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*Eli Margalit* 04/30/14  
SIGNATURE EXPIRATION DATE OF THE LICENSE

**WAHIAWA ARMY  
MECHANICAL  
IMPROVEMENTS**

77-230 KAMEHAMEHA HIGHWAY  
WAHIAWA, HI, 96786  
T.M.K.: 7-6-001:002

FOR:  
**DEPARTMENT OF  
DEFENSE  
OFFICE OF THE  
ADJUTANT GENERAL**

3949 DIAMOND HEAD RD.  
Honolulu, HI 96816

Mark	Description	Date
	100% CD	07-27-2012
	50% CD	06-15-2012
DATE	11-14-2011	
PROJECT NO.	10-2587.01	
CAD DWG FILE	2587.01_M0.1.dwg	
DRAWN BY	AC	
CHECKED BY	JH/EM	

**SHEET TITLE  
VENTILATION  
CALCULATIONS**

SCALE: NOTED ON DRAWINGS

**M0.3**

SHEET

Job No. 10-2587.01 Wahiawa Army MEI Ventilation Rates												
ASHRAE 62.1 VALUE	Room Number	110	105	104	107	103	118	203	202	204		
ROOM NAME	Office	Office	Office	Office	Office	Office	Classroom	Office	Office			
MAX OCCUPANCY	12	10	1	1	18	3	26	2	8			
Zone Primary Airflow	35.3	103	29	101	429	300	1106	150	150			
Zone Designation Effectiveness	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			ASHRAE 62.1 Table 5-2
CEILING HT	8	8	8	8	8	8	8	8	8			
ROOM AREA	486.7	485.8	89.3	89.3	258	313.3	857	200	200			
OUTDOOR AIRFLOW RATE AREA	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08			ASHRAE 62.1 Table 5-1
ASHRAE 62.1 OCCUPANT PER SQ FT (BY ACTUAL)	30	18	12	12	31	14	35	12	12			ASHRAE 62.1 Table 5-1
ZONE POPULATION	12	10	1	1	18	3	26	2	8			
OUTDOOR AIRFLOW RATE / PERSON	12	10	1	1	10	5	10	8	8			ASHRAE 62.1 Table 5-1
RESPIRATORY ZONE OUTDOOR AIRFLOW	144	141	11	11	112	38	417	22	24			ASHRAE 62.1 Table 5-1
ZONE OUTDOOR AIRFLOW	144	141	11	11	112	38	417	22	24			ASHRAE 62.1 Table 5-1
PRIMARY OUTDOOR AIR FRACTION	0.09	0.09	0.11	0.11	0.09	0.08	0.08	0.08	0.08			
Rp/Fz	127	126	8	8	100	17	261	15	15			
Rp/Fz	30	23	4	4	13	13	87	12	10			
SYSTEM POPULATION	30											
SYSTEM VENTILATION EFFICIENCY	1											
OCCUPANT DIVERSITY	1											
REQUIRED ZONE OUTDOOR INTAKE AIRFLOW	168	161	11	11	115	39	417	22	24			ASHRAE 62.1 Table 5-1
DESIGN ZONE OUTDOOR INTAKE AIRFLOW (BTU/HR)	180	170	15	15	130	45	540	30	40			
FINAL DESIGN ZONE OUTDOOR INTAKE AIRFLOW	145	145	13	13	113	38	400	20	45			
Ventilation Air Change (ACH)	2.6740	1.8779	1.1445	1.1445	1.3881	1.0549	2.9258	1.0000	1.8709			
Ventilation Source	O&A LOUVER	BF-1A	O&A LOUVER	O&A LOUVER	O&A LOUVER	ERV-1A						
unit CFM	143	175	115	38	403							

Job No. 10-2587.01 Wahiawa Army MEI Ventilation Rates												
ASHRAE 62.1 VALUE	Room Number	211 (L)	211 (R)	208	207	219	211	212	213	214	215	217
ROOM NAME	Classroom	Classroom	Office	Office	Office	Office	Office	Office	Office	Classroom	Classroom	
MAX OCCUPANCY	1	1	18	1	1	1	18	1	1	1	1	4
Zone Primary Airflow	430	260	870	270	270	325	1700	200	210	910	410	520
Zone Designation Effectiveness	1.2	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CEILING HT	8	8	8	8	8	8	8	8	8	8	8	8
ROOM AREA	417	188	845.1	148.8	88	88	1083.3	88	88	230.1	207.6	207.4
OUTDOOR AIRFLOW RATE AREA	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
ASHRAE 62.1 OCCUPANT PER SQ FT (BY ACTUAL)	2	6	21	7	10	10	31	31	10	4	15	13
ZONE POPULATION	1	1	18	1	1	1	18	1	1	1	4	4
OUTDOOR AIRFLOW RATE / PERSON	0	0	10	5	5	7	10	5	5	8	10	10
RESPIRATORY ZONE OUTDOOR AIRFLOW	85	10	189	14	11	11	188	11	11	18	88	88
ZONE OUTDOOR AIRFLOW	85	10	189	14	11	11	188	11	11	18	88	88
PRIMARY OUTDOOR AIR FRACTION	0.08	0.08	0.04	0.07	0.08	0.08	0.12	0.08	0.08	0.08	0.18	0.12
Rp/Fz	0	0	101	6	6	6	101	6	6	6	42	20
Rp/Fz	20	10	27	9	6	6	100	6	6	12	10	13
SYSTEM POPULATION	41											
SYSTEM VENTILATION EFFICIENCY	1											
OCCUPANT DIVERSITY	1											
REQUIRED ZONE OUTDOOR INTAKE AIRFLOW	75	10	189	14	11	11	188	10	10	18	83	83
DESIGN ZONE OUTDOOR INTAKE AIRFLOW (BTU/HR)	18	10	205	15	15	15	180	15	15	15	60	60
FINAL DESIGN ZONE OUTDOOR INTAKE AIRFLOW	71	10	200	13	13	13	180	20	20	20	60	60
Ventilation Air Change (ACH)	0.2887	0.2843	2.0766	0.8720	1.0701	1.0701	1.0833	1.3469	1.3468	0.8780	1.2084	1.2012
Ventilation Source			ERV-2A	O&A LOUVER	ERV-2B	O&A LOUVER						
unit CFM			300									

Job No. 10-2587.01 Wahiawa Army MEI Ventilation Rates												
ASHRAE 62.1 VALUE	Room Number	118	118	120	121	122	123	124	125	126	127	128
ROOM NAME	Office	Office	Office	Office	Lobby	Office	Classroom	Office	Office	Office	Office	Office
MAX OCCUPANCY	15	10	1	1	2	18	1	15	13	6	1	4
Zone Primary Airflow	100	800	20	100	800	470	200	400	820	400	150	100
Zone Designation Effectiveness	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CEILING HT	8	8	8	8	8	8	8	8	8	8	8	8
ROOM AREA	386	825.4	83.2	83.4	474.8	480	450	383.8	561.3	433.4	83	203.8
OUTDOOR AIRFLOW RATE AREA	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
ASHRAE 62.1 OCCUPANT PER SQ FT (BY ACTUAL)	39	18	11	10	4	75	2	15	22	11	14	10
ZONE POPULATION	18	18	1	1	2	18	1	15	13	6	1	4
OUTDOOR AIRFLOW RATE / PERSON	10	12	5	5	3	10	0	10	10	8	8	8
RESPIRATORY ZONE OUTDOOR AIRFLOW	174	138	11	11	28	124	22	172	184	81	11	32
ZONE OUTDOOR AIRFLOW	174	138	11	11	28	124	22	172	184	81	11	32
PRIMARY OUTDOOR AIR FRACTION	0.08	0.08	0.08	0.11	0.08	0.08	0.08	0.13	0.08	0.13	0.07	0.11
Rp/Fz	150	150	5	5	0	100	0	100	100	25	5	20
Rp/Fz	34	28	6	6	23	24	23	23	24	20	8	17
SYSTEM POPULATION	79											
SYSTEM VENTILATION EFFICIENCY	1											
OCCUPANT DIVERSITY	1											
REQUIRED ZONE OUTDOOR INTAKE AIRFLOW	171	138	11	11	28	124	22	172	184	81	11	32
DESIGN ZONE OUTDOOR INTAKE AIRFLOW (BTU/HR)	205	150	15	15	30	100	15	225	185	72	10	60
FINAL DESIGN ZONE OUTDOOR INTAKE AIRFLOW	175	140	18	18	28	125		175	175	90	15	35
Ventilation Air Change (ACH)	2.4481	1.4824	1.0728	1.0680	0.4212	2.0833	0.0800	3.4213	2.2383	0.8813	1.2087	1.0822
Ventilation Source	ERV-2A							ERV-2B				
unit CFM	340							608				





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*Eli Margalit* 04/30/14  
SIGNATURE EXPIRATION DATE OF THE LICENSE

**WAHIAWA ARMORY  
MECHANICAL  
IMPROVEMENTS**

77-230 KAMEHAMEHA HIGHWAY  
WAHIAWA, HI, 96786  
T.M.K.: 7-6-001:002

FOR:  
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3949 DIAMOND HEAD RD.  
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ISSUE		
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SHEET TITLE		

**FIRST FLOOR  
DEMOLITION &  
CONSTRUCTION  
PHASING PLAN**

SCALE: NOTED ON DRAWINGS

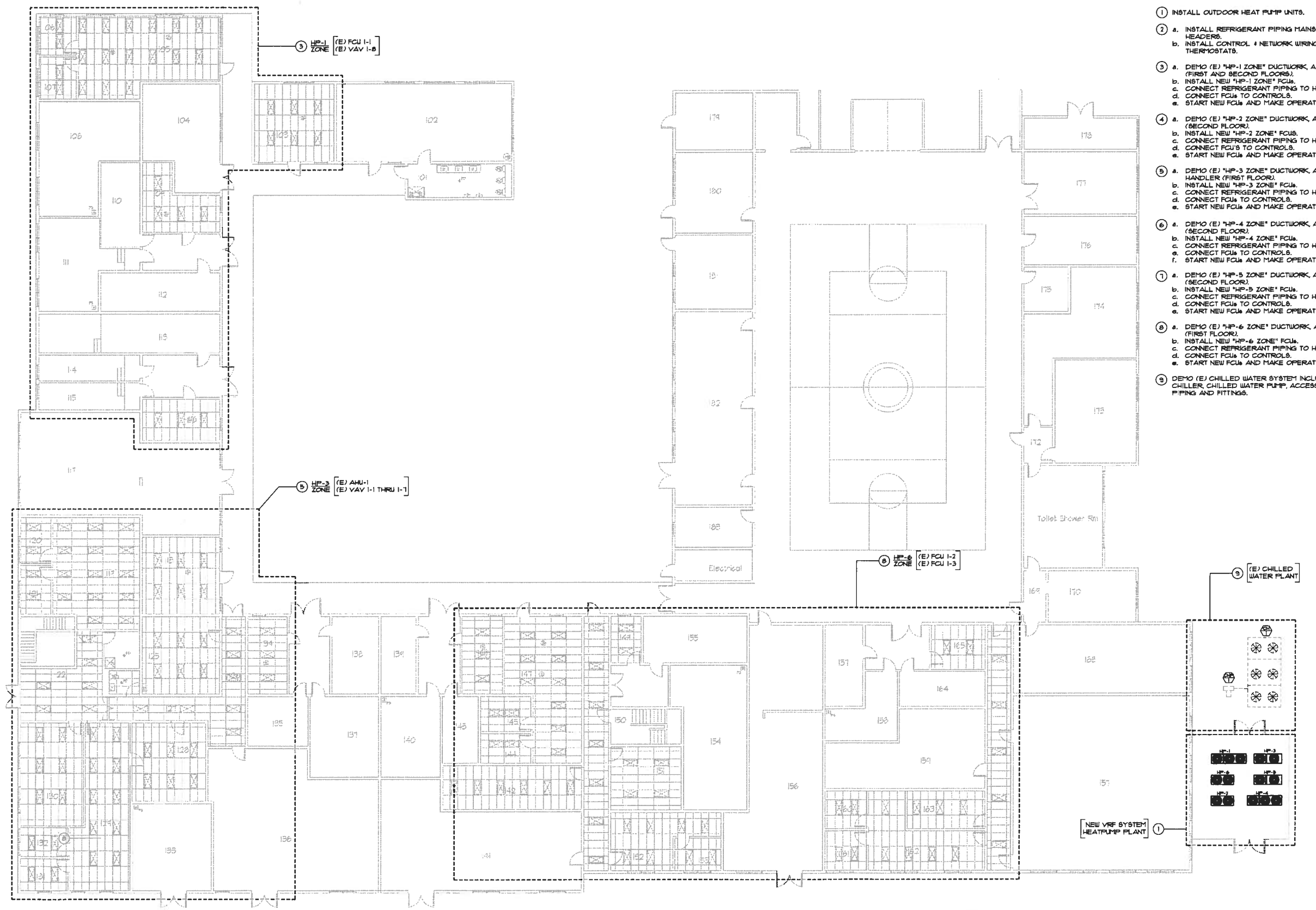
SHEET

**M0.5**

**DEMOLITION & CONSTRUCTION  
PHASING PLAN**

THE RETROFIT OF THE VRF SYSTEM IS TO BE PERFORMED WITH MINIMUM DISRUPTION TO BUILDING OCCUPANCY. THE FOLLOWING DEMOLITION & CONSTRUCTION PHASING PLAN IS DESIGNED TO ENSURE NO MORE THAN ONE WEEK OF AIR CONDITIONING DOWNTIME TO ANY INDIVIDUAL CONTROL ZONE OF THE PROJECT.

