

SPECIFICATIONS

FOR

Bid No. 19-11

Rooftop Unit Replacement for the Neshaminy High School  
Auditorium

Neshaminy School District  
2100 Old Lincoln Highway  
Langhorne, Pa 19047

April 13, 2017

Prepared by

CONSOLIDATED ENGINEERS  
1022 James Drive  
Leesport, PA 19533

Phone: 610-916-1600

Fax: 610-916-1610

CE Project No. 17-02823

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## SECTION 00030 - ADVERTISEMENT FOR BIDS

The Board of Directors of the Neshaminy School District is soliciting bids for:

Rooftop Unit Replacement for the Neshaminy High School Auditorium, Bid No. 19-11.

Sealed proposals will be received by Mr. Joseph Rischow, Purchasing Supervisor, until 10:00 a.m., prevailing time Tuesday, May 2, 2017. At that time & place sealed proposals will be publicly opened and read in the Purchasing Department of the Neshaminy School District at 2001 Old Lincoln Highway, Langhorne, Pennsylvania. The District will not be responsible for late delivery of mail and no bid will be accepted after 10:00 a.m.

A mandatory pre-bid meeting will be held on Thursday April 20, 2017, 10:00am, at the High School Campus Purchasing Office Conference Room, located at 2001 Old Lincoln Highway, Langhorne, PA 19047.

Each bid shall be accompanied by a certified check, a cashier's check or the bid of an approved Surety Company, in an amount of not less than 10% of the amount of the proposal. Check or bond shall be drawn in favor of the Neshaminy School District.

Bid documents are at the Neshaminy School District Site at [www.neshaminy.org](http://www.neshaminy.org). Click on the bid tab and look for bid# 19-11

Site visits or Technical questions pertaining to the bid specifications should be directed to Tim Trzaska or Jerry Rutledge at (215) 809-6250. Questions regarding Division 1 on the specifications should be directed via email to [jrischow@neshaminy.k12.pa.us](mailto:jrischow@neshaminy.k12.pa.us).

The School District reserves the right to waive any informality in bids, or to reject any or all proposals, and to make the award in the best interest of the School District.

Mr. Joseph Rischow  
Purchasing Supervisor

END OF SECTION 00030

**BUREAU OF LABOR LAW COMPLIANCE  
PREVAILING WAGES PROJECT RATES**

Project Name:	Neshaminy High School Auditorium Rooftop Unit Replacement
Awarding Agency:	Neshaminy School District
Contract Award Date:	5/11/2017
Serial Number:	17-02823
Project Classification:	Building
Determination Date:	4/11/2017
Assigned Field Office:	Philadelphia
Field Office Phone Number:	(215)560-1858
Toll Free Phone Number:	
Project County:	Bucks County

**BUREAU OF LABOR LAW COMPLIANCE  
PREVAILING WAGES PROJECT RATES**

<b>Project: 17-02823 - Building</b>	<b>Effective Date</b>	<b>Expiration Date</b>	<b>Hourly Rate</b>	<b>Fringe Benefits</b>	<b>Total</b>
Asbestos & Insulation Workers	5/1/2016		\$46.25	\$32.89	\$79.14
Boilermaker (Commercial, Institutional, and Minor Repair Work)	3/1/2018		\$29.52	\$18.22	\$47.74
Boilermaker (Commercial, Institutional, and Minor Repair Work)	3/1/2017		\$28.52	\$18.22	\$46.74
Boilermaker (Commercial, Institutional, and Minor Repair Work)	3/1/2016		\$27.52	\$18.22	\$45.74
Boilermakers	1/1/2018		\$46.26	\$33.36	\$79.62
Boilermakers	1/1/2017		\$44.26	\$33.36	\$77.62
Boilermakers	1/1/2016		\$42.26	\$33.36	\$75.62
Bricklayer	5/1/2018		\$43.73	\$26.78	\$70.51
Bricklayer	5/1/2019		\$46.48	\$26.78	\$73.26
Bricklayer	5/1/2016		\$38.48	\$26.78	\$65.26
Bricklayer	5/1/2017		\$40.98	\$26.78	\$67.76
Carpenter - Chief of Party (Surveying & Layout)	5/1/2017		\$46.11	\$26.54	\$72.65
Carpenter - Chief of Party (Surveying & Layout)	5/1/2016		\$44.56	\$26.54	\$71.10
Carpenter - Instrument Person (Surveying & Layout)	5/1/2017		\$40.10	\$26.54	\$66.64
Carpenter - Instrument Person (Surveying & Layout)	5/1/2016		\$38.75	\$26.54	\$65.29
Carpenter - Rodman (Surveying & Layout)	5/1/2016		\$19.38	\$19.26	\$38.64
Carpenter - Rodman (Surveying & Layout)	5/1/2017		\$20.05	\$19.26	\$39.31
Carpenters	5/1/2017		\$40.85	\$25.79	\$66.64
Carpenters	5/1/2016		\$39.50	\$25.79	\$65.29
Cement Masons	5/1/2017		\$37.00	\$31.21	\$68.21
Cement Masons	5/1/2016		\$35.15	\$31.21	\$66.36
DockBuilder/Pile Drivers Divers (Building Heavy & Highway)	5/1/2016		\$43.45	\$31.82	\$75.27
Drapery Installers	5/1/2009		\$31.09	\$21.34	\$52.43
Drywall Finisher	5/1/2016		\$36.48	\$26.38	\$62.86
Electric Lineman	5/30/2016		\$54.56	\$22.61	\$77.17
Electricians & Telecommunications Installation Technician	5/2/2016		\$54.52	\$35.22	\$89.74
Elevator Constructor	1/1/2016		\$52.79	\$30.29	\$83.08
Floor Layer	5/1/2017		\$43.26	\$27.06	\$70.32
Floor Layer	5/1/2016		\$41.86	\$27.06	\$68.92
Glazier	5/1/2017		\$42.18	\$30.92	\$73.10
Glazier	5/1/2016		\$41.28	\$29.92	\$71.20
Iron Workers	1/1/2017		\$46.20	\$31.26	\$77.46
Iron Workers	7/1/2016		\$46.54	\$32.29	\$78.83
Iron Workers	7/1/2017		\$46.20	\$31.26	\$77.46
Iron Workers - Reinforcing Steel Mesh - Rebar	7/1/2016		\$44.55	\$32.38	\$76.93
Iron Workers - Reinforcing Steel Mesh - Rebar	1/1/2017		\$44.55	\$32.55	\$77.10
Iron Workers - Reinforcing Steel Mesh - Rebar	7/1/2018		\$44.55	\$35.20	\$79.75
Laborers (Class 01 - See notes)	5/1/2016		\$27.60	\$24.95	\$52.55
Laborers (Class 02 - See notes)	5/1/2016		\$29.30	\$25.35	\$54.65
Laborers (Class 03 - See notes)	5/1/2016		\$27.87	\$24.95	\$52.82
Laborers (Class 05 - See notes)	5/1/2015		\$26.90	\$24.85	\$51.75

**BUREAU OF LABOR LAW COMPLIANCE  
PREVAILING WAGES PROJECT RATES**

<b>Project: 17-02823 - Building</b>	<b>Effective Date</b>	<b>Expiration Date</b>	<b>Hourly Rate</b>	<b>Fringe Benefits</b>	<b>Total</b>
Landscape Laborer	4/1/2016		\$21.61	\$22.83	\$44.44
Marble Finisher	5/1/2018		\$37.55	\$24.17	\$61.72
Marble Finisher	5/1/2017		\$35.55	\$24.17	\$59.72
Marble Finisher	5/1/2019		\$39.75	\$24.17	\$63.92
Marble Finisher	5/1/2016		\$33.55	\$24.17	\$57.72
Marble Mason	5/1/2018		\$43.11	\$26.99	\$70.10
Marble Mason	5/1/2019		\$45.86	\$26.99	\$72.85
Marble Mason	5/1/2016		\$37.86	\$26.99	\$64.85
Marble Mason	5/1/2017		\$40.36	\$26.99	\$67.35
Millwright	7/1/2016		\$39.91	\$31.19	\$71.10
Operators Class 01 - See Notes (Building, Heavy, Highway)	5/1/2016		\$44.09	\$27.07	\$71.16
Operators Class 01a - See Notes (Building, Heavy, Highway)	5/1/2016		\$47.10	\$27.95	\$75.05
Operators Class 02 - See Notes (Building, Heavy, Highway)	5/1/2016		\$43.84	\$27.00	\$70.84
Operators Class 02a - See Notes (Building, Heavy, Highway)	5/1/2016		\$46.84	\$27.89	\$74.73
Operators Class 03 - See Notes (Building, Heavy, Highway)	5/1/2016		\$39.76	\$25.79	\$65.55
Operators Class 04 - See Notes (Building, Heavy, Highway)	5/1/2016		\$39.46	\$25.70	\$65.16
Operators Class 05 - See Notes (Building, Heavy, Highway)	5/1/2016		\$37.74	\$25.19	\$62.93
Operators Class 06 - See Notes (Building, Heavy, Highway)	5/1/2016		\$36.75	\$24.90	\$61.65
Operators Class 07 (A) - See Notes (Building, Heavy, Highway)	5/1/2016		\$52.91	\$31.45	\$84.36
Operators Class 07 (B) - See Notes (Building, Heavy, Highway)	5/1/2016		\$52.61	\$31.37	\$83.98
Painters Class 1 (see notes)	5/1/2016		\$36.80	\$25.48	\$62.28
Painters Class 2 (see notes)	5/1/2016		\$52.10	\$25.41	\$77.51
Painters Class 2 (see notes)	2/1/2016		\$52.10	\$25.41	\$77.51
Painters Class 3 (see notes)	5/1/2016		\$37.18	\$25.48	\$62.66
Painters Class 3 (see notes)	5/1/2015		\$36.41	\$24.50	\$60.91
Plasterers	5/1/2016		\$36.92	\$28.33	\$65.25
Plasterers	5/1/2017		\$36.92	\$29.33	\$66.25
Plumbers	5/1/2016		\$49.23	\$31.76	\$80.99
Pointers, Caulkers, Cleaners	5/1/2016		\$39.76	\$25.69	\$65.45
Pointers, Caulkers, Cleaners	5/1/2017		\$42.26	\$25.69	\$67.95
Pointers, Caulkers, Cleaners	5/1/2018		\$45.01	\$25.69	\$70.70
Pointers, Caulkers, Cleaners	5/1/2019		\$47.76	\$25.69	\$73.45
Roofers (Composition)	5/1/2016		\$35.15	\$29.19	\$64.34
Roofers (Shingle)	5/1/2016		\$25.70	\$19.17	\$44.87
Roofers (Slate & Tile)	5/1/2016		\$28.70	\$19.17	\$47.87
Sheet Metal Workers	11/1/2016		\$45.32	\$37.36	\$82.68
Sign Makers and Hangars	5/20/2011		\$23.70	\$17.69	\$41.39
Sprinklerfitters	1/1/2017		\$52.55	\$24.42	\$76.97

**BUREAU OF LABOR LAW COMPLIANCE  
PREVAILING WAGES PROJECT RATES**

<b>Project: 17-02823 - Building</b>	<b>Effective Date</b>	<b>Expiration Date</b>	<b>Hourly Rate</b>	<b>Fringe Benefits</b>	<b>Total</b>
Sprinklerfitters	5/1/2015		\$51.35	\$23.37	\$74.72
Sprinklerfitters	5/1/2016		\$52.95	\$24.02	\$76.97
Steamfitters	5/1/2016		\$52.83	\$31.49	\$84.32
Steamfitters	5/1/2015		\$48.53	\$30.08	\$78.61
Stone Masons	5/1/2019		\$45.86	\$26.99	\$72.85
Stone Masons	5/1/2016		\$37.86	\$26.99	\$64.85
Stone Masons	5/1/2018		\$43.11	\$26.99	\$70.10
Stone Masons	5/1/2017		\$40.36	\$26.99	\$67.35
Terrazzo Finisher	5/1/2019		\$43.61	\$22.73	\$66.34
Terrazzo Finisher	5/1/2016		\$37.06	\$22.73	\$59.79
Terrazzo Finisher	5/1/2018		\$41.31	\$22.73	\$64.04
Terrazzo Finisher	5/1/2017		\$39.06	\$22.73	\$61.79
Terrazzo Grinder	5/1/2019		\$43.98	\$22.73	\$66.71
Terrazzo Grinder	5/1/2017		\$39.33	\$22.73	\$62.06
Terrazzo Grinder	5/1/2016		\$37.33	\$22.73	\$60.06
Terrazzo Grinder	5/1/2018		\$41.58	\$22.73	\$64.31
Terrazzo Mechanics	5/1/2017		\$43.71	\$24.81	\$68.52
Terrazzo Mechanics	5/1/2016		\$41.21	\$24.81	\$66.02
Terrazzo Mechanics	5/1/2018		\$46.46	\$24.81	\$71.27
Terrazzo Mechanics	5/1/2019		\$49.21	\$24.81	\$74.02
Tile Finisher	5/1/2017		\$35.55	\$24.17	\$59.72
Tile Finisher	5/1/2019		\$39.75	\$24.17	\$63.92
Tile Finisher	5/1/2018		\$37.55	\$24.17	\$61.72
Tile Finisher	5/1/2016		\$33.55	\$24.17	\$57.72
Tile Setter	5/1/2017		\$43.71	\$24.81	\$68.52
Tile Setter	5/1/2016		\$41.21	\$24.81	\$66.02
Tile Setter	5/1/2019		\$49.21	\$24.81	\$74.02
Tile Setter	5/1/2018		\$46.46	\$24.81	\$71.27
Truckdriver class 1(see notes)	5/1/2016		\$29.85	\$17.14	\$46.99
Truckdriver class 2 (see notes)	5/1/2016		\$29.95	\$17.14	\$47.09
Truckdriver class 3 (see notes)	5/1/2016		\$30.20	\$17.14	\$47.34



**BUREAU OF LABOR LAW COMPLIANCE  
PREVAILING WAGES PROJECT RATES**

<b>Project: 17-02823 - Heavy/Highway</b>	<b>Effective Date</b>	<b>Expiration Date</b>	<b>Hourly Rate</b>	<b>Fringe Benefits</b>	<b>Total</b>
Carpenter - Chief of Party (Surveying & Layout)	5/1/2016		\$51.92	\$26.64	\$78.56
Carpenter - Instrument Person (Surveying & Layout)	5/1/2016		\$43.66	\$26.64	\$70.30
Carpenter - Rodman (Surveying & Layout)	5/1/2016		\$36.38	\$21.06	\$57.44
Carpenters	5/1/2016		\$43.66	\$26.64	\$70.30
Cement Masons	5/1/2016		\$33.35	\$30.96	\$64.31
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2016		\$46.20	\$31.26	\$77.46
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	1/1/2017		\$46.20	\$31.26	\$77.46
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2017		\$46.20	\$31.26	\$77.46
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	7/1/2018		\$46.20	\$31.26	\$77.46
Laborers (Class 01 - See notes)	5/1/2016		\$28.35	\$25.65	\$54.00
Laborers (Class 02 - See notes)	5/1/2016		\$28.55	\$25.65	\$54.20
Laborers (Class 03 - See notes)	5/1/2016		\$28.55	\$25.65	\$54.20
Laborers (Class 04 - See notes)	5/1/2016		\$23.15	\$25.65	\$48.80
Laborers (Class 05 - See notes)	5/1/2016		\$29.20	\$25.65	\$54.85
Laborers (Class 06 - See notes)	5/1/2016		\$29.25	\$25.65	\$54.90
Laborers (Class 07 - See notes)	5/1/2016		\$29.10	\$25.65	\$54.75
Laborers (Class 08 - See notes)	5/1/2016		\$28.85	\$25.65	\$54.50
Laborers (Class 09 - See notes)	5/1/2016		\$28.70	\$25.65	\$54.35
Laborers (Class 10- See notes)	5/1/2016		\$28.85	\$25.65	\$54.50
Laborers (Class 11 -See Notes)	5/1/2016		\$28.75	\$25.65	\$54.40
Laborers (Class 12 -See Notes)	5/1/2016		\$30.45	\$25.65	\$56.10
Laborers (Class 13 -See Notes)	5/1/2016		\$32.48	\$25.65	\$58.13
Laborers (Class 14 -See Notes)	5/1/2016		\$28.50	\$25.65	\$54.15
Laborers Utility (PGW ONLY)	5/1/2015		\$24.19	\$16.78	\$40.97
Laborers Utility (PGW ONLY) (Flagperson)	5/1/2015		\$19.42	\$16.78	\$36.20
Landscape Laborer	5/1/2016		\$21.19	\$22.65	\$43.84
Painters (Bridges, Stacks, Towers)	2/1/2016		\$52.10	\$25.41	\$77.51
Steamfitters (Heavy and Highway - Gas Distribution)	5/1/2016		\$50.19	\$31.18	\$81.37
Truckdriver class 1(see notes)	5/1/2016		\$29.70	\$17.14	\$46.84
Truckdriver class 2 (see notes)	5/1/2016		\$29.80	\$17.14	\$46.94
Truckdriver class 3 (see notes)	5/1/2016		\$30.05	\$17.14	\$47.19

BID FORM  
BID No. 19-11  
HVAC ROOFTOP UNIT REPLACEMENT  
AT THE  
NESHAMINY HIGH SCHOOL AUDITORIUM  
FOR  
NESHAMINY SCHOOL DISTRICT

Proposal of: HVAC Rooftop Unit Replacement for the Neshaminy High School Auditorium, for the Neshaminy School District, Bid No. 19-11

To: Mr. Joseph Rischow  
Purchasing Supervisor  
Langhorne, PA

In conformity with the Drawings and Specifications as prepared by Consolidated Engineers, 1022 James Drive, Leesport, Pennsylvania, after an examination of the site and the Bidding and Contract Documents, including the Advertisement, Instructions to Bidders, Proposals, Bid Form, Bid Bond, Qualification Statement, General Conditions, Supplementary Conditions, Standard Form of Agreement, Performance Bond and Payment Bond, Certificate of Insurance, and Technical Specifications and Drawings, the undersigned submits this proposal and encloses herewith as a bond on the form enclosed, furnished by Neshaminy School District, in an amount of not less than ten percent (10%) of the total of the hereinafter stated Base Bid, made payable to or indemnifying Neshaminy School District, 2001 Old Lincoln Highway, Langhorne, Pennsylvania. Which it is understood will be held by Neshaminy School District, as security as provided in the Instructions to Bidders, if this proposal or any part thereof is accepted by the School District, and the undersigned shall fail to furnish approved bonds and execute the Agreement within ten (10) days from the date of issuance of the award. Should the School District fail to make an award on this project through no fault or failure on the part of the Bidder, then the School Board shall return said bid security.

It is hereby certified that the undersigned is the only person(s) interested in this proposal as principal, and that the proposal is made without collusion with any person, firm, or corporation. The Bidder submits herewith, as such, a Non-Collusion Affidavit in accordance with the provisions of the Pennsylvania Antibid-Rigging Act of October 28, 1983.

Bidder hereby agrees to execute the Agreement and furnish surety company bonds in the form incorporated in the Contract Documents, in the amount of one-hundred percent (100%) of the contract price for the Performance Bond and Payment Bond, within ten (10) days after mailing by the School Board of notice of award, and to begin work within ten (10) days after date of Notice to Proceed.

Bidder guarantees that, if awarded contract, he will furnish and deliver all materials, tools, equipment, tests, transportation, secure all permits and licenses, do and perform all labor, superintendence and all means of construction, pay all fees and do all incidental work, and to execute, construct and finish, in an expeditious, substantial and workmanlike manner, in accordance with the Drawings and Specifications, to the complete satisfaction and acceptance of the School Board, for the HVAC Rooftop Unit Replacement at the Neshaminy High School Auditorium.

It is understood that the School Board, reserves the right to reject any or all proposals, or part thereof, or items therein and to waive technicalities required for the best interest of the School District. It is further understood that competency and responsibility of bidders will receive consideration before the award of the contract. A certified copy of the Contractor's Qualification Statement, AIA Document A305 will be submitted as requested.

Bidder submits this proposal with the understanding that the work shall be completed on or before the dates stipulated in the Advertisement for Bids and Instructions to Bidders; in accordance with the phased completion schedule; and, that time for completion of the work shall be considered as of the essence of this Contract.

A detailed breakdown sheet of the work, and the contract price of the work involved, will be submitted to the Engineer, within fifteen (15) calendar days after the execution of the Contract. The bidder agrees that he will not assign his bid or any of his rights or interests thereunder without the written consent of the School Board.

UNIT PRICES govern addition to or deduction from quantity included in the Base Bid and amounts actually installed on the job. Where existing work is indicated, price includes removal and replacing. Unit prices shall include all labor, materials, equipment, bailing, shoring, removal, supervision, overhead, profit, insurance, bond, etc. required to complete work specified. All quantities shall be verified by the Engineer.

THE BID, as called for, is submitted as follows:

BASE BID (VALENT UNIT)

State the costs associated with the removal and replacement of the auditorium rooftop unit (RTU-1) as indicated in the contract documents.

\_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_)

ALTERNATE BID H-1 (AAON UNIT)

State the costs associated with the removal and replacement of the auditorium rooftop unit (RTU-1) using Aaon Unit. Alternate unit must meet all the specifications of the BASE BID (Valent Unit). Capacities and electrical characteristics must meet the values listed in the contract documents.

ADD / DELETE  
\_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_)

In submitting this proposal, I have received and included in this Bid, the instructions and information contained in the following Addenda:

<u>Addendum No.</u>	<u>Dated</u>
_____	_____
_____	_____

The undersigned certifies that the Contract Documents have been considered, in their entirety, both before and in the preparation of this Proposal. The undersigned, in submitting this Proposal, intends to be legally bound by this Proposal.

IN WITNESS WHEREOF, the undersigned has caused this Proposal to be executed as of

\_\_\_\_\_  
Date

When the Bidder is an Individual:

\_\_\_\_\_  
Witness

\_\_\_\_\_  
Bidder (SEAL)

\*\*\*\*\*

When the Bidder is a Partnership:

\_\_\_\_\_  
Witness

\_\_\_\_\_  
By: (SEAL)

\_\_\_\_\_  
(SEAL)

\_\_\_\_\_  
(SEAL)

\_\_\_\_\_  
(SEAL)

Partners

When the Bidder is a Corporation: \*\*\*\*\*  
(CORPORATE SEAL)

\_\_\_\_\_  
ATTEST:

\_\_\_\_\_  
By: \_\_\_\_\_

Secretary

President

\_\_\_\_\_ is a Corporation organized

and existing under the Laws of \_\_\_\_\_ and has  
(has not) been granted a Certificate of Authority to do Business in Pennsylvania, as required by  
the Business Corporation Law, approved May 5, 1933, P. L. 364, as amended to date.

END OF SECTION 00300

## SECTION NC - NON-COLLUSION AFFIDAVIT

### INSTRUCTIONS FOR NON-COLLUSION AFFIDAVIT

This Non-Collusion Affidavit is material to any contract awarded pursuant to this bid. According to the Pennsylvania Antirigging Act, 73 P.S., 1611 et seq., governmental agencies may require Non-Collusion Affidavits to be submitted together with bids.

This Non-Collusion Affidavit must be executed by the members, officer, or employee of the bidder who makes the final decision on prices and the amount quoted in the bid.

Bid rigging and other efforts to restrain competition, and the making of false sworn statements in connection with the submission of bids are unlawful and may be subject to criminal prosecution. The person who signs the Affidavit should examine it carefully before signing and assure himself or herself that each statement is true and accurate, making diligent inquiry, as necessary, of all other persons employed by or associated with the bidder with responsibilities for the preparation, approval, or submission of this bid.

In the case of a bid submitted by a joint venture, each party to the venture must be identified in the bid documents, and an Affidavit must be submitted separately on behalf of each party.

The term "complementary bid" as used in the Affidavit has the meaning commonly associated with that term in the bidding process, and includes the knowing submission of bids higher than the bid of another firm, any intentionally high or noncompetitive bid, and any other form of bid submitted for the purpose of giving a false appearance of competition.

Failure to file an Affidavit in compliance with these instructions will result in disqualification of the bid.

NON-COLLUSION AFFIDAVIT

CONTRACT HVAC Rooftop Unit Replacement for the Neshaminy High School Auditorium

STATE OF Pennsylvania:

COUNTY OF Bucks:

I state that I am \_\_\_\_\_ of  
(Title)

\_\_\_\_\_  
(Name of Firm)

and that I am authorized to make this affidavit on behalf of my firm, its owners, directors and officers. I am the person responsible in my firm for the price(s) and the amount of this bid.

I state that:

1. The price(s) and amount of this bid have been arrived at independently and without consultation, communication or agreement with any other contractor, bidder, or potential bidder.
2. Neither the price(s) nor the amount of this bid, and neither the approximate price(s) nor approximate amount of this bid, have been disclosed to any other firm or person who is a bidder or potential bidder, and they will not be disclosed before bid opening.
3. No attempt has been made or will be made to induce any firm or person to refrain from bidding on this contract, or to submit a bid higher than this bid, or to submit any intentionally high or noncompetitive bid or other form of complementary bid.
4. The bid of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive bid.
5. My firm, its affiliates, subsidiaries, owners, directors, officers and employees are not currently under investigation by any governmental agency and have not, in the last three (3) years, been convicted or found liable for any act prohibited by State or Federal law, in any jurisdiction, involving conspiracy or collusion with respect to bidding on any public contract, except as follows:  
  
\_\_\_\_\_

6. A statement above that a person or firm has been so convicted or found liable does not prohibit  
  
\_\_\_\_\_

(Name of Public Entity)

from accepting a bid from or awarding a contract to such bidder, but may be a ground for consideration by

\_\_\_\_\_  
(Name of Public Entity)

on the question of declining to award a contract to the bidder on the basis of a lack of responsibility.

I state that \_\_\_\_\_  
(Name of Firm)

understands and acknowledges that the above representations are material and important, and will be relied on by

\_\_\_\_\_  
(Name of Public Entity)

in awarding the contract(s) for which this bid is submitted. I understand and my firm understands that any misstatement in this affidavit is and shall be treated as fraudulent concealment from

\_\_\_\_\_  
(Name of Public Entity)

of the true facts relating to the submission of bids for this contract.

