

288 ST. NICHOLAS

MANHATTAN, NEW YORK

Remedial Action Work Plan

NYC VCP Number: 15CVCP143M

OER Project Number: 14EH-N309M

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 BCP	New York City Brownfield 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, Reza Sharif, am currently a registered professional engineer licensed by the State of New York. I performed professional engineering services and had primary direct responsibility for designing the remedial program for the 288 St. Nicholas, NYC VCP Site Number: 15CVCP143M and OER project number 14EH-N309M. I certify to the following:

- I have reviewed this document and the Stipulation List, to which my signature and seal are affixed.
- Engineering Controls developed for this remedial action were designed by me or a person under my direct supervision and designed to achieve the goals established in this Remedial Action Work Plan for this site.
- The Engineering Controls to be constructed during this remedial action are accurately reflected in the text and drawings of the Remedial Action Work Plan and are of sufficient detail to enable proper construction.
- 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.

Reza Sharif

Name

074803

PE License Number

[Handwritten Signature]

Signature

6-30-15

Date



I, Nahum Kedem, PG am a qualified Environmental Professional. I will have primary direct responsibility for implementation of the remedial program for 288 St. Nicholas, NYC VCP Site Number: 15CVCP143M and OER project number 14EH-N309M. I certify to the following:

- 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.

Nahum Kedem, PG

QEP Name



QEP Signature

6/30/15

Date

Certification by a Professional Engineer is required. Certification by a Qualified Environmental Professional (QEP) is optional unless the PE and QEP work for separate firms.

EXECUTIVE SUMMARY

324 West 125th Street, LLC. has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate an 8,900-square foot site located at 324-332 West 125th Street and 288 St. Nicholas Avenue in the Harlem section of Manhattan, 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 324-332 West 125th Street and 288 St. Nicholas Avenue in the Harlem section in Manhattan, New York and is identified as Block 1951, Lot 43 on the New York City Tax Map. Figure number 1 shows the Site location. The Site is 8,900-square feet and is bounded by West 125th Street to the north, a retail complex to the south and east, and St. Nicholas Avenue to the west. New York City Subway lines run along St. Nicholas Avenue below its roadway. A map of the site boundary is shown in Figure 2A. Currently, the Site is unoccupied and contains perimeter foundation walls and portions of a basement concrete slab that remain from demolition of the building that previously occupied the Site. Construction debris bracings are located along the northern and western remaining foundation walls in order to provide these walls with lateral support as required by New York City Transit. Construction debris down ramp extends from the southern portion of the western Site boundary to the central portion of the Site, providing access from street level to the remaining basement level. All construction debris used for the bracings and access ramp are remains from the demolition of the building that previously occupied the Site.

Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of a new 2-story, 54-foot-high, commercial building with a full cellar, full build-out first and second floors and a roof terrace. The building footprint area will be 8,900-square foot and will cover the entire footprint of the Site. The building will be used for storage in the cellar level, a single retail tenant on the first floor, a single restaurant on the second floor and a roof deck and mechanical areas on the roof terrace. Gross square footage of each floor will be 8,893 square feet, with a total gross building square footage, including the roof terrace, of 35,572 square feet. Excavation of the entire Site is necessary for the new foundations, basement, elevator pits and detention tank. The estimated maximum excavation depth for the basement floor and perimeter and interior foundations will be 7 feet below the existing (remaining) basement floor slab which elevation is approximately 8 feet below street level elevation. Depth of excavation for the two elevator pits and the detention tank will be approximately 10 feet below the existing (remaining) basement floor slab. The estimated volume of excavated materials is 2,400 cubic yards (approximately 3,600 tons). Excavation is not anticipated below the water table. Layout of the proposed site development is presented in Figure 3. The current zoning designation is C4-4D Commercial “Special 125th Street District.” The proposed use is consistent with existing zoning for the property.

SUMMARY OF SURROUNDING PROPERTY

The Site is located in the Harlem section of Manhattan. The neighborhood is characterized primarily by commercial retail and office use, mixed residential and retail use, multi-family high rise use and religious use. The adjoining property to the east and south consists of 4-story retail and office complex, the adjoining properties to the north across West 125th Street consist of a 2-story and a 3-story retail and office buildings, and the adjoining property to the west across St. Nicholas Avenue consists of a 2-story retail and office building. All of the above-mentioned adjoining properties share the same zoning district (C4-4D) with the Site.

