AIR-COOLED CHILLER SCHEDULE

TAG	MANUFACTURER & MODEL #	LOCATION	SERVICE	NOM. CAP. (TONS)	AMB. DB (°F)	WATER FLOW (GPM)	WATER EWT (°F)	WATER LWT (°F)	WATER P.D. (FT.WG.)	IPLV EER	ELECTRICAL V/PH	ELECTRICAL LOAD (MCA)	ELECTRICAL MOCP	UNIT SIZE (L" x W" x H")	OPER. WT. (LBS)	REFRIG	ANCHORAGE DETAIL	REMARKS
ACCH-1	CARRIER 30RB120	GRADE	(E) AHU'S	120.1	95	287	54	44	17.3	16.87	460/3	262	300	189X89X90	7700	R-41A	SSD	

NOTES:
1. AT ARI CONDITIONS; MAXIMUM CAPACITY AT LISTED CONDITIONS.
2. INTEGRAL STARTER BY MFR; PROVIDE LOCAL DISCONNECT.
3. WITH LOW SOUND PACKAGE
4. COMPONENTS PROVIDED FOR FIELD INSTALLATION: WIND BAFFLE.2
5. CONTROL SHALL BE LOCAL, ON-BOARD MICRO-PROCESSOR, WITH LEAVING WATER SET POINT (45 DEGR F).
6. CHILLER MANUFACTURER TO PROVIDE CONTROLS INTERFACE FOR INTEGRATION WITH BMS.
7. SINGLE PUMP W/VFD (PRIMARY CIRCUIT – 287 GPM @ 30 FT).

CHILLED WATER PUMP SCHEDULE

TAG	MANUFACTURER & MODEL #	LOCATION	SERVICE	FLUID	GPM	FT. HD	EFF. (%)	BHP	ELECTRICAL HP	ELECTRICAL VOLT	ELECTRICAL PH	ELECTRICAL CYCLE	ELECTRICAL RPM	OPER. WEIGHT (LBS)	REMARKS
PCH-1	B&G SERIES e-1531-2.5BB	MECH. RM.	CHILLED WATER	WATER	245	60	75.4	4.9	7.5	460	3	60	1750	330	(1)(2)(3)
PCH-2	B&G SERIES e-1531-1.5BC	MECH. RM.	CHILLED WATER	WATER	65	60	55.7	1.9	3.0	460	3	60	1750	225	(1)(2)(3)

NOTES: (1) PROVIDE PUMPS WITH GAGE TAPS ON SUCTION AND DISCHARGE LINES. (3) VFD – ABB 550
(2) CLOSE COUPLED

LEGEND

SYMBOL	DESCRIPTION
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
	PIPE OR EQUIPMENT TO BE DEMOLISHED
(N)	NEW
(E)	EXISTING
(VIF)	VERIFY IN FIELD
SED	SEE ELECTRICAL DRAWINGS
SSD	SEE STRUCTURAL DRAWINGS

PRESSURE PIPE FITTING

- 90° ELBOW
- 45° ELBOW
- TEE
- CROSS
- TWO PIPES CROSSING NO CONNECTION
- ELBOW, OUTLET UP
- ELBOW, OUTLET DOWN
- TEE, OUTLET UP
- TEE, OUTLET DOWN
- TEE DOWN WITH RISER CONNECTION TO CROSSPIPE
- PIPE CAP
- UNION, SCREWED OR SOLDERED
- FLANGED CONNECTION
- REDUCER CONCENTRIC
- REDUCER, ECCENTRIC (TOP FLUSH-WATER)
- REDUCER, ECCENTRIC (BOTTOM FLUSH-STEAM)
- SENSOR WELL
- PETE'S PLUG

VALVES AND ACTUATORS

- BALANCING VALVE (BALL OR BUTTERFLY)
- SHUT-OFF VALVE (USE BALL OR BUTTERFLY VALVE, UON)
- CIRCUIT BALANCE VALVE
- 3-WAY AUTOMATIC CONTROL VALVE
- 2-WAY AUTOMATIC CONTROL VALVE
- SOLENOID VALVE 2-WAY SHOWN
- GAS COCK
- PLUG VALVE WITH LEVEL HANDLE
- CHECK VALVE
- PRESSURE REGULATING VALVE
- SAFETY RELIEF VALVE OR TEMPERATURE & PRESSURE RELIEF VALVE
- GAGE COCK (NEEDLE VALVE)
- GLOBE VALVE
- DIAPHRAGM VALVE
- SPECIAL VALVE, USE INDICATED
- UNION
- TRIPLE DUTY VALVE
- STEAM TRAP
- OPEN STEM AND YOKE VALVE

PIPE SPECIALTIES

- PIPE ANCHOR
- ALIGNMENT GUIDE
- EXPANSION JOINT
- FLEXIBLE CONNECTION
- AAV — AUTOMATIC AIR VENT W/SOV
- WYE STRAINER W/BLOW DOWN VALVE AND HOSE CONN.
- MAV — MANUAL AIR VENT
- TH — THERMOMETER (USE DIAL TYPE)
- PG — PRESSURE GAUGE W/GAGE COCK
- TF — TEST FITTING (PETE'S PLUG)
- TEMPERATURE SENSOR OR THERMOMETER WELL
- ORIFICE FLOW METER
- SLOPE DOWN
- HOSE CONNECTION
- THERMOMETER
- AQUASTAT
- FM — FLOW METER

DRAWING CONVENTIONS

DETAIL INDICATOR

M / 1 — DETAIL NUMBER / SHEET NUMBER

EQUIPMENT DESIGNATOR

EC / 1 — EQUIPMENT CODE

SECTION DESIGNATOR

M / 1 — DETAIL NUMBER / DRAWING NUMBER

IF USED TAIL INDICATES LIMIT OF SECTION

REVISION DESIGNATOR

1 — REVISED AREA / REVISION NUMBER

NOTE: NOT ALL SYMBOLS OR ABBREVIATIONS APPLY.

