San Diego Unified School District

PHYSICAL PLANT OPERATIONS CENTER ANNEX
4860 Ruffner Street, San Diego, CA 92111-1522

(858) 496-1902
Fax: (858) 496-1953

Graham Champion
Labor Compliance and
Construction Contracts Supervisor

August 27, 2020

Mr. Stephen Thompson
Solpac Construction, Inc.
dba Soltek Pacific Construction Company
2424 Congress Street
San Diego, CA 92110

Dear Mr. Thompson:

Subject: CZ-19-0859-42 – Design Build Construction of Heating, Ventilation, and Air Conditioning (HVAC) at Multiple Sites – Package B (SDUSD Project # 9023007.1)

Notice to Proceed: No. 07R4– HVAC Construction at Barnard Elementary School

This letter constitutes your *revised* notice to proceed with HVAC work at Barnard ES per your proposal with the scope of work breakdown to Darren Hollis dated August 14, 2020, for a reduction of $7,168.38, for the not-to-exceed amount of **$3,563,166.45**.

NTP 07 Barnard ES Construction	~~$3,334,929.00~~ **$3,327,760.62**
NTP 07 Barnard ES Contingency	$235,405.83

Work shall begin on August 14, 2019, and be completed by June 30, 2020.

Please refer to this NTP number on all your correspondence and invoices.

Original invoice should be sent to:

San Diego Unified School District
PPO Center, Attn: Catherine Bendixen
4860 Ruffner Street
San Diego, CA 92111

Please call your construction manager if you have any questions regarding this NTP. Invoicing inquiries should be directed to Catherine Bendixen at (858) 637-6246.

Sincerely,

Graham Champion
Labor Compliance and Construction Contracts Supervisor

GC:cp

Attachment

C: D. Nestor, R. Daniels, R. Kessler, PSA

SOLTEK PACIFIC CONSTRUCTION
Building Projects & Partnerships since 1974

2424 Congress Street
San Diego CA, 92110
P 619.296.6247 | F 619.296.7109
Contractor License #886641 | EOE

CONTINGENCY ADJUSTMENT PROPOSAL

Attention:	Mr. Darren Hollis	**Date:**	8/14/2020
Project:	SDUSD HVAC Design Build Projects	**Construction NTP Adjustment No:**	**Barnard ES 008 R3**
School:	Barnard ES		
Contract No:	CZ-19-0859-42	**Subject:**	Ductless Split System - Removal from Scope
		Reference:	**CCD 013 R1 (Attachment A)**

Description of work to be performed:

This CAP is provided to finalize negotiations by and between the San Diego Unified School District and Soltek, and this Credit is acknowledged as complete and total consideration for: the Deletion of the Split System Forced Air Unit (CU 07-2 and FC 07-2) at Room 703 as indicated in the attached CCD 013 R1 (Attachment A). It is expressly understood and agreed that the scope of work, inclusions and exclusions contained herein are the complete scope of work provided by Soltek Pacific Construction under this proposal and all other work, materials, equipment, inspections not expressly set forth herein are excluded.

Adjustment Total:	$ (7,168.38)	**Additional Time to be Added to Contract:**	**0 Days**	**Estimated Qty:**	1 LS

Please see attached breakdown of cost.

Approved: Darren Hollis

Digitally signed by Darren Hollis
DN: cn=Darren Hollis, o=SDUSD, ou=FPC, email=dhollis@sandi.net, c=US
Date: 2020.08.14 11:26:47 -07'00'

SDUSD Construction Manager Date

Please do not hesitate to contact me with any questions or comments regarding this matter.
Best regards,

Soltek Pacific Construction
Mark Hofmann
Sr. Project Manager

CC: File, Field, Subcontractor

SOLTEK PACIFIC CZ-19-0859-42

Subject: **Ductless Split System - Removal from Scope**

	PAYMENT – EXTRA, ADDITIONAL, OR DELETED WORK	**Extra/Credit**
1.	General Contractor Material a. Attach itemized quantity and unit cost plus sales tax b. Include information where derived, i.e., "Means Building Construction Cost Data" or other source mutually agreed to by all parties.	$ -
2.	General Contractor Labor Attach itemized hours and rates per certified payrolls and prevailing wage chart. Rates shall only include a maximum of 15% for payroll burden plus actual costs for Workers' Compensation Insurance. Payment for extra supervision will be paid when extra Work is done in a time period other than normal Working hours.	$ -
3.	**Subtotal** - (Item #1 plus Item #2)	$ -
4.	General Contractor's overhead, profit, supervision, bond fees A maximum aggregate total of 16% of Item #3. This item is not allowed on Extended Overhead	$ -
5.	Total General Contractor (Item #3 plus Item #4)	$ -
6.	Subcontractor Material a. Attach itemized quantity and unit cost plus sales tax b. Include information where derived, i.e., "Means Building Construction Cost Data" or other source mutually agreed to by all parties.	$ (3,174.79)
7.	Subcontractor Labor Attach itemized hours and rates per certified payrolls and prevailing wage chart. Rates shall only include a maximum of 15% for payroll burden plus actual costs for Workers' Compensation Insurance. Payment for extra supervision will be paid when extra Work is done in a time period other than normal Working hours.	$ (3,113.37)
8.	Subtotal – (Items #6 and #7)	$ (6,288.16)
9.	General Contractors' overhead, supervision, bond fees and pro fit for Subcontractor Work (maximum aggregate total of 11% of Item #8) This item is not allowed on Extended Overhead	
10.	Subcontractor's Overhead and Profit Maximum aggregate total of 15% of Item #8. Not to be included for Work provided by General Contractor. No Sub-Tier markups allowed. Attach signed Subcontractor documentation on Subcontractor letterhead.	$ (880.22)
11.	Subtotal - (Items #9 & #10)	$ (880.22)
TOTAL	(Item #5 plus Item #8 plus Item #11)	$ (7,168.38)

EXTRA OR CREDIT CHANGE ORDERS WILL NOT BE CONSIDERED UNLESS THIS EXHIBIT IS COMPLETELY FILLED IN WITH ALL ADDS AND DEDUCTS ACCOUNTED FOR ALONG WITH APPROPRIATE BACKUP DOCUMENTATION.

Cost summaries, breakdowns, back-up or requests shall not be based, in whole or in part, upon any methodology (such as "total cost", "modified total cost" or "Eichleay" formalitic methodologies) that purports to calculate or estimate additional costs of performance of the extra, additional or disputed work (including without limitation the additional costs of delay, disruption, interference, hindrance, unabsorbed overhead or other impacts) and the cumulative impact of each extra, additional or deleted work on other parts of the Work.

Construction NTP Adjustment Request Estimate

SDUSD HVAC Design Build Projects **Contract No. CZ-19-0859-42**

Barnard ES

Construction NTP Adjustment #:	Barnard ES 008 R3	Subject:	Ductless Split System - Removal from Scope	Date: 8/14/2020

Items of Work for Subcontractor	Quan	Unit	Material		Labor		Subcontract		Equipment	
			Unit Cost	Total Cost	Unit Cost	Total Cost	Unit Cost	Total	Unit Cost	Total
Mechanical Contractor Material (Attachment B)	-1	LS	$ 2,220.73	$ (2,220.73)						
Mechanical Contractor Labor (Plumber/Fitter) (Attachment B)	-26.1	HR			$ 90.63	$ (2,365.44)				
Mechanical Contractor Subcontract (Insulation) (Attachment B)	-1	LS					$ 420.00	$ (420.00)		
Electrical Contractor Material (Attachment C)	-1	LS	$ 534.06	$ (534.06)						
Electrical Contractor Labor (Attachment C)	-10.385	HR			$ 72.02	$ (747.93)				
Direct Subcontractor Totals				$ (2,754.79)		$ (3,113.37)		$ (420.00)		$ -

Items of Work by General Contractor	Quan	Unit	Material		Labor		0 Days	
			Unit Cost	Total Cost	Unit Cost	Total Cost	Unit Cost	Total
Direct Prime Contractors Totals				$ -		$ -		$ -

ATTACHMENT A

DSA **140**

APPLICATION FOR SUBMITTAL OF POST-APPROVAL DOCUMENT

This application is for submittal of documents, after the initial approval of the project (post-approval documents), that require Division of the State Architect (DSA) review and approval. This form shall be completed by the Design Professional in General Responsible Charge of the project, in accordance with California Code of Regulations, Title 24, Part 1, Sections 4-317, 4-323 and 4-338 and in compliance with DSA IR A-6: Construction Change Document Submittal and Approval Process.

DSA documents referenced within this form are available on the DSA Forms or DSA Publications webpages.

1. SUBMITTAL TYPE: (Is this a resubmittal? Yes ☐ No ☑)

Deferred Submittal	Addendum Number:	Revision Number:	CCD Number: 013 R1	Category A ☐ or B ☑

2. PROJECT INFORMATION:

School District/Owner: San Diego Unified School District	DSA File Number: 37 58
Project Name/School: Barnard Elementary School - HVAC 2000 - Phase 2 ESS	DSA Application Number 04 116082

3. APPLICANT INFORMATION:

Date Submitted: 04/10/20	Attached Pages? No ☐ Yes ☑ Number of pages? 4		
Firm Name: StudioWC Architecture + Engineering	Contact Name: Robert Webb		
Work Email: bwebb@studiowc.net	Work Phone: (760) 753-6800		
Firm Address: 515 Encinitas Blvd Suite 201	City: Encinitas	State: CA	Zip Code: 92081

4. REASON FOR SUBMITTAL: (Check applicable boxes)

For revision or addendum prior to construction.	✔ For a project currently under construction.

For a project that has a form *DSA 301-N: Notification of Requirement for Certification, DSA 301-P: Posted Notification of Requirement for Certification* or a 90-Day Letter issued.

To obtain DSA approval of an existing uncertified building or buildings.

For Category B CCD this is: ☐ a voluntary submittal, ☐ a DSA required submittal (attach DSA notice requiring submission).

5. DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE:

Name of the Design Professional In General Responsible Charge: Robert Webb

Professional License Number: C28036	Discipline: Architect

Design Professional in General Responsible Charge Statement: The attached post-approval documents have been examined by me for design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications. They are acceptable for incorporation into the construction of the project.

Signature: R D. Webb

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE

6. CONFIRMATION, DESCRIPTION AND LISTING OF DOCUMENTS:

For addenda, revisions, or CCDs: CHECK THIS BOX ✔ to confirm that *all* post-approval documents have been stamped and signed by the Responsible Design Professional listed on form *DSA 1: Application for Approval of Plans and Specifications* for this project. (For *Deferred Submittals*, refer to *IR A-18: Use of Construction Documents Prepared by Other Professionals,* and *IR A-19: Design Professional's Signature and Seal (Stamp) on Construction Documents*, when applicable, for signature and seal requirements.)

Provide a brief description of construction scope for this post-approval document (attach additional sheets if needed):

VOID CCD 013B and replace with this CCD.
Delete Split System Forced Air Unit (CU 07-2 and FC 07-2) at Room 703 as indicated on attached Sheets CCD13R1-A1 (A2.2), CCD13R1-M1 (M2.2), CCD13R1-M2 (M4.3) and CCD13R1-E1 (E2.3)

List of DSA-approved drawings affected by this post-approval document:

A2.2, M2.2 M4.3 and E2.3

DSA USE ONLY

SSS_____ Date_____ Approved Disapproved Not Required

Comments:_____

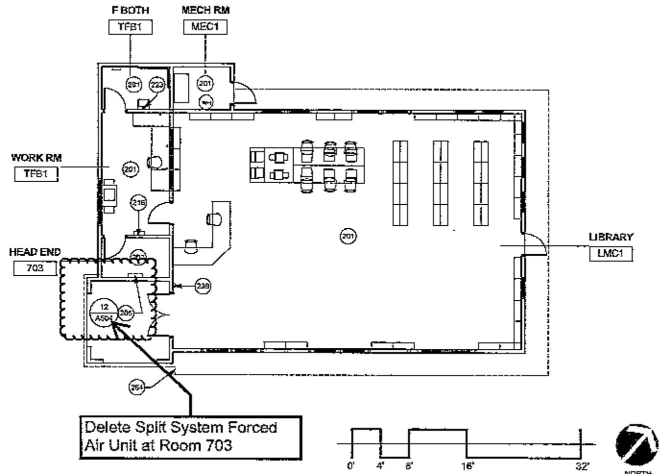
FLS_____ Date_____ Approved Disapproved Not Required

Comments:_____

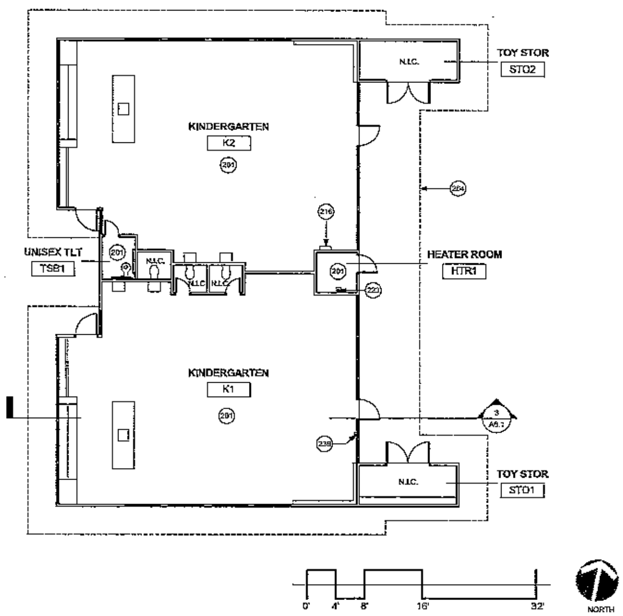
ACS_____ Date_____ Approved Disapproved Not Required

Comments:_____

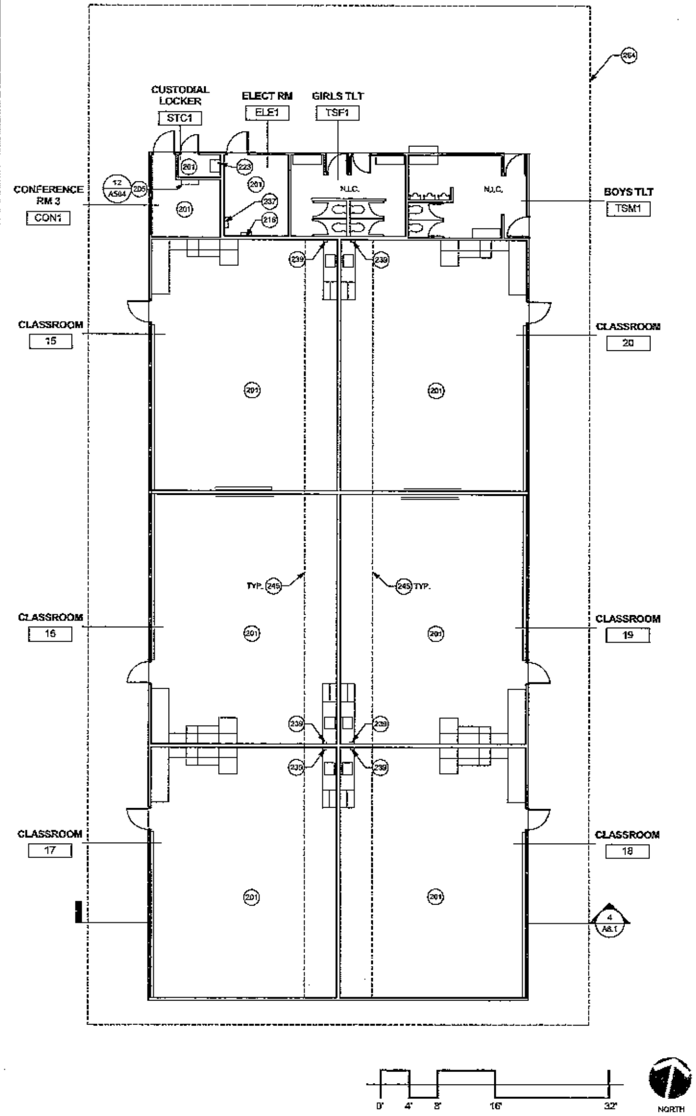
Returned	DSA STAMP
Date:	
By:	