1. INSTALL OUTDOOR HEAT PUMP UNITS.
2. a. INSTALL REFRIGERANT PIPING MAINS TO DISTRIBUTION HEADERS.  
b. INSTALL CONTROL & NETWORK WIRING, CONTROLLERS & THERMOSTATS.
3. a. DEMO (E) "HP-1 ZONE" DUCTWORK, AIR OUTLETS, VAVs & FCUs (FIRST AND SECOND FLOORS).  
b. INSTALL NEW "HP-1 ZONE" FCUs.  
c. CONNECT REFRIGERANT PIPING TO HP-1.  
d. CONNECT FCUs TO CONTROLS.  
e. START NEW FCUs AND MAKE OPERATIONAL FOR OCCUPANTS.
4. a. DEMO (E) "HP-2 ZONE" DUCTWORK, AIR OUTLETS & VAVs (SECOND FLOOR).  
b. INSTALL NEW "HP-2 ZONE" FCUs.  
c. CONNECT REFRIGERANT PIPING TO HP-2.  
d. CONNECT FCUs TO CONTROLS.  
e. START NEW FCUs AND MAKE OPERATIONAL FOR OCCUPANTS.
5. a. DEMO (E) "HP-3 ZONE" DUCTWORK, AIR OUTLETS, VAVs & AIR HANDLER (FIRST FLOOR).  
b. INSTALL NEW "HP-3 ZONE" FCUs.  
c. CONNECT REFRIGERANT PIPING TO HP-3.  
d. CONNECT FCUs TO CONTROLS.  
e. START NEW FCUs AND MAKE OPERATIONAL FOR OCCUPANTS.
6. a. DEMO (E) "HP-4 ZONE" DUCTWORK, AIR OUTLETS & AHU (SECOND FLOOR).  
b. INSTALL NEW "HP-4 ZONE" FCUs.  
c. CONNECT REFRIGERANT PIPING TO HP-4.  
d. CONNECT FCUs TO CONTROLS.  
f. START NEW FCUs AND MAKE OPERATIONAL FOR OCCUPANTS.
7. a. DEMO (E) "HP-5 ZONE" DUCTWORK, AIR OUTLETS, AHU & FCUs (SECOND FLOOR).  
b. INSTALL NEW "HP-5 ZONE" FCUs.  
c. CONNECT REFRIGERANT PIPING TO HP-5.  
d. CONNECT FCUs TO CONTROLS.  
e. START NEW FCUs AND MAKE OPERATIONAL FOR OCCUPANTS.
8. a. DEMO (E) "HP-6 ZONE" DUCTWORK, AIR OUTLETS & FCUs (FIRST FLOOR).  
b. INSTALL NEW "HP-6 ZONE" FCUs.  
c. CONNECT REFRIGERANT PIPING TO HP-6.  
d. CONNECT FCUs TO CONTROLS.  
e. START NEW FCUs AND MAKE OPERATIONAL FOR OCCUPANTS.
9. DEMO (E) CHILLED WATER SYSTEM INCLUDING: AIR COOLED CHILLER, CHILLED WATER PUMP, ACCESSIBLE CHILLED WATER PIPING AND FITTINGS.



**1 FIRST FLOOR DEMOLITION & CONSTRUCTION PHASING PLAN**  
SCALE: 3/32"=1'-0"

P:\2010 Projects\10-2587-01 Wahiawa Armory - Mechanical Improvements\CD\mep\phasing plan\2012\_01\_04.dwg



**DEMO PHASING NOTE:**  
 DEMOLITION TO BE CONDUCTED IN PHASES AS  
 DETAILED IN PHASING PLAN, SEE SHEETS M03 & M06

**GENERAL SHEET NOTES**

- A. DEMOLISH (E) HVAC SYSTEM COMPONENTS AS SHOWN, INCLUDING CHILLER, AIR HANDLING UNITS, FAN COIL UNITS AND ASSOCIATED DUCTWORK, SUPPLY AIR & RETURN AIR OUTLETS, CHILLED WATER PIPING FITTING, VALVES, CONDENSATE DRAIN PIPING AND ASSOCIATED SUPPORTS.
- B. (E) VENTILATION FANS & DUCTWORK TO REMAIN.
- C. DUCTWORK & PIPING IN EXTERIOR CORRIDOR CEILING SPACE TO REMAIN.
- D. PATCH AND SEAL ALL WALL PENETRATIONS & OPENINGS CREATED BY DUCT AND PIPE REMOVAL.
- E. REPLACE DAMAGED OR MISSING CEILING TILES WHERE CEILING OUTLETS ARE REMOVED OR IN THE COURSE OF THE WORK.
- F. DISPOSAL OF ALL DEMOLISHED EQUIPMENT AND MATERIAL IS THE RESPONSIBILITY OF CONTRACTOR. SOLID WASTE REPORT MUST BE SUBMITTED.

**SHEET LEGEND & KEY NOTES**

- 1 [Symbol] (E) DUCTWORK TO REMAIN IN PLACE
- 2 [Symbol] REMOVE (E) DUCTWORK INSULATION & SUPPORTS
- 3 [Symbol] (E) PIPING TO REMAIN
- 4 [Symbol] REMOVE (E) PIPING, INSULATION & SUPPORTS
- 5 [Symbol] REMOVE (E) CEILING SUPPLY AIR DIFFUSER
- 6 [Symbol] REMOVE (E) CEILING RETURN AIR GRILLE
- 7 [Symbol] REMOVE (E) WALL REGISTER OR GRILLE
- 8 [Symbol] DISCONNECT & REMOVE (E) FAN COIL UNIT AND ASSOCIATED SUPPORTS
- 9 [Symbol] CAP (E) DUCTWORK TO REMAIN IN PLACE
- 10 [Symbol] CAP (E) PIPING TO REMAIN IN PLACE



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 Signature: *Eli Margalit* 04/30/14  
 EXPIRATION DATE OF THE LICENSE

**WAHIAWA ARMORY  
 MECHANICAL  
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77-230 KAMEHAMEHA HIGHWAY  
 WAHIAWA, HI, 96786  
 T.M.K.: 7-6-001:002

FOR:  
**DEPARTMENT OF  
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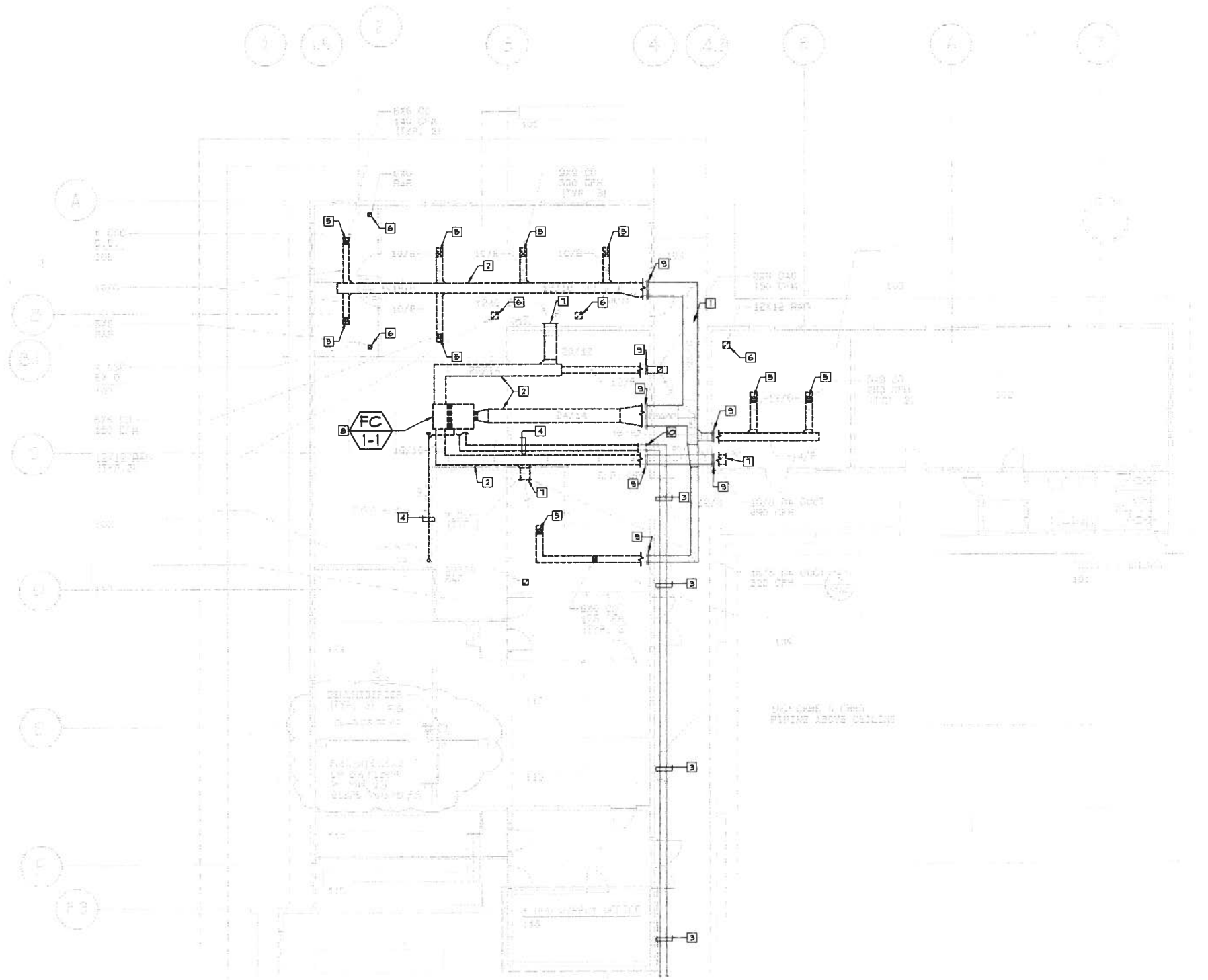
3949 DIAMOND HEAD RD.  
 Honolulu, HI 96816

Mark	Description	Date
	100% CD	07-27-2012
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DATE	11-14-2011	
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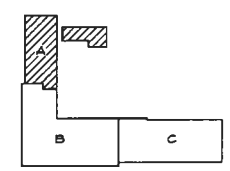
**SECTION A -  
 FIRST FLOOR  
 DEMO PLAN**

SCALE: NOTED ON DRAWINGS

**M1.1A**  
 SHEET



**KEY PLAN**



1 SECTION A - FIRST FLOOR DEMO PLAN

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

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

1 INCH AT FULL SCALE.  
 IF NOT 1 INCH THIS DRAWING  
 HAS BEEN REPRODUCED  
 (NOT TO SCALE EITHER)



**DEMO PHASING NOTE:**  
DEMOLITION TO BE CONDUCTED IN PHASES AS DETAILED IN PHASING PLAN, SEE SHEETS MOD 4 MO.6.

- GENERAL SHEET NOTES**
- A. DEMOLISH (E) HVAC SYSTEM COMPONENTS AS SHOWN, INCLUDING CHILLER, AIR HANDLING UNITS, FAN COIL UNITS AND ASSOCIATED DUCTWORK, SUPPLY AIR & RETURN AIR OUTLETS, CHILLED WATER PIPING, FITTING, VALVES, CONDENSATE DRAIN PIPING AND ASSOCIATED SUPPORTS.
  - B. (E) VENTILATION FANS & DUCTWORK TO REMAIN.
  - C. DUCTWORK & PIPING IN EXTERIOR CORRIDOR CEILING SPACE TO REMAIN.
  - D. PATCH AND SEAL ALL WALL PENETRATIONS & OPENINGS CREATED BY DUCT AND PIPE REMOVAL.
  - E. REPLACE DAMAGED OR MISSING CEILING TILES WHERE CEILING OUTLETS ARE REMOVED OR IN THE COURSE OF THE WORK.
  - F. DISPOSAL OF ALL DEMOLISHED EQUIPMENT AND MATERIAL IS THE RESPONSIBILITY OF CONTRACTOR. SOLID WASTE REPORT MUST BE SUBMITTED.

- SHEET LEGEND & KEY NOTES**
- 1 [Symbol] (E) DUCTWORK TO REMAIN IN PLACE
  - 2 [Symbol] REMOVE (E) DUCTWORK INSULATION & SUPPORTS
  - 3 [Symbol] (E) PIPING TO REMAIN
  - 4 [Symbol] REMOVE (E) PIPING, INSULATION & SUPPORTS
  - 5 [Symbol] REMOVE (E) CEILING SUPPLY AIR DIFFUSER
  - 6 [Symbol] REMOVE (E) CEILING RETURN AIR GRILLE
  - 7 [Symbol] REMOVE (E) WALL REGISTER OR GRILLE
  - 8 [Symbol] DISCONNECT & REMOVE (E) FAN COIL, VAV OR AIR HANDLING UNIT AND ASSOCIATED SUPPORTS
  - 9 [Symbol] CAP (E) DUCTWORK TO REMAIN IN PLACE
  - 10 [Symbol] CAP (E) PIPING TO REMAIN IN PLACE
  - 11 [Symbol] (E) VENTILATION SUPPLY FAN TO REMAIN IN PLACE



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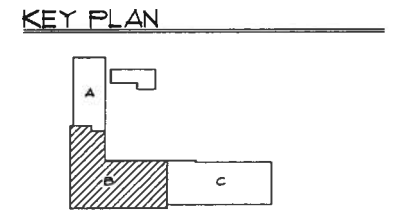
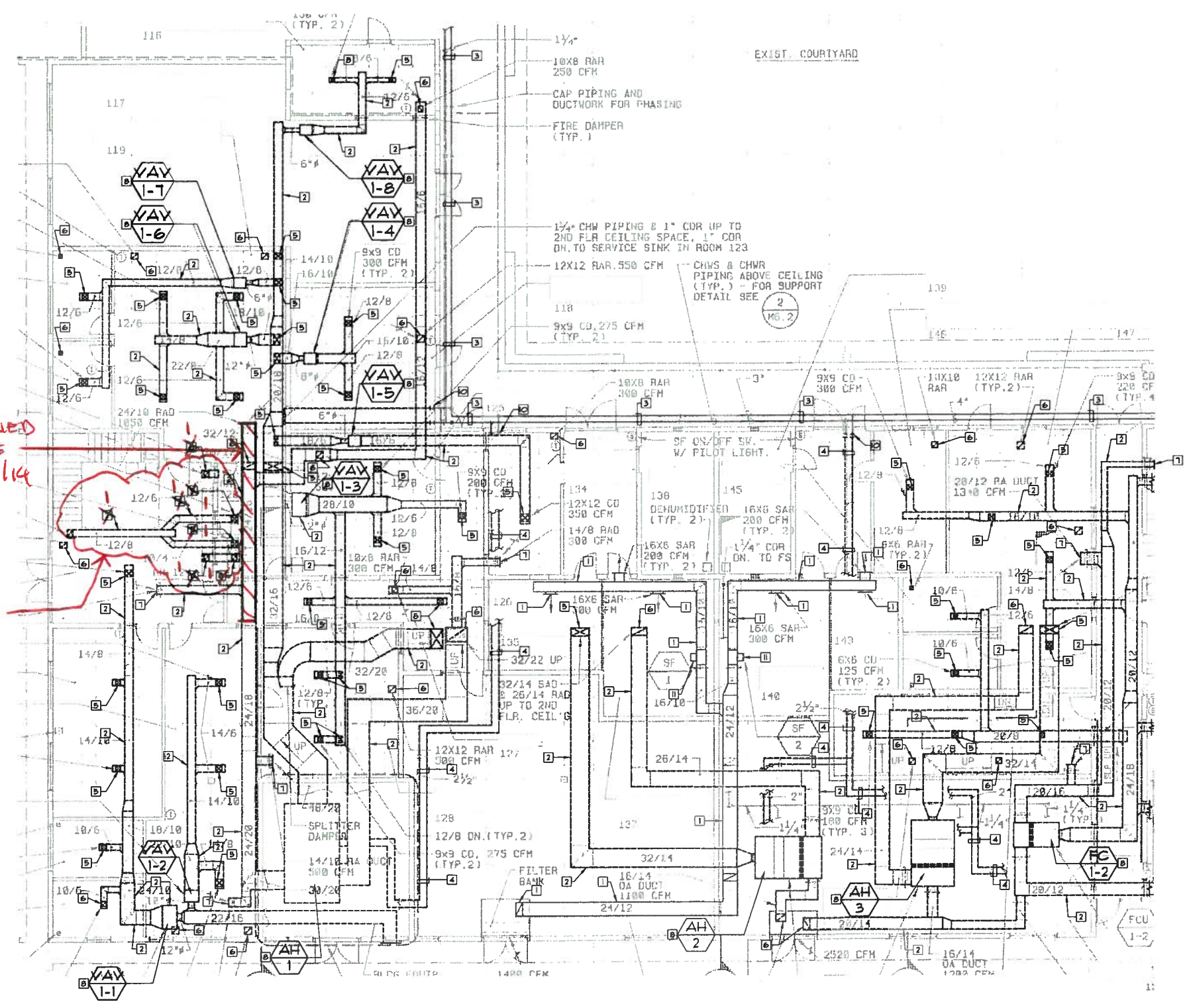
**WAHIAWA ARMORY MECHANICAL IMPROVEMENTS**  
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DRAWN BY	AC	
CHECKED BY	JH/EM	