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

\_\_\_\_\_  
(Name and Title)

\_\_\_\_\_  
(Name of Firm)

SWORN TO AND SUBSCRIBED BEFORE ME ON THIS

\_\_\_\_\_ DAY OF \_\_\_\_\_, 19\_\_.

\_\_\_\_\_  
(NOTARY PUBLIC)

MY COMMISSION EXPIRES ON: \_\_\_\_\_.

END OF SECTION 00480



## **INSTRUCTIONS AND GENERAL CONTRACT TERMS AND CONDITIONS**

### **INSTRUCTIONS**

For all bids exceeding Two Thousand Dollars (\$2,000.00) a certified check, bank cashier's check, trust company treasurer's check or a Bid Bond from a surety company legally authorized to do business in the Commonwealth of Pennsylvania, and having the highest rating services, in an amount no less than ten percent (10%) of the total stated bid shall accompany the bid and shall be made payable to the Neshaminy School District. Such Guarantee or Bid Bond shall be forfeited to and retained by the School District as liquidated damages if the bid or any part thereof is accepted by the School District and the Bidder fails to carry out all of the provisions of the bid.

All bids will be publicly opened and read in the **Purchasing Department of the Neshaminy School District at 2001 Old Lincoln Highway, Langhorne, Pennsylvania** on the dates and times specified in the bid documents.

Award(s), if made, will be made to the lowest responsible Bidder for the separate bid selected and to include Alternate Bids, if any, which the School District chooses to accept and which results in the lowest aggregate bid. The determination of who constitutes the "lowest responsible Bidder" shall be within the sole discretion of the School District.

Bidders are expected to examine the specifications and all instructions. Failure to do so will be at the bidder's risk. **ALL** bids must conform to the specifications as listed.

Bidder shall furnish the information required by the Bid Form. The bidder shall type or print his name on the lists and each continuation sheet thereof on which he makes an entry. Erasures or other changes must be initialed by the person signing the bid. The bid must be signed by an authorized officer or agent of the bidding company.

No bid will be entertained unless properly made out in ink or typed, signed by the bidder and clearly marked on the envelope: **"SEALED BID – ROOFTOP UNIT REPLACEMENT for the NESHAMINY HIGH SCHOOL AUDITORIUM"**

The Contractor may visit the project site by contacting the district in advance to make arrangements. Any questions concerning the work shall be addressed to the School Authority representative. Questions or clarifications will be answered in writing. Contact Gerry Rutledge of the district at (215)-809-6250 to make arrangements to visit the site.

Contractor shall complete all work from immediately after the school year starting June 22nd, 2017 and complete by July 31st, 2017. If the Contractor does not comply with construction schedules they will be declared "non-responsible" and the contract/purchase order will be canceled. The work will be rebid and all additional costs will be the responsibility of the "non responsible" Contractor and deducted from their final payment.

## AWARD OF CONTRACT

The School District reserves the right to reject any and all bids, or the waive informality in the bidding if it is in the interest of the School District to do so. Further, the School District reserves the right to make its award for one or for more of the articles set forth in the specifications or make its award for all of the articles set forth in these specifications.

Whenever two (2) or more bids of equal amounts are the lowest bids submitted by responsible Bidders the School District may award the bid to any one of such Bidders in its sole discretion. The School District has the right to select any and all of the bids, although they may not be awarded to the same bidding Contractor.

The award of the bid by the School District together with the issuance of a Purchase Order to the successful Bidder shall be deemed to result in a binding contract between the Bidder and the School District.

## DESIGNATED PRODUCTS OR ARTICLES

If awarded the contract, the Bidder agrees to furnish and/or install the articles or products set forth in the bid specifications at such times, at such places and in such quantities as specified and all such articles and products shall be subject to the inspection and approval of the School District. In the event any of the articles or products shall be rejected as unsuitable or not in conformance with these specifications, such articles and products shall at once be removed and returned to the Bidder at his expense and other articles or products of proper quality set forth in these specifications shall be furnished in their place at the expense of the successful Bidder.

In the event that the successful Bidder neglects or refuses to furnish and deliver the articles or products or any part thereof as provided in the specifications or to replace any products or articles which are rejected by the School District, then the School District is authorized and empowered to purchase such articles or products in conformity with the bid specifications from such other party and in such quantities and in such manner as the School District shall select at the expense of the successful Bidder or to cancel this contract and reserve all rights for damages which may be incurred by the School District.

Approval of Materials: Where the bid specifications describe or specify a particular product or article, alternate bids covering articles or products equal in all respects are permitted, unless otherwise stated. Where a bid specification specifies an article or product and the Bidder intends to furnish another product or article which he considers equal, then the name and grade of the "equivalent" product or article must be identified in the Bid. Whenever an article or one class of material is specified by the trade name or the manufacturer, the bidder must submit an alternate or equivalent ten (10) days prior to his bid date for review and acceptance along with savings to the Engineer. In addition, the proposed Contractor must include all associated costs for redesign of the concrete foundation, mechanical work, electrical work, and equipment modification or details, as well as, Fire Marshall approval at his expense. All of this must be done in an expeditious manner so that the schedule for delivery of the equipment is not modified. The Contractor must be aware of the importance of delivery of this equipment within the time constraints, to insure completion of the overall project.

The "Equivalent" must be equal in quality, finish and durability and be equally as serviceable for the purpose intended. Final determination of equality is wholly reserved to the School District/Engineer and its representatives.

With respect to any such articles or products, the Bidder shall be responsible for notifying the School District of any price advantage to the School District if the order of any such articles or products are increased to the next higher price or break point for that article or product. Should such price break point exist, such notice shall be given at the time the bid is submitted.

The School District is exempt from the payment of excise taxes and should the Bidder desire to be exempt from such tax, then the Bidder agrees to present, to the School District, properly prepared exemption certificates for execution. Such certificates will be presented only for articles or products furnished under the bid, will list the articles or products and their quantities and will state the names and addresses of the manufacturers and suppliers of such articles and products which are subject to excise tax.

### LIQUIDATED DAMAGES

All work required to be performed under the bid specifications shall be started within ten (10) days from date of Purchase Order or notice to proceed, if this is applicable, and shall be completed in accordance with the bid specifications by the guaranteed completion date. Should the Bidder fail to complete the work before the expiration of the completion date set forth in the bid specifications, the Authority will then back charge the bidder the sum of Four Hundred Dollars (\$400.00) per day for each calendar day the work remains uncompleted after the completion date. The parties agree that said sum is a proper measure of liquidated damages which the Authority shall sustain per diem as a result of the failure of the Bidder to complete the work within the time required. In no event shall this sum be construed as any form of penalty being imposed upon the Bidder. Liquidated damages shall be assessed after completion date of July 31st, 2017.

Should the Bidder be delayed in the completion of the work set forth in the bid specifications by reason of unforeseen circumstances beyond his control and without his fault or negligence, including but not limited to acts of God or of the public enemy, acts of neglect of the School District, acts of other contractors, if any, fires, floods, epidemics, strikes, civil disturbances or freight embargos, the date specified in the bid specifications as the completion date shall be extended by such times as shall be fixed by the Authority, provided however, that any and all claims for extensions of time shall be made by the Bidder in writing within five (5) days after the termination of the event for which the Bidder seeks an extension of time. Otherwise, any claim for an extension by reason of said event shall have been waived by the Bidder.

### INSURANCE, INDEMNIFICATION AND STATUS OF PARTIES

The Bidder shall not commence work until he has obtained all insurance required hereunder from carriers legally authorized to do business in the Commonwealth of Pennsylvania and assigned the highest rating available from independent rating services, nor shall the Bidder allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been so obtained. In this regard, the Bidder shall be required to maintain the following insurance during the term of this contract:

Workers' Compensation Insurance coverage to be statutory for all of his employees employed at the site of the project, and in case any work is sublet, the Bidder shall require

the Subcontractor to provide similar Workers' Compensation for all of the Subcontractor's employees unless such employees are covered by the protection afforded by the Bidder.

Public Liability and Property Insurance in an amount of not less than One Million Dollars (\$1,000,000.00) for injuries, including accidental death, to any one (1) person, and subject to the same limit for each person in an amount not less than One Million Dollars (\$1,000,000.00) on account of one accident, and insurance property damage in an amount not less than One Million Dollars (\$1,000,000.00), provided however, that the Authority may accept insurance covering a subcontractor in amounts less than the requirements set forth herein where such requirements appear excessive because of the extent of the work to be performed by such subcontractors. All required by this paragraph shall be secured through a policy providing coverage on an "occurrence basis".

Public Liability and Property Motor Vehicle Insurance in an amount not less than One Million Dollars (\$1,000,000.00) for personal injury, One Hundred Thousand Dollars (\$100,000.00) for property damage.

Proof of Workers' Compensation Insurance effective for the duration of the work to be performed, must be provided prior to the commencement of work.

Prior to the commencement of any work, Certificates of Insurance evidencing such insurance shall be supplied to the School District. Such Certificates shall also provide that at least thirty (30) days prior notice be given to the School District of the cancellation of such insurance. The insured is the Neshaminy School District.

#### Conditions

All certificates to contain thirty (30) day notice of cancellation.

It is the obligation of the Bidder to obtain and furnish Certificates for any subcontractors subject to the above terms and conditions.

All insurance policies and/or bonds will be written with insurance companies licensed to do business in the Commonwealth of Pennsylvania and subject to the approval of the School District.

On larger contracts, an umbrella liability policy will be provided with a minimum limit of \$3,000,000.00.

Notwithstanding anything to the contrary set forth herein or the acquisition of the insurance described herein, the Bidder hereby agrees to indemnify and hold the Neshaminy School District harmless from and against any and all liability, loss, damage, cost and expense, including court costs and attorney's fees, (Whether or not litigation be commenced) of whatever nature or type, that the School District may hereafter suffer or incur by reason of:

Any injury or harm sustained or reported to have been sustained by any person, including the employees of the Bidder, as a result of the work, duties or obligations being performed by the Bidder under the Bid Specifications;

Any other act or omission of the Bidder, its agents, representatives or employees, including but not limited to Subcontractors or laborers who are on any structure or real property of the Neshaminy School District during the course of the work being performed under the Bid Specifications; or

Any breach or default of the Bidder in the performance of the work, duties and obligations set forth in the Bid Specifications.

In performing the work set forth in the Bid Specifications, the Bidder will at all times be acting and performing as an independent contractor and not as an employee of the School District. The School District shall neither have nor exercise any control or direction over the methods utilized by the Bidder and the sole interest of the School District is to insure that the work set forth in the Bid Specifications is performed by the Bidder in a competent, efficient and satisfactory manner.

In the event contractor breaches or defaults under this contract or fails to perform fully with respect to the specifications set forth herein, the Neshaminy School District shall be entitled to not only the damages for such breach, default or failure to perform, but also its reasonable attorneys' fees, costs and expenses, including but not limited to expert witness fees, in order to remedy the breach, default or failure to perform.

#### PROTECTION AND NON-INTERFERENCE WITH DISTRICT'S OPERATIONS

The Bidder shall be responsible for the protection of the buildings, facilities and improvements within the areas where the work is being performed. Any disturbance or damage to the work being performed by the Bidder or to the existing building, improvements or equipment or any other impairment of the facilities resulting from the Bidder's performance, shall be promptly restored, repaired or replaced by the Bidder at no extra cost to the School District.

Each Bidder shall be responsible for performing his work in such a manner so as to maintain essential ingress and egress for visitors and occupants to the buildings and facilities and to continuously maintain all required emergency exits from and circulation between existing facilities. Passageways for emergency exits shall be kept continuously open and free from debris, construction equipment, tools, materials or other hazards. The Bidder shall provide all necessary temporary work which may be required to maintain all such ingress, egress and circulation requirements. The Bidder shall be responsible for providing coordination of this temporary work between himself and all Subcontractors and all temporary work shall be removed when no longer required.

Each Bidder shall commence the work and so schedule his work so as to avoid interference with the School's operations. Unavoidable interference with the School's operations shall not be carried out without the School District's approval obtained not less than forty-eight (48) hours prior to the anticipated interference. The bidder is advised that the School's operations during the school year are on an eight-hour day, five days per week basis.

To insure non-interference with the School's operation during the performance of the work, the Bidder shall remove from the buildings, facilities and improvements where the work is being performed all trash, combustible materials and debris of all kind being created during the performance of the work and upon completion of the work. This obligation shall also include all debris created by any subcontractors or men engaged by the Bidder in performing the work. Such debris shall be disposed of off-site by the Bidder.

## PAYMENT, PERFORMANCE, AND MAINTENANCE BOND

The Bidder shall promptly pay all laborers and mechanics employed for the work set forth in the Bid Specifications as well as for all materials. Before final payment is made, the Bidder shall furnish the School District with satisfactory evidence that all labor and materials have been paid. Such evidence may include but not be limited to General Releases and/or Releases of Liens duly signed by the Bidder and any Subcontractors or material men.

Upon acceptance of the bid by the Neshaminy School District, the School District shall give written notice to the Bidder of its intention to accept the bid and to award a contract to him through the issuance of a Purchase Order. Upon receiving such notice and as a condition precedent to the awarding of a contract, the Bidder shall be required to furnish to the School District from surety companies legally authorized to do business in the Commonwealth of Pennsylvania and having the highest ratings available from independent rating services, the following Bonds as required by Pennsylvania law:

Performance Bond or Certified Check in an amount equal to one hundred percent (100%) of the contract price, conditioned upon the faithful performance by the Bidder of the contract and the plans, specifications and conditions of the Contract.

A Payment Bond or Certified Check in an amount equal to one hundred percent (100%) of the contract price so as to protect those supplying labor or materials to the Bidder or to any of the Bidder's Subcontractors.

A Maintenance Bond or Certified Check in an amount equal to one hundred percent (100%) of the contract price, conditioned upon the faithful performance by the Bidder to remedy, without cost to the Owner, any break of warranty and/or defects which may develop during a period of two (2) years from the date of final completion and acceptance of all the work performed under this contract.

The Bidder shall be required to file such Bonds or Certified Checks in the office of the Business Administrator within five (5) days of the School District's written notice to proceed or issuance of purchase order, whichever occurs first.

## SCOPE OF WORK, WORKMANSHIP AND WARRANTY

The School District reserves the right to change, increase or reduce the work as set forth in the Bid Specifications and in such event shall notify the Bidder in writing, provided suitable adjustment is made in the original contract price. Further, the School District reserves the right to increase or decrease the quantity of any products or articles being installed as part of the work without affecting the unit price set forth in the Bid Specifications.

In performing the work, the Bidder agrees to fulfill all requirements with respect to the installation of any products or articles and hereby acknowledges that the Bid has been quoted on an installed basis. The Bidder acknowledges that he has accepted the responsibility for having visited the work site and familiarizing himself with all conditions which may affect such installation. The Bidder shall supply all material, tools, equipment, transportation, labor, supervision which may be required to complete the installation of such articles or products in a complete and approved manner.

All work shall be performed in a good and workmanlike manner and, when completed, shall show no signs of carelessness as a result of the work. During the term of the contract, all work and materials shall be subject to the inspection and approval of the School District and the School District reserves the right to reject any work or materials which in its judgement do not fulfill the requirements of the Bid Specifications.

All persons employed by the Bidder to perform the work required by the Bid Specifications shall be competent and first class workmen and mechanics as required by Section 752 of the Pennsylvania School Code of 1949, as amended.

The Bidder shall furnish to the School District, a written guarantee certifying that all defects in workmanship, materials or construction for a period of two (2) years from the date of issuance of final payment shall be corrected and repaired diligently and effectively but in no event later than thirty (30) days after Bidder's receipt of a written notice from the School District identifying such defect. All such corrections and repairs shall be performed by the Bidder at no additional cost to the School District.

The Contractor must submit documentation with his bid certifying that he has been actively engaged in this type of work for at least five (5) consecutive years.

## SUBCONTRACTORS

### Definition:

A Subcontractor is a firm or corporation or entity who has a direct Contract with the Contractor to perform any of the Work at the site. The term Subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Subcontractor or his authorized representative. The term Subcontractor does not include any separate Contractor or his Subcontractors.

A Sub-subcontractor is a person, firm or corporation who has a direct or indirect Contract with a Subcontractor to perform any of the Work at the site. The term Sub-subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Sub-subcontractor or any authorized representative thereof.

### Award of Subcontracts and Other Contracts for Portions of the Work:

Unless otherwise required by the Contract Documents or the Bidding Documents, the Contractor, as soon as practicable after the award of the Contract and not later than fifteen (15) days after official Notice to Proceed, shall furnish to the Owner, through the Project Engineer in writing, the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work. The Project Engineer will promptly reply to the Contractor, in writing, stating whether or not the Owner or the Project Engineer has reasonable objection to any such proposed person or entity. Failure to reply promptly shall constitute notice of no reasonable objection.

The Contractor shall not contract with any such proposed person or entity to whom the Owner or the Project Engineer has indicated reasonable objection. The Contractor shall not be required to contract with anyone to whom he has a reasonable objection.

If the Owner or the Project Engineer has reasonable objection to any such proposed person or entity, the Contractor shall submit a substitute to whom the Owner or the Project Engineer has no reasonable objection, and the occasioned by such substitution, and an appropriate supplement shall be issued; however, no increase in the Contract sum shall be allowed for any such substitution unless the Contractor has acted promptly and responsively in submitting names as required.

The Contractor shall make no substitution for any Subcontractor, person or entity previously selected if the Owner or Project Engineer makes reasonable objection to such substitution.

If the contractor should list his name as performing certain listed subcontract Work, he shall be required to establish to the satisfaction of the Owner, through the Project Engineer, that he has performed this subcontract Work on previous projects and furnish a certified statement to this effect.

#### Subcontractual Relations:

By written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Documents assumes toward the Owner and Project Engineer. Said agreement shall preserve and protect the rights of the Owner, Project Engineer and the Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor, so that the Contractor-Subcontractor agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with his Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract, copies of the Contract Documents to which the Subcontractor will be bound by this Subcontractor any terms and conditions of the proposed subcontract which may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such Documents available to his Sub-subcontractors.

Contractor shall be held responsible for assuring that his Subcontractors comply with Pennsylvania Workers' Compensation Act's provisions, including the Contractor's responsibility to Sections 203 and 302.

#### Payment to Subcontractors:

The Contractor shall pay each Subcontractor, upon receipt of payment from the Owner, an amount equal to the percentage of completion allowed to the Contractor on account of such Subcontractor's Work. The Contractor shall also require each Subcontractor to make similar payments to his Sub-subcontractors.

If the Project engineer fails to issue a Certificate for Payment for any cause which is the fault of the Contractor and not the fault of a particular Subcontractor, the Contractor shall pay that Subcontractor on demand, make at any time after Certificate for Payment should otherwise have been issued, for his Work to the extent completed, less the retained percentage.

The Contractor shall pay each Subcontractor a just share of any insurance monies received by the Contractor, and he shall require each Subcontractor to make similar payments to his Sub-subcontractors.



The Project Engineer may, on request and at his discretion, furnish to any Subcontractor, if practicable, information regarding percentages of completion certified to the Contractor on account of Work done by such Subcontractors.

Neither the Project Engineer nor the Owner shall have any obligation to pay or to effect the payment of any monies to any Subcontractor or Sub-subcontractor, except as may otherwise be required by law.

#### PAYMENT SCHEDULE AND FINAL PAYMENT

Payment to the Bidder of the contract price shall occur in accordance with the following schedule. This specification does not provide for periodic payments based upon a percentage of the work completed. Full payment will be made within forty-five (45) days upon completion of the work and receipt of all required documentation.

The acceptance by the Bidder of the final payment shall constitute a release of the School District by the Bidder with respect to all claims and all liability which the Bidder may assert against the School District, directly or indirectly, as a result of this contract including but not limited to any act or omission on the part by the School District relating to or arising out of the work under the contract, excepting the Bidder's claim for interest upon the final payment if the final payment is improperly delayed. However, the Bidder's acceptance of the final payment does not operate as a release of the Bidder and his sureties from any obligations under this contract with the School District or under the Performance Bond.

#### SITE INSPECTIONS, PERMITS AND REGULATORY REQUIREMENTS

It will be the Bidder's responsibility to visit the site of the work prior to submitting his Bid so as to fully inform himself as to all of the conditions concerning construction and labor under which the work is to be performed including all rules, regulations and directives of all local, state and federal agencies having jurisdiction over the work. In this regard, all work shall be performed in accordance with all such applicable rules, regulations and directives which are incorporated herein by reference and made a part hereof.

The Bidder shall secure and pay for all permits required by all local, state and federal agencies having jurisdiction over the work, including but not limited to fees, licenses and inspections necessary for the proper performance and completion of the work.

#### ACCESS TO RECORDS

The Owner shall be afforded access to all of the Contractor's accounting records relating to this Contract, and the Contractor shall preserve all such records for a period of three years or longer as may be required by law after the final payment.

#### SALES AND USE TAX

The contractor agrees to assign and transfer to the Owner all its rights to sales and use tax which may be refunded as a result of a claim for refund for materials purchased in connection with this Contract. The Contractor agrees to require any Subcontractors to provide access to the Owner of accounting records relating to this contract and to obtain their agreement not to seek refund for any sales or use tax which is the subject of this assignment.

## NON-COLLUSION AFFIDAVIT

Included in the specification packet is a "Non-Collusion Affidavit." The bidder must execute this document, have it notarized and submit it, attached to the FORM OF PROPOSAL. Failure to comply with this provision will disqualify the bidder.

## STATUTORY REQUIREMENT/GOVERNMENT REQUIREMENTS

In accordance with Section 755 of the Public School Code of 1949, as amended, the Pennsylvania Human Relations Act of 1955, as amended, the regulations of the Pennsylvania Human Relations Commission and the Governor's Code of Fair Practice, neither the Bidder, Subcontractor, nor any person acting on behalf of the Bidder or Subcontractor shall discriminate or permit discrimination or intimidation of any employee hired for the performance of the work on the basis of race, color, religion or natural origin. Further, the School District reserves the right to deduct from the Contract price a penalty of Five Dollars (\$5.00) for each calendar day during which such person was discriminated against or intimidated in violation of the foregoing provision and/or cancel its Contract with the bidder so that all money due or to become due under the Contract may be forfeited for a second or subsequent violation. Further, pursuant to the requirements of the Pennsylvania Human Relations Act, the Bidder agrees to comply with all requirements set forth therein and hereby acknowledges the remedies available to the School District in the event of a violation of such Act.

In accordance with Section 754 of the Public School Code of 1949, as amended and Act No. 182 of 1985, all laborers and mechanics employed by the Bidder under the contract shall be citizens of the United States and shall have been residents of the Commonwealth of Pennsylvania for at least ninety (90) days prior to their employment. The Bidder is notified that failure to comply with this provision shall be sufficient legal reason for the School District to refuse payment of the contract price to the Contractor.

In accordance with Section 10.F. of the Municipal Authorities Act, as amended; Section 751 of the Public School Code of 1949, as amended, and Section 1884 of the Steel Products Procurement Act of 1978, as amended, the Bidder agrees that if any steel products are to be used or supplied in the performance of the work set forth in the Bid Specifications, then such products shall be used or supplied in accordance with the terms of said Acts and any regulations issued pursuant thereto. Further, the Bidder acknowledges that the School District shall have available any and all remedies set forth in said Acts for a violation of said Acts or any regulations issued pursuant thereto.

In accordance with Section 111 of the Public School Code of 1949, as amended, the Bidder shall be required to submit for each of its employees as well as the employees of all Subcontractors engaged by the Bidder a report of criminal history information from the Pennsylvania State Police or a statement from the State Police that the State Police central repository contains no such information relating to an employee. The report or statement shall be no more than one (1) year old and the Bidder must submit an original of the document before commencing any work under the contract. Should any employees of the bidder or any Subcontractor not be residents of the Commonwealth of Pennsylvania, then for such employees a report or statement of federal criminal history from the Federal Bureau of Investigation shall be submitted and such report or statement shall be no more than one (1) year old.

In accordance with House Bill Number 1969 enacted into law, Act No. 247 became effective on November 25, 1972. It requires that Bidders on construction contracts for the Commonwealth of Pennsylvania be advised of those provisions of Federal and State statutes, rules and regulations dealing with the prevention of environmental pollution and the preservation of public natural resources that affect the project on which bids are being received.

In accordance with Section 753 of the Public School Code of 1949 as amended and Section 165-1 to Section 165-17 of the Prevailing Wage Act, the Bidder shall pay all wage rates required by said Acts and comply with all reporting requirements of said Acts or any regulations issued pursuant thereto so as to insure that the laborers and mechanics employed to perform the work specified under the contract shall be paid at the rates required.

Pennsylvania Child Abuse History Clearance: See pages at the end of this section.

#### PUBLIC WORKS EMPLOYMENT VERIFICATION FORM REQUIREMENT OF THE PENNSYLVANIA PUBLIC WORKS EMPLOYMENT VERIFICATION ACT

All contractors must submit a "**Public Works Employment Verification Form**" to the school district at the time when performance and payment bonds are submitted. Submission of this form is a precondition of the contract being awarded and executed. The requirement applies to all employees hired by the contractor or subcontractor, regardless of whether the employee will be working onsite or offsite. This requirement does not apply to an entity that is solely a material supplier for the project.

#### ACT 82 of 2012 – ARREST or CONVICTION FORM UNDER ACT 24 AND 82 of 2012

Act 82 of 2012, signed into law on June 30, 2012, amends Section 111 of the School Code which provides for background checks for the employees of public schools, private schools, intermediate units and area vocational-technical schools who have direct contact with children. Section 111 also applies to independent contractors and their employees who have direct contact with children and to student teachers and student teacher candidates assigned to public and private schools. The amendments clarify that the employment prohibitions contained in Section 111(e) and Section 111(f.1) of the School Code, based on conviction of certain offenses, apply to both current and prospective employees. The changes to section 111 went into effect on June 30, 2012.