LIBRARY BUILDING 03-07 FLOOR PLAN | 1/8" = 1'-0" | 1



KINDERGARTEN BUILDING 01-05 FLOOR PLAN | 1/8" = 1'-0" | 2



CLASSROOM BUILDING 02-06 FLOOR PLAN | 1/8" = 1'-0" | 3

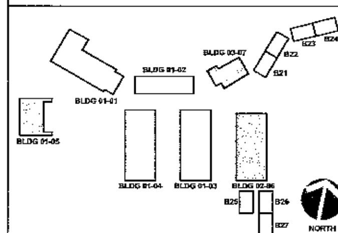
FLOOR PLAN KEYNOTES

201 AREA TO RECEIVE WORK RELATED TO NEW MECHANICAL IMPROVEMENTS. SEE MECHANICAL, PLUMBING, STRUCTURAL & ELECTRICAL DRAWINGS FOR EXTENT OF NEW WORK.
205 (N) WALL MOUNTED SPLIT SYSTEM UNIT TIED TO NEW CONDENSER ON THE ROOF. SEE MECHANICAL DRAWINGS.
216 (E) ELECTRICAL PANEL & CONDUIT TO REMAIN, TYP.
223 (N) CONDENSATE LINE DOWN WALL TO SINK (FLOOR SINK WHERE OCCURS). PATCH & PAINT @ PENETRATIONS & PAINT NEW LINE TO MATCH ADJACENT CLG/ WALL SURFACE. REFER TO PLUMBING DRAWINGS.
237 INSTALL NEW SURFACE MOUNTED ELECTRICAL PANEL. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION. PATCH AND PAINT WALL AFTER INSTALLATION OF NEW WOOD BLOCKING FOR SUPPORT OF PANEL.
239 DEMO/ REMOVE (E) WALL MOUNTED MECH CONTROLLER (T-STAT OR TIMER WHERE OCCURS). REFER TO MECHANICAL DRAWINGS. PATCH & PAINT (E) TO MATCH (E) WALL SURFACES.
245 LINE OF EXISTING SOFFIT ABOVE
264 LINE OF EXISTING ROOF ABOVE

FLOOR PLAN GENERAL NOTES

1. CUT, PATCH AND REPAIR (E) WALLS, CEILINGS AND OTHER SURFACES TO MATCH EXISTING WHERE NEW WORK OCCURS. PAINT WALL OR CEILING & PROVIDE FINISH TO MATCH (E) ADJACENT SURFACES, TYP., U.N.O.
2. PROTECT IN PLACE ALL (E) SURFACES, EQUIPMENT & CASEWORK TO REMAIN, U.N.O.
3. NOT ALL BLDG ELEMENTS OR EQUIPMENT MAY BE SHOWN OR NOTED. PROTECT ALL EXISTING ELEMENTS OR EQUIPMENT IN PLACE WHERE NOT NOTED FOR DEMO OR REMOVAL/REPLACEMENT. WHERE NEW WORK CONFLICTS WITH (E) CONDUIT, LINES, PIPE, PANELS, FIXTURES OR EQUIPMENT AND WHERE NEW WORK CANNOT BE ROUTED AROUND EXISTING, RE-ROUTE/RE-LOCATE EXIST. AS REQ'D FOR NEW WORK.
4. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE DSA APPROVED DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CONSTRUCTION CHANGE DOCUMENT, OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED REPAIR WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE REPAIR WORK.
5. PROVIDE SAFEGUARDS AND FIRE PROTECTION DURING DEMOLITION & CONSTRUCTION PER 2016 CBC, CHAPTER 33.
6. ALL (N) EXPOSED CONDUIT & PIPING AT EXTERIOR WALL SURFACES SHALL BE PAINTED TO MATCH EXISTING WALL COLOR, TYP. U.N.O.

KEY PLAN



REVIEWED BY

DISTRICT ARCHITECT
ASSISTANT DISTRICT ARCHITECT
PROJECT ADMINISTRATOR
OTHER
OTHER
OTHER

FILE NUMBER: 37-58
IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APP. NO: 04 - 116062 INCR: 0
AC ___ FLS RF SS FT
DATE 08/15/2017

CONSULTANT

ARCHITECT/ENGINEER

PREPARED FOR THE
BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

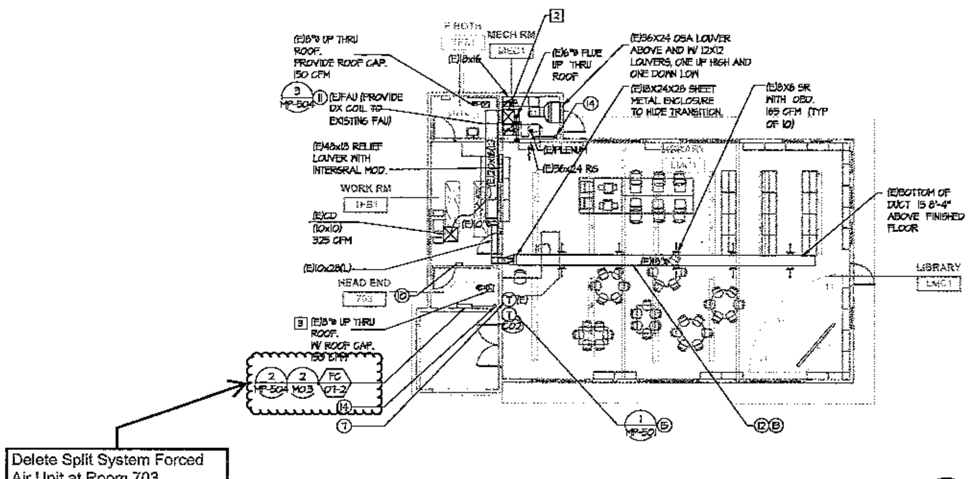
PREPARED BY
WC-AE
WEBB-CLIFF ARCHITECTURE & ENGINEERING

BLDGS 01-05, 02-06 & 03-07 FLOOR PLANS

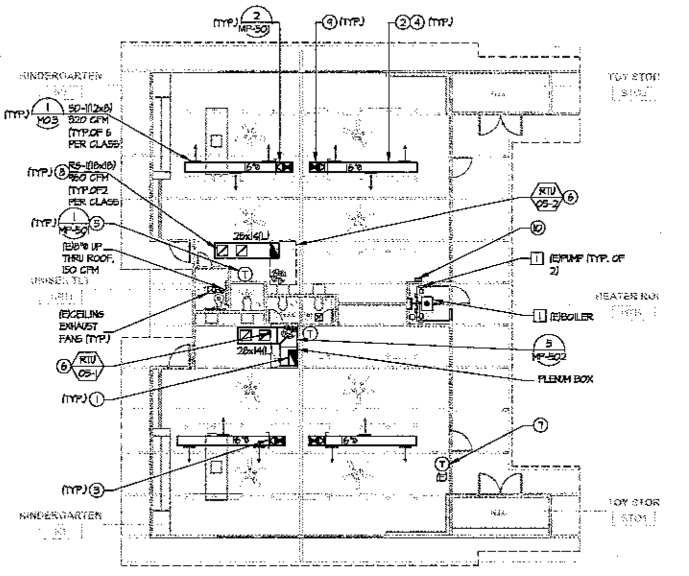
BARNARD ELEMENTARY SCHOOL

HVAC 2000 PHASE 2
EDUCATIONAL SUPPORT SPACES
2445 FOGG ST., SAN DIEGO, CA 92109

PROJECT NO.	SDUSD-BES-02
FILE NAME	
DATE APR.15, 2017	DRAWN KB & DB CHECKED 2W
REVISIONS: Revision | Date	SHEET NO. CCD13R1-A1 A2.2 OF SHEETS



BUILDING 03-07 HVAC FLOOR PLAN
SCALE: 1/8" = 1'-0"



BUILDING 01-05 HVAC FLOOR PLAN
SCALE: 1/8" = 1'-0"

SHEET NOTES

(1) 28x12(L) RETURN AIR DUCT RISE UP THRU ROOF AND TRANSITION TO CONNECT TO RTU WITH FLEX CONNECTION.

(2) INSTALL SUPPLY/ RETURN AIR DUCTS AS HIGH AS POSSIBLE AND MAINTAIN A MINIMUM OF 80 INCHES FROM FINISHED FLOOR.

(3) PROVIDE AND INSTALL MANUAL VOLUME DAMPERS AT ALL DUCT BRANCHES.

(4) INSTALL DUCTWORK AS HIGH AS POSSIBLE. FOR ATTACHMENT REFER TO DETAIL 3/MS-2 AND 4/MS-2. PROVIDE SEISMIC BRACING AT THE END OF EACH DUCT AT ELBOWS AND AT TEE'S.

(5) PROVIDE ROOM TEMPERATURE SENSOR/ THERMOSTAT WITH INSULATED BACKPLATE. COORDINATE EXACT LOCATION WITH ARCHITECT.

(6) OUTLINE OF RTU ON ROOF.

(7) DISABLE AND REMOVE EXISTING THERMOSTAT, FIELD VERIFY LOCATION, PATCH AND PAINT OPENING TO MATCH EXISTING.

(8) RA GRILLE ATTACHED TO BOTTOM OF PLENUM.

(9) 16x16 (L) SUPPLY AIR DUCT DOWN FROM ROOF.

(10) WIRELESS COORDINATOR POWERED BY ELECTRICAL.

(11) ADD NEW DX COIL TO EXISTING FURNACE AND RECONNECT THE SUPPLY AIR DUCT WORK WITH ALL NECESSARY MODIFICATIONS.

(12) CLEAN INSIDE ALL EXISTING DUCTWORK INCLUDING THE MIXING BOX UNDER THE FURNACE.

(13) PERFORM TEST BALANCE FOR ALL EXISTING SUPPLY/RETURNAIR DIFFUSERS AND GRILLES, PROVIDE TAB REPORT.

(14) REFRIGERATION PIPES FROM NEW DX COIL UP THRU ROOF PER DETAIL 4/MP-504. THE LINE REPRESENT A SET OF REFRIGERATION PIPES, FOR CONTINUATION SEE M4.3.

(15) PROVIDE ROOM TEMPERATURE SENSOR/THERMOSTAT AND CO2 SENSOR WITH INSULATED BACK PLATE, COORDINATE EXACT LOCATION WITH ARCHITECT.

DEMOLITION NOTES

[1] EXISTING BOILER AND PUMP, DISCONNECT GAS PIPE COORDINATE WITH PLUMBING CONTRACTOR, DISCONNECT POWER COORDINATE WITH ELECTRICAL CONTRACTOR AND DRAIN ALL WATER FROM THE SYTEM, EQUIPMENTS TO REMAIN IN PLACE.

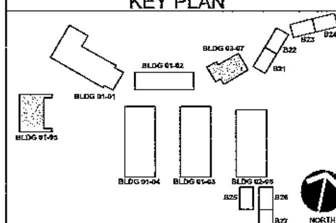
[2] REMOVE AND DEMOLISH (E) SUPPLY AIR DUCT WORK FROM (E) FURNACE, DISCONNECT EXISTING CONTROLS COORDINATE WITH CONTROL CONTRACTOR AND RE-CONNECT AS PER SHEET M604.

[3] DISCONNECT POWER FOR EXISTING FAN AND KEEP IN PLACE.

GENERAL NOTES

1. DO NOT INSTALL THERMOSTATS ON OUTSIDE WALL. INSTALL THERMOSTATS ON INSULATED BACK PLATE. FOR EXACT LOCATION COORDINATE WITH ARCHITECT OF RECORD.
2. SEISMICALLY BRACE DUCTWORK INSIDE THE ROOMS AT THE END OF. EACH RUN AND AT ELBOWS / TEES.
3. COORDINATE ALL WORK WITH ARCHITECT, STRUCTURAL, ELECTRICAL, PLUMBING, AND CONTROLS.
4. PRIOR TO BID CONTRACTOR SHALL VERIFY EXISTING CONDITIONS. IF THERE ARE ANY DISCREPANCIES IT SHALL BE BROUGHT TO THE ATTENTION OF ARCHITECT OF RECORD IN SUFFICIENT TIME TO BE INCORPORATED INTO THE CONSTRUCTION DOCUMENTS.
5. ALL SQUARE AND RECTANGULAR DUCTS SHALL BE LINED.

KEY PLAN



PMPE Consultants
Mechanical Engineers
5755 OBERLIN DRIVE, SUITE 102
SAN DIEGO, CA 92121
TEL: (858) 642-0800
FAX: (858) 642-0802

IDENTIFICATION STAMP
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APP. NO. 04 - 116082 INC: 0
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DATE 08/15/2017

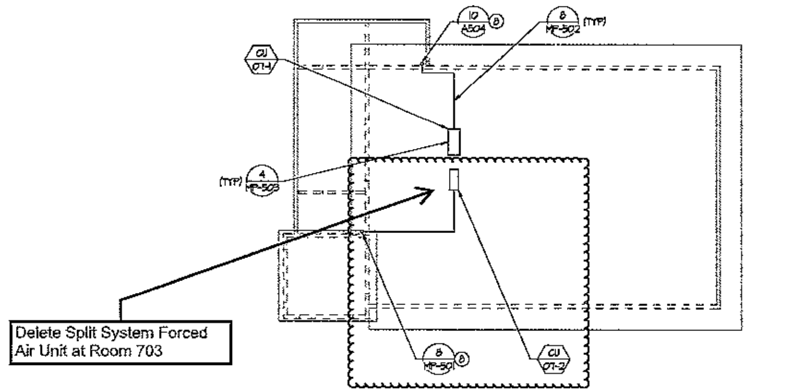
PREPARED FOR THE
BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

PREPARED BY
WC-AE
WIGG-CLIFF ARCHITECTURE & ENGINEERING

BLDGS. 01-05 & 03-07 HVAC FLOOR PLAN

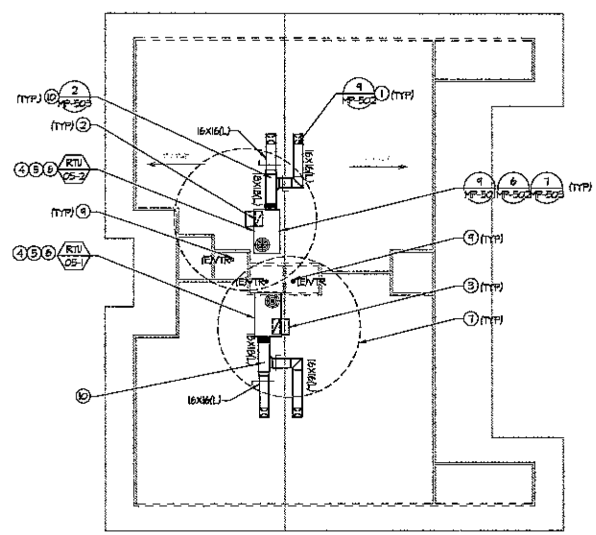
BARNARD ELEMENTARY SCHOOL
HVAC 2000 PHASE 2
EDUCATIONAL SUPPORT SPACES
2446 FOGG ST., SAN DIEGO, CA 92109

PROJECT NO.	SDUSD-BES-02
FILE NAME	
DATE	AUGUST 15, 2016
DRAWN	OKNS
CHECKED	REW
REVISIONS	
SHEET NO.	CCD13R1-M1 M2.2



2 M4.3 BUILDING 03-07 HVAC ROOF PLAN
SCALE: 1/8" = 1'-0"

NORTH



1 M4.3 BUILDING 01-05 HVAC ROOF PLAN
SCALE: 1/8" = 1'-0"

NORTH

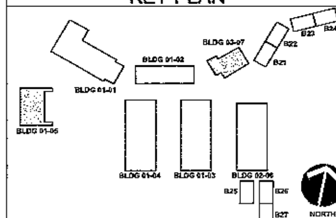
SHEET NOTES

1. 16X16 (L) SUPPLY AIR DUCT DOWN THRU ROOF.
2. 28x12(L) RETURN AIR DUCT DOWN THRU ROOF.
3. ECONOMIZER SECTION, MAINTAIN A MINIMUM OF 10 FEET BETWEEN OUTSIDE AIR INTAKE AND PLUMBING VENTS.
4. PROVIDE FLEX CONNECTION AT DUCTS CONNECTING TO RTU'S.
5. FOR RTU MOUNTING DETAILS, REFER TO STRUCTURAL DRAWINGS.
6. IN EVENT THAT THERE IS AN EXISTING PLUMBING VENT CLOSER TO 10 FEET FROM OSA INTAKE, RE-ROUTE VTR BELOW ROOF AND RISE UP THRU ROOF A MINIMUM OF 10 FEET AWAY FROM OSA INTAKE OR EXTENT VTR A MINIMUM OF 3 FEET ABOVE OSA INTAKE HOOD.
7. THE CIRCLE AREA SHOWS REQUIRED 10 FEET DISTANCE BETWEEN OSA INTAKE AND PLUMBING VENTS & EF'S. SEE GENERAL NOTE #2.
8. REFRIGERANT PIPES DOWN THRU ROOF, FOR CONTINUATION SEE M2.2. THE LINE REPRESENT SET OF REFRIGERATION PIPES.
9. EXTEND (E)VTR A MINIMUM 3 FEET ABOVE THE RTU OSA INTAKE HOOD.
10. PROVIDE DUCT SUPPORT AT THE END OF EACH RUN, AT BOTH SIDES OF ELBOWS AND AT 5'-6" O.C. MAX PER DETAIL 8A/ M5-1.

GENERAL NOTES

1. COORDINATE EXACT LOCATION OF RTU'S WITH STRUCTURAL.
2. FIELD VERIFY EXACT LOCATION OF EXISTING PLUMBING VENT. IF THERE IS ANY PLUMBING VENT CLOSER THAN 10 FEET FROM OUTSIDE AIR INTAKE, IT SHALL BE RE-ROUTED TO MINIMUM 10 FEET AWAY FROM OUTSIDE AIR INTAKE OR EXTENDED A MINIMUM OF 3 FEET ABOVE OUTSIDE AIR INTAKE HOOD.
3. PROVIDE DUCT TRANSITION FROM EQUIPMENT CONNECTION SIZE TO DUCT SIZE AS MENTIONED ON THE SHEETS AS REQUIRED.
4. COORDINATE ALL WORK WITH ARCHITECT, STRUCTURAL, ELECTRICAL, PLUMBING, AND CONTROLS.
5. PRIOR TO BID CONTRACTOR SHALL VERIFY EXISTING CONDITIONS. IF THERE ARE ANY DISCREPANCIES IT SHALL BE BROUGHT TO THE ATTENTION OF ARCHITECT OF RECORD IN SUFFICIENT TIME TO BE INCORPORATED INTO THE CONSTRUCTION DOCUMENTS.
6. COORDINATE CONDENSATE DRAIN AND GAS PIPE WITH PLUMBING.