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**SECTION B - FIRST FLOOR DEMO PLAN**  
SCALE: NOTED ON DRAWINGS  
**M1.1B**  
SHEET



1 SECTION B - FIRST FLOOR DEMO PLAN

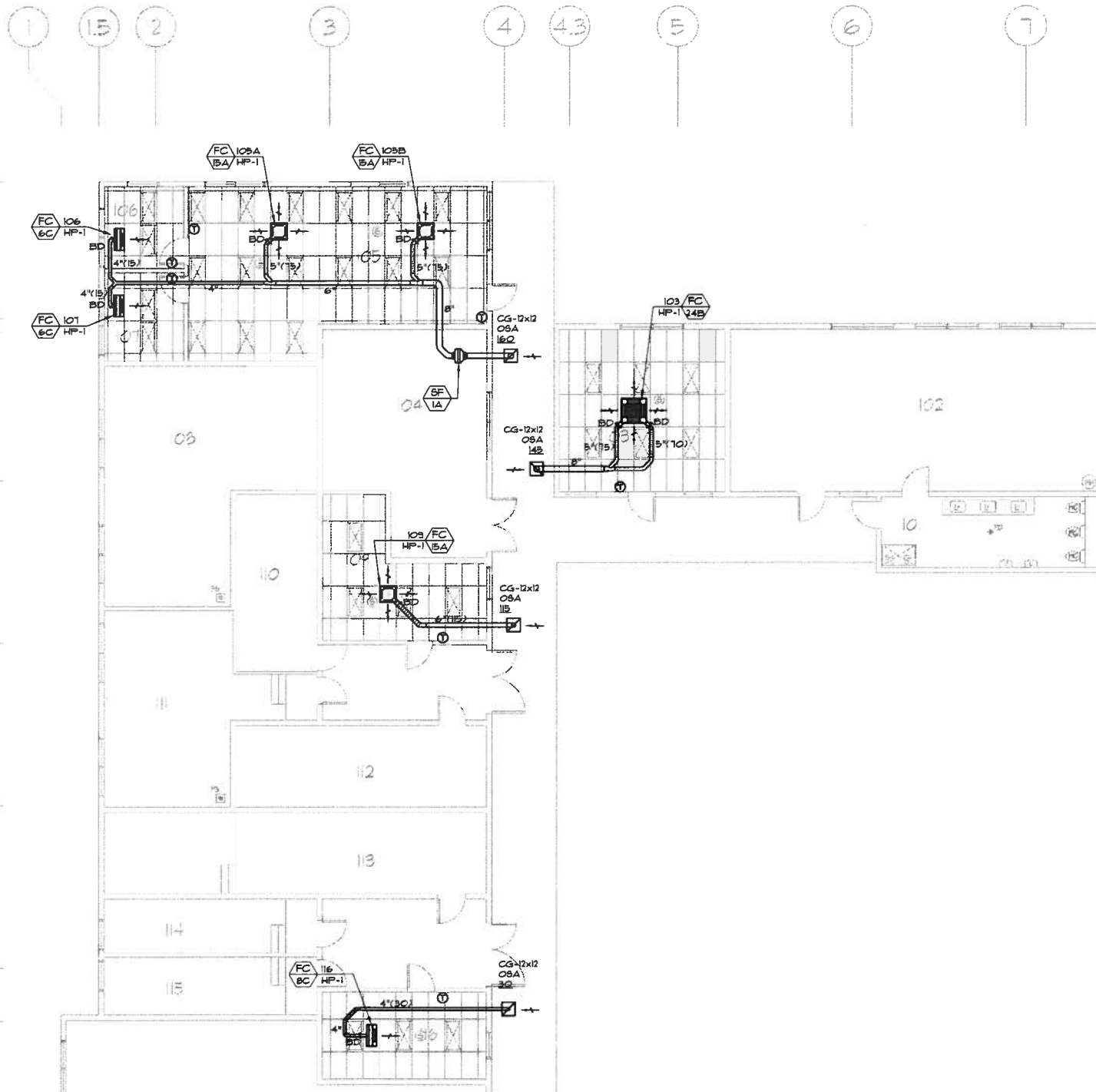
SCALE: 1/8" = 1'-0"

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

1 INCH AT FULL SCALE. IF NOT 1 INCH THIS DRAWING HAS BEEN REPRODUCED (NOT TO SCALE BASIS)







1 SECTION A - FIRST FLOOR HVAC PLAN

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

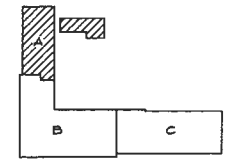
GENERAL SHEET NOTES

- A. INSTALL INDOOR FAN COIL UNITS IN SUSPENDED CEILING SPACES AS SHOWN AND PER MANUFACTURERS' INSTRUCTIONS. SEE DETAIL (B) (6) (7)
- B. INSTALL VENTILATION AIR SUPPLY FANS AS SHOWN AND PER MANUFACTURERS' INSTRUCTIONS. SEE DETAIL (6)
- C. INSTALL ENERGY RECOVERY VENTILATION UNITS AS SHOWN AND PER MANUFACTURERS' INSTRUCTIONS. SEE DETAIL (6)
- D. INSTALL VENTILATION AIR DUCTS ROUTED FROM OUTDOOR AIR INTAKE LOUVERS TO INDOOR FANCOIL UNITS AS SHOWN.
- E. VENTILATION AIR DUCT MAINS ARE TO BE RIGID DUCTS & FITTINGS INTERNALLY LINED FOR CORROSION PROTECTION CONSTRUCTED OF 24 GAUGE GALVANIZED SHEET METAL. INSTALL AND SUPPORT DUCTS PER SMACNA STANDARDS.
- F. VENTILATION AIR DUCT BRANCHES AT FAN COIL UNITS ARE TO BE FLEX DUCTS WITH BALANCING DAMPERS AT EACH UNIT. FLEX DUCTS ARE NOT TO EXCEED 6 FEET IN LENGTH.
- G. PROVIDE FIRE STOPPING AT ALL FIRE RATED WALL/FLOOR DUCT PENETRATIONS.
- H. VERIFY SITE CONDITIONS FOR POSSIBLE CONFLICTS WITH DUCT & REFRIGERANT PIPING ROUTED IN CEILING SPACES.
- I. ADJUST AND BALANCE VENTILATION AIR FLOW RATES TO EACH FAN COIL UNIT AS INDICATED

SHEET LEGEND

- EXISTING LIGHT FIXTURE
- EXISTING SOLAR LIGHT TUBE
- THERMOSTAT SERVING MULTIPLE FAN COIL UNITS
- THERMOSTAT CONTROLLER MOUNTED 4' ABOVE FLOOR
- ON DEMAND VENTILATION CO<sub>2</sub> SENSOR MOUNTED 6' FROM FLOOR
- SIZE (CRF) FLEX DUCT CONNECTOR WITH BALANCING DAMPER
- SE UNITS: OUTSIDE AIR SUPPLY FAN UNITS. SEE EQUIPMENT SCHEDULE, SHEET M03
- ROOM SERVED SOURCE HP UNIT
- FC UNITS: FAN COIL UNITS. SEE EQUIPMENT SCHEDULE, SHEET M01
- OSA OUTSIDE AIR FLOW RATE
- CRF OUTSIDE AIR INTAKE CEILING GRILLE WITH INTEGRAL REMOVABLE MERV 8 FILTER

KEY PLAN



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



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Signature: *Eli Margalit* 04/30/14  
EXPIRATION DATE OF THE LICENSE

WAHIAWA ARMORY MECHANICAL IMPROVEMENTS

77-230 KAMEHAMEHA HIGHWAY  
WAHIAWA, HI, 96786  
T.M.K.: 7-6-001:002

FOR DEPARTMENT OF DEFENSE OFFICE OF THE ADJUTANT GENERAL

3949 DIAMOND HEAD RD.  
Honolulu, HI 96816

DATE	DESCRIPTION	DATE
11-14-2011	100% CD	07-27-2012
10-2587.01	50% CD	06-15-2012
2587.01_M2.1.dwg	Mark	Description
AC	DATE	
JH/EM		

SECTION A - FIRST FLOOR HVAC PLAN

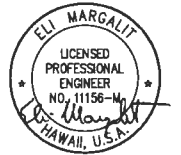
SCALE: NOTED ON DRAWINGS

M2.1A

SHEET



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**WAHIAWA ARMORY  
MECHANICAL  
IMPROVEMENTS**

77-230 KAMEHAMEHA HIGHWAY  
WAHIAWA, HI, 96786  
T.M.K.: 7-6-001:002

FOR:  
**DEPARTMENT OF  
DEFENSE  
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ADJUTANT GENERAL**

3949 DIAMOND HEAD RD.  
Honolulu, HI 96816

ISSUE		
Mark	Description	Date
	100% CD	07-27-2012
	50% CD	06-15-2012
DATE	11-14-2011	
PROJECT NO.	10-2597.01	
CAD DWG FILE	2597.01_M2.1.dwg	
DRAWN BY	AC	
CHECKED BY	JH/EM	
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SHEET TITLE		

**SECTION B -  
FIRST FLOOR  
HVAC PLAN**

SCALE: NOTED ON DRAWINGS

**M2.1B**  
SHEET

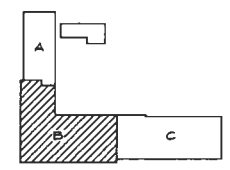
**GENERAL SHEET NOTES**

- INSTALL INDOOR FAN COIL UNITS IN SUSPENDED CEILING SPACES AS SHOWN AND PER MANUFACTURERS' INSTRUCTIONS. SEE DETAIL
- INSTALL VENTILATION AIR SUPPLY FANS AS SHOWN AND PER MANUFACTURERS' INSTRUCTIONS. SEE DETAIL
- INSTALL ENERGY RECOVERY VENTILATION UNITS AS SHOWN AND PER MANUFACTURERS' INSTRUCTIONS. SEE DETAIL
- INSTALL VENTILATION AIR DUCTS ROUTED FROM OUTDOOR AIR INTAKE LOUVERS TO INDOOR FAN COIL UNITS AS SHOWN.
- VENTILATION AIR DUCT MAINS ARE TO BE RIGID DUCTS & FITTINGS INTERNALLY LINED FOR CORROSION PROTECTION CONSTRUCTED OF 24 GAUGE GALVANIZED SHEET METAL. INSTALL AND SUPPORT DUCTS PER SMACNA STANDARDS.
- VENTILATION AIR DUCT BRANCHES AT FAN COIL UNITS ARE TO BE FLEX DUCTS WITH BALANCING DAMPERS AT EACH UNIT. FLEX DUCTS ARE NOT TO EXCEED 6 FEET IN LENGTH.
- PROVIDE FIRE STOPPING AT ALL FIRE RATED WALL/FLOOR DUCT PENETRATIONS.
- VERIFY SITE CONDITIONS FOR POSSIBLE CONFLICTS WITH DUCT & REFRIGERANT PIPING ROUTED IN CEILING SPACES.
- ADJUST AND BALANCE VENTILATION AIR FLOW RATES TO EACH FAN COIL UNIT AS INDICATED

