

PROJECT:

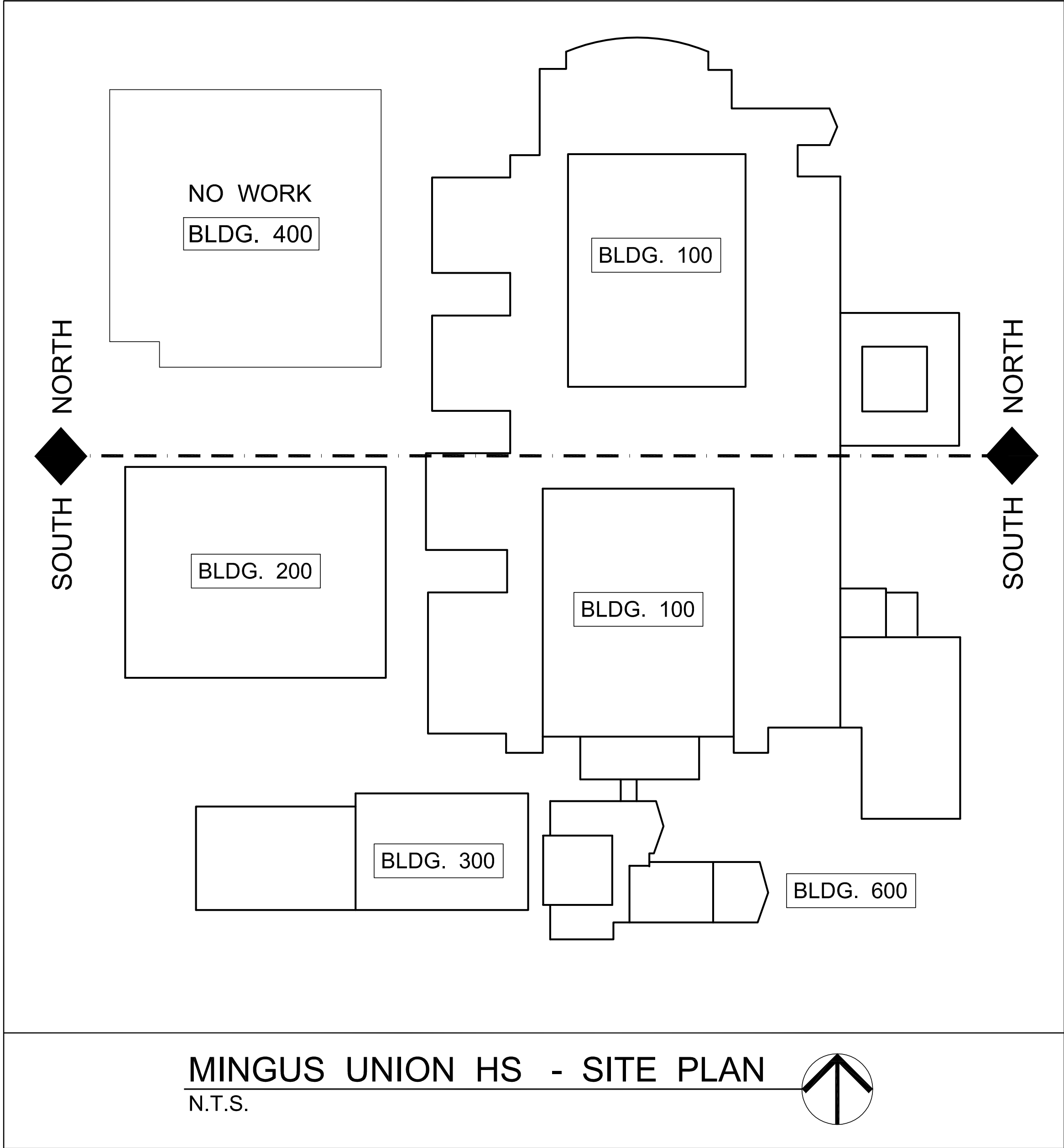
ADDRESS:

SCOPE:

MINGUS UNION HIGH SCHOOL

1801 E. FIR ST. - COTTONWOOD - AZ. 86326

ROOFTOP EQUIPMENT REPLACEMENT



SCOPE OF WORK

- SCOPE IS TO REMOVE AND REPLACE A TOTAL OF 95 ROOFTOP UNITS UNITS, LOCATED AT BUILDINGS: 100, 200, 300 & 600. SEE DEMO AND NEW PLANS. THE NEW UNITS SHALL BE OF SAME TONS, ELECTRICAL, DUCT CONFIGURATION & INSTALLED @ SAME LOCATIONS. COORDINATE WITH PLANS, GENERAL NOTES & DETAILS.
- THE TEST & BALANCE CONTRACTOR SHALL TAKE CFM READINGS @ EXIST. DIFFUSERS LEVEL FOR 15 OF THE NEW 95 INSTALLED UNITS (AVERAGE 5 GRILLES PER UNIT). PROVIDE 3 COPIES OF READINGS TBA REPORT. THE SCHOOL & ENGINEER WILL SELECT THE 15 UNITS.

PLANS INDEX (24" x 36" Format)	
SHEET	DESCRIPTION
C-1	COVER SHEET
MD-1	MECHANICAL DEMO ROOF PLAN - NORTH
MD-2	MECHANICAL DEMO ROOF PLAN - SOUTH
M-1	MECHANICAL NEW ROOF PLAN - NORTH
M-2	MECHANICAL NEW ROOF PLAN - SOUTH
M-3	MECHANICAL EQUIPMENT SCHEDULES
M-4	MECHANICAL EQUIPMENT SCHEDULES
M-5	MECHANICAL DETAILS
M-6	MECHANICAL GENERAL NOTES
MP-1	MECH. CONDENSATE DRAINS - NORTH ROOF
MP-2	MECH. CONDENSATE DRAINS - SOUTH ROOF
E-1	ELECTRICAL SITE PLAN
ED-1	ELECTRICAL DEMO PLAN - NORTH
ED-2	ELECTRICAL DEMO PLAN - SOUTH
E-2	ELECTRICAL NEW PLAN - NORTH
E-3	ELECTRICAL NEW PLAN - SOUTH
E-4	ELECTRICAL SPECIFICATIONS
S-1	STRUCTURAL DETAILS

Building Energy Solutions Provider

138 E. LA VIEVE LANE - TEMPE, AZ. 85204
(602) 377-2679 Email: www.besp.us

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PROJECT:

DESIGNED BY: JFM

REMARKS

DATE

REV.

MINGUS UNION HIGH SCHOOL

JUAN

ADDRESS:

DRAWN BY:

CHECKED BY:

DATE:

1801 E. FIR ST. - COTTONWOOD - AZ. 86326

JUAN

SRP

NOV-2023

SCOPE:

DATE:




ROOFTOP EQUIPMENT REPLACEMENT

SHEET:

NOV-2023

COVER SHEET

C-1

LEGEND	
RTU	ROOFTOP UNIT
MUA	MAKE-UP AIR UNIT
CU	CONDENSER (SPLIT SYSTEM)
EF	EXHAUST FAN
EC	EVAP. COOLER
HTR	GAS HEATER
S/A	 SUPPLY DUCT
R/A	 RETURN DUCT
(E)	EXISTING
	EXISTING UNIT TO BE REPLACED. SEE NEW PLANS

(E) EQUIPMENT REMOVAL NOTE:

PRIOR TO EQUIPMENT REMOVAL CONTRACTOR SHALL FIELD VERIFY THE (E) DEMO RTU'S MODEL NUMBERS, TONS, ELECTRICAL, AND DUCT CONNECTIONS. NOTIFY BESP ENGINEERS OF ANY DISCREPANCIES. BEFORE ORDERING NEW EQUIPMENT.

RTU's NUMBERING NOTE

THE RTU'S EQUIPMENT NUMBERING SHOWN ON THIS PLANS WERE ASSIGNED BY BESP PER OUR FIELD INSPECTION IN ORDER TO IDENTIFY EACH (E) RTU UNIT INFO. INCLUDING: MANUFACTURE, MODEL, TONNAGE, DUCTS CONFIGURATION, ELECTRICAL REQUIREMENTS, AND GENERAL CONDITIONS.

THESE RTU'S NUMBERS SHALL BE USED FOR THIS PROJECT REFERENCE ONLY, INDEPENDENT FROM ANY EXISTING RTU'S NUMBERING THE SCHOOL DISTRICT MAY BE USING.

RTU's SMOKE DETECTORS NOTE (TYP)

ALL (E) SMOKE DETECTORS SHALL BE CONNECTED TO NEW RTU's, AND INTEGRATED INTO THE DISTRICT'S EXISTING FIRE ALARM SYSTEM. THE FIRE ALARM INTEGRATION SHALL FULFILL THE LOCAL FIRE MARSHALL'S REQUIREMENTS AND INSPECTIONS. THE BIDDERS SHALL COORDINATE WITH THE DISTRICT'S FIRE ALARM COMPANY FOR FIRE ALARM INTEGRATION AND THE PRICE SHALL BE INCLUDED IN THE BID. THE DISTRICT'S FIRE ALARM CO. IS "SIGNAL ONE FIRE & COMMUNICATIONS" AND THE CONTRACT PERSON IS: TRACY NEITZ; (480) 351-5038. Email Address: tracy.neitz@signalonefire.us

RTU's CONTROL'S NOTE (TYP)

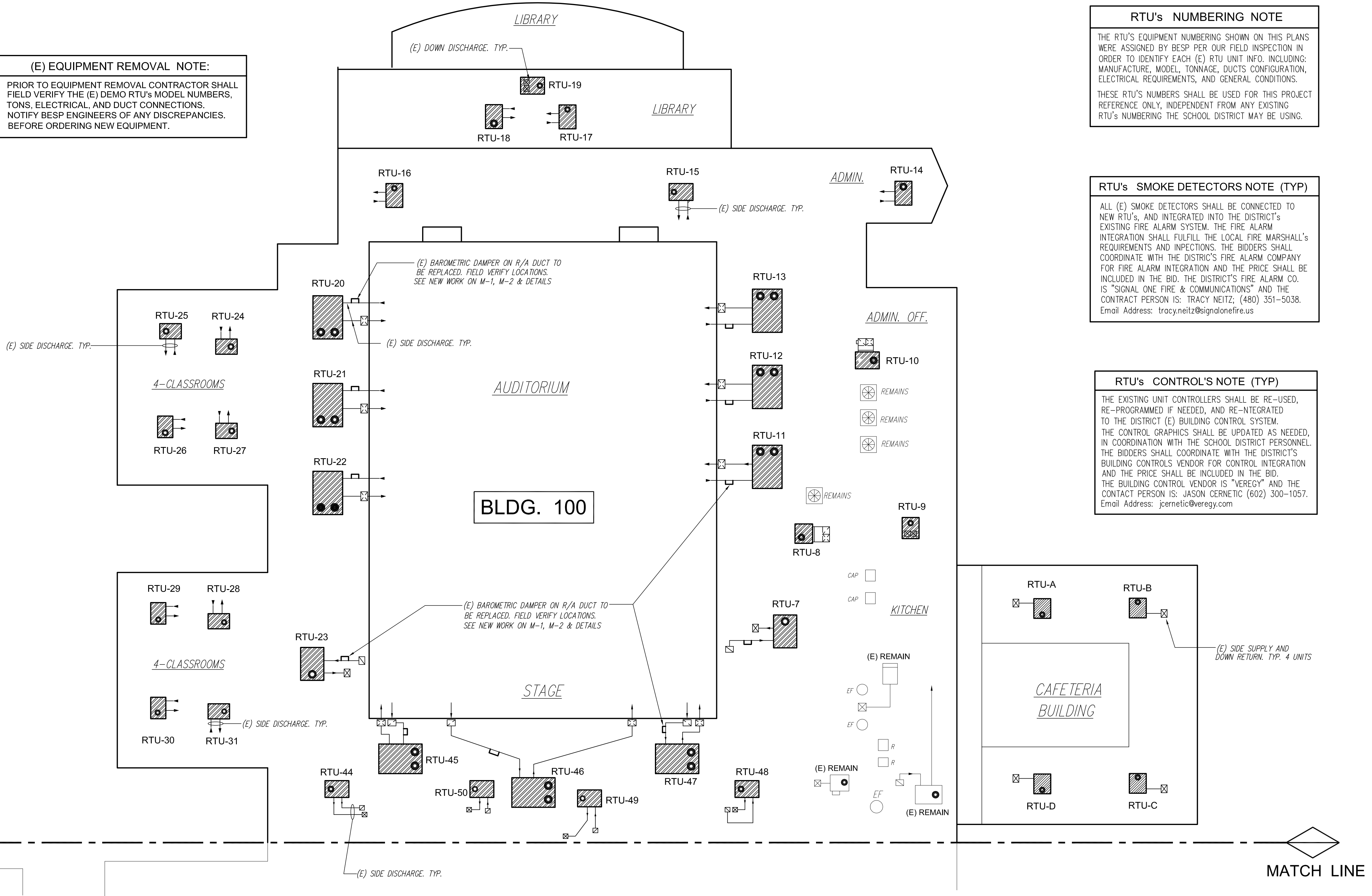
THE EXISTING UNIT CONTROLLERS SHALL BE RE-USED, RE-PROGRAMMED IF NEEDED, AND RE-INTEGRATED TO THE DISTRICT (E) BUILDING CONTROL SYSTEM. THE CONTROL GRAPHICS SHALL BE UPDATED AS NEEDED, IN COORDINATION WITH THE SCHOOL DISTRICT PERSONNEL. THE BIDDERS SHALL COORDINATE WITH THE DISTRICT'S BUILDING CONTROLS VENDOR FOR CONTROL INTEGRATION AND THE PRICE SHALL BE INCLUDED IN THE BID. THE BUILDING CONTROL VENDOR IS "VEREGY" AND THE CONTACT PERSON IS: JASON CERNETIC (602) 300-1057. Email Address: jcernetic@veregy.com

DEMO ROOFTOP UNITS NOTES

1) (E) ROOFTOPS UNITS SHOWN DARKER SHALL BE REMOVED, INCLUDING S/A & R/A DUCT CONNECTIONS TO POC. REMOVE (E) GAS LINES & GAS VALVE CONNECTIONS. REMOVE (E) CONDENSATE DRAINS P-TRAPS. REMOVE (E) DISCONNECTS & PIG-TAILS. SEE ELECTRICAL PLANS. FOR NEW RTU'S CONNECTIONS SEE EQUIPMENT DETAILS.

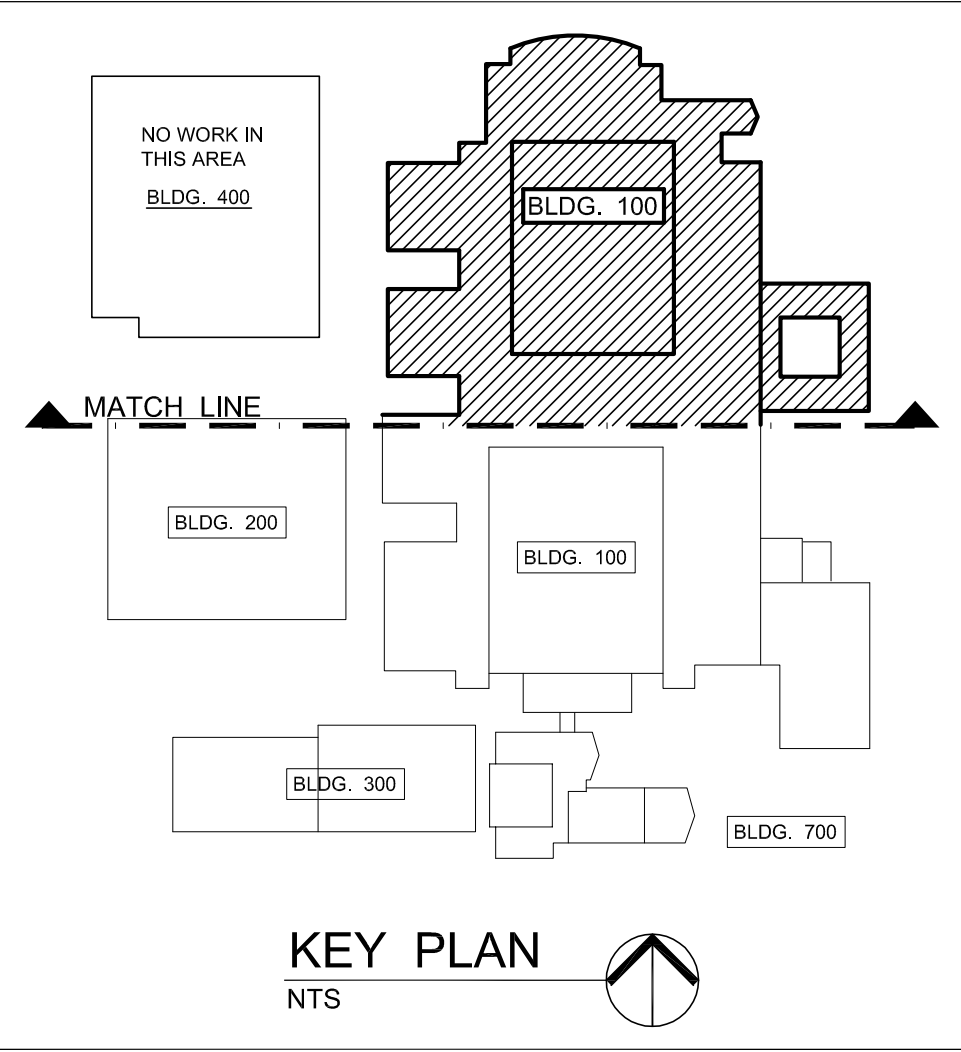
2) FOR (E) EQUIPMENT MODEL NUMBERS & SIZE SEE SCHEDULES.

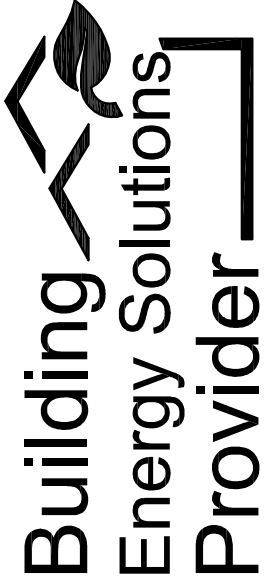
3) (E) ROOF-CURBS & PLATFORMS SHALL REMAIN & BE RE-USED. CONTRACTOR TO VERIFY (E) CONDITIONS, AND NOTIFY THE OWNER AND ENGINEER OF ANY DEFICIENCIES.




- DEMOLITION GENERAL NOTES**
- COORDINATE DEMOLITION AND DISPOSAL OF EXISTING EQUIPMENT WITH OWNER.
 - COORDINATE DEMOLITION SCHEDULE AND HOURS OF WORK WITH THE OWNER.
 - CONTRACTOR SHALL MAINTAIN PREMISES IN CLEAN CONDITION AT END OF EACH DAY AND THOROUGHLY CLEAN-UP AT END OF CONSTRUCTION.
 - COORDINATE WITH THE OWNER, CRANE SETTING LOCATION, AND HOURS OF OPERATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING CRANE SITE.

DEMO ROOF PLAN - NORTH SIDE
NTS





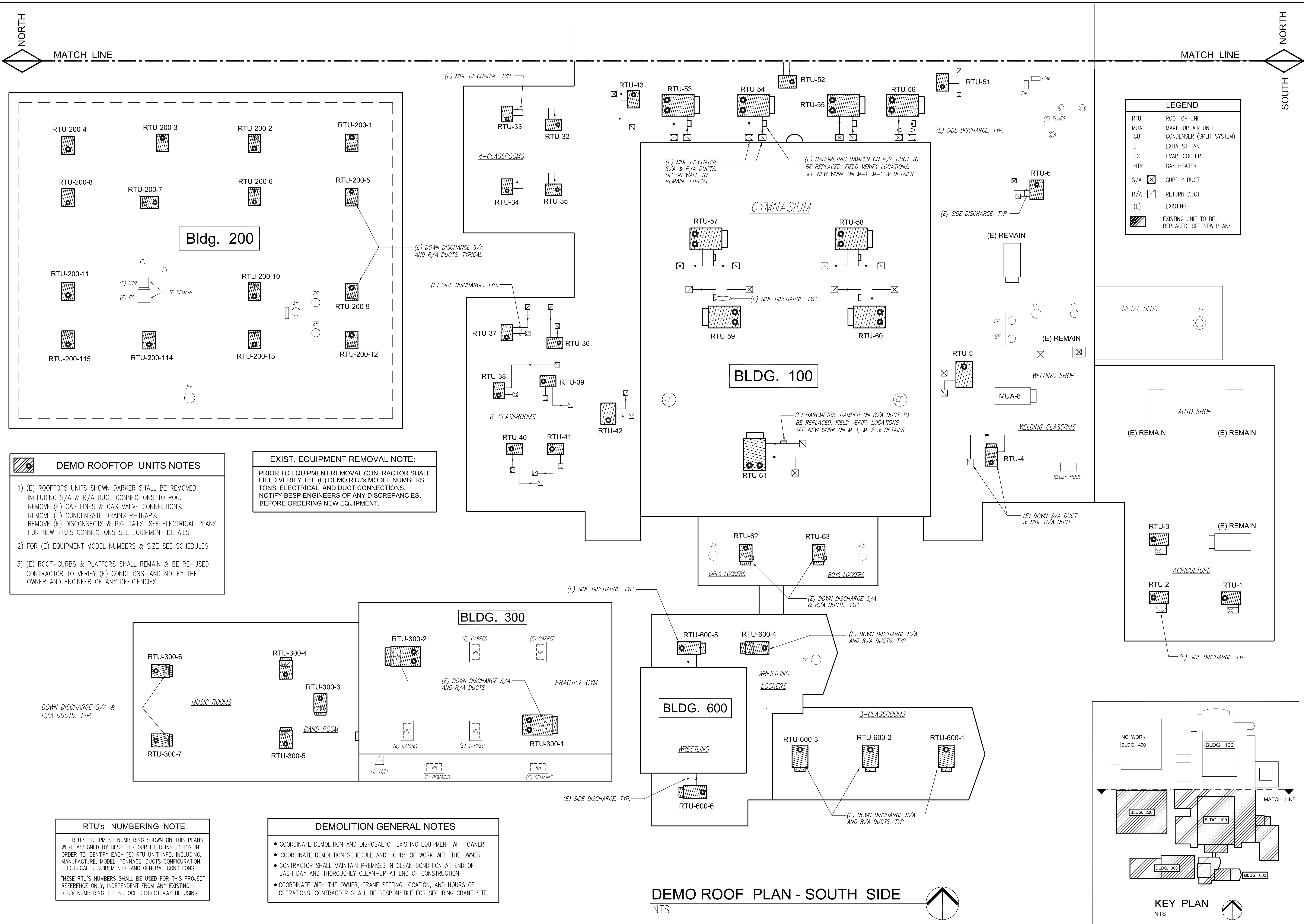
138 E. LA VIEJE LANE - TEMPE, AZ. 85204
(602) 377-2679
Email: www.besp.us



EXPIRES: June 30, 2026

PROJECT:	MINGUS UNION HIGH SCHOOL
ADDRESS:	1801 E. FIR ST. - COTTONWOOD - AZ. 86326
SCOPE:	ROOFTOP A/C EQUIPMENT REPLACEMENT
SHEET:	MECHANICAL DEMO ROOF PLAN - NORTH
DESIGNED BY:	JFM
DRAWN BY:	JUAN
CHECKED BY:	SRP
DATE:	NOV-2023
REMARKS	
DATE	
REV.	

