



# MANATEE COUNTY FLORIDA

## FACSIMILE

June 10, 2010

TO: All Interested Bidders

SUBJECT: Invitation for Bid #10-1766DC  
Juvenile Process Center Building Modifications

### ADDENDUM #1

Bidders are hereby notified that this Addendum shall be made a part of the above named bidding and contract documents. The following items are issued to add to, modify, and clarify the bid and contract documents. These items shall have the same force and effect as the original bidding and contract documents, and cost involved shall be included in the bid prices. Bids to be submitted on the specified bid date, shall conform to the additions and revisions listed herein.

1. See attached Plans for the electrical, mechanical, and plumbing electrical Drawings as prepared by BMK architects, Inc.
2. Engineer's Construction estimate for the work as specified is \$276,592.
3. The contractor shall be certified in Florida as a General Contractor (IFB page 8, Article B.02).

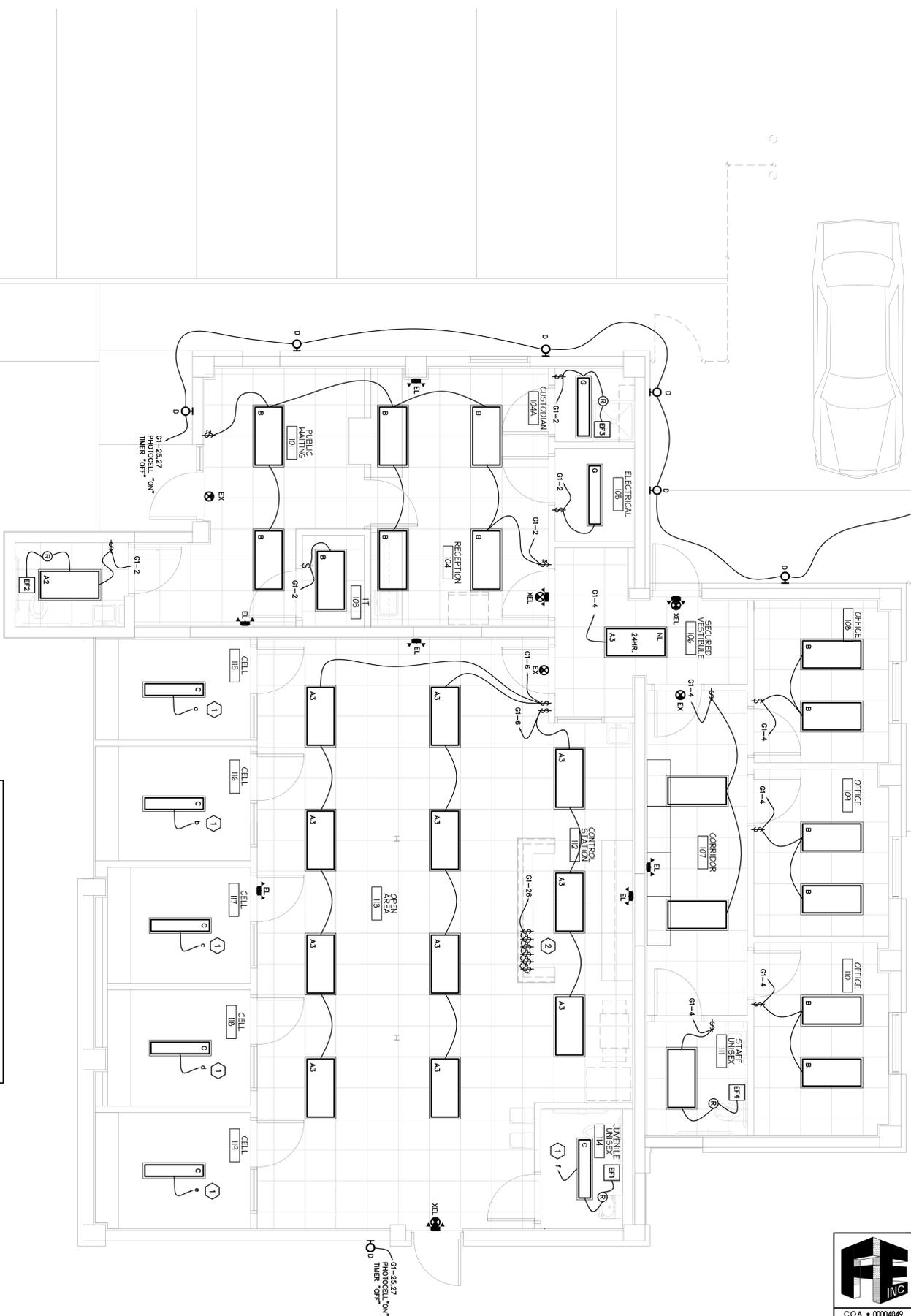
Bids will be received at Manatee County Purchasing, 1112 Manatee Avenue West, Suite 803, Bradenton, Florida 34205 until **July 14, 2010 at 11:00 A.M.**

Sincerely,

Deborah Carey-Reed  
Construction Buyer

/dcr  
Attachments

Financial Management Department - Purchasing Division  
1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205  
PHONE: 941.749.3074 \* FAX: 941.749.3034  
[www.mymanatee.org](http://www.mymanatee.org)



**KEYED NOTES**

1 SWITCHING FOR THIS AREA AT CONTROL STATION DESK. SEE KEYED NOTE #2.

2 SWITCHING FOR LIGHTS IN CELLS AND UNISEX RESTROOM. SEE KEYED NOTE #1.

**FORNEY ENGINEERING INC.**  
 Mechanical & Electrical Consulting Engineers  
 528 Fourth Avenue Circle East, Bradenton, FL 34208  
 Tel: (941) 748-5884 Fax: (941) 747-6240 E-Mail: foef@forneyengineering.com

DESIGNED: P.F. DRAWN: P.F. CHECKED: P.F.  
 JOB: NO. 09-2186 SCALE: AS SHOWN DATE: 11-23-09

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**BMK**  
 architects

3231 CENTRAL AVE. SARASOTA, FLORIDA 34236  
 PHONE: (941) 395-6056 FAX: (941) 395-2592  
 email: architects@bmkarchitects.com  
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PROJECT NAME:  
**MANATEE COUNTY  
 SHERIFFS' JUVENILE  
 PROCESSING CENTER**

OWNERS NAME AND ADDRESS:  
**MANATEE COUNTY  
 421 17TH AVE. WEST  
 BRADENTON, FLORIDA**

ISSUED FOR:

PROJECT NUMBER:  
**BMK 20903**

SIGNISAL:  
 BY: **PHILIP J. TERESA, P.E.**  
 85983

DATE: \_\_\_\_\_  
 TO THE BEST OF MY KNOWLEDGE AND  
 BELIEF, I AM PROVIDING ACCURATE  
 AND RELIABLE BUILDING CODES.

