

Anchor Bay School District Maconce Elementary School

6300 Church Rd.,
Ira Township, MI 48023

Centrix Energy
792 Lois Dr.
Sun Prairie, WI 53590



Centrix Energy
792 Lois Dr. WI 53590
(617) 906-1000

No.	Description	D

ANCHOR BAY
SCHOOL DISTRICT
DDC CONTROLS
UPGRADES

MACONCE
ELEMENTARY
SCHOOL

REQUEST FOR PROPOSAL
MECHANICAL
COVER SHEET

REQUEST FOR PROPOSAL
Project Number:
Date: 4/06/2022

M000

Maconce Elementary

Item #	Area Served	Legacy Control's Page Number	Notes
AHU-1	Media Center / Computer Lab / AV Storage / Workroom	7 of 15	Include (4) VAV's w/ RH, 6 zones
AHU-2	Main Office Area	9 of 15	Include (5) zones w/ RH coils
AHU-3	Misc. (Bookstore, PTO, Work Room)	12 of 15	Include (17) zones w/ (15) RH coils
AHU-4	Gymnasium & MP Room	13 of 15	Include (3) zones w/ RH coils
Radiant Wall Panels	North Media B113	14 of 15	
Kitchen Hood	Kitchen	4 of 15	

No.	Description	D

ANCHOR BAY
 SCHOOL DISTRICT

DDC CONTROLS
 UPGRADES

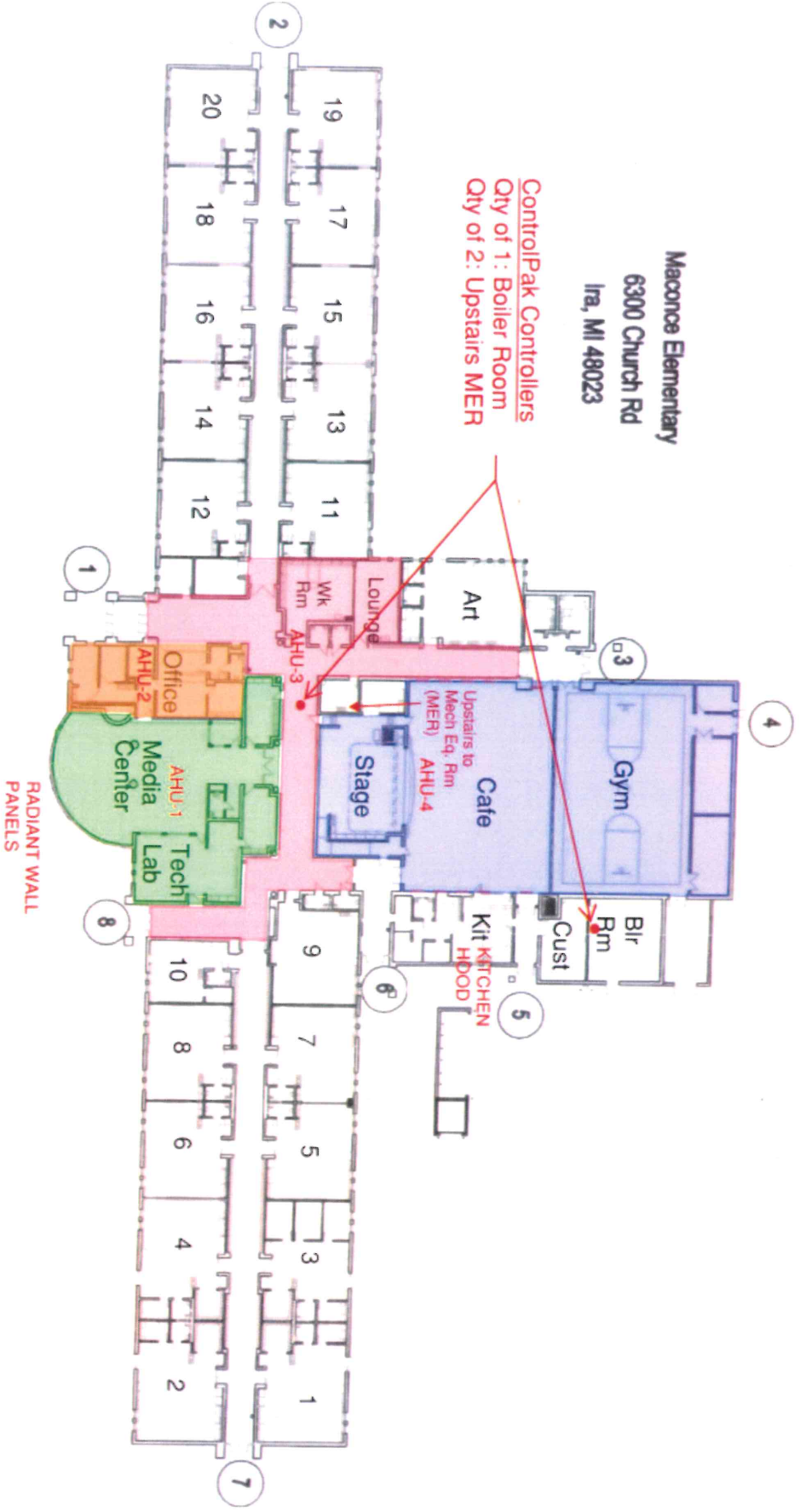
MACONCE
 ELEMENTARY
 SCHOOL

REQUEST FOR PROPOSAL
 EQUIPMENT
 SCHEDULE FOR
 DDC UPGRADE

REQUEST FOR PROPOSAL
 Project Number: 406920
 Date: M002

MacKinnon Elementary
 6300 Church Rd
 Iqaa, MI 48023

ControlPak Controllers
 Qty of 1: Boiler Room
 Qty of 2: Upstairs MER



FLOORPLAN FOR DDC UPGRADE

ANCHOR BAY
 SCHOOL DISTRICT
 DDC CONTROLS
 UPGRADES

MACKINNON
 ELEMENTARY
 SCHOOL

REQUEST FOR PROPOSAL
 FLOORPLAN
 FOR DDC
 UPGRADE

REQUEST FOR PROPOSAL
 Project Number:
 Date:

M003

Trans (OV OV) 12/24?