MD-1



EQUIPMENT SCHEDULE - BLDG 100																
EXISTING EQUIPMENT TO BE REPLACED									NEW EQUIPMENT LIST (STANDARD EFFICIENCY)							
RTU NUMBER	SERVING	MANUF.	MODEL #	TON	DUCTS DISCH.	ELECTRIC.	NAT. GAS INPUT	WEIGHT LBS.	MANUF.	MODEL	TON	OUTSIDE AIR	ELECT.	NAT. GAS INPUT	WEIGHT LBS.	REMARKS
RTU-42	GYM	TRANE	YCH-092A4RHA2	7.5	SIDE	460/3/60	200 MBH	900	TRANE	YSC-090H	7.5	SEE NOTES BELOW	460/3/60	200 MBH	850	SMOKE DETECTOR REQ'D. SEE NOTES BELOW
RTU-43	AUDITORIUM		YCH-048C4HOCA	4	SIDE		96 MBH	600		YSC-048G	4			96 MBH	500	N/A
RTU-44			YCH-048C4HOCA	4	SIDE		96 MBH	600		YSC-048G	4			96 MBH	500	N/A
RTU-45			YCH-181C4HOCA	15	SIDE		350 MBH	2,100		YSJ-180	15			350 MBH	2,000	SMOKE DETECTOR REQ'D. SEE NOTES BELOW
RTU-46																
RTU-47																
RTU-48			YCH-060C4HOCA	5	DOWN		104 MBH	650		YSC-060G	5			104 MBH	550	N/A
RTU-49			YCH-048C4HOCA	4	SIDE		96 MBH	600		YSC-048G	4			96 MBH	500	
RTU-50			YCH-060C4HOCA	5	SIDE		104 MBH	650		YSC-060G	5			104 MBH	550	
RTU-51	COMMON		YCH-060C4HOCA	5	SIDE		104 MBH				5			104 MBH		
RTU-52	COMMON		YCH-060C4HOCA	5	SIDE		104 MBH				5			104 MBH		
RTU-53	GYM		YCH-181C4HOCA	15	SIDE		350 MBH	2,100		YSJ-180	15			350 MBH	2,000	SMOKE DETECTOR REQ'D. SEE NOTES BELOW
RTU-54			YCH-181C4HOCA	15	SIDE		350 MBH				15					
RTU-55			YCH-181C4HOCA	15	SIDE		350 MBH				15					
RTU-56			YCH-181C4HOCA	15	SIDE		350 MBH				15					
RTU-57			YCH-181C4HOCA	15	SIDE		350 MBH				15					
RTU-58			YCH-181C4HOCA	15	SIDE		350 MBH				15					
RTU-59			YCH-181C4HOCA	15	SIDE		350 MBH				15					
RTU-60			YCH-181C4HOCA	15	SIDE		350 MBH				15					
RTU-61			YCH-181C4HOCA	15	SIDE		350 MBH				15					
RTU-62	GIRLS LOCK.		YCH-092A4RHA2	7.5	DOWN		200 MBH	900		YSC-090H	7.5			200 MBH	850	
RTU-63	BOYS LOCK.		YCH-092A4RHA2	7.5	DOWN		200 MBH	900		YSC-090H	7.5			200 MBH	850	
RTU-A	CAFETERIA	RHEEM	RRNAC-060CK10E	5	SIDE	208/3/60	100 MBH	650	TRANE	YSC-060G	5		208/3/60	100 MBH	550	CURB ADAPTER REQ'D. SEE DETAILS ON M-5
RTU-B																
RTU-C																
RTU-C																

- PROVIDE NEW PACKAGE UNITS WITH STANDARD FEATURES, AND HAIL GUARDS. PRIOR TO ORDERING VERIFY MODEL NUMBERS WITH FACTORY REP.
- PROVIDE NEW ELECTRICAL DISCONNECT & PIG TAILS, FIELD VERIFY AND COORDINATE WITH ELECTRICAL PLANS.
- FOR THE REPLACED UNITS WITH SMOKE DETECTORS SEE REMARKS & SMOKE DETECTORS NOTE ON THIS SHEET.
- FOR NEW UNITS THAT REQUIRE A CURB-ADAPTOR, SEE DETAILS AND NOTES ON SHEET M-5.
- FOR 15 TON UNITS (ONLY) PROVIDE EQUIPMENT MANUFACTURER START-UP INSPECTION & REPORT. PROVIDE ENGINEER 2 COPIES OF REPORT.
- NEW RTU UNITS OUTSIDE AIR REQUIREMENTS:
FOR NEW 3 TON TO 5 TON PACKAGE UNITS SIDE OR DOWN DISCHARGE, PROVIDE FACTORY MANUAL DAMPERS SET AT 15 % OPENING.
FOR NEW 6 TON TO 15 TON PACKAGE UNITS DOWN DISCHARGE, PROVIDE FACTORY ECONOMIZERS WITH BAROMETRIC DAMPERS AT UNIT. SET ECONOMIZER AT 15% MIN. OPENING. COORD. W/EXISTING CONTROLS.
FOR NEW 6 TON TO 15 TON PACKAGE UNITS SIDE DISCHARGE, PROVIDE FACTORY ECONOMIZERS WITH FIELD INSTALLED R/A DUCT BAROMETRIC DAMPERS IT. SET ECONOMIZER AT 15% MIN. OPENING. COORD. W/EXIST. CONTROLS.
- NEW RTU UNITS EQUAL TO: TRANE, CARRIER, OR YORK MANUFACT. SUBMITT MANUFACT. SPECS SUBSTITUTIONS TO THE ENGINEER FOR PRE-APPROVAL.

RTU's CONTROL'S NOTE

THE EXISTING UNIT CONTROLLERS SHALL BE RE-USED, RE-PROGRAMMED IF NEEDED, AND RE-NTEGRATED TO THE DISTRICT (E) BUILDING CONTROL SYSTEM. THE CONTROL GRAPHICS SHALL BE UPDATED AS NEEDED, IN COORDINATION WITH THE SCHOOL DISTRICT PERSONNEL. THE BIDDERS SHALL COORDINATE WITH THE DISTRICT'S BUILDING CONTROLS VENDOR FOR CONTROL INTEGRATION AND THE PRICE SHALL BE INCLUDED IN THE BID. THE BUILDING CONTROL VENDOR IS "VEREGY" AND THE CONTACT PERSON IS: JASON CERNETIC (602) 300-1057. Email Address: jcernetic@veregy.com

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EQUIPMENT SCHEDULE - BLDG 100																
EXISTING EQUIPMENT TO BE REPLACED									NEW EQUIPMENT LIST (STANDARD EFFICIENCY)							
RTU NUMBER	SERVING	MANUF.	MODEL #	TON	DUCTS DISCH.	ELECTRIC.	NAT. GAS INPUT	WEIGHT LBS.	MANUF.	MODEL	TON	OUTSIDE AIR	ELECTRIC.	NAT. GAS INPUT	WEIGHT LBS.	REMARKS
RTU-1	AGRICULTURE	RUUD	UKKA-A036DLO8E	3	SIDE	460/3/60	64.0 MBH	570	TRANE	YSC-036G	3	SEE NOTES BELOW	460/3/60	64.0 MBH	475	CURB ADAPTER REQ'D.
RTU-2		RUUD	UKKA-A036DLO8E	3	SIDE	460/3/60					3		460/3/60			
RTU-3		RUUD	UKKA-A036DLO8E	3	SIDE	460/3/60					3		460/3/60			
RTU-4	WELDING	TRANE	YSC-60-E4RHA	5	SIDE	460/3/60	104 MBH	650		YSC-060G	5		460/3/60	104 MBH	550	N/A
RTU-5	GYM	TRANE	YCH-092A4RHA2	7.5	SIDE	460/3/60	200 MBH	900		YSC-090H	7.5		460/3/60	200 MBH	850	SMOKE DETECTOR REQ'D.
RTU-6	MAINTENANCE	TRANE	YCH-060C4H0	5	DOWN	460/3/60	104 MBH	650		YSC-060G	5		460/3/60	104 MBH	550	N/A
RTU-7	STAGE	TRANE	YCH-092A4RHA2	7.5	SIDE	460/3/60	200 MBH	900		YSC-090H	7.5		460/3/60	200 MBH	850	SMOKE DETECTOR REQ'D.
RTU-8	OFFICES	CARRIER	48ESA-036060S0	3	SIDE	208/3/60	72 MBH	570		YSC-036G	3		208/3/60	72 MBH	475	CURB ADAPTER REQ'D.
RTU-9	OFFICES	CARRIER	48ESA-036-06	3	DOWN	208/3/60	72 MBH	570			3		208/3/60	72 MBH		
RTU-10	OFFICES	CARRIER	48ESA-036-06	3	SIDE	208/3/60	72 MBH	570			3		208/3/60	72 MBH		
RTU-11	AUDITORIUM	TRANE	YCH-181C4HOCA	15	SIDE	460/3/60	350 MBH	2,100		YSJ-180	15		460/3/60	350 MBH	2,000	SMOKE DETECTOR REQ'D.
RTU-12			YCH-181C4HOCA	15	SIDE		350 MBH				15			350 MBH		
RTU-13			YCH-181C4HOCA	15	SIDE		350 MBH				15			350 MBH		
RTU-14	ADMIN.		YSC-090A4RHA5	7.5	SIDE		200 MBH	900		YSC-090H	7.5			200 MBH	850	
RTU-15	AUDITORIUM		YSC-090A4RMA	7.5	SIDE		200 MBH	900			7.5			200 MBH		
RTU-16	AUDITORIUM		YSC-090A4RMA	7.5	SIDE		200 MBH	900			7.5			200 MBH		
RTU-17	LIBRARY		YSC-072A4RMA3	6	SIDE		200 MBH	825		YSC-072H	6			200 MBH	750	
RTU-18					SIDE											
RTU-19					DOWN											
RTU-20	AUDITORIUM		YCH-181C4HOCA	15	SIDE		350 MBH	2,100		YSJ-180	15			350 MBH	2,000	
RTU-21			YCH-181C4HOCA	15	SIDE		350 MBH				15			350 MBH		
RTU-22			YCH-181C4HOCA	15	SIDE		350 MBH				15			350 MBH		
RTU-23	STAGE		YSC-090A4RMA	7.5	SIDE		200 MBH	900		YSC-090H	7.5			200 MBH	850	
RTU-24	CLASSRMS		YSC-048E3RHA0	4	SIDE	208/3/60	96 MBH	600		YSC-048G	4		208/3/60	96 MBH	500	N/A
RTU-25																
RTU-26																
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- PROVIDE NEW PACKAGE UNITS WITH STANDARD FEATURES, AND HAIL GUARDS. PRIOR TO ORDERING VERIFY MODEL NUMBERS WITH FACTORY REP.
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EXPIRES: June 30, 2026

PROJECT: MINGUS UNION HIGH SCHOOL

ADDRESS: 1801 E. FIR ST. - COTTONWOOD - AZ. 86326

SCOPE: ROOFTOP A/C EQUIPMENT REPLACEMENT

SHEET: MECHANICAL EQUIP. SCHEDULES BLDG-100

DESIGNED BY: JFM

DRAWN BY: JUAN

CHECKED BY: SRP

DATE: NOV-2023

REMARKS

DATE

REV.

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EQUIPMENT SCHEDULE - BUILDING 200																
EXISTING EQUIPMENT TO BE REPLACED									NEW EQUIPMENT LIST (STANDARD EFFICIENCY)							
RTU NUMBER	SERVING	MANUF.	MODEL #	TON	DUCTS DISCH.	ELECTRIC.	NAT. GAS INPUT	WEIGHT LBS.	MANUF.	MODEL #	TON	OUTSIDE AIR	ELECTRIC.	NAT. GAS INPUT	OPERATING WEIGHT LBS.	REMARKS
RTU-200-1	CLASSRMS	CARRIER	48-LCE0-04A0A6A	3	DOWN	460/3/60	115 MBH	600	CARRIER	48GCEJ-04A2A6	3	MANUAL DAMPER SEE NOTES BELOW	460/3/60	115 MBH	525	RE-USE (E) CURB-ADAPTOR
RTU-200-2																
RTU-200-3																
RTU-200-4																
RTU-200-5																
RTU-200-6																
RTU-200-7		TRANE	YSC-036-E3RHA0													↓ PROVIDE NEW CURB-ADAPTOR
RTU-200-8		CARRIER	48LCE0-04A0A6A													RE-USE (E) CURB-ADAPTOR
RTU-200-9																
RTU-200-10																
RTU-200-11																
RTU-200-12																
RTU-200-13																
RTU-200-14																
RTU-200-15	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓

- PROVIDE NEW PACKAGE UNITS WITH STANDARD FEATURES, AND HAIL GUARDS. PRIOR TO ORDERING VERIFY MODEL NUMBERS WITH FACTORY REP.
- PROVIDE NEW ELECTRICAL DISCONNECT & PIG TAILS, FIELD VERIFY AND COORDINATE WITH ELECTRICAL PLANS.
- FOR NEW UNITS THAT REQUIRE A CURB-ADAPTOR, SEE DETAILS AND NOTES ON SHEET M-5.
- FOR NEW 3 TON TO 5 TON PACKAGE UNITS SIDE OR DOWN DISCHARGE, PROVIDE FACTORY MANUAL DAMPERS SET AT 15 % OPENING.
- NEW RTU UNITS EQUAL TO: TRANE, OR YORK MANUFACT. SUBMITT MANUFACT. SPECS SUBSTITUTIONS TO THE ENGINEER FOR PRE-APPROVAL.

ROOFTOPS EQUIPMENT SCHEDULE BLDG-300 & BLDG-600																	
AREA	EXISTING EQUIPMENT TO BE REPLACED									NEW EQUIPMENT LIST (STANDARD EFFICIENCY)							
	RTU NUMBER	SERVING	MANUF.	MODEL #	TON	DUCTS DISCH.	ELECTRIC.	NAT. GAS INPUT	WEIGHT LBS.	MANUF.	MODEL #	TON	OUTSIDE AIR	ELECTRIC.	NAT. GAS INPUT	WEIGHT LBS.	REMARKS
BLDG. 300	RTU-300-1	PRACT. GYM	TRANE	YCD-181-C4HACA	15	DOWN	460/3/60	350 MBH	2,100	TRANE	YSJ-180A4SOH	15	SEE NOTES BELOW	460/3/60	350 MBH	2,000	SMOKE DETECTOR REQ'D.
	RTU-300-2	PRACT. GYM	TRANE	YCH-181C4HOCA	15		460/3/60	350 MBH	2,100		YSJ-180A4SOH	15		460/3/60	350 MBH	2,000	SMOKE DETECTOR REQ'D.
	RTU-300-3	BAND-ROOM	TRANE	YSC-048-ERHA0	4		208/1/60	96.0 MBH	600		YSC-048F4RHA	4		208/1/60	96.0 MBH	530	N/A
	RTU-300-4	BAND-ROOM	RUUD	URKA-A036-JK08E	3			64.0 MBH	570		YSC-036F4RHA	3			64.0 MBH	575	CURB ADAPTER REQ'D.
	RTU-300-5	BAND-ROOM															
	RTU-300-6	MUSIC ROOMS															
	RTU-300-7	MUSIC ROOMS	↓		↓	↓	↓	↓	↓		↓	↓		↓	↓	↓	↓
BLDG. 600	RTU-600-1	CLASSROOMS	LENNOX	KGA-060-S4D05G	5	DOWN	460/3/60	104 MBH	650		YSC-060F4RHA	5		460/3/60	104 MBH	550	CURB ADAPTER REQ'D.
	RTU-600-2	CLASSROOMS	LENNOX	KGA-048-S4D04G	4	DOWN		96.0 MBH	600		YSC-048F4RHA	4			96.0 MBH	500	
	RTU-600-3	CLASSROOMS	LENNOX	KGA-048-S4D04G	4	DOWN		96.0 MBH	600		YSC-048F4RHA	4			96.0 MBH	500	
	RTU-600-4	WRESTLING	LENNOX	KGA-036-S4DS4G	3	DOWN		64.0 MBH	525		YSC-036F4RHA	3			64.0 MBH	475	↓
	RTU-600-5	WRESTLING	LENNOX	KGA-072-S4BH4G	6	SIDE		200 MBH	825		YSJ-072A4SOH	6			200 MBH	750	SMOKE DETECTOR REQ'D.
	RTU-600-6	WRESTLING	LENNOX	KGA-072-S4BH4G	6	SIDE	↓	200 MBH	825	↓	YSJ-072A4SOH	6	↓	↓	200 MBH	750	SMOKE DETECTOR REQ'D.

- PROVIDE NEW PACKAGE UNITS WITH STANDARD FEATURES, AND HAIL GUARDS. PRIOR TO ORDERING VERIFY MODEL NUMBERS WITH FACTORY REP.
- PROVIDE NEW ELECTRICAL DISCONNECT & PIG TAILS, FIELD VERIFY AND COORDINATE WITH ELECTRICAL PLANS.
- FOR THE REPLACED UNITS WITH SMOKE DETECTORS SEE REMARKS & SMOKE DETECTORS NOTE ON THIS SHEET.
- FOR NEW UNITS THAT REQUIRE A CURB-ADAPTOR, SEE DETAILS AND NOTES ON SHEET M-5.
- FOR 15 TON UNITS (ONLY) PROVIDE EQUIPMENT MANUFACTURER START-UP INSPECTION & REPORT. PROVIDE ENGINEER 2 COPIES OF REPORT.
- NEW RTU UNITS OUTSIDE AIR REQUIREMENTS:
FOR NEW 3 TON TO 5 TON PACKAGE UNITS SIDE OR DOWN DISCHARGE, PROVIDE FACTORY MANUAL DAMPERS SET AT 15 % OPENING.
FOR NEW 6 TON TO 15 TON PACKAGE UNITS DOWN DISCHARGE, PROVIDE FACTORY ECONOMIZERS WITH BAROMETRIC DAMPERS AT UNIT. SET ECONOMIZER AT 15% MIN. OPENING. COORD. W/EXISTING CONTROLS.
FOR NEW 6 TON TO 15 TON PACKAGE UNITS SIDE DISCHARGE, PROVIDE FACTORY ECONOMIZERS WITH FIELD INSTALLED R/A DUCT BAROMETRIC DAMPERS IT. SET ECONOMIZER AT 15% MIN. OPENING. COORD. W/EXIST. CONTROLS.
- NEW RTU UNITS EQUAL TO: CARRIER, OR YORK MANUFACT. SUBMITT MANUFACT. SPECS SUBSTITUTIONS TO THE ENGINEER FOR PRE-APPROVAL.

Building Energy Solutions Provider

138 E. LA VIEVE LANE – TEMPE, AZ. 85204

(602) 377-2679

Email: www.besp.us

PROJEC

MINGUS UNION HIGH SCHOOL

PROJECT:

DESIGNED BY: JFM

DRAWN BY: JUAN

CHECKED BY: SRP

DATE

NOV-2023

REMARKS

REV.

ADDRESS: 1801 E. FIR ST. - COTTONWOOD - AZ. 86326

SCOPE: ROOFTOP A/C EQUIPMENT REPLACEMENT

SHEET: EQUIPMENT SCHEDULES BLDG-200, 300 & 600

EXP

57501

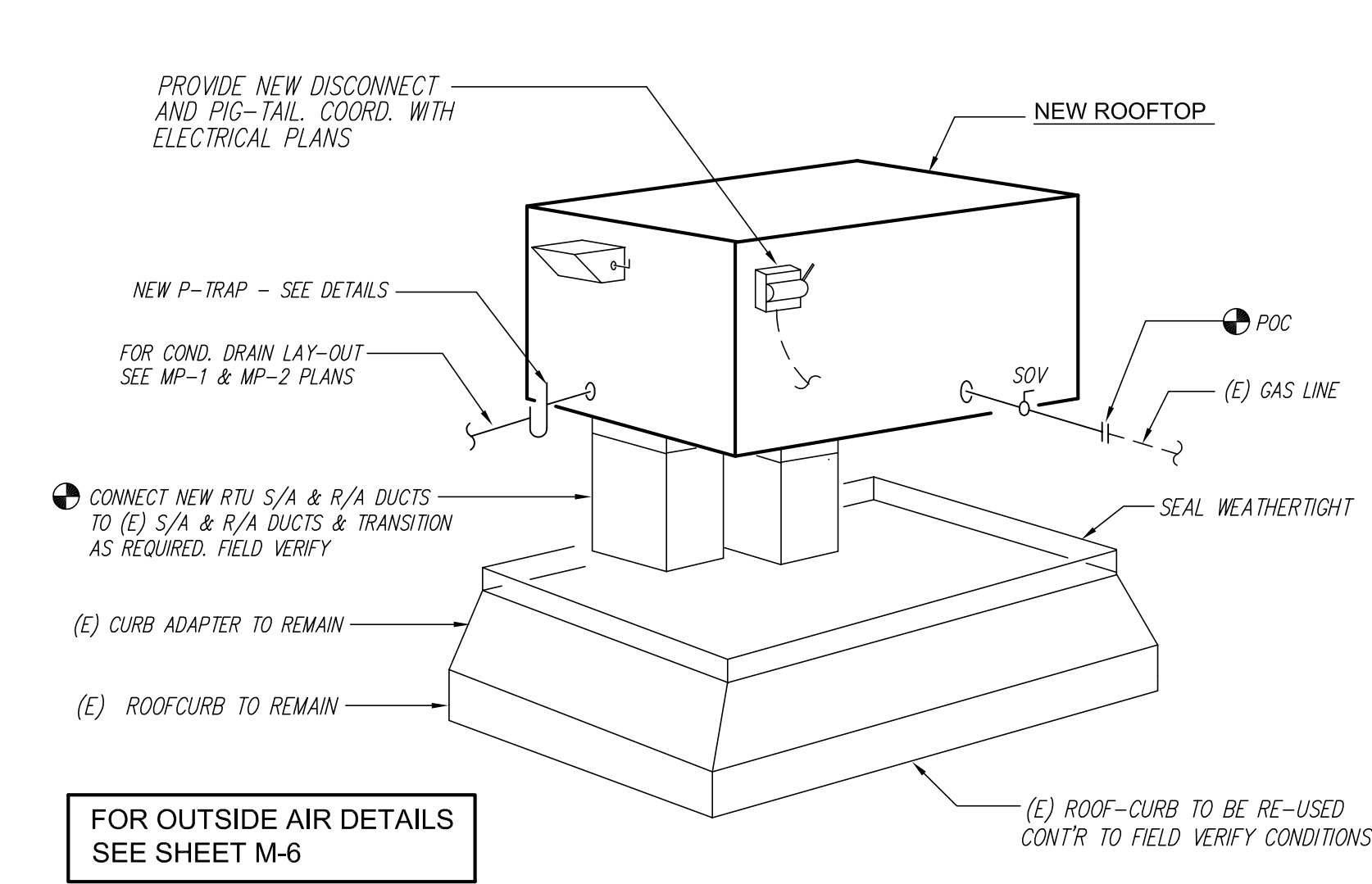
SAMEER R PANDEY

11-18-2023

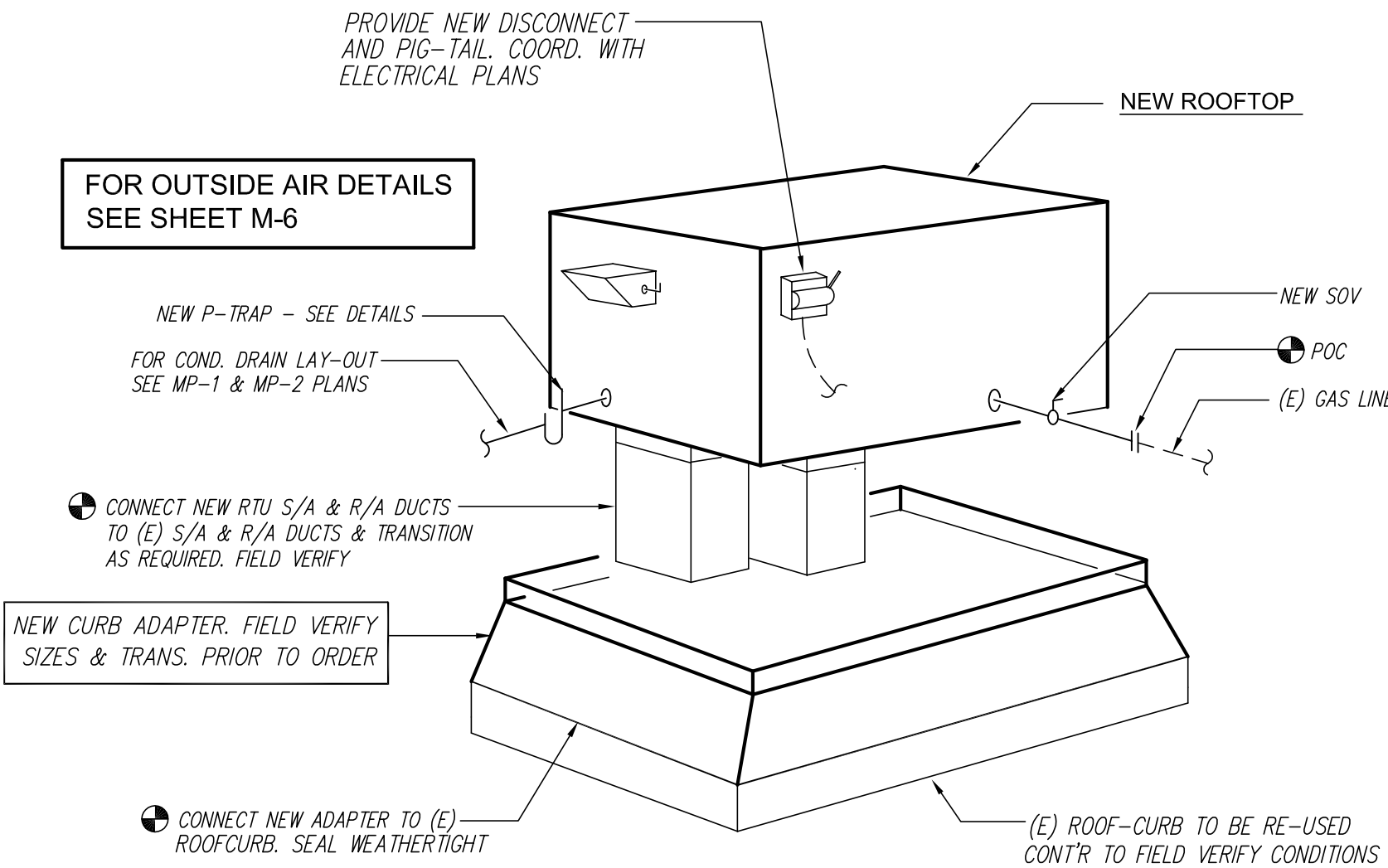
Arizona U.S.A

Expires: June 30, 2026

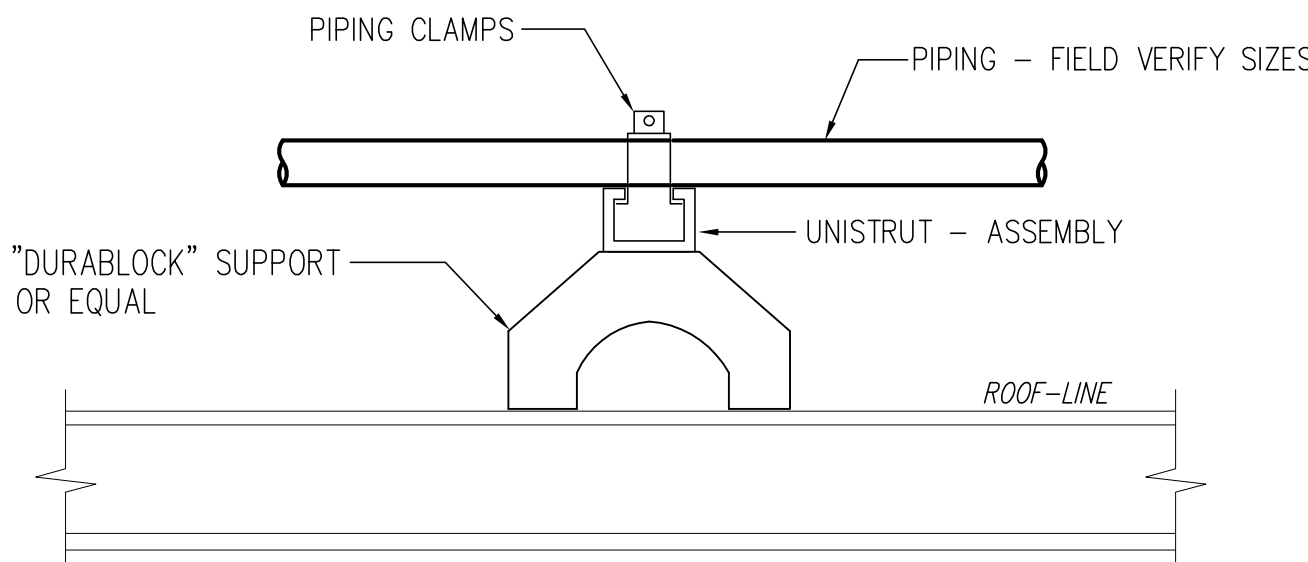
M-4



(E) CURB ADAPTER DETAIL - DOWN DISCHARGE)
N.T.S. (TYP. @ BUILDING # 200)