KEY PLAN



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BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

WC-AE

BLDGS. 01-05 & 03-07 HVAC ROOF PLANS

BARNARD ELEMENTARY SCHOOL
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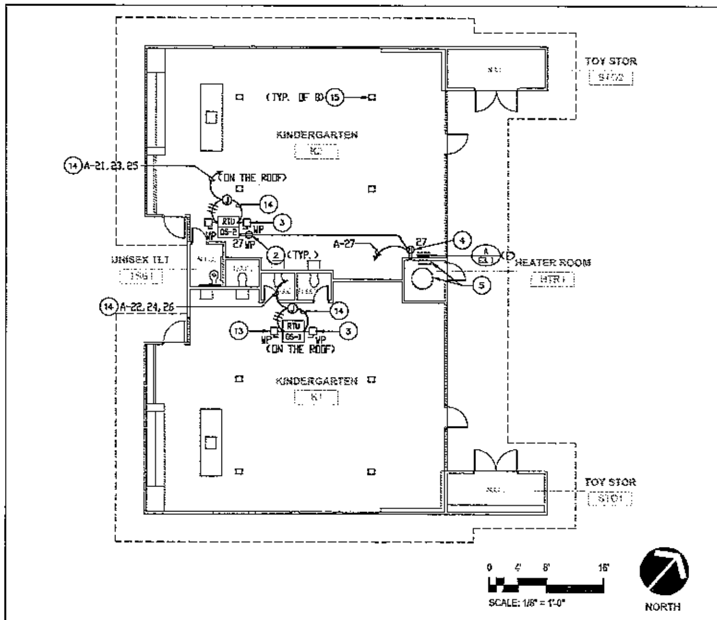
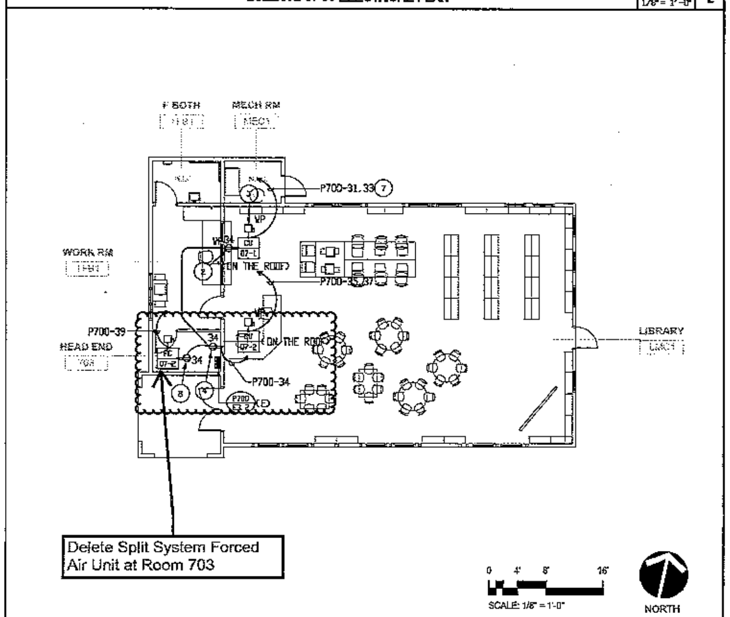
SHEET NO. CCD13R1-M2
M4.3



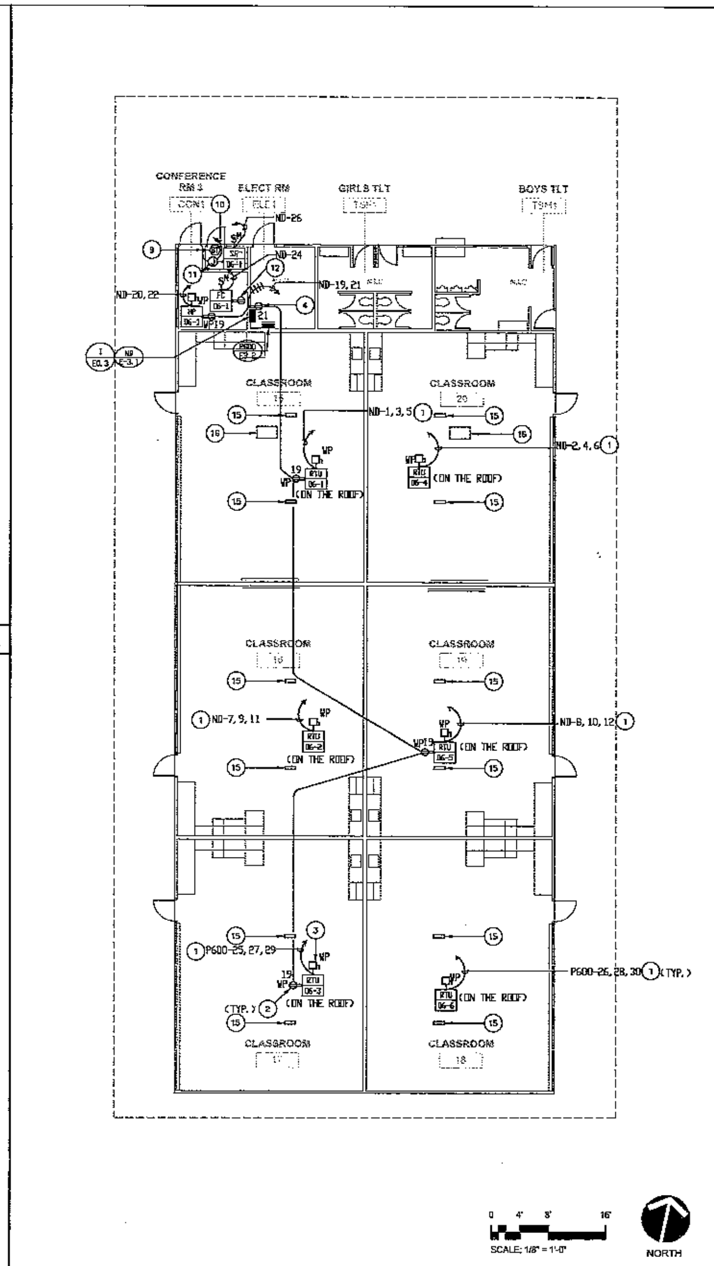
BUILDING 01-05 ELECTRICAL PLAN

SCALE: 1/8" = 1'-0" | 2



BUILDING 03-07 ELECTRICAL PLAN

SCALE: 1/8" = 1'-0" | 3



BUILDING 02-06 ELECTRICAL PLAN

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

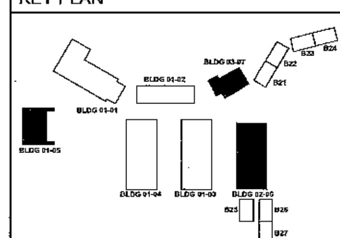
PLAN NOTES

1. PROVIDE 1"C. - 3#8 & 1#10 GRD.
2. INSTALL RECEPTACLE ON THE UNIT PER DETAIL "1/E0.4". LABEL AS REQUIRED.
3. INSTALL FUSED DISCONNECT SWITCH ON THE UNIT PER DETAIL "3" ON SHEET E0.4. LABEL AS REQUIRED.
4. PROVIDE 120V-20A RECEPTACLE FOR MECHANICAL CONTROLLER. VERIFY EXACT LOCATION.
5. DISCONNECT POWER FROM BOILER AND CIRCULATION PUMP. REMOVE CONDUIT AND BRANCH CIRCUIT CONDUCTORS COORDINATE ALL WORKS WITH MECHANICAL CONTRACTOR.
6. DISCONNECT POWER FROM EXISTING FAN. REMOVE CONDUIT AND BRANCH CIRCUIT CONDUCTORS. COORDINATE ALL WORKS WITH MECHANICAL CONTRACTOR.
7. PROVIDE 1"C. - 2#8 & 1#10 GRD.
8. CONNECT RECEPTACLE TO THE SIDE OF THE UNIT FOR CONDENSING PUMP.
9. PROVIDE 0-6 HOURS BY-PASS TIMER AND EXTEND 3/4"C. - 2#12, 1#12 GRD. AND CONNECT PER DETAIL "4" ON SHEET E0.4.
10. PROVIDE 3/4"C. - 2#12, 1#12 GRD. TO RELAY IN PANEL "ND".
11. INTERCONNECT WITH FAN COIL CONTROL SYSTEM PER DETAIL "4/E-0.4".
12. CONNECT RECEPTACLE TO THE SIDE OF THE UNIT FOR CONDENSING PUMP.
13. INSTALL FUSED DISCONNECT SWITCH ON THE UNIT PER DETAIL "3" ON SHEET E0.4. LABEL SWITCH "POWER EXHAUST UNIT".
14. PROVIDE 1-1/4"C. - 3#6 & 1#8 GRD.
15. DISCONNECT AND REMOVE POWER FROM EXISTING CEILING FAN UNIT INCLUDING CONDUITS AND CONDUCTORS. REFER TO MECHANICAL DRAWING FOR MORE INFORMATION.
16. DISCONNECT AND REMOVE POWER FROM EXISTING HVAC UNIT ON THE ROOF INCLUDING CONDUITS AND CONDUCTORS. REFER TO MECHANICAL DRAWING FOR MORE INFORMATION.

GENERAL NOTES

1. VERIFY EXACT LOCATION OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION OF CONDUIT.
2. ALL EQUIPMENT, DEVICES, SAFETY SWITCHES, JUNCTION BOXES, CONNECTIONS, ETC. MOUNTED ON THE ROOF OR EXTERIOR SHALL BE WEATHERPROOF.
3. REFER TO MECHANICAL DRAWING CONTROL DIAGRAM FOR ALL SENSORS, TIME CLOCKS, RELAYS, TIMERS, STARTERS, LINE AND LOW VOLTAGE CONDUIT AND PROVIDE AS REQUIRED.
4. SAFETY SWITCHES SHALL BE WITH CURRENT LIMITING FUSES, SIZES PER THE MANUFACTURER'S RECOMMENDATION. SWITCHES SHALL BE "RK-5" FUSE RECOMMENDATION SWITCHES
5. LOCATIONS OF SAFETY SWITCHES AND CONNECTION FOR MECHANICAL AND PLUMBING EQUIPMENT ARE SHOWN DIAGRAMMATICALLY, VERIFY ACTUAL LOCATIONS WITH EQUIPMENT SHOP DRAWING AND LOCATE SAFETY SWITCHES TO PROVIDE CODE REQUIRED CLEARANCES AND ACCESS. SAFETY SWITCHES LOCATED ON THE ROOF SHALL BE MOUNTED 30" MINIMUM ABOVE THE ROOF. REFER TO SHEET E0.4, DETAILS "2" AND "3" FOR MORE INFORMATION.
6. ALL ROOF CONDUITS, RELATED JUNCTION BOXES SHALL BE CONCEALED WITHIN CEILING SPACE OF FLOOR BELOW. RESPECTIVE HVAC EQUIPMENT LOCATION IN ORDER TO MINIMIZE EXPOSED CONDUIT AND MATERIALS ON ROOF.
7. IDENTIFY ALL RATED WALLS ON ARCHITECTURAL PLANS AND PROVIDE CONDUIT CROSSING PER DETAIL "5/E-0.4"

KEY PLAN



IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APP. NO: 04 - 116082 INC: 0
AC __ FLS RF __ SS FT
DATE 08/15/2017

FBA Engineering

BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

WC-AE

BLDG. 02-06, 01-05 & BLDG. 03-07 ELECTRICAL PLAN

BARNARD ELEMENTARY SCHOOL
HVAC 2000 PHASE 2
EDUCATIONAL SUPPORT SPACES
2445 FOGG ST., SAN DIEGO, CA 92109

PROJECT NO. SDUSD-BES-02
DATE 01-20-17 | DRAWN FBA | CHECKED FBA
SHEET NO. CCD13R1-E1
E2.3

ATTACHMENT B

A.O. Reed &Co. SINCE 1914

4777 RUFFNER STREET, SAN DIEGO, CA 92111
PHONE (858) 565-4131 FAX (858) 292-6958 www.aoreed.com

MECHANICAL CONTRACTOR Contractor's License No. 7731

To: **Soltek Pacific** **7/27/2020**
CE-23

Attn: **Mark Hofmann**

Job Name: **Barnard ES**
Subject: **CCD 013 R1 - Delete Split System Forced Air Unit at Room 703**
Description: **Credit for eliminated ductless split system and associated piping**
Excludes: waterproofing, roofing, patch back & framing.

Materials and Equipment	-$2,061	
Sales Tax @ 7.75%	-$160	
Tools and Small Equipment Rentals	$0	
Subtotal Materials		-$2,221
Subtotal Labor Dollars		**-2,365.44** ~~-$2,350~~

Total Materials and Labor	-4,586.44 ~~-$4,571~~
Subtotal Subcontractors	**-$420**
Mark-up 15%	-687.97 ~~-$686~~
TOTAL AOR SELL	-5,694.41 ~~-$5,677~~

MA
8/12/2020

Qualifications:

This estimate includes cost for labor, materials and equipment necessary to perform the referenced work. Any work not specifically referenced in the attached cost proposal is excluded.

The above referenced cost estimate represents only direct costs related to this change. We reserve the right to submit any additional costs incurred, resulting from the accumulated effect of multiple change orders and the extension of contract time.

Exclusion per contract.

We will proceed with the scope included in this change upon receipt of a confirming Change Order from Soltek.

Quotation is valid for 30 days.

-

[ ] Day Extension of Contract Time Required.

A.O. REED & CO. - LABOR / RENTALS / SUBCONTRACTORS DETAIL **CE-23**
Barnard ES
CCD 013 R1 - Delete Split System Forced Air Unit at Room 703

LABOR HOURS / DOLLARS

	MANHOURS	$/MH	COST
Plumber/Fitter Journeyman:	-26.10	90.63 ~~90.02~~	-2,365.44 ~~-2349.79~~
Plumber/Fitter Journeyman OT:	0.00	0.00	0.00
Plumber/Fitter Foreman:	0.00	0.00	0.00
Plumber/Fitter Foreman OT:	0.00	0.00	0.00
Plumber/Fitter Detailer:	0.00	0.00	0.00
Plumber/Fitter Detailer OT:	0.00	0.00	0.00
Plumber/Fitter General Foreman:	0.00	0.00	0.00
Plumber/Fitter General Foreman OT:	0.00	0.00	0.00
Sheet Metal Journeyman:	0.00	78.23	0.00
Sheet Metal Journeyman OT:	0.00	104.19	0.00
Sheet Metal Foreman:	0.00	85.93	0.00
Sheet Metal Foreman OT:	0.00	111.70	0.00
Sheet Metal Shop Labor:	0.00	93.73	0.00
Sheet Metal Shop Labor OT:	0.00	117.19	0.00
Sheetmetal General Foreman:	0.00	88.51	0.00
Project Management	0.00	0.00	0.00
TOTAL LABOR DOLLARS			-2,365.44 ~~-2349.79~~

TOOLS AND SMALL EQUIPMENT RENTALS

	QUANTITY	UNIT $	COST
Small Tools & Consumables			0.00
Scissor lift	0	1200	0.00
Fork lift	0	400	0.00
Wacker	0	0	0.00
Welder	0	0	0.00
	0	0	0.00
TOTAL TOOLS & SMALL EQUIP RENTALS			0.00

SUBCONTRACTS

			COST
Insulation			-420.00
Firestopping			0.00
Test & Balance			0.00
Temperature Controls			0.00
Duct Cleaning			0.00
			0.00
TOTAL SUBCONTRACTS			-420.00

A.O. REED & CO. - CHANGE ESTIMATE DETAIL Job #: **Barnard ES**

CE-23

MATERIALS AND EQUIPMENT						LABOR	
ITEM	DESCRIPTION	UNIT	QUAN	UNIT COST	TOTAL COST	HOURS/ UNIT	TOTAL HOURS
1	3/8"OD ACR Hard Copper	ft	-25	1.59	$ (40)	0.05	-1.25
	RS Means 22 11 13.23 (5384)				$ -		
2	5/8" OD ACR Hard Copper	ft	-25	2.94	$ (74)	0.05	-1.25
	RS Means 22 11 13.23 (5386)				$ -		
3	3/8"OD LR 90s	ea	-3	3.45	$ (10)	0.36	-1.08
	RS Means 22 11 13.25 (0090)				$ -		
4	5/8"OD LR 90s	ea	-3	2.53	$ (8)	0.42	-1.26
	RS Means 22 11 13.25 (0110)				$ -		
5	For Silver Solder Add 15%	15%	-1	0.00	$ -	0.73	-0.7
	RS Means 22 11 13.25 (0020)						
	4.84 Hrs x 15% = 0.73						
6	P1000 Unistrut	ft	-10	3.16	$ (32)	0.11	-1.10
	RS Means 22 05 29.10 (2404)				$ -		
7	Unistrut Clamps	ea	-8	2.31	$ (18)	0.12	-0.96
	RS Means 22 05 29.10 (0970)				$ -		
8	Roof Block Pipe Stands	ea	-4	18.90	$ (76)	0.67	-2.68
	RS Means 22 05 29.10(7424)				$ -		
9	4" Line Set Roof Sweep	ea	-1	51.50	$ (52)	0.36	-0.36
	RS Means 23 51 23.10 (0220)				$ -		
10	Carrier Ductless Split System (2 Ton)	ea	-1	1753.00	$ (1,753)	11.43	-11.43
	RS Means 23 81 26.10 (0150)				$ -		
11	Start-Up	ea	-1	0.00	$ -	4.00	-4.00
				TOTALS	-2061		-26.10

Carrier
turn to the experts

Sigler

COMMERCIAL HVAC DIVISION

1900 WELD BLVD

Representing Industry Leading Manufacturers of Commercial HVAC Products & Solutions

Job Name:	**Barnard Ductless Split - REVISED**	**Date:**	07/27/2020
Attention:	AO REED	**Quote Number:**	19BP0672
Job Location:	San Diego, CA	**Engineer:**	(No Contact)

We are pleased to quote the following equipment for the above referenced project in accordance with attached terms and conditions.