According to OER’s Searchable Property Environmental E-Database (SPEED), one (1) sensitive receptor is located within a 500-foot radius of the Site. Christ Crusader Academy elementary school (listed in SPEED as a Day Care Center but was confirmed by ECI to be an elementary school) is located approximately 200 feet to the south-southeast of the Site.

SUMMARY OF PAST SITE USES AND AREAS OF CONCERN

The AOCs identified for this site include:

1. According to documents provided by New York State Department of Environmental Conservation (NYSDEC) for Spill No. 9805070, listed for the south adjacent property. In July 1998, during excavation for foundations on the south adjacent property, heavy fuel oil (most likely No. 4 fuel oil) was observed to be entering the excavation from the north, suggesting that the fuel oil originated from the Site, below its basement floor. NYSDEC representative visited the Site and observed an oil leak from the oil piping in the boiler room around the oil filters located on the south wall of the basement. NYSDEC further observed the basement to be flooded with several inches of sanitary sewage water. NYSDEC has determined that the water leaked through open holes in the basement floor of the boiler room and had washed the leaking oil into the ground and to the adjacent property to the south. The Spill case was closed on 10/25/1998 with no information as to the closure of the Spill case.
2. One (1) property that is listed in the environmental database search, prepared by Environmental Data Resources, Inc. (EDR), on the EDR Exclusive Historic Gas Stations (EDR US Hist Auto Stat) database and several properties that are listed on the EDR Exclusive Historic Dry Cleaners (EDR US Hist Cleaners) database, are located in the area surrounding the Site, have the potential of impacting the groundwater in the area of the Site and create a vapor encroachment condition (VEC).

Summary of the Work Performed under the Remedial Investigation

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 5 soil borings across the entire project Site, and collected 15 soil samples for chemical analysis from the soil borings to evaluate soil quality;

3. Installed 3 soil vapor probes throughout the Site and collected 3 samples for chemical analysis.
4. Unsuccessfully attempted the installation of 3 temporary groundwater monitoring wells throughout the Site. Consequently, ECI notified OER of the foregoing immediately by telephone followed by a written confirmation by email.

Summary of Environmental Findings

1. Elevation of the property ranges from 28 feet at street level to 20 feet at the top of the former basement's concrete slab that was left from the demolition of the building at the Site.
2. Depth to groundwater is approximately 15 feet below the top of the former basement's concrete slab which is 23 feet below street level at the Site.
3. Groundwater flow is generally from north-northwest to south-southeast beneath the Site.
4. Depth to bedrock is over 30 feet at the Site.
5. The stratigraphy of the site, from the surface down, consists of over 30 feet of till underlain by an undetermined thickness of Inwood Marble. Historic fill at the Site entirely overlays the native material and is comprised of primarily sand, silt, gravel, brick fragments, rock fragments and very few coal fragments. It is present below the top of the former basement's concrete slab to depths ranging between 4 feet and 6 feet which are between 12 and 14 feet below street level.
6. Soil/fill samples collected during the RI were compared to NYSDEC Part 375-6 Unrestricted Use (Track 1) and Restricted Commercial Use (Track 2) Soil Cleanup Objectives (SCOs). Soil/fill samples collected during the RI showed no PCBs at detectable concentrations. No VOCs or SVOCs were detected above Track 1 Unrestricted Use SCOs. A trace concentration (0.0024 mg/kg) of tetrachloroethylene (PCE) was detected in one shallow fill sample. Trichloroethylene (TCE), carbon tetrachloride and 1,1,1-Trichloroethane (1,1,1-TCA) were not detected in any of samples. The pesticides 4,4'-DDD (0.0036 mg/Kg), 4,4'-DDE (0.11 mg/Kg) and 4,4'-DDT (0.081 mg/Kg) were detected exceeding Track 1 Unrestricted Use SCO but well below its Track 2 Restricted Commercial Use SCO. Seven metals including chromium (38.6 mg/Kg), copper (965 mg/Kg), lead (247 mg/Kg), mercury (1.07 mg/Kg), nickel (164 mg/Kg), selenium (6.32 Mg/Kg) and zinc (666 mg/Kg) were detected above Track 1 Unrestricted Use SCOs in one shallow fill sample, and of these, only copper exceeded its Track 2 Restricted Commercial Use SCO. Chromium and nickel were also detected in deeper soil

samples. Overall, the findings were consistent with observations for other historic fill sites in NYC and did not indicate a significant source area.