REVISIONS

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KEY PLAN

DRAWN BY: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_

FILE NAME: \_\_\_\_\_

DATE: 11/23/09

PLOT SCALE: \_\_\_\_\_

SHEET TITLE:  
**ELECTRICAL LIGHTING  
 PLAN**

**ELECTRICAL LIGHTING PLAN**

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



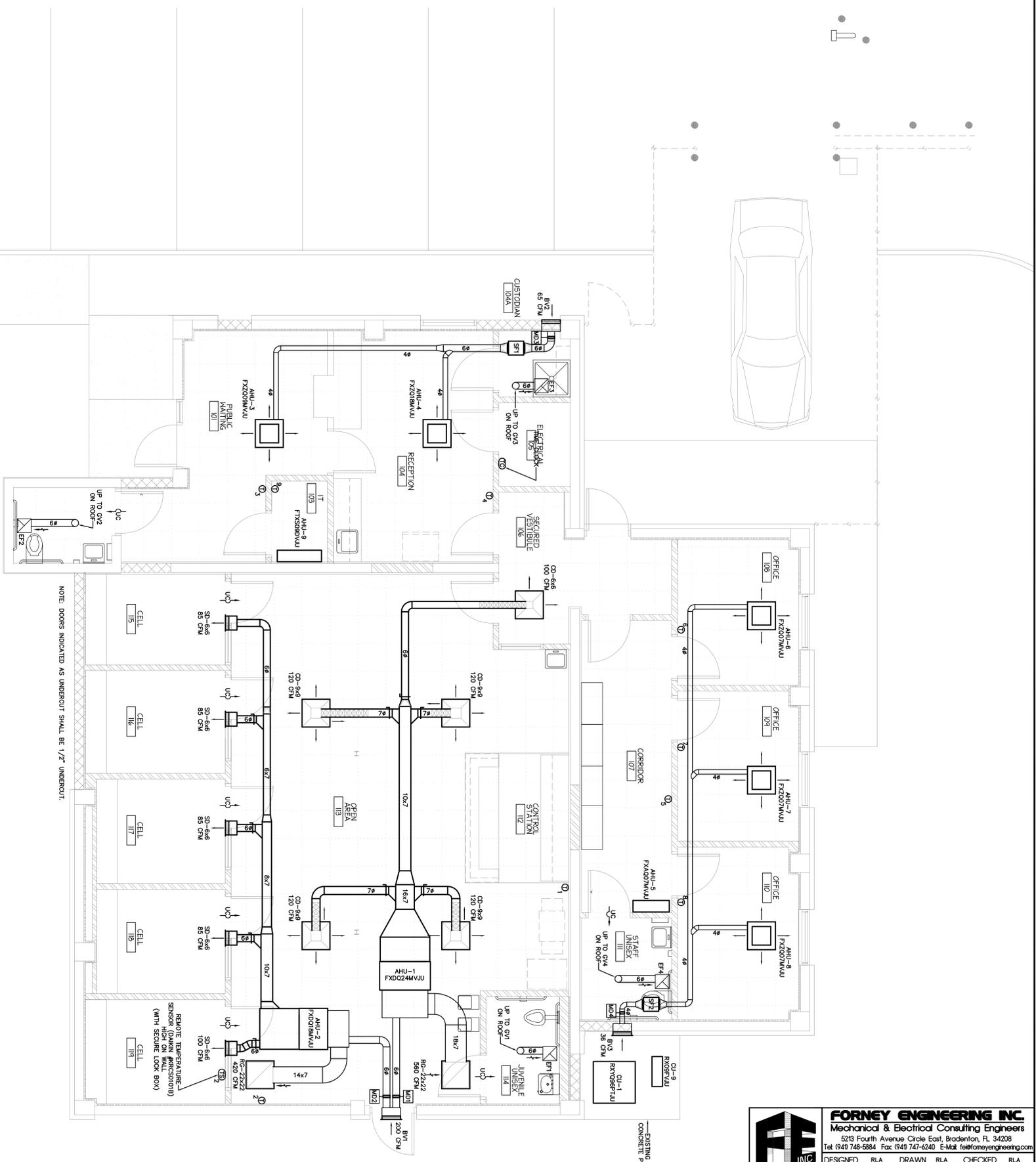
SHEET NUMBER:  
**E-1**

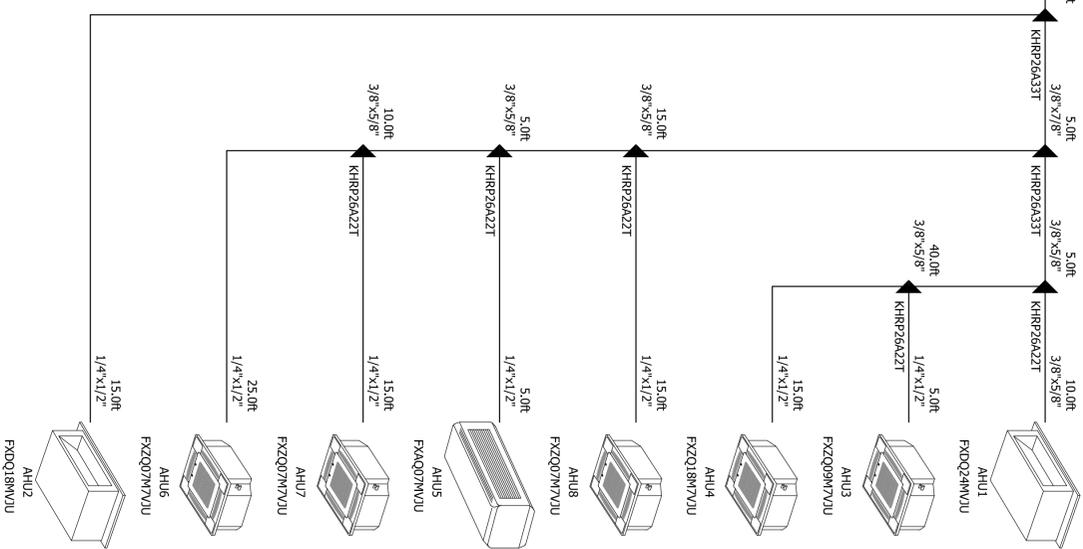
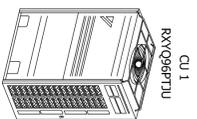






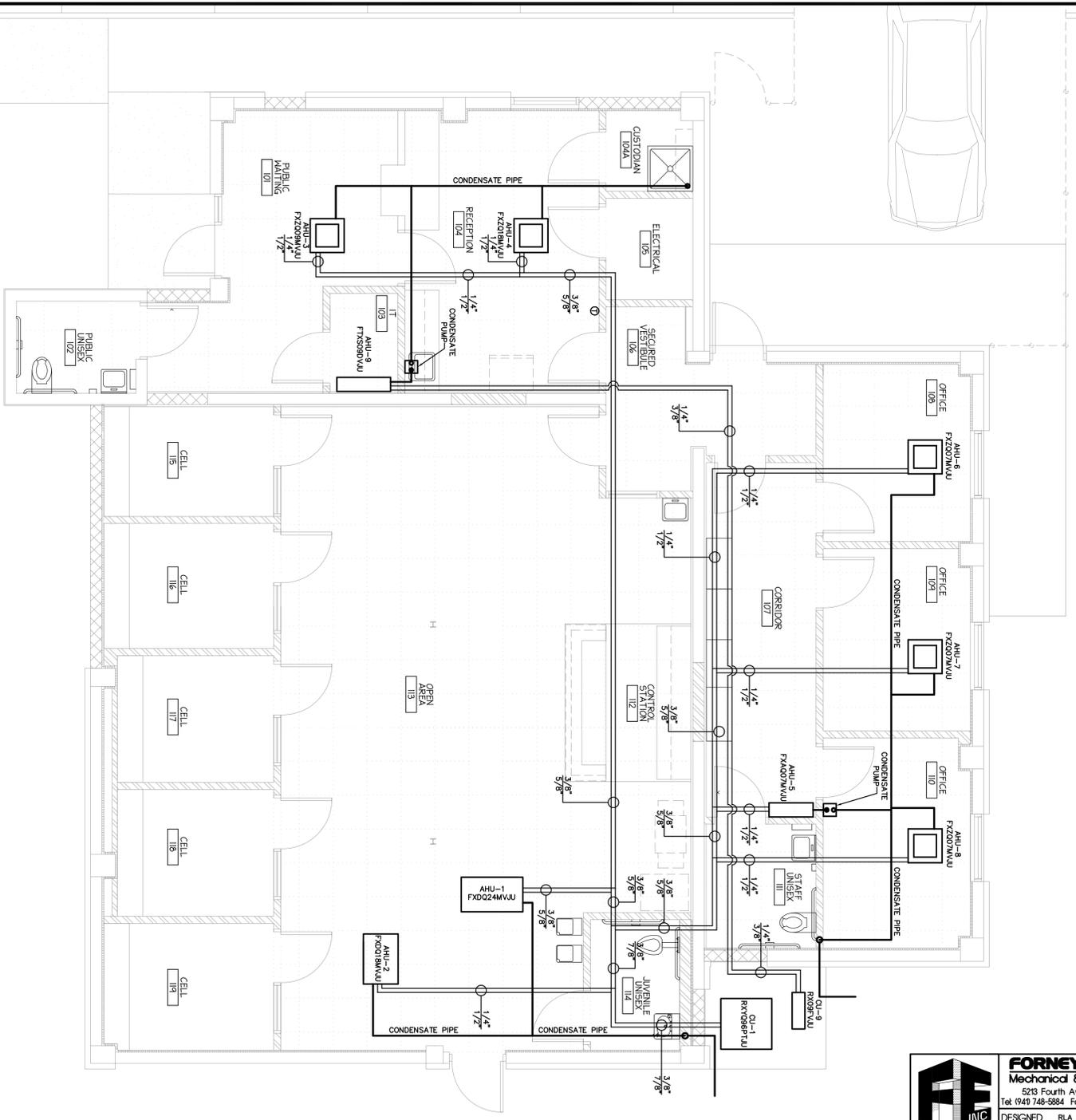






MECHANICAL PIPING SCHEMATIC

SCALE: NOT TO SCALE



MECHANICAL PIPING PLAN

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

**FORNEY ENGINEERING INC.**  
 Mechanical & Electrical Consulting Engineers  
 5218 Fourth Avenue Circle East, Bradenton, FL 34208  
 Tel: (941) 748-5884 Fax: (941) 747-6240 E-Mail: foef@forneyengineering.com  
 DESIGNED: BJA DRAWN: BJA CHECKED: BJA  
 JOB: NO.09-2156 SCALE: AS SHOWN DATE: 11-23-09  
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221 CENTRAL AVE. SARASOTA, FLORIDA 34236  
 PHONE: (941) 365-6056 FAX: (941) 365-2592  
 email: architects@bmkarchitects.com  
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PROJECT NAME  
**MANATEE COUNTY  
 SHERIFF'S JUVENILE  
 PROCESSING CENTER**

