

534 WEST 29TH STREET
NEW YORK, NEW YORK

Remedial Action Work Plan

NYC VCP Site Number: 14VCP199M

E Designation Number: 14EHAN228M

Prepared for:

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REMEDIAL ACTION WORK PLAN

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LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AS/SVE	Air Sparging/Soil Vapor Extraction
BOA	Brownfield Opportunity Area
CAMP	Community Air Monitoring Plan
C/D	Construction/Demolition
COC	Certificate of Completion
CQAP	Construction Quality Assurance Plan
CSOP	Contractors Site Operation Plan
DCR	Declaration of Covenants and Restrictions
ECs/ICs	Engineering and Institutional Controls
HASP	Health and Safety Plan
IRM	Interim Remedial Measure
BCA	Brownfield Cleanup Agreement
MNA	Monitored Natural Attenuation
NOC	Notice of Completion
NYC VCP	New York City Voluntary Cleanup Program
NYC DEP	New York City Department of Environmental Protection
NYC DOHMH	New York State Department of Health and Mental Hygiene
NYCRR	New York Codes Rules and Regulations
NYC OER	New York City Office of Environmental Remediation
NYS DEC	New York State Department of Environmental Conservation
NYS DEC DER	New York State Department of Environmental Conservation Division of Environmental Remediation
NYS DOH	New York State Department of Health
NYS DOT	New York State Department of Transportation
ORC	Oxygen-Release Compound
OSHA	United States Occupational Health and Safety Administration
PE	Professional Engineer

PID	Photo Ionization Detector
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
RAOs	Remedial Action Objectives
RAR	Remedial Action Report
RAWP	Remedial Action Work Plan or Plan
RCA	Recycled Concrete Aggregate
RD	Remedial Design
RI	Remedial Investigation
RMZ	Residual Management Zone
SCOs	Soil Cleanup Objectives
SCG	Standards, Criteria and Guidance
SMP	Site Management Plan
SPDES	State Pollutant Discharge Elimination System
SVOC	Semi-Volatile Organic Compound
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

CERTIFICATION

I, Ernest R. Hanna, am a Professional Engineer licensed in the State of New York. I have primary direct responsibility for implementation of the remedial action for the 534 West 29th Street Site number TBD.

I, John M. Gavras am a Qualified Environmental Professional as defined in §43-140. I have primary direct responsibility for implementation of the remedial action for the 534 West 29th Street Site number TBD.

I certify that this Remedial Action Work Plan (RAWP) has a plan for handling, transport and disposal of soil, fill, fluids and other materials removed from the property in accordance with applicable City, State and Federal laws and regulations. Importation of all soil, fill and other material from off-Site will be in accordance with all applicable City, State and Federal laws and requirements. This RAWP has provisions to control nuisances during the remediation and all invasive work, including dust and odor suppression.

Ernest R. Hanna

Name

65440

NYS PE License Number

Ernest R. Hanna

Signature

11-26-2013

Date



John M. Gavras

QEP Name

John M. Gavras

QEP Signature

11-26-2013

Date

EXECUTIVE SUMMARY

W29 534 Highline Owners LLC has applied to enroll in the New York City Voluntary Brownfield Cleanup Program (NYC VCP) to investigate and remediate a 2,469-square foot site located at 534 West 29th Street in New York, New York. A remedial investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP). The remedial action described in this document provides for the protection of public health and the environment consistent with the intended property use, complies with applicable environmental standards, criteria and guidance and conforms with applicable laws and regulations.

Site Location and Current Usage

The Site is located at 534 West 29th Street in the Chelsea section of Manhattan, and is identified as Block 700, Lot 53 on the New York City Tax Map. The site is 2,469 square feet and is located along the southern portion of West 29th Street between 10th and 11th Avenues. The Site is bounded by West 29th Street and Block 700 Lots 16, 22, 23, and 24 (under-development parking facility, art gallery, mixed-use multi-story commercial and residential building, and a storage facility, respectively) to the north, Block 700 Lot 9 (vacant land) to the south, Block 700 Lot 45 (auto repair garage) to the east, and Block 700 Lot 54 to the west. Currently the Site is occupied by a multi-story religious facility. The current businesses in the area include various art galleries, a juice company, an auto repair shop, and a storage facility. A review of the NYCOER Searchable Property Environmental E-Database (SPEED) shows two Petroleum Bulk Storage centers within a half mile radius. In addition, the SPEED database shows numerous sites with known chemical releases. A Site location map is attached as **Figure 1**.

Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of redeveloping the lot with a ten-story building with 14,000 square feet of residential space divided between 6 dwelling units, and 2,400 square feet of common area. Layout of the proposed site development is presented as **Appendix E**. The current zoning designation is C6-3. The proposed use is consistent with existing zoning for the property.

The proposed development project will consist of demolishing the current building and constructing a new mixed-use building. The new building will feature ten floors and one cellar level to a depth of approximately 16-18 feet below the sidewalk elevation. The basement dimensions will encompass the full dimensions of the Site. It is assumed that dewatering will be necessary during excavation of the foundation and elevator shafts. Groundwater is present at about 10.5 feet below ground surface (bgs). CEQR Number *03DCP069M* is currently listed in Zoning Map 8b. The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

Summary of the Remedy

The proposed remedial action achieves protection of public health and the environment for the intended use of the property. The proposed remedial action achieves all of the remedial action objectives established for the project and addresses applicable standards, criterion, and guidance; is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants; is cost effective and implementable; and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and preformance of all required NYC VCP Citizen Participation Plan activities according to an approved Citizen Participation Plan;
2. Performance of a Community Air Monitoring Program for particulates and volatile organic compounds;
3. Establishment of Track 1 Unrestricted Use Soil Cleanup Objectives (SCO);
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas;
5. Excavation and removal of soil/fill exceeding Track 1 Unrestricted Use SCOs. The basement of the proposed new building will occupy the entire site, and areas under the proposed new building will be excavated to a depth of approximately 16-18 feet below

grade surface. Approximately 2,500 Tons of soil will be excavated during remediation and development;

6. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site;
7. Removal of a previously closed in place underground storage tanks (USTs) and removal of other USTs (if encountered) and closure of petroleum spills (if evidence of a new spill/leak is encountered during Site excavation) in compliance with applicable local, State and Federal laws and regulations;
8. Transportation and off-Site disposal of all soil/fill material at permitted facilities in compliance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities;
9. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of SCOs;
10. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations;
11. As part of new development, basement slab extends to 18 feet below grade and into the water table. Installation of a vapor barrier/waterproofing system below the concrete slab underneath the building, as well as behind foundation walls of the proposed building. The vapor barrier/waterproofing membrane will be comprised of Grace Preprufe 300R, Preprufe 160R, Bituthene 4000, and HydroDuct 220 below-grade foundation damp proofing material;
12. As part of development, construction and maintenance of an engineered composite cover consisting of a 12-inch thick concrete slab across the footprint of the new building.
13. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations. Since groundwater is at a depth of 10.5 feet below ground surface, dewatering permits will be obtained from NYCDEP.

14. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
15. Submission of a Remedial Action Report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, lists any changes from this RAWP, and if Track 1 SCOs are not achieved, describes all Engineering and Institutional Controls to be implemented at the Site.
16. If Track 1 Unrestricted Use SCOs are not achieved, submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual impacts, including plans for operation, maintenance, monitoring, inspection and certification of ECs/ICs and reporting at a specified frequency.
17. If Track 1 SCOs are not achieved, continued registration with an E-Designation at NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls and management of these controls in compliance with an approved SMP. Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

COMMUNITY PROTECTION STATEMENT

The Office of Environmental Remediation created the New York City Voluntary Cleanup Program (NYC VCP) to provide governmental oversight for the cleanup of contaminated property in NYC. This Remedial Action Work Plan (“cleanup plan”) describes the findings of prior environmental studies that show the location of contamination at the site, and describes the plans to clean up the site to protect public health and the environment.

This cleanup plan provides a very high level of protection for neighboring communities and also includes many other elements that address common community concerns, such as community air monitoring, odor, dust and noise controls, hours of operation, good housekeeping and cleanliness, truck management and routing, and opportunities for community participation. The purpose of this Community Protection Statement is to explain these community protection measures in non-technical language to simplify community review.

Remedial Investigation and Cleanup Plan. Under the NYC VCP, a thorough cleanup study of this property (called a remedial investigation) has been performed to identify past property usage, to sample and test soils, groundwater and soil vapor, and identify contaminant sources present on the property. The cleanup plan has been designed to address all contaminant sources that have been identified during the study of this property.

Identification of Sensitive Land Uses. Prior to selecting a cleanup, the neighborhood was evaluated to identify sensitive land uses nearby, such as schools, day care facilities, hospitals and residential areas. The cleanup program was then tailored to address the special conditions of this community.

Qualitative Human Health Exposure Assessment. An important part of the cleanup planning for the Site is the performance of a study to find all of the ways that people might come in contact with contaminants at the Site now or in the future. This study is called a Qualitative Human Health Exposure Assessment (QHHEA). A QHHEA was performed for this project. This assessment has considered all known contamination at the Site and evaluated the potential for people to come in contact with this contamination. All identified public exposures will be addressed under this cleanup plan.

Health and Safety Plan. This cleanup plan includes a Construction Health and Safety Plan (CHASP) that is designed to protect community residents and on-Site workers. The elements of this plan are in compliance with safety requirements of the United States Occupational Safety and Health Administration (OSHA). This plan includes many protective elements including those discussed below.

Site Safety Coordinator. This project has a designated Site safety coordinator to implement the Health and Safety Plan. The safety coordinator maintains an emergency contact sheet and protocol for management of emergencies. The Site safety coordinator will be identified at a later date.

Worker Training. Workers participating in cleanup of contaminated material on this project are required to be trained in a 40-hour hazardous waste operators training course and to take annual refresher training. This pertains to workers performing specific tasks including removing contaminated material and installing cleanup systems in contaminated areas.

Community Air Monitoring Plan. Community air monitoring will be performed during this cleanup project to ensure that the community is properly protected from contaminants, dust and odors. Air samples will be tested in accordance with a detailed plan called the Community Air Monitoring Plan or CAMP. Results will be regularly reported to the NYC Office of Environmental Remediation. This cleanup plan also has a plan to address any unforeseen problems that might occur during the cleanup (called a ‘Contingency Plan’).

Odor, Dust and Noise Control. This cleanup plan includes actions for odor and dust control. These actions are designed to prevent off-Site odor and dust nuisances and includes steps to be taken if nuisances are detected. Generally, dust is managed by application of physical covers and by water sprays. Odors are controlled by limiting the area of open excavations, physical covers, spray foams and by a series of other actions (called operational measures). The project is also required to comply with NYC noise control standards. If you observe problems in these areas, please contact the onsite Project Manager Kenny Eybs at (917) 299-8763 or NYC Office of Environmental Remediation Project Manager Rebecca Bub at (212) 341-2073.

Quality Assurance. This cleanup plan requires that evidence be provided to illustrate that all cleanup work required under the plan has been completed properly. This evidence will be

summarized in the final report, called the Remedial Action Report. This report will be submitted to the NYC Office of Environmental Remediation and will be thoroughly reviewed.

Storm-Water Management. To limit the potential for soil erosion and discharge, this cleanup plan has provisions for storm-water management. The main elements of the storm water management include physical barriers such as tarp covers and erosion fencing, and a program for frequent inspection.

Hours of Operation. The hours for operation of cleanup will comply with the NYC Department of Buildings construction code requirements or according to specific variances issued by that agency. For this cleanup project, the hours of operation are 7:00 through 17:00 on Monday through Friday. If Saturday work is to be performed, then the appropriate permits will be obtained from the New York City Department of Buildings for work variances.

Signage. While the cleanup is in progress, a placard will be prominently posted at the main entrance of the property with a laminated project Fact Sheet that states that the project is in the NYC Voluntary Cleanup Program, provides project contact names and numbers, and locations of where project documents can be viewed.

Complaint Management. The contractor performing this cleanup is required to address all complaints. If you have any complaints, you can call the facility Project Manager Kenny Eybs, at (917) 299-8763, the NYC Office of Environmental Remediation Project Manager Rebecca Bub at (212) 341-2073, or call 311 and mention the Site is in the NYC Voluntary Cleanup Program.

Utility Mark-outs. To promote safety during excavation in this cleanup, the contractor is required to first identify all utilities and must perform all excavation and construction work in compliance with NYC Department of Buildings regulations.

Soil and Liquid Disposal. All soil and liquid material removed from the Site as part of the cleanup will be transported and disposed of in accordance with all applicable City, State and Federal regulations and required permits will be obtained.

Soil Chemical Testing and Screening. All excavations will be supervised by a trained and properly qualified environmental professional. In addition to extensive sampling and chemical

testing of soils on the Site, excavated soil will be screened continuously using hand-held instruments, by sight, and by smell to ensure proper material handling and management, and community protection.

Stockpile Management. Soil stockpiles will be kept covered with tarps to prevent dust, odors and erosion. Stockpiles will be frequently inspected. Damaged tarp covers will be promptly replaced. Stockpiles will be protected with silt fences. Hay bales will be used, as needed to protect storm water catch basins and other discharge points.

Trucks and Covers. Loaded trucks leaving the Site will be covered in compliance with applicable laws and regulations to prevent dust and odor. Trucks will be properly recorded in logs and records and placarded in compliance with applicable City, State and Federal laws, including those of the New York State Department of Transportation. If loads contain wet material that can leak, truck liners will be used. All transport of materials will be performed by licensed truckers and in compliance with all laws and regulations.

Imported Material. All fill materials proposed to be brought onto the Site will comply with rules outlined in this cleanup plan and will be inspected and approved by a qualified worker located on-Site. Waste materials will not be brought onto the Site. Trucks entering the Site with imported clean materials will be covered in compliance with applicable laws and regulations.

Equipment Decontamination. All equipment used for cleanup work will be inspected and washed, if needed, before it leaves the Site. Trucks will be cleaned at a truck inspection station on the property before leaving the Site.

Housekeeping. Locations where trucks enter or leave the Site will be inspected every day and cleaned regularly to ensure that they are free of dirt and other materials from the Site.

Truck Routing. Truck routes have been selected to: (a) limit transport through residential areas and past sensitive nearby properties; (b) maximize use of city-mapped truck routes; (c) limit total distance to major highways; (d) promote safety in entry to highways; (e) promote overall safety in trucking; and (f) minimize off-Site line-ups (queuing) of trucks entering the property. Operators of loaded trucks leaving the Site will be instructed not to stop or idle in the local neighborhood.

Final Report. The results of all cleanup work will be fully documented in a final report (called a Remedial Action Report) that will be available for you to review in the public document repositories located at New York Public Library located at 188 Madison Avenue.

Long-Term Site Management. If long-term protection after the cleanup is needed, the property owner will be required to comply with an ongoing Site Management Plan that calls for continued inspection of protective controls, such as Site covers. The Site Management Plan is evaluated and approved by the NYC Office of Environmental Remediation. Requirements that the property owner must comply with are defined in the property's deed or established through a city environmental designation. A certification of continued protectiveness of the cleanup will be required from time to time to show that the approved cleanup is still effective.

REMEDIAL ACTION WORK PLAN

1.0 SITE BACKGROUND

W29 534 Highline Owners LLC has applied to enroll in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 534 West 29th Street in the West Chelsea section of Manhattan, New York (the “Site”). A Remedial Investigation (RI) was performed to compile and evaluate data and information necessary to develop this Remedial Action Work Plan (RAWP) in a manner that will render the Site protective of public health and the environment consistent with the contemplated end use. This RAWP establishes remedial action objectives, provides a remedial alternatives analysis that includes consideration of a permanent cleanup, and provides a description of the selected remedial action. The remedial action described in this document provides for the protection of public health and the environment, complies with applicable environmental standards, criteria and guidance and applicable laws and regulations.

1.1 SITE LOCATION AND CURRENT USAGE

The Site is located at 534 West 29th Street in the Chelsea section of Manhattan, and is identified as Block 700, Lot 53 on the New York City Tax Map. The site is 2,469 square feet and is located along the southern portion of West 29th Street between 10th and 11th Avenues. The Site is bounded by West 29th Street and Block 700 Lots 16, 22, 23, and 24 (under-development parking facility, art gallery, mixed-use multi-story commercial and residential building, and a storage facility, respectively) to the north, Block 700 Lot 9 (vacant land) to the south, Block 700 Lot 45 (auto repair garage) to the east, and Block 700 Lot 54 to the west. Currently the Site is occupied by a multi-story religious facility. The current businesses in the area include various art galleries, a juice company, an auto repair shop and a storage facility. A review of the NYCOER Searchable Property Environmental E-Database (SPEED) shows two Petroleum Bulk Storage centers within a half mile radius. In addition, the SPEED database shows numerous sites with known chemical releases. A Site location map is attached as **Figure 1**.

1.2 PROPOSED REDEVELOPMENT PLAN

The proposed future use of the Site will consist of redeveloping the lot with a ten-story building with 14,000 square feet of residential space divided between 6 dwelling units, and 2,400 square feet of common area. Layout of the proposed site development is presented as **Appendix E**. The current zoning designation is C6-3. The proposed use is consistent with existing zoning for the property.

The proposed development project will consist of demolishing the current building and constructing a new mixed-use building. The new building will feature ten floors and one cellar level to a depth of approximately 16-18 feet below the sidewalk elevation. The basement dimensions will encompass the full dimensions of the Site. It is assumed that dewatering will be necessary during excavation of the foundation and elevator shafts. Groundwater is present at about 10.5 feet below ground surface (bgs). CEQR Number *03DCP069M* is currently listed in Zoning Map 8b. The remedial action contemplated under this RAWP may be implemented independently of the proposed redevelopment plan.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The Site is currently in a mixed-use neighborhood approximately 1,500 feet east of the Hudson River. The current businesses in the area are various art galleries, a juice company, auto repair shop and a storage facility. A review of the NYCOER Searchable Property Environmental E-Database (SPEED) shows two Petroleum Bulk Storage centers within a half mile radius. In addition, the SPEED database shows numerous sites with known chemical releases.

The surrounding area is primarily characterized by residential and commercial use. The Site is bounded to the west by a four-story mixed use building, which is currently occupied by an art studio, to the east by a one-story vacant building formerly occupied by an art gallery, to the north by a six-story storage center, a three-story mixed-use building, and four-story mixed use building with art galleries on the first floor. To the south, there is currently a new building under construction. **Figure 6** shows the surrounding land usage.

1.4 REMEDIAL INVESTIGATION

A remedial investigation was performed and the results are documented in a companion document called “*Remedial Investigation Report, 534 West 29th Street*”, dated October, 2013 (RIR).

Summary of Past Uses of Site and Areas of Concern

The Site is currently in a mixed-use neighborhood approximately 1,500 feet east of the Hudson River. The current businesses in the area are various art galleries, a juice company, auto repair shop and a storage facility. GZA GeoEnvironmental (GZA) obtained historic Sanborn Fire Insurance Maps by Environmental Data Resources, Inc. for the following years; 1890, 1899, 1911, 1919, 1928, 1930, 1950, 1976, 1979, 1980, 1982, 1985, 1987, 1988, 1991-1996, and 2001-2005. According to an Environmental Data Resources (EDR) database report, the building on the Site was constructed prior to 1890, and the building was utilized for mixed commercial and residential use until present day. A review of the New York City Office of Environmental Remediation (NYC OER) Searchable Property Environmental E-Database (SPEED) shows two Petroleum Bulk Storage centers within a half mile radius. In addition, the SPEED database shows numerous sites with known chemical releases.

The Areas of Concern (AOC) identified for this Site include:

1. Urban Fill is present at the Site from grade to as much as 10 feet below ground surface (bgs)
2. From at least 1950 to 2001, the adjoining properties included motor repair shops
3. Former spill at an upgradient and vicinity property located at 524 W. 29th St.
4. “E” designation for hazmat, air quality, and noise.

Summary of the Work Performed under the Remedial Investigation

GZA performed the following scope of work:

1. Conducted a Site inspection to identify AOCs and physical obstructions (e.g., structures, buildings, etc.);
2. Drilled four soil borings across the Site, and collected seven soil samples for chemical analysis from the soil borings to evaluate soil quality;

3. Installed one temporary groundwater monitoring well at the Site and collected one set of groundwater samples for chemical analysis to evaluate groundwater quality, and used results from two ground water samples collected on the adjacent property and;
4. Installed three soil vapor probes at the Site and collected three soil vapor samples for chemical analysis to evaluate soil vapor quality.

Summary of Environmental Findings

1. Elevation of the property ranges from 8 to 10 feet.
2. Depth to groundwater ranges from 9 to 12 feet at the Site.
3. Groundwater flow is generally from east to west beneath the Site.
4. Depth to bedrock is approximately 20 to 40 feet bgs at the Site.
5. The current stratigraphy of the Site, from the surface down, consists of 1 foot of concrete, underlain by 6 to 13 feet of fill, underlain by 5 to 21 feet of loose to dense sand, underlain by 4 to 10 feet of sand and silt, and underlain by weathered rock.
6. Soil samples collected during remedial investigations indicated that pesticides were not detected in any of the soil samples collected. Several volatile organic compounds (VOC) including ethylbenzene (1 mg/kg), benzene (0.064 mg/kg), and 1,2,4-Trimethylbenzene (3.9 mg/kg) were detected in one deep soil sample exceeding Unrestricted Use Soil Clean-up Objectives (SCO). Several other VOCs were also detected in soil samples, all below their respective Unrestricted Residential Use SCOs. Several semi-volatile organic compounds (SVOC) were detected in soil samples from the Site with four samples exceeding their respective Restricted Residential Use SCOs. These SVOCs included benzo(a)anthracene (max. of 32 mg/kg), benzo(a)pyrene (max. of 29 mg/kg), benzo(b)fluoranthene (max. of 38 mg/kg), benzo(k)fluoranthene (max. of 15 mg/kg), chrysene (max. of 27 mg/kg), dibenzo(a,h)anthracene (max. of 6 mg/kg), indeno(1,2,3-cd)pyrene (max. of 16 mg/kg), 3-Methylphenol/4-Methylphenol (1.4 mg/kg) and 2-methylnaphthalene (max. of 28 mg/kg). Metals, including copper (76 mg/kg), lead (max. of 550 mg/kg), mercury (max. of 9 mg/kg), and zinc (max of 360 mg/kg) exceeded the Unrestricted Use SCOs. Of these metals lead and mercury also exceeded Restricted

Residential Use SCOs in two shallow samples. PCBs were detected in one sample at 120 ppb, exceeding Unrestricted Use SCOs.

7. No PCBs or pesticides were detected in any of the collected groundwater samples. Several VOCs were detected above NYSDEC's Technical and Operational Guidance Series (TOGS) 1.1.1 - Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (AWQS) and included 1,1-dichloroethene (max. of 16 $\mu\text{g/l}$), 1,2,4 Trimethylbenzene (8 $\mu\text{g/l}$), cis-1,2-dichloroethene (max. of 160 $\mu\text{g/l}$), benzene (max. of 12 $\mu\text{g/l}$), n-butylbenzene (max. of 11 $\mu\text{g/l}$), sec-butylbenzene (max. of 12 $\mu\text{g/l}$), isopropylbenzene (max. of 19 $\mu\text{g/l}$), naphthalene (max. of 35 $\mu\text{g/l}$), and n-propylbenzene (max. of 37 $\mu\text{g/l}$), and vinyl chloride (26 $\mu\text{g/l}$). Three SVOCs including acenaphthene (max. of 20 $\mu\text{g/l}$), and naphthalene (max. of 24 $\mu\text{g/l}$) were detected above their respective AWQS. Four metals including iron (max of 959 $\mu\text{g/l}$), magnesium (max of 48,600 $\mu\text{g/l}$), manganese (max of 3,828) and sodium (max of 360,000 $\mu\text{g/l}$) were detected in groundwater above their respective GQS.
8. Several petroleum and chlorinated VOCs were observed in each vapor sampling point. Methyl tert butyl ether (MTBE) was identified in one sampling point with a concentration of 17.8 micrograms per cubic meter ($\mu\text{g/m}^3$). Petroleum-related VOCs included propylene (max. 420 $\mu\text{g/m}^3$), 2-butanone (max. 62.3 $\mu\text{g/m}^3$), n-hexane (max. of 1,120 $\mu\text{g/m}^3$), benzene (max. of 13,300 $\mu\text{g/m}^3$), cyclohexane (max. of 750 $\mu\text{g/m}^3$), 2,2,4-trimethylpentane (max. of 2,630 $\mu\text{g/m}^3$), heptane (max. of 7,700 $\mu\text{g/m}^3$), toluene (max. of 211 $\mu\text{g/m}^3$), ethylbenzene (max. of 40.8 $\mu\text{g/m}^3$), o-xylene (max. of 80.8 $\mu\text{g/m}^3$), p-m-xylene (max. of 118 $\mu\text{g/m}^3$), and 1,2,4-trimethylbenzene (max. of 42.4 $\mu\text{g/m}^3$). Chlorinated VOCs were identified in one vapor point sampling location and included chloroform with a concentration of 60.1 $\mu\text{g/m}^3$. The detection limits exceeded the DOH monitoring guidelines for PCE (123 $\mu\text{g/m}^3$), TCE (97.8 $\mu\text{g/m}^3$), and Carbon Tetrachloride (114 $\mu\text{g/m}^3$). The highest detection limit for 1,1,1-Trichloroethane was 99.3 $\mu\text{g/m}^3$. These results are above the monitoring level ranges established by the New York State Department of Health (NYS DOH) soil vapor guidance matrix and warrant remedial action to address soil vapor.

For more detailed results, consult the RIR. Based on an evaluation of the data and information from the RIR and this RAWP, disposal of significant amounts of hazardous waste is not suspected at this site. Locations of the groundwater, soil, and soil vapor sampling points are provided in **Figure 2**. Laboratory analytical data summaries are provided as **Table 1, 2, and 3**.

2.0 REMEDIAL ACTION OBJECTIVES

Based on the results of the RI, the following Remedial Action Objectives (RAOs) have been identified for this Site:

Groundwater

- Remove contaminant sources causing impact to groundwater.
- Prevent direct exposure to contaminated groundwater.
- Prevent exposure to contaminants volatilizing from contaminated groundwater.

Soil

- Prevent direct contact with contaminated soil.
- Prevent exposure to contaminants volatilizing from contaminated soil.
- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

- Prevent exposure to contaminants in soil vapor.
- Prevent migration of soil vapor into dwelling and other occupied structures.

3.0 REMEDIAL ALTERNATIVES ANALYSIS

The goal of the remedy selection process is to select a remedy that is protective of human health and the environment taking into consideration the current, intended and reasonably anticipated future use of the property. The remedy selection process begins by establishing RAOs for media in which chemical constituents were found in exceedence of applicable standards, criteria, and guidance values (SCGs). A remedy is then developed based on the following ten criteria:

- Protection of human health and the environment;
- Compliance with SCGs;
- Short-term effectiveness and impacts;
- Long-term effectiveness and permanence;
- Reduction of the toxicity, mobility or volume of impacted material;
- Implementability;
- Cost Effectiveness;
- Community Acceptance;
- Land Use; and,
- Sustainability

The following is a detailed description of the alternatives analysis and remedy selection to address impacted media at the Site. As required, a minimum of two remedial alternatives (including a Track 1 Unrestricted Use scenario) are evaluated, as follows:

Alternative 1:

- Establishment of Track 1 Unrestricted Use SCOs.
- Removal of soil/fill exceeding Track 1 Unrestricted Use SCOs throughout the Site and confirmation that Track 1 Unrestricted Use SCOs has been achieved with post-excavation endpoint sampling. Based on the results of the Remedial Investigation, it is expected that this alternative would require excavation across the Site to a depth of approximately 13 feet below grade surface. Excavation for construction of the new building's cellar level would take place to a depth of approximately 16-18 feet across the footprint of the Site. If soil/fill containing analytes at concentrations above Unrestricted

Use SCOs is still present at the base of the excavation after removal of all soil required for construction of the new building's cellar level is complete, additional excavation will be performed to ensure complete removal of soil that does not meet Track 1 Unrestricted Use SCOs.

- The building will be built below the water table and it is anticipated that no soil vapor will accumulate below the slab. A vapor barrier/waterproofing membrane would be installed beneath the cellar foundation and behind foundation sidewalls of the new building as part of the development to limit the potential for future exposures from off-Site soil vapor.
- As part of the new development, placement of a final cover consisting of a concrete slab.

Alternative 2 involves:

- Establishment of Track 4 Site Specific SCOs.
- Removal of soil/fill exceeding Track 4 Site Specific SCOs and confirmation that Track 4 Site Specific SCOs has been achieved with post excavation endpoint sampling. Historic fill at site extends to the depths of 10 to 13 feet. Excavation for construction of the new building's cellar level would take place to a depth of approximately 16-18 feet beneath the footprint of the building. Therefore, if soil/fill containing analytes at concentrations above Track 4 Site-Specific SCOs is still present at the base of the excavation after removal of the soil required for new development, additional excavation would be performed to meet Track 4 Site-Specific SCOs;
- Installation of a soil vapor barrier/waterproofing system beneath the building slab and along foundation side walls of proposed building to limit the potential future exposures from off-Site soil vapor;
- Placement of a final cover over the Site to limit exposures to remaining soil/fill;
- Establishment of use restrictions including prohibitions on the use of groundwater from the Site; prohibitions of Sensitive Site uses such as farming or vegetable gardening, to mitigate the potential for future exposure pathways; and prohibition of a higher land use without OER approval;

- Establishment of an approved Site Management Plan (SMP) to ensure long-term management of these Engineering and Institutional Controls including the performance of periodic inspections and certification that the controls are performing as they were intended. SMP will note that the property owner and property owners' successors and it assigns must comply with the approved SMP; and,
- The property will continue to be registered with an E-Designation at the NYC Buildings Department.

3.1 THRESHOLD CRITERIA

Protection of Public Health and the Environment

This criterion is an evaluation of the remedy's ability to protect public health and the environment, and an assessment of how risks posed through each existing or potential pathway of exposure are eliminated, reduced or controlled through removal, treatment, and implementation of Engineering Controls or Institutional Controls. Protection of public health and the environment must be achieved for all approved remedial actions.

Alternative 1 would be protective of human health and the environment by removing impacted soil/fill that exceeds Track 1 Unrestricted Use SCOs and groundwater protection standards thus eliminating potential for direct contact with contaminated soil/fill once construction is complete and eliminating the risk of contamination leaching into groundwater

Alternative 2 would achieve comparable protection of human health and the environment by excavating historic fill at the Site and by documenting that remaining soil/fill meets Track 4 Site Specific SCOs, as well as by placement of EC/IC including a composite cover system. The composite cover system would mitigate the potential for direct contact with remaining on-Site soil/fill. Implementing Institutional Controls including a SMP and continued "E" Designation of the property would ensure that the composite cover system remains intact and protective. Establishment of Track 4 Site Specific SCOs would minimize the risk of constituents leaching into the groundwater.

For both alternatives, potential exposure to impacted soil or groundwater during construction would be minimized by implementing a Construction Health and Safety Plan (CHASP), an

approved Soil/Materials Management Plan (SMMP) and Community Air Monitoring Plan (CAMP). Potential contact with impacted groundwater would be mitigated as its use is prohibited by city laws and regulations. Potential future migration of off-Site soil vapors would be mitigated by installing a vapor barrier/waterproofing membrane below the new building's basement slab and continuing the vapor barrier/waterproofing membrane up along the foundation walls.

3.2. BALANCING CRITERIA

Compliance with Standards, Criteria and Guidance (SCGs)

This evaluation criterion assesses the ability of the alternative to achieve applicable standards, criteria and guidance.

Alternative 1 would achieve compliance with the remedial goals, chemical specific SCGs and RAOs for soil through removal of the soil to achieve Track 1 Unrestricted Use SCOs and Groundwater Protection Standards. Compliance with SCGs for soil vapor would also be achieved by extension of the building slab well below the water table and by installing a vapor barrier/waterproofing membrane as part of development.

Alternative 2 would achieve compliance with the remedial goals, chemical specific SCGs and RAOs for soil through removal of the soil to achieve Track 4 Site Specific SCOs. Compliance with SCGs for soil vapor would also be achieved by extension of the building slab well below the water table and installing a vapor barrier/ waterproofing membrane system below the new building's basement slab and continuing the vapor barrier around foundation walls.. A SMP would document the long-term integrity and protectiveness of these controls.

Health and safety measures contained in the CHASP and CAMP that conform to applicable SCGs will be implemented during Site redevelopment under this RAWP. For both Alternatives, focused attention on means and methods employed during the remedial action such that handling and management of impacted material would be in compliance with applicable SCGs. These measures will protect on-Site workers and the surrounding community from exposure to Site-related constituents.

Short-term effectiveness and impacts

This evaluation criterion assesses the effects of the alternative during the construction and implementation phase until remedial action objectives are met. Under this criterion, alternatives are evaluated with respect to their effects on public health and the environment during implementation of the remedial action, including protection of the community, environmental impacts, time until remedial response objectives are achieved, and protection of workers during remedial actions.

Both Alternatives have similar short-term effectiveness during their respective implementations, as each requires excavation of historic fill material. Both alternatives would result in short-term dust generation impacts associated with excavation, handling, load out of materials, and truck traffic. Short-term impacts could potentially be higher for Alternative 1 if excavation of greater amounts of historical fill material is encountered below the excavation depth of the proposed building. However, focused attention to means and methods during the remedial action during a Track 1 removal action, including community air monitoring and appropriate truck routing, would minimize the overall impact of these activities.

An additional short-term adverse impact and risk to the community associated with both remedial alternatives is increased truck traffic. Approximately 70, 24-cubic yard capacity truck trips would be necessary to transport fill and soil excavated during Site development. Truck traffic will be routed on the most direct course using major thoroughfares where possible and flaggers will be used to protect pedestrians at Site entrances and exits.

Both alternatives would employ appropriate measures to mitigate the potential for short-term impacts, including a CHASP, a CAMP, and a SMMP during the on-Site soil disturbance activities and would minimize the release of constituents into the environment. Both alternatives provide short-term effectiveness in protecting the surrounding community by decreasing the risk of contact with on-Site constituents. Construction workers operating under appropriate management procedures and a CHASP will be protected from on-Site constituents (personal protective equipment would be worn consistent with the documented risks within the respective work zones).

Long-term effectiveness and permanence

This evaluation criterion addresses the results of a remedial action in terms of its permanence and quantity/nature of waste or residual contamination remaining at the Site after response objectives have been met, such as permanence of the remedial alternative, magnitude of remaining contamination, adequacy of controls including the adequacy and suitability of ECs/ICs that may be used to manage contaminant residuals that remain at the Site and assessment of containment systems and ICs that are designed to eliminate exposures to contaminants, and long-term reliability of Engineering Controls.

Alternative 1 would achieve long-term effectiveness and permanence related to on-Site constituents by permanently removing the impacted soil/fill that exceeds Track 1 Unrestricted Use SCOs. Removal of on-Site constituent sources will mitigate the potential for future groundwater impacts.

Alternative 2 would provide long-term effectiveness by removing most on-Site impacted media and attaining Track 4 Site-Specific SCOs; a composite cover system across the Site's building footprint maintaining use restrictions, establishing an SMP to document long-term management of EC/IC, and maintaining continued registration as an E-designated property to record these controls for long term. The SMP would document long-term effectiveness of the EC/IC by requiring periodic inspection and certification that these controls and restrictions continue to be in place and are functioning as they were intended thereby documenting that protections designed into the remedy would continue to provide an acceptable level of protection.

Both alternatives would result in removal of impacted material exceeding the SCOs providing a high level, effective and permanent remedy over the long-term with respect to a remedy for impacted material, which will mitigate the migration to groundwater. Potential sources of soil vapor and groundwater impacts will also be mitigated as part of the remedy. In both alternatives, installation of the building slab well below the water table and installation of a waterproofing/vapor barrier beneath the slab and along foundation walls would provide protection against potential off site soil vapors.

Reduction of toxicity, mobility, or volume of contaminated material

This evaluation criterion assesses the remedial alternative's use of remedial technologies that permanently and significantly reduce toxicity, mobility, or volume of contaminants as their principal element. The following is the hierarchy of source removal and control measures that are to be used to remediate a Site, ranked from most preferable to least preferable: removal and/or treatment, containment, elimination of exposure and treatment of source at the point of exposure. It is preferred to use treatment or removal to eliminate contaminants at a Site, reduce the total mass of toxic contaminants, cause irreversible reduction in contaminants mobility, or reduce of total volume of contaminated media.

Alternative One will mitigate toxicity, mobility, and volume of constituents on the Site by removing soil in excess of Track 1 Unrestricted Use SCOs.

Alternative Two would remove most of the historic fill at the Site, and any remaining on-Site soil beneath the proposed building footprint would meet Track 4 Site Specific SCOs.

Implementability

This evaluation criterion addresses the technical and administrative feasibility of implementing an alternative and the availability of various services and materials required during its implementation, including technical feasibility of construction and operation, reliability of the selected technology, ease of undertaking remedial action, monitoring considerations, administrative feasibility (e.g. obtaining permits for remedial activities), and availability of services and materials.

The techniques, materials and equipment to implement both remedial Alternatives 1 and 2 are readily available and have been proven effective in remediating the constituents associated with the Site. They use standard materials and services that are well-established technologies. The reliability of each remedy is also high. There are no special difficulties associated with the activities proposed.

Cost effectiveness

This evaluation criterion addresses the cost of alternatives, including capital costs (such as construction costs, equipment costs, and disposal costs, engineering expenses) and site management costs (costs incurred after remedial construction is complete) necessary to ensure the continued effectiveness of a remedial action.

Since historic fill at the Site was only found during the RI to extend to a depth of up to 10-13 feet below grade, and the new building construction (basement level) requires excavation of the entire Site to a depth of approximately 16-18 feet bgs through the entire footprint of the Site, costs associated with Alternative 1 and Alternative 2 are comparable.

Costs associated with Alternative 1 could potentially be higher than Alternative 2 if soil with analytes above Unrestricted Use SCOs is encountered below the depth required for excavation. Additional costs of Alternative 1 would include additional shoring/underpinning of the adjacent building, disposal of additional soil and import of clean soil for backfill. Long-term costs for Alternative 2 may be similar or eventually trump costs of Alternative 1 based on implementation of a SMP as part of Alternative 2.

The remedial plan creates an approach that combines the remedial action with redevelopment of the Site, including construction of the building foundation and subgrade structures. The remedial plan is also cost effective in that it will take into consideration the selection of the closer and more appropriate facilities to reduce transportation and disposal costs during the excavation of historic fill and other soil during the redevelopment of the Site.

Community Acceptance

This evaluation criterion addresses community opinion and support for the remedial action. Observations here will be supplemented by public comment received on the RAWP.

Based on the overall goals of the remedial program and initial permitting associated with the proposed site development, no adverse community opinion is anticipated for either alternative. This RAWP will be subject to a public review under the NYC VCP and will provide the opportunity for detailed public input on the remedial alternatives and the selected remedy. Public comments will be considered by OER prior to approval of this plan. The Citizen Participation Plan for the project is provided in **Appendix A**.

Land use

This evaluation criterion addresses the proposed use of the property. This evaluation has considered reasonably anticipated future uses of the Site and takes into account: current use and historical and/or recent development patterns; applicable zoning laws and maps; NYS

Department of State's Brownfield Opportunity Areas (BOA) pursuant to section 970-r of the general municipal law; applicable land use plans; proximity to real property currently used for residential use, and to commercial, industrial, agricultural, and/or recreational areas; environmental justice impacts, Federal or State land use designations; population growth patterns and projections; accessibility to existing infrastructure; proximity of the site to important cultural resources and natural resources, potential vulnerability of groundwater to contamination that might emanate from the site, proximity to flood plains, geography and geology; and current Institutional Controls applicable to the site.

The proposed redevelopment of the Site is comparable with its current zoning and is consistent with recent development patterns. Following remediation, the Site will meet either Track 1 Unrestricted Use SCOs or Track 4 Site Specific SCOs, which are appropriate for the planned residential use. Improvements in the current condition of the property achieved by both alternatives are also consistent with the City's goal for cleanup of impacted land and bringing such properties into productive reuse. Both alternatives are equally protective of natural resources and cultural resources.

Sustainability of the Remedial Action

This criterion evaluates the overall sustainability of the remedial action alternatives and the degree to which sustainable means are employed to implement the remedial action including those that take into consideration NYC's sustainability goals defined in *PlaNYC: A Greener, Greater New York*. Sustainability goals may include: maximizing the recycling and reuse of non-virgin materials; reducing the consumption of virgin and non-renewable resources; minimizing energy consumption and greenhouse gas emissions; improving energy efficiency; and promotion of the use of native vegetation and enhancing biodiversity during landscaping associated with Site development.

Both remedial alternatives are comparable with respect to the opportunity to achieve sustainable remedial action. The remedial plan would take into consideration the shorter trucking routes during off-Site disposal of historic fill and other soil, which would reduce greenhouse gas emissions and conserve energy used to fuel trucks. The New York City Clean Soil Bank may be utilized for reuse of native soil. To the extent practicable, energy efficient building materials, appliances and equipment will be utilized to complete the development. A complete list of green

remedial activities considered part of the NYC VCP is provided in the Sustainability Statement, included as Appendix B.

4.0 REMEDIAL ACTION

4.1 SUMMARY OF PREFERRED REMEDIAL ACTION

The preferred remedial action alternative is the Track 1 Alternative (Alternative 1). The preferred remedial action alternative achieves protection of public health and the environment for the intended use of the property. The preferred remedial action alternative will achieve all of the remedial action objectives established for the project and addresses applicable SCGs. The preferred remedial action alternative is effective in both the short-term and long-term and reduces mobility, toxicity and volume of contaminants. The preferred remedial action alternative is cost effective and implementable and uses standards methods that are well established in the industry.

The proposed remedial action will consist of:

1. Preparation of a Community Protection Statement and performance of all required NYC VCP Citizen Participation Plan activities according to an approved Citizen Participation Plan;
2. Performance of a Community Air Monitoring Program for particulates and volatile organic compounds;
3. Establishment of Track 1 Unrestricted Use Soil Cleanup Objectives (SCO);
4. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas;
5. Excavation and removal of soil/fill exceeding Track 1 Unrestricted Use SCOs. The basement of the proposed new building will occupy the entire site, and areas under the proposed new building will be excavated to a depth of approximately 16-18 feet below grade surface. Approximately 2,500 Tons of soil will be excavated during remediation and development;
6. Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID. Appropriate segregation of excavated media on-Site;

7. Removal of a previously closed in place underground storage tanks (USTs) and removal of other USTs (if encountered) and closure of petroleum spills (if evidence of a new spill/leak is encountered during Site excavation) in compliance with applicable local, State and Federal laws and regulations;
8. Transportation and off-Site disposal of all soil/fill material at permitted facilities in compliance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities;
9. Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of SCOs;
10. Import of materials to be used for backfill and cover in compliance with this plan and in accordance with applicable laws and regulations;
11. As part of new development, basement slab extends to 18 feet below grade and into the water table. Installation of a vapor barrier/waterproofing system below the concrete slab underneath the building, as well as behind foundation walls of the proposed building. The vapor barrier/waterproofing membrane will be comprised of Grace Preprufe 300R, Preprufe 160R, Bituthene 4000, and HydroDuct 220 below-grade foundation damp proofing material;
12. As part of development, construction and maintenance of an engineered composite cover consisting of a 12-inch thick concrete slab across the footprint of the new building.
13. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations. Since groundwater is at a depth of 10.5 feet below ground surface, dewatering permits will be obtained from NYCDEP.
14. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
15. Submission of a Remedial Action Report (RAR) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries,

lists any changes from this RAWP, and if Track 1 SCOs are not achieved, describes all Engineering and Institutional Controls to be implemented at the Site.

16. If Track 1 Unrestricted Use SCOs are not achieved, submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual impacts, including plans for operation, maintenance, monitoring, inspection and certification of ECs/ICs and reporting at a specified frequency.
17. If Track 1 SCOs are not achieved, continued registration with an E-Designation at NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls and management of these controls in compliance with an approved SMP. Institutional Controls will include prohibition of the following: (1) vegetable gardening and farming; (2) use of groundwater without treatment rendering it safe for the intended use; (3) disturbance of residual contaminated material unless it is conducted in accordance with the SMP; and (4) higher level of land usage without OER-approval.

4.2 SOIL CLEANUP OBJECTIVES AND SOIL/FILL MANAGEMENT

Track 1 Soil Cleanup Objectives (SCOs) are proposed for this project. If Track 1 SCOs cannot be met, then the following Track 4 Site .0

Specific SCOs are proposed:

<u>Contaminant</u>	<u>Track 4 SCOs</u>
Total SVOCs	250 ppm
Lead	800 ppm
Mercury	2.5 ppm

Soil and materials management on-Site and off-Site, including excavation, handling and disposal, will be conducted in accordance with the Soil/Materials Management Plan in **Appendix C**. The location of planned excavations is shown in **Figure 5**.

Soil and fill management at the Site will include impacted soil removal and disposal within the development cut. No over-excavation beyond the development cut is anticipated. If any hot-spot areas are identified during development and remediation at the site, they will be removed in

consultation with OER. This information will be provided in the Remedial Action Report.

Estimated Soil/Fill Removal Quantities

The total quantity of soil/fill expected to be excavated and disposed off-Site is approximately 2,500 tons (1,600 cubic yards).

The proposed disposal locations for Site-derived impacted materials are listed below. Additional disposal locations established at a later date will be reported promptly to the OER Project Manager. Sample disposal manifests are provided as **Appendix F**.

<u>Disposal Facility</u>	<u>Waste Type</u>	<u>Estimated Quantities</u>
Lincoln Landfill	Historic Fill	2,250 tons
Clean Earth of Carteret	Petroleum Impacted Soil	250 tons

End-Point Sampling

Removal actions for development purposes under this plan will be performed in conjunction with end-point sampling (confirmation soil sampling). Two end-point samples will be collected from the base of the excavation at locations to be determined by OER. For comparison to Track 1 SCOs, analytes will include VOCs, SVOC and metals according to analytical methods described below. For comparison to Track 4 SCOs, analytes will only include trigger compounds and elements established on the Track 4 SCO list.

The dimensions of the proposed excavation are approximately 25 feet by 98.5 feet by 18 feet deep. Since excavations extend to the property limits, post excavation samples will be comprised of three bottom samples whose location will be determined by OER. The location of planned post excavation samples is shown in **Figure 4**.

Hot-spot removal actions, whether established under this RAWP or identified during the remedial program, will be performed in conjunction with post remedial end-point samples to ensure that hot-spots are fully removed. Analytes for end-point sampling will be those

parameters that are driving the hot-spot removal action and will be approved by OER. Frequency for hot-spot end-point sample collection is as follows:

1. For excavations less than 20 feet in total perimeter, at least one bottom sample and one sidewall sample biased in the direction of surface runoff.
2. For excavations 20 to 300 feet in perimeter:
 - For surface removals, one sample from the top of each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.
 - For subsurface removals, one sample from each sidewall for every 30 linear feet of sidewall and one sample from the excavation bottom for every 900 square feet of bottom area.
3. For sampling of volatile organics, bottom samples should be taken within 24 hours of excavation, and should be taken from the zero to six-inch interval at the excavation floor. Samples taken after 24 hours should be taken at six to twelve inches.
4. For contaminated soil removal, post remediation soil samples for laboratory analysis should be taken immediately after contaminated soil removal. If the excavation is enlarged horizontally, additional soil samples will be taken pursuant to bullets 1-3 above.

Post-remediation end-point sample locations and depth will be biased towards the areas and depths of highest contamination identified during previous sampling episodes unless field indicators such as field instrument measurements or visual contamination identified during the remedial action indicate that other locations and depths may be more heavily contaminated. In all cases, post-remediation samples should be biased toward locations and depths of the highest expected contamination.

New York State ELAP certified labs will be used for all confirmation and end-point sample analyses. Labs performing confirmation and end-point sample analyses will be reported in the RAR. The RAR will provide a tabular and map summary of all confirmation and end-point sample results and will include all data including non-detects and applicable standards and/or

guidance values. End-point samples will be Confirmation samples will be analyzed for compounds and elements as described above utilizing the following methodology:

Soil analytical methods will include:

- Volatile organic compounds by EPA Method 8260;
- Semi-volatile organic compounds by EPA Method 8270;
- Target Analyte List metals; and
- Pesticides/PCBs by EPA Method 8081/8082.

If either LNAPL and/or DNAPL are detected, appropriate samples will be collected for characterization and “finger print analysis” and required regulatory reporting (i.e. spills hotline) will be performed.

Quality Assurance/Quality Control The selection of sample containers used to collect samples is based on the criteria of sample matrix, analytical method, and potential constituents of concern, reactivity of container material with the sample, QA/QC requirements, and regulatory protocol requirements. Sample bottles/jars will be provided by the analytical laboratory and will conform to the requirements of USEPA’s Specifications and Guidance for Constituent-Free Sample Containers. Non-dedicated reusable equipment will require field decontamination. Reusable sampling equipment will be made of stainless steel. Acids and solvents will not be used in the field decontamination of such equipment. Decontamination typically involves scrubbing/washing with isopropyl alcohol rinse to remove visibly impacted material, followed by potable (tap) water and analyte-free water rinses. Tap water may be used from treated municipal water system; the use of an untreated potable water supply is not an acceptable substitute. If equipment becomes visually impacted, a hexane rinse may be used on the object, followed by triple rinsing with analyte free water. Equipment will be allowed to dry prior to use. Steam cleaning or high-pressure hot water cleaning may be used in the initial removal of gross, visibly impacted material. In general, soil samples will be cooled to 4°C with no chemical preservatives added. Chemical preservatives will be added to the sample bottles (prior to sample collection) by the analytical laboratory if required. The pH of samples will be spot-checked in the field and additional preservative will be added as needed. Sample preservation is checked upon sample receipt by the laboratory; this information is reported to the GZA Quality

Assurance Officer (QAO) within two business days of sample receipt. If it appears that the level of chemical preservation added is not adequate, then laboratory preservative preparation and addition will be modified or additional preservative will be added in the field by the sampling team.

Equipment blanks demonstrate whether the sampling equipment has the potential for constituent crossover to give a false positive of constituents in the environmental sample. When blank water is used to rinse a piece of sampling equipment (before it is used to sample), the rinsate is collected and analyzed to see if the environmental samples could be biased by residual constituents on the equipment.

Once the sample containers are filled, they will be immediately placed in the cooler with ice (in sealed plastic bags to minimize leakage) or synthetic ice packs to maintain the samples at 4°C. The field sampler will indicate the sample designation/location number in the space provided on the chain-of-custody form for each sample. The chain of custody forms will be signed and placed in a sealed plastic bag in the cooler. The completed shipping container will be closed for transport with nylon strapping, or a similar shipping tape, and two paper seals will be affixed to the lid. The seals must be broken to open the cooler. Broken seals before receipt at the laboratory will indicate sample tampering. A label may be affixed identifying the cooler as containing "Environmental Samples" and the cooler will be shipped by an overnight delivery service to the laboratory. When the laboratory receives the coolers, the custody seals will be checked and lab personnel will sign the chain-of-custody form.

Import and Reuse of Soils

Import of soils onto the property and reuse of soils already onsite will be performed in compliance with the Soil/Materials Management Plan in **Appendix C**. The estimated quantity of soil to be imported into the Site for backfill and cover soil is 2,500 tons. The estimated quantity of onsite soil/fill expected to be reused/relocated on Site is 0 tons.

4.3 ENGINEERING CONTROLS

The excavation required for the proposed Site development will achieve Track 1 Unrestricted Use SCOs. No Engineering Controls are required to address residual contamination at the Site. However, the following elements will be incorporated into the foundation design as

part of development: composite cover system and waterproofing/soil vapor barrier. If Track 1 is not achieved, these two elements will constitute Engineering Controls that will be employed in the remedial action to address residual contamination remaining at the Site.

Composite Cover System

Exposure to residual soil/fill will be prevented by an engineered, composite cover system to be built on the Site. The entire property will be covered by an engineered permanent cover system. This cover system will be comprised of a 12-inch thick concrete-building slab beneath the area of the proposed building.

The proposed development plans showing the concrete building slab are provided in **Appendix E. Figure 8** shows the typical design for each remedial cover type used on this Site. **Figure 7** shows the location of each cover type built at the Site.

The composite cover system is a permanent engineering control for the Site. The system will be inspected and reported at specified intervals as required by this RAWP and the SMP. A Soil Management Plan will be included in the Site Management Plan and will outline the procedures to be followed in the event that the composite cover system and underlying residual soil/fill is disturbed after the remedial action is complete. Maintenance of this composite cover system will be described in the Site Management Plan in the RAR.

Vapor Barrier

Migration of soil vapor will be mitigated with a combination of building slab and vapor barrier. The vapor barrier will extend beneath the footprint of the new building to be constructed on the Site. The specifications for installation will be provided to the construction management company and the foundation contractor or installer of the liner. Installation of the vapor barrier/waterproofing membrane will be observed and documented by the Engineer.

The vapor barrier/waterproofing membrane will be comprised of Grace Preprufe 300R, Preprufe 160R, Bituthene 4000, and HydroDuct 220 below-grade foundation dampproofing material. Joints will be sealed with Preprufe LT tape and Bituthene EdgeGuard tape. The vapor

barrier/waterproofing membrane will provide a barrier to water and moisture, and will be chemically resistant to the constituents present in groundwater.

The project's Professional Engineer licensed by the State of New York will have primary direct responsibility for overseeing the implementation of the vapor barrier. The extent of the proposed vapor barrier membrane is provided in Figure 8. The Remedial Action Report will include photographs of the installation process, PE/RA certified letter on letterhead from the primary contractor responsible for installation oversight and field inspections, and a copy of the manufacturer's certificate of warranty. Design diagrams and specifications for the vapor barrier and waterproofing membrane systems are provided in Appendix G.

4.4 INSTITUTIONAL CONTROLS

If Track 1 SCOs are not achieved, Institutional Controls (IC) will be utilized in this remedial action to manage residual soil/fill and other media and render the Site protective of public health and the environment. Institutional Controls are listed below. Long-term employment of EC/ICs will be implemented under a site-specific Site Management Plan (SMP) that will be included in the RAR.

Institutional Controls for this remedial action are:

- The property will continue to be registered with an E-Designation at the NYC Buildings Department. This RAWP includes a description of all ECs and ICs and summarizes the requirements of the Site Management Plan which will note that the property owner and property owner's successors and assigns must comply with the approved SMP;
- Submittal of a Site Management Plan in the RAR for approval by OER that provides procedures for appropriate operation, maintenance, monitoring, inspection, reporting and certification of ECs. SMP will require that the property owner and property owner's successors and assigns will submit to OER a periodic written statement that certifies that: (1) controls employed at the Site are unchanged from the previous certification or that any changes to the controls were approved by OER; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. OER retains the right to enter

the Site in order to evaluate the continued maintenance of any controls. This certification shall be submitted at a frequency to be determined by OER in the SMP and will comply with RCNY §43-1407(1)(3).

- Vegetable gardens and farming on the Site are prohibited in contact with residual soil materials;
- Use of groundwater underlying the Site is prohibited without treatment rendering it safe for its intended use;
- All future activities on the Site that will disturb residual material must be conducted pursuant to the soil management provisions in an approved SMP;
- The Site will be used for residential and commercial use and will not be used for a higher level of use without prior approval by OER.

4.5 SITE MANAGEMENT PLAN

Site Management is not required for Track 1 remedial actions. However, if Track 1 SCOs are not achieved, Site Management will be the last phase of remediation and begins with the approval of the Remedial Action Report and issuance of the Notice of Completion (NOC) for the Remedial Action. The Site Management Plan (SMP) describes appropriate methods and procedures to ensure implementation of all ECs and ICs that are required by this RAWP. The Site Management Plan is submitted as part of the RAR but will be written in a manner that allows its use as an independent document. Site Management continues until terminated in writing by OER. The property owner is responsible to ensure that all Site Management responsibilities defined in the Site Management Plan are implemented.

The SMP will provide a detailed description of the procedures required to manage residual soil/fill left in place following completion of the remedial action in accordance with the Brownfield Cleanup Agreement with OER. This includes a plan for: (1) implementation of EC's and ICs; (2) implementation of monitoring programs; (3) operation and maintenance of EC's; (4) inspection and certification of EC's; and (5) reporting.

Site management activities, reporting, and EC/IC certification will be scheduled by OER on a periodic basis to be established in the SMP and will be subject to review and modification by OER. The Site Management Plan will be based on a calendar year and certification reports will be due for submission to OER by July 31 of the year following the reporting period.

4.6 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

The objective of the qualitative exposure assessment is to identify potential receptors and pathways for human exposure to the contaminants of concern (COC) that are present at, or migrating from, the Site. The identification of exposure pathways describes the route that the COC takes to travel from the source to the receptor. An identified pathway indicates that the potential for exposure exists; it does not imply that exposures actually occur.

Investigations reported in the Remedial Investigation Report (RIR) are sufficient to complete a Qualitative Human Health Exposure Assessment (QHHEA). As part of the VCP process, a QHHEA was performed to determine whether the Site poses an existing or future health hazard to the Site's exposed or potentially exposed population. The sampling data from the RI were evaluated to determine whether there is any health risk by characterizing the exposure setting, identifying exposure pathways, and evaluating contaminant fate and transport. This QHHEA was prepared in accordance with Appendix 3B and Section 3.3 (b) 8 of the NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation.

Known and Potential Sources

Historic fill material is present at the Site from grade to a maximum depth of about 10 feet below grade. Based on the results of the Remedial Investigation Report, the constituents of concern found are:

Soil:

- VOCs including: including 1,2,4-trimethylbenzene, benzene, and ethylbenzene exceeded Unrestricted Use SCOs in one soil sample, but none of them exceeded Restricted Use SCOs;
- SVOCs including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, 3-

Methylphenol/4-Methylphenol and 2-methylnaphthalene exceeded their Restricted Residential Use SCOs.

- Metals including lead and mercury exceeded Restricted Residential SCOs

Groundwater:

- VOCs including: 1,1-dichloroethene, 1,2,4 Trimethylbenzene, cis-1,2-dichloroethene, benzene, n-butylbenzene, sec-butylbenzene, isopropylbenzene, naphthalene, and n-propylbenzene were detected above GQS;
- SVOCs including: acenaphthene, naphthalene and benzo(a)pyrene were detected above GQS; and
- Metals including: iron, magnesium, manganese and sodium were detected in groundwater above their respective GQS.

Soil Vapor:

- Petroleum-related VOCs included propylene, 2-butanone, n-hexane, benzene, cyclohexane, 2,2,4-trimethylpentane, heptane, toluene, ethylbenzene, o-xylene, p/m-xylene, and 1,2,4-trimethylbenzene; and,
- Chlorinated VOCs were detected above New York State Department of Health (NYSDOH) monitoring thresholds including PCE, TCE, and carbon tetrachloride.

Nature, Extent, Fate and Transport of Contaminants

VOCs, SVOCs, and Metals are present in the historic fill as well as in groundwater at the Site above their respective Track 1 Unrestricted Use SCOs and NYSDEC' Part 703.5 Groundwater Quality Standards (GQS). Dissolved metals including iron, magnesium, manganese, and sodium were detected above GQS. Petroleum VOCs were identified in the soil vapor above the NYSDOH guidance values in one area.

Based on the Site history and previously closed spill case at an adjoining property to the east, there is potential that the former spill case affected the groundwater.

Potential Routes of Exposure

The five elements of an exposure pathway are: (1) a constituent source; (2) constituent release and transport mechanisms; (3) a point of exposure; (4) a route of exposure; and (5) a receptor population. An exposure pathway is considered complete when all five elements are documented. A potential exposure pathway exists when any one or more of the elements cannot be documented. An exposure pathway may be eliminated from further evaluation when any one of the elements has not existed in the past, does not exist in the present, and will not exist in the future. Three potential primary routes exist by which chemicals can enter the body:

- Ingestion of ground water, historic fill or soil;
- Inhalation of vapors and particulates; and
- Dermal contact with groundwater, historic fill, soil, or building materials.

Existence of Human Health Exposure

Current Conditions: The potential for exposure to surficial historic fill is limited because entire property is covered with concrete slab. Groundwater is marginally contaminated but is not exposed at the Site, and because the Site is served by the public water supply and groundwater use for potable supply is prohibited, groundwater is not used at the Site. Currently, no one is occupying the building, and therefore, the exposure pathway for soil vapor is incomplete.

Construction/Remediation Activities: Once redevelopment activities begin, construction workers may come into direct contact with impacted historic fill or soil. On-Site construction workers could potentially ingest, inhale, have dermal contact or have contact via the eyes with impacted historic fill or soil. Off-Site receptors could potentially inhale dust particulates or vapor from impacted historic fill or soil that could emanate off the Site.

During construction, potential on-Site and off-Site exposures to particulates from impacted material on the Site will be addressed through a Soil/Materials Management Plan, dust controls, and through the implementation of both a Community Air Monitoring Program and a Construction Health and Safety Plan.

Proposed Future Conditions: Under future remediated conditions, all soils in excess of Track 1 SCOs will be removed. The Site will be fully capped, limiting potential direct exposure to soil and groundwater remaining in place, and a vapor barrier system will prevent any exposure to potential off site soil vapors in the future. The Site is served by a public water supply, and

groundwater is not used at the Site for potable supply. There are no plausible off-Site pathways for ingestion, inhalation, or dermal exposure to contaminants derived from the Site under future conditions. There are no plausible off-Site pathways for ingestion, inhalation, or dermal exposure to constituents derived from the Site under future conditions.

Receptor Populations

During construction activities, potential on-Site receptors are construction workers performing the remedial construction, visitors, site representatives, trespassers, and any Site security personnel. Potential off-Site receptors within a 0.25-mile radius of the Site include commercial and construction workers, pedestrians, children, and nearby residents based on the following:

1. Commercial Business (up to 0.25 mile)
2. Residential Buildings (up to 0.25 mile)
3. Construction Sites (up to 0.25 mile)
4. Pedestrians, Cyclists (up to 0.25 mile)
5. City Parks (up to 0.25 mile)

Overall Human Health Exposure Assessment

There are no complete exposure pathways (i.e., source, route to exposure, receptor population) for the current condition and for the post-construction condition. This assessment takes into consideration the reasonably anticipated use of the Site, which includes a residential structure, foundation cap, subsurface vapor barrier/waterproofing membrane. Post-construction groundwater use is not anticipated to be an issue because groundwater is not used as a potable water source in New York City. There is no surface water within 500 feet of the Site that could be considered potential receptors of site related impacts. Based on this analysis, on-Site exposure pathways appear to be present only during the remedial action phase.

There is a potential complete exposure pathway that requires mitigation during implementation of the remedy. Under current conditions, potential on-Site exposure pathways exist if intrusive work is conducted below the current slab. During remedial construction, on-

Site and off-Site exposures to impacted dust from historic fill and petroleum impacted fill will be addressed through dust and vapor control and the implementation of the Community Air Monitoring Program, the Soil/Material Management Plan, and a Construction Health and Safety Plan. After the remedial action is complete, there will be no remaining exposure pathways to on-Site soil/fill, as all soil above Track 1 Unrestricted Use SCOs will have been removed and the vapor barriers system will have been installed as part of the development.

5.0 REMEDIAL ACTION MANAGEMENT

5.1 PROJECT ORGANIZATION AND OVERSIGHT

Principal personnel who will participate in the remedial action include Kenneth Eybs (Project Manager W29 534 Highline Owners LLC), James Bellew (Project Manager GZA), John M. Gavras (Associate Principal GZA), Ernest Hanna (Professional Engineer GZA), Rebecca Bub (Project Manager OER) and the eventual remedial contractor. The Professional Engineer (PE) and Qualified Environmental Professionals (QEP) for this project are Ernest Hanna and John Gavras, respectively.

5.2 SITE SECURITY

Site access will be controlled by gated entrances to the fenced property. If necessary, 24-hour security may be employed.

5.3 WORK HOURS

The hours for operation of remedial construction will be from 7:00 to 17:00 on Monday through Friday. If Saturday work is to be performed, then the appropriate permits will be obtained from the New York City Department of Buildings for work variances. These hours conform to the New York City Department of Buildings construction code requirements.

5.4 CONSTRUCTION HEALTH AND SAFETY PLAN

The Health and Safety Plan is included in **Appendix D**. The Site Safety Coordinator will be *named at a later date*. Remedial work performed under this RAWP will be in full compliance with applicable health and safety laws and regulations, including Site and OSHA worker safety requirements and HAZWOPER requirements. Confined space entry, if any, will comply with OSHA requirements and industry standards and will address potential risks. The parties performing the remedial construction work will ensure that performance of work is in compliance with the HASP and applicable laws and regulations. The HASP pertains to remedial and invasive work performed at the Site until the issuance of the Notice of Completion.

All field personnel involved in remedial activities will participate in training required under 29 CFR 1910.120, including 40-hour hazardous waste operator training and annual 8-hour refresher training. Site Safety Officer will be responsible for maintaining workers training records.

Personnel entering any exclusion zone will be trained in the provisions of the HASP and be required to sign an HASP acknowledgment. Site-specific training will be provided to field personnel. Additional safety training may be added depending on the tasks performed. Emergency telephone numbers will be posted at the site location before any remedial work begins. A safety meeting will be conducted before each shift begins. Topics to be discussed include task hazards and protective measures (physical, chemical, environmental); emergency procedures; PPE levels and other relevant safety topics. Meetings will be documented in a log book or specific form.

An emergency contact sheet with names and phone numbers is included in the HASP. That document will define the specific project contacts for use in case of emergency.

5.5 COMMUNITY AIR MONITORING PLAN

Real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the perimeter of the exclusion zone or work area will be performed. Continuous monitoring will be performed for all ground intrusive activities and during the handling of contaminated or potentially contaminated media. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pit excavation or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be performed during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. Periodic monitoring during sample collection, for instance, will consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. Depending upon the proximity of potentially exposed individuals, continuous monitoring may be performed during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park,

or adjacent to a school or residence. Exceedences of action levels observed during performance of the Community Air Monitoring Plan (CAMP) will be reported to the OER Project Manager and included in the Daily Report.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis during invasive work. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities will resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities will resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown.

All 15-minute readings must be recorded and be available for OER personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work will continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed $150 \text{ mcg}/\text{m}^3$ above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than $150 \text{ mcg}/\text{m}^3$ above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work will resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within $150 \text{ mcg}/\text{m}^3$ of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for OER personnel to review.

5.6 AGENCY APPROVALS

All permits or government approvals required for remedial construction have been or will be obtained prior to the start of remedial construction. Approval of this RAWP by OER does not constitute satisfaction of these requirements and will not be a substitute for any required permit.

5.7 SITE PREPARATION

Pre-Construction Meeting

OER will be invited to attend the pre-construction meeting at the Site with all parties involved in the remedial process prior to the start of remedial construction activities.

Mobilization

Mobilization will be conducted as necessary for each phase of work at the Site. Mobilization includes field personnel orientation, equipment mobilization (including securing all sampling equipment needed for the field investigation), marking/staking sampling locations and utility mark-outs. Each field team member will attend an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures.

Utility Marker Layouts, Easement Layouts

The presence of utilities and easements on the Site will be fully investigated prior to the performance of invasive work such as excavation or drilling under this plan by using, at a minimum, the One-Call System (811). Underground utilities may pose an electrocution, explosion, or other hazard during excavation or drilling activities. All invasive activities will be performed in compliance with applicable laws and regulations to assure safety. Utility companies and other responsible authorities will be contacted to locate and mark the locations, and a copy of the Markout Ticket will be retained by the contractor prior to the start of drilling, excavation or other invasive subsurface operations. Overhead utilities may also be present within the anticipated work zones. Electrical hazards associated with drilling in the vicinity of overhead utilities will be prevented by maintaining a safe distance between overhead power lines and drill rig masts.

Proper safety and protective measures pertaining to utilities and easements, and compliance with all laws and regulations will be employed during invasive and other work contemplated under this RAWP. The integrity and safety of on-Site and off-Site structures will be maintained during all invasive, excavation or other remedial activity performed under the RAWP.

Dewatering

Based on the proposed depth of the basement slab and the associated foundation elements, dewatering of the foundation excavation will be required during construction. W29 534 Highline Owners, LLC will subcontract for the preparation and filing of a dewatering permit application with the New York City Department of Environmental Protection Bureau of Wastewater Treatment for the Site. After the dewatering permit is issued, GZA will submit the permit to the OER on behalf of the Owner. The dewatering permit will outline the details of dewatering and any pre-treatment, if required.

Equipment and Material Staging

Equipment and materials will be stored and staged in a manner that complies with applicable laws and regulations.

Stabilized Construction Entrance

Steps will be taken to ensure that trucks departing the site will not track soil, fill or debris off-Site. Such actions may include use of cleaned asphalt or concrete roads or use of stone or other aggregate-based egress paths between the truck inspection station and the property exit. Measures will be taken to ensure that adjacent roadways will be kept clean of project related soils, fill and debris.

Truck Inspection Station

An outbound-truck inspection station will be set up close to the Site exit. Before exiting the NYC VCP Site, trucks will be required to stop at the truck inspection station and will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. Soil and debris will be removed. Brooms, shovels and potable water will be utilized for the removal of soil from vehicles and equipment, as necessary.

Extreme Storm Preparedness and Response Contingency Plan

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of site structures and construction materials and equipment, and dislocation

of support of excavation structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures and cause downed power lines creating dangerous site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, the enrollee will undertake the following steps for site preparedness prior to the event and response after the event.

Storm Preparedness

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; loose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and generators will be removed from holes, trenches and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; stormwater management systems will be inspected and fortified, including, as necessary: clean and reposition silt fences, haybales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

Storm Response

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A site inspection report will be submitted to OER at the completion of site inspection and after the site security is assessed. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. Damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment will be reported to public safety authorities via appropriate means such as calling 911. Petroleum spills will be reported to NYS DEC within 2 hours of identification and consistent with State regulations. Emergency and spill conditions will also be reported to OER. Public safety structures, such as construction security fences will be repaired promptly to eliminate public safety threats. Debris will be collected and removed. Dewatering will be performed in compliance with existing laws and regulations and consistent with emergency

notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. Support of excavation structure will be inspected and fortified as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Storm-water control systems and structures will be inspected and maintained as necessary. If soil or fill materials are discharged off site to adjacent properties, property owners and OER will be notified and corrective measure plan designed to remove and clean dislocated material will be submitted to OER and implemented following approval by OER and granting of site access by the property owner. Impacted offsite areas may require characterization based on site conditions, at the discretion of OER. If onsite petroleum spills are identified, a qualified environmental professional will determine the nature and extent of the spill and report to NYS DEC's spill hotline at DEC 800-457-7362. If the source of the spill is ongoing and can be identified, it should be stopped if this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYS DEC.

Storm Response Reporting

A site inspection report will be submitted to OER at the completion of site inspection. An inspection report established by OER is available on OER's website (www.nyc.gov/oer) and will be used for this purpose. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. The site inspection report will be sent to the OER project manager and will include the site name, address, tax block and lot, site primary and alternate contact name and phone number. Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the site was dislocated and whether any of the soil left the site; estimates of the volume of soil that left the site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the support of excavation; presence of onsite or offsite exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYS DEC; description of corrective actions; schedule for corrective actions. This report should be completed and submitted to OER project manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

5.8 TRAFFIC CONTROL

Drivers of trucks leaving the NYC VCP Site with soil/fill will be instructed to proceed without stopping in the vicinity of the site to prevent neighborhood impacts. The planned route on local roads for trucks leaving the site is westward on 29th Street towards the West Side Highway. Trucks will then merge northward and take the George Washington Bridge to New Jersey, merge onto the New Jersey Turnpike and then proceed to the proposed disposal facilities.

5.9 DEMOBILIZATION

Demobilization will include:

- As necessary, restoration of temporary access areas and areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management areas, and access area);
- Removal of sediment from erosion control measures and truck wash and disposal of materials in accordance with applicable laws and regulations;
- Equipment decontamination, and;
- General refuse disposal.

Equipment will be decontaminated and demobilized at the completion of all field activities. Investigation equipment and large equipment (*e.g.*, soil excavators) will be washed at the truck inspection station as necessary. In addition, all investigation and remediation derived waste will be appropriately disposed.

5.10 REPORTING AND RECORD KEEPING

Daily Reports

Daily reports providing a general summary of activities for each day of *active remedial work* will be emailed to the OER Project Manager by the end of the following day. Those reports will include:

- Project number and statement of the activities and an update of progress made and locations of work performed;
- Quantities of material imported and exported from the Site;
- Status of on-Site soil/fill stockpiles;
- A summary of all citizen complaints, with relevant details (basis of complaint; actions taken; etc.);
- A summary of CAMP excursions, if any;
- Photograph of notable Site conditions and activities.

The frequency of the reporting period may be revised in consultation with OER project manager based on planned project tasks. Daily email reports are not intended to be the primary mode of communication for notification to OER of emergencies (accidents, spills), requests for changes to the RAWP or other sensitive or time critical information. However, such information will be included in the daily reports. Emergency conditions and changes to the RAWP will be communicated directly to the OER project manager by personal communication. Daily reports will be included as an Appendix in the Remedial Action Report.

Record Keeping and Photo-Documentation

Job-site record keeping for all remedial work will be performed. These records will be maintained on-Site during the project and will be available for inspection by OER staff. Representative photographs will be taken of the Site prior to any remedial activities and during major remedial activities to illustrate remedial program elements and contaminant source areas. Photographs will be submitted at the completion of the project in the RAR in digital format (i.e. jpeg files).

5.11 COMPLAINT MANAGEMENT

All complaints from citizens will be promptly reported to OER. Complaints will be addressed and outcomes will also be reported to OER in daily reports. Notices to OER will

include the nature of the complaint, the party providing the complaint, and the actions taken to resolve any problems.

5.12 DEVIATIONS FROM THE REMEDIAL ACTION WORK PLAN

All changes to the RAWP will be reported to the OER Project Manager and will be documented in daily reports and reported in the Remedial Action Report. The process to be followed if there are any deviations from the RAWP will include a request for approval for the change from OER noting the following:

- Reasons for deviating from the approved RAWP;
- Effect of the deviations on overall remedy; and
- Determination that the remedial action with the deviation(s) is protective of public health and the environment.

6.0 REMEDIAL ACTION REPORT

A Remedial Action Report (RAR) will be submitted to OER following implementation of the remedial action defined in this RAWP. The RAR will document that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The RAR will include:

- Information required by this RAWP;
- As-built drawings for all constructed remedial elements, required certifications, manifests and other written and photographic documentation of remedial work performed under this remedy;
- Site Management Plan (if Track 1 is not achieved);
- Description of any changes in the remedial action from the elements provided in this RAWP and associated design documents;
- Tabular summary of all end point sampling results and all material characterization results, QA/QC results for end-point sampling, and other sampling and chemical analysis performed as part of the remedial action and DUSR;
- Test results or other evidence demonstrating that remedial systems are functioning properly;
- Account of the source area locations and characteristics of all contaminated material removed from the Site including a map showing source areas;
- Account of the disposal destination of all contaminated material removed from the Site. Documentation associated with disposal of all material will include transportation and disposal records, and letters approving receipt of the material.
- Account of the origin and required chemical quality testing for material imported onto the Site.
- Continue registration of the property with an E-Designation by the NYC Department of Buildings.

- Reports and supporting material will be submitted in digital form.

Remedial Action Report Certification

The following certification will appear in front of the Executive Summary of the Remedial Action Report. The certification will include the following statements:

I, _____, am currently a professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the 534 West 29th Street Site number TBD.

I, _____, am a qualified Environmental Professional. I had primary direct responsibility for implementation remedial program for the 534 West 29th Street Site number TBD.

I certify that the OER-approved Remedial Action Work Plan dated month day year and Stipulations in a letter dated month day, year; if any were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material from the property were taken to facilities licensed to accept this material in full compliance with applicable laws and regulations.

7.0 SCHEDULE

The table below presents a schedule for the proposed remedial action and reporting. If the schedule for remediation and development activities changes, it will be updated and submitted to OER. Currently, a 7 month remediation period is anticipated.

Schedule Milestone	Weeks from Remedial Action Start	Duration (weeks)
OER Approval of RAWP	0	-
Fact Sheet 2 announcing start of remedy	0	-
Mobilization	6	1
Remedial Excavation	7	8
Demobilization	15	1
Submit Remedial Action Report	25	-

APPENDIX A

CITIZEN PARTICIPATION PLAN

The NYC Office of Environmental Remediation and W29 534 Highline Owners LLC have established this Citizen Participation Plan because the opportunity for citizen participation is an important component of the NYC Voluntary Cleanup Program. This Citizen Participation Plan describes how information about the project will be disseminated to the Community during the remedial process. As part of its obligations under the NYC VCP, W29 534 Highline Owners LLC will maintain a repository for project documents and provide public notice at specified times throughout the remedial program. This Plan also takes into account potential environmental justice concerns in the community that surrounds the project Site.

Under this Citizen Participation Plan, project documents and work plans are made available to the public in a timely manner. Public comment on work plans is strongly encouraged during public comment periods. Work plans are not approved by the NYC Office of Environmental Remediation (OER) until public comment periods have expired and all comments are formally reviewed. An explanation of cleanup plans in the form of a public meeting or informational session is available upon request to OER's project manager assigned to this Site, Rebecca Bub, who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at (212) 788-8841.

Project Contact List. OER has established a Site Contact List for this project to provide public notices in the form of fact sheets to interested members of the Community. Communications will include updates on important information relating to the progress of the cleanup program at the Site as well as to request public comments on the cleanup plan. The Project Contact List includes owners and occupants of adjacent buildings and homes, principal administrators of nearby schools, hospitals and day care centers, the public water supplier that serves the area, established document repositories, the representative Community Board, City Council members, other elected representatives and any local Brownfield Opportunity Area (BOA) grantee organizations. Any member of the public or organization will be added to the Site Contact List on request. A copy of the Site Contact List is maintained by OER's project

manager. If you would like to be added to the Project Contact List, contact NYC OER at (212) 788-8841 or by email at brownfields@cityhall.nyc.gov.

Repositories. A document repository is maintained in the nearest public library that maintains evening and weekend hours. This document repository is intended to house, for community review, all principal documents generated during the cleanup program including Remedial Investigation plans and reports, Remedial Action work plans and reports, and all public notices and fact sheets produced during the lifetime of the remedial project. W29 534 Highline Owners LLC will inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

New York Public Library - Muhlenberg Branch
209 West 23rd Street
New York, NY 10011-2379
Manager: Ashley Curran
Phone Number: 212-924-1585

Repository Hours of Operation:

Monday & Wednesday: 11:00am – 6:00pm

Tuesday & Thursday: 11:00am – 7:00pm

Friday & Saturday: 10:00am – 5:00pm

Sunday: Closed

Digital Documentation. NYC OER strongly encourages the use of digital documents in repositories as a means of minimizing paper use while also increasing convenience in access and ease of use.

Identify Issues of Public Concern. There are no issues of public concern.

Public Notice and Public Comment. Public notice to all members of the Project Contact List is required at three major steps during the performance of the cleanup program (listed below) and at other points that may be required by OER. Notices will include Fact Sheets with descriptive project summaries, updates on recent and upcoming project activities, repository information, and important phone and email contact information. All notices will be prepared by

W29 534 Highline Owners LLC, reviewed and approved by OER prior to distribution and mailed by W29 534 Highline Owners LLC. Public comment is solicited in public notices for all work plans developed under the NYC Voluntary Cleanup Program. Final review of all work plans by OER will consider all public comments. Approval will not be granted until the public comment period has been completed.

Citizen Participation Milestones. Public notice and public comment activities occur at several steps during a typical NYC VCP project. See flow chart on the following page, which identifies when during the NYC VCP public notices are issued: These steps include:

- **Public Notice of the availability of the Remedial Investigation Report and Remedial Action Work Plan and a 30-day public comment period on the Remedial Action Work Plan.**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the availability of the Remedial Investigation Report and Remedial Action Work Plan and the initiation of a 30-day public comment period on the Remedial Action Work Plan. The Fact Sheet summarizes the findings of the RIR and provides details of the RAWP. The public comment period will be extended an additional 15 days upon public request. A public meeting or informational session will be conducted by OER upon request.

- **Public Notice announcing the approval of the RAWP and the start of remediation**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the approval of the RAWP and the start of remediation.

- **Public Notice announcing the completion of remediation, designation of Institutional and Engineering Controls and issuance of the Notice of Completion**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the completion of remediation, providing a list of all Institutional and Engineering Controls implemented for to the Site and announcing the issuance of the Notice of Completion.

Site Contact List

1. Government Contacts

New York State Senate:
The Honorable Thomas K. Duane
New York State Assembly, District 29
322 Eighth Avenue Suite 1700
New York, NY 10001

New York City Department of City Planning:
Amanda M. Burden, Director, Department of City Planning and Chair
City Planning Commission
Department of City Planning
22 Reade Street
New York, NY 10007-1216

Carole Samol, Deputy Director
Department of City Planning, Bronx Office
One Fordham Plaza, 5th Fl.
Bronx, NY 10458

New York City Councilperson:
The Honorable Christine Quinn, New York City Council, District 3
224 West 30th St (Suite 1206)
New York, NY 10001

Borough of Manhattan, New York County:
The Honorable President Scott Stringer, Manhattan Borough President
1 Centre Street, 19th Floor
New York, NY 10007

Community Board:
Manhattan Community Board 4
330 West 42nd Street, Suite 2618
New York, NY 10036
Chair: Mr. J.D. Nolan
District Manager: Mr. Robert J. Benfatto

2. Residents and/or Owners of Site and Properties Immediately Adjacent

Owner of Site:

Chelsea W26 LLC
37 West 65th Street
New York, NY 10023-6610

Adjacent to North:

Tuck-It Away Self Storage
517 West 29th Street
New York, NY 10001
212-368-1717

David Nolan Art Gallery
527 West 29th Street
New York, NY 10001
212-925-6190

Adjacent to East:

Chelsea W26 LLC
522-532 West 29th Street
New York, NY 10001

Adjacent to South:

Active Construction Site

Adjacent to West:

Skylight Gallery
538 West 29th Street
New York, NY 10001
646-772-2407

3. Local News Media

New York Post
1211 Avenue of the Americas
New York, NY 10036
212-930-8100

New York Daily News
450 West 33rd Street
New York, NY 10001

4. Public Water Supplier

The New York City Department of Environmental Protection (DEP)
Bureau of Water Supply
59-17 Junction Boulevard
Flushing, NY 11373

5. Any Person who has requested to be on the Site Contact List

N/A

6. Administrator of any School or Day Care Facility Located on or Near the Site

Avenues: The World School
President: Alan Greenberg
259 10th Avenue
New York, NY 10001
212-524-9000

P.S. 33, Chelsea Prep
Principal: Linore Lindy
281 9th Avenue
New York, NY 10001
212-244-6426

University of Medicine and Health Sciences
Dean: Robert W. Amler, M.D.
460 West 34th Street
New York, NY 10001
866-686-0380

Guardian Angel School
Principal: Maureen McElduff
193 10th Avenue
New York, NY 10011

212-989-8280

McCarton School

Executive Director: Cecelia McCarton, M.D.

331 West 25th Street

New York, NY 10001

212-675-3905

YAI-NY League Early Learning

Chief Executive Officer: Stephen E. Freeman

460 West 34th Street

New York, NY 10001

212-420-0510

Secret Garden Preschool

422 West 20th Street

New York, NY 10011

212-627-7275

San Jose Day Nursery Inc.

432 West 20th Street

New York, NY 10011

212-929-0839

Sitters Studio

Daycare Director: Emma Morrison

259 West 30th Street

New York, NY 10001

877-844-8204

Kids at Work

Founder and Owner: Julie Averill

242 West 27th Street

New York, NY 10001

212-488-8800

7. Document Repository

New York Public Library - Muhlenberg Branch

209 West 23rd Street

New York, NY 10011-2379
Manager: Ashley Curran
Phone Number: 212-924-1585

APPENDIX B

SUSTAINABILITY STATEMENT

This Sustainability Statement documents sustainable activities and green remediation efforts planned under this remedial action.

Reuse of Clean, Recyclable Materials. Reuse of clean, locally-derived recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction. If possible, W29 534 Highline Owners LLC will reuse clean, non-virgin materials, the results of which will be quantified and reported in the Remedial Action Report (RAR).

Reduced Energy Consumption and Promotion of Greater Energy Efficiency. Reduced energy consumption lowers greenhouse gas emissions, improves local air quality, lessens in-city power generation requirements, can lower traffic congestion, and provides substantial cost savings.

Best efforts will be made to quantify energy efficiencies achieved during the remediation and will be reported in the Remedial Action Report (RAR). Where energy savings cannot be easily quantified, a gross indicator of the amount of energy saved or the means by which energy savings was achieved will be reported.

Conversion to Clean Fuels. Use of clean fuel improves NYC's air quality by reducing harmful emissions.

An estimate of the volume of clean fuels used during remedial activities will be quantified and reported in the RAR.

Recontamination Control. Recontamination after cleanup and redevelopment is completed undermines the value of work performed, may result in a property that is less protective of public health or the environment, and may necessitate additional cleanup work later or impede future redevelopment. Recontamination can arise from future releases that occur within the property or by influx of contamination from off-Site.

An estimate of the area of the Site that utilizes recontamination controls under this plan will be reported in the RAR in square feet.

Storm-water Retention. Storm-water retention improves water quality by lowering the rate of combined storm-water and sewer discharges to NYC's sewage treatment plants during periods of precipitation, and reduces the volume of untreated influent to local surface waters.

An estimate of the enhanced storm-water retention capability of the redevelopment project will be included in the RAR.

Linkage with Green Building. Green buildings provide a multitude of benefits to the city across a broad range of areas, such as reduction of energy consumption, conservation of resources, and reduction in toxic materials use.

The number of Green Buildings that are associated with this brownfield redevelopment property will be reported in the RAR. The total square footage of green building space created as a function of this brownfield redevelopment will be quantified for residential, commercial and industrial/manufacturing uses.

Paperless Brownfield Cleanup Program. W29 534 Highline Owners LLC is participating in OER's Paperless Brownfield Cleanup Program. Under this program, submission of electronic documents will replace submission of hard copies for the review of project documents, communications and milestone reports.

Low-Energy Project Management Program. W29 534 Highline Owners LLC is participating in OER's low-energy project management program. Under this program, whenever possible, meetings are held using remote communication technologies, such as videoconferencing and teleconferencing to reduce energy consumption and traffic congestion associated with personal transportation.

Trees and Plantings. Trees and other plantings provide habitat and add to NYC's environmental quality in a wide variety of ways. Native plant species and native habitat provide optimal support to local fauna, promote local biodiversity, and require less maintenance.

An estimate of the land area that will be vegetated, including the number of trees planted or preserved, will be reported in square feet in the RAR.

APPENDIX C

SOIL/MATERIALS MANAGEMENT PLAN

1.1 SOIL SCREENING METHODS

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional and will be reported in the RAR. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of the Notice of Completion.

1.2 STOCKPILE METHODS

Excavated soil from suspected areas of contamination (e.g., hot spots, USTs, drains, etc.) will be stockpiled separately and will be segregated from clean soil and construction materials. Stockpiles will be used only when necessary and will be removed as soon as practicable. While stockpiles are in place, they will be inspected daily, and before and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. Excavated soils will be stockpiled on, at minimum, double layers of 8-mil minimum sheeting, will be kept covered at all times with appropriately anchored plastic tarps, and will be routinely inspected. Broken or ripped tarps will be promptly replaced.

All stockpile activities will be compliant with applicable laws and regulations. Soil stockpile areas will be appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials shall be located at least of 50 feet from the property boundaries, where possible. Hay bales or equivalent will surround soil stockpiles except for areas where access by equipment is required. Silt fencing and hay bales will be used as needed near catch basins, surface waters and other discharge points.

1.3 CHARACTERIZATION OF EXCAVATED MATERIALS

Soil/fill or other excavated media that is transported off-Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils proposed for reuse on-Site will be managed as defined in this plan.

1.4 MATERIALS EXCAVATION, LOAD-OUT AND DEPARTURE

The PE/QEP overseeing the remedial action will:

- oversee remedial work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this RAWP;
- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;
- ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

Open and uncontrolled mechanical processing of historical fill and contaminated soil on-Site will not be performed without prior OER approval.

1.5 OFF-SITE MATERIALS TRANSPORT

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on-Site, when possible in order to minimize off Site disturbance. Off-Site queuing will be minimized.

Outbound truck transport routes are westward on 29th Street towards the West Side Highway. Trucks will then merge northward and take the George Washington Bridge to New Jersey, merge onto the New Jersey Turnpike and then proceed to the proposed disposal facilities. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

1.6 MATERIALS DISPOSAL OFF-SITE

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with applicable laws and regulations: (1) a letter from the PE/QEP or Enrollee to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York, New York under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Enrollee. The letter will include as an attachment a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility stating it is in receipt of the correspondence (1, above) and is approved to accept the material. These documents will be included in the RAR.

The Remedial Action Report will include an itemized account of the destination of all material removed from the Site during this remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the RAR.

All impacted soil/fill or other waste excavated and removed from the Site will be managed as regulated material and will be disposed in accordance with applicable laws and regulations. Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in compliance with its applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the RAR. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the RAR. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

1.7 MATERIALS REUSE ON-SITE

Soil and fill that is derived from the property that meets the soil cleanup objectives established in this plan may be reused on-Site. The soil cleanup objectives for on-Site reuse are listed in **Table 4**. ‘Reuse on-Site’ means material that is excavated during the remedy or development, does not leave the property, and is relocated within the same property and on comparable soil/fill material, and addressed pursuant to the NYC VCP agreement subject to Engineering and Institutional Controls. The PE/QEP will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this RAWP are followed. The reuse of materials on Site is not anticipated.

Organic matter (wood, roots, stumps, etc.) or other waste derived from clearing and grubbing of the Site will not be buried on-Site. Soil or fill excavated from the site for grading or other purposes will not be reused within a cover soil layer or within landscaping berms.

1.8 DEMARCATION

After completion of hotspot removal and any other invasive remedial activities, and prior to backfilling, the top of the residual soil/fill will be defined by one of three methods: (1) placement of a demarcation layer. The demarcation layer will consist of geosynthetic fencing or equivalent material to be placed on the surface of residual soil/fill to provide an observable reference layer. A description or map of the approximate depth of the demarcation layer will be provided in the SMP; or (2) a land survey of the top elevation of residual soil/fill before the placement of cover soils, pavement and associated sub-soils, or other materials or structures or, (3) all materials beneath the approved cover will be considered impacted and subject to site management after the

remedy is complete. Demarcation may be established by one or any combination of these three methods. As appropriate, a map showing the method of demarcation for the Site and all associated documentation will be presented in the RAR.

This demarcation will constitute the top of the site management horizon. Materials within this horizon require adherence to special conditions during future invasive activities as defined in the Site Management Plan.

1.9 IMPORT OF BACKFILL SOIL FROM OFF-SITE SOURCES

This Section presents the requirements for imported fill materials to be used below the cover layer and within the clean soil cover layer; although, no backfill or imported material is anticipated for the completion of this project. All imported soils will meet OER-approved backfill and cover soil quality objectives for this Site. The backfill and cover soil quality objectives are listed in **Table 4**.

A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

The following potential sources may be used pending attainment of backfill and cover soil quality objectives:

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYS DEC.

All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this RAWP. The RAR will report the source of the fill, evidence

that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed.

Source Screening and Testing

Inspection of imported fill material will include visual, olfactory and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:

- Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;
- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and
- Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite samples of imported material will be taken at a minimum frequency of one sample for every 500 cubic yards of material. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by NYSDEC. Facilities will be identified in the RAR. A PE/QEP is responsible to ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for, and will not be used as cover material.

1.10 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable laws and regulations. Liquids discharged into the New York City sewer system will receive prior approval by New York City Department

of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. Discharge to the New York City sewer system will require an authorization and sampling data demonstrating that the groundwater meets the City's discharge criteria. The dewatering fluid will be pretreated as necessary to meet the NYC DEP discharge criteria. If discharge to the City sewer system is not appropriate, the dewatering fluids will be managed by transportation and disposal at an off-Site treatment facility.

Discharge of water generated during remedial construction to surface waters (i.e. a stream or river) is prohibited without a SPDES permit issued by New York State Department of Environmental Conservation.

1.11 STORM-WATER POLLUTION PREVENTION

Applicable laws and regulations pertaining to storm-water pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this RAWP (silt fences and barriers, and hay bale checks) will be installed around the entire perimeter of the remedial construction area and inspected once a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receptors. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence toe anchor will be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

1.12 CONTINGENCY PLAN

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to OER's Project Manager. Petroleum spills will be reported to the NYS DEC Spill Hotline. These findings

will be included in the daily report. If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to OER. Chemical analytical testing will be performed for TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

1.13 ODOR, DUST AND NUISANCE CONTROL

Odor Control

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) use of foams to cover exposed odorous soils. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems.

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. OER will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the PE/QEP's certifying the Remedial Action Report.

Dust Control

Dust management during invasive on-Site work will include, at a minimum:

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles.
- Use of properly anchored tarps to cover stockpiles.
- Exercise extra care during dry and high-wind periods.
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. OER will be notified of all dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the PE/QEP's responsible for certifying the Remedial Action Report.

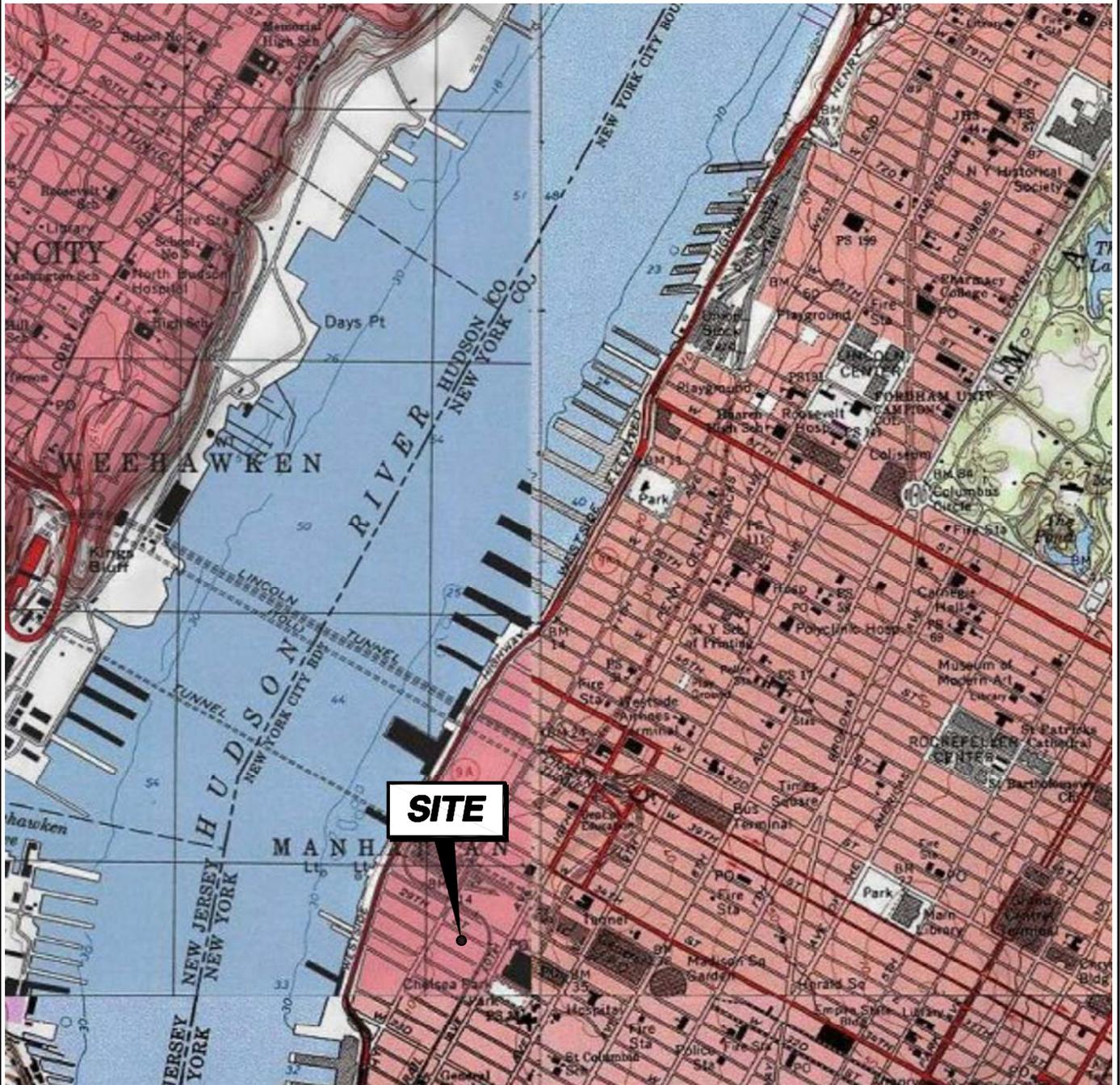
Other Nuisances

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

Rodent control will be provided, during Site clearing and grubbing, and during the remedial program, as necessary, to prevent nuisances.



FIGURES

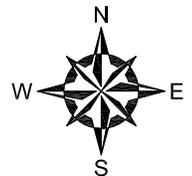


NEW YORK



QUADRANGLE LOCATION

SOURCE:
USGS TOPOGRAPHIC MAPS WEEHAWKEN, NJ-NY (1981) &
CENTRAL PARK, NY-NJ (1979). CONTOUR INTERVAL 10 FT.,
ORIGINAL SCALE 1:24,000 (1"=2,000 FT.).



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534 WEST 29TH STREET
NEW YORK, NEW YORK

PREPARED BY:



GZA GeoEnvironmental
of New York
Engineers and Scientists
104 WEST 29TH STREET, 10TH FLOOR
NEW YORK, NEW YORK 10001

PREPARED FOR:

W29 534 HIGHLINE
OWNERS LLC

SITE LOCATION MAP

PROJ MGR: JB

REVIEWED BY: JB

CHECKED BY: JB

FIGURE

DESIGNED BY: JB

DRAWN BY: MT

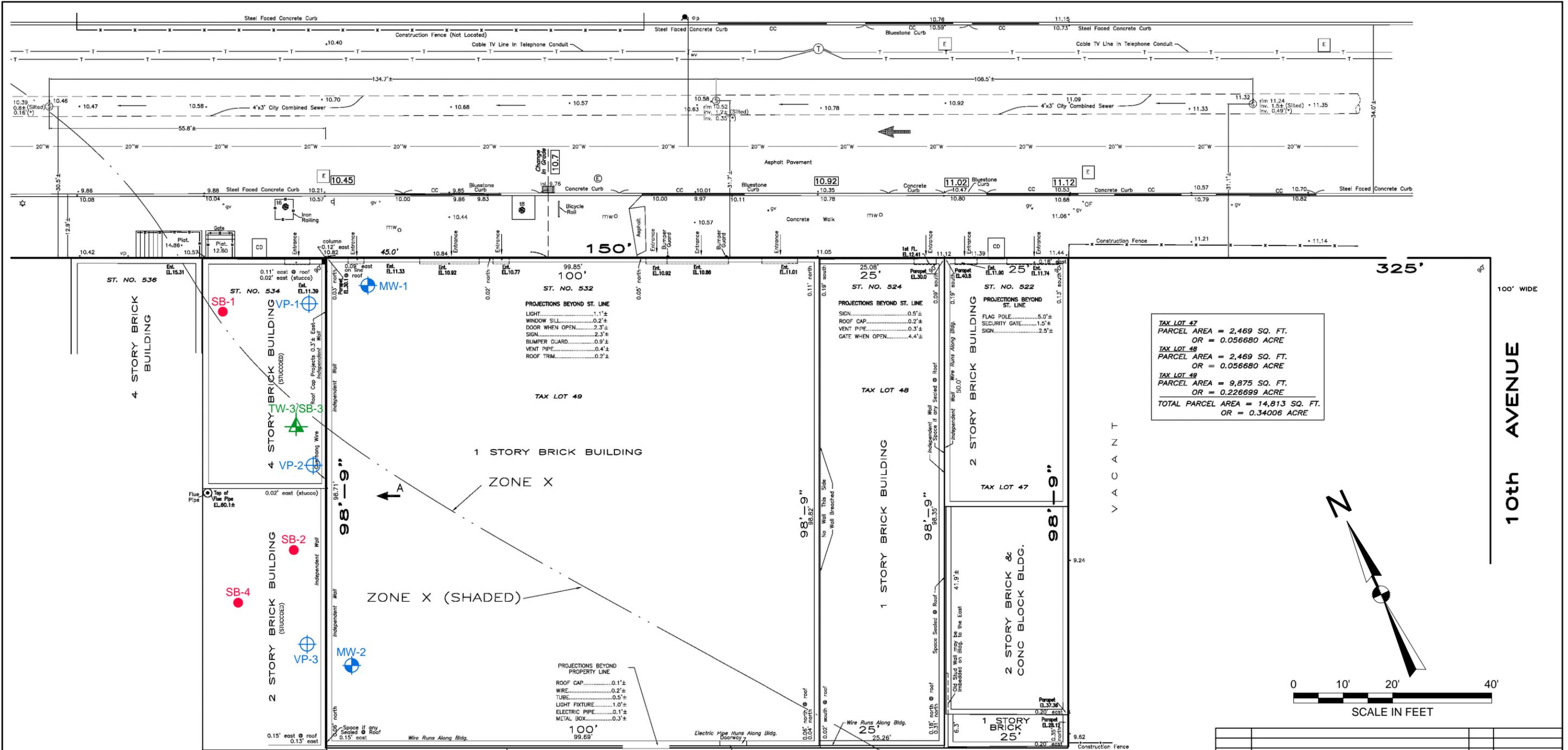
SCALE: 1" = 2000'

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SHEET NO.

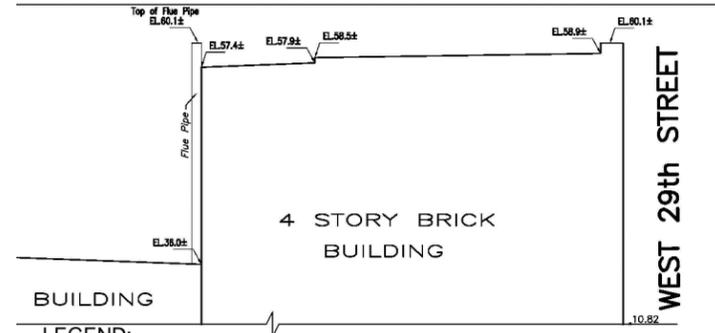
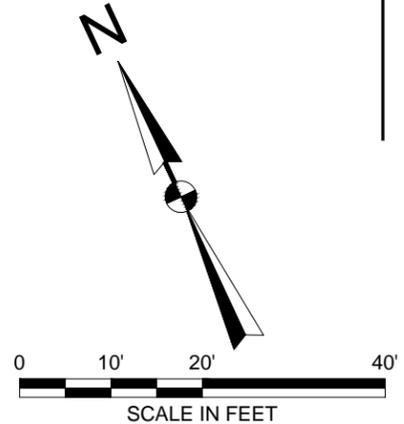
DATE:
OCTOBER 2013

PROJECT NO.
41.0162122.02

REVISION NO.



TAX LOT 47	PARCEL AREA = 2,469 SQ. FT.
	OR = 0.056680 ACRE
TAX LOT 48	PARCEL AREA = 2,469 SQ. FT.
	OR = 0.056680 ACRE
TAX LOT 49	PARCEL AREA = 9,875 SQ. FT.
	OR = 0.226699 ACRE
TOTAL PARCEL AREA	= 14,813 SQ. FT.
	OR = 0.34006 ACRE



- LEGEND:**
- MONITORING WELL
 - SOIL BORING
 - SOIL VAPOR POINT
 - SOIL BORING IMPROVED WITH MONITORING WELL

NOTE:

- THE BASE MAP WAS DEVELOPED FROM ELECTRONIC FILES PROVIDED BY: FOUNDATIONS GROUP, ENTITLED: SEWER LINES INSTALLATION IN THE CRAWL SPACE & STREET, DATED: 11/20/12, ORIGINAL SCALE: 1" = 10'.

NO.	ISSUE/DESCRIPTION	BY	DATE

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**534 WEST 29TH STREET
NEW YORK, NEW YORK**

EXPLORATION LOCATION PLAN

PREPARED BY: GZA GeoEnvironmental of New York Engineers and Scientists 104 WEST 29TH STREET, 10TH FLOOR NEW YORK, NEW YORK 10001	PREPARED FOR: W29 534 HIGHLINE OWNERS LLC
--	--

PROJ MGR: JB	REVIEWED BY: ES	CHECKED BY: JB	FIGURE 2
DESIGNED BY: ES	DRAWN BY: EM	SCALE: 1" = 20'	
DATE: OCTOBER 2013	PROJECT NO. 41.0162137.00	REVISION NO.	SHEET NO.

CBANYCRESIDENCES

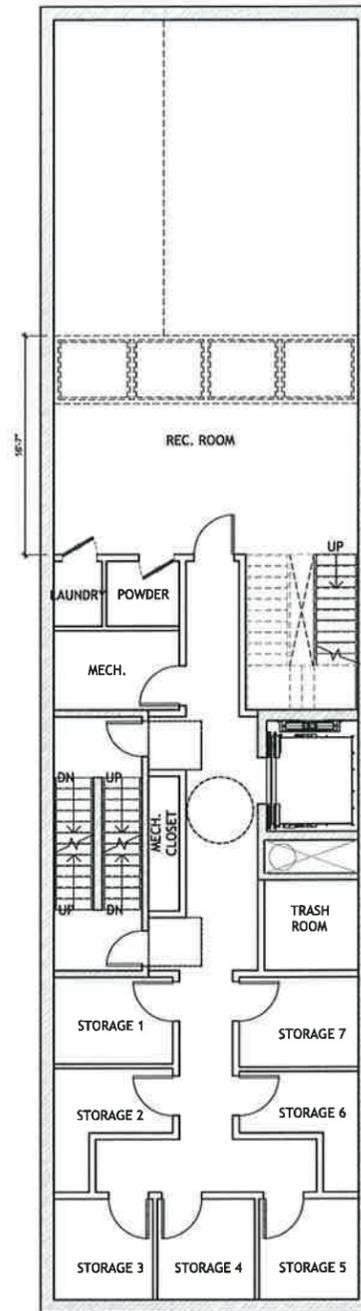
534 W 29 ST, New York, New York

Plans, Massing & Programmatic Diagram
June 17, 2013

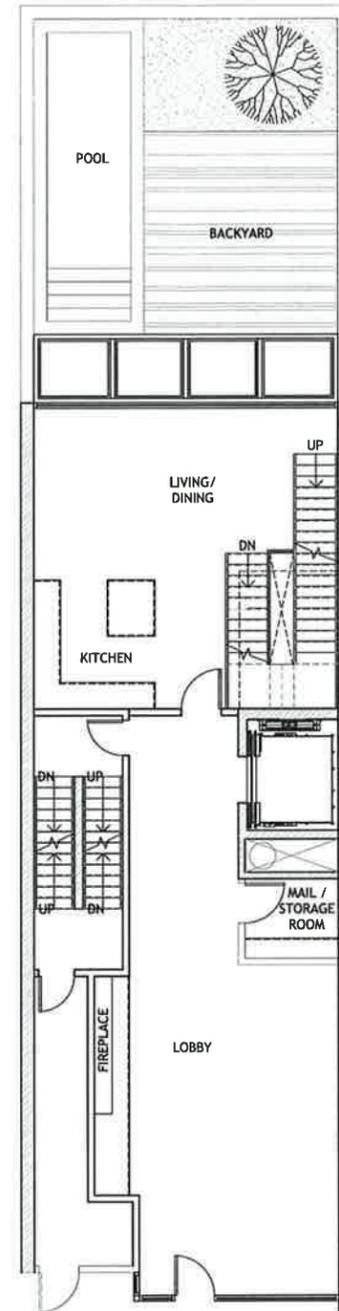
Prepared for:
Black House
520 W 27th Street Suite 302
New York, NY 10001

workshop/apd

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CELLAR/STORAGE/
UNIT 1 (TOWN HOUSE)
2.5BR/2.5BA

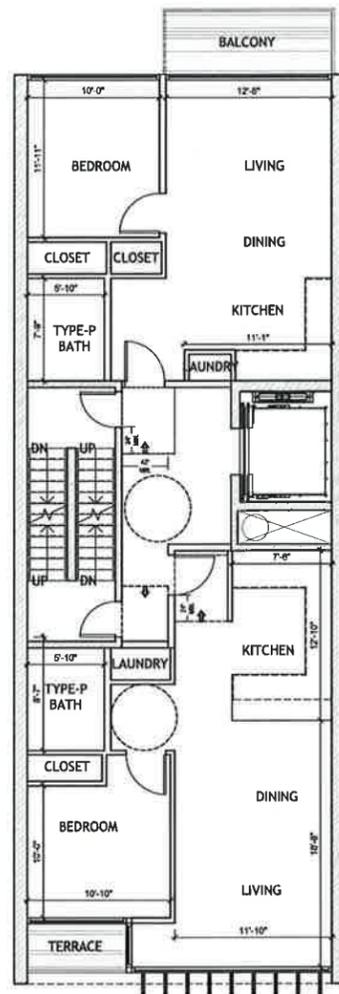


LOBBY /
UNIT 1 (TOWN HOUSE)
2.5BR/2.5BA

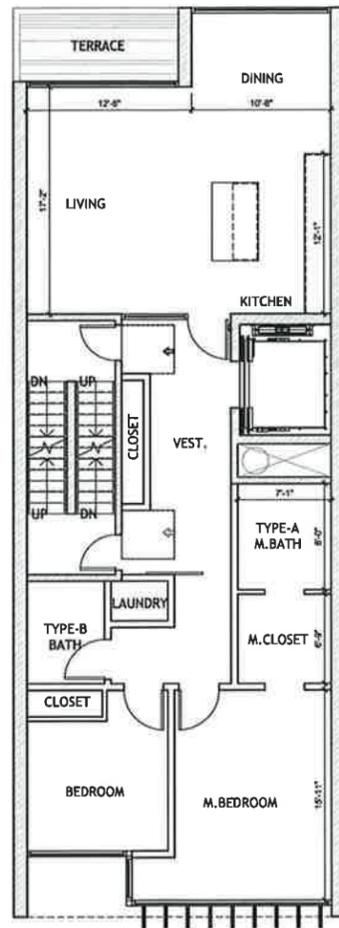


2ND FLOOR /
UNIT 1 (TOWN HOUSE)
2.5BR/3BA

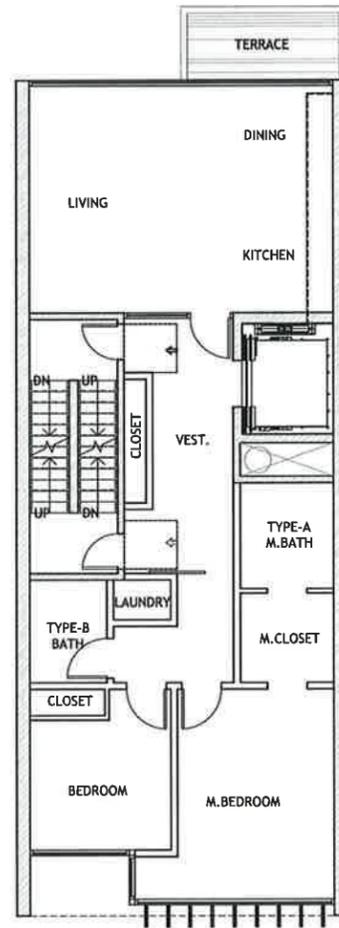




3RD FLOOR /
UNIT 2 & 3
1BR/1BA

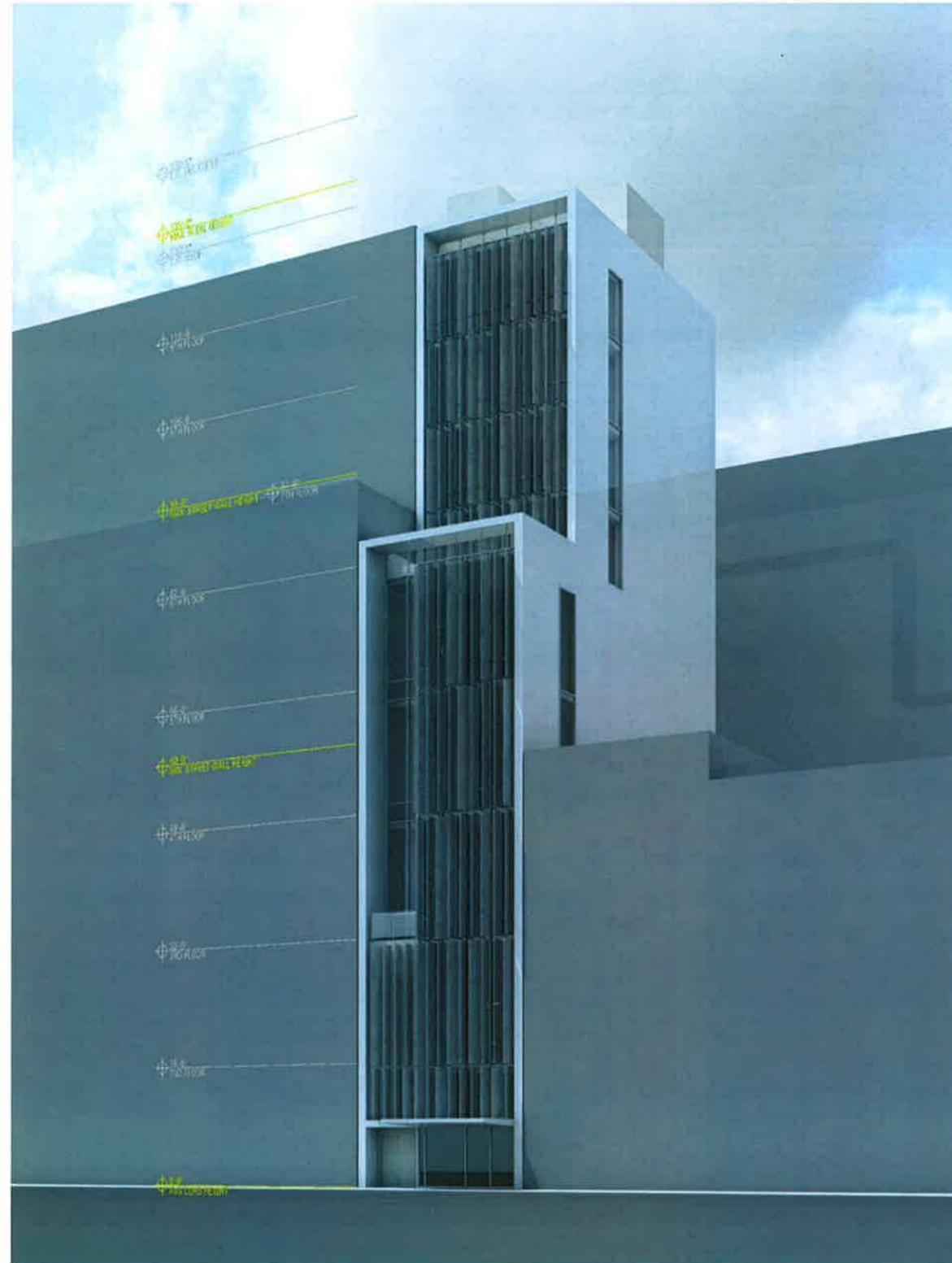


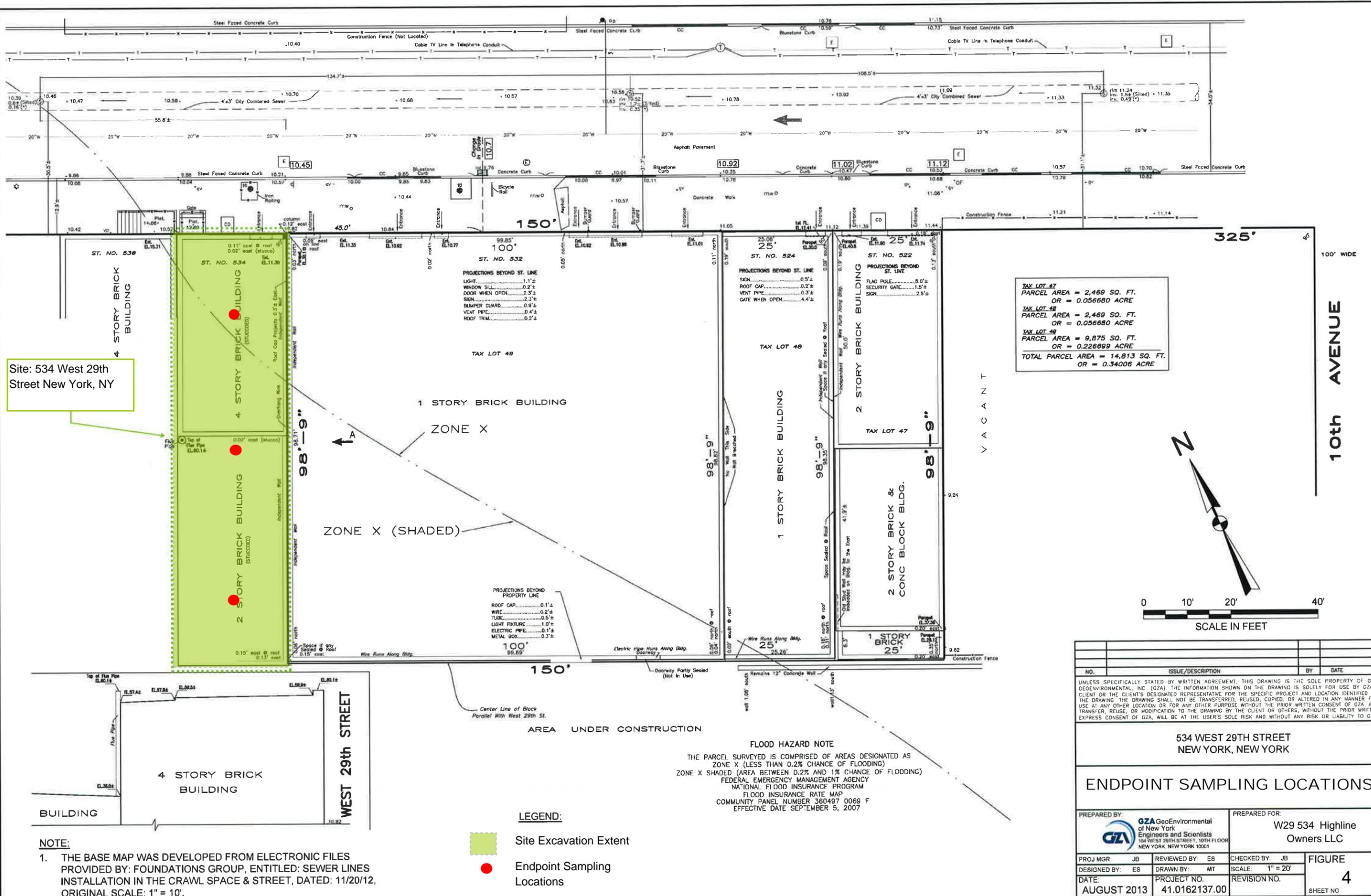
4TH FLOOR /
UNIT 4
2BR/2BA



5TH FLOOR /
UNIT 5
2BR/2BA





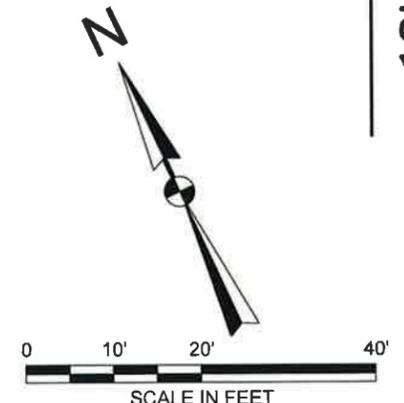


TAX LOT 47
 PARCEL AREA = 2,469 SQ. FT.
 OR = 0.056680 ACRE

TAX LOT 48
 PARCEL AREA = 2,469 SQ. FT.
 OR = 0.056680 ACRE

TAX LOT 49
 PARCEL AREA = 9,875 SQ. FT.
 OR = 0.226889 ACRE

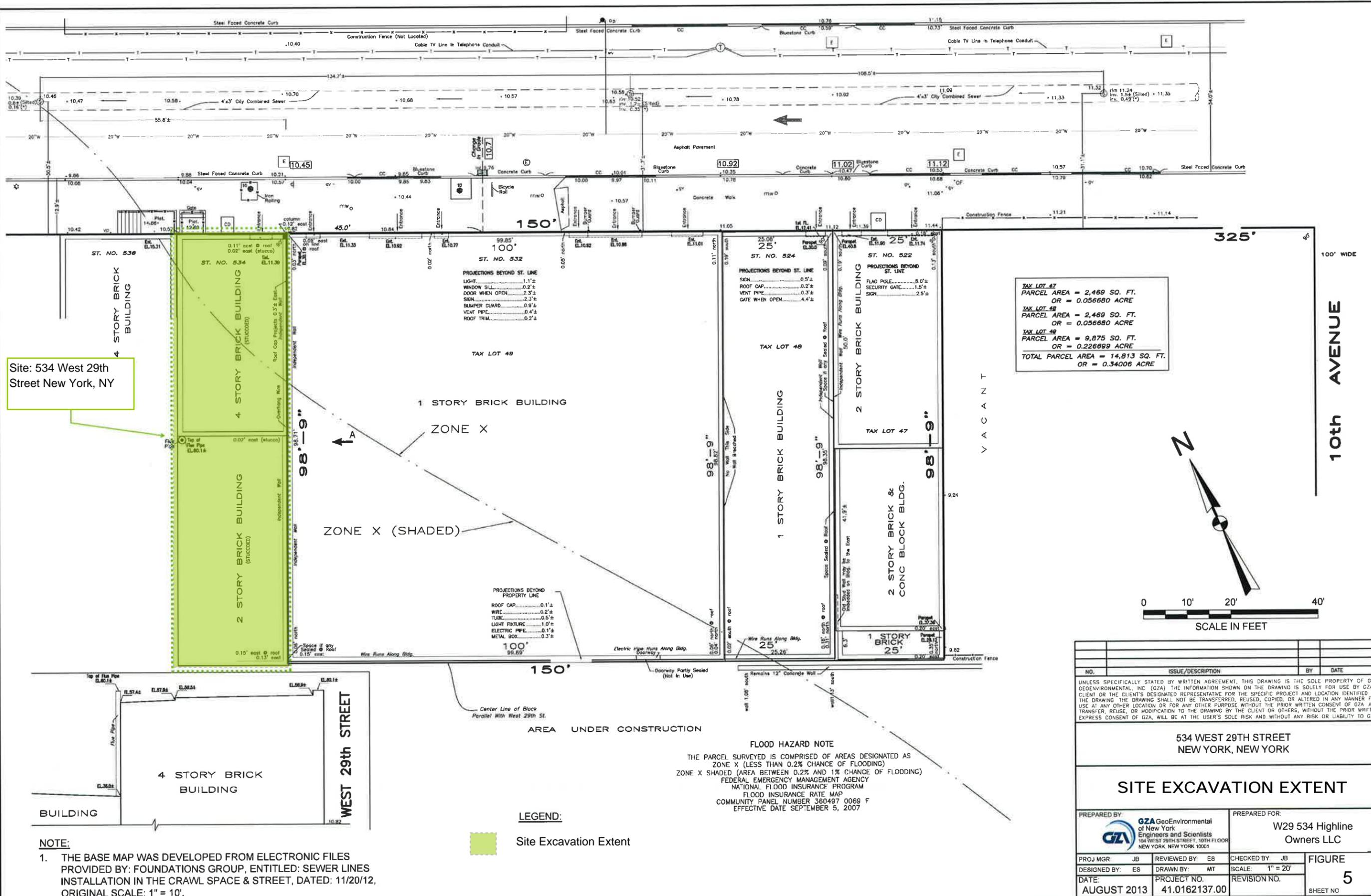
TOTAL PARCEL AREA = 14,813 SQ. FT.
 OR = 0.34006 ACRE



NO.	ISSUE/DESCRIPTION	BY	DATE
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534 WEST 29TH STREET NEW YORK, NEW YORK			
ENDPOINT SAMPLING LOCATIONS			
PREPARED BY: GZA GeoEnvironmental of New York Engineers and Scientists 104 WEST 29TH STREET, 10TH FLOOR NEW YORK, NEW YORK 10001		PREPARED FOR: W29 534 Highline Owners LLC	
PROJ MGR: JB DESIGNED BY: ES DATE: AUGUST 2013	REVIEWED BY: ES DRAWN BY: MT PROJECT NO.: 41.0162137.00	CHECKED BY: JB SCALE: 1" = 20' REVISION NO.:	FIGURE: 4 SHEET NO:

NOTE:

1. THE BASE MAP WAS DEVELOPED FROM ELECTRONIC FILES PROVIDED BY: FOUNDATIONS GROUP, ENTITLED: SEWER LINES INSTALLATION IN THE CRAWL SPACE & STREET, DATED: 11/20/12, ORIGINAL SCALE: 1" = 10'.



