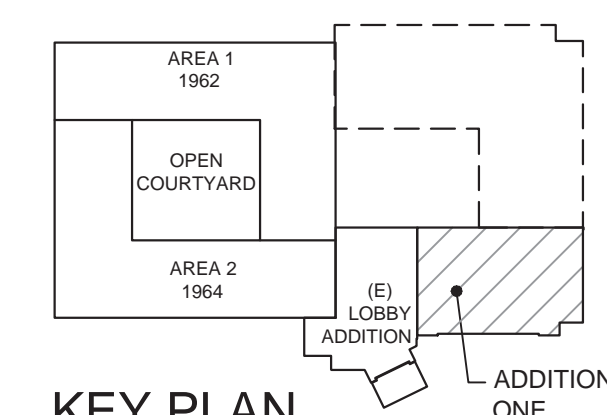
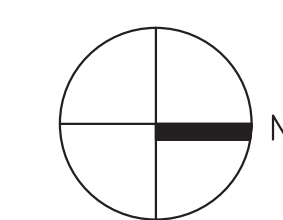


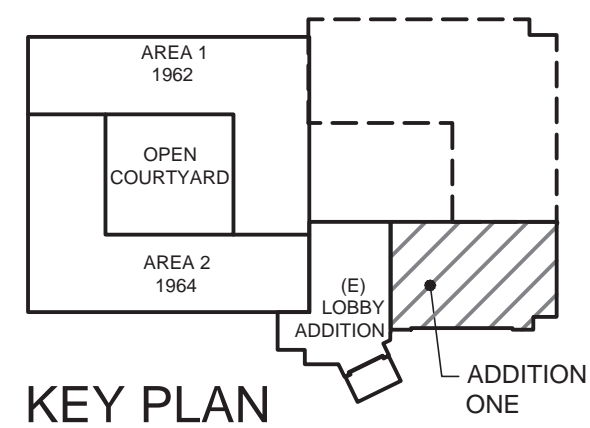
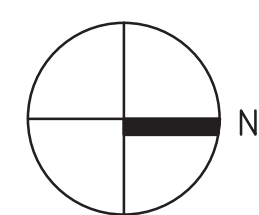
1. NOT USED
2. NEW AIR COOLED CHILLER PACKAGING MOUNTED ON PACKAGE SHED AND 6" HOUSEKEEPING PAD
3. NEW HOT WATER CONDENSING BOILER MOUNTED ON PACKAGE SHED AND 6" HOUSEKEEPING PAD
4. SCOPE OF WORK TO MODIFY (E) RTU-1, REFER TO KEY NOTE #7 ON DRAWING MH103 FOR MORE INFORMATION
5. TAP OFF MAIN LOOP WITH TEE, ISOLATION VALVE AND BLIND FLANGE FOR FUTURE CONNECTION.
6. NEW CHWS/R PIPE ROUTED UP EXTERIOR OF BUILDING AND ABOVE ROOF TO EXISTING AND NEW EQUIPMENT.
7. NEW HWS/R PIPE ROUTED UP EXTERIOR OF BUILDING AND ABOVE ROOF TO EXISTING AND NEW EQUIPMENT.
8. SEISMIC JOINT 3" MINIMUM TRAVEL REQUIRED.
9. EXPANSION LOOP.




