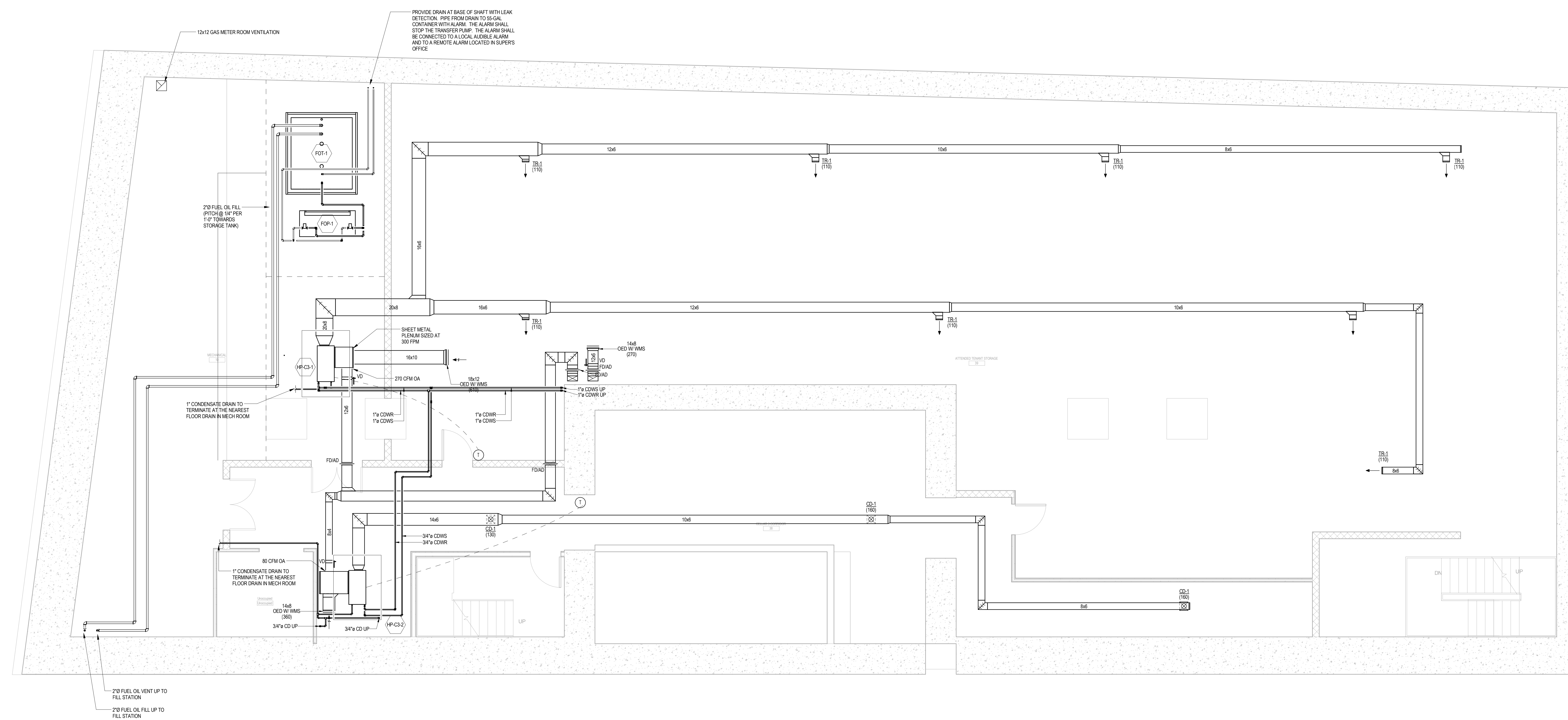


45 BROAD STREET

NEW YORK NY 10004

ARCHITECT: John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.541.9001	CLIENT: Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER: WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER: BaruchHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
MECHANICAL ENGINEER: LANGAN 21 Penn Plaza 1300 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER: MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER: Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER: BaruchHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



MECHANICAL CELLAR 3 FLOOR PLAN

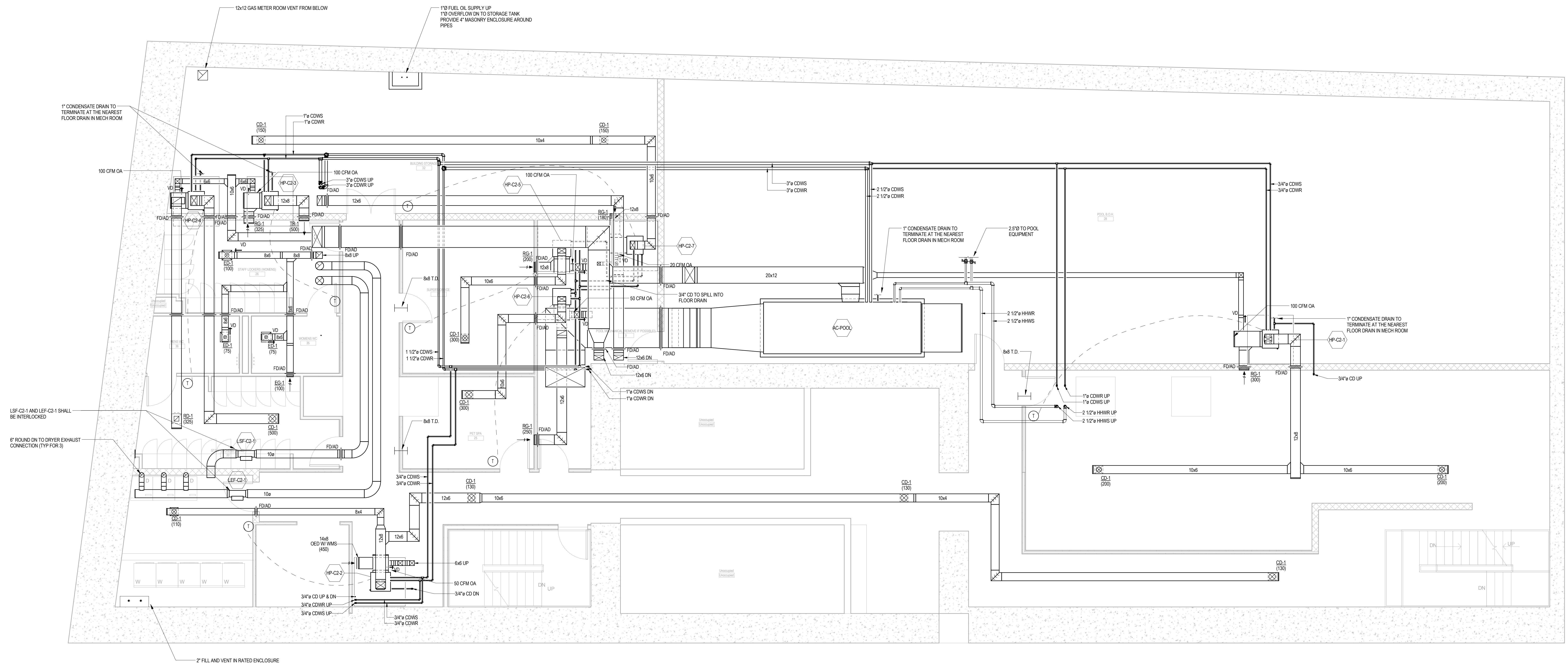
M-098.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 104 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaronHappold Engineering 101 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 101 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Elevanth St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER BaronHappold Engineering 101 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



CETRARUDDY

MECHANICAL CELLAR 2 FLOOR PLAN

M-099.00

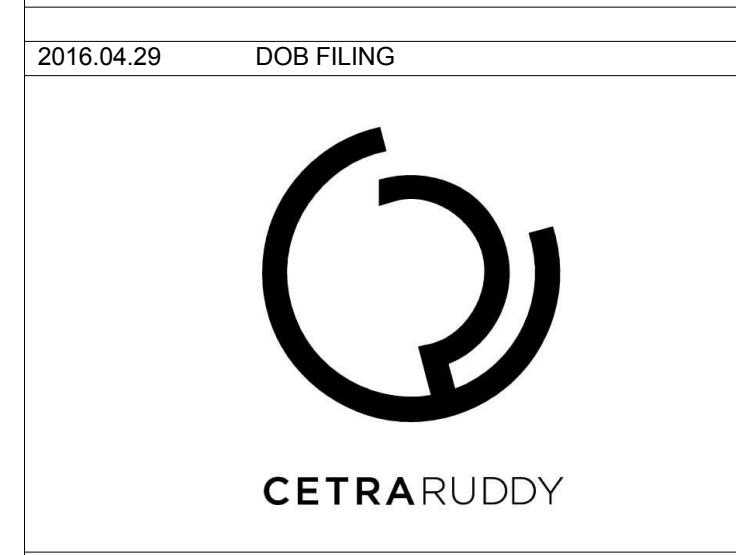
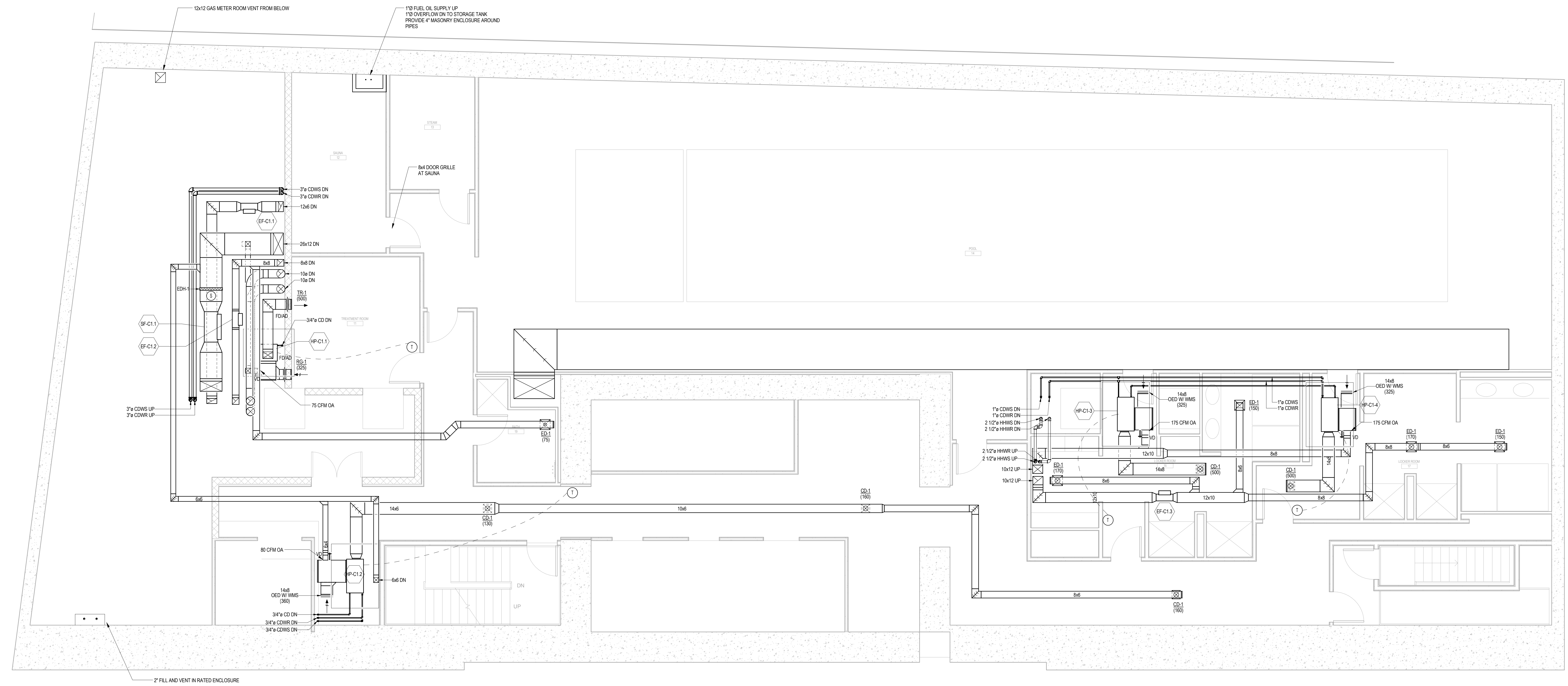
1/4" = 1'-0"

DEPARTMENT OF BUILDINGS
594 BROADWAY NEW YORK NY 10012 T 212.541.9001 F 212.541.9440
WWW.CETRARUDDY.COM

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.941.9801	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 1300 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



MECHANICAL CELLAR 1 FLOOR PLAN

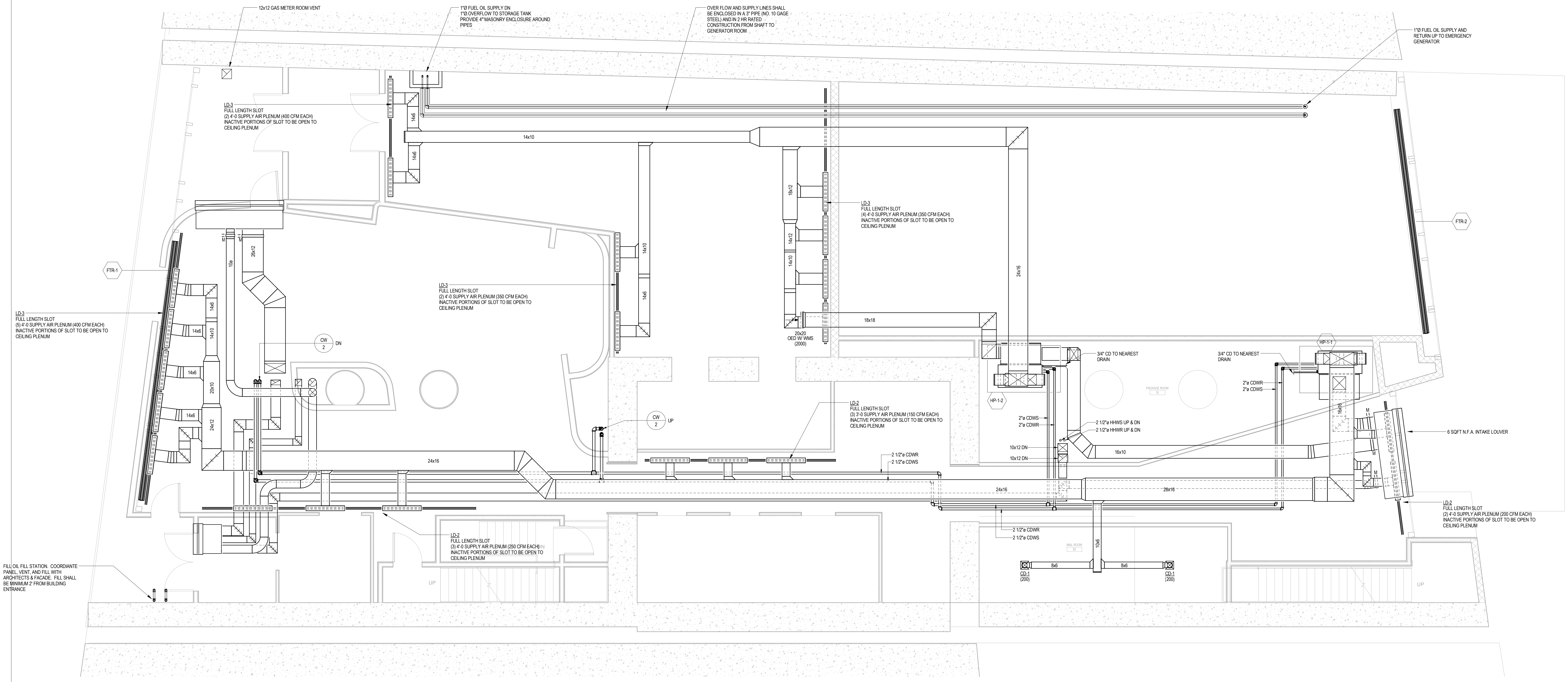
M-100.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 104 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING

CETRARUDDY

MECHANICAL GROUND FLOOR PLAN

M-101.00

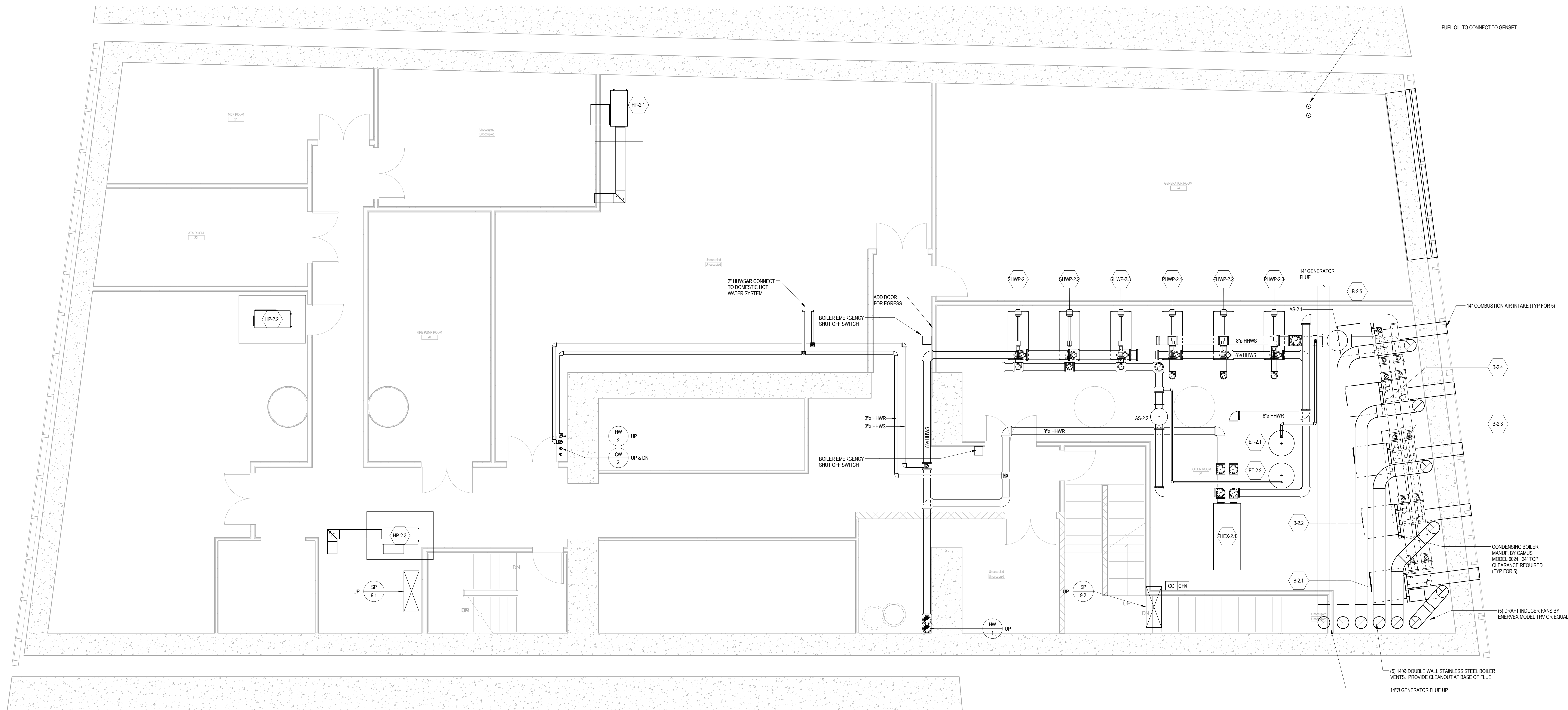
1/4" = 1'-0"

CETRARUDDY ARCHITECTURE DPC
 104 BROADWAY NEW YORK NY 10012 T 212 541 9001 F 212 541 9440
 WWW.CETRARUDDY.COM

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaroloPold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Vanessa Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER BaroloPold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



MECHANICAL 2ND FLOOR PLAN - MECH

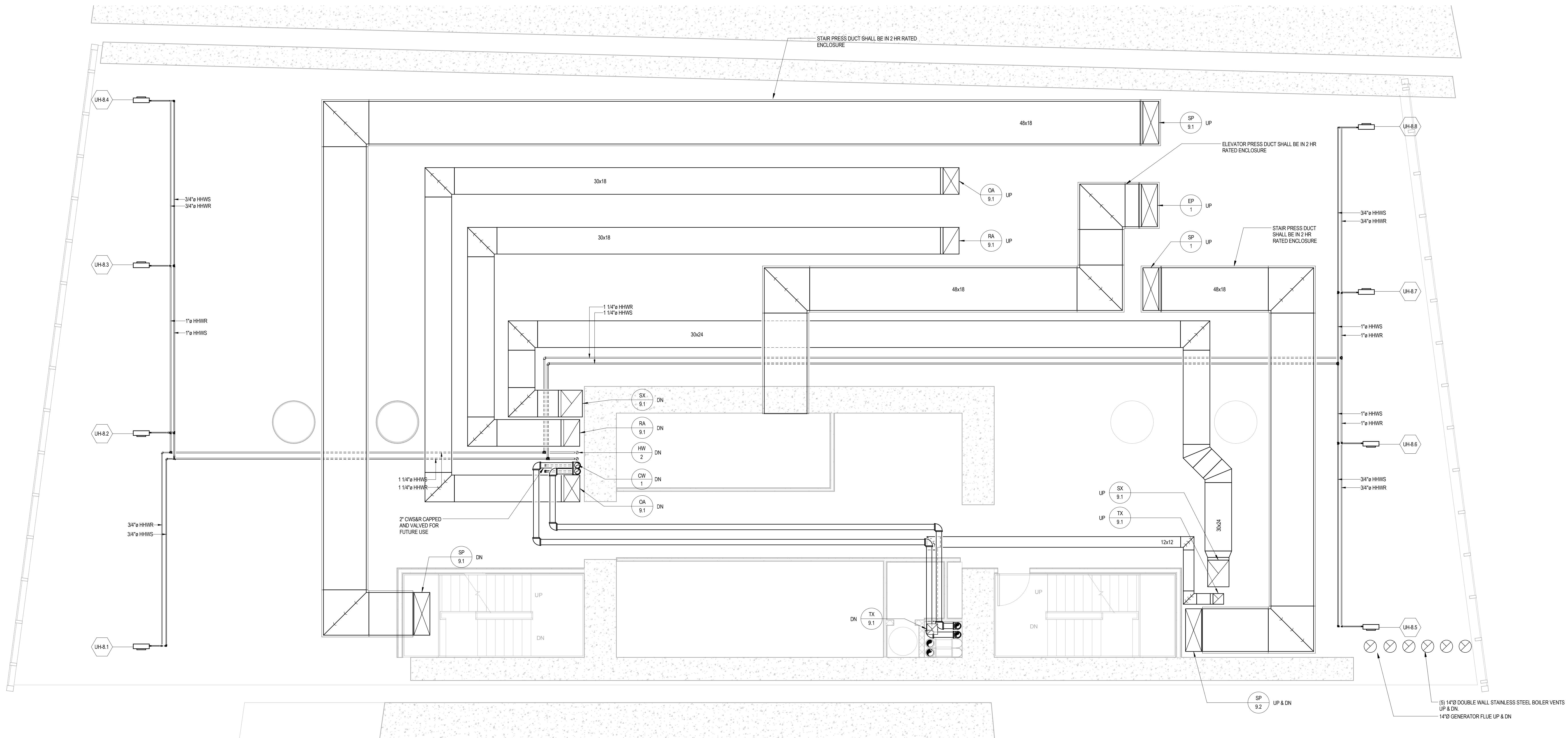
M-102.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 184 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BarcoMaddipati Engineering 100 Broadway New York, NY 10005 212.234.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.477.5400	MECHANICAL ENGINEER MPP LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Vanessa Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER BarcoMaddipati Engineering 100 Broadway New York, NY 10005 212.234.2025



2016.04.29 DOB FILING

CETRARUDDY

MECHANICAL 8TH FLOOR PLAN

M-108.00

1/4" = 1'-0"

DEPARTMENT OF BUILDINGS

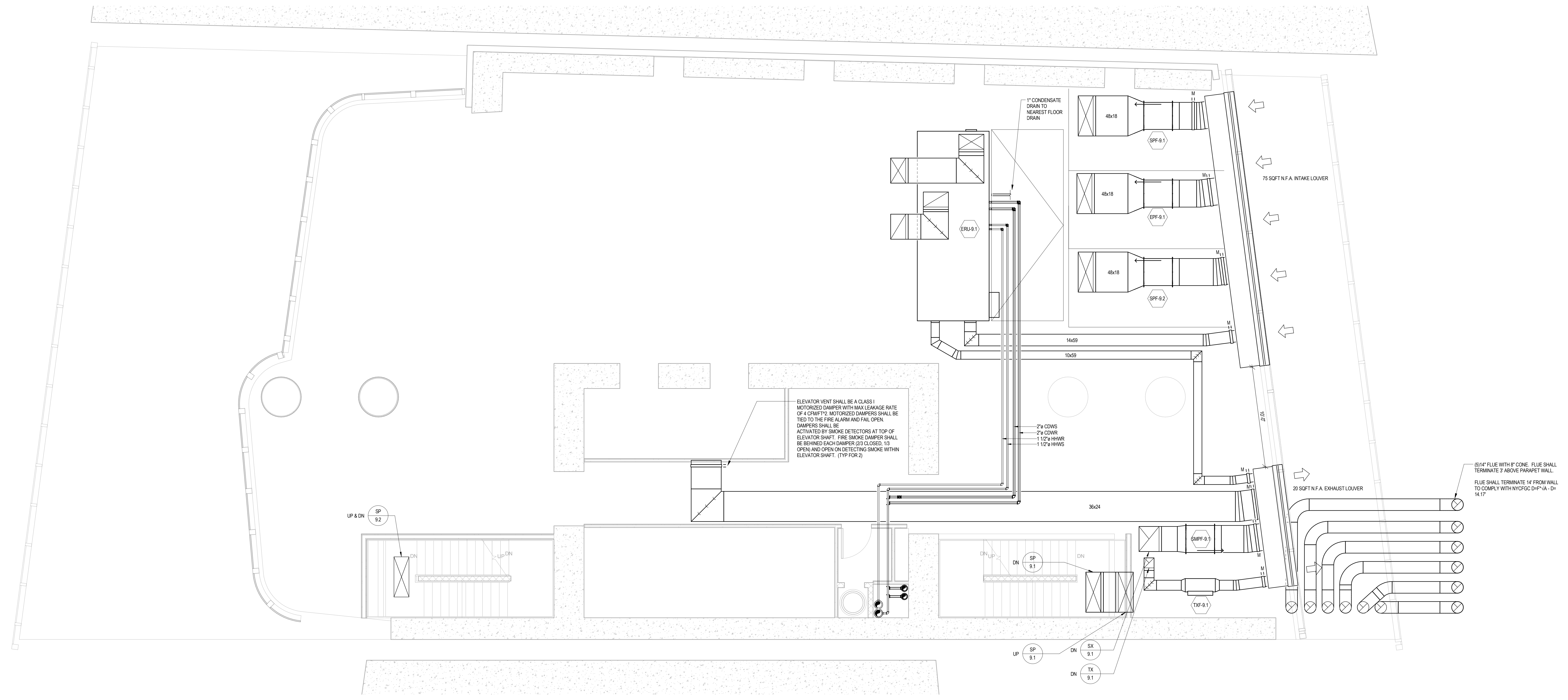
2016.04.29 DOB FILING

CETRARUDDY ARCHITECTURE DPC
 184 BROADWAY NEW YORK NY 10012 T 212.541.9001 F 212.541.9440
 WWW.CETRARUDDY.COM

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 184 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 43rd Street, 3rd Fl New York, NY 10017 212.687.8888	Mechanical Consultant BaronHappold Engineering 100 Broadway New York, NY 10005 212.254.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 200 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL CONSULTANT MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL CONSULTANT Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0035	Mechanical Consultant BaronHappold Engineering 100 Broadway New York, NY 10005 212.254.2025



2016.04.29 DOB FILING



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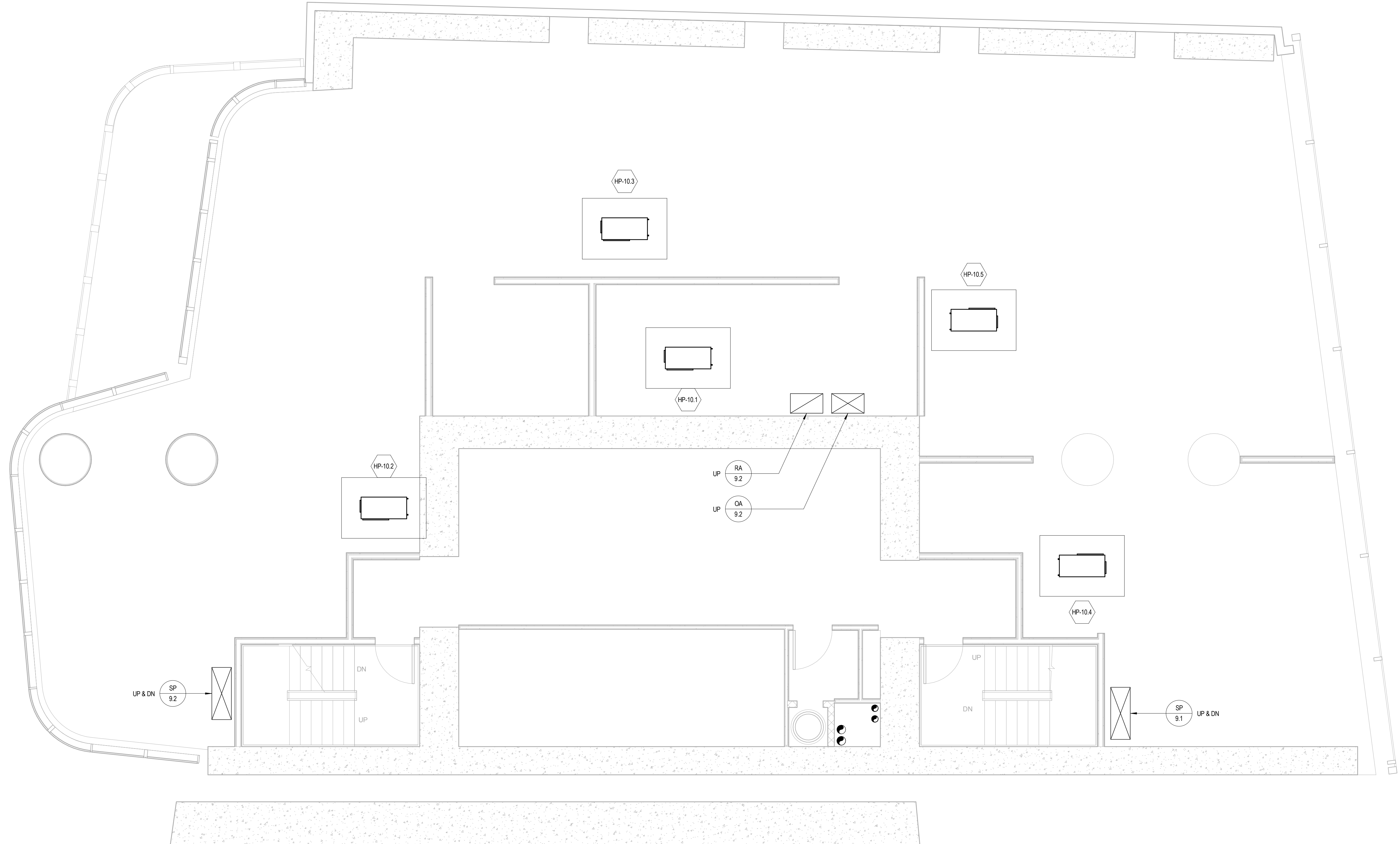
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1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 104 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 190 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
GENERAL CONTRACTOR Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	GENERAL CONTRACTOR BaroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



MECHANICAL 10TH FLOOR PLAN

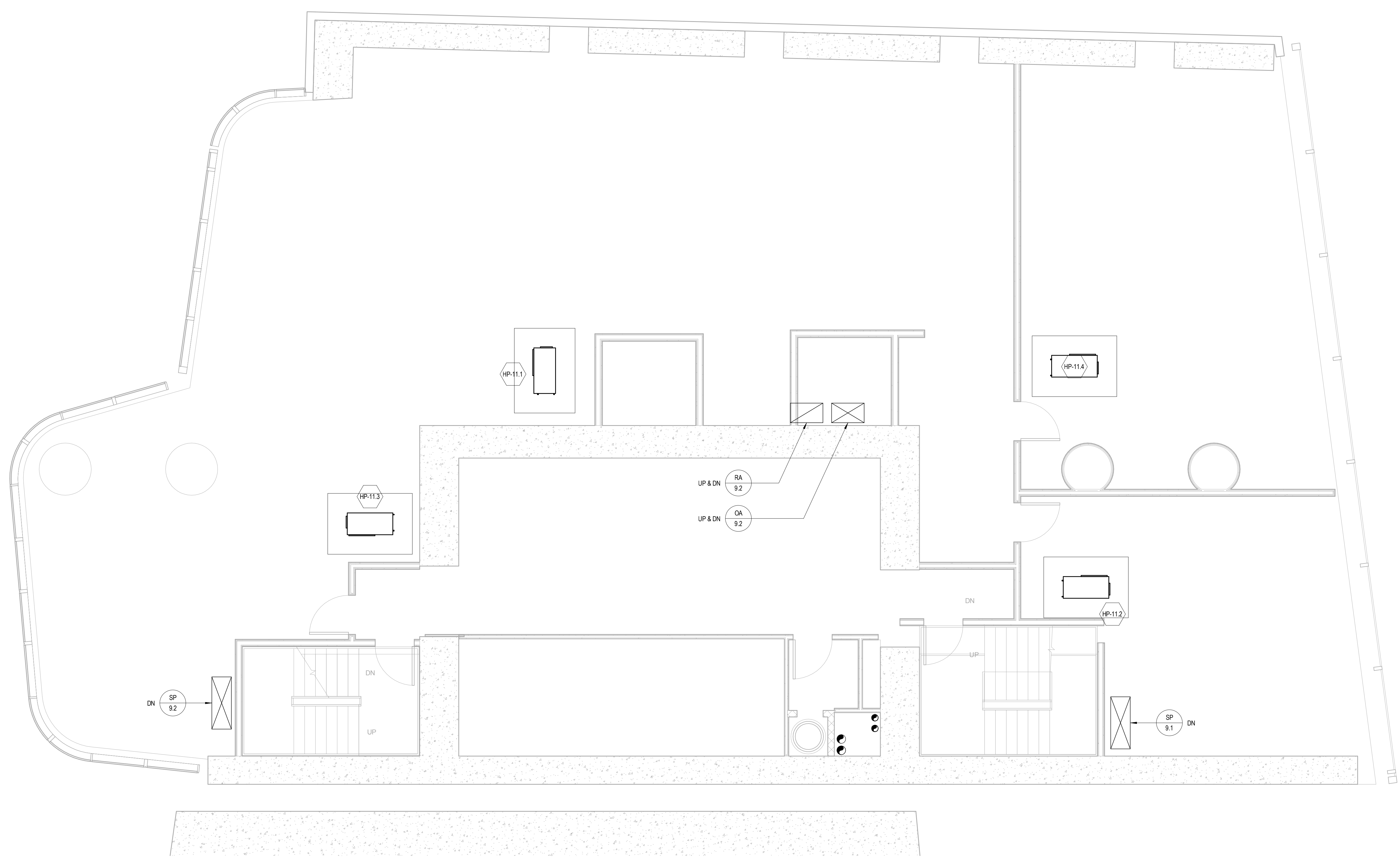
M-110.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 104 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
MECHANICAL ENGINEER LANGAN 21 Penn Plaza 130 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



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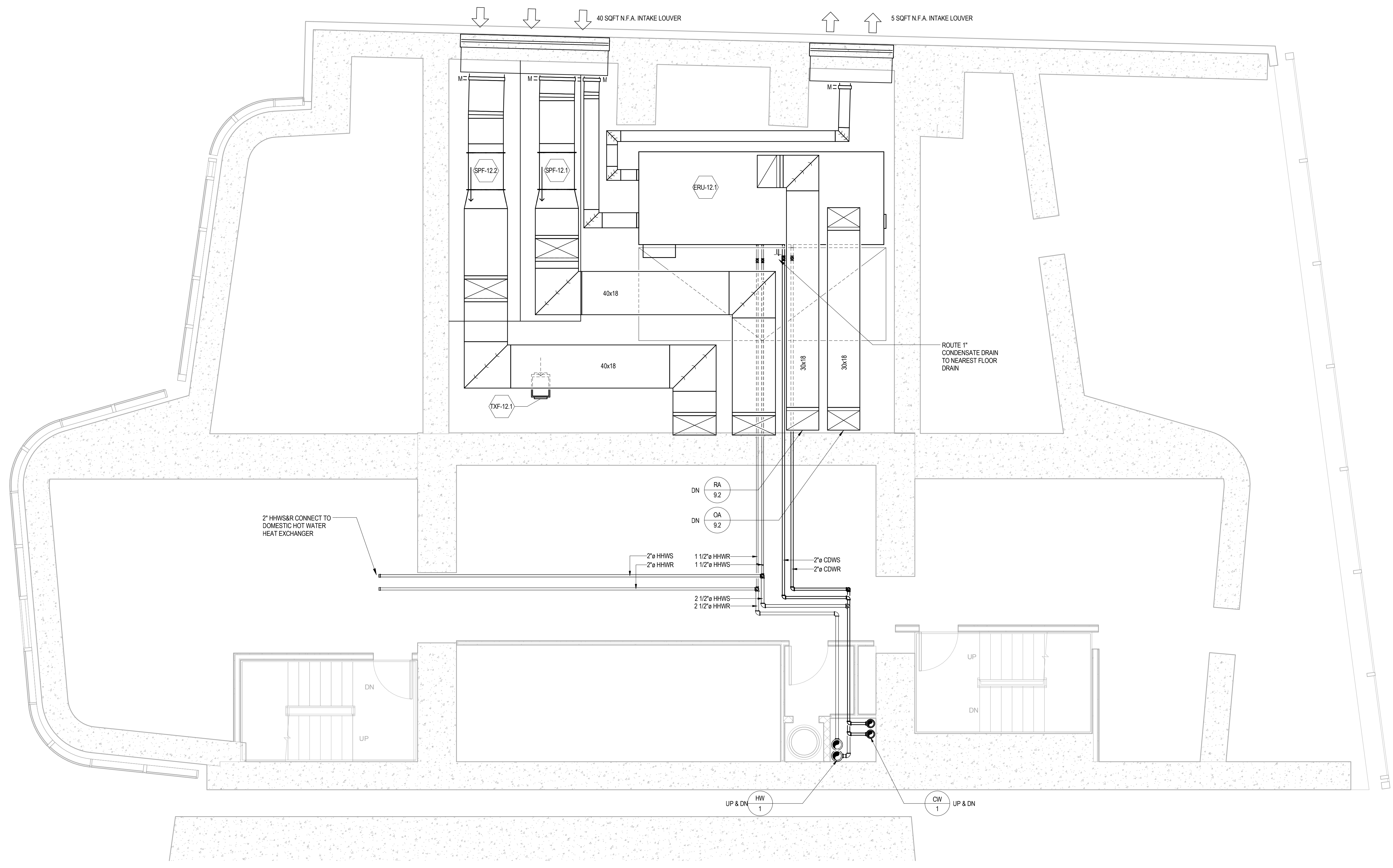
M-111.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9801	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BarcoMappold Engineering 100 Broadway New York, NY 10005 212.338.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 130 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER BarcoMappold Engineering 100 Broadway New York, NY 10005 212.338.2025



2016.04.29 DOB FILING



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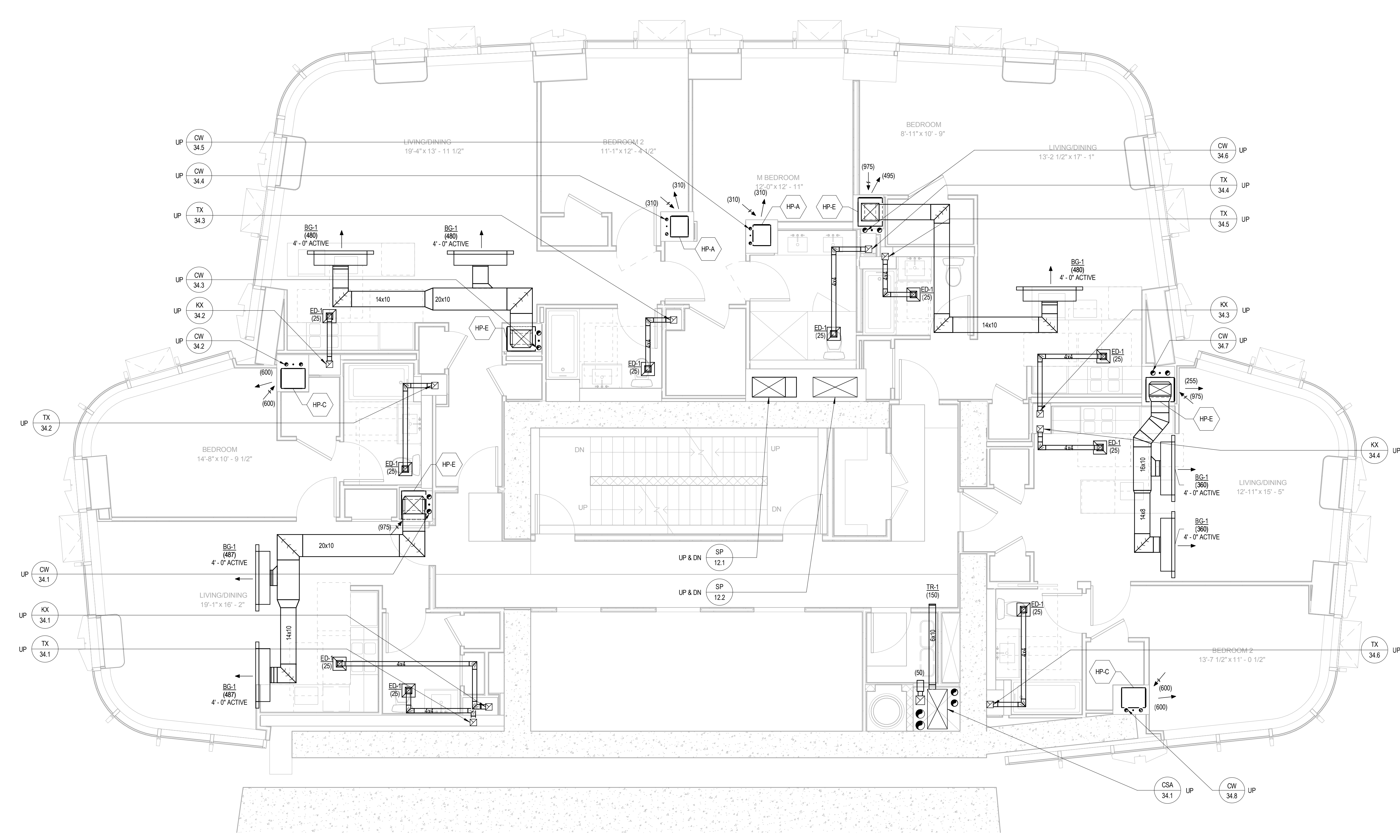
M-112.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 104 Broadway Suite 401 New York, NY 10012 212.941.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaronHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
STRUCTURAL ENGINEER LANGAN 21 Penn Plaza 360 West 31st Street, 8th Fl New York, NY 10001 212.479.5400	STRUCTURAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
INTERIOR DESIGNER Veronica Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER BaronHappold Engineering, LLC 100 Broadway New York, NY 10005 212.234.2025



2016.04.29 DOB FILING

CETRARUDDY

MECHANICAL 13TH-31ST FLOOR
PLAN - TIER 1

M-114.00

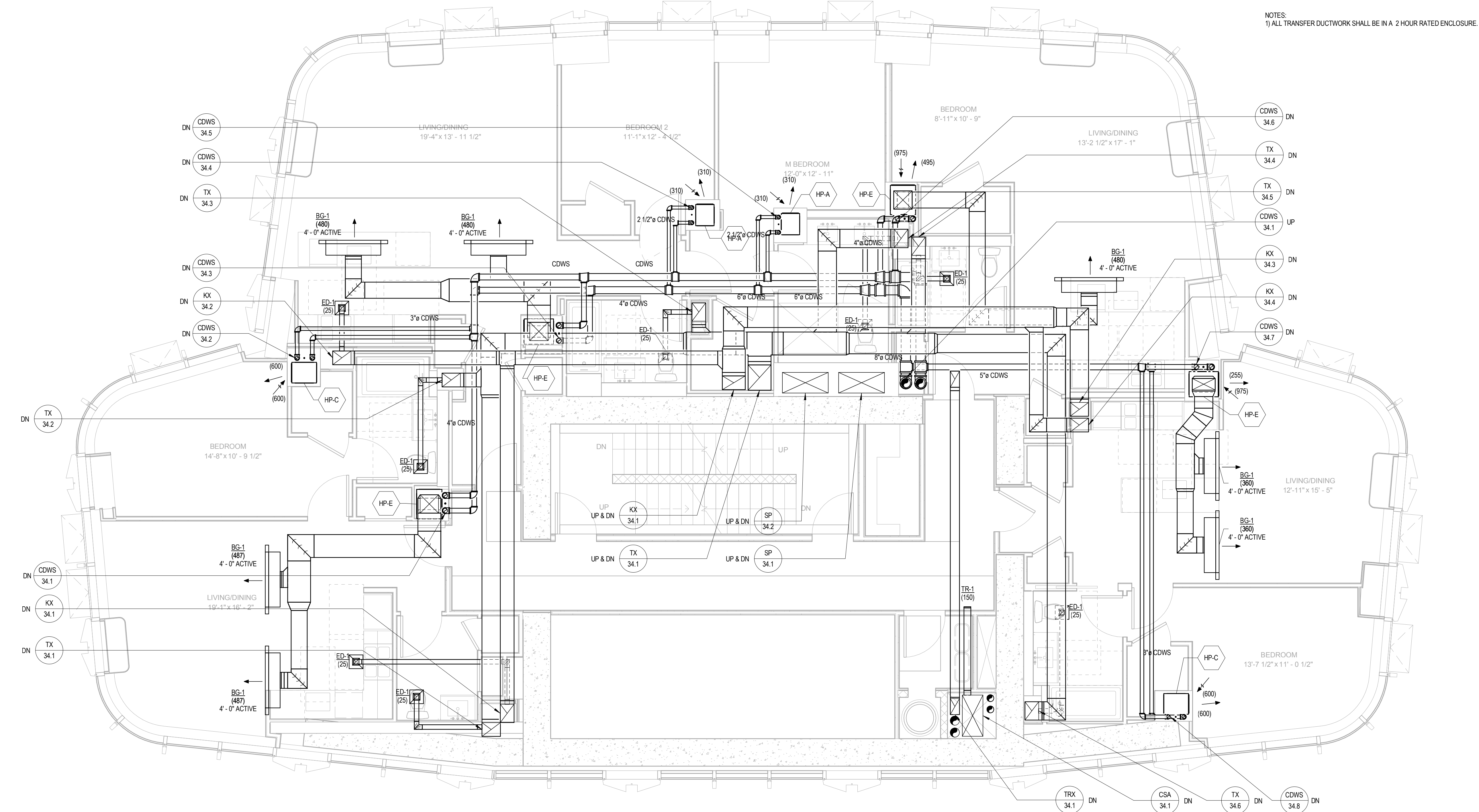
1/4" = 1'-0"

CETRARUDDY ARCHITECTURE DPC
504 BROADWAY NEW YORK NY 10012 T 212 941 9001 F 212 941 9440
WWW.CETRARUDDY.COM

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BarcoHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 1300 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER BarcoHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



NOTES:
 1) ALL TRANSFER DUCTWORK SHALL BE IN A 2 HOUR RATED ENCLOSURE.



2016.04.29 DOB FILING



MECHANICAL 32ND FLOOR PLAN - TIER 1 TRANSFER

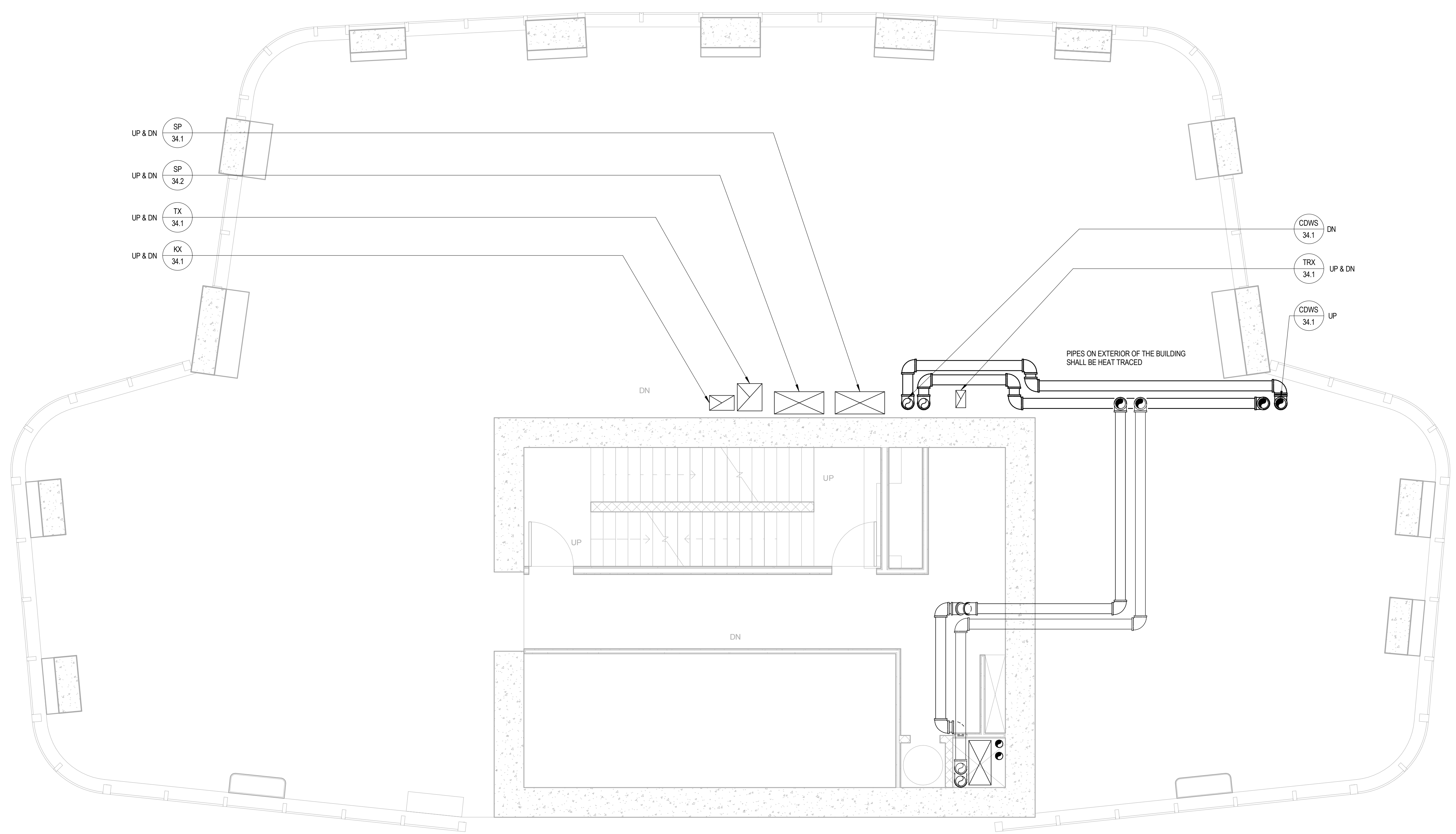
M-132.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 104 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BarcoHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
MECHANICAL ENGINEER LANGAN 21 Penn Plaza 190 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0035	MECHANICAL ENGINEER BarcoHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



MECHANICAL 33RD FLOOR PLAN -
OUTDOOR

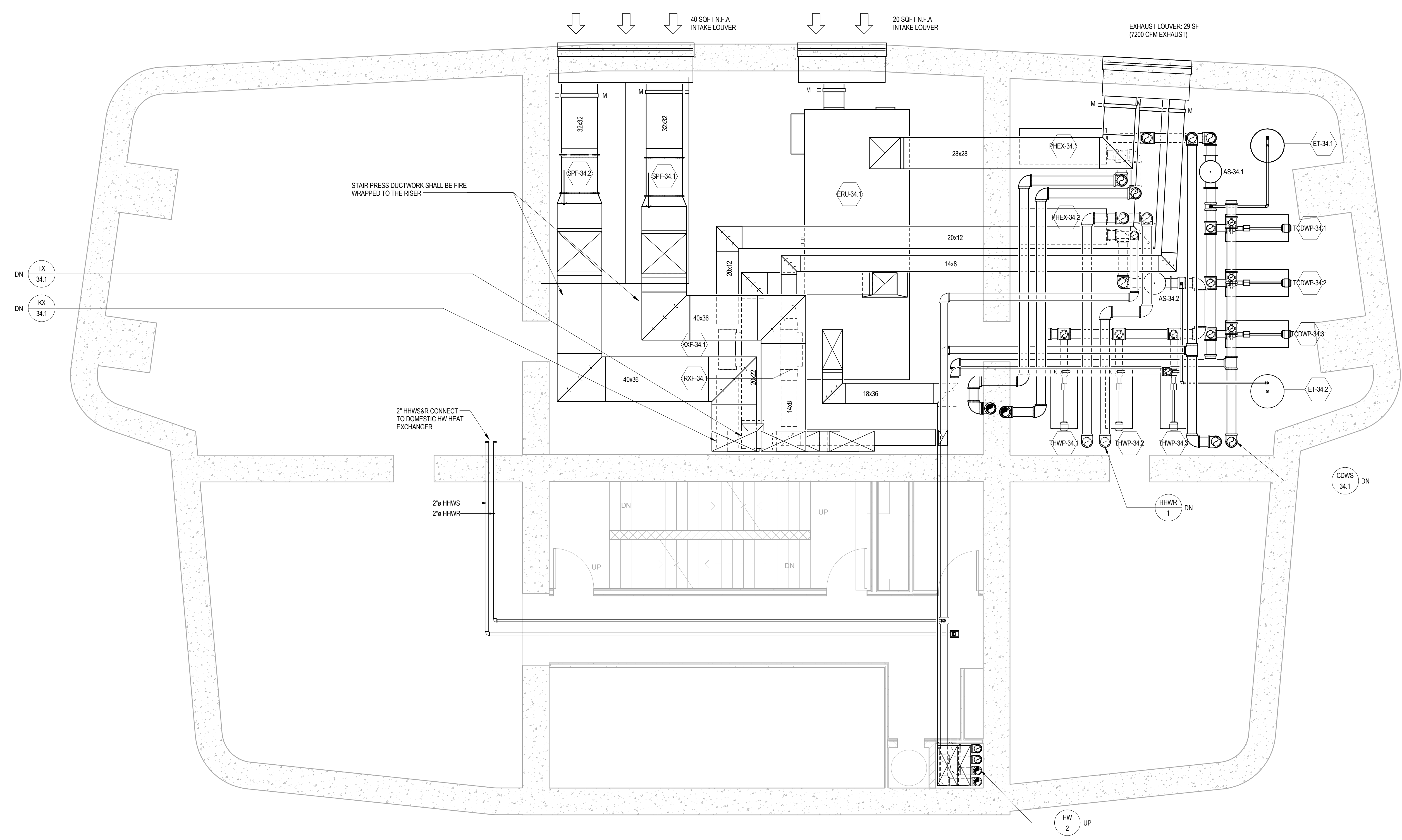
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1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 360 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING

MECHANICAL 34TH FLOOR PLAN - MECH

M-134.00

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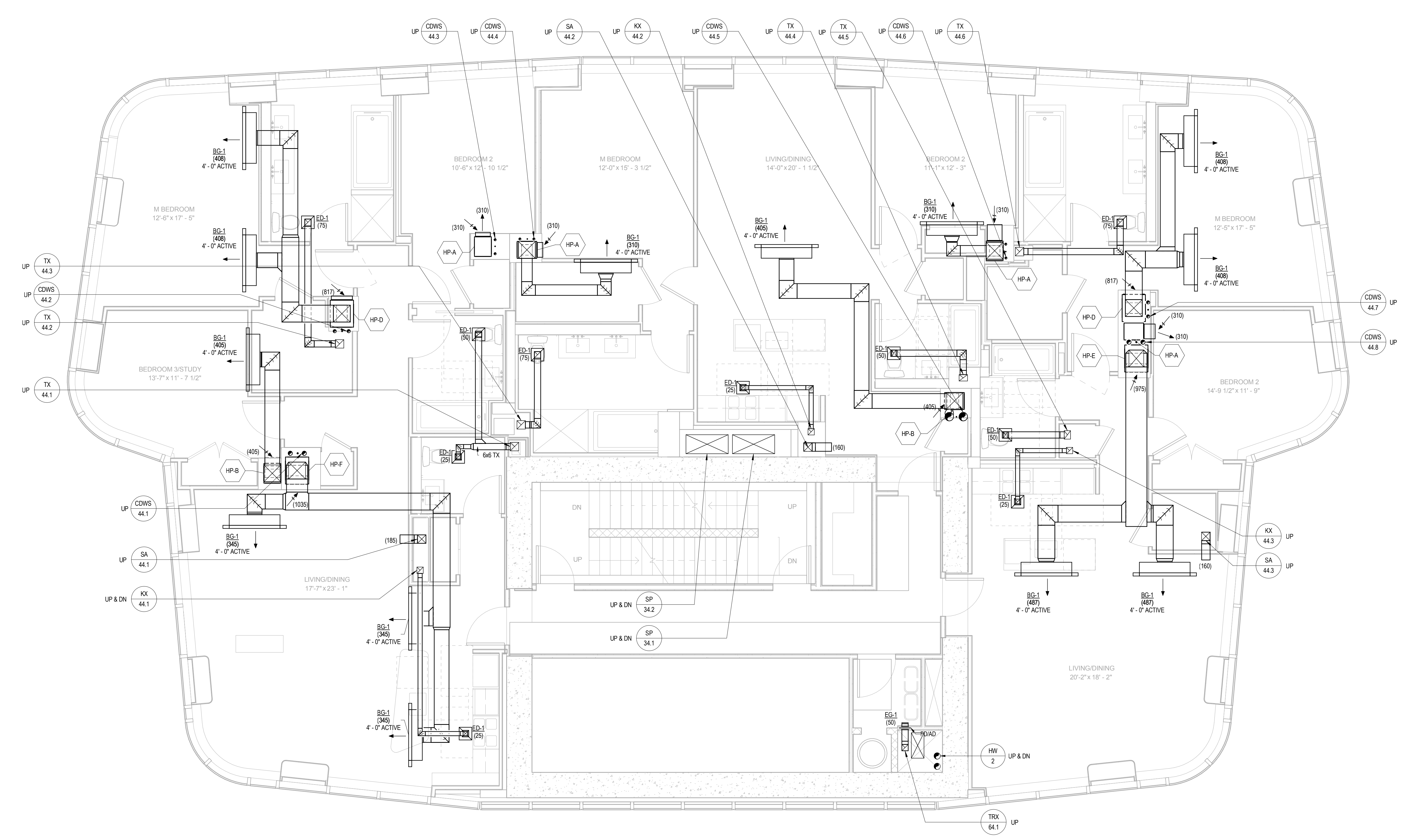
PROJECT: 45 BROAD STREET
 DATE: 04/29/16
 DRAWN BY: JAC
 CHECKED BY: JAC
 TITLE: MECHANICAL 34TH FLOOR PLAN - MECH

CETRARUDDY ARCHITECTURE DPC
 584 BROADWAY NEW YORK NY 10012 T 212 541 9001 F 212 541 9440
 WWW.CETRARUDDY.COM

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	CLIENT Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BarcoHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER BarcoHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



CETRARUDDY

MECHANICAL 35TH-50TH FLOOR
PLAN - TIER 2

M-135.00

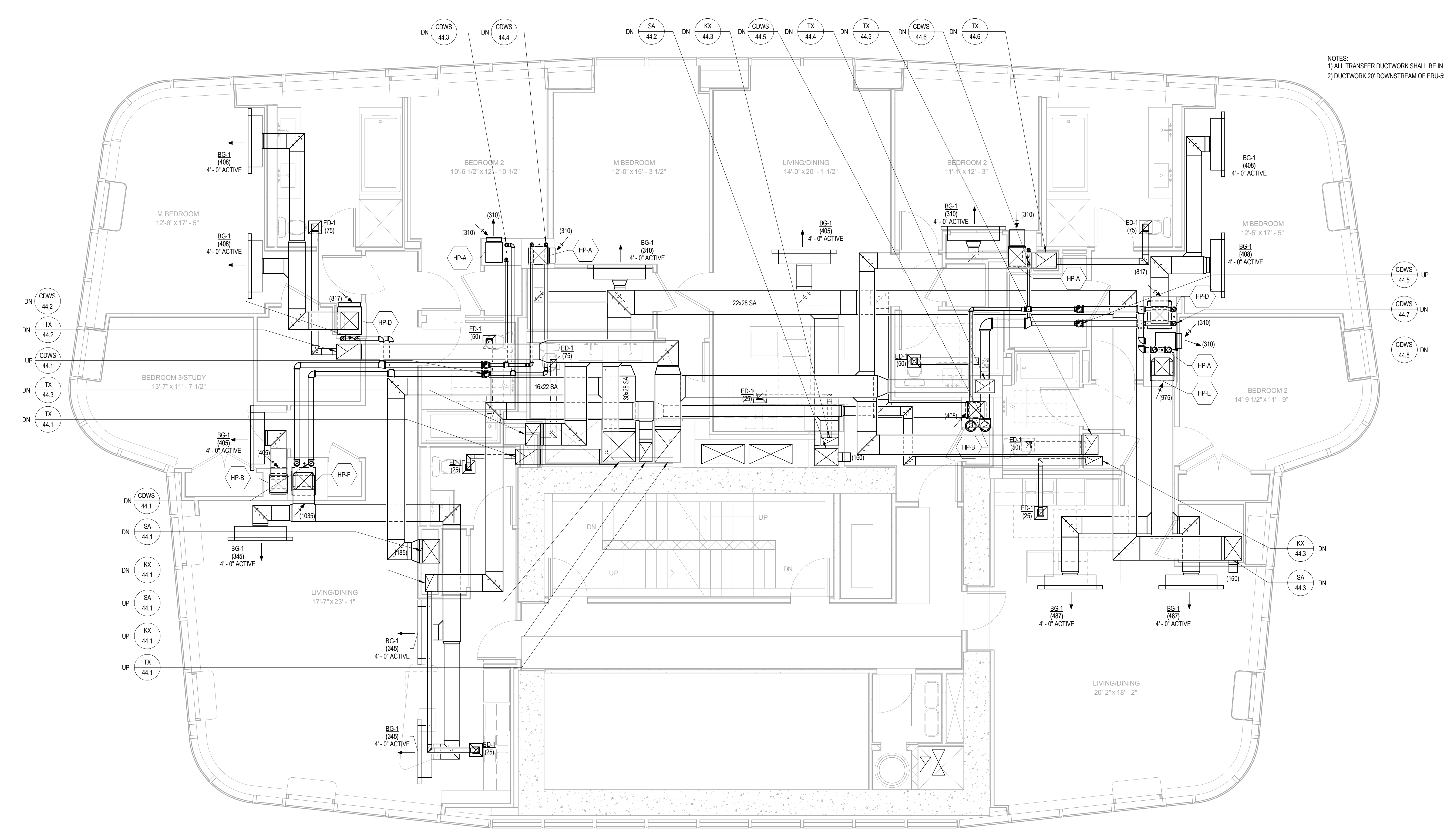
1/4" = 1'-0"

CETRARUDDY ARCHITECTURE DPC
584 BROADWAY NEW YORK NY 10012 T 212 541 9001 F 212 541 9440
WWW.CETRARUDDY.COM

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	CLIENT Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BarroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 1300 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER BarroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



NOTES:
 1) ALL TRANSFER DUCTWORK SHALL BE IN A 2 HOUR RATED ENCLOSURE.
 2) DUCTWORK 20' DOWNSTREAM OF ERU-9.1 SHALL BE ACOUSTICALLY WAPPED.



2016.04.29 DOB FILING



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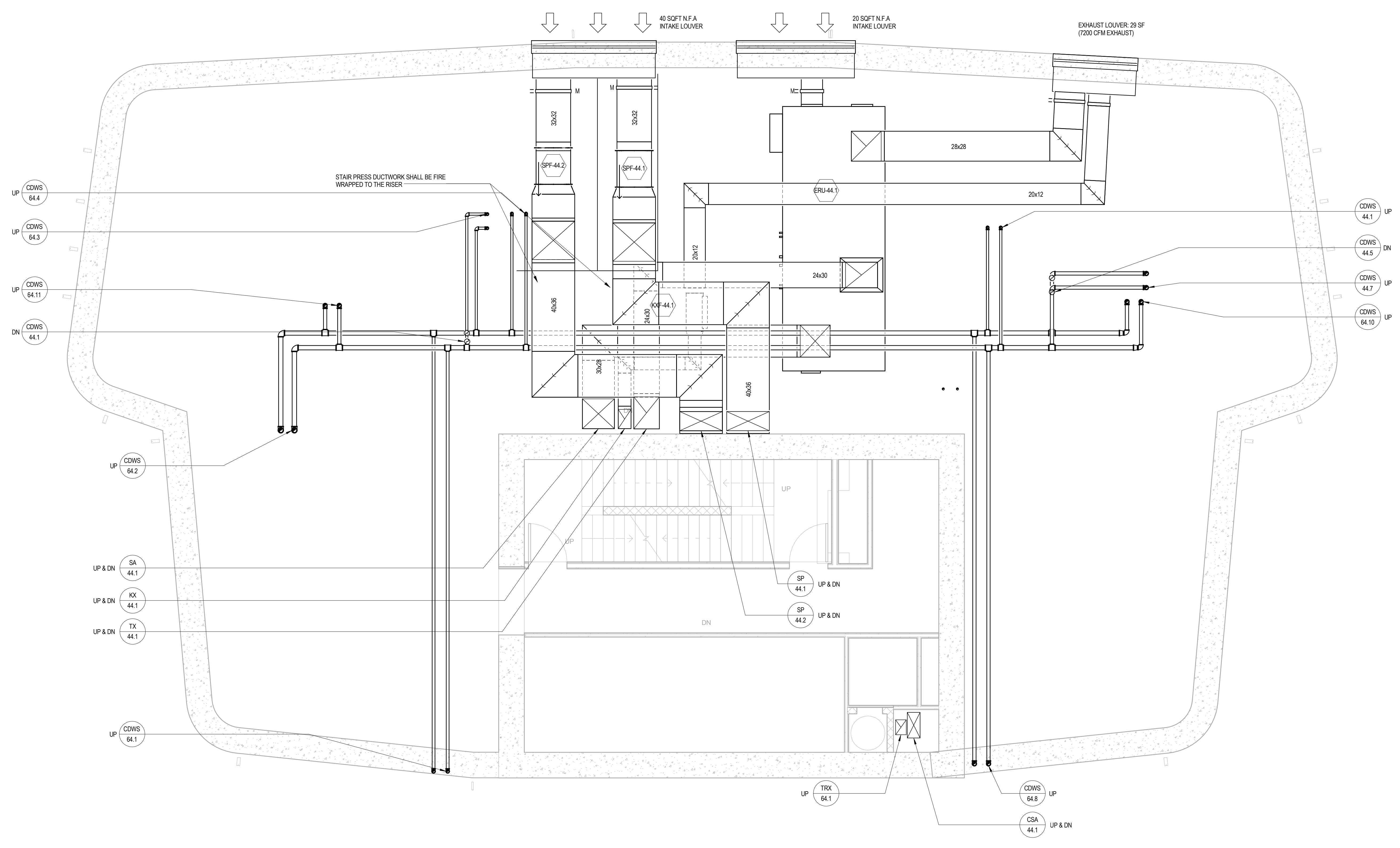
M-143.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT: John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway, Suite 401 New York, NY 10012 212.541.9001	CLIENT: Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER: WSP Group 228 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER: BaroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
STRUCTURAL ENGINEER: LANGAN 21 Penn Plaza 260 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER: MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER: Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER: BaroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



MECHANICAL 44TH FLOOR PLAN - MECH

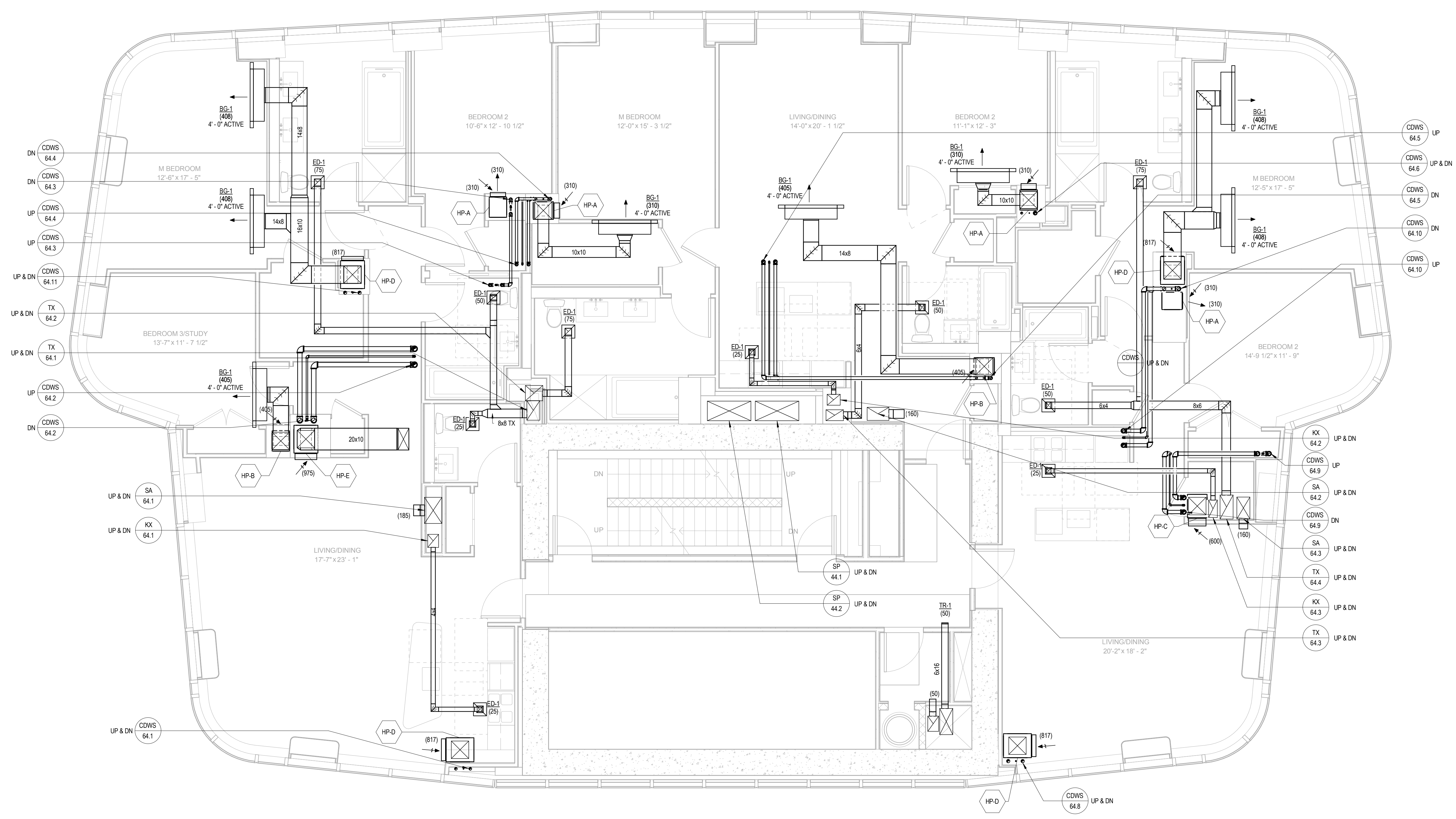
M-144.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.941.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10010
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BaronHappold Engineering 100 Broadway New York, NY 10005 212.338.2025
LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BaronHappold Engineering 100 Broadway New York, NY 10005 212.338.2025



2016.04.29 DOB FILING



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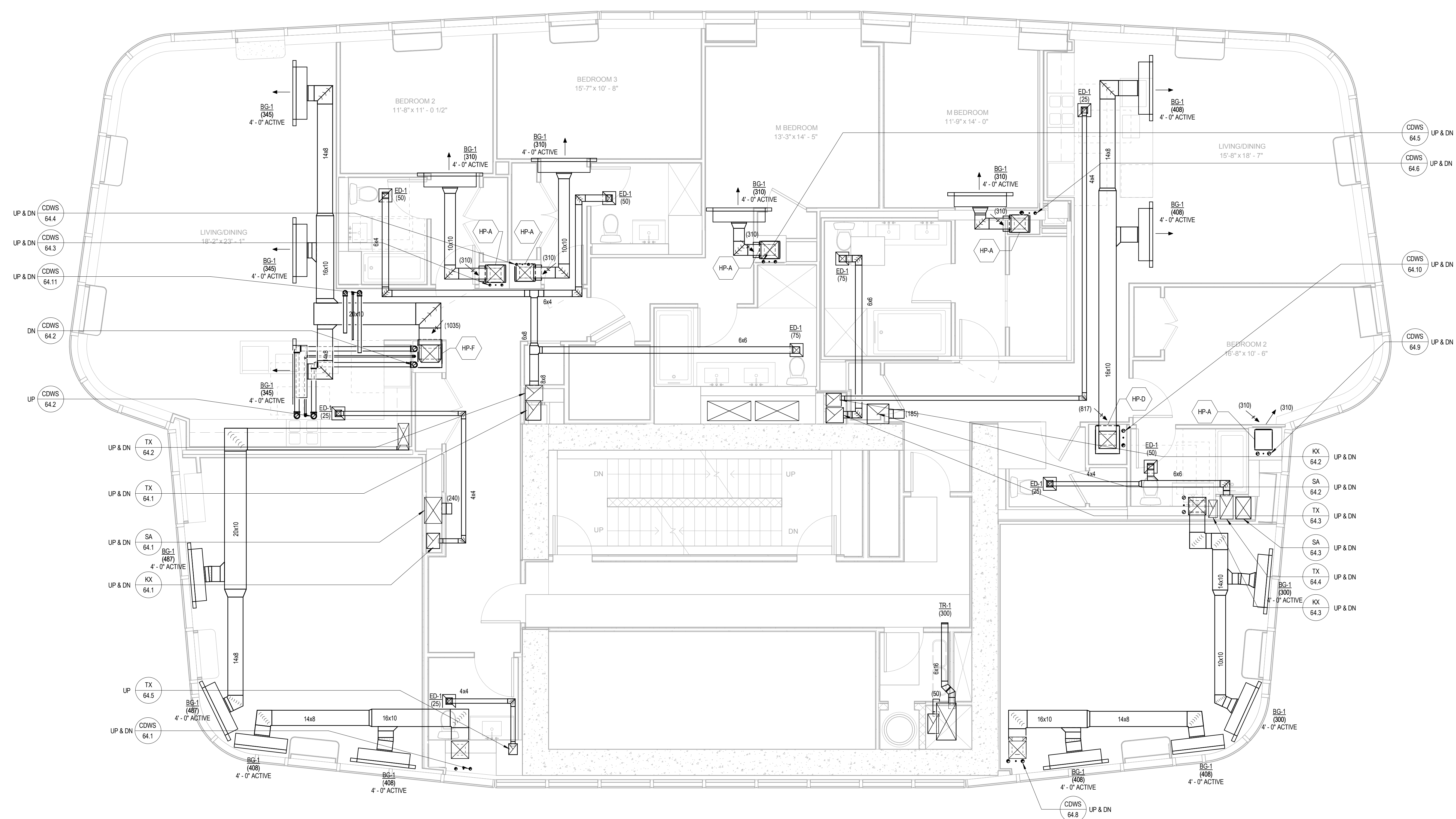
M-151.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10010
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 360 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6566
Ventressa Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



MECHANICAL 52ND FLOOR PLAN - TIER 2 - UPPER

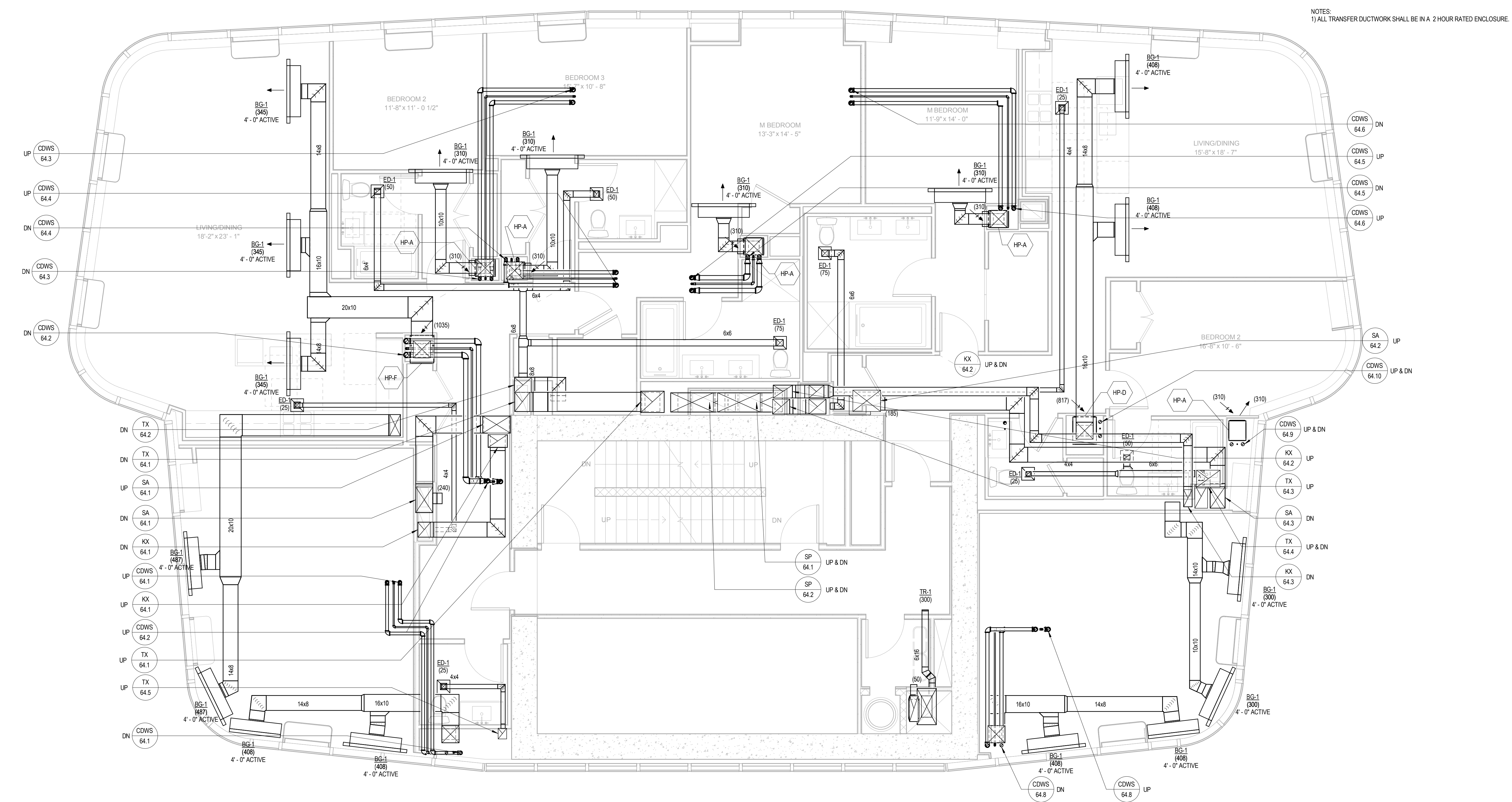
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1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	CLIENT Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10010
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaroloHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 200 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6566
OWNER Vanessa Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	OWNER BaroloHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



MECHANICAL 58TH FLOOR PLAN - TIER 2 TRANSFER

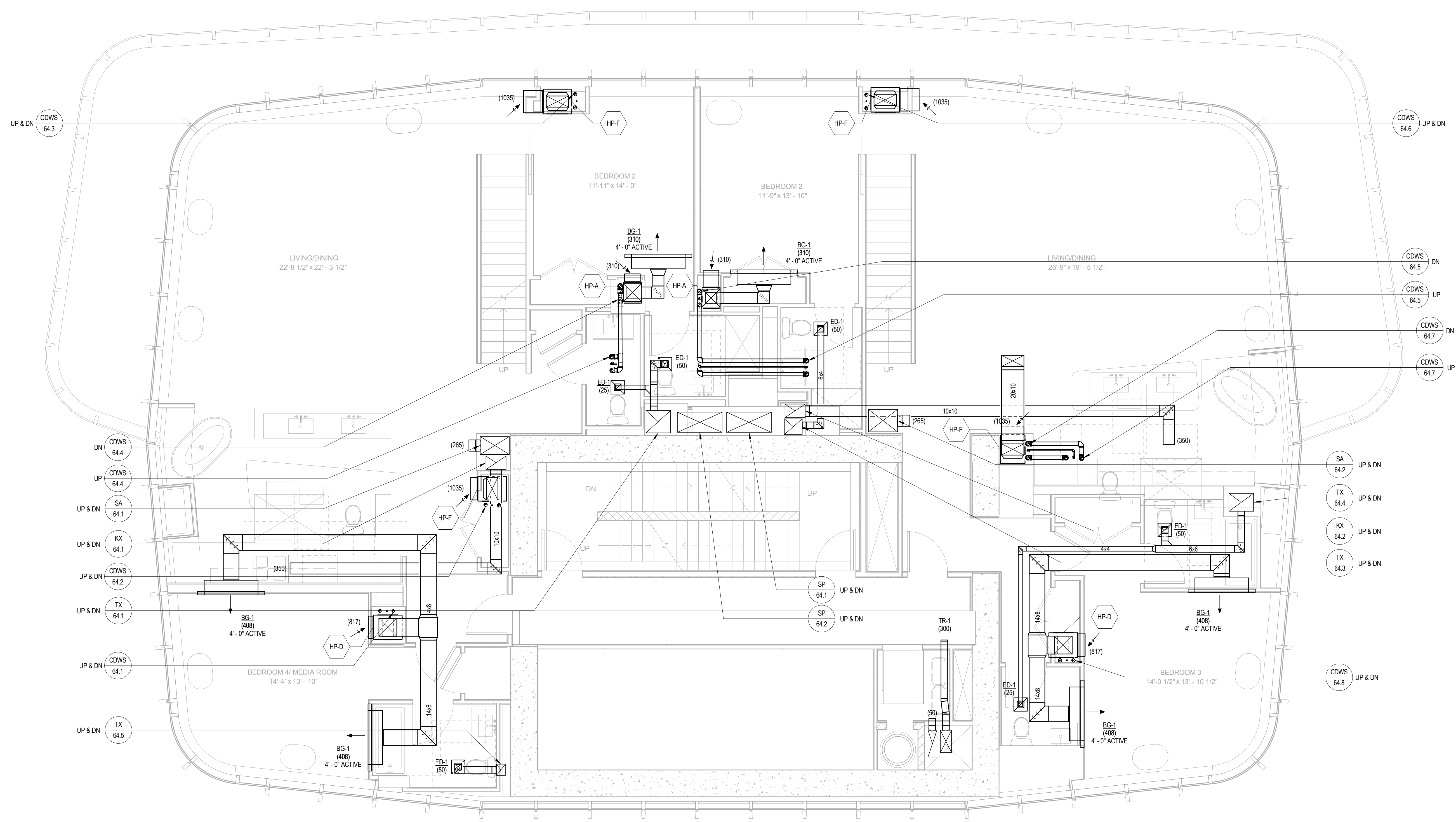
M-158.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture PC 104 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



MECHANICAL 59TH FLOOR PLAN - TIER 3 DUPLEX - LOWER

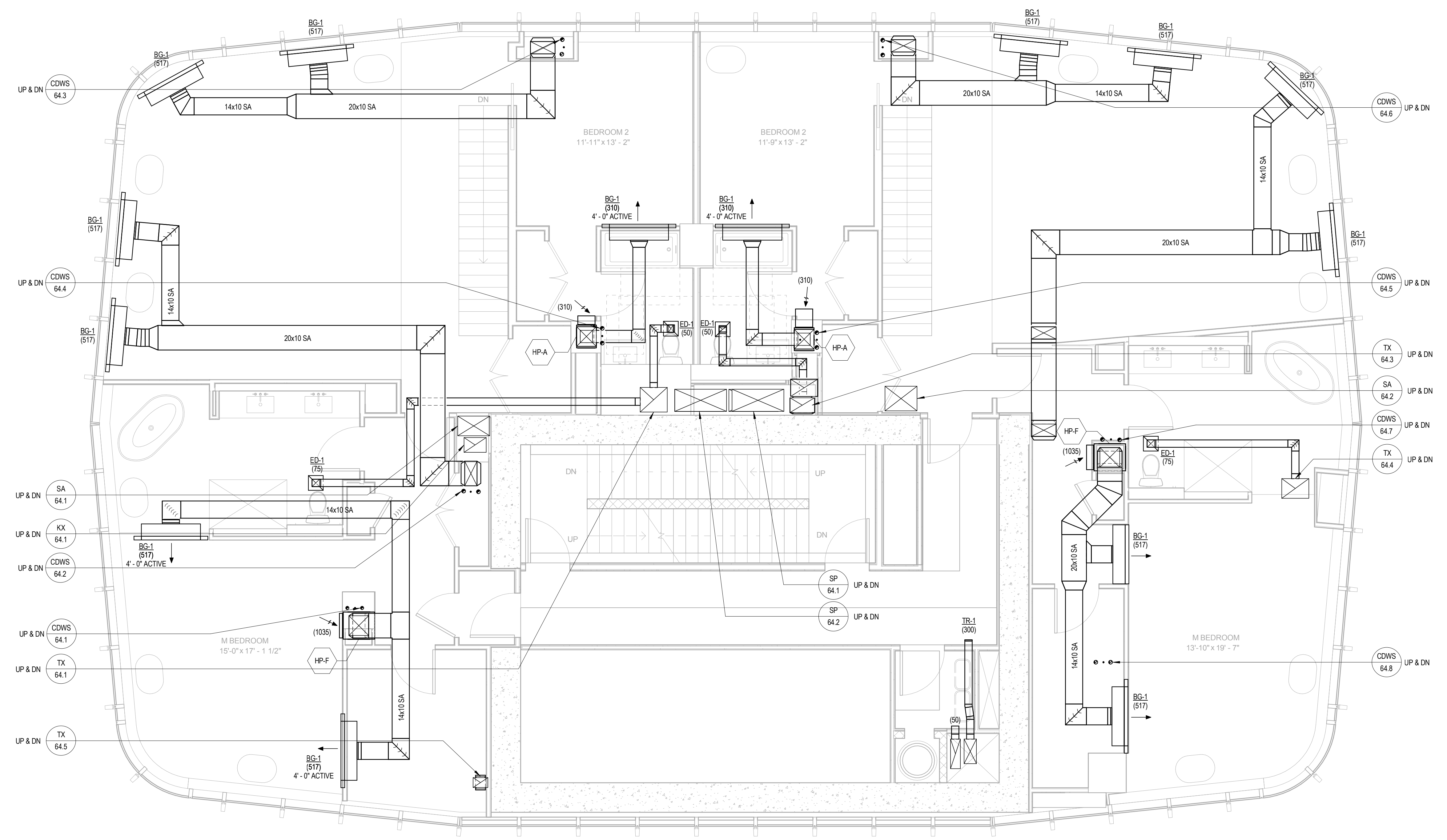
M-159.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture PC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10010
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BarcoHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANZAN 21 Penn Plaza 360 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
INTERIOR DESIGNER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	INTERIOR DESIGNER BarcoHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



MECHANICAL 60TH FLOOR PLAN - TIER 3 DUPLEX - UPPER

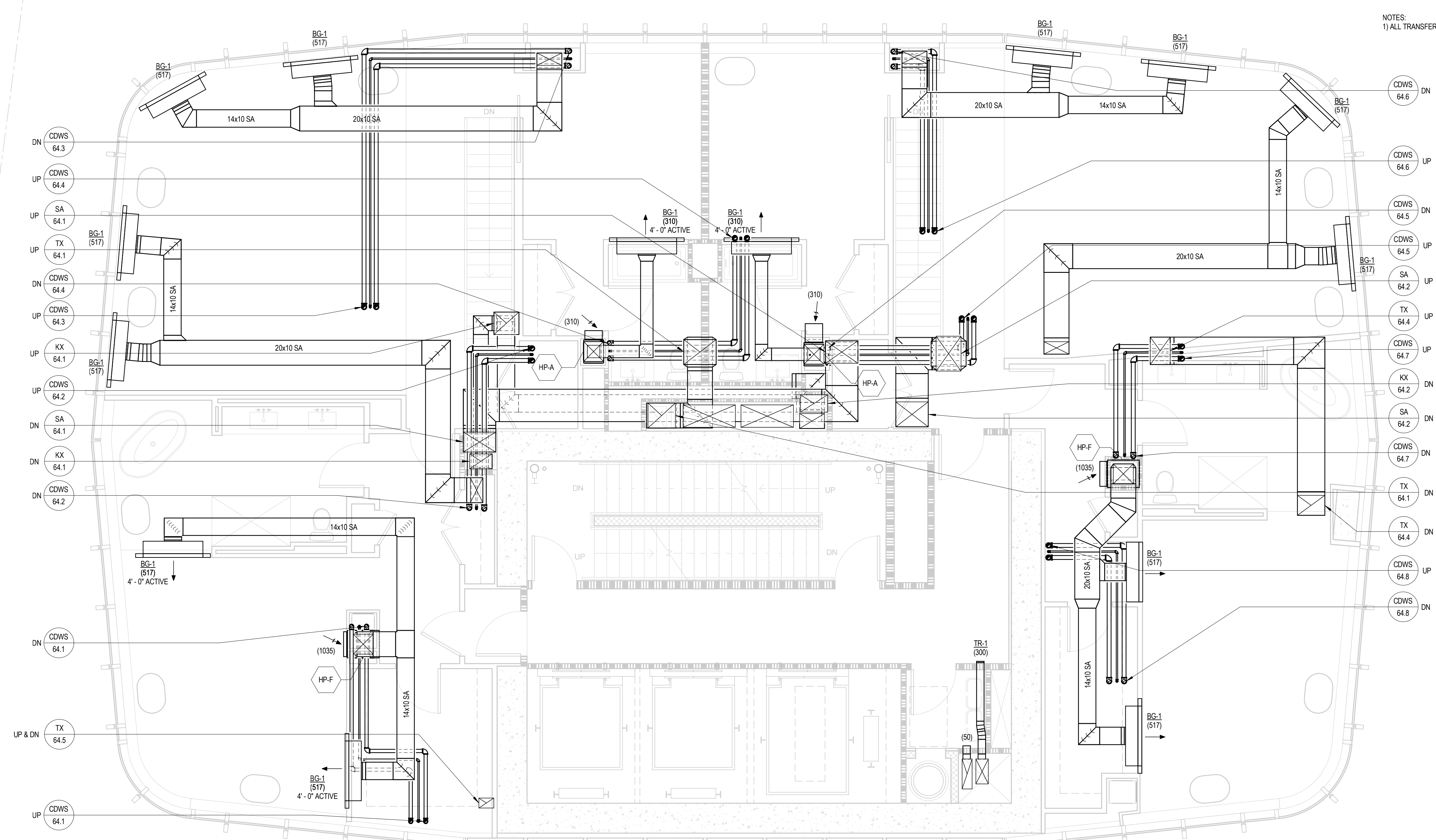
M-160.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.941.9001	CLIENT Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10010
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BarcoMappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANOAN 21 Penn Plaza 200 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
OWNER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	OWNER BarcoMappold Engineering 100 Broadway New York, NY 10005 212.334.2025



NOTES
 1) ALL TRANSFER DUCTWORK SHALL BE IN A 2-HOUR RATED ENCLOSURE.