Site: 534 West 29th Street New York, NY

TAX LOT 47
 PARCEL AREA = 2,469 SQ. FT.
 OR = 0.056680 ACRE
 TAX LOT 48
 PARCEL AREA = 2,469 SQ. FT.
 OR = 0.056680 ACRE
 TAX LOT 49
 PARCEL AREA = 9,875 SQ. FT.
 OR = 0.226889 ACRE
 TOTAL PARCEL AREA = 14,813 SQ. FT.
 OR = 0.34006 ACRE

PROJECTIONS BEYOND ST. LINE
 LIGHT.....1.1'±
 WINDOW SILL.....0.2'±
 DOOR WHEN OPEN.....2.3'±
 SIGN.....2.3'±
 BUMPER GUARD.....0.9'±
 VENT PIPE.....0.4'±
 ROOF TRIM.....0.2'±

PROJECTIONS BEYOND ST. LINE
 SIGN.....0.5'±
 ROOF CAP.....0.2'±
 VENT PIPE.....0.3'±
 GATE WHEN OPEN.....4.4'±

PROJECTIONS BEYOND PROPERTY LINE
 ROOF CAP.....0.1'±
 WIRE.....0.2'±
 TUBE.....0.5'±
 LIGHT FIXTURE.....1.0'±
 ELECTRIC PIPE.....0.1'±
 METAL BOX.....0.3'±

NOTE:
 1. THE BASE MAP WAS DEVELOPED FROM ELECTRONIC FILES PROVIDED BY: FOUNDATIONS GROUP, ENTITLED: SEWER LINES INSTALLATION IN THE CRAWL SPACE & STREET, DATED: 11/20/12, ORIGINAL SCALE: 1" = 10'.

LEGEND:
 Site Excavation Extent

FLOOD HAZARD NOTE
 THE PARCEL SURVEYED IS COMPRISED OF AREAS DESIGNATED AS ZONE X (LESS THAN 0.2% CHANCE OF FLOODING)
 ZONE X SHADED (AREA BETWEEN 0.2% AND 1% CHANCE OF FLOODING)
 FEDERAL EMERGENCY MANAGEMENT AGENCY
 NATIONAL FLOOD INSURANCE PROGRAM
 FLOOD INSURANCE RATE MAP
 COMMUNITY PANEL NUMBER 360497 0069 F
 EFFECTIVE DATE SEPTEMBER 5, 2007

NO.	ISSUE/DESCRIPTION	BY	DATE
534 WEST 29TH STREET NEW YORK, NEW YORK			
SITE EXCAVATION EXTENT			
PREPARED BY: GZA GeoEnvironmental of New York Engineers and Scientists 104 WEST 29TH STREET, 10TH FLOOR NEW YORK, NEW YORK 10001		PREPARED FOR: W29 534 Highline Owners LLC	
PROJ MGR: JB	REVIEWED BY: ES	CHECKED BY: JB	FIGURE 5 SHEET NO
DESIGNED BY: ES	DRAWN BY: MT	SCALE: 1" = 20'	
DATE: AUGUST 2013	PROJECT NO: 41.0162137.00	REVISION NO:	



Key:

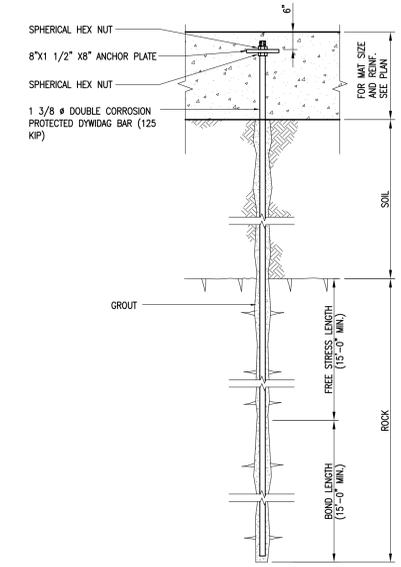
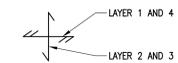
- Site
- Commercial
- Auto Repair
- Residential
- Construction

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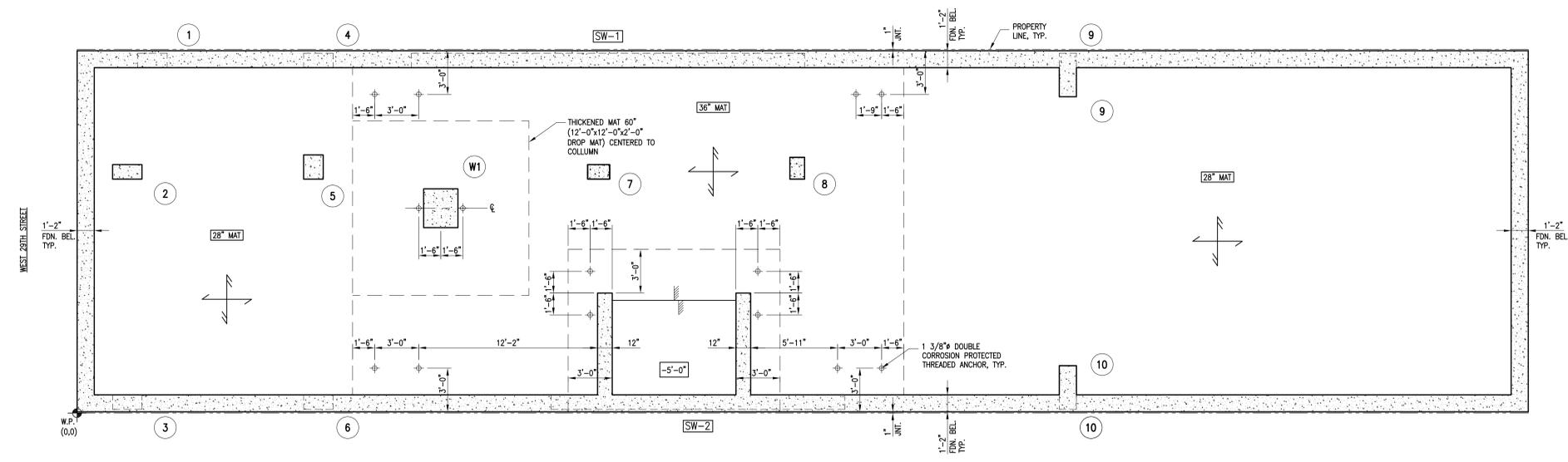
PROJECT NO: 41.0162137.00	Area Land Usage at Adjacent Properties CEQR # 03DCP069M	Source: Google Earth, July 2012		PROJECT MGR: JG DESIGNED BY: ES REVIEWED BY: JG	DRAWN BY: ES DATE: September, 2013
Figure: 6	534 West 29 th Street, New York, NY	PREPARED FOR: W29 534 Highline Owners LLC 520 West 27 th Street, Suite 302 New York, New York 10001		GZA GeoEnvironmental, Inc. <i>Engineers & Scientists</i>	

DRAWING NOTES:

- DATUM IS SET AT ELEVATION ±0'-0" AT FIRST FLOOR
- TOP OF CONCRETE SLAB ELEVATION IS -12'-0" BELOW TOP OF FIRST FLOOR SLAB, UON ON PLAN THUS [X-X'].
- CONCOURSE SLAB SHALL BE 5" CONCRETE SLAB ON WELL COMPACTED POROUS FILL REINFORCED WITH WWR 5X5-6X6
- TOP OF MAT FOUNDATION SHALL BE 2'-0" BELOW TOP OF SLAB, UON.
- MAT FOUNDATION SHALL BE REINFORCED WITH #9@12" EACH WAY TOP GRID, BOTTOM GRID SHALL BE AS FOLLOWS: 24" MAT - #5@12"; 28" MAT - #6@12"; 36" MAT - #7@12"
- FOR DEPTH OF MAT, SEE PLAN SHOWN THUS [XX' MAT].
- ALL WALLS SHALL BE REINFORCED WITH #7@12" O.C. VERTICAL AND #5@12" O.C. HORIZONTAL EACH FACE UNLESS OTHERWISE SHOWN ON PLAN, IN SECTIONS OR ON SHEAR WALL SCHEDULES.
- ⊕ DENOTES 1 3/8" DOUBLE CORROSION PROTECTED THREADED ANCHOR.
- SEE FO-200 SERIES DRAWINGS FOR TYPICAL FOUNDATION DETAILS.
- FOR WATER PROOFING OF FOUNDATIONS SEE ARCHITECTURAL DRAWING.



① TYPICAL ROCK ANCHOR DETAIL
SCALE: NTS



① FOUNDATION & CELLAR PLAN
SCALE: 1/4" = 1'-0"

DOB FILE NO.

DOB USE



REVISIONS

NO.	DATE	DESCRIPTION
01	00/08/15/2013	ISSUED TO D.O.B.
02	01/09/18/2013	ISSUED TO D.O.B.
03		
04		
05		
06		
07		
08		
09		
10		
11		
12		

DRAWING INFO

DESIGN DEVELOPMENT	
DRAWN BY:	KM
CHECKED BY:	PR
DATE:	AUGUST 15, 2013
SCALE:	AS NOTED
PROJ. NO.	13010

FOUNDATION & CELLAR PLAN

FO-100.00

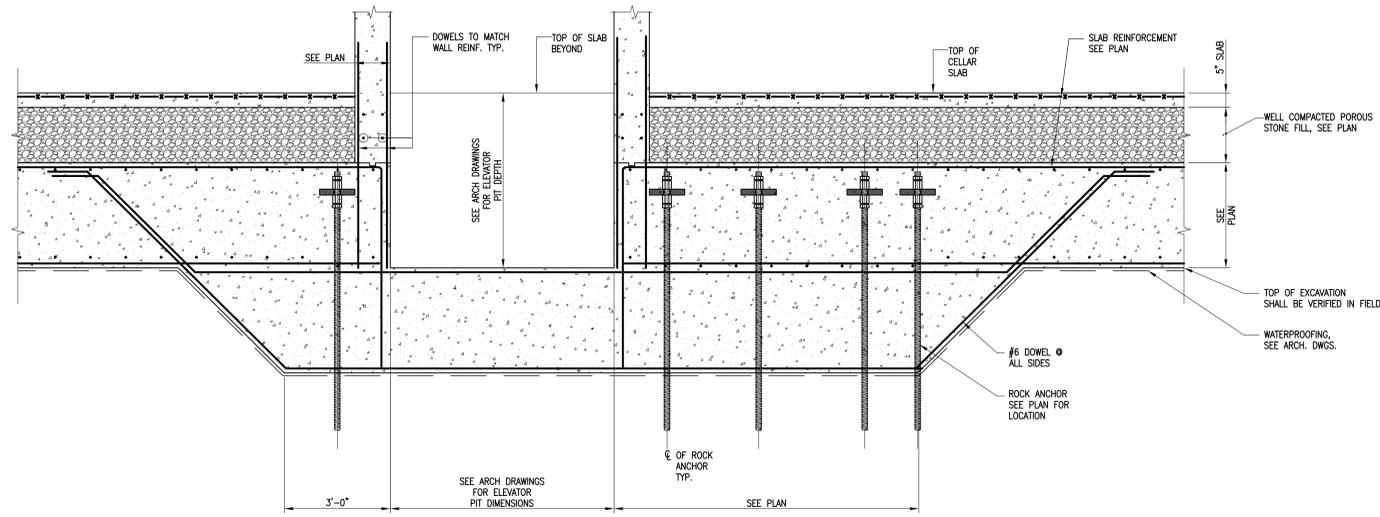
OWNER
W29 534 HIGHLINE OWNERS, LLC
520 West 27th Street, Suite 302
New York, NY 10001
Tel: (212) 804-8784

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Thomas J. Zoli, RA, NCARB
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Fax: (212) 273-9713

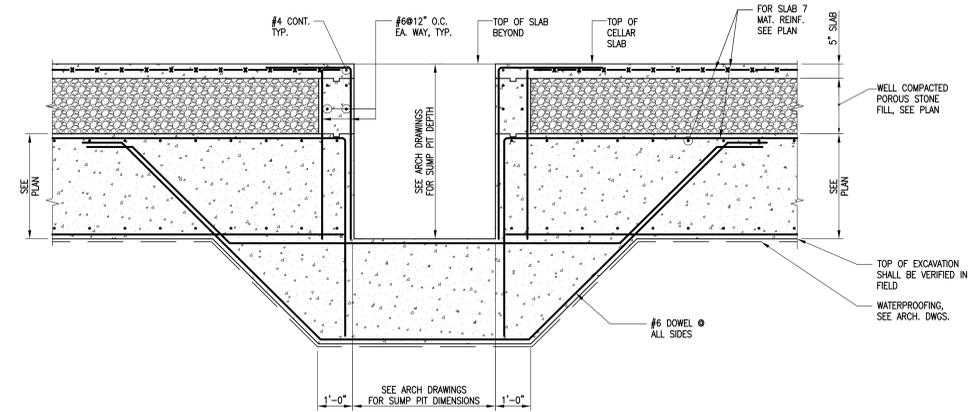
STRUCTURAL ENGINEER
Marin Consulting Engineers PLLC
68 Jay Street, Suite 201
Brooklyn, NY 11201
Tel: (917) 705-5334

MECHANICAL ENGINEER
ZLS Consulting Engineering
150 West 30th Street, 4th Floor
New York, NY 10001
Tel: (917) 267-8945

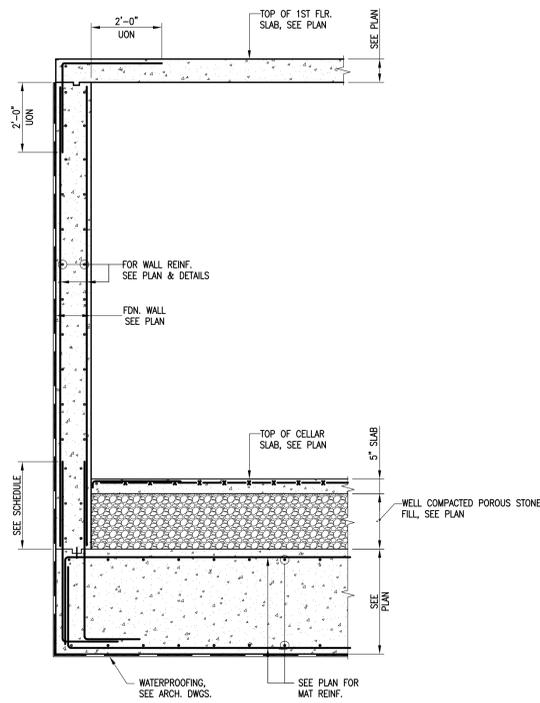
CONTRACTOR
Foundations Group Inc.
520 West 27th Street, Suite 302
New York, New York 10001
Tel: (212) 924-1724



① TYPICAL SECTION AT ELEVATOR PIT
SCALE: NTS



② TYPICAL SECTION AT SUMP PIT
SCALE: NTS



③ TYPICAL SECTION AT FOUNDATION WALL
SCALE: NTS

DOB FILE NO.

DOB USE



REVISIONS

NO.	DATE	DESCRIPTION
01	00/08/15/2013	ISSUED TO D.O.B.
02	01/09/18/2013	ISSUED TO D.O.B.
03		
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12		

DRAWING INFO

DESIGN DEVELOPMENT
DRAWN BY: KM
CHECKED BY: PR
DATE: AUGUST 15, 2013
SCALE: AS NOTED
PROJ. NO.

FOUNDATION DETAILS

FO-200.00

GENERAL NOTES

1. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS.
2. ALL STRUCTURAL WORK SHALL CONFORM TO THE PROJECT SPECIFICATIONS, ALL DRAWING NOTES, AND THE BUILDING CODE OF THE CITY OF NEW YORK.
3. THE LATEST EDITIONS OF THE FOLLOWING CODES AND STANDARDS AS MODIFIED BY THE BUILDING CODE SHALL APPLY:
 - A. THE CITY OF NEW YORK BUILDING CODE, 2008 EDITION
 - B. CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES – AISC.
 - C. BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE – ACI 318.
 - D. AISC—SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS – ASD
- IN CASE OF CONFLICT, THE MOST STRINGENT REQUIREMENTS SHALL APPLY.
4. TYPICAL DETAILS APPLY THROUGHOUT THE PROJECT, EVEN IF NOT SPECIFICALLY REFERENCED IN PLANS OR DETAILS.
5. FIELD MEASUREMENTS SHALL BE TAKEN AT THE SITE BY THE CONTRACTOR TO VERIFY AND SUPPLEMENT ALL DIMENSIONS AND ADDITIONS AFFECTED BY EXISTING WORK OR NEW WORK THAT HAS ALREADY BEEN INSTALLED. ANY DISCREPANCIES FROM THE INFORMATION SHOWN ON PLANS SHALL BE REPORTED TO AND COORDINATED WITH THE ARCHITECT.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL ROOF AND FLOOR PENETRATIONS, PATCHING, REPAIRING AND FLASHING AS REQUIRED.
7. REFER TO ARCHITECTURAL DRAWINGS FOR PRIMARY SETTING OUT. ALL STRUCTURAL WORK SHALL BE COORDINATED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, ETC REQUIREMENTS. DISCREPANCIES AND/OR CONFLICTS SHALL BE REPORTED TO THE ARCHITECT IMMEDIATELY.
8. THE CONTRACTOR SHALL COORDINATE WITH ALL RELATED TRADES FOR DETAILING, FABRICATION AND ERECTION, PRIOR TO SUBMITTING SHOP DRAWINGS FOR APPROVAL.
9. SUPPORT DETAILS SHOWN IN STRUCTURAL DRAWINGS FOR ELEVATOR, ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING EQUIPMENT ARE INDICATIVE IN NATURE. CONTRACTOR SHALL COORDINATE FINAL SUPPORT DETAILS WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT SUPPLIED AND SHALL PROVIDE ANY ADDITIONAL FRAMING REQUIRED.
10. OPENINGS SHALL NOT BE MADE IN ANY STRUCTURAL MEMBER UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.
11. BEFORE COMMENCEMENT OF ANY WORK AND/OR FABRICATION, THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR HIS APPROVAL CONCRETE MIX DESIGNS FOR EACH TYPE OF CONCRETE TO BE USED, MILL REPORTS FOR STEEL AND SHOP DRAWINGS FOR ALL TRADES.
12. THE CONTRACTOR SHALL ADEQUATELY BRACE, SHORE, AND SUPPORT THE STRUCTURE DURING THE ENTIRE CONSTRUCTION PERIOD.
13. THE DESIGN, CONSTRUCTION, INSPECTION AND MAINTENANCE OF TEMPORARY STRUCTURES OR PROCEDURES INCLUDING BUT NOT LIMITED TO SUPPORT FOR AND STABILITY OF CRANES OR HOIST OR LIFTS OR OTHER SIMILAR EQUIPMENT, TEMPORARY GUYING OR BRACING, SCAFFOLDING FORM WORK OR SHORING, Dewatering, SHEETING OR UNDERPINNING, CONSTRUCTION STORAGE OR STAGING AREAS, SKEWALK BRIDGES OR CONSTRUCTION FENCES, TEMPORARY ENCLOSURES AT OPENINGS, AT THE BUILDINGS PERIMETER, OR ELSEWHERE, ETC. ARE SOLELY THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND/OR CONTRACTORS AND/OR CONSULTANTS RETAINED BY THE GENERAL CONTRACTOR.
14. CONTROL OVER OR CHARGE OF RESPONSIBILITY FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK OF THE PROJECT ARE SOLELY THE GENERAL CONTRACTORS RESPONSIBILITY.

FOUNDATION NOTES:

1. MAT FOUNDATIONS AND FOOTINGS SHALL BEAR ON UNDISTURBED SOIL HAVING A SAFE BEARING CAPACITY OF 3 TONS PER SQUARE FOOT.
2. FOR ROCK ANCHORS SEE GEOTECHNICAL SPECIFICATIONS.
3. ELEVATIONS OF THE BOTTOM OF THE FOOTINGS ARE INDICATED IN THE FOUNDATION PLAN, BUT ARE SUBJECT TO REVISION WHEN TRUE CONDITIONS ARE REVEALED BY THE EXCAVATIONS.
4. THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER AND/OR THE FOUNDATION CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION WORK INCLUDING BUT NOT LIMITED TO THE DESIGN, INSTALLATION AND MAINTENANCE OF SHEETING AND SHORING, PROTECTION OF SLOPES, UNDERPINNING AND Dewatering.
5. THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER AND/OR THE FOUNDATION CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW YORK TO DESIGN ALL SHEETING AND SHORING, UNDERPINNING AND Dewatering SYSTEMS.
6. THE SLOPE BETWEEN ADJACENT FOOTING BOTTOMS SHALL NOT EXCEED 1 VERTICAL TO 2 HORIZONTAL.
7. FOUNDATION WALLS AND/OR GRADE BEAMS SHALL BE CAST IN ALTERNATE PANELS NOT TO EXCEED 60 FEET IN LENGTH. CONSTRUCTION JOINTS SHALL BE PLACED AT POINT OF MINIMUM SHEAR, GENERALLY AT MIDSPAN. ALLOW 7 DAYS MINIMUM BETWEEN ADJACENT POURS.
8. HORIZONTAL JOINTS IN WALLS OR GRADE BEAMS WILL BE PERMITTED ONLY IF AND AS SHOWN.
9. MAKE NO EXCAVATION TO THE FULL DEPTH INDICATED WHEN FREEZING TEMPERATURES MAY BE EXPECTED UNLESS THE FOOTINGS OR SLABS CAN BE PLACED IMMEDIATELY AFTER THE EXCAVATION HAS BEEN COMPLETED. PROTECT THE BOTTOM OF EXCAVATION FROM FROST BY PLACING OF CONCRETE IS DELAYED. SHOULD PROTECTION FAIL, REMOVE FROZEN MATERIALS AND REPLACE WITH CONCRETE OR GRAVEL FILL.
10. WALLS SHALL BE TEMPORARILY BRACED AGAINST EARTH PRESSURE AND OTHER FORCES UNTIL SLABS, BEAMS AND OTHER MEMBERS DESIGNED TO BRACE THE FINISHED STRUCTURE HAVE BEEN IN PLACE AND HAVE ATTAINED REQUIRED CONCRETE ULTIMATE STRENGTH.

CONCRETE NOTES

1. CONCRETE TYPES:

FOUNDATIONS	– 5,000 PSI (NWC)
BUTTRESS AND FOUNDATION WALL	– 5,000 PSI (NWC)
PIERS	– 5,000 PSI (NWC)
SLAB ON GRADE	– 4,000 PSI (NWC)
SLABS AND BEAMS	– 5,000 PSI (NWC)
SHEAR WALLS	– 5,000 PSI (NWC)
COLUMNS	– SEE COLUMN SCHEDULE
2. ALL GROUT SHALL BE NON-SHRINK WITH A MINIMUM COMPRESSIVE STRENGTH OF 8000 PSI.
3. BAR REINF. SHALL CONFORM TO ASTM A-615, GRADE 60.
4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185 WITH A MINIMUM ULTIMATE TENSILE STRENGTH OF 70,000 PSI.
5. CONCRETE SHALL BE CAST MONOLITHICALLY EXCEPT WHERE OTHERWISE SHOWN.
6. REINFORCEMENT MARKED "CONT." (CONTINUOUS) SHALL BE LAPPED THE DISTANCE "S" AT SPLICES AND CORNERS AND SHALL BE HOOKED OR EXTENDED A DISTANCE "E" AT NON-CONTINUOUS ENDS. HORIZONTAL WALL REINFORCING SHALL BE CONTINUOUS.
7. REINFORCEMENT SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS UNLESS OTHERWISE SHOWN ON DRAWINGS. THE CONTRACTOR SHALL LOCATE CONSTRUCTION JOINTS AT POINTS OF MINIMUM SHEAR.
8. REINFORCING BARS IN CONCRETE ON METAL DECK SHALL HAVE 3/4" CONCRETE PROTECTION.
9. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND LOCATIONS OF ALL OPENINGS, PIPE SLEEVES, ANCHOR BOLTS, ETC. AS REQUIRED BY TRADES BEFORE CONCRETE IS POURED.
10. THE CONTRACTOR SHALL PROVIDE SLAB BOLSTERS, HIGH CHAIRS AND ALL ACCESSORIES REQUIRED FOR PROPER PLACEMENT OF WIRE MESH AND REINFORCING AS PER A.C.I. & C.R.S.I. STANDARDS. LOCATION OF CONSTRUCTION JOINTS IF REQUIRED SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT.
11. CONCRETE MAY BE CONVEYED BY PUMPING. PUMPING METHODS SHALL COMPLY WITH REQUIREMENTS ESTABLISHED BY A.C.I. COMMITTEE 304, PLACING CONCRETE PUMPING METHODS.
12. PRIOR TO PLACING CONCRETE, ALL REINFORCING SHALL BE FREE OF LOOSE FLAKY RUST, MUD, OIL OR OTHER COATING THAT WILL DESTROY, REDUCE OR HAMPER FULL BOND CAPACITY.
13. THE CONTRACTOR SHALL INSTALL IN THE FORMS ALL SLOTS, SLEEVES, INSERTS, ANCHOR BOLTS, HANGERS, MASONRY ANCHORS, ETC. REQUIRED BY THE OTHER TRADES AND COORDINATE WITH THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER FOR COMPLETENESS AND LOCATION BEFORE CONCRETE IS CAST.
14. IF PIPES OR CONDUITS ARE TO BE PLACED IN SLABS, THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER, PRIOR TO THE START OF WORK, SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL DRAWINGS SHOWING THE SIZE, LOCATION (VERTICALLY AND HORIZONTALLY) AND SPACING OF PIPES AND/OR CONDUITS.
15. GENERALLY, PIPES OR CONDUITS PLACED IN SLABS SHOULD NOT BE LARGER THAN 1/3 THE SLAB THICKNESS AND SHOULD NOT BE SPACED CLOSER THAN 3 DIAMETERS ON CENTER AND SHOULD NOT BE PLACED IN INTERSECTION OF COLUMN STRIPS FOR FLAT SLABS.
16. ALUMINUM CONDUITS OR PIPES SHALL NOT BE PLACED IN CONCRETE.
17. ALL PLUMBING SLOTS AROUND SLEEVES SHALL BE FILLED WITH CONCRETE THE SAME DEPTH AS FLOOR SLAB AFTER PUMPING IS INSTALLED.
18. CHAMFER EDGES OF EXPOSED CONCRETE COLUMNS AND BEAMS, PROVIDE REGLETS AND DRIPS AS SHOWN ON THE ARCHITECTURAL DRAWINGS AND IN SPECIFICATIONS
19. ALL BEAMS AND SLABS SHALL BE CAST MONOLITHICALLY.
20. CURING OF CONCRETE SHALL START AS SOON AS THE FINISH WILL NOT BE MARRED THEREBY. IT SHALL NOT BE PERMISSIBLE TO DELAY THE CURING UNTIL THE MORNING AFTER THE CONCRETE IS CAST.

STRUCTURAL STEEL NOTES

1. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE NOTED:
 - A. WIDE FLANGE, S, HP, CHANNEL AND TEE SHAPES – ASTM A992, Fy=50Ksi
 - B. ANGLES, PLATES AND BARS – ASTM A36
 - C. TUBES AND PIPES – ASTM A53 GRADE B
2. STEEL SHALL BE NOTED ON PLANS AND DETAILS, AS BELOW:

TOP OF STEEL ELEVATIONS IS AT UNDERSIDE OF DECK UNLESS NOTED OTHERWISE.

3. ALL CONNECTION DESIGN FORCES INDICATED IN THE DRAWINGS ARE UNFACTORED.
4. MOMENT CONNECTIONS WHERE INDICATED ON PLAN ARE REQUIRED TO DEVELOP THE FULL MOMENT AND SHEAR CAPACITY OF THE MEMBER.
5. EACH SHEAR CONNECTION FOR THE NON-COMPOSITE BEAMS SHALL BE CAPABLE OF SUPPORTING A REACTION EQUAL TO ¾ (0.625) TIMES THE UNIFORM LOAD CAPACITY OF THE BEAM, UNLESS NOTED.
6. BOLTED CONNECTIONS: BOLTS ARE TO BE A325 OR A490 SLIP CRITICAL, CLASS A, FLOOR BEAM CONNECTIONS TO BEAM OR GIRDERS CAN BE BEARING TYPE CONNECTIONS. DIAMETER OF ALL BOLTS SHALL BE MINIMUM ¾" AND MAXIMUM 1 ¼". PROVIDE AT LEAST 2 BOLTS PER CONNECTIONS U.O.N..
7. COPED OR CUT ENDS OF MEMBERS SHALL BE REINFORCED WHERE REQUIRED TO SUSTAIN THE SPECIFIED REACTIONS.
8. SHOP CONNECTIONS SHALL BE WELDED.
9. FIELD CONNECTIONS SHALL BE BOLTED WITH ASTM A325 BOLTS UNLESS OTHERWISE NOTED. BOLTS SHALL BE 3/4" DIAMETER MINIMUM. CONNECTIONS SHALL BE SLIP CRITICAL CONNECTIONS UNLESS OTHERWISE NOTED.
10. WELDING SHALL BE PERFORMED BY QUALIFIED WELDERS IN ACCORDANCE WITH AWS SPECIFICATIONS LATEST EDITION AND THE BUILDING CODE.
11. WELDING ELECTRODES SHALL BE ASTM A232 E-70 SERIES.
12. FILET WELDS SHALL BE 1/4" MIN. UNLESS OTHERWISE SHOWN.
13. ANCHOR BOLTS SHALL BE F1554 GRADE 55 (Fy = 55 KSI) WITH SUPPLEMENTARY REQUIREMENT S1 FOR WELDABILITY UNLESS OTHERWISE NOTED.

14. PRIOR TO FABRICATION OF FRAMING, THE CONTRACTOR SHALL SUBMIT FABRICATION AND ERECTION DRAWINGS TO THE ARCHITECT FOR APPROVAL.

15. STEEL DETAILS SHALL BE IN ACCORDANCE WITH AISC STANDARDS LATEST EDITION.

STEEL DECK NOTES

1. STEEL DECK SHALL CONFORM TO ASTM A653 AND TO AISI "SPECIFICATION FOR THE DESIGN OF LIGHT GAUGE COLD FORMED STEEL STRUCTURAL MEMBERS".
2. METAL DECK SHALL BE PUDDLE WELDED TO THE STRUCTURAL STEEL EVERY 12" (MAXIMUM). PUDDLE WELDS SHALL BE NOT LESS THAN 3/4" DIAMETER. SIDE LAPS OR ADJOINING PANELS SHALL BE PUNCHED TOGETHER OR WELDED EVERY 1'-6" (MAXIMUM).
3. PROVIDE HANGER TABS AS REQUIRED FOR SUSPENSION OF CEILING SYSTEM. LOADS ON HANGERS SHALL BE DISTRIBUTED IN SUCH MANNER THAT THE TRIBUTARY LOADS FOR EACH HANGER SHALL NOT EXCEED 2 POUNDS PER SQUARE FOOT. DO NOT HANG MEP EQUIPMENT DIRECTLY FROM STEEL DECK.
4. INSIDE OR OUTSIDE CLOSURES, OTHER ACCESSORIES AND REQUIRED GAGE TO FOLLOW DECK MANUFACTURER RECOMMENDATIONS.

SPECIAL INSPECTION NOTES

1. OWNER WILL ENGAGE AND PAY FOR A SPECIAL INSPECTOR AND AN INDEPENDENT TESTING AGENCY TO PERFORM THE FOLLOWING SPECIAL AND TESTING AS SPECIFIED ON THE APPLICABLE SECTIONS OF THE NEW YORK CITY BUILDING CODE, CHAPTER 17, SECTION 1704. TECHNICAL REPORT STATEMENT OF RESPONSIBILITY TR-1 FORM SHALL BE FILED WITH THE DEPARTMENT OF BUILDINGS FOR APPROVAL OF SPECIAL INSPECTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE PRIOR NOTICE FOR COMPLETION OF SPECIAL INSPECTIONS.
 - A. STRUCTURAL STEEL WELDING (BC 1704.3.1)
 - B. STRUCTURAL STEEL ERECTION AND BOLTING (BC 1704.3.2, BC 1704.3.3)
 - C. CONCRETE – CAST-IN-PLACE (BC 1704.4)
 - D. STRUCTURAL SAFETY – STRUCTURAL STABILITY (BC 1704.19)
 - E. CONCRETE TEST CYLINDERS – TR2 (BC 1905.6)
 - F. CONCRETE DESIGN MIX – TR3 (BC 1905.3)

BIDDER'S WARRANTY

BY THE ACT OF SUBMITTING A BID FOR THE PROPOSED CONTRACT, THE BIDDER WARRANTS THAT:

1. THE BIDDER AND ALL SUBCONTRACTORS HE INTENDS TO USE HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS, SPECIFICATIONS AND OTHER CONSTRUCTION CONTRACT DOCUMENTS AND HAVE FOUND THEM COMPLETE AND FREE FROM AMBIGUITIES AND SUFFICIENT FOR THE CONTRACTOR TO BID, FABRICATE, AND INSTALL THE WORK ON TIME, FURTHER THAT,
2. THE BIDDER AND ALL WORKMEN, EMPLOYEES AND SUBCONTRACTORS HE INTENDS TO USE ARE SKILLED AND EXPERIENCED IN THE TYPE OF CONSTRUCTION REPRESENTED BY THE CONSTRUCTION CONTRACT DOCUMENTS BID UPON; FURTHER THAT,
3. NEITHER THE BIDDER NOR ANY OF HIS EMPLOYEES, AGENTS INTENDED SUPPLIERS OR SUBCONTRACTORS HAVE RELIED UPON ANY VERBAL REPRESENTATIONS, ALLEGEDLY AUTHORIZED OR UNAUTHORIZED FROM THE OWNER, HIS EMPLOYEES OR AGENTS INCLUDING ARCHITECTS, ENGINEERS OR CONSULTANTS, IN ASSEMBLING THE BID FIGURES AND FURTHER THAT, THE BID FIGURE IS BASED SOLELY UPON THE CONSTRUCTION CONTRACT DOCUMENTS AND PROPERLY ISSUED WRITTEN ADDENDA AND NOT UPON ANY OTHER WRITTEN REPRESENTATION.
4. THE BIDDER ALSO WARRANTS THAT HE HAS CAREFULLY EXAMINED THE SITE OF THE WORK AND THAT FROM HIS OWN INVESTIGATIONS HE HAS SATISFIED HIMSELF AS TO THE NATURE AND LOCATION OF THE WORK AND THE CHARACTER, QUALITY, QUANTITIES OF MATERIALS AND DIFFICULTIES TO BE ENCOUNTERED, THE KIND AND EXTENT OF EQUIPMENT AND OTHER FACILITIES NEEDED FOR THE PERFORMANCE OF THE WORK, THE GENERAL AND LOCAL CONDITIONS, AND OTHER ITEMS WHICH MAY, IN ANY WAY, AFFECT THE WORK OR ITS PERFORMANCE.

SHOP DRAWING REVIEW

THE ENGINEER WILL REVIEW CONTRACTOR'S SHOP DRAWINGS AND RELATED SUBMITTALS WITH RESPECT TO CONFORMANCE WITH THE STRUCTURAL DRAWINGS AND THE SPECIFICATIONS. IF SHOP DRAWINGS SHALL BE SUBMITTED IN DUPLICATE. EXCESS DRAWINGS WILL BE DISCARDED. IF REQUIRED BY SPECIFICATIONS, SHOP DRAWINGS SHALL BEAR THE SEAL AND SIGNATURE OF A LICENSED ENGINEER WHO IS LICENSED IN THE STATE WHERE THE PROJECT IS TO BE CONSTRUCTED. BEFORE SUBMITTING A SHOP DRAWING OR ANY RELATED MATERIAL TO THE ENGINEER, CONTRACTOR SHALL REVIEW EACH SUCH SUBMISSION FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, INCLUDING REFLECTION OF EXISTING FIELD CONDITIONS, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF CONTRACTOR. APPROVE EACH SUCH SUBMISSION BEFORE SUBMITTING IT, AND SO STAMP EACH SUCH SUBMISSION BEFORE SUBMITTING IT. THE ENGINEER WILL ASSUME THAT NO SHOP DRAWING OR RELATED SUBMITTAL COMPRISES A VARIATION FROM THE CONTRACT UNLESS CONTRACTOR ADVISES THE ENGINEER OTHERWISE VIA A WRITTEN INSTRUMENT WHICH IS ACKNOWLEDGED BY THE ENGINEER IN WRITING. IN THE EVENT THAT THE ENGINEER WILL REQUIRE MORE THAN TEN (10) WORKING DAYS TO PERFORM REVIEW, THE ENGINEER WILL SO NOTIFY THE CONTRACTOR. THE ENGINEER WILL RETURN WITHOUT REVIEW MATERIAL WHICH HAS NOT BEEN APPROVED BY GENERAL CONTRACTOR OR CONSTRUCTION MANAGER.

DESIGN LOAD PARAMETERS

1. SNOW LOADS
 - GROUND SNOW LOAD (PSF) 25
 - IMPORTANCE FACTOR 1.0
 - SNOW EXPOSURE FACTOR CE=1.0
 - THERMAL FACTOR Ct=1.0
 - FLAT ROOF SNOW LOAD (PSF) 18
2. WIND LOADS
 - BASIC WIND SPEED 98 MPH
 - MEAN ROOF HEIGHT 135 FT
 - BUILDING CATEGORY II
 - IMPORTANCE FACTOR 1.0
 - EXPOSURE A
 - ANALYSIS PROCEDURE DESCRIPTION SIMPLIFIED DESIGN PROCEDURE II
 - DESIGN PRESSURE – 0 TO 100 FT P=20 PSF
 - ABOVE 100 FT P=25 PSF
3. SEISMIC LOAD DESIGN CRITERIA
 - SEISMIC IMPORTANCE FACTOR (Is) 1.0
 - SEISMIC USE GROUP I
 - SHORT PERIOD MAPPED SPECTRAL RESPONSE ACCELERATION (Ss) 0.365 %g
 - 1 SECOND PERIOD MAPPED SPECTRAL ACCELERATION (S1) 0.071 %g
 - SITE CLASS D
 - SHORT PERIOD SPECTRAL RESPONSE COEFFICIENT (Sds) 0.367 %g
 - 1 SECOND SPECTRAL RESPONSE COEFFICIENT (Sd1) 0.114 %g
 - SEISMIC DESIGN CATEGORY C
 - LATERAL SYSTEM DESCRIPTION DUAL SYSTEM OF ORCSW & MF
 - RESPONSE MODIFICATION FACTOR (R) 5.5
 - SEISMIC RESPONSE COEFFICIENT (Ca) 0.019
 - DESIGN BASE SHEAR 89 KIPS
 - ANALYSIS PROCEDURE DESCRIPTION EQUIVALENT LATERAL FORCE

LIVE LOADS

OCCUPANCY	LIVE LOAD (PSF)
MECHANICAL	75
STAIRS	100
STORAGE AND UTILITIES	100
LOBBY	100
APARTMENTS	40
SWIMMING POOL	300
BALCONY	60
TERRACE	60
RAOOF	30

DRAWING LIST

F0-100.0	CELLAR FOUNDATION PLAN
F0-200.0	FOUNDATION DETAILS
S-001.0	GENERAL NOTES
S-101.00	1ST FLOOR PLAN
S-102.00	2ND FLOOR PLAN
S-103.00	3RD FLOOR PLAN
S-104.00	4TH FLOOR PLAN
S-105.00	5TH FLOOR PLAN
S-106.00	6TH FLOOR PLAN
S-107.00	7TH FLOOR PLAN
S-108.00	8TH FLOOR PLAN
S-109.00	9TH FLOOR PLAN
S-110.00	ROOF & BULKHEAD PLAN
S-300.00	COLUMN SCHEDULE
S-301.00	SHEAR WALL SCHEDULE
S-400.00	TYPICAL CONCRETE DETAILS
S-401.00	TYPICAL CONCRETE DETAILS
S-402.00	TYPICAL CONCRETE DETAILS
S-403.00	TYPICAL CONCRETE DETAILS
S-404.00	CONCRETE STAIR DETAILS

ABBREVIATIONS

BM	BEAM
BTM	BOTTOM (REINFORCEMENT)
BS	BOTH SIDES
CJ	CONSTRUCTION JOINT
CL	CENTER LINE
COL	COLUMN
CONT	CONTINUOUS
CP	COMPLETE PENETRATION WELD
EF	EACH FACE
E	ELEVATION (TO TOP OF CONCRETE FLOOR SLAB)
E.O.S.	EDGE OF SLAB
FFL	FINISHED FLOOR LEVEL
GA	GAUGE (METAL)
GB	GRADE BEAM
HP	HIGH POINT
I.F.	INSIDE FACE
LAP	FULL TENSION CAPACITY LAP SPLICE
LP	LOW POINT
LLBB	LONG LEGS BACK-TO-BACK
L.P.	LIGHTNING PROTECTION
LWC	LIGHTWEIGHT (CONCRETE)
MC	MOMENT CONNECTION
	(SHOWN ► ON DRAWINGS)
MIN	MINIMUM
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE
OC	ON CENTER
O.F.	OUTSIDE FACE
PL	PLATE
SAD	SEE ARCHITECT'S DETAILS
SB	SLIP BEARING
SC	SLIP CRITICAL BOLT/CONNECTION
SD	STORM DRAIN
S.O.G.	SLAB ON GRADE
TBC	TO BE CONFIRMED
TOC	TOP OF CONCRETE
TOP	TOP OF FOUNDATION
TOS	TOP OF STEEL
TYP	TYPICAL
VF	VERIFY IN FIELD
U.O.N.	UNLESS OTHERWISE NOTED
WF	WORKPOINT
WWF	WELDED WIRE FABRIC

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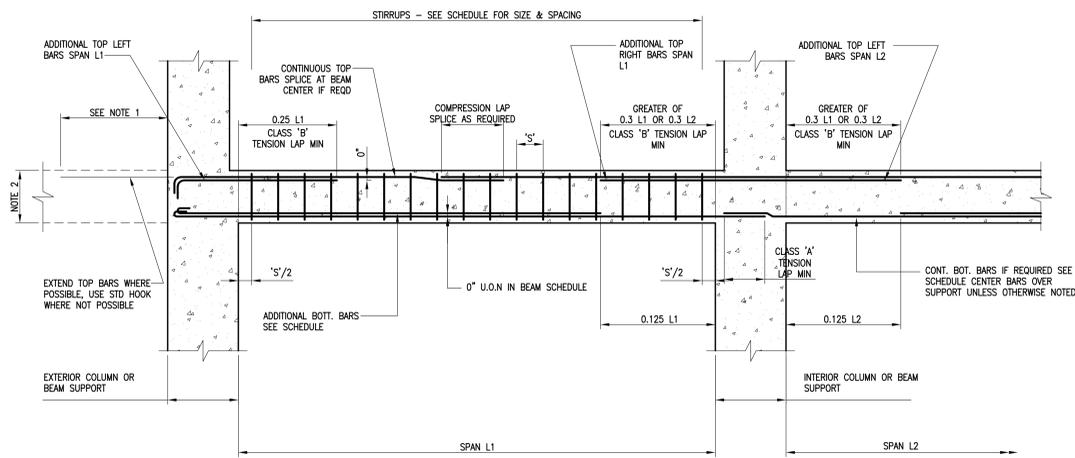
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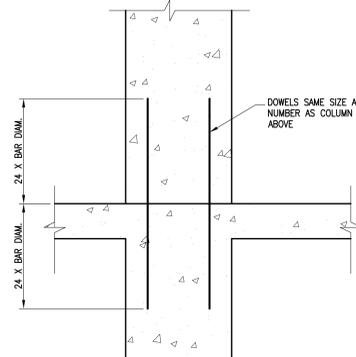
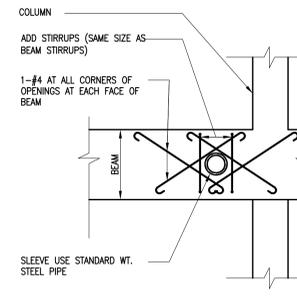
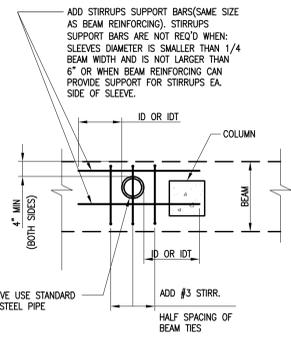
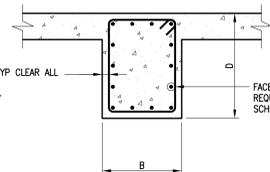
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DRAWN BY:	KM
CHECKED BY:	PR
DATE:	AUGUST 15, 2013
SCALE:	AS NOTED
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GENERAL NOTES

S-001.00



- NOTES:
- SEE SCHEDULES OR FRAMING PLANS FOR BAR SIZES AND QUANTITIES.
 - SEE SCHEDULES FOR TYPICAL SPlice & DEVELOPMENT LENGTHS.
 - CONTINUE TOP & BOTTOM REINFORCEMENT TO EDGE OF CANTILEVERS WHERE APPLICABLE. SEE PLANS & SECTIONS.
 - PROVIDE #4@12" SIDE BARS EACH FACE (MIN) FOR BEAMS 36" OR MORE IN DEPTH UNLESS OTHERWISE NOTED IN BEAM SCHEDULE OR SECTIONS.
 - WHERE DIFFERENT TOP ADDITIONAL REINFORCING FOR TWO CONSECUTIVE SPANS CALLED OUT ON SCHEDULE IS DIFFERENT FOR BEAMS THAT ARE CONTINUOUS, PROVIDE THAT AMOUNT BETWEEN THE TWO THAT GIVES THE LARGEST STEEL AREA. IF TOP ADDITIONAL REINFORCING CALLED ON SCHEDULE IS THE SAME, IT SHOULD NOT BE ADDITIVE.
 - LEFT & RIGHT BARS ASSUME SOUTH OR EAST BEAM ELEVATIONS.
 - CENTER BARS OVER SUPPORT U.O.N.

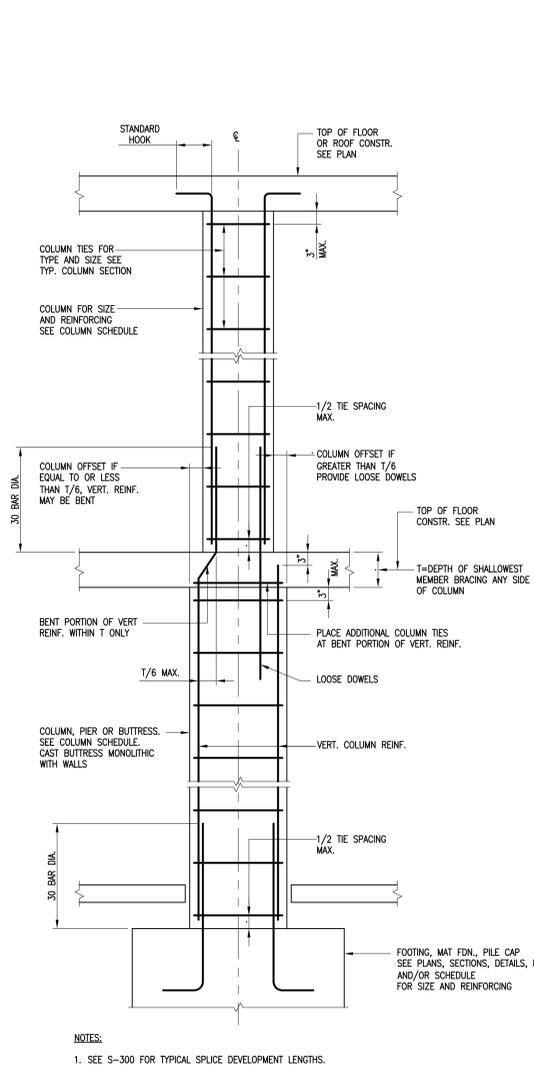


① TYPICAL BEAM REINFORCEMENT ELEVATION
SCALE: N.T.S.

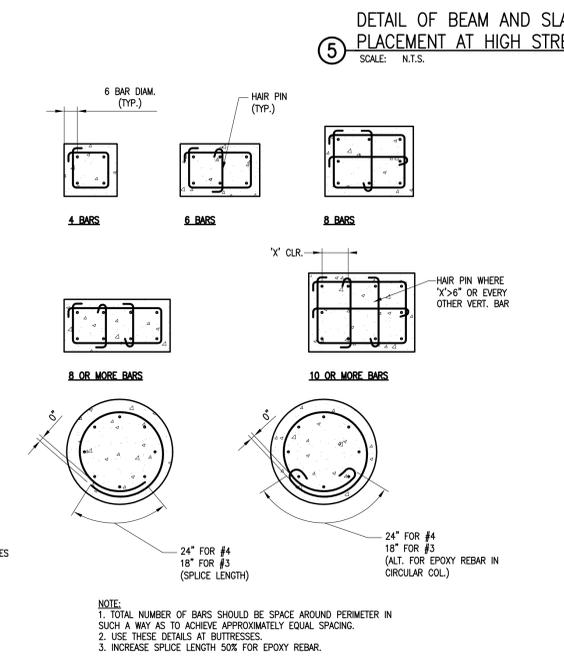
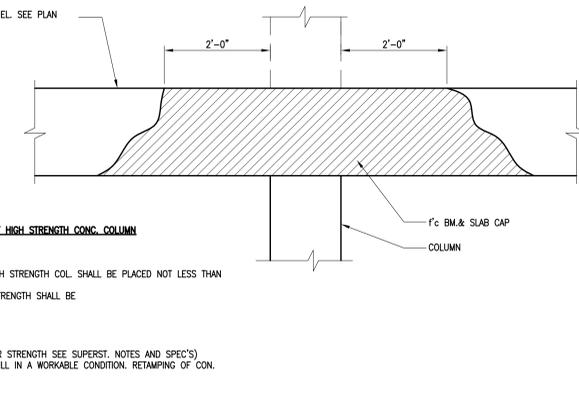
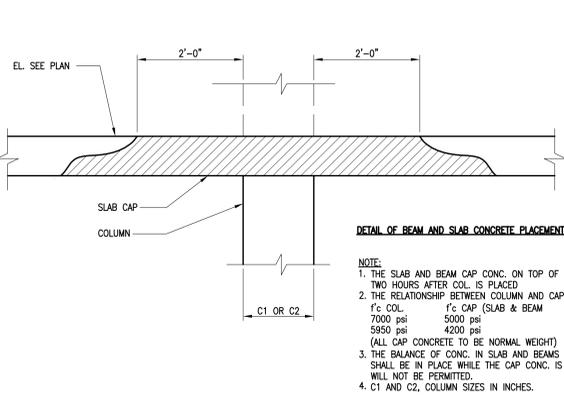
② TYPICAL BEAM SECTION
SCALE: N.T.S.

③ TYPICAL DETAILS OF OPENING, IN CONCRETE BEAMS
SCALE: N.T.S.

④ TYPICAL DETAILS OF COLUMN CARRIED BY GIRDER
SCALE: N.T.S.



⑥ TYPICAL COLUMN DETAIL
SCALE: N.T.S.

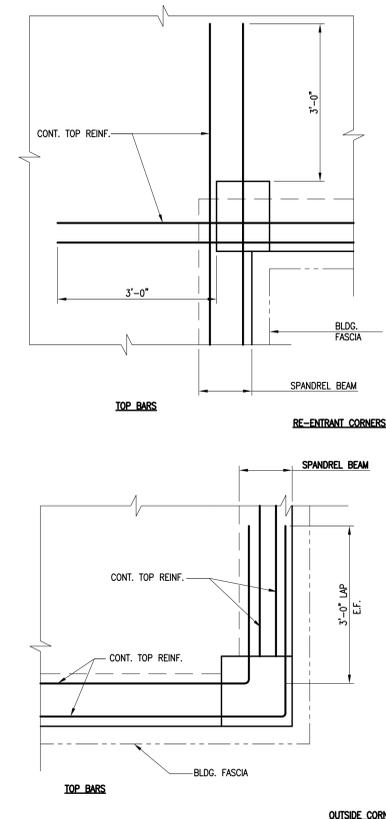


⑦ TYPICAL DETAILS AT TIED COLUMNS
SCALE: N.T.S.

WEB REINFORCEMENT SCHEDULE

B	SPACING
8"	30"
10"	24"
12"	20"
15"	18"
20" OR MORE	12"

⑧ WEB REINFORCEMENT IN DEEP CONCRETE BEAM
SCALE: N.T.S.



⑨ TYPICAL SPANDREL REINF. AT CORNERS
SCALE: N.T.S.

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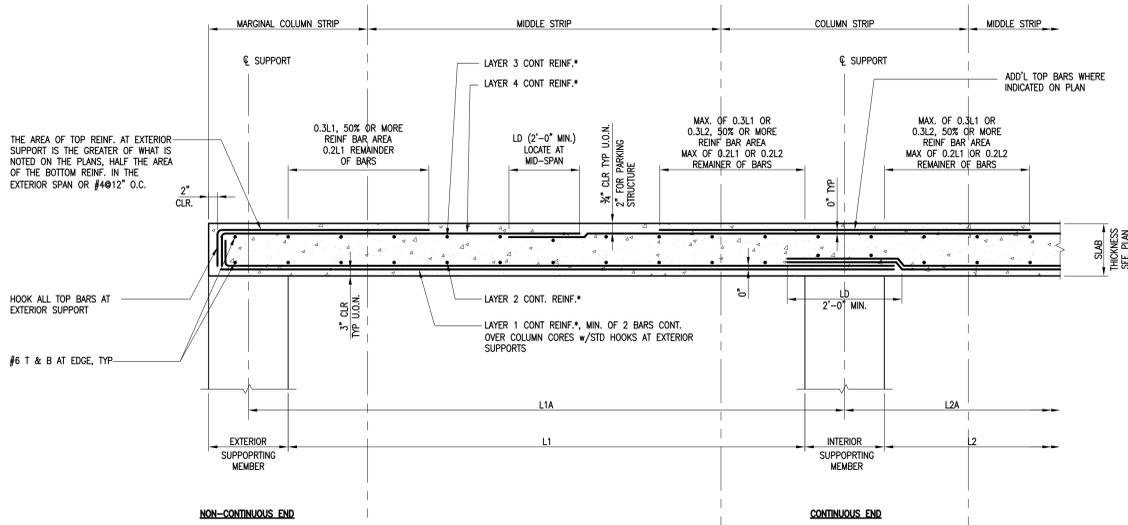
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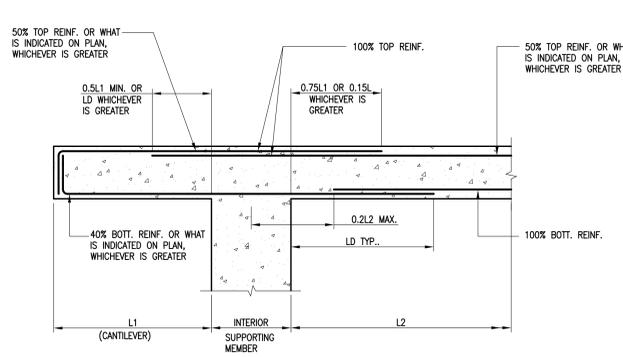
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TYPICAL CONCRETE DETAILS

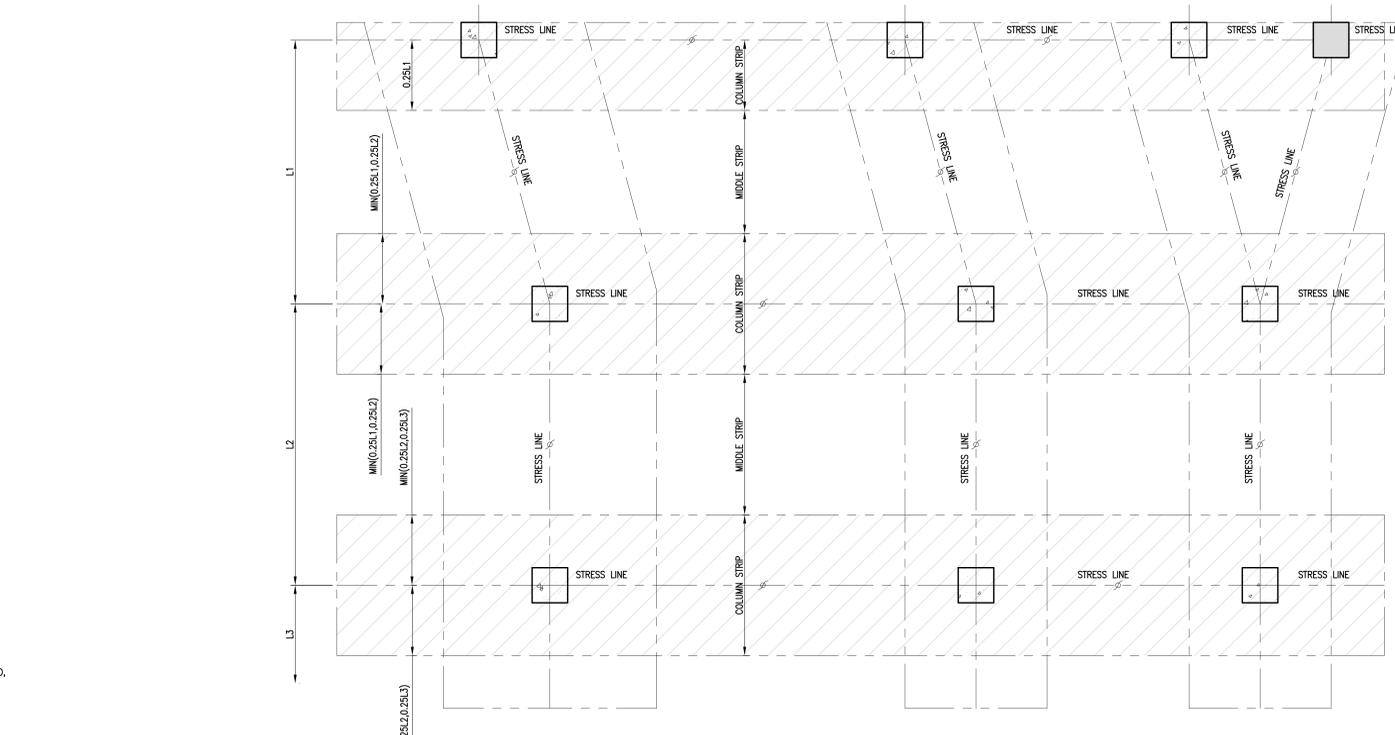
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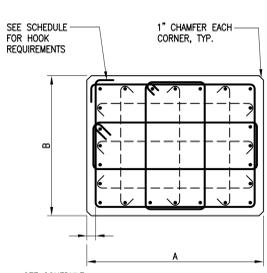
1 TYPICAL TWO WAY SLAB REINFORCING DETAILS
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5 SLAB REINFORCING DETAIL
SCALE: N.T.S.

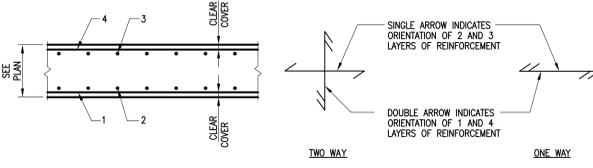


4 COLUMN & MIDDLE STRIP DEFINITION
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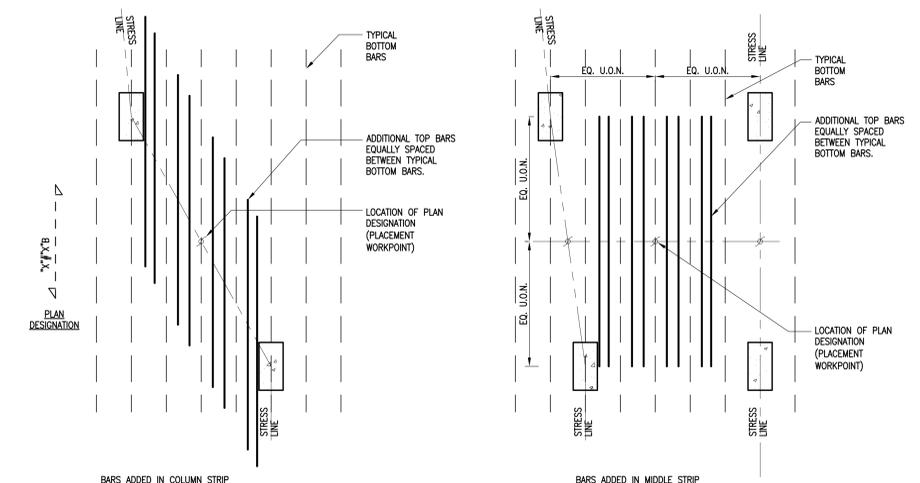


VERTICAL BAR DIAMETER	TIES	
	BAR SIZE	SPACING
#5	#3	10"
#6	#3	12"
#7	#3	14"
#8	#3	16"
#9	#3	18"
#10	#3	18"
#11 AND LARGER	#4	18"

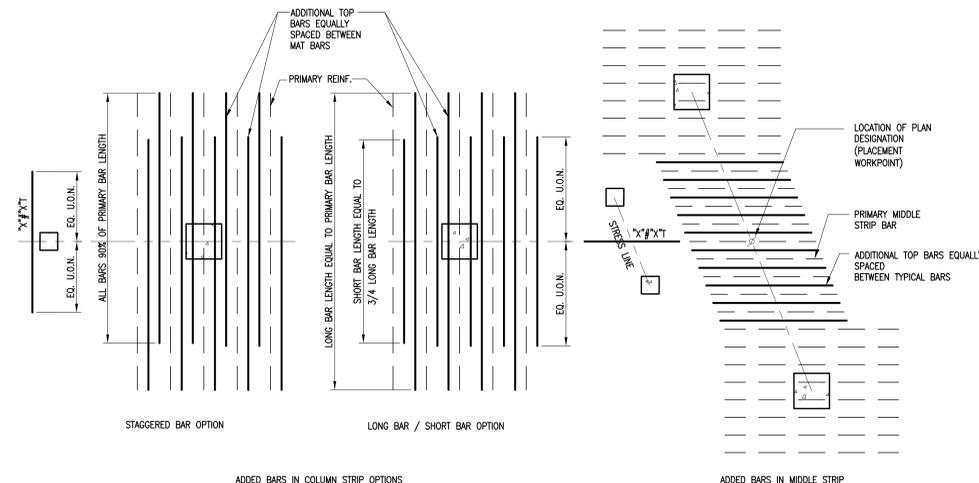
3 TYPICAL COLUMN SECTION
SCALE: N.T.S.



2 TYPICAL SLAB REINF. LAYER DEFINITION DETAIL
SCALE: N.T.S.



6 ADDED BOTTOM BAR PLACEMENT
SCALE: N.T.S.



7 ADDED TOP BAR PLACEMENT
SCALE: N.T.S.

- NOTES:**
- FOR SLAB REINF. ID AND ADD'L BARS REQ'D, SEE PLAN.
 - FOR SLAB MAT REINF. SEE PLAN.
 - FOR INFORMATION NOTED "X" SEE TYPICAL SLAB REINF. PLAN.
 - SEE S-400 FOR TYPICAL SPLICE DEVELOPMENT LENGTHS.
 - COLUMN STRIP DIMENSIONS TO BE DETERMINED IN ACCORDANCE WITH REQUIREMENTS OF ACI 318 CH. 13 UNLESS NOTED OTHERWISE ON PLANS.
 - L1 AND L2 ARE THE CLEAR SPANS TO THE LEFT AND RIGHT OF SUPPORTS.

- NOTES:**
- TIES SHALL BE ARRANGED SUCH THAT EVERY CORNER AND ALTERNATE LONGITUDINAL BAR SHALL HAVE LATERAL SUPPORT PROVIDED BY THE CORNER OF THE TIE WITH AN INCLUDED ANGLE OF NOT MORE THAN 135 DEGREES. IF ANY BAR SHALL BE FARTHER THAN 6 INCHES CLEAR ON EACH SIDE ALONG THE TIE FROM A LATERALLY SUPPORTED BAR, SUPPORT (SHOWN DOTTED) SHALL BE PROVIDED FOR THESE BARS.
 - IF THE DIMENSION A OR B IS LESS THAN THE TIE SPACING SHOWN, THE SPACING SHALL BE DECREASED TO EQUAL A OR B WHICHEVER IS SMALLER.
 - SEE S-300 FOR TYPICAL SPLICE DEVELOPMENT LENGTHS.

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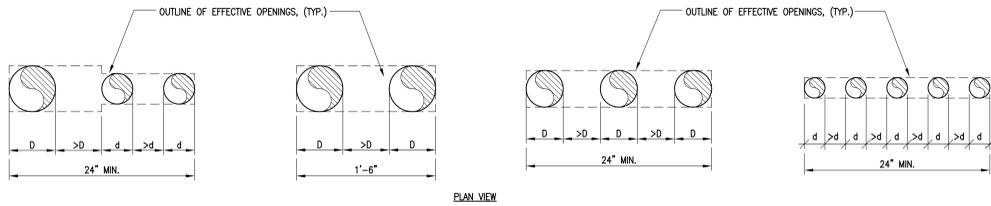
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TYPICAL CONCRETE DETAILS

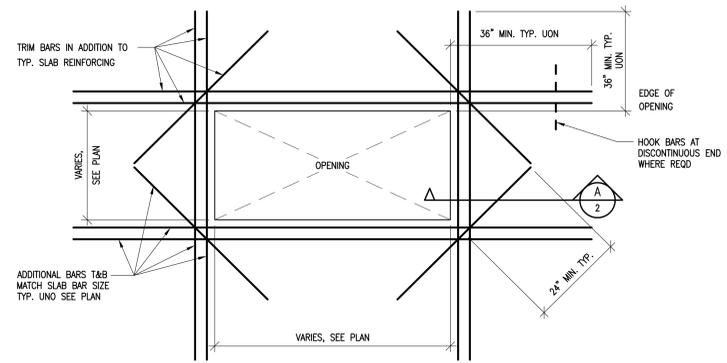
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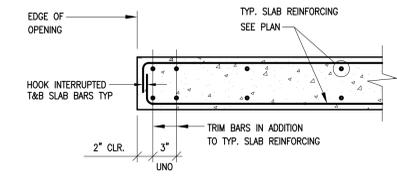
NOTES:

1. ALL ABOVE CONDITIONS REQUIRE 1-#5 TOP AND BOTTOM TRIM BARS ALL AROUND THE EFFECTIVE OPENING WITH 1'-6" MINIMUM EXTENSION PAST THE OPENING EDGE. DIAGONAL BARS ARE NOT REQUIRED.
2. THIS DETAIL APPLIES WHERE SPACING OF OPENINGS IS LESS THAN 3 DIAMETERS.

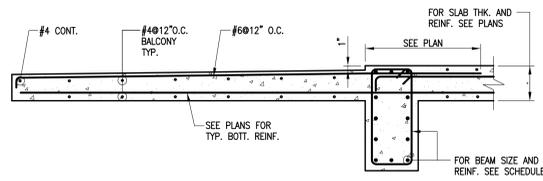
1 MULTIPLE ROUND SLAB OPENINGS
SCALE: N.T.S.



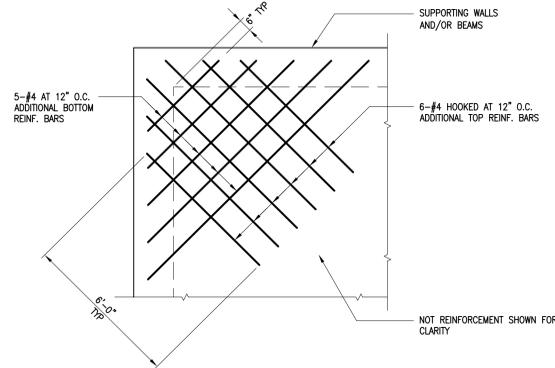
**2 TYPICAL OPENING REINFORCEMENT
DETAIL FOR OPENINGS IN CONCRETE SLAB**
SCALE: N.T.S.



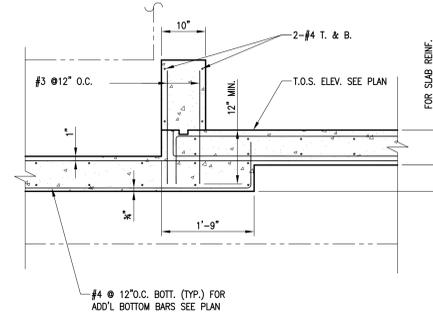
A SECTION AT OPENING IN CONCRETE
SCALE: N.T.S.



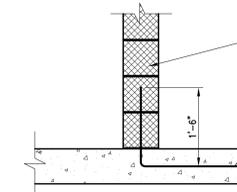
3 TYPICAL SECTION AT BALCONY
SCALE: N.T.S.



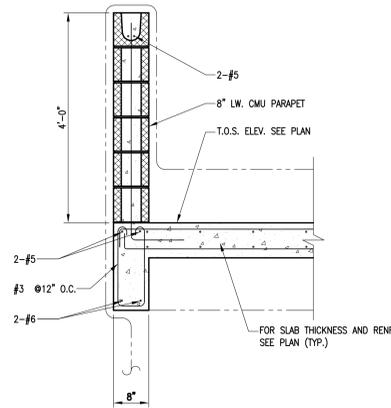
4 TYPICAL SLAB CORNER REINFORCEMENT
SCALE: N.T.S.



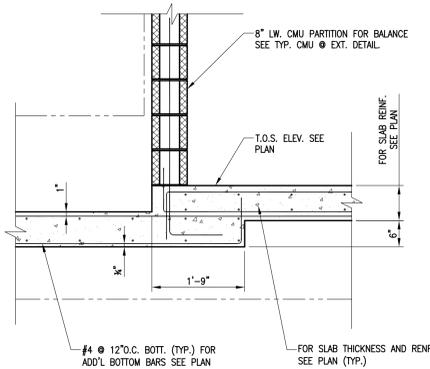
5 TYPICAL SECTION @ CONC. CURB
SCALE: N.T.S.



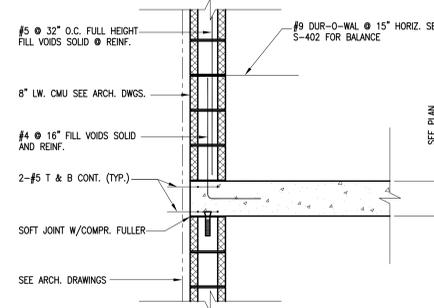
6 TYPICAL BLOCK WALL ON SLAB
SCALE: N.T.S.



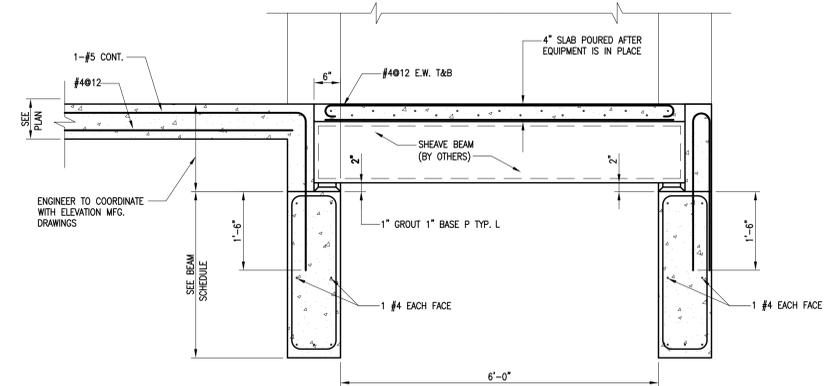
7 TYPICAL SECTION @ PARAPET
SCALE: N.T.S.



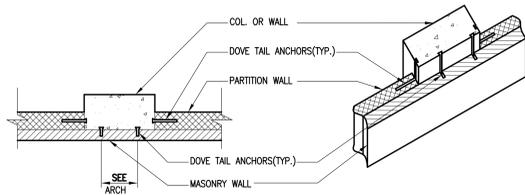
8 TYPICAL SECTION @ CMU FACADE
SCALE: N.T.S.



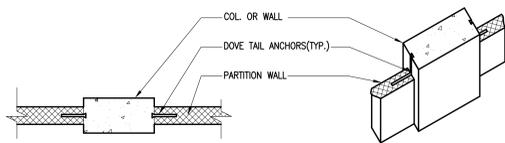
9 TYPICAL SECTION @ FACADE
SCALE: N.T.S.



10 ELEVATOR SHEAVE BEAM DETAIL
SCALE: N.T.S. **NOTE: SHEAVE BEAM TO BE SET BY ELEVATOR CONTRACTOR**



PLAN PLAN SHOWING CONC. ANCHOR LOCATION



PART PLAN SHOWING OF INTERIOR COL. SHOWING PARTITION ANCHORAGES

11 WALL ANCHORING
SCALE: N.T.S.

DOB FILE NO.

DOB USE



REVISIONS

NO.	DATE	DESCRIPTION
01	08/15/2013	ISSUED TO D.O.B.
02	09/18/2013	ISSUED TO D.O.B.
03		
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DRAWING INFO

DESIGN DEVELOPMENT	KM
DRAWN BY:	PR
CHECKED BY:	PR
DATE:	AUGUST 15, 2013
SCALE:	AS NOTED
PROJ. NO.	13010

TYPICAL CONCRETE DETAILS

S-403.00

OWNER

W29 534 HIGHLINE OWNERS, LLC
520 West 27th Street, Suite 302
New York, NY 10001
Tel: (212) 804-8784

ARCHITECT OF RECORD

workshop/apd
Thomas J. Zoll, RA, NCARB
workshop.apd.dpc
39 West 38th Street, 7th Floor
New York, NY 10018
Tel: (212) 273-9712
Fax: (212) 273-9713

STRUCTURAL ENGINEER

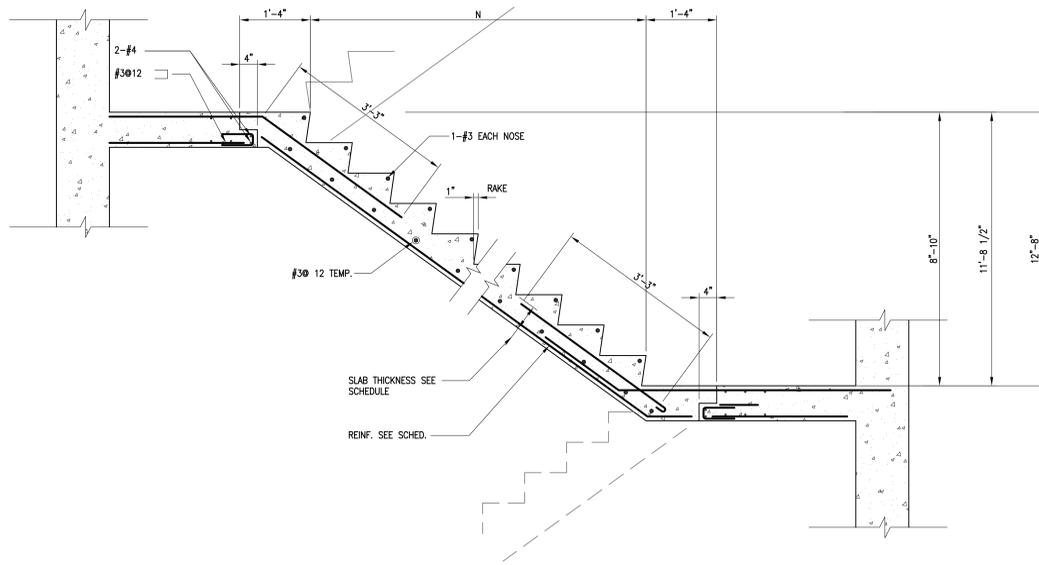
Marin Consulting Engineers PLLC
68 Jay Street, Suite 201
Brooklyn, NY 11201
Tel: (917) 705-5534

MECHANICAL ENGINEER

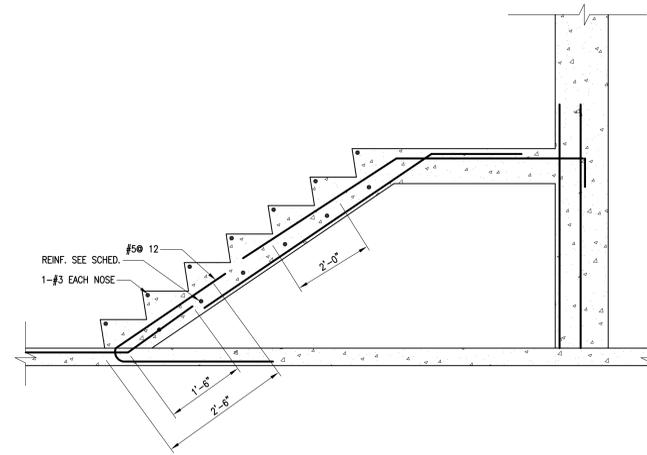
2LS Consulting Engineering
150 West 30th Street, 4th Floor
New York, NY 10001
Tel: (917) 267-8945

CONTRACTOR

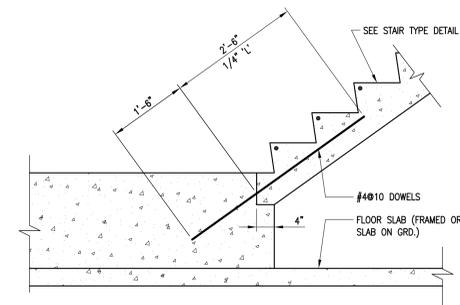
Foundations Group Inc.
520 West 27th Street, Suite 302
New York, New York 10001
Tel: (212) 924-1724



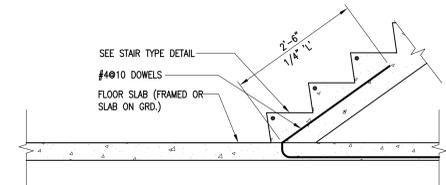
① TYPICAL CONCRETE STAIR SECTION @ CORE
SCALE: 3/4"=1'-0"



② TYPICAL CONCRETE STAIR SECTION
SCALE: 3/4"=1'-0"



④ DETAIL AT START OF STAIR ON FILL
SCALE: 3/4"=1'-0"



③ DETAIL AT START OF STAIR ON SLAB
SCALE: 3/4"=1'-0"

STAIR SCHEDULE				
SPAN	SLAB THICK	REINFORCING*		A
		SIZE	SPACING	
9'-0" OR LESS	5 1/2"	#4	12"	3'-0"
10'-0"	6"	#4	12"	3'-0"
11'-6"	7"	#4	12"	3'-0"
13'-0"	8"	#5	10"	3'-3"
15'-0"	9"	#5	10"	3'-9"
20'-0"	12"	#7	12"	5'-3"

⑤ CONCRETE STAIR REINFORCING SCHEDULE
SCALE: N.T.S.

DOB FILE NO.

DOB USE



REVISIONS

01	00/08/15/2013	ISSUED TO D.O.B.
02	01/09/18/2013	ISSUED TO D.O.B.
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DRAWING INFO

DESIGN DEVELOPMENT
DRAWN BY: KM
CHECKED BY: PR
DATE: AUGUST 15, 2013
SCALE: AS NOTED
PROJ. NO. 13010

CONCRETE STAIR DETAILS

S-404.00

OWNER

W29 534 Highline Owners, LLC
520 West 27th Street, Suite 302
New York, NY 10001
Tel: (212) 804-8784

ARCHITECT

workshop
39 West 38th Street, 7th Floor
New York, NY 10018
Tel: (212) 273-9712
Fax: (212) 273-8713

STRUCTURAL ENGINEER

Marin Consulting Engineers PLLC
68 Jay Street, Suite 201
Brooklyn, NY 11201
Tel: (917) 705-5534

MEP ENGINEERS

ZLS Consulting Engineering
150 West 30th Street, 4th Floor
New York, NY 10001
Tel: (917) 267-8945

GEO/ENVIRONMENTAL

GZA GeoEnvironmental of New York
104 West 29th Street, 10th Floor
New York, New York 10001
Tel: (212) 594-8140

CIVIL ENGINEER

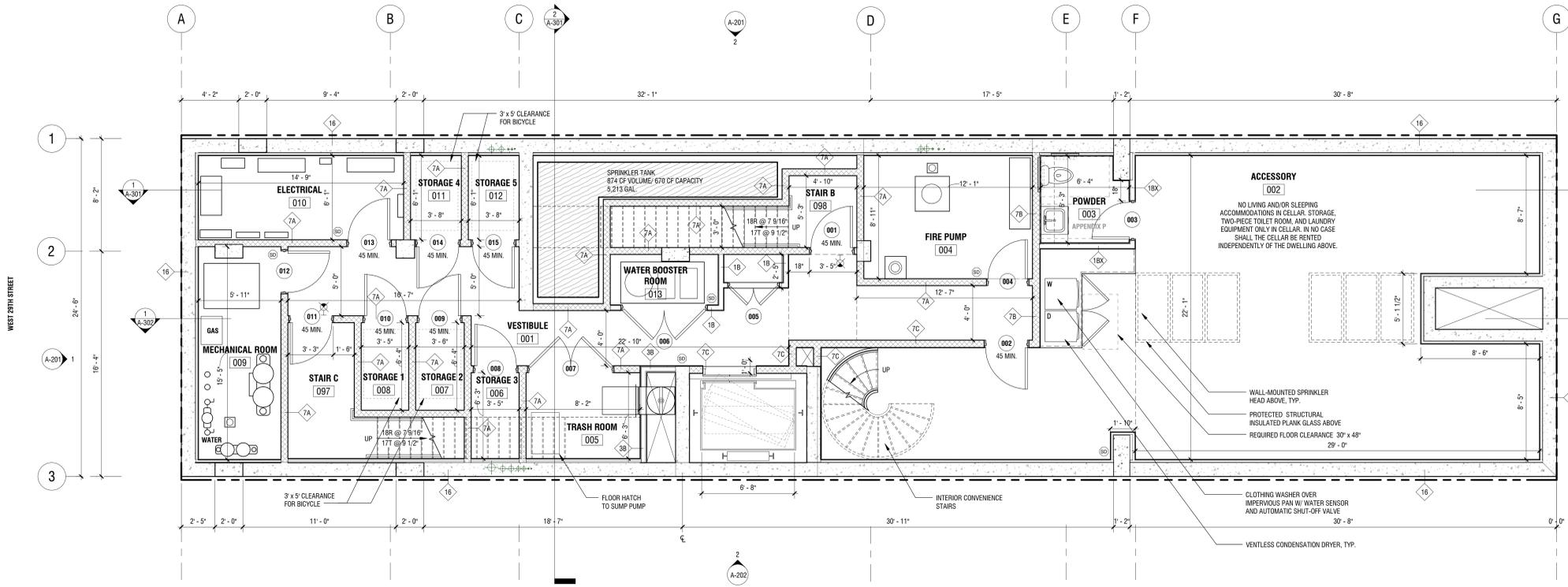
Dorco Engineering, LLC
249 Windsor Ave.
Westfield, NJ 07090
Tel: (201) 993-0665

SURVEYOR

Montrose Surveying Co LLP
116-20 Metropolitan Ave
Richmond Hill, NY 11418
Tel: (718) 849-0800

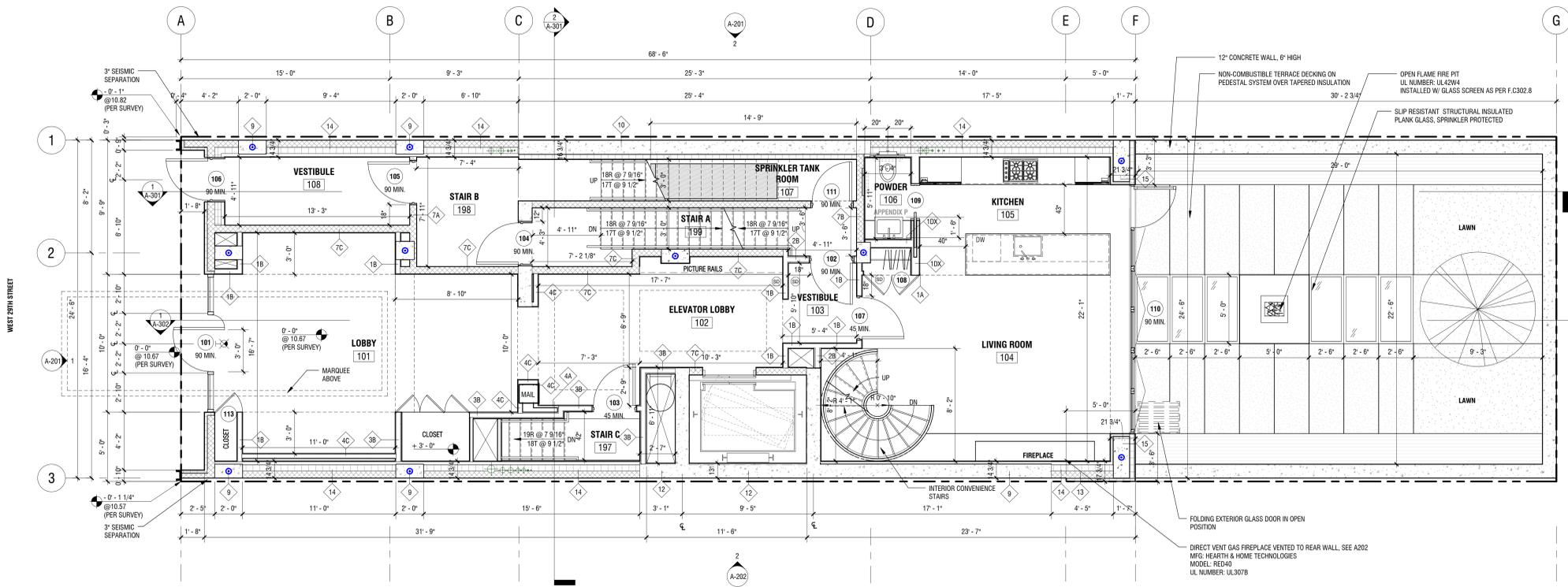
CONTRACTOR

Foundations Group Inc.
520 West 27th Street, Suite 302
New York, New York 10001
Tel: (212) 924-1724



1 CELLAR FLOOR PLAN
1/4" = 1'-0"

UNIT 1



2 1ST FLOOR PLAN
1/4" = 1'-0"

UNIT 1

LIGHT AND AIR COMPUTATION - 1ST FLOOR

BC 1203.4.1.2.1 THE MINIMUM OPENABLE AREA TO THE OUTDOORS SHALL BE 5 PERCENT OF THE FLOOR AREA OF THE HABITABLE SPACE BEING VENTILATED.
BC 1206.2.1 THE MINIMUM NET GLAZED AREA SHALL NOT BE LESS THAN 10 PERCENT OF THE FLOOR AREA OF THE ROOM SERVED.

ROOM	AREA	LIGHT	AIR	COMPLIES
LIVING 104 / KITCHEN 105	406 SF	DOOR 110 = 142 SF > 40.6 SF REQUIRED	DOOR 110 = 142 SF > 20.3 SF REQUIRED	

DOB FILE NO.

DOB USE



REVISIONS

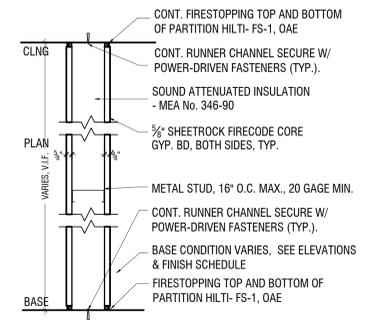
NO.	DESCRIPTION
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DRAWING INFO

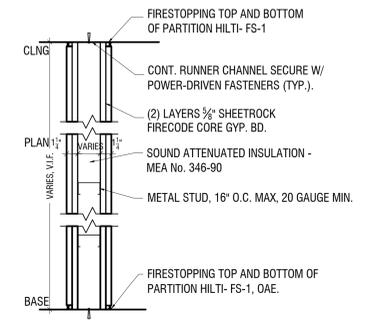
DESIGN DEVELOPMENT
DRAWN BY: SRT/BHQ/MWC
CHECKED BY: ADK
DATE: OCTOBER 31, 2013
SCALE: 1/4" = 1'-0"
PROJ. NO.: CBA-310007

1ST FLOOR & CELLAR PLAN

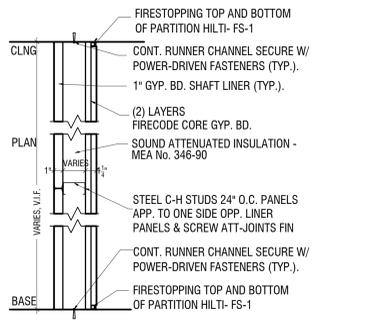
A-101.00



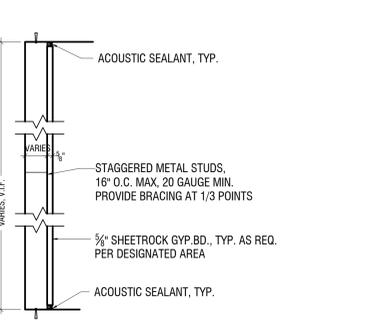
1 U.L. DESIGN U419, MEA No. 81-98-M
STC 49, TEST: SA-870717, WITH 3\"/>



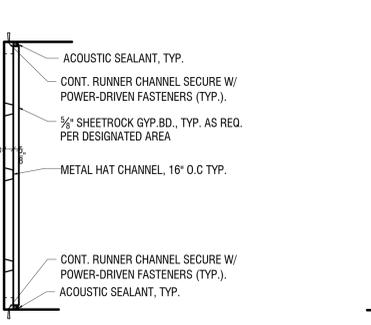
2 U.L. DESIGN U419, MEA No. 81-98-M
PARTITION TYPE: 2HR RATED
SCALE: 1-1/2\"/>



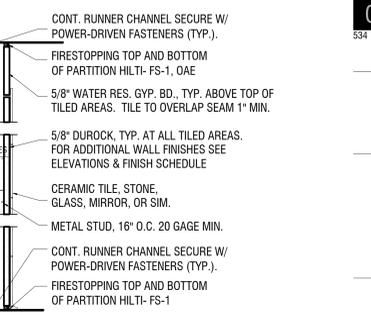
3 U.L. DESIGN U415, SYSTEM D
PARTITION TYPE: 2 HR RATED SHAF
SCALE: 1-1/2\"/>



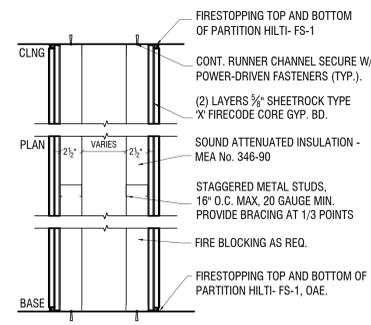
4 PARTITION TYPE: WALL FURRING
SCALE: 1-1/2\"/>



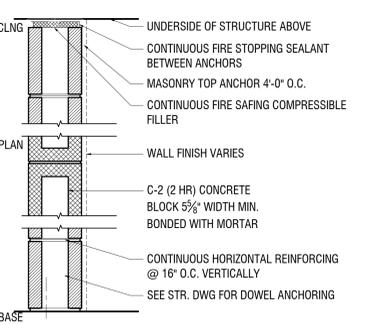
5 PARTITION TYPE: WALL FURRING
SCALE: 1-1/2\"/>



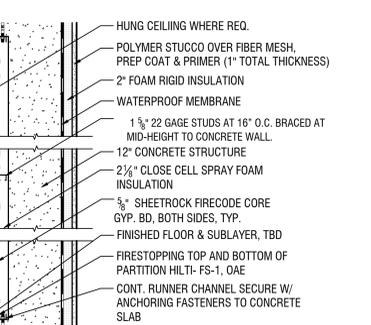
X U.L. DESIGN U457
PARTITION TYPE: WET AREA
SCALE: 1-1/2\"/>



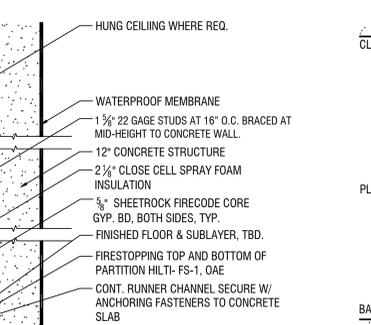
6 U.L. DESIGN U419, MEA No. 81-98-M
PARTITION TYPE: 2HR STAGGERED PARTITION
SCALE: 1-1/2\"/>



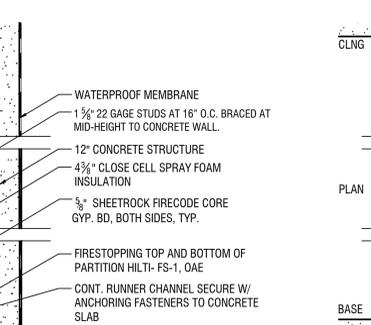
7 U.L. DESIGN U914
PARTITION TYPE: 2HR MASONRY WALL
SCALE: 1-1/2\"/>



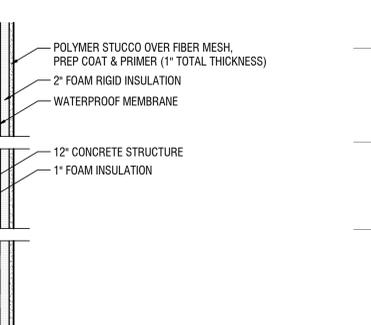
8 EXTERIOR WALL TYPE: 12\"/>



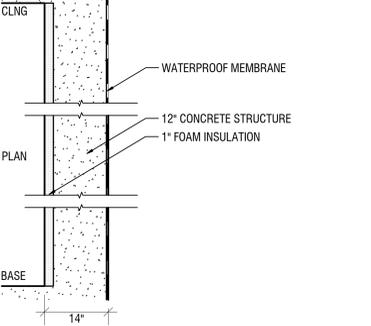
9 EXTERIOR WALL TYPE: 12\"/>



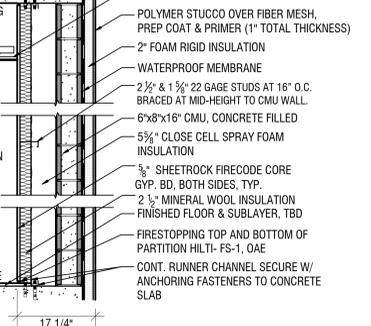
10 EXTERIOR WALL TYPE: 12\"/>



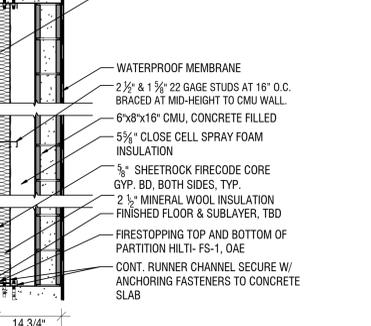
11 EXTERIOR WALL TYPE: ELEVATOR WALLS EXPOSED
SCALE: 3\"/>



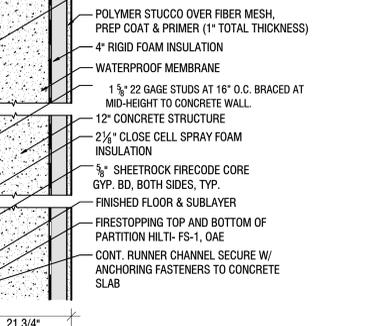
12 EXTERIOR WALL TYPE: ELEVATOR PARTY WALLS
SCALE: 3\"/>



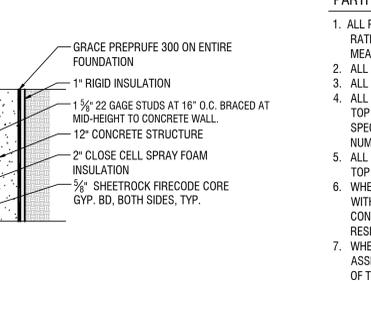
13 EXTERIOR WALL TYPE: CMU EXPOSED
SCALE: 3\"/>



14 EXTERIOR WALL TYPE: CMU PARTY WALL
SCALE: 3\"/>

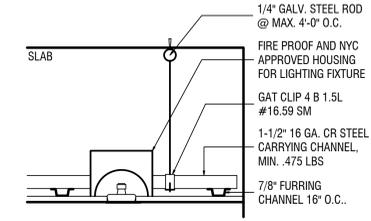


15 EXTERIOR WALL TYPE: 14\"/>

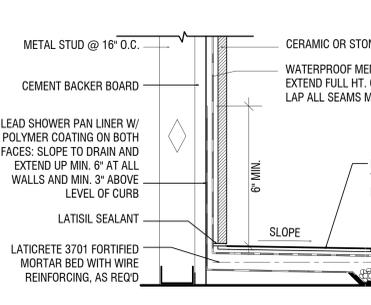


16 EXTERIOR WALL TYPE: FOUNDATION WALL
SCALE: 3\"/>

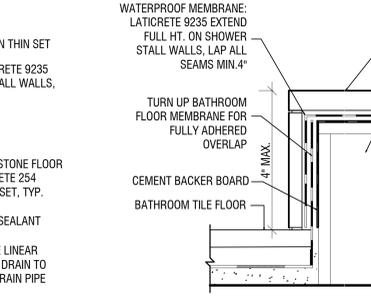
- PARTITION TYPE NOTES**
1. ALL PARTITION ASSEMBLIES AND ASSOCIATED FIRE RESISTANCE RATINGS ARE TAKEN FROM THE "USG CORPORATION BSA AND MEA APPROVALS FOR THE CITY OF NEW YORK"
 2. ALL GWB TO BE 5/8" U.O.N.
 3. ALL STUDS TO BE 16" O.C. 20GA U.O.N. SEE SPEC'S FOR CRITERIA.
 4. ALL RATED ASSEMBLIES SHALL BE SEALED FULLY ALONG THE TOP AND BASE JOINTS WITH A FIRE-STOPPING SEALANT AS PER SPEC. AND CONSISTENT W/ UL STANDARDS AND MEA & BSA NUMBERS.
 5. ALL NON-RATED ASSEMBLIES SHALL BE SEALED FULLY ALONG TOP AND BASE JOINTS WITH AN ACOUSTIC SEALANT AS PER SPEC.
 6. WHEN PARTITIONS OF DIFFERENT RATINGS MEET, THE ASSEMBLY WITH THE HIGHEST FIRE RESISTANCE RATING SHALL BE CONTINUOUS AND THE ASSEMBLY WITH THE LOWEST FIRE RESISTANCE RATING SHALL BE INTERRUPTED.
 7. WHEN FURRED PARTITION ASSEMBLIES ARE PART OF A RATED ASSEMBLY, THE FURRING SHALL MAINTAIN THE HIGHEST RATING OF THE ADJACENT PARTITION.



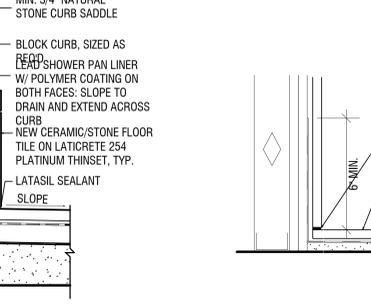
1 TYPICAL DETAIL: HUNG CEILING
SCALE: 1-1/2\"/>



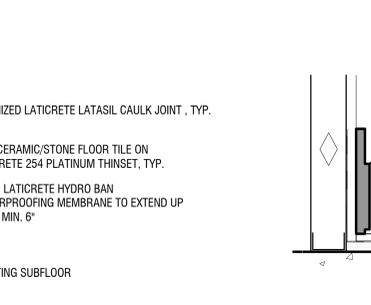
2 TYPICAL DETAIL: SHOWER FLOOR / WALL
SCALE: 3\"/>



3 TYPICAL DETAIL: SHOWER CURB
SCALE: 3\"/>



4 TYPICAL DETAIL: TILED FLOOR / WALL
SCALE: 3\"/>



5 TYPICAL DETAIL: LAUNDRY BASE
SCALE: 3\"/>

ALL HORIZONTAL SEPARATION BETWEEN APARTMENTS TO HAVE A MINIMUM STC-RATING OF 55.

DOB FILE NO.

DOB USE



REVISIONS

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DRAWING INFO

DESIGN DEVELOPMENT	
DRAWN BY:	SRT/BHQ/MWC
CHECKED BY:	ADK
DATE:	OCTOBER 31, 2013
SCALE:	
PROJ. NO.	CBA - 313007

PARTITION TYPES

A-500.00



TABLES

Table 1 - Soil Analytical Results
 534 West 29th Street
 New York, New York
 Phase II Remedial Investigation Report

LOCATION		Part 375 Restricted Residential Use Soil Cleanup	Part 375 Unrestricted Use Soil Cleanup Objectives	SB-1 (0-2')		SB-1 (13-15')		SB-2 (0-2')		SB-3 (0-2')		SB-3 (13-15')		SB-4 (0-2')		SB-4 (13-15')	
SAMPLING DATE				9/5/2013		9/5/2013		9/4/2013		9/4/2013		9/5/2013		9/4/2013		9/4/2013	
LAB SAMPLE ID		L1317376-06		L1317376-07		L1317376-03		L1317376-04		L1317376-05		L1317376-01		L1317376-02			
SAMPLE TYPE		Soil		Soil		Soil		Soil		Soil		Soil		Soil			
SAMPLE DEPTH (ft.)		0-2'		13-15'		0-2'		0-2'		13-15'		0-2'		13-15'			
Units				Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual		
General Chemistry				87%		87%		89%		80%		79%		88%		93%	
Solids, Total																	
Polychlorinated Biphenyls by GC		Dilution Factor		1		1		1		1		1		1		1	
Aroclor 1016	mg/kg	1	0.1	0.00728	U	0.00727	U	0.00704	U	0.00797	U	0.00801	U	0.00717	U	0.00678	U
Aroclor 1221	mg/kg	1	0.1	0.0111	U	0.0111	U	0.0107	U	0.0122	U	0.0122	U	0.0109	U	0.104	U
Aroclor 1232	mg/kg	1	0.1	0.00783	U	0.00782	U	0.00757	U	0.00857	U	0.00862	U	0.00771	U	0.00729	U
Aroclor 1242	mg/kg	1	0.1	0.007	U	0.00698	U	0.00676	U	0.00766	U	0.0077	U	0.00689	U	0.00652	U
Aroclor 1248	mg/kg	1	0.1	0.00446	U	0.00445	U	0.00431	U	0.00488	U	0.00491	U	0.00439	U	0.00415	U
Aroclor 1254	mg/kg	1	0.1	0.00581	U	0.0058	U	0.00562	U	0.00636	U	0.0064	U	0.00572	U	0.00541	U
Aroclor 1260	mg/kg	1	0.1	0.0064	U	0.00639	U	0.00618	U	0.007	U	0.00704	U	0.0063	U	0.00596	U
Aroclor 1262	mg/kg	1	0.1	0.00273	U	0.00272	U	0.00263	U	0.00298	U	0.003	U	0.00268	U	0.00254	U
Aroclor 1268	mg/kg	1	0.1	0.00535	U	0.00534	U	0.00517	U	0.00585	U	0.00588	U	0.00526	U	0.00498	U
Pesticides		Dilution Factor		1		1		1		1		1		1		1	
4,4'-DDD	mg/kg	13	2.6	0.00175	U	0.00174	U	0.00174	U	0.00193	U	0.00194	U	0.00175	U	0.00162	U
4,4'-DDE	mg/kg	8.9	1.8	0.00175	U	0.00174	U	0.00174	U	0.00193	U	0.00194	U	0.00175	U	0.00162	U
4,4'-DDT	mg/kg	7.9	1.7	0.00329	U	0.00326	U	0.00326	U	0.00362	U	0.00364	U	0.00328	U	0.00304	U
Aldrin	mg/kg	0.097	0.019	0.00175	U	0.00174	U	0.00174	U	0.00193	U	0.00194	U	0.00175	U	0.00162	U
Alpha-BHC	mg/kg	0.48	0.097	0.000731	U	0.000723	U	0.000724	U	0.000805	U	0.000808	U	0.000728	U	0.000676	U
Beta-BHC	mg/kg	0.36	0.072	0.00175	U	0.00174	U	0.00174	U	0.00193	U	0.00194	U	0.00175	U	0.00162	U
Chlordane	mg/kg	4.2	0.91	0.0142	U	0.0141	U	0.0141	U	0.0157	U	0.0158	U	0.0142	U	0.0132	U
cis-Chlordane	mg/kg	0.91	0.094	0.00219	U	0.00217	U	0.00217	U	0.00241	U	0.00242	U	0.00218	U	0.00203	U
Delta-BHC	mg/kg	100	100	0.00175	U	0.00174	U	0.00174	U	0.00193	U	0.00194	U	0.00175	U	0.00162	U
Dieldrin	mg/kg	0.2	0.039	0.0011	U	0.00108	U	0.00108	U	0.00121	U	0.00121	U	0.00109	U	0.00101	U
Endosulfan I	mg/kg	24	4.8	0.00175	U	0.00174	U	0.00174	U	0.00193	U	0.00194	U	0.00175	U	0.00162	U
Endosulfan II	mg/kg	24	4.8	0.00175	U	0.00174	U	0.00174	U	0.00193	U	0.00194	U	0.00175	U	0.00162	U
Endosulfan sulfate	mg/kg	24	4.8	0.000731	U	0.000723	U	0.000724	U	0.000805	U	0.000808	U	0.000728	U	0.000676	U
Endrin	mg/kg	11	2.2	0.000731	U	0.000723	U	0.000724	U	0.000805	U	0.000808	U	0.000728	U	0.000676	U
Endrin ketone	mg/kg	--	--	0.00175	U	0.00174	U	0.00174	U	0.00193	U	0.00194	U	0.00175	U	0.00162	U
Heptachlor	mg/kg	2.1	0.42	0.000877	U	0.000868	U	0.000868	U	0.000966	U	0.000969	U	0.000874	U	0.000812	U
Heptachlor epoxide	mg/kg	--	--	0.00329	U	0.00326	U	0.00326	U	0.00362	U	0.00364	U	0.00328	U	0.00304	U
Lindane	mg/kg	1.3	0.28	0.000731	U	0.000723	U	0.000724	U	0.000805	U	0.000808	U	0.000728	U	0.000676	U
Methoxychlor	mg/kg	100	--	0.00329	U	0.00326	U	0.00326	U	0.00362	U	0.00364	U	0.00328	U	0.00304	U
Toxaphene	mg/kg	--	--	0.0329	U	0.0326	U	0.0326	U	0.0362	U	0.0364	U	0.0328	U	0.0304	U
trans-Chlordane	mg/kg	0.54	--	0.00219	U	0.00217	U	0.00217	U	0.00241	U	0.00242	U	0.00218	U	0.00203	U
Semivolatile Organics by GC/MS		Dilution Factor		1		1		2		1		1		10		2	
1,2,4,5-Tetrachlorobenzene	mg/kg	--	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
1,2,4-Trichlorobenzene	mg/kg	--	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
1,2-Dichlorobenzene	mg/kg	100	1.1	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
1,3-Dichlorobenzene	mg/kg	17	2.4	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
1,4-Dichlorobenzene	mg/kg	9.8	1.8	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
2,4,5-Trichlorophenol	mg/kg	100	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
2,4,6-Trichlorophenol	mg/kg	--	--	0.11	U	0.11	U	0.22	U	0.12	U	0.12	U	1.1	U	0.21	U
2,4-Dichlorophenol	mg/kg	100	--	0.17	U	0.17	U	0.33	U	0.18	U	0.19	U	1.7	U	0.32	U
2,4-Dimethylphenol	mg/kg	--	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	0.56	J	0.36	U
2,4-Dinitrophenol	mg/kg	100	--	0.9	U	0.89	U	1.8	U	0.98	U	1	U	9	U	1.7	U
2,4-Dinitrotoluene	mg/kg	--	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
2,6-Dinitrotoluene	mg/kg	1.03	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
2-Chloronaphthalene	mg/kg	--	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
2-Chlorophenol	mg/kg	100	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
2-Methylnaphthalene	mg/kg	0.41	--	0.22	U	0.88		0.35	J	0.24	U	0.25	U	2.2	U	28	E
2-Methylphenol	mg/kg	100	0.33	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
2-Nitroaniline	mg/kg	--	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
2-Nitrophenol	mg/kg	--	--	0.4	U	0.4	U	0.8	U	0.44	U	0.45	U	4	U	0.77	U
3,3'-Dichlorobenzidine	mg/kg	--	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
3-Methylphenol/4-Methylphenol	mg/kg	34	0.33	0.27	U	0.27	U	0.53	U	0.3	U	0.3	U	1.4	J	0.52	U
3-Nitroaniline	mg/kg	--	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
4,6-Dinitro-o-cresol	mg/kg	--	--	0.49	U	0.48	U	0.96	U	0.53	U	0.54	U	4.9	U	0.93	U
4-Bromophenyl phenyl ether	mg/kg	--	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
4-Chloroaniline	mg/kg	100	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
4-Chlorophenyl phenyl ether	mg/kg	--	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
4-Nitroaniline	mg/kg	--	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
4-Nitrophenol	mg/kg	--	--	0.26	U	0.26	U	0.52	U	0.29	U	0.29	U	2.6	U	0.5	U
Acenaphthene	mg/kg	100	20	0.15	U	0.15	U	1.3		0.16	U	0.17	U	1.5	U	0.29	U
Acenaphthylene	mg/kg	100	100	0.15	U	0.15	U	0.13	J	0.16	U	0.17	U	8		0.29	U
Acetophenone	mg/kg	--	--	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
Anthracene	mg/kg	100	100	0.11	U	0.11	U	2.5		0.12	U	0.12	U	5.6		0.21	U
Benzo(a)anthracene	mg/kg	1	1	0.11	U	0.11	U	4.4		0.12	U	0.12	U	32		1.1	
Benzo(a)pyrene	mg/kg	1	1	0.15	U	0.15	U	4.4		0.16	U	0.17	U	29		0.94	
Benzo(b)fluoranthene	mg/kg	1	1	0.11	U	0.11	U	5.1		0.12	U	0.12	U	38		1.3	
Benzo(ghi)perylene	mg/kg	100	100	0.15	U	0											

Table 1 - Soil Analytical Results
 534 West 29th Street
 New York, New York
 Phase II Remedial Investigation Report

LOCATION		Part 375 Restricted Residential Use Soil Cleanup	Part 375 Unrestricted Use Soil Cleanup Objectives	SB-1 (0-2')		SB-1 (13-15')		SB-2 (0-2')		SB-3 (0-2')		SB-3 (13-15')		SB-4 (0-2')		SB-4 (13-15')		
SAMPLING DATE				9/5/2013		9/5/2013		9/4/2013		9/4/2013		9/5/2013		9/4/2013		9/4/2013		
LAB SAMPLE ID				L1317376-06		L1317376-07		L1317376-03		L1317376-04		L1317376-05		L1317376-01		L1317376-02		
SAMPLE TYPE				Soil		Soil		Soil		Soil		Soil		Soil		Soil		
SAMPLE DEPTH (ft.)		0-2'		13-15'		0-2'		0-2'		13-15'		0-2'		13-15'				
Units				Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual			
Pentachlorophenol		mg/kg	6.7	2.4	0.15	U	0.15	U	0.3	U	0.16	U	0.17	U	1.5	U	0.29	U
Phenanthrene		mg/kg	100	100	0.11	U	0.28	U	9	U	0.12	U	0.12	U	11	U	5.9	U
Phenol		mg/kg	100	100	0.19	U	0.19	U	0.37	U	0.2	U	0.21	U	1.9	U	0.36	U
Pyrene		mg/kg	100	100	0.11	U	0.11	U	8.1	U	0.12	U	0.12	U	38	U	2.4	U
Total Metals		Dilution Factor		2		2		2		2		2		2		2		
Aluminum, Total		mg/kg	--	--	6600		6300		7400		8100		9700		7000		6000	
Antimony, Total		mg/kg	--	--	0.72	U	0.72	U	3.9	J	0.79	U	78	U	0.72	U	0.68	U
Arsenic, Total		mg/kg	16	13	1.8		1.8		6		2.2		3.1		10		1.8	
Barium, Total		mg/kg	400	350	36		34		85		48		47		120		53	
Beryllium, Total		mg/kg	72	7.2	0.25	J	0.26	J	0.3	J	0.28	J	0.36	J	0.3	J	0.33	J
Cadmium, Total		mg/kg	4.3	2.5	0.24	J	0.23	J	0.62	J	0.32	J	0.34	J	0.8	J	0.24	J
Calcium, Total		mg/kg	--	--	2700		920		23000		6200		3100		4800		2000	
Chromium, Total		mg/kg	--	--	12		11		16		12		14		16		18	
Cobalt, Total		mg/kg	--	30	6.8		4.2		8		10		12		5.7		6.2	
Copper, Total		mg/kg	270	50	16		10		76		16		20		31		20	
Iron, Total		mg/kg	--	--	11000		10000		20000		14000		15000		13000		10000	
Lead, Total		mg/kg	400	63	5.8		5.9		550		11		9.4		390		17	
Magnesium, Total		mg/kg	--	--	2100		1800		3300		2400		2700		2400		2400	
Manganese, Total		mg/kg	2000	1600	260		290		360		270		420		310		200	
Mercury, Total		mg/kg	0.81	0.18	0.02	U	0.02	U	0.88		0.02	U	0.02	U	9		0.09	
Nickel, Total		mg/kg	310	30	12		12		15		14		16		14		13	
Potassium, Total		mg/kg	--	--	900		690		1700		780		890		1100		890	
Selenium, Total		mg/kg	180	3.9	0.27	U	0.27	U	0.25		0.3	U	0.29	U	0.31	J	0.25	U
Silver, Total		mg/kg	180	2	0.18	U	0.18	U	0.17		0.2	U	0.2	U	0.2	J	0.17	U
Sodium, Total		mg/kg	--	--	230		92	J	250		420		190	J	150	J	140	J
Vanadium, Total		mg/kg	--	--	14		13		17		13		17		17		15	
Zinc, Total		mg/kg	10000	109	27		22		170		59		50		360		26	
Volatile Organics by 8260/5035		Dilution Factor		1		4		1		1		1		1		2.5		
1,1,1,2-Tetrachloroethane		mg/kg	--	--	0.001	U	0.22	U	0.0019	U	0.0011	U	0.0011	U	0.0013	U	0.13	U
1,1,1-Trichloroethane		mg/kg	100	0.68	0.001	U	0.22	U	0.0019	U	0.0011	U	0.0011	U	0.0013	U	0.13	U
1,1,2,2-Tetrachloroethane		mg/kg	35	--	0.001	U	0.22	U	0.0019	U	0.0011	U	0.0011	U	0.0013	U	0.13	U
1,1,2-Trichloroethane		mg/kg	--	--	0.0015	U	0.34	U	0.0029	U	0.0016	U	0.0017	U	0.002	U	0.19	U
1,1-Dichloroethane		mg/kg	26	0.27	0.0015	U	0.34	U	0.0029	U	0.0016	U	0.0017	U	0.002	U	0.19	U
1,1-Dichloroethene		mg/kg	100	0.33	0.001	U	0.22	U	0.0019	U	0.0011	U	0.0011	U	0.0013	U	0.13	U
1,1-Dichloropropene		mg/kg	--	--	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	0.64	U
1,2,3-Trichlorobenzene		mg/kg	--	--	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	0.64	U
1,2,3-Trichloropropane		mg/kg	--	--	0.01	U	2.2	U	0.019	U	0.011	U	0.011	U	0.013	U	1.3	U
1,2,4,5-Tetramethylbenzene		mg/kg	--	--	0.004	U	7.1	U	0.0077	U	0.0043	U	0.0045	U	0.0053	U	1.3	U
1,2,4-Trichlorobenzene		mg/kg	--	--	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	0.64	U
1,2,4-Trimethylbenzene		mg/kg	52	3.6	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	3.9	U
1,2-Dibromo-3-chloropropane		mg/kg	--	--	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	0.64	U
1,2-Dibromoethane		mg/kg	--	--	0.004	U	0.9	U	0.0077	U	0.0043	U	0.0045	U	0.0053	U	0.51	U
1,2-Dichlorobenzene		mg/kg	100	1.1	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	0.64	U
1,2-Dichloroethane		mg/kg	3.1	0.02	0.001	U	0.22	U	0.0019	U	0.0011	U	0.0011	U	0.0013	U	0.13	U
1,2-Dichloropropane		mg/kg	--	--	0.0035	U	0.78	U	0.0067	U	0.0038	U	0.004	U	0.0046	U	0.45	U
1,3,5-Trimethylbenzene		mg/kg	52	8.4	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	0.28	J
1,3-Dichlorobenzene		mg/kg	49	2.4	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	0.64	U
1,3-Dichloropropane		mg/kg	--	--	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	0.64	U
1,4-Dichlorobenzene		mg/kg	13	1.8	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	0.64	U
1,4-Diethylbenzene		mg/kg	--	--	0.004	U	1.8	U	0.0077	U	0.0043	U	0.0045	U	0.0053	U	0.51	U
1,4-Dioxane		mg/kg	13	0.1	0.1	U	2.2	U	0.19	U	0.11	U	0.11	U	0.13	U	1.3	U
2,2-Dichloropropane		mg/kg	--	--	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	0.64	U
2-Butanone		mg/kg	100	0.12	0.01	U	2.2	U	0.019	U	0.011	U	0.011	U	0.013	U	1.3	U
2-Hexanone		mg/kg	--	--	0.01	U	2.2	U	0.019	U	0.011	U	0.011	U	0.013	U	1.3	U
4-Ethyltoluene		mg/kg	--	--	0.004	U	0.9	U	0.0077	U	0.0043	U	0.0045	U	0.0053	U	0.94	U
4-Methyl-2-pentanone		mg/kg	--	--	0.01	U	2.2	U	0.019	U	0.011	U	0.011	U	0.013	U	1.3	U
Acetone		mg/kg	100	0.05	0.0095	J	2.2	U	0.019	U	0.0074	J	0.0081	J	0.013	U	1.3	U
Acrylonitrile		mg/kg	--	--	0.01	U	2.2	U	0.019	U	0.011	U	0.011	U	0.013	U	1.3	U
Benzene		mg/kg	4.8	0.06	0.001	U	0.22	U	0.0019	U	0.0011	U	0.0011	U	0.0013	U	0.064	J
Bromobenzene		mg/kg	--	--	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	0.64	U
Bromochloromethane		mg/kg	--	--	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	0.64	U
Bromodichloromethane		mg/kg	--	--	0.001	U	0.22	U	0.0019	U	0.0011	U	0.0011	U	0.0013	U	0.13	U
Bromoform		mg/kg	--	--	0.004	U	0.9	U	0.0077	U	0.0043	U	0.0045	U	0.0053	U	0.51	U
Bromomethane		mg/kg	--	--	0.002	U	0.45	U	0.0038	U	0.0021	U	0.0023	U	0.0026	U	0.26	U
Carbon disulfide		mg/kg	--	--	0.01	U	2.2	U	0.019	U	0.011	U	0.011	U	0.013	U	1.3	U
Carbon tetrachloride		mg/kg	2.4	0.76	0.001	U	0.22	U	0.0019	U	0.0011	U	0.0011	U	0.0013	U	0.13	U
Chlorobenzene		mg/kg	100	1.1	0.001	U	0.22	U	0.0019	U	0.0011	U	0.0011	U	0.0013	U	0.13	U
Chloroethane		mg/kg	--	--	0.002	U	0.45	U	0.0038	U	0.0021	U	0.0023	U	0.0026	U	0.26	U
Chloroform		mg/kg	49	0.37	0.0015	U	0.34	U	0.0029	U	0.0016	U	0.0017	U	0.002	U	0.19	U
Chloromethane		mg/kg	--	--	0.005	U	1.1	U	0.0096	U	0.0054	U	0.0056	U	0.0066	U	0.64	U
cis-1,2-Dichloroethene		mg/kg	100	0.25	0.001	U	0.22	U	0.0019	U	0.0011	U	0.0011	U	0.0013	U	0.13	

Table 2 - Groundwater Analytical Results
534 West 29th Street
New York, New York
Phase II Remedial Investigation Report