D0-13

2/27/2020

D0-13

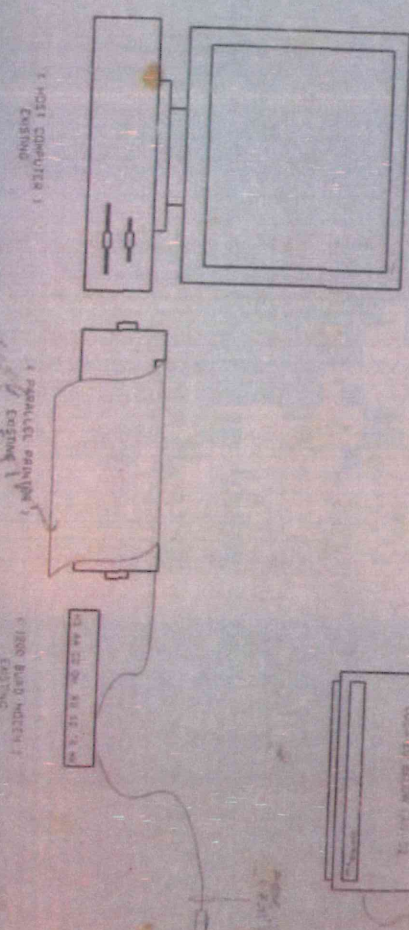
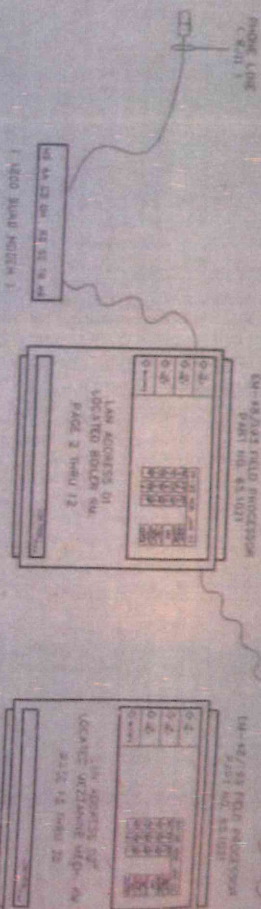
2/27/2020

D0-13

2/27/2020

D0-13

AT LEAVE
ANY
QUESTIONS
CONTACT
JIM SMITH



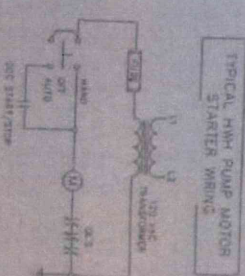
CT CONTROLLED TEMPERATURE INC.

ANCHOR BAY SCHOOLS
NORTH ELEMENTARY SCHOOL

THESE FILTERS PROU

BULEN(S) CONTROL WIRING DIAGRAM
JAN 80PGE 91
AEC700 BULLEN PGM

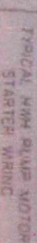
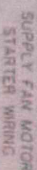
**NOT INCLUDED -
ALREADY CONTROLLED
BY THE ALC DDC
SYSTEM**



ANCHOR BAY SCHOOLS
NORTH ELEMENTARY SCHOOL
(SCHOOL'S COMM. BOARD JAN-01)

PROOF AIR FLOW WILL BE PROVIDED TO THE OBC SYSTEM THROUGH THE SUPPLY FAN MOTOR CURRENT SENSOR.

WHENEVER TWO BOILER MODULES ARE ENERGIZED, AS PROVIDED BY THE BOILER CIRCULATING PUMP MOTOR CURRENT SWITCHES THE SUPPLY FAN VARIABLE SPEED DRIVE WILL RAMP UP TO 920 CFM.



ANCHOR BAY SCHOOLS
NORTH ELEMENTARY SCHOOL

THESE FILTERS PRODUCE

PLAN ADDRESS ON
ONE LINE THIS
DEFINED BY ANY-4

WITH EXHAUST FAN EF-3 MOTOR STARTER HAND/OFF/AUTO SWITCH IN THE AUTO POSITION, THE EXHAUST FAN WILL BE STARTED AND STOPPED MANUAL THROUGH A SWITCH PROVIDED BY THE JOB ELECTRICIAN.

WHEN THE EXHAUST FAN IS ENERGIZED A PROVEN TO THE DOOR SYSTEM BY THE FAN MOTOR CURRENT SWITCH, THE CONSTANT VOLUME SUPPLY TERMINAL UNIT AND ISOLATION DAMPER WILL GO FULLY OPEN AND MAINTAIN ITS CONSTANT VOLUME SETPOINT.

THE TAPERING COIL CONTROL VALVE WILL BE MANUALLY OPERATED THROUGH THE REMOTE GRADUAL POSITION SWITCH TO PROVIDE A CONSTANT DISCHARGE AIR TEMPERATURE AS DESIRED.

WHEN THE EXHAUST FAN IS DE-ENERGIZED THE SUPPLY TERMINAL UNIT AND ISOLATION DAMPER WILL FULLY CLOSE.

NOT RECORDED ON
INDEX CARD THIS
SERIAL BY APU-4



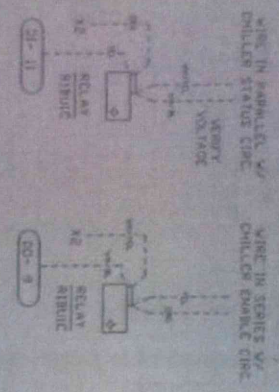
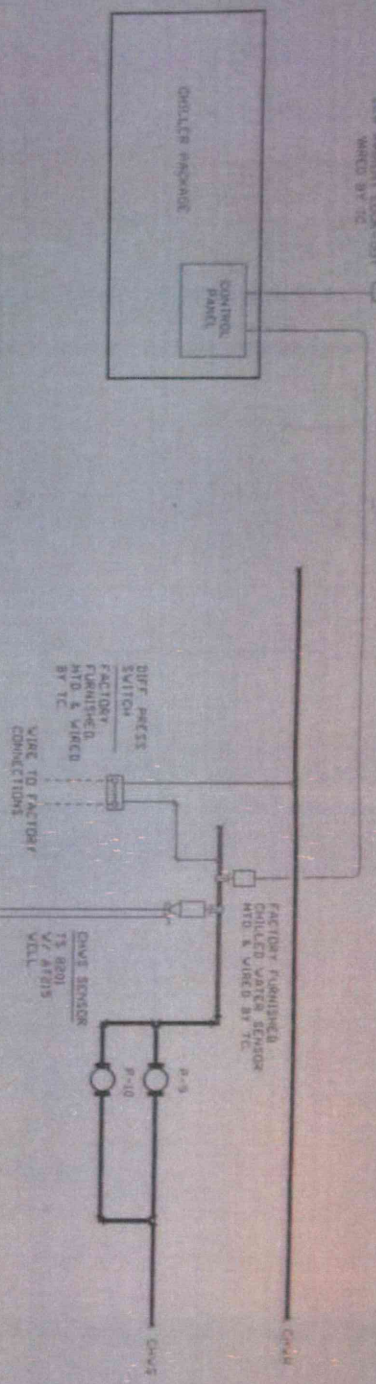
THE RESPECTIVE SPACE TEMPERATURE SENSOR WILL MODULATE ITS RESPECTIVE REHEAT COIL VALVE THROUGH THE DDC SYSTEM TO MAINTAIN A PROGRAMMABLE SPACE TEMPERATURE SETPOINT.

INCLUDE IN BASE BID

ANCHOR BAY SCHOOL
NORTH ELEMENTARY SCHOOL
(619) 441-4002 • TUESDAY, 9:00-12:00, 2:00-5:00
4200 S. 164th Ave.

CHILLER AND CHW COOLING CONTROL

LOW ADDRESS 01



SEQUENCE of OPERATION

CHILLER CONTROL

THE CHILLED WATER CIRCULATING PUMPS CP-9 AND CP-10 MOTOR STARTER HAND/OFF/AUTO SWITCHES ARE TO BE PLACED IN THE "AUTO" POSITION AND CHILLER CONTROL SWITCHES WILL BE PLACED IN THE "ON" POSITION.