**SHEET LEGEND**

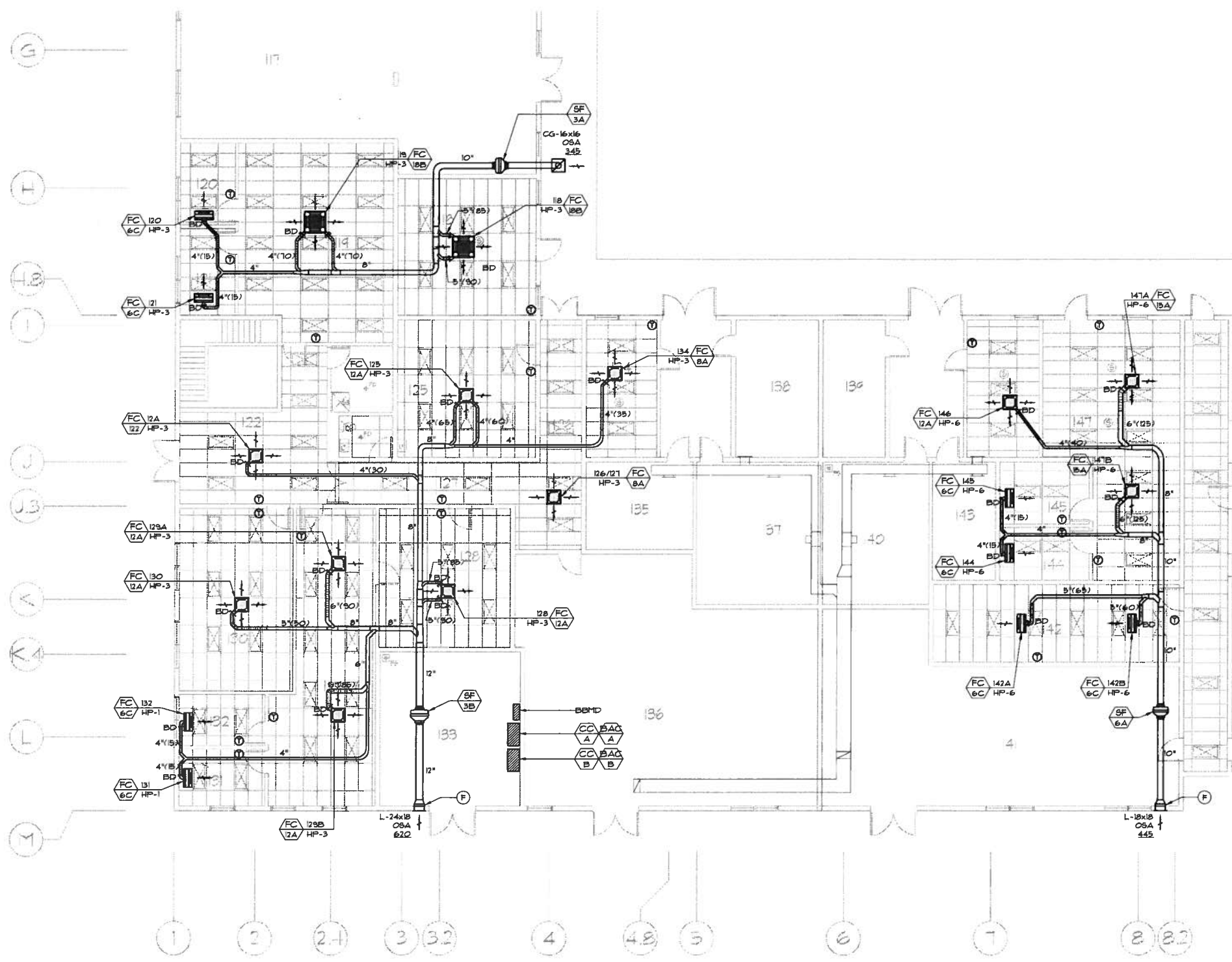
- EXISTING LIGHT FIXTURE
- EXISTING SOLAR LIGHT TUBE
- THERMOSTAT CONTROLLER MOUNTED 4' ABOVE FLOOR
- ON DEMAND VENTILATION CO2 SENSOR MOUNTED 6' ABOVE FLOOR
- SIZE (CFM) FLEX DUCT CONNECTOR WITH BALANCING DAMPER
- BAC UNITS: BACNET INTEGRATION UNITS SEE SHEET M6.0.
- CC UNITS: CENTRAL CONTROLLERS. SEE MULTI-SPLIT HEAT PUMP SYSTEM SCHEMATIC ON SHEET M6.0.
- ERV UNITS: ENERGY RECOVERY VENTILATION UNITS. SEE EQUIPMENT SCHEDULE, SHEET M03.
- SF UNITS: OUTSIDE AIR SUPPLY FAN UNITS. SEE EQUIPMENT SCHEDULE, SHEET M03.
- ROOM SERVED SOURCE HP UNIT
- OSA OUTSIDE AIR FLOW RATE
- L-2x2 OUTSIDE AIR INTAKE LOUVER SEE DETAIL
- CG OUTSIDE AIR INTAKE CEILING GRILLE WITH INTEGRAL REMOVABLE MERV 8 FILTER
- F DUCT FILTER RACK WITH REMOVABLE MERV 8 FILTER

**KEY PLAN**



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

1 INCH AT FULL SCALE. IF NOT 1 INCH THIS DRAWING HAS BEEN REPRODUCED NOT TO SCALE & SHOWN



**SECTION B - FIRST FLOOR HVAC PLAN**

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



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**WAHIAWA ARMY  
MECHANICAL  
IMPROVEMENTS**

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ISSUE		
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	100% CD	07-27-2012
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DATE	11-14-2011	
PROJECT NO.	10-2597.01	
CAD DWG FILE	2597_01_M2.1.dwg	
DRAWN BY	AC	
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**SECTION C -  
FIRST FLOOR  
HVAC PLAN**

SCALE: NOTED ON DRAWINGS

**M2.1C**  
SHEET

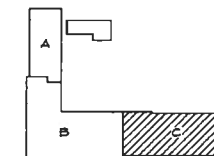
**GENERAL SHEET NOTES**

- INSTALL INDOOR FAN COIL UNITS IN SUSPENDED CEILING SPACES AS SHOWN AND PER MANUFACTURERS' INSTRUCTIONS. SEE DETAIL
- INSTALL VENTILATION AIR SUPPLY FANS AS SHOWN AND PER MANUFACTURERS' INSTRUCTIONS. SEE DETAIL
- INSTALL ENERGY RECOVERY VENTILATION UNITS AS SHOWN AND PER MANUFACTURERS' INSTRUCTIONS. SEE DETAIL
- INSTALL VENTILATION AIR DUCTS ROUTED FROM OUTDOOR AIR INTAKE LOUVERS TO INDOOR FAN COIL UNITS AS SHOWN.
- VENTILATION AIR DUCT MAINS ARE TO BE RIGID DUCTS & FITTINGS INTERNALLY LINED FOR CORROSION PROTECTION CONSTRUCTED OF 24 GAUGE GALVANIZED SHEET METAL. INSTALL AND SUPPORT DUCTS PER SMACNA STANDARDS.
- VENTILATION AIR DUCT BRANCHES AT FAN COIL UNITS ARE TO BE FLEX DUCTS WITH BALANCING DAMPERS AT EACH UNIT. FLEX DUCTS ARE NOT TO EXCEED 6 FEET IN LENGTH.
- PROVIDE FIRE STOPPING AT ALL FIRE RATED WALL/FLOOR DUCT PENETRATIONS.
- VERIFY SITE CONDITIONS FOR POSSIBLE CONFLICTS WITH DUCT & REFRIGERANT PIPING ROUTED IN CEILING SPACES.
- ADJUST AND BALANCE VENTILATION AIR FLOW RATES TO EACH FAN COIL UNIT AS INDICATED.

**SHEET LEGEND**

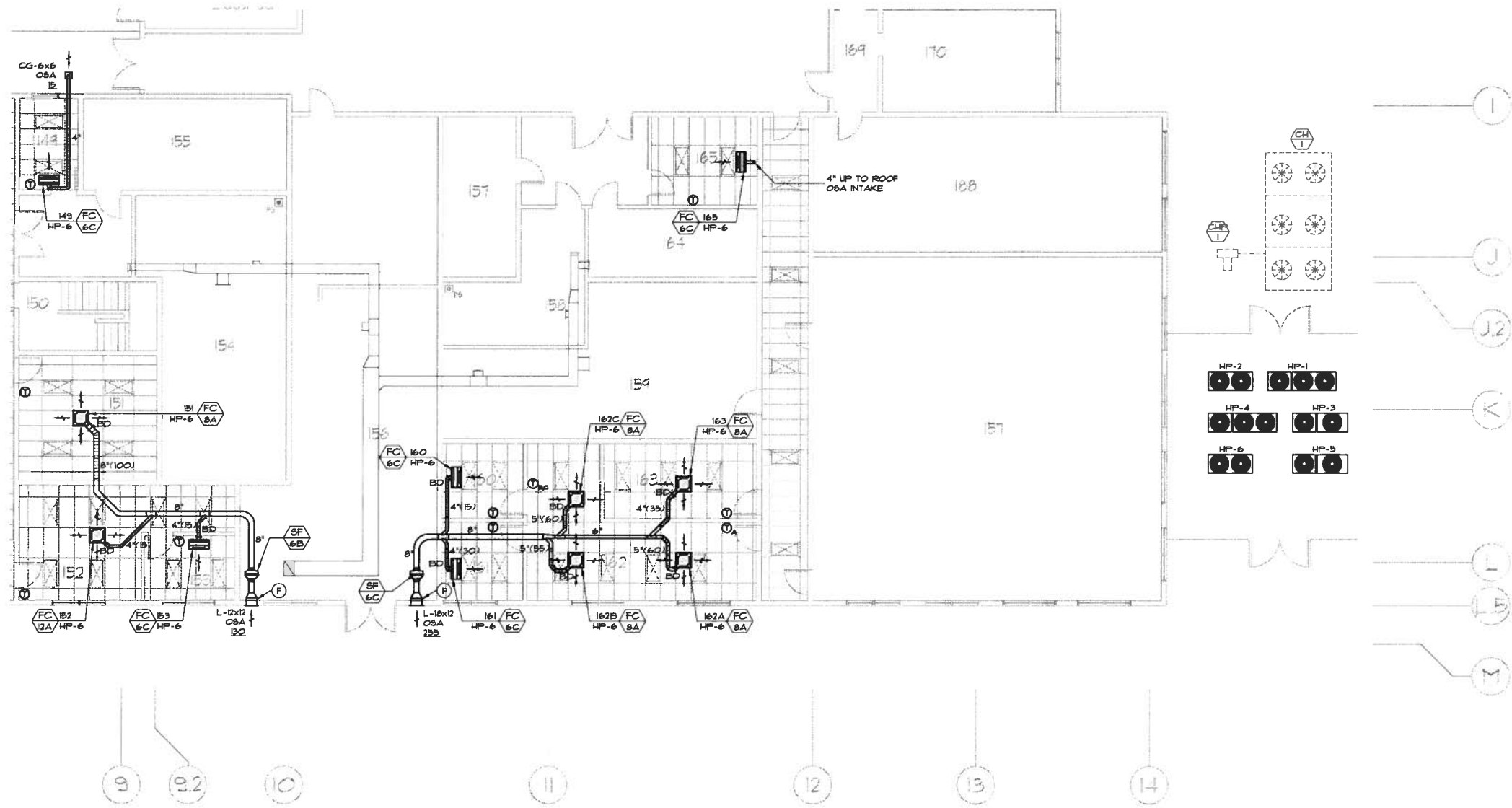
- EXISTING LIGHT FIXTURE
- EXISTING SOLAR LIGHT TUBE
- THERMOSTAT CONTROLLER MOUNTED 4' ABOVE FLOOR
- ON DEMAND VENTILATION CO2 SENSOR MOUNTED 6' ABOVE FLOOR
- BD 4'(30) SIZE (CR1) FLEX DUCT CONNECTOR WITH BALANCING DAMPER
- SF UNITS: OUTSIDE AIR SUPPLY FAN UNITS. SEE EQUIPMENT SCHEDULE, SHEET M0.3
- ROOM SERVED SOURCE HP UNIT FC UNITS: FAN COIL UNITS. SEE EQUIPMENT SCHEDULE, SHEET M0.1
- HP UNITS: OUTDOOR HEAT PUMP UNITS. SEE EQUIPMENT SCHEDULE, SHEET M0.2
- OSA OUTSIDE AIR FLOW RATE
- L-12x12 OUTSIDE AIR INTAKE LOUVER SEE DETAIL
- CG OUTSIDE AIR INTAKE CEILING GRILLE WITH INTEGRAL REMOVABLE MERV 8 FILTER
- F DUCT FILTER RACK WITH REMOVABLE MERV 8 FILTER

**KEY PLAN**



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

1 INCH AT FULL SCALE. IF NOT 1 INCH THIS DRAWING HAS BEEN REPRODUCED OUT TO SCALE (MARK)



**SECTION C - FIRST FLOOR HVAC PLAN**

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







**REFRIGERANT PIPING SCHEDULE**

SYMBOL	LIQUID PIPE SIZE	GAS PIPE SIZE
P1	-	3/4"
P2	3/8"	-
P3	-	1/2"
P4	3/8"	3/8"
P5	3/8"	3/8"
P6	3/8"	3/8"
P7	1/2"	1/2"
P8	3/8"	3/8"
P9	1/2"	1/2"

**GENERAL SHEET NOTES**

- A. INDOOR REFRIGERANT PIPING TO BE TYPE ACR COPPER TUBING WITH 1/2" ELASTOMERIC PIPE INSULATION. PIPE LENGTHS JOINED WITH FLARED JOINT FITTINGS.
- B. OUTDOOR REFRIGERANT LINES TO BE TYPE ACR COPPER TUBING WITH 1" ELASTOMERIC INSULATION AND ALUMINUM JACKET.
- C. SEE REFRIGERANT PIPING SCHEDULE ON THIS SHEET FOR PIPE SIZING REQUIREMENTS.
- D. PROVIDE LONG SWEEP BENDS AT CHANGES OF PIPE DIRECTION.
- E. PROVIDE FIRE STOPPING AT ALL FIRE RATED WALL/FLOOR PIPE PENETRATIONS.
- F. REFRIGERANT PIPING ROUTED IN CEILING SPACE, SUPPORTED AS REQUIRED. SEE DETAIL.
- G. VERIFY SITE CONDITIONS FOR POSSIBLE CONFLICTS WITH DUCT & REFRIGERANT PIPING ROUTED IN CEILING SPACES. REMOVE SECTIONS OF EXISTING DUCT AS REQUIRED.
- H. MAINTAIN ACCESS FREE OF OBSTRUCTIONS FOR EQUIPMENT MAINTENANCE.
- I. LOCATE REFRIGERANT PIPING ELBOWS, TEES AND HEADERS AS SHOWN, TO MAINTAIN CALCULATED PIPING EQUIVALENT LENGTHS. SUBMIT PIPING LAYOUT SHOP DRAWINGS FOR APPROVAL BY ENGINEER.
- J. PRESSURE TEST ALL REFRIGERANT PIPING PER MANUFACTURERS' INSTRUCTIONS.
- K. CONDENSATE DRAIN PIPING TO BE TYPE M COPPER PIPING. SUPPORT PIPING PER THE UNIFORM PLUMBING CODE.
- L. SLOPE ALL CONDENSATE DRAIN PIPING 1/8" PER FOOT TO DRAIN AS SHOWN.
- M. PROVIDE IDENTIFICATION LABELING ON ALL PIPING. INDICATE HP SOURCE UNIT ON REFRIGERANT PIPE MAINS. INDICATE FCU SERVED AT DISTRIBUTION HEADERS.