2016.04.29 DOB FILING



MECHANICAL 62ND FLOOR PLAN -
 TIER 3 DUPLEX TRANSFER

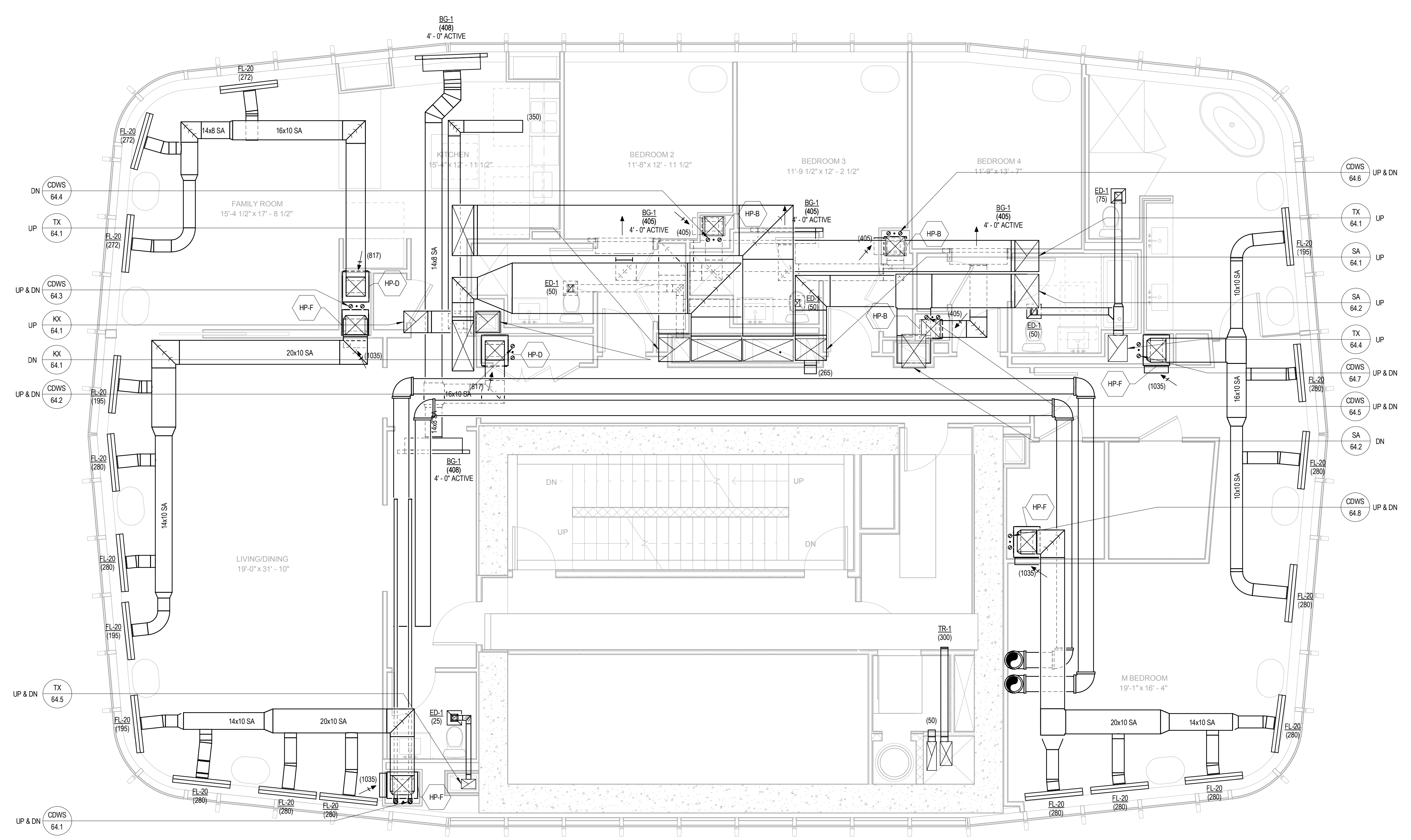
M-162.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.941.9801	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10010
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BarcoHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 200 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
GENERAL CONTRACTOR Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	GENERAL CONTRACTOR BarcoHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



MECHANICAL 63RD FLOOR PLAN - TIER 3 SIMPLEX

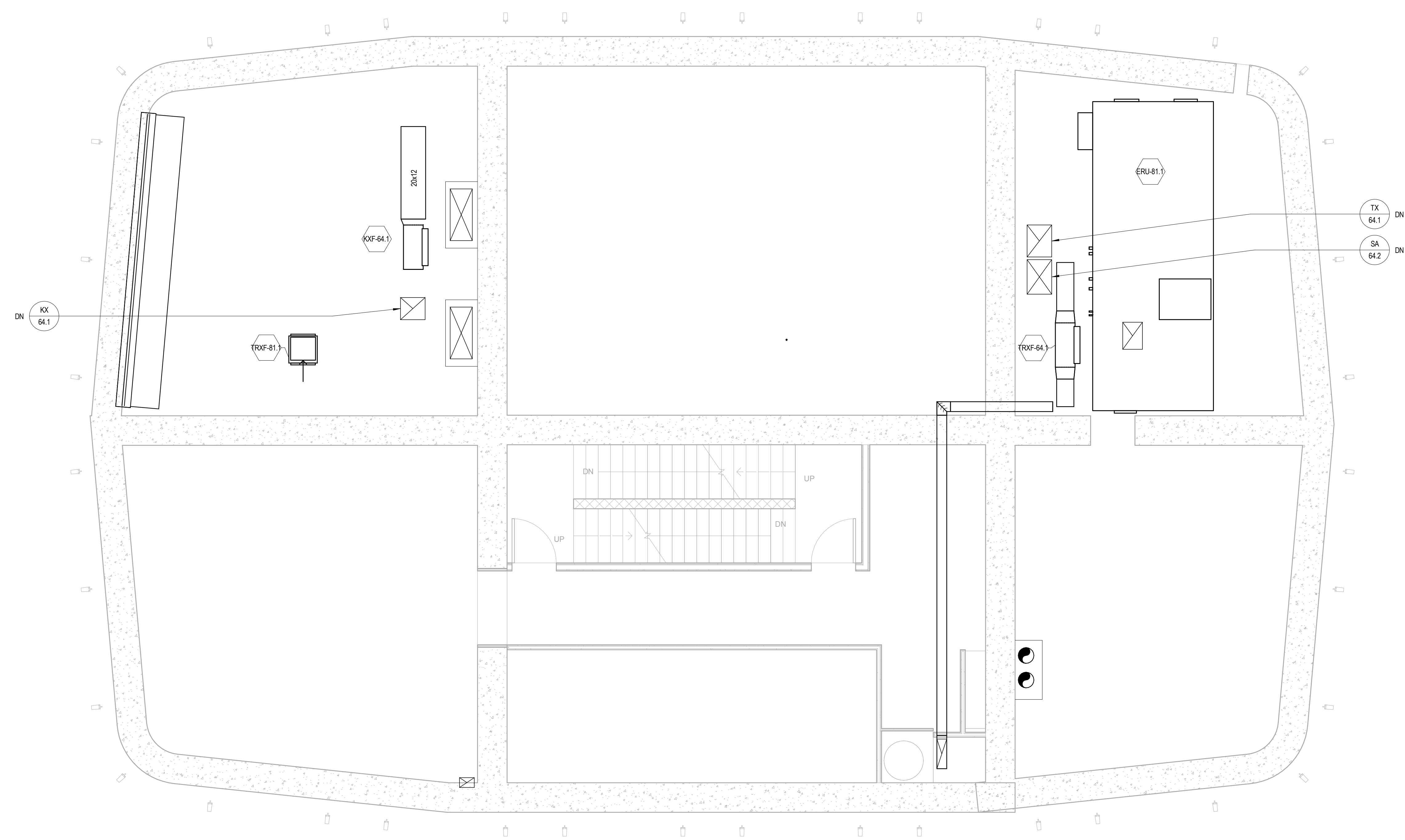
M-163.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 104 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BarcoHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
MECHANICAL ENGINEER LANGAN 21 Penn Plaza 360 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER BarcoHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



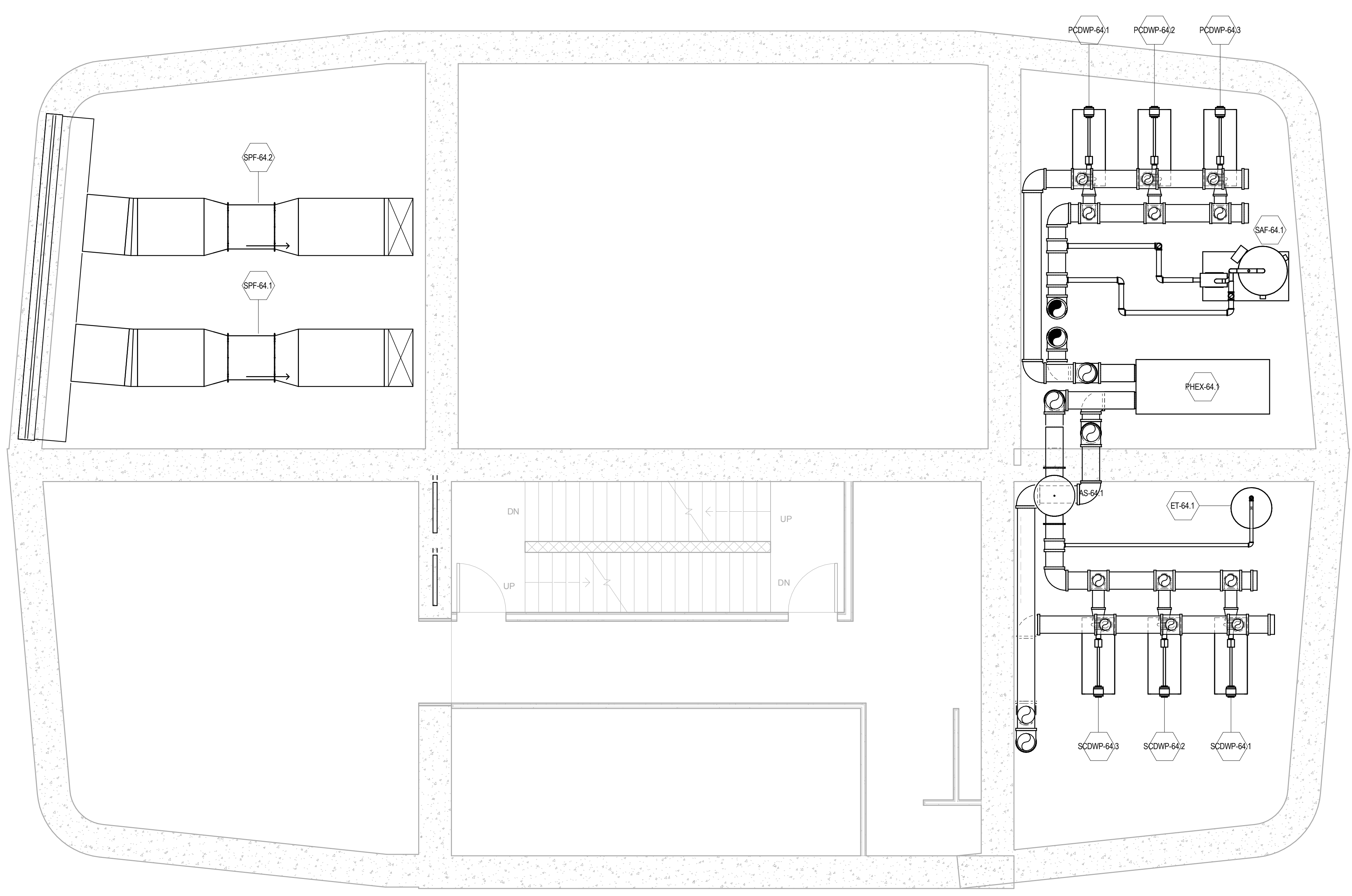
MECHANICAL 64TH FLOOR PLAN - MECH

M-164.00

1/4" = 1'-0"

45 BROAD STREET NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 104 Broadway Suite 401 New York, NY 10012 212.541.9801	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 360 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
GENERAL CONTRACTOR Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	GENERAL CONTRACTOR BaroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING



MECHANICAL 64TH MEZZANINE
FLOOR PLAN - MECH

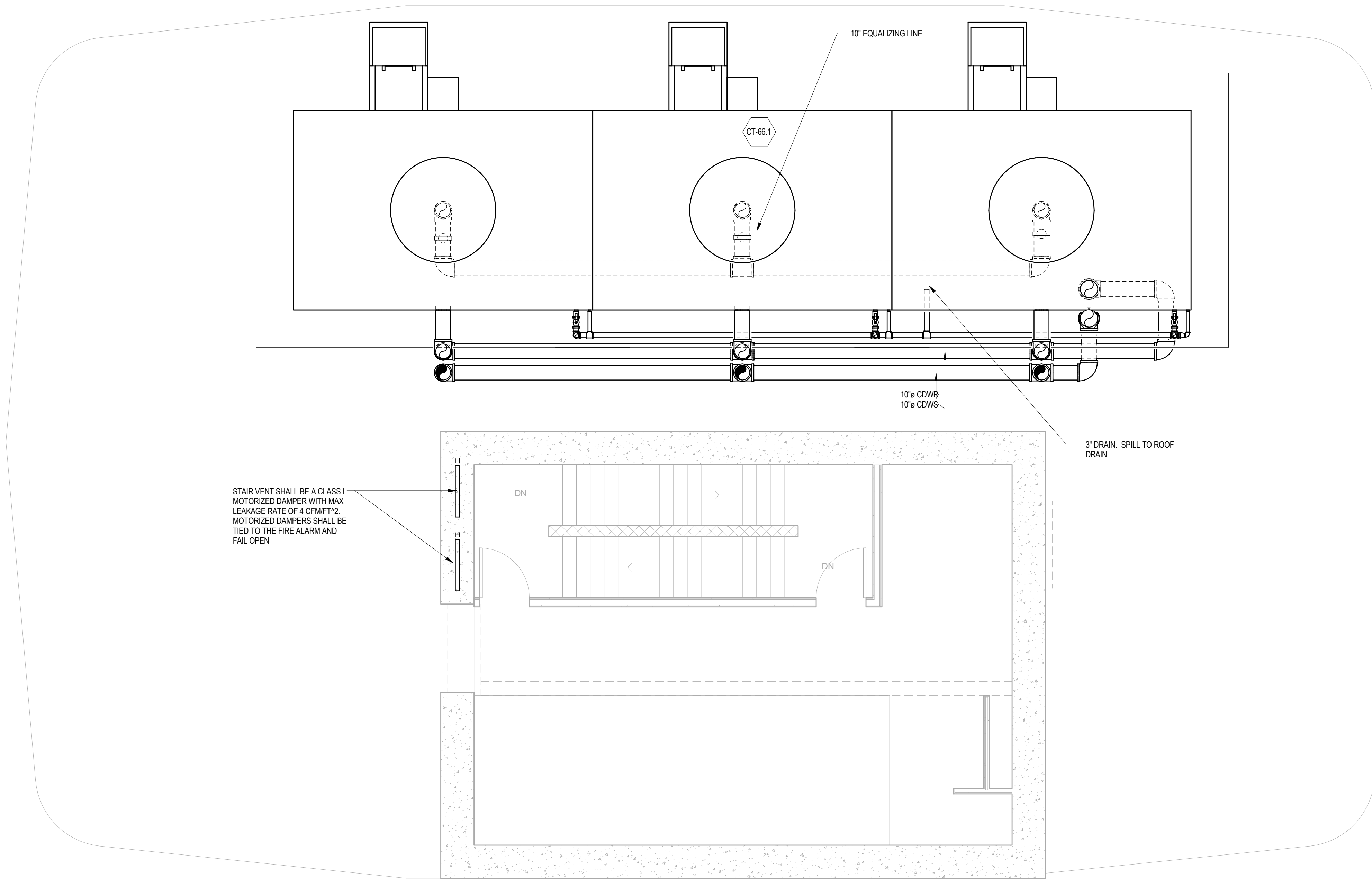
M-164M.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.338.2025
MECHANICAL ENGINEER LANGAN 21 Penn Plaza 360 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.338.2025



STAR VENT SHALL BE A CLASS I
MOTORIZED DAMPER WITH MAX
LEAKAGE RATE OF 4 CMH175.
MOTORIZED DAMPERS SHALL BE
TIED TO THE FIRE ALARM AND
FAIL OPEN



2016.04.29 DOB FILING



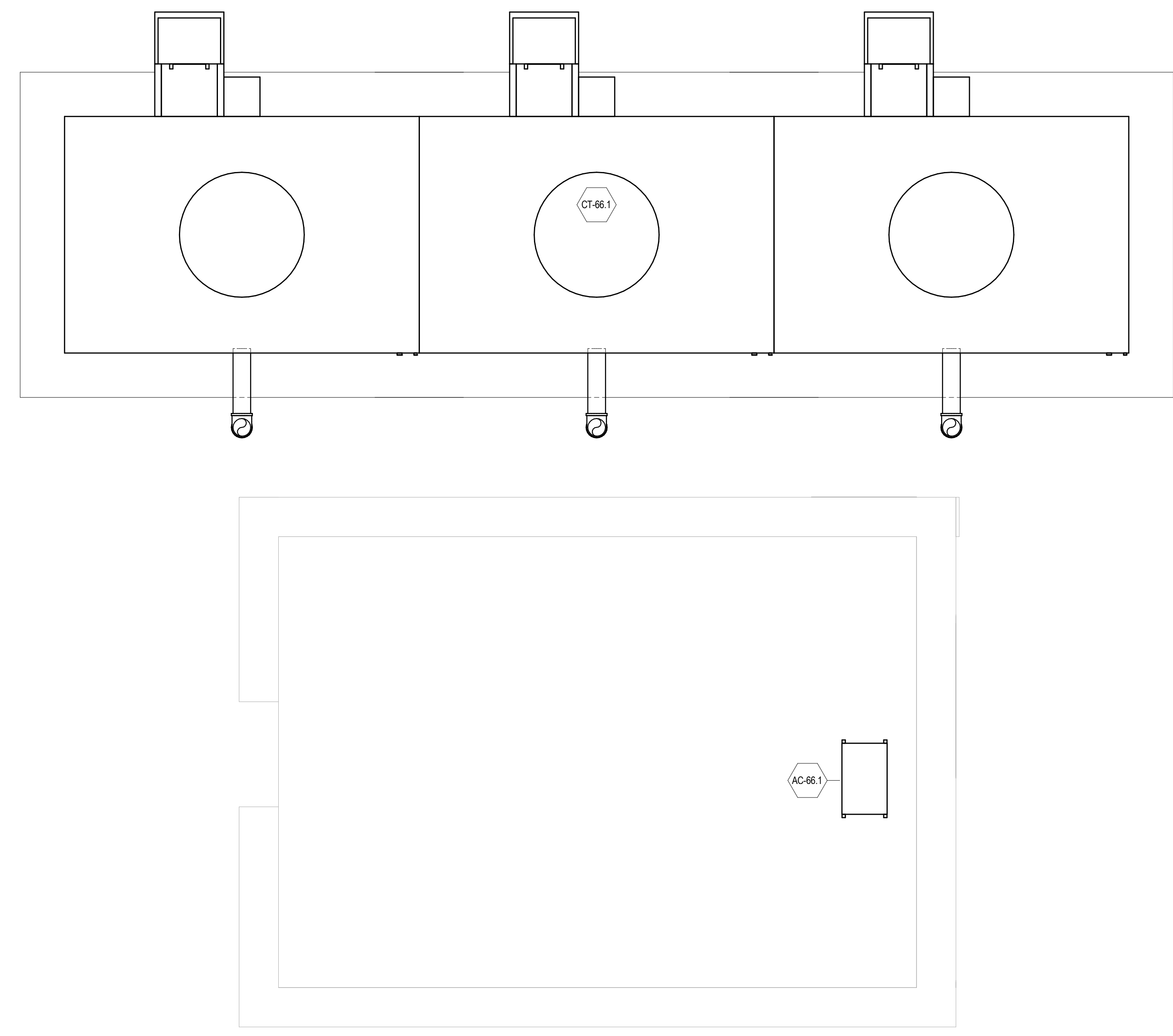
MECHANICAL 65TH FLOOR PLAN -
MASS DAMPER

M-165.00

1/4" = 1'-0"

45 BROAD STREET NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 104 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
MECHANICAL ENGINEER LANGAN 21 Penn Plaza 360 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPP LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Veronica Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



2016.04.29 DOB FILING

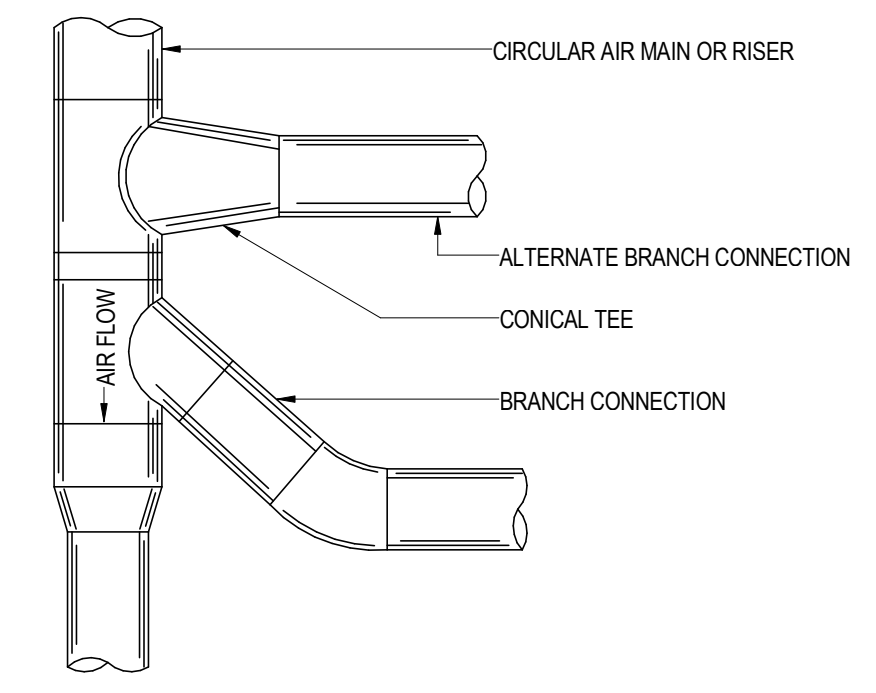
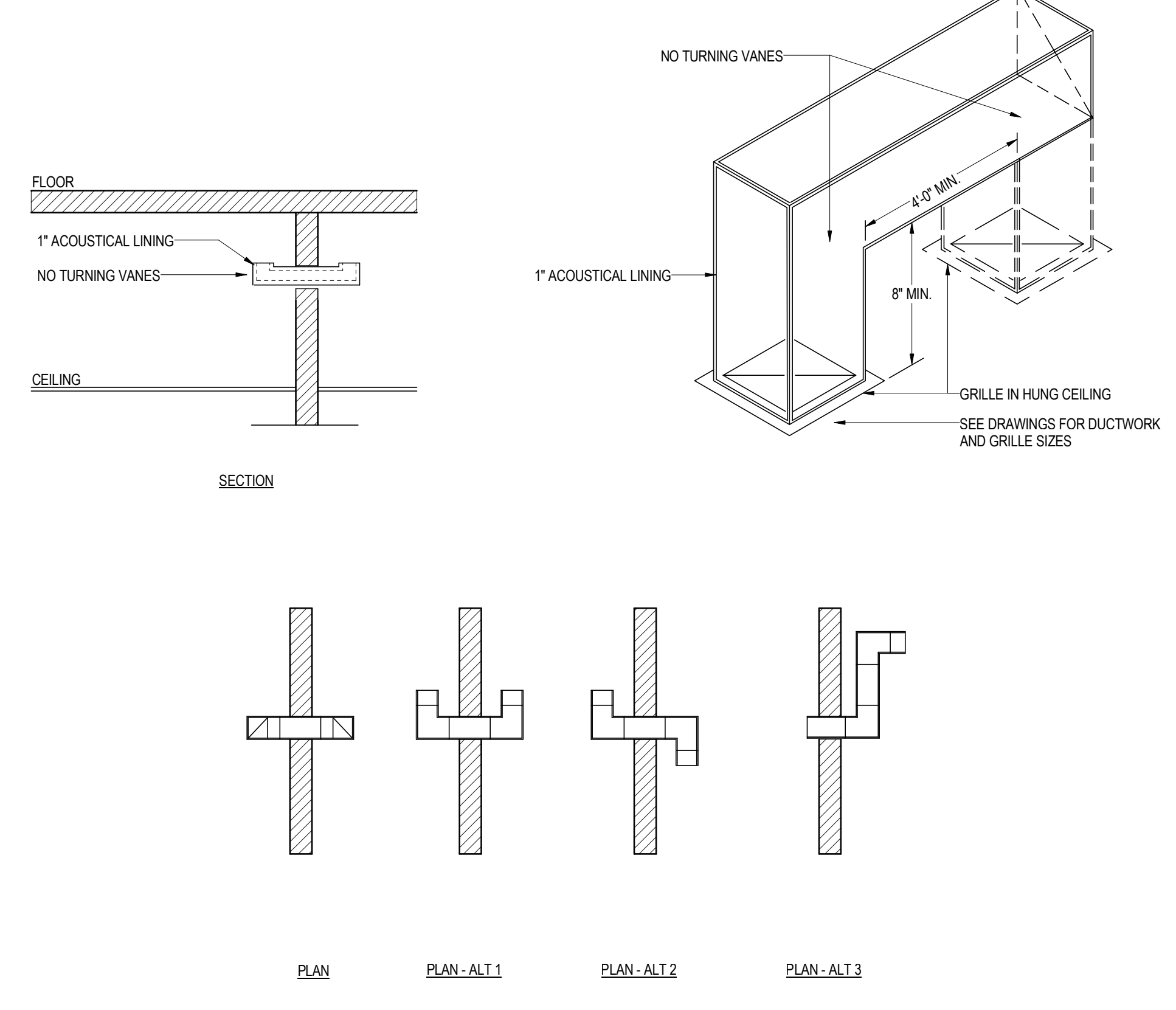
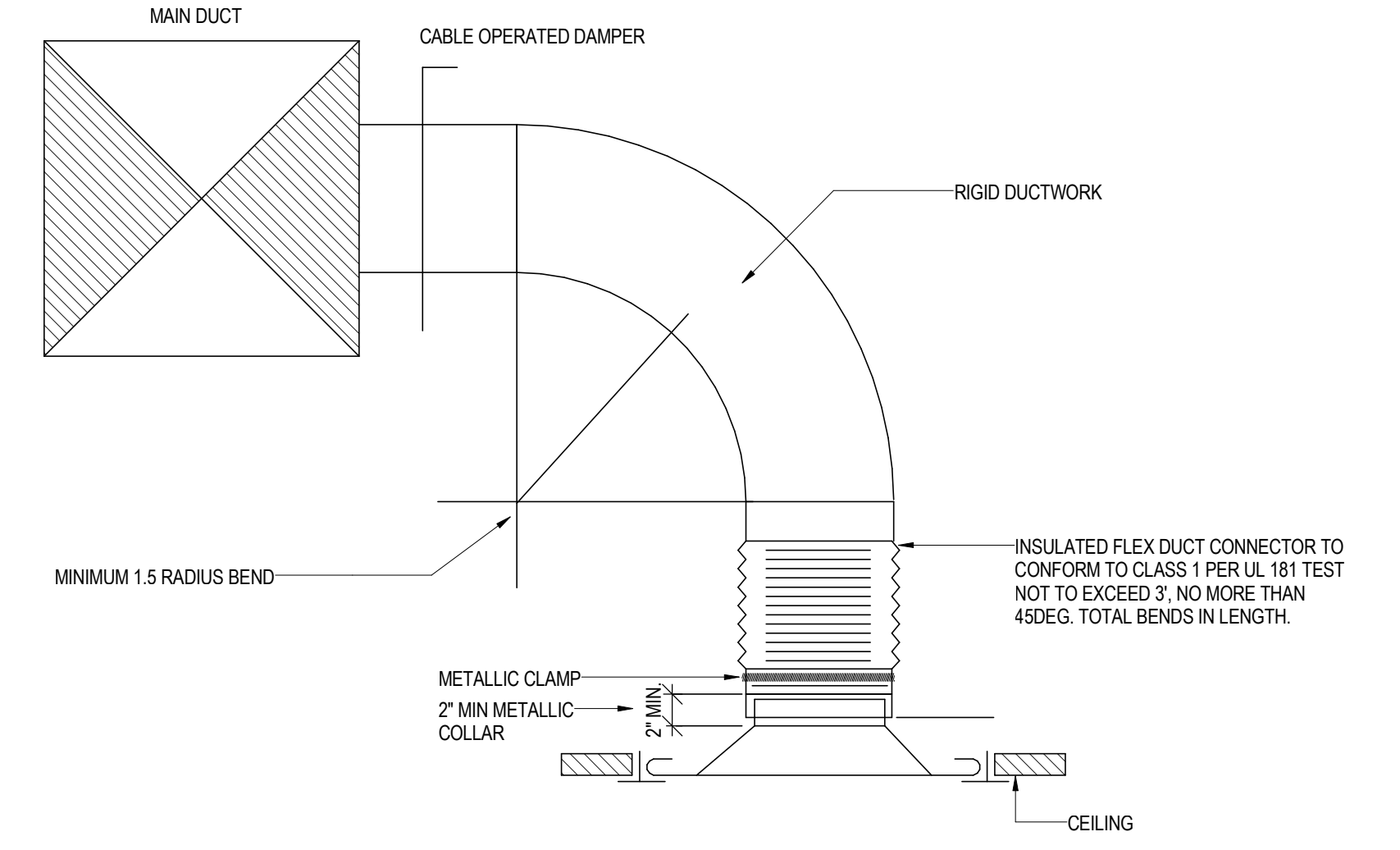
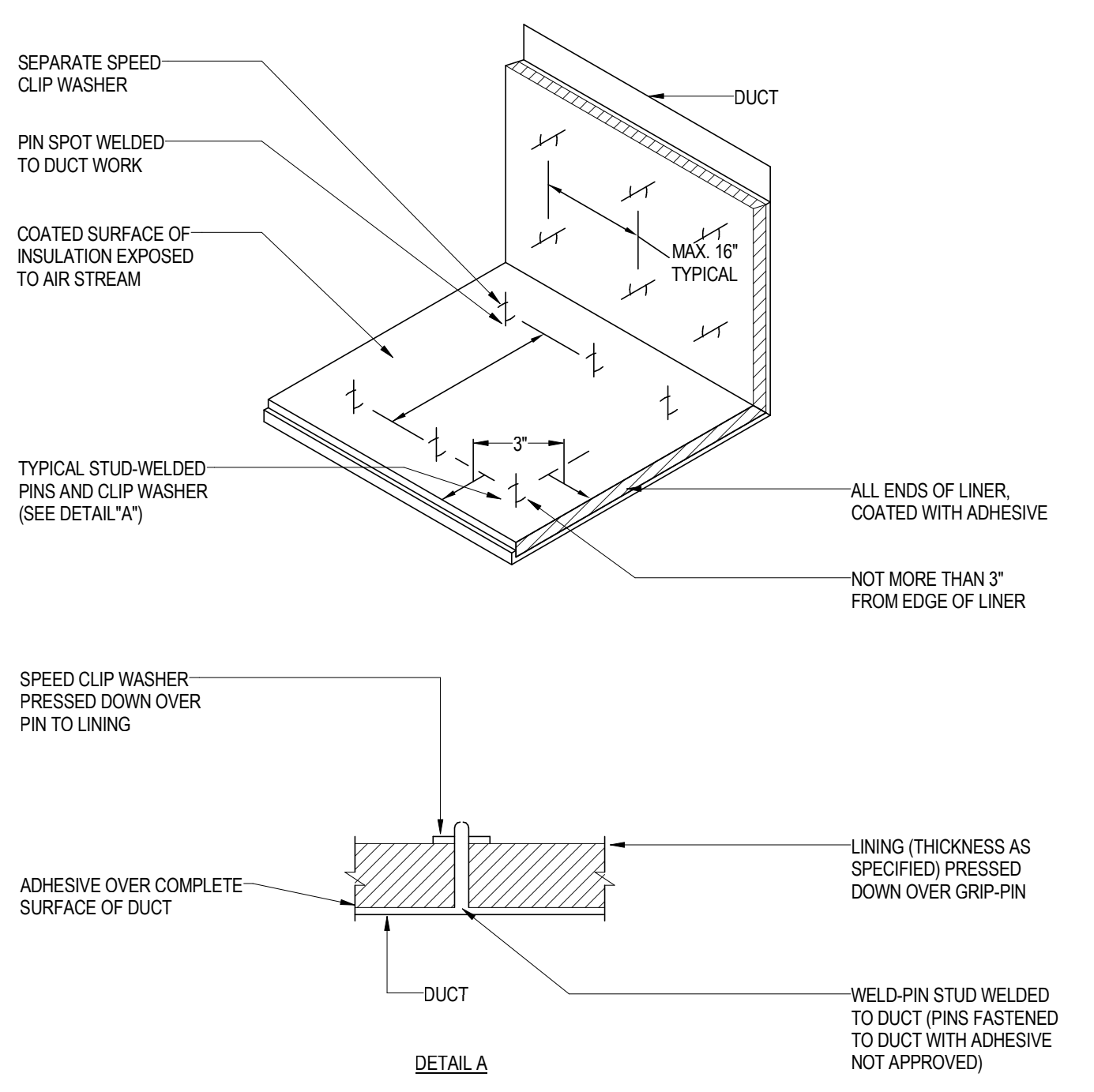


MECHANICAL 66TH FLOOR PLAN -
COOLING TOWER/EMR

M-166.00

1/4" = 1'-0"

John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture PC 104 Broadway, Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10010
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 200 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPP LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0035	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



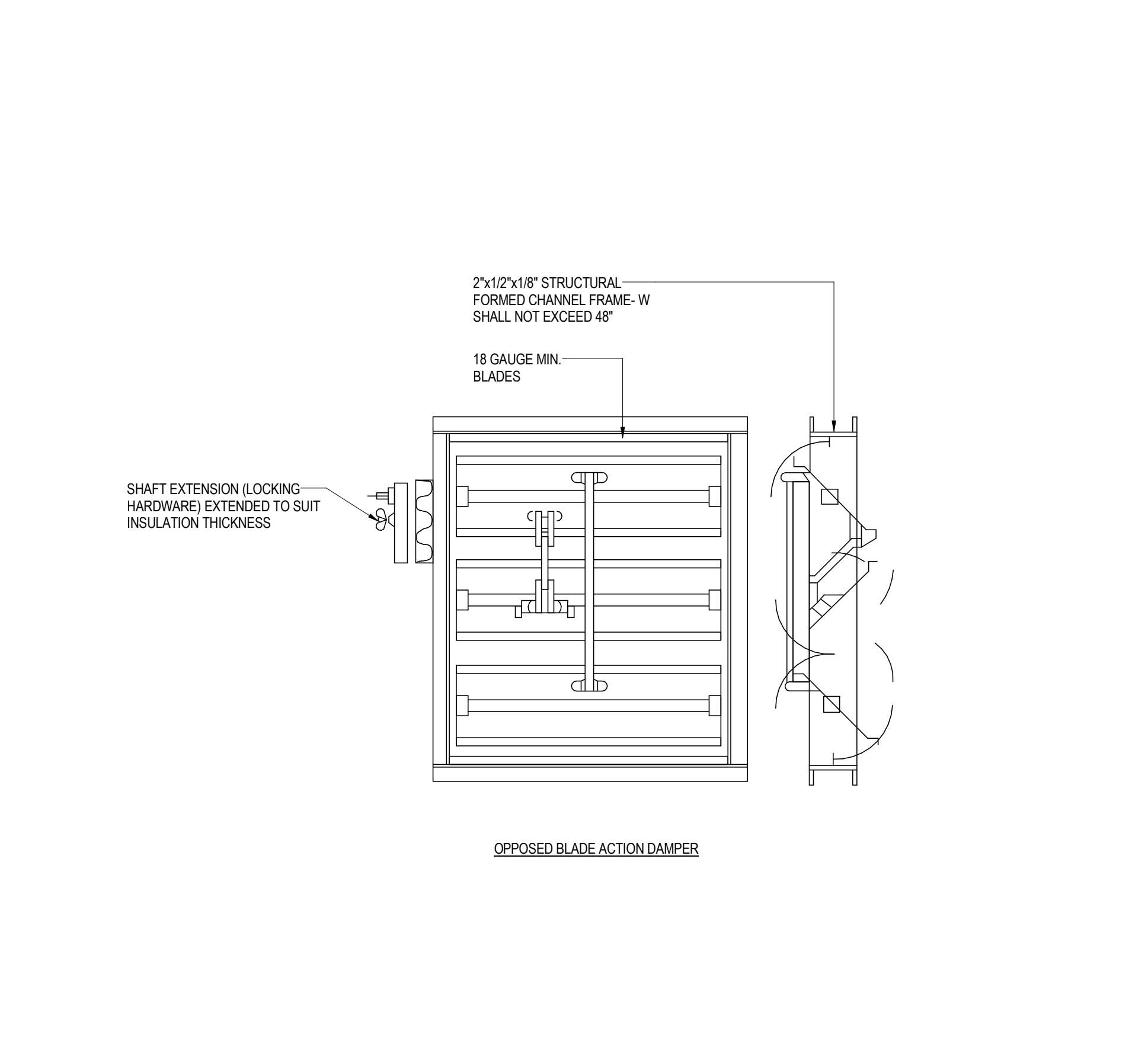
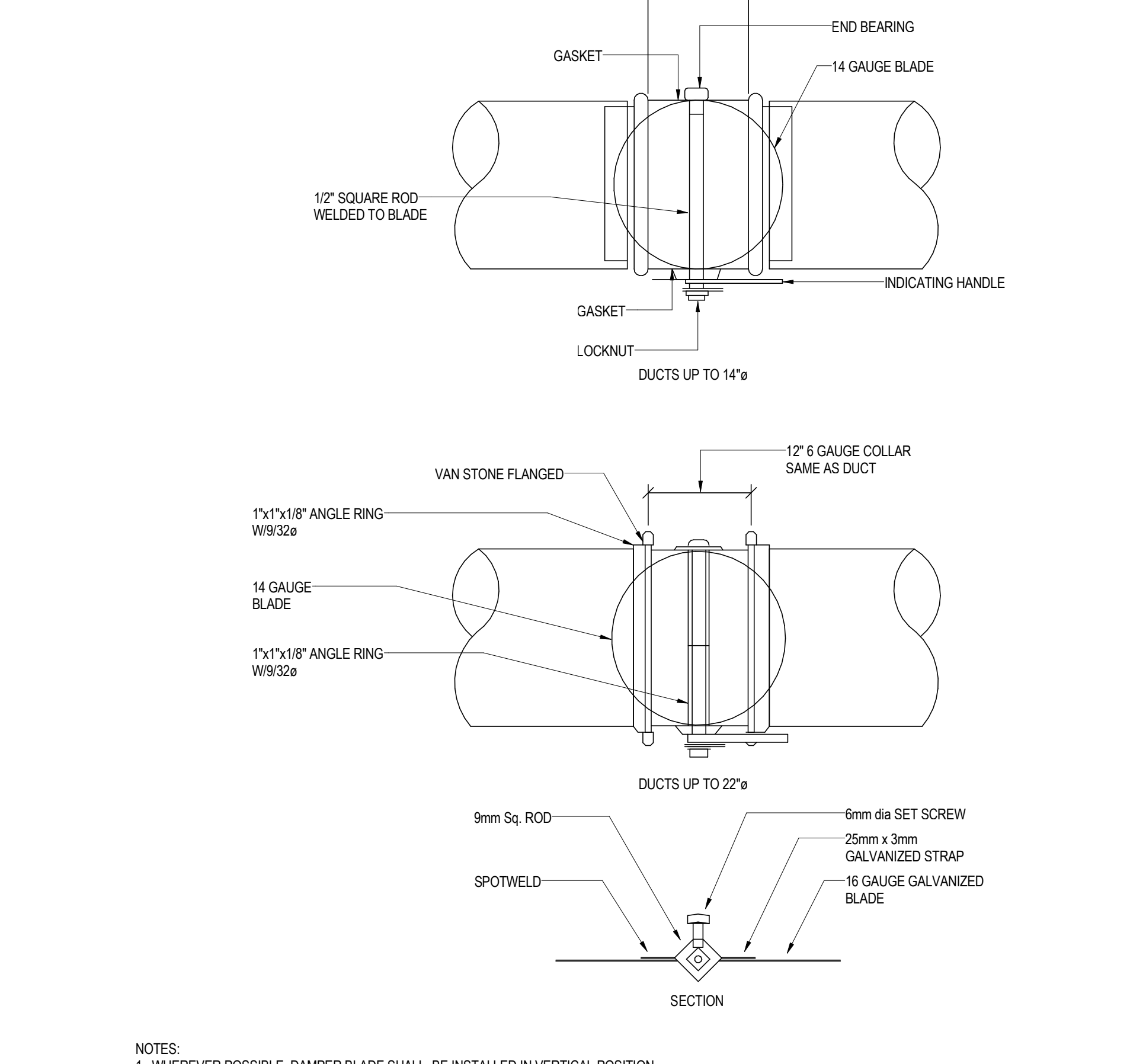
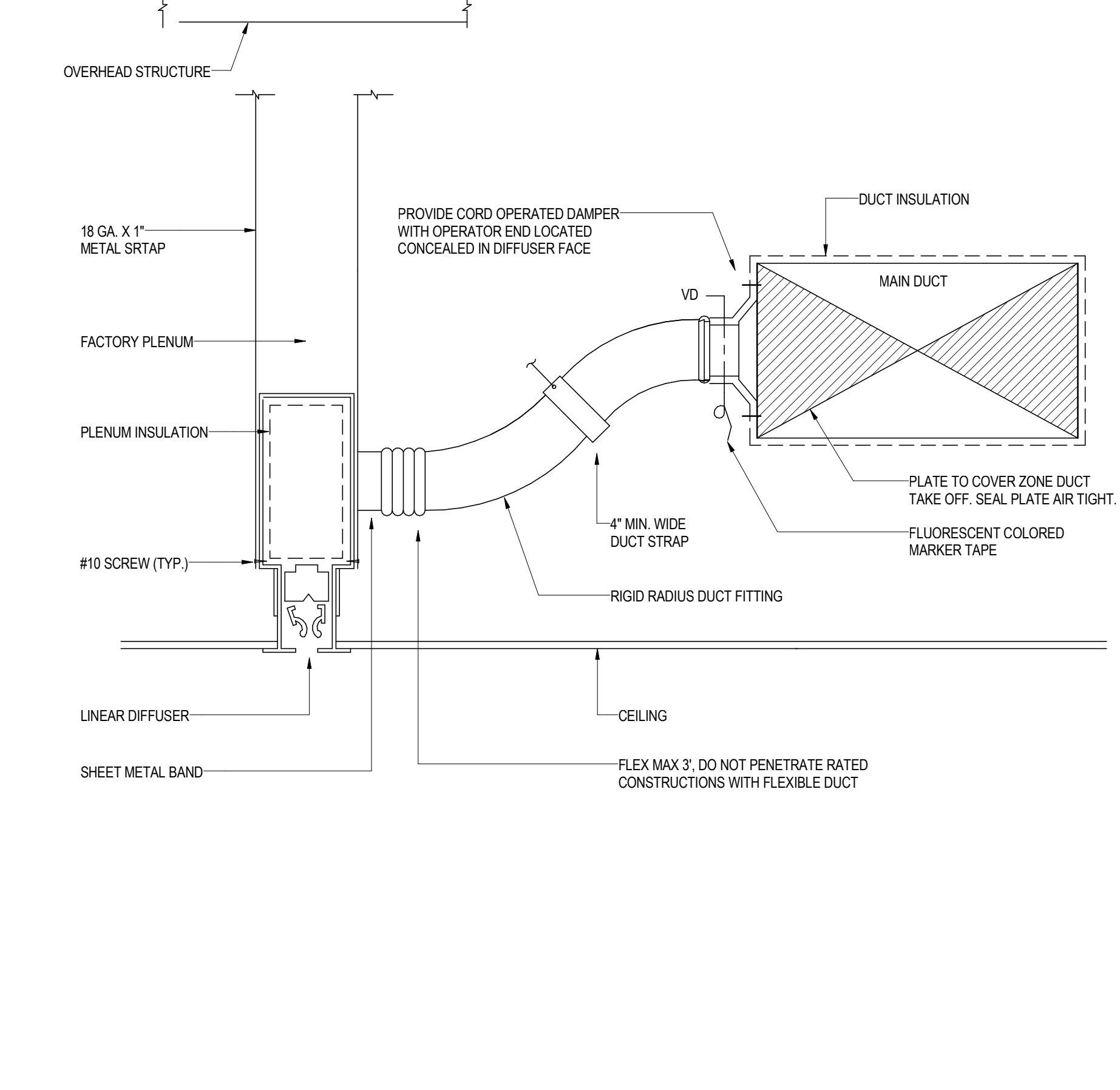
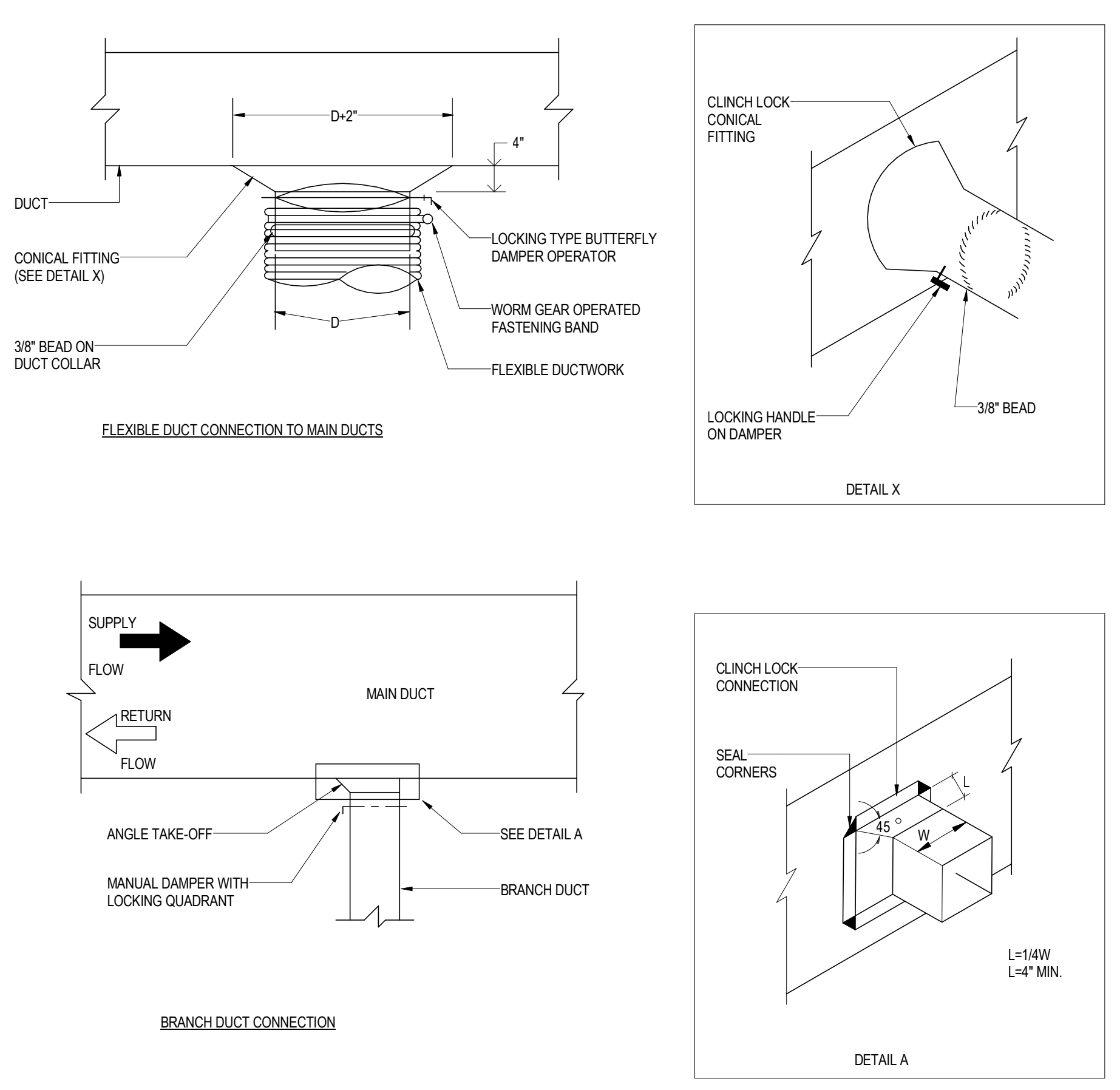
1 ACOUSTIC LINING INSTALLATION

SCALE: 1/2" = 1'-0"

2 CONNECTION TO CEILING DIFFUSER WITHOUT PLENUM BOX

3 AIR TRANSFER DUCT ASSEMBLY (CEILING TO CEILING)

4 ROUND DUCT CONNECTIONS

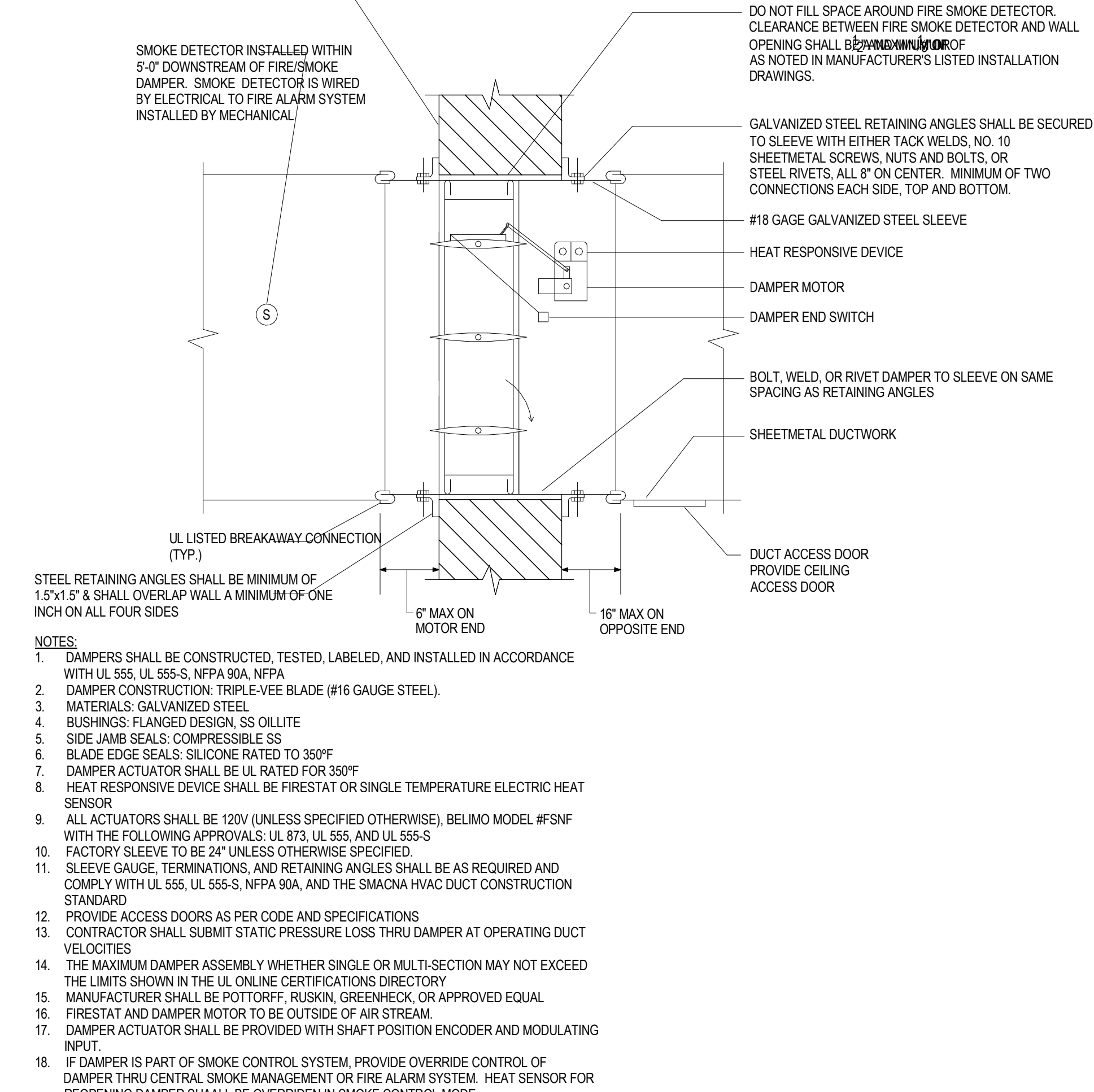
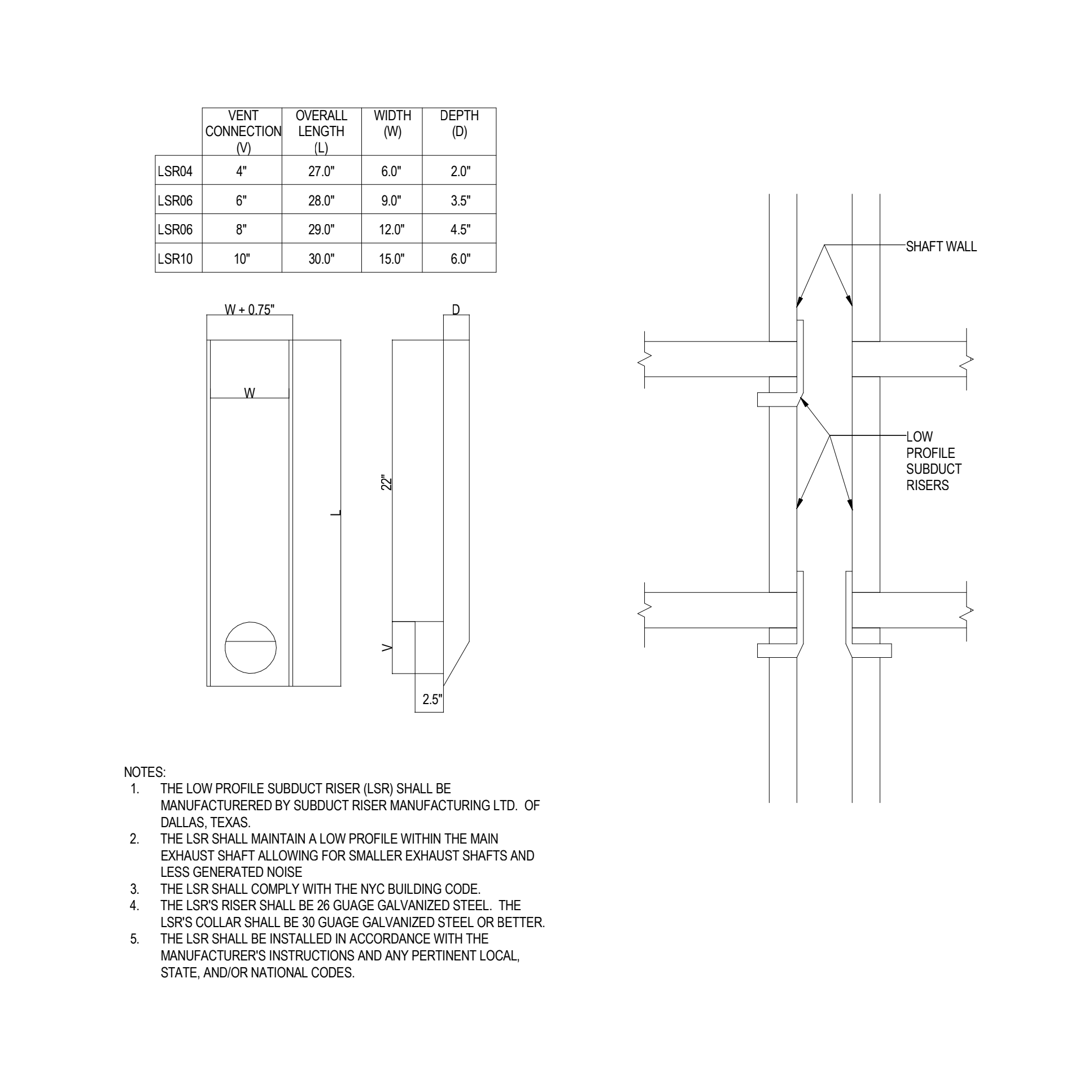
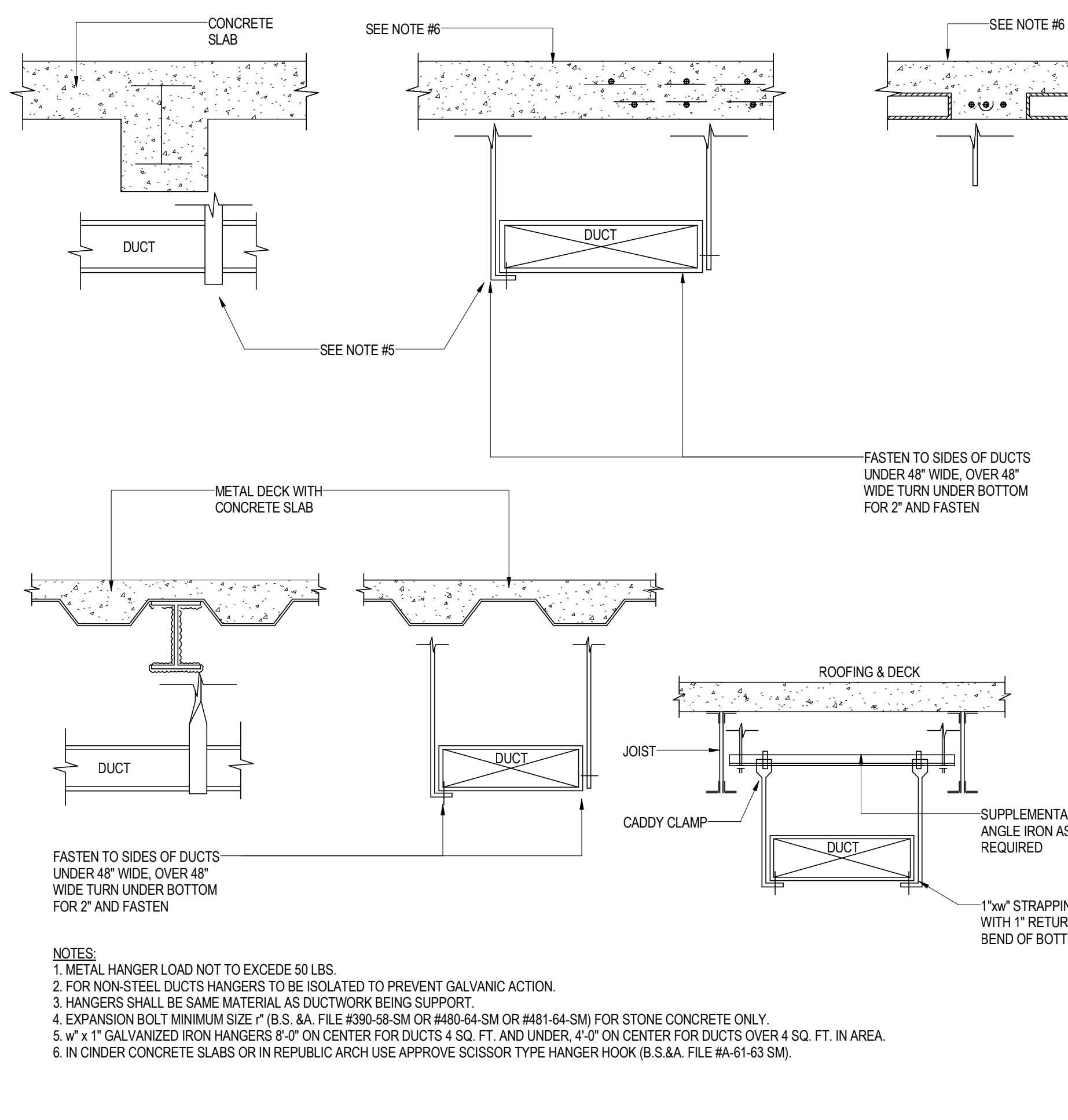
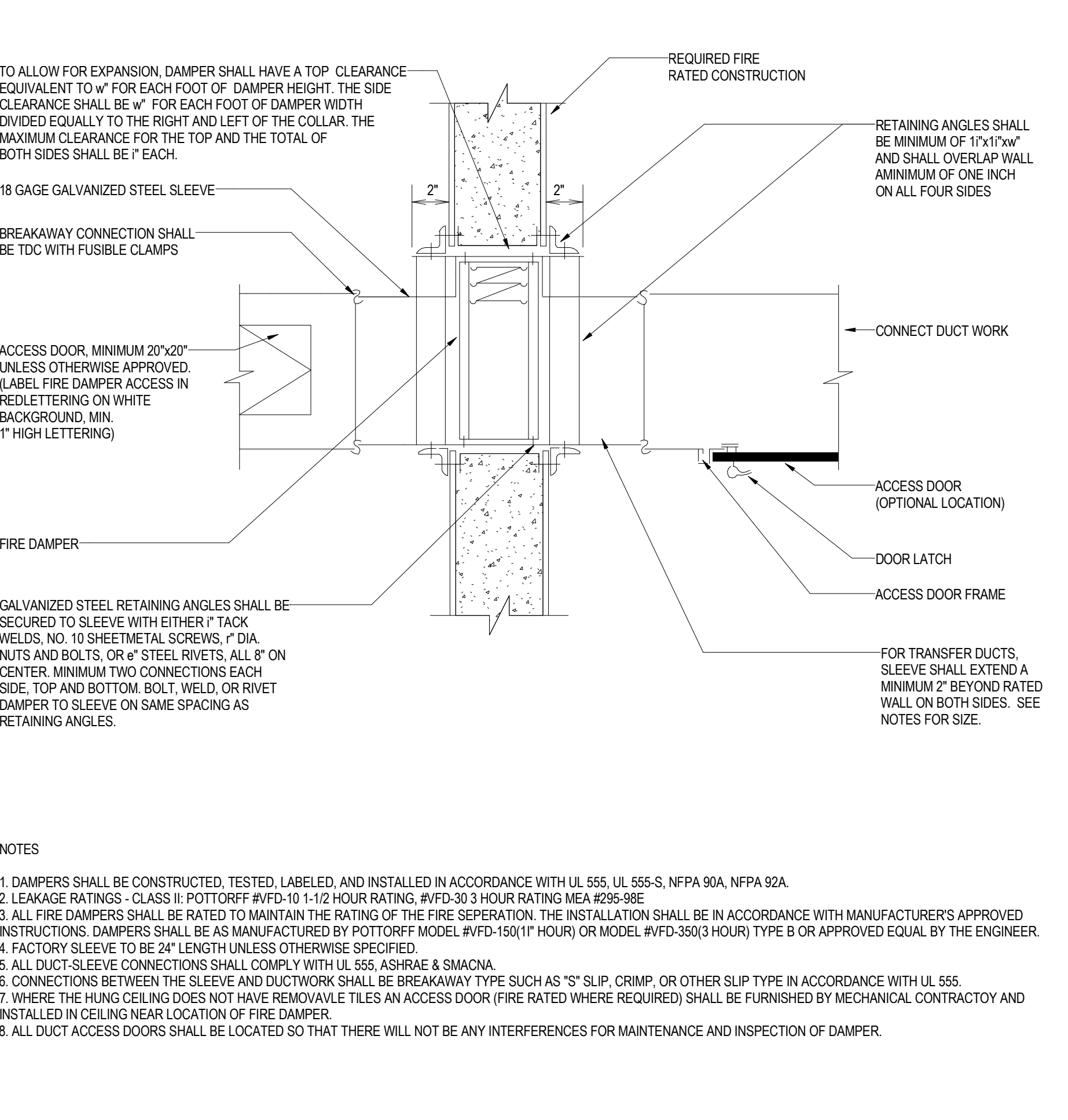


5 LOW PRESSURE BRANCH DUCT CONNECTIONS

6 LINEAR DIFFUSER CONNECTION

7 ROUND VOLUME DAMPER

8 OPPOSED BLADE VOLUME DAMPER



9 TYPE "B" FIRE DAMPER DETAIL AND NOTES

10 DUCT HANGING FROM CONCRETE

11 SUBDUCT RISER DETAIL

12 FIRE SMOKE DAMPER



2016.04.29 DOB FILING



MECHANICAL DETAILS

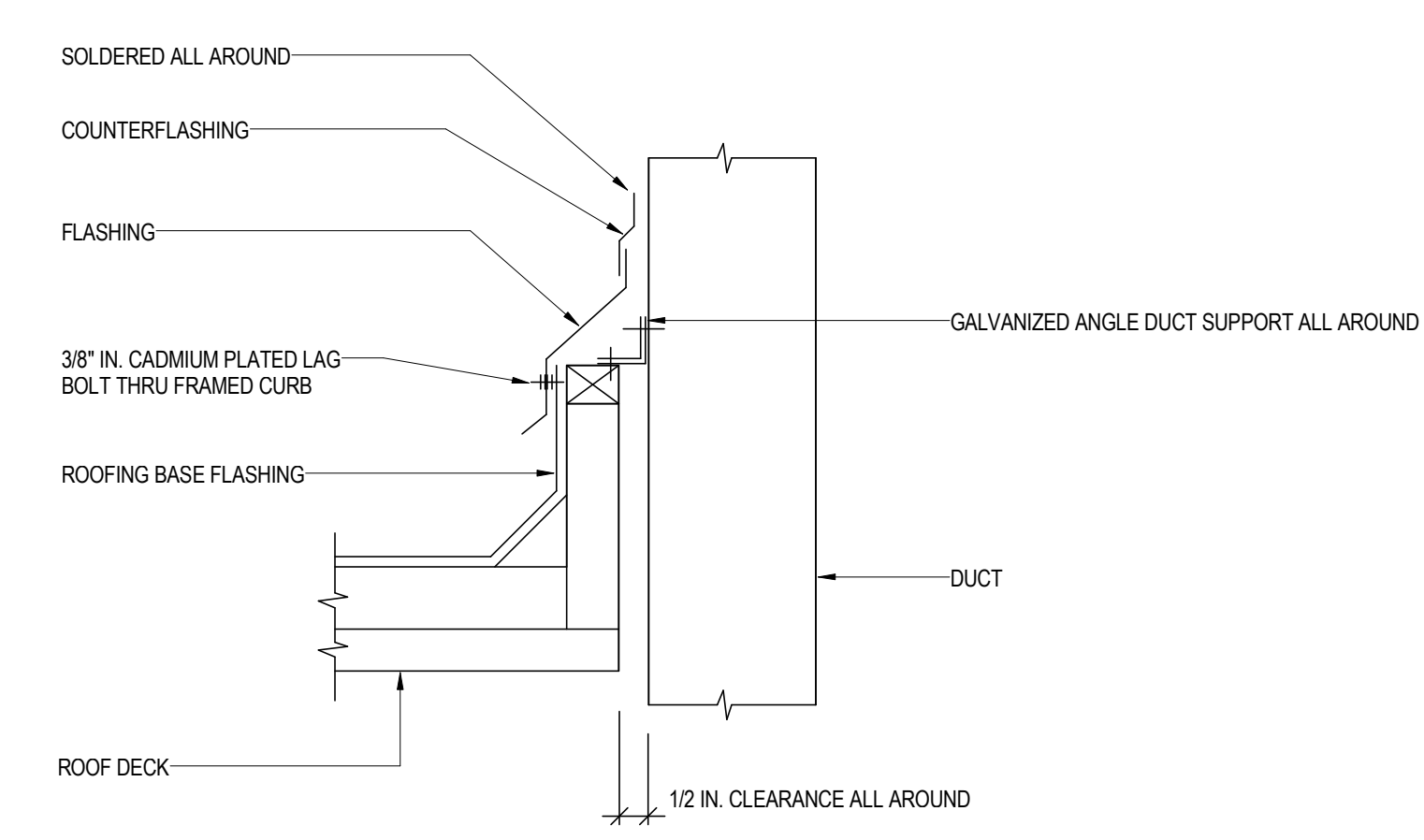
M-500.00

NO SCALE

45 BROAD STREET

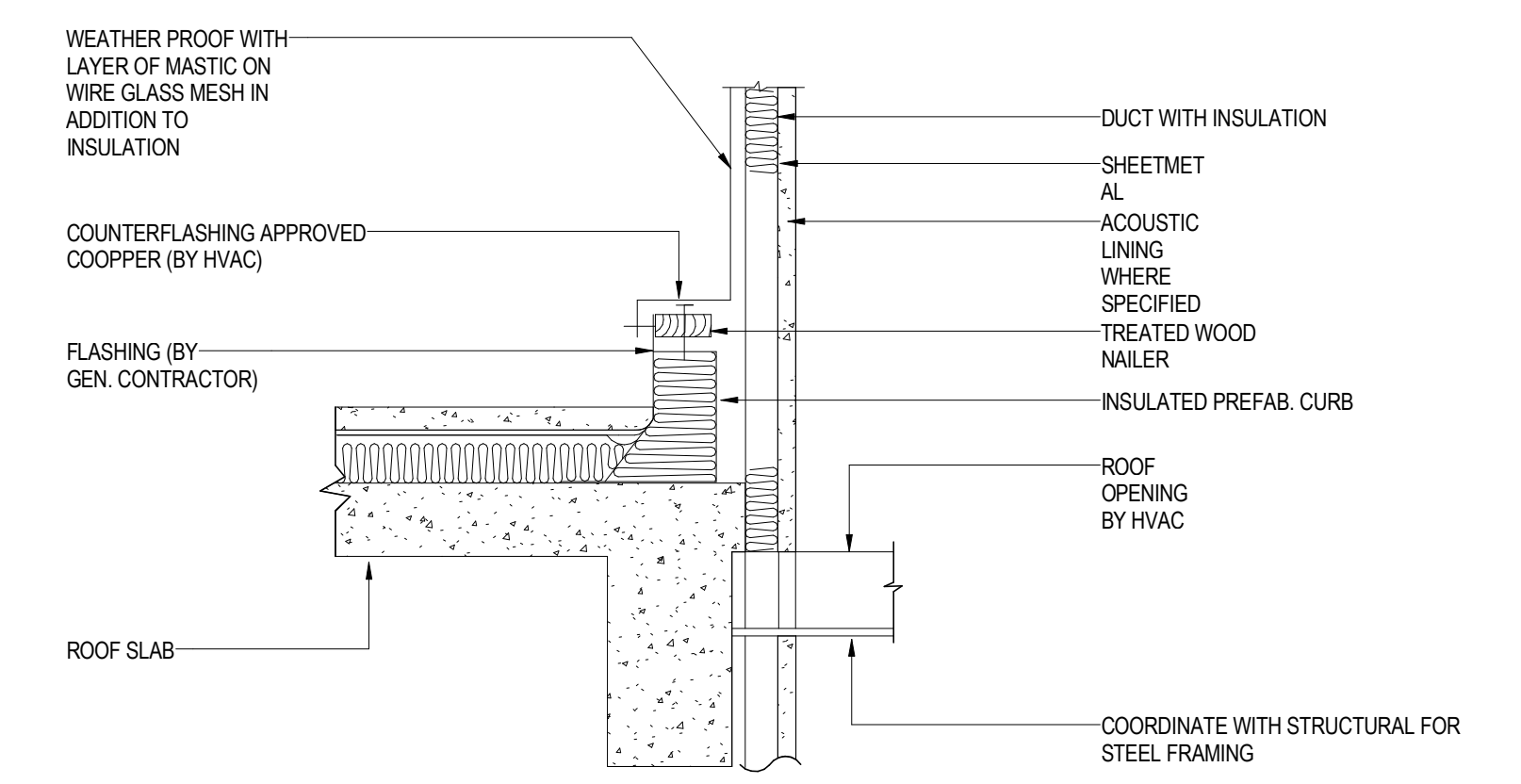
NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture PC 104 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BaronHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
LANGAN 21 Penn Plaza 1200 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPP LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6566
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0035	BaronHappold Engineering 100 Broadway New York, NY 10005 212.234.2025

