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HVAC LEGEND

AHU-1	EQUIPMENT TAG	SR-1 100	AIR DEVICE TAG. TOP LINE INDICATES TYPE OF DEVICE BOTTOM LINE INDICATES AIRFLOW IN CFM
	DETAIL TAG ("1" INDICATES IDENTIFICATION NUMBER; "M3" INDICATES THE SHEET NUMBER DRAWN ON)	(2)SR-1 100	AIR DEVICE TAG. TOP LINE INDICATES TYPE OF DEVICE BOTTOM LINE INDICATES AIRFLOW IN CFM (2) INDICATES TYPICAL OF TWO DEVICES
	SHEET NOTE	TYP	TYPICAL
	SUPPLY DUCT SECTION POSITIVE PRESSURE	TEMP	TEMPERATURE
	RETURN OR EXHAUST DUCT NEGATIVE PRESSURE	SA	SUPPLY AIR
AxB	RECTANGULAR DUCT SIZE ("A" INDICATES SIDE SHOWN; "B" INDICATES SIDE NOT SHOWN)	RA	RETURN AIR
	INDICATES RISE IN ELEVATION OF DUCT.	EA	EXHAUST AIR
	EXTERNALLY INSULATED DUCTWORK	MA	MIXED AIR
	EXTERNALLY INSULATED ROUND FLEXIBLE DUCTWORK	OA	OUTDOOR AIR
	DUCT ELBOW WITH TURNING VANES	TA	TRANSFER AIR
	RADIUSUED DUCT ELBOW	EF	EXHAUST FAN
	FLEXIBLE DUCT CONNECTION	CD	CEILING DIFFUSER
	MANUAL VOLUME BALANCING DAMPER	RG	RETURN GRILLE
	MOTORIZED DAMPER	EG	EXHAUST GRILLE
	FIRE DAMPER WITH ACCESS DOORS	ER	EXHAUST REGISTER
	SMOKE DAMPER WITH ACCESS DOORS	CREF	CEILING ROOF EXHAUST FAN
	BACKDRAFT DAMPER	AHU	INDOOR AIR HANDLING UNIT
	TEE WITH TURNING VANES	HP	HEAT PUMP
	TRANSITION	OAU	OUTSIDE AIR UNIT
	FLEX DUCT TAKE OFF WITH MVD SIZE EQUALS DIFFUSER NECK SIZE UNLESS NOTED OTHERWISE	①	THERMOSTAT, "1" INDICATES UNIT CONTROLLED
	BRANCH DUCT TAKEOFF WITH MVD	⑤	DUCT MOUNTED SMOKE DETECTOR
	INTERNALLY INSULATED DUCTWORK	UC	UNDERCUT DOOR 3/4"
		DG	DOOR GRILLE, REFER TO DOOR SCHEDULE
		AFF	ABOVE FINISHED FLOOR
			FIRE DAMPER AT CEILING DIFFUSER OR GRILLE
		XFR	TRANSFER AIR
		ESP	EXTERNAL STATIC PRESSURE
		DDC	DIRECT DIGITAL CONTROLS
		TAB	TESTING, ADJUSTING, AND BALANCING
		NOM	NOMINAL
		VFD	VARIABLE FREQUENCY DRIVE
		WM	DUCTLESS - WALL MOUNTED UNIT
		MHP	MINI HEAT PUMP
		DW	DRY WELL
		EUH	ELECTRIC UNIT HEATER

ELECTRIC UNIT HEATER SCHEDULE

UNIT EUH	CFM	BASIS OF DESIGN	MODEL	ELECTRICAL			NOTES
				VOLTS/PHASE	KW	AMPS	
1	250	INDEECO	CCI	120/1	1.5	12.5	1,2,3
2	250	INDEECO	CCI	120/1	1.5	12.5	1,2,3

- PROVIDE DISCONNECT AND THERMAL OVERLOAD
- PROVIDE FACTORY MOUNTED AND WIRED TAMPER-PROOF THERMOSTAT
- PROVIDE FRONT SUPPLY KIT FOR SURFACE WALL MOUNTING. COLOR SELECTED BY ARCHITECT. COORDINATE MOUNTING HEIGHT WITH ARCHITECT.

MINI SPLIT SYSTEM AIR HANDLING UNIT SCHEDULE

WALL-MOUNT (WM) UNIT	BASIS OF DESIGN	MODEL	TYPE	NOMINAL COOL CAPACITY (BTUH)	DESIGN COOLING EAT °F DBWB	DESIGN COOLING CAPACITY (BTUH)		NOMINAL HEAT CAPACITY (BTUH)	DESIGN HEATING TOTAL CAPACITY (BTUH)	DESIGN HEATING EAT °F DB	AIRFLOW (CFM)	VOLTS/PHASE	FAN (WATTS)	FAN FLA (AMPS)	NOTES
						COOLING TOTAL	COOLING SENSIBLE								
A	MITSUBISHI	PKA-A12LA1	WALL MOUNTED	12000	72.2/60.5	8600	8200	14000	11400	69.5	375	FED FROM MHP	30	0.19	1,2,3,4,5,6,7,8,9,10

- NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB).
- NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB).
- DESIGN COOLING CONDITIONS ARE AT 95°F AMBIENT; DESIGN HEATING CONDITIONS ARE AT 25°F AMBIENT.
- DESIGN CAPACITY IS NET CAPACITY FOR INSTALLATION ACCOUNTING FOR 65 FT PIPE RUN LENGTHS, ETC.
- CALCULATE REFRIGERANT LINE SIZES BASED UPON FINAL FIELD PIPING LAYOUT.
- EXPOSED (INDOOR OR OUTDOOR) REF PIPING SHALL BE HARD DRAWN COPPER.
- INTERLOCK UNITS WITH GARAGE DOORS. ON DOOR REMAINING OPEN FOR MORE THAN 10 MINUTES UNIT TO SHUT OFF.
- PROVIDE BLUE DIAMOND MAXBLUE CONDENSATE PUMP OR APPROVED EQUAL. PUMP MUST HAVE A MINIMUM LIFT OF 10 FEET.
- CONNECT CONDENSATE PIPING TO UNIT AS RECOMMENDED BY THE AIR HANDLING UNIT MANUFACTURER.