REV	DATE	DESCRIPTION	INITIAL

ISSUE FOR 100% DD	03/02/16
ISSUE FOR 90% CD	04/18/16
ISSUE FOR PERMIT	
ISSUE FOR BID	06/08/16
ISSUE FOR CONSTRUCTION	

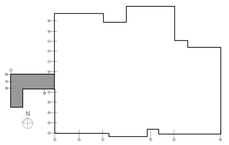
PROJECT:

CONTRA COSTA COLLEGE
APPLIED ARTS BUILDING
CHILLER REPLACEMENT
2600 MISSION BELL DR.
SAN PABLO,CA 94806
PROJECT # C-1067

STAMP:
MECHANICAL DESIGNSTUDIO
1801 Oakland Blvd., Suite 110
Walnut Creek, California 94596
T 925.210.0100
F 925.210.0144
www.mds-sf.com
PROJECT # 35144.00

REGISTERED PROFESSIONAL ENGINEER — DARREL ANDREL — No. M 26561 — EXP. 9/30/16 — MECHANICAL — STATE OF CALIFORNIA

KEY PLAN:



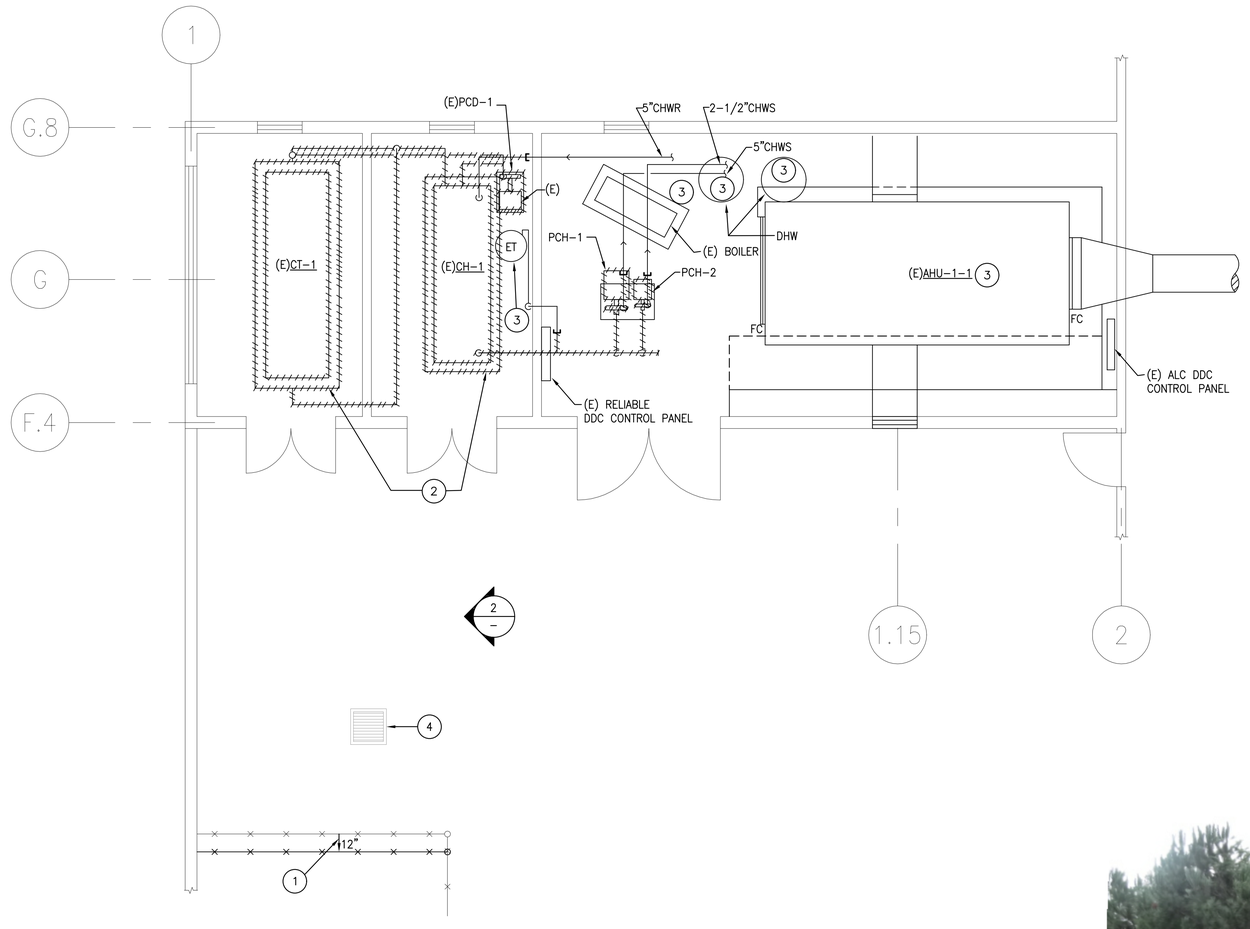
SHEET TITLE:
LEGEND, AND SCHEDULES

SCALE	NONE	
PROJ. NO.	35144.00	
PREPARATION AND REVIEW		
PURPOSE	PERSONAL/INITIAL	DATE
DRAWN BY	JW/FC	03/01/16
PEER REVIEW	DA	

SHEET NUMBER:

M0.1

NUMBER: OF:



SHEET NOTES (#)

1. RELOCATE (E) CHAIN LINK FENCE. PROVIDE GATE OR REMOVABLE SECTION FOR ACCESS (SEE GENERAL NOTE 3).
2. DEMOLISH (E) CONCRETE PADS.
3. (E) EQUIPMENT AND ASSOCIATED PIPING AND CONTROLS TO REMAIN.
4. INCLUDE A BID ALTERNATE TO RELOCATE THE (E) AREA DRAIN AND NEARBY PIPING IF NEEDED BY THE (N) CHILLER FOOTING CONSTRUCTION.

GENERAL NOTES

1. FOR EACH PIECE OF EQUIPMENT TO BE DEMOLISHED AND REMOVED ALSO DEMOLISH AND REMOVE ASSOCIATED PIPING CONTROLS, SUPPORTS, ACCESSORIES, EQUIPMENT PADS. DISCONNECT (E) PIPING, CAP AND LEAVE IN PLACE WHERE SHOWN.
2. FIELD VERIFY AND RECORD ALL EXISTING CONDITIONS PRIOR TO START OF DEMOLITION.
3. DO NOT RELOCATE (E) CHAIN LINK FENCE IF SUBMITTED CHILLER MANUFACTURER CONFIRMS THAT (E) CLEARANCES ARE ACCEPTABLE.