LOCATION		New York TOGS 1.1.1 Ambient Water Quality Standards	TW-3		TRIP BLANK		MW-1		DUP (MW-1)		MW-2	
SAMPLING DATE			9/5/2013		5/15/2013		5/15/2013		5/15/2013		5/15/2013	
LAB SAMPLE ID			L1317376-08		L1308725-07		L1308725-04		L1308725-05		L1308725-03	
	Units		Result	Qual								
Volatile Organics by GC/MS												
1,1,1,2-Tetrachloroethane	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
1,1,1-Trichloroethane	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
1,1,2,2-Tetrachloroethane	ug/l	5	0.5	U	0.5	U	5	U	5	U	2	U
1,1,2-Trichloroethane	ug/l	1	1.5	U	1.5	U	15	U	15	U	6	U
1,1-Dichloroethane	ug/l	5	2.5	U	2.5	U	25	U	25	U	16	U
1,1-Dichloroethene	ug/l	5	0.5	U	0.5	U	5	U	5	U	1.4	J
1,1-Dichloropropene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
1,2,3-Trichlorobenzene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
1,2,3-Trichloropropane	ug/l	0.04	2.5	U	2.5	U	25	U	25	U	10	U
1,2,4,5-Tetramethylbenzene	ug/l	--	3.4		2	U	29		34		8	U
1,2,4-Trichlorobenzene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
1,2,4-Trimethylbenzene	ug/l	5	2.5	U	2.5	U	25	U	8	J	10	U
1,2-Dibromo-3-chloropropane	ug/l	0.04	2.5	U	2.5	U	25	U	25	U	10	U
1,2-Dibromoethane	ug/l	0.0006	2	U	2	U	20	U	20	U	8	U
1,2-Dichlorobenzene	ug/l	3	2.5	U	2.5	U	25	U	25	U	10	U
1,2-Dichloroethane	ug/l	0.6	0.5	U	0.5	U	5	U	5	U	2	U
1,2-Dichloropropane	ug/l	1	1	U	1	U	10	U	10	U	4	U
1,3,5-Trimethylbenzene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
1,3-Dichlorobenzene	ug/l	3	2.5	U	2.5	U	25	U	25	U	10	U
1,3-Dichloropropane	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
1,4-Dichlorobenzene	ug/l	3	2.5	U	2.5	U	25	U	25	U	10	U
1,4-Diethylbenzene	ug/l	--	2	U	2	U	7.4	J	8.3	J	8	U
1,4-Dioxane	ug/l	--	250	U	250	U	2500	U	2500	U	1000	U
2,2-Dichloropropane	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
2-Butanone	ug/l	50	5	U	5	U	50	U	50	U	20	U
2-Hexanone	ug/l	50	5	U	5	U	50	U	50	U	20	U
4-Ethyltoluene	ug/l	--	2	U	2	U	20	U	20	U	8	U
4-Methyl-2-pentanone	ug/l	--	5	U	5	U	50	U	50	U	20	U
Acetone	ug/l	50	6		1.8	J	17	J	14	J	4.8	J
Acrylonitrile	ug/l	5	5	U	5	U	50	U	50	U	20	U
Benzene	ug/l	1	1.2		0.5	U	12		11		2	U
Bromobenzene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
Bromochloromethane	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
Bromodichloromethane	ug/l	50	0.5	U	0.5	U	5	U	5	U	2	U
Bromoform	ug/l	50	2	U	2	U	20	U	20	U	8	U
Bromomethane	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
Carbon disulfide	ug/l	60	5	U	5	U	50	U	50	U	20	U
Carbon tetrachloride	ug/l	5	0.5	U	0.5	U	5	U	5	U	2	U
Chlorobenzene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
Chloroethane	ug/l	5	2.5	U	2.5	U	25	U	25	U	3.8	J
Chloroform	ug/l	7	2.5	U	2.5	U	25	U	25	U	10	U
Chloromethane	ug/l	--	2.5	U	2.5	U	25	U	25	U	10	U
cis-1,2-Dichloroethene	ug/l	5	2.5	U	2.5	U	25	U	25	U	160	
cis-1,3-Dichloropropene	ug/l	0.4	0.5	U	0.5	U	5	U	5	U	2	U
Dibromochloromethane	ug/l	50	0.5	U	0.5	U	5	U	5	U	2	U
Dibromomethane	ug/l	5	5	U	5	U	50	U	50	U	20	U
Dichlorodifluoromethane	ug/l	5	5	U	5	U	50	U	50	U	20	U
Ethyl ether	ug/l	--	2.5	U	2.5	U	25	U	25	U	10	U
Ethylbenzene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
Hexachlorobutadiene	ug/l	0.5	2.5	U	2.5	U	25	U	25	U	10	U
Isopropylbenzene	ug/l	5	2.5	U	2.5	U	18	J	19	J	10	U
Methyl tert butyl ether	ug/l	10	2.2	J	2.5	U	25	U	25	U	10	U
Methylene chloride	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
n-Butylbenzene	ug/l	5	2.5	U	2.5	U	9.8	J	11	J	10	U
n-Propylbenzene	ug/l	5	2.5	U	2.5	U	34		37		10	U
Naphthalene	ug/l	10	2.5	U	2.5	U	32		35		10	U
o-Chlorotoluene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
o-Xylene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
p-Chlorotoluene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
p-Isopropyltoluene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
p/m-Xylene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
sec-Butylbenzene	ug/l	5	2.5	U	2.5	U	10	J	12	J	10	U
Styrene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
tert-Butylbenzene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
Tetrachloroethene	ug/l	5	0.5	U	0.5	U	5	U	5	U	2	U
Toluene	ug/l	5	0.97	J	2.5	U	25	U	25	U	10	U
trans-1,2-Dichloroethene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
trans-1,3-Dichloropropene	ug/l	0.4	0.5	U	0.5	U	5	U	5	U	2	U
trans-1,4-Dichloro-2-butene	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
Trichloroethene	ug/l	5	0.5	U	0.5	U	5	U	5	U	2	U
Trichlorofluoromethane	ug/l	5	2.5	U	2.5	U	25	U	25	U	10	U
Vinyl acetate	ug/l	--	5	U	5	U	50	U	50	U	20	U
Vinyl chloride	ug/l	2	1	U	1	U	10	U	10	U	26	

Table 2 - Groundwater Analytical Results
 534 West 29th Street
 New York, New York
 Phase II Remedial Investigation Report

LOCATION		New York TOGS 1.1.1 Ambient Water Quality Standards	TW-3		TRIP BLANK		MW-1		DUP (MW-1)		MW-2		
SAMPLING DATE			9/5/2013		5/15/2013		5/15/2013		5/15/2013		5/15/2013		
LAB SAMPLE ID			L1317376-08		L1308725-07		L1308725-04		L1308725-05		L1308725-03		
	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual		
Semivolatile Organics by GC/MS - Westborough Lab													
1,2,4,5-Tetrachlorobenzene	ug/l	5	10	U	NA			10	U	10	U	10	U
1,2,4-Trichlorobenzene	ug/l	5	5	U	NA			5	U	5	U	5	U
1,2-Dichlorobenzene	ug/l	3	2	U	NA			2	U	2	U	2	U
1,3-Dichlorobenzene	ug/l	3	2	U	NA			2	U	2	U	2	U
1,4-Dichlorobenzene	ug/l	3	2	U	NA			2	U	2	U	2	U
2,4,5-Trichlorophenol	ug/l	--	5	U	NA			5	U	5	U	5	U
2,4,6-Trichlorophenol	ug/l	--	5	U	NA			5	U	5	U	5	U
2,4-Dichlorophenol	ug/l	1	5	U	NA			5	U	5	U	5	U
2,4-Dimethylphenol	ug/l	50	5	U	NA			5	U	5	U	5	U
2,4-Dinitrophenol	ug/l	10	20	U	NA			20	U	20	U	20	U
2,4-Dinitrotoluene	ug/l	5	5	U	NA			5	U	5	U	5	U
2,6-Dinitrotoluene	ug/l	5	5	U	NA			5	U	5	U	5	U
2-Chlorophenol	ug/l	--	2	U	NA			2	U	2	U	2	U
2-Methylphenol	ug/l	--	5	U	NA			5	U	5	U	5	U
2-Nitroaniline	ug/l	5	5	U	NA			5	U	5	U	5	U
2-Nitrophenol	ug/l	--	10	U	NA			10	U	10	U	10	U
3,3'-Dichlorobenzidine	ug/l	5	5	U	NA			5	U	5	U	5	U
3-Methylphenol/4-Methylphenol	ug/l	--	5	U	NA			5	U	5	U	5	U
3-Nitroaniline	ug/l	5	5	U	NA			5	U	5	U	5	U
4,6-Dinitro-o-cresol	ug/l	--	10	U	NA			10	U	10	U	10	U
4-Bromophenyl phenyl ether	ug/l	--	2	U	NA			2	U	2	U	2	U
4-Chloroaniline	ug/l	5	5	U	NA			5	U	5	U	5	U
4-Chlorophenyl phenyl ether	ug/l	--	2	U	NA			2	U	2	U	2	U
4-Nitroaniline	ug/l	5	5	U	NA			5	U	5	U	5	U
4-Nitrophenol	ug/l	--	10	U	NA			10	U	10	U	10	U
Acetophenone	ug/l	--	5	U	NA			5	U	5	U	5	U
Benzoic Acid	ug/l	--	50	U	NA			50	U	50	U	50	U
Benzyl Alcohol	ug/l	--	2	U	NA			2	U	2	U	2	U
Biphenyl	ug/l	--	2	U	NA			2	U	2	U	2	U
Bis(2-chloroethoxy)methane	ug/l	5	5	U	NA			5	U	5	U	5	U
Bis(2-chloroethyl)ether	ug/l	1	2	U	NA			2	U	2	U	2	U
Bis(2-chloroisopropyl)ether	ug/l	5	2	U	NA			2	U	2	U	2	U
Bis(2-Ethylhexyl)phthalate	ug/l	5	3	U	NA			3	U	3	U	3	U
Butyl benzyl phthalate	ug/l	50	5	U	NA			5	U	5	U	5	U
Carbazole	ug/l	--	2	U	NA			2	U	2	U	2	U
Di-n-butylphthalate	ug/l	50	5	U	NA			5	U	5	U	5	U
Di-n-octylphthalate	ug/l	50	5	U	NA			5	U	5	U	5	U
Dibenzofuran	ug/l	--	2	U	NA			2	U	2	U	2	U
Diethyl phthalate	ug/l	50	5	U	NA			5	U	5	U	5	U
Dimethyl phthalate	ug/l	50	5	U	NA			5	U	5	U	5	U
Hexachlorocyclopentadiene	ug/l	5	20	U	NA			20	U	20	U	20	U
Isophorone	ug/l	50	5	U	NA			5	U	5	U	5	U
n-Nitrosodi-n-propylamine	ug/l	--	5	U	NA			5	U	5	U	5	U
Nitrobenzene	ug/l	0.4	2	U	NA			2	U	2	U	2	U
NitrosoDiPhenylAmine(NDPA)/	ug/l	50	2	U	NA			2	U	2	U	2	U
P-Chloro-M-Cresol	ug/l	--	2	U	NA			2	U	2	U	2	U
Phenol	ug/l	1	5	U	NA			5	U	5	U	5	U
Semivolatile Organics by GC/MS-SIM - Westborough Lab													
2-Chloronaphthalene	ug/l	10	0.2	U	NA			4	U	4	U	0.2	U
2-Methylnaphthalene	ug/l	--	0.29		NA			270		210		0.2	U
Acenaphthene	ug/l	20	0.19	J	NA			20		15		0.2	U
Acenaphthylene	ug/l	--	0.2	U	NA			4	U	4	U	0.2	U
Anthracene	ug/l	50	0.2	U	NA			3	J	1.9	J	0.2	U
Benzo(a)anthracene	ug/l	--	0.2	U	NA			4	U	4	U	0.2	U
Benzo(a)pyrene	ug/l	--	0.2	U	NA			4	U	4	U	0.11	J
Benzo(b)fluoranthene	ug/l	0.002	0.2	U	NA			4	U	4	U	0.2	U
Benzo(ghi)perylene	ug/l	--	0.2	U	NA			4	U	4	U	0.2	U
Benzo(k)fluoranthene	ug/l	0.002	0.2	U	NA			4	U	4	U	0.2	U
Chrysene	ug/l	0.002	0.2	U	NA			4	U	4	U	0.2	U
Dibenzo(a,h)anthracene	ug/l	--	0.2	U	NA			4	U	4	U	0.2	U
Fluoranthene	ug/l	50	0.2	U	NA			4	U	4	U	0.13	J
Fluorene	ug/l	50	0.2	U	NA			26		20		0.2	U
Hexachlorobenzene	ug/l	0.04	0.8	U	NA			16	U	16	U	0.8	U
Hexachlorobutadiene	ug/l	0.5	0.5	U	NA			10	U	10	U	0.5	U
Hexachloroethane	ug/l	5	0.8	U	NA			16	U	16	U	0.8	U
Indeno(1,2,3-cd)Pyrene	ug/l	0.002	0.2	U	NA			4	U	4	U	0.2	U
Naphthalene	ug/l	10	0.14	J	NA			23		24		0.09	J
Pentachlorophenol	ug/l	1	0.8	U	NA			16	U	16	U	0.8	U
Phenanthrene	ug/l	50	0.2	U	NA			43		31		0.14	J
Pyrene	ug/l	50	0.2	U	NA			5.6		3.7	J	0.1	J

Table 2 - Groundwater Analytical Results
 534 West 29th Street
 New York, New York
 Phase II Remedial Investigation Report

LOCATION		New York TOGS 1.1.1 Ambient Water Quality Standards	TW-3		TRIP BLANK		MW-1		DUP (MW-1)		MW-2	
SAMPLING DATE			9/5/2013		5/15/2013		5/15/2013		5/15/2013		5/15/2013	
LAB SAMPLE ID			L1317376-08		L1308725-07		L1308725-04		L1308725-05		L1308725-03	
	Units		Result	Qual								
Total Metals - Westborough Lab												
Aluminum, Total	ug/l	--	11400		NA		6320		11100		5540	
Antimony, Total	ug/l	3	0.71	J	NA		0.31	J	0.39	J	1.09	
Arsenic, Total	ug/l	25	15.2		NA		5.65		7.73		4.69	
Barium, Total	ug/l	1000	268.2		NA		626.8		724.2		349.8	
Beryllium, Total	ug/l	3	0.78		NA		0.51		1.11		0.33	J
Cadmium, Total	ug/l	5	0.25		NA		0.08	J	0.25		0.23	
Calcium, Total	ug/l	--	164000		NA		226000		223000		198000	
Chromium, Total	ug/l	50	15.45		NA		12.66		21.87		13.85	
Cobalt, Total	ug/l	--	10.69		NA		5.83		9.93		5.6	
Copper, Total	ug/l	200	23.5		NA		16.31		31.59		25.39	
Iron, Total	ug/l	300	16800		NA		22200		29500		8740	
Lead, Total	ug/l	25	19.14		NA		38.01		257		484.3	
Magnesium, Total	ug/l	35000	37400		NA		51700		51900		38600	
Manganese, Total	ug/l	300	2336		NA		4097		4607		4035	
Mercury, Total	ug/l	0.7	0.2	U	NA		0.2	U	0.4		0.66	
Nickel, Total	ug/l	100	13.85		NA		9.8		16.35		10.92	
Potassium, Total	ug/l	--	64800		NA		44400		45200		31600	
Selenium, Total	ug/l	10	3.05	J	NA		1.06	J	1.65	J	1.1	J
Silver, Total	ug/l	50	0.29	J	NA		0.4	U	0.4	U	0.31	J
Sodium, Total	ug/l	20000	210000		NA		366000		359000		85600	
Thallium, Total	ug/l	0.5	0.09	J	NA		0.5	U	0.05	J	0.5	U
Vanadium, Total	ug/l	--	19.4		NA		23.54		43.92		15.34	
Zinc, Total	ug/l	2000	36.28		NA		21.49		91.13		171.5	
Dissolved Metals - Westborough Lab												
Aluminum, Dissolved	ug/l	--	25.2		NA		47		17		76.6	
Antimony, Dissolved	ug/l	3	0.68	J	NA		0.57	J	0.65	J	1.12	
Arsenic, Dissolved	ug/l	25	6.46		NA		1.22		1.06		1.5	
Barium, Dissolved	ug/l	1000	158.9		NA		463.9		456.5		64.44	
Beryllium, Dissolved	ug/l	3	0.5	U	NA		0.5	U	0.5	U	0.5	U
Cadmium, Dissolved	ug/l	5	0.5	U	NA		0.5	U	0.5	U	0.5	U
Calcium, Dissolved	ug/l	--	129000		NA		218000		206000		174000	
Chromium, Dissolved	ug/l	50	1.48		NA		0.25	J	1	U	0.43	J
Cobalt, Dissolved	ug/l	--	2.98		NA		1.31		1.56		1.05	
Copper, Dissolved	ug/l	200	1.5	U	NA		0.23	J	1	U	0.7	J
Iron, Dissolved	ug/l	300	121		NA		959		895		165	
Lead, Dissolved	ug/l	25	1	U	NA		0.5	J	0.46	J	15.18	
Magnesium, Dissolved	ug/l	35000	38000		NA		48600		48300		31400	
Manganese, Dissolved	ug/l	300	1831		NA		3477		3828		3389	
Mercury, Dissolved	ug/l	0.7	0.2	U	NA		0.2	U	0.2	U	0.2	U
Nickel, Dissolved	ug/l	100	1.05		NA		1.82		1.95		1.24	
Potassium, Dissolved	ug/l	--	54000		NA		40700		41200		27900	
Selenium, Dissolved	ug/l	10	5	U	NA		0.44	J	0.37	J	0.64	J
Silver, Dissolved	ug/l	50	0.5	U	NA		0.5	U	0.5	U	0.5	U
Sodium, Dissolved	ug/l	20000	172000		NA		360000		357000		83400	
Thallium, Dissolved	ug/l	0.5	0.5	U	NA		0.5	U	0.5	U	0.5	U
Vanadium, Dissolved	ug/l	--	0.38	J	NA		0.33	J	0.25	J	2.83	J
Zinc, Dissolved	ug/l	2000	10	U	NA		10	U	10	U	4.11	J
PCB by GC - Westborough Lab												
Aroclor 1016	ug/l	0.09	NA		NA		0.25	U	0.25	U	NA	
Aroclor 1221	ug/l	0.09	NA		NA		0.25	U	0.25	U	NA	
Aroclor 1232	ug/l	0.09	NA		NA		0.25	U	0.25	U	NA	
Aroclor 1242	ug/l	0.09	NA		NA		0.25	U	0.25	U	NA	
Aroclor 1248	ug/l	0.09	NA		NA		0.25	U	0.25	U	NA	
Aroclor 1254	ug/l	0.09	NA		NA		0.25	U	0.25	U	NA	
Aroclor 1260	ug/l	0.09	NA		NA		0.25	U	0.25	U	NA	
Aroclor 1262	ug/l	0.09	NA		NA		0.25	U	0.25	U	NA	
Aroclor 1268	ug/l	0.09	NA		NA		0.25	U	0.25	U	NA	

Value Exceeds Unrestricted Residential Use SCOs

Non-Detect Value - MDL, Exceeds Unrestricted Residential Use SCOs

J - Estimated value. The Target analyte concentration is below the quantitation limit

U - N (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses.

NA - Not analyzed for parameter

Table 3 - Soil Vapor Analytical Results
534 West 29th Street
New York, New York
Phase II Remedial Investigation Report

LOCATION			VP-1		VP-2		VP-3	
SAMPLING DATE			9/4/2013		9/4/2013		9/4/2013	
LAB SAMPLE ID			L1317246-02		L1317246-03		L1317246-01	
Volatiles in Air - Mansfield Lab	CasNum	Units	Qual	Qual	Qual	Qual	Qual	Qual
Propylene	115-07-1	ug/m3	108		106		420	
Dichlorodifluoromethane	75-71-8	ug/m3	22.2	U	22	U	90	U
Chloromethane	74-87-3	ug/m3	9.25	U	9.19	U	37.6	U
Freon-114	76-14-2	ug/m3	31.3	U	31.1	U	127	U
Vinyl chloride	75-01-4	ug/m3	11.5	U	11.4	U	46.5	U
1,3-Butadiene	106-99-0	ug/m3	9.91	U	9.84	U	40.3	U
Bromomethane	74-83-9	ug/m3	17.4	U	17.3	U	70.7	U
Chloroethane	75-00-3	ug/m3	11.8	U	11.7	U	48	U
Ethanol	64-17-5	ug/m3	106	U	105	U	430	U
Vinyl bromide	593-60-2	ug/m3	19.6	U	19.5	U	79.6	U
Acetone	67-64-1	ug/m3	53.2	U	52.7	U	216	U
Trichlorofluoromethane	75-69-4	ug/m3	25.2	U	25	U	102	U
Isopropanol	67-63-0	ug/m3	27.5	U	27.3	U	112	U
1,1-Dichloroethene	75-35-4	ug/m3	17.8	U	17.6	U	72.2	U
Methylene chloride	75-09-2	ug/m3	77.8	U	77.1	U	316	U
3-Chloropropene	107-05-1	ug/m3	14	U	13.9	U	57	U
Carbon disulfide	75-15-0	ug/m3	62.3		55.7		56.7	U
Freon-113	76-13-1	ug/m3	34.3	U	34.1	U	139	U
trans-1,2-Dichloroethene	156-60-5	ug/m3	17.8	U	17.6	U	72.2	U
1,1-Dichloroethane	75-34-3	ug/m3	18.6		18	U	73.7	U
Methyl tert butyl ether	1634-04-4	ug/m3	17.8		16	U	65.6	U
Vinyl acetate	108-05-4	ug/m3	15.8	U	15.7	U	64.1	U
2-Butanone	78-93-3	ug/m3	36		13.1	U	53.7	U
cis-1,2-Dichloroethene	156-59-2	ug/m3	17.8	U	17.6	U	72.2	U
Ethyl Acetate	141-78-6	ug/m3	40.4	U	40	U	164	U
Chloroform	67-66-3	ug/m3	60.1		21.7	U	88.9	U
Tetrahydrofuran	109-99-9	ug/m3	13.2	U	13.1	U	53.7	U
1,2-Dichloroethane	107-06-2	ug/m3	18.1	U	18	U	73.7	U
n-Hexane	110-54-3	ug/m3	1120		37000	E	219000	E
1,1,1-Trichloroethane	71-55-6	ug/m3	24.4	U	24.3	U	99.3	U
Benzene	71-43-2	ug/m3	83.1		26.5		13300	
Carbon tetrachloride	56-23-5	ug/m3	28.2	U	28	U	114	U
Cyclohexane	110-82-7	ug/m3	750		18400	E	78100	E
1,2-Dichloropropane	78-87-5	ug/m3	20.7	U	20.6	U	84.1	U
Bromodichloromethane	75-27-4	ug/m3	30	U	29.8	U	122	U
1,4-Dioxane	123-91-1	ug/m3	16.1	U	16	U	65.6	U
Trichloroethene	79-01-6	ug/m3	24.1	U	23.9	U	97.8	U
2,2,4-Trimethylpentane	540-84-1	ug/m3	2630		58900	E	165000	E
Heptane	142-82-5	ug/m3	1450		7700		59800	E
cis-1,3-Dichloropropene	10061-01-5	ug/m3	20.3	U	20.2	U	82.6	U
4-Methyl-2-pentanone	108-10-1	ug/m3	18.4	U	18.2	U	74.6	U
trans-1,3-Dichloropropene	10061-02-6	ug/m3	20.3	U	20.2	U	82.6	U
1,1,2-Trichloroethane	79-00-5	ug/m3	24.4	U	24.3	U	99.3	U
Toluene	108-88-3	ug/m3	211		126		128	
2-Hexanone	591-78-6	ug/m3	18.4	U	18.2	U	74.6	U
Dibromochloromethane	124-48-1	ug/m3	38.2	U	37.9	U	155	U
1,2-Dibromoethane	106-93-4	ug/m3	34.4	U	34.2	U	140	U
Tetrachloroethene	127-18-4	ug/m3	30.4	U	30.2	U	123	U
Chlorobenzene	108-90-7	ug/m3	20.6	U	20.5	U	83.8	U
Ethylbenzene	100-41-4	ug/m3	40.8		40.5		79.1	U
p/m-Xylene	179601-23-1	ug/m3	118		114		158	U
Bromoform	75-25-2	ug/m3	46.3	U	46	U	188	U
Styrene	100-42-5	ug/m3	19.1	U	18.9	U	77.5	U
1,1,2,2-Tetrachloroethane	79-34-5	ug/m3	30.8	U	30.6	U	125	U
o-Xylene	95-47-6	ug/m3	80.8		41.6		79.1	U
4-Ethyltoluene	622-96-8	ug/m3	22	U	21.9	U	89.5	U
1,3,5-Trimethylbenzene	108-67-8	ug/m3	22	U	21.9	U	89.5	U
1,2,4-Trimethylbenzene	95-63-6	ug/m3	33.3		42.4		89.5	U
Benzyl chloride	100-44-7	ug/m3	23.2	U	23	U	94.2	U
1,3-Dichlorobenzene	541-73-1	ug/m3	26.9	U	26.8	U	109	U
1,4-Dichlorobenzene	106-46-7	ug/m3	26.9	U	26.8	U	109	U
1,2-Dichlorobenzene	95-50-1	ug/m3	26.9	U	26.8	U	109	U
1,2,4-Trichlorobenzene	120-82-1	ug/m3	33.3	U	33	U	135	U
Hexachlorobutadiene	87-68-3	ug/m3	47.8	U	47.5	U	194	U

APPENDIX A

CITIZEN PARTICIPATION PLAN

The NYC Office of Environmental Remediation and W29 534 Highline Owners LLC have established this Citizen Participation Plan because the opportunity for citizen participation is an important component of the NYC Voluntary Cleanup Program. This Citizen Participation Plan describes how information about the project will be disseminated to the Community during the remedial process. As part of its obligations under the NYC VCP, W29 534 Highline Owners LLC will maintain a repository for project documents and provide public notice at specified times throughout the remedial program. This Plan also takes into account potential environmental justice concerns in the community that surrounds the project Site.

Under this Citizen Participation Plan, project documents and work plans are made available to the public in a timely manner. Public comment on work plans is strongly encouraged during public comment periods. Work plans are not approved by the NYC Office of Environmental Remediation (OER) until public comment periods have expired and all comments are formally reviewed. An explanation of cleanup plans in the form of a public meeting or informational session is available upon request to OER's project manager assigned to this Site, Rebecca Bub, who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at (212) 788-8841.

Project Contact List. OER has established a Site Contact List for this project to provide public notices in the form of fact sheets to interested members of the Community. Communications will include updates on important information relating to the progress of the cleanup program at the Site as well as to request public comments on the cleanup plan. The Project Contact List includes owners and occupants of adjacent buildings and homes, principal administrators of nearby schools, hospitals and day care centers, the public water supplier that serves the area, established document repositories, the representative Community Board, City Council members, other elected representatives and any local Brownfield Opportunity Area (BOA) grantee organizations. Any member of the public or organization will be added to the Site Contact List on request. A copy of the Site Contact List is maintained by OER's project

manager. If you would like to be added to the Project Contact List, contact NYC OER at (212) 788-8841 or by email at brownfields@cityhall.nyc.gov.

Repositories. A document repository is maintained in the nearest public library that maintains evening and weekend hours. This document repository is intended to house, for community review, all principal documents generated during the cleanup program including Remedial Investigation plans and reports, Remedial Action work plans and reports, and all public notices and fact sheets produced during the lifetime of the remedial project. W29 534 Highline Owners LLC will inspect the repositories to ensure that they are fully populated with project information. The repository for this project is:

New York Public Library - Muhlenberg Branch
209 West 23rd Street
New York, NY 10011-2379
Manager: Ashley Curran
Phone Number: 212-924-1585

Repository Hours of Operation:

Monday & Wednesday: 11:00am – 6:00pm

Tuesday & Thursday: 11:00am – 7:00pm

Friday & Saturday: 10:00am – 5:00pm

Sunday: Closed

Digital Documentation. NYC OER strongly encourages the use of digital documents in repositories as a means of minimizing paper use while also increasing convenience in access and ease of use.

Identify Issues of Public Concern. There are no issues of public concern.

Public Notice and Public Comment. Public notice to all members of the Project Contact List is required at three major steps during the performance of the cleanup program (listed below) and at other points that may be required by OER. Notices will include Fact Sheets with descriptive project summaries, updates on recent and upcoming project activities, repository information, and important phone and email contact information. All notices will be prepared by

W29 534 Highline Owners LLC, reviewed and approved by OER prior to distribution and mailed by W29 534 Highline Owners LLC. Public comment is solicited in public notices for all work plans developed under the NYC Voluntary Cleanup Program. Final review of all work plans by OER will consider all public comments. Approval will not be granted until the public comment period has been completed.

Citizen Participation Milestones. Public notice and public comment activities occur at several steps during a typical NYC VCP project. See flow chart on the following page, which identifies when during the NYC VCP public notices are issued: These steps include:

- **Public Notice of the availability of the Remedial Investigation Report and Remedial Action Work Plan and a 30-day public comment period on the Remedial Action Work Plan.**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the availability of the Remedial Investigation Report and Remedial Action Work Plan and the initiation of a 30-day public comment period on the Remedial Action Work Plan. The Fact Sheet summarizes the findings of the RIR and provides details of the RAWP. The public comment period will be extended an additional 15 days upon public request. A public meeting or informational session will be conducted by OER upon request.

- **Public Notice announcing the approval of the RAWP and the start of remediation**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the approval of the RAWP and the start of remediation.

- **Public Notice announcing the completion of remediation, designation of Institutional and Engineering Controls and issuance of the Notice of Completion**

Public notice in the form of a Fact Sheet is sent to all parties listed on the Site Contact List announcing the completion of remediation, providing a list of all Institutional and Engineering Controls implemented for to the Site and announcing the issuance of the Notice of Completion.

Site Contact List

1. Government Contacts

State of New York:

The Honorable Andrew M. Cuomo
Governor of New York State NYS State Capitol Building Albany,
NY 12224

The Honorable Charles E. Schumer US Senate
757 Third Avenue, Room 1702
New York, NY 10017

The Honorable Kirsten E. Gillebrand US Senate
531 Dirksen Senate Office Building
Washington D.C. 20510

The Honorable Jerrold Nadler US House of Representatives 2334
Rayburn House Office Building
Washington, DC 20515

New York State Assembly:

The Honorable Richard N. Gottfried New York State Assembly, District 75
242 West 27th Street
New York, NY 10001

New York State Senate:

The Honorable Thomas K. Duane
New York State Assembly, District 29
322 Eighth Avenue Suite 1700
New York, NY 10001

City of New York:

The Honorable Michael R. Bloomberg
Mayor, City of New York
c/o The Mayor's Office of Environmental Remediation
253 Broadway, 14th Floor
New York, NY 10007

New York City Department of City Planning:
Amanda M. Burden, Director, Department of City Planning and Chair
City Planning Commission
Department of City Planning
22 Reade Street
New York, NY 10007-1216

Carole Samol, Deputy Director
Department of City Planning, Bronx Office
One Fordham Plaza, 5th Fl.
Bronx, NY 10458

New York City Councilperson:
The Honorable Christine Quinn, New York City Council, District 3
224 West 30th St (Suite 1206)
New York, NY 10001

Borough of Manhattan, New York County:
The Honorable President Scott Stringer, Manhattan Borough President
1 Centre Street, 19th Floor
New York, NY 10007

Community Board:
Manhattan Community Board 4
330 West 42nd Street, Suite 2618
New York, NY 10036
Chair: Mr. J.D. Nolan
District Manager: Mr. Robert J. Benfatto

2. Residents and/or Owners of Site and Properties Immediately Adjacent

Owner of Site:
Chelsea W26 LLC
37 West 65th Street
New York, NY 10023-6610

Adjacent to North:
Tuck-It Away Self Storage
517 West 29th Street
New York, NY 10001

212-368-1717

David Nolan Art Gallery
527 West 29th Street
New York, NY 10001
212-925-6190

Adjacent to East:

Chelsea W26 LLC
522-532 West 29th Street
New York, NY 10001

Adjacent to South:

Active Construction Site

Adjacent to West:

Skylight Gallery
538 West 29th Street
New York, NY 10001
646-772-2407

3. Local News Media

New York Times
620 8th Ave.
New York, NY 10018

New York Post
1211 Avenue of the Americas
New York, NY 10036
212-930-8100

New York Daily News
450 West 33rd Street
New York, NY 10001

New York 1 News
75 Ninth Avenue
New York, NY 10011

4. Public Water Supplier

The New York City Department of Environmental Protection (DEP)
Bureau of Water Supply
59-17 Junction Boulevard
Flushing, NY 11373

5. Any Person who has requested to be on the Site Contact List

N/A

6. Administrator of any School or Day Care Facility Located on or Near the Site

Avenues: The World School
President: Alan Greenberg
259 10th Avenue
New York, NY 10001
212-524-9000

P.S. 33, Chelsea Prep
Principal: Linore Lindy
281 9th Avenue
New York, NY 10001
212-244-6426

University of Medicine and Health Sciences
Dean: Robert W. Amler, M.D.
460 West 34th Street
New York, NY 10001
866-686-0380

Guardian Angel School
Principal: Maureen McElduff
193 10th Avenue
New York, NY 10011
212-989-8280

McCarton School
Executive Director: Cecelia McCarton, M.D.
331 West 25th Street

New York, NY 10001
212-675-3905

YAI-NY League Early Learning
Chief Executive Officer: Stephen E. Freeman
460 West 34th Street
New York, NY 10001
212-420-0510

Secret Garden Preschool
422 West 20th Street
New York, NY 10011
212-627-7275

San Jose Day Nursery Inc.
432 West 20th Street
New York, NY 10011
212-929-0839

Sitters Studio
Daycare Director: Emma Morrison
259 West 30th Street
New York, NY 10001
877-844-8204

Kids at Work
Founder and Owner: Julie Averill
242 West 27th Street
New York, NY 10001
212-488-8800

7. Document Repository

New York Public Library - Muhlenberg Branch
209 West 23rd Street
New York, NY 10011-2379
Manager: Ashley Curran
Phone Number: 212-924-1585

APPENDIX B

SUSTAINABILITY STATEMENT

This Sustainability Statement documents sustainable activities and green remediation efforts planned under this remedial action.

Reuse of Clean, Recyclable Materials. Reuse of clean, locally-derived recyclable materials reduces consumption of non-renewable virgin resources and can provide energy savings and greenhouse gas reduction. If possible, W29 534 Highline Owners LLC will reuse clean, non-virgin materials, the results of which will be quantified and reported in the Remedial Action Report (RAR).

Reduced Energy Consumption and Promotion of Greater Energy Efficiency. Reduced energy consumption lowers greenhouse gas emissions, improves local air quality, lessens in-city power generation requirements, can lower traffic congestion, and provides substantial cost savings.

Best efforts will be made to quantify energy efficiencies achieved during the remediation and will be reported in the Remedial Action Report (RAR). Where energy savings cannot be easily quantified, a gross indicator of the amount of energy saved or the means by which energy savings was achieved will be reported.

Conversion to Clean Fuels. Use of clean fuel improves NYC's air quality by reducing harmful emissions.

An estimate of the volume of clean fuels used during remedial activities will be quantified and reported in the RAR.

Recontamination Control. Recontamination after cleanup and redevelopment is completed undermines the value of work performed, may result in a property that is less protective of public health or the environment, and may necessitate additional cleanup work later or impede future redevelopment. Recontamination can arise from future releases that occur within the property or by influx of contamination from off-Site.

An estimate of the area of the Site that utilizes recontamination controls under this plan will be reported in the RAR in square feet.

Storm-water Retention. Storm-water retention improves water quality by lowering the rate of combined storm-water and sewer discharges to NYC's sewage treatment plants during periods of precipitation, and reduces the volume of untreated influent to local surface waters.

An estimate of the enhanced storm-water retention capability of the redevelopment project will be included in the RAR.

Linkage with Green Building. Green buildings provide a multitude of benefits to the city across a broad range of areas, such as reduction of energy consumption, conservation of resources, and reduction in toxic materials use.

The number of Green Buildings that are associated with this brownfield redevelopment property will be reported in the RAR. The total square footage of green building space created as a function of this brownfield redevelopment will be quantified for residential, commercial and industrial/manufacturing uses.

Paperless Brownfield Cleanup Program. W29 534 Highline Owners LLC is participating in OER's Paperless Brownfield Cleanup Program. Under this program, submission of electronic documents will replace submission of hard copies for the review of project documents, communications and milestone reports.

Low-Energy Project Management Program. W29 534 Highline Owners LLC is participating in OER's low-energy project management program. Under this program, whenever possible, meetings are held using remote communication technologies, such as videoconferencing and teleconferencing to reduce energy consumption and traffic congestion associated with personal transportation.

Trees and Plantings. Trees and other plantings provide habitat and add to NYC's environmental quality in a wide variety of ways. Native plant species and native habitat provide optimal support to local fauna, promote local biodiversity, and require less maintenance.

An estimate of the land area that will be vegetated, including the number of trees planted or preserved, will be reported in square feet in the RAR.

APPENDIX C

SOIL/MATERIALS MANAGEMENT PLAN

1.1 SOIL SCREENING METHODS

Visual, olfactory and PID soil screening and assessment will be performed under the supervision of a Qualified Environmental Professional and will be reported in the RAR. Soil screening will be performed during invasive work performed during the remedy and development phases prior to issuance of the Notice of Completion.

1.2 STOCKPILE METHODS

Excavated soil from suspected areas of contamination (e.g., hot spots, USTs, drains, etc.) will be stockpiled separately and will be segregated from clean soil and construction materials. Stockpiles will be used only when necessary and will be removed as soon as practicable. While stockpiles are in place, they will be inspected daily, and before and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. Excavated soils will be stockpiled on, at minimum, double layers of 8-mil minimum sheeting, will be kept covered at all times with appropriately anchored plastic tarps, and will be routinely inspected. Broken or ripped tarps will be promptly replaced.

All stockpile activities will be compliant with applicable laws and regulations. Soil stockpile areas will be appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials shall be located at least of 50 feet from the property boundaries, where possible. Hay bales or equivalent will surround soil stockpiles except for areas where access by equipment is required. Silt fencing and hay bales will be used as needed near catch basins, surface waters and other discharge points.

1.3 CHARACTERIZATION OF EXCAVATED MATERIALS

Soil/fill or other excavated media that is transported off-Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils proposed for reuse on-Site will be managed as defined in this plan.

1.4 MATERIALS EXCAVATION, LOAD-OUT AND DEPARTURE

The PE/QEP overseeing the remedial action will:

- oversee remedial work and the excavation and load-out of excavated material;
- ensure that there is a party responsible for the safe execution of invasive and other work performed under this work plan;
- ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise the remedial activities proposed in this RAWP;
- ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this plan are properly addressed by appropriate parties;
- ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

Open and uncontrolled mechanical processing of historical fill and contaminated soil on-Site will not be performed without prior OER approval.

1.5 OFF-SITE MATERIALS TRANSPORT

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on-Site, when possible in order to minimize off Site disturbance. Off-Site queuing will be minimized.

Outbound truck transport routes are westward on 29th Street towards the West Side Highway. Trucks will then merge northward and take the George Washington Bridge to New Jersey, merge onto the New Jersey Turnpike and then proceed to the proposed disposal facilities. This routing takes into account the following factors: (a) limiting transport through residential areas and past sensitive sites; (b) use of mapped truck routes; (c) minimizing off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, all trucks loaded with Site materials will travel from the Site using these truck routes. Trucks will not stop or idle in the neighborhood after leaving the project Site.

1.6 MATERIALS DISPOSAL OFF-SITE

The following documentation will be established and reported by the PE/QEP for each disposal destination used in this project to document that the disposal of regulated material exported from the Site conforms with applicable laws and regulations: (1) a letter from the PE/QEP or Enrollee to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York, New York under a governmental remediation program. The letter will provide the project identity and the name and phone number of the PE/QEP or Enrollee. The letter will include as an attachment a summary of all chemical data for the material being transported; and (2) a letter from each disposal facility stating it is in receipt of the correspondence (1, above) and is approved to accept the material. These documents will be included in the RAR.

The Remedial Action Report will include an itemized account of the destination of all material removed from the Site during this remedial action. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the RAR.

All impacted soil/fill or other waste excavated and removed from the Site will be managed as regulated material and will be disposed in accordance with applicable laws and regulations. Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Waste characterization will be performed for off-Site disposal in a manner required by the receiving facility and in conformance with its applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the RAR. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the RAR. Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable laws and regulations.

1.7 MATERIALS REUSE ON-SITE

Soil and fill that is derived from the property that meets the soil cleanup objectives established in this plan may be reused on-Site. The soil cleanup objectives for on-Site reuse are listed in **Table 4**. ‘Reuse on-Site’ means material that is excavated during the remedy or development, does not leave the property, and is relocated within the same property and on comparable soil/fill material, and addressed pursuant to the NYC VCP agreement subject to Engineering and Institutional Controls. The PE/QEP will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this RAWP are followed. The reuse of materials on Site is not anticipated.

Organic matter (wood, roots, stumps, etc.) or other waste derived from clearing and grubbing of the Site will not be buried on-Site. Soil or fill excavated from the site for grading or other purposes will not be reused within a cover soil layer or within landscaping berms.

1.8 DEMARCATION

After completion of hotspot removal and any other invasive remedial activities, and prior to backfilling, the top of the residual soil/fill will be defined by one of three methods: (1) placement of a demarcation layer. The demarcation layer will consist of geosynthetic fencing or equivalent material to be placed on the surface of residual soil/fill to provide an observable reference layer. A description or map of the approximate depth of the demarcation layer will be provided in the SMP; or (2) a land survey of the top elevation of residual soil/fill before the placement of cover soils, pavement and associated sub-soils, or other materials or structures or, (3) all materials beneath the approved cover will be considered impacted and subject to site management after the

remedy is complete. Demarcation may be established by one or any combination of these three methods. As appropriate, a map showing the method of demarcation for the Site and all associated documentation will be presented in the RAR.

This demarcation will constitute the top of the site management horizon. Materials within this horizon require adherence to special conditions during future invasive activities as defined in the Site Management Plan.

1.9 IMPORT OF BACKFILL SOIL FROM OFF-SITE SOURCES

This Section presents the requirements for imported fill materials to be used below the cover layer and within the clean soil cover layer; although, no backfill or imported material is anticipated for the completion of this project. All imported soils will meet OER-approved backfill and cover soil quality objectives for this Site. The backfill and cover soil quality objectives are listed in **Table 4**.

A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

The following potential sources may be used pending attainment of backfill and cover soil quality objectives:

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;
- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYS DEC.

All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with provisions in this RAWP. The RAR will report the source of the fill, evidence

that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed.

Source Screening and Testing

Inspection of imported fill material will include visual, olfactory and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:

- Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;
- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and
- Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite samples of imported material will be taken at a minimum frequency of one sample for every 500 cubic yards of material. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by NYSDEC. Facilities will be identified in the RAR. A PE/QEP is responsible to ensure that the facility is compliant with 6NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for, and will not be used as cover material.

1.10 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable laws and regulations. Liquids discharged into the New York City sewer system will receive prior approval by New York City Department

of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. Discharge to the New York City sewer system will require an authorization and sampling data demonstrating that the groundwater meets the City's discharge criteria. The dewatering fluid will be pretreated as necessary to meet the NYC DEP discharge criteria. If discharge to the City sewer system is not appropriate, the dewatering fluids will be managed by transportation and disposal at an off-Site treatment facility.

Discharge of water generated during remedial construction to surface waters (i.e. a stream or river) is prohibited without a SPDES permit issued by New York State Department of Environmental Conservation.

1.11 STORM-WATER POLLUTION PREVENTION

Applicable laws and regulations pertaining to storm-water pollution prevention will be addressed during the remedial program. Erosion and sediment control measures identified in this RAWP (silt fences and barriers, and hay bale checks) will be installed around the entire perimeter of the remedial construction area and inspected once a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receptors. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by OER. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence toe anchor will be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

1.12 CONTINGENCY PLAN

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to OER's Project Manager. Petroleum spills will be reported to the NYS DEC Spill Hotline. These findings

will be included in the daily report. If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to OER. Chemical analytical testing will be performed for TAL metals, TCL volatiles and semi-volatiles, TCL pesticides and PCBs, as appropriate.

1.13 ODOR, DUST AND NUISANCE CONTROL

Odor Control

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) use of foams to cover exposed odorous soils. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems.

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. OER will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the PE/QEP's certifying the Remedial Action Report.

Dust Control

Dust management during invasive on-Site work will include, at a minimum:

- Use of a dedicated water spray methodology for roads, excavation areas and stockpiles.
- Use of properly anchored tarps to cover stockpiles.
- Exercise extra care during dry and high-wind periods.
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. OER will be notified of all dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the PE/QEP's responsible for certifying the Remedial Action Report.

Other Nuisances

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

Rodent control will be provided, during Site clearing and grubbing, and during the remedial program, as necessary, to prevent nuisances.



**Appendix D – Construction Health &
Safety Plan**

**CONSTRUCTION
HEALTH AND SAFETY PLAN
534 WEST 29th STREET
NEW YORK, NEW YORK
NYC VCP NUMBER: 14VCP199M**

Prepared For:
W29 534 Highline Owners LLC
520 West 27th Street, Suite 302
New York, New York 10001

Prepared By:
GZA GeoEnvironmental of New York
104 West 29th Street, 10th Floor New
York, New York 10001

September, 2013

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ATTACHMENTS

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1.0 INTRODUCTION

1.1 Overview

This project-specific Construction Health and Safety Plan (CHASP) has been developed by GZA GeoEnvironmental of New York (GZA) on behalf of W29 534 Highline Owners LLC (Client) to establish the procedures necessary for protection from potential contaminated soils resulting from the excavation of soils at 534 West 29th Street in New York, New York (Site) due to re-development plans. This CHASP is intended to supplement the Client's Corporate Safety Management Program (CSMP). The procedures in this plan have been developed based on current knowledge regarding the hazards which are known or anticipated for the operations to be conducted at this Site.

1.2 Site Hazards

This CHASP covers only the hazards associated with potential chemical exposures. Physical hazards such as injuries from typical excavation field work activities, including the operation of heavy equipment, noise exposure, heat and cold stress, electrical hazards, fire hazards, excavation hazards and general safety hazards associated with walking on working surfaces (trip and fall) are covered by the Client's CSMP.

Site activities may pose chemical exposure hazards. Potential chemical exposure hazards include skin contact, ingestion and inhalation hazards which may result from the presence of volatile organic compounds, semi-volatile organic compounds, and inorganic metallic elements (metals) on-Site. The potential adverse health effects from these detected contaminants are diverse. Many of these compounds are known or suspected to result in chronic illness from long-term exposures. However, due to the limited nature of the proposed construction, only acute effects are a potential concern. See Section 2.0 for detailed chemical hazard information.

1.3 Project Team

The organizational structure established for the implementation of health and safety requirements established by this CHASP are outlined in the CSMP. Personnel who have been assigned specific authority to implement and enforce the provisions of this CHASP are identified below.

Name	Project Title/Assigned Role	Phone Numbers
Clifford Bell	Project Manager	Work: 212-594-8140 Cell: 347-640-2759
Emily Snead	Site Supervisor	Work: 212-594-8140 Cell: 201-452-8529
Emily Snead	Site Health and Safety Officer	Work: 212-594-8140 Cell: 201-452-8529

The control of Site hazards is dependent upon the degree to which management enforces compliance and employees cooperate with the specified health and safety requirements.

Therefore, personnel at all levels of the organization must recognize their individual responsibility to comply. All activities covered by this CHASP must be conducted in compliance with this CHASP and with applicable federal, state, and local health and safety regulations, including 29 CFR 1910.120. Personnel covered by this CHASP who cannot or will not comply must be excluded from Site activities by the Project Superintendent, as defined in the CSMP.

2.0 HAZARD ASSESSMENT

The following hazard assessment applies only to the activities within the specified scope of this CHASP.

2.1 Chemical Hazards and Known/ Suspect Chemicals of Concern

The chemical hazard information provided below is based on data provided in the Phase II Remedial Investigation Report dated October 2013. The report was prepared by GZA GeoEnvironmental of New York (GZANY). During the investigations, representative Site soils, soil vapor, and groundwater were sampled for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), priority pollutant metals, pesticides, and polychlorinated biphenyl (PCBs). Elevated concentrations of VOCs, SVOCs, and metal compounds were detected in the soil, soil vapor, and groundwater. Constituents with exceeding concentrations and their respective health effects are listed below for reference.

Information presented is based upon established Occupational Safety and Health Administration (OSHA) permissible exposure limits (PEL) and The National Institute for Occupational Safety and Health (NIOSH) recommended exposure limits (RELs). All other analytical parameters were reported within acceptable levels for Site urban residential land use. See Section 4.2 for a description of the PPE that should be used for this Site.

Chemicals	REL/PEL/STEL (ppm)	Health Hazards
Anthracene	PEL = 0.2 mg/m ³ TWA REL = 0.1 mg/m ³ TWA	Dermatitis, bronchitis, targets respiratory system, skin, bladder, kidneys. Potential human carcinogen.
Benzene	PEL = 1 ppm REL = 0.1 ppm STEL = 5 ppm	Irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude, dermatitis; bone marrow depression, potential occupational carcinogen.
Benzo(a)anthracene	PEL = 0.2 mg/m ³ TWA REL = 0.1 mg/m ³ TWA	Irritation to respiratory system, bladder, kidneys, skin; dermatitis, bronchitis, cumulative lung damage; suspect human carcinogen.
Benzo(a)pyrene	PEL = 0.2 mg/m ³ TWA REL = 0.1 mg/m ³ TWA	Irritation to respiratory system, bladder, kidneys, skin; dermatitis, bronchitis, cumulative lung damage; suspect human carcinogen.
Benzo(b)flouranthene	PEL= 0.2 mg/m ³ TWA REL = 0.1 mg/m ³ TWA	No signs or symptoms of acute or chronic exposure have been reported in humans; suspect human carcinogen.

Chrysene	PEL = 0.2 mg/m ³ TWA REL = 0.1 mg/m ³ TWA	Irritation to respiratory system, bladder, kidneys, skin; dermatitis, bronchitis, cumulative lung damage; suspect human carcinogen.
Cis-1,2-dichloroethene	PEL = 200 ppm REL = 200 ppm	Irritation mucous membranes, skin; central nervous system depression, nausea, vomiting, weakness, tremor, epigastric cramps, burning of the eyes, vertigo, and narcosis.
Ethylbenzene	PEL = 100 ppm REL = 100 ppm	Irritation eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma.
Fuel Oil	PEL = 400 ppm REL = 350 mg/m ³	Nausea, irritation – eyes, hypertension, headache, lightheadedness, loss of appetite, poor coordination; long-term exposure – kidney damage, blood clotting problems; potential carcinogen.
Iron (ferric oxide dust)	PEL = 10 mg/m ³ TWA REL: 5 mg/m ³ TWA	Irritation of eyes, skin, respiratory system, cough; metal fume fever; siderosis (iron staining of the eyes); respiratory system.
Isopropylbenzene	PEL = 50 ppm REL = 50 ppm	Eye, mucous membrane irritation; headaches; dry skin, dermatitis; dizziness, ataxia, drowsiness, narcosis; coma. NOTE: 1) Above 31°C, explosive vapor/air mixtures may be formed. 2) Unconsciousness may occur at levels of 4,000 ppm or greater. 3) Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis.
Lead	PEL = 0.05 mg/m ³ REL = 0.05 mg/m ³	Lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension.
Magnesium	PEL = N/A	N/A

Manganese (fume)	PEL: 5 mg/m ³ REL: 1 mg/m ³ STEL: 3 mg/m ³	Parkinson's, asthenia, insomnia, mental confusion; hypersomnia, anorexia; headache; metal fume fever: dry throat; cough, chest tightness, dyspnea, rales, flu-like fever; low-back pain; vomiting; malaise; lassitude (weakness, exhaustion); kidney damage; bronchitis, pneumonitis; lung and cumulative CNS damage.
Mercury	PEL = 0.05 mg/m ³ REL = 0.1 mg/m ³	Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria.
Napthalene	PEL = 10 ppm TWA REL = 10 ppm TWA	Irritation eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; jaundice; hematuria (blood in the urine), renal shutdown; dermatitis, optical neuritis, corneal damage. Targets eyes, skin, blood, liver, kidneys, central nervous system.
1,2,4-Trimethylbenzene	PEL = none REL = 25 ppm TWA	Irritation eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid). Targets eyes, skin, respiratory system, central nervous system, blood.
Vinyl Chloride	PEL = 1 ppm TWA REL = Carcinogen	Lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; [potential occupational carcinogen]. Targets liver, central nervous system, blood, respiratory system, lymphatic system.
Total Xylenes	PEL = 100 ppm TWA REL = 100 ppm TWA	Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis. Targets eyes, skin, respiratory system, central nervous system, gastrointestinal tract, blood,

2.2 Volatile Organic Compounds (VOCs)

VOCs including benzene were detected in groundwater samples TW-3 and MW-1 at concentrations exceeding their regulatory criteria. Laboratory analytical results indicate that 1,1-dichloroethane, benzene, cis-1,2-dichloroethene, n-butylbenzene, sec-butylbenzene, isopropylbenzene, naphthalene, and n-propylbenzene, were detected above NYSDEC Aqueous Water Quality Standards (AWQS) groundwater criteria. The odor threshold for benzene is higher than the PEL and employees may be overexposed to benzene without sensing its presence, therefore, detector tubes must be utilized to evaluate airborne concentrations.

The vapor pressures of these compounds are high enough to generate significant quantities of airborne vapor. On sites where high concentrations of these compounds are present, a potential inhalation hazard to the field team during subsurface investigations can result. However, if the site is open and the anticipated quantities of BTEX contamination are small (i.e., part per million concentrations in the soil or groundwater), overexposure potential will also be small. Air quality monitoring for VOC concentrations will be implemented throughout the Site during all phases of excavation, and dust management will be in place to ensure minimal exposure to soil and groundwater VOCs.

2.3 Semi-Volatile Organic Compounds (SVOCs)

Elevated levels of SVOC compounds identified in the soils and groundwater at the Site exceeded the New York State Department of Environmental Conservation (NYSDEC) standards promulgated in the Part 375 Unrestricted Residential criteria. SVOC compounds with exceedences on Site include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, n-propylbenzene, benzo(ghi)perylene, acenaphthene, dibenzofuran, pyrene, naphthalene, and 2-methylnaphthalene. However, due to the relatively low vapor pressure of SVOC compounds, vapor hazards at ambient temperatures are not expected to occur. However, if Site conditions are dry, the generation of contaminated dusts may pose a potential inhalation hazard. Therefore, dust levels should be controlled with wetting if necessary, as described in Section 3.2. In addition, repeated contact with certain SVOCs compounds have been associated with the development of skin cancer. Contact of SVOC compounds with the skin may cause photosensitization of the skin, producing skin burns after subsequent exposure to ultraviolet radiation. Protective measures, such as the wearing of chemically resistant gloves, are appropriate when handling SVOC contaminated materials.

2.4 Metals

Various metals including mercury, manganese, iron, lead, sodium, and magnesium were detected in concentrations exceeding NYSDEC Part 375 Unrestricted Residential criteria in soil and groundwater samples collected and are attributed to historic fill materials present throughout the Site. Overexposure to metal compounds has been associated with a variety of local and systemic health hazards, both acute and chronic in nature, including lung damage, neurological effects, gastrointestinal effects, kidney and liver damage, allergic dermatitis and other skin disorders. Exposure to metals is most commonly through inhalation and ingestion of dust. Metallic mercury is unique among metals, as it releases toxic vapors at normal room temperatures, and can be absorbed through the skin.

To estimate health risk, GZA calculated the airborne mercury exposure through dust. The basis of comparison used was the more conservative nuisance dust standard of the ACGIH Threshold Limit Value, 8-hour time-weighted average of 10 milligram per cubic meter of air (mg/m^3). This nuisance dust is a general rule of thumb for the dust allowed before preventive measures, such as soil wetting of exposed soil, are used.

Based on the maximum concentration of mercury detected in soil of 0.418 mg/kg, GZA converted the units for better comparison:

$$\frac{0.418 \text{ mg}}{1 \text{ kg}} \times \frac{1 \text{ kg}}{1000 \text{ g}} \times \frac{1 \text{ g}}{1000 \text{ mg}} = \frac{0.0000004 \text{ mg mercury}}{10 \text{ mg soil (dust)}}$$

Since the maximum dust in air concentration is anticipated to be $10 \text{ mg}/\text{m}^3$, the maximum mercury concentration is anticipated to be $0.000004 \text{ mg}/\text{m}^3$. The OSHA Permissible Exposure Level (PEL) for mercury is a ceiling concentration of $0.1 \text{ mg}/\text{m}^3$. When compared, the expected mercury in air concentration is a full six orders of magnitude less than the OSHA PEL.

GZA believes that airborne mercury and additional listed metals are not a significant risk to Site workers. GZA understands that mercury is a volatile element. GZA does not anticipate measurable mercury vapor concentrations, given the relatively low soil concentrations.

3.0 AIR MONITORING

Air monitoring falls into two separate categories: direct reading/environmental monitoring, and personal exposure monitoring. The following Sections summarize the types of environmental monitoring as well as the appropriate response actions applicable to the Site.

3.1 Organic Vapor Monitoring

Volatile organic vapor hazards have been identified for the Site (see Section 2.0). Therefore, organic vapor monitoring with a photoionization detector (PID) is expected to be required for the Site.

AIR MONITORING INSTRUMENTS AND ACTION LEVELS: PHOTO-IONIZATION DETECTOR

Organic Vapor Detector (H-Nu, OVM, OVA) - Breathing Zone Readings

__0__ to __10__ ppm	Remain in Level D. Use colorimetric tubes or other chemical specific device to verify PID readings do not contain low PEL toxic materials (Benzene, Vinyl Chloride, etc.) where applicable. If benzene is present above 1 ppm withdraw from excavation and proceed to level C.
__10__ to __250__ ppm	Withdraw from work area and contact Project Management. Proceed to Level C protection for re-entry, or discontinue operation
> __250__ ppm	Secure operations, withdraw from work area, and discontinue work at that location until contaminants can be evaluated, and detailed (SSHP) plan implemented.

3.2 Total Particulates

Due to the presence of SVOCs, VOCs and metals in soils and groundwater on-Site, total respirable particulates may be a concern. Dust levels should be visually monitored and if levels become noticeable, soils should be wetted down to control dusty conditions. Wetting may be accomplished using various methods, including a hose connected to a fire hydrant or other on-Site source of water. The Client's Project Superintendent shall be responsible for determining when the wetting of soils is needed and the most appropriate method to use. In addition, recommended measurements for particulate monitoring are detailed below.

Upwind concentrations should be measured at the start of each work day during active handling of excavated materials (including stockpiling and truck loading) and periodically thereafter to establish background conditions. The particulate air monitoring work will be conducted using a pDR-1200 personal airborne particulate monitor (or approved equivalent) calibrated daily.

The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers (um) in size (PM-10) and capable of integrating over a period of 5-minutes or less for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate excess of the action level.

Dust migration will be visually assessed during all work activities, and at no time will the downwind perimeter particulate levels be allowed to exceed a total standard of 10 mg/m³ (or "nuisance" dust levels).

If the downwind PM-10 particulate level is 100 micrograms per cubic meter (ug/m³) greater than the background (upwind perimeter) for a 5-minute period, or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques (e.g., soil wetting) provided the downwind PM-10 particulate levels do not exceed 150 ug/m³ above the upwind level and no visible dust is

migrating from the work area.

If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 ug/m³ above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentrations to within 150 ug/m³ of the upwind level and in preventing visible dust migration.

3.3 Particulate Monitoring, Response Levels, and Actions

Parameter	Monitoring Instrument	Response Levels (above background levels)	Action	Conditions for Continuing Work Activities
Particulates < 10 um (PM-10)	Dust Meter	Fugitive dust migration	1. Implement dust suppression	Dust suppression techniques are in place
		> 100 ug/m ³ but < 150 ug/m ³	1. Implement dust suppression techniques	Levels must not exceed 150 ug/m ³ with dust suppression techniques in place
		> 150 ug/m ³	1. Halt activity 2. Re-evaluate activities	Levels decrease below 150 ug/m ³ and fugitive dust migration is prevented

3.4 Personal Exposure Monitoring

No asbestos, no lead-based paint, and no radiological hazards have been identified within the vicinity of the proposed excavation area at the Site (see Section 2.0). Therefore, personal exposure monitoring is not required during soil excavations.

4.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) will be donned as described below for the activities covered by this CHASP. Based on available analytical data and the proposed intrusive activities, the China Perfect Construction Corp. (Contractor), anticipates that all activities will require Level D or Modified Level D PPE.

4.1 General Site Work

General Site work conducted outside the excavation areas, operators of heavy equipment, and non-intrusive activities which do not generate dust will require Level D protective equipment.

Level D is defined as:

- Hardhat
- Eye protection
- Hearing protection (with site workers at all times and donned when appropriate)
- Steel-toed work boots
- Work clothes

Workers shall wear appropriate hearing protection during designated hearing protection-required tasks (such as, jack hammering, pile driving etc.). To reduce the exposure to noise, personnel working in areas of excessive noise must use hearing protectors (earplugs or earmuffs) in accordance with the CSMP. Rule-of-Thumb: Wherever actual data from sound level meters or noise dosimeters is unavailable, if it is necessary to raise one's voice above a normal conversational level to communicate with others within 3 to 5 feet away, hearing protection should be worn.

4.2 Excavation Areas and Other Soil Handling

Personnel working in the areas of active excavation, but not operating heavy equipment, and any other personnel potentially contacting contaminated materials will be required to wear Modified Level D PPE. Modified Level D is defined as:

- Hardhat
- Eye protection
- Hearing protection (as warranted see above)
- Steel-toed work boots
- Tyvek Coveralls
- Disposable nitrile chemically resistant gloves

Level C PPE and Level B are not expected to be required.

5.0 SITE CONTROL

To prevent both exposure of unprotected personnel and migration of contamination due to tracking by personnel or equipment, work areas along with personal protective equipment requirements will be clearly identified with signage. Pedestrian traffic will be managed to the extent possible by the Contractor's Traffic and Pedestrian Control Plan.

The Contractor will designate a work zone and support zone as defined below.

5.1 Work Zone

Work zones on Site will be temporary or dynamic, encompassing the work area(s) actively being worked in on that particular day(s). Site personnel will be advised of the current work area(s) as part of site safety meetings.

5.2 Support Zone

The support zone will consist of an area outside the areas of active excavation and soil handling, where equipment and support vehicles will be located. Eating, drinking and smoking will be permitted only in this area. Sanitary facilities will be located on Site. In addition, potable water and water and soap for hand washing will be available at the Site.

5.3 Other Site Control and Safety Measures

The following measures are designed to augment the specific health and safety guidelines provided in this plan. These issues will form the basis of the Site ordination and daily safety meetings discussed in Section 7.0, below.

- The Site hazards will be evaluated by the Client's Project Superintendent using the Site Safety Checklist as defined by the CSMP.
- No one is to perform field work alone. Team members must be intimately familiar with the procedures for initiating an emergency response.
- Avoidance of contamination is of the utmost importance. Whenever possible, avoid contact with contaminated (or potentially contaminated) surfaces or materials. Walk around (not through) puddles and dis-colored surfaces. Do not kneel on the ground or set equipment on the ground.
- Eating, drinking, chewing gum or tobacco, smoking or any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited except in the support zone after proper decontamination as defined in Section 6.0.
- The use of alcohol or drugs is prohibited during the conduct of field operations.
- Safety equipment (PPE) will be required for all field personnel unless otherwise approved by the subcontractor's health and safety representatives and/or the Project Superintendent.

5.4 Site Security

The Site shall be unoccupied during Site work except for Contractor personnel and subcontractors. If possible, access to the work areas during field work will be limited by closing site gates to reduce unauthorized pedestrian traffic. The Client's Project Superintendent is responsible for identifying the presence of all employees on Site.

Equipment left on Site during off hours must be locked, immobilized and/or otherwise secured to prevent theft or unauthorized use or access. The Contractor and subcontractors' employees will not be permitted on Site during off-hours without specific client approval.

6.0 DECONTAMINATION

Proper decontamination will be performed for personnel and equipment before leaving the Site. All solid waste generated during decontamination will be bagged by the Contractor personnel and stored on Site for disposal. Water will be disposed of by on-Site infiltration into soil within an exclusion zone.

6.1 Personal Decontamination

Personal decontamination will be accomplished by following a systematic procedure of cleaning and removal of personal protective equipment (PPE). The Contractor will supply decontamination equipment to allow PPE to be brushed to remove gross contamination and then scrubbed clean in a detergent solution and then rinsed clean. To facilitate this, a three-basin wash system will be set up on site by the Contractor.

Disposable PPE, such as Tyvek coveralls, gloves, and hearing protection, etc. will be placed in trash bags in an on-Site container pending a disposal. Alternative chemical decontamination procedures, such as steam-cleaning reusable rubber outer boots, may be used if necessary.

Steps required in a decontamination sequence will depend on the level of protection worn in accordance with Section 4.0:

1. Remove and wipe clean hard hat
2. Brush boots and gloves of gross contamination
3. Scrub boots and gloves clean
4. Rinse boots and gloves
5. Dry non-disposable equipment with paper towels
6. Remove Tyvek coveralls
7. Remove eye protection
8. Remove chemically resistant gloves

6.2 Equipment Decontamination

Hand tools and portable equipment will be decontaminated upon leaving the active excavation areas using the same procedures for personal decontamination. Wooden tools are difficult to decontaminate because they absorb chemicals. Wooden hand tools will be kept on Site for the project duration and handled only by protected workers. At the end of the Site activities, wooden tools will be discarded if they cannot be decontaminated properly.

Large Equipment will be decontaminated in an area near the entrance to the Site. Decontamination of large equipment will mitigate the risk of spreading potentially-contaminated soil off-Site. The Contractor will use a combination of long-handled brushed, rods and shovels for general exterior cleaning and dislodging contaminated soil caught in tires and the undersides of vehicles and equipment.

Prior to leaving the Site, large equipment will be inspected to assure that excess material has not adhered to the equipment. If needed, the Contractor will clean the large equipment, including washing tires and undercarriages with a hose to remove excess adhered soil prior to leaving the Site.

Exposed excavated material will be covered on each truck after loading. The cover will be secured and remain in place until the container has reached the disposal facility.

7.0 MEDICAL MONITORING AND TRAINING REQUIREMENTS

Training records for Site personnel and subcontractors shall be provided by the Contractor prior to on-Site work, and will be maintained on Site.

7.1 Medical Monitoring

Respiratory protection is not required by the levels of soil contamination. Therefore, no medical monitoring requirements will be instituted for this project.

7.2 Training

All personnel covered by this CHASP must have completed the appropriate training requirements specified in 29 CFR 1910.1200 Hazard Communication and 29 CFR 1910.120(e).

Workers requiring access to the excavation (laborers and operators) prior to completion of soil remedial activities will require 40-hour HAZWOPER training due to the presence of gasoline contaminated soils and underground storage tanks.

Also, at least one Contractor employee must be on Site during all activities to act as the Site Foreman and will be responsible for identifying existing and predictable hazards in surroundings or working conditions that are unsanitary, hazardous, or dangerous to Site workers and or the community, and will have the authorization to take prompt corrective measures to eliminate them. This individual must have documentation of at least three days of supervised field experience as well as completion of the specified 8-hour training course for managers and supervisors. Records of certifications and training should be kept by the Contractor.

7.3 Subcontractors

Subcontractors will be required to provide to the Contractor Project (Site) Manager specific written documentation that each individual assigned to this project has completed the medical monitoring and training requirements specified above. This information must be provided prior to their performing any work on Site.

7.4 Site Safety Meetings

Prior to the commencement of on-Site investigative activities, a Site safety meeting will be held to review the specific requirements of this CHASP. Sign-off sheets will be collected at this meeting (see Attachment A). Short safety refresher meetings will be conducted daily or as conditions or work activates change. In addition, the Project Superintendent will document that Site visitors have had the required training in accordance with 29 CFR 1910.120 and will provide documented pre-entry safety briefings.

8.0 EMERGENCY ACTION PLAN

OSHA defines emergency response as any "response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual-aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result in an uncontrolled release of a hazardous substance." The Contractor personnel covered by this CHASP may not participate in any emergency response where there are potential safety or health hazards (i.e., fire, explosion, or chemical exposure). The Contractor response actions will be limited to evacuation and medical/first aid as described within this section below.

The basic elements of an emergency evacuation plan include employee training, alarm systems, escape routes, escape procedures, critical operations or equipment, rescue and medical duty assignments, designation of responsible parties, emergency reporting procedures, and methods to account for all employees after evacuation.

8.1 Employee Information

General training regarding emergency evacuation procedures are included in the Contractor initial and refresher training courses. Also as described, employees must be instructed in the specific aspects of emergency evacuation applicable to the Site as part of the site safety meeting prior to the commencement of all on-site activities. On-Site refresher or update training is required anytime escape routes or procedures are modified or personnel assignments are changed. This information will be provided during the Site safety meetings (see Section 7.4) will be documented by the Contractor.

8.2 Emergency Signal and Alarm Systems

An emergency communication system must be in effect at all sites. The most simple and effective emergency communication system in many situations will be direct verbal communications. Each site must be assessed at the time of initial Site activity and periodically as the work progresses. Verbal communications must be supplemented anytime voices cannot be clearly perceived above ambient noise levels (i.e., noise from heavy equipment, trucks, etc.) and anytime a clear line-of-sight cannot be easily maintained amongst all personnel because of distance, terrain or other obstructions. The Contractor will maintain an air horn (or whistle) on-Site that will be used to signal an emergency so that it can be heard over other construction noises on-Site.

8.3 Emergency Contacts

Police: 911
Fire: 911
Ambulance: 911
Bellevue Hospital: (212) 562-4141

8.4 Hospital Location

Bellevue Hospital is located at 462 1st Avenue, New York, New York. The most direct route to the hospital from the Site is to go west on W 29th Street, turn left onto 11th Avenue go 0.3 miles, turn left onto W 23rd Street go 1.4 miles, turn left onto 3rd Avenue go 0.1 miles, turn right onto right onto E 26th Street go 0.3 miles, turn left onto 1st Avenue and arrive at Bellevue Hospital. **Attachment B** presents a hospital route map.

8.5 Incident Reporting Procedures

Any incident (other than minor first aid treatment) resulting in injury, illness or property damage requires an accident investigation and report. The investigation should be initiated as soon as emergency conditions are under control. The purpose of this investigation is not to attribute blame but to determine the pertinent facts so that repeat or similar occurrences can be avoided.

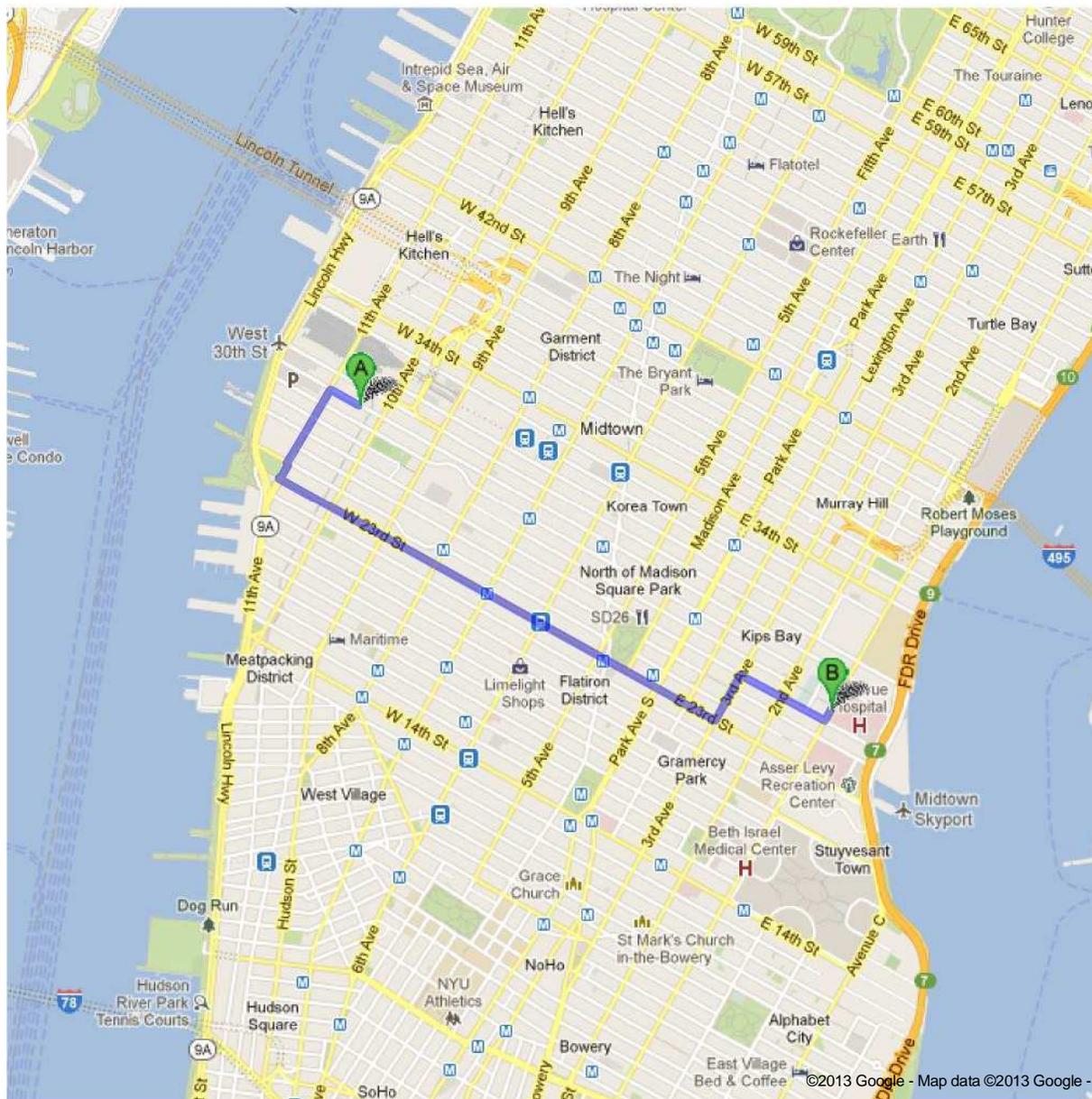
The investigation should begin while details are still fresh in the mind of anyone involved. The person administering first aid may be able to start the fact gathering process if the injured are able to speak. Pertinent facts must be determined. Questions beginning with who, what, when, where, and how are usually most effective to discover ways to improve job performance in terms of efficiency and quality of work, as well as safety and health concerns.

ATTACHMENT A
HEALTH AND SAFETY BRIEFING

**ATTACHMENT B
ROUTE TO HOSPITAL**



Directions to Bellevue Hospital
462 1st Ave, New York, NY 10016
2.3 mi – about 11 mins





534 W 29th St, New York, NY 10001

- | | | |
|--|---|---------------------------|
| | 1. Head northwest on W 29th St toward 11th Ave | go 492 ft
total 492 ft |
| | 2. Take the 1st left onto 11th Ave
About 1 min | go 0.3 mi
total 0.4 mi |
| | 3. Turn left onto W 23rd St
About 7 mins | go 1.4 mi
total 1.8 mi |
| | 4. Turn left onto 3rd Ave
About 50 secs | go 0.1 mi
total 2.0 mi |
| | 5. Turn right onto E 26th St
About 1 min | go 0.3 mi
total 2.2 mi |
| | 6. Turn left onto 1st Avenue
Destination will be on the right | go 207
ft total 2.3 |

**Bellevue Hospital**

462 1st Ave, New York, NY 10016

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

Map data ©2013 Google

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

ATTACHMENT C
DAILY SAFETY MEETING

ATTACHMENT D
INCIDENT ANALYSIS/REPORTING FORM



INCIDENT/ACCIDENT REPORT and ANALYSIS



*For initial report to be submitted within 24 hours of the incident, fill in as much information as available in Sections 1 through 4, and submit to your EHS Coordinator, EHS Director (J. Chatterjee), and Property and Casualty Insurance Manager (S.Domko).
Incident analysis to be completed ASAP thereafter, and distributed as appropriate.*

Initial Incident Report Prepared/Submitted by:

Name	GZA Office	Date
------	------------	------

1. Classify Incident (select all that apply):

2. Description of Incident/Injury and Related Information (Attach photos, drawings, separate page if needed.)

a. Date of Incident:	b. Time of Incident:
b. Address Where Incident Occurred:	
c. If incident occurred on a project work site, provide project information (project number, project name, client info., etc.): -	
d. GZA Supervisor/Project Manager/PIC:	
e. Work conducted out of which GZA office?	
f. EHS Coordinator in Your Office:	
g. Detailed Description of the Incident:	

3. For Work Place Injury or Illness, Fill in this Section (otherwise, skip to Section 4),

a. Person Injured/Illness:	
b. Full Name of Injured:	
c. Injured Person's Mailing Address:	
d. Injured Person's Title, Department, etc.	
e. Home or Cell Phone No.	f. Date of Birth:
g. Detailed Description of Injury (be specific):	
h. Was 1 st aid administered on site?	
i. If yes, who administered 1 st aid, and describe actions:	
j. Did injured person receive emergency medical treatment or ambulance service?	
k. If yes, describe:	
l. Did injured receive professional medical care and/or treatment? m. If yes, what was the nature of care?	
n. Date of first treatment or hospitalization:	
o. Identify name of clinic, hospital, doctor, specialty, (name, address, city, state, zip code, and phone):	
p. Describe the specific medical care or treatment (provide details, specific treatment, specific medications, over-the-counter or prescription, recommendations for follow up, etc.):	
q. Did injured person resume work on the same day of the incident?	
r. Did injured person miss any days at work after the day of the incident?	

- s. If yes, first day missed:
- t. Total number of days of work missed:
- u. Was injured person assigned any days of restricted duty at work?
- v. If yes, first day of restricted work duty:
- w. Total number of days of restricted work duty:

4. Names of Other Individuals Directly Involved or Witnesses (if any)

Name	Nature of Involvement	Contact Info. (Company, Phone No.)

5. Contributory Factors

- a. What was the apparent immediate or direct cause(s) of the incident?
- b. Was any safety equipment provided?
- c. If yes, was it used?
- d. Was an unsafe act being performed, or was an unsafe condition present?
- e. If yes, describe:
- f. Were any machine parts, tools, or equipment involved?
- g. If yes, describe:
- h. Was the machine part/tool/equipment in proper working order?
- i. If no, explain:
- j. Was a non-GZA party (subcontractor, public, etc.) involved in or responsible for the incident?
- k. If yes, explain and provide contact information:
- l. Identify possible indirect causes, root causes of the incident:
- m. Other Comments:

6. Corrective Actions, Recommendations, Follow-up (Attach separate page if necessary.)

- a. Describe corrective or preventative actions implemented at the time of the incident:
- b. Suggest additional corrective or preventative actions that may prevent recurrence of the incident:
- c. Suggest additional follow-up actions (such as corrective actions needed for similar work, safety alert, information, or guidelines to be communicated company-wide, etc.):

7. Distribution

V.P. Risk Management: Kenneth Johnston
 EHS Director: Jayanti Chatterjee
 Property and Casualty Insurance Manager: Susan Domko
 Regional Office Managers: William Hadge and Kim Anderson
 District Office Manager:
 Principal-in-Charge (if project-related):
 Project Manager (if project-related):
 Employee Supervisor:
 Other:

8. Participants in Incident Analysis/Investigation

Name	Title	Role/Involvement
------	-------	------------------

9. Incident Analysis Completion

OSHA-Recordable?

Explain:

For hospitalization, have discharge papers been received?

Explain:

For police involvement, has police report been received?

Explain:

Susan Domko, Property & Casualty Insurance Manager

Date

Richard Eckord, EHS Director

Date

Kenneth Johnston, VP Risk Management

Date



**Appendix E – Proposed Development
Plans**

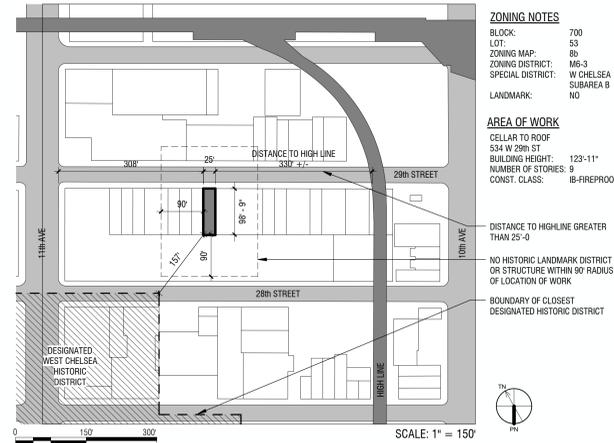
CBA CASA MODERNE

DOB SUBMISSION SET
10-21-2013

534 West 29th Street
New York, New York 10001
PROJECT NO. CBA - 313007



PLOT PLAN



ARCHITECTURAL

09/18/2013 DOB SUBMISSION		10/10/2013 DOB SUBMISSION	
ENLARGED PLANS & ELEVATIONS			
T-000.00	TITLE SHEET	*	*
G-001.00	GENERAL NOTES	*	*
G-002.00	GENERAL NOTES	*	*
G-003.00	EGRESS PLANS	*	*
EN-001.00	ENERGY NOTES		
Z-100.00	ZONING AREA ANALYSIS	*	*
Z-101.00	ZONING AREA ANALYSIS	*	*
A-101.00	1ST FLOOR & CELLAR PLAN	*	*
A-102.00	2ND & 3RD FLOOR PLAN	*	*
A-103.00	4TH & 5TH FLOOR PLAN	*	*
A-104.00	6TH & 7TH FLOOR PLAN	*	*
A-105.00	8TH & 9TH FLOOR PLAN	*	*
A-106.00	ROOF & BULKHEAD PLAN	*	*
A-121.00	1ST FL & CELLAR RCP	*	*
A-122.00	2ND & 3RD FL RCP	*	*
A-123.00	4TH & 5TH FL RCP	*	*
A-124.00	6TH & 7TH FL RCP	*	*
A-125.00	8TH & 9TH FL RCP	*	*
A-126.00	ROOF RCP	*	*
A-201.00	NORTH & EAST ELEVATION	*	*
A-202.00	SOUTH & WEST ELEVATION	*	*
A-301.00	BUILDING SECTIONS	*	*
A-302.00	BUILDING SECTIONS	*	*
A-400.00	PARTITION TYPES	*	*
A-401.00	DOOR & WINDOW SCHEDULE	*	*
A-701.00	ENLARGED PLANS & ELEVATIONS		
A-702.00	ENLARGED PLANS & ELEVATIONS		

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CHECKED BY:	ADK
DATE:	OCTOBER 21, 2013
SCALE:	
PROJ. NO.	CBA - 313007

TITLE SHEET

T-000.00

BUILDING DEPARTMENT NOTES

1. PLAN APPROVAL: OWNER IS RESPONSIBLE FOR OBTAINING PLAN APPROVAL FROM THE BUILDING DEPARTMENT THROUGH THE ARCHITECT'S OFFICE.
2. PERMIT: CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE PERMIT FROM THE BUILDING DEPARTMENT. ONCE PLANS ARE APPROVED FOR THE FOLLOWING:
 - 2.1. GENERAL CONSTRUCTION (BORINGS/TEST PITS)
 - 2.2. MECHANICAL EQUIPMENT
 - 2.3. PLUMBING
 - 2.4. ELECTRICAL WORK
3. PLUMBER TO OBTAIN MASTER PLUMBER TO OBTAIN INSPECTIONS AND SIGN OFF FROM THE BUILDING DEPARTMENT AT THE TIME OF THE ROUGH INSPECTION APPOINTMENT. PLUMBER TO REQUEST THAT THEY WANT TO TAKE ADVANTAGE OF THE PLUMBING FIXTURE COUNT - MINOR VARIATION FAST TRACK INITIATIVE.
4. ELECTRICIAN TO OBTAIN ELECTRICAL INSPECTION AND SIGN OFF FROM THIBREAU OF ELECTRICAL CONTROL.
5. THE DESIGN OF THIS PROPOSED NEW BUILDING COMPLEX WITH SUBCHAPTER 4 ARTICLE 10-GENERAL LIMITATIONS ON OCCUPANCY AND CONSTRUCTION WITHIN SPECIAL FLOOD HAZARD AREAS & LOCAL LAW 58/83.
6. ALL CONSTRUCTION TO COMPLY W/ SEISMIC CODE.
7. ALL CONSTRUCTION TO COMPLY W FLOOD HAZARD ZONE REGULATION.
8. THIS PROJECT REQUIRES FILL WHICH SHALL COMPLY WITH FILL MATERIAL SECTION 16-130a(4) A-C AND RULES AND REGULATIONS FOR OPERATION, SECTION 16-131 A-C, FOR FILL MATERIAL OPERATIONS.
9. BUILDING PERMITS OR COPIES SHALL BE POSTED IN A CONSPICUOUS PLACE AT THE WORK SITE, VISIBLE TO THE PUBLIC FOR THE DURATION OF THE WORK OR THE USE AND OPERATION OF THE EQUIPMENT, OR UNTIL OPERATION OF PERMIT (BC 28-105.1).
10. MAINTENANCE OF BUILDING:
 - OWNERS RESPONSIBILITIES: ALL BUILDINGS AND ALL PARTS THEREOF AND ALL OTHER STRUCTURES SHALL BE MAINTAINED IN A SAFE CONDITION. THE OWNER SHALL BE RESPONSIBLE AT ALL TIMES TO MAINTAIN THE BUILDING AND ITS FACILITIES AND ALL OTHER STRUCTURES REGULATED BY THIS CODE IN A SAFE AND CODE-COMPLIANT MANNER AND SHALL COMPLY WITH THE INSPECTION AND MAINTENANCE REQUIREMENTS (BC 28-301.1).
 - THE OWNER OR APPLICANT SHALL SUBMIT A FOUNDATION AND SOILS INVESTIGATION TO THE COMMISSIONER WHERE REQUIRED (BC 1802.2).
 - EXCAVATION NO EARTHWORK WITHIN THE PROPERTY LINE SHALL COMMENCE UNLESS THE PERMIT HOLDER:
 - NOTIFIES THE DEPARTMENT AT LEAST 24 HOURS, BUT NO MORE THAN 48 HOURS PRIOR TO THE COMMENCEMENT OF SUCH WORK (3304.3.1).
 - PROVIDES WRITTEN NOTICE TO THE OWNERS OF ADJACENT BUILDING OR BUILDINGS NOT LESS THAN 10 DAYS PRIOR TO THE SCHEDULED STARTING DATE OF THE EXCAVATION (BC 3304.3.2).
 - A FAVEMENT PLAN WILL BE PROVIDED DOCUMENTING COMPLIANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE NEW YORK CITY DEPARTMENT OF TRANSPORTATION (BC ARTICLE 108).
 - SIGNALS TO BE LAID IN ACCORDANCE WITH RULES OF THE DEPARTMENT OF HIGHWAYS.
 - NO WORK TO BE DONE BEYOND THE BUILDING LINES WITHOUT THE APPROVAL OF THE DEPARTMENT OF HIGHWAYS.
 - ALL WORK SHOWN BEYOND PROPERTY LINE IS NOT TO COMMENCE UNTIL DEPARTMENT OF HIGHWAYS APPROVAL IS OBTAINED.
 - NO TREES OUTSIDE OF STREET LINE SHALL BE REMOVED WITHOUT THE PERMISSION OF THE COMMISSIONER OF PARKS. PROTECTION WILL BE PROVIDED AT EXISTING TREES TO REMAIN IN ACCORDANCE WITH THE DEPARTMENT OF PARKS.
 - NO CURB CUTS WILL BE MADE WITHOUT A PERMIT FROM THE DEPARTMENT OF BUILDINGS.
 - ALL MATERIALS AND CONSTRUCTION TO BE INCORPORATED IN THE WORK SHALL BE IN STRICT ACCORDANCE WITH AND CONFORM TO THE LATEST EDITIONS OF THE REFERENCED STANDARDS LISTED IN THE BUILDING CODE WHERE APPLICABLE (BC CHAPTER 33). ALL MATERIAL INCORPORATED INTO THE WORK SHALL BE NEW.
 - INSPECTIONS REQUIRED BY THE CODE OR BY THE DEPARTMENT DURING THE PROGRESS OF WORK SHALL BE PERFORMED ON BEHALF OF THE OWNER BY APPROVED INSPECTION AGENCIES OR, IF APPLICABLE, BY SPECIAL INSPECTORS (BC 109.1).
 - TEST BORING OPERATIONS:
 - UNDERPINNING OPERATOR AND BRACING EXCAVATED SURFACE SHORING, EXTENDED MORE THAN 10 FEET BELOW LEGALLY ESTABLISHED GRADE, AND IN ACCORDANCE WITH DRAWINGS SUBMITTED TO AND APPROVED BY THIS OFFICE.
 - PRESTRESSING OF:
 - HOLLOW PARTITIONS AND FURRED SPACES
 - CONCEALED SPACES WITHIN STAIR CONSTRUCTION
 - CEILING SPACES
 - EXTERIOR CORNICES
 - DUCT AND PIPE CHASSES
 - VENTILATION AS PER ...
 - ALL CONCRETE:
 - CONCRETE DESIGN MIX
 - CONCRETE TEST CYLINDERS
 - CONSTRUCTION OR WORK FOR WHICH A PERMIT IS REQUIRED SHALL BE SUBJECT TO INSPECTIONS IN ACCORDANCE WITH THE CODE AND SUCH CONSTRUCTION WORK SHALL REMAIN ACCESSIBLE AND EXPOSED FOR INSPECTION PURPOSES UNTIL THE REQUIRED INSPECTION IS COMPLETED (BC ARTICLE 110).
 - ALL MATERIALS, ASSEMBLIES AND METHODS OF CONSTRUCTION REGULATED BY THE CODE AND NOT LISTED ABOVE SHALL BE SUBJECT TO SEMI-CONTROLLED INSPECTION BY THE PERSON SUPERINTENDING THE CONSTRUCTION. SIGNED COPIES OF ALL TEST AND INSPECTION REPORTS SHALL BE FILED THROUGH THE ARCHITECT WITH THE DEPARTMENT OF BUILDINGS.
 - PERMITS SHALL BE OBTAINED FOR THE ERECTION OF ANY EXTERIOR SIGNS AND SIGN STRUCTURES (BC 28-105.2).
 - NO HOISTING, LOWERING, HANGING OR ATTACHING OF ANY SIGN UPON OR ON THE OUTSIDE OF ANY BUILDING IN THE CITY SHALL BE DONE UNLESS SUCH WORK IS PERFORMED BY OR UNDER THE DIRECTION AND CONTINUING SUPERVISION OF A PERSON LICENSED AS A SIGN HANGER (BC ARTICLE 415).
 - THE DESIGN OF THIS PROPOSED NEW BUILDING COMPLEXES WITH SUBCHAPTER 4 ARTICLE 10-GENERAL LIMITATIONS ON OCCUPANCY AND CONSTRUCTION WITHIN SPECIAL FLOOD HAZARD AREAS & LOCAL LAW 58/83.
 - ALL CONSTRUCTION TO COMPLY W FLOOD HAZARD ZONE REGULATION.
 - ALL CONSTRUCTION TO COMPLY W SEISMIC CODE.
 - THE DESIGN OF THIS PROPOSED NEW BUILDING COMPLEXES WITHIN 17.95 - EARTHQUAKE CODE.
 - THE DESIGN OF THIS PROPOSED NEW BUILDING COMPLEXES WITH PPEN 2 / 96 (1" PER 50 FT HEIGHT).
 - THE DESIGN OF THIS PROPOSED NEW BUILDING COMPLEXES WITH TABLE 503 (BC 603.1).
 - STAIRWAY DOOR OPERATION AND COMMUNICATIONS SYSTEM SHALL COMPLY WITH BC 403.12 & 403.12.1.
 - SMOKEPROOF EXIT ENCLOSURES - EVERY REQUIRED STAIRWAY SERVING OCCUPIED FLOORS MORE THAN 75 FEET ABOVE THE LOWEST LEVEL OF THE FIRE DEPARTMENT VEHICLE ACCESS SHALL COMPLY WITH SECTIONS 909.20 AND 1019.1.8 (BC 403.13).
 - SMOKEPROOF EXIT ENCLOSURES - EVERY REQUIRED STAIRWAY SERVING OCCUPIED FLOORS MORE THAN 75 FEET ABOVE THE LOWEST LEVEL OF THE FIRE DEPARTMENT VEHICLE ACCESS SHALL COMPLY WITH SECTIONS 909.20 AND 1019.1.8 (BC 403.13).
 - EXIT STAIR ENCLOSURES SHALL BE CONSTRUCTED OF IMPACT-RESISTANCE WALLS PER BC 403.15.
 - PHOTOLUMINESCENT EXIT PATH MARKINGS CONFORMING TO SECTION 1026 (BC 403.16).
 - ALL CLEANING OF WINDOWS WILL BE IN CONFORMITY WITH THE WINDOW CLEANING CODE.

SEPARATE APPLICATIONS

1. DEMOLITION JOB NO. TBD
2. FIRE ALARM JOB NO. TBD
3. FIRE PROTECTION PLAN 121 333 967
4. SPRINKLER / STANDPIPE 121 333 592
5. BUILDERS PAVEMENT PLAN 121 331 923
6. TEMPORARY STANDPIPE 121 333 574
7. UNDERGROUND PLUMBING 121 333 583

SUBSEQUENT APPLICATIONS

1. STRUCTURAL
2. FOUNDATION
3. MECHANICAL
4. PLUMBING
5. SUPPORT OF EXCAVATION

APPLICATIONS NOT REQUIRED

1. SITE SAFETY PLAN (BC 110), AS THE PROPOSED NEW BUILDING IS LESS THAN TEN STORIES AND LESS THAN 125' HIGH. PROPOSED LOT COVERAGE IS LESS THAN 100 SF AND BUILDING IS NOT DESIGNATED AS A MAJOR BUILDING BY THE BUILDINGS COMMISSIONER.
2. EMERGENCY POWER GENERATORS ARE NOT REQUIRED IN R-2 OCCUPANCY BUILDINGS LESS THAN 125 FEET IN HEIGHT.

OTHER APPROVALS AND FILINGS

1. TRANSIT AUTHORITY APPROVAL IS NOT REQUIRED SINCE THE PROPERTY IS NOT WITHIN 200 FEET OF ANY EXISTING TRANSIT AUTHORITY FACILITY.
2. SITE CONNECTION PLAN (PREVIOUSLY SD-1(SD-2)) IS REQUIRING REVIEW AND APPROVAL BY DEPARTMENT OF ENVIRONMENTAL PROTECTION AS PER GPM 22/88.
3. STREET PLAN REVIEW AND RECEIPT IS REQUIRED BY NYC PARKS DEPARTMENT.

LIST OF SPECIAL INSPECTIONS

SPECIAL INSPECTIONS SHALL BE OBTAINED FOR THE FOLLOWING AREAS OF WORK:

1. STRUCTURAL STEEL - WELDING 8C 1704.3.1
2. STRUCTURAL STEEL - ERECTION & BOLTING 8C 1704.4
3. CONCRETE - CAST-IN-PLACE 8C 1704.7.1
4. SOIL-SITE PREPARATION 8C 1704.6
5. SOIL INVESTIGATION (BORINGS/TEST PITS) 8C 1704.8
6. PILE FOUNDATIONS 8C 1704.8
7. UNDERPINNING 8C 1704.9.1
8. WALL PANELS, CURTAIN WALLS, VENEERS 8C 1704.10
9. EXTERIOR INSULATION FINISH SYSTEMS 8C 1704.12
10. MECHANICAL SYSTEMS 8C 1704.15
11. FUEL GAS PIPING 8C 1704.18
12. STRUCTURAL SAFETY - STRUCTURAL STABILITY 8C 1704.19
13. EXCAVATION - SHEETING/SHORING/BRACING 8C 1704.19 / 3304.4.1
14. SITE STORAGE/ DRAINAGE DISPOSAL 8C 1704.20
15. HEATING SYSTEMS 8C 1704.23
16. CHIMNEYS 8C 1704.24
17. FIRE STOP, DRAFTSTOPS, FIRELOCK SYSTEM 8C 1704.25
18. CONCRETE DESIGN MIX 8C 1805.3
19. CONCRETE TEST CYLINDERS 8C 1805.6

LIST OF PROGRESS INSPECTIONS

PROGRESS INSPECTIONS SHALL BE OBTAINED FOR THE FOLLOWING AREAS OF WORK:

1. FOOTING AND FOUNDATION 8C 109.3.4
2. ENERGY CODE COMPLIANCE 8C 109.3.5
3. FIRE-RESISTANCE RATED CONSTRUCTION 8C 109.3.4

HOUSING MAINTENANCE CODE

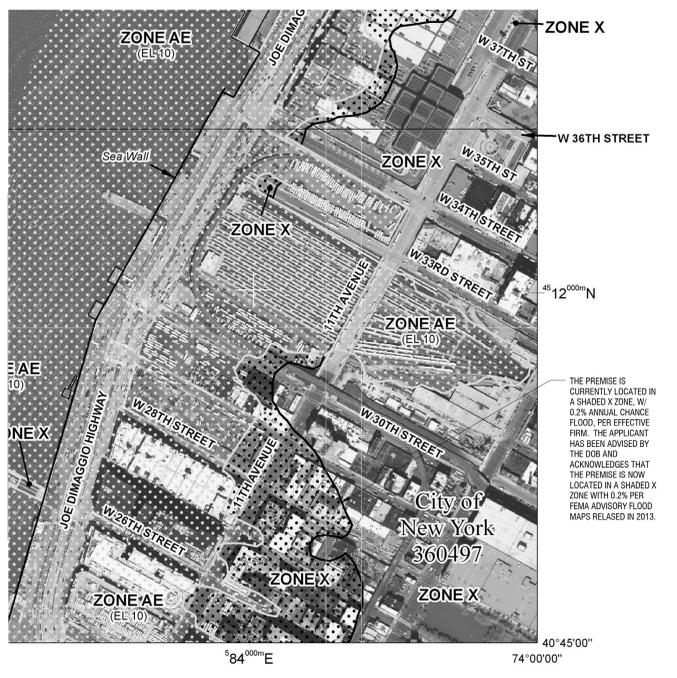
THE OWNER SHALL COMPLY WITH AND PROVIDE PROVISIONS OF THE HOUSING MAINTENANCE CODE:

1. 27-2005
2. 27-2010, 2011, 2012
3. 27-2013
4. 27-2018
5. 27-2021
6. 27-2023
7. 27-2024
8. 27-2026, 2027
9. 27-2028, 2029, 2030, 2031, 2035HEAT AND HOT WATER
10. 27-2034, 2035, 2036
11. 27-2037, 2038, 2039, 2040
12. 27-2041, 2042, 2043, 2045
13. 27-2049
14. 27-2047
15. 27-2048
16. 27-2053
17. 27-2057
18. 27-2063
19. 27-2070
20. 27-2074
21. 27-2081
22. 27-2087
23. 27-2104

MULTIPLE DWELLING NOTES

1. ALL APARTMENT ENTRANCE DOORS TO BE A MINIMUM OF 2'-0" X 7'-0" APPROVED, FIREPROOF SELF CLOSING DOOR ASSEMBLY, MINIMUM 1 1/2 HR. RATED FIRE TEST.
2. ALL FIREPROOF SOLID CORE DOORS TO BE A MINIMUM OF 1 HR. RATED UNLESS OTHERWISE NOTED.
3. ALL PARTITIONS BETWEEN APARTMENTS SHALL BE FIRE STOPPED AS PER SEC. 24 MDL.
4. SOUND PROOFING BETWEEN APARTMENTS SHALL COMPLY WITH SEC. 84 MDL.
5. PUBLIC HALL PARTITIONS SHALL BE FIRESTOPPED AS SEC. 152 & 234 MDL.
6. PARTITIONS AND CEILINGS ENCLOSED KITCHENETTES SHALL BE FIRE RETARDED WITH 5/8" FC-80 GYPSUM BOARD.
7. ALL COMBUSTIBLE MATERIALS WITHIN 1'-0" OF GAS RANGES SHALL BE FIRE RETARDED WITH 5/8" FC-80 GYPSUM BOARD.
8. GAS RANGES SHALL BE AGA APPROVED AND /OR BSA APPROVED, AS PER SEC. 33 MDL.
9. MAINTAIN A MINIMUM 7'-0" CLEARANCE ABOVE GAS RANGES.
10. ALL BATHROOMS SHALL HAVE CERAMIC TILE FLOOR AND A MINIMUM 6" CERAMIC TILE SANITARY TYPE COVER BASE AT PERIMETER OF FLOOR, AND "WR" GYPSUM BOARD FINISH ON WALLS (BSA # 486-5966), AS PER SEC. 78 MDL.
11. ALL BATHROOM WINDOWS TO HAVE TRANSLUCENT GLASS.
12. PREMISES SHALL COMPLY WITH SEC. 64 MDL., LIGHTING, GAS METERS, AND APPLIANCES.
13. PROVIDE BELLS AT EACH APARTMENT ENTRANCE DOOR AS PER SEC. 57 MDL.
14. PROVIDE PEEPHOLES IN EACH APARTMENT ENTRANCE DOOR AS PER SEC. 51 MDL.
15. PROVIDE HEAVY DUTY, SELF LOCKING LATCHES AND CHAIN GUARDS ON ALL APARTMENT ENTRY DOORS.

FEMA FLOOD ZONE MAP



THE PREMISE IS CURRENTLY LOCATED IN A SHADED X ZONE. W/ 0.2% ANNUAL CHANCE FLOOD. PER EFFECTIVE FROM THE APPLICANT HAS BEEN ADVISED BY THE DOB AND ACKNOWLEDGES THAT THE PREMISE IS NOW LOCATED IN A SHADED X ZONE WITH 0.2% PER FEMA ADVISORY FLOOD MAPS RELEASED IN 2013.

ABFE FLOOD ZONE MAP



BOUNDARY OF 0.2% ANNUAL CHANCE FLOOD HAZARD
BOUNDARY OF 1% ANNUAL CHANCE FLOOD HAZARD

Legend

Preliminary Work Maps (Supersede ABFEs)

Limit of Moderate Wave Action (LIMWA) (zoom in to make visible)

Floodplain Boundaries (zoom in to make visible)

- 0.2 Pct Annual Chance Flood Hazard
- 1 Pct Annual Chance Flood Hazard
- Floodway

Gutters (zoom in to make visible)

Coastal Shoreline (zoom in to make visible)

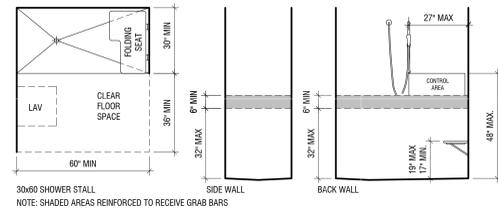
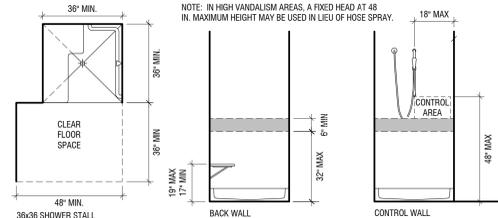
Floodplain Areas (zoom in to make visible)

- A
- AE
- AO
- VE
- Shaded X

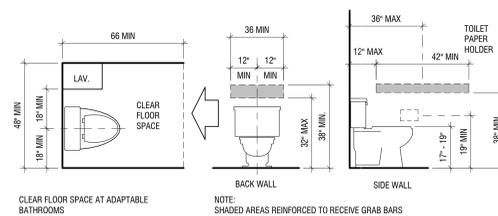
Advisory Base Flood Elevation Layers

Advisory Zone V-A Boundary (zoom in to make visible)

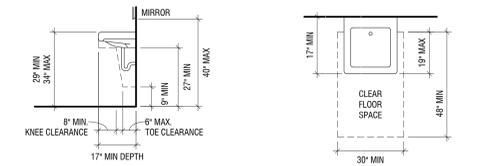
TYPICAL DETAILS: COMPLIANT SHOWER



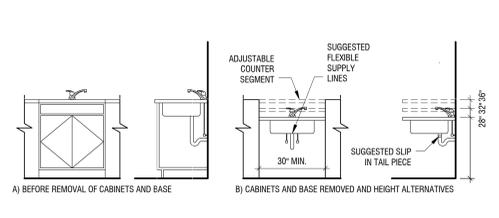
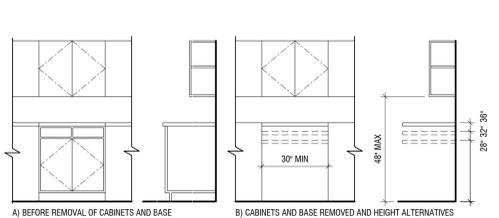
TYPICAL DETAILS: COMPLIANT W.C.



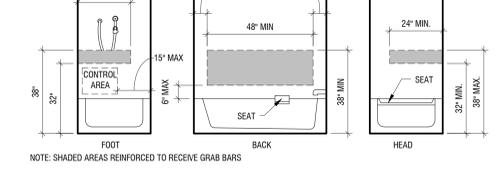
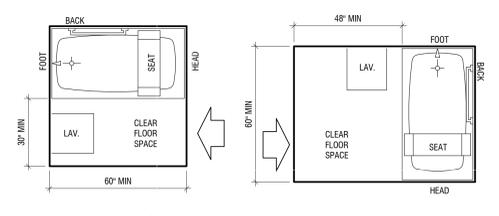
TYPICAL DETAILS: LAVATORY



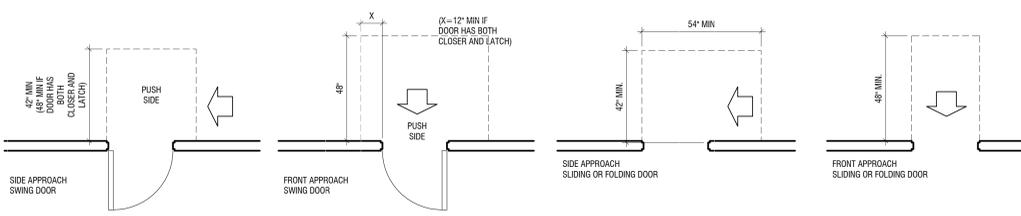
TYPICAL DETAILS: COMPLIANT WORK SURFACE



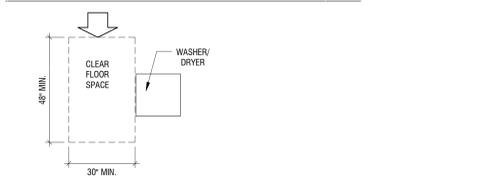
TYPICAL DETAILS: COMPLIANT TUB



TYPICAL DETAILS: COMPLIANT DOOR



TYPICAL DETAILS: COMPLIANT WASHER/DRYER



CBA CASA MODERNE

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DESIGN DEVELOPMENT
DRAWN BY: SRT/BHQ/WWC
CHECKED BY: ADK
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SCALE:
PROJ. NO. CBA - 313007

GENERAL NOTES

G-001.00

GENERAL NOTES

THE FOLLOWING NOTES SHALL APPLY THROUGHOUT. EXCEPTIONS ARE SPECIFICALLY NOTED ON DRAWINGS AND SPECIFICATIONS.

- ALL WORK SHALL COMPLY WITH THE RULES AND REGULATIONS OF THE CITY OF NEW YORK, THE STATE OF NEW YORK, AND ALL OTHER AUTHORITIES HAVING JURISDICTION.
- WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE AIA GENERAL CONDITIONS FOR CONSTRUCTION.
- SHOULD THE GENERAL CONTRACTOR (G.C.) DISCOVER ANY DISCREPANCIES OR AMBIGUITIES OF DATA THAT CAUSE DOUBT AS TO THE MEANING OF ANY DRAWINGS OR SPECIFICATIONS, THE G.C. SHALL NOTIFY THE ARCHITECT AND REQUEST CLARIFICATION PRIOR TO PROCEEDING.
- THE G.C. WILL BE RESPONSIBLE FOR OBTAINING AND/OR PAYING FOR ALL PERMITS CERTIFICATES, GUARANTEES, ETC. AS REQUIRED BY LOCAL OR JURISDICTIONS HAVING JURISDICTION, AND DELIVER THESE TO THE OWNER UPON COMPLETION OF THE WORK. THE G.C. SHALL ARRANGE AND COORDINATE INSPECTION OF ALL WORK BY BUILDING OFFICIALS. THE G.C. SHALL NOTIFY THE ARCHITECT OF ANY VIOLATIONS ARISING FROM LACK OF PERMIT, CONDEMNED, OR FINES.
- ALL WORKMEN EMPLOYED BY THE G.C. OR ANY SUB CONTRACTORS SHALL BE SKILLED AT THE WORK TO WHICH HE IS ASSIGNED. ALL TRADES MUST PROVIDE EVIDENCE OF WORKMANS COMPENSATION AND LIABILITY INSURANCE IN FORCE.
- THE G.C. SHALL KEEP SUFFICIENT WORKMEN ON THE JOB SITE AT ALL TIMES TO PERFORM THE WORK IN THE MOST EXPEDITIOUS MANNER CONSISTENT WITH GOOD WORKMANSHIP, SOUND BUSINESS PRACTICE, AND IN THE BEST INTEREST OF THE OWNER.
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- ALL MATERIALS STORED ON THE SITE SHALL BE ADEQUATELY PROTECTED AGAINST DAMAGE FROM OTHER WORK IN PROGRESS, REPAIR OF COMPLETED WORK DAMAGED DURING THE PROJECT WILL BE THE G.C.'S RESPONSIBILITY AT NO COST TO THE OWNER.
- AFTER MAKING REMOVALS, RECONSTRUCTIONS, ADDITIONS ETC. TO EXISTING ELEMENTS, SURFACES AND FINISHES THAT DESTROY THOSE SURFACES AND FINISHES, PATCH SUCH ELEMENTS AND MATCH SUCH FINISHES TO PRE-EXISTING ADJACENT CONDITIONS. THIS PATCHING WORK IS CONSIDERED PART OF THE PROJECT.
- UPON COMPLETION OF THE WORK, THE G.C. IS RESPONSIBLE FOR THE FINAL ADJUSTMENTS OF WINDOWS, DOORS, HARDWARE, DEVICES, AND THOSE ITEMS DEMAND BY THE ARCHITECT TO MAKE THE PROJECT HABITABLE.
- THOSE ITEMS NOT WORKING AS SPECIFIED AT THE TIME OF THE COMPLETION OF THE WORK ARE TO BE PART THEREOF. THE G.C. SHALL VERIFY ALL DIMENSIONS, QUANTITIES, AND DETAILS IN THE FIELD.
- APPROVAL OF MINOR CHANGES TO THE PLANS MAY BE ACCOMPLISHED BY ISSUANCE OF REVISION PLANS, A PARTIAL SKETCH, OR BY INITIALING AND DATING OF CHANGE BY THE ARCHITECT ON THE EXISTING PLANS. NO CHANGE BY THE ARCHITECT WILL BE MADE BY THE G.C. UNLESS AUTHORIZED IN A CHANGE ORDER, AND SIGNED BY ALL PARTIES, PRIOR TO AFFECTING THE WORK.
- UNLESS OTHERWISE NOTED, ALL EXPOSED NEW AND EXISTING ELECTRICAL, MECHANICAL, PLUMBING, AND COMMUNICATION LINES, PIPES, UNITS, AND DEVICES ARE TO BE PRIMED AND PAINTED THE SAME COLOR AS THE WALL OR CEILING SURFACE ON WHICH THEY RUN, OR ARE TO BE LOCATED ON, IN ORDER TO BLEND IN.
- ALL WORK SHALL BE ERRECTED AND INSTALLED PLUMB, LEVEL, SQUARE AND TRUE, AND IN PROPER ALIGNMENT. ALL WORK MUST BE LEVEL AND OR PARALLEL TO EXISTING ELEMENTS AS SHOWN ON DRAWINGS.
- THE ARCHITECT AND/OR DESIGNER SHALL HAVE NO CONTROL OVER AND NO RESPONSIBILITY FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES OR PROCEDURES.
- THE ARCHITECT AND/OR DESIGNER HAS NO RESPONSIBILITY FOR ANY ACTIONS OR OMISSIONS OF THE G.C., OR HIS SUBCONTRACTORS, OR THE FAILURE OF THEM TO PERFORM WORK ACCORDING TO THE CONTRACT DOCUMENTS.
- THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LABOR AND MATERIALS AND MAKE GOOD ANY DEFECTS THEREIN WHICH ARE DISCOVERED OR OCCUR WITHIN ONE YEAR AFTER THE COMPLETION OF THE PROJECT. HE SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY MATERIAL OR EQUIPMENT CONSIDERED PART OF THE CONTRACT AND UNDER GUARANTEE PERIODS SPECIFICALLY NOTED BY THE MANUFACTURER THEREOF.
- THE CONTRACTORS COST IS TO PROVIDE TEMPORARY TEMPORARY DISCONNECTION, RELOCATION, AND/OR RE-ROUTING OF ALL EXPOSED ELECTRICAL, MECHANICAL, PLUMBING, AND COMMUNICATION LINES, DUCTS, PIPES, UNITS, AND DEVICES, WHETHER SPECIFICALLY NOTED WITH ANY PARTITION WITHIN 2 FEET OF OUTSIDE GROUND LEVEL. (BC F101 AND MDL 80.6)
- ALL NON-LOAD-BEARING METAL STUD PARTITIONS ARE TO EXTEND TO UNDERSIDE OF STRUCTURE, TYPICAL UNLESS OTHERWISE NOTED.
- STUD SPACING IS TO BE 16" O.C., TYPICAL UNLESS OTHERWISE NOTED.
- WALL FRAMING IN LENGTHS GREATER THAN 8'-0" TO BE PROVIDED WITH INTERMEDIATE SUPPORTS TO MAINTAIN STIFFNESS.
- ALL PARTITIONS W/ STC RATINGS ARE TO BE SOUND RATED PARTITIONS AND USE 20 GA. STUDS.
- SEAL THE ENTIRE PERIMETER OF SOUND-RATED PARTITIONS AIRTIGHT WITH ACOUSTICAL SEALANT. ALL FIRE-RESISTIVE PARTITIONS SHALL BE CONSTRUCTED IN COMPLIANCE WITH TESTING REQUIREMENTS AND MANUFACTURERS RECOMMENDATIONS FOR CONDITIONS AS REQUIRED. CONSTRUCTION OF ALL SYSTEMS WILL BE EQUAL TO THAT OF TESTED ASSEMBLY TESTING FACILITIES HAVE BEEN ABREVIATED AS FOLLOWS:
UL UNDERWRITERS LABORATORIES, INC.
25. SEAL THE ENTIRE PERIMETER OF FIRE-RATED PARTITIONS AIRTIGHT WITH FIRE-RATED SEALANT.
26. DRYWALL AND MASONRY CONSTRUCTION SHALL INCLUDE CONTINUOUS FRESTOPPING AT ALL DUCT, PIPE, AND CONDUIT PENETRATIONS THROUGH FIRE-RATED PARTITIONS.
27. ALL FINISH MATERIAL TO EXCEED A MINIMUM OF 6" ABOVE ANY FINISH DROP CEILING. USE CEILING'S BACKER BOARD AT ALL CERAMIC WALL TILE LOCATIONS, TYPICAL UNLESS OTHERWISE NOTED.
28. TAPE, BED, AND FINISH ALL CORNERS AND JOINTS. MAKE READY FOR PAINTING.
29. PARTITION ASSEMBLIES AND ASSOCIATED FIRE RESISTANCE RATINGS ARE TAKEN FROM THE "USE OF CONSTRUCTION (SEA) AND MEAS APPROVALS FOR THE CITY OF NEW YORK". SEE STRUCTURAL SHEETS FOR BEARING PARTITION DETAILS.
31. BUILDING ELEMENTS SHALL HAVE A FIRE-RESISTANCE RATING NOT LESS THAN THAT SPECIFIED. (BC TABLES 601 AND 602)
32. INTERIOR FLOOR FINISH AND FLOOR COVERING MATERIALS REQUIRED TO BE OF CLASS I OR II SHALL BE CLASSIFIED IN ACCORDANCE WITH NFPA 253.
33. FLOOR FINISHES SHALL BE OF NON-COMBUSTIBLE MATERIALS IN ALL EXITS AND PASSAGEWAYS. (BC 804.5)
34. COMBUSTIBLE MATERIALS INSTALLED IN OR ON FLOORS OF BUILDING, OF TYPE I OR II CONSTRUCTION SHALL CONFORM TO LISTED APPLICATIONS AND LIMITATIONS. (BC 804)
35. ALL MEANS OF EGRESS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7 FEET. 6 INCHES PROTRUDING OBJECTS ARE PERMITTED TO EXTEND BELOW THE MINIMUM CEILING HEIGHT PROVIDED A MINIMUM OF 84 INCHES SHALL BE PROVIDED FOR ANY WALKING SURFACE, INCLUDING WALKS, CORRIDORS, AISLES AND PASSAGEWAYS NOT MORE THAN 50 PERCENT OF THE CEILING AREA. A MEANS OF EGRESS SHALL BE REDUCED IN HEIGHT BY PROTRUDING OBJECTS. (BC 1 003.2)
36. INTERIOR STAIRWAY MEANS OF EGRESS DOORS SHALL BE OPENABLE FROM BOTH SIDES WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE, OR EFFORT - WITH SOME EXCEPTIONS. (BC 1008.1.4.7)
37. FIRE DIVISIONS SHALL COMPLY WITH PROVISIONS OF SECTION BC 501 TO BC 721 AND CONSTRUCTION.
38. OPENINGS IN FIRE DIVISIONS AND SEPARATIONS TO COMPLY WITH SECTION BC 715.
39. THE MEANS OF EGRESS ILLUMINATION LEVEL SHALL NOT BE LESS THAN FOOT-CANDELS AT THE FLOOR LEVEL IN EXITS, AT EXIT DISCHARGES, AND IN PUBLIC CORRIDORS, AND SHALL NOT BE LESS THAN 1 FOOT-CANDLE AT THE FLOOR LEVEL IN EXIT ACCESS COMPONENTS OTHER THAN PUBLIC CORRIDORS WITH SOME EXCEPTIONS. (BC 1006.2)
40. TOILET AND BATHING ROOMS SHALL HAVE A SMOOTH, HARD, NONABSORBENT SURFACE THAT EXTENDS UPWARD ONTO THE WALLS AT LEAST 6 INCHES. (BC 1210.1)
41. TOILET ROOM SIDE OF PARTITIONS SHALL BE 5/8" WATER RESISTANT GYPSUM WALLBOARD.
42. ALL INTERIOR TOILETS SHALL BE MECHANICALLY VENTILATED IN ACCORDANCE WITH THE BUILDING CODE AND MECHANICAL CODE.
43. WHERE WALLS AND CEILINGS ARE REQUIRED TO BE OF FIRE-RESISTANCE-RATED OR NONCOMBUSTIBLE CONSTRUCTION AND WALLS ARE SET OUT OR CEILINGS ARE DROPPED DISTANCES GREATER THAN SPECIFIED, CLASS A FINISH MATERIALS SHALL BE USED EXCEPT WHERE INTERIOR FINISH MATERIALS ARE PRETECTED ON BOTH SIDES BY AN AUTOMATIC SPRINKLER SYSTEM OR ATTACHED TO NONCOMBUSTIBLE BACKING OR FURRING STRIPS INSTALLED AS SPECIFIED. THE HANGERS AND ASSEMBLY MEMBERS OF SUCH DROPPED CEILINGS THAT ARE BELOW THE MAIN CEILING LINE SHALL BE OF NON-COMBUSTIBLE MATERIALS. THE CONSTRUCTION OF EACH SET-OUT WALL SHALL BE OF FIRE-RESISTANCE-RATED CONSTRUCTION. (BC 803.2.4)
44. SHAFT ENCLOSURES SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 2 HOURS. OPENINGS IN SUCH ENCLOSURES SHALL BE PROTECTED AS REQUIRED FOR FIRE BARRIERS. SUCH OPENINGS SHALL BE SELF-CLOSING OR AUTOMATIC-CLOSING BY SMOKE DETECTION. (BC 707)
45. INTERIOR WALLS AND CEILING FINISHES SHALL BE CLASSIFIED IN ACCORDANCE WITH ASTM E84 SUBSECTION INTERIOR FINISH MATERIALS SHALL BE GROUPED IN THE FOLLOWING CLASSES IN ACCORDANCE WITH THEIR FLAME SPREAD INDEX/EXCEPTION:
MATERIALS OTHER THAN TEXTILES, TESTED IN ACCORDANCE WITH NFPA 286 (BC 803.1)
CLASS A: FLAME SPREAD 1-25
CLASS B: FLAME SPREAD 26-75
CLASS C: FLAME SPREAD 76-200
- SMOKE-DEVELOPED INDEX SHALL RANGE FROM 0-450 WITH THE FOLLOWING RESTRICTIONS: EXCEPTION: MATERIALS OTHER THAN TEXTILES, TESTED IN ACCORDANCE WITH NFPA 286 (BC 803.1.1).
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CONSTRUCTION NOTES:

- WHERE PIPES, WIRES, CONDUITS, DUCTS, ETC., PIERCE FIRE-PROTECTION OF NON-FRAME ENCASED STRUCTURAL MEMBERS, SUCH PENETRATION SHALL NOT EXCEED 2 PERCENT OF ANY ONE FACE SUCH PROTECTION AND SHALL BE CLOSED OFF WITH CLOSE FITTING METAL ESCUTCHEONS OR PLATES. (C27-334) DUCTS, PIPES, AND CONDUITS PASSING THROUGH CONSTRUCTION SHALL HAVE SPACES NOT EXCEEDING 1/2 INCH PACKED WITH MINERAL WOOL AND CLOSED OFF WITH CLOSE FITTING METAL ESCUTCHEONS OR PLATES. CONSTRUCTION SHALL HAVE SPACES NOT EXCEED 25/32 IN ANY 100 SQ. FT. OF WALL OR FLOOR AREA, UNLESS PROTECTED BY RATED SELF-CLOSING DEVICES (C27-343)
- UNLESS OTHERWISE NOTED, THERE SHALL BE NO MASONRY WALLS SHALL BE FIRE PROTECTED, COMPLYING WITH THE REQUIREMENTS FOR THE TYPE OF CONSTRUCTION AND SHALL NOT BE LESS THAN THE RATING REQUIRED FOR THE FIRE-PROTECTION OF THE ENCASED STRUCTURAL MEMBER. (BC 1008.1.1, 114.6)
- CEILINGS THAT CONTRIBUTE TO THE REQUIRED FIRE RESISTANCE RATING OF A FLOOR OR ROOF ASSEMBLY SHALL BE CONTINUOUS BETWEEN FIRE DIVISIONS, FIRE SEPARATIONS, OR VERTICAL PARTITIONS OF THE SAME FIRE RESISTANCE RATING AS THE CEILING CONCEALED SPACE ABOVE SUCH CEILING, UNLESS SPRINKLERED, SHALL BE FELLED INTO AREAS NOT EXCEEDING 3,000 SQ. FT. ACCESS TO SUCH AREAS SHALL BE THROUGH ONE OR MORE OPENINGS NOT EXCEEDING 9.5 FT. AND PROTECTED BY SELF-CLOSING OPENING PROTECTIVES (BC27-327).
- CONCEALED SPACES: FIREBLOCKING AND DRAFT STOPPING SHALL BE INSTALLED IN COMBUSTIBLE AND NON-COMBUSTIBLE CONCEALED SPACES TO MAINTAIN THE SAME FIRE PROTECTIVES INCLUDING FIRE-RESISTANCE-RATED GLAZING, FIRE DOOR AND SHUTTER ASSEMBLIES, DOORS, AND HARDWARE SHALL CONFORM TO ALL CONSTRUCTION, TESTING AND INSTALLATION REQUIREMENTS OF APPROVED AGENCIES. (BC 715)
FIRE-RATED ASSEMBLIES SHALL BE LABELED BY AN APPROVED AGENCY, SHALL COMPLY WITH THE NFPA, AND SHALL BE PERMANENTLY AFFIXED TO THE DOOR OR FRAME. (BC 715.3.1)
- GLAZING MATERIAL: FIRE-PROTECTION-RATED GLAZING CONFORMING TO THE OPENING PROTECTION REQUIREMENTS SHALL BE PERMITTED IN FLOOR DOOR ASSEMBLIES. (BC 715.3.6)
- ROOF ASSEMBLY SHALL BE CLASS A AND TESTED IN ACCORDANCE WITH ASTM E108 OR UL 790 AND ASTM E 2603. (BC 1009.1)
- ALL ELEMENTS DEFERRER TO CLASS OTHER FOR CONTINUITY OR SUPPORT SHALL BE SECURELY ANCHORED IN SUCH A MANNER AS TO RESIST ALL FORCES THAT TEND TO SEPARATE OR MOVE SUCH ELEMENTS TO SECTION 9.
- FIRE PARTITIONS SHALL EXTEND FROM THE TOP OF THE FLOOR ASSEMBLY BELOW TO THE UNDERSIDE OF THE FLOOR OR ROOF SLAB OR DECK ABOVE AND SHALL BE SECURELY ATTACHED TO THE STRUCTURE. (BC 1009.1)
- ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE PROVISIONS OF THE NEW YORK CITY NOISE CONTROL CODE AS SET FORTH IN CHAPTER 2 OF TITLE 24 OF THE ADMINISTRATIVE CODE. (BC 28.105.2)
- HABITABLE ROOMS AND SPACES SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 8 FEET. OCCUPABLE SPACES AND CORRIDORS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7 FEET. (BC 1009.2 AND MDL 91)
- WALLS, PARTITIONS AND FLOOR/CEILING ASSEMBLIES SEPARATING DWELLING UNITS FROM EACH OTHER FROM PUBLIC OR SERVICE AREAS, FORM STAIRS OR FROM STAIRS ON GRADES TO PROPOSED FLOOR LEVEL, REFER TO FOUNDATION SECTION 1.
- OTHER SHAFTS SHALL HAVE A SOUND TRANSMISSION CLASS (STC) FOR AIR-BOURNE NOISE OF NOT LESS THAN 50 BASED UPON LABORATORY REQUIREMENTS MADE IN ACCORDANCE WITH ASTM E 90 OR NOT LESS THAN 45 IF FIELD TESTED IN ACCORDANCE WITH ASTM E 538. DWELLING UNIT ENTRANCE DOORS SHALL BE INSTALLED OF ASSEMBLIES HAVING AN STC OF NOT LESS THAN 35 BASED UPON LABORATORY REQUIREMENTS MADE IN ACCORDANCE WITH ASTM E 1408. PENETRATIONS OR OPENINGS IN CONSTRUCTION ASSEMBLIES FOR PIPING, ELECTRICAL DEVICES, RECESSED CABINETS, BATHUBS, SIFTHS, OR HEATING VENTILATION OR EXHAUST UNITS, SHALL BE SEALED, LINED, INSULATED, OR OTHERWISE TREATED TO MAINTAIN THE REQUIRED RATINGS. (BC 1027.2)
- BUILDING ELEMENTS SHALL HAVE A FIRE-RESISTANCE RATING NOT LESS THAN THAT SPECIFIED. (BC TABLES 601 AND 602)
- DESIGN METHODS SHALL COMPLY WITH THE PROVISIONS OF WORKING STRESS DESIGN, STRATEGY DESIGN OR RESTRICTED MASONRY DESIGN. (BC 2103.1 AND 2103.2)
- CONCRETE MASONRY UNITS SHALL CONFORM TO THE ASTM STANDARDS FOR LOAD-BEARING CONCRETE UNITS, NON-LOAD-BEARING CONCRETE UNITS AND PREFRACED CONCRETE AND CALCULUS SHEETS UNITS. (BC 2103.1)
- MORTAR SHALL CONFORM TO ASTM STANDARDS AND TO THE PROPORTION SPECIFICATIONS OF TABLE 1 OF THE BUILDING CODE.
- MASONRY CONSTRUCTION SHALL COMPLY WITH ALL REQUIREMENTS OF THE BUILDING CODE AND WITH A0 530.1.5/ASCE 6/MS 80. (BC 2104.1)
- USE STANDARD 3-5/8" STEEL STUDS THROUGHOUT THE PROJECT, TYPICAL UNLESS OTHERWISE NOTED.
- ALL STRUCTURE SHALL BE CONSTRUCTED IN ACCORDANCE WITH PROVISIONS OF THE 2008 NYC BUILDING CODE APPENDIX F ROOFING AS REQUIRED AND INDICATED.
- SEAL THE ENTIRE PERIMETER OF SOUND-RATED PARTITIONS AIRTIGHT WITH ACOUSTICAL SEALANT. ALL FIRE-RESISTIVE PARTITIONS SHALL BE CONSTRUCTED IN COMPLIANCE WITH TESTING REQUIREMENTS AND MANUFACTURERS RECOMMENDATIONS FOR CONDITIONS AS REQUIRED. CONSTRUCTION OF ALL SYSTEMS WILL BE EQUAL TO THAT OF TESTED ASSEMBLY TESTING FACILITIES HAVE BEEN ABREVIATED AS FOLLOWS:
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40. TOILET AND BATHING ROOMS SHALL HAVE A SMOOTH, HARD, NONABSORBENT SURFACE THAT EXTENDS UPWARD ONTO THE WALLS AT LEAST 6 INCHES. (BC 1210.1)
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42. ALL INTERIOR TOILETS SHALL BE MECHANICALLY VENTILATED IN ACCORDANCE WITH THE BUILDING CODE AND MECHANICAL CODE.
43. WHERE WALLS AND CEILINGS ARE REQUIRED TO BE OF FIRE-RESISTANCE-RATED OR NONCOMBUSTIBLE CONSTRUCTION AND WALLS ARE SET OUT OR CEILINGS ARE DROPPED DISTANCES GREATER THAN SPECIFIED, CLASS A FINISH MATERIALS SHALL BE USED EXCEPT WHERE INTERIOR FINISH MATERIALS ARE PRETECTED ON BOTH SIDES BY AN AUTOMATIC SPRINKLER SYSTEM OR ATTACHED TO NONCOMBUSTIBLE BACKING OR FURRING STRIPS INSTALLED AS SPECIFIED. THE HANGERS AND ASSEMBLY MEMBERS OF SUCH DROPPED CEILINGS THAT ARE BELOW THE MAIN CEILING LINE SHALL BE OF NON-COMBUSTIBLE MATERIALS. THE CONSTRUCTION OF EACH SET-OUT WALL SHALL BE OF FIRE-RESISTANCE-RATED CONSTRUCTION. (BC 803.2.4)
44. SHAFT ENCLOSURES SHALL HAVE A FIRE-RESISTANCE RATING OF NOT LESS THAN 2 HOURS. OPENINGS IN SUCH ENCLOSURES SHALL BE PROTECTED AS REQUIRED FOR FIRE BARRIERS. SUCH OPENINGS SHALL BE SELF-CLOSING OR AUTOMATIC-CLOSING BY SMOKE DETECTION. (BC 707)
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STAIRS, ENCLOSURES AND RAILS

- INTERIOR REQUIRED STAIR SHALL BE ENCLOSED WITH CONSTRUCTION FOR 2 HOUR FIRE RATINGS IN ACCORDANCE WITH NEW YORK CITY BUILDING CODE.
- EXIT STAIR ENCLOSURES SHALL BE CONSTRUCTED OF IMPACT RESISTANT WALLS. (BC 1009.1)
- TREADS AND RISERS SHALL BE OF UNIFORM SIZE AND SHAPE. (BC 1009.3.1)
- FLOORING AND HANDRAILS SHALL BE BUILT OF OR SURFACED WITH FLOOR OR WALL MATERIALS. (BC 403.15)
- TREADS AND RISERS SHALL BE OF UNIFORM SIZE AND SHAPE. (BC 1009.3.1)
- CIRCULAR HANDRAILS SHALL HAVE AN OUTSIDE DIAMETER OF AT LEAST 1.25 INCHES AND NOT GREATER THAN 2 INCHES. (BC 1009.1.1)
- HANDRAIL GRIPPING SURFACES SHALL BE CONTINUOUS, WITHOUT INTERRUPTION BY HANDRAIL POSTS OR OTHER OBSTRUCTIONS AND SHALL RETURN TO A WALL, GUARD OR WALKING SURFACE. (BC 1009.1.1)
- HANDRAIL ASSEMBLIES AND GUARDS SHALL BE DESIGNED TO RESIST A LOAD OF 50 PLF APPLIED IN ANY DIRECTION AT THE TOP AND TO TRANSFER THIS LOAD THROUGH THE SUPPORTS TO THE STRUCTURE. HANDRAIL ASSEMBLIES AND GUARDS SHALL BE ABLE TO RESIST A SINGLE CONCENTRATED LOAD OF 200 POUNDS, APPLIED IN ANY DIRECTION AT ANY POINT. LOAD AND HAVE ATTACHMENT DEVICES AND SUPPORTING STRUCTURE TO TRANSFER THIS LOADING TO APPROPRIATE STRUCTURAL ELEMENTS OF THE BUILDING. (BC 1607.7.1)
- STAIRWAY FLOOR NUMBER AND IDENTIFICATION SIGNS SHALL BE PROVIDED. (BC 1019.1.7)
- DOORS OPENING INTO INTERIOR STAIR ENCLOSURES SHALL NOT BE LOCKED FROM EITHER SIDE, HOWEVER, A DOOR LOCKED FROM THE STAIR SIDE MAY BE PERMITTED PROVIDED THAT SUCH DOORS ARE EQUIPPED WITH AN AUTOMATIC FIRE SAFETY SYSTEM FOR OPENING IN THE EVENT OF THE ACTIVATION OF ANY AUTOMATIC FIRE DETECTION SYSTEM, OR WHEN AN ELEVATOR RECALL IS ACTIVATED, OR WHEN ANY SIGNAL IS RECEIVED FROM THE FIRE COMMAND CENTER. SUCH DOORS SHALL BE DEEMED AS OPENABLE FROM THE STAIR SIDE. STAIR RENTRY SIGNS SHALL BE POSTED THROUGHOUT THE STAIRWAY OR NEAR THE OUTSIDE OF THE STAIRWAY WITH FLOOR OR STAIR NUMBER. (BC 403-12)
- STAIRWAY COMMUNICATIONS SYSTEM A TELEPHONE OR OTHER TWO-WAY COMMUNICATIONS SYSTEM CONNECTED TO AN APPROVED CONSTANTLY ATTENDED STATION SHALL BE PROVIDED THROUGHOUT THE STAIRWAY AT EACH REQUIRED STAIRWAY WHERE STAIR SIDE DOORS ARE LOCKED. (BC 403.12.1)
- THE WIDTH OF STAIRWAYS SHALL BE DETERMINED AS SPECIFIED ON SECTION 28.2-1005.1, BUT NOT LESS THAN 44 INCHES. (BC 1009.1)
- STAIRWAYS SHALL BE PROVIDED WITH A MEANS OF EGRESS STAIRWAY. A WIDTH OF NOT LESS THAN 36 INCHES (914 MM) SHALL BE PERMITTED IN A STAIRWAY THAT PROVIDES EGRESS OF NOT LESS THAN 7 FEET. (BC 1009.2 AND MDL 91)
- THE BUILDING IT SERVES IS 125 FEET (38 100 MM) OR LESS IN HEIGHT, AND PROVIDED SUCH A STAIRWAY SERVES NOT MORE THAN 30 OCCUPANTS PER FLOOR. (BC 1009.1 EXCEPTION 1.7)

OPENINGS

- EXITS SHALL BE UNOBSTRUCTED AT ALL TIMES.(BC 101421)
- BUILDING ENTRANCE DOORS AND OTHER EXTERIOR EXIT DOORS SHALL BE EQUIPPED WITH HEAVY DUTY LOCK SETS WITH AUXILIARY LATCH BOLTS TO PREVENT THE LATCH FROM BEING MANIPULATED BY MEANS OTHER THAN A KEY. LATCH SETS SHALL HAVE STOP-WORK IN THE INSIDE CYLINDER CONTROLLED BY A MASTER KEY UNLOCK/OUTSIDE CYLINDERS OF MARK ENTRANCE DOORS SHALL BE OPERATED BY THE TENANTS' KEY, WHICH SHALL NOT BE KEYS TO ALSO OPEN THE TENANTS' APARTMENT DOOR. A LIGHT OR LIGHTS SHALL BE PROVIDED AT OR NEAR THE OUTSIDE OF THE FRONT ENTRANCEWAY OF THE BUILDING PROVIDING NOT LESS THAN 5-FOOT CANDLES INTENSITY MEASURED AT THE FLOOR LEVEL FOR THE FULL WIDTH OF THE ENTRANCEWAY. (BC 1008.1.4)
- DOORS TO DWELLING UNITS SHALL BE EQUIPPED WITH A HEAVY DUTY LATCH SET AND A HEAVY DUTY DEAD BOLT OPERATED BY A KEY FROM THE OUTSIDE AND A TUMBLER FROM THE INSIDE. THOSE DOORS SHALL ALSO BE EQUIPPED WITH A CHAIN GUARD SO AS TO PERMIT PARTIAL OPENING OF THE DOOR. DWELLING UNIT ENTRANCE DOORS SHALL ALSO BE EQUIPPED WITH A VIEWING DEVICE LOCATED SO AS TO ENABLE A PERSON ON THE INSIDE OF THE ENTRANCE DOOR TO VIEW A PERSON IMMEDIATELY OUTSIDE. (BC 1008.1.4)
- ALL OPENABLE WINDOWS SHALL BE EQUIPPED WITH SASH LOCKS DESIGNED TO BE OPENABLE FROM THE INSIDE ONLY. (BC 1008.4.3)
- MASONRY CONSTRUCTION SHALL COMPLY WITH ALL REQUIREMENTS OF THE BUILDING CODE AND WITH A0 530.1.5/ASCE 6/MS 80. (BC 2104.1)
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DOB FILE NO.