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Eli Margalit 04/30/14  
SIGNATURE EXPIRATION DATE OF THE LICENSE

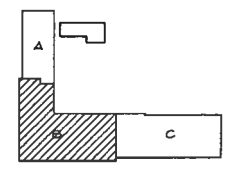
**SHEET LEGEND**

- ROOM SERVED BY FC UNITS. FAN COIL UNITS SEE EQUIPMENT SCHEDULE, SHEET M01
- CONDENSATE DRAIN PIPE
- REFRIGERANT (LIQUID AND GAS) PIPING. SEE REFRIGERANT PIPING SCHEDULE.
- CLEAN OUT
- DIRTYWELL SEE DETAIL (S) (M5)
- 8 OUTLET REFRIGERANT PIPE HEADER. SEE SCHEMATICS, M6 SHEET SERIES.
- 4 OUTLET REFRIGERANT PIPE HEADER. SEE SCHEMATICS, M6 SHEET SERIES.
- REFRIGERANT PIPE TEE FITTING. SEE EQUIPMENT SCHEDULE, SHEET M02

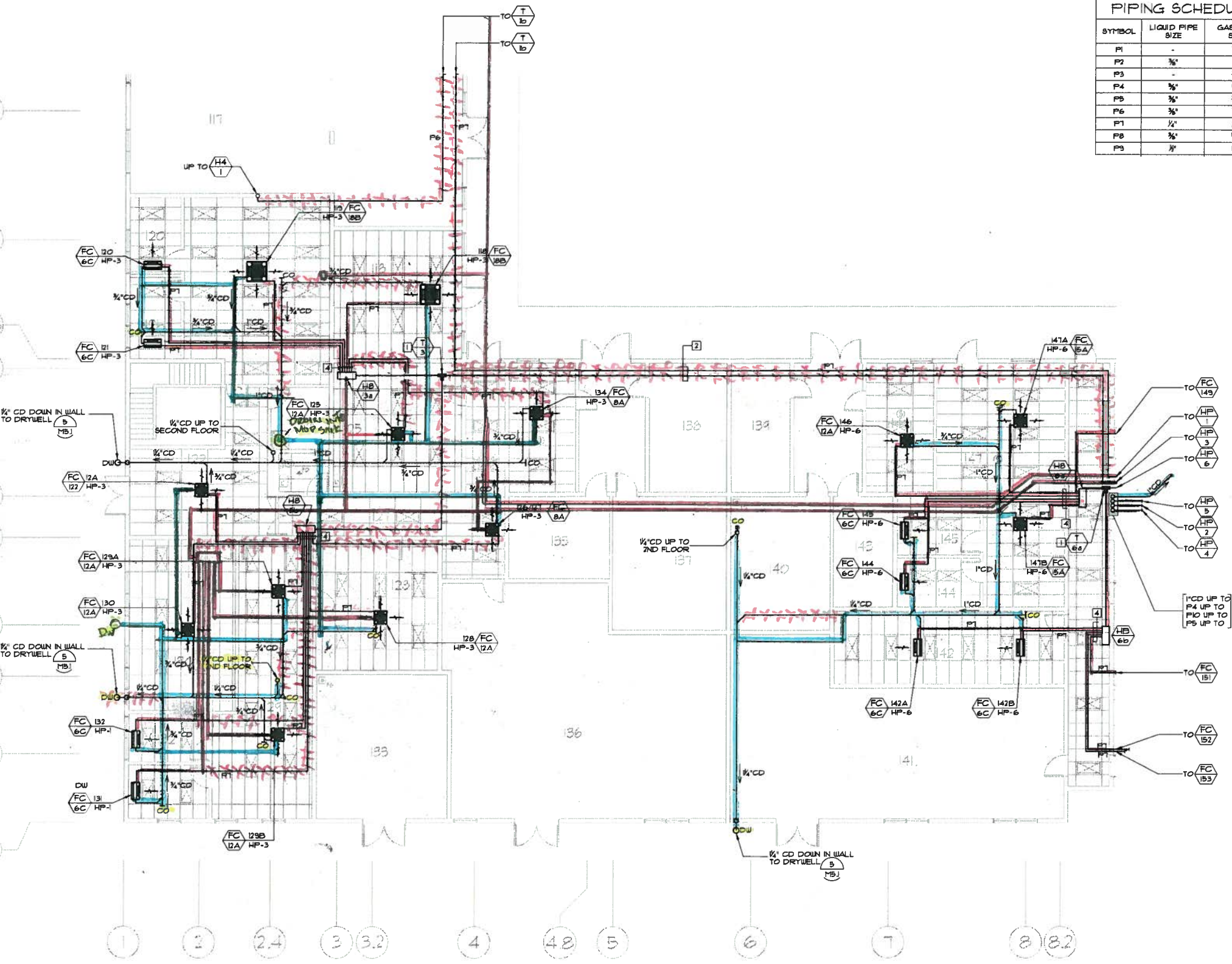
**KEY NOTES**

1. LOCATE REFRIGERANT PIPING TEE FITTINGS AS SHOWN, TO MAINTAIN EQUIPMENT PIPE LENGTH REQUIREMENTS.
2. ROUTE PIPING AT CEILING, SUPPORT AS REQUIRED. SEE DETAIL (1) (M5)
3. ROUTE PIPING AT GRADE, SUPPORT AS REQUIRED. SEE DETAIL (2) (M5)
4. PROVIDE REFRIGERANT BRANCH SHUTOFF VALVES AT DISTRIBUTION HEADER OR TEE.

**KEY PLAN**



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



SECTION B - FIRST FLOOR PIPING PLAN

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

**WAHIAWA ARMY MECHANICAL IMPROVEMENTS**

77-230 KAMEHAMEHA HIGHWAY  
WAHIAWA, HI, 96786  
T.M.K.: 7-6-001-002

FOR: **DEPARTMENT OF DEFENSE OFFICE OF THE ADJUTANT GENERAL**

3949 DIAMOND HEAD RD.  
Honolulu, HI 96816

Mark	Description	Date
DATE	11-14-2011	
PROJECT NO.	10-2587.01	
CAD DWG FILE	2587.01_M3.1.dwg	
DRAWN BY	AC	
CHECKED BY	JHEM	
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**SECTION B - FIRST FLOOR PIPING PLAN**

SCALE: NOTED ON DRAWINGS

**M3.1B**

SHEET

REFRIGERANT PIPING SCHEDULE		
SYMBOL	LIQUID PIPE SIZE	GAS PIPE SIZE
P1	-	3/8"
P2	3/8"	-
P3	-	1/2"
P4	3/8"	3/8"
P5	3/8"	3/8"
P6	3/8"	3/8"
P7	1/2"	1/2"
P8	3/8"	3/8"
P9	1/2"	3/8"

**GENERAL SHEET NOTES**

- A. INDOOR REFRIGERANT PIPING TO BE TYPE ACR COPPER TUBING WITH 1/2" ELASTOMERIC PIPE INSULATION. PIPE LENGTHS JOINED WITH FLARED JOINT FITTINGS.
- B. OUTDOOR REFRIGERANT LINES TO BE TYPE ACR COPPER TUBING WITH 1" ELASTOMERIC INSULATION AND ALUMINUM JACKET.
- C. SEE REFRIGERANT PIPING SCHEDULE ON THIS SHEET FOR PIPE SIZING REQUIREMENTS.
- D. PROVIDE LONG SWEEP BENDS AT CHANGES OF PIPE DIRECTION.
- E. PROVIDE FIRE STOPPING AT ALL FIRE RATED WALL/FLOOR PIPE PENETRATIONS.
- F. REFRIGERANT PIPING ROUTED IN CEILING SPACE, SUPPORTED AS REQUIRED. SEE DETAIL.
- G. VERIFY SITE CONDITIONS FOR POSSIBLE CONFLICTS WITH DUCT & REFRIGERANT PIPING ROUTED IN CEILING SPACES. REMOVE SECTIONS OF EXISTING DUCT AS REQUIRED.
- H. MAINTAIN ACCESS FREE OF OBSTRUCTIONS FOR EQUIPMENT MAINTENANCE.
- I. LOCATE REFRIGERANT PIPING ELBOWS, TEES AND HEADERS AS SHOWN TO MAINTAIN CALCULATED PIPING EQUIVALENT LENGTHS. SUBMIT PIPING LAYOUT SHOP DRAWINGS FOR APPROVAL BY ENGINEER.
- J. PRESSURE TEST ALL REFRIGERANT PIPING PER MANUFACTURERS' INSTRUCTIONS.
- K. CONDENSATE DRAIN PIPING TO BE TYPE M COPPER PIPING. SUPPORT PIPING PER THE UNIFORM PLUMBING CODE.
- L. SLOPE ALL CONDENSATE DRAIN PIPING 1/8" PER FOOT TO DRAIN AS SHOWN.
- M. PROVIDE IDENTIFICATION LABELING ON ALL PIPING. INDICATE HP SOURCE UNIT ON REFRIGERANT PIPE MAINS, INDICATE FCU SERVED AT DISTRIBUTION HEADERS.



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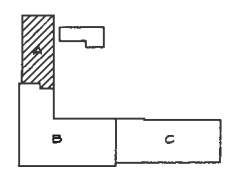
**SHEET LEGEND**

- ROOM SERVED SOURCE HP UNIT
- FC UNITS: FAN COIL UNITS. SEE EQUIPMENT SCHEDULE, SHEET M01
- CONDENSATE DRAIN PIPE
- REFRIGERANT (LIQUID AND GAS) PIPING. SEE REFRIGERANT PIPING SCHEDULE.
- CLEAN OUT
- DRYWELL SEE DETAIL
- 8 OUTLET REFRIGERANT PIPE HEADER. SEE SCHEMATICS, M6 SHEET SERIES.
- 4 OUTLET REFRIGERANT PIPE HEADER. SEE SCHEMATICS, M6 SHEET SERIES.
- 4" ELEVATED CONCRETE EQUIPMENT PAD TYPICAL SEE DETAIL
- 6" HIGH CHAIN LINKED FENCE & GATE
- 5" CONCRETE HEAT PUMP YARD SLAB SEE DETAIL
- REFRIGERANT PIPE TEE FITTING. SEE EQUIPMENT SCHEDULE, SHEET M02

**KEY NOTES**

- 1. LOCATE REFRIGERANT PIPING TEE FITTINGS AS SHOWN TO MAINTAIN EQUIPMENT PIPE LENGTH REQUIREMENTS.
- 2. ROUTE PIPING AT CEILING. SUPPORT AS REQUIRED. SEE DETAIL.
- 3. ROUTE PIPING AT GRADE. SUPPORT AS REQUIRED. SEE DETAIL.
- 4. PROVIDE REFRIGERANT BRANCH SHUTOFF VALVES AT DISTRIBUTION HEADER OR TEE.

**KEY PLAN**



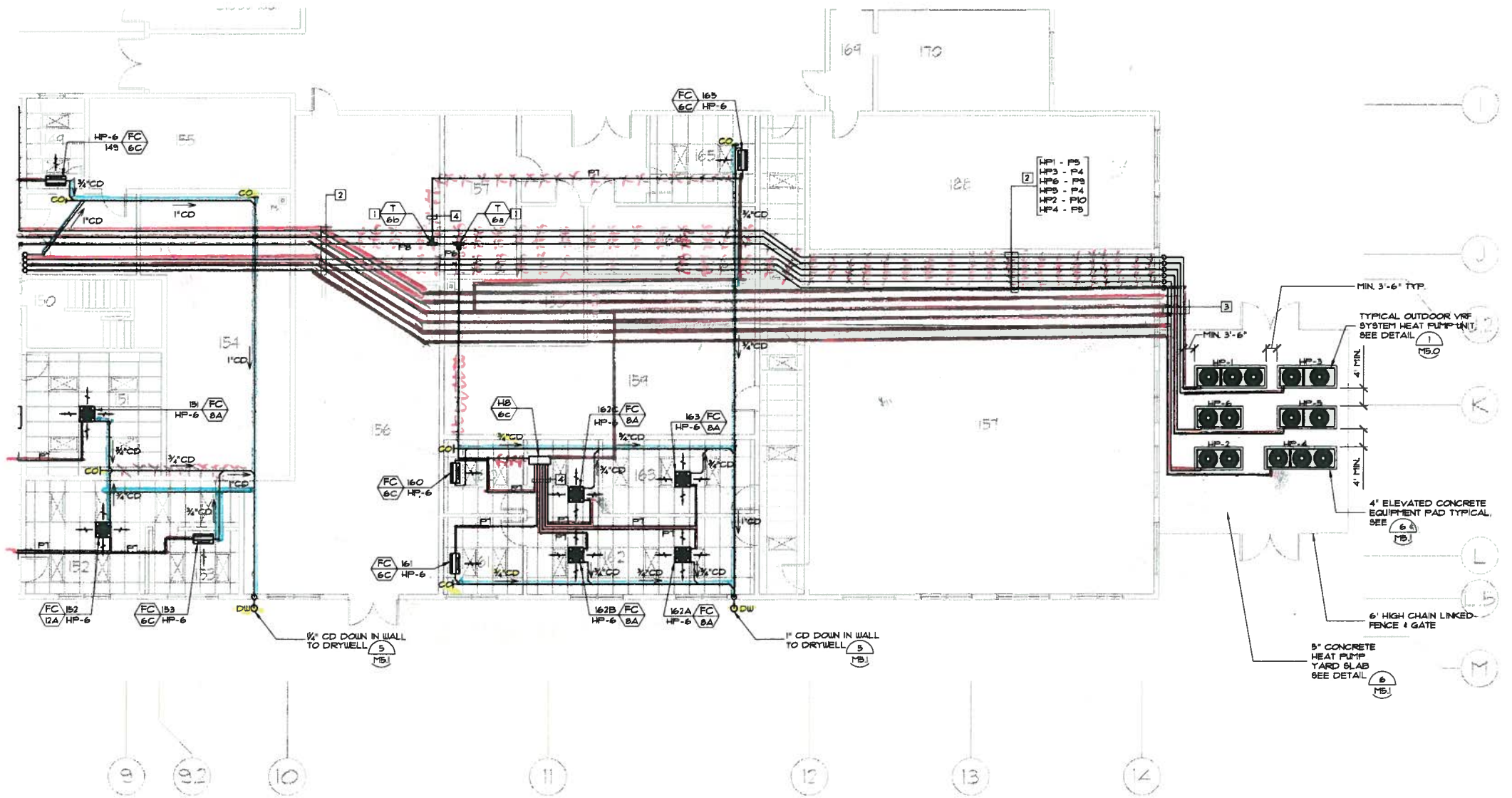
Mark	Description	Date
DATE	11-14-2011	
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CAD DWG FILE	2597.01_M3.1.dwg	
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CHECKED BY	JH/EM	
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**SECTION C - FIRST FLOOR PIPING PLAN**

SCALE: NOTED ON DRAWINGS

**M3.1c**

SHEET



**SECTION C - FIRST FLOOR PIPING PLAN**

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

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

1 INCH AT FULL SCALE. IF NOT 1 INCH THIS DRAWING HAS BEEN REPRODUCED. NOT TO SCALE SHOWN.

### REFRIGERANT PIPING SCHEDULE

SYMBOL	LIQUID PIPE SIZE	GAS PIPE SIZE
P1	-	3/8"
P2	3/8"	-
P3	-	1/2"
P4	1/2"	3/4"
P5	3/4"	1"
P6	1"	1 1/4"
P7	1 1/4"	1 1/2"
P8	1 1/2"	1 3/4"
P9	1 3/4"	2"

### GENERAL SHEET NOTES

- INDOOR REFRIGERANT PIPING TO BE TYPE ACR COPPER TUBING WITH 1/2" ELASTOMERIC PIPE INSULATION. PIPE LENGTHS JOINED WITH FLARED JOINT FITTINGS.
- OUTDOOR REFRIGERANT LINES TO BE TYPE ACR COPPER TUBING WITH 1" ELASTOMERIC INSULATION AND ALUMINUM JACKET.
- SEE REFRIGERANT PIPING SCHEDULE ON THIS SHEET FOR PIPE SIZING REQUIREMENTS.
- PROVIDE LONG SWEEP BENDS AT CHANGES OF PIPE DIRECTION.
- PROVIDE FIRE STOPPING AT ALL FIRE RATED WALL/FLOOR PIPE PENETRATIONS.
- REFRIGERANT PIPING ROUTED IN CEILING SPACE. SUPPORTED AS REQUIRED. SEE DETAIL.
- VERIFY SITE CONDITIONS FOR POSSIBLE CONFLICTS WITH DUCT & REFRIGERANT PIPING ROUTED IN CEILING SPACES. REMOVE SECTIONS OF EXISTING DUCT AS REQUIRED.
- MAINTAIN ACCESS FREE OF OBSTRUCTIONS FOR EQUIPMENT MAINTENANCE.
- LOCATE REFRIGERANT PIPING ELBOUS, TEES AND HEADERS AS SHOWN, TO MAINTAIN CALCULATED PIPING EQUIVALENT LENGTHS. SUBMIT PIPING LAYOUT SHOP DRAWINGS FOR APPROVAL BY ENGINEER.
- PRESSURE TEST ALL REFRIGERANT PIPING PER MANUFACTURERS' INSTRUCTIONS.
- CONDENSATE DRAIN PIPING TO BE TYPE M COPPER PIPING. SUPPORT PIPING PER THE UNIFORM PLUMBING CODE.
- SLOPE ALL CONDENSATE DRAIN PIPING 1/8" PER FOOT TO DRAIN AS SHOWN.
- PROVIDE IDENTIFICATION LABELING ON ALL PIPING. INDICATE HP SOURCE UNIT ON REFRIGERANT PIPE MAINS. INDICATE FCU SERVED AT DISTRIBUTION HEADERS.

