification that the specified training occurred.
2. The rental or procurement of any lifts or access equipment that will be necessary to verify test & balance and commission systems that cannot be accessed via a standard eight foot stepladder is not included. It is assumed that the Owner, General Contractor or HVAC Contractor will provide the lifts or access equipment.
3. Retesting beyond 10% is not included.
4. VOC testing, vibration testing and resistance heating element testing is not included.

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5. Commissioning of electrical systems beyond those identified in the proposal.
6. Commissioning of plumbing systems beyond those identified in the proposal.
7. Commissioning of HVAC equipment not specifically identified in the proposal.

Proposal Fee

Tower Engineering will provide services for the above Scope of Work on a lump-sum basis. Our lump-sum fee includes all travel, postage and reproduction costs. Our Standard Terms & Conditions, attached, will apply to any project resulting from this proposal.

Proposal:.....\$91,606.00
(Ninety one thousand, six hundred and six dollars)

Additional services would be provided on an hourly fee basis. Reimbursable expenses for tasks associated with this project (such as mileage, minor reproduction) are included in the fixed fees. However, it is possible that unidentified expenses that are in excess of the included expenses may become necessary. If this is the case, we will notify you immediately. Refer to the attached Tower Engineering Standard Terms and Conditions for hourly fees.

Thank you, again, for your consideration. We look forward to providing these services for the Plum Borough School District. Please contact me if you have any questions or comments.

Very truly yours,
Tower Engineering



Daniel J. Kendra, P.E

ACCEPTED BY _____ DATE _____
Plum Borough School District

CC: Mr. Dennis Russo – Rucon Construction Services

STANDARD TERMS AND CONDITIONS

Tower Engineering
Consulting Engineers

January 1, 2013 – December 31, 2013

All services, actions, and communications relative to the Project by Tower Engineering, hereinafter referred to as Tower, is subject to the terms and conditions set forth herein and in the letter of agreement to which these standard terms and conditions are attached.

1. **SCOPE OF WORK/TERMS OF AGREEMENT:** Unless the letter of agreement specifically provides to the contrary, the scope of work undertaken by Tower, the "Basic Services," shall be as stated in the letter of agreement. In the event of a conflict between these standard terms and conditions and the express provisions of the letter of agreement, the letter of agreement shall override the conflicting provision of these standard terms and conditions, but only for that provision. Tower shall have no other duties or responsibilities, except as expressly provided in writing.

2. **CHANGES/MODIFICATIONS:** Changes to the Basic or Additional Services shall be effective if the client or its authorized representative directs Tower to change the work and Tower confirms the change in writing, mailed or delivered to the client or its authorized representative. Unless the confirmation so states, all changes to Basic or Additional Services are "Additional Services." Revisions in drawings, specifications or other documents when such revisions are inconsistent with client approvals or instructions previously given, or required by changes in applicable law or other cause not within the control of Tower, are also Additional Services. Other than changes to the Basic and Additional Services as provided above, no modification to the letter of agreement or these standard terms and conditions shall be effective unless in writing and signed by the client and an authorized representative of Tower.

3. **STANDARD PAYMENT TERMS:** Unless the letter of agreement specifically provides to the contrary, the client shall pay for Basic and/or Additional Services based on charges, as determined by Tower for three components: (A) Services provided directly by Tower; (B) Consultants retained by Tower with respect to the Basic or Additional Services; and, (C) Expenses of providing the Basic and Additional Services. Charges for each of these components shall be on the basis stated below:

A. **CHARGES FOR ADDITIONAL SERVICES:** Additional services provided shall be charged on the basis of the number of hours expended by each professional, technical or administrative employee involved in providing the Basic or Additional Services, multiplied by the then current hourly rate for each such professional, technical, or administrative employee. Current rates for each classification of professional or technical employee are set forth below.

Standard rates given below are effective through December 31, 2013, after which Tower reserves the right to adjust them.

<u>Classification</u>	<u>Hourly Rate</u>
Power Sys. Engineer	\$190.00 per hour
Principal	\$153.00 per hour
Technology Specialist	\$138.00 per hour
Senior Project Manager	\$124.00 per hour
Project Manager	\$111.00 per hour
Commissioning Technician	\$111.00 per hour
Senior Designer	\$ 91.00 per hour
Designer	\$ 80.00 per hour
Administrative	\$ 56.00 per hour

B. **OTHER EXPENSE CHARGES:** Tower charges for certain expenses incurred in providing Basic or Additional Services, based on its then current expense charge policy. Typical expenses for which charges are made include, without limitation, printing/reproduction, postage or shipping and delivery of drawings/specifications, travel and travel related expenses beyond the metropolitan area of Pittsburgh, approval fees, toll telephone charges and facsimiles, and express delivery charges.

4. **INVOICING:** Invoices shall be rendered monthly. Payments are due within 45 days of invoice date.

5. **INSURANCE:** Tower carries Workers' Compensation, Professional Liability Insurance, Comprehensive General Liability Insurance, and Automobile Liability Insurance. Certificates of Insurance will be furnished on request.

6. **GENERAL LIMITATION ON LIABILITY: SPECIAL LIMITATION FOR ASBESTOS, HAZARDOUS MATERIALS OR OTHER LATENT DEFECTS:** (A) Tower shall not be liable for any special, incidental, or consequential damages whatsoever, which may include, but are not limited to lost profit, lost income, lost rent, temporary facilities, lost productivity, interest, or insurance. (B) Tower shall not be liable for any damages whatsoever, whether as a result of professional liability or otherwise, arising from or related to radon, asbestos or Hazardous Materials or other latent defects in the land or improvements in connection with which the Basic or Additional Services are performed. Unless the letter of agreement specifically so states, Tower undertakes no duty (and the Basic Services do not include such services) to detect or find radon, asbestos, Hazardous Materials or other latent defects, and has understood that they were not involved when it agreed to perform the Basic Services.