1 CHILLER ROOM DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

N

2 (E) YARD AREA DIMENSIONS
SCALE: NONE

REV	DATE	DESCRIPTION	INITIAL

ISSUE FOR 100% DD	03/02/16
ISSUE FOR 90% CD	04/18/16
ISSUE FOR PERMIT	
ISSUE FOR BID	06/08/16
ISSUE FOR CONSTRUCTION	

PROJECT:

CONTRA COSTA COLLEGE
APPLIED ARTS BUILDING
CHILLER REPLACEMENT
2600 MISSION BELL DR.
SAN PABLO,CA 94806
PROJECT # C-1067

STAMP:

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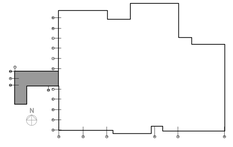
PROJECT # 35144.00

REGISTERED PROFESSIONAL ENGINEER DARREL ANGELL No. M 25561 EXP. 9/30/16 MECHANICAL STATE OF CALIFORNIA

KEY PLAN:



SHEET TITLE:

CHILLER ROOM DEMOLITION PLAN

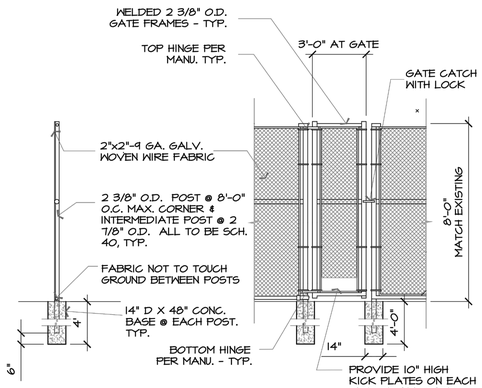
SCALE	AS NOTED
PROJ. NO.	35144.00
PREPARATION AND REVIEW	

PURPOSE	PERSONAL/INITIAL	DATE
DRAWN BY	JW/FC	03/01/16
PEER REVIEW	DA	

SHEET NUMBER:

M1.0

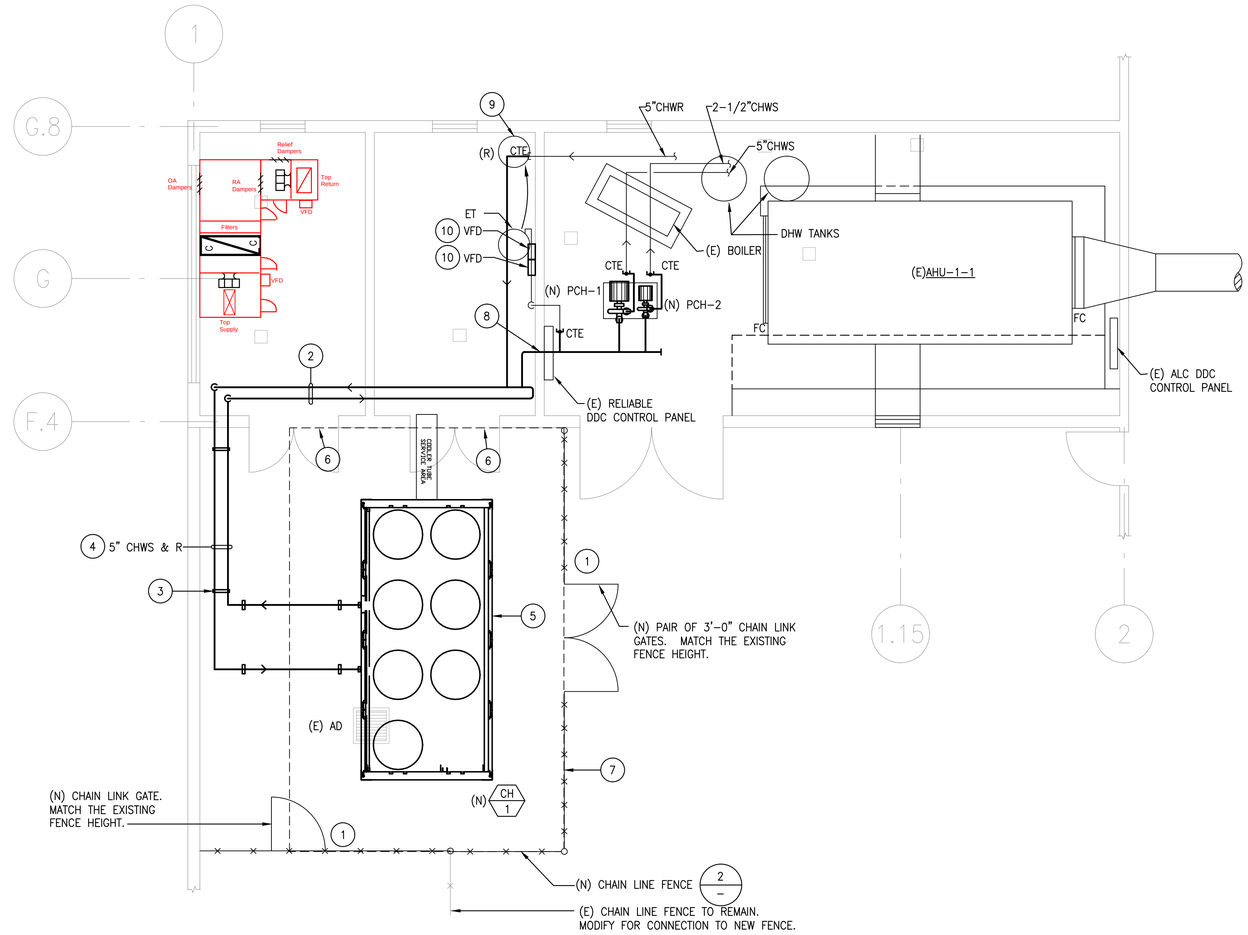
NUMBER: OF:



NOTE:
ALL FENCING & RELATED ASSEMBLIES SHALL BE GALVANIZED FINISH (ASTM: A153 OR A120/A123)
PROVIDE WOOD SLAB TO MATCH (E)

2 DETAIL AT CHAIN LINK FENCE

SCALE: 1/4" = 1'-0"



1 CHILLER YARD PLAN - NEW CONSTRUCTION

SCALE: 1/4" = 1'-0"

N

SHEET NOTES (#)

1. PROVIDE LOCKING SYSTEM AT ALL GATES AS REQUIRED BY THE DISTRICT. COMPLY WITH ALL CODES AND REGULATIONS. TYP.
2. KEEP PIPING AS HIGH AS POSSIBLE FOR ROOM ACCESS. SUPPORT FROM WALL WITH UNISTRUT BRACKETS AND PIPE CLAMPS (TOLCO OR EQUAL).
3. SUPPORT PIPING ON TOLCO ("DURA BLOCK" OR EQUAL) SUPPORTS. (LEVEL)
4. ALL EXPOSED TO WEATHER PIPING SHALL BE ALUMINUM JACKETED OVER INSULATION.
5. REFER TO STRUCTURAL DRAWINGS S1, S1 AND S3 FOR CHILLER SUPPORT DETAILS.
6. MAINTAIN FULL ACCESS TO DOORS.
7. FIELD VERIFY THAT (N) CHAIN LINK FENCE MATCHES HEIGHT OF (E).
8. REFER TO DETAIL 3/M4.1.
9. RELOCATE (E) EXPANSION TANK AND EXTEND PIPING.
10. LOCATE NORTH OF (E) ELECTRICAL PANELS.