7. Several attempts were made to install groundwater monitoring wells via direct push and subsequently by hollow stem auger, but refusal was encountered at each location and therefore no groundwater sampling was conducted during this investigation.
8. Soil vapor samples collected during the RI were compared to the monitoring and mitigation levels in NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion's decision matrices. Soil vapor samples collected during the RI showed the presence of chlorinated VOCs and petroleum VOCs. 1,1,1-TCA and PCE were identified in two of the three samples at maximum concentrations $110 \mu\text{g}/\text{m}^3$ and $64 \mu\text{g}/\text{m}^3$, respectively, which are above the mitigation/exposure reduction level ranges of NYSDOH soil vapor matrix. Total BTEX were identified in all three soil vapor samples from 3,320 to 6,330 $\mu\text{g}/\text{m}^3$ and total petroleum VOCs were identified in all three soil vapor samples from 7,799 to 10,393 $\mu\text{g}/\text{m}^3$.

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.

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 performance of all required NYC VCP Citizen Participation activities according to an approved Citizen Participation Plan.

2. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
3. Establishment of Site Specific (Track 4) Soil Cleanup Objectives (SCOs).
4. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency dictated by disposal facility. A Waste Characterization Report documenting sample procedures, location, analytical results shall be submitted to NYCOER prior to start of remedial action.
5. Excavation and removal of soil/fill exceeding Track 4 Site Specific SCOs. For development purposes, excavation across the site will be to 7 feet below the existing (remaining) basement floor slab which elevation is approximately 8 feet below street level elevation. Excavation for elevator pits will be to depths of 10 feet below existing grade. The estimated volume of excavated materials is 2,400 cubic yards (approximately 3,600 tons).
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. Perform a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
8. Management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
9. Excavation and registration of tanks (if encountered) and reporting of any petroleum spills associated with UST's and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations.
10. Transportation and offsite disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media onsite.

11. Collection and analysis of five end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
12. Installation and operation of an active sub-slab depressurization system.
13. Construction and maintenance of an engineered composite cover consisting of the building basement's 5' minimum concrete slab/foundations and foundation walls with soil vapor barrier/waterproofing membrane beneath the basement concrete slab/foundations and behind foundation walls to prevent human exposure to residual soil/fill remaining under the Site.
14. Installation of a vapor barrier system below the concrete slab of the building as well as behind foundation walls of the proposed building. Grace Preprufe® 300R 46-mil membrane will be installed beneath the building basement's floor slab, footings and elevator pits and Preprufe® 160R 32-mil membrane will be installed behind the exterior foundation walls to prevent infiltration of vapor into the structure.
15. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
16. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
17. 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.
18. Submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency. The property will continue to be registered with an E-Designation by the NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls in this RAWP and a requirement that management of these controls must be 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 Health and Safety Plan 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. 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 is Nahum Kedem and can be reached at 914-588-4747.

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 Nahum Kedem at 914-588-4747 or NYC Office of Environmental Remediation Project Manager Katherine Glass at 212-676-4925.

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 will be reported to OER once determined prior to the start of construction.

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 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 Nahum Kedem at 914-588-4747, the NYC Office of Environmental Remediation Project Manager Katherine Glass at 212-676-4925, 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 - Harlem Branch.