Mark For	Qty.	Model Number	Description
	(1)	38MAQB24R--3	DLS 24K 230V HP CDU 2-TONS 208/230-1-60
	(1)	40MAQB24B--3	DLS 24 SEER 24K 230V HP IDU HW 2-TONS 208/230-1-60
	(1)	53DS-900---118	Field Installed Condensate Pump 208/230V
	(1)	KSACN0101AAA	Wired Remote Control

Total Net Sell Price (Excludes Sales Tax) FOB, FFA Factory:	**$1,753**

QUOTE NOTES

Ductless Splits Exclude:

- Pleated Filters and Spare Sets of Filters
- Condensing Unit Roof Curbs/ Platforms/ Housekeeping Pads
- External Vibration Isolation Hangars/ Mounts/ Pads/ Seismic Restraints
- Refrigerant Line Kits
- Secondary Drain Pans and Float Switches
- Condensate Pumps (See Separate Add)
- Sight Glasses

Ductless Split Warranty:

- 7 Year Complete Unit Parts Only

Note:

- Indoor Unit receives power from outdoor unit. Interconnecting LINE VOLTAGE wiring is field supplied and provided by others.
- Indoor Unit requires a separate power supply from outdoor unit. Only control voltage is run between the indoor and outdoor unit.
- Contractor shall verify with field inspector the installation of this unit indoors (or within the building space) prior to ordering/ installing. Contractor shall maintain manufacturer's recommendations.
- Split System maximum "actual" line length is ___ ft. Maximum lift is ___ ft.

We appreciate your consideration of this quotation and would like to thank you for your interest in Sigler products and services. Should you have any questions concerning the above quotation, please feel free to contact us.

Sigler
Commercial HVAC Division
bpopowski@siglers.com

ADDENDUM A

This quotation is based on the following terms and conditions, which are a material part therefore:

1. Shipment will be by a common carrier, FOB place of shipment, with Seller to prepay freight to the first destination. Seller reserves the right to control the routing. When any other than seller's regular method of shipment is used, the prepaid freight will not exceed the lowest of published prices for the regular method of shipment. Special handling charges by the carrier will be paid by buyer. Title passes to Buyer upon delivery to common carrier.

2. Prices are exclusive of any applicable city, state, or federal excise tax, including without limitations, taxes on manufacture, transaction privilege, sales, use, receipt, gross income, occupation and similar taxes. Any applicable taxes shall be added to the invoice as a separate charge paid by Buyer.

3. The prices contained in this quotation are firm for thirty (30) days from the date of this Quotation, at which time they are subject to change without notice.

4. Standard terms of payment are Net 30 days from date of invoice, but are subject to prior and continuing credit approval by Seller. Subsequent payments are to bear interest at 1-1/2% per month or as otherwise limited by applicable law.

5. This quote is for only the merchandise specified in detail herein. All other merchandise and services required for Buyer's job are not included in this quote.

6. Delivery dates are based on current information. Seller is not liable for any delay beyond its control.

7. **SELLER MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES AS TO MERCHANTABILITY OR AS TO THE FITNESS OF MERCHANDISE FOR ANY PARTICULAR USE OR PURPOSE, AND SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE DIRECTLY OR INDIRECTLY, ARISING FROM THE USE OF SUCH MERCHANDISE OR FOR CONSEQUENTIAL DAMAGES.** Warranties on the merchandise are extended solely by the manufacturer. Seller makes no warranties on labor. No back-charges or merchandise returns for credit are accepted on behalf of manufacturer without prior written authorization by Seller's Service Operations Manager and then only upon the conditions and procedures set forth by the manufacturer.

8. Seller is not liable for sales or engineering drawings, plans or specifications rendered in connection with the merchandise, or factory supervision of any installation or start-up.

9. Buyer hereby gives and grants Seller a purchase money security interest in all of the merchandise set forth in this quote, to secure Buyer's obligation to pay for the merchandise, which security interest shall be effective until such time as payment is received by Seller. Seller shall have the right, in addition to all others it may possess, at any time, for credit reasons or because of Buyer's default, to withhold shipment of merchandise, in whole or part, and to recall goods in transit and retake the, and repossess all goods which may be stored with Seller for Buyer's account, without the necessity of undertaking any other actions. Buyer consents that all the merchandise so recalled, retaken or repossessed shall become Seller's absolute property, provided that Buyer is given full credit therefore. The forgoing shall not be construed as limiting, any other rights or remedies available to Seller as a result of Buyer's default.

10. These terms and conditions shall supersede any provisions, terms and conditions contained on any confirmation order, or other writing Buyer may give or receive, and the rights of the parties shall be governed exclusively by the provisions, terms and conditions hereof. This quotation may be modified only in a subsequent writing signed by both parties.

11. Acceptance of this offer is expressly limited to the exact term contained herein and any attempt to alter or omit any such term shall be deemed a rejection and counteroffer. If this quotation us accepted, and Buyer's order form is used for the purpose, it is expressly understood and agreed that the terms and conditions contained in this quotation shall prevail over any and all terms and conditions set forth in Buyer's order form. Issuance of such order by Buyer shall be deemed to note Buyer's assent to the terms and conditions contained in this quotation. Acceptance of this quotation by Buyer with language which contains the term: "in accordance with plans and specification" or similar language, shall be deemed ineffective as to such language and will be treated as acceptance without such term.

Accepted By:_____ **Quote Date:** 07/15/2020

Title:_____ **Quote Number:** 19BP0672

Date:_____ **PO Number:**

Total Sell Price excluding sales tax:_____ **Job Name:** Barnard Ductless Split

PCI PERFORMANCE CONTRACTING INC
1822 Main St, Suite A
San Diego, CA. 92113
Phone: (619) 236-1593
Fax: (619) 236-0663

PROPOSAL
INSULATION SERVICES DIVISION

SDUSD- Package B - Barnard ES- Removed Ductless Split – CAP #007

To: *Garrett Plate*
A. O. Reed & Co.
4777 Ruffner Street
San Diego, CA 92111
P: 858 565 4131 F: 858 292 6958

Date: 7/16/20

Performance Contracting, Inc. (hereinafter designated as "CONTRACTOR") proposes to furnish all materials and labor required for the application of the following (hereinafter designated as the "Work") for the amount stated below:

PCI shall furnish and install all supervision, labor, materials, and equipment to supply and install the insulation on the following items (per the above referenced plans, specifications and addenda):

(N) Refrigerant Piping

HVAC DRY		$	-
HVAC WET	RS Pipe	$	(420.00)
Plumbing		$	-
Total		$	(420.00)

Technical Clarifications:

- CONTRACTOR's pricing and proposal excludes anything not specifically identified in the plans and specifications.
- Standard exclusions are (unless otherwise noted on page 1):

1. LAV Guards
2. Firestopping and sound caulking
3. Underground or Site work
4. Painting, Stenciling or Labeling
5. Price does not include furnishing of bonds.
6. Patching and repair due to damage by others.
7. Inserts, shields, escutcheons, sleeves (pipe or ductwork).
8. Victaulics
9. Premium Time work, shift work, or work to be performed beyond the regular shift (8 hours a day- 5 days a week)

This proposal is subject to change and will be withdrawn if not accepted within 30 days of the above date; it is subject to and includes all terms and conditions described herein (and such other terms as may be mutually agreed upon).

Contract Price $ ***See above***

Acceptance Date:

By:

PERFORMANCE CONTRACTING, INC.

By: Miles Pavich

Title: *Estimator/Project Manager*

PROFORMANCE

PCI PERFORMANCE CONTRACTING INC
1822 Main St, Suite A
San Diego, CA. 92113
Phone: (619) 236-1593
Fax: (619) 236-0663

PROPOSAL
INSULATION SERVICES DIVISION

Contractual Clarifications

- CONTRACTOR's price is based on clarifications stated in this proposal (and is conditional upon acceptance of mutually agreed-upon contract terms and conditions). CONTRACTOR's attached Standard Terms and Conditions, including CONTRACTOR's Standard Insurance, will apply to this project.
- Protection of finished Work is excluded. CONTRACTOR's Work must be approved and accepted on an area-by-area basis prior to removal of scaffolding and other equipment necessary to perform the Work. Once approval has been given and such equipment has been removed, and CONTRACTOR has left the area, CONTRACTOR cannot be responsible for damage to its Work.
- Any damage to CONTRACTOR's Work, which is not specifically caused by CONTRACTOR, will be considered damage by other trades. CONTRACTOR will be compensated for any repairs of damage by others via change order to the subcontract.
- CONTRACTOR will be reimbursed for material received and stored in warehouse or pre-stocked at jobsite.
- CONTRACTOR shall not be responsible for damaged work in place arising from or relating to weather, environmental conditions, or other parties, except to the extent that such damage is covered by insurance (excluding deductibles).
- As used in this Proposal, "costs" shall mean all costs associated with the performance of the Work, including but not limited to supervisory costs, engineering costs, and all other expenditures reasonable and necessary to complete the Work required under the terms of this Proposal, or any modification thereto.

Commercial Clarifications:

- Temporary facilities such as light, power, heat, drinking water, and toilets are to be provided at locations convenient to the Work at no cost to CONTRACTOR. Such facilities will be adequate to ensure the proper installation of all of CONTRACTOR's Work under all environmental conditions.

Schedule:

- CONTRACTOR shall be afforded the opportunity to establish the activities and working time necessary to perform and complete the Work included in this proposal.
- This proposal is predicated upon the Work being released to CONTRACTOR in an orderly and logical sequence.
- In the event CONTRACTOR is unable to finish the Work on or about the scheduled completion date through no fault of its own, CONTRACTOR shall be entitled to additional compensation for escalation of cost, lost efficiency factor, or any other cost resulting from the delay, plus overhead and profit.

Changes:

- The cost of any extra Work, modifications, or additions required by jobsite conditions or directed by CONTRACTOR shall be added to contract price plus 15% for markup and fee. CONTRACTOR shall be entitled to payments for said extra Work, as directed by Customer, whether issued verbally or in writing. The jobsite representative of Customer shall have authority to authorize extra Work, modifications, or additions as outlined above, and to commit Customer to make payment. Therefore, no charges will be made to CONTRACTOR's account for Work performed or material furnished by others, without notifying CONTRACTOR and receiving its written approval before proceeding with such Work.

	22 11 13.23 Pipe/Tube, Copper	Crew	Daily Output	Labor-Hours	Unit	2017 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
3380	8" diameter	Q-2	38	.632	L.F.	251	36.50		287.50	330
3440	For silver solder, add						15%			
3960	To delete cplgs. & hngrs., 1/4"-1" pipe, subtract					35%	65%			
3970	1-1/4"-3" pipe, subtract					19%	56%			
3980	3-1/2"-5" pipe, subtract					13%	65%			
3990	6"-8" pipe, subtract					28%	58%			
4000	Type DWV tubing, couplings & clevis hanger assemblies 10' O.C.									
4100	1-1/4" diameter	1 Plum	60	.133	L.F.	11.40	8.25		19.65	25
4120	1-1/2" diameter		54	.148		13.30	9.15		22.45	28.50
4140	2" diameter		44	.182		16.50	11.25		27.75	35
4160	3" diameter	Q-1	58	.276		24.50	15.35		39.85	50
4180	4" diameter		40	.400		44.50	22.50		67	82.50
4200	5" diameter		36	.444		101	24.50		125.50	149
4220	6" diameter	Q-2	42	.571		137	33		170	201
4240	8" diameter	"	38	.632		294	36.50		330.50	380
4730	To delete cplgs. & hngrs., 1-1/4"-2" pipe, subtract					16%	58%			
4740	3"-4" pipe, subtract					13%	60%			
4750	5"-8" pipe, subtract					23%	58%			
5200	ACR tubing, type L, hard temper, cleaned and									
5220	capped, no couplings or hangers									
5240	3/8" OD				L.F.	1.59			1.59	1.75
5250	1/2" OD					2.41			2.41	2.65
5260	5/8" OD					2.94			2.94	3.23
5270	3/4" OD					4.15			4.15	4.57
5280	7/8" OD					4.61			4.61	5.05
5290	1-1/8" OD					6.70			6.70	7.35
5300	1-3/8" OD					8.95			8.95	9.85
5310	1-5/8" OD					11.50			11.50	12.65
5320	2-1/8" OD					18.10			18.10	19.90
5330	2-5/8" OD					23			23	25.50
5340	3-1/8" OD					31			31	34
5350	3-5/8" OD					57.50			57.50	63.50
5360	4-1/8" OD					53.50			53.50	58.50
5380	ACR tubing, type L, hard, cleaned and capped									
5381	No couplings or hangers									
5384	3/8"	1 Stpi	160	.050	L.F.	1.59	3.11		4.70	6.45
5385	1/2"		160	.050		2.41	3.11		5.52	7.35
5386	5/8"		160	.050		2.94	3.11		6.05	7.95
5387	3/4"		130	.062		4.15	3.83		7.98	10.35
5388	7/8"		130	.062		4.61	3.83		8.44	10.85
5389	1-1/8"		115	.070		6.70	4.33		11.03	13.90
5390	1-3/8"		100	.080		8.95	4.98		13.93	17.35
5391	1-5/8"		90	.089		11.50	5.55		17.05	21
5392	2-1/8"		80	.100		18.10	6.25		24.35	29.50
5393	2-5/8"	Q-5	125	.128		23	7.15		30.15	36.50
5394	3-1/8"		105	.152		31	8.55		39.55	47
5395	4-1/8"		95	.168		53.50	9.45		62.95	73
5800	Refrigeration tubing, dryseal, 50' coils									
5840	1/8" OD				Coil	30			30	33
5850	3/16" OD					35			35	38.50
5860	1/4" OD					40			40	44
5870	5/16" OD					54			54	59.50
5880	3/8" OD					56.50			56.50	62.50

	22 11 13.23 Pipe/Tube, Copper	Crew	Daily Output	Labor-Hours	Unit	2017 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0890	1/2" OD				Coil	80.50			80.50	88.50
0900	5/8" OD					108			108	119
0910	3/4" OD					126			126	139
0920	7/8" OD					135			135	148
0930	1-1/8" OD					279			279	305
0940	1-3/8" OD					485			485	530
0950	1-5/8" OD				↓	615			615	675
9400	Sub assemblies used in assembly systems									
9410	Chilled water unit, coil connections per unit under 10 ton	Q-5	.80	20	System	1,400	1,125		2,525	3,250
9420	Chilled water unit, coil connections per unit 10 ton and up		1	16		2,100	895		2,995	3,650
9430	Chilled water dist. piping per ton, less than 61 ton systems		26	.615		24	34.50		58.50	78.50
9440	Chilled water dist. piping per ton, 61 through 120 ton systems	Q-6	31	.774		52.50	45		97.50	126
9450	Chilled water dist. piping/ton, 135 ton systems and up	Q-8	25.40	1.260		70	74.50	2.29	146.79	192
9510	Refrigerant piping/ton of cooling for remote condensers	Q-5	2	8		395	450		845	1,100
9520	Refrigerant piping per ton up to 10 ton w/remote condensing unit		2.40	6.667		199	375		574	785
9530	Refrigerant piping per ton, 20 ton w/remote condensing unit		2	8		300	450		750	1,000
9540	Refrigerant piping per ton, 40 ton w/remote condensing unit		1.90	8.421		365	470		835	1,100
9550	Refrigerant piping per ton, 75-80 ton w/remote condensing unit	Q-6	2.40	10		460	580		1,040	1,375
9560	Refrigerant piping per ton, 100 ton w/remote condensing unit	"	2.20	10.909	↓	595	635		1,230	1,600