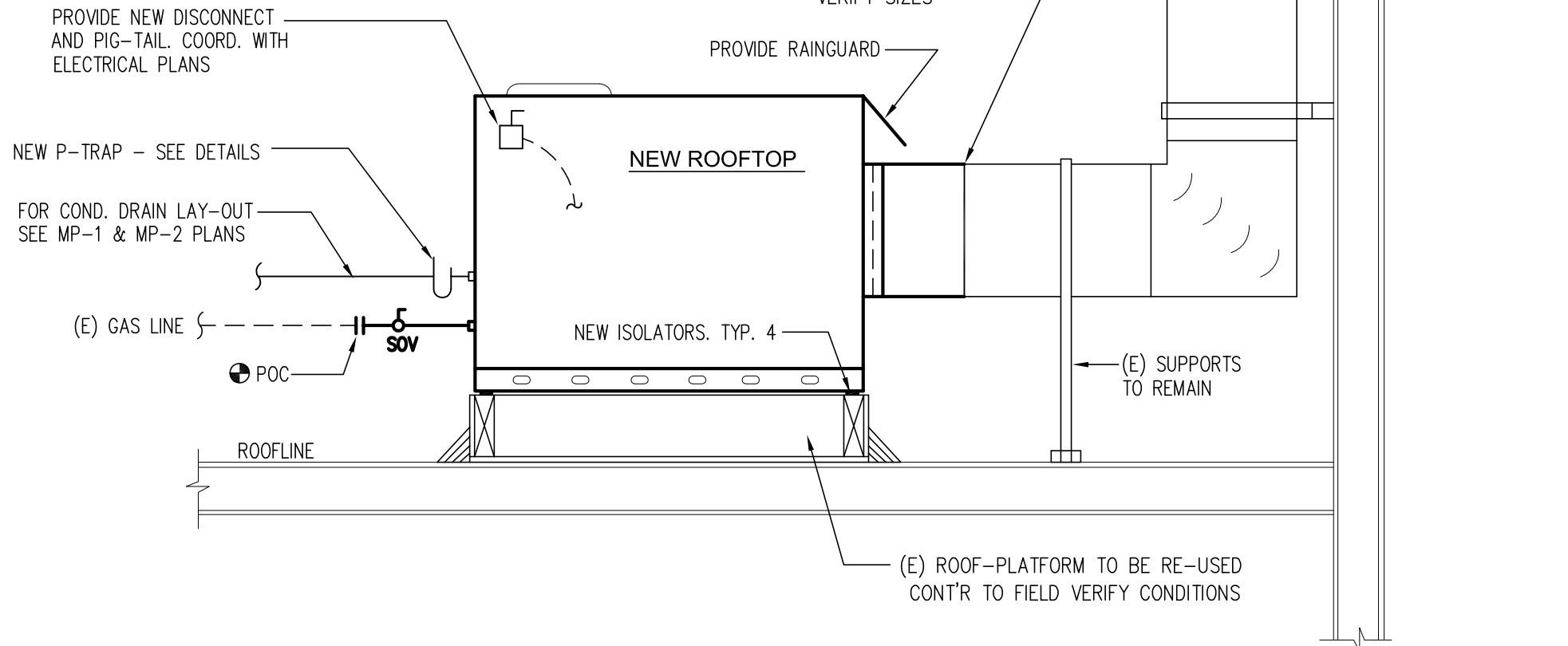
NEW CURB ADAPTER DETAIL TYP.
N.T.S. (TYP. FOR: 3, 4 & 5 TON UNITS)



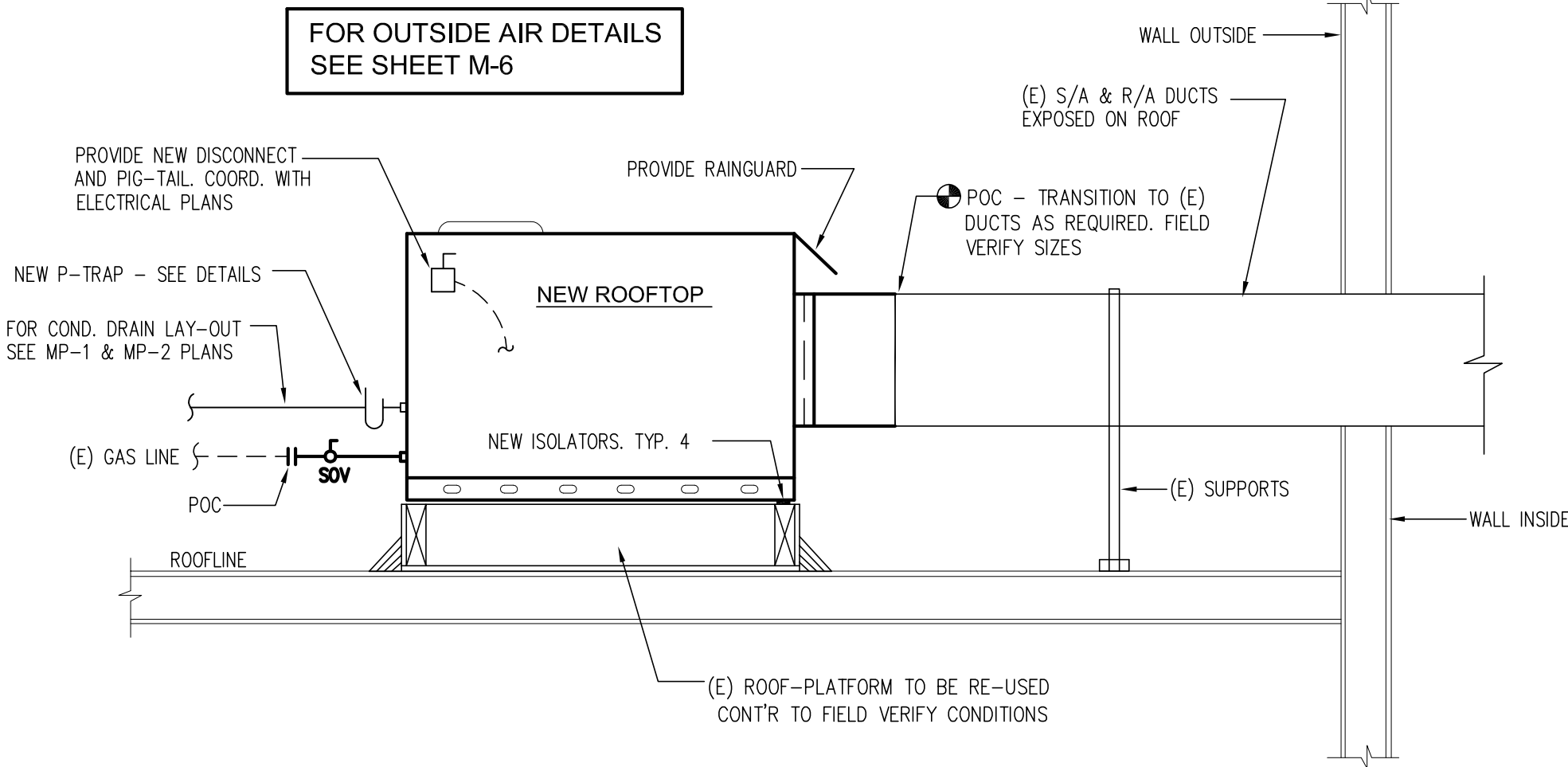
ROOF-PIPING SUPPORTS - TYP.
NTS

CONDENSATE DRAINS NOTE
TYP. FOR ALL NEW RTU'S
SEE SHEETS MP-1 & MP-2
FOR NEW CONDESATE LINES
ROUTING & DETAILS.

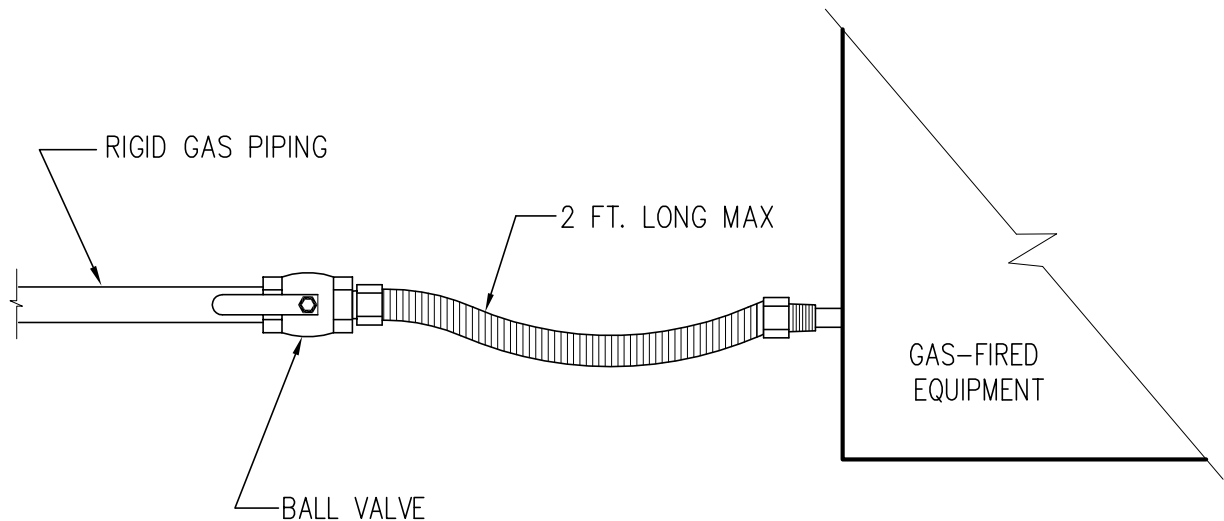
FOR OUTSIDE AIR DETAILS
SEE SHEET M-6



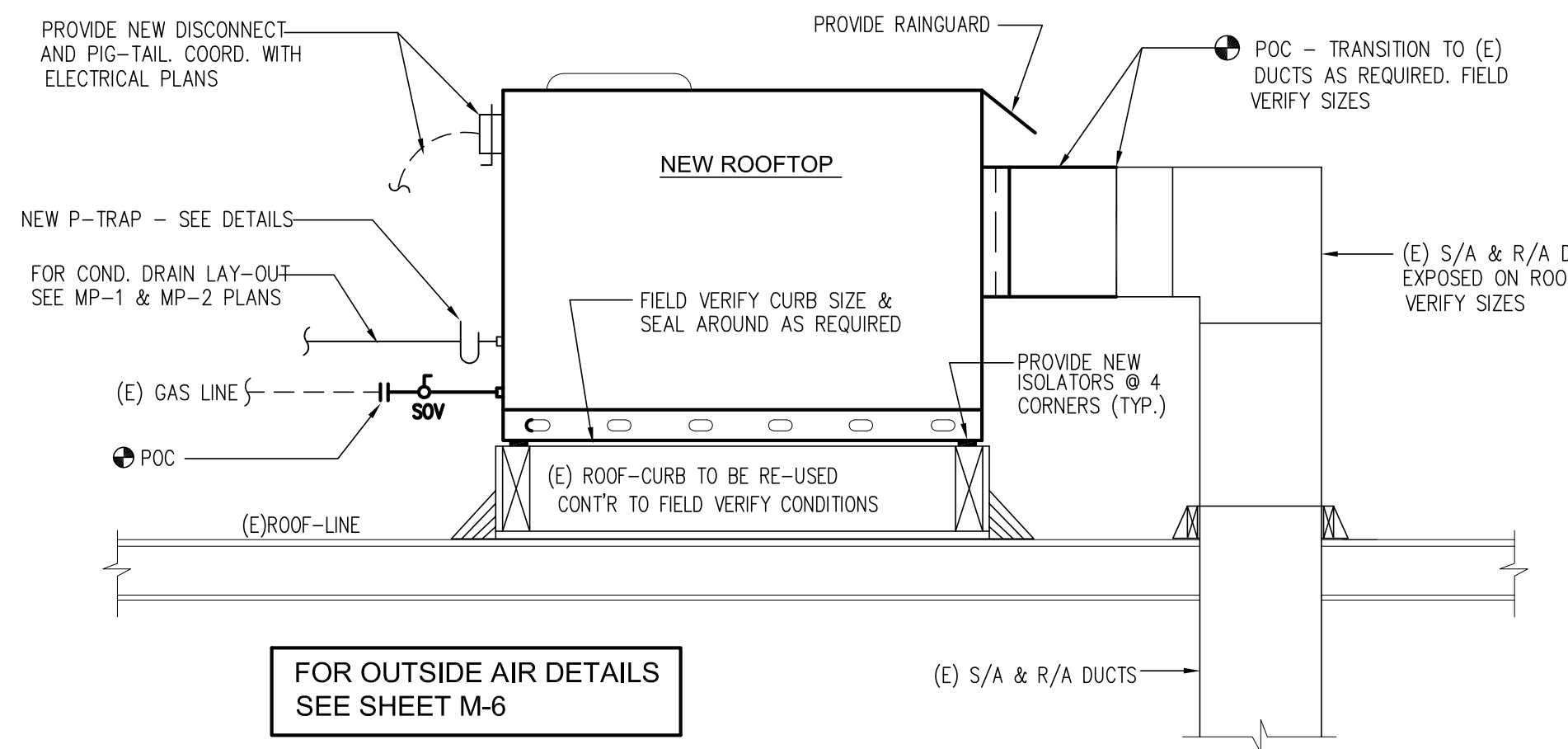
TYP. RTU UNIT - SERVING AUDITORIUM
N.T.S. (SIDE S/A & R/A DUCTS)



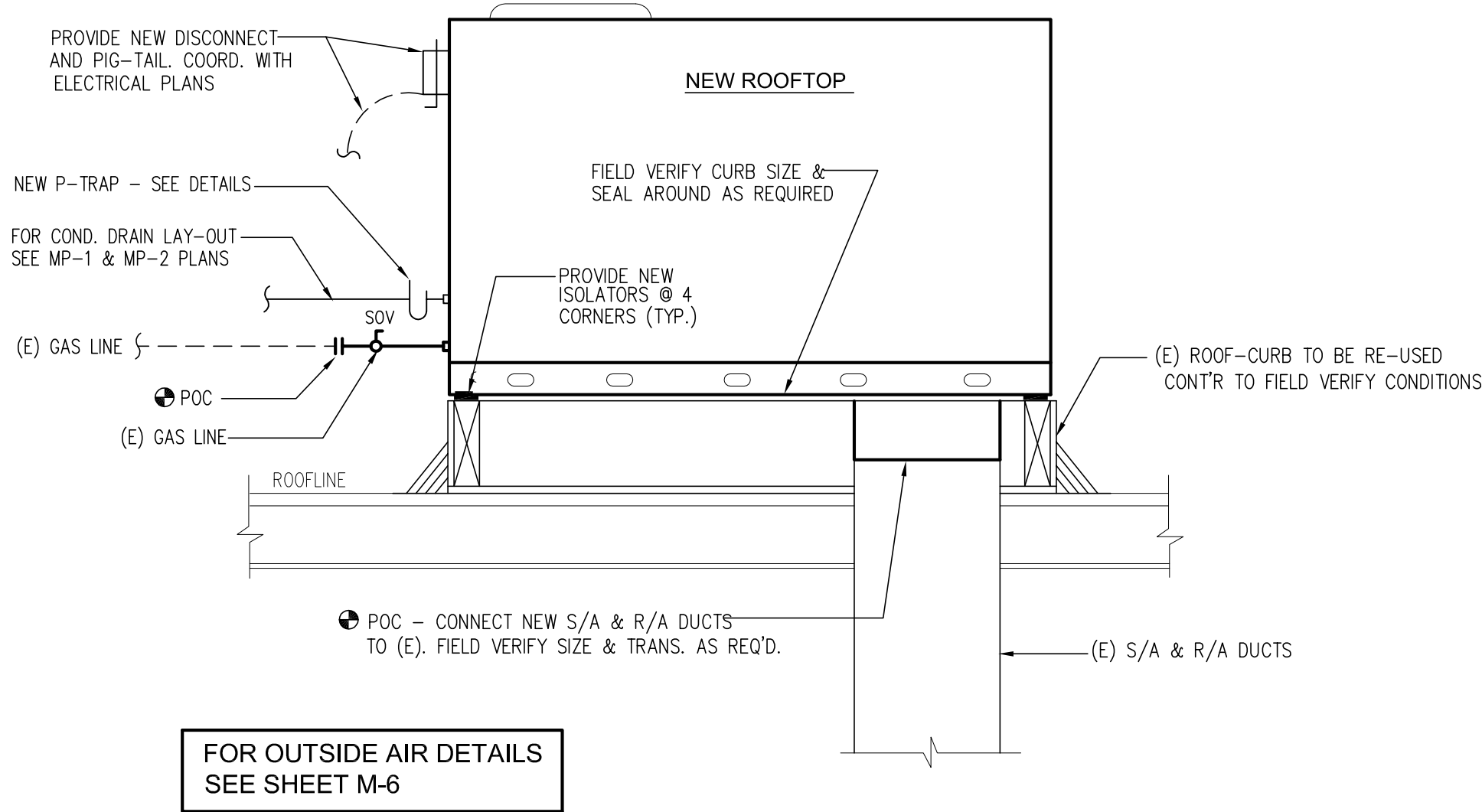
TYP. RTU UNIT - SERVING AUDITORIUM
N.T.S. (SIDE S/A & R/A DUCTS)



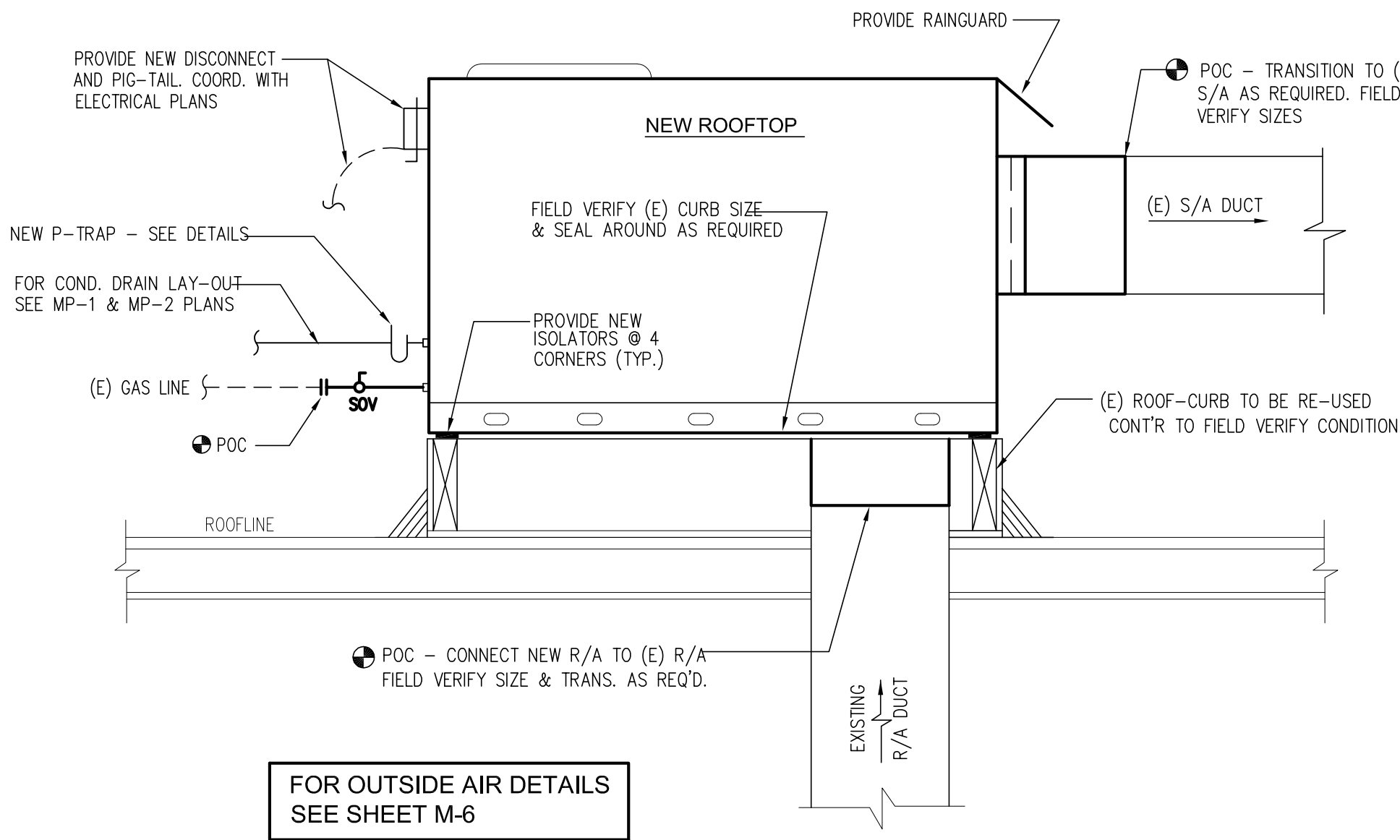
GAS CONNECTOR DETAIL
N.T.S.



TYP. RTU UNIT (SIDE DISCHARGE)
N.T.S.

