

VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL

AT

HOSPITAL DE PSIQUIATRÍA GENERAL DR. RAMÓN FERNÁNDEZ MARINA
SAN JUAN, PUERTO RICO

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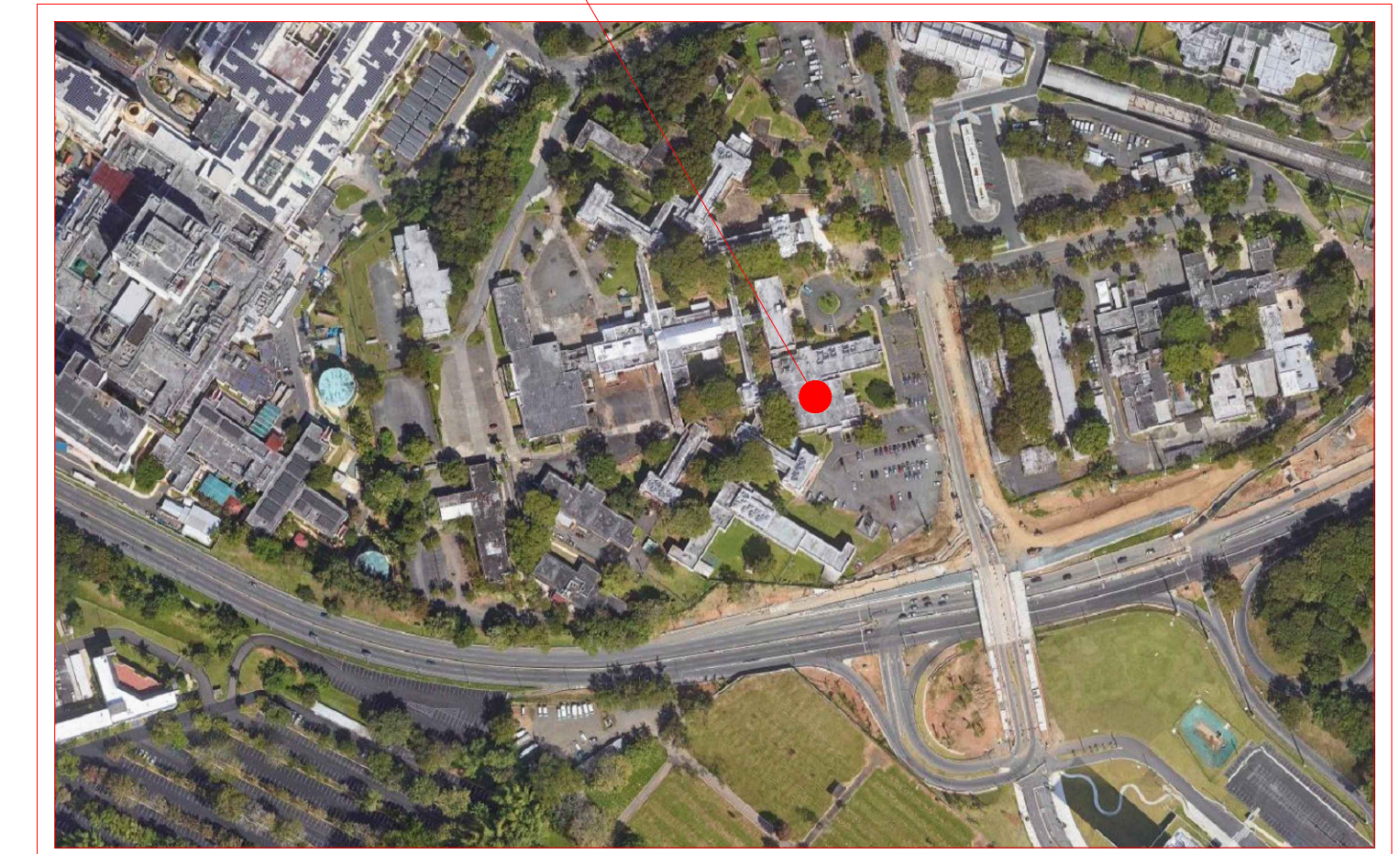
OWNER'S:



LOCATION MAP

SCALE = 1:200

SITE



Yo, José Luis Marrero Sicardo, licencia # 14670, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos y Códigos de las Agencias, Juntas Reglamentadoras o Corporaciones Públicas con Jurisdicción. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido sin conocimiento o por negligencia ya sea por mí, mis agentes o empleados, o por otras personas con mi conocimiento, me ha en responsable de cualquier acción judicial y disciplinaria por la OIGPe y otras autoridades competentes, incluyendo, pero sin limitarse, a la terminación de la participación en los procedimientos de certificación profesional en la OIGPe.

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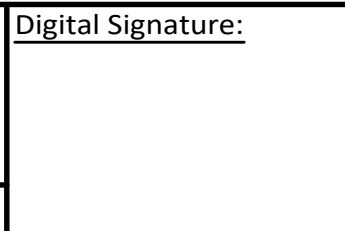

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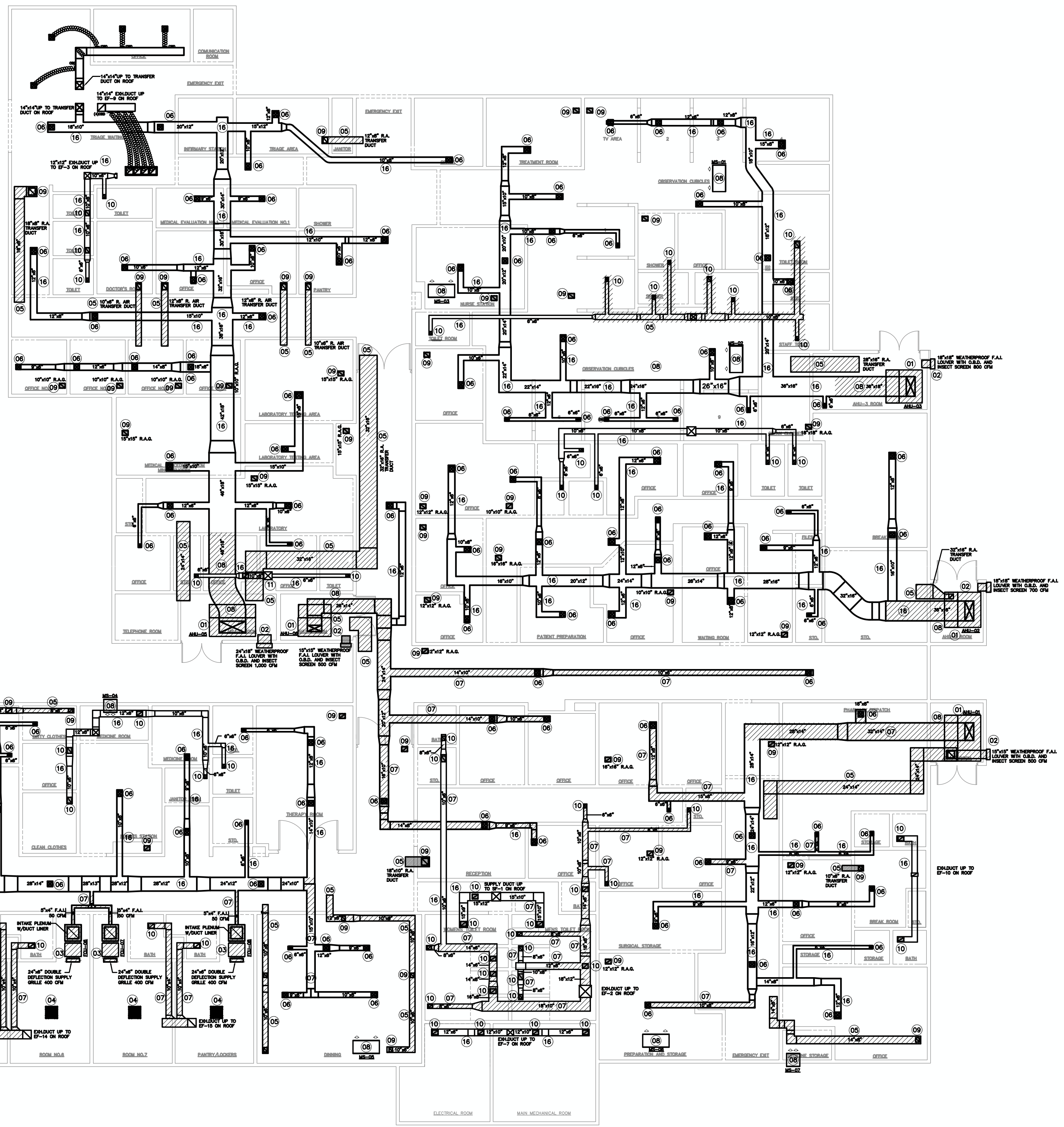
BID SET DRAWINGS

DATE: June 2, 2021

| Rev. # | Date | Revision By | Description |
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| Project Name: VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA San Juan, Puerto Rico | Drawing Name: TITLE SHEET | Digital Signature:  | Stamp:  | JLMS Project Num: 21-027 Drawing Date: June 2, 2021 Checked By: J. L. Marrero Scale: Not to Scale Page: 1 of 14 |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Owner:
ASSMCA



DEMOLITION SCOPE OF WORK

- 01) EXISTING AIR HANDLING UNIT (AHU) TO BE REPLACED. (INCLUDING FILTERS, CONTROL PANEL, VIBRATION ISOLATORS, UV LIGHT, AND RE-HEAT COILS. AHU ROOM DRAIN SHALL BE TESTED FOR PROPER DRAINAGE UNCLG IF NECESSARY. EXISTING CONCRETE PAD TO REMAIN MODIFY AS REQUIRED TO ACCOMMODATE THE NEW EQUIPMENT).
- 02) EXISTING WEATHERPROOF FRESH AIR INTAKE (F.A.I.) LOUVERS TO BE REPLACED.
- 03) EXISTING FAN-COIL UNIT TO BE REPLACED. (INCLUDING FILTERS, UV LIGHT AND RE-HEAT COILS).
- 04) EXISTING CEILING CASSETTE TO REMAIN AS BACK-UP.
- 05) EXISTING RETURN TRANSFER DUCT TO BE REMOVED. (INCLUDING FIRE DAMPERS, HANGERS AND SUPPORT).
- 06) EXISTING SUPPLY DIFFUSER TO BE REPLACED.
- 07) EXISTING DUCTWORK TO BE REMOVED (INCLUDING SUPPORT AND HANGERS. CONTRACTOR SHALL REPLACE ALL EXISTING OBD'S AND PROVIDE NEW ONES AS REQUIRED FOR PROPER AIR BALANCING). SEAL & PATCH EXISTING ROOF OPENING TO MATCH EXISTING ROOF FINISH.
- 08) EXISTING MINI-SPLIT UNITS TO REMAIN AS BACK-UP.
- 09) EXISTING RETURN GRILLE TO BE REPLACED.
- 10) EXISTING EXHAUST GRILLE TO BE REPLACED.
- 11) EXISTING ROOF EXHAUST FAN TO BE REPLACED.
- 12) EXISTING CHILLED WATER SUPPLY AND CHILLED WATER RETURN PIPE TO REMAIN (INSULATION OF ALL EXISTING PIPING TO REMAIN MUST BE REPLACED).
- 13) EXISTING CHILLED WATER SUPPLY AND CHILLED WATER RETURN PIPE TO BE REPLACED (INCLUDING INSULATION, SUPPORT AND HANGERS).
- 14) EXISTING 70 TON TRANE AIR COOLED CHILLER TO BE REPLACED.
- 15) EXISTING 70 TON TRANE AIR COOLED CHILLER TO BE REMAIN (MUST BE VERIFIED BY LICENSED TECHNICIAN).
- 16) EXISTING DUCTWORK TO REMAIN (ALL DUCTWORK TO REMAIN MUST BE CLEANED, SANITIZED AND PROVIDED WITH NEW INSULATION. CONTRACTOR SHALL REPLACE ALL EXISTING OBD'S AND PROVIDE NEW ONES AS REQUIRED FOR PROPER AIR BALANCING).
- 17) EXISTING CHILLED WATER PUMP TO BE REPLACED.
- 18) EXISTING AIR SEPARATOR TO BE REPLACED (INCLUDING PIPING AND VALVES).
- 19) EXISTING EXPANSION TANK TO BE REPLACED (INCLUDING PIPING AND VALVES).
- 20) EXISTING SUPPLY FAN TO BE REPLACED.
- 21) EXISTING EXHAUST FAN TO REMAIN.
- 22) EXISTING SOLAR WATER HEATER TO REMAIN.

EXISTING FLOOR PLAN – VAC DEMOLITION LAYOUT

SCALE: 3/32" = 1'-0"

LEGEND:
 EXISTING DUCTWORK AND EQUIPMENT TO BE DEMOLISHED.
 EXISTING DUCTWORK AND EQUIPMENT TO REMAIN.

ABBREVIATIONS:

| | | | |
|------|------------------------|--------|---------------------------|
| EF | EXHAUST FAN | FLEX. | FLEXIBLE |
| CFM | CUBIC FEET PER MINUTE | CONN. | CONNECTION |
| S.A. | SUPPLY AIR | AHU | AIR HANDLING UNIT |
| R.A. | RETURN AIR | B.D.D. | BACKDRAFT DAMPER |
| O.A. | OUTSIDE AIR | O.B.D. | OPPOSED BLADE DAMPER |
| PCU | PACKAGE UNIT | CHWS | CHILLED WATER SUPPLY LINE |
| SD | SUPPLY DIFFUSER | CHWR | CHILLED WATER RETURN LINE |
| RR | RETURN REGISTER | HWS | HOT WATER SUPPLY LINE |
| OAL | OUTSIDE AIR LOUVER | HWR | COLD WATER RETURN LINE |
| LCM | LOCAL CONTROL MODULE | BDD | BACKDRAFT DAMPER |
| GCM | GENERAL CONTROL MODULE | (E) | EXISTING |
| TYP. | TYPICAL | (N) | NEW |
| FCU | FAN COIL UNIT | ⊕ | POINT OF CONNECTION |
| DWG | DRAWING | | |

JLMS, CONSULTING ENGINEERS, PSC

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BID SET DRAWINGS
 DATE: June 2, 2021

| Rev. # | Date | Revision By | Description |
|--------|------|-------------|-------------|
| | | | |

Project Name: VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA
 San Juan, Puerto Rico

Drawing Name: EXISTING VAC DEMOLITION LAYOUT

Stamp: JOSE L. MARRERO SIKARDO, INGENIERO LICENCIADO, LIC #14870, PUERTO RICO

JLMS Project Num: 21-027
Drawing Date: June 2, 2021
Checked By: J. L. Marrero

Owner: ASSMCA

Scale: 3/32" = 1'-0"
Page: 2 of 14
VAC-100

"Yo, José Luis Marrero Sikardo, licencia # 14670, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos y Códigos de las Agencias, Juntas Reglamentadoras o Corporaciones Públicas con jurisdicción. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido sin conocimiento o por negligencia ya sea por mí, mis agentes o empleados, o por otras personas con mi conocimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OIGPe y otras autoridades competentes, incluyendo, pero sin limitarse, a la terminación de la participación en los procedimientos de certificación profesional en la OIGPe."



DEMOLITION SCOPE OF WORK

- 01. EXISTING AIR HANDLING UNIT (AHU) TO BE REPLACED. (INCLUDING FILTERS, CONTROL PANEL, VIBRATION ISOLATORS, UV LIGHT, AND RE-HEAT COILS. AHU ROOM DRAIN SHALL BE TESTED FOR PROPER DRAINAGE UNCLG IF NECESSARY. EXISTING CONCRETE PAD TO REMAIN MODIFY AS REQUIRED TO ACCOMMODATE THE NEW EQUIPMENT).
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- 20. EXISTING SUPPLY FAN TO BE REPLACED.
- 21. EXISTING EXHAUST FAN TO REMAIN.
- 22. EXISTING SOLAR WATER HEATER TO REMAIN.

EXISTING CHWS & CHWR PIPING DEMOLITION LAYOUT

SCALE: 3/32" = 1'-0"

LEGEND:

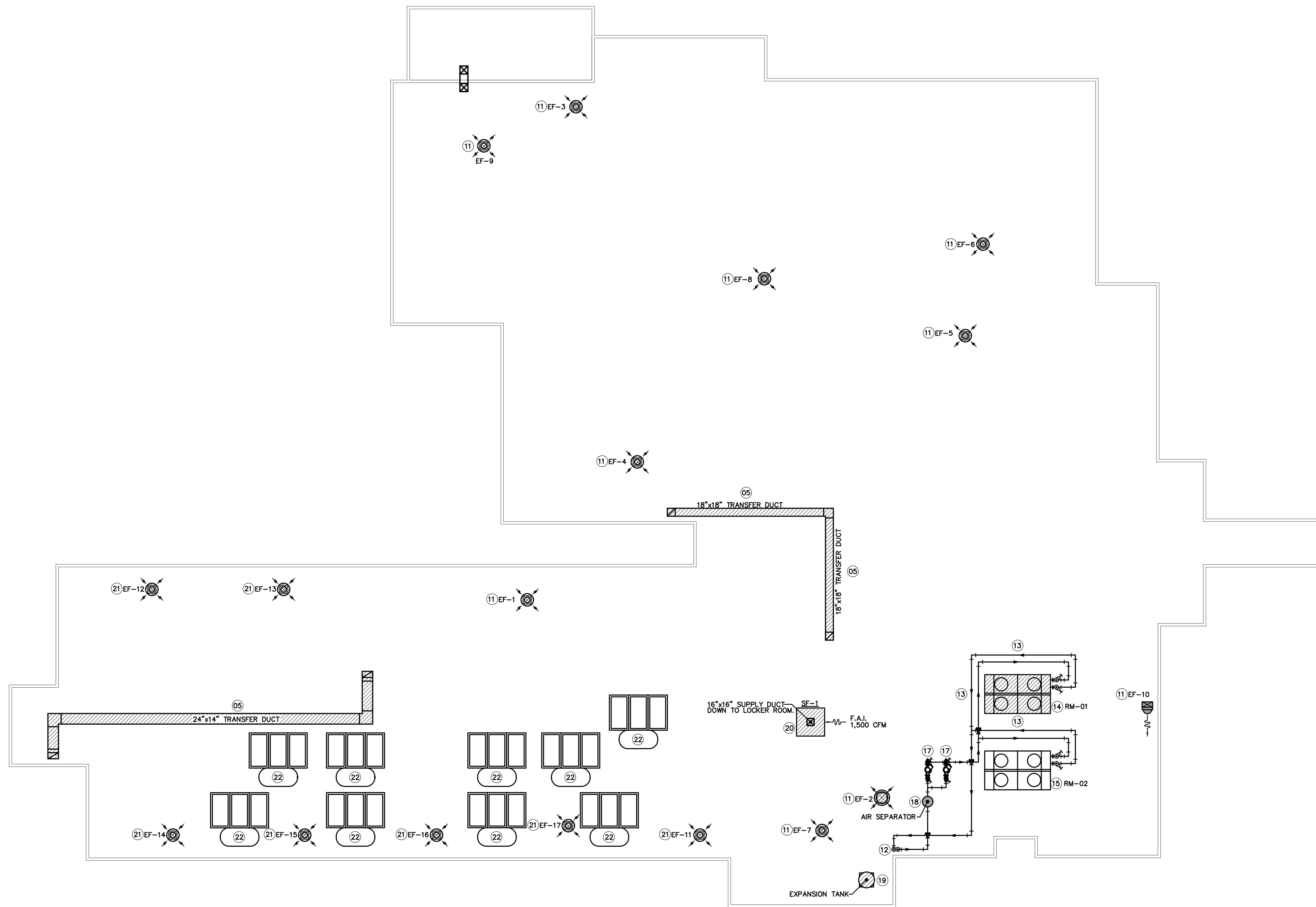
- EXISTING MECHANICAL EQUIPMENT OR PIPING TO BE DEMOLISHED.
- EXISTING CHWS & CHWR PIPE TO REMAIN

ABBREVIATIONS:

- | | | | |
|------|------------------------|--------|---------------------------|
| EF | EXHAUST FAN | FLEX. | FLEXIBLE |
| CFM | CUBIC FEET PER MINUTE | CONN. | CONNECTION |
| S.A. | SUPPLY AIR | AHU | AIR HANDLING UNIT |
| R.A. | RETURN AIR | B.D.D. | BACKDRAFT DAMPER |
| O.A. | OUTSIDE AIR | O.B.D. | OPPOSED BLADE DAMPER |
| PCU | PACKAGE UNIT | CHWS | CHILLED WATER SUPPLY LINE |
| SD | SUPPLY DIFFUSER | CHWR | CHILLED WATER RETURN LINE |
| RR | RETURN REGISTER | HWS | HOT WATER SUPPLY LINE |
| OAL | OUTSIDE AIR LOUVER | HWR | COLD WATER RETURN LINE |
| LCM | LOCAL CONTROL MODULE | BDD | BACKDRAFT DAMPER |
| GCM | GENERAL CONTROL MODULE | (E) | EXISTING |
| TYP. | TYPICAL | (N) | NEW |
| FCU | FAN COIL UNIT | | POINT OF CONNECTION |
| DWG | DRAWING | | |

"Yo, José Luis Marrero Skardo, licencia # 14670, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos y Códigos de las Agencias, Juntas Reglamentadoras o Corporaciones Públicas con jurisdicción. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido sin conocimiento o por negligencia ya sea por mí, mis agentes o empleados, o por otras personas con mi conocimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OIGPe y otras autoridades competentes, incluyendo, pero sin limitarse, a la terminación de la participación en los procedimientos de certificación profesional en la OIGPe."

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| Project Name: VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA San Juan, Puerto Rico | | BID SET DRAWINGS <small>DATE: June 2, 2021</small> | |
| Drawing Name: EXISTING CHWS & CHWR PIPING DEMOLITION LAYOUT | | Rev. # Date Revision By Description | |
| Owner: ASSMCA | | Digital Signature: | |
| Stamp: | | JLMS Project Num: 21-027 Drawing Date: June 2, 2021 Checked By: J. L. Marrero Scale: 3/32" = 1'-0" Page: 3 of 14 VAC-101 | |



DEMOLITION SCOPE OF WORK

- 01) EXISTING AIR HANDLING UNIT (AHU) TO BE REPLACED. (INCLUDING FILTERS, CONTROL PANEL, VIBRATION ISOLATORS, UV LIGHT, AND RE-HEAT COILS. AHU ROOM DRAIN SHALL BE TESTED FOR PROPER DRAINAGE UNCLG IF NECESSARY. EXISTING CONCRETE PAD TO REMAIN MODIFY AS REQUIRED TO ACCOMMODATE THE NEW EQUIPMENT).
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- 20) EXISTING SUPPLY FAN TO BE REPLACED.
- 21) EXISTING EXHAUST FAN TO REMAIN.
- 22) EXISTING SOLAR WATER HEATER TO REMAIN.

EXISTING VAC DEMOLITION ROOF LAYOUT

SCALE: 3/32" = 1'-0"

| | | | |
|----------------|---------------------------------------------------|-----------------------|---------------------------|
| LEGEND: | | ABBREVIATIONS: | |
| | EXISTING DUCTWORK AND EQUIPMENT TO BE DEMOLISHED. | EF | EXHAUST FAN |
| | EXISTING DUCTWORK AND EQUIPMENT TO REMAIN. | CFM | CUBIC FEET PER MINUTE |
| | | S.A. | SUPPLY AIR |
| | | R.A. | RETURN AIR |
| | | O.A. | OUTSIDE AIR |
| | | PCU | PACKAGE UNIT |
| | | SD | SUPPLY DIFFUSER |
| | | RR | RETURN REGISTER |
| | | OAL | OUTSIDE AIR LOUVER |
| | | LCM | LOCAL CONTROL MODULE |
| | | GCM | GENERAL CONTROL MODULE |
| | | TYP. | TYPICAL |
| | | FCU | FAN COIL UNIT |
| | | DWG | DRAWING |
| | | FLEX. | FLEXIBLE |
| | | CONN. | CONNECTION |
| | | AHU | AIR HANDLING UNIT |
| | | B.D.D. | BACKDRAFT DAMPER |
| | | O.B.D. | OPPOSED BLADE DAMPER |
| | | CHWS | CHILLED WATER SUPPLY LINE |
| | | CHWR | CHILLED WATER RETURN LINE |
| | | HWS | HOT WATER SUPPLY LINE |
| | | HWR | COLD WATER RETURN LINE |
| | | BDD | BACKDRAFT DAMPER |
| | | (E) | EXISTING |
| | | (N) | NEW |
| | | | POINT OF CONNECTION |

JLMS, CONSULTING ENGINEERS, PSC

| | |
|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
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ISSUE FOR CONSTRUCTION

DATE: June 2, 2021

| Rev. # | Date | Revision By | Description |
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| <p>Project Name: VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA San Juan, Puerto Rico</p> | <p>Stamp: </p> |
| <p>Drawing Name: EXISTING VAC DEMOLITION ROOF LAYOUT</p> | <p>Digital Signature: ASSMCA</p> |
| <p>Owner: ASSMCA</p> | <p>JLMS Project Num: 21-027 Drawing Date: June 2, 2021 Checked By: J. L. Marrero Scale: 3/32"=1'-0" Page: 4 of 14 VAC-102</p> |

"Yo, José Luis Marrero Sica, licencia # 14870, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos y Códigos de las Agencias, Juntas Reglamentadoras o Corporaciones Públicas con jurisdicción. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido sin conocimiento o por negligencia ya sea por mí, mis agentes o empleados, o por otras personas con mi conocimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OIGPe y otras autoridades competentes, incluyendo, pero sin limitarse, a la terminación de la participación en los procedimientos de certificación profesional en la OIGPe."

NEW FLOOR PLAN-VAC LAYOUT

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

LEGEND:
 - - - EXISTING DUCTWORK AND EQUIPMENT TO REMAIN.
 - - - NEW DUCTWORK AND EQUIPMENT TO REMAIN.