$$1'' = 20' - 0''$$


FULLY SPRINKLERED

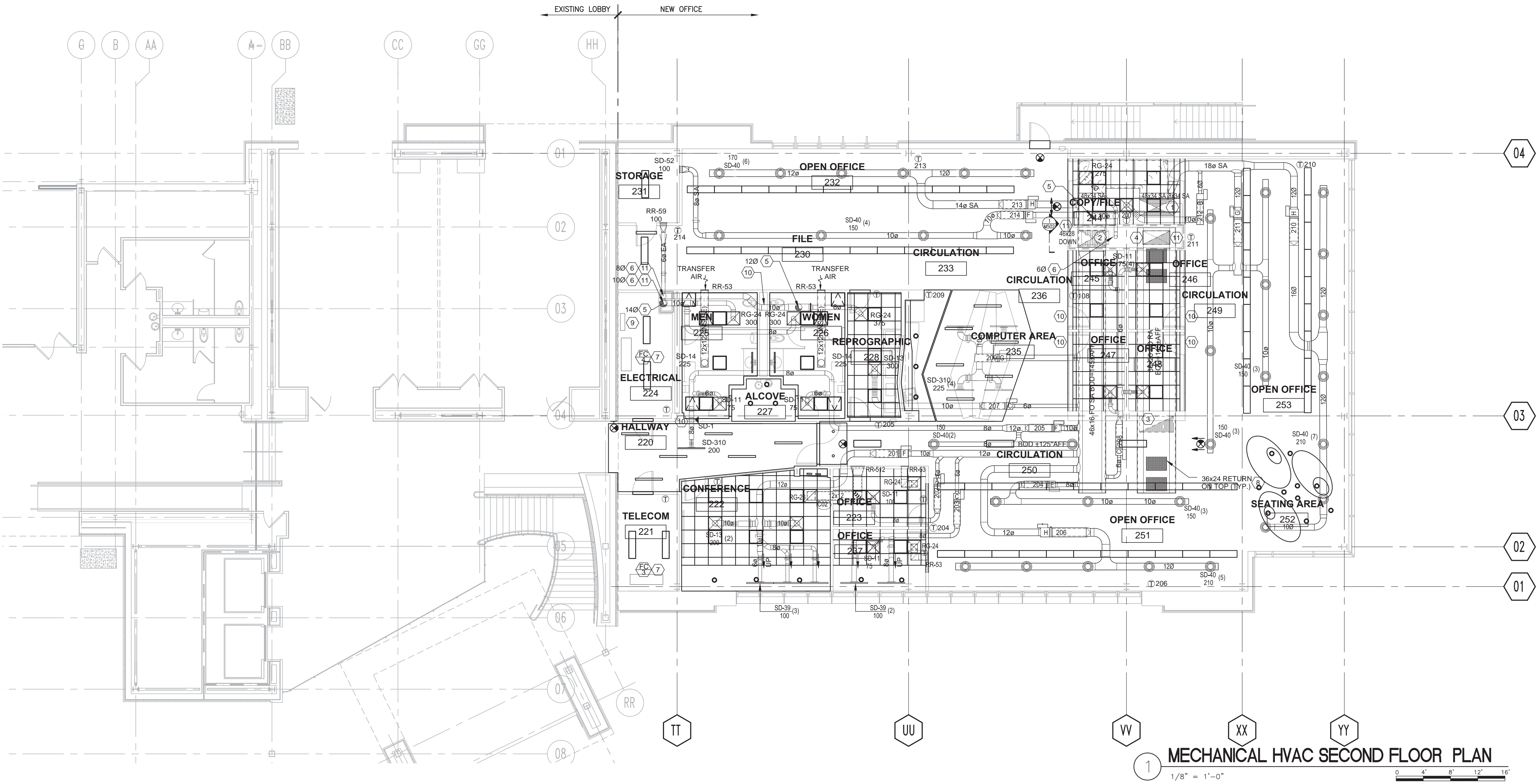
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<div>999</div> <div>1000</div>	<div>CONSULTANTS:</div> <div><div><div>BRYAN BENNO BRAUER,P.E.</div><div>CONSULTING ENGINEER</div><div>PO BOX 2586, TRUCKEE, CA 96160 (530)282-8683</div><div>BRYAN@BBBRAUER.COM</div></div><div><div>ARSENIO ORTEGA, P.E.</div><div>CONSULTING ENGINEER</div><div>5 Third Street, Suite 716</div><div>San Francisco, CA 94103</div><div>(415) 546-0490 tel -0491 fax</div></div></div>	<div>Stamp and Signature</div> <div><div><div>REGISTERED PROFESSIONAL ENGINEER</div><div>BRYAN B BRAUER</div><div>Exp. 9-18-2018</div><div>MECHANICAL</div><div>STATE OF CALIFORNIA</div></div></div>	<div>ARCHITECT/ENGINEERS:</div> <div><div><div>KPA</div><div>THE KPA GROUP</div></div><div><div>ENGINEERS ARCHITECTS</div><div>6700 KOLL CENTER PARKWAY SUITE 125</div><div>PLEASANTON, CALIFORNIA 94566</div><div>TEL.925.223.8217 www.thekpagroup.com</div><div>©THE KPA GROUP 2017</div><div>KPA Project No. 582.00</div></div></div>	<div>Drawing Title</div> <div>CENTRAL UTILITY</div> <div>PLANT SITE PLAN</div> <div><div>Approved: Project Director</div><div>-</div><div>VAPAHCs PLANNING AND ENGINEERING</div></div>	<div>Project Title</div> <div>ESTABLISH</div> <div>SUNNYVALE R AND D</div> <div>CAMPUS</div> <div><div>Location</div><div>1080 INNOVATION WAY, SUNNYVALE, CA 94085</div></div> <div><div>Date</div><div>4/30/2017</div></div> <div><div>Checked</div><div>PWP</div></div> <div><div>Drawn</div><div>KPA TEAM</div></div>	<div>Project Number</div> <div>640-397</div> <div><div>Building Number</div><div>1002</div></div> <div><div>Drawing Number</div><div>MS100</div><div>Dwg. of</div></div>	<div>Office of</div> <div>Construction</div> <div>and Facilities</div> <div>Management</div> <div><div>VA</div><div>PAHCs</div><div>Veterans Affairs</div><div>Peds - Alter Health Care System</div></div>
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2. REFER TO SHEET MH102 FOR CONTINUATION OF HVAC WORK.
3. FOR SPACES WITH OPEN CEILING, SHOP DRAWINGS MUST BE APPROVED BY THE ARCHITECT BEFORE INSTALLATION. CABLES OR EQUIPMENT CONTROLS CABLEING SHALL BE ROUTED ON TOP OF DUCT OUT OF VIEW FROM BELOW. PIPES SHALL BE INSTALLED IN A CLEAN AND ORDERLY FASHION.