	22 11 13.25 Pipe/Tube Fittings, Copper	Crew	Daily Output	Labor-Hours	Unit	2017 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0010	PIPE/TUBE FITTINGS, COPPER, Wrought unless otherwise noted									
0020	For silver solder, add					15%				
0060	Solder joints, copper x copper									
0070	90° elbow, 1/4"	1 Plum	22	.364	Ea	3.57	22.50		26.07	38
0090	3/8"		22	.364		3.45	22.50		25.95	38
0100	1/2"		20	.400		1.23	24.50		25.73	39
0110	5/8"		19	.421		2.53	26		28.53	42.50
0120	3/4"		19	.421		2.75	26		28.75	42.50
0130	1"		16	.500		6.75	31		37.75	54
0140	1-1/4"		15	.533		10	33		43	60.50
0150	1-1/2"		13	.615		15.60	38		53.60	74.50
0160	2"		11	.727		28.50	45		73.50	99.50
0170	2-1/2"	Q-1	13	1.231		52	68.50		120.50	160
0180	3"		11	1.455		73.50	81		154.50	203
0190	3-1/2"		10	1.600		228	89		317	385
0200	4"		9	1.778		161	99		260	325
0210	5"		6	2.667		635	148		783	920
0220	6"	Q-7	9	2.667		845	154		999	1,150
0230	8"	"	6	3		3,125	173		3,298	3,675
0250	45° elbow, 1/4"	1 Plum	22	.364		6.35	22.50		28.85	41
0270	3/8"		22	.364		5.45	22.50		27.95	40
0280	1/2"		20	.400		2.24	24.50		26.74	40
0290	5/8"		19	.421		9.55	26		35.55	50
0300	3/4"		19	.421		3.82	26		29.82	43.50
0310	1"		16	.500		9.60	31		40.60	57
0320	1-1/4"		15	.533		12.85	33		45.85	63.50
0330	1-1/2"		13	.615		15.80	38		53.80	75
0340	2"		11	.727		26.50	45		71.50	97
0350	2-1/2"	Q-1	13	1.231		51	68.50		119.50	160
0360	3"		13	1.231		71.50	68.50		140	182
0370	3-1/2"		10	1.600		102	89		191	246
0380	4"		9	1.778	↓	147	99		246	310

22 05 29.10 Hangers & Supp. for Plumb'g/HVAC Pipe/Equip.	Crew	Daily Output	Labor-Hours	Unit	2017 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
2350 4" pipe size	Q-1	110	.145	Ea.	15.45	8.10		23.55	29
2360 5" pipe size		106	.151		20.50	8.40		28.90	35
2370 6" pipe size		104	.154		46	8.55		54.55	63.50
2380 8" pipe size	↓	100	.160	↓	67	8.90		75.90	87.50
2390 For copper plated, add					8%				
2400 Channels, steel, 1-1/2" x 1-1/2"	1 Plum	80	.100	L.F.	2.46	6.20		8.66	12.05
2404 1-1/2" x 1-1/2"		70	.114		3.16	7.05		10.21	14.15
2408 1-5/8" x 1-5/8"		60	.133		23	8.25		31.25	38
2412 3" x 1-1/2"		50	.160	↓	39.50	9.90		49.40	58.50
2416 Hangers, trapeze channel support, 12 ga. 1-1/2" x 1-1/2", 12" wide, steel		8.80	.909	Ea.	17.95	56		73.95	105
2418 18" wide, steel		8.30	.964		19.55	59.50		79.05	112
2430 Spring nuts, long, 1/4"		120	.067		.90	4.12		5.02	7.20
2432 3/8"		100	.080		.99	4.94		5.93	8.55
2434 1/2"		80	.100		1.03	6.20		7.23	10.50
2436 5/8"		80	.100		3.62	6.20		9.82	13.35
2438 3/4"		75	.107		6.25	6.60		12.85	16.80
2440 Spring nuts, short, 1/4"		120	.067		1.41	4.12		5.53	7.75
2442 3/8"		100	.080		1.49	4.94		6.43	9.10
2444 1/2"	↓	80	.100	↓	1.69	6.20		7.89	11.20
2500 Washer, flat steel									
2502 3/8"	1 Plum	240	.033	Ea.	.07	2.06		2.13	3.19
2503 1/2"		220	.036		.19	2.25		2.44	3.60
2504 5/8"		200	.040		.36	2.47		2.83	4.13
2505 3/4"		180	.044		.50	2.75		3.25	4.69
2506 7/8"		160	.050		.42	3.09		3.51	5.10
2507 1"		140	.057		1.07	3.53		4.60	6.55
2508 1-1/4"	↓	120	.067	↓	1.21	4.12		5.33	7.55
2520 Nut, steel, hex									
2522 3/8"	1 Plum	200	.040	Ea.	.16	2.47		2.63	3.91
2523 1/2"		180	.044		.48	2.75		3.18	4.61
2524 5/8"		160	.050		.68	3.09		3.77	5.40
2525 3/4"		140	.057		1.18	3.53		4.71	6.65
2526 7/8"		120	.067		1.92	4.12		6.04	8.30
2527 1"		100	.080		2.66	4.94		7.60	10.40
2528 1-1/4"	↓	80	.100	↓	6.65	6.20		12.85	16.65
2532 Turnbuckle, TYPE 13									
2534 3/8"	1 Plum	80	.100	Ea.	4.82	6.20		11.02	14.65
2535 1/2"		72	.111		5.45	6.85		12.30	16.35
2536 5/8"		64	.125		9.75	7.75		17.50	22.50
2537 3/4"		56	.143		12.40	8.85		21.25	27
2538 7/8"		48	.167		29.50	10.30		39.80	48
2539 1"		40	.200		42	12.35		54.35	64.50
2540 1-1/4"	↓	32	.250	↓	78	15.45		93.45	110
2650 Rods, carbon steel									
2660 Continuous thread									
2670 1/4" thread size	1 Plum	144	.056	L.F.	2.18	3.43		5.61	7.60
2680 3/8" thread size		144	.056		2.33	3.43		5.76	7.75
2690 1/2" thread size		144	.056		3.67	3.43		7.10	9.25
2700 5/8" thread size		144	.056		5.20	3.43		8.63	10.90
2710 3/4" thread size		144	.056		9.15	3.43		12.58	15.30
2720 7/8" thread size	↓	144	.056		11.50	3.43		14.93	17.85
2721 1" thread size	Q-1	160	.100		19.65	5.55		25.20	30
2722 1-1/8" thread size	"	120	.133	↓	23.50	7.40		30.90	36.50

22 05 29.10 Hangers & Supp. for Plumb'g/HVAC Pipe/Equip.		Crew	Daily Output	Labor-Hours	Unit	2017 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0970	3/4" pipe size	Q-1	134	.119	Ea.	2.31	6.65		8.96	12.55
0980	1" pipe size		132	.121		2.75	6.75		9.50	13.20
0990	1-1/4" pipe size		130	.123		2.73	6.85		9.58	13.35
1000	1-1/2" pipe size		126	.127		3.55	7.05		10.60	14.55
1010	2" pipe size		124	.129		4.37	7.20		11.57	15.65
1020	2-1/2" pipe size		120	.133		4.72	7.40		12.12	16.40
1030	3" pipe size		117	.137		5.55	7.60		13.15	17.60
1040	3-1/2" pipe size		114	.140		9.75	7.80		17.55	22.50
1050	4" pipe size		110	.145		6.90	8.10		15	19.80
1060	5" pipe size		106	.151		17	8.40		25.40	31.50
1070	6" pipe size		104	.154		18.75	8.55		27.30	33.50
1080	8" pipe size		100	.160		23	8.90		31.90	38.50
1090	10" pipe size		96	.167		45	9.25		54.25	63.50
1100	12" pipe size		89	.180		54.50	10		64.50	75
1110	14" pipe size		82	.195		73.50	10.85		84.35	97.50
1120	16" pipe size		68	.235		96	13.10		109.10	125
1130	For galvanized, add					45%				
1150	Insert, concrete									
1160	Wedge type, carbon steel body, malleable iron nut, galvanized									
1170	1/4" threaded rod size	1 Plum	96	.083	Ea.	9.55	5.15		14.70	18.25
1180	3/8" threaded rod size		96	.083		39	5.15		44.15	50.50
1190	1/2" threaded rod size		96	.083		10.65	5.15		15.80	19.50
1200	5/8" threaded rod size		96	.083		60	5.15		65.15	74
1210	3/4" threaded rod size		96	.083		11.95	5.15		17.10	21
1220	7/8" threaded rod size		96	.083		12.85	5.15		18	21.50
1250	Pipe guide sized for insulation									
1260	No. 1, 1" pipe size, 1" thick insulation	1 Spl	26	.308	Ea.	121	19.15		140.15	162
1270	No. 2, 1-1/4"-2" pipe size, 1" thick insulation		23	.348		147	21.50		168.50	195
1280	No. 3, 1-1/4"-2" pipe size, 1-1/2" thick insulation		21	.381		147	23.50		170.50	198
1290	No. 4, 2-1/2"-3-1/2" pipe size, 1-1/2" thick insulation		18	.444		151	27.50		178.50	208
1300	No. 5, 4"-5" pipe size, 1-1/2" thick insulation		16	.500		167	31		198	231
1310	No. 6, 5"-6" pipe size, 2" thick insulation	Q-5	21	.762		191	42.50		233.50	275
1320	No. 7, 8" pipe size, 2" thick insulation		16	1		241	56		297	350
1330	No. 8, 10" pipe size, 2" thick insulation		12	1.333		355	74.50		429.50	505
1340	No. 9, 12" pipe size, 2" thick insulation	Q-6	17	1.412		356	82		438	515
1350	No. 10, 12"-14" pipe size, 2-1/2" thick insulation		16	1.500		420	87		507	590
1360	No. 11, 16" pipe size, 2-1/2" thick insulation		10.50	2.286		420	133		553	660
1370	No. 12, 16"-18" pipe size, 3" thick insulation		9	2.667		615	155		770	910
1380	No. 13, 20" pipe size, 3" thick insulation		7.50	3.200		615	186		801	955
1390	No. 14, 24" pipe size, 3" thick insulation		7	3.429		865	199		1,064	1,250
1400	Bands									
1410	Adjustable band; carbon steel, for non-insulated pipe, TYPE 7									
1420	1/2" pipe size	Q-1	142	.113	Ea.	.31	6.25		6.56	9.80
1430	3/4" pipe size		140	.114		.31	6.35		6.66	9.95
1440	1" pipe size		137	.117		.31	6.50		6.81	10.15
1450	1-1/4" pipe size		134	.119		.33	6.65		6.98	10.35
1460	1-1/2" pipe size		131	.122		.33	6.80		7.13	10.60
1470	2" pipe size		129	.124		.33	6.90		7.23	10.75
1480	2-1/2" pipe size		125	.128		.60	7.10		7.70	11.40
1490	3" pipe size		122	.131		.64	7.30		7.94	11.70
1500	3-1/2" pipe size		119	.134		1.08	7.50		8.58	12.50
1510	4" pipe size		114	.140		1.04	7.80		8.84	12.95
1520	5" pipe size		110	.145		1.62	8.10		9.72	14

	22 05 29.10 Hangers & Supp. for Plumb'g/HVAC Pipe/Equip.	Crew	Daily Output	Labor-Hours	Unit	2017 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
7324	3-1/2" off roof	Q-5	24	.667	Ea.	21	37.50		58.50	79.50
7326	Up to 10" off roof	"	20	.800	"	26.50	45		71.50	96.50
7340	2-1/2" to 3-1/2" diam. pipe									
7342	Up to 16" off roof	Q-5	18	.889	Ea.	48	50		98	128
7360	4" to 5" diam. pipe									
7362	Up to 12" off roof	Q-5	16	1	Ea.	68.50	56		124.50	160
7400	Strut/channel type									
7410	1" to 4" diam. pipe									
7424	3-1/2" off roof	Q-5	24	.667	Ea.	18.90	37.50		56.40	77.50
7426	Up to 10" off roof	"	20	.800	"	24	45		69	94
7440	Strut and roller type									
7452	2-1/2" to 3-1/2" diam. pipe									
7454	Up to 16" off roof	Q-5	18	.889	Ea.	69	50		119	151
7460	Strut and hanger type									
7470	Up to 3" diam. pipe									
7474	Up to 8" off roof	Q-5	19	.842	Ea.	43.50	47		90.50	119
8000	Pipe clamp, plastic, 1/2" CTS	1 Plum	80	.100		.23	6.20		6.43	9.60
8010	3/4" CTS		73	.110		.24	6.75		6.99	10.45
8020	1" CTS		68	.118		.53	7.25		7.78	11.55
8080	Economy clamp, 1/4" CTS		175	.046		.04	2.82		2.86	4.30
8090	3/8" CTS		168	.048		.04	2.94		2.98	4.48
8100	1/2" CTS		160	.050		.04	3.09		3.13	4.70
8110	3/4" CTS		145	.055		.06	3.41		3.46	5.20
8200	Half clamp, 1/2" CTS		80	.100		.07	6.20		6.27	9.45
8210	3/4" CTS		73	.110		.10	6.75		6.85	10.30
8300	Suspension clamp, 1/2" CTS		80	.100		.20	6.20		6.40	9.55
8310	3/4" CTS		73	.110		.21	6.75		6.96	10.45
8320	1" CTS		68	.118		.46	7.25		7.71	11.45
8400	Insulator, 1/2" CTS		80	.100		.33	6.20		6.53	9.70
8410	3/4" CTS		73	.110		.34	6.75		7.09	10.55
8420	1" CTS		68	.118		.35	7.25		7.60	11.35
8500	J hook clamp with nail, 1/2" CTS		240	.033		.11	2.06		2.17	3.23
8501	3/4" CTS		240	.033		.11	2.06		2.17	3.23
8800	Wire cable support system									
8810	Cable with hook terminal and locking device									
8830	2 mm (.079") dia cable (100 lb. cap.)									
8840	1 m (3.3') length, with hook	1 Shee	96	.083	Ea.	3.17	4.84		8.01	10.90
8850	2 m (6.6') length, with hook		84	.095		3.68	5.55		9.23	12.50
8860	3 m (9.9') length, with hook		72	.111		4.15	6.45		10.60	14.40
8870	5 m (16.4') length, with hook	Q-9	60	.267		5.85	13.95		19.80	28
8880	10 m (32.8') length, with hook	"	30	.533		7.45	28		35.45	50.50
8900	3 mm (.118") dia cable (200 lb. cap.)									
8910	1 m (3.3') length, with hook	1 Shee	96	.083	Ea.	3.96	4.84		8.80	11.75
8920	2 m (6.6') length, with hook		84	.095		4.45	5.55		10	13.35
8930	3 m (9.9') length, with hook		72	.111		4.91	6.45		11.36	15.25
8940	5 m (16.4') length, with hook	Q-9	60	.267		6.05	13.95		20	28
8950	10 m (32.8') length, with hook	"	30	.533		10.60	28		38.60	54
9000	Cable system accessories									
9010	Anchor bolt, 3/8", with nut	1 Shee	140	.057	Ea.	1	3.32		4.32	6.20
9020	Air duct corner protector		160	.050		.55	2.90		3.45	5.05
9030	Air duct support attachment		140	.057		1.75	3.32		5.07	7.05
9040	Flange clip, hammer-on style									
9044	For flange thickness 3/32"–9/64", 160 lb. cap.	1 Shee	180	.044	Ea.	.26	2.58		2.84	4.20

23 51 13 – Draft Control Devices

23 51 13.13 Draft-Induction Fans

		Crew	Daily Output	Labor-Hours	Unit	2017 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
0420	20" size	Q-9	4.50	3.556	Ea.	490	186		676	825
0430	22" size		4	4		515	209		724	885
0440	24" size		3.50	4.571		545	239		784	960
0450	27" size		3	5.333		570	279		849	1,050
0460	30" size		2.50	6.400		625	335		960	1,200
0470	32" size		2	8		655	420		1,075	1,350
0480	36" size		1.50	10.667		725	555		1,280	1,650

23 51 13.16 Vent Dampers

5010	VENT DAMPERS									
5020	Vent damper, bimetal, gas, 3" diameter	Q-9	24	.667	Ea.	52	35		87	111
5030	4" diameter		24	.667		52	35		87	111
5040	5" diameter		23	.696		52	36.50		88.50	113
5050	6" diameter		22	.727		52	38		90	116
5060	7" diameter		21	.762		55.50	40		95.50	122
5070	8" diameter		20	.800		57.50	42		99.50	128

23 51 13.19 Barometric Dampers

1010	BAROMETRIC DAMPERS									
1020	Barometric, gas fired system only, 6" size for 5" and 6" pipes	1 Shee	20	.400	Ea.	80	23		103	124
1030	7" size, for 6" and 7" pipes		19	.421		85.50	24.50		110	132
1040	8" size, for 7" and 8" pipes		18	.444		111	26		137	162
1060	9" size, for 8" and 9" pipes		16	.500		124	29		153	182
2000	All fuel, oil, oil/gas, coal									
2020	10" for 9" and 10" pipes	1 Shee	15	.533	Ea.	185	31		216	252
2040	12" for 11" and 12" pipes		15	.533		242	31		273	315
2050	14" for 13" and 14" pipes		14	.571		315	33		348	395
2060	16" for 15" and 16" pipes		13	.615		440	35.50		475.50	540
2080	18" for 17" and 18" pipes		12	.667		585	38.50		623.50	705
2100	20" for 19" and 21" pipes		10	.800		700	46.50		746.50	840
2140	24" for 22" and 25" pipes	Q-9	12	1.333		855	69.50		924.50	1,050
2160	28" for 26" and 30" pipes		10	1.600		1,050	83.50		1,133.50	1,300
2180	32" for 31" and 34" pipes		8	2		1,350	105		1,455	1,650
3260	For thermal switch for above, add	1 Shee	24	.333		76.50	19.35		95.85	114