ONE CIRCULATING PUMP (CP-9 OR CP-10) WILL BE DESIGNATED AS THE "LEAD" PUMP AND THE OTHER PUMP WILL BE DESIGNATED AS THE "STANDBY" PUMP THROUGH OPERATOR COMMAND TO THE CONTROL PAK DDC SYSTEM.

WHEN THE OUTSIDE AIR TEMPERATURE IS AT 65 F. OR ABOVE (ADJ.) AS DETECTED BY THE OUTSIDE AIR SENSOR THE CONTROL PAK DDC SYSTEM WILL START THE "LEAD" PUMP.

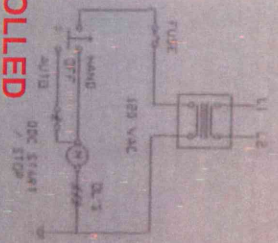
CHILLER CIRCULATING PUMP ON/OFF STATUS WILL BE PROVEN TO THE CONTROL PAK DDC SYSTEM BY MEANS OF THE PUMP MOTOR CURRENT SWITCH. IF THE "LEAD" PUMP HAS FAILED AS SENSED BY THE PUMP MOTOR CURRENT SWITCH THE DDC SYSTEM WILL AUTOMATICALLY ENERGIZE THE "STANDBY" PUMP AND INDICATE A PUMP FAILURE ALARM. ONLY ONE PUMP WILL RUN AT ANYTIME. THE LEAD PUMP AND STANDBY PUMP WILL BE ALTERNATED EVERY 1000 HOURS THROUGH THE CONTROL PAK DDC SYSTEM.

WATER FLOW IS ESTABLISHED AS PROVEN TO THE CHILLER CONTROL PANEL BY THE CHILLER DIFFERENTIAL PRESSURE SWITCH. THE CHILLER CONTROL PANEL WILL START THE CHILLER AND MAINTAIN THE REQUIRED CHILLED WATER SUPPLY TEMPERATURE.

THE CHILLED WATER FLOW TRANSMITTER THROUGH THE CONTROL PAK DDC SYSTEM WILL MODULATE THE BYPASS CONTROL VALVE TO MAINTAIN A CONSTANT FLOW THROUGH THE CHILLER.

LOW OUTSIDE AIR TEMPERATURE LOCKOUT THE SYSTEM WILL SHUT DOWN THE CHILLER WHEN THE OUTSIDE AIR TEMPERATURE FALLS BELOW ITS SETPOINT. THE SETPOINT WILL BE SET 10 F. HIGHER THAN THE CHILLER MANUFACTURERS MINIMUM RECOMMENDED AMBIENT TEMPERATURE.

TYPICAL CHW PUMP STARTER WIRING



NOT INCLUDED -
ALREADY CONTROLLED
BY THE ALC DDC
SYSTEM

CT CONTROLLED TEMPERATURE

ANCHOR BAY SCHOOL

NORTH ELEMENTARY SCHOOL

(CHILLER & CHILLED WATER PUMP CONTROL WIRING)

DATE	BY	CHKD BY	APP'D
11-24-98	...	...	...

THESE FILTERS PROU

AHU-1 CONTROL

SEQUENCE OF OPERATION

WITH THE SUPPLY FAN VARIABLE SPEED DRIVE HAND/OFF/AUTO SWITCH IN THE "AUTO" POSITION, THE SUPPLY FAN WILL BE AUTOMATICALLY STARTED AND STOPPED BASED ON THE OPTIMUM START PROGRAM AND THE OCCUPANCY SCHEDULE AS PROGRAMMED THROUGH THE DDC SYSTEM.

WHEN THE RETURN FAN VARIABLE SPEED DRIVE HAND/OFF/AUTO SWITCH IS IN THE "AUTO" POSITION, THE RETURN FAN WILL BE ELECTRICALLY INTERLOCKED WITH THE SUPPLY FAN AND WILL START WHENEVER THE SUPPLY FAN IS STARTED. DURING THE UNOCCUPIED MODE, THE AIR HANDLING UNIT WILL BE CYCLED ON AND OFF BY THE NIGHT CYCLE PROGRAM TO MAINTAIN THE SPACE TEMPERATURE ABOVE 60 F.. (PROGRAMMABLE).

IF THE SUPPLY FAN IS STARTED PRIOR TO THE OCCUPANCY HOUR BY THE OPTIMUM START PROGRAM OR DURING THE NIGHT CYCLE, THE RELIEF AIR AND OUTSIDE AIR DAMPERS WILL REMAIN FULLY CLOSED AND THE RETURN AIR DAMPERS WILL BE FULLY OPEN AND THE SUPPLY AND RETURN FANS WILL BE STARTED. THE SUPPLY FAN WILL BE MODULATED BY THE SUPPLY DUCT STATIC PRESSURE SENSOR. THE RETURN FAN SPEED WILL BE MODULATED TO MAINTAIN ZERO OFFSET BETWEEN SUPPLY AND RETURN FAN AIRFLOWS (AS DETERMINED BY THE SUPPLY AND RETURN FAN INLET AIRFLOW TRANSMITTERS) UNTIL OCCUPANCY TIME IS REACHED OR THE NIGHT CYCLE IS SATISFIED. IF THE RETURN FAN REACHES 100% SPEED, THE SUPPLY FAN WILL BE SLOWED DOWN TO MATCH THE RETURN FAN AIRFLOW.

PROOF OF FLOW STATUS FOR THE SUPPLY AND RETURN FANS WILL BE PROVEN TO THE DDC SYSTEM BY MEANS OF THEIR RESPECTIVE FAN INLET FLOW MEASURING DEVICES.

THE SUPPLY DUCT STATIC PRESSURE SENSOR THROUGH DDC WILL MODULATE THE SUPPLY FAN VARIABLE SPEED DRIVE TO MAINTAIN THE PROGRAMMABLE SUPPLY DUCT STATIC PRESSURE SETPOINT.

THE DISCHARGE HIGH LIMIT STATIC PRESSURE SENSOR, AT THE AIR HANDLING UNIT, THROUGH DDC WILL OVERRIDE SUPPLY FAN SPEED TO PREVENT THE DISCHARGE STATIC FROM EXCEEDING ITS HIGH LIMIT SETPOINT OF 4.4" W.C.

THE SUPPLY AND RETURN FAN INLET AIR FLOW MEASURING DEVICES THROUGH DDC WILL MODULATE THE RETURN FAN VARIABLE SPEED DRIVE TO MAINTAIN THE AIRFLOW OFFSET SETPOINT BETWEEN SUPPLY AND RETURN. THE SUPPLY/RETURN AIRFLOW OFFSET WILL BE 625 CFM (PROGRAMMABLE).