4. ALL EXPOSED (VISIBLE IN SPACE) DUCTWORK IN THE OCCUPIED CONTAINED SPACES SHALL BE FABRICATED FROM DOUBLE WALL, FLAT OVAL OR ROUND DUCT WITH GALVANIZED OR GALVALUME AND NON-PERFORATED GALVANIZED INNER LINING WITH A 1 INCH THICK GLASS FIBER INSULATION BETWEEN THE TWO WALL. DUCT FINISH AND FINISHING SHALL BE AS SPECIFIED.
5. ALL DUCT UPSTREAM OF TERMINAL UNIT BOX SHALL BE SAME SIZE AS INLET IF LENGTH IS UNDER 0 (5) FIVE TIMES DUCT DIAMETERS. MINIMUM DUCT LENGTH SHALL BE 4 FEET. INLET TO NEXT DUCT SHALL BE IF LENGTH IS GREATER THAN (6) FIVE DUCT DIAMETERS AND REDUCE TO INLET SIZE AT CONNECTION.
6. NO FLEXIBLE DUCTWORK WILL BE ALLOWED IN AREAS WITHOUT CEILING.
7. EACH BRANCH TO AIR DEVICE SHALL HAVE MANUAL VOLUME DAMPER. INSTALL DAMPER CLOSE TO MAIN DUCT CONNECTION AS POSSIBLE.
8. ALL EXPOSED DUCT TO BE AT LEAST 10" AFF OTHERWISE INDICATED.
9. MECHANICAL CONTRACTOR TO COORDINATE HVAC DUCTWORK, PIPING, FIRE SPRINKLER AND ELECTRICAL TRADES DURING SHOP DRAWINGS TO AVOID CONFLICTS DURING CONSTRUCTION.
10. ALL DUCTWORK SHALL BE SEALED AND TESTED TO ENSURE DUCT LEAKAGE SHALL BE WITHIN TOLERANCE SET FORTH IN SPECIFICATIONS. SEAL DUCTWORK RANSVERSERS AND LONGITUDINAL JOINTS AND SEAMS AND DUCT TAPS.
11. PROVIDE ALL MAINTENANCE CLEARANCE REQUIRED FOR TERMINAL UNIT BOXES AND NOT WATER REHEAT COILS, VALVES, FAN MOTORS, AND ELECTRICAL PANELS.
12. ALL DUCT DUCT OFFSETS AND DUCT TRANSITIONS WHEN PASSING BELOW BEAM OR DUE TO OTHER INTERFERENCE WHETHER SHOWN OR NOT ON PLANS. DUCT TRANSITIONS SHALL BE EQUIVALENT SHOP DRAWINGS.
13. CONTRACTOR'S SHOP DRAWINGS TO INDICATE DUCT ELEVATIONS.
14. DUCT INSULATION JACKET AND DUCT PAINT TO COMPLY WITH INSTALLATION SPECIFICATION
15. COORDINATE ALL DIFFUSER/GRILLE FINISHES WITH ARCHITECT.
16. PROVIDE YOUNG REGULATOR REMOTE OPERATOR DAMPER WHERE DAMPER IS NOT ACCESSIBLE.
17. ALL DUCTWORK DIMENSIONS SHOWN ON THE DRAWINGS ARE NET, INSIDE MEASUREMENTS.
18. OTHER THAN SHORT (NOT MORE THAN 8' LONG) FLEX CONNECTION AT TERMINAL UNIT INLET, NO FLEXIBLE DUCTWORK TO BE PERMITTED IN ANY SPACE.
19. BOTTOM OF ROUND DIFFUSERS IN OPEN CEILING SPACES ON FIRST FLOOR SHALL BE LOCATED 9'0" AFF.