GENERAL NOTES

1. REFER TO STRUCTURAL DRAWINGS FOR CHILLER SUPPORTS.
2. REFER TO DRAWING M0.1 FOR EQUIPMENT SCHEDULES.

REV	DATE	DESCRIPTION	INITIAL

ISSUE FOR 100% DD	03/02/16
ISSUE FOR 90% CD	04/18/16
ISSUE FOR PERMIT	
ISSUE FOR BID	06/08/16
ISSUE FOR CONSTRUCTION	

PROJECT:

CONTRA COSTA COLLEGE
APPLIED ARTS BUILDING
CHILLER REPLACEMENT
2600 MISSION BELL DR.
SAN PABLO,CA 94806
PROJECT # C-1067

STAMP:

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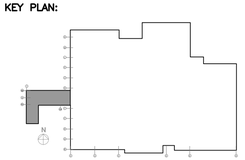
PROJECT # 35144.00

REGISTERED PROFESSIONAL ENGINEER
DARREL ANDREE
No. M 26561
EXP. 9/30/16
MECHANICAL
STATE OF CALIFORNIA

KEY PLAN:



SHEET TITLE:

CHILLER YARD PLAN - NEW CONSTRUCTION

SCALE	AS NOTED	
PROJ. NO.	35144.00	
PREPARATION AND REVIEW		
PURPOSE	PERSONAL/INITIAL	DATE
DRAWN BY	JW/FC	03/01/16
PEER REVIEW	DA	

SHEET NUMBER:

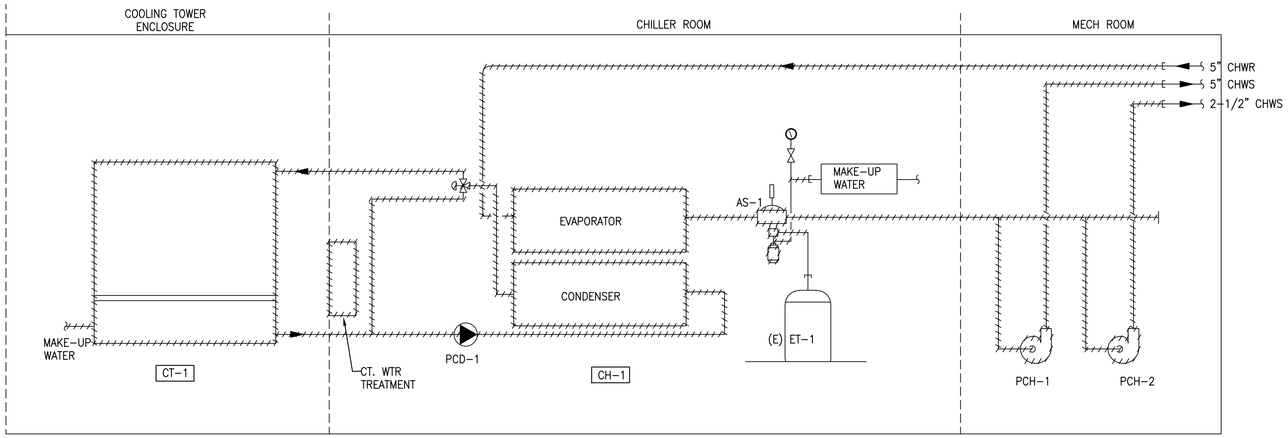
M2.0

NUMBER: OF:

07/29/16 12:45:00 PM F:\C_D _CONSTRUCTION ADMINISTRATION\35144.00 AA BUILDING CHILLER REPLACEMENT\2 - 35144.00 DESIGN PHASE DRAWINGS\35144-M20.DWG jeff

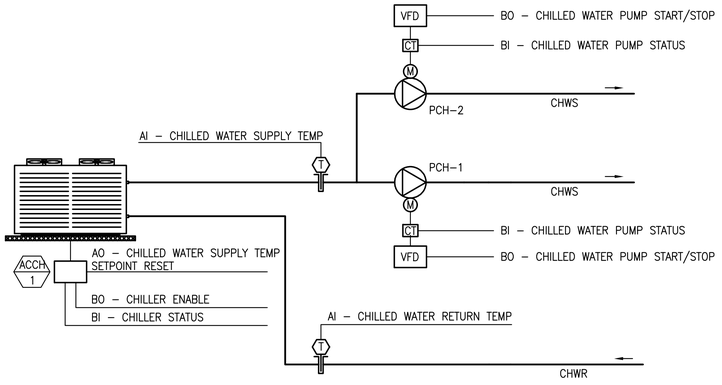
XREFS: X35144-TB.dwg\ X-PLAN.dwg\ X-KEYPLAN.dwg

	HARDWARE POINTS				SOFTWARE POINTS						
POINT NAME	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM	SHOW ON GRAPHIC
CHILLED WATER RETURN TEMP	x								x		x
CHILLED WATER SUPPLY TEMP	x								x		x
CHILLED WATER SUPPLY TEMP SETPOINT RESET		x							x		x
CHILLED WATER PUMP PCH-1 STATUS			x						x		x
CHILLED WATER PUMP PCH-2 STATUS			x						x		x
CHILLER STATUS			x						x		x
CHILLED WATER PUMP PCH-1 START/STOP				x							x
CHILLED WATER PUMP PCH-2 START/STOP				x							x
CHILLER ENABLE				x							x
OUTSIDE AIR TEMP					x						x
CHILLED WATER PUMP PCH-1 FAILURE										x	
CHILLED WATER PUMP PCH-2 FAILURE										x	
CHILLED WATER PUMP PCH-1 RUNNING IN HAND										x	
CHILLED WATER PUMP PCH-2 RUNNING IN HAND										x	
CHILLED WATER PUMP PCH-1 RUNTIME EXCEEDED										x	
CHILLED WATER PUMP PCH-2 RUNTIME EXCEEDED										x	
CHILLER FAILURE										x	
CHILLER RUNNING IN HAND										x	
CHILLER RUNTIME EXCEEDED										x	
HIGH CHILLED WATER SUPPLY TEMP										x	
LOW CHILLED WATER SUPPLY TEMP										x	
TOTALS	2	1	3	3	1	0	0	0	6	11	10
TOTAL HARDWARE (9)					TOTAL SOFTWARE (18)						