THE DISCHARGE AIR TEMPERATURE SENSOR THROUGH DDC WILL MODULATE IN SEQUENCE THE OUTSIDE AIR DAMPER, RETURN/RELIEF DAMPERS AND HEATING COIL CONTROL VALVE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT. THE DISCHARGE AIR TEMPERATURE SETPOINT WILL BE 55 F. WHENEVER THE OUTSIDE AIR TEMPERATURE IS 25 F. (PROGRAMMABLE) OR ABOVE, AND THE DISCHARGE AIR TEMPERATURE SETPOINT WILL BE 60 F. (PROGRAMMABLE) WHENEVER THE OUTSIDE AIR TEMPERATURE IS 25 F. OR BELOW (PROGRAMMABLE).

THE OUTSIDE AIR FLOW MEASURING STATION THROUGH DDC WILL OVERRIDE THE DISCHARGE AIR SENSOR'S CONTROL OF THE RETURN/RELIEF DAMPERS AND WILL MODULATE THE RETURN/RELIEF DAMPERS TO PREVENT THE OUTSIDE AIR FLOW FROM FALLING BELOW THE MINIMUM SETPOINT.

THE MIXED AIR TEMPERATURE SENSOR THROUGH DDC WILL OVERRIDE ALL OTHER CONTROL TO PREVENT THE MIXED AIR TEMPERATURE FROM FALLING BELOW A LOW LIMIT OF 45 F. BY MODULATING THE RELIEF DAMPER CLOSED AND THE RETURN DAMPER OPEN.

WHEN THE OUTSIDE AIR TEMPERATURE EXCEEDS THE RETURN AIR TEMPERATURE, THE RETURN/RELIEF DAMPERS WILL BE MODULATED TO MAINTAIN OUTSIDE AIR AIRFLOW AT ITS MINIMUM SETPOINT.

IF THE SETPOINT OF THE FREEZESTAT IS REACHED, THE SUPPLY AND RETURN FAN WILL BE DE-ENERGIZED.

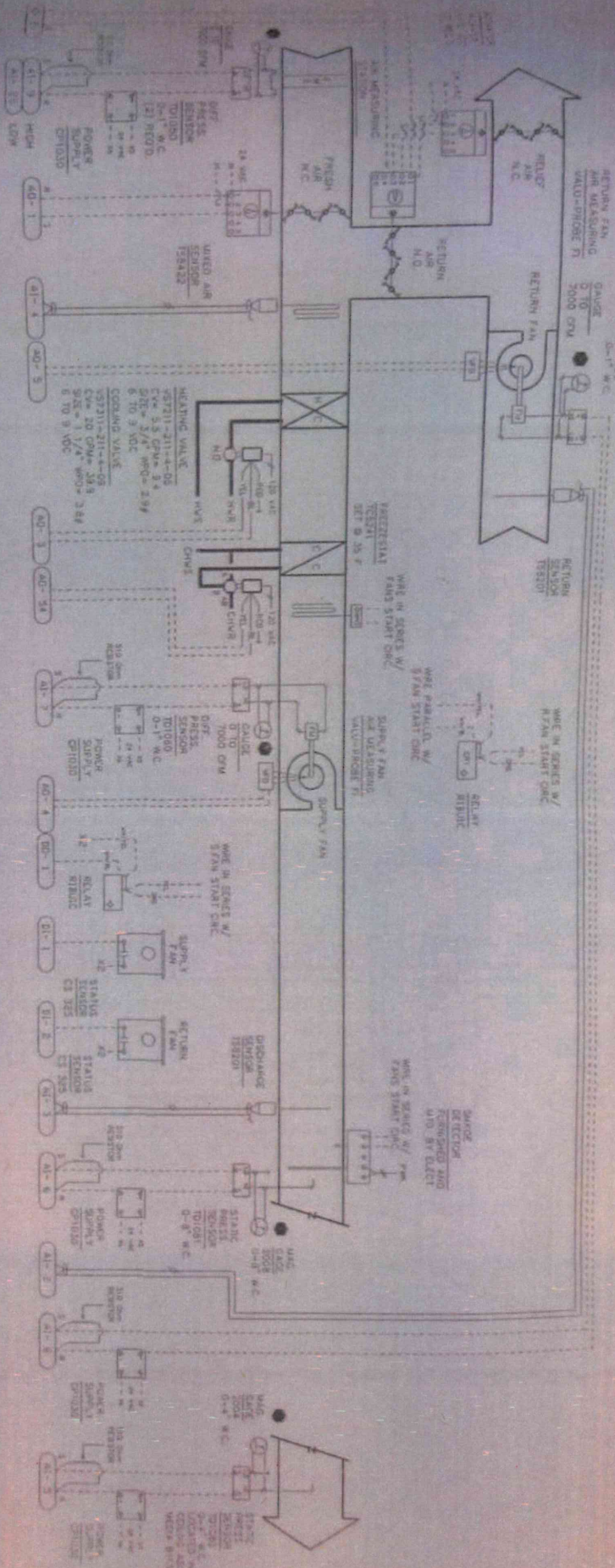
WHEN THE SUPPLY FAN IS DE-ENERGIZED, THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER WILL CLOSE. THE RETURN AIR DAMPER WILL OPEN FULLY. THE HEATING COIL CONTROL VALVE WILL BE MODULATED BY THE MIXED AIR SENSOR TO MAINTAIN A LOW LIMIT PLENUM TEMPERATURE OF 50 F.

INCLUDE IN BASE BID

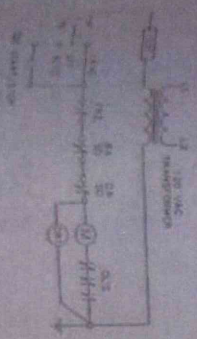
NOTES: PANEL WTD.

AIR HANDLING UNIT #1 CONTROL WIRING DIAGRAM

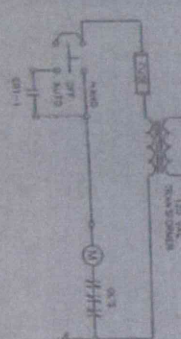
DATE: 10/10/00
BY: J. M. C.



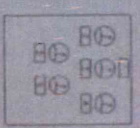
SUPPLY FAN MOTOR STARTER WIRING



RETURN FAN MOTOR STARTER WIRING



AHU-1 CONTROL PANEL

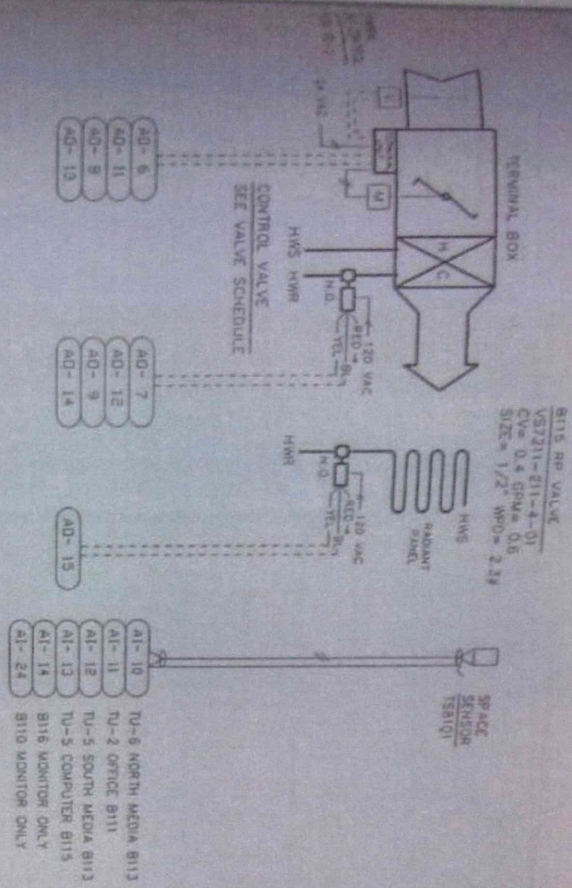


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INCLUDE IN BASE BID

CT CONTROLLED TEMPERATURE INC
ANCHOR BAY SCHOOLS
NORTH ELEMENTARY SCHOOL
 1. 100V AC
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TERMINAL UNIT VAV (AHU-1) CONTROL WIRING DIAGRAM LINE ADDRESS 02