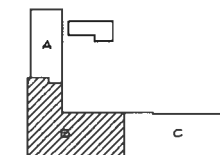
### SHEET LEGEND

- ROOM
- FC UNITS, FAN COIL UNITS. SEE EQUIPMENT SCHEDULE, SHEET M01
- HP UNIT
- CONDENSATE DRAIN PIPE
- REFRIGERANT (LIQUID AND GAS) PIPING. SEE REFRIGERANT PIPING SCHEDULE
- CLEAN OUT
- 10 OUTLET REFRIGERANT PIPE HEADER. SEE SCHEMATICS, M16 SHEET SERIES.
- 8 OUTLET REFRIGERANT PIPE HEADER. SEE SCHEMATICS, M16 SHEET SERIES.
- 4 OUTLET REFRIGERANT PIPE HEADER. SEE SCHEMATICS, M16 SHEET SERIES.
- REFRIGERANT PIPE TEE FITTING. SEE EQUIPMENT SCHEDULE, SHEET M02

### SHEET NOTES

- LOCATE REFRIGERANT PIPING TEE FITTINGS AS SHOWN TO MAINTAIN EQUIPMENT PIPE LENGTH REQUIREMENTS.
- ROUTE PIPING AT CEILING. SUPPORT AS REQUIRED. SEE DETAIL.
- PROVIDE REFRIGERANT BRANCH SHUTOFF VALVES AT DISTRIBUTION HEADER OR TEE.

### KEY PLAN



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

1 INCH AT FULL SCALE. IF NOT 1 INCH THIS DRAWING HAS BEEN REPRODUCED (NOT TO SCALE SHOWN)

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ELI MARGALIT  
LICENSED PROFESSIONAL ENGINEER  
NO. 11156-W  
HAWAII, U.S.A.

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### WAHIAWA ARMORY MECHANICAL IMPROVEMENTS

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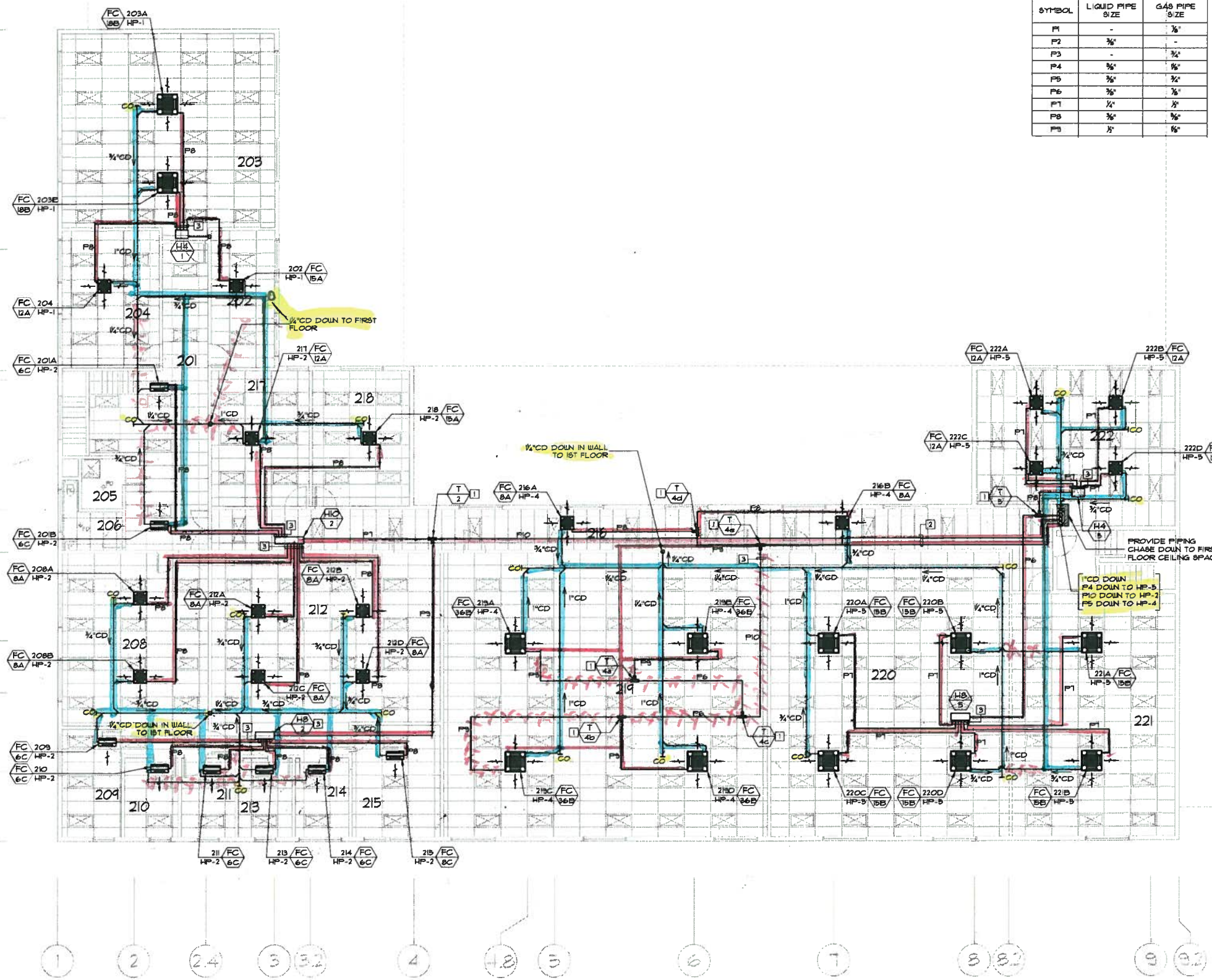
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50% CD	06-15-2012	
DATE	11-14-2011	
PROJECT NO.	10-2597.01	
CAD DWG FILE	2597.01_M3.2.dwg	
DRAWN BY	AC	
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### SECTION B - SECOND FLOOR PIPING PLAN

SCALE: NOTED ON DRAWINGS

**M3.2b**

SHEET



### SECTION B - SECOND FLOOR PIPING PLAN

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



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Signature: *Eli Margalit* 04/30/14  
EXPIRATION DATE OF THE LICENSE

**WAHIAWA ARMORY  
MECHANICAL  
IMPROVEMENTS**

77-230 KAMEHAMEHA HIGHWAY  
WAHIAWA, HI, 96786  
T.M.K.: 7-8-001:002

FOR:  
**DEPARTMENT OF  
DEFENSE  
OFFICE OF THE  
ADJUTANT GENERAL**

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Mark	Description	Date
DATE	11-14-2011	
PROJECT NO.	10-2597.01	
CAD DWG FILE	2597.01_M4.0.dwg	
DRAWN BY	AC	
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**ROOF PLAN**

SCALE: NOTED ON DRAWINGS

**M4.0**

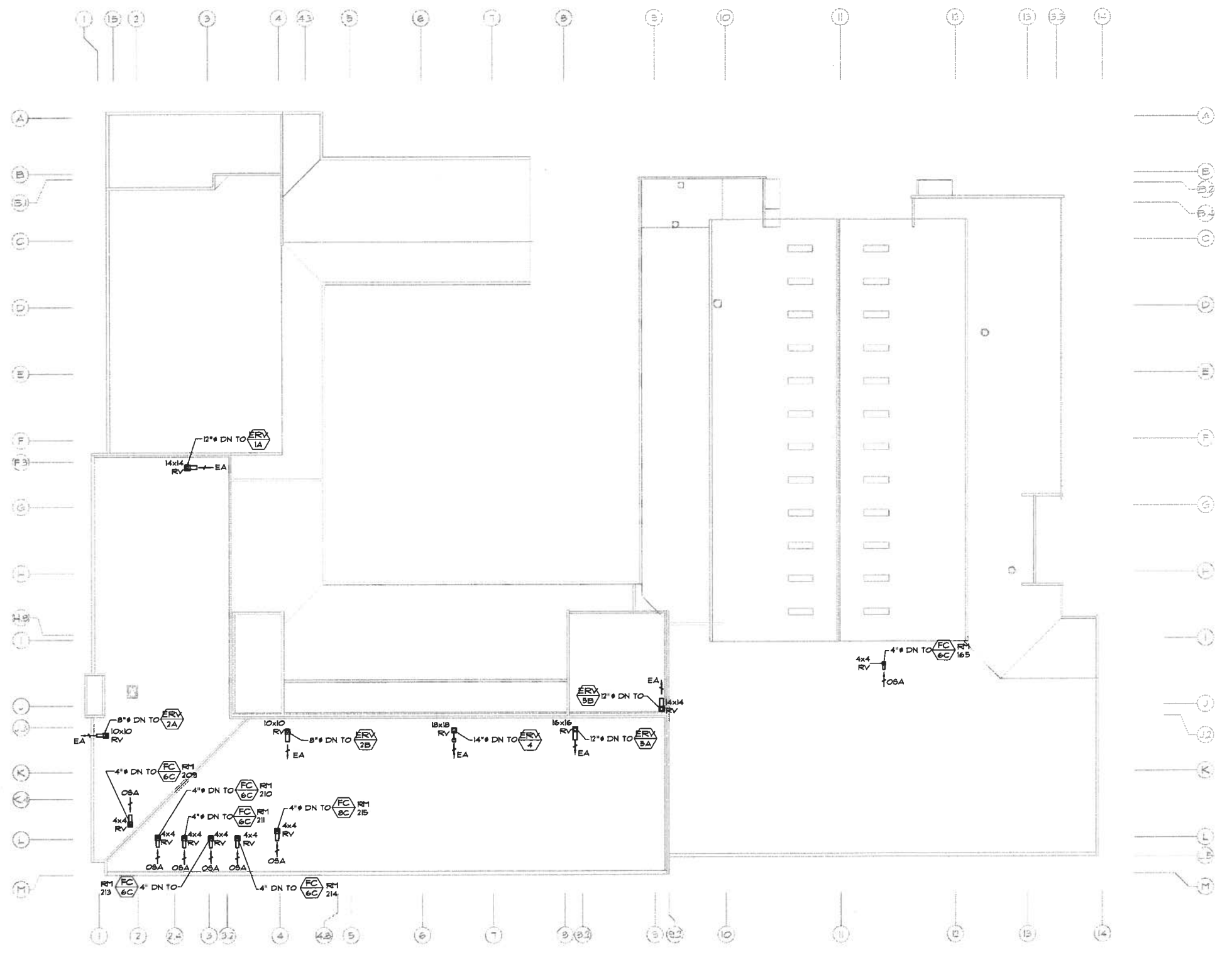
SHEET

**GENERAL SHEET NOTES**

- A. INSTALL EXHAUST VENTS FOR ENERGY RECOVERY VENTILATION UNITS AS SHOWN. SEE DETAIL
- B. INSTALL ROOFTOP OUTSIDE AIR INTAKES AS SHOWN. PROVIDE MINIMUM 10' FROM PLUMBING VENTS AND/OR EXHAUST OUTLETS. SEE DETAIL

**LEGEND**

- "GOOSE NECK" DUCT SIZE ROOF VENT
- OUTSIDE AIR
- EXHAUST AIR



**1 ROOF PLAN**

SCALE: 1/16" = 1'-0"

SCALE: 1/16" = 1'-0"

1 INCH AT FULL SCALE.  
IF NOT 1 INCH THE DRAWING  
HAS BEEN REPRODUCED  
NOT TO SCALE & DIMS



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**WAHIAWA ARMORY  
MECHANICAL  
IMPROVEMENTS**