SPECIFICATIONS - ROOFTOP UNIT REPLACEMENT AT THE NESHAMINY HIGH SCHOOL ADITORIUM

GENERAL

It is the intent of this specification to be used as a guide by the bidder to establish a standard of quality for materials to be used on this project. It does not relieve the successful bidder from furnishing and properly installing all material that may be necessary for the completion of the work as determined by the Neshaminy School District.

STATUS OF THE PARTIES

In the performance of the work, duties and obligations assumed by the Contractor under these specifications, Contractor will at all times be acting and performing as an independent Contractor and not as an employee of the School District. The School District shall neither have nor exercise any control or direction whatsoever over the methods utilized by the Contractor. The sole interest and responsibility of the School District is to insure that the work, duties and obligations set forth in the bid specifications shall be performed and rendered by the Contractor in a competent, efficient and satisfactory manner.

INDEMNIFICATION

Contractor hereby agrees to indemnify and hold the Neshaminy School District and Consolidated Engineers harmless from and against any and all liability, loss, damage, cost and expense including court costs and attorney's fees (whether or not litigation be commenced) of whatever nature or type that the School District may hereinafter suffer or incur by reason of:

Any injury or harm sustained or purported to have been sustained by any person including the employees of the Contractor as a result of the work, duties or obligations being performed by the Contractor under the bid specifications.

Any other act or omission of the Contractor, its agents, representatives or employees including but not limited to Subcontractors or laborers who are on any structure or real property of the Neshaminy School District, during the course of work being performed under the bid specifications.

Any breach or default of the Contractor in the performance of the work, duties and obligations set forth in the bid specification.

INSTRUCTIONS TO BIDDERS

Bidders are expected to examine the specifications and all instructions. Failure to do so will be at the bidder's risk.

Bidder shall furnish the information required by the bid form. The bidder shall type or print his name on the lists and each continuation sheet thereof on which he makes an entry. Erasures or other changes must be initialed by the person signing the bid. The bid must be signed by an authorized officer or agent of the bidding company.

No bid will be entertained unless properly made out in ink or typed, signed by the bidder and clearly marked on the envelope:

**“SEALED BID – ROOFTOP UNIT REPLACEMENT for the NESHAMINY HIGH SCHOOL AUDITORIUM”**

Bids and modifications or withdrawals thereof received after the time set for opening same will not be considered.

Sealed bids will be received at the Office of the Purchasing Department, Mr. Joseph Rischow, 2001 Old Lincoln Highway, Langhorne, Pennsylvania 19047, until **Tuesday May 2, 2017 at 10:00 AM prevailing time.**

The award of the contract by the Neshaminy School District and issuance of a purchase order to the successful bidder shall be deemed to result in a binding contract.

Whenever a particular make of material is shown or specified, such make of material shall be regarded as a standard. Any other make of material will be accepted which is comparably equal to the specified quality, workmanship, economy in operation and suitability for the purpose intended.

The successful Bidding Contractor will carry out all rehabilitation work in strict accordance with the specifications, and any work not conforming will be reinstated or replaced at the Contractor's expense.

ALL bids must conform to the specifications as listed.

The right to reject any one or all bids or any materials furnished which are not in strict compliance with the requirements of the specifications is a privilege reserved by the School District.

Bidding Contractors are required to visit all sites and verify all dimensions.

The job shall proceed in a workmanlike manner and when completed, the areas shall show no signs of carelessness as a result of this work.

The Contractor shall take all necessary precautions to avoid injury or damage to buildings, driveways, sidewalks and lawns.

Every precaution shall be made to protect the facilities during the course of the work. ALL damage that occurs will be completely restored to the satisfaction of the School District before final payment will be made.

The School District reserves the right to change, increase or reduce the work as necessary and in such event, shall notify the Contractor in writing, provided suitable adjustment is made in the original contract price.

The Contractor shall furnish to the School District a written guarantee certifying that all defects in the materials and workmanship that occur from natural wear and tear in connection with equipment installed as part of this contract, within a period of two (2) years from the date of acceptance, shall be corrected and repaired diligently and effectively at no additional cost to the School District.

All bids must be accompanied by a bid bond in the amount of 10% of bid or certified check in the amount of 10% of the bid.

Contractor awarded this work shall furnish evidence of full insurance coverage including workers' compensation, public liability and property damage.

Each contractor shall be required to furnish and pay for a performance bond, payment bond and maintenance bond, each in the amount of 100% of the contract price. Sureties shall be satisfactory to the School District. The School District shall give written notice to the Contractor of intention to accept his proposal and to award a contract to him in accordance with his proposal, whereupon the Contractor shall furnish such bonds to the School District within such period as required hereby and by Pennsylvania law.

### DEFINITIONS

"Owner": Neshaminy School District.

### AIA DOCUMENTS

By reference, the following AIA documents shall be a part of this contract:

A-101	Standard Form of Agreement Between Owner and Contractor
A-201**	General Conditions (2007)
A-305	Contractor's Qualification Statement
A-310	Bid Bond
A-312	Performance Bond and Payment Bond
G-701	Change Order
G-702/703	Application and Certificate for Payment
G-704	Certificate of Substantial Completion
G-705	Certificate of Insurance
G-706	Contractor's Affidavit of Payment of Debts and Claims
G-706A	Contractor's Affidavit and Release of Liens
G-707	Consent of Surety Company to Final Payment
G-710	Architect's Supplemental Instructions
G-713	Construction Change Authorization

**\*\* The general condition shall have the following revisions:**

1. Paragraph 15.2.5; Delete part of last sentence by removing all words after “on all parties”.
2. Delete the following paragraphs in their entirety; 15.2.6, 15.2.6.1, 15.3, 15.3.1, 15.3.2, 15.3.3, 15.4, 15.4.1, 15.4.2, 15.4.3, 15.4.4, 15.4.4.1, 15.4.4.2 and 15.4.4.3.
3. Add the following paragraph:

**15.5 Governing Law/Venue.** This agreement shall be governed as to all matters, including validity, construction and performance by and under the laws of Pennsylvania, without reference to the law of conflicts and Owners and Contractors agree that the venue for all legal proceedings shall be exclusively the Court of Common Pleas of Bucks County, Pennsylvania and each of the Owner and Contractor herewith consent to the exclusive jurisdiction and venue of said court.

END OF SECTION

# PENNSYLVANIA CHILD ABUSE HISTORY CLEARANCE

COMPLETE SECTION 1 ONLY. Print clearly in ink. Enclose \$10.00 money order ONLY, payable to DEPARTMENT OF PUBLIC WELFARE. **DO NOT send cash or personal check.**  
 Send to CHILDLINE AND ABUSE REGISTRY, DEPARTMENT OF PUBLIC WELFARE, P.O. BOX 8170 HARRISBURG, PA 17105-8170  
**APPLICATIONS THAT ARE INCOMPLETE, ILLEGIBLE OR RECEIVED WITHOUT FEE WILL BE RETURNED UNPROCESSED. IF YOU HAVE QUESTIONS CALL 717-783-6211, OR (TOLL FREE) 1-877-371-5422.**

### CHILDLINE USE ONLY

DATE RECEIVED BY CHILDLINE

## SECTION I

## APPLICANT IDENTIFICATION

IN THIS SPACE PRINT APPLICANT'S FULL NAME AND ADDRESS (DO NOT USE INITIALS)

NAME

STREET

CITY, STATE  
ZIP CODE

SOCIAL SECURITY NUMBER

AGE

DATE OF BIRTH

DAYTIME PHONE NO.

SEX

M  F

COUNTY YOU LIVE IN

Disclosure of your Social Security number is voluntary. It is sought under 23 Pa.C.S. §§ 6336(a)(1) (relating to Information in statewide central register), 6344 (relating to Information relating to prospective child care personnel), 6344.1 (relating to Information relating to family day-care home residents), and 6344.2 (relating to Information relating to other persons having contact with children). The department will use your Social Security number to search the statewide central register to determine whether you are listed as the perpetrator in an indicated or founded report of child abuse.

### PURPOSE OF CLEARANCE (Check ONE block ONLY)

- Child Care Services Employee
- Foster Care     Adoption     School Employee
- Employment with a significant likelihood of regular contact with children
- Volunteers - A copy of your **PROCESSED** "Request for Criminal Record" (Form SP4-164) must be attached. Out-of-state residents must also attach a copy of their **PROCESSED** FBI clearance (Form FD-258).
- DPW Employment & Training Program Participant  
(signature required below)

\_\_\_\_\_  
SIGNATURE OF OIM/CAO REPRESENTATIVE

\_\_\_\_\_  
OIM/CAO PHONE NUMBER

### PREVIOUS NAMES USED SINCE 1975 (Include Maiden Name, Nicknames, Aliases)

1. (LAST, FIRST, MIDDLE)

2. (LAST, FIRST, MIDDLE)

3. (LAST, FIRST, MIDDLE)

4. (LAST, FIRST, MIDDLE)

5. (LAST, FIRST, MIDDLE)

### PREVIOUS ADDRESSES SINCE 1975 (Attach additional pages if necessary)

1.

2.

3.

4.

### HOUSEHOLD MEMBERS (List everyone who lived with you at any time since 1975 to the present)

NAME (Last, First, Middle) Do not use initials.	RELATIONSHIP	PRESENT AGE	SEX
1.			
2.			
3.			
4.			
5.			
6.			

**I certify that the above information is accurate and complete to the best of my knowledge and belief and submitted as true and correct under penalty of law (Section 4904 of the Pennsylvania Crimes Code).**

Applicants are required to show the administrator the original document. Administrators are required to keep a copy of this child abuse history record on file. Any person altering the contents of this document may be subject to civil, criminal or administrative action.

\_\_\_\_\_  
APPLICANT'S SIGNATURE

\_\_\_\_\_  
DATE



**DO NOT WRITE IN THIS SECTION - CHILDLINE USE ONLY**

<b>SECTION II</b>		<b>RESULTS OF HISTORY CHECK</b>	
<input type="checkbox"/> APPLICANT IS <b>NOT</b> LISTED IN A REPORT OF CHILD ABUSE OR A REPORT FOR SCHOOL EMPLOYEE.		<input type="checkbox"/> APPLICANT <b>IS</b> LISTED IN A REPORT OF CHILD ABUSE OR A REPORT FOR SCHOOL EMPLOYEE (SEE BELOW).	
STATUS OF REPORT	DATE OF INCIDENT	STATUS OF REPORT	DATE OF INCIDENT
1.	-	3.	-
2.	-	4.	-
_____		_____	
VERIFIER	DATE	VERIFIER'S SUPERVISOR	DATE

<b>SECTION III</b>		<b>VOLUNTARY CERTIFICATION FOR CHILD CARE SERVICES</b>	
<p>_____ has requested a certification which includes a clearance of his/her name against the child abuse, school employee, and criminal history reports.</p> <p>The results of the child abuse and school employee report clearances are listed in Section II on the reverse side. The results of the criminal history reports are listed below. Out-of-state residents must have criminal history clearance from both the Pennsylvania State Police and the FBI. The voluntary certification may be obtained every two years.</p> <p>It is the responsibility of parents and guardians to review this information to determine the suitability of the applicant as a substitute caregiver.</p>			
<b>PENNSYLVANIA CHILD ABUSE HISTORY CLEARANCE</b>			
<p><input type="checkbox"/> Applicant is named as the perpetrator of a <b>founded</b> child abuse or school employee report which occurred in the last five years.</p> <p><input type="checkbox"/> Applicant is named as the perpetrator of a <b>founded</b> child abuse or school employee report which occurred over five years ago.</p> <p><input type="checkbox"/> Applicant is named as the perpetrator of an <b>indicated</b> child abuse or school employee report.</p> <p><input type="checkbox"/> Applicant is not named as the perpetrator of any child abuse or school employee report contained in the Statewide Central Register.</p>			
<b>PENNSYLVANIA STATE POLICE CLEARANCE</b>			
<p><input type="checkbox"/> Record exists and contains convictions which prohibit hire in a child care position. Report attached.</p> <p><input type="checkbox"/> Record exists, but convictions do not prohibit hire in a child care position. Report attached.</p> <p><input type="checkbox"/> Record exists, but no convictions are shown. This does not prohibit hire in a child care position. Report attached.</p> <p><input type="checkbox"/> No record exists. Report attached.</p>			
<b>FBI CLEARANCE</b>			
<p><input type="checkbox"/> Record exists and contains convictions which prohibit hire in a child care position. Report attached.</p> <p><input type="checkbox"/> Record exists, but convictions do not prohibit hire in a child care position. Report attached.</p> <p><input type="checkbox"/> Record exists, but no convictions are shown. This may not prohibit hire in a child care position. Report attached.</p> <p><input type="checkbox"/> No record exists. Report attached.</p> <p><input type="checkbox"/> No FBI clearance required.</p>			
_____		_____	
VERIFIER	DATE	VERIFIER'S SUPERVISOR	DATE

**DIRECTIONS TO COMPLETE THE  
PENNSYLVANIA CHILD ABUSE HISTORY CLEARANCE APPLICATION:**

1. Applicants are to complete Section I only.
2. Type or print clearly and neatly in ink only.
3. The space for the applicant's name must be the applicant's full legal name. An initial is not acceptable for a first name. The address listed must be applicant's current home address. This is also where the results of the clearance will be mailed.
4. The applicant's Social Security number is voluntary. If filling in the Social Security number please fill in the entire Social Security number.
5. Age – Fill in the applicant's current age.
6. Date of Birth – Fill in the applicant's date of birth (Example: 01/22/1990).
7. Daytime Phone Number – Fill in the number for where the applicant can be reached in the event that there are questions about the information on the application.
8. Sex – Check the appropriate box for male or female.
9. County You Live In – Fill in the name of the county where you reside (this should be the county for the address that the applicant filled in the space on the left of this section).
10. **Purpose of Clearance** – Do not check more than one block:
  - a. Check the Child Care box if planning to work in a day care or child care setting.
  - b. Check the Foster Care box if applying as a prospective foster parent.
  - c. Check the School Employee box if seeking to have involvement within a school (public, private, vocational, or technical) for employment or volunteer purposes OR check this box if a child abuse clearance is needed due to enrollment in an educational program such as a nursing school or technical program.
  - d. Check the Adoption Block if in the process or planning to adopt a child.
  - e. Check Employment With A Significant Likelihood of Regular Contact With Children if NONE of the other options relate to why a child abuse clearance is needed.
  - f. Check the Volunteers box if performing a service (paid or unpaid) for organizations such as Big Brothers/Big Sisters, Boy Scouts, Little League, or churches. As noted on the form, if the Volunteer box is checked, the applicant must also attached A COPY of the RESULTS from their PA State Police Criminal History Record Check. Do not send original criminal record results because the original cannot be returned. If the applicant is not a current Pennsylvania resident, the applicant must also attach a copy of their FBI Criminal History results obtained within the past year.
  - g. Check the DPW Employment & Training Program Participant box if the applicant is participating in a Department of Public Welfare employment and training program through a county assistance office, or CAO, or the Office of Income Maintenance, OIM. The signature **AND** phone number of the CAO or OIM representative is required.
11. Previous Names Used Since 1975 - The applicant must list any and all full legal names that they have ever had since 1975. This includes maiden names, aliases and also known as (aka) names.
12. Previous Addresses Since 1975 - List all addresses where the applicant has resided since 1975. The applicant can attach an additional sheet of paper with all of the addresses listed if necessary. If the applicant cannot remember the exact mailing addresses since 1975, filling in as much information as possible about the location will be acceptable.
13. Household Members - Include anyone that the applicant lived with since 1975 (parents, guardians, siblings, children, spouse (ex), paramour, friends, etc.). If the applicant was under the age of 18 in 1975 this section must include other household members who lived with the applicant or with whom the applicant lived. Please note the household member's relationship to the applicant, their age (to the best of your knowledge) and their sex. Applications where this section is left blank will be rejected and returned to the applicant.
14. Applications must be signed and dated. Applications that are not signed and dated will be rejected and returned to the applicant.
15. Enclose a \$10.00 money order for each application. No cash or personal checks will be accepted. Agency or business checks are acceptable.
16. Do not send any postage paid return envelopes for us to return your results. Results are issued through an automated system generated mailing process.

Note: Clearance results will be mailed to you within 14 days from the date that the clearance is received in our office. Failure to comply with the above instructions will cause considerable delay in processing the results of an applicant's child abuse clearance.

## PENNSYLVANIA STATE POLICE REQUEST FOR CRIMINAL RECORD CHECK

This form is to be completed in ink by the requester – (information will be mailed to the requester only). If this form is not legible or not properly completed, it will be returned unprocessed to the requester. *A response may take four weeks or longer.*

**TRY OUR WEBSITE FOR A QUICKER RESPONSE**  
<https://epatch.state.pa.us>

NAME/ REQUESTER	
ADDRESS	
CITY/STATE/ ZIP CODE	

**FOR CENTRAL REPOSITORY USE ONLY  
CONTROL NUMBER**

---

AFTER COMPLETION MAIL TO:  
PENNSYLVANIA STATE POLICE  
CENTRAL REPOSITORY – 164  
1800 ELMERTON AVENUE  
HARRISBURG, PA 17110-9758

1-888-QUERYPA (1-888-783-7972)

**DO NOT SEND CASH OR PERSONAL  
CHECK**

---

**CHECK ONE BLOCK**

INDIVIDUAL/NONCRIMINAL JUSTICE AGENCY – ENCLOSE A CERTIFIED CHECK/MONEY ORDER IN THE AMOUNT OF \$10.00, PAYABLE TO:  
"COMMONWEALTH OF PENNSYLVANIA"  
**THE FEE IS NONREFUNDABLE**

NOTARIZED INDIVIDUAL/NONCRIMINAL JUSTICE AGENCY – ENCLOSE A CERTIFIED CHECK/MONEY ORDER IN THE AMOUNT OF \$15.00, PAYABLE TO:  
"COMMONWEALTH OF PENNSYLVANIA"  
**THE FEE IS NONREFUNDABLE**

FEE EXEMPT-NONCRIMINAL JUSTICE AGENCY – NO FEE

**CONTACT TELEPHONE NUMBER (INCLUDING AREA CODE)**

--	--	--	--	--	--	--	--	--	--	--

NAME/SUBJECT OF RECORD CHECK (FIRST)	(MIDDLE)	(LAST)		
MAIDEN NAME AND/OR ALIASES	SOCIAL SECURITY NUMBER	DATE OF BIRTH (MM/DD/YYYY)	SEX	RACE

**The Pennsylvania State Police response will be based on the comparison of the data provided by the requester against the information *contained in the files of the Pennsylvania State Police Central Repository only***

**FEEES FOR REQUESTS - \$10.00. NOTARIZED FEE REQUESTS - \$15.00.**  
**\*\*\*MAKE ALL MONEY ORDERS PAYABLE TO: COMMONWEALTH OF PENNSYLVANIA \*\*\***  
◀◀◀◀◀CHECK BOX THAT MOST APPLIES TO THE PURPOSE OF THIS REQUEST▶▶▶▶▶

**REASON FOR REQUEST**

- INTERNATIONAL ADOPTION - INTERNATIONAL ADOPTION MUST BE NOTARIZED AND MAILED IN. (\$15.00 FOR REQUEST)**
- |   |   |  |
|---|---|--|
| <input type="checkbox"/> ADOPTION (DOMESTIC)  | <input type="checkbox"/> EMPLOYMENT/SCREENING | <input type="checkbox"/> PASSPORT                        |
| <input type="checkbox"/> ATTORNEY             | <input type="checkbox"/> FOSTER CARE          | <input type="checkbox"/> PRIVATE INVESTIGATIONS          |
| <input type="checkbox"/> BANKING              | <input type="checkbox"/> HEALTHCARE           | <input type="checkbox"/> SOCIAL SERVICES                 |
| <input type="checkbox"/> BAR ASSOCIATION      | <input type="checkbox"/> HOUSING              | <input type="checkbox"/> TENANT CHECK                    |
| <input type="checkbox"/> CHURCH               | <input type="checkbox"/> INSURANCE LICENSE    | <input type="checkbox"/> VISA                            |
| <input type="checkbox"/> CHILD CARE           | <input type="checkbox"/> MENTAL HEALTH        | <input type="checkbox"/> VOLUNTEER AMBULANCE/FIREFIGHTER |
| <input type="checkbox"/> EDUCATION            | <input type="checkbox"/> NURSE AID TRAINING   | <input type="checkbox"/> VOLUNTEER                       |
| <input type="checkbox"/> ELDER CARE           | <input type="checkbox"/> OTHER _____          |  |
| <input type="checkbox"/> EMERGENCY MANAGEMENT |   |  |

**ACCESS & REVIEW - (NOT FOR EMPLOYMENT PURPOSES. MUST BE MAILED INTO THE CENTRAL REPOSITORY WITH A COPY OF A VALID GOVERNMENT ISSUED PHOTO ID, SEE TERMS & CONDITIONS)**

AVAILABLE ONLY TO SUBJECT OF RECORD OR LEGAL REPRESENTATIVE WITH LEGAL AFFIDAVIT AND REQUIRED COPY OF GOVERNMENT PHOTO ID ATTACHED FOR THE PURPOSE OF REVIEWING YOUR CRIMINAL HISTORY.

**WARNING: 18 Pa.C.S. 4904(b) UNDER PENALTY OF LAW - MISIDENTIFICATION OR FALSE STATEMENTS OF IDENTITY TO OBTAIN CRIMINAL HISTORY INFORMATION OF ANOTHER IS PUNISHABLE AS AUTHORIZED BY LAW.**

*Homeland Security is Everyone's Responsibility - Pennsylvania Terrorism Tip Line 1-888-292-1919*

**ARREST/CONVICTION REPORT AND CERTIFICATION FORM**  
**(under Act 24 of 2011 and Act 82 of 2012)**

**Section 1. Personal Information**

Full Legal Name: \_\_\_\_\_

Date of Birth: \_\_\_\_/\_\_\_\_/\_\_\_\_

Any former names  
by which you have  
been identified: \_\_\_\_\_

**Section 2. Report of Arrest or Conviction**

By checking this box, I report that I have been arrested for or convicted of an offense or offenses enumerated under 24 P.S. §§1-111(e) or (f.1) ("Reportable Offense(s)"). See Instructions on Page 3 of this Form for a list of Reportable Offenses. If you have none to report, proceed to Section 3 of this form.

**Details of Arrests or Convictions**

For each arrest for or conviction of any Reportable Offense, specify in the space below (or on additional attachments if necessary) the offense for which you have been arrested or convicted, the date and location of arrest and/or conviction, docket number, and the applicable court.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Section 3. No Arrest or Conviction**

By checking this box, I state that I have not been arrested for or convicted of any Reportable Offense.

**Section 4. Certification**

*By signing this form, I certify under penalty of law that the statements made in this form are true, correct and complete. I understand that false statements herein, including, without limitation, any failure to accurately report any arrest or conviction for a Reportable Offense, shall subject me to criminal prosecution under 18 Pa.C.S. §4904, relating to unsworn falsification to authorities.*

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## INSTRUCTIONS

This standardized form (PDE-6004) has been developed by the Pennsylvania Department of Education, pursuant to 24 P.S. §1-111(j), to be used by current and prospective employees of public and private schools, intermediate units and area vocational-technical schools for the written reporting by current and prospective employees of any arrest or conviction for an offense enumerated under 24 P.S. §§1-111(e) and (f.1).

As required by subsection (j)(2) of 24 P.S. §1-111, this form shall be completed and submitted by all current and prospective employees of a public or private school, intermediate unit or area vocational-technical school. In addition, as required by subsection (j)(4) of 24 P.S. §1-111, this form shall be utilized by current and prospective employees to provide written notice within seventy-two (72) hours after an arrest or conviction for an offense enumerated under 24 P.S. §§1-111(e) or (f.1).

**Exemption:** Any current employee who completed a PDE-6004 on or before December 27, 2011, in compliance with 24 P.S. §§1-111(j)(1) and (2) on that date, and who has not been arrested for or convicted of an offense enumerated under 24 P.S. §§1-111(e) and (f.1) shall not be required to complete an additional form.

In accordance with 24 P.S. §1-111, employees completing this form are required to submit the form to the administrator or other person responsible for employment decisions in a school entity.

If you have questions regarding to whom the form should be sent, please contact your supervisor or the school entity administration office.

**PROVIDE ALL INFORMATION REQUIRED BY THIS FORM LEGIBLY IN INK.**

## LIST OF REPORTABLE OFFENSES

- **A reportable offense enumerated under 24 P.S. §1-111(e) consists of any of the following:**

- (1) An offense under one or more of the following provisions of Title 18 of the Pennsylvania Consolidated Statutes:
 

<ul style="list-style-type: none"> <li>▪ Chapter 25 (relating to criminal homicide)</li> <li>▪ Section 2702 (relating to aggravated assault)</li> <li>▪ Section 2709.1 (relating to stalking)</li> <li>▪ Section 2901 (relating to kidnapping)</li> <li>▪ Section 2902 (relating to unlawful restraint)</li> <li>▪ Section 2910 (relating to luring a child into a motor vehicle or structure)</li> <li>▪ Section 3121 (relating to rape)</li> <li>▪ Section 3122.1 (relating to statutory sexual assault)</li> <li>▪ Section 3123 (relating to involuntary deviate sexual intercourse)</li> <li>▪ Section 3124.1 (relating to sexual assault)</li> <li>▪ Section 3124.2 (relating to institutional sexual assault)</li> <li>▪ Section 3125 (relating to aggravated indecent assault)</li> <li>▪ Section 3126 (relating to indecent assault)</li> <li>▪ Section 3127 (relating to indecent exposure)</li> <li>▪ Section 3129 (relating to sexual intercourse with animal)</li> <li>▪ Section 4302 (relating to incest)</li> <li>▪ Section 4303 (relating to concealing death of child)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Section 4304 (relating to endangering welfare of children)</li> <li>▪ Section 4305 (relating to dealing in infant children)</li> <li>▪ A felony offense under section 5902(b) (relating to prostitution and related offenses)</li> <li>▪ Section 5903(c) or (d) (relating to obscene and other sexual materials and performances)</li> <li>▪ Section 6301(a)(1) (relating to corruption of minors)</li> <li>▪ Section 6312 (relating to sexual abuse of children)</li> <li>▪ Section 6318 (relating to unlawful contact with minor)</li> <li>▪ Section 6319 (relating to solicitation of minors to traffic drugs)</li> <li>▪ Section 6320 (relating to sexual exploitation of children)</li> </ul>
---	---
- (2) An offense designated as a felony under the act of April 14, 1972 (P.L. 233, No. 64), known as “The Controlled Substance, Drug, Device and Cosmetic Act.”
- (3) An offense SIMILAR IN NATURE to those crimes listed above in clauses (1) and (2) under the laws or former laws of:
  - the United States; or
  - one of its territories or possessions; or
  - another state; or
  - the District of Columbia; or
  - the Commonwealth of Puerto Rico; or
  - a foreign nation; or
  - under a former law of this Commonwealth.