LOCATION	TU NUMBER	PART NUMBER	SIZE	CV	GPM	WPD
NORTH B113	TU-6	VS7211-211-4-01	1/2"	2.2	4.3	3.6#
OFFICE B111	TU-2	VS7211-211-4-02	1/2"	1.3	1.2	0.85#
SOUTH B113	TU-5	VS7211-211-4-03	1/2"	2.2	3.9	3.1#
COMPUTER B115	TU-5	VS7211-211-4-03	1/2"	2.2	3.9	3.1#

TERMINAL UNIT VAV CONTROL SEQUENCE of OPERATION

AS THE ROOM TEMPERATURE RISES ABOVE THE ROOM TEMPERATURE SETPOINT, THE SUPPLY TERMINAL UNIT CONTROLLER WILL KEEP THE HEAT COIL VALVE AND THE PERIMETER RADIATION VALVE CLOSED AND WILL MODULATE THE SUPPLY AIR FLOW BETWEEN ITS MINIMUM AND MAXIMUM SETTINGS TO MAINTAIN ROOM TEMPERATURE.

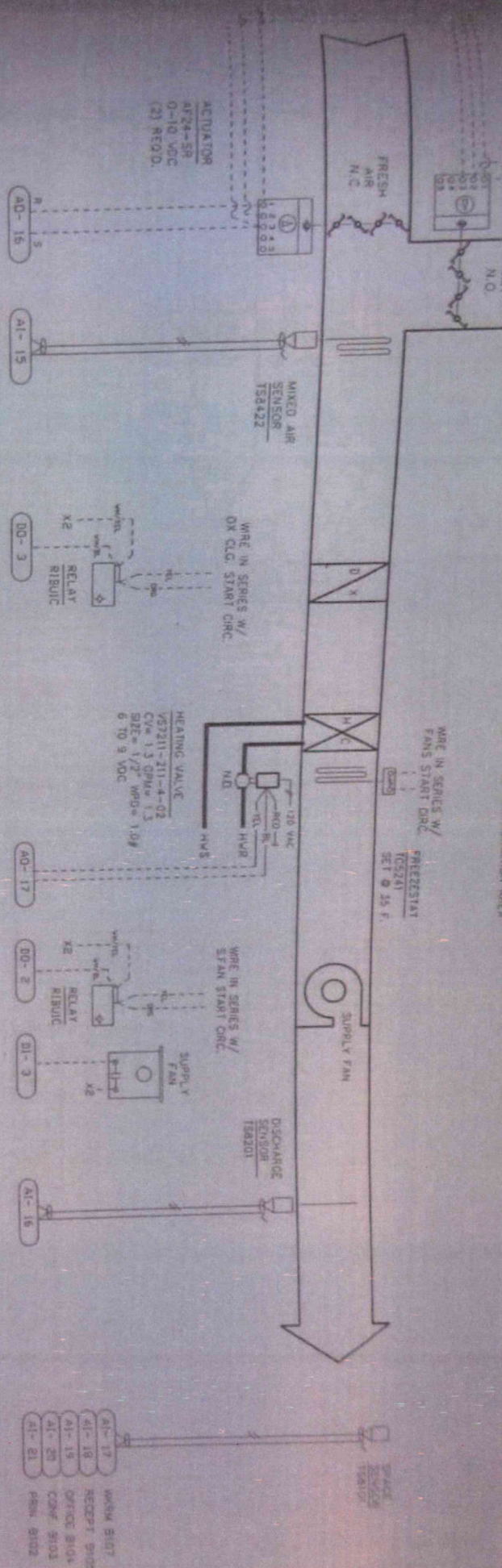
AS THE TEMPERATURE FALLS BELOW THE ROOM TEMPERATURE SETPOINT, THE SUPPLY TERMINAL UNIT CONTROLLER WILL KEEP THE SUPPLY AIR FLOW AT ITS MINIMUM SETTING AND WILL MODULATE THE PERIMETER RADIATION VALVES AND REPEAT COIL IN UNISON TO MAINTAIN ROOM TEMPERATURE SETPOINT.

WHENEVER OUTSIDE AIR TEMPERATURE RISES ABOVE 55 F. (40.1), THE PERIMETER RADIATION VALVE WILL BE FULLY CLOSED.

INCLUDE IN BASE BID

CT1 CONTROLLED TEMP
 ANCHOR BAY
 NORTH ELEVATOR
 11/28/13
 11/28/13
 11/28/13

AIR HANDLING UNIT #2 CONTROL WIRING DIAGRAM UNIT ADDRESS 02 SERIES ADMINISTRATION AREA



SEQUENCE of OPERATION

AHU-2 CONTROL

WHEN THE SUPPLY FAN MOTOR STARTER HAND/OFF/AUTO SWITCH IS IN THE "AUTO" POSITION THE SUPPLY FAN WILL BE AUTOMATICALLY STARTED AND STOPPED THROUGH THE DDC SYSTEM AT THE OCCUPANCY HOUR BASED ON THE PRE-PROGRAMMED OCCUPANCY SCHEDULE.

WHENEVER THE SUPPLY FAN IS STARTED THE OUTSIDE AIR DAMPERS WILL OPEN TO THE PRE-PROGRAMMED MINIMUM POSITION.

PROOF OF FLOW STATUS FOR THE SUPPLY FAN WILL BE PROVIDED TO THE DDC SYSTEM BY MEANS OF THE SUPPLY FAN MOTOR CURRENT SWITCH.

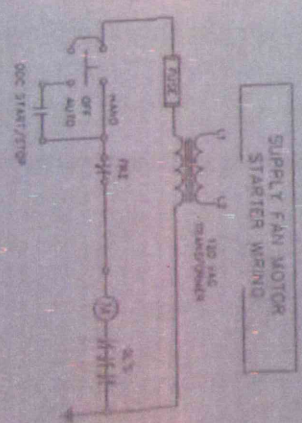
THE OPTIMUM START PROGRAM WILL DETERMINE THE OPTIMUM START TIME REQUIRED TO ATTAIN DESIRED SPACE TEMPERATURE AT THE OCCUPANCY TIME. WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 50 F., THE OPTIMUM START TIME WILL BE SET EQUAL TO THE OCCUPANCY TIME.