<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>CONSULTANTS:</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>BRYAN BENNO BRAUER, P.E. CONSULTING ENGINEER PO BOX 2586, TRUCKEE, CA 96160 (530)582-8663 BRYAN@BBBRAUER.COM</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>ARSENIO ORTEGA, P.E. CONSULTING ENGINEER 5 Third Street, Suite 716 San Francisco, CA 94103 (415) 546-0490 tel -0491 fax</p> </div> </div> <div style="width: 30%;"> <p>Stamp and Signature</p> <div style="border: 1px solid black; border-radius: 50%; width: 100px; height: 100px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">  </div> </div> <div style="width: 30%;"> <p>ARCHITECT/ENGINEERS:</p> <div style="display: flex; align-items: center;"> <div style="text-align: center; margin-right: 10px;">  KPA <small>THE KPA GROUP</small> </div> <div> <p>ENGINEERS ARCHITECTS 6700 KOLL CENTER PARKWAY SUITE 125 PLEASANTON, CALIFORNIA 94566 TEL 925.223.8217 www.thekpagroup.com <small>©THE KPA GROUP 2017 KPA Project No. 582.00</small></p> </div> </div> </div> </div> <div style="width: 30%;"> <p>Drawing Title MECHANICAL HVAC FIRST FLOOR PLAN</p> <p>Approved Project Director - - VAPAHCS PLANNING AND ENGINEERING</p> </div> <div style="width: 30%;"> <p>Project Title ESTABLISH SUNNYVALE R AND D CAMPUS</p> <p>Location 1080 INNOVATION WAY, SUNNYVALE, CA 94085</p> <div style="display: flex; justify-content: space-between;"> <div> <p>Date 4/30/2017</p> </div> <div> <p>Checked PWP</p> </div> <div> <p>Drawn KPA TEAM</p> </div> </div> </div> <div style="width: 10%;"> <p>Project Number 640-397</p> <p>Building Number 1002</p> <p>Drawing Number MH101</p> <p>Dwg. of</p> </div> <div style="width: 10%;"> <p style="text-align: center;">Office of Construction and Facilities Management</p> <div style="text-align: center;">  <small>Veterans Affairs Public Health Care System</small> </div> </div>

three inches = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot



- KEY NOTES:**
- SUPPLY AIR DUCT FROM ROOF.
 - SUPPLY AIR DUCT DOWN TO FIRST FLOOR.
 - RETURN AIR DUCT FROM ROOF.
 - RETURN AIR DUCT FROM FIRST FLOOR.
 - EXHAUST AIR DUCT TO ROOF.
 - EXHAUST AIR DUCT FROM FIRST FLOOR.
 - SPLIT DX FAN COIL UNIT. PROVIDE SECONDARY DRAIN PAN.
 - EGOCRATE RETURN, STEEL BORDER AND FRAME. 1 X 1 X 1 INCH ALUMINUM GRID. PROVIDE INTERMEDIATE SUPPORTS IF REQUIRED TO AVOID GRILLE DEFLECTION.
 - DDC CONTROL PANEL.
 - SMOKE DAMPER SD-1 AT SMOKE RATED WALL.
 - 1-1/2 HOUR COMBINATION FIRE/SMOKE DAMPER CFSD-1 AT SECOND FLOOR PENETRATION OPENING.