OWNERS NAME AND ADDRESS  
**MANATEE COUNTY  
 421 17TH AVE. WEST  
 BRADENTON, FLORIDA**

PROJECT NUMBER  
**BMK 20903**

DESIGNED BY  
**GEORGE T. JEROMUS**

DATE  
**11/23/09**

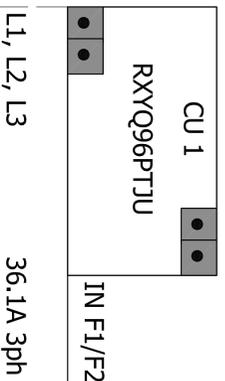
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KEY PLAN

SHEET TITLE  
**MECHANICAL PIPING  
 PLAN**

SHEET NUMBER  
**M-2**



### SEQUENCE OF OPERATION

CONTROL SCHEDULE:

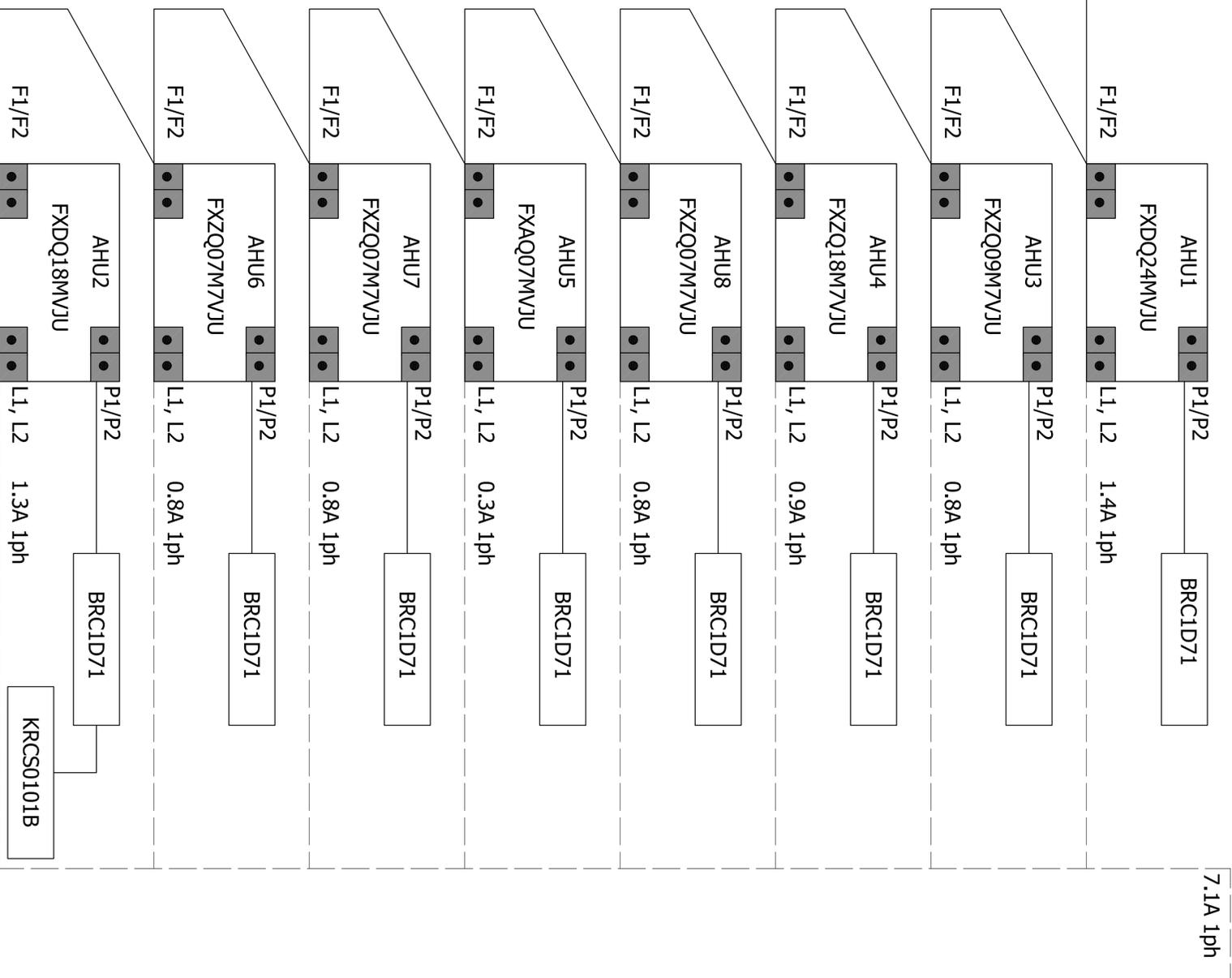
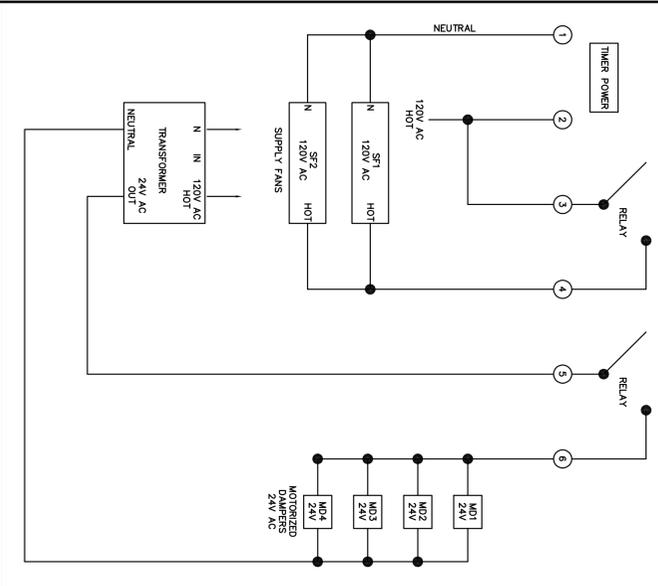
- ① THERMOSTAT (8) DANON MODEL BRC1D71
- ② THERMOSTAT (8) DANON MODEL BRC1D71
- ③ TIME CLOCK (1) INTERMATIC ETI200 (OPS7)

NOTES:  
 1. LOCATE THERMOSTATS AND REMOTE SENSOR (IN CLEAR LOCKABLE BOX) AS SHOWN ON PLAN.  
 2. LOCATE TIME CLOCK AS SHOWN ON PLAN.

SEQUENCE OF OPERATION:

- OCCUPIED WAKE COOLING SEASON:**
- AHU FANS SHALL REMAIN ON UNTIL TOTAL SYSTEM LOAD IS BELOW 15% OF MAXIMUM.
  - CONTROLLER WILL ADJUST MODULATING VALVE TO KEEP WITHIN 0.5 DEGREES F OF SET POINT.
  - CONTROLLER WILL ADJUST FAN FLOW TO KEEP WITHIN 0.5 DEGREES F OF SET POINT.
  - CONDENSING UNIT SHALL REGULATE REFRIGERANT FLOW TO MAINTAIN CONSTANT SUCTION PRESSURE.
  - TIME CLOCK SHALL OPEN OUTSIDE AIR MOTORIZED DAMPERS AND TURN ON OUTSIDE AIR SUPPLY FANS.
- UNOCCUPIED WAKE COOLING SEASON:**
- AHU FANS SHALL REMAIN ON UNTIL TOTAL SYSTEM LOAD IS BELOW 15% OF MAXIMUM.
  - AHU FANS SHALL REMAIN ON UNTIL MODULATING VALVE TO KEEP WITHIN 0.5 DEGREES F OF SETBACK SET POINT.
  - CONTROL VALVE SHALL MAINTAIN TO DEGREES OF SUPERHEAT ACROSS EVAPORATOR COIL.
  - CONDENSING UNIT SHALL REGULATE REFRIGERANT FLOW TO MAINTAIN CONSTANT SUCTION PRESSURE.
  - TIME CLOCK SHALL CLOSE OUTSIDE AIR MOTORIZED DAMPERS AND TURN OFF OUTSIDE AIR SUPPLY FANS.
- OCCUPIED WAKE HEATING SEASON:**
- AHU FANS SHALL REGULATE FLOW TO MAINTAIN TEMPERATURE.
  - CONTROLLER WILL ADJUST FAN FLOW TO KEEP WITHIN 0.5 DEGREES F OF SET POINT.
  - CONTROLLER WILL ADJUST FAN FLOW TO KEEP WITHIN 0.5 DEGREES F OF SET POINT.
  - CONTROLLER WILL ADJUST FAN FLOW TO KEEP WITHIN 0.5 DEGREES F OF SET POINT.
  - TIME CLOCK SHALL OPEN OUTSIDE AIR MOTORIZED DAMPERS AND TURN ON OUTSIDE AIR SUPPLY FANS.
  - TIME CLOCK SHALL CLOSE OUTSIDE AIR MOTORIZED DAMPERS AND TURN OFF OUTSIDE AIR SUPPLY FANS.