- **A reportable offense enumerated under 24 P.S. §1-111(f.1) consists of any of the following:**

- (1) An offense graded as a felony offense of the first, second or third degree, other than one of the offenses enumerated under 24 P.S. §1-111(e), if less than (10) ten years has elapsed from the date of expiration of the sentence for the offense.
- (2) An offense graded as a misdemeanor of the first degree, other than one of the offenses enumerated under 24 P.S. §1-111(e), if less than (5) five years has elapsed from the date of expiration of the sentence for the offense.
- (3) An offense under 75 Pa.C.S. § 3802(a), (b), (c) or (d) (relating to driving under influence of alcohol or controlled substance) graded as a misdemeanor of the first degree under 75 Pa.C.S. § 3803 (relating to grading), if the person has been previously convicted of such an offense and less than (3) three years has elapsed from the date of expiration of the sentence for the most recent offense.



COMMONWEALTH OF PENNSYLVANIA

**PUBLIC WORKS EMPLOYMENT VERIFICATION FORM**

Date \_\_\_\_\_

Business or Organization Name (Employer) \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Contractor

Contracting Public Body \_\_\_\_\_

Contract/Project No \_\_\_\_\_

Project Description \_\_\_\_\_

Project Location \_\_\_\_\_

As a contractor/subcontractor for the above referenced public works contract, I hereby affirm that as of the above date, our company is in compliance with the Public Works Employment Verification Act ('the Act') through utilization of the federal E-Verify Program (EVP) operated by the United States Department of Homeland Security. To the best of my/our knowledge, all employees hired post January 1, 2013 are authorized to work in the United States.

It is also agreed to that all public works contractors/subcontractors will utilize the federal EVP to verify the employment eligibility of each new hire within five (5) business days of the employee start date throughout the duration of the public works contract. Documentation confirming the use of the federal EVP upon each new hire shall be maintained in the event of an investigation or audit.

I, \_\_\_\_\_, authorized representative of the company above, attest that the information contained in this verification form is true and correct and understand that the submission of false or misleading information in connection with the above verification shall be subject to sanctions provided by law.

\_\_\_\_\_  
Authorized Representative Signature

**MAINTENANCE BOND**

KNOW ALL PERSONS BY THESE PRESENTS, That we, the undersigned

\_\_\_\_\_

as Principal and

\_\_\_\_\_  
(Surety Company)

\_\_\_\_\_  
(Address)

a corporation organized and existing under the laws of the State of and authorized to transact business in Pennsylvania, as Surety, are held and firmly bound unto

Neshaminy School District  
2001 Old Lincoln Highway  
Langhorne, Pennsylvania 19047

as hereinafter set forth, in the full and just sum of

100% accepted alternate amount  
Dollars (\$ \_\_\_\_\_), for maintenance as designated below; lawful money of the United States of America, to be paid to the Neshaminy School District, its successors or assigns, to which payment, well and truly to be made and done, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

Sealed with our respective seals and dates this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

WHEREAS, the above bounden Principal has entered into a contract with

Neshaminy School District  
2001 Old Lincoln Highway  
Langhorne, Pennsylvania 19047

dated the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, for

Rooftop Unit Replacement at the Neshaminy High School Auditorium, Bid No. 19-11

upon certain terms and conditions in said contract more particularly mentioned; and

WHEREAS, it is one of the conditions of the award of the Neshaminy School District, pursuant to which said contract is about to be entered into, that these presents be executed.



NOW, THEREFORE, the joint and several conditions of this obligation are such:

That, if the above bounden Principal shall remedy without cost to the Neshaminy School District any break of service and/or default of full responsibility from the end date of initial two (2) year Project warranty; provided, in the judgment of the Neshaminy School District or its successor having jurisdiction in the premises, such defects are caused by defective or inferior materials or workmanship, then this part of this obligation shall be void; otherwise, it shall be and remain in full force and effect. The duties and responsibilities incurred by the Principal pursuant to said Maintenance Bond shall in no way absolve the Principal of any duty, responsibility or obligations vested in the Neshaminy School District.

Recovery by any persons, co-partnership, association, or corporation hereunder shall be subject to the provisions of the Act of December 20, 1967, P.L. 869, Act No. 385 (8 P.S. 191 ET SEQ), as amended, which Act is incorporated herein and made a part hereof, as fully and completely as though its provisions were fully and at length herein recited, except that, where said Act refers to the Commonwealth of Pennsylvania or a Department thereof, it shall be deemed to refer to the State System of Higher Education.

IN WITNESS WHEREOF, the said Principal and Surety have duly executed this Bond under seal the day and year above written.

WITNESS:

\_\_\_\_\_  
Principal - Individual \_\_\_\_\_(SEAL)

(CORPORATE SEAL) Surety \_\_\_\_\_

\_\_\_\_\_  
BY \_\_\_\_\_  
Attorney-in-Fact

WITNESS:

\_\_\_\_\_  
\_\_\_\_\_(SEAL)

\_\_\_\_\_  
\_\_\_\_\_(SEAL)

\_\_\_\_\_  
\_\_\_\_\_(SEAL)

\_\_\_\_\_  
\_\_\_\_\_(SEAL)

(CORPORATE SEAL) \_\_\_\_\_  
Surety

\_\_\_\_\_  
BY \_\_\_\_\_  
Attorney-in-Fact

(CORPORATE SEAL)

\_\_\_\_\_  
Principal - Corporation

\_\_\_\_\_  
Secretary or Treasurer

BY \_\_\_\_\_  
President or Vice President

(CORPORATE SEAL)

\_\_\_\_\_  
Surety

BY \_\_\_\_\_  
Attorney-in-Fact

APPROVED AS TO LEGALITY AND FORM

\_\_\_\_\_  
Office of General Counsel

\_\_\_\_\_  
Office of Attorney General

END OF SECTION

## SECTION 01010 - PROJECT SUMMARY

This project includes the removal of the existing HVAC rooftop unit (RTU-1), and to provide and install the respective replacement rooftop unit along with the installation and/or the reconnecting of miscellaneous accessories, piping, duct connections, control wire, power wiring, demolition, cutting and patching and rigging. In addition, the contractor shall remove the existing remote condensing unit and appurtenances as indicated. The controls shall be furnished by the unit manufacturer and field or factory installed as indicated in the contract documents. Siemens shall integrate to the new unit and shall complete the graphical updates.

This contractor will be responsible to receive the equipment on delivery and complete the installation as here-in specified. This contractor shall be responsible for all startups, testing and warranties as here-in specified.

Coordination of the installation of the above work with the day-to-day operations of the Owner is required, and any disruptions must be worked out in advance.

END OF SECTION 01010

## SECTION 01027 - APPLICATIONS FOR PAYMENT

Schedule of Values: Coordinate preparation of the Schedule of Values with the Contractor's Construction Schedule.

Correlate line items in the Schedule of Values with other schedules and forms, including:

- Contractor's Construction Schedule.
- Application for Payment form.
- List of subcontractors.
- List of products.
- Schedule of submittals.

Submit the Schedule of Values to the Engineer at the earliest date, but no later than seven (7) days before the date scheduled for submittal of the initial Application for Payment.

Break Contract Sum down in enough detail to facilitate evaluation of Applications for Payment. Break subcontract amounts down into several line items. Round amounts off to the nearest dollar; the total shall equal the Contract Sum.

For each item where an Application for Payment includes products purchased or fabricated and stored, but not installed, provide separate line items for initial cost, each subsequent stage of completion, and installed value.

Each item in the Schedule of Values and Applications for Payment shall be complete including total cost and share of overhead and profit.

Update and resubmit the schedule when Change Orders or Construction Change Directives change the Contract Sum.

Applications for Payment: Each Application for Payment shall be consistent with previous applications and payments as certified by the Engineer and paid for by the Owner.

Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703 as the form for the application.

Application Preparation: Complete every entry, including notarization and execution by person authorized to sign on behalf of the Owner. Incomplete applications will be returned without action.

Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.

Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the period covered by the application.

Transmittal: Submit 3 executed copies of each application to the Engineer within 24 hours; one copy shall be complete, including waivers of lien and similar attachments.

Transmit each copy with a transmittal listing attachments, and recording information related to the application.

Waivers of Lien: With each application, submit waivers of lien from every entity who may file a lien arising out of the Contract, and related to the Work covered by the payment.

Submit partial waivers on each item for amount requested, prior to deduction for retainage, on each item.

When an application shows completion of an item, submit final or full waivers.

Waiver Delays: Submit each application with Contractor's waiver of lien for the period covered by the application.

Submit final Application for Payment with final waivers from every entity involved with performance of Work covered by the application who could be entitled to a lien.

Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to Owner.

Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include:

- List of subcontractors.
- List of suppliers and fabricators.
- Schedule of Values.
- Contractor's Construction Schedule (preliminary if not final).
- Submittal Schedule (preliminary if not final).
- Copies of building permits
- Copies of licenses from governing authorities.
- Certificates of insurance and insurance policies.
- Performance and payment bonds (if required).

Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions. Administrative actions and submittals that precede or coincide with this application include:

- Occupancy permits, if required.
- Warranties and maintenance agreements.
- Test/adjust/balance records.
- Maintenance instructions.
- Meter readings.
- Final cleaning.
- Application for reduction of retainage, and consent of surety.

Final Payment Application: Administrative actions and submittals which must precede or coincide with submittal of the final payment application include:

- Completion of Project closeout requirements.
- Completion of items specified for completion after Substantial Completion.
- Transmittal of required Project construction records to Owner.
- Proof that taxes, fees and similar obligations have been paid.

END OF SECTION 01027

## SECTION 01040 - PROJECT COORDINATION

This Section specifies requirements for project coordination including:

- Coordination.
- Administrative and supervisory personnel.
- General installation provisions.
- Cleaning and protection.

Coordination: Coordinate activities included in various Sections to assure efficient and orderly installation of each component. Coordinate operations included under different Sections that are dependent on each other for proper installation and operation.

Where installation of one component depends on installation of other components before or after its own installation, schedule activities in the sequence required to obtain the best results.

Where space is limited, coordinate installation of different components to assure maximum accessibility for maintenance, service and repair.

Make provisions to accommodate items scheduled for later installation.

Prepare memoranda for distribution to each party involved outlining required coordination procedures. Include required notices, reports, and attendance at meetings.

Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

Administrative Procedures: Coordinate scheduling and timing of administrative procedures with other activities to avoid conflicts and ensure orderly progress. Such activities include:

- Preparation of schedules.
- Delivery and processing of submittals.
- Progress meetings.
- Project closeout activities.

Coordination Drawings: Prepare Coordination Drawings where close coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space necessitates maximum utilization of space for efficient installation of different components.

Show relationship of components shown on separate Shop Drawings.

Indicate required installation sequences.

Inspection of Conditions: The Installer of each component shall inspect the substrate and conditions under which Work is performed. Do not proceed until unsatisfactory conditions have been corrected.

Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that they are more stringent than requirements in Contract Documents.

Inspect material immediately upon delivery and again prior to installation. Reject damaged and defective items.

Provide attachment and connection devices and methods necessary for securing each construction element. Secure each construction element true to line and level. Allow for expansion and building movement.

Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints to obtain the best effect. Refer questionable choices to the Engineer for decision.

Recheck measurements and dimensions, before starting installation.

Install each component during weather conditions and project status that will ensure the best results. Isolate each part from incompatible material as necessary to prevent deterioration.

Coordinate temporary enclosures with inspections and tests, to minimize uncovering completed construction for that purpose.

Mounting Heights: Where mounting heights are not indicated, install components at standard heights for the application indicated. Refer questionable decisions to the Engineer.

Cleaning and Protection: During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

Clean and maintain completed construction as often as necessary through the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

Limiting Exposures: Supervise operations to ensure that no part of construction, completed or in progress, is subject to harmful or deleterious exposure. Such exposures include:

- Excessive static or dynamic loading.
- Excessive internal or external pressures.
- Excessive weathering.
- Excessively high or low temperatures or humidity.
- Air contamination or pollution.
- Water or ice.
- Chemicals or solvents.
- Heavy traffic, soiling, staining and corrosion.
- Rodent and insect infestation.
- Unusual wear or other misuse.
- Contact between incompatible materials.
- Theft or vandalism.

END OF SECTION 01040

## SECTION 01045 - CUTTING AND PATCHING

Refer to other Sections of these Specifications, including Divisions -15 and -16, for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

Structural Work: Do not cut and patch structural elements in a manner that would reduce the load-carrying capacity or load deflection ratio. Obtain approval of the cutting and patching proposal before cutting and patching structural elements.

Operational and Safety Limitations: Do not cut and patch operating elements or safety components in a manner that would reduce their capacity to perform as intended, or would increase maintenance, or decrease operational life or safety. Obtain approval of the cutting and patching proposal before cutting and patching operating elements or safety related systems:

Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.

Materials: Use materials identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible. Use materials whose performance will equal or surpass of existing materials.

Inspection: Before cutting, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

Temporary Support: Provide temporary support of Work to be cut.

Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions that might be exposed during cutting and patching operations.

Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

Take all precautions to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

Performance: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

Cut existing construction to provide for the installation of other components or the performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review procedures with the original installer; comply with the original installer's recommendations.



Where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.

Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.

Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

Where feasible, inspect and test patched areas to demonstrate integrity of the installation.

Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

Cleaning: Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove paint, mortar, oils, putty and similar items. Thoroughly clean piping, conduit and similar features before painting or finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 01045

## SECTION 01090 - DEFINITIONS AND STANDARDS

Summary: This Section specifies requirements for compliance with governing regulations, codes and standards. Requirements include obtaining permits, licenses, and inspections, as well as payments, statements and requirements associated with regulations, codes and standards.

Refer to General and Supplementary Conditions for requirements for compliance with governing regulations.

Definitions: The following definitions supplement definitions contained in the Agreement, General and Supplementary Conditions and other Contract Documents. They apply generally to the Work.

Indicated refers to graphic representations, notes or schedules on Drawings, or paragraphs or schedules in Specifications, and similar requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help locate the reference.

Directed: Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the Engineer", "requested by the Engineer", and similar phrases. No implied meaning shall be interpreted to extend the Engineer's responsibility into the Contractor's supervision of construction.

Approve, used in conjunction with action on submittals, applications, and requests, is limited to the Engineer's duties and responsibilities stated in General and Supplementary Conditions. Approval shall not release the Contractor from responsibility to fulfill Contract Document requirements.

Regulation includes laws, ordinances, statutes, and lawful orders of authorities having jurisdiction, and rules, conventions and agreements in the construction industry that control performance of the Work, whether lawfully imposed by authorities having jurisdiction or not.

Furnish means "supply and deliver, ready for unloading, unpacking, assembly, installation, and similar operations."

Install describes operations at site including "unloading, unpacking, assembly, erection, anchoring, applying, working to dimension, finishing, protecting, cleaning and similar operations."

Provide means "furnish and install, complete and ready for use."

Installer is an entity engaged by the Contractor, an employee, or subcontractor for performance of a particular activity, including installation, erection, and application. Installers shall be experienced in the operations they perform.

The term "Experienced," when used with "Installer" means having a minimum of 5 previous projects similar in size to this project, and familiar with precautions required, and requirements of the authority having jurisdiction.

Project Site is the space available for construction activities, either exclusively or with others performing other construction on the Project. The extent of the Project Site is shown on the Drawings, and may or may not be identical with the description of the land upon which the Project is to be built.

Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, at the Project Site or elsewhere, and to report on, and, if required, to interpret, results of those inspections or tests.

Language used in the Contract Documents is the abbreviated type. Implied words and meanings will be appropriately interpreted. Singular words will be interpreted as plural and plural words as singular where applicable and the context indicates.

Imperative Language is generally used. Requirements expressed imperatively are to be performed by the Contractor. At certain locations subjective language is used to describe responsibilities which must be fulfilled indirectly by the Contractor, or by others when noted.

Assignment of Specialists: Certain construction activities shall be performed by specialists, recognized experts in operations to be performed. Specialists must be engaged for those activities, and these assignments are requirements over which the Contractor has no option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

Drawing Symbols: Graphic symbols on Drawings are recognized in the construction industry for purposes indicated. Where not otherwise noted, symbols are defined by "Architectural Graphic Standards", published by John Wiley & Sons, Inc., seventh edition.

Mechanical/Electrical Drawings: Graphic symbols on mechanical and electrical Drawings are aligned with symbols recommended by ASHRAE. Where appropriate, they are supplemented by symbols recommended by technical associations. Refer instances of uncertainty to the Engineer for clarification before proceeding.

Applicability of Standards: Except where Contract Documents include more stringent requirements, applicable industry standards have the same force and effect as if bound or copied into Contract Documents. Such standards are part of the Contract Documents by reference. Individual Sections indicate which standards the Contractor must keep available at the Project site for reference.

Referenced standards take precedence over standards that are not referenced but recognized in the industry as applicable.

Unreferenced standards are not applicable, except as a general requirement of whether the Work complies with recognized construction industry standards.

Publication Dates: Where compliance with a standard is required, comply with standard in effect as of date of Contract Documents.

Updated Standards: Submit a Change Order proposal where an applicable standard has been revised and reissued after the date of the Contract Documents and before performance of Work. The Engineer will decide whether to issue a Change Order to proceed with the updated standard.

Conflicting Requirements: Where compliance with two or more standards that establish different or conflicting requirements for minimum quantities or quality levels is specified, the most stringent requirement will be enforced. Refer uncertainties as to which quality level is more stringent to the Engineer for a decision before proceeding.

Minimum Quantities or Quality Levels: The quantity or quality shown or specified is the minimum to be provided or performed. Indicated values are minimum or maximum, as appropriate for the requirements. Refer instances of uncertainty to the Engineer for decision before proceeding.

Copies of Standards: Each entity engaged on the Project shall be familiar with standards applicable to that activity. Copies of applicable standards are not bound with the Contract Documents.

Where copies of standards are required, obtain copies directly from the publication source. Although copies of standards needed for enforcement of requirements may be part of submittals, the Engineer reserves the right to require the submittal of additional copies for enforcement of requirements.

Abbreviations and Names: Where acronyms or abbreviations are used in Specifications or other Contract Documents they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction or other entity applicable. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

Trade Union Jurisdictions: Maintain, complete current information on jurisdictional matters, regulations and pending actions, as applicable to construction activities. The manner in which Contract Documents have been organized and subdivided is not intended to indicate of trade union or jurisdictional agreements.

Discuss new developments at project meetings at the earliest feasible dates. Record relevant information and actions agreed upon.

Assign and subcontract construction activities, and employ tradesmen and laborers, in a manner that will not unduly risk jurisdictional disputes that could result in conflicts, delays, claims and losses.

Permits, Licenses, and Certificates: Submit copies of permits, licenses, certifications, inspection reports, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence and records in conjunction with compliance with standards and regulations bearing on performance of the Work.

END OF SECTION 01090

## SECTION 01200 - PROJECT MEETINGS

Summary: This Section specifies requirements for Project meetings including:

Pre-Construction Conferences.  
Progress Meetings.

Pre-construction Conference: Conduct a pre-construction conference after execution of the Agreement and prior to commencement of construction activities. Review responsibilities and personnel assignments.

Attendees: The Owner, Engineer and their consultants, the Contractor and its superintendent, subcontractors, and other concerned parties shall be represented by persons authorized to conclude matters relating to the Work.

Agenda: Discuss significant items that could affect progress, including the tentative construction schedule, critical sequencing, use of the premises, procedures for processing Change Orders and equipment deliveries.

Pre-installation Conference: Conduct a pre-installation conference before each activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in the installation, and coordination or integration with other materials and installations that have preceded or will follow, shall attend. Advise the Engineer of scheduled meeting dates.

Review progress of other activities and preparations for the activity under consideration at each conference, including time schedules, manufacturer's recommendations, weather limitations, substrate acceptability, compatibility problems and inspection and testing requirements.

Record significant discussions, agreements and disagreements of each conference, along with the approved schedule. Distribute the meeting record to everyone concerned, promptly, including the Owner and Engineer.

Do not proceed if the conference cannot be successfully concluded. Initiate necessary actions to resolve impediments and reconvene the conference at the earliest feasible date.

Progress Meetings: Conduct progress meetings at regular intervals. Notify the Owner and Engineer of scheduled dates. Coordinate meeting dates with preparation of the payment request.

Attendees: The Owner and Engineer, each subcontractor, supplier or other entity concerned with progress or involved in planning, coordination or performance of future activities shall be represented by persons familiar with the Project and authorized to conclude matters relating to progress.

Agenda: Review minutes of the previous progress meeting. Review significant items that could affect progress. Include topics appropriate to the current status of the Project.

Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

Review the present and future needs of each entity present, including such items as:

- Time.
- Sequences.
- Deliveries.
- Off-site fabrication problems.
- Site utilization.
- Temporary facilities and services.
- Hazards and risks.
- Quality and Work standards.
- Change Orders.
- Documentation of information for payment requests.

Reporting: No later than 5 days after each meeting, distribute copies of minutes of the meeting to each party present and to parties who should have been present. Include a summary, in narrative form, of progress since the previous meeting.

END OF SECTION 01200

SECTION 01230 - ALTERNATE BIDS

ALTERNATE BID H-1 (AAON UNIT)

State the costs associated with the removal and replacement of the auditorium rooftop unit (RTU-1) using Aaon Unit. Alternate unit must meet all the specifications of the BASE BID (Valent Unit). Capacities and electrical characteristics must meet the values listed in the contract documents.

END OF SECTION 01230

## SECTION 01300 - SUBMITTALS

Summary: This Section specifies requirements for handling submittals.

General Procedures: Coordinate submittal preparation with performance of construction activities, and with purchasing or fabrication, delivery, other submittals and related activities. Transmit in advance of performance of related activities to avoid delay.

Coordinate transmittal of different submittals for related elements so processing will not be delayed by the need to review concurrently for coordination. The Engineer reserves the right to withhold action on a submittal requiring coordination until related submittals are received.

Submittal Preparation: Place a label or title block on each submittal for identification. Provide a 4" x 5" space on the label or beside the title block on Shop Drawings to record Contractor's review and approval markings and action taken. Include the following information on the label for processing and recording action taken.

- Project name.
- Date.
- Name and address of Engineer.
- Name and address of Contractor.
- Name and address of subcontractor.
- Name and address of supplier.
- Name of manufacturer.

Submittal Transmittal: Package submittals appropriately for transmittal and handling. Transmit with a transmittal form. Submittals received from other than the Contractor will be returned without action.

Contractor's Construction Schedule: Submit a fully detailed construction schedule, within 10 days of the date established for Commencement of the Work. Provide a line item for each construction activity. Use the breakdown of units of Work as indicated in the "Schedule of Values".

Secure commitments for performing critical construction operations from parties involved. Coordinate each activity with other activities and show in proper sequence; include minor elements involved in the construction sequence. Indicate sequences necessary for completion of related portions.

Coordinate the Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests and other schedules.

Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the Schedule to allow time for the Engineer's procedures necessary for certification of Substantial Completion.

Submittal Schedule: Submit the Submittal Schedule within 10 days of the Construction Schedule. Coordinate the Schedule with the list of subcontracts, Schedule of Values and list of products as well as the Construction Schedule.



Prepare the Schedule in chronological order; include submittals. Provide the following information:

- Scheduled date for the first submittal.
- Related Section number.
- Name of subcontractor.
- Description of the construction element covered.
- Scheduled date the Engineer's final release or approval.

Distribution of Schedules: Distribute copies of the Construction and Submittal Schedules to the Engineer, Owner, subcontractors, and other parties required to comply with scheduled dates. When revisions are made, distribute to the same parties and post in the same locations.

Updating: Revise each Schedule after each meeting or activity, where revisions have been made. Issue the updated Schedules concurrently with report of each meeting.

Shop Drawings: Submit new information, drawn to accurate scale. Indicate deviations from Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Include the following information:

- Dimensions.
- Identification of products and materials included.
- Notation of coordination requirements.
- Notation of dimensions established by field measurement.

Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 36" x 48".

Initial Submittal: Submit one correctable translucent print and one blue-line print for review; the reproducible print will be returned.

Final Submittal: Submit 3 blue-line prints; if the Drawing is required for maintenance manuals submit 5 prints. 2 prints will be retained; the remainder will be returned. One of the prints returned shall be maintained as a "Record Document".

Do not use Shop Drawings without a final stamp indicating action taken in connection with construction.

Product Data: Collect Product Data into a single submittal for each element or system. Mark each copy to show applicable choices and options.

Where Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:

- Manufacturer's printed recommendations.
- Compliance with recognized trade association standards.
- Compliance with recognized testing agency standards.
- Application of testing agency labels and seals.
- Notation of dimensions verified by field measurement.
- Notation of coordination requirements.

Preliminary Submittal: Submit a preliminary single-copy where selection of options is required.

Submittals: Submit 3 copies of each required submittal; submit 6 copies for maintenance manuals. The Engineer will retain one, and will return the other marked with action taken and corrections or modifications required.

Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

Distribution: Furnish copies of final submittal to installers, and others required for performance of construction activities. Show distribution on transmittal forms. Do not proceed with installation until an applicable copy of Product Data is in the installer's possession.

Do not permit use of unmarked copies of Product Data in connection with construction.

Distribution: Prepare additional sets for subcontractors, manufacturers, fabricators, installers, and others as required for performance. Show distribution on transmittal forms.