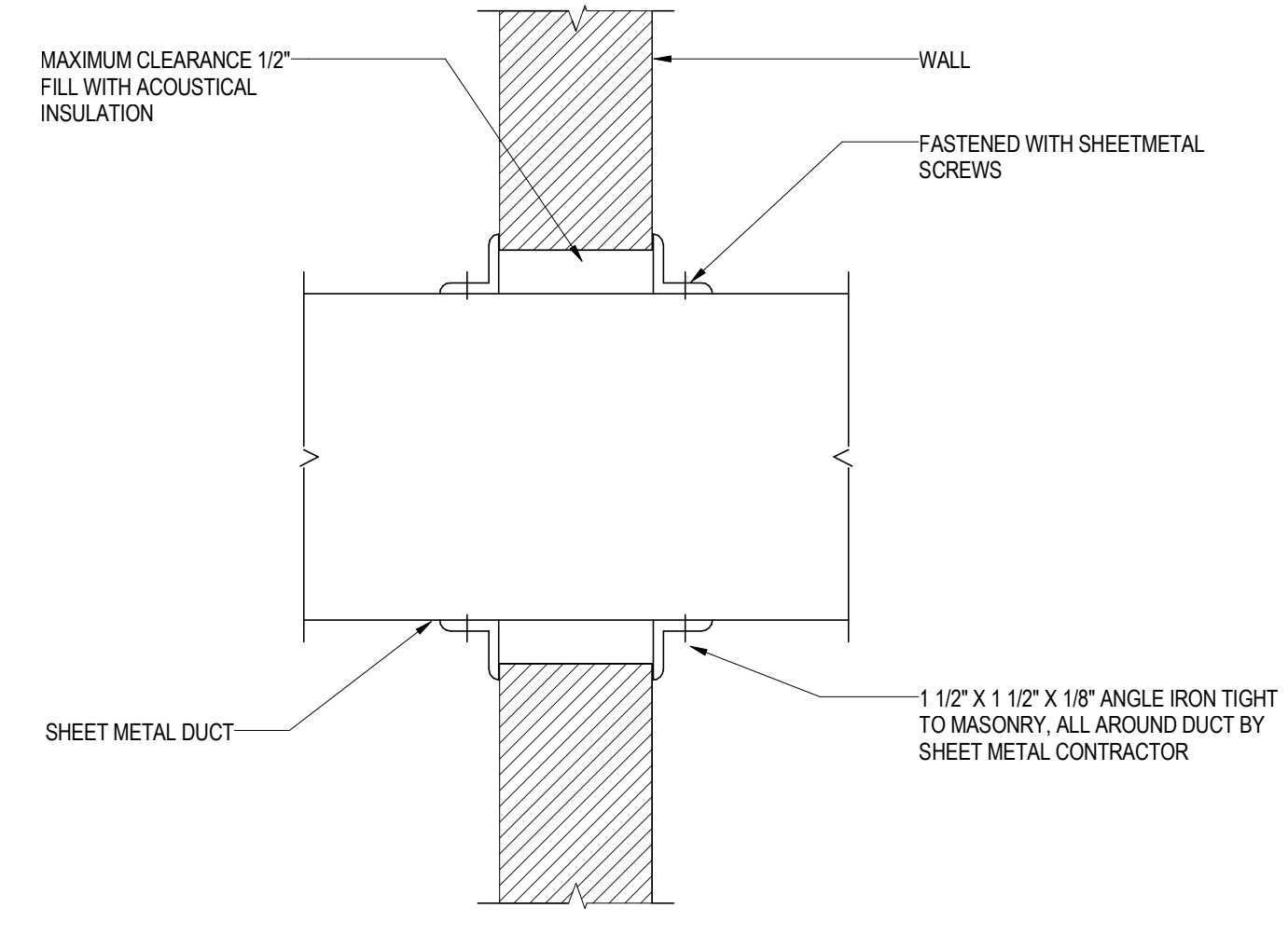


NOTE:
 1. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF CURB
 2. FLASHING TO BE DONE BY THE MECHANICAL CONTRACTOR AND COUNTER FLASHING BY GENERAL CONTRACTOR

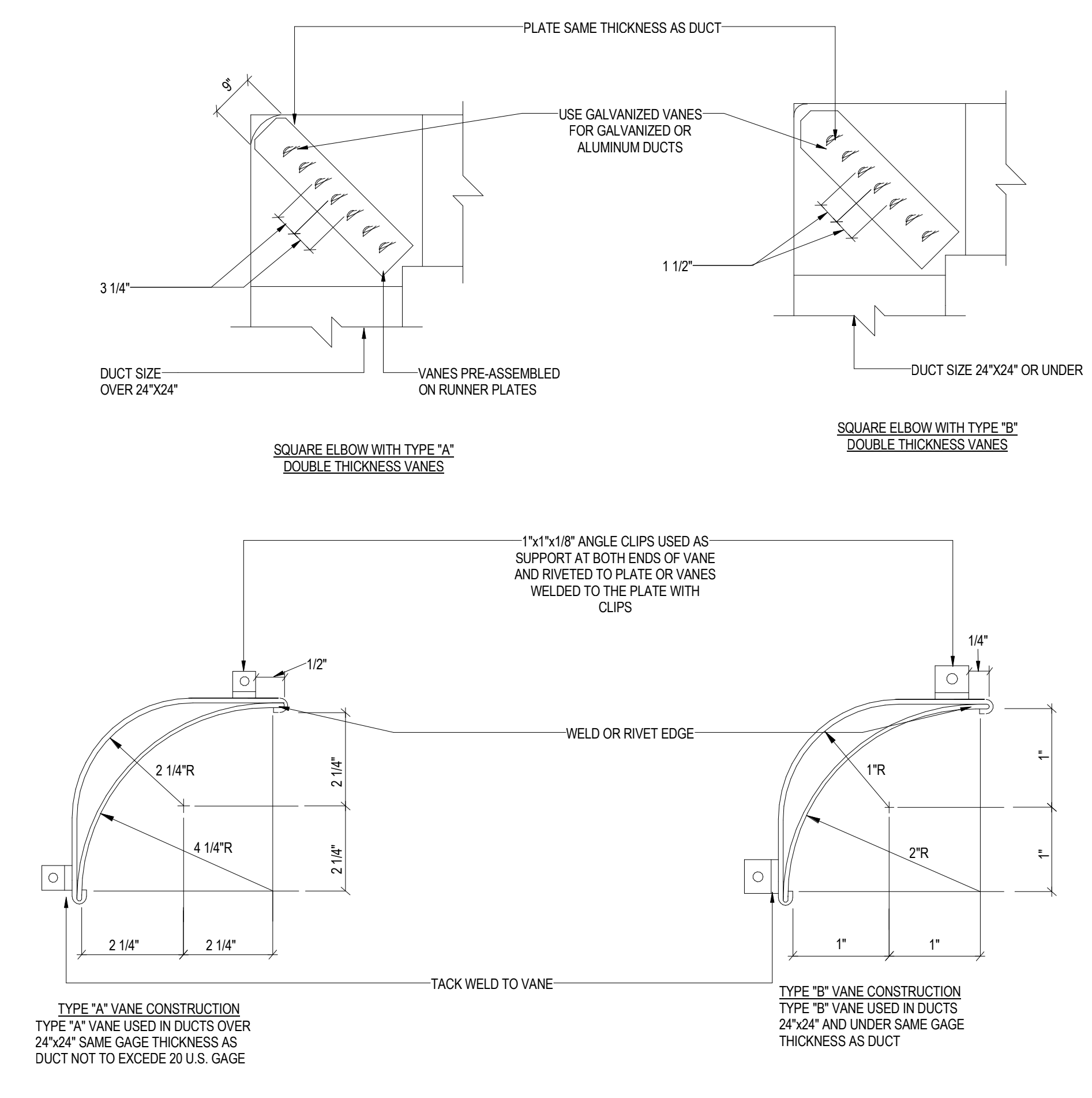
1 PENETRATION THRU ROOF



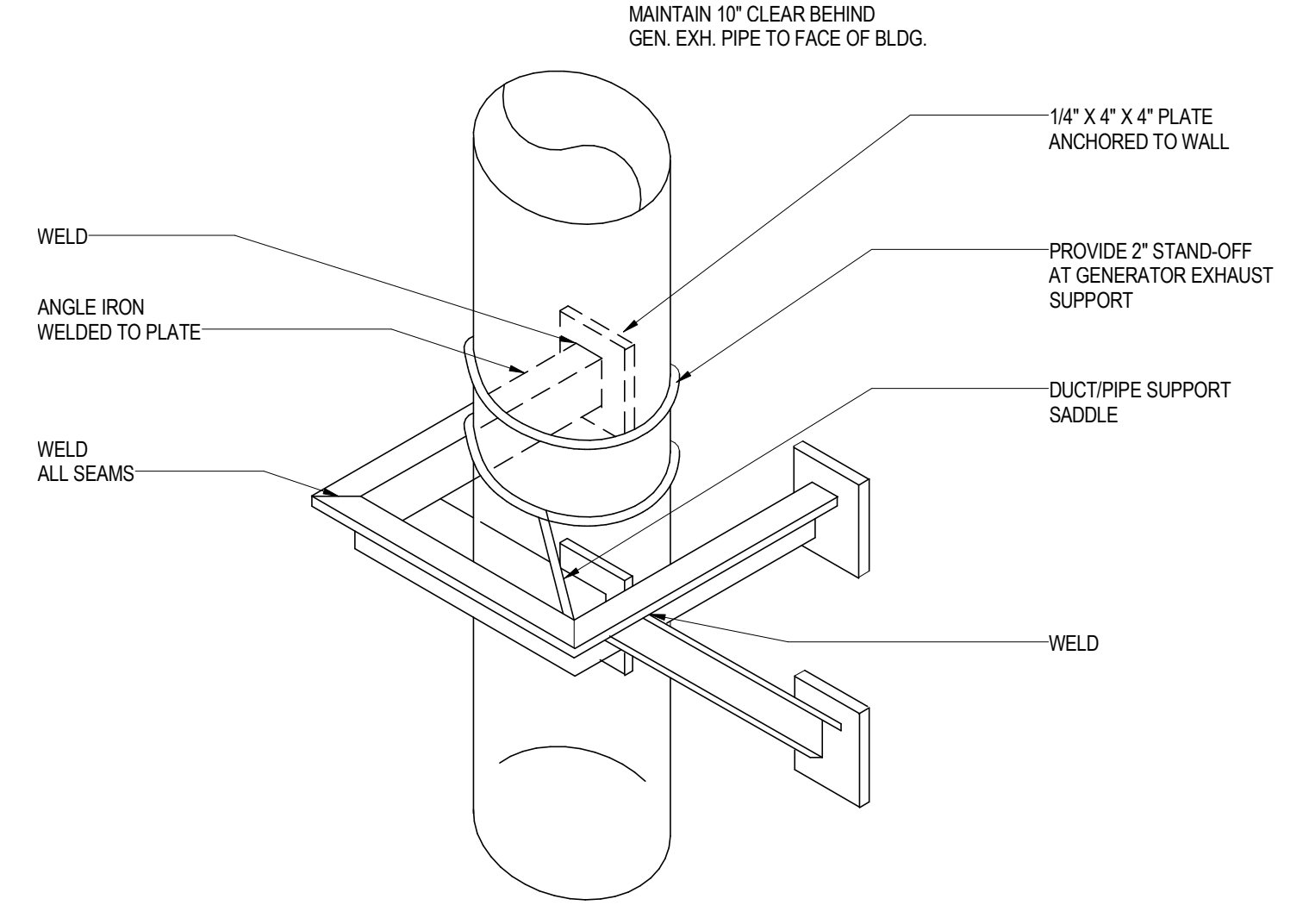
2 DUCTWORK ROOF PENETRATION (CONCRETE)



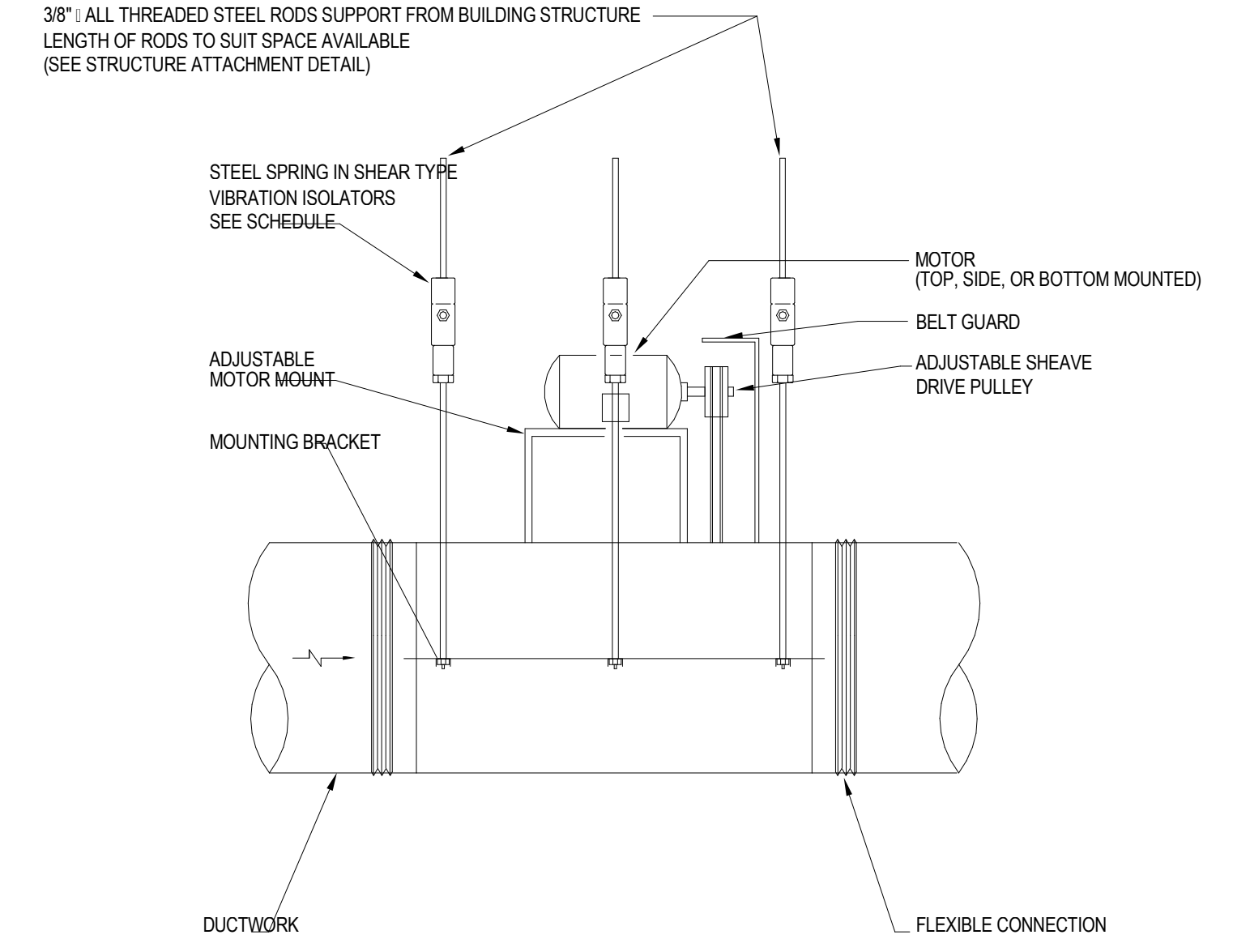
3 DUCT PENETRATING NON-RATED WALLS



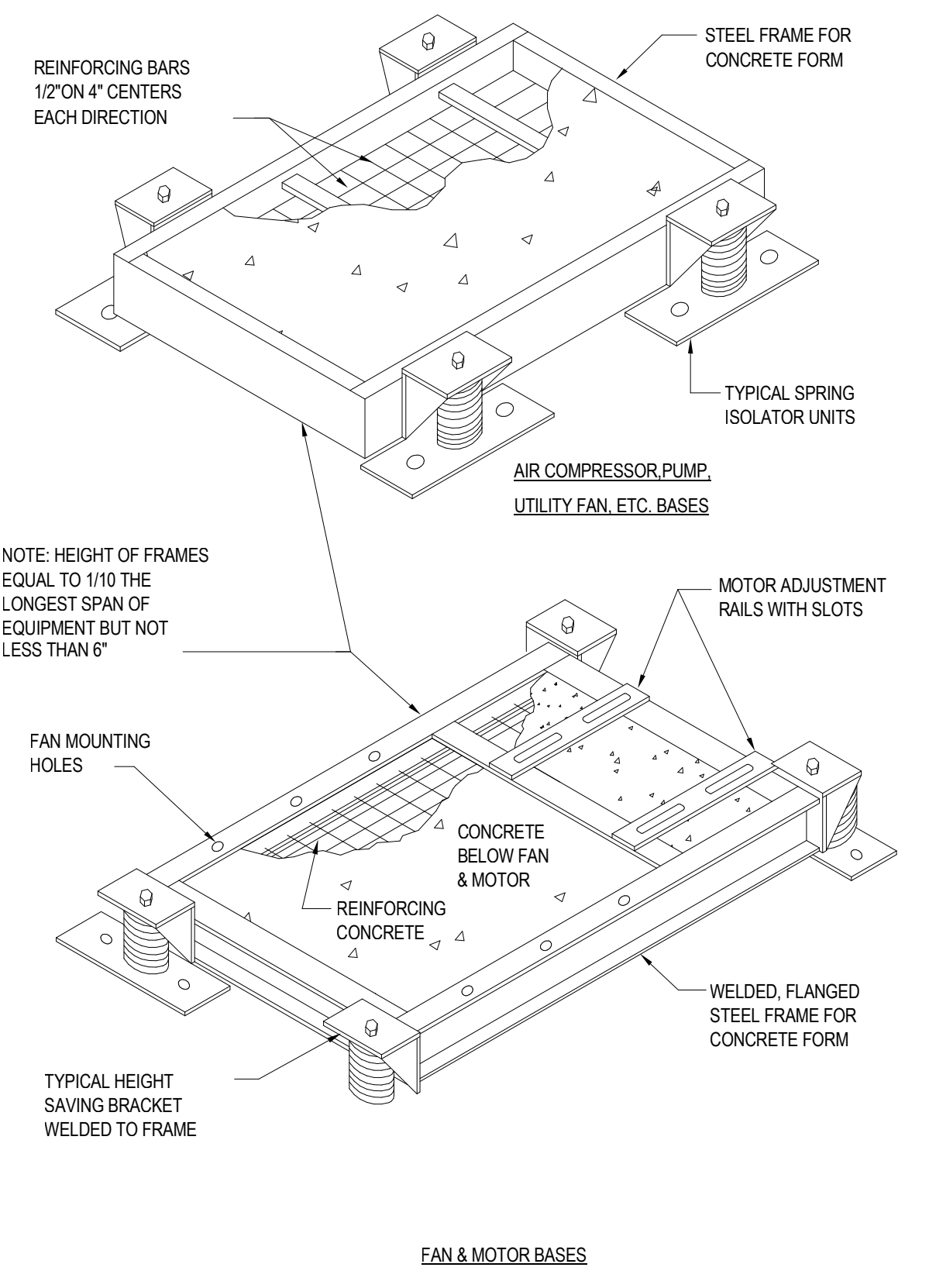
4 SQUARE DUCT ELBOWS



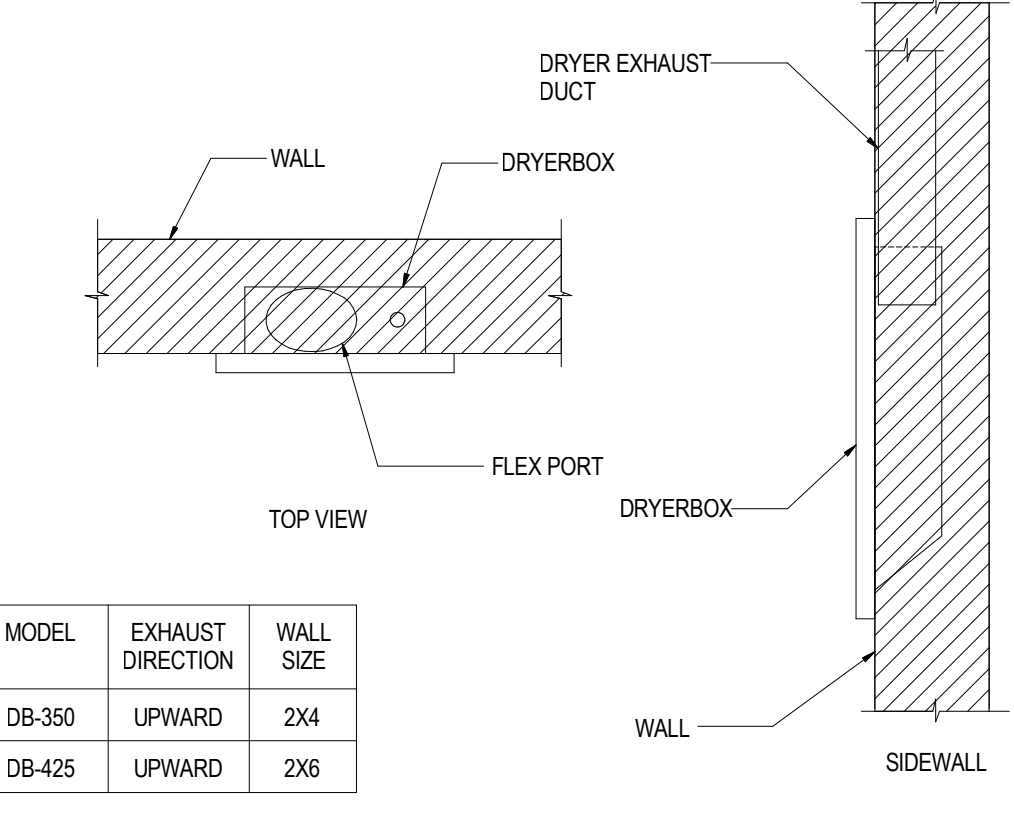
5 SUPPORT SYSTEM FOR VERTICAL DUCTS - INSULATED



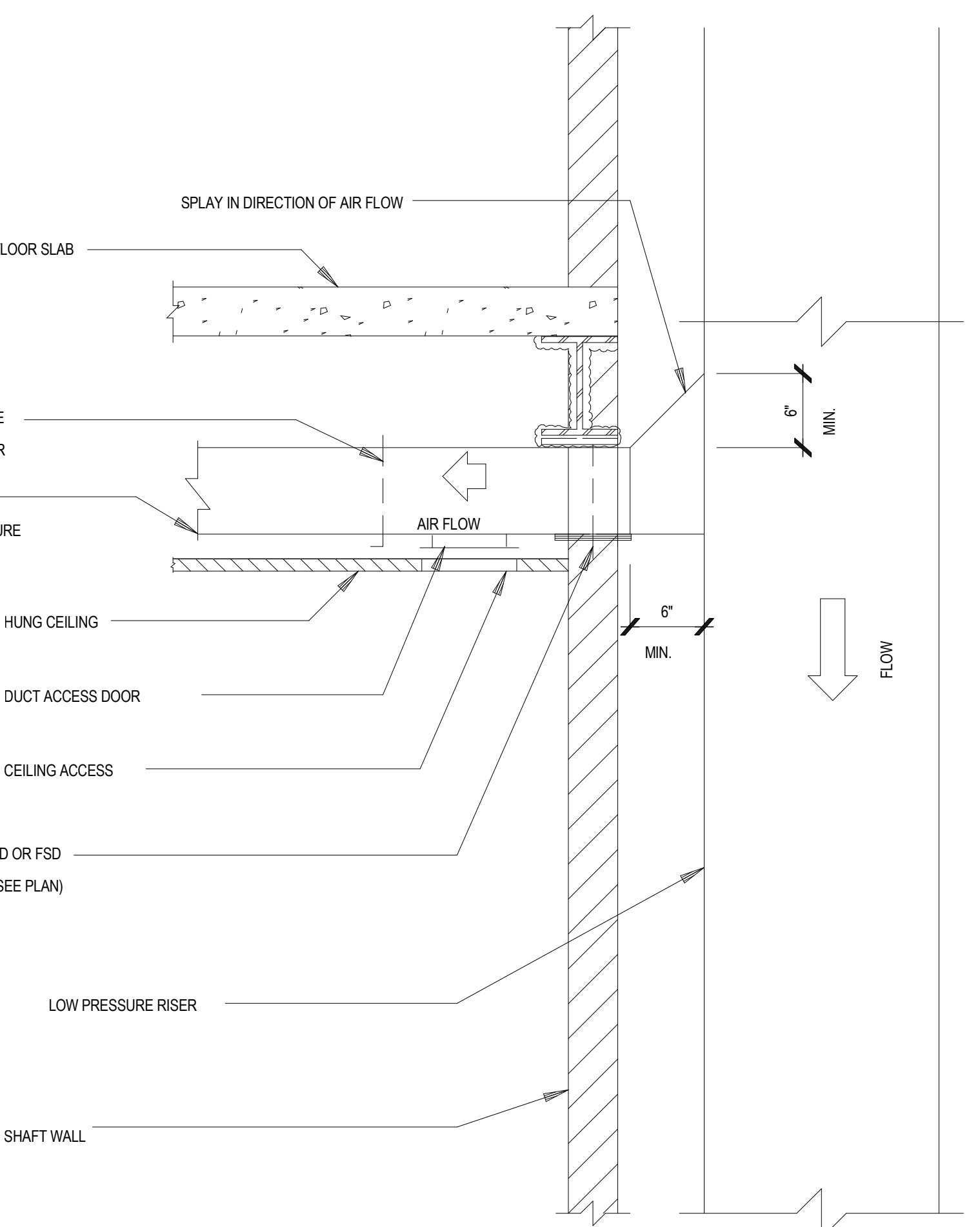
6 CENTRIFUGAL INLINE FAN



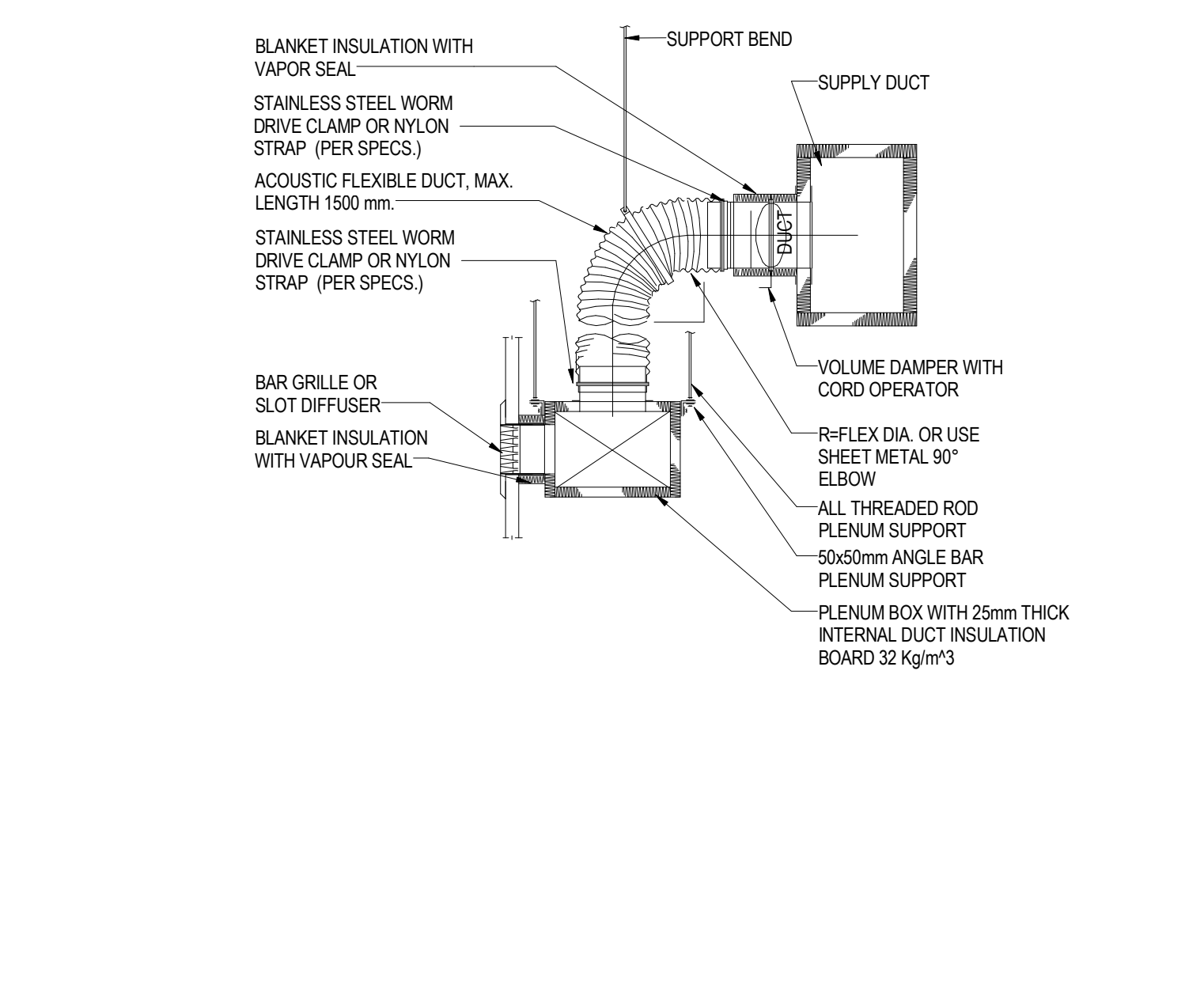
7 CONCRETE INERTIA BASE DETAIL FOR MOTORIZED EQUIPMENT



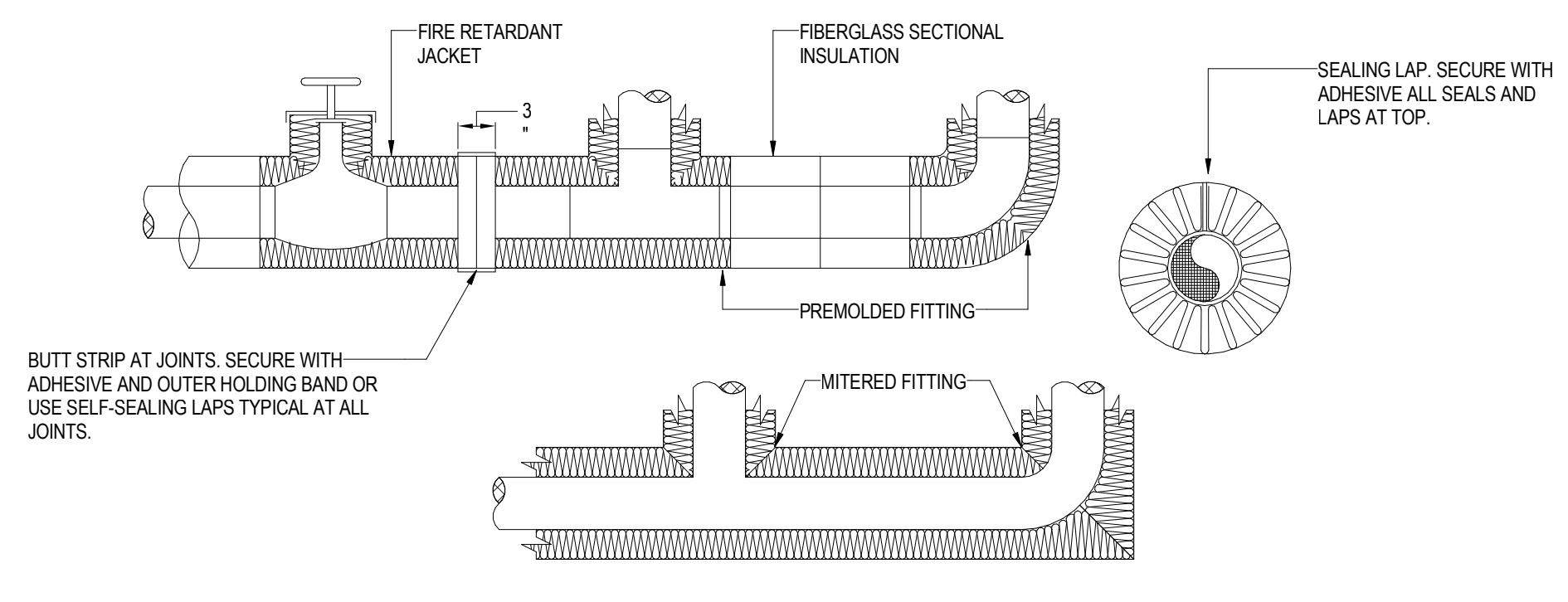
8 DRYERBOX INSTALLATION DETAIL



9 LOW PRESSURE SUPPLY RISER CONNECTION



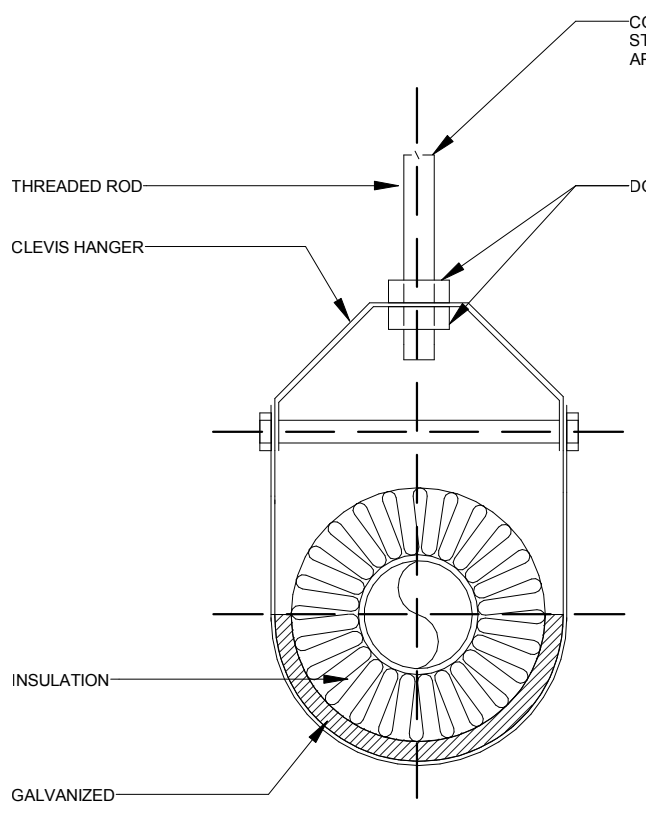
10 SIDE WALL BAR GRILLE / SLOT DIFFUSER



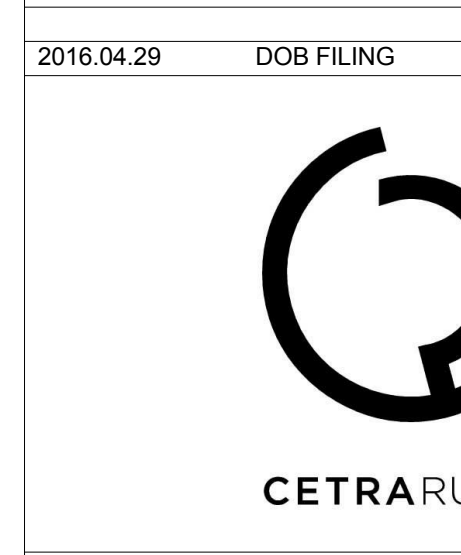
11 PIPE INSULATION DETAIL

WITHOUT INCOMPRESSIBLE INSULATING BLOCK AT HANGER		
PIPE DIAMETER	SHIELD LENGTH	SHIELD THICKNESS (MSG)
UP TO 2"	6"	18

WITHOUT INCOMPRESSIBLE INSULATING BLOCK AT HANGER		
PIPE DIAMETER	SHIELD LENGTH	SHIELD THICKNESS (MSG)
UP TO 2"	12"	18



12 TYPICAL INSULATION OF PIPES SMALLER THAN 3



MECHANICAL DETAILS

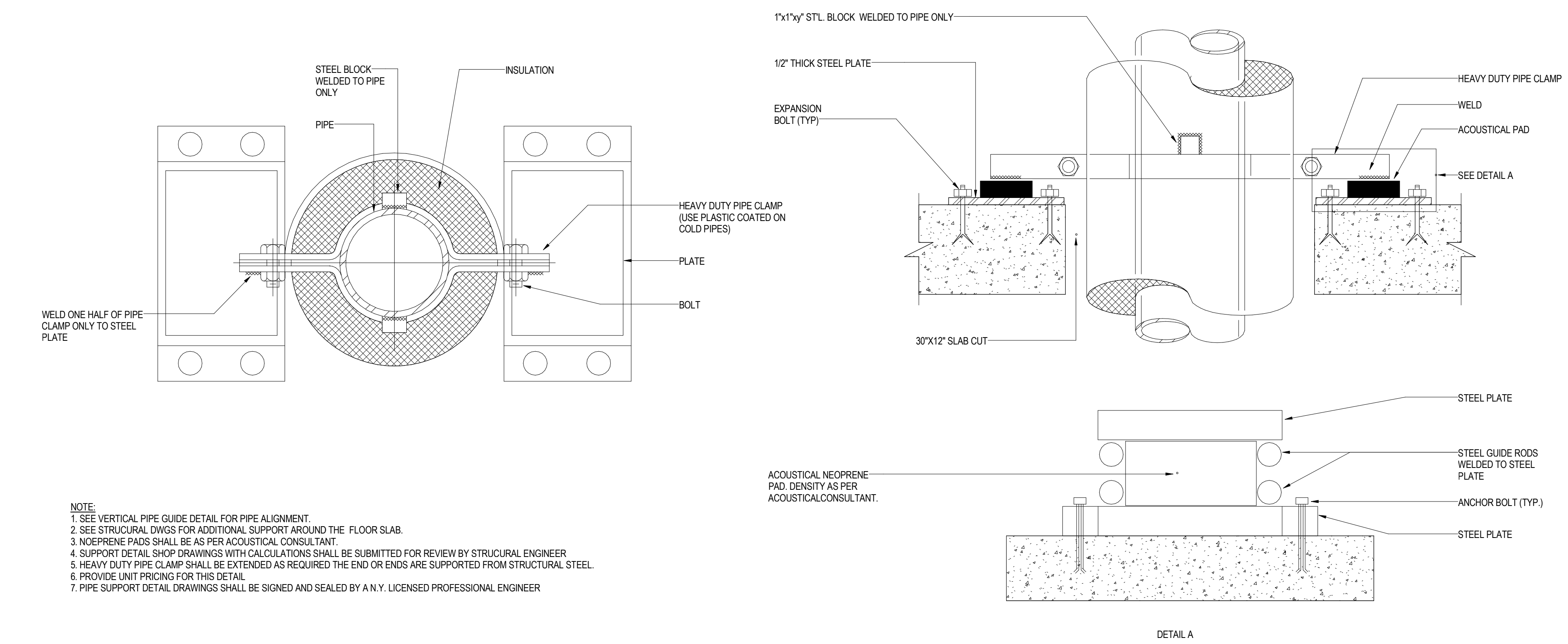
M-501.00

NO SCALE

45 BROAD STREET

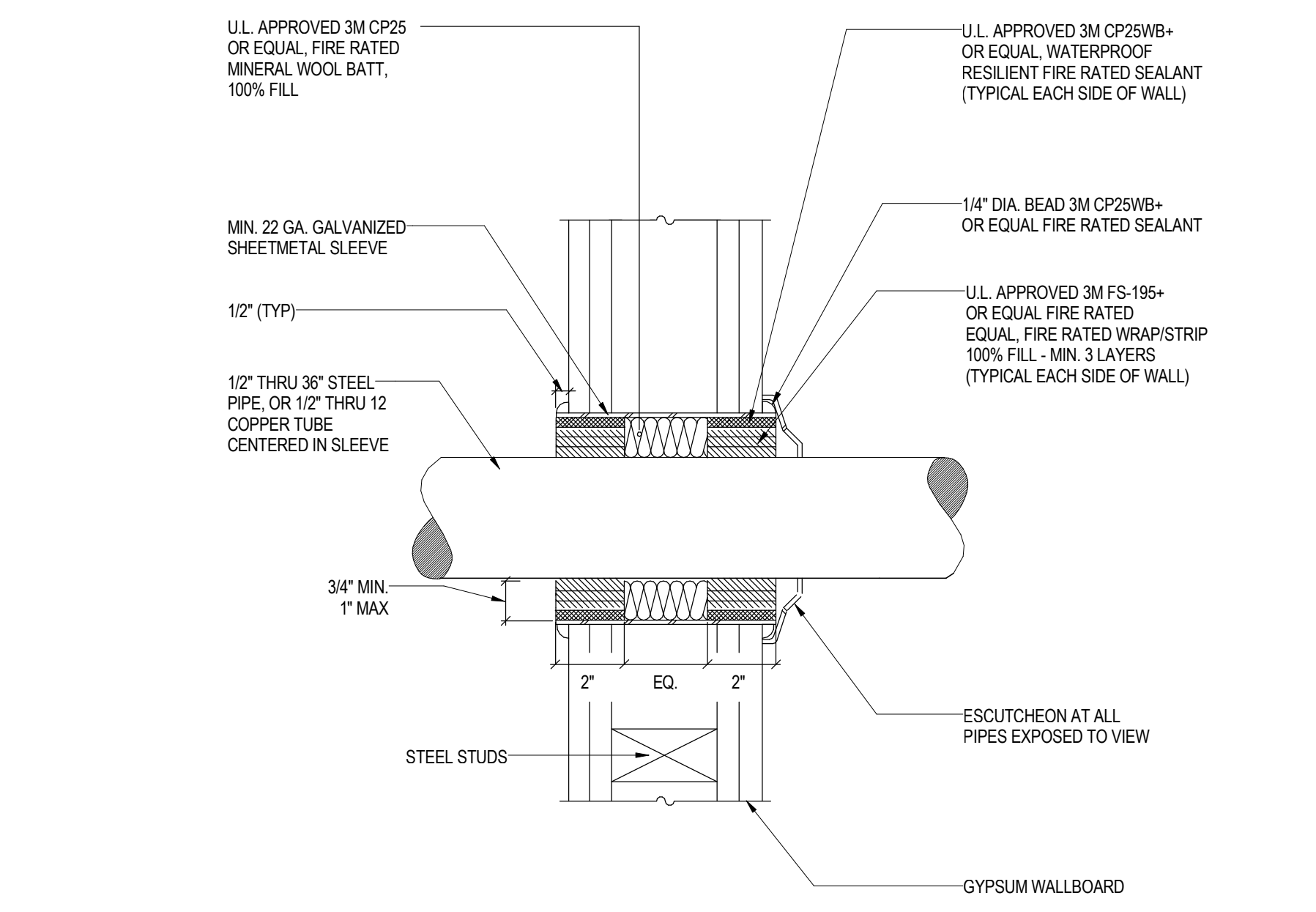
NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture PC 104 Broadway, Suite 401 New York, NY 10012 212.541.9801	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	Barthelme Engineering 100 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 260 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPP LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6666
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	Barthelme Engineering 100 Broadway New York, NY 10005 212.334.2025

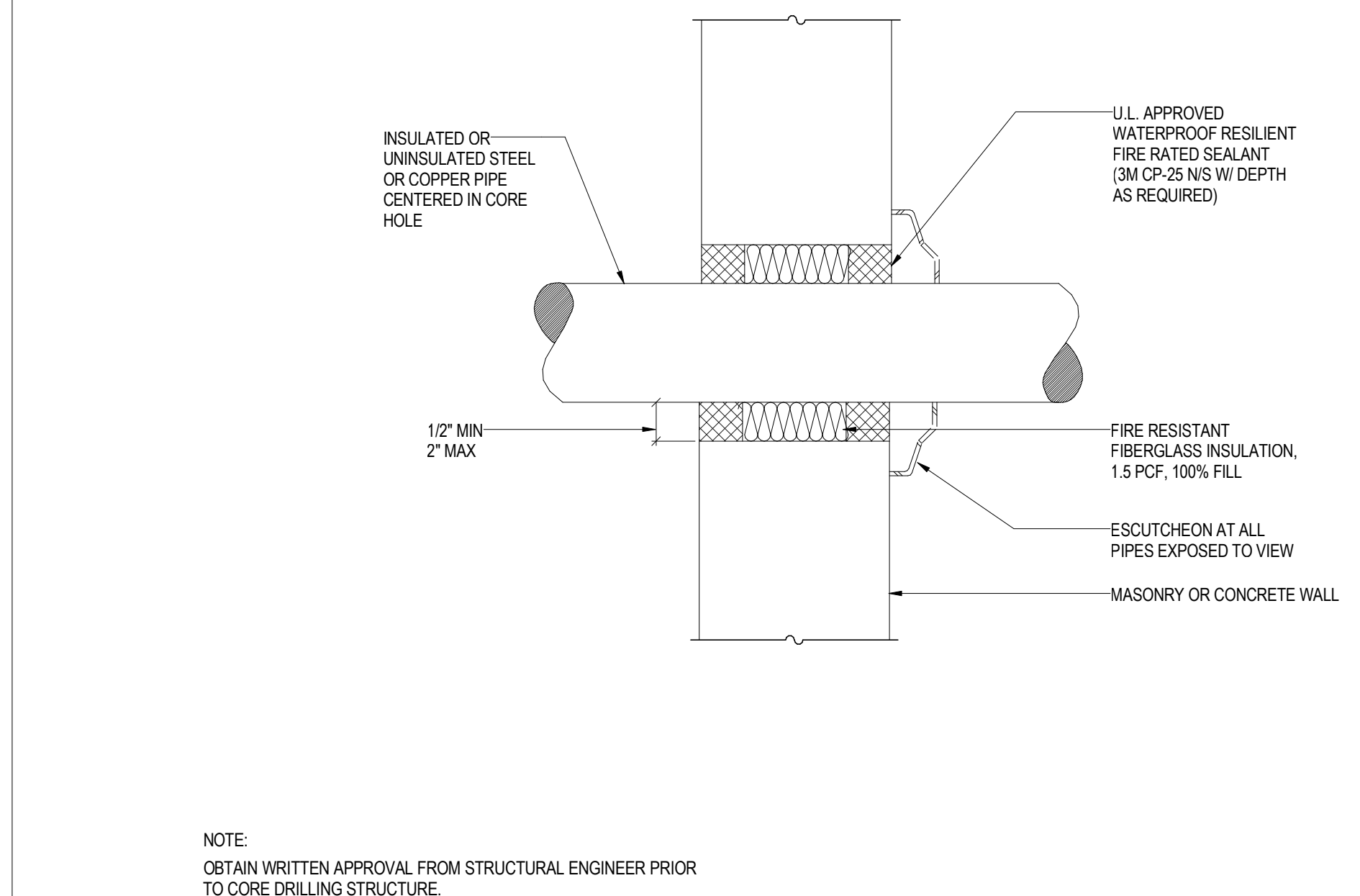


NOTE:
 1. SEE VERTICAL PIPE GUIDE DETAIL FOR PIPE ALIGNMENT.
 2. SEE STRUCTURAL DMS FOR ADDITIONAL SUPPORT AROUND THE FLOOR SLAB.
 3. NODRIPRE PADS SHALL BE AS PER ACOUSTICAL CONSULTANT.
 4. SUPPORT DETAIL SHOP DRAWINGS WITH CALCULATIONS SHALL BE SUBMITTED FOR REVIEW BY STRUCTURAL ENGINEER.
 5. HEAVY DUTY PIPE CLAMP SHALL BE EXTENDED AS REQUIRED THE END OR ENDS ARE SUPPORTED FROM STRUCTURAL STEEL.
 6. PROVIDE ANCHOR BOLT FOR THIS DETAIL.
 7. PIPE SUPPORT DETAIL DRAWINGS SHALL BE SIGNED AND SEALED BY A N.Y. LICENSED PROFESSIONAL ENGINEER.

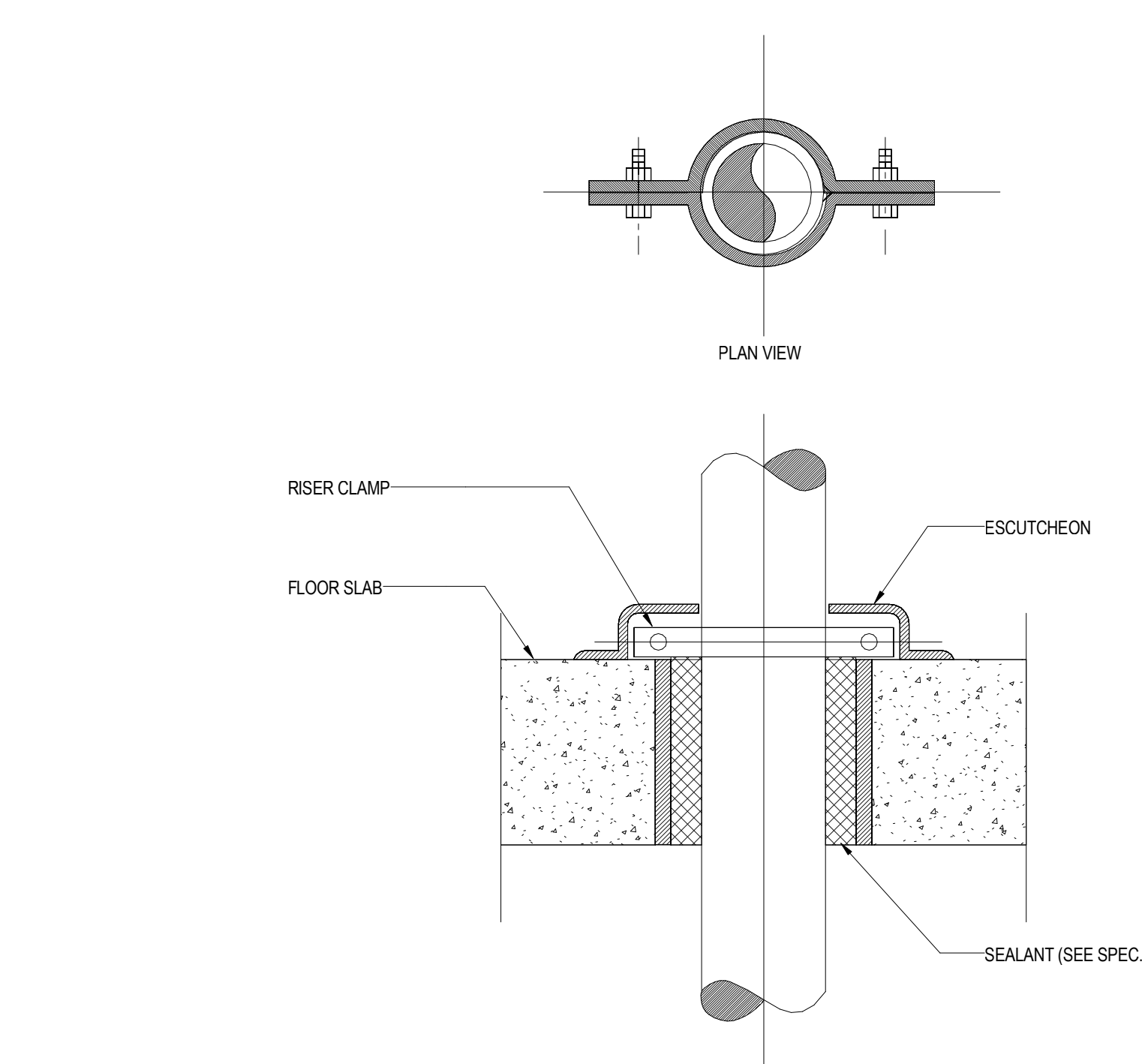
1 VERTICAL PIPE SUPPORT



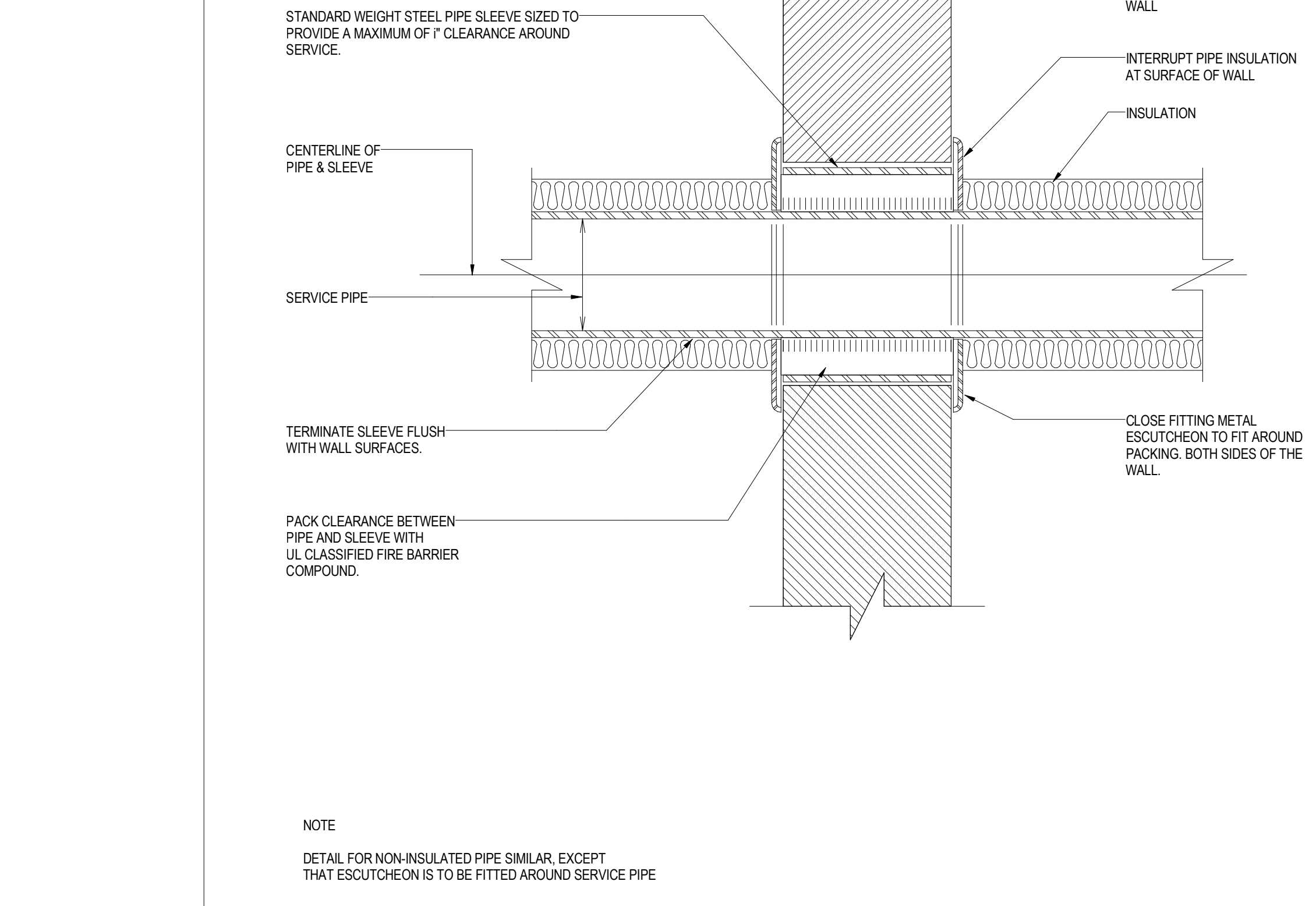
2 PIPE (INSULATED) PENETRATION THRU GYPSUM WALLS ABOVE GRADE



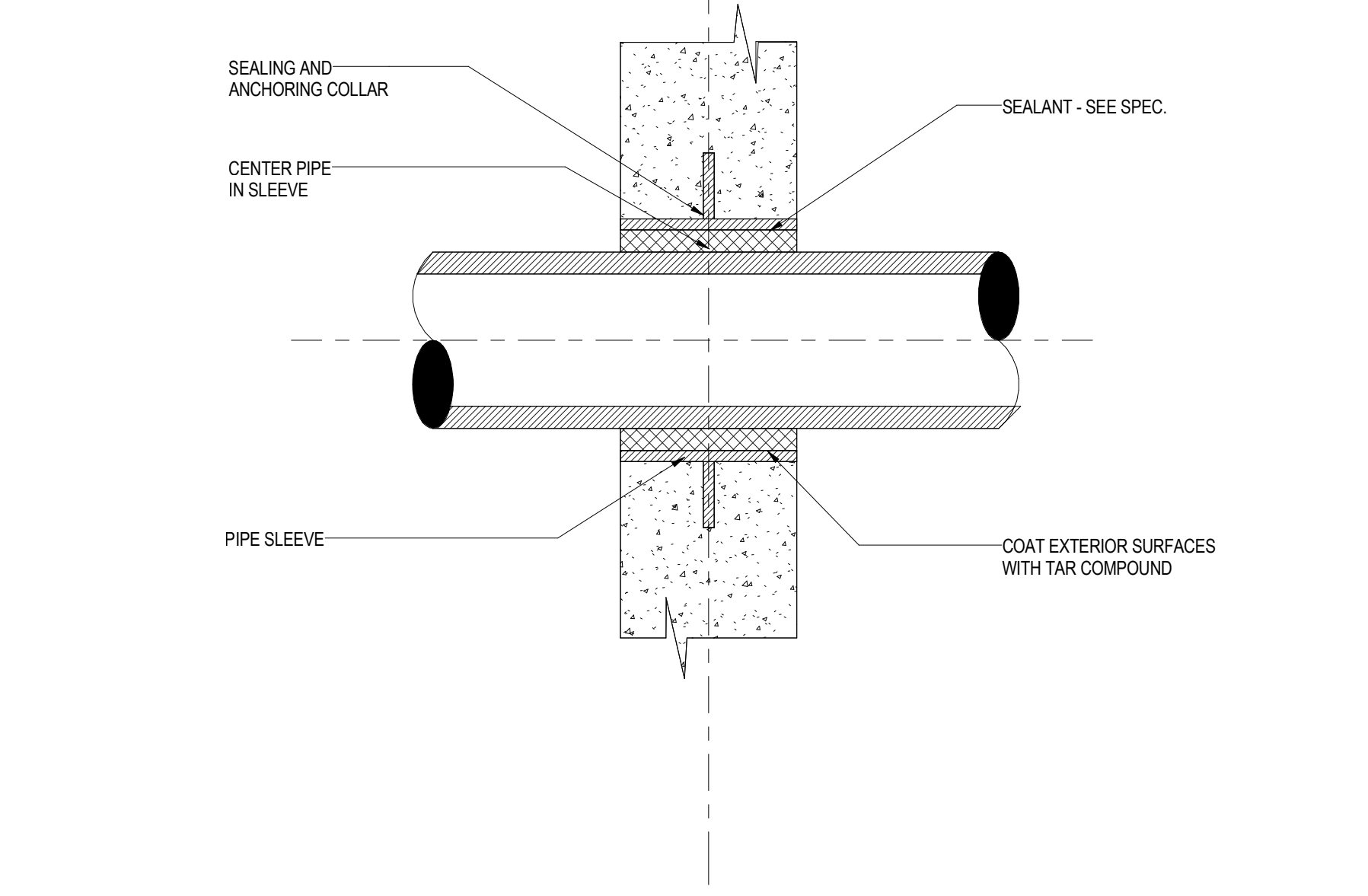
3 PIPE PENETRATION THRU MASONRY WALLS ABOVE GRADE (UNINSULATED)



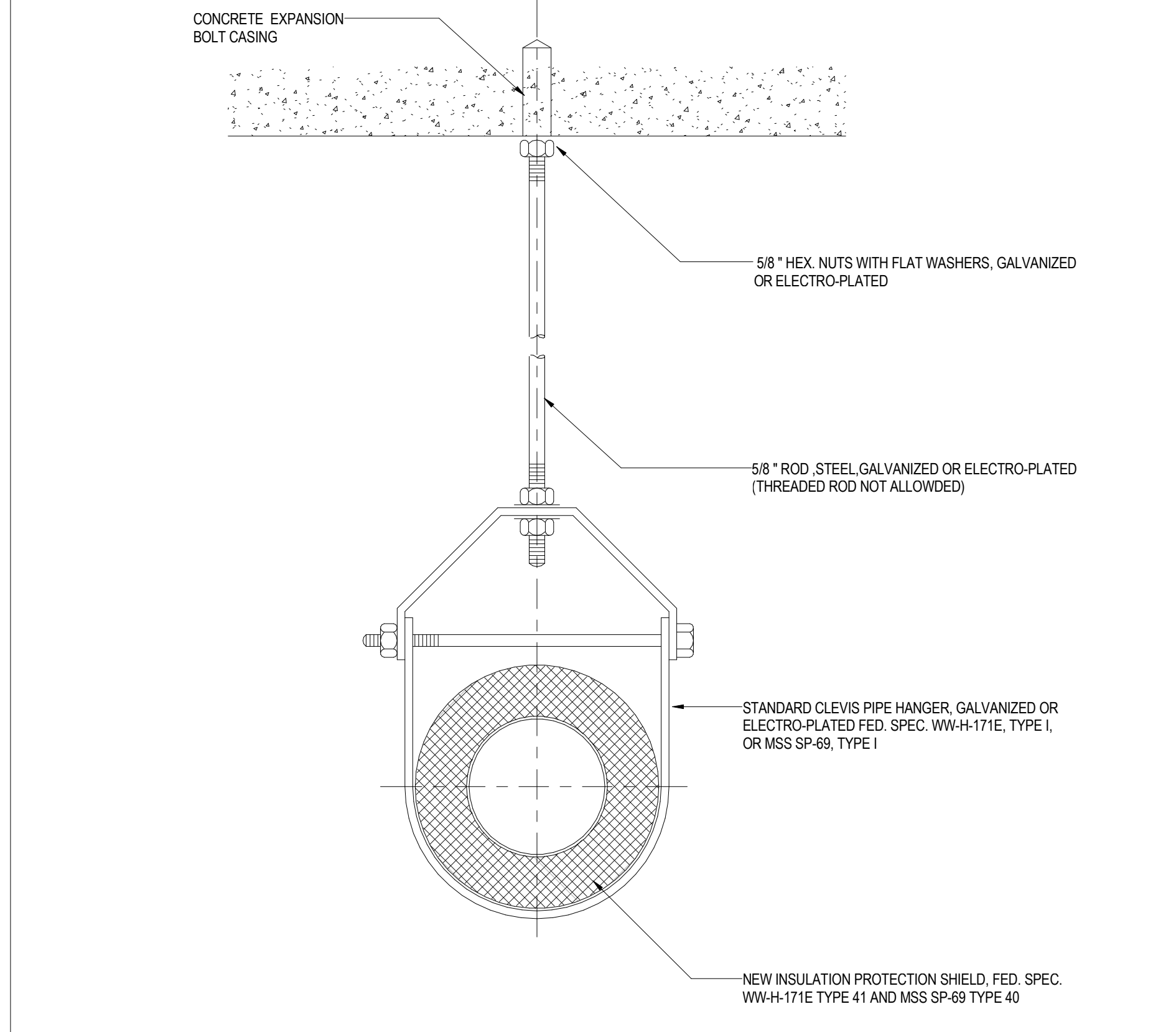
4 PIPEWORK SLAB PENETRATION (UNINSULATED)



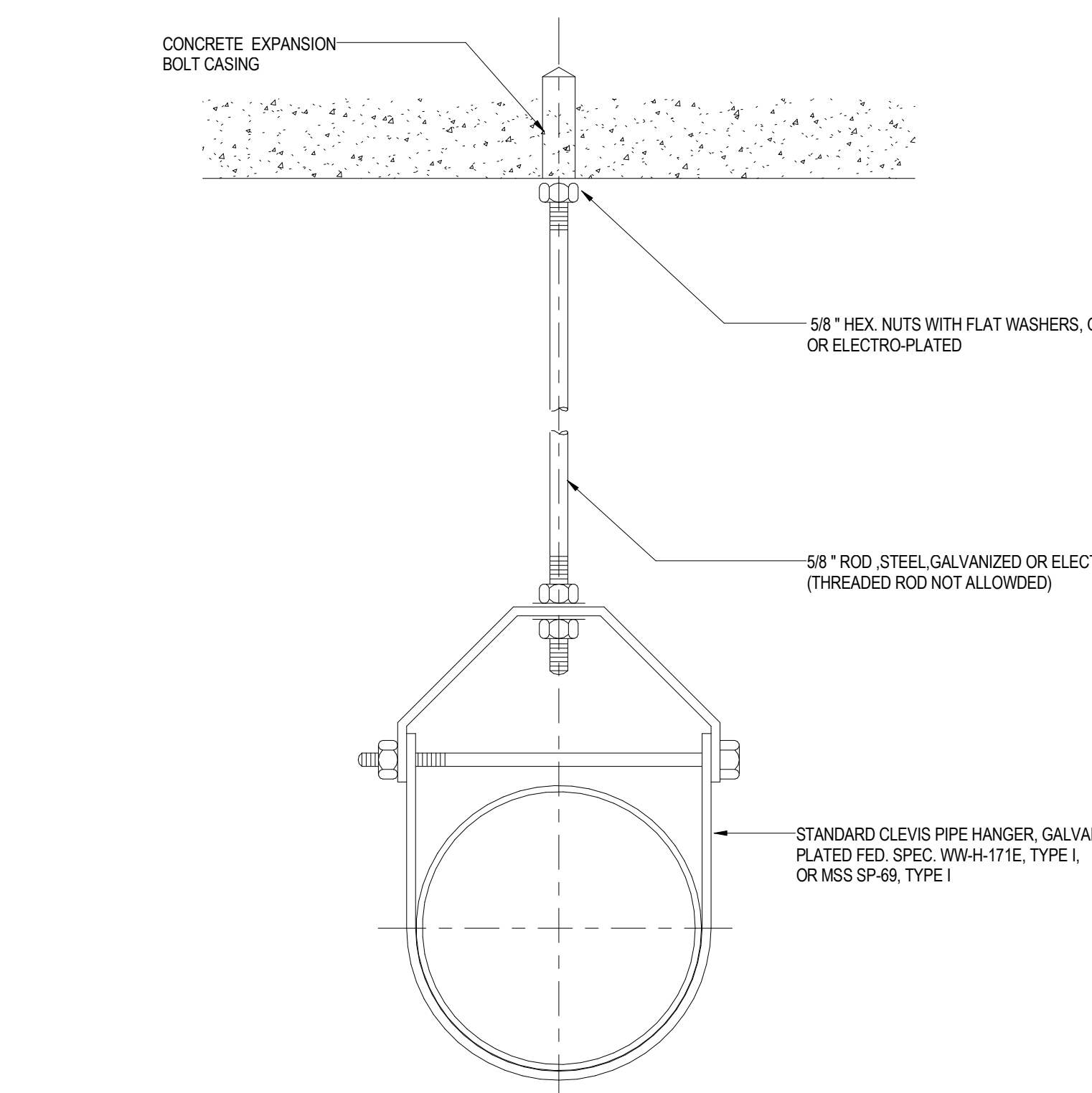
5 FIRE RATED WALL PENETRATION - STEEL PIPE



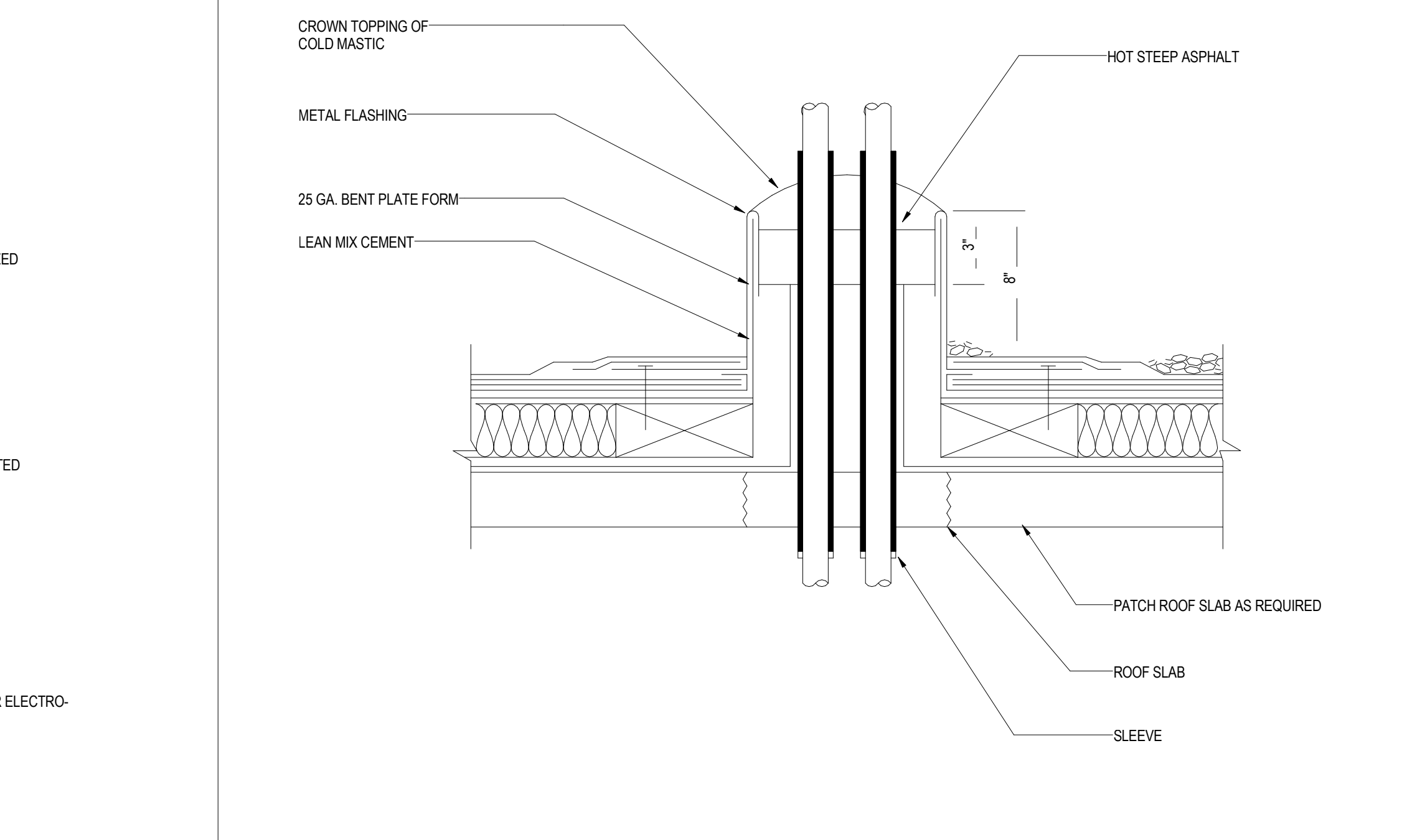
6 PIPE SLEEVE THRU EXTERIOR WALL



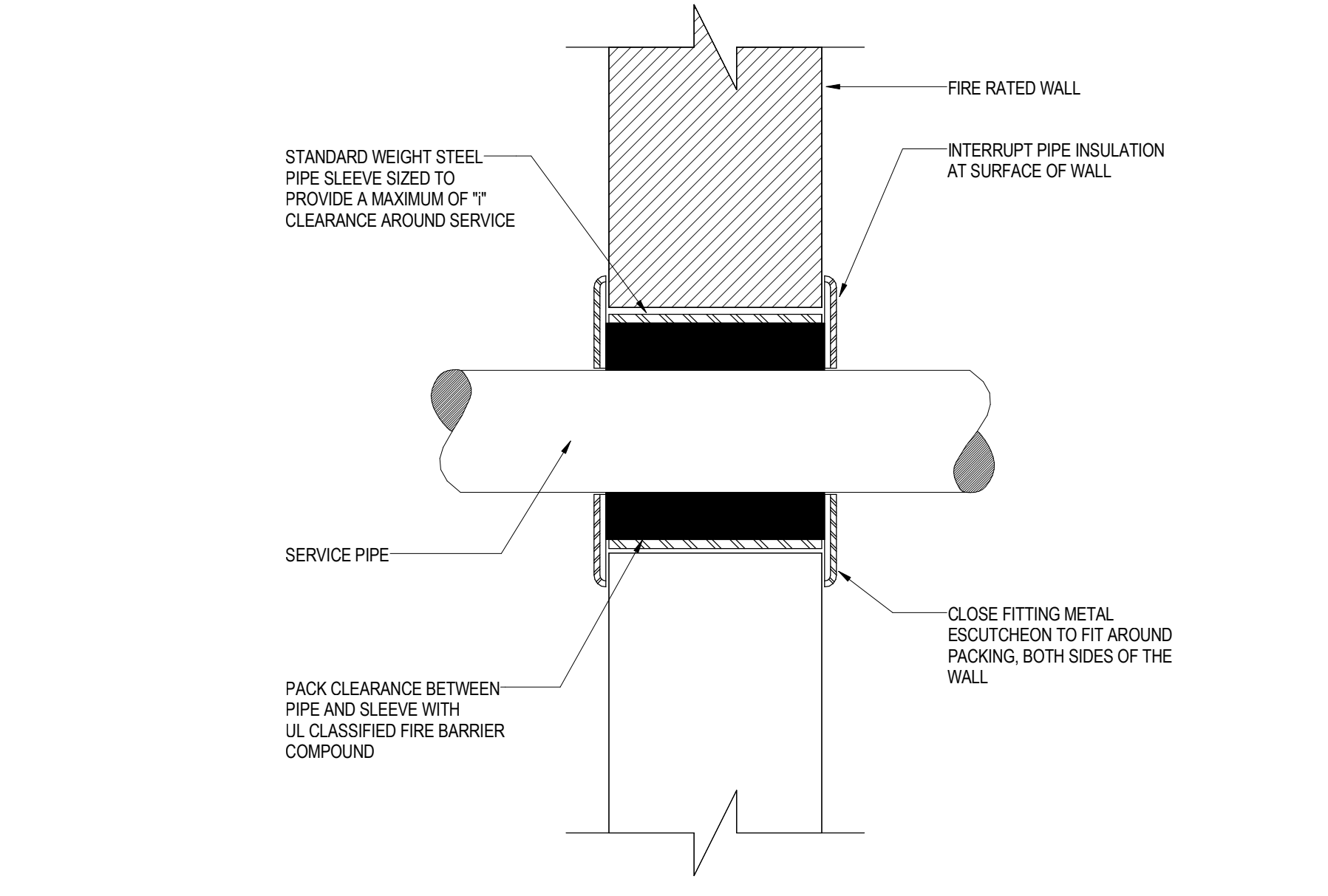
7 SUPPORT SYSTEM FOR INSULATED PIPES - HORIZONTAL



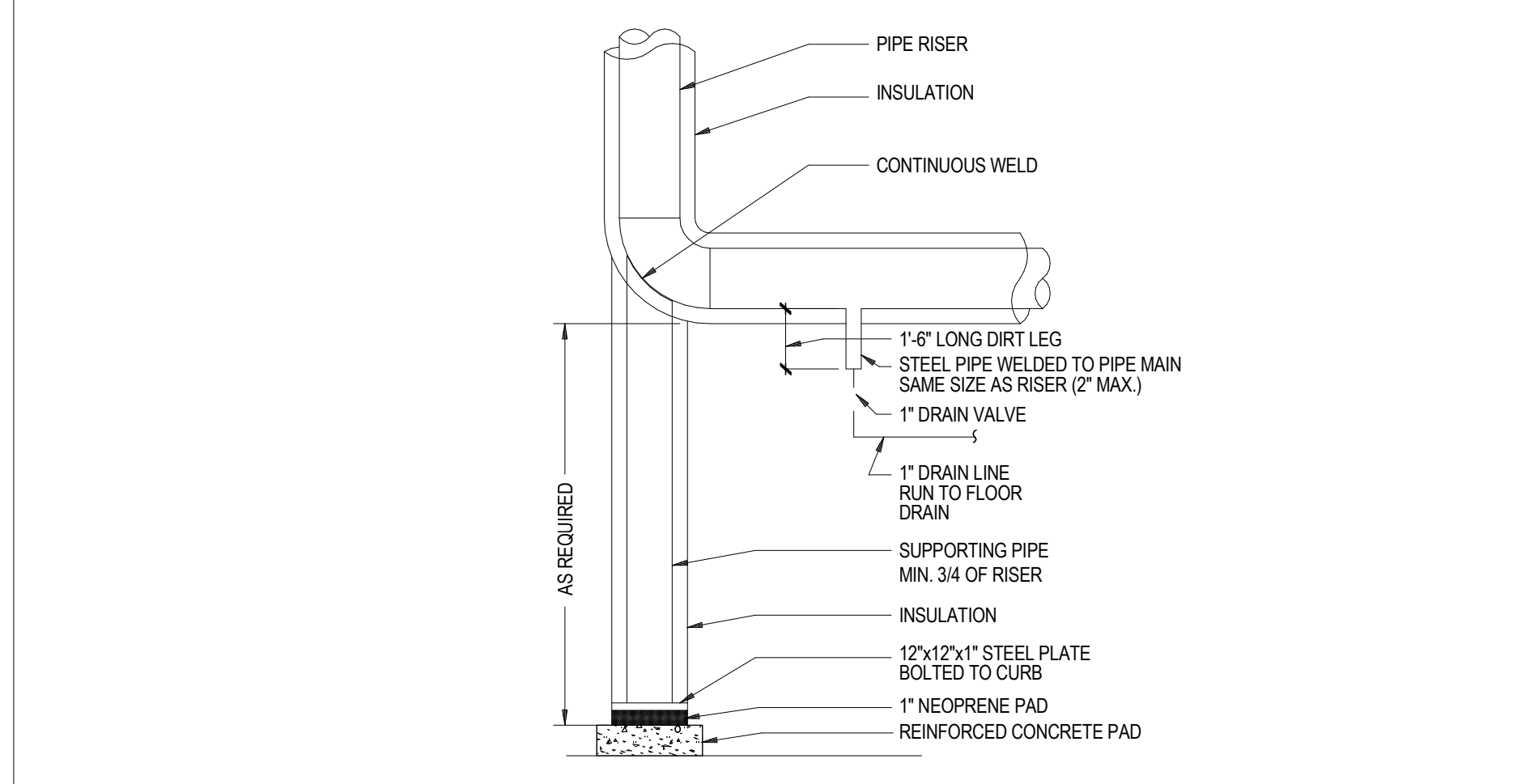
8 SUPPORT SYSTEM FOR UNINSULATED PIPES - HORIZONTAL



9 PIPE PENETRATION THRU ROOF (CONCRETE)



10 UNINSULATED PIPE THROUGH ACOUSTIC RATED WALL



11 PIPE RISER BASE



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MECHANICAL DETAILS

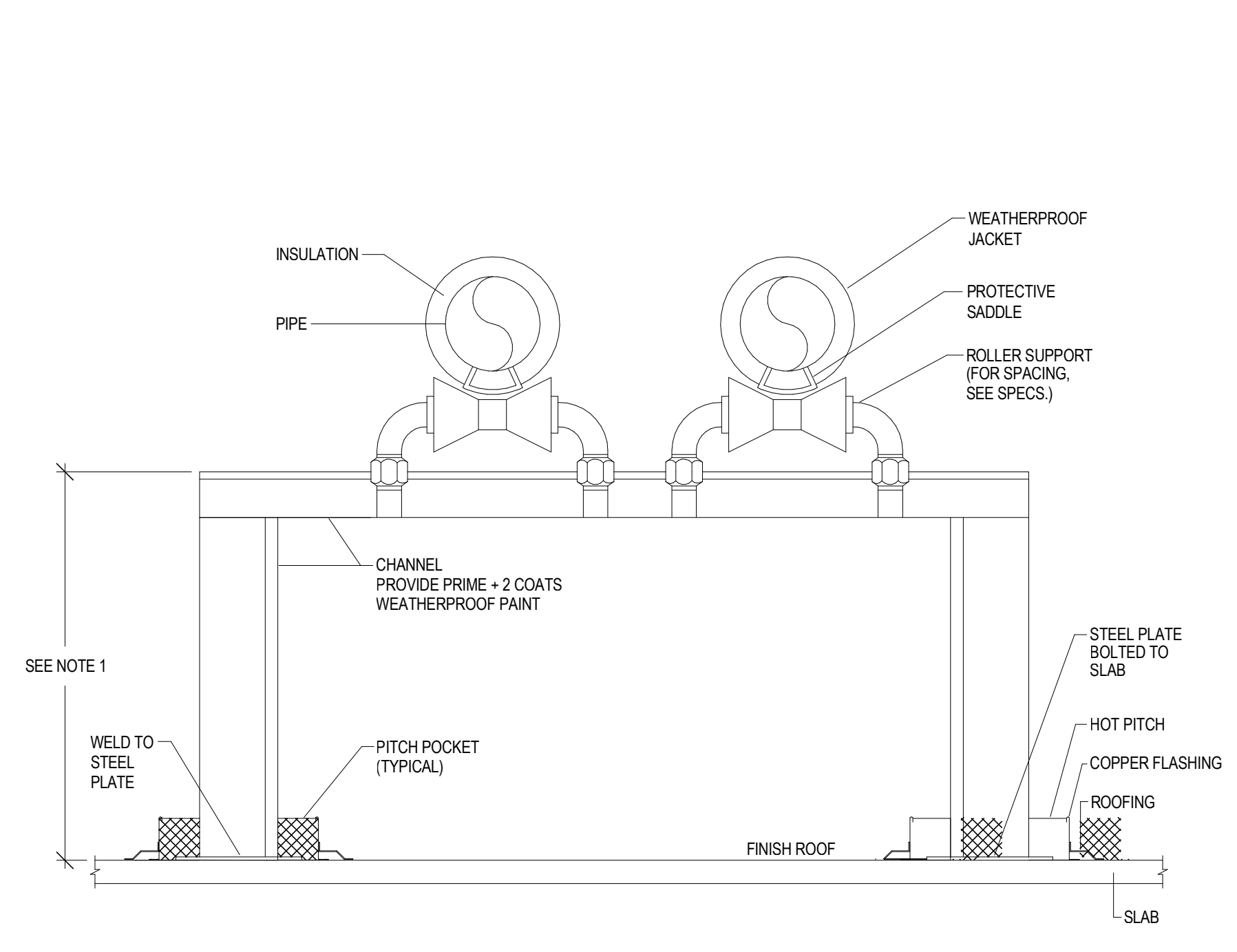
M-502.00

NO SCALE

45 BROAD STREET

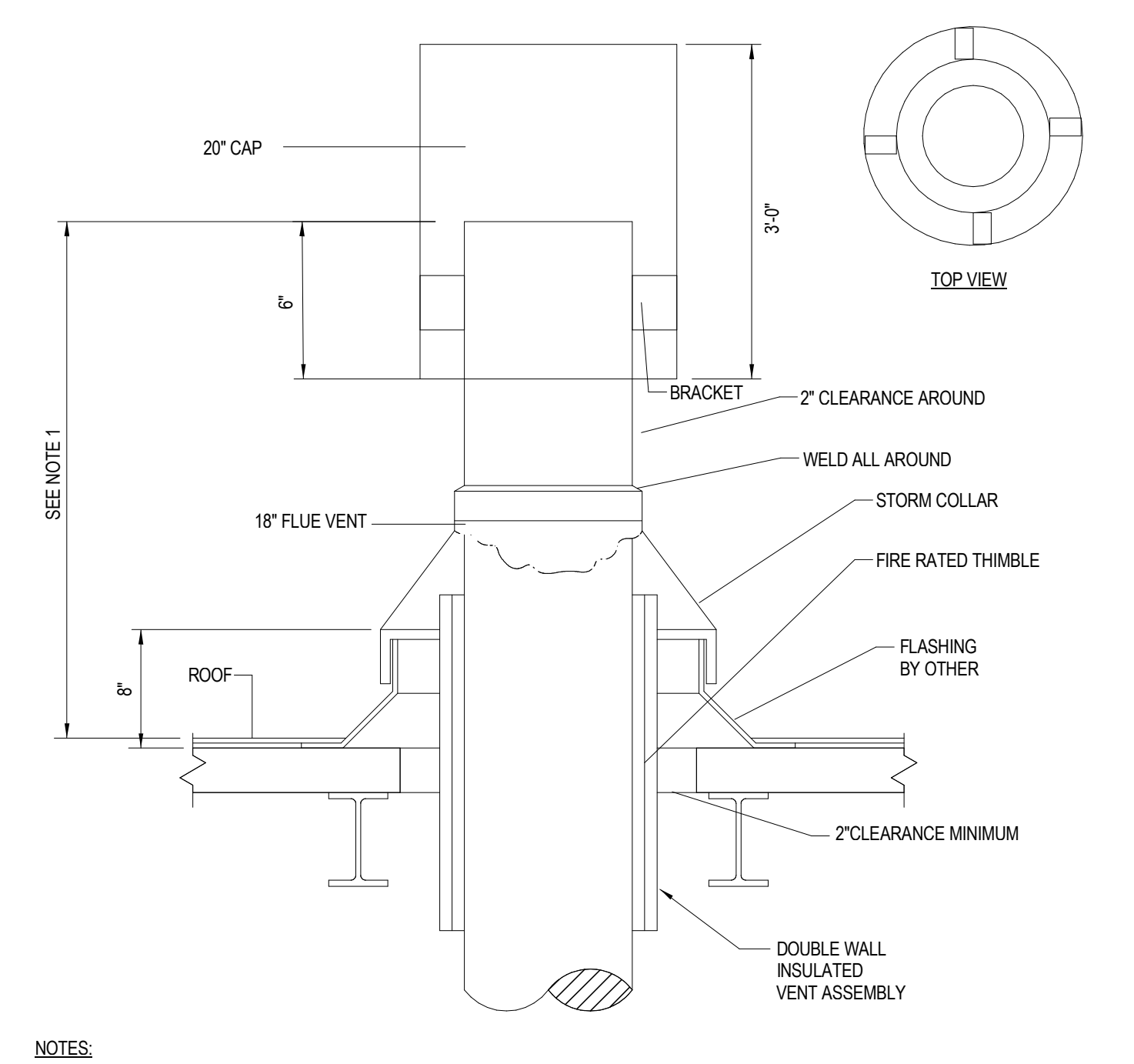
NEW YORK NY 10004

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LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.477.6400	MPP LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	Barthelme Engineering 100 Broadway New York, NY 10005 212.334.2025