23 51 23 – Gas Vents

23 51 23.10 Gas Chimney Vents

0010	GAS CHIMNEY VENTS Prefab metal, U.L. listed									
0020	Gas, double wall, galvanized steel									
0030	3" diameter	Q-9	72	.222	V.L.F.	6.60	11.60		18.20	25
0100	4" diameter		68	.235		8.15	12.30		20.45	28
0120	5" diameter		64	.250		9.25	13.05		22.30	30
0140	6" diameter		60	.267		11.05	13.95		25	33.50
0160	7" diameter		56	.286		21	14.95		35.95	46
0180	8" diameter		52	.308		22.50	16.10		38.60	49.50
0200	10" diameter		48	.333		43	17.40		60.40	74
0220	12" diameter		44	.364		51.50	19		70.50	85.50
0240	14" diameter		42	.381		85.50	19.90		105.40	125
0260	16" diameter		40	.400		123	21		144	167
0280	18" diameter		38	.421		152	22		174	201
0300	20" diameter	Q-10	36	.667		179	36		215	252
0320	22" diameter		34	.706		227	38		265	310
0340	24" diameter		32	.750		280	40.50		320.50	370
0360	For 4", 5" and 6" oval, add					50%				
0450	Gas, double wall, galvanized steel, fittings									

23 81 Decentralized Unitary HVAC Equipment

23 81 23 – Computer-Room Air-Conditioners

	23 81 23.10 Computer Room Units	Crew	Daily Output	Labor-Hours	Unit	2017 Bare Costs Material	Labor	Equipment	Total	Total Incl O&P
4000	Glycol system, complete except for interconnecting tubing									
4060	3 ton	Q-5	.40	40	Ea.	24,700	2,250		26,950	30,600
4100	5 ton		.38	42.105		27,100	2,350		29,450	33,400
4120	6 ton		.25	64		40,200	3,575		43,775	49,700
4140	8 ton		.23	69.565		43,500	3,900		47,400	53,500
4160	10 ton		.21	76.190		46,200	4,275		50,475	57,500
4180	12 ton		.19	84.211		50,000	4,725		54,725	62,000
4200	15 ton	Q-6	.26	92.308		57,500	5,375		62,875	71,000
4240	20 ton		.24	100		63,000	5,800		68,800	78,500
4280	22 ton		.23	104		66,000	6,075		72,075	82,000
4430	30 ton		.22	109		82,000	6,350		88,350	99,500
8000	Water-cooled system, not including condenser,									
8020	water supply or cooling tower									
8060	3 ton	Q-5	.62	25.806	Ea.	20,100	1,450		21,550	24,300
8100	5 ton		.54	29.630		21,800	1,650		23,450	26,500
8120	6 ton		.35	45.714		31,200	2,550		33,750	38,200
8140	8 ton		.33	48.485		35,800	2,725		38,525	43,400
8160	10 ton		.31	51.613		37,000	2,900		39,900	45,100
8180	12 ton		.29	55.172		40,100	3,100		43,200	48,800
8200	15 ton		.27	59.259		43,300	3,325		46,625	52,500
8240	20 ton	Q-6	.38	63.158		46,600	3,675		50,275	56,500
8280	22 ton		.35	68.571		48,900	3,975		52,875	60,000
8300	30 ton		.30	80		61,000	4,650		65,650	74,000

23 81 26 – Split-System Air-Conditioners

23 81 26.10 Split Ductless Systems

0010	SPLIT DUCTLESS SYSTEMS									
0100	Cooling only, single zone									
0110	Wall mount									
0120	3/4 ton cooling	Q-5	2	8	Ea.	1,100	450		1,550	1,900
0130	1 ton cooling		1.80	8.889		1,225	500		1,725	2,100
0140	1-1/2 ton cooling		1.60	10		1,975	560		2,535	3,025
0150	2 ton cooling		1.40	11.429		2,250	640		2,890	3,450
1000	Ceiling mount									
1020	2 ton cooling	Q-5	1.40	11.429	Ea.	2,000	640		2,640	3,175
1030	3 ton cooling	"	1.20	13.333	"	2,550	745		3,295	3,925
3000	Multizone									
3010	Wall mount									
3020	2 @ 3/4 ton cooling	Q-5	1.80	8.889	Ea.	3,375	500		3,875	4,450
5000	Cooling/Heating									
5010	Wall mount									
5110	1 ton cooling	Q-5	1.70	9.412	Ea.	1,300	525		1,825	2,225
5120	1-1/2 ton cooling	"	1.50	10.667	"	1,975	600		2,575	3,075
7000	Accessories for all split ductless systems									
7010	Add for ambient frost control	Q-5	8	2	Ea.	126	112		238	310
7020	Add for tube/wiring kit (Line sets)									
7030	15' kit	Q-5	32	.500	Ea.	100	28		128	153
7036	25' kit		28	.571		186	32		218	253
7040	35' kit		24	.667		169	37.50		206.50	243
7050	50' kit		20	.800		192	45		237	279

Baker Electric

ATTACHMENT C

CHANGE ORDER

Baker Electric, Inc.
1298 Pacific Oaks Place
Escondido, CA 92029
Telephone: 760-745-2001

CCN # 12
Date: 7/24/2020
Project Name: Barnard Elementary HVAC Upgrade
Project Number: Barnard Elementary HVAC Upgrade
Page Number: 1

Client Address:

Soltek Pacific
2424 Congress Street
San Diego, CA 92110
Contact: Mark Hofmann

Work Description

Description of added work:

Credit for deletion of scope pertaining to CCD 013R1 and the deletion of Split System Forced Air Unit at Room 703.

Clarifications:

Exclusions:

Baker Electric is signatory, and bound to various collective-bargaining agreements with the International Brotherhood of Electrical Workers ("IBEW"), and certain of its affiliated local unions. Those IBEW collective-bargaining agreements cover the scope of work included/described/covered by the proposal. Baker is not signatory, nor bound to any agreement with any other labor organization.

No contractual term shall require as a condition or precondition that Baker waive, or otherwise diminish any existing right or benefit to which Baker is entitled under any provision of California Statutes or law.

Itemized Breakdown

Description	Qty	Net Price	U	Total Mat.	Labor	U	Total Hrs.
3/4" CONDUIT - EMT	-30	56.26	C	-16.88	4.80	C	-1.44
3/4" CONN COMP STL - EMT	-4	118.22	C	-4.73	19.50	C	-0.78
3/4" COUPLING COMP STL - EMT	-2	113.68	C	-2.27	13.50	C	-0.27
3/4" 1-H STRAP - EMT - STEEL	-4	41.43	C	-1.66	8.10	C	-0.32
#12 THHN BLACK	-45	130.51	M	-5.87	7.73	M	-0.35
WIRE CONN RED	-10	18.16	C	-1.82	0.00	C	-0.00
FS 1G BOX 2x 3/4" HUB - TOP+BTM	-1	28.37	E	-28.37	0.90	E	-0.90
GROUND SCREW W/ INSUL #12 LEAD	-1	402.86	C	-4.03	4.50	C	-0.04
20A 125V DUP REC - IVY (SG)	-1	369.00	C	-3.69	30.00	C	-0.30

This section is included as to clarify previous page's scan of Itemized Breakdown

FOR REFERENCE ONLY

Itemized Breakdown

Description	Qty	Net Price	U	Total Mat.	Labor	U	Total Hrs.
3/4" CONDUIT - EMT	-30	56.26	C	-16.88	4.80	C	-1.86 ~~-1.44~~
3/4" CONN COMP STL - EMT	-4	118.22	C	-4.73	19.50	C	-1.48 ~~-0.78~~
3/4" COUPLING COMP STL - EMT	-2	113.68	C	-2.27	13.50	C	-0.34 ~~-0.27~~
3/4" 1-H STRAP - EMT - STEEL	-4	41.43	C	-1.66	8.10	C	-0.32
#12 THHN BLACK	-45	130.51	M	-5.87	7.73	M	-0.35
WIRE CONN RED	-10	18.16	C	-1.82	0.00	C	-0.9 ~~-0.00~~
FS 1G BOX 2x 3/4" HUB - TOP+BTM	-1	28.37	E	-28.37	0.90	E	-0.90
GROUND SCREW W/ INSUL #12 LEAD	-1	402.86	C	-4.03	4.50	C	-0.04
20A 125V DUP REC - IVY (SG)	-1	369.00	C	-3.69	30.00	C	-0.375 ~~-0.30~~

CHANGE ORDER

Baker Electric, Inc.
1298 Pacific Oaks Place
Escondido, CA 92029

CCN # 12
Date: 7/24/2020
Project Name: Barnard Elementary HVAC Upgrade
Project Number: Barnard Elementary HVAC Upgrade
Page Number: 2

Description	Qty	Net Price	U	Total Mat.	Labor	U	Total Hrs.
20A 2P BREAKER BOLT-ON	-1	98.25	E	-98.25	0.38	E	-0.72 ~~-0.38~~
30A 250V DSN SW FUSIBLE - NEMA 3R	-1	306.26 ~~64.15~~	E	-306.26 ~~-64.15~~	1.80	E	-3.0 ~~-1.80~~
20A FUSE 250V TIME DELAY CLASS RK5	-2	10.91	E	-21.82	0.05	E	-0.10
Totals	**-102**			**-495.65** ~~-253.54~~			**-10.385** ~~-6.69~~

Summary

General Materials			-495.65 ~~-253.54~~
Material Tax	(@ 7.750 %)		-38.41 ~~-19.65~~
Material Total	**-10.385**	**$72.02**	-534.06 ~~-273.19~~
JOURNEYMAN	(~~-6.69~~ Hrs @ ~~$68.86~~)		-747.93 ~~-460.67~~
Subtotal			-1,281.99 ~~-733.86~~
Markup @ 15.0%			-192.30
Final Amount			**$-1,474.29** ~~$-733.86~~

dh MA 8/14/2020

CLIENT ACCEPTANCE

CCN # 12
Final Amount: ~~$-733.86~~ $-1,474.29

Name: _____

Date: _____

Signature: _____

Change Order #: _____

I hereby accept this quotation and authorize the contractor to complete the above described work.

DSA **140**

APPLICATION FOR SUBMITTAL OF POST-APPROVAL DOCUMENT

This application is for submittal of documents, after the initial approval of the project (post-approval documents), that require Division of the State Architect (DSA) review and approval.This form shall be completed by the Design Professional in General Responsible Charge of the project, in accordance with California Code of Regulations, Title 24, Part 1, Sections 4-317, 4-323 and 4-338 and in compliance with DSA IR A-6: Construction Change Document Submittal and Approval Process.

DSA documents referenced within this form are available on the DSA Forms or DSA Publications webpages.

1. SUBMITTAL TYPE: (Is this a resubmittal? Yes ☐ No ☑)

Deferred Submittal	Addendum Number:	Revision Number:	CCD Number: 013 R1 Category A ☐ or B ☑

2. PROJECT INFORMATION:

School District/Owner: San Diego Unified School District	DSA File Number: 37 58
Project Name/School: Barnard Elementary School - HVAC 2000 - Phase 2 ESS	DSA Application Number 04 116082

3. APPLICANT INFORMATION:

Date Submitted: 04/10/20	Attached Pages? No ☐ Yes ☑ Number of pages? 4		
Firm Name: StudioWC Architecture + Engineering	Contact Name: Robert Webb		
Work Email: bwebb@studiowc.net	Work Phone: (760) 753-6800		
Firm Address: 515 Encinitas Blvd Suite 201	City: Encinitas	State: CA	Zip Code: 92081

4. REASON FOR SUBMITTAL: (Check applicable boxes)

For revision or addendum prior to construction.	✔ For a project currently under construction.

For a project that has a form *DSA 301-N: Notification of Requirement for Certification, DSA 301-P: Posted Notification of Requirement for Certification* or a 90-Day Letter issued.

To obtain DSA approval of an existing uncertified building or buildings.

For Category B CCD this is: ☐ a voluntary submittal, ☐ a DSA required submittal (attach DSA notice requiring submission).

5. DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE:

Name of the Design Professional In General Responsible Charge: Robert Webb

Professional License Number: C28036	Discipline: Architect

Design Professional in General Responsible Charge Statement: The attached post-approval documents have been examined by me for design intent and appear to meet the appropriate requirements of Title 24, California Code of Regulations and the project specifications. They are acceptable for incorporation into the construction of the project.

Signature: R D. Webb

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE

6. CONFIRMATION, DESCRIPTION AND LISTING OF DOCUMENTS:

For addenda, revisions, or CCDs: CHECK THIS BOX ✔ to confirm that *all* post-approval documents have been stamped and signed by the Responsible Design Professional listed on form *DSA 1: Application for Approval of Plans and Specifications* for this project. (For *Deferred Submittals*, refer to *IR A-18: Use of Construction Documents Prepared by Other Professionals,* and *IR A-19: Design Professional's Signature and Seal (Stamp) on Construction Documents*, when applicable, for signature and seal requirements.)

Provide a brief description of construction scope for this post-approval document (attach additional sheets if needed):

VOID CCD 013B and replace with this CCD.
Delete Split System Forced Air Unit (CU 07-2 and FC 07-2) at Room 703 as indicated on attached Sheets CCD13R1-A1 (A2.2), CCD13R1-M1 (M2.2), CCD13R1-M2 (M4.3) and CCD13R1-E1 (E2.3)

List of DSA-approved drawings affected by this post-approval document:

A2.2, M2.2 M4.3 and E2.3

DSA USE ONLY

SSS_____ Date_____ Approved Disapproved Not Required

Comments:_____

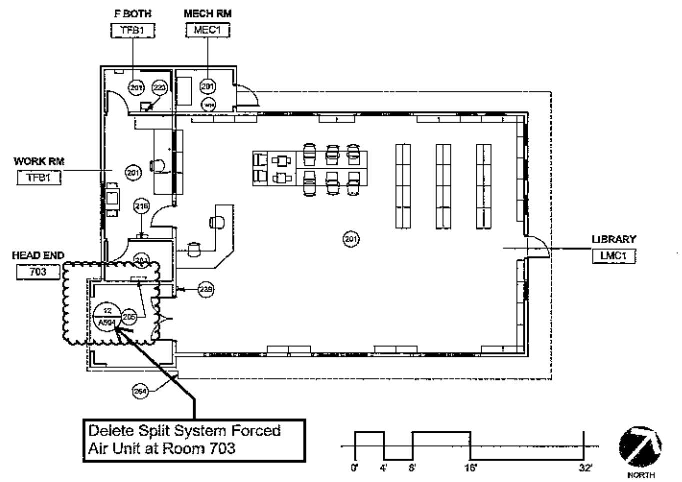
FLS_____ Date_____ Approved Disapproved Not Required

Comments:_____

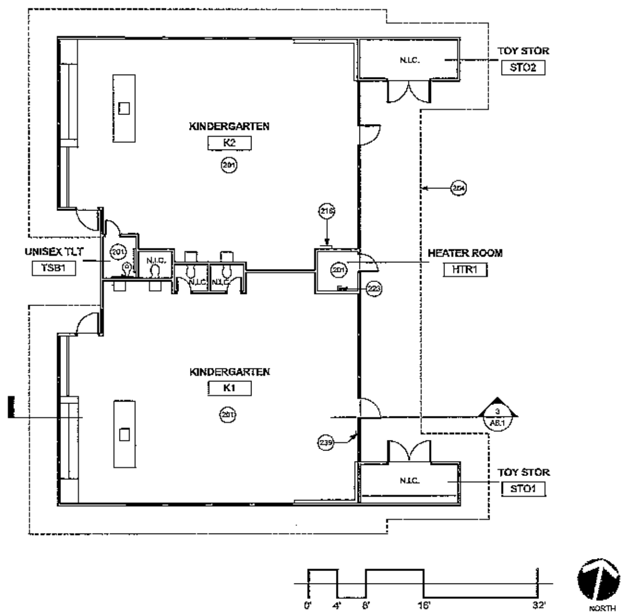
ACS_____ Date_____ Approved Disapproved Not Required