### TIME CLOCK WIRING PLAN



NOTE: REMOTE TEMPERATURE SENSOR (KRCS0101B) MOUNTED HIGH IN CELL 119. SEE SHEET M-1 FOR LOCATION AND NOTES.

## MECHANICAL CONTROL WIRING PLAN & SEQUENCE OF OPERATION

SCALE: NOT TO SCALE

**FORNEY ENGINEERING INC.**  
 Mechanical & Electrical Consulting Engineers  
 5218 Fourth Avenue Circle East, Bradenton, FL 34208  
 Tel: (941) 748-5884 Fax: (941) 747-6240 E-Mail: foef@forneyengineering.com

DESIGNED: BJA DRAWN: BJA CHECKED: BJA  
 JOB: NO. 09-2186 SCALE: AS SHOWN DATE: 11-23-09  
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**BMK architects**  
 3231 CENTRAL AVE. SARASOTA, FLORIDA 34236  
 PHONE: (941) 355-0056 FAX: (941) 355-2592  
 email: architects@bmkarchitects.com  
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 PROCESSING CENTER

OWNERS NAME AND ADDRESS:  
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 421 17TH AVE. WEST  
 BRADENTON, FLORIDA

ISSUED FOR:

PROJECT NUMBER:  
**BMK 20903**

SIGNAL:

BY: GEORGE T. ARBANS  
 DATE: 4/08

TO THE BEST OF MY KNOWLEDGE AND BELIEF, I HAVE PREPARED THIS SET OF CONTRACT DOCUMENTS ACCORDING TO THE PROFESSIONAL STANDARDS AND PRACTICES CURRENTLY IN EFFECT IN THE STATE OF FLORIDA.

DATE: \_\_\_\_\_

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REVISIONS

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KEY PLAN

DRAWN BY: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_

FILE NAME: \_\_\_\_\_

DATE: 11/23/09

PLOT SCALE: \_\_\_\_\_

SHEET TITLE:  
 MECHANICAL CONTROL  
 WIRING PLAN &  
 SEQUENCE OF  
 OPERATION

SHEET NUMBER  
**M-3**

SMALL SPLIT SYSTEM AC SCHEDULE									
MARK	AHU-1	AHU-2	AHU-3	AHU-4	AHU-5	AHU-6	AHU-7	AHU-8	AHU-9
TOTAL CAPACITY (BTUH)	19791	14843	7834	14843	6185	6185	6185	6185	8900
SENSIBLE CAPACITY (BTUH)	14330	11177	5904	11652	5009	5009	5009	5009	---
LATENT CAPACITY (BTUH)	5461	3666	1930	3191	682	1176	1176	1176	---
TOTAL AIR CFM	580	440	320	495	280	320	320	320	197
OUTSIDE AIR CFM	100	100	30	35	0	12	12	12	0
ENTERING AIR DB(WB)	80/67	80/67	80/67	80/67	80/67	80/67	80/67	80/67	80/67
ROOMER MOTOR (WATTS)	130	130	55	55	40	55	55	55	---
W.C./MAX FUSE	1.4/15	1.3/15	0.8/15	0.7/15	0.7/15	0.8/15	0.8/15	0.8/15	0.8/15
ELECTRICAL SERVICE (V/PH/HZ)	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60	208/1/60
FILTER (TYPE)	WASHABLE	WASHABLE	WASHABLE	WASHABLE	WASHABLE	WASHABLE	WASHABLE	WASHABLE	WASHABLE
WEIGHT (LBS)	75	63	42	42	25	42	42	42	16.6
ROOMER MODEL NO.	FG020M4U	FG020M4U	FG020M4U*	FG020M4U**	FG020M4U**	FG020M4U**	FG020M4U**	FG020M4U**	FTX090V4U**
COND. UNIT MODEL NO.									
MANUFACTURER									
OUTDOOR TEMP (DEG F)				CU-1					CU-9
ELECTRICAL SERVICE (V/PH/HZ)				208/2/60					208/1/60
W.C./MAX FUSE				36.1/50					6.1/15
LIQUID LINE (OD)				3/8"					1/4"
SUCTION LINE (OD)				7/8"					3/8"
WEIGHT (LBS)				580					74
COND. UNIT MODEL NO.				RO999FUJ					RO999FUJ
MANUFACTURER				DAIKIN					DAIKIN

UNITS SHALL HAVE AUTO-RESTART OPTION  
 \*\* WITH CONDENSATE PUMP, REMOTE THERMOSTAT  
 \*\*\* WITH CONDENSATE PUMP, REMOTE THERMOSTAT

EXHAUST FAN SCHEDULE						
MARK	MANUFACTURER	MODEL	CFM	ESP	DRIVE	DESCRIPTION
E1	GREENHECK	SP-B110	70	0.25	DIRECT	CEILING EXHAUST FAN
E2	GREENHECK	SP-B110	70	0.25	DIRECT	CEILING EXHAUST FAN
E3	GREENHECK	SP-B110	70	0.25	DIRECT	CEILING EXHAUST FAN
E4	GREENHECK	SP-B110	70	0.25	DIRECT	CEILING EXHAUST FAN

ACCEPTABLE MANUFACTURERS ARE: COOK, GREENHECK, AND PENN.  
 NOTES: ① WITH FACTORY MOUNTED SPEED CONTROLS  
 ② INTERLOCK WITH TIMERS TO BE ON DURING OCCUPIED PERIODS  
 ③ PROVIDE WITH GRAVITY BACKDRAFFT DAMPER.

SUPPLY FAN SCHEDULE						
MARK	MANUFACTURER	MODEL	CFM	ESP	DRIVE	DESCRIPTION
S1	GREENHECK	SP-70-D	65	0.25	DIRECT	DIRECT DRIVE INLINE SUPPLY FAN
S2	GREENHECK	SP-60-D	36	0.25	DIRECT	DIRECT DRIVE INLINE SUPPLY FAN

ACCEPTABLE MANUFACTURERS ARE: COOK, GREENHECK, AND PENN.  
 NOTES: ① WITH FACTORY MOUNTED SPEED CONTROLS  
 ② INTERLOCK WITH TIMERS TO BE ON DURING OCCUPIED PERIODS AND OFF DURING UNOCCUPIED PERIODS

MOTORIZED DAMPER SCHEDULE				
MARK	MANUFACTURER	MODEL	SIZE	DESCRIPTION
M1	RUSSINI	GRS25	6#	2WAY ACUATOR, 2 POSITION, POWERED OPEN & SPRING CLOSED
M2	RUSSINI	GRS25	6#	2WAY ACUATOR, 2 POSITION, POWERED OPEN & SPRING CLOSED
M3	RUSSINI	GRS25	6#	2WAY ACUATOR, 2 POSITION, POWERED OPEN & SPRING CLOSED
M4	RUSSINI	GRS25	4#	2WAY ACUATOR, 2 POSITION, POWERED OPEN & SPRING CLOSED

ACCEPTABLE MANUFACTURERS ARE: COOK, GREENHECK, AND PENN.  
 NOTES: ① INTERLOCK WITH TIMERS TO BE ON DURING OCCUPIED PERIODS AND OFF DURING UNOCCUPIED PERIODS

BRICK VENT SCHEDULE			
MARK	MANUFACTURER	MODEL	DESCRIPTION
BV1	RUSSINI	BV-100	EXTRUDED ALUMINUM BRICK VENT W/ BRD SCREEN
BV2	RUSSINI	BV-100	EXTRUDED ALUMINUM BRICK VENT W/ BRD SCREEN
BV3	RUSSINI	BV-100	EXTRUDED ALUMINUM BRICK VENT W/ BRD SCREEN

GRAVITY VENTILATOR SCHEDULE			
MARK	MANUFACTURER	MODEL	NOTES
GV-1	GREENHECK	FR-10410	HOODED GRAVITY RELIEF
GV-2	GREENHECK	FR-10410	HOODED GRAVITY RELIEF
GV-3	GREENHECK	FR-10410	HOODED GRAVITY RELIEF
GV-4	GREENHECK	FR-10410	HOODED GRAVITY RELIEF

ACCEPTABLE MANUFACTURERS ARE: COOK, GREENHECK, AND PENN.  
 NOTES: ① GALVANIZED STEEL HOUSING  
 ② CURB GR-100-FB, CHILL, FRM, GRAVITY OPERATED  
 ③ THE DOWN POINTS-SET OF 4  
 ④ RUBBER CURB CAP STRIPPING

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PROJECT NUMBER  
**BMK 20903**

ISSUED FOR

DATE: \_\_\_\_\_  
 TO THE BEST OF MY KNOWLEDGE AND BELIEF, I AM NOT PROVIDING ANY GUARANTEE OR WARRANTY FOR THE ACCURACY OF THE INFORMATION CONTAINED HEREIN.