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T.M.K.: 7-6-001:002

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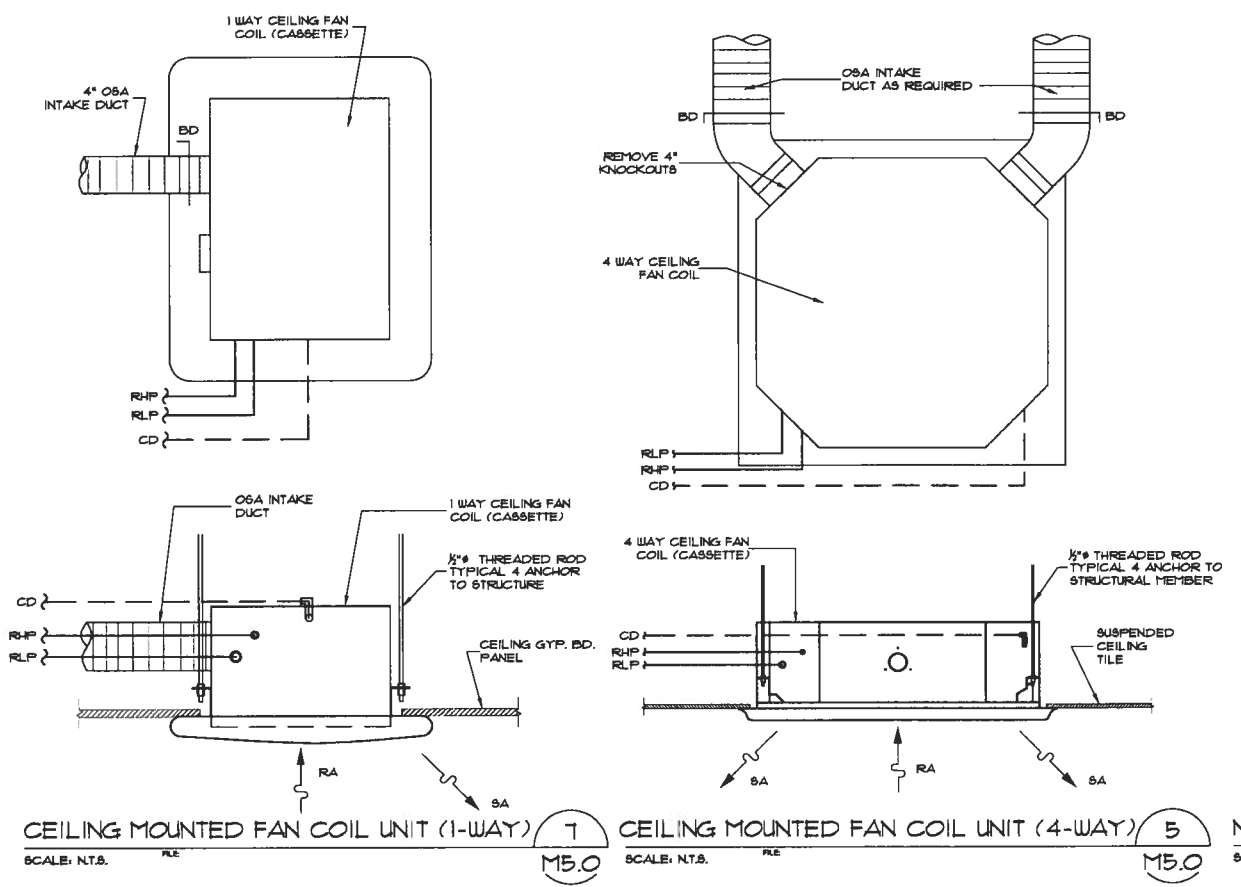
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DATE	11-14-2011	
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SHEET TITLE

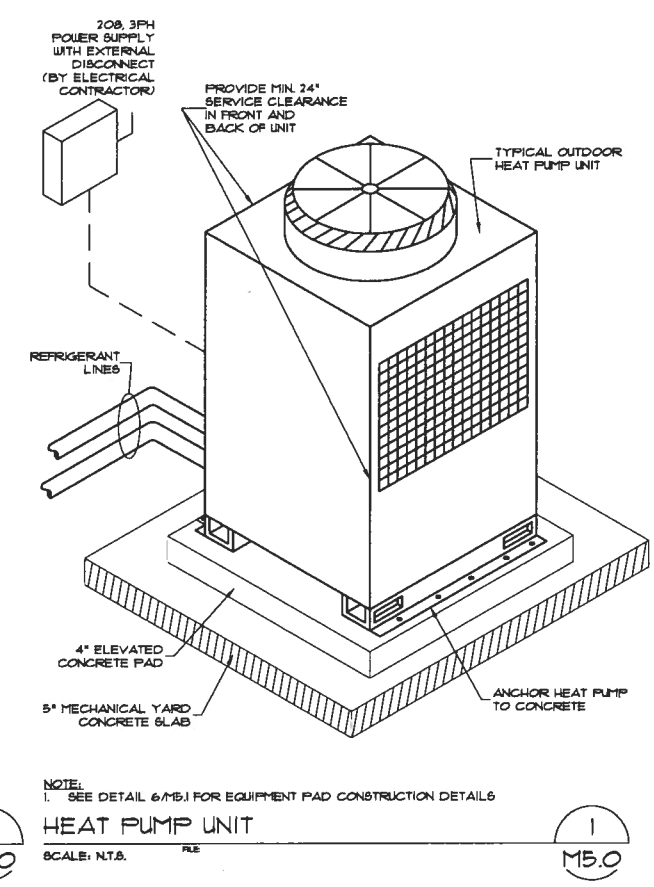
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SCALE: NOTED ON DRAWINGS

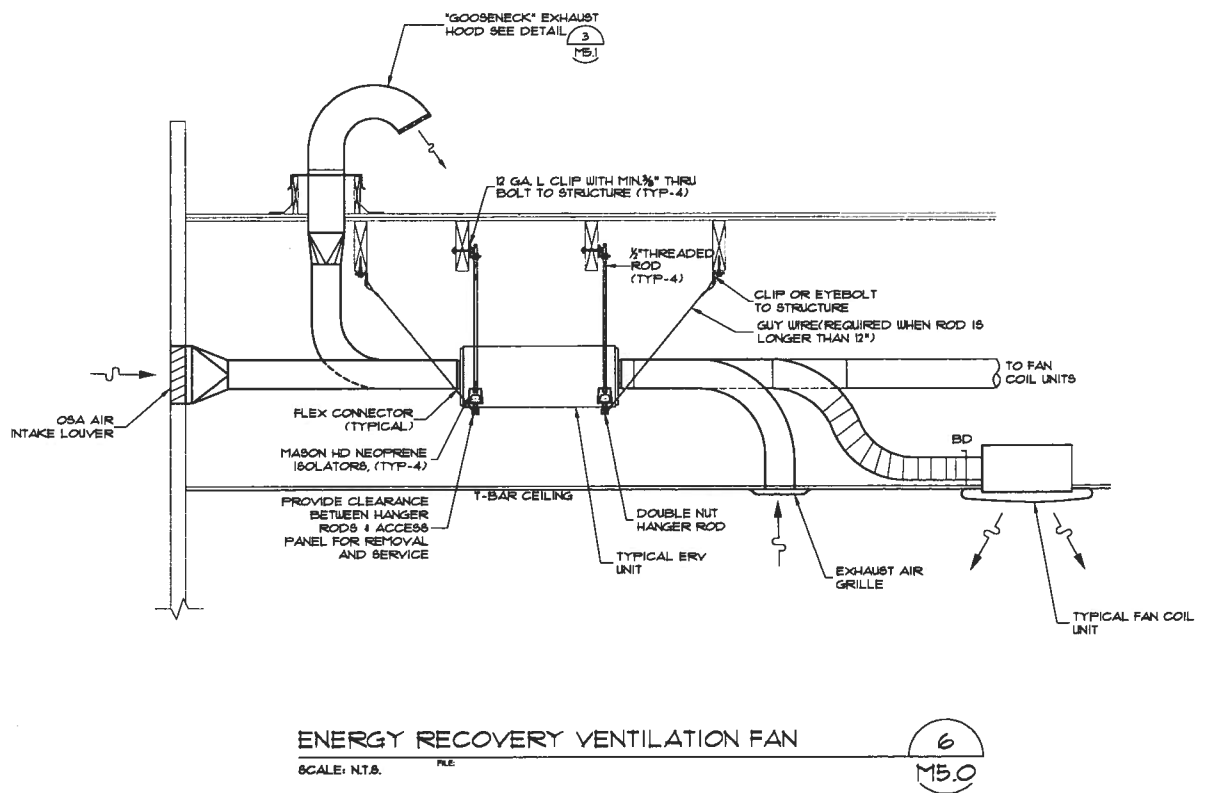
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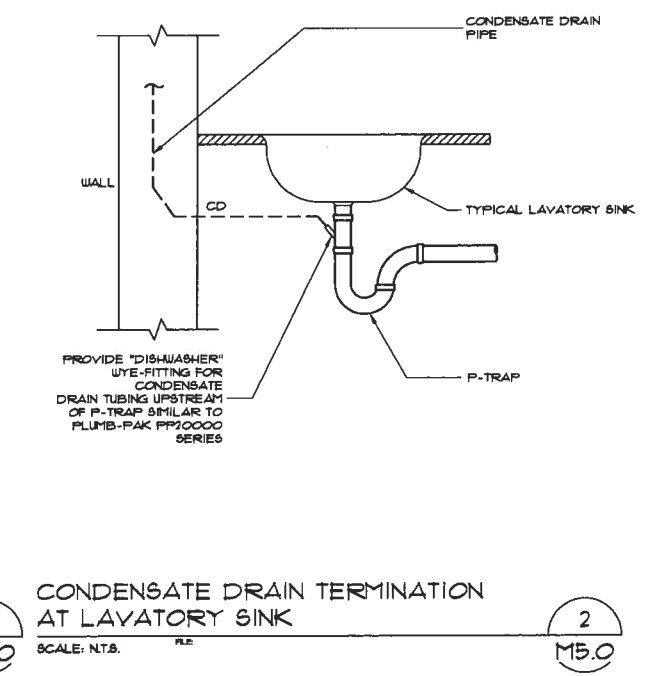
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NOTE:  
1. SEE DETAIL 6/M5.1 FOR EQUIPMENT PAD CONSTRUCTION DETAILS



**NOT USED**  
SCALE: N.T.S. M5.0



**2**  
SCALE: N.T.S. M5.0











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**WAHIAWA ARMORY  
MECHANICAL  
IMPROVEMENTS**

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T.M.K.: 7-6-001:002

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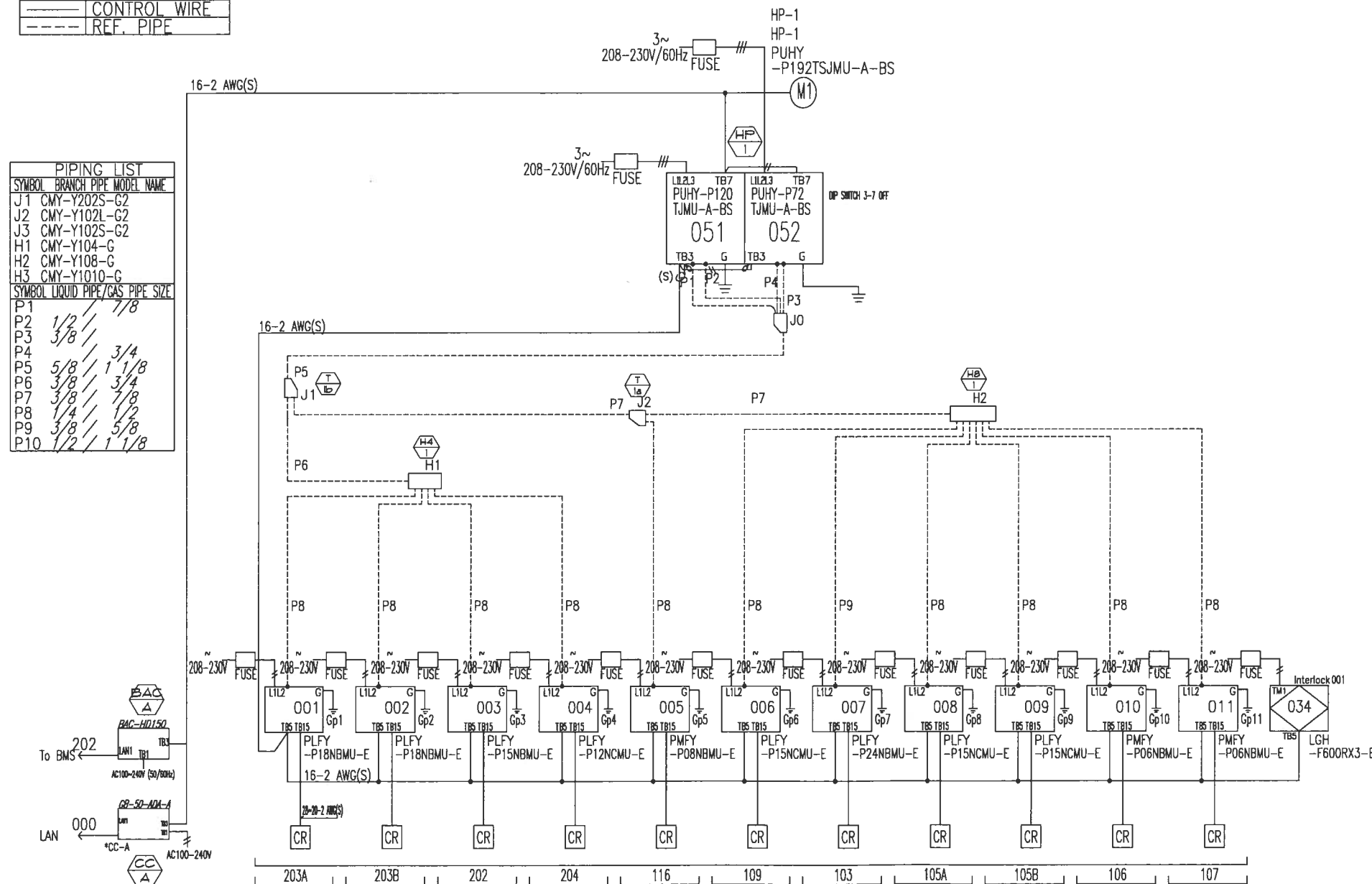
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11-14-2011	PROJECT NO. 10-2597.01	
	CAD DWG FILE 2587.01_M6.dwg	
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	CHECKED BY JH/EM	
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	SHEET TITLE	
	HP-1 VRF SYSTEM SCHEMATIC	
	SCALE: NOTED ON DRAWINGS	

Wahiawa Armory

DIAGRAM DISPLAY	SYMBOL	LEGEND DESCRIPTION
---	---	POWER WIRE
---	---	CONTROL WIRE
---	---	REF. PIPE

CONT.No 10-2579.0 PAGE 1/3

CITY MULTI  
SYSTEM SCHEMATIC DWG.