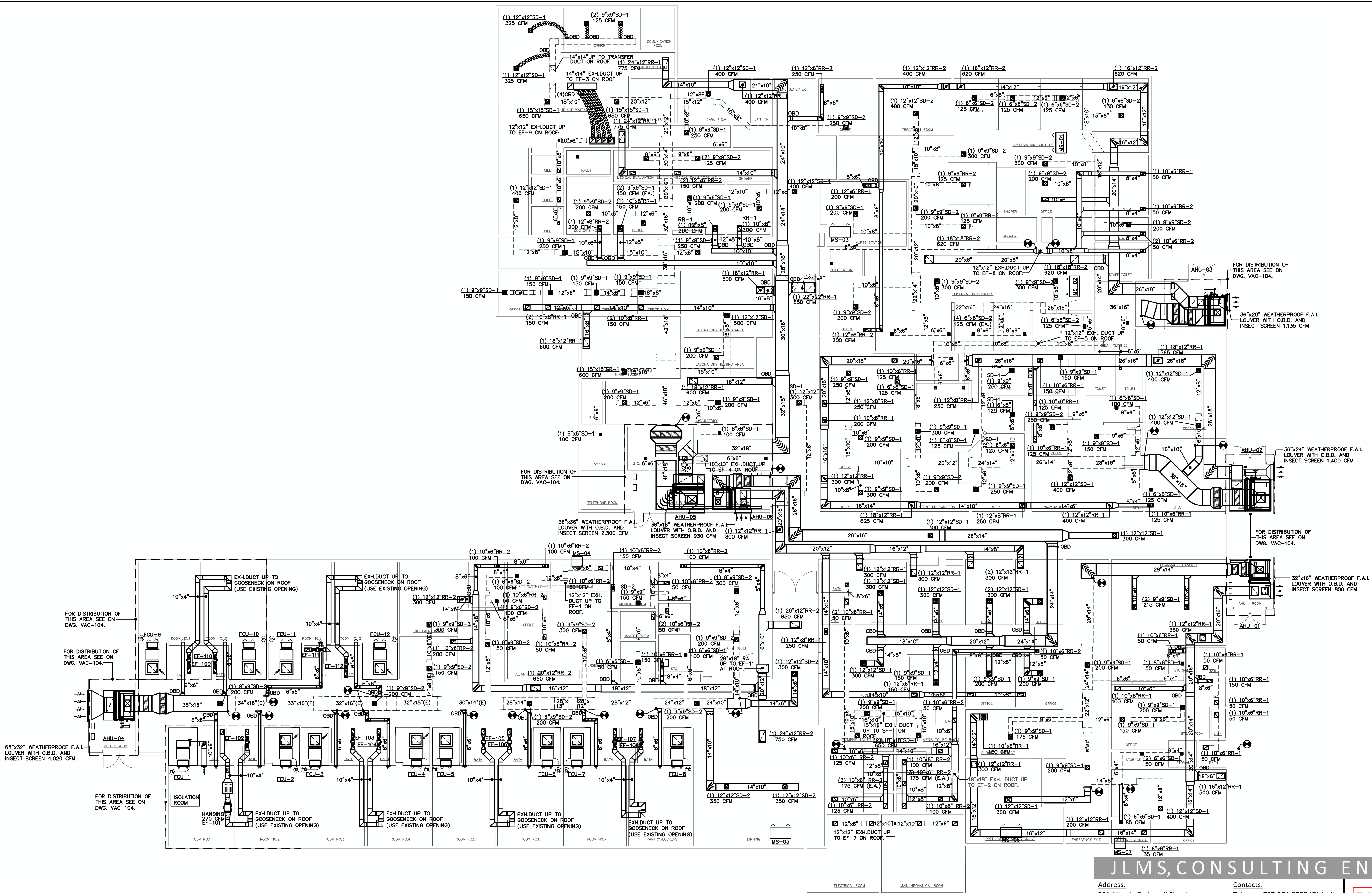
NOTES:

- CONTRACTOR SHALL REPAIR EXISTING DUCTWORK UNIONS, SEALANT, & INSULATION AS REQUIRED TO MATCH EXISTING CONDITION. SANITIZE ENTIRE SYSTEM AFTER COMPLETION. PROVIDE NEW DUCTWORK INSULATION AS PER NOTES ON DRAWING VAC-200.
- CONTRACTOR SHALL BE RESPONSIBLE OF PROPERLY OVERHAUL (REPAIR, CLEAN, CORROSION TREAT, PAINT) ALL EXISTING VAC EQUIPMENT AND APPURTENANCES TO REMAIN, INCLUDING BUT NOT LIMITED TO: PIPING INSULATION, EF'S, ISOLATORS, AHU'S, CU'S, FCU'S, PU'S, AUTOMATIC CONTROL SYSTEM, ETC. EXISTING EQUIPMENT INTERVENTION BY THE CONTRACTOR SHALL BE COORDINATED WITH OWNER'S REPRESENTATIVES.
- PLENUM AREAS SHALL COMPLY WITH NFPA-90A. NO PVC PIPING IS ALLOWED IN PLENUMS USED TO CONVEY AIR.
- CONTRACTOR SHALL FURNISH AND INSTALL SMOKE DETECTORS IF NOT EXISTENT OR DAMAGED.
- ALL DISCONNECT SWITCHES MUST BE REPLACED BY NEW ONES, NEW ELECTRIC REHEAT COILS SHALL BE CONNECTED TO EXISTING ELECTRICAL FACILITIES AS PER NEC, COORDINATE WITH ELECTRICAL ENGINEER.
- FOR REQUIRED AIR BALANCE OF EACH ROOM PLEASE REFER TO AIR FLOW DESIGN CONSIDERATIONS TABLE ON DWG VAC-300

"Yo, José Luis Marrero Skardo, licencia # 14670, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos y Códigos de las Agencias, Juntas Reglamentadoras o Corporaciones Públicas con jurisdicción. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido sin conocimiento o por negligencia ya sea por mí, mis agentes o empleados, o por otras personas con mi conocimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OIGPe y otras autoridades competentes, incluyendo, pero no sin limitarla, a la terminación de la participación en los procedimientos de certificación profesional en la OIGPe."

ABBREVIATIONS:

- EF EXHAUST FAN
- CFM CUBIC FEET PER MINUTE
- S.A. SUPPLY AIR
- R.A. RETURN AIR
- O.A. OUTSIDE AIR
- PCU PACKAGE UNIT
- SD SUPPLY DIFFUSER
- RR RETURN REGISTER
- OR OUTSIDE AIR LOUVER
- LCM LOCAL CONTROL MODULE
- GCM GENERAL CONTROL MODULE
- TYP. TYPICAL
- FCU FAN COIL UNIT
- DWG DRAWING
- FLEX. FLEXIBLE
- CONN. CONNECTION
- AHU AIR HANDLING UNIT
- B.D.D. BACKDRAFT DAMPER
- O.B.D. OPPOSED BLADE DAMPER
- CHWS CHILLED WATER SUPPLY LINE
- CHWR CHILLED WATER RETURN LINE
- HWS HOT WATER SUPPLY LINE
- HWR COLD WATER RETURN LINE
- BDD BACKDRAFT DAMPER
- (E) EXISTING
- (N) NEW
- POINT OF CONNECTION



JLMS, CONSULTING ENGINEERS, PSC

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BID SET DRAWINGS
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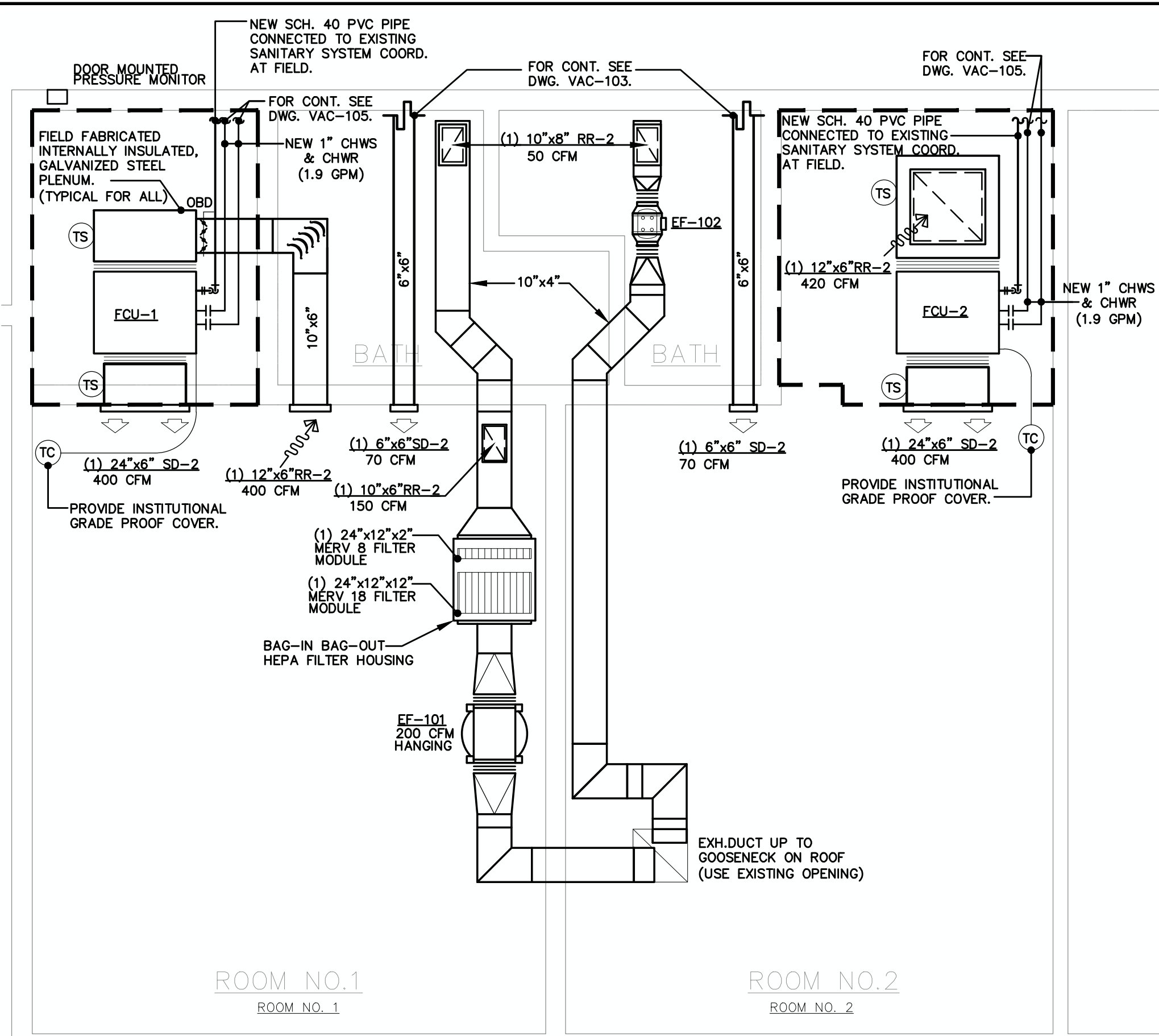
| Project Name: | Rev. # | Date | Revision By | Description |
|---------------------------------------------------------------------------------------------------|--------|------|-------------|-------------|
| VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA, San Juan, Puerto Rico | | | | |

Drawing Name: FLOOR PLAN- NEW VAC LAYOUT

JLMS Project Num: 21-022
 Drawing Date: June 2, 2021
 Checked By: J. L. Marrero

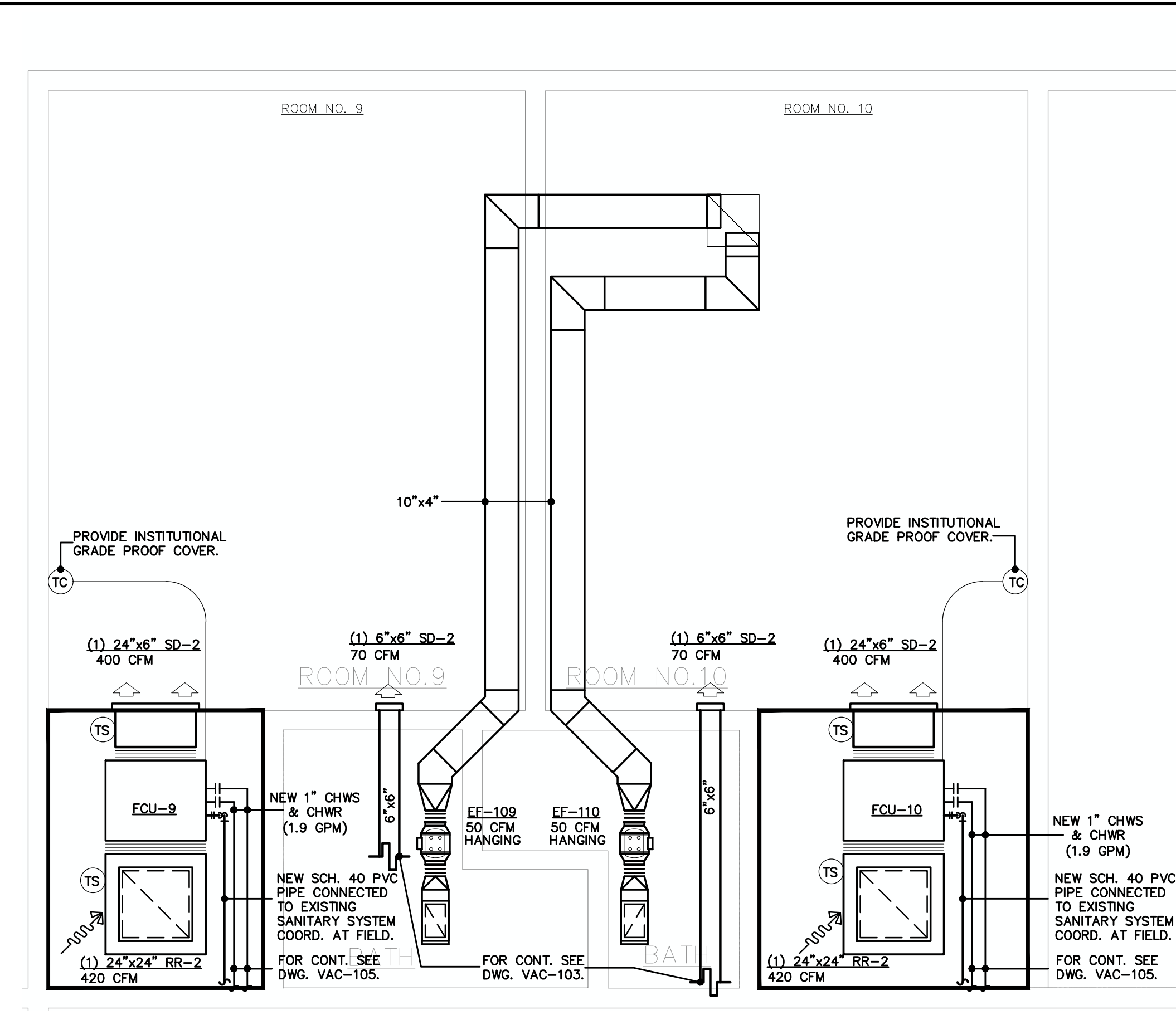
Digital Signature: [Signature Area]
 Stamp: [Professional Engineer Seal]
 Owner: ASSMCA

Scale: 1/8"=1'-0"
 Page: 5 of 14
VAC-103



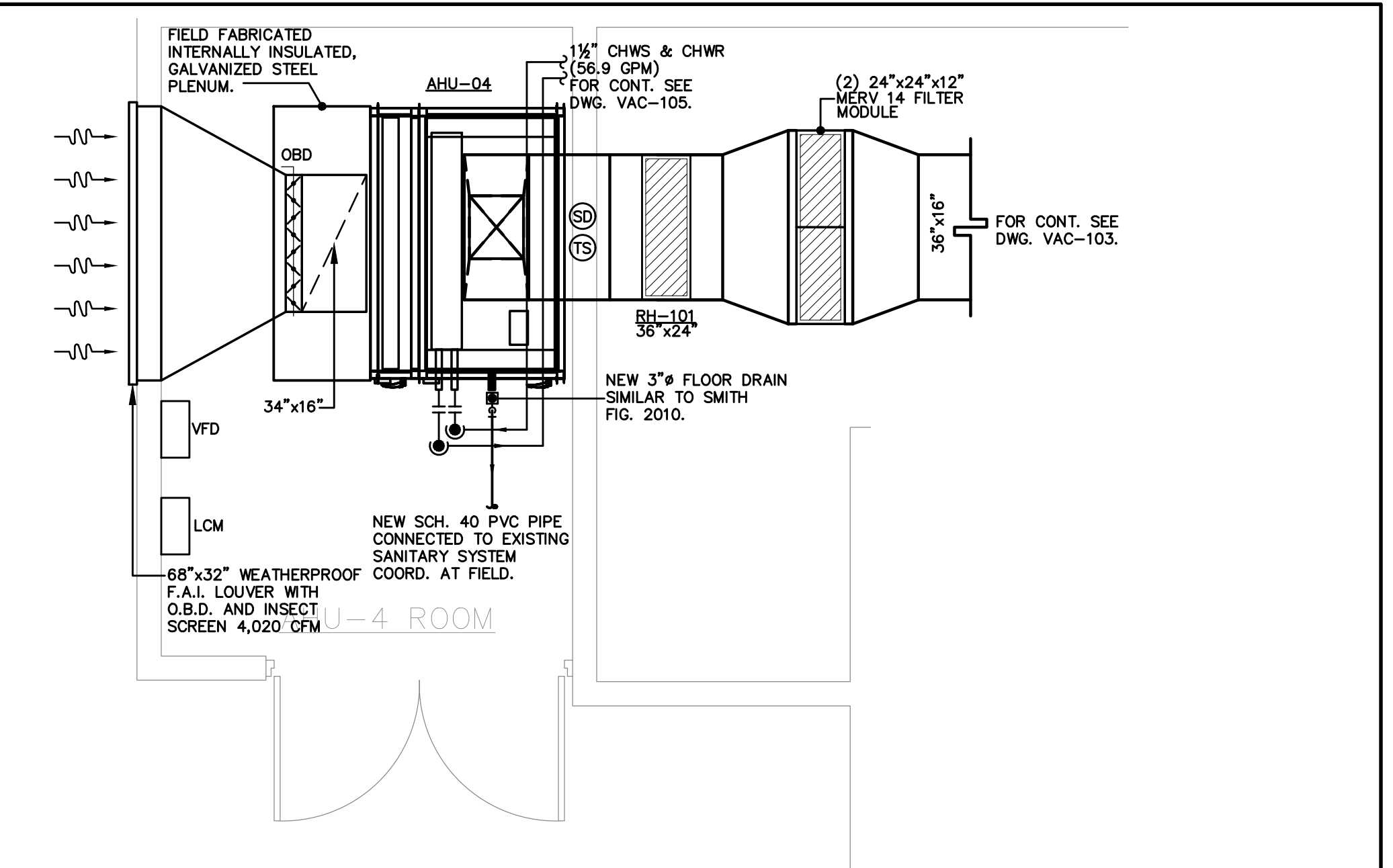
PARTIAL BLOW-UP ROOM #1 & 2 FLOOR PLAN-VAC LAYOUT (APPLIES TO FCU-1 TO 8)

SCALE: 3/8" = 1'-0"



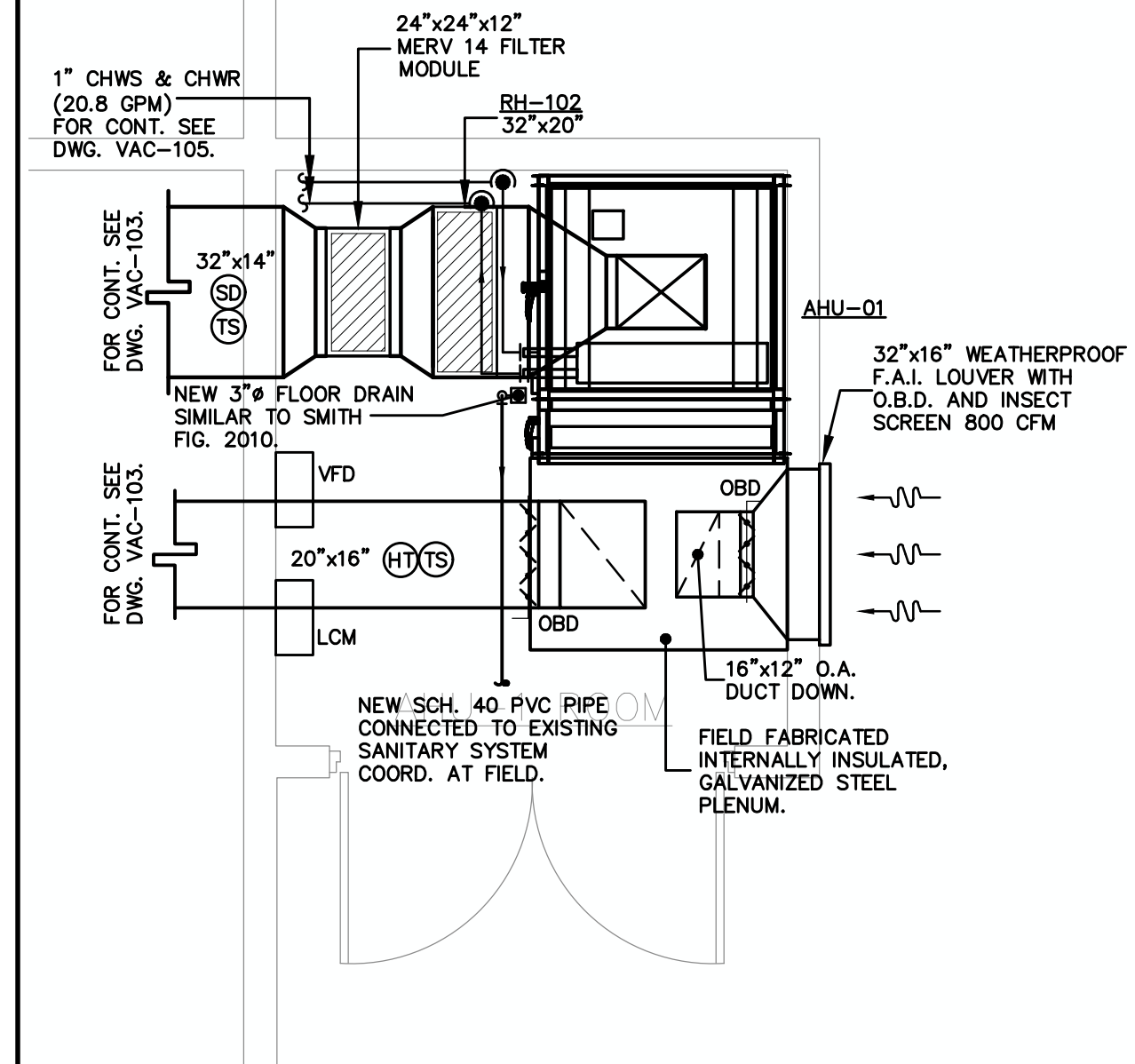
PARTIAL BLOW-UP ROOM #9 & 10 FLOOR PLAN-VAC LAYOUT (APPLIES TO FCU-9 TO 12)

SCALE: 3/8" = 1'-0"



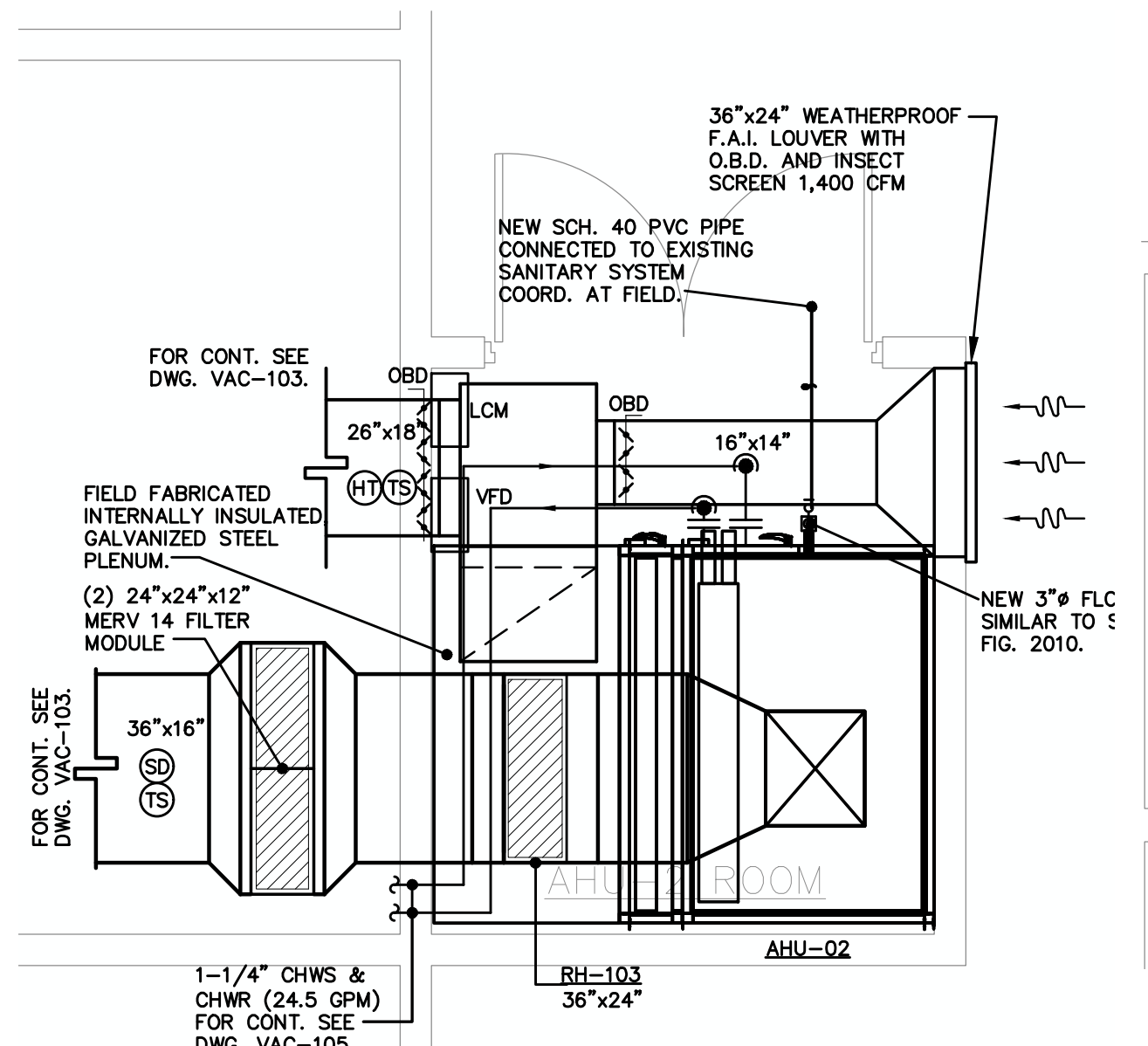
PARTIAL BLOW-UP MECH. ROOM AHU-04 FLOOR PLAN-VAC LAYOUT

SCALE: 3/8" = 1'-0"



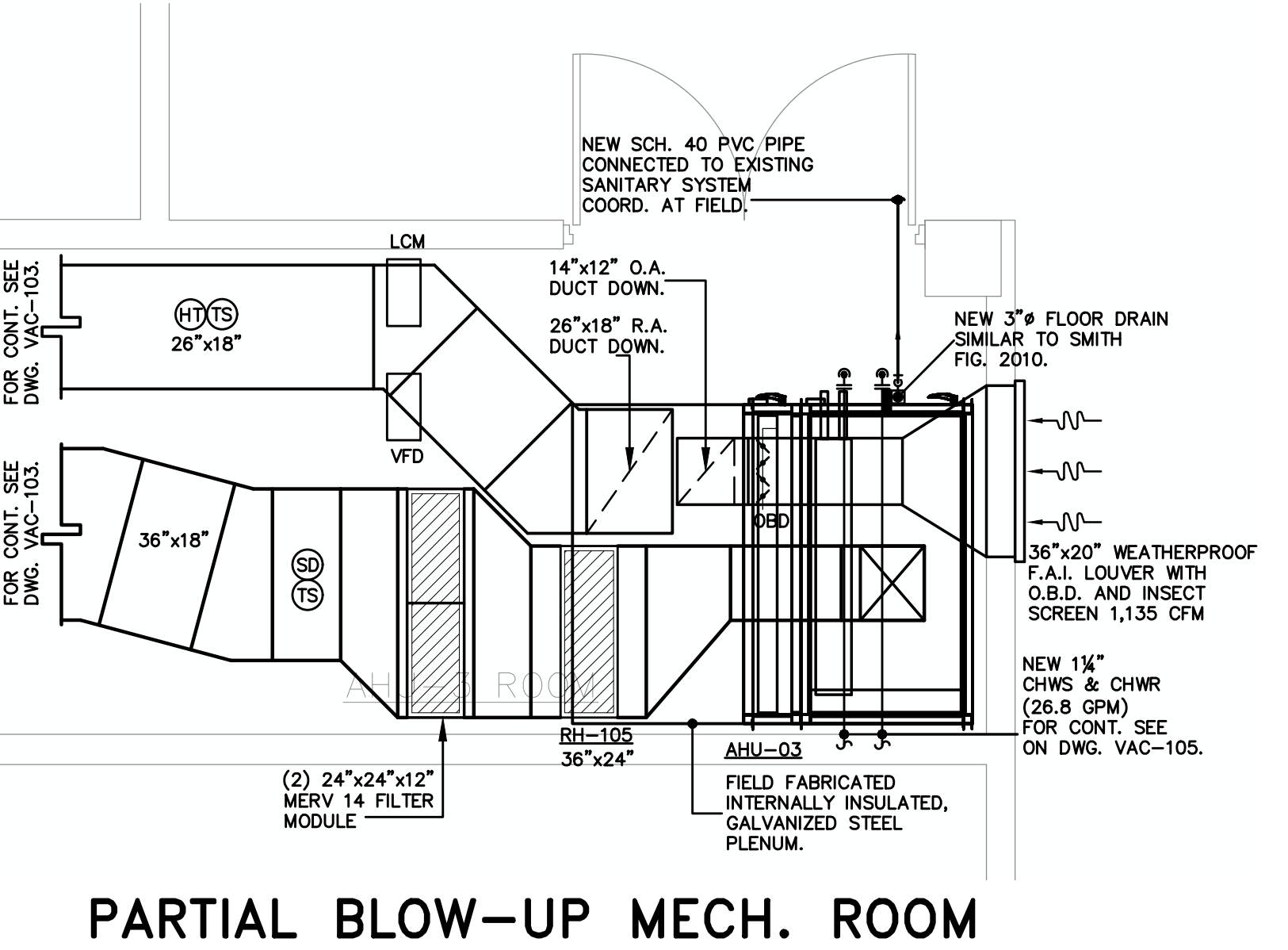
PARTIAL BLOW-UP MECH. ROOM AHU-01 FLOOR PLAN-VAC LAYOUT