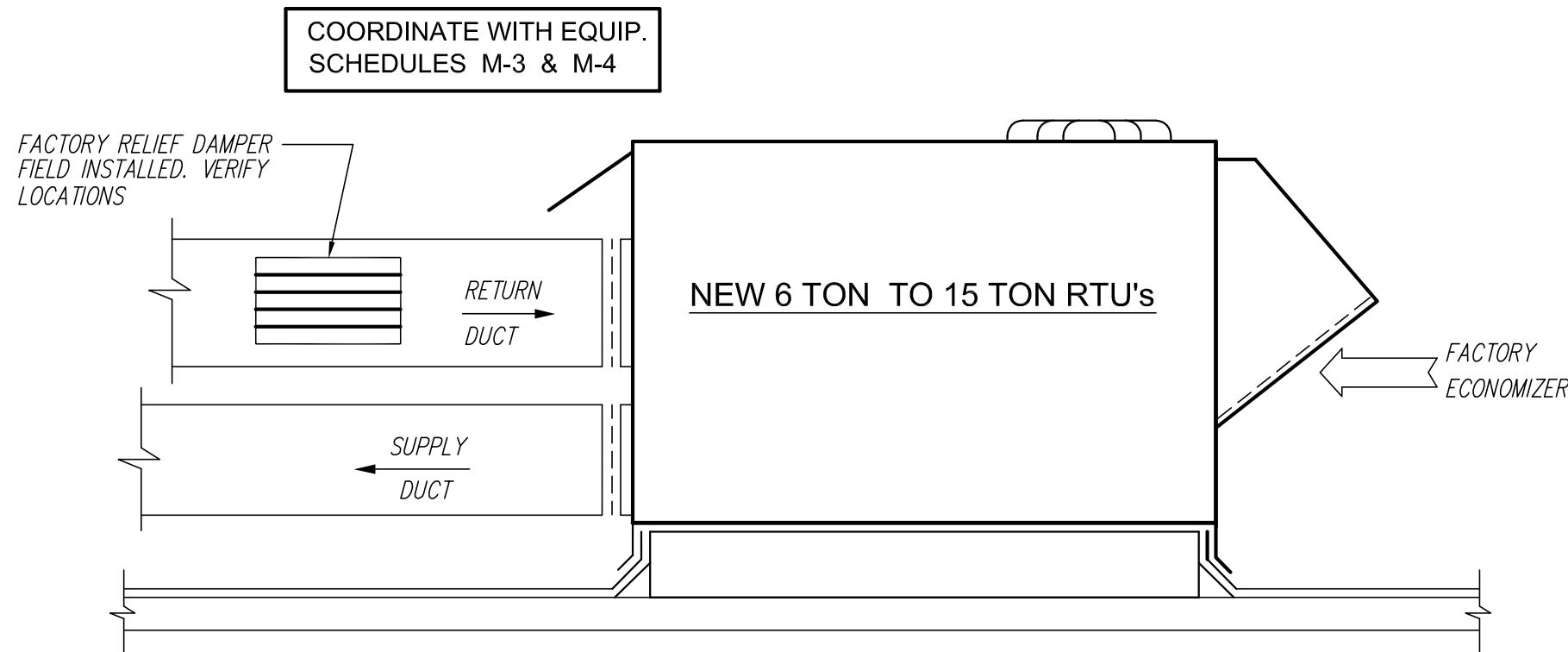


TYP. RTU UNIT - (DOWN DISCHARGE)
N.T.S.

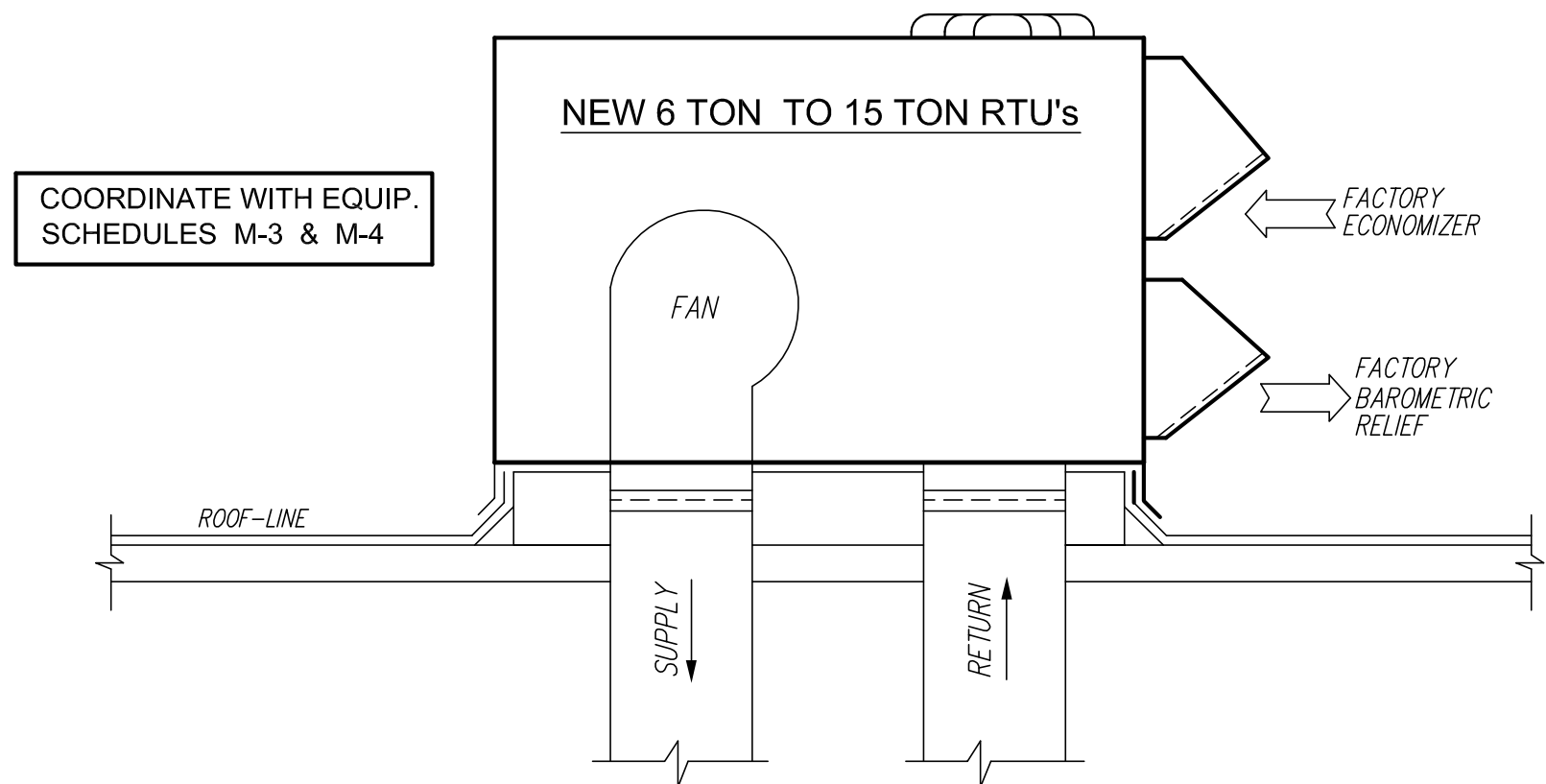


TYP. RTU UNIT (SIDE S/A & DOWN R/A)
N.T.S. (TYP. FOR RTU-A, B, C & D)

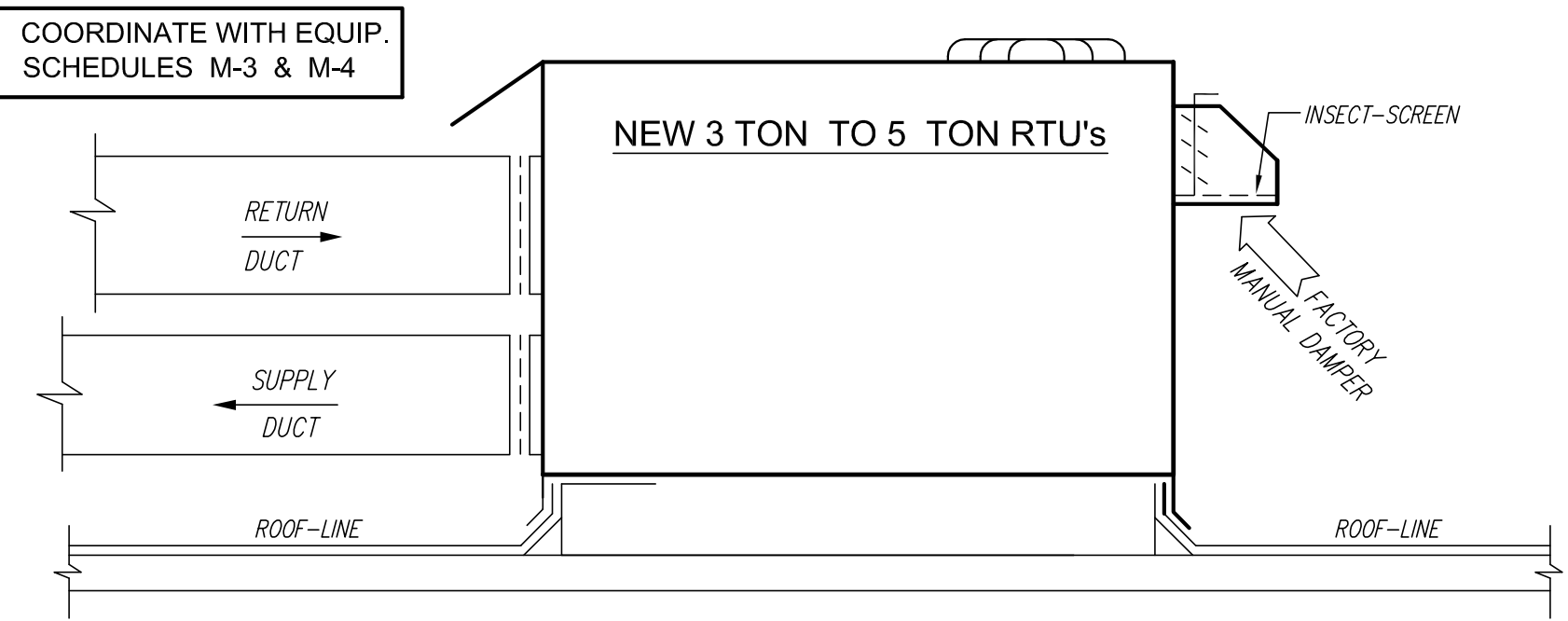
PROJECT:	MINGUS UNION HIGH SCHOOL
ADDRESS:	1801 E. FIR ST. - COTTONWOOD - AZ. 86326
SCOPE:	ROOFTOP A/C EQUIPMENT REPLACEMENT
SHEET:	MECHANICAL DETAILS
DESIGNED BY:	JFM
DRAWN BY:	JUAN
CHECKED BY:	SRP
DATE:	NOV-2023
REMARKS	
DATE	
REV.	



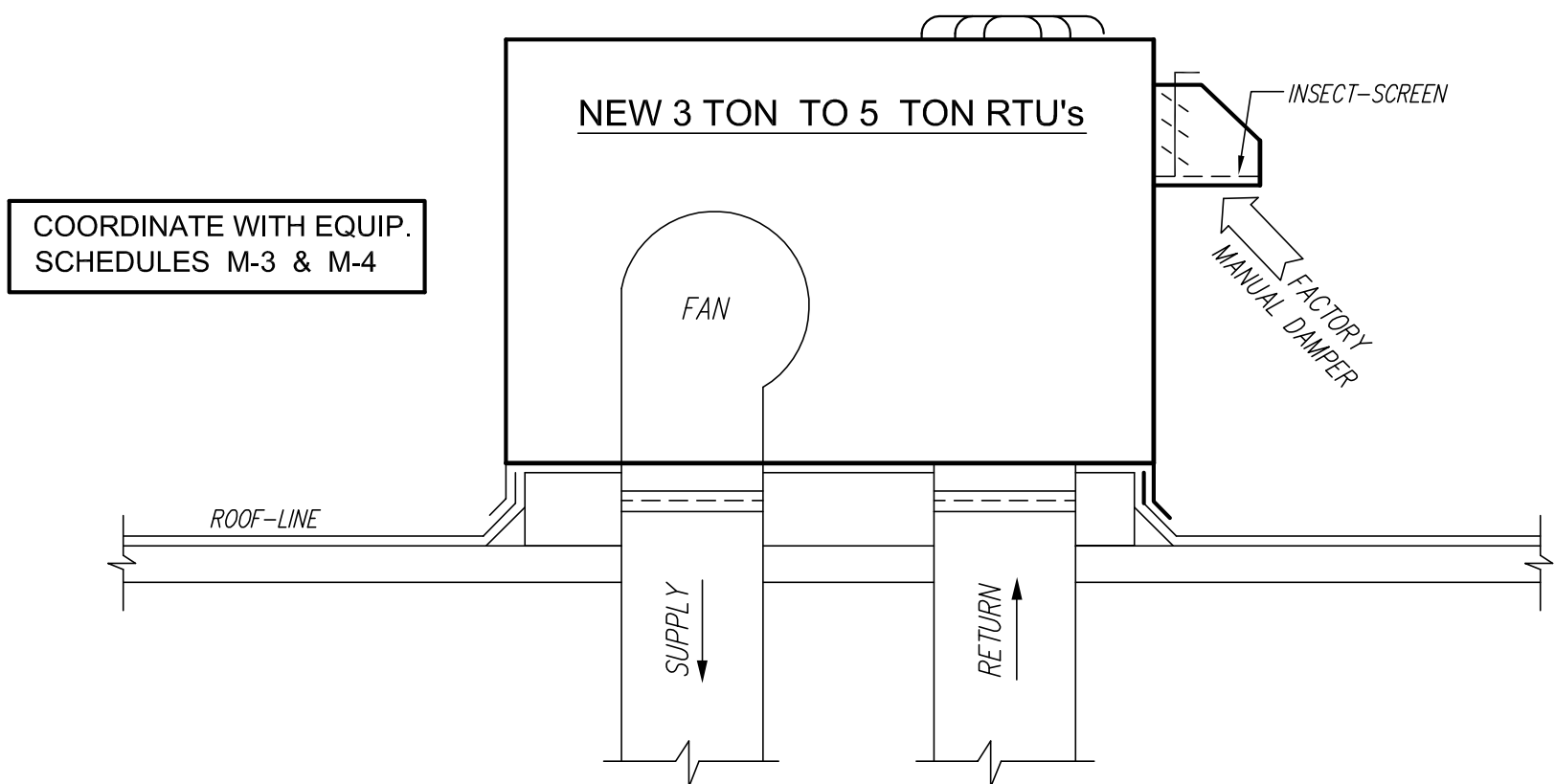
SIDE DISCHARGE - ECONOMIZER/RELIEF DETAIL
NTS (SHOWN FOR REFERENCE ONLY)



DOWN DISCHARGE - ECONOMIZER/RELIEF DETAIL
NTS (SHOWN FOR REFERENCE ONLY)



SIDE DISCHARGE - MANUAL DAMPER DETAIL
NTS (SHOWN FOR REFERENCE ONLY)



DOWN DISCHARGE - MANUAL DAMPER DETAIL
NTS (SHOWN FOR REFERENCE ONLY)

MECHANICAL GENERAL NOTES

1. SYSTEM DESCRIPTION:

- A. THE WORK UNDER THIS SECTION OF THE SPECIFICATIONS SHALL INCLUDE THE FURNISHING AND INSTALLING OF ALL HEATING, VENTILATING, AND AIR CONDITIONING EQUIPMENT AND MATERIAL AS SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN. THIS SHALL INCLUDE ALL ITEMS OF A MINOR NATURE NECESSARY TO COMPLETE THE INSTALLATION AND USUALLY INCLUDED IN SIMILAR WORK WHETHER SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS OR NOT.
- B. MECHANICAL DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE APPROX. LOCATIONS OF EQUIPMENT AND PIPING. DIMENSIONS GIVEN IN FIGURE ON THE PLANS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS, AND ALL DIMENSIONS, WHETHER GIVEN IN FIGURES OR SCALED, SHALL BE VERIFIED IN THE FIELD.

2. PROJECT/SITE CONDITIONS:

- A. BEFORE SUBMITTING A BID, CAREFULLY STUDY THE SITE PLAN, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS. MAKE A CAREFUL EXAMINATION OF THE PREMISES, AND AND ANY EXISTING WORK. DETERMINE IN ADVANCE, THE METHODS OF INSTALLING AND CONNECTING THE APPARATUS, THE MEANS FOR GETTING THE EQUIPMENT INTO PLACE AND BE THOROUGHLY FAMILIAR WITH ALL OF THE REQUIREMENTS OF THE CONTRACT.

3. REFERENCES:

- A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL IMC- CODES, LAWS, RULES, AND REGULATIONS OF ALL NATIONAL, STATE, COUNTY AND LOCAL AUTHORITIES HAVING JURISDICTION OVER THE PREMISES.

4. QUALITY ASSURANCE:

- A. THE MECHANICAL SYSTEMS HAVE BEEN DESIGNED AROUND THE MAKES AND SIZES OF EQUIPMENT NAMED IN THE EQUIPMENT SCHEDULES AND SHOWN ON THE DRAWINGS. OTHER MAKES OF EQUIPMENT NAMED IN THIS SPECIFICATION, SHOWN ON THE DRAWINGS, OR APPROVED BY THE ARCHITECT MAY BE FURNISHED AT THIS CONTRACTOR'S OPTION. IT IS, HOWEVER, THIS CONTRACTOR'S RESPONSIBILITY TO BE SURE THAT SUCH EQUIPMENT HAS EQUIVALENT CAPACITY, THE SAME ELECTRICAL CHARACTERISTICS, SUBSTANTIALLY THE SAME PHYSICAL DIMENSIONS AND CAN BE INSTALLED IN THE SPACE AVAILABLE WITH AMPLE WORKING SPACE AROUND IT. ANY ADDITIONAL COSTS RESULTING FROM EQUIPMENT OR MATERIAL SUBSTITUTION SHALL BE BORNE BY THIS CONTRACTOR.

5. EQUIPMENT SUBMITTALS:

- A. BEFORE BEGINNING WORK E-MAIL COPIES OF EQUIPMENT SPECS INCLUDING: CAPACITIES, RATINGS, DIMENSIONS, ELECTRICAL, WEIGHTS, MANUFACTURER AND MODEL NUMBERS.
- B. VOLTAGE, PHASE AND MOTORS FURNISHED UNDER THIS SECTION SHALL BE AS INDICATED ON THE ELECTRICAL DRAWINGS AND IT SHALL BE THIS CONTRACTOR'S RESPONSIBILITY TO VERIFY BEFORE FINAL ORDERING OF EQUIPMENT.
- C. SUBMITTALS ARE CHECKED FOR GENERAL COMPLIANCE ONLY AND SHOULD NOT BE RELIED ON FOR ELECTRICAL OR PHYSICAL COORDINATION.

6. CUTTING AND PATCHING:

- A. PROVIDE OPENINGS THROUGH ROOF & CEILING AND ROOF NECESSARY FOR THE INSTALLATION OF THE WORK UNDER THIS SECTION.
- B. PROVIDE ALL OPENING LAYOUTS REQUIRED. THIS CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR THE PROPER SIZE AND LOCATION OF ALL OPENINGS. FAILURE TO COORDINATE REQUIREMENTS DURING THE NORMAL CONSTRUCTION SEQUENCE RENDERS THIS CONTRACTOR LIABLE FOR ALL CORRECTIVE CONSTRUCTION.

7. WORK COORDINATION WITH OTHER TRADES:

- A. ELECTRICAL HIGH VOLTAGE POWER WIRING, CONDUIT, DISCONNECT SWITCHES, FUSES, ETC SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.

8. EQUIPMENT & MATERIALS

- A. FURNISH AND INSTALL WHERE SHOWN ON THE DRAWINGS, THE EQUIPMENT AND MATERIALS OF THE SIZES, QUALITY, CAPACITY AND PERFORMANCES INDICATED. THE EQUIPMENT SHALL ALL BE NEW WITH THE MAKE, MODEL NUMBER SIZE OR CAPACITY STAMPED ON IT OR ON A NAMEPLATE AFFIXED THERETO. EACH NEW PIECE OF EQUIPMENT SHALL HAVE A UNIT IDENTIFICATION NUMBER ATTACHED TO IT. THE EQUIPMENT SHALL BE ESSENTIALLY THE STANDARD PRODUCT OF THE MANUFACTURER. TWO OR MORE UNITS OF THE SAME CLASS OF EQUIPMENT SHALL BE PRODUCTS OF THE SAME MANUFACT. BELTS, CHAINS, PULLEYS, GEARS, COUPLINGS, PROJECTING SET SCREWS, KEY AND OTHER OPERATING PARTS LOCATED ON ANY EQUIPMENT SHALL BE FULLY ENCLOSED OR PROPERLY GUARDED PER OSHA REQUIREMENT.
- B. CONDENSATE DRAINS SHALL BE TYPE "M" COPPER WITH PLUGGED TEES FOR CLEANOUTS. CONDENSATE PIPING BELOW THE ROOF AND ABOVE THE CEILING SHALL BE INSULATED WITH 1/2" ARMAFLEX WITH ALL JOINTS SEALED. JOINTS IN CONDENSATE PIPING MAY BE MADE WITH 50-50 SOLDER. ALL CONDENSATE LINES SHALL HAVE P-TRAPS. PAINT ALL EXPOSED CONDENSATE LINES ON ROOF W/2 COATS OF WHITE ELASTOMERIC OR EQUAL.
- C. DUCTWORK SIZES SHOWN ARE ACTUAL SHEET METAL SIZES. GAUGES AND INSTALLATION SHALL BE ACCORDING TO THE LATEST SMACNA DUCT CONSTRUCTION MANUAL. ELBOWS (ONLY WHERE SHOWN ON PLAN) SHALL HAVE SINGLE THICKNESS TURNING VANES PER SMACNA STANDARDS. DUCTWORK SHALL BE HUNG WITH 18 GAUGE 1-1/4" STRAP HANGERS FASTENED TO THE STRUCTURE ABOVE.
- D. ALL DUCT JOINTS, INCLUDING BRANCH DUCT CONNECTIONS, SHALL BE SEALED WITH HARDCAST OR EQUIVALENT CMC DUCT SEALER.

- E. LINE ALL NEW AIR CONDITIONING SUPPLY AND RETURN DUCTWORK EXPOSED ON ROOF W/MIN. 2" LINER (R-8 VALUE), AND DUCTWORK LOCATED IN UNCONDITIONED CEILING SPACES WITHIN BUILDING ENVELOPE W/MIN. 1" LINER (R-4.2 VALUE). PAINT AND SEAL EXPOSED DUCT ON ROOF W/2 COATS OF WHITE ELASTOMERIC. NO DUCTWORK SHALL BE MADE UNTIL DUCT CLEARANCES ARE FIELD VERIFIED. MINOR OFFSETS AND TRANSITIONS REQUIRED BECAUSE OF INTERFERENCES ENCOUNTERED IN THE FIELD SHALL BE A PART OF THIS CONTRACT.

- F. NO DUCTWORK SHALL BE MADE UNTIL DUCT CLEARANCES ARE FIELD VERIFIED. MINOR OFFSETS AND TRANSITIONS REQUIRED BECAUSE OF INTERFERENCES ENCOUNTERED IN THE FIELD SHALL BE A PART OF THIS CONTRACT AND SHALL BE MADE BY KEEPING THE SAME SQUARE INCHES OF DUCT SIZE AS SHOWN ON THE PLANS. ALL OFFSETS AND TRANSITIONS SHALL BE CONSTRUCTED PER DUCTWORK REQUIREMENTS OF THIS SECTION AND SHALL BE SHOWN ON RECORD DRAWINGS.

9. NOT USED

10. EXECUTION:

- A. LOCATIONS INDICATED ON THE DRAWINGS SHOW THE ARRANGEMENT DESIRED FOR THE EQUIPMENT AND SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. THE WORK SHALL BE LAID OUT ON THE JOB TO SECURE A NEAT ARRANGEMENT, TO SECURE THE BEST CONDITIONS THROUGHOUT, AND TO OVERCOME LOCAL DIFFICULTIES AND INTERFERENCES WHERE ENCOUNTERED. IF EQUIPMENT PROPOSED IS ARRANGED DIFFERENTLY THAN THAT SHOWN, THIS CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ALL ITEMS AFFECTED. EQUIPMENT SHALL BE INSTALLED TO PERMIT ACCESS FOR SERVICE AND MAINTENANCE. ALL EQUIPMENT SHALL BE MADE AS RECOMMENDED BY THE EQUIPMENT MANUFACTURERS.

11. TESTS AND ADJUSTMENTS:

- A. NOTIFY THE OWNER OF HIS READINESS TO PERFORM A TEST 24 HOURS IN ADVANCE AND THE TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE OWNER, OR OWNER'S REPRESENTATIVE. ANY DEFECTIVE MATERIAL AND/OR EQUIPMENT SHALL BE REPAIRED, ADJUSTED AND/OR REPLACED BY LIKE NEW MATERIALS AND/OR EQUIPMENT BEFORE ACCEPTANCE.
- B. ALL TEMPERATURE & WATER CONTROLLERS AND OTHER AUTOMATIC DEVICES SHALL BE THOROUGHLY TESTED AND ADJUSTED.
- C. COOLING EQUIPMENT SHALL BE OPERATED AND TESTED AND ALL CONTROLLERS SAFETY DEVICES, ETC., CHECKED AND ADJUSTED WHERE NECESSARY. ANY UNDUE NOISE, VIBRATION AND/OR OTHER OBJECTIONABLE FEATURES SHALL BE PROMPTLY REPAIRED AND/OR THE DEVICE REPLACED AND THE SYSTEM RETESTED.
- D. ALL SYSTEMS SHALL BE PLACED IN SERVICE AND BE OPERATING PROPERLY FOR A PERIOD OF NOT LESS THAN FIVE CONSECUTIVE DAYS BEFORE ACCEPTANCE.
- E. THE INDEPENDENT TEST & BALANCE CONTRACTOR SHALL TAKE THE CFM READINGS @ EXISTING DIFFUSERS LEVEL FOR 15 OF THE NEW 95 INSTALLED UNITS (AVERAGE 5 GRILLES PER UNIT). PROVIDE 3 COPIES OF READINGS. THE SCHOOL & ENGINEER WILL SELECT & PROVIDE THE 15 UNITS TO CONTRACTOR.

12. CLEANING-UP:

- A. AT ALL TIMES KEEP THE BUILDING AND PREMISES IN A NEAT MANNER. PER THE INSTRUCTIONS ISSUED BY THE OWNER IN REGARD OF STORAGE OF MATERIALS, PROTECTIVE MEASURES, CLEANING OF DEBRIS ETC. SHALL BE FOLLOWED. UPON COMPLETION OF WORK, LEAVE AREAS AFFECTED BY DEMO & NEW WORK BROOM CLEAN.