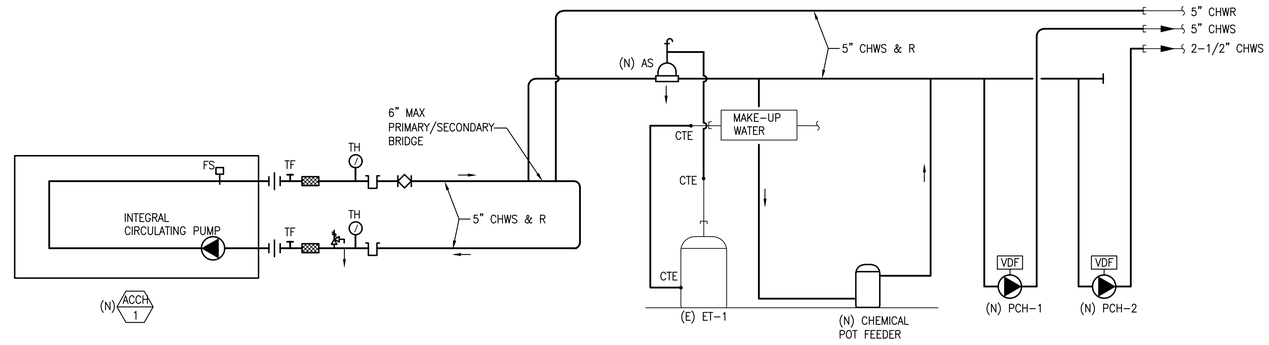
1 EXISTING CHILLED WATER PIPING DIAGRAM

SCALE: N.T.S.



3 CHILLED WATER CONTROL DIAGRAM

SCALE: N.T.S.



2 NEW CHILLED WATER PIPING DIAGRAM

SCALE: N.T.S.

REV	DATE	DESCRIPTION	INITIAL

ISSUE FOR 100% DD	03/02/16
ISSUE FOR 90% CD	04/18/16
ISSUE FOR PERMIT	
ISSUE FOR BID	06/08/16
ISSUE FOR CONSTRUCTION	

PROJECT:

CONTRA COSTA COLLEGE
APPLIED ARTS BUILDING
CHILLER REPLACEMENT
2600 MISSION BELL DR.
SAN PABLO,CA 94806
PROJECT # C-1067

STAMP:
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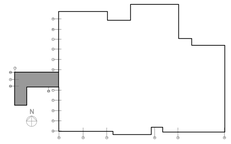
PROJECT # 35144.00
REGISTERED PROFESSIONAL ENGINEER DAREL APGAR No. M 26561 EXP. 9/30/16 MECHANICAL STATE OF CALIFORNIA

KEY PLAN:



SHEET TITLE:

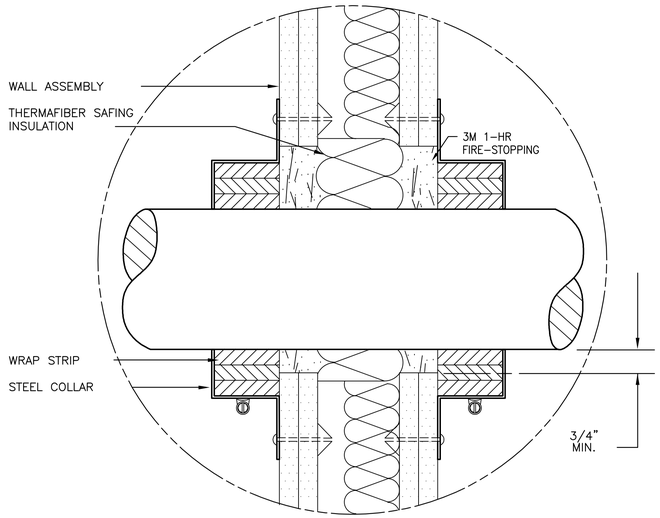
CHILLED WATER PIPING DIAGRAMS

SCALE	NONE	
PROJ. NO.	35144.00	
PREPARATION AND REVIEW		
PURPOSE	PERSONAL/INITIAL	DATE
DRAWN BY	JW/FC	03/01/16
PEER REVIEW	DA	

SHEET NUMBER:

M3.1

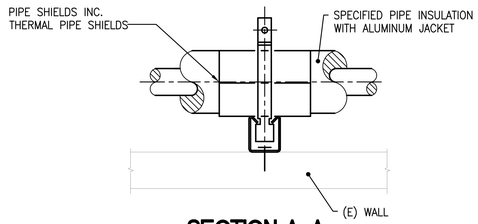
NUMBER: OF:



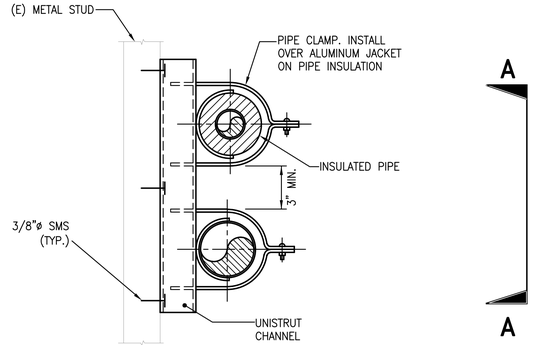
FIRESTOP WALL PENENTRATION DETAIL

SCALE: NONE

3



SECTION A-A



NOTES :
1. ALL OUTDOOR SCREWS AND BOLTS SHALL BE STAINLESS STEEL.
2. PROVIDE BLOCKING AS REQUIRED.

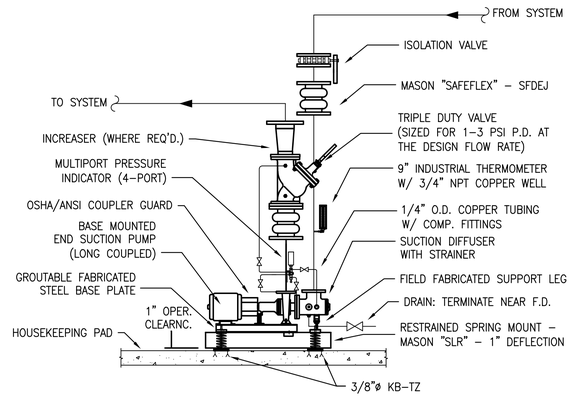
PIPE SUPPORT ON WALL DETAIL

SCALE: NONE

2

NOTE:

FOR CHILLER SUPPORT DETAILS REFER TO DRAWINGS S1, S2, S3.