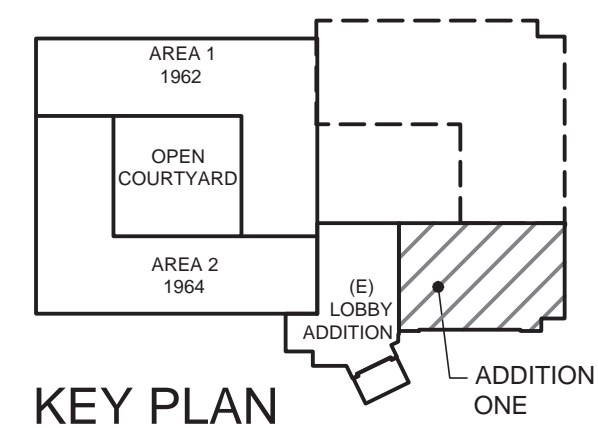
- SHEET NOTES:**
- REFER TO SHEETS MH101 AND MH 103 FOR CONTINUATION OF HVAC WORK.
 - FOR SPACES WITH OPEN CEILING, AESTHETICS OF THE FINAL INSTALLED SYSTEMS WILL NEED TO BE APPROVED BY THE ARCHITECT. CONTROLS CABLING SHALL BE ROUTED ON TOP OF DUCT SO OCCUPANTS DO NOT SEE. PIPE SHALL BE INSTALLED IN A CLEAN AND ORDERLY FASHION. DUCT UPSTREAM OF VAV SHALL BE ALUMINUM BACKED BATT INSULATION. HW PIPE SHALL HAVE PVC JACKET.
 - ALL EXPOSED (VISIBLE IN SPACE) DUCTWORK IN THE OCCUPIED CONDITIONED SPACES SHALL BE FABRICATED FROM DOUBLE WALL FLAT OVAL OR ROUND DUCT WITH GALVANIZED OUTER SHELL AND NONPERFORATED GALVANIZED INNER LINING WITH A 1 INCH THICK GLASS FIBER INSULATION BETWEEN THE TWO WALL. DUCT PAINTING AND FINISH AS ELSEWHERE SPECIFIED.
 - ALL DUCT UPSTREAM OF TERMINAL UNIT BOX SHALL BE SAME SIZE AS INLET IF LENGTH IS UNDER (5) FIVE TIMES DUCT DIAMETERS. MINIMUM DUCT LENGTH SHALL BE 4 FEET. UPSIZE TO NEXT ROUND DUCT IF LENGTH IS GREATER THAN (5) FIVE DUCT DIAMETERS AND REDUCE TO INLET SIZE AT CONNECTION.
 - NO FLEXIBLE DUCTWORK WILL BE ALLOWED IN AREAS WITHOUT CEILING.
 - EACH BRANCH TO AIR DEVICE SHALL HAVE MANUAL VOLUME DAMPER. INSTALL DAMPER CLOSE TO MAIN CONNECTION, AS FAR AS POSSIBLE FROM OUTLET.
 - ALL EXPOSED DUCT TO BE AT LEAST 10' AFF. ABOVE CORE OFFICE SPACES. DUCT TO BE AS INDICATED.
 - MECHANICAL CONTRACTOR TO COORDINATE HVAC DUCTWORK, PIPING, FIRE SPRINKLER AND ELECTRICAL TRADES DURING SHOP DRAWINGS TO AVOID CONFLICTS DURING CONSTRUCTION.
 - ALL DUCTWORK SHALL BE SEALED AND TESTED TO ENSURE DUCT LEAKAGE SHALL BE WITHIN TOLERANCE SET FORTH IN SPECIFICATIONS. SEAL DUCTWORK TRANSVERSE AND LONGITUDINAL JOINTS AND SEAMS AND DUCT TAPS.
 - PROVIDE ALL MAINTENANCE CLEARANCE REQUIRED FOR TERMINAL UNIT BOXES, HOT WATER REHEAT COILS, VALVES, FAN MOTORS, AND ELECTRICAL PANELS.
 - PROVIDE DUCT OFFSETS AND DUCT TRANSITIONS WHEN PASSING BELOW BEAM OR DUE TO OTHER INTERFERENCE WHETHER OR NOT SHOWN ON PLANS. DUCT TRANSITIONS SHALL BE EQUIVALENT DUCT SIZE.
 - CONTRACTOR'S SHOP DRAWINGS TO INDICATE DUCT ELEVATIONS.
 - DUCT INSULATION JACKET AND DUCT PAINT TO MATCH ADJACENT ARCHITECTURAL FEATURES, WALLS, CEILINGS, ETC.
 - COORDINATE ALL DIFFUSER/GRILLE FINISHES WITH ARCHITECT.
 - PROVIDE YOUNG REGULATOR REMOTE OPERATOR DAMPER WHERE CEILING IS NON-ACCESSIBLE.
 - ALL DUCT SIZES INDICATED ARE NET INSIDE DIMENSIONS. ALLOW FOR INSULATION AS INDICATED AND SPECIFIED FOR DUCT FABRICATION.
 - OTHER THAN SHORT (NOT MORE THAN 6" LONG) FLEX CONNECTION AT TERMINAL UNIT INLETS. NO FLEXIBLE DUCT IS PERMITTED IN EXPOSED LOCATIONS.
 - BOTTOM OF ROUND DIFFUSERS IN OPEN CEILING SPACES ON SECOND FLOOR SHALL BE LOCATED 10 FT AFF.