13. RECORD DRAWINGS:

- A. MAINTAIN A CLEAN, UNDAMAGED SET OF BLUELINE OR BLACKLINE DRAWINGS. RECORD ALL CHANGES FROM CONTRACT DRAWINGS INCLUDING "FOUND" CONDITIONS AND SUBMIT TO ENGINEER "RECORD DRAWINGS" AT CLOSE OF PROJECT.

14. PROJECT CLOSE-OUT:

- A. THE CONTRACTOR SHALL SUBMIT THREE COPIES OF THE PROJECT CLOSE DOCUMENTS. THE PROJECT CLOSE-OUT DOCUMENTS SHALL INCLUDE: AS-BUILT, COPIES OF SUBMITTALS, O & M MANUALS, WARRANTY DOCUMENTS, CERTIFY TAB REPORT, AND START-UP REPORT.

15. OWNER'S TRAINING (IF REQUIRED):

- A. THE CONTRACTOR SHALL SET ASIDE FOUR HOUR FOR OWNER'S NEW EQUIPMENT TRAINING.


16. GUARANTEES:

- A. GUARANTEE WORK TO BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIAL FOR A PERIOD OF TWO YEARS FROM THE DATE OF FINAL ACCEPTANCE. ANY MATERIAL OR EQUIPMENT WHICH PROVES DEFECTIVE WITHIN THE PERIOD SHALL BE PROMPTLY REPAIRED OR REPLACED WITHOUT COST TO THE OWNER. THIS SHALL INCLUDE REPLACEMENT OF ANY REFRIGERANT LOST FROM THE SYSTEM. FURNISH A LETTER STATING THAT THE SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND WITH ANY DEVIATIONS DETAILED IN FULL. STANDARD FACTORY WARRANTIES SHALL BE PROVIDED ON ALL EQUIPMENT FURNISHED.

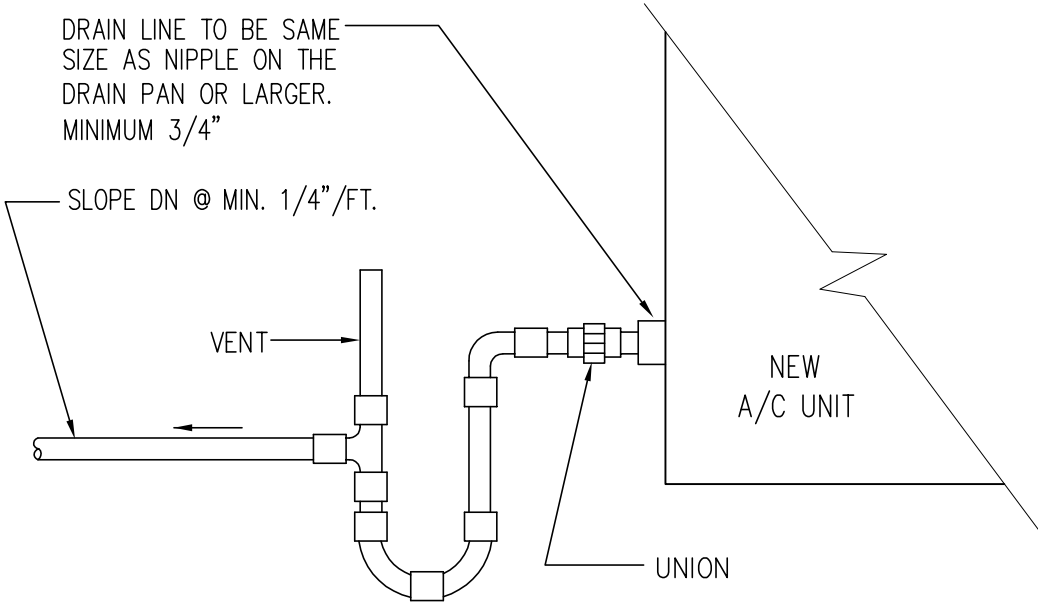
17. CHANGE ORDERS

- A. AFTER THE PROJECT IS AWARDED AND A CONTRACTOR SELECTED. THE DISTRICT WILL NOT ACCEPT ANY SITE SPECIFIC CHANGE ORDERS OR THE CHANGE ORDERS RELATED TO "SCOPE OF WORK".

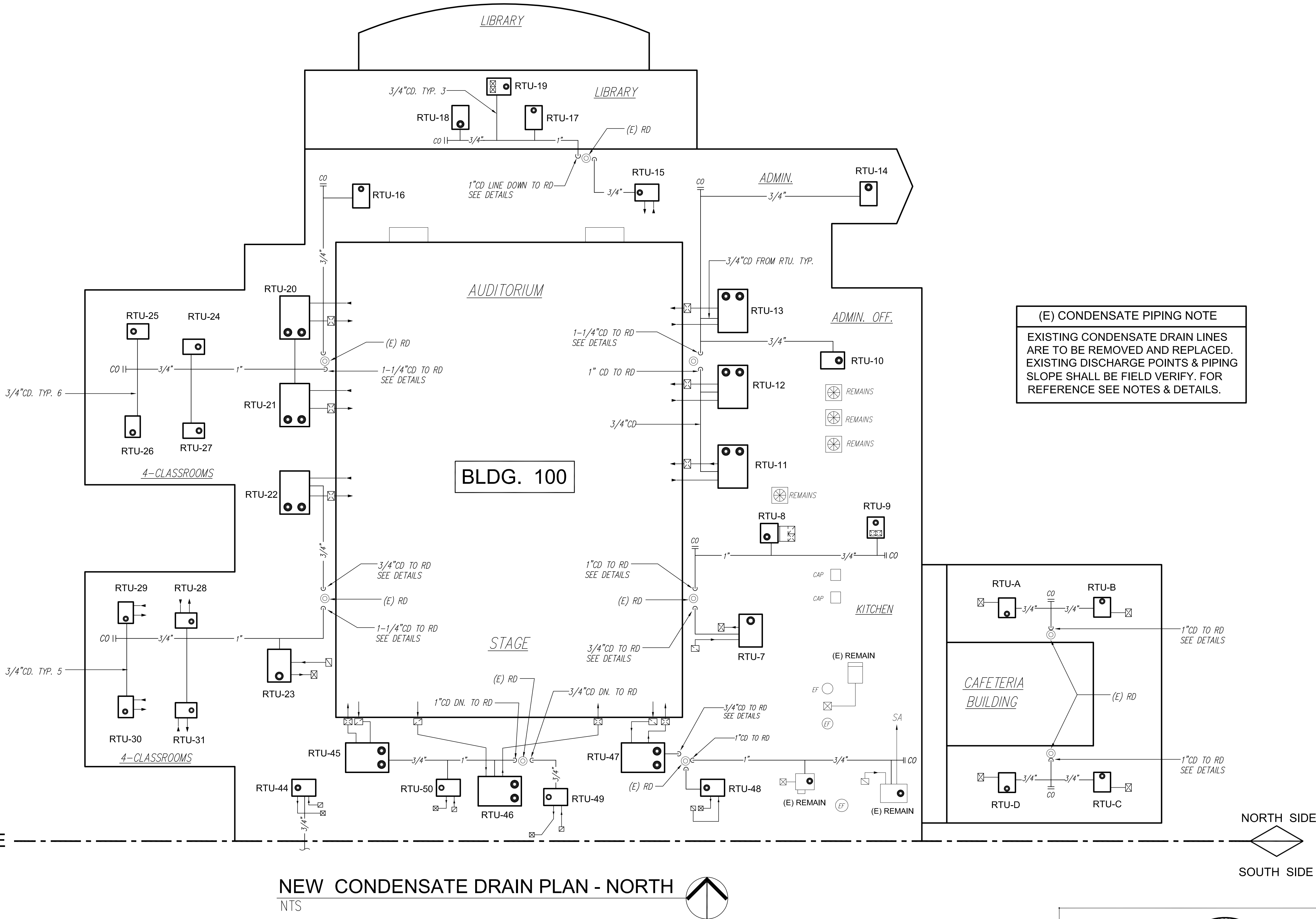
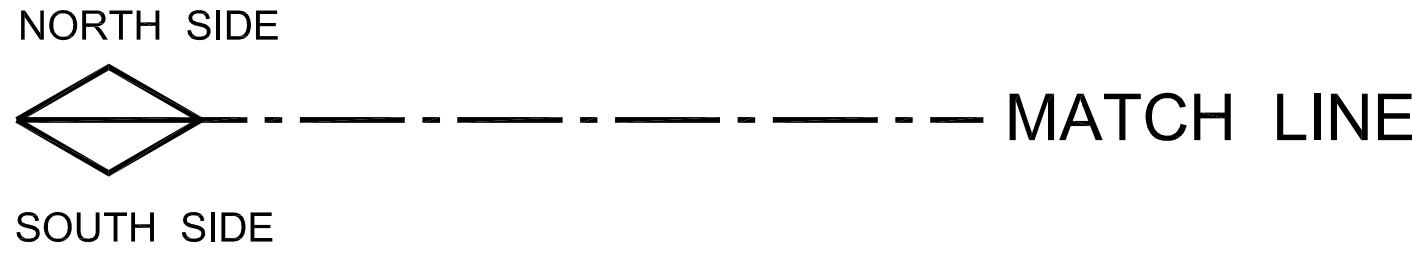
END OF NOTES

MECHANICAL LEGEND	
RTU	ROOFTOP UNIT (DX & GAS)
MUA	MAKE-UP AIR UNIT (EVAP-GAS)
HP	HEAT PUMP ROOFTOP
CU	SPLIT SYSTEM - CONDENSER UNIT
RH	RELIEF HOOD
EC	EVAPORATIVE COOLER
HTR	GAS HEATER
SA	SUPPLY AIR
RA	RETURN AIR
CD	CONDENSATE DRAIN
CO	CONDENSATE PLUG CLEAN-OUT
RD	ROOF DRAIN
G	GAS LINE
OH	OVERHEAD
(E)	EXISTING
	POC - POINT OF CONNECTION

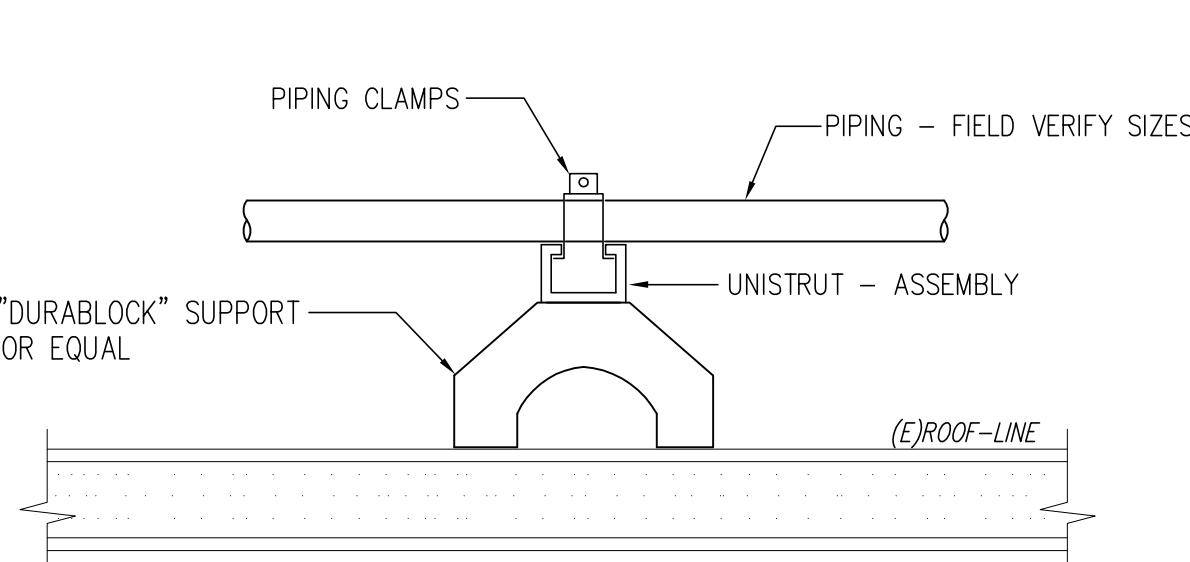
NEW CONDENSATE DRAINS NOTES
1) NEW CONDENSATE PIPING SHALL BE TYPE "M" COPPER WITH PLUGGED TEES FOR CLEAN-OUTS. CONDENSATE LINES EXPOSED ON ROOF SHALL BE PAINTED WITH 2 COATS OF WHITE ELASTOMERIC OR EQUAL. CONDENSATE PIPING JOINTS MAY BE MADE WITH 50-50 SOLDER. ALL CONDENSATE LINES SHALL HAVE P-TRAPS.
2) PRIOR TO INSTALLATION OF NEW CONDENSATE LINES, CONTRACTOR SHALL FIELD VERIFY NEW PIPING ROUTING & SLOPE PIPING AT MINIMUM 1/4" PER FOOT.
3) ALL NEW CONDENSATE DRAINS SHALL RUN DOWN ON WALLS, AND TERMINATE AT NEAREST LANDSCAPE OR PLANTERS AREAS.



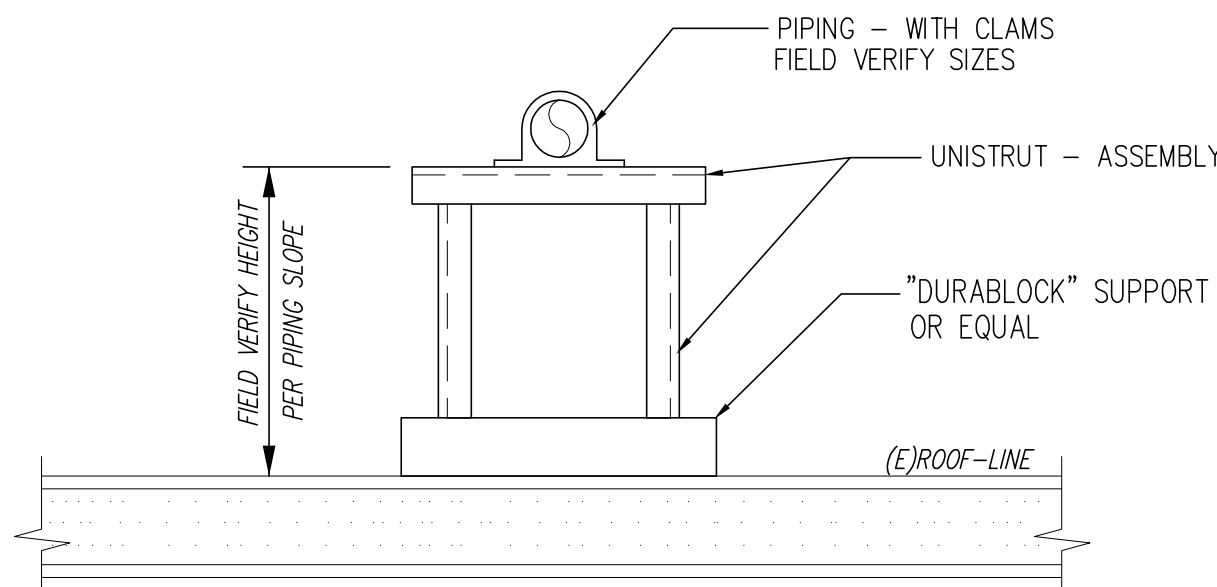
CONDENSATE P-TRAP DETAIL
NTS



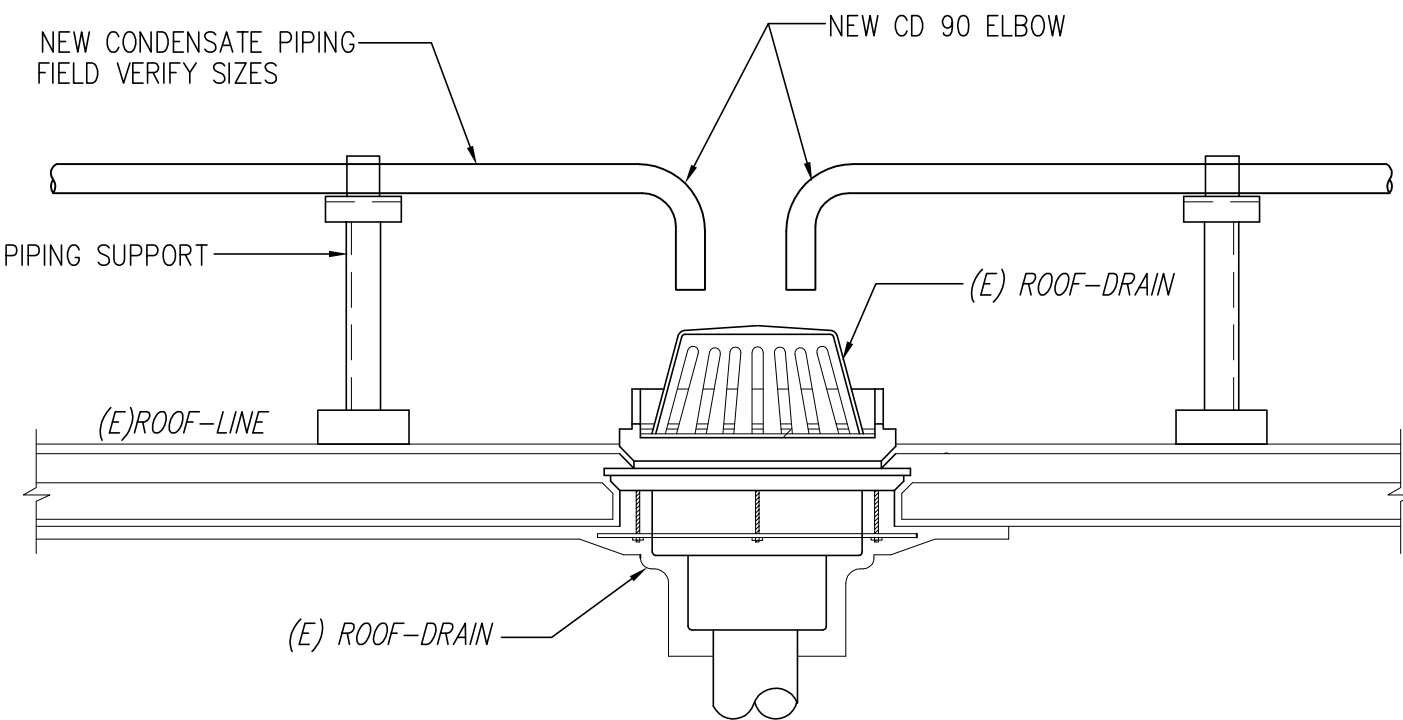
NEW CONDENSATE DRAIN PLAN - NORTH
NTS



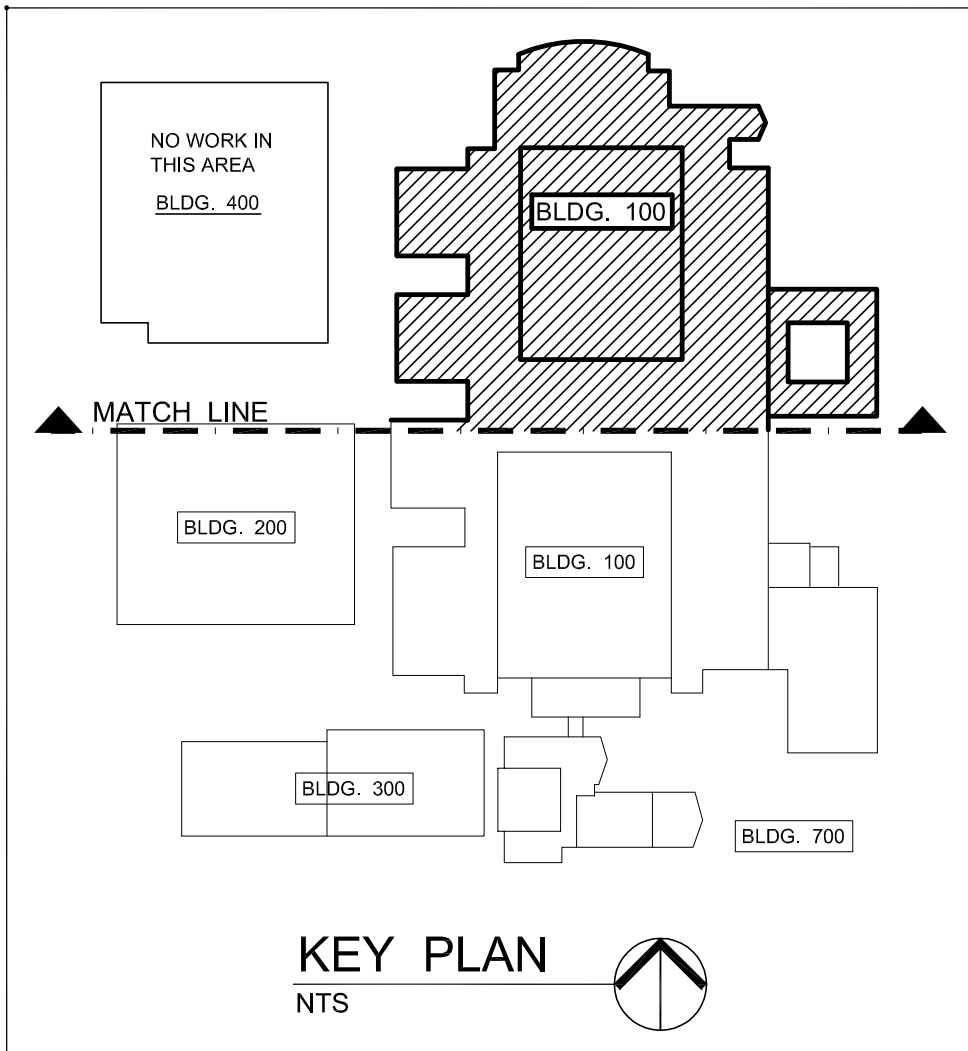
ROOF-PIPING SUPPORTS - TYP.
NTS



ROOF-PIPING SUPPORTS - TYP.
NTS



EXISTING ROOF-DRAIN DETAIL
NTS



KEY PLAN
NTS

PROJECT: MINGUS UNION HIGH SCHOOL

ADDRESS: 1801 E. FIR ST. - COTTONWOOD - AZ. 86326

SCOPE: ROOFTOP A/C EQUIPMENT REPLACEMENT

SHEET: MECH. CONDENSATE DRAINS - NORTH

DESIGNED BY: JFM

DRAWN BY: JUAN

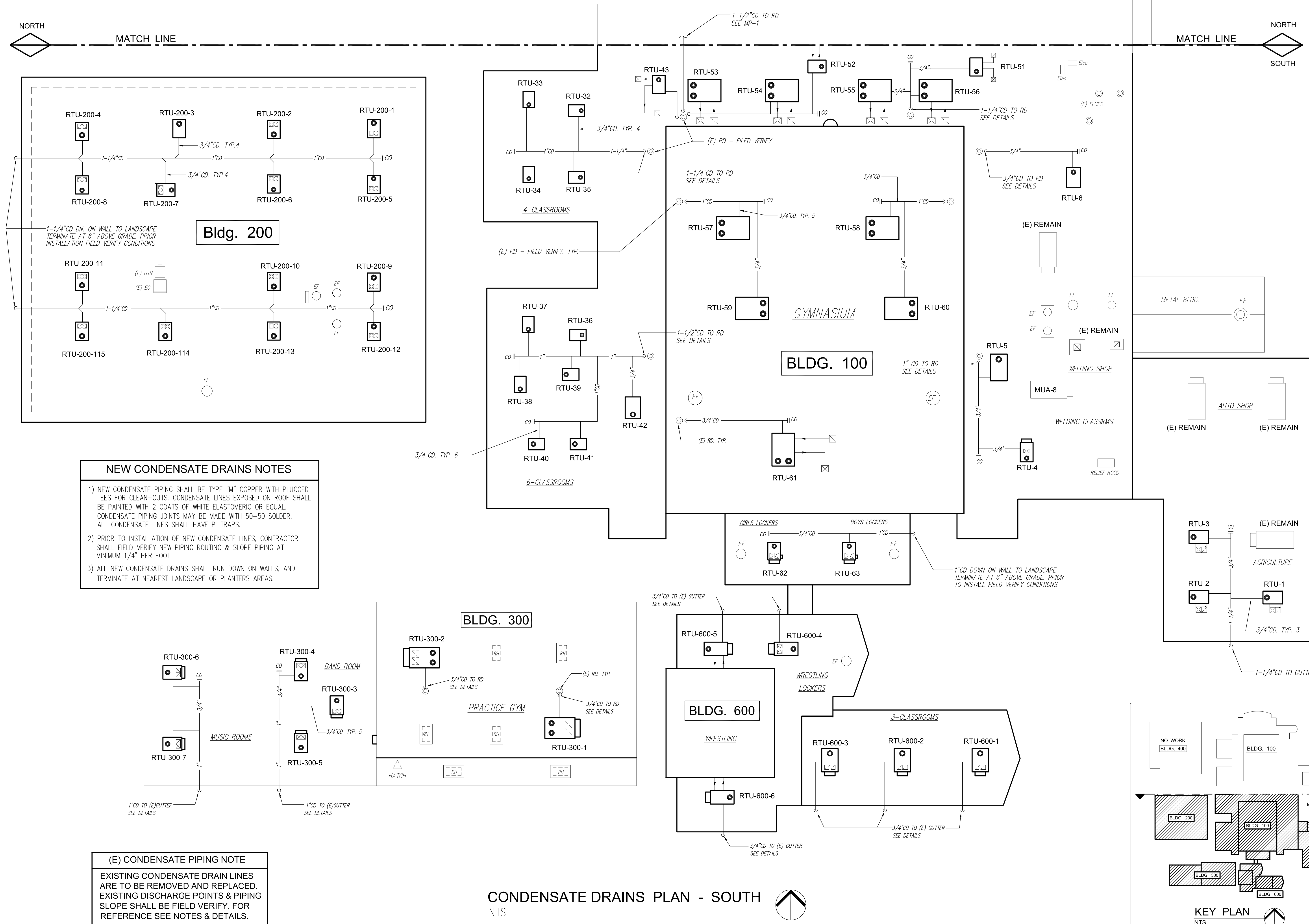
CHECKED BY: SRP

DATE: NOV-2023

REMARKS

DATE

REV.