BY: GERARD L. ABRAMS  
 4786

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KEY PLAN

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**MECHANICAL SCHEDULES**



# MECHANICAL SPECIFICATIONS

## SECTION 15 - MECHANICAL HVAC SPECIFICATIONS - GENERAL:

THE CONSTRUCTION OF THIS PROJECT SHALL BE IN COMPLETE CONFORMANCE WITH THE FOLLOWING:

1. FLORIDA AMERICANS WITH DISABILITY IMPLEMENTATION ACT, 1993.
2. FLORIDA ACCESSIBILITY CODE FOR BUILDING CONSTRUCTION, OCTOBER 2007
3. INTERNATIONAL MECHANICAL ELECTRICAL PLUMBING (IMEP) CODE FOR BUILDING CONSTRUCTION, 2007 WITH 2009 SUPPLEMENTS.
4. NATIONAL ELECTRICAL CODE, 2005.
5. FLORIDA BUILDING CODE 2007, BUILDING.
6. FLORIDA BUILDING CODE 2007, GAS-FITTING.
7. FLORIDA BUILDING CODE 2007, GAS-FITTING.
8. FLORIDA BUILDING CODE 2007, PLUMBING.

DRAWINGS ARE DIAGRAMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED IN THE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FOR EXACT LOCATION OF FITTINGS AND EQUIPMENT. ANY CONFLICT SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT OR ENGINEER BEFORE PROCEEDING WITH THE WORK.

THE HVAC CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS AND PAY ALL GOVERNMENT FEES, SALES TAXES AND OTHER COSTS IN CONNECTION WITH HIS WORK. THE ALL NECESSARY APPROVALS WITH ALL GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION, OBTAIN ALL REQUIRED CERTIFICATES OF ACCEPTANCE FOR THE WORK, AND FURNISH TO THE ARCHITECT THE SAME CERTIFICATES BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.

THE HVAC CONTRACTOR SHALL GIVE FULL COOPERATION TO OTHER TRADES AND SHALL FURNISH IN WRITING TO THE OWNER WITH THE LATEST POSSIBLE INTERFERENCE OR DELAY.

IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE COMPLETE SYSTEMS, LEFT IN GOOD WORKING ORDER AND WITH THE LEAST POSSIBLE INTERFERENCE OR DELAY.

THE ARCHITECT/ENGINEER RESERVES THE RIGHT TO DIRECT THE REMOVAL AND REPLACEMENT OF ANY ITEM PROVIDED IN THIS SPECIFICATION THAT IS NOT PROPERLY INSTALLED IN SUCH MANNER AS TO BE SHOWN IN SUCH CATALOG NUMBER SHALL BE PROVIDED AS SPECIFIED.

SUBMITTALS ARE REQUIRED FOR ALL MATERIAL AND EQUIPMENT WHICH THE HVAC CONTRACTOR PROPOSES TO USE. THE CONTRACTOR SHALL SUBMIT A COMPLETE SET OF SUBMITTALS TO THE ARCHITECT AND ENGINEER. EQUIPMENT: DATA SHALL BE COMPLETED IN BROCHURE FORM AND ALL SUBMITTED AT ONE TIME.

### SHOP DRAWINGS

THE HVAC CONTRACTOR SHALL SUBMIT SIX (6) COPIES FOR APPROVAL OF DETAILED SHOP DRAWINGS OF ALL EQUIPMENT AND ALL MATERIALS REQUIRED TO COMPLETE THE PROJECT TO THE ARCHITECT. MATERIALS OR EQUIPMENT NOT LISTED IN THE SHOP DRAWINGS BY TRADE NAME, MANUFACTURER'S NAME OR CATALOG NUMBER SHALL BE PROVIDED AS SPECIFIED.

SHOP DRAWINGS OR CUT SHEETS REQUIRED INCLUDE:  
SPLIT DX V/C CONDENSING UNITS, AIR HANDLERS, ETC.  
CONTROLS, CONTROL WIRING DIAGRAM  
AIR DEVICES AND VOLUME DAMPERS  
THERMOSTATS

DUCTWORK  
ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE." REFER TO TABLES FOR REINFORCEMENT OF DUCT LENGTHS OTHER THAN FIVE (5) FEET.

DUCT SHALL BE FABRICATED, INSTALLED AND SEALED IN ACCORDANCE WITH SMACNA "2" W.G. PRESSURE CLASS AND SEAL CLASS A, AND MEET THE REQUIREMENTS OF THE FLORIDA ENERGY EFFICIENCY CODE FOR BUILDING CONSTRUCTION, EXCEPT THAT TAPE SHALL NOT BE USED AS A SEALING METHOD FOR METAL DUCT.  
ALL RECTANGULAR METALLIC DUCTWORK SHALL BE SHOP FABRICATED OF BEST QUALITY GALVANIZED STEEL SHEETS, CONFORM TO THE RECOMMENDATIONS OF SMACNA AS TO JOINTS, JOINTS, CROSS BREAKS AND TRANSITIONS, ETC.

### RECTANGULAR STEEL DUCT GAGE

DUCT SIZE IN INCHES	WITH FLAT "S" SLP ON 5' SPACING (GA)	WITH STANDING "S" SLP ON 5' SPACING (GA)
0 - 12	26	28 B
13 - 14	26	28 B
15 - 18	22	28 B
19 - 20	22	28 C
21 - 22	20	28 C
22 - 28	16	28 C
27 - 28	16	28 D
29 - 30	16	24 D
31 - 35	16	24 D
37 - 38	16	24 D
43 - 60	16	22 G

### STANDING "S" SLP SIZE

- B 1" X 28 GA
- C 1" X 22 GA
- D 1-1/8" X 22 GA
- E 1-1/8" X 18 GA
- G 1-5/8" X 18 GA

REFER TO SMACNA TABLES FOR REINFORCEMENT FOR DUCT LENGTHS OTHER THAN FIVE (5) FEET.

ALL ROUND RIGID METAL DUCTWORK CAN BE PREFABRICATED OR SHOP FABRICATED. FOLLOWING ARE THE SMACNA RECOMMENDATIONS FOR GALVES AND SEAMS. ELBOWS SHALL HAVE CENTRINE RADIUS OF 1-1/2 TIMES DUCT PERMIT. THE CONTRACTOR MAY PROVIDE EQUIVALENT ROUND OR RECTANGULAR DUCT AS CONDITIONS AND SPACE PERMIT.

### ROUND STEEL DUCT GAGE

DUCT DIAMETER IN INCHES	SPIRAL SEAM IN INCHES	LONGITUDINAL SEAM IN INCHES
3 - 8	28	28
9 - 14	28	26
15 - 26	26	24
27 - 35	24	22
36 - 40	22	22
51 - 60	20	18
61 - 84	18	16

### ROUND ALUMINUM DUCT GAGE

DUCT DIAMETER IN INCHES	SPIRAL SEAM IN INCHES	LONGITUDINAL SEAM IN INCHES
3 - 14	.025	.032
15 - 26	.025	.032
27 - 35	.040	.050
36 - 40	.040	.050
41 - 50	.050	.063

JOINTS OF ROUND DUCTS SHALL BE SLP TYPE WITH A MINIMUM OF THREE SHEET METAL SCREWS. ALL SEAMS AND JOINTS SHALL BE SEALED. TAPE SHALL NOT BE USED.

ALL FLEXIBLE DUCTS FROM TRUNK TO AIR DEVICE SHALL BE COLD ROLLED, CORROSION RESISTANT SPRING STEEL WIRE COVERED WITH 14 OZ. VINYL COATED GLASS FABRIC PRE INSULATED WITH FIBERGLASS INSULATION AND WITH ALUMINUM REINFORCED FIBERGLASS FABRIC. THE FLEXIBLE DUCTS SHALL BE UL LABELED AND MEET NFPA STANDARDS, PARTNELL 95A, MAXIMUM DUCT LENGTH SHALL NOT EXCEED 7 FEET.