<div>Revisions</div> <div>Date</div>	<div>CONSULTANTS:</div> <div>BRYAN BENNO BRAUER,P.E. CONSULTING ENGINEER PO BOX 2566, TRUCKEE, CA 96160 (530)582-8883 BRYAN@BBBRAUER.COM</div> <div>ARSENIO ORTEGA, P.E. CONSULTING ENGINEER 5 Third Street, Suite 716 San Francisco, CA 94103 (415) 546-0490 tel -0491 fax</div>	<div>Stamp and Signature</div> <div></div>	<div>ARCHITECT/ENGINEERS:</div> <div>KPA THE KPA GROUP ENGINEERS ARCHITECTS 6700 KOLL CENTER PARKWAY SUITE 125 PLEASANTON, CALIFORNIA 94566 TEL 925.223.8217 www.thekpagroup.com ©THE KPA GROUP 2017 KPA Project No. 582.00</div>	<div>Drawing Title</div> <div>MECHANICAL HVAC SECOND FLOOR PLAN</div> <div>Approved Project Director</div> <div>VAPAHCS PLANNING AND ENGINEERING</div>	<div>Project Title</div> <div>ESTABLISH SUNNYVALE R AND D CAMPUS</div> <div>Location</div> <div>1080 INNOVATION WAY, SUNNYVALE, CA 94085</div> <div>Date</div> <div>4/30/2017</div> <div>Checked</div> <div>PWP</div> <div>Drawn</div> <div>KPA TEAM</div>	<div>Project Number</div> <div>640-397</div> <div>Building Number</div> <div>1002</div> <div>Drawing Number</div> <div>MH102</div> <div>Dwg of</div> <div>1</div>	<div>Office of Construction and Facilities Management</div> <div></div>
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REFER TO SHEET MH101 FOR CONTINUATION OF HVAC WORK.

MECHANICAL CONTRACTOR TO COORDINATE HVAC DUCTWORK, PIPING, FIRE SPRINKLER AND ELECTRICAL TRADES DURING SHOP DRAWINGS TO AVOID CONFLICTS DURING CONSTRUCTION.

ALL DUCTWORK SHALL BE SEALED AND TESTED TO ENSURE DUCT LEAKAGE SHALL BE WITHIN TOLERANCE SET FORTH IN SPECIFICATIONS. SEAL DUCTWORK TRANSVERSE AND LONGITUDINAL JOINTS AND SEAMS AND DUCT TAPS.