Engineer's Action: Except for submittals for record, information or similar purposes, where action and return is required, the Engineer will review each submittal, mark to indicate action taken, and return. Compliance with specified characteristics is the Contractor's responsibility.

Action Stamp: The Engineer will stamp each submittal with a self-explanatory action stamp. The stamp will be appropriately marked to indicate action taken.

END OF SECTION 01300

## SECTION 01600 - MATERIALS AND EQUIPMENT

"Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock.

"Named Products" are items identified by manufacturer's product name, including make or model designation indicated in the manufacturer's product literature.

"Materials" are products that are shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

"Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.

When the Contractor has the option of selecting between two or more products, the product selected shall be compatible with products previously selected.

Nameplates: Except for required labels and operating data, do not attach manufacturer's nameplates or trademarks on surfaces exposed to view in occupied spaces or on the exterior.

Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an inconspicuous accessible surface. The nameplate shall contain the following information and essential operating data:

- Name of product and manufacturer.
- Model and serial number.
- Capacity.
- Speed.
- Ratings.

Product Storage, and Handling: Store and handle products in accordance with manufacturer's recommendations, using methods that will prevent damage, deterioration and loss.

Coordinate delivery to minimize long-term storage and prevent overcrowding construction spaces. Coordinate with installation to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.

Inspect products on delivery to ensure compliance with Contract Documents, and to ensure that products are undamaged and properly protected.

Store products to facilitate inspection and measurement of quantity or counting of units. Store heavy materials away from the structure in a manner that will not endanger supporting construction.

Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

Non-Proprietary Specifications: When Specifications list products or manufacturers that are available and may be used, but do not restrict the Contractor to use of these products only, the Contractor may propose any product that complies with Contract requirements. Comply with provisions for "substitutions" to obtain approval for use of an unnamed product.

Descriptive Specification Requirements: Where Specifications describe a product, listing characteristics required, with or without use of a brand name, provide a product that provides the characteristics and otherwise complies with requirements.

Compliance with Standards: Where Specifications require compliance with a standard, select a product that complies with the standard specified.

Installation of Products: Comply with manufacturer's instructions and recommendations for installation of products. Anchor each product securely in place, accurately located and aligned with other Work. Clean exposed surfaces and protect to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 01600

## SECTION 01700 - PROJECT CLOSEOUT

Substantial Completion: Before requesting inspection for certification of Substantial Completion, complete the following:

In the Application for Payment that coincides with the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed substantially complete.

Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.

Submit record drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey, and similar record information.

Complete start-up testing of systems, and instruction of the Owner's personnel. Remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.

Complete final clean up. Touch-up and repair and restore marred exposed finishes.

Inspection Procedures: On receipt of a request for inspection, the Engineer will proceed or advise the Contractor of unfilled requirements. The Engineer will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

The Engineer will repeat inspection when requested and assured that the Work has been substantially completed.

Results of the completed inspection will form the basis of requirements for final acceptance.

Final Acceptance: Before requesting inspection for certification of final acceptance and final payment, complete the following:

Submit final payment request with releases.

Submit a final statement, accounting for changes to the Contract Sum.

Submit a copy of the final inspection list stating that each item has been completed or otherwise resolved for acceptance

Submit consent of surety to final payment.

Submit evidence of continuing insurance coverage complying with insurance requirements.

Reinspection Procedure: The Engineer will reinspect the Work upon receipt of notice that the Work has been completed, except items whose completion has been delayed because of circumstances acceptable to the Engineer.

Upon completion of reinspection, the Engineer will prepare a certificate of final acceptance, or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

If necessary, reinspection will be repeated.

Record Document Submittals: Do not use Record Documents for construction purposes; protect from loss in a secure location; provide access to Record Documents for the Engineer's reference.

Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark-up these drawings to show the actual installation. Mark whichever drawing is most capable of showing conditions accurately. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover.

Record Specifications: Maintain one copy of the Project Manual, including addenda. Mark to show variations in actual Work performed in comparison with the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot be readily discerned later by direct observation. Note related record drawing information and Product Data.

Upon completion of the Work, submit record Specifications to the Engineer for the Owner's records.

Maintenance Manuals: Organize maintenance data into sets of manageable size. Provide the number of copies as specified in section 01300. Bind in individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark identification on front and spine of each binder. Include the following information:

- Emergency instructions.
- Spare parts list.
- Copies of warranties.
- Wiring diagrams.
- Recommended "turn around" cycles.
- Inspection procedures.
- Shop Drawings and Product Data.

Operating and Maintenance Instructions: Arrange for the manufacturer's recognized representative of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Include a detailed review of the following:

- Maintenance manuals.
- Spare parts and materials.
- Tools.
- Lubricants.
- Control sequences.
- Hazards.
- Warranties and bonds.

Maintenance agreements and similar continuing commitments.

As part of instruction for operating equipment, demonstrate the following procedures:

- Start-up and shutdown.
- Emergency operations.
- Noise and vibration adjustments.
- Safety procedures.

Provide a video of the above demonstrations taped on VHS format to be turned over to the owner for his use as needed.

Final Cleaning: Employ experienced workers for final cleaning. Clean each surface to the condition expected in a commercial building cleaning and maintenance program. Complete the following before requesting inspection for certification of Substantial Completion:

Remove labels that are not permanent labels.

Clean exposed hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication.

Clean the site of rubbish, litter and other foreign substances. Sweep paved areas; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

Removal of Protection: Remove temporary protection and facilities.

Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Remove waste materials from the site and dispose of in a lawful manner.

END OF SECTION 01700

## SECTION 01740 - WARRANTIES AND BONDS

Standard Product Warranties are pre-printed written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

Special Warranties are written warranties required by or incorporated in Contract Documents, to extend time limits provided by standard warranties or to provide greater rights for the Owner.

Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.

Requirements for warranties for products and installations that are specified to be warranted, are included in the individual Sections of Divisions-2 through -16.

Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and Subcontractors required to countersign special warranties with the Contractor.

Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

Replacement Cost: On determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefitted from use of the Work through part of its useful service life.

Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

Rejection of Warranties: The Owner reserves the right to reject warranties and limit selections to products with warranties not in conflict with requirements of the Contract Documents.

The Owner reserves the right to refuse to accept Work where a special warranty, or similar commitment is required, until evidence is presented that entities required to countersign commitments are willing to do so.

Submit written warranties to the Engineer prior to the date certified for Substantial Completion. If the Engineer's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion, submit written warranties on the Engineer's request.



When a designated portion of the Work is completed and occupied or used, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Engineer within fifteen days of completion of that designated portion of the Work.

When a special warranty is to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Engineer for approval prior to final execution.

Special warranty forms are included at the end of this Section. Prepare a written document utilizing the appropriate form, ready for execution by the Contractor, or the Contractor and subcontractor, supplier or manufacturer. Submit a draft to the Owner through the Engineer for approval prior to final execution.

Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.

Provide heavy paper dividers with celluloid covered tabs for each warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.

Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS, the Project title or name, and the name of the Contractor.

When operating and maintenance manuals are required for warranted construction, provide additional copies of each warranty, as necessary, for inclusion in each required manual.

END OF SECTION 01740

## HVAC SYSTEM TESTING, ADJUSTING, AND BALANCING

## SECTION 230600 – HVAC SYSTEM TESTING, ADJUSTING, AND BALANCING

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. Section Includes Testing, Adjusting and Balancing (TAB) of air and water systems for the following:
  1. Balance unit supply and exhaust fan to air flow listed.
  2. Set hot water coil flow rate listed.
  3. Balance all existing supply outlets and return inlets for the values listed.

## 1.3 SUBMITTALS

- A. Qualification Data: Within 45 days of Contractor's Notice to Proceed, submit documentation that the TAB contractor and this Project's TAB team members meet the qualifications specified herein.

## 1.4 QUALITY ASSURANCE

- A. TAB Contractor Qualifications: Engage a TAB entity certified by NEBB or AABC in the testing, adjusting and balancing of both air and water systems.

## 1.5 PROJECT CONDITIONS

- A. Full Owner Occupancy: Owner will occupy the site and portions of the existing building during entire TAB period. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations. Review the project's construction phasing plan and provide the necessary number of TAB visits to comply with the phasing plan.

## HVAC SYSTEM TESTING, ADJUSTING, AND BALANCING

## PART 2 - PRODUCTS (Not Applicable)

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems' designs that may preclude proper TAB of systems and equipment. Examine systems for installed balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are accessible.
- B. Refer to the Contract Drawings for notes that relate to balancing of the air and water systems.
- C. Examine the approved shop drawing submittals for all HVAC systems and equipment prior to starting the TAB work.
- D. Examine design data including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.
- E. Examine ceiling plenums and under floor air plenums used for supply, return, or relief air to verify that they meet the leakage class of connected ducts as specified in Division 23 Section Metal Ducts, and are properly separated from adjacent areas. Verify that penetrations in plenum walls are sealed and fire-stopped if required.
- F. Examine equipment performance data including fan and pump curves.
- G. Examine system and equipment installations and verify that field quality-control testing, cleaning, and adjusting specified in individual Sections have been performed.
- H. Examine test reports specified in individual system and equipment Sections.
- I. Examine HVAC equipment and filters and verify that bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation.
- J. Examine control valves for proper installation for their intended function of diverting or mixing fluid flows.
- K. Examine heat-transfer coils for correct piping connections and for clean and straight fins.
- L. Examine operating safety interlocks and controls on HVAC equipment.

## HVAC SYSTEM TESTING, ADJUSTING, AND BALANCING

- M. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

## 3.2 PREPARATION

- A. Verify all systems are complete, including controls, before starting the TAB work.

## 3.3 GENERAL PROCEDURES FOR TESTING AND BALANCING

- A. Perform testing and balancing procedures on each system.
- B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.
  1. After testing and balancing, patch probe holes in ducts with same material and thickness as used to construct ducts.
  2. After testing and balancing, install test ports and duct access doors where required.
  3. Install and join new insulation that matches removed materials. Restore insulation, coverings, vapor barrier, and finish to meet the requirements of the installation.
- C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.
- D. Take and report testing and balancing measurements in inch-pound (IP) units.

## 3.4 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

- A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.
- B. Determine the best locations in main and branch ducts for accurate duct-airflow measurements.
- C. Check airflow patterns from the outdoor-air louvers and dampers and the return- and exhaust-air dampers through the supply-fan discharge and mixing dampers.
- D. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.
- E. Verify that motor starters are equipped with properly sized thermal protection.
- F. Check dampers for proper position to achieve desired airflow path.
- G. Check for airflow blockages.

## HVAC SYSTEM TESTING, ADJUSTING, AND BALANCING

- H. Check condensate drains for proper connections and functioning.
- I. Check for proper sealing of air-handling-unit components.
- J. Where required, verify that air duct system is sealed as specified in Division 23 Section "Metal Ducts."

## 3.5 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

- A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.
  - 1. Measure total airflow. Measure air flows in main ducts and at terminal outlets and inlets.
  - 2. Measure fan static pressures as follows to determine actual static pressure:
    - a. Measure outlet static pressure as far downstream from the fan as practical and upstream from restrictions in ducts such as elbows and transitions.
    - b. Measure static pressure directly at the fan outlet or through the flexible connection.
    - c. Measure inlet static pressure of single-inlet fans in the inlet duct as near the fan as possible, upstream from the flexible connection, and downstream from duct restrictions.
    - d. Measure inlet static pressure of double-inlet fans through the wall of the plenum that houses the fan.
  - 3. Measure static pressure across each component that makes up an air-handling unit, rooftop unit, and other air-handling and -treating equipment.
    - a. Report the cleanliness status of filters and the time static pressures are measured.
  - 4. Measure static pressures entering and leaving other devices, such as sound traps, heat-recovery equipment, and air washers, under final balanced conditions.
  - 5. Review Record Documents to determine variations in design static pressures versus actual static pressures. Calculate actual system-effect factors. Recommend adjustments to accommodate actual conditions.
  - 6. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload will occur. Measure amperage in full-cooling, full-heating, economizer, and any other operating mode to determine the maximum required brake horsepower.
- B. Adjust volume dampers for main duct, and major branch ducts to indicated airflows within specified tolerances.
  - 1. Measure airflow of branch ducts.

## HVAC SYSTEM TESTING, ADJUSTING, AND BALANCING

2. Measure static pressure at a point downstream from the balancing damper, and adjust volume dampers until the proper static pressure is achieved.
  3. Re-measure each branch duct after all have been adjusted. Continue to adjust branch ducts to indicated airflows within specified tolerances.
- C. Measure air outlets and inlets without making adjustments. Measure terminal outlets using a direct-reading hood or outlet manufacturer's written instructions and calculating factors.
- D. Adjust air outlets and inlets for each space to indicated airflows within specified tolerances of indicated values. Make adjustments using branch volume dampers rather than extractors and the dampers at air terminals. Adjust each outlet in same room or space to within specified tolerances of indicated quantities without generating noise levels above the limitations prescribed by the Contract Documents. Adjust patterns of adjustable outlets for proper distribution without drafts.

## 3.6 GENERAL PROCEDURES FOR HYDRONIC SYSTEMS

- A. Prepare test reports with pertinent design data, and number in sequence starting at pump to end of system. Check the sum of branch-circuit flows against the approved pump flow rate. Correct variations that exceed plus or minus 5 percent.
- B. Prepare hydronic systems for testing and balancing according to the following, in addition to the general preparation procedures specified above:
1. Open all manual valves for maximum flow.
  2. Check flow-control valves for specified sequence of operation, and set at indicated flow.
  3. Set system controls so automatic valves are wide open to heat exchangers.
  4. Check air vents for a forceful liquid flow exiting from vents when manually operated.

## 3.7 PROCEDURES FOR CONSTANT-FLOW HYDRONIC SYSTEMS

- A. Measure flow at new hot water coil balancing valve. Adjust for the design flow rate. Note and mark control valve setting.

## 3.8 PROCEDURES FOR HEAT-TRANSFER COILS

- A. Measure, adjust, and record the following data for each water coil:
1. Entering- and leaving-water temperature.
  2. Water flow rate.
  3. Water pressure drop.
  4. Dry-bulb temperature of entering and leaving air.
  5. Wet-bulb temperature of entering and leaving air for cooling coils.
  6. Airflow.

## HVAC SYSTEM TESTING, ADJUSTING, AND BALANCING

7. Air pressure drop.

B. Measure, adjust, and record the following data for each electric heating coil:

1. Nameplate data.
2. Airflow.
3. Entering- and leaving-air temperature at full load.
4. Voltage and amperage input of each phase at full load and at each incremental stage.
5. Calculated kilowatt at full load.
6. Fuse or circuit-breaker rating for overload protection.

C. Measure, adjust, and record the following data for each steam coil:

1. Dry-bulb temperature of entering and leaving air.
2. Airflow.
3. Air pressure drop.
4. Inlet steam pressure.

D. Measure, adjust, and record the following data for each refrigerant coil:

1. Dry-bulb temperature of entering and leaving air.
2. Wet-bulb temperature of entering and leaving air.
3. Airflow.
4. Air pressure drop.
5. Refrigerant suction pressure and temperature.

### 3.9 FINAL REPORT

A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing engineer. Include a list of instruments used for procedures, along with proof of calibration.

B. Final Report Contents: In addition to certified field-report data, include the following:

1. Fan curves.
2. Manufacturers' test data.
3. Field test reports prepared by system and equipment installers.
4. Other information relative to equipment performance; do not include Shop Drawings and product data.

C. General Report Data: In addition to form titles and entries, include the following general data:

1. Title page.
2. Name and address of the TAB contractor.
3. Project name and location.
4. Architect's and Engineer's name and address.

## HVAC SYSTEM TESTING, ADJUSTING, AND BALANCING

5. Contractor's name and address.
6. Report date.
7. Signature of TAB supervisor who certifies the report.
8. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
9. Summary of contents.
10. Data for terminal units, including manufacturer's name, type, size, and fittings.
11. Notes to explain why certain final data in the body of reports vary from indicated values.
12. Test conditions for fans performance forms.

D. Provide the following Test Reports:

1. Air handling units of all types.
2. Apparatus coil test reports.
3. Ductwork traverse test reports.
4. Air terminal test reports.

### 3.10 INSPECTIONS

A. Initial Inspection:

1. After testing and balancing is complete, operate each system and randomly check measurements to verify that the system is operating according to the final test and balance readings documented in the final report.

B. Final Inspection:

1. After initial inspection is complete and documentation by random checks verifies that testing and balancing are complete and accurately documented in the final report, submit the final report for review.
2. The **Owner may** select measurements, documented in the final report, to be rechecked. Rechecking shall be limited to either 10 percent of the total measurements recorded or the extent of measurements that can be accomplished in a normal 8-hour business day.
3. If rechecks yield measurements that differ from the measurements documented in the final report by more than the tolerances allowed, the measurements shall be noted as "FAILED."
4. If the number of "FAILED" measurements is greater than 10 percent of the total measurements checked during the final inspection, the testing and balancing shall be considered incomplete and shall be rejected.

C. TAB Work will be considered defective if it does not pass final inspections. If TAB Work fails, proceed as follows:

1. Recheck all measurements and make adjustments. Revise the final report and balancing device settings to include all changes; resubmit the final report and request a second final inspection.



## HVAC SYSTEM TESTING, ADJUSTING, AND BALANCING

2. If the second final inspection also fails, Owner may contract the services of another TAB contractor to complete TAB Work according to the Contract Documents and deduct the cost of the services from the original TAB contractor's final payment.

D. Prepare test and inspection reports.

### 3.11 ADDITIONAL TESTS

- A. Within 90 days of completing TAB, perform additional TAB to verify that balanced conditions are being maintained throughout and to correct unusual conditions.
- B. Seasonal Periods: If initial TAB procedures were not performed during near-peak summer and winter conditions, perform additional TAB during near-peak summer and winter conditions.

END OF SECTION 230600

## PACKAGED, OUTDOOR AIR-HANDLING UNITS

## SECTION 237275 - PACKAGED, OUTDOOR AIR-HANDLING UNITS

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes packaged outdoor units and accessories.

## 1.3 SUBMITTALS

- A. Provide submittals that include a listing of any and all exceptions to the requirements indicated in the construction documents. Should there be no exceptions, the submittal will indicate this. Submittals that do not have this listing will be returned without review.
- B. Product Data: Include manufacturer's technical data for each RTU, including rated capacities, dimensions, required clearances, characteristics, furnished specialties, and accessories.
- C. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
  - 1. Wiring Diagrams: Power, signal, and control wiring.
- D. Operation and Maintenance Data: For RTUs to include in emergency, operation, and maintenance manuals.
- E. Warranty: Special warranty specified in this Section.

## 1.4 QUALITY ASSURANCE

- A. Fabricate and label refrigeration system to comply with ASHRAE 15, "Safety Code for Mechanical Refrigeration."
- B. Energy Efficiency Ratio: Equal to or greater than prescribed by ASHRAE 90.1, "Energy Efficient Design of New Buildings except Low-Rise Residential Buildings."
- C. Source Limitations: Obtain all Packaged Outdoor Units from a single manufacturer, regularly engaged in production of the required components.

## PACKAGED, OUTDOOR AIR-HANDLING UNITS

## 1.5 WARRANTY

- A. Provide a written warranty in which the contractor agrees to repair or replace any unit component that fails for a period of one year from the date of Substantial Completion.
- B. In addition to the above, the unit manufacturer shall provide the following warranties:
  - 1. A 5 year warranty for the unit compressors. The warranty period will begin at the date of substantial completion and will not include labor. In addition to the 5 year compressor warranty, provide an all inclusive (2) two year parts and labor warrantee for any defects in the unit. This parts and labor warrantee will begin at the date of substantial completion.

## 1.6 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Filters: Two sets of filters for each unit.

## PART 2 - PRODUCTS

## 2.1 MANUFACTURER

- A. Subject to compliance with requirements provide Packaged, Outdoor Air-Handling Units manufactured by Valent Air Management Systems or Innovent under the Base Bid.
- B. Subject to review, provide Outdoor Air Handling Units manufactured by Aaon under an Alternate Bid. Performance requirements for Aaon are to be equal or greater than the design based unit performance.
- C. Packaged, Outdoor Air-Handling Units manufactured by the other manufacturer(s) other than the design based manufacturer may require changes to the duct and piping layout as well as changes to the electrical requirements. These changes may cause a change in the design and the layout shown on the drawings. When necessary, the contractor shall provide modifications to the ductwork and / or piping to accommodate items that may differ from the Basis of Design Equipment. Any required modifications shall be indicated on the Coordination Drawings prepared by the Contractor.

## 2.1 DESCRIPTION

- A. Packaged units shall include compressors, evaporator coils, filters, supply fans, exhaust fans, dampers, air-cooled condenser coils, condenser fans, reheat coil, and unit controls.

## PACKAGED, OUTDOOR AIR-HANDLING UNITS

Refer to the following specifications and the contract drawings for all options and accessories required for all units.

- B. Unit shall be factory assembled and tested including leak testing of the coils, pressure testing of the refrigeration circuit, and run testing of the completed unit. Run test report shall be supplied with the unit in the controls compartment's literature pocket.

## 2.2 CASING CONSTRUCTION

- A. Unit(s) shall be constructed for outdoor installation on a roof curb. This is a unit replacement. The existing curb shall remain and a curb adaptor shall be provided as here-in specified.
- B. Provide base rails constructed of a minimum of 10 gage galvanized steel with 16 gage integral floor pan. Base pan shall be insulated with ½" closed-cell neoprene liner. Base shall have a minimum 4" overhang over the top of a roof curb to prevent water infiltration. All floor seams shall have a raised rib joint. There shall be no penetrations through the floor of the unit within the perimeter of the curb except for duct openings and utility chases. Penetrations through the floor shall have a ½" raised rib around each opening.
- C. Casing shall be constructed with minimum 2-inch, foam-injected, double-wall panels. Individual panels shall be constructed so that they are thermally broken (there shall be no metal-to-metal contact between the interior and exterior sheet metal of each panel). Interior side of panel shall be 22 gage G-90 galvanized steel. Exterior side of panel shall be 22 gage painted steel rated for 1000 hours in accordance with ASTM B117 and ASTM D1654.
- D. Casing insulation shall be 2 lb/ft<sup>3</sup> foam insulation with an average R-value of 6 per inch. Insulation water absorption must be no more than 0.038 lb/ft per ASTM D 2842 and show "no growth" per ASTM G21 biocide testing. No insulation shall be exposed to the air stream. Fiberglass insulation is not acceptable.
- E. Provide access doors for access to all components requiring regular maintenance or inspection with construction to be the same as the unit. Access doors shall have a minimum of two quarter-turn compression latches with adjustable catches. Access doors shall be sealed with a full-perimeter gasket constructed of Mylar-encased low-density foam.
- F. Provide outside air intake hood with bird screen.

## 2.3 FANS

- A. Fan wheel(s) shall be tested in accordance to AMCA 210.
- B. Provide fan assemblies utilizing direct drive plenum fans with variable frequency drives for each fan. Variable frequency drive shall be mounted, wired, and programmed by the manufacturer and shall be located in an enclosed compartment outside of the supply or exhaust air stream.

## PACKAGED, OUTDOOR AIR-HANDLING UNITS

- C. Provide premium efficiency motors with VFD rated, ODP type, EPACT compliant.
- D. Provide supply and exhaust fans as scheduled on the contract drawings.
- E. Fans shall be isolated using spring vibration isolators.

## 2.4 DIRECT EXPANSION REFRIGERATION SYSTEM

- A. Unit(s) shall be provided with factory piped, charged, and tested packaged air-cooled direct expansion refrigeration system. Refrigeration systems with a capacity 13 nominal tons and above shall be equipped with two stages of capacity control, each on an independent refrigerant circuit. Refrigeration systems 30 nominal tons and larger shall be equipped with four stages of capacity control, two stages per independent circuit.
- B. Unit(s) shall be factory charged with R-410A refrigerant.
- C. Refrigeration system shall include microprocessor-based head pressure control logic to maintain refrigerant pressures by actively modulating condenser airflow (Active Head Pressure Control).
- D. Refrigeration system shall be provided with thermal expansion valve incorporating adjustable superheat.
- E. Provide an evaporator coil meeting ARI standards and pressure tested for 250 psi working pressure. Coil shall be a minimum of 4 rows. Provide interlaced coils for refrigeration systems with more than one circuit. Coil casing shall be constructed of 16 gage galvanized steel casing. Coil tubes shall be constructed of 1/2" diameter, 0.016" thick seamless copper tubing with fins constructed of 0.0060" thick aluminum. Provide a drain pan constructed of a minimum of 18 gage type 201 stainless steel. Drain pan shall be double-sloped to ensure condensate removal from unit. Drain pan shall extend a minimum of 8" past the evaporator coil to ensure condensate retention.
- F. Provide modulating hot-gas reheat. Hot-gas reheat coil shall be separated from the evaporator coil by a minimum of 6" in the direction of airflow to prevent the re-evaporation of condensate, provide room for coil cleaning, and allow control system to monitor evaporator coil leaving air temperature. Coil shall be rated in accordance to ARI standards and pressure tested for 250 psi working pressure. Coil casing shall be constructed of 16 gage galvanized steel casing. Coil tubes shall be constructed of 3/8" diameter, 0.016" thick seamless copper tubing with Coil fins shall be constructed of 0.0060" thick aluminum fins. Hot-gas reheat shall be controlled through a factory-supplied modulating control valve.
- G. Compressors: Compressors shall be installed in an isolated compartment separate from supply airflow, return airflow, microprocessor controller, non-fused disconnect, compressor relays, fan motor VFD, and all other electrical components inside the unit. Compressors shall be installed using manufacturer's recommended rubber vibration isolators. Lead refrigeration circuit shall utilize Digital Scroll™ compressor capable of 10:1 turndown. Provide hermetic and digital scroll type and include the following items:

## PACKAGED, OUTDOOR AIR-HANDLING UNITS

1. Suction and discharge service valves.
  2. Reverse rotation protection.
  3. Oil level adjustment and oil filter
  4. Rotary dirt trap.
  5. Short cycling control.
  6. High and low pressure limits.
  7. Crankcase heaters.
- H. Condenser coils: Provide condenser coils with galvanized casing, seamless copper tubes, and aluminum fins. Coil casing shall be constructed of 16 gage galvanized steel. Coil tubes shall be constructed of 3/8" diameter, 0.016" thick seamless copper tubing with fins constructed of 0.0060" thick aluminum fins.
- I. Condensing fans – Active Head Pressure Control 1.0: Condensing section shall be equipped with 1140 rpm direct-drive condensing fans statically and dynamically balanced in accordance with AMCA Standard 204-05. Condensing fan assembly shall consist of aluminum-bladed propeller fan wheel, formed-channel base, formed inlet venturi, and coated steel basket guard on the discharge. A factory-supplied variable frequency drive shall be provided to modulate a single condensing fan to maintain refrigerant pressure in the condensing section. All additional condensing fans shall enable/disable to maintain refrigerant pressure in the condensing section.