Long-Term Site Management. To provide long-term protection after the cleanup is complete, 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

324 West 125th Street, LLC. has enrolled in the New York City Voluntary Cleanup Program (NYC VCP) to investigate and remediate a property located at 324-332 West 125th Street and 288 St. Nicholas Avenue in the Harlem 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 324-332 West 125th Street and 288 St. Nicholas Avenue in the Harlem section in Manhattan, New York and is identified as Block 1951, Lot 43 on the New York City Tax Map. Figure number shows the Site location. The Site is 8,900-square feet and is bounded by West 125th Street to the north, a retail complex to the south and east, and St. Nicholas Avenue to the west. New York City Subway lines run along St. Nicholas Avenue below its roadway. A map of the site boundary is shown in Figure 2A. Currently, the Site is unoccupied and contains perimeter foundation walls and portions of a basement concrete slab that remain from demolition of the building that previously occupied the Site. Construction debris bracings are located along the northern and western remaining foundation walls in order to provide these walls with lateral support as required by New York City Transit. Construction debris down ramp extends from the southern portion of the western Site boundary to the central portion of the Site, providing access from street level to the remaining basement level. All construction debris used for the bracings and access ramp are remains from the demolition of the building that previously occupied the Site.

1.2 PROPOSED REDEVELOPMENT PLAN

The proposed future use of the Site will consist of a new 2-story, 54-foot-high, commercial building with a full cellar, full build-out first and second floors and a roof terrace. The building footprint area will be 8,900-square foot and will cover the entire footprint of the Site. The building will be used for storage in the cellar level, a single retail tenant on the first floor, a single restaurant on the second floor and a roof deck and mechanical areas on the roof terrace with. Gross square footage of each floor will be 8,893 square feet, with a total gross building square footage, including the roof terrace, of 35,572 square feet. Excavation of the entire Site is necessary for the new foundations, basement, elevator pits and detention tank. The estimated maximum excavation depth for the basement floor and perimeter and interior foundations will be 7 feet below the existing (remaining) basement floor slab which elevation is approximately 8 feet below street level elevation. Depth of excavation for the two elevator pits and the detention tank will be approximately 10 feet below the existing (remaining) basement floor slab. The estimated volume of excavated materials is 2,400 cubic yards (approximately 3,600 tons). Excavation is not anticipated below the water table. Layout of the proposed site development is presented in Figure 3. The current zoning designation is C4-4D Commercial “Special 125th Street District.” The proposed use is consistent with existing zoning for the property.

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 located in the Harlem section of Manhattan. The neighborhood is characterized primarily by commercial retail and office use, mixed residential and retail use, multi-family high rise use and religious use. The adjoining property to the east and south consists of 4-story retail and office complex, the adjoining properties to the north across West 125th Street consist of a 2-story and a 3-story retail and office buildings, and the adjoining property to the west across St. Nicholas Avenue consists of a 2-story retail and office building. All of the above-mentioned adjoining properties share the same zoning district (C4-4D) with the Site.

According to OER’s Searchable Property Environmental E-Database (SPEED), one (1) sensitive receptor is located within a 500-foot radius of the Site. Christ Crusader Academy

elementary school (listed in SPEED as a Day Care Center but was confirmed by ECI to be an elementary school) is located approximately 200 feet to the south-southeast of the Site.

Figure 2B 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, 288 St. Nicholas*”, dated May, 2015 (RIR).

Summary of Past Uses of Site and Areas of Concern

A Phase I Environmental Site Assessment (ESA) of the Site was performed by Environmental Consulting International, Inc. (ECI) in December 2013 and January 2014 and a Phase I ESA report was issued on January 13, 2014 (Phase I Report). The historical use of the Site was identified by a review of Sanborn Fire Insurance maps, City Directories and aerial photographs. The Site was first developed circa 1887 with five (5) 5-story mixed use buildings with basements and a vaulted alley on the southern portion of the Site. Historical use of nearly the entire portion of the first floors and their corresponding basements has always been retail. These retail establishments fronted West 125th Street and included grocery stores, fresh produce stores, a meat market, shoe stores, a gift store, a pharmacy, bakeries, clothing stores, a coffee shop, a furniture store and a video game store. Historical use of the second through fifth floors has always been residential. A small portion of the first floors along the south side sides of the buildings was utilized as a single continuous lobby, providing access to the residential floors from St. Nicholas Avenue. The vaulted alley on the southern portion of the Site extended the entire width of the Site at basement level and housed the buildings boiler.