SCALE: 3/8" = 1'-0"



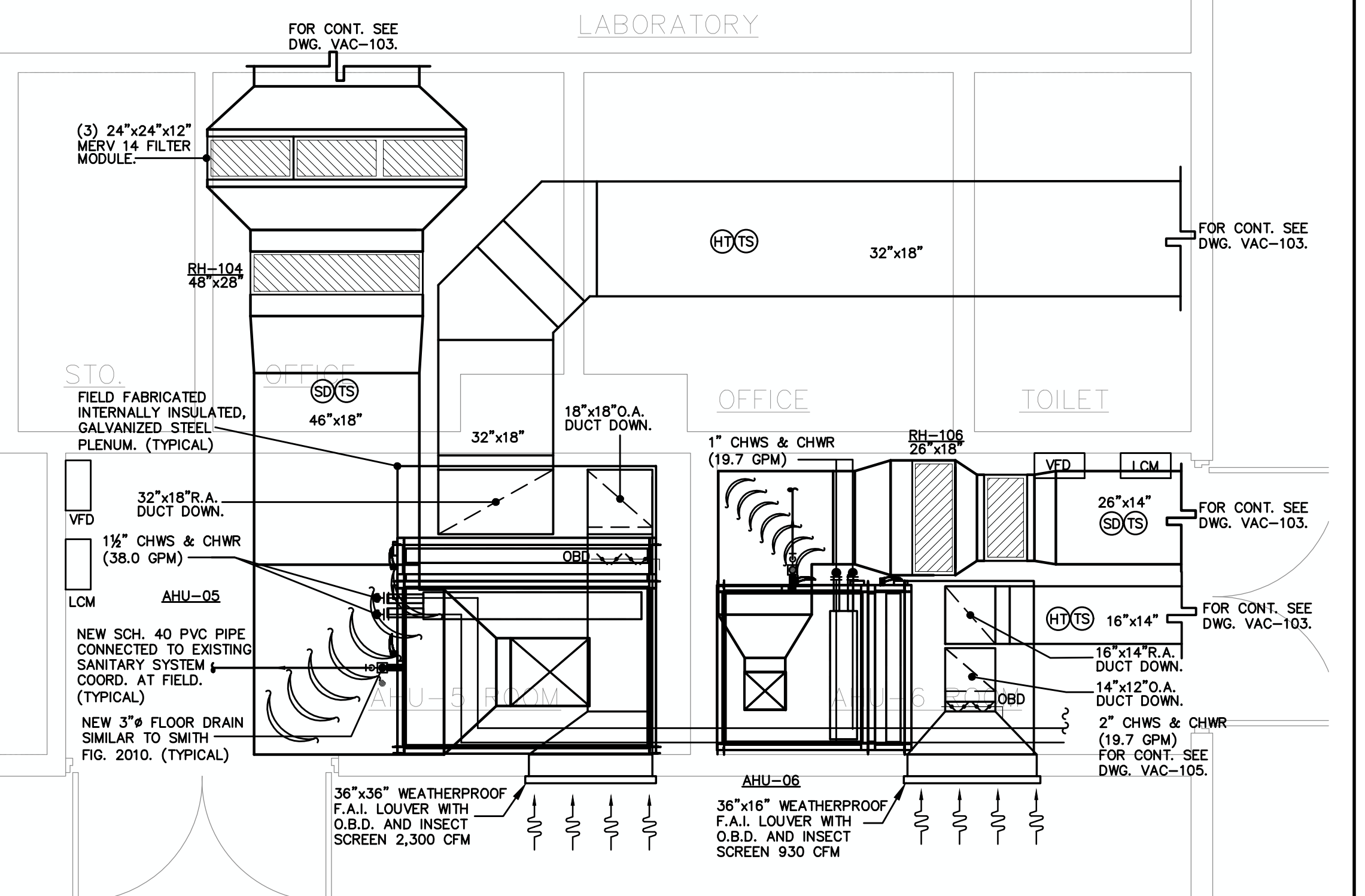
PARTIAL BLOW-UP MECH. ROOM AHU-02 FLOOR PLAN-VAC LAYOUT

SCALE: 3/8" = 1'-0"



PARTIAL BLOW-UP MECH. ROOM AHU-03 FLOOR PLAN-VAC LAYOUT

SCALE: 3/8" = 1'-0"



PARTIAL BLOW-UP MECH. ROOM AHU-05 & 06 FLOOR PLAN-VAC LAYOUT

SCALE: 3/8" = 1'-0"

ABBREVIATIONS:

| | | | |
|------|------------------------|--------|---------------------------|
| EF | EXHAUST FAN | FLEX. | FLEXIBLE |
| CFM | CUBIC FEET PER MINUTE | CONN. | CONNECTION |
| S.A. | SUPPLY AIR | AHU | AIR HANDLING UNIT |
| R.A. | RETURN AIR | B.D.D. | BACKDRAFT DAMPER |
| O.A. | OUTSIDE AIR | O.B.D. | OPPOSED BLADE DAMPER |
| PCU | PACKAGE UNIT | CHWS | CHILLED WATER SUPPLY LINE |
| SD | SUPPLY DIFFUSER | CHWR | CHILLED WATER RETURN LINE |
| RR | RETURN REGISTER | HWS | HOT WATER SUPPLY LINE |
| OAL | OUTSIDE AIR LOUVER | HWR | COLD WATER RETURN LINE |
| LCM | LOCAL CONTROL MODULE | BDD | BACKDRAFT DAMPER |
| GCM | GENERAL CONTROL MODULE | (E) | EXISTING |
| TYP. | TYPICAL | (N) | NEW |
| FCU | FAN COIL UNIT | ☉ | POINT OF CONNECTION |
| DWG | DRAWING | | |

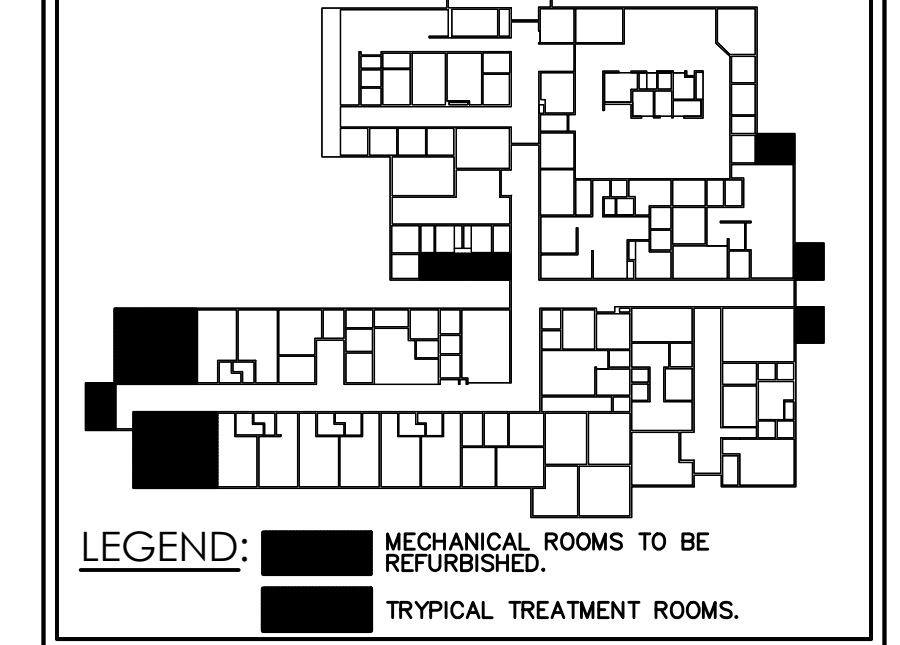
LEGEND:

- EXISTING DUCTWORK AND EQUIPMENT TO REMAIN.
- NEW DUCTWORK AND EQUIPMENT.

NOTES:

1. CONTRACTOR SHALL REPAIR EXISTING DUCTWORK UNIONS, SEALANT, & INSULATION AS REQUIRED TO MATCH EXISTING CONDITION. SANITIZE ENTIRE SYSTEM AFTER COMPLETION. PROVIDE NEW DUCTWORK INSULATION AS PER NOTES ON DRAWING VAC-200.
2. CONTRACTOR SHALL BE RESPONSIBLE OF PROPERLY OVERHAUL (REPAIR, CLEAN, CORROSION TREAT, PAINT) ALL EXISTING VAC EQUIPMENT AND APPURTENANCES TO REMAIN, INCLUDING BUT NOT LIMITED TO: PIPING INSULATION, EF'S, ISOLATORS, AHU'S, CU'S, FCU'S, PU'S, AUTOMATIC CONTROL SYSTEM, ETC. EXISTING EQUIPMENT INTERVENTION BY THE CONTRACTOR SHALL BE COORDINATED WITH OWNER'S REPRESENTATIVES.
3. PLENUM AREAS SHALL COMPLY WITH NFPA-90A. NO PVC PIPING IS ALLOWED IN PLENUMS USED TO CONVEY AIR.
4. CONTRACTOR SHALL FURNISH AND INSTALL SMOKE DETECTORS IF NOT EXISTENT OR DAMAGED.
5. ALL DISCONNECT SWITCHES MUST BE REPLACED BY NEW ONES. NEW ELECTRIC REHEAT COILS SHALL BE CONNECTED TO EXISTING ELECTRICAL FACILITIES AS PER NEC, COORDINATE WITH ELECTRICAL ENGINEER.
6. FOR REQUIRED AIR BALANCE OF EACH ROOM PLEASE REFER TO AIR FLOW DESIGN CONSIDERATIONS TABLE ON DWG VAC-300

KEY PLAN



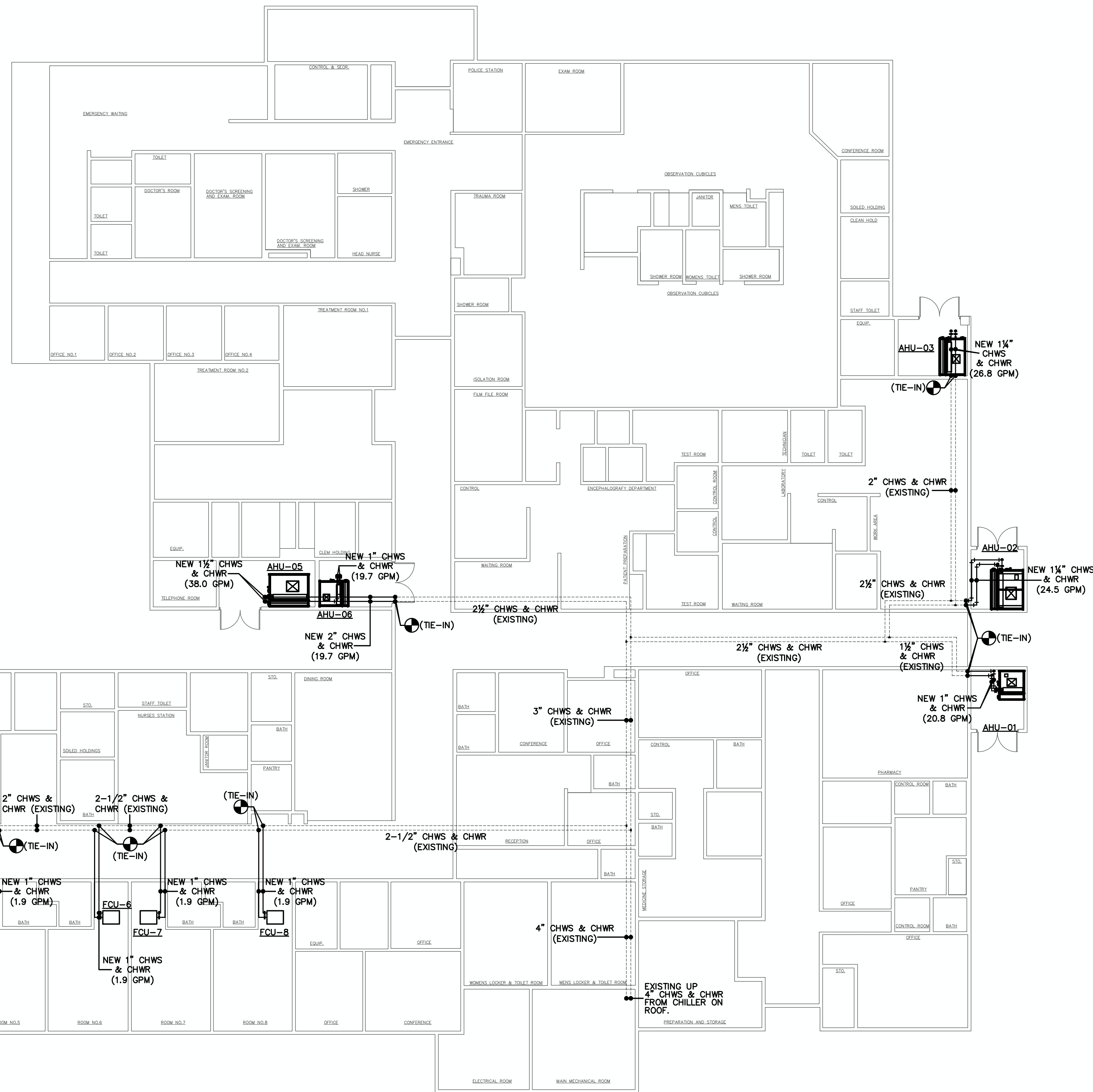
"Yo, José Luis Marrero Sicaudo, licencia # 14670, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que emiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos y Códigos de las Agencias, Juntas Reglamentadoras o Corporaciones Públicas con jurisdicción. Reconozco o que cualquier declaración falsa o fabricación de los hechos que se haya producido sin consentimiento o por negligencia ya sea por mí, mis agentes o empleados, o por otras personas con mi consentimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OIGPe y otras autoridades competentes, incluyendo, pero sin limitarse, a la terminación de la participación en los procedimientos de certificación profesional en la OIGPe."

JLMS, CONSULTING ENGINEERS, PSC

Address: 501 Alfredo Carbonell Street, Urb. Roosevelt, Hato Rey, Puerto Rico 00918
 Contacts: Tel: 787-274-8728 (Office), Tel: 787-615-7890 (Mobile), Tel: 787-772-9121 (Fax), E-mail: j.marrero@jlmpc.com

BID SET DRAWINGS
 DATE: June 2, 2021

| | | | | |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------|------------|------------------------------|-------------------------------|
| Project Name: VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA San Juan, Puerto Rico | Rev. # | Date | Revision By | Description |
| Drawing Name: NEW MECHANICAL ROOMS BLOW-UPS-VAC LAYOUT | | | | |
| Owner: ASSMCA | Digital Signature: | Stamp: | JLMS Project Num: 21-027 | Drawing Date: June 2, 2021 |
| | | | Checked By: J. L. Marrero | Scale: 3/8"=1'-0" |
| | | | Page: 6 of 14 | VAC-104 |



NEW CHWS & CHWR PIPING LAYOUT

SCALE: 3/32" = 1'-0"

ABBREVIATIONS:

| | | | |
|--------|------------------------|--------|---------------------------|
| EF | EXHAUST FAN | FLEX. | FLEXIBLE |
| S.F.M. | CUBIC FEET PER MINUTE | CONN. | CONNECTION |
| S.A. | SUPPLY AIR | AHU | AIR HANDLING UNIT |
| R.A. | RETURN AIR | B.D.D. | BACKDRAFT DAMPER |
| O.A. | OUTSIDE AIR | O.B.D. | OPPOSED BLADE DAMPER |
| PCU | PACKAGE UNIT | CHWS | CHILLED WATER SUPPLY LINE |
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| FCU | FAN COIL UNIT | ⊕ | POINT OF CONNECTION |
| DWG | DRAWING | | |

LEGEND:

| | |
|--|--------------------------------------------|
| | EXISTING DUCTWORK AND EQUIPMENT TO REMAIN. |
| | NEW DUCTWORK AND EQUIPMENT. |

NOTES:

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- CONTRACTOR SHALL FURNISH AND INSTALL SMOKE DETECTORS IF NOT EXISTENT OR DAMAGED.
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- FOR REQUIRED AIR BALANCE OF EACH ROOM PLEASE REFER TO AIR FLOW DESIGN CONSIDERATIONS TABLE ON DWG VAC-300

"Yo, José Luis Marrero Skardo, licencia # 14670, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos y Códigos de las Agencias, Juntas Reglamentadoras o Corporaciones Públicas con jurisdicción. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido sin conocimiento o por negligencia ya sea por mí, mis agentes o empleados, o por otras personas con mi conocimiento, me hace responsable de cualquier acción judicial y disciplinaria por la OIGPe y otras autoridades competentes, incluyendo, pero sin limitarse, a la terminación de la participación en los procedimientos de certificación profesional en la OIGPe."

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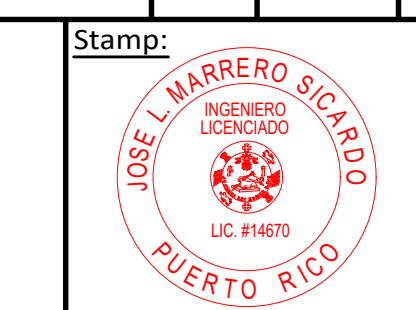
BID SET DRAWINGS

DATE: June 2, 2021

Project Name:
VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA
San Juan, Puerto Rico

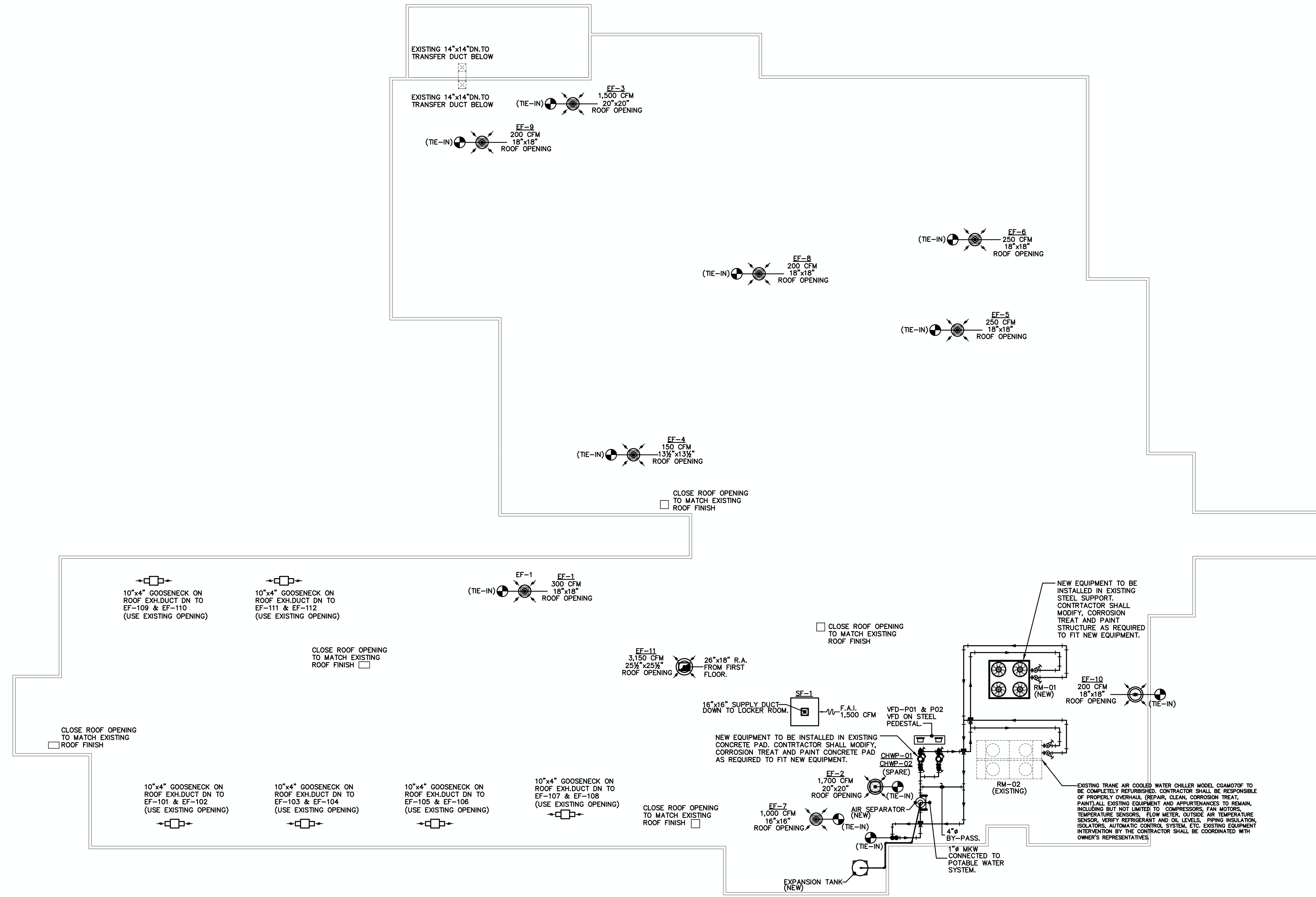
Drawing Name:
NEW CHWS & CHWR PIPING LAYOUT

Digital Signature:



JLMS Project Num:
21-027
Drawing Date:
June 2, 2021
Checked By:
J. L. Marrero
Scale:
3/32"=1'-0"
Page:
7 of 14
VAC-105

Owner:
ASSMCA



NEW VAC ROOF LAYOUT

SCALE: 3/32" = 1'-0"

ABBREVIATIONS:

| | | | |
|------|------------------------|--------|---------------------------|
| EF | EXHAUST FAN | FLEX. | FLEXIBLE |
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| R.A. | RETURN AIR | B.D.D. | BACKDRAFT DAMPER |
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LEGEND:

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BID SET DRAWINGS
DATE: JUNE 2, 2021

| Rev. # | Date | Revision By | Description |
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Project Name: VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA
San Juan, Puerto Rico

Drawing Name: NEW VAC ROOF LAYOUT

Owner: ASSMCA

Stamp:

JLMS Project Num: 21-027
Drawing Date: June 2, 2021
Checked By: J. L. Marrero
Scale: 3/32"=1'-0"
Page: 8 of 14
VAC-106

VAC NOTES:

GENERAL:

- BIDDERS SHALL VISIT THE BUILDING AND ACQUAINT THEMSELVES WITH THE CONDITIONS AS THEY ACTUALLY EXIST AND VERIFY DIMENSIONS, LOCATIONS AND DETAILS REQUIRED TO COMPLETE THE WORK. FAILURE TO VISIT THE PROJECT AREA WILL IN NO WAY RELIEVE THE SUCCESSFUL BIDDER OF FURNISHING ALL MATERIAL AND PERFORMING ALL WORK REQUIRED FOR THE COMPLETION OF THE CONTRACT. VISIT TO THE PROJECT AREA SHALL BE ARRANGED THROUGH THE BUILDING MANAGER.
- CONTRACTOR SHALL PROVIDE SUITABLE VIBRATION ISOLATION FOR THE SYSTEM AS RECOMMENDED BY MANUFACTURER OF EQUIPMENT SPECIFIED OR PROVIDED.
- CONTRACTOR SHALL FURNISH AND INSTALL PIPING VALVES, SENSORS, CONTROL SYSTEMS AND ANY OTHER ITEM REQUIRED FOR THE FUNCTIONING AND OPERATION OF THE SYSTEM SHALL FORM PART OF THE WORK TO BE DONE BY THE CONTRACTOR.
- IT IS THE INTENTION OF THE DRAWINGS TO CALL FOR FINISHED WORK, COMPLETE, TESTED AND READY FOR OPERATION. MINOR DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER INSTALLATION AND FOR FUNCTIONING AND OPERATION OF THE SYSTEM SHALL FORM PART OF THE WORK TO BE DONE BY THE CONTRACTOR.
- CONTRACTOR SHALL PAINT ALL PIPING, PIPE INSULATION, FITTINGS, VALVES AND ALL EQUIPMENT TO BE INSTALLED.
- THE CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE DUCT AND PIPING ARRANGEMENTS AS NEEDED TO PREVENT CONFLICT WITH WORK OF OTHER TRADES OR FOR PROPER EXECUTION OF THE WORK.
- ALL EQUIPMENT AND MATERIAL SHALL BE INSTALLED WITH THE APPROVAL OF THE OWNER IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER AND THE SPECIFICATIONS ISSUED FOR THIS PROJECT.
- CONTRACTOR SHALL LOCATE IN FULLY ACCESSIBLE POSITIONS ALL EQUIPMENT WHICH MUST BE SERVICED, OPERATED, OR MAINTAINED. CONTRACTOR IS RESPONSIBLE OF COMPLY WITH EACH EQUIPMENT MANUFACTURER RECOMMENDED CLEARANCE.
- IN CASE OF DISCREPANCY BETWEEN THE EQUIPMENT SPECIFIED AND THE EQUIPMENT SUPPLIED BY THE OWNER, THE CONTRACTOR SHALL ARRANGE FOR THE PROPER INSTALLATION OF THE EQUIPMENT.
- CONTRACTOR SHALL FURNISH AND INSTALL AIR CONDITIONING EQUIPMENT, DUCTS, INSULATION, PIPING VALVES, SENSORS, CONTROL SYSTEMS AND ANY OTHER ITEM REQUIRED FOR THE PROPER FUNCTIONING AND OPERATION OF THE SYSTEM.
- MECHANICAL WORK SHALL BE COORDINATED WITH ALL OTHER TRADES.
- THE MECHANICAL CONTRACTOR SHALL THOROUGHLY EXAMINE ALL AREAS WHERE EQUIPMENT, DUCTWORK, AND PIPING WILL BE INSTALLED AND WILL REPORT ANY CONDITION THAT, IN HIS OPINION, PREVENTS THE PROPER INSTALLATION OF THE MECHANICAL WORK.
- COORDINATE WITH ELECTRICAL CONTRACTOR FOR POWER CONNECTION TO ALL MECHANICAL EQUIPMENT.
- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES. IN CASE OF CONFLICT BETWEEN THE DRAWINGS/SPECIFICATIONS AND THE CODES AND ORDINANCES, THE HIGHEST STANDARD SHALL APPLY. THE MECHANICAL CONTRACTOR SHALL SATISFY CODE REQUIREMENTS AS A MINIMUM STANDARD WITHOUT ANY EXTRA COST.
- THE MECHANICAL CONTRACTOR SHALL PROCURE AND PAY FOR ALL PERMITS, FEES AND INSPECTIONS NECESSARY TO COMPLETE THE MECHANICAL WORK.
- THE MECHANICAL CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY OWNER AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP.
- THE MECHANICAL CONTRACTOR SHALL COORDINATE CONCRETE SLABS PENETRATION WORKS WITH OWNER, STRUCTURAL ENGINEER AND ARCHITECTURAL DRAWINGS. SEAL PENETRATIONS AND PROVIDE FIRE DAMPERS AS REQUIRED.
- ALL MATERIAL AND SPECIALTIES REQUIRED FOR THIS WORK SHALL BE NEW (UNLESS OTHERWISE INDICATED), OF FIRST-CLASS QUALITY AND SHALL BE FURNISHED, DELIVERED, ERECTED, CONNECTED AND FINISHED IN EVERY DETAIL, AND SHALL BE SO SELECTED AND ARRANGED AS TO FIT PROPERLY INTO THE BUILDING SPACES. DURING STORAGE ON THE JOB SITE OF CONSTRUCTION, THE CONTRACTOR SHALL KEEP PIPE ENDS PLUGGED OR CAPPED TO PREVENT DIRT OR MOISTURE ENTERING THE PIPE.
- ROOF "R" VALUE SHALL BE A MINIMUM OF 15.0 HR-SF-F/BTU.
- PROVIDE 3M FILM FOR ALL THE WINDOWS TO OBTAIN A PERFORMANCE OF: U=1.04, SHGC=0.29.