Comments:_____

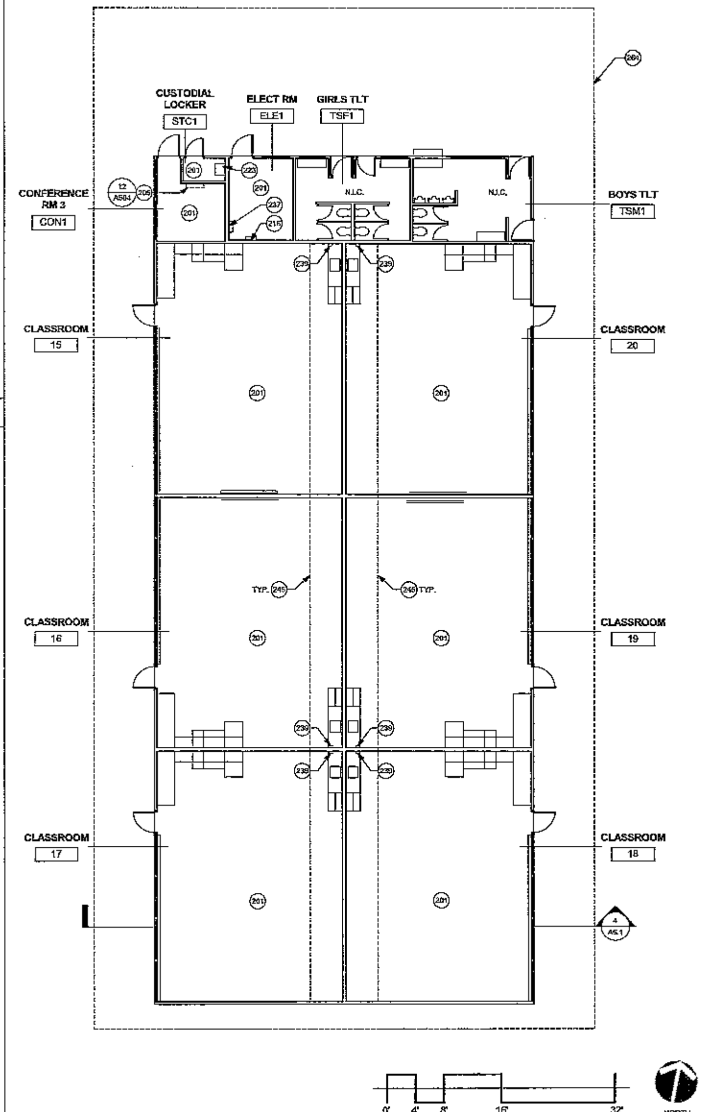
Returned	DSA STAMP
Date:	
By:	



LIBRARY BUILDING 03-07 FLOOR PLAN | 1/8" = 1'-0" | 1



KINDERGARTEN BUILDING 01-05 FLOOR PLAN | 1/8" = 1'-0" | 2



CLASSROOM BUILDING 02-06 FLOOR PLAN | 1/8" = 1'-0" | 3

FLOOR PLAN KEYNOTES

201 AREA TO RECEIVE WORK RELATED TO NEW MECHANICAL IMPROVEMENTS. SEE MECHANICAL, PLUMBING, STRUCTURAL & ELECTRICAL DRAWINGS FOR EXTENT OF NEW WORK.

205 (N) WALL MOUNTED SPLIT SYSTEM UNIT TIED TO NEW CONDENSER ON THE ROOF. SEE MECHANICAL DRAWINGS.

216 (E) ELECTRICAL PANEL & CONDUIT TO REMAIN. TYP.

223 (N) CONDENSATE LINE DOWN WALL TO SINK (FLOOR SINK WHERE OCCURS), PATCH & PAINT @ PENETRATIONS & PAINT NEW LINE TO MATCH ADJACENT CLG/ WALL SURFACE. REFER TO PLUMBING DRAWINGS.

237 INSTALL NEW SURFACE MOUNTED ELECTRICAL PANEL. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION, PATCH AND PAINT WALL AFTER INSTALLATION OF NEW WOOD BLOCKING FOR SUPPORT OF PANEL.

239 DEMO/ REMOVE (E) WALL MOUNTED MECH CONTROLLER (T-STAT OR TIMER WHERE OCCURS). REFER TO MECHANICAL DRAWINGS. PATCH & PAINT (E) TO MATCH (E) WALL SURFACES.

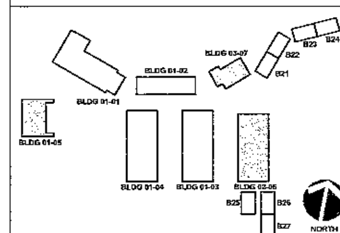
245 LINE OF EXISTING SOFFIT ABOVE

264 LINE OF EXISTING ROOF ABOVE

FLOOR PLAN GENERAL NOTES

1. CUT, PATCH AND REPAIR (E) WALLS, CEILINGS AND OTHER SURFACES TO MATCH EXISTING WHERE NEW WORK OCCURS. PAINT WALL OR CEILING & PROVIDE FINISH TO MATCH (E) ADJACENT SURFACES, TYP., U.N.O.
2. PROTECT IN PLACE ALL (E) SURFACES, EQUIPMENT & CASEWORK TO REMAIN, U.N.O.
3. NOT ALL BLDG ELEMENTS OR EQUIPMENT MAY BE SHOWN OR NOTED. PROTECT ALL EXISTING ELEMENTS OR EQUIPMENT IN PLACE WHERE NOT NOTED FOR DEMO OR REMOVAL/REPLACEMENT. WHERE NEW WORK CONFLICTS WITH (E) CONDUIT, LINES, PIPE, PANELS, FIXTURES OR EQUIPMENT AND WHERE NEW WORK CANNOT BE ROUTED AROUND EXISTING, RE-ROUTE/RE-LOCATE EXIST. AS REQ'D FOR NEW WORK.
4. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE DSA APPROVED DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CONSTRUCTION CHANGE DOCUMENT, OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED REPAIR WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE REPAIR WORK.
5. PROVIDE SAFEGUARDS AND FIRE PROTECTION DURING DEMOLITION & CONSTRUCTION PER 2016 CBC, CHAPTER 33.
6. ALL (N) EXPOSED CONDUIT & PIPING AT EXTERIOR WALL SURFACES SHALL BE PAINTED TO MATCH EXISTING WALL COLOR, TYP. U.N.O.

KEY PLAN



REVIEWED BY

FILE NUMBER: 37-50
IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APP. NO: 04 – 116082 INC#: 0
AC ___ FLS RF SS FT
DATE 08/15/2017

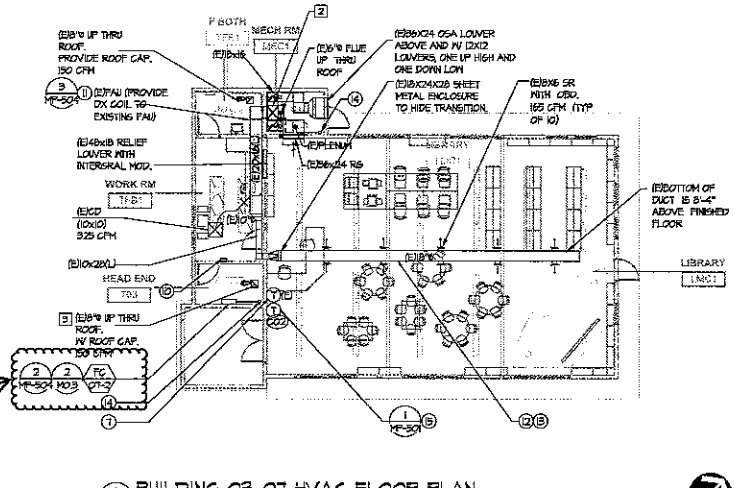
PREPARED FOR
BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

PREPARED BY
WC-AE

BLDGS 01-05, 02-06 & 03-07 FLOOR PLANS

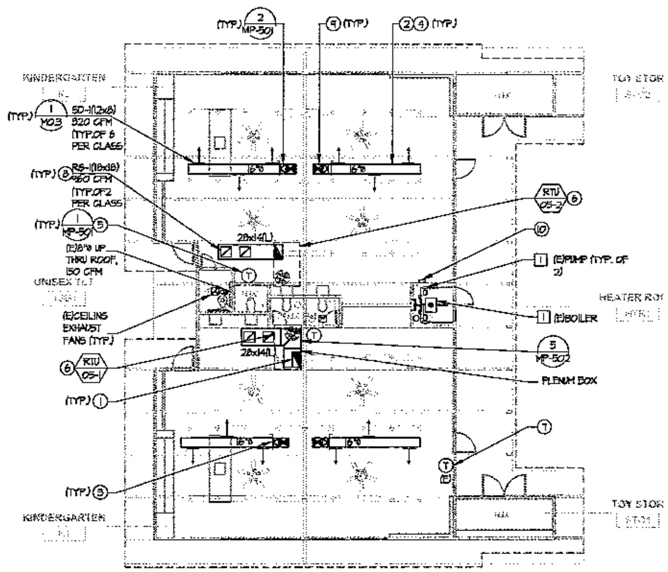
BARNARD ELEMENTARY SCHOOL
HVAC 2000 PHASE 2
EDUCATIONAL SUPPORT SPACES
2445 FOGG ST., SAN DIEGO, CA 92109

PROJECT NO.	SDUSD-BES-02
FILE NAME	
DATE APR.15, 2017	DRAWN KB & DB
	CHECKED BW
REVISIONS Revision Date	SHEET NO. CCD13R1-A1
	A2.2
OF	SHEETS



1 M2.2 BUILDING 03-07 HVAC FLOOR PLAN
SCALE: 1/8" = 1'-0"

NORTH



2 M2.2 BUILDING 01-05 HVAC FLOOR PLAN
SCALE: 1/8" = 1'-0"

NORTH

SHEET NOTES

(1) 28x12(L) RETURN AIR DUCT RISE UP THRU ROOF AND TRANSITION TO CONNECT TO RTU WITH FLEX CONNECTION.

(2) INSTALL SUPPLY/ RETURN AIR DUCTS AS HIGH AS POSSIBLE AND MAINTAIN A MINIMUM OF 80 INCHES FROM FINISHED FLOOR.

(3) PROVIDE AND INSTALL MANUAL VOLUME DAMPERS AT ALL DUCT BRANCHES.

(4) INSTALL DUCTWORK AS HIGH AS POSSIBLE. FOR ATTACHMENT REFER TO DETAIL 3/M5-2 AND 4/M5-2. PROVIDE SEISMIC BRACING AT THE END OF EACH DUCT AT ELBOWS AND AT TEES.

(5) PROVIDE ROOM TEMPERATURE SENSOR/ THERMOSTAT WITH INSULATED BACKPLATE. COORDINATE EXACT LOCATION WITH ARCHITECT.

(6) OUTLINE OF RTU ON ROOF.

(7) DISABLE AND REMOVE EXISTING THERMOSTAT, FIELD VERIFY LOCATION, PATCH AND PAINT OPENING TO MATCH EXISTING.

(8) RA GRILLE ATTACHED TO BOTTOM OF PLENUM.

(9) 16x16 (L) SUPPLY AIR DUCT DOWN FROM ROOF.

(10) WIRELESS COORDINATOR POWERED BY ELECTRICAL.

(11) ADD NEW DX COIL TO EXISTING FURNACE AND RECONNECT THE SUPPLY AIR DUCT WORK WITH ALL NECESSARY MODIFICATIONS.

(12) CLEAN INSIDE ALL EXISTING DUCTWORK INCLUDING THE MIXING BOX UNDER THE FURNACE.

(13) PERFORM TEST BALANCE FOR ALL EXISTING SUPPLY/RETURNAIR DIFFUSERS AND GRILLES, PROVIDE TAB REPORT.

(14) REFRIGERATION PIPES FROM NEW DX COIL UP THRU ROOF PER DETAIL 4/MP-504. THE LINE REPRESENT A SET OF REFRIGERATION PIPES, FOR CONTINUATION SEE M4.3..

(15) PROVIDE ROOM TEMPERATURE SENSOR/THERMOSTAT AND CO2 SENSOR WITH INSULATED BACK PLATE, COORDINATE EXACT LOCATION WITH ARCHITECT.

DEMOLITION NOTES

[1] EXISTING BOILER AND PUMP, DISCONNECT GAS PIPE COORDINATE WITH PLUMBING CONTRACTOR, DISCONNECT POWER COORDINATE WITH ELECTRICAL CONTRACTOR AND DRAIN ALL WATER FROM THE SYTEM, EQUIPMENTS TO REMAIN IN PLACE.

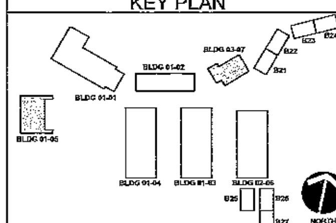
[2] REMOVE AND DEMOLISH (E) SUPPLY AIR DUCT WORK FROM (E) FURNACE, DISCONNECT EXISTING CONTROLS COORDINATE WITH CONTROL CONTRACTOR AND RE-CONNECT AS PER SHEET M604.

[3] DISCONNECT POWER FOR EXISTING FAN AND KEEP IN PLACE.

GENERAL NOTES

1. DO NOT INSTALL THERMOSTATS ON OUTSIDE WALL. INSTALL THERMOSTATS ON INSULATED BACK PLATE. FOR EXACT LOCATION COORDINATE WITH ARCHITECT OF RECORD.
2. SEISMICALLY BRACE DUCTWORK INSIDE THE ROOMS AT THE END OF EACH RUN AND AT ELBOWS / TEES.
3. COORDINATE ALL WORK WITH ARCHITECT, STRUCTURAL, ELECTRICAL, PLUMBING, AND CONTROLS.
4. PRIOR TO BID CONTRACTOR SHALL VERIFY EXISTING CONDITIONS. IF THERE ARE ANY DISCREPANCIES IT SHALL BE BROUGHT TO THE ATTENTION OF ARCHITECT OF RECORD IN SUFFICIENT TIME TO BE INCORPORATED INTO THE CONSTRUCTION DOCUMENTS.
5. ALL SQUARE AND RECTANGULAR DUCTS SHALL BE LINED.

KEY PLAN



PMPE Consultants
Mechanical Engineers
5755 OBERLIN DRIVE, SUITE 102
SAN DIEGO, CA 92121
TEL: (858) 642-0800
FAX: (858) 642-0802

IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
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AC ___ FLS PF ___ SS FT ___
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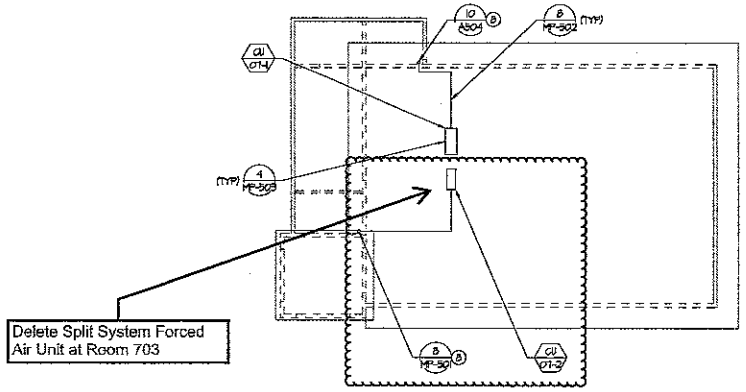
BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

WC-AE

BLDGS. 01-05 & 03-07 HVAC FLOOR PLAN

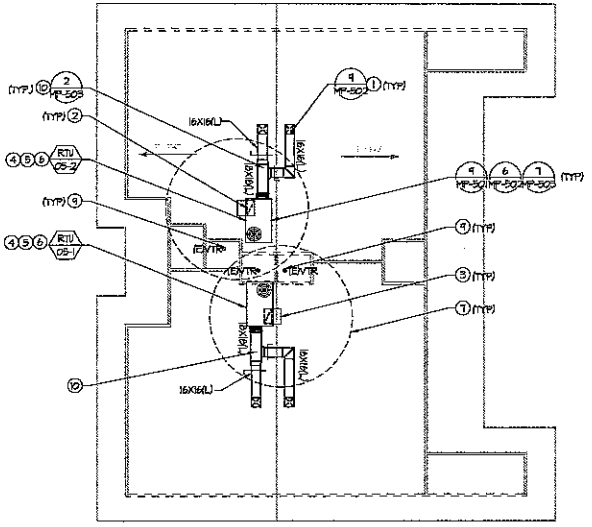
BARNARD ELEMENTARY SCHOOL
HVAC 2000 PHASE 2
EDUCATIONAL SUPPORT SPACES
2445 FOGG ST., SAN DIEGO, CA 92109

PROJECT NO.	SDUSD-BES-02
DATE	AUGUST 15, 2016
DRAWN	DKNB
CHECKED	PDW
SHEET NO.	CCD13R1-M1
	M2.2



2 M4.3 BUILDING 03-07 HVAC ROOF PLAN
SCALE: 1/8" = 1'-0"

NORTH



1 M4.3 BUILDING 01-05 HVAC ROOF PLAN
SCALE: 1/8" = 1'-0"

NORTH

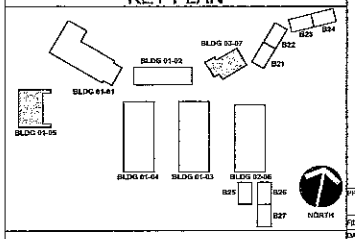
SHEET NOTES

1. 16X16 (L) SUPPLY AIR DUCT DOWN THRU ROOF.
2. 28x12(L) RETURN AIR DUCT DOWN THRU ROOF.
3. ECONOMIZER SECTION, MAINTAIN A MINIMUM OF 10 FEET BETWEEN OUTSIDE AIR INTAKE AND PLUMBING VENTS.
4. PROVIDE FLEX CONNECTION AT DUCTS CONNECTING TO RTUS.
5. FOR RTU MOUNTING DETAILS, REFER TO STRUCTURAL DRAWINGS.
6. IN EVENT THAT THERE IS AN EXISTING PLUMBING VENT CLOSER TO 10 FEET FROM OSA INTAKE, RE-ROUTE VTR BELOW ROOF AND RISE UP THRU ROOF A MINIMUM OF 10 FEET AWAY FROM OSA INTAKE OR EXTEND VTR A MINIMUM OF 3 FEET ABOVE OSA INTAKE HOOD.
7. THE CIRCLE AREA SHOWS REQUIRED 10 FEET DISTANCE BETWEEN OSA INTAKE AND PLUMBING VENTS & EF'S, SEE GENERAL NOTE #2.
8. REFRIGERANT PIPES DOWN THRU ROOF, FOR CONTINUATION SEE M2.2. THE LINE REPRESENT SET OF REFRIGERATION PIPES.
9. EXTEND (E)VTR A MINIMUM 9 FEET ABOVE THE RTU OSA INTAKE HOOD.
10. PROVIDE DUCT SUPPORT AT THE END OF EACH RUN, AT BOTH SIDES OF ELBOWS AND AT 5'-6" O.C. MAX PER DETAIL 8A/ M5-1.