The AOCs identified for this site include:

1. According to documents provided by New York State Department of Environmental Conservation (NYSDEC) for Spill No. 9805070, listed for the south adjacent property, in July 1998, during excavation for foundations on the south adjacent property, heavy fuel oil (most likely No. 4 fuel oil) was observed to be entering the excavation from the north, suggesting that the fuel oil originated from the Site, below its basement floor. NYSDEC representative visited the Site

and observed an oil leak from the oil piping in the boiler room around the oil filters located on the south wall of the basement. NYSDEC further observed the basement to be flooded with several inches of sanitary sewage water. NYSDEC has determined that the water leaked through open holes in the basement floor of the boiler room and had washed the leaking oil into the ground and to the adjacent property to the south. The Spill case was closed on 10/25/1998 with no information as to the closure of the Spill case.

2. One (1) property that is listed in the environmental database search, prepared by Environmental Data Resources, Inc. (EDR), on the EDR Exclusive Historic Gas Stations (EDR US Hist Auto Stat) database and several properties that are listed on the EDR Exclusive Historic Dry Cleaners (EDR US Hist Cleaners) database, are located in the area surrounding the Site, have the potential of impacting the groundwater in the area of the Site and create a vapor encroachment condition (VEC).

Summary of the Work Performed under the Remedial Investigation

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 5 soil borings across the entire project Site, and collected 15 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed 3 soil vapor probes throughout the Site and collected 3 samples for chemical analysis.
4. Unsuccessfully attempted the installation of 3 temporary groundwater monitoring wells throughout the Site. Consequently, ECI notified OER of the foregoing immediately by telephone followed by a written confirmation by email. Please refer to the succeeding Sections for details.

Summary of Environmental Findings

1. Elevation of the property ranges from 28 feet at street level to 20 feet at the top of the former basement's concrete slab that was left from the demolition of the building at the Site.
2. Depth to groundwater is approximately 15 feet below the top of the former basement's concrete slab which is 23 feet below street level at the Site.
3. Groundwater flow is generally from north-northwest to south-southeast beneath the Site.
4. Depth to bedrock is over 30 feet at the Site.
5. The stratigraphy of the site, from the surface down, consists of over 30 feet of till underlain by an undetermined thickness of Inwood Marble. Historic fill at the Site entirely overlays the native material and is comprised of primarily sand, silt, gravel, brick fragments, rock fragments and very few coal fragments. It is present below the top of the former basement's concrete slab to depths ranging between 4 feet and 6 feet which are between 12 and 14 feet below street level.
6. Soil/fill samples collected during the RI were compared to NYSDEC Part 375-6 Unrestricted Use (Track 1) and Restricted Commercial Use (Track 2) Soil Cleanup Objectives (SCOs). Soil/fill samples collected during the RI showed no PCBs at detectable concentrations. No VOCs or SVOCs were detected above Track 1 Unrestricted Use SCOs. A trace concentration (0.0024 mg/kg) of tetrachloroethylene (PCE) was detected in one shallow fill sample. Trichloroethylene (TCE), carbon tetrachloride and 1,1,1-Trichloroethane (1,1,1-TCA) were not detected in any of samples. The pesticides 4,4'-DDD (0.0036 mg/Kg), 4,4'-DDE (0.11 mg/Kg) and 4,4'-DDT (0.081 mg/Kg) were detected exceeding Track 1 Unrestricted Use SCO but well below its Track 2 Restricted Commercial Use SCO. Seven metals including chromium (38.6 mg/Kg), copper (965 mg/Kg), lead (247 mg/Kg), mercury (1.07 mg/Kg), nickel (164 mg/Kg), selenium (6.32 Mg/Kg) and zinc (666 mg/Kg) were detected above Track 1 Unrestricted Use SCOs in one shallow fill sample, and of these, only copper exceeded its Track 2 Restricted Commercial Use SCO. Chromium and nickel were also detected in deeper soil

samples. Overall, the findings were consistent with observations for other historic fill sites in NYC and did not indicate a significant source area.

7. Several attempts were made to install groundwater monitoring wells via direct push and