INSULATION:

- ALL INSULATION REQUIRED FOR THE WORK SHALL BE NEW, OF THE FIRST - CLASS QUALITY AND SHALL BE FINISHED, DELIVERY, ERECTED AND FINISHED IN EVERY DETAIL. ALL INSULATION SHALL HAVE A COMPOSITE FIRE HAZARD RATING AS TESTED BY ASTM E-84, NFPA 255, OR UL 723, NOT TO EXCEED 25 FLAME SPREAD AND 50 SMOKE DEVELOPED. ACCESSORIES SHALL HAVE THE SAME COMPONENT RATINGS. ALL INSULATING MATERIAL SHALL HAVE A LABEL INDICATING COMPLIANCE WITH THE ABOVE RATING.
- EXPOSED AIR DUCT INSULATION SHALL BE 2" THICK JOHN'S-MANVILLE NO. 817 (6 lbs/ft³) RIGID FIBERGLASS DUCT INSULATION WITH A FACTORY APPLIED FOIL-SCRM-KRAFT (FSK) VAPOR BARRIER FACING. COVER ALL INSULATION WITH GLASS FABRIC MESH USING FOSTER SEALFAS MASTIC. INSULATION SHALL HAVE A "K" FACTOR=0.22 Btu-in/hr.-ft²-F @ 75F.
- CONCEALED AIR DUCT INSULATION SHALL BE 1 1/2" THICK JOHN'S-MANVILLE R-SERIES MICROLITE FIBER GLASS BLANKET WITH A FACTORY APPLIED FOIL-SCRM-KRAFT (FSK) VAPOR BARRIER FACING. INSULATION SHALL HAVE A "K" FACTOR= 0.31 Btu-in/hr.-ft²-F @ 75F.
- CHILLED WATER PIPING INSULATION MATERIAL SHALL BE TRYMER 2000 POLYSOCYANURATE FOAM INSULATION WITH VAPOR BARRIER 1/2" THICK ALL PIPE SIZES. COVER ALL INSULATION WORKS WITH 6 OUNCES CANVAS ADHERED WITH FOSTER 3035. USE AN ALUMINUM JACKET SECURELY ATTACHED IN ALL WEATHER EXPOSED PIPE RUNS AND FITTINGS.
- AFTER THE INSTALLATION OF PIPING AND BEFORE APPLYING THE INSULATION, THE CONTRACTOR MUST CLEAN ALL PIPING THOROUGHLY AND APPLY TWO COATS OF ANTI CORROSIVE PAINT AS MANUFACTURED BY PORTER #7100.
- INDOOR DUCTS HANDLING OUTDOOR AIR INSULATION MATERIAL: SAME AS EXPOSED AIR DUCTS INSULATION SHALL NOT BE APPLIED UNTIL ALL SURFACES ARE CLEAN AND DRY.
- ALL MATERIAL USED FOR DUCTWORK INSULATION SHALL HAVE A FLAME SPREAD INDEX NOT EXCEEDING 25 SMOKE DEVELOPED AND FUEL CONTRIBUTED NOT TO EXCEED 50 WHEN MEASURED AS DETERMINE BY ASTM E-162.
- INSULATION SHALL BE FURNISHED WITH A FACTORY APPLIED FSK VAPOR BARRIER FACING AND SHALL HAVE AN AVERAGE THERMAL CONDUCTIVITY NOT TO EXCEED 0.25 BTU-IN/SQ.FT.- F.
- PROVIDE INTERNAL ACOUSTICAL LINING TO ALL FCU'S FASCIAS.

AIR DISTRIBUTION:

- DUCTWORK SHALL BE AS FOLLOWS:
 - DUCT MATERIAL - SHALL BE GALVANIZED SHEET METAL, AND MANUFACTURED AND INSTALLED IN ACCORDANCE WITH LATEST EDITION OF THE DUCT CONSTRUCTION STANDARDS OF SMACNA FOR THE APPLICABLE PRESSURE CLASS.
 - DUCT WORKMANSHIP - ALL DUCTWORK SHALL BE CONSTRUCTED AND ERECTED IN A WORKMANLIKE MANNER. DUCTS SHALL BE STRAIGHT AND SMOOTH ON THE INSIDE WITH NEATLY FINISHED JOINTS, AIRTIGHT, AND SHALL BE FREE FROM VIBRATION UNDER ALL CONDITIONS OF OPERATION. THE INTERNAL ENDS OF SLIP JOINTS SHALL BE MADE IN THE DIRECTION OF AIR FLOW. CHANGES IN DIMENSIONS AND SHAPE OF DUCTS SHALL BE GRADUAL. ALL DUCT SIZES SHALL FALL WITHIN THE LIMITING DIMENSIONS INDICATED ON THE DRAWINGS UNLESS OTHERWISE APPROVED. CURVED ELBOWS, UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS, SHALL HAVE A CENTER LINE RADIUS EQUAL TO 1 1/2 TIMES THE WIDTH OF THE DUCT. AIR TURNS SHALL BE INSTALLED IN ALL ABRUPT ELBOWS AND SHALL CONSIST OF CURVED METAL BLADES OR VANES, ARRANGED TO PERMIT THE AIR TO MAKE THE TURNS WITHOUT APPRECIABLE TURBULENCE. THEY SHALL BE THE MANUFACTURER'S STANDARD PRODUCT AND SHALL BE QUIET WHEN THE SYSTEM IS IN OPERATION. CONFIGURATION OF DUCTS SHALL BE AS INDICATED ON DRAWINGS. DUCT HANGER SHALL BE AS INDICATED ON DRAWINGS.
- INSTALLATION OF DUCTS SHALL BE BY MEANS OF ANGULAR TRAPEZE AND ROD ACCORDING TO "SMACNA" RECOMMENDATIONS. IF STRAP ARE USED WITH DUCTWORK LESS THAN 24" WIDE, IT SHALL BE ATTACHED TO THE DUCT BY TWO SELF-TAPPING SCREWS. HANGERS AND STRAPS SHALL BE ATTACHED TO THE BEAM BY EXPANSION SHIELDS OR BY GUN NAILS. SCREWS, HANGERS AND STRAPS SHALL BE ATTACHED TO THE BEAM BY EXPANSION SHIELDS OR BY GUN NAILS.
- ALL CONCEALED DUCTWORK AND PLENUMS ABOVE THE SECOND FLOOR CEILINGS SHALL BE INSULATED.
- ALL DUCT WORK EQUIPMENT AND PIPING SHALL BE PROVIDED WITH SEISMIC RESTRAINTS IN ACCORDANCE WITH U.B.C.-1997 & N.F.P.A. STANDARDS.
- ALL SHEETMETAL DUCTWORK SEAMS & JOINTS MUST BE SEALED WITH HIGH PRESSURE DUCT SEALER AS MANUFACTURED BY MINNESOTA MINING & MANUFACTURING CO. MODEL EC-900 OR APPROVED EQUAL. AIR LEAKS MUST BE 5% OR LESS. TEST DUCTWORK BEFORE FINAL CONNECTION TO AHU'S & AIR DISTRIBUTION.
- FOR EXACT LOCATION OF CEILING DIFFUSERS REFER TO ARCHITECTURAL REFLECTED CEILING PLAN.
- THE CONTRACTOR MUST FURNISH & INSTALL U.L. APPROVED FIRE DAMPER WITH 10 GAUGE METAL SLEEVE AND DUCT ACCESS DOOR WHERE SHOWN ON DRAWINGS, AS REQUIRED BY LOCAL BUILDING CODES, OR AS REQUIRED BY N.F.P.A. FIRE DAMPERS SHALL BE CURTAIN TYPE AS MANUFACTURED BY RUSKIN MODEL 1002 STYLE C OR APPROVED EQUAL.
- PROVIDE SMOKE DETECTORS AS PER N.F.P.A. 90A.
- EXPOSED SUPPLY & RETURN DUCTS SERVING SOUND SENSITIVE AREAS SHALL BE DOUBLE WALL, PAINTED AND INTERNALLY INSULATED.
- ALL EXPOSED DUCTWORK SHALL BE PAINTED AS PER ARCHITECT'S COLOR CODING.
- CONTRACTOR SHALL BE RESPONSIBLE OF SUBMIT DUCTWORK SHOP DWG. FOR APPROVAL. NO CHANGE ORDER WILL BE ALLOWED FOR DUCTS MODIFICATIONS RESULTING FROM NON-COORDINATED SHOP DRAWINGS.
- CONNECTION FROM DUCT TO A/C UNIT SHALL BE MADE WITH A CANVAS CONNECTION. CANVAS CONNECTION SHALL BE NITRENE-COATED GLASS FABRIC AS MANUFACTURED BY VENT FABRIC (VEN GLASS), DURO DYNECORP. OF EQUAL, MOUNTED ON ANGLE FRAMES SECURELY FASTENED TO DUCTS AND EQUIPMENT WITH ACCESSORIES TO PREVENT COLLAPSING AT 0.10 IN. OF NEGATIVE PRESSURE. CANVAS CONNECTION SHALL BE AIR TIGHT (NO LEAKAGE OR INFILTRATION) AT INDICATED PRESSURE CLASS.
- PLENUM SUPPLY AND RETURN AREA SHALL COMPLY WITH NFPA-90A.
- CONTRACTOR SHALL BE RESPONSIBLE OF RETURN AIR PLENUM SEGREGATION AND PROVIDE REQUIRED AIR PASSAGES FOR PROPER A/C SYSTEM FUNCTIONING.
- ALL OUTSIDE AIR INTAKES SHALL BE PROVIDED WITH A 35% EFF. DISPOSABLE FILTERS.
- PROVIDE 1" THICK INTERNAL ACOUSTICAL LINING TO FIRST 10'-0" OF SUPPLY & RETURN DUCTWORK. SIMILAR TO SCHULLER PERMACOUSTICS.
- COORDINATE DUCT ROUTE WITH SPRINKLERS AND ALL OTHER TRADES. RE-ROUTE AS REQUIRED AT NO EXTRA COST TO THE OWNER.
- GRILLES AND DIFFUSERS SHALL BE AS MANUFACTURE BY "METAL-AIRE", "BARBER COLMAN", "TUTTLE & BAILEY", "ANEMOSTAT" OR "TITUS". EACH IS TO BE FITTED BY AN AIR STREIGHTENER AND VOLUME DAMPER.
- ALL DUCT DIMENSIONS SHOWN ARE NET INTERNAL.

HVAC EQUIPMENT:

- ALL AIR CONDITIONING EQUIPMENT SHALL BE INSTALLED IN A WORKMANLIKE MANNER MEETING THE ACCEPTED STANDARDS OF THE AIR CONDITIONING INDUSTRY. THE WORK SHALL BE DONE BY SKILLED A/C CRAFTSMEN.
- MAINTENANCE AND SERVICE CLEARANCES SHALL BE MAINTAIN TO EACH MECHANICAL EQUIPMENT AS PER MANUFACTURERS RECOMMENDATIONS.
- MECHANICAL EQUIPMENT AT ROOF SHALL BE ANCHORED TO WITHSTAND HURRICANE FORCE WINDS AS PER APPLICABLE CODES.
- PROVIDE CORROSION PROTECTION TO ALL WEATHER EXPOSED MECH. EQUIPMENT BY MEANS OF FIELD APPLIED PRODUCT. SUBMITT FOR APPROVAL.
- EQUIPMENT START-UP SHALL BE PERFORMED BY EQUIPMENT MANUFACTURER.
- ALL EQUIPMENT OFFERED UNDER THESE SPECIFICATIONS SHALL BE LIMITED TO PRODUCTS REGULARLY PRODUCED AND RECOMMENDED FOR SERVICE, IN ACCORDANCE WITH ENGINEERING DATA, RATINGS, OR OTHER COMPREHENSIVE LITERATURE MADE AVAILABLE TO THE PUBLIC AND IN EFFECT AT THE TIME OF OPENING OF BIDS.
- EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE OF MANUFACTURER'S INSTRUCTIONS FOR TYPE AND CAPACITY OF EACH PIECE OF EQUIPMENT USE. COORDINATE MECHANICAL EQUIPMENT CONCRETE PADS WITH FINAL EQUIPMENT ARRANGEMENT.
- CONTRACTOR SHALL BE RESPONSIBLE OF VERIFY ELECTRICAL CONNECTION AT FIELD PRIOR TO EQUIPMENT PURCHASE.

BALANCING:

- THE A/C CONTRACTOR SHALL PROVIDE AIR AND HYDRONIC SYSTEM BALANCING.
- PERFORM AIR & HYDRONIC BALANCING BY A INDEPENDENT NEBB OR AABE CERTIFIED AIR BALANCE CONTRACTOR SHALL ACCURATELY BALANCE THE AIR SYSTEMS TO PROVIDE AIR QUALITIES INDICATED ON THE DRAWINGS AND IN THIS SPECIFICATION. OPERATE AUTOMATIC CONTROLS SYSTEM AND VERIFY SET POINTS DURING BALANCING. THE FINAL READING AND ADJUSTMENT SHALL BE PERFORMED WITH THE PRESENCE OF THE OWNER'S REPRESENTATIVE. SUBMIT FIVE (5) COPIES OF THE BALANCE REPORT TO THE ENGINEER FOR APPROVAL. INCLUDE A COPY OF THE BALANCE REPORT AS APPROVED BY THE ENGINEER WITH APPLICATION FOR FINAL CONTRACT PAYMENT.
- PRESSURIZATION LEAKAGE AND INFILTRATION TEST SHALL BE PERFORMED PER SMACNA STANDARDS AND TECHNICAL SPECIFICATIONS.
- THE AIR DISTRIBUTION SYSTEM AND DEVICES SHALL BE BALANCED FOR PROPER AIR FLOW. TEST DATA OF THE BALANCING OF THE SYSTEMS SHALL BE SUBMIT TO THE ARCHITECT FOR REVIEW. ALL AIR QUANTITIES SHALL BE SET TO WITHIN 10% OF THE LISTED QUANTITIES. DEFLECTION VANES SHALL BE SET TO ELIMINATE ANY EXCESSIVE AIR MOVEMENT IN THE AREA.
- THE AIR SIDE BALANCING SHALL INCLUDE:
 - RECORD MOTOR FULL LOAD AMPS AND ACTUAL OPERATING AMPERAGE.
 - RECORD SUPPLY, RETURN AND OUTSIDE AIR TEMPERATURES.
 - MAKE PITOT TUBE TRAVERSE OF MAIN SUPPLY DUCT AND OBTAIN DESIGN CFM AT FAN AND FAN RPM.
 - RECORD SYSTEM STATIC PRESSURES, RETURN AND DISCHARGE.
 - FIVE (5) COPIES OF BALANCING REPORTS CONTAINING THE DATA MENTIONED ABOVE AND SHALL BE GIVEN TO THE OWNER'S REPRESENTATIVE.
- BALANCING WORK SHALL FULLY COMPLY WITH A.A.B.C. OR N.E.B.B.

AUTOMATIC CONTROL SYSTEM:

- ALL CONTROLLERS SHALL BE FLUSH MOUNTED. ELECTRICAL CONDUITS SHALL RUN INSIDE WALLS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE CONDUITS AND WIRING FOR THE POWER OF THE LCM FROM THE NEAREST POWER SOURCE.
- ALL VERTICAL CONTROL CONDUITS MUST RUN CONCEALED INSIDE WALLS AND HORIZONTAL CONTROL IN THE PLENUM BETWEEN REFLECTED CEILING AND BOTTOM OF STRUCTURAL SLAB.
- ROOM CONDITIONS ARE: 74.0 ± 2.7°F @ 55 ± 5% RH FOR ALL AREAS. COORDINATE LOCATION OF TEMPERATURE CONTROLLERS AT FIELD WITH OWNER.
- PROVIDE VANDAL PROOF COVER FOR ALL TEMPERATURE CONTROLLERS.
- PLASTIC PIPING IS NOT ALLOWED IN RETURN PLENUM AREAS.
- ALL MOTORS SHALL BE PROVIDED WITH ITS REQUIRED STARTERS FOR THE PROPER ELECTRICAL CONNECTION OF THE EQUIPMENT. COORDINATE WITH ELECTRICAL CONSULTANT.

CONDENSATE DRAIN:

- COOLING COIL CONDENSATE DRIP PIPING MATERIAL: SHALL BE EXTERIOR INSULATED SCH-40 PVC.
- COOLING COIL CONDENSATE DRIP PIPING MATERIAL RUNNING IN RETURN AIR PLENUMS SHALL BE TYPE "M" COPPER.
- CONDENSATE DRAIN PIPING INSULATION MATERIAL: SHALL BE CLOSED CELL ELASTOMERIC 3/4" THICK ALL PIPE SIZES. K=0.25 @ 75F.
- CONTRACTOR SHALL PROVIDE INDIRECTLY CONNECTED CONDENSATE DRAIN TO A/C UNITS. COORDINATE WITH PLUMBING DRAWINGS.
- PROVIDE CONDENSATE DRAIN PUMP FOR A/C EQUIPMENT IF REQUIRED PIPE SLOPE IS NOT ATTAINED.
- CONTRACTOR SHALL BE RESPONSIBLE OF CONNECT 1" INSULATED PVO PIPE FOR EQUIPMENT CONDENSATE DRAIN AND CONNECT TO SANITARY SEWER SYSTEM.

CHILLED WATER PIPING:

- CHILLED WATER PIPING SHALL BE BLACK STEEL SCHEDULE 40 ASTM A-53.
- TEST ALL PIPING FOR A PERIOD OF 24 HRS. ALL PIPE TEST SHALL BE WITNESSED AND APPROVED BY THE OWNER'S REPRESENTATIVE. TEST PRESSURE SHALL BE AS PER. WRITTEN SPEC'S.
- ALL VALVES AND FITTINGS SHALL BE 150 PSI D.W.P.
- WEATHER EXPOSED CHILLED WATER INSULATION MATERIAL SHALL BE TRYMER 2000 POLYSOCYANURATE FOAM INSULATION WITH VAPOR BARRIER 1/2" THICK ALL PIPE SIZES. COVER ALL INSULATION WORKS WITH 6 OUNCES CANVAS ADHERED WITH FOSTER 3035. USE AN ALUMINUM JACKET SECURELY ATTACHED IN ALL PIPE RUNS AND FITTINGS.

SELECTIVE DEMOLITION:

- IN ORDER TO AVOID DELAYS OR CLAIMS ON HIS BEHALF, THE GENERAL CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING OF ERRORS, COORDINATION DEVIATIONS OR OMISSIONS FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL VERIFY AND BECOME FAMILIAR TO MAKE PART OF HIS RESPONSIBILITY. ALL CONTRACT DOCUMENTS AND GENERAL CONDITIONS, AND NOT LIMIT HIMSELF TO EXISTING CONDITIONS. THIS WRITTEN SUBMISSION SHALL BE PRESENTED PRIOR TO HIS FIN. BID. PRIOR TO THE COMMENCEMENT OF THE PROJECT WORK THE CONTRACTOR SHALL VERIFY ALL THE DIMENSIONS AND THE EXISTING CONDITIONS AT THE PROJECT SITE AND HE/SHE SHALL NOTIFY TO THE ARCHITECT IMMEDIATELY IN WRITING OF ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THE CONTRACT DOCUMENTS WHICH MIGHT AFFECT THE SCHEDULE AND/OR PERFORMANCE OF THE PROPER DEMOLITION AND CONSTRUCTION WORKS. THE CONTRACTOR SHALL MAKE THE NECESSARY DEMOLITION TO PERFORM THE WORK PRETENDED IN THIS SET OF DRAWINGS.
- CONTRACTOR SHALL VERIFY ON SITE UTILITIES LOCATION AND STRUCTURE CONDITIONS BEFORE PROCEEDING WITH DEMOLITION.
- CONTRACTOR SHALL REMOVE AND DEMOLISH EXISTING FACILITIES IN COORDINATION AND ACCORDING TO OWNER INSTRUCTIONS.
- CONTRACTOR SHALL TAKE MAXIMUM SAFETY PRECAUTIONS IN ORDER NOT TO DAMAGE EQUIPMENT, ADJACENT PROPERTY, BUILDING OR ITEMS NOT TO BE DEMOLISHED OR REMOVED AND AVOIDING INJURIES TO PERSONNEL AND PRIVATE PROPERTY. ANY DAMAGE DONE TO EXISTING WORK TO REMAIN SHALL BE REPAIRED BY CONTRACTOR NO EXPENSE TO THE OWNER.
- CONTRACTOR WILL BUILT BARRICADE PRIOR TO START DEMOLITION IN ORDER PROTECT AND AVOID INJURIES TO THE PEDESTRIAN AND AND PRIVATE PROPERTIES.
- CONTRACTOR SHALL REMOVE ANY EXISTING PAVEMENT, WHEN NECESSARY FOR PROPOSED SITE CONSTRUCTION CONDITIONS, AND PROTECT ANY PAVEMENT WHEN CONDITIONS INDICATE THAT ITS REMOVAL IS NOT NECESSARY.
- DEMOLITION WORK SHALL BE PROPERLY EXECUTED, IS THE CONTRACTOR RESPONSIBILITY TO REPLACE, REBUILD TO ITS ORIGINAL CONDITIONS, ANY UTILITIES, SIDEWALKS, CURBS, STREETS, SEWER SYSTEMS, PRIVATE OR MUNICIPAL FACILITIES AFFECTED BY DURING THE CONSTRUCTION PHASE.
- EQUIPMENT, ACCESSORIES AND/OR MATERIALS "TO REMAIN" SHALL BE PROPERLY PROTECTED DURING ALL DEMOLITION AND CONSTRUCTION WORKS IN ORDER TO PREVENT ANY POSSIBLE DAMAGE TO THEM.
- ALL SCRAP MATERIALS (LEAD-BASED PAINT AND ASBESTOS-CONTAINING MATERIALS) FROM THE DEMOLITION WORK SHALL BE DISPOSED OFF AS PER THE TECHNICAL SPECIFICATIONS FOR THE ABATEMENT OF LEAD-BASED PAINT AND ASBESTOS-CONTAINING MATERIALS.
- THE CONTRACTOR SHALL RELOCATE ANY EXISTING SOIL WASTE OR DRAIN, OR WATER PIPE THAT INTERFERES WITH A PROPOSED FOOTING OR STRUCTURE AS APPROVED BY THE ARCHITECT AND/OR STRUCTURAL DESIGNER.
- COLD JOINTS BETWEEN EXISTING CONCRETE AND NEW ONES SHALL BE FILLED WITH CONCESSIVE 1001PL. THE MAXIMUM PERMISSIBLE TIME BETWEEN PLACING THE EPOXY AND POURING THE CONCRETE IS ONE HOUR.
- COORDINATE WITH OWNER A LIST OF REMOVED ITEMS TO BE SALVAGED, SCRAPED OR REINSTALLED.
- ALL DISPOSED MATERIAL MANAGEMENT SHALL BE COMPLY AND ACCORDANCE WITH GOVERNMENT APPROVAL AND REGULATIONS.
- DEMOLITION WORK SHALL BE COORDINATED WITH THE OWNER TO MINIMIZE INTERFERING WITH THE OPERATIONS.
- ALL PIPES, VALVES, ETC. OF WATER SUPPLY, SANITARY, DRAINAGE AND STORM SYSTEMS SHALL BE REMOVED, OR REMOVED AND INSTALL NEW; SEE PLUMBING DRAWINGS.
- FOR ELECTRICAL DEMOLITION SEE ELECTRICAL DRAWINGS.
- IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO CORROBORATE THE PLANS DIMENSIONS WITH EXISTING FIELD DIMENSIONS. CONDITION SHALL BE SUBMITTED TO THE OWNER REPRESENTATIVE PRIOR DATE OF BID.
- ALL EQUIPMENT AND MATERIALS REMOVED SHALL REMAIN THE SOLE PROPERTY OF THE OWNER.
- ALL SURPLUS MATERIAL AND DEBRIS SHALL BE DISPOSED ON A GOVERNMENT APPROVED DUMP SITE.
- CONDITIONS FOR CONSTRUCTION BUILDING REMODELATION AS SPECIFIED IN A.I.A. STANDARD GENERAL CONDITIONS OF CONTRACT SHALL BE FULLY REQUIRED.
- CONTRACTOR SHALL PERFORM DEMOLITION IN STRICT ACCORDANCE WITH SPECIFICATION
- CONDITIONS SHOWN NOT NECESSARY REPRESENT THE ACTUAL CONDITION - CONTRACTOR SHALL VERIFY EXISTING CONDITION PRIOR TO PROCEED WITH DEMOLITION.
- CONTRACTOR TO PROVIDE AND INSTALL WATERPROOF ROOF COVERS ON ALL OPENINGS FROM REMOVED EQUIPMENT.
- CONTRACTOR SHALL FOLLOW ALL CODES AND REGULATIONS FOR THE PROPER DISPOSAL OF THE SELECTED ITEMS.