GENERAL NOTES

- ALL DUCT DIMENSIONS ARE NET INSIDE.
- VERIFY COLLAR SIZES ON ALL AIR TERMINALS, EQUIPMENT OUTLETS AND INLETS, TRANSITION DUCTWORK AS NECESSARY. EXTERNALLY INSULATE TRANSITIONS AT EQUIPMENT CONNECTIONS.
- FIELD VERIFY CLEAR SPACE AVAILABLE, ROUTING PATH, AND CONFLICTS WITH STRUCTURE AND THE WORK OF OTHER TRADES PRIOR TO FABRICATING DUCTWORK. PROVIDE OFFSETS IN DUCTWORK AS REQUIRED, WHETHER SPECIFICALLY INDICATED ON DRAWINGS OR NOT. SUBMIT SHOP DRAWINGS ON DUCTWORK LAYOUT PRIOR TO COMMENCING WORK. MAINTAIN CLEARANCE AROUND ALL LIGHT FIXTURES AS REQUIRED TO REMOVE AND SERVICE FIXTURES. COORDINATE WITH ROOF TRUSSES/STRUCTURE. PRESSURE TEST ALL DUCTWORK FOR LEAKS. SEE SPECIFICATIONS.
- CONTRACTOR SHALL INSTALL ALL EQUIPMENT, PIPING, AND DUCTWORK SUCH THAT MANUFACTURERS' RECOMMENDED CLEARANCES ARE MET FOR ALL ACCESS PANELS, MOTORS, FANS, BELTS, FILTERS AND AIR INTAKES. CONDENSATE LINES SHALL BE CLEAR OF FILTER RACK ACCESS.
- PROVIDE DUCT FLEX CONNECTIONS & VIBRATION ISOLATION FOR ALL UNITS NOT INTERNALLY ISOLATED.
- WASTE VENT STACKS, EXHAUST FANS, ETC. SHALL BE A MINIMUM OF 10 FT. FROM OUTSIDE AIR INTAKES.
- ALL SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR INTAKE DUCTWORK SHALL BE GALVANIZED SHEET METAL.
- ALL AHU FILTERS SHALL BE OF A READILY AVAILABLE SIZE, OF DISPOSABLE TYPE, AND BE ACCESSIBLE WITHOUT THE USE OF SCREWS OR OTHER MECHANICAL DEVICES REQUIRING TOOLS.
- PROVIDE ACCESS PANELS IN HARD CEILINGS AS REQUIRED FOR MAINTENANCE AND ADJUSTMENT OF EQUIPMENT LOCATED ABOVE CEILING.
- ALL BIRD AND INSECT SCREENS SHALL BE ANODIZED ALUMINUM.
- BECAUSE OF THE SMALL SCALE OF CONTRACT DOCUMENTS IT IS NOT POSSIBLE TO SHOW ALL OFFSETS, TRANSITIONS, ETC. THE CONTRACT DOCUMENTS ARE ESSENTIALLY DIAGRAMATIC. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS COORDINATED WITH THE STRUCTURE AND ARCHITECTURAL WORK FOR REVIEW PRIOR TO COMMENCING WORK.
- ALL WORK SHALL COMPLY WITH 2023 FLORIDA BUILDING CODE.

FAN SCHEDULE

UNIT	TYPE	CFM	MAX. FAN RPM	ESP (IN. H2O)	MAX. MOTOR POWER	SONES/db (MAX)	BASIS OF DESIGN	MODEL	CONTROL	ELECTRICAL	NOTES
										VOLTS/PHASE	
EF-1	CEILING	70	866	0.375	10 W	1.5	LOREN-COOK	GCVF-100	INTERLOCK W/LIGHTS	115/1	1,2,3,4,5,6
EF-2	CEILING	70	866	0.375	10 W	1.5	LOREN-COOK	GCVF-100	INTERLOCK W/LIGHTS	115/1	1,2,3,4,5,6

- PROVIDE DISCONNECT
- PROVIDE SOLID STATE SPEED CONTROLLER
- PROVIDE BACKDRAFT DAMPER
- PROVIDE THERMAL OVERLOAD
- PROVIDE DIRECT DRIVE FAN WITH EC MOTOR.
- PROVIDE RUBBER IN SHEAR VIBRATION ISOLATION.

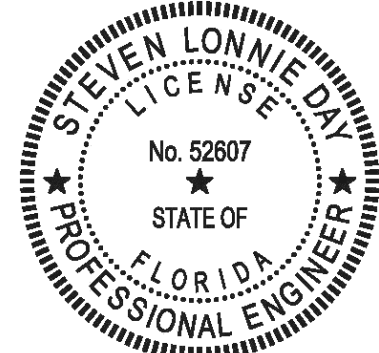
MINI SPLIT SYSTEM CONDENSING UNIT SCHEDULE

UNIT MHP	BASIS OF DESIGN	MODEL	NOMINAL COOL CAPACITY (BTUH)	DESIGN COOLING OUTDOOR TEMP DB	SEER2	NOMINAL HEAT CAPACITY (BTUH)	DESIGN HEATING OUTDOOR TEMP DB	HSPF2	VOLTS/PHASE	MCA (AMPS)	MOCp (AMPS)	NOTES
A	MITSUBISHI	PUZ-A12NKA7	12000	95/77	21.3	18000	25	9.3	208/1	11	28	1,2,3,4

- NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB).
- NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB).
- EFFICIENCY VALUES FOR SEER2, AND HSPF2 ARE BASED ON AHRI 210/240 TEST METHOD FOR MIXTURE OF DUCTED AND NON-DUCTED INDOOR UNITS. REFRIGERANT PIPING SIZE, ROUTING, AND CONFIGURATION SHALL BE AS RECOMMENDED BY THE MANUFACTURER OF THE CONDENSING UNIT. INSULATE ENTIRE LENGTH OF BOTH REFRIGERANT LINES WITH MINIMUM 3/4" THICK UNICELLULAR INSULATION.

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Steven L. Day

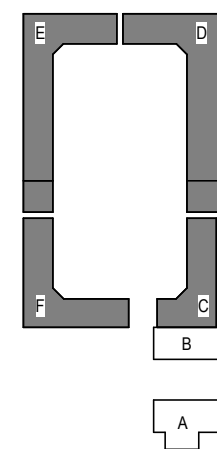
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GROVES & KING, LLC

**GARAGES
LUXURY AT
MIRAMAR -
PHASE 2**

U.S. HIGHWAY 98
MIRAMAR BEACH,
FL 32550



REVISIONS
NO. DESCRIPTION DATE

Project Number **25038A**
Dated 10.12.2026

HVAC LEGEND,
SCHEDULES AND
NOTES

M-001

Steven L. Day, State of Florida, Professional Engineer, License No. 52607

This item has been digitally signed and sealed by Steven L. Day on the date indicated here.