**M6.1**





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**WAHIAWA ARMORY  
MECHANICAL  
IMPROVEMENTS**

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T.M.K.: 7-6-001:002

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	100% CD	07-27-2012
	50% CD	06-15-2012
DATE	11-14-2011	
PROJECT NO.	10-2597.01	
CAD DWG FILE	2597.01_M6.0.dwg	
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**HP-3  
VRF SYSTEM  
SCHEMATIC**

SCALE: NOTED ON DRAWINGS

**M6.3**

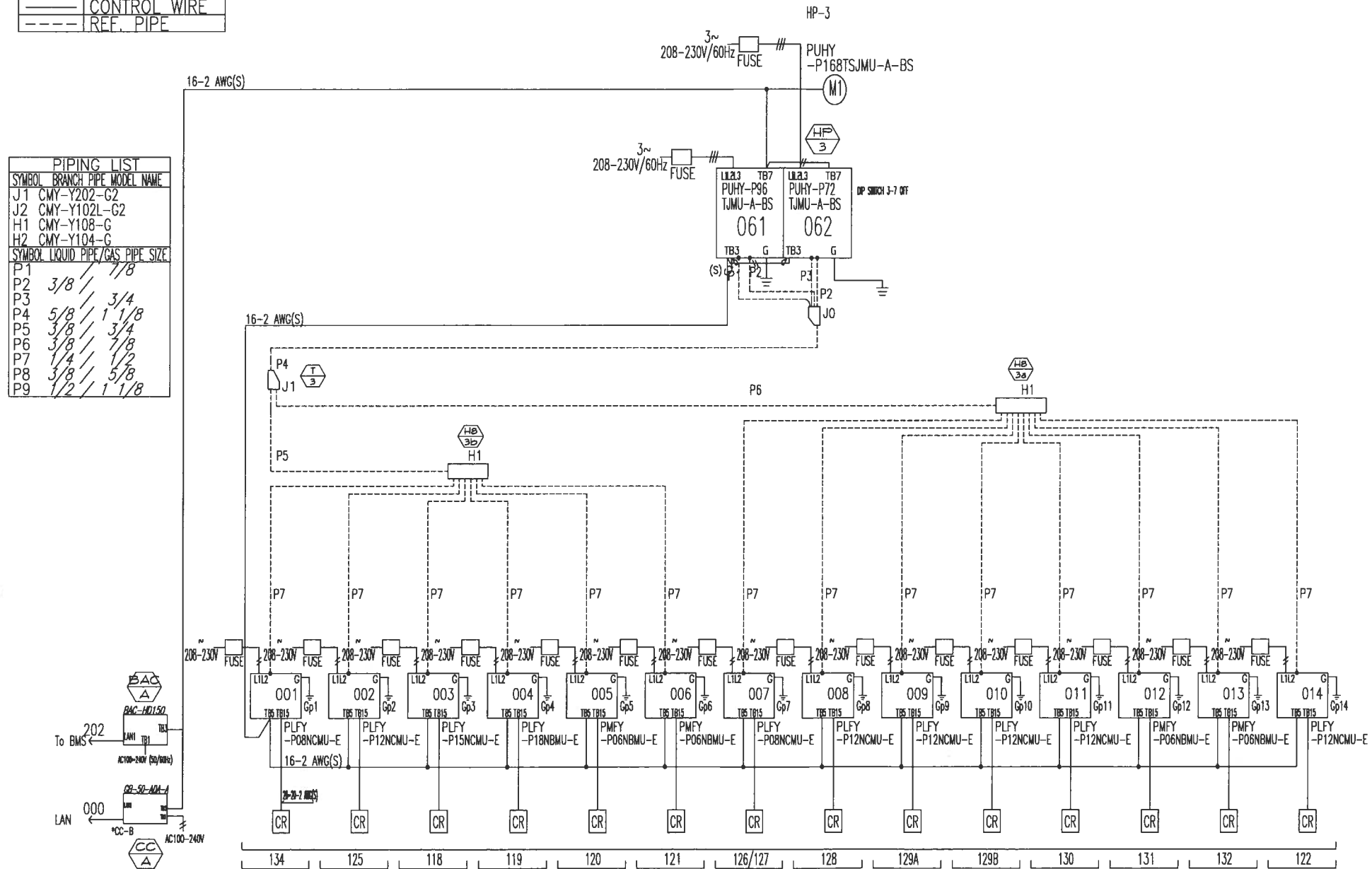
SHEET

Wahiawa Armory

DIAGRAM DISPLAY	SYMBOL	LEGEND DESCRIPTION
---	---	POWER WIRE
---	---	CONTROL WIRE
---	---	REF. PIPE

CONT.No 10-2579.0 | PAGE 1/3

CITY MULTI  
SYSTEM SCHEMATIC DWG.



**PIPING LIST**

SYMBOL	BRANCH PIPE	MODEL NAME
J1	CMY-Y202-G2	
J2	CMY-Y102L-G2	
H1	CMY-Y108-G	
H2	CMY-Y104-G	

SYMBOL	LIQUID PIPE/GAS PIPE SIZE
P1	3/8 / 1/8
P2	3/8 / 3/4
P3	5/8 / 1 1/8
P4	3/8 / 3/4
P5	3/8 / 1/8
P6	3/8 / 1/2
P7	3/8 / 5/8
P8	1/2 / 1 1/8
P9	





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**WAHIAWA ARMORY  
MECHANICAL  
IMPROVEMENTS**

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50% CD		06-15-2012
DATE	11-14-2011	
PROJECT NO.	10-2597.01	
CAD DWG FILE	2597.01_M6.0.dwg	
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SHEET TITLE		

**HP-5  
VRF SYSTEM  
SCHEMATIC**

SCALE: NOTED ON DRAWINGS

**M6.5**

SHEET

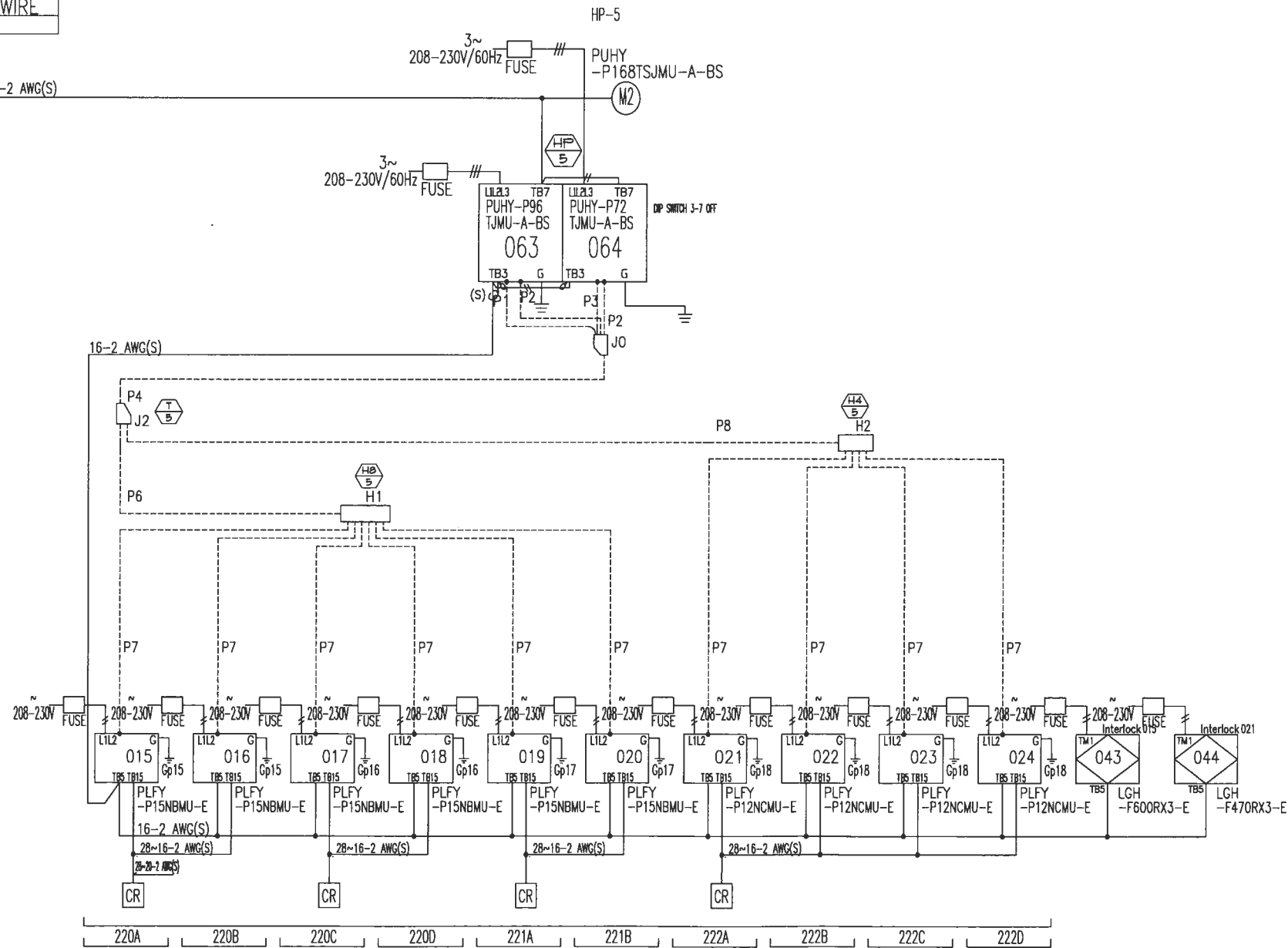
Wahiawa Armory

DIAGRAM DISPLAY	SYMBOL DESCRIPTION
---	POWER WIRE
---	CONTROL WIRE
---	REF. PIPE

CONT.No 10-2579.01 PAGE 2/3

**CITY MULTI  
SYSTEM SCHEMATIC DWG.**

PIPING LIST	
SYMBOL	BRANCH PIPE MODEL NAME
J1	CMY-Y202-G2
J2	CMY-Y102L-G2
H1	CMY-Y108-G
H2	CMY-Y104-G
SYMBOL LIQUID PIPE/GAS PIPE SIZE	
P1	3/8 / 1/8
P2	3/8 / 1/8
P3	3/8 / 3/4
P4	5/8 / 1 1/8
P5	3/8 / 3/4
P6	3/8 / 1/8
P7	1/4 / 1/2
P8	3/8 / 5/8
P9	1/2 / 1 1/8



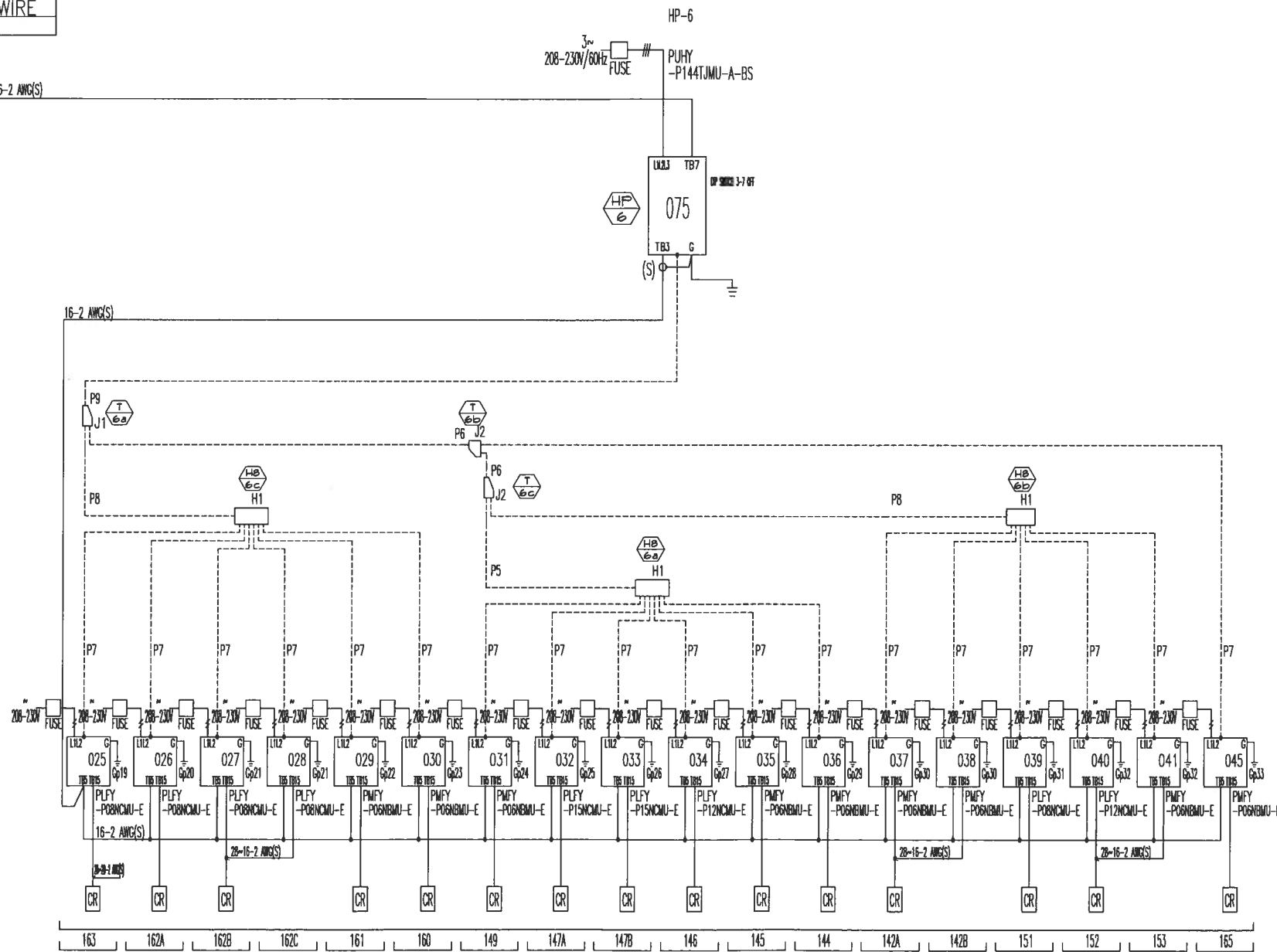
Wahiawa Armory

DIAGRAM DISPLAY	SYMBOL	LEGEND DESCRIPTION
---	##	POWER WIRE
---	---	CONTROL WIRE
---	---	REF. PIPE

CONT.No 10-2579.01 PAGE 3/3

CITY MULTI SYSTEM SCHEMATIC DWG.

PIPING LIST		
SYMBOL	BRANCH PIPE	MODEL NAME
J1	CMY-Y202-G2	
J2	CMY-Y102L-G2	
H1	CMY-Y108-G	
H2	CMY-Y104-G	
SYMBOL LIQUID PIPE/GAS PIPE SIZE		
P1	1/2	1/8
P2	3/8	1/8
P3	3/8	3/4
P4	5/8	1 1/8
P5	3/8	3/4
P6	3/8	7/8
P7	1/4	1/2
P8	3/8	5/8
P9	1/2	1 1/8



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**WAHIAWA ARMORY MECHANICAL IMPROVEMENTS**

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 WAHIAWA, HI, 96786  
 T.M.K.: 7-6-001:002

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11-14-2011	PROJECT NO. 10-2587.01	
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SHEET TITLE		
HP-6 VRF SYSTEM SCHEMATIC		
SCALE: NOTED ON DRAWINGS		

HP-6 VRF SYSTEM SCHEMATIC

SCALE: NOTED ON DRAWINGS

**M6.6**

SHEET