WHEN THE SYSTEM IS STARTED BY THE OPTIMUM START PROGRAM PRIOR TO THE OCCUPANCY TIME, THE WARM-UP CYCLE PROGRAM WILL FULLY CLOSE THE OUTSIDE AIR DAMPER AND FULLY OPEN THE RETURN AIR DAMPER. WHEN THE WARM-UP CYCLE IS COMPLETE AND THE PROGRAMMED BY SPACE TEMPERATURE IS REACHED, THE OUTSIDE AIR DAMPERS WILL OPEN TO THEIR PROGRAMMED BY MINIMUM POSITION OR AS REQUIRED TO MAINTAIN THE DESIRED TEMPERATURE AS PROGRAMMED BY THE DDC SYSTEM.

THE DISCHARGE AIR SENSOR THROUGH THE DDC SYSTEM WILL CONTROL THE DX COOLING, THE MIXED AIR DAMPERS AND THE HEATING COIL. CONTROL VALVE IN SEQUENCE TO MAINTAIN THE DESIRED SPACE TEMPERATURE. THE DISCHARGE AIR TEMPERATURE SENSOR AND DISCHARGE AIR TEMPERATURE FEEDBACK FROM THE SPACE TEMPERATURE SENSOR AND LIMITED BY THE DISCHARGE AIR SENSOR.

DURING THE UNOCCUPIED MODE THE UNIT WILL BE CYCLED WITH THE OUTSIDE AIR DAMPERS CLOSED BASED ON SPACE TEMPERATURE FEEDBACK TO MAINTAIN A NIGHT SETBACK TEMPERATURE OF 55 F. (WINTER ONLY).

WHENEVER THE SUPPLY FAN IS DE-ENERGIZED, THE OUTSIDE AIR DAMPERS WILL BE CLOSED AND THE DX COOLING WILL BE DE-ENERGIZED. WHEN THE SETPOINT OF THE FREEZESTAT IS REACHED THE SUPPLY FAN WILL BE DE-ENERGIZED.



INCLUDE IN BASE BID

PROJECT		ANCHOR BAY	
CT1 CONTROLLED TEMI		NORTH ELEMENTA	
1847 KEST DRIVE, VALDES		1 3/4" X 2" CONTROL WIND	
NEW SALTWATER	WIND	20-21-22	WIND 21
20-21-22	WIND 21	20-21-22	WIND 21

TCUP

100-500000-1000

C_T CONTROLLED TEMPER
1997 WEST BRIDGE AVENUE, SUITE 100, WEST

ANCHOR BAY SCI

五、

長樂縣志

THE UNIVERSITY OF CHICAGO

SEQUENCE OF OPERATION

WHEN THE SUPPLY FAN HAND/OFF/AUTO SWITCH IN THE "AUTO" POSITION, THE SUPPLY FAN WILL BE AUTOMATICALLY STARTED AND STOPPED BASED ON THE OPTIMUM START PROGRAM AND THE OCCUPANCY SCHEDULE AS PROGRAMMED THROUGH THE DDC SYSTEM.

WHEN THE RETURN FAN HAND/OFF/AUTO SWITCH IS IN THE "AUTO" POSITION, THE RETURN FAN WILL BE ELECTRICALLY INTERLOCKED WITH THE SUPPLY FAN AND WILL START WHENEVER THE SUPPLY FAN IS STARTED.

DURING THE UNOCCUPIED MODE, THE AIR HANDLING UNIT WILL BE CYCLED ON AND OFF BY THE NIGHT CYCLE PROGRAM TO MAINTAIN THE SPACE TEMPERATURE ABOVE 80 F. (PROGRAMMABLE).

IF THE SUPPLY FAN IS STARTED PRIOR TO THE OCCUPANCY HOUR BY THE OPTIMUM START PROGRAM OR DURING THE NIGHT CYCLE, THE RELIEF AIR AND OUTSIDE AIR DAMPERS WILL REMAIN FULLY CLOSED AND THE RETURN AIR DAMPERS WILL BE FULLY OPEN AND THE SUPPLY AND RETURN FANS WILL BE STARTED.

PROOF OF FLOW STATUS FOR THE SUPPLY AND RETURN FANS WILL BE PROVIDED TO THE DDC SYSTEM BY MEANS OF THEIR RESPECTIVE FAN INLET FLOW MEASURING DEVICES.

THE DISCHARGE AIR TEMPERATURE SENSOR THROUGH DDC WILL MODULATE IN SEQUENCE THE OUTSIDE AIR DAMPER, RETURN/RELIEF DAMPERS AND HEATING COIL CONTROL VALVE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT. THE DISCHARGE AIR TEMPERATURE SETPOINT WILL BE 55 F. WHENEVER THE OUTSIDE AIR TEMPERATURE IS 25 F. (PROGRAMMABLE) OR ABOVE, AND THE DISCHARGE AIR TEMPERATURE SETPOINT WILL BE 60 F. (PROGRAMMABLE) WHENEVER THE OUTSIDE AIR TEMPERATURE IS 25 F. OR BELOW (PROGRAMMABLE).

THE MIXED AIR TEMPERATURE SENSOR THROUGH DDC WILL OVERRIDE ALL OTHER CONTROL TO PREVENT THE MIXED AIR TEMPERATURE FROM FALLING BELOW A LOW LIMIT OF 45 F. BY MODULATING THE RELIEF DAMPER CLOSED AND THE RETURN DAMPER OPEN.

WHEN THE OUTSIDE AIR TEMPERATURE EXCEEDS THE RETURN AIR TEMPERATURE, THE RETURN/RELIEF DAMPERS WILL BE MODULATED TO MAINTAIN OUTSIDE AIR INFLOW AT ITS MINIMUM SETPOINT.

IF THE SETPOINT OF THE FREEZE/STAT IS REACHED, THE SUPPLY AND RETURN FAN WILL BE DE-ENERGIZED.

WHEN THE SUPPLY FAN IS DE-ENERGIZED, THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER WILL CLOSE. THE RETURN AIR DAMPER WILL OPEN FULLY. THE HEATING COIL CONTROL VALVE WILL BE MODULATED BY THE MIXED AIR SENSOR TO MAINTAIN A LOW LIMIT PLENUM TEMPERATURE OF 50 F.

SEQUENCE OF OPERATION

WHEN THE SUPPLY FAN HAND/OFF/AUTO SWITCH IN THE "AUTO" POSITION, THE SUPPLY FAN WILL BE AUTOMATICALLY STARTED AND STOPPED BASED ON THE OPTIMUM START PROGRAM AND THE OCCUPANCY SCHEDULE AS PROGRAMMED THROUGH THE DDC SYSTEM.

WHEN THE RETURN FAN HAND/OFF/AUTO SWITCH IS IN THE "AUTO" POSITION, THE RETURN FAN WILL BE ELECTRICALLY INTERLOCKED WITH THE SUPPLY FAN AND WILL START WHENEVER THE SUPPLY FAN IS STARTED.