Office of
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and Facilities
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Veterans Affairs Palo Alto Health Care System

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BRYAN BENNO BRAUER, P.E. CONSULTING ENGINEER PO BOX 2556, TRUCKEE, CA 96160 (530)685-8683 BRYAN@BBBRAUER.COM				 ENGINEERS ARCHITECTS 6700 KOLL CENTER PARKWAY SUITE 125 PLEASANTON, CALIFORNIA 94566 TEL 925.223.8217 www.thekpagroup.com ©THE KPA GROUP 2017 KPA Project No. 582.00		MECHANICAL HVAC ROOF PLAN		ESTABLISH SUNNYVALE R AND D CAMPUS		640-397		Office of Construction and Facilities Management	
						Approved Project Director - - VAPAHCS PLANNING AND ENGINEERING		Location 1080 INNOVATION WAY, SUNNYVALE, CA 94085		Building Number 1002			
								Date 4/30/2017		Checked PWP		Drawing Number MH103	
										Drawn KPA TEAM		Dwg. of	
												 Veterans Affairs Palo Alto Health Care System	

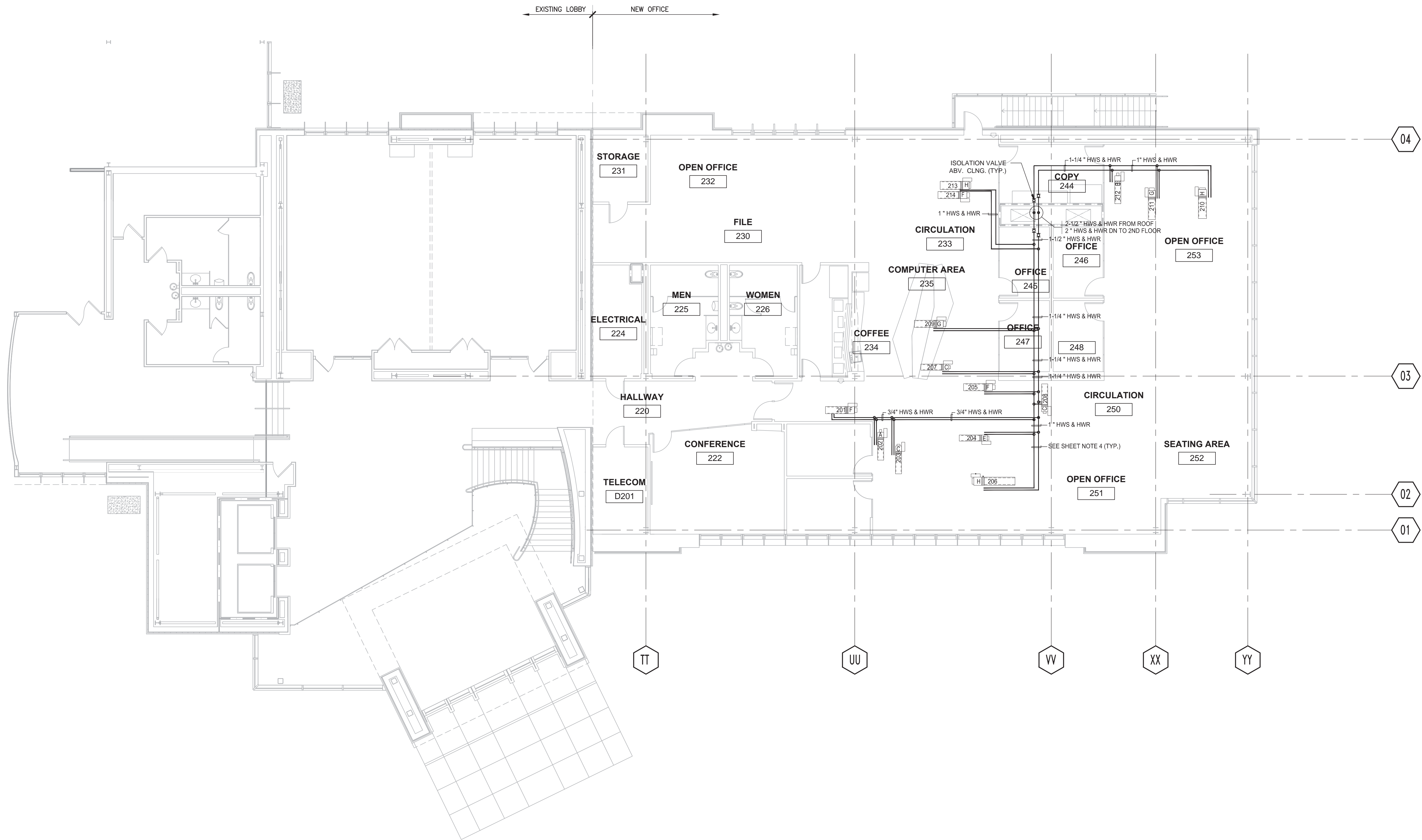


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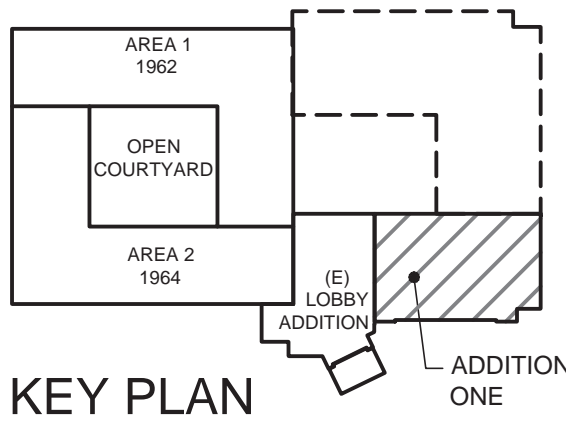
three eighths inch = one foot
one eighth inch = one foot
one quarter inch = one foot
three eighths inch = one foot
one half inch = one foot
one inch = one foot
three quarters inch = one foot
one and one half inches = one foot
two inches = one foot
three inches = one foot

SHEET NOTES:

1. REFER TO SHEET MP101 AND MH103 FOR CONTINUATION OF HVAC PIPING WORK.
2. FOR SPACES WITH OPEN CEILING, SHOP DRAWINGS MUST BE APPROVED BY THE ARCHITECT BEFORE ANY MATERIALS OR EQUIPMENT ARE INSTALLED.