DOB USE



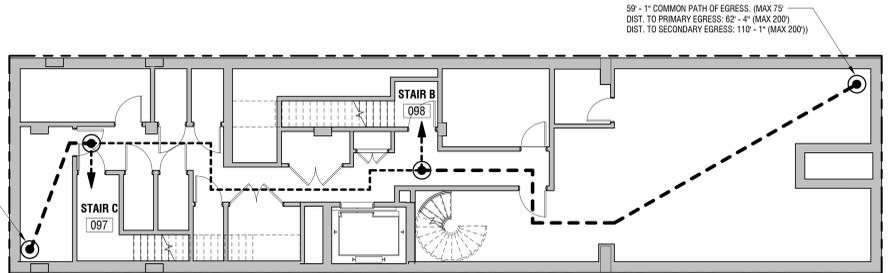
REVISIONS

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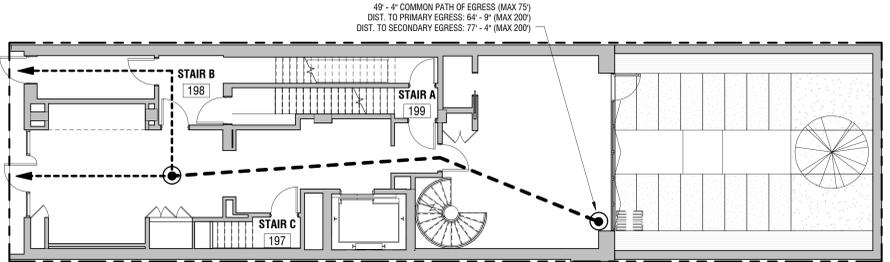
DRAWING INFO
DESIGN DEVELOPMENT
DRAWN BY: SR7/BHQ/MWC
CHECKED BY: ADK
DATE: OCTOBER 21, 2013
SCALE: 1/8" = 1'-0"
PRJL. NO.: CBA - 313007

EGRESS PLANS

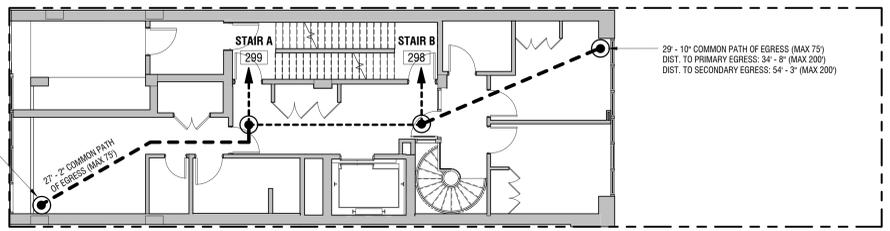
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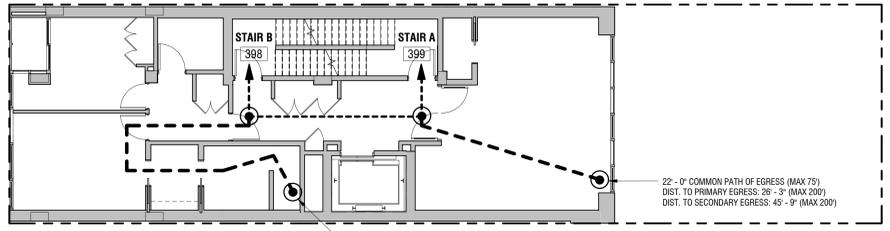
1 CELLAR EGRESS
1/8" = 1'-0"



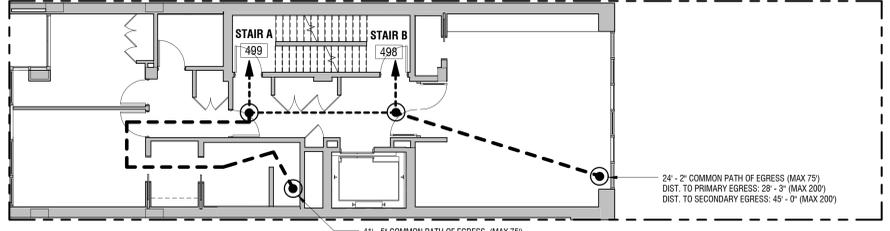
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1/8" = 1'-0"



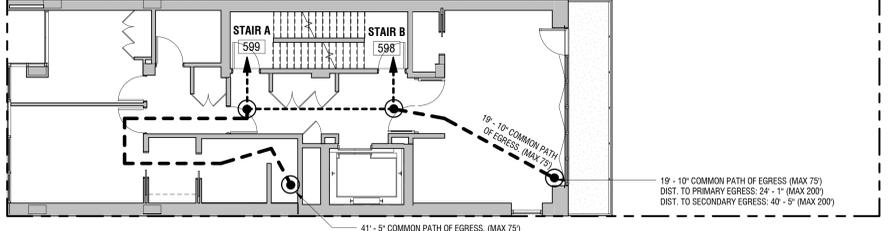
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1/8" = 1'-0"



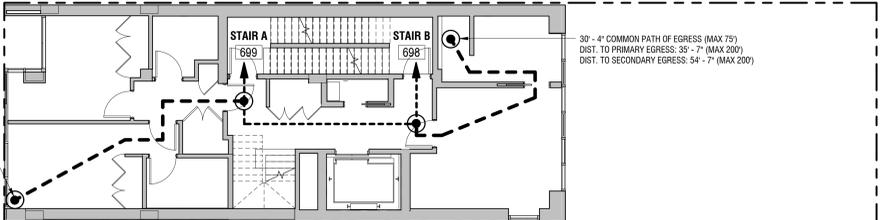
4 3RD FLOOR EGRESS
1/8" = 1'-0"



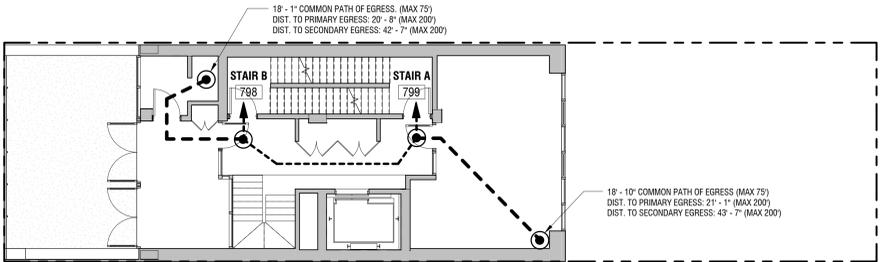
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1/8" = 1'-0"



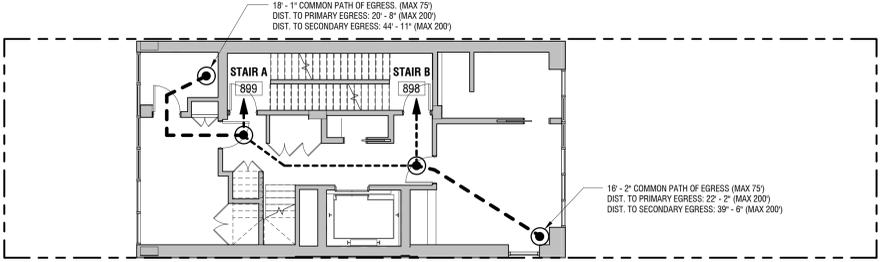
6 5TH FLOOR EGRESS
1/8" = 1'-0"



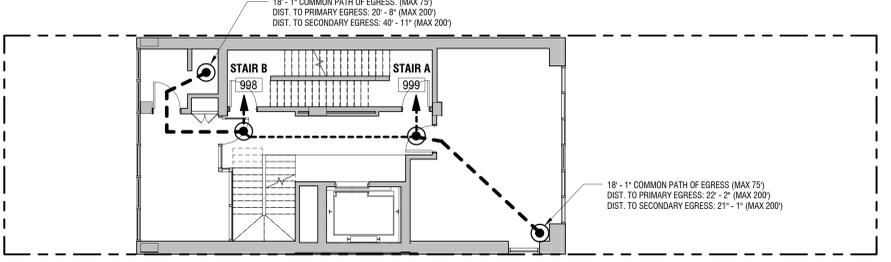
7 6TH FLOOR EGRESS
1/8" = 1'-0"



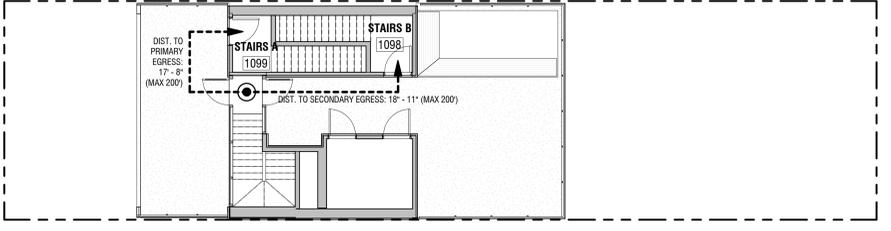
8 7TH FLOOR EGRESS
1/8" = 1'-0"



9 8TH FLOOR EGRESS
1/8" = 1'-0"



10 9TH FLOOR EGRESS
1/8" = 1'-0"



11 ROOF LEVEL EGRESS
1/8" = 1'-0"

EGRESS TRAVEL NOTES

1. IN OCCUPANCIES OTHER THAN GROUPS H-1, H-2 AND H-3, THE COMMON PATH OF EGRESS TRAVEL SHALL NOT EXCEED 75 FEET. (BC 1015.3)
2. EXITS SHALL BE SO LOCATED ON EACH STORY SUCH THAT THE MAXIMUM LENGTH OF EXIT ACCESS TRAVEL, MEASURED FROM THE MOST REMOTE POINT WITHIN A STORY TO THE ENTRANCE TO AN EXIT ALONG THE NATURAL AND UNOBSTRUCTED PATH OF EGRESS TRAVEL, SHALL NOT EXCEED THE DISTANCES GIVEN IN TABLE 1015.1. 200'-0" FOR SPRINKLERED STRUCTURES IN OCCUPANCIES E, F-1, F-1, M, R, S-1. (BC 1015.1)

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Tel: (212) 804-8784

ARCHITECT

workshop
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New York, NY 10018
Tel: (212) 273-9712
Fax: (212) 273-9717

STRUCTURAL ENGINEER

Maric Consulting Engineers PLLC
68 Jay Street, Suite 201
Brooklyn, NY 11201
Tel: (917) 705-5534

MEP ENGINEERS

ZLS Consulting Engineering
150 West 30th Street, 4th Floor
New York, NY 10001
Tel: (917) 267-8945

GEO/ENVIRONMENTAL

GZA GeoEnvironmental of New York
104 West 29th Street, 10th Floor
New York, New York 10001
Tel: (212) 594-8140

CIVIL ENGINEER

Derosier Engineering, LLC,
249 Windsor Ave.
Westfield, NJ 07090
Tel: (201) 993-0665

SURVEYOR

Montrose Surveying Co LLP,
116-20 Metropolitan Ave
Richmond Hill, NY 11418
Tel: (718) 849-0660

CONTRACTOR

Foundations Group Inc,
520 West 27th Street, Suite 302
New York, New York 10001
Tel: (212) 924-1724

ENERGY CODE COMPLIANCE NOTES

1. TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THIS APPLICATION IS IN COMPLIANCE WITH THE NEW YORK CITY ENERGY CONSERVATION CONSTRUCTION CODE 2011.
2. THE EXISTING ROOF, WALL OR FLOOR CAVITY ARE NOT PROPOSED TO BE EXPOSED.
3. THE PREMISES ARE PART OF A MULTIPLE FAMILY BUILDING, LOCATED IN NY'S COMMERCIAL CLIMATE ZONE 4.
4. 505.5.3 - LIGHTING WITHIN DWELLING UNITS MAY HAVE A MINIMUM OF 50 PERCENT OF THE PERMANENTLY INSTALLED INTERIOR LIGHT FIXTURES FITTED WITH HIGH-EFFICACY LAMPS AS AN ALTERNATIVE TO SECTION 505.5.2
5. REFER TO MECHANICAL ENGINEER'S DRAWING FOR WORK ITEMS NOT LISTED IN THE ENERGY ANALYSIS BELOW.

ACCESSIBILITY NOTES

1. CABINETS SHALL BE MODIFIED, RANGE, DISHWASHER, WASHER / DRYER (WHERE APPLICABLE) SHALL BE REPLACED AND APPROVED TYPE APPLIANCES SPECIFIED IN ANSI SHOULD HANDICAPPED PERSONS OCCUPY THE APARTMENT TO BE RENOVATED.
2. FLOOR SURFACES ALONG ACCESSIBLE ROUTES AND IN ACCESSIBLE ROOMS SHALL BE MADE STABLE, FIRM AND SLIP RESISTANT IN COMPLIANCE WITH SEC. 4.5.1. ANSI SHOULD HANDICAPPED PERSONS OCCUPY THE APARTMENT TO BE RENOVATED.
3. DIMENSIONS OF CLEAR SPACE AND DOOR OPENING INTO ADAPTABLE TOILETS (WHERE APPLICABLE) COMPLY WITH SEC. 4.26.4.2.
4. DOOR WIDTHS SHALL BE A MINIMUM OF 34" IN COMPLIANCE WITH SECTION 4.13.5 ANSI.
5. DOOR CLEARANCE TO BE 32".
5. THRESHOLDS AT DOORWAYS SHALL NOT EXCEED 1/2" IN HEIGHT AS PER SEC 4.13.9 ANSI.
6. HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES ON ACCESSIBLE DOORS SHALL HAVE A SHAPE THAT IS EASY TO GRASP AND SHALL BE OPERABLE WITH ONE HAND AS PER SEC 4.13.9 ANSI.
7. MANEUVERING CLEARANCES AT DOORS TO COMPLY WITH ANSI SEC 4.13.
8. SWINGS SHALL BE HANDICAP ACCESSIBLE AS PER FG. 51 AND
9. FUTURE OUTWARD DOOR SWING INDICATED ON DRAWINGS (TPPN 15/88)
10. DOOR BUCK SHALL BE PROVIDED TO ALLOW REMOUNTING ON SAME FRAME IN ORDER TO ACHIEVE ALTERNATE SWING (TPPN 15/88)

ENERGY ANALYSIS

WORK ITEM	CODE PRESCRIBED VALUE	PROPOSED DESIGN VALUE	CITATION (ECNYS)
BUILDING ENVELOPE: OPAQUE ASSEMBLIES	SEE CHART BELOW	COMPLIES WITH CHART	TABLE 502.2 (1)
BASEMENT	N/A	N/A	SECTION 502
METAL FRAMING FENESTRATION: ALL OTHER WINDOWS	MAX. U-VALUE 0.55 MAX. LEAKAGE 0.30 CFM/SF	U-VALUE 0.51 AIR LEAKAGE 0.25 CFM/SF	TABLE 502.3 SECTION 502.4
INTERIOR PARTITIONS BETWEEN CONDITIONED CORRIDOR AND CONDITIONED APARTMENT	N/A	R-VALUE R13	SECTION 502
PIPING INSULATION (HOT AND CHILLED WATER PIPES WITH LESS THAN 1.5" DIAMETER)	MIN. 1-1/2"	1-1/2"	TABLE 503.2.8
INTERIOR LIGHTING POWER ALLOWANCES (MULTIPLE DWELLING)	MAX WATTAGE 0.7 W/SF	0.7 W/SF	TABLE 505.5.2
BASEMENT	N/A	N/A	

ECNYS ENERGY CODE REFERENCE

SECTION 502 BUILDING ENVELOPE REQUIREMENTS:

TABLE 502.2(1) BUILDING ENVELOPE REQUIREMENTS: OPAQUE ASSEMBLIES

CLIMATE ZONE	4
GROUP	R-2 (COMMERCIAL)
ROOF INSULATION	R-20CI
MASS WALLS, ABOVE GRADE	R-11 ACI
METAL FRAMED	R-13 + R-7.5CI
WOOD FRAMED AND OTHER WALLS, BELOW GRADE	R-13+ R-3.8CI
BELOW-GRADE WALL	R-7.5CI
MASS FLOORS	R-10 ACI
SLAB-ON-GRADE FLOORS	
UNHEATED SLABS	R-10 for 24" below
OPAQUE DOORS	
SWINGING	U – 0.70
ROLL-UP OR SLIDING	U – 0.50

TABLE 502.3 BUILDING ENVELOPE REQUIREMENTS: FENESTRATION

CLIMATE ZONE	NYC - ZONE 4		
VERTICAL FENESTRATION (40% MAXIMUM OF ABOVE-GRADE WALL)			
U-FACTOR	0.40		
FRAMING MATERIALS OTHER THAN METAL WITH OR W/O MTL REINFORCEMENT OR CLADDING			
U-FACTOR	0.40		
METAL FRAMING WITH OR WITHOUT THERMAL BREAK			
CURTAIN WALLS/STOREFRONT U-FACTOR	0.50		
ENTRANCE DOOR U-FACTOR	0.85		
ALL OTHER U-FACTOR	0.55		
SHGC-ALL FRAME TYPES (SOLAR HEAT GAIN COEFFICIENT)			
SHGC: Pf < 0.25	0.40	0.40	0.40
SHGC: 0.25 Pf < 0.5	NR	NR	NR
SHGC: Pf 0.5	NR	NR	NR
SKYLIGHTS (3% MAXIMUM)			
U-FACTOR	0.60		
SHGC	0.40		

502.4 AIR LEAKAGE (MANDATORY)

502.4.1 WINDOW AND DOOR ASSEMBLIES
THE AIR LEAKAGE OF WINDOW AND SLIDING OR SWINGING DOOR ASSEMBLIES THAT ARE PART OF THE BUILDING ENVELOPE SHALL BE DETERMINED IN ACCORDANCE WITH AAMA/WMA/CSA 101A.5.2/440, OR NFRC 400 BY AN ACCREDITED, INDEPENDENT LABORATORY, AND LABELED AND CERTIFIED BY THE MANUFACTURER AND SHALL NOT EXCEED 0.3 CFM PER SQUARE FOOT (1.5 L/S/M²), AND SWINGING DOORS NO MORE THAN 0.5 CFM PER SQUARE FOOT (2.6 L/S/M²).

SECTION 505 ELECTRICAL POWER AND LIGHTING SYSTEMS

505.2.1 INTERIOR LIGHTING CONTROLS.

EACH AREA ENCLOSED BY WALLS OR FLOOR-TO-CEILING PARTITIONS SHALL HAVE AT LEAST ONE MANUAL CONTROL FOR THE LIGHTING SERVING THAT AREA. THE REQUIRED CONTROLS SHALL BE LOCATED WITHIN THE AREA SERVED BY THE CONTROLS OR BE A REMOTE SWITCH THAT IDENTIFIES THE LIGHTS SERVED AND INDICATES THEIR STATUS.

EXCEPTIONS:

1. AREAS DESIGNATED AS SECURITY OR EMERGENCY AREAS THAT MUST BE CONTINUOUSLY LIGHTED
2. LIGHTING IN STAIRWAYS OR CORRIDORS THAT ARE ELEMENTS OF THE MEANS OF EGRESS.

505.5.2 INTERIOR LIGHTING POWER

THE TOTAL INTERIOR LIGHTING POWER (WATTS) IS THE SUM OF ALL INTERIOR LIGHTING POWERS FOR ALL AREAS IN THE BUILDING COVERED IN THIS PERMIT. THE INTERIOR LIGHTING POWER IS THE FLOOR AREA FOR EACH BUILDING AREA TYPE LISTED IN TABLE 505.5.2 TIMES THE VALUE FROM TABLE 505.5.2 FOR THAT AREA.

505.5.3 LIGHTING WITHIN DWELLING UNITS

LIGHTING WITHIN DWELLING UNITS MAY HAVE A MINIMUM OF 50 PERCENT OF THE PERMANENTLY INSTALLED INTERIOR LIGHT FIXTURES FITTED WITH HIGH-EFFICACY LAMPS AS AN ALTERNATIVE TO SECTION 505.5.2.

ENERGY CODE PROGRESS INSPECTIONS

- | | |
|---|----------|
| 1. PROTECTION OF FOUNDATION INSULATION | IA1, IA1 |
| 2. INSULATION PLACEMENT AND R-VALUES | IA2, IA2 |
| 3. FENESTRATION THERMAL VALUES AND RATINGS | IA3, IA3 |
| 4. FENESTRATION RATINGS FOR AIR LEAKAGE | IA4, IA4 |
| 5. FENESTRATION AREAS | IA5, IA5 |
| 6. AIR SEALING AND INSULATION - VISUAL | IA6, IA6 |
| 7. VESTIBULES | IA9 |
| 8. FIREPLACES | IB1 |
| 9. DAMPERS INTEGRAL TO BLDG ENVELOPE | IB2, IB2 |
| 10. HVAC AND SERVICE WATER HEATING EQUIPMENT | IB3, IB3 |
| 11. HVAC AND SERVICE WATER SYSTEM CONTROLS | IB4, IB4 |
| 12. DUCT PLENUM AND PIPING INSULATION AND SEALING | IB5, IB5 |
| 13. ELECTRICAL METERING | IC1, IC1 |
| 14. LIGHTING IN DWELLING UNITS | IC2, IC2 |
| 15. INTERIOR LIGHTING POWER | IC3 |
| 16. EXTERIOR LIGHTING POWER | IC4 |
| 17. LIGHTING CONTROLS | IC5 |
| 18. EXT SIGNS | IC6 |
| 19. ELECTRICAL MOTORS | IC8 |
| 20. MAINTENANCE INFORMATION | ID1 |

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ENERGY NOTES

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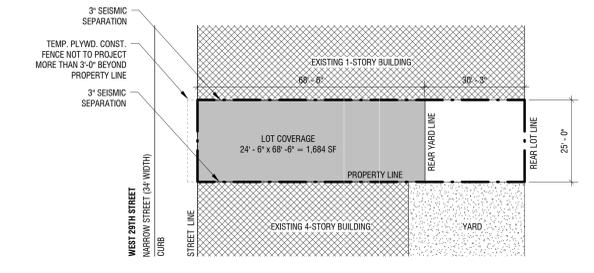
ZONING NOTES

ADDRESS:	534 W 29TH STREET	ZONING MAP:	R6
BLOCK:	700	DISTRICT:	CB-3
LOT:	53	APPLIED RESIDENTIAL (ZR 34-112):	R9
LOT SIZE:	25'-0" x 98'-6" = 2,468.75 SF	SUBAREA:	WEST CHELSEA B

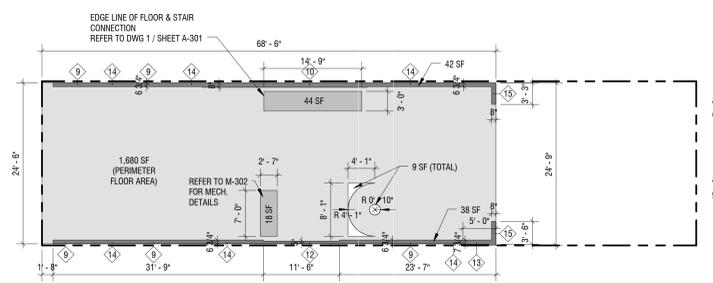
ZR TEXT	USE REGULATIONS	PERMITTED / REQUIRED	PROPOSED	COMPLIANCE
32-11		USE GROUPS 1 AND 2 AS OF RIGHT	MULTIPLE DWELLING RESIDENCES, USE GROUP 2	COMPLIES

ZR TEXT	BULK REGULATIONS	PERMITTED / REQUIRED	PROPOSED	COMPLIANCE
98-22	LOT COVERAGE	MAXIMUM 70% = 1,725 SF	24'-6" x 68'-6" = 1,679 SF	COMPLIES
	FLOOR AREA RATIO	5.0	5.0	COMPLIES
	FLOOR AREA	5.0 x 2,468.75 SF = 12,344 SF	12,276 SF (SEE FLOOR AREA SCHEDULE BELOW)	COMPLIES
98-42	BULK REGULATIONS	UNDERLYING DISTRICT R9 DOES NOT APPLY	COMPLIANCE TO 98-22 AS PER ABOVE	COMPLIES
12-10 (b)	MECHANICAL FA DEDUCTION	FLOOR AREA FOR MECHANICAL EQUIPMENT	PHYSICAL SPACE OF EQUIPMENT AND AREA REQUIRED FOR SERVICING	COMPLIES
12-10 (12b)	EXTERIOR WALL FA DEDUCTION	AREA-WEIGHTED AVERAGE U-FACTOR NO GREATER THAN 80% (OPAQUE) / 90% (W/ FENESTRATION) OF 0.090 (PRESCRIBED REQUIREMENT FOR MASS WALLS AS PER NYSECC 502.1.2)	AREA-WEIGHTED AVERAGE U-FACTOR ON OPAQUE EXTERIOR EAST AND WEST WALLS: 0.072 = 80% OF 0.090. SEE DIAGRAMS 2 AND 3 ON Z-101	COMPLIES
98-41 / 23-462 c	SIDE YARD	NOT REQUIRED	NONE	COMPLIES
98-41 / 23-47	REAR YARD	MINIMUM 30'-0"	30'-3"	COMPLIES
98-423	STREET WALL LOCATION	AT LEAST ALONG 70% OF THE NARROW STREET FRONTAGE OF THE STREET LINE UP TO MINIMUM BASE HEIGHT	18'-0" OUT OF 24'-6" = 73%	COMPLIES
	GROUND FLOOR RECESS	NOT TO EXCEED 3'-0"	RECESS 3'-6"	COMPLIES
	BUILDING HEIGHT	MINIMUM BASE HEIGHT 65'-0"	BASE HEIGHT 68'-3"	COMPLIES
		MAXIMUM BASE HEIGHT 95'-0"	BASE HEIGHT 88'-3"	COMPLIES
		MAXIMUM BLDG HEIGHT 135'-0"	BLDG HEIGHT 123'-11"	COMPLIES
23-62 (d) (3) (i)	PERMITTED OBSTRUCTIONS TO MAXIMUM BUILDING HT	CONTAINED IN VOLUME W/ MAX. AGGR. STREET FRONTAGE < 8' x STREET WALL = 198 SF	SEE DIAGRAM 5 ON Z101	COMPLIES
98-70	BICYCLE PARKING	(1) ENCLOSED SPACE FOR 2 DWELLING UNITS (3) FOR SIX UNITS PROPOSED	(4) SPACES REQUIRED IN CELLAR	COMPLIES
26-41	STREET TREE PLANTING	1 TREE REQUIRED PER 25 LFT STREET FRONTAGE	1 EXISTING TREE TO REMAIN	COMPLIES
94-112	DENSITY	DWELLING UNIT FACTOR = 740 NUMBER OF D.U.'S ALLOWED: 12,344 SF / 740 = 16	NUMBER OF D.U.'S PROPOSED = 6	COMPLIES
98-10	DISTANCE FROM HIGH LINE	MINIMUM 25'-0"	SEE PL OT PLAN ON T-200.00	COMPLIES
98-262	INCREASED FLOOR AREA	INCLUSIONARY HOUSING	NOT PROVIDED	N/A
98-70	ANTI-HARRASSMENT	HPD-1 FORM	HPD-1 SUBMITTED	COMPLIES

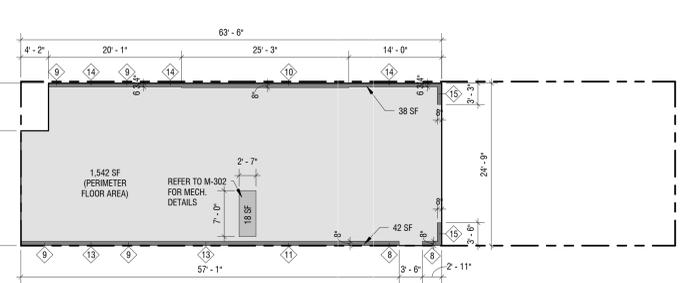
	FLOOR AREA	MECHANICAL DEDUCTION	EXTERIOR WALL DEDUCTION	TOTAL
CELLAR	N/A	N/A	N/A	N/A
1	1,671	62	80	1,529
2	1,667	174	82	1,411
3	1,680	18	82	1,580
4	1,652	18	81	1,551
5	1,542	18	80	1,444
6	1,542	18	80	1,444
7	1,184	18	64	1,102
8	1,201	18	64	1,119
9	1,178	18	64	1,096
ROOF	N/A	N/A	N/A	N/A
TOTAL:				12,276



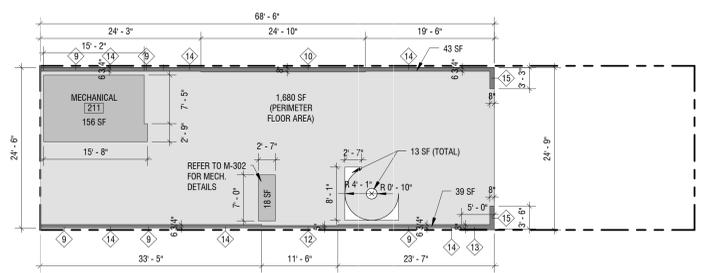
10 LOT DIAGRAM
3/64" = 1'-0"



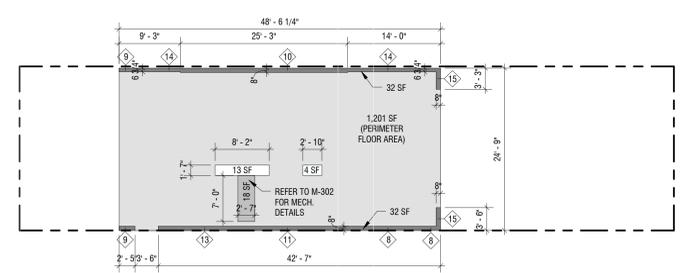
1 ZONING FA - 1ST FL
3/32" = 1'-0"



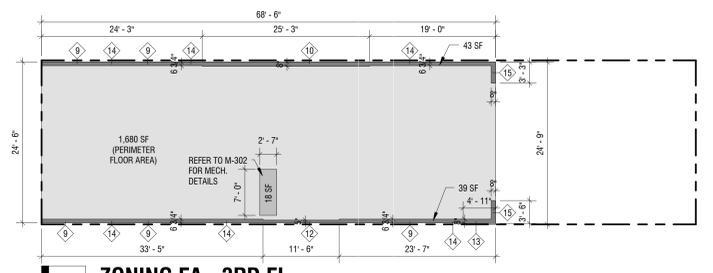
6 ZONING FA - 6TH FL
3/32" = 1'-0"



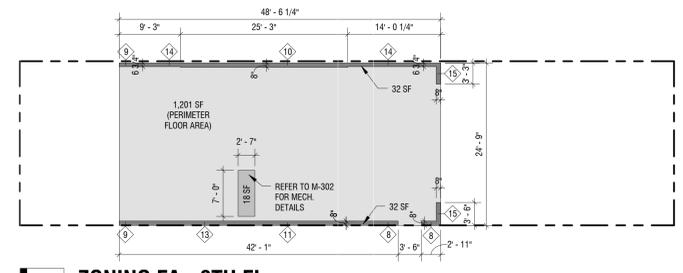
2 ZONING FA - 2ND FL
3/32" = 1'-0"



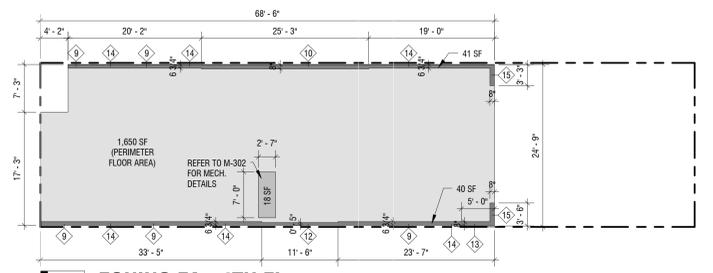
7 ZONING FA - 7TH FL
3/32" = 1'-0"



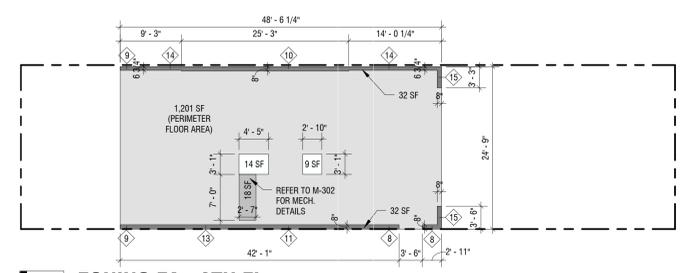
3 ZONING FA - 3RD FL
3/32" = 1'-0"



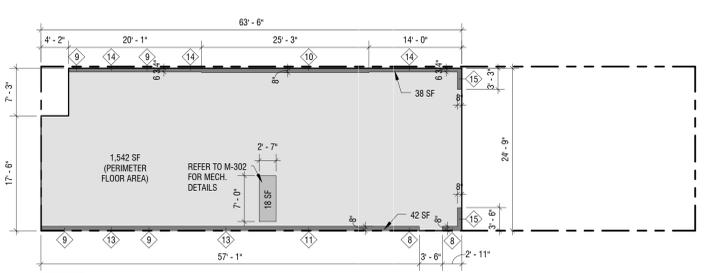
8 ZONING FA - 8TH FL
3/32" = 1'-0"



4 ZONING FA - 4TH FL
3/32" = 1'-0"



9 ZONING FA - 9TH FL
3/32" = 1'-0"



5 ZONING FA - 5TH FL
3/32" = 1'-0"

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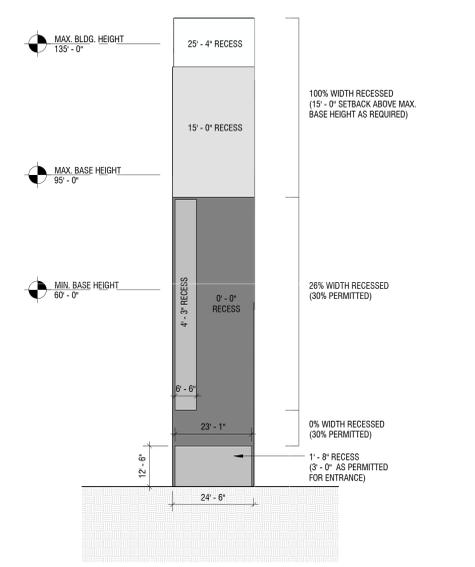
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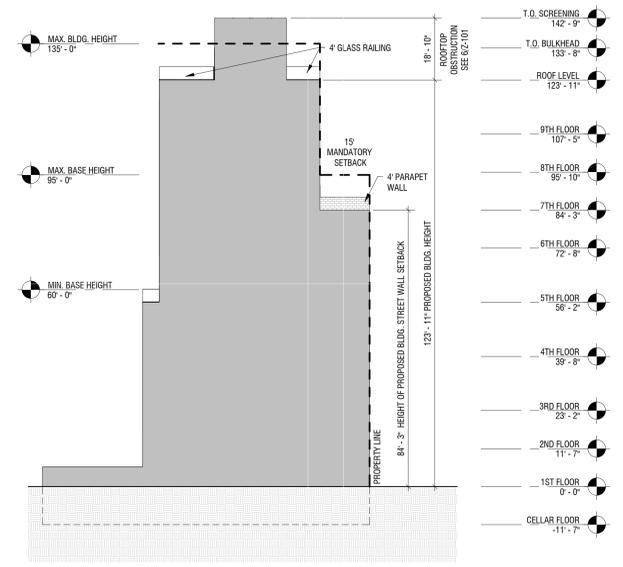
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ZONING AREA ANALYSIS

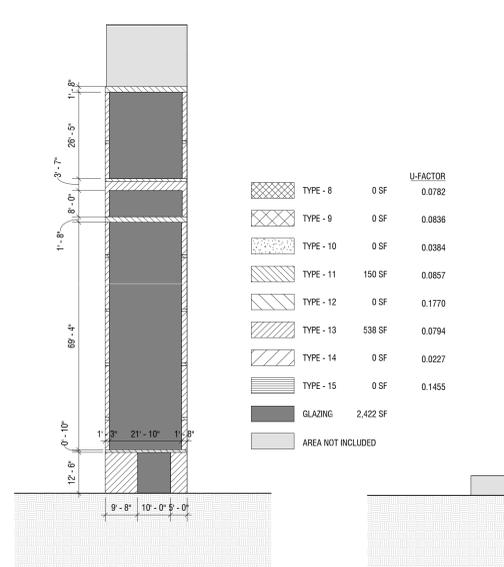
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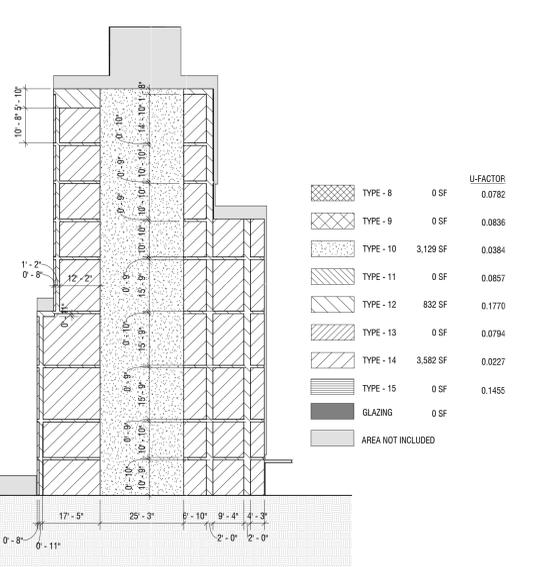
7 PERCENTAGE OF STREET WALL RECESS
3/64" = 1'-0"



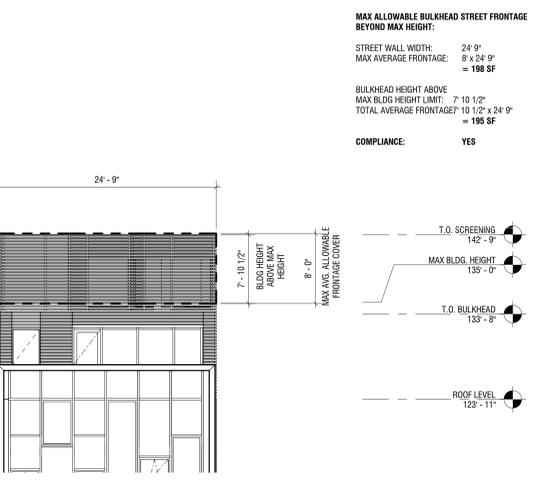
5 HEIGHT AND SETBACK DIAGRAM
3/64" = 1'-0"



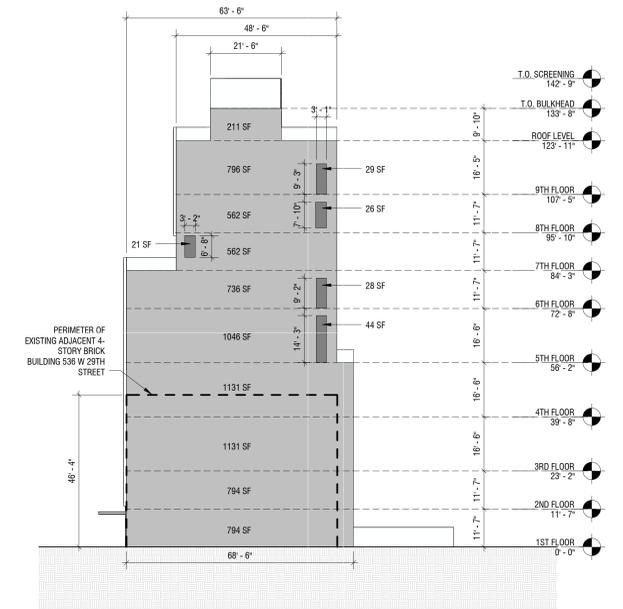
3 AREA WEIGHTED U-FACTOR - NORTH FACADE
3/64" = 1'-0"



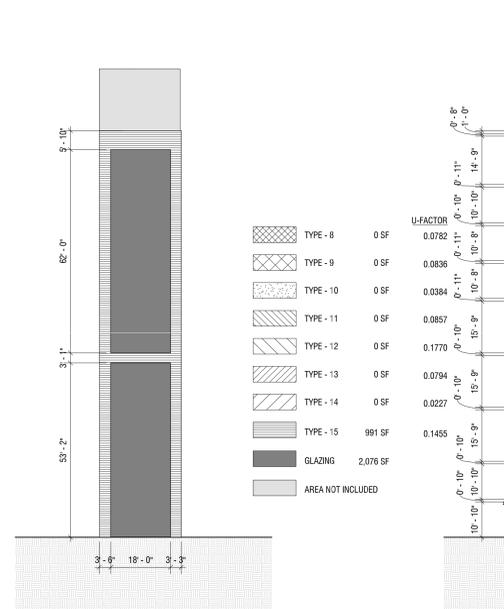
1 AREA WEIGHTED U-FACTOR - EAST FACADE
3/64" = 1'-0"



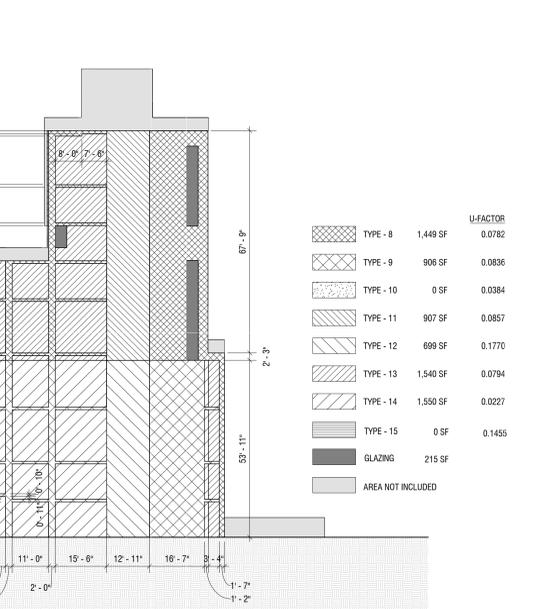
8 ROOFTOP OBSTRUCTION STREET FRONTAGE, 2R 23-62 (g)(3)(i)
1/8" = 1'-0"



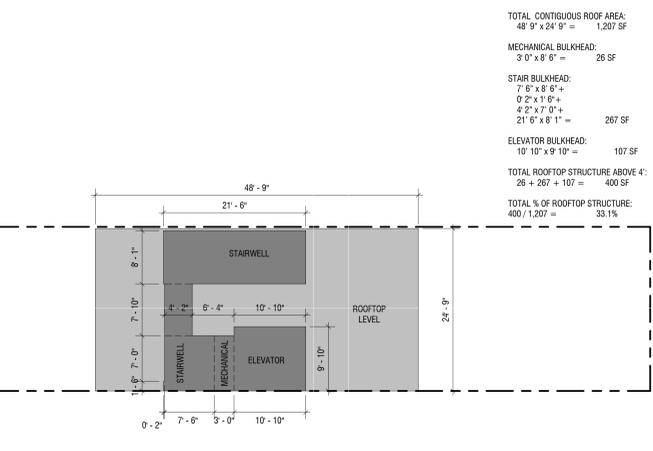
6 LOT LINE WINDOW CALCULATIONS, BC 704.8 (J)
3/64" = 1'-0"



4 AREA WEIGHTED U-FACTOR - SOUTH FACADE
3/64" = 1'-0"



2 AREA WEIGHTED U-FACTOR - WEST FACADE
3/64" = 1'-0"



9 ROOFTOP STRUCTURES, BC 504.3
3/32" = 1'-0"

EXTERIOR WALL OPENINGS - WEST FAÇADE

BC TEXT

704.8.1 REQUIREMENT FOR COMPLIANCE

1. ALL OPENINGS SHOWN ON LOT LINE WALLS SHALL BE PROTECTED.

2. ALLOWABLE AREA OF UNPROTECTED OR PROTECTED OPENINGS PERMITTED IN AN EXTERIOR WALL IN ANY STORY SHALL NOT EXCEED THE VALUES SET FORTH IN TABLE 704.8. PROTECTED OPENINGS WITHIN A FIRE SEPARATION DISTANCE OF 3 FEET OR LESS ARE PERMITTED FOR OCCUPANCY GROUPS R-2 AND R-3 PROVIDED SUCH OPENINGS DO NOT EXCEED 10 PERCENT OF THE AREA OF THE FAÇADE OF THE STORY IN WHICH THEY ARE LOCATED. THESE OPENINGS SHALL NOT BE CREDITED TOWARDS MEETING ANY MANDATORY LIGHT AND AIR REQUIREMENTS.

FLOOR	FAÇADE AREA	EXTERIOR SEPARATION	FACTOR	SF OF OPENING ALLOWED	SF OF OPENING PROPOSED	PROTECTION REQ'D	COMPLIES
1	794 SF	0'-0"	10%	79.4 SF	-	YES	YES
2	794 SF	0'-0"	10%	79.4 SF	-	YES	YES
3	1131 SF	0'-0"	10%	113.1 SF	-	YES	YES
4	1131 SF	0'-0"	10%	113.1 SF	-	YES	YES
5	1046 SF	9'-11"	10%	104.6 SF	44 SF	YES	YES
6	736 SF	26'-5"	10%	73.6 SF	28 SF	YES	YES
7	562 SF	41'-11"	10%	56.2 SF	21 SF	YES	YES
8	562 SF	50'-11"	10%	56.2 SF	26 SF	YES	YES
9	796 SF	61'-2"	10%	79.6 SF	29 SF	YES	YES
ROOF	211 SF	77'-6"	10%	21.1 SF	-	YES	YES

AREA-WEIGHTED AVERAGE U-FACTOR CALCULATIONS

ZR TEXT	REQUIREMENT FOR DEDUCTION	NYCECC 2011	REQUIREMENT
12-10	AREA WEIGHTED U-FACTOR OF ALL OPAQUE ABOVE GRADE WALLS MUST BE NO GREATER THAN 80% OF	MASS WALLS: MAX. U-VALUE 0.09	0.8 x 0.09 = 0.072

FAÇADE TYPE	AREA	EXTERIOR	INTERIOR	WALL THICKNESS	EXCEEDING 8" BY	WIDTH OF FLOOR AREA DEDUCTION	DETAIL	U-FACTOR
8 12" CONCRETE EXPOSED	1,440 SF	2-1/2" EIFS	2-1/8" SPRAY FOAM BTW. 1-5/8" STUDS	17 3/4"	9 3/4"	8"	8 / SHEET A-500	0.0782
9 12" CONCRETE TO NEIGHBOR BLDG	906 SF	N/A	2-1/8" SPRAY FOAM BTW. 1-5/8" STUDS	14 3/4"	6 3/4"	6 3/4"	9 / SHEET A-500	0.0836
10 STAIRS: 12" CO. TO NB BLDG	3,129 SF	N/A	4-3/8" SPRAY FOAM BTW. 1-5/8" STUDS	17"	9"	8"	10 / SHEET A-500	0.0384
11 ELEVATOR: 12" CO. TO NB BLDG	1,047 SF	2-1/2" EIFS	1" RIGID INSULATION	16"	8"	8"	11 / SHEET A-500	0.0857
12 ELEVATOR: 12" CO. TO NB BLDG	1,531 SF	N/A	1" RIGID INSULATION	13"	5"	5"	12 / SHEET A-500	0.1770
13 6" CMU INFILL EXPOSED	2,076 SF	2-1/2" EIFS	5-5/8" SPRAY FOAM, 2-1/2" MIN. WOOL, 1-5/8" STUDS	17 1/4"	9 1/4"	8"	13 / SHEET A-500	0.0794
14 6" CMU INFILL TO NEIGHBOR BLDG	5,132 SF	N/A	5-5/8" SPRAY FOAM, 2-1/2" MIN. WOOL, 1-5/8" STUDS	14 3/4"	6 3/4"	6 3/4"	14 / SHEET A-500	0.0227
15 12" CONCRETE SOUTH FAÇADE	991 SF	4" EIFS	2-1/2" MIN. WOOL	21 3/4"	13 3/4"	8"	15 / SHEET A-500	0.1455
AREA WEIGHTED U-VALUE = (SUM OF ALL PRODUCTS OF EACH U-FACTOR AND ITS AREA) / TOTAL WALL AREA (1,449SFx0.0782) + (906SFx0.0836) + (3,129SFx0.0384) + (1,047x0.0857) + (1,531SFx0.1770) + (2,076x0.0794) + (5,132SFx0.0227) + (991SFx0.1455) / 16,302SF								0.0674

NOTE: OVERALL WALL AREA = 16,302 SF. OVERALL GLAZING AREA = 4,713 SF = 28.9% GLASS TO WALL RATIO. ENERGY MODELING NOT REQUIRED.

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ZONING AREA ANALYSIS

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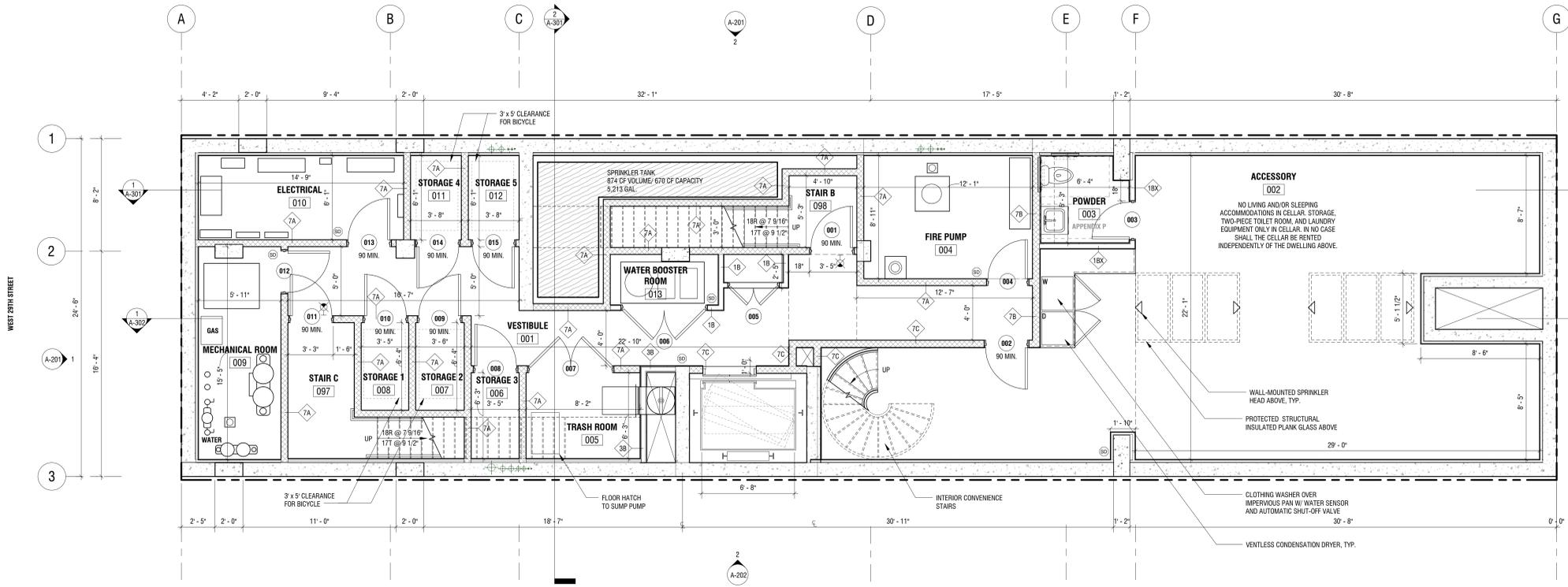
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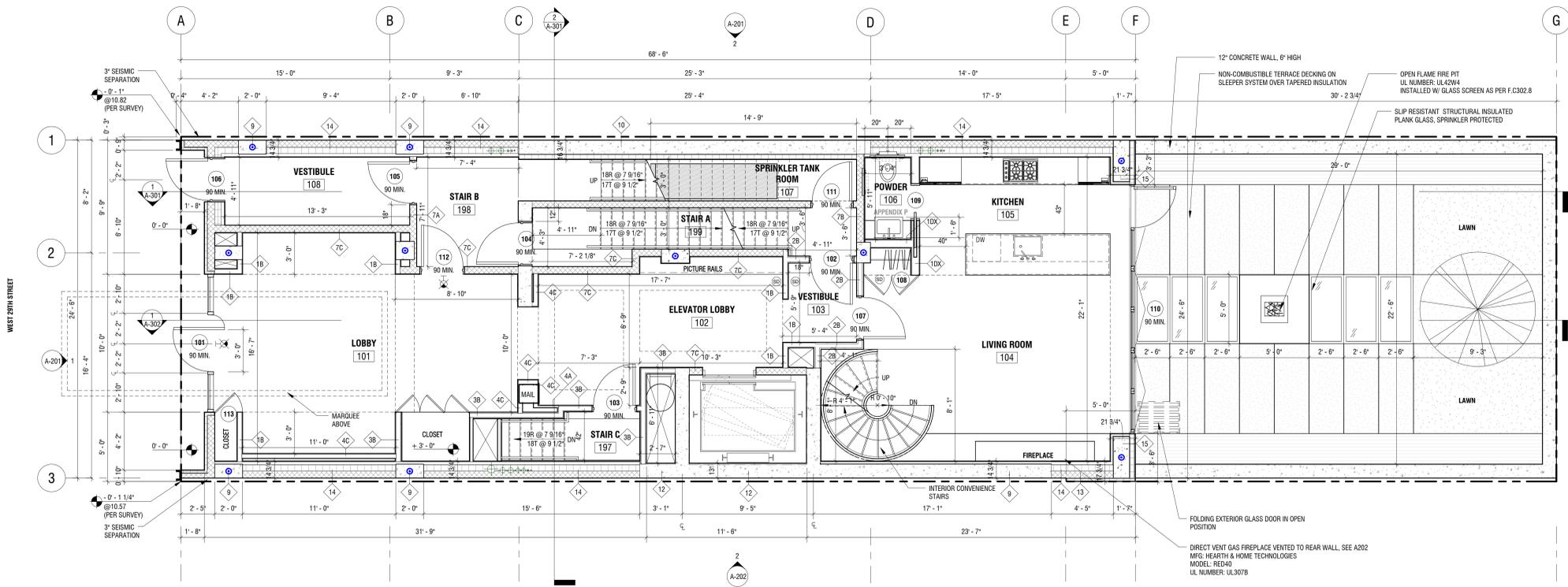
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1 CELLAR FLOOR PLAN
1/4" = 1'-0"

UNIT 1



2 1ST FLOOR PLAN
1/4" = 1'-0"

UNIT 1

LIGHT AND AIR COMPUTATION - 1ST FLOOR

BC 1203.4.1.2.1	THE MINIMUM OPENABLE AREA TO THE OUTDOORS SHALL BE 5 PERCENT OF THE FLOOR AREA OF THE HABITABLE SPACE BEING VENTILATED.			
BC 1206.2.1	THE MINIMUM NET GLAZED AREA SHALL NOT BE LESS THAN 10 PERCENT OF THE FLOOR AREA OF THE ROOM SERVED.			
ROOM	AREA	LIGHT	AIR	COMPLIES
LIVING 104 / KITCHEN 105	406 SF	DOOR 110 = 142 SF > 40.6 SF REQUIRED	DOOR 110 = 142 SF > 20.3 SF REQUIRED	

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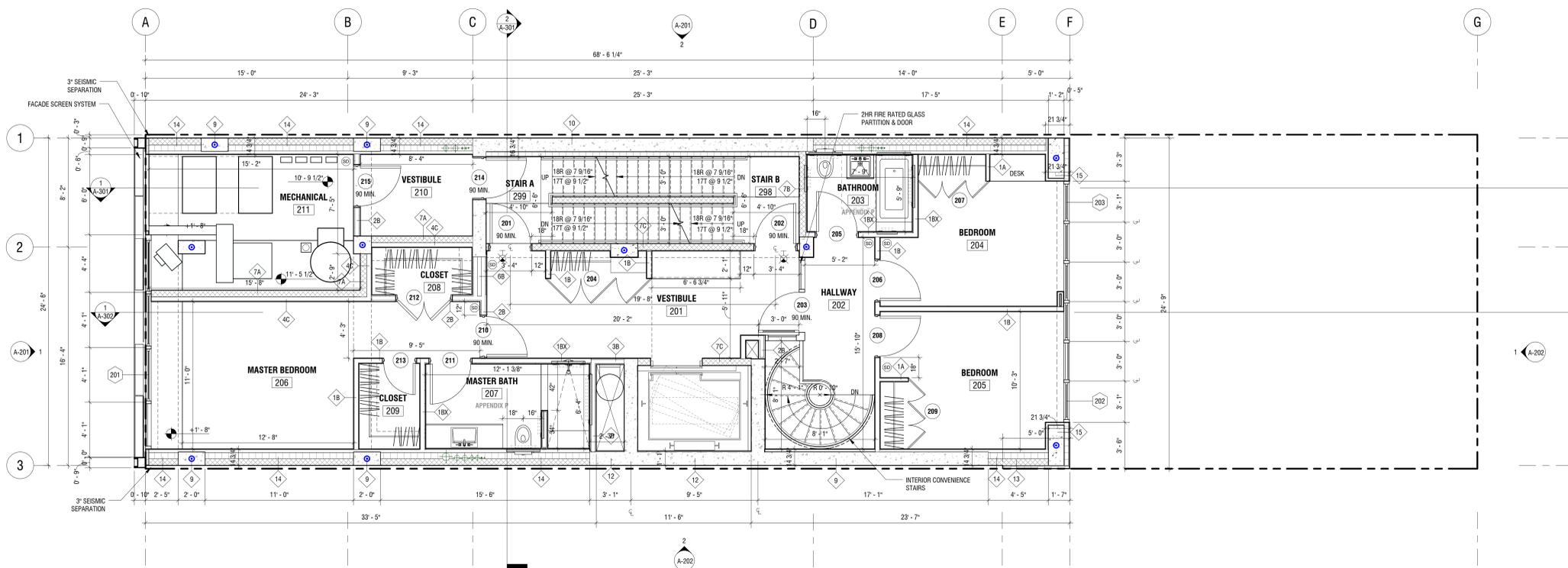
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1ST FLOOR & CELLAR PLAN

A-101.00



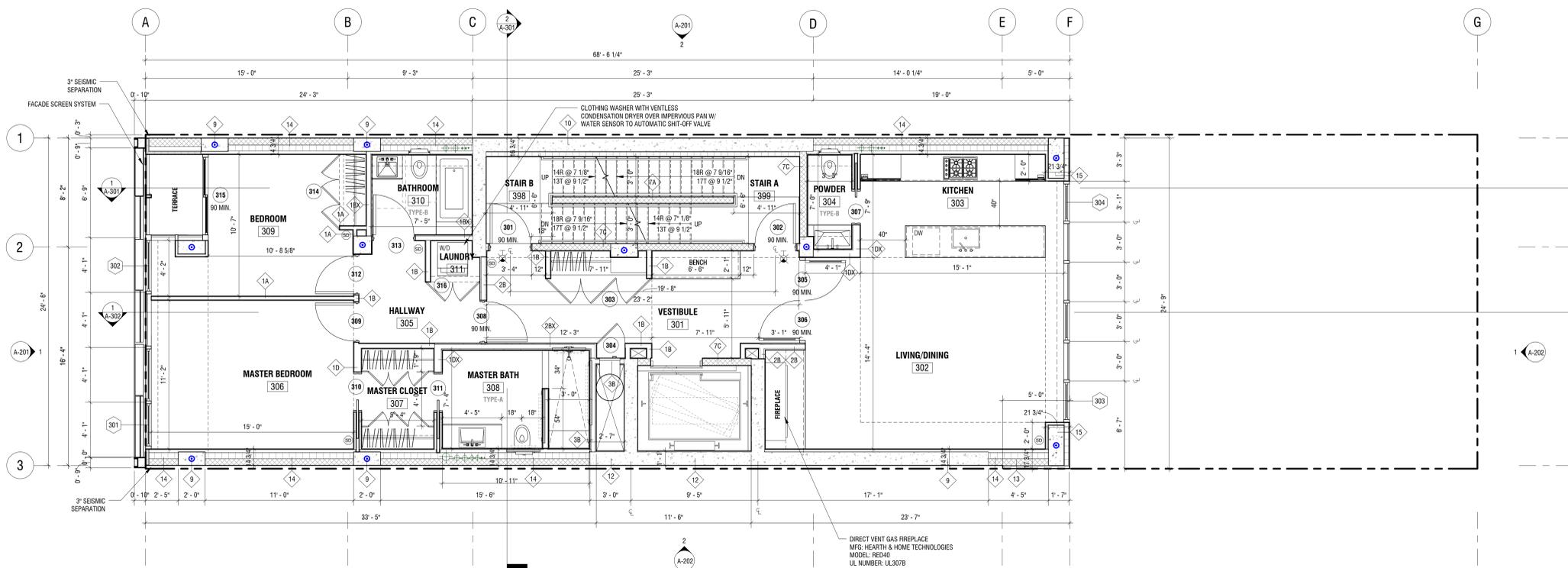
2ND FLOOR PLAN
1/4" = 1'-0"

UNIT 1

LIGHT AND AIR COMPUTATION - 2ND FLOOR

BC 1203.4.1.2.1	THE MINIMUM OPENABLE AREA TO THE OUTDOORS SHALL BE 5 PERCENT OF THE FLOOR AREA OF THE HABITABLE SPACE BEING VENTILATED.	
BC 1205.2.1	THE MINIMUM NET GLAZED AREA SHALL NOT BE LESS THAN 10 PERCENT OF THE FLOOR AREA OF THE ROOM SERVED.	

ROOM	AREA	LIGHT	AIR	COMPLIES
BEDROOM 204	123 SF	CURTAIN WALL = 47 SF > 12.3 SF REQUIRED	WINDOW 203 = 10 SF > 6.2 SF REQUIRED	COMPLIES
BEDROOM 205	125 SF	CURTAIN WALL = 47 SF > 12.5 SF REQUIRED	WINDOW 202 = 10 SF > 6.3 SF REQUIRED	COMPLIES
MASTER BEDROOM 206	205 SF	CURTAIN WALL = 88 SF > 20.5 SF REQUIRED	WINDOW 201 = 22 SF > 10.5 SF REQUIRED	COMPLIES



3RD FLOOR PLAN
1/4" = 1'-0"

UNIT 2

LIGHT AND AIR COMPUTATION - 3RD FLOOR

BC 1203.4.1.2.1	THE MINIMUM OPENABLE AREA TO THE OUTDOORS SHALL BE 5 PERCENT OF THE FLOOR AREA OF THE HABITABLE SPACE BEING VENTILATED.	
BC 1205.2.1	THE MINIMUM NET GLAZED AREA SHALL NOT BE LESS THAN 10 PERCENT OF THE FLOOR AREA OF THE ROOM SERVED.	

ROOM	AREA	LIGHT	AIR	COMPLIES
LIVING 302	407 SF	CURT. WALL = 226 SF > 40.7 SF REQUIRED	WIN 303+304 = 32 SF > 20.4 SF REQUIRED	COMPLIES
KITCHEN 303	167 SF	CURT. WALL = 153 SF > 16.7 SF REQUIRED	WINDOW 301 = 17 SF > 8.4 SF REQUIRED	COMPLIES
MASTER BEDROOM 306	123 SF	CURT. WALL = 138 SF > 12.3 SF REQUIRED	WINDOW 302 = 17 SF > 6.2 SF REQUIRED	COMPLIES

DOB FILE NO.

DOB USE



REVISIONS

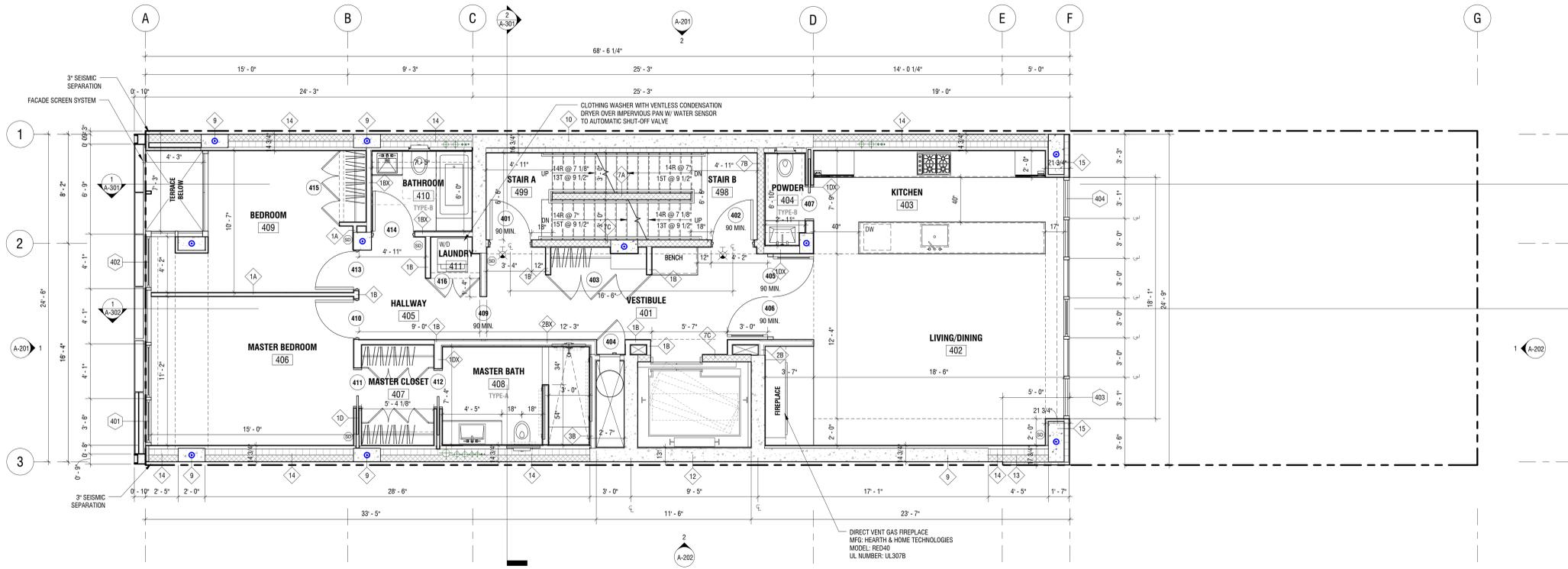
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DRAWING INFO

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PROJ. NO.	CBA - 310007

2ND & 3RD FLOOR PLAN

A-102.00

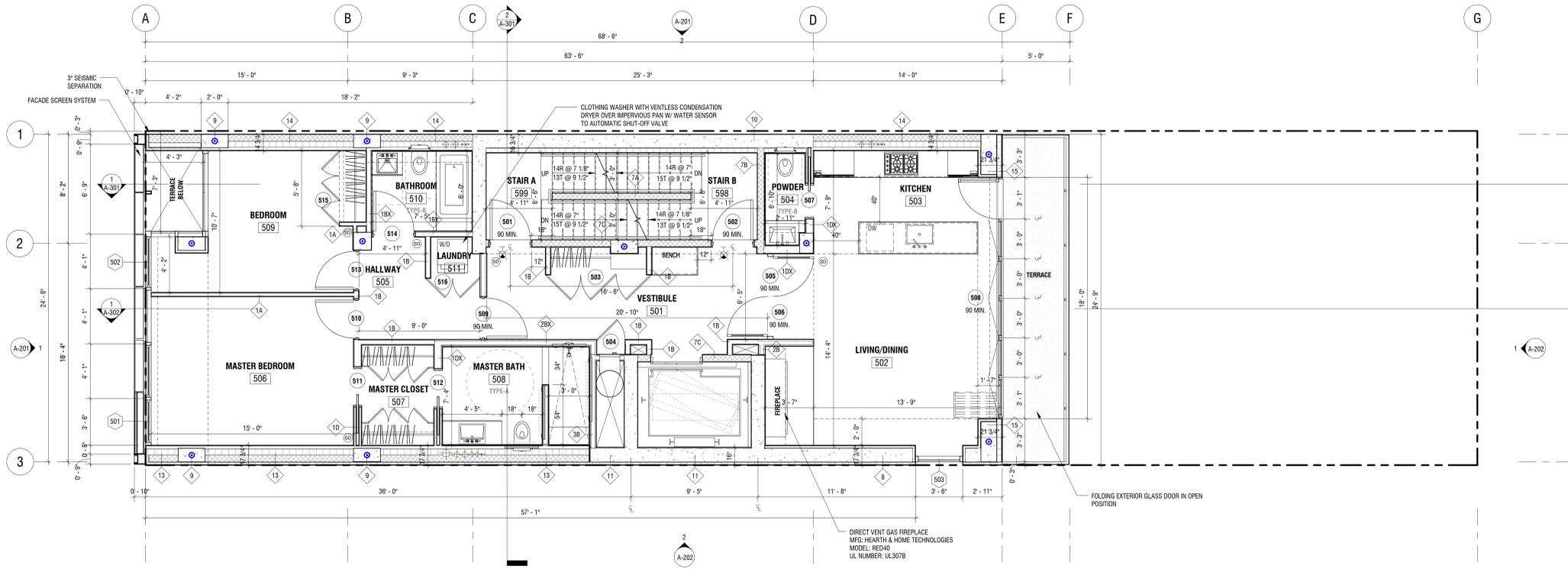


LIGHT AND AIR COMPUTATION - 4TH FLOOR

ROOM	AREA	LIGHT	AIR	COMPLIES
LIVING 402 / KITCHEN 403	455 SF	CURT. WALL = 176 SF > 45.5 SF REQUIRED	WIN 403+404 = 20 SF > 22.9 SF REQUIRED	COMPLIES
MASTER BEDROOM 406	167 SF	CURT. WALL = 153 SF > 16.7 SF REQUIRED	WINDOW 401 = 17 SF > 8.4 SF REQUIRED	COMPLIES
BEDROOM 409	123 SF	CURT. WALL = 138 SF > 12.3 SF REQUIRED	WINDOW 402 = 17 SF > 6.2 SF REQUIRED	COMPLIES

1 4TH FLOOR PLAN
1/4" = 1'-0"

UNIT 3



LIGHT AND AIR COMPUTATION - 5TH FLOOR

ROOM	AREA	LIGHT	AIR	COMPLIES
LIVING 502 / KITCHEN 503	345 SF	DOOR 508 = 191 SF > 34.5 SF REQUIRED	DOOR 508 = 141 SF > 17.3 SF REQUIRED	COMPLIES
MASTER BEDROOM 506	167 SF	CURT. WALL = 153 SF > 16.7 SF REQUIRED	WINDOW 501 = 17 SF > 8.4 SF REQUIRED	COMPLIES
BEDROOM 509	123 SF	CURT. WALL = 138 SF > 12.3 SF REQUIRED	WINDOW 502 = 17 SF > 6.2 SF REQUIRED	COMPLIES

2 5TH FLOOR PLAN
1/4" = 1'-0"

UNIT 4

DOB FILE NO.

DOB USE



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4TH & 5TH FLOOR PLAN

A-103.00

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Tel: (917) 705-5534

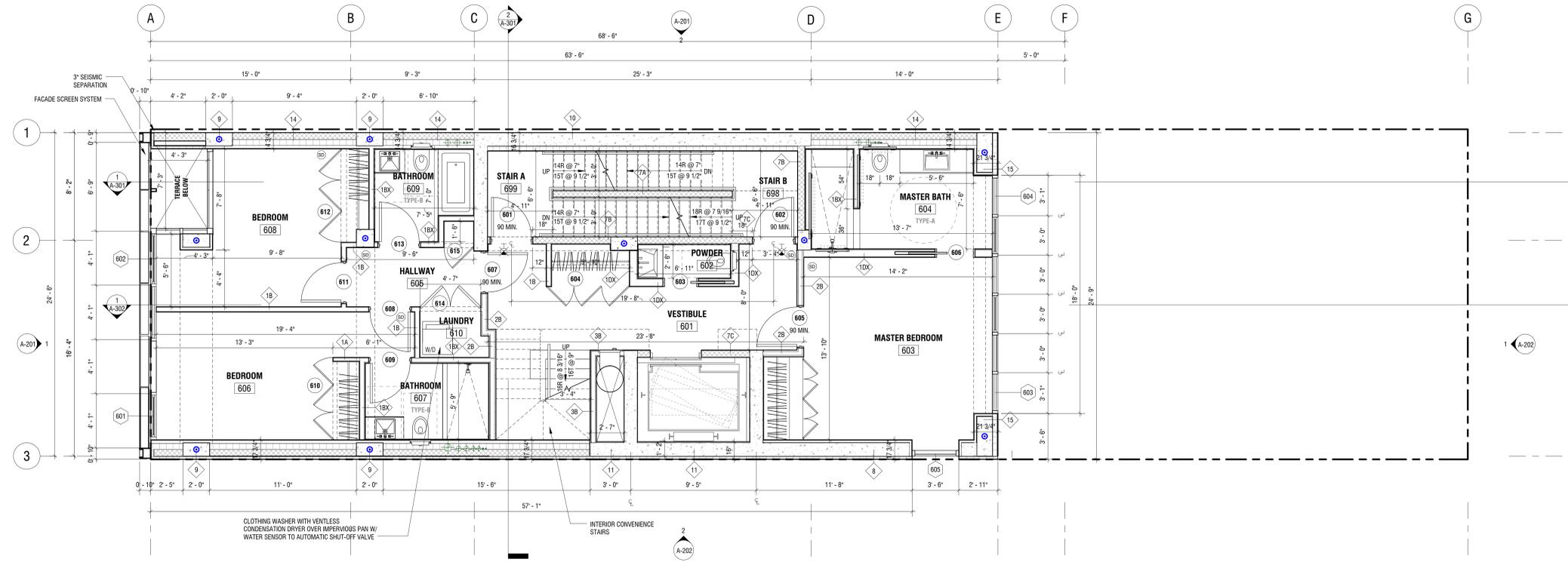
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ZLS Consulting Engineering
150 West 30th Street, 4th Floor
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CONTRACTOR
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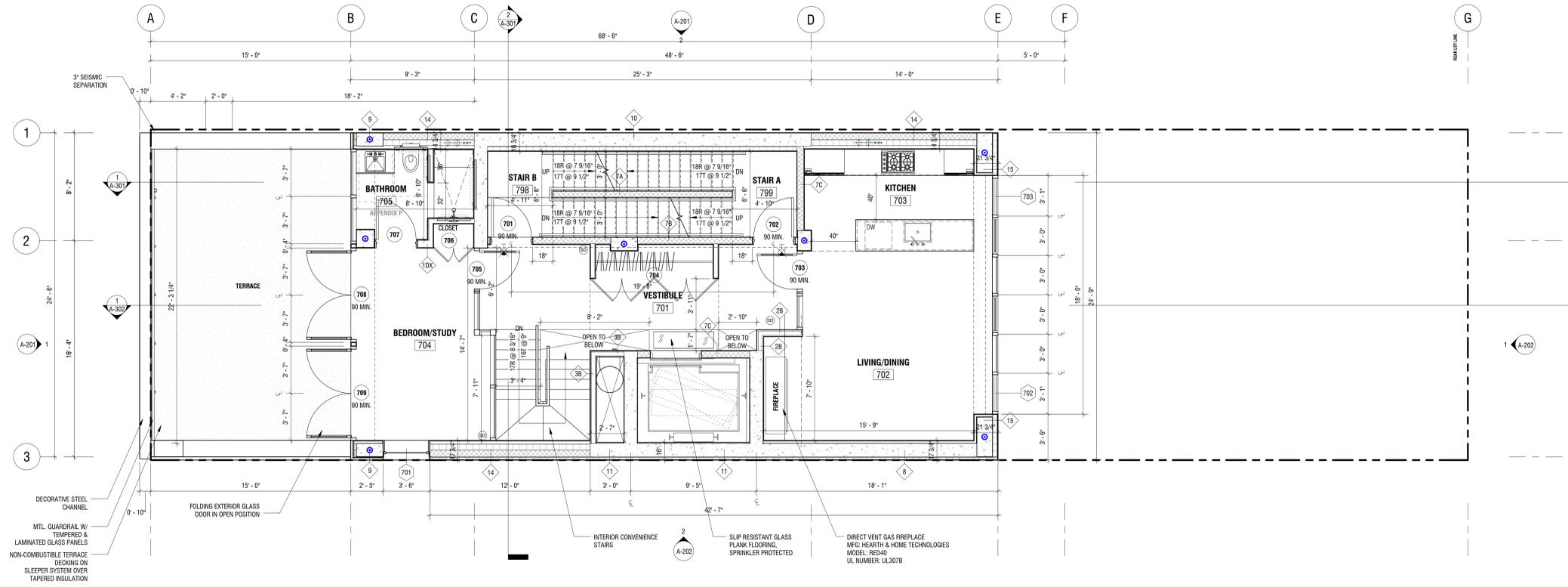


LIGHT AND AIR COMPUTATION - 6TH FLOOR

ROOM	AREA	LIGHT	AIR	COMPLIES
MASTER BEDROOM 603	203 SF	CURT. WALL = 88 SF > 20.3 SF REQUIRED	WINDOW 603 = 11 SF > 10.2 SF REQUIRED	COMPLIES
BEDROOM 606	137 SF	CURT. WALL = 101 SF > 13.7 SF REQUIRED	WINDOW 601 = 17 SF > 6.9 SF REQUIRED	COMPLIES
BEDROOM 608	125 SF	CURT. WALL = 92 SF > 12.5 SF REQUIRED	WINDOW 602 = 17 SF > 6.3 SF REQUIRED	COMPLIES

1 6TH FLOOR PLAN
1/4" = 1'-0"

UNIT 5



LIGHT AND AIR COMPUTATION - 7TH FLOOR

ROOM	AREA	LIGHT	AIR	COMPLIES
LIVING 702 / KITCHEN 703	334 SF	CURT. WALL = 173 SF > 33.4 SF REQUIRED	WIN 703+702 = 22 SF > 16.7 SF REQUIRED	COMPLIES
BEDROOM 704	138 SF	DOOR 706 = 11.7 SF > 13.8 SF REQUIRED	DOOR 706 = 11.7 SF > 6.9 SF REQUIRED	COMPLIES

2 7TH FLOOR PLAN
1/4" = 1'-0"

UNIT 5

DOB FILE NO.

DOB USE



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PROJ. NO.: CBA - 313307

6TH & 7TH FLOOR PLAN

A-104.00

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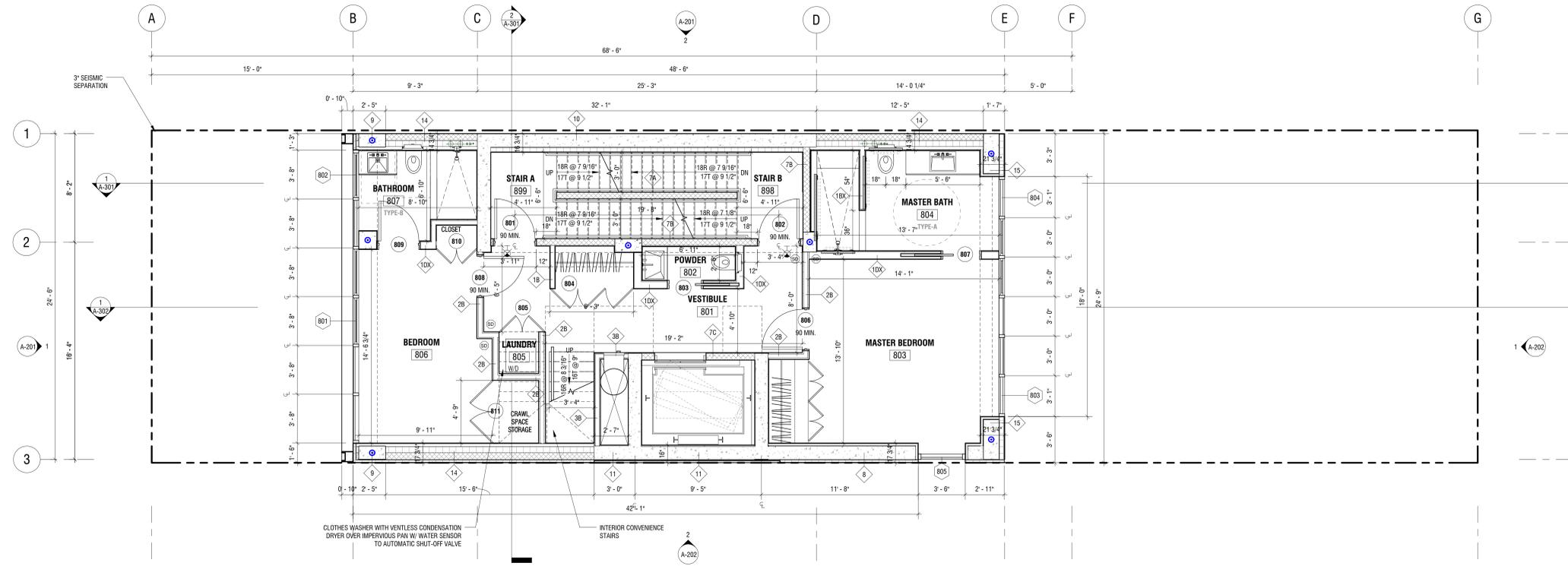
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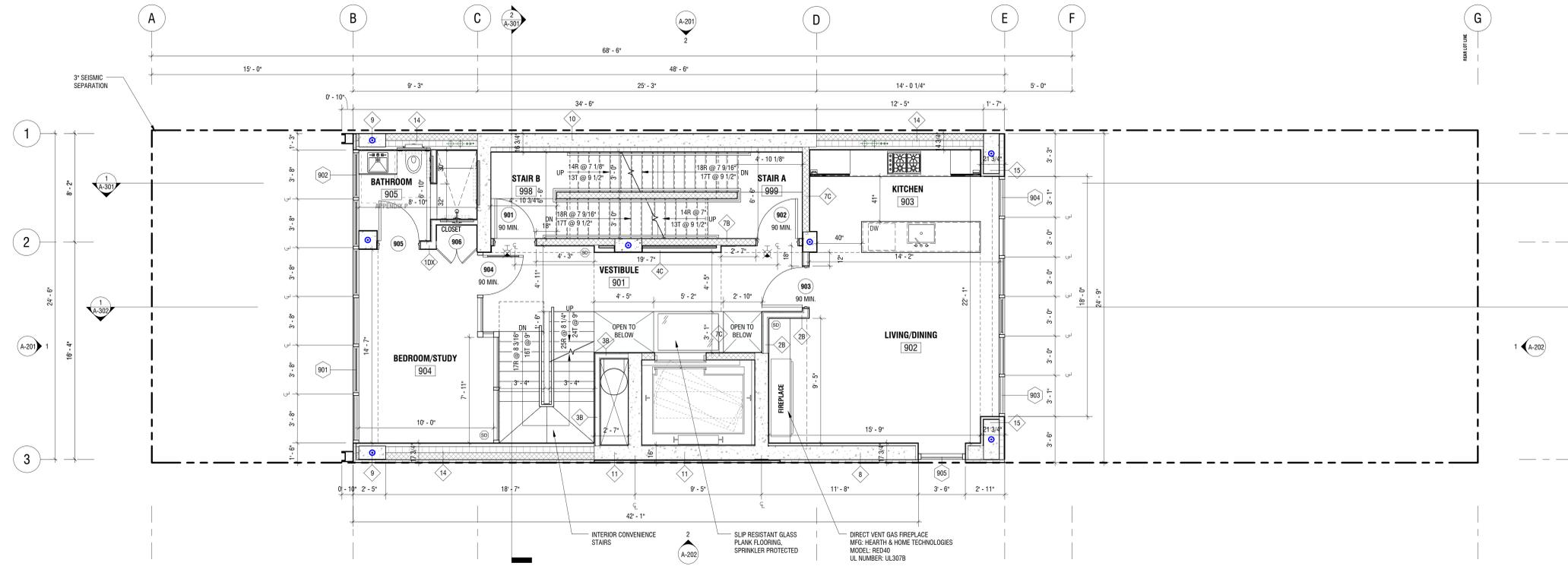


1 8TH FLOOR PLAN
1/4" = 1'-0"

UNIT 6

LIGHT AND AIR COMPUTATION - 8TH FLOOR

ROOM	AREA	LIGHT	AIR	COMPLIES
MASTER BEDROOM 803	203 SF	CURT. WALL = 75 SF > 20.3 SF REQUIRED	WINDOW 803 = 11 SF > 10.2 SF REQUIRED	COMPLIES
BEDROOM 805	135 SF	CURT. WALL = 132 SF > 13.5 SF REQUIRED	WINDOW 801 = 22 SF > 6.8 SF REQUIRED	COMPLIES



2 9TH FLOOR PLAN
1/4" = 1'-0"

UNIT 6

LIGHT AND AIR COMPUTATION - 9TH FLOOR

ROOM	AREA	LIGHT	AIR	COMPLIES
LIVING 902	334 SF	CURT. WALL = 132 SF > 33.4 SF REQUIRED	WIN 903 + 904 = 24 SF > 15.7 SF REQUIRED	COMPLIES
KITCHEN 903	135 SF	CURT. WALL = 132 SF > 13.5 SF REQUIRED	WINDOW 901 = 22 SF > 6.8 SF REQUIRED	COMPLIES

DOB FILE NO.

DOB USE



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8TH & 9TH FLOOR PLAN

A-105.00

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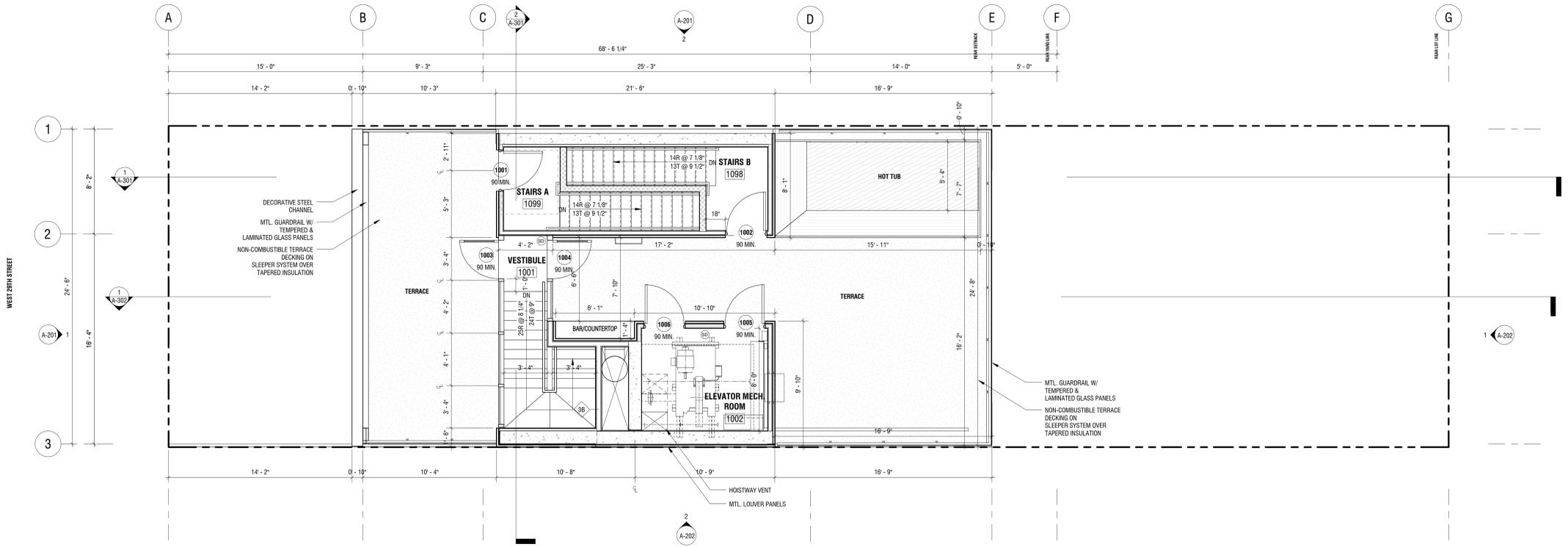
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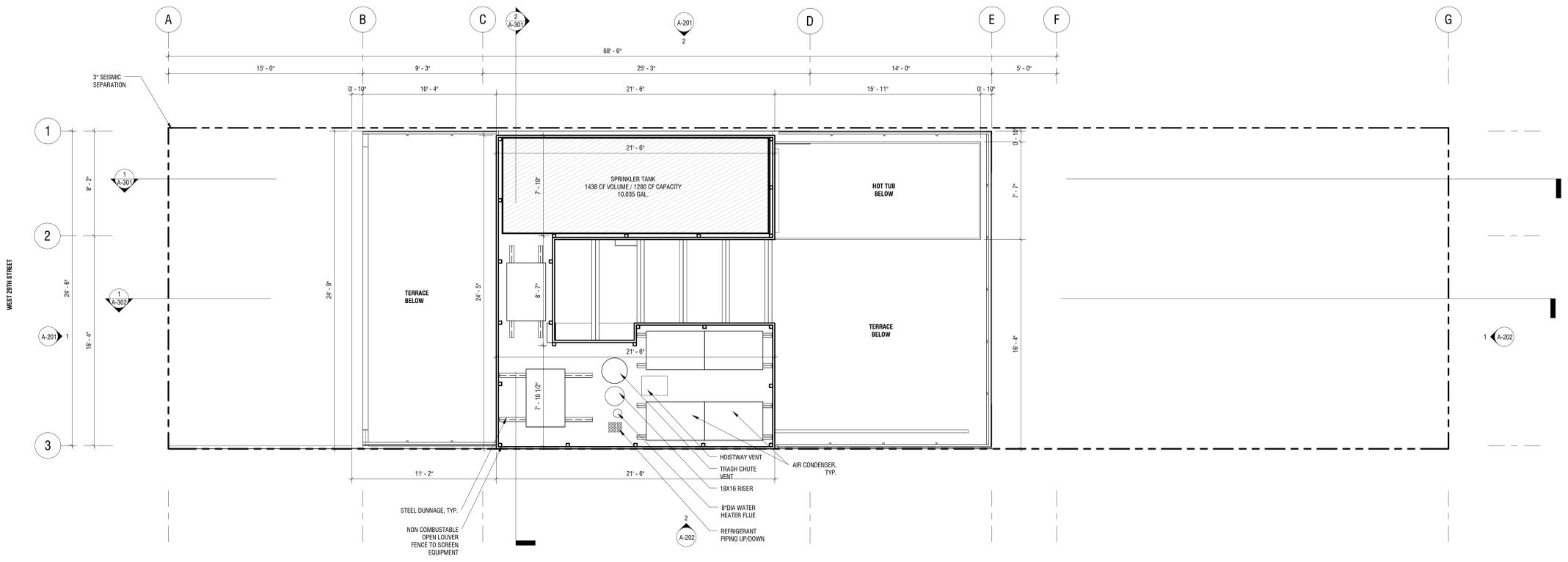
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New York, NY 10001
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1 ROOF LEVEL PLAN
1/4" = 1'-0"

UNIT 6



2 BULKHEAD TOP PLAN
1/4" = 1'-0"

DOB FILE NO.

DOB USE



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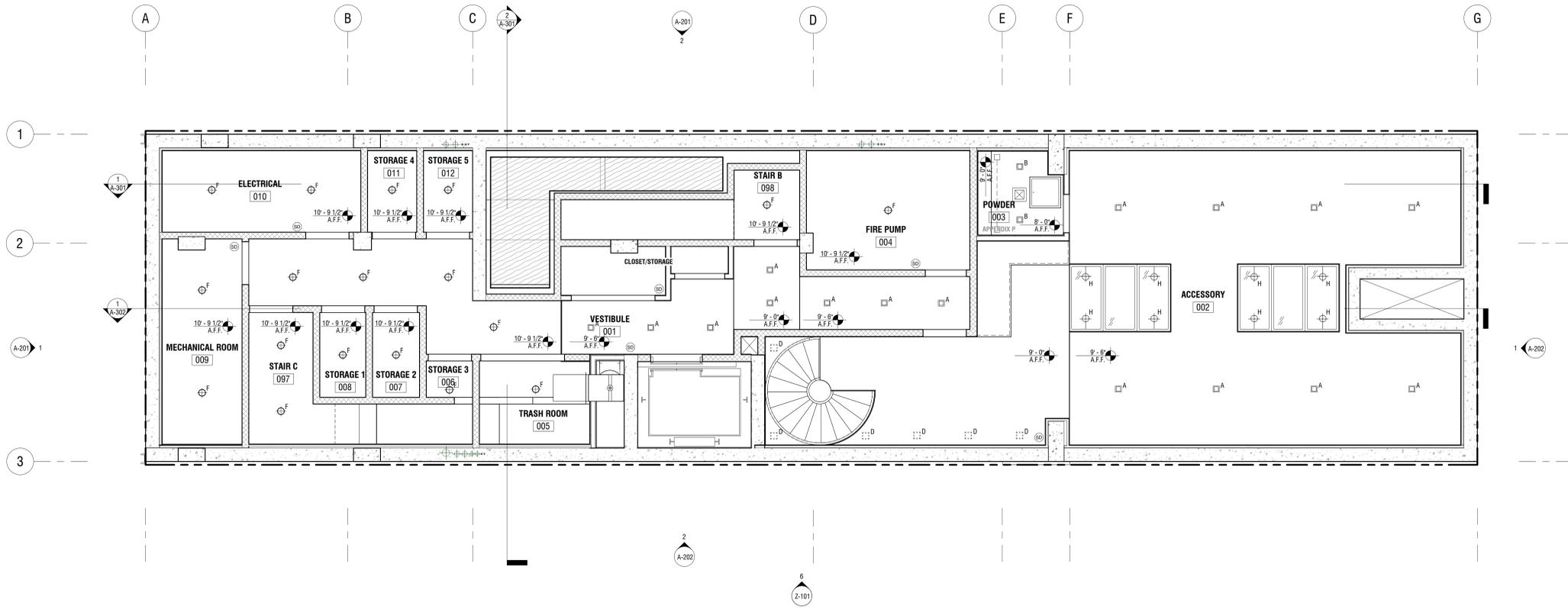
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ROOF & BULKHEAD PLAN

A-106.00



INTERIOR LIGHTING POWER ANALYSIS

NYSECC 505.5.2 THE MINIMUM INTERIOR LIGHTING POWER ALLOWANCES FOR MULTI-FAMILY BUILDING AREA TYPE: 0.7 WSF.

NYSECC 505.5.3 LIGHTING WITHIN DWELLING UNITS, LIGHTING WITHIN DWELLING UNITS MAY HAVE A MINIMUM OF 50 PERCENT OF THE PERMANENTLY INSTALLED INTERIOR LIGHT FIXTURES FITTED WITH HIGH-EFFICACY LAMPS AS AN ALTERNATIVE TO SECTION 505.5.2.

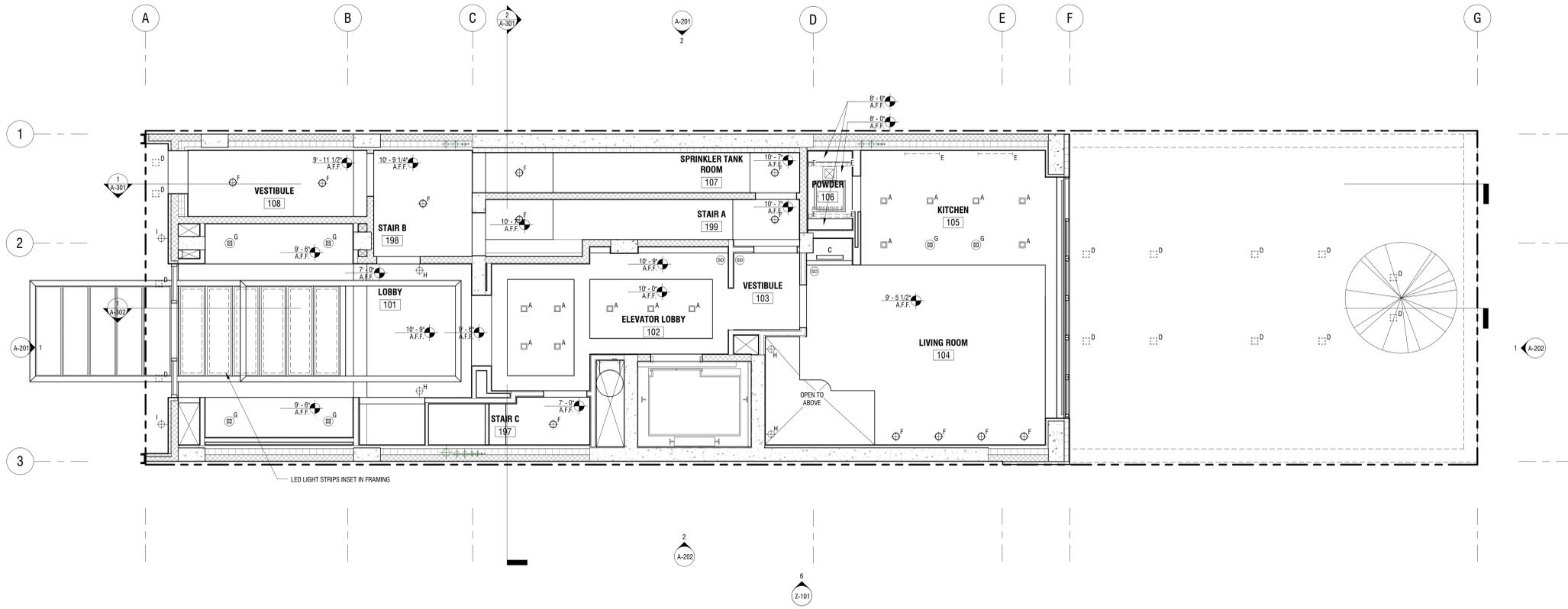
TAG	FIXTURE/LAMP TYPE	WATTAGE	HIGH EFFICACY
A	4" RECESSED LED	10W	YES
B	4" RECD LED (W/ET LOCATION)	10W	YES
C	24" T8'S FLUORESCENT	100W	YES
D	4" UPLIGHT FLOOR LED	60W	YES
E	LED STRIP LIGHT	2.3W / LFT	YES
F	CLIP MOUNT CFL	26W	YES
G	PENDANT (INCANDESCENT)	100W	NO
H	SCONCE (INCANDESCENT)	80W	NO

COMMON AREAS

FLOORS: DEL THROUGH ROOF

TAG	WATTAGE	QUANTITY	TOTAL WATTS	HIGH EFFICACY
A	10W	15	150W	YES
C	16W	2	32W	YES
E	2.3W / LFT	220 LFT	506W	YES
F	26W	4	1,040W	YES
G	100W	4	4,000W	NO
H	80W	2	1,600W	NO
TOTAL			2,382W	= 0.67 WSF
COMPLIANT AS PER 505.5.2				

1 CELLAR FLOOR RCP & LIGHTING
1/4" = 1'-0"



DWELLING UNIT 1

FLOORS: DEL, 1, 2

TAG	WATTAGE	QUANTITY	TOTAL WATTS	HIGH EFFICACY
A	10W	17	170W	YES
B	10W	16	160W	YES
C	16W	4	64W	YES
D	8W	6	48W	YES
E	2.3W / LFT	8 PCS / 47 LFT	100W	YES
G	100W	5	5,000W	NO
H	80W	14	1,120W	NO
TOTAL			8,100W	81% OF 100
COMPLIANT AS PER 505.5.3				

2 1ST FLOOR RCP & LIGHTING
1/4" = 1'-0"

DOB FILE NO.

DOB USE



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1ST FL & CELLAR RCP

A-121.00

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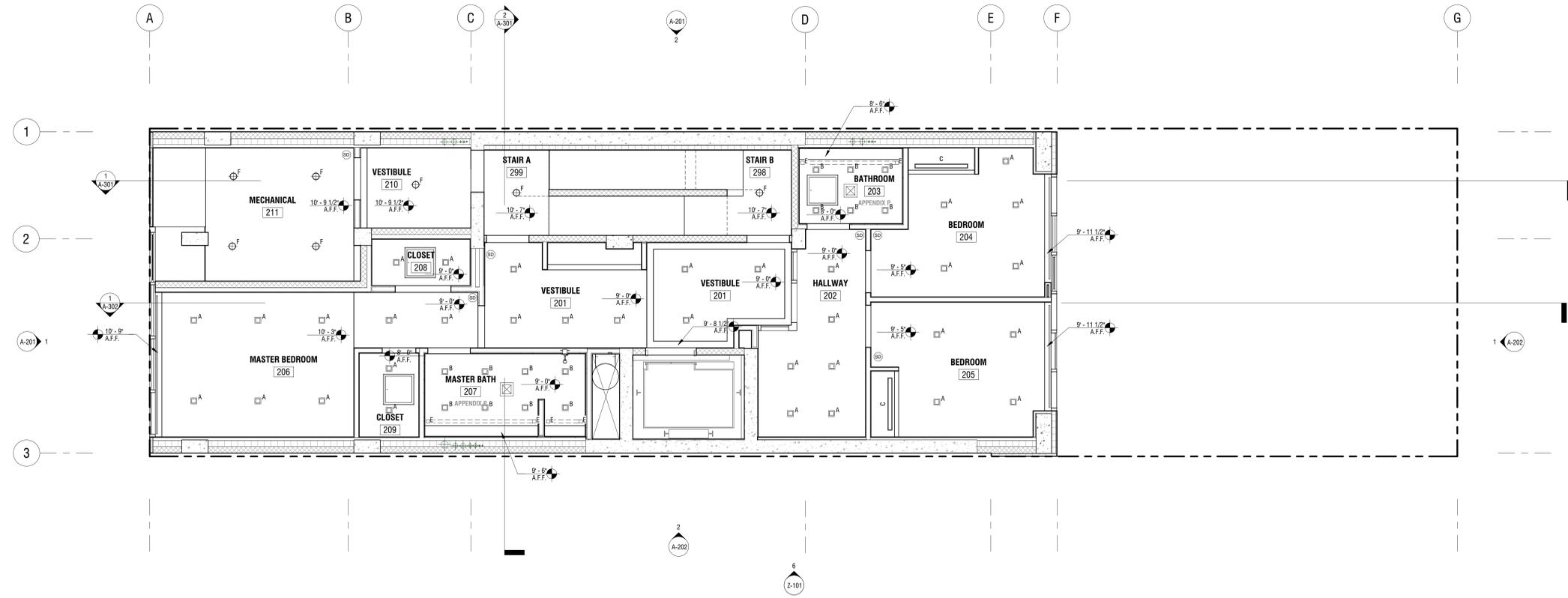
Derosier Engineering, LLC
249 Windsor Ave.
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SURVEYOR

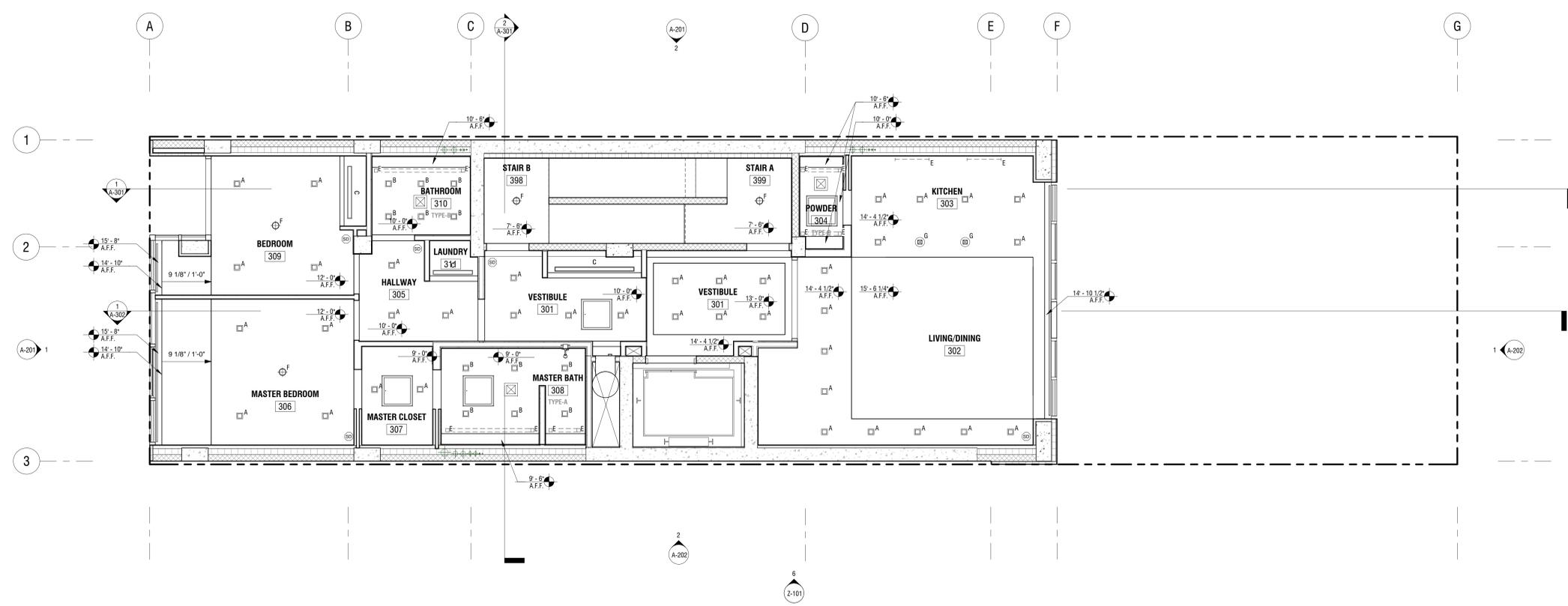
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1 2ND FLOOR RCP & LIGHTING
1/4" = 1'-0"



2 3RD FLOOR RCP & LIGHTING
1/4" = 1'-0"

DWELLING UNIT 2

FLOOR: 3				1,190 SQFT
TAG	WATTAGE	QUANTITY	TOTAL WATTS	HIGH EFFICACY
A	100W	34	3400W	YES
B	100W	12	1200W	YES
C	16W	6	96W	YES
E	2.5WV LFT	6 PCS /38 LFT	57W	YES
G	150W	2	300W	NO
H	80W	3	240W	NO
TOTAL			63	58 OUT OF 63
COMPLIANT AS PER 505.5.3				YES 92%

DOB FILE NO.