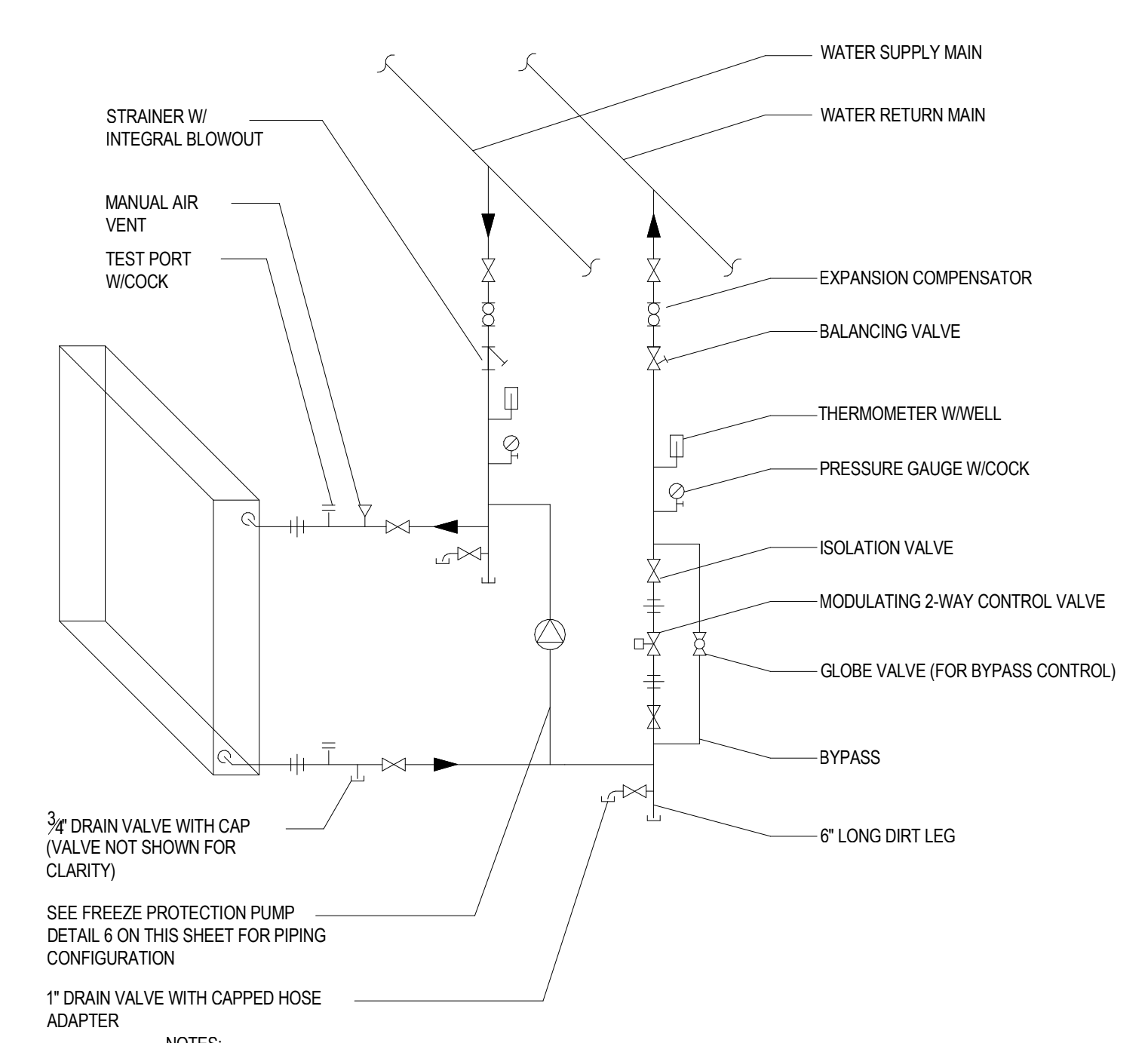
NOTES:
1) HEIGHT TO BE VERIFIED BY MANUFACTURER AND SHALL BE COORDINATED WITH ROOF INSULATION etc.

1 PIPING SUPPORT ON ROOF DETAIL



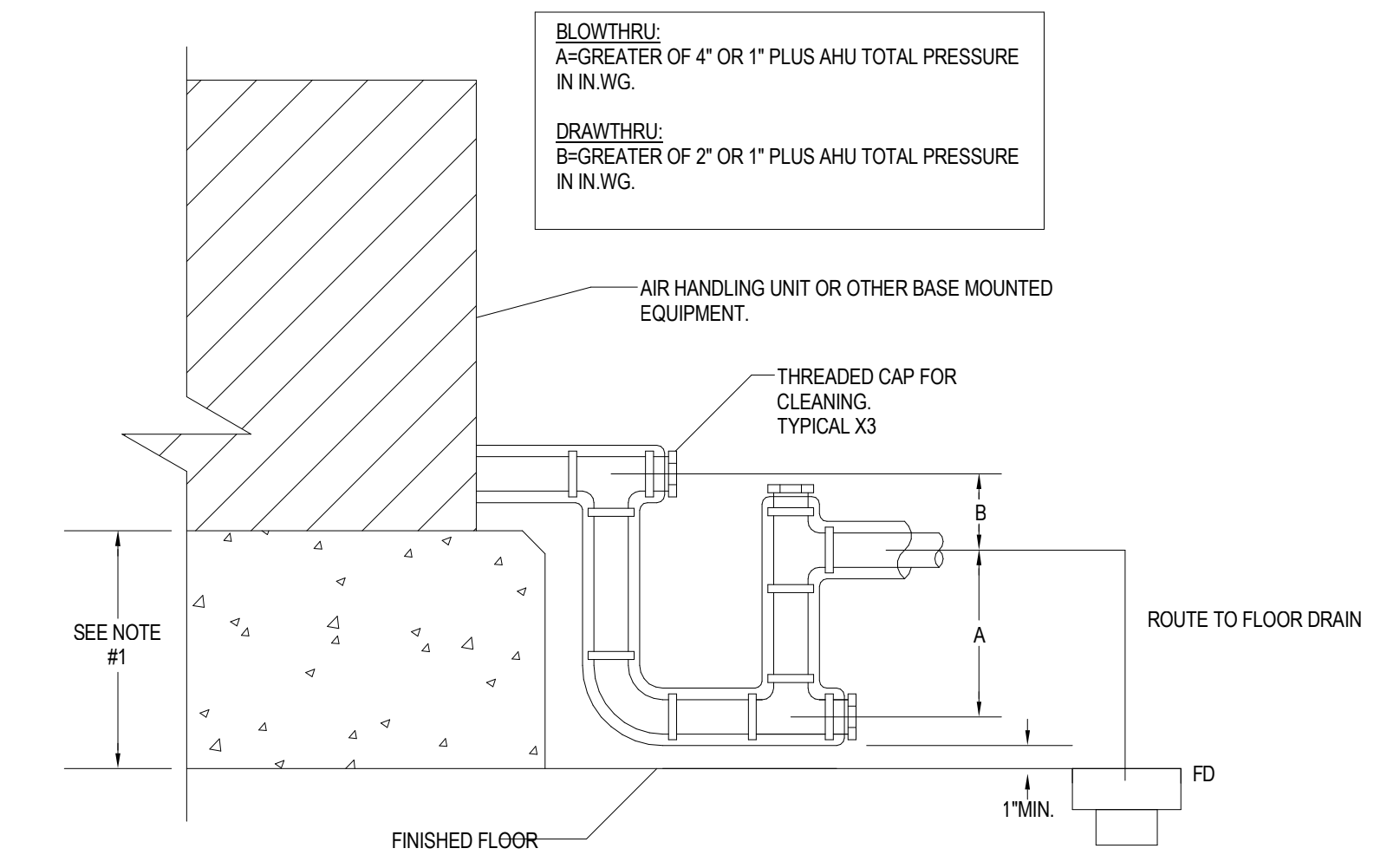
NOTES:
1. HEIGHT & LOCATION SHALL BE IN ACCORDANCE WITH NYC MECHANICAL CODE 2014 REQUIREMENTS.

2 BOILER FLUE EXHAUST DETAIL



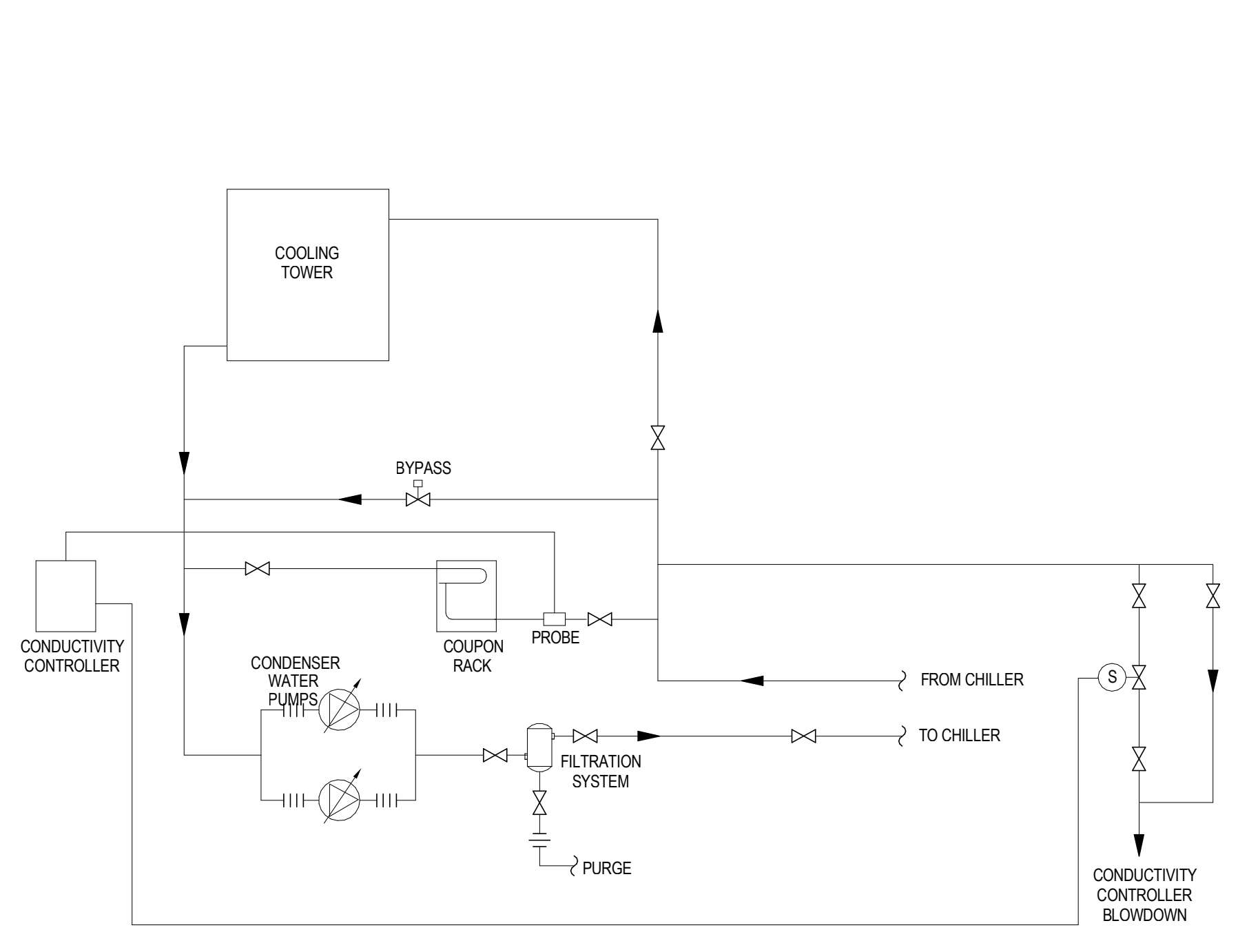
NOTES:
1. ALL COMPONENTS, INCLUDING DRAIN VALVES, SHALL BE RATED FOR FULL SYSTEM TEST PRESSURE.
2. ALL SUPPLY AND RETURN PIPING WITH THE EXCEPTION OF FINAL COIL BRANCHES AND CONTROL VALVE SHALL BE FULL SIZE. SEE RISER FOR PIPE SIZE.

3 COIL PIPING DETAIL



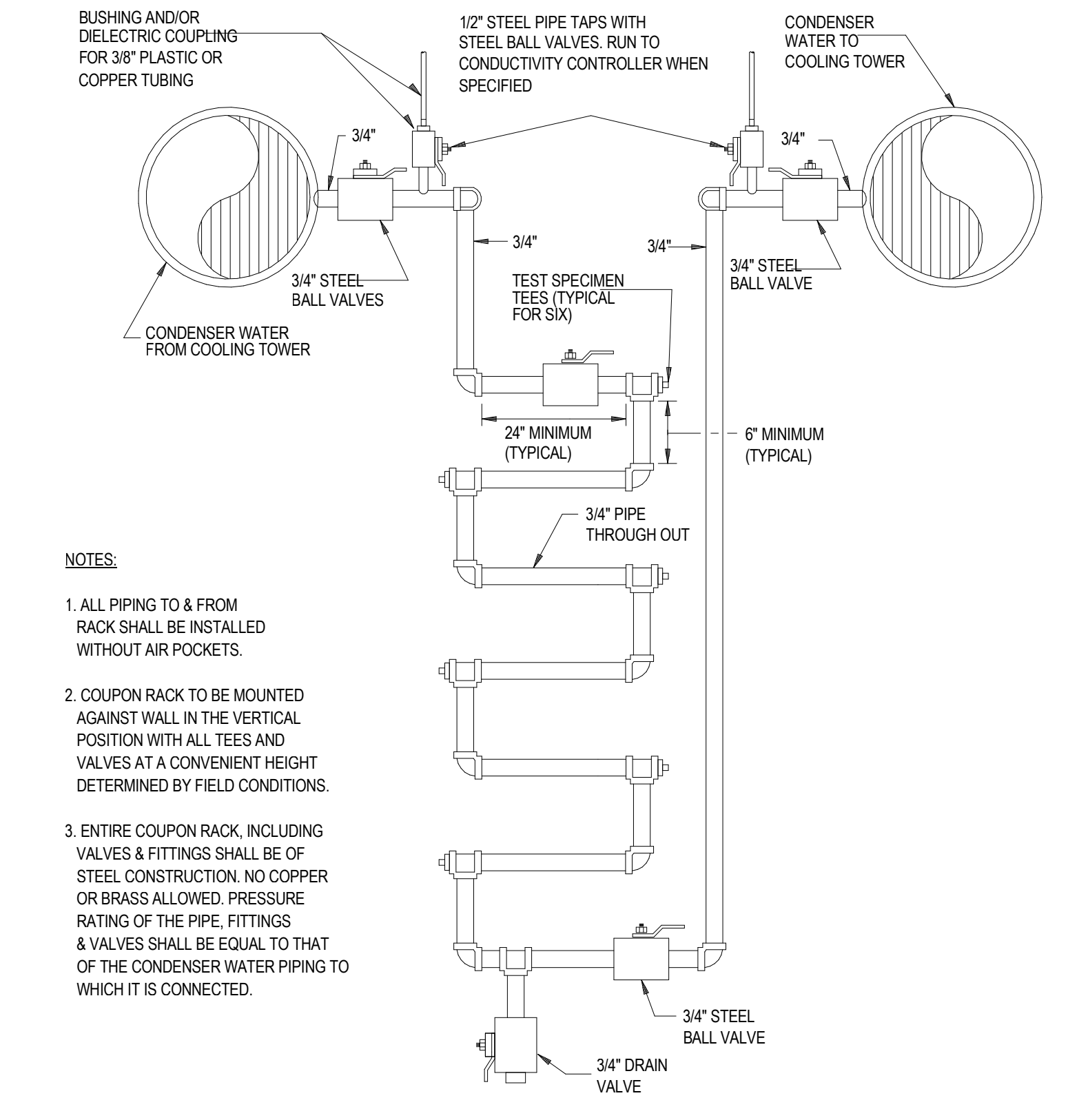
NOTES:
1. TRAP HEIGHT SHALL BE DETERMINED BY DEPTH REQUIRED TO INSTALL TRAP.
2. INSTALL AIR GAP FITTING WHEN CONNECTING TO SANITARY DRAINWENT.
3. F-TRAP REQUIRED IN SANITARY CONDENSATE DRAIN AFTER AIR GAP FITTING.

4 COOLING COIL CONDENSATE TRAP - BASE MOUNTED EQUIPMENT



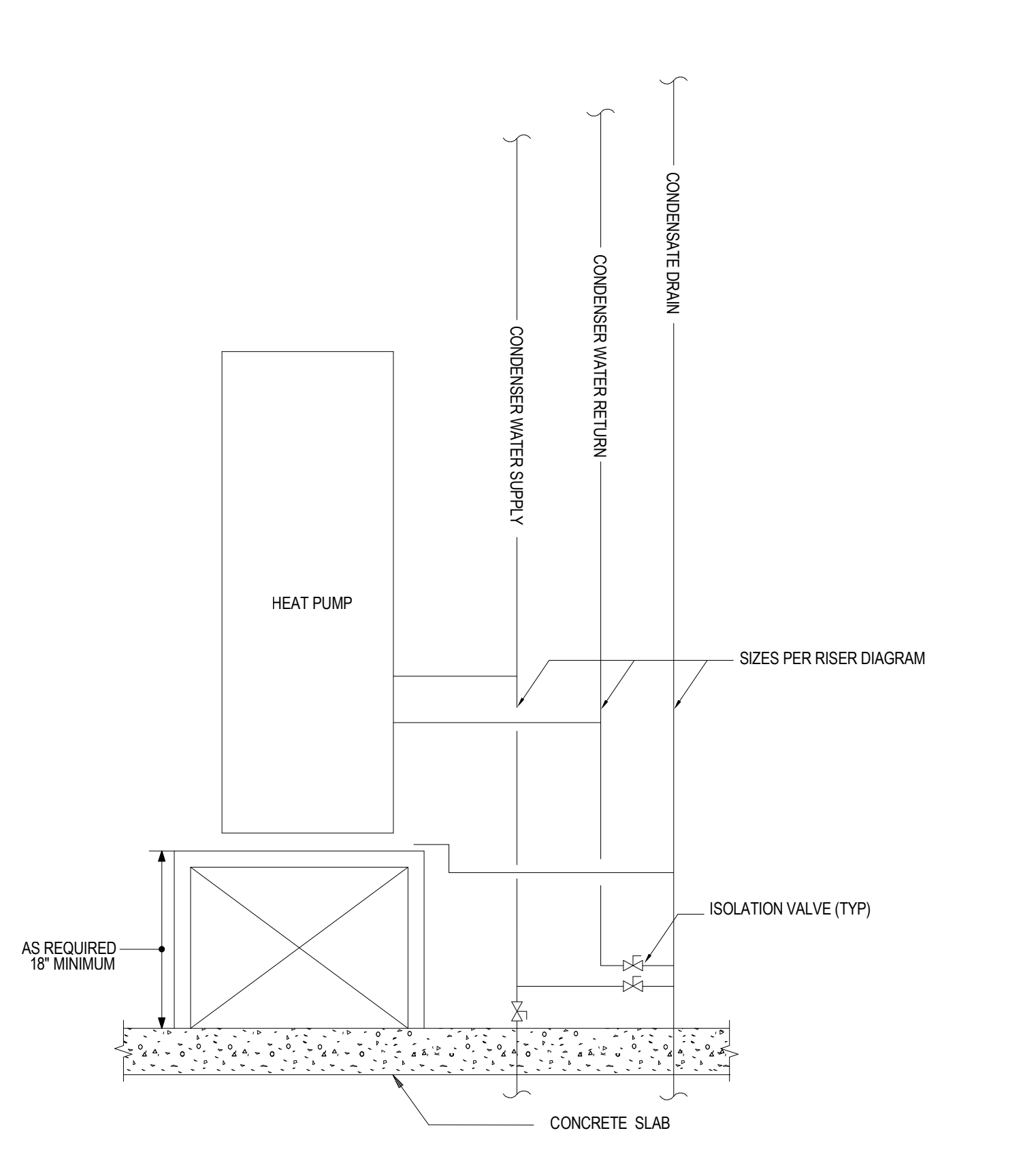
NOTES:
1. BASIS OF DESIGN AND ABOVE BASED ON DOLPHIN SERIES 3000 SYSTEM BY CLEARWATER EQUAL AND APPROVED SYSTEM ACCEPTABLE.
2. DOLPHIN COMPONENT SHALL BE INSTALLED SUCH THAT IN

5 COOLING TOWER WATER TREATMENT

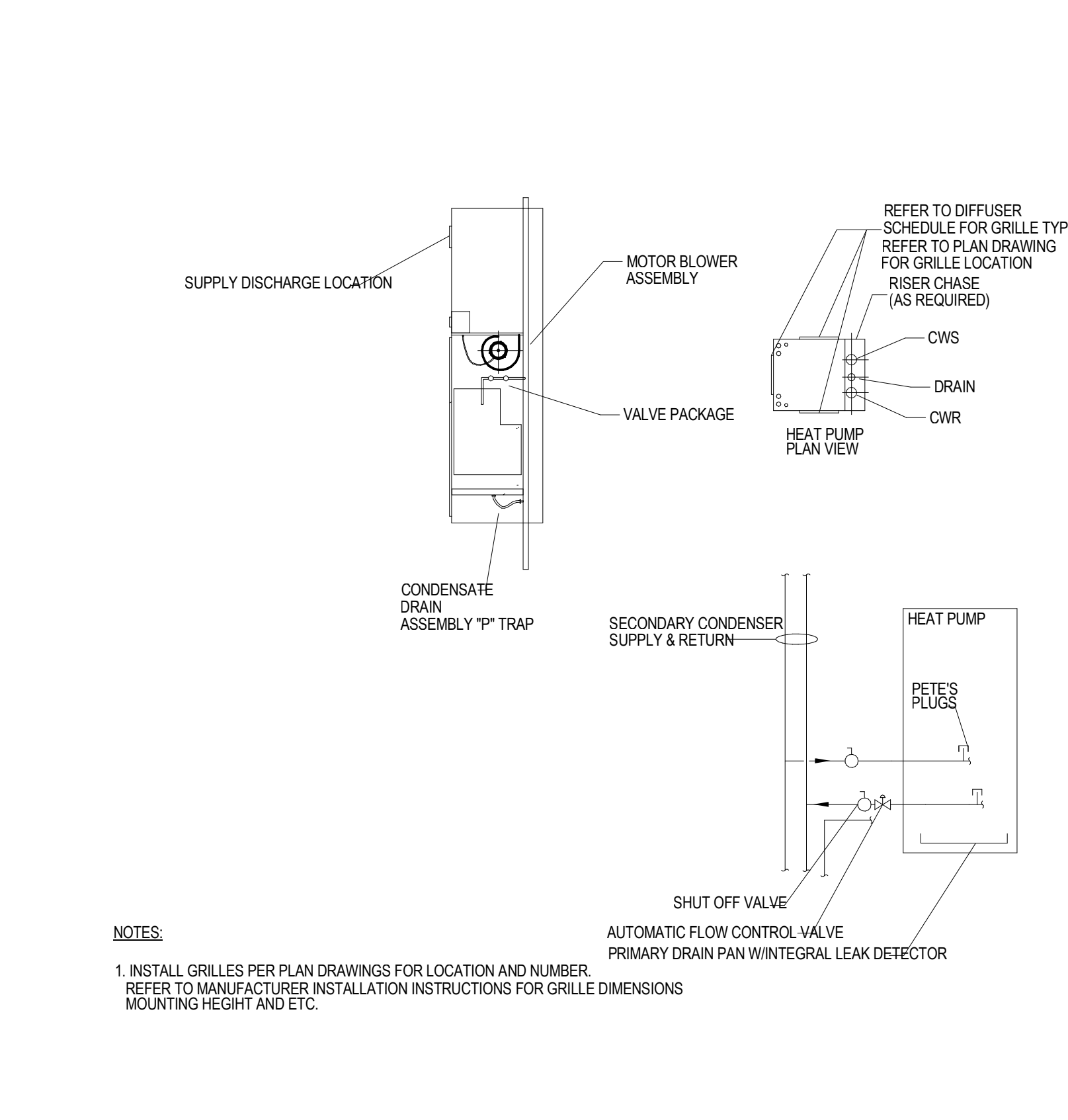


NOTES:
1. ALL PIPING TO & FROM RACK SHALL BE INSTALLED WITHOUT AIR POCKETS.
2. COUPON RACK TO BE MOUNTED AGAINST WALL IN THE VERTICAL POSITION WITH ALL TEES AND VALVES AT A CONVENIENT HEIGHT DETERMINED BY FIELD CONDITIONS.
3. ENTIRE COUPON RACK, INCLUDING VALVES & FITTINGS SHALL BE OF STEEL CONSTRUCTION. NO COPPER OR BRASS ALLOWED. PRESSURE RATING OF THE PIPE, FITTINGS & VALVES SHALL BE EQUAL TO THAT OF THE CONDENSER WATER PIPING TO WHICH IT IS CONNECTED.

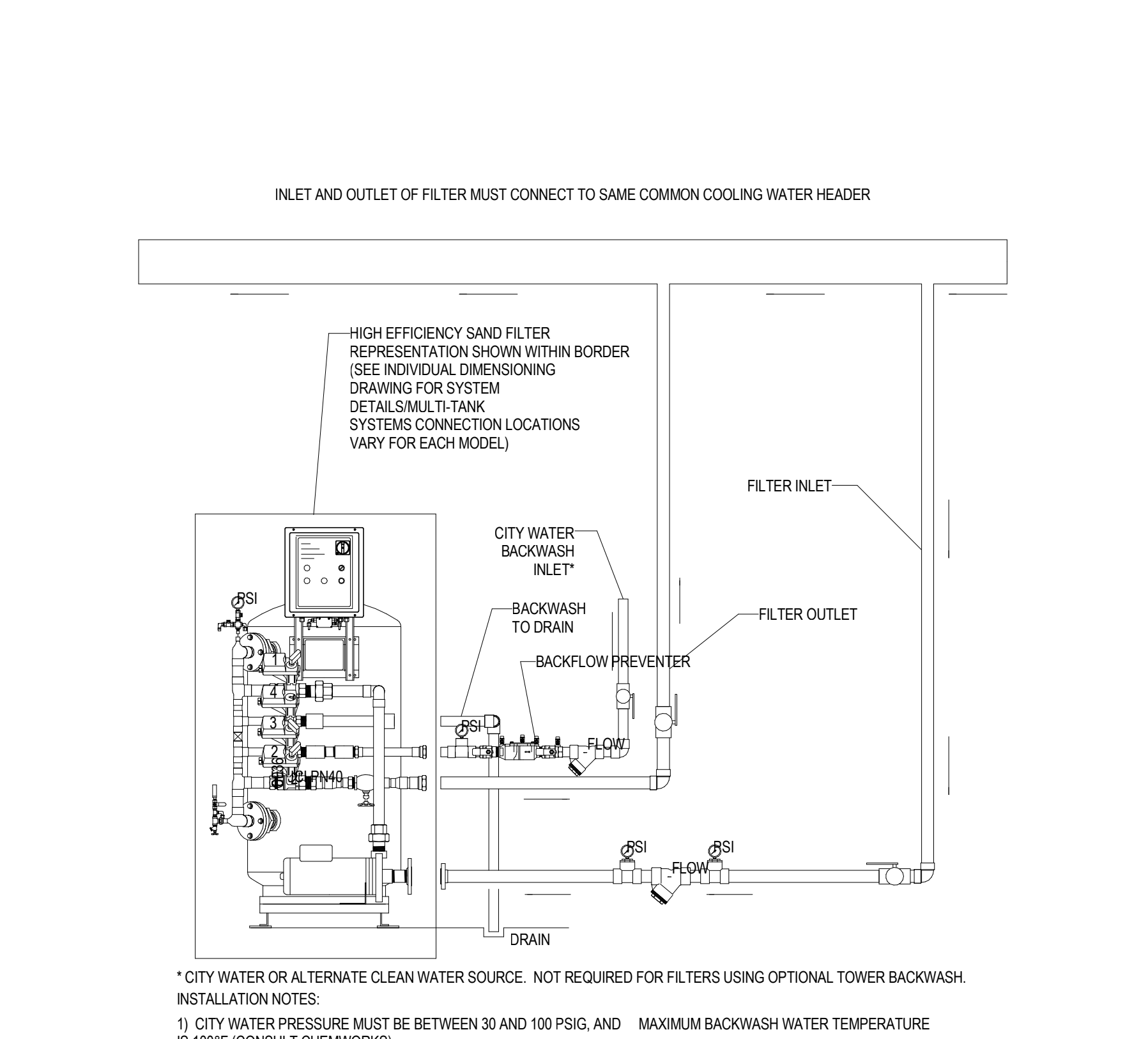
6 COUPON RACK



7 HEAT PUMP FLOOR STAND AND DRAIN FROM BOTTOM

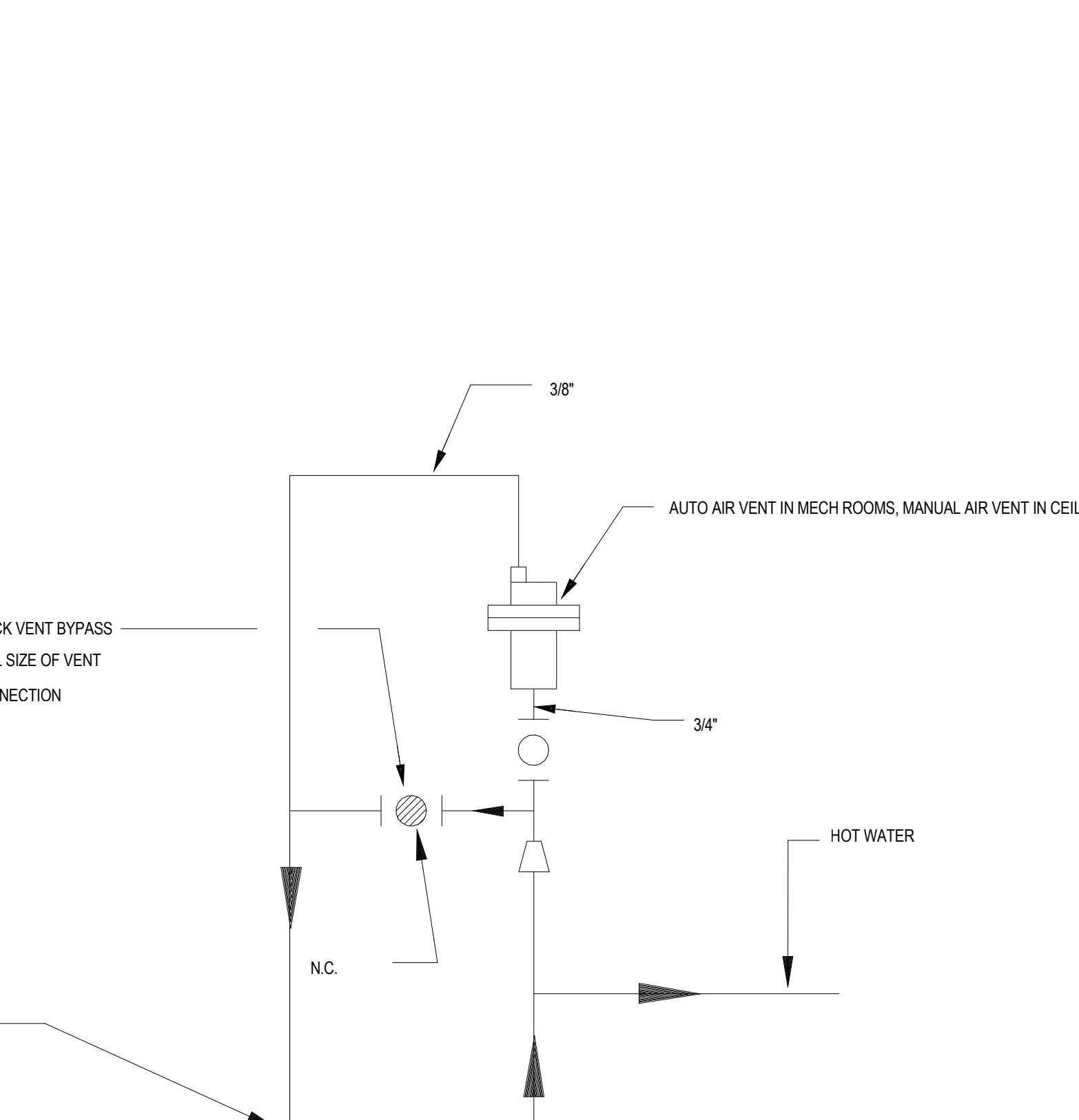


8 HEAT PUMP PIPING DETAIL

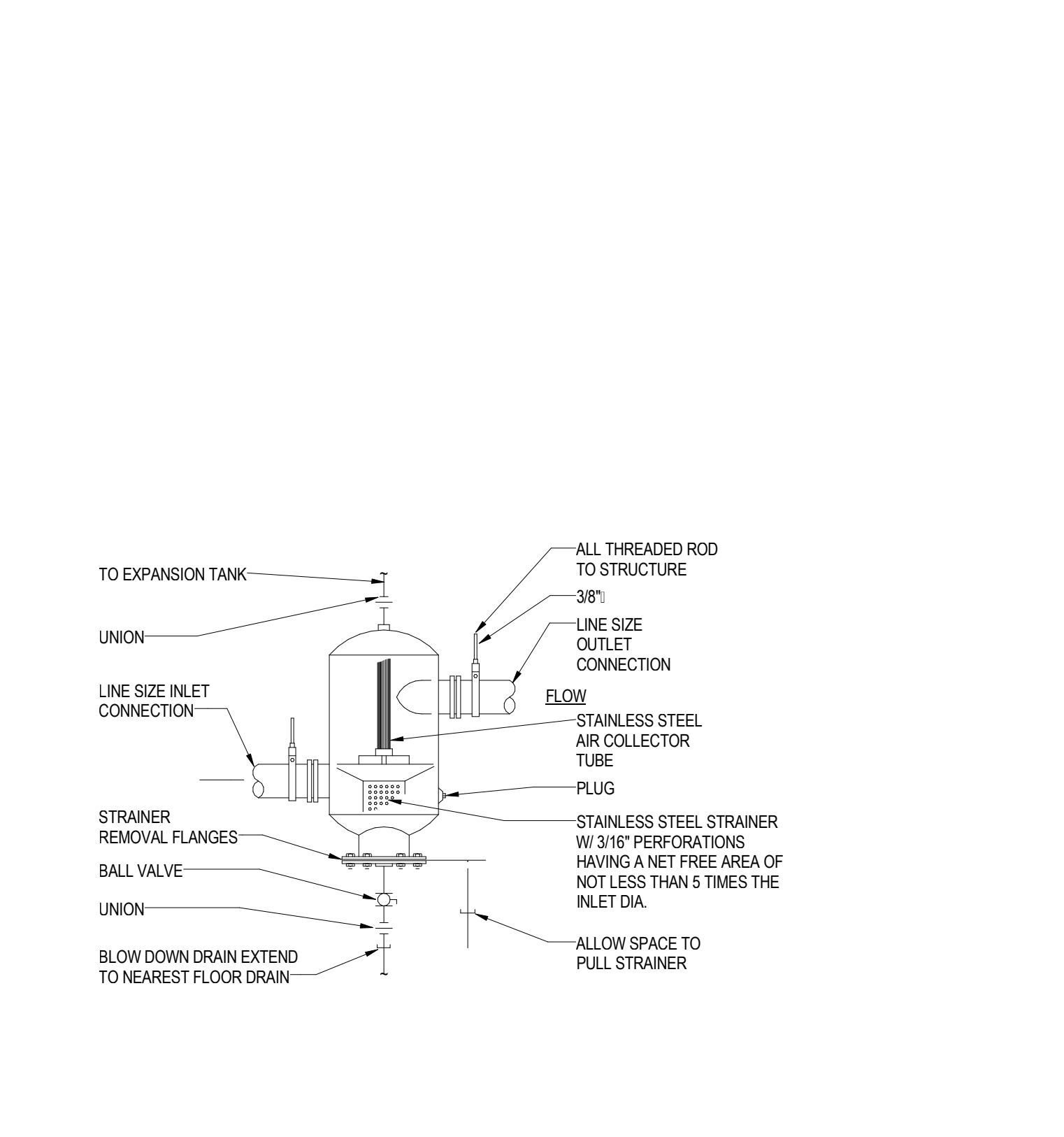


* CITY WATER OR ALTERNATE CLEAN WATER SOURCE. NOT REQUIRED FOR FILTERS USING OPTIONAL TOWER BACKWASH.
INSTALLATION NOTES:
1. CITY WATER PRESSURE MUST BE BETWEEN 30 AND 100 PSIG AND MAXIMUM BACKWASH WATER TEMPERATURE IS 100°F. (CONSULT CHEMWORKS)
2. CONSULT CHEMWORKS FOR PIPE RUNS GREATER THAN 20' FROM FILTER.
3. ISOLATION VALVES ARE NEEDED IN EACH LINE.
4. ALL PIPING MUST MEET STATE AND LOCAL PLUMBING CODES.
5. SINGLE POINT ELECTRICAL CONNECTION TO CONTROL PANEL.
6. CONSULT CHEMWORKS FOR VERTICAL DRAIN PIPE INSTALLATIONS GREATER THAN 8' IN HEIGHT.

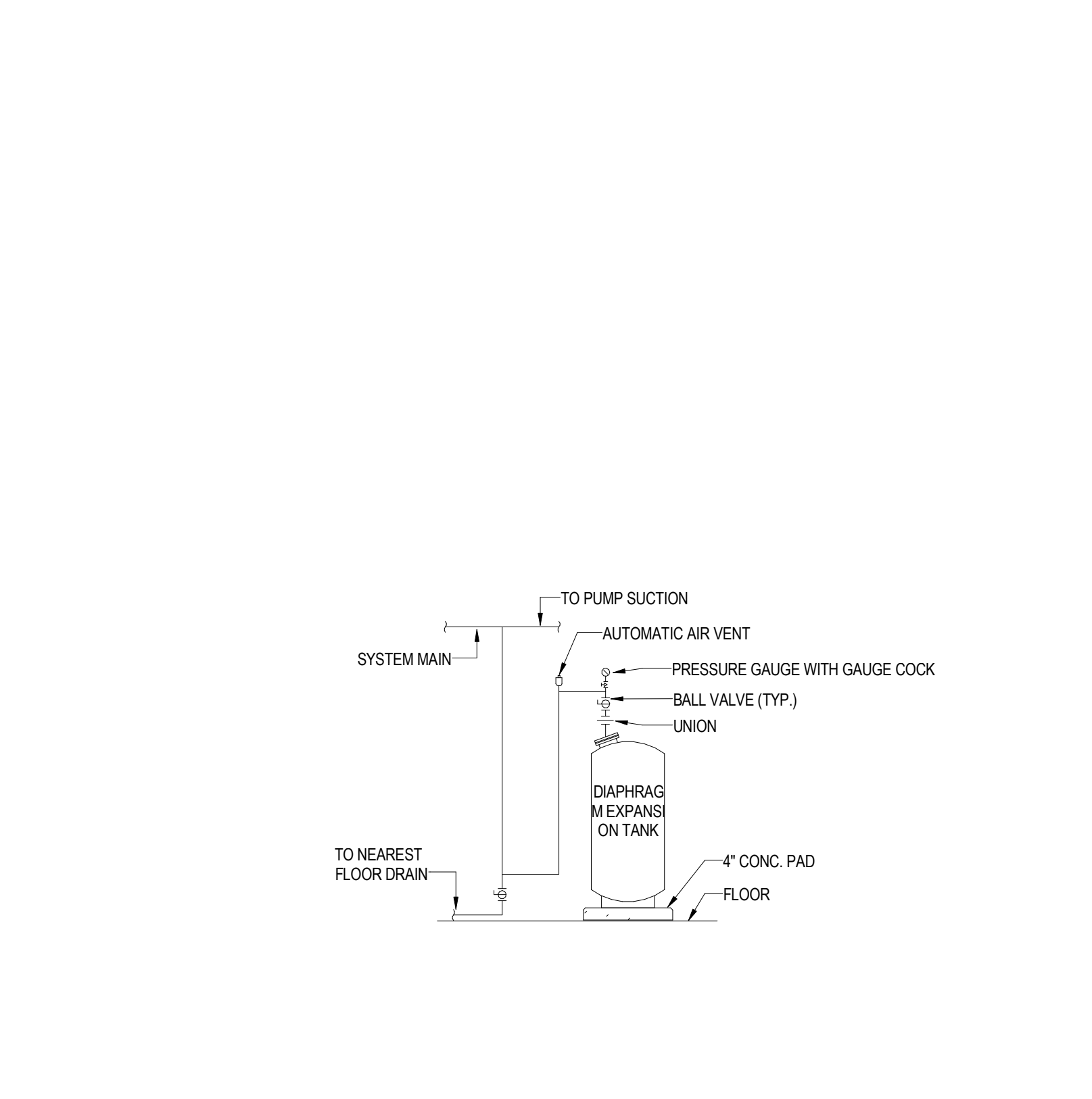
9 SAND FILTER



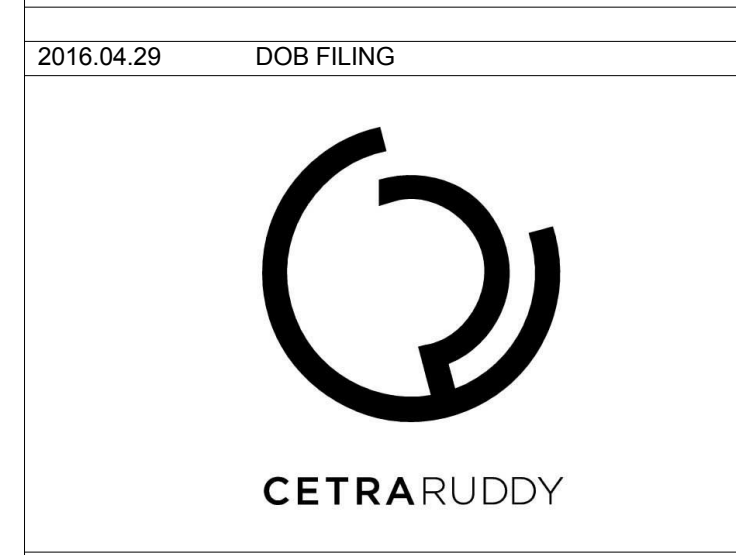
10 SYSTEM HIGH POINT VENT



11 TYPICAL AIR SEPARATOR TANK DETAIL



12 DIAPHRAGM EXPANSION TANK



MECHANICAL DETAILS

M-503.00

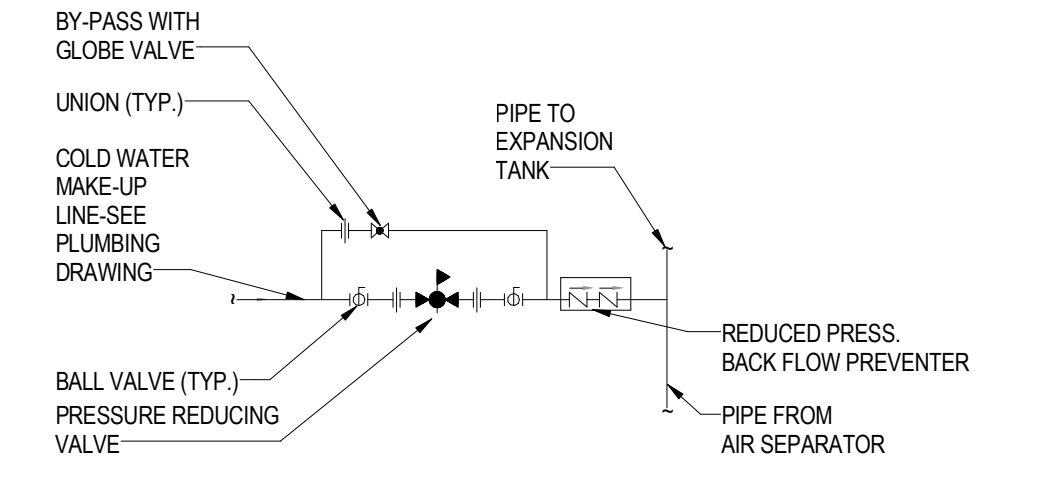
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WWW.CETRARUDDY.COM

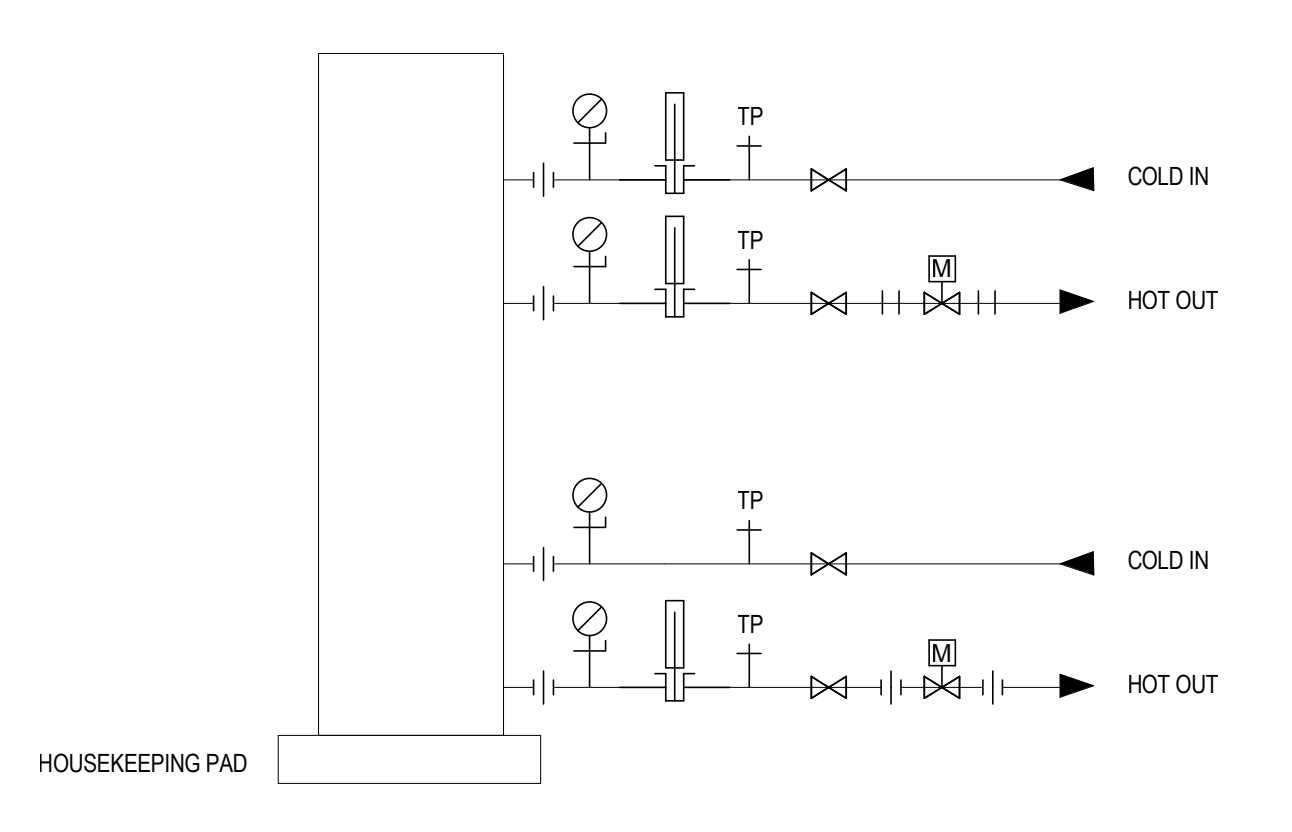
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NEW YORK NY 10004

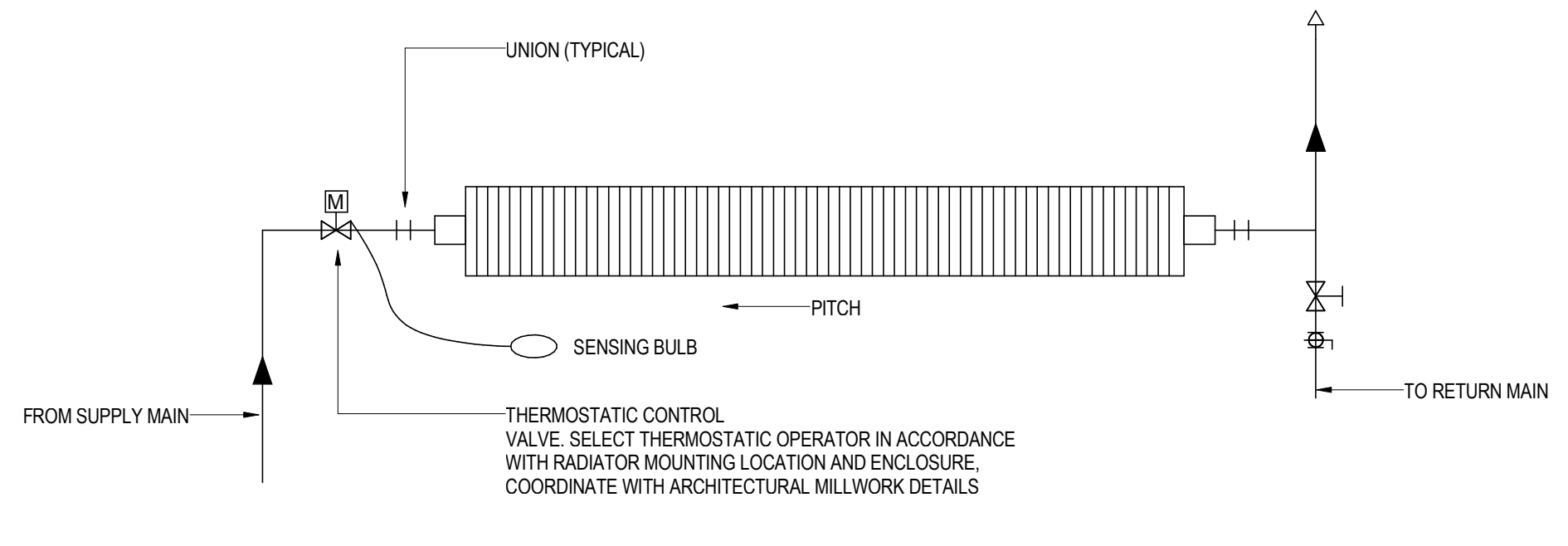
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1 COLD WATER MAKE-UP PIPING DETAIL

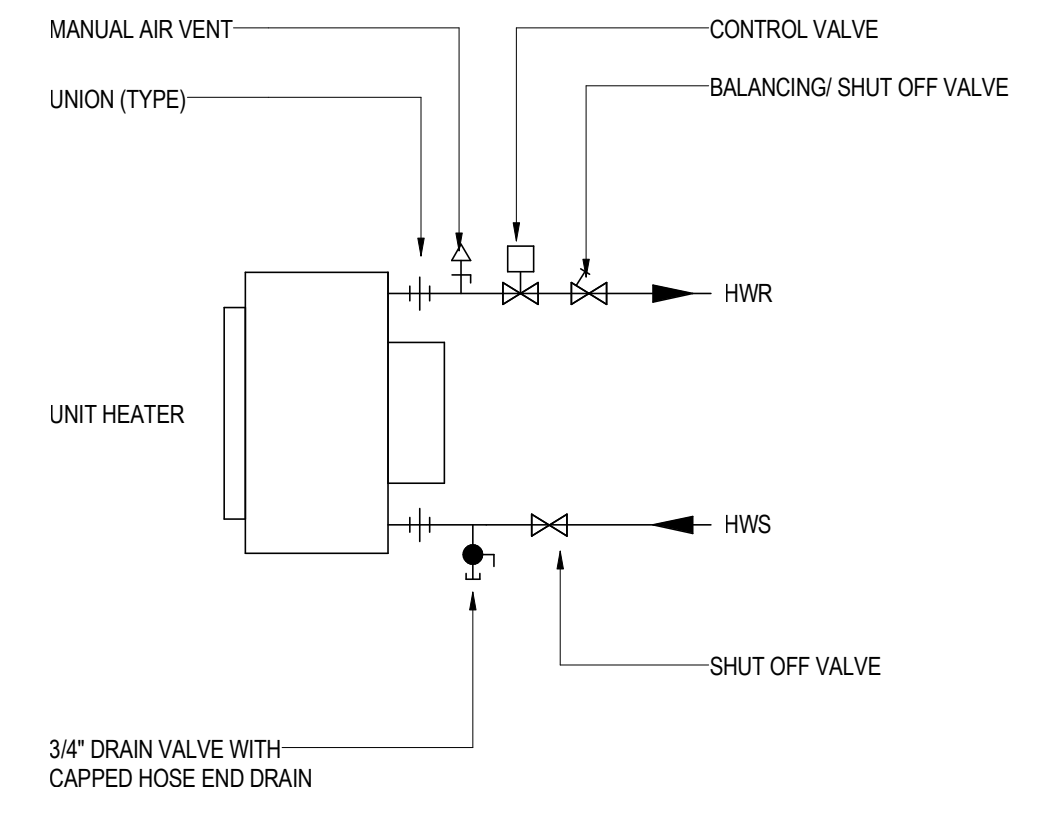


2 HEAT EXCHANGER PIPING



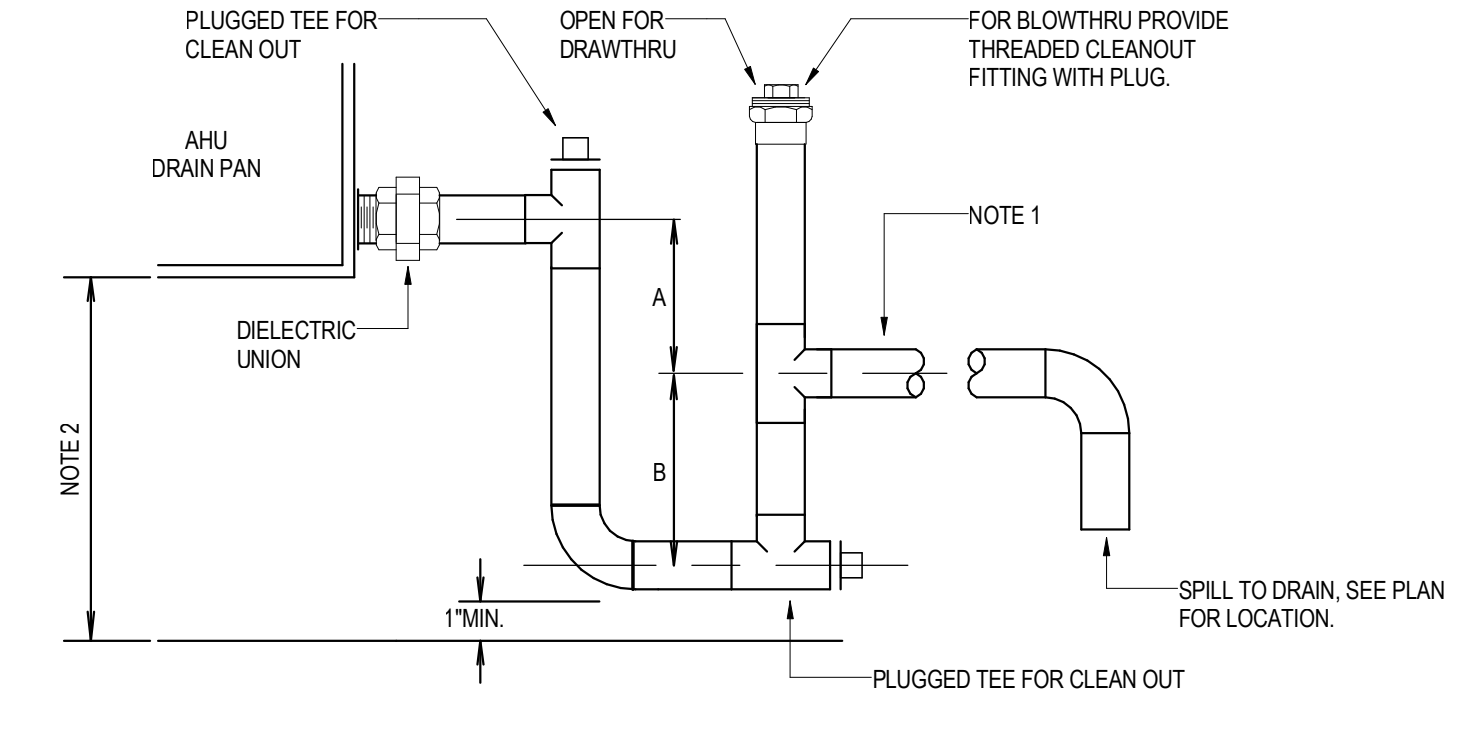
NOTE
 1. ALL VALVES SHOWN SHALL BE WITH ENCLOSURE.

3 HOT WATER FIN TUBE RADIATION UP FEED PIPING



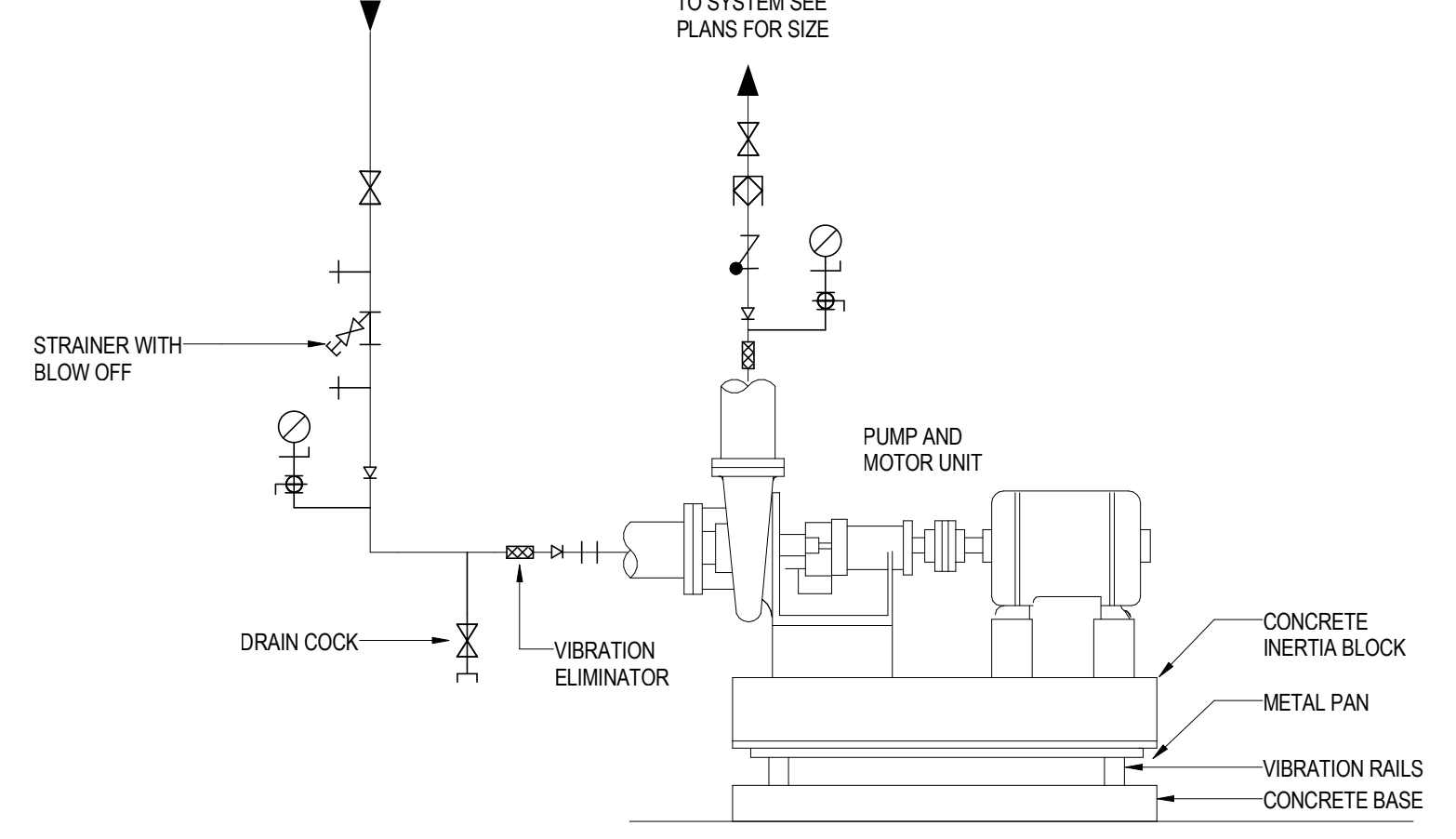
4 HOT WATER UNIT HEATER

CONDENSATE PIPE SIZE	
EQUIPMENT CAPACITY	MIN. PIPE SIZE
TONS	INCH
UP TO 20	3/4
21-40	1
41-90	1 1/4
91-125	1 1/2
126-250	2

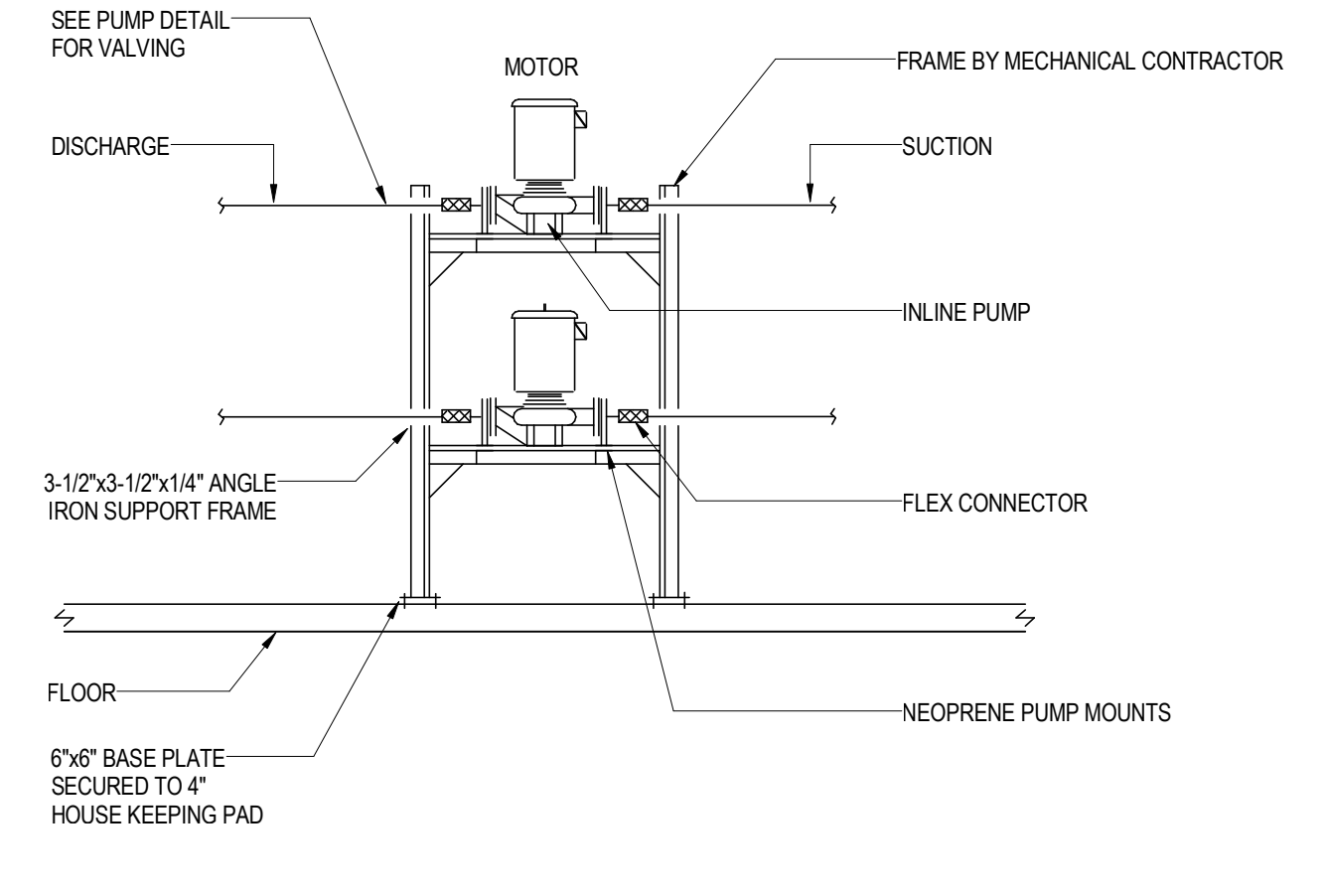


DRAWTHRU:
 A = GREATER OF 4" OR 1/2" PLUS AHU TOTAL PRESSURE IN INCHES-WC
 BLOWTHRU:
 B = GREATER OF 4" OR 1/2" PLUS AHU TOTAL PRESSURE IN INCHES-WC
 NOTES
 1. REF. PLUMBING'S FOR CONDENSATE DRAIN PIPE SIZE. (1)MIN. AT EACH AHU DRAIN CONNECTION POINT. REF. SPECIFICATIONS FOR PIPE AND INSULATION MATERIAL REQUIREMENTS.
 2. AHU TO BE ELEVATED ON HOUSEKEEPING PAD OR MOUNTING STRUCTURE AS REQUIRED FOR TRAP HEIGHT ABOVE FLOOR.

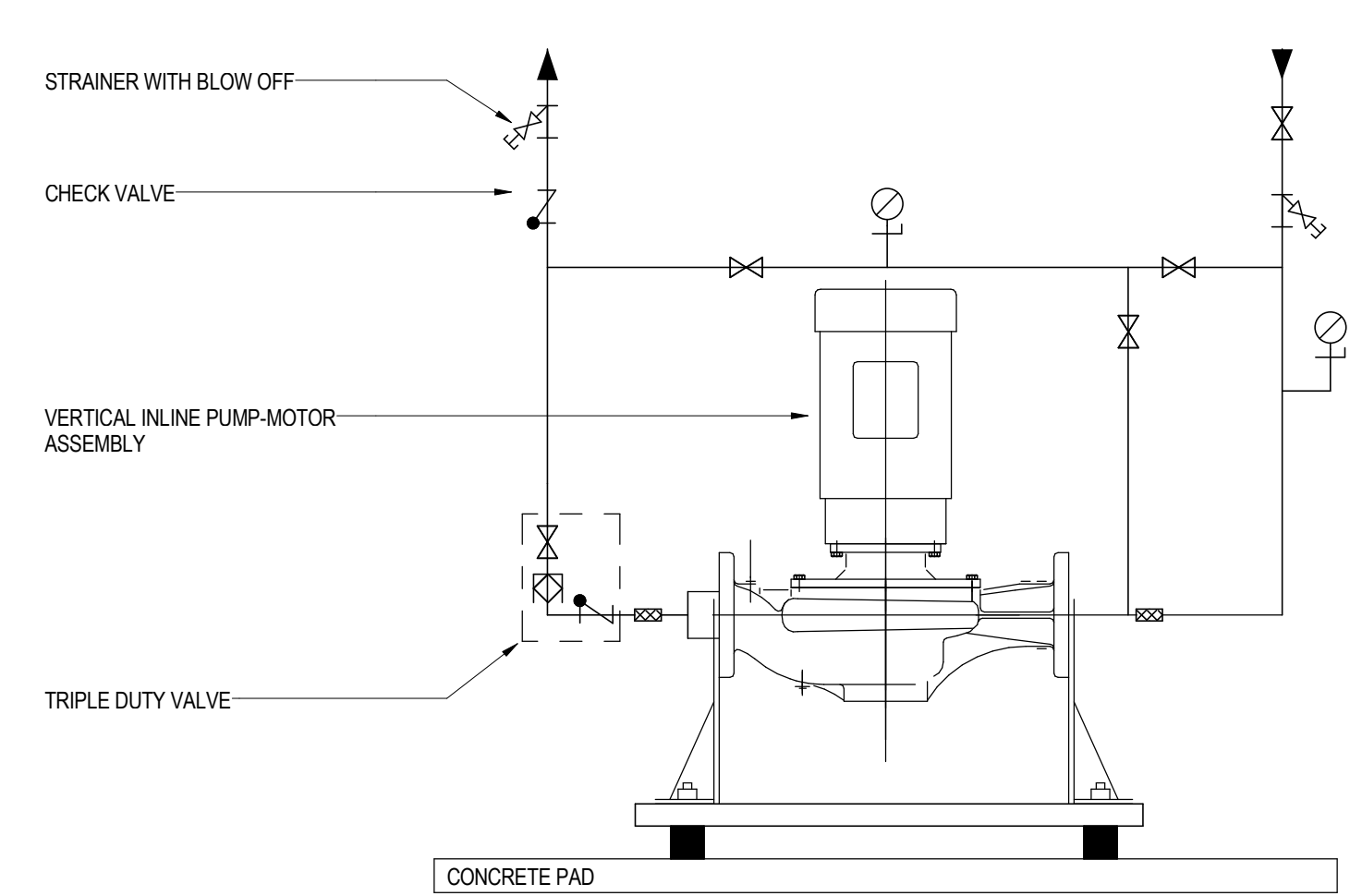
5 MECHANICAL UNIT CONDENSATE DRAIN



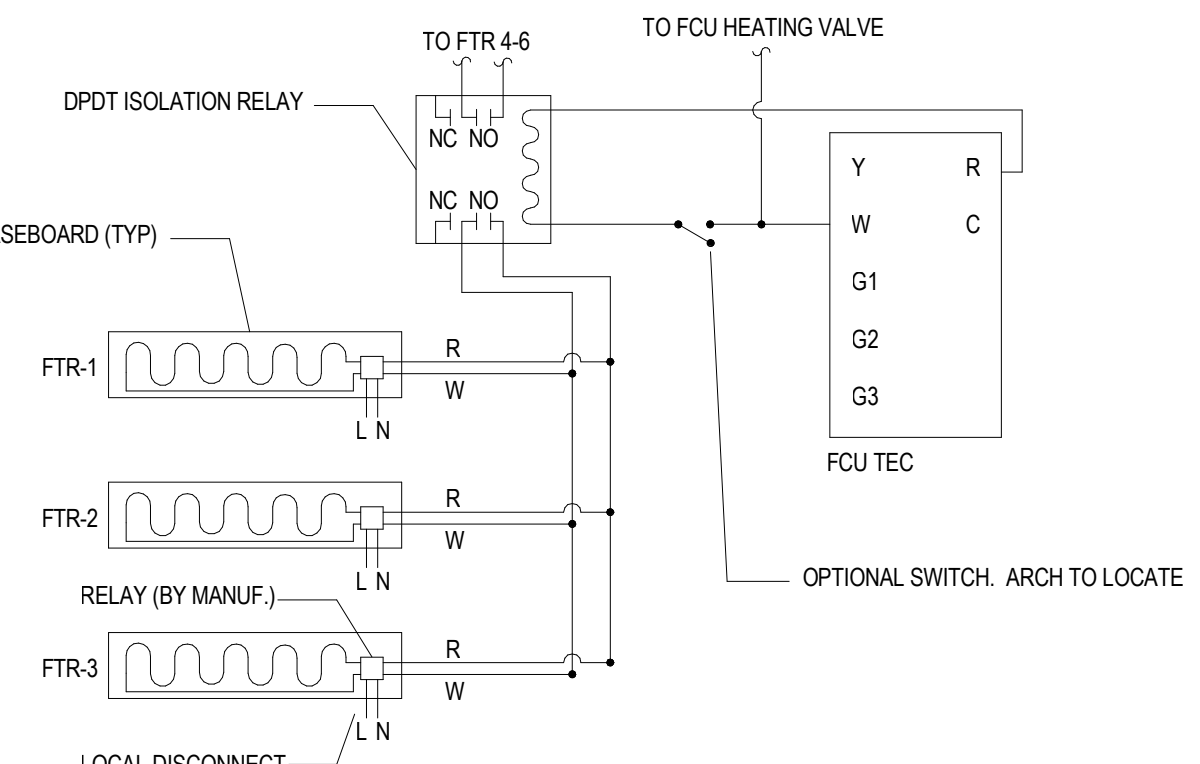
6 HOUSE PUMPS (END SUCTION)



7 IN LINE PUMP SUPPORT RACK

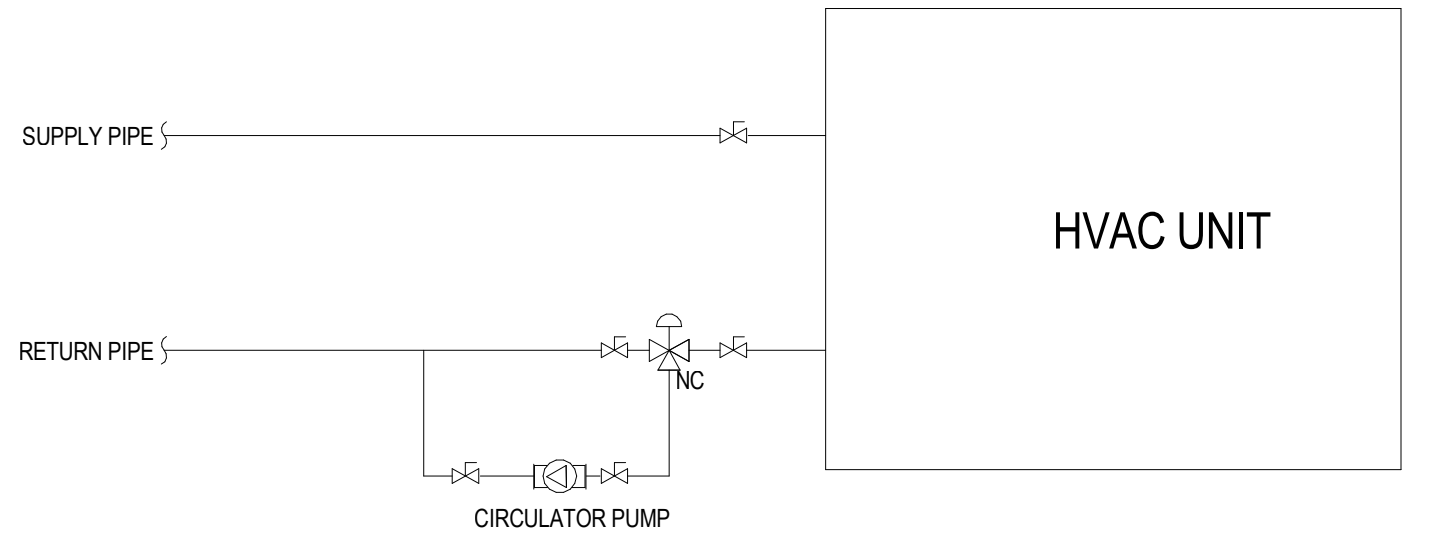


8 VERTICAL INLINE PUMP



NOTES
 1. DIAGRAM IS CONCEPTUAL. FINAL WIRING DIAGRAM SHALL BE DESIGNED BY ATC VENDOR.
 ATC VENDOR SHALL PROVIDE SHOP DRAWING WITH SPECIFIC PART NUMBERS AND DETAILS FOR APPROVAL PRIOR TO CONSTRUCTION.
 2. ISOLATION RELAY SHALL BE FURNISHED BY MANUFACTURER.
 3. LINE AND LOW VOLTAGE WIRING BETWEEN ISOLATION RELAY AND ELECTRIC BASEBOARDS SHALL BE BY ELECTRICAL.
 4. LOW VOLTAGE CONTROL WIRING BETWEEN ISOLATION RELAY AND ELECTRIC BASEBOARDS SHALL BE THIN TRAWG.