JLMS, CONSULTING ENGINEERS, PSC

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BID SET DRAWINGS
 DATE: May 28, 2021


| Rev. # | Date | Revision By | Description |
|--------|------|-------------|-------------|
| | | | |
| | | | |
| | | | |

Project Name: VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA
 San Juan, Puerto Rico

Drawing Name: VAC NOTES

Owner: ASSMCA

Digital Signature: 

Stamp: 

JLMS Project Num: 21-027
 Drawing Date: May 28, 2021
 Checked By: J. L. Marrero
 Scale: Not to Scale
 Page: 9 of 14 VAC-200

"Yo, José Luis Marrero Sicardo, licencia # 114870, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos y Códigos de las Agencias, Juntas Reglamentadoras o Corporaciones Públicas con jurisdicción. Reconozco que cualquier declaración falsa o falsificación de los hechos que se han producido sin conocimiento o por negligencia ya sea por mí, mis agentes o empleados, o por otras personas con mi conocimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OIGPe y otras autoridades competentes, incluyendo, pero no sin limitarse, a la terminación de la participación en los procedimientos de certificación profesional en la OIGPe."

| AIR HANDLING UNIT AND FAN COIL SCHEDULE | | | | | | | | | | | | | | | | | | | |
|-----------------------------------------|-----------------------------|--------------|--------------|---------|-----------------|--------|--------|-------|-------|------------------|----------------|---------------|----------------|----------|-----------|----------------------|------------------------|----------------------|---------------|
| UNIT NO. | SERVING | TOTAL C.F.M. | O. A. C.F.M. | | FAN PERFORMANCE | | | | | COIL PERFORMANCE | | AIR FILTER | | | UNIT TYPE | WEIGHT (LBS.) | MANUFACTURER MODEL NO. | REMARKS | |
| | | | MINIMUM | MAXIMUM | E.S.P. | M.H.P. | R.P.M. | VOLTS | P. H. | H Z . | TOTAL LOAD MBH | SENS LOAD MBH | TAG | TYPE | | | | | FILTER (MERV) |
| AHU-01 | PHARMACY BLDG. "7" | 2,290 | 800 | 800 | 2 | 5 | 1,800 | 460 | 3 | 60 | 113.70 | 76.78 | PF-02 FF-02 | FLAT BAG | 8 14 | INDOOR VERTICAL UNIT | 1,349 | CARRIER 39MN SIZE06W | 1 TO 16. |
| AHU-02 | WOMEN'S EMERGENCY BLDG. "7" | 4,225 | 1,400 | 1,400 | 2 | 5 | 1,800 | 460 | 3 | 60 | 146.30 | 95.25 | PF-03 FF-03 | FLAT BAG | 8 14 | INDOOR VERTICAL UNIT | 1,685 | CARRIER 39MN SIZE10W | 1 TO 16. |
| AHU-03 | WOMEN'S EMERGENCY BLDG. "7" | 3,405 | 1,135 | 1,135 | 2 | 5 | 1,800 | 460 | 3 | 60 | 144.60 | 103.0 | PF-05 FF-05 | FLAT BAG | 8 14 | INDOOR VERTICAL UNIT | 1,685 | CARRIER 39MN SIZE10W | 1 TO 16. |
| AHU-04 | INFIRMARY BLDG. "7" | 4,020 | 4,020 | 4,020 | 2 | 5 | 1,800 | 460 | 3 | 60 | 285.68 | 153.32 | PF-01 FF-01 | FLAT BAG | 8 14 | INDOOR VERTICAL UNIT | 1,685 | CARRIER 39MN SIZE10W | 1 TO 16. |
| AHU-05 | EMERGENCY OFFICE BLDG. "7" | 7,000 | 2,300 | 2,300 | 2 | 7.5 | 1,800 | 460 | 3 | 60 | 232.30 | 170.85 | PF-04 FF-04 | FLAT BAG | 8 14 | INDOOR VERTICAL UNIT | 2,159 | CARRIER 39MN SIZE14W | 1 TO 16. |
| AHU-06 | LABORATORY BLDG. "7" | 2,650 | 930 | 930 | 2 | 5 | 1,800 | 460 | 3 | 60 | 98.61 | 60.00 | PF-06 FF-06 | FLAT BAG | 8 14 | INDOOR VERTICAL UNIT | 1,369 | CARRIER 39MN SIZE06W | 1 TO 16. |
| FCU-1 TO 12 | INFIRMARY ROOMS BLDG. "7" | 400 | 0 | 0 | 2 | - | 1,800 | 460 | 3 | 60 | 9.70 | 9.10 | PF-06 FF-06 | FLAT BAG | 8 14 | INDOOR VERTICAL UNIT | 1,369 | CARRIER 39MN SIZE06W | 1 TO 16. |

| EXHAUST & MAKEUP FAN SCHEDULE | | | | | | | | | | | | | |
|--------------------------------|----------|-------|--------|-------|--------------|-------|----------|-----------|--------------|-------------------------------|-------------------|---------|--|
| TAG. NO. | LOCATION | TYPE | DRIVE | CFM | S.P. IN W.G. | H.P. | ELECT. | MODEL NO. | MANUFACTURER | ELECTRICALLY INTERLOCKED WITH | ROOF OPENING | REMARKS | |
| EF-1 | ROOF | CENT. | BELT | 300 | 0.5 | .167 | 208/1/60 | 70ACEB | COOK | TIMER | 13 1/2" x 13 1/2" | B, V, S | |
| EF-2 | ROOF | CENT. | BELT | 1,700 | 0.5 | .500 | 208/1/60 | 150ACEB | COOK | TIMER | 19 1/2" x 19 1/2" | B, V, S | |
| EF-3 | ROOF | CENT. | BELT | 1,500 | 0.5 | .250 | 208/1/60 | 135ACEB | COOK | TIMER | 13 1/2" x 13 1/2" | B, V, S | |
| EF-4 | ROOF | CENT. | BELT | 150 | 0.5 | .167 | 208/1/60 | 60ACEB | COOK | TIMER | 13 1/2" x 13 1/2" | B, V, S | |
| EF-5 | ROOF | CENT. | BELT | 250 | 0.5 | .250 | 208/1/60 | 70ACEB | COOK | TIMER | 15 1/2" x 15 1/2" | B, V, S | |
| EF-6 | ROOF | CENT. | BELT | 250 | 0.5 | .167 | 208/1/60 | 70ACEB | COOK | TIMER | 15 1/2" x 15 1/2" | B, V, S | |
| EF-7 | ROOF | CENT. | BELT | 1,000 | 0.5 | .167 | 208/1/60 | 120ACEB | COOK | TIMER | 15 1/2" x 15 1/2" | B, V, S | |
| EF-8 | ROOF | CENT. | BELT | 250 | 0.5 | .250 | 208/1/60 | 70ACEB | COOK | TIMER | 10" x 10" | B, V, S | |
| EF-9 | ROOF | CENT. | BELT | 200 | 0.5 | .250 | 208/1/60 | 70ACEB | COOK | TIMER | 13 1/2" x 13 1/2" | B, V, S | |
| EF-10 | ROOF | CENT. | BELT | 200 | 0.5 | .250 | 208/1/60 | 70ACEB | COOK | TIMER | 10" x 10" | B, V, S | |
| EF-11 | ROOF | CENT. | BELT | 3,100 | 0.75 | 2.0 | 208/1/60 | 180ACEB | COOK | TIMER | 26" x 26" | B, V, S | |
| EF-102 TO 109 EF-110 TO 112 | IN-LINE | CENT. | DIRECT | 50 | 0.25 | (24W) | 115/1/60 | TD-125 | SOLER PALAU | TIMER | - | B, S | |
| EF-101 | IN-LINE | CENT. | DIRECT | 200 | 1.0 | 1/4 | 208/1/60 | 12CVB | COOK | TIMER | - | B, V, S | |
| SF-1 | ROOF | CENT. | BELT | 1,500 | 0.5 | 0.25 | 208/1/60 | 90ASP | COOK | TIMER | 25" x 25" | B, S | |

REMARKS: 1) DOUBLE WALL GALVANIZED STEEL CONSTRUCTION. 2) MIXING BOX SECTION WITH PARALLEL DAMPERS. 3) RIGID FILTER SECTION. 4) COOLING COIL SECTION. 5) DRAW-THRU FAN SECTION. 6) ALL SECTION WITH SIDE ACCESS DOORS. 7) 6" PERIMETER BASE RAIL. 8) IAQ STAINLESS STEEL DRAIN PAN. 9) FIXED BELT DRIVES. 10) DISCONNECT SWITCH. 11) HEAVY GAUGE G80 GALVANIZED STEEL CONSTRUCTION. 12) VFD. 13) ANTIMICROBIAL COATING ON INTERIOR CABINERY. 14) INTERNAL VIBRATION ISOLATORS. 15) TWO WAY CONTROL VALVE (MANUAL BALL VALVE WITH MEMORY STOP, ADJUSTABLE FLOW CIRCUIT SETTER). 16) UV LIGHT.

REMARKS: (B) GRAVITY BACKDRAFT DAMPER. (E) EPOXY PAINT PROTECTION. (SP) SPEED CONTROL. (G) GREASE TROUGH. (V) VENTED EXTENSION. (S) STARTER (T) 24/7 PROGRAMMABLE TIME CLOCK LOCATED NEXT TO ELECTRICAL PANEL. (PL) PILOT LIGHT SWITCH LOCATED INSIDE ROOM. (F) FIBER GLASS CONSTRUCTION.

| CHILLED WATER COOLING COIL PERFORMANCE | | | | | | | | | | | | | | | | | | |
|----------------------------------------|--------|-----------------|------|-----------|-----------|--------|-----------|-----------|--------|--------|--------|------------------|------------|-------|------|--------------|-----|---------|
| COIL No. | C.F.M. | VEL. (FPM) MAX. | TYPE | AIR DATA | | | | | | | | REFRIGERANT DATA | | | | MANUFACTURER | | |
| | | | | MIN. ROWS | FIN TYPE | F.P.I. | MBH TOTAL | MBH SENS. | EDB °F | EWB °F | LDB °F | LWB °F | P.D.(ftwg) | REF. | GPM | | EWT | LWT |
| CC-01 | 2,290 | 508.5 | FW | 6 | SINE WAVE | 11 | 113.70 | 76.78 | 76.30 | 65.0 | 53.14 | 52.90 | 9.5 | WATER | 20.8 | 44F | 54F | CARRIER |
| CC-02 | 4,225 | 423.0 | FW | 6 | SINE WAVE | 11 | 146.30 | 95.25 | 78.6 | 67.1 | 55.3 | 55.2 | 0.6 | WATER | 24.5 | 44F | 54F | CARRIER |
| CC-03 | 3,405 | 453.2 | FW | 6 | SINE WAVE | 11 | 134.47 | 108.72 | 78.0 | 66.1 | 56.3 | 55.6 | 3.8 | WATER | 26.8 | 44F | 54F | CARRIER |
| CC-04 | 4,020 | 412.9 | FW | 6 | SINE WAVE | 11 | 285.68 | 153.32 | 91.60 | 76.90 | 55.54 | 55.52 | 4.5 | WATER | 56.9 | 44F | 54F | CARRIER |
| CC-05 | 7,000 | 488.1 | FW | 6 | SINE WAVE | 12 | 190.77 | 157.21 | 77.8 | 65.9 | 55.2 | 55.1 | 1.5 | WATER | 38.0 | 44F | 54F | CARRIER |
| CC-06 | 2,650 | 381.4 | FW | 6 | SINE WAVE | 11 | 98.61 | 63.72 | 79.0 | 67.3 | 54.3 | 54.2 | 8.5 | WATER | 19.7 | 44F | 54F | CARRIER |
| CC-07 THRU CC-18 | 400 | 500.0 | FW | 3 | - | - | 9.70 | 9.10 | 70.0 | 59.0 | 55.1 | 52.7 | 10.17 | WATER | 1.9 | 44F | 54F | CARRIER |

| AIR FLOW DESIGN CONSIDERATIONS | | | |
|--------------------------------|----------|---------------------------------|-----------------------------------|
| Space | Pressure | Min. Total Air Changes per Hour | Min. Outside Air Changes per Hour |
| Clean linen | Positive | 4 | 2 |
| Soil linen | Negative | 6 | 2 |
| Medical Storage | Positive | 4 | 2 |
| Triage | Negative | 12 | 2 |
| Isolation (All) | Negative | 12 | 2 |
| Waiting Room | Negative | 12 | 2 |
| Patient Room | N/R | 6 | 2 |
| Laboratory | Negative | 6 | 2 |
| Procedure Room | Positive | 15 | 3 |
| Pharmacy | Positive | 4 | 2 |

NOTE: 1) CONTRACTOR SHALL BE RESPONSIBLE OF VERIFY ELECTRICAL CONNECTION AT FIELD PRIOR TO EQUIPMENT PURCHASE. 2) PROVIDE START/STOP SWITCH FOR FAN OPERATION. COORDINATE LOCATION AT FIELD.

| AIR COOLED WATER CHILLER SCHEDULES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------------|-------|------------|------------------|---------------|------------------|----------------|----------------------|--------------|----------------------|-------------|----------|----------------------------|------------|-------|-----------------|--------|--------------|-------|------|-----|----------------|------|--------------|--------------------|---------|----|----------|------|----|----------------|-------------------|---------|
| MARKED NO | TONS. | EVAPORATOR | | | | | | | AIR COOLED CONDENSER | EER (EER) | REFR. | ELECTRICAL CHARACTERISTICS | | | | | | | | | | | WEIGHT (LBS) | MANUFACTURER MODEL | REMARKS | | | | | | | |
| | | FLUID | FLOW G.P.M. | ENT. TEMP. °F | LEAVING TEMP. °F | FOULING FACTOR | MAX. DROPT. (FT. WG) | NO. CIRCUITS | | | | AMBIENT AIR TEMP. (°F) | IPLV (EER) | VOLTS | PHASE | CYCLES | START OPTION | MCA | MOCP | ICF | REQ. FUSE SIZE | QTY. | | | | KW | LRA (EA) | QTY. | KW | FLA(EA) | VOLTS | PHASE |
| RM-01 | 100 | WATER | 200 MAX. 50 MIN. | 56 | 44 | 0.00010 | 10.7 | 2 | 95 | 9.6 13.6 | R410A | 460 | 3 | 60 | ACROSS THE LINE | 209.2 | 250 | 417.2 | 225 | 4 | - | 260 | 6 | - | 5.4 | - | - | - | - | 4,600 | CARRIER 30RBD1006 | 1 TO B. |
| RM-02 | 70 | WATER | | | | | | | | | EXISTING | | | | | | | | | | | | | | | | | | | TRANE CGAM070F | | |

REMARKS: 1) FACTORY APPLIED "E-COAT" TREATMENT FULLY IMMersed. 2) LOW SOUND. 3) HOT GAS BYPASS. 4) VARIABLE SPEED CONDENSER FANS. 5) HOT GAS BYPASS. 6) PHASE LOSS/VOLTAGE PROTECTION. 7) CONVENIENCE OUTLET. 8) SINGLE POINT.

NOTE: CONTRACTOR SHALL BE RESPONSIBLE OF VERIFY ELECTRICAL CONNECTION AT FIELD PRIOR TO EQUIPMENT PURCHASE.

| PUMPS SCHEDULE | | | | | | | | | | | | | | | |
|----------------|--------------|----------|------------------|------------|-------------------|----------|-----------------|------------|--------|------|---|------|-----------------------|-------------------------------------------------------------------|------|
| MARKED | SYSTEM | LOCATION | G.P.M. | TDH. (FT.) | FLUID TEMP. (MIN) | SIZE | TYPE | MOTOR DATA | | | | | MANUFACTURER MODEL | ACCESSORIES | |
| | | | | | | | | H.P. | R.P.M. | VOLT | # | TYPE | | MECHANICAL SEAL. | VFD. |
| CHWP-01 | PRIMARY PUMP | ROOF | 200 MAX. 50 MIN. | 60 | 44 | 3"x3"x8" | VERTICAL INLINE | 5 | 1,800 | 460 | 3 | TEFC | ARMSTRONG SERIES 4300 | • MECHANICAL SEAL. • VFD. • HIGH EFF MOTOR. • SENSORLESS CONTROL. | |
| CHWP-02 | SPARE PUMP | ROOF | 200 MAX. 50 MIN. | 60 | 44 | 3"x3"x8" | VERTICAL INLINE | 5 | 1,800 | 460 | 3 | TEFC | ARMSTRONG SERIES 4300 | • MECHANICAL SEAL. • VFD. • HIGH EFF MOTOR. • SENSORLESS CONTROL. | |

*CONTRACTOR SHALL BE RESPONSIBLE OF VERIFY ELECTRICAL CONNECTION AT FIELD PRIOR TO EQUIPMENT PURCHASE.

| REHEAT COIL SCHEDULE | | | | | | |
|----------------------|-------|----------------|---------|------|---------------------------------|----------------------------|
| NO. | CFM | VEL. MAX (FPM) | W"xH" | KW | MODEL | REMARKS |
| RC-01 | 2,290 | 750 | 32"x20" | 9.0 | INDECO W/SCR CONTROL OPTION "K" | VOLTAGE AS FIELD AVAILABLE |
| RC-02 | 4,225 | 750 | 36"x24" | 13.0 | INDECO W/SCR CONTROL OPTION "K" | VOLTAGE AS FIELD AVAILABLE |
| RC-03 | 3,405 | 750 | 36"x24" | 14.0 | INDECO W/SCR CONTROL OPTION "K" | VOLTAGE AS FIELD AVAILABLE |
| RC-04 | 4,020 | 750 | 36"x24" | 13.0 | INDECO W/SCR CONTROL OPTION "K" | VOLTAGE AS FIELD AVAILABLE |
| RC-05 | 7,000 | 750 | 48"x28" | 22.0 | INDECO W/SCR CONTROL OPTION "K" | VOLTAGE AS FIELD AVAILABLE |
| RC-06 | 2,650 | 750 | 26"x18" | 7.0 | INDECO W/SCR CONTROL OPTION "K" | VOLTAGE AS FIELD AVAILABLE |

| AIR TERMINALS SCHEDULE | | | | |
|------------------------|--------------------------|--------|--------------|-------------------------------|
| DESIG. | TYPE | MODEL | MANUFACTURER | REMARK |
| SD-1 | SUPPLY DIFFUSER | S-5000 | METAL AIRE | ALUMINUM CONSTRUCTION |
| SD-2 | SECURITY SUPPLY DIFFUSER | SGRP | METAL AIRE | HEAVY DUTY STEEL CONSTRUCTION |
| RR-1 | RETURN DIFFUSER | RHD | METAL AIRE | ALUMINUM CONSTRUCTION |
| RR-2 | SECURITY RETURN DIFFUSER | SGRHD | METAL AIRE | HEAVY DUTY STEEL CONSTRUCTION |

*DIFFUSERS AND REGISTERS MOUNTING STYLE SHALL MATCH CEILING TYPE, PATTERN AND MATERIAL.
*DIFFUSERS AND REGISTERS COLOR SHALL BE AS PER OWNER'S COLOR CRITERIA.
*PROVIDE TR TRANSITION IF REQUIRED.

NOMENCLATURE
MCA: MIN. CIRCUIT AMPS. (A)
MFA: MAX. FUSE AMPS. (A)
MSC: MAX. STARTING CURRENT (A)
RLA: RATED LOAD AMPS. (A)
OFM: OUTDOOR FAN MOTOR (A)
FLA: FULL LOAD AMPS. (A)
KW: RATED MOTOR OUT PUT (KW)
COP: COEFFICIENT OF PERFORMANCE

ABBREVIATIONS:
EF EXHAUST FAN
CFM CUBIC FEET PER MINUTE
S.A. SUPPLY AIR
R.A. RETURN AIR
O.A. OUTSIDE AIR
AHU AIR HANDLING UNIT
PCU PACKAGE CONDENSING UNIT
CU CONDENSING UNIT
SD SUPPLY DIFFUSER
RR RETURN REGISTER
N NECK
OAL OUTSIDE AIR LOUVER
BDD BACKDRAFT DAMPER
OBD OPPOSED BLADE DAMPER
CONC. CONCRETE (TYP.)
SD SMOKE DETECTOR
CHWS CHILLED WATER SUPPLY
CHWR CHILLED WATER RETURN
CHWPP CHILLED WATER PRIMARY PUMP
CHWSP CHILLED WATER SECONDARY PUMP
RM REFRIGERATION MACHINE (CHILLER)
DFD DUCT FIRE DAMPER
PTAC PACKAGED TERMINAL AIR CONDITIONERS
Ⓞ TEMPERATURE CONTROLLER

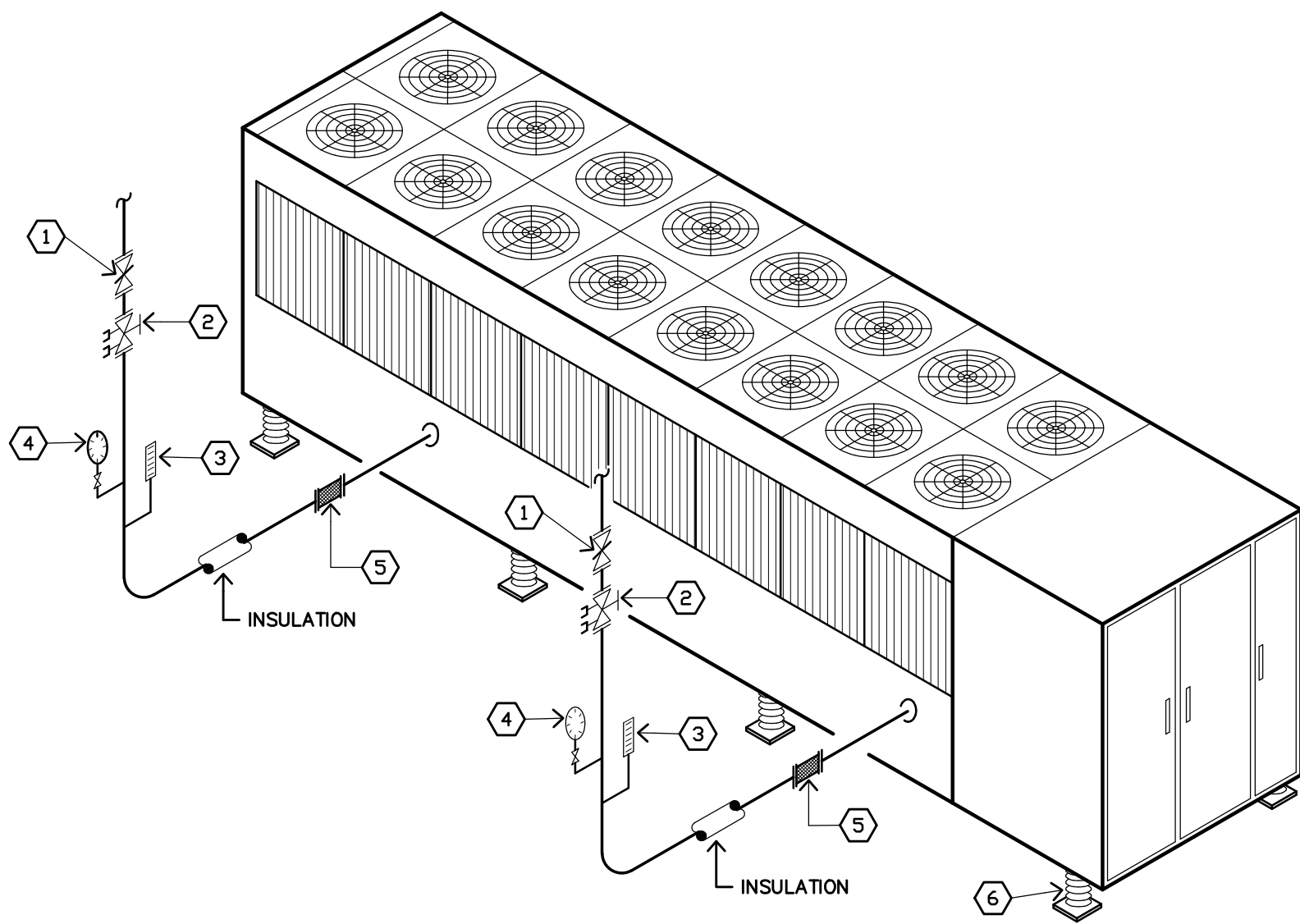
| VARIABLE FREQUENCY DRIVES SCHEDULE | | | | | | |
|------------------------------------|---------|-----|---------------------------|--------------|-------------|--|
| VFD NO. | SERVING | HP | ELECT. CHARACT. V/PH /HZ. | INPUT SIGNAL | MANUFAC | |
| VFD-P01 | CTWP-01 | 5 | 460 / 3 / 60 | 4-20mA | ABB NEMA 4X | |
| VFD-P02 | CTWP-02 | 5 | 460 / 3 / 60 | 4-20mA | ABB NEMA 4X | |
| VFD-01 | AHU-01 | 5 | 460 / 3 / 60 | 4-20mA | ABB | |
| VFD-02 | AHU-02 | 5 | 460 / 3 / 60 | 4-20mA | ABB | |
| VFD-03 | AHU-03 | 5 | 460 / 3 / 60 | 4-20mA | ABB | |
| VFD-04 | AHU-04 | 5 | 460 / 3 / 60 | 4-20mA | ABB | |
| VFD-05 | AHU-05 | 7.5 | 460 / 3 / 60 | 4-20mA | ABB | |
| VFD-06 | AHU-06 | 5 | 460 / 3 / 60 | 4-20mA | ABB | |

ACCESSORIES: 1) HAND-OFF-AUTO SELECTOR SWITCH. 2) ELECTRONIC BY-PASS. 3) MOTOR RUNNING OVERLOAD. 4) MANUAL SPEED CONTROL. 5) NEMA-3R ENCLOSURE. 7) 2 YEARS WARRANTY & SERVICE.

*CONTRACTOR SHALL BE RESPONSIBLE OF VERIFY ELECTRICAL CONNECTION AT FIELD PRIOR TO EQUIPMENT PURCHASE.

| | | | |
|-----------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| JLMS, CONSULTING ENGINEERS, PSC | | | |
| Address: 501 Alfredo Carbonell Street Urb. Roosevelt, Hato Rey, Puerto Rico 00918 | | Contacts: Tel: 787-274-8728 (Office) Tel: 787-615-7890 (Mobile) Tel: 787-772-9121 (Fax) E-mail: j.marrero@jlme.com | |
| Project Name: VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA San Juan, Puerto Rico | | Rev. # | Date |
| Drawing Name: VAC SCHEDULES | | Revision By | Description |
| Owner: ASSMCA | | JLMS Project Num: 21-027 Drawing Date: June 2, 2021 Checked By: J. L. Marrero | |
| Digital Signature: | | Scale: Not to Scale | Page: 10 of 14 |
| Stamp: | | JLMS Project Num: 21-027 Drawing Date: June 2, 2021 Checked By: J. L. Marrero Scale: Not to Scale Page: 10 of 14 | |

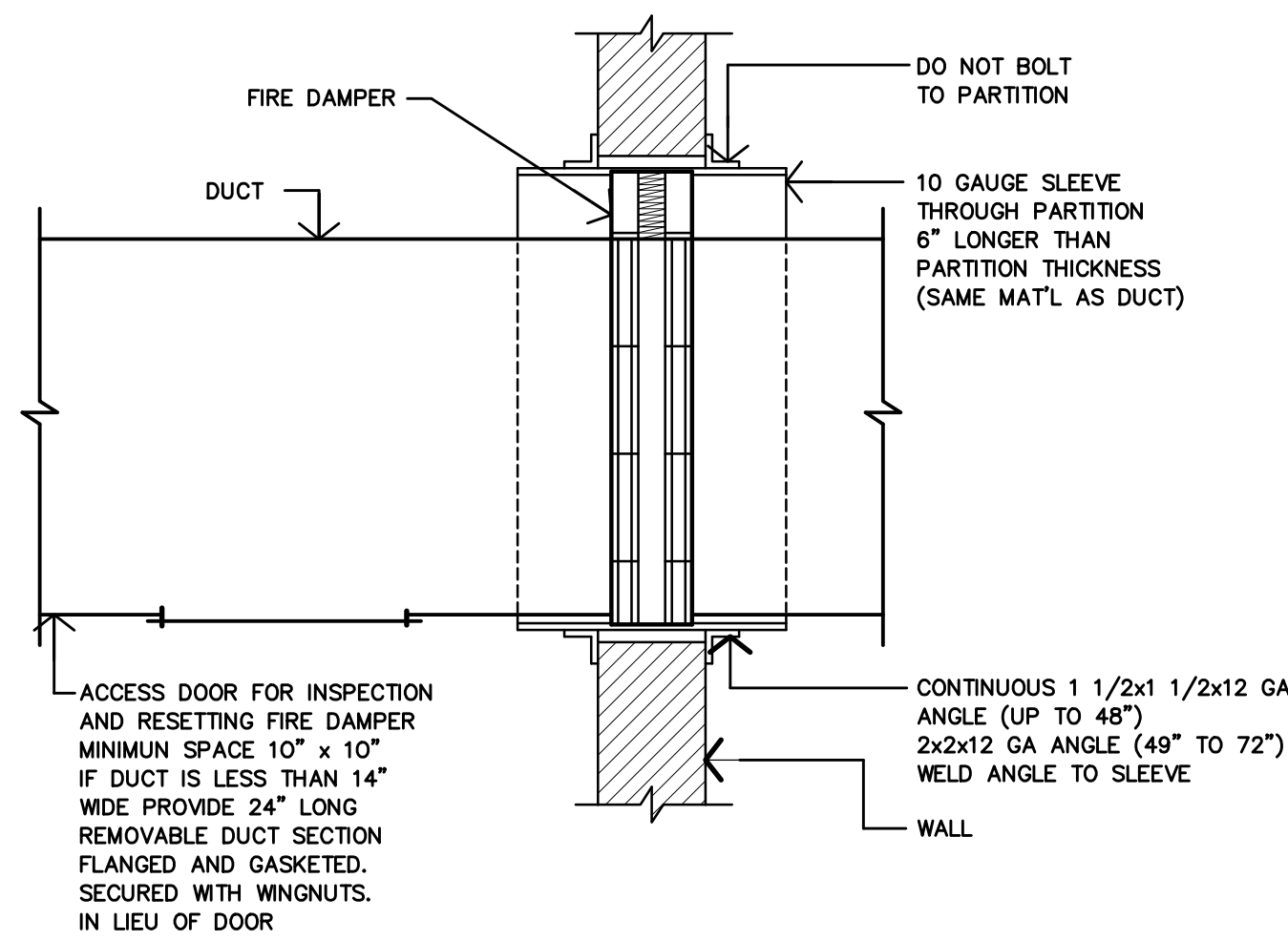
"Yo, José Luis Marrero Sicardo, licencia # 14670, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos y Códigos de las Agencias, Juntas Reglamentadoras o Corporaciones Públicas con jurisdicción. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido sin conocimiento o por negligencia ya sea por mí, mis agentes o empleados, o por otras personas con mi consentimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OIGPe y otras autoridades competentes, incluyendo, pero sin limitarse, a la terminación de la participación en los procedimientos de certificación profesional en la OIGPe."



CHILLER LEGEND

| IDENT. NO. | DESCRIPTION |
|------------|-----------------------------------------------------|
| 1 | BUTTERFLY VALVE |
| 2 | SHUTOFF & CIRCUIT BALANCING VALVE ARMSTRONG CBV-T * |
| 3 | THERMOMETER WITH WELL AND 1-3/4 EXTENSION NECK |
| 4 | PRESSURE GAGE W/COCK VALVE WEISS 0-100 OF SCALE |
| 5 | FLEXIBLE CONNECTION |
| 6 | RUBBER ISOLATORS AS PER EQUIPMENT REQUIREMENTS |

CHILLERS AND HEAT MACHINE CONNECTION DETAIL
SCALE : N.T.S.