## 2.5 HYDRONIC HEATING

- A. Unit shall be provided with ARI rated hot water coil. Coil casing shall be constructed of 16 gage galvanized steel casing. Coil tubes shall be constructed of 1/2" diameter, 0.016" thick seamless copper tubing with fins constructed of 0.0060" thick aluminum fins. Provide an insulated vestibule for piping hot water connections inside the unit. A unit controller shall provide a 0-10 VDC signal to operate field-provided control valve.

## 2.6 DAMPERS

- A. Provide motorized dampers constructed of 16 gage galvanized steel. Blades shall be constructed of 16 gage galvanized steel strengthened by three longitudinal 1 inch deep v-grooves. Blades shall be symmetrical relative to its axle pivot point. Axle bearings shall be synthetic sleeve-type and rotate inside extruded holes in the damper frame. Blade seals shall be extruded vinyl permanently bonded to the appropriate blade edges. Frame shall include flexible stainless steel compression-type jamb seals. Modulating spring-return actuators shall be provided by the factory, installed on the damper, and wired to the control center. Damper leakage shall be no more than 3 cfm/sq. ft. at 1 in.w.g..

## PACKAGED, OUTDOOR AIR-HANDLING UNITS

## 2.7 FILTERS

- A. Provide filter rack in the outdoor air intake hood with MERV 7 aluminum filters, 2" thick.
- B. Provide MERV 7 aluminum filters, 2" thick return air filters.

## 2.8 OUTDOOR AIR

- A. Units shall have a 0-100% economizer consisting of a motor operated outdoor air damper and return air damper assembly constructed of extruded aluminum, hollow core, airfoil blades with rubber edge seals and aluminum end seals. Damper blades shall be gear driven and designed to have no more than 15 CFM of leakage per sq. ft. of damper area when subjected to 2" w.g. air pressure differential across the damper. Damper motor shall be spring return to ensure closing of outdoor air damper during periods of unit shut down or power failure. Barometric relief damper shall be provided as part of the economizer option. Economizer shall be furnished with return air CO<sub>2</sub> override option where CO<sub>2</sub> control is specified. Unit shall be equipped with outdoor air monitor.

## 2.9 ELECTRICAL POWER CONNECTION

- A. Units shall be factory wired with a single point power connection according to NEC and listed per ETL. Unit shall be constructed with an integral control center isolated from supply airflow, exhaust airflow, compressors, and heating elements.
- B. The following shall be provided and factory wired within the control:
  - 1. Non-fused disconnect.
  - 2. Sub-circuit fusing.
  - 3. Low voltage transformers.
  - 4. Control circuit fusing.
  - 5. Terminal block.
  - 6. Variable frequency drives.
  - 7. Strip Heater
- C. Electrical panel to house all high voltage components such as terminal blocks, variable frequency drives, and fuse blocks.
- D. Control panel shall include a factory supplied and mounted 115V GFCI convenience outlet receptacle with a 12A circuit breaker. Outlet shall be powered by factory.
- E. Unit shall include a factory supplied, mounted, and wired electric heating element in the control panel to maintain a minimum of 0F in the panel.

## PACKAGED, OUTDOOR AIR-HANDLING UNITS

## 2.10 CUSTUM ROOF CURB ADAPTOR

- A. Provide custom roof curb adaptor to transition from existing curb to new unit. Curb adaptor cannot exceed 18" height. Curb shall be shipped in one piece, shall be installed square and level, Curb shall be galv. 16 gauge exterior supplied with 1-1/2x1/4 closed cell neoprene gasket. Curb to be insulated with 1"x1.5# density insulation.
- B. Curbs shall to be fully gasketed between the curb top and unit bottom with the curb providing full perimeter support, cross structure support and air seal for the unit.
- C. Curb must be field measured.

## 2.11 CONTROLS

- A. The units shall include factory supplied, mounted, wired, and tested stand-alone microprocessor controls. Microprocessor controller shall be factory-programmed.
- B. Microprocessor controller shall be mounted in a weather-proof enclosure and accessible without exposing the operator to high voltage wiring or having to turn off or circumvent the main disconnect.
- C. Microprocessor controller shall include local liquid crystal display (LCD) for user interface.
- D. BAS Communication shall be BACnet MCTP.
- E. The control integrator for this project shall be Siemens. The control integration and graphic updates shall be included in the mechanical contract. Siemens is the only acceptable subcontractor. Contact David Antenucci, 215-669-1429.
- F. The following lists the control devices furnished by the manufacturer and identified factory or field installation:



## PACKAGED, OUTDOOR AIR-HANDLING UNITS

DEVICE	SUPPLIER	INSTALL
OA Temperature/Humidity	Factory	Factory
Evap. Coil Temperature	Factory	Factory
Discharge Air Temperature	Factory	Field
Space Temperature Sensor	Factory	Field
Space Humidity Sensor	Factory	Field
Filter Pressure Switch	Factory	Factory
OA Damper Actuator	Factory	Factory
RA Damper Actuator	Factory	Factory
Supply Fan VFD	Factory	Factory
Exhaust Fan VFD	Factory	Factory
Phase & Voltage Monitor	Factory	Factory
Space Static Pressure Sensor	Factory	Field
CO2 Sensor	Factory	Field
Smoke Detector (QTY 2)	Factory	Factory
OA Air Flow Monitor	Factory	Factory

## 2.12 SEQUENCE OF OPERATIONS

- A. BAS contractor shall provide freeze protection: Provide a freeze stat, with manual reset, serpentine across the leaving air side of the heating coil and provide programming per the following sequence if the leaving air temperature falls below 35 Degrees F (adjustable):
1. Signal an alarm on the operator workstation.
  2. Close the outdoor air dampers and open the return air damper.
  3. Fully open the heating coil control valve.
  4. Stop the fan.
  5. The unit controller shall have the points required to achieve the freeze protection sequence.
- B. Provide control wiring between the unit starter and a relay furnished by others to allow for fan(s) shut down when the fire alarm system activates. If activated close all outdoor air dampers. Unit shall have dry contacts for emergency shut-down.
- C. Space temperatures shall be controlled by a space thermostat / sensor. The minimum and maximum heating and cooling set points shall be set at the operator work station. Space sensor shall be furnished by unit manufacturer.

## PACKAGED, OUTDOOR AIR-HANDLING UNITS

- D. Heating valves are to fail in the open position. Outdoor air dampers are to fail in the closed position with return dampers failing in the open position. The heating valve shall be furnished by the BAS contractor and wired to the new unit controller.
- E. Monitor and record pressure drop across the filters in the unit. Pressure switch and wiring to controller shall be factory installed.
- F. Unoccupied heating cycle:
1. The rooftop air handling unit fan will be off, the outside air damper and relief dampers will be closed the return damper will be open. When the space temperature falls below the unoccupied set point temperature of 60 degrees F. (adjustable), open the heating coil control valve and start the supply fan at full speed. When the unoccupied set point temperature has been restored, reverse the above sequence.
- G. Unoccupied cooling cycle:
1. The rooftop air handling unit fan will be off, the outside air damper and all associated relief dampers will be closed and the return air damper will be open. When the space temperature is above unoccupied set point temperature of 80 degrees F. (adjustable), start the supply fan at low speed and stage DX cooling to maintain a 54 deg. F leaving air temperature. If necessary, increase the supply fan speed while staging DX cooling to maintain a 54 deg. F leaving air temperature. When the unoccupied set point temperature has been restored, reverse the above sequence.
  2. If the enthalpy of the outdoor air is less than the enthalpy of the respective indoor space allow the unit to operate in an economizer mode and modulate exhaust fan speed through VFD to maintain building pressurization.
- H. Occupied heating cycle:
1. Warm-up: at an adjustable predetermined time, the BMS will index the respective zone to the occupied status. At this time the unit will operate in the same mode as the unoccupied heating cycle. When the space temperature reaches the occupied set point, the unit will operate in the occupied cycle. All set points shall be adjustable.
  2. During the occupied cycle the supply fan shall run continuously, modulating from low to high speed to maintain the space temperature. Modulate the heating coil control valve in unison with the supply fan VFD, to maintain a leaving air temperature of 95 degrees F. (adjustable).
  3. Outside air control: a return air CO<sub>2</sub> sensor shall modulate the outside air damper to maintain the space CO<sub>2</sub> level at a fully adjustable set point of 1000 p.p.m. The return air damper shall tract the outside air damper. The outdoor air damper shall not open to allow more than the scheduled amount of design outside air, indicated on the drawing schedule, unless the unit is in an economizer cycle.
  4. Modulate the associated exhaust fan through VFD to maintain a building differential pressure with relationship to the atmosphere of no more than +0.025" w.c.(adjustable)

## PACKAGED, OUTDOOR AIR-HANDLING UNITS

- I. Occupied cycle cooling:
  1. Cool-down: at an adjustable predetermined time, the BMS will index the respective zone to the occupied status. The air handling unit will operate in the unoccupied cooling mode with the supply fan on DX cooling in operation, until the space temperature reaches the occupied set point of 74 degrees F, (adjustable) at which timed the unit will be in the occupied mode.
  2. During the occupied cycle the supply fan shall run continuously, modulating between the minimum and maximum speeds as required, to maintain space temperature. Stage DX cooling in unison with the supply fan, to maintain a leaving air temperature of 54 degrees F.
  3. Outside air control: a return air CO2 controller shall modulate the outside air damper to maintain the space CO2 level at a fully adjustable set point of 1000 p.p.m. The return air damper shall tract the outside air damper. The outdoor air damper shall not open to allow more than the scheduled amount of design outside air, indicated on the drawing schedule, unless the unit is in an economizer cycle.
  4. Modulate the exhaust fan through VFD to maintain a building differential pressure with relationship to the atmosphere of no more than +0.025" w.c.(adjustable).
  5. If the enthalpy of the outdoor air is less than the enthalpy of the respective indoor space allow the unit to operate in an economizer mode and modulate the exhaust fan through VFD based on building pressurization.
  6. De-humidification Cycle: If the space relative humidity should rise above set point (60% adjustable), as sensed by space humidity sensor, the unit shall be indexed to its dehumidification cycle. The unit shall run on full cooling and the hot gas bypass shall be energized to maintain space temperature.
  
- J. The BMS shall display the following monitoring points on a custom graphic at the operator workstation:
  1. System status - indication and adjustment.
  2. Supply fan status (via differential pressure) - indication and alarm.
  3. Heating coil control valve position - indication.
  4. DX cooling - indication.
  5. Filter differential pressure - indication and alarm.
  6. Mixed-air-temperature - indication.
  7. Supply air temperature - indication and adjustment.
  8. Return air temperature - indication.
  9. Outdoor air c.f.m. - indication.
  10. Smoke detector status - indication and alarm.
  11. Freeze stat status - indication and alarm.
  12. Space temperature set point - indication and adjustment.
  13. Space temperature - indication.
  14. Space Relative Humidity Set Point - indication and adjustment.
  15. Space Relative Humidity - indication.
  16. Space CO2 set point – indication and adjustment.
  17. Space CO2 level – indication and alarm.

## PACKAGED, OUTDOOR AIR-HANDLING UNITS

## PART 3 - EXECUTION

## 3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of RTUs.
- B. Examine roughing-in for RTUs to verify actual locations of piping and duct connections before equipment installation.
- C. Examine roofs for suitable conditions where RTUs will be installed.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

## 3.2 INSTALLATION

- A. Install units on curbs and coordinate roof penetrations and flashing with roof construction. Secure RTUs to upper curb rail, and secure curb base to roof framing or concrete base with anchor bolts.
- B. Install all electrical devices and controls furnished with the units that are required but not factory mounted. Provide all required control wiring to field-mounted electrical devices that are supplied with the units.
- C. At the direction of the Owner's Representative the contractor shall remove and dispose of filters from the respective units and install a new filter obtained from the Extra Materials required in Part 1 of this specification. If additional filter installation is not required, forward filters to the owner as extra stock, at the completion of the project.

## 3.3 CONNECTIONS

- A. Install condensate drain, minimum connection size, with trap and indirect connection to nearest roof drain or area drain.
- B. Install piping adjacent to RTUs to allow service and maintenance.
- C. Duct installation requirements are specified in other Division 23 Sections. Drawings indicate the general arrangement of ducts.

## 3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing. Remove and replace malfunctioning units and retest as specified above.

PACKAGED, OUTDOOR AIR-HANDLING UNITS

3.5 DEMONSTRATION AND STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service and to train Owner's maintenance personnel to adjust, operate, and maintain RTUs.

END OF SECTION 237275

## COMMON REQUIREMENTS – ELECTRICAL CONSTRUCTION

## SECTION 260500 – COMMON REQUIREMENTS – ELECTRICAL CONSTRUCTION

## PART 1 - GENERAL

## 1.1 SUMMARY

- A. This Section includes materials and methods that are common to various Electrical Systems.

## 1.2 SUBMITTALS

- A. Product Data: For the following:
  - 1. Fireproofing

## 1.3 COORDINATION

- A. Arrange for conduit spaces, chases and openings in building structure during progress of construction to allow for electrical installations.
- B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are construction as applicable.

## PART 2 - PRODUCTS

## 2.1 FIRESTOPPING

- A. The Contractor shall be responsible for providing permanent, UL approved firestopping systems for all penetrations through fire rated floor or fire rated wall assemblies. For areas that will require future access for the installation of additional cables, repair, or retrofit, the firestopping system shall consist of re-usable intumescent pillows or putty. All firestopping shall meet the requirements of ASTM E-814 and UL 1479.
  - 1. Subject to compliance with project requirements, firestopping materials may be provided by one of the following Manufacturers.
    - a. Specified Technologies Inc. (STI) Somerville, NJ (800) 992-1180
    - b. Tremco, Beechwood, OH (800) 321-7906
    - c. 3M, St. Paul, MN (800) 328-1687
  - 2. Submit for review the following product data.

## COMMON REQUIREMENTS – ELECTRICAL CONSTRUCTION

- a. Product data sheets.
- b. UL System Drawings for each firestopping application.
- c. Manufacturer's Certificates of Conformance for their products.

## PART 3 - EXECUTION

## 3.1 ROUGH-IN

- A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.

## 3.2 EQUIPMENT INSTALLATION – COMMON REQUIREMENTS

- A. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
- B. Install electrical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.

## 3.3 FIRESTOPPING

- A. Comply with manufacturer's written instructions for install fire stopping. When mechanical system is used, set securely in place in accessible locations.
- B. Firestopping shall be installed in all fire rated walls. Review all drawings, including architectural, and site conditions to determine where fire rated walls are located.

END OF SECTION 260500

## WIRES AND CABLES – 600V AND BELOW

## SECTION 260519 – WIRES AND CABLES – 600V AND BELOW

## PART 1 - GENERAL

## 1.1 DESCRIPTION OF WORK

- A. The extent of the wire and cable work is indicated by Drawings and by requirements or other sections of the Specifications for cables used for power, lighting, signal, control and related system rated 600 volts or less.

## 1.2 CODES AND STANDARDS

- A. NEC Compliance: Comply with applicable requirements of NEC for construction and installation of wires/cables and connectors.
- B. UL Compliance: Comply with UL Stds 83 and 486A, B and C. Provide wiring/cabling and connector products which are UL-listed and labeled consistent with their uses.
- C. ICEA Compliance: Insulated Cable Engineers Association Inc., Standard WC-5-86.
- D. IEEE Compliance: Institute of Electrical and Electronic Engineers, Standard 82-83.
- E. ANSI Compliance: American National Standard Institute, Standard C119.4.

## PART 2 - PRODUCTS

## 2.1 GENERAL

- A. Provide all wires and cables of sizes indicated on the Drawings and suitable for the temperature, conditions and location where installed. Install all wire in raceway.

## 2.2 CONDUCTOR MATERIAL

- A. Use copper conductors of 98% conductivity and rated at 600V for all wires and cables, unless otherwise noted.

## 2.3 INSULATION

- A. No conductors smaller than No. 12 AWG shall be used unless noted elsewhere. All wires No. 8 AWG or larger shall be stranded. Wire sizes No. 12 and No. 10 AWG shall be solid copper.



## WIRES AND CABLES – 600V AND BELOW

- B. All copper conductors shall be provided with type THHN/THWN insulation, unless noted otherwise
- C. Each circuit shall be provided with a dedicated neutral wire. Sharing of neutral wire for multiple circuits shall not be permitted, unless otherwise noted.

## 2.4 CABLES

- A. All wiring shall be run in conduit.

## 2.5 CONNECTORS FOR CONDUCTORS

- A. Provide UL-listed factory-fabricated, solderless metal connectors of sizes, ampacity ratings, materials, types and classes for applications and for services indicated. Use connectors with temperature ratings equal to or greater than those of the wires upon which used.

## PART 3 - EXECUTION

## 3.1 WIRES AND CABLES

- A. General: Install electrical cables, wires, and connectors in compliance with NEC. Coordinate cable installation with other work. Pull conductors simultaneously where more than one is being installed in same raceway. Use UL listed pulling compound or lubricant, where necessary.
- B. Use pulling means including, fish tape, cable, rope, and basket weave wire/cable grips which will not damage cables or raceways. Do not use rope hitches for pulling attachment to wire or cable.
- C. **While installing cables, care shall be taken to protect outer coating. If outer coating is damaged, contractor shall remove and reinstall cables.**
- D. Conceal all cable in finished spaces. Install exposed cable parallel and perpendicular to surfaces or exposed structural members, and follow surface contours, where possible. Keep conductor splices to minimum.
- E. Install splice and tap connectors which possess equivalent or better mechanical strength and insulation rating than conductors being spliced. Use splice and tap connectors which are compatible with conductor material.

## WIRES AND CABLES – 600V AND BELOW

- F. Provide adequate length of conductors within electrical enclosures and train the conductors to terminal points with no excess. Bundle multiple conductors, with conductors larger than No. 10 AWG cabled in individual circuits. Make terminations so there is no bare conductor at the terminal. Provide wire ties and neatly train and rack wires in all boxes, panels, and other areas as required.
- G. Tighten electrical connectors and terminals, including screws and bolts, in accordance with Manufacturer's published torque tightening values. Where Manufacturer's torque requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL 486A and UL 486B.
- H. Each branch circuit shall be provided with a dedicated neutral wire, unless noted otherwise.

## 3.2 FIELD QUALITY CONTROL

- A. Prior to energizing, check installed wires and cables with meg-ohm meter to determine insulation resistance levels to assure requirements are fulfilled.
- B. Prior to energizing, test wires and cables for electrical continuity and for short-circuits.
- C. Subsequent to wire and cable hook-ups, energize circuits and demonstrate proper functioning. Correct malfunctioning units, and retest to demonstrate compliance.
- D. Color-Coding for Phase Identification:

1. Color-code secondary service, feeder, and branch circuit conductors with factory-applied color as follows:

Phase	120/208 Volts	120/240 Volts	277/480 Volts
A	Black	Black	Brown
B	Red	Orange (High-Leg)	Orange
C	Blue	Blue	Yellow
Traveler	Yellow	Yellow	Yellow w/ "T" tag
Neutral	White	White	Gray
Ground	Green	Green	Green w/ Yellow stripe

2. Switch legs shall include an additional "S" tag.
3. Provide visible colored taped as listed above at all termination points for No. 8 and larger wires.

END OF SECTION 260519

## SUPPORTING DEVICES

## SECTION 260529 – SUPPORTING DEVICES

## PART 1 - GENERAL

## 1.1 CODES AND STANDARDS

- A. NEC Compliance: Comply with NEC as applicable to construction and installation of electrical supporting devices.
- B. NECA Compliance: Comply with National Electrical Contractors Association's "Standard of Installation" pertaining to anchors, fasteners, hangers, supports, and equipment mounting.
- C. UL Compliance: Provide electrical components and devices which are UL-listed and labeled.

## PART 2 - PRODUCTS

## 2.1 GENERAL

- A. Provide supporting devices which comply with manufacturer's standard materials, design and construction in accordance with published product information, and as required for complete installation; and as herein specified. Where more than one (1) type of device fulfills indicated requirements, selection is Installer's option.

## 2.2 SUPPORTS

- A. Provide supporting devices of types, sizes and materials indicated; and having the following construction features:
- B. Clevis Hangers: For supporting up to 2" rigid metal conduit; galvanized steel; with 2" diameter hole for round steel rod; approximately 54 pounds per 100 units.
- C. Riser Clamps: For supporting up to 5" rigid metal conduit; black steel; with 2 bolts and nuts, and 4" ears; approximately 510 pounds per 100 units.
- D. Reducing Couplings: Steel rod reducing coupling, 2" x 5/8", black steel; approximately 16 pounds per 100 units.
- E. C-Clamps: Black malleable iron; 2" rod size; approximately 70 pounds per 100 units.
- F. I-Beam Clamps: Black steel, 1-1/4" x 3/16" stock; 3/8" cross bolt; flanges width 2"; approximately 52 pounds per 100 units.

## SUPPORTING DEVICES

- G. One-Hole Conduit Straps: For supporting 3/4" rigid metal conduit; galvanized steel; approximately 7 pounds per 100 units.
- H. Two-Hole Conduit Straps: For supporting 3/4" rigid metal conduit; galvanized steel; 3/4" strap width; and 2-1/8" between center of screw holes.
- I. Hexagon Nuts: For 2" rod size; galvanized steel; approximately 4 pounds per 100 units.
- J. Round Steel Rod: Black steel; 2" diameter; approximately 67 pounds per 100 feet.
- K. Offset conduit clamps: For supporting 2" rigid metal conduit; black steel; approximately 200 pounds per 100 units.

## 2.3 ANCHORS

- A. Provide anchors of types, sizes and materials indicated; and having the following construction features:
- B. Lead Expansion Anchors: 2"; approximately 38 pounds per 100 units.
- C. Toggle Bolts: Spring head; 3/16" x 4"; approximately 5 pounds per 100 units.
- D. Manufacturers: Provide anchors of one of the following (for each type of anchor):
  - 1. Ackerman Johnson Fastening Systems, Inc.
  - 2. Ideal Industries, Inc.
  - 3. Joslyn Manufacturing and Supply Co.
  - 4. McGraw Edison Co.

## 2.4 SLEEVES AND SEALS

- A. Fire-Rated Walls and Floors: At all locations where conduits, cables, or ducts penetrate a fire-rated wall or floor, a special fire-retardant caulking compound or other approved device as specified in section 26 05 00 shall be used.

## 2.5 CONDUIT CABLE SUPPORTS

- A. Provide cable supports with insulating wedging plug for non-armored type electrical cables in risers; construct for 2" rigid metal conduit; 3-wires, type wire as indicated; construct body of malleable-iron casting with hot-dip galvanized finish.

## SUPPORTING DEVICES

## 2.6 U-CHANNEL STRUT SYSTEMS

- A. Provide U-channel strut system for supporting equipment supplied under this contract, 12-ga hot-dip galvanized steel, or types and sizes indicated; construct with 9/16" diameter holes, 8" on center on top surface, with standard green finish, and with the fittings which mate and match with U-channel.
- B. Auxiliary Steel Supports: Provide all required auxiliary steel to install any equipment supplied under this contract. The design and gauge of steel used shall be as required by the manufacturer's specifications.
- C. Manufacturers: Provide U-channel strut systems of one of the following (for each type system):
  - 1. Allied Tube and Conduit Corp.
  - 2. Midland-Ross Corp.
  - 3. OZ/Gedney Div; General Signal Corp.
  - 4. Power-Strut Div; Van Huffel Tube Corp.
  - 5. Unistrut Div; GTE Products Corp.

## PART 3 - EXECUTION

## 3.1 GENERAL

- A. Install hangers, anchors, sleeves and seals as indicated, in accordance with manufacturer's written instructions and with recognized industry practices. Comply with installation requirements of NECA and NEC pertaining to supporting devices.
- B. Coordinate with other mechanical and electrical work, including raceway and wiring work, as necessary to interface installation of supporting devices with other work.
- C. Where supports or anchors are installed after the spray on insulation and/or firestopping is installed, patch the spray on insulation and/or firestopping to match surrounding area.

END OF SECTION 260529

## SECTION 260533 – RACEWAYS

## PART 1 - GENERAL

## 1.1 DESCRIPTION OF WORK

- A. The extent of the raceway and work required by this section is indicated by Drawings and requirements of other sections of this Specification.
- B. Provide metal and nonmetallic conduit, tubing and fittings of types, grades, sizes and weights (wall thicknesses) for each service indicated on plans. Where types and grades are not indicated, provide proper selection determined by installer to fulfill wiring requirements and comply with applicable portions of NEC for raceways.
- C. It is the intent of these Specifications and Drawings that all feeder wiring be run in a continuous conduit system.

## 1.2 CODES AND STANDARDS

- A. NEMA Compliance: Comply with applicable requirements of NEMA standards pertaining to raceways.
- B. UL Compliance and Labeling: Comply with provisions of UL safety standards pertaining to electrical raceway systems; provide products and components which have been UL-listed and labeled.
- C. NEC Compliance: Comply with NEC requirements as applicable to construction and installation of raceway systems.