DURING THE UNOCCUPIED MODE, THE AIR HANDLING UNIT WILL BE CYCLED ON AND OFF BY THE NIGHT CYCLE PROGRAM TO MAINTAIN THE SPACE TEMPERATURE ABOVE 80 F. (PROGRAMMABLE).

IF THE SUPPLY FAN IS STARTED PRIOR TO THE OCCUPANCY HOUR BY THE OPTIMUM START PROGRAM OR DURING THE NIGHT CYCLE, THE RELIEF AIR AND OUTSIDE AIR DAMPERS WILL REMAIN FULLY CLOSED AND THE RETURN AIR DAMPERS WILL BE FULLY OPEN AND THE SUPPLY AND RETURN FANS WILL BE STARTED.

PROOF OF FLOW STATUS FOR THE SUPPLY AND RETURN FANS WILL BE PROVIDED TO THE DDC SYSTEM BY MEANS OF THEIR RESPECTIVE FAN INLET FLOW MEASURING DEVICES.

THE DISCHARGE AIR TEMPERATURE SENSOR THROUGH DDC WILL MODULATE IN SEQUENCE THE OUTSIDE AIR DAMPER, RETURN/RELIEF DAMPERS AND HEATING COIL CONTROL VALVE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT. THE DISCHARGE AIR TEMPERATURE SETPOINT WILL BE 55 F. WHENEVER THE OUTSIDE AIR TEMPERATURE IS 25 F. (PROGRAMMABLE) OR ABOVE, AND THE DISCHARGE AIR TEMPERATURE SETPOINT WILL BE 60 F. (PROGRAMMABLE) WHENEVER THE OUTSIDE AIR TEMPERATURE IS 25 F. OR BELOW (PROGRAMMABLE).

THE MIXED AIR TEMPERATURE SENSOR THROUGH DDC WILL OVERRIDE ALL OTHER CONTROL TO PREVENT THE MIXED AIR TEMPERATURE FROM FALLING BELOW A LOW LIMIT OF 45 F. BY MODULATING THE RELIEF DAMPER CLOSED AND THE RETURN DAMPER OPEN.

WHEN THE OUTSIDE AIR TEMPERATURE EXCEEDS THE RETURN AIR TEMPERATURE, THE RETURN/RELIEF DAMPERS WILL BE MODULATED TO MAINTAIN OUTSIDE AIR INFLOW AT ITS MINIMUM SETPOINT.

IF THE SETPOINT OF THE FREEZE/STAT IS REACHED, THE SUPPLY AND RETURN FAN WILL BE DE-ENERGIZED.

WHEN THE SUPPLY FAN IS DE-ENERGIZED, THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER WILL CLOSE. THE RETURN AIR DAMPER WILL OPEN FULLY. THE HEATING COIL CONTROL VALVE WILL BE MODULATED BY THE MIXED AIR SENSOR TO MAINTAIN A LOW LIMIT PLENUM TEMPERATURE OF 50 F.

SEQUENCE OF OPERATION

AHU-4 TEMPERING REHEAT COILS

THE RESPECTIVE TEMPERING REHEAT COIL, SPACE TEMPERATURE SENSOR WILL MODULATE ITS RESPECTIVE REHEAT COIL CONTROL VALVE TO MAINTAIN A PROGRAMMED SPACE TEMPERATURE SETPOINT.

INCLUDE IN BASE BID

CT₁ CONTROLLED TEMPERATURE

ANCHOR BAY SCHOOL

NORTH ELEMENTARY SCHOOL

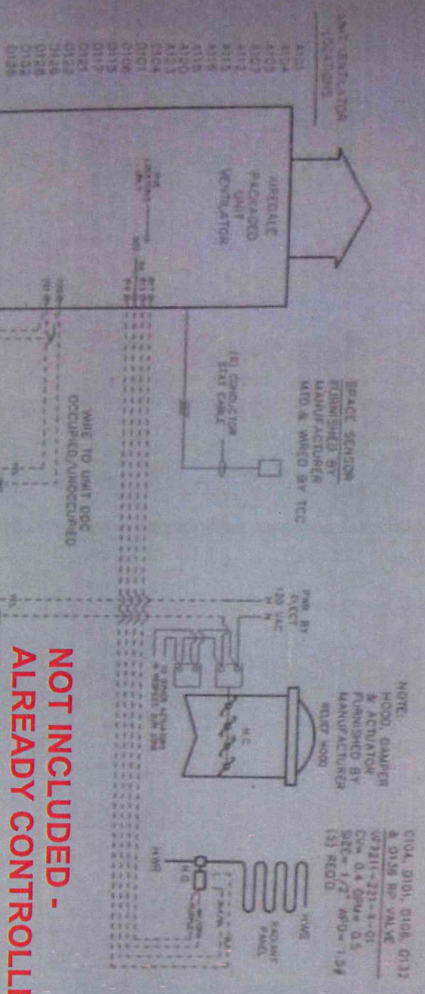
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LOCATION	NORTH ELEMENTARY SCHOOL
DATE	1/15/2015
BY	1/15/2015
REVISION	1/15/2015



ANCHOR BAY SCH		ANCHOR BAY SCH	
NORTH ELEMENTARY SCH		NORTH ELEMENTARY SCH	
100-1 CORRID, BRIDGE AVENUE		100-1 CORRID, BRIDGE AVENUE	
NEW BUILDINGS		NEW BUILDINGS	
DATE	DATE	DATE	DATE
1-1-15	1-1-15	1-1-15	1-1-15
1-1-15	1-1-15	1-1-15	1-1-15

PACKAGED UNIT VENTILATOR CONTROL WIRING DIAGRAM

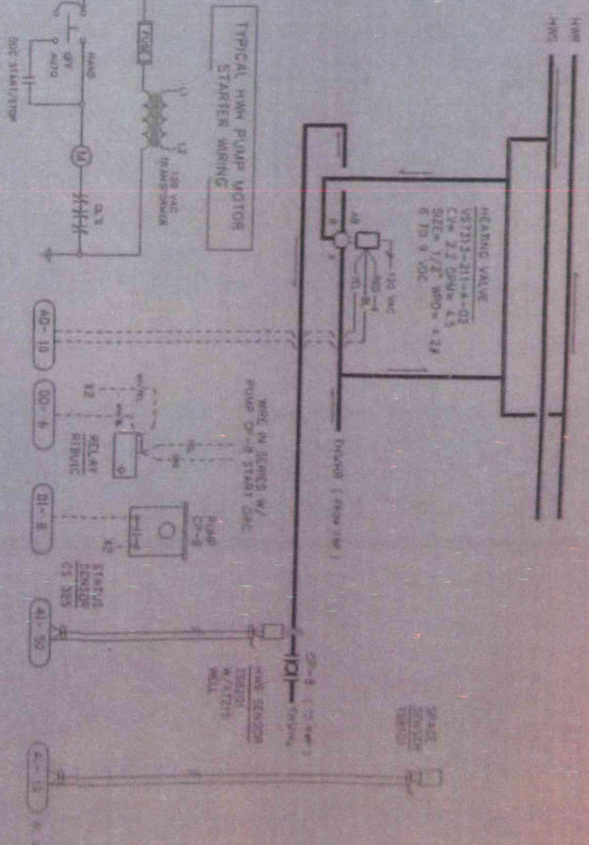
UNIT ADDRESS 02
21 UNIT VENTILATORS



**NOT INCLUDED -
ALREADY CONTROLLED
BY THE ALC DDC
SYSTEM**

NORTH MEDIA B113 RWP CONTROL WIRING DIAGRAM

UNIT ADDRESS 09
ONE UNIT ONLY



INCLUDE IN BASE BID

UNIT VENTILATOR CONTROL

THE DDC SYSTEM WILL ISSUE COMMAND TO THE UNIT VENTILATOR CONTROLLER TO ENERGIZE OR DE-ENERGIZE THE UNOCCUPIED OR OCCUPIED MODE. DURING THE OCCUPIED MODE THE RELIEF AIR DAMPERS WILL BE FULLY OPEN AND THE UNIT VENTILATOR WILL BE STARTED AND WILL RUN CONTINUOUSLY.