GENERAL NOTES

1. COORDINATE EXACT LOCATION OF RTUS WITH STRUCTURAL.
2. FIELD VERIFY EXACT LOCATION OF EXISTING PLUMBING VENT. IF THERE IS ANY PLUMBING VENT CLOSER THAN 10 FEET FROM OUTSIDE AIR INTAKE, IT SHALL BE RE-ROUTED TO MINIMUM 10 FEET AWAY FROM OUTSIDE AIR INTAKE OR EXTENDED A MINIMUM OF 3 FEET ABOVE OUTSIDE AIR INTAKE HOOD.
3. PROVIDE DUCT TRANSITION FROM EQUIPMENT CONNECTION SIZE TO DUCT SIZE AS MENTIONED ON THE SHEETS AS REQUIRED.
4. COORDINATE ALL WORK WITH ARCHITECT, STRUCTURAL, ELECTRICAL, PLUMBING, AND CONTROLS.
5. PRIOR TO BID CONTRACTOR SHALL VERIFY EXISTING CONDITIONS. IF THERE ARE ANY DISCREPANCIES IT SHALL BE BROUGHT TO THE ATTENTION OF ARCHITECT OF RECORD IN SUFFICIENT TIME TO BE INCORPORATED INTO THE CONSTRUCTION DOCUMENTS.
6. COORDINATE CONDENSATE DRAIN AND GAS PIPE WITH PLUMBING.

KEY PLAN



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BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT

WC-AE

BLDGS. 01-05 & 03-07 HVAC ROOF PLANS

BARNARD ELEMENTARY SCHOOL
HVAC 2000 PHASE 2
EDUCATIONAL SUPPORT SPACES
2445 FOGG ST., SAN DIEGO, CA 92109

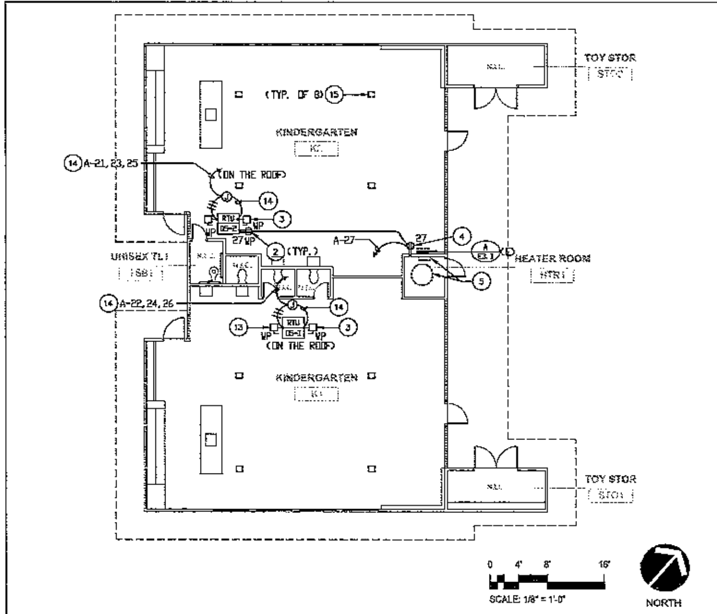
PROJECT NO.
SDUSD-BES-02

FILE NAME

DATE AUGUST 15, 2016 DRAWN DKNB CHECKED RDN

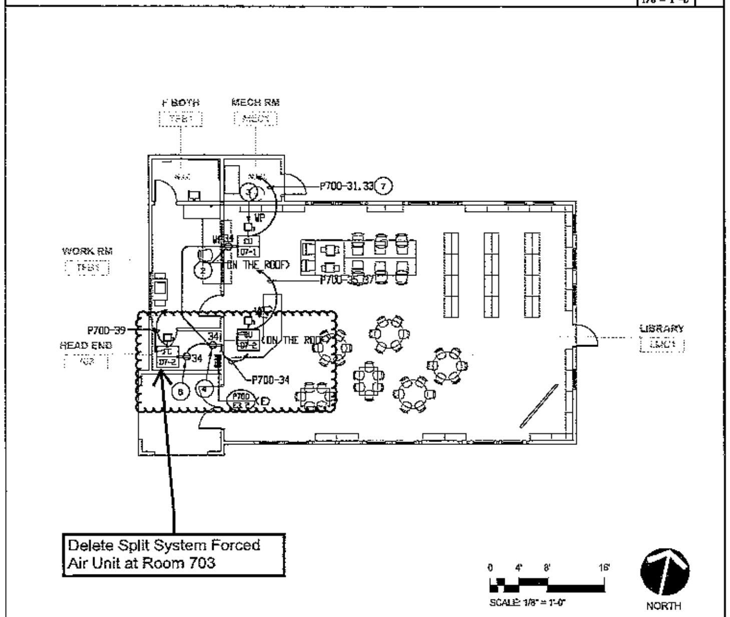
REVISIONS

SHEET NO.
CCD13R1-M2
M4.3
OF — SHEETS



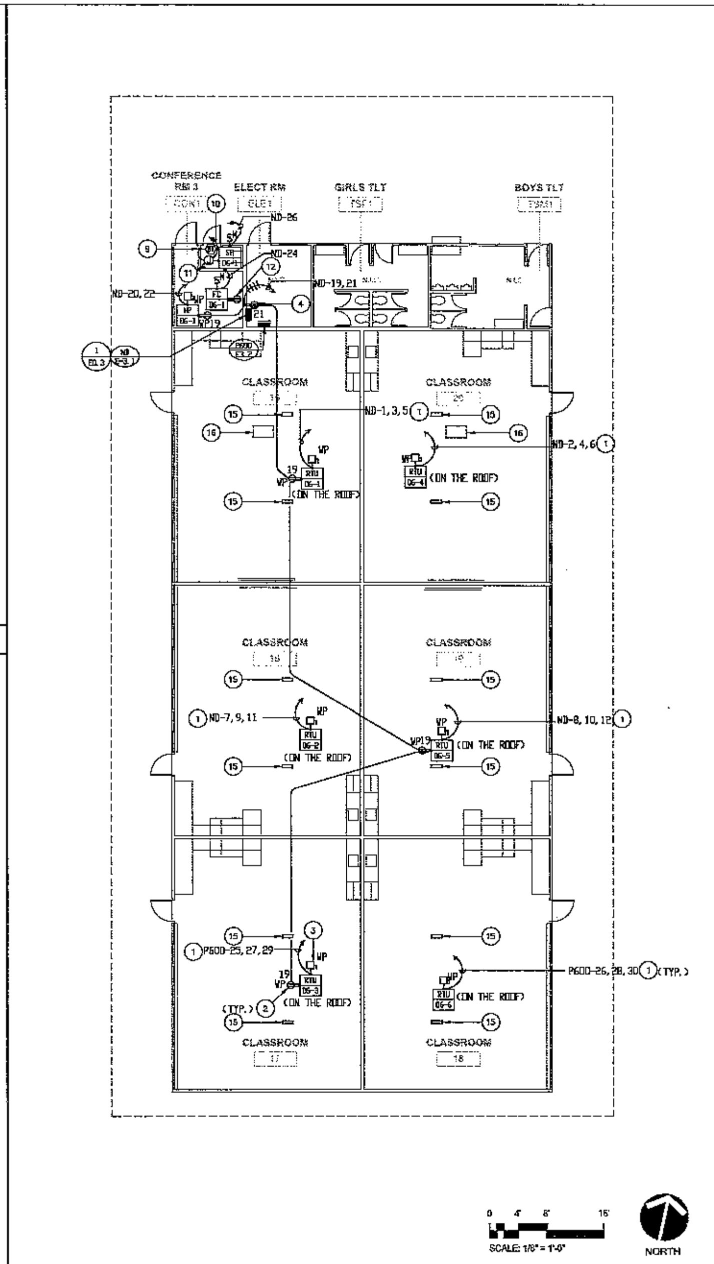
BUILDING 01-05 ELECTRICAL PLAN

SCALE 1/8" = 1'-0" 2



BUILDING 03-07 ELECTRICAL PLAN

SCALE 1/8" = 1'-0" 3



BUILDING 02-06 ELECTRICAL PLAN

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

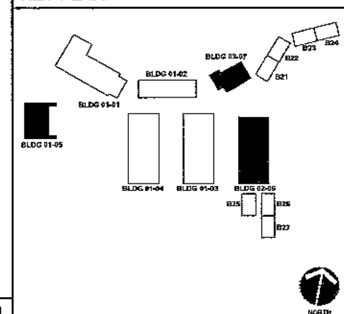
PLAN NOTES

1. PROVIDE 1"C. - 3#8 & 1#10 GRD.
2. INSTALL RECEPTACLE ON THE UNIT PER DETAIL "1/ED. 4". LABEL AS REQUIRED.
3. INSTALL FUSED DISCONNECT SWITCH ON THE UNIT PER DETAIL "3" ON SHEET ED. 4. LABEL AS REQUIRED.
4. PROVIDE 120V-20A RECEPTACLE FOR MECHANICAL CONTROLLER. VERIFY EXACT LOCATION.
5. DISCONNECT POWER FROM BOILER AND CIRCULATION PUMP. REMOVE CONDUIT AND BRANCH CIRCUIT CONDUCTORS COORDINATE ALL WORKS WITH MECHANICAL CONTRACTOR.
6. DISCONNECT POWER FROM EXISTING FAN. REMOVE CONDUIT AND BRANCH CIRCUIT CONDUCTORS. COORDINATE ALL WORKS WITH MECHANICAL CONTRACTOR.
7. PROVIDE 1"C. - 2#8 & 1#10 GRD.
8. CONNECT RECEPTACLE TO THE SIDE OF THE UNIT FOR CONDENSING PUMP.
9. PROVIDE 0-6 HOURS BY-PASS TIMER AND EXTEND 3/4"C. - 2#12. 1#12 GRD. AND CONNECT PER DETAIL "4" ON SHEET ED. 4.
10. PROVIDE 3/4"C. - 2#12, 1#12 GRD. TO RELAY IN PANEL "ND".
11. INTERCONNECT WITH FAN COIL CONTROL SYSTEM PER DETAIL "4/E-0. 4".
12. CONNECT RECEPTACLE TO THE SIDE OF THE UNIT FOR CONDENSING PUMP.
13. INSTALL FUSED DISCONNECT SWITCH ON THE UNIT PER DETAIL "3" ON SHEET ED. 4. LABEL SWITCH "POWER EXHAUST UNIT".
14. PROVIDE 1-1/4"C. - 3#6 & 1#8 GRD.
15. DISCONNECT AND REMOVE POWER FROM EXISTING CEILING FAN UNIT INCLUDING CONDUITS AND CONDUCTORS. REFER TO MECHANICAL DRAWING FOR MORE INFORMATION.
16. DISCONNECT AND REMOVE POWER FROM EXISTING HVAC UNIT ON THE ROOF INCLUDING CONDUITS AND CONDUCTORS. REFER TO MECHANICAL DRAWING FOR MORE INFORMATION.

GENERAL NOTES

1. VERIFY EXACT LOCATION OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION OF CONDUIT.
2. ALL EQUIPMENT, DEVICES, SAFETY SWITCHES, JUNCTION BOXES, CONNECTIONS, ETC. MOUNTED ON THE ROOF OR EXTERIOR SHALL BE WEATHERPROOF.
3. REFER TO MECHANICAL DRAWING CONTROL DIAGRAM FOR ALL SENSORS, TIME CLOCKS, RELAYS, TIMERS, STARTERS, LINE AND LOW VOLTAGE CONDUIT AND PROVIDE AS REQUIRED.
4. SAFETY SWITCHES SHALL BE WITH CURRENT LIMITING FUSES, SIZES PER THE MANUFACTURER'S RECOMMENDATION. SWITCHES SHALL BE "RK-5" FUSE RECOMMENDATION SWITCHES
5. LOCATIONS OF SAFETY SWITCHES AND CONNECTION FOR MECHANICAL AND PLUMBING EQUIPMENT ARE SHOWN DIAGRAMMATICALLY, VERIFY ACTUAL LOCATIONS WITH EQUIPMENT SHOP DRAWING AND LOCATE SAFETY SWITCHES TO PROVIDE CODE REQUIRED CLEARANCES AND ACCESS. SAFETY SWITCHES LOCATED ON THE ROOF SHALL BE MOUNTED 30" MINIMUM ABOVE THE ROOF. REFER TO SHEET ED. 4, DETAILS "2" AND "3" FOR MORE INFORMATION.
6. ALL ROOF CONDUITS, RELATED JUNCTION BOXES SHALL BE CONCEALED WITHIN CEILING SPACE OF FLOOR BELOW. RESPECTIVE HVAC EQUIPMENT LOCATION IN ORDER TO MINIMIZE EXPOSED CONDUIT AND MATERIALS ON ROOF.
7. IDENTIFY ALL RATED WALLS ON ARCHITECTURAL PLANS AND PRVIDE CONDUIT CROSSING PER DETAIL "5/E-0. 4"

KEY PLAN



IDENTIFICATION STAMP
DIVISION OF THE STATE ARCHITECT
APP. NO: 04 - 116002 INC: 0
AC FLS SS
DATE 08/15/2017

FBA Engineering

BOARD OF EDUCATION
SAN DIEGO UNIFIED SCHOOL DISTRICT
SAN DIEGO, CALIFORNIA

WC-AE

BLDG. 02-06, 01-05 & BLDG. 03-07 ELECTRICAL PLAN

BARNARD ELEMENTARY SCHOOL
HVAC 2000 PHASE 2
EDUCATIONAL SUPPORT SPACES
2445 FOGG ST., SAN DIEGO, CA 92109

PROJECT NO. SDUSD-BES-02
DRAWN FBA
CHECKED FBA
SHEET NO CCD13R1-E1
E2.3

FBA Engineering • Printed: 08/14/2017 4:44pm by Jnguyen • \WI2604\E23_I2604.dwg

Bernard ES -Credit for the removal of FC-2 (CM Estimate based on additional information).

Mechanical

Equipment	(2 ton Carrier)		
2 ton Carrier (FC/CU)		[redacted]	(Quote provided, adjusted cost]
Condensate pump			Estimate updated with online cost.
Wired controller			Estimate updated with online cost.
Taxes	7.75%	$137.60	
Equipment Total		$1,913.10	
Installation			
Labor	Pipe fitter (Journeyman)	# of hours	
Hourly Rate	$90.63		
Installation of FC/CU		12	Adjusted based on AO Reed estimate
Mechanical piping/startup		9.98	Adjusted based on AO Reed estimate
Total Hours		21.98	
Materials		$221.00	Received estimate from AO Reed. Estimate on material cost is low.
Taxes	7.75%	$17.13	
Installation Total		$2,230.17	
Subcontracts			
Controls (installation and material)		[redacted]	Revised installation cost. $75 material/labor $75
Insulation			Actual Cost
Subcontracts Total		$570.00	
Mechanical sub total		$4,713.28	
Mark-up	15%	$621.49	(Only AO Reed work)
Total		**$5,334.77**	

Electrical

Material (Wire/Disconnect/Conduit)		$253.54	Received estimate from Baker.
Taxes	7.75%	$19.65	
Labour	Inside Wireman (Journeyman)	# of hours	
Hourly Rate	$79.88		Hourly rate based on previous proposals
Installation		6.69	Adjusted based on AO Reed estimate
Total for installation		$534.40	
Electrical sub total		$787.94	
Mark-up	15%	$118.19	
Total		**$906.13**	
Total Credit from subcontractors		$6,240.90	
GC Mark-up	11%	$686.50	
TOTAL CREDIT for FC-2 Deletion		**$6,927.39**	

Areas of concern

[redacted] CM Revised cost

[redacted] Actual cost

Received Soltek CAP 008r3 on 08/14/2020 for $7168.58

CAP deemed fair and reasonable.

Darren Hollis

8/14/2020