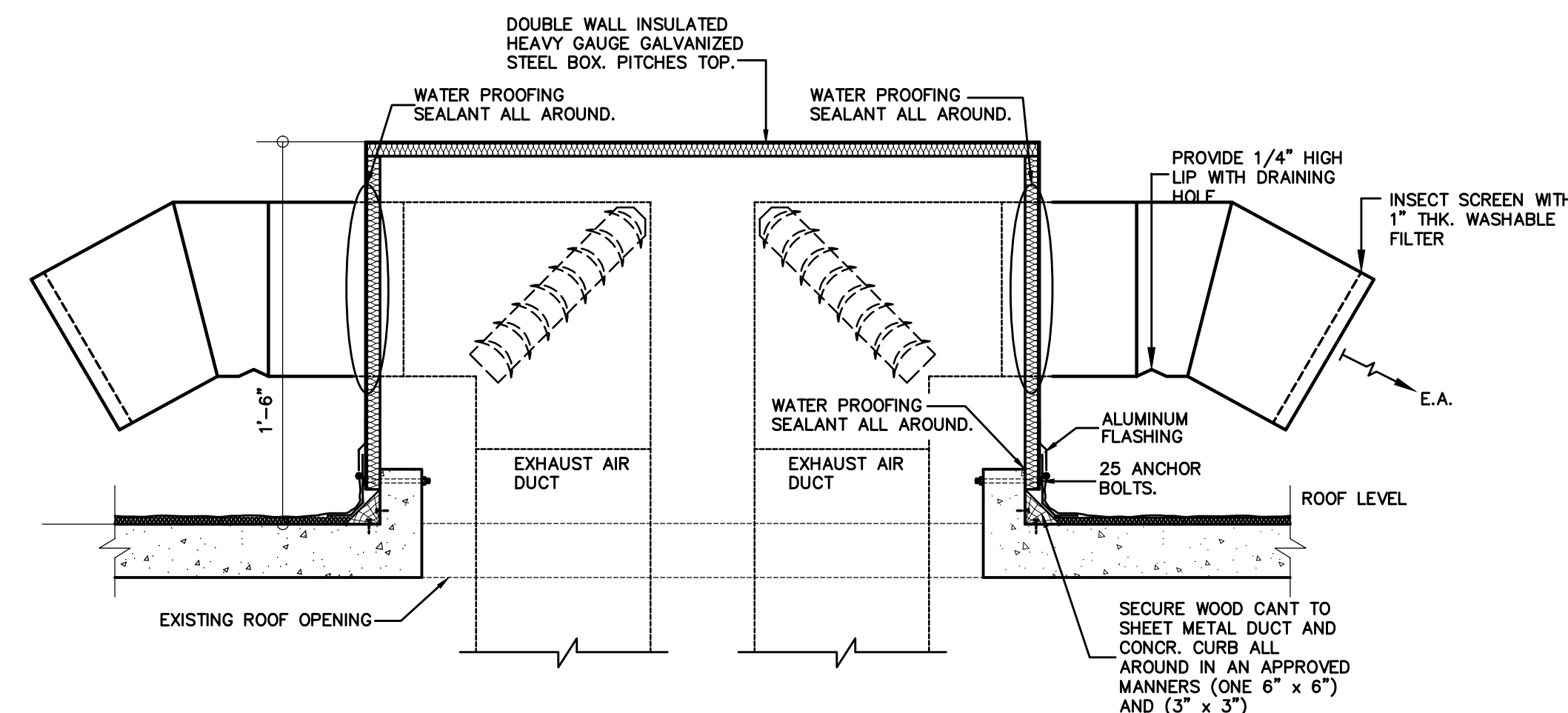
FIRE DAMPER

- SPECIFICATIONS:**
- 1- SHALL BE INSTALLED AS REQUIRED BY APPLICABLE CODES.
 - 2- SHALL BE CONSTRUCTED AND TESTED WITH THE CURRENT EDITION OF UL-555 STANDARD FOR FIRE DAMPERS
 - 3- SHALL BE MARKED WITH A "UL CLASSIFIED 1-1/2 HOUR FIRE PROTECTION RATING" AND "FOR USE IN STATIC SYSTEMS ONLY".
 - 4- EACH FIRE DAMPER SHALL INCLUDE A 165°F FUSIBLE LINK.
 - 5- EACH FIRE DAMPER SHALL INCLUDE A STEEL SLEEVE AND RETAINING ANGLES FURNISHED BY THE MANUFACTURER TO ENSURE APPROPRIATE INSTALLATION OR AS SPECIFIED IN THE SCHEDULE BELOW.
 - 6- SUBMITTAL INFORMATION SHALL INCLUDE THE FIRE PROTECTION RATING AND THE MANUFACTURER'S UL INSTALLATION INSTRUCTIONS.
 - 7- EACH FIRE DAMPER SHALL INCLUDE UL INSTALLATION INSTRUCTIONS AND SHALL BE INSTALLED IN ACCORDANCE WITH THESE INSTRUCTIONS.

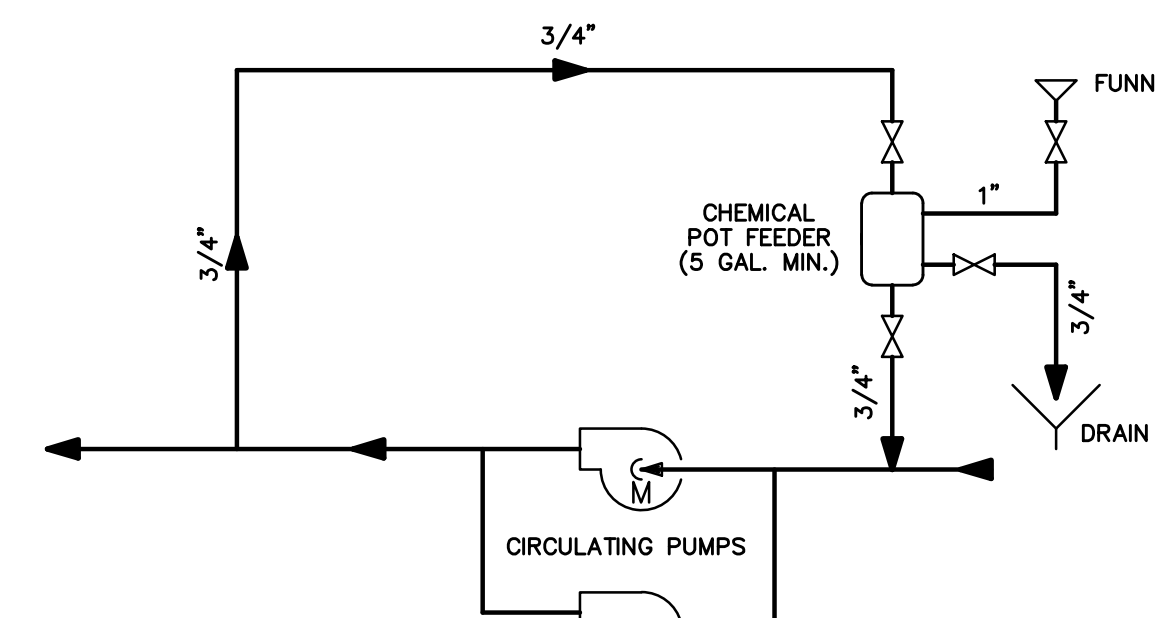
SCHEDULE FOR FIRE DAMPERS

- A- DUCT FIRE DAMPERS (MARKED DFD)**
- 1- INTERIOR DIMENSION - TO MATCH THE DUCT'S INTERIOR DIMENSION SHOWN
 - 2- MOUNTING - VERTICAL
 - 3- BLADES - 24 GAUGE - GALVANIZED CURTAIN TYPE IN AIR STEAM
 - 4- MANUFACTURER: RUSKIN MODEL 1002 STYLE C

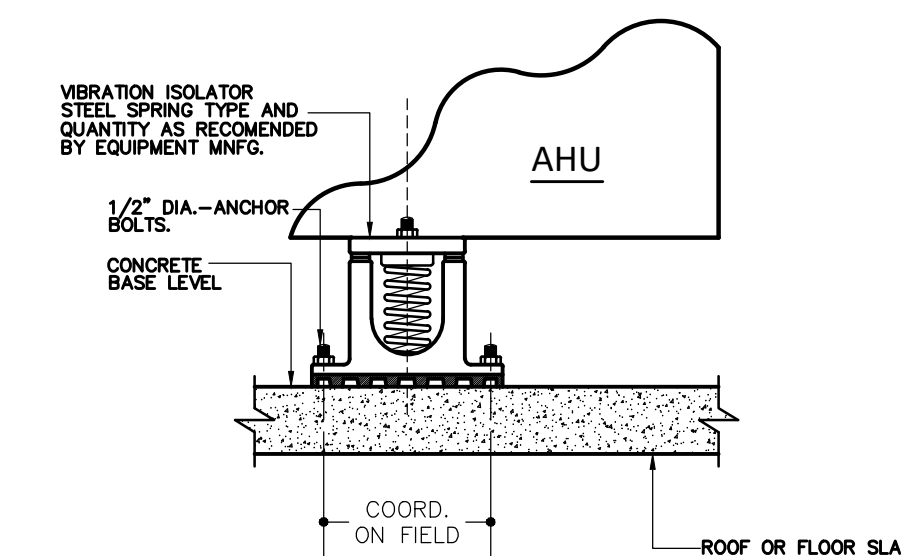
FIRE DAMPER INSTALLATION DETAIL
SCALE : N.T.S.



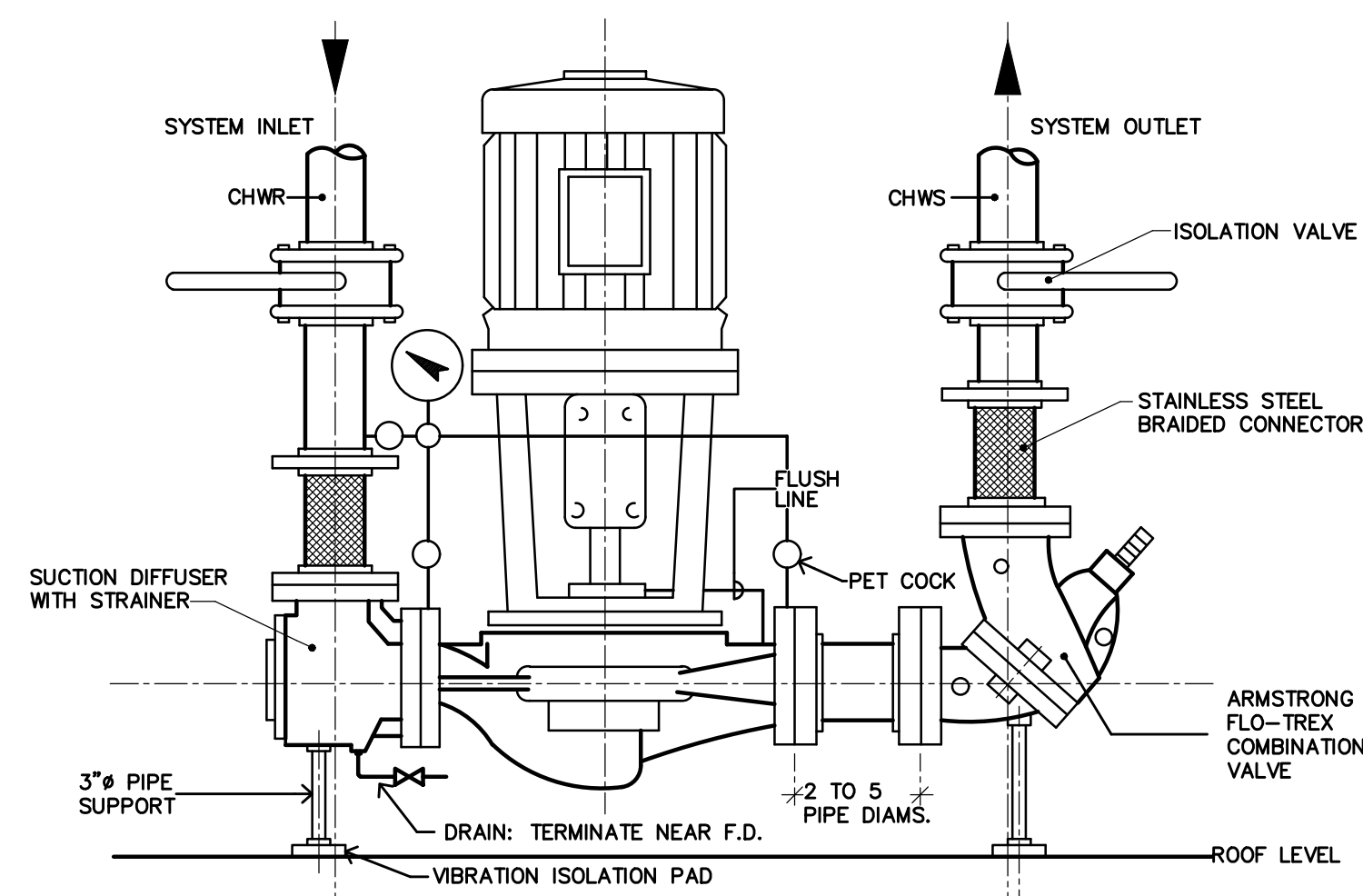
ROOF PENETRATION DETAIL
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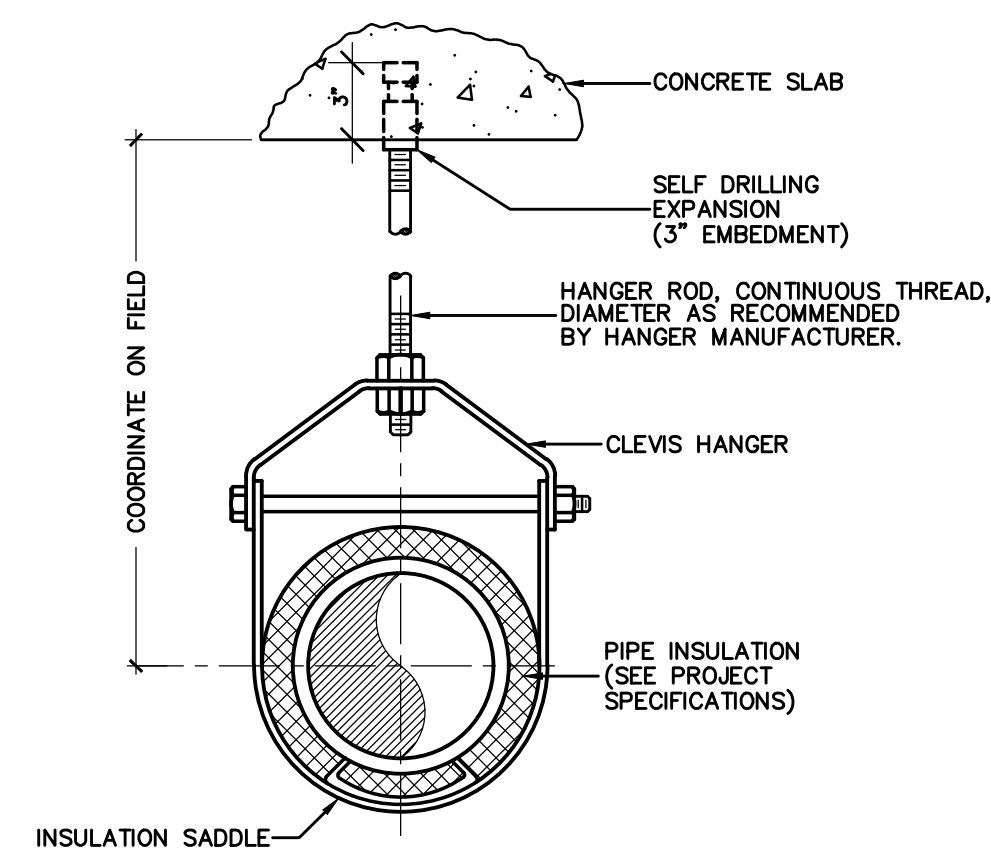
CHEMICAL FEEDER CONNECTION DETAIL
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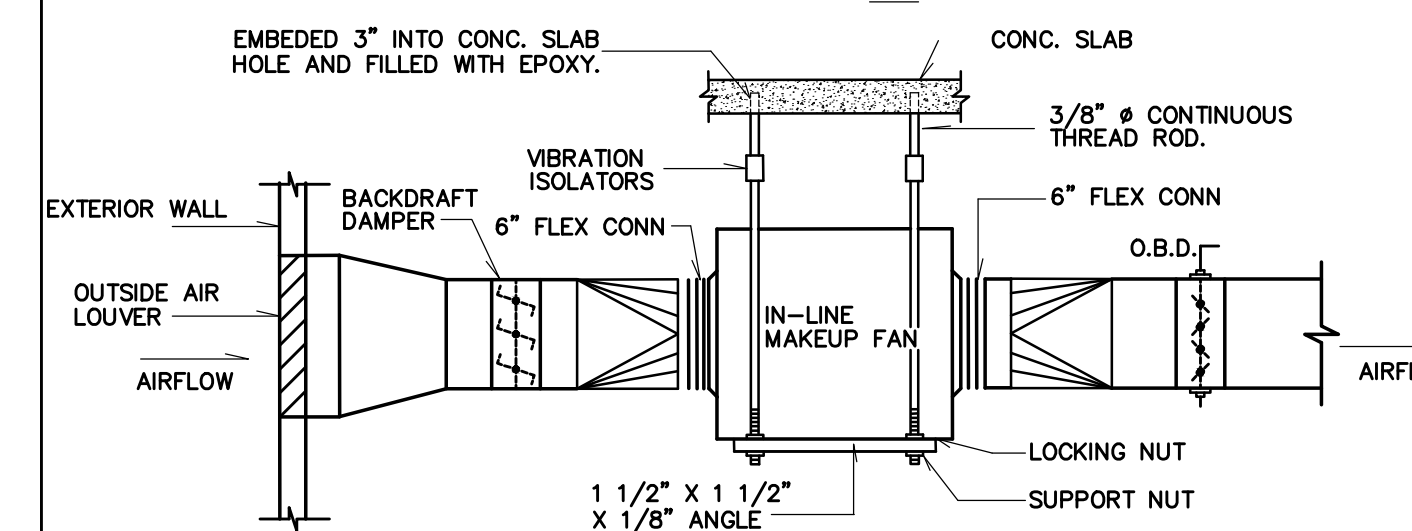
RM, AHU MOUNTING DETAIL
SCALE : N.T.S.



PUMP INSTALLATION DETAIL
SCALE : N.T.S.



PIPE HANGER
SCALE : N.T.S.



MAKEUP FAN MOUNTING DETAIL
SCALE : N.T.S.

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787-772-9121 (Fax)
E-mail: j.marrero@jimpe.com

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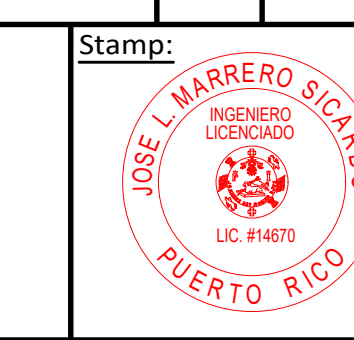
DATE: June 2, 2021

Project Name:
VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA
San Juan, Puerto Rico

| Rev. # | Date | Revision By | Description |
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Drawing Name:
VAC DETAILS

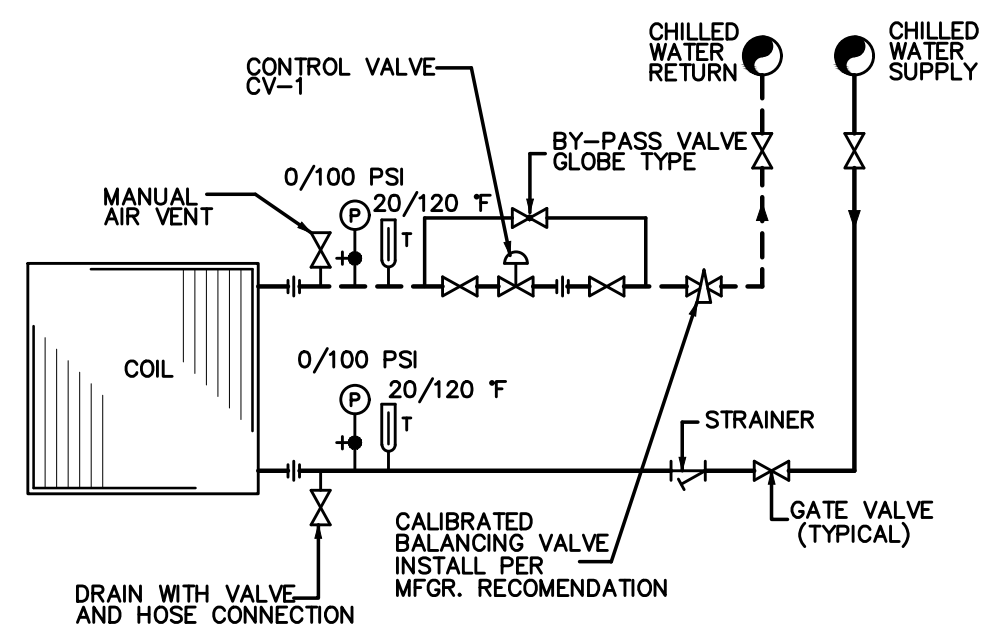
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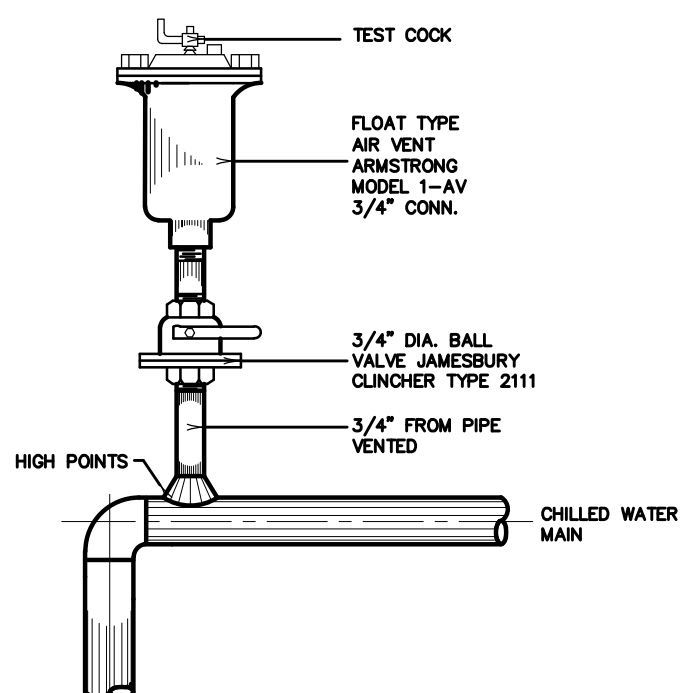
JLMS Project Num:
21-027
Drawing Date:
June 2, 2021
Checked By:
J. L. Marrero
Scale:
N.T.S.
Page:
11 of 14
VAC-400

"Yo, José Luis Marrero Sica, licencia # 14670, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos y Códigos de las Agencias, Juntas Reglamentadoras o Corporaciones Públicas con jurisdicción. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido sin conocimiento o por negligencia ya sea por mí, mis agentes o empleados, o por otras personas con mi conocimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OIGPe y otras autoridades competentes, incluyendo, pero sin limitarse, a la terminación de la participación en los procedimientos de certificación profesional en la OIGPe."

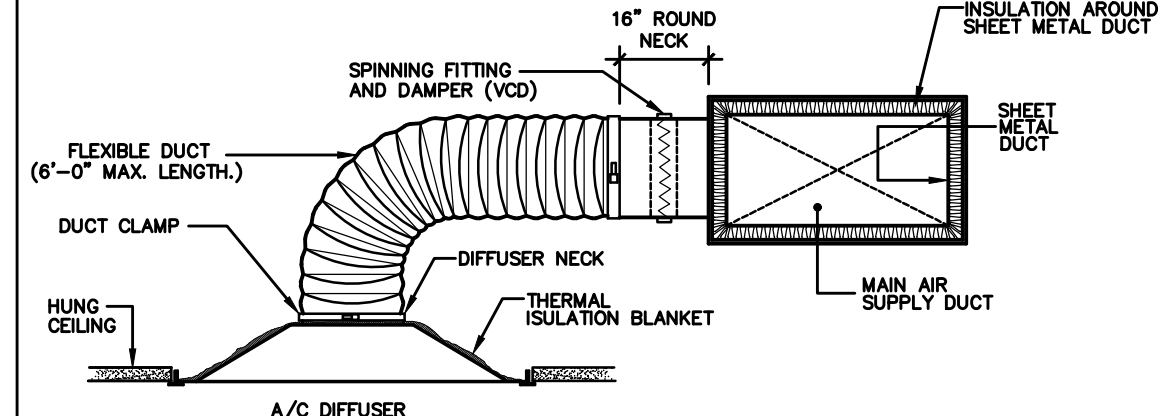
Owner:
ASSMCA



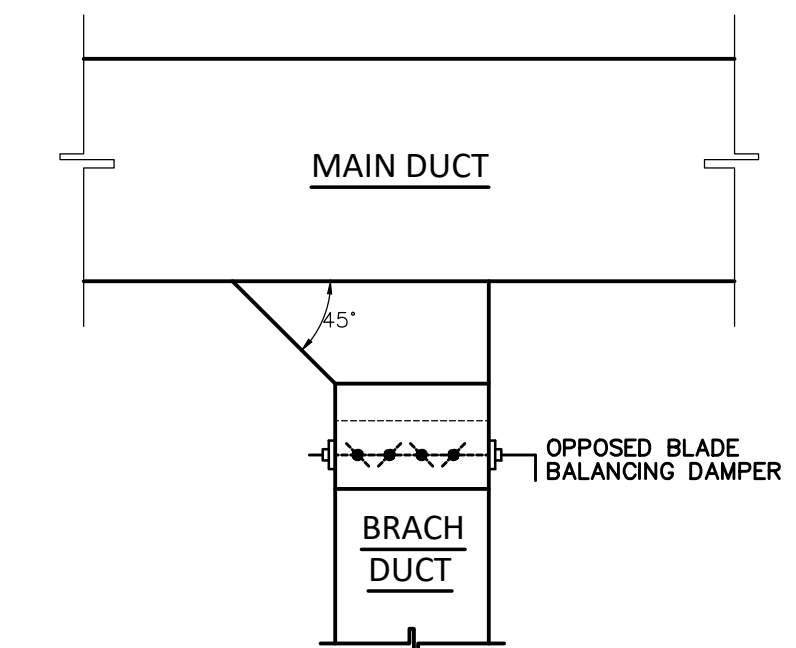
COIL PIPING SCHEMATIC
SCALE : N.T.S.



AUTOMATIC AIR VENT DETAIL FOR CHWS & CHWR PIPES
SCALE : N.T.S.

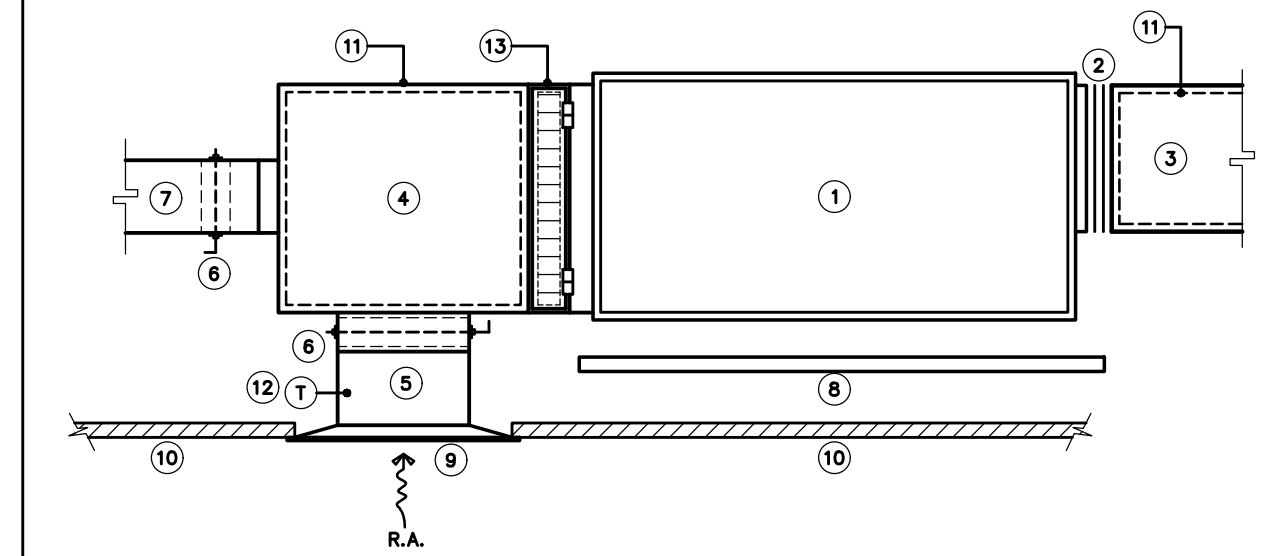


CEILING DIFFUSER & FLEXIBLE DUCT INSTALLATION DETAIL
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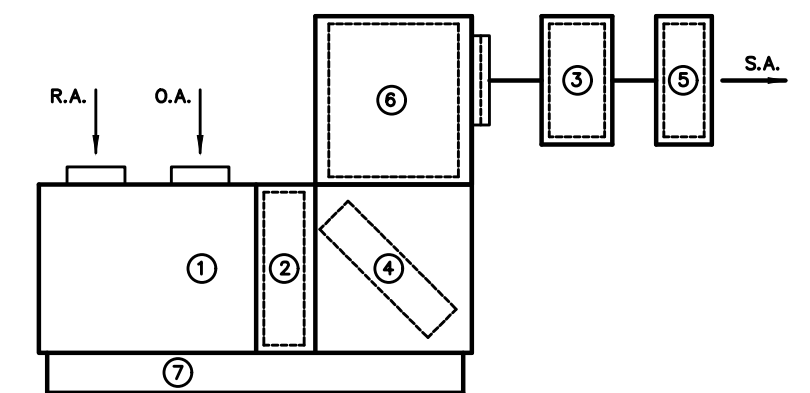


DETAIL APPLIES TO EACH SUPPLY, RETURN OR EXHAUST DUCT BRANCH.