ALL DUCTS ARE TO BE PROPERLY SUPPORTED FREE OF SAG OR BULGE. LINED PROPERLY FREE OF VIBRATION AND FLEXURE. ALL DUCTS SHALL BE PROTECTED WITH INSULATION. CONSTRUCTION SHALL BE AS FOLLOWS:  
FLEXIBLE DUCTS SHALL BE PROTECTED WITH INSULATION. CONSTRUCTION SHALL BE AS FOLLOWS:  
RECTANGULAR DUCTS - GALVANIZED SHEET METAL WITH 2" THICK 1 PPF DENSITY EXTERNAL DUCT WRAP.  
FIBERGLASS DUCTBOARD DUCTS AND DUCT LINER ARE NOT TO BE USED ON THIS PROJECT.

ROUND ROUND DUCTS - GALVANIZED SHEET METAL WITH 2" THICK 1 PPF DENSITY EXTERNAL DUCT WRAP.  
FLEXIBLE ROUND DUCTS - FLEXIBLE WIRE REINFORCED DUCT WITH R-4.0 EXTERNAL INSULATION WITH VAPOR BARRIER AND AIR LEAK RESISTANT SEALING. ALL DUCTS SHALL BE PROTECTED WITH INSULATION. CONSTRUCTION SHALL BE AS FOLLOWS:  
7-0" FOR LONGER BRANCH RUNS, USE A COMBINATION OF RIGID ROUND METAL DUCT WITH A SHORT PIECE OF FLEXIBLE DUCT.

EXHAUST AIR DUCTS - GALVANIZED SHEET METAL, UNINSULATED.  
OUTSIDE AIR DUCT - GALVANIZED SHEET METAL, INSULATED.

ALL DUCT SIZES INDICATE "TARGE AREA" DIMENSIONS. ALL TARGE AREAS AND DIMENSIONS SHALL HAVE VOLUME DAMPERS. PROVIDE SPIN-IN COLLARS WITH INTERNAL SCOOPS AND DAMPERS FOR ALL BRANCH TAKEOFFS, DIFFUSERS AND REGISTERS, ETC. SHALL BE INSTALLED IN ACCORDANCE WITH FACTORY DETAILS.

FACTORY MADE OPPOSED BLADE DAMPERS WITH FRONT ACCESSIBLE OPERATOR WITH DUCT RING SHALL BE FURNISHED FOR EACH DIFFUSER UNLESS OTHERWISE SPECIFIED.

PROVIDE FLEXIBLE CONNECTORS WHERE METAL DUCTWORK CONNECTS TO FANS OR AIR HANDLERS.  
WHERE IT IS POSSIBLE TO SEE THROUGH DIFFUSERS, GRILLES OR REGISTERS TO DUCTWORK, LIGHT COLORED INSULATION OR PLENUMS, THE INTERIOR DUCTWORK OR PLENUM SHALL BE PAINTED FLAT BLACK.

THERMOSTATS:  
HVAC CONTRACTOR IS RESPONSIBLE FOR ALL CONTROLS AND CONTROL WIRING.  
THERMOSTATS SHALL BE INSTALLED IN ACCORDANCE WITH FACTORY DETAILS AND WIRING FOR AIR CONDITIONING UNITS. PROVIDE BOX FOR MOUNTING THERMOSTAT PER MANUFACTURER'S INSTRUCTIONS.

LUBRICATION:  
WHERE NECESSARY, PROVIDE MEANS FOR LUBRICATING ALL BEARINGS AND OTHER MACHINE PARTS. IF A PART REQUIRING LUBRICATION IS CONCEALED OR INACCESSIBLE, IT SHALL BE IDENTIFIED BY THE CONTRACTOR TO AN ACCESSIBLE LOCATION AND SUITABLY IDENTIFY IT.

AFTER INSTALLATION, PROPERLY LUBRICATE ALL PARTS REQUIRING LUBRICATION AND KEEP THEM ADEQUATELY LUBRICATED UNTIL FINAL ACCEPTANCE.

MISCELLANEOUS:  
PROVIDE A COMPLETE VIBRATION CONTROL SYSTEM CONSISTING OF ISOLATION PADS FLEXIBLE CONNECTORS, LEVELING BOLTS, ETC. COMPLETE VIBRATION CONTROL SYSTEM FOR AIR HANDLING UNITS AND DUCTWORK SHALL BE PROVIDED BY ENGINEER PRIOR TO INSTALLATION.

THE HVAC CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL CONDENSATE DRAIN PIPING.  
CONDENSING UNITS SHALL BE MOUNTED ON 4" THICK CONCRETE PADS UNLESS NOTED OTHERWISE.

THE CONTRACTOR WILL PROVIDE OVERSIZE REFRIGERANT LINE SETS FOR ANY AIR HANDLER THAT IS IN EXCESS OF 60 FEET FROM ITS RESPECTIVE CONDENSING UNIT. THE CONTRACTOR WILL ADVISE THE ENGINEER OF ANY REFRIGERANT LINE SETS THAT ARE IN EXCESS OF THE 60 FEET LIMIT. THE CONTRACTOR SHALL PROVIDE PROPER SIZES AND CONDENSING UNITS OF EXCESSIVE SEPARATION OF AIR HANDLER AND CONDENSING UNITS.

REFRIGERANT PIPING:  
ALL REFRIGERANT LINES INSIDE BUILDING TO BE TYPE ADR HARD COPPER TUBING WITH WROUGHT COPPER FITTINGS AND 15% SILVER SOLDER JOINTS. THE USE OF AODS WILL NOT BE PERMITTED WITH EITHER SOLDER OR FLUX. ALL ELBOWS USED IN REFRIGERANT LINES SHALL BE LONG RADIUS. ALL REFRIGERANT CIRCUITS PENETRATING CONCRETE WALLS SHALL BE RUN IN A 6" SLEEVE. USE LONG RADIUS ELBOWS AND SEAL EXTERIOR CONDUIT WITH SILICONE SEALANT.

CONDENSATE DRAINS:  
ALL CONDENSATE DRAINAGE PIPING SHALL BE HARD DRAWN COPPER TUBING. PIPING SHALL BE RUN FULL SIZE OF CONNECTION AND THE PIPING SHALL HAVE AN ADEQUATE AIR SEAL TRAP AT EACH UNIT CONNECTION. RUN CONDENSATION DRAINS TO FLOOR DRAINS.

REFRIGERANT PIPE INSULATION:  
REFRIGERANT SUCTION PIPING SHALL BE INSULATED WITH ARMASTRONG ARMAFLEX TYPE FLEXIBLE TUBING INSULATION. ALL REFRIGERANT PIPING SHALL BE INSULATED WITH ARMASTRONG ARMAFLEX TYPE FLEXIBLE TUBING INSULATION. ALL REFRIGERANT PIPING SHALL BE INSULATED WITH ARMASTRONG ARMAFLEX TYPE FLEXIBLE TUBING INSULATION. ALL REFRIGERANT PIPING SHALL BE INSULATED WITH ARMASTRONG ARMAFLEX TYPE FLEXIBLE TUBING INSULATION. ALL REFRIGERANT PIPING SHALL BE INSULATED WITH ARMASTRONG ARMAFLEX TYPE FLEXIBLE TUBING INSULATION.

INSULATE ALL CONDENSATE DRAIN PIPING WITHIN THE BUILDING WITH 3/8" WALL THICKNESS ARMAFLEX TYPE INSULATION.  
WORK SHALL INCLUDE STARTUP OF ALL SYSTEMS, FURNISHING OF OPERATING AND MAINTENANCE INSTRUCTIONS AND ONE YEAR GUARANTEE, COMMENTING ON DATE OF ACCEPTANCE BY OWNER.

FACTORY STARTUP:  
WORK SHALL INCLUDE STARTUP BY DAKIN FACTORY REPRESENTATIVE.  
TEST AND BALANCE.

WORK SHALL INCLUDE TESTING AND BALANCING OF THE AIR SYSTEM BY A AAGC CERTIFIED CONTRACTOR. HVAC CONTRACTOR SHALL SUBMIT COPIES OF TEST AND BALANCE REPORTS SHOWING RESULTS OF BALANCING OF AIR QUANTITIES TO PLAN REQUIREMENTS. MAKE ALL ADJUSTMENTS REQUIRED TO PROVIDE DESIGN AIR FLOW.

### RECORD DRAWINGS:

THE HVAC CONTRACTOR SHALL KEEP ACCURATE RECORDS OF ACTUAL CONSTRUCTION INCLUDING DEVICE LOCATIONS, IF DIFFERENT FROM THE PLANS.

THE HVAC CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A MARKED-UP SET OF PLANS OF THE COMPLETE HVAC SYSTEMS AS INSTALLED (AS-BUILT DRAWINGS). THE SCALE ON THESE AS-BUILT DRAWINGS SHALL BE NO SMALLER THAN THE SCALE USED ON THE ORIGINAL PLANS.