BASE MOUNTED PUMP DETAIL

SCALE: NONE

1

REV	DATE	DESCRIPTION	INITIAL

ISSUE FOR 100% DD	03/02/16
ISSUE FOR 90% CD	04/18/16
ISSUE FOR PERMIT	
ISSUE FOR BID	06/08/16
ISSUE FOR CONSTRUCTION	

PROJECT:

CONTRA COSTA COLLEGE
APPLIED ARTS BUILDING
CHILLER REPLACEMENT
2600 MISSION BELL DR.
SAN PABLO,CA 94806
PROJECT # C-1067

STAMP:

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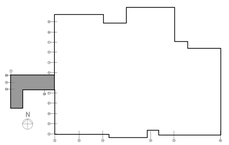
www.mds-sf.com
PROJECT # 35144.00

REGISTERED PROFESSIONAL ENGINEER DARREL ANDREE No. M 26561 EXP. 9/30/16 MECHANICAL STATE OF CALIFORNIA

KEY PLAN:



SHEET TITLE:

DETAILS

SCALE	AS NOTED
PROJ. NO.	35144.00

PREPARATION AND REVIEW		
PURPOSE	PERSONAL/INITIAL	DATE
DRAWN BY	JW/FC	03/01/16
PEER REVIEW	DA	

SHEET NUMBER:

M4.1

NUMBER: OF:

STATE OF CALIFORNIA
MECHANICAL SYSTEMS
CEC-NRCC-MCH-01-E (Revised 08/15) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-01-E
Mechanical Systems	Page 2 of 4
Project Name: CONTRA COSTA COLLEGE AA BUILDING CHILLER REPLACEEMENT	Date Prepared: 04.18.2016

B. MECHANICAL HVAC ACCEPTANCE FORMS (check box for required forms)

Test Performed By:

Designer:
This form is to be used by the designer and attached to the plans. Listed below are all the acceptance tests for HVAC systems. The designer is required to check the applicable boxes for all acceptance tests that apply and list all equipment that requires an acceptance test. All equipment of the same type that requires a test, list the equipment description and the number of systems.

Installing Contractor:
The contractor who installed the equipment is responsible to either conduct the acceptance test them self or have a qualified entity run the test for them. If more than one person has responsibility for the acceptance testing, each person shall sign and submit the Certificate of Acceptance applicable to the portion of the construction or installation for which they are responsible.

Enforcement Agency:
Plancheck - The NRCC-MCH-01-E form is not considered a completed form and is not to be accepted by the building department unless the correct boxes are checked.
Inspector - Before occupancy permit is granted all newly installed process systems must be tested to ensure proper operations.

Test Description		MCH-02A	MCH-03A	MCH-04A	MCH-05A	MCH-06A	MCH-07A	MCH-08A	MCH-09A	MCH-10A	MCH-11A
Equipment Requiring Testing or Verification	# of Units	Outdoor Air	Single Zone Unitary	Air Distribution Ducts	Economizer Controls	Demand Controlled Ventilation (DCV)	Supply Fan VAV	Valve Leakage Test	Supply Water Temp. Reset	Hydronic System Variable Flow Control	Automatic Demand Shed Control
ACCH-1	1	☐	☐	☐	☐	☐	☐	☑	☑	☑	☐

Add Row Remove Last

STATE OF CALIFORNIA
MECHANICAL SYSTEMS
CEC-NRCC-MCH-01-E (Revised 08/15) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-01-E
Mechanical Systems	Page 1 of 4
Project Name: CONTRA COSTA COLLEGE AA BUILDING CHILLER REPLACEEMENT	Date Prepared: 04.18.2016

A. MECHANICAL COMPLIANCE FORMS & WORKSHEETS (check box if worksheet is included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms, refer to the 2013 Nonresidential Manual
Note: The Enforcement Agency may require all forms to be incorporated onto the building plans.

YES	NO	Form/Worksheet #	Title
◉	○	NRCC-MCH-01-E (Part 1 of 3)	Certificate of Compliance, Declaration. Required on plans for all submittals.
◉	○	NRCC-MCH-01-E (Part 2 of 3)	Certificate of Compliance, Required Acceptance Tests (MCH-02A to 11A). Required on plans for all submittals.
○	◉	NRCC-MCH-01-E (Part 3 of 3)	Certificate of Compliance, Required Acceptance Tests (MCH-12A to 18A). Required on plans where applicable.
○	◉	NRCC-MCH-02-E (Part 1 of 2)	Mechanical Dry Equipment Summary is required for all submittals with Central Air Systems. It is optional on plans.
◉	○	NRCC-MCH-02-E (Part 2 of 2)	Mechanical Wet Equipment Summary is required for all submittals with chilled water, hot water or condenser water systems. It is optional on plans.
○	◉	NRCC-MCH-03-E	Mechanical Ventilation and Reheat is required for all submittals with multiple zone heating and cooling systems. It is optional on plans.
○	◉	NRCC-MCH-07-E (Part 1 of 2)	Power Consumption of Fans. Required on plans where applicable
○	◉	NRCC-MCH-07-E (Part 2 of 2)	Power Consumption of Fans, Declaration. Required on plans where applicable

STATE OF CALIFORNIA
MECHANICAL SYSTEMS
CEC-NRCC-MCH-01-E (Revised 08/15) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-01-E
Mechanical Systems	Page 4 of 4
Project Name: CONTRA COSTA COLLEGE AA BUILDING CHILLER REPLACEEMENT	Date Prepared: 04.18.2016

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: DOREL ANGHEL	Documentation Author Signature:
Company: MECHANICAL DESIGN STUDIO	Signature Date: 04.18.2016
Address: 1801 OAKLAND BLVD. SUITE 110	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: WALNUT CREEK, CA 94596	Phone: 925-210-0100

RESPONSIBLE PERSON'S DECLARATION STATEMENT

I certify the following under penalty of perjury, under the laws of the State of California:
1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: DOREL ANGHEL	Responsible Designer Signature:
Company: MECHANICAL DESIGN STUDIO	Date Signed: 04.18.2016
Address: 1801 OAKLAND BLVD. SUITE 110	License: M26561
City/State/Zip: WALNUT CREEK, CA 94596	Phone: 925-210-0100

STATE OF CALIFORNIA
MECHANICAL SYSTEMS
CEC-NRCC-MCH-01-E (Revised 08/15) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-01-E
Mechanical Systems	Page 3 of 4
Project Name: CONTRA COSTA COLLEGE AA BUILDING CHILLER REPLACEEMENT	Date Prepared: 04.18.2016

C. MECHANICAL HVAC ACCEPTANCE FORMS (check box for required forms)

Test Performed By:

Designer:
This form is to be used by the designer and attached to the plans. Listed below are all the acceptance tests for HVAC systems. The designer is required to check the applicable boxes for all acceptance tests that apply and list all equipment that requires an acceptance test. All equipment of the same type that requires a test, list the equipment description and the number of systems.