DOB USE



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2ND & 3RD FL RCP

A-122.00

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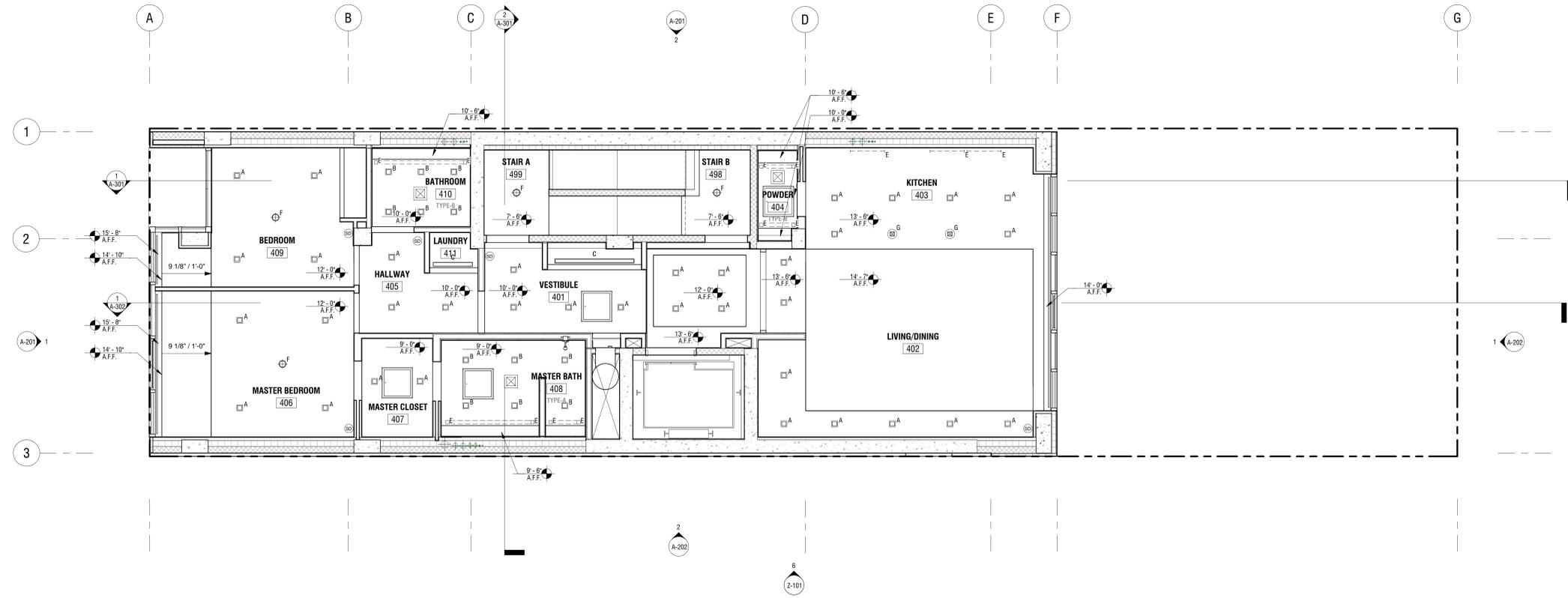
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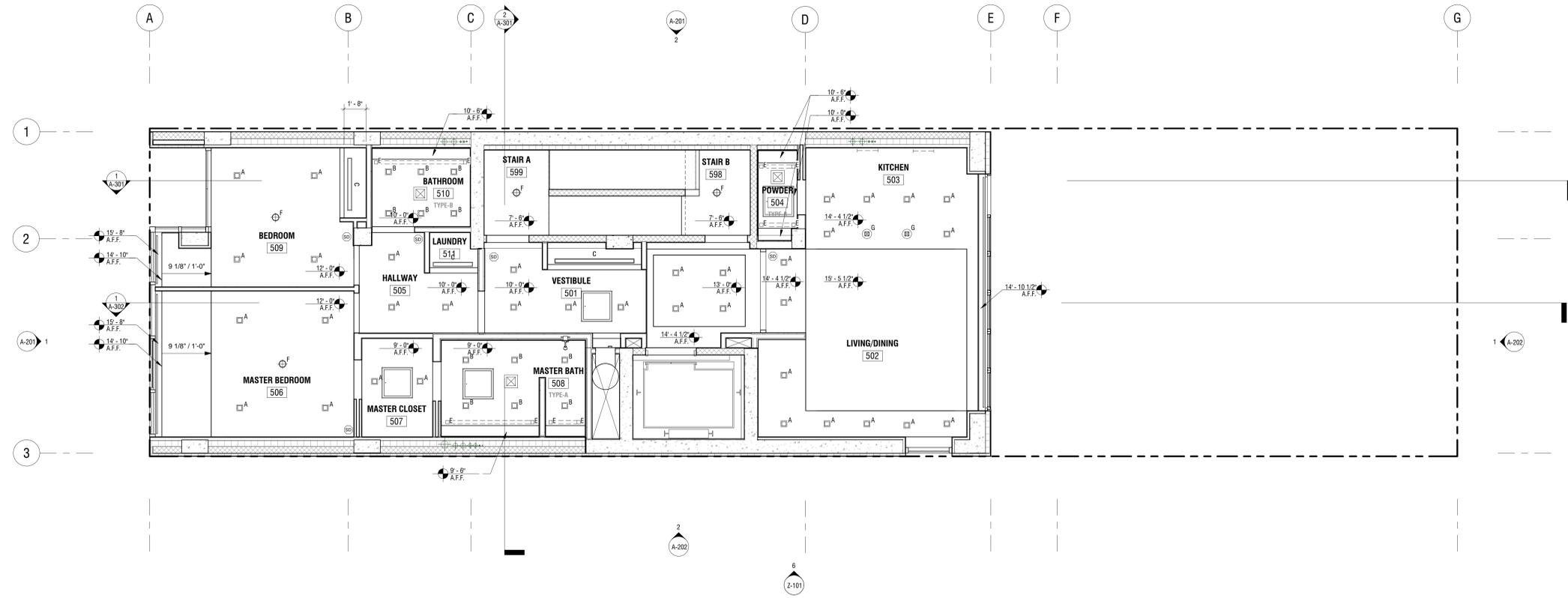
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DWELLING UNIT 3

FLOOR: 4		1,190 SQFT		
TAG	WATTAGE	QUANTITY	TOTAL WATTS	HIGH EFFICACY
A	10W	124	350W	YES
B	10W	12	120W	YES
C	16W	6	96W	YES
E	2.5W / LFT	8 PCS / 38 LFT	57W	YES
G	10W	2	200W	NO
H	80W	3	240W	NO
TOTAL			63	58 OUT OF 63
COMPLIANT AS PER 605.5.3				YES 92%

1 4TH FLOOR RCP & LIGHTING
1/4" = 1'-0"



DWELLING UNIT 4

FLOOR: 5		1,080 SQFT		
TAG	WATTAGE	QUANTITY	TOTAL WATTS	HIGH EFFICACY
A	10W	133	350W	YES
B	10W	12	120W	YES
C	16W	6	96W	YES
E	2.5W / LFT	7 PCS / 41 LFT	54W	YES
G	10W	2	200W	NO
H	80W	3	240W	NO
TOTAL			63	59 OUT OF 63
COMPLIANT AS PER 605.5.3				YES 92%

2 5TH FLOOR RCP & LIGHTING
1/4" = 1'-0"

DOB FILE NO.

DOB USE



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4TH & 5TH FL RCP

A-123.00

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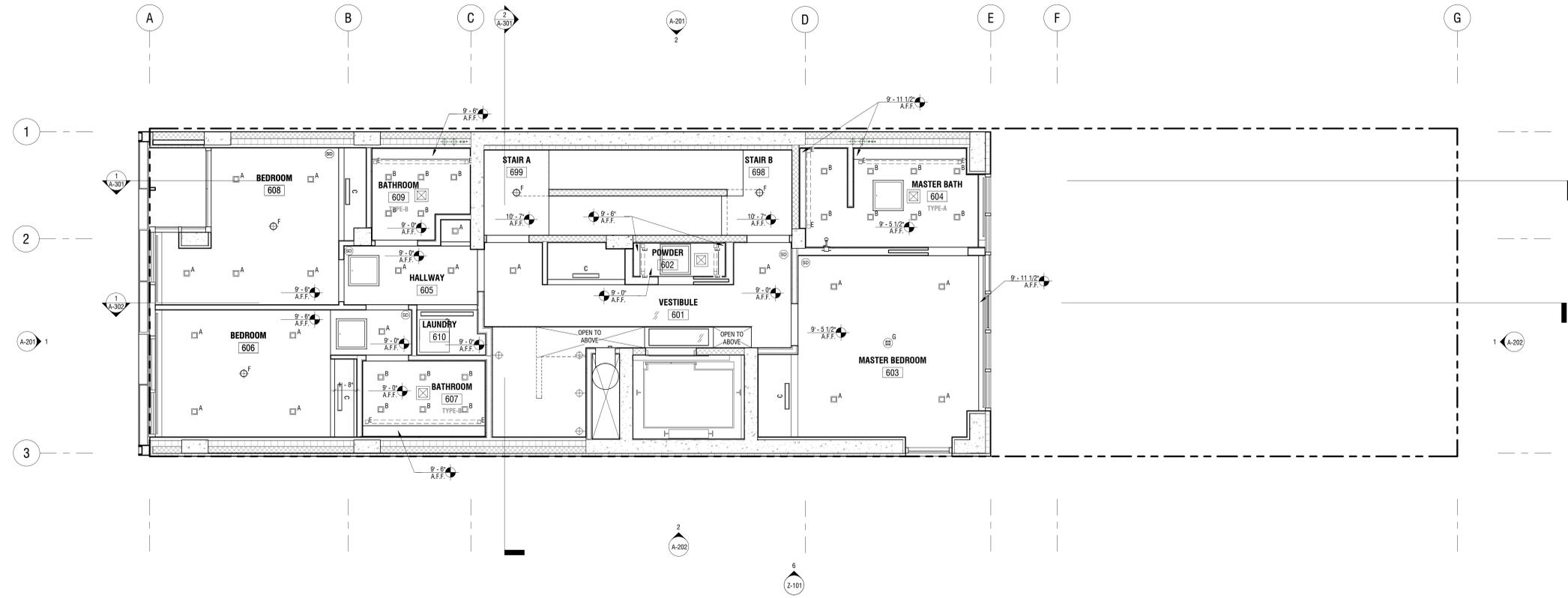
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Tel: (718) 849-0800

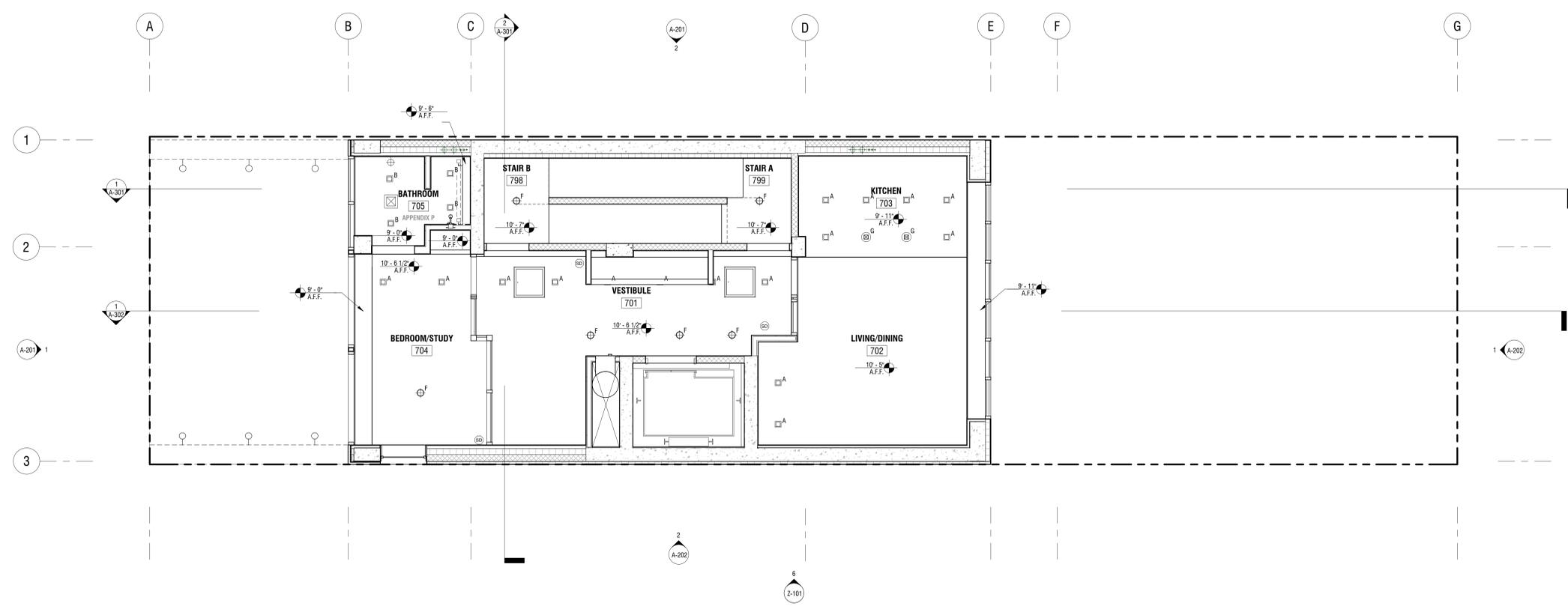
CONTRACTOR
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DWELLING UNIT 5

FLOORS: 6, 7		1,855 SQFT		
TAG	WATTAGE	QUANTITY	TOTAL WATTS	HIGH EFFICACY
A	10W	24	240W	YES
B	10W	24	240W	YES
C	16W	7	112W	YES
E	2.5W / LFT	14PCS / 70LFT	161W	YES
G	100W	7	700W	NO
H	80W	10	800W	NO
TOTAL			96	81 OUT OF 96
COMPLIANT AS PER 505.5.3				YES 81%



1 6TH FLOOR RCP & LIGHTING
1/4" = 1'-0"



2 7TH FLOOR RCP & LIGHTING
1/4" = 1'-0"

DOB FILE NO. _____

DOB USE _____



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CHECKED BY: ADK
DATE: OCTOBER 21, 2013
SCALE: 1/4" = 1'-0"
PROJ. NO. CBA-310007

6TH & 7TH FL RCP

A-124.00

OWNER

W29 534 Highline Owners, LLC
520 West 27th Street, Suite 302
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GEO/ENVIRONMENTAL

GZA GeoEnvironmental of New York
104 West 29th Street, 10th Floor
New York, New York 10001
Tel: (212) 594-8140

CIVIL ENGINEER

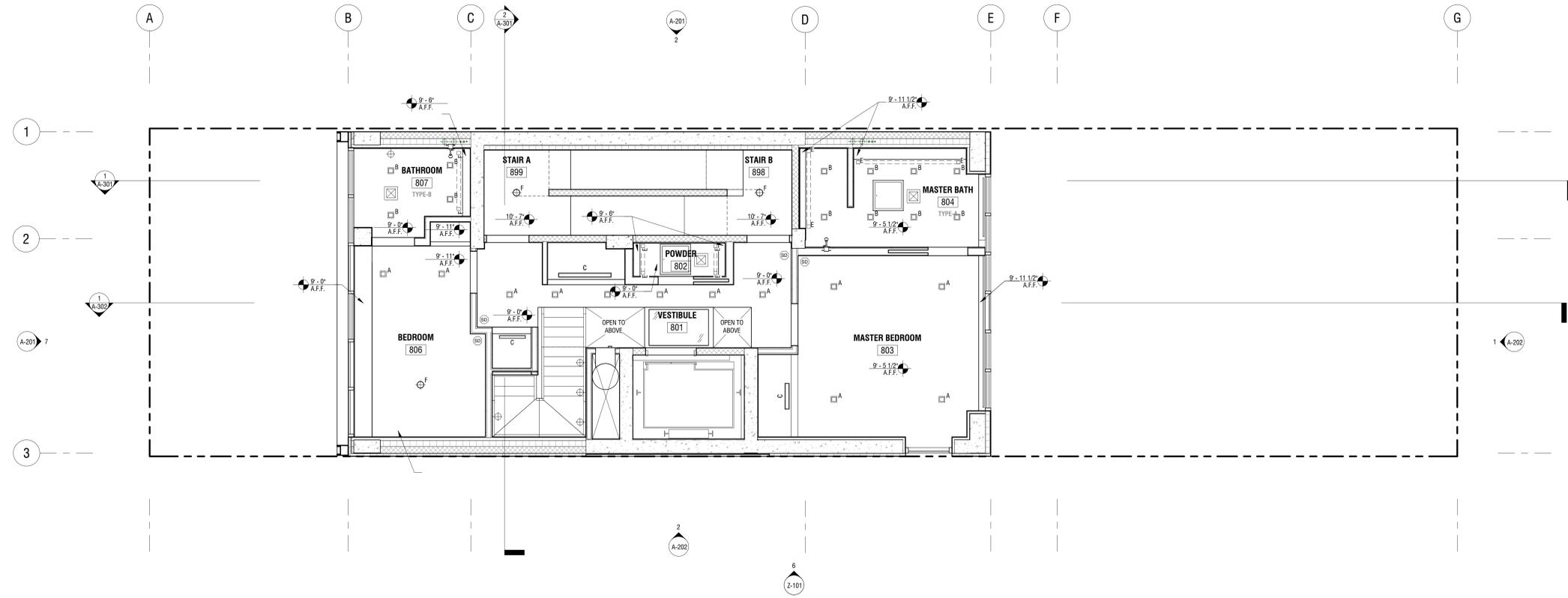
Derosier Engineering, LLC
249 Windsor Ave.
Westfield, NJ 07090
Tel: (201) 993-0865

SURVEYOR

Montrose Surveying Co LLP
116-20 Metropolitan Ave
Richmond Hill, NY 11418
Tel: (718) 849-0800

CONTRACTOR

Foundations Group Inc.
520 West 27th Street, Suite 302
New York, New York 10001
Tel: (212) 924-1724

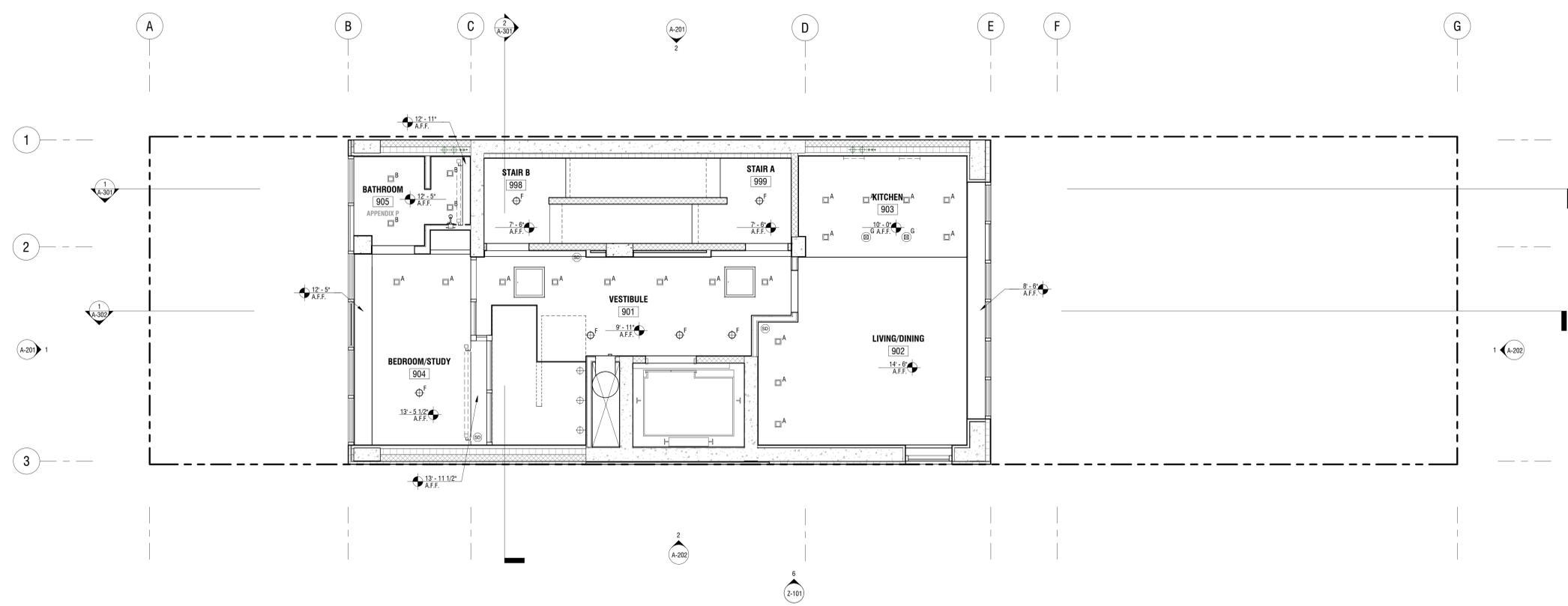


DWELLING UNIT 6
FLOORS: 8, 9 1,600 SQFT

TAG	WATTAGE	QUANTITY	TOTAL WATTS	HIGH EFFICACY
A	10W	31	310W	YES
B	10W	16	160W	YES
C	16W	4	64W	YES
E	2.5W / LFT	13PCS / 98LFT	274W	YES
G	10W	9	90W	NO
H	80W	10	800W	NO
TOTAL		80	81 OUT OF 80	77%

COMPLIANT AS PER 605.5.3

1 8TH FLOOR RCP & LIGHTING
1/4" = 1'-0"



2 9TH FLOOR RCP & LIGHTING
1/4" = 1'-0"

DOB FILE NO. _____

DOB USE _____



REVISIONS

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DRAWING INFO

DESIGN DEVELOPMENT
DRAWN BY: SRT/BHQ/MWC
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DATE: OCTOBER 21, 2013
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PROJ. NO. CBA - 313307

8TH & 9TH FL RCP

A-125.00

OWNER

W29 534 Highline Owners, LLC
520 West 27th Street, Suite 302
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GEO/ENVIRONMENTAL

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104 West 29th Street, 10th Floor
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Tel: (212) 594-8140

CIVIL ENGINEER

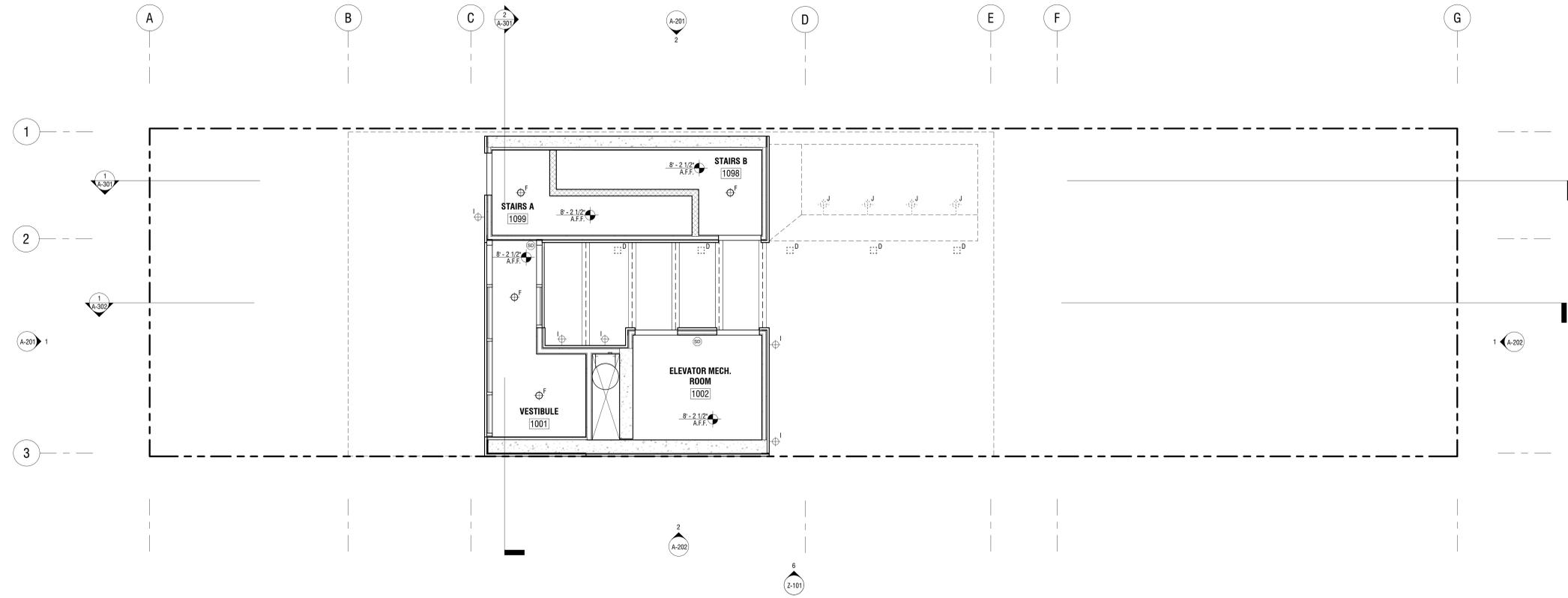
Derosier Engineering, LLC
249 Windsor Ave.
Westfield, NJ 07090
Tel: (201) 993-0865

SURVEYOR

Montrrose Surveying Co LLP
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EXTERIOR LIGHTING POWER ANALYSIS

NYSECC 505.6.2 THE TOTAL EXTERIOR LIGHTING POWER ALLOWANCE FOR ALL EXTERIOR BUILDING APPLICATIONS IS THE SUM OF THE BASE SITE ALLOWANCE PLUS THE INDIVIDUAL ALLOWANCES FOR AREAS THAT ARE TO BE ILLUMINATED AND ARE PERMITTED IN TABLE 505.6.2(2)

ALLOWANCES	TABLE 505.6.2(2)
BASE SITE	600W 800W
MAIN ENTRIES 20W / LFT	4 LFT 80W
OTHER DOORS 20W / LFT	4 LFT 80W
ENTRY CANOPIES 10 20W / SQFT	85 SQFT 21 200W
TOTAL	781 20W

TAG	FIXTURE/LAMP TYPE	WATTAGE	HIGH EFFICACY
D	4" UPLIGHT FLOOR LED	6W	YES
I	EXTERIOR LED SCOSCE	20W	YES
J	LED POOL LIGHT	32W	YES

TAG	WATTAGE	QUANTITY	TOTAL WATTS	HIGH EFFICACY
D	6W	17	102W	YES
I	20W	6	120W	YES
J	32W	4	128W	YES
TOTAL			350W	< 781.25 W

COMPLIANT AS PER 505.6.2 YES

1 ROOF LEVEL RCP & LIGHTING

1/4" = 1'-0"

DOB FILE NO.

DOB USE



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PROJ. NO.	CBA-313007

ROOF RCP

A-126.00

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DOB FILE NO.

DOB USE



REVISIONS

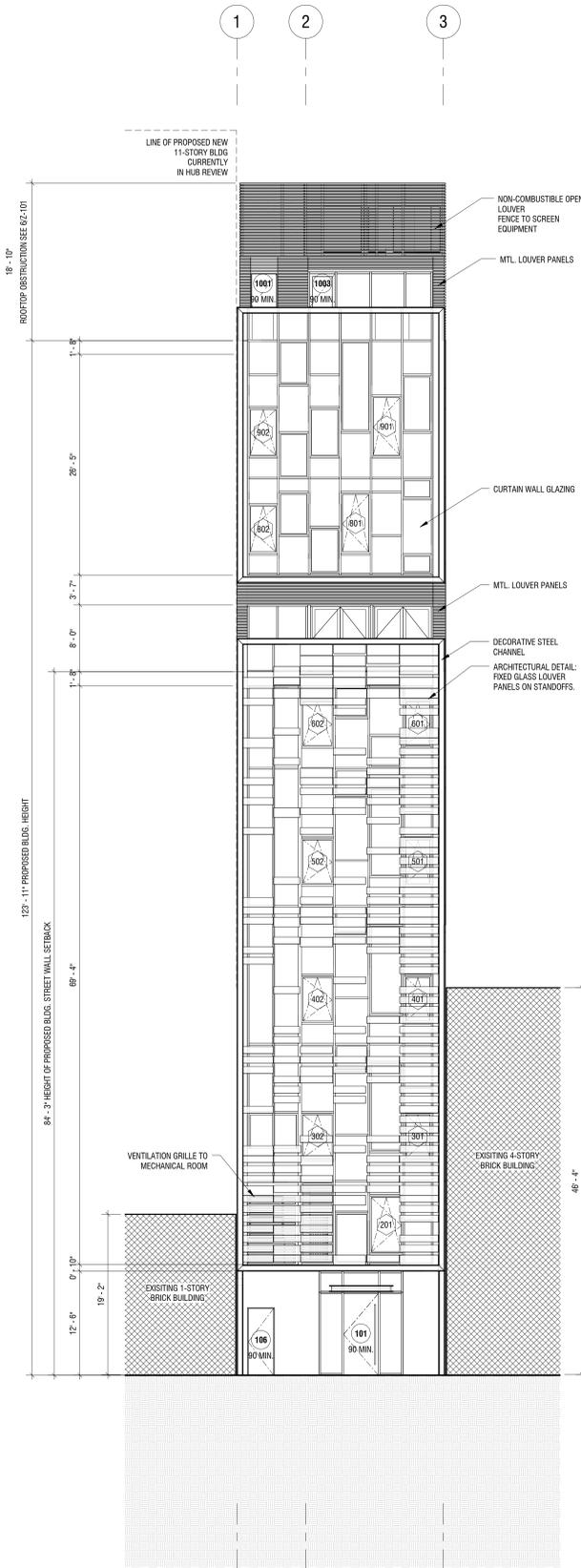
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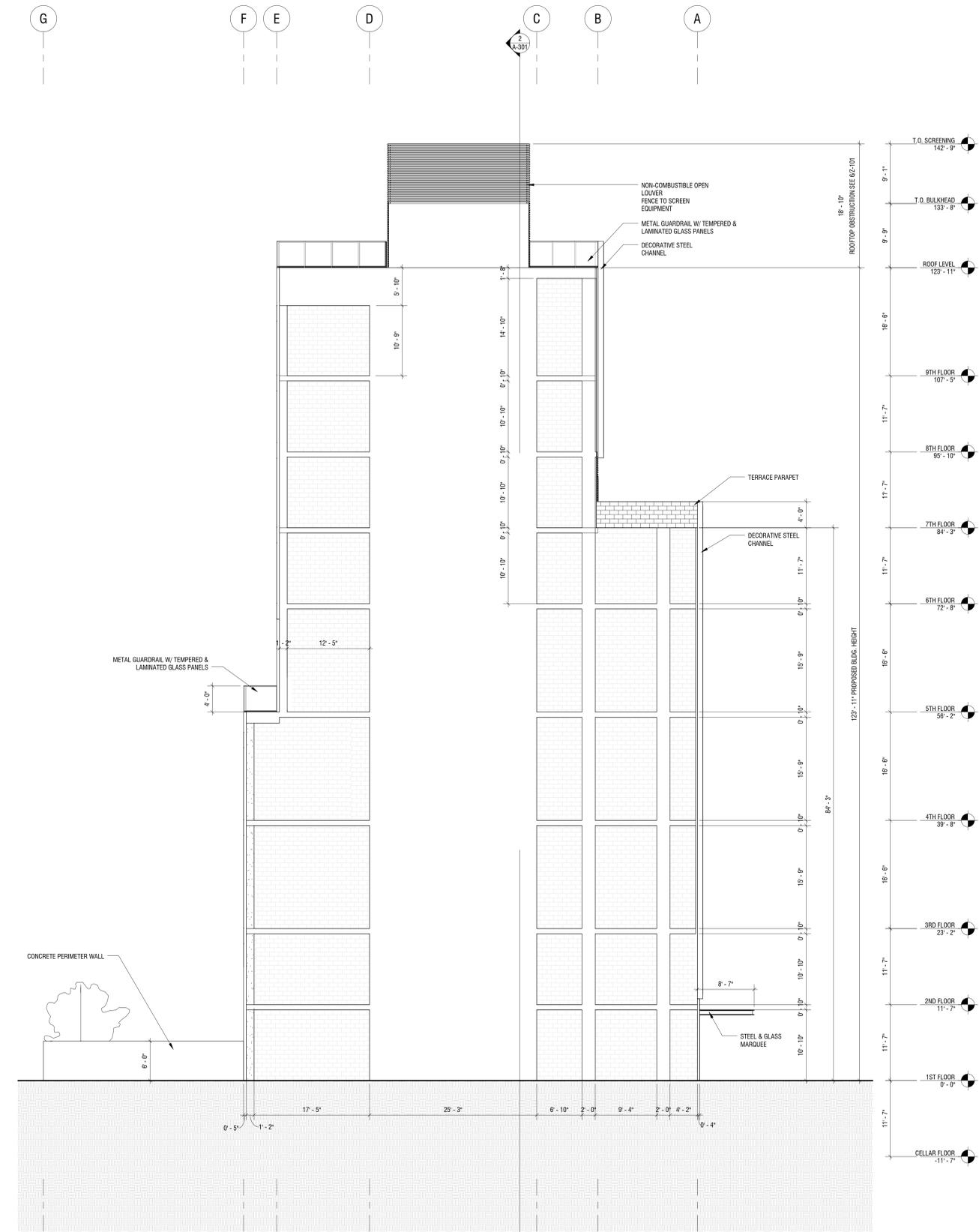
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DRAWN BY: SRT/BHQ/WWC
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PROJ. NO. CBA - 313307

NORTH & EAST ELEVATION

A-201.00



1 NORTH ELEVATION
1/8" = 1'-0"



2 EAST ELEVATION
1/8" = 1'-0"

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CIVIL ENGINEER

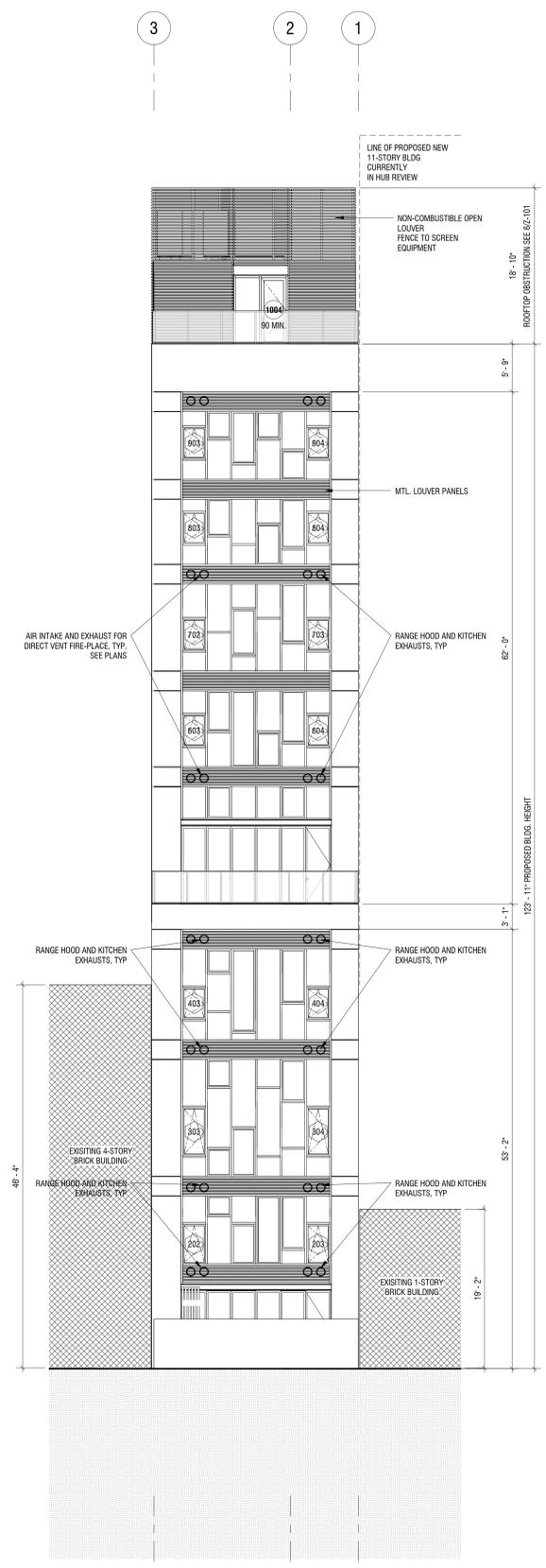
Derosier Engineering, LLC
249 Windsor Ave.
Westfield, NJ 07090
Tel: (201) 993-0865

SURVEYOR

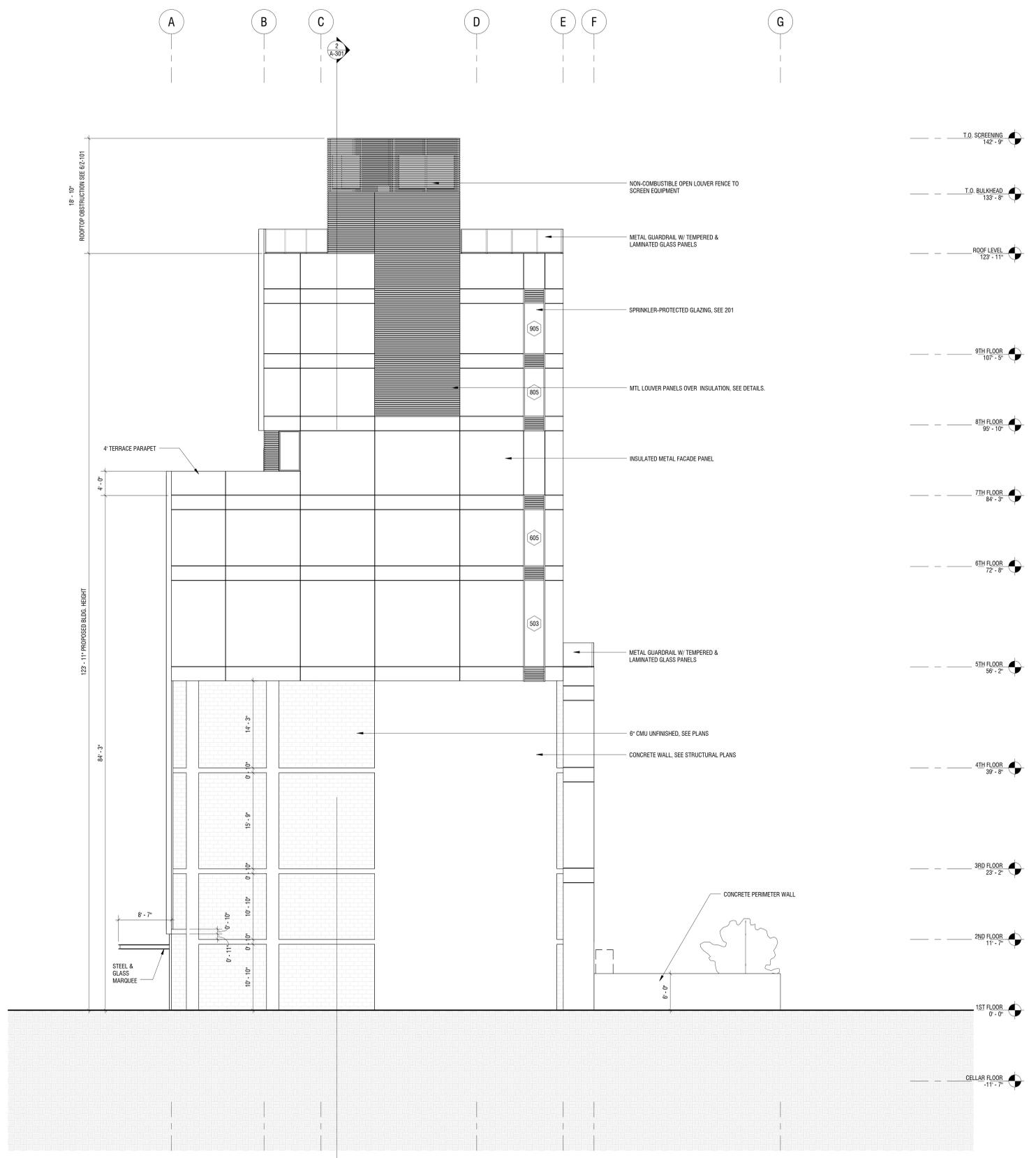
Monrose Surveying Co LLP
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Tel: (718) 849-0800

CONTRACTOR

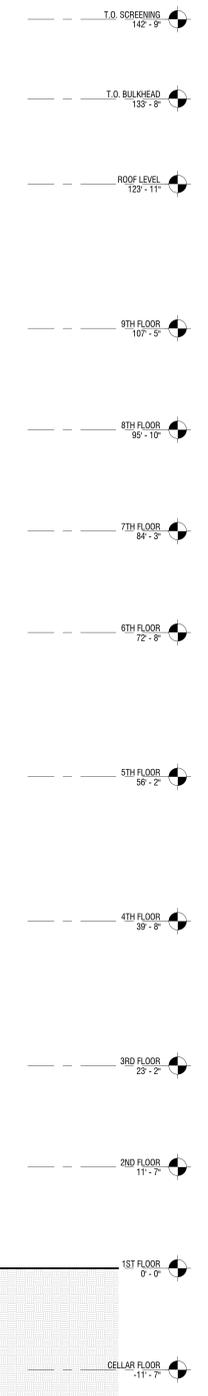
Foundations Group Inc.
520 West 27th Street, Suite 302
New York, NY 10001
Tel: (212) 924-1724



1 SOUTH ELEVATION
1/8" = 1'-0"



2 WEST ELEVATION
1/8" = 1'-0"



DOB FILE NO. _____

DOB USE _____



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SOUTH & WEST ELEVATION

A-202.00

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DOB FILE NO.

DOB USE



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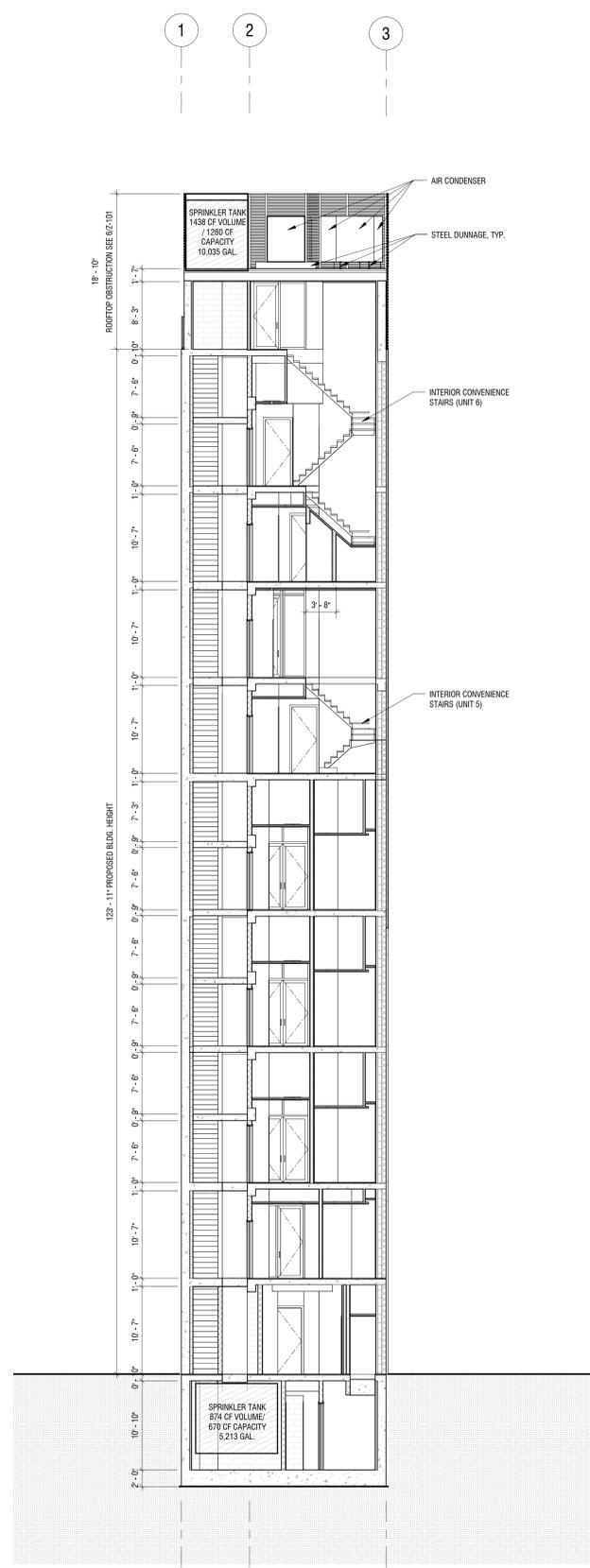
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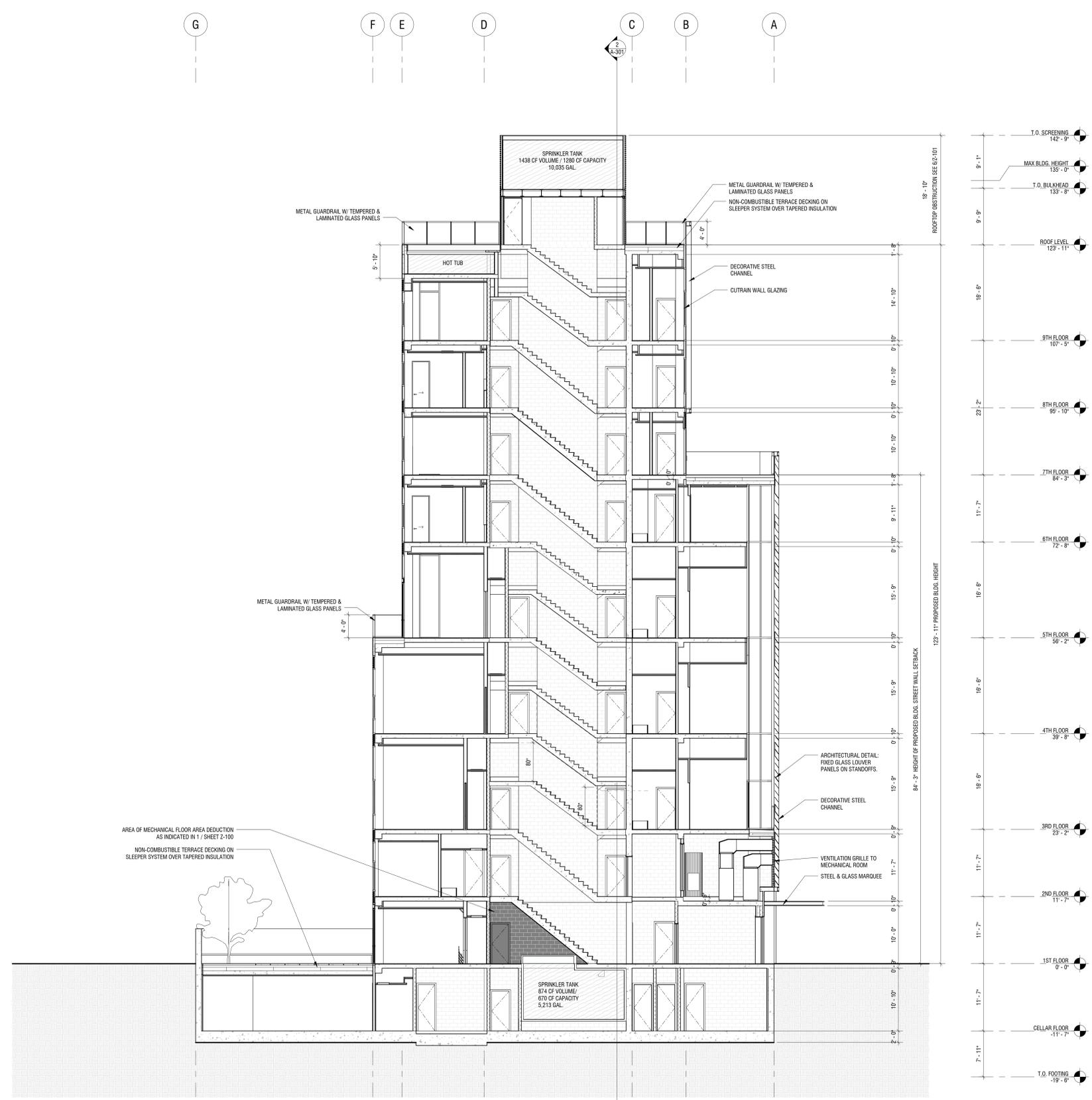
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DRAWN BY: SRT/BHQ/WWC
CHECKED BY: ADK
DATE: OCTOBER 21, 2013
SCALE: 1/8" = 1'-0"
PRJL. NO.: CBA - 313007

BUILDING SECTIONS

A-301.00



2 SECTION 2 (EAST-WEST)
1/8" = 1'-0"



1 SECTION 1 (NORTH-SOUTH)
1/8" = 1'-0"

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Tel: (212) 594-8140

CIVIL ENGINEER

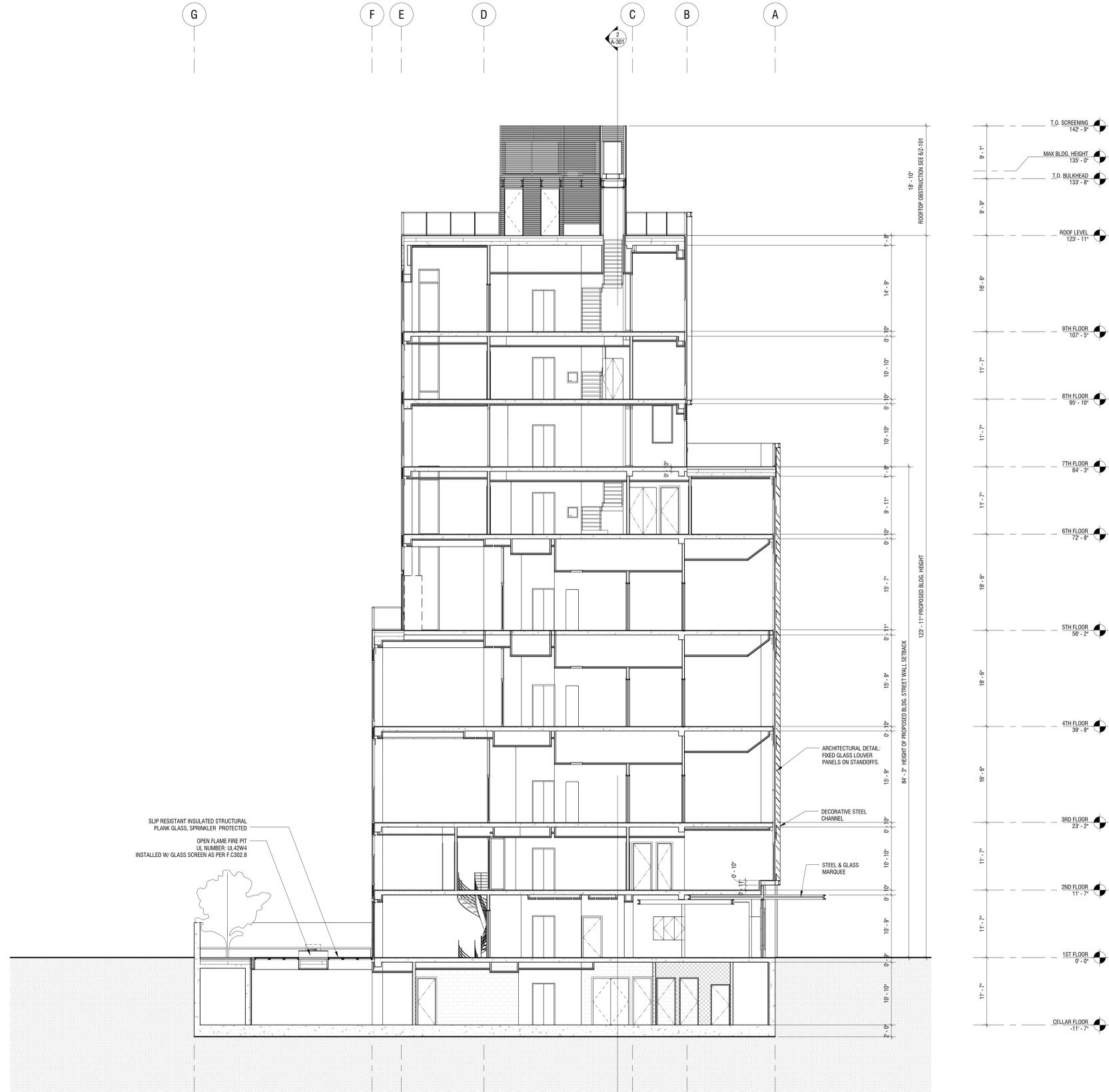
Derosier Engineering, LLC
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New York, New York 10001
Tel: (212) 924-1724



1 SECTION 3 (NORTH-SOUTH)
1/8" = 1'-0"

DOB FILE NO.

DOB USE

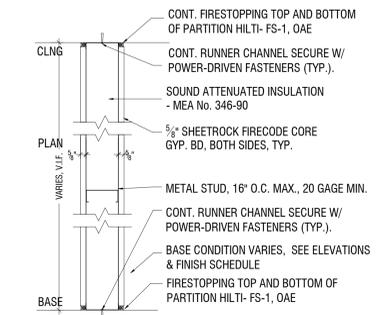


REVISIONS

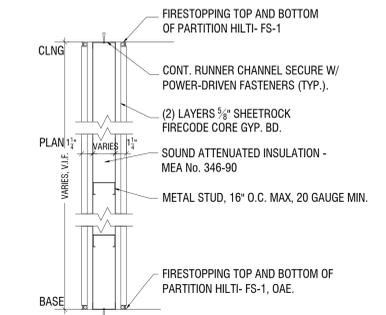
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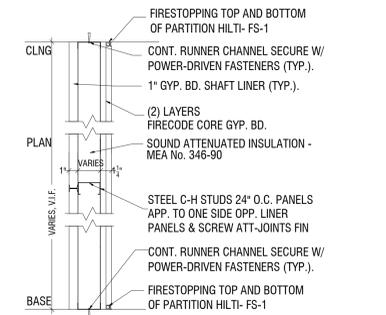
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CHECKED BY:	ADK
DATE:	OCTOBER 21, 2013
SCALE:	1/8" = 1'-0"
PROJ. NO.	CBA - 213007



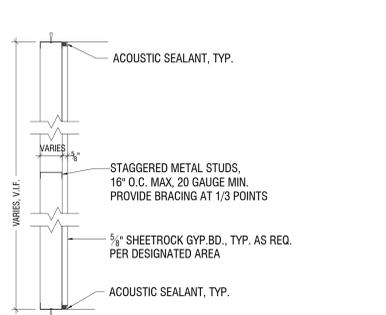
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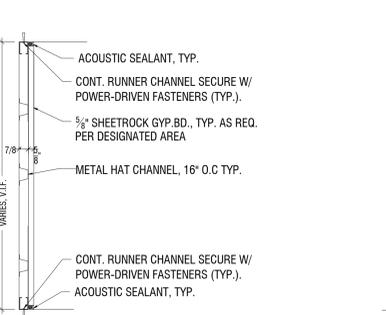
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SCALE: 1-1/2\"/>



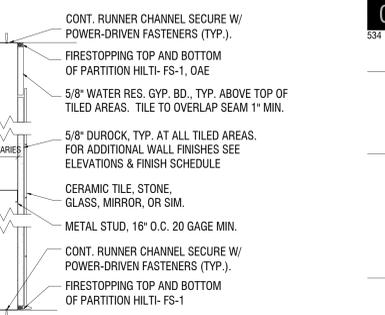
3 U.L. DESIGN U415, SYSTEM D
PARTITION TYPE: 2 HR RATED SHAF
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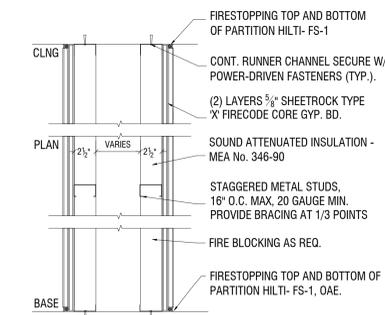
4 PARTITION TYPE: WALL FURRING
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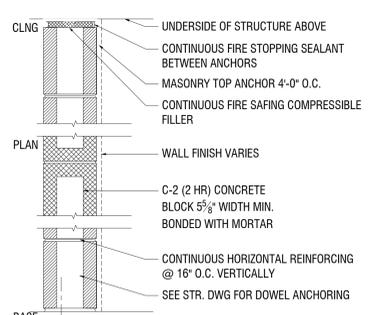
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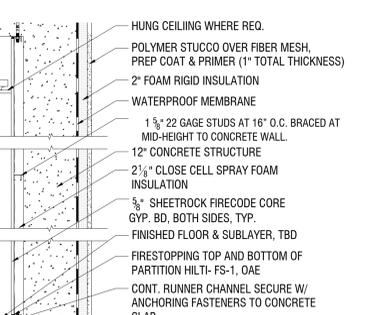
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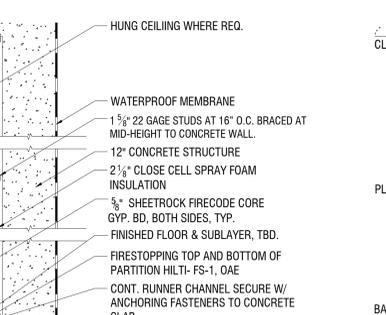
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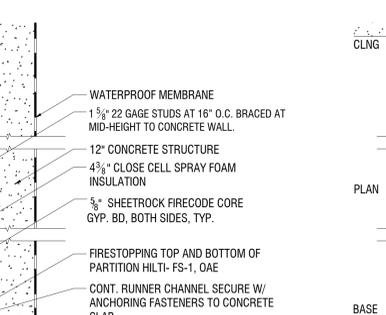
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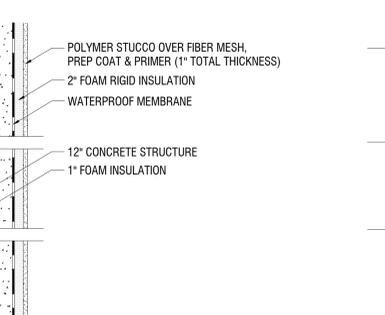
8 EXTERIOR WALL TYPE: 12\"/>



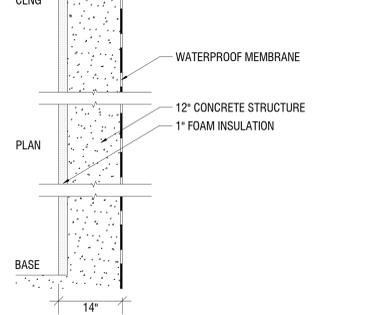
9 EXTERIOR WALL TYPE: 12\"/>



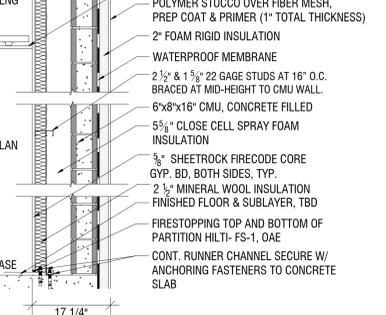
10 EXTERIOR WALL TYPE: 12\"/>



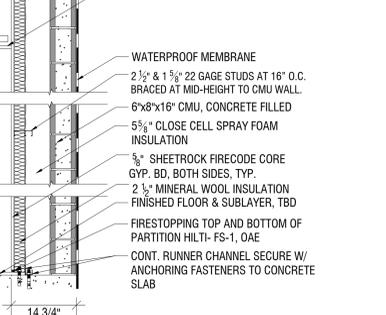
11 EXTERIOR WALL TYPE: ELEVATOR WALLS EXPOSED
SCALE: 3\"/>



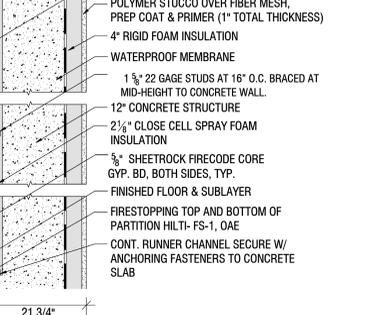
12 EXTERIOR WALL TYPE: ELEVATOR PARTY WALLS
SCALE: 3\"/>



13 EXTERIOR WALL TYPE: CMU EXPOSED
SCALE: 3\"/>



14 EXTERIOR WALL TYPE: CMU PARTY WALL
SCALE: 3\"/>

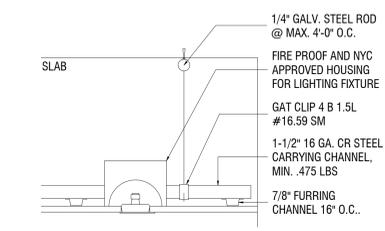


15 EXTERIOR WALL TYPE: 14\"/>

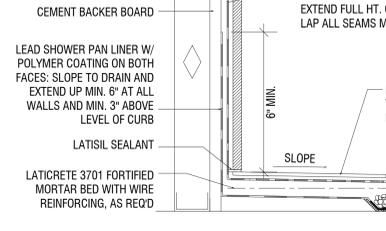
- PARTITION TYPE NOTES**
1. ALL PARTITION ASSEMBLIES AND ASSOCIATED FIRE RESISTANCE RATINGS ARE TAKEN FROM THE "USG CORPORATION BSA AND MEA APPROVALS FOR THE CITY OF NEW YORK"
 2. ALL GWB TO BE 5/8" U.O.N.
 3. ALL STUDS TO BE 16" O.C. 20GA U.O.N. SEE SPEC'S FOR CRITERIA.
 4. ALL RATED ASSEMBLIES SHALL BE SEALED FULLY ALONG THE TOP AND BASE JOINTS WITH A FIRE-STOPPING SEALANT AS PER SPEC. AND CONSISTENT W/ UL STANDARDS AND MEA & BSA NUMBERS.
 5. ALL NON-RATED ASSEMBLIES SHALL BE SEALED FULLY ALONG TOP AND BASE JOINTS WITH AN ACOUSTIC SEALANT AS PER SPEC.
 6. WHEN PARTITIONS OF DIFFERENT RATINGS MEET, THE ASSEMBLY WITH THE HIGHEST FIRE RESISTANCE RATING SHALL BE CONTINUOUS AND THE ASSEMBLY WITH THE LOWEST FIRE RESISTANCE RATING SHALL BE INTERRUPTED.
 7. WHEN FURRED PARTITION ASSEMBLIES ARE PART OF A RATED ASSEMBLY, THE FURRING SHALL MAINTAIN THE HIGHEST RATING OF THE ADJACENT PARTITION.

DOB FILE NO.

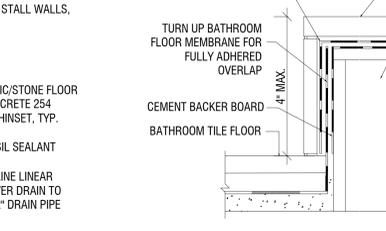
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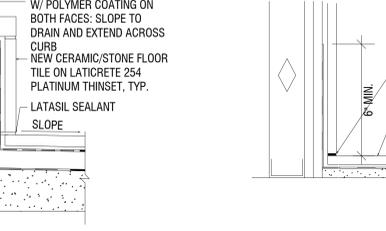
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SCALE: 1-1/2\"/>



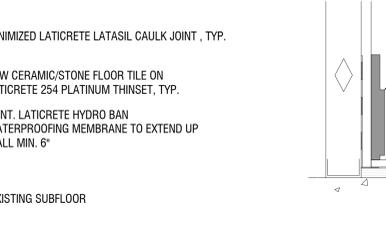
2 TYPICAL DETAIL: SHOWER FLOOR / WALL
SCALE: 3\"/>



3 TYPICAL DETAIL: SHOWER CURB
SCALE: 3\"/>



4 TYPICAL DETAIL: TILED FLOOR / WALL
SCALE: 3\"/>



5 TYPICAL DETAIL: LAUNDRY BASE
SCALE: 3\"/>

ALL HORIZONTAL SEPARATION BETWEEN APARTMENTS TO HAVE A MINIMUM STC-RATING OF 55.



REVISIONS

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DRAWING INFO

DESIGN DEVELOPMENT	
DRAWN BY:	SRT/BHQ/WWC
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SCALE:	
PROJ. NO.	CBA - 313007

PARTITION TYPES

A-500.00

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WINDOW SCHEDULE

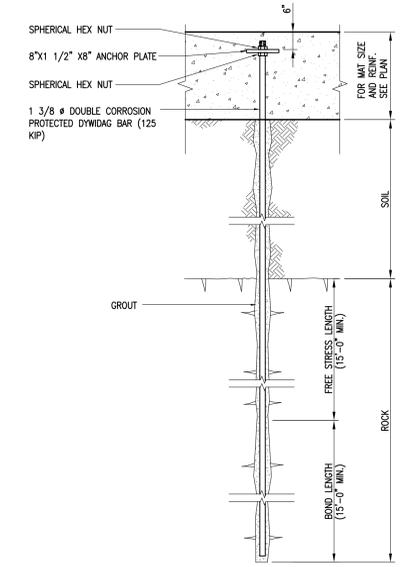
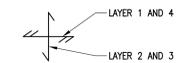
TAG	TYPE	WIDTH	HEIGHT	OPERATION	FRAME	U-FACTOR	SOLAR HEAT GAIN COEFFICIENT (SHGC)	GLAZING AREA
201	1	3'-10 3/4"	6'-10 1/8"	TILT & TURN	2" ALUMINUM	0.47	0.33	23 SF
202	1	2'-9 1/8"	4'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	11 SF
203	1	2'-9 1/8"	4'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	11 SF
301	1	3'-2 1/8"	5'-6 1/4"	TILT & TURN	2" ALUMINUM	0.47	0.33	15 SF
302	1	3'-9 1/2"	5'-6 1/4"	TILT & TURN	2" ALUMINUM	0.47	0.33	16 SF
303	1	2'-9 1/8"	5'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	13 SF
304	1	2'-9 1/8"	5'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	13 SF
401	1	3'-2 1/8"	5'-6 1/4"	TILT & TURN	2" ALUMINUM	0.47	0.33	15 SF
402	1	3'-9 1/2"	5'-6 1/4"	TILT & TURN	2" ALUMINUM	0.47	0.33	16 SF
403	1	2'-9 1/8"	3'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	8 SF
404	1	2'-9 1/8"	3'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	8 SF
501	1	3'-2 1/8"	5'-6 1/4"	TILT & TURN	2" ALUMINUM	0.47	0.33	15 SF
502	1	3'-9 1/2"	5'-6 1/4"	TILT & TURN	2" ALUMINUM	0.47	0.33	16 SF
503	2	3'-11 1/4"	14'-11"	FIXED	2" ALUMINUM	0.47	0.33	38 SF
601	1	3'-2 1/8"	5'-6 1/4"	TILT & TURN	2" ALUMINUM	0.47	0.33	15 SF
602	1	3'-9 1/2"	5'-6 1/4"	TILT & TURN	2" ALUMINUM	0.47	0.33	16 SF
603	1	2'-9 1/8"	3'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	8 SF
604	1	2'-9 1/8"	3'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	8 SF
605	2	3'-11 1/4"	9'-2 1/8"	FIXED	2" ALUMINUM	0.47	0.33	24 SF
701	2	3'-8"	6'-7 5/8"	FIXED	2" ALUMINUM	0.47	0.33	26 SF
702	1	2'-9 1/8"	3'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	8 SF
703	1	2'-9 1/8"	3'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	8 SF
801	1	3'-5 5/8"	7'-2 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	22 SF
802	1	3'-4 3/8"	5'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	17 SF
803	1	2'-9 1/8"	3'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	8 SF
804	1	2'-9 1/8"	3'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	8 SF
805	2	3'-11 1/4"	7'-10 1/8"	FIXED	2" ALUMINUM	0.47	0.33	21 SF
901	1	3'-5 5/8"	7'-2 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	22 SF
902	1	3'-4 3/8"	5'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	17 SF
903	1	2'-9 1/8"	3'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	8 SF
904	1	2'-9 1/8"	3'-9 1/2"	TILT & TURN	2" ALUMINUM	0.47	0.33	8 SF
905	2	3'-11 1/4"	8'-2 1/4"	FIXED	2" ALUMINUM	0.47	0.33	22 SF

DOOR SCHEDULE

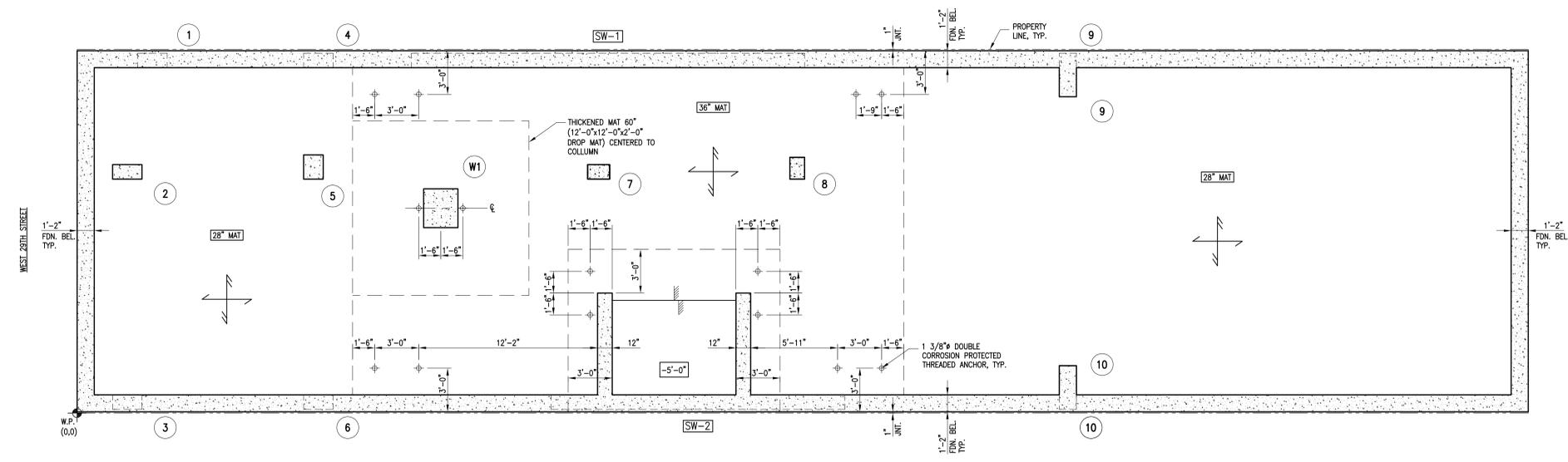
TAG	WIDTH	HEIGHT	OPERATION	FIRE RATING	HARDWARE	U-FACTOR	SOLAR HEAT GAIN COEFFICIENT (SHGC)	NOTES
001	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
002	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
003	2'-8"	8'-0"	SWING		PRIVACY			
004	2'-10"	8'-0"	SWING		PASSAGE			
005	3'-0"	8'-0"	SWING		DUMMY			
006	6'-0"	8'-0"	SWING		DUMMY			
007	6'-0"	8'-0"	SWING		PASSAGE			
008	3'-0"	8'-0"	SWING		PASSAGE			
009	3'-0"	8'-0"	SWING	90 MIN.	PASSAGE			SELF-CLOSING
010	3'-0"	8'-0"	SWING	90 MIN.	PASSAGE			SELF-CLOSING
011	3'-0"	6'-10"	SWING	90 MIN.	PASSAGE			SELF-CLOSING
012	3'-0"	8'-0"	SWING		PASSAGE			
013	3'-0"	8'-0"	SWING	90 MIN.	PASSAGE			SELF-CLOSING
014	3'-0"	8'-0"	SWING	90 MIN.	PASSAGE			SELF-CLOSING
015	3'-0"	8'-0"	SWING	90 MIN.	PASSAGE			SELF-CLOSING
101	4'-1 1/2"	9'-9 1/2"	SWING	90 MIN.	ENTRY			SELF-CLOSING
102	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
103	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
104	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
105	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
106	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
107	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
108	4'-0 3/8"	7'-0"	SWING		DUMMY			
109	2'-8"	8'-0"	SLIDE		PRIVACY			
110	3'-0"	9'-4 1/8"	SWING & STACK	90 MIN.	ENTRY	0.38	0.26	NAMA WALL SL70
111	2'-10"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
112	3'-0"	7'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
113	2'-0"	7'-0"	SWING		DUMMY			
201	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
202	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
203	3'-0"	8'-9 1/2"	SWING	90 MIN.	ENTRY			SELF-CLOSING
204	7'-10 3/4"	8'-0"	SWING		DUMMY			
205	3'-0"	8'-0"	SWING		PRIVACY			
206	3'-0"	8'-0"	SWING		PASSAGE			
207	5'-3 3/4"	8'-0"	SWING		DUMMY			
208	3'-0"	8'-0"	SWING		PASSAGE			
209	5'-4 1/8"	8'-0"	SWING		DUMMY			
210	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
211	3'-0"	8'-0"	SWING		PRIVACY			
212	4'-0"	7'-0"	SWING		DUMMY			
213	2'-4"	8'-0"	SWING		DUMMY			
214	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
215	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
301	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
302	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
303	7'-11"	8'-0"	SWING		DUMMY			
304	2'-1 1/4"	7'-0"	SWING		DUMMY			
305	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
306	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
307	2'-8"	8'-0"	SLIDE		PRIVACY			
308	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
309	2'-10"	8'-0"	SWING		PASSAGE			
310	3'-0"	8'-0"	SLIDE		DUMMY			
311	3'-0"	8'-0"	SLIDE		PRIVACY			
312	2'-10"	8'-0"	SWING		PASSAGE			
313	3'-0"	7'-0"	SWING		PRIVACY			
314	5'-7 3/4"	8'-0"	SWING		DUMMY			
315	5'-9 3/4"	8'-0"	SLIDE	90 MIN.	ENTRY			
316	4'-0 5/8"	7'-0"	SWING		DUMMY			
401	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
402	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
403	7'-10 3/4"	8'-0"	SWING		DUMMY			
404	2'-1 1/4"	7'-0"	SWING		DUMMY			
405	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
406	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
407	2'-8"	8'-0"	SLIDE		PRIVACY			
408	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
409	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
410	2'-10"	8'-0"	SWING		PASSAGE			
411	3'-0"	8'-0"	SLIDE		DUMMY			
412	3'-0"	8'-0"	SLIDE		PRIVACY			
413	2'-10"	8'-0"	SWING		PASSAGE			
414	3'-0"	7'-0"	SWING		PRIVACY			
415	5'-7 3/4"	8'-0"	SWING		DUMMY			
416	4'-0 5/8"	7'-0"	SWING		DUMMY			
501	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
502	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
503	7'-11"	8'-0"	SWING		DUMMY			
504	2'-1 1/4"	7'-0"	SWING		DUMMY			
505	2'-11 7/8"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
506	2'-11 7/8"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
507	2'-8"	8'-0"	SLIDE		PRIVACY			
508	3'-0"	9'-4 1/8"	SWING & STACK	90 MIN.	ENTRY	0.38	0.26	NAMA WALL SL70
509	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
510	2'-10"	8'-0"	SWING		PASSAGE			
511	3'-0"	8'-0"	SLIDE		DUMMY			
512	3'-0"	8'-0"	SLIDE		PRIVACY			
513	2'-10"	8'-0"	SWING		PASSAGE			
514	3'-0"	7'-0"	SWING		PRIVACY			
515	5'-7 3/4"	8'-0"	SWING		DUMMY			
516	4'-0 5/8"	7'-0"	SWING		DUMMY			
601	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
602	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
603	2'-8"	8'-0"	SLIDE		PRIVACY			
604	6'-2 7/8"	8'-0"	SWING		DUMMY			
605	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
606	3'-0"	8'-0"	SLIDE		PRIVACY			
607	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
608	3'-0"	8'-0"	SWING		PASSAGE			
609	3'-0"	8'-0"	SWING		PRIVACY			
610	6'-3"	8'-0"	SWING		DUMMY			
611	3'-0"	8'-0"	SWING		DUMMY			SELF-CLOSING
612	7'-0 7/8"	8'-0"	SWING		DUMMY			
613	3'-0"	8'-0"	SWING		ENTRY			SELF-CLOSING
614	4'-6 7/8"	8'-0"	SWING		DUMMY			
615	2'-2 5/8"	7'-0"	SWING		DUMMY			
701	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
702	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
703	2'-8"	9'-10 3/4"	SWING	90 MIN.	ENTRY			
704	9'-8"	7'-0"	SWING		DUMMY			
705	2'-10 5/8"	9'-10 3/4"	SWING	90 MIN.	ENTRY			SELF-CLOSING
706	3'-0 1/8"	7'-0"	SWING		DUMMY			
707	3'-0"	7'-0"	SWING		PRIVACY			
708	6'-8 1/2"	7'-9 1/2"		90 MIN.				
709	6'-8 1/2"	7'-9 1/2"		90 MIN.				
801	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
802	3'-0"	6'-10"	SWING	90 MIN.	ENTRY			SELF-CLOSING
803	2'-8"	8'-0"	SLIDE		PRIVACY			
804	6'-2 7/8"	8'-0"	SWING		DUMMY			
805	3'-5 1/2"	7'-0"	SWING		DUMMY			
806	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
807	3'-0"	8'-0"	SLIDE		PRIVACY			
808	3'-0"	8'-0"	SWING	90 MIN.	ENTRY			SELF-CLOSING
809	3'-0"	7'-0"	SWING		PRIVACY			
810	3'-0 1/8							

DRAWING NOTES:

- DATUM IS SET AT ELEVATION ±0'-0" AT FIRST FLOOR.
- TOP OF CONCRETE SLAB ELEVATION IS -12'-0" BELOW TOP OF FIRST FLOOR SLAB, UON ON PLAN THUS [X-X'].
- CONCOURSE SLAB SHALL BE 5" CONCRETE SLAB ON WELL COMPACTED POROUS FILL REINFORCED WITH WWR 5X5-6X6.
- TOP OF MAT FOUNDATION SHALL BE 2'-0" BELOW TOP OF SLAB, UON.
- MAT FOUNDATION SHALL BE REINFORCED WITH #9@12" EACH WAY TOP GRID, BOTTOM GRID SHALL BE AS FOLLOWS: 24" MAT - #5@12"; 28" MAT - #6@12"; 36" MAT - #7@12"
- FOR DEPTH OF MAT, SEE PLAN SHOWN THUS [XX' MAT].
- ALL WALLS SHALL BE REINFORCED WITH #7@12" O.C. VERTICAL AND #5@12" O.C. HORIZONTAL EACH FACE UNLESS OTHERWISE SHOWN ON PLAN, IN SECTIONS OR ON SHEAR WALL SCHEDULES.
- ⊕ DENOTES 1 3/8" DOUBLE CORROSION PROTECTED THREADED ANCHOR.
- SEE FO-200 SERIES DRAWINGS FOR TYPICAL FOUNDATION DETAILS.
- FOR WATER PROOFING OF FOUNDATIONS SEE ARCHITECTURAL DRAWING.



① TYPICAL ROCK ANCHOR DETAIL
SCALE: NTS



① FOUNDATION & CELLAR PLAN
SCALE: 1/4" = 1'-0"

DOB FILE NO.

DOB USE



REVISIONS

01	00/08/15/2013	ISSUED TO D.O.B.
02	01/09/18/2013	ISSUED TO D.O.B.
03		
04		
05		
06		
07		
08		
09		
10		
11		
12		

DRAWING INFO

DESIGN DEVELOPMENT	
DRAWN BY:	KM
CHECKED BY:	PR
DATE:	AUGUST 15, 2013
SCALE:	AS NOTED
PROJ. NO.	13010

FOUNDATION & CELLAR PLAN

FO-100.00

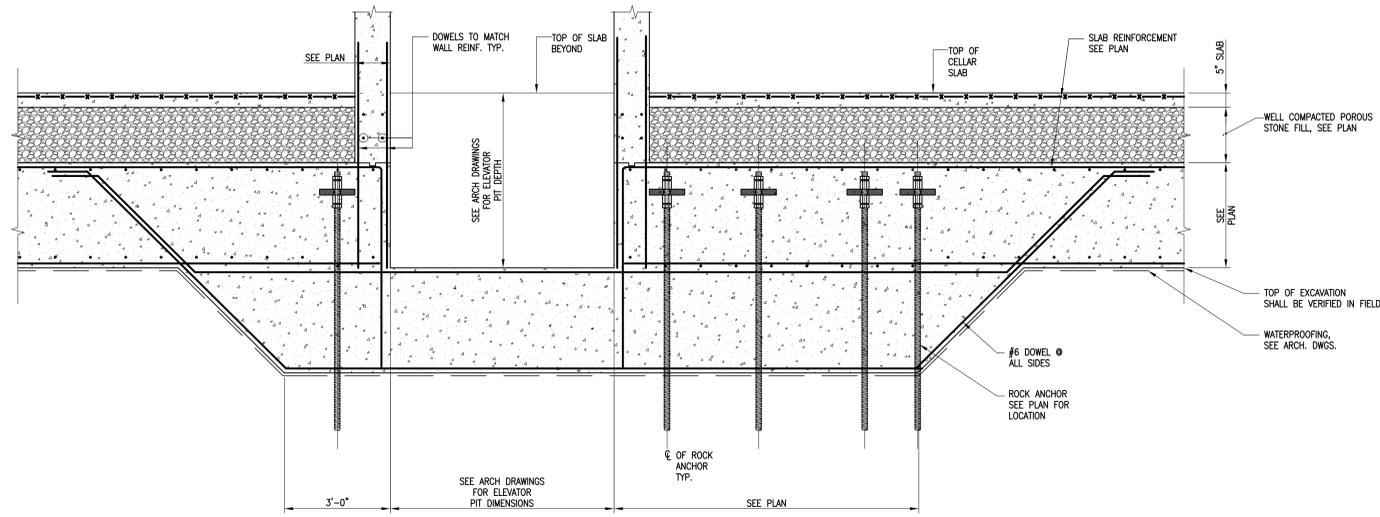
OWNER
W29 534 HIGHLINE OWNERS, LLC
520 West 27th Street, Suite 302
New York, NY 10001
Tel: (212) 804-8784

ARCHITECT OF RECORD
workshop/apd
Thomas J. Zoli, RA, NCARB
workshop.apd, dpc
39 West 38th Street, 7th Floor
New York, NY 10018
Tel: (212) 273-9712
Fax: (212) 273-9713

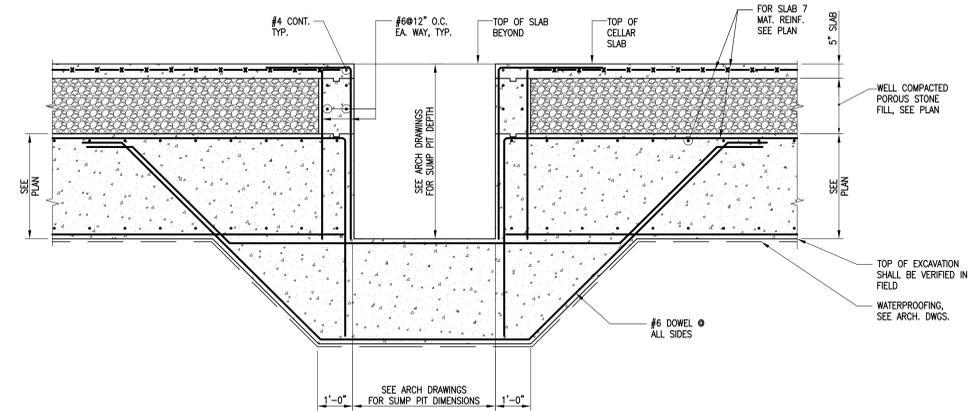
STRUCTURAL ENGINEER
Marin Consulting Engineers PLLC
68 Jay Street, Suite 201
Brooklyn, NY 11201
Tel: (917) 705-5334

MECHANICAL ENGINEER
ZLS Consulting Engineering
150 West 30th Street, 4th Floor
New York, NY 10001
Tel: (917) 267-8945

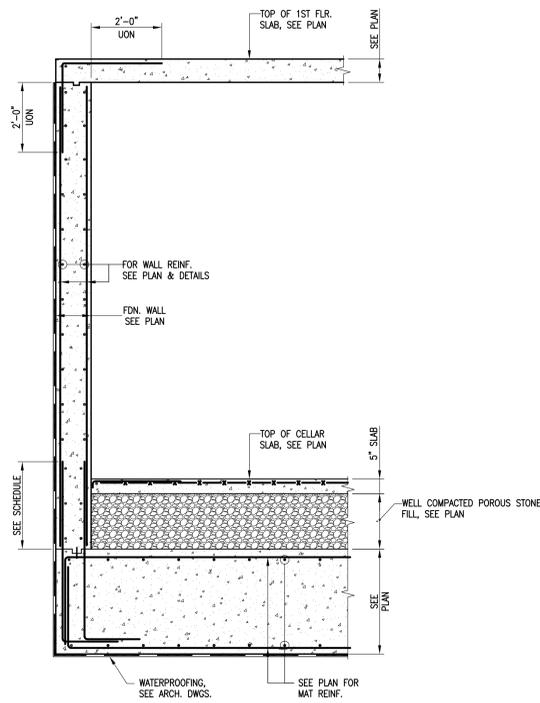
CONTRACTOR
Foundations Group Inc.
520 West 27th Street, Suite 302
New York, New York 10001
Tel: (212) 924-1724



① TYPICAL SECTION AT ELEVATOR PIT
SCALE: NTS



② TYPICAL SECTION AT SUMP PIT
SCALE: NTS



③ TYPICAL SECTION AT FOUNDATION WALL
SCALE: NTS

DOB FILE NO.

DOB USE



REVISIONS

01	00	08/15/2013	ISSUED TO D.O.B.
02	01	09/18/2013	ISSUED TO D.O.B.
03			
04			
05			
06			
07			
08			
09			
10			
11			
12			

DRAWING INFO

DESIGN DEVELOPMENT
DRAWN BY: KM
CHECKED BY: PR
DATE: AUGUST 15, 2013
SCALE: AS NOTED
PROJ. NO.

FOUNDATION DETAILS

FO-200.00

GENERAL NOTES

1. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS.
2. ALL STRUCTURAL WORK SHALL CONFORM TO THE PROJECT SPECIFICATIONS, ALL DRAWING NOTES, AND THE BUILDING CODE OF THE CITY OF NEW YORK.
3. THE LATEST EDITIONS OF THE FOLLOWING CODES AND STANDARDS AS MODIFIED BY THE BUILDING CODE SHALL APPLY:
 - A. THE CITY OF NEW YORK BUILDING CODE, 2008 EDITION
 - B. CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES – AISC.
 - C. BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE – ACI 318.
 - D. AISC—SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS – ASD
- IN CASE OF CONFLICT, THE MOST STRINGENT REQUIREMENTS SHALL APPLY.
4. TYPICAL DETAILS APPLY THROUGHOUT THE PROJECT, EVEN IF NOT SPECIFICALLY REFERENCED IN PLANS OR DETAILS.
5. FIELD MEASUREMENTS SHALL BE TAKEN AT THE SITE BY THE CONTRACTOR TO VERIFY AND SUPPLEMENT ALL DIMENSIONS AND ADDITIONS AFFECTED BY EXISTING WORK OR NEW WORK THAT HAS ALREADY BEEN INSTALLED. ANY DISCREPANCIES FROM THE INFORMATION SHOWN ON PLANS SHALL BE REPORTED TO AND COORDINATED WITH THE ARCHITECT.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL ROOF AND FLOOR PENETRATIONS, PATCHING, REPAIRING AND FLASHING AS REQUIRED.
7. REFER TO ARCHITECTURAL DRAWINGS FOR PRIMARY SETTING OUT. ALL STRUCTURAL WORK SHALL BE COORDINATED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, ETC REQUIREMENTS. DISCREPANCIES AND/OR CONFLICTS SHALL BE REPORTED TO THE ARCHITECT IMMEDIATELY.
8. THE CONTRACTOR SHALL COORDINATE WITH ALL RELATED TRADES FOR DETAILING, FABRICATION AND ERECTION, PRIOR TO SUBMITTING SHOP DRAWINGS FOR APPROVAL.
9. SUPPORT DETAILS SHOWN IN STRUCTURAL DRAWINGS FOR ELEVATOR, ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING EQUIPMENT ARE INDICATIVE IN NATURE. CONTRACTOR SHALL COORDINATE FINAL SUPPORT DETAILS WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT SUPPLIED AND SHALL PROVIDE ANY ADDITIONAL FRAMING REQUIRED.
10. OPENINGS SHALL NOT BE MADE IN ANY STRUCTURAL MEMBER UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.
11. BEFORE COMMENCEMENT OF ANY WORK AND/OR FABRICATION, THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR HIS APPROVAL CONCRETE MIX DESIGNS FOR EACH TYPE OF CONCRETE TO BE USED, MILL REPORTS FOR STEEL AND SHOP DRAWINGS FOR ALL TRADES.
12. THE CONTRACTOR SHALL ADEQUATELY BRACE, SHORE, AND SUPPORT THE STRUCTURE DURING THE ENTIRE CONSTRUCTION PERIOD.
13. THE DESIGN, CONSTRUCTION, INSPECTION AND MAINTENANCE OF TEMPORARY STRUCTURES OR PROCEDURES INCLUDING BUT NOT LIMITED TO SUPPORT FOR AND STABILITY OF CRANES OR HOIST OR LIFTS OR OTHER SIMILAR EQUIPMENT, TEMPORARY GUYING OR BRACING, SCAFFOLDING FORM WORK OR SHORING, Dewatering, SHEETING OR UNDERPINNING, CONSTRUCTION STORAGE OR STAGING AREAS, SKEWALK BRIDGES OR CONSTRUCTION FENCES; TEMPORARY ENCLOSURES AT OPENINGS, AT THE BUILDINGS PERIMETER, OR ELSEWHERE, ETC. ARE SOLELY THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND/OR CONTRACTORS AND/OR CONSULTANTS RETAINED BY THE GENERAL CONTRACTOR.
14. CONTROL OVER OR CHARGE OF RESPONSIBILITY FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK OF THE PROJECT ARE SOLELY THE GENERAL CONTRACTORS RESPONSIBILITY.

FOUNDATION NOTES:

1. MAT FOUNDATIONS AND FOOTINGS SHALL BEAR ON UNDISTURBED SOIL HAVING A SAFE BEARING CAPACITY OF 3 TONS PER SQUARE FOOT.
2. FOR ROCK ANCHORS SEE GEOTECHNICAL SPECIFICATIONS.
3. ELEVATIONS OF THE BOTTOM OF THE FOOTINGS ARE INDICATED IN THE FOUNDATION PLAN, BUT ARE SUBJECT TO REVISION WHEN TRUE CONDITIONS ARE REVEALED BY THE EXCAVATIONS.
4. THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER AND/OR THE FOUNDATION CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION WORK INCLUDING BUT NOT LIMITED TO THE DESIGN, INSTALLATION AND MAINTENANCE OF SHEETING AND SHORING, PROTECTION OF SLOPES, UNDERPINNING AND Dewatering.
5. THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER AND/OR THE FOUNDATION CONTRACTOR SHALL RETAIN A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW YORK TO DESIGN ALL SHEETING AND SHORING, UNDERPINNING AND Dewatering SYSTEMS.
6. THE SLOPE BETWEEN ADJACENT FOOTING BOTTOMS SHALL NOT EXCEED 1 VERTICAL TO 2 HORIZONTAL.
7. FOUNDATION WALLS AND/OR GRADE BEAMS SHALL BE CAST IN ALTERNATE PANELS NOT TO EXCEED 60 FEET IN LENGTH. CONSTRUCTION JOINTS SHALL BE PLACED AT POINT OF MINIMUM SHEAR, GENERALLY AT MIDSPAN. ALLOW 7 DAYS MINIMUM BETWEEN ADJACENT POURS.
8. HORIZONTAL JOINTS IN WALLS OR GRADE BEAMS WILL BE PERMITTED ONLY IF AND AS SHOWN.
9. MAKE NO EXCAVATION TO THE FULL DEPTH INDICATED WHEN FREEZING TEMPERATURES MAY BE EXPECTED UNLESS THE FOOTINGS OR SLABS CAN BE PLACED IMMEDIATELY AFTER THE EXCAVATION HAS BEEN COMPLETED. PROTECT THE BOTTOM OF EXCAVATION FROM FROST BY PLACING OF CONCRETE IS DELAYED. SHOULD PROTECTION FAIL, REMOVE FROZEN MATERIALS AND REPLACE WITH CONCRETE OR GRAVEL FILL.
10. WALLS SHALL BE TEMPORARILY BRACED AGAINST EARTH PRESSURE AND OTHER FORCES UNTIL SLABS, BEAMS AND OTHER MEMBERS DESIGNED TO BRACE THE FINISHED STRUCTURE HAVE BEEN IN PLACE AND HAVE ATTAINED REQUIRED CONCRETE ULTIMATE STRENGTH.

CONCRETE NOTES

1. CONCRETE TYPES:

FOUNDATIONS	– 5,000 PSI (NWC)
BUTTRESS AND FOUNDATION WALL	– 5,000 PSI (NWC)
PIERS	– 5,000 PSI (NWC)
SLAB ON GRADE	– 4,000 PSI (NWC)
SLABS AND BEAMS	– 5,000 PSI (NWC)
SHEAR WALLS	– 5,000 PSI (NWC)
COLUMNS	– SEE COLUMN SCHEDULE
2. ALL GROUT SHALL BE NON-SHRINK WITH A MINIMUM COMPRESSIVE STRENGTH OF 8000 PSI.
3. BAR REINF. SHALL CONFORM TO ASTM A-615, GRADE 60.
4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185 WITH A MINIMUM ULTIMATE TENSILE STRENGTH OF 70,000 PSI.
5. CONCRETE SHALL BE CAST MONOLITHICALLY EXCEPT WHERE OTHERWISE SHOWN.
6. REINFORCEMENT MARKED "CONT." (CONTINUOUS) SHALL BE LAPPED THE DISTANCE "S" AT SPLICES AND CORNERS AND SHALL BE HOOKED OR EXTENDED A DISTANCE "E" AT NON-CONTINUOUS ENDS. HORIZONTAL WALL REINFORCING SHALL BE CONTINUOUS.
7. REINFORCEMENT SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS UNLESS OTHERWISE SHOWN ON DRAWINGS. THE CONTRACTOR SHALL LOCATE CONSTRUCTION JOINTS AT POINTS OF MINIMUM SHEAR.
8. REINFORCING BARS IN CONCRETE ON METAL DECK SHALL HAVE 3/4" CONCRETE PROTECTION.
9. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND LOCATIONS OF ALL OPENINGS, PIPE SLEEVES, ANCHOR BOLTS, ETC. AS REQUIRED BY TRADES BEFORE CONCRETE IS POURED.
10. THE CONTRACTOR SHALL PROVIDE SLAB BOLSTERS, HIGH CHAIRS AND ALL ACCESSORIES REQUIRED FOR PROPER PLACEMENT OF WIRE MESH AND REINFORCING AS PER A.C.I. & C.R.C.I. STANDARDS. LOCATION OF CONSTRUCTION JOINTS IF REQUIRED SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT.
11. CONCRETE MAY BE CONVEYED BY PUMPING. PUMPING METHODS SHALL COMPLY WITH REQUIREMENTS ESTABLISHED BY A.C.I. COMMITTEE 304, PLACING CONCRETE PUMPING METHODS.
12. PRIOR TO PLACING CONCRETE, ALL REINFORCING SHALL BE FREE OF LOOSE FLAKY RUST, MUD, OIL OR OTHER COATING THAT WILL DESTROY, REDUCE OR HAMPER FULL BOND CAPACITY.
13. THE CONTRACTOR SHALL INSTALL IN THE FORMS ALL SLOTS, SLEEVES, INSERTS, ANCHOR BOLTS, HANGERS, MASONRY ANCHORS, ETC. REQUIRED BY THE OTHER TRADES AND COORDINATE WITH THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER FOR COMPLETENESS AND LOCATION BEFORE CONCRETE IS CAST.
14. IF PIPES OR CONDUITS ARE TO BE PLACED IN SLABS, THE GENERAL CONTRACTOR OR CONSTRUCTION MANAGER, PRIOR TO THE START OF WORK, SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL DRAWINGS SHOWING THE SIZE, LOCATION (VERTICALLY AND HORIZONTALLY) AND SPACING OF PIPES AND/OR CONDUITS.
15. GENERALLY, PIPES OR CONDUITS PLACED IN SLABS SHOULD NOT BE LARGER THAN 1/3 THE SLAB THICKNESS AND SHOULD NOT BE SPACED CLOSER THAN 3 DIAMETERS ON CENTER AND SHOULD NOT BE PLACED IN INTERSECTION OF COLUMN STRIPS FOR FLAT SLABS.
16. ALUMINUM CONDUITS OR PIPES SHALL NOT BE PLACED IN CONCRETE.
17. ALL PLUMBING SLOTS AROUND SLEEVES SHALL BE FILLED WITH CONCRETE THE SAME DEPTH AS FLOOR SLAB AFTER PUMPING IS INSTALLED.
18. CHAMFER EDGES OF EXPOSED CONCRETE COLUMNS AND BEAMS, PROVIDE REGLETS AND DRIPS AS SHOWN ON THE ARCHITECTURAL DRAWINGS AND IN SPECIFICATIONS
19. ALL BEAMS AND SLABS SHALL BE CAST MONOLITHICALLY.
20. CURING OF CONCRETE SHALL START AS SOON AS THE FINISH WILL NOT BE MARRED THEREBY. IT SHALL NOT BE PERMISSIBLE TO DELAY THE CURING UNTIL THE MORNING AFTER THE CONCRETE IS CAST.

STRUCTURAL STEEL NOTES

1. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING UNLESS OTHERWISE NOTED:
 - A. WIDE FLANGE, S, HP, CHANNEL AND TEE SHAPES – ASTM A992, Fy=50Ksi
 - B. ANGLES, PLATES AND BARS – ASTM A36
 - C. TUBES AND PIPES – ASTM A53 GRADE B
2. STEEL SHALL BE NOTED ON PLANS AND DETAILS, AS BELOW:

TOP OF STEEL ELEVATIONS IS AT UNDERSIDE OF DECK UNLESS NOTED OTHERWISE.

3. ALL CONNECTION DESIGN FORCES INDICATED IN THE DRAWINGS ARE UNFACTORED.
4. MOMENT CONNECTIONS WHERE INDICATED ON PLAN ARE REQUIRED TO DEVELOP THE FULL MOMENT AND SHEAR CAPACITY OF THE MEMBER.
5. EACH SHEAR CONNECTION FOR THE NON-COMPOSITE BEAMS SHALL BE CAPABLE OF SUPPORTING A REACTION EQUAL TO ¾ (0.625) TIMES THE UNIFORM LOAD CAPACITY OF THE BEAM, UNLESS NOTED.
6. BOLTED CONNECTIONS: BOLTS ARE TO BE A325 OR A490 SLIP CRITICAL, CLASS A, FLOOR BEAM CONNECTIONS TO BEAM OR GIRDERS CAN BE BEARING TYPE CONNECTIONS. DIAMETER OF ALL BOLTS SHALL BE MINIMUM ¾" AND MAXIMUM 1 ¼". PROVIDE AT LEAST 2 BOLTS PER CONNECTIONS U.O.N..
7. COPED OR CUT ENDS OF MEMBERS SHALL BE REINFORCED WHERE REQUIRED TO SUSTAIN THE SPECIFIED REACTIONS.
8. SHOP CONNECTIONS SHALL BE WELDED.
9. FIELD CONNECTIONS SHALL BE BOLTED WITH ASTM A325 BOLTS UNLESS OTHERWISE NOTED. BOLTS SHALL BE 3/4" DIAMETER MINIMUM. CONNECTIONS SHALL BE SLIP CRITICAL CONNECTIONS UNLESS OTHERWISE NOTED.
10. WELDING SHALL BE PERFORMED BY QUALIFIED WELDERS IN ACCORDANCE WITH AWS SPECIFICATIONS LATEST EDITION AND THE BUILDING CODE.
11. WELDING ELECTRODES SHALL BE ASTM A232 E-70 SERIES.
12. FILET WELDS SHALL BE 1/4" MIN. UNLESS OTHERWISE SHOWN.
13. ANCHOR BOLTS SHALL BE F1554 GRADE 55 (Fy = 55 KSI) WITH SUPPLEMENTARY REQUIREMENT S1 FOR WELDABILITY UNLESS OTHERWISE NOTED.

14. PRIOR TO FABRICATION OF FRAMING, THE CONTRACTOR SHALL SUBMIT FABRICATION AND ERECTION DRAWINGS TO THE ARCHITECT FOR APPROVAL.

15. STEEL DETAILS SHALL BE IN ACCORDANCE WITH AISC STANDARDS LATEST EDITION.

STEEL DECK NOTES

1. STEEL DECK SHALL CONFORM TO ASTM A653 AND TO AISI "SPECIFICATION FOR THE DESIGN OF LIGHT GAUGE COLD FORMED STEEL STRUCTURAL MEMBERS".
2. METAL DECK SHALL BE PUDDLE WELDED TO THE STRUCTURAL STEEL EVERY 12" (MAXIMUM). PUDDLE WELDS SHALL BE NOT LESS THAN 3/4" DIAMETER. SIDE LAPS OR ADJOINING PANELS SHALL BE PUNCHED TOGETHER OR WELDED EVERY 1'-6" (MAXIMUM).
3. PROVIDE HANGER TABS AS REQUIRED FOR SUSPENSION OF CEILING SYSTEM. LOADS ON HANGERS SHALL BE DISTRIBUTED IN SUCH MANNER THAT THE TRIBUTARY LOADS FOR EACH HANGER SHALL NOT EXCEED 2 POUNDS PER SQUARE FOOT. DO NOT HANG MEP EQUIPMENT DIRECTLY FROM STEEL DECK.
4. INSIDE OR OUTSIDE CLOSURES, OTHER ACCESSORIES AND REQUIRED GAGE TO FOLLOW DECK MANUFACTURER RECOMMENDATIONS.

SPECIAL INSPECTION NOTES

1. OWNER WILL ENGAGE AND PAY FOR A SPECIAL INSPECTOR AND AN INDEPENDENT TESTING AGENCY TO PERFORM THE FOLLOWING SPECIAL AND TESTING AS SPECIFIED ON THE APPLICABLE SECTIONS OF THE NEW YORK CITY BUILDING CODE, CHAPTER 17, SECTION 1704. TECHNICAL REPORT STATEMENT OF RESPONSIBILITY TR-1 FORM SHALL BE FILED WITH THE DEPARTMENT OF BUILDINGS FOR APPROVAL OF SPECIAL INSPECTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE PRIOR NOTICE FOR COMPLETION OF SPECIAL INSPECTIONS.
 - A. STRUCTURAL STEEL WELDING (BC 1704.3.1)
 - B. STRUCTURAL STEEL ERECTION AND BOLTING (BC 1704.3.2, BC 1704.3.3)
 - C. CONCRETE – CAST-IN-PLACE (BC 1704.4)
 - D. STRUCTURAL SAFETY – STRUCTURAL STABILITY (BC 1704.19)
 - E. CONCRETE TEST CYLINDERS – TR2 (BC 1905.6)
 - F. CONCRETE DESIGN MIX – TR3 (BC 1905.3)

BIDDER'S WARRANTY

BY THE ACT OF SUBMITTING A BID FOR THE PROPOSED CONTRACT, THE BIDDER WARRANTS THAT:

1. THE BIDDER AND ALL SUBCONTRACTORS HE INTENDS TO USE HAVE CAREFULLY AND THOROUGHLY REVIEWED THE DRAWINGS, SPECIFICATIONS AND OTHER CONSTRUCTION CONTRACT DOCUMENTS AND HAVE FOUND THEM COMPLETE AND FREE FROM AMBIGUITIES AND SUFFICIENT FOR THE CONTRACTOR TO BID, FABRICATE, AND INSTALL THE WORK ON TIME, FURTHER THAT,
2. THE BIDDER AND ALL WORKMEN, EMPLOYEES AND SUBCONTRACTORS HE INTENDS TO USE ARE SKILLED AND EXPERIENCED IN THE TYPE OF CONSTRUCTION REPRESENTED BY THE CONSTRUCTION CONTRACT DOCUMENTS BID UPON; FURTHER THAT,
3. NEITHER THE BIDDER NOR ANY OF HIS EMPLOYEES, AGENTS INTENDED SUPPLIERS OR SUBCONTRACTORS HAVE RELIED UPON ANY VERBAL REPRESENTATIONS, ALLEGEDLY AUTHORIZED OR UNAUTHORIZED FROM THE OWNER, HIS EMPLOYEES OR AGENTS INCLUDING ARCHITECTS, ENGINEERS OR CONSULTANTS, IN ASSEMBLING THE BID FIGURES AND FURTHER THAT, THE BID FIGURE IS BASED SOLELY UPON THE CONSTRUCTION CONTRACT DOCUMENTS AND PROPERLY ISSUED WRITTEN ADDENDA AND NOT UPON ANY OTHER WRITTEN REPRESENTATION.
4. THE BIDDER ALSO WARRANTS THAT HE HAS CAREFULLY EXAMINED THE SITE OF THE WORK AND THAT FROM HIS OWN INVESTIGATIONS HE HAS SATISFIED HIMSELF AS TO THE NATURE AND LOCATION OF THE WORK AND THE CHARACTER, QUALITY, QUANTITIES OF MATERIALS AND DIFFICULTIES TO BE ENCOUNTERED, THE KIND AND EXTENT OF EQUIPMENT AND OTHER FACILITIES NEEDED FOR THE PERFORMANCE OF THE WORK, THE GENERAL AND LOCAL CONDITIONS, AND OTHER ITEMS WHICH MAY, IN ANY WAY, AFFECT THE WORK OR ITS PERFORMANCE.

SHOP DRAWING REVIEW

THE ENGINEER WILL REVIEW CONTRACTOR'S SHOP DRAWINGS AND RELATED SUBMITTALS WITH RESPECT TO CONFORMANCE WITH THE STRUCTURAL DRAWINGS AND THE SPECIFICATIONS. IF SHOP DRAWINGS SHALL BE SUBMITTED IN DUPLICATE. EXCESS DRAWINGS WILL BE DISCARDED. IF REQUIRED BY SPECIFICATIONS, SHOP DRAWINGS SHALL BEAR THE SEAL AND SIGNATURE OF A LICENSED ENGINEER WHO IS LICENSED IN THE STATE WHERE THE PROJECT IS TO BE CONSTRUCTED. BEFORE SUBMITTING A SHOP DRAWING OR ANY RELATED MATERIAL TO THE ENGINEER, CONTRACTOR SHALL REVIEW EACH SUCH SUBMISSION FOR CONFORMANCE WITH THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND OPERATIONS OF CONSTRUCTION, AND SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, INCLUDING REFLECTION OF EXISTING FIELD CONDITIONS, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF CONTRACTOR. APPROVE EACH SUCH SUBMISSION BEFORE SUBMITTING IT, AND SO STAMP EACH SUCH SUBMISSION BEFORE SUBMITTING IT. THE ENGINEER WILL ASSUME THAT NO SHOP DRAWING OR RELATED SUBMITTAL COMPRISES A VARIATION FROM THE CONTRACT UNLESS CONTRACTOR ADVISES THE ENGINEER OTHERWISE VIA A WRITTEN INSTRUMENT WHICH IS ACKNOWLEDGED BY THE ENGINEER IN WRITING. IN THE EVENT THAT THE ENGINEER WILL REQUIRE MORE THAN TEN (10) WORKING DAYS TO PERFORM REVIEW, THE ENGINEER WILL SO NOTIFY THE CONTRACTOR. THE ENGINEER WILL RETURN WITHOUT REVIEW MATERIAL WHICH HAS NOT BEEN APPROVED BY GENERAL CONTRACTOR OR CONSTRUCTION MANAGER.

DESIGN LOAD PARAMETERS

1. SNOW LOADS

GROUND SNOW LOAD (PSF)	25
IMPORTANCE FACTOR	1.0
SNOW EXPOSURE FACTOR	Ce=1.0
THERMAL FACTOR	Ct=1.0
FLAT ROOF SNOW LOAD (PSF)	18
2. WIND LOADS

BASIC WIND SPEED	98 MPH
MEAN ROOF HEIGHT	135 FT
BUILDING CATEGORY	II
IMPORTANCE FACTOR	1.0
EXPOSURE	A
ANALYSIS PROCEDURE DESCRIPTION	SIMPLIFIED DESIGN PROCEDURE II
DESIGN PRESSURE – 0 TO 100 FT	P=20 PSF
– ABOVE 100 FT	P=25 PSF

3. SEISMIC LOAD DESIGN CRITERIA

SEISMIC IMPORTANCE FACTOR (Is)	1.0
SEISMIC USE GROUP	I
SHORT PERIOD MAPPED SPECTRAL RESPONSE ACCELERATION (Ss)	0.365 %g
1 SECOND PERIOD MAPPED SPECTRAL ACCELERATION (S1)	0.071 %g
SITE CLASS	D
SHORT PERIOD SPECTRAL RESPONSE COEFFICIENT (Sds)	0.367 %g
1 SECOND SPECTRAL RESPONSE COEFFICIENT (Sd1)	0.114 %g
SEISMIC DESIGN CATEGORY	C
LATERAL SYSTEM DESCRIPTION	DUAL SYSTEM OF ORCSW & MF
RESPONSE MODIFICATION FACTOR (R)	5.5
SEISMIC RESPONSE COEFFICIENT (Ca)	0.019
DESIGN BASE SHEAR	89 KIPS
ANALYSIS PROCEDURE DESCRIPTION	EQUIVALENT LATERAL FORCE

LIVE LOADS

OCCUPANCY	LIVE LOAD (PSF)
MECHANICAL	75
STAIRS	100
STORAGE AND UTILITIES	100
LOBBY	100
APARTMENTS	40
SWIMMING POOL	300
BALCONY	60
TERRACE	60
RAOOF	30

DRAWING LIST

F0-100.00	CELLAR FOUNDATION PLAN
F0-200.00	FOUNDATION DETAILS
S-001.00	GENERAL NOTES
S-101.00	1ST FLOOR PLAN
S-102.00	2ND FLOOR PLAN
S-103.00	3RD FLOOR PLAN
S-104.00	4TH FLOOR PLAN
S-105.00	5TH FLOOR PLAN
S-106.00	6TH FLOOR PLAN
S-107.00	7TH FLOOR PLAN
S-108.00	8TH FLOOR PLAN
S-109.00	9TH FLOOR PLAN
S-110.00	ROOF & BULKHEAD PLAN
S-300.00	COLUMN SCHEDULE
S-301.00	SHEAR WALL SCHEDULE
S-400.00	TYPICAL CONCRETE DETAILS
S-401.00	TYPICAL CONCRETE DETAILS
S-402.00	TYPICAL CONCRETE DETAILS
S-403.00	TYPICAL CONCRETE DETAILS
S-404.00	CONCRETE STAIR DETAILS

ABBREVIATIONS

BM	BEAM
BTM	BOTTOM (REINFORCEMENT)
BS	BOTH SIDES
CJ	CONSTRUCTION JOINT
CL	CENTER LINE
COL	COLUMN
CONT	CONTINUOUS
CP	COMPLETE PENETRATION WELD
EF	EACH FACE
E	ELEVATION (TO TOP OF CONCRETE FLOOR SLAB)
E.O.S.	EDGE OF SLAB
FFL	FINISHED FLOOR LEVEL
GA	GAUGE (METAL)
GB	GRADE BEAM
HP	HIGH POINT
I.F.	INSIDE FACE
LAP	FULL TENSION CAPACITY LAP SPLICE
LP	LOW POINT
LLBB	LONG LEGS BACK-TO-BACK
L.P.	LIGHTNING PROTECTION
LWG	LIGHTWEIGHT (CONCRETE)
MC	MOMENT CONNECTION
	(SHOWN ► ON DRAWINGS)
MIN	MINIMUM
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE
OC	ON CENTER
O.F.	OUTSIDE FACE
PL	PLATE
SAD	SEE ARCHITECT'S DETAILS
SB	SLIP BEARING
SC	SLIP CRITICAL BOLT/CONNECTION
SD	STORM DRAIN
S.O.G.	SLAB ON GRADE
TBC	TO BE CONFIRMED
TOC	TOP OF CONCRETE
TOP	TOP OF FOUNDATION
TOS	TOP OF STEEL
TYP	TYPICAL
VF	VERIFY IN FIELD
U.O.N.	UNLESS OTHERWISE NOTED
WF	WORKPOINT
WWF	WELDED WIRE FABRIC



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REVISIONS

01	00	08/15/2013	ISSUED TO D.O.B.
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DRAWING INFO

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CHECKED BY:	PR
DATE:	AUGUST 15, 2013
SCALE:	AS NOTED
PROJ. NO.	13010

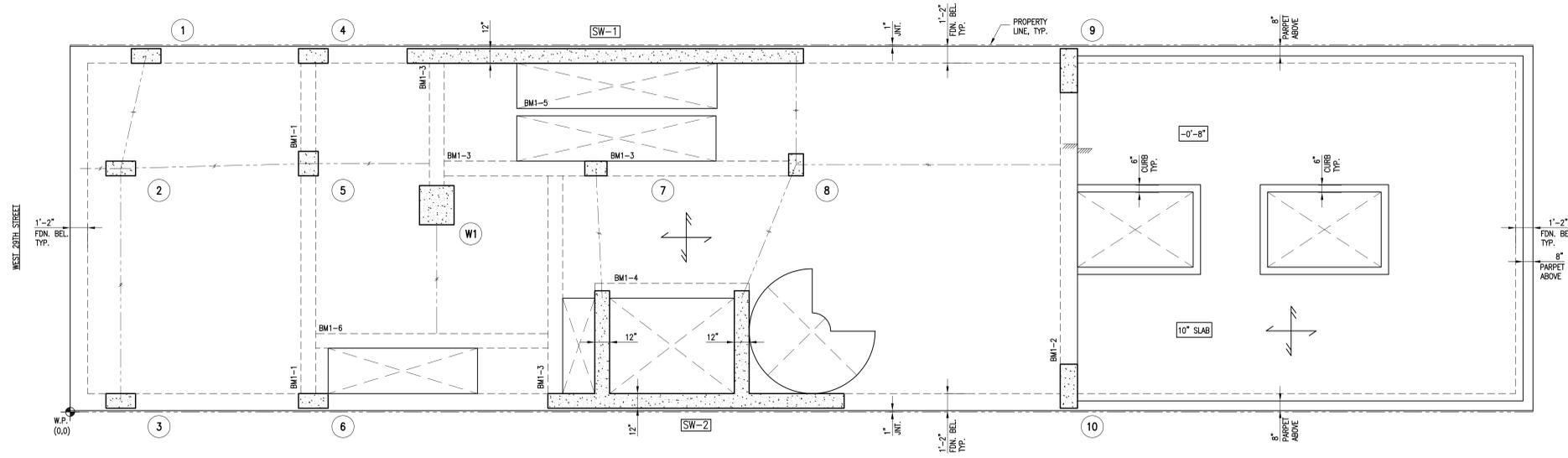
GENERAL NOTES

S-001.00

GRADE BEAM SCHEDULE				
MARK	SIZE (W x D)	REINFORCEMENT # TO # OF SUPPORTS	STIRRUPS	REMARKS
BM1-1	12"x18"	3-#8T 3-#8B	2L-#4@6"	-
BM1-2	14"x24"	4-#8T 4-#8B	2L-#4@6"	-
BM1-3	12"x18"	2-#6T 2-#8B	2L-#4@6"	-
BM1-4	12"x12"	2-#7T 2-#7B	2L-#3@3"	-
BM1-5	6"x8"	2-#5T 2-#6B	2L-#3@3"	-
BM1-6	12"x18"	2-#6T 2-#8B	2L-#4@6"	-

DRAWING NOTES:

- TOP OF CONCRETE SLAB ELEVATION IS ±0'-0", UON ON PLAN THUS [EX'-X"].
- FLOOR CONSTRUCTION SHALL BE A 8" FLAT PLATE WITH A CONTINUOUS TOP & BOTTOM GRID OF #4@12" O.C. EACH WAY, UON ON PLAN.
 - LAYERS 1 AND 4 DENOTES STRESS LINE
 - LAYERS 2 AND 3 PLACEMENT WORK POINT
- ADD 3-#6 BOTTOM BARS (ADDITIONAL REINFORCEMENT FOR THE TRANSFER OF LATERAL FORCES IN THE SLAB-COLUMN JOINT) DIRECTLY OVER THE COLUMN IN BOTH DIRECTION. BARS SHALL EXTEND ONE-QUARTER OF THE SPAN LENGTH IN EACH DIRECTION. BARS SHALL BE PLACED WITHIN THE CRITICAL SLAB WIDTH. CRITICAL SLAB WIDTH IS DEFINED AS "COLUMN DIMENSION PLUS 3 TIMES THE GROSS SLAB DEPTH".
- SEE S-400 SERIES DRAWINGS FOR TYPICAL CONCRETE DETAILS.



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

DOB FILE NO.

DOB USE



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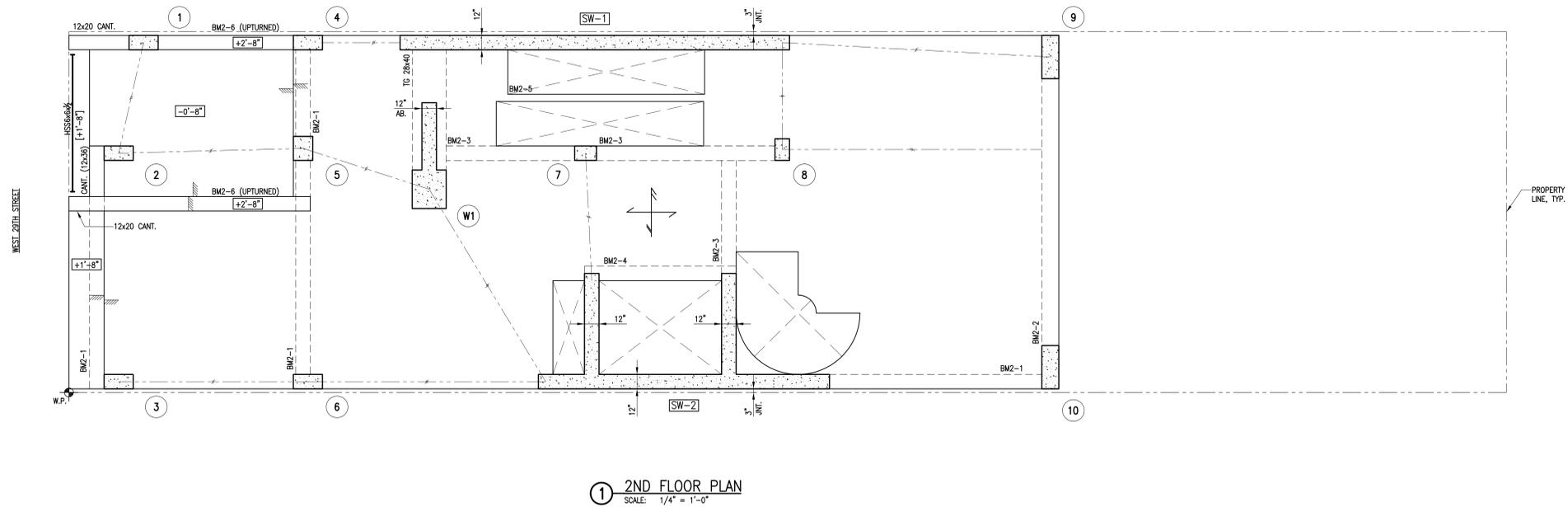
1ST FLOOR PLAN

S-101.00

GRADE BEAM SCHEDULE				
MARK	SIZE (W x D)	REINFORCEMENT TO & OF SUPPORTS	STIRRUPS	REMARKS
BM2-1	12"x18"	4-#8T 4-#8B	2L-#4@6"	-
BM2-2	14"x24"	4-#8T 4-#8B	2L-#4@6"	-
BM2-3	12"x18"	2-#6T 2-#8B	2L-#4@6"	-
BM2-4	12"x12"	2-#7T 2-#7B	2L-#3@3"	-
BM2-5	6"x8"	2-#5T 2-#6B	2L-#3@3"	-
BM2-6	12"x48"	4-#8T 4-#8B	2L-#4@6"	-

DRAWING NOTES:

- TOP OF CONCRETE SLAB ELEVATION IS 12'-0" ABOVE TOP OF FIRST FLOOR SLAB, UNON ON PLAN THUS [EX-X].
- FLOOR CONSTRUCTION SHALL BE A 8" FLAT PLATE WITH A CONTINUOUS TOP & BOTTOM GRID OF #4@12" O.C. EACH WAY, UNON ON PLAN.
 - LAYERS 1 AND 4
 - LAYERS 2 AND 3
 - DENOTES STRESS LINE
 - PLACEMENT WORK POINT
- ADD 3-#6 BOTTOM BARS (ADDITIONAL REINFORCEMENT FOR THE TRANSFER OF LATERAL FORCES IN THE SLAB-COLUMN JOINT) DIRECTLY OVER THE COLUMN IN BOTH DIRECTION. BARS SHALL EXTEND ONE-QUARTER OF THE SPAN LENGTH IN EACH DIRECTION. BARS SHALL BE PLACED WITHIN THE CRITICAL SLAB WIDTH. CRITICAL SLAB WIDTH IS DEFINED AS "COLUMN DIMENSION PLUS 3 TIMES THE GROSS SLAB DEPTH".
- SEE S-400 SERIES DRAWINGS FOR TYPICAL CONCRETE DETAILS.