TYPICAL TAKE-OFF DETAIL
SCALE : N.T.S.

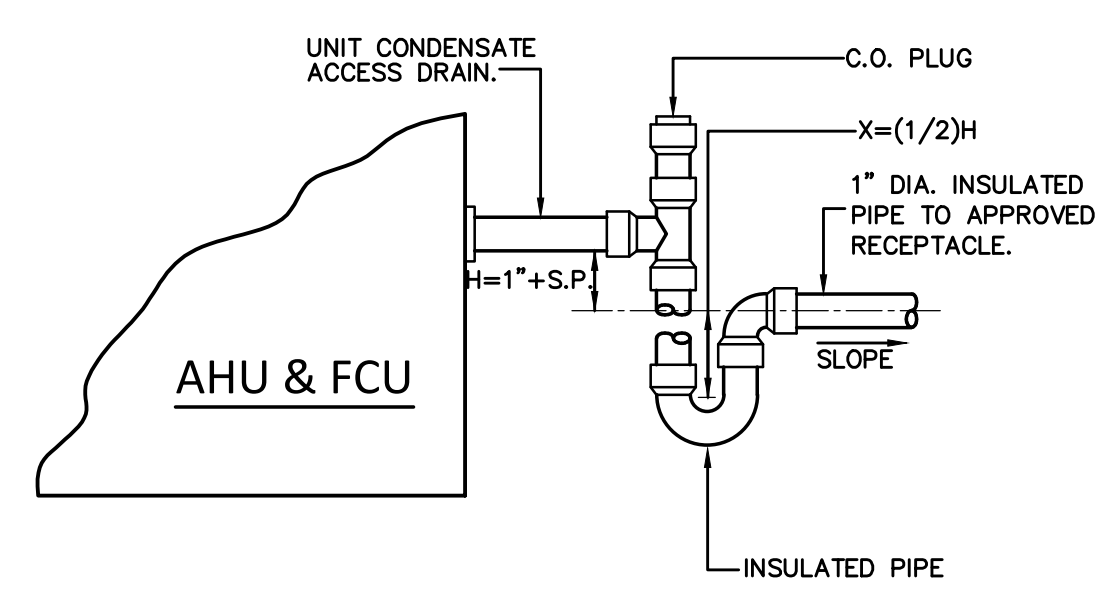


FAN COIL UNIT MOUNTING DETAIL
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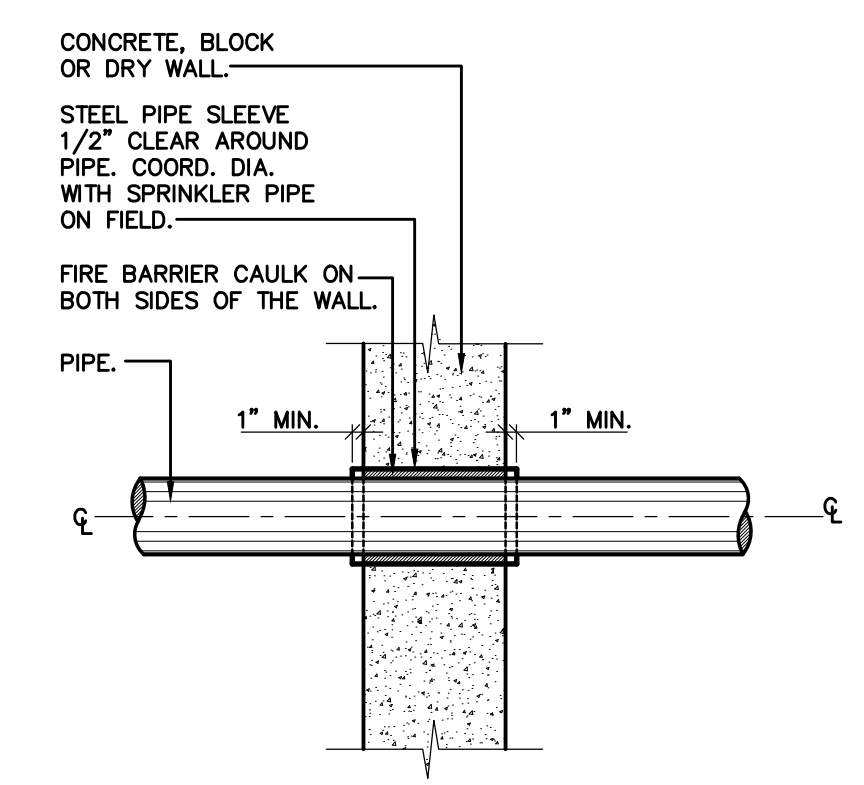


LEGEND
1 MIXING BOX PLENUM
2 FILTER SECTION (MERV 8, 2" PRE-FILTER).
3 MERV 14, CARTRIDGE FILTER MODULE (DUCT MOUNTED)
4 CHILLED WATER COIL MODULE WITH UV LIGHT
5 RE-HEAT COIL MODULE (DUCT MOUNTED)
6 SUPPLY FAN SECTION.
7 HOUSEKEEPING PAD

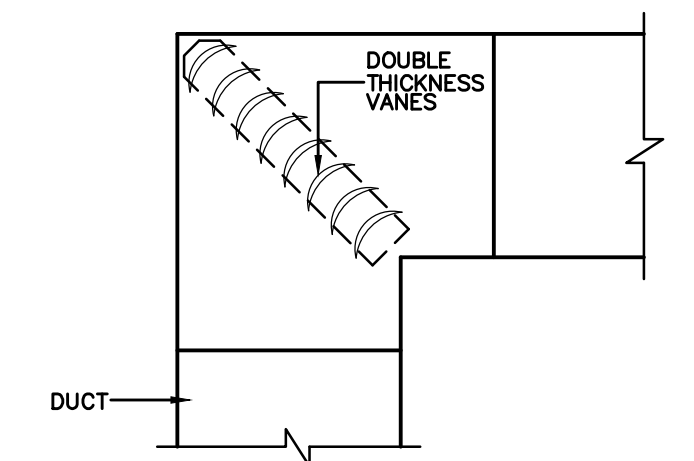
VERTICAL AHU'S COMPONENTS
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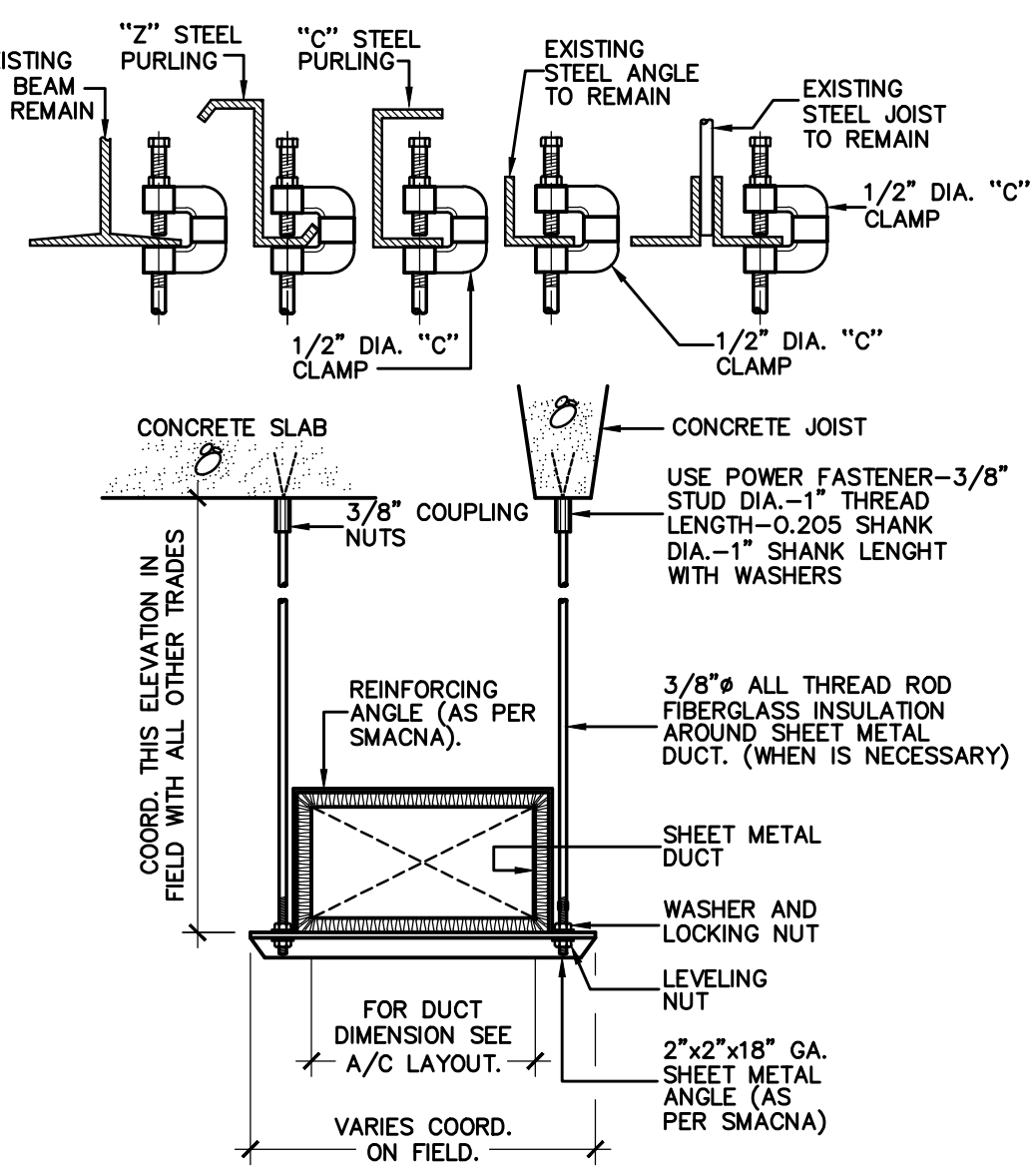
CONDENSATE DRAIN DETAIL
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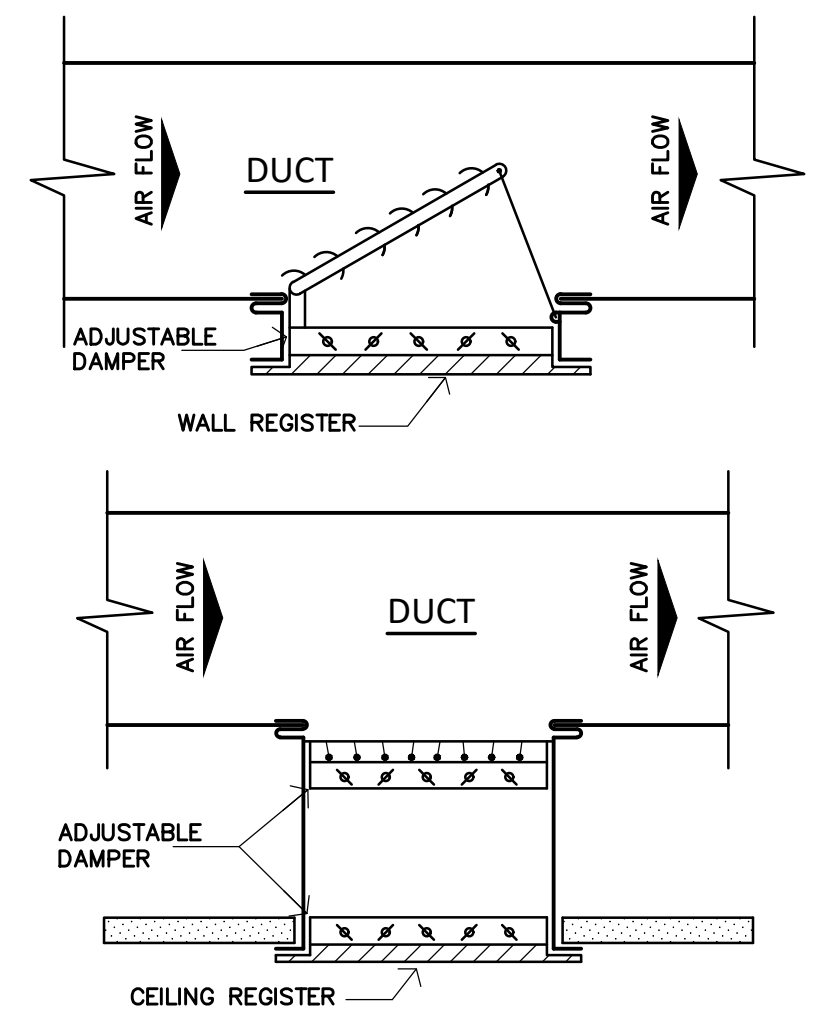
PIPE THROUGH WALL TYPICAL INSTALLATION DETAIL
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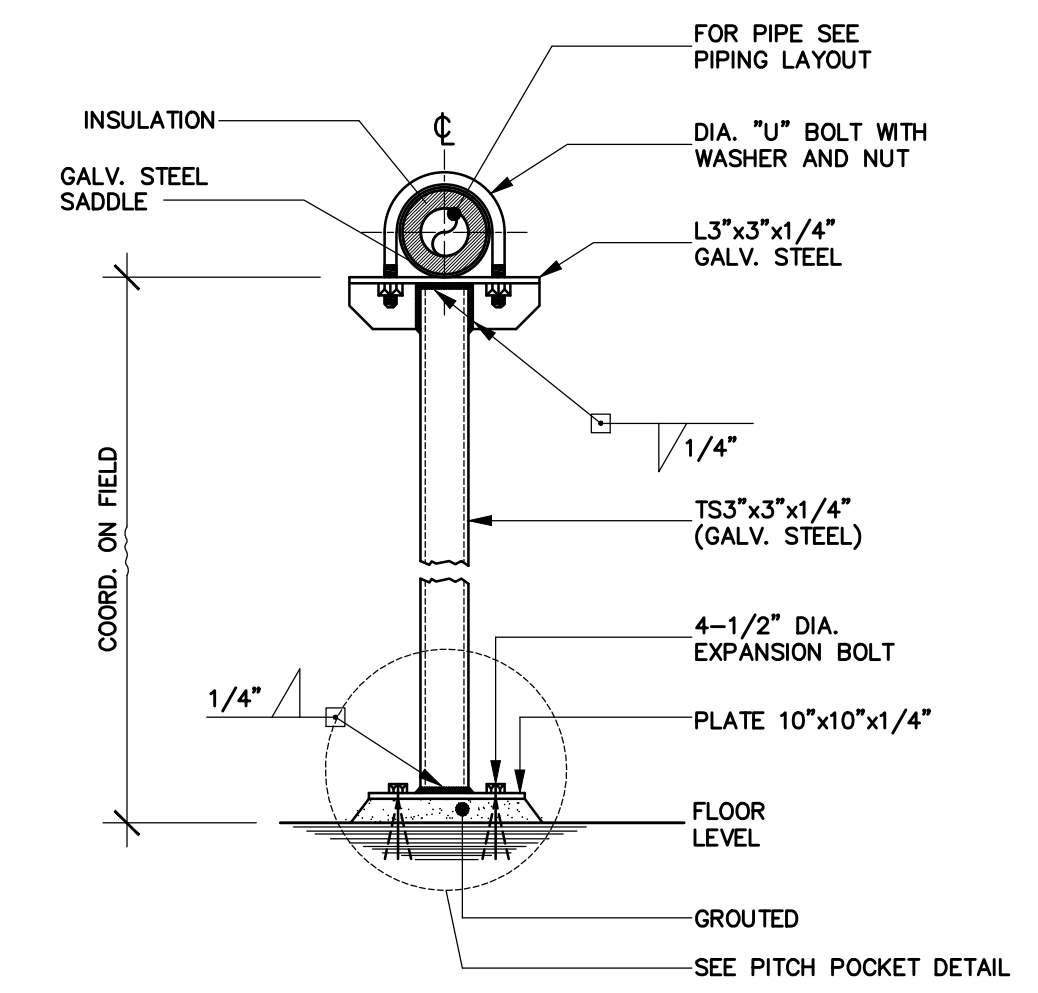
SQUARED VANED ELBOW
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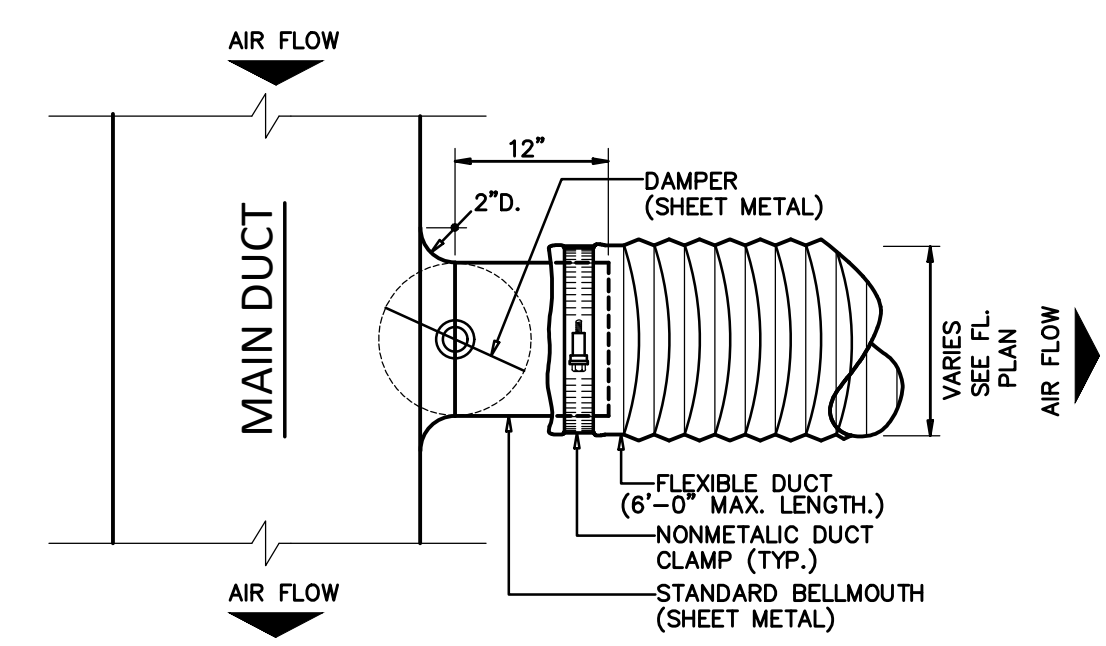
SUPPLY, RETURN OR EXHAUST SHEET METAL DUCT HANGER DETAIL
SCALE : N.T.S.



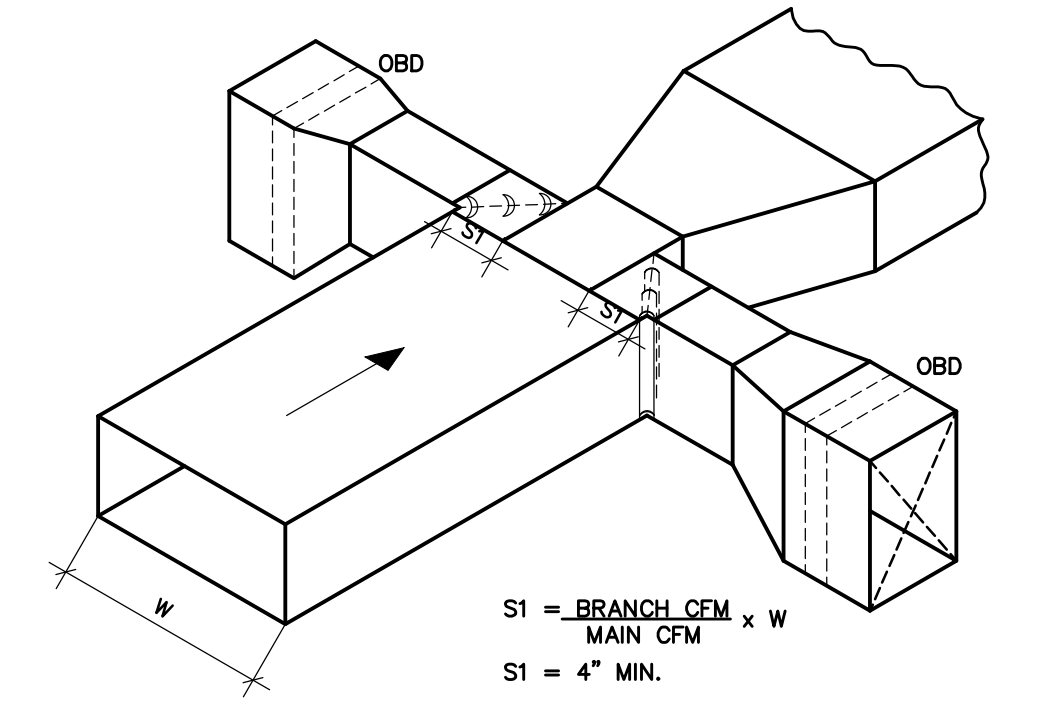
SUPPLY DIFFUSER, EXHAUST OR RETURN REGISTER MOUNTING DETAIL
SCALE : N.T.S.



PIPE SUPPORT DETAIL
SCALE : N.T.S.



BELLMOUTH & FLEXIBLE DUCT INSTALLATION DETAIL
SCALE : N.T.S.



DOUBLE LATERAL BRANCH TYPICAL DETAIL
SCALE : N.T.S.

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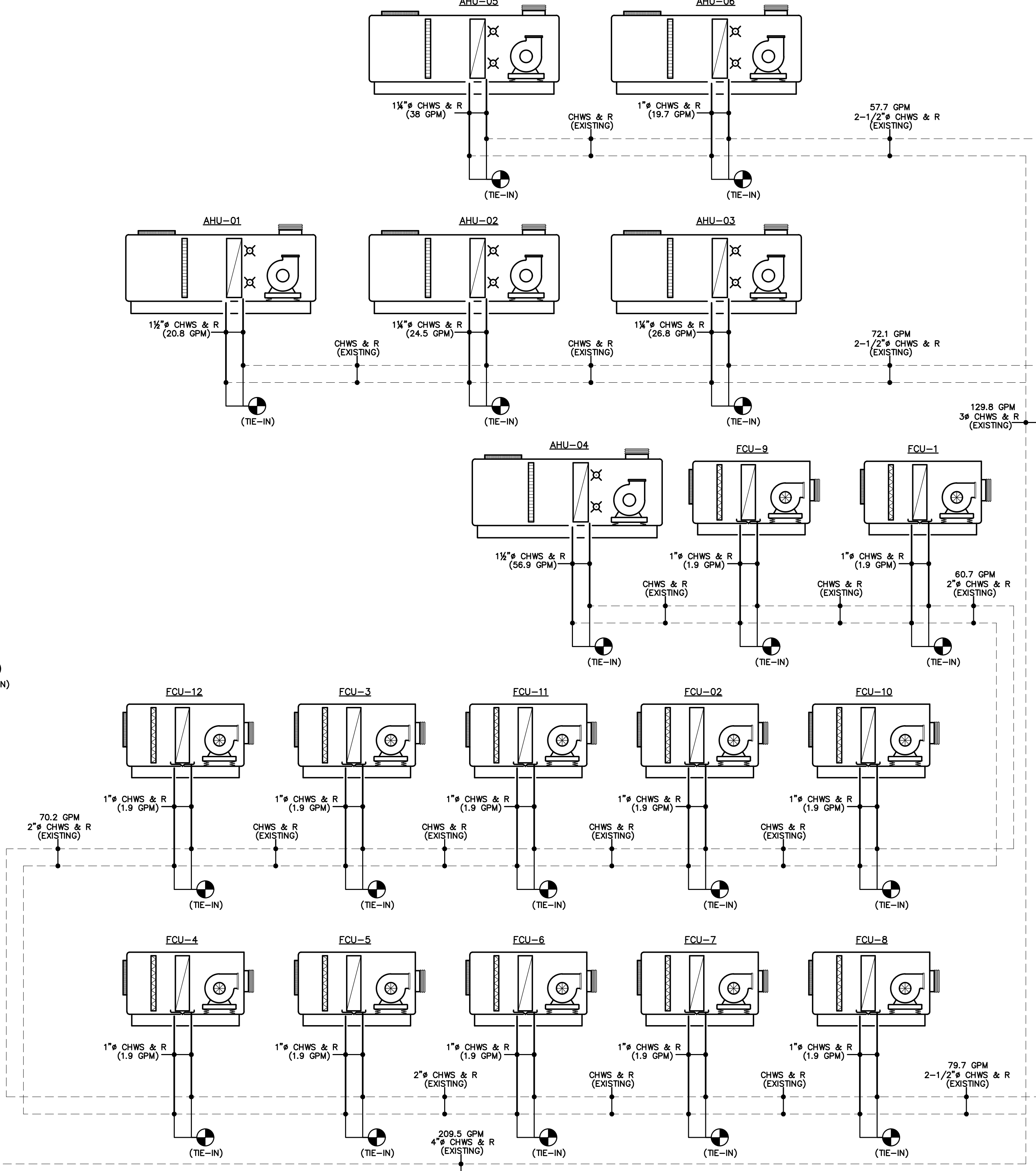
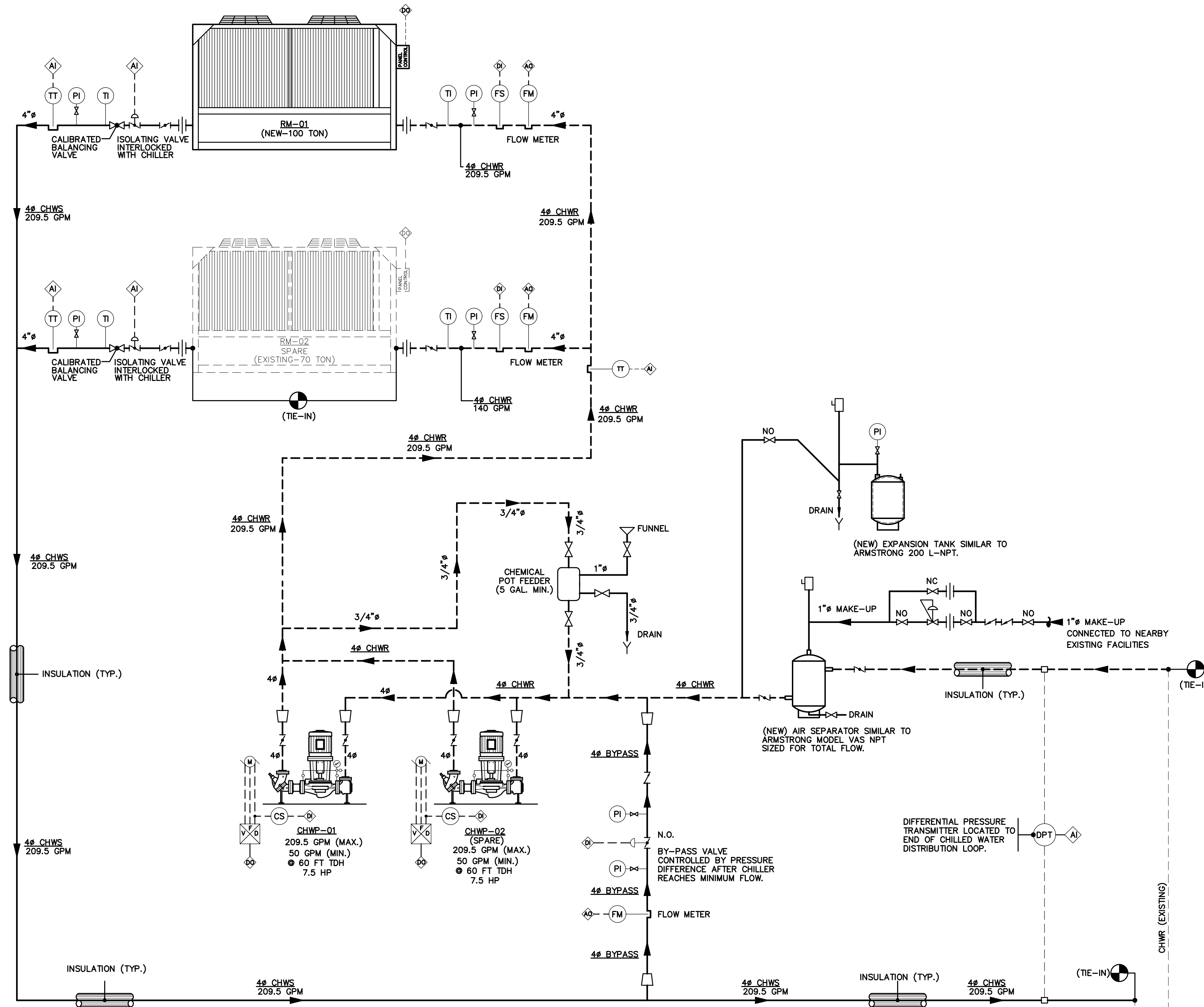
Project Name: VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA
San Juan, Puerto Rico

JLMS Project Num: 21-027
Drawing Date: June 2, 2021
Checked By: J. L. Marrero

Drawing Name: VAC DETAILS
Owner: ASSMCA

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Scale: N.T.S.
Page: 12 of 14
VAC-401

"Yo, José Luis Marrero Sicaudo, licencia # 14670, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos y Códigos de las Agencias, Juntas Reglamentadoras o Corporaciones Públicas con jurisdicción. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido sin conocimiento o por negligencia ya sea por mí, mis agentes o empleados, o por otras personas con mi conocimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OIGPe y otras autoridades competentes, incluyendo, pero no sin limitarse, a la terminación de la participación en los procedimientos de certificación profesional en la OIGPe."