9 ELECTRIC BASEBOARD WIRING DIAGRAM



NOTES
 1. FOU SHALL UNIT TO BE WIRED TO EMERGENCY CIRCUIT
 2. 3-WAY DIVERTING VALVE SHALL NORMALLY BYPASS CIRCULATING PUMP. ON NORMAL POWER FAILURE 3-WAY VALVE SHALL DIVERT TO CIRCULATION PUMP. CIRCULATION PUMP SHALL START WHEN VALVE HAS FULLY OPENED TO CIRCULATION PUMP.
 3. PUMP GPM SHALL BE COORDINATED WITH EACH HEAT PUMP FOR WHICH THIS DETAIL IS REFERENCED.

10 EMERGENCY POWER CIRCULATOR PUMP



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MECHANICAL DETAILS

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MECHANICAL CONTRACTOR Ventressa Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0035	MECHANICAL CONTRACTOR BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025

UNIT HEATER SCHEDULE

DESIGNATION	SERVICE	LOCATION	TYPE	AIR QUANTITY (CFM)	FAN				HW COIL				MODEL NUMBER	MANUFACTURER	REMARKS	
					RPM	MOTOR HP	VOLTS	PHASE	FREQUENCY	CAPACITY (MBH)	ENT (FT)	CFM				MAXIMUM PRESSURE DROP (FT H ₂ O)
UH-3.1																
UH-3.2																
UH-3.3																
UH-3.4																
UH-3.5																
UH-3.6																
UH-3.7																
UH-3.8																
UH-3.1																
UH-3.2																
UH-3.3																
UH-3.4																
UH-3.5																
UH-3.6																
UH-3.7																
UH-3.8																

COOLING TOWER SCHEDULE

DESIGNATION	LOCATION	TYPE	NOMINAL CAPACITY (TONS)	TOTAL FLOW RATE (GPM)	ENTERING WATER TEMPERATURE (°F)	LEAVING WATER TEMPERATURE (°F)	AMBIENT TEMPERATURE (°F) (WB)	EVAPORATED FLOW RATE (GPM)	FLOW RATE PER CELL (GPM)	WATER FLOW RATE (GPM)	FAN MOTOR DATA		SOUND PRESSURE LEVELS		SOUND DATA		DIMENSIONS		ELECTRICAL		BASKET HEATER (BHW)	OPERATING WEIGHT (WITHOUT DRAINAGE) (LB)	MANUFACTURER	MODEL NUMBER	REMARKS
											# NUMBER OF FAN MOTORS	HP FAN MOTOR SIZE (HP)	VOLTS	PHASE	AM INLET	OPPOSITE MOTOR SIDE	AM INLET	TOP	AM INLET	OPPOSITE MOTOR SIDE					
CT-6.1	8RD FLOOR ROOF		540	59.2	85.2	74.2	180	43700			2	59	115	3	115	17'-2" 10"	54'-1" 10"	11'-0"	0 V	3 PH	60 Hz	6000	BALTIMORE AIRCOOL COMPANY	FT3-1218A-3P3	

TOWER WATER FILTRATION SYSTEM SCHEDULE

DESIGNATION	SERVICE	LOCATION	TYPE	FLOW RATE (GPM)	FILTER PUMP (HP)	VOLTAGE	PHASE	FREQUENCY	FILTER PUMP RPM	CLEAN PRESSURE DIFFERENTIAL (PSI)	BACK WASH PRESSURE DIFFERENTIAL (PSI)	INLET MANHOLE DIAMETER (IN)	OUTLET MANHOLE DIAMETER (IN)	RIGID OUTLET DIAMETER (IN)	MANUFACTURER	MODEL NUMBER	REMARKS
SAF-64.1																	

BOILER SCHEDULE

DESIGNATION	SERVICE	LOCATION	MAX. INPUT (MBH)	NET OUTPUT (MBH)	BOILER WATER CONTENT (U.S. GALLON)	RELIEF PRESSURE (PSIG)	TURNDOWN RATIO	HOT WATER DATA		GAS BURNER DATA		ELECTRICAL DATA		MANUFACTURER	MODEL NUMBER	REMARKS
								FLOW RATE (GPM)	TEMPERATURE (°F)	TYPE	BOILER GAS MINIMUM INLET PRESSURE (IN W.G.)	VOLTAGE	PHASE			
B-2.1		2ND FLOOR	6000	5700	339.5	18		140°F	170°F	95%	277	3	60 Hz	2210	DPNW 6024	CAMUS
B-2.2		2ND FLOOR	6000	5700	339.5	18		140°F	170°F	95%	277	3	60 Hz	2210	DPNW 6024	CAMUS
B-2.3		2ND FLOOR	6000	5700	339.5	18		140°F	170°F	95%	277	3	60 Hz	2210	DPNW 6024	CAMUS
B-2.4		2ND FLOOR	6000	5700	339.5	18		140°F	170°F	95%	277	3	60 Hz	2210	DPNW 6024	CAMUS
B-2.5		2ND FLOOR	6000	5700	339.5	18		140°F	170°F	95%	277	3	60 Hz	2210	DPNW 6024	CAMUS

PLATE AND FRAME HEAT EXCHANGER SCHEDULE

DESIGNATION	SERVICE	LOCATION	COLD SIDE				WARM SIDE				DIMENSIONS				MANUFACTURER	MODEL NUMBER	REMARKS					
			FLOW RATE (GPM)	ENT (FT)	LVFT (FT)	LOAD (MBH)	MAXIMUM WORKING PRESSURE (PSIG)	MAXIMUM WORKING PRESSURE (PSIG)	MAXIMUM WORKING PRESSURE (PSIG)	MAXIMUM WORKING PRESSURE (PSIG)	LIQUID VOLUME (CU FT)	FOLGING FACTOR	LENGTH	WIDTH				HEIGHT	OPERATING HEIGHT (ft)			
PHEX-2.1		2ND FLOOR MER	0 GPM	0'-0"	0'-0"																	
PHEX-34.1		39TH FLOOR MER	1800 GPM	87'-0"	97'-0"	8665	10	17.29	0	1800 GPM	99'-0"	89'-0"	8665	10	17.17	0	0'-0"	0'-0"	0'-0"	10398	API30	
PHEX-34.2		39TH FLOOR MER	0 GPM	0'-0"	0'-0"																	
PHEX-64.1		81ST FLOOR MER	3000 GPM	85'-0"	95'-0"	17938	10	46.66	0	3000 GPM	97'-0"	87'-0"	17938	10	46.92	0	8'-8.78"	3'-0"	9'-11"	19406	PI8	

EXPANSION TANK SCHEDULE

DESIGNATION	SERVICE	LOCATION	SYSTEM VOLUME (GALLONS)	COLD TEMPERATURE (°F)	HOT TEMPERATURE (°F)	ACCEPTANCE	VOLUME (GALLONS)		TANK SIZE (IN)		MAX. WORKING PRESSURE (PSIG)	WEIGHT	MANUFACTURER	MODEL NUMBER	REMARKS
							TOTAL	FREE	LENGTH	DIAMETER					
ET-2.1															
ET-3.1															
ET-34.1															
ET-34.2															
ET-64.1															

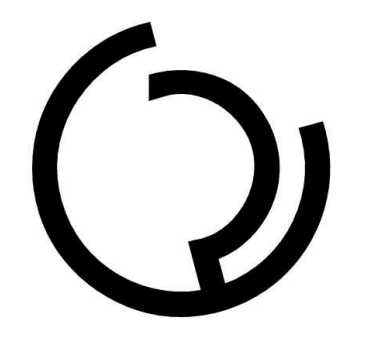
AIR SEPARATOR SCHEDULE

DESIGNATION	SERVICE	LOCATION	PIPE SIZE (IN)	MAX. OPERATING INLET PRESSURE (PSIG)	DESIGN FLOW (GPM)	MAX. PRESSURE DROP (FT H ₂ O)	MANUFACTURER	MODEL NUMBER	REMARKS
AS-2.1									
AS-3.1									
AS-34.1									
AS-34.2									
AS-64.1									

SPLIT SYSTEM AIR CONDITIONING UNIT SCHEDULE

DESIGNATION	SERVICE	LOCATION	COOLING CAPACITY (MBH)	SENSIBLE COOLING CAPACITY (MBH)	SUPPLY AIR QUANTITY (CFM)	EXTERNAL STATIC PRESSURE (IN WG)	INDOOR UNIT		MANUFACTURER	MODEL NUMBER	REMARKS
							TYPE	PHASE			
AC-46.1	ELEVATOR MACHINE ROOM	ROOF	29.2	20.4	883	1.0	203	3 PHASE	60	METUBISHI	PEV-F30NMR4JZ

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MECHANICAL SCHEDULES

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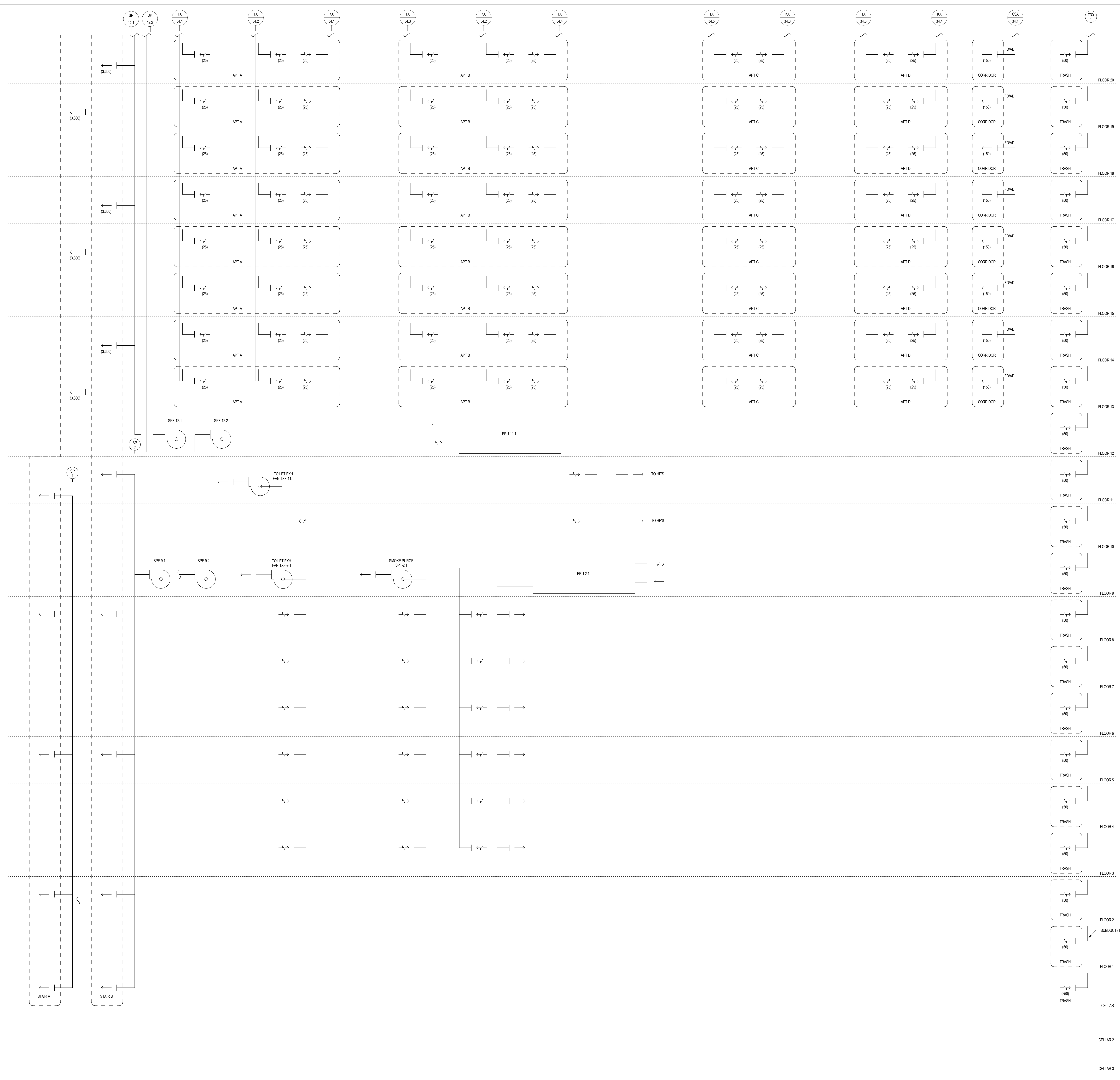
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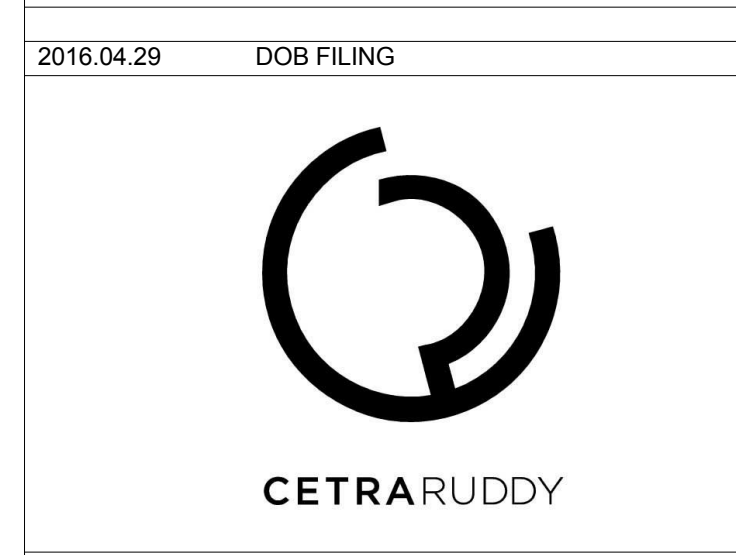
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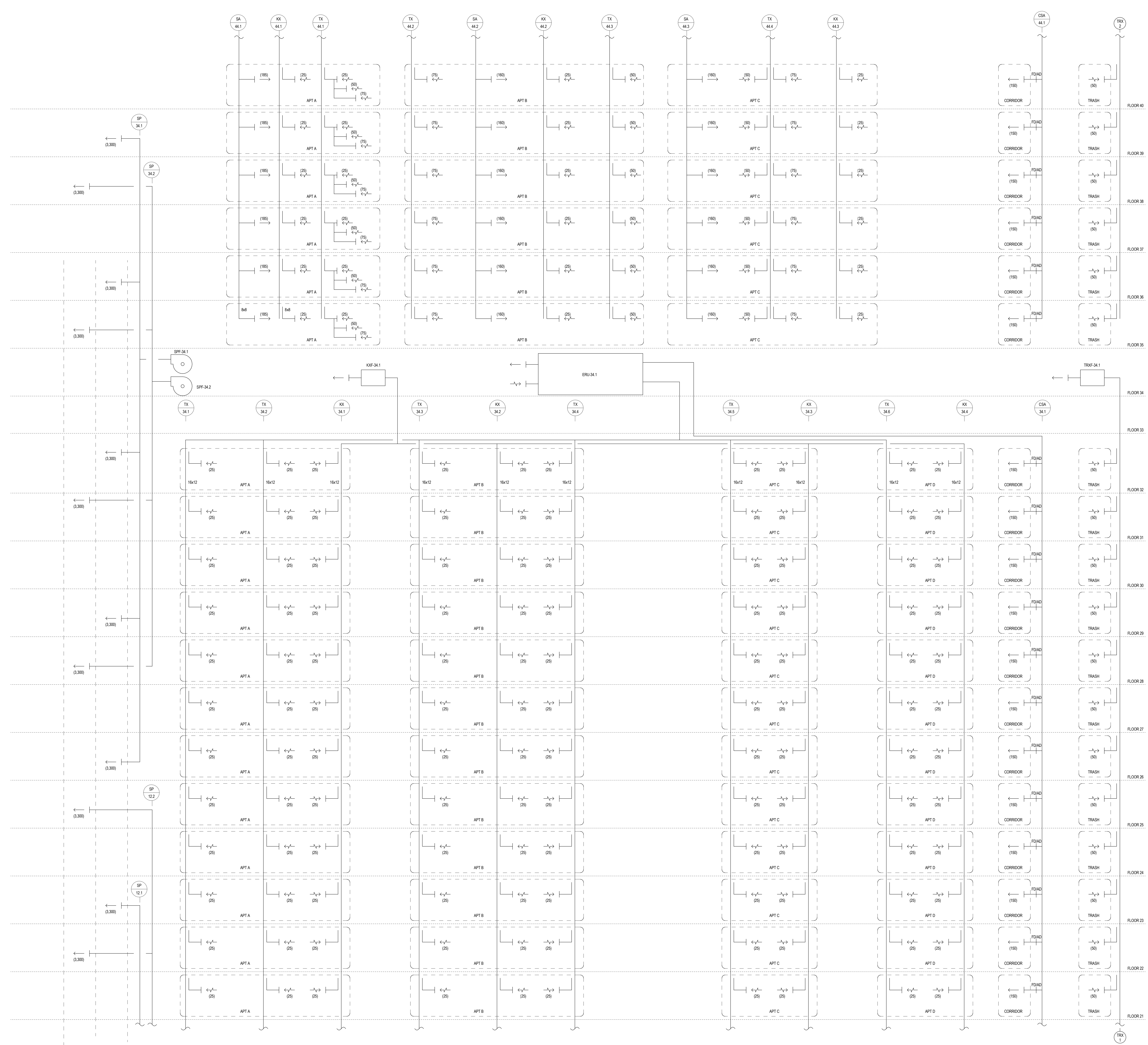
MECHANICAL AIR RISER DIAGRAM

M-701.00

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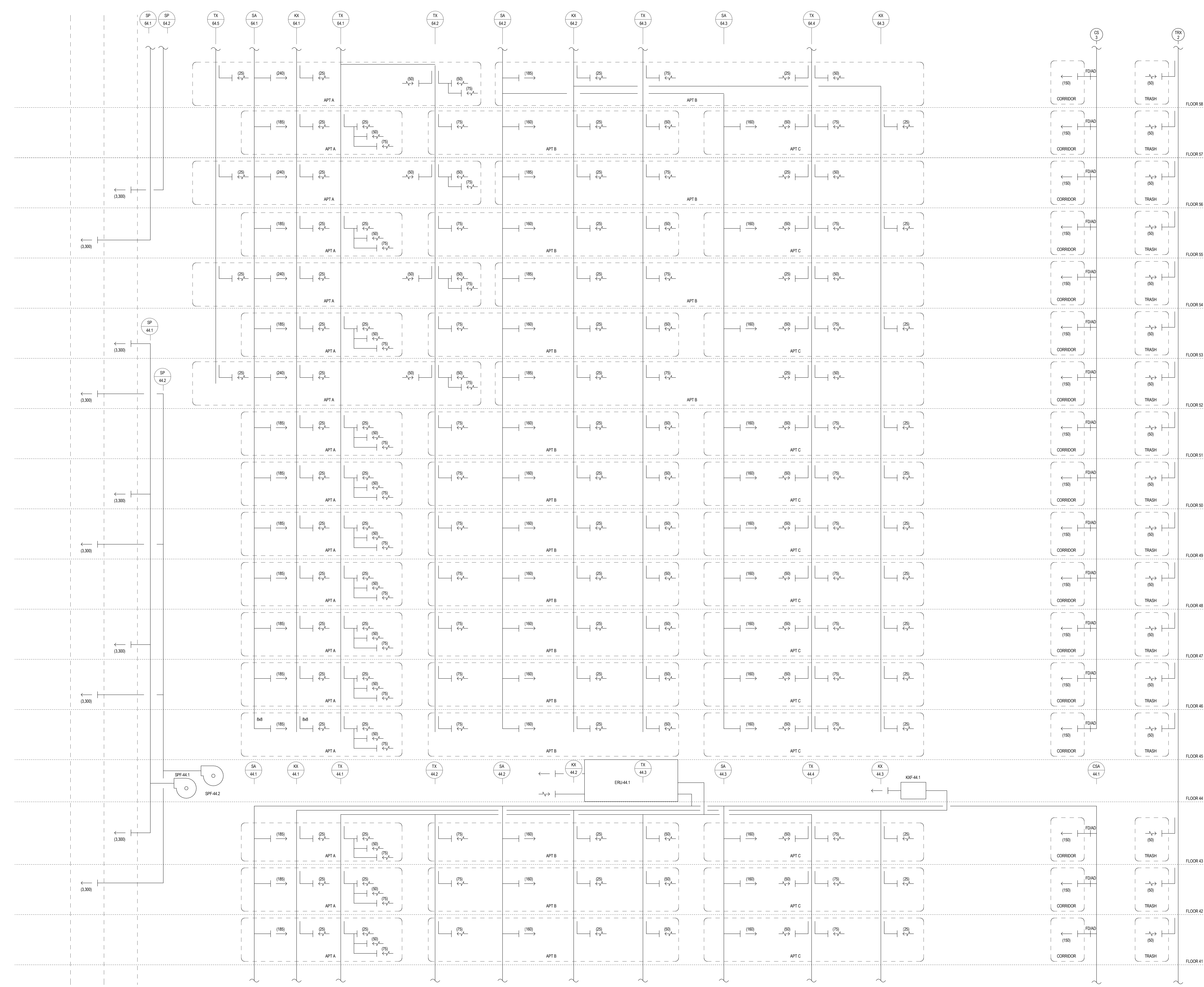
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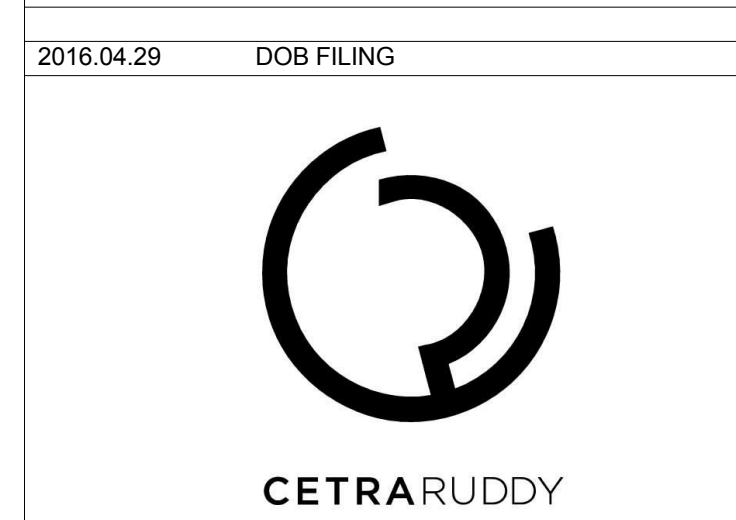
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MECHANICAL AIR RISER DIAGRAM

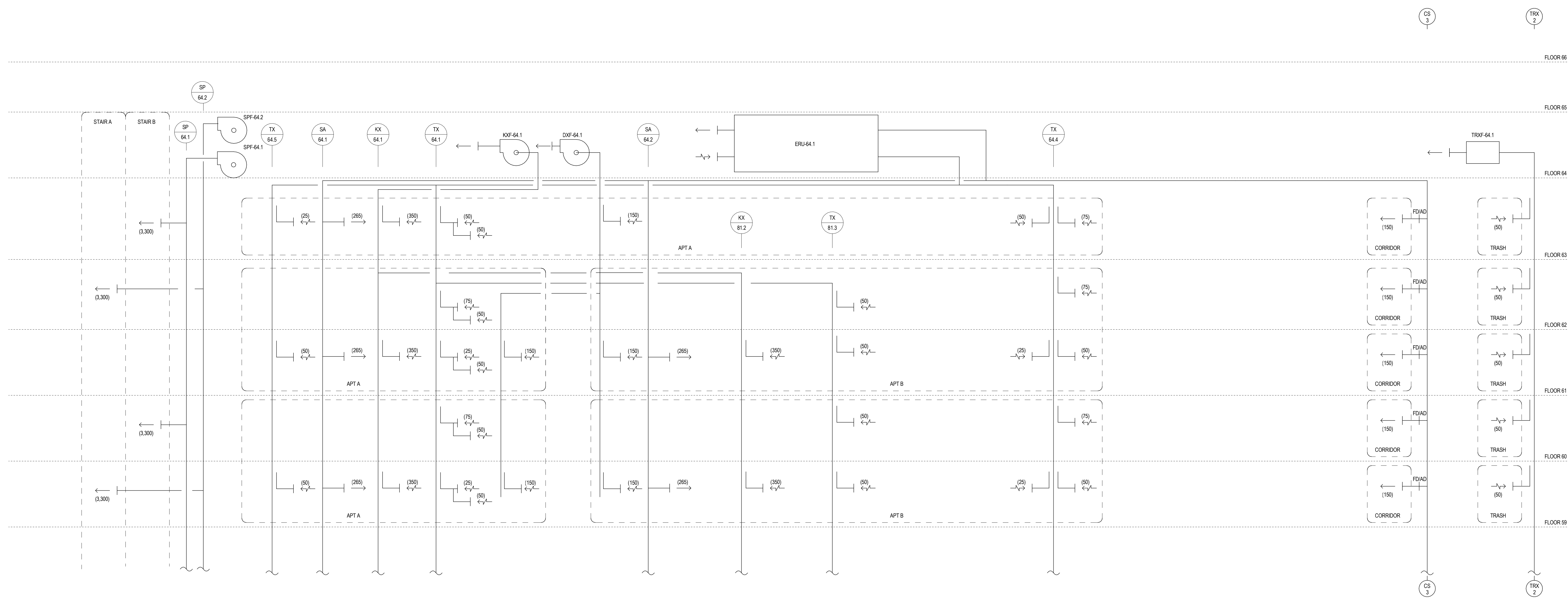
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ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 130 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
GENERAL CONTRACTOR Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0035	MECHANICAL ENGINEER BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



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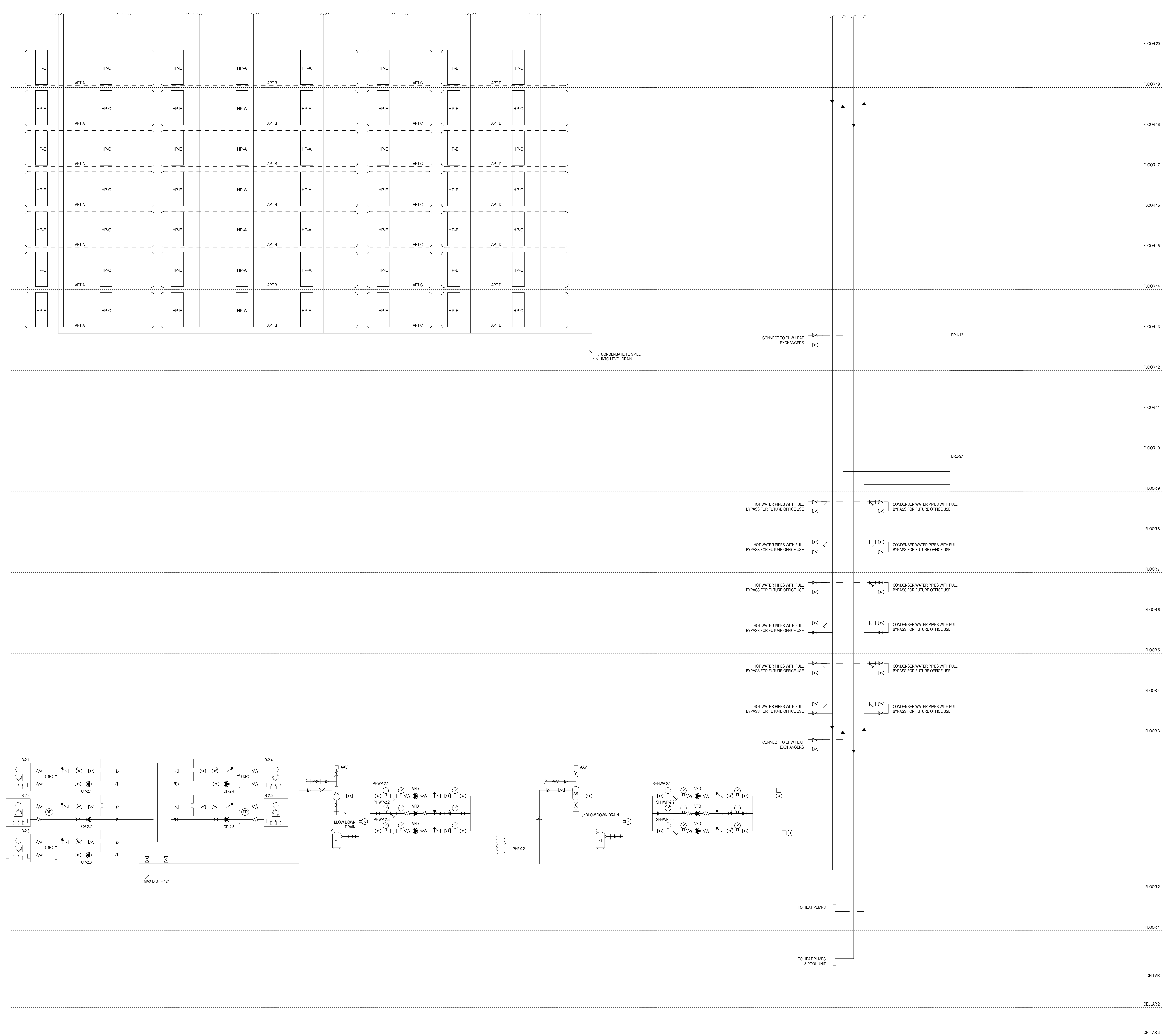
MECHANICAL AIR RISER DIAGRAM

M-704.00

NO SCALE

45 BROAD STREET

NEW YORK NY 10004



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MECHANICAL ENGINEER LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 101 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Vanessa Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER BarroHappold Engineering 101 Broadway New York, NY 10005 212.334.2025



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CETRARUDDY

MECHANICAL WATER RISER
DIAGRAM

M-711.00

NO SCALE

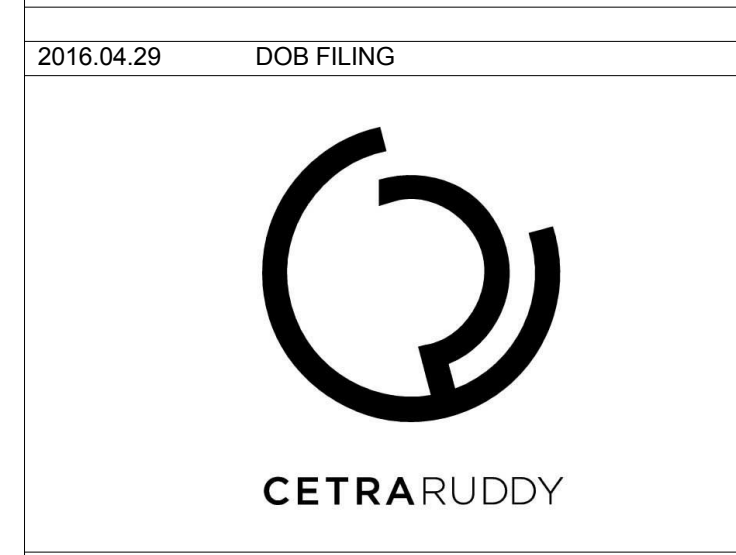
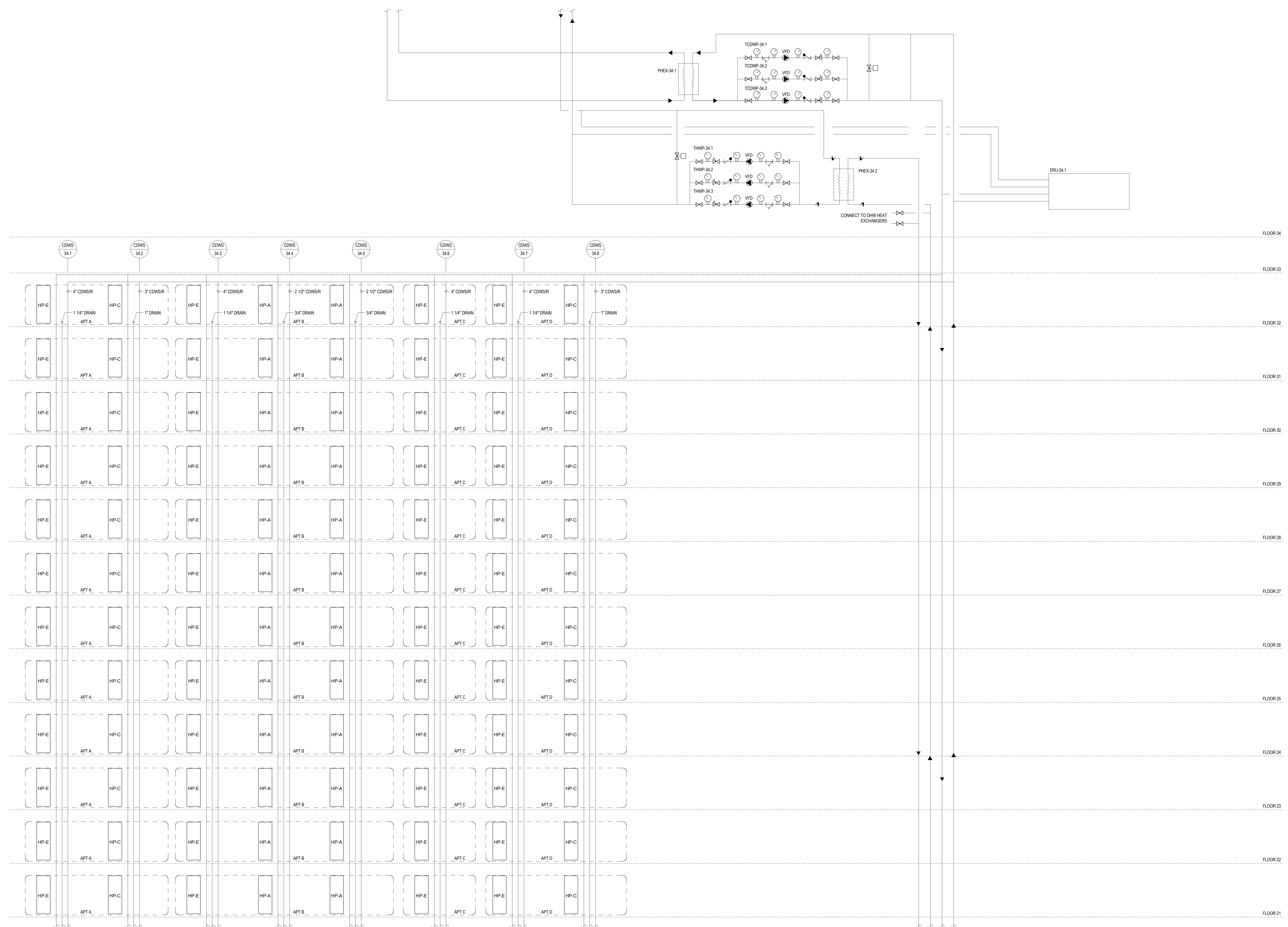
PROJECT DATE: 2016.04.29
 DRAWN: [Name]
 CHECKED: [Name]
 DATE: 2016.04.29

CETRARUDDY ARCHITECTURE DPC
 104 BROADWAY NEW YORK NY 10012 212 541 9001 F 212 541 9440
 WWW.CETRARUDDY.COM

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MECHANICAL ENGINEER LANGAN 21 Penn Plaza 190 West 31st Street, 8th Fl New York, NY 10001 212.477.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER BaroloAppold Engineering 100 Broadway New York, NY 10005 212.334.2025



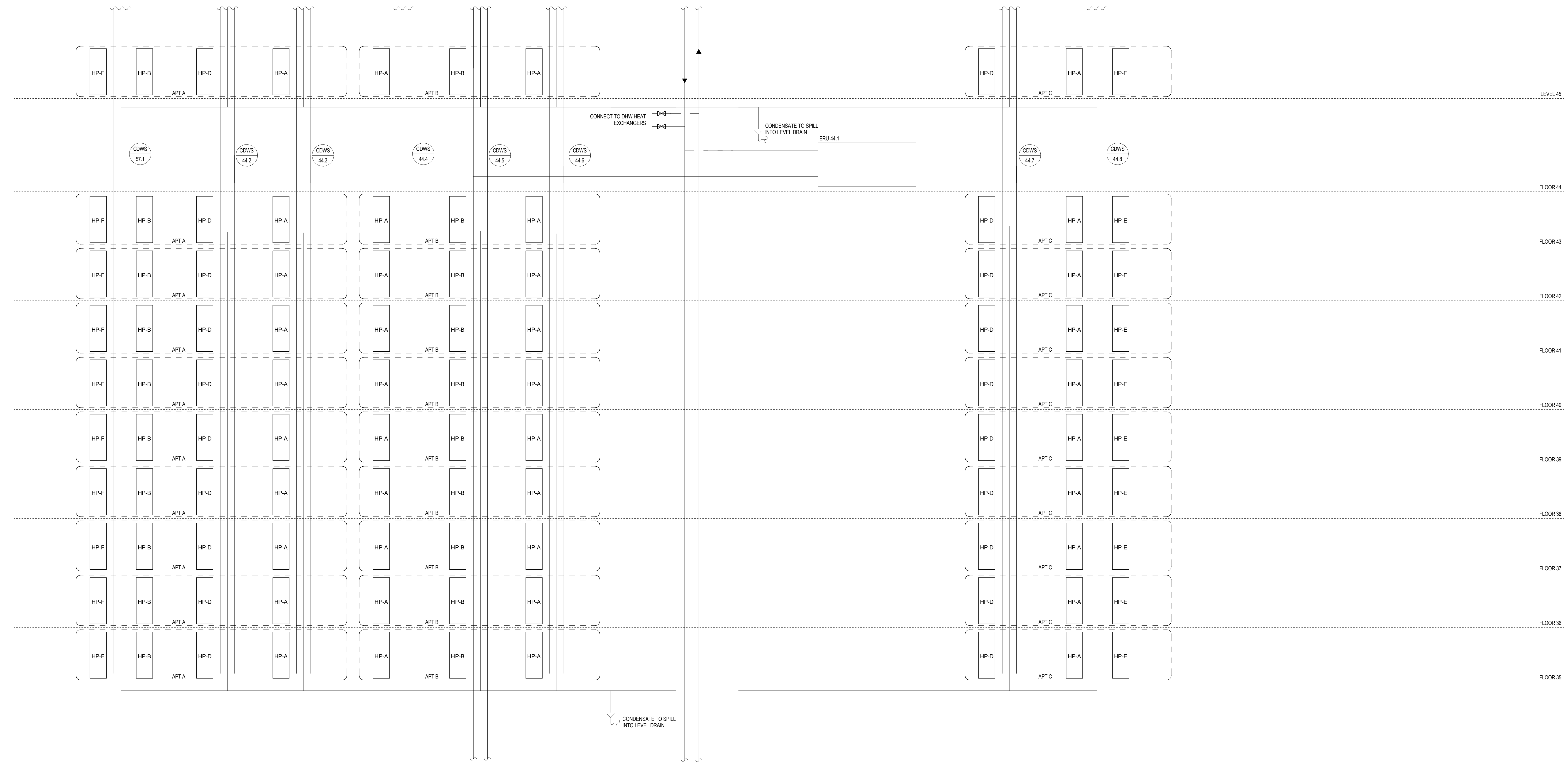
MECHANICAL WATER RISER DIAGRAM

M-712.00

NO SCALE

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ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	CLIENT Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BarcoMappold Engineering 100 Broadway New York, NY 10005 212.334.2025
MECHANICAL ENGINEER LANGAN 21 Penn Plaza 260 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPP LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Vanessa Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER BarcoMappold Engineering 100 Broadway New York, NY 10005 212.334.2025



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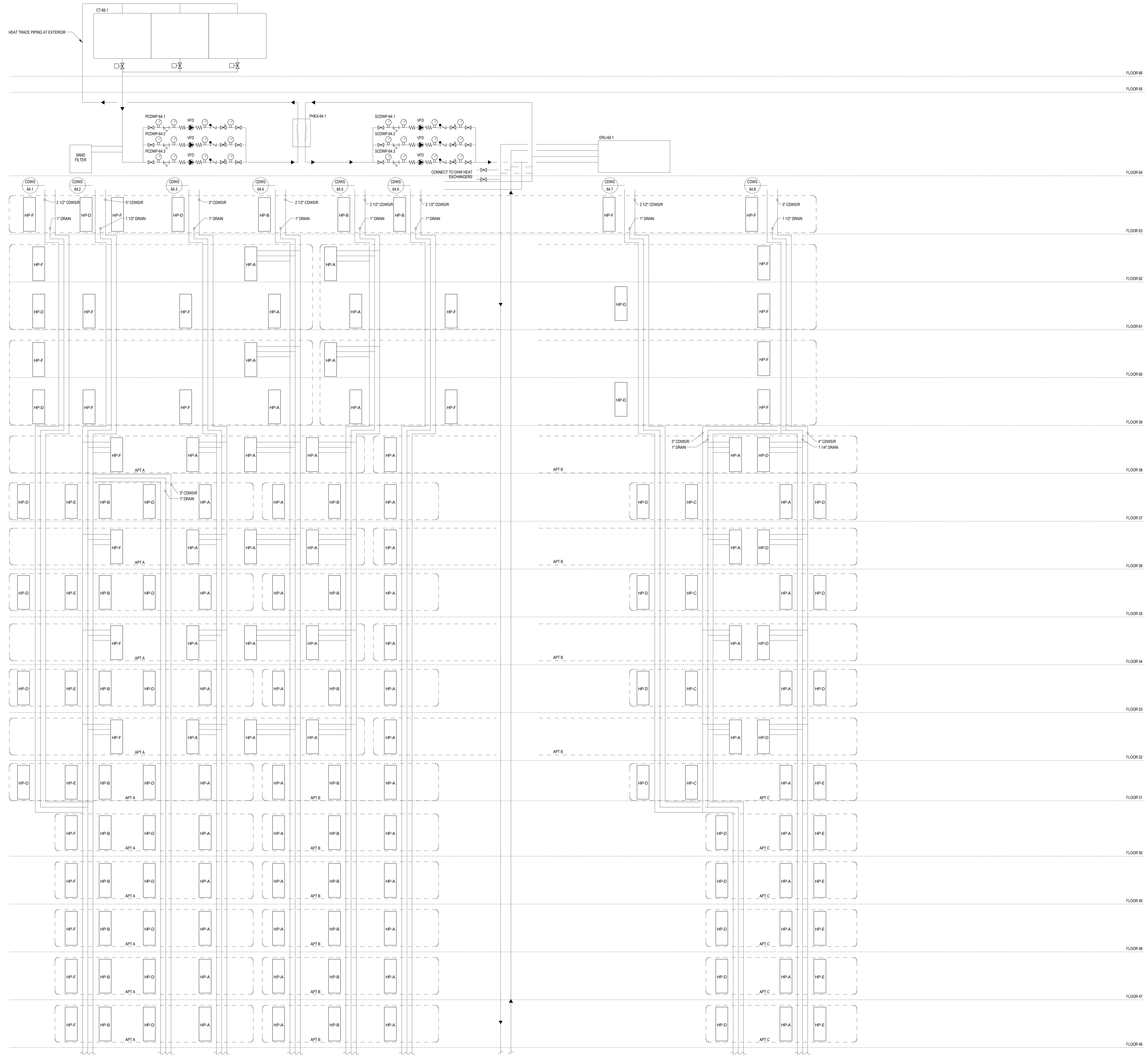
MECHANICAL WATER RISER
DIAGRAM

M-713.00

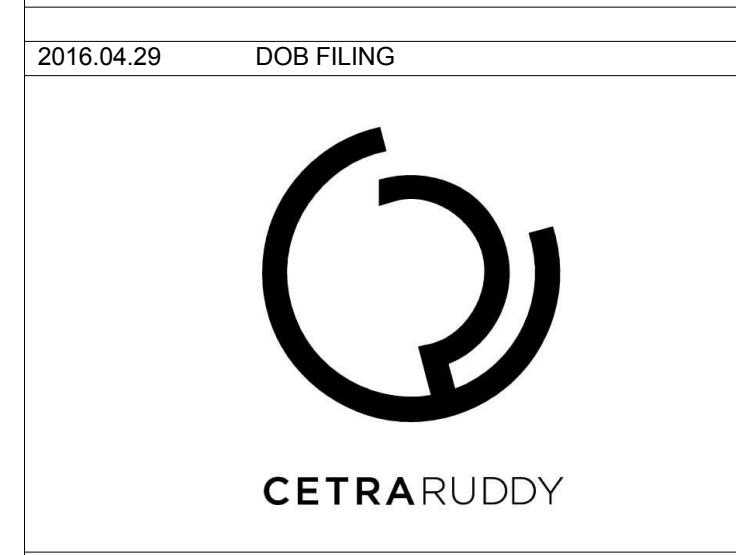
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Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BaronHappold Engineering 101 Broadway New York, NY 10005 212.334.2025



MECHANICAL WATER RISER DIAGRAM

M-714.00

NO SCALE

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WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BurchHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
LANGAN 21 Penn Plaza 190 West 31st Street, 8th Fl New York, NY 10001 212.477.5400	MPP LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0035	BurchHappold Engineering 100 Broadway New York, NY 10005 212.234.2025

BILL OF MATERIAL

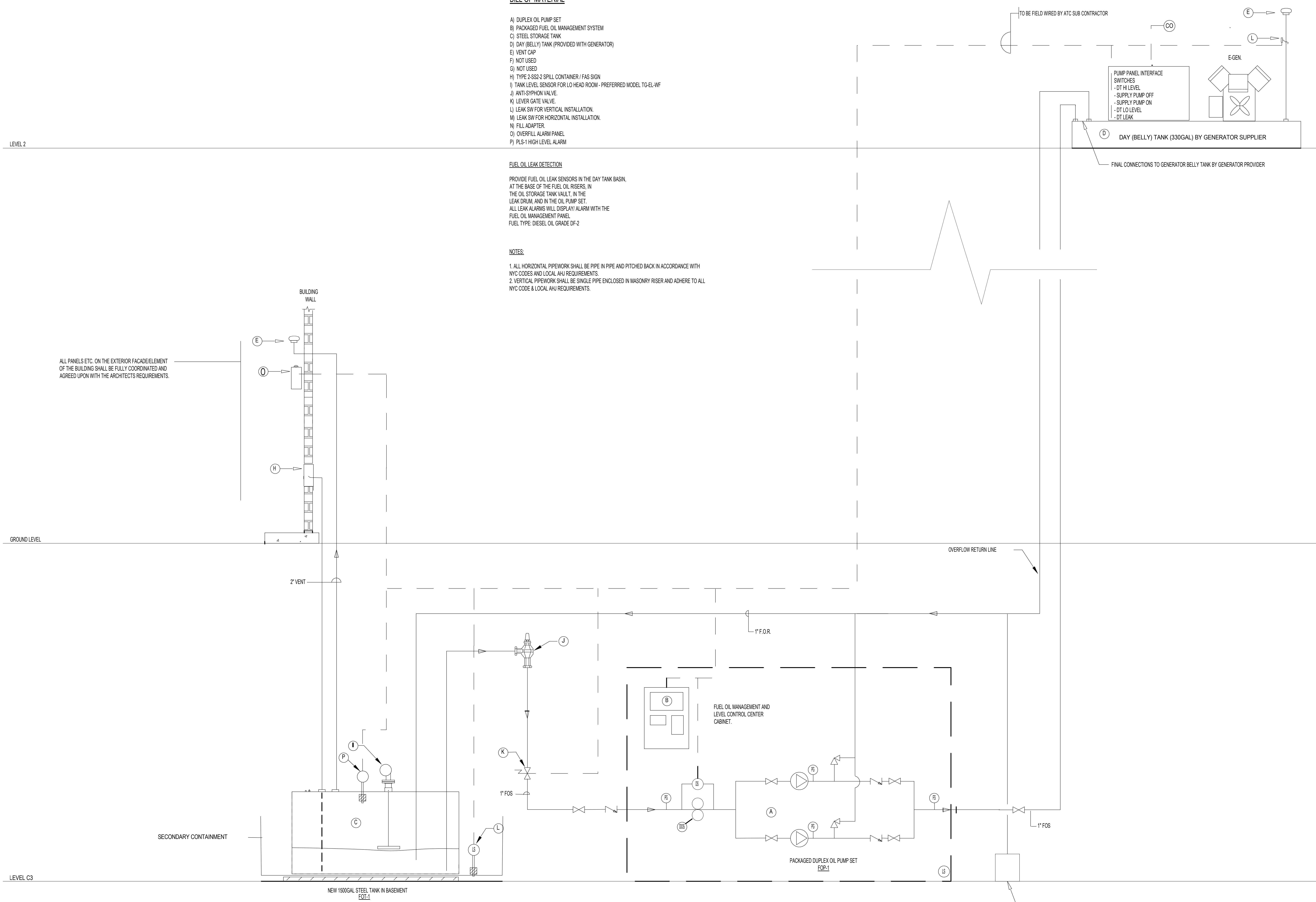
- A) DUPLEX OIL PUMP SET
- B) PACKAGED FUEL OIL MANAGEMENT SYSTEM
- C) STEEL STORAGE TANK
- D) DAY (BELLY) TANK (PROVIDED WITH GENERATOR)
- E) VENT CAP
- F) NOT USED
- G) NOT USED
- H) TYPE 2-SS2-2 SPILL CONTAINER / FAS SIGN
- I) TANK LEVEL SENSOR FOR LO HEAD ROOM - PREFERRED MODEL TG-EL-WF
- J) ANTI-SYPHON VALVE
- K) LEVER GATE VALVE
- L) LEAK SW FOR VERTICAL INSTALLATION
- M) LEAK SW FOR HORIZONTAL INSTALLATION
- N) FILL ADAPTER
- O) OVERFILL ALARM PANEL
- P) PLS-1 HIGH LEVEL ALARM

FUEL OIL LEAK DETECTION

PROVIDE FUEL OIL LEAK SENSORS IN THE DAY TANK BASIN, AT THE BASE OF THE FUEL OIL RISERS, IN THE OIL STORAGE TANK VAULT, IN THE LEAK DRUM, AND IN THE OIL PUMP SET. ALL LEAK ALARMS WILL DISPLAY ALARM WITH THE FUEL OIL MANAGEMENT PANEL. FUEL TYPE: DIESEL OIL GRADE DF-2

NOTES

1. ALL HORIZONTAL PIPEWORK SHALL BE PIPE IN PIPE AND PITCHED BACK IN ACCORDANCE WITH NYC CODES AND LOCAL AHJ REQUIREMENTS.
2. VERTICAL PIPEWORK SHALL BE SINGLE PIPE ENCLOSED IN MASONRY RISER AND ADHERE TO ALL NYC CODE & LOCAL AHJ REQUIREMENTS.



ALL PANELS ETC. ON THE EXTERIOR FACADE/ELEMENT OF THE BUILDING SHALL BE FULLY COORDINATED AND AGREED UPON WITH THE ARCHITECTS REQUIREMENTS.

LEVEL 2

GROUND LEVEL

LEVEL C3

SYMBOLS

- | | | | |
|-------|---------------------|------|---------------------|
| (LS) | LEAK SWITCH | (DS) | DIFFERENTIAL SWITCH |
| (PG) | PRESSURE GAUGE | (PG) | PRESSURE GAUGE |
| (FS) | FLOW SWITCH | (FS) | FLOW SWITCH |
| (CO) | CO SENSOR | (CO) | CO SENSOR |
| (DOS) | DUPLEX OIL STRAINER | | |



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MECHANICAL FUEL OIL RISER

M-800.00

NO SCALE

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WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.254.2025
LANGAN 21 Penn Plaza 1260 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
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ABBREVIATIONS

AD	ACCESS DOOR	HC	HUNG CEILING
AFF	ABOVE FINISHED FLOOR	HVAC	HEATING, VENTILATION & AIR CONDITIONING
BOT	BOTTOM	HPHHS	HIGH PRESSURE
BR VENT	BRANCH VENT	HW	HOT WATER
CAB	CABINET	HWR	HOT WATER RETURN
CI	CAST IRON	IG	IRRIGATION PIPING
CL	CENTERLINE	INC/R	INCREASER
CLG	CEILING	INS	INSULATION
CO	CLEANOUT	INV	INVERT ELEVATION
COL	COLUMN	IPS	IRON PIPE SIZE
CONC	CONCRETE	JS	JANITOR SINK
CONN	CONNECTION	L	LEADER
CP	CIRCULATION PUMP	LAV	LAVATORY
CR PL	CHROME PLATED	LP	LOW PRESSURE
CUFFT	CUBIC FEET	MAX	MAXIMUM
CV	CONTROL VALVE	MIN	MINIMUM
CW	COLD WATER	NC	NEW CONNECTION
DET	DETAIL	NFGH	NON-FREEZE GROUND HYDRANT
DF	DRINKING FOUNTAIN	NFHH	NON-FREEZE WALL HYDRANT
DIA	DIAMETER	NC	NOT IN CONTRACT
DN	PIPE DOWN THRU FLOOR	NPS	NOMINAL PIPE SIZE
DR	DRAIN	OS&Y	OUTSIDE SCREW & YOKE
DROP	PIPE DROPPING BETWEEN FLOORS	PART	PARTITION
DWG	DRAWING	PG	PRESSURE GAUGE
ELEV	ELEVATION	RED	REDUCER
ELEC	ELECTRIC	RISE	PIPE RISING BETWEEN FLOORS
EXIST	EXISTING	RM	ROOM
EX	EXTRA HEAVY CAST IRON	S	SOL
EXP	EXPOSED	SAN	SANITARY
EXP FV	EXPOSED FLUSH VALVE	ST	STORM DRAIN
F	FALL(IN/FT)	SE	SEWAGE EJECT
FD	FLOOR DRAIN	SP	SUMP PUMP
FIN FL	FINISHED FLOOR	SH	SHOWER
FHV	FIRE HOSE VALVE	SPEC	SPECIFICATIONS
FL	FLOOR	SQ FT	SQUARE FEET
FU	FIXTURE UNIT	SS	STAINLESS STEEL
FV	FLUSH VALVE	TMV	THERMOSTATIC MIXING VALVE
FS	FLOOR SINK	TR	TRAP
FPV	FOUNDATION PIT VENT	TYP	TYPICAL
G	GAS	UP	PIPE RISING THRU FLOOR
GA	GAUGE	UR	URNAL
GAL	GALLON	V	VENT
GALV	GALVANIZED	VA	VALVE
GC	GENERAL CONTRACTOR	W	WASTE
GM	GAS METER	WC	WATER CLOSET
GV	GATE VALVE	WH	WALL HANG
GW	GREASE WASTE	WHA	WATER HAMMER ARRESTER
GW E	GREASE WASTE EJECT	XHCI	EXTRA HEAVY
HB	HOSE BB		

PLUMBING SYMBOLS

SYMBOL	DESCRIPTION
—S—	SANITARY PIPING (BELOW GRADE LINE TO BE HIDDEN)
—ST—	STORM PIPING (BELOW GRADE LINE TO BE HIDDEN)
—EPD—	EJECTOR PUMP DISCHARGE PIPING
—PD—	PUMP DISCHARGE PIPING
—GW—	GREASE WASTE PIPING
—V—	VENT PIPING
—DC—	DOMESTIC COLD WATER PIPING
—DH—	DOMESTIC HOT WATER PIPING
—DR—	DOMESTIC HOT WATER RETURN PIPING
—IW—	INDIRECT WASTE PIPING
—F—	FIRE LINE
—GRW—	GRAY WATER PIPING
—G—	NATURAL GAS SUPPLY
—C—	PIPING INTERRUPTED OR TO BE CONTINUED
—E—	CAP OR END OF PIPE
(R/S) (1/2)	SECTION SHEET No. DETAIL DESIGNATION TAG SECTION NUMBER
(S) (1/2)	SYSTEM DESCRIPTION RISER NUMBER SANITARY RISER
(S) (1/2)	SYSTEM DESCRIPTION RISER NUMBER STORM RISER
(S) (1/2)	SYSTEM DESCRIPTION RISER NUMBER GAS RISER
⊙	POINT OF DISCONNECT
⊕	CONNECT NEW TO EXISTING
—H—	HOT WATER BALANCING ASSEMBLY
—C—	CLEANOUT
—D—	CLEANOUT DECK PLATE
⊠	DRAIN
⊙	HOUSE TRAP
⊕	P-TRAP
⊖	SHOCK ABSORBER
—TP—	TRAP PRIMER
▶	ARROW INDICATES DIRECTION OF FLOW
↗	ELBOW UP OR RISE
↘	ELBOW DN OR DROP
↔	BOTTOM CONNECTION
↕	TOP CONNECTION
— —	UNION SCREWED
— —	PIPE SLEEVE
— —	WATERPROOF PIPE SLEEVE
⊠	WALL HYDRANT

PLUMBING SYMBOLS

—V—	VALVE ON PIPE RISE
—BFP—	BACKFLOW PREVENTER
⊠	DOUBLE CHECK DETECTOR ASSEMBLY
⊠	REDUCED PRESSURE ZONE VALVE ASSEMBLY
⊠	DOUBLE CHECK ASSEMBLY
⊠	CHECK VALVE
—GV—	GATE VALVE
—BV—	BALL VALVE
—GV—	GAS VALVE
—RV—	PRESSURE REDUCING VALVE
—PRV—	TEMPERATURE & PRESSURE RELIEF VALVE
—TMV—	THERMOSTATIC MIXING VALVE
—VCO—	VALVED CAPPED OUTLET
—CV—	CURB VALVE
—SV—	SOLENOID VALVE
—OSV—	OUTSIDE VALVE
—OSV—	OUTSIDE STEM AND YOKE VALVE W/ TAMPER SWITCH
—S—	STRAINER
—PG—	PRESSURE GAUGE
—H—	HOSE BB
—VB—	VACUUM BREAKER
—T—	THERMOMETER
—P—	PUMP
—FS—	FLOOR SINK
—WH—	WALL HYDRANT
—VTR—	VENT THRU ROOF
—M—	METER
—F—	FILTER
—FI—	FAI



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PLUMBING SYMBOLS AND NOTES

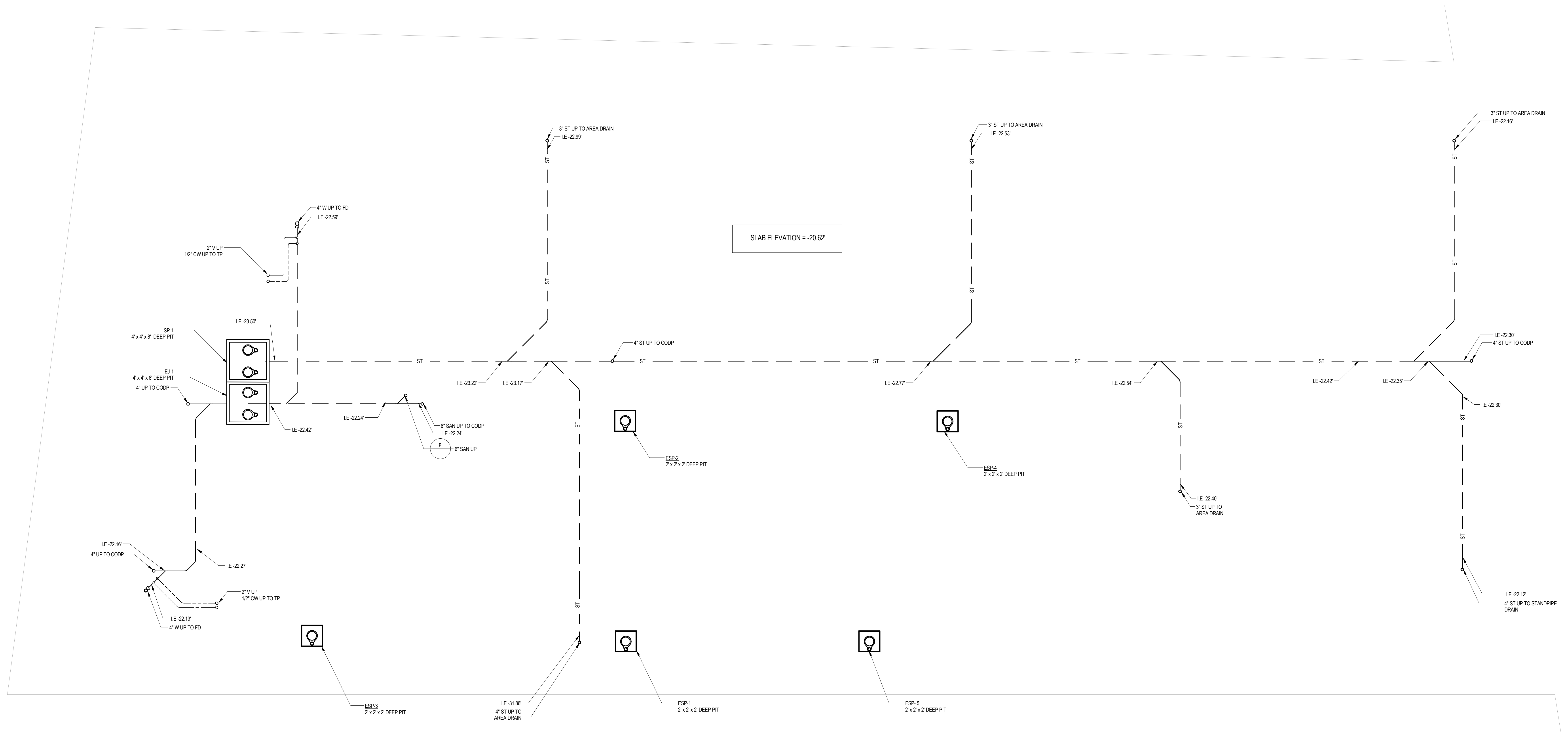
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12" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 534 Broadway Suite 401 New York, NY 10012 212.541.9001	CLIENT Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10010
ELECTRICAL ENGINEER MPP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaronHappold Engineering 101 Broadway New York, NY 10005 212.354.2025
PLUMBING ENGINEER LANGAN 21 Penn Plaza 190 West 31st Street, 8th Fl New York, NY 10001 212.479.5400	PLUMBING ENGINEER MPP Group LLC / M. Paul Friedberg & Partners 120 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Venteresa Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER BaronHappold Engineering 100 Broadway New York, NY 10005 212.354.2025



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CETRARUDDY

PLUMBING UNDERGROUND FLOOR PLAN

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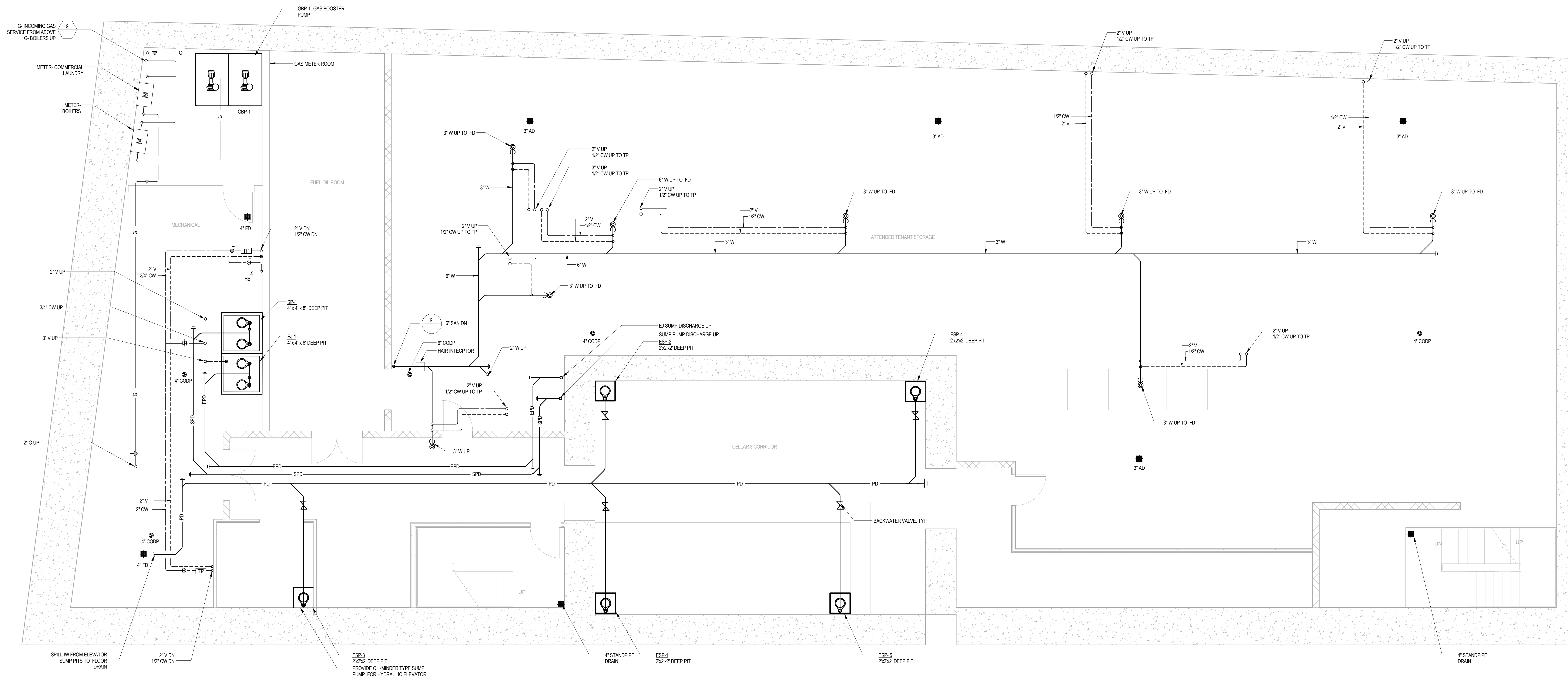
1/4" = 1'-0"

CETRARUDDY ARCHITECTURE DPC
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WWW.CETRARUDDY.COM

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MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 100 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
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PLUMBING CELLAR 3 FLOOR PLAN

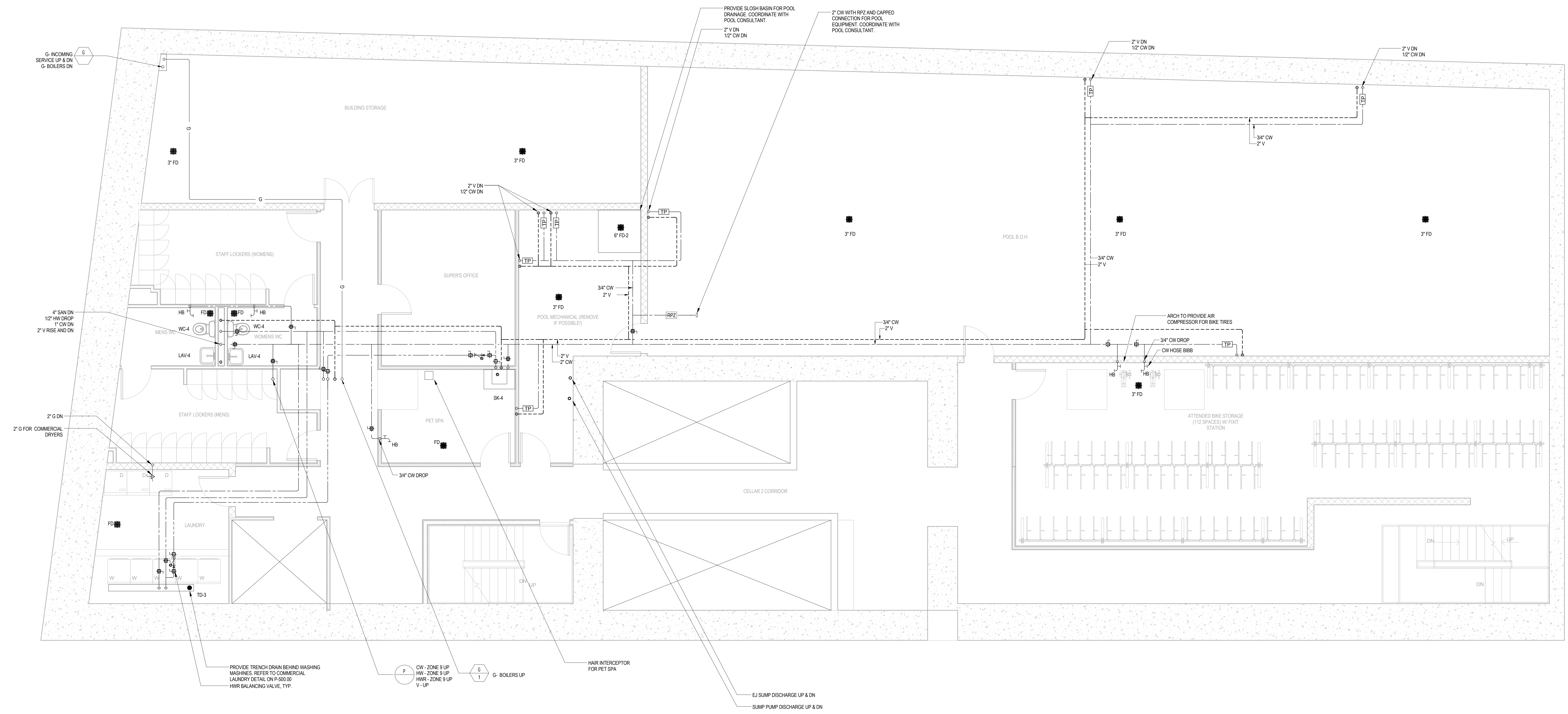
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WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
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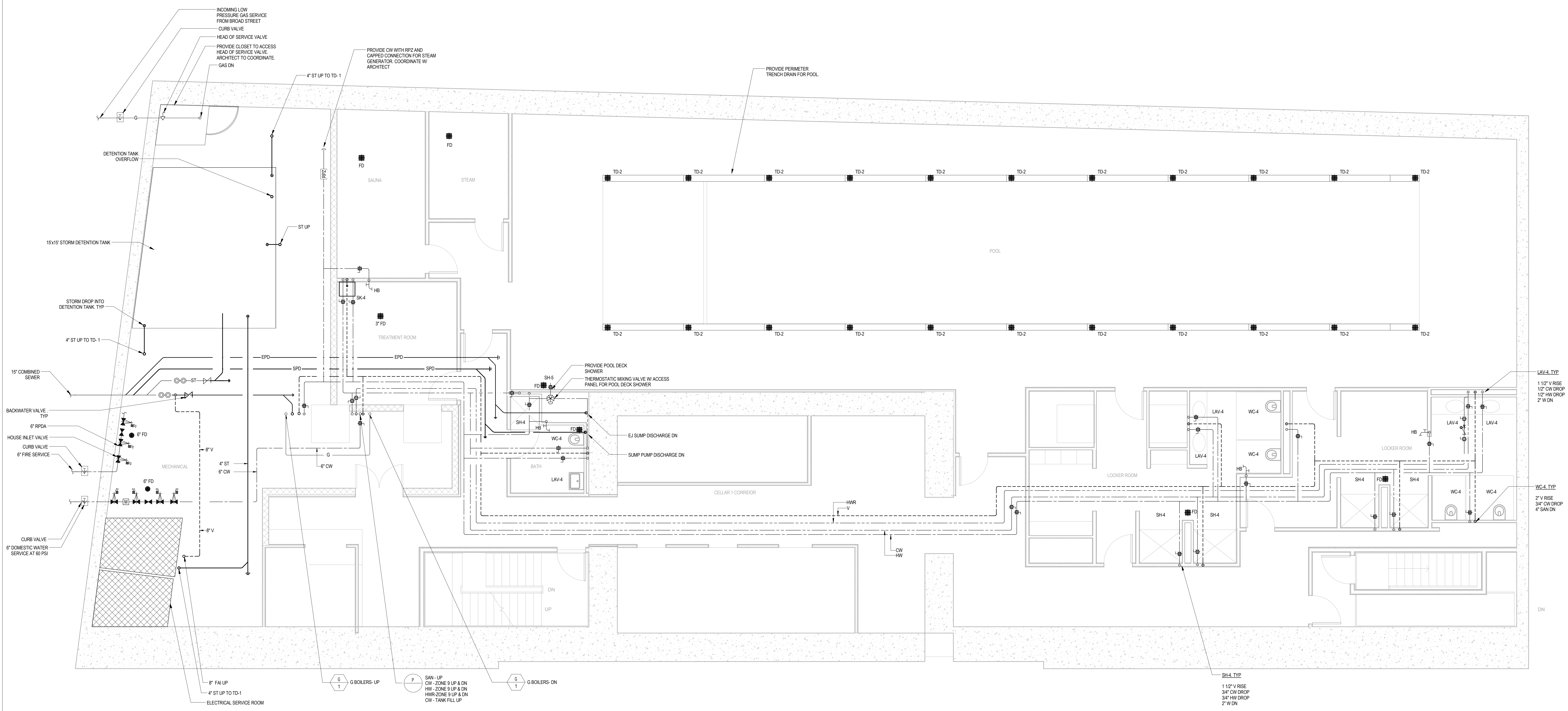
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WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
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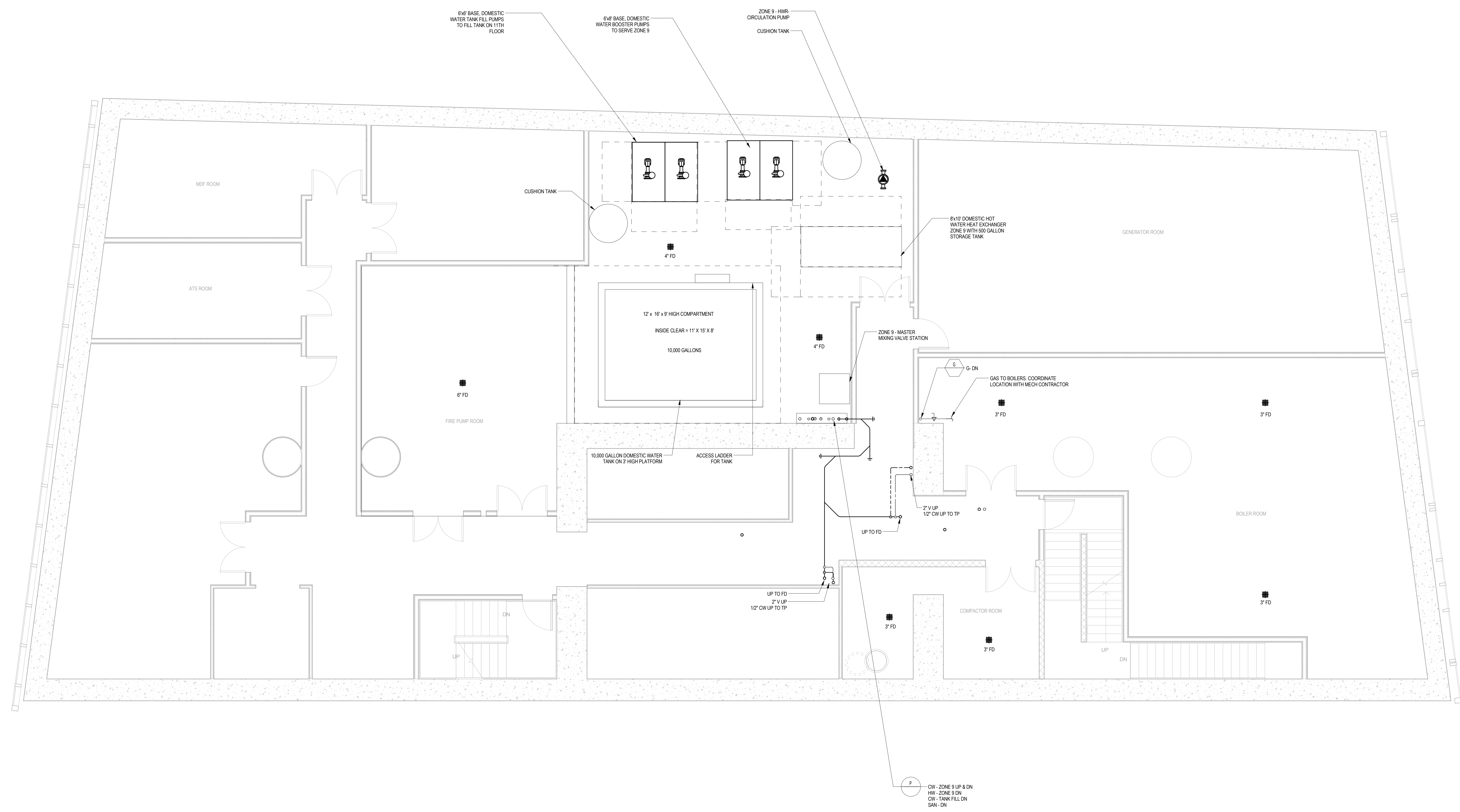
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GENERAL CONTRACTOR LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
OWNER'S DESIGNER Vanessa Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER BurroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