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DATE:	AUGUST 15, 2013
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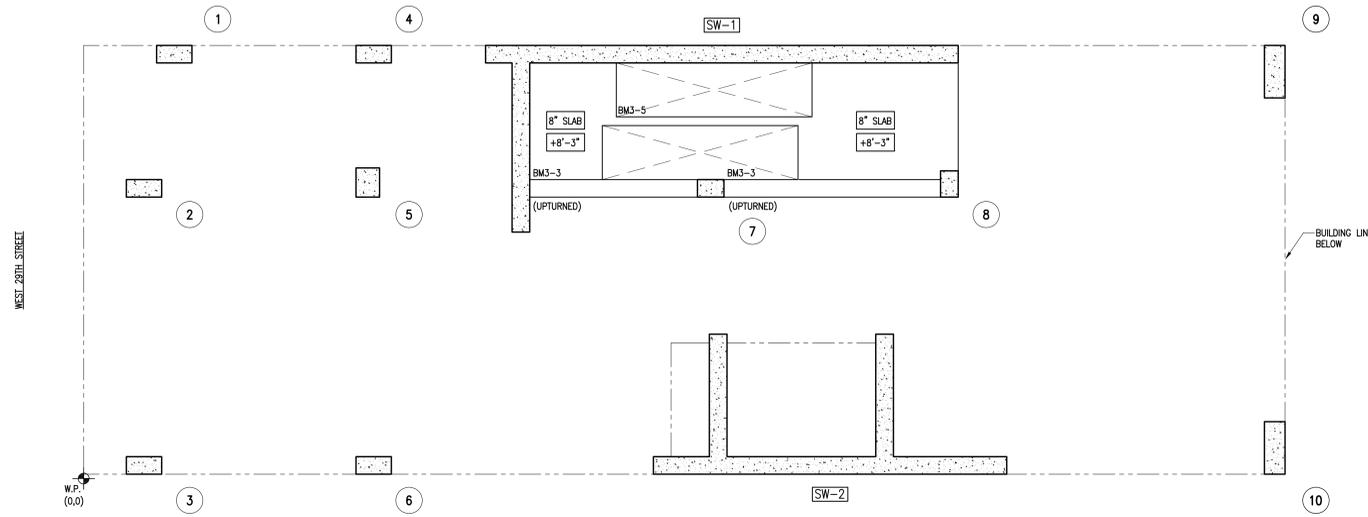
2ND FLOOR PLAN

S-102.00

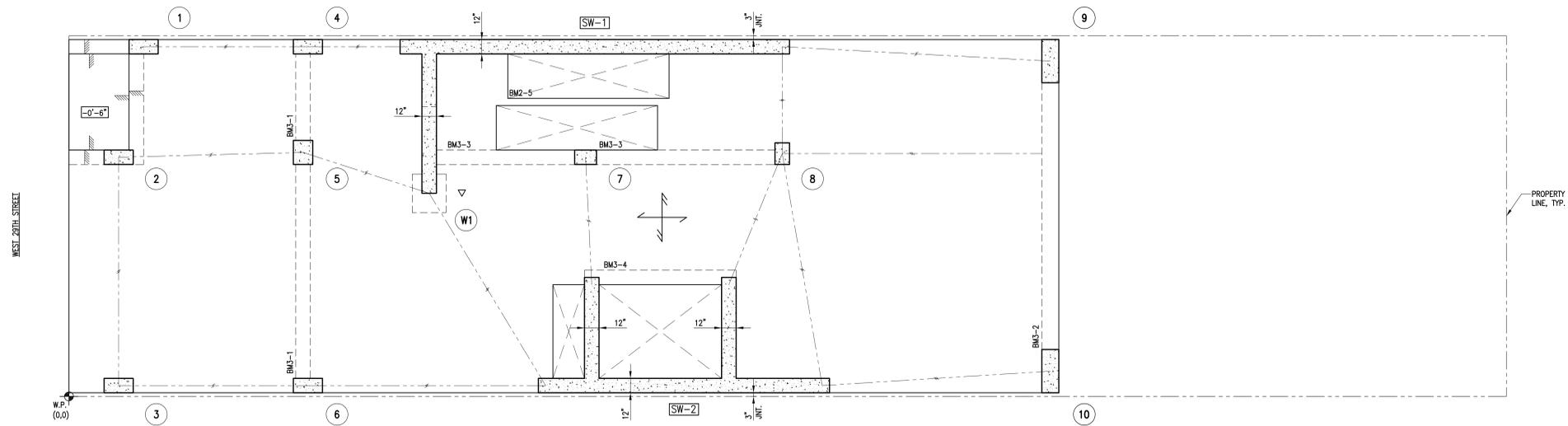
GRADE BEAM SCHEDULE				
MARK	SIZE (W x D)	REINFORCEMENT TO & OF SUPPORTS	STIRRUPS	REMARKS
BM3-1	12"x18"	4-#8T 4-#8B	2L-#4@6"	-
BM3-2	14"x24"	4-#8T 4-#8B	2L-#4@6"	-
BM3-3	12"x18"	2-#8T 2-#8B	2L-#4@6"	-
BM3-4	12"x12"	2-#7T 2-#7B	2L-#3@3"	-
BM3-5	6"x8"	2-#5T 2-#5B	2L-#3@3"	-

DRAWING NOTES:

- TOP OF CONCRETE SLAB ELEVATION IS +24'-0" ABOVE TOP OF FIRST FLOOR SLAB, UNON ON PLAN THUS [EX-X].
- FLOOR CONSTRUCTION SHALL BE A 8" FLAT PLATE WITH A CONTINUOUS TOP & BOTTOM GRID OF #4@12" O.C. EACH WAY, UNON ON PLAN.
 - LAYERS 1 AND 4
 - LAYERS 2 AND 3
 - DENOTES STRESS LINE
 - PLACEMENT WORK POINT
- ADD 3-#6 BOTTOM BARS (ADDITIONAL REINFORCEMENT FOR THE TRANSFER OF LATERAL FORCES IN THE SLAB-COLUMN JOINT) DIRECTLY OVER THE COLUMN IN BOTH DIRECTION. BARS SHALL EXTEND ONE-QUARTER OF THE SPAN LENGTH IN EACH DIRECTION. BARS SHALL BE PLACED WITHIN THE CRITICAL SLAB WIDTH. CRITICAL SLAB WIDTH IS DEFINED AS "COLUMN DIMENSION PLUS 3 TIMES THE GROSS SLAB DEPTH".
- SEE S-400 SERIES DRAWINGS FOR TYPICAL CONCRETE DETAILS.
- ▽ INDICATES COLUMN BELOW.



2 3RD TO 4TH FLOOR STAIR INTERMEDIATE LANDING PLAN
SCALE: 1/4" = 1'-0"



1 3RD FLOOR PLAN
SCALE: 1/4" = 1'-0"

DOB FILE NO.

DOB USE



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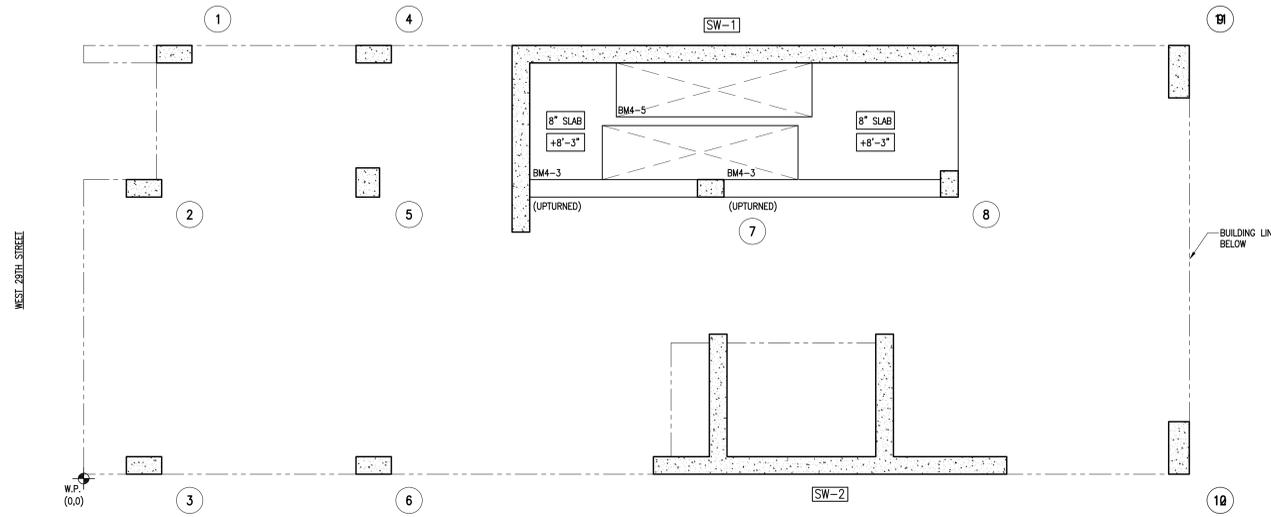
3RD FLOOR PLAN

S-103.00

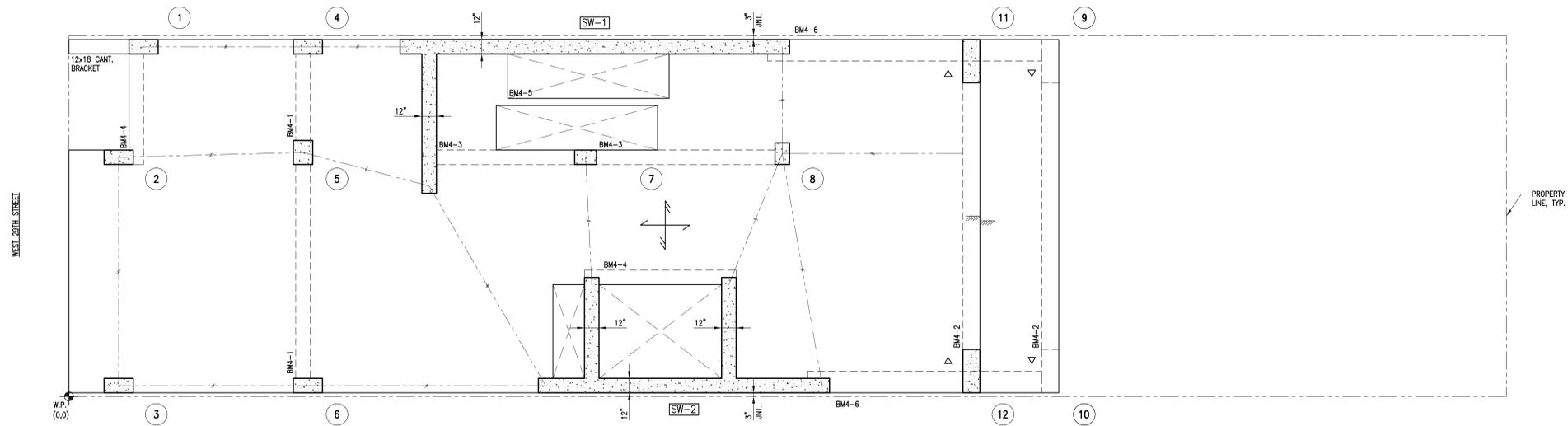
GRADE BEAM SCHEDULE				
MARK	SIZE (W x D)	REINFORCEMENT TO & OF SUPPORTS	STIRRUPS	REMARKS
BM4-1	12"x18"	4-#8T 4-#8B	2L-#4@6"	-
BM4-2	14"x24"	4-#8T 4-#8B	2L-#4@6"	-
BM4-3	12"x18"	2-#6T 2-#8B	2L-#4@6"	-
BM4-4	12"x12"	2-#7T 2-#7B	2L-#3@3"	-
BM4-5	6"x8"	2-#5T 2-#6B	2L-#3@3"	-
BM4-6	18"x36"	7-#9T 7-#9B	2L-#3@3"	-

DRAWING NOTES:

- TOP OF CONCRETE SLAB ELEVATION IS +40'-6" ABOVE TOP OF FIRST FLOOR SLAB, UNON ON PLAN THUS [EX-X].
- FLOOR CONSTRUCTION SHALL BE A 8" FLAT PLATE WITH A CONTINUOUS TOP & BOTTOM GRID OF #4@12" O.C. EACH WAY, UNON ON PLAN.
 - LAYERS 1 AND 4
 - LAYERS 2 AND 3
 - DENOTES STRESS LINE
 - PLACEMENT WORK POINT
- ADD 3-#6 BOTTOM BARS (ADDITIONAL REINFORCEMENT FOR THE TRANSFER OF LATERAL FORCES IN THE SLAB-COLUMN JOINT) DIRECTLY OVER THE COLUMN IN BOTH DIRECTION. BARS SHALL EXTEND ONE-QUARTER OF THE SPAN LENGTH IN EACH DIRECTION. BARS SHALL BE PLACED WITHIN THE CRITICAL SLAB WIDTH. CRITICAL SLAB WIDTH IS DEFINED AS "COLUMN DIMENSION PLUS 3 TIMES THE GROSS SLAB DEPTH".
- SEE S-400 SERIES DRAWINGS FOR TYPICAL CONCRETE DETAILS.
- ▽ INDICATES COLUMN BELOW.
- △ INDICATES COLUMN ABOVE.



② 4TH TO 5TH FLOOR STAIR INTERMEDIATE LANDING PLAN
SCALE: 1/4" = 1'-0"



① 4TH FLOOR PLAN
SCALE: 1/4" = 1'-0"

DOB FILE NO.

DOB USE



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NO.	DATE	ISSUED TO	ISSUED BY
01	00/08/15/2013	ISSUED TO D.O.B.	
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DRAWING INFO

DESIGN DEVELOPMENT	KM
DRAWN BY:	PR
CHECKED BY:	AS NOTED
DATE:	AUGUST 15, 2013
SCALE:	AS NOTED
PROJ. NO.	13010

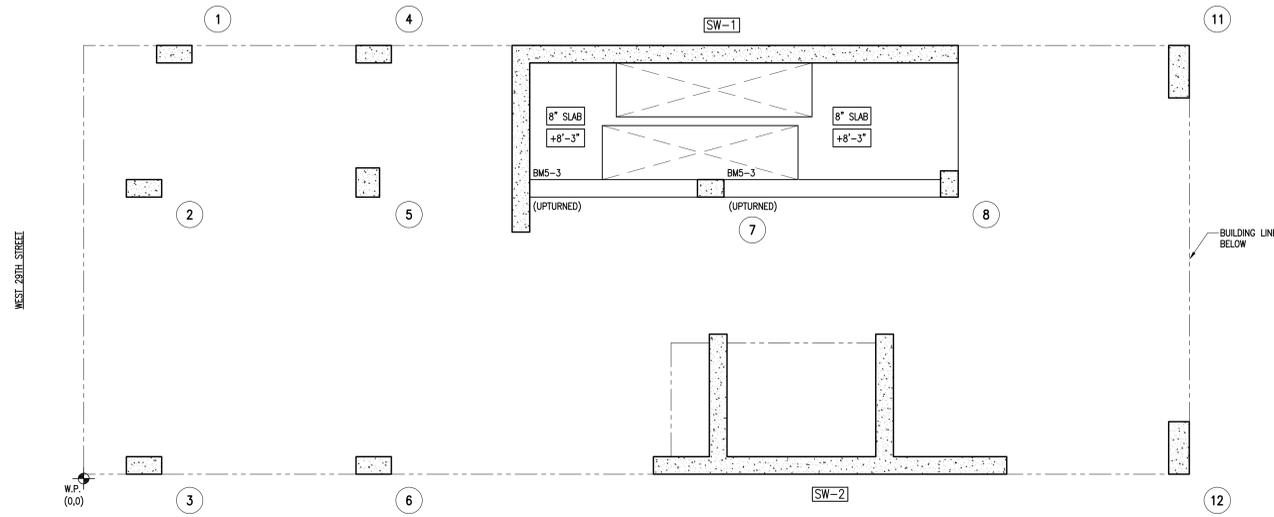
4TH FLOOR PLAN

S-104.00

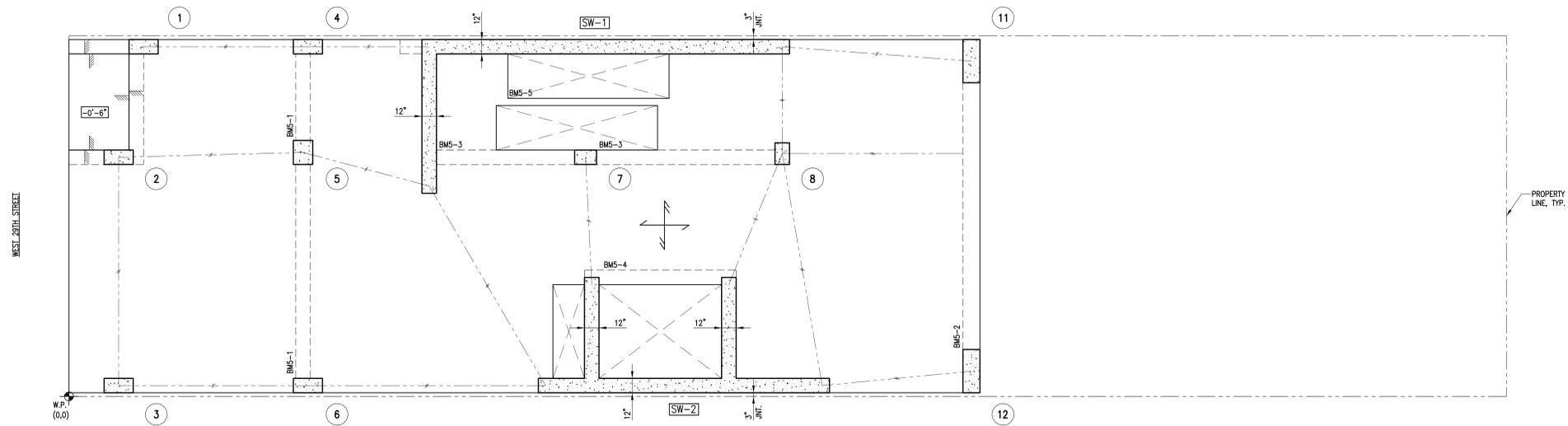
GRADE BEAM SCHEDULE				
MARK	SIZE (W x D)	REINFORCEMENT TO & OF SUPPORTS	STIRRUPS	REMARKS
BMS-1	12"x18"	4-#8T 4-#8B	2L-#4@6"	-
BMS-2	14"x24"	4-#8T 4-#8B	2L-#4@6"	-
BMS-3	12"x18"	2-#8T 2-#8B	2L-#4@6"	-
BMS-4	12"x12"	2-#7T 2-#7B	2L-#3@3"	-
BMS-5	6"x8"	2-#5T 2-#5B	2L-#3@3"	-

DRAWING NOTES:

- TOP OF CONCRETE SLAB ELEVATION IS +57'-0" ABOVE TOP OF FIRST FLOOR SLAB, UNON ON PLAN THUS [EX-X].
- FLOOR CONSTRUCTION SHALL BE A 8" FLAT PLATE WITH A CONTINUOUS TOP & BOTTOM GRID OF #4@12" O.C. EACH WAY, UNON ON PLAN.
 - LAYERS 1 AND 4
 - LAYERS 2 AND 3
 - DENOTES STRESS LINE
 - PLACEMENT WORK POINT
- ADD 3-#6 BOTTOM BARS (ADDITIONAL REINFORCEMENT FOR THE TRANSFER OF LATERAL FORCES IN THE SLAB-COLUMN JOINT) DIRECTLY OVER THE COLUMN IN BOTH DIRECTION. BARS SHALL EXTEND ONE-QUARTER OF THE SPAN LENGTH IN EACH DIRECTION. BARS SHALL BE PLACED WITHIN THE CRITICAL SLAB WIDTH. CRITICAL SLAB WIDTH IS DEFINED AS "COLUMN DIMENSION PLUS 3 TIMES THE GROSS SLAB DEPTH".
- SEE S-400 SERIES DRAWINGS FOR TYPICAL CONCRETE DETAILS.
- ▽ INDICATES COLUMN BELOW.
- △ INDICATES COLUMN ABOVE.



2 5TH TO 6TH FLOOR STAIR INTERMEDIATE LANDING PLAN
SCALE: 1/4" = 1'-0"



1 5TH FLOOR PLAN
SCALE: 1/4" = 1'-0"

DOB FILE NO.

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DESIGN DEVELOPMENT	KM
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CHECKED BY:	AS NOTED
DATE:	AUGUST 15, 2013
SCALE:	AS NOTED
PROJ. NO.	13010

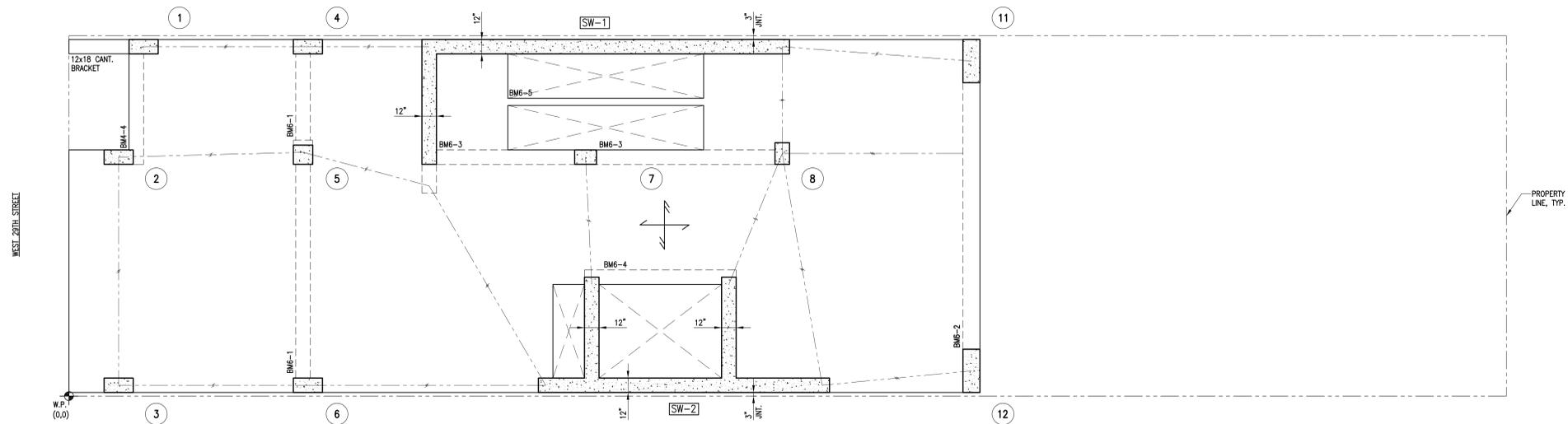
5TH FLOOR PLAN

S-105.00

GRADE BEAM SCHEDULE				
MARK	SIZE (W x D)	REINFORCEMENT # TO # OF SUPPORTS	STIRRUPS	REMARKS
BM6-1	12"x18"	4-#8T 4-#8B	2L-#4@6"	-
BM6-2	14"x24"	4-#8T 4-#8B	2L-#4@6"	-
BM6-3	12"x18"	2-#6T 2-#8B	2L-#4@6"	-
BM6-4	12"x12"	2-#7T 2-#7B	2L-#3@3"	-
BM6-5	6"x8"	2-#5T 2-#6B	2L-#3@3"	-

DRAWING NOTES:

- TOP OF CONCRETE SLAB ELEVATION IS +73'-6" ABOVE TOP OF FIRST FLOOR SLAB, UNON ON PLAN THUS [EX-X].
- FLOOR CONSTRUCTION SHALL BE A 8" FLAT PLATE WITH A CONTINUOUS TOP & BOTTOM GRID OF #4@12" O.C. EACH WAY, UNON ON PLAN.
 - LAYERS 1 AND 4
 - LAYERS 2 AND 3
 - DENOTES STRESS LINE
 - PLACEMENT WORK POINT
- ADD 3-#6 BOTTOM BARS (ADDITIONAL REINFORCEMENT FOR THE TRANSFER OF LATERAL FORCES IN THE SLAB-COLUMN JOINT) DIRECTLY OVER THE COLUMN IN BOTH DIRECTION. BARS SHALL EXTEND ONE-QUARTER OF THE SPAN LENGTH IN EACH DIRECTION. BARS SHALL BE PLACED WITHIN THE CRITICAL SLAB WIDTH. CRITICAL SLAB WIDTH IS DEFINED AS "COLUMN DIMENSION PLUS 3 TIMES THE GROSS SLAB DEPTH".
- SEE S-400 SERIES DRAWINGS FOR TYPICAL CONCRETE DETAILS.
- ▽ INDICATES COLUMN BELOW.
- △ INDICATES COLUMN ABOVE.



1 6TH FLOOR PLAN
SCALE: 1/4" = 1'-0"

DOB FILE NO.

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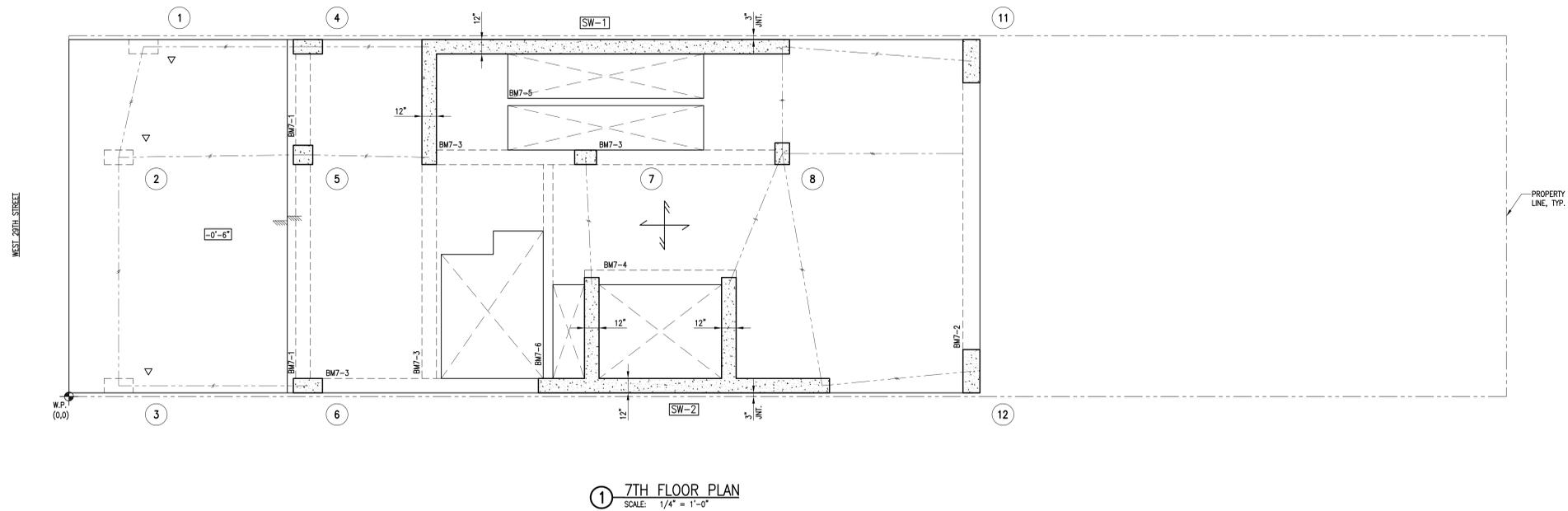
6TH FLOOR PLAN

S-106.00

GRADE BEAM SCHEDULE				
MARK	SIZE (W x D)	REINFORCEMENT TO & OF SUPPORTS	STIRRUPS	REMARKS
BM7-1	12"x18"	4-#8T 4-#8B	2L-#4@6"	-
BM7-2	14"x24"	4-#8T 4-#8B	2L-#4@6"	-
BM7-3	12"x18"	2-#6T 2-#8B	2L-#4@6"	-
BM7-4	12"x12"	2-#7T 2-#7B	2L-#3@3"	-
BM7-5	6"x8"	2-#5T 2-#6B	2L-#3@3"	-
BM7-6	8"x18"	2-#6T 2-#8B	2L-#4@6"	-

DRAWING NOTES:

- TOP OF CONCRETE SLAB ELEVATION IS +85'-6" ABOVE TOP OF FIRST FLOOR SLAB, UNON ON PLAN THUS [EX-X].
- FLOOR CONSTRUCTION SHALL BE A 8" FLAT PLATE WITH A CONTINUOUS TOP & BOTTOM GRID OF #4@12" O.C. EACH WAY, UNON ON PLAN.
 - LAYERS 1 AND 4
 - LAYERS 2 AND 3
 - DENOTES STRESS LINE
 - PLACEMENT WORK POINT
- ADD 3-#6 BOTTOM BARS (ADDITIONAL REINFORCEMENT FOR THE TRANSFER OF LATERAL FORCES IN THE SLAB-COLUMN JOINT) DIRECTLY OVER THE COLUMN IN BOTH DIRECTION. BARS SHALL EXTEND ONE-QUARTER OF THE SPAN LENGTH IN EACH DIRECTION. BARS SHALL BE PLACED WITHIN THE CRITICAL SLAB WIDTH. CRITICAL SLAB WIDTH IS DEFINED AS "COLUMN DIMENSION PLUS 3 TIMES THE GROSS SLAB DEPTH".
- SEE S-400 SERIES DRAWINGS FOR TYPICAL CONCRETE DETAILS.
- ▽ INDICATES COLUMN BELOW.
- △ INDICATES COLUMN ABOVE.



7TH FLOOR PLAN
SCALE: 1/4" = 1'-0"

DOB FILE NO.

DOB USE



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DATE:	13010
SCALE:	
PROJ. NO.:	

7TH FLOOR PLAN

S-107.00

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W29 534 HIGHLINE OWNERS, LLC,
520 West 27th Street, Suite 302
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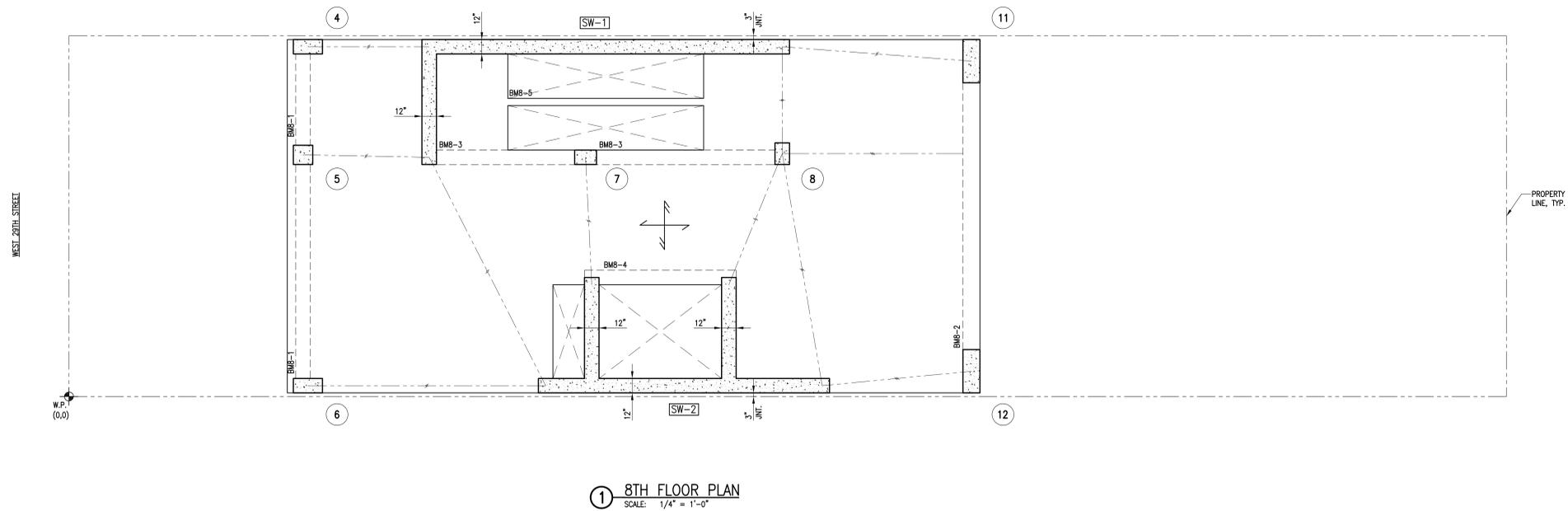
CONTRACTOR

Foundations Group Inc.
520 West 27th Street, Suite 302
New York, New York 10001
Tel: (212) 924-1724

GRADE BEAM SCHEDULE				
MARK	SIZE (W x D)	REINFORCEMENT TO & OF SUPPORTS	STIRRUPS	REMARKS
BM8-1	12"x18"	4-#8T 4-#8B	2L-#4@6"	-
BM8-2	14"x24"	4-#8T 4-#8B	2L-#4@6"	-
BM8-3	12"x18"	2-#8T 2-#8B	2L-#4@6"	-
BM8-4	12"x12"	2-#7T 2-#7B	2L-#3@3"	-
BM8-5	6"x8"	2-#5T 2-#5B	2L-#3@3"	-

DRAWING NOTES:

- TOP OF CONCRETE SLAB ELEVATION IS +97'-6" ABOVE TOP OF FIRST FLOOR SLAB, UNON ON PLAN THUS [EX-X].
- FLOOR CONSTRUCTION SHALL BE A 8" FLAT PLATE WITH A CONTINUOUS TOP & BOTTOM GRID OF #4@12" O.C. EACH WAY, UNON ON PLAN.
 - LAYERS 1 AND 4
 - LAYERS 2 AND 3
 - DENOTES STRESS LINE
 - PLACEMENT WORK POINT
- ADD 3-#6 BOTTOM BARS (ADDITIONAL REINFORCEMENT FOR THE TRANSFER OF LATERAL FORCES IN THE SLAB-COLUMN JOINT) DIRECTLY OVER THE COLUMN IN BOTH DIRECTION. BARS SHALL EXTEND ONE-QUARTER OF THE SPAN LENGTH IN EACH DIRECTION. BARS SHALL BE PLACED WITHIN THE CRITICAL SLAB WIDTH. CRITICAL SLAB WIDTH IS DEFINED AS "COLUMN DIMENSION PLUS 3 TIMES THE GROSS SLAB DEPTH".
- SEE S-400 SERIES DRAWINGS FOR TYPICAL CONCRETE DETAILS.



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CHECKED BY: PR
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SCALE: AS NOTED
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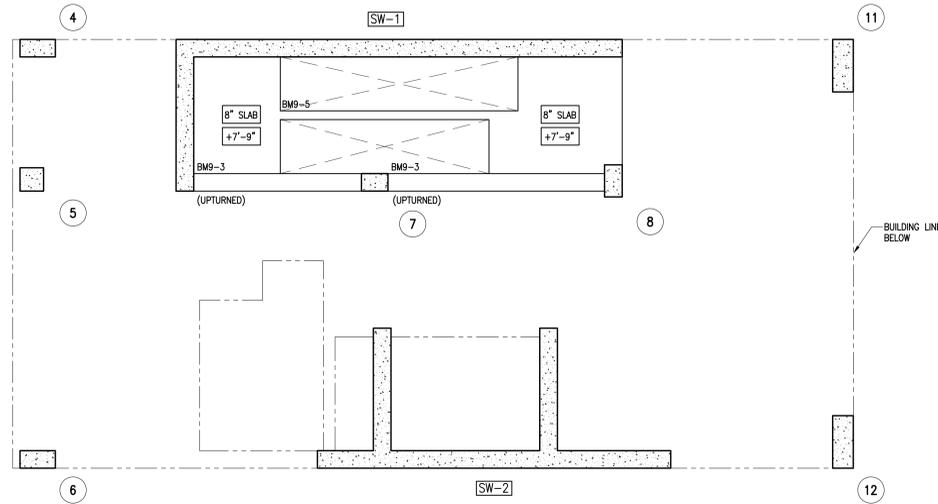
8TH FLOOR PLAN

S-108.00

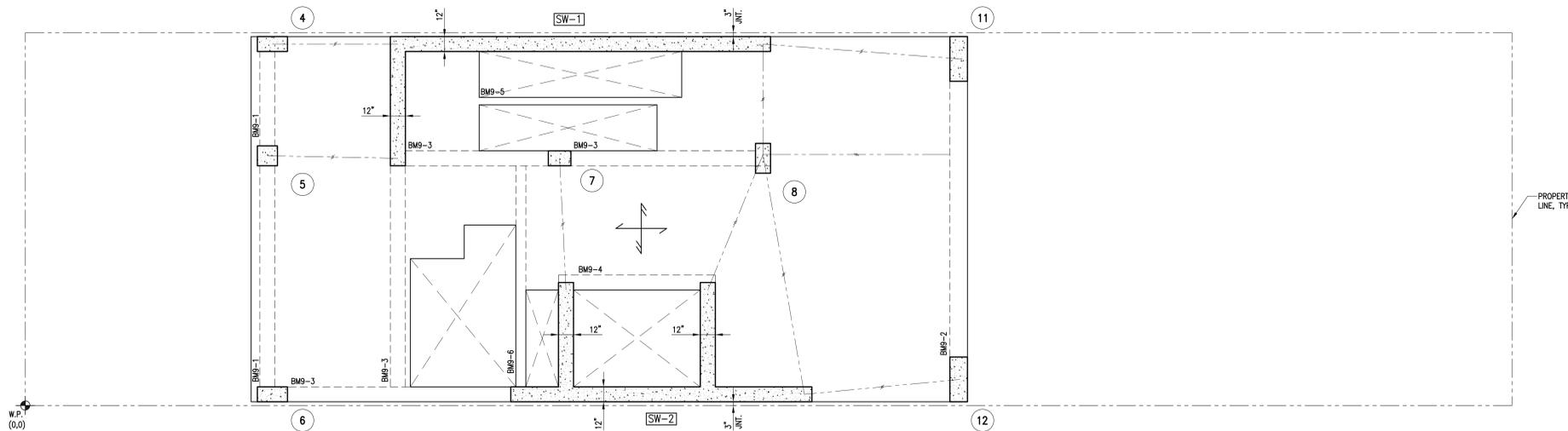
GRADE BEAM SCHEDULE				
MARK	SIZE (W x D)	REINFORCEMENT TO & OF SUPPORTS	STIRRUPS	REMARKS
BM9-1	12"x18"	4-#8T 4-#8B	2L-#4@6"	-
BM9-2	14"x24"	4-#8T 4-#8B	2L-#4@6"	-
BM9-3	12"x18"	2-#6T 2-#8B	2L-#4@6"	-
BM9-4	12"x12"	2-#7T 2-#7B	2L-#3@3"	-
BM9-5	6"x8"	2-#5T 2-#6B	2L-#3@3"	-
BM9-6	8"x18"	2-#6T 2-#8B	2L-#4@6"	-

DRAWING NOTES:

- TOP OF CONCRETE SLAB ELEVATION IS +109'-6" ABOVE TOP OF FIRST FLOOR SLAB, UON ON PLAN THUS [EX-X].
- FLOOR CONSTRUCTION SHALL BE A 6" FLAT PLATE WITH A CONTINUOUS TOP & BOTTOM GRID OF #4@12" O.C. EACH WAY, UON ON PLAN.
 - LAYERS 1 AND 4
 - LAYERS 2 AND 3
 - DENOTES STRESS LINE
 - PLACEMENT WORK POINT
- ADD 3-#6 BOTTOM BARS (ADDITIONAL REINFORCEMENT FOR THE TRANSFER OF LATERAL FORCES IN THE SLAB-COLUMN JOINT) DIRECTLY OVER THE COLUMN IN BOTH DIRECTION. BARS SHALL EXTEND ONE-QUARTER OF THE SPAN LENGTH IN EACH DIRECTION. BARS SHALL BE PLACED WITHIN THE CRITICAL SLAB WIDTH. CRITICAL SLAB WIDTH IS DEFINED AS "COLUMN DIMENSION PLUS 3 TIMES THE GROSS SLAB DEPTH".
- SEE S-400 SERIES DRAWINGS FOR TYPICAL CONCRETE DETAILS.



2 9TH FLOOR TO ROOF STAIR INTERMEDIATE LANDING PLAN
SCALE: 1/4" = 1'-0"



1 9TH FLOOR PLAN
SCALE: 1/4" = 1'-0"

DOB FILE NO.

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DATE:	13010
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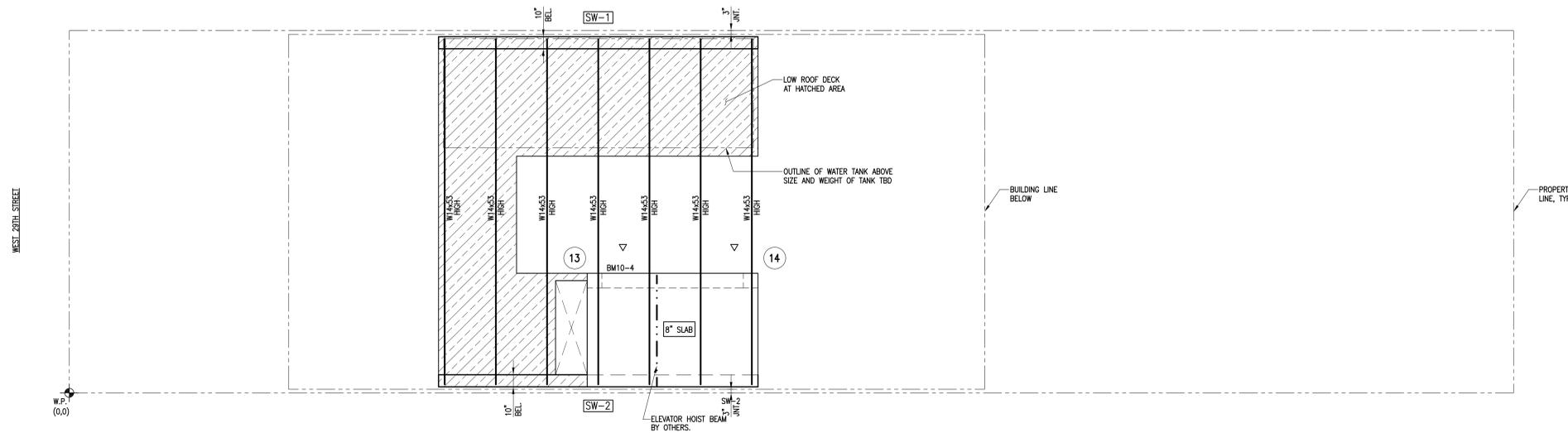
9TH FLOOR PLAN

S-109.00

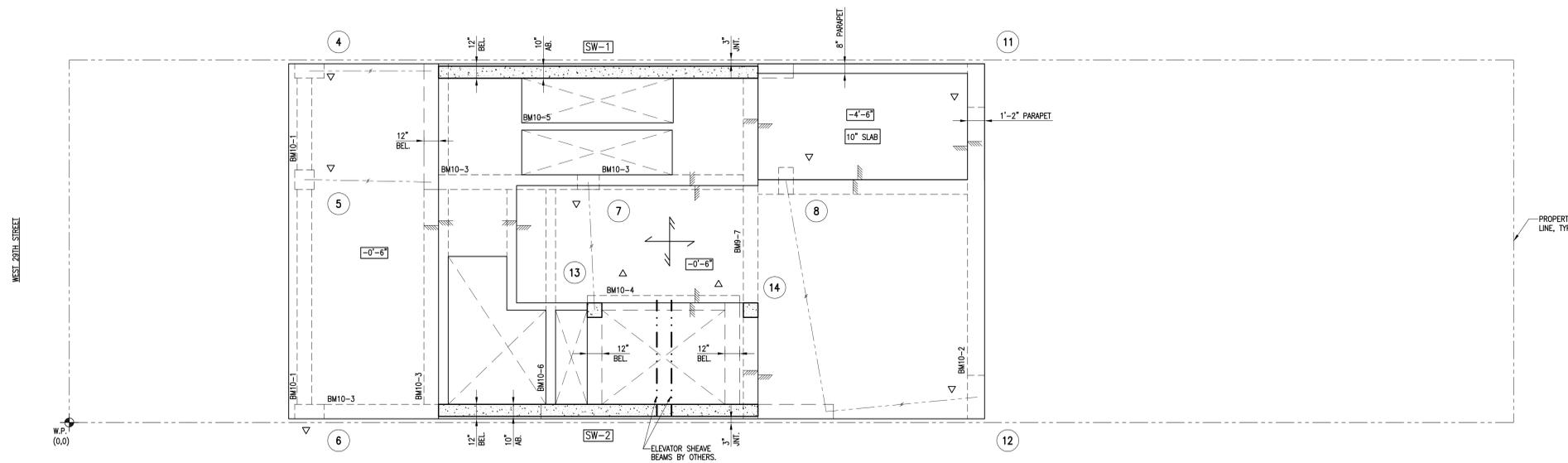
GRADE BEAM SCHEDULE				
MARK	SIZE (W x D)	REINFORCEMENT TO & OF SUPPORTS	STIRRUPS	REMARKS
BM10-1	12"x18"	4-#8T 4-#8B	2L-#4@6"	-
BM10-2	14"x24"	4-#8T 4-#8B	2L-#4@6"	-
BM10-3	12"x18"	3-#6T 3-#8B	2L-#4@6"	-
BM10-4	12"x12"	2-#7T 2-#8B	2L-#3@3"	-
BM10-5	6"x8"	2-#5T 2-#6B	2L-#3@3"	-
BM10-6	8"x18"	2-#6T 2-#8B	2L-#4@6"	-
BM10-7	12"x20"	3-#6T 3-#8B	2L-#4@6"	-

DRAWING NOTES:

- TOP OF CONCRETE SLAB ELEVATION IS +125'-0" (AT ROOF) AND +135'-8" (AT BULKHEAD ROOF) ABOVE TOP OF FIRST FLOOR FLOOR SLAB, UON ON PLAN THUS [X-X].
- FLOOR CONSTRUCTION SHALL BE A 6" FLAT PLATE WITH A CONTINUOUS TOP & BOTTOM GRID OF #4@12" O.C. EACH WAY, UON ON PLAN.
 - LAYERS 1 AND 4
 - LAYERS 2 AND 3
 - DENOTES STRESS LINE
 - PLACEMENT WORK POINT
- ADD 3-#6 BOTTOM BARS (ADDITIONAL REINFORCEMENT FOR THE TRANSFER OF LATERAL FORCES IN THE SLAB-COLUMN JOINT) DIRECTLY OVER THE COLUMN IN BOTH DIRECTION. BARS SHALL EXTEND ONE-QUARTER OF THE SPAN LENGTH IN EACH DIRECTION. BARS SHALL BE PLACED WITHIN THE CRITICAL SLAB WIDTH. CRITICAL SLAB WIDTH IS DEFINED AS "COLUMN DIMENSION PLUS 3 TIMES THE GROSS SLAB DEPTH".
- SEE S-400 SERIES DRAWINGS FOR TYPICAL CONCRETE DETAILS.
- ▽ INDICATES COLUMN BELOW.
- △ INDICATES COLUMN ABOVE.



1 BULKHEAD ROOF PLAN
SCALE: 1/4" = 1'-0"



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

DOB FILE NO.

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DRAWING INFO

DESIGN DEVELOPMENT	KM
DRAWN BY:	PR
CHECKED BY:	PR
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SCALE:	AS NOTED
PROJ. NO.	13010

ROOF & BULKHEAD PLAN

S-110.00

OWNER

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520 West 27th Street, Suite 302
New York, NY 10001
Tel: (212) 804-8784

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CONTRACTOR

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520 West 27th Street, Suite 302
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Tel: (212) 924-1724

COLUMN SCHEDULE		1	2	3	4	5	6	7	8	9	10	11	12	13	14	W1
FLOOR	COLUMN															
BULKHEAD	EL: +135'-8"															
ROOF	EL: +125'-0"													12x12 4-#6	12x12 4-#6	
9TH FLOOR	EL: +109'-6"				24x12 12-#7	16x16 12-#7	18x12 12-#7		12x18 8-#6		14x36 12-#7	14x36 12-#7				
8TH FLOOR	EL: +97'-6"				24x12 12-#7	16x16 12-#7	18x12 12-#7		12x18 8-#6		14x36 12-#7	14x36 12-#7				
7TH FLOOR	EL: +85'-6"				24x12 12-#7	16x16 12-#7	18x12 12-#7		12x18 8-#6		14x36 12-#7	14x36 12-#7				
6TH FLOOR	EL: +73'-6"	24x12 12-#7	24x12 12-#7	24x12 12-#7	24x12 12-#7	16x20 12-#7	18x12 12-#7	18x12 8-#6	12x18 8-#6		14x36 12-#7	14x36 12-#7				
5TH FLOOR	EL: +57'-0"	24x12 12-#7	24x12 12-#7	24x12 12-#7	24x12 12-#7	16x20 12-#7	18x12 12-#7	18x12 8-#6	12x18 8-#6		14x36 12-#7	14x36 12-#7				
4TH FLOOR	EL: +40'-6"	24x12 12-#7	24x12 12-#7	24x12 12-#7	24x12 12-#7	16x20 12-#7	18x12 12-#7	18x12 8-#6	12x18 8-#6	14x36 12-#7	14x36 12-#7					
3RD FLOOR	EL: +24'-0"	24x12 12-#7	24x12 12-#7	24x12 12-#7	24x12 12-#7	16x20 12-#7	18x12 12-#7	18x12 8-#6	12x18 8-#6	14x36 12-#7	14x36 12-#7					
2ND FLOOR	EL: 12'-0"	24x12 12-#7	24x12 12-#7	24x12 12-#7	24x12 12-#7	16x20 12-#7	18x12 12-#7	18x12 8-#6	12x18 8-#6	14x36 12-#7	14x36 12-#7					28x32 18-#10
1ST FLOOR	EL: +0'-0"	24x12 12-#7	24x12 12-#7	24x12 12-#7	24x12 12-#7	16x20 12-#7	18x12 12-#7	18x12 8-#6	12x18 8-#6	14x36 12-#7	14x36 12-#7					28x32 18-#10
CELLAR	EL: -12'-0"	24x12 12-#7	24x12 12-#7	24x12 12-#7	24x12 12-#7	16x20 12-#7	18x12 12-#7	18x12 8-#6	12x18 8-#6	14x36 12-#7	14x36 12-#7					28x32 18-#10
LOAD TO FOUNDATION																

NOTES:

- SCHEDULE DIMENSIONS ARE SHOWN AS EAST/WEST x NORTH/SOUTH.
- COLUMN LAYOUTS ARE PROVIDED TO SHOW THE LOCATION OF THE VERTICAL REINFORCEMENT ONLY. FOR TIES, BAR SIZE AND BALANCE OF INFO REFER TO COLUMN SCHEDULE AND TYPICAL DETAILS.
- ALL LAP LENGTHS FOR VERTICAL REINFORCEMENT IN COLUMNS SHALL BE AS PER SCHEDULES SHOWN IN TYPICAL DETAILS DRAWINGS.
- ALL LOADS SHOWN ARE ULTIMATE LOADS.
- ALL LOADS TO FOUNDATION SHOWN ARE SERVICE LOADS.
- ALL LOADS ARE IN KIPS.
- POSITIVE VALUES - COMPRESSION LOADS; NEGATIVE VALUES - TENSION LOADS

DOB FILE NO.

DOB USE



REVISIONS

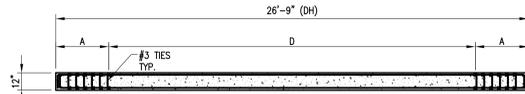
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DRAWING INFO

DESIGN DEVELOPMENT	KM
DRAWN BY:	PR
CHECKED BY:	AS NOTED
DATE:	AUGUST 15, 2013
SCALE:	AS NOTED
PROJ. NO.	13010

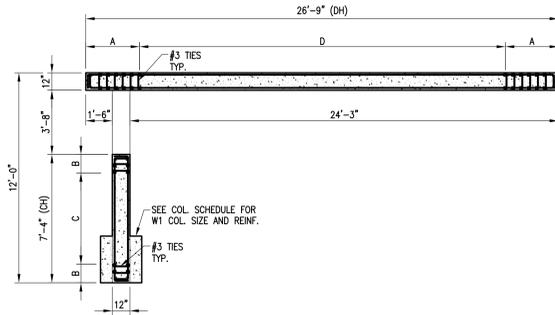
COLUMN SCHEDULE

S-300.00



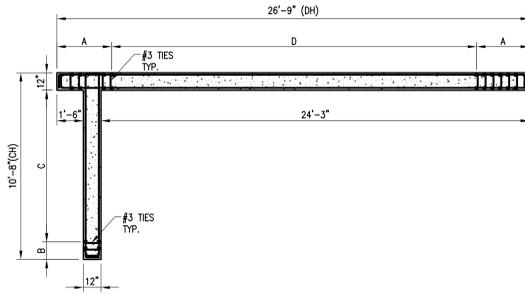
SHEAR WALL SW-1 PLAN (1ST FLOOR)

SHEAR WALL SW-1 REINFORCING SCHEDULE								
BETWEEN FLOORS	A	AV	B	BV	CV	CH	DV	DH
1ST TO 2ND	3'-0"	14-#8	-	-	-	-	20-#4(EF)	#4@7"
CELLAR TO 1ST	3'-0"	14-#8	-	-	-	-	20-#4(EF)	#4@6"



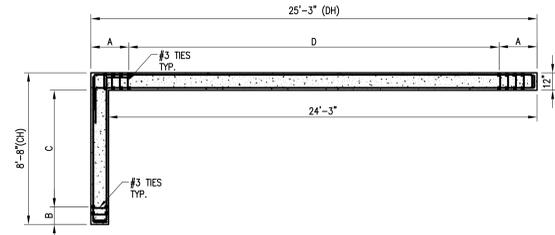
SHEAR WALL SW-1 PLAN (2ND FLOOR)

SHEAR WALL SW-1 REINFORCING SCHEDULE								
BETWEEN FLOORS	A	AV	B	BV	CV	CH	DV	DH
2ND TO 3RD	3'-0"	14-#8	1'-0"	6-#6	6-#4(EF)	#4@6"	20-#4(EF)	#4@7"



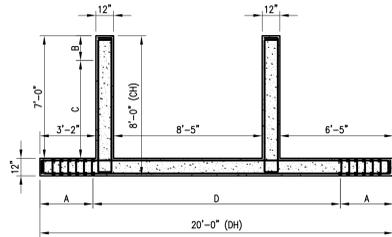
SHEAR WALL SW-1 PLAN (3RD TO 5TH FLOORS)

SHEAR WALL SW-1 REINFORCING SCHEDULE								
BETWEEN FLOORS	A	AV	B	BV	CV	CH	DV	DH
5TH TO 6TH	2'-0"	10-#8	1'-0"	6-#6	9-#4(EF)	#4@7"	20-#4(EF)	#4@7"
4TH TO 5TH	3'-0"	14-#8	1'-0"	6-#6	9-#4(EF)	#4@7"	20-#4(EF)	#4@7"
3RD TO 4TH	3'-0"	14-#8	1'-0"	6-#6	9-#4(EF)	#4@7"	24-#4(EF)	#4@7"



SHEAR WALL SW-1 PLAN (6TH TO 9TH)

SHEAR WALL SW-1 REINFORCING SCHEDULE								
BETWEEN FLOORS	A	AV	B	BV	CV	CH	DV	DH
9TH TO ROOF	1'-6"	8-#6	1'-0"	4-#6	6-#4(EF)	#4@7"	24-#4(EF)	#4@7"
7TH TO 9TH	2'-0"	10-#8	1'-0"	6-#6	6-#4(EF)	#4@7"	24-#4(EF)	#4@7"
6TH TO 7TH	2'-0"	10-#8	1'-0"	6-#6	6-#4(EF)	#4@7"	26-#4(EF)	#4@7"



SHEAR WALL SW-2 PLAN (CELLAR TO 9TH FLOOR)

SHEAR WALL SW-1 REINFORCING SCHEDULE								
BETWEEN FLOORS	A	AV	B	BV	CV	CH	DV	DH
9TH TO ROOF	1'-6"	8-#6	1'-0"	4-#6	6-#4(EF)	#4@7"	16-#4(EF)	#4@7"
7TH TO 9TH	2'-0"	10-#8	1'-0"	6-#6	6-#4(EF)	#4@7"	16-#4(EF)	#4@7"
6TH TO 7TH	2'-0"	10-#8	1'-0"	6-#6	6-#4(EF)	#4@7"	16-#4(EF)	#4@7"
5TH TO 6TH	2'-0"	10-#8	1'-0"	6-#6	9-#4(EF)	#4@7"	16-#4(EF)	#4@7"
4TH TO 5TH	3'-0"	14-#8	1'-0"	6-#6	9-#4(EF)	#4@7"	16-#4(EF)	#4@7"
3RD TO 4TH	3'-0"	14-#8	1'-0"	6-#6	9-#4(EF)	#4@7"	18-#4(EF)	#4@7"
2ND TO 3RD	3'-0"	14-#8	1'-0"	6-#6	6-#4(EF)	#4@6"	18-#4(EF)	#4@7"
1ST TO 2ND	3'-0"	14-#8	1'-0"	6-#6	2-#6(EF)	#4@6"	18-#4(EF)	#4@7"
CELLAR TO 1ST	3'-0"	14-#8	1'-0"	6-#6	9-#6(EF)	#4@6"	20-#4(EF)	#4@6"

DOB FILE NO.

DOB USE



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DRAWING INFO

DESIGN DEVELOPMENT	
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SCALE:	AS NOTED
PROJ. NO.	13010

SHEAR WALL SCHEDULE

S-301.00

TENSION DEVELOPMENT LENGTHS AND SPLICES, LTS (INCHES)

BAR SIZE	LAP CLASS	f'c = 4000 PSI						f'c = 5000 PSI						f'c = 6000 PSI					
		TOP BARS			OTHER BARS			TOP BARS			OTHER BARS			TOP BARS			OTHER BARS		
		case 1	case 2	case 3	case 1	case 2	case 3	case 1	case 2	case 3	case 1	case 2	case 3	case 1	case 2	case 3	case 1	case 2	case 3
#3	A	19	28	16	14	22	12	17	25	16	13	19	12	15	23	16	12	18	12
#3	B	24	36	20	19	28	16	22	32	20	17	25	16	20	30	20	15	23	16
#4	A	25	37	16	19	29	12	22	33	16	17	26	12	20	30	16	16	23	12
#4	B	32	48	20	25	37	16	29	43	20	22	33	16	26	39	20	20	30	16
#5	A	31	46	19	24	36	14	28	42	17	21	32	13	25	38	16	20	29	12
#5	B	40	60	24	31	46	19	36	54	22	28	42	17	33	49	20	25	38	16
#6	A	37	56	22	29	43	17	33	50	20	26	38	15	30	46	18	23	35	14
#6	B	48	72	29	37	56	22	43	65	26	33	50	20	39	59	24	30	46	18
#7	A	54	81	33	42	62	25	48	73	29	37	56	22	44	66	27	34	51	21
#7	B	70	105	42	54	81	33	63	94	38	48	73	29	57	86	35	44	66	27
#8	A	62	93	37	48	71	29	55	83	33	43	64	26	51	76	30	39	58	23
#8	B	80	120	48	62	93	37	72	108	43	55	83	33	66	98	39	51	76	30
#9	A	70	104	42	54	80	32	62	93	37	48	72	29	57	85	34	44	66	26
#9	B	90	135	54	70	104	42	81	121	49	62	93	37	74	111	44	57	85	34
#10	A	77	116	46	59	89	36	69	104	42	53	80	32	63	95	38	49	73	29
#10	B	100	151	60	77	116	46	90	135	54	69	104	42	82	123	49	63	95	38
#11	A	85	127	51	65	98	39	76	114	46	59	88	35	69	104	42	53	80	32
#11	B	110	166	66	85	127	51	99	148	59	76	114	46	90	135	54	69	104	42

- NOTES:
- ALL TENSION LAP SPLICES ARE CLASS "B" U.O.N.
 - TENSION LAP SPLICES ARE MULTIPLES OF THE DEVELOPMENT LENGTH. LAP CLASS A=1.0 LD; LAP CLASS B=1.3 LD

① TENSION DEVELOPMENT AND SPLICE LENGTHS SCHEDULE

SCALE: N.T.S.

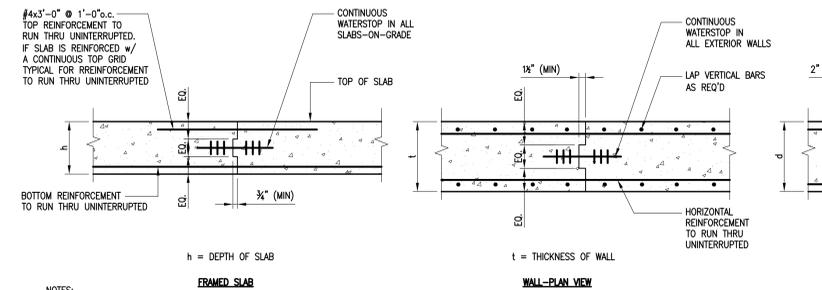
COMPRESSION DEVELOPMENT AND SPLICE LENGTHS, LCS (INCHES)

BAR SIZE	f'c=4000PSI		f'c=5000PSI		f'c=6000PSI	
	COMPRESSION DEVELOPMENT LENGTH, LDC (INCHES)	COMPRESSION LAP SPLICE LENGTH (INCHES)	COMPRESSION DEVELOPMENT LENGTH, LDC (INCHES)	COMPRESSION LAP SPLICE LENGTH (INCHES)	COMPRESSION DEVELOPMENT LENGTH, LDC (INCHES)	COMPRESSION LAP SPLICE LENGTH (INCHES)
#3	8	12	8	12	8	12
#4	10	15	9	15	9	15
#5	12	19	11	19	11	19
#6	14	23	14	23	14	23
#7	17	27	16	27	16	27
#8	19	30	18	30	18	30
#9	22	34	20	34	20	34
#10	24	38	23	38	23	38
#11	26	42	25	42	25	42

- NOTES:
- USE TENSION LAP SPLICE LENGTH UNLESS SPECIFICALLY NOTED AS "COMPRESSION LAP".
 - WHEN BARS OF DIFFERENT SIZES ARE LAP SPLICED IN COMPRESSION, DEVELOPMENT LENGTH SHALL BE THE LCS OF THE LARGER BAR OF THE LAP SPLICE OF THE SMALLER BAR, WHICHEVER IS GREATER.

⑤ COMPRESSION DEVELOPMENT AND SPLICE LENGTHS

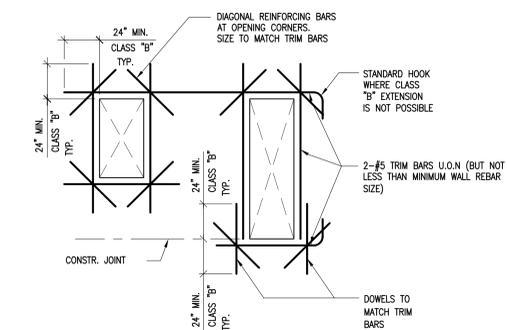
SCALE: N.T.S.



- NOTES:
- CONSTRUCTION JOINTS ARE NOT ALLOWED FOR BEAMS W/ CONCENTRATED LOADS. CONSULT W/ ENGINEER FOR SPECIAL CASES.
 - CONTRACTOR SHALL SUBMIT ALL PROPOSED CONSTRUCTION JOINT FOR APPROVAL.

⑩ TYPICAL CONSTRUCTION JOINT DETAILS

SCALE: N.T.S.



- NOTES:
- TERMINATE INTERRUPTED VERTICAL & HORIZONTAL REINFORCING W/ STANDARD 180 DEGREE HOOK OR "U" BAR & SPLICE

⑬ CONCRETE WALL OPENING TRIM REINFORCEMENT

SCALE: N.T.S.

CATEGORIES FOR TENSION DEVELOPMENT AND SPLICES LENGTHS SCHEDULE

STRUCTURAL ELEMENT	CONCRETE COVER	CASE, ACCORDING TO C/C BAR SPACING			
		<2db	>=2db	<3db	>=3db
BEAMS AND COLUMNS	<db	2	2	2	2
ALL OTHERS	>=db	2	1	1	3(1)
	<db	2	2	2	2
ALL OTHERS	>=db	2	2	1	3(1)

- NOTES:
- DB= NOMINAL BAR DIAMETER.
 - CONCRETE COVER REFERS TO CLEAR DISTANCE BETWEEN EDGE OF REBAR AND CONCRETE SURFACE.
 - #11 AND SMALLER EDGE BARS W/ CENTER TO CENTER SPACING NOT LESS THAN 5DB ARE ASSUMED TO HAVE A CLEAR SIDE COVER NOT LESS THAN 2.5DB. OTHERWISE THE CASE IN PARENTHESES APPLIES.
 - TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW THE BARS.
 - FOR LIGHTWEIGHT CONCRETE MULTIPLY THE DEVELOPMENT LENGTH LD BY 1.3

② CATEGORIES FOR TENSION DEVELOPMENT AND SPLICE LENGTHS

SCALE: N.T.S.

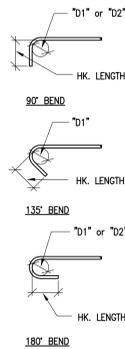
DIAMETER OF BENDS

D1	1 1/2" FOR #3 BARS
D2	2" FOR #4 BARS
	2 1/2" FOR #5 BARS
D2	6d FOR #3 THRU #8 BARS
	8d FOR #9, #10 & #11 BARS

- NOTES:
- "D1" - FOR STIRRUPS, TIES AND WALL REIN. AT OPENINGS
 - "D2" - FOR ALL OTHERS

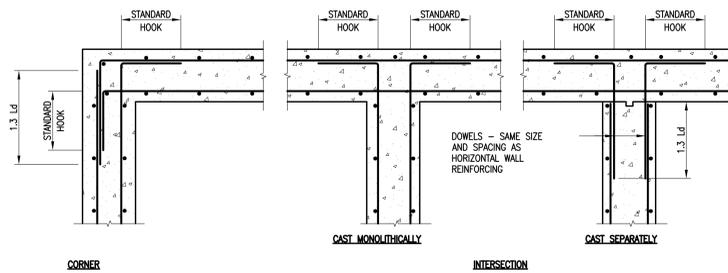
STANDARD HOOK LENGTHS

BAR SIZE	MAIN REINFORCEMENT		STIRRUP & TIE HOOKS	
	90°	180°	90°	135°
#3	6"	4"	3"	4 1/2"
#4	8"	4"	4"	6"
#5	9 1/2"	4 1/2"	5"	7 1/2"
#6	11 1/2"	5 1/2"	11 1/2"	10"
#7	13 1/2"	6 1/2"	13 1/2"	11 1/2"
#8	15"	7"	15"	13"
#9	18"	9"	—	—
#10	20"	10"	—	—
#11	22"	11"	—	—



⑥ TYPICAL BAR HOOK SCHEDULE

SCALE: N.T.S.

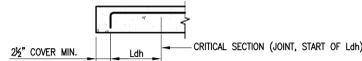


⑪ TYPICAL CONCRETE WALL AND GRADE BEAM CORNER AND INTERSECTION DETAILS

SCALE: N.T.S.

HOOK DEVELOPMENT LENGTH, Ldh (IN)

BAR SIZE	f'c = 3000 PSI	f'c = 4000 PSI	f'c = 5000 PSI	f'c = 6000 PSI
#3	9	8	7	6
#4	11	10	9	8
#5	14	12	11	10
#6	17	15	13	12
#7	20	17	15	14
#8	22	19	17	16
#9	25	22	20	18
#10	28	25	22	20
#11	31	27	24	22



- NOTES:
- HOOK DEVELOPMENT LENGTHS (Ldh) LISTED ABOVE ARE MINIMUMS. MULTIPLY THESE LENGTHS BY ALL OTHER FACTORS NOTED BELOW. Ldh SHALL CONFORM WITH ALL REQUIREMENTS OF ACI 318.
 - HOOK DEVELOPMENT LENGTHS ARE BASED ON A MINIMUM OF 2" COVER OVER HOOK END. MULTIPLY Ldh BY 1.4 WHERE 2" COVER IS NOT MAINTAINED. SIDE COVER MUST BE 2 1/2" MIN.
 - Ldh BASED ON Fy = 60ksi REINFORCING. ADJUST LENGTHS FOR OTHER Fy.
 - MULTIPLY Ldh BY 1.2 FOR EPOXY COATED REINFORCEMENT.

③ HOOK DEVELOPMENT LENGTH IN TENSION

SCALE: N.T.S.

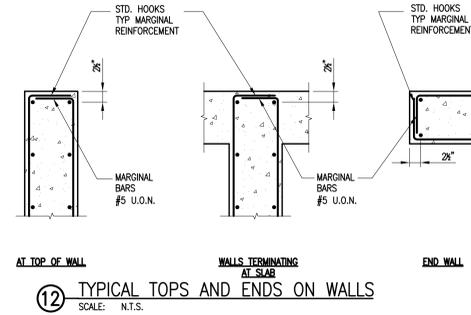
CONCRETE COVER TO REINFORCEMENT (INCHES)

CONDITION	MINIMUM COVER
(a) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.	3"
(b) CONCRETE EXPOSED TO EARTH OR WEATHER.	2"
(b.1) No. 6 THROUGH No.18 BARS.	1 1/2"
(c.1) No. 5 BAR, W31 OR D31 WIRE OR SIMILAR.	1 1/2"
(c) CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND.	1 1/2"
(c.1) SLAB, WALLS	3/4"
(c.1.1) No 14 AND No 18 BARS.	2"
(c.1.2) No 11 BARS AND SMALLER.	2"
(c.2) BEAMS, COLUMNS, TIES, STIRRUPS, SPIRALS.	1 1/2"

- NOTES:
- CONCRETE COVER LISTED ABOVE ARE MINIMUMS. USE MINIMUM CONCRETE COVER WHEN NOT SPECIFICALLY NOTED, CLR, IN DETAILS

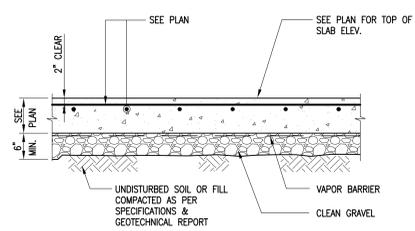
⑦ CONCRETE COVER SCHEDULE

SCALE: N.T.S.



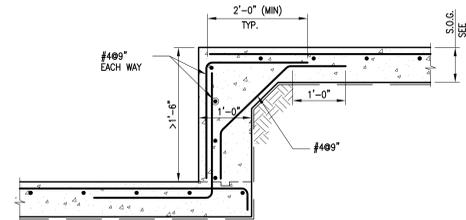
⑫ TYPICAL TOPS AND ENDS ON WALLS

SCALE: N.T.S.



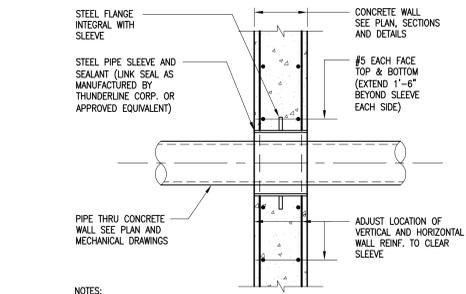
④ TYPICAL SLAB ON GRADE DETAIL

SCALE: N.T.S.



⑧ TYPICAL STEP IN SLAB ON GRADE

SCALE: N.T.S.



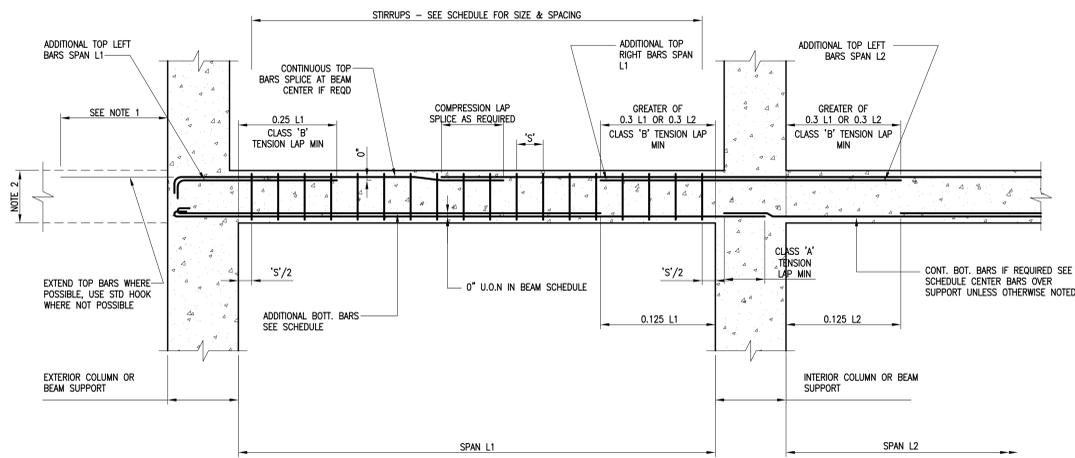
- NOTES:
- COORDINATE SIZE, NUMBER AND LOCATION OF ALL PIPES AND SLEEVES WITH MECHANICAL DRAWINGS.
 - DETAIL SHOWN FOR INDIVIDUAL SLEEVES, WHERE SLEEVES OCCUR IN GROUPS, STEEL FLANGES MAY BE COMBINED INTO SINGLE PIECE.

⑨ TYPICAL WALL SLEEVE DETAIL

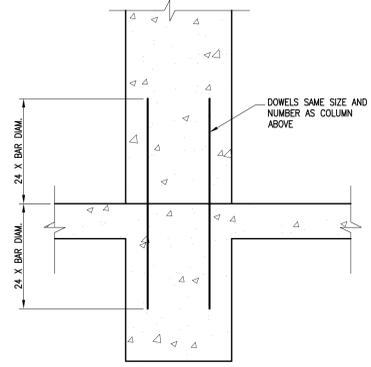
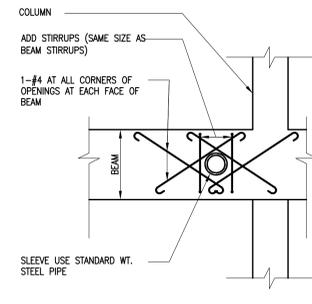
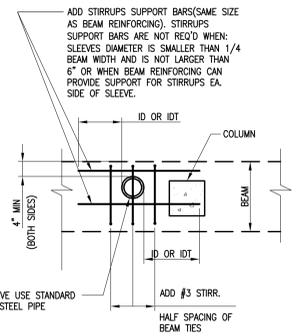
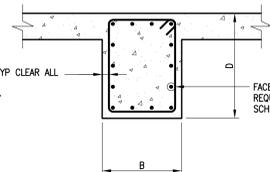
SCALE: N.T.S.

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- NOTES:
- SEE SCHEDULES OR FRAMING PLANS FOR BAR SIZES AND QUANTITIES.
 - SEE SCHEDULES FOR TYPICAL SPlice & DEVELOPMENT LENGTHS.
 - CONTINUE TOP & BOTTOM REINFORCEMENT TO EDGE OF CANTILEVERS WHERE APPLICABLE. SEE PLANS & SECTIONS.
 - PROVIDE #4@12" SIDE BARS EACH FACE (MIN) FOR BEAMS 36" OR MORE IN DEPTH UNLESS OTHERWISE NOTED IN BEAM SCHEDULE OR SECTIONS.
 - WHERE DIFFERENT TOP ADDITIONAL REINFORCING FOR TWO CONSECUTIVE SPANS CALLED OUT ON SCHEDULE IS DIFFERENT FOR BEAMS THAT ARE CONTINUOUS, PROVIDE THAT AMOUNT BETWEEN THE TWO THAT GIVES THE LARGEST STEEL AREA. IF TOP ADDITIONAL REINFORCING CALLED ON SCHEDULE IS THE SAME, IT SHOULD NOT BE ADDITIVE.
 - LEFT & RIGHT BARS ASSUME SOUTH OR EAST BEAM ELEVATIONS.
 - CENTER BARS OVER SUPPORT U.O.N.

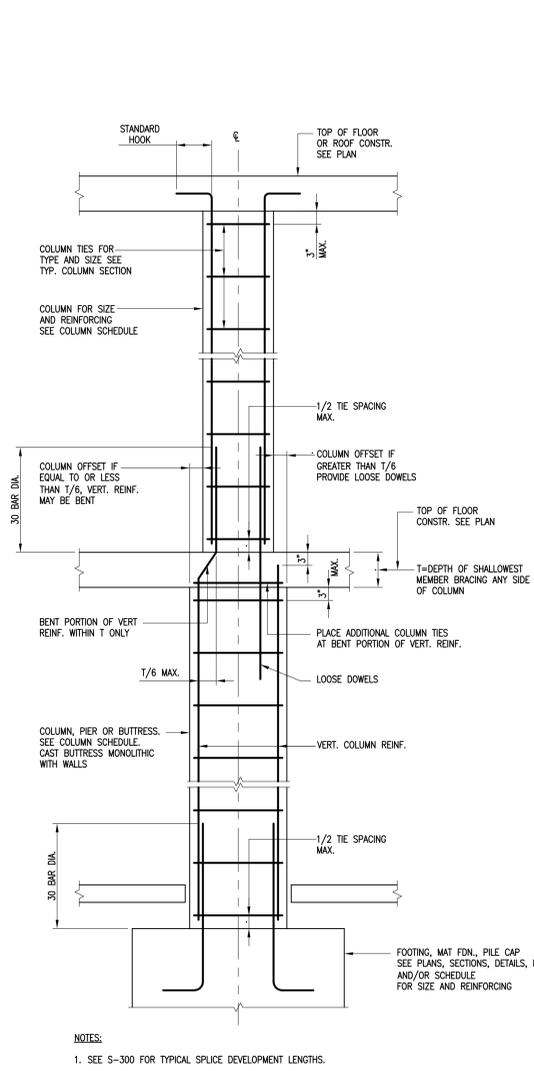


① TYPICAL BEAM REINFORCEMENT ELEVATION
SCALE: N.T.S.

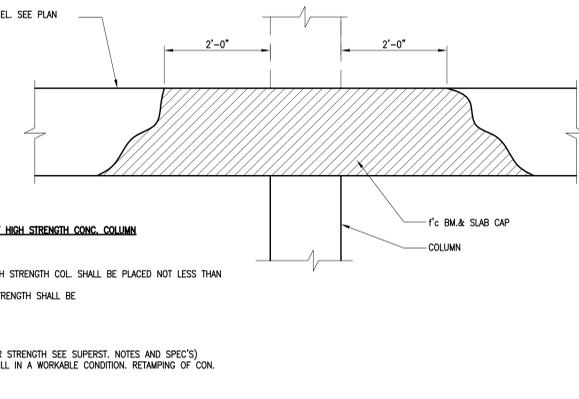
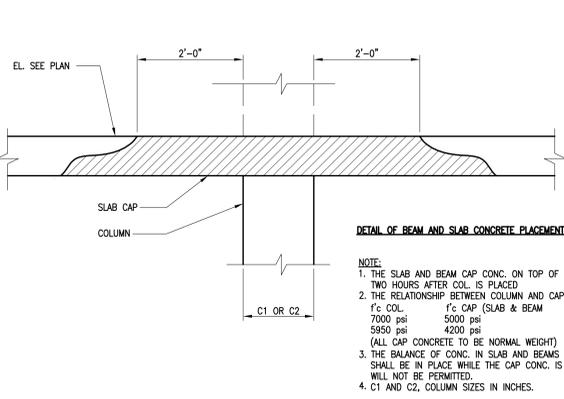
② TYPICAL BEAM SECTION
SCALE: N.T.S.

③ TYPICAL DETAILS OF OPENING, IN CONCRETE BEAMS
SCALE: N.T.S.

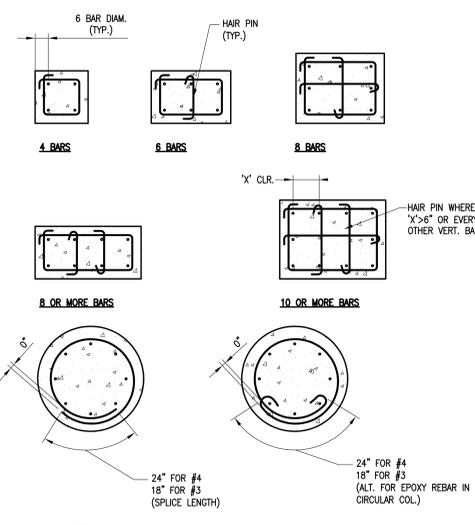
④ TYPICAL DETAILS OF COLUMN CARRIED BY GIRDER
SCALE: N.T.S.



⑥ TYPICAL COLUMN DETAIL
SCALE: N.T.S.



⑤ TYPICAL DETAILS AT TIED COLUMNS
SCALE: N.T.S.

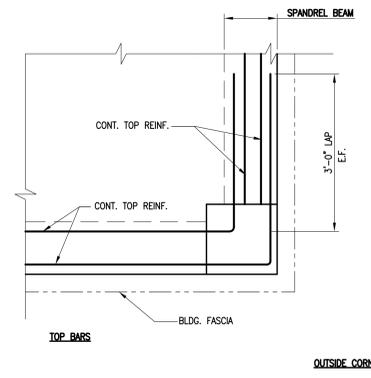
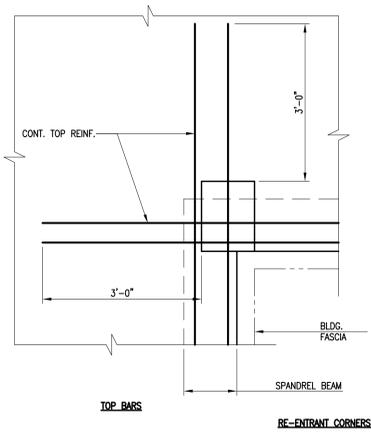


⑦ TYPICAL DETAILS AT TIED COLUMNS
SCALE: N.T.S.

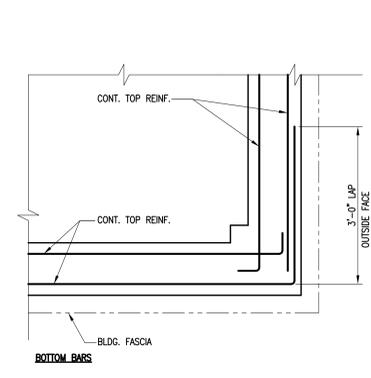
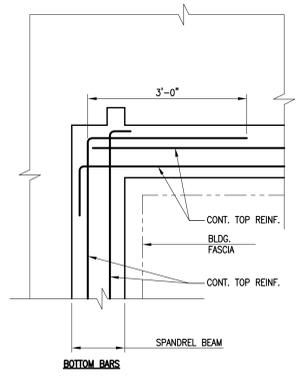
WEB REINFORCEMENT SCHEDULE

B	SPACING
8"	30"
10"	24"
12"	20"
15"	18"
20" OR MORE	12"

⑧ WEB REINFORCEMENT IN DEEP CONCRETE BEAM
SCALE: N.T.S.



⑨ TYPICAL SPANDREL REINF. AT CORNERS
SCALE: N.T.S.



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REVISIONS

NO.	DATE	DESCRIPTION
01	00/08/15/2013	ISSUED TO D.O.B.
02	01/09/18/2013	ISSUED TO D.O.B.
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DRAWING INFO

DESIGN DEVELOPMENT

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CHECKED BY: PR

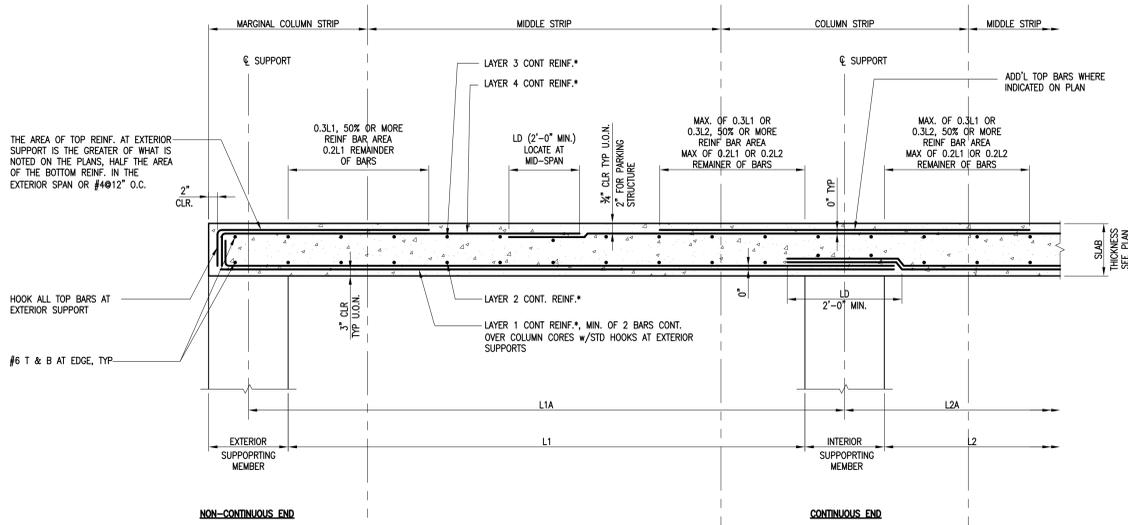
DATE: AUGUST 15, 2013

SCALE: AS NOTED

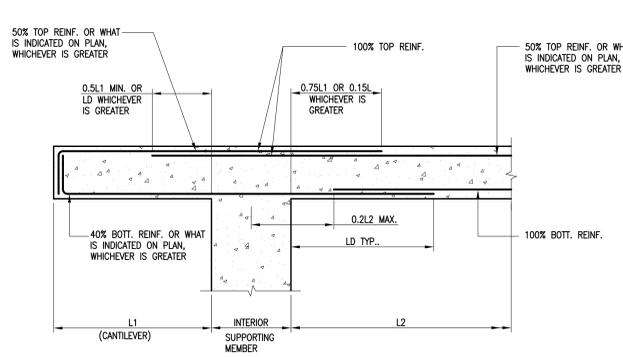
PROJ. NO. 13010

TYPICAL CONCRETE DETAILS

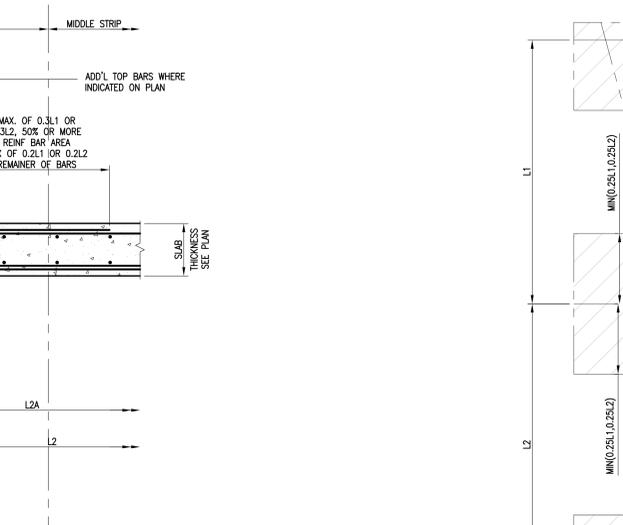
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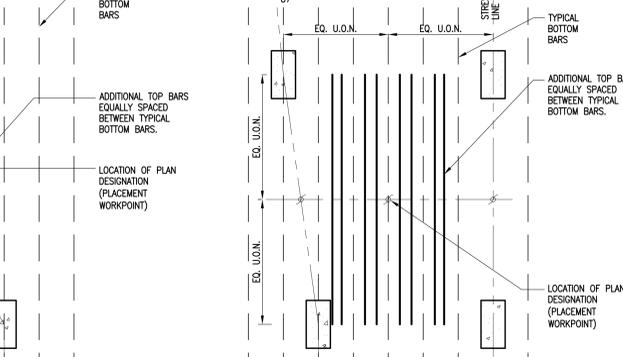
1 TYPICAL TWO WAY SLAB REINFORCING DETAILS
SCALE: N.T.S.



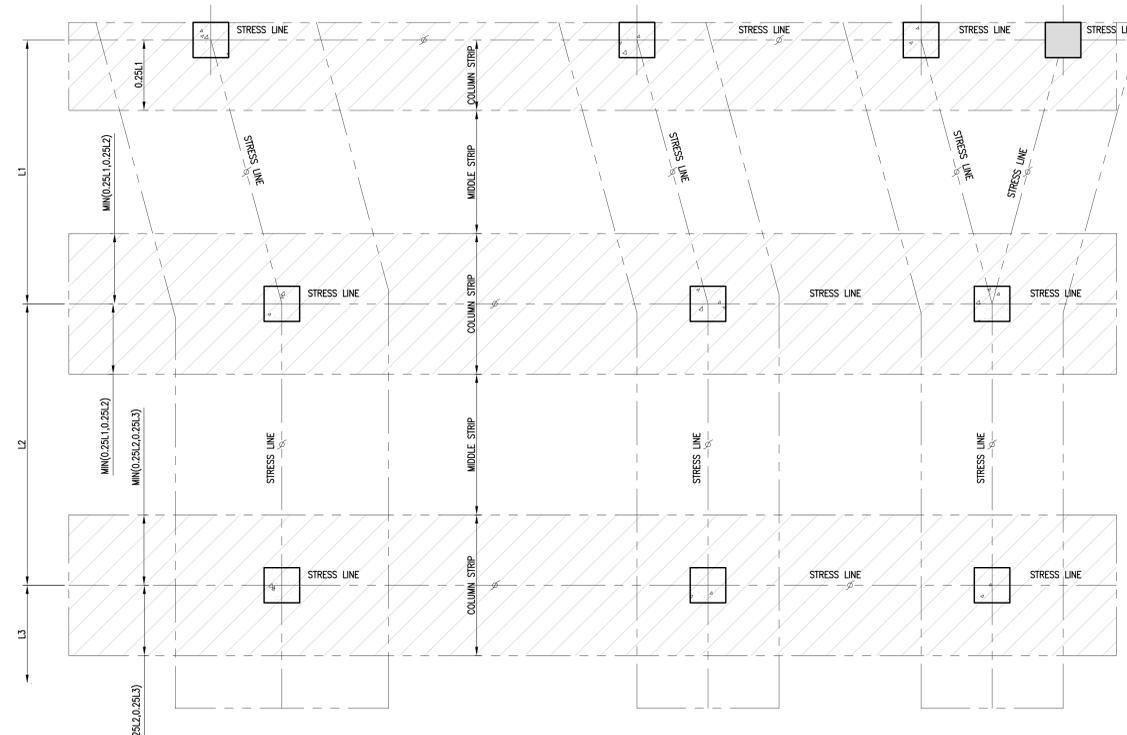
5 SLAB REINFORCING DETAIL
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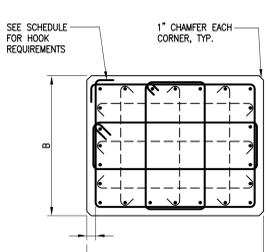
2 TYPICAL SLAB REINF. LAYER DEFINITION DETAIL
SCALE: N.T.S.



6 ADDED BOTTOM BAR PLACEMENT
SCALE: N.T.S.

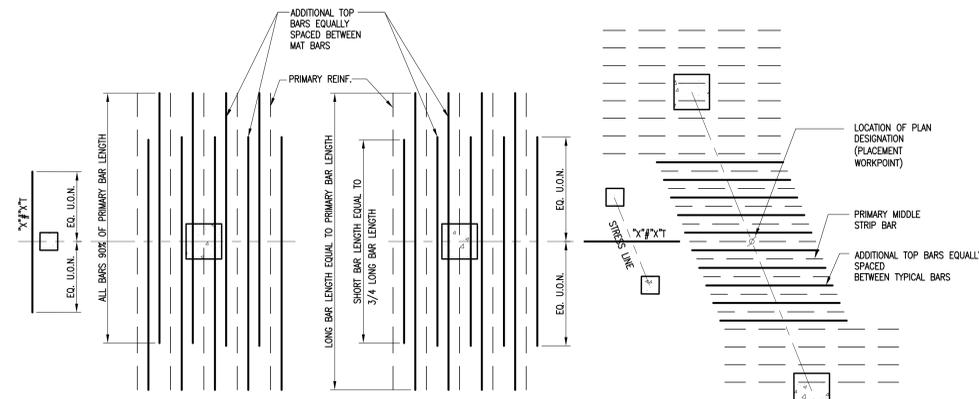


4 COLUMN & MIDDLE STRIP DEFINITION
SCALE: N.T.S.



3 TYPICAL COLUMN SECTION
SCALE: N.T.S.

VERTICAL BAR DIAMETER	TIES	
	BAR SIZE	SPACING
#5	#3	10"
#6	#3	12"
#7	#3	14"
#8	#3	16"
#9	#3	18"
#10	#3	18"
#11 AND LARGER	#4	18"



7 ADDED TOP BAR PLACEMENT
SCALE: N.T.S.

- NOTES:**
- FOR SLAB REINF. ID AND ADD'L BARS REQ'D, SEE PLAN.
 - FOR SLAB MAT REINF. SEE PLAN.
 - FOR INFORMATION NOTED "M" SEE TYPICAL SLAB REINF. PLAN.
 - SEE S-400 FOR TYPICAL SPLICE DEVELOPMENT LENGTHS.
 - COLUMN STRIP DIMENSIONS TO BE DETERMINED IN ACCORDANCE WITH REQUIREMENTS OF ACI 318 CH. 13 UNLESS NOTED OTHERWISE ON PLANS.
 - L1 AND L2 ARE THE CLEAR SPANS TO THE LEFT AND RIGHT OF SUPPORTS.

- NOTES:**
- TIES SHALL BE ARRANGED SUCH THAT EVERY CORNER AND ALTERNATE LONGITUDINAL BAR SHALL HAVE LATERAL SUPPORT PROVIDED BY THE CORNER OF THE TIE WITH AN INCLUDED ANGLE OF NOT MORE THAN 135 DEGREES. IF ANY BAR SHALL BE FARTHER THAN 6 INCHES CLEAR ON EACH SIDE ALONG THE TIE FROM A LATERALLY SUPPORTED BAR, SUPPORT (SHOWN DOTTED) SHALL BE PROVIDED FOR THESE BARS.
 - IF THE DIMENSION A OR B IS LESS THAN THE TIE SPACING SHOWN, THE SPACING SHALL BE DECREASED TO EQUAL A OR B WHICHEVER IS SMALLER.
 - SEE S-300 FOR TYPICAL SPLICE DEVELOPMENT LENGTHS.

DOB FILE NO.

DOB USE



REVISIONS

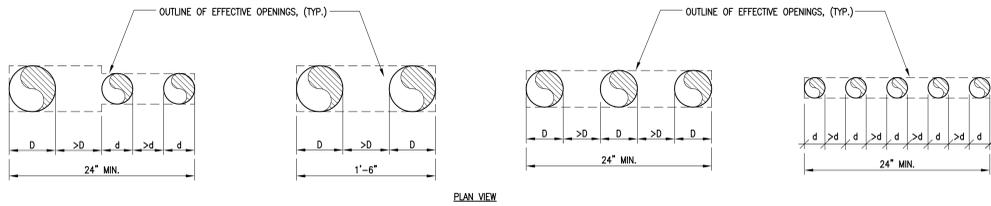
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DRAWING INFO

DESIGN DEVELOPMENT	KM
DRAWN BY:	PR
CHECKED BY:	PR
DATE:	AUGUST 15, 2013
SCALE:	AS NOTED
PROJ. NO.	13010

TYPICAL CONCRETE DETAILS

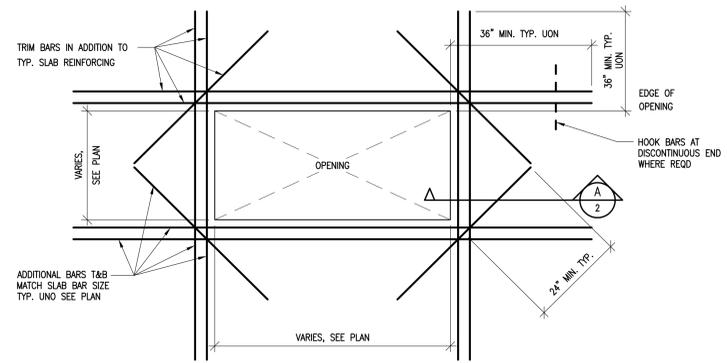
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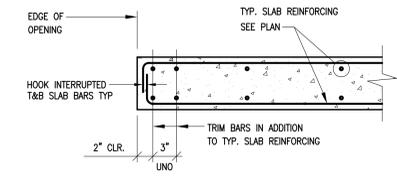
NOTES:

1. ALL ABOVE CONDITIONS REQUIRE 1-#5 TOP AND BOTTOM TRIM BARS ALL AROUND THE EFFECTIVE OPENING WITH 1'-6" MINIMUM EXTENSION PAST THE OPENING EDGE. DIAGONAL BARS ARE NOT REQUIRED.
2. THIS DETAIL APPLIES WHERE SPACING OF OPENINGS IS LESS THAN 3 DIAMETERS.

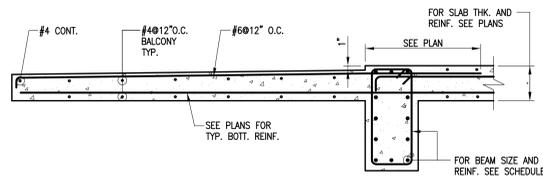
1 MULTIPLE ROUND SLAB OPENINGS
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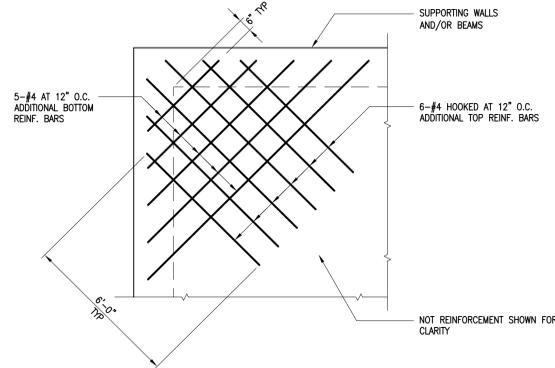
2 TYPICAL OPENING REINFORCEMENT
DETAIL FOR OPENINGS IN CONCRETE SLAB
SCALE: N.T.S.



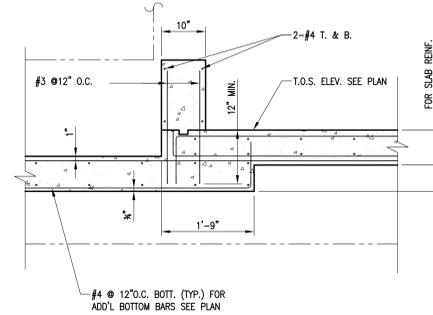
A SECTION AT OPENING IN CONCRETE
SCALE: N.T.S.



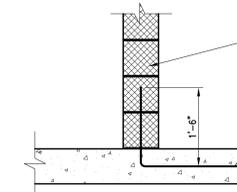
3 TYPICAL SECTION AT BALCONY
SCALE: N.T.S.



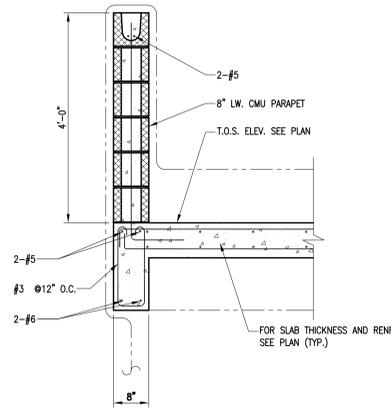
4 TYPICAL SLAB CORNER REINFORCEMENT
SCALE: N.T.S.



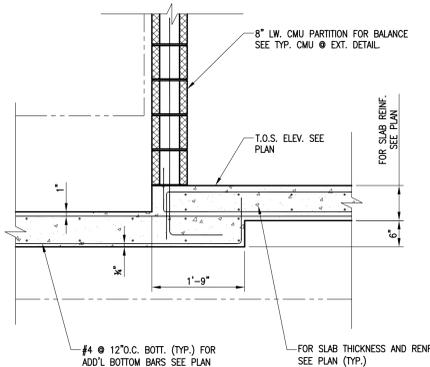
5 TYPICAL SECTION @ CONC. CURB
SCALE: N.T.S.



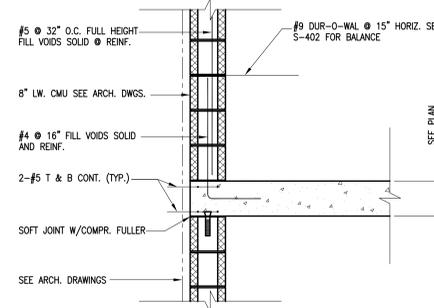
6 TYPICAL BLOCK WALL ON SLAB
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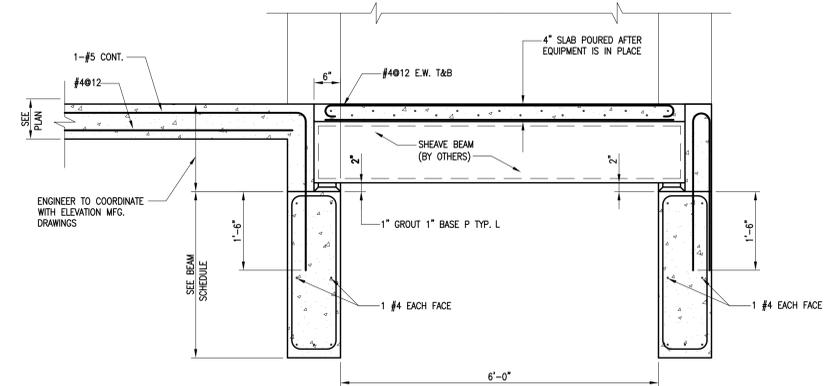
7 TYPICAL SECTION @ PARAPET
SCALE: N.T.S.



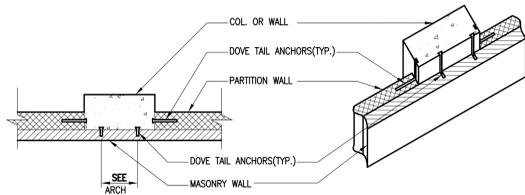
8 TYPICAL SECTION @ CMU FACADE
SCALE: N.T.S.



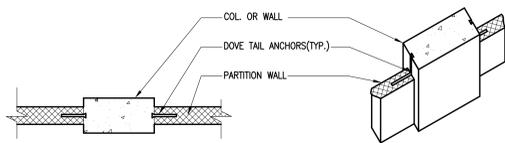
9 TYPICAL SECTION @ FACADE
SCALE: N.T.S.



10 ELEVATOR SHEAVE BEAM DETAIL
SCALE: N.T.S. NOTE: SHEAVE BEAM TO BE SET BY ELEVATOR CONTRACTOR



PLAN PLAN SHOWING CONC. ANCHOR LOCATION



PART PLAN SHOWING OF INTERIOR COL. SHOWING PARTITION ANCHORAGES

11 WALL ANCHORING
SCALE: N.T.S.

DOB FILE NO.

DOB USE



REVISIONS

NO.	DATE	DESCRIPTION
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DESIGN DEVELOPMENT	KM
DRAWN BY:	PR
CHECKED BY:	PR
DATE:	AUGUST 15, 2013
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TYPICAL CONCRETE DETAILS

S-403.00

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workshop.apd.dpc
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New York, NY 10018
Tel: (212) 273-9712
Fax: (212) 273-9713

STRUCTURAL ENGINEER

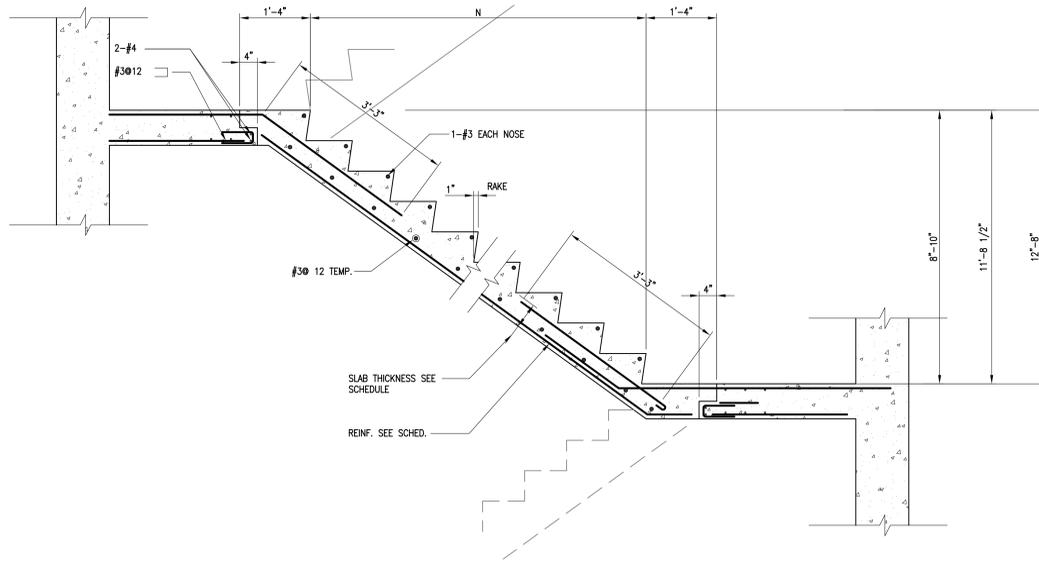
Marin Consulting Engineers PLLC
68 Jay Street, Suite 201
Brooklyn, NY 11201
Tel: (917) 705-5534

MECHANICAL ENGINEER

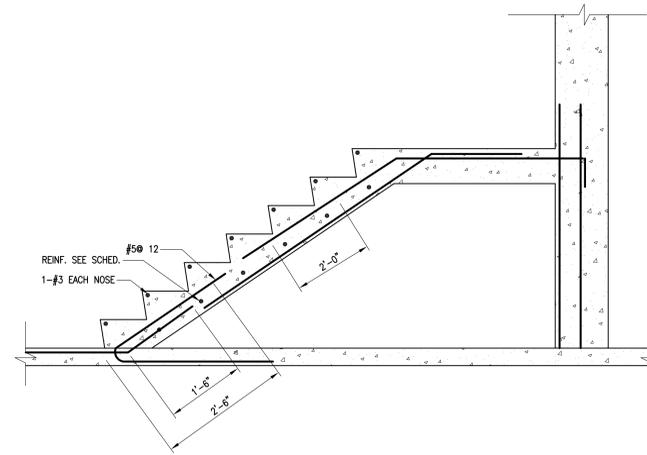
2LS Consulting Engineering
150 West 30th Street, 4th Floor
New York, NY 10001
Tel: (917) 267-8945

CONTRACTOR

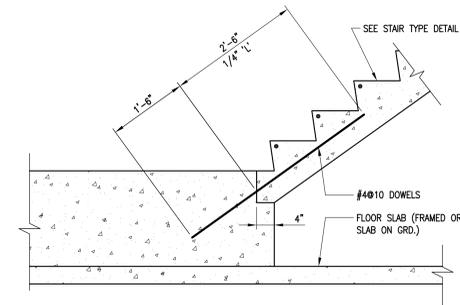
Foundations Group Inc.
520 West 27th Street, Suite 302
New York, New York 10001
Tel: (212) 924-1724



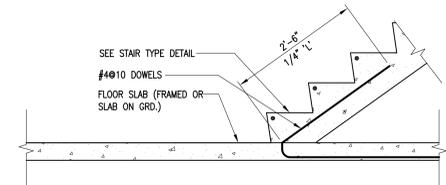
① TYPICAL CONCRETE STAIR SECTION @ CORE
SCALE: 3/4"=1'-0"



② TYPICAL CONCRETE STAIR SECTION
SCALE: 3/4"=1'-0"



④ DETAIL AT START OF STAIR ON FILL
SCALE: 3/4"=1'-0"



③ DETAIL AT START OF STAIR ON SLAB
SCALE: 3/4"=1'-0"

STAIR SCHEDULE				
SPAN	SLAB THICK	REINFORCING*		A
		SIZE	SPACING	
9'-0" OR LESS	5 1/2"	#4	12"	3'-0"
10'-0"	6"	#4	12"	3'-0"
11'-6"	7"	#4	12"	3'-0"
13'-0"	8"	#5	10"	3'-3"
15'-0"	9"	#5	10"	3'-9"
20'-0"	12"	#7	12"	5'-3"

⑤ CONCRETE STAIR REINFORCING SCHEDULE
SCALE: N.T.S.

DOB FILE NO.

DOB USE



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DESIGN DEVELOPMENT
DRAWN BY: KM
CHECKED BY: PR
DATE: AUGUST 15, 2013
SCALE: AS NOTED
PROJ. NO. 13010

CONCRETE STAIR DETAILS

S-404.00

GENERAL NOTES

1. ACCESSORIES & DEVICES: FLOW DIAGRAMS, EQUIPMENT COMPONENT DIAGRAMS & FLOOR PLANS DO NOT SHOW ALL ACCESSORIES AND DEVICES AT EQUIPMENT. PROVIDE AS SPECIFIED AND AS SHOWN ON DETAIL DRAWINGS.
2. CEILING PLANS: REFER TO ARCHITECTURAL CEILING PLANS FOR EXACT LOCATIONS OF ALL THE DIFFUSERS, REGISTERS, AND GRILLES. COORDINATE ALL DIFFUSER FRAMES WITH CEILING TYPE IN WHICH THEY ARE TO BE INSTALLED.
3. CEILING SPACES: CEILING SPACE FOR THE INSTALLATION OF EQUIPMENT, DUCTS AND PIPING IS LIMITED. CABLE TRAYS, SPRINKLER MAINS AND DRAINAGE PIPING ARE PRESENT. CLOSELY COORDINATE THE INSTALLATION OF MECHANICAL SYSTEMS WITH THE ELECTRICAL AND PLUMBING WORK. MAKE FULL USE OF ANY ADDITIONAL SPACE BETWEEN BEAMS FOR RISES, DROPS AND CROSSOVERS.
4. HYDRONIC SUPPLY AND RETURN PIPE RUNOUTS: BRANCH PIPING TO TERMINAL HEATING AND REHEAT COILS SHALL BE 3/4" UNLESS OTHERWISE NOTED.
5. LIFE SAFETY: REFER TO ARCHITECTURAL DRAWINGS FOR FIRE AND/OR SMOKE-RATED WALL/PARTITION/FLOOR/ROOF LOCATIONS AND RATINGS.
6. MECHANICAL ROOMS: INSTALL ALL DUCTWORK, PIPING AND THEIR SUPPORTS AS HIGH AS POSSIBLE. PROVIDE A MINIMUM WALK-THROUGH HEIGHT OF 7'-8" CLEAR ABOVE THE FLOOR. INSTALL SUSPENDED EQUIPMENT WITHIN A REASONABLY ACCESSIBLE HEIGHT (10'-0" MAX.) ABOVE THE FLOOR.
7. OPENINGS: COORDINATE THE SIZE AND LOCATION OF ALL WALL, FLOOR AND ROOF OPENINGS REQUIRED WITH THE GENERAL CONTRACTOR.
8. EXISTING SYSTEM SHUTDOWNS: CLOSELY COORDINATE SHUTDOWNS WITH THE OWNER AND OBTAIN WRITTEN PERMISSION NOT LESS THAN TWO WEEKS AHEAD OF TIME.
9. REVIEW AND REFERENCE: REVIEW & REFER TO ALL MECHANICAL (HVAC), PLUMBING, ELECTRICAL, & STRUCTURAL DRAWINGS SHOWING ORIGINAL DESIGN AND/OR EXISTING CONDITIONS IN THE BUILDING BEFORE THE START OF ANY NEW WORK.
10. PROVIDE VOLUME DAMPERS IN BRANCH AND RUN OUT DUCTWORK FOR ALL AIR OUTLETS AND INLETS. WHERE DAMPERS ARE ABOVE NON-ACCESSIBLE CEILINGS OR ARE WITHIN NON-ACCESSIBLE CONSTRUCTION, CORD OPERATORS SHALL BE PROVIDED.

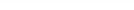
VENTILATION AND BUILDING DEPARTMENT NOTES

1. ALL WORK SHALL COMPLY WITH THE APPLICABLE SECTIONS OF THE BUILDING CODE, CITY OF NEW YORK, EFFECTIVE JULY 1, 2008 AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.
2. MATERIALS AND EQUIPMENT SUBJECT TO SPECIAL INSPECTION:
 - A. SPECIAL INSPECTIONS
MECHANICAL SYSTEMS – BC 1704.15
 - B. PROGRESS INSPECTIONS
ENERGY CODE COMPLIANCE (IIB2, IIB3, IIB4, IIB5) – BC 109.3.5
FINAL – BC109.5 & DIR. 14 OF 1975
3. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE FOLLOWING CODE CHAPTER AND SUB-SECTION:
 - A. STANDARDS OF HEATING CHAPTER 3, MC312
 - B. HEATING CAPACITY CHAPTER 3, MC312
 - C. NOISE CONTROL CHAPTER 9, SUB-SECTION MC-926
 - D. NOISE CRITERIA LEVELS AND TEST PROCEDURES FOR SPL. CHAPTER 9, SUB-SECTION MC-926
 - E. DUCT CONSTRUCTION, SUPPORTS, AIR INTAKES, EXHAUSTS AND RELIEFS. CHAPTER 5, 6 & 7
 - F. SEGREGATION OF AIR SUPPLY FOR CORRIDORS AND MEANS OF EGRESS AND DIFFERENT OCCUPANCY GROUPS. CHAPTER 6
 - G. AIR FILTERS, FANS, AIR COOLING AND HEATING EQUIPMENT. CHAPTER 6
 - H. ELECTRIC WIRING NYC ELECTRIC CODE
4. MINIMUM TEMPERATURE BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 70°F. WHEN 5°F. OUTSIDE (WITH 15 MPH WIND).
5. THE VENTILATION INDEX FOR ALL AREAS COMPLIES WITH THE MINIMUM CODE REQUIREMENTS PER CHAPTER 4 AND ALL SUBSECTIONS.
6. ALL TOILET ROOMS TO BE VENTILATED IN ACCORDANCE WITH SECTION 4, SUB-SECTION MC-403.
7. UPON COMPLETION OF THIS VENTILATION SYSTEM A TEST SHALL BE CONDUCTED IN THE PRESENCE OF AND UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT QUALIFIED TO CONDUCT SUCH TESTS. FOR SYSTEMS OF OR LESS THAN 5000 CFM THE INSPECTION MAY BE BY A PERSON HAVING NOT LESS THAN FIVE YEARS EXPERIENCE SUPERVISING INSTALLATION OF VENTILATING SYSTEMS. THE CONTRACTOR WILL BE REQUIRED TO RETAIN THE SERVICE OF THE PROPER PERSON TO CONDUCT THE TEST. THE TESTS SHALL SHOW COMPLIANCE WITH THE CODE REQUIREMENTS FOR VENTILATION AND THE PROPER FUNCTIONING OF ALL SMOKE DETECTION, FIRE PROTECTION AND OPERATING DEVICES BEFORE THE SYSTEM IS APPROVED. THE LICENSED PROFESSIONAL ENGINEER OR REGISTERED ARCHITECT WHO CONDUCTS THE TESTS SHALL FILE A CERTIFICATE AS TO WHETHER THE SYSTEM COMPLIES WITH THE APPLICABLE LAWS. HE/SHE SHALL ALSO FILE WITH THIS CERTIFICATION A REPORT OF THE TEST. THE TEST AND REPORT SHALL BE MADE IN A MANNER SATISFACTORY TO THE SUPERINTENDENT.
8. A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATING SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY CODE.
9. ALL VENTILATING AND AIR CONDITIONING DUCTWORK, BOTH LOW AND HIGH VELOCITY, TO BE CONSTRUCTED IN ACCORDANCE WITH THE DUCT MANUALS OF SMACNA, FIRST EDITION, 1985.
10. DUCT SUPPORT SHALL BE IN ACCORDANCE WITH CHAPTER 6, SECTION MC-603. ALL DUCTWORK SHALL BE CONSTRUCTED OF ANY OF THE FOLLOWING: IRON, STEEL, ALUMINUM, COPPER, CONCRETE, MASONRY OR CLAY TILE.
11. FIRE DAMPERS SHALL BE PROVIDED AT ALL FRESH AIR INTAKES AS PER CHAPTER 4, SECTION 401.5.1 AND IN ALL DUCTS PENETRATING FIRE RATED PARTITIONS AS PER CHAPTER 6.
12. LL FIRE DAMPERS SHALL BE APPROVED BY THE NEW YORK CITY BOARD OF STANDARDS AND APPEALS AND SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH UL 555, STANDARD FOR FIRE DAMPERS AND CEILING DAMPERS, 3RD EDITION.
13. SMOKE DETECTORS AND SMOKE DAMPERS SHALL BE INSTALLED AS REQUIRED IN CHAPTER 4, SECTION 401.5.1, AND CHAPTER 6. DAMPER OPERATION SHALL CONFORM WITH CHAPTER 5 AND 6.
14. SMOKE DAMPERS SHALL BE APPROVED BY THE NEW YORK CITY BOARD OF STANDARDS AND APPEALS AND SHALL BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH UL 555S-1983 STANDARD FOR LEAKAGE RATED DAMPERS FOR USE IN SMOKE CONTROL SYSTEMS, FIRST EDITION.
15. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATED WALL LOCATIONS AND RATED CONSTRUCTION.
16. TESTS OF SOUND POWER LEVEL OF MECHANICAL EQUIPMENT SHALL BE CONDUCTED AND RESULTS SUBMITTED AS REQUIRED AS PER CHAPTER 9, SECTION MC-926. NOISE CRITERIA LEVEL AND TEST PROCEDURES FOR SOUND POWER LEVEL SHALL COMPLY WITH CHAPTER 9, SECTION MC-926.

DRAWING LIST

DRAWING #	DRAWING NAME	
M101.00	MECHANICAL NOTES AND DRAWING LIST	1 OF 15
M102.00	MECHANICAL LEGEND AND SYMBOLS	2 OF 15
M300.00	MECHANICAL FIRST FLOOR PLAN	3 OF 15
M301.00	MECHANICAL SECOND FLOOR PLAN	4 OF 15
M302.00	MECHANICAL THIRD FLOOR PLAN	5 OF 15
M303.00	MECHANICAL FOURTH FLOOR PLAN	6 OF 15
M304.00	MECHANICAL FIFTH FLOOR PLAN	7 OF 15
M305.00	MECHANICAL SIXTH FLOOR PLAN	8 OF 15
M306.00	MECHANICAL SEVENTH FLOOR PLAN	9 OF 15
M307.00	MECHANICAL EIGHTH FLOOR PLAN	10 OF 15
M308.00	MECHANICAL NINTH FLOOR PLAN	11 OF 15
M309.00	MECHANICAL TENTH FLOOR PLAN	12 OF 15
M310.00	MECHANICAL ROOF TERRACE FLOOR PLAN	13 OF 15
M311.00	MECHANICAL ROOFTOP PLAN	14 OF 15
M601.00	MECHANICAL ROOFTOP PLAN	15 OF 15

LINE DESIGNATIONS

	EXISTING
	NEW
	DEMOLISHED
	HIDDEN
	CENTERLINE

CBA RESIDENCES

534 West 29th Street, New York, NY 10001

OWNER

W29 534 Highline Owners, LLC.
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Brooklyn, NY 11201
Tel: (917) 705-5534

MEP

2LS Consulting Engineering
150 West 30th Street, 4th Floor
New York, NY 10001
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GEO/ENVIRONMENTAL

GZA GeoEnvironmental of New York
104 West 29th Street, 10th Floor
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Montrose Surveying Co LLP.
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Richmond Hill, NY 11418
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CONTRACTOR

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New York, New York 10001
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DOB FILE NO.

DOB USE



REVISIONS

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02	09/18/2013	DOB HUB SUBMISSION
03	10/11/2013	PROGRESS
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DRAWING INFO

DESIGN DEVELOPMENT	C010-01-001
DRAWN BY:	ER
CHECKED BY:	PS
DATE:	AUGUST 28, 2013
SCALE:	1/4" = 1'-0"
PROJ. NO.	C010-01-001

OWNER SHALL NOTIFY FDNY OF SPRINKLER SYSTEM DISCONNECTION BY SUBMITTING A LETTER OF NOTIFICATION

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE NEW YORK CITY ENERGY CONSERVATION CODE

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

MECHANICAL LEGEND & NOTES

M101.00

1 of 15

ABBREVIATIONS

NOTE: NOT ALL SYMBOLS AND ABBREVIATIONS MAY BE USED.