Installing Contractor:
The contractor who installed the equipment is responsible to either conduct the acceptance test them self or have a qualified entity run the test for them. If more than one person has responsibility for the acceptance testing, each person shall sign and submit the Certificate of Acceptance applicable to the portion of the construction or installation for which they are responsible.

Enforcement Agency:
Plancheck - The NRCC-MCH-01-E form is not considered a completed form and is not to be accepted by the building department unless the correct boxes are checked.
Inspector - Before occupancy permit is granted all newly installed process systems must be tested to ensure proper operations.

Test Description		MCH-12A	MCH-13A	MCH-14A	MCH-15A	MCH-16A	MCH-17A	MCH-18A
Equipment Requiring Testing or Verification	# of Units	Fault Detection & Diagnostics for DX Units	Automatic Fault Detection & Diagnostics for Air & Zone	Distributed Energy Storage DX AC Systems	Thermal Energy Storage (TES) Systems	Supply Air Temperature Reset Controls	Condenser Water Reset Controls	ECMS
ACCH-1	1	☐	☐	☐	☐	☐	☐	☐

Add Row Remove Last

REV	DATE	DESCRIPTION	INITIAL

ISSUE FOR 100% DD	03/02/16
ISSUE FOR 90% CD	04/18/16
ISSUE FOR PERMIT	
ISSUE FOR BID	06/08/16
ISSUE FOR CONSTRUCTION	

PROJECT:

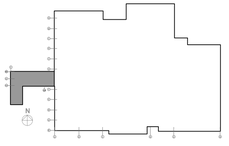
CONTRA COSTA COLLEGE APPLIED ARTS BUILDING CHILLER REPLACEMENT 2600 MISSION BELL DR. SAN PABLO,CA 94806 PROJECT # C-1067

STAMP:

MECHANICAL DESIGN STUDIO
1801 Oakland Blvd., Suite 110
Walnut Creek, California 94596
T 925.210.0100
F 925.210.0144
www.mds-sf.com
PROJECT # 35144.00

REGISTERED PROFESSIONAL ENGINEER DOREL ANGHEL No. M 26561 Exp. 9/30/16 MECHANICAL STATE OF CALIFORNIA

KEY PLAN:



SHEET TITLE:

TITLE 24 DOCUMENTATION

SCALE	NONE
PROJ. NO.	35144.00

PREPARATION AND REVIEW		
PURPOSE	PERSONAL/INITIAL	DATE
DRAWN BY	JW/FC	03/01/16
PEER REVIEW	DA	

SHEET NUMBER:

M5.1

NUMBER: OF:

STATE OF CALIFORNIA
HVAC SYSTEM REQUIREMENTS
CEC-NRCC-MCH-02-E (Revised 08/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-02-E
HVAC Wet System Requirements	(Page 3 of 3)
Project Name: CONTRA COSTA COLLEGE AA BUILDING CHILLER REPLACEEMENT	Date Prepared: 04.18.2016

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: DOREL ANGHEL	Documentation Author Signature:
Company: MECHANICAL DESIGN STUDIO	Signature Date: 04.18.2016
Address: 1801 OAKLAND BLVD. SUITE 110	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: WALNUT CREEK, CA 94596	Phone: 925-210-0100

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: DOREL ANGHEL	Responsible Designer Signature:
Company : MECHANICAL DESIGN STUDIO	Date Signed: 04.18.2016
Address: 1801 OAKLAND BLVD. SUITE 110	License: M26561
City/State/Zip: WALNUT CREEK, CA 94596	Phone: 925-210-0100

STATE OF CALIFORNIA
HVAC WET SYSTEM REQUIREMENTS
CEC-NRCC-MCH-02-E (Revised 08/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-02-E
HVAC Wet System Requirements	(Page 2 of 3)
Project Name: CONTRA COSTA COLLEGE AA BUILDING CHILLER REPLACEEMENT	Date Prepared: 04.18.2016

B. Equipment Tags and System Description[1]

MANDATORY MEASURES	T-24 Sections	ACCH-1		
		Reference to the Requirements in the Contract Documents[2]		
Heating Hot Water Equipment Efficiency[3]	110.1	NA		
Cooling Chilled and Condenser Water Equipment Efficiency[3]	110.1, 140.4(i)	M0.1		
Open and Closed Circuit Cooling Towers conductivity or flow-based controls	110.2(e) 1	NA		
Open and Closed Circuit Cooling Towers Maximum Achievable Cycles of Concentration (LSI)[4]	110.2(e) 2	NA		
Open and Closed Circuit Cooling Towers Flow Meter with analog output	110.2(e) 3	NA		
Open and Closed Circuit Cooling Towers Overflow Alarm	110.2(e) 4	NA		
Open and Closed Circuit Cooling Towers Efficient Drift Eliminators	110.2(e) 5	NA		
Pipe Insulation	120.3	M0.1		
PRESCRIPTIVE MEASURES				
Cooling Tower Fan Controls	140.4(h)2, 140.4(h)5	○ Yes ◉ No	○ Yes ○ No	○ Yes ○ No
Cooling Tower Flow Controls	140.4(h)3	NA		
Centrifugal Fan Cooling Towers[4]	140.4(h)4	NA		
Air-Cooled Chiller Limitation[5]	140.4(j)	< 300 TONS		
Variable Flow System Design	140.4(k)	Y		
Chiller and Boiler Isolation	140.4(k)	NA		
CHW and HHW Reset Controls	140.4(k)	Y		
WLHP Isolation Valves	140.4(k)	NA		
VSD on CHW, CW & WLHP Pumps >5HP	140.4(k)	Y		
DP Sensor Location	140.4(k)	NA		

Notes:

1. *Provide equipment tags (e.g. CH 1 to 3) or system description (e.g. CHW loop) as appropriate. Multiple units with common requirements can be grouped together.*
2. *Provide references to plans (i.e. Drawing Sheet Numbers) and/or specifications (including Section name/number and relevant paragraphs) where each requirement is specified. Enter "N/A" if the requirement is not applicable to this system.*
3. *The referenced plans and specifications must include all of the following information: equipment tag, equipment nominal capacity, Title 24 minimum efficiency requirements, and actual rated equipment efficiencies. Where multiple efficiency requirements are applicable (e.g. full- and part-load) include all. For chillers operating at non-standard efficiencies provide the Kadj values. For chillers also note whether the efficiencies are Path A or Path B.*
4. *Identify if cooling towers have propeller fans. If towers use centrifugal fans document which exception is used.*
5. *If air-cooled chillers are used, document which exceptions have been used to comply with 140.4(j) and the total installed design capacity of the air-cooled chillers in the chilled water plant.*
6. *Identify the existence of a completed MCH-06-E \when open or closed circuit cooling towers are specified to be installed, otherwise enter "N/A".*

STATE OF CALIFORNIA
HVAC SYSTEM REQUIREMENTS
CEC-NRCC-MCH-02-E (Revised 08/15) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-02-E
HVAC Dry System Requirements	(Page 1 of 3)
Project Name: CONTRA COSTA COLLEGE AA BUILDING CHILLER REPLACEEMENT	Date Prepared: 04.18.2016

A. Equipment Tags and System Description[1]

MANDATORY MEASURES	T-24 Sections	ACCH-1		
		Reference to the Requirements in the Contract Documents[2]		
Heating Equipment Efficiency[3]	110.1 or 110.2(a)	NA		
Cooling Equipment Efficiency[3]	110.1 or 110.2(a)	NA		
HVAC or Heat Pump Thermostats	110.2(b), 110.2(c)	NA		
Furnace Standby Loss Control	110.2(d)	NA		
Low leakage AHUs	110.2(f)	NA		
Ventilation[1]	120.1(b)	NA		
Demand Control Ventilation[5]	120.1(c)4	NA		
Occupant Sensor Ventilation Control[6]	120.1(c)5, 120.2(e)3	NA		
Shutoff and Reset Controls[7]	120.2(e)	NA		
Outdoor Air and Exhaust Damper Control	120.2(f)	NA		
Isolation Zones	120.2(g)	NA		
Automatic Demand Shed Controls	120.2(h)	NA		
Economizer FDD	120.2(i)	NA		
Duct Insulation	120.4	NA		
PRESCRIPTIVE MEASURES				
Equipment is sized in conformance with 140.4 (a & b)	140.4(a & b)	○ Yes ◉ No	○ Yes ○ No	○ Yes ○ No
Supply Fan Pressure Control	140.4(c)	NA		
Simultaneous Heat/Cool[8]	140.4(d)	NA		
Economizer	140.4(e)	NA		
Heat and Cool Air Supply Reset	140.4(f)	NA		
Electric Resistance Heating[9]	140.4(g)	NA		
Duct Leakage Sealing and Testing.[10]	140.4(l)	NA		

Notes:

1. *Provide equipment tags (e.g. AHU 1 to 10) and system description (e.g. Single Duct VAV reheat) as appropriate. Multiple units with common requirements can be grouped together.*
2. *Provide references to plans (i.e. Drawing Sheet Numbers) and/or specifications (including Section name/number and relevant paragraphs) where each requirement is specified. Enter "N/A" if the requirement is not applicable to this system.*
3. *The referenced plans and specifications must include all of the following information: equipment tag, equipment nominal capacity, Title 24 minimum efficiency requirements, and actual rated equipment efficiencies. Where multiple efficiency requirements are applicable (e.g. full- and part-load) include all. Where appliance standards apply (110.1), identify where equipment is required to be listed per Title 20 1601 et seq.*
4. *Identify where the ventilation requirements are documented for each central HVAC system. Include references to both central unit schedules and sequences of operation. If one or more space is naturally ventilated identify where this is documented in the plans and specifications. Multiple zone central air systems must also provide a MCH-03-E form.*
5. *If one or more space has demand controlled ventilation identify where it is specified including the sensor specifications and the sequence of operation.*
6. *If one or more space has occupant sensor ventilation control identify where it is specified including the sensor specifications and the sequence of operation*
7. *If the system is DDC identify the sequences for the system start/stop, optimal start, setback (if required) and setup (if required). For all systems identify the specification for the thermostats and time clocks (if applicable).*
8. *Identify where the heating, cooling and deadband airflows are scheduled for this system. Include a reference to the specification of the zone controls. Provide a MCH-03-E form.*
9. *Enter N/A if there is no electric heating. If the system has electric heating indicate which exception to 140.4(g) applies.*
10. *If duct leakage sealing and testing is required, a MCH-04-A form must be submitted.*

REV	DATE	DESCRIPTION	INITIAL

ISSUE FOR 100% DD	03/02/16
ISSUE FOR 90% CD	04/18/16
ISSUE FOR PERMIT	
ISSUE FOR BID	06/08/16
ISSUE FOR CONSTRUCTION	

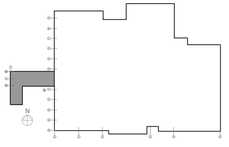
PROJECT:

CONTRA COSTA COLLEGE
APPLIED ARTS BUILDING
CHILLER REPLACEMENT
2600 MISSION BELL DR.
SAN PABLO,CA 94806
PROJECT # C-1067

STAMP:
MECHANICAL DESIGN STUDIO
1801 Oakland Blvd., Suite 110
Walnut Creek, California 94596
T 925.210.0100
F 925.210.0144
www.mds-sf.com
PROJECT # 35144.00

REGISTERED PROFESSIONAL ENGINEER — DOREL ANGHEL — No. M 26561 — EXP. 9/30/16 — MECHANICAL — STATE OF CALIFORNIA

KEY PLAN:



SHEET TITLE:
TITLE 24 DOCUMENTATION

SCALE	NONE
PROJ. NO.	35144.00
PREPARATION AND REVIEW	
PURPOSE	PERSONAL/INITIAL / DATE
DRAWN BY	JW/FC / 03/01/16
PEER REVIEW	DA /

SHEET NUMBER:
M5.2

NUMBER: OF:

07/29/16 12:44:00 PM F:\C_0 _CONSTRUCTION ADMINISTRATION\35144.00 AA BUILDING CHILLER REPLACEMENT\2 - 35144.00 DESIGN PHASE DRAWINGS\35144-M52.DWG jeff

XREFS: X35144-TB.dwg\ X-KEYPLAN.dwg