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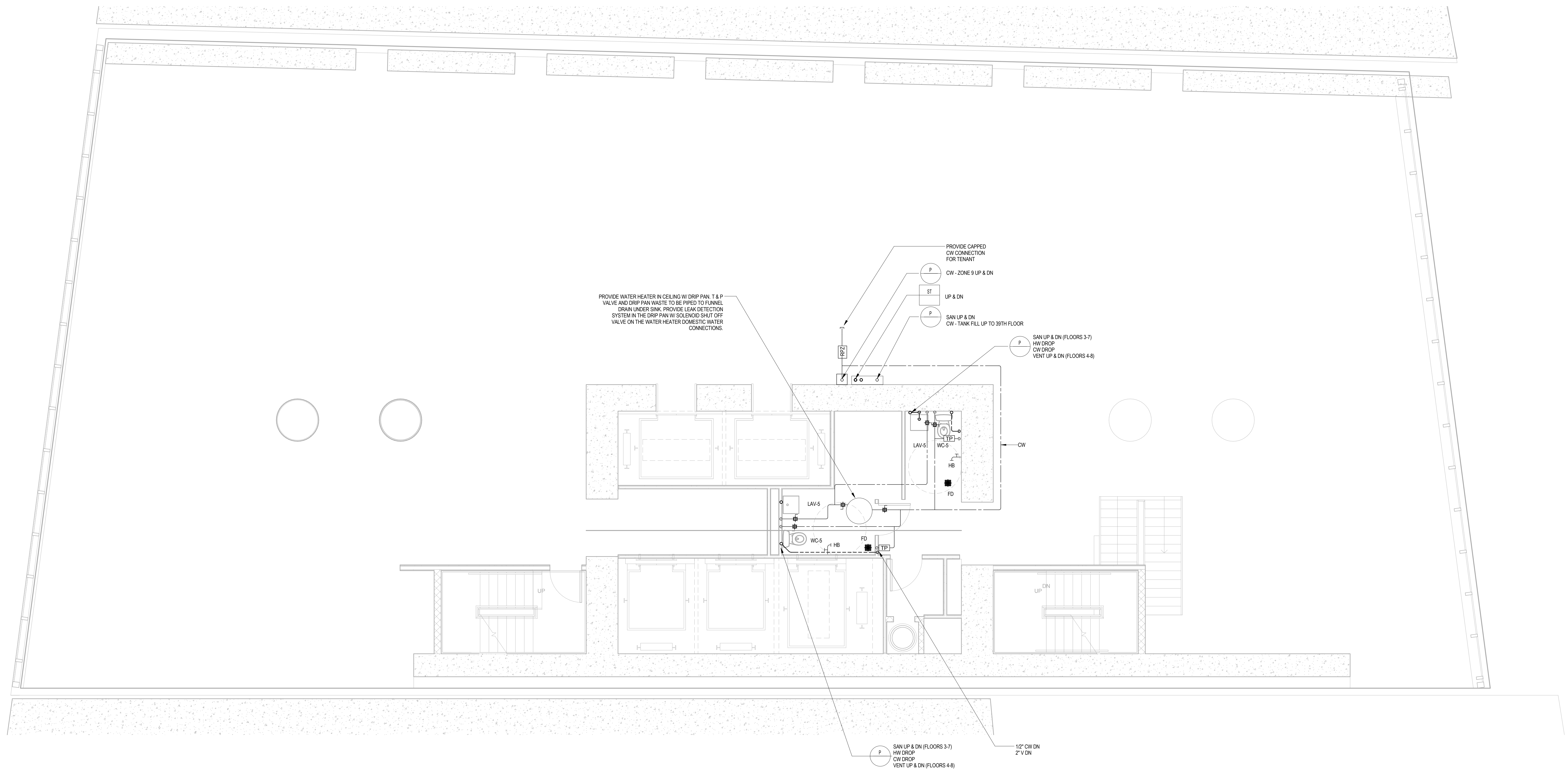
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P-102.00

1/4" = 1'-0"

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MECHANICAL ENGINEER WSP Group 228 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BurroHappold Engineering 100 Broadway New York, NY 10005 212.254.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 1360 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 120 Broadway, Floor 20 New York, NY 10005 212.477.6366
INTERIOR DESIGNER Veronica Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	INTERIOR DESIGNER BurroHappold Engineering 100 Broadway New York, NY 10005 212.254.2025



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PLUMBING 3RD-8TH FLOOR PLAN

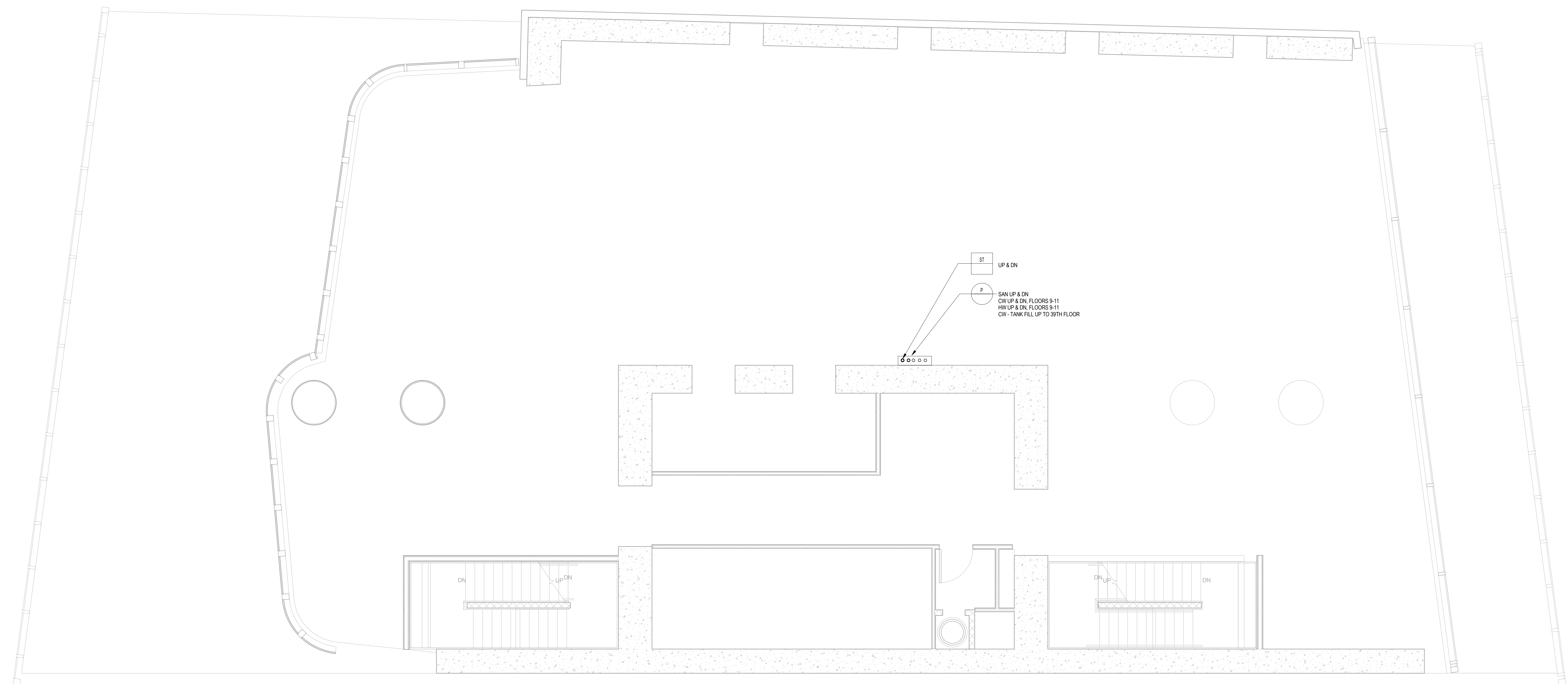
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MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
STRUCTURAL ENGINEER LANGAN 21 Penn Plaza 1260 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



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PLUMBING 9TH FLOOR PLAN

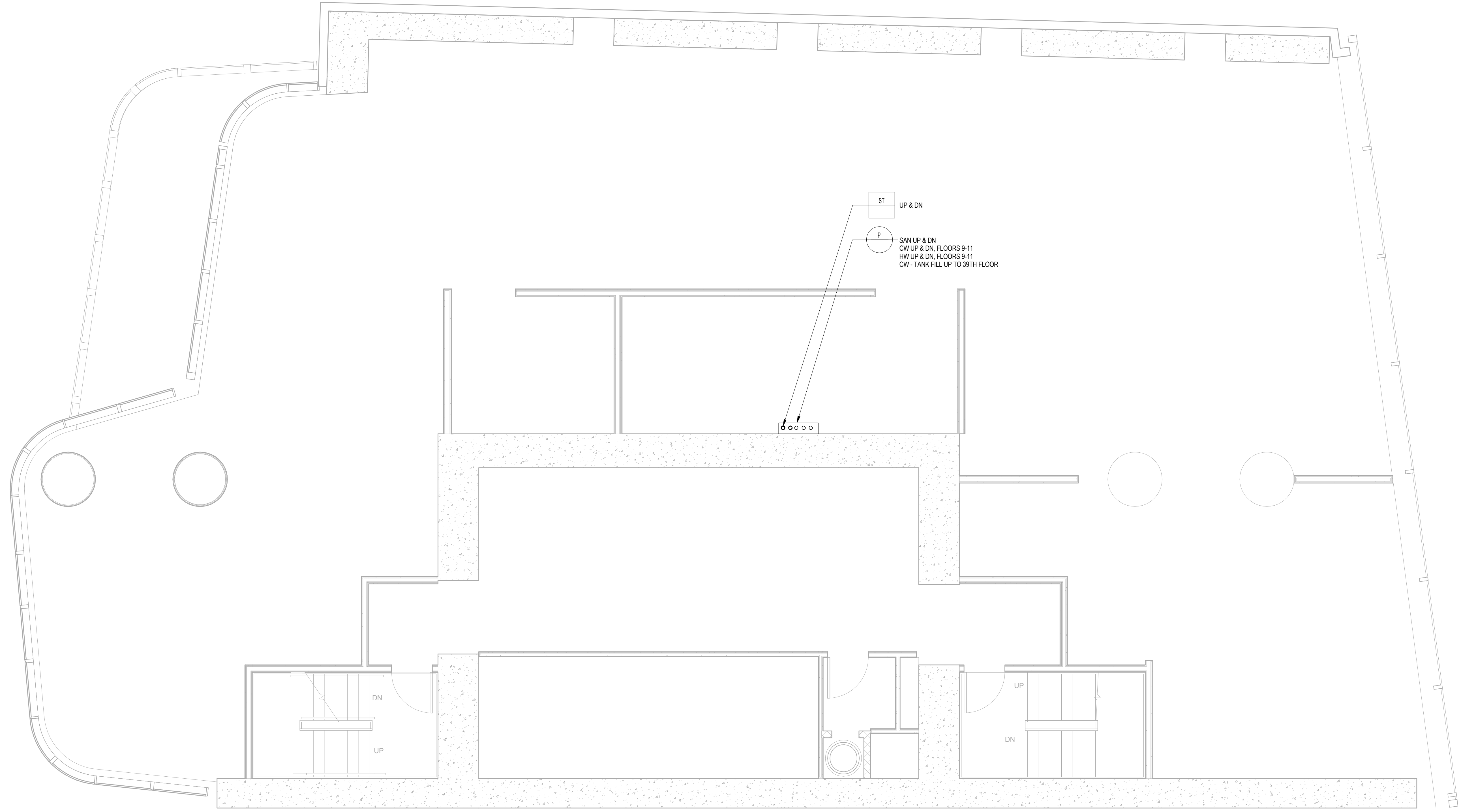
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1/4" = 1'-0"

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NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
MECHANICAL ENGINEER WSP Group 228 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
STRUCTURAL ENGINEER LANGAN 21 Penn Plaza 190 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	STRUCTURAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
GENERAL CONTRACTOR Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	GENERAL CONTRACTOR BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



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2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 10TH FLOOR PLAN

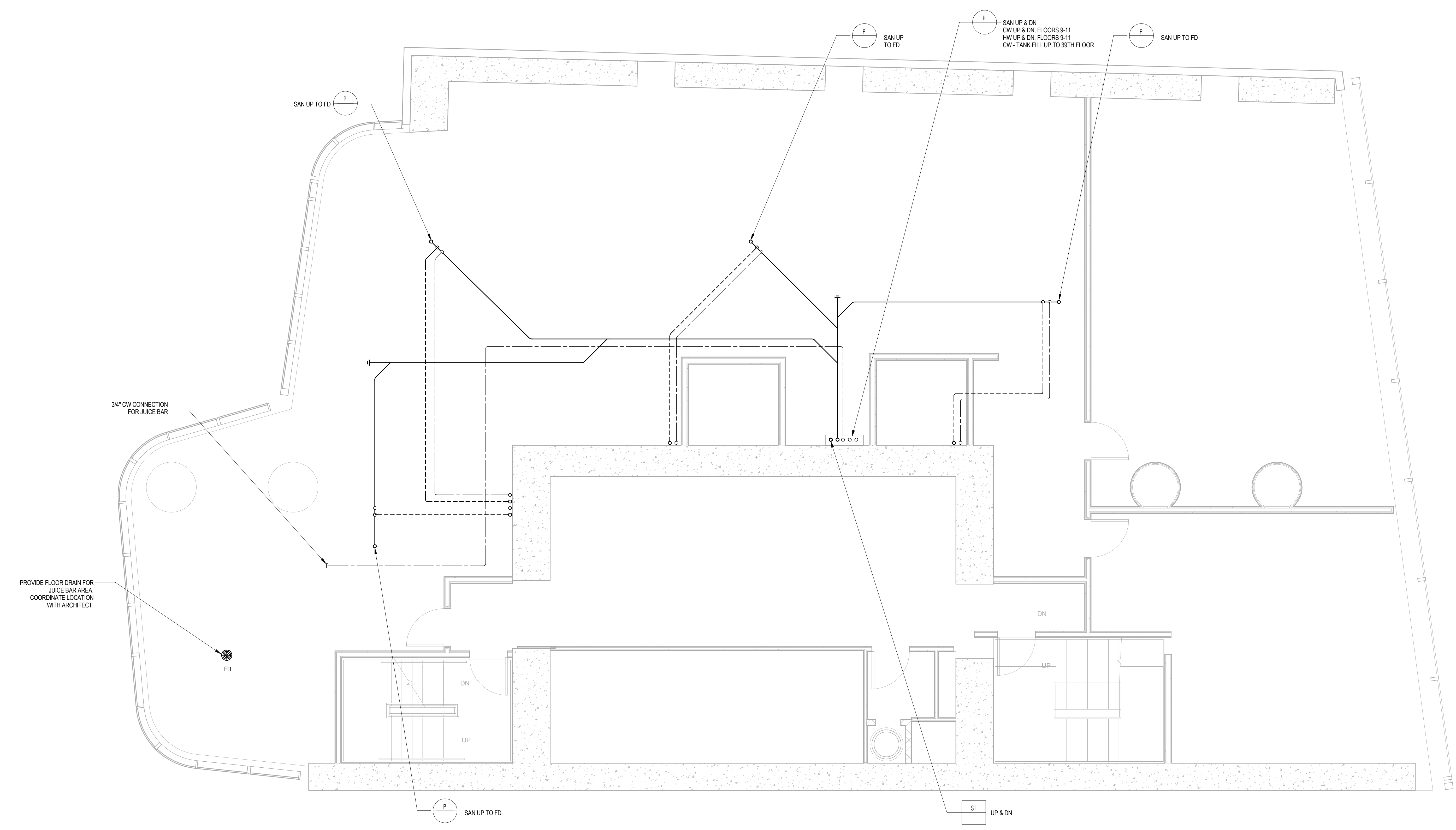
P-110.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BuroHappold Engineering 100 Broadway New York, NY 10005 212.354.2025
STRUCTURAL ENGINEER LANGAN 21 Penn Plaza 190 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	STRUCTURAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
INTERIOR DESIGNER Vestresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	INTERIOR DESIGNER BuroHappold Engineering 100 Broadway New York, NY 10005 212.354.2025



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2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



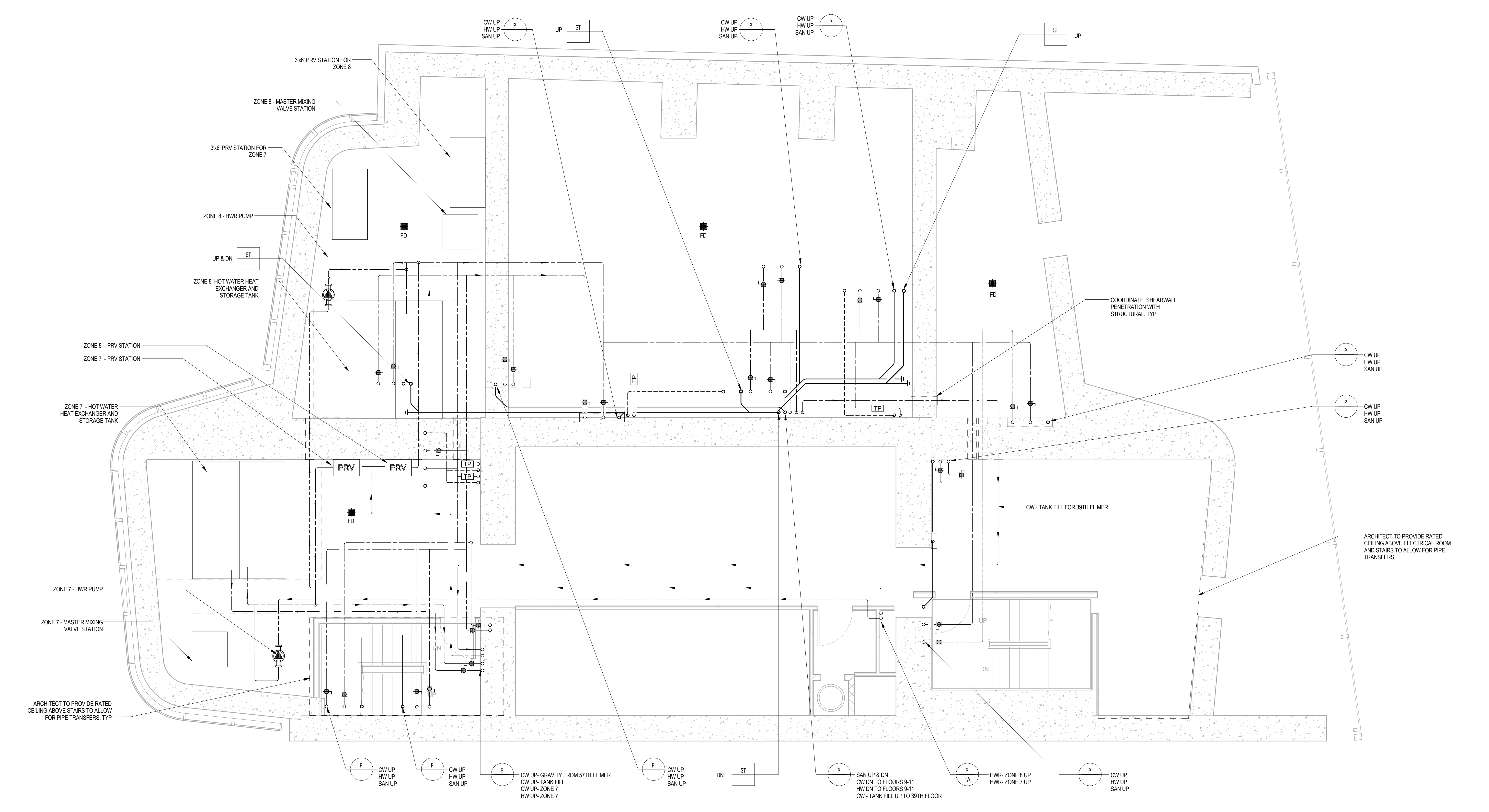
PLUMBING 11TH FLOOR PLAN

P-111.00

1/4" = 1'-0"

45
BROAD
STREET
NEW YORK NY 10004

- NOTES**
1. PROVIDE RISER CONTROL VALVES FOR EACH RISER.
 2. REFER TO SUDS ZONE DETAIL FOR ALL SANITARY STACK OFFSETS.
 3. PROVIDE CLEANOUTS AT THE BASE OF ALL DRAINAGE AND SOIL STACKS.
 4. CLEANOUTS TO HAVE CLEARANCES OF 18" - 36" DEPENDING ON STACK SIZE. REFER TO NYCPC 708.8.
 5. ARCHITECT TO COORDINATE SHEARWALL LOCATIONS WITH ABOVE BATHROOM KITCHEN LOCATIONS.



John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 534 Broadway Suite 401 New York, NY 10012 212.541.9801	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSF Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.9888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.354.2025
LANGAN 21 Penn Plaza 360 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.354.2025



2016.04.22
ISSUED FOR DESIGN DEVELOPMENT



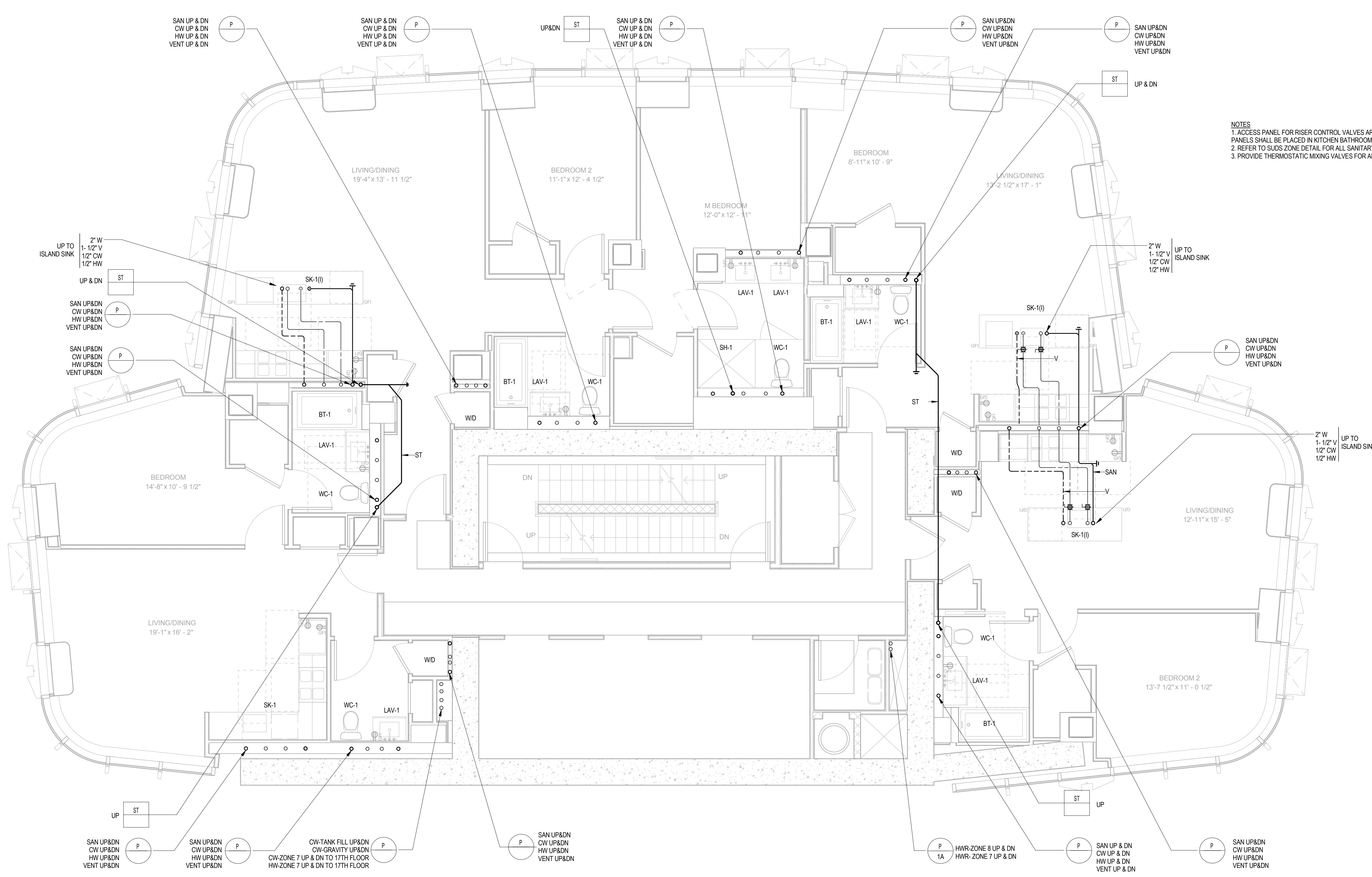
PLUMBING 12TH FLOOR PLAN

P-112.00
1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.477.6400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventressa Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



NOTES
 1. ACCESS PANEL FOR RISER CONTROL VALVES ARE NECESSARY FOR EACH RISER.
 PANELS SHALL BE PLACED IN KITCHEN/BATHROOM & LAUNDRY CLOSET CELLINGS.
 2. REFER TO SUDS ZONE DETAIL FOR ALL SANITARY STACK OFFSETS.
 3. PROVIDE THERMOSTATIC MIXING VALVES FOR ALL TUB FILLERS AND HAND HELD SHOWERS.



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2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 13TH-31ST FLOOR PLAN - TIER 1

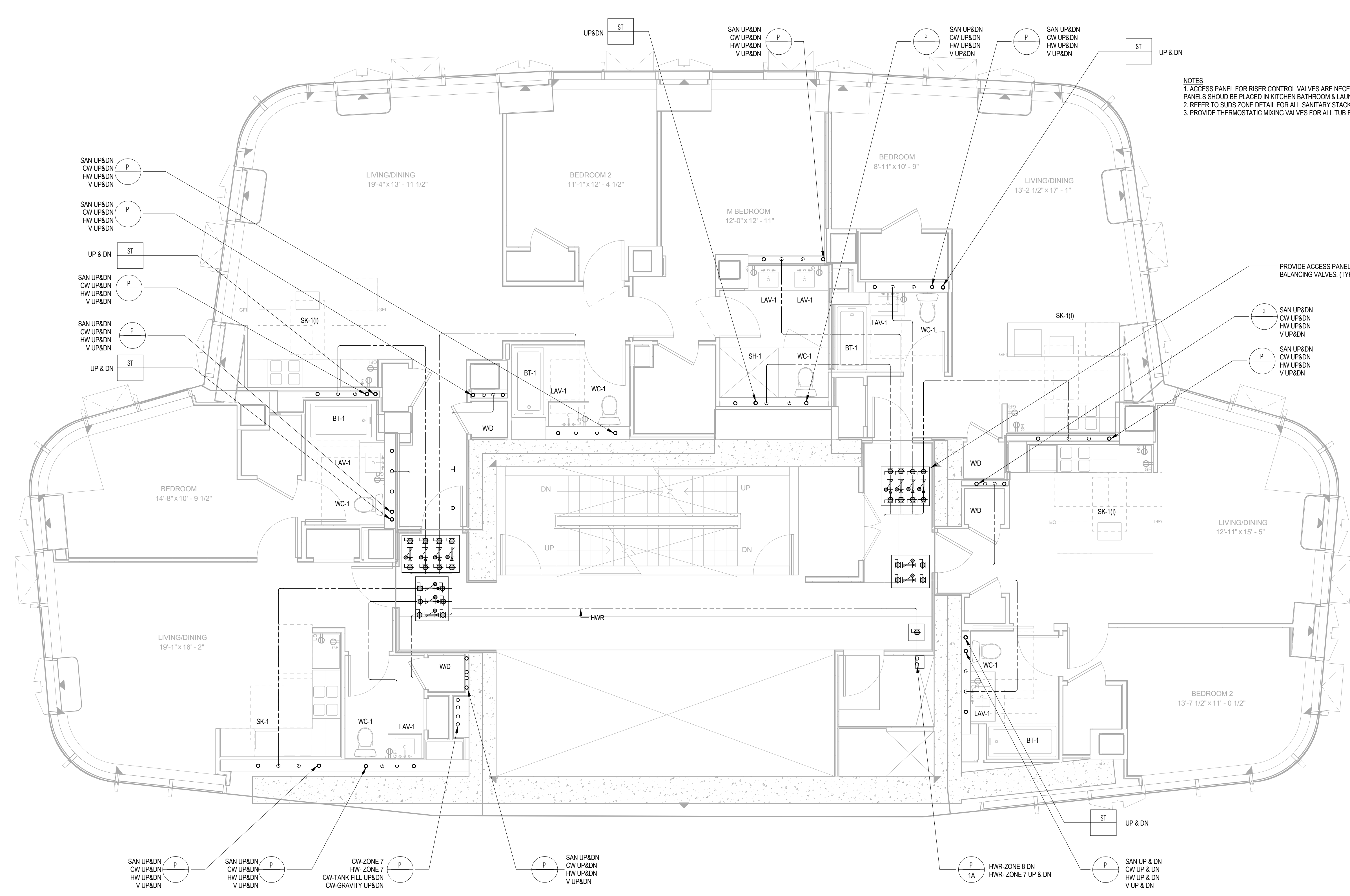
P-114.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
LANGAN 21 Penn Plaza 1260 West 31st Street, 8th Fl New York, NY 10001 212.477.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025



NOTES

1. ACCESS PANEL FOR RISER CONTROL VALVES ARE NECESSARY FOR EACH RISER. PANELS SHOULD BE PLACED IN FITCHES BATHROOM & LAUNDRY COSET CEILING.
2. REFER TO SUDS ZONE DETAIL FOR ALL SANITARY STACK OFFSETS.
3. PROVIDE THERMOSTATIC MIXING VALVES FOR ALL TUB FILLERS AND HAND HELD SHOWERS.



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 15TH FLOOR PLAN

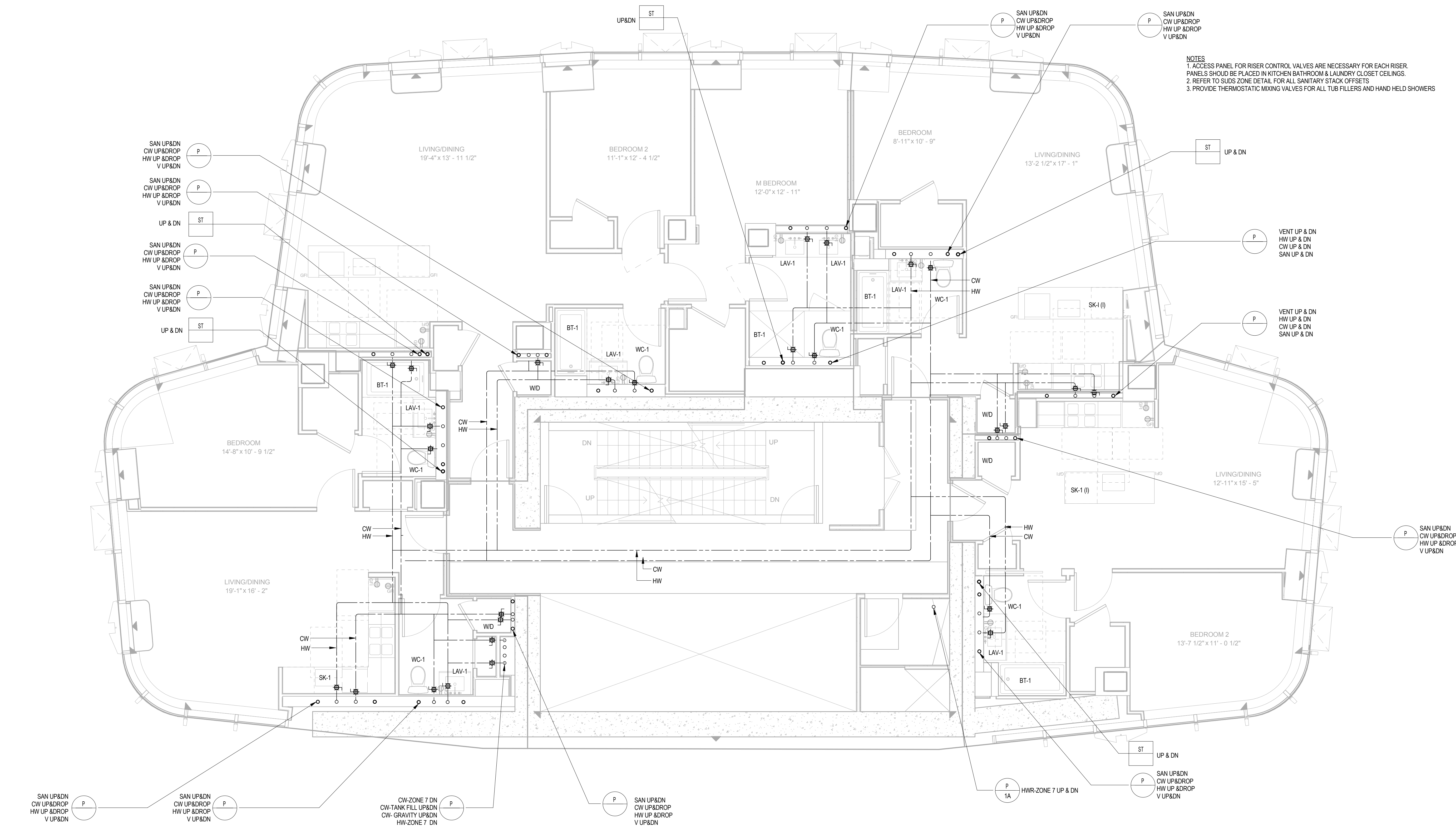
P-115.00

1/4" = 1'-0"

45 BROAD STREET

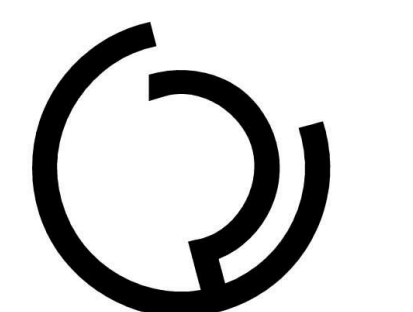
NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	ELECTRICAL ENGINEER BurroHappold Engineering 100 Broadway New York, NY 10005 212.254.2025
PLUMBING ENGINEER LANGAN 21 Penn Plaza 260 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6566
INTERIOR DESIGNER Venresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	GENERAL CONTRACTOR BurroHappold Engineering 100 Broadway New York, NY 10005 212.254.2025



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2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



CETRARUDDY

PLUMBING 17TH FLOOR PLAN

P-117.00

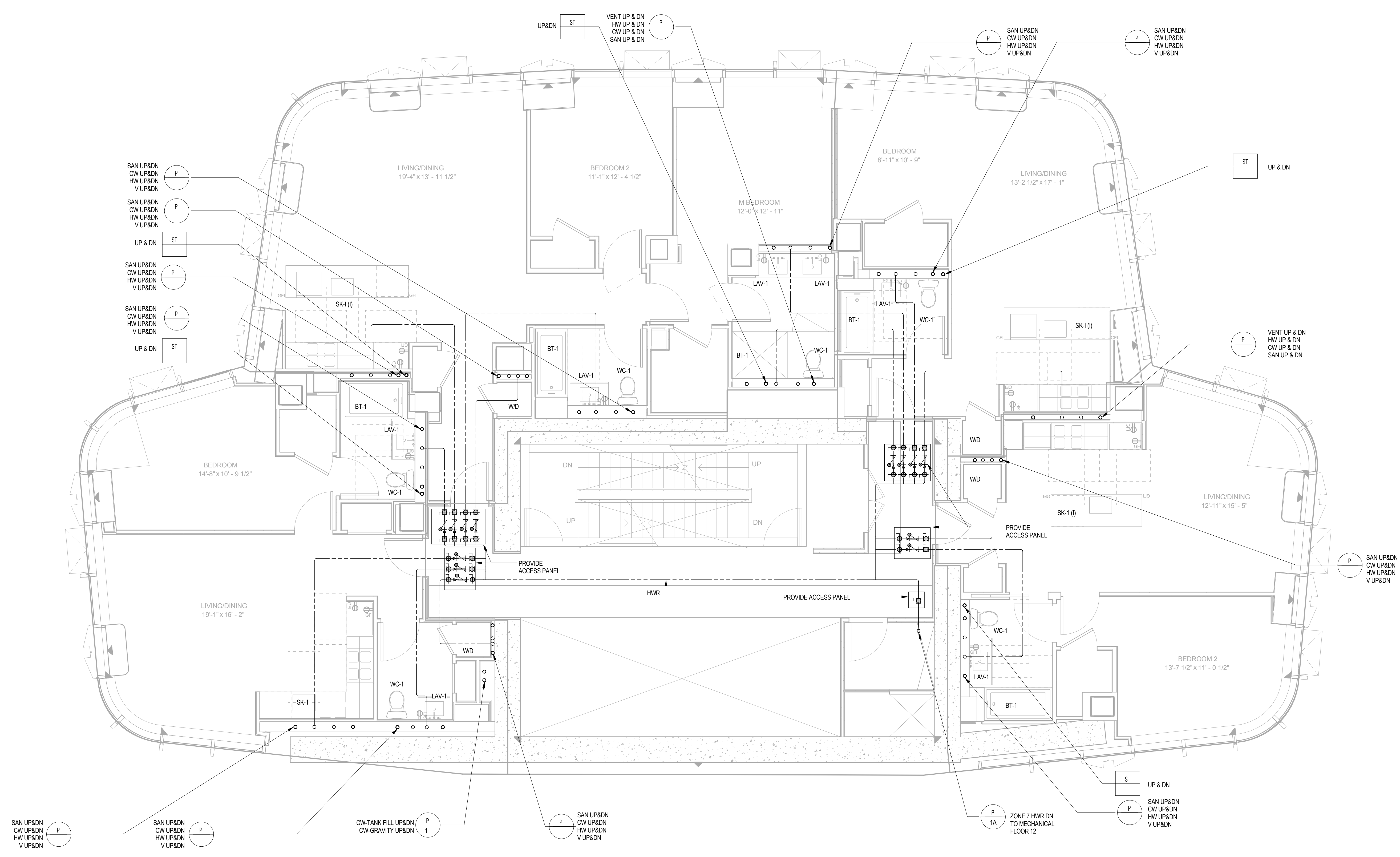
1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BaronHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.477.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6566
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0035	BaronHappold Engineering 100 Broadway New York, NY 10005 212.234.2025

NOTES
 1. ACCESS PANEL FOR RISER CONTROL VALVES ARE NECESSARY FOR EACH RISER. PANELS SHOULD BE PLACED IN KITCHEN BATHROOM & LAUNDRY CLOSET CEILINGS.
 2. REFER TO SUEZ ZONE DETAIL FOR ALL SANITARY STACK OFFSETS.
 3. PROVIDE THERMOSTATIC MIXING VALVES FOR ALL TUB FILERS AND HAND HELD SHOWERS.



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2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 25TH FLOOR PLAN

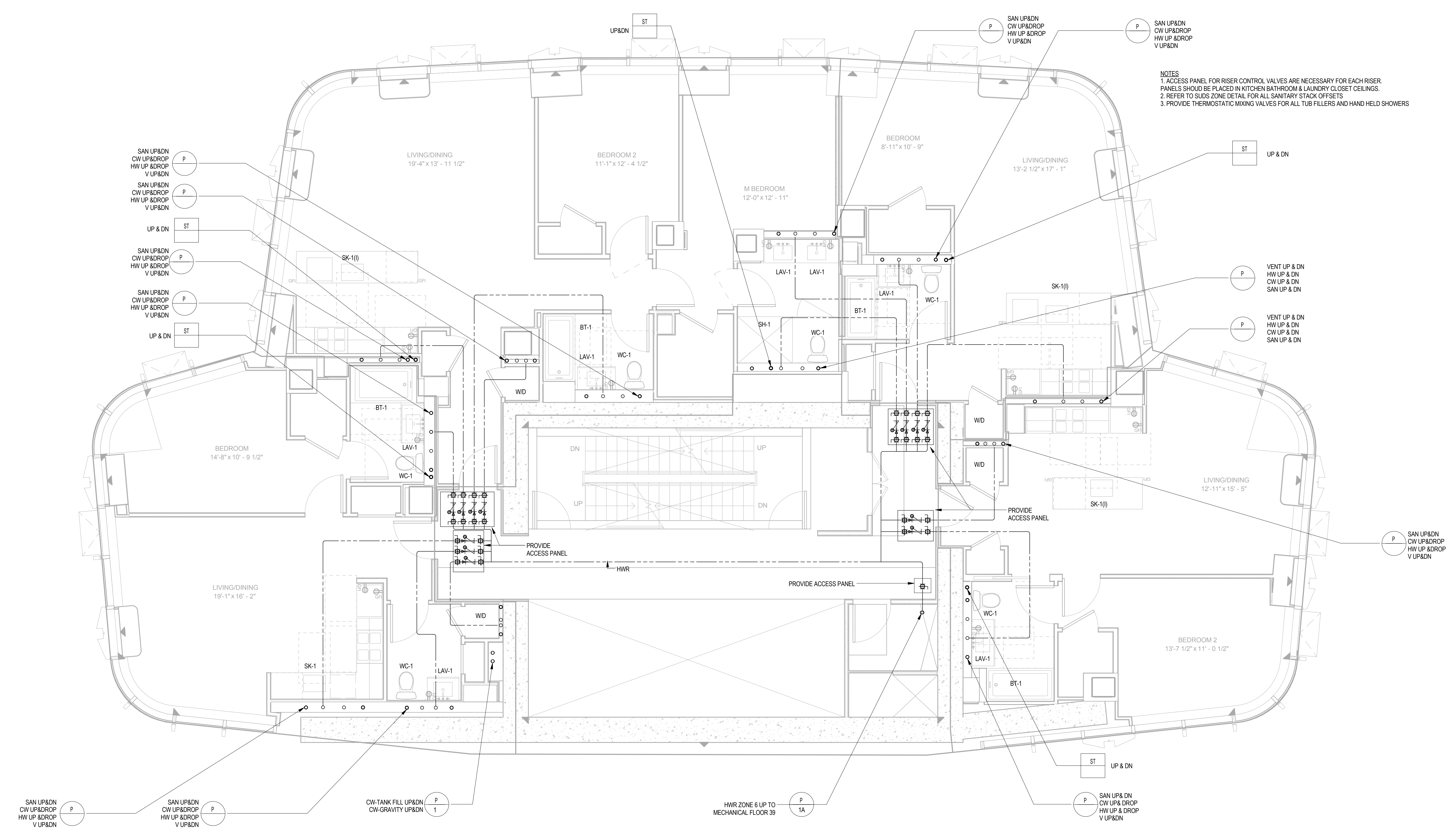
P-125.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 260 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6566
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 27TH FLOOR PLAN

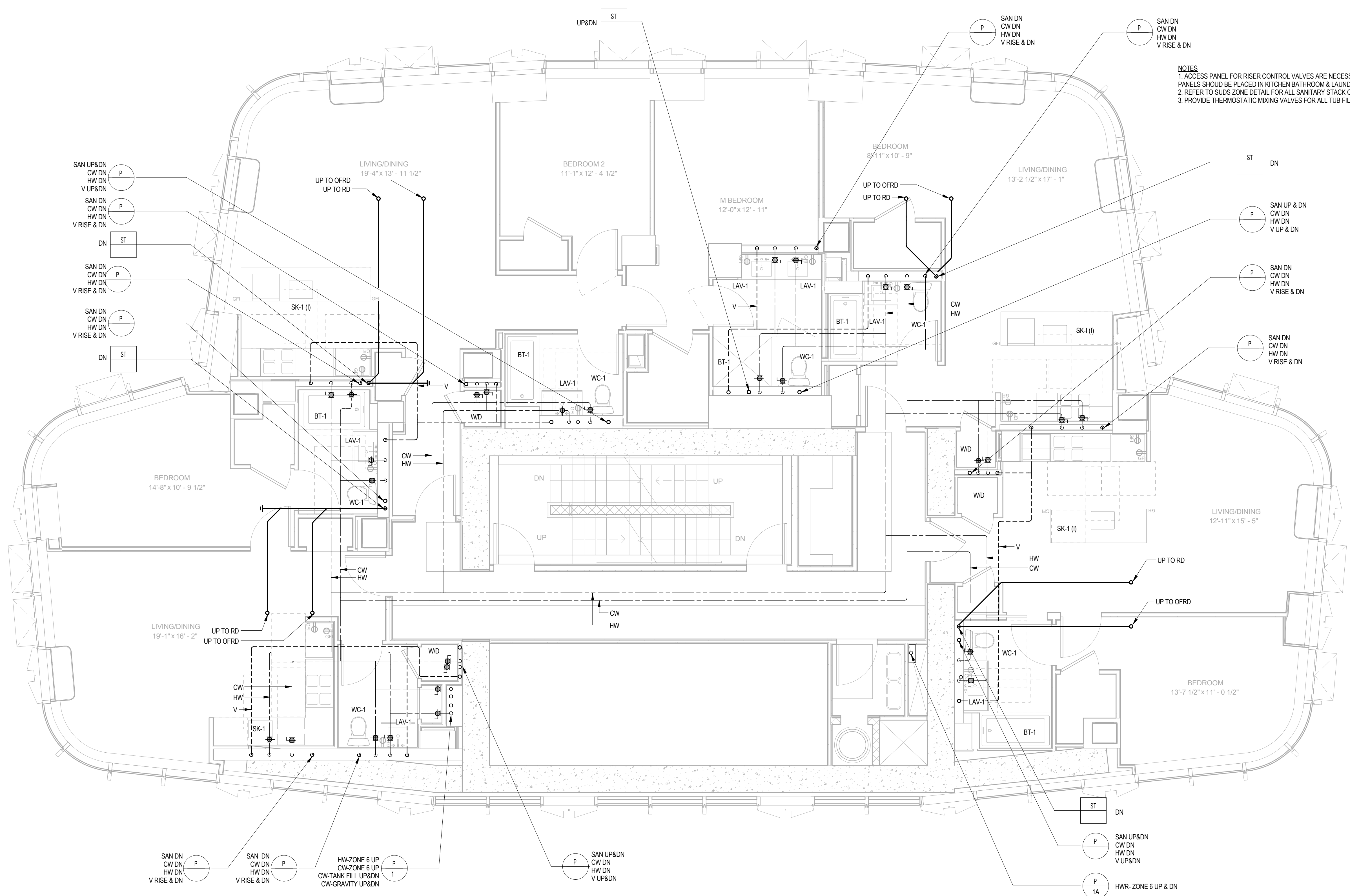
P-127.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.941.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10010
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
LANGAN 21 Penn Plaza 120 Broadway, Floor 20 New York, NY 10001 212.477.6400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6466
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 32ND FLOOR PLAN - TIER 1 TRANSFER

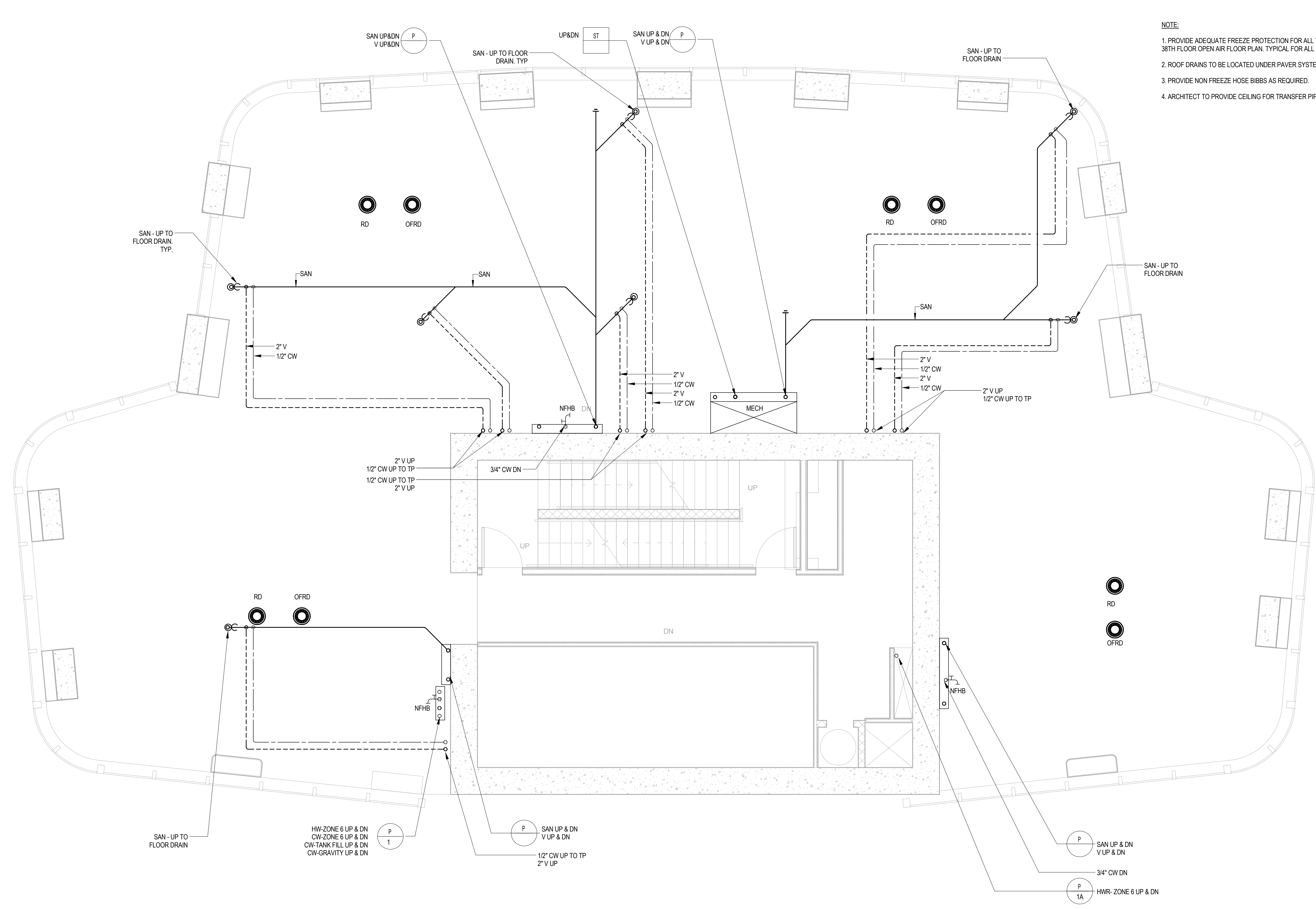
P-132.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
MECHANICAL ENGINEER MSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.9888	METALS ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.328.2025
STRUCTURAL ENGINEER LANGAN 21 Penn Plaza 360 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	ELECTRICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
SCAFFOLDING ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	GENERAL CONTRACTOR BaroHappold Engineering, LLC 100 Broadway New York, NY 10005 212.328.2025



- NOTE:**
1. PROVIDE ADEQUATE FREEZE PROTECTION FOR ALL TRANSITION PIPES THROUGH 38TH FLOOR OPEN AIR FLOOR PLAN TYPICAL FOR ALL CHASES AND DRAINS.
 2. ROOF DRAINING TO BE LOCATED UNDER PAVER SYSTEM.
 3. PROVIDE NON-FREEZE HOSE BIBBS AS REQUIRED.
 4. ARCHITECT TO PROVIDE CEILING FOR TRANSFER PIPING.



DATE	DESCRIPTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 33RD FLOOR PLAN -
OUTDOOR

P-133.00

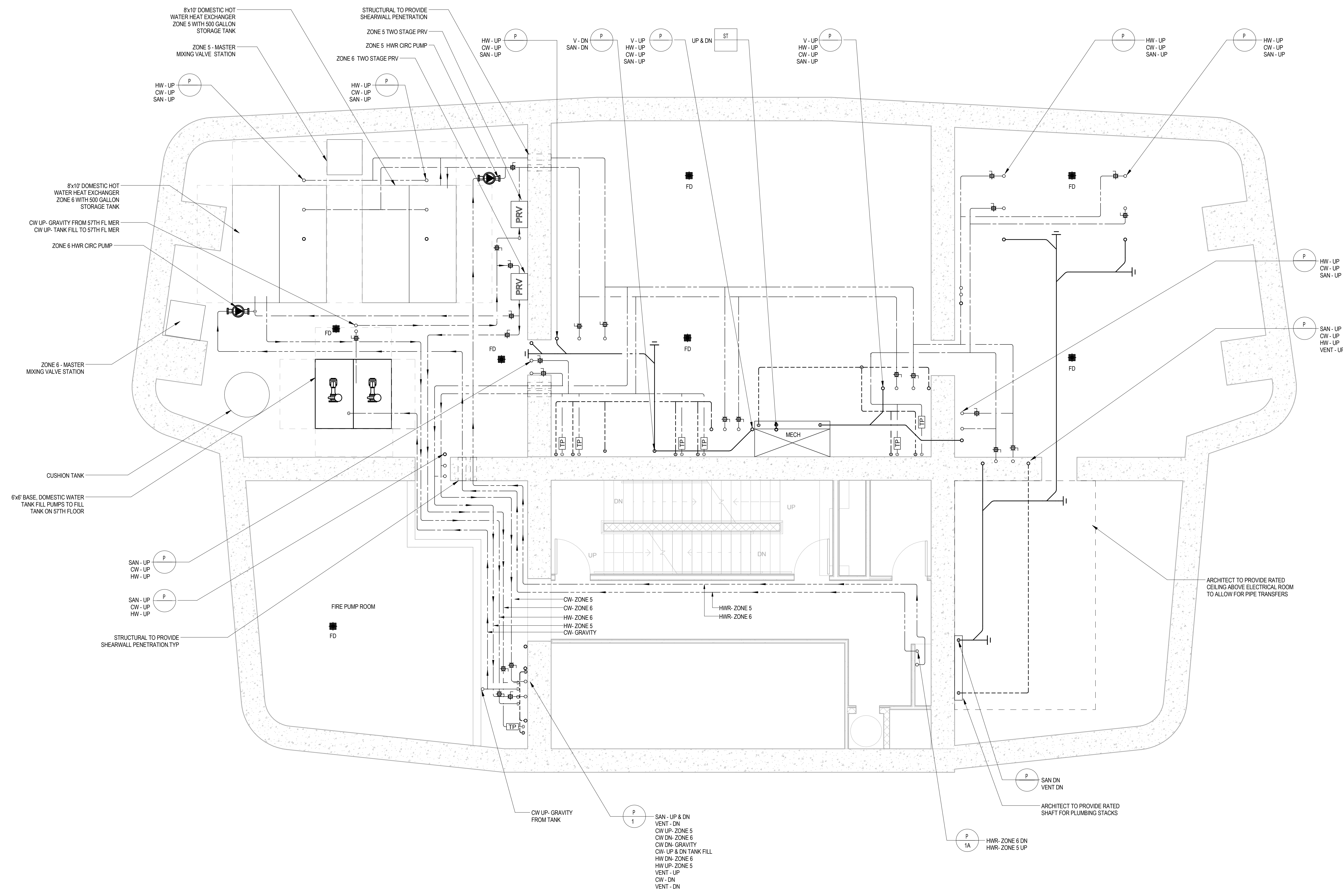
1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT	John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 104 Broadway Suite 401 New York, NY 10012 212.541.9001	REGISTERED ARCHITECT	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
MECHANICAL ENGINEER	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025	MECHANICAL ENGINEER	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
PLUMBING ENGINEER	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025	PLUMBING ENGINEER	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
MECHANICAL ENGINEER	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025	MECHANICAL ENGINEER	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025

- NOTES**
1. PROVIDE RISER CONTROL VALVES FOR EACH RISER.
 2. REFER TO SLEDS ZONE DETAIL FOR ALL SANITARY STACK OFFSETS
 3. PROVIDE CLEANOUTS AT THE BASE OF ALL DRAINAGE AND SOIL STACKS.
 4. CLEANOUTS TO HAVE CLEARANCES OF 18" - 36" DEPENDING ON STACK SIZE. REFER TO NYCPD 708.6



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 34TH FLOOR PLAN - MECH

P-134.00

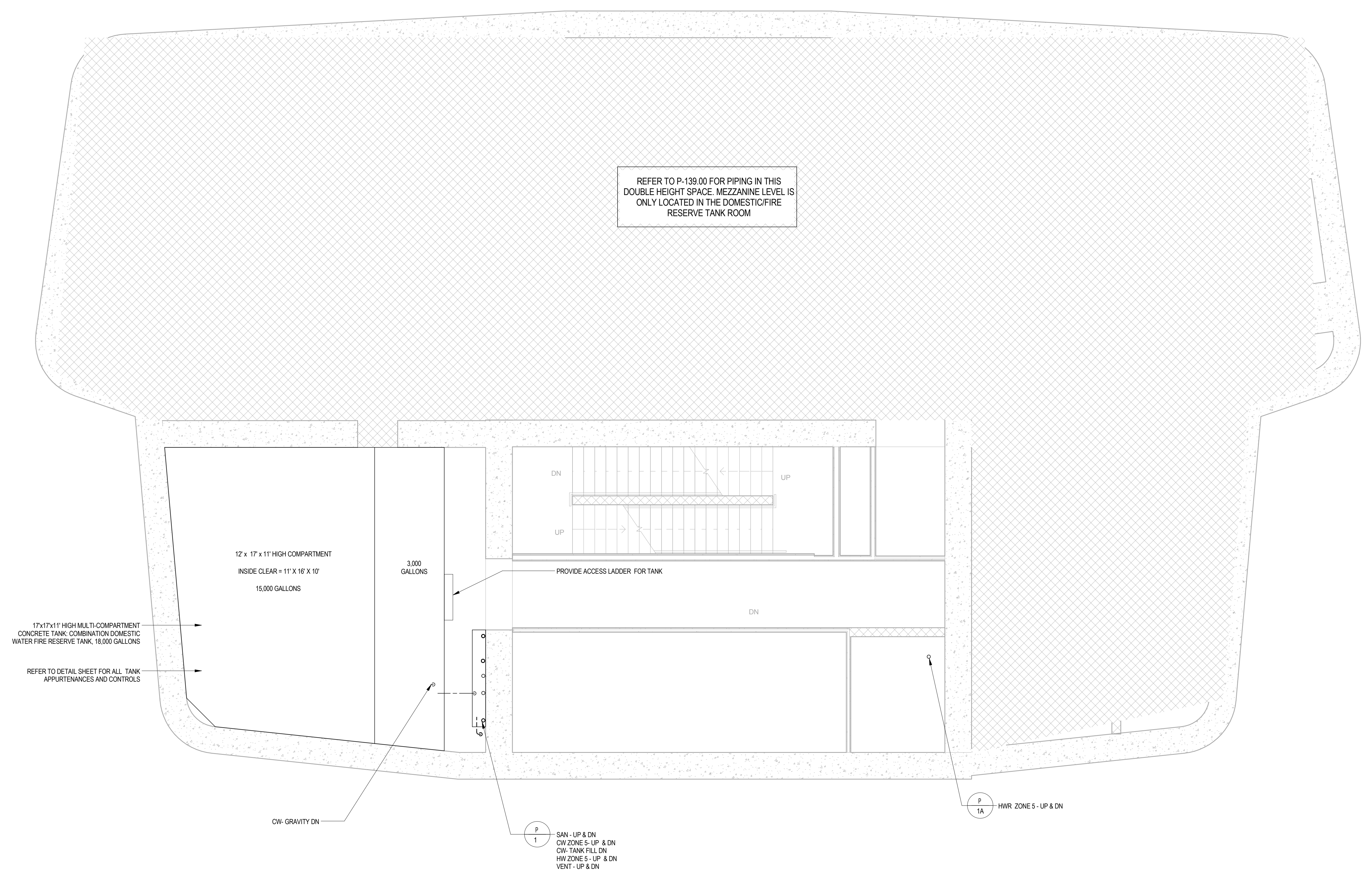
1/4" = 1'-0"

CETRA RUDDY ARCHITECTURE DPC
594 BROADWAY NEW YORK NY 10012 T 212 541 9001 F 212 541 9440
WWW.CETRA RUDDY.COM

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10010
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BuroHappold Engineering 100 Broadway New York, NY 10005 212.304.2025
STRUCTURAL ENGINEER LANGAN 21 Penn Plaza 1260 West 31st Street, 8th Fl New York, NY 10001 212.479.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER BuroHappold Engineering 100 Broadway New York, NY 10005 212.304.2025



PRELIMINARY - NOT FOR CONSTRUCTION

NO.	
DATE	
DESCRIPTION	

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



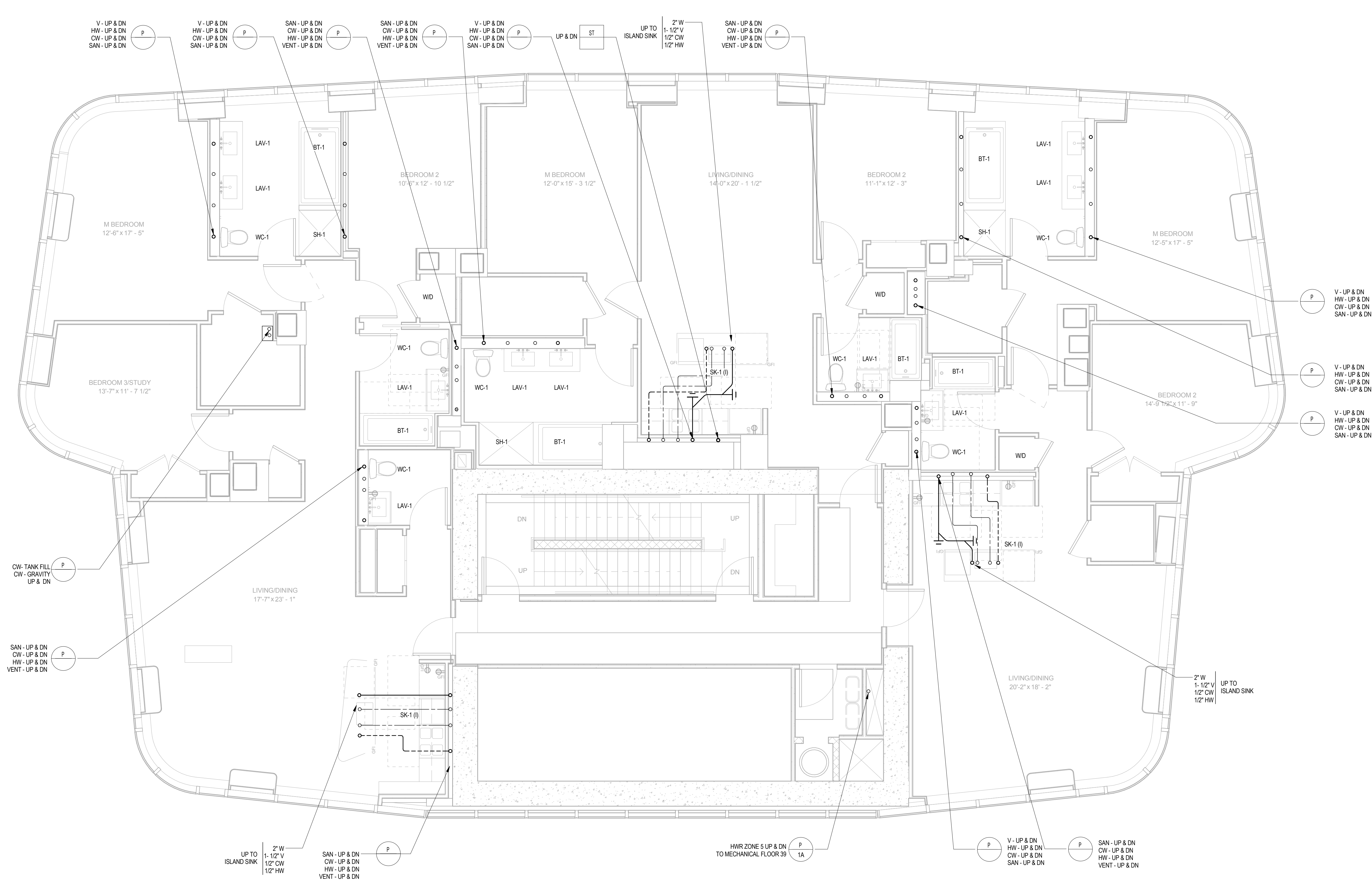
PLUMBING 34TH FLOOR MEZZANINE PLAN

P-134M.00

1/4" = 1'-0"

45 BROAD STREET NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
STRUCTURAL ENGINEER LANGAN 21 Penn Plaza 260 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	STRUCTURAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
INTERIOR DESIGNER Veronica Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	INTERIOR DESIGNER BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 35TH-50TH FLOOR PLAN - TIER 2

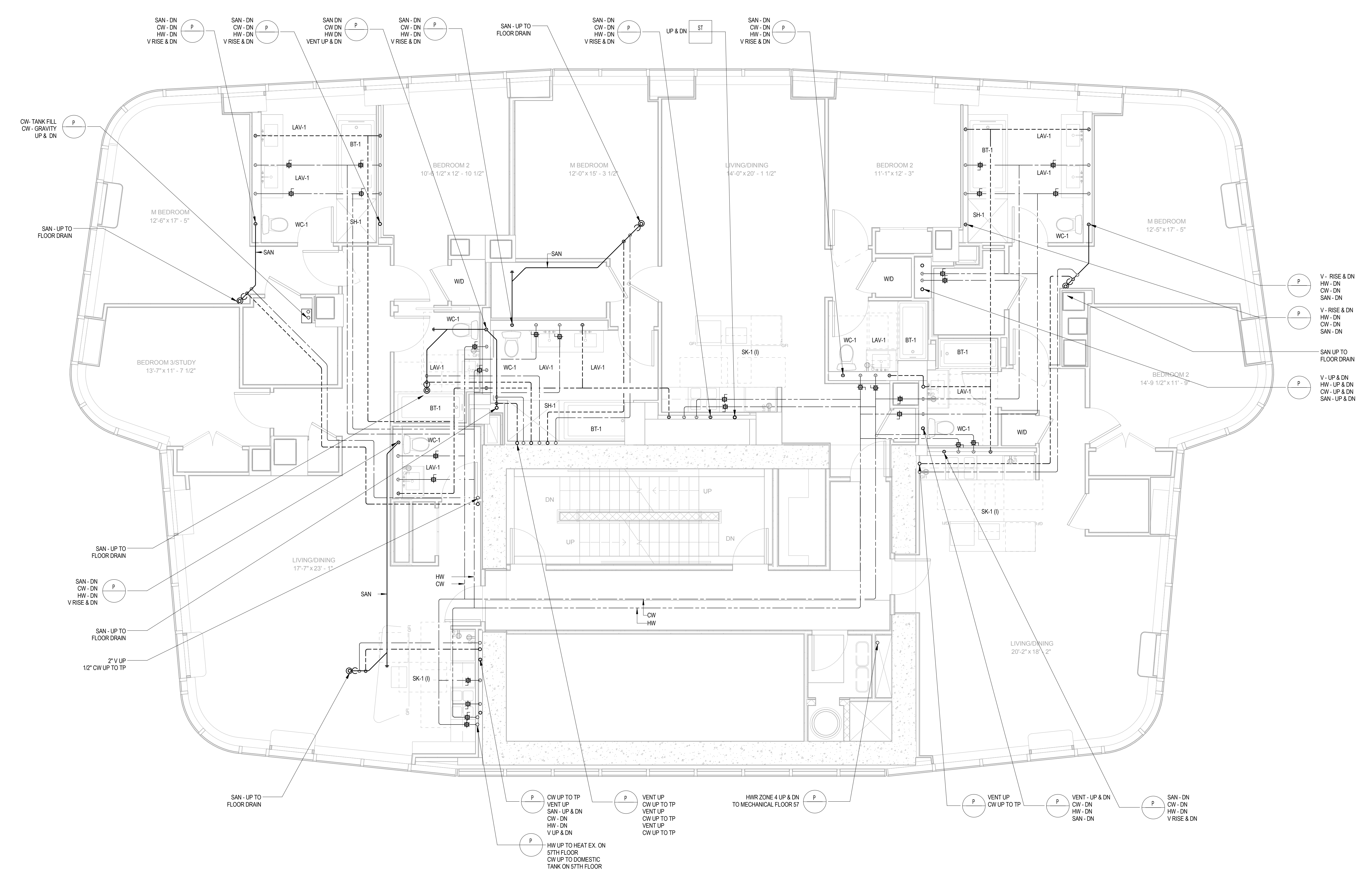
P-135.00

1/4" = 1'-0"

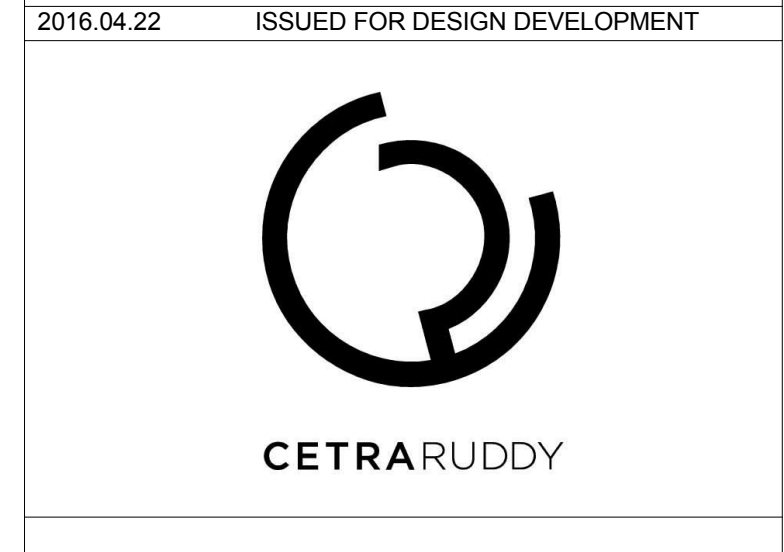
45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.941.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	Burroughs Engineering 100 Broadway New York, NY 10005 212.358.2025
LANGAN 21 Penn Plaza 280 West 31st Street, 8th Fl New York, NY 10001 212.479.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6566
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	Burroughs Engineering 100 Broadway New York, NY 10005 212.358.2025



PRELIMINARY - NOT FOR CONSTRUCTION



PLUMBING 43RD FLOOR PLAN - TIER 2 TRANSFER

P-143.00

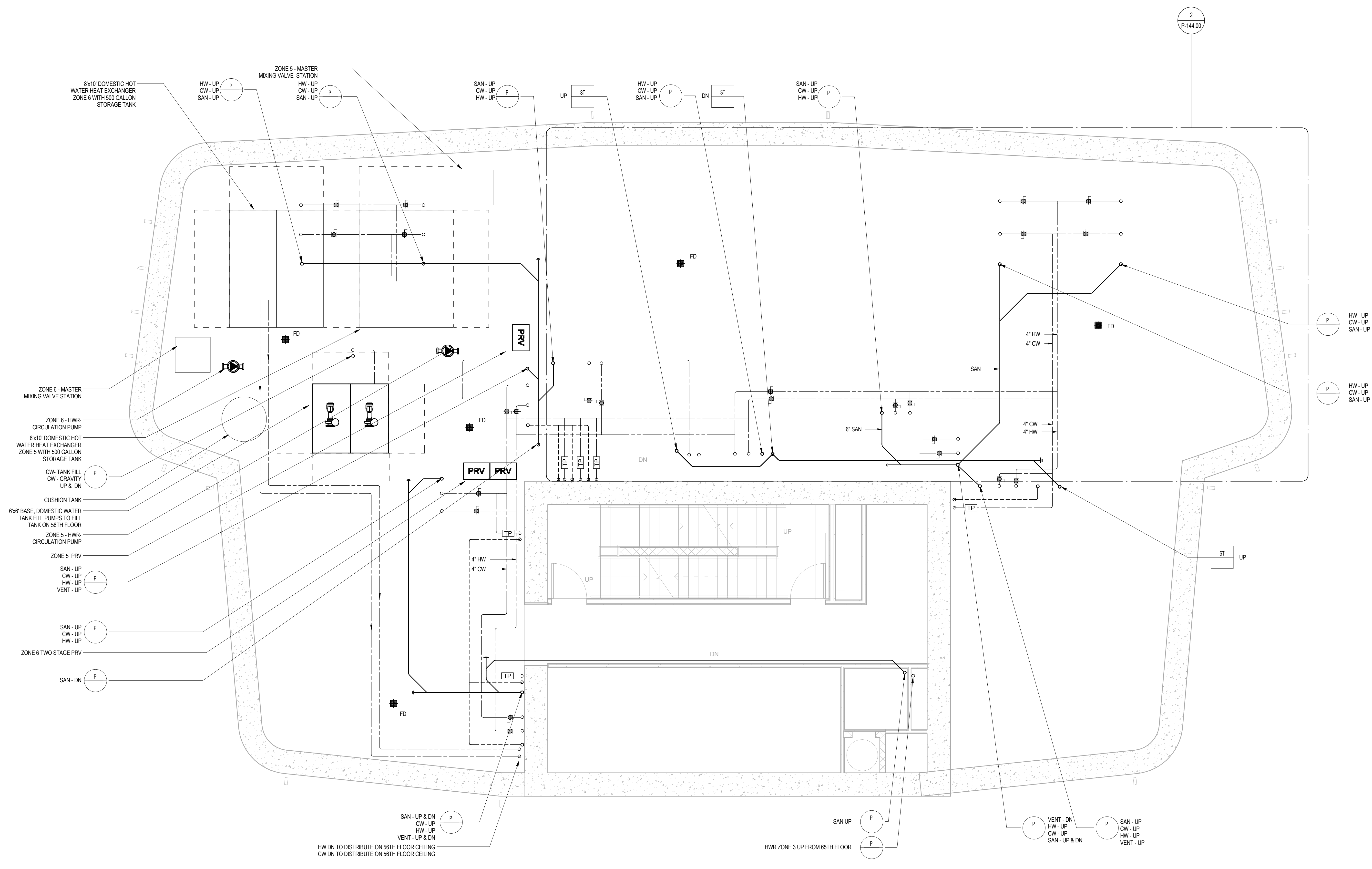
1/4" = 1'-0"

CETRARUDDY ARCHITECTURE DPC
584 BROADWAY NEW YORK NY 10012 T 212 941 9001 F 212 941 9440
WWW.CETRARUDDY.COM

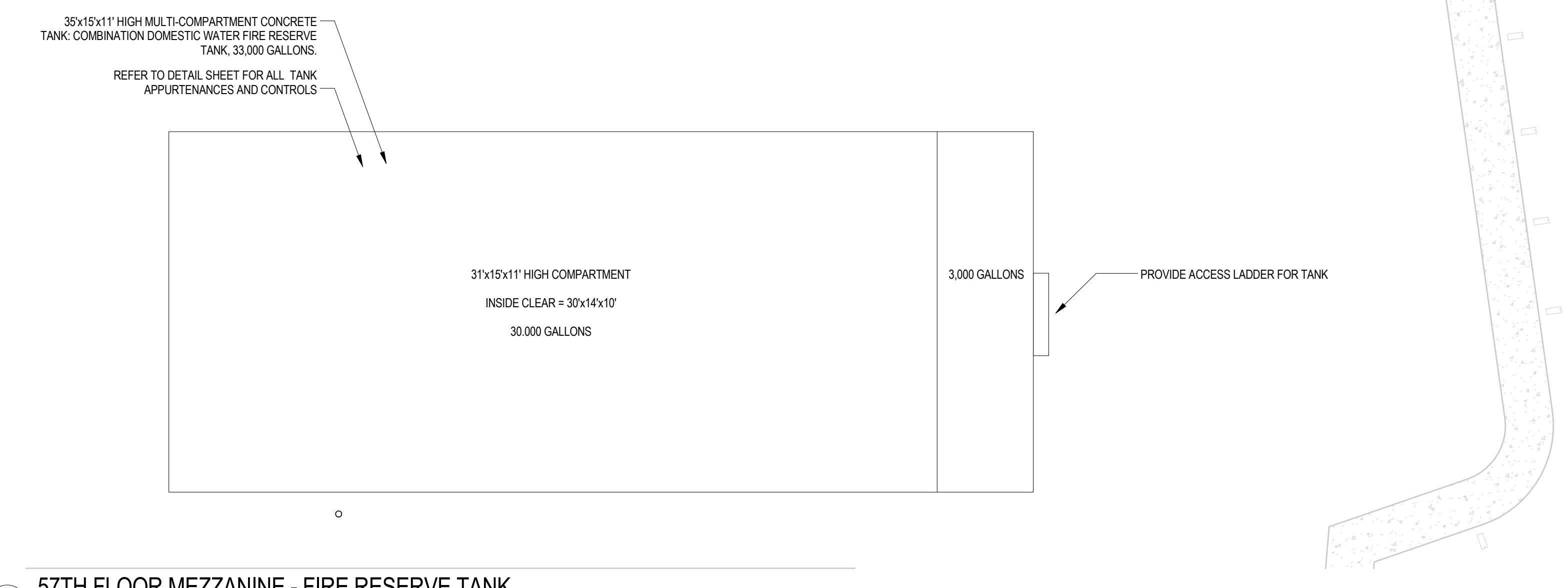
45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



1 PLUMBING 57TH FLOOR



2 57TH FLOOR MEZZANINE - FIRE RESERVE TANK



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 44TH FLOOR PLAN - MECH

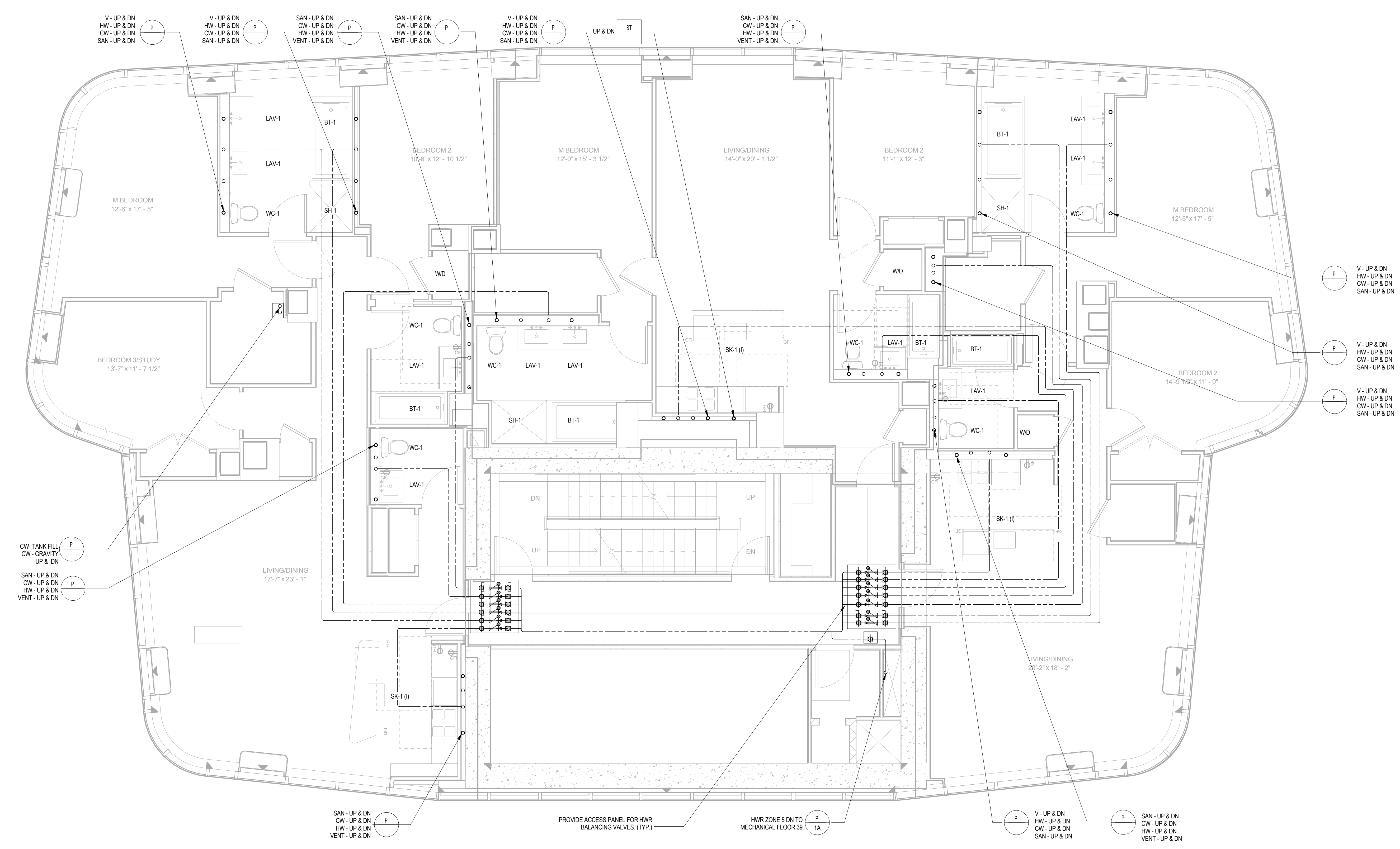
P-144.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