AC	AIR CONDITIONING UNIT	(D)	DEMOLISH	OR	GRILLE	PRV	STEAM PRESSURE REDUCING VALVE
ACC	AIR COOLED CONDENSER	DB	DRY BULB	GRV	GRAVITY ROOF VENT	PSI	POUNDS PER SQUARE INCH
ACU	AIR COOLED CONDENSING UNIT	DDC	DIRECT DIGITAL CONTROL	H	HUMIDIFIER	PSIA	POUNDS PER SQUARE INCH-ABSOLUTE
AD	ACCESS DOOR	DIA	DIAMETER	HC	HEATING COIL	PSIG	POUNDS PER SQUARE INCH-GAGE
AFF	ABOVE FINISHED FLOOR	DISCH	DISCHARGE	HP	HORSEPOWER	QTY	QUANTITY
AFP	ROOM TEMPERATURE & AIRFLOW TRACKING PRESSURIZATION CONTROL PANEL	DN	DOWN	HTG	HEATING	(R)	RELOCATE
AHU	AIR HANDLING UNIT	DWG	DRAWING	HV	HEATING & VENTILATING UNIT	RA	RETURN OR RELIEF AIR
AL	ACOUSTICAL LINING	(E)	EXISTING TO REMAIN	HEX	HEAT EXCHANGER	RCP	RADIANT CEILING PANEL
AMB	AMBIENT	EA	EXHAUST AIR OR EACH	ID	INSIDE DIAMETER	RET	RETURN
AMS	AIR FLOW MEASURING STATION	EAT	ENTERING AIR TEMPERATURE	IN	INCHES	REV	REVISION
AP	ACCESS PANEL	EDB	ENTERING DRY BULB TEMPERATURE	INIT	INITIAL	RF	RETURN FAN
APD	AIR PRESSURE DROP	EF	EXHAUST FAN	KW	KILOWATT	RH	RELIEF HOOD OR RELATIVE HUMIDITY
ARCH	ARCHITECTURAL	EFF	EFFICIENCY	LAT	LEAVING AIR TEMPERATURE	RHC	REHEAT COIL
ATC	AUTOMATIC TEMPERATURE CONTROL	ELEC	ELECTRIC	LB	POUND	RM	ROOM
AVG	AVERAGE	ELEV	ELEVATION	LD	LINEAR DIFFUSER	RPM	REVOLUTIONS PER MINUTE
B OR BLR	BOILER	ENT	ENTERING	LDB	LEAVING DRY BULB TEMPERATURE	RR/RG	RETURN REGISTER/GRILLE
BAS	BUILDING AUTOMATION SYSTEM	ER/EG	EXHAUST REGISTER/GRILLE	LF	LINEAR FOOT	RV	RELIEF VALVE
BDD	BACKDRAFT DAMPER	ERU	ENERGY RECOVERY UNIT	LG	LINEAR GRILLE	SA	SUPPLY AIR OR SOUND ATTENUATOR
BDS	BACKDRAFT DAMPER	ERW	ROTARY HEAT WHEEL	LOC	LOCATION	SCP	STEAM CONDENSATE PUMP
BFS	BOILER FEED SYSTEM	ESP	EXTERNAL STATIC PRESSURE	LVG	LEAVING	SD	SMOKE DAMPER OR DETECTOR
BHP	BRAKE HORSEPOWER OR BOILER HORSEPOWER	ET	EXPANSION TANK	LWB	LEAVING WET BULB TEMPERATURE	SEC	SECOND
BI	BACKWARD INCLINED	EWB	ENTERING WET BULB TEMPERATURE	LWT	LEAVING WET BULB TEMPERATURE	SENS	SENSIBLE
BLDG	BUILDING	EWT	ENTERING WATER TEMPERATURE	MAX	MAXIMUM	SF	SUPPLY FAN
BOD	BOTTOM OF DUCT	EXH	EXHAUST	MBH	1000 BTU PER HOUR	SP	STATIC PRESSURE IN WG
BOP	BOTTOM OF PIPE	EXIST	EXISTING	MECH	MECHANICAL	SPD	STEAM PRESSURE DROP
BOT	BOTTOM	EXT	EXTERNAL	MER	MECHANICAL EQUIPMENT ROOM	SR/SG	SUPPLY REGISTER/GRILLE
BTU	BRITISH THERMAL UNIT	F&T	FLOAT AND THERMOSTATIC STEAM TRAP	MFR	MANUFACTURER	SRV	SAFETY RELIEF VALVE
BTUH	BTU PER HOUR	FA	FACE AREA OR FREE AREA	MIN	MINIMUM OR MINUTE	SUP	SUPPLY
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT	FC	FLEXIBLE CONNECTION	MOD	MOTOR OPERATED DAMPER	TRG	TRANSFER GRILLE
CC	COOLING COIL	FCU	FAN COIL UNIT	(N)	NEW	TOD	TOP OF DUCT
CD	CEILING DIFFUSER	FD	FIRE DAMPER OR FLOOR DRAIN	NC	NORMALLY CLOSED	TOP	TOP OF PIPE
CFH	CUBIC FEET PER HOUR	FLEX	FLEXIBLE	NIC	NOT IN CONTRACT	TOT	TOTAL
CFM	CUBIC FEET PER MINUTE	FLR	FLOOR	NO	NORMALLY OPEN OR NUMBER	TSP	TOTAL STATIC PRESSURE
CH	CHILLER	FLTR	FILTER	NTS	NOT TO SCALE	TYP	TYPICAL
CLG	COOLING	FM	FLOW METERING DEVICE	OA	OUTSIDE AIR	UH	UNIT HEATER
CMPR	COMPRESSOR	FO	FUEL OIL	OAI	OUTSIDE AIR INTAKE	VD	MANUAL VOLUME DAMPER
CO	CLEAN OUT	FOF	FUEL OIL FILL	OBD	OPPOSED BLADE DAMPER	VEL	VELOCITY
COL	COLUMN	FOO	FUEL OIL OVERFLOW	OED	OPEN ENDED DUCT	VFD	VARIABLE FREQUENCY DRIVE
CONC	CONCRETE	FOP	FUEL OIL PUMP	P	PUMP	W/	WITH
COND	CONDUIT	FOR	FUEL OIL RETURN	PC	PUMPED CONDENSATE	W/O	WITHOUT
CONN	CONNECTION	FOS	FUEL OIL SUPPLY/SUCTION	PD	PRESSURE DROP	WB	WET BULB
CONT	CONTINUATION	FOV	FUEL OIL VENT	PHC	PREHEAT COIL	WCU	WATER COOLED CONDENSING UNIT
CP	CONDENSATE PUMP	FPB	FAN POWERED AIR VOLUME CONTROL BOX	POS	POSITION	WG	WATER GAUGE
CT	COOLING TOWER	FPM	FEET PER MINUTE	PR	WATER PRESSURE REDUCING VALVE	WHP	WATER SOURCE HEAT PUMP
CJ	CONDENSING UNIT	FPS	FEET PER SECOND	PRESS	PRESSURE	WMS	WIRE MESH SCREEN
CUH	CABINET UNIT HEATER	FT	FLASH TANK OR FOOT OR FEET			WPD	WATER PRESSURE DROP
CV	AUTOMATIC CONTROL VALVE	FTR	FINNED TUBE RADIATION				
		GPH	GALLONS PER HOUR				
		GPM	GALLONS PER MINUTE				

SYMBOLS

	CENTERLINE		3 WAY CONTROL VALVE
	DIAMETER		CALIBRATED BALANCING VALVE
	OVAL		BOILER BLOWDOWN VALVE
	BACK FLOW PREVENTER ASSEMBLY		CHECK VALVE
	FLEXIBLE PIPING CONNECTOR		DRAIN VALVE W/ CAPPED HOSE END OR NIPPLE, 3/4" UNLESS OTHERWISE SPECIFIED
	FLOW CONTROL DEVICE		LOCK SHIELD SHUTOFF VALVE
	FLOW METER		PRESSURE REDUCING OR REGULATING VALVE
	PIPE ANCHOR		SAFETY RELIEF VALVE
	PIPE CAP, DUCT CAP, OR BLIND FLANGE		SHUTOFF VALVE
	PIPE GUIDE		HEAT ACTUATED SHUTOFF VALVE
	PIPE RISER UP AND DOWN OR ELBOW UP		SOLENOID VALVE
	PIPE RISER OR ELBOW DOWN		STOP AND CHECK VALVE
	PRESSURE GAUGE (WATER) W/ SNUBBER AND NEEDLE VALVE		THROTTLING VALVE
	PRESSURE GAUGE (STEAM) W/ SIPHON AND NEEDLE VALVE		TRIPLE-DUTY VALVE
	CAPPED PRESSURE GAUGE TAP W/ NEEDLE VALVE		Y-TYPE STRAINER W/ CAPPED HOSE END OR NIPPLE
	PRESSURE/TEMPERATURE TEST PLUG		Y-TYPE STRAINER W/ TAPPING SIZE
	PUMP		SHUTOFF VALVE TO 1" W/ CAPPED HOSE END OR NIPPLE
	STEAM TRAP ASSEMBLY WITHOUT BYPASS; SEE DETAIL		RETURN AIR REGISTER/GRILLE
	STEAM TRAP ASSEMBLY WITH BYPASS; SEE DETAIL		EXHAUST AIR REGISTER/GRILLE
	STEAM TRAP		CEILING DIFFUSER-DIFFUSER NECK SIZE, AIR QUANTITY & DIRECTION OF BLOW AS NOTED
	THERMOMETER		CONNECTION OF FLEXIBLE ROUND DUCT TO RECTANGULAR DUCT WITH VOLUME DAMPER
	THERMOMETER WELL ONLY		MANUAL VOLUME DAMPER
	UNION OR PAIR OF FLANGES		FLEXIBLE DUCT CONNECTION
	AUTOMATIC AIR VENT W/ SHUTOFF VALVE, PIPE TO DRAIN		SUPPLY AIR DUCT UP/DOWN
	1/2" MANUAL AIR OR STEAM VENT W/ SHUTOFF VALVE AND CAP		EXHAUST DUCT UP/DOWN
	THERMOSTATIC AIR VENT W/ SHUTOFF VALVE, PIPE TO DRAIN		RETURN DUCT UP/DOWN
	2 WAY CONTROL VALVE		SECTION LETTER
			DRAWING NUMBER WHERE SECTION IS DRAWN
	FIRE DAMPER W/ ACCESS DOOR		COMBINATION FIRE/SMOKE DAMPER W/ ACCESS DOOR
	MOTORIZED DAMPER W/ ACCESS DOOR		DUCT ACCESS DOOR
	DUCT RISE		DUCT DROP
	UNDERCUT DOOR		DOOR LOUVER
	MOTORIZED DAMPER W/ ACCESS DOOR		GRAVITY BACKDRAFT DAMPER W/ ACCESS DOOR
	DUCT-MOUNTED REHEAT COIL WITH ACCESS DOOR		AIR CONTROL DEVICE
	PROVIDE TRANSITIONS BETWEEN COMPONENTS		SEE SCHEDULES FOR COMPONENTS
	ACCESS SPACE SHOWN DOTTED-DO NOT BLOCK W/ PIPING, CONDUITS, DUCTWORK, ETC.		CARBON DIOXIDE SENSOR
	ACCESS SPACE IS FROM CEILING TO TOP OF AIR CONTROL DEVICE-COORDINATE WITH ALL TRADES		SPACE THERMOSTAT OR SPACE TEMPERATURE SENSOR
	HIGH TEMPERATURE LIMIT SENSOR		FLOW SWITCH
	LOW TEMPERATURE LIMIT SENSOR		SMOKE DETECTOR W/ DUCT ACCESS DOOR
	DIFFERENTIAL PRESSURE TRANSMITTER - WATER		PRESSURE TRANSMITTER
	SPACE HUMIDISTAT OR SPACE HUMIDITY SENSOR		POINT OF CONNECTION NEW-TO-EXISTING
	EXTENT OF DEMOLITION-TO-EXISTING WORK TO REMAIN		

CBA RESIDENCES

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CHECKED BY: PS
DATE: AUGUST 28, 2013
SCALE: 1/4" = 1'-0"
PROJ. NO. 0910-01-001

OWNER SHALL NOTIFY FDNY OF SPRINKLER SYSTEM DISCONNECTION BY SUBMITTING A LETTER OF NOTIFICATION

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE NEW YORK CITY ENERGY CONSERVATION CODE

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MECHANICAL SYMBOLS & ABBREVIATIONS

M102.00

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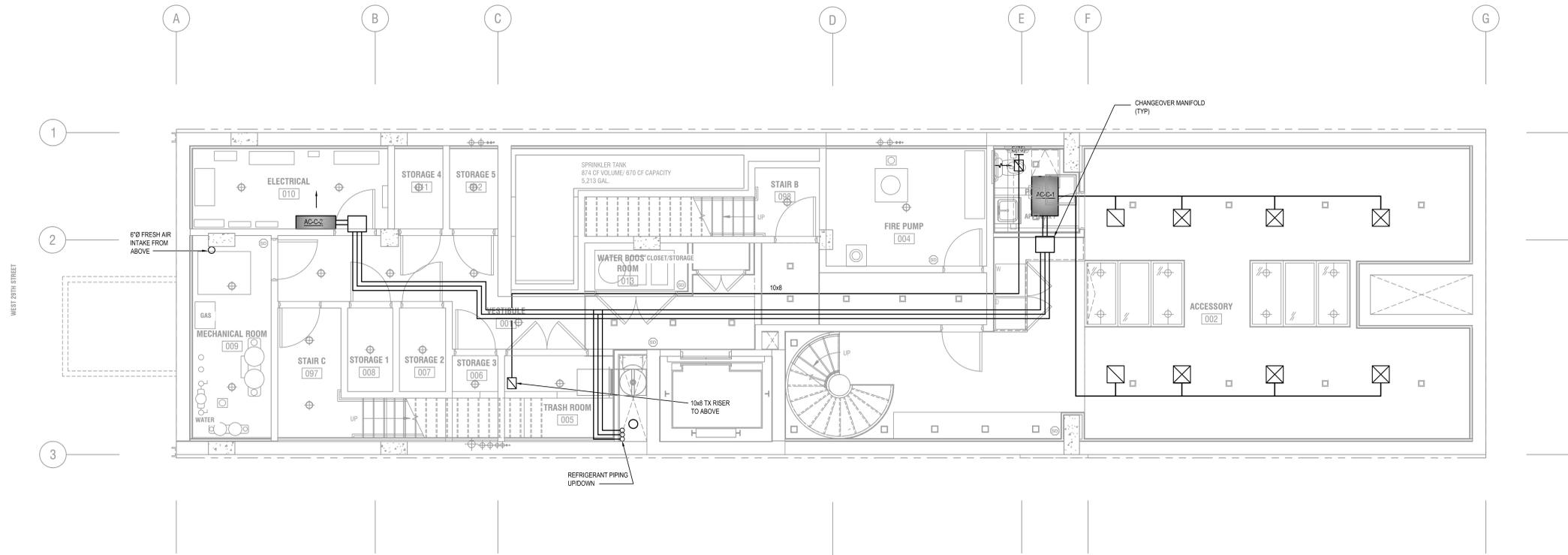
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1 CELLAR FLOOR PLAN
1/4" = 1'-0"

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MECHANICAL CELLAR PLAN

M300.00

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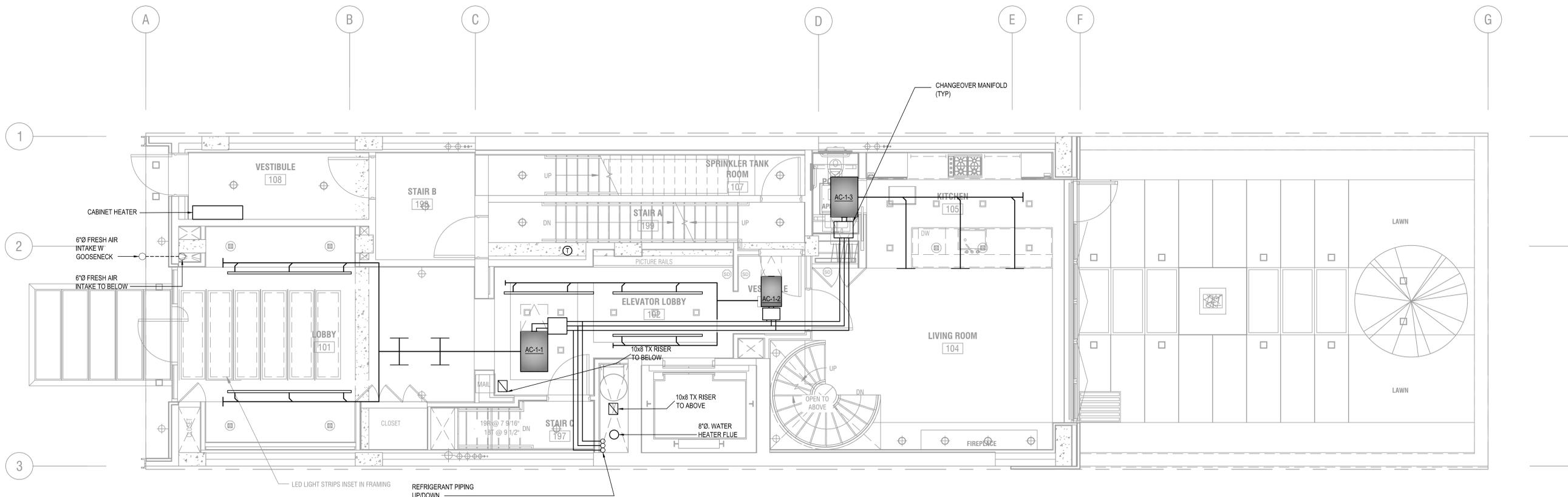
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2 1ST FLOOR PLAN
1/4" = 1'-0"

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**MECHANICAL
FIRST FLOOR PLAN**

M301.00

OWNER

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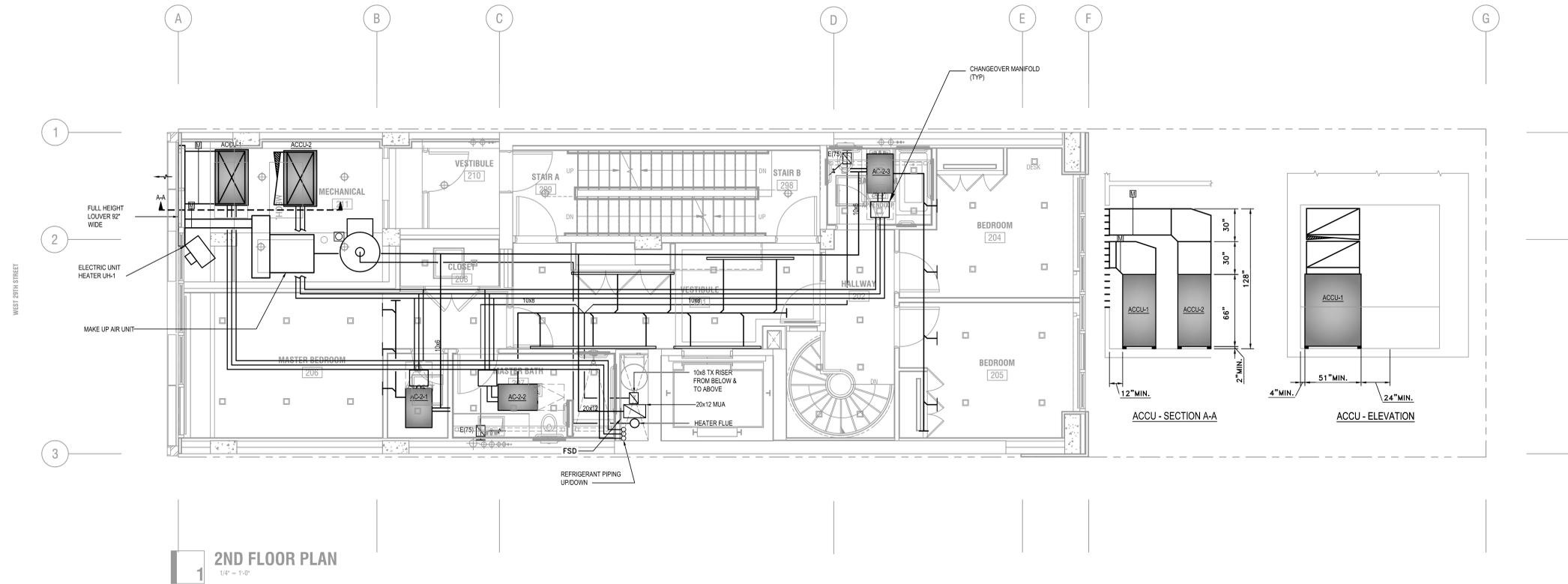
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MECHANICAL SECOND FLOOR PLAN

M302.00

OWNER

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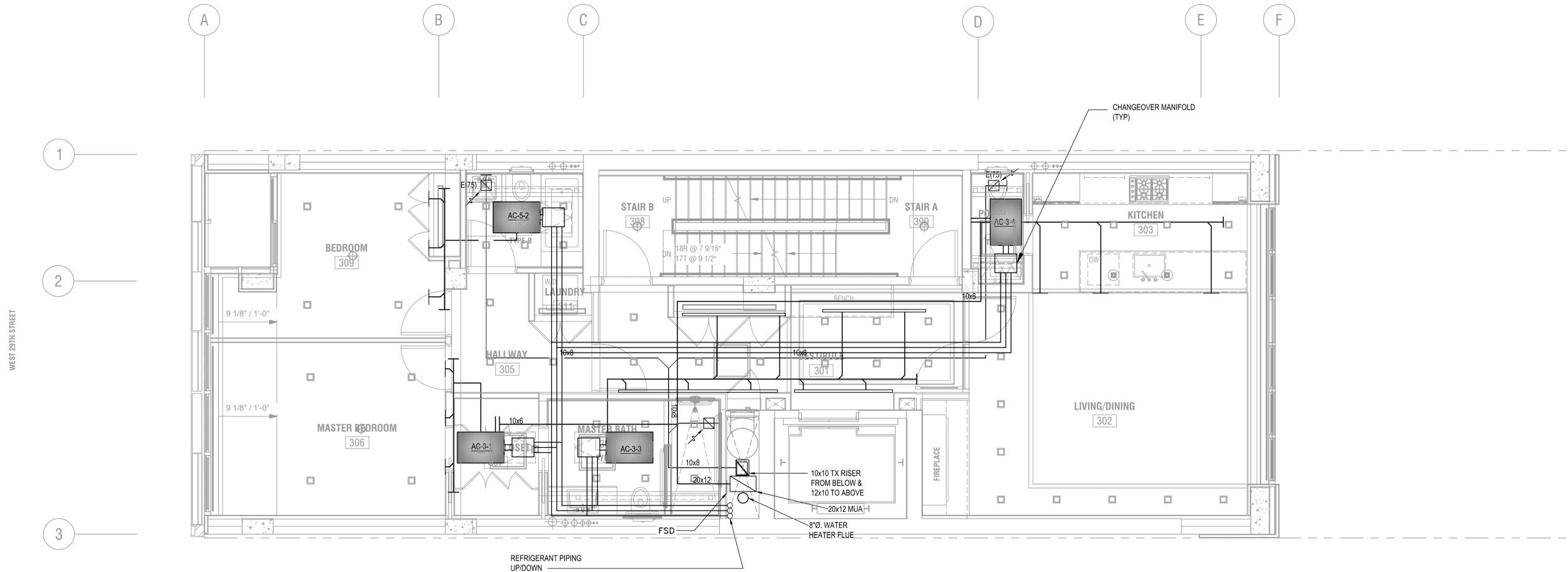
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2 3RD FLOOR PLAN
1/4" = 1'-0"

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MECHANICAL THIRD FLOOR PLAN

M303.00

OWNER

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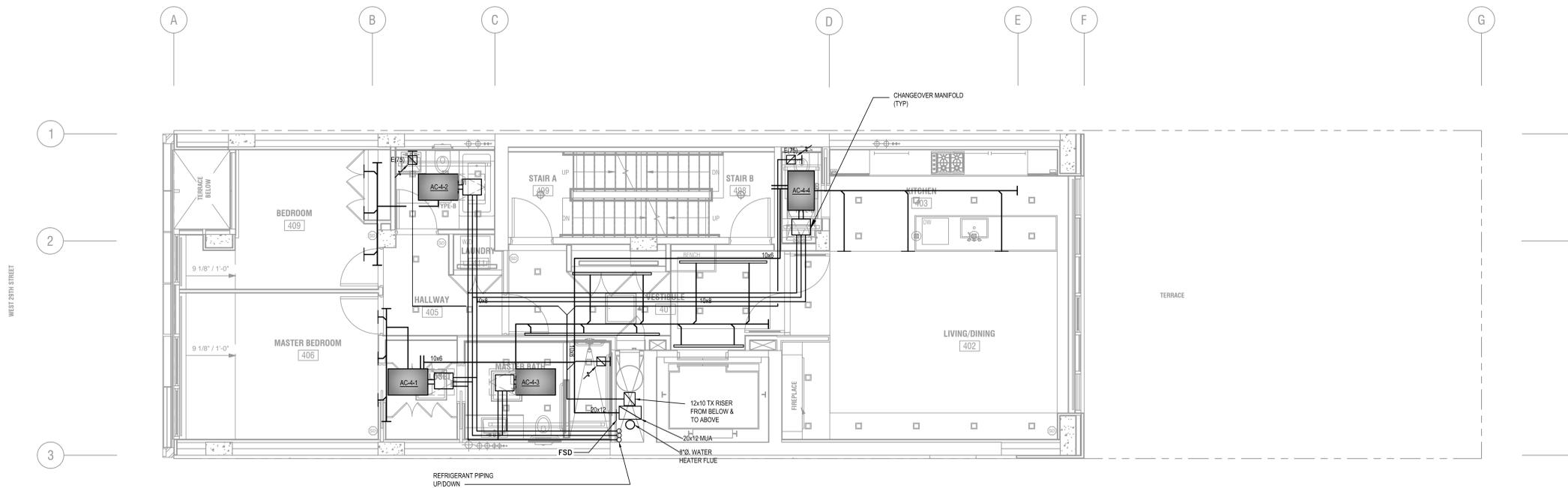
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4TH FLOOR PLAN
1/4" = 1'-0"

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MECHANICAL FOURTH FLOOR PLAN

M304.00

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GEO/ENVIRONMENTAL

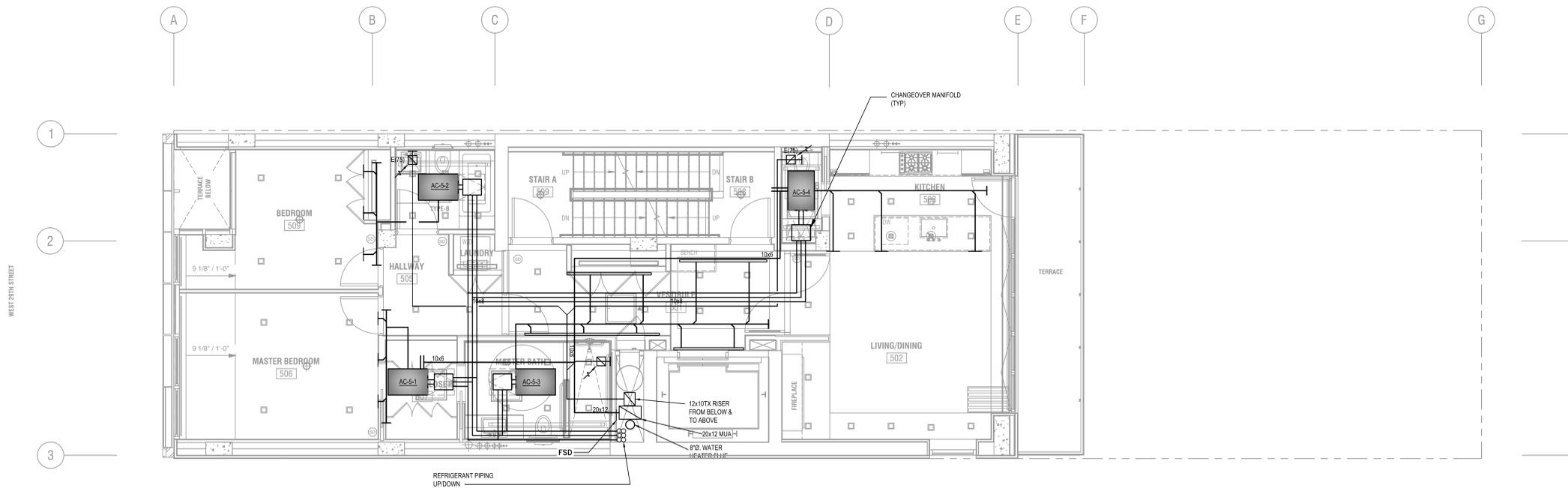
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5TH FLOOR PLAN
1/4" = 1'-0"

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MECHANICAL FIFTH FLOOR PLAN

M305.00

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GEO/ENVIRONMENTAL

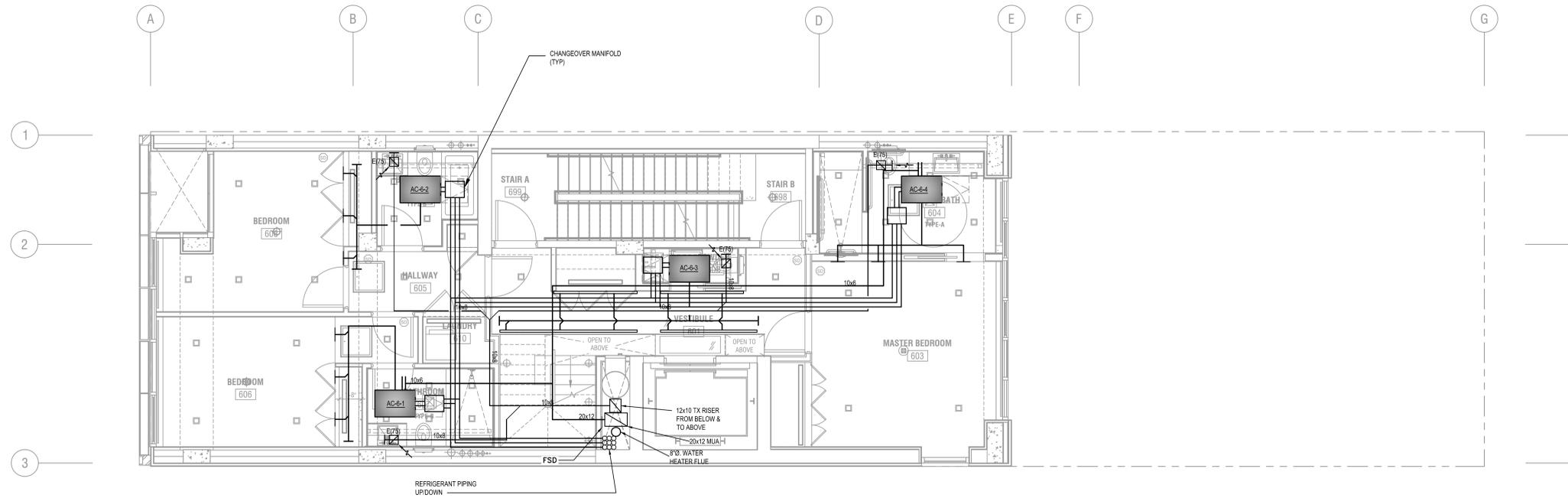
GZA GeoEnvironmental of New York
104 West 29th Street, 10th Floor
New York, New York 10001
Tel: (212) 594-8140

SURVEYOR

Montrose Surveying Co LLP.
115-20 Monticutan Ave
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CONTRACTOR

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520 West 27th Street, Suite 302
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Tel: (212) 924-1724



6TH FLOOR PLAN
1/4" = 1'-0"

DOB FILE NO.

DOB USE



REVISIONS

NO.	DATE	REVISION
01	07/10/2013	REVIEW
02	06/18/2013	DOB HUB SUBMISSION
03	10/11/2013	PROGRESS
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DRAWING INFO

DESIGN DEVELOPMENT C010-01-001
DRAWN BY: ER
CHECKED BY: PS
DATE: AUGUST 28, 2013
SCALE: 1/4" = 1'-0"
PROJ. NO. C010-01-001

OWNER SHALL NOTIFY FDNY OF SPRINKLER SYSTEM DISCONNECTION BY SUBMITTING A LETTER OF NOTIFICATION

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE NEW YORK CITY ENERGY CONSERVATION CODE

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

MECHANICAL
SIXTH FLOOR PLAN

M306.00

OWNER

W29 534 Highline Owners, LLC.
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ARCHITECT OF RECORD

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STRUCTURAL ENGINEER

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MEP

2LS Consulting Engineering
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Tel: (917) 267-8945

GEO/ENVIRONMENTAL

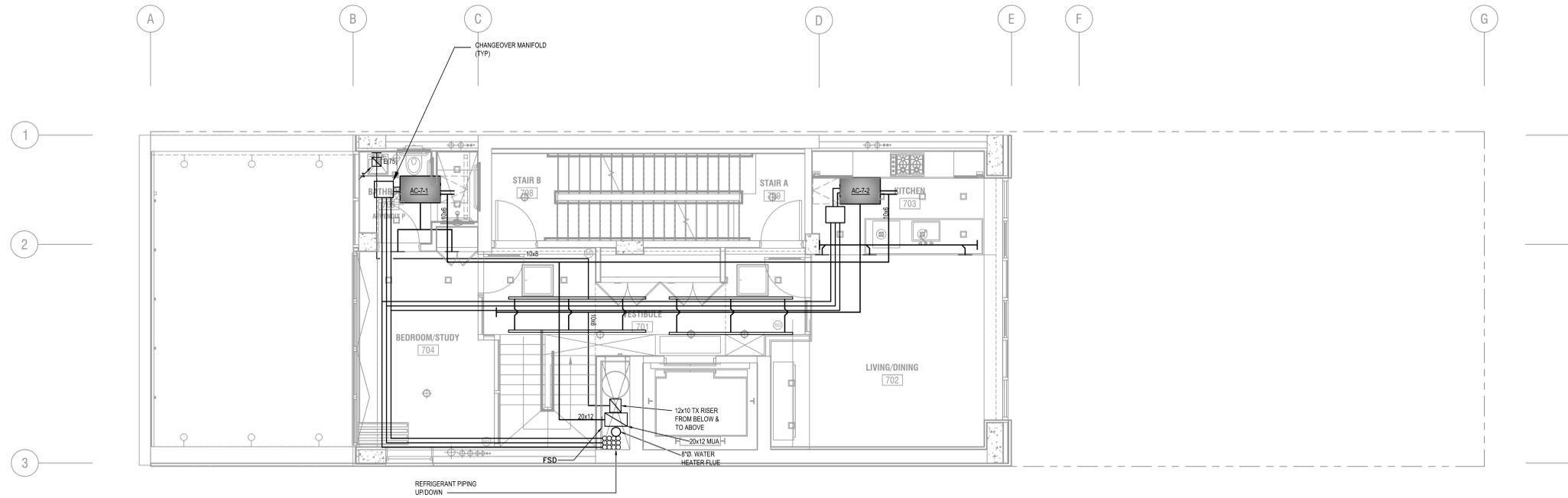
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New York, New York 10001
Tel: (212) 594-8140

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2 7TH FLOOR PLAN
1/4" = 1'-0"

DOB FILE NO.

DOB USE



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01	07/10/2013	REVIEW
02	08/18/2013	DOB HUB SUBMISSION
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MECHANICAL
SEVENTH FLOOR PLAN

M307.00

OWNER

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GEO/ENVIRONMENTAL

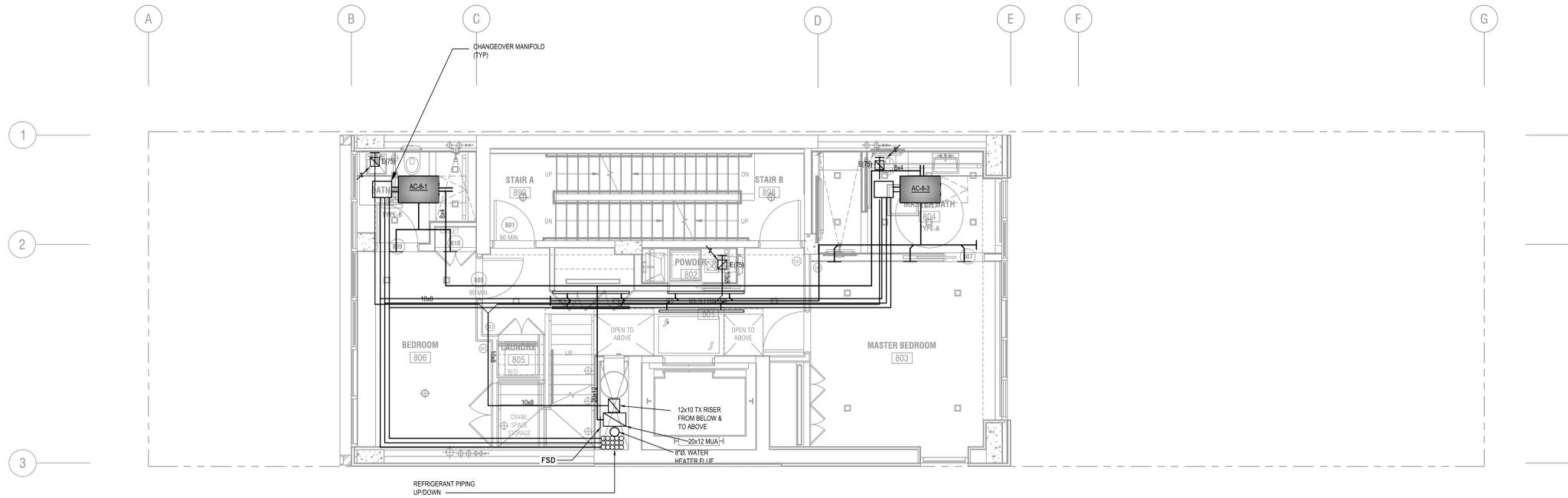
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8TH FLOOR PLAN
1/4" = 1'-0"

DOB FILE NO.

DOB USE



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MECHANICAL EIGHTH FLOOR PLAN

M308.00

OWNER

W29 534 Highline Owners, LLC.
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New York, NY 10001
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ARCHITECT OF RECORD

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MEP

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New York, NY 10001
Tel: (917) 267-8945

GEO/ENVIRONMENTAL

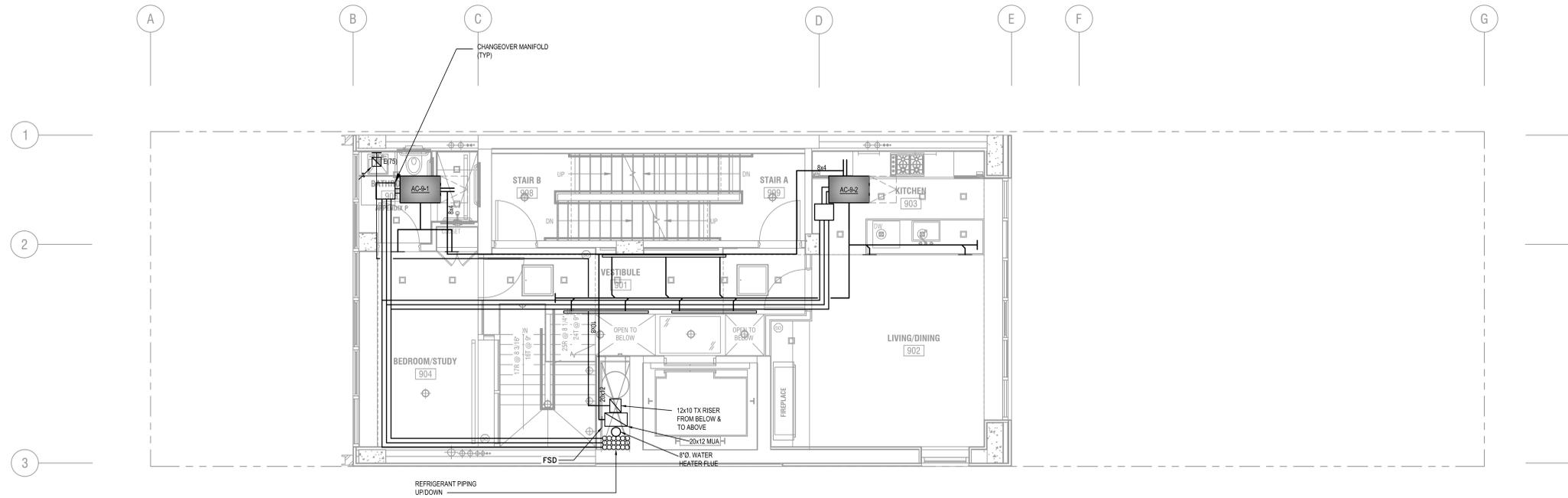
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New York, New York 10001
Tel: (212) 594-8140

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2 9TH FLOOR PLAN
1/4" = 1'-0"

DOB FILE NO.

DOB USE



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MECHANICAL
NINTH FLOOR PLAN

M309.00

OWNER

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GEO/ENVIRONMENTAL

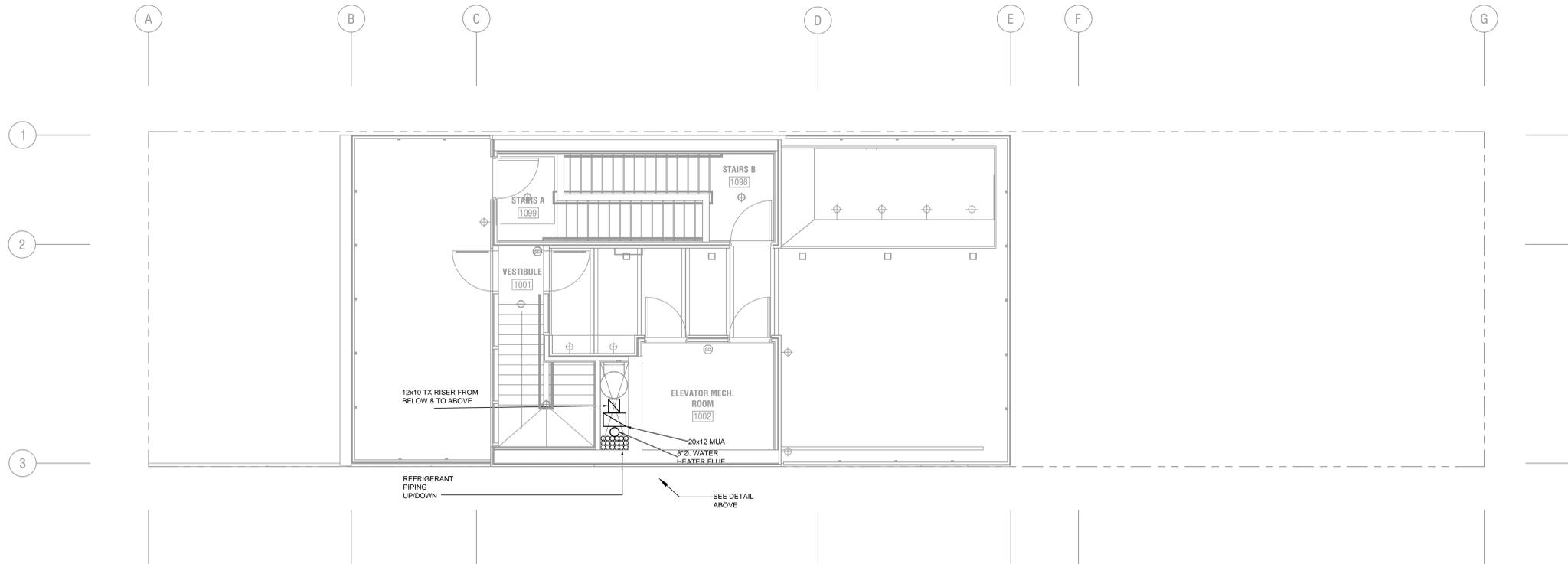
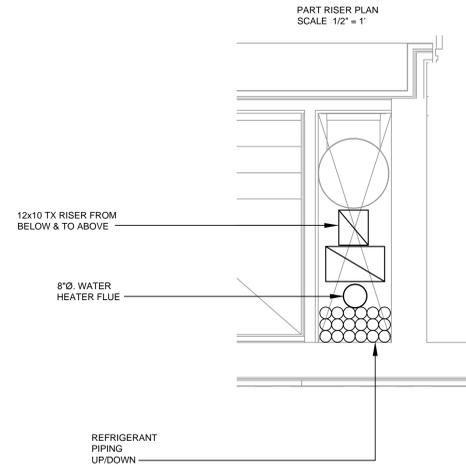
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CONTRACTOR

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1 ROOF LEVEL PLAN
1/4" = 1'-0"

DOB FILE NO.

DOB USE



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**MECHANICAL
ROOF TERRACE PLAN**

M310.00

OWNER

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MEP

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New York, NY 10001
Tel: (917) 267-8945

GEO/ENVIRONMENTAL

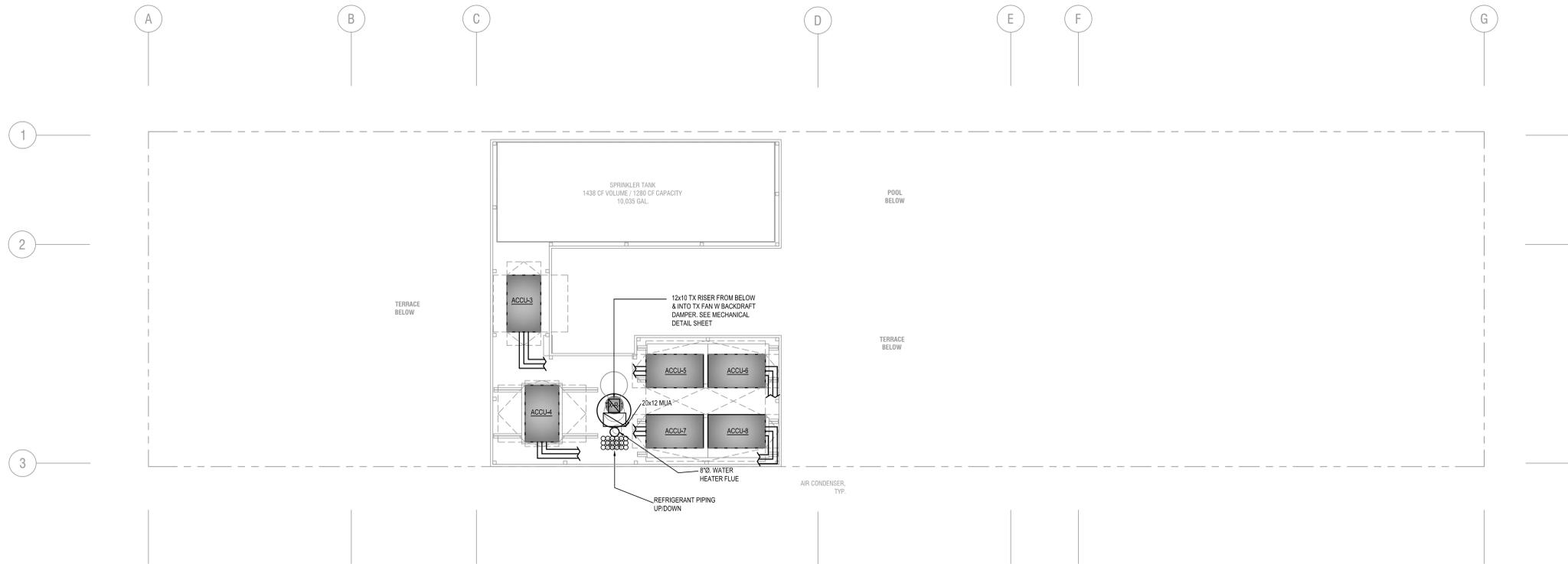
GZA GeoEnvironmental of New York
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CONTRACTOR

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Tel: (212) 924-1724



2 BULKHEAD TOP PLAN
1/4" = 1'-0"

DOB FILE NO.

DOB USE



REVISIONS

NO.	DATE	DESCRIPTION
01	07/10/2013	REVIEW
02	06/18/2013	DOB HUB SUBMISSION
03	10/11/2013	PROGRESS
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OWNER SHALL NOTIFY FDNY OF SPRINKLER SYSTEM
DISCONNECTION BY SUBMITTING A LETTER OF
NOTIFICATION

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PROFESSIONAL JUDGMENT, THESE PLANS AND
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OR IN ACCORDANCE WITH APPLICABLE CODES.

MECHANICAL ROOFTOP PLAN

M311.00

PIPING FITTING SCHEDULE				
PIPE MATERIAL	PIPE SIZE	JOINT TYPE	FITTING MATERIAL	FITTING CLASS
COPPER TUBING HARD DRAWN	4" & SMALLER	SOLDER 95-5 TINANTIMONY ASTM B32 OR 95 TA SILVER SOLDER ASTM B32 OR 95 TS	WROUGHT COPPER OR CAST COPPER	300 PSIG AT 100°F, 150 PSIG AT 250°F
		BRAZING	WROUGHT COPPER	450 PSIG AT 100°F TO 200°F, 150 PSIG AT 250°F
COPPER TUBING HARD DRAWN REFRIGERANT SYSTEMS TYPE ACR	4" & SMALLER	SOLDER 15-5 -80 SILVER PHOSPHOROUS COPPER AWS A5.8 OR BRAZING	WROUGHT COPPER	STANDARD
RED BRASS	ALL SIZES	THREADED	CAST BRONZE	125 AND 250 PSIG
BLACK STEEL	2" & SMALLER	THREADED FLANGE	CAST IRON	125 AND 250 PSIG
		THREADED	MALLEABLE IRON	150 AND 300 PSIG
		SOCKET WELD ENDS	FORGED STEEL	2,000 LBS.
BLACK STEEL	2½" & LARGER	BUTT WELDED	WROUGHT STEEL	SAME WEIGHT AS PIPING
		WELD NECK FLANGES AND FLANGED FITTINGS	WROUGHT STEEL	150 AND 300 PSIG
BLACK STEEL	BRANCH CONNECTIONS	MAIN TO 2 PIPE SIZES SMALLER - USE WELD TYPE 3 OR MORE PIPE SIZES SMALLER THAN MAIN - USE BONNY WELD-O-LETS (UP TO BRANCH PIPE CONNECTION SIZE OF 2") BRANCH CONNECTIONS SIZE OF 2" AND SMALLER - BONNY WELD-O-LETS, THREADED NIP-O-LETS, OR STEEL COUPLINGS		SAME WEIGHT AS PIPING

NOTES:
1. REFER TO SPECIFICATIONS FOR MORE INFORMATION.

PIPING MATERIAL SCHEDULE					
SERVICE	SIZE	MATERIAL	WEIGHT	STANDARD	JOINT TYPE
COLD CONDENSATE DRAINS, MISCELLANEOUS DRAINS AND OVERFLOWS	2" & BELOW	HARD COPPER	TYPE 'L'	ASTM A88	BRAZE OR SILVER SOLDER
REFRIGERANT (AIR COOLED AND COMMERCIAL REFRIGERATION)	ALL	HARD COPPER	TYPE ACR REFRIGERANT OR TYPE 'L'	ASTM B280 OR ASTM B-88	BRAZE OR SOLDER
REFRIGERANT VENT	2" & BELOW	BLACK STEEL	SCHEDULE 40	ASTM A53 OR A106 SEAMLESS GRADE B	SOCKET WELD
LOW PRESSURE STEAM (15 PSI & BELOW) AND VACUUM	2" & BELOW	BLACK STEEL	SCHEDULE 40	ASTM A53 OR A106 SEAMLESS GRADE B	THREADED
	2" & ABOVE	BLACK STEEL	SCHEDULE 40	ASTM A53 OR A106 SEAMLESS GRADE B	WELDED

PIPING MATERIAL NOTES:
1. REFER TO SPECIFICATIONS FOR MORE INFORMATION.

FAN SCHEDULE														
TAG	LOCATION	SERVICE	CFM	FAN TYPE	EXT. STATIC PRESS. (IN.W.G.)	FAN				ELECT. V/Ø/Hz	DIMENSIONS (LxDxH)	WEIGHT (LBS)	MANUFACTURER/ MODEL	COMMENTS
						WHEEL DIA (IN)	DRIVE TYPE	MOTOR HP/W	BHP					
EF-1	ROOF	NORTH TOWER	-	-	-	-	-	-	-	-	-	-	-	-
EF-2	ROOF	SOUTH TOWER	-	-	-	-	-	-	-	-	-	-	-	-

NOTES:
1. CONTRACTOR TO PROVIDE COMBINATION STARTER/DISCONNECT SWITCH AS REQUIRED.
2. FAN TO BE INTERLOCKED WITH BATHROOM LIGHTSWITCH(ES).
3. FAN TO BE ON EMERGENCY POWER.
4. FAN TO RUN CONTINUOUSLY.
5. FAN TO BE INTERLOCKED WITH MANUAL SWITCH ON HOOD WITH TEMPERATURE OVERRIDE TO TURN ON IF HOOD SENSES COOKING TEMPERATURES.
6. FAN TO BE EQUIPPED WITH GREASE BOX BY MANUFACTURER.
7. ENTIRE SYSTEM TO BE PURCHASED BY SINGLE MANUFACTURER. INDIVIDUAL VEHICLE EXHAUST SYSTEMS TO TURN ON AS INDICATED BY VEHICLE ATTACHMENT SWITCH.

SPLIT AIR CONDITIONING HEAT PUMP SCHEDULE - EVAPORATOR SECTION																		
TAG NO	TYPE	LOCATION	TOTAL CFM	COOLING CAPACITY				HEAT CAPACITY			INDOOR UNIT POWER SUPPLY (SEE NOTE 2)				DAIKIN MODEL #	REMARKS		
				EAT °F		LAT °F		EAT °F		LAT °F		SERVICE	MCA	MOP			STARTER BY	EMERGENCY POWER
				DB	WB	DB	WB	DB	WB	DB	WB							
AC-C-1	HORIZONTAL	SEE PLANS	280	74	67	55	55	12	70	90	13.5	208/1	0.9	15	MFR	NO	FXDQ09MVJU	-
AC-C-2	HORIZONTAL	SEE PLANS	800	74	67	55	55	24	70	90	27	208/1	1.6	15	MFR	NO	FXTQ24PVJU	-
AC-1-1	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ12PVJU	-
AC-1-2	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ12PVJU	-
AC-1-3	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ15PVJU	-
AC-2-1	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ24PVJU	-
AC-2-2	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-2-3	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ24PVJU	-
AC-3-1	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-3-2	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-3-3	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-3-4	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-4-1	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-4-2	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-4-3	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-4-4	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-5-1	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-5-2	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-5-3	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-5-4	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-6-1	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ24PVJU	-
AC-6-2	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ24PVJU	-
AC-6-3	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ24PVJU	-
AC-6-4	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ24PVJU	-
AC-7-1	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ48PAVJU	-
AC-7-2	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ48PAVJU	-
AC-8-1	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-8-2	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-8-3	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ18PVJU	-
AC-9-1	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ48PAVJU	-
AC-9-2	HORIZONTAL	SEE PLANS	1600	74	67	55	55	48	70	90	54	208/1	6	15	MFR	NO	FXTQ48PAVJU	-

NOTES:
1. MCA = CIRCUIT AMPS (FOR WIRE SIZING); OCP = MAXIMUM OVERCURRENT PROTECTION AMPS, BASED ON ACTUAL UNIT, ACCESSORY AND COIL LOSSES AND SPECIFIED FINAL FILTER APD.
2. UNIT TO COME WITH QUICK CONNECTS FOR REFRIGERANT LINES
3. CONTRACTOR TO PROVIDE WALL MOUNTED THERMOSTAT
4. CONTRACTOR TO PROVIDE CONDENSATE PUMP FOR ALL INDOOR UNITS
5. UNIT TO COME EQUIPPED WITH SOLENOID VALVE KIT

GRILLE, REGISTER AND DIFFUSER SCHEDULE			
DESIGNATION	TYPE	REMARKS	BASIS OF DESIGN
CD1	ARCHITECTURAL SQUARE PLAQUE DIFFUSER	24X24 LAY-IN PANEL	MODEL OMNI
SG1/SR1	SUPPLY GRILLE/REGISTER	18X6 0.75" BLADE SPACING, 35° DEFLECTION	MODEL 300RL
RG1/RR1, EG1/ER1	RETURN/EXHAUST GRILLE/REGISTER	24X24 0.75" BLADE SPACING, 35° DEFLECTION	MODEL 350RL
RG2/RR2, EG2/ER2	RETURN/EXHAUST GRILLE/REGISTER	16X16 0.75" BLADE SPACING, 35° DEFLECTION	MODEL 350RL
LD1/LR1	LINEAR SLOT SUPPLY/RETURN	SLOT OPENING SHOWN ON DRAWINGS	MODEL FL-10

NOTES:
1. COORDINATE WITH ARCHITECT FOR FINAL COLOR.
2. DIFFUSERS TO BE SUITABLE FOR TYPE OF CEILING.
3. CEILING DIFFUSERS ARE 4-WAY BLOW UNLESS INDICATED OTHERWISE ON DRAWINGS OR SCHEDULE.
4. NECK SIZES AND AIRFLOW (CFM) ARE INDICATED ON DRAWINGS.

SPLIT AIR CONDITIONING HEAT PUMP SCHEDULE - CONDENSER SECTION									
TAG NO	OUTDOOR UNIT POWER SUPPLY (SEE NOTES)					EER	COP	DAIKIN MODEL #	REMARKS
	SERVICE	MCA	MOP	STARTER BY	EMERGENCY POWER				
ACC-1	208/3	36.1	40	MFR	NO	13.8	3.8	REYQ72PBTJ	
ACC-2	208/3	36.1	40	MFR	NO	13.8	3.8	REYQ72PBTJ	
ACC-3	208/3	36.1	40	MFR	NO	13.8	3.8	REYQ72PBTJ	
ACC-4	208/3	36.1	40	MFR	NO	13.8	3.8	REYQ72PBTJ	
ACC-5	208/3	36.1	40	MFR	NO	13.8	3.8	REYQ72PBTJ	
ACC-6	208/3	43.8	45	MFR	NO	12.1	3.6	REYQ96PBTJ	
ACC-7	208/3	43.8	45	MFR	NO	12.1	3.6	REYQ96PBTJ	
ACC-8	208/3	30	35	MFR	NO	12.8	3.71	REYQ72PBTJ	

NOTES:
1. MCA = CIRCUIT AMPS (FOR WIRE SIZING); OCP = MAXIMUM OVERCURRENT PROTECTION AMPS, BASED ON ACTUAL UNIT, ACCESSORY AND COIL LOSSES AND SPECIFIED FINAL FILTER APD.
2. UNIT TO COME WITH HOT GAS BYPASS AND QUENCH VALVE
3. UNIT TO HAVE FLOODED LOW AMBIENT CONTROL
4. UNIT TO HAVE PAINTED CABINET
5. UNIT TO COME WITH OIL SEPARATOR
6. CONDENSING UNIT TO COME WITH OUTDOOR MOD KIT

OWNER SHALL NOTIFY FDNY OF SPRINKLER SYSTEM DISCONNECTION BY SUBMITTING A LETTER OF NOTIFICATION

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE NEW YORK CITY ENERGY CONSERVATION CODE

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

DOB FILE NO.

DOB USE



REVISIONS

NO	DATE	REVISION
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02	06/18/2013	DOB HUB SUBMISSION
03	10/11/2013	PROGRESS
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MECHANICAL LEGEND & NOTES

M601.00

15 of 15

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INSPECTIONS, PROGRESS INSPECTIONS, SPECIAL INSPECTIONS, AND TESTING OF PLUMBING SYSTEMS											
1.	THE FOLLOWING INSPECTIONS, TESTS, PROGRESS INSPECTIONS AND SPECIAL INSPECTIONS SHALL BE CONSIDERED PART OF THE PLUMBING CONTRACT WORK.										
2.	UPON COMPLETION OR PARTIAL COMPLETION OF THE PERMITTED PLUMBING WORK, INSPECTIONS, PROGRESS INSPECTIONS, SPECIAL INSPECTIONS AND TESTS SHALL BE CONDUCTED BY APPROVED AGENCIES OR SPECIAL INSPECTORS QUALIFIED TO CONDUCT SUCH INSPECTIONS AND TESTS. INSPECTIONS AND PROGRESS INSPECTIONS SHALL BE PERFORMED IN COMPLIANCE WITH SECTION BC 109 OF THE NEW YORK CITY BUILDING CODE. SPECIAL INSPECTIONS SHALL BE PERFORMED IN COMPLIANCE WITH SECTIONS BC 1704 AND BC 1707 OF THE NEW YORK CITY BUILDING CODE FOR ALL PLUMBING SYSTEMS REGULATED BY THE NEW YORK CITY PLUMBING CODE, SECTIONS PC 107, PC 312, CHAPTERS 6, 7, 9 AND 11, THE NEW YORK CITY FUEL GAS CODE, SECTIONS FGC 107, AND FGC 406. REFER TO ARTICLE 116 OF CHAPTER 1 OF TITLE 28 OF THE ADMINISTRATIVE CODE FOR ADDITIONAL PROVISIONS RELATED TO INSPECTIONS.										
3.	SPECIAL INSPECTIONS OF PLUMBING SYSTEMS SHALL INCLUDE THE FOLLOWING AS APPLICABLE TO THE SYSTEM: <ul style="list-style-type: none"> a. VISUAL CERTIFICATION THAT REQUIRED COMPONENTS OF SUCH SYSTEMS ARE COMPLETE AND IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION GUIDELINES AND THE APPROVED CONSTRUCTION DOCUMENTS. b. SUPPORTS, HANGERS, SEISMIC BRACING AND VIBRATION ISOLATION EQUIPMENT ARE PROPERLY SPACED AND ANCHORED TO THE SUPPORTING STRUCTURE. c. INSTALLATION OF REQUIRED SIGNAGE AND SAFETY INSTRUCTIONS. d. ELECTRICAL COMPONENTS ARE INSTALLED AND ELECTRICAL SIGN-OFF ISSUED. e. REQUIRED LABELING, OPERATIONAL INSTRUCTIONS, AND SAFETY SIGNAGE ARE PROPERLY POSTED. f. ALL RELATED SPECIAL INSPECTIONS FOR SUCH SYSTEMS ARE COMPLETE. 										
4.	PROGRESS INSPECTIONS OF PLUMBING SYSTEMS SHALL INCLUDE THE FOLLOWING AS APPLICABLE TO THE SYSTEM: <ul style="list-style-type: none"> a. THROUGH PENETRATION FIRE STOPPING. 										
5.	TESTS OF PLUMBING SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING NEW YORK CITY BUILDING CODE, AND NEW YORK CITY PLUMBING CODE SECTIONS: <table border="0" style="width: 100%;"> <tr> <td>DRAINAGE & VENT WATER TEST</td> <td>PC 312.2</td> </tr> <tr> <td>DRAINAGE & VENT AIR TEST</td> <td>PC 312.3</td> </tr> <tr> <td>DRAINAGE & VENT FINAL TEST</td> <td>PC 312.4</td> </tr> <tr> <td>WATER SUPPLY SYSTEM TEST</td> <td>PC 312.5</td> </tr> <tr> <td>REGULATORS AND VALVE ASSEMBLIES</td> <td>FGC 406.1.5</td> </tr> </table>	DRAINAGE & VENT WATER TEST	PC 312.2	DRAINAGE & VENT AIR TEST	PC 312.3	DRAINAGE & VENT FINAL TEST	PC 312.4	WATER SUPPLY SYSTEM TEST	PC 312.5	REGULATORS AND VALVE ASSEMBLIES	FGC 406.1.5
DRAINAGE & VENT WATER TEST	PC 312.2										
DRAINAGE & VENT AIR TEST	PC 312.3										
DRAINAGE & VENT FINAL TEST	PC 312.4										
WATER SUPPLY SYSTEM TEST	PC 312.5										
REGULATORS AND VALVE ASSEMBLIES	FGC 406.1.5										
6.	THE FOLLOWING IS A LIST OF ALL REQUIRED SPECIAL INSPECTIONS: <table border="0" style="width: 100%;"> <tr> <td><u>SPECIAL INSPECTION ITEM</u></td> <td><u>CODE-SECTION</u></td> </tr> <tr> <td>SPRINKLER SYSTEM</td> <td>BC 1704.21</td> </tr> <tr> <td>FIRESTOPPING</td> <td>BC 1704.25</td> </tr> </table>	<u>SPECIAL INSPECTION ITEM</u>	<u>CODE-SECTION</u>	SPRINKLER SYSTEM	BC 1704.21	FIRESTOPPING	BC 1704.25				
<u>SPECIAL INSPECTION ITEM</u>	<u>CODE-SECTION</u>										
SPRINKLER SYSTEM	BC 1704.21										
FIRESTOPPING	BC 1704.25										
7.	THE FOLLOWING IS A LIST OF ALL REQUIRED PROGRESS INSPECTIONS: <table border="0" style="width: 100%;"> <tr> <td><u>PROGRESS INSPECTION ITEM</u></td> <td><u>CODE-SECTION</u></td> </tr> <tr> <td>FIRE-RESISTIVE RATED CONSTRUCTION</td> <td>BC 109.3.1</td> </tr> <tr> <td>ROUGH-IN INSPECTION</td> <td>PC 107.1.1.2</td> </tr> </table>	<u>PROGRESS INSPECTION ITEM</u>	<u>CODE-SECTION</u>	FIRE-RESISTIVE RATED CONSTRUCTION	BC 109.3.1	ROUGH-IN INSPECTION	PC 107.1.1.2				
<u>PROGRESS INSPECTION ITEM</u>	<u>CODE-SECTION</u>										
FIRE-RESISTIVE RATED CONSTRUCTION	BC 109.3.1										
ROUGH-IN INSPECTION	PC 107.1.1.2										

NYC BUILDING DEPARTMENT NOTES	
THE PLUMBING SYSTEMS (SANITARY, WASTE, VENT, GAS AND WATER DISTRIBUTION) AND ALL ASSOCIATED EQUIPMENT WILL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE FULL REQUIREMENTS OF THE PLUMBING CODE OF THE CITY OF NEW YORK AS CITED IN ARTICLE 28.	
1.	THE SANITARY SYSTEM SHALL BE PROVIDED IN FULL ACCORDANCE WITH THE GENERAL PROVISIONS OF SECTION PC 701.
2.	THE MATERIAL USED IN THE PLUMBING SYSTEMS WILL BE PROVIDED IN FULL ACCORDANCE WITH SECTION PC 402, 605, 702, 902, 1102.
3.	EQUIPMENT HOOK UP AND THE JOINING OF PIPING WILL BE IN FULL COMPLIANCE WITH SECTION PC 605.
4.	THE INSTALLATION OF FIXTURES WILL BE IN FULL ACCORDANCE WITH SECTION PC 400.
5.	TRAPS FOR FIXTURES AND DRAIN LINES WILL BE PROVIDED AND CLEANOUTS INSTALLED IN FULL COMPLIANCE WITH SECTION PC 708, 709 AND 1002.
6.	VERTICAL AND HORIZONTAL PIPING WILL BE HUNG AND SUPPORTED AS DIRECTED IN THE SPECIFICATIONS AND WITH THE FULL COMPLIANCE WITH SECTION PC 308.
7.	THE WATER SUPPLY SYSTEM OF THE SUBJECT BUILDING SHALL BE INSTALLED AND MAINTAINED IN FULL COMPLIANCE WITH SECTION PC 502.
8.	THE SANITARY DRAINAGE SYSTEM WILL BE SIZED AND INSTALLED IN FULL COMPLIANCE WITH SECTIONS PC 704 AND 710.
9.	THE VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM OF THE SUBJECT BUILDING WILL BE INSTALLED IN FULL COMPLIANCE WITH SECTION PC 900.
10.	THE STORM DRAINAGE SYSTEM AND PIPING WILL BE INSTALLED IN FULL COMPLIANCE WITH SECTION PC 1100.
11.	TEMPORARY TOILET FACILITIES SHALL BE PROVIDED FOR WORKMEN AS PER SECTION 113-02 (e) (20)

ABBREVIATIONS	
PLUMBING SYMBOLS, ABBREVIATIONS AND GENERAL NOTES INDICATED ON THIS DRAWING ARE TYPICAL. PLUMBING DRAWINGS MAY NOT INDICATE ALL SYMBOLS AND ABBREVIATIONS INDICATED ON THIS DRAWING.	
AIR	COMPRESSED AIR
AFF	ABOVE FINISH FLOOR
ABV. CLG.	ABOVE CEILING
AV	ACID VENT
AHU	AIR HANDLING UNIT
BLW	BELOW
BV	BALL VALVE
BOP	BOTTOM OF PIPE
BFP	BACKFLOW PREVENTION DEVICE
CW	DOMESTIC COLD WATER
CI	CAST IRON
CLG	CEILING
CV	CHECK VALVE
CO	CLEANOUT
CODO	CLEANOUT DECK PLATE
CP	CIRCULATING PUMP
CM	COFFEE MAKER
DEG	DEGREE
DI	DEIONIZED WATER
DIA	DIAMETER
DN	DOWN
EL	ELEVATION
EXT	EXTERIOR
FT	FEET
FDC	FIRE DEPARTMENT CONNECTION
FLR	FLOOR
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FS	FLOOR SINK
FV	FLUSH VALVE
GAS	NATURAL GAS
GAL	GALLONS
GALV	GALVANIZED
GV	GATE VALVE
GLV	GLOBE VALVE
HW	DOMESTIC HOT WATER
HWR	DOMESTIC HOT WATER RETURN
HP	HORSEPOWER
HB	HOSE BIB
INV EL	INVERT ELEVATION
LBS	POUNDS
LAV	LAVATORY
MH	MANHOLE
MECH	MECHANICAL
MV	MIXING VALVE
MIN	MINIMUM
NGV	NATURAL GAS VENT
N C	NORMALLY CLOSED
N O	NORMALLY OPEN
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NA	NOT APPLICABLE
NO.	NUMBER
OD	OUTSIDE DIAMETER
PLBG	PLUMBING
PP	POLYPROPYLENE PIPING
PVC	POLYVINYL CHLORIDE PIPING
PIV	POST INDICATOR VALVE
PSI	POUNDS PER SQUARE INCH
PG	PRESSURE GAUGE
PRV	PRESSURE REDUCING VALVE
PD	PUMPED DRAIN
RECIRC	RECIRCULATING
RPZ	REDUCED PRESSURE ZONE BFP
RD	ROOF DRAIN
S, SAN	SANITARY WASTE
SA	SHOCK ABSORBER
SH	SHOWER
SPEC	SPECIFICATION
SPR	SPRINKLER
SP	STANDPIPE
SD	STORM DRAIN
TEMP	TEMPERATURE
T&P	TEMPERATURE AND PRESSURE RELIEF VALVE
TYP	TYPICAL
TP	TRAP PRIMER
VB	VACUUM BREAKER
VTR	VENT THROUGH ROOF
VIF	VERIFY IN FIELD
V	VENT
W	WASTE
WH	WALL HYDRANT - NON FREEZE

DRAWING LIST	
DRAWING #	DRAWING NAME
P101.00	PLUMBING LEGENDS & NOTES
P201.00	PLUMBING SYMBOLS & ABBREVIATIONS
P299.00	PLUMBING UNDERGROUND PLAN
P300.00	PLUMBING CELLAR PLAN
P301.00	PLUMBING FIRST FLOOR PLAN
P302.00	PLUMBING SECOND FLOOR PLAN
P303.00	PLUMBING THIRD FLOOR PLAN
P304.00	PLUMBING FOURTH FLOOR PLAN
P30500	PLUMBING FIFTH FLOOR PLAN
P306.00	PLUMBING SIXTH FLOOR PLAN
P307.00	PLUMBING SEVENTH FLOOR PLAN
P308.00	PLUMBING EIGHTH FLOOR PLAN
P309.00	PLUMBING NINTH FLOOR PLAN
P310.00	PLUMBING ROOF TERRACE PLAN
P311.00	PLUMBING ROOFTOP PLAN
P401.00	PLUMBING DETAILS

GENERAL NOTES	
1.	THE ENTIRE PLUMBING SYSTEM SHALL BE IN CONFORMANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS.
2.	COORDINATE ALL WORK WITH OTHER DISCIPLINES PRIOR TO INSTALLATION. PROVIDE NECESSARY OFFSETS, REROUTING, ETC. REQUIRED FOR A COMPLETE AND COORDINATED INSTALLATION.
3.	PROVIDE FOR ALL PERMITTING AND INSPECTIONS REQUIRED FOR COMPLETE INSTALLATION.
4.	COORDINATE ANY PLUMBING SYSTEM SHUT DOWN REQUIRED WITH OWNER A MINIMUM OF 48 HOURS PRIOR TO SHUT DOWN
5.	SUPPORT ALL PIPING IN CONFORMANCE WITH THE SPECIFICATIONS. SEE THE PLUMBING CODE FOR MAXIMUM HORIZONTAL AND VERTICAL SPACING REQUIREMENTS. CONFORM TO HANGER AND SUPPORT MANUFACTURER'S RECOMMENDATIONS.
6.	HANGERS AND SUPPORTS SHALL CONFORM TO THE BUILDING CODE AND MSS SP-127 FOR SEISMIC, WIND AND DYNAMIC FORCES.
7.	ALL PIPING PENETRATION FIRE RATINGS THROUGH NEW AND EXISTING WALLS AND FLOORS SHALL EQUAL THE FIRE RATING OF THE WALL OR FLOOR PENETRATED.
8.	COORDINATE ALL BELOW GRADE PLUMBING PIPING WITH FOUNDATION ELEVATIONS AND SITE UTILITY INVERTS. VERIFY EXISTING ELEVATIONS AND INVERTS PRIOR TO CONSTRUCTION.
9.	PROVIDE BACKFLOW PREVENTION DEVICES IN CONFORMANCE WITH THE THE PLUMBING CODE AND LOCAL ORDINANCES.
10.	PROVIDE WATER HAMMER ARRESTORS IN CONFORMANCE WITH PDI AND LOCAL ORDINANCES.
11.	TEST ALL PLUMBING SYSTEMS AND DISINFECT DOMESTIC WATER SYSTEM IN CONFORMANCE WITH THE PLUMBING CODE.
12.	DO NOT ROUTE PLUMBING PIPING THROUGH ELECTRICAL ROOMS, ELECTRICAL CLOSETS, OR DATA COMMUNICATION CENTERS.
13.	DO NOT ROUTE PLUMBING PIPING THROUGH ELEVATOR SHAFT UNLESS PIPING IS DEDICATED TO SHAFT. DO NOT ROUTE PLUMBING THROUGH UTILITY PLUMBING PIPING INSTALLATION..

SYMBOLS	
PLUMBING SYMBOLS, ABBREVIATIONS AND GENERAL NOTES INDICATED ON THIS DRAWING ARE TYPICAL. PLUMBING DRAWINGS MAY NOT INDICATE ALL SYMBOLS AND ABBREVIATIONS INDICATED ON THIS DRAWING.	
	EXISTING TO BE DEMOLISHED
	SANITARY WASTE PIPING
	VENT PIPING
	STORM WATER PIPING
	PUMPED DRAIN PIPING
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	DOMESTIC HOT WATER PIPING WITH TEMPERATURE MAINTENANCE CABLING
	DOMESTIC HOT WATER RETURN PIPING
	TRAP PRIMER PIPING BLW SLAB
	GATE VALVE
	GLOBE VALVE
	BALL VALVE
	PLUG VALVE
	SHUT-OFF VALVE
	VALVE IN RISE
	GAS COCK
	PRESSURE REDUCING VALVE
	CHECK VALVE
	TEMP. & PRESSURE RELIEF VALVE
	THERMOSTATIC 3 WAY VALVE
	SOLENOID VALVE
	UNION
	CLEANOUT PLUG
	FLOOR CLEANOUT
	THERMOMETER
	PRESSURE GAGE
	SHOCK ABSORBER
	TRAP PRIMER
	CAP ON END OF PIPE
	FLOOR DRAIN
	FLOOR SINK
	CONNECT TO EXISTING

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DOB USE	



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OWNER SHALL NOTIFY FDNY OF SPRINKLER SYSTEM DISCONNECTION BY SUBMITTING A LETTER OF NOTIFICATION

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE NEW YORK CITY ENERGY CONSERVATION CODE

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PLUMBING LEGEND & NOTES



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N.Y.C. BUILDING DEPARTMENT NOTES

THE PLUMBING SYSTEMS (SANITARY, VENT, WATER DISTRIBUTION) AND ALL ASSOCIATED EQUIPMENT SHALL BE CONSTRUCTED, INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW 2008 NEW YORK CITY BUILDING CODE, AS CITED IN CHAPTER 29 AND REFERENCED TO THE NEW YORK CITY PLUMBING CODE(NYCPC).

- THE SANITARY SYSTEM SHALL BE IN FULL ACCORDANCE WITH THE GENERAL PROVISIONS IN THE NYCPC- CHAPTER 7) SANITARY DRAINAGE.
- THE MATERIALS USED IN THE PLUMBING SYSTEM SHALL BE PROVIDED IN FULL ACCORDANCE WITH SECTION PC706-MATERIALS AND PC605-MATERIALS, JOINTS & CONNECTIONS.
- EQUIPMENT HOOD-UP AND THE JOINING OF PIPING SHALL BE IN FULL COMPLIANCE WITH SECTION PC705-JOINTS AND PC706-CONNECTION BETWEEN DRAINAGE PIPING AND FITTING.
- ALL FIXTURES SHALL COMPLY WITH THE REQUIREMENTS OUTLINED IN THE NYCPC- CHAPTER 4) FIXTURES, FAUCETS AND FITTINGS.
- THE INSTALLATION OF FIXTURES WILL BE IN FULL ACCORDANCE WITH SECTION PC405- INSTALLATION OF FIXTURES.
- TRAPS FOR FIXTURES AND DRAIN LINES WILL BE PROVIDED AND CLEANDUTS INSTALLED IN FULL ACCORDANCE WITH PC708-CLEANDUTS AND PC1002- TRAP REQUIREMENTS.
- VERTICAL AND HORIZONTAL PIPING WILL BE HUNG AND SUPPORTED IN THE FULL COMPLIANCE WITH PC308- PIPING SUPPORT.
- THE WATER SUPPLY SYSTEM OF THE SUBJECT BUILDING SHALL BE INSTALLED IN FULL COMPLIANCE WITH THE NYCPC- CHAPTER 6) WATER SUPPLY AND DISTRIBUTION.
- THE SANITARY DRAINAGE SYSTEM OF THE SUBJECT BUILDING SHALL BE INSTALLED IN FULL COMPLIANCE WITH THE NYCPC- CHAPTER 7) SANITARY DRAINAGE.
- THE VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN FULL COMPLIANCE WITH THE NYCPC- CHAPTER 9) VENTS.
- CHANGES IN DIRECTION IN DRAINAGE PIPING SHALL BE MADE WITH APPROPRIATE USE OF 45 DEGREE WYES, LONG SWEEPS, SHORT SWEEPS, SIXTH, EIGHT OR SIXTEENTH BENDS OR BY A COMBINATION OF THESE OR EQUIVALENT FITTINGS.
- SANITARY TEES AND QUARTER BENDS MAY BE USED IN DRAINAGE LINES ONLY WHERE THE DIRECTION OF FLOW IS FROM THE HORIZONTAL TO THE VERTICAL.
- SHORT SWEEPS WILL BE PERMITTED IN DRAINAGE PIPING 3 INCH DIAMETER OR LARGER FOR ANY OFFSETS EITHER HORIZONTAL OR VERTICAL.
- PROTECTION OF PIPING AS OUTLINED IN PC305- PROTECTION OF PIPES AND PLUMBING SYSTEM COMPONENTS, SHALL BE PROVIDED AS REQUIRED.
- STORM DRAINAGE PIPING AND SIZING SHALL BE IN ACCORDANCE WITH NYCPC-CHAPTER 11) STORM DRAINAGE.
- INDIRECT, SPECIAL AND MISCELLANEOUS PIPING SHALL BE AS DIRECTED IN THE NYCPC-CHAPTER 8) INDIRECT/SPECIAL WASTE.
- GAS PIPING INSTALLATION, MATERIAL AND SIZES SHALL ADHERE TO THE NEW YORK CITY FUEL GAS CODE.
- ALL PLUMBING FIXTURES SHALL COMPLY WITH LOCAL LAW 29/89- LDV FLDW FIXTURES.
- RODENT PROOFING SHALL COMPLY WITH SECTION PC304- RODENT PROOFING.

- THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL CONDITIONS AND SHALL CALL SAME TO THE ATTENTION OF THE ARCHITECT AND CONSTRUCTION MANAGER IF THEY VARY FROM THE LOCATIONS INDICATED IN THE DRAWINGS. THE DRAWINGS ARE NOT TO BE SCALED.
- ALL PLUMBING WORK SHALL BE IN STRICT ACCORDANCE WITH THE RULES AND REGULATIONS GOVERNING PLUMBING AND DRAINAGE WORK, SHALL CONFORM TO ALL OTHER APPLICABLE REGULATIONS AND SHALL MEET REQUIREMENTS OF INSPECTING AUTHORITIES INCLUDING THE NYC BUILDING CODE.
- DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS. EXACT LOCATION SHALL BE COORDINATED WITH ALL TRADES, ARCHITECTURAL DRAWINGS, GENERAL CONTRACTOR AND PRIME CONTRACTOR.
- ALL EXPOSED PIPING PENETRATIONS THROUGH WALLS OR CEILINGS SHALL BE PROVIDED WITH APPROPRIATE FIRE RETARDANT SEALANT AND ESCUTCHEONS.
- ALL FIXTURES TO BE SEALED WHERE FIXTURE COMES IN CONTACT WITH WALLS OR FLOOR WITH CLEAR SEALANT.
- COORDINATE ALL WORK WITH ALL OTHER CONTRACTORS PERTAINING TO THE LOCATION OF PLUMBING AND DRAINAGE PIPING HVAC WORK, LIGHTING FIXTURES, AND ELECTRICAL, PROVIDE ALL NECESSARY PIPING OFFSETS AND CHANGES IN DIRECTION TO ACCOMPLISH A COMPLETE INSTALLATION.
- SUBMISSION OF A PROPOSAL SHALL BE EVIDENCE THAT A CAREFUL EXAMINATION OF THE SITE, DRAWINGS & SPECIFICATIONS HAS BEEN MADE AND THE CONTRACTOR IS FAMILIAR WITH THOSE ITEMS AND AREAS THAT WILL PRESENT DIFFICULTY TO THE PERFORMANCE OF THIS CONTRACT. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT, ETC NECESSARY TO COMPLETE ALL WORK AS A RESULT OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN.

- CONTRACTOR TO VERIFY THE EXISTING CONDITIONS BEFORE CONSTRUCTION CONFIRM SIZES AND LOCATIONS OF ALL EXISTING PIPING PRIOR TO START OF WORK.
- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR AT THIS SITE BEFORE PROCEEDING WITH ANY WORK.
- PRIOR TO STARTING CONSTRUCTION, DETERMINE EXACT INVERT ELEVATION, SIZE, DEPTH AND LOCATION OF EXISTING CONDITIONS.

- SANITARY DRAINAGE SHALL HAVE A UNIFORM GRADE OF 1/4" PER FOOT, FOR 2 1/2" AND SMALLER AND AN 1/8" PER FOOT FOR 3" OR LARGER, U.O.N.
- PROVIDE CLEANDUTS, CLEANDUTS SHALL BE SAME SIZE AS THE PIPES THEY SERVE UP TO 4 INCHES, AND NOT LESS THAN 4 INCHES FOR LARGER PIPING.
- PROVIDE CLEANDUTS FOR CHANGES IN DIRECTION FOR ALL SANITARY PIPING.
- FACILITY TO REMAIN OPERATIONAL. TEMPORARILY ROUTING OF PIPING SHALL BE PROVIDED AS NOT TO INTERFERE WITH THE EXISTING FACILITY EXCEPT AS OTHERWISE DIRECTED BY OWNERS REPRESENTATIVE.
- THE CONTRACTOR SHALL COORDINATE ALL WORK WITH RESPECT TO OTHER TRADES, EXISTING STRUCTURE AND CEILING HEIGHTS. CONTRACTOR SHALL COORDINATE ALL WORK WITH ARCHITECTURAL LAYOUTS, INCLUDING CEILING HEIGHTS.

- CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT, MATERIALS AND WORKMANSHIP FOR ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE.
- THE SUCCESSFUL BIDDER SHALL GUARANTEE IN WRITING TO THE OWNER THAT ALL WORK BY HIM SHALL BE FREE FROM ANY AND ALL DEFECTS IN WORKMANSHIP AND MATERIALS, AND THAT ALL APPARATUS WILL DEVELOP THE CAPACITY AND CHARACTERISTICS AS INDICATED ON THE DRAWINGS, FROM THE DATE OF THE CERTIFICATION, COMPLETION AND ACCEPTANCE OF THE WORK INCLUDING ANY SUCH DEFECTS IN WORKMANSHIP, MATERIALS OR PERFORMANCE SHALL APPEAR, CONTRACTOR WILL REMEDY THEM WITHOUT ANY COST TO THE OWNER.

- INSURANCE
 - THE CONTRACTOR SHALL FURNISH STATUTORY COMPENSATION INSURANCE CERTIFICATES FOR PERSONAL AND PROPERTY DAMAGE DISABILITY/LIABILITY AS REQUIRED BY THE OWNER AND HEREIN BEFORE DESCRIBED.

- DEFINITIONS
 - "FURNISH" OR "PROVIDE": TO SUPPLY, ERCT, INSTALL AND CONNECT UPON COMPLETE AND READY FOR OPERATION PARTICULAR WORK REFERRED TO, UNLESS SPECIFICALLY INDICATED OR SPECIFIED OTHERWISE.
 - "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND ALL OTHER ITEMS CUSTOMARILY FURNISHED AND/OR REQUIRED FOR PROPER AND COMPLETE INSTALLATION OF WORK.
 - "WIRING": CONDUIT, FITTINGS, WIRE, JUNCTION AND OUTLET BOXES, SWITCHES, CUTOUPS AND RECEPTACLES AND ALL ITEMS NECESSARY OR REQUIRED IN CONNECTION WITH OR RELATING TO SUCH WIRING.
 - "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, NSTALLD BEHIND WALL FURRING, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES OR IN CRAWL SPACES.
 - "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.
 - "INDICATED" OR "SHOWN": AS INDICATED OR SHOWN ON DRAWINGS OR SPECIFIED WITHIN SPECIFICATIONS.
 - "PIPING": PIPE, FITTINGS, FLANGES, VALVES, CONTROLS, HANGERS, TRAPS, DRAINS, INSULATION AND ITEMS CUSTOMARILY OR REQUIRED IN CONNECTION WITH OR RELATING TO SUCH PIPING.
 - "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE, AND DELIVER COMPLETE WITH ALL RELATED ITEMS.
 - "INSTALL": TO ERCT, MOUNT AND CONNECT UP COMPLETE WITH ALL RELATED ACCESSORIES.
 - "NOTED": AS INDICATED ON DRAWINGS AND/OR SPECIFIED.

- CLEANING AND ADJUSTING
 - AS DIRECTED, CLEAN FIXTURES, EQUIPMENT, PIPING AND OTHER EXPOSED WORK. DO CLEANING WORK IN STAGES IF SO ORDERED BY ARCHITECT TO FACILITATE WORK OF OTHERS. SHOW TRAPS, WASTES, AND SUPPLIES FREE AND UNOBSTRUCTED, PLATED, POLISHED, BRONZED, OR PAINTED WORK, BRIGHT AND CLEAN. FLUSH OUT PIPING AFTER INSTALLATION. ADJUST VALVES, FAUCETS, AUTOMATIC CONTROL DEVICES FOR PROPER AND QUIET OPERATION.

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 - HANGING AND SUPPORTING - PIPING SHALL NOT BE SUPPORTED BY OTHER PIPING BUT SHALL BE SUPPORTED WITH PIPE HANGERS SUITABLE FOR THE SIZE AND MATERIAL OF PIPE AND PROPER STRENGTH AND QUALITY AT PROPER INTERVALS SO THAT PIPING CANNOT BE MOVED ACCIDENTALLY FROM THE INSTALLED POSITION.

- GENERAL
 - THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL, AND EQUIPMENT AS REQUIRED FOR THE INSTALLATION OF WORK PERTAINING TO RESPECTIVE TRADES AS SHOWN ON THE DRAWINGS AND DESCRIBED HERE IN THE SPECIFICATIONS.
 - WORK SHALL BE INSTALLED READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR.
 - ALL WORK SHALL COMPLY WITH ALL REQUIREMENTS OF THE LOCAL (NYC) BUILDING CODE AND ALL AUTHORITIES HAVING JURISDICTION OVER THE PROJECT.
 - CONTRACTOR TO INFORM ENGINEER OF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE LAWS, CODES OR REGULATIONS. ANY WORK BY THE CONTRACTOR CAUSING ANY VIOLATIONS SHALL BE CORRECTED BY THIS CONTRACTOR AT NO ADDITIONAL COST.
 - PROVIDE ALL CONTROLLED INSPECTIONS AS REQUIRED AND OBTAIN ALL PERMITS.

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 - THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND APPROVALS FROM LOCAL AUTHORITIES AND PAY ASSOCIATED FEES PRIOR TO INSTALLATION OF WORK.
 - ALL WATER LINES SHALL BE PITCHED TO LOW POINTS FOR DRAINAGE. PITCH ALL SOIL AND WASTE PIPING AS FOLLOWS:
 - 2" SANITARY PIPING AND SMALLER, 1/4" PER FOOT MINIMUM.
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- SCOPE OF WORK
 - THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICES FOR THE COMPLETE INSTALLATION OF THE PLUMBING WORK IN FULL CONFORMITY WITH THE REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION, INCLUDING AS INDICATED ON DRAWINGS AND/OR HEREIN SPECIFIED, INCLUDING, IN GENERAL, THE FOLLOWING:
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 - DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK, PIPING AND APPROXIMATE LOCATION OF EQUIPMENT ETC. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS AND COORDINATE FINAL LOCATIONS OF ALL PLUMBING FIXTURES. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID CONFLICTS. PROVIDE ALL NECESSARY PIPE, FITTINGS, OFFSETS, VALVES, ETC, AS REQUIRED.
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- SHOP DRAWINGS
 - SUBMIT SHOP DRAWINGS CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN COMPLETED. SUBMIT CERTIFIED EQUIPMENT CUTS. SHOP DRAWINGS SUBMISSION SHALL BE LIMITED TO THE FOLLOWING:
 - PLUMBING FIXTURES AND EQUIPMENT
 - SLEEVES, HANGERS, FITTINGS, PIPING, SUPPORTS ETC.
 - COORDINATED PIPING LAYOUT INCLUDING DIMENSION AND ELEVATIONS OF PIPING, VALVES AND EQUIPMENT.
 - THE QUANTITY OF SHOP DRAWINGS SHALL BE AS A MINIMUM BE THREE (3) COPIES OF 36"x48" DRAWINGS ALONG WITH AUTOCAD FILES ON HARD DRIVE. SUBMISSIONS SHALL BE THREE (3) PRINTS OF ALL DRAWINGS. SPECIFIC JOB REQUIREMENTS MAY BE MORE STRINGENT AND CONTRACTOR IS RESPONSIBLE TO OBTAIN REQUIREMENTS FROM CONSTRUCTION MANAGER, GENERAL CONTRACTOR OR ARCHITECT.

- AS-BUILT DRAWINGS
 - CONTRACTOR SHALL MAINTAIN RECORD DRAWING PRINTS ON JOB SITE AND RECORD, AT TIME OF OCCURRENCE, DEVIATIONS FROM CONTRACT DOCUMENTS DUE TO FIELD COORDINATION, BULLETINS, OR ADDENDA.
 - CONTRACTOR SHALL REVISE SHOP DRAWINGS TO CONFORM TO RECORD DRAWINGS AND SUBMIT AN AS-BUILT CONDITION (PING) DRAWING UPON COMPLETION OF THE PROJECT. FINAL SUBMISSION OF REPRODUCIBLE AS-BUILT DRAWINGS INDICATING CERTIFIED BY INSTALLING CONTRACTOR THAT THIS IS THE AS-BUILT CONDITION OF THE WORK.

- SUBSTITUTIONS
 - NO SUBSTITUTE MATERIAL OR MANUFACTURER OF EQUIPMENT SHALL BE PERMITTED WITHOUT A FORMAL WRITTEN SUBMITTAL TO THE ENGINEER WHICH INCLUDES ALL DIMENSIONAL, PERFORMANCE AND MATERIAL SPECIFICATIONS. ANY CHANGES IN LAYOUT, ELECTRICAL CHARACTERISTICS, STRUCTURAL REQUIREMENTS, OR DESIGN DUE TO THE USE OF A SUBSTITUTION SHALL BE SUBMITTED TO THE ENGINEER AS PART OF THIS PROPOSAL. THE CONTRACTOR TAKES FULL RESPONSIBILITY FOR THE SUBSTITUTION AND ALL CHANGES RESULTING FROM SUBSTITUTION. ALL ITEMS SHALL BE SUBMITTED FOR REVIEW IN CONJUNCTION WITH THE SUBMITTAL. ALL PIPING VALVES AND EQUIPMENT ARE TO BE SIGNED AND OF THE ALTERNATE. ANY SUBSTITUTION MUST BE SUBMITTED WITH AN EXPLANATION WHY

PLUMBING SPECIFICATION

1. GENERAL

- A. PROVIDE ALL PLUMBING WORK SHOWN ON THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH THE LATEST LOCAL AND STATE CITY BUILDING CODES.
B. PATCH AND/OR REPLACE DAMAGED ARCHITECTURAL COMPONENTS AS A RESULT OF SYSTEM INSTALLATION. CLEAN UP THE CONSTRUCTION SITE DAILY DURING CONSTRUCTION SO AS NOT TO INTERFERE WITH THE WORK OF OTHER TRADES, AND AFTER THE COMPLETION OF INSTALLATION AND TESTING.
C. THE CONTRACTOR SHALL EXAMINE THE PREMISES BEFORE SUBMITTING HIS BID, AND SHOULD THOROUGHLY FAMILIARIZE HIMSELF WITH CONDITIONS WHICH AFFECT HIS WORK.
D. REPORT ANY CONDITIONS WHICH WOULD PREVENT THE INSTALLATION OF THE WORK TO THE ARCHITECT PRIOR TO STARTING ANY WORK.
E. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN INSTALLING PIPING IN FINISHED WALLS, PARTITIONS, AND HUNG CEILING.
F. INTERRUPTION OF EXISTING BUILDING SERVICES IN ORDER TO CONNECT NEW PIPING TO EXISTING SHALL BE MADE AT SUCH TIME AS TO CAUSE THE LEAST INTERFERENCE WITH ESTABLISHED BUILDING OPERATING PROCEDURE. ALL EXISTING SERVICES SHUTDOWNS SHALL BE SUPERVISED AND DIRECTED BY BUILDING MANAGEMENT. THE CONTRACTOR SHALL GIVE NOTICE 48 HOURS PRIOR TO ANY SHUTDOWN.
G. LOCATION, NUMBER AND SIZES OF ALL EXISTING PIPING SHALL BE VERIFIED IN THE FIELD BY THIS CONTRACTOR BEFORE INSTALLING ANY NEW WORK. THE PLUMBING CONTRACTOR SHALL PAY ALL FEES, OBTAIN ALL PERMITS AND APPROVALS NECESSARY FOR THE COMPLETION OF ALL WORK SHOWN ON THE CONTRACT DRAWINGS.
H. THE PLUMBING CONTRACTOR SHALL PAY ALL FEES, OBTAIN ALL PERMITS AND APPROVALS NECESSARY FOR THE COMPLETION OF ALL WORK SHOWN ON THE CONTRACT DRAWINGS.
I. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS WORK WITH THE EXISTING CONDITIONS AND NEW WORK OF ALL THE OTHER TRADES.
J. PROVIDE NEW PLUMBING FIXTURES, PIPING AND EQUIPMENT WHERE SHOWN ON THE CONTRACT DRAWINGS. CONNECT NEW PIPING TO EXISTING STACKS AND RISERS.
K. PREPARE AS-BUILT DRAWINGS INDICATING ACTUAL LOCATIONS OF PLUMBING FIXTURES AND PIPING. AS BUILT DRAWINGS SHALL BE SUBMITTED TO THE OWNER UPON COMPLETION OF INSTALLATION AND TESTING. SUBMIT THREE SETS OF PRINTS AND ONE SET OF REPRODUCIBLES. IN ADDITION PROVIDE ON DISK TO OWNER THE AS-BUILT CONDITIONS IN AUTOCAD 2004.
2. EXAMINATION OF CONTRACT DOCUMENTS
A. EXAMINE THE CONTRACT DOCUMENTS OF THIS TRADE AND ALL OTHER TRADES FOR THIS PROJECT. VERIFY ALL EXISTING CONDITIONS AT THE SITE, AND BECOME FULLY INFORMED AS TO THE EXTENT AND CHARACTER OF THE WORK IN THE BUILDING. SUBMITTAL OF A BID IS AN AGREEMENT THAT ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS ARE FULLY UNDERSTOOD.
B. THE CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS, SPECIFIED OR UNSPECIFIED, NECESSARY TO PROVIDE ALL WORK SHOWN ON THE CONTRACT DOCUMENTS IN ACCORDANCE WITH THE LOCAL BUILDING CODE.
C. REPORT, IN WRITING, TO THE ARCHITECT ANY AND ALL CONDITIONS WHICH MAY INTERFERE WITH OR OTHERWISE AFFECT OR PREVENT THE PROPER EXECUTION AND COMPLETION OF THE WORK OF THIS SECTION. DO NOT COMMENCE WORK UNTIL ANY AND ALL SUCH CONDITIONS HAVE BEEN CORRECTED BY THE TRADE OR TRADES RESPONSIBLE.
D. FAILURE TO NOTIFY THE ARCHITECT OF UNSATISFACTORY CONDITIONS WILL BE CONSTRUED AS AN ACCEPTANCE OF ALL CONDITIONS.
E. THE EXECUTION OF THE WORK OF THIS SECTION CONSTITUTES ACCEPTANCE OF THE BASE OR ADJOINING WORK AND OTHER CONDITIONS AS BEING SATISFACTORY IN EVERY RESPECT AND LATER CLAIMS OF DEFECTS IN SUCH CASES WILL NOT BE ALLOWED.
F. THE DRAWINGS INDICATE AND THE SPECIFICATIONS DESCRIBE THE GENERAL ARRANGEMENT AND THE APPROXIMATE LOCATION OF EQUIPMENT, FIXTURES, PIPING, ETC. EXACT LOCATIONS MAY BE ADJUSTED IN THE FIELD TO SUIT EXISTING CONDITIONS.
G. THE CONTRACTOR SHALL WITHOUT EXTRA COST TO THE OWNER, MAKE ALL NECESSARY MODIFICATIONS IN THE WORK AS MAY BE REQUIRED TO PREVENT CONFLICT WITH THE WORK OF OTHER TRADES, OR FOR THE PROPER INSTALLATION OF THE WORK.
3. QUALITY ASSURANCE
A. ALL PIPES SHALL BE MARKED TO INDICATE MANUFACTURER AND ASTM STANDARD. EACH FULL PIPE LENGTH SHALL HAVE THE MANUFACTURER'S NAME, CAST, STAMPED OR ROLLED ON.
B. EACH FITTING SHALL HAVE THE MANUFACTURER'S SYMBOL AND PRESSURE RATING CAST, STAMPED OR ROLLED ON.
4. SCOPE OF WORK
A. FURNISH AND INSTALL NEW PLUMBING FIXTURES, PIPING AND EQUIPMENT WHERE INDICATED ON THE CONTRACT DRAWINGS. CONNECT TO EXISTING STACKS AND RISERS.
B. PROVIDE AND INSTALL ALL NEW WORK IN ACCORDANCE WITH BUILDING CODE REQUIREMENTS.
C. PROVIDE ROOF CUTTING AND PATCHING FOR THE INSTALLATION OF NEW PIPING.
5. SUBMITTALS
A. SUBMIT THE FOLLOWING ITEMS FOR APPROVAL.
1. PLUMBING FIXTURES, SUPPORTS AND TRIM
2. PIPE MATERIALS
3. FITTINGS
4. HANGERS, ESCUTCHEONS AND SLEEVES
5. INSULATION
6. VALVES
7. HEAT TRACE
8. WATER HEATER
9. FLOOR DRAINAGE
10. VALVE TAGS & CHART
11. ROOF DRAIN
12. METER
13. LAUNDRY MATE
14. GAS PRV
B. PREPARE AND SUBMIT PIPING INSTALLATION DRAWINGS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. SUCH APPROVAL SHALL NOT RELIEVE CONTRACTOR OF INSTALLATION RESPONSIBILITIES.
6. PRODUCT DELIVERY, STORAGE AND HANDLING
A. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR THE ON-TIME DELIVERY OF HIS MATERIALS AND EQUIPMENT.
B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFE STORAGE OF ALL EQUIPMENT, FIXTURES, PIPES, VALVES, ETC., EITHER AT THE JOB SITE WHERE DIRECTED BY THE OWNER'S REPRESENTATIVE OR IN HIS OWN WAREHOUSE.
C. ANY EQUIPMENT, FIXTURES OR PIPING DAMAGED DURING HANDLING, STORAGE OR INSTALLATION SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
7. GUARANTEE
A. AS PART OF THIS CONTRACT, THE PLUMBING CONTRACTOR SHALL GUARANTEE AND CERTIFY THAT ALL WORK INCLUDED IN THESE CONTRACT DOCUMENTS IS FREE FROM DEFECTS FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE OWNER'S FINAL ACCEPTANCE. THE PLUMBING CONTRACTOR SHALL REPAIR OR REPLACE ANY MATERIALS FOUND TO BE DEFECTIVE FOR THAT PERIOD OF TIME. OWNER'S FINAL ACCEPTANCE STARTS WHEN FINAL PAYMENT TO THE CONTRACTOR IS MADE.
8. PIPE AND FITTINGS
A. ALL MATERIALS SHALL BE NEW AND INSTALLED IN A FIRST CLASS MANNER.
B. PIPE AND FITTINGS SHALL CONFORM TO THE LATEST ASA, ASTM, AND/OR FS STANDARD. IN ADDITION ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.
C. SANITARY, STORM DRAINAGE AND VENT PIPING AND FITTINGS. (ABOVE GROUND)
1. PIPE SHALL BE STANDARD WEIGHT (COATED INSIDE AND OUT) NO-HUB CAST IRON SOIL PIPE LABELED WITH CI MARK OF QUALITY AND PERFORMANCE AS ILLUSTRATED IN CAST IRON SOIL PIPE INSTITUTE STANDARD H 5-72.
2. FITTINGS SHALL BE STANDARDS WEIGHT CAST IRON NO-HUB.
3. JOINTS SHALL CONSIST OF A RUBBER SEALING SLEEVE AND STAINLESS STEEL SHIELD FASTENED BY STAINLESS STEEL STRIKE. STRIKE, & 4 BANDS FOR PIPING DIA. 1" TO 4", 6 BANDS FOR PIPING DIA. 5" AND LARGER. MANUFACTURED BY HUSKY CORP. MODEL SD-2000.
D. SANITARY, STORM DRAINAGE AND VENT PIPING AND FITTINGS. (BELOW GROUND)
1. PIPE SHALL BE STANDARD WEIGHT (COATED INSIDE AND OUT) BELL AND SPIGOT CAST IRON SOIL PIPE LABELED WITH CI MARK OF QUALITY AND PERFORMANCE AS ILLUSTRATED IN CAST IRON SOIL PIPE INSTITUTE STANDARD H 5-72.
2. PIPE SHALL BE STANDARD WEIGHT (COATED INSIDE AND OUT) BELL AND SPIGOT CAST IRON SOIL PIPE LABELED WITH CI MARK OF QUALITY AND PERFORMANCE AS ILLUSTRATED IN CAST IRON SOIL PIPE INSTITUTE STANDARD H 5-72.
3. PIPE AND FITTINGS SHALL BE CENTRAL FOUNDRY COMPANY, ALABAMA PIPE COMPANY, EAST PENN FOUNDRY, OR APPROVED OTHER.
E. SANITARY AND STORM DRAINAGE ELECTOR MAINS (ABOVE GROUND).
1. PIPE SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE, ASTM A 53 WITH THREADED FITTINGS AND JOINTS.
2. FITTINGS SHALL BE THREADED, GALVANIZED CAST IRON DRAINAGE FITTINGS, ASME B16.2.
F. DOMESTIC WATER AND INDIRECT WASTE PIPING AND FITTINGS
1. PIPE SHALL BE HARD DRAIN PIPE 1" COPPER TUBING, ASTM B88.
2. FITTINGS SHALL BE WROUGHT COPPER WITH SOLDER JOINT PRESSURE TYPE FITTINGS ANSI B16.22.
3. JOINTS SHALL BE COMPOSED OF 95-5 TIN-ANTIMONY SOLDER, ASTM B32, GRADE 95TA FOR PRESSURE PIPING.
G. FUEL GAS AND FITTINGS
1. ALL UNDERGROUND FUEL GAS PIPE SHALL BE MILL WRAPPED, SCHEDULE 80, BLACK STEEL PIPE.
a. FITTINGS SHALL BE 125 LB. GALVANIZED MALLEABLE IRON, AND SHALL BE FIELD WRAPPED AND COATED TO MATCH MILL WRAPPED PIPE.
b. AFTER GALVANIZING PIPING THREADS HAVE BEEN CUT AND FITTINGS CONNECTED PAINT EXPOSED THREADS AND PIPING WITH AN EXTERIOR, NON RUSTING PAINT TO PROTECT THE AREA'S OF PIPING WHERE THE GALVANIZING HAS BEEN REMOVED.
2. ALL FUEL GAS PIPE, ABOVE GROUND, WITHIN BUILDINGS, SHALL BE SCHEDULE 40, BLACK STEEL PIPE.
a. FITTINGS SHALL BE 125 LB. MALLEABLE IRON.
3. ALL FUEL GAS PIPE, ABOVE GROUND, WITHIN BUILDINGS, SHALL BE SCHEDULE 40, BLACK STEEL PIPE.
4. ALL FUEL GAS PIPE, ABOVE GROUND AND EXPOSED TO THE OUTSIDE SHALL BE SCHEDULE 40, GALVANIZED STEEL PIPE.
a. FITTINGS SHALL BE 125 LB. GALVANIZED MALLEABLE IRON.
4. FUEL GAS PIPE, 4" AND LARGER SHALL BE WELDED, WITH BLACK, MALLEABLE IRON WELDED FITTINGS. ALL PIPING SHALL BE MILL WRAPPED IF EXPOSED TO THE OUTSIDE OR INSTALLED UNDERGROUND.
9. VALVES
A. ISOLATION CONTROL VALVES (2" AND SMALLER)-BRONZE TWO-PIECE BALL TYPE 250 PSI WSP, THREADED ENDS, AND SOLDERED JOINT END SIMILAR TO CONBRACO, APOLO 70-300 SERIES.
B. CHECK VALVES: BRONZE SWING TYPE, 125 PSI, SIMILAR TO STOCKHAM NO. B-310.
C. THROTTLING VALVES: 6"OBE BRONZE, SOLDER ENDS, CLASS 125 SIMILAR TO STOCKHAM NO. B-141.
D. GAS VALVES:
1. FOR GAS PIPING, 2" SIZE AND SMALLER, A TOP ENTRY VALVE, CRANE "ACCESSO" WITH BUENA "N" SEAT IN CARBON STEEL BODY AND FIXED HANDLE, SHALL BE USED.
2. VALVES FOR GAS PIPING, 2" AND LARGER SHALL BE IRON, THREADED END CONSTRUCTION, LUBRICATED PLUG COCK WITH SQUARE HEAD OPERATING PLUS VALVE SHALL BE RATED AT 200# W.D.C. VALVE SHALL BE WALMORTH CO. NO. 1700F.
10. INSULATION (INDOORS)
A. COLD, HOT WATER PIPING, HORIZONTAL STORM PIPING AND HORIZONTAL FLOOR DRAIN WASTE PIPING IN MECH. RMS.
1. JOHN MANSVILLE MICRO-LR 850 FIBERGLASS PIPE INSULATION TYPE AP-1, 1 INCH THICK COMPOSITE INSULATION. FIRE AND SMOKE HAZARD RATING: NOT TO EXCEED A FLAME SPREAD OF 25 OR SMOKE DEVELOPMENT OF 50.
B. COLD, HOT WATER, HORIZONTAL, STORM PIPING FITTINGS AND VALVES
1. JOHN MANSVILLE PRE-CUT, HI-LO TEMP INSULATION INSERTS AND ZESTON 25/50 RATED PVC INSULATED FITTING COVERS.
11. HANGERS
A. EXCEPT AS OTHERWISE INDICATED, PROVIDE FACTORY FABRICATED HANGERS, CLAMPS, RODS, BUILDING ATTACHMENTS, SADDLES AND SHIELDS COMPLYING WITH ANSI MSS-SP-58. CONTRACTOR SHALL SELECT AND APPLY HANGERS AND SUPPORTS IN ACCORDANCE WITH MSS-SP-69.
B. ALL HANGER, ANCHORS AND SUPPORTS SHALL BE AS MANUFACTURED BY THE FEE AND WAGON COMPANY OR APPROVED EQUAL AS FOLLOWS:
1. ALL BARE HORIZONTAL CAST IRON PIPING SHALL BE HUNG WITH FIG. #239 ADJUSTABLE GALVANIZED STEEL HANGERS.
2. ALL ADJUSTED HORIZONTAL PIPING SHALL BE HUNG WITH FIG. #239 ADJUSTABLE GALVANIZED STEEL CLEVIS HANGERS WITH FIG. #71 RIGID INSULATION SADDLE. SADDLE BE A 180" SECTION OF 1 INCH POLYURETHANE FOAM ALUMINUM FACED WATERPROOF JACKET EXTENDING ALL AROUND A 180" SECTION OF GALVANIZED METAL SHIELD. SHIELD AND SADDLE SHALL BE BONDED INTO A SINGLE UNIT FACTORY. TOP 180" SECTION OF INSULATION SHALL BE FIBERGLASS AS SPECIFIED IN INSULATION SECTION OF THE SPECIFICATION.
3. VERTICAL LINES SHALL BE SUPPORTED BY MEANS OF RISER CLAMPS. RISER CLAMPS SHALL FIT EXACT PIPE SIZE OR BARE PIPES. FOR CAST IRON PIPES USE FIG. #241, TWO BOLT, GALVANIZED BLACK STEEL CLAMPS OR FIG. #245, FOUR BOLT, EXTRA HEAVY GALVANIZED STEEL RISER CLAMPS. FOR COPPER TUBING USE FIG. #368 CARBON STEEL COPPER PLATED RISER CLAMP.
4. RODS FOR PIPE HANGERS SHALL BE FIG. #263, CONTINUOUS THREADED ROD, GALVANIZED STEEL SIZED FOR THE LOAD REQUIRED.
C. INSTALLATION
1. ATTACH HANGER RODS TO THE BUILDING ONLY IN A MANNER APPROVED BY THE ARCHITECT.
2. DO NOT HANG PIPING FROM DUCTWORK OR OTHER PIPING.
3. THE CONTRACTOR MAY COORDINATE WITH THE OTHER WORK OR EXISTING PIPING TO USE COMMON MEANS OF SUPPORT. SUBMIT FOR APPROVAL ALL PERTINENT DESIGN DATA RELATING TO THE SUPPORT AS WELL AS VERIFICATION OF THE RESPONSIBILITY FOR THE SUPPORT.
4. HANGERS SHALL NOT PENETRATE INSULATION.
D. INTERVALS OF SUPPORTS
1. HORIZONTAL PIPING SHALL BE SUPPORTED AT INTERVALS AS FOLLOWS:
a. CAST IRON PIPE SHALL BE SUPPORTED AT 5 FT. INTERVALS.
b. COPPER TUBING SHALL BE SUPPORTED AT SIX (6) FOOT INTERVALS.
2. ADDITIONAL HANGERS TO PREVENT SAGGING SHALL BE INSTALLED AS REQUIRED.
12. SLEEVES
A. PROVIDE SLEEVES FOR ALL PIPES PASSING THROUGH FLOORS, WALLS AND PARTITIONS.
1. SLEEVES THROUGH WALLS AND WHERE SERVING EXPOSED PIPE. PENETRATING FLOORS SHALL BE SCHEDULE 40 STEEL PROVIDED WHERE NECESSARY.
2. SLEEVES WITHIN FURRED OUT ENCLOSURE, SHEET ROCK PARTITIONS AND BLOCK WALLS SHALL BE 18 GAUGE GALVANIZED SHEET METAL.
B. PROVIDE OPENINGS WITH AN I.D. AT LEAST 1/4" INCH GREATER THAN THE OUTSIDE OF THE PIPE SERVED.
C. DO NOT SUPPORT PIPES BY RESTING PIPE CLAMPS ON SLEEVES.

2. SANITARY, STORM DRAINAGE AND VENT PIPING AND FITTINGS. (BELOW GROUND)

- 1. PIPE SHALL BE STANDARD WEIGHT (COATED INSIDE AND OUT) BELL AND SPIGOT CAST IRON SOIL PIPE LABELED WITH CI MARK OF QUALITY AND PERFORMANCE AS ILLUSTRATED IN CAST IRON SOIL PIPE INSTITUTE STANDARD H 5-72.
2. PIPE SHALL BE STANDARD WEIGHT (COATED INSIDE AND OUT) BELL AND SPIGOT CAST IRON SOIL PIPE LABELED WITH CI MARK OF QUALITY AND PERFORMANCE AS ILLUSTRATED IN CAST IRON SOIL PIPE INSTITUTE STANDARD H 5-72.
3. PIPE AND FITTINGS SHALL BE CENTRAL FOUNDRY COMPANY, ALABAMA PIPE COMPANY, EAST PENN FOUNDRY, OR APPROVED OTHER.
E. SANITARY AND STORM DRAINAGE ELECTOR MAINS (ABOVE GROUND).
1. PIPE SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE, ASTM A 53 WITH THREADED FITTINGS AND JOINTS.
2. FITTINGS SHALL BE THREADED, GALVANIZED CAST IRON DRAINAGE FITTINGS, ASME B16.2.
F. DOMESTIC WATER AND INDIRECT WASTE PIPING AND FITTINGS
1. PIPE SHALL BE HARD DRAIN PIPE 1" COPPER TUBING, ASTM B88.
2. FITTINGS SHALL BE WROUGHT COPPER WITH SOLDER JOINT PRESSURE TYPE FITTINGS ANSI B16.22.
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G. FUEL GAS AND FITTINGS
1. ALL UNDERGROUND FUEL GAS PIPE SHALL BE MILL WRAPPED, SCHEDULE 80, BLACK STEEL PIPE.
a. FITTINGS SHALL BE 125 LB. GALVANIZED MALLEABLE IRON, AND SHALL BE FIELD WRAPPED AND COATED TO MATCH MILL WRAPPED PIPE.
b. AFTER GALVANIZING PIPING THREADS HAVE BEEN CUT AND FITTINGS CONNECTED PAINT EXPOSED THREADS AND PIPING WITH AN EXTERIOR, NON RUSTING PAINT TO PROTECT THE AREA'S OF PIPING WHERE THE GALVANIZING HAS BEEN REMOVED.
2. ALL FUEL GAS PIPE, ABOVE GROUND, WITHIN BUILDINGS, SHALL BE SCHEDULE 40, BLACK STEEL PIPE.
a. FITTINGS SHALL BE 125 LB. MALLEABLE IRON.
3. ALL FUEL GAS PIPE, ABOVE GROUND, WITHIN BUILDINGS, SHALL BE SCHEDULE 40, BLACK STEEL PIPE.
4. ALL FUEL GAS PIPE, ABOVE GROUND AND EXPOSED TO THE OUTSIDE SHALL BE SCHEDULE 40, GALVANIZED STEEL PIPE.
a. FITTINGS SHALL BE 125 LB. GALVANIZED MALLEABLE IRON.
4. FUEL GAS PIPE, 4" AND LARGER SHALL BE WELDED, WITH BLACK, MALLEABLE IRON WELDED FITTINGS. ALL PIPING SHALL BE MILL WRAPPED IF EXPOSED TO THE OUTSIDE OR INSTALLED UNDERGROUND.
9. VALVES
A. ISOLATION CONTROL VALVES (2" AND SMALLER)-BRONZE TWO-PIECE BALL TYPE 250 PSI WSP, THREADED ENDS, AND SOLDERED JOINT END SIMILAR TO CONBRACO, APOLO 70-300 SERIES.
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C. THROTTLING VALVES: 6"OBE BRONZE, SOLDER ENDS, CLASS 125 SIMILAR TO STOCKHAM NO. B-141.
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2. VALVES FOR GAS PIPING, 2" AND LARGER SHALL BE IRON, THREADED END CONSTRUCTION, LUBRICATED PLUG COCK WITH SQUARE HEAD OPERATING PLUS VALVE SHALL BE RATED AT 200# W.D.C. VALVE SHALL BE WALMORTH CO. NO. 1700F.
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1. JOHN MANSVILLE PRE-CUT, HI-LO TEMP INSULATION INSERTS AND ZESTON 25/50 RATED PVC INSULATED FITTING COVERS.
11. HANGERS
A. EXCEPT AS OTHERWISE INDICATED, PROVIDE FACTORY FABRICATED HANGERS, CLAMPS, RODS, BUILDING ATTACHMENTS, SADDLES AND SHIELDS COMPLYING WITH ANSI MSS-SP-58. CONTRACTOR SHALL SELECT AND APPLY HANGERS AND SUPPORTS IN ACCORDANCE WITH MSS-SP-69.
B. ALL HANGER, ANCHORS AND SUPPORTS SHALL BE AS MANUFACTURED BY THE FEE AND WAGON COMPANY OR APPROVED EQUAL AS FOLLOWS:
1. ALL BARE HORIZONTAL CAST IRON PIPING SHALL BE HUNG WITH FIG. #239 ADJUSTABLE GALVANIZED STEEL HANGERS.
2. ALL ADJUSTED HORIZONTAL PIPING SHALL BE HUNG WITH FIG. #239 ADJUSTABLE GALVANIZED STEEL CLEVIS HANGERS WITH FIG. #71 RIGID INSULATION SADDLE. SADDLE BE A 180" SECTION OF 1 INCH POLYURETHANE FOAM ALUMINUM FACED WATERPROOF JACKET EXTENDING ALL AROUND A 180" SECTION OF GALVANIZED METAL SHIELD. SHIELD AND SADDLE SHALL BE BONDED INTO A SINGLE UNIT FACTORY. TOP 180" SECTION OF INSULATION SHALL BE FIBERGLASS AS SPECIFIED IN INSULATION SECTION OF THE SPECIFICATION.
3. VERTICAL LINES SHALL BE SUPPORTED BY MEANS OF RISER CLAMPS. RISER CLAMPS SHALL FIT EXACT PIPE SIZE OR BARE PIPES. FOR CAST IRON PIPES USE FIG. #241, TWO BOLT, GALVANIZED BLACK STEEL CLAMPS OR FIG. #245, FOUR BOLT, EXTRA HEAVY GALVANIZED STEEL RISER CLAMPS. FOR COPPER TUBING USE FIG. #368 CARBON STEEL COPPER PLATED RISER CLAMP.
4. RODS FOR PIPE HANGERS SHALL BE FIG. #263, CONTINUOUS THREADED ROD, GALVANIZED STEEL SIZED FOR THE LOAD REQUIRED.
C. INSTALLATION
1. ATTACH HANGER RODS TO THE BUILDING ONLY IN A MANNER APPROVED BY THE ARCHITECT.
2. DO NOT HANG PIPING FROM DUCTWORK OR OTHER PIPING.
3. THE CONTRACTOR MAY COORDINATE WITH THE OTHER WORK OR EXISTING PIPING TO USE COMMON MEANS OF SUPPORT. SUBMIT FOR APPROVAL ALL PERTINENT DESIGN DATA RELATING TO THE SUPPORT AS WELL AS VERIFICATION OF THE RESPONSIBILITY FOR THE SUPPORT.
4. HANGERS SHALL NOT PENETRATE INSULATION.
D. INTERVALS OF SUPPORTS
1. HORIZONTAL PIPING SHALL BE SUPPORTED AT INTERVALS AS FOLLOWS:
a. CAST IRON PIPE SHALL BE SUPPORTED AT 5 FT. INTERVALS.
b. COPPER TUBING SHALL BE SUPPORTED AT SIX (6) FOOT INTERVALS.
2. ADDITIONAL HANGERS TO PREVENT SAGGING SHALL BE INSTALLED AS REQUIRED.
12. SLEEVES
A. PROVIDE SLEEVES FOR ALL PIPES PASSING THROUGH FLOORS, WALLS AND PARTITIONS.
1. SLEEVES THROUGH WALLS AND WHERE SERVING EXPOSED PIPE. PENETRATING FLOORS SHALL BE SCHEDULE 40 STEEL PROVIDED WHERE NECESSARY.
2. SLEEVES WITHIN FURRED OUT ENCLOSURE, SHEET ROCK PARTITIONS AND BLOCK WALLS SHALL BE 18 GAUGE GALVANIZED SHEET METAL.
B. PROVIDE OPENINGS WITH AN I.D. AT LEAST 1/4" INCH GREATER THAN THE OUTSIDE OF THE PIPE SERVED.
C. DO NOT SUPPORT PIPES BY RESTING PIPE CLAMPS ON SLEEVES.

13. PLUMBING FIXTURES AND TRIM

- A. PLUMBING FIXTURES AND TRIM
1. FURNISH AND INSTALL NEW PLUMBING FIXTURES AND TRIM WHERE SHOWN ON THE CONTRACT DRAWINGS. THE ARCHITECT'S INTERIOR FINISH DRAWINGS SHALL BE FOLLOWED FOR THE LOCATION OF ALL NEW FIXTURES.
2. FIXTURES SHALL BE SET LEVEL AND SQUARE WITH RELATION TO THE FINISHED FLOOR AND WALL LINES.
3. FAUCETS SHALL BE CHROME-PLATED BRASS, MONEL OR STAINLESS. MATERIALS SHALL BE THOROUGHLY CLEANED AND POLISHED BEFORE PLATING. PLATE SHALL BE HEAVY, THOROUGHLY AND EVENLY APPLIED, AND GUARANTEED NOT TO STRIP OR PEEL. PLATED WORK SHALL BE HIGHLY BUFFED. FAUCETS SHALL HAVE METAL INDICES AND SHALL BE OF THE RENEWABLE SEAT TYPE.
4. EACH FIXTURE SUPPLY CONNECTION SHALL BE PROVIDED WITH INDIVIDUAL SHUT-OFF OR STOP VALVES.
5. ESCUTCHEONS SHALL BE ONE PIECE CAST BRASS CHROMIUM-PLATED AND SHALL BE PROVIDED WITH SET SCREWS TO PROPERLY HOLD ESCUTCHEON IN PLACE.
6. BEFORE FINAL ACCEPTANCE, ADJUST FIXTURE STOPS FOR AN AMPLE NON-SPLASHING FLOW.
7. WHERE WASTE, VENT OR WATER SUPPLY PIPING IS EXPOSED TO VIEW AT FIXTURES, THE PIPES SHALL BE CHROMIUMPLATED. NO COVER TUBING WILL BE PERMITTED.
8. NECESSARY CARRIERS, BRACKETS, PLATES, CLEATS, BOLTS, ETC. SHALL BE FURNISHED FOR SECURING FIXTURES RIGIDLY IN PLACE.
9. SPACES BETWEEN PLUMBING FIXTURES AND FLOORS, WALLS OR COUNTERS SHALL BE SEALED WITH A WATERPROOF SEALANT TO PREVENT WATER SEEPAGE.
10. PROVIDE VACUUM BREAKERS WHERE REQUIRED FOR SUBMERGED INLETS.
B. FIXTURES AND TRIM: SEE ARCHITECTURAL DRAWINGS FOR SPECIFICATIONS
C. FIXTURE INSTALLATION
1. EACH FIXTURE SHALL BE SEPARATELY CONTROLLED WITH INDIVIDUAL STOPS.
2. THE PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLUMBING FIXTURES FROM DAMAGE.
3. UPON COMPLETION OF INSTALLATION AND TESTING, PLUMBING FIXTURES SHALL BE CLEANED AND LEFT IN FIRST CLASS CONDITION AND IN WORKING ORDER.
14. FLOOR DRAINS, FUNNEL FLOOR DRAINS, FUNNELS DRAINS AND FLOOR SINK
A. FLOOR DRAIN (FD) - JAY R. SMITH MFG. CO. FIG. 2005Y-NB, ADJUSTABLE ROUND NICKEL BRONZE STRAINER, DUOCO CAST IRON BODY, MEMBRANE CLAMP.
B. FUNNEL FLOOR DRAIN (FFD) - JAY R. SMITH MFG. CO. FIG. 3510Y-NB, ADJUSTABLE ROUND NICKEL BRONZE STRAINER, DUOCO CAST IRON BODY, MEMBRANE CLAMP.
C. FURNEL DRAIN (ABOVE FLOOR) - JAY R. SMITH MFG. CO. FIG. 3822T, DUOCO COATED CAST IRON WITH THREADED OUTLET.
D. FLOOR SINK DRAIN (FS) - JAY R. SMITH MFG. CO. FIG. 3100Y-12-C, 1 GRATE NICKEL BRONZE RIM, ALUMINUM DOME STRAINER, CAST IRON BODY AND FLASHING CLAMP.
E. SHOWER DRAIN - JAY R. SMITH MFG. CO. FIG. 2005Y-NB, ADJUSTABLE ROUND NICKEL BRONZE STRAINER, DUOCO CAST IRON BODY, MEMBRANE CLAMP.
15. ESCUTCHEONS
A. INSTALL ESCUTCHEONS ON BOTH SIDES OF CONSTRUCTION WHEREVER PIPES PASS THROUGH WALLS, FLOORS, PARTITIONS OR CEILING. ESCUTCHEONS SHALL BE HELD IN PLACE WITH SET SCREWS. TAKE SPECIAL CARE TO PROTECT THE ESCUTCHEONS DURING THE COURSE OF CONSTRUCTION.
B. ESCUTCHEON APPLICATION SCHEDULE
1. FINISHED SPACES SHALL BE POLISHED BRASS.
2. UNFINISHED SPACES SHALL BE PLAIN BRASS OR CAST IRON.
16. HOSE BIBBS
A. HOSE BIBBS SHALL BE MIFAB MANUFACTURING INC. NO. MHY-90 POLISHED BRONZE, CAST IRON WHEEL HANDLE AND HOSE END VACUUM BREAKER.
17. VALVE TAGS AND CHART
A. EACH VALVE, EXCEPT VALVES AT FIXTURES, SHALL HAVE A 2 INCH DIAMETER BRASS TAG WITH 1 INCH HIGH NUMERAL STAMPED THEREON, SECURED TO THE VALVE BY MEANS OF BRASS S HOOK OR BRASS CHAIN. EACH SYSTEM TO HAVE A LETTER DESIGNATION AS WELL.
B. THE CONTRACTOR SHALL FURNISH AN APPROVED, NEATLY DRAIN VALVE CHART, PROPERLY FRAMED, SHOWING THE USE AND LOCATION OF EACH VALVE THAT IS TAGGED.
18. WATER FILTER
A. AQUA PURE WATER FILTER BY GUNO MODEL AP200, 7" NPT, COMPACT DUAL ACTION WATER FILTER WITH DUAL ACTION FILTERING PROCESS, PROVIDE 3 ADDITIONAL REPLACEMENT CARTRIDGES MODEL AP217.
19. VACUUM BREAKER
A. VACUUM BREAKER (TYPE "A") - CAST BRASS CHROME PIPE IF EXPOSED TO PUBLIC VIEW SIMILAR TO WATTS NO.808000T. (CONSTANT PRESSURE VACUUM BREAKER).
B. VACUUM BREAKER (TYPE"BY") - CAST BRASS CHROME PIPE IF EXPOSED TO PUBLIC VIEW SIMILAR TO WATTS NO. 909-S.
C. PROVIDE WHERE INDICATED ON THE DRAWINGS
20. SHOCK ABSORBERS
A. COPPER BODY, WATER HAMMER ARRESTER MANUFACTURED BY SOUX CHEF, "HYDRA-RESTOR" SERIES 650, SIZE PER MANUFACTURER'S REQUIREMENTS.
B. INSTALL IN UPRIGHT POSITION WHERE INDICATED ON THE DRAWINGS.
21. DISINFECTION
A. DISINFECT INTERIOR POTABLE WATER DISTRIBUTION SYSTEM IN ACCORDANCE WITH REQUIREMENTS OF THE LOCAL BUILDING CODE.
22. DISSIMILAR METALS
A. PROVIDE ISOLATION FLANGES FOR CONNECTIONS WITH ANY DISSIMILAR METALS.
23. INSTALLATION
A. ALL DRAINAGE PIPING 3" AND LARGER SHALL BE RUN AT A UNIFORM GRADE OF AT LEAST 1/8" PER FOOT, UNLESS OTHERWISE INDICATED. ALL DRAINAGE PIPING 2" AND SMALLER SHALL PITCH AT 1/4" PER FOOT MINIMUM.
B. ALL DRAINAGE PIPING SHALL BE RUN AS STRAIGHT AS POSSIBLE AND SHALL HAVE EASY BENDS WITH LONG TURN FITTINGS. DRAINAGE PIPING AT FIRST FLOOR CEILING SHALL BE RUN AS HIGH AS EXISTING CONDITIONS WILL PERMIT.
C. ALL VENT PIPES SHALL BE GRADED TO FREE THEMSELVES OF ANY WATER OR CONDENSATION.
D. ALL WATER PIPING SHALL RUN FREE OF TRAPS AND UNNECESSARY BENDS. ANY TRAPS FORMED SHALL BE PROVIDED WITH VALVES TO COMPLETELY DRAIN THE SYSTEM. ALL HOT AND COLD WATER PIPING SHALL BE SEPARATED BY A MINIMUM OF 6" ON CENTER.
E. ALL CONNECTIONS BETWEEN DISSIMILAR METALS SHALL BE MADE WITH DIELECTRIC UNIONS.
F. ALL PIPING SHALL HAVE REDUCING FITTINGS. NO BUSHINGS WILL BE PERMITTED ON ANY PIPING.
G. NO PIPING OR WORK OF ANY KIND SHALL BE CONCEALED OR COVERED UNTIL ALL REQUIRED TESTS HAVE BEEN SATISFACTORILY COMPLETED AND THE WORK HAS BEEN INSPECTED AND APPROVED BY THE OWNER'S REPRESENTATIVE AND ALL AUTHORITIES HAVING JURISDICTION.
H. NO DEAD ENDS SHALL BE LEFT ON ANY DRAINAGE PIPING UPON COMPLETION OF THE WORK.
24. COORDINATION
A. CERTAIN MATERIALS WILL BE FURNISHED, INSTALLED, OR FURNISHED AND INSTALLED, UNDER OTHER SECTIONS. EXAMINE THE CONTRACT DOCUMENTS TO ASCERTAIN THESE.
B. TRANSMIT TO THE TRADES DOING THE WORK OF OTHER SECTIONS ALL THE INFORMATION REQUIRED FOR WORK TO BE PROVIDED UNDER THEIR RESPECTIVE SECTIONS IN AMPLE TIME FOR THEIR INSTALLATION.
C. ALL NEW WORK SHALL BE COORDINATED WITH EXISTING CONDITIONS.