## PART 2 - PRODUCTS

## 2.1 CONDUITS

- A. Rigid Steel Conduit: Provide rigid steel, zinc-coated, threaded type conforming to FS WW-C-581, ANSI C80.1 and UL 6. Provide zinc-coating fused to inside and outside walls.
- B. Rigid Aluminum Conduit: Provide rigid aluminum, threaded type conforming to ANSI and UL standards.
- C. Intermediate Steel Conduit: Provide rigid intermediate grade (IMC) hot-dip galvanized threaded conforming to FS WW-C-581 and UL 1242.
- D. Electrical Metallic Tubing (EMT): FSW-C-563, ANSI C80.3, and UL 797.

## RACEWAYS

- E. Liquid-Tight Flexible Metal Conduit: Provide liquid-tight flexible metal conduit; construct of single strip, flexible, continuous, interlocked, and double-wrapped steel; galvanized inside and outside; coat with liquid-tight jacket of flexible polyvinyl chloride (PVC).
- F. Flexible Metal Conduit: FS WW-C-566 and UL 1. Formed from continuous length of spirally wound, interlocked zinc-coated strip steel.
- G. PVC Heavy Wall Conduit: Schedule 40, 90C, UL-rated, constructed of polyvinyl chloride and conforming to NEMA TC-2, for direct burial, or normal above ground use, UL-listed and in conformity with NEC Article 347.
- H. PVC Light Wall Conduit shall not be acceptable under any circumstances. PVC Heavy Wall conduit shall be used when encased in concrete.
- I. No other type of conduit shall be used, unless otherwise noted, or prior approval granted by the engineer.

## 2.2 CONDUIT FITTINGS

- A. Flexible Metal Conduit Fittings: Provide conduit fittings for use with flexible steel conduit of threadless hinged clamp type.
- B. Straight Terminal Connectors: Contractor shall provide one-piece body, with female end with clamp and deep slotted machine screw for securing conduit, and male threaded end provided with locknut.
- C. 45-Deg or 90-Deg Terminal Angle Connectors: Two-piece body construction with removable upper section, female end with clamp and deep slotted machine screw for securing conduit, and male threaded end provided with locknut.
- D. Rigid Metal Conduit Fittings: Cast-malleable-iron, galvanized or cadmium plated, conforming to FS W-F-408. Use Type 1 fittings for raintight connections, Type 2 fittings for concrete tight connections, and Type 3 fittings for other miscellaneous connections.
- E. Rigid Aluminum Conduit Fittings: Provide cast-aluminum conduit fittings and mounting hardware conforming to ANSI and UL standards of types required for the application.
- F. Liquid-Tight Flexible Metal Conduit Fittings: FS W-F-406, Type 1, Class 3, Style G. Provide cadmium-plated, malleable-iron fittings with compression type steel ferrule and neoprene gasket sealing rings, with insulated, or non-insulated throat.
- G. EMT Fittings: All couplings and connectors shall be of the set-screw type.
- H. PVC Heavy Wall Conduit and Tubing Fittings: Mate and match to conduit or tubing type and material.

## RACEWAYS

- I. Conduit and Tubing Accessories: Provide conduit, tubing and duct accessories of types, sizes, and materials, complying with Manufacturers' published product information, which mate and match conduit and tubing.
- J. Conduit Bodies: Provide galvanized cast-metal conduit bodies of types, shapes, and sizes as required to fulfill job requirements and NEC requirements. Construct conduit bodies with threaded-conduit entrance ends, removable covers, either cast or galvanized steel, and corrosion-resistant screws.
- K. All raceway conduit and fittings above a ceiling shall be plenum rated.

## PART 3 - EXECUTION

## 3.1 GENERAL

- A. All conduit shall be installed concealed throughout new construction work, either in walls, under slabs, or above ceilings.
- B. Unless noted otherwise, raceways and cables shall be installed near the structure and be supported independently from the structure. Support systems for other building systems (i.e. ductwork, HVAC equipment, system piping, ceiling supports, etc.) shall not be used to support conduits and cables. When routed from light fixtures and other system connections, raceways and cables shall be routed directly vertical to structure and across. Drop wire supports shall not be used on any ceiling support wires under any circumstances.
- C. Use PVC Schedule 40 conduit where feeders and service conductors are embedded in concrete, masonry, or earth, and use rigid galvanized steel elbows with large sweep elbows wherever turns are needed. Where PVC conduit is installed below finished floor level within the building pad, contractor shall transition to an approved type of above ground conduit within the floor slab. Where PVC conduit is used exterior to the building under finished grade, contractor shall transition to galvanized rigid steel conduit at the elbow up, and continue using galvanized rigid steel along the riser to above finished grade.
- D. PVC Schedule 40 conduit may be run in CMU wall cavities when originating from below finished grade and terminating at a recessed box no higher than 48" above finished floor or grade. For all other installations within wall cavities, PVC conduit shall not be used.
- E. Use rigid aluminum conduit where installed exposed outdoors.
- F. Use EMT conduit in mechanical equipment rooms, electrical equipment rooms, penthouses, crawl spaces, walls, and areas above accessible ceilings.



## RACEWAYS

- G. Use flexible metal conduit in moveable partitions and from outlet boxes to recessed lighting fixtures, and final 24" of connection to motors, or control items subject to movement or vibration, and in cells of precast concrete panels. Conduit size shall be increased as required to fit wiring per NEC.
- H. Use liquid-tight flexible metal conduit in mechanical spaces. Conduit size shall be increased as required to fit wiring per NEC.
- I. Cut conduits straight, properly ream, and cut threads for heavy wall conduit deep and clean.
- J. Field-bend conduit with benders designed for purpose so as not to distort nor vary internal diameters.
- K. Size conduits to meet NEC, except no conduit shall be smaller than 3/4" on this project.
- L. Fasten conduit terminations in sheet metal enclosures by two locknuts, and terminate with bushing. Install locknuts inside and outside enclosure. Metallic insulating conduit bushings shall be used on all power conduits. Split bushings shall not be acceptable.
- M. Conduits are not to cross pipe shafts or ventilating duct openings.
- N. Keep conduits a minimum distance of 6" from parallel runs of hot water pipes or other sources of heat. Wherever possible, install horizontal raceway runs above water and steam piping.
- O. Support riser conduit at each floor level with clamp hangers.
- P. Use of running threads at conduit joints and terminations is prohibited.
- Q. Where required, use 3-piece union or split coupling.
- R. Complete installation of electrical raceways before starting installation of cables/wires within raceways.
- S. Install conduits so as not to damage or run through structural members. Avoid horizontal or cross runs in building partitions or side walls.
- T. Above requirements for exposed conduits also apply to conduits installed in space above hung ceilings, and in crawl spaces.
- U. **Conduits shall not be installed against roof deck. Allow minimum 3" space between top conduit and roof deck for the possible penetration of roof nails to protrude without damaging conduit.**

## RACEWAYS

- V. In finished spaces without ceilings (i.e. gymnasiums, natatoriums, etc.), conduits shall be installed as high as possible, while meeting other requirements within these specifications. Conduits along bottom cord of open joists shall not be acceptable. Where conduits need to be installed along bottom of joists or beams, they shall be installed against walls.
- W. Provide fish wire or pull string in all spare conduits.
- X. Cap all spare conduits installed for future use.
- Y. There shall be no more than three (3) 20A branch circuits installed in a single 3/4" conduit. Each circuit shall be provided with a dedicated neutral wire. Sharing of neutral wire for multiple circuits will not be permitted.
- Z. Where conduits are installed to pass through existing walls, the wall shall be cored to allow the conduit to be installed through the wall, and fire calk installed around the conduit. Should the contractor break out blocks, or cut an opening in the wall, not using a properly sized hole saw, he shall provide an appropriately sized lintel to maintain structural integrity of the wall, patch the wall by toothing in new block, new drywall sheet, or other means matching the wall material, and provide fire calk around the conduit or sleeve in the opening.

### 3.2 EXPOSED CONDUITS

- A. Install exposed conduits and extensions from concealed conduit systems neatly, parallel with, or at right angles to walls of building.
- B. Install exposed conduit work as not to interfere with ceiling inserts, lights, or ventilation ducts or outlets.
- C. Support exposed conduits by use of hangers, clamps, or clips. Support conduits on each side of bends and on spacing not to exceed following: Up to 1": 6'-0"; 1-1/4" and over: 8'-0".
- D. Cap all spare and active conduits stubbed up from the floor with secure PVC caps. Caps used for active conduits shall be notched to accommodate the quantity and size of cables installed in each conduit.
- E. Exposed conduits shall be run along walls and at 12" from roof deck.
- F. Where exposed conduits are installed outside of spaces labeled as electrical or mechanical, they shall be prepped and painted with appropriate products to match adjacent surfaces, unless specifically stated, in writing, by the engineer/owner that they may remain unfinished.

### 3.3 CONDUIT FITTINGS

- A. Construct locknuts for securing conduit to metal enclosure with sharp edges for digging into metal, and ridged outside circumference for proper fastening.
- B. Bushings for terminating conduits smaller than 1-1/4" are to have flared bottom and ribbed sides, with smooth upper edges to prevent injury to cable insulation.
- C. Install insulated type bushings for terminating conduits 1-1/4" and larger.
- D. Bushings are to have flared bottom and ribbed sides. Upper edge to have phenolic insulating ring molded into bushing.
- E. Bushing of standard or insulated type to have screw type grounding terminal.
- F. Miscellaneous fittings such as reducers, chase nipples, 3-piece unions, split couplings, and plugs to be specifically designed for their particular application.

END OF SECTION 260533

## ELECTRICAL IDENTIFICATION

## SECTION 260553 – ELECTRICAL IDENTIFICATION

## PART 1 - GENERAL

## 1.1 CODES AND STANDARDS

- A. UL Compliance: Comply with UL Std 969.
- B. NEC and NEMA Compliances: Comply with NEC and NEMA WC-1 and WC-2.
- C. ANSI Compliance: Comply with ANSI Std A13.1.

## PART 2 - PRODUCTS

## 2.1 GENERAL

- A. Except as otherwise indicated, provide Manufacturer's standard products of categories and types required for each application. Where more than single type is specified for an application, selection is installer's option, but provide single selection for each application.

## 2.2 CABLE/CONDUCTOR IDENTIFICATION BANDS

- A. Provide Manufacturer's standard vinyl-cloth self-adhesive cable/conductor markers of wrap-around type; either pre-numbered plastic coated type, or write-on type with clear plastic self-adhesive cover flap; numbered to show circuit identification.

## 2.3 SELF-ADHESIVE PLASTIC SIGNS

- A. Provide Manufacturer's standard, self-adhesive or pressure-sensitive, pre-printed, flexible vinyl signs for operational instructions or warnings; of sizes suitable for application areas and adequate for visibility, with proper wording for each application areas and adequate for visibility, with proper wording for each application (e.g., "EXHAUST FAN FED FROM PANEL PD1").
- B. Colors: Unless otherwise indicated, or required by governing regulations, provide white signs with black lettering.

## 2.4 MANUFACTURER

- A. Provide electrical identification products of one of the following (for each type marker):

## ELECTRICAL IDENTIFICATION

1. Ideal Industries, Inc.
2. LEM Products, Inc.
3. Markal Company
4. National Band and Tag Co.

## PART 3 - EXECUTION

## 3.1 GENERAL

- A. Install electrical identification products as indicated, in accordance with Manufacturer's written instructions, and requirements of NEC.

## 3.2 COORDINATION

- A. Where identification is to be applied to surfaces which require finish, install identification after completion of painting.

## 3.3 REGULATIONS

- A. Comply with governing regulations and requests of governing authorities for identification of electrical work.

## 3.4 CABLE/CONDUCTOR IDENTIFICATION

- A. Apply cable-conductor identification where wires of communication/signal system are present, except where another form of identification (such as color-coded conductors) is provided. Match identification with marking system used in panelboards, shop drawings, Contract Documents, and similar previously established identification for project's electrical work.

## 3.5 DIRECTORIES

- A. Provide typed circuit directory cards in all "New" panelboards (both breaker and fuse type) and low voltage lighting control panels indicating the room number or area, and the item or items controlled by each circuit. Provide typed circuit directory cards for all "Existing" panelboards and low voltage lighting control panels where the Contractor has added, deleted or moved circuits with in an "Existing" panelboard.
  1. Contractor shall trace existing circuits within existing panelboards and low voltage lighting control panels to properly identify all circuits within the panelboards and low voltage lighting control panels.

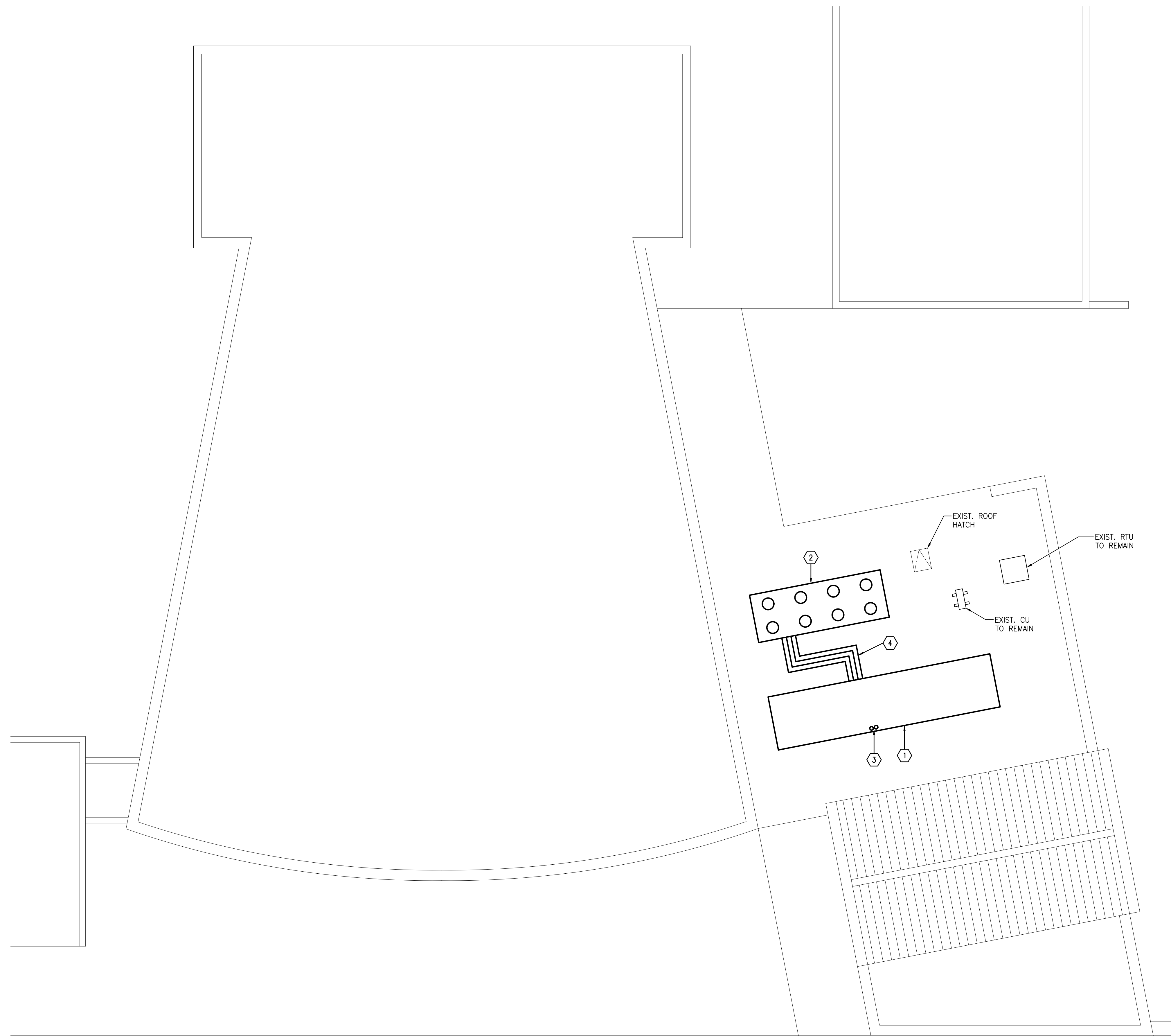
## ELECTRICAL IDENTIFICATION

- B. Switchboards, unit substations, motor control centers and switchgear shall be provided with plastic-laminate tags similar to those specified in under "Equipment/System Identification". The tags shall indicate what the circuit feeds and the location of the device.
- C. Directories shall use actual room numbers to indicate locations of all devices, including, but not limited to receptacles, lighting, mechanical equipment, etc. When preparing schedule, use a room number schedule generated by the architect and/or the owner, which indicates the actual room numbers that will be used when the building is occupied. If the schedule is not available, request, in writing, a schedule to reflect the proper room numbers.
- D. Provide sufficient information to meet requirements of Article 408 of the National Electric Code.

## 3.6 RECEPTACLE CIRCUIT IDENTIFICATION

- A. At each receptacle, identify panelboard and circuit number from which receptacle is served. Use machine printed, pressure sensitive, abrasion resistant label tape on backs of the wall plate and durable wire markers or tags within outlet boxes.

END OF SECTION 260553



**HVAC ROOF PLAN - DEMOLITION**

SCALE: 1/8" = 1'-0"

**KEYED DEMOLITION NOTES:**

- ① REMOVE EXISTING ROOFTOP UNIT IN ITS ENTIRETY. EXISTING CURB TO REMAIN.
- ② REMOVE EXISTING CONDENSING UNIT. EXISTING ROOF CURB TO REMAIN (ABANDONED).
- ③ DISCONNECT EXISTING HEATING HOT WATER SUPPLY AND RETURN PIPING AS REQUIRED FOR CONNECTION TO NEW UNIT.
- ④ REMOVE ALL ASSOCIATED REFRIGERANT PIPING IN ITS ENTIRETY. PUMP DOWN AND RECLAIM REFRIGERANT IN ACCORDANCE WITH IBC REQUIREMENTS. REMOVE ALL EXISTING PIPE SUPPORTS.

REVISIONS	BY

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**HVAC ROOFTOP UNIT REPLACEMENT**  
FOR THE  
**NESHAMINY SENIOR HIGH SCHOOL AUDITORIUM**  
MIDDLETOWN TOWNSHIP - BUCKS COUNTY - LANGHORNE, PA

**HVAC ROOF PLAN - DEMOLITION**

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**M-1**



**HVAC FLOOR PLAN**

SCALE: 1/8" = 1'-0"

**KEYED DRAWING NOTES:**

- ① RE-USE EXISTING DUCT CONNECTIONS AND ROOF OPENINGS. NEW CURB ADAPTER SHALL BE CUSTOM MADE TO MATCH EXISTING OPENINGS. PROVIDE GALV. SHEETMETAL CONNECTION FROM NEW UNIT CONNECTION TO EXISTING.
- ② COMPLETE AIR BALANCE ON NEW UNIT AND SUPPLY AND RETURN OUTLETS AND INLETS TO THE FLOW QUANTITIES (CFM) LISTED.
- ③ REMOVE EXISTING SPACE THERMOSTAT AND REPLACE WITH NEW. PROVIDE NEW SPACE HUMIDITY SENSOR. WIRE NEW CONTROL DEVICES TO NEW UNIT CONTROLLER.

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**CIE**

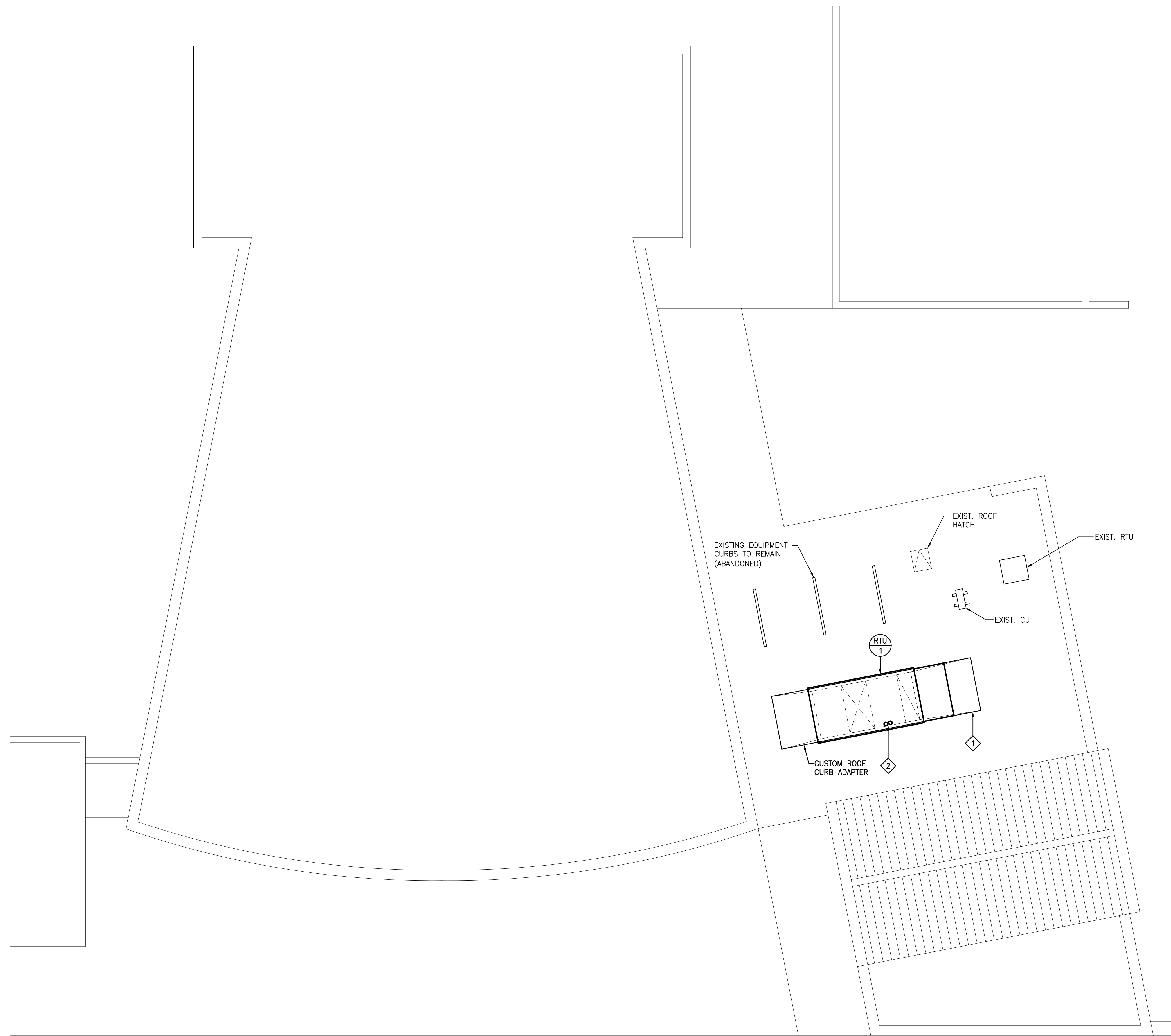
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**M-2**





**HVAC ROOF PLAN**

SCALE: 1/8" = 1'-0"

**KEYED DRAWING NOTES:**

- ◇ PROVIDE CUSTOM CURB ADAPTOR BY UNIT MANUFACTURER. ALL MEASUREMENTS MUST BE FIELD VERIFIED BY THE CONTRACTOR AND UNIT MANUFACTURER. REMOVE ALL GASKET MATERIAL FROM THE TOP OF EXISTING CURB. SEAL CURB ADAPTOR TO TOP OF EXISTING CURBS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE SUPPLY AND RETURN DUCT CONNECTIONS FROM BOTTOM OF UNIT TO EXISTING OPENINGS. DUCT TO BE GALV. SHEETMETAL WITH 1.5" DENSITY DUCT LINER, SCHULLER TUF-SKIN OR EQUAL.
- ◇ EXTEND EXISTING 2" HOT WATER SUPPLY AND RETURN LINES TO NEW COIL CONNECTION. SEE DETAIL ON DWG M-4. PIPING SHALL BE TYPE 1" COPPER WITH SOLDERED JOINTS. PROVIDE 1 1/2" OF FIBERGLASS INSULATION WITH JACKET.