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2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 46TH FLOOR PLAN

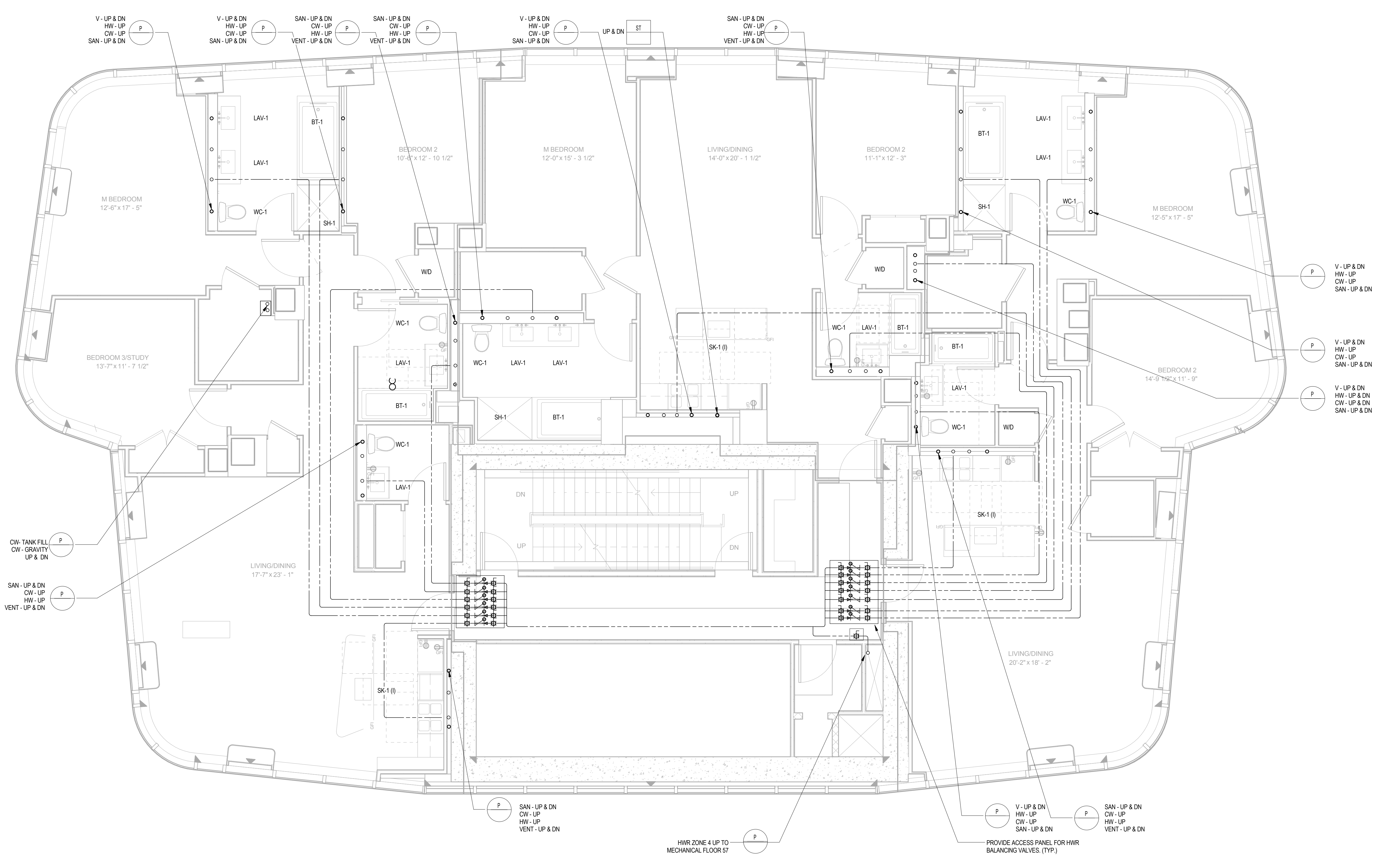
P-146.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 200 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
INTERIOR DESIGNER Veronica Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	INTERIOR DESIGNER BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 48TH FLOOR PLAN

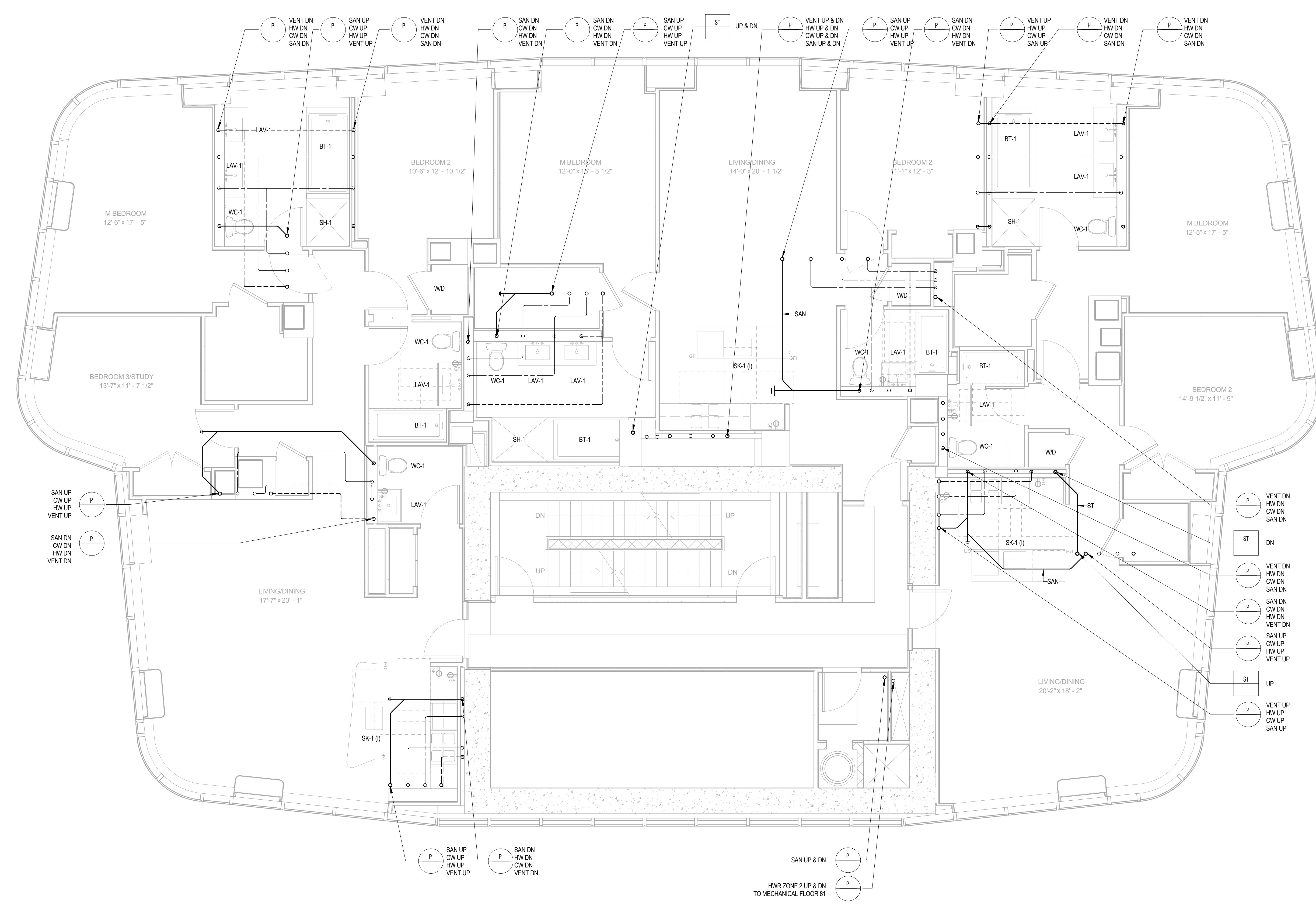
P-148.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 51ST FLOOR PLAN - TIER 2 - LOWER

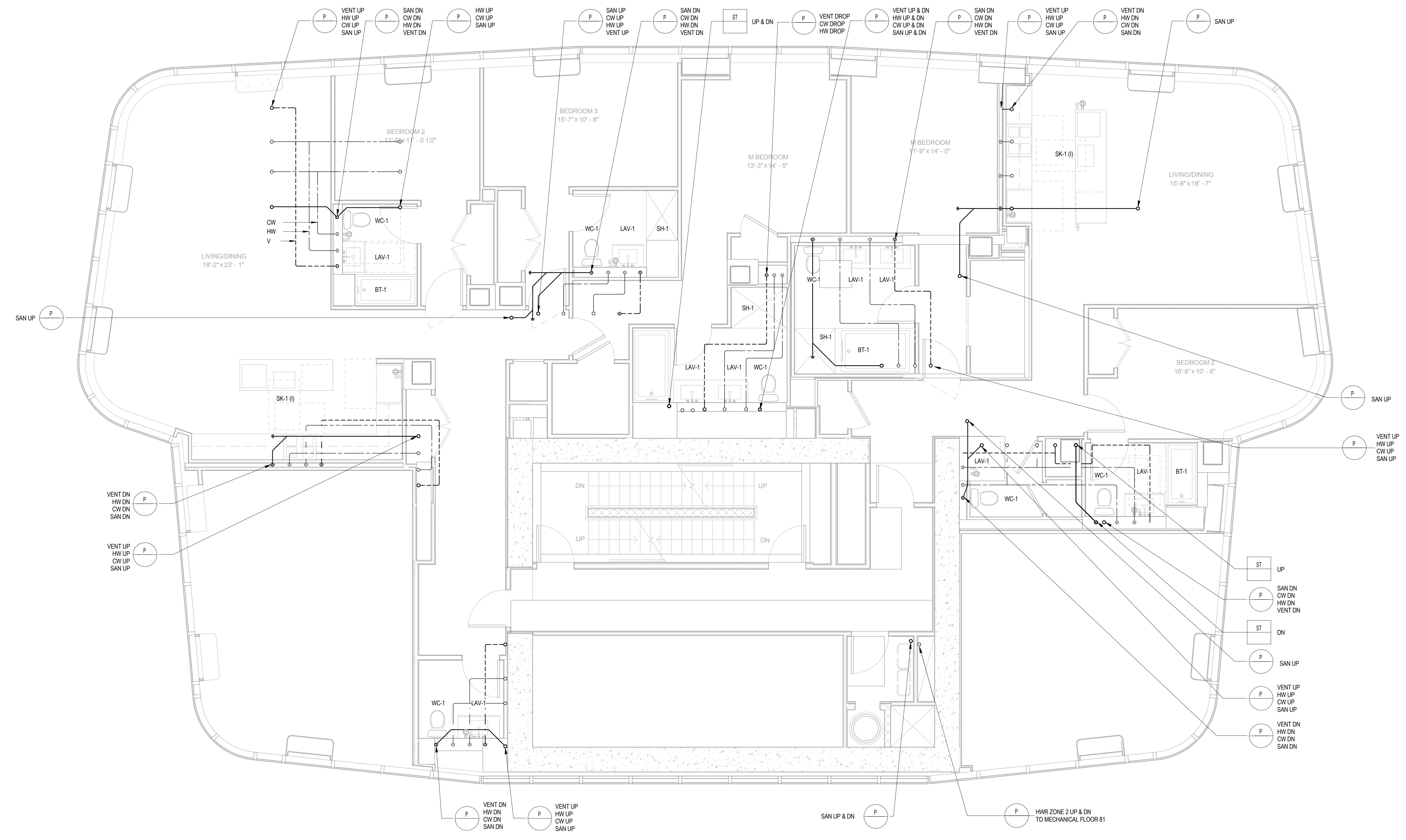
P-151.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.477.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6566
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025



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PLUMBING 52ND FLOOR PLAN - TIER 2 - UPPER

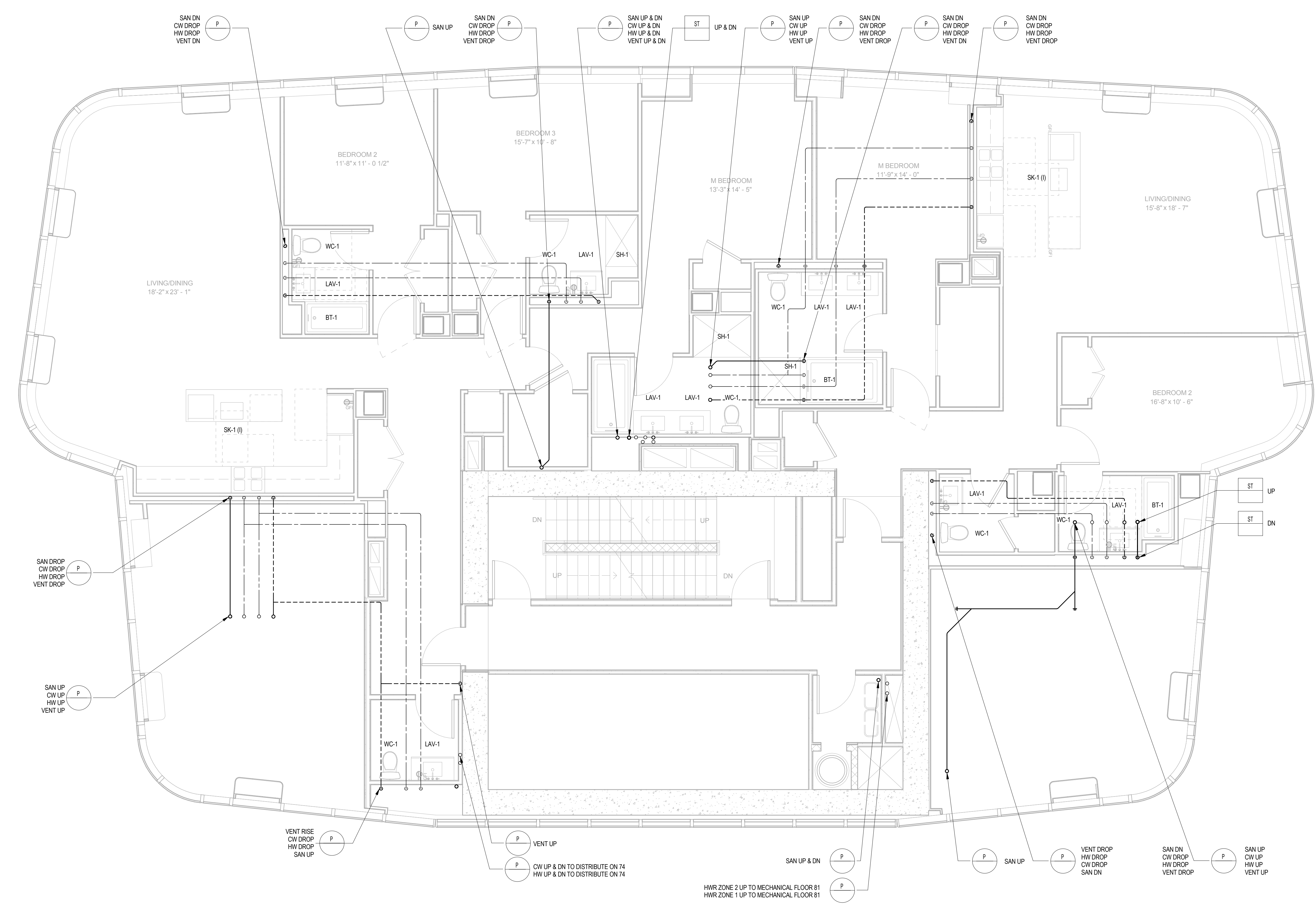
P-152.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 534 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.477.6400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



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PLUMBING 58TH FLOOR PLAN - TIER 2 TRANSFER

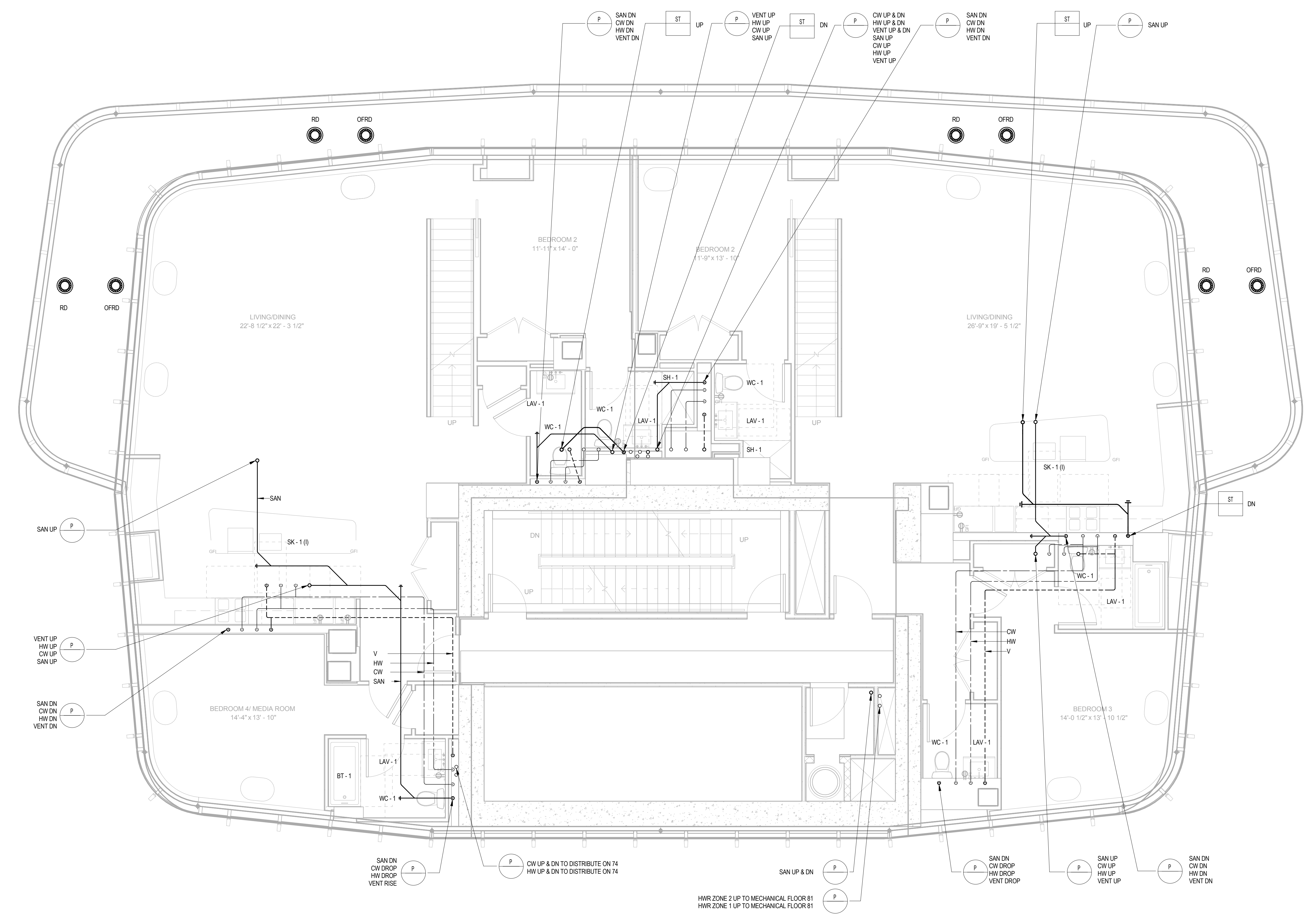
P-158.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6566
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025



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PLUMBING 59TH FLOOR PLAN - TIER 3 DUPLEX - LOWER

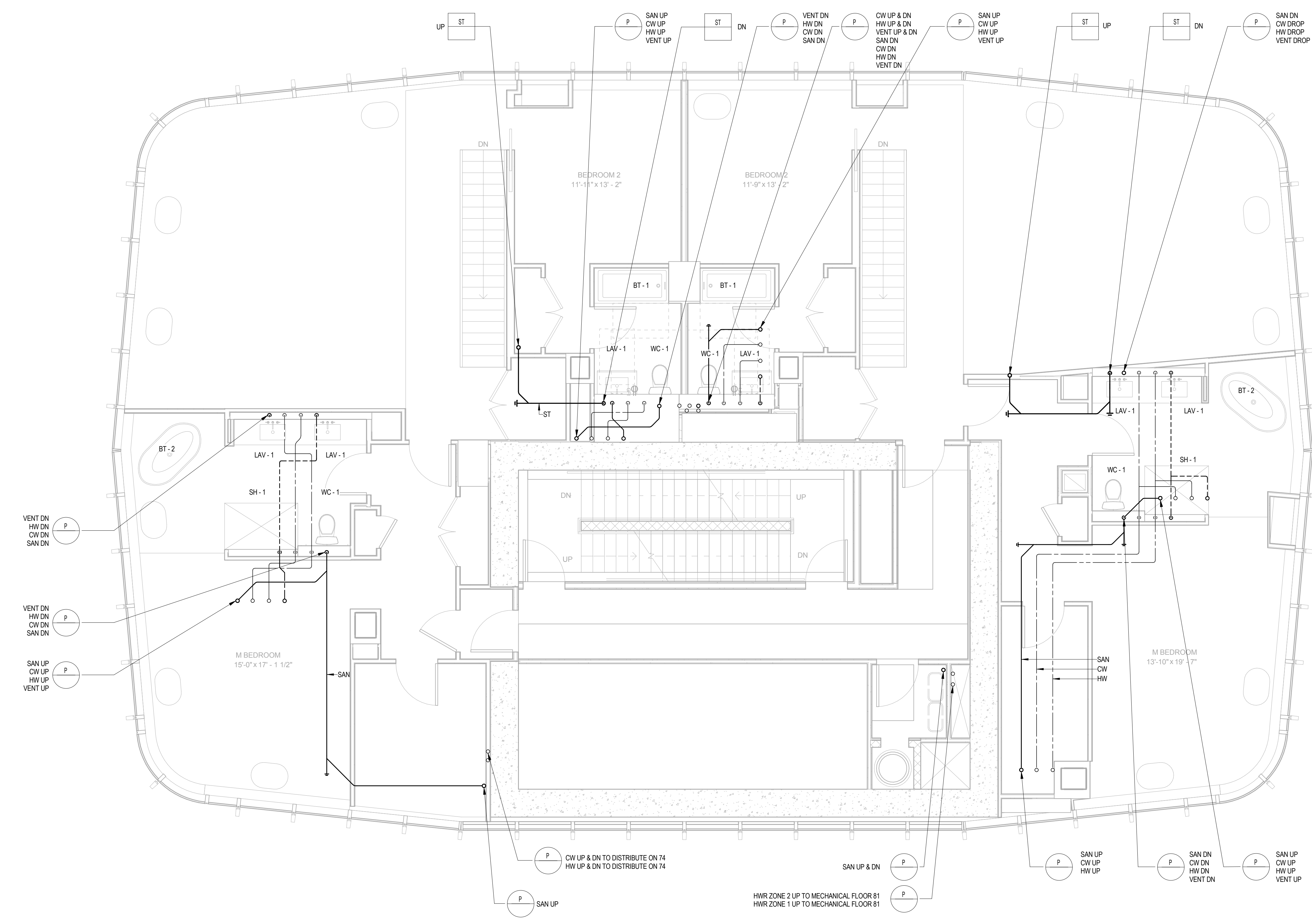
P-159.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
LANGAN 21 Penn Plaza 260 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025



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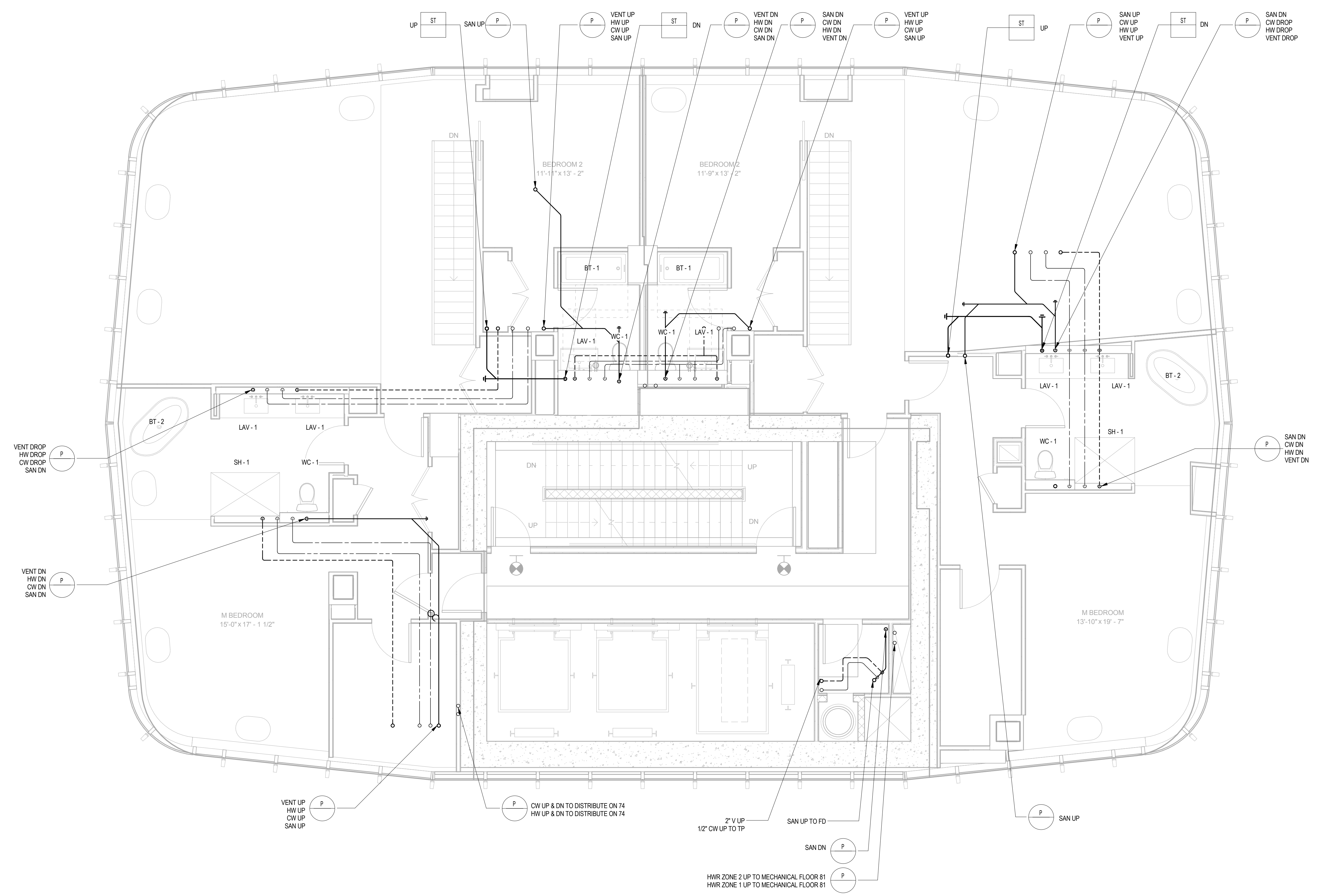
PLUMBING 60TH FLOOR PLAN - TIER 3 DUPLEX - UPPER

P-160.00

1/4" = 1'-0"

45 BROAD STREET NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10010
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
INTERIOR DESIGNER Vestresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	INTERIOR DESIGNER BaronHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 62ND FLOOR PLAN - TIER
3 DUPLEX TRANSFER

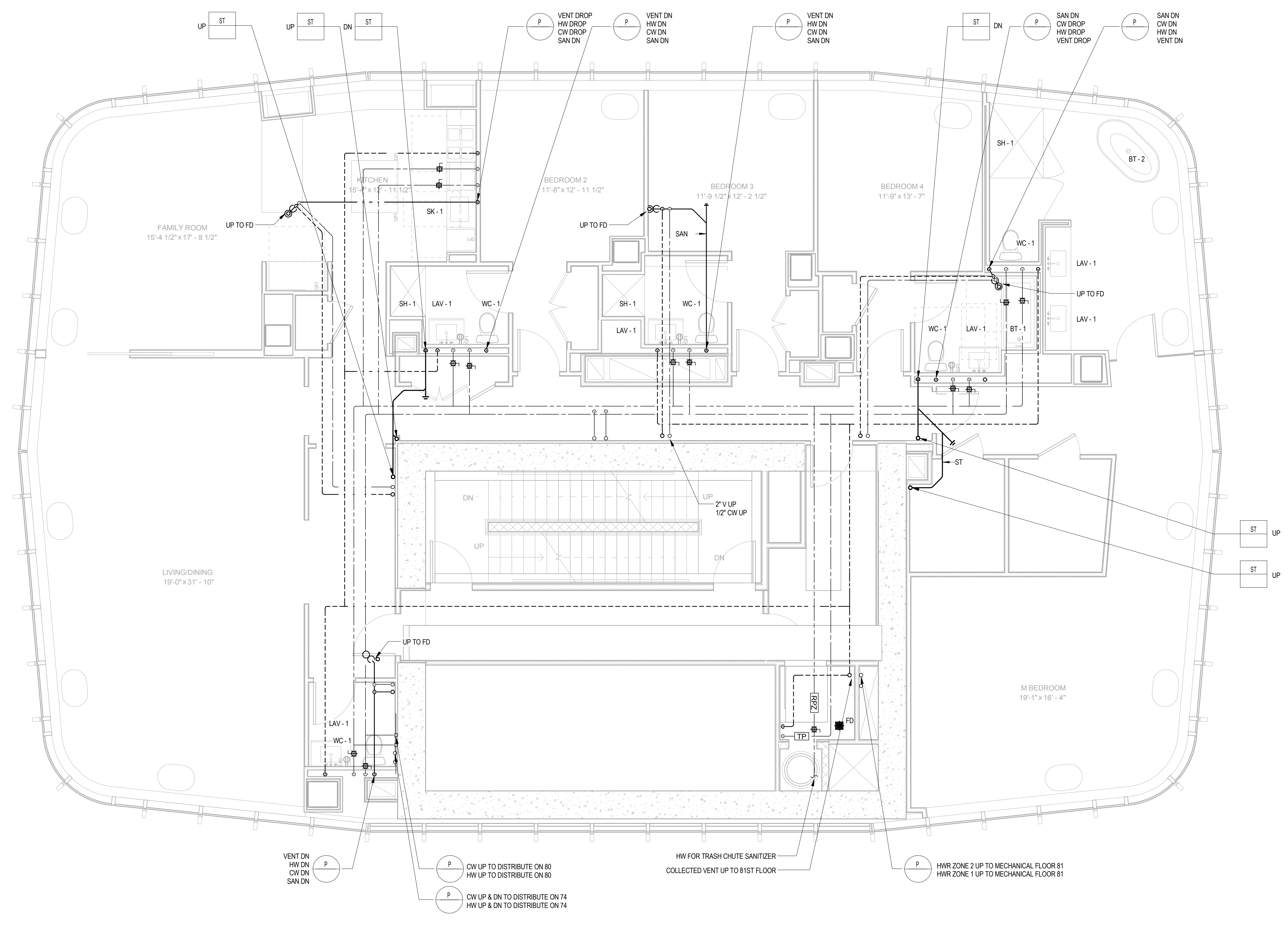
P-162.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



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2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



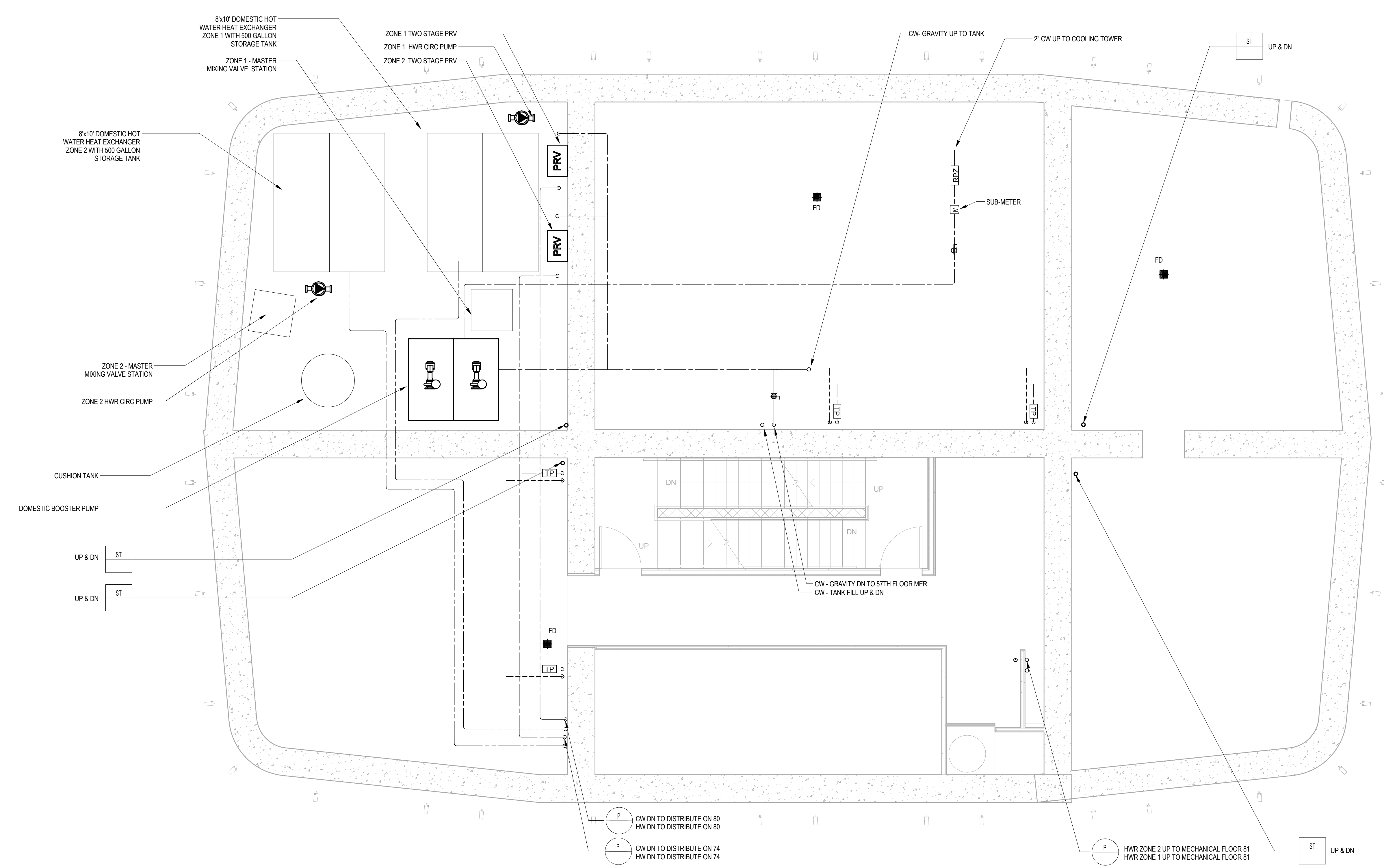
PLUMBING 63RD FLOOR PLAN - TIER 3 SIMPLEX

P-163.00

1/4" = 1'-0"

45 BROAD STREET NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018861 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9801	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.258.2625
LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.258.2625



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 64TH FLOOR PLAN - MECH

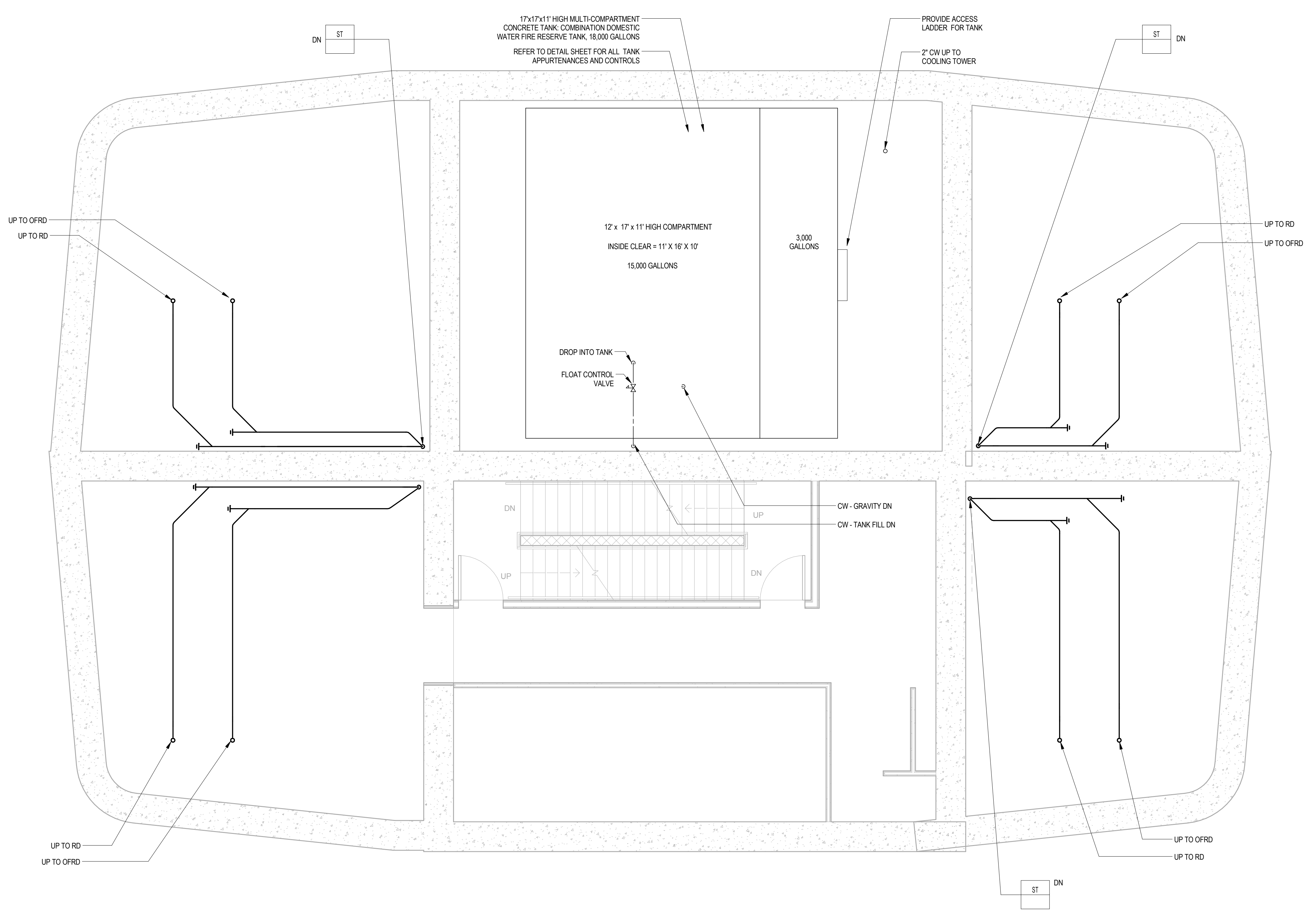
P-164.00

1/4" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BurdickEngineering 100 Broadway New York, NY 10005 212.334.2025
STRUCTURAL ENGINEER LANGAN 21 Penn Plaza 190 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	STRUCTURAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
GENERAL CONTRACTOR Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	GENERAL CONTRACTOR BurdickEngineering 100 Broadway New York, NY 10005 212.334.2025



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



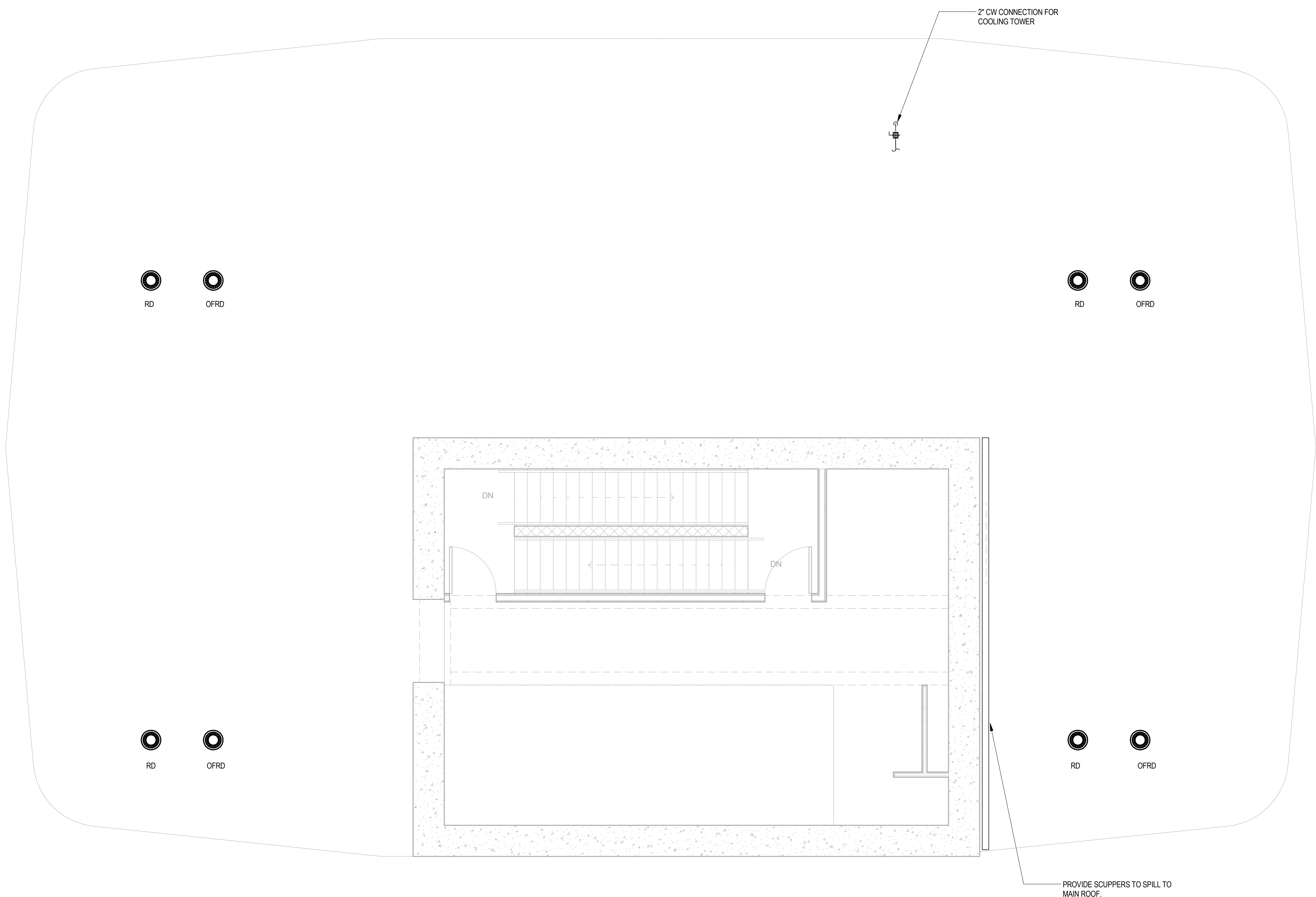
PLUMBING 64TH MEZZANINE FLOOR
PLAN - MECH

P-164M.00

1/4" = 1'-0"

45 BROAD STREET NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 104 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.258.2025
MECHANICAL ENGINEER LANGAN 21 Penn Plaza 190 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER BaroHappold Engineering 100 Broadway New York, NY 10005 212.258.2025



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING 65TH FLOOR PLAN - MASS DAMPER

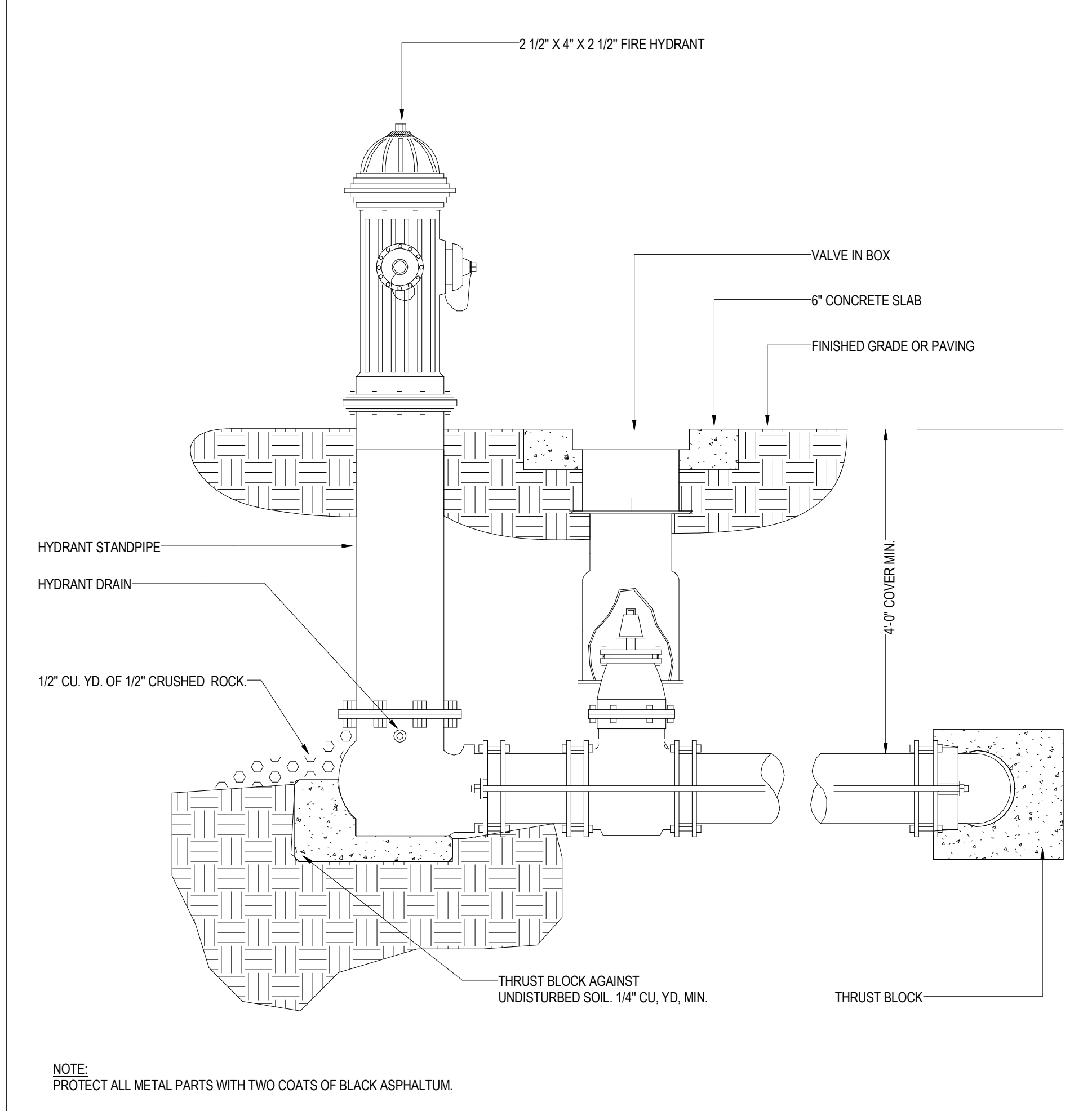
P-165.00

1/4" = 1'-0"

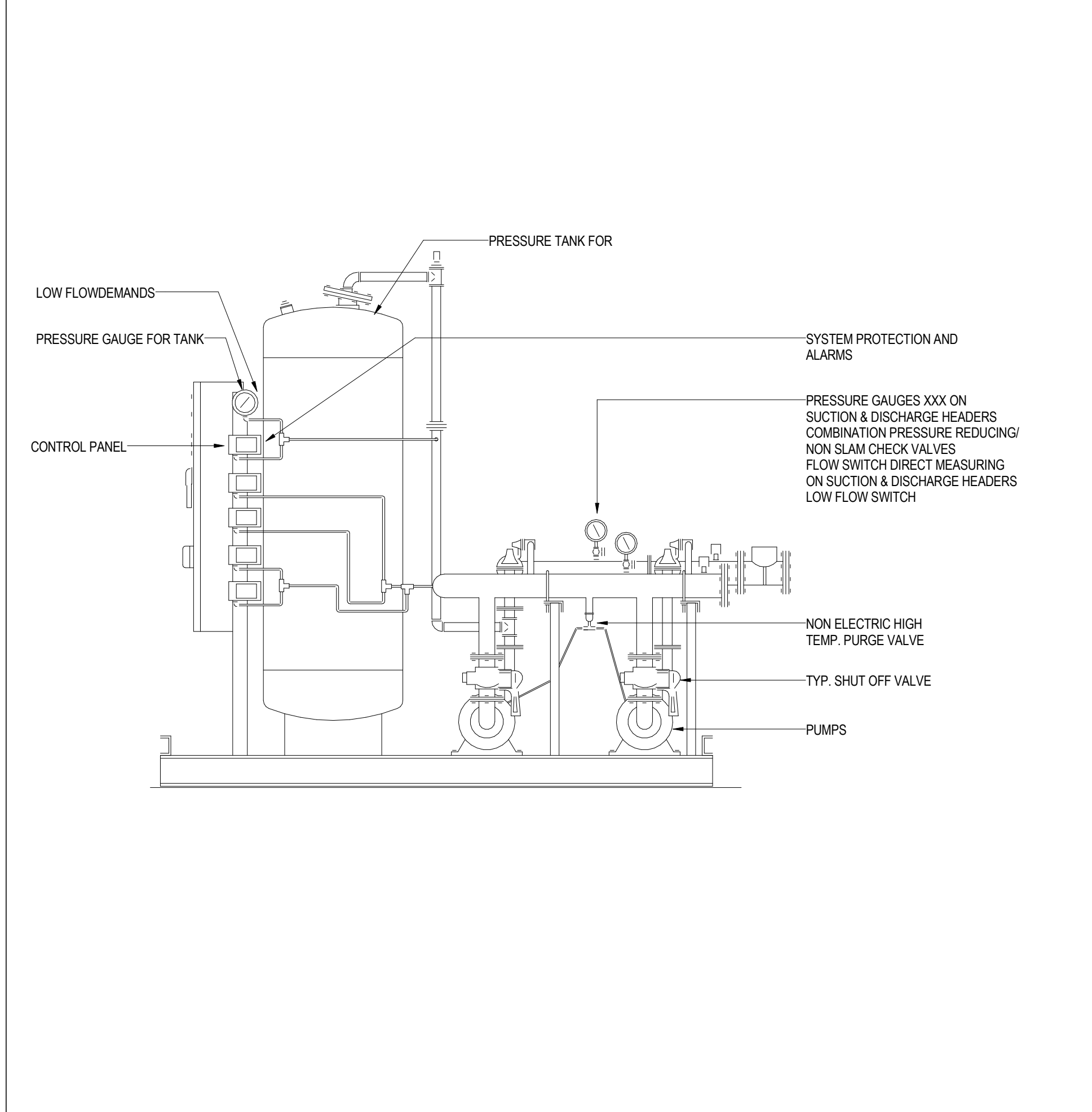
45 BROAD STREET

NEW YORK NY 10004

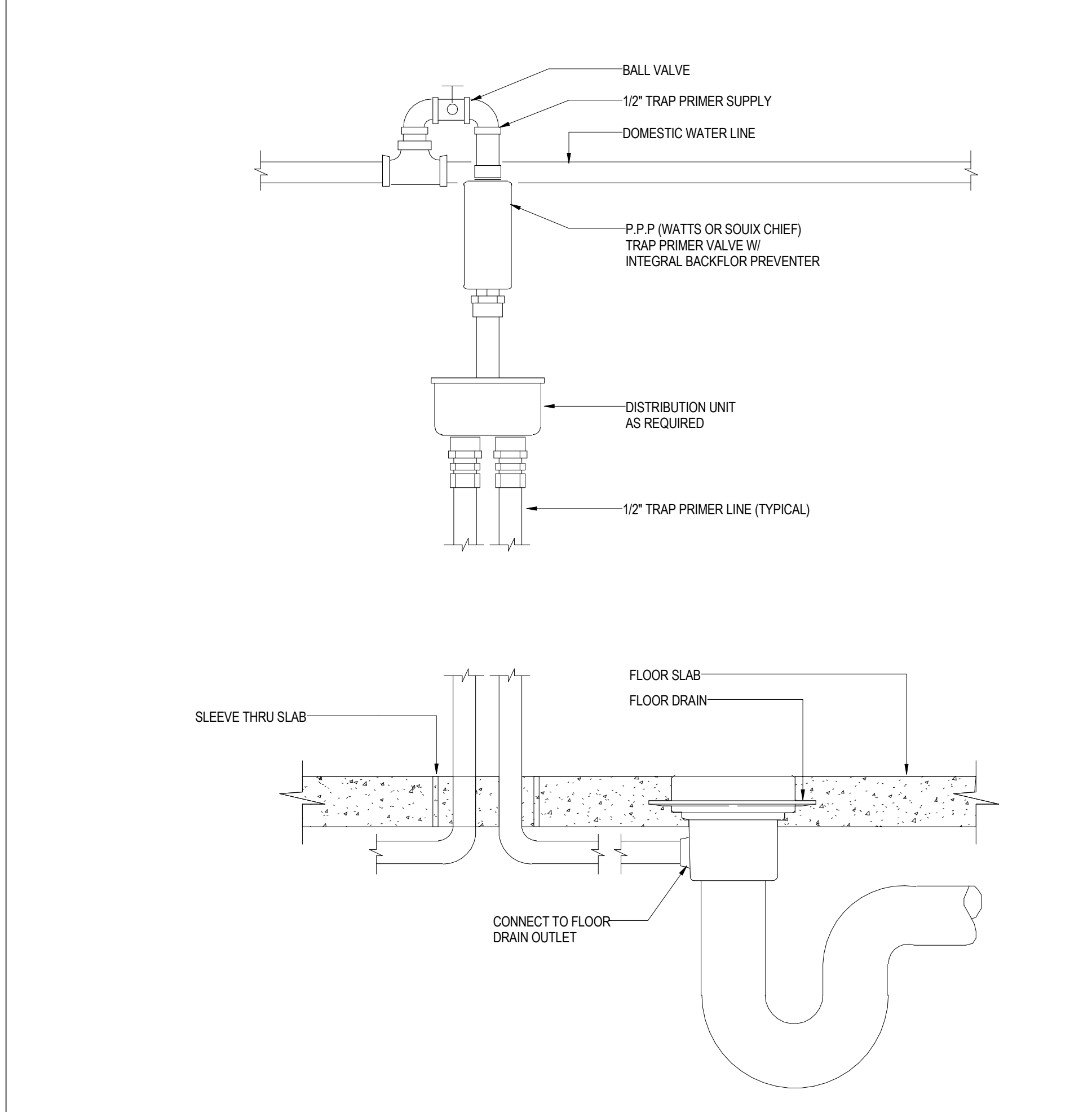
John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture PC 104 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 101 Broadway New York, NY 10005 212.334.2025
LANGAN 21 Penn Plaza 1200 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 101 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.334.2025



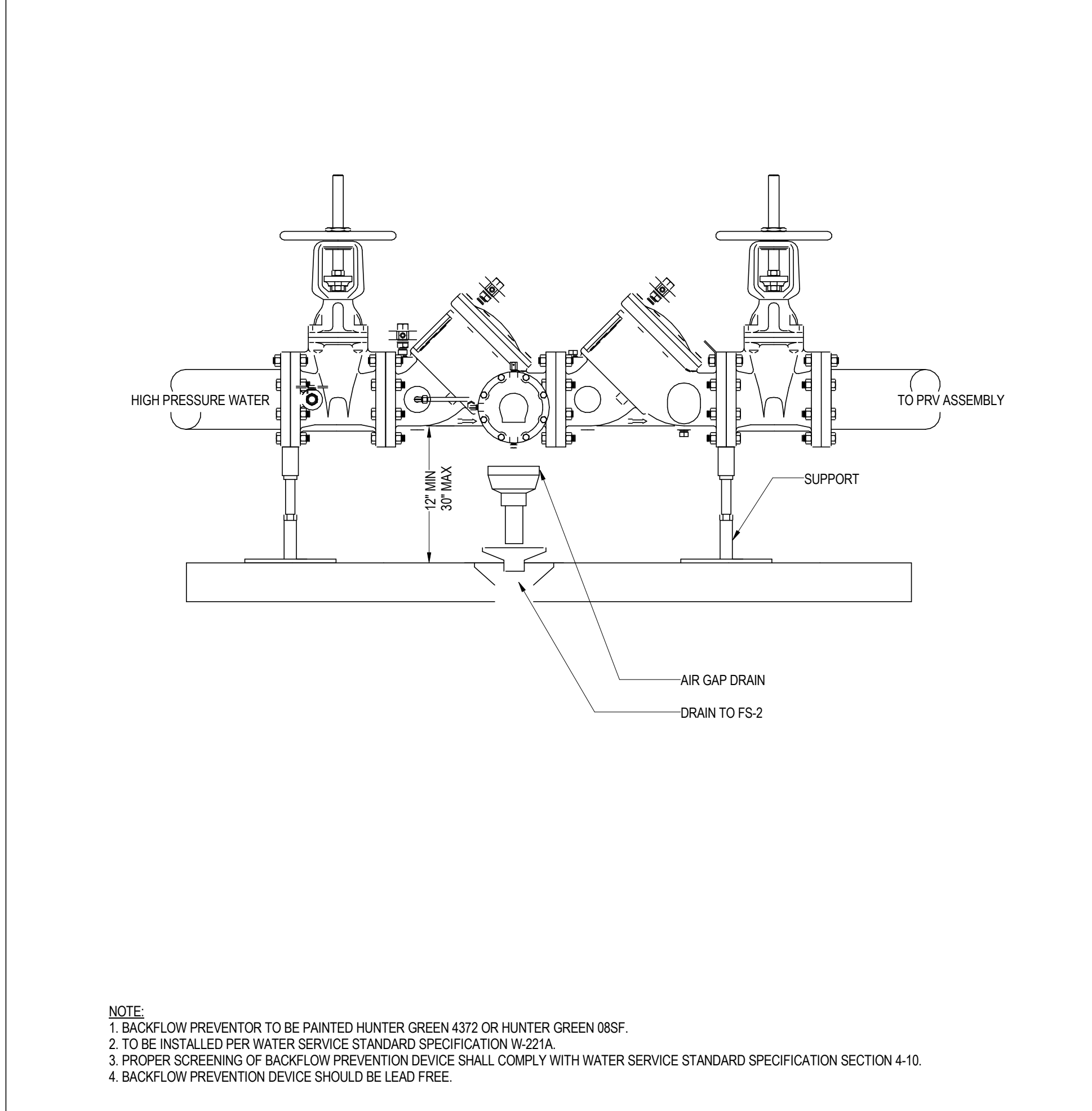
4 TYPICAL HYDRANT



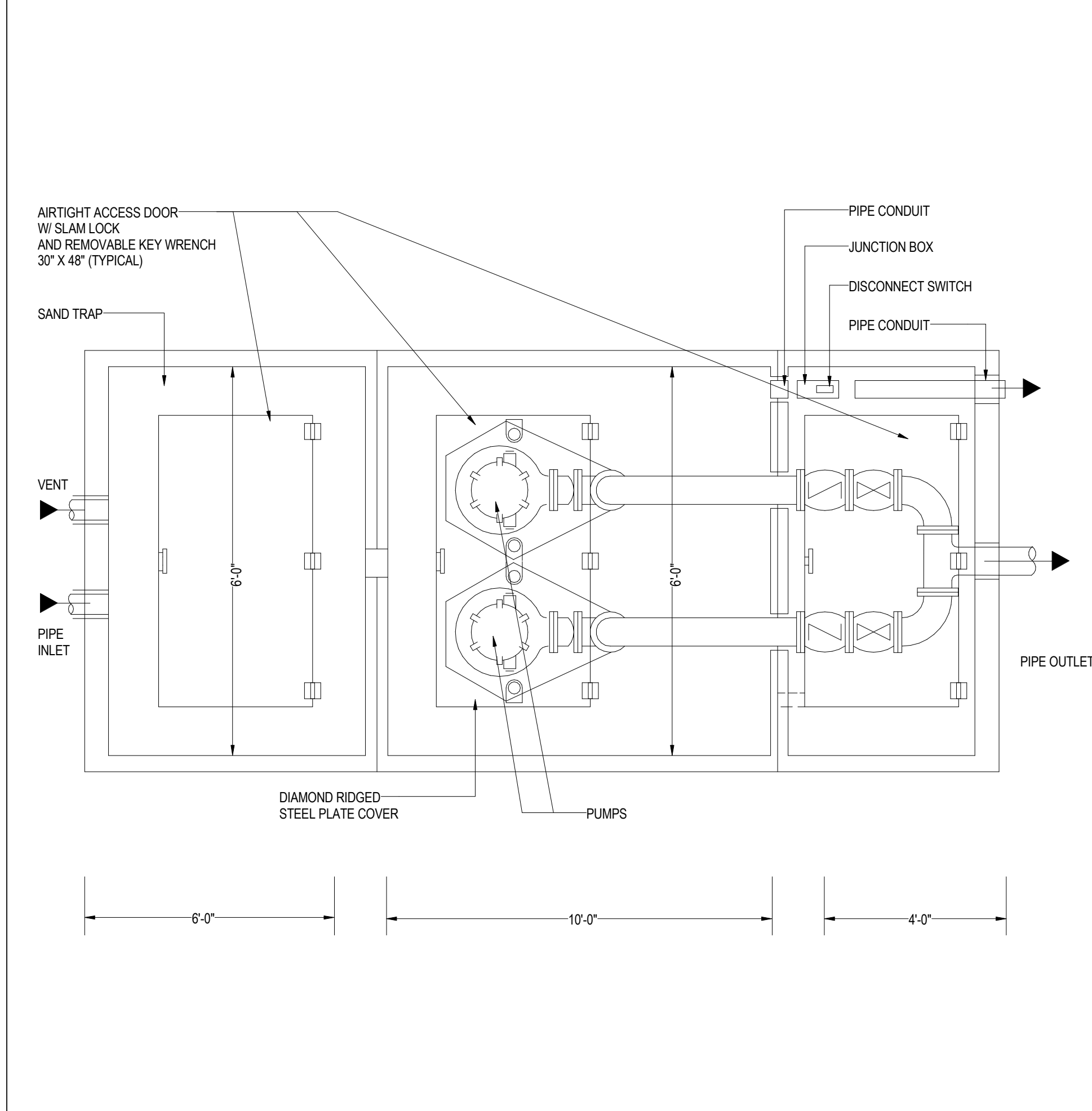
3 DOMESTIC WATER BOOSTER SYSTEM
NOT TO SCALE



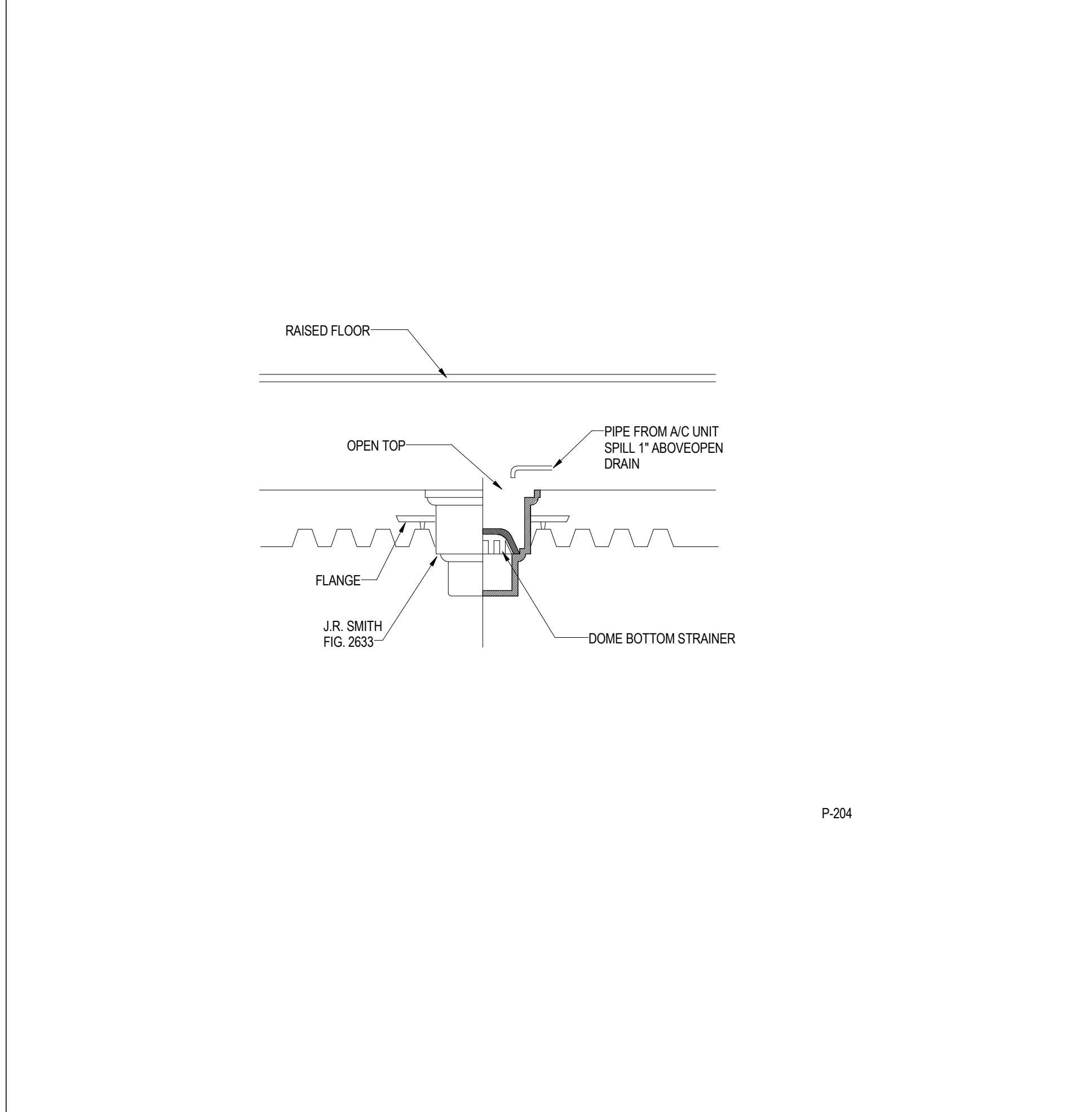
2 TRAP PRIMER FOR MECHANICAL ROOM DRAINS



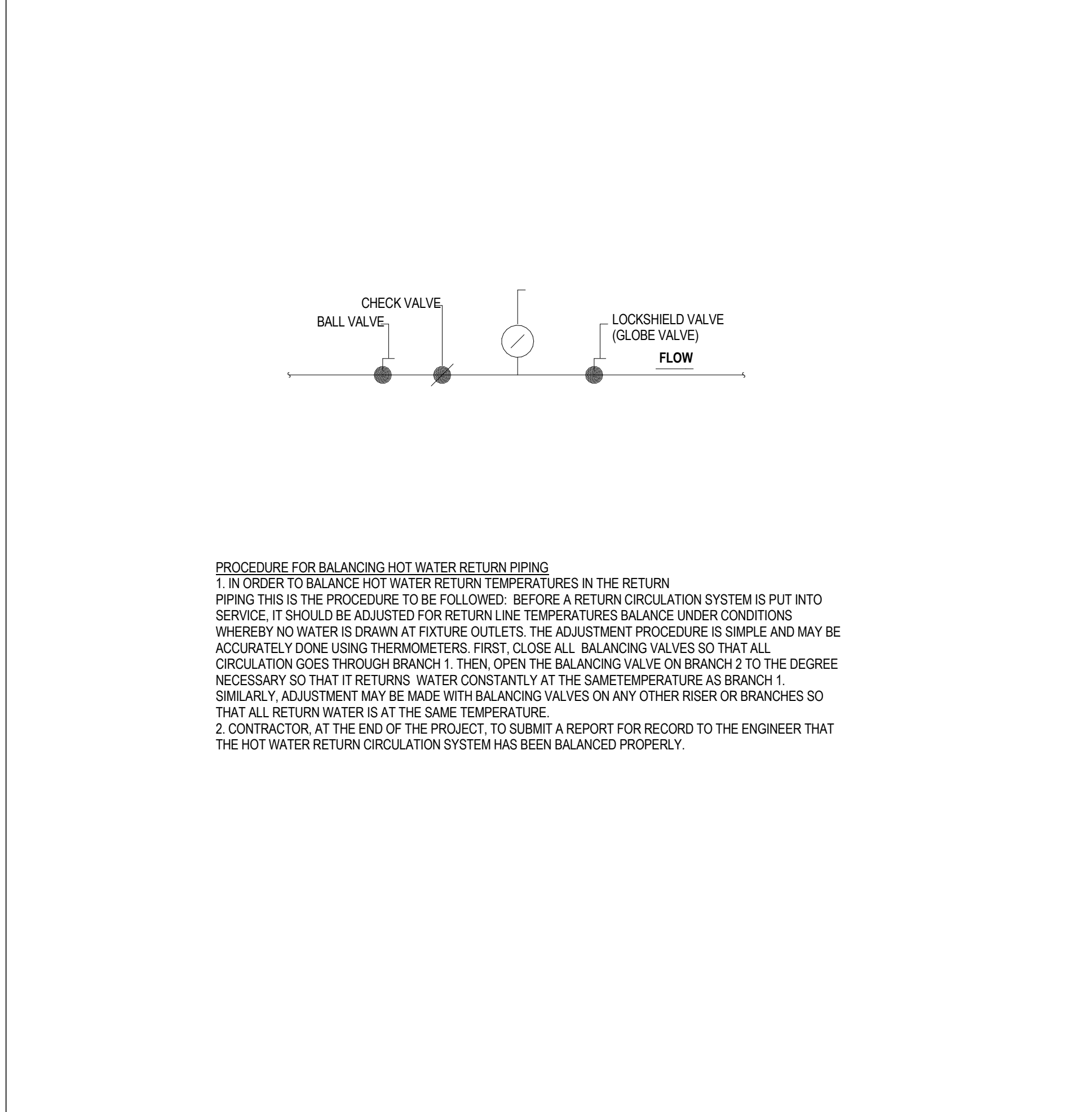
1 BACKFLOW PREVENTER



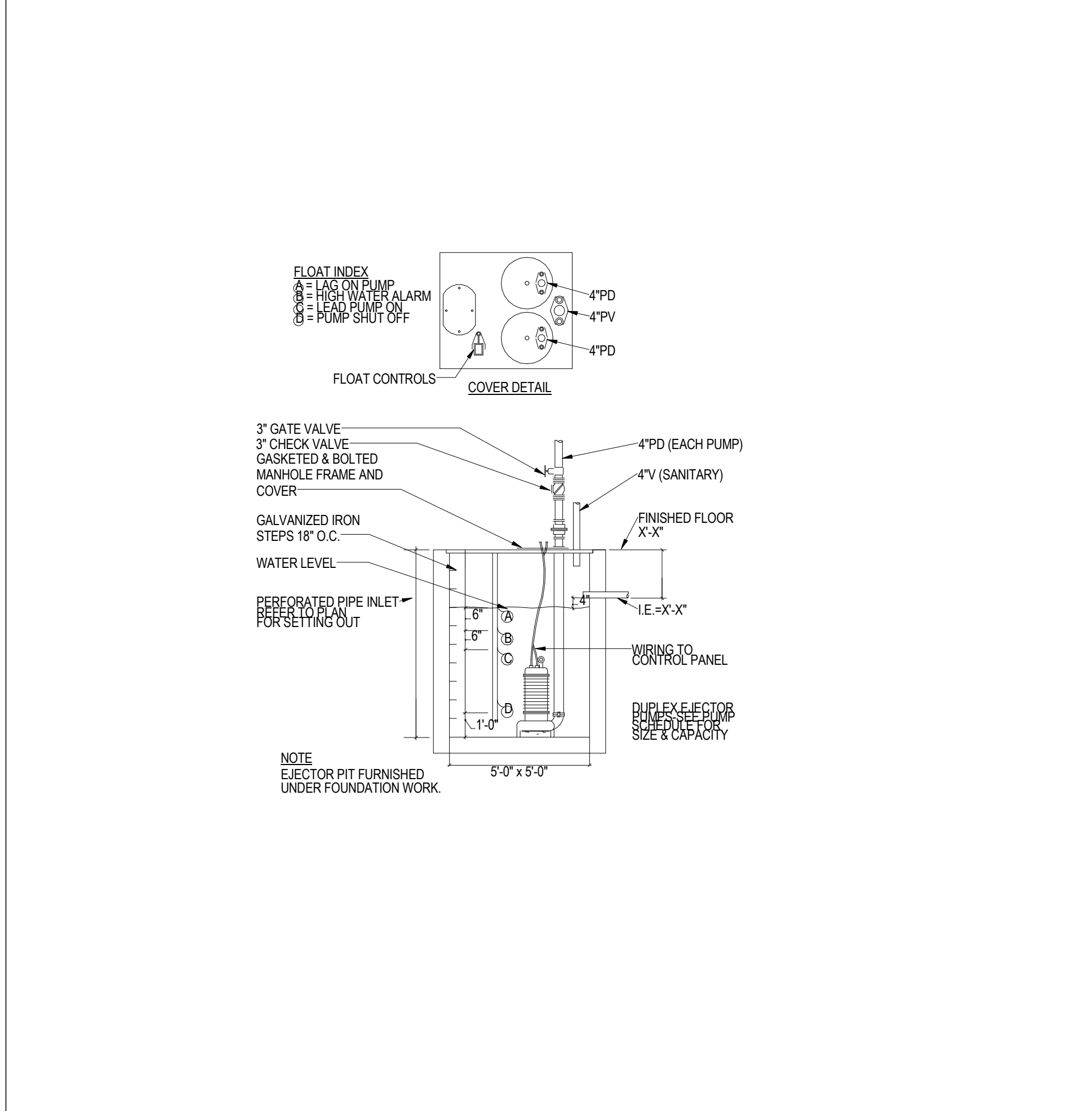
8 SUMP PUMP PIT WITH SAND TRAP DETAIL (PLAN)



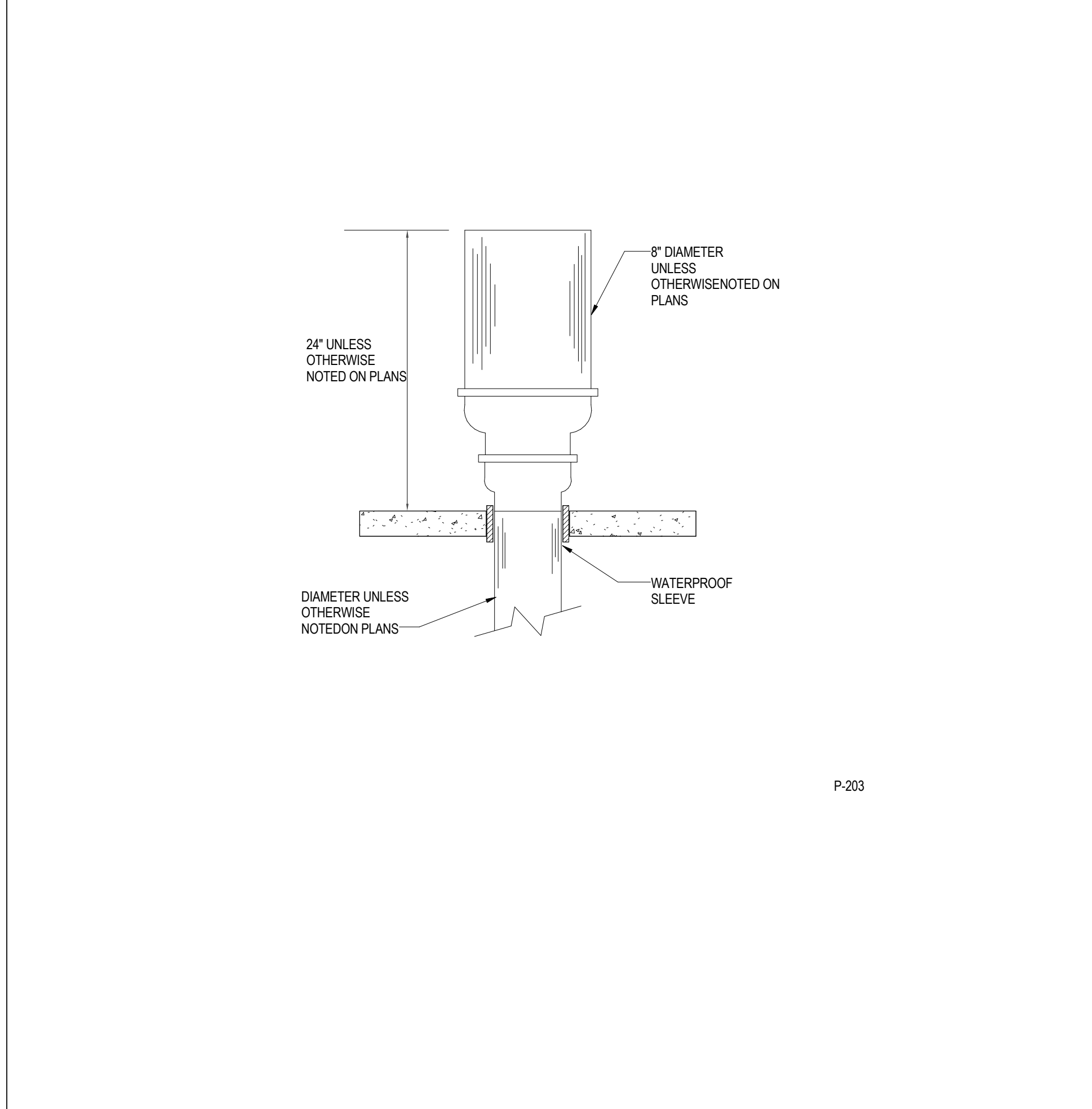
7 FLOOR DRAIN



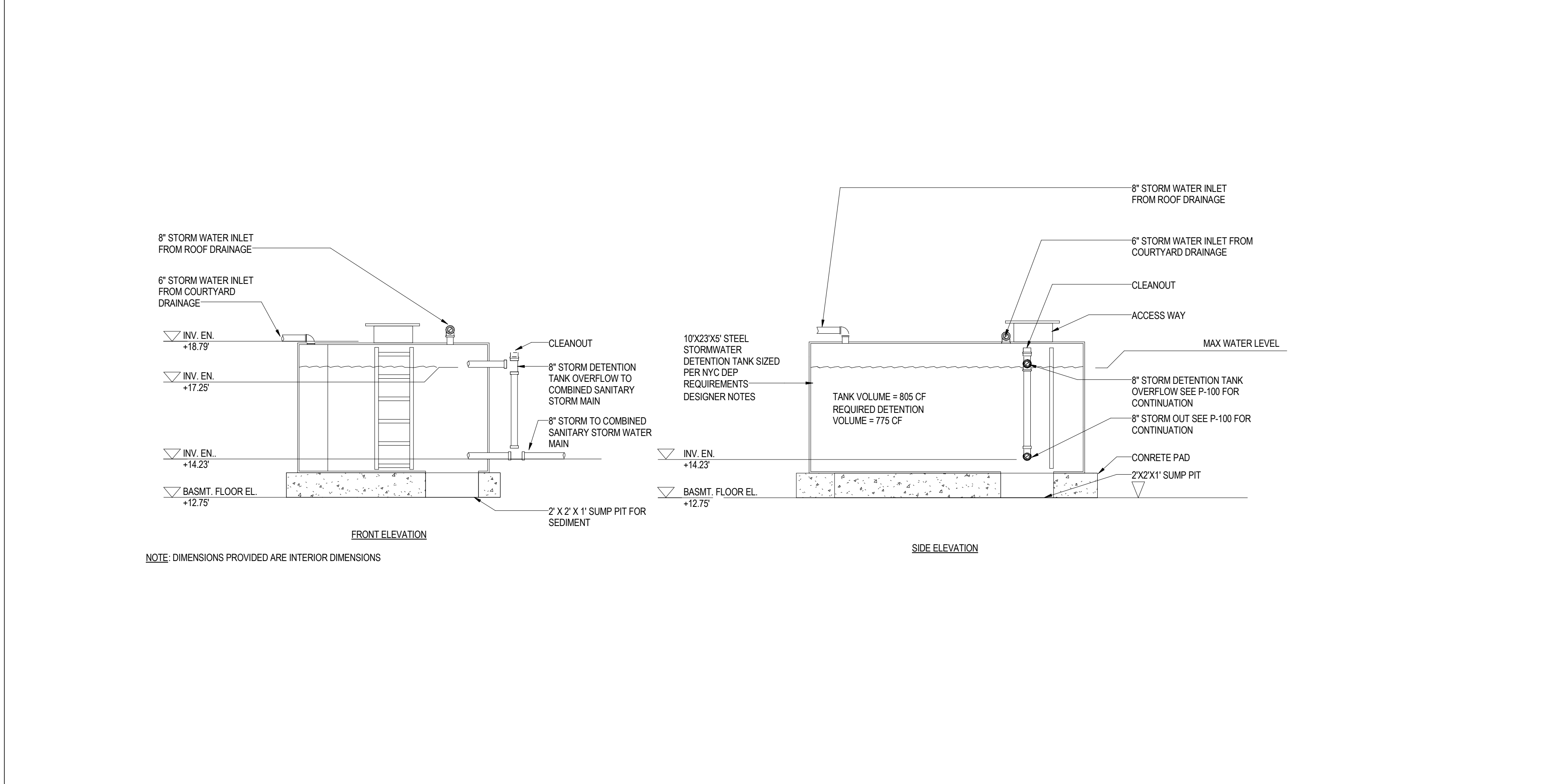
6 HOT WATER CIRCULATION LINE BALANCING VALVE