25. TESTING AND BALANCING

- A. PROVIDE LABOR, MATERIALS, INSTRUMENTS, POWER, ETC. AS REQUIRED, FOR TESTING AND BALANCING. ALL PIPING AND EQUIPMENT SHALL BE TESTED AS REQUIRED BY THE LOCAL BUILDING CODE. TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE AND SUCH OTHER PARTIES AS MAY HAVE LEGAL JURISDICTION.
B. NOTIFY THE OWNER'S REPRESENTATIVE AT LEAST 48 HOURS IN ADVANCE OF MAKING THE REQUIRED TESTS, SO THAT ARRANGEMENTS MAY BE MADE FOR THEIR PRESENCE TO WITNESS THE TESTS.
C. TESTS SHALL BE APPLIED TO COMPLETED OR PARTIALLY COMPLETED SYSTEMS IN NO CASE SHALL PIPING AND EQUIPMENT TO BE SUBJECTED TO PRESSURES EXCEEDING THEIR RATING.
D. ALL DEFECTIVE WORK SHALL BE PROMPTLY REPAIRED OR REPLACED AND THE TESTS SHALL BE REPEATED UNTIL THE PARTICULAR SYSTEM AND ALL COMPONENT PARTS RECEIVE THE APPROVAL OF THE OWNER'S REPRESENTATIVE.
E. ANY DAMAGES RESULTING FROM TESTS SHALL BE REPAIRED AND/OR DAMAGED MATERIALS REPLACED, ALL TO THE SATISFACTION OF THE OWNER. THE DURATION OF TESTS SHALL BE AS DETERMINED BY ALL AUTHORITIES HAVING JURISDICTION.
26. SUBSTITUTION OF SPECIFIED MATERIALS
A. THE PRODUCTS AND/OR MATERIALS LISTED IN THESE SPECIFICATIONS REPRESENT DESIRED MATERIALS AND CONSTRUCTION STANDARDS FOR THE VARIOUS ITEMS OF WORK. MANUFACTURER NAMES AND MODEL NUMBERS ARE USED TO DESCRIBE TYPES, STYLES AND QUALITY. MATERIALS SUBMITTED FOR APPROVAL OTHER THAN SPECIFIED HEREIN MUST MEET OR EXCEED THESE STANDARDS.
27. PRESSURE REDUCING VALVE (DOMESTIC WATER)
(OF WATER PRESSURE EXCEEDS 80 PSI) PROVIDE PRV AS SET OUTLET PRESSURE AT 55 PSI. FOR COMMERCIAL DISHWASHERS USE AND SET OUTLET PRESSURE AT 20 PSI OR AS PER DISHWASHERS MANUFACTURERS REQUIREMENTS)
A. SIZE 1/2" - 2" THREADED BRONZE BODY CONSTRUCTION RENEWABLE STAINLESS STEEL SEAT, HIGH TEMPERATURE RESISTING DIAPHRAGM, SPRING CASE CONSTRUCTION AND STRAINER. WATTS NO. 2235 OR APPROVED EQUAL.
28. ICE MAKER BELOW COUNTERTOP (FURNISHED BY OTHERS)
A. INSTALL THE UNDER COUNTER ICE MAKERS WHERE INDICATED ON ARCHITECTURAL DRAWINGS. PROVIDE 7" COLD WATER WITH GATE VALVE AND EXTEND 1" INDIANT WASTE TO THE ADJACENT WET FLOOR DRAIN IF WASTE IS BY GRAVITY OR FURNEL DRAIN IF WASTE IS PUMPED.
29. COFFEE MAKER (FURNISHED BY OTHERS)
A. INSTALL WHERE INDICATED ON ARCHITECTURAL DRAWINGS. PROVIDE 1" COLD WATER CONNECTIONS WITH VACUUM BREAKER TYPE "A", CHECK VALVE AND GATE VALVE. VACUUM BREAKER TO BE INSTALLED 12" ABOVE FLOOR LEVEL RIM OF COFFEE MAKER.
30. DISHWASHER - RESIDENTIAL TYPE (FURNISHED BY OTHERS)
A. RESIDENTIAL TYPE: INSTALL DISHWASHER WHERE INDICATED ON ARCHITECTURAL DRAWINGS. PROVIDE ALL ROUGHING AND 1" HW SUPPLY WITH GATE VALVE, CHECK VALVE AND VACUUM BREAKER. EXTEND AND CONNECT 1" WASTE HOSE TO TAILPIPE AT SINK WASTE.
B. COMMERCIAL TYPE: INSTALL DISHWASHER WHERE INDICATED ON ARCHITECTURAL DRAWINGS. PROVIDE ALL ROUGHING AND 1" HW SUPPLY WITH GATE VALVE, CHECK VALVE AND VACUUM BREAKER. EXTEND 1" WASTE HOSE TO SPILL INDIRECTLY OVER FLOOR SINK.
31. REFRIGERATOR WITH ICE MAKER (FURNISHED BY OTHERS)
A. INSTALL REFRIGERATOR WHERE INDICATED ON ARCHITECTURAL DRAWINGS. PROVIDE 7" COLD WATER WITH GATE VALVE AND CHECK VALVE.
32. ELECTRICAL HEAT TRACING FOR PIPING
A. FURNISH AND INSTALL A COMPLETE UL LISTED SYSTEM OF HEATERS, COMPONENTS, AND CONTROLS TO PREVENT PIPELINES FROM FREEZING.
1. HEAT TRACE ALL EXPOSED PIPING USING A SINGLE LINEAR STRIP OF RAYHEM MODEL XL-20R SELF-REGULATING, RADIATION CROSS-LINKED, HEATER CABLE WITH A NINER COPPER BRAD AND MODIFIED POLYURETHAN OUTER JACKET. COMPONENTS SHALL BE RAYHEM EXCEL 1000. CONNECT TYPE RATED FOR RATED 30 AMPS, NEMA 4X ENCLOSURES: TEES AND SPLICES: END SEALS (SILICONE GEL TYPE); FIBERGLASS TAPE AND ELECTRIC TRACED LABELS; AS REQUIRED. LIGHTED END SEALS SHALL BE INSTALLED FOR CRITICAL END OF LINE POWER VERIFICATION WHERE INDICATED. ALL COMPONENTS, EXCEPT THE POWER CONNECTIONS AND ANY LIGHTED END SEALS, SHALL BE INSTALLED UNDER THE THERMAL INSULATION. INSTALLING CONTRACTOR SHALL TEST IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION, INCLUDING: RESISTANCE TESTING WITH A 2500 VDC MEGOHMMETER AND CAPACITANCE TESTING.
THE WATTAGE OF THE CABLE AND PIPING INSULATE SHALL BE AS FOLLOWS:
UP THROUGH 3" PIPE, 1" INSULATION, 1 STRIP SIX (5 WATT/FT) FOR PROTECTION TO -20F
UP THROUGH 10" PIPE, 2" INSULATION, 1 STRIP SIX (8 WATT/FT) FOR PROTECTION TO -20F
UP THROUGH 20" PIPE, 2" INSULATION, 1 STRIP 12X (12 WATT/FT) FOR PROTECTION TO -20F
2. POWER THE HEAT TRACING THROUGH A .80-1.00-100-EPF PIPE MOUNTED COMINATION POWER CONNECTION AND DIGITAL ELECTRONIC PROGRAMMABLE CONTROLLER WITH RTD TEMPERATURE SENSOR. THE CONTROLLER SHALL PROVIDE PROGRAMMABLE SET POINTS FOR TEMPERATURE MAINTENANCE (NORMALLY 40 DF) AND HIGH AND LOW TEMPERATURE ALARMS. ADDITIONAL ALARMS SHALL INCLUDE POWER AND RTD FAILURE. ALARM INDICATION SHALL BE VISUAL WITH AUXILIARY CONTACTS. POWER SHALL BE 208 VOLTS, SINGLE PHASE THROUGH GF CIRCUIT BREAKERS HAVING A 30 MA TRIP.
33. ROOF DRAINS
A. DRAINS IN ROOFS SHALL BE PROVIDED WITH A FLASHING CLAMP AND SHALL BE PROVIDED WITH A FLASHING CLAMP AND SHALL BE FLASHED WITH ALB. SHEET LEAD EXTENDING AT LEAST 15" OUT FROM DRAIN IN ALL DIRECTIONS. BEFORE ORDERING ANY DRAINS, CHECK THE FLASHING LEVEL SO THAT THE PROPER DRAIN, STRAINER HEIGHT, AND EXTENSIONS ARE PROVIDED.
B. ROOF DRAINS - J.R. SMITH FIG. 1010-E-R-C WITH 5" HIGH CAST IRON DOME AND OUTLET FOR INSIDE CALK.
C. ROOF DRAINS - J.R. SMITH FIG. PROVIDE CONTROLLED FLOW ROOF DRAINS, WHERE INDICATED ON PLANS TO MATCH THE APPROVED SD1 & 2 PLANS.
34. FUEL GAS SERVICE REGULATOR (PRV)
A. PROVIDE, WHERE INDICATED ON THE DRAWINGS, ROCKWELL MFG. CO. OR APPROVED OTHER, MODEL NO. 120 FUEL GAS SERVICE REGULATOR CAPABLE OF REDUCING 0.5 PSI SERVICE PRESSURE TO 9 INCHES WATER COLUMN.
35. FROSTPROOF WALL HYDRANTS
HYDRANTS SHALL BE ALL BRONZE, 3/4" LOOSE KEY OF PROPER LENGTH FOR WALL THICKNESS, VACUUM BREAKER, MIFAB MANUFACTURING INC. SERIES NO. MHY-20. EXPOSED SURFACES SHALL BE CHROME PLATED.
36. DOMESTIC WATER METER
A. DOMESTIC SERVICE WATER METER SHALL BE FULL SIZE, FULL FLOW COMPOUND TYPE, DISC METERING ELEMENT FOR LOW FLOWS AND TURBINE ELEMENT FOR HIGH FLOWS. SIMILAR TO NEPTUNE METER CO. "TRIDENT COMPOUND". METER TO BE APPROVED BY THE LOCAL AUTHORITIES.
37. WASHING MACHINE
A. INSTALL A SYMONS LAUNDRY MATE SUPPLY AND DRAIN MODEL #M-602-X, WITH F COPPER TUBING AND 2" DRAIN.
38. TRAP PRIMER
A. FURNISH AND INSTALL MIFAB MANUFACTURING INC. TRAP PRIMER MODEL #M-500 WHERE INDICATED ON DRAWINGS. INCLUDE WITH PRIMER MODEL #M-GAP AIR GAP FITTING. IF DISCHARGING TO MULTIPLE DRAINS PROVIDE DISTRIBUTION UNIT MODEL #M-BU AS REQUIRED. INSTALL AS PER MANUFACTURER'S REQUIREMENTS.

39. CIRCULATOR PUMP

- A. PROVIDE, WHERE INDICATED ON THE DRAWINGS, BELL AND GOSSETT, OR APPROVED OTHER, ALL BRONZE IN-THE-LINE CIRCULATORS, DIRECT CONNECTED TO 1/2" HP, 110V, SINGLE PHASE, 60 HERTZ MOTORS. PUMPS SHALL BE MODEL NO. 50-75 CAPABLE OF CIRCULATING 5 GPM AT A FOOT OF HEAD PRESSURE.
B. CIRCULATING PUMPS SHALL BE CONTROLLED BY MEANS OF AN IMERSION TYPE ADJUSTAT WITH SCALE AND DETACHABLE MIM, WHICH SHALL BE INSTALLED IN THE CIRCULATING LINE NEAR THE SUCTION INLET OF THE PUMPS. THE ADJUSTAT SHALL OPERATE ON 110 VOLTS AND SHALL BE SO DESIGNED AND CONNECTED THAT THE CIRCULATING MOTOR WILL START AND STOP WITHIN THE PRESSURE RANGES OF 105F TO 110F. THE ADJUSTAT SHALL BE GUARANTEED TO OPERATE WITHIN A MAXIMUM RANGE OF PLUS OR MINUS 2F OF THE SETTING.
C. CONTROLLER SHALL BE SWITCH IN NEMA 1 ENCLOSURE, ALLEN BRADLEY NO. 600 OR APPROVED OTHER.
D. ALL CONTROL WIRING SHALL BE BY THIS CONTRACTOR.
40. GAS FIRED WATER HEATER
A. FURNISH AND INSTALL THE FOLLOWING MAXIM MXL GAS WATER HEATER(S) AS MANUFACTURED BY PV INDUSTRIES, INC. OF FORT WORTH, TEXAS.
[REFER TO SCHEDULE ON DWG. P-401 FOR MODEL NUMBERS]
B. GAS AND ELECTRICAL CONSUMPTION:
1. THE WATER HEATER WILL OPERATE AT 82% THERMAL EFFICIENCY.
2. TO CONSERVE ENERGY, THE WATER HEATER WILL UTILIZE A CONTINUOUSLY OPERATING, INTEGRAL CIRCULATION PUMP BETWEEN THE STORAGE AND HEATING SECTIONS.
C. THE LINING WILL:
1. BE APPLIED ONLY AFTER THE TANK IS COMPLETELY FABRICATED AND ALL WELDING IS COMPLETED.
2. BE A NONFERROUS, ELECTROLESS NICKEL ALLOY CONSISTING OF 90% NICKEL AND 10% PHOSPHORUS APPLIED BY LABORATORY-CONTROLLED, CHEMICAL PLATING PROCESS.
3. BE CONTINUOUS AND NONPOROUS WITH NO INTERRUPTIONS OR DISCONTINUITIES, PARTICULARLY AT ALL TANK-TO-FITTING TRANSITIONS.
4. BOND TO THE TANK BY COHESION (SHARING ELECTRONS WITH THE STEEL) AT A RATE IN EXCESS OF 3000 PSI.
5. HAVE A HARDNESS OF 50 ROCKWELL C AND BE HARDER THAN THE UNDERLYING STEEL TANK.
6. REQUIRE NO SACRIFICIAL ANODE RODS FOR PROTECTION. FOR ADDITIONAL PROTECTION AGAINST GALVANIC CORROSION, WHICH MAY OCCUR WITHIN THE POTABLE WATER SYSTEM, THE NICKEL PLATING MAY HAVE AN OPTIONAL FLUOROPOLYMER OVERCOAT.
D. BURNER AND VENTING
1. COMBUSTION WILL BE PROVIDED BY A FORCED-DRAFT POWER BURNER WITH A GAS TRAP MEETING UL STANDARD SPECIFICATIONS.
E. THE BURNER AND ALL HEATER PARTS WILL HAVE A ONE-YEAR WARRANTY. STORAGE TANK WILL HAVE A TEN-YEAR WARRANTY COVERING MANUFACTURING OR MATERIAL DEFECTS, AND/OR THE PRODUCTION OF RUSTY WATER. TANK AND HEATING SURFACES WILL HAVE A NON-PROTECTED, THREE-YEAR WARRANTY AGAINST FAILURE DUE TO SCALE BUILDUP WITH NO PROVISIONS FOR PERIODIC CLEANING FOR WARRANTY COVERAGE.
41. SEWAGE EJECTOR
A. FURNISH AND INSTALL AS SHOWN ON PLANS A DUPLEX VSA-4F-3-4, SUS304H WET-PIT SEWAGE PUMP UNIT AS MANUFACTURED BY FEDERAL PUMP CORPORATION. EACH PUMP SHALL BE RATED 150 GPM AT 36 FEET TOTAL DYNAMIC HEAD, SHALL HAVE A 3 INCH DISCHARGE AND BE BUILT FOR A PIT OR BASIN 5' DEEP.
MOTORS SHALL BE 3 HP, 3 PHASE, 60 CYCLE, 208 VOLTS, 1750 RPM OPEN, DRIP-PROOF BALL BEARING TYPE, FLEXIBLE COUPLED TO PUMPS.
C. FURNISH A PEDESTAL MOUNTED ALTERNATING FLOAT SWITCH TO ALTERNATE THE OPERATION OF THE PUMPS AND PROVIDE SIMULTANEOUS OPERATION WHEN REQUIRED. FURNISH A PEDESTAL MOUNTED AUXILIARY FLOAT SWITCH TO TURN ON BOTH PUMPS IF THE ALTERNATING FLOAT SWITCH IS INOPERATIVE. THE FLOAT SWITCHES SHALL HAVE COPPER FLOATS, BRASS RODS, ADJUSTABLE STOPS, GALVANIZED ROD GUIDES AND SHALL BE EQUAL TO FEDERAL TYPE FS-4.
D. FURNISH A COMPRESSION TUBE TYPE HIGH WATER ALARM WITH INTEGRAL 110 V, 4" ALARM HORN, EQUAL TO FEDERAL TYPE FS-5.
E. FURNISH TYPE D DUPLEX PUMP CONTROL PANEL (WALL MOUNTED) MODEL D1300 WITH (2) MAGNETIC STARTERS AND (2) CIRCUIT BREAKERS IN ONE ENCLOSURE. IN ADDITION PROVIDE OVERLOAD AND LOW VOLTAGE PROTECTION AND WITH A HAND-OFF-AUTOMATIC SELECTOR SWITCH IN THE COVER.
F. BASIN SHALL HAVE A STEEL COVER WITH THE REQUIRED OPENINGS FOR PUMPS, CONTROLS, MANHOLE AND VENT CONNECTION AND SHALL BE TREATED WITH A CORROSION RESISTANT COATING.
G. ALL CONTROL WIRING SHALL BE BY THIS CONTRACTOR.
42. SUMP PUMP
A. FURNISH AND INSTALL AS SHOWN ON PLANS A DUPLEX VSP-3K-4, SUS304H WET-PIT SEWAGE PUMP UNIT AS MANUFACTURED BY FEDERAL PUMP CORPORATION. EACH PUMP SHALL BE RATED 200 GPM AT 34 FEET TOTAL DYNAMIC HEAD, SHALL HAVE A 3 INCH DISCHARGE AND BE BUILT FOR A PIT OR BASIN 5' DEEP.
MOTORS SHALL BE 3 HP, 3 PHASE, 60 CYCLE, 208 VOLTS, 1750 RPM OPEN, DRIP-PROOF BALL BEARING TYPE, FLEXIBLE COUPLED TO PUMPS.
C. FURNISH A PEDESTAL MOUNTED ALTERNATING FLOAT SWITCH TO ALTERNATE THE OPERATION OF THE PUMPS AND PROVIDE SIMULTANEOUS OPERATION WHEN REQUIRED. FURNISH A PEDESTAL MOUNTED AUXILIARY FLOAT SWITCH TO TURN ON BOTH PUMPS IF THE ALTERNATING FLOAT SWITCH IS INOPERATIVE. THE FLOAT SWITCHES SHALL HAVE COPPER FLOATS, BRASS RODS, ADJUSTABLE STOPS, GALVANIZED ROD GUIDES AND SHALL BE EQUAL TO FEDERAL TYPE FS-4.
D. FURNISH A COMPRESSION TUBE TYPE HIGH WATER ALARM WITH INTEGRAL 110 V, 4" ALARM HORN, EQUAL TO FEDERAL TYPE FS-5.
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F. BASIN SHALL HAVE A STEEL COVER WITH THE REQUIRED OPENINGS FOR PUMPS, CONTROLS, MANHOLE AND VENT CONNECTION AND SHALL BE TREATED WITH A CORROSION RESISTANT COATING.
G. ALL CONTROL WIRING SHALL BE BY THIS CONTRACTOR.
43. DUPLEX DOMESTIC WATER PUMPING SYSTEM
A. SCOPE:
1. FURNISH AND INSTALL A PREFABRICATED MODEL XX DUPLEX PUMP CONSTANT PRESSURE BOOSTER SYSTEM AS DESIGNED AND MANUFACTURED BY SINGFIELD, INC. THE SYSTEM SHALL BE CAPABLE OF PROVIDING A CONSTANT SYSTEM PRESSURE OF XX PSIG WHILE SUPPLYING A FLOW RATE FROM 0 TO X GPM WITH

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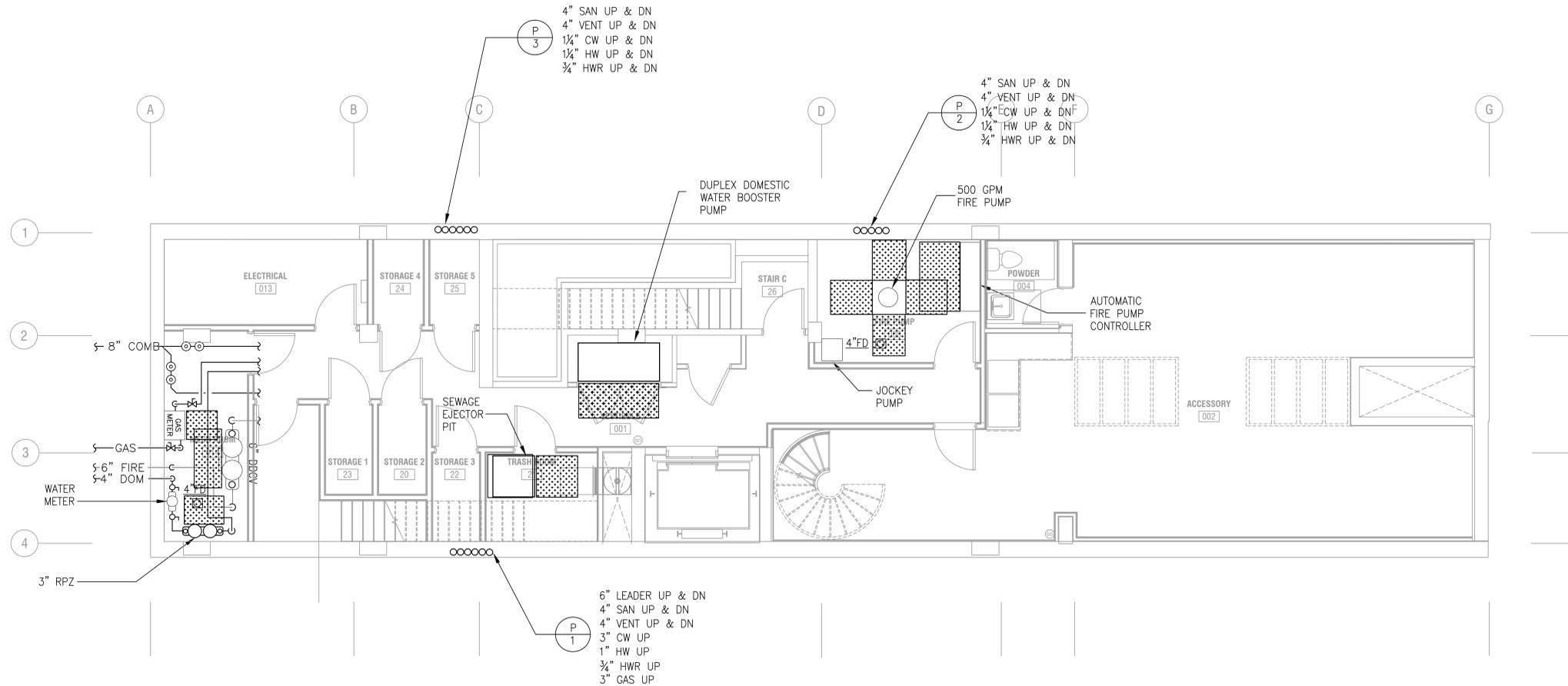
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DRAWING INFO

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OWNER SHALL NOTIFY FDNY OF SPRINKLER SYSTEM DISCONNECTION BY SUBMITTING A LETTER OF NOTIFICATION

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE NEW YORK CITY ENERGY CONSERVATION CODE

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PLUMBING CELLAR PLAN

P300.00

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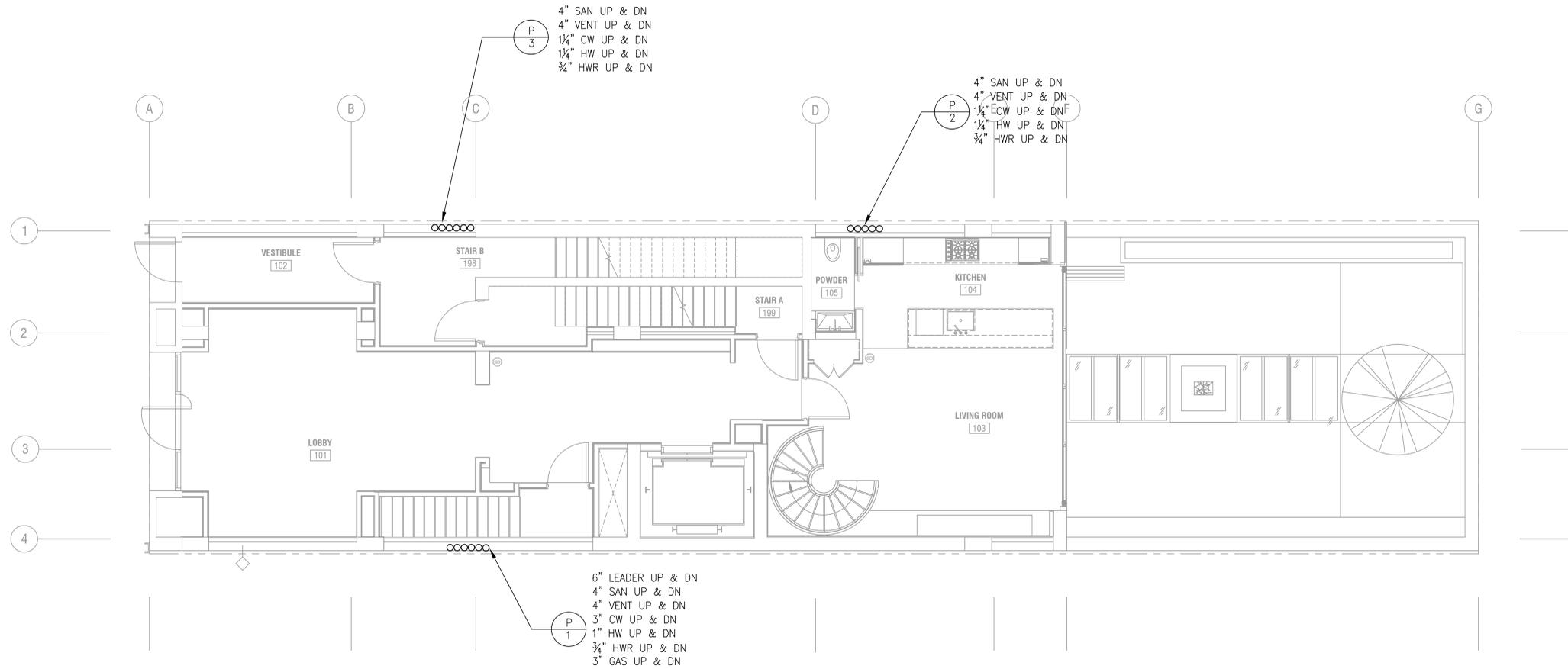
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PLUMBING FIRST FLOOR PLAN

P301.00

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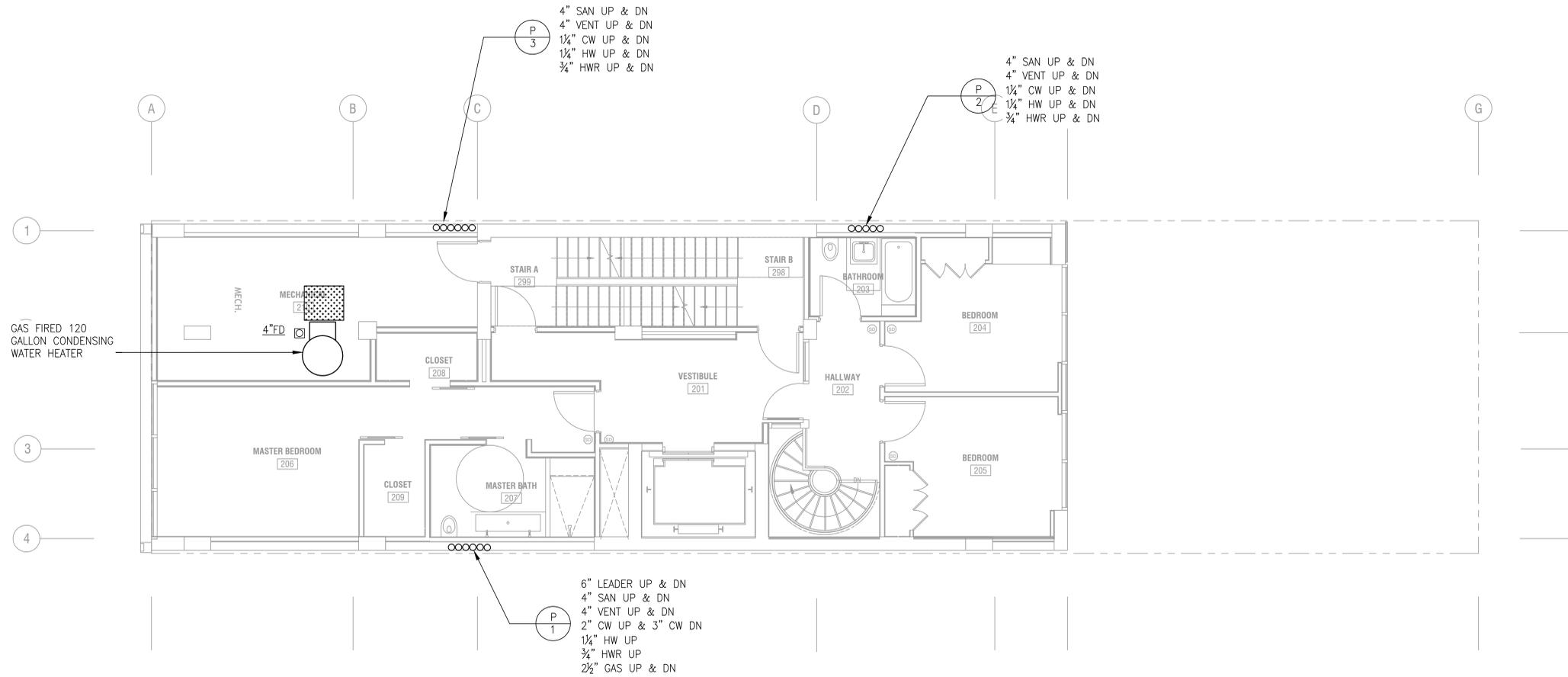
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PLUMBING SECOND FLOOR PLAN

P302.00

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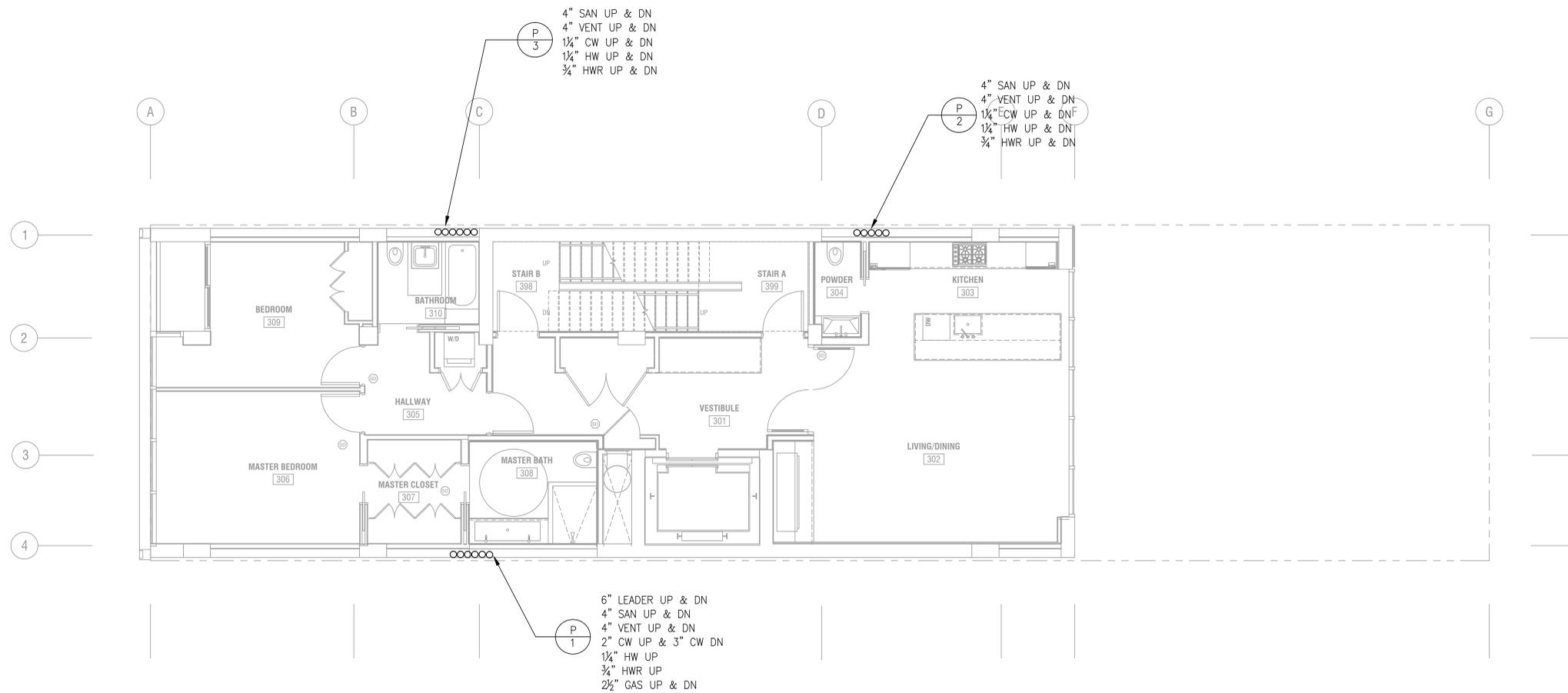
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DRAWN BY:	ER
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DATE:	AUGUST 29, 2013
SCALE:	1/8" = 1'-0"
PROJ. NO.	C010-01-001

OWNER SHALL NOTIFY FDNY OF SPRINKLER SYSTEM DISCONNECTION BY SUBMITTING A LETTER OF NOTIFICATION

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PLUMBING THIRD FLOOR PLAN

P303.00

OWNER

W29 534 Highline Owners, LLC,
520 West 27th Street, Suite 302
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Tel: (212) 804-8784

ARCHITECT OF RECORD

Workshop Architecture Planning Design, DPC,
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Fax: (212) 273-9713

STRUCTURAL ENGINEER

Marin Consulting Engineer PLLC
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Tel: (917) 705-5534

MEP

2LS Consulting Engineering
150 West 30th Street, 4th Floor
New York, NY 10001
Tel: (917) 267-8945

GEO/ENVIRONMENTAL

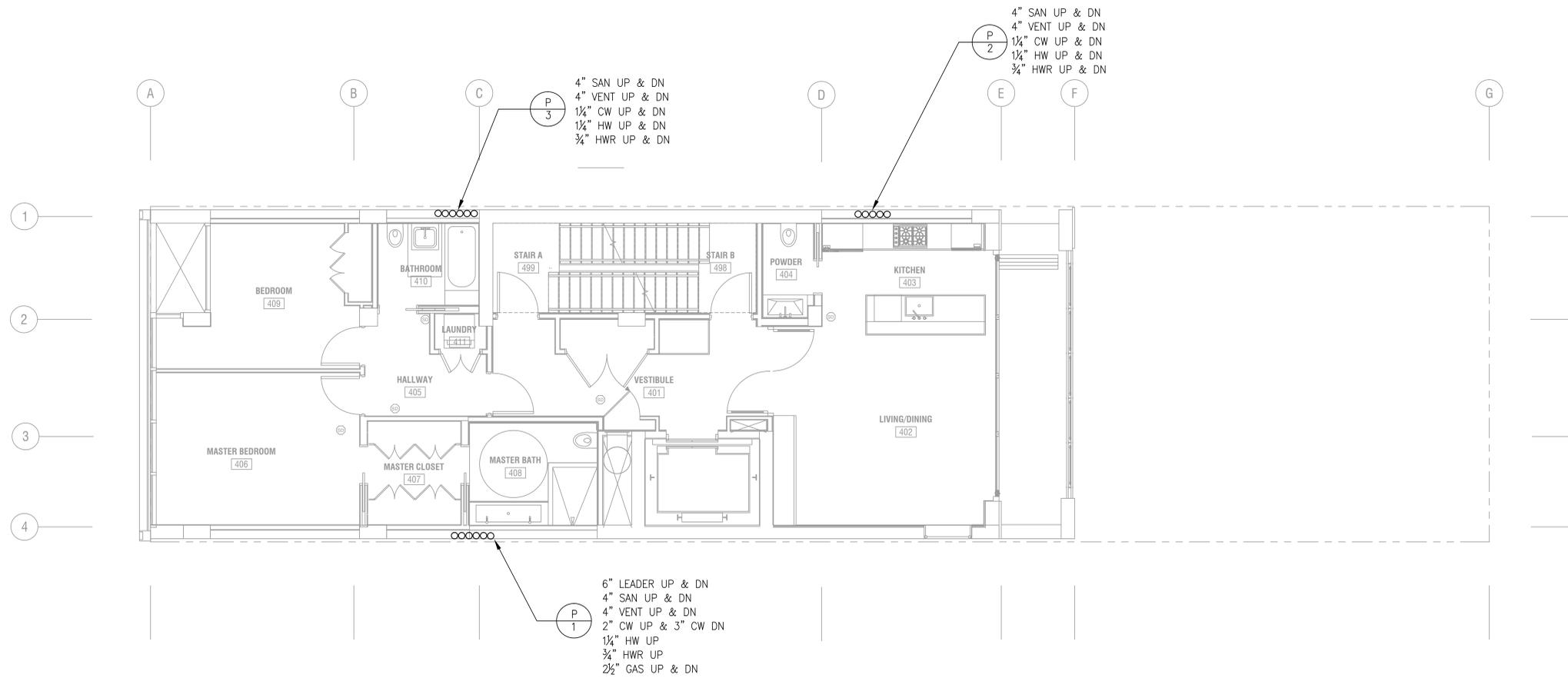
GZA GeoEnvironmental of New York
104 West 29th Street, 10th Floor
New York, New York 10001
Tel: (212) 594-8140

SURVEYOR

Montrose Surveying Co LLP,
116-20 Metropolitan Ave
Richmond Hill, NY 11418
Tel: (718) 849-0600

CONTRACTOR

Foundations Group Inc.
520 West 27th Street, Suite 302
New York, New York 10001
Tel: (212) 924-1724



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PLUMBING FOURTH FLOOR PLAN

P304.00

OWNER

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ARCHITECT OF RECORD

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STRUCTURAL ENGINEER

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MEP

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150 West 30th Street, 4th Floor
New York, NY 10001
Tel: (917) 267-8945

GEO/ENVIRONMENTAL

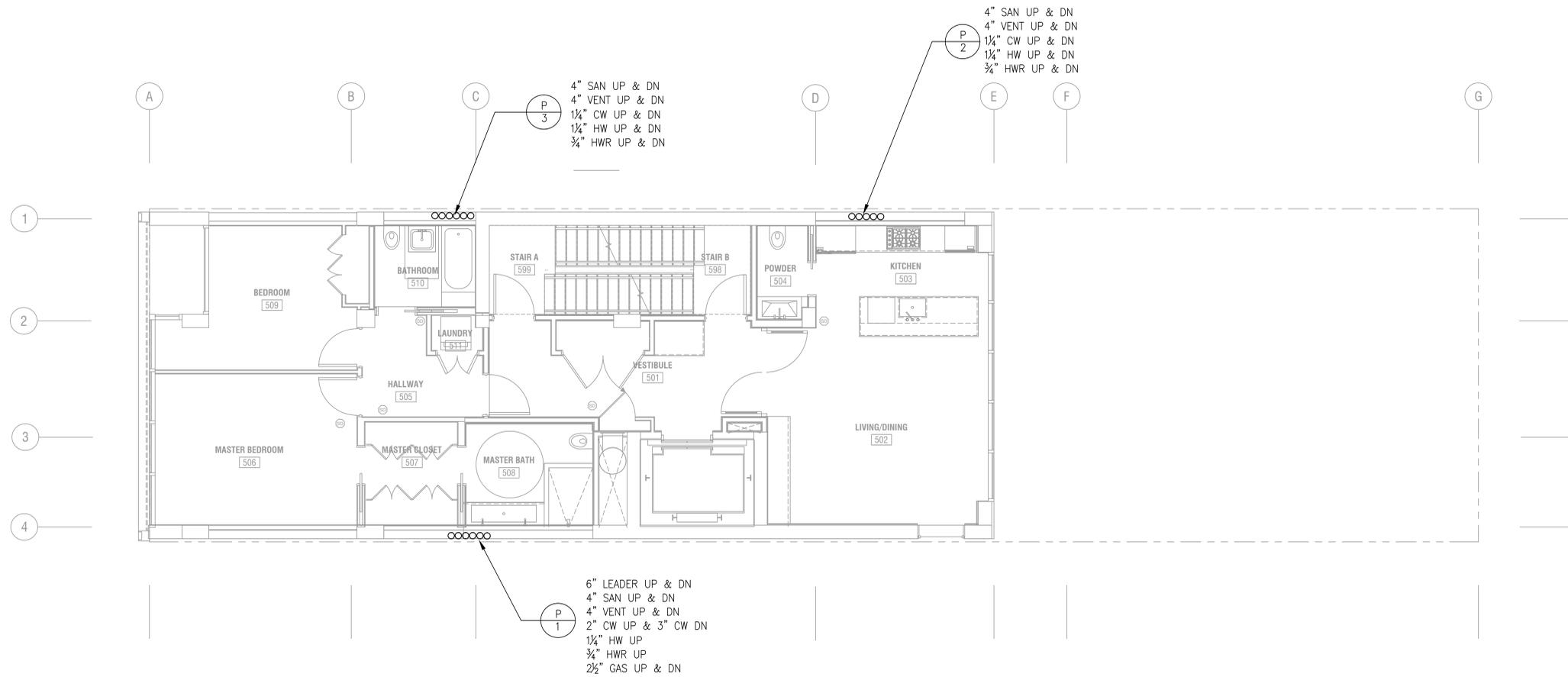
GZA GeoEnvironmental of New York
104 West 29th Street, 10th Floor
New York, New York 10001
Tel: (212) 594-8140

SURVEYOR

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PLUMBING FIFTH FLOOR PLAN

P305.00

OWNER

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GEO/ENVIRONMENTAL

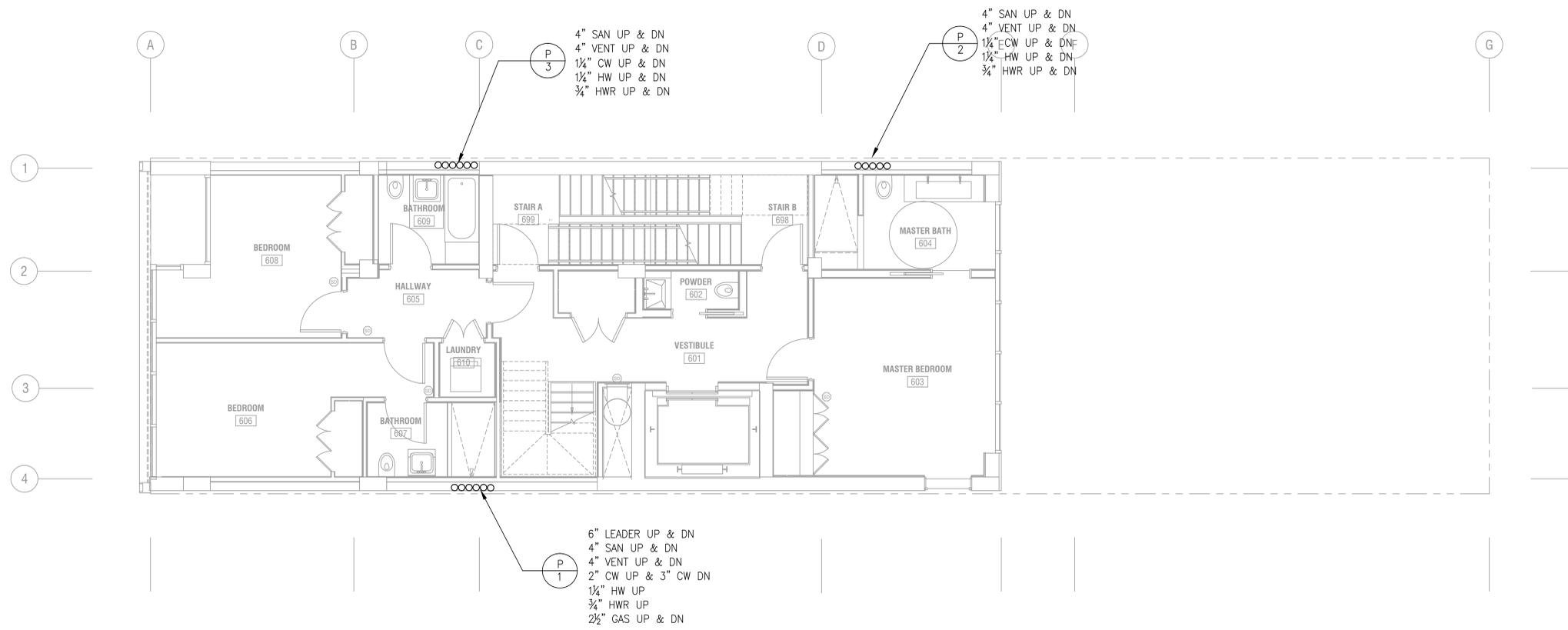
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PLUMBING SIXTH FLOOR PLAN

P306.00

OWNER

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ARCHITECT OF RECORD

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GEO/ENVIRONMENTAL

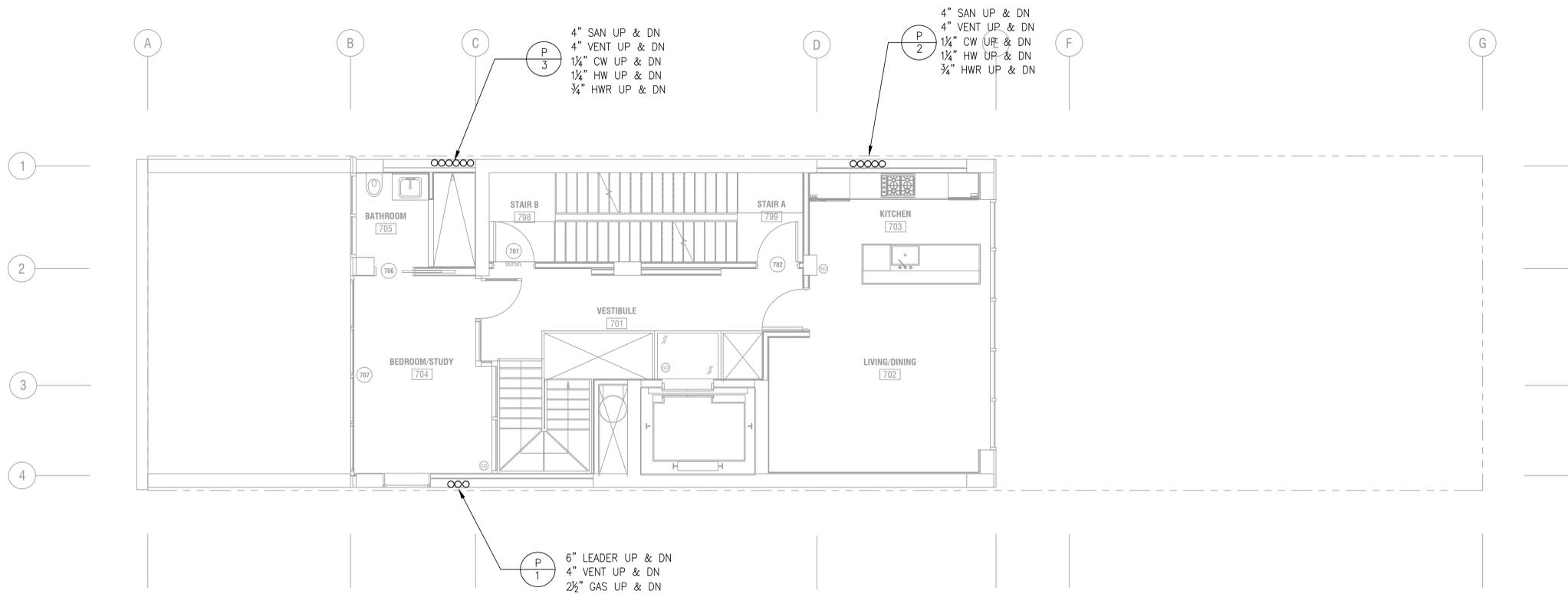
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PLUMBING SEVENTH FLOOR PLAN

P307.00

OWNER

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GEO/ENVIRONMENTAL

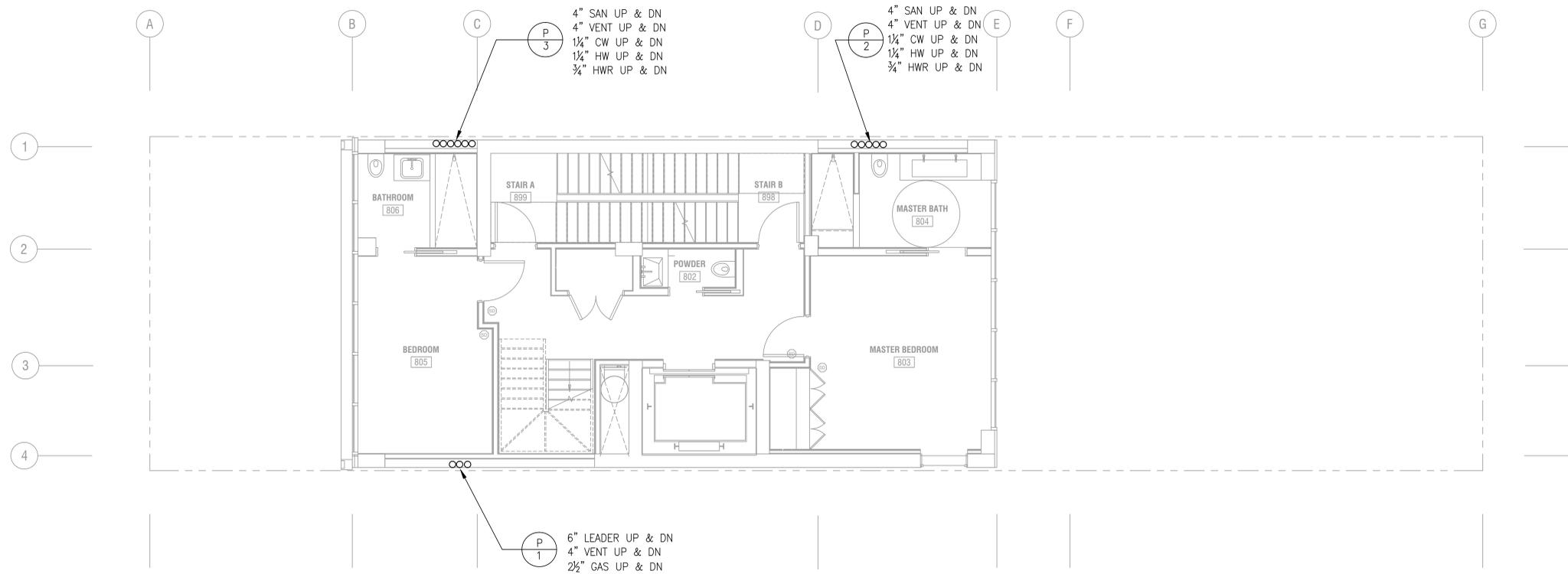
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PLUMBING EIGHTH FLOOR PLAN

P308.00

OWNER

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GEO/ENVIRONMENTAL

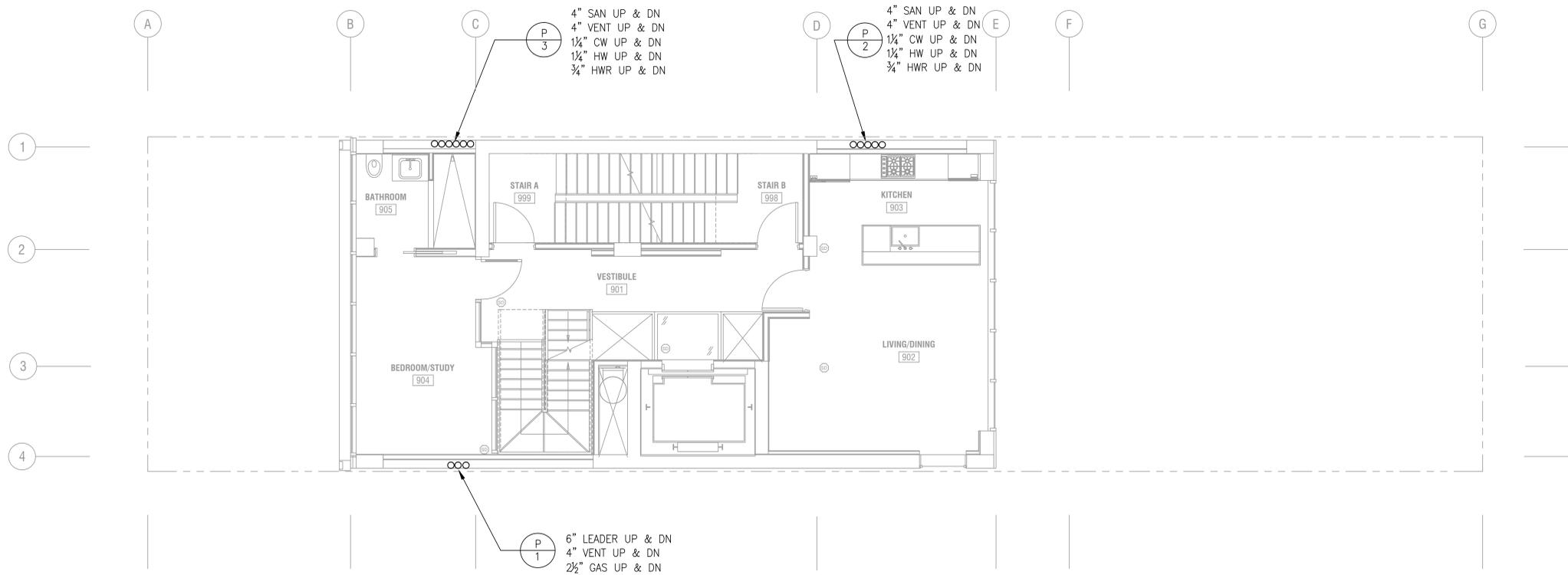
GZA GeoEnvironmental of New York
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PLUMBING NINTH FLOOR PLAN

P309.00

OWNER

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New York, NY 10001
Tel: (917) 267-8945

GEO/ENVIRONMENTAL

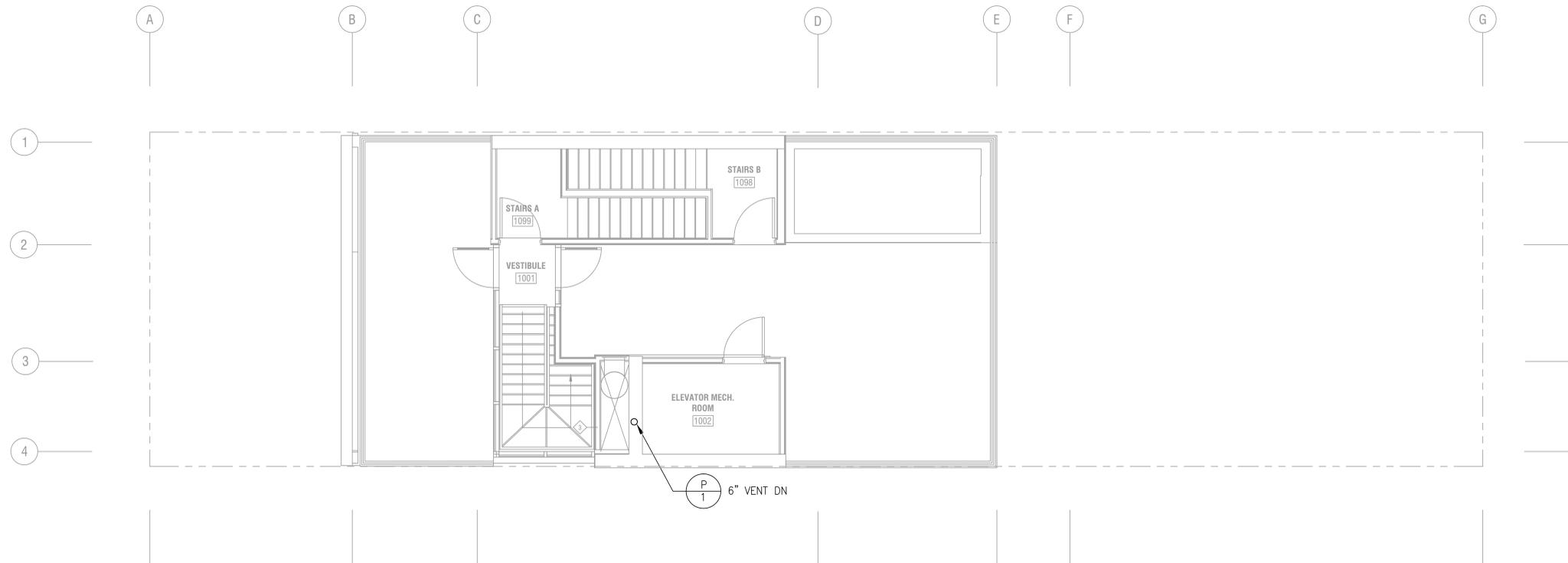
GZA GeoEnvironmental of New York
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New York, New York 10001
Tel: (212) 594-8140

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Tel: (718) 849-0600

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PLUMBING ROOF TERRACE PLAN

P310.00

OWNER

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GEO/ENVIRONMENTAL

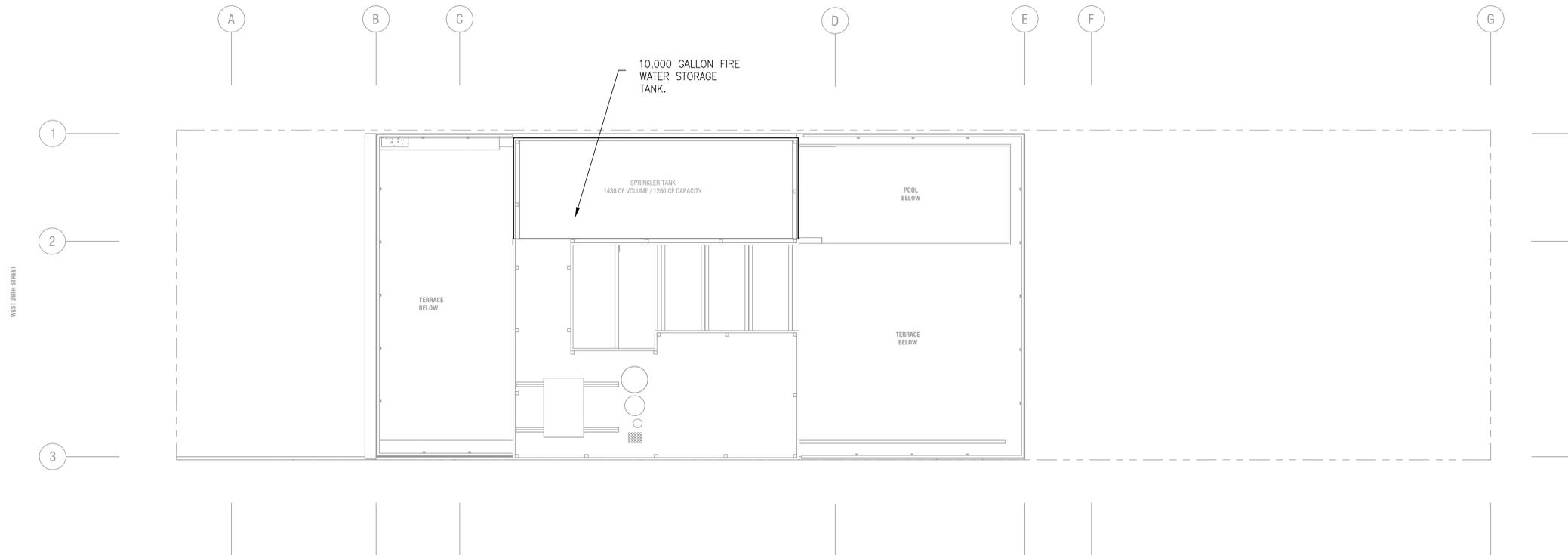
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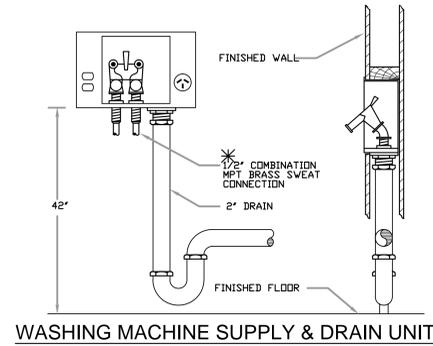
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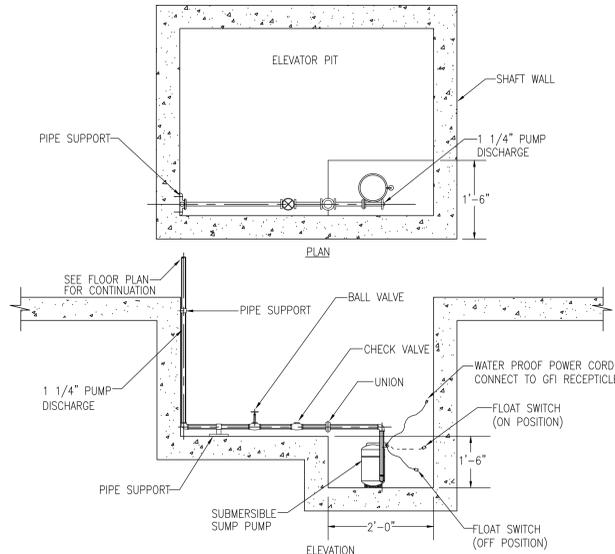
PLUMBING ROOFTOP PLAN

P311.00



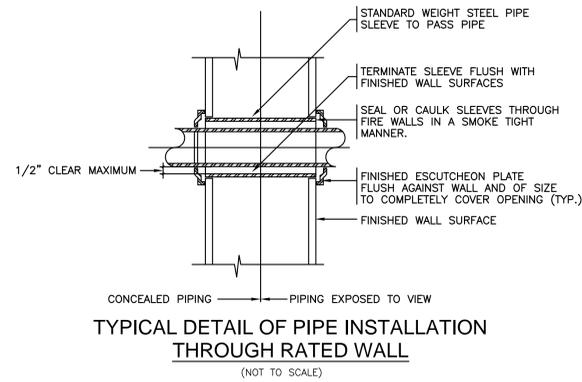
WASHING MACHINE SUPPLY & DRAIN UNIT

N.T.S.
WATTS MODEL ABC-MI-WB W/LEAK DETECTOR
*PROVIDE STOP VALVES DN H&CV



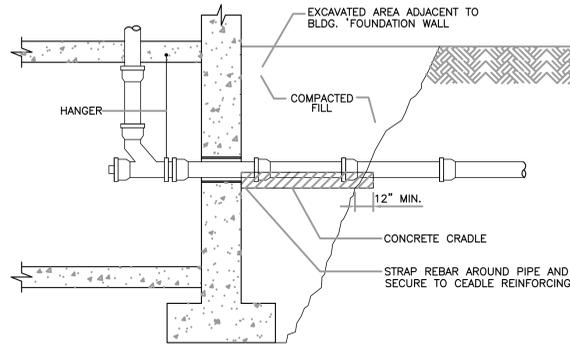
ELEVATOR SUMP PUMP DETAIL

SCALE: N.T.S.



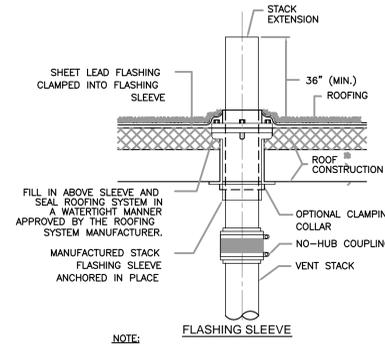
TYPICAL DETAIL OF PIPE INSTALLATION THROUGH RATED WALL

(NOT TO SCALE)



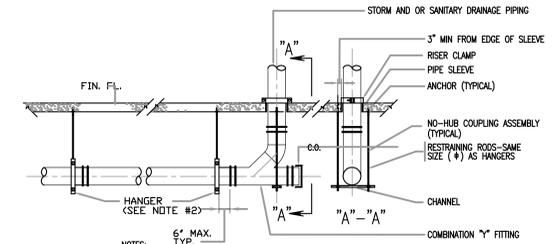
UNDERGROUND SUPPORT FOR PIPING AT FOUNDATION WALL

SCALE: N.T.S.



VENT THRU ROOF

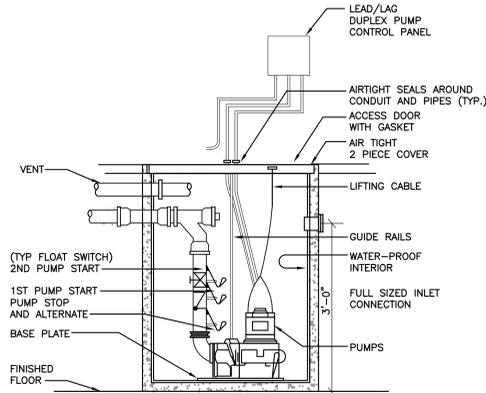
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NO-HUB PIPING RESTRAINING DETAIL

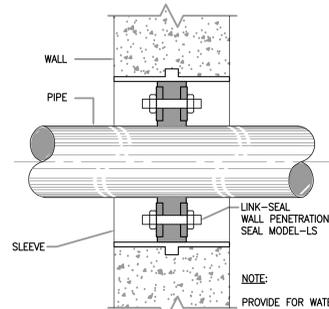
SCALE: N.T.S.

- NOTES:
1. PROVIDE RESTRAINING ASSEMBLY AT THE BASE OF EACH STACK.
 2. PROVIDE A HANGER AT EACH JOINT.
 3. SIZE OF HANGER RODS AND RESTRAINING RODS SHALL BE AS PER CODE AND CAST IRON INSTITUTE STANDARDS.
 4. FOR HORIZONTAL SOIL, WASTE, & VENT PIPING LARGER THAN 5" PROVIDE HANGER ON EACH SIDE OF EACH NO-HUB COUPLING SPACED NO FURTHER THAN 15' OR LESS THAN 3' FROM THE COUPLING ENDS.



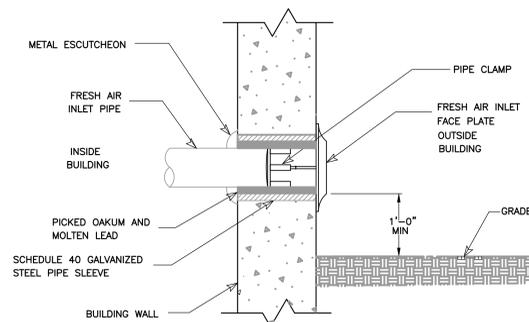
DUPLEX SEWAGE EJECTOR

NOT TO SCALE



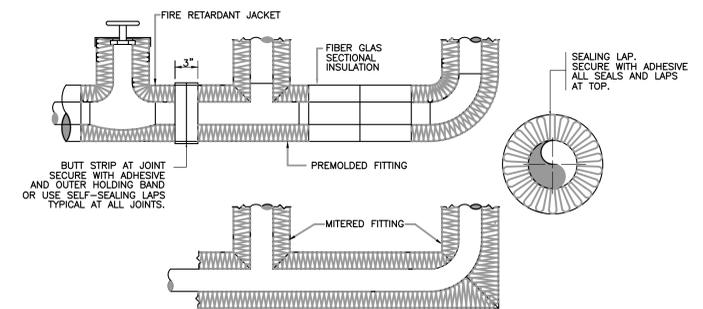
EXTERIOR WALLS DETAIL OF WATERTIGHT SLEEVE

SCALE: N.T.S.



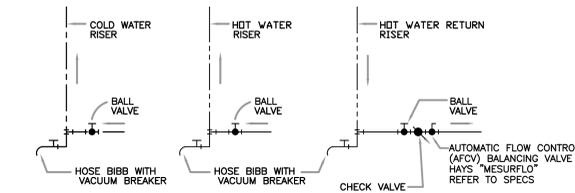
FRESH AIR INLET

NO SCALE



INSULATION OF PIPING, VALVES AND FITTINGS FOR EXPOSED AND CONCEALED LOCATIONS

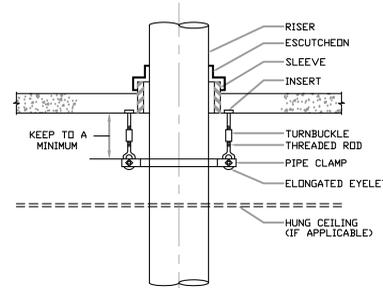
NO SCALE



DIAGRAMMATIC VALVING ARRANGEMENT AT BASE OF WATER RISERS

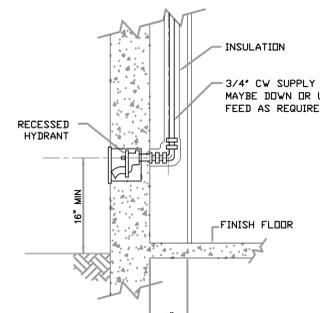
NO SCALE

- CONCEALED VALVES AND FITTINGS
- WRAP WITH 1-INCH THICK, 1-POUND DENSITY TO REQUIRED PIPE INSULATION THICKNESS.
 - SECURE WITH WIRE OR TAPE.
 - VAPOR SEAL COLD WATER, CHILLED WATER AND STORM WATER PIPING.
- EXPOSED VALVES AND FITTINGS
- PREMOLDED FIBER GLASS OR RADIAL MITERED PIPE INSULATION.
 - SKIM COAT OF INSULATING CEMENT.
 - WRAP WITH FIBER GLASS REINFORCING CLOTH.
 - FINISH COAT OF MASTIC.
 - OVERLAP 2-INCHES ON PIPE INSULATION.



RISER SUPPORT - EXPOSED AREAS

SCALE: N.T.S.



WALL HYDRANT

SCALE: N.T.S.

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SCALE:	1/8" = 1'-0"
PROJ. NO.:	C010-01-001

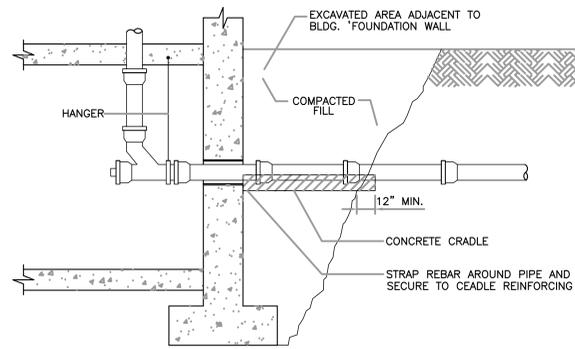
OWNER SHALL NOTIFY FDNY OF SPRINKLER SYSTEM DISCONNECTION BY SUBMITTING A LETTER OF NOTIFICATION

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE NEW YORK CITY ENERGY CONSERVATION CODE

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

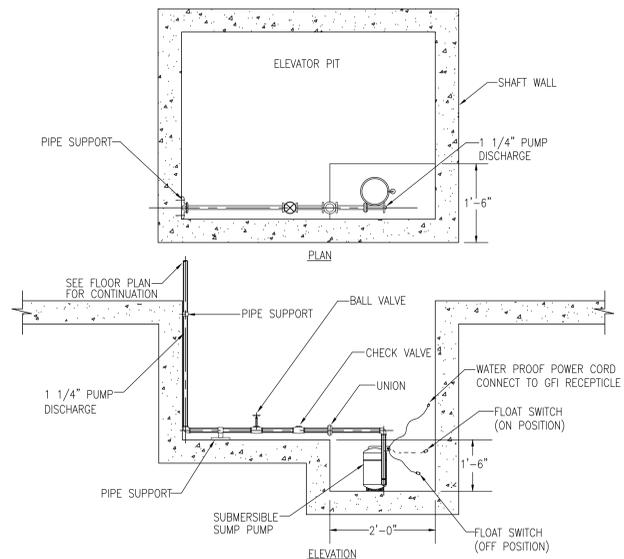
PLUMBING DETAILS

P401.00



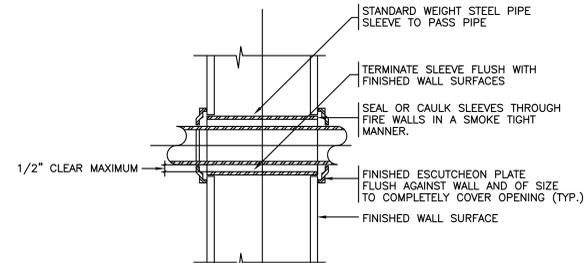
UNDERGROUND SUPPORT FOR PIPING AT FOUNDATION WALL

SCALE: N.T.S.



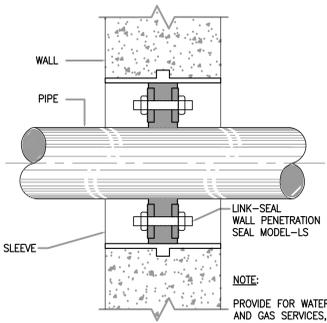
ELEVATOR SUMP PUMP DETAIL

SCALE: N.T.S.



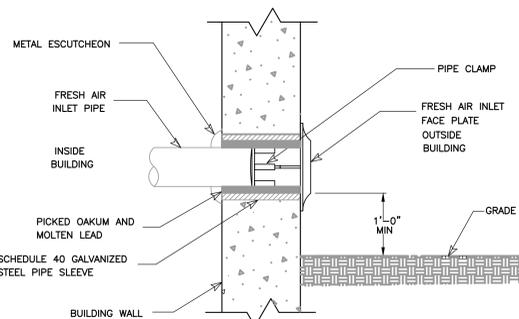
TYPICAL DETAIL OF PIPE INSTALLATION THROUGH RATED WALL

(NOT TO SCALE)



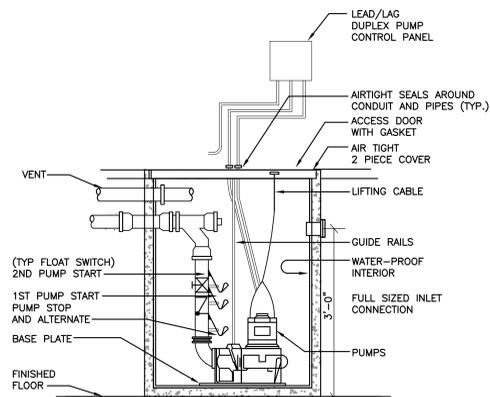
EXTERIOR WALLS DETAIL OF WATERTIGHT SLEEVE

SCALE: N.T.S.



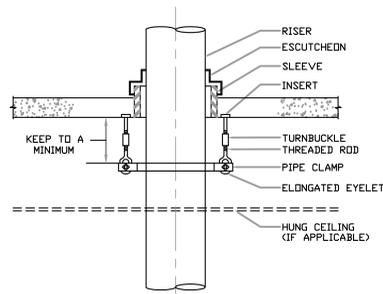
FRESH AIR INLET

NO SCALE



DUPLEX SEWAGE EJECTOR

NOT TO SCALE



RISER SUPPORT - EXPOSED AREAS

SCALE: N.T.S.

DOB FILE NO.

DOB USE



REVISIONS

NO.	DATE	REVISION
01	07/10/2013	REVIEW
02	09/18/2013	DOB HUB SUBMISSION
03		
04		
05		
06		
07		
08		
09		
10		
11		
12		

DRAWING INFO

DESIGN DEVELOPMENT	C010-01-001
DRAWN BY:	ER
CHECKED BY:	PS
DATE:	AUGUST 29, 2013
SCALE:	1/8" = 1'-0"
PROJ. NO.	C010-01-001

PLUMBING DETAILS

P402.00

OWNER SHALL NOTIFY FDNY OF SPRINKLER SYSTEM DISCONNECTION BY SUBMITTING A LETTER OF NOTIFICATION

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**Appendix F – Sample Waste Disposal
Manifests**

Appendix F
Sample Waste Disposal Manifest

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number	
5. Generator's Name and Mailing Address			Generator's Site Address (if different than mailing address)			
Generator's Phone:						
6. Transporter 1 Company Name				U.S. EPA ID Number		
7. Transporter 2 Company Name				U.S. EPA ID Number		
8. Designated Facility Name and Site Address				U.S. EPA ID Number		
Facility's Phone:						
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
		No.	Type			
1.						
2.						
3.						
4.						
14. Special Handling Instructions and Additional Information						
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Offelor's Printed/Typed Name			Signature		Month Day Year	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____						
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name			Signature		Month Day Year	
Transporter 2 Printed/Typed Name			Signature		Month Day Year	
18. Discrepancy						
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
Manifest Reference Number: _____						
18b. Alternate Facility (or Generator)				U.S. EPA ID Number		
Facility's Phone:						
18c. Signature of Alternate Facility (or Generator)				Month Day Year		
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1.	2.	3.	4.			
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name			Signature		Month Day Year	



Manifest # 4205

GLOBAL JOB NUMBER: _____ FACILITY APPROVAL NUMBER: _____

Please Check One:

- | | | | |
|---|--|--|--|
| <input type="checkbox"/> Clean Earth of Carteret
24 Middlesex Avenue
Carteret, NJ 07008
Ph: 732-541-8909 | <input type="checkbox"/> Clean Earth of Maryland
1469 Oak Ridge Place
Hagerstown, MD 21740
Ph: 301-791-6220 | <input type="checkbox"/> Clean Earth of New Castle
94 Pyles Lane
New Castle, DE 19720
Ph: 302-427-6633 | <input type="checkbox"/> Other

_____ |
| <input type="checkbox"/> Clean Earth of Philadelphia
3201 S. 61st Street
Philadelphia, PA 19153
Ph: 215-724-5520 | <input type="checkbox"/> Clean Earth of North Jersey
115 Jacobus Avenue
Kearny, NJ 07032
Ph: 973-344-4004 | <input type="checkbox"/> Clean Earth of Southeast Pennsylvania
7 Steel Road East
Morrisville, PA 19067
Ph: 215-428-1700 | |

Non-Hazardous Material Manifest

(Type or Print Clearly)

GENERATOR'S NAME & SITE ADDRESS:	GROSS WEIGHT:
	<input type="checkbox"/> Tons <input type="checkbox"/> Yards
	TARE WEIGHT:
	<input type="checkbox"/> Tons <input type="checkbox"/> Yards
GENERATOR'S PHONE: _____	NET WEIGHT:
	<input type="checkbox"/> Tons <input type="checkbox"/> Yards

DESCRIPTION OF MATERIAL/SAMPLE ID AND LOCATION

GENERATOR'S CERTIFICATION – Incomplete and/or unsigned manifests will cause the load to be delayed and/or rejected.

I hereby certify that the above named material does not contain free liquid as defined by 40 CFR Part 260.10 or any applicable state law, is not a hazardous waste as defined by 40 CFR Part 261 or any applicable state law, is not a DOT hazardous substance as defined by 49 CFR Part 172 or any applicable state law, has been fully and accurately described above, classified, packaged and is in proper condition for transportation according to all applicable state and federal regulations.

Name: _____ Title: _____
Signature: _____ Date and Time: _____

TRANSPORTER

Company: _____ Phone Number: _____
Address: _____ Truck # and License Plate: _____
Driver: _____ SW Haulers Permit #: _____
(Type or Print Clearly) (applicable state permit #)

I hereby certify that the above named material was picked up at the site listed above.

Driver Signature: _____ Date and Time: _____

DESTINATION

I hereby certify that the above named material was delivered without incident to the facility noted above.

Driver Signature: _____ Date and Time: _____

I hereby certify that the above named material has been accepted at the above referenced facility.

Authorized Signature: _____ Date and Time: _____

SITE



**Appendix G – Vapor/ Waterproofing
Membrane Diagram and Specifications**

Section 071324 Pre-Applied Sheet Membrane Waterproofing

PART 1 — GENERAL

1.01 SUMMARY

- A. The Work of this Section includes, but is not limited to, pre-applied sheet membrane waterproofing that forms an integral bond to poured concrete for the following applications:
 - 1. Vertical Applications: Membrane applied against soil retention system prior to placement of concrete foundation walls;
 - 2. Horizontal Applications: Membrane applied on prepared subbase prior to placement of concrete slabs.
- B. Related sections include, but are not limited to, the following:
 - 1. Section 031000 - Concrete Forming
 - 2. Section 312000 – Earth Moving
 - 3. Section 031500 – Concrete Accessories
 - 4. Section 031500 – Hydrophilic Waterstop
 - 5. Section 316200 - Driven Piles
 - 6. Section 316400 - Caissons
 - 1. Section 032000 - Concrete Reinforcing
 - 2. Section 033000 – Cast-In-Place Concrete

NOTE TO SPECIFIER: For vertical applications, coordinate with concrete formwork section to require one-sided wall forming system to minimize punctures to the sheet membrane waterproofing during formwork installation.

1.02 SUBMITTALS

- A. Submit manufacturer's product data, installation instructions and membrane samples for approval.

1.03 REFERENCE STANDARDS

- A. The following standards and publications are applicable to the extent referenced in the text.
- B. American Society for Testing and Materials (ASTM):
 - C 836 Standard Specification for High Solids, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course
 - D 412 Standard Test Methods for Rubber Properties in Tension
 - D 570 Standard Test Method for Water Absorption of Plastics
 - D 903 Standard Test Method for Peel or Stripping Strength of Adhesive Bonds
 - D 1876 Standard Test Method for Peel Release of Adhesives (T-Peel)
 - D 1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection

- D 3767 Standard Practice for Rubber - Measurements of Dimensions
- D 5385 Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes
- E 96 Standard Test Methods for Water Vapor Transmission of Materials
- E 154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover

1.04 QUALITY ASSURANCE

- A. **Manufacturer:** Sheet membrane waterproofing system shall be manufactured and marketed by a firm with a minimum of 20 years experience in the production and sales of sheet membrane waterproofing. Manufacturers proposed for use but not named in these specifications shall submit evidence of ability to meet all requirements specified, and include a list of projects of similar design and complexity completed within the past 5 years.
- B. **Installer:** A firm which has at least 3 years experience in work of the type required by this section.
- C. **Materials:** For each type of material required for the work of this section, provide primary materials which are the products of one manufacturer.
- D. **Pre-Installation Conference:** A pre-installation conference shall be held prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work. Agenda for meeting shall include review of special details and flashing.
- E. **Schedule Coordination:** Schedule work such that membrane will not be left exposed to weather for longer than that recommended by the manufacturer.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in labeled packages. Store and handle in strict compliance with manufacturer's instructions. Protect from damage from weather, excessive temperature and construction operations. Remove and dispose of damaged material in accordance with applicable regulations.

1.06 PROJECT CONDITIONS

- A. Perform work only when existing and forecasted weather conditions are within the limits established by the manufacturer of the materials used. Proceed with installation only when the substrate construction and preparation work is complete and in condition to receive sheet membrane waterproofing.

1.07 WARRANTY

- A. **Sheet Membrane Waterproofing:** Provide written five year material warranty issued by the membrane manufacturer upon completion of work.

PART 2 — PRODUCTS

2.01 MATERIALS

- A. Pre-applied Integrally Bonded Sheet Waterproofing Membrane: Preprufe® 300R Membrane [or Preprufe 300LT Membrane for application temperatures between 25°F (-4°C) and 60°F (+16°C)] by Grace Construction Products, a 1.2mm (0.046 in) nominal thickness composite sheet membrane comprising 0.8 mm (0.030 in.) of high density polyethylene film, and layers of specially formulated synthetic adhesive layers. The membrane shall form an integral and permanent bond to poured concrete to prevent water migration at the interface of the membrane and structural concrete. Provide membrane with the following physical properties:

NOTE TO SPECIFIER: Preprufe 300R and Preprufe 300LT can both be installed at temperatures 25°F (-4°C) and above. For temperatures 25°F (-4°C) to 55°F (13°C) Grace Technical Bulletin #16 states the use of Preprufe LT Tape is recommended at all sidelaps when using Preprufe 300R. Alternatively, contractors may elect the use of Preprufe 300LT which does not require the use of Preprufe LT Tape at sidelaps in temperature ranges 25°F (-4°C) to 55°F (13°C). For this reason, Grace suggests that both products be incorporated into the specification.

PHYSICAL PROPERTIES FOR PREPRUFE 300R (or 300LT) MEMBRANE:

Property	Test Method	Typical Value
Color		White
Thickness	ASTM D 3767 Method A	1.2 mm (0.046 in.) nominal
Lateral Water Migration Resistance	ASTM D 5385 Modified ¹	Pass at 71 m (231 ft) of hydrostatic head pressure
Low Temperature Flexibility	ASTM D 1970	Unaffected at -29°C (-20°F)
Elongation	ASTM D 412 Modified ²	500%
Crack Cycling at -23°C (-9.4°F), 100 Cycles	ASTM C 836	Unaffected, Pass
Tensile Strength, film	ASTM D 412	27.6 MPa (4,000 lbs/in. ²)
Peel Adhesion to Concrete	ASTM D 903 Modified ³	880 N/m (5.0 lbs/in.)
Lap Adhesion	ASTM D 1876 Modified ⁴	880 N/m (5.0 lbs/in.)
Resistance to Hydrostatic Head	ASTM D 5385 Modified ⁵	71 m (231 ft)
Puncture Resistance	ASTM E 154	990 N (221 lbs)
Permeance	ASTM E 96 Method B	0.6 ng/Pa × s × m ² (0.01 perms)
Water Absorption	ASTM D 570	0.5%

Footnotes:

- Lateral water migration resistance is tested by casting concrete against membrane with a hole and subjecting the membrane to hydrostatic head pressure with water. The test measures the resistance of lateral water migration between the concrete and the blind side waterproofing membrane. A hydrostatic head pressure of 71 m (231 ft) of water is the limit of the apparatus.*
- Elongation of membrane is run at a rate of 50 mm (2 in.) per minute.*
- Concrete is cast against the protective coating surface of the membrane and allowed to cure (7 days minimum). Peel adhesion of membrane to concrete is measured at a rate of 50 mm (2 in.) per minute at room temperature.*
- The test is conducted 15 minutes after the lap is formed as per manufacturer's instructions and run at a rate of 50 mm (2 in.) per minute.*
- Hydrostatic head tests are performed by casting concrete against the membrane with a lap. Before the concrete sets a 3 mm (0.125 in.) spacer is inserted perpendicular to the membrane to create a gap. The cured block is placed in a chamber where water is introduced to the membrane surface up to a head of 71 m (231 ft) of water which is the limit of the apparatus.*

- B. Pre-applied Integrally Bonded Sheet Waterproofing Membrane: Preprufe® 160R Membrane [or Preprufe 160LT Membrane for application temperatures between 25°F (-4°C) and 60°F (+16°C)] by Grace Construction Products, a 1.0mm (0.032 in) nominal thickness composite sheet membrane comprising 0.4 mm (0.016 in.) of high density polyethylene film, and layers of specially formulated synthetic adhesive layers. The membrane shall form an integral and permanent bond to poured concrete to prevent water migration at the interface of the membrane and structural concrete. Provide membrane with the following physical properties:

NOTE TO SPECIFIER: Preprufe 160R and Preprufe 160LT can both be installed at temperatures 25°F (-4°C) and above. For temperatures 25°F (-4°C) to 55°F (13°C) Grace Technical Bulletin #16 states the use of Preprufe LT Tape is recommended at all sidelaps when using Preprufe 160R. Alternatively, contractors may elect the use of Preprufe 160LT which does not require the use of Preprufe LT Tape at sidelaps in temperature ranges 25°F (-4°C) to 55°F (13°C). For this reason, Grace suggests that both products be incorporated into the specification.

PHYSICAL PROPERTIES FOR PREPRUFE 160R (or 160LT) MEMBRANE:

Property	Test Method	Typical Value
Color		White
Thickness	ASTM D 3767 Method A	1.0 mm (0.032 in.) nominal
Lateral Water Migration Resistance	ASTM D5385, Modified ¹	Pass at 71 m (231 ft) of hydrostatic head pressure
Low Temperature Flexibility	ASTM D 1970	Unaffected at -29°C (-20°F)
Elongation	ASTM D 412 Modified ²	500%
Crack Cycling at -23°C (-9.4°F), 100 Cycles	ASTM C 836	Unaffected, Pass
Tensile Strength, film	ASTM D 412	27.6 MPa (4,000 lbs/in. ²)
Peel Adhesion to Concrete	ASTM D 903 Modified ³	880 N/m (5.0 lbs/in.)
Lap Adhesion	ASTM D 1876 Modified ⁴	880 N/m (5.0 lbs/in.)
Resistance to Hydrostatic Head	ASTM D 5385 Modified ⁵	Pass at 71 m (231 ft)
Puncture Resistance	ASTM E 154	445 N (100 lbs)
Permeance	ASTM E 96 Method B	0.6 ng/Pa x s x m ² (0.01 perms)
Water Absorption	ASTM D 570	0.5%

Footnotes:

- Lateral water migration resistance is tested by casting concrete against membrane with a hole and subjecting the membrane to hydrostatic head pressure with water. The test measures the resistance of lateral water migration between the concrete and the blind side waterproofing membrane. A hydrostatic head pressure of 71 m (231 ft) of water is the limit of the apparatus.*
- Elongation of membrane is run at a rate of 50 mm (2 in.) per minute.*
- Concrete is cast against the protective coating surface of the membrane and allowed to cure (7 days minimum). Peel adhesion of membrane to concrete is measured at a rate of 50 mm (2 in.) per minute at room temperature.*
- The test is conducted 15 minutes after the lap is formed as per manufacturer's instructions and run at a rate of 50 mm (2 in.) per minute.*
- Hydrostatic head tests are performed by casting concrete against the membrane with a lap. Before the concrete sets a 3 mm (0.125 in.) spacer is inserted perpendicular to the membrane to create a gap. The cured block is placed in a chamber where water is introduced to the membrane surface up to a head of 71 m (231 ft) of water which is the limit of the apparatus.*

- C. Waterstop: Adcor™ ES hydrophilic non-bentonite waterstop by Grace Construction Products for non-moving concrete construction joints.

PHYSICAL PROPERTIES FOR GRACE ADCOR™ ES HYDROPHYLIC WATERSTOP:

Property	Typical Value
Color	Green
Size	1.0 in. x ½ in. x 16 ft. rolls (25.4 mm x 12.7 mm x 4.9 m)
Hydrostatic Head Resistance	70 m (231 ft)
Wet - Dry Cycling [25 Cycles @ 231 ft. (70 m)]	No Effect
Adhesion to Concrete using Adcor ES Adhesive	Excellent

- D. Preformed Soil Retention Wall Tieback Cover: Preprufe Tieback Cover by Grace Construction Products as a prefabricated detail for soil retention wall tiebacks.
- E. Preformed Inside and Outside Corners: Preprufe Preformed Corners by Grace Construction Products as prefabricated inside and outside corners.
- F. Tape for covering cut edges, roll ends, penetrations and detailing: Preprufe Tape LT (for temperatures between 25°F (-4°C) and 86°F (+30°C)) and Preprufe Tape HC (for use in Hot Climates, minimum 50°F (10°C))
- G. Miscellaneous Materials: accessories specified or acceptable to manufacturer of pre-applied waterproofing membrane.

PART 3 — EXECUTION

3.01 EXECUTION

- A. The installer shall examine conditions of substrates and other conditions under which this work is to be performed and notify the Contractor, in writing, of circumstances detrimental to the proper completion of the work. Do not proceed with work until unsatisfactory conditions are corrected.

3.02 SUBSTRATE PREPARATION

- A. It is essential to create a sound and solid substrate to eliminate movement during the concrete pour. Substrates must be regular and smooth with no gaps or voids greater than 0.5 in. (12 mm). Grout around all penetrations such as utility conduits, etc. for stability.
1. Horizontal Surfaces - The substrate must be free of loose aggregate and sharp protrusions. Avoid curved or rounded substrates. When installing over earth or crushed stone, ensure substrate is well compacted to avoid displacement of substrate due to traffic or concrete pour. The surface does not need to be dry, but standing water must be removed.
 2. Vertical Surfaces - Use concrete, plywood, insulation or other approved facing to sheet piling to provide support to the membrane. Board systems such as timber lagging must be close butted to provide support and not more than 0.5 in. (12 mm) out of alignment.

3.03 INSTALLATION, HORIZONTAL APPLICATIONS

- A. Strictly comply with installation instructions in manufacturer's published literature, including but not limited to, the following:
1. Place the membrane HDPE film side to the substrate with the clear plastic release liner facing towards the concrete pour. End laps should be staggered to avoid a build-up of layers.
 2. Leave the plastic release liner in position until overlap procedure is completed.
 3. Accurately position succeeding sheets to overlap the previous sheet 3 in. (75 mm) along the marked selvedge. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap.
 4. Peel back the plastic release liner from between the overlaps as the two layers are bonded together. Ensure a continuous bond is achieved without creases and roll firmly with a heavy roller.
 5. Completely remove the plastic liner to expose the protective coating. Any initial tack will quickly disappear.

3.04 INSTALLATION, VERTICAL APPLICATIONS

- A. Strictly comply with installation instructions in manufacturer's published literature, including but not limited to, the following:
1. Mechanically fasten the membrane vertically using fasteners appropriate to the substrate with the clear plastic release liner facing towards the concrete pour. The membrane may be installed in any convenient length.
 2. Fastening through the selvedge using a small and low profile head fastener so that the membrane lays flat and allows firmly rolled overlaps.
 3. Immediately remove the plastic release liner.
 4. Ensure the underside of the succeeding sheet is clean, dry and free from contamination before attempting to overlap.
 5. Roll firmly to ensure a watertight seal.
 6. Overlap all roll ends and cut edges by a minimum 3 in. (75 mm) and ensure the area is clean and free from contamination, wiping with a damp cloth if necessary.
 7. Allow to dry and apply Preprufe Tape LT (or HC in hot climates) centered over the lap edges and roll firmly.
 8. Immediately remove printed plastic release liner from the tape.

3.05 WATERSTOP INSTALLATION

- A. Strictly comply with installation instructions in manufacturer's published literature, including but not limited to, the following:
1. Secure Adcor ES using masonry nails 1½ in. - 2 in. (40 mm – 50 mm) long with a washer ¾ in. (20 mm) in diameter. Hilti EM6-20-12 FP8 shot fired fixings with ¼ in. (6 mm) nuts and ¾ in. (20 mm) diameter washers may also be used. Fixings should be spaced at a maximum of 12 in. (300 mm) centers with a minimum spacing that ensures proper contact to substrate.
 2. On irregular concrete faces, or on vertical surfaces, apply a ½ in. (12 mm) bead of Adcor ES Adhesive as bedding for Adcor ES.

3. Adcor ES joints should overlap a minimum of 4 in. (100 mm), ensuring full contact between jointed pieces.

3.06 PROTECTION

- A. Protect membrane in accordance with manufacturer's recommendations until placement of concrete. Inspect for damage just prior to placement of concrete and make repairs in accordance with manufacturer's recommendations.

END OF SECTION

W.R. Grace & Co.-Conn. 62 Whittemore Avenue Cambridge, MA 02140

Preprufe and Hydroduct are registered trademarks of W.R. Grace & Co.-Conn.

We hope the information here will be helpful. It is based on data and knowledge considered to be true and accurate and is offered for the users' consideration, investigation and verification, but we do not warrant the results to be obtained. Please read all statements, recommendations or suggestions in conjunction with our conditions of sale, which apply to all goods supplied by us. No statement, recommendation or suggestion is intended for any use which would infringe any patent or copyright. W. R. Grace & Co.-Conn., 62 Whittemore Avenue, Cambridge, MA 02140. In Canada, W. R. Grace & Co. Canada, Ltd. 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

This product may be covered by patents or patents pending.

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Document Code: GSWP-001B

Updated: 7/2012

GRACE

Construction Products

Mark A. Franciosi
Technical Service Engineer - Americas

T 617-498-4303

mark.a.franciosi@grace.com

W. R. Grace & Co.-Conn.
62 Whittemore Avenue
Cambridge, MA 02140

September 13th, 2013

John M. Gavras
GZA GeoEnvironmental Inc.
104 West 29th Street, 10th Floor
New York, NY 10001

Project: 522-532 West 29th Street, Block 700, Lot 47, 48 and 49, OER Project # 13CVCP151M
DOB Job # in Progress

Mr. Gavras,

I have reviewed the following documents for the above referenced project:

- Remedial Investigation Report prepared by GZA GeoEnvironmental Inc., dated June 2013 (pages 1-31)
- Appendix G – Design Diagram: Vapor Barrier/Waterproofing Membrane System

The identified contaminants at the levels reported will not have an adverse effect on the waterproofing or vapor barrier properties of Preprufe[®] 300R, Preprufe[®] 160R, Bituthene[®] 3000/4000 and all system accessories, provided standard design and application procedures are followed.

Standard installation instructions and details can be found on our website at www.graceconstruction.com. If you have any questions, please feel free to call me at the number above.

Sincerely,



Mark Franciosi

Technical Services Engineer

cc: K. Burke

OWNER

W29 534 Highline Owners, LLC
520 West 27th Street, Suite 302
New York, NY 10001
Tel: (212) 804-8784

ARCHITECT

workshop
39 West 38th Street, 7th Floor
New York, NY 10018
Tel: (212) 273-9712
Fax: (212) 273-8713

STRUCTURAL ENGINEER

Marin Consulting Engineers PLLC
68 Jay Street, Suite 201
Brooklyn, NY 11201
Tel: (917) 705-5534

MEP ENGINEERS

ZLS Consulting Engineering
150 West 30th Street, 4th Floor
New York, NY 10001
Tel: (917) 267-8945

GEO/ENVIRONMENTAL

GZA GeoEnvironmental of New York
104 West 29th Street, 10th Floor
New York, New York 10001
Tel: (212) 594-8140

CIVIL ENGINEER

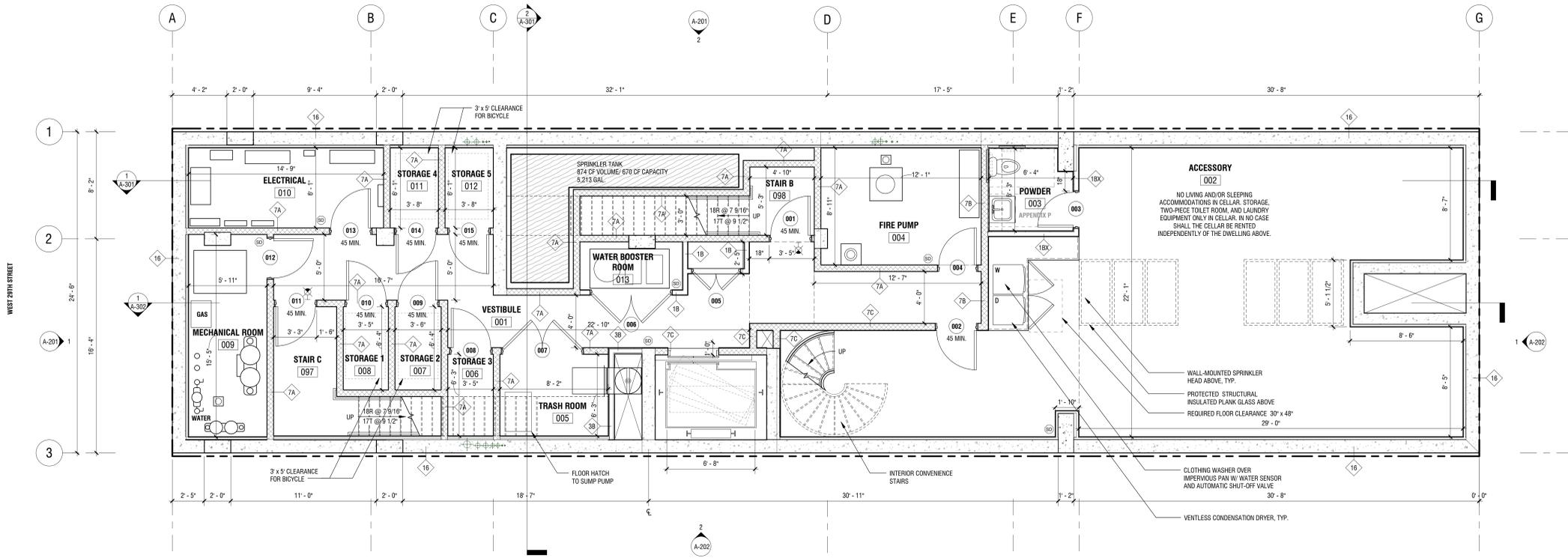
Dorcoer Engineering, LLC
249 Windsor Ave.
Westfield, NJ 07090
Tel: (201) 993-0665

SURVEYOR

Montrose Surveying Co LLP
116-20 Metropolitan Ave
Richmond Hill, NY 11418
Tel: (718) 849-0800

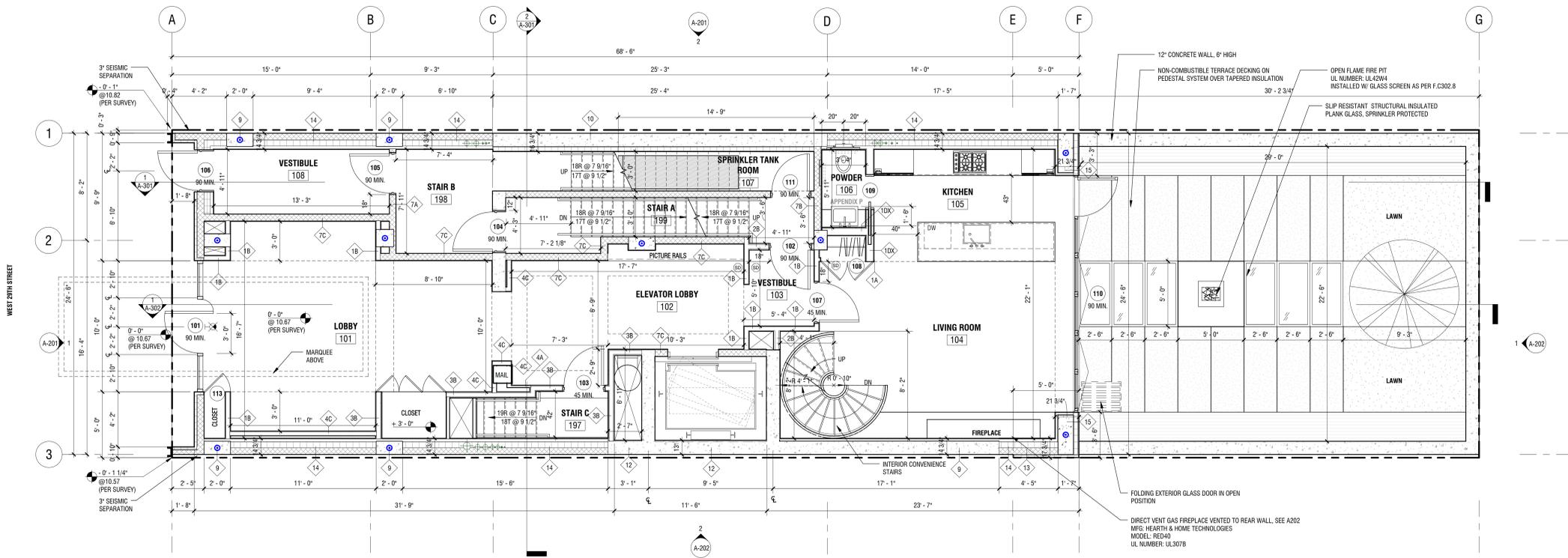
CONTRACTOR

Foundations Group Inc.
520 West 27th Street, Suite 302
New York, New York 10001
Tel: (212) 924-1724



1 CELLAR FLOOR PLAN
1/4" = 1'-0"

UNIT 1



2 1ST FLOOR PLAN
1/4" = 1'-0"

UNIT 1

LIGHT AND AIR COMPUTATION - 1ST FLOOR

BC 1203.4.1.2.1 THE MINIMUM OPENABLE AREA TO THE OUTDOORS SHALL BE 5 PERCENT OF THE FLOOR AREA OF THE HABITABLE SPACE BEING VENTILATED.
BC 1206.2.1 THE MINIMUM NET GLAZED AREA SHALL NOT BE LESS THAN 10 PERCENT OF THE FLOOR AREA OF THE ROOM SERVED.

ROOM	AREA	LIGHT	AIR	COMPLIES
LIVING 104 / KITCHEN 105	406 SF	DOOR 110 = 142 SF > 40.6 SF REQUIRED	DOOR 110 = 142 SF > 20.3 SF REQUIRED	

DOB FILE NO.

DOB USE



REVISIONS

NO.	DATE	DESCRIPTION
01		
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DRAWING INFO

DESIGN DEVELOPMENT
DRAWN BY: SRT/BHQ/MWC
CHECKED BY: ADK
DATE: OCTOBER 31, 2013
SCALE: 1/4" = 1'-0"
PRJL. NO. CBA-310007

1ST FLOOR & CELLAR PLAN

A-101.00

OWNER
W2 534 Highline Owners, LLC
520 West 27th Street, Suite 302
New York, NY 10001
Tel: (212) 804-8784

ARCHITECT
workshop
39 West 38th Street, 7th Floor
New York, NY 10018
Tel: (212) 273-9712
Fax: (917) 275-8713

STRUCTURAL ENGINEER
Marin Consulting Engineers PLLC
68 Jay Street, Suite 201
Brooklyn, NY 11201
Tel: (917) 705-5534

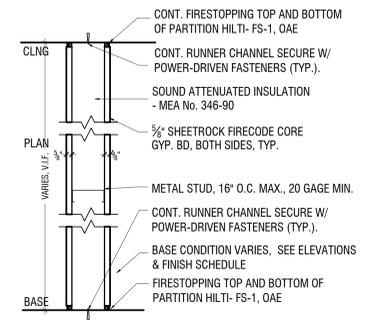
MEP ENGINEERS
ZLS Consulting Engineering
150 West 30th Street, 4th Floor
New York, NY 10001
Tel: (917) 267-8945

GEO/ENVIRONMENTAL
GZA GeoEnvironmental of New York
104 West 29th Street, 10th Floor
New York, New York 10001
Tel: (212) 594-8140

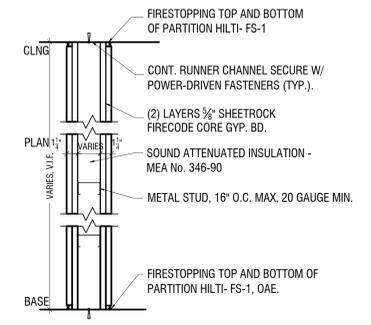
CIVIL ENGINEER
Dorner Engineering, LLC
249 Windsor Ave.
Westfield, NJ 07090
Tel: (201) 993-0855

SURVEYOR
Montrose Surveying Co LLP
116-20 Metropolitan Ave
Richmond Hill, NY 11418
Tel: (718) 849-8880

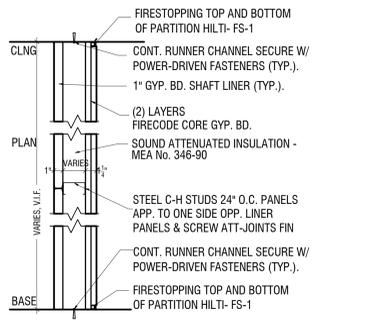
CONTRACTOR
Foundations Group Inc.
520 West 27th Street, Suite 302
New York, New York 10001
Tel: (212) 924-1724



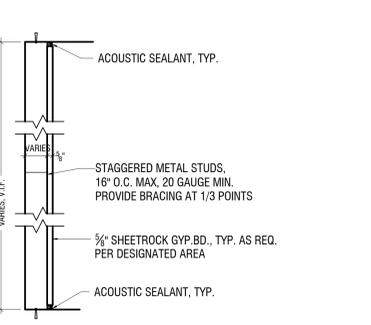
1 U.L. DESIGN U419, MEA No. 81-98-M
STC 49, TEST: SA-870717, WITH 3\"/>



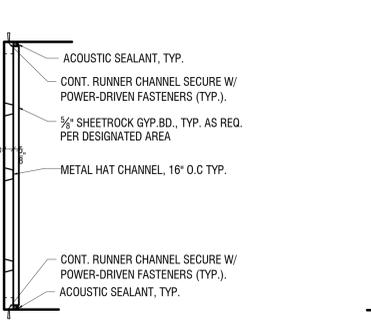
2 U.L. DESIGN U419, MEA No. 81-98-M
PARTITION TYPE: 2HR RATED
SCALE: 1-1/2\"/>



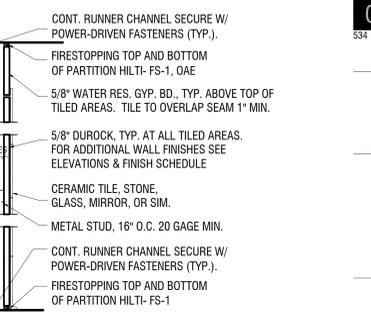
3 U.L. DESIGN U415, SYSTEM D
PARTITION TYPE: 2 HR RATED SHAF
SCALE: 1-1/2\"/>



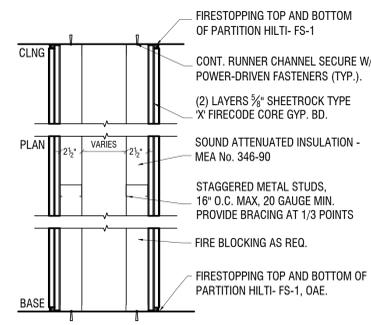
4 PARTITION TYPE: WALL FURRING
SCALE: 1-1/2\"/>



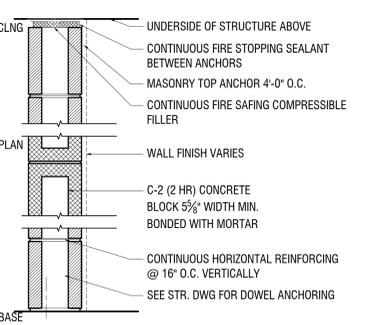
5 PARTITION TYPE: WALL FURRING
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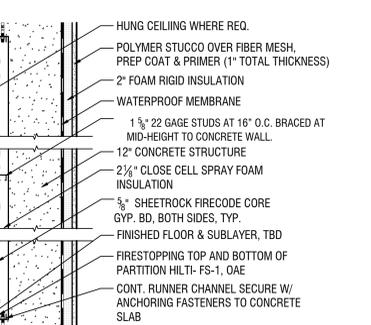
X U.L. DESIGN U457
PARTITION TYPE: WET AREA
SCALE: 1-1/2\"/>



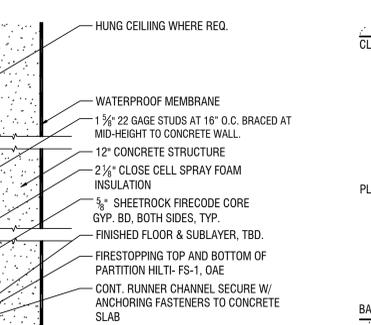
6 U.L. DESIGN U419, MEA No. 81-98-M
PARTITION TYPE: 2HR STAGGERED PARTITION
SCALE: 1-1/2\"/>



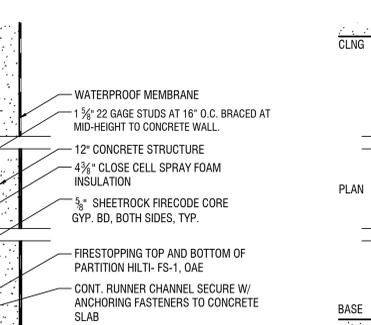
7 U.L. DESIGN U914
PARTITION TYPE: 2HR MASONRY WALL
SCALE: 1-1/2\"/>



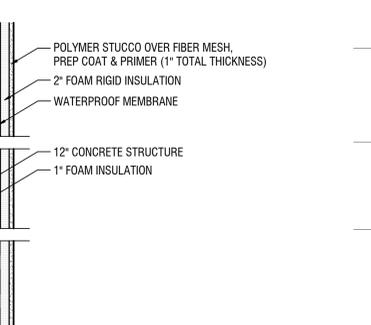
8 EXTERIOR WALL TYPE: 12\"/>



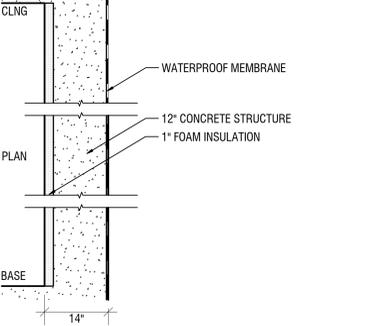
9 EXTERIOR WALL TYPE: 12\"/>



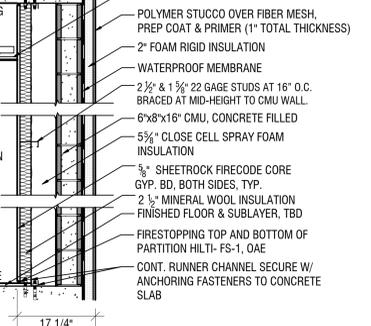
10 EXTERIOR WALL TYPE: 12\"/>



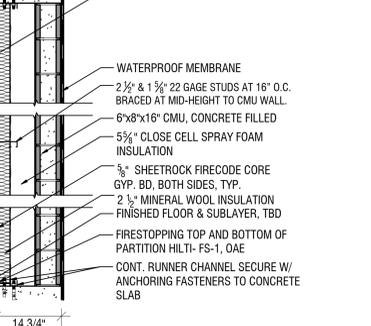
11 EXTERIOR WALL TYPE: ELEVATOR WALLS EXPOSED
SCALE: 3\"/>



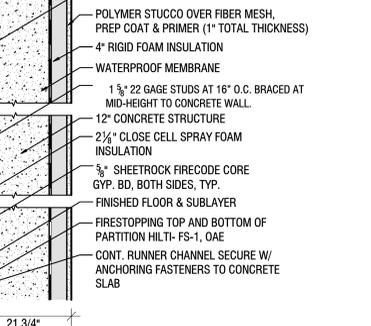
12 EXTERIOR WALL TYPE: ELEVATOR PARTY WALLS
SCALE: 3\"/>



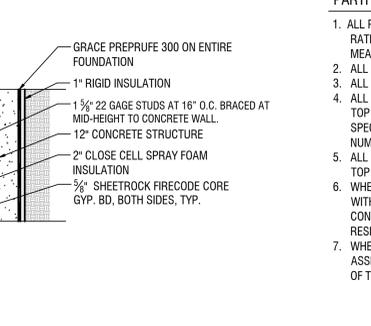
13 EXTERIOR WALL TYPE: CMU EXPOSED
SCALE: 3\"/>



14 EXTERIOR WALL TYPE: CMU PARTY WALL
SCALE: 3\"/>

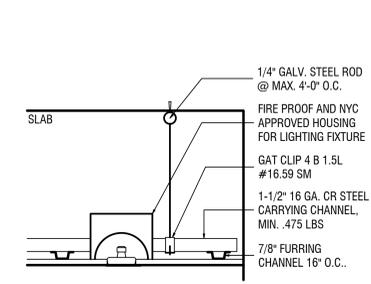


15 EXTERIOR WALL TYPE: 14\"/>

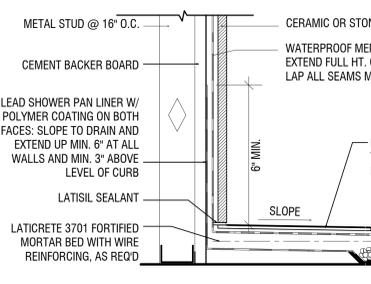


16 EXTERIOR WALL TYPE: FOUNDATION WALL
SCALE: 3\"/>

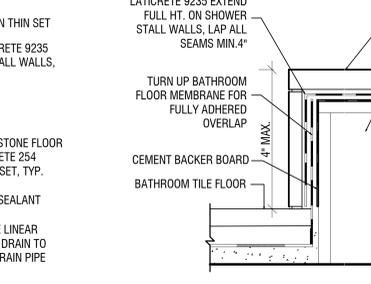
- PARTITION TYPE NOTES**
1. ALL PARTITION ASSEMBLIES AND ASSOCIATED FIRE RESISTANCE RATINGS ARE TAKEN FROM THE "USG CORPORATION BSA AND MEA APPROVALS FOR THE CITY OF NEW YORK"
 2. ALL GWB TO BE 5/8" U.O.N.
 3. ALL STUDS TO BE 16" O.C. 20GA U.O.N. SEE SPEC'S FOR CRITERIA.
 4. ALL RATED ASSEMBLIES SHALL BE SEALED FULLY ALONG THE TOP AND BASE JOINTS WITH A FIRE-STOPPING SEALANT AS PER SPEC. AND CONSISTENT W/ UL STANDARDS AND MEA & BSA NUMBERS.
 5. ALL NON-RATED ASSEMBLIES SHALL BE SEALED FULLY ALONG TOP AND BASE JOINTS WITH AN ACOUSTIC SEALANT AS PER SPEC.
 6. WHEN PARTITIONS OF DIFFERENT RATINGS MEET, THE ASSEMBLY WITH THE HIGHEST FIRE RESISTANCE RATING SHALL BE CONTINUOUS AND THE ASSEMBLY WITH THE LOWEST FIRE RESISTANCE RATING SHALL BE INTERRUPTED.
 7. WHEN FURRED PARTITION ASSEMBLIES ARE PART OF A RATED ASSEMBLY, THE FURRING SHALL MAINTAIN THE HIGHEST RATING OF THE ADJACENT PARTITION.



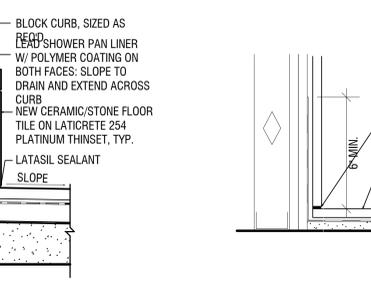
1 TYPICAL DETAIL: HUNG CEILING
SCALE: 1-1/2\"/>



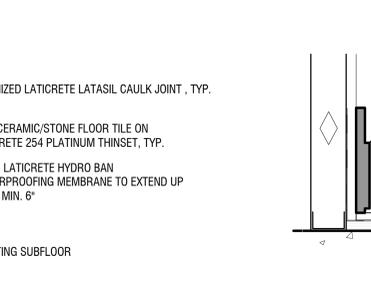
2 TYPICAL DETAIL: SHOWER FLOOR / WALL
SCALE: 3\"/>



3 TYPICAL DETAIL: SHOWER CURB
SCALE: 3\"/>



4 TYPICAL DETAIL: TILED FLOOR / WALL
SCALE: 3\"/>



5 TYPICAL DETAIL: LAUNDRY BASE
SCALE: 3\"/>

ALL HORIZONTAL SEPARATION BETWEEN APARTMENTS TO HAVE A MINIMUM STC-RATING OF 55.

DOB FILE NO.

DOB USE



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DRAWN BY: SRT/BHQ/MWC
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SCALE:
PROJ. NO.: CBA - 313007

PARTITION TYPES

A-500.00