NEW CONDENSATE DRAINS NOTES

1) NEW CONDENSATE PIPING SHALL BE TYPE "M" COPPER WITH PLUGGED TEES FOR CLEAN-OUTS. CONDENSATE LINES EXPOSED ON ROOF SHALL BE PAINTED WITH 2 COATS OF WHITE ELASTOMERIC OR EQUAL. CONDENSATE PIPING JOINTS MAY BE MADE WITH 50-50 SOLDER. ALL CONDENSATE LINES SHALL HAVE P-TRAPS.

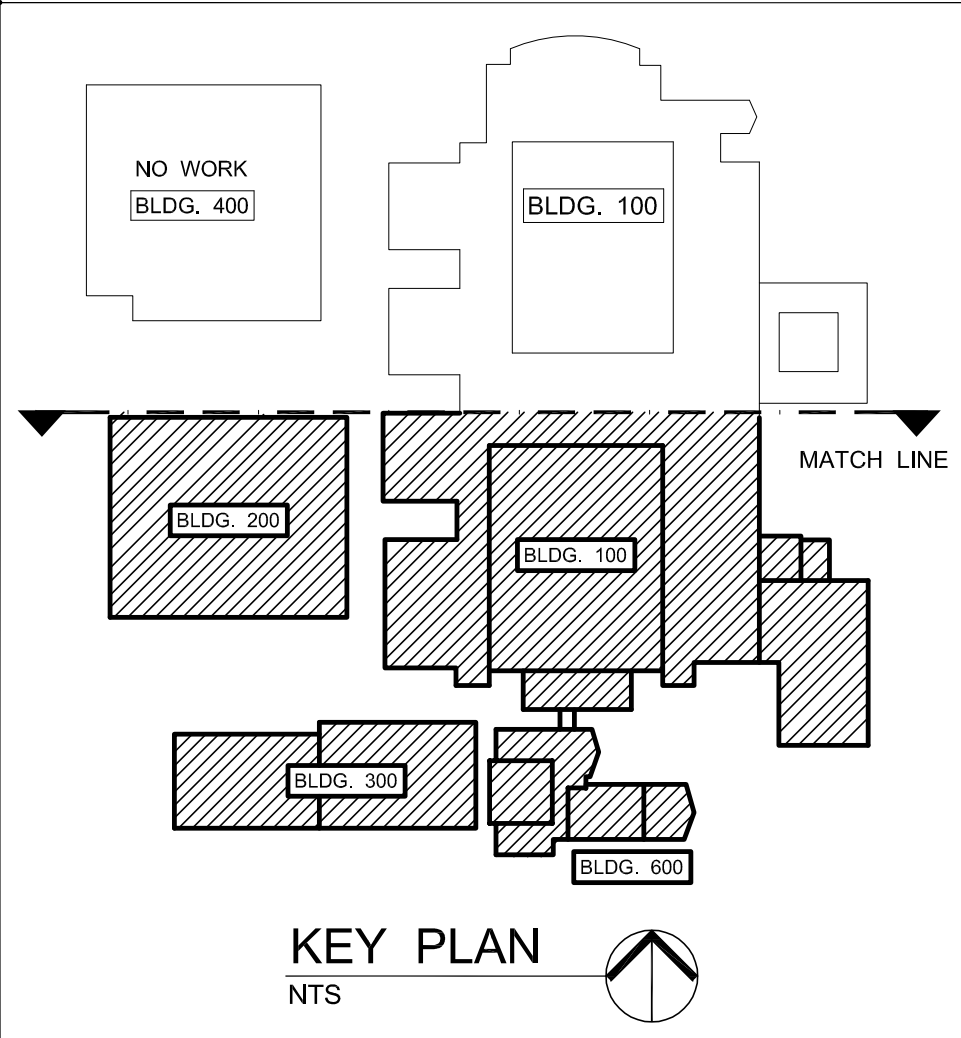
2) PRIOR TO INSTALLATION OF NEW CONDENSATE LINES, CONTRACTOR SHALL FIELD VERIFY NEW PIPING ROUTING & SLOPE PIPING AT MINIMUM 1/4" PER FOOT.

3) ALL NEW CONDENSATE DRAINS SHALL RUN DOWN ON WALLS, AND TERMINATE AT NEAREST LANDSCAPE OR PLANTERS AREAS.

(E) CONDENSATE PIPING NOTE

EXISTING CONDENSATE DRAIN LINES ARE TO BE REMOVED AND REPLACED. EXISTING DISCHARGE POINTS & PIPING SLOPE SHALL BE FIELD VERIFY. FOR REFERENCE SEE NOTES & DETAILS.

CONDENSATE DRAINS PLAN - SOUTH
NTS



Building Energy Solutions Provider

138 E. LA VIEJE LANE - TEMPE, AZ 85204
(602) 377-2679 Email: www.besp.us

EXPIRES: June 30, 2026

PROJECT:	MINGUS UNION HIGH SCHOOL
ADDRESS:	1801 E. FIR ST. - COTTONWOOD - AZ. 86326
SCOPE:	ROOFTOP A/C EQUIPMENT REPLACEMENT
SHEET:	MECH. CONDENSATE DRAINS - SOUTH
DESIGNED BY:	JFM
DRAWN BY:	JUAN
CHECKED BY:	SRP
DATE:	NOV-2023
REMARKS	
DATE	
REV.	

MP-2

ELECTRICAL SYMBOLS (NOTE: ALL SYMBOLS MAY NOT APPLY TO THIS PROJECT)

- L.E.D. FIXTURE.
- L.E.D. EMERGENCY FIXTURE.
- NL = NIGHT LIGHT. UNSWITCHED EM = LINE SENSITIVE – OPERATES ONLY ON POWER OUTAGE – SWITCHED.
- CEILING MOUNTED LIGHT FIXTURE.
- WALL MOUNTED LIGHT FIXTURE
- L.E.D. FIXTURE.
- EXIT SIGN – SEE LIGHT FIXTURE SCHEDULE.
- SURFACE-MOUNT EMERGENCY LIGHTING BATTERY PACK-SINGLE OR DOUBLE HEAD. SEE LIGHT FIXTURE SCHEDULE.
- RECESSED EMERGENCY LIGHTING BATTERY PACK-SINGLE OR DOUBLE HEAD. SEE LIGHT FIXTURE SCHEDULE.
- JUNCTION BOX IN ACCESSIBLE LOCATION ABOVE REMOVABLE CEILING WITH FLEXIBLE CONDUIT CONNECTION TO LIGHT FIXTURE.
- FLEXIBLE CONDUIT CONNECTION TO EQUIPMENT.
- JUNCTION BOX IN ACCESSIBLE LOCATION.
- DUPLEX CONVENIENCE RECEPTACLE AT +15" A.F.F. TO BOTTOM OR AS NOTED.
- DUPLEX CONVENIENCE RECEPTACLE, MTD. ABOVE COUNTER BACKSPLASH OR PER A.D.A. AND ARCHITECT.
- DUPLEX CONVENIENCE RECEPTACLE, HALF SWITCHED MTD. 18" A.F.F. UNLESS NOTED OTHERWISE.
- SIMPLEX RECEPTACLE, MTD. 18" A.F.F. UNLESS NOTED OTHERWISE.
- FOUR-PLEX CONVENIENCE RECEPTACLE AT +15" A.F.F. TO BOTTOM OR AS NOTED.
- ISOLATED GROUND RECEPTACLE AT + 15" A.F.F. TO BOTTOM OR AS NOTED.
- RECEPTACLE (TYPE AS SHOWN) AT + 42" A.F.F.
- SPECIAL USE RECEPTACLE. VERIFY NEMA NUMBER AND MOUNTING HEIGHT WITH EQUIPMENT.
- TOGGLE SWITCH – SINGLE POLE, 3-WAY, 4-WAY AT +42" OR AS NOTED ON PLANS.
- SINGLE-POLE, ILLUMINATED HANDEL OR PILOT LIGHT TOGGLE SWITCH AT +42" OR AS NOTED ON PLANS.
- SWITCH – OCCUPANCE SENSOR TYPE. ADJUSTABLE SENSOR SENSITIVITY, THERMAL DETECTION AND MOTION.
- MOTOR RATED SWITCH WITH THERMAL PROTECTION.
- MOTOR SPEED CONTROL SWITCH. FURNISHED BY ELECTRICAL CONTRACTOR.
- PHOTOCELL – TORK #2100 – MOUNT ON ROOF AND AIM NORTH.
- TIMESWITCH: TORK 'W' SERIES OR EQUAL.
- CIRCUIT IN CONDUIT, CONCEALED. HASH MARKS INDICATE QUANTITY OF CONDUCTORS NO HASH MARKS INDICATE TWO CONDUCTORS, PLUS GROUND(S). (NOTE: WIRE AND OR CONDUIT SIZE SHOWN AT HOMERUN IS THE MINIMUM SIZE FOR THE ENTIRE CIRCUIT: #12 A.W.G. CU, 3/4"C. MINIMUM). LONG STROKES INDICATE NEUTRAL CONDUCTOR(S), SHORT STROKES INDICATE PHASE OR SWITCHED CONDUCTORS AND LONG STROKES WITH DOT INDICATE GREEN INSULATED GROUNDING CONDUCTOR(S) TYPICAL. EACH ISOLATED GROUND CIRCUIT SHALL HAVE A SEPARATE NEUTRAL AND GROUND WIRE. BOND WIRES ARE NOT SHOWN ON DRAWINGS. BOND WIRES SHALL BE INSULATED CU. SIZED IN ACCORDANCE WITH N.E.C. #250.
- CIRCUIT IN CONDUIT CONCEALED IN FLOOR .
- CIRCUIT IN CONDUIT CONCEALED IN WALLS OR ABOVE CEILING.
- HOMERUN TO PANELBOARD OR AS NOTED.
- PANELBOARD, MOUNT TOP OF PANEL AT + 6"-8". STUB (2) 3/4" E.C. INTO ACCESSIBLE CEILING SPACE ON FLUSH MOUNTED PANELS.
- MOTOR: SIZE AND RATING AS SHOWN. EF INDICATES 55-WATT, 120 V. EXHAUST FAN.
- A.C. MAGNETIC STARTER BY ELECTRICAL CONTRACTOR. HORSEPOWER, VOLTAGE AND PHASE RATED, NUMBER OF POLES REQUIRED. FURNISH WITH (1) N.O. AUXILIARY CONTACT (120 V. CONTROL) SINGLE SPEED NON-REVERSING UNLESS OTHERWISE SHOWN ON PLAN.
- DISCONNECT SWITCH – HORSEPOWER RATED, FUSED, NEMA 3R WHERE OUTSIDE. N.F. INDICATES NON-FUSED. (FUSE PER EQUIPMENT MANUFACTURERS' SPECIFICATIONS.).
- STRIP HEATER AND CONTROL.
- MOTOR CONTROLLER – FURNISHED WITH EQUIPMENT.
- TELEPHONE OUTLET AT +15" TO BOTTOM OR AS NOTED WITH 3/4"C. UP INTO ACCESSIBLE CEILING SPACE UNLESS SHOWN OTHERWISE.
- DATA OUTLET AT + 15" A.F.F. TO BOTTOM OR AS NOTED. STUB 3/4"C. INTO ACCESSIBLE CEILING SPACE.
- DATA/TELEPHONE OUTLET AT + 15" A.F.F. TO BOTTOM OR AS NOTED. STUB 3/4"C. INTO ACCESSIBLE CEILING SPACE.
- APPROVED TEMPERATURE SEAL-OFF AND EXPANSION JOINTS AS REQ'D BY N.E.C. ART. #300-7.
- FLUSH FLOOR FOURPLEX OUTLET AND DATA/TELEPHONE OUTLET COMBO WITH BRASS DEVICE PLATE.
- FLUSH FLOOR DATA RECEPTACLE WITH BRASS COVER PLATE AND 3/4" C. STUBBED TO ABOVE ACCESSIBLE CEILING LOCATION.
- FLUSH FLOOR TELEPHONE RECEPTACLE WITH BRASS COVER PLATE AND 3/4" C. STUBBED TO ABOVE ACCESSIBLE CEILING LOCATION.
- FLUSH FLOOR DUPLEX OUTLET WITH BRASS DEVICE PLATE.
- FLUSH FLOOR FOURPLEX OUTLET WITH BRASS DEVICE PLATE.
- ISOLATED GROUND RECEPTACLE "HUBBELL" #G5263, 20 A, 125 V, FLUSH FLOOR WITH BRASS DEVICE PLATE.
- TELEVISION OUTLET AT +15" TO BOTTOM OR AS NOTED. STUB 3/4" C. INTO ACCESSIBLE CEILING SPACE.
- DIMMER SWITCH AT +42" A.F.F. "LUTRON" NP SERIES. SIZE DIMMER FOR LOAD. TRACK LIGHTING SHALL HAVE "LUTRON" NP2000 DIMMER.
- WP WEATHERPROOF.
- EDF ELECTRIC DRINKING FOUNTAIN.
- S.E.S. SERVICE ENTRANCE SECTION.
- T.M.B. TELEPHONE MOUNTING BOARD: 4' x 8' x 3/4" PLYWOOD WITH #6 CU. BOND WIRE TO GROUNDING ELECTRODE SYSTEM.
- T.T.C. TELEPHONE TERMINAL CABINET: 36" W. x 36" H. x 6" D., 16 GA. WEATHERPROOF HINGED LOCKABLE COVER, 5/8" PLYWOOD BACKBOARD. PROVIDE #6 CU. BOND. TO GROUNDING ELECTRODE SYSTEM.

GENERAL NOTES:

ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH 2017 (OR LATEST ADOPTED) NATIONAL ELECTRICAL CODE, 2018 IECC AND ALL APPLICABLE LOCAL CODES, ORDINANCES AND AMENDMENTS.

ALL WIRING SHALL BE COPPER UNLESS OTHERWISE NOTED OTHERWISE. INSULATION SHALL BE TYPE XHHW OR THHN/THWN. MINIMUM CONDUCTOR SIZE IS #12 AWG. LARGER CONDUCTORS TO BE USED WHEN INDICATED. #10 AWG. NEUTRAL CONDUCTOR WHEN COMMON WITH 2 OR 3 (208Y/120) VOLT CIRCUITS.

PROVIDE BOND WIRE IN ALL RACEWAYS, SIZED PER N.E.C. ART. #250.

INSTALL ALL WIRING IN APPROVED METALLIC RACEWAY. WIRING METHODS (AC, MC, NM, SE, UF OR SIMILAR CABLES) ARE NOT APPROVED.

ALL PENETRATIONS OF FIRE RESISTIVE FLOORS OR SHAFT WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAILS THAT CONFORM TO UNDERWRITERS LABORATORY LISTINGS FOR THROUGH PENETRATIONS FIRESTOP SYSTEMS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWING DETAILS WHICH SHOW COMPLETE CONFORMANCE TO THE U.L. LISTING TO THE INSPECTORS. THE DRAWINGS SHALL BE SPECIFIC FOR EACH PENETRATION WITH ALL VARIABLES DEFINED.

CONTRACTOR IS TO VERIFY CONDITION OF EXISTING INSTALLATIONS BY FIELD INSPECTION. CONTRACTOR IS TO PROVIDE NEW WIRE, CONDUIT, AND BOXES AS REQUIRED WITH NO ADDITIONAL COST.

CONTRACTOR IS TO COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATIONS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT PRIOR TO ROUGH-IN.

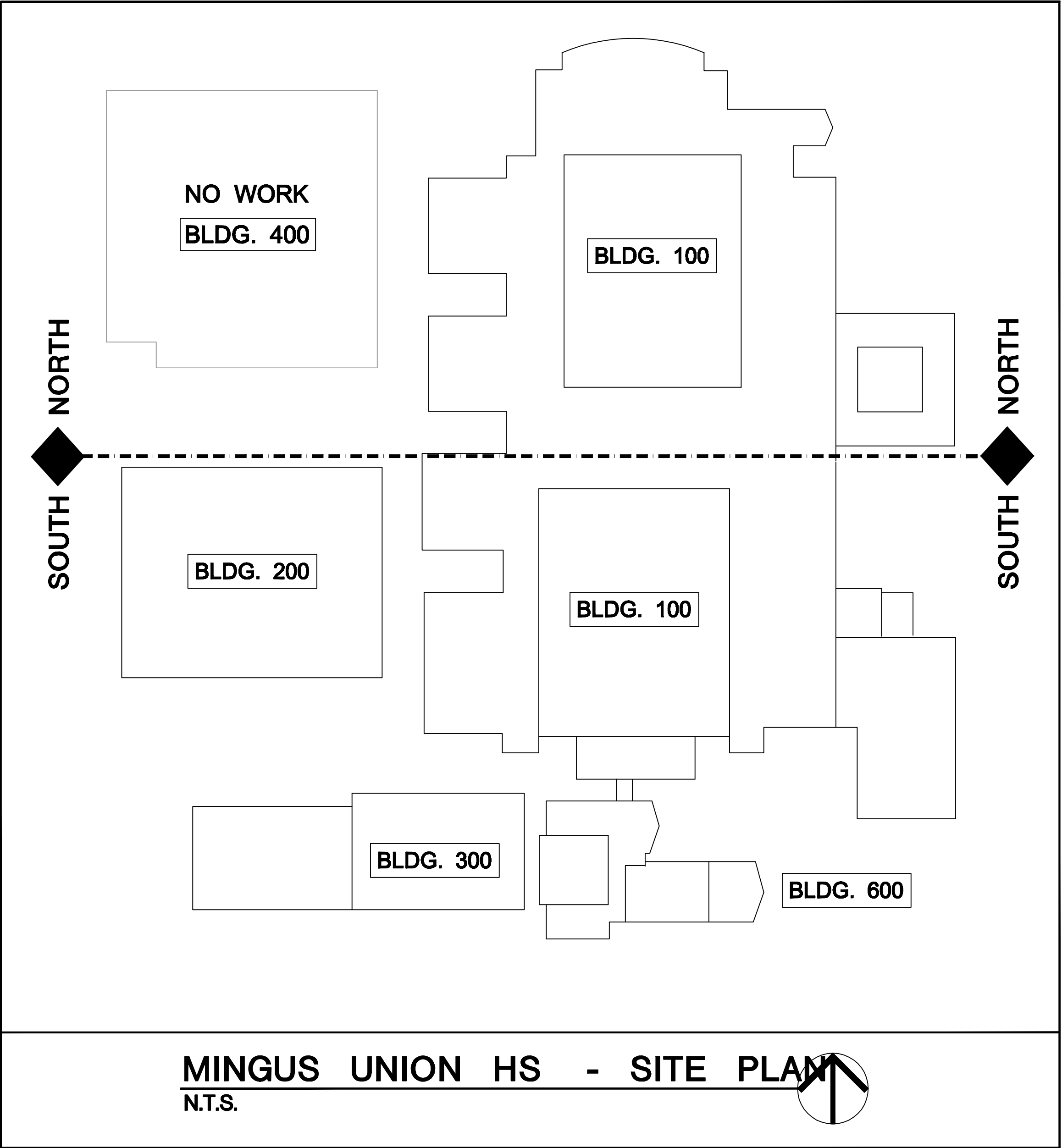
CONTRACTOR IS TO PROVIDE BOND WIRE IN ALL RACEWAYS, SIZED PER N.E.C. ART. #250.

CONTRACTOR IS TO VERIFY EXACT LOCATIONS, MOUNTING HEIGHTS AND ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT PROVIDED BY OTHERS PRIOR TO ROUGH-IN. CONTRACTOR IS TO PROVIDE DISCONNECT SWITCHES AND TRANSFORMERS AS REQUIRED, AND FINAL CONNECTIONS TO EQUIPMENT PER OWNER.

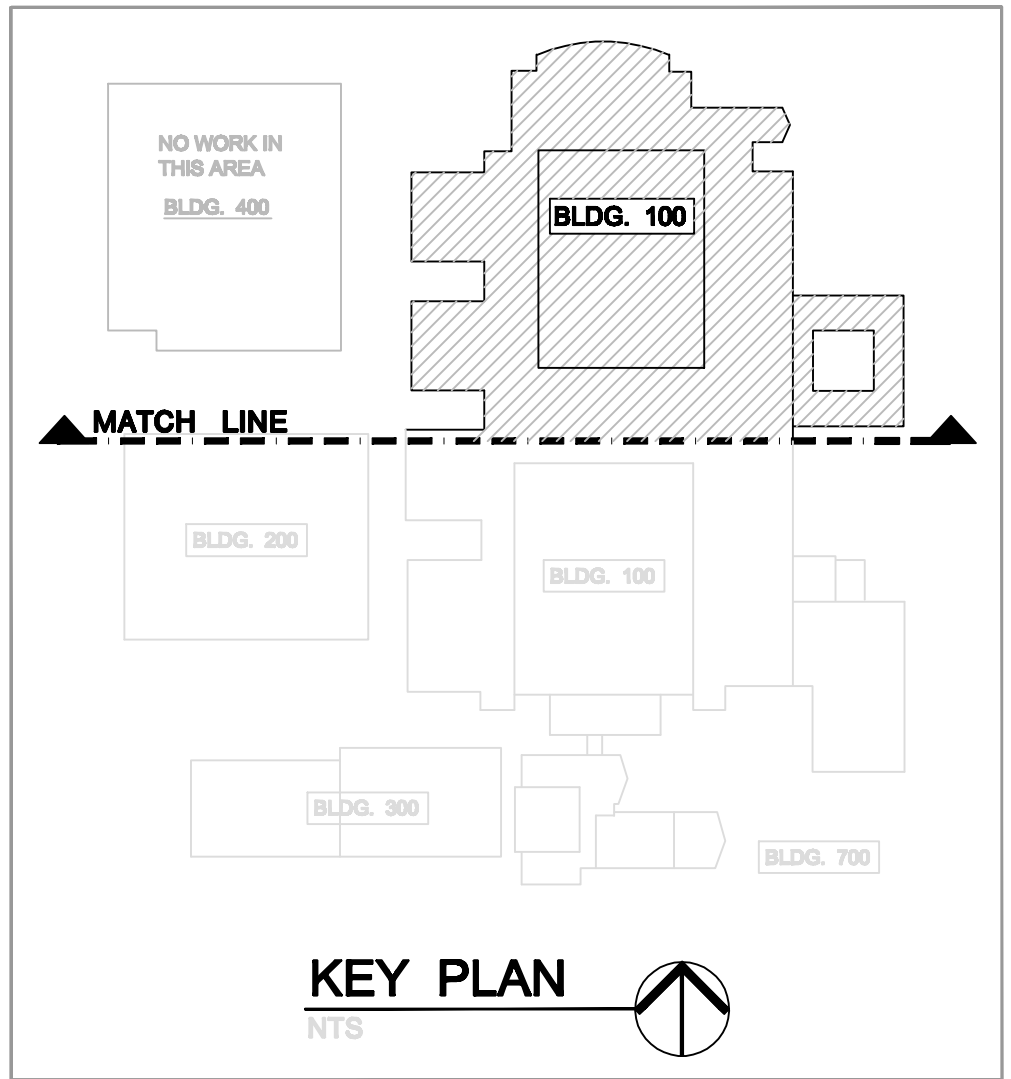
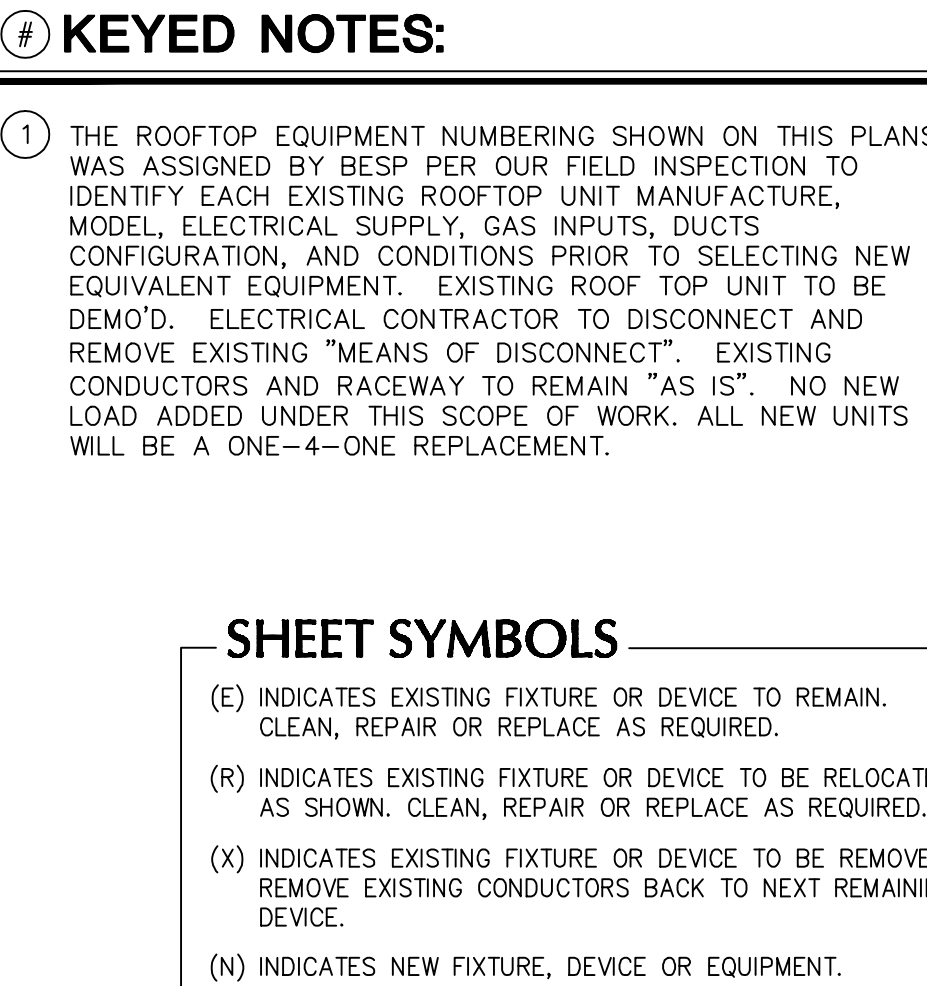
ELECTRICAL CONTRACTOR SHALL PROPERLY SUPPORT ALL EXISTING AND NEW CONDUIT FROM NEW SUPPORTS PER NEC ART. 300-11.