FINAL TESTS SHALL BE MADE ONLY AFTER THE ARCHITECT IS SATISFIED THAT ALL WORK HAS BEEN COMPLETED, INCLUDING CLEANING, REPLACEMENT OF AIR FILTERS AND TEST AND BALANCE REPORTS. ALL PIPING SHALL BE PRESSURE TESTED AT 150% OF THE WORKING PRESSURE AND FOUND FREE OF ALL LEAKS BEFORE THE PIPE IS COVERED, CONCEALED OR INSULATED.

TESTS SHALL DEMONSTRATE THAT THE SYSTEM FUNCTIONS PROPERLY THROUGHOUT. THAT IT IS BALANCED AND OPERATING WITHIN DESIGN LIMITS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY INSTRUMENTS AND PERSONNEL FOR TESTS.

TESTING:  
AFTER TESTING AND BEFORE TURNOVER OF THE HVAC SYSTEM TO THE OWNER, INSTALL CLEAN FILTERS IN ALL AIR HANDLERS.

EVACUATION AND CHARGING OF REFRIGERANT SYSTEM: AFTER THE COMPLETE REFRIGERANT SYSTEM IS INSTALLED, IT SHALL BE LEAK TESTED WITH OIL-PUMPED, DRY NITROGEN AT A PRESSURE OF 150 PSIG AND ALLOW IT TO REMAIN UNDER PRESSURE FOR TWO (2) HOURS. IF THERE IS NO APPRECIABLE PRESSURE CHANGE, THE SYSTEM MAY BE CONSIDERED LEAK FREE. THE SYSTEM SHALL THEN BE EVACUATED TO 300 MICRONS. THE SYSTEM SHALL BE RECHARGED WITH REFRIGERANT TO 500 MICRONS. THE SYSTEM SHALL NOT BE ACCEPTED, THEN BREAK THE VACUUM. NOW RE-EVACUATE THE SYSTEM TO 500 MICRONS AND LET THE SYSTEM STAND FOR 12 HOURS. IF THE VACUUM READING CHANGES BY LESS THAN 250 MICRONS THEN THE SYSTEM IS READY FOR CHARGING WITH NEW DEHYDRATED FREON 22.

FINAL ACCEPTANCE:  
AFTER TESTING A FINAL REVIEW SHALL BE MADE BY THE ARCHITECT AND OTHER AUTHORIZED PERSONS WITH THE HVAC CONTRACTOR.  
FINAL ACCEPTANCE OF THE PROJECT SHALL NOT PREJUDICE THE OWNER'S RIGHT TO REQUIRE REPLACEMENT AND/OR REPAIR OF ANY DEFECTIVE WORK OR MATERIALS.

WARRANTY:  
ALL PARTS, MATERIALS, EQUIPMENT AND LABOR FURNISHED UNDER THIS SECTION OF THE SPECIFICATIONS SHALL BEAR A ONE (1) YEAR WARRANTY FROM DATE OF FINAL ACCEPTANCE. ALL WORK PERFORMED UNDER THIS SECTION SHALL BE GUARANTEED FOR THE LIFE OF THE BUILDING. THE CONTRACTOR SHALL PROVIDE THE ABOVE WARRANTY REQUIREMENTS IN A WRITTEN STATEMENT ALONG WITH EQUIPMENT MANUFACTURER'S WARRANTIES. ALL COMPRESSORS SHALL BEAR AN ADDITIONAL 4 YEAR PARTS WARRANTY.

**FORNEY ENGINEERING INC.**  
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DESIGNED: RLA DRAWN: RLA CHECKED: RLA  
JOB NO: 09-2186 SCALE: AS SHOWN DATE: 11-23-09

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PROJECT NAME  
MANATEE COUNTY  
SHERIFFS JUVENILE  
PROCESSING CENTER

OWNERS NAME AND ADDRESS  
MANATEE COUNTY  
421 17TH AVE. WEST  
BRADENTON, FLORIDA

ISSUED FOR

PROJECT NUMBER  
BMK 20903

SINGLESEAL  
BY: GEORGE L. BARBUS  
DATE: 4/18/08

TO THE BEST OF MY KNOWLEDGE AND BELIEF, I HAVE PREPARED THIS SET OF MECHANICAL SPECIFICATIONS IN ACCORDANCE WITH ALL APPLICABLE BUILDING CODES.

REVISIONS

NO.	ITEM	DATE
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KEY PLAN

FILE NAME

DATE

PLOT SCALE

SHEET TITLE

MECHANICAL SPECIFICATIONS

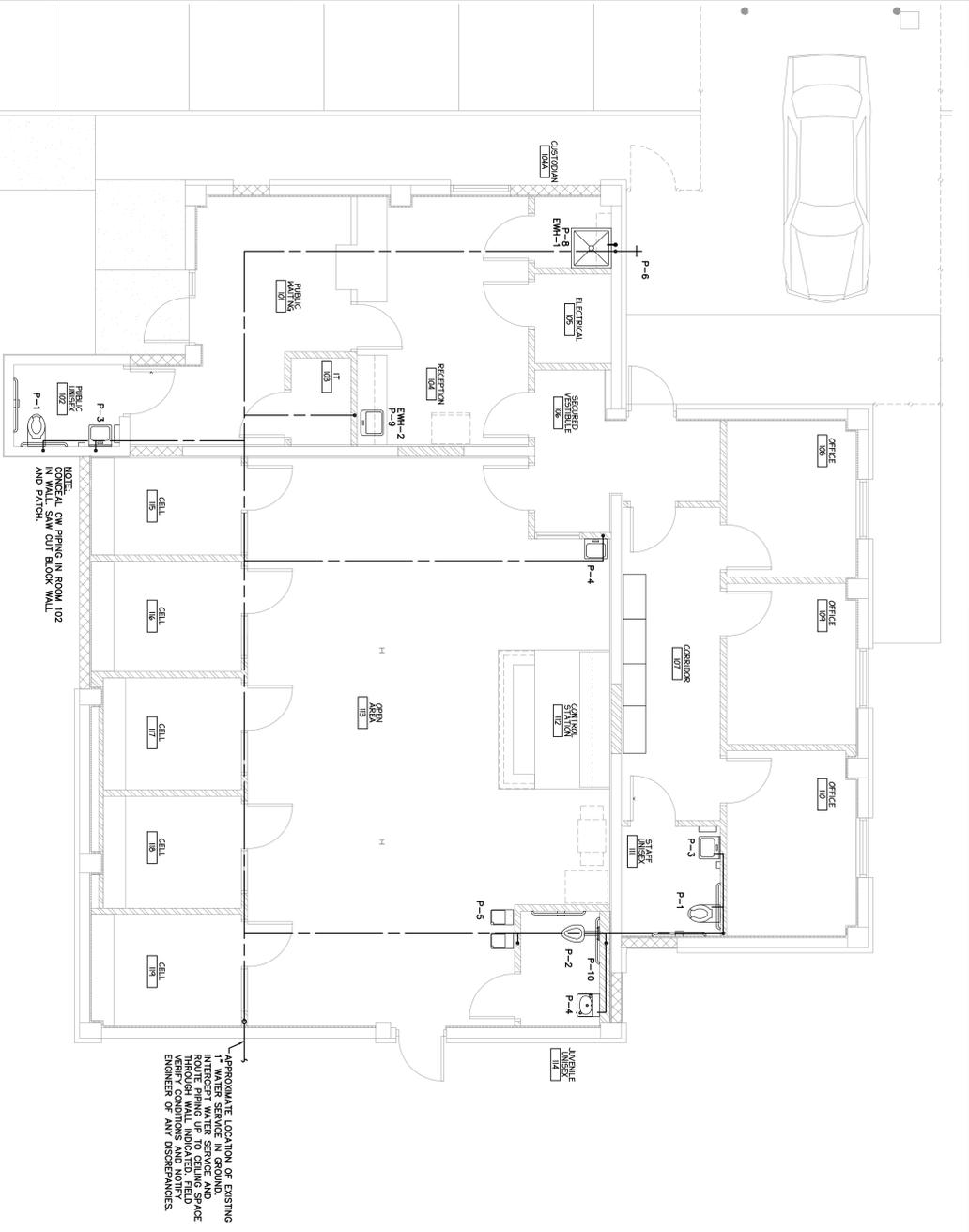
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M-6