3. PROVIDE ALL MAINTENANCE CLEARANCE REQUIRED FOR TERMINAL UNIT BOXES, HOT WATER REHEAT COILS, VALVES, FAN MOTORS, AND ELECTRICAL PANELS.
4. ALL RUNOUTS TO COILS SHALL BE 3/4" UNLESS OTHERWISE NOTED.



1 MECHANICAL PIPING SECOND FLOOR PLAN
1/8" = 1'-0"



FULLY SPRINKLERED

Revisions:	Date:	CONSULTANTS:	Stamp and Signature:	ARCHITECT/ENGINEERS:	Drawing Title:	Project Title:	Project Number:	Office of Construction and Facilities Management
		BRYAN BENNO BRAUER, P.E. CONSULTING ENGINEER PO BOX 2566, TRUCKEE, CA 96160 (530)582-8883 BRYAN@BBBRAUER.COM		ENGINEERS ARCHITECTS 6700 KOLL CENTER PARKWAY SUITE 125 PLEASANTON, CALIFORNIA 94566 TEL 925.223.8217 www.thekpagroup.com ©THE KPA GROUP 2017 KPA Project No. 582.00	MECHANICAL PIPING SECOND FLOOR PLAN	ESTABLISH SUNNYVALE R AND D CAMPUS	640-397	Office of Construction and Facilities Management
		ARSENIO ORTEGA, P.E. CONSULTING ENGINEER 5 Third Street, Suite 716 San Francisco, CA 94103 (415) 546-0490 tel -0491 fax			Approved Project Director:	Location:	Building Number:	Office of Construction and Facilities Management
					-	1080 INNOVATION WAY, SUNNYVALE, CA 94085	1002	Office of Construction and Facilities Management
					-	Date:	Drawing Number:	Office of Construction and Facilities Management
					VAPAHCS PLANNING AND ENGINEERING	4/30/2017	MP102	Office of Construction and Facilities Management
						Checked:	Dwg. of:	Office of Construction and Facilities Management
						PWP		Office of Construction and Facilities Management
						Drawn:		Office of Construction and Facilities Management
						KPA TEAM		Office of Construction and Facilities Management