CHILLED AND WATER GENERATION SYSTEM FLOW AND CONTROL DIAGRAM
SCALE : N.T.S.

SEQUENCE OF OPERATION:

- A NEW MICROPROCESSOR BASED BUILDING AUTOMATION SYSTEM (BAS) SHALL EXECUTE ALL CONTROL OPERATION ASSOCIATED WITH AIR CONDITIONING AND VENTILATION EQUIPMENT.
- THE NEW BAS SYSTEM SHALL BE INTELLIGENT AUTOMATION SYSTEM (I/A SYSTEM) BY INVENSYS. BUILDING SYSTEM CONTROL SHALL INCLUDE A LEAST ONE GLOBAL CONTROL MODULE (GCM)
- ON COMMAND TO START, THE CHILLER WATER SYSTEM SHALL START.
- A FLOW SWITCH AT CHILLER INLET SHALL ACTUATE AN ALARM AND SHUT DOWN THE SYSTEM WHEN WATER FLOW ACROSS THE CHILLER REACHES LOW VALUE.
- CHWP-01 TO 02 VARIABLE FREQUENCY DRIVE SHALL BE CONNECTED TO TC LCM AN ANALOG OUTPUT DEVICES. PUMPS VFD'S SHALL BE CONTROLLED MANUALLY TO ATTAIN OPTIMUM WATER FLOW.
- A CURRENT SENSOR LOCATED AT CHWP-01 TO 01B SHALL BE CONNECTED TO THE LOCAL CONTROL MODULE TO INDICATE PUMPS STATUS.
- A IMMERSION TEMPERATURE SENSOR LOCATED AT SUPPLY AND RETURN CHILLED WATER PIPING SHALL BE CONNECTED TO THE LCM TO MONITOR CHILLED WATER TEMPERATURE.
- THE TEMPERATURE ANALOG SIGNAL FROM SENSOR INSTALLED IN THE SUPPLY AND RETURN PIPING, SHALL INPUT THE EMS FOR SYSTEM'S OPTIMIZATION AND MONITORING.
- CURRENT SWITCH SHALL SEND A SIGNAL TO D.D.C. CONTROL PANEL INDICATING PUMP STATUS.
- UPON SYSTEM'S STARTUP, SHOULD PUMP FAIL TO START AND NO STATUS SIGNAL RECEIVED BY THE BMS, THEN THE LAG PUMP WILL AUTOMATICALLY START.
- MAGNETIC GAGE SHALL INDICATED PRESSURE DROP FOR FILTER BANK.
- THE GCM SHALL BE CAPABLE OF FUTURE COMMUNICATION VIA ETHERNET, ECHELON, OR REMOTE MODEM.
- LOCAL CONTROL MODULE (LCM) SHALL BE LONMARK CERTIFIED AND CAPABLE OF DIRECT PEER TO PEER BINDING WITH LONMARK AND LONWORK CERTIFIED DEVICES.
- SYSTEM SHALL BE MODULAR TO PERMIT EASY EXPANSION BY SIMPLY ADDING MORE CONTROLLERS.
- SPECIFIED CONTROL SHALL BE LEAST INVENSYS BUILDING SYSTEM I/A SERIES CAPABLE OF COMMUNICATION WITH BACNET, LONWORK, LONMARK, NW8000, FOXBORO AND APPROXIMATELY 600 THIRD PARTY PROPRIETARY PROTOCOL.
- THE INTELLIGENT AUTOMATION SYSTEM SHALL BE OPEN & INTER OPERABLE WITH BACNE, LONMARK AND TONWORK NONE INTER OPERABLE SYSTEM WILL BE NOT ACCEPTABLE.
- CHILLED WATER PUMPS SHALL BE ELECTRICALLY INTERLOCKED WITH CHILLERS.
- ON COMMAND TO START THE AHU SUPPLY FAN SHALL START.
- FOR UNIT AHU-01 TO AHU-06 & ECU-1 TO ECU-12: VFD SHALL MODULATE RESPONDING TO RETURN AIR TEMPERATURE SENSOR. CHILLED WATER VALVE SHALL MAINTAIN A CONSTANT SUPPLY AIR TEMPERATURE OF 55° WHEN VFD REACHES MINIMUM FREQUENCY, CHILLED WATER VALVE SHALL MODULATE BASED ON RETURN AIR TEMPERATURE.
- IN AREAS NOT PROVIDED WITH VARIABLE VOLUME DIFFUSERS, AHU'S VARIABLE FREQUENCY DRIVES SHALL MODULATE BASED ON RETURN AIR TEMPERATURE.
- A SMOKE DETECTOR LOCATED AT THE SUPPLY DUCT. SHALL STOP THE FAN UPON SENSING SMOKE.
- A DIFFERENTIAL PRESSURE SWITCH ACROSS THE FILTER TO ACTUATE AN ALARM WHEN THE PRESSURE DROP ACROSS THE FILTER REACHES HIGH VALUE.
- A RELATIVE HUMIDITY TRANSMITTER LOCATED AT THE RETURN DUCT SHALL BE CONNECTED TO THE LOCAL CONTROL MODULE THROUGH AN ANALOG INPUT DEVICES RETURN RELATIVE HUMIDITY SHALL BE INDICATED AT THE GCM.
- A TEMPERATURE SENSOR LOCATED AT FAN INLET SHALL BE CONNECTED TO THE LOCAL CONTROL MODULE THROUGH AN ANALOG INPUT DEVICES. COOLING COIL LEAVING TEMPERATURE SHALL BE INDICATED AT THE LCM.
- RETURN DUCT TEMPERATURE SENSOR SHALL PROVIDE SIGNAL TO LOCAL CONTROL MODULE (LCM).
- A CURRENT SENSOR LOCATED AT EF'S SHALL BE CONNECTED TO THE LOCAL CONTROL MODULE TO INDICATED FAN STATUS.
- FOR UNIT AHU-01 TO AHU-06: ROOM TEMPERATURE WILL BE CONTROLLED BY THE RETURN AIR TEMPERATURE MODULATING FAN VFD. ROOM RELATIVE HUMIDITY IN EXCESS OF 55% SHALL ACTIVATE ELECTRIC RE-HEAT COIL.
- RETURN DUCT TEMPERATURE SENSOR, SHALL BE MODULATE AHU'S VARIABLE FREQUENCY DRIVE AND SHALL PROPORTIONALLY CLOSE THE RETURN AIR DAMPER IN ORDER TO OBTAIN A CONSTANT OUTSIDE AIR VOLUME.
- ONLY ONE CHILLER AND ONE PUMP OPERATES AT ANY TIME.

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BID SET DRAWINGS
DATE: May 28, 2021

| Rev. # | Date | Revision By | Description |
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Project Name:
VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA
San Juan, Puerto Rico

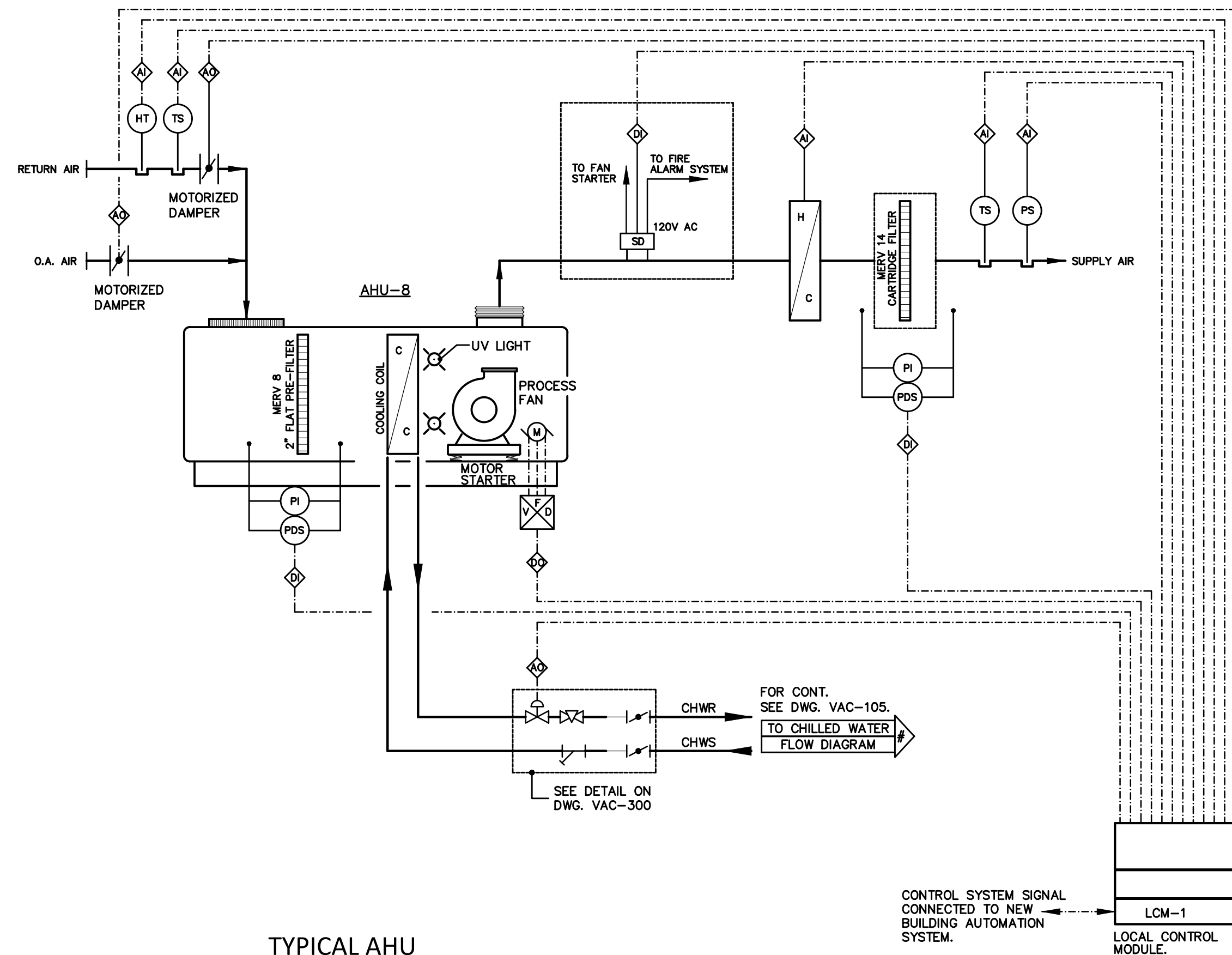
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CHILLED WATER FLOW DIAGRAM

Digital Signature:
Owner:
GOBIERNO DE PUERTO RICO
DEPARTAMENTO DE SALUD

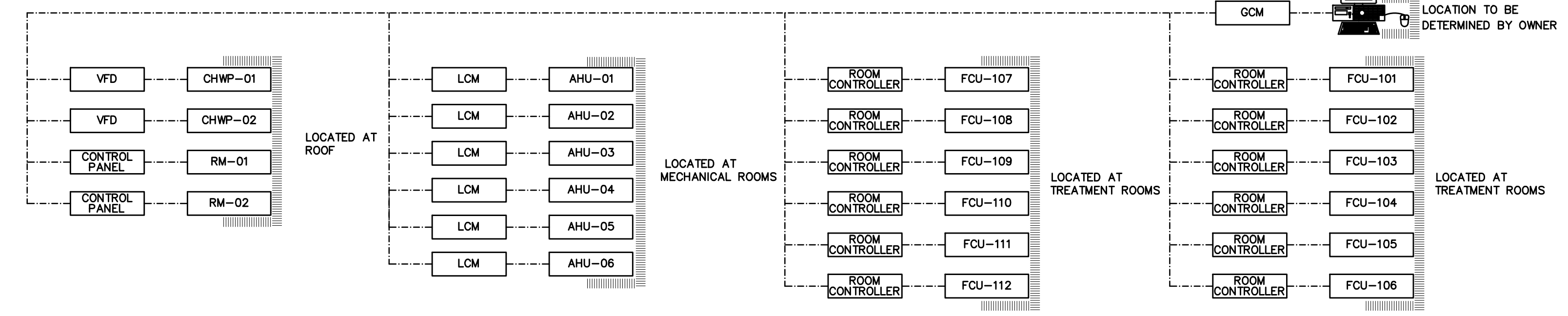
Stamp:
JOSE L. MARRERO SIKARDO
INGENIERO
LICENCIADO
LIC #14870
PUERTO RICO

JLMS Project Num: 21-027
Drawing Date: May 28, 2021
Checked By: J. L. Marrero
Scale: N.T.S.
Page: 13 of 14
VAC-500

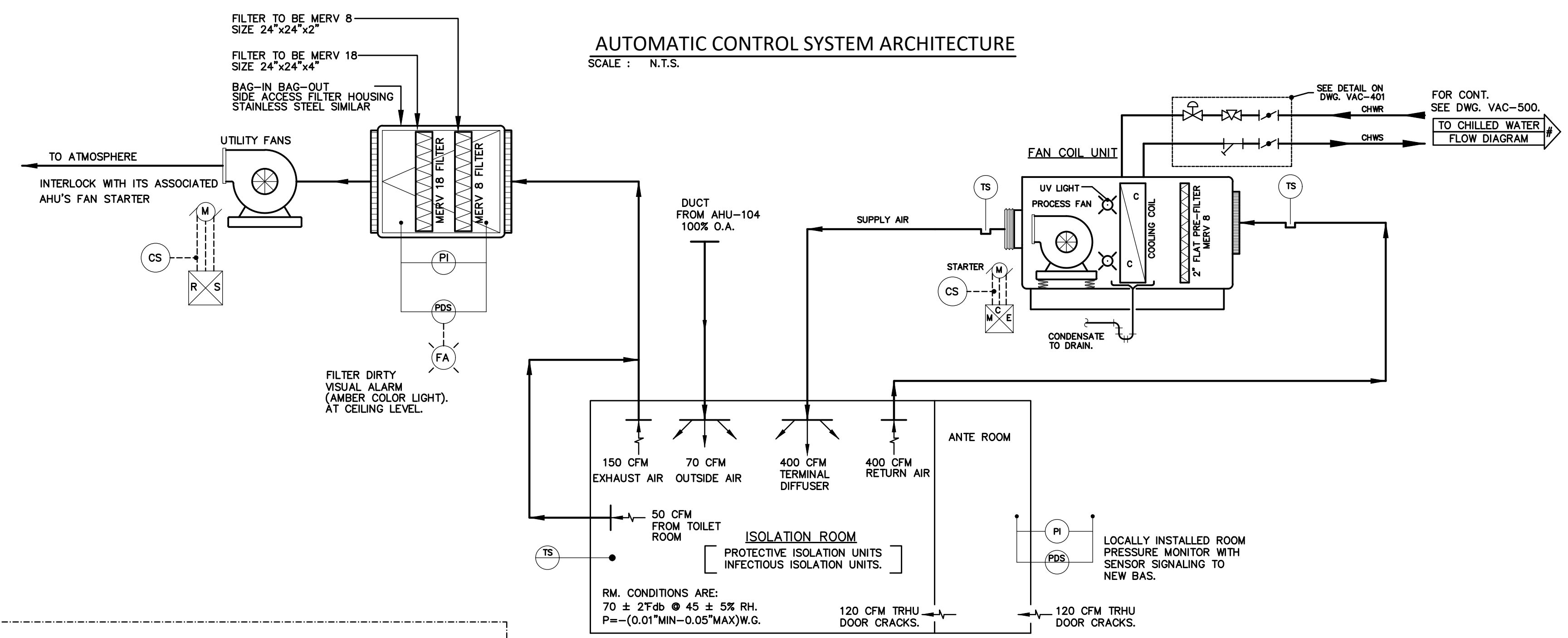
"Yo, José Luis Marrero Sikardo, licencia # 14870, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos y Códigos de las Agencias, Juntas Reglamentadoras o Corporaciones Públicas con jurisdicción. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido sin conocimiento o por negligencia ya sea por mí, mis agentes o empleados, o por otras personas con mi conocimiento, me hace responsable de cualquier acción judicial y disciplinaria por la OIGPe y otras autoridades competentes, incluyendo, pero sin limitarse, a la terminación de la participación en los procedimientos de certificación profesional en la OIGPe."



TYPICAL AHU CONFIGURATION & CONTROL DIAGRAM
SCALE: NOT TO SCALE



AUTOMATIC CONTROL SYSTEM ARCHITECTURE
SCALE: N.T.S.



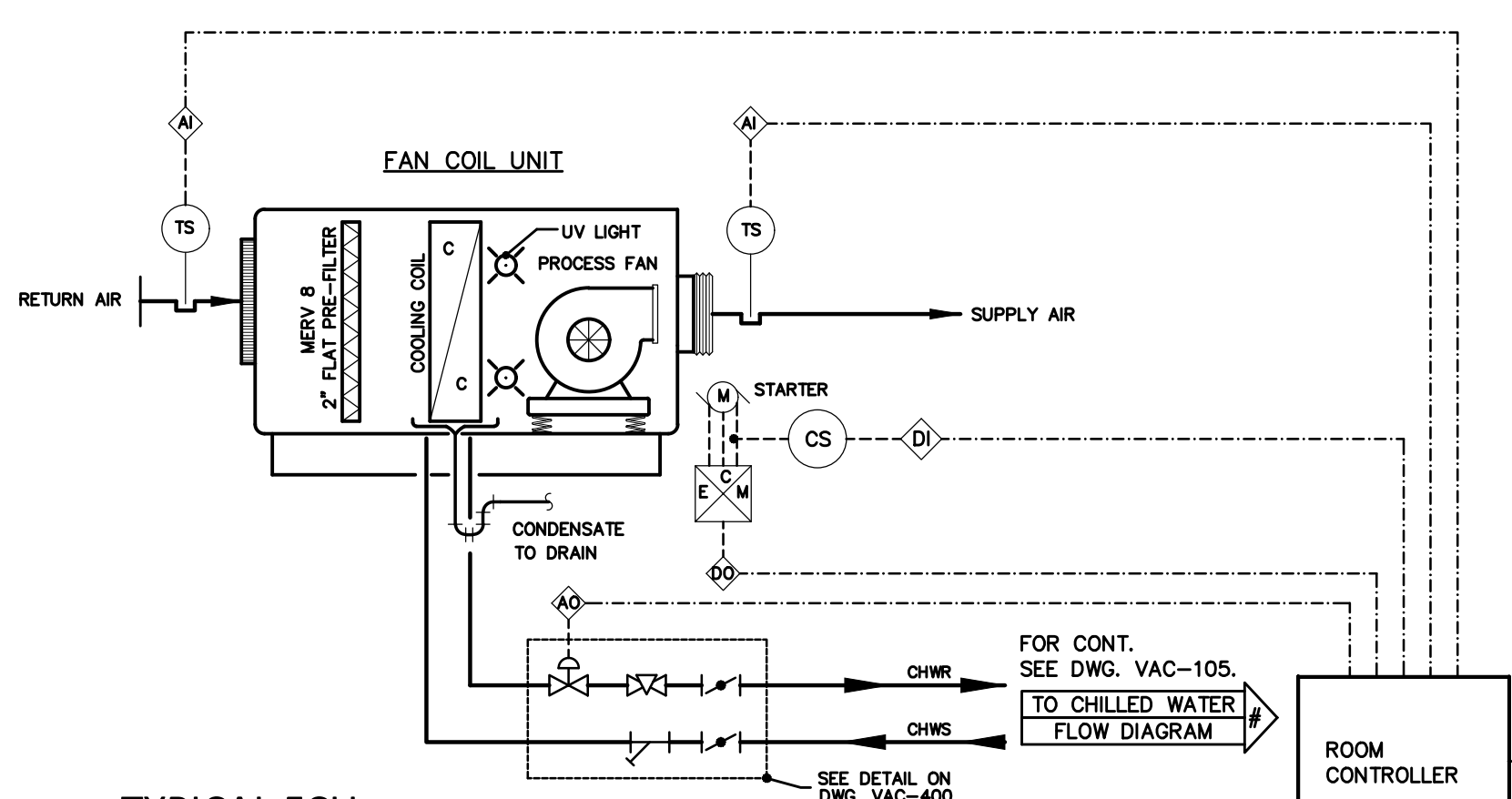
TYPICAL ISOLATION SUITE CONTROL AND FLOW DIAGRAM
SCALE: NOT TO SCALE

ELECTRICAL REQUIREMENTS FOR AUTOMATIC CONTROL SYSTEM

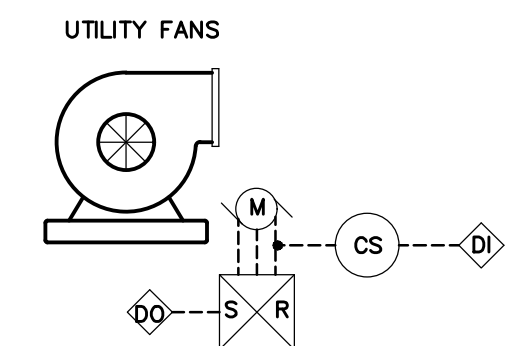
- CONTRACTOR SHALL PROVIDE DEDICATED 120 VOLT CONNECTION FOR CONTROL SYSTEM IN THE FOLLOWING AREAS:
INSIDE MECHANICAL ROOMS OR MECHANICAL CLOSETS
NEAR ROOF MOUNTED AIR HANDLING UNITS
NEAR TEMPERATURE OR HUMIDITY TRANSMITTERS
NEAR LOCAL CONTROL MODULES
NEAR GENERAL CONTROL MODULE
NEAR MOTORIZED DAMPERS
NEAR PRESSURE DIFFERENTIAL SWITCH
NEAR SMOKE DETECTORS
NEAR CONTROL VALVES
- CONTRACTOR SHALL BE RESPONSIBLE OF PROVIDE ELECTRICAL CONNECTION FROM THE JUNCTION PROVIDED TO THE CONTROL EQUIPMENT.

LEGEND:

| | | | |
|------------------------------------|-----------------------------------------|-----------------------|---------------------------|
| (CS) CURRENT SENSOR | (AD) ANALOG OUTPUT | FF FINAL FILTER | ER EXHAUST REGISTER |
| (DM) DAMPER MOTOR | (AI) ANALOG INPUT | PF PRE FILTER | H HOOD |
| (FI) FLOW INDICATOR | (DO) DIGITAL OUTPUT | SF SUPPLY FAN | AS ACID STORAGE |
| (FT) FLOW TRANSMITTER | (DI) DIGITAL INPUT | RA RETURN AIR | CFM CUBIC FEET PER MINUTE |
| (HS) HAND SWITCH | ----- ELECTRICAL SIGNAL | OA OUTSIDE AIR | EF EXHAUST FAN |
| (HT) HUMIDITY TRANSMITTER | (SD) SMOKE DETECTOR | EA EXHAUST AIR | SR SUPPLY REGISTER |
| (HI) HUMIDITY INDICATOR | (MD) MANUAL DAMPER | AHU AIR HANDLING UNIT | (E) EXISTING |
| (PDS) PRESSURE DIFFERENTIAL SWITCH | (SR) SENSING RELAY | RH RE-HEAT COIL | (N) NEW |
| (PI) PRESSURE INDICATOR | (HFT) HEPA FILTER TERMINAL | CU CONDENSING UNIT | AMD AIR MONITOR DEVICE |
| (TS) TEMPERATURE SENSOR | (FH) FUME HOOD | RR RETURN REGISTER | CH CANOPY HOOD |
| (VFD) VARIABLE FREQUENCY DRIVE | (RM) REFRIGERATION MACHINE | --- DUCTWORK | CC COOLING COIL |
| (MD) MANUAL DAMPER | (VFD) VARIABLE FREQUENCY DRIVE | (GV) GATE VALVE | UNIVERSAL UNION |
| (PS) PRESSURE SENSOR | (AV) AUTOMATIC AIR VENT | (CV) CHECK VALVE | ∩ BUTTERFLY VALVE |
| (LCM) LOCAL CONTROL MODULE | (TRV) TEMPERATURE-PRESSURE RELIEF VALVE | | |
| (GCM) GENERAL CONTROL MODULE | | | |
| (CDT) CARBON DIOXIDE TRANSMITTER | | | |
| (T) THERMOSTAT | | | |
| | RH-## RE-HEAT COIL IDENTIFICATION | | |



TYPICAL FCU CONFIGURATION & CONTROL DIAGRAM
SCALE: NOT TO SCALE



NOTE:
FANS STARTER SHALL BE INTERLOCKED WITH ITS ASSOCIATED AIR CONDITIONING EQUIPMENT OR BE PROVIDED WITH STAR STOP SWITCH. SEE SCHEDULE ON DWG. VAC-201.

TYPICAL UTILITY FANS CONTROL DIAGRAM
SCALE: N.T.S.

"Yo, José Luis Marrero Sicaudo, licencia # 14670, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos y Códigos de las Agencias, Juntas Reglamentadoras o Corporaciones Públicas con jurisdicción. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido sin conocimiento o por negligencia ya sea por mí, mis agentes o empleados, o por otras personas con mi conocimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OIGPe y otras autoridades competentes, incluyendo, pero sin limitarse, a la terminación de la participación en los procedimientos de certificación profesional en la OIGPe."

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BID SET DRAWINGS
DATE: June 2, 2021

Project Name: **VAC RENOVATIONS AT GENERAL PSYCHIATRIC HOSPITAL DR. RAMÓN FERNÁNDEZ MARINA**
San Juan, Puerto Rico

| Rev. # | Date | Revision By | Description |
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Drawing Name: **AUTOMATIC CONTROLS DIAGRAMS**
 Digital Signature: _____
 Stamp: **JOSE L. MARRERO SICAUDO** LIC #14670 PUERTO RICO
 Owner: **ASSMCA**

JLMS Project Num: 21-027
 Drawing Date: June 2, 2021
 Checked By: J. L. Marrero
 Scale: 3/32" = 1'-0"
 Page: 14 of 14 **VAC-501**