CONTRACTOR MAY REUSE THE EXISTING CONDUIT, BRANCH CIRCUITS, DEVICES AND BACK BOXES TO THE EXTENT POSSIBLE. ALL REUSED CONDUCTORS SHALL MATCH DESIGNED CONDUCTOR SIZES OR THEY SHALL BE REPLACED.

AN APPROVED PARTY, INDEPENDENT FROM THE CONSTRUCTION OF THE PROJECT SHALL BE RESPONSIBLE FOR THE FUNCTIONAL TESTING AND SHALL PROVIDE DOCUMENTATION TO THE BUILDING OFFICIAL CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET THE PROVISIONS OF THE IECC C405 (IECC C408.3).



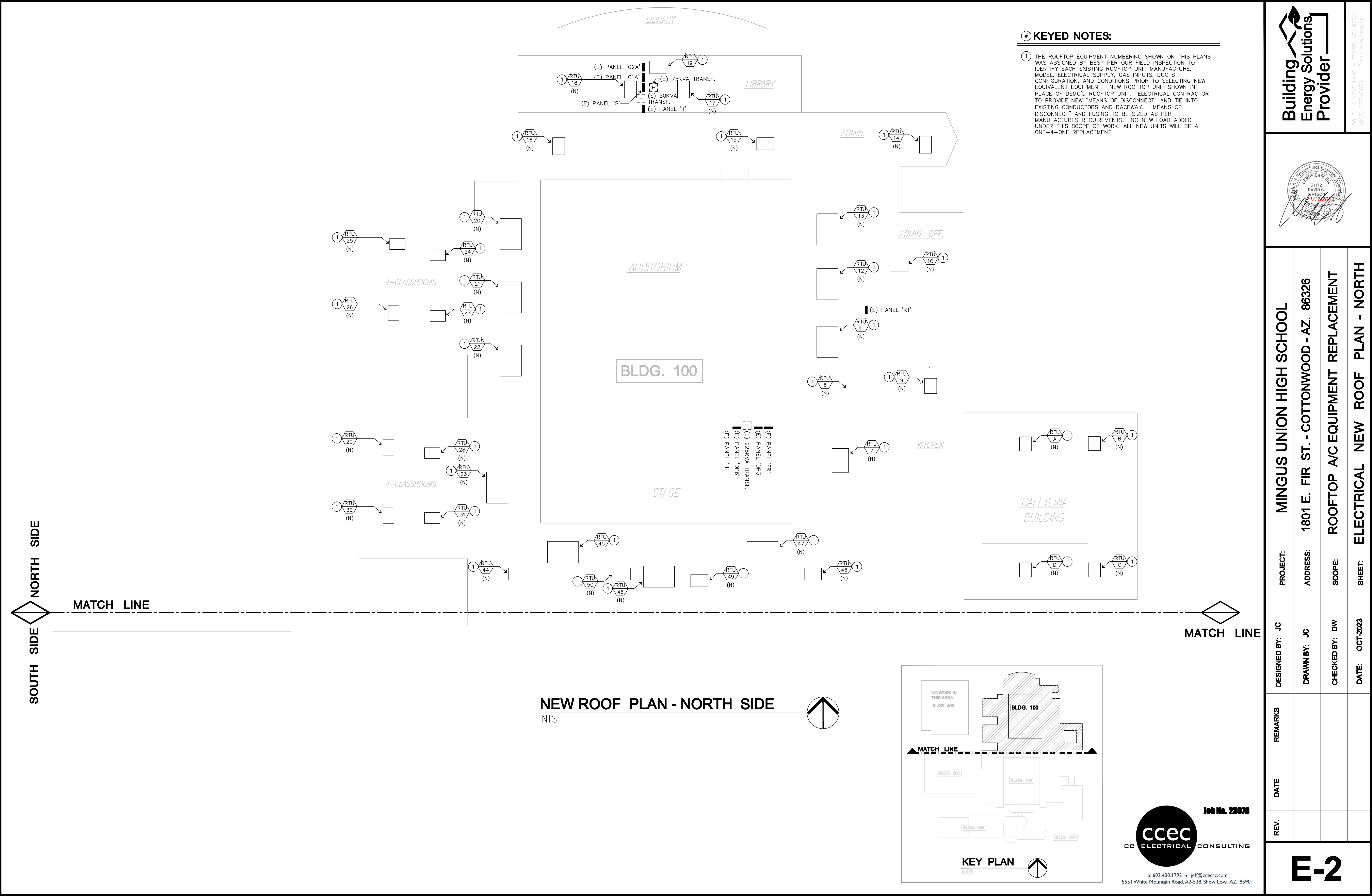
PROJECT:	MINGUS UNION HIGH SCHOOL
ADDRESS:	1801 E. FIR ST. - COTTONWOOD - AZ. 86326
SCOPE:	ROOFTOP A/C EQUIPMENT REPLACEMENT
SHEET:	ELECTRICAL SITE PLAN
DESIGNED BY:	JC
DRAWN BY:	JC
CHECKED BY:	DW
DATE:	OCT-2023
REMARKS	
DATE	
REV.	



Job No. 23078

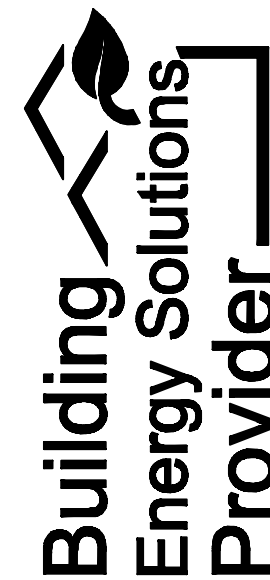
ccec
CC ELECTRICAL CONSULTING

p: 602.400.1792 • jeff@ccecaz.com
5551 White Mountain Road, #2-538, Show Low, AZ 85901



KEYED NOTES:

- 1 THE ROOFTOP EQUIPMENT NUMBERING SHOWN ON THIS PLANS WAS ASSIGNED BY BSP PER OUR FIELD INSPECTION TO IDENTIFY EACH EXISTING ROOFTOP UNIT MANUFACTURE, MODEL, ELECTRICAL SUPPLY, GAS INPUTS, DUCTS CONFIGURATION, AND CONDITIONS PRIOR TO SELECTING NEW EQUIVALENT EQUIPMENT. NEW ROOFTOP UNIT SHOWN IN PLACE OF DEMO'D ROOFTOP UNIT. ELECTRICAL CONTRACTOR TO PROVIDE NEW "MEANS OF DISCONNECT" AND TIE INTO EXISTING CONDUCTORS AND RACEWAY. "MEANS OF DISCONNECT" AND FUSING TO BE SIZED AS PER MANUFACTURERS REQUIREMENTS. NO NEW LOAD ADDED UNDER THIS SCOPE OF WORK. ALL NEW UNITS WILL BE A ONE-4-ONE REPLACEMENT.



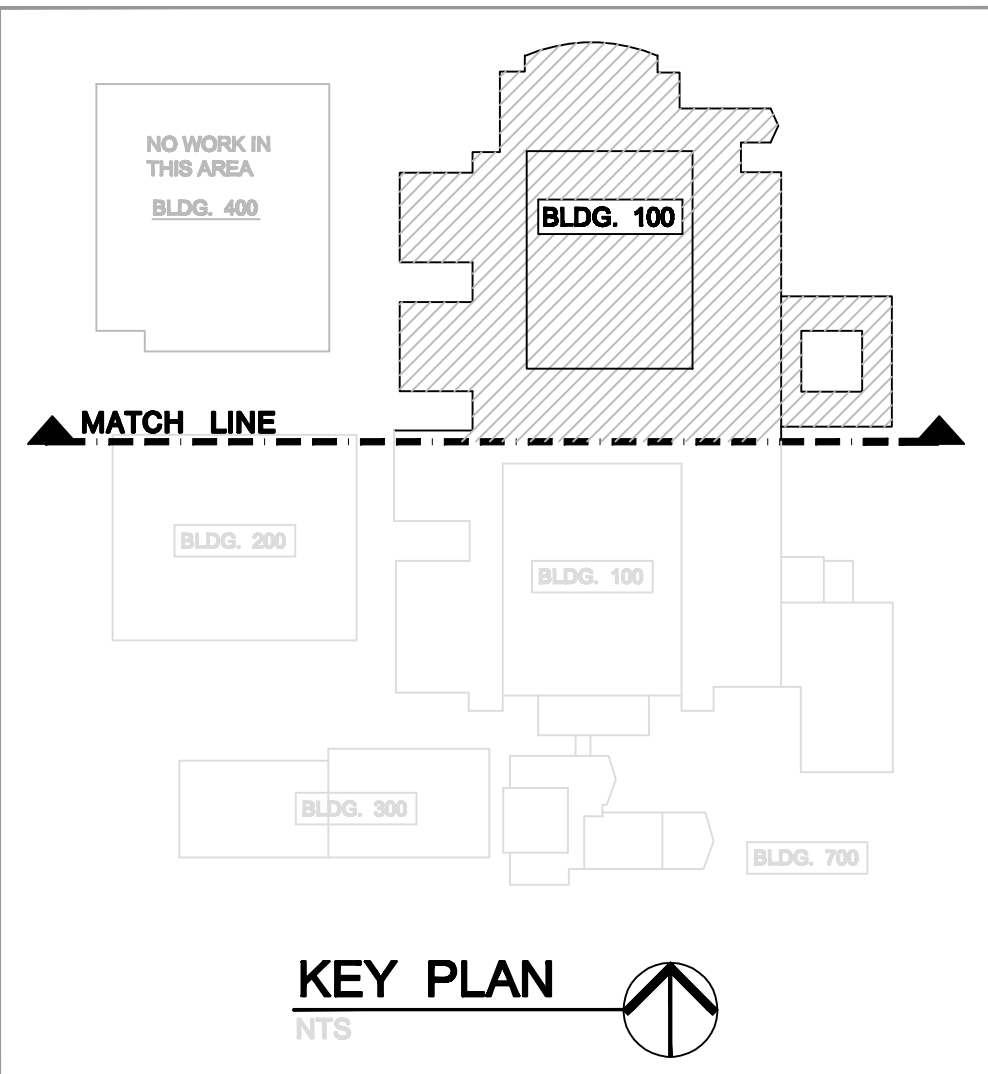
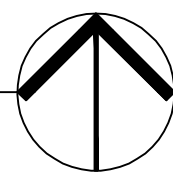
136 E. LA MEDE LANE - TEMPE, AZ 85204
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PROJECT:	MINGUS UNION HIGH SCHOOL
ADDRESS:	1801 E. FIR ST. - COTTONWOOD - AZ. 86326
SCOPE:	ROOFTOP A/C EQUIPMENT REPLACEMENT
SHEET:	ELECTRICAL NEW ROOF PLAN - NORTH
DESIGNED BY:	JC
DRAWN BY:	JC
CHECKED BY:	DW
DATE:	OCT-2023
REMARKS	
DATE	
REV.	

E-2

NEW ROOF PLAN - NORTH SIDE
NTS



ELECTRICAL SYSTEM SPECIFICATIONS - DIVISION 16000

1.	<u>GENERAL CONDITIONS</u> <p>THE GENERAL PROVISIONS OF THE CONTRACT, INCLUDING THE CONDITIONS OF THE CONTRACT (GENERAL, SUPPLEMENTARY AND OTHER CONDITIONS) AND DIVISION 1 – GENERAL REQUIREMENTS AS APPROPRIATE, APPLY TO THE WORK SPECIFIED IN THIS SECTION.</p> <p><u>SCOPE OF WORK</u></p> <p>THE WORK INCLUDED UNDER THIS SECTION CONSISTS OF FURNISHING ALL MATERIALS, EQUIPMENT, AND LABOR AND THE PERFORMING OF ALL FUNCTIONS, EXCEPT AS OTHERWISE SPECIFIED HEREIN OR SHOWN ON THE DRAWINGS TO BE PERFORMED BY OTHERS, FOR THE INSTALLATION AND PLACING INTO OPERATION OF A COMPLETE ELECTRICAL SYSTEM AS SPECIFIED AND SHOWN ON THE DRAWINGS.</p> <p><u>GENERAL DESCRIPTION</u></p> <p>3.1 THE WORK IN GENERAL SHALL CONSIST OF, BUT IS NOT NECESSARILY LIMITED TO THE FOLLOWING.</p> <p>3.1.1 FURNISHING AND INSTALLING ALL FIXTURES WITH LAMPS AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN UNLESS NOTED.</p> <p>3.1.2 FURNISHING AND INSTALLING ALL ELECTRICAL WORK, PANELS, SERVICE, CONDUIT, WIRING, ETC., FOR ALL OUTLETS AND EQUIPMENT.</p> <p>3.1.3 FURNISHING AND INSTALLING ALL TELEPHONE OUTLETS, CONDUITS WITH PULL STRINGS AND TELEPHONE MOUNTING BOARDS INCLUDING CONDUIT FROM TELEPHONE MOUNTING BOARD TO THE BUILDING ENTRANCE AS INDICATED ON THE PLAN. 3.1.4 FURNISHING AND INSTALLING A COMPLETE FIRE ALARM SYSTEM AS INDICATED ON PLANS.</p> <p>3.1.5 INCLUDE \$ HUNDRED DOLLARS) ALLOWANCE FOR POWER AND TELEPHONE COMPANY UTILITY SERVICE CHARGES. DIFFERENCE BETWEEN ACTUAL COST AND ALLOWANCE TO BE CREDITED OR BILLED TO THE OWNER.</p> <p>3.1.6 FURNISHING AND INSTALLING ALL MOTOR STARTERS AND CONTROL COMPONENTS, NOT SPECIFICALLY SPECIFIED TO BE FURNISHED IN ACCORDANCE WITH OTHER SECTIONS OF THE SPECIFICATIONS.</p> <p>3.1.7 FURNISHING AND INSTALLING ALL POWER AND WIRING EXCEPT THAT WHICH IS PRE-WIRED IN FACTORY ASSEMBLED EQUIPMENT.</p> <p>3.1.8 INSTALLING ALL LINE VOLTAGE MECHANICAL CONTROL WIRING AND ASSOCIATED CONTROLS WHICH ARE FURNISHED BY THE MECHANICAL CONTRACTOR (LOW VOLTAGE CONTROL WIRING AND CONTROLS SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR).</p> <p>3.1.9 PAINTING WORK AS DESCRIBED UNDER OTHER SECTIONS OF THESE SPECIFICATIONS. CLEAN AND PREPARE ALL SURFACES READY FOR PAINTING.</p> <p>3.1.10 PROVIDE TEMPORARY CONSTRUCTION POWER AS OUTLINED BELOW. THIS SERVICE SHALL BE MAINTAINED THROUGHOUT THE ENTIRE JOB AS THE WORK PROGRESSES. PROVIDE OUTLETS AT CONVENIENT POINTS AND IN SUFFICIENT NUMBERS SO THAT NO EXTENSION CORD OVER 50 FEET IN LENGTH IS REQUIRED TO REACH ANY WORK POINT. MAINTAIN GENERAL LIGHTING IN CORRIDORS, STAIRS, BASEMENT AND OTHER AREAS NOT RECEIVING SUFFICIENT DAYLIGHT REQUIRED FOR SAFETY. REMOVE TEMPORARY WORK AS RAPIDLY AS REQUIRED FOR OR ALLOWED BY INSTALLATION OF PERMANENT WORK.</p> <p>3.1.11 CERTAIN ITEMS OF WORK BY OTHER TRADES WILL BE NECESSARY FOR THE COMPLETION OF WORK UNDER THIS DIVISION. COOPERATE WITH OTHER TRADES AND ARRANGE FOR THESE ITEMS TO BE PERFORMED IN ORDERLY COURSE.</p> <p>3.1.12 THIS CONTRACTOR SHALL REVIEW THE MECHANICAL CONTROL REQUIREMENTS AS SPECIFIED AND SHOWN ON THE DRAWINGS AND SHALL FURNISH AND INSTALL ALL NECESSARY CONDUIT, WIRING, BOXES, PROTECTIVE DEVICES, SWITCHES, ETC., FOR THE COMPLETION AND PROPER OPERATION OF THE SYSTEM.</p> <p>3.1.13 REVIEW ALL DRAWINGS AND ALL SPECIFICATIONS FOR EACH SECTION OF WORK. UNLESS SPECIFICALLY NOTED OTHERWISE, HEREIN OR ELSEWHERE, FURNISH AND INSTALL ITEMS OF ANY ELECTRICAL NATURE REQUIRED FOR COMPLETION OF WORK FOR OTHER TRADES, WHETHER OR NOT SAME IS SHOWN OR NOTED IN THIS OR OTHER SECTIONS.</p>
4.	<u>REGULATIONS AND CODES</u> <p>THE CONTRACTOR MUST COMPLY WITH ALL STATE, MUNICIPAL AND FEDERAL SAFETY LAWS, CONSTRUCTION CODES, ORDINANCES AND REGULATIONS RELATING TO BUILDING AND PUBLIC HEALTH AND SAFETY. IN ADDITION, COMPLY WITH RULES AND REGULATIONS OF THE STATE FIRE PROTECTION CODE. FIRE PROTECTION MATERIAL MUST BEAR THE FIRE UNDERWRITERS LABORATORIES LABEL.</p>
5.	<u>GENERAL REQUIREMENTS</u> <p>5.1 THE CONTRACTOR SHALL EXAMINE THE PREMISES AND SATISFY HIMSELF OF EXISTING CONDITIONS UNDER WHICH HE WILL BE OBLIGATED TO OPERATE IN PERFORMING HIS PART OF THE WORK OR THAT WILL IN ANY MANNER AFFECT THE WORK UNDER THE CONTRACT. THE CONTRACTOR SHALL COOPERATE WITH OTHER TRADES SO THAT THE INSTALLATIONS OF ALL EQUIPMENT MAY BE PROPERLY COORDINATED.</p> <p>5.2 ALL EQUIPMENT FURNISHED SHALL FIT THE SPACE AVAILABLE, WITH CONNECTION, ETC. IN THE REQUIRED LOCATIONS AND WITH ADEQUATE SPACE FOR OPERATING AND SERVICING. THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATE THE MANNER AND METHOD OF THE INSTALLATION, WHILE THE SPECIFICATIONS AND FIXTURE LIST DENOTE THE TYPE AND QUALITY OF MATERIAL AND WORKMANSHIP TO BE USED. WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ARCHITECT/ENGINEER WHOSE DECISION SHALL BE FINAL. NO ALLOWANCE WILL BE MADE SUBSEQUENTLY IN THIS CONNECTION IN BEHALF OF THE CONTRACTOR AFTER AWARD OF THE CONTRACT.</p>
6.	<u>EQUIPMENT AND MATERIAL</u> <p>6.1 ALL MATERIALS FURNISHED UNDER THIS CONTRACT SHALL BE NEW (EXCEPT AS NOTED), FREE FROM DEFECTS OF ANY CHARACTER, SHALL CONFORM WITH THE STANDARDS OF THE UNDERWRITERS LABORATORIES, INC. (U.L.) (OR OTHER NATIONALLY RECOGNIZED LABORATORY), IN EVERY CASE WHERE SUCH A STANDARD HAS BEEN ESTABLISHED AND SHALL BE SO LABELED. IT IS THE INTENTION OF THESE SPECIFICATIONS TO INDICATE A STANDARD OF QUALITY FOR ALL MATERIALS INCORPORATED IN THIS WORK, AND WHERE MATERIALS ARE NOT SPECIFIED HEREIN AND ARE REQUIRED TO COMPLETE THE ELECTRICAL INSTALLATION, THESE MATERIALS SHALL BE OF FIRST QUALITY FOR USE INTENDED. MANUFACTURERS OF SIMILAR QUALITY PRODUCTS WILL BE CONSIDERED UNLESS THE SPECIFICATIONS OR DRAWINGS INDICATE OTHERWISE.</p> <p>6.2 MATERIALS SHALL BE SUITABLE FOR INTENDED USE AND LOCATION. UNLESS OTHERWISE SHOWN USE NEMA-1 FOR INTERIOR AREAS AND NEMA-3R FOR EXTERIOR AREAS.</p> <p>6.3 THE ARCHITECT/ENGINEER DECISION AS TO EQUAL IN GRADE AND QUALITY SHALL RULE AND BE FINAL FOR ALL ELECTRICAL MATERIALS INCORPORATED IN THIS WORK. WHERE TWO OR MORE SIMILAR TYPE ITEMS ARE FURNISHED, ALL SHALL BE OF THE SAME MANUFACTURER (E.G., ALL DISCONNECT SWITCHES SHALL BE OF THE SAME MANUFACTURER) UNLESS OTHERWISE NOTED HEREIN OR SHOWN ON THE DRAWINGS. ALL MATERIAL AND INSTALLATION METHODS USED SHALL BE IN ACCORDANCE WITH THE LATEST AND APPROVED ELECTRICAL AND MECHANICAL ENGINEERING PRACTICES.</p>
7.	<u>SERVICE ENTRANCE EQUIPMENT</u> <p>7.1 SERVICE ENTRANCE EQUIPMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MUNICIPAL GOVERNING BODY AND SERVING UTILITY. SHOP DRAWINGS SHALL BE SUBMITTED TO THE SERVING UTILITY FOR WRITTEN APPROVAL BEFORE ORDERING EQUIPMENT.</p> <p>7.2 LABEL EQUIPMENT AND EACH INDIVIDUAL OVERCURRENT DEVICE PER SECTION 16000.22.</p> <p>7.3 APPROVED MANUFACTURERS ARE: SUN VALLEY, SQUARE D, CUTLER-HAMMER, SIEMENS/ITE.</p>
8.	<u>PANELBOARDS</u> <p>8.1 EACH PANEL SHALL BE PROVIDED WITH DOOR LOCK AND TWO KEYS, ALL KEYS ALIKE. EACH PANEL SHALL BE PROVIDED WITH TYPEWRITTEN SHEET INSTALLED ON DOOR IDENTIFYING THE USE OF EACH BRCH CIRCUIT. PANELS SHALL HAVE BUSSING AS INDICATED ON THE DRAWINGS.</p> <p>8.2 LABEL EQUIPMENT PER SECTION 16000.22 8.3 APPROVED MANUFACTURERS ARE: SQUARE D, CUTLER-HAMMER, SIEMENS/ITE.</p> <p>8.3 ALL PANEL SCHEDULES WILL HAVE TYPED PANEL SCHEDULES AS PER I.B.C. SECTION 107.2.1.</p>
9.	<u>STARTERS</u> <p>9.1 ALL MOTOR STARTERS SHALL BE FURNISHED UNDER THIS SECTION OF THE SPECIFICATIONS UNLESS AN INTEGRAL PART OF EQUIPMENT OR NOTED AS FURNISHED WITH EQUIPMENT SPECIFIED UNDER OTHER SECTIONS OF THESE SPECIFICATIONS.</p> <p>9.2 SEPARATELY MOUNTED MOTOR STARTERS SHALL BE ACROSS- THE LINE COMBINATION MAGNETIC WITH 120V COILS, FUSED DISCONNECT CONTACTORS, ADDITIONAL AUXILIARY CONTACT FOR INTERLOCKING OF CONTROLS. PROVIDE PUSHBUTTON OR SELECTOR SWITCH IN COVER. SWITCHBOARD MOUNTED STARTERS SHALL BE MAGNETIC WITH 120V COILS AND ADDITIONAL AUXILIARY CONTACTS AS REQUIRED FOR INTERLOCKING OF CONTROLS. STARTERS SHALL HAVE AN INTEGRAL CONTROL CIRCUIT TRANSFORMER OR SEPARATE 120V CONTROL WITH CONTROL CIRCUIT DISCONNECT SWITCH IN COVER.</p> <p>9.3 MANUAL STARTERS SHALL BE HORSEPOWER, VOLTAGE AND PHASE RATED WITH OVERLOAD PROTECTION AND GREEN "ON" PILOT LIGHT. SURFACE MOUNTED UNLESS NOTED OTHERWISE.</p> <p>9.4 ALL STARTERS SHALL HAVE OVERLOAD PROTECTION IN ALL PHASE LINES. FURNISH AND INSTALL THE PROPER SIZE OVERLOAD HEATER ELEMENTS DETERMINED FROM FULL LOAD NAMEPLATE READINGS ON MOTORS AND COMPENSATION FOR AMBIENT TEMPERATURE IN ALL STARTERS WHETHER THEY BE FURNISHED UNDER THIS SECTION OR OTHER SECTIONS.</p>
9.5	LABEL PER SECTION 16000.22
9.6	APPROVED MANUFACTURERS ARE: SQUARE D
10.	<u>TRANSFORMERS</u> <p>10.1 TRANSFORMERS SHALL BE DRY TYPE, WITH VOLTAGE RATINGS AS INDICATED ON PLANS. TRANSFORMERS SHALL BE RATED FOR FULL LOAD OPERATION AT A MAXIMUM 150 DEGREE CENTIGRADE RISE ABOVE A 40 DEGREE CENTIGRADE AMBIENT OR AS OTHERWISE NOTED ON DRAWINGS. PROVIDE AT LEAST (4) 2 1/2 PERCENT TAPS, TWO ABOVE NORMAL AND TWO BELOW NORMAL AND HAVE A SOUND RATING NOT TO EXCEED NEMA STANDARDS. SPECIAL "K" FACTOR RATINGS AS NOTED.</p> <p>10.2 SUBMIT COMPLETE TRANSFORMER DATA WITH SHOP DRAWINGS FOR APPROVAL. THE DATA SHALL INCLUDE EFFICIENCIES, CORE AND COPPER LOSSES, IMPEDANCE, REGULATION AND SOUND LEVEL.</p> <p>10.3 INSTALLATION OF TRANSFORMERS SHALL BE ON VIBRATION ISOLATORS AND ALL WIRING CONNECTIONS WITH FLEXIBLE CONDUIT.</p> <p>10.4 LABEL PER SECTION 16000.22</p> <p>10.5 APPROVED MANUFACTURERS ARE: ACME, SQUARE D, JEFFERSON, CUTLER-HAMMER, WESTINGHOUSE, GENERAL ELECTRIC, OR SAME MANUFACTURER AS DISTRIBUTION EQUIPMENT.</p>
11.	<u>CONDUIT</u> <p>11.1 METALLIC CONDUITS SHALL BE HOT DIPPED GALVANIZED EQUAL TO LTV STEEL.</p>