DURING THE WARM-UP CYCLE THE OUTSIDE AIR DAMPER WILL BE FULLY CLOSED THE RETURN AIR DAMPER WILL BE FULLY OPEN. THE RADIANT CEILING PANEL CONTROL VALVE (WHERE APPLICABLE) AND THE HEATING COIL CONTROL VALVE WILL BE OPEN.

WHEN THE WARM-UP CYCLE IS COMPLETED AND THE DESIRED SPACE TEMPERATURE IS REACHED, THE OUTSIDE AIR DAMPER WILL OPEN TO A MINIMUM POSITION OR AS REQUIRED. THE RADIANT CEILING PANEL CONTROL VALVE AND THE HEATING COIL VALVE WILL BE MODULATED THROUGH THE UNIT VENTILATOR CONTROLLER TO MAINTAIN THE DESIRED SPACE TEMPERATURE.

WHEN THE SPACE TEMPERATURE EXCEEDS ITS SETPOINT AND THE HEATING COIL CONTROL VALVE IS FULLY CLOSED THROUGH THE UNIT VENTILATOR CONTROLLER, THE OUTSIDE AIR DAMPER WILL MODULATE FULLY OPEN TO MAINTAIN SPACE TEMPERATURE. THE DISCHARGE AIR SENSOR WILL OVERRIDE THE SPACE SENSOR THROUGH THE DDC UNIT CONTROLLER TO MAINTAIN A MINIMUM DISCHARGE AIR TEMPERATURE OF 55 F. (ADJUSTABLE).

IF THE SETPOINT OF THE FREEZE/START IS REACHED, THE UNIT FAN WILL BE DE-ENERGIZED. DURING THE UNOCCUPIED/RESTART THE UNIT VENTILATORS WILL CYCLE IN FULL REGENERATION MODE TO MAINTAIN NO-SETBACK TEMPERATURE AS OBTAINED THROUGH THE UNIT VENT DDC CONTROLLER. THE RADIANT CEILING PANEL CONTROL VALVE WILL BE OPEN AND THE RELIEF AIR DAMPER WILL BE FULLY CLOSED.

EAST MEDIA RADIANT WALL PANEL CONTROL

WITH THE TEMPERED HOT WATER HEATING CIRCULATING PUMP CP-8 MOTOR STARTER HAND/OFF/AUTO SWITCH IN THE "AUTO" POSITION, CP-8 WILL BE STARTED AND STOPPED BY THE DDC SYSTEM.

WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 60 F. CP-8 WILL BE STOPPED. WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 60 F. CP-8 WILL BE STARTED. WHEN THE SPACE TEMPERATURE SENSOR IS ABOVE 60 F. CP-8 WILL BE STOPPED.

THE SPACE TEMPERATURE SENSOR WILL MODULATE THE RWP CONTROL VALVE THROUGH DDC TO MAINTAIN A PROGRAMMABLE SPACE TEMPERATURE SETPOINT.

THE TEMPERED HOT WATER HEATING SUPPLY TEMPERATURE SENSOR THROUGH DDC WILL OVERRIDE THE SPACE TEMPERATURE SENSOR AND MODULATE THE RWP HEATING CONTROL VALVE TO LIMIT THE TEMPERED HOT WATER HEATING SUPPLY TEMPERATURE TO A MAXIMUM OF 150 F. (ADJUSTABLE).

CT CONTROLLED TEMPERAT

ANCHOR BAY SCH

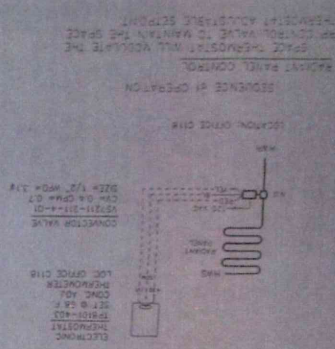
NORTH ELEMENTARY SCH

UNIT 5 RWP CONTROL WIRING

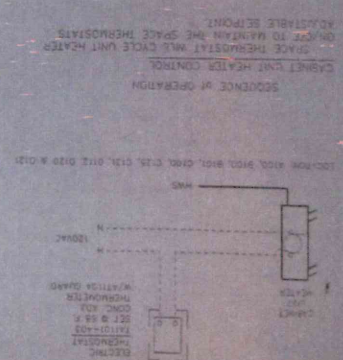
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ANCHOR BAY SCHOOL
NORTH ELEMENTARY SCHOOL
CTI CONTROLLED TEMPERATURE
1987 BOSTON, UNITED STATES OF AMERICA

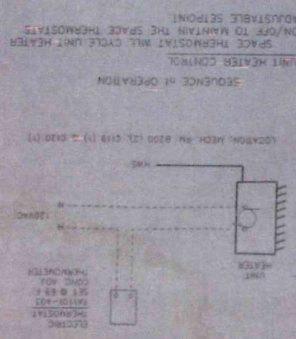
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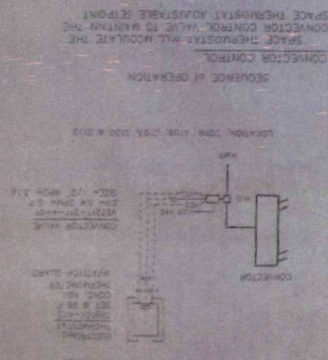
RADIANT PANEL CONTROL



CABINET UNIT HEATER CONTROL



UNIT HEATER CONTROL



CONVECTOR CONTROL

SEQUENCE OF OPERATION
RADIANT PANEL CONTROL
SPACE THERMOSTAT WILL MAINTAIN THE SPACE TEMPERATURE AT 65°F.

SEQUENCE OF OPERATION
CABINET UNIT HEATER CONTROL
SPACE THERMOSTAT WILL MAINTAIN THE SPACE TEMPERATURE AT 65°F.

SEQUENCE OF OPERATION
UNIT HEATER CONTROL
SPACE THERMOSTAT WILL MAINTAIN THE SPACE TEMPERATURE AT 65°F.

SEQUENCE OF OPERATION
CONVECTOR CONTROL
SPACE THERMOSTAT WILL MAINTAIN THE SPACE TEMPERATURE AT 65°F.