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**HVAC ROOFTOP UNIT REPLACEMENT**  
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**HVAC  
ROOF PLAN**

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**M-3**

REVISIONS	BY

ROOFTOP AIR HANDLING UNIT SCHEDULE																												BASIS OF DESIGN: VALENT													
SYMBOL	AIR FLOW DATA				SUPPLY FAN DATA				EXHAUST FAN DATA				ELEC. CHARACTERISTIC			DX COOLING COIL										HEATING COIL					MODEL	NOMINAL SIZE W" x L" x H"	MAXIMUM OPERATING WEIGHT	REMARKS							
	MAX. SUPPLY	MAX. RETURN	MIN OA	MAX OA	E.S.P.	H.P.	RPM	ELEC	E.S.P.	H.P.	RPM	ELEC	MCA	MOP	ELEC	EADB	EAWB	LADB	LAWB	REFRIGERANT SUCTION TEMP.	ROWS	TOTAL MBH	SENSIBLE MBH	FA	APD	HGRM MBH	EAT	LAT	MBH	GPM					EWT	ROWS	FA	APD	WPD		
RTU-1	16,300	16,300	4,300	16,300	1.25	2.0	1515	2,178	460-3#-60	0.75	2.0	5.0	1843	XXX-X#-60	1792	200	460-3#-60	79.8°F	67.3°F	50.4°F	50.1°F	94°F	6.0	840.9	526.2	XX	1"	235.1	55.9°F	91.0°F	725.4	23.0	190°F	2	17.7	0.65	3.8'	VPRX35270CHWC1DX	96 x 238 x 100	8,582 LBS	

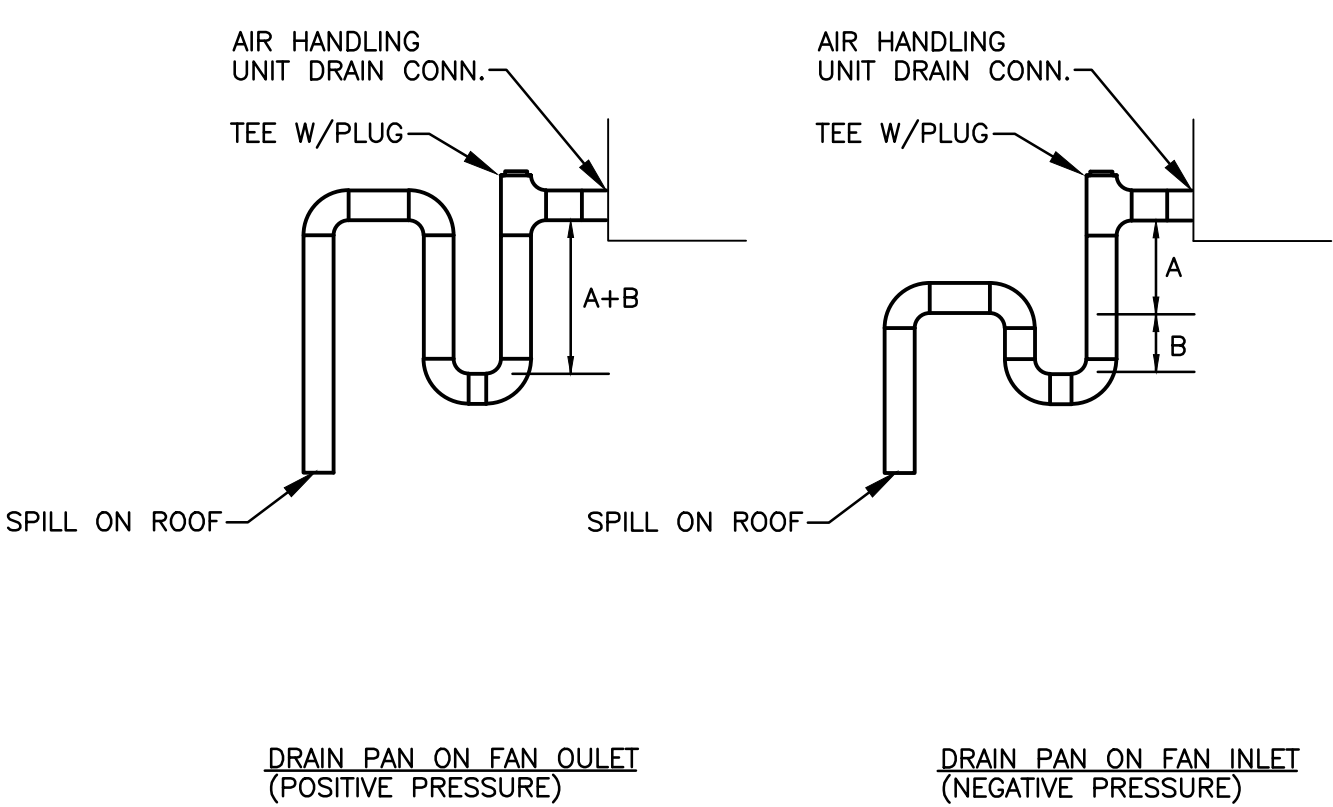
- NOTES:
1. MODEL NUMBERS ARE INDICATED FOR REFERENCE ONLY. THE DUTIES AND CAPACITIES ARE TO BE USED FOR FINAL UNIT SELECTION BY THE MANUFACTURER.
  2. UNIT TO BE EQUIPPED WITH FULLY PROGRAMMABLE MICROPROCESSOR CONTROLLER WITH BAS INTERFACE, SINGLE POINT POWER CONNECTION, SERVICE LIGHT, CONVENIENCE RECEPTACLE, STRIP HEATER, SMOKE DETECTORS IN SUPPLY AND RETURN SECTION, FAN VIBRATION ISOLATION, VFD FOR SUPPLY AND EXHAUST FAN MOTORS, DRY CONTACT FOR OCCUPIED OUTSIDE AND EMERGENCY SHUT-DOWN.
  3. UNIT SHALL BE EQUIPPED WITH THE FOLLOWING CONTROL DEVICES:

DEVICE	SUPPLIER	INSTALL
OA TEMPERATURE/HUMIDITY	FACTORY	FACTORY
EVAP. COIL TEMPERATURE	FACTORY	FACTORY
DISCHARGE AIR TEMPERATURE	FACTORY	FIELD
SPACE-MOUNTED TEMPERATURE	FACTORY	FIELD
SPACE-MOUNTED HUMIDITY	FACTORY	FIELD
SA FILTER PRESSURE SWITCH	FACTORY	FACTORY
SA FILTER PRESSURE GAUGE	FACTORY	FACTORY
OA DAMPER ACTUATOR	FACTORY	FACTORY
RA DAMPER ACTUATOR	FACTORY	FACTORY
SUPPLY FAN VFD	FACTORY	FACTORY
EXHAUST FAN VFD	FACTORY	FACTORY
PHASE AND VOLTAGE MONITOR	FACTORY	FACTORY
NON-FUSED DISCONNECT	FACTORY	FACTORY
DISCONNECT WITH BREAKER	FACTORY	FACTORY
SPACE STATIC PRESSURE SENSOR	FACTORY	FACTORY
CO2 SENSOR (RETURN AIR)	FACTORY	FIELD
SMOKE DETECTOR (QTY = 2)	FACTORY	FIELD
GFCI OUTLET	FACTORY	FIELD
UV LAMP SYSTEM	-	-
STRIP HEATER	FACTORY	FACTORY
OUTDOOR AIR MONITOR	FACTORY	FACTORY

NOTES: 1. SMOKE DETECTORS MUST BE COMPATIBLE WITH THE EXISTING FIRE ALARM SYSTEM.

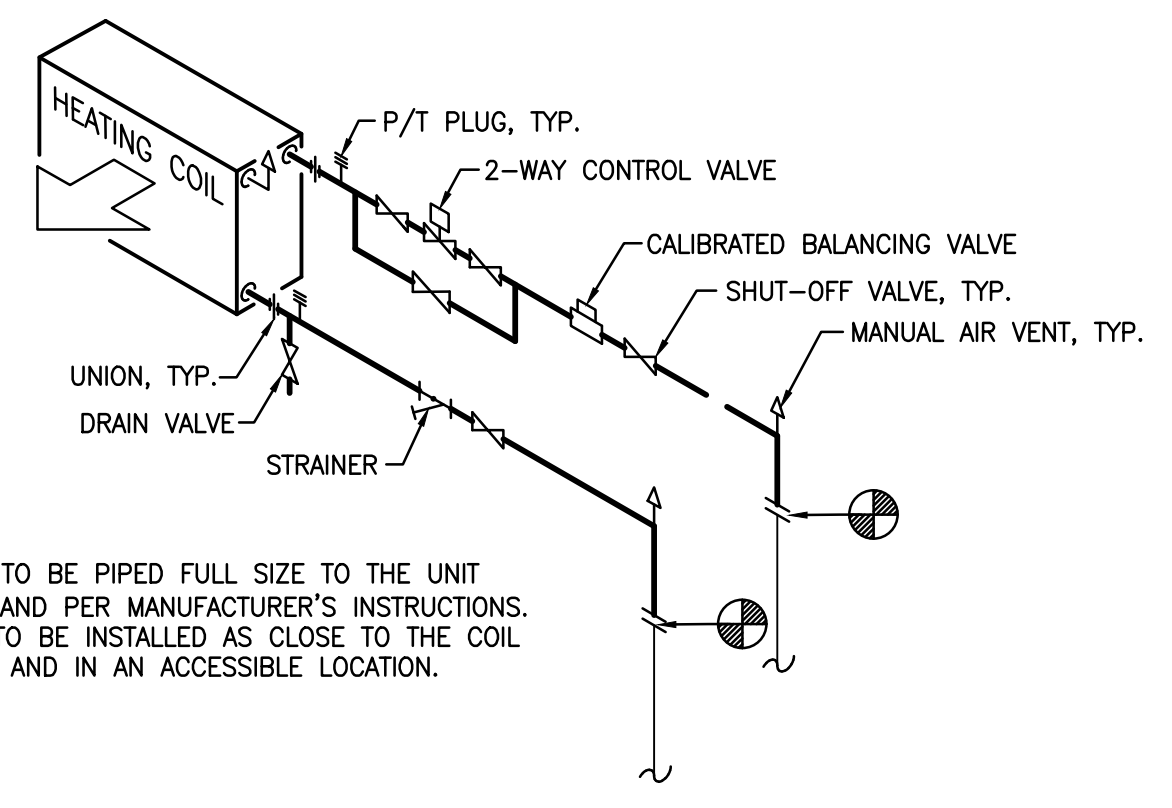
**GENERAL PROJECT NOTES:**

1. THE CONTRACTOR IS RESPONSIBLE FOR ALL REQUIRED CUTTING AND PATCHING. CONTRACTOR MUST USE THE DISTRICTS APPROVED ROOFING CONTRACTOR FOR ANY REQUIRED ROOF WORK.
2. ALL LOW VOLTAGE WIRING (UNDER 120V) REQUIRED FOR HVAC EQUIPMENT SHALL BE PROVIDED BY THE HVAC CONTRACTOR PER THE MANUFACTURER'S WRITTEN INSTRUCTIONS UNLESS OTHERWISE NOTED.
3. CONTRACTOR IS RESPONSIBLE TO INSTALL ALL NECESSARY BALANCING DAMPERS TO COMPLETE TESTING, BALANCING AND ADJUSTING.



- NOTES:
1. DRAIN CONN TO BE FULL SIZE, BUT NOT LESS THAN 1".
  2. "A" = SYSTEM STATIC IN INCHES AT DRAIN POINT.
  3. "B" = 1/2 SYSTEM STATIC IN INCHES AT DRAIN POINT.

**AIR HANDLING UNIT DRAINS**  
NO SCALE



NOTE: COILS TO BE PIPED FULL SIZE TO THE UNIT CONNECTION AND PER MANUFACTURER'S INSTRUCTIONS. ALL VALVES TO BE INSTALLED AS CLOSE TO THE COIL AS POSSIBLE AND IN AN ACCESSIBLE LOCATION.

**AIR HANDLING UNIT HEATING COIL PIPING DETAIL**  
NO SCALE

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**HVAC SCHEDULES & DETAILS**

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REMOVE WIRING AND CONDUIT, TO ROOFTOP CONDENSING UNIT, IN ITS ENTIRETY BACK TO SOURCE. REMOVE ALL ASSOC. ELECTRICAL EQUIPMENT (DISCONNECT SWITCH, RECEPTACLE, ETC.) LOCATED ON OR ADJACENT TO UNIT.

REMOVE WIRING AND CONDUIT, TO ROOFTOP AIR HANDLING UNIT, IN ITS ENTIRETY BACK TO SOURCE. REMOVE ALL ASSOC. ELECTRICAL EQUIPMENT (DISCONNECT SWITCH, RECEPTACLE, ETC.) LOCATED ON OR ADJACENT TO UNIT. REMOVE ASSOCIATED DUCT SMOKE DETECTORS AND WIRING.

**ROOF PLAN - DEMOLITION**  
SCALE: 1/4" = 1'-0"

**PROJECT DEMOLITION NOTES:**

1. THE CONTRACTOR SHALL DISCONNECT AND REMOVE ELECTRICAL EQUIPMENT AS SHOWN OR NOTED. ALL ASSOC. EQUIPMENT SUPPORTS (ALL-THREAD ROD, UNISTRUT, ETC.) SHALL BE REMOVED ALSO.
2. REMOVE ALL EXISTING CONDUIT AND WIRING BEING ABANDONED. EXISTING CONDUITS IN GOOD CONDITION AND LOCATED CORRECTLY TO ACCOMMODATE NEW WORK MAY REMAIN IN PLACE AND BE REUSED PROVIDED THAT THE CONDUITS DO NOT AFFECT OTHER NEW WORK. THE CONTRACTOR SHALL PROVIDE PROPER SUPPORT AS PER NEC FOR ANY CONDUITS BEING REUSED.
3. THE OWNER SHALL HAVE FIRST CHOICE OF ANY EXISTING EQUIPMENT OR MATERIALS BEING REMOVED. THE CONTRACTOR SHALL DELIVER ITEMS TO BE SALVAGED BY THE OWNER TO DESIGNATED STORAGE AREA ON THE JOB SITE. ALL EQUIPMENT AND MATERIALS REJECTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR. CONTRACTOR SHALL REMOVE THESE ITEMS FROM THE SITE AND PROPERLY DISPOSE OF THEM.

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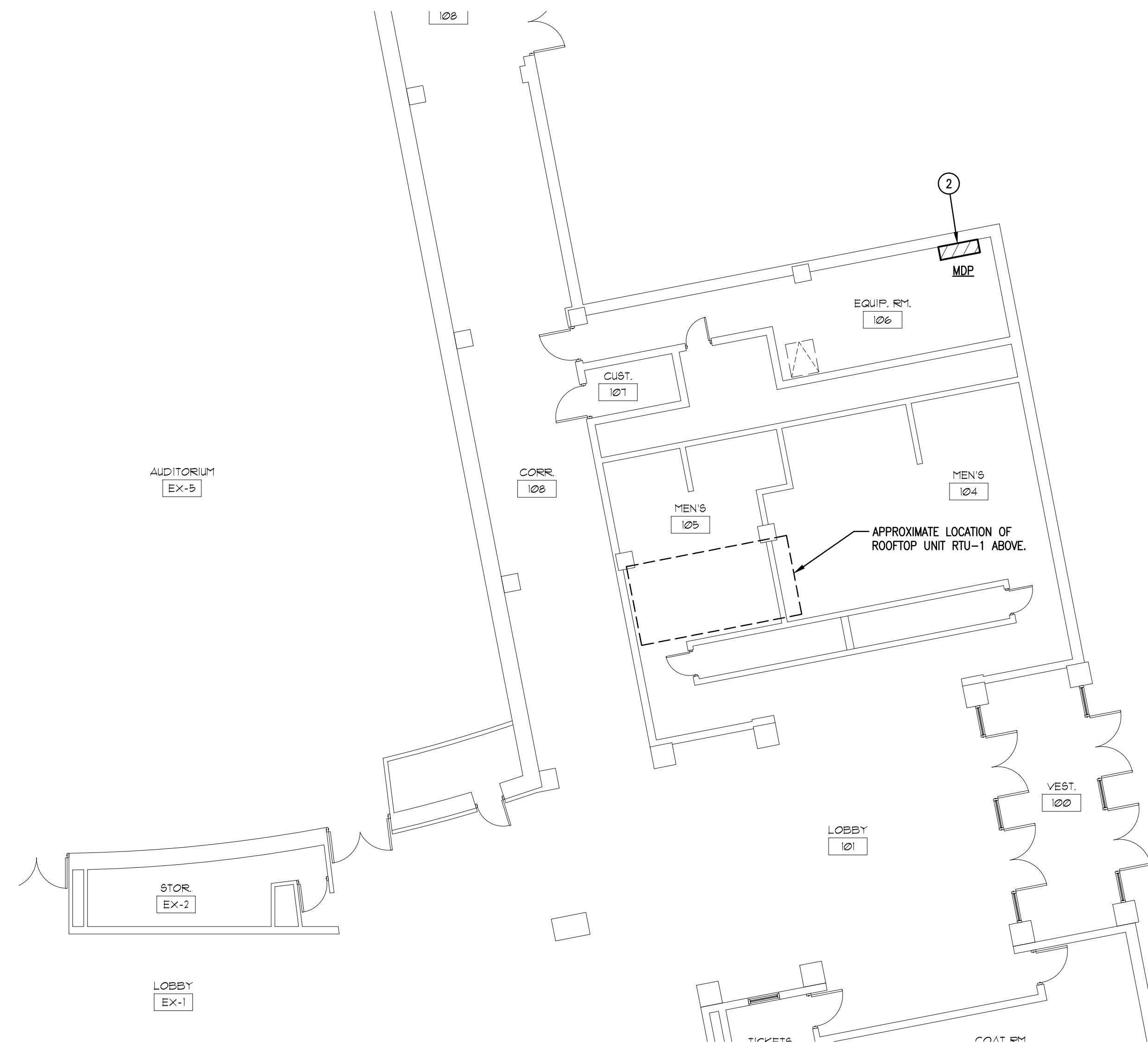
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**HVAC ROOFTOP UNIT REPLACEMENTS**  
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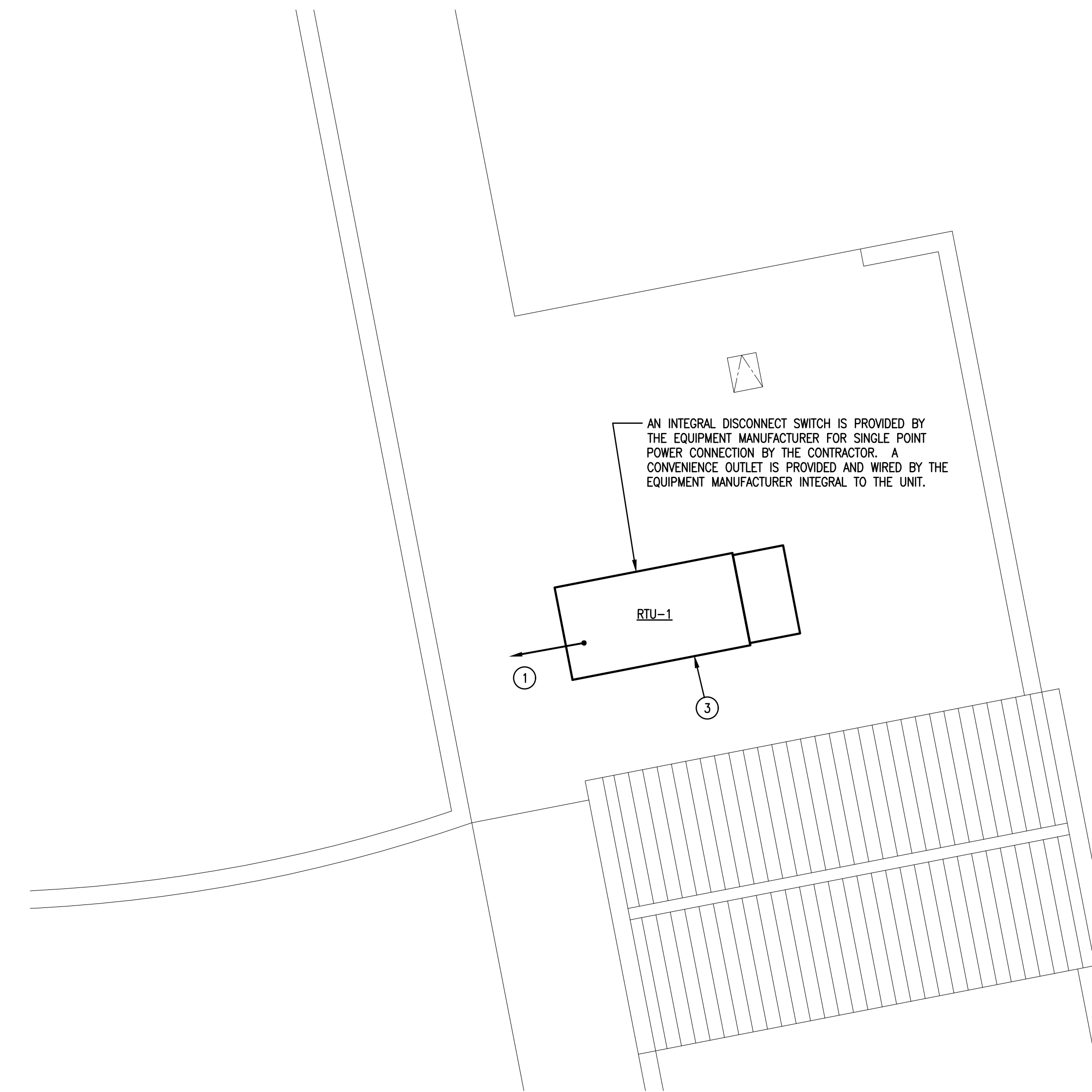
**ELECTRICAL ROOF  
PLAN - DEMOLITION**

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**FIRST FLOOR PLAN - NEW WORK**

SCALE: 1/8" = 1'-0"



**ROOF PLAN - NEW WORK**

SCALE: 1/8" = 1'-0"

**DRAWING NOTES:**

1. RUN 3 #3/0 & #6 GRD.-2" TO EXISTING PANEL "MDP" AND CONNECT TO NEW 200A/3P CIRCUIT BREAKER. RUN WIRING UP CONCEALED VERTICALLY THRU ROOF WITHIN UNIT ROOF CURB ADJACENT TO MECH. PIPING. EXTEND WIRING CONCEALED ABOVE ACCESSIBLE CEILING ON FIRST FLOOR BACK TO EQUIPMENT ROOM AS REQUIRED.
2. PROVIDE NEW 200A/3P CIRCUIT BREAKER IN EXISTING GEN. ELECTRIC, SPECTRA SERIES PANEL. MOUNT NEW BREAKER IN EXISTING SPACE. NEW BREAKER SHALL MATCH EXISTING PANEL INCLUDING AIC RATING. PROVIDE ALL REQUIRED BREAKER MOUNTING HARDWARE AND LABEL NEW BREAKER. RE-LABEL EXISTING CIRCUIT BREAKERS, SERVING THE EQUIPMENT BEING REMOVED, "SPARE".
3. CONNECT INTEGRAL DUCT SMOKE DETECTORS, PROVIDED BY EQUIPMENT MANUFACTURER, TO EXISTING BUILDING FIRE ALARM SYSTEM AS REQUIRED. PROVIDE ALL NECESSARY WIRING, RELAYS, AUXILIARY CONTACTS, ETC. TO SHUT DOWN HVAC UNIT WHEN SYSTEM GOES INTO ALARM.

**ELECTRICAL LEGEND**

(REFER TO SPECIFICATIONS FOR MORE INFORMATION)

- HOMERUN TO APPLICABLE PANEL
- — FUSED DISCONNECT SWITCH - SIZE AND TYPE INDICATED (PROVIDE FUSES AS PER EQUIPMENT MANUFACTURER'S REQUIREMENTS)
- VPD □ — VARIABLE FREQUENCY DRIVE - FURNISHED BY EQUIPMENT MANUFACTURER. CONTRACTOR SHALL INSTALL AND MAKE ALL WIRING CONNECTIONS.
- ⊙ — DUCT MOUNTED SMOKE DETECTOR. DETECTOR WIRED BY CONTRACTOR.
- ▭ — EXISTING PANELBOARD
- ① — INDICATES DRAWING NOTE NUMBER

**FIRE ALARM SYSTEM NOTES:**

1. THE EXISTING BUILDING FIRE ALARM SYSTEM SHALL REMAIN. CONTRACTOR SHALL TEST AND REPROGRAM EXISTING FIRE ALARM SYSTEM AS REQUIRED AFTER CONNECTION OF NEW DUCT SMOKE DETECTOR DEVICES. CONTRACTOR SHALL UTILIZE THE OWNER'S VENDOR FOR FIRE ALARM WORK. ALL COSTS INCURRED BY THE OWNER'S VENDOR TO PERFORM THE WORK SHALL BE INCLUDED AS PART OF THE BID PRICE.
2. CONFORM TO ALL REQUIREMENTS OF NFPA 70, NFPA 72, NFPA 110 AND ALL LOCALLY ADOPTED CODES.
3. FURNISH PRODUCTS LISTED AND CLASSIFIED BY UL AS SUITABLE FOR PURPOSE SPECIFIED AND INDICATED. NEW DEVICES PROVIDED BY EQUIPMENT MANUFACTURER SHALL BE COMPATIBLE WITH EXISTING SYSTEM AND MATCH EXISTING TYPE. DEVICES SHALL BE UL LISTED FOR THEIR PURPOSE.

**PROJECT GENERAL ELECTRICAL NOTES:** (APPLY TO ALL SHEETS)

1. THE CONTRACTOR SHALL PROVIDE ALL CIRCUITS (FEEDER AND BRANCH) WITH AN EQUIPMENT GROUND CONDUCTOR SIZED IN ACCORDANCE WITH N.E.C. TABLE 250-122.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY MISCELLANEOUS STEEL REQUIRED FOR MOUNTING ELECTRICAL EQUIPMENT.
3. CONDUIT SLEEVES MUST BE PROVIDED FOR ALL LOW VOLTAGE WIRING RUN IN OR THROUGH WALLS. IN ROOMS WITHOUT CEILING, LOW VOLTAGE WIRING MUST BE RUN IN CONDUIT. NO EXPOSED LOW VOLTAGE WIRING WILL BE PERMITTED.
4. ALL CONDUIT AND WIRING RUN TO FINISHED SPACES (I.E., TOILET ROOMS, CORRIDORS, STORAGE ROOMS, ETC.) MUST BE CONCEALED. CONDUIT MAY BE RUN EXPOSED IN UNFINISHED AREAS (I.E., CRAWL SPACES, MECHANICAL EQUIPMENT ROOMS, ETC.).
5. THE CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING AND PATCHING OF EXISTING SURFACES THAT IS REQUIRED FOR HIS WORK. PATCHING SHALL INCLUDE FINAL FINISH TO MATCH ADJACENT SURFACES.
6. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING ALL CEILING TILES, INCLUDING INSULATION FOUND ABOVE THE CEILING TO PERFORM HIS WORK. IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO NOTIFY THE OWNER/ENGINEER OF ANY DAMAGED CEILING TILE PRIOR TO REMOVAL. OTHERWISE, THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGED CEILING TILES WITHIN THE AREA OF WORK.
7. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING PERMANENT, UL APPROVED FIRESTOPPING SYSTEMS FOR ALL NEW CONDUIT PENETRATIONS THROUGH FIRE-RATED FLOOR OR WALL ASSEMBLIES.

REVISIONS	BY

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**HVAC ROOFTOP UNIT REPLACEMENTS**  
FOR THE  
**NESHAMINY SENIOR HIGH SCHOOL**  
MIDDLETOWN TOWNSHIP - BUCKS COUNTY - LANGHORNE, PA

**ELECTRICAL ROOF AND FLOOR PLANS - NEW WORK**

DRAWN	DS
CHECKED	JS
DATE	4-12-2017
SCALE	AS NOTED
JOB NO.	17-2541-1
SHEET	