11.2	ELECTRIC METALLIC TUBING (EMT) IS PERMITTED FOR EXPOSED WORK ABOVE 6'-0" A.F.F. OR CONCEALED WORK ONLY. EMT IS NOT PERMITTED IN THE FOLLOWING: (1) IN OR UNDER CONCRETE, (2) IN EARTH, (3) IN GROUTED WALLS, (4) EXTERIOR OF BUILDING, (5) WITH DISSIMILAR METALS, (6) WHERE IT WILL BE SUBJECT TO SEVERE PHYSICAL DAMAGE (EITHER DURING OR AFTER INSTALLATION), (7) IN ANY HAZARDOUS (CLASSIFIED LOCATION) EXCEPT AS PERMITTED BY 502.10, 503.10 AND 504-20, (8) WITHOUT AN EQUIPMENT GROUNDING CONDUCTOR. SIZE AND PROVIDE EQUIPMENT GROUNDING CONDUCTOR PER ARTICLE 250 AND INCREASE CONDUIT SIZE IF REQUIRED.
11.3	RIGID PVC CONDUIT IS PERMITTED ONLY UNDERGROUND OR AS NOTED ON DRAWINGS. PROVIDE RIGID STEEL ELBOWS AND RISERS (NO MINIMUM SIZE). SIZE AND PROVIDE EQUIPMENT GROUNDING CONDUCTOR PER ARTICLE 250 AND INCREASE CONDUIT SIZE IF REQUIRED.
11.4	RIGID GALVANIZED OR SHERADIZED STEEL SHALL BE USED FOR ALL EXPOSED CONDUIT BELOW 6'-0" A.F.F. OR AS NOTED ON DRAWINGS. WHERE USED IN OR UNDER CONCRETE OR IN EARTH, SHALL BE CODE APPROVED PVC COATED OR HALF LAP WRAPPED WITH POLYKEN #900 TAPE OR EQUAL.
11.5	INSTALL EXPOSED RACEWAYS PARALLEL AND PERPENDICULAR TO NEARBY SURFACES OR STRUCTURAL MEMBERS AND FOLLOW THE SURFACE CONTOURS AS MUCH AS PRACTICAL.
11.6	RUN EXPOSED, PARALLEL, OR BANKED RACEWAYS TOGETHER. MAKE BENDS IN PARALLEL OR BANKED RUNS FROM THE SAME CENTER LINE SO THAT THE BENDS ARE PARALLEL. FACTORY ELBOWS MAY BE USED IN BANKED RUNS ONLY WHERE THEY CAN BE INSTALLED PARALLEL. THIS REQUIRES THAT THERE BE A CHANGE IN THE PLANE OF THE RUN SUCH AS FROM WALL TO CEILING AND THAT THE RACEWAYS BE OF THE SAME SIZE. IN OTHER CASES PROVIDE FIELD BENDS FOR PARALLEL RACEWAYS.
12.	<u>WIRE</u> <p>12.1 SOFT DRAWN ANNEALED COPPER (UNLESS OTHERWISE NOTED ON PLANS) HAVING CONDUCTIVITY OF NOT LESS THAN 98% OF THAT OF PURE COPPER, UNIFORM IN CROSS SECTION, FREE FROM FLAWS, SCALES, AND OTHER IMPERFECTIONS. ALL WIRE LARGER THAN #10 SHALL BE STRANDED.</p> <p>12.2 INSULATION: TYPE THHN/THWN, OR XHHW FOR ALL BRANCH CIRCUIT AND FEEDER WIRING.</p> <p>12.3 SIZES: NO WIRE SMALLER THAN #12 UNLESS OTHERWISE NOTED ON DRAWINGS.</p> <p>12.4 FEEDER CONDUCTORS #2 AWG AND LARGER MAY BE COPPER OR AA-8000 SERIES ALUMINUM ALLOY. ALUMINUM CONDUCTORS SHALL BE EQUAL OR LARGER AMPACITY TO COPPER. CONDUIT FILL SHALL NOT EXCEED 40% FACTOR'S DESCRIBED IN 2011 NEC, ANNEX C, TABLE C1 (COPPER) OR C1A (ALUMINUM). ALL GROUND (BOND) CONDUCTORS WILL BE COPPER.</p>
13.	<u>MISCELLANEOUS MATERIALS:</u> <p>13.1 SAFETY SWITCHES: HEAVY DUTY, FUSED REJECTION TYPE, MINIMUM 200,000 A.I.C. RATED. "NF" INDICATES NOT FUSED.</p> <p>13.1.1 LABEL PER SECTION 16000.22</p> <p>13.1.2 APPROVED MANUFACTURERS ARE: SQUARE D, SIEMENS, CUTLER-HAMMER, WESTINGHOUSE, GENERAL ELECTRIC OR SAME MANUFACTURERS AS DISTRIBUTION EQUIPMENT.</p> <p>13.2 FUSES: "BUSSMANN" OR "GOULD SHAWMUT" MFG. NO SUBSTITUTIONS UNLESS BY PRIOR WRITTEN APPROVAL FROM ENGINEER, OR AS NOTED ON DRAWINGS.</p>
13.3	CONDUIT STRAP: HEAVY GAUGE STEEL SNAP-ON TYPE.
13.4	ELECTRICAL METALLIC TUBING FITTINGS: EQUAL TO T&B COMPRESSION TYPE. CONNECTORS SHALL HAVE INSULATED BUSHINGS.
13.5	RIGID CONDUIT LOCKNUTS AND BUSHINGS: EQUAL TO T&B.
13.6	FLEXIBLE CONDUIT AND FITTINGS: EQUAL TO CALIFORNIA CONDUIT AND CABLE COMPANY, INC.
13.7	LIQUID TIGHT CONDUIT AND FITTINGS FOR ALL EXTERIOR AND EQUIPMENT CONNECTIONS.
13.8	OUTLET BOXES, PLASTER RINGS, PULL, AND JUNCTION BOXES, ETC: EQUAL TO RACO. ZINC COATED OR CADMIUM PLATED SHEET STEEL FOR INDOOR LOCATIONS, CAST ALUMINUM FOR OUTDOOR LOCATIONS.
13.8.1	FOR ALL LIGHT FIXTURES: OCTAGON OR 4" SQUARE BOXES.
13.8.2	FOR SWITCHES AND RECEPTACLES: 4" OR 4-11/16" SQUARE BOXES.
13.8.3	JUNCTION AND PULL BOXES: 4" SQUARE MINIMUM SIZE. PROVIDE WITH SCREWFASTENED COVERS LOCATED IN ACCESSIBLE LOCATIONS.
13.9	CONDULETS: EQUAL TO CROUSE-HINDS.
13.10	WIRE AND CABLE: EQUAL TO GENERAL CABLE AND/OR SIMPLEX.
13.11	DEVICES: "HUBBELL", "LEVITON", OR APPROVED EQUAL RECEPTACLES: DUPLEX-20 AMP #5242, ISOLATED GROUND - 20 AMP #G-16262-IG, GFCI- 20 AMP #GF-N7899. SWITCHES: 20 AMP #1221 SINGLE POLE, 1222 DOUBLE POLE, 1223 THREE WAY, 1224 FOUR WAY. COLORS TO BE SPECIFIED BY ARCHITECT/OWNER/TENANT.
13.12	DEVICE PLATES: "HUBBELL", "LEVITON", OR EQUAL. COLORS TO MATCH EXISTING OR AS NOTED ON DRAWINGS. ZINC DIE CAST FLIP LID MOUNTED HORIZONTALLY FOR EXTERIOR OR WEATHERPROOF LOCATIONS.
13.13	LIGHTING FIXTURES: EQUAL TO AS SHOWN ON FIXTURE SCHEDULE OR DESCRIBED ON DRAWINGS, COMPLETE WITH LAMPS IN ORIGINAL CARTONS AND ALL CANOPIES, STEMS, HANGERS AND ACCESSORIES INCLUDING ALL STRUCTURAL MEMBERS REQUIRED FOR PROPER MOUNTING. ALL FLUORESCENT FIXTURE BALLASTS SHALL BE ENERGY SAVING TYPE. SUBMIT SHOP DRAWINGS TO ARCHITECT/ENGINEER FOR APPROVAL BY THE SAME. MUST BE C.E.C. APPROVED IN CALIF.
13.14	LAMPS: G.E. OR EQUAL AND SHALL BE FOR THE MAXIMUM RATED WATTAGE OF FIXTURE UNLESS OTHERWISE SHOWN ON DRAWINGS.
14.	<u>SLEEVES, INSERTS, OPENINGS</u> <p>14.1 CONTRACTOR SHALL LAYOUT AND INSTALL HIS WORK IN ADVANCE OF POURING CONCRETE FLOORS OR WALLS. PROVIDE ALL SLEEVES AND/OR OPENINGS THROUGH FLOORS OR WALLS REQUIRED FOR ELECTRICAL CONDUITS OR DUCTS.</p> <p>14.2 SLEEVES SHALL BE OF RIGID CONDUIT OR GALVANIZED SHEET STEEL RIGIDLY SUPPORTED AND SUITABLY PACKED TO PREVENT ENTRANCE OF WET CONCRETE.</p>
15.	<u>EXCAVATION/CUTTING/FITTING/REPAIRING/FINISHING</u> <p>15.1 THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL EXCAVATION, COMPACTION, FILL, BACKFILL, CUTTING, FITTING, REPAIRING AND FINISHING OF ALL WORK NECESSARY FOR THE INSTALLATION OF ALL EQUIPMENT UNDER THIS SPECIFICATION BUT NO CUTTING OF THE WORK OF OTHER CONTRACTORS SHALL BE DONE WITHOUT THE CONSENT OF THE GENERAL CONTRACTOR.</p> <p>15.2 EARTHWORK SHALL BE DONE IN ACCORDANCE WITH LATEST INDUSTRY STANDARDS.</p>
16.	<u>CLEANUP OF PREMISES</u> <p>CONTRACTOR SHALL AT ALL TIMES KEEP THE PREMISES CLEAR OF WASTE MATERIALS AND DEBRIS CAUSED BY HIS EMPLOYEES AND OPERATION. EQUIPMENT NOT REQUIRED IN THE WORK SHALL BE REMOVED PRIOR TO THE TERMINATION OF THE CONTRACT.</p>
17.	<u>TESTS AND INSPECTIONS</u> <p>17.1 CONTRACTOR SHALL TEST WIRING AND DEVICES AS SECTIONS ARE COMPLETED AND SHALL CORRECT ALL DEFECTS IMMEDIATELY AT HIS OWN EXPENSE, INCLUDING ANY DAMAGE TO WALLS, CEILINGS, FLOORS OR OTHER PORTIONS OF THE BUILDING WHICH MAY RESULT FROM REPLACING DEFECTIVE EQUIPMENT.</p> <p>17.2 FURNISH ALL METERS, CABLE, CONNECTIONS AND APPARATUS NECESSARY FOR MAKING TESTS.</p> <p>17.3 TEST SYSTEM FOR SHORTS AND GROUNDS. FAULTY WIRING SHALL BE REMOVED AND REPLACED. ANY DEVICE, APPARATUS OR FIXTURE INSTALLED SHOWING SUBSTANDARD PERFORMANCE SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE ARCHITECT/ENGINEER.</p> <p>17.4 MEGGER ALL SYSTEMS NEUTRALS TO INSURE THE NEUTRAL IS NOT GROUNDED WITHIN THE SYSTEM.</p> <p>17.5 ALL EQUIPMENT RATED AT 1,000 AMPS OR MORE , OR 480 VOLTS SHALL BE TESTED FOR INSULATION BREAKDOWN PRIOR TO ITS BEING ENERGIZED. SUCH EQUIPMENT SHALL WITHSTAND FOR A PERIOD OF ONE MINUTE WITHOUT BREAKDOWN, THE APPLICATION OF A 60HZ ALTERNATING POTENTIAL OF 1,000V PLUS TWICE THE RATED VOLTAGE OF THE DEVICE.</p> <p>17.6 AFTER THE ELECTRICAL WIRING SYSTEM INSTALLATION IS COMPLETED AND AT SUCH TIME AS THE ARCHITECT/ENGINEER OR HIS AUTHORIZED REPRESENTATIVE MAY DIRECT, THE CONTRACTOR SHALL CONDUCT AN OPERATING TEST FOR APPROVAL. EQUIPMENT SHALL BE DEMONSTRATED TO OPERATE IN ACCORDANCE WITH REQUIREMENTS OF SPECIFICATIONS. TEST SHALL BE PERFORMED IN PRESENCE OF ARCHITECT/ENGINEER OR HIS REPRESENTATIVE.</p>
18.	<u>SHOP DRAWINGS</u> <p>18.1 ALL DATA SHALL BE SUBMITTED AT ONE TIME, BOUND AND INDEXED IN AN ORDERLY MANNER. PRIOR TO STARTING THE WORK, SUBMIT TO THE ARCHITECT/ENGINEER FOR APPROVAL, SIX (6) SETS OF SHOP DRAWINGS OF SERVICE (S.E.S.), PANELS, DISTRIBUTION SECTIONS, LIGHT FIXTURES, MOTOR CONTROL CENTERS, FIRE ALARM SYSTEM, DIMMERS, SOUND SYSTEM, EMERGENCY GENERATOR, DEVICES, TRANSFORMERS, LABELS AS REQUIRED BY 16000.22, AND ALL OTHER EQUIPMENT TO BE FABRICATED.</p> <p>18.2 PROCURE SHOP DRAWINGS, WIRING DIAGRAMS, ETC., FROM OTHER TRADES INVOLVED WHERE SUCH DRAWINGS MAY FACILITATE AND EXPEDITE THE WORK. AIR CONDITIONING AND MECHANICAL EQUIPMENT SHALL BE WIRED COMPLETE AS PER MANUFACTURER'S WIRING DIAGRAMS FURNISHED BY THE AIR CONDITIONING AND MECHANICAL CONTRACTORS.</p>
19.	<u>DRAWINGS OF RECORD (AS-BUILT)</u> <p>19.1 AS-BUILT DRAWINGS SHALL BE SUBMITTED IN ACCORDANCE WITH AND IF REQUIRED BY DIVISION 1 – GENERAL REQUIREMENTS.</p>
20.	<u>GUARANTEE</u> <p>20.1 THE CONTRACTOR SHALL GUARANTEE ALL MATERIAL AND EQUIPMENT TO BE FREE FROM DEFECT OF MATERIAL AND WORKMANSHIP AND SHALL REPLACE OR REPAIR WITHOUT COST TO THE OWNER ALL DEFECTIVE MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE.</p>
21.	<u>INSTRUCTIONS</u> <p>21.1 CONTRACTOR SHALL INSTRUCT THE OWNER IN THE PROPER OPERATING AND MAINTENANCE OF THE EQUIPMENT.</p> <p>21.2 CONTRACTOR SHALL PROVIDE TWO (2) SETS OF OPERATING AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT PROVIDED BY THIS DISCIPLINE. ONLY WHEN SUCH MANUALS ARE AVAILABLE FROM THE MANUFACTURER.</p>

(SOME SECTIONS MAY NOT APPLY)

21.2.1	ALL MANUALS TO BE BOUND IN A 3-RING BINDER AND TABULATED IN AN ORDERLY MANNER.
22.	<u>LABELING</u> <p>22.1 LABELS SHALL BE ENGRAVED, BLACK ON WHITE MELAMINE PLASTIC LAMINATE, 1/16" MINIMUM THICKNESS FOR SIGNS UP TO 20 SQUARE INCHES OR 8 INCHES LONG; 1/8" THICK FOR LARGER SIZES. ENGRAVED LEGEND SHALL BE IN WHITE LETTERS ON BLACK FACE WITH MINIMUM 3/16" HIGH LETTERS. LABELS SHALL BE PUNCHED AND FASTENED TO EQUIPMENT WITH ALUMINUM RIVETS OR SELF TAPPING STAINLESS STEEL SCREWS OR NUMBER 10/32 STAINLESS STEEL MACHINE SCREWS WITH NUTS, FLAT AND LOCK WASHERS.</p> <p>22.2 LABEL EQUIPMENT WITH NAME, AMPERAGE, VOLTAGE, PHASE, AND WIRES (I.E. PANEL "A", 400A., 120/208V,30,4W). SUBMIT LIST OF ALL LABELS WITH WORDING FOR REVIEW AS PER 16000.18.</p> <p>22.3 EQUIPMENT TO BE LABELED SHALL INCLUDE SERVICE (S.E.S.) AND ALL OVERCURRENT DEVICES, DISTRIBUTION SECTIONS AND ALL OVERCURRENT DEVICES, MOTOR CONTROL CENTERS (M.C.C.) AND ALL OVERCURRENT DEVICES, FUSIBLE PANELBOARDS AND ALL OVERCURRENT DEVICES, PANELS, STARTERS AND TRANSFORMERS. LABEL OTHER EQUIPMENT AS NOTED ON PLANS.</p>

GENERAL NOTES:

ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH 2017 OR LATEST ADOPTED NATIONAL ELECTRICAL CODES AND APPLICABLE LOCAL CODES, ORDINANCES AND TOWN OF ORO VALLEY AMENDMENTS TO N.E.C.	ALL WIRING SHALL BE COPPER UNLESS OTHERWISE NOTED OTHERWISE. INSULATION SHALL BE TYPE XHHW OR THHN/THWN. MINIMUM CONDUCTOR SIZE IS #12 AWG. LARGER CONDUCTORS TO BE USED WHEN INDICATED. #10 AWG. NEUTRAL CONDUCTOR WHEN COMMON WITH 2 OR 3 (208Y/120) VOLT CIRCUITS.
PROVIDE BOND WIRE IN ALL RACEWAYS, SIZED PER N.E.C. ART. #250.	INSTALL ALL WIRING IN APPROVED METALLIC RACEWAY. WIRING METHODS (AC, MC, NM, SE, UF OR SIMILAR CABLES) ARE NOT APPROVED.
ALL PENETRATIONS OF FIRE RESISTIVE FLOORS OR SHAFT WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DETAILS THAT CONFORM TO UNDERWRITERS LABORATORY LISTINGS FOR THROUGH PENETRATIONS FIRESTOP SYSTEMS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWING DETAILS WHICH SHOW COMPLETE CONFORMANCE TO THE U.L. LISTING TO THE INSPECTORS. THE DRAWINGS SHALL BE SPECIFIC FOR EACH PENETRATION WITH ALL VARIABLES DEFINED.	CONTRACTOR IS TO VERIFY CONDITION OF EXISTING INSTALLATIONS BY FIELD INSPECTION. CONTRACTOR IS TO PROVIDE NEW WIRE, CONDUIT, AND BOXES AS REQUIRED WITH NO ADDITIONAL COST.
CONTRACTOR IS TO COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATIONS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT PRIOR TO ROUGH-IN.	CONTRACTOR IS TO COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATIONS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT PRIOR TO ROUGH-IN.
ALL GENERAL USE RECEPTACLES MOUNTED WITHIN 6' OF A BASIN OR SINK SHALL BE G.F.C.I.	ALL RECEPTACLES, LIGHTING AND DATA/TELEPHONE COVER PLATE TYPES, COLORS AND FINISHES SHALL MATCH EXISTING. ALL WIRING DEVICES SHALL BE COMMERCIAL SPECIFICATION GRADE.
CONTRACTOR IS TO PROVIDE BOND WIRE IN ALL RACEWAYS, SIZED PER N.E.C. ART. #250.	CONTRACTOR IS TO PROVIDE BOND WIRE IN ALL RACEWAYS, SIZED PER N.E.C. ART. #250.
CONTRACTOR IS TO VERIFY EXACT LOCATIONS, MOUNTING HEIGHTS AND ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT PROVIDED BY OTHERS PRIOR TO ROUGH-IN. CONTRACTOR IS TO PROVIDE DISCONNECT SWITCHES AND TRANSFORMERS AS REQUIRED, AND FINAL CONNECTIONS TO EQUIPMENT PER OWNER.	CONTRACTOR IS TO PROVIDE AND INSTALL ADDITIONAL EXIT SIGNS, EMERGENCY LIGHTS AND NIGHT LIGHTS IF REQUIRED BY GOVERNING INSPECTOR. ALL LIGHTING FIXTURES TO BE INDEPENDENT LABORATORY LISTED.
ELECTRICAL CONTRACTOR SHALL PROPERLY SUPPORT ALL EXISTING AND NEW CONDUIT FROM NEW SUPPORTS PER NEC ART. 300-11.	2' X 4' FIXTURES SHALL BE SUPPORTED BY GALVANIZED CADMIUM PLATED JACK CHAINS AND SAFETY "S" HOOKS ATTACHED TO THE BUILDING STRUCTURE. LEAVE FIXTURES CLEAN OF DIRT, DUST, GREASE SPOTS, DEBRIS. ALL GLASS, PLASTIC AND OTHER COMPONENTS ARE TO BE UNSCRATCHED AND UNBROKEN PRIOR TO ACCEPTANCE.
CONTRACTOR MAY REUSE THE EXISTING CONDUIT, BRANCH CIRCUITS, DEVICES AND BACK BOXES TO THE EXTENT POSSIBLE. ALL REUSED CONDUCTORS SHALL MATCH DESIGNED CONDUCTOR SIZES OR THEY SHALL BE REPLACED.	



Job No. 23078

PROJECT: MINGUS UNION HIGH SCHOOL		ADDRESS: 1801 E. FIR ST. - COTTONWOOD - AZ. 86326	
DESIGNED BY: JC		SCOPE: ROOFTOP A/C EQUIPMENT REPLACEMENT	
DRAWN BY: JC		SHEET: ELECTRICAL SPECIFICATIONS	
CHECKED BY: DW			
DATE: OCT-2023			
REMARKS	DATE	REV.	



10/30/2023



10/30/2023



10/30/2023



10/31/2023

STRUCTURAL DETAILS

DATE: OCT-2023

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