SCALE: NOT TO SCALE

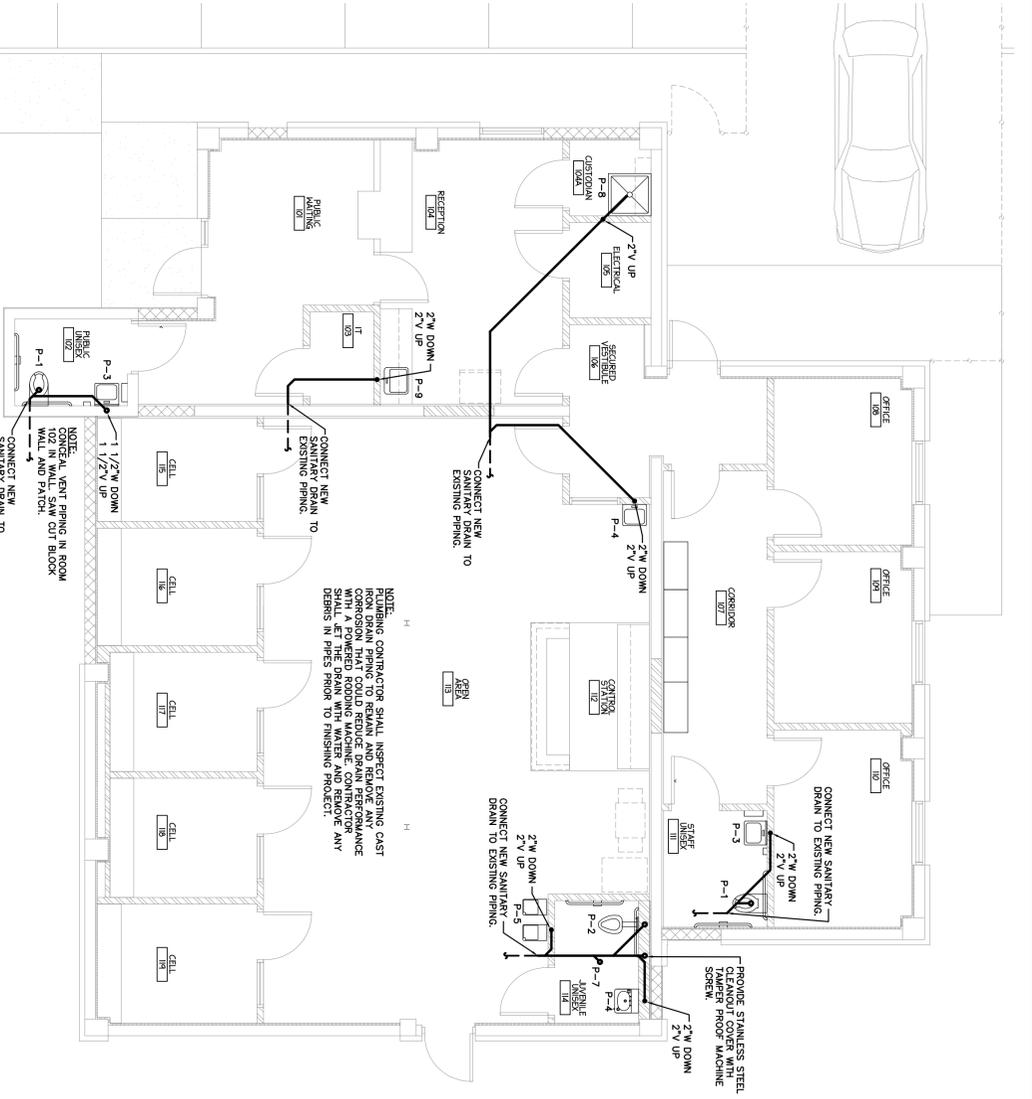
# MECHANICAL SPECIFICATIONS





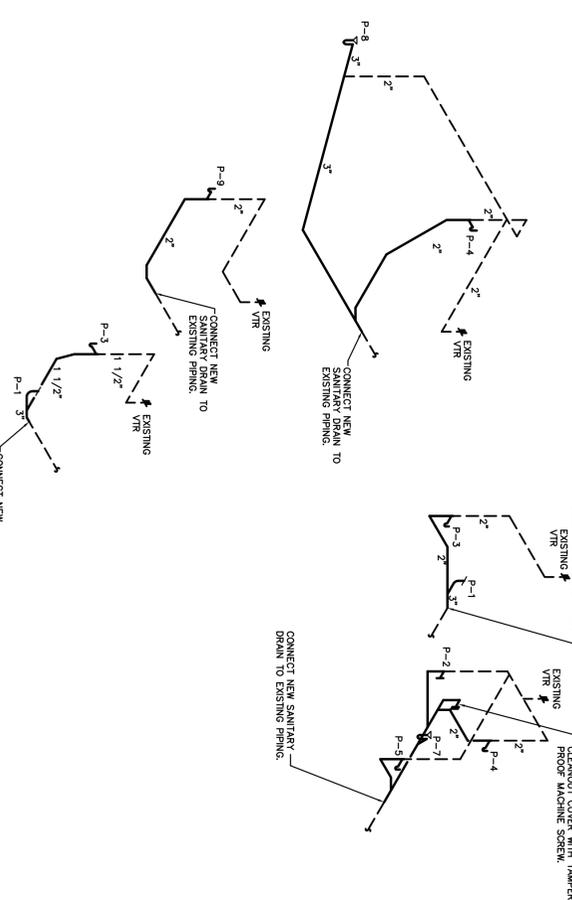
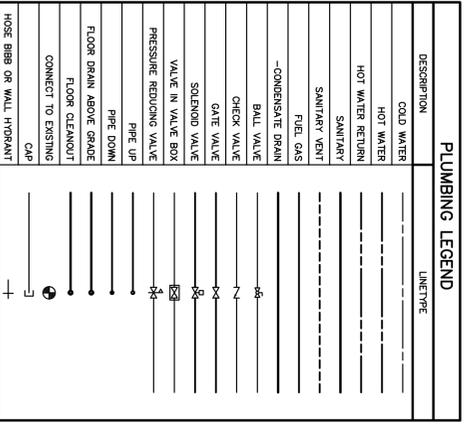
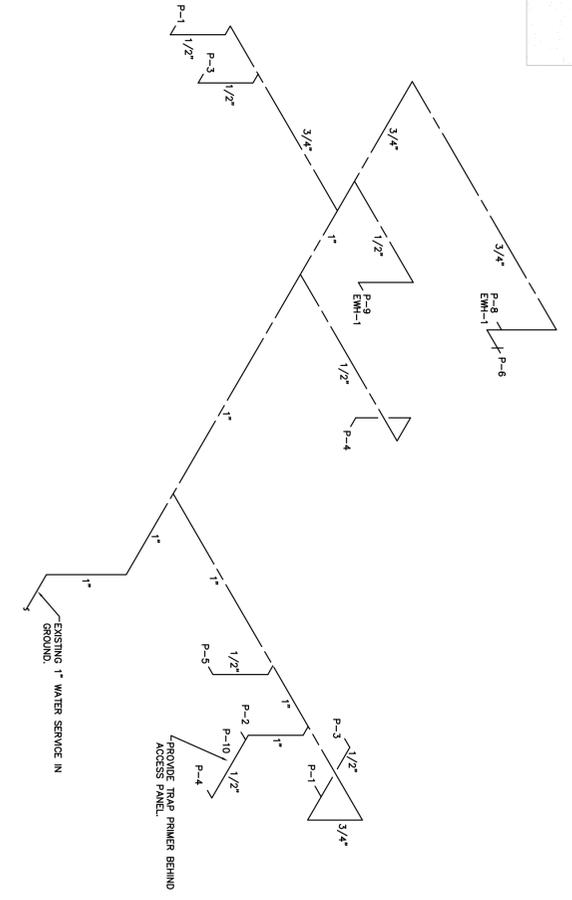
# PLUMBING WATER RISER

SCALE: NOT TO SCALE



# PLUMBING SANITARY PLAN

SCALE: NOT TO SCALE



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DESIGNED: N.M. DRAWN: N.M. CHECKED: N.M.  
 JOB: NO. 09-2186 SCALE: AS SHOWN DATE: 11-23-09

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PROJECT NAME  
**MANATEE COUNTY  
 SHERIFF'S JUVENILE  
 PROCESSING CENTER**

OWNERS NAME AND ADDRESS  
**MANATEE COUNTY  
 421 17TH AVE. WEST  
 BRADENTON, FLORIDA**

PROJECT NUMBER  
**BMK 20903**

SIGNSEAL  
 BY: GEORGE L. ABRAMS  
 DATE: 4/7/08

DATE: \_\_\_\_\_  
 TO THE BEST OF MY KNOWLEDGE AND BELIEF, I AM NOT PROVIDING ANY GUARANTEE OR WARRANTY FOR ANY REPAIRS OR BUILDING CODES.

REVISIONS

NO.	ITEM	DATE
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KEY PLAN

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DRAWN BY \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_  
 FILE NAME \_\_\_\_\_  
 DATE: 11/23/09  
 PLOT SCALE \_\_\_\_\_  
 SHEET TITLE  
**PLUMBING PLAN**

SHEET NUMBER  
**P-2**