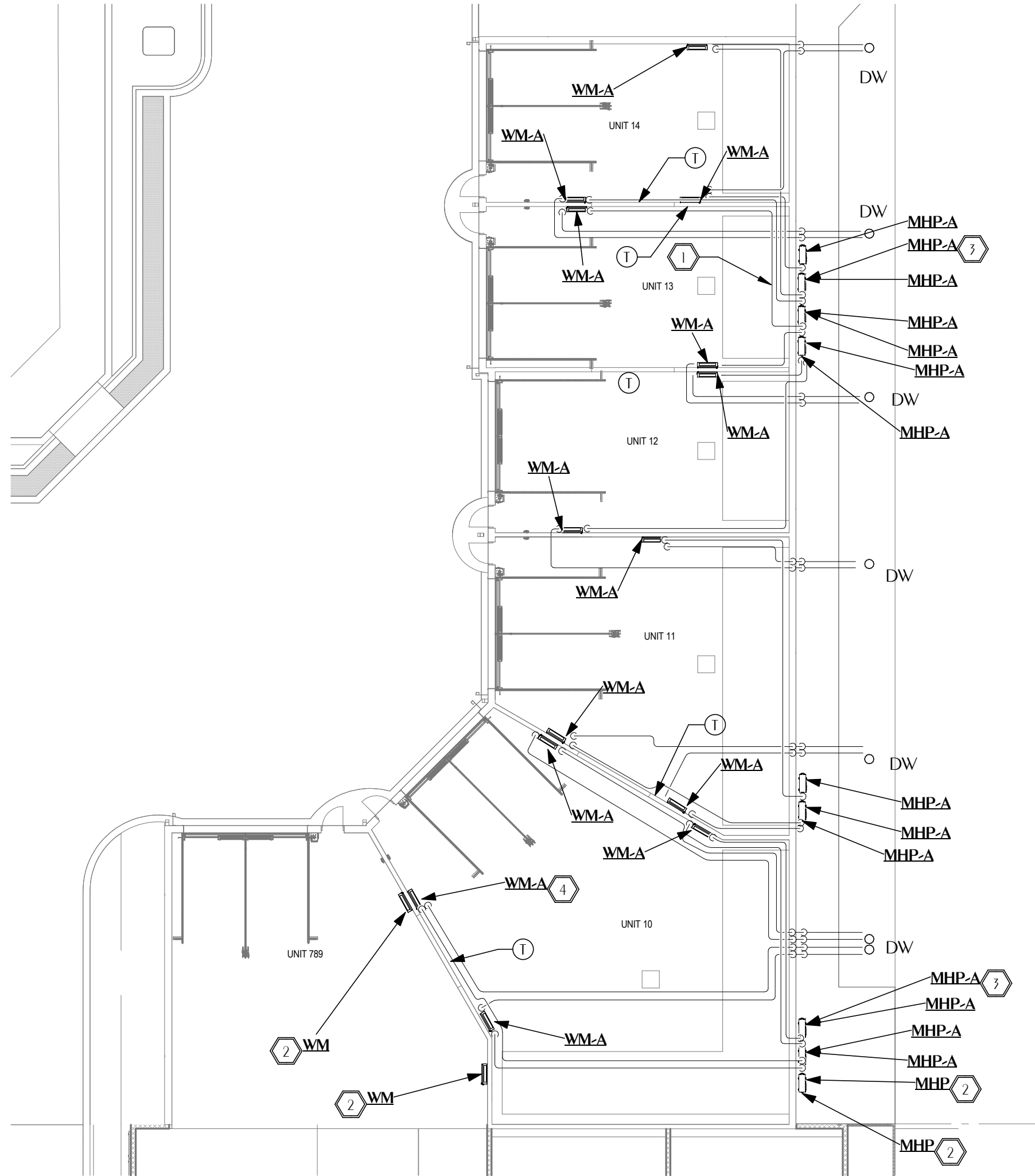
10/15/2026

Signature must be verified on any electronic copies.

**WATFORD
ENGINEERING**

Florida CA Number: 27825
Steven L. Day P.E.
Florida License Number: 52607
850.526.3447
Project Number: 2025-033
Checked By: SLD
Drawn By: JFG

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1 HVAC AREA C NEW WORK PLAN
M-100 SCALE: 1/16" = 1'-0"
PROJECT NORTH TRUE NORTH

SHEET NOTES

- 1 RUN REFRIGERANT LINE INSIDE OF CONDITIONED SPACE. TYPICAL.
- 2 SEE PHASE 1 DRAWINGS FOR EQUIPMENT.
- 3 UNITS MOUNTED TO WALL WITH MANUFACTURER'S WALL MOUNT KIT. MOUNT UNITS IN HORIZONTAL ROWS 2 UNITS HIGH. TYPICAL.
- 4 AIR HANDLING UNITS WITH LESS THAN 15 FEET OF EXPOSED PIPING WITHIN THE SPACE SHALL NOT HAVE PIPING RISE UP TO CEILING. ALL OTHER UNITS SHALL HAVE PIPING RISE UP TO CEILING. ALL PIPE SHALL BE RUN ALONG WALLS OR CEILING. TYPICAL.

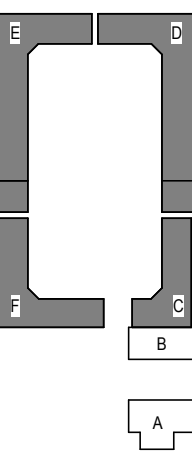
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GARAGES LUXURY AT MIRAMAR - PHASE 2

U.S. HIGHWAY 98
MIRAMAR BEACH,
FL 32550



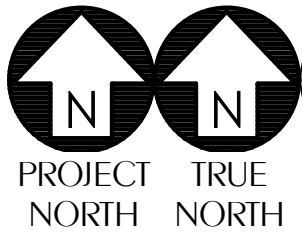
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NO.	DESCRIPTION	

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Dated	10.12.2026

HVAC AREA C NEW WORK FLOOR PLAN

M-100

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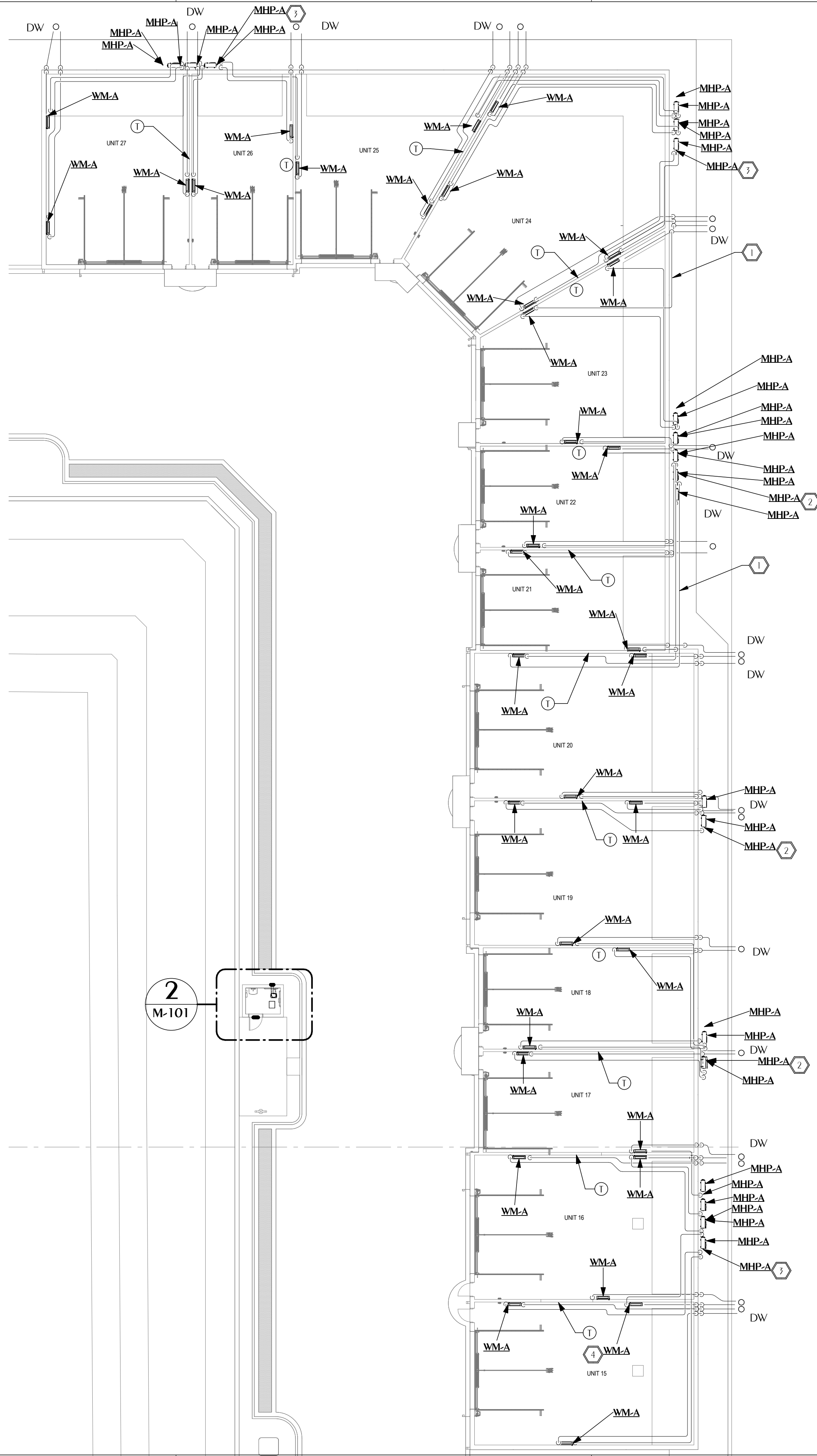
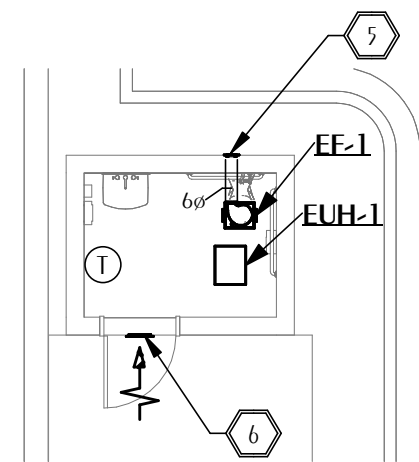


1 HVAC AREA D NEW WORK PLAN

M-101 SCALE: 1/16" = 1'-0"

2 HVAC AREA D NEW WORK PLAN - Callout 1

M-101 SCALE: 1/8" = 1'-0"



SHEET NOTES

- 1 RUN REFRIGERANT LINE INSIDE OF CONDITIONED SPACE. TYPICAL.
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- 5 PROVIDE SEIHO KXU 6 VENT CAP WITH MESH STAINLESS STEEL INSECT SCREEN OR APPROVED EQUIVALENT. FINISH BY ARCHITECT.
- 6 PROVIDE TITUS CT-700L 12"x6" ALUMINUM DOOR GRILL WITH HORIZONTAL BLADES AND SIGHT PROOF DESIGN. FINISH BY ARCHITECT. INSTALL 18" ABOVE GRADE.

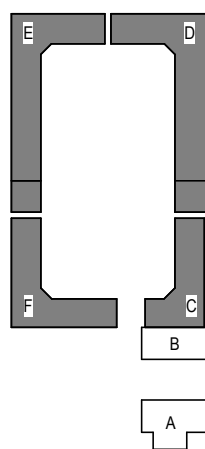
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GROVES & KING, LLC

GARAGES LUXURY AT MIRAMAR - PHASE 2

U.S. HIGHWAY 98
MIRAMAR BEACH,
FL 32550



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Project Number	25038A
Dated	10.12.2026

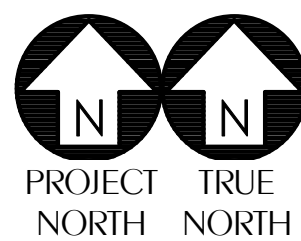
HVAC AREA D NEW WORK FLOOR PLAN

M-101



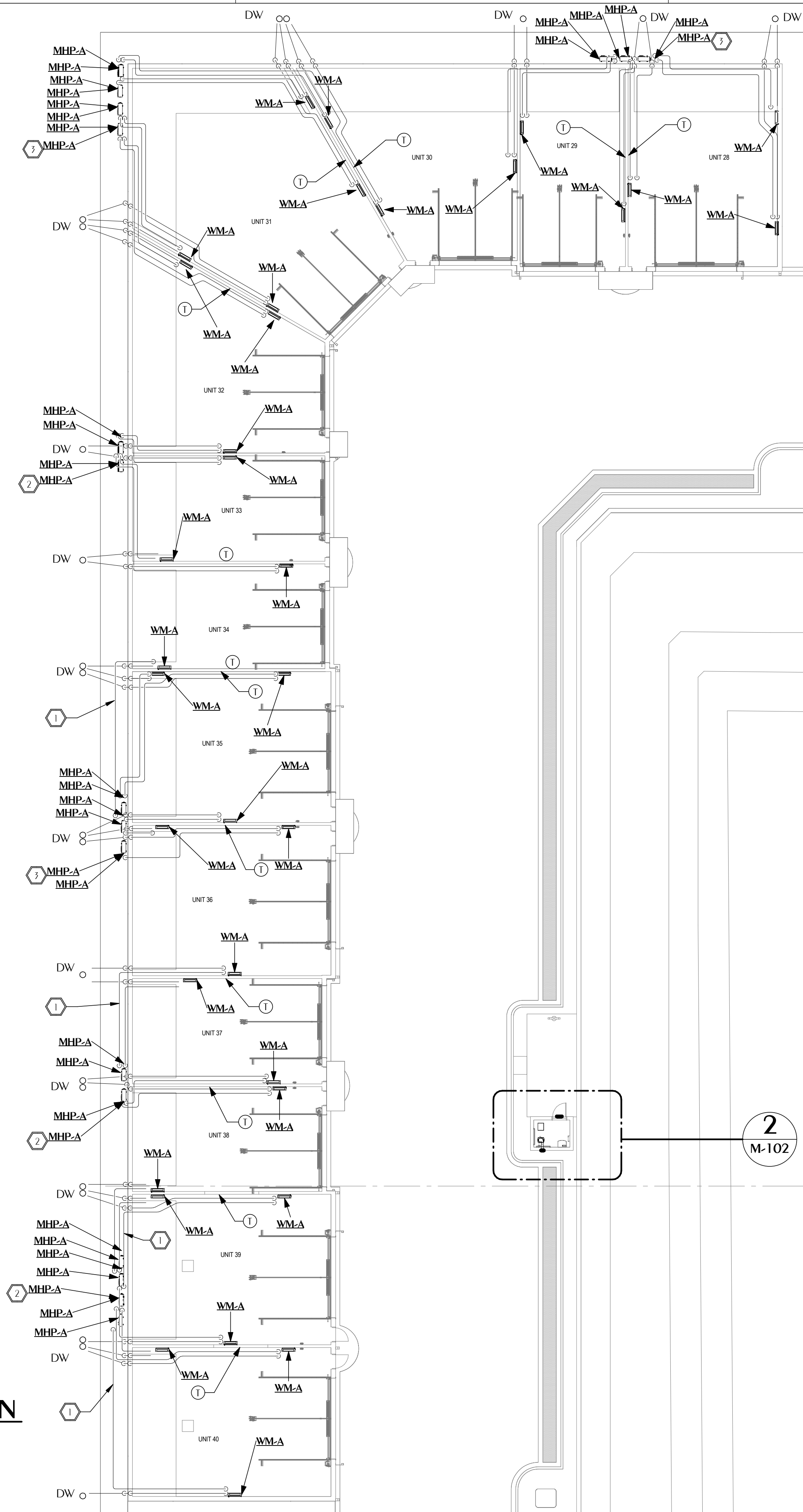
Florida CA Number: 27825
Steven L. Day, P.E.
Florida License Number: 52607
Project Number: 2025-033
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Drawn By: JFG

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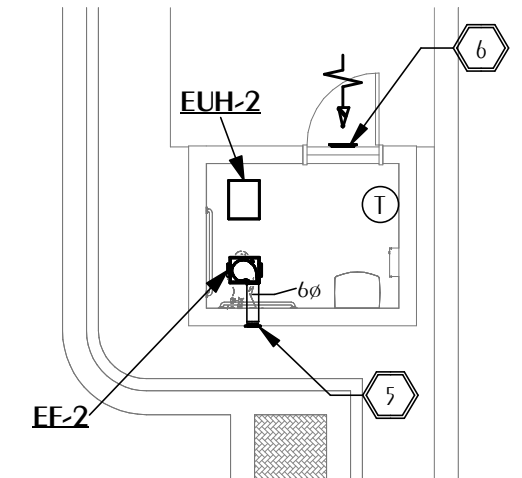
1 HVAC AREA E NEW WORK PLAN

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



SHEET NOTES

- 1 RUN REFRIGERANT LINE INSIDE OF CONDITIONED SPACE. TYPICAL.
- 2 UNITS MOUNTED TO WALL WITH MANUFACTURER'S WALL MOUNT KIT. MOUNT UNITS IN HORIZONTAL ROWS 2 UNITS HIGH. TYPICAL.
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- 5 PROVIDE SEIHO KKU 6 VENT CAP WITH MESH STAINLESS STEEL INSECT SCREEN OR APPROVED EQUIVALENT. FINISH BY ARCHITECT.
- 6 PROVIDE TITUS CT-700L 12"X6" ALUMINUM DOOR GRILL WITH HORIZONTAL BLADES AND SIGHT PROOF DESIGN. FINISH BY ARCHITECT. INSTALL 18" ABOVE GRADE.



2 HVAC AREA E NEW WORK PLAN - Callout 1

M-102 / SCALE: 1/8" = 1'-0"

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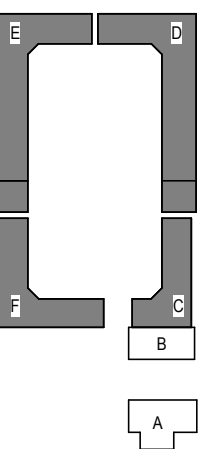
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**GARAGES
LUXURY AT
MIRAMAR -
PHASE 2**

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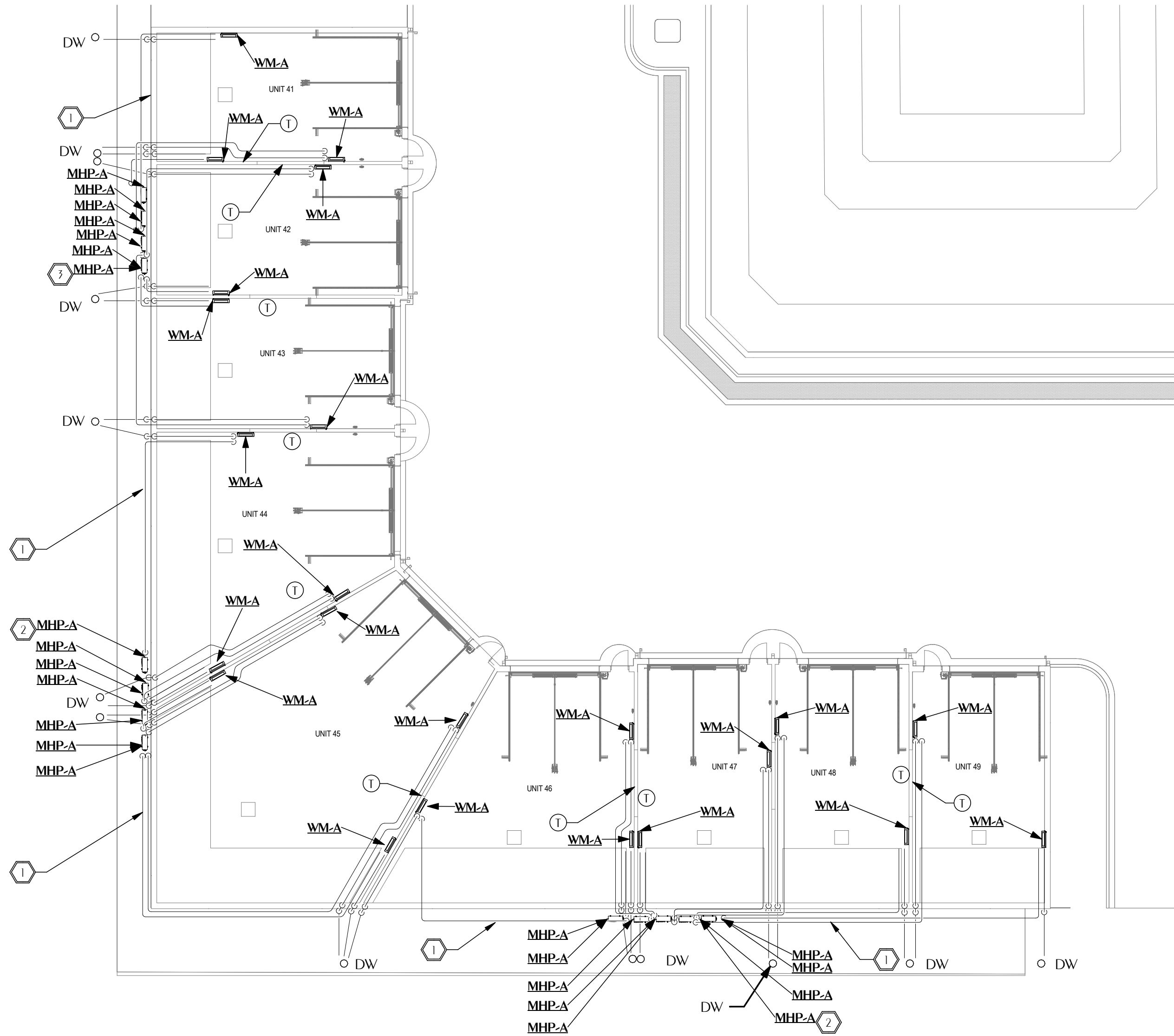
4432 Clinton Street Marianna, Florida 32446
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Project Number: 2025-033
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**HVAC AREA E
NEW WORK
FLOOR PLAN**

M-102

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 **1** HVAC AREA F NEW WORK PLAN
PROJECT TRUE NORTH
SCALE: 1/16" = 1'-0"

SHEET NOTES

-  RUN REFRIGERANT LINE INSIDE OF CONDITIONED SPACE. TYPICAL.
-  UNITS MOUNTED TO WALL WITH MANUFACTURER'S WALL MOUNT KIT. MOUNT UNITS IN HORIZONTAL ROWS 2 UNITS HIGH. TYPICAL.
-  UNITS MOUNTED TO WALL WITH MANUFACTURER'S WALL MOUNT KIT. MOUNT UNITS IN HORIZONTAL ROWS 3 UNITS WIDE AND 2 UNITS HIGH.
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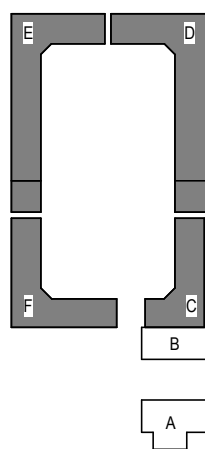
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GARAGES LUXURY AT MIRAMAR - PHASE 2

U.S. HIGHWAY 98
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FL 32550



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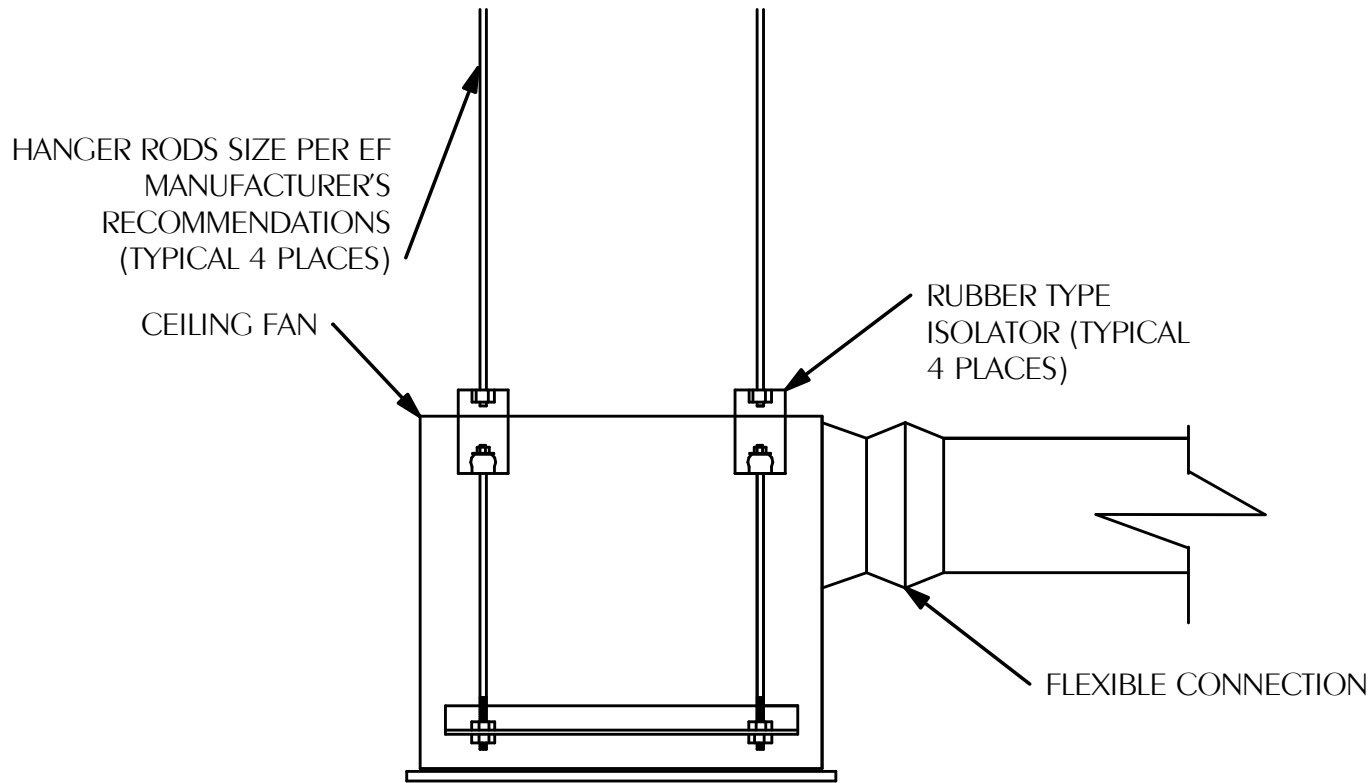
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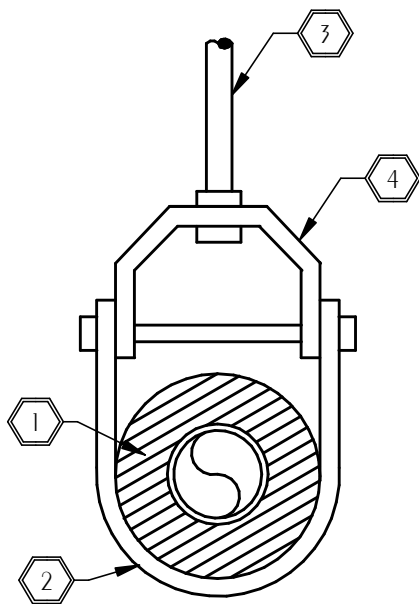
HVAC AREA F NEW WORK FLOOR PLAN

M-103

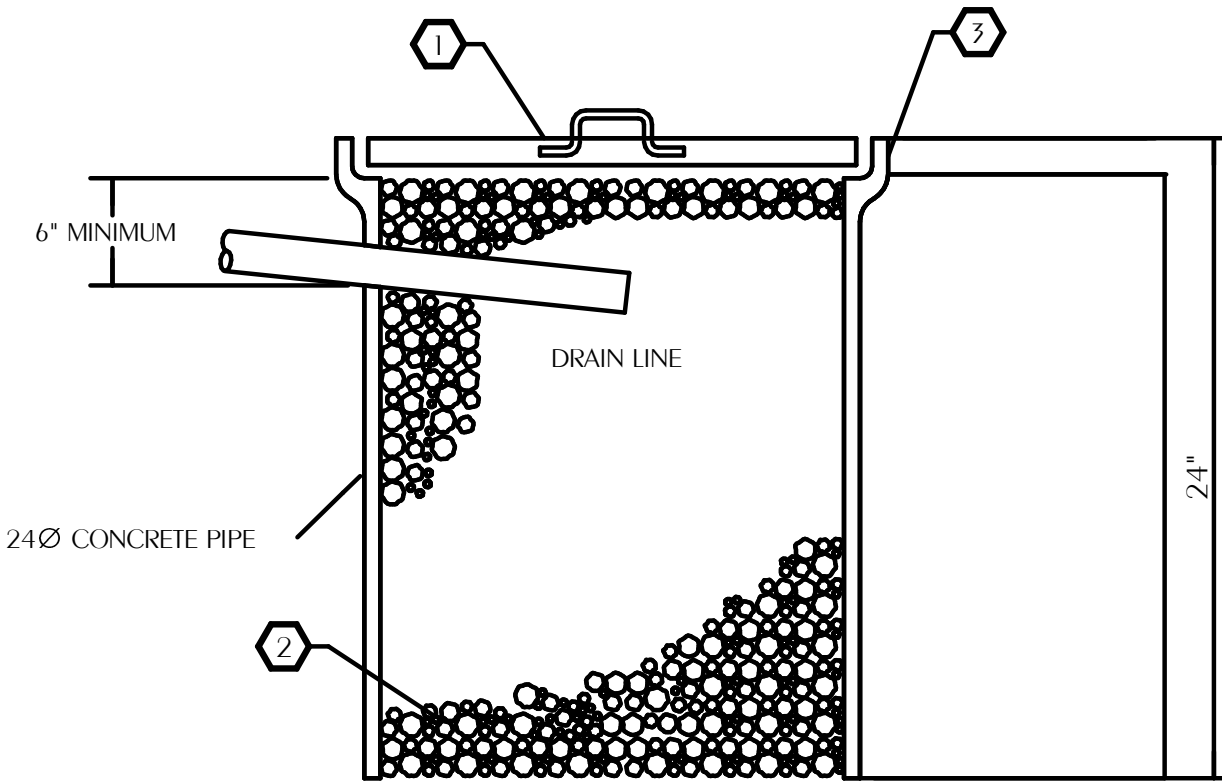
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1 CEILING FAN DETAIL
M-200 SCALE: NONE



2 OVERHEAD PIPE SUPPORT
M-200 SCALE: NONE



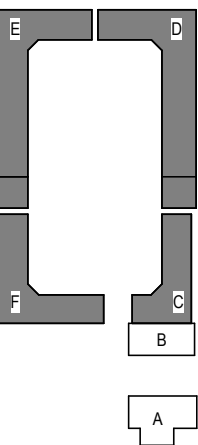
- 1 2" THICK CONCRETE COVER WITH CAST-IRON LIFT HANDLE, REINF. WITH 4x4x10 WWF MESH.
- 2 COURSE GRAVEL FILLER, APPROX. 1-1/2" DIAMETER.
- 3 TOP 2" ABOVE GRADE.

CONTRACTOR'S OPTION: PROVIDE 24" DIAMETER "FLO-WELL" STRUCTURAL POLYOLEFIN FOUND DRY WELL SYSTEM WITH UV INHIBITORS.

3 DRYWELL DETAIL
M-200 SCALE: NONE

**WATFORD
ENGINEERING**

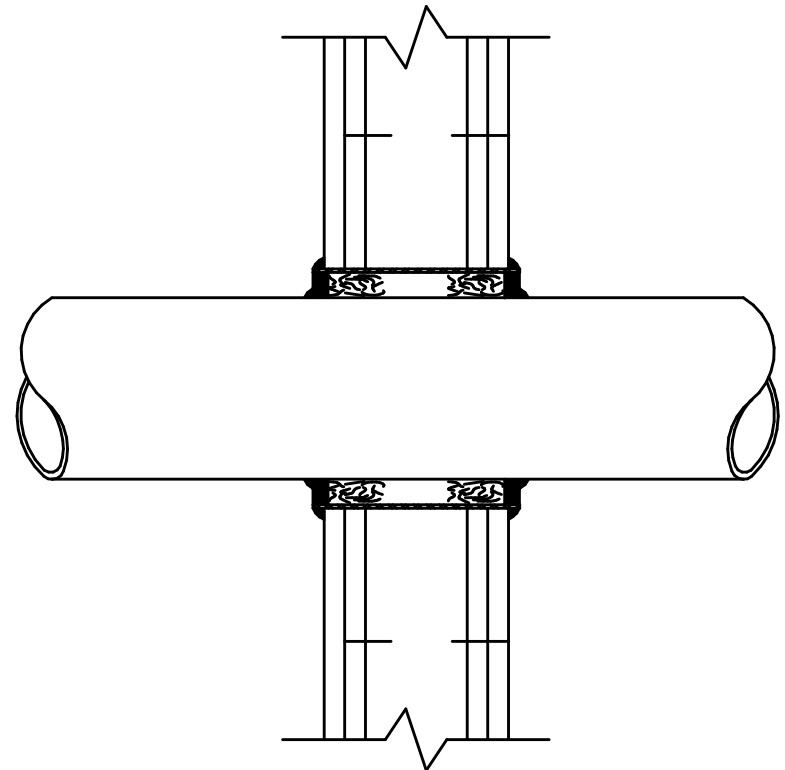
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CONSULT CURRENT UNDERWRITERS LABORATORIES, INC. "FIRE RESISTANCE DIRECTORY" FOR DETAILS.
UL SYSTEM WL1003

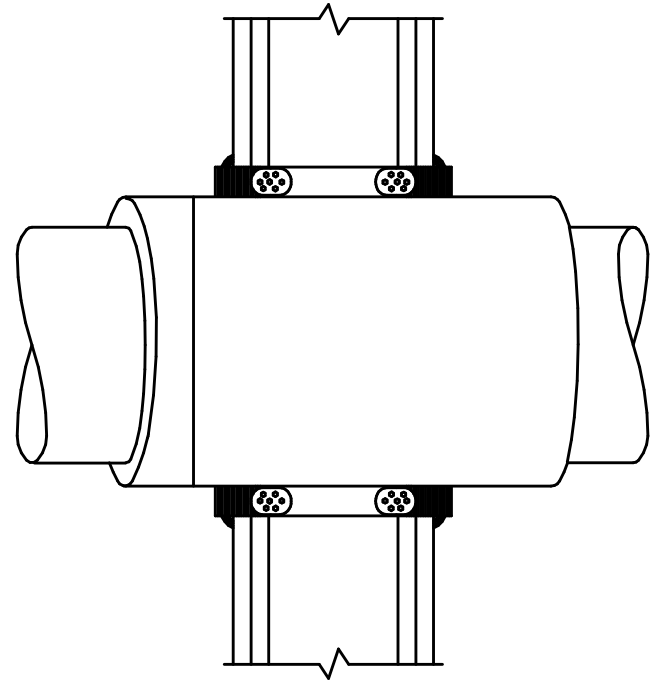
- WALL ASSEMBLY**—THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
A. **STUDS**—WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC WITH NOM 2 BY 4 IN. LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN 3-1/2 IN. WIDE BY 1-3/8 IN. DEEP CHANNELS SPACED MAX 24 IN. OC.
B. **WALLBOARD, GYPSUM***—NOM 5/8 IN. THICK, 4 FT. WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 15 IN.

THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
- THROUGH-PENETRANT**—ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE SPACE BETWEEN PIPES, CONDUITS OR TUBING AND THE STEEL SLEEVE (ITEM 3A) SHALL BE MIN OF 0 IN. (POINT CONTACT) TO MAX 2-3/8 IN. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
A. **STEEL PIPE**—NOM 1/2 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
B. **IRON PIPE**—NOM 1/2 IN. DIAM (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE, NOM 1/2 IN. DIAM (OR SMALLER) OR CLASS 50 (OR HEAVIER) DUCTILE IRON PRESSURE PIPE.
C. **CONDUIT**—NOM 6 IN. DIAM (OR SMALLER) STEEL CONDUIT OR NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING.
D. **COPPER TUBING**—NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
E. **COPPER PIPE**—NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
- FIRESTOP SYSTEM**—INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY. THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS:
A. **STEEL SLEEVE**—CYLINDRICAL SLEEVE FABRICATED FROM MIN 0.019 IN. THICK (NO. 28 GAUGE) GALV SHEET STEEL AND HAVING A MIN 2 IN. LAP ALONG THE LONGITUDINAL SEAM. LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL PLUS 1 TO 4 IN. SUCH THAT, WHEN INSTALLED, THE ENDS OF THE SLEEVE WILL PROJECT APPROXIMATELY 1/2 TO 2 IN. BEYOND THE SURFACE OF THE WALL ON BOTH SIDES OF THE WALL ASSEMBLY. SLEEVE INSTALLED BY COILING THE SHEET STEEL TO A DIAM SMALLER THAN THE THROUGH OPENING, INSERTING THE COIL THROUGH THE OPENINGS AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUTOUTS IN THE GYPSUM WALLBOARD LAYERS.
B. **PACKING MATERIAL**—MIN 1 IN. THICKNESS OF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO STEEL SLEEVE ON BOTH SIDES OF THE WALL ASSEMBLY AS PERMANENT FORMS. PACKING MATERIAL TO BE RECESSED MIN 1/2 IN. FROM END OF STEEL SLEEVE (FLUSH WITH OR RECESSED INTO GYPSUM WALLBOARD SURFACE) ON BOTH SIDES OF WALL ASSEMBLY.
B1. **PACKING MATERIAL**—(NOT SHOWN)—AS AN ALTERNATE TO ITEM B, NOM 1 IN. THICK POLYETHYLENE BACKER ROD MAY BE USED. THE BACKER ROD IS TO BE RECESSED WITHIN THE STEEL SLEEVE A MIN OF 1 IN. FROM EACH SURFACE OF WALL.
C. **FILL, VOID OR CAVITY MATERIALS*—CAULK**—WHEN MINERAL WOOL BATT INSULATION IS USED, APPLIED TO FILL THE STEEL SLEEVE TO A MIN DEPTH OF 1/2 IN. ON BOTH SIDES OF WALL ASSEMBLY. WHEN BACKER ROD IS USED, A MIN THICKNESS OF 1 IN. OF CP-25WB+ CAULK IS REQUIRED FLUSH WITH SURFACE OF WALL. A NOM 1/4 IN. DIAM CONTINUOUS BEAD OF CAULK SHALL BE APPLIED AROUND THE CIRCUMFERENCE OF THE STEEL SLEEVE AT ITS EGRESS FROM THE GYPSUM WALLBOARD LAYERS ON BOTH SIDES OF THE WALL ASSEMBLY.
MINNESOTA MINING & MFG. CO.—CP 25WB+

*BEARING THE UL CLASSIFICATION MARKING

1 TYPICAL FIRE RATED WALL PENETRATION

M-301 SCALE: NONE BARE METALLIC PIPE



CONSULT CURRENT UNDERWRITERS LABORATORIES, INC. "FIRE RESISTANCE DIRECTORY" FOR DETAILS.
UL SYSTEM WL5011

- WALL ASSEMBLY**—THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
A. **STUDS**—WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC WITH NOM 2 BY 4 IN. LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN 3-5/8 IN. WIDE BY 1-3/8 IN. DEEP CHANNELS SPACED MAX 24 IN. OC.
B. **WALLBOARD, GYPSUM***—NOM 5/8 IN. THICK, 4 FT WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 14-1/2 IN. FOR WOOD STUD WALLS AND 17 IN. FOR STEEL STUD WALLS.

THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS 1 HR WHEN INSTALLED IN A 1 HR FIRE RATED WALL AND 2 HR WHEN INSTALLED IN A 2 HR FIRE RATED WALL.
- THROUGH PENETRANTS**—ONE METALLIC PIPE, CONDUIT OR TUBING TO BE CENTERED WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
A. **STEEL PIPE**—NOM 1/2 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. WHEN STEEL PIPE IS USED, T RATING IS 1 HR.
B. **CONDUIT**—NOM 3 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR STEEL CONDUIT. WHEN STEEL CONDUIT IS USED, T RATING IS 1/4 HR.
C. **COPPER TUBING**—NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. WHEN COPPER TUBING IS USED, T RATING IS 1/2 AND 1 HR WHEN INSTALLED IN 1 AND 2 HR RATED WALLS, RESPECTIVELY.
D. **COPPER PIPE**—NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE. WHEN COPPER PIPE IS USED, T RATING IS 1/2 AND 1 HR WHEN INSTALLED IN 1 AND 2 HR RATED WALLS, RESPECTIVELY.
- PIPE COVERING***—NOM 1 OR 1-1/2 IN. THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN 3.5 PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SEALED WITH METAL FASTENER STRIP TAPE SUPPLIED WITH THE PRODUCT.
SEE PIPE AND EQUIPMENT COVERINGS—MATERIALS—(BRCU) CATEGORY IN BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY PIPE COVERING MATERIAL MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.
- STEEL SLEEVE**—CYLINDRICAL SLEEVE FABRICATED FROM MIN 0.019 IN. THICK (NO. 28 GAUGE) GALV SHEET STEEL AND HAVING A MIN 2 IN. LAP ALONG THE LONGITUDINAL SEAM. LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL PLUS 1 IN. SUCH THAT, WHEN INSTALLED, THE ENDS OF THE SLEEVE WILL PROJECT APPROX 1/2 IN. BEYOND THE SURFACE OF THE WALL ON BOTH SIDES OF THE WALL ASSEMBLY. THE DIAM OF THE OPENINGS CUT IN THE GYPSUM WALLBOARD LAYERS ON EACH SIDE OF THE WALL ASSEMBLY (CONCENTRIC WITH PIPE) TO BE 2 TO 2-1/2 IN. LARGER THAN OUTSIDE DIAM OF PIPE INSULATION SUCH THAT, WHEN THE STEEL SLEEVE IS INSTALLED, A 1 TO 1-1/4 IN. ANNULAR SPACE WILL BE PRESENT BETWEEN THE STEEL SLEEVE AND THE PIPE INSULATION AROUND THE ENTIRE CIRCUMFERENCE OF THE PIPE. SLEEVE INSTALLED BY COILING THE SHEET STEEL TO A DIAM SMALLER THAN THE THROUGH OPENING, INSERTING THE COIL THROUGH THE OPENINGS AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUTOUTS IN THE GYPSUM WALLBOARD LAYERS.
- PACKING MATERIAL**—POLYETHYLENE BACKER ROD OR MIN 1 IN. THICKNESS OF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO STEEL SLEEVE ON BOTH SIDES OF THE WALL ASSEMBLY AS PERMANENT FORMS. PACKING MATERIAL TO BE RECESSED MIN 1 IN. FROM END OF STEEL SLEEVE (RECESSED MIN 1/2 IN. INTO GYPSUM WALLBOARD SURFACE) ON BOTH SIDES OF WALL ASSEMBLY.
- FILL, VOID OR CAVITY MATERIALS*—CAULK**—MIN 1 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS ON BOTH SIDES OF WALL ASSEMBLY. THICKNESS FOR FILL MATERIAL FOR NOM 3 IN. DIAM (OR SMALLER) STEEL PIPES OR CONDUITS MAY BE REDUCED TO A MIN 1/2 IN. A NOM 1/4 IN. DIAM CONTINUOUS BEAD OF CAULK SHALL BE APPLIED AROUND THE CIRCUMFERENCE OF THE STEEL SLEEVE AT ITS EGRESS FROM THE GYPSUM WALLBOARD LAYERS ON BOTH SIDES OF THE WALL ASSEMBLY.

MINNESOTA MINING & MFG. CO.—CP 25WB+

*BEARING THE UL CLASSIFICATION MARKING

2 TYPICAL FIRE RATED WALL PENETRATION

M-301 SCALE: NONE INSULATED METALLIC PIPE

**WATFORD
ENGINEERING**

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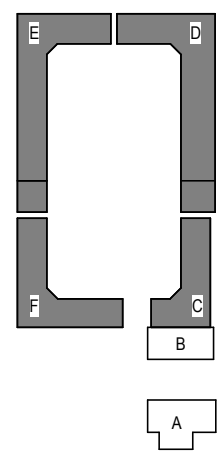
Digital Signature

FOR PERMIT

GROVES & KING, LLC

GARAGES LUXURY AT MIRAMAR - PHASE 2

U.S. HIGHWAY 98
MIRAMAR BEACH,
FL 32550



REVISIONS	
NO.	DESCRIPTION
DATE	

Project Number	25038A
Dated	10.12.2026

FIRE PENETRATION DETAILS

M-301