DRAWING INDEX	
DRAWING	DRAWING NAME
A000	COVER
A100	FLOOR PLAN - LEVEL B, 1, 2, 3
A301	ELEVATIONS / SCHEDULES
E100	COVER SHEET
E200	AS-BUILT BASEMENT LIGHTING PLAN
E300	AS-BUILT BASEMENT FLOOR POWER PLAN
E400	SCHEDULES AND RISER DIAGRAM
M100	COVER SHEET AND BASEMENT FLOOR PLAN
M200	BASEMENT FLOOR PLAN, SCHEDULES AND DETAILS
M300	DETAILS
P100	COVER SHEET
P200	SANITARY AND STORM FLOOR PLANS
P300	DOMESTIC WATER FLOOR PLANS
P400	RISER DIAGRAMS
Grand total: 14	

CERTIFICATE OF OCCUPANCY
for
CONDO UNIT IN THE BASEMENT

PROJECT ADDRESS	:	1332 HARVARD ST NW, WASHINGTON, DC 20009
PROPOSED PRIMARY USE	:	4 UNIT CONDO
USE GROUP	:	R-2
ZONING	:	RF1

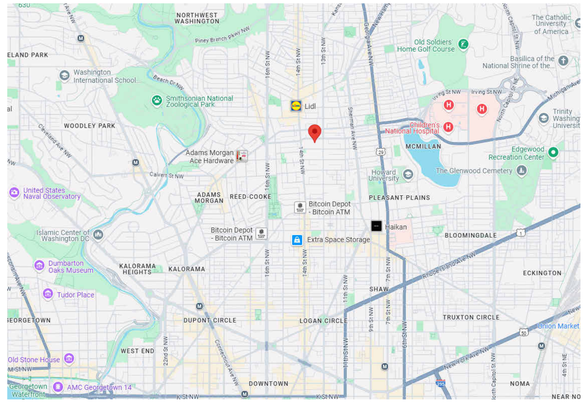
PROJECT SCOPE
- AS BUILT DRAWING TO OBTAIN CERTIFICATE OF OCCUPANCY PERMIT FOR THE BASEMENT UNIT
- CERTIFICATE OF OCCUPANCY APPLICATION NO. CO2202483

EXISTING CONDITION
- BASEMENT (1, 238SF) ; 2 BEDS, 2 1/2 BATH
- LEVEL 1 (1, 238SF) ; 2 BEDS, 2 1/2 BATH
- LEVEL 2 (1, 238SF) ; 2 BEDS, 2 1/2 BATH
- LEVEL 3 (1, 238SF) ; 2 BEDS, 2 1/2 BATH
- SPRINKLER INSTALLED, FIRE CONTROL PANEL INSTALLED

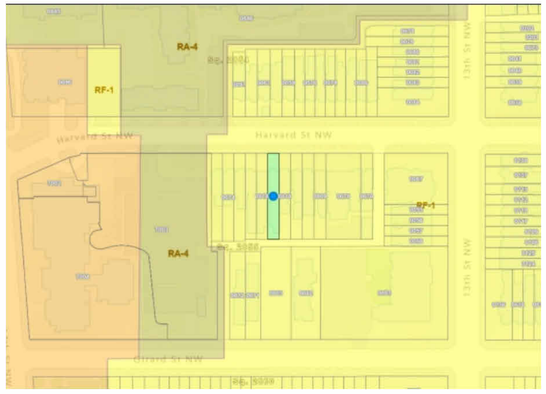
BUILDING CONSTRUCTION TYPE (TABLE 601) - VB
- PRIMARY STRUCTURAL FRAME SHALL BE 0 HOUR RATED.
- EXTERIOR / INTERIOR BEARING WALL SHALL BE 0 HOUR RATED.
- FLOOR CONSTRUCTION AND ASSOCIATED SECONDARY MEMBERS SHALL BE 0 HOUR RATED
- THE FIRE SEPARATION BETWEEN NEIGHBOR SHALL BE 1 HOUR RATED.
- 2 HOUR PARTY WALL BETWEEN NEIGHBOR

APPLICABLE CODES: DOB
- 2017 DISTRICT OF COLUMBIA BUILDING CODE
- 2017 DISTRICT OF COLUMBIA PROPERTY MAINTENANCE CODE
- 2017 DISTRICT OF COLUMBIA GREEN CONSTRUCTION CODE
- 2017 DISTRICT OF COLUMBIA ENERGY CONSERVATION CODE
- 2017 DISTRICT OF COLUMBIA FIRE CODE
- 2017 DISTRICT OF COLUMBIA MECHANICAL CODE
- 2017 DISTRICT OF COLUMBIA PLUMBING
- 2015 ICC CODES AND 2014 NATIONAL ELECTRICAL CODE

VICINITY MAP



Zoning Report for 1332 HARVARD ST NW



Zoning Data Summary

Premises Address 1332 HARVARD ST NW	Council Member
Square/Suffix/Lot 2855 0817	ANC 1A
Zoning District RF-1	ANC Chairperson Dieter Lehmann Morales
PUDs	SMD 1A09
Ward Ward 1	Commissioner James A. Turner

* For a detailed explanation of zoning related items, please refer to the DC Zoning Map glossary
** To the extent an active PUD exists on a particular site, the PUD zoning depicts the zoning in effect for that site

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CITY PERMIT

3 Story Town Home
1332 Harvard St NW,
Washington, DC 20009

DISTRICT OF COLUMBIA
CHANG SOO RHEE
ARC102590
LICENSED
ARCHITECT

0205 2025

No.	Description	Date
1	COUNTY	0106 2025

COVER

Project number	
Date	
Drawn by	Author
Checked by	Checker

A000

Scale

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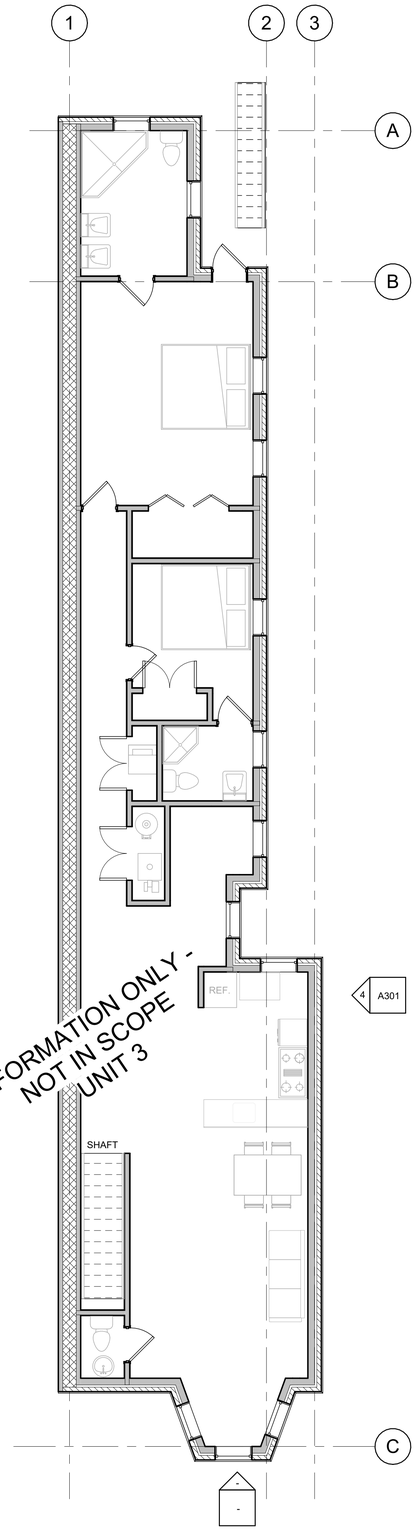
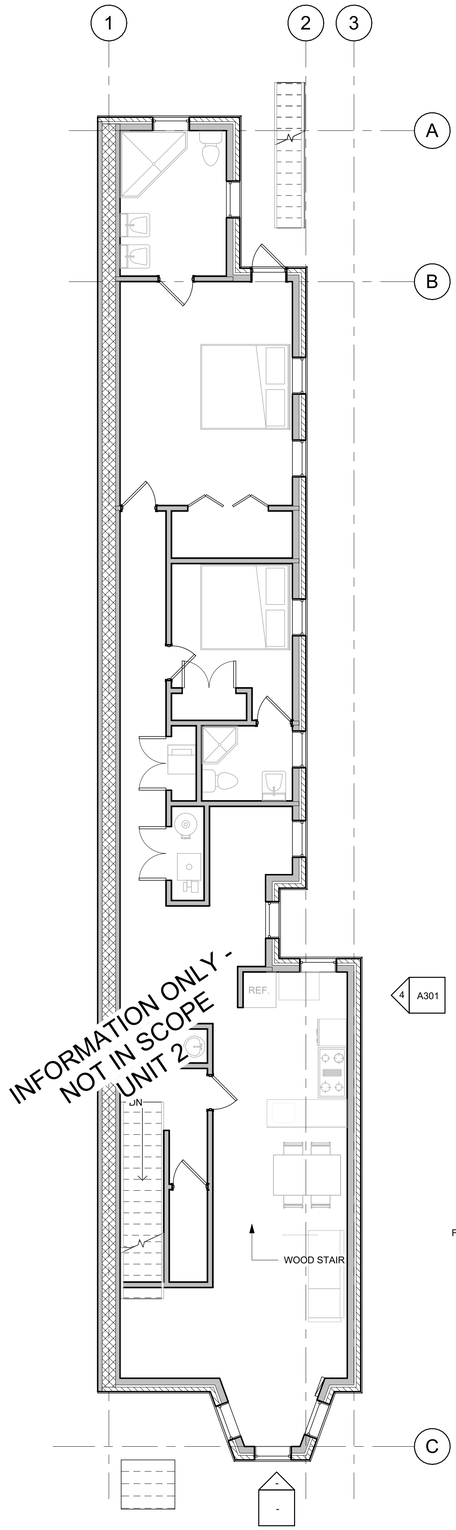
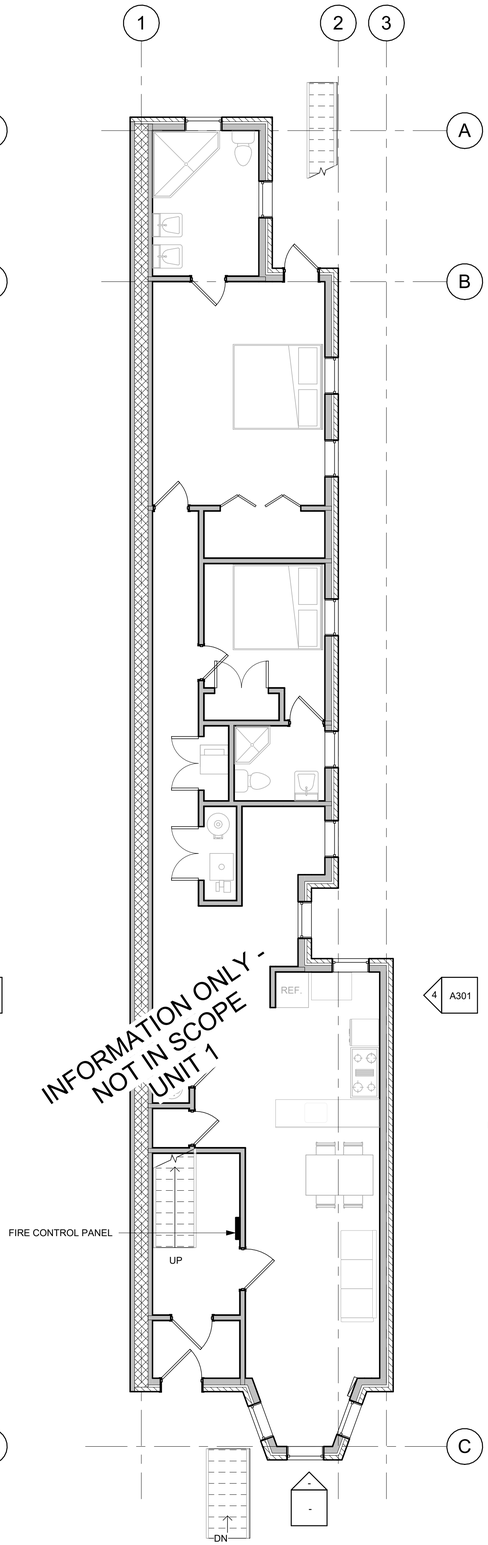
FLOOR PLAN GENERAL NOTES
1. ALL INTERIOR PARTITION SHALL BE 0A UNO.



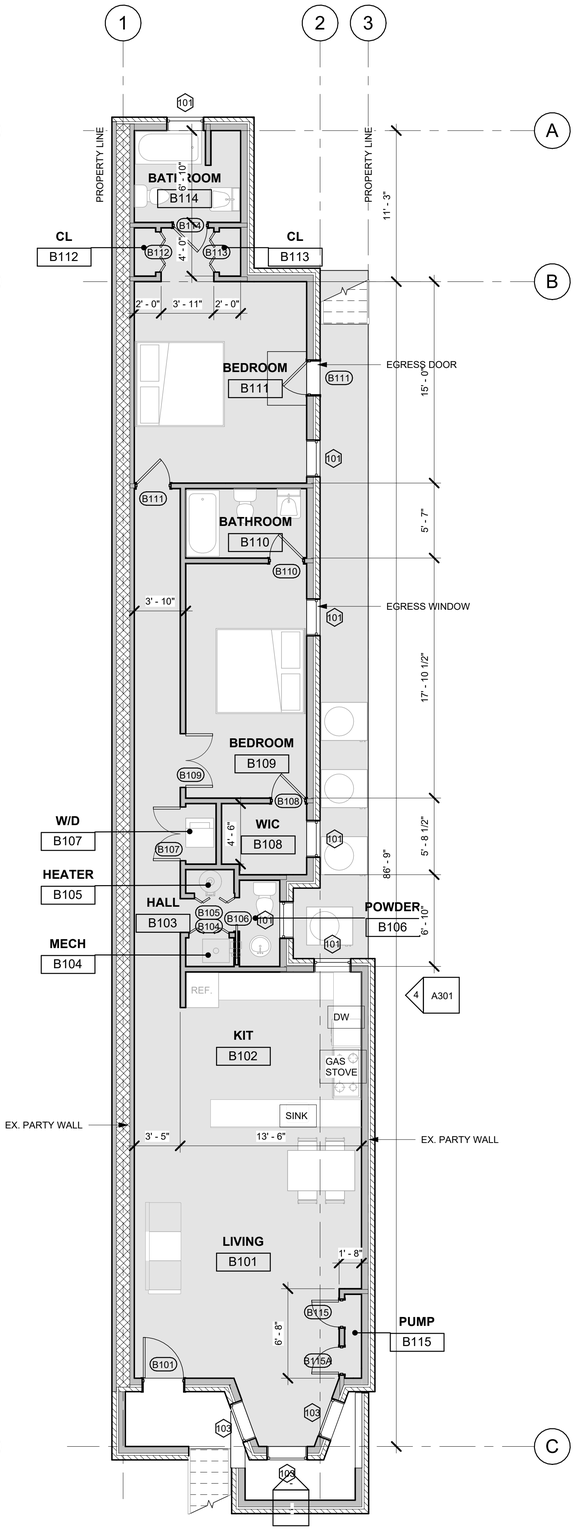
4 FLOOR PLAN - LEVEL 3
3/16" = 1'-0"



3 FLOOR PLAN - LEVEL 2
3/16" = 1'-0"



2 FLOOR PLAN - LEVEL 1
3/16" = 1'-0"



1 FLOOR PLAN - BASEMENT
3/16" = 1'-0"

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ARCHITECT

1126 2024

No.	Description	Date

FLOOR PLAN -
LEVEL B, 1, 2, 3

Project number	
Date	
Drawn by	Author
Checked by	Checker

A100

Scale	3/16" = 1'-0"

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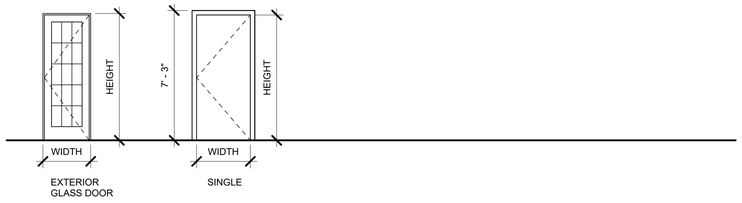
DOOR TYPES

REFER TO ENERGY REQUIREMENT SHEET FOR EXTERIOR WINDOW SHGC VALUE

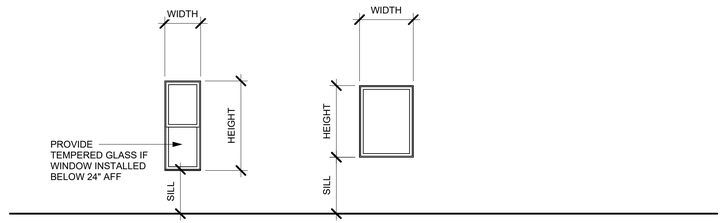


EXTERIOR GLASS DOOR

SINGLE

WINDOW TYPES

REFER TO ENERGY REQUIREMENT SHEET FOR WINDOW SHGC VALUE

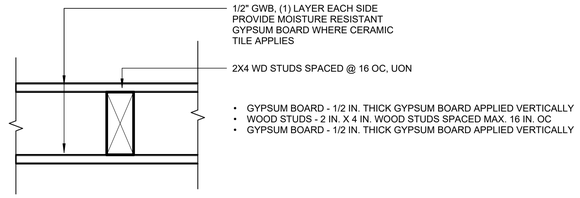


TYPE W1

DOUBLE HUNG WINDOW

TYPE W2

FIXED WINDOW



- GYPSUM BOARD - 1/2 IN. THICK GYPSUM BOARD APPLIED VERTICALLY
- WOOD STUDS - 2 IN. X 4 IN. WOOD STUDS SPACED MAX. 16 IN. OC
- GYPSUM BOARD - 1/2 IN. THICK GYPSUM BOARD APPLIED VERTICALLY

WALL TYPE 0A

1 PARTITION TYPE 0A

3" = 1'-0"

FIRE RATING: 0 HOUR

INTERIOR PARTITIONS - WOOD STUD

Room Schedule					
WT	Name	Number	Area	Wall Finish	Floor Finish
BASEMENT	LIVING	B101	335 SF		
BASEMENT	KIT	B102	196 SF		
BASEMENT	HALL	B103	132 SF		
BASEMENT	MECH	B104	8 SF		
BASEMENT	HEATER	B105	6 SF		
BASEMENT	POWDER	B106	19 SF		
BASEMENT	W/D	B107	10 SF		
BASEMENT	WIC	B108	32 SF		
BASEMENT	BEDROOM	B109	157 SF		
BASEMENT	BATHROOM	B110	47 SF		
BASEMENT	BEDROOM	B111	208 SF		
BASEMENT	CL	B112	6 SF		
BASEMENT	CL	B113	6 SF		
BASEMENT	BATHROOM	B114	53 SF		
BASEMENT	PUMP	B115	8 SF		

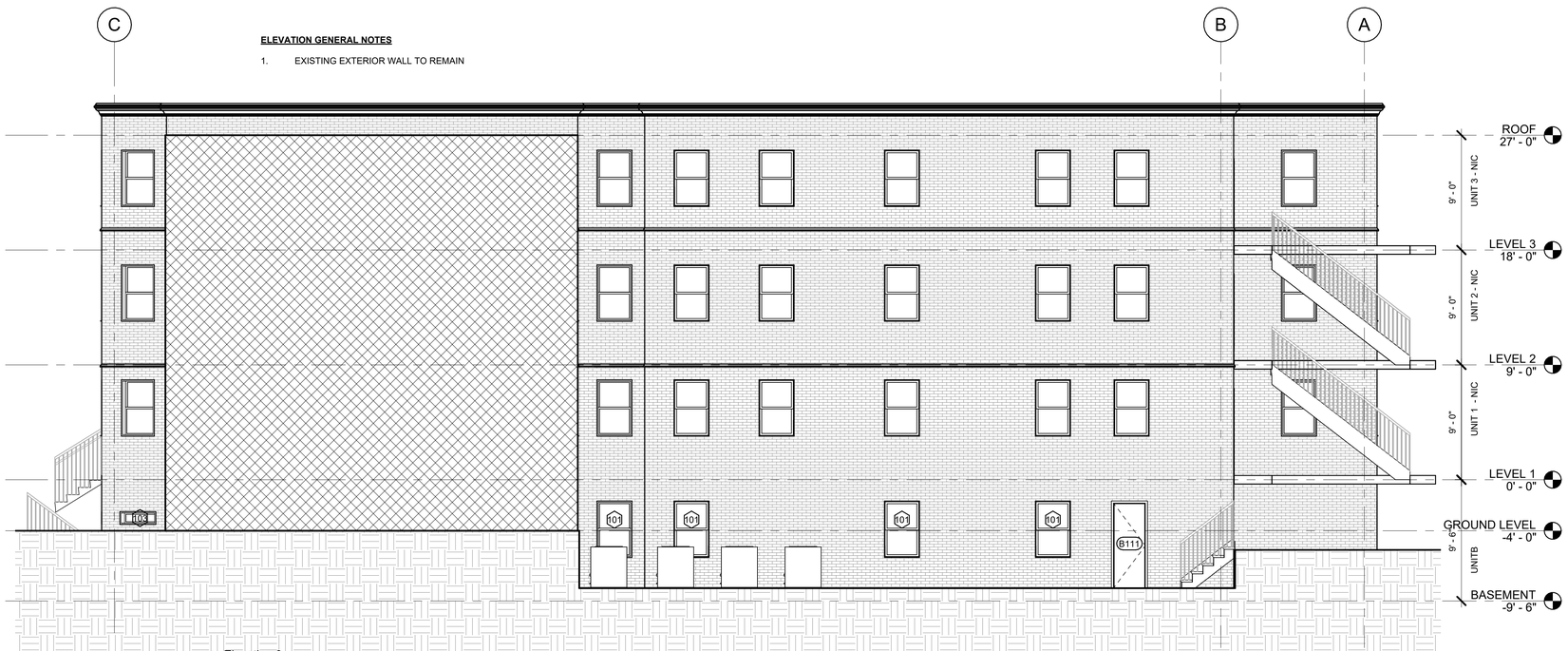
DOOR SCHEDULE								
WT	ROOM NAME	Mark	Width	Height	Sill Height	Family	Phase Created	Remark
BASEMENT	LIVING	B101	3' - 0"	7' - 0"	0' - 0"	SINGLE	Existing	
BASEMENT	HALL	B104	3' - 0"	7' - 0"	0' - 0"	Bifold-4 Panel	Existing	
BASEMENT	HALL	B105	3' - 0"	7' - 0"	0' - 0"	Bifold-4 Panel	Existing	
BASEMENT	POWDER	B106	2' - 6"	7' - 0"	0' - 0"	Single-Pocket	Existing	
BASEMENT	HALL	B107	4' - 0"	7' - 0"	0' - 0"	Double-Panel 2	Existing	
BASEMENT	BEDROOM	B108	2' - 6"	7' - 0"	0' - 0"	SINGLE	Existing	
BASEMENT	BEDROOM	B109	4' - 0"	7' - 0"	0' - 0"	Double-Panel 2	Existing	
BASEMENT	BATHROOM	B110	2' - 6"	7' - 0"	0' - 0"	SINGLE	Existing	
BASEMENT	BEDROOM	B111	2' - 6"	7' - 0"	0' - 0"	SINGLE	Existing	
BASEMENT	BEDROOM	B111	2' - 6"	6' - 8"	1' - 0"	SINGLE	Existing	
BASEMENT	BEDROOM	B112	3' - 0"	7' - 0"	0' - 0"	Bifold-4 Panel	Existing	
BASEMENT	BEDROOM	B113	3' - 0"	7' - 0"	0' - 0"	Bifold-4 Panel	Existing	
BASEMENT	BEDROOM	B114	2' - 6"	7' - 0"	0' - 0"	SINGLE	Existing	
BASEMENT	LIVING	B115	2' - 0"	7' - 0"	0' - 0"	SINGLE	Existing	
BASEMENT	LIVING	B115A	2' - 0"	7' - 0"	0' - 0"	SINGLE	Existing	

WINDOW SCHEDULE							
Floor	Type Mark	Family	Width	Height	Sill Height	Phase Created	Notes
BASEMENT	101	Double Hung	2' - 9"	4' - 5"	3' - 5"	Existing	
BASEMENT	101	Double Hung	2' - 9"	4' - 5"	3' - 5"	Existing	
BASEMENT	101	Double Hung	2' - 9"	4' - 5"	3' - 5"	Existing	
BASEMENT	101	Double Hung	2' - 9"	4' - 5"	3' - 5"	Existing	
BASEMENT	101	Double Hung	2' - 9"	4' - 5"	3' - 5"	Existing	
BASEMENT	101	Double Hung	2' - 9"	4' - 5"	3' - 5"	Existing	
BASEMENT	103	Fixed	3' - 0"	1' - 0"	6' - 0"	Existing	
BASEMENT	103	Fixed	3' - 0"	1' - 0"	6' - 0"	Existing	
BASEMENT	103	Fixed	3' - 0"	1' - 0"	6' - 0"	Existing	

Grand total: 9

ELEVATION GENERAL NOTES

1. EXISTING EXTERIOR WALL TO REMAIN



4 Elevation 3 - a

3/16" = 1'-0"

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1126 2024

No.	Description	Date

ELEVATIONS / SCHEDULES

Project number	
Date	
Drawn by	Author
Checked by	Checker

A301

Scale	As indicated

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ELECTRICAL GENERAL NOTES

1. IT IS THE INTENT OF THESE DRAWINGS AND OTHER RELATED DOCUMENTS TO PRODUCE A COMPLETE AND FUNCTIONING ELECTRICAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TESTS, AND OTHER SERVICES AS MAY BE NECESSARY TO ACHIEVE THIS PRODUCT. THE CONTRACTOR SHALL ACKNOWLEDGE ACCEPTANCE OF THE PLANS AS AN ADEQUATE DEFINITION OF THE SCOPE OF WORK AND EXTRA COST CLAIMS BASED ON DISCREPANCIES ON THE PLANS WILL NOT BE CONSIDERED.

2. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL CODES HAVING JURISDICTION. ALL EQUIPMENT, DEVICES, AND MATERIAL SHALL BE LISTED WITH UNDERWRITERS LABORATORIES FOR ITS APPLICATION AS INSTALLED AND SHALL BEAR THE UL LABEL.

3. THE ELECTRICAL CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY SUCH FEES AS MAY BE NECESSARY FOR INSPECTIONS, TESTS, AND OTHER SERVICES WHICH ARE REQUIRED FOR THE COMPLETION OF HIS WORK.

4. THE CONTRACTOR SHALL VISIT THE SITE AND EXAMINE CONDITIONS OF THE PREMISES AND THE CHARACTER AND EXTENT OF WORK REQUIRED PRIOR TO SUBMISSION OF BIDS. ANY DIFFICULTIES IN COMPLYING WITH THE DRAWINGS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF ARCHITECT BEFORE BIDDING.

5. ELECTRICAL PLANS ARE DIAGRAMMATIC. DO NOT SCALE DRAWINGS.

6. CONSULT PLANS OF ALL OTHER TRADES FOR COORDINATION AND FOR RELATED AND ADJOINING WORK.

7. CONSULT ARCHITECTURAL AND STRUCTURAL PLANS AND DETAILS FOR CONSTRUCTION TYPE, HEADROOM, ROOM FINISHES, CEILINGS, ETC.

8. SEE REFLECTED CEILING PLAN FOR EXACT LOCATION OF LIGHT FIXTURES.

9. CIRCUIT NUMBERS ARE FOR IDENTIFICATION PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTLY SPACING THE CIRCUITS IN THE PANEL AND BALANCE THE LOAD ON THE PHASES UNDER NORMAL OPERATING CONDITIONS.

10. SHOP DRAWINGS FOR ALL ELECTRICAL EQUIPMENT, FIXTURES, DEVICES AND MATERIALS SHALL BE SUBMITTED TO THE ARCHITECT FOR APPROVAL BEFORE DELIVERY TO THE JOB SITE. EQUIPMENT, FIXTURES, DEVICES, AND MATERIAL DELIVERED TO THE JOB SITE OR INSTALLED PRIOR TO APPROVAL OF THE SHOP DRAWINGS, AND FOR WHICH THE SHOP DRAWINGS ARE SUBSEQUENTLY REJECTED, SHALL BE REPLACED WITH AN APPROVED ITEM AT NO ADDITIONAL COST TO THE OWNER.

11. CONTRACTOR SHALL VERIFY WIRE SIZES, C/B AND FUSE RATINGS FOR ALL HVAC EQUIPMENT, AND BRING TO THE ATTENTION OF THE ARCHITECT ANY DISCREPANCIES AFFECTING THE WORK PRIOR TO PROCEEDING.

12. ALL WORK SHALL BE DONE AT SUCH TIMES AND IN SUCH A MANNER AS WILL LEAST INTERFERE WITH THE MAINTENANCE AND OPERATION OF ALL RELATED OR AFFECTED SYSTEM. ALL POWER OUTAGES, FIRE ALARM SHUT DOWNS, ETC. SHALL BE COORDINATED WITH OWNER.

13. CONTRACTOR SHALL VERIFY THAT ALL DOOR SWINGS ARE CORRECT BEFORE INSTALLING LIGHT SWITCH OUTLETS.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER SIZING OF ALL MOTOR OVERLOAD DEVICES (HEATERS) IN STARTERS BASED ON ACTUAL NAMEPLATE RATINGS ON THE MOTORS BEING INSTALLED.

15. HORSEPOWER RATINGS INDICATED ON DRAWINGS MAY DIFFER FROM ACTUAL EQUIPMENT FURNISHED. IF FURNISHED EQUIPMENT DIFFERS FROM RATINGS ON DRAWINGS, CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER FOR APPROPRIATE ACTION TO BE TAKEN.

16. CONTRACTOR SHALL NOTE U.L. LABELS ON PACKAGED TYPE MECHANICAL EQUIPMENT. IF U.L. LABEL ON MECHANICAL EQUIPMENT OT ACTUALLY BE INSTALLED CALLS FOR THE OVERCURRENT PROTECTIVE DEVICE TO BE FUSES, THE ELECTRICAL CONTRACTOR SHALL PROVIDE A FUSED DISCONNECT SWITCH WITH PROPER SIZE FUSES AT THE SWITCH LOCATION INDICATED ON DRAWINGS AT NO ADDITIONAL CHARGE TO THE OWNER.

17. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE TYPE OF CEILING SYSTEM WITH THE GENERAL CONTRACTOR OR CEILING CONTRACTOR TO INSURE THAT ALL RECESSED LIGHTING FIXTURES ARE COMPATIBLE WITH THE CEILING SYSTEM BEING INSTALLED. LIGHTING FIXTURES SHOULD NOT BE ORDERED UNTIL TYPE OF CEILING HAS BEEN VERIFIED.

18. LIGHTING FIXTURES INSTALLED IN SUSPENDED CEILINGS SHALL BE SUPPORTED DIRECTLY FROM THE BUILDING STRUCTURE.

19. THE CORRECT NUMBER OF WIRES MAY NOT BE INDICATED FOR ALL CIRCUITS, ONLY THOSE WHERE CLARIFICATION IS NECESSARY. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRES NECESSARY FOR THE PROPER FUNCTION OF THE SYSTEM WHETHER INDICATED ON DRAWINGS OF NOT.

20. ALL EMPTY CONDUIT RUNS IN EXCESS OF 10 FEET SHALL BE PROVIDED WITH A PULL WIRE OF FISH TAPE/CORD.

21. ALL CONDUCTORS, RACEWAYS AND CABLES SHALL BE CONCEALED IN CEILING OR WALL UNLESS INDICATED OTHERWISE.

22. OPENINGS OR CORE DRILLS IN EXISTING BUILDING STRUCTURE FOR PASSAGE OF CONDUITS/CABLES SHALL NOT BE CUT UNTIL THE CONTRACTOR HAS ASKED FOR AND RECEIVED WRITTEN APPROVAL FROM THE ARCHITECT AND OWNER.

23. THE LIGHTING FIXTURES SHALL BE FURNISHED AND INSTALLED COMPLETE WITH ALL ACCESSORIES (INCLUDING LAMPS) BY THE ELECTRICAL CONTRACTOR.

24. SYMBOLS SHOWN ON THIS SHEET ARE STANDARD SYMBOLS AND MAY NOT NECESSARILY ALL BE APPLICABLE TO THIS PROJECT.

25. THE CONTRACTOR SHALL GUARANTEE ALL HIS WORK AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE BY OWNER.

26. ALL PENETRATIONS OF FLOOR AND WALLS SHALL BE FIRE STOPPED IN ACCORDANCE WITH IBC, NEC, AND NFPA.

27. CONDUCTORS SHALL BE INSTALLED CONTINUOUS BETWEEN DEVICES, WITH SPLICES LOCATED ONLY IN JUNCTION BOXES OR IN CABINETS. CONDUCTORS SHALL BE OF SUFFICIENT LENGTH TO REACH THE FARTHEST TERMINAL IN PANELS. A MINIMUM OF 6" LOOPS SHALL REMAIN WHERE CONNECTIONS OF TAPS ARE TO BE MADE IN BRACH CIRCUIT WIRING.

28. PROVIDE AN UPDATED TYPEWRITTEN PANEL DIRECTORY IN EACH PANEL AFTER COMPLETION OF WORK.

29. ELECTRICAL CONTRACTOR SHALL PROVIDE AS BUILT DRAWINGS AND ALL MANUFACTURERS DATA AND WARRANTY LITERATURE AT THE COMPLETION OF THE CONTRACT.

WIRING DEVICES

1. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL MOUNTING HEIGHTS FOR SWITCHES, RECEPTACLES, WALL MOUNTED LIGHT FIXTURES, AND TELEPHONE OUTLETS BY THE USE OF THE ARCHITECTURAL AND ENGINEERING DRAWINGS. SHOULD ANY CONFLICTS BECOME APPARENT THE CONTRACTOR SHALL REQUEST CLARIFICATION PRIOR TO INSTALLATION. IN THE WORK IS NOT COORDINATED ANY REMEDIAL WORK SHALL BE REDONE AT NO ADDITIONAL COST TO THE OWNER.

2. PROVIDE DUPLEX, SPECIFICATION GRADE RECEPTACLES 2 POLE, 3 WIRE GROUNDING WITH GREEN HEXAGONAL EQUIPMENT GROUND SCREWS, GROUND TERMINALS AND POLES INTERNALLY CONNECTED TO MOUNTING YOKE, 20 AMPERES, 125 VOLTS, WITH METAL PLASTER EARS, SIDE WIRING, NEMA CONFIGURATION 5-20R.

3. SWITCHES, 20 AMPS, 120/277 VOLTS, WITH MOUNTING YOKE INSULATED FROM MECHANISM, EQUIPPED WITH PLASTER EARS, SWITCH HANDLE, AND SIDE WIRED SCREW TERMINALS.

4. ALL SWITCHES, RECEPTACLES AND ASSOCIATED FACE PLATES SHALL BE OF WHITE COLOR. PREFERRED MANUFACTURER IS LUTRON.

5. ALL DEVICES INSTALLED IN THE LOCATION EXPOSED TO AMBIENT CONDITIONS SHALL BE WEATHERPROOFED.

EQUIPMENT SPECIFICATIONS

RACEWAY

1. MINIMUM SIZE OF THE CONDUIT SHALL BE 3/4". ALL RIGID CONDUIT PER ARG.

2. PROVIDE FLEXIBLE CONDUIT FOR MOTOR CONNECTION, AND FOR OTHER ELECTRICAL EQUIPMENT CONDITION, WHERE SUBJECT TO MOVEMENT AND VIBRATION.

3. PROVIDE LIQUID TIGHT FLEXIBLE CONDUIT FOR CONNECTION OF MOTOR AND FOR OTHER ELECTRICAL EQUIPMENT WHERE SUBJECT TO MOVEMENT AND VIBRATION, AND ALSO WHERE SUBJECT TO ONE OR MORE OF THE FOLLOWING CONDITIONS, UNLESS NOTES OTHERWISE:

   A. MOIST AND HUMID ATMOSPHERE WHERE CONDENSATE CAN BE EXPECTED TO ACCUMULATE.

   B. CORROSIVE ATMOSPHERE

   C. SUBJECT TO DRIPPING OIL, GREASE OR WATER.

4. ALL CONDUITS SHALL BE GROUNDED PER NEC. CONDUITS ENTERING THE OUTLET BOXES, PANEL CABINETS, ETC. MUST BE FITTED WITH A DOUBLE LOCKNUT AND BUSHING.

5. PROVIDE RIGID STEEL, THREADED, THICK WALL CONDUIT, GALVANIZED OR EMT FOR ALL PANEL FEEDERS, AND ALL EXPOSED WIRING IN UNFINISHED AREAS. ALL RIDGE CONDUIT PER ARG.

6. ALL WIRE RACEWAYS IN OR PASSING THROUGH CONCRETE WALLS, SLABS, OR UNDERGROUND SHALL BE GALVANIZED RIGID STEEL THREADED CONDUIT.

WIRES AND CABLES

1. ALL WIRE AND CABLE SHALL BE COPPER WITH THHN/THWN INSULATION AND ALL WIRE SIZES ARE BASED ON COPPER CONDUCTORS WITH 75°C INSULATION UNLESS INDICATED OTHERWISE. ALL CONNECTORS, LUGS, ETC. SHALL BE LISTED FOR 75°C.

2. PROVIDE WIRING NOT SMALLER THAN #12 AWG FOR THE POWER DISTRIBUTION, AND NOT SMALLER THAN #14 AWG FOR THE FIRE ALARM SYSTEM.

3. ALL CIRCUITS 120/208 VOLT OVER 100 FEET AND ALL 277/480 VOLT CIRCUITS OVER 200 FEET FROM PANEL TO FIRST OUTLET SHALL HAVE CONDUCTORS ONE SIZE LARGER THAN NORMALLY REQUIRED WHETHER INDICATED ON PANEL SCHEDULE OR NOT.

4. CONDUCTORS INSTALLED UNDERGROUND OR IN THE WET LOCATIONS SHALL BE U.L. LISTED PER NEC, AND SHALL BE SUITABLE FOR WET LOCATIONS.

ELECTRICAL BOXES AND FITTINGS

1. ALL BOXES AND FITTINGS SHALL BE OF CODE-GAUGE STEEL.

2. JUNCTION AND PULL BOXES: PROVIDE GALVANIZED CODE-GUAGE STEET STEEL JUNCTION AND PULL BOXES WITH SCREW-ON COVER OF TYPES, SHAPES AND SIZES TO SUIT EACH RESPECTIVE LOCATION AND INSTALLATION, WITH WELDED SEAMS AND EQUIPPED WITH STAINLESS STEEL NUTS, SCREWS, AND WASHERS.

3. PROVIDE WEATHERPROOF OUTLETS FOR INTERIOR AND EXTERIOR LOCATIONS EXPOSED TO WEATHER OR MOISTURE.

4. ALL PULL BOXES SHALL BE FABRICATED FROM #12 OR HEAVIER GAUGE GALVANIZED STEEL AS REQUIRED BY THE NEC, AND SHALL BE EQUIPPED WITH SCREW FASTENED COVER.

PANELBOARDS

ALL PANELBOARDS MUST BE OF COPPER BUS ONLY.

PANELBOARD ENCLOSURES: PROVIDE GALVANIZED SHEET STEEL CABINET, CODE-GAUGE. CONSTRUCT WITH MULTIPLE KNOCKOUTS AND WIRING GUTTERS. PROVIDE FRONTS. EQUIPMENT WITH INTERIOR CIRCUIT DIRECTORY FRAME AND CARD WITH CLEAR PLASTIC COVERING. PROVIDE BAKED GRAY ENAMEL FINISH OVER A RUST INHIBITOR COATING. DESIGN ENCLOSURES FOR RECESSED MOUNTING. PROVIDE ENCLOSURES WITCH ARE FABRICATED BY SAME MANUFACTURES AS PANELBOARDS WHICH MATE AND MATCH PROPERLY WITH PANEL BOARD TO THE ENCLOSED.

NEW PANELBOARDS SHALL BE AS INDICATED ON THE DRAWINGS, WITH BOLT-ON MOLDED CASE CIRCUIT BREAKERS AND COPPER BUS BARS. CIRCUIT BREAKERS AND INTERIORS SHALL BE OF THE SAME MANUFACTURER AND U.L. LISTED. THE PANELBOARD SHALL COMPLY WITH ALL APPLICABLE STANDARDS.

ALL BOXES MAY BE PLASTIC, RESIDENTIAL GRADE.

ALL WIRING DEVICES MAY BE RESIDENTIAL GRADE. CUTLER HAMMER OR APPROVED EQUAL.

MAY USE RESIDENTIAL MC CABLES.

FIRE RESISTANCE RATING NOTES

- ELECTRICAL BOXES PENETRATING FIRE RESISTANCE RATED MEMBRANES OF CEILINGS AND WALLS MUST MEET THE REQUIREMENTS OF 2017 DCBC CHAPTER 7 FOR PENETRATING ITEMS. THE BOXES THEMSELVES MUST BE FIRE RATED OR HAVE A FIRE STOP SYSTEM ADDED TO THEM (2017 DCBC 714.3.2)
- ALL ELECTRICAL WIRING, CONDUITS, RACEWAYS, CATV, AND TELEPHONE WIRING PENETRATING FIRE-RESISTANCE RATED MEMBRANES MUST BE PROPERLY SEALED TO ASSURE THAT ALL REQUIRED FIRE-RESISTANCE RATING IS NOT REDUCED PER 2017 DCBC 703.2. USE EVERKEM ECOSEAL FIRE STOP 814+ OR APPROVED EQUAL. IT IS UL CLASSIFIED, INTUMESCENT FIRE STOP SEALANT DESIGNED TO RESUME THE INTEGRITY OF 1 AND 2 HOUR RATED FIRE RATED WALLS AND FLOORS WHEN PENETRATED BY PLUMBING, ELECTRICAL, AND OTHER MECHANICAL ITEMS.

ELECTRICAL SYMBOLS

- LED LIGHTING FIXTURE. SEE LIGHTING FIXTURE SCHEDULE FOR TYPE AND MOUNTING.
- WALL MOUNTED DUAL HEAD BATTERY POWERED EMERGENCY LIGHTING FIXTURE. SEE LIGHTING FIXTURE SCHEDULE.
- SINGLE FACE EXIT LIGHTING FIXTURE. SEE LIGHTING FIXTURE SCHEDULE.
- $ SINGLE POLE TOGGLE SWITCH - 20 AMP, 120 VOLT, M.H. 48" AFF, UNLESS NOTED OTHERWISE.
- $3 THREE WAY TOGGLE SWITCH - 20 AMP, 120 VOLT, M.H. 48" AFF, UNLESS NOTED OTHERWISE.
- $M MOTOR RATED SWITCH WITH THERMAL OVERLOAD PROTECTION, MOUNT ADJACENT TO OR ON THE MOTOR BEING CONTROLLED.
- $O LIGHT SWITCH WITH BUILT-IN OCCUPANCY SENSOR.
- $OD LIGHT SWITCH WITH BUILT-IN OCCUPANCY AND DAY LIGHT SENSOR.
- RECEPTACLE-WINDOW.
- CEILING MOUNTED OCCUPANCY SENSOR.
- JUNCTION BOX, CEILING OR WALL MOUNTED.
- DUPLEX GROUNDING TYPE RECEPTALCE - 20 AMP, 120 VOLT, NEMA 5-20R, M.H. 18" AFF, UNLESS NOTED OTHERWISE.
- DOUBLE DUPLEX GROUNDING TYPE RECEPTACLE - 20 AMP, 120 VOLT, NEMA 5-20R, M.H. 18" AFF, UNLESS NOTED OTHERWISE. DISCONNECT SWITCH, AMP, VOLT, POLES AND FUSING AS
- DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER PROTECTION - 20 AMP, 120 VOLT, NEMA 5-20R, M.H. 42" AFF, UNLESS NOTED OTHERWISE.
- PANELBOARD
- DISCONNECT SWITCH, AMP, VOLT, POLES AND FUSING AS NOTED ON DRAWING.
- ELECTRIC MOTOR CONNECTION - HORSEPOWER AS NOTED.
- POWER COMPANY METER, RATING AS INDICATED ON DRAWING.
- DRY TYPE TRANSFORMER, RATING AS INDICATED ON DRAWING.
- 2 HOMERUN WIRING WITH A DEDICATED EQUIPMENT GROUND WIRE TO THE REFERENCED PANELBOARD. ARROW HEADS AND NUMERALS INDICATE THE CIRCUIT NUMBERS.
- T DUPLEX GROUNDING RECEPTACLE 20A, 120 VOLT TAMPER PROOF
- DL DAY LIGHT SENSOR
- V FIRE ALARM VISUAL STATION
- VA FIRE ALARM AUDIO/VISUAL STATION
- FLOOR MOUNTED 5-20R RECEPTACLE
- TEL/DATA OUTLET
- SC SMOKE/CARBON MONOXIDE DETECTOR

ELECTRICAL ABBREVIATIONS

A	AMP	KW	KILOWATTS
AFF	ABOVE FINISHED FLOOR	MCB	MAIN CIRCUIT BREAKER
AHU	AIR HANDLING UNIT	MLO	MAIN LUGS ONLY
AIC AL	AMPS INTERRUPTING CAPACITY ALUMINUM	MOCP	MAXIMUM OVERCURRENT PROTECTION
ATS	AUTOMATIC TRANSFER SWITCH	N	NEW
AFG	ABOVE FINISHED GRADE	NEC	NATIONAL ELECTRICAL CODE
AWG	AMERICAN WIRE GAUGE	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CB	CIRCUIT BREAKER		
CH	CABINET HEATER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CKT	CIRCUIT	NFSS	NON-FUSED SAFETY SWITCH
CU	COPPER, COMPRESSOR UNIT	OCPD	OVER CURRENT PROTECTION DEVICE
C	CONDUIT	P	POLE
DN	DOWN	PH OR Ø	PHASE
E	EXISTING	PNL	PANEL
EC	EMPTY CONDUIT	PFF	PROVISIONS FOR FUTURE
ER	EXISTING RELOCATED	R	REMOVE
EF	EXHAUST FAN	RE	RELOCATE
EM	EMERGENCY	RTU	ROOF TOP UNIT
EMT	ELECTRIC METAL TUBING	RLA	RUNNING LOAD AMPS
EPO	EMERGENCY POWER OFF	SN	SOOLID NEUTRAL
EWC	ELECTRIC WATER COOLER	SWED	SWITCHBOARD
FSS	FUSED SAFETY SWITCH	TELE	TELEPHONE
FACP	FIRE ALARM CONTROL PANEL	TYP	TYPICAL
FAAP	FIRE ALARM ANNUNCIATOR PANEL	UL	UNDERWRITERS LABORATORY
FLA	FULL LOAD AMPS	UON	UNLESS OTHERWISE NOTED
GFI	GROUND FAULT INTERRUPTER	V	VOLTAGE
GND OR G	GROUND	VA	VOLT AMPS
HP	HORSE POWER	VAV	VARIABLE AIR VOLUME
HG	HOSPITAL GRADE	W	WATTS
IG	ISOLATED GROUND	WH	WATER HEATER
JB	JUNCTION BOX	WP	WEATHER PROOF
KVA	KILOVOLT AMPS	WSA	WIRE SIZE AMPS
		XFMR	TRANSFORMER

WASHINGTON DC CODES

2017 DISTRICT OF COLUMBIA CONSTRUCTION CODES ENCOMPASSES ALL CODES USED BY THE DISTRICT OF COLUMBIA.
12-A DCMR 101.1

RESIDENTIAL:	2017 DISTRICT OF COLUMBIA RESIDENTIAL CODE
BUILDING:	2015 IBC AND 2017 DCMR12A SUPPLEMENT 2015 IEBC
COVERING CODES:	2017 DISTRICT OF COLUMBIA BUILDING CODE
MECHANICAL:	2017 DISTRICT OF COLUMBIA MECHANICAL CODE
ELECTRICAL:	2014 INTERNATIONAL NFPA-70
PLUMBING:	2017 DISTRICT OF COLUMBIA PLUMBING CODE
FIRE:	2017 DISTRICT OF COLUMBIA FIRE CODE
GREEN:	2017 DISTRICT OF COLUMBIA GREEN CONSTRUCTION CODE
ENERGY:	2017 DISTRICT OF COLUMBIA ENERGY CONSTRUCTION CODE

SHEET INDEX

SCOPE OF WORK

- AS-BUILT BASEMENT ONLY .

DRAFTING SYMBOLS

(N) = NEW
(R) = REMOVE
(E) = EXISTING
(ER)= EXISTING RELOCATE
(RR)= REMOVE AND RELOCATE

1 PLAN NAME/DETAIL TITLE
SCALE
VIEW NUMBER

A&I Design
Architecture & Interiors planning
7373 McWhirter Pl.
Annandale, VA 22003
WWW.AldesignDC.com
703-507-3146

AS BUILT SET

CITY PERMIT

3 Story Town Home
1332 Harvard St NW,
Washington, DC 20009

DISTRICT OF COLUMBIA KHALID LAMAA PE922123 PROFESSIONAL ENGINEER

11/26/2024

LAMA ENGINEERS LLC
Design - Consultants - Management - Permit
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TEL : 571-833-8357

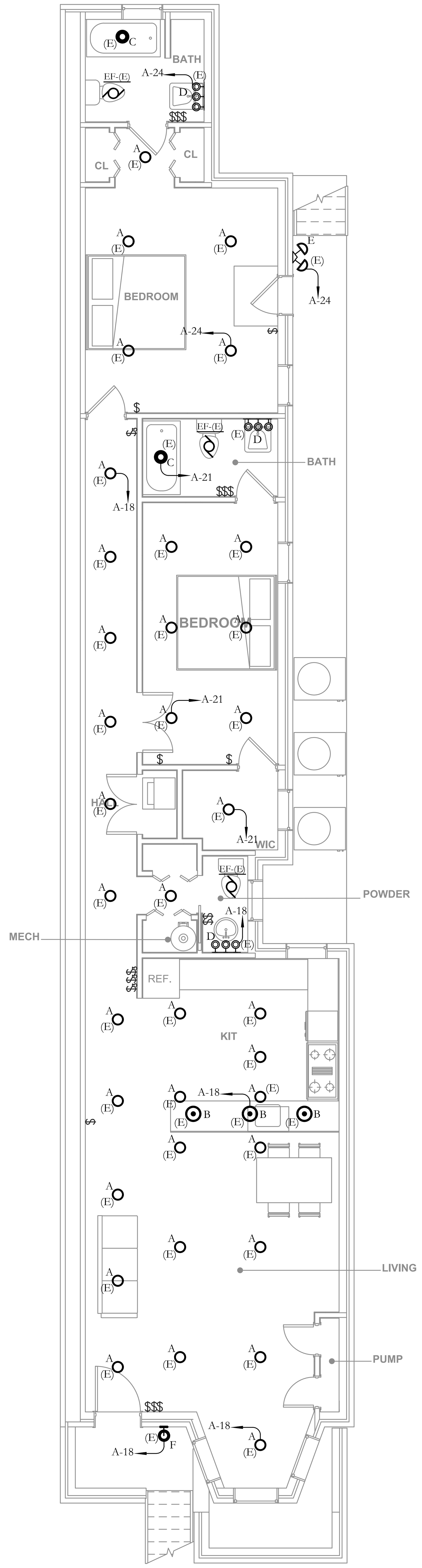
No.	Description	Date
	Permit set	11/26/2024

COVER SHEET

Project number	H096
Date	11/26/2024
Drawn by	S
Checked by	K

E100

Scale 3/16" = 1'-0"



1 AS-BUILT BASEMENT FLOOR LIGHTING PLAN

SCALE: 3/16"=1'-0"

LIGHTING FIXTURE SCHEDULE

AFF	ABOVE FINISHED FLOOR	EB	EMERGENCY BATTERY	P	PENDANT	R	RECESSED
BFC	BELOW FINISHED CEILING	F	FLUORESCENT			S	SURFACE
C	CEILING	PL	POLE			U	UNIVERSAL
DL	DOWN LIGHT					W	WALL

FIXTURE TYPE	MANUFACTURER	CATALOG No.	LAMP No.	LAMP TYPE	VOLTS	MOUNTING	LOCATION	REMARKS	LIMENS	LUMENS/W	HIGH EFFICIENCY(Y,N)	QUANTITY	TOTAL WATTS
A	EXISTING	-	1	24W LED	120	R	STAIRCASE	LED AIRTIGHT FIXED RECESSED DOWNLIGHT	2395	108	Y	36	864
B	EXISTING	-	1	9W LED	120	P	KITCHEN	PENDANT LED	410	52	Y	3	27
C	EXISTING	-	1	11W LED	120	R	AS SHOWN	LED WAFER LIGHT	790	72	Y	2	22
D	EXISTING	-	3	14W LED	120	W	TOILETS	VANITY LED LIGHT	400	29	Y	3	42
E	EXISTING	-	2	25W LED	120	W	EXTERIOR	LED OUTDOOR FLOOD LIGHT	2750	110	Y	1	25
F	EXISTING	-	1	9W LED	120	W	EXTERIOR	LED SECURITY LIGHT	623	69	Y	1	9

TOTAL FIXTURES: 46
TOTAL ENERGY EFFICIENCY FIXTURES: 46
EFFICIENCY FIXTURES: 100%

TOTAL: 989 W
989 W / 1614 SF =0.61 W/SF

DESIGN NOTES:

A. ALL EXISTING LIGHTS MARKED WITH (E) ARE EXISTING TO REMAIN INTACT INCLUDING THEIR CIRCUITRY. UNLESS NOTED OTHERWISE.

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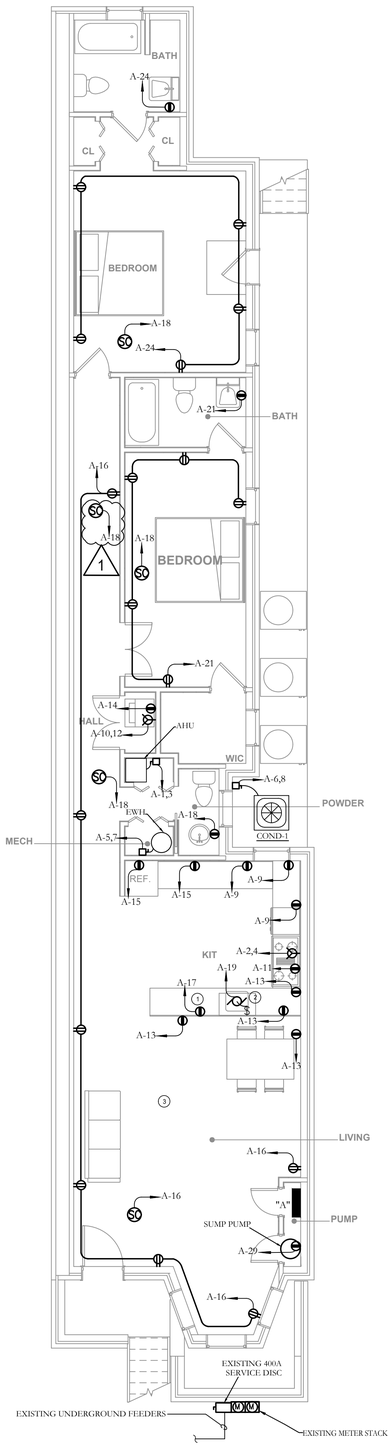
	Permit set	11/26/2024

AS-BUILT BASEMENT FLOOR LIGHTING PLAN

Project number	H096
Date	11/26/2024
Drawn by	S
Checked by	K

E200

Scale	3/16" = 1'-0"



1 BASEMENT FLOOR POWER PLAN
SCALE: 3/16"=1'-0"

MECHANICAL EQUIPMENT SCHEDULE

LOAD	V	PH	FLA	MCA	MOCP	FUSE	DISC.SWITCH	NEMA
COND-1	240	1	12	15	25	25	30	3R
AHU	240	1	42.4	53	60	60	60	1

1

GENERAL NOTES

A. ALL 120 VOLT, 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES INSTALLED IN DWELLING UNIT KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER, OR COMBINATION- TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUITS.(NEC 2014 210.12.)

B. TAMPER RESISTANT RECEPTACLES ARE REQUIRED IN DWELLING AT ALL LOCATIONS EXCEPT WHERE THEY ARE MOUNTED HIGHER THAN 5-1/2 FEET ABOVE THE FLOOR OR IN A SPACE DEDICATED TO A SPECIFIC APPLIANCE.

C. IN SLEEPING ROOMS OF GROUP R-2 OCCUPANCIES, THE AUDIBLE ALARM ACTIVATED BY A FIRE ALARM SYSTEM SHALL BE A 520-HZ LOW-FREQUENCY SIGNAL.

POWER KEYED NOTES

1. DISHWASHER RECEPTACLE MUST BE ACCESSIBLE UNDER THE SINK.
2. DISPOSAL RECEPTACLE MUST BE ACCESSIBLE UNDER THE SINK.
3. FIRE RATED CEILING THROUGHOUT THE UNIT.

GENERAL LIGHTING & POWER NOTES:

1. ALL LIGHTS AND EXHAUST FAN ARE NEW EXCEPT OUTDOOR LIGHT IS EXISTING TO REMAIN.
2. ALL EXISTING RECEPTACLES MARKED WITH (ER) ARE EXISTING RELOCATED.
3. PER IECC 404.1 LIGHTING EQUIPMENT:
   A MINIMUM OF 90 PERCENT OF THE LAMPS IN PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL BE HIGH-EFFICACY LAMPS OR A MINIMUM OF 90 PERCENT OF THE PERMANENTLY INSTALLED FIXTURES SHALL CONTAIN ONLY HIGH-EFFICACY LAMPS.
4. LIGHTING & POWER DRAWINGS ARE PROVIDED FOR LAYOUT PURPOSES ONLY.
5. PROVIDE OUTLETS PER CODE.
6. ALL SMOKE DETECTORS TO BE HARDWIRED AND INTERCONNECTED.
7. ALL ELECTRICAL TO MEET OR EXCEED CURRENT ELECTRICAL CODES.
8. RECESSED LIGHTS ARE IC RATED AT SOUND INSULATION AT BEDROOMS & BATHROOMS.
9. IC-RATED RECESSED LIGHTING FIXTURES TO BE SEALED AT HOUSING/INTERIOR FINISH & LABELED TO INDICATE GREATER THAN OR AT 2.0 CFM LEAKAGE AT 75 PA.
10. PROVIDE WET LOCATION RECESSED LIGHTS, AS NECESSARY.
11. ALL SMOKE / CARBON MONOXIDE DETECTORS TO BE LOW VOLTAGE, HARD WIRED & INTERCONNECTED.
12. PROVIDE AFCI OUTLETS PER NEC.
13. WHERE A GAS CONNECTION EXISTS, CARBON MONOXIDE DETECTOR SHALL BE PROVIDED

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1	Permit comment	01/06/2025

BASEMENT FLOOR POWER PLAN

Project number	H096
Date	11/26/2024
Drawn by	S
Checked by	K

E300

Scale 3/16" = 1'-0"

LOAD CALCULATION

TOTAL		UNIT BASEMENT	TYPICAL UNIT 1,2,3
1. A. GENERAL LOAD 6387 ....S.F x 3 VA = 19161	1. A. GENERAL LOAD ....SF x 3 VA	1614 S.F x 3 VA = 4,842 VA	1591 S.F x 3 = 4,773 VA
B. SMALL APPLIANCE LOADS 1,500 VA x 8 = 12000	B. SMALL APPLIANCE LOADS 1,500 VA x 2 CIRCUITS	1,500 x 2 VA = 3,000 VA	1500 x 2 = 3,000 VA
C. LAUNDRY LOAD 1,500 VA x 4 = 6000	C. LAUNDRY LOAD 1,500 VA x 1	1500 x 1 VA = 1500 VA	1500 x 1 = 1,500 VA
-	SUBTOTALE	9,342 VA	9,273 VA
	FIRST 3000 VA x 100%	3,000 VA	3,000 VA
	NEXT .... VA x 40%	6,342 VA x 40 % = 2,537 VA	6,273 VA x 40 % = 2,509 VA
	TOTAL	= 5,537	= 5,509
2.COOKING 8,000 VA x 1 = 8,000	2.COOKING 8,000 VA x 1	8,000 VA	0 VA
3.DRYER 5,000 VA x 4 = 20,000	3.DRYER 5,000 VA x 1	5,000 VA	5,000 VA
4. FIXED APPLIANCE LOADS	4. FIXED APPLIANCE LOADS		
DISPOSAL 800 VA x 4 = 3,200	DISPOSAL 800 VA x 1	800 VA	800 VA
MICROWAVE 1,000 VA x 4 = 4,000	MICROWAVE 1,000 VA x 1	1,000 VA	1,000 VA
REFRIGERATOR 800 VA x 4 = 3,200	REFRIGERATOR 800 VA x 1	800 VA	800 VA
DISHWASHER 1,000 VA x 4 = 4,000	DISHWASHER 1,000 VA x 1	1,000 VA	1,000 VA
SUMP PUMP 1,000 VA x 1 = 1,000	SUMP PUMP 1,000 VA x 1	1,000 VA	0 VA
WATER HEATER 3,500 VA x 4 = 14,000	WATER HEATER 3,500 VA x 1	3,500 VA	3,500 VA
5. HEATING OR COOLING LOAD	5. HEATING OR COOLING LOAD		
HEATING 8,500 VA x 4 = 34,000	HEATING 8,500 VA x 1	8,500 VA	8,500 VA
COOLING 2,000 VA x 4 = 8,000	COOLING 2,000 VA x 1	2,000 VA	2,000 VA
LARGEST LOAD 34,000	LARGEST LOAD	8,500 VA	8,500 VA
6. LARGES MOTOR LOAD 400 VA	6. LARGES MOTOR LOAD 1,600 VA x 25%	400 VA	400 VA
TOTALE 122,961 VA 512.34 AMP	TOTAL	36 KVA	27 KVA
NEC TABLE 220,84		36 / 240 V = 148 AMP	27 / 240 V = 110 AMP
122,961 VA x 45% = 55,332 VA			
55,332 VA /240 V = 230.55 AMP		EXISTING PANEL 150A @240/1PH	EXISTING PANEL 150A @240/1PH
EXISTING 400 AMP METER CENTER			

EXISTING PANELBOARD SCHEDULE A

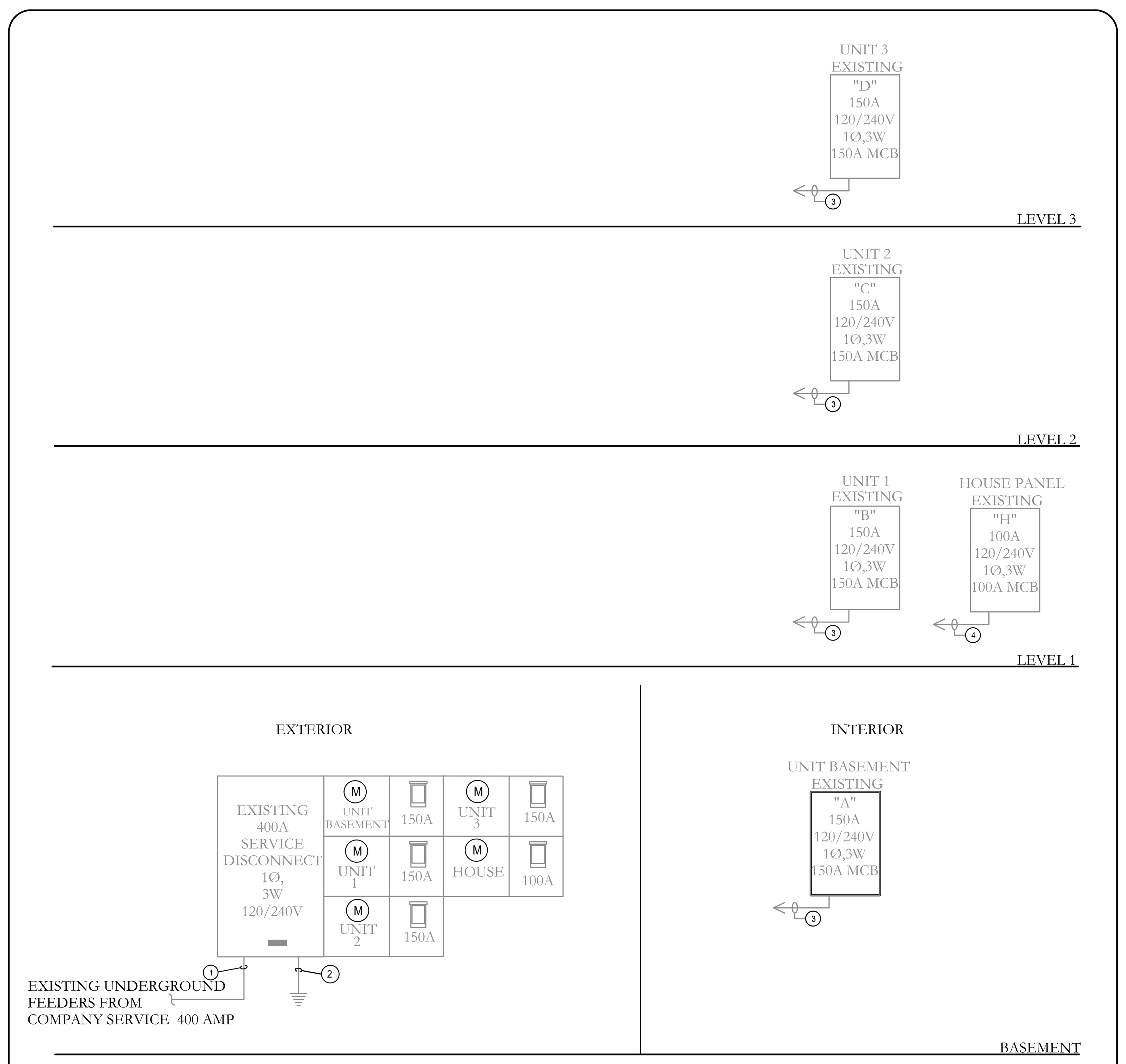
LOCATION: BASEMENT
C.B. RATING: 22 K.A.I.C.

VOLTAGE	PHASE	WIRE	MOUNTING	SIZE	LUG	TYPE
240/120V	1	3	SURFACE	150	MCB	NEMA 1

TYPE	USE and/or AREA SERVED	C/B POLE	CIR	LOAD ØA	LOAD ØB	CIR	C/B POLE	USE and/or AREA SERVED	TYPE
E	FURNACE	60/2	1	4.25 / 4.00		2	50/2	RANGE	E
			3		4.25 / 4.00	4			
E	WATER HEATER	30/2	5	1.75 / 1.15		6	30/2	A/C	E
			7		1.75 / 1.15	8			
E	KITCHEN PLUX	20/1	9	1.8 / 2.5		10	30/2	DRYER	E
E	MICROWAVE	20/1	11		1.00 / 2.5	12			
E	GFI PLUX	20/1	13	1.8 / 1.5		14	20/1	WASHER	E
E	KITCHEN PLUX	20/1	15		1.6 / 1.7	16	20/1	KITCHEN	E
E	DISHWASHER	15/1	17	1.00 / 1.5		18	15/1	LITE PLUX	E
E	DISPOSAL	15/1	19		0.8 / -	20	15/1	SPARE	E
E	LITE PLUX	15/1	21	1.7 / -		22	15/1	SPARE	E
E	SPARE	15/1	23		- / 1.7	24	15/1	LITE PLUX	E
E	SPARE	15/1	25	- / -		26	15/1	SPARE	E
E	SPARE	15/1	27		- / -	28	15/1	SPARE	E
N	SUMP PUMP	15/1	29	1.00 / -		30	-/1	SPACE	E
	TOTAL LOAD PER PHASE			23.95	20.45			TOTAL LOAD PER PHASE	

FEEDER OCPD AND CONDUCTOR CALCULATION

LOAD DESCRIPTION (LOAD IN KVA)	CONNECT LOAD	DEMAND LOAD	NOTES
TOTAL KVA	44	36	
TOTAL AMPS	183 A	148 A	



EXISTING POWER RISER DIAGRAM
N.T.S

GENERAL NOTE

VERIFY ALL EXISTING CIRCUITS BEFORE DISCONNECTING AND RECONNECTING LOADS.

POWER RISER NOTES

1. EXISTING 3#600 MCM IN 3-1/2" CONDUIT EACH AND 2-4" SPARE CONDUIT TO POWER COMPANY POINT OF CONNECTION .
2. EXISTING GROUND PER NEC-250. NO.1/0 TO BUILDING STEEL, STREET SIDE OF WATER MAIN, 20' REBAR AND GROUND RODS.
3. EXISTING 3#1/0, 1#6 GND., 2" C. (CU)
4. EXISTING 3#3, 1#8 GND., 1-1/4" C. (CU)

CONDUIT AND WIRE SIZE SCHEDULE

AMPACITY	WIRE SIZE COPPER	1 PHASE	2 PHASE	3 PHASE	CONDUIT SIZE
20A	#12 AWG	2#12 + #12G	3#12 + #12G	4#12 + #12G	3/4 "
25A - 30A	#10 AWG	2#10 + #10G	3#10 + #10G	4#10 + #10G	3/4 "
35A - 40A	#8 AWG	2#8 + #10G	3#8 + #10G	4#8 + #10G	1 "
45A - 50A	#6 AWG	2#6 + #10G	3#6 + #10G	46 + #10G	1 "
60A - 70A	#4 AWG	2#4 + #8G	3#4 + #8G	4#4 + #8G	1-1/2 "
75A - 85A	#3 AWG	2#3 + #8G	3#3 + #8G	4#3 + #8G	1-1/2 "
90A - 95A	#2 AWG	2#2 + #8G	3#2 + #8G	4#2 + #8G	2 "
100A - 110A	#1 AWG	2#1 + #6G	3#1 + #6G	4#1 + #6G	2 "

NOTES
1. ALL WIRING IS TO BE CONCEALED.
2. ALL EXISTING ELECTRICAL WIRING NOT USED OR ABANDONED IS TO BE REMOVED BACK TO PANEL.

FEEDER SCHEDULE

BASED ON 75°C TYPE THHW INSULATED CABLE

CONDUIT TAG	CU OR AL	# OF SETS	# OF CONDUCTORS	EGC (1)	GEC (2)	MIN. PVC CONDUIT SIZE	MIN. EMT CONDUIT SIZE
50	CU	1	3 #8	#10	#8	1"	1"
	AL	1	3 #6	#8	#6	1 1/4"	1"
60	CU	1	3 #6	#10	#8	1 1/4"	1"
	AL	1	3 #4	#8	#6	1 1/4"	1 1/4"
75	CU	1	3 #4	#8	#8	1 1/4"	1 1/4"
	AL	1	3 #3	#6	#6	1 1/4"	1 1/4"
100	CU	1	3 #3	#8	#8	1 1/4"	1 1/4"
	AL	1	3 #1	#6	#6	2"	2"
125	CU	1	3 #1	#6	#6	2"	2"
	AL	1	3 #2/0	#4	#4	2"	2"
150	CU	1	3 #1/0	#6	#6	2"	2"
	AL	1	3 #3/0	#4	#4	2 1/2"	2 1/2"
175	CU	1	3 #2/0	#6	#4	2"	2"
	AL	1	3 #4/0	#4	#2	2 1/2"	2 1/2"
200	CU	1	3 #3/0	#6	#4	2 1/2"	2 1/2"
	AL	1	3 #250MCM	#4	#2	3"	2 1/2"
225	CU	1	3 #4/0	#4	#2	2 1/2"	2 1/2"
	AL	1	3 #300MCM	#2	#1/0	3"	2 1/2"
250	CU	1	3 #250MCM	#4	#2	3"	2 1/2"
	AL	1	3 #350MCM	#2	#1/0	3"	3"
300	CU	1	3 #350MCM	#4	#2	3"	3"
	AL	1	3 #500MCM	#2	#1/0	3 1/2"	3"
350	CU	1	3 #500MCM	#3	#1/0	3 1/2"	3"
	AL	2	3 #4/0	#1	#1/0	2 1/2"	2 1/2"
400	CU	1	3 #600MCM	#3	#1/0	4"	3 1/2"
	AL	2	3 #250MCM	#1	#1/0	3"	2 1/2"
600	CU	2	3 #350MCM	#1	#2/0	3"	3"
	AL	2	3 #500MCM	#2/0	#4/0	3 1/2"	3"
800	CU	2	3 #600MCM	#1/0	#3/0	4"	3 1/2"
	AL	3	3 #400MCM	#3/0	#4/0	3 1/2"	3"
1000	CU	3	3 #400MCM	#2/0	#3/0	3 1/2"	3"
	AL	3	3 #600MCM	#4/0	#250MCM	4"	3 1/2"
1200	CU	3	3 #600MCM	#3/0	#3/0	4"	3 1/2"
	AL	4	3 #500MCM	#250MCM	#250MCM	3 1/2"	3 1/2"
1600	CU	4	3 #600MCM	#4/0	#3/0	4"	3 1/2"
	AL	5	3 #600MCM	#350MCM	#250MCM	4"	3 1/2"
2000	CU	5	3 #600MCM	#250MCM	#3/0	4"	3 1/2"
	AL	6	3 #600MCM	#400MCM	#250MCM	4"	3 1/2"
2500	CU	6	3 #600MCM	#350MCM	#3/0	4"	3 1/2"
	AL	8	3 #600MCM	#600MCM	#250MCM	4"	4"

SPECIFIC NOTES:

1. EQUIPMENT GROUNDING CONDUCTOR, PER NEC 250.
2. GROUNDING ELECTRODE CONDUCTOR, PER NEC 250.

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SCHEDULES AND RISER DIAGRAM

Project number	H096
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E400

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MECHANICAL SPECIFICATION

DIVISION 23 - HEATING, VENTILATING AND AIR CONDITIONING

23A.1 GENERAL

A. THE GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS AND APPLICABLE PROVISIONS OF OTHER DIVISIONS, FORM A PART OF THIS SPECIFICATION AND CONTRACT, AND SHALL BE CAREFULLY EXAMINED BY EACH BIDDER BEFORE SUBMITTING HIS PROPOSAL.

B. COMPLIANCE WITH LOCAL JURISDICTIONS: ALL WORK PERFORMANCE UNDER THIS SECTION SHALL CONFORM TO THE REQUIREMENTS OF DRAWINGS AND SPECIFICATIONS AND TO THE CODES, ORDINANCES AND STANDARDS OF THE LOCAL JURISDICTION. IN CASE OF A CONFLICT BETWEEN DRAWINGS OR SPECIFICATIONS AND THE REQUIREMENT OF THE LOCAL JURISDICTION, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.

C. THIS CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND FEES FOR INSPECTIONS RELATED TO HIS WORK.

D. INSTALLATION SHALL BE GUARANTEED FOR WORKMANSHIP, MATERIALS AND EQUIPMENT AGAINST DEFECTS, LEAKS, SYSTEM PERFORMANCE OR NON-OPERATION FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE. CONTRACTOR SHALL PAY ALL COSTS INVOLVING THE GUARANTEE OF ALL SYSTEMS.

E. BEFORE ANY MATERIALS OR EQUIPMENT IS PURCHASED, THIS CONTRACTOR SHALL SUBMIT TO THE OWNER FOR APPROVAL 6 SETS OF SUBMITTAL DATA. THIS DATA SHALL INCLUDE CATALOG NUMBERS, CUTS, DIAGRAMS, DRAWINGS AND OTHER DESCRIPTIVE DATA AS MAY BE REQUIRED FOR ALL EQUIPMENT TO BE INSTALLED. INCLUDE SHEET METAL FABRICATION, SHOP DRAWINGS AND LAYOUTS COORDINATED WITH EXISTING CONDITIONS.

F. THE WORD "PROVIDE" AS USED IN SPECIFICATIONS AND ON PLANS, SHALL MEAN FURNISH AND INSTALL COMPLETE AND READY FOR USE.

G. ALL WORK SHALL BE COORDINATED WITH ALL TRADES PRIOR TO INSTALLATION.

H. DO NOT CUT STRUCTURAL MEMBERS WITHOUT THE APPROVAL OF THE ARCHITECT, AND ALL SUCH CUTTING SHALL BE DONE IN A MANNER DIRECTED BY HIM.

I. IN GENERAL, DRAWINGS FOR THE WORK ARE DIAGRAMMATIC AND SHOW THE LOCATION, TYPE AND SIZE OF PIPING, EQUIPMENT, DUCTWORK AND ACCESSORY EQUIPMENT. THE CONTRACTOR SHALL FURNISH ALL ITEMS NECESSARY FOR THE PROPER INSTALLATION OF THE WORK. THE CONTRACTOR SHALL VERIFY ALL NECESSARY DIMENSIONS BEFORE INSTALLING ANY OF THE WORK, AND SHALL CHECK HIS LAYOUTS TO ALLOW CLEARANCE REQUIRED FOR OTHER WORK AS SHOWN ON THE RAWINGS. THE SCOPE OF WORK CONSISTS GENERALLY OF PROVIDING AND INSTALLING THE DUCTWORK DISTRIBUTION SYSTEM, AND FINAL PREPARATION FOR TESTING OF ALL SYSTEMS AND EQUIPMENT.

23A.2 PRODUCTS AND INSTALLATION

A. AIR DEVICES AND DUCTS:

1. MANUAL DAMPERS: PROVIDE MANUAL BALANCING DAMPERS AS MANUFACTURED BY RUSKIN OR APPROVED EQUAL WITH LOCKING QUADRANT ON DUCTS AT LOCATIONS SHOWN.

2. SPLITTER DAMPERS: AT ALL DUCT BRANCHES, PROVIDE SPLITTER DAMPERS WITH ROD AND SET SCREW IN ACCORDANCE WITH SMACNA STANDARDS.

3. ALL LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS OF SUPPLY AND RETURN DUCTS OPERATING AT A STATIC PRESSURE LESS THAN OR EQUAL TO 2 INCHES WATER GAUGE (W.G.) (500 PA) SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), OR MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. OR CONTRACTOR CAN PROVIDE CONTINUOUSLY WELDED AND LOCKING- TYPE LONGITUDINAL JOINTS AND SEAMS ON DUCTS OPERATING AT STATIC PRESSURES LESS THAN 2 INCHES WATER GAUGE (W.G.) (500 PA) PRESSURE CLASSIFICATION.

4. AIR OUTLETS: ALL DIFFUSERS, REGISTERS AND GRILLES SHALL BE THE SIZES AND TYPE SHOWN AND AS MANUFACTURED BY METALAIRE OR APPROVED EQUAL AND SHALL HAVE FRAMES SUITABLE FOR THE SURFACES THEY ARE INSTALLED IN AND OF COLORS SELECTED BY THE ARCHITECT.

B. FLEXIBLE DUCT CONNECTION:

1. CONTRACTOR SHALL BRACE DUCTWORK (AS REQUIRED) AT ALL FLEXIBLE CONNECTIONS TO ENSURE THAT DUCTWORK IS KEPT IN ALIGNMENT.

2. FLEXIBLE DUCT: PROVIDE INSULATED UL LISTED CLASS 1 DUCT COMPLYING WITH NFPA 90A, FLEXMATER, THERMAFLEX, WIREMOLD OR CLEVAFLEX. MAXIMUM LENGTH SHALL BE 8 FEET.

C. INSULATION

1. AIR CONDITIONING DUCTS REPAIR OR PROVIDE NEW INSULATION TO ALL OUTSIDE AIR SUPPLY AIR AND RETURN AIR DUCTS WITH A 1-1/2" THICK, 3/4 POUND DENSITY FIBERGLASS, FLEXIBLE BLANKET, INSULATION, FACED WITH A FIRE RESISTIVE VAPOR BARRIER JACKET WITH A 2" TAB ON ONE EDGE. INSULATION SHALL BE WRAPPED ON DUCTS WITH FACING OVERLAPPING ALL JOINTS AT LEAST 2" AND HELD IN PLACE WITH 1/2" OUTWARD CLINCHING STAPLES ON 4" CENTERS. STAPLES AND SEAMS ARE TO BE SEALED WITH A BRUSH COAT OF VAPOR BARRIER MASTIC.

2. INSULATION OF DUCTWORK AND PIPING PASSING THROUGH NO-RATED WALLS SHALL BE CONTINUOUS THROUGH THE WALL PENETRATION. DUCT AND PLENUM INSULATION AND SEALING: ALL SUPPLY AND 3. RETURN AIR DUCTS & PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R-6 INSULATION WHERE LOCATED IN UNCONDITIONED SPACES & A MINIMUM OF R-8 INSULATION WHERE LOCATED OUTSIDE THE BUILDING. WHERE LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED OR EXEMPT SPACES BY A MINIMUM OF R-8 INSULATION.

D. VIBRATION ISOLATORS:

4. PROVIDE NEOPRENE ISOLATION PADS FOR ALL EQUIPMENT 100 POUNDS OR GREATER.

5. QUANTITY AND LOCATION OF ISOLATORS SHALL BE AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.

6. AFTER INSTALLATION AND START-UP, CONTRACTOR SHALL THOROUGHLY CHECK EACH ITEM OF EQUIPMENT FOR VIBRATION TRANSMISSION TO THE STRUCTURE OR EXCESSIVE NOISE, AND IF EITHER OCCURS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTING THE FAULTY SITUATION IMMEDIATELY.

E. REFRIGERANT PIPING:

1. INSULATE REFRIGERANT LINES TO A MINIMUM OF R-3. THE LIQUID LINE DOES NOT REQUIRE INSULATION.

2. PROTECTION OF PIPING INSULATION: PIPING INSULATION EXPOSED TO WEATHER SHALL BE PROTECTED FROM DAMAGE, INCLUDING THAT CAUSED BY SUNLIGHT, MOISTURE, EQUIPMENT MAINTENANCE, AND WIND, AND SHALL PROVIDE SHIELDING FROM SOLAR RADIATION THAT CAN CAUSE DEGRADATION OF THE MATERIAL. INSULATE ALL REFRIGERANT PIPING WITH 0.75" THICK CLOSED-CELL. ADHESIVE TAPE SHALL NOT BE PERMITTED. WRAP WITH ALUMINUM AND SEAL WITH MASTIC, ALTERNATIVELY USE PLASTIC, AIREX E-FLEX OR PVC SHIELDING.

3. REFRIGERANT PIPING RUN FROM CHASE TO ROOF EQUIPMENT SHALL BE NEATLY SUSPENDED AND SUPPORTED ON UNITRUST OR WITH OTHER SUPPORTS TO BUILDING STRUCTURE AND SHALL NOT BE ATTACHED TO ROOM OR SEAL ON ROOF W/D INTERMENT WD OR METAL BLOCKING AND A SECONDARY ROOF MEMBRANE PROTECTIVE SHEET SUPPLIED BY ROOF MEMBRANE MANUFACTURER.

23A.3 EXECUTION

A. PERFORM ALL OPERATIONS REQUIRED AND INSTALL ALL DUCTWORK, EQUIPMENT AND CONTROLS WITH ALL REQUIRED ACCESSORIES TO PRODUCE A COMPLETE HVAC INSTALLATION READY FOR USE.

1. INSTALL ALL DUCTWORK ABOVE CEILING AND HOLD TIGHT TO UNDERSIDE OF STRUCTURE ABOVE UNLESS OTHERWISE INDICATED.

2. CHANGES TO DUCT DUE TO FIELD CONDITIONS SHALL BE MADE ONLY IF THE DUCT SIZE FREE AREA IS MAINTAINED AND SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL.

B. TESTS: BEFORE ACCEPTANCE OF HVAC SYSTEMS, EACH SHALL BE TESTED, ADJUSTED AND BALANCED. THE AIR SYSTEM SHALL BE BALANCED TO DELIVER SPECIFIED AIR QUANTITIES WITHIN SPECIFIED CFM FOR EACH OUTLET OR INLET. EQUIPMENT AND CONTROLS ARE TO BE TESTED AND DETERMINED THAT ALL OPERATIONS AND SEQUENCES ARE SATISFACTORY.

1. ALL EQUIPMENT, DUCTWORK CONTROLS AND PIPING SHALL BE PROTECTED DURING THE COURSE OF CONSTRUCTION. ANY DAMAGED EQUIPMENT SHALL BE REPLACED AT NO EXTRA COST TO THE OWNER.

2. ALL WASTE AND DEBRIS WHICH IS PART OF THE HVAC WORK SHALL BE REMOVED FROM THE JOB SITE AT THE END OF EACH WORKING DAY. ALL EQUIPMENT AND DEVICES SHALL BE LEFT CLEAN AND IN WORKING ORDER.

3. ALL EQUIPMENT, DUCTWORK, PIPING, ETC, SHALL BE SUPPORTED AS DETAILS, SPECIFIED, AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.

MECHANICAL GENERAL NOTES:

1. PRIOR TO BID, THE MECHANICAL CONTRACTOR SHALL EXAMINE ALL PROJECT DRAWINGS TO DEVELOP A COMPLETE UNDERSTANDING OF THE PROJECT SCOPE. FAILURE TO REVIEW ALL CONTRACT DOCUMENTS WILL NOT RELIEVE HIM OF THE RESPONSIBILITY TO PERFORM ALL WORK REQUIRED. UPON REVIEW OF ALL DOCUMENTS, CONTRACTOR SHALL ADVISE THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES WHICH WILL AFFECT THE WORK REQUIRED.

2. CONTRACTOR IS RESPONSIBLE TO PROVIDE A COMPLETE AIR DISTRIBUTION SYSTEM (S) AS REQUIRED BY SMACNA STANDARDS AND A COMPLETE INSTALLATION OF ALL EQUIPMENT AS REQUIRED BY THE CODE AND THE UNIT MANUFACTURER AT NO ADDITIONAL COST TO THE OWNER REGARDLESS WHETHER THE ITEMS ARE SHOWN ON THE PLAN OR COVERED IN THE SPECIFICATIONS.

3. ALL NEW DUCTWORK SHALL RUN AS HIGH AS POSSIBLE ABOVE CEILING UNLESS NOTED OTHERWISE. ALL DUCT SIZES SHOWN ARE CLEAN INSIDE DIMENSIONS. 90 DEGREE ELBOW DUCTS ARE TO HAVE RADII OF 1.5-TIMES THE DUCT WIDTH. ALL BRANCH DUCTWORK CONNECTIONS TO MAIN AND DIFFUSER RUN-OUTS SHALL INCLUDE VOLUME DAMPERS.

4. FOR EXACT LOCATION OF ALL AIR DEVICES, SEE REFLECTED CEILING PLAN ON ARCHITECTURAL DRAWINGS.

5. OUTDOOR AIR SHALL HAVE BACK DRAFT DAMPER & MEET THE MAXIMUM LEAKAGE RATES.

6. ALL DUCT JOINTS, SEAMS, AND CONNECTIONS ARE TO BE SEALED TO SMACNA CLASS A REGARDLESS OF PRESSURE CLASS.

7. THE APPROVAL AND INSTALLATION OF FUEL GAS DISTRIBUTION PIPING AND EQUIPMENT, FUEL GAS APPLIANCES AND FUEL GAS FIRED APPLIANCE VENTING SYSTEMS SHALL BE IN ACCORDANCE WITH INTERNATIONAL FUEL GAS CODE AND MANUFACTURER'S REQUIREMENTS.

8. USE THERMAFLEX G-KM (U.L. 181 CLASS 1) FACTORY-INSULATED TWO PLY BONDED ALUMINUM FLEXIBLE DUCTWORK. THE INSULATION SHALL INCLUDE A VAPOR BARRIER JACKET. LIMIT FLEXIBLE DUCT TO A MAXIMUM LENGTH OF 14 FEET.

9. FOR EXACT LOCATION OF OUTDOOR AIR CONDITIONING UNITS, SEE ARCHITECTURAL DRAWINGS.

10. INSTALL GRADE MOUNTED OUTDOOR AIR CONDITIONING EQUIPMENT LEVEL ON 4" THICK REINFORCED CONCRETE PADS, EXTENDING 4" BEYOND UNIT PERIMETER.

11. CONDENSATE DRAIN PIPING: SCHEDULE 40, CPVC PIPE AND FITTINGS: ASTM F 441/F 441 MINIMUM 1 PERCENT SLOPE. PROVIDE MINIMUM 2 INCH DEEP TRAP AT EACH A/C UNIT. INSULATE WITH 1/2 INCH THICK INSULATION.

MECHANICAL NEW WORK NOTES:

A. EXHAUST CFM OF THE RANGE HOOD BE NOT MORE THAN 600 CFM. (IRC M1503-6 EXCEPTION 1).

B. THIS PROJECT IS REQUIRED TO SUBMIT AT FINAL INSPECTION A DUCT LEAKAGE TEST SHOWING A PASSING RATING OF <= 4 CFM PER 100 SQUARE FEET CONDITIONED FLOOR AREA AT A PRESSURE OF 25 PASCAL. A WRITTEN REPORT OF THE RESULTS OF THE TEST SHALL BE SIGNED BY THE PARTY CONDUCTING THE TEST AND PROVIDED TO THE CODE OFFICIAL.

C. HVAC PIPING CARRYING FLUIDS > 105 F OR FLUIDS <55 F ARE INSULATED WITH MINIMUM R-3 PIPE INSULATION. PIPING INSULATION EXPOSED TO WEATHER SHALL BE PROTECTED FROM DAMAGE, INCLUDING THAT CAUSED BY SUNLIGHT, MOISTURE, EQUIPMENT MAINTENANCE, AND WIND, AND SHALL PROVIDE SHIELDING FROM SOLAR RADIATION THAT CAN CAUSE DEGRADATION OF THE MATERIAL. ADHESIVE TAPE SHALL NOT BE PERMITTED.

D. ALL ENVIRONMENTAL AIR EXHAUST CAPS ON SIDE EXTERIOR WALL SHALL BE MINIMUM 10 FEET AWAY FROM PROPERTY LINES; 3 FEET FROM OPERABLE OPENINGS INTO BUILDINGS AND 10 FEET FROM MECHANICAL AIR INTAKES.

E. BUILDING CAVITIES SHALL NOT BE USED AS DUCTS OR PLENUMS.

F. CONTRACTOR SHALL PROVIDE AUXILIARY DRAIN PAN UNDER EACH FAN COIL WITH A WATER-LEVEL DETECTION DEVICE TO AUTO SHUTDOWN UNIT WHEN CONDENSATE OVERFLOW OCCURS.

G. PROJECT IS REQUIRED TO SUBMIT AT FINAL INSPECTION A WHOLE-BUILDING BLOWER DOOR TEST SHOWING A PASSING RATING OF <= 3 AIR CHANGES PER HOUR AT A PRESSURE OF 50 PASCAL PER R402.4.1.2. A WRITTEN REPORT OF THE RESULTS OF THE TEST SHALL BE SIGNED BY THE PARTY CONDUCTING THE TEST AND PROVIDED TO THE CODE OFFICIAL. TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH ASTM E 779 OR ASTM E 1827.

H. DOMESTIC RANGE HOOD SHALL DISCHARGE TO THE OUTDOORS THROUGH SHEET METAL DUCTS CONSTRUCTED OF GALVANIZED STEEL, STAINLESS STEEL, ALUMINUM OR COPPER. SUCH DUCTS SHALL HAVE SMOOTH INNER WALLS, SHALL BE AIR TIGHT, SHALL BE EQUIPPED WITH A BACK DRAFT DAMPER, AND SHALL BE INDEPENDENT OF ALL OTHER EXHAUST SYSTEMS.

DEMOLITION:

A. EXISTING HVAC UNITS, PARTIALLY SUPPLY AND RETURN DUCTWORK, REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE OWNER AND SHALL BE REMOVED, STORED, OR DISPOSED OF BY THE CONTRACTOR AT THE DIRECTION OF THE OWNER.

B. CUTTING AND PATCHING OF NEW OR EXISTING BUILDING FINISHES FOR INSTALLATION OF WORK OF THIS SECTION SHALL BE COORDINATED THROUGH THE GENERAL CONTRACTOR AND APPROVED BY THE ARCHITECT. WHERE CUTTING AND PATCHING IS APPROVED, IT SHALL BE PERFORMED BY THE TRADES WHO NORMALLY INSTALL THE WORK WHICH IS BEING REMOVED AND THE COST OF CUTTING AND PATCHING SHALL BE BORNE BY THIS CONTRACTOR.

C. BLANK-OFF ALL UNUSED DUCT OPENINGS WITH SAME GAUGE METAL AS EXISTING DUCT AND SEAL AIR TIGHT. INSULATED DUCTS SHALL BE INSULATED WITH SAME INSULATION MATERIAL AND THICKNESS AS EXISTING AND SEALED VAPOR TIGHT.

MECHANICAL /ELECTRICAL COORDINATION:

1. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL DRAWINGS PRIOR TO ORDERING EQUIPMENT OR SUBMITTING SHOP DRAWINGS, AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN HEREIN. SHOP DRAWING SUBMITTALS SHALL CLEARLY STATE THAT THE ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT HAS BEEN COORDINATED WITH THE ELECTRICAL CONTRACT DOCUMENTS AND THE ELECTRICAL CONTRACTOR.

ENERGY NOTES

A. SUPPLY AND RETURN DUCTS OUTSIDE OF THE BUILDING THERMAL ENVELOPE SHALL BE INSULATED TO A MINIMUM OF R-8.

B. ALL JOINTS AND SEAMS OF AIR DUCTS, AND CONNECTIONS ARE TO BE SEALED TO SMACNA CLASS A REGARDLESS OF PRESSURE CLASS.

C. AIR HANDLER LEAKAGE DESIGNED BY MANUFACTURER SHALL BE AT ≤ 2% OF AIRFLOW. IN ACCORDANCE WITH ASHRAE 193.

D. TOTAL DUCT LEAKAGE TEST ≤4 CFM/100 FT² WITH AIR-HANDLER INSTALLED.

E. BUILDING CAVITIES SHALL NOT BE USED AS DUCTS OR PLENUMS.

F. MECHANICAL SYSTEM PIPING CAPABLE OF CARRYING FLUIDS ABOVE 105°F (41°C) OR BELOW 55°F (13°C) SHALL BE INSULATED TO A MINIMUM OF R-3.

G. PIPING INSULATION EXPOSED TO WEATHER SHALL BE PROTECTED FROM DAMAGE, INCLUDING THAT CAUSED BY SUNLIGHT, MOISTURE, EQUIPMENT MAINTENANCE AND WIND, AND SHALL PROVIDE SHIELDING FROM SOLAR RADIATION THAT CAN DEGRADATION OF THE MATERIAL. ADHESIVE TAPE SHALL NOT BE PERMITTED.

H. HVAC PIPING INSULATION, WHERE EXPOSED TO THE OUTDOORS, SHALL BE FINISHED WITH TWO COATS OF MANUFACTURER'S FINISH COATING, VINYL-LACQUER COATING OR APPROVED EQUAL.

I. CONTRACTOR SHALL PROVIDE BACK DRAFT DAMPER ON OUTSIDE AIR INTAKE DUCTWORK.

J. THERMOSTAT SHALL INCLUDE THE CAPABILITY TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F OR UP TO 85°F. THE THERMOSTAT SHALL INITIALLY BE PROGRAMMED BY THE MANUFACTURER WITH A HEATING TEMPERATURE SET POINT NO HIGHER THAN 70°F AND A COOLING TEMPERATURE SET POINT NO LOWER THAN 75°F.

K. ALL THE CEILING TYPE BATHROOM EXHAUST FANS SHALL BE PROVIDED WITH GRAVITY BACK DRAFT DAMPERS.

L. NEW EQUIPMENT AND APPLIANCES SHALL BE SEALED COMBUSTION.

M. FOR ALL NEW FUEL BURNING APPLIANCES AND EQUIPMENT LOCATED INSIDE THE BUILDING ENVELOPE MUST BE SEALED COMBUSTION PER R402.4.4.

N. ALL EQUIPMENT AND MATERIALS SHALL BE PROPERLY, AND EFFECTIVELY PROTECTED DURING THE EXECUTION OF THE WORK.

CONTROLS

1. ALL WIRING, CONDUIT & POWER FOR ALL CONTROLS SHALL BE THE RESPONSIBILITY OF THE CONTROLS CONTRACTOR, INCLUDING COORDINATION WITH OTHER TRADES. THE CONTROLS CONTRACTOR, AT HIS/HER OWN COST. SHALL ENGAGE THE ELECTRICAL CONTRACTOR AS REQUIRED.

2. ALL CONTROL WIRING AND CONDUIT SHALL COMPLY WITH THE ELECTRICAL SPECIFICATIONS OF THIS PROJECT.

3. THERMOSTATS/SENSORS/CONTROLLERS/SWITCHES:

   A. TEMPERATURE SENSORS AND THERMOSTATS SHALL BE MOUNTED ON AN INSULATED SUB-BASE, IF LOCATED ON AN EXTERIOR WALL OR COLUMN.

   B. SHALL ALL BE MOUNTED SO THAT ANY LOCAL CONTROLS ARE 4'-0" (TOP) ABOVE FINISHED FLOOR. UNLESS OTHERWISE NOTED.

   C. ARE ALL SHOWN IN APPROXIMATE LOCATIONS ON THE MECHANICAL PLANS. COORDINATE FINAL LOCATIONS WITH THE ARCHITECTURAL DRAWINGS AND DETAILS.

   D. AFTER THE SYSTEMS HAVE BEEN BALANCED AND ALL ADJUSTMENTS COMPLETED, RUN A SIX HOUR TEST ON BOTH THE APPLICABLE HEATING AND COOLING CYCLES TO DETERMINE IF THE SYSTEM IS RESPONDING TO TEMPERATURE CONTROLS. RECORD THERMOSTAT TEMPERATURE READING. PROVIDE AND RECORD AN INDEPENDENT TEMPERATURE MEASUREMENT AT EACH THERMOSTAT.

4. PROVIDE TO THE OWNER A DEMONSTRATION OF THE PROGRAMMING AND OPERATION OF ALL NEW AUTOMATIC TEMPERATURE CONTROLS.

5. SEQUENCE OF OPERATIONS:

   A. CONTROLS PROVIDED BY MANUFACTURER. INSTALL CONTROLLER WHERE SHOWN ON PLANS AND WIRE PER MANUFACTURER'S WRITTEN RECOMMENDATIONS. ADJUST SETPOINTS AS FOLLOWS:
      1) RESTART: AUTOMATIC
      2) OCCUPIED TEMPERATURE RANGE: 74°F (±2T) - AUTOMATIC FAN OPERATION
      - OUTSIDE AIR DAMPER OPEN (WHERE APPLICABLE)
      3) NIGHT SETBACK TEMPERATURE RANGE: 70°F (±15T) - AUTOMATIC FAN OPERATION
      - OUTSIDE AIR DAMPER CLOSED (WHERE APPLICABLE)

   B. WATER LEVEL DETECTOR MOUNTED IN PRIMARY DRAIN PAN ABOVE THE PRIMARY DRAIN LINE CONNECTION AND BELOW THE TOP OF THE PRIMARY DRAIN PAN OVERFLOW RIM SHALL DEACTIVATE UNIT AND SOUND LOCAL ALARM UPON DETECTION OF LIQUID.

OA COMPLIANCE

- AREA: = 1300 SF
- WINDOW AREA = 90 SF
- DOOR AREA = 21 SF
- TOTAL OPENABLE AREA = 111 SF
- OPENABLE % OF FLOOR AREA = 8.5% WHICH EXCEEDS MINIMUM OF 4% REQUIRED

1

MECHANICAL SYMBOLS

- FLEXIBLE DUCTWORK (BUILDING STANDARD)
- NEW DUCTWORK (WIDTH X DEPTH INSIDE CLEAR DIMENSION)
- NEW DUCT W/1" SOUND LINING
- VD VOLUME DAMPER
- FIRE DAMPER
- RETURN AIR GRILLE OPEN TO CEILING SPACE (BLDG STANDARD)
- SAPLUY AIR DUCT UP OR DN
- PROGRAMMABLE THERMOSTAT
- DOOR UNDER-CUT 3/4" MIN.
- RETURN/EXHAUST AIR
- REMOVED
- CONNECT TO EXISTING
- POINT OF REMOVAL
- MOTORIZED VOLUME DAMPER
- AIR HANDLER
- CONDENSER UNIT

ABBREVIATIONS

AHU	AIR HANDLING UNIT
AC	AIR CONDITIONING
AP	ACCESS PANEL
ARCH	ARCHITECTURAL
BDD	BACK DRAFT DAMPER
CD	CEILING DIFFUSER
COND	CONDENSATE
CU	CONDENSATE
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
CR	CEILING REGISTER
CRD	CEILING REGISTER DAMPER
DB	DRY BULB
DN	DOWN
(E)	EXISTING
EA	EXHAUST AIR
EF	EXHAUST FAN
ER	EXISTING RELOCATED
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO RELOCATE
FEV	FLUE EXHAUST VENT
GAL	GALLONS
KW	KILOWATT
MAX	MAXIMUM
MIN	MINIMUM
MECH	MECHANICAL
MCA	MIN CIRCUIT AMPS (FOR WIRE SIZING)
MOCP	MAX OVERCURRENT PROTECTION DEVICE AMPS
(N)	NEW
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
PH	PHASE
RA	RETURN AIR
RAG	RETURN AIR GRILLE
(R)	REMOVE
(RR)	REMOVE AND RELOCATE
SP	STATIC PRESSURE
TAG	TRANSFER AIR GRILLE
T'STAT	THERMOSTAT
(TYP)	TYPICAL
V	VENT
VD	VOLUME DAMPER
WR	WALL REGISTER
WMS	WIRE MESH SCREEN

WASHINGTON DC CODES:

2017 DISTRICT OF COLUMBIA CONSTRUCTION CODES ENCOMPASSES
ALL CODES USED BY THE DISTRICT OF COLUMBIA. 12-A DCMR 101.1

RESIDENTIAL:	2017 DISTRICT OF COLUMBIA RESIDENTIAL CODE
BUILDING:	2015 IBC AND 2017 DCMR12A SUPPLEMENT 2015 IEBC
COVERING CODES:	2017 DISTRICT OF COLUMBIA BUILDING CODE
MECHANICAL:	2017 DISTRICT OF COLUMBIA MECHANICAL CODE
ELECTRICAL:	2014 INTERNATIONAL NFPA-70
PLUMBING:	2017 DISTRICT OF COLUMBIA PLUMBING CODE
FIRE:	2017 DISTRICT OF COLUMBIA FIRE CODE
GREEN:	2017 DISTRICT OF COLUMBIA GREEN CONSTRUCTION CODE
ENERGY:	2017 DISTRICT OF COLUMBIA ENERGY CONSTRUCTION CODE

RESIDENTIAL VENTILATION REQUIREMENTS:

RESIDENTIAL VENTILATION IS BASED 5 CUBIC FEET PER PERSON ON NUMBER OF ROOMS. FOR EXISTING BUILDING.

EQUATION 4-9: Q_{OA}= 0.01Afloor+7.5(Nbr+1)

	REQUIRED	PROVIDED
FOR 2 BEDROOM : (AHU-1)	35.00 CFM O.A	60 CFM O.A.

SHEET INDEX:

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No.	Description	Date
	Permit set	11/26/2024
1	Permit comment	01/06/2025

DISTRICT OF COLUMBIA
KHALID YAMAN
PE922123
01/06/2025
PROFESSIONAL ENGINEER

COVER SHEET

Project number	H096
Date	11/26/2024
Drawn by	S
Checked by	K

M100

Scale 3/16" = 1'-0"

MECHANICAL KEYED NOTES:

1. PROVIDE NEW AHU. REFER TO SCHEDULE AND DETAIL FOR MORE INFORMATION. ROUTE 3/4" CONDENSATE DRAIN TO DAYLIGHT. PROVIDE PUMP DRAIN IF NEEDED.
2. PROVIDE BATHROOM EXHAUST FAN. REFER TO SCHEDULE AND DETAILS. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.
3. PROVIDE NEW CONDENSING UNIT. REFER TO SCHEDULE AND DETAIL FOR MORE INFORMATION. REFRIGERANT CIRCUIT ACCESS PORTS LOCATED OUTDOORS MUST BE FITTED WITH LOCKING-TYPE TAMPER-RESISTANT CAPS.
4. ROUTE REFRIGERANT SUCTION AND LIQUID PIPING FROM INDOOR AHU TO OUTDOOR UNIT. SIZING TO BE BASED ON MANUFACTURER'S REQUIREMENTS FOR TOTAL DEVELOPED LENGTH.
5. PROVIDE NEW THERMOSTAT TO CONTROL AHU. COORDINATE EXACT LOCATION WITH OWNER/ARCH.
6. VENTLESS KITCHEN HOOD. RECIRCULATING RANGE HOOD. AIRFLOW OF THE EXHAUST HOOD SHALL NOT EXCEED 400 CFM. MINIMUM EFFICACY 2.8 (CFM/WATT).
7. ROUTE 4" EXHAUST DRYER PER MANUFACTURER'S REQUIREMENTS AND VENTED DIRECTLY TO THE OUTSIDE.
8. PROVIDE AND INSTALL 6"Ø FRESH AIR DUCT. FRESH AIR DUCT TO BE ROUTED TO MECHANICAL ROOM.
9. PROVIDE CEILING RADIATION DAMPER (CRD) FOR EXHAUST AND FIRE SMOKER DAMPER (FSD) FOR DUCT. REFER TO MECHANICAL SCHEDULES AND DETAILS.
10. EQUIPMENT/DUCTWORK LOCATED IN DROPPED CEILING/BULKHEAD. COORDINATE WITH STRUCTURAL.
11. PROVIDE NEW RETURN AIR TRANSFER GRILLE.

GENERAL NOTES:

A. COORDINATE ALL WALL CAPS LOCATIONS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

B. ALL WALL CAPS AND SOFFIT VENTS SHALL HAVE BACK DRAFT DAMPERS. TOILET AND KITCHEN EXHAUST SHALL INCLUDE INSECT SCREE.

C. THE LAST 10'-0" OF DRYER, KITCHEN AND BATH EXHAUST SHALL BE SLOPED AT 1/8" PER FOOT TO EXTERIOR WALL CAP.

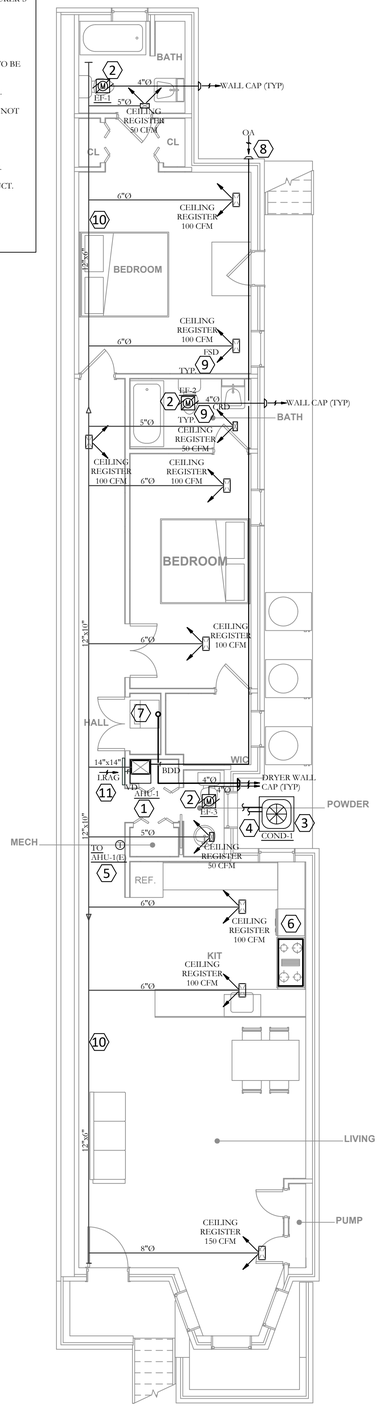
D. BEDROOM, CLOSET, BATHROOMS, STAND ALONE DOORS SHALL BE UNDERCUT (BY OTHERS) FOR RETURN AIR PATH.

E. MAINTAIN A MINIMUM OF 10'-0" BETWEEN ALL MECHANICAL AIR INTAKES AND ANY EXHAUST TERMINATIONS, GAS FLUES, OR PLUMBING VENTS.

F. RECIRCULATING KITCHEN RANGE VENT HOOD (BY OTHERS) SHALL BE PROVIDED WITH AN INTEGRAL BACK DRAFT DAMPER.

G. GENERAL CONTRACTOR SHALL COORDINATE STRUCTURAL TRUSSES INSTALLED ABOVE VERTICAL AIR HANDLING UNITS TO AVIOD HVAC AND STRUCTURAL CONFLICTS. HVAC WILL HAVE A SUPPLY DUCT DISHARGE PLENUM THAT MUST EXTEND BETWEEN OPEN WEB JOISTS/TRUSSES.

H. ALL EXHAUSTS SHALL TERMINATE A MINIMUM OF 10' FROM PROPERTY LINES.



1 FLOOR PLAN - BASEMENT
SCALE: 1/4"=1'-0"

SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE

SYSTEM	TONNAGE	SUPPLY AIR	OUTSIDE AIR	E.S.P ("H2O)	SENSIBLE COOLING (MBH) @ 95 AMB	EAT (DB/WB)	LAT (DB/WB)	TOTAL COOLING (MBH)	HEATING TYPE	HEATING CAPACITY MBH(OUTPUT)	REFRIGERANT TYPE	SEER	BASIS OF DESIGN INDOOR UNIT	OUTDOOR UNIT
AHU-1 & COND-1	2.5 TON	1000 CFM	60 CFM	0.5	25. 5 MBH	80 F/67.0 F	57 F/55 F	30.0 MBH	HEAT PUMP / ELECTRIC HEAT 9.6 KW	26.19 MBH	R-32	13.0	TRANE 4TGB3F50A1000AA 240V/1PH/60HZ 53 MCA/60 MOCP 119 LBS.	TRANE 4TWB3030A1000BA 240V/1PH/60HZ 15 MCA/25 MOCP 209 LBS.

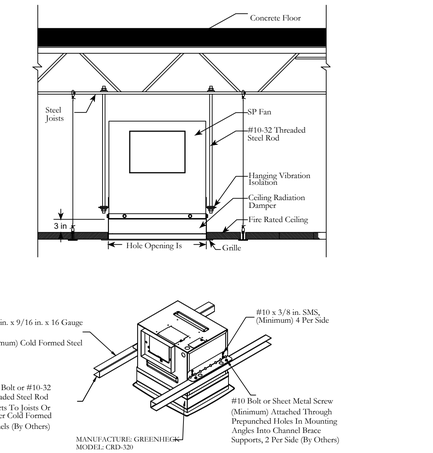
NOTES:

1. ALL COOLING CAPACITIES ARE BASED ON 80°F DB, 63°F WB INDOOR ENTERING AIR TEMP AND 95°F AMBIENT OUTDOOR ENTERING AIR TEMP, 45°F SUCTION TEMP.
2. PROVIDE SYSTEMS WITH PROGRAMMABLE THERMOSTATS EQUAL TO CARRIER TB-PHP01. TEMPERATURE SET POINT HEATING AT 70°F AND COOLING AT 78°F. AUX. HEAT TEMP. MUST DISPLAY ON THE SCREEN. WHEN THE TEMPERATURE RANGE FALLS BELOW 35°F (ADJ.) THE AUXILIARY HEAT TURNS ON.
3. ESP IS EXCLUSIVE OF FILTERS, WET COIL, AND CASING LOSS.
4. HEATING AND COOLING VALVES ARE MINIMUM REQUIRED TO MEET DESIGN.
5. FURNISH UNIT WITH LOW AMBIENT CONTROLS.
6. AIR HANDLERS SHALL HAVE A MANUFACTURER'S DESIGNATION FOR AN AIR LEAKAGE OF NO MORE THAN 2 PERCENT OF THE DESIGN AIR FLOW RATE WHEN TESTED IN ACCORDANCE WITH ASHRAE 193. REFER TO SUBMITTED DOCUMENT FROM UNIT MANUFACTURER.
7. UNITS SHALL MEET ENERGY STAR.
8. THE ELECTRIC RESISTANCE SHALL TURN ON, ONLY WHEN THE HEAT PUMP CAN'T HANDLE THE LOAD. THE AUX. HEAT MODE IS NORMAL WHEN: THE TEMPERATURE OUTSIDE IS BELOW FREEZING AND HEAT PUMP IN DEFROST MODE.

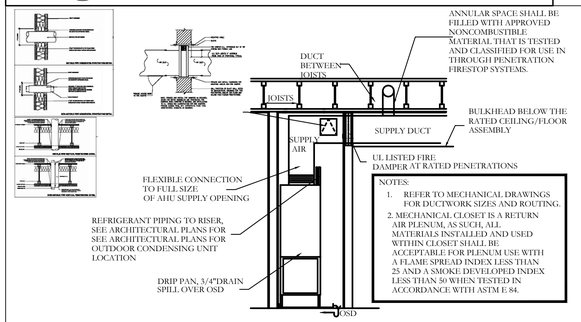
FAN SCHEDULE

MARK	LOCATION	CFM	ESP IN WG.	ELECTRICAL DATA						DRIVE	FAN CONTROLLED BY	MANUFACTURER AND MODEL NUMBER	REMARKS
				VOLTS	PHASE	HERTZ	RPM	WATTS	CFM/WATTS				
EF-1 THRU 3	SEE PLAN	75	0.25	120	1	60	580	15.89	4.71	DIRECT	WALL SWITCH	GREENHECK SP-B50	SEE NOTES BELOW

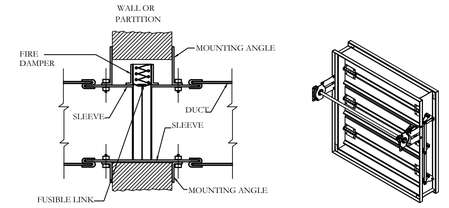
NOTE:
1. ALL FANS SHALL BE PROVIDED WITH BACKDRAFT DAMPER AND INTEGRAL DISCONNECT SWITCH.
2. ALL TOILETS EXHAUST FANS SHALL BE CONTROLLED BY WALL SWITCH AND ENERGY STAR.
3. PROVIDE CEILING RADIATION DAMPER GREENHECK MANUFACTURE, MODEL #CRD-320, EX-1,2,3,4,5,6,7 AND 8.



2 EXHAUST/ FIRE DAMPER DETAIL
SCALE: 1/4"=1'-0"



3 FIRE PENETRATION DETAILS
SCALE: 1/4"=1'-0"



FIRE DAMPER SHALL BE GREENHECK MODEL FSD 211 OR EQUAL.

4 DUCT FIRE DAMPER DETAIL
SCALE: 1/4"=1'-0"

A&I Design

Architecture & Interiors planning

7373 McWhirter Pl.
Annandale, VA 22003
WWW.AldesignDC.com
703-507-3146

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3 Story Town Home

1332 Harvard St NW,
Washington, DC 20009

LAMA ENGINEERS LLC
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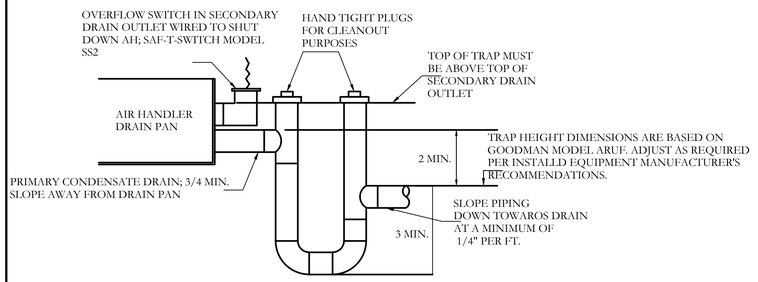
ADDRESS: 8318 LIBERIA AVE. MANASSAS VA, 20110
E : KHALID@LAMAENGINEERS.COM
LAMAENGINEERS@OUTLOOK.COM
TEL : 571-833-8357

No.	Description	Date
	Permit set	11/26/2024
1	Permit comment	01/06/2025

BASEMENT FLOOR PLAN, SCHEDULES AND DETAILS

Project number	H096
Date	11/26/2024
Drawn by	S
Checked by	K
	M200 1
Scale	3/16" = 1'-0"

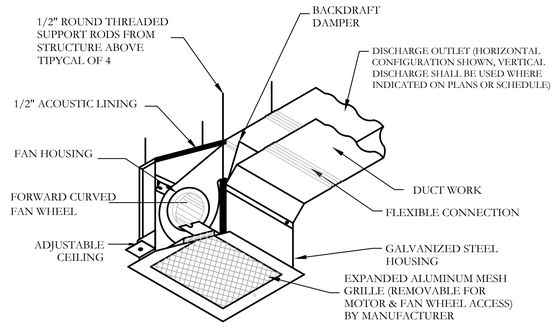
DISTRICT OF COLUMBIA
KHALID LAMAFI
PE922123
01/06/2025
PROFESSIONAL ENGINEER



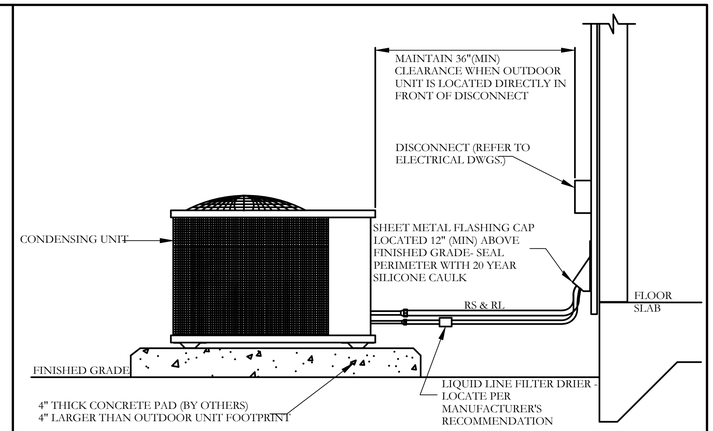
NOTES:

1. MUST MEET FLAME SPREAD/SMOKE DEVELOPED RATINGS OF 25/50.

1 DWELLING UNIT CONDENSATE TRAP DETAIL
N.T.S.



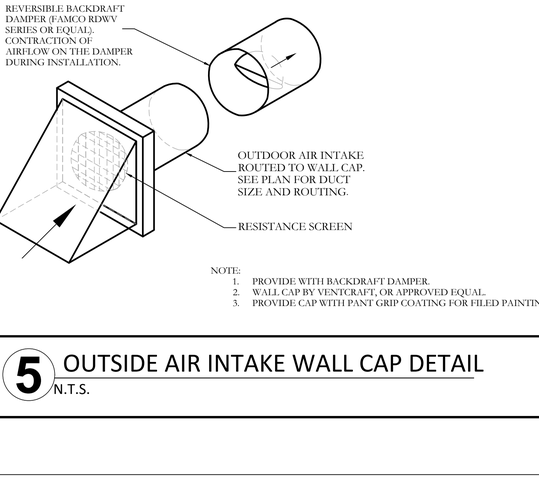
2 CABINET CEILING EXHAUST FAN DETAIL
N.T.S.



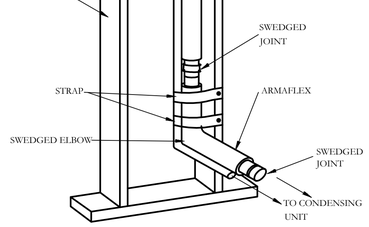
NOTES:

1. MAINTAIN 30"x30" CLEARANCE ON SERVICE SIDE OF ALL OUTDOOR UNITS.
2. IF REQUIRED BY LOCAL CODE, SECURE UNIT TO CONCRETE PAD PER MANUFACTURER'S RECOMMENDATIONS.
3. SEAL SPACE BETWEEN PIPING AND FLASHING CAP WEATHER TIGHT WITH EXPANDING FOAM INSULATIONS.
4. ALL REFRIGERANT LINE SET PENETRATIONS SHALL BE LOCATED AT THE SAM ELEVATION AROUND THE BUILDING.
5. ALL ELECTRICAL DISCONNECTS SHALL BE LOCATED AT THE SAME ELEVATION AROUND THE BUILDING (COORDINATE WITH ELECTRICAL CONTRACTOR).

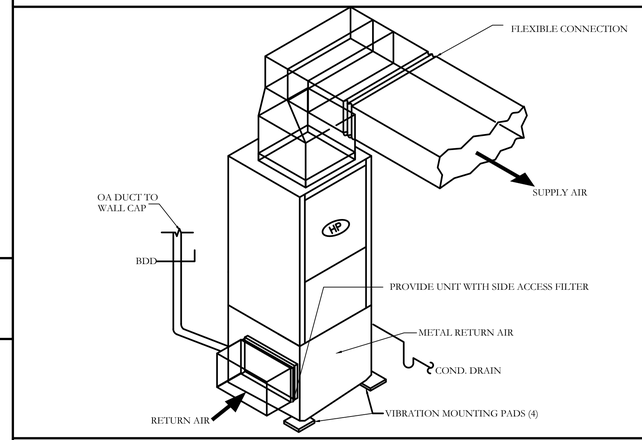
7 GRADE MOUNTED OUTDOOR UNIT DETAIL
N.T.S.



3 EXHAUST WALL CAP DETAIL
N.T.S.



4 REFRIGERANT PIPING DETAIL
N.T.S.

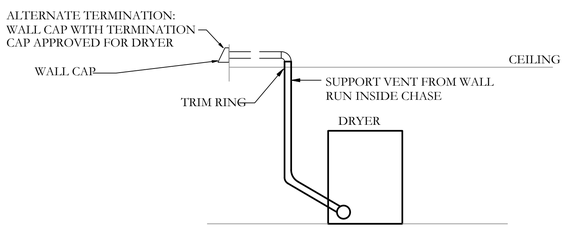


8 AHU INSTALLATION DETAIL
N.T.S.

NOTE:

1. PROVIDE WITH BACKDRAFT DAMPER.
2. WALL CAP BY VENTCRAFT, OR APPROVED EQUAL.
3. PROVIDE CAP WITH PANT GRIP COATING FOR FILED PAINTING.

5 OUTSIDE AIR INTAKE WALL CAP DETAIL
N.T.S.



6 STACKED DRYER EXHAUST DETAIL
N.T.S.

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No.	Description	Date
	Permit set	11/26/2024
1	Permit comment	01/06/2025

DETAILS

Project number	H096
Date	11/26/2024
Drawn by	S
Checked by	K
	M300 1
Scale	3/16" = 1'-0"

DISTRICT OF COLUMBIA KHALID YAMAN PE922123 01/06/2025 PROFESSIONAL ENGINEER

PLUMBING SPECIFICATIONS:

GENERAL NOTES:

A. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF ALL CODES, ORDINANCES AND STANDARDS OF THE LOCAL JURISDICTION. IN CASE OF A CONFLICT BETWEEN DRAWINGS OR SPECIFICATIONS AND THE REQUIREMENTS OF THE LOCAL JURISDICTION, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.

B. ALL WORK SHALL BE GUARANTEED AGAINST DEFECTS, LEAKS, LACK OF PROPER SYSTEM PERFORMANCE OR NON-OPERATION FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE.

C. ALL WORK SHALL BE COORDINATED WITH ALL TRADES, PRIOR TO INSTALLATION AND SHALL CONFORM WITH ALL APPLICABLE BUILDING CODES, FIRE CODES, AND ALL AUTHORITIES HAVING JURISDICTION.

D. IN GENERAL, DRAWINGS FOR THE WORK ARE DIAGRAMMATIC AND SHOW THE LOCATION, TYPE AND SIZE OF PIPING, EQUIPMENT, AND ACCESSORY EQUIPMENT. THE CONTRACTOR SHALL FURNISH ALL ITEMS NECESSARY FOR THE PROPER INSTALLATION AND OPERATION OF THE WORK, WHETHER CALLED FOR OR NOT. THE CONTRACTOR SHALL VERIFY ALL NECESSARY DIMENSIONS BEFORE INSTALLING ANY OF THE WORK AND SHALL CHECK HIS LAYOUTS TO ALLOW CLEARANCE REQUIRED FOR OTHER WORK. THE SCOPE OF WORK CONSISTS GENERALLY OF PROVIDING AND INSTALLING COMPLETE PLUMBING AND GAS SYSTEMS AND FINAL TESTING OF ALL SYSTEMS AND EQUIPMENTS AS REQUIRED, THE CONTRACTOR SHALL MAKE CHANGES WITHOUT ADDITIONAL COSTS.

E. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS.

PRODUCTS:

A. PLUMBING FIXTURES: ALL FIXTURES SHALL BE SELECTED BY OWNER. PROVIDE ALL FIXTURES WITH TRIM, CARRIER SUPPLIES, AND TRAPS AS REQUIRED FOR COMPLETE INSTALLATION.

B. THE EQUIPMENT SPECIFIED ON THE DRAWINGS HAVE BEEN SELECTED AS THE BASIS OF DESIGN. THE USE OF REVIEWED OR SPECIFIED EQUALS SHALL BE COORDINATED BY THE CONTRACTOR FOR SPACE REQUIREMENTS, EQUIPMENT DIMENSIONS, AND PERFORMANCE.

C. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION UNLESS SPECIFICALLY DIRECTED OTHERWISE.

MATERIALS:

A. ALL MATERIALS SHALL BE NEW UNLESS OTHERWISE SHOW OR SPECIFIED.

B. ALL MATERIALS INSTALLED IN RETURN PLENUM ARE TO BE PLENUM RATED.

C. PIPING MATERIALS AND FITTING SHALL BE AS FOLLOWS:
- WASTE & VENT (ABOVE & BELOW SLAB): PVC PIPE, PVC SOCKET FITTING, AND SOLVENT-CEMENTED FITTING.
- DOMESTIC WATER (BELOW & ABOVE SLAB): CPVC PIPE OR COPPER TYPE 'K' (BELOW SLAB) AND COPPER TYPE 'L' (ABOVE SLAB)

THREADED FITTINGS MAY BE USED AT VALVES, FIXTURES & SIMILAR.

D. ANY PLUMBING FIXTURES WITH A COMMON SHUT-OFF VALVE (I.E. PRE-RINSE, KITCHEN SINK, MOP SINK) ARE TO INCLUDE A CHECK VALVE ON THE HOT & COLD WATER VALVES TO PREVENT INTERCONNECTION OF HOT & COLD WATER LINES.

INSULATION:

A. DOMESTIC WATER PIPING:
1/2" MINIMUM INSULATION FOR DOMESTIC COLD WATER AND 1" MINIMUM INSULATION FOR DOMESTIC HOT WATER. MIN. R3 THERMAL RESISTANCE.

B. STORM WATER PIPING:
THE HORIZONTAL SECTION OF THE RAIN LEADERS, RISER TO AND INCLUDING THE INTERIOR PART OF THE ROOF DRAIN SHALL BE COVERED WITH 1" THICK INSULATION ALSO THE TRANSITION FITTINGS OF BOTH FROM HORIZONTAL TO VERTICAL AND VICE VERSA.

C. FREEZING:
WATER, SOIL AND WASTE PIPES SHALL NOT BE INSTALLED OUTSIDE OF A BUILDING, IN ATTIC OR CRAWL SPACES, CONCEALED IN OUTSIDE WALLS, OR IN ANY OTHER PLACE SUBJECTED TO FREEZING TEMPERATURES UNLESS ADEQUATE PROVISION IS MADE TO PROTECT SUCH PIPES FROM FREEZING BY INSULATION OR HEAT OR BOTH.
WATER PIPING INSTALLED IN EXTERIOR WALLS, CEILINGS, AND UNPROTECTED FLOOR SPACES SHALL BE PROTECTED BY A MINIMUM R-24 INSULATION ON THE COLD SIDE OF THE PIPING, WITH NO INSULATION ON THE WARM SIDE OF THE PIPING. EXTERIOR WATER SUPPLY SYSTEM PIPING SHALL BE INSTALLED NOT LESS THAN 6 INCHES BELOW THE FROST LINE AND NOT LESS THAN 12 INCHES BELOW GRADE.

VALVES:

A. DOMESTIC WATER:
ALL VALVES SHALL BE SWEATED BRONZE GATE VALVE WITH SCREW-IN BONNET, RISING STEM MINIMUM RATING OF 125 PSI. TWO PIECES BALL VALVES WITH EXTENDED HANDLE MAY BE USED IN LIEU OF THE GATE VALVES.

HANGERS:

A. SHALL BE ADJUSTABLE CLEVIS HANGERS, PROPERLY SIZED AND SPACED FOR PIPING, INCLUDING INSULATION.

EXECUTION:

A. SOIL, WASTE & STORM AND VENT:

- ALL ALL SANITARY SEWER PIPING 3" AND LARGER SHALL SLOPE AT 1% OR 1/8" PER FOOT, UNLESS NOTED OTHERWISE. ALL SANITARY SEWER PIPING 2" AND SMALLER SHALL SLOPE AT 2% OR 1/4" PER FOOT.

- ALL STORM DRAIN PIPING SHALL SLOPE AT 1% OR 1/8" PER FOOT, UNLESS NOTED OTHERWISE.

B. INSTALL FIXTURES LEVEL, PLUMB AND PARALLEL TO WALLS. ALL EXPOSED METAL PARTS SHALL BE CHROME PLATED AND SHOW NO TOOL MARKS. GROUT BETWEEN WALL HUNG FIXTURES AND WALL. PROVIDE ACCESS PANELS TO ALL CONCEALED SUPPLY STOPS AND TRAP.

C. FIXTURES DESIGNATED FOR USE B PHYSICALLY HANDICAPPED PEOPLE SHALL BE IN ACCORDANCE WITH ANSI A 117.1.

D. INSTALL DIELECTRIC CONNECTION BETWEEN DISSIMILAR METALS, PIPE TO PIPE, PIPE TO EQUIPMENT, PIPE TO SUPPORT.

E. FURNISH AND INSTALL JOSAM 75000 SERIES SHOCK ARRESTERS AT THE ENDS OF ALL HOT AND COLD WATER BRANCHES TO FIXTURES. SIZES SHALL BE IN ACCORDANCE WITH PLUMBING AND DRAINAGE INSTITUTE STANDARD P.D.1

F. ALL WALL AND FLOOR CLEAN OUTS, SERVING 4" AND SMALLER, SHALL BE THE SAME SIZE AS THE PIPING SYSTEM THEY CLEAN OUTS SERVING 5" AND 6" PIPE SYSTEMS SHALL BE 4". CLEAN-OUTS SERVING 8" PIPING SYSTEMS SHALL BE 6". CLEAN OUTS SERVING, 10" AND LARGER, SHALL BE 8".

G. ALL ROOF WORK SHALL BE PER THE ROOFING MANUFACTURES INSTALLATION INSTRUCTIONS TO MAINTAIN THE EXISTING ROOF WARRANTY.

H. PROVIDE TEMPERING VALVES FOR ALL LAVATORIES AND HAND WASHING SINKS. TEMPERING VALVES SHALL CONFORM WITH ASSE 1070 (WATTS MODEL LFMMVM1-US OR EQUIVALENT).

I. PROVIDE WATER HAMMER ARRESTERS AT ALL QUICK CLOSING VALVES WITH ISOLATION VALVE AND WITH ACCESS OR ACCESS PANEL.

J. ALL THREADED HOSE CONNECTIONS TO DOMESTIC WATER SYSTEM SHALL HAVE AN APPROVED VACUUM BREAKER. IE: HOSE BIBS, WALL HYDRANTS, SYSTEM DRAINS, EQUIPMENT DRAINS, ETC.

K. PROVIDE ACCESS PANELS IN HARD CEILINGS AND WALLS FOR ACCESS TO ALL PLUMBING EQUIPMENT, ISOLATION VALVES, ETC. THIS SHALL INCLUDE ALL NEW AND EXISTING PLUMBING ITEMS REQUIRING ACCESS.

L. PROVIDE REDLINE MARKUPS OF ANY FIELD CHANGES OR MODIFICATIONS ON THE CONSTRUCTION DOCUMENTS. REDLINE DRAWINGS SHALL BE REQUIRED WHETHER COORDINATION DRAWINGS ARE REQUIRED OR NOT.

M. THE LOCATION AND CONDITION OF THE EXISTING PROPERTY AND PLUMBING SYSTEMS WERE TAKEN FROM PREVIOUS CONSTRUCTION DRAWINGS, OBSERVED FIELD CONDITIONS, AND ASSUMED FIELD CONDITIONS. CERTAIN ASSUMPTIONS MAY BE MADE REGARDING EXISTING CONDITIONS BECAUSE THE ASSUMPTION MAY NOT BE VERIFIED WITHOUT DESTROYING THE EXISTING SPACE. CONTRACTOR SHALL VERIFY EXISTING SYSTEMS PRIOR TO SUBMITTING FINAL BIDS, FABRICATION, OR SUBMITTALS.

N. ALL PLUMBING FIXTURES AND PLUMBING SYSTEM EQUIPMENT SHALL BE PROVIDED COMPLETE WITH ALL ACCESSORIES, HANGERS, VALVES, STOPS, TAILPIECES, TRAPS, FAUCETS, STRAINERS, ETC REGARDLESS OF PRESENCE ON PLANS. SEE FIXTURE SCHEDULE.

O. ALL QUESTIONS MUST BE SUBMITTED IN RFI FORMAT TO THE ARCHITECT AND MUST BE ADDRESSED BY THE APPROPRIATE DESIGNER OF RECORD PRIOR TO BECOMING A PROPOSED CHANGE ORDER.

P. ALL PIPING IN FINISHED AREAS SHALL BE RUN CONCEALED. EXPOSED PIPING, WHERE NECESSARY, SHALL RUN AS HIGH AS POSSIBLE AND TIGHT TO THE WALLS.

Q. EACH PLUMBING VENT SHALL TERMINATE NOT LESS THAN TEN (10) FEET FROM AIR INTAKE OR VENT SHAFT, OR AT LEAST THREE (3) FEET ABOVE ANY WINDOW AND DOOR.

R. TRAP PRIMERS: PROVIDE AND INSTALL TRAP PRIMERS FOR ALL FLOOR DRAINS. PROVIDE AND INSTALL TRAP PRIMERS FOR ALL FLOOR SINKS NOT RECEIVING CONTINUOUS DISCHARGE OF WASTE WATER. PROVIDE AND INSTALL TRAP PRIMERS IN ACCESSIBLE LOCATIONS WITH ACCESS PANELS IF REQUIRED.

S. WORKMANSHIP: THE WORK SHALL BE ACCOMPLISHED IN A THOROUGH & WORKMANLIKE MANNER SATISFACTORY TO AND MEETING THE APPROVAL OF THE ENGINEER AND ARCHITECT.

T. GUARANTEE: CONTRACTOR SHALL UNCONDITIONALLY GUARANTEE ALL LABOR & MATERIAL ON ALL WORK AGAINST DEFECTS IN WORKMANSHIP & MATERIALS FOR A PERIOD OF ONE YEAR.

U. CUTTING AND PATCHING: ALL CUTTING & PATCHING OF THE EXISTING STRUCTURE SHALL BE PROVIDED. PROVIDE ALL NECESSARY REQUIREMENTS TO THE PROJECT MANAGER. PROTECTION AGAINST DUST AND DEBRIS SHALL BE TO THE SATISFACTION OF THE PROJECT MANAGER.

V. FIRE SPRINKLER SYSTEM TO BE DESIGNED BY FIRE SPRINKLER CONTRACTOR. ALL EQUIPMENT, COMPONENTS & PIPE RUNS SHOWN FOR REFERENCE ONLY.

W. ALL HOSE BIBS SHALL BE EQUIPPED WITH AN APPROVED NON REMOVABLE VACUUM BREAKER.

X. RUN A FULL SIZE DRAIN LINE FROM WATER HEATERS TEMPERATURE AND PRESSURE RELIEF VALVE TO NEAREST FLOOR SINK OR TO AN APPROVED LOCATION.

Y. PROVIDE ACCESS DOORS TO ALL CONCEALED VALVES, STRAINERS, TRAP PRIMERS, ETC. PROVIDE STAINLESS STEEL ACCESS PANELS & FRAMES FOR ALL TILED AREAS.

COORDINATION:

A. PLUMBING CONTRACTOR TO COORDINATE W/ GENERAL CONTRACTOR AND ARCH PLANS TO ENSURE NECESSARY BACKING/SUPPORTS ARE INSTALLED TO ALLOW INSTALLATION OF PLUMBING FIXTURES.

B. PIPING SHOULD BE COORDINATED WITH ALL STRUCTURAL FOOTINGS AND FOUNDATIONS. PIPE SHOULD BE OFFSET TO AVOID CONTACT WITH FOOTINGS AND FOUNDATION WALLS. IF PIPING MUST RUN UNDERNEATH A FOOTING OR THROUGH A FOUNDATION WALL, THE PIPE MUST BE INSTALLED WITH A RELIEVING ARCH OR IN A PIPE SLEEVE.

PLUMBING NOTES:

A. CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMISSION OF BID TO BECOME FAMILIAR WITH EXISTING CONDITIONS.

B. ALL HOT AND COLD WATER SUPPLY PIPING SHALL BE INSULATED.

C. PROVIDE AND INSTALL CLEAN-OUTS IN DRAINAGE PIPING AT EACH CHANGE IN DIRECTION OF PIPING GREATER THAN 45 DEGREES, EVERY 50 FEET, AND AS SHOWN.

D. EXPOSED UTILITY SERVICE LINES AND PIPES SHALL BE INSTALLED SO THAT THEY DO NOT OBSTRUCT OR PREVENT CLEANING OF THE FLOORS, WALLS, OR CEILINGS. EXPOSED HORIZONTAL UTILITY SERVICE LINES AND PIPES SHALL NOT BE INSTALLED ON THE FLOOR.

E. CONTRACTOR TO VERIFY SIZE AND LOCATION OF SANITARY, AND COLD/HOT WATER PIPES PRIOR TO STARTING WORK.

F. EXISTING UTILITIES AND EQUIPMENT NOT SHOWN OR NOT SHOWN TO BE REPLACED SHALL REMAIN IN SERVICE DURING CONSTRUCTION.

G. CONTRACTOR SHALL REMOVE AND DISPOSE ALL PLUMBING MATERIAL, FIXTURES AND EQUIPMENT FROM TENANT SPACE AS SHOWN ON DRAWING. COORDINATE DEMOLITION WITH NEW CONSTRUCTION PLAN.

H. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION AND INSTALLING SLEEVES, INSERTS AND SUPPORTS AS REQUIRED FOR THIS SCOPE OF WORK AND/OR CORE DRILL REQUIREMENTS. COORDINATE WITH GENERAL CONTRACTOR AND STRUCTURAL ENGINEER AS REQUIRED.

I. CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND INVERT ELEVATIONS OF ALL EXISTING UTILITIES AT THE SITE PRIOR THE INSTALLATION OF ANY PIPING SYSTEMS.

J. NEW OR REPAIRED POTABLE WATER SYSTEMS SHALL BE PURGED OF DELETERIOUS MATTER AND DISINFECTED PRIOR TO UTILIZATION. THE METHOD TO BE FOLLOWED SHALL BE THAT PRESCRIBED BY THE HEALTH AUTHORITY OR WATER PURVEYOR HAVING JURISDICTION OR, IN THE ABSENCE OF A PRESCRIBED METHOD, THE PROCEDURE DESCRIBED IN EITHER AWWA C651 OR AWWA C652, OR AS DESCRIBED IN 2017 DCPC SECTION 610. THIS REQUIREMENT SHALL APPLY TO "ON-SITE" OR "IN-PLANT" FABRICATION OF A SYSTEM OR TO A MODULAR PORTION OF A SYSTEM.

PLUMBING SYMBOLS LIST:

	SANITARY PIPE
G	GAS PIPE
	VENT PIPE
	DOMESTIC COLD WATER PIPE
GW GW	GRAY WATER PIPE
	DOMESTIC HOT WATER PIPE
	HOT WATER RETURN PIPE
	GREASE WASTE PIPE
	CHECK VALVE
	GAS PRESSURE REGULATOR
	PRESSURE REDUCING VALVE
	CLEAN OUT
	PIPE UP, PIPE DOWN
	SHUT-OFF GATE VALVE, VALVE IN VERTICAL
	PIPE UNION
	FLOOR DRAIN
	FLOOR SINK
	CONNECTION TO EXISTING
	DISCONNECT FROM EXISTING
	BACKWATER VALVE
	SOLENOID VALVE

PLUMBING ABBREVIATIONS:

CO	CLEANOUT	IE	INVERT ELEVATION
CW	COLD WATER	HW	HOT WATER
DN	DOWN	GE	GENERAL CONTRACTOR
FD	FLOOR DRAIN	PC	PLUMBING CONTRACTOR
GAL	GALLONS	IN	INCHES
GPH	GALLONS PER HOUR	FT	FEET
GPM	GALLONS PER MINUTE	MH	MANHOLE
HB	HOSE BIB	MTD	MOUNTED
HW	HOT WATER	MTG	MOUNTING
LAV	LAVATORY	NA	NOT APPLICABLE
PSI	POUND PER SQUARE INCH	NTS	NOT TO SCALE
OSD	OPEN SITE DRAIN	PD	PRESSURE DROP
SAN	SANITARY	SA	SHOCK ABSORBER
TYP	TYPICAL	SQFT	SQUARE FEET
V	VENT	STD	STANDARD
VTR	VENT THRU ROOF	STM	STORM
WC	WATER CLOSET	BFP	BACK FLOW PREVENTER
GW	GRAY WATER		

SHEET INDEX:

1

SCOPE OF WORK

- AS-BUILT BASEMENT ONLY.

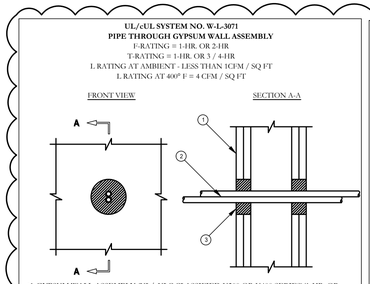
WASHINGTON DC CODES:

2017 DISTRICT OF COLUMBIA CONSTRUCTION CODES ENCOMPASSES ALL CODES USED BY THE DISTRICT OF COLUMBIA. 12-A DCMR 101.1

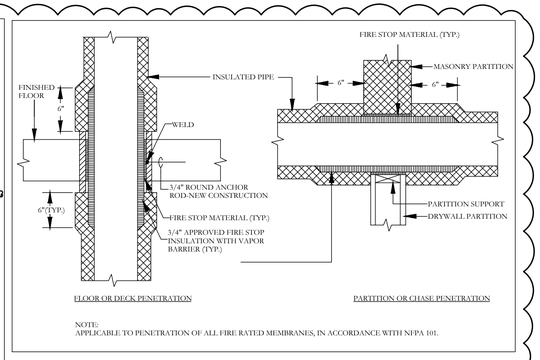
RESIDENTIAL:	2017 DISTRICT OF COLUMBIA RESIDENTIAL CODE
BUILDING:	2015 IBC AND 2017 DCMR12A SUPPLEMENT 2015 IEBC
COVERING CODES:	2017 DISTRICT OF COLUMBIA BUILDING CODE
MECHANICAL:	2017 DISTRICT OF COLUMBIA MECHANICAL CODE
ELECTRICAL:	2014 INTERNATIONAL NFPA-70
PLUMBING:	2017 DISTRICT OF COLUMBIA PLUMBING CODE
FIRE:	2017 DISTRICT OF COLUMBIA FIRE CODE
GREEN:	2017 DISTRICT OF COLUMBIA GREEN CONSTRUCTION CODE
ENERGY:	2017 DISTRICT OF COLUMBIA ENERGY CONSTRUCTION CODE

ELECTRIC WATER HEATER SCHEDULE

MARK	AREA SERVED	RECOVERY AT 90°F			CAPACITY (GALLONS)	ELECTRIC DATA		REMARKS
		GPH	EWT	LWT		VOLT/PH/HZ	KW	
EWH	ENTIRE HOUSE	21	40	120	40	240/01/60	4.5 KW	AO. SMITH , MODEL: ECT-40-200.



1 PIPES PENETRATION UL SYSTEM DETAIL
N.T.S.



NOTE:
APPLICABLE TO PENETRATION OF ALL FIRE RATED MEMBRANES, IN ACCORDANCE WITH NFPA 101.

2 PIPES PENETRATION DETAIL
N.T.S.

System No. C-AJ-1226

•4. Firestop System -- The firestop system shall consist of the following :

A.Packing Material -- Min 4 in.(102mm) thickness of min 4 pcf (64Kg / m3) mineral wool batt insulation firmly packed into opening as a permanet from. Packing material to be recessed from top surface of floor or sleeve or from both surfaces of wall or sleeve as required to accommodate the required thickness of fill material.

B.Fill, Void or Cavity Material*--Sealant--Min 1 /4 in. (6mm) thickness of fill material applied within the annulus, flush with top surface of floor or sleeve or with both surfaces of wall or sleeve. At the point or continuous contact locations between penetrant and concrete or sleeve, a min 1 /4 in . (6mm) diam bead of fill material shall be applied at the concrete or sleeve / pipe penetrant interface on the top surface of floor and on both surfaces of wall.

HILTI CONSTRUCTION CHEMICALS , DIV OF HILTINC--FS-One Sealant or FS-ONE MAX Intumescent sealant Indicates such products shall bear the UL orcUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), resepectively.

1

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TEL : 571-833-8357

No.	Description	Date
	Permit set	11/26/2024
1	Permit comment	01/06/2025

DISTRICT OF COLUMBIA
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PE922123
01/06/2025
PROFESSIONAL ENGINEER

COVER SHEET

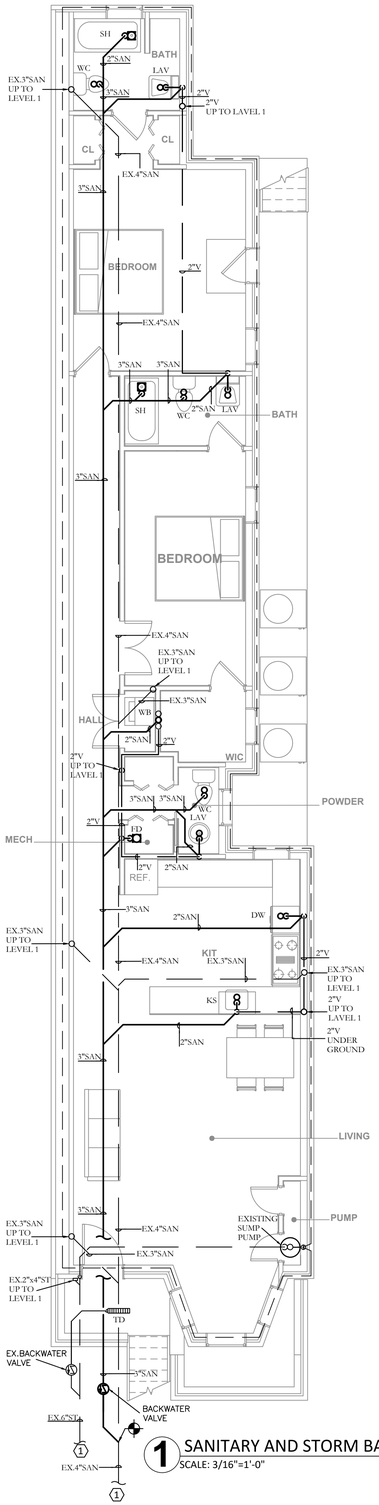
Project number	H096
Date	11/26/2024
Drawn by	S
Checked by	K

P100

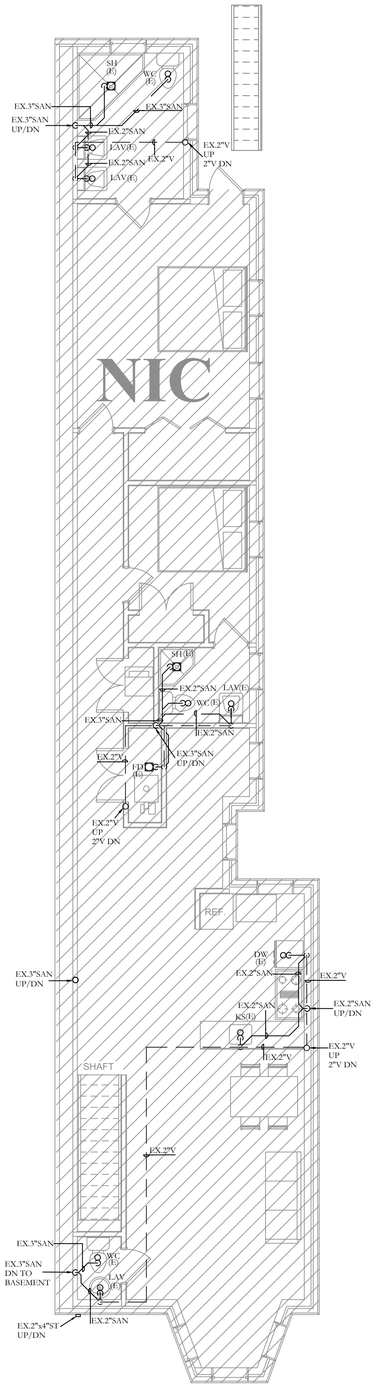
Scale 3/16" = 1'-0"

PLUMBING NUMBERED NOTES:

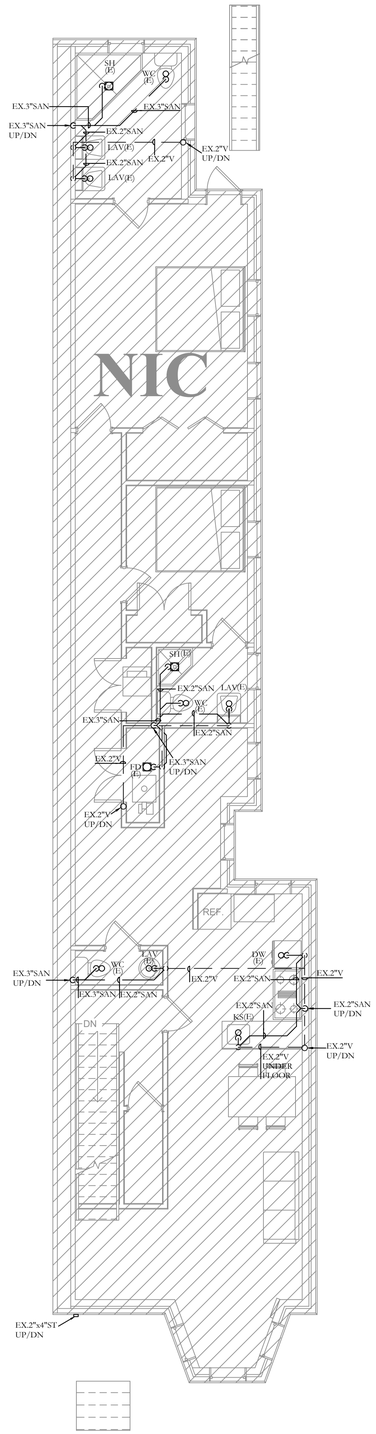
1. CONTRACTOR TO VERIFY EXACT SIZE AND LOCATION OF THE PIPING IN THE FIELD.



1 SANITARY AND STORM BASEMENT FLOOR PLAN
SCALE: 3/16"=1'-0"



2 SANITARY AND STORM FLOOR PLAN-LEVEL 1
SCALE: 3/16"=1'-0"



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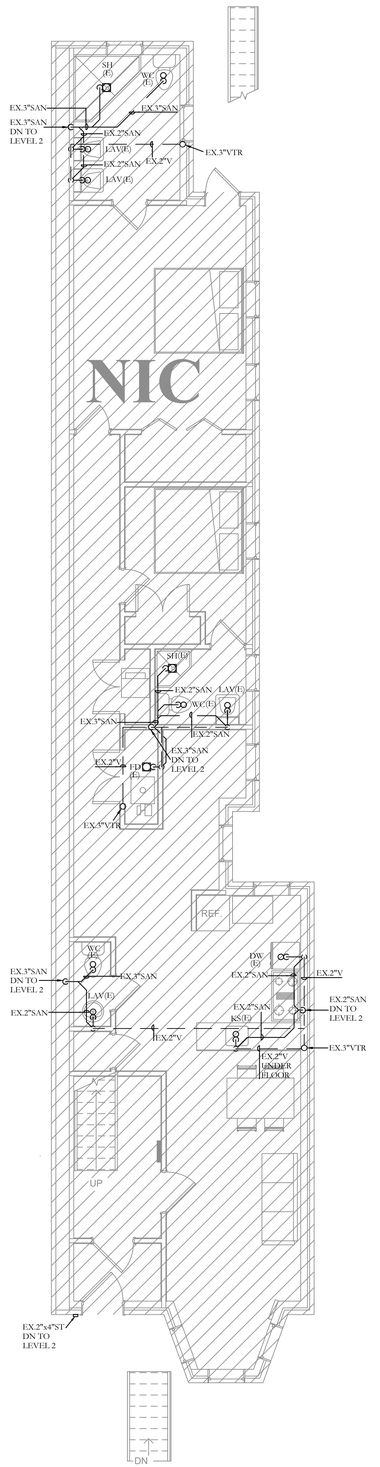
SCALE: 3/16"=1'-0"



4 SANITARY AND STORM FLOOR PLAN-LEVEL 3
SCALE: 3/16"=1'-0"

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SANITARY AND STORM FLOOR PLANS

Project number	H096
Date	11/26/2024
Drawn by	S
Checked by	K
Scale	3/16" = 1'-0"

P200 1

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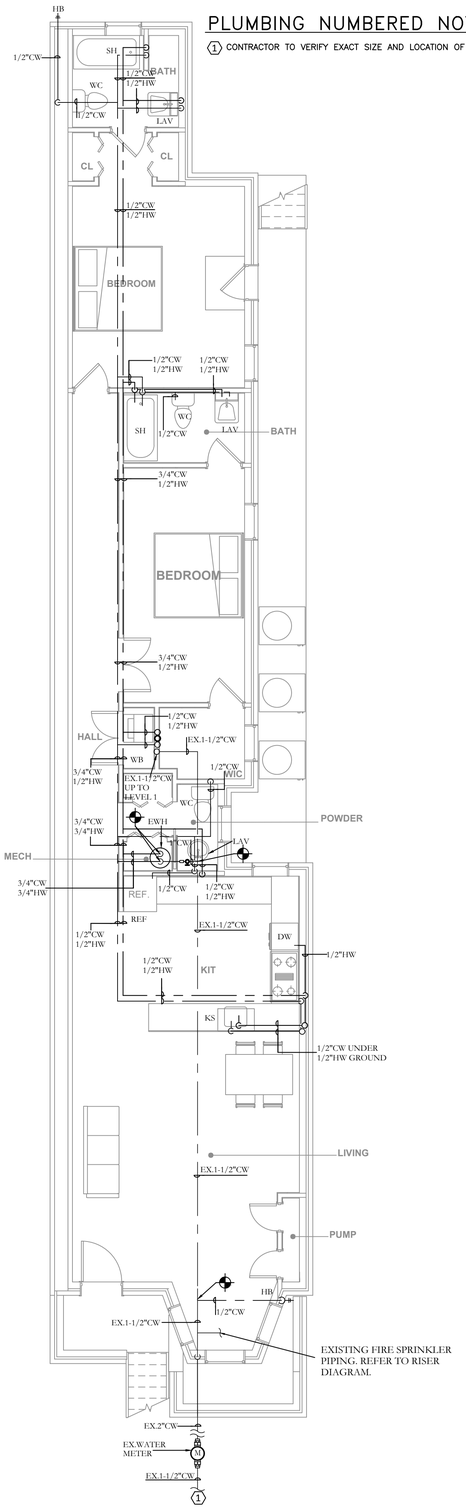
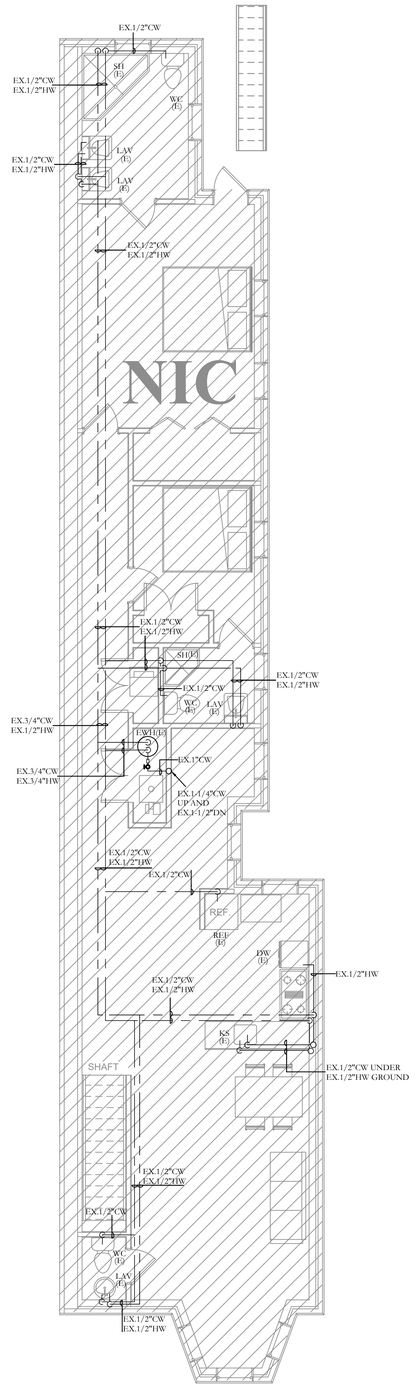
PLUMBING NUMBERED NOTES:

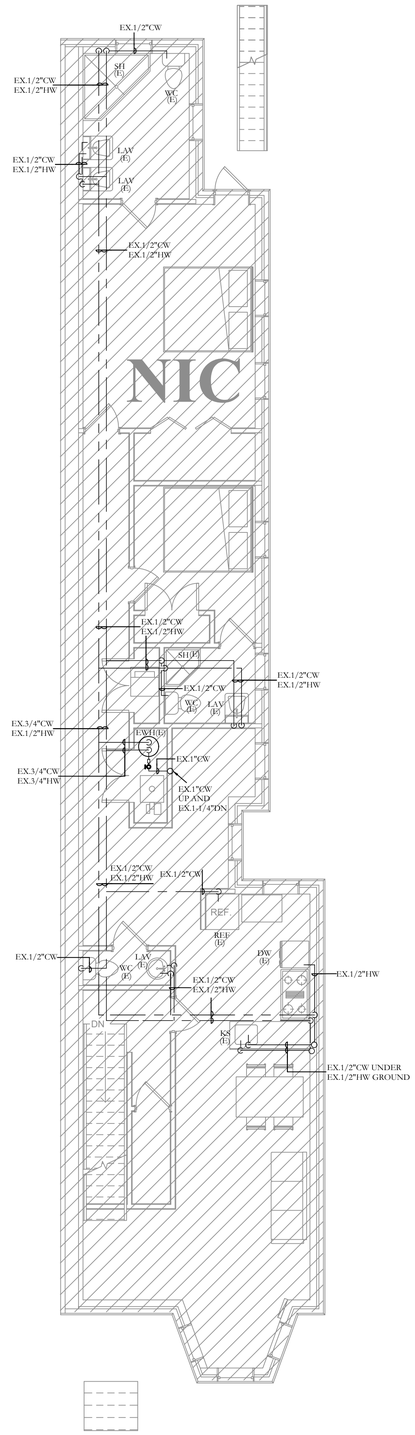
1. CONTRACTOR TO VERIFY EXACT SIZE AND LOCATION OF THE PIPING IN THE FIELD.



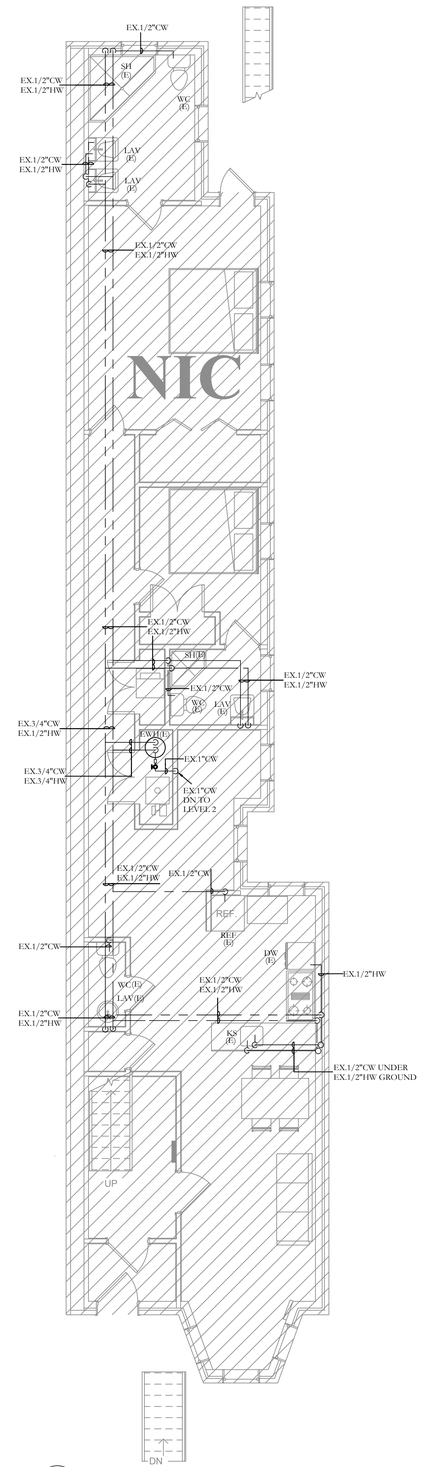
1 DOMESTIC WATER BASEMENT FLOOR PLAN
SCALE: 3/16"=1'-0"



2 DOMESTIC WATER LEVEL 1 FLOOR PLAN
SCALE: 3/16"=1'-0"



3 DOMESTIC WATER LEVEL 2 FLOOR PLAN
SCALE: 3/16"=1'-0"



4 DOMESTIC WATER LEVEL 3 FLOOR PLAN
SCALE: 3/16"=1'-0"

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DOMESTIC WATER FLOOR PLANS

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Checked by	K
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P300 1

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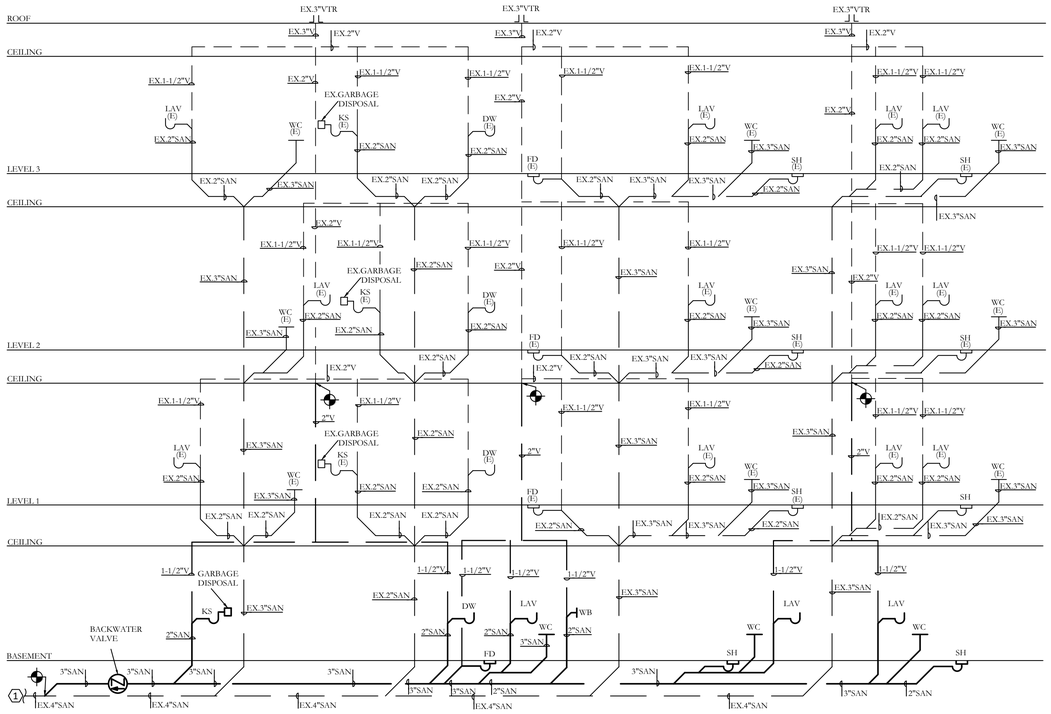
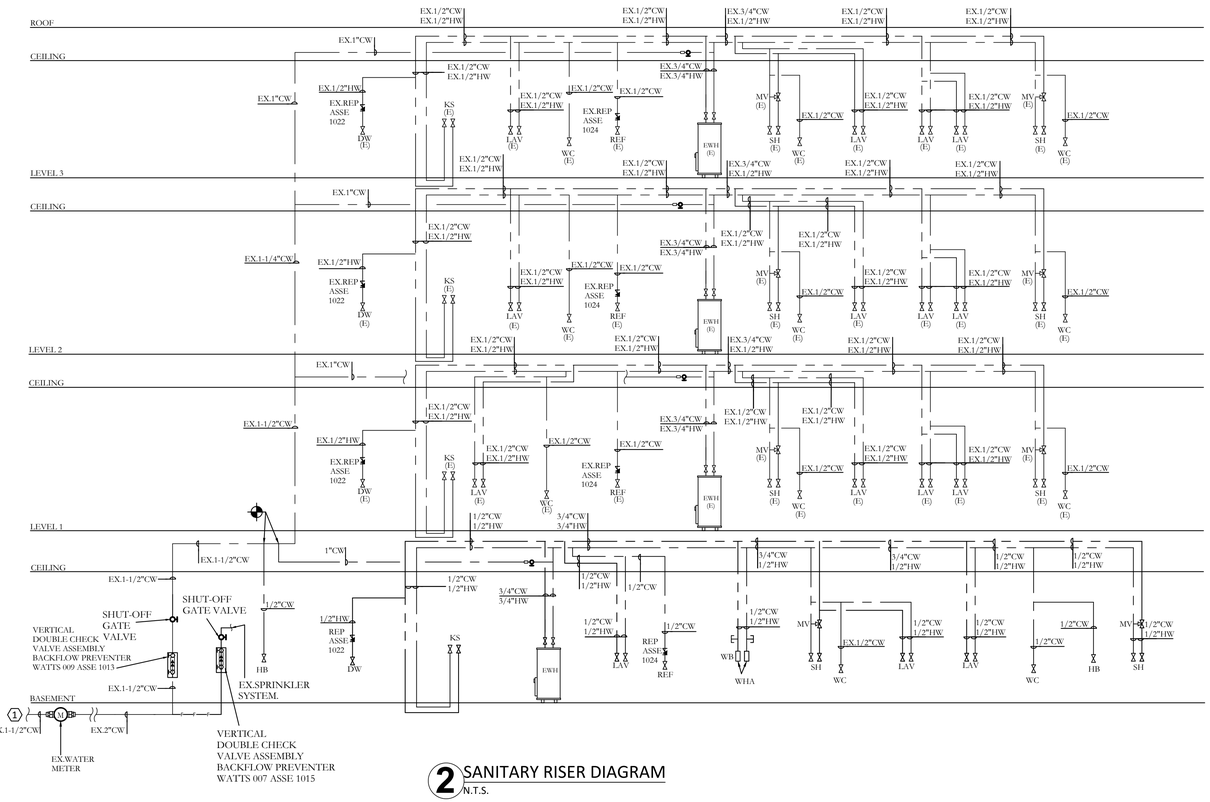


1 SANITARY RISER DIAGRAM
N.T.S.



2 SANITARY RISER DIAGRAM
N.T.S.

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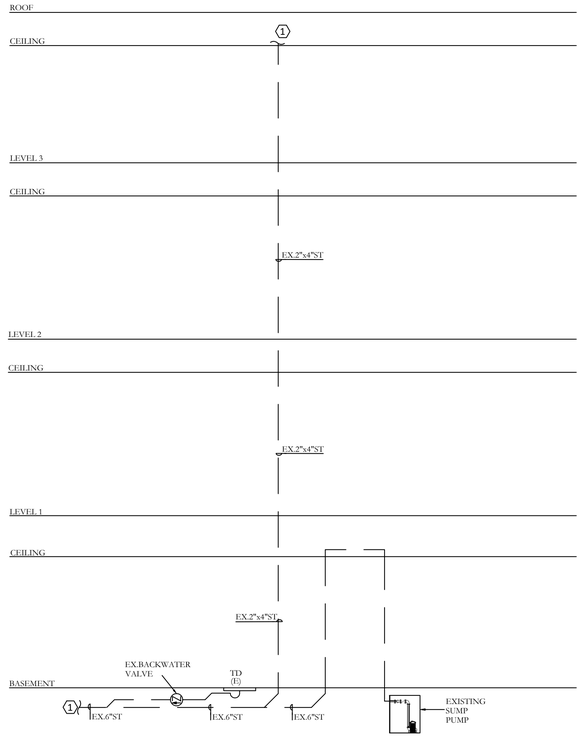

3 STORM RISER DIAGRAM
N.T.S.

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RISER DIAGRAMS

Project number	H096
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