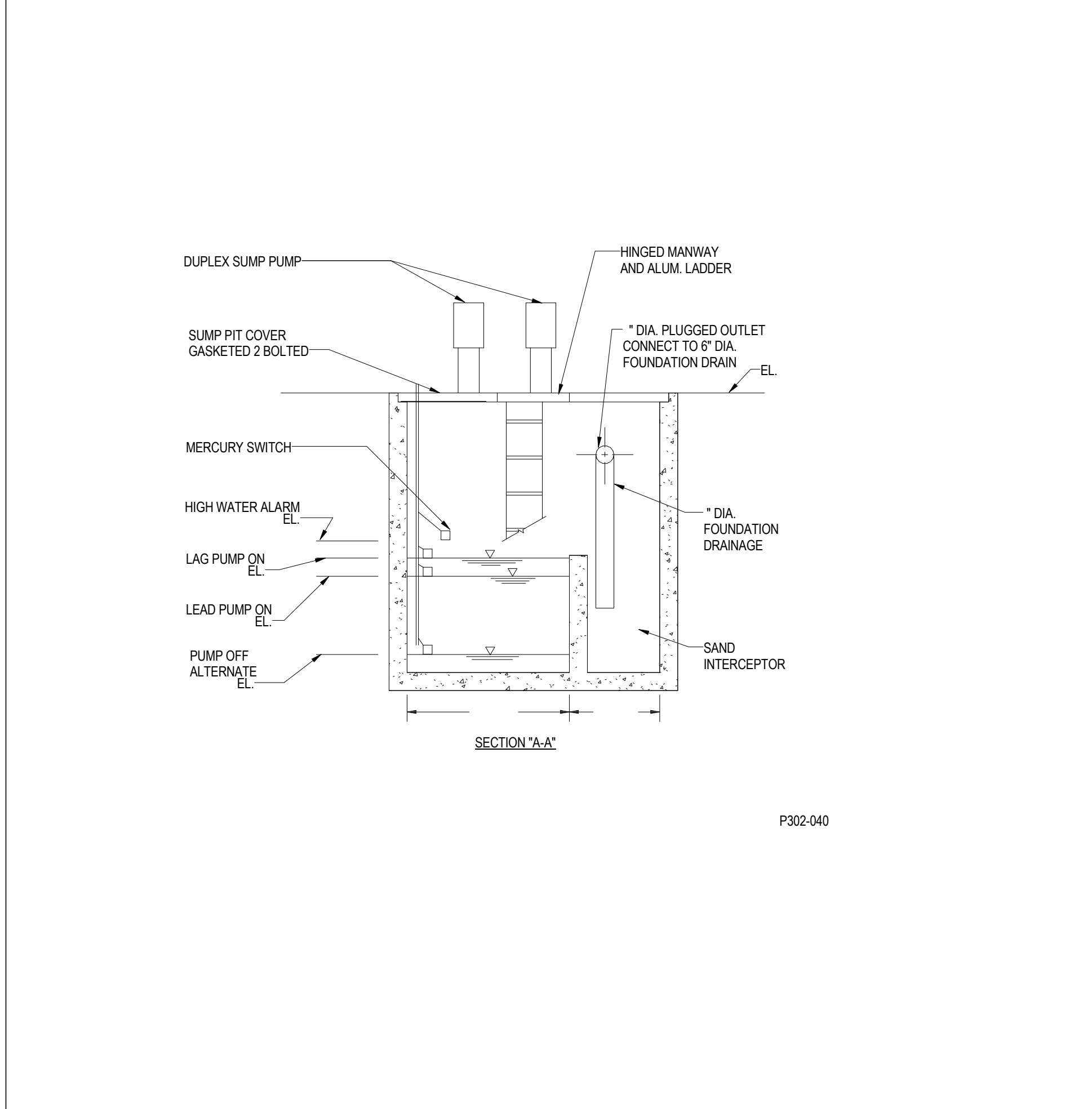
5 P_EQUIP_SEWAGE EJECTOR



11 STANDPIPE DRAIN



10 STORM WATER DETENTION TANK RT-1



9 SUMP PIT (ELEVATION)



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING DETAILS

P-500.00

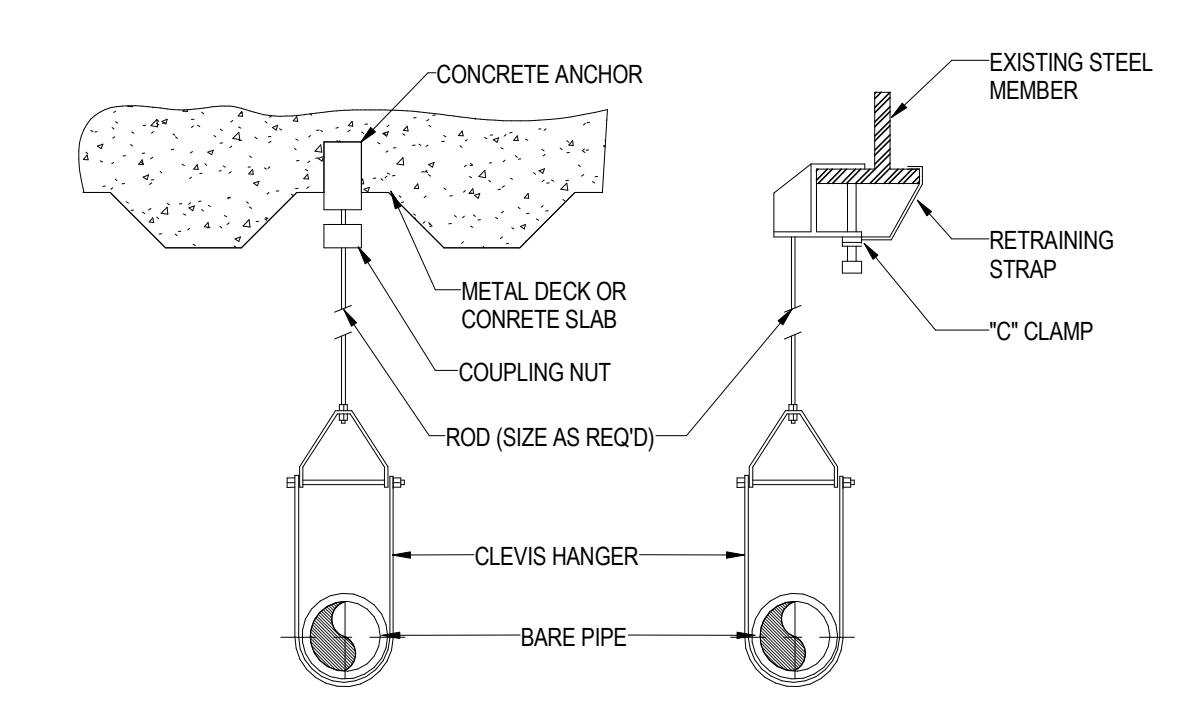
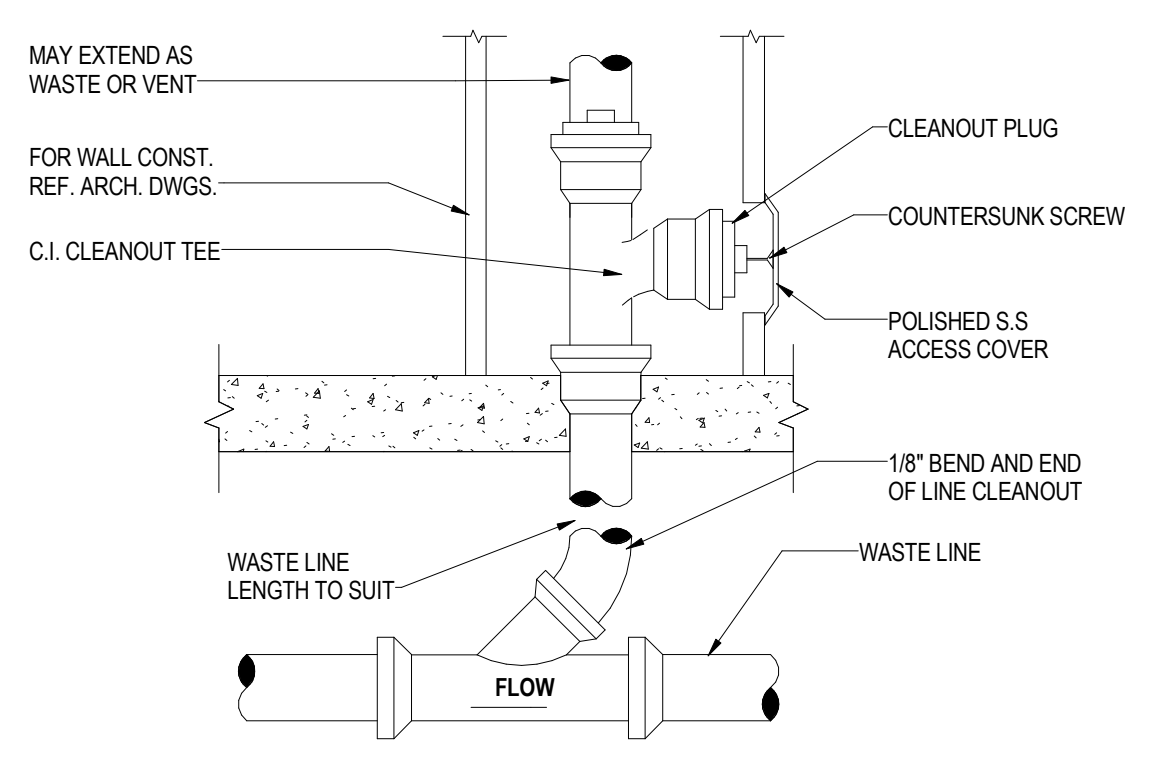
As indicated

CETRARUDDY ARCHITECTURE PC
 104 BROADWAY NEW YORK NY 10012 T 212 541 9001 F 212 541 9440
 WWW.CETRARUDDY.COM

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture PC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
LANGAN 21 Penn Plaza 1260 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0035	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025



NOTE:
 CLEVIS HANGERS REQUIRED ON PIPING LARGER THAN 1". GENERAL PURPOSE HANGERS MAY BE USED ON 1" PIPING ONLY.

2 WALL CLEANOUT - FINISHED ROOMS

1 TYPICAL HANGER



PRELIMINARY - NOT FOR CONSTRUCTION

2016.04.22 ISSUED FOR DESIGN DEVELOPMENT



PLUMBING DETAILS

P-501.00

6" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 104 Broadway Suite 401 New York, NY 10012 212.541.0001	Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
LANGAN 21 Penn Plaza 100 West 31st Street, 8th Fl New York, NY 10001 212.477.6500	MPPF LLC / M. Paul Friedberg & Partners 120 Broadway, Floor 20 New York, NY 10005 212.477.6566
Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0035	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025

PUMP IDENTIFICATION & DESIGNATION	QUANTITY	LOCATION	RATED FLOWRATE (GPM)	BOOST (IN. H2O)	MANUFACTURER MODEL NUMBER	ELECTRICAL REQUIREMENTS			REMARKS
						POWER	VOLTAGE [V]	PHASE [Φ]	
GB-1 - MECHANICAL GAS BOOSTER PUMP	1	CELLAR 1 GAS METER ROOM	2500	6	COMPA HBLCS16-34	34 HP	208	1	PROVIDE NEMA 4 CONTROL PANEL, LOW VOLTAGE CONTROL, NO UPS REQUIRED

PUMP IDENTIFICATION & DESIGNATION	QUANTITY	LOCATION	FLOWRATE (GPM)	T.D.H. (FT)	MANUFACTURER MODEL NUMBER	SPEED (RPM)	ELECTRICAL REQUIREMENTS			REMARKS
							POWER	VOLTAGE [V]	PHASE [Φ]	
HMB-9 - ZONE 9 HWR PUMP	1	2ND FLOOR MER			ARMSTRONG ARMFLO E-SERIES		208	1	PROVIDE CONTROL PANEL, AQUASTAT, AND TIME CLOCK	
HMB-18 - ZONE 7 & 8 HWR PUMP	1	12TH FLOOR MER			ARMSTRONG ARMFLO E-SERIES		208	1	PROVIDE CONTROL PANEL, AQUASTAT, AND TIME CLOCK	
HMB-36 - ZONE 5 & 6 HWR PUMP	1	39TH FLOOR MER			ARMSTRONG ARMFLO E-SERIES		208	1	PROVIDE CONTROL PANEL, AQUASTAT, AND TIME CLOCK	
HMB-34 - ZONE 3 & 4 HWR PUMP	1	5TH FLOOR MER			ARMSTRONG ARMFLO E-SERIES		208	1	PROVIDE CONTROL PANEL, AQUASTAT, AND TIME CLOCK	
HMB-12 HWR PUMP	1	81ST FLOOR MER			ARMSTRONG ARMFLO E-SERIES		208	1	PROVIDE CONTROL PANEL, AQUASTAT, AND TIME CLOCK	

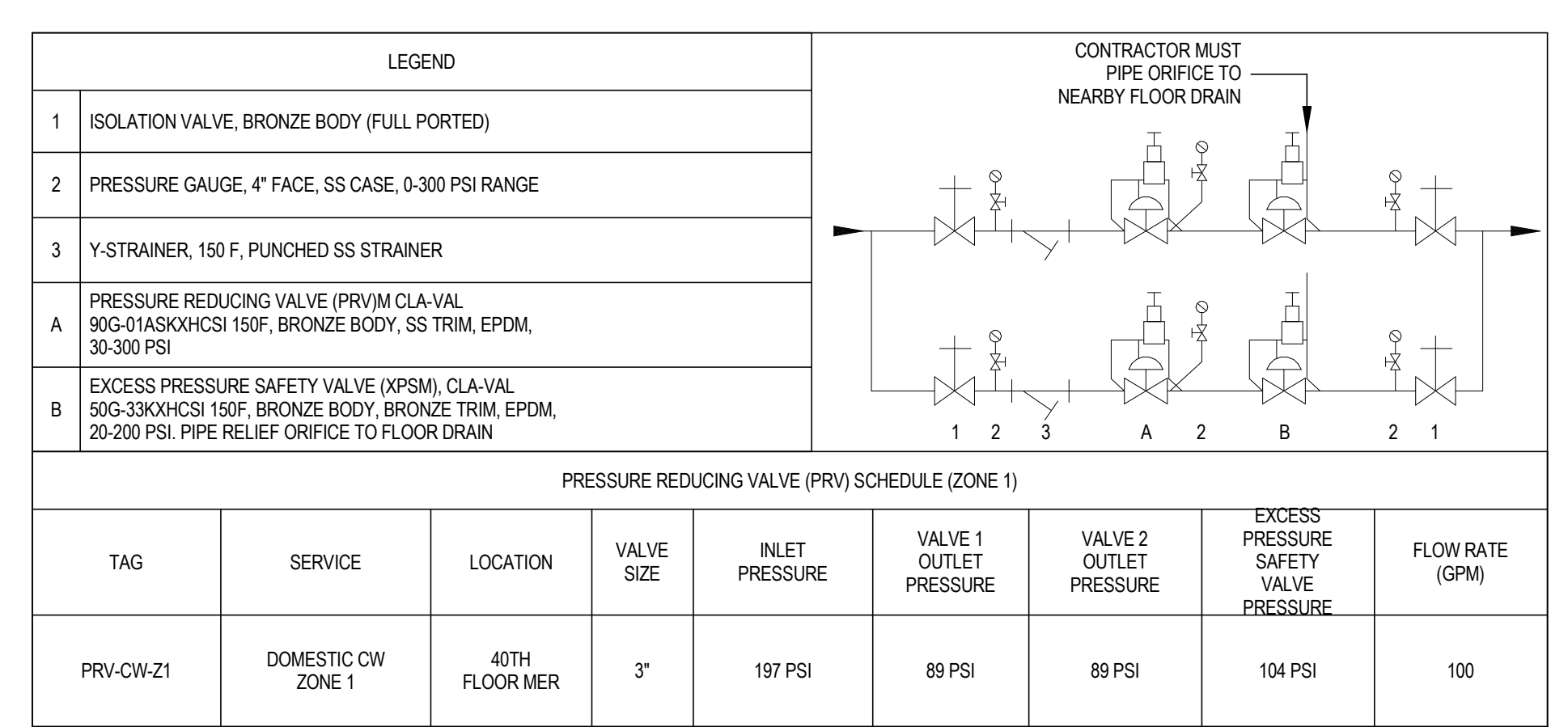
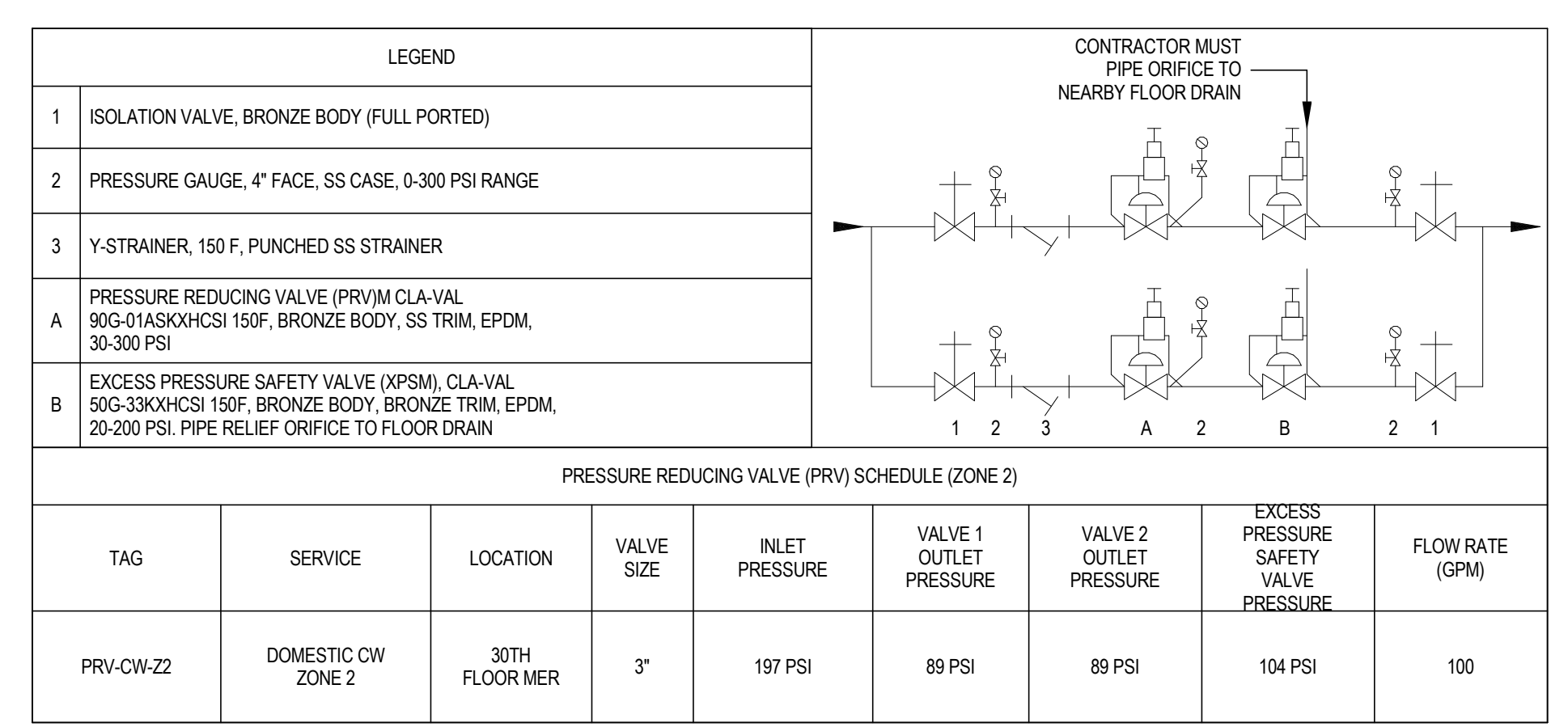
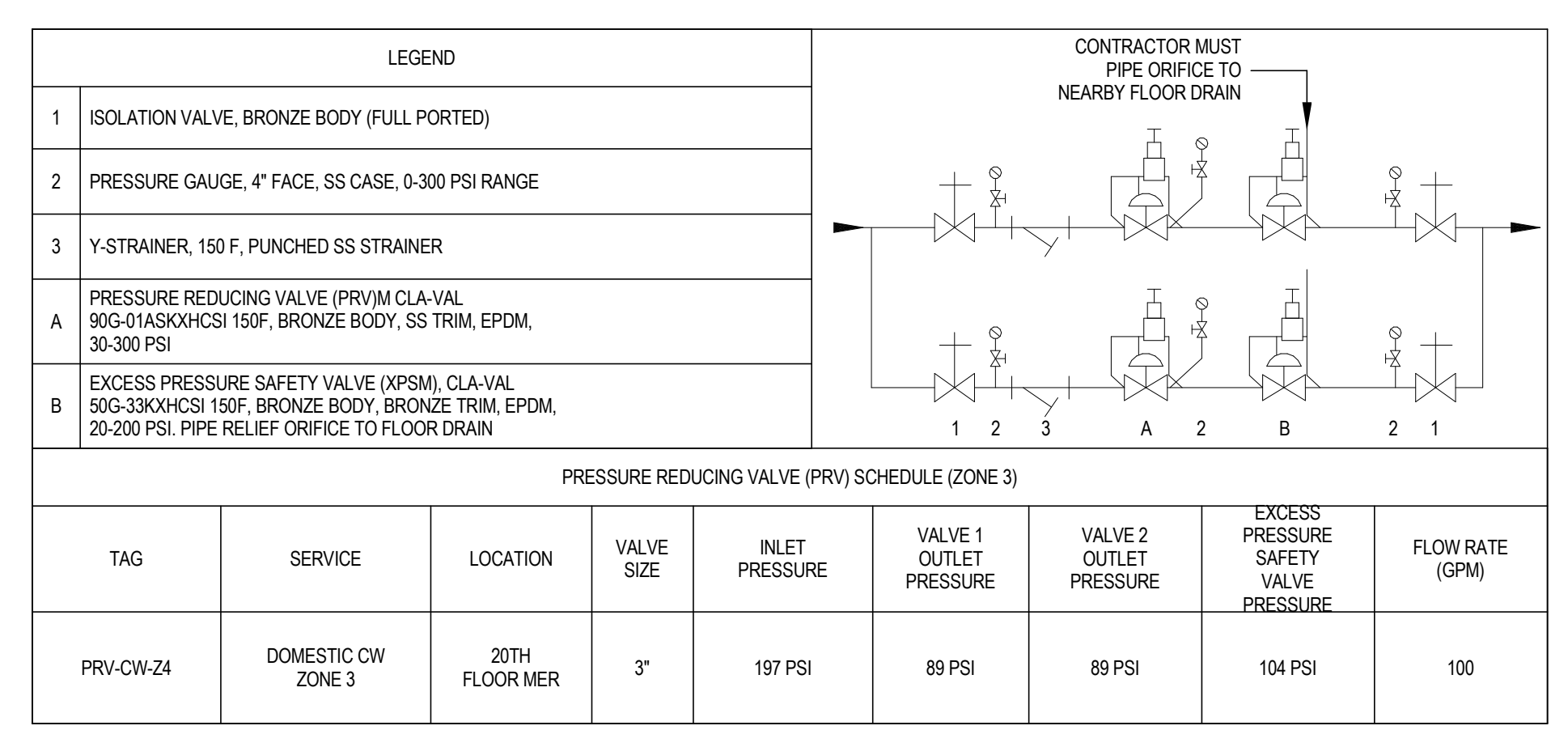
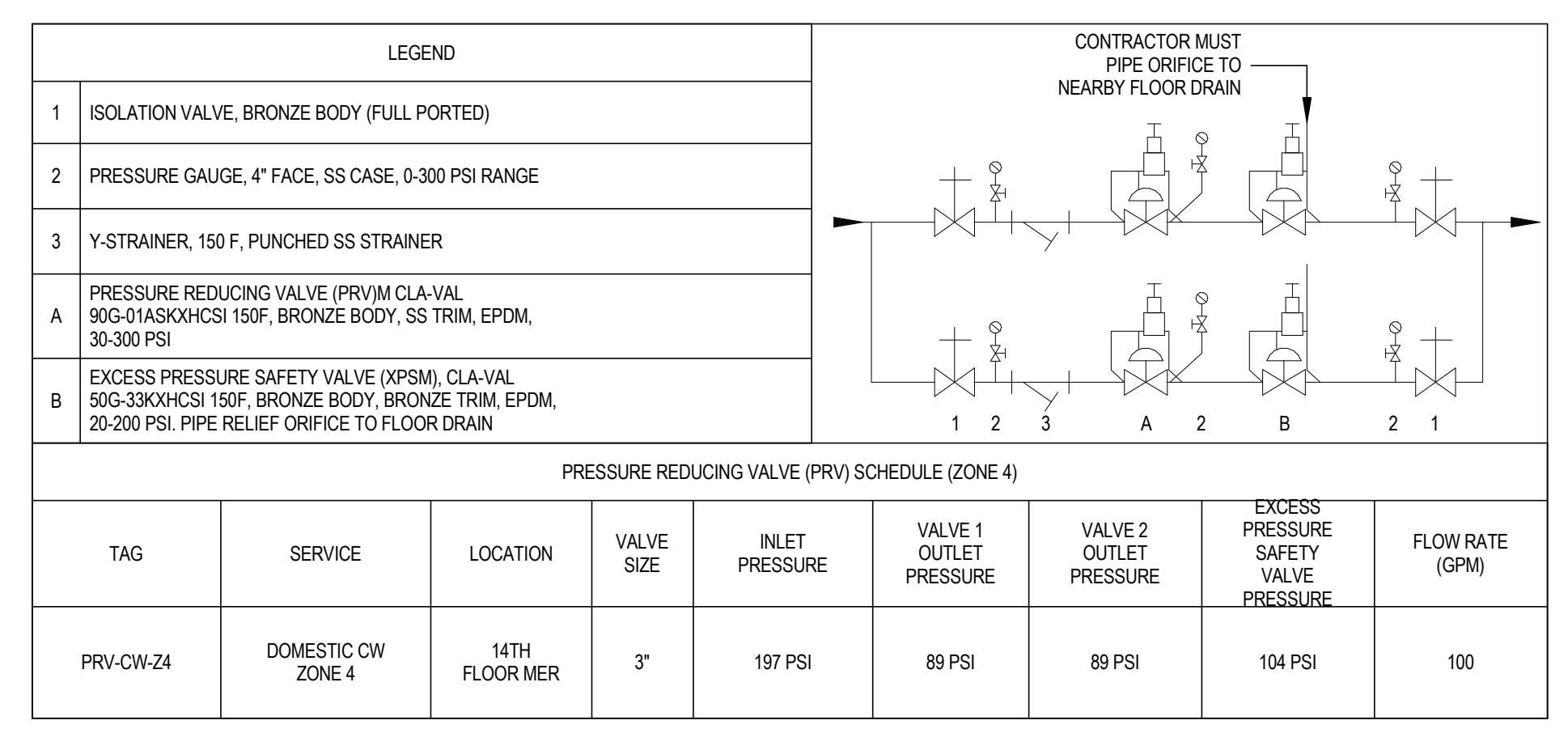
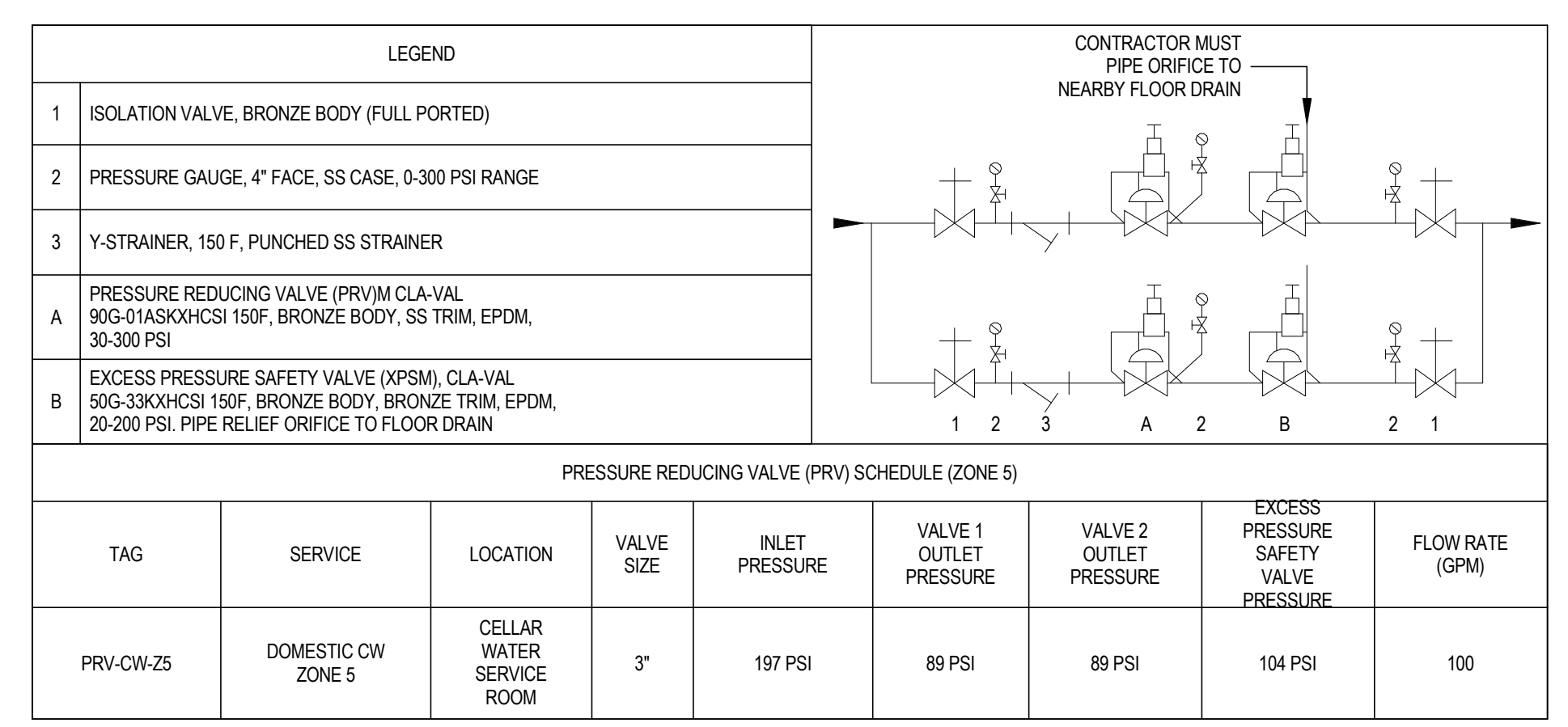
PUMP IDENTIFICATION & DESIGNATION	QUANTITY	LOCATION	FLOWRATE (GPM) PER PUMP	T.D.H. (FT)	MANUFACTURER MODEL NUMBER	SPEED (RPM)	ELECTRICAL REQUIREMENTS			REMARKS
							POWER	VOLTAGE [V]	PHASE [Φ]	
DB-4 - DUPLEX BOOSTER PUMPS	1	2ND FLOOR MER	233	633	CANARIS MODEL#	3550	50 HP	208	3	RATINGS ARE FOR EACH PUMP. FURNISH EXPANSION TANK ON CELLAR LEVEL. PUMPS ARE 50/50/50 (496 TOTAL GPM)
DB-3 - DUPLEX TANK FILL PUMPS	1	39TH FLOOR MER	75	42	WEL PUMP MODEL#1413	1750	10 HP	208	3	RATINGS ARE FOR EACH PUMP. FURNISH EXPANSION TANK. PUMPS ARE 50/50 - TANK FILL FOR ZND FL
DB-2 - DUPLEX TANK FILL PUMPS	1	5TH FLOOR MER	75	42	WEL PUMP MODEL#1413	1750	10 HP	208	3	RATINGS ARE FOR EACH PUMP. FURNISH EXPANSION TANK. PUMPS ARE 50/50 - TANK FILL FOR 812
DB-1 - DUPLEX BOOSTER PUMPS	1	81ST FLOOR	75	42	WEL PUMP MODEL#1413	1750	10 HP	208	3	RATINGS ARE FOR EACH PUMP. FURNISH EXPANSION TANK. PUMPS ARE 50/50
SE-1 - DUPLEX SEWAGE EJECTOR PUMP	1	CELLAR 3	175	43	FLYGT NP10T0M260W10	1720	5 HP	208	3	FURNISH FLOATS, CONTROL PANEL, HIGH WATER ALARM, & FIBERGLASS BASIN
SP-1 - DUPLEX SLUMP PUMP	1	CELLAR 3	75	42	FLYGT DP3027MP232	3230	3.8 HP	208	3	FURNISH FLOATS, CONTROL PANEL, HIGH WATER ALARM, & FIBERGLASS BASIN
SP-2,3,4,5 - TRACTION ELEVATOR SLUMP PUMP	4	CELLAR 3 ELEVATOR PITS	50	38	WEL PUMP MODEL#1413	1750	1-1/2 HP	208	3	FURNISH CONTROL PANEL & HIGH WATER ALARM
SP-6 - HYDRAULIC ELEVATOR SLUMP PUMP	1	CELLAR 3 ELEVATOR PITS	50	38	WEL PUMP MODEL#1413	1750	1-1/2 HP	208	3	FURNISH OIL-SMART CONTROL PANEL & HIGH WATER ALARM

PUMP IDENTIFICATION & DESIGNATION	QTY.	LOCATION	MANUFACTURER MODEL NUMBER	NOMINAL CAPACITY (MBH)	MINIMUM NET OUTPUT (GPM)	TEMPERATURE [°F]	MAXIMUM WORKING PRESSURE (PSIG)	HEATING WATER TEMPERATURE (°F)	COOLING WATER TEMPERATURE (°F)	MAXIMUM WORKING PRESSURE (PSIG)	ELECTRICAL REQUIREMENTS	L/W/H (IN)	WEIGHT (LBS)	REMARKS		
															POWER [KW]	VOLTAGE [V]
DMHX-10 - ZONE 9 HOT WATER HEAT EXCHANGER	1	2ND FLOOR MER	AESCOPPS DHWG-DW-HX	3520	3300	40-120	150	130-90	110	150	15	120	1	724860	2800	DOUBLE WALL PLATE HEAT EXCHANGER. INTEGRATE CONTROL PANEL FOR SETPOINTS AND ALARMS. MIXING VALVE SENSOR FIELD INSTALLED.
DMHX-18 EXCHANGER	1	12TH FLOOR MER	AESCOPPS DHWG-DW-HX	4160	3900	40-120	150	130-90	130	150	15	120	1	724860	2800	DOUBLE WALL PLATE HEAT EXCHANGER. INTEGRATE CONTROL PANEL FOR SETPOINTS AND ALARMS. MIXING VALVE SENSOR FIELD INSTALLED.
DMHX-36 EXCHANGER	1	39TH FLOOR MER	AESCOPPS DHWG-DW-HX	3584	3360	40-120	150	130-90	112	150	15	120	1	724860	2800	DOUBLE WALL PLATE HEAT EXCHANGER. INTEGRATE CONTROL PANEL FOR SETPOINTS AND ALARMS. MIXING VALVE SENSOR FIELD INSTALLED.
DMHX-34 EXCHANGER	1	5TH FLOOR MER	AESCOPPS DHWG-DW-HX	2000	3000	40-120	150	130-90	100	150	15	120	1	724860	2800	DOUBLE WALL PLATE HEAT EXCHANGER. INTEGRATE CONTROL PANEL FOR SETPOINTS AND ALARMS. MIXING VALVE SENSOR FIELD INSTALLED.
DMHX-12 EXCHANGER	1	81ST FLOOR MER	AESCOPPS DHWG-DW-HX	2000	3000	40-120	150	130-90	100	150	15	120	1	724860	2800	DOUBLE WALL PLATE HEAT EXCHANGER. INTEGRATE CONTROL PANEL FOR SETPOINTS AND ALARMS. MIXING VALVE SENSOR FIELD INSTALLED.

DESIGNATION	SERVICE	LOCATION	QUANTITY	SYSTEM GALLONS (REQUIRED)	CW TEMP (°F)	HW TEMP (°F)	PRESSURE DROP (PSIG)	APPROX. SHIPPING WEIGHT (LBS)	MANUFACTURER & MODEL NO
TMV-9	ZONE 9 DOMESTIC HOT WATER	2ND FLOOR MER	1	80	140	120	2	-	ARMSTRONG BRAIN MODEL DMC-80
TMV-18	ZONE 7 & 8 DOMESTIC HOT WATER	12TH FLOOR MER	1	80	140	120	2	-	ARMSTRONG BRAIN MODEL DMC-80
TMV-36	ZONE 5 & 6 DOMESTIC HOT WATER	39TH FLOOR MER	1	80	140	120	2	-	ARMSTRONG BRAIN MODEL DMC-80
TMV-34	ZONE 3 & 4 DOMESTIC HOT WATER	5TH FLOOR MER	1	80	140	120	2	-	ARMSTRONG BRAIN MODEL DMC-80
TMV-12	ZONE 1 & 2 DOMESTIC HOT WATER	81ST FLOOR MER	1	80	140	120	2	-	ARMSTRONG BRAIN MODEL DMC-80

DESIGNATION	SERVICE	LOCATION	QUANTITY	SYSTEM GALLONS (REQUIRED)	CW TEMP (°F)	HW TEMP (°F)	PRESSURE DROP (PSIG)	VOLUME		TANK SIZE	MAX. PRESSURE	MANUFACTURER & MODEL NO	NOTES
								ACCEPTED	FACTOR				
ET-2	DOMESTIC CW	2ND FLOOR MER	1	50	40	140	2	2.0	0.45	14" B1 & 8" (DWA)	150	AMTROL THERMA XTROL ST-5 IN-LINE MODEL	FURNISH WITH DHWX-5
ET-1	COOLING TOWER	81ST FLOOR MER	1	50	40	140	2	2.0	0.45	14" B1 & 8" (DWA)	150	AMTROL THERMA XTROL ST-5 IN-LINE MODEL	FURNISH WITH DHWX-4

DESIGNATION	SERVICE	LOCATION	QUANTITY	VOLUME (GALLONS) TOTAL	TANK SIZE (IN) DIAMETER	TANK SIZE (IN) HEIGHT	RATED WORKING PRESSURE (PSIG)	APPROX. SHIPPING WEIGHT (LBS)	MANUFACTURER & MODEL NO
DST-1	DOMESTIC CW STORAGE TANK	81ST FLOOR MER	1	18,000					
DST-2	DOMESTIC CW STORAGE TANK	5TH FLOOR MER	1	33,000					
DST-3	DOMESTIC CW STORAGE TANK	39TH FLOOR MER	1	18,000					
DST-4	DOMESTIC CW STORAGE TANK	2ND FLOOR MER	1	10,000					



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PLUMBING SCHEDULES

P-600.00

1/8" = 1'-0"

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45 BROAD STREET

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LANGAN 21 Penn Plaza 360 West 31st Street, 8th Fl New York, NY 10001 212-477-6566	MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212-477-6566
Ventress Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212-600-0035	BuroHappold Engineering 100 Broadway New York, NY 10005 212-234-2025

TYPE	ABBREVIATIONS	DFU	TRAP SIZE
AUTOMATIC CLOTHES WASHER, COMMERCIAL	W/D	3	2"
AUTOMATIC CLOTHES WASHER, RESIDENTIAL	W/D	2	2"
BATHROOM GROUP		5	4"
BATHUB (WITH OR W/O SHOWER OR WHIRLPOOL)	BT	2	1-1/2"
BIDET		1	1-1/4"
DISHWASHER (RESIDENTIAL)	DW	2	1-1/2"
DRINKING FOUNTAIN	DF	1/2	1-1/4"
3" FLOOR DRAIN	3FD	5	3"
4" FLOOR DRAIN	4FD	6	4"
SINK, DOMESTIC	SK	2	1-1/2"
LAVATORY	LAV	1	1-1/4"
SHOWER	SH	2	1-1/2"
KITCHEN SINK	SK	2	1-1/2"
URINAL	UR	2	1-1/2"
WATER CLOSET	WC	4	4"
WOP SINK	MS	5	3"
MISCELLANEOUS 1-1/4" TRAP		1	1-1/4"
MISCELLANEOUS 1-1/2" TRAP		2	1-1/2"
MISCELLANEOUS 2" TRAP		3	2"
MISCELLANEOUS 2-1/2" TRAP		4	2-1/2"
MISCELLANEOUS 3" TRAP		5	3"
MISCELLANEOUS 4" TRAP		6	4"

TYPE	ABBREVIATIONS	COLD WATER WSPU	HOT WATER WSPU	TOTAL WSPU
-BATHUB (PUBLIC)	BT	2	3	4
-BATHUB (PRIVATE)	BT	1-1/2	1-1/2	2
-BATHROOM GROUP FLUSH VALVE CLOSET (PRIVATE)		8	3	8
-BATHROOM GROUP FLUSH TANK CLOSET (PRIVATE)		6	3	6
-BIDET (PRIVATE)		1	1	1
-DRINKING FOUNTAIN	DF	1	-	1
-KITCHEN SINK (PRIVATE)	KS	1-1/2	1-1/2	2
-LAVATORY (PUBLIC)	LAV	1-1/2	1-1/2	2
-LAVATORY (PRIVATE)	LAV	1	1	1
-LAUNDRY TRAY (PRIVATE)	WM	3	3	3
-LAUNDRY TRAY (PUBLIC)	WM	4	4	4
-SHOWER HEAD MIXING VALVE (PUBLIC)		2	3	4
-SHOWER HEAD MIXING VALVE (PRIVATE)		1	2	2
-SERVICE SINK (PUBLIC)	SS	3	3	3
-HOSE BIBB	HB	4	4	-
-WATER CLOSET-FLUSH TANK	WC	2.5	-	2.5
-WATER CLOSET-FLUSH VALVE	WC	8	-	8
-URINAL	UR	4	-	4

WALL PENETRATION FOR CAST IRON PIPING		WALL PENETRATION FOR STEEL PIPING	
NOMINAL PIPE SIZE	SLEEVE NOMINAL PIPE SIZE	NOMINAL PIPE SIZE	SLEEVE NOMINAL PIPE SIZE
0'-2"	0'-4"	0'-0 1/2"	0'-2"
0'-3"	0'-5"	0'-0 3/4"	0'-2"
0'-4"	0'-6"	0'-1"	0'-2 1/2"
0'-6"	0'-8"	0'-1 1/4"	0'-3"
0'-8"	1'-0"	0'-1 1/2"	0'-3"
0'-10"	1'-2"	0'-2"	0'-3 1/2"
1'-0"	1'-4"	0'-2 1/2"	0'-4"
		0'-3"	0'-5"
		0'-4"	0'-6"
		0'-6"	0'-10"
		0'-8"	1'-0"
		0'-10"	1'-2"
		1'-0"	1'-4"

TYPE	TAG	LOCATION	S. OR W.	VENT	C.W.	H.W.	GAS	REMARKS
3" FLOOR DRAIN			3"	1-1/2"	-	-	-	PROVIDE 1/2" CW FROM TRAP PRIMER
4" FLOOR DRAIN			4"	2"	-	-	-	PROVIDE 1/2" CW FROM TRAP PRIMER
3" FLOOR SINK			3"	1-1/2"	-	-	-	INSTALL IN KITCHEN WITH LIP 2" A.F.F.
4" FLOOR SINK			4"	2"	-	-	-	INSTALL IN KITCHEN WITH LIP 2" A.F.F.
BATHUB (CONDO)	BT-2	CONDO	1-1/2"	1-1/2"	1/2"	1/2"	-	-
DISHWASHER (CONDO)			1"	-	-	1/2"	-	CONNECT WASTE TO KITCHEN SINK TAILPIECE
DISHWASHER (COMMERCIAL)			-	-	-	3/4"	-	INDIRECT WASTE TO FLOOR SINK
GAS BARBEQUE			-	-	-	-	1/2"	-
GAS FIREPLACE			-	-	-	-	1/2"	-
GAS PATIO HEATER			-	-	-	-	1/2"	-
HAND SINK			1-1/2"	1-1/2"	1/2"	1/2"	-	1.5 GPM MAXIMUM
HOSE BIBB			-	-	-	3/4"	-	-
ICE MAKER			-	-	-	1/2"	-	-
KITCHEN SINK (CONDO)	SK-3	CONDO	2"	1-1/2"	1/2"	1/2"	-	2.2 GPM MAXIMUM
LAVATORY (PRIVATE)			1-1/2"	1-1/2"	1/2"	1/2"	-	1.5 GPM MAXIMUM
LAVATORY (BOH)	LAV-1	BOH	1-1/2"	1-1/2"	1/2"	1/2"	-	0.5 GPM MAXIMUM (0.25 GALLON METERING CYCLE)
LAVATORY (PUBLIC)			1-1/2"	1-1/2"	1/2"	1/2"	-	0.5 GPM MAXIMUM (0.25 GALLON METERING CYCLE)
MOP SINK			3"	2"	3/4"	3/4"	-	2.2 GPM MAXIMUM
PANTRY SINK			2"	1-1/2"	1/2"	1/2"	-	2.2 GPM MAXIMUM
RANGE (CONDO)			-	-	-	-	1/2"	-
SHOWER (CONDO)	SH-3	CONDO	2"	1-1/2"	1/2"	1/2"	-	2.0 GPM MAXIMUM
SLOP SINK			3"	2"	3/4"	3/4"	-	2.2 GPM MAXIMUM
URINAL			3"	2"	3/4"	-	-	0.5 GALLONS PER FLUSH MAXIMUM
WATER CLOSET (TANK, COND/MIN/UM)	WC-3	CONDO	4"	2"	3/4"	-	-	1.28 GALLONS PER FLUSH MAXIMUM
WATER CLOSET (TANK, BOH SPACES)	WC-1	BOH	4"	2"	3/4"	-	-	1.28 GALLONS PER FLUSH MAXIMUM
WATER CLOSET (FLUSHMETER VALVE)			4"	2"	1-1/4"	-	-	1.28 GALLONS PER FLUSH MAXIMUM

DIAMETER OF PIPE	1/16" SLOPE PER FOOT, TOTAL DFU	1/8" SLOPE PER FOOT, TOTAL DFU	1/4" SLOPE PER FOOT, TOTAL DFU	1/2" SLOPE PER FOOT, TOTAL DFU
1-1/4"	-	-	1	1
1-1/2"	-	-	3	3
2"	-	-	21	26
2-1/2"	-	-	24	31
3"	-	36	42	50
4"	-	180	216	250
5"	-	350	480	575
6"	-	700	840	1,000
8"	1,400	1,800	1,920	2,300
10"	2,500	2,900	3,000	4,200
12"	3,000	4,600	5,600	6,700
15"	7,000	8,300	10,000	12,000

DIAMETER OF PIPE	FLUSH TANK WSPU	FLUSH VALVE WSPU
1/2"	1-5	-
3/4"	6-12	-
1"	13-21	-
1-1/4"	23-32	-
1-1/2"	34-58	5-14
2"	60-151	15-57
2-1/2"	155-315	60-176
3"	326-506	186-366
4"	1,400	396-
6"	2,500	-

PIPE SYSTEM	LOCATION	REQUIREMENT
STORM PIPING	INTERIOR (ABOVE GROUND)	SERVICE WEIGHT CAST IRON (SWCI) NO-HUB WITH MECHANICAL STAINLESS STEEL COUPLINGS, GALVANIZED STEEL PIPE SCHEDULE 40, WITH THREADED DRAINAGE FITTINGS ALLOWED FOR 3" DIA AND SMALLER.
	INTERIOR (UNDER GROUND)	SERVICE WEIGHT CAST IRON BELL AND SPIGOT WITH LEAD AND OAKUM JOINTS.
	EXTERIOR (YARD DRAINAGE)	1. SERVICE WEIGHT CAST IRON (SWCI) BELL AND SPIGOT WITH LEAD AND OAKUM JOINTS. 2. DUCTILE IRON (DI) CLASS 51 FOR ALL SIZES WITH PUSH-ON JOINTS. 3. PRECAST REINFORCED CONCRETE PIPE WITH RUBBER GASKET WATER TIGHT JOINT. 4. HIGH DENSITY POLYETHYLENE (HDPE) PIPING, BELL AND SPIGOT, WATER TIGHT JOINTS.
	EXTERIOR (HOUSE DRAIN & HOUSE SEWER)	SERVICE WEIGHT CAST IRON (SWCI) BELL AND SPIGOT WITH LEAD AND OAKUM JOINTS. DUCTILE IRON (DI) CLASS 51 FOR ALL SIZES WITH PUSH-ON JOINTS.
SANITARY PIPING (WASTE AND VENT)	INTERIOR (ABOVE GROUND AND HOUSE DRAIN LINES)	SERVICE WEIGHT CAST IRON (SWCI) NO-HUB WITH MECHANICAL STAINLESS STEEL COUPLINGS, GALVANIZED STEEL PIPE SCHEDULE 40, WITH THREADED DRAINAGE FITTINGS ALLOWED FOR 3" DIA AND SMALLER.
	INTERIOR (PUMP DISCHARGE)	GALVANIZED STEEL PIPE SCHEDULE 40, WITH THREADED DRAINAGE FITTINGS, VICTALUC FITTING IN CONJUNCTION WITH GROOVE PIPE, 2" AND LARGER PERMITTED.
	INTERIOR (UNDER GROUND)	SERVICE WEIGHT CAST IRON BELL AND SPIGOT WITH LEAD AND OAKUM JOINTS.
	EXTERIOR (HOUSE SEWER / UNDERGROUND)	DUCTILE IRON (DI) CLASS 56 WITH PUSH-ON JOINTS.
DOMESTIC WATER (HOT&COLD)	INTERIOR (ABOVE GROUND)	COPPER TUBING, TYPE L (BLUE COLOR BAR) WITH WROUGHT COPPER SOLDER JOINT FITTINGS SUITABLE FOR SOFT SOLDERING, BRASS, SEAMLESS DRAWN PIPE, REGULAR WEIGHT WITH CAST BRONZE FITTING, CHROME PLATING FOR EXPOSED PIPING OR TRAPS IN KITCHEN AREA, GROOVE COPPER PIPE WITH VICTALUC FITTING IS ALLOWED FOR 2" AND LARGER DIAMETER PIPING. COPPER TUBING FOR SHORT BRANCH CONNECTION TO PLUMBING FIXTURE.
	INTERIOR (UNDER GROUND)	COPPER TUBING, TYPE K (GREEN COLOR BAR) WITH CAST BRONZE SOLDER JOINT FITTINGS (150PSI) SUITABLE FOR LEAD FREE SOLDERING.
	EXTERIOR (SERVICE UNDERGROUND)	DUCTILE IRON, CLASS 52 FOR 3" & 4" PIPE DIAMETER AND CLASS 56 FOR 6" & LARGER PIPE SIZES. FITTED WITH MECHANICAL JOINTS. THE USE OF BRASS, SEAMLESS DRAWN PIPE THREADED FITTINGS AND TYPE K COPPER TUBING IS ALLOWED FOR SERVICES UP TO 3" IN SIZE.
GAS PIPING	INTERIOR (ABOVE GROUND)	STANDARD WEIGHT, SCHEDULE 40, BLACK STEEL PIPE WITH SCREWED FITTING FOR 4" DIAMETER PIPE AND SMALLER OR WELDED JOINT FOR LARGER THAN 4" DIAMETER. OPTION FOR WELDING OR SCREWED JOINT APPLIES ONLY TO GAS SUPPLIED AT PRESSURE RANGING FROM 1/2 PSIG AND UP TO 3 PSIG. ABOVE 3 PSIG ALL JOINTS MUST BE WELDED. ALL WELDING REQUIRES CONTROL INSPECTION AS TESTING AND RADIOGRAPHING.
	EXTERIOR (ABOVE & BELOW GRADE)	STANDARD WEIGHT, SCHEDULE 40, BLACK STEEL PIPE.
ACID WASTE/VENT	INTERIOR	POLYPROPYLENE PLASTIC PIPE, DRUM TRAP AND FITTINGS, FLAME RETARDANT, SCHEDULE 40 WITH ELECTRICAL FUSION COILS JOINT, SILICON IRON PIPE, BELL & SPIGOT WITH CAULKED JOINT WILL BE USED FOR ACID VENT EXTENSIONS ABOVE ROOF.

FIXTURE UNITS	1-11	12-32	33-60	31-115	114-194	195-330
PDI UNITS	A	B	C	D	E	F
PIPE SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"

NOTE: SIZING BASED ON 50 FT LENGTH AND WATER PRESSURE UP TO 65 PSIG. WHEN WATER PRESSURE IN LINE EXCEEDS 45 PSIG, SELECT NEXT LARGER SIZE PDI-PLUMBING & DRAINAGE INSTITUTE

TEST NO.	DATE PERFORMED	STATIC PRESSURE (PSI)	PRESSURE	TEST FLOW RATE (GPM)	WATER MAIN SIZE (IN.)	TEST LOCATION
x	x	45	44	500	x	x



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PLUMBING SCHEDULES

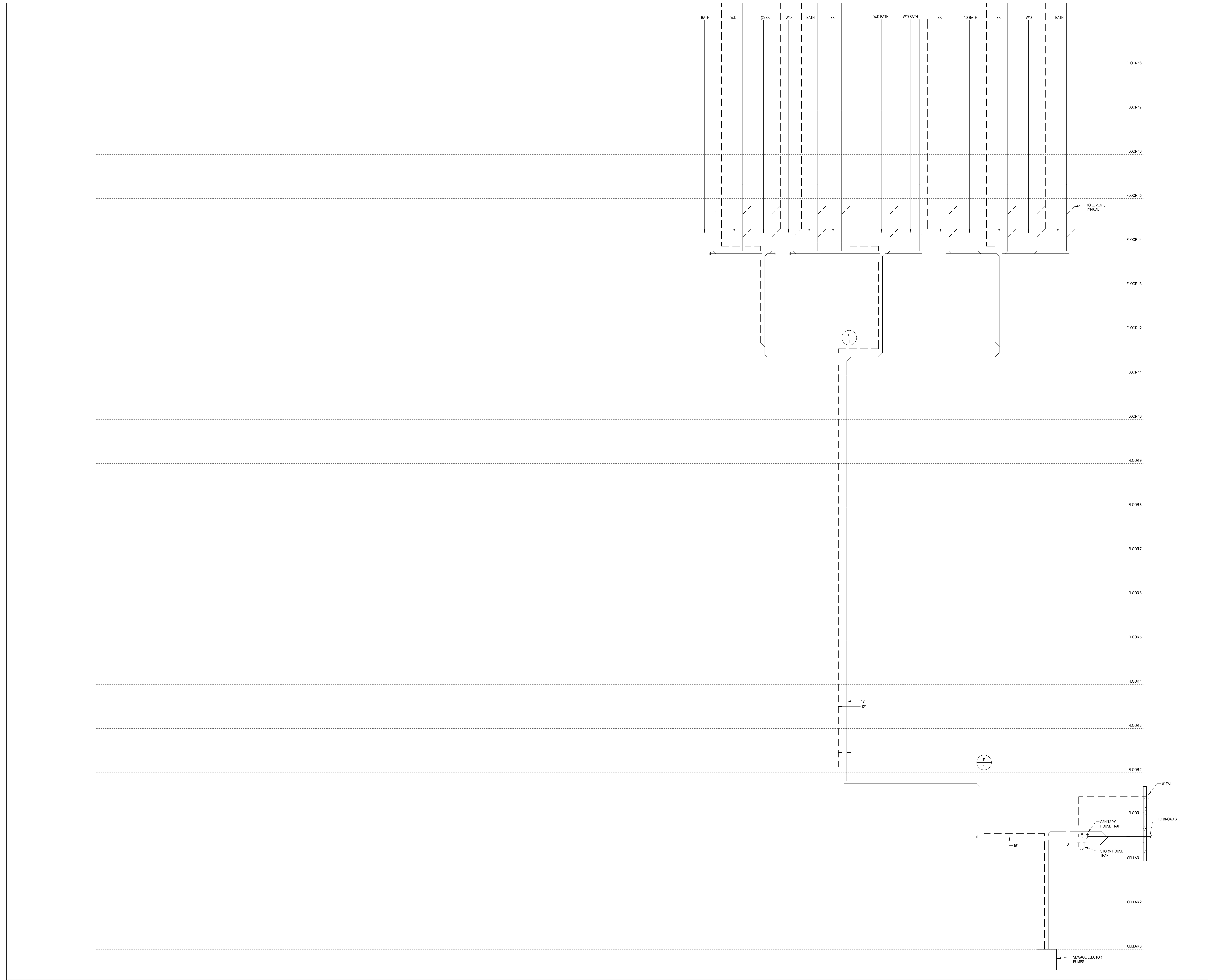
P-601.00

1/8" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

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2016.04.22	ISSUED FOR DESIGN DEVELOPMENT
 CETRARUDDY	
SANITARY RISER DIAGRAM	
P-701.00	
12" = 1'-0"	

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SANITARY RISER DIAGRAM

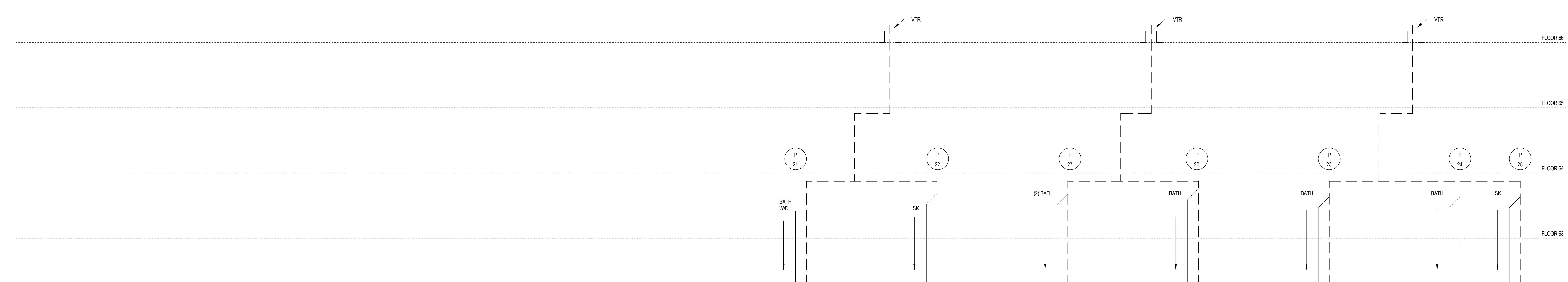
P-702.00

12" = 1'-0"

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GENERAL CONTRACTOR Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	GENERAL CONTRACTOR BuroHappold Engineering 100 Broadway New York, NY 10005 212.254.2025



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SANITARY RISER DIAGRAM

P-704.00

12" = 1'-0"

45 BROAD STREET

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MECHANICAL ENGINEER Vanessa Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER BarroMappold Engineering 100 Broadway New York, NY 10005 212.334.2025

NOTES:
 1. EACH RISER SHALL BE EQUIPPED WITH ISOLATION VALVES AND ACCESS DOORS.
 2. PROVIDE ACCESS PANELS/DOORS FOR ALL HWR BALANCING RISERS.
 3. ALL FLOOR DRAINS SHALL BE EQUIPPED WITH TRAP PRIMERS.



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DOMESTIC WATER RISER DIAGRAM


P-712.00

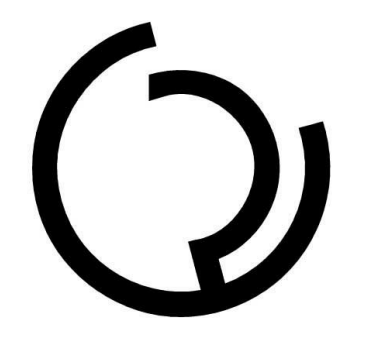
12" = 1'-0"

45 BROAD STREET

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Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025

PROJECT NO. SHEET NO. DATE SCALE DRAWN BY CHECKED BY APPROVED BY DATE	PRELIMINARY - NOT FOR CONSTRUCTION
2016.04.22 ISSUED FOR DESIGN DEVELOPMENT	



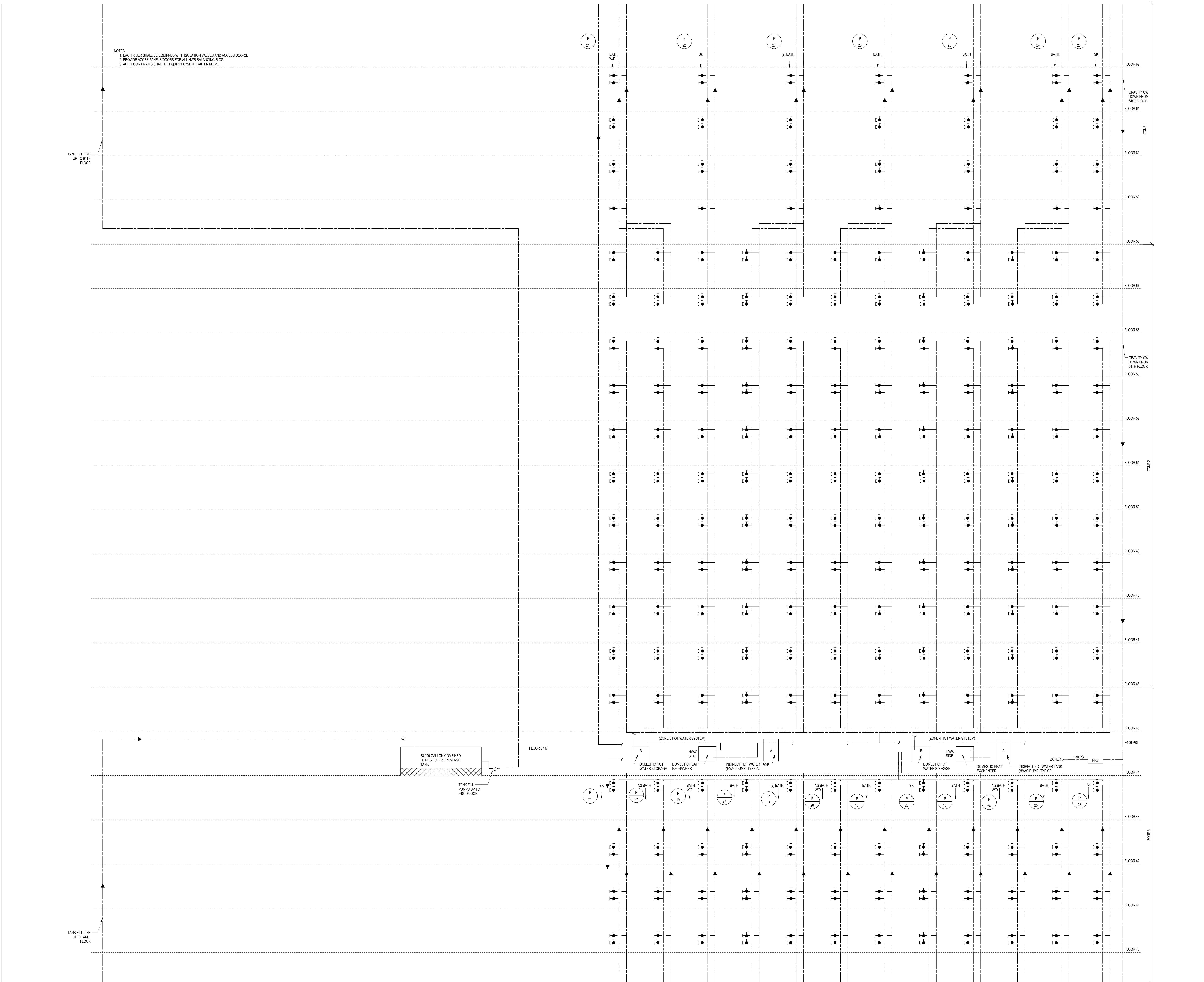
CETRARUDDY

DOMESTIC WATER RISER DIAGRAM

P-713.00

12" = 1'-0"

CETRARUDDY ARCHITECTURE DPC
 504 BROADWAY NEW YORK NY 10012 212 541 9001 F 212 541 9440
 WWW.CETRARUDDY.COM



NOTES:
 1. EACH RISER SHALL BE EQUIPPED WITH ISOLATION VALVES AND ACCESS DOORS.
 2. PROVIDE ACCESS PANELS/DOORS FOR ALL HWB BALANCING RGS.
 3. ALL FLOOR DRAINS SHALL BE EQUIPPED WITH TRAP-PRIMERS.

TANK FILL LINE UP TO BATH FLOOR

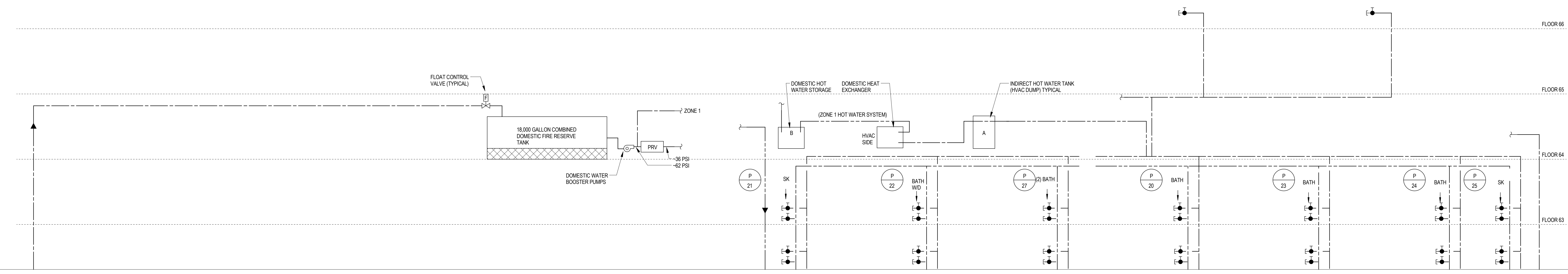
TANK FILL LINE UP TO BATH FLOOR

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MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.600.0033	MECHANICAL ENGINEER BurdickEngineering 100 Broadway New York, NY 10005 212.234.2025

- NOTES:**
1. EACH RISER SHALL BE EQUIPPED WITH ISOLATION VALVES AND ACCESS DOORS.
 2. PROVIDE ACCESS PANELS/DOORS FOR ALL HVR BALANCING RIGS.
 3. ALL FLOOR DRAINS SHALL BE EQUIPPED WITH TRAP PRIMERS.



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DOMESTIC WATER RISER DIAGRAM

P-714.00

12" = 1'-0"

45 BROAD STREET

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ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 534 Broadway Suite 401 New York, NY 10012 212.541.9901	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
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MECHANICAL ENGINEER LANGAN 21 Penn Plaza 120 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER BurdHappold Engineering 100 Broadway New York, NY 10005 212.234.2025



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STORM RISER DIAGRAM

P-721.00

12" = 1'-0"

45 BROAD STREET
NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 104 Broadway Suite 401 New York, NY 10012 212.541.9901	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
MECHANICAL ENGINEER WSP Group 229 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BuroHappold Engineering 100 Broadway New York, NY 10005 212.254.2025
STRUCTURAL ENGINEER LANGAN 21 Penn Plaza 360 West 31st Street, 8th Fl New York, NY 10001 212.479.5400	STRUCTURAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
GENERAL CONTRACTOR Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	GENERAL CONTRACTOR BuroHappold Engineering 100 Broadway New York, NY 10005 212.254.2025



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STORM RISER DIAGRAM

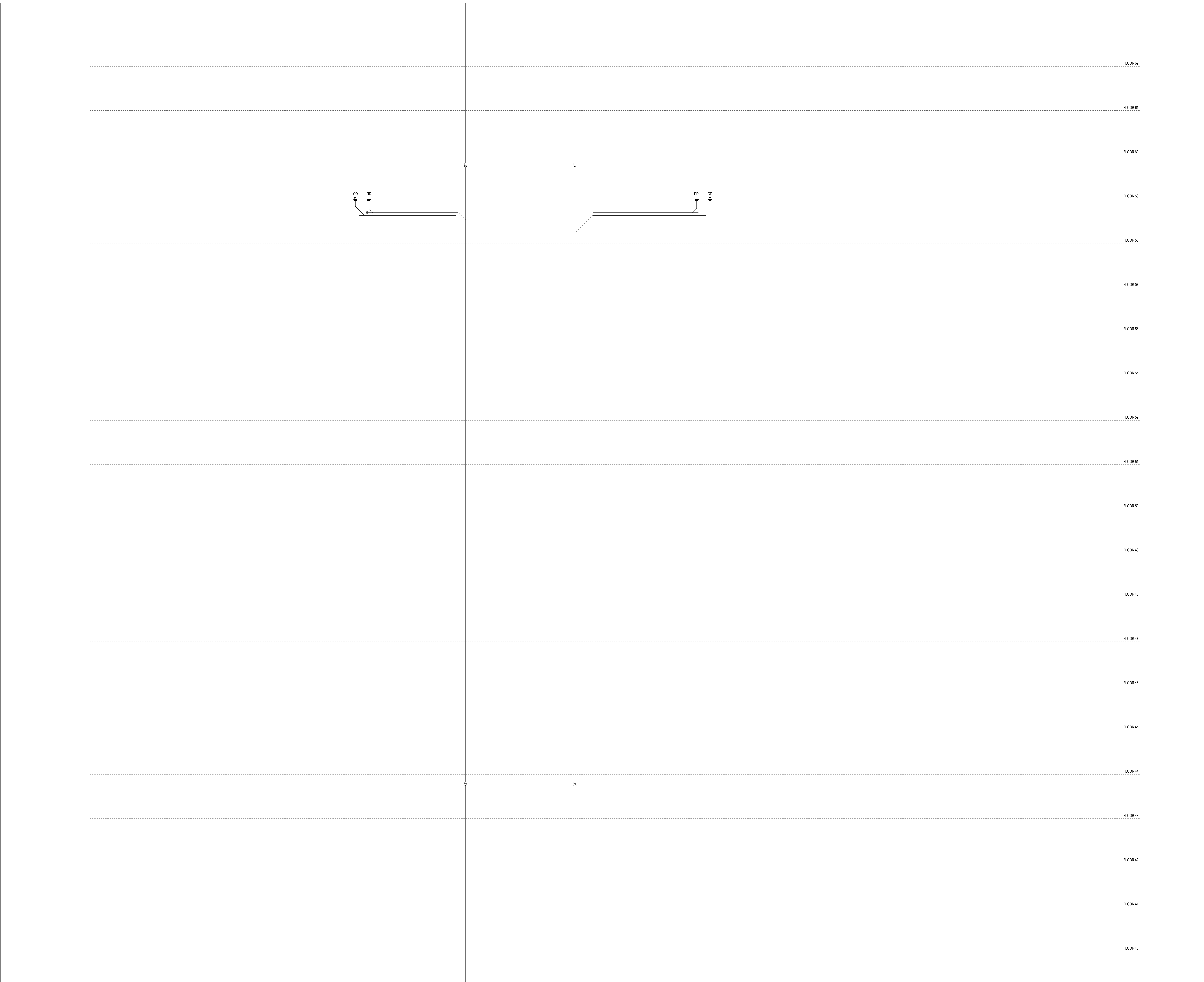
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12" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 584 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10016
MECHANICAL ENGINEER WSP Group 228 East 45th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
GENERAL CONTRACTOR LANGAN 21 Penn Plaza 100 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	GENERAL CONTRACTOR MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
GENERAL CONTRACTOR Ventresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	GENERAL CONTRACTOR BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025



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STORM RISER DIAGRAM

P-723.00

12" = 1'-0"

45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
MECHANICAL ENGINEER LANGAN 21 Penn Plaza 190 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Vestresca Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER BuroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025



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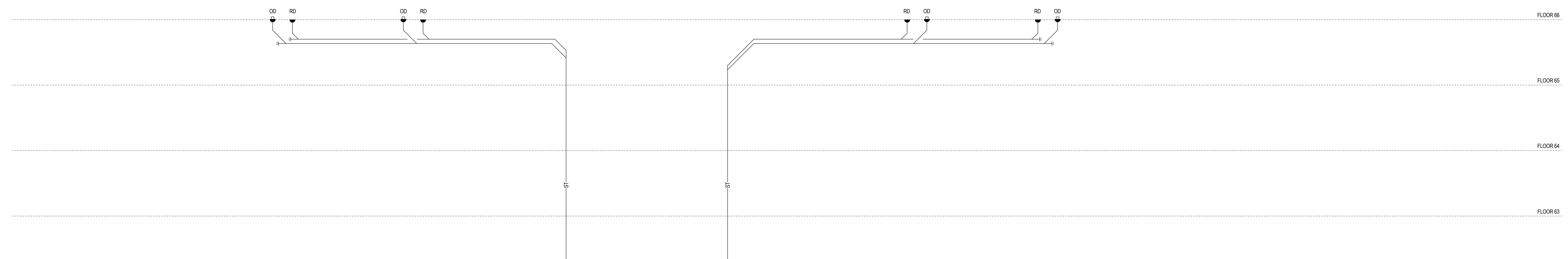
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STORM RISER DIAGRAM

P-724.00

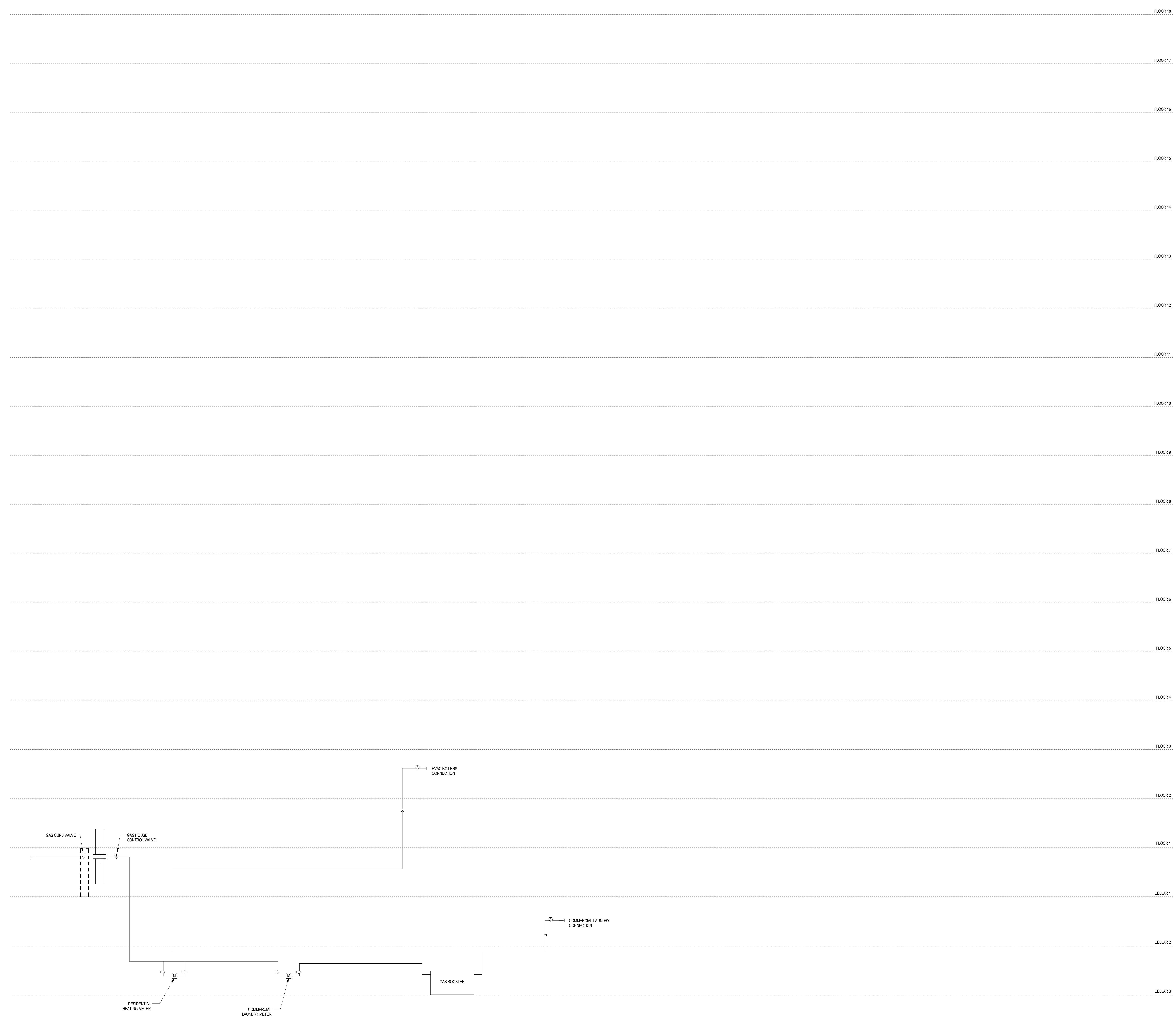
12" = 1'-0"



45 BROAD STREET

NEW YORK NY 10004

ARCHITECT John A. Cetra State of New York Registered Architect No. 018661 CetraRuddy Architecture DPC 504 Broadway Suite 401 New York, NY 10012 212.541.9001	OWNER Madison 45 Broad Development, LLC 105 Madison Avenue New York, NY 10019
MECHANICAL ENGINEER WSP Group 228 East 49th Street, 3rd Fl New York, NY 10017 212.687.8888	MECHANICAL ENGINEER BurroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025
MECHANICAL ENGINEER LANGAN 21 Penn Plaza 1260 West 31st Street, 8th Fl New York, NY 10001 212.478.5400	MECHANICAL ENGINEER MPPF LLC / M. Paul Friedberg & Partners 100 Broadway, Floor 20 New York, NY 10005 212.477.6366
MECHANICAL ENGINEER Vanessa Design, LLC 44-02 Eleventh St, Suite 203 Long Island City, NY 11101 212.900.0033	MECHANICAL ENGINEER BurroHappold Engineering 100 Broadway New York, NY 10005 212.234.2025



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GAS RISER DIAGRAM

P-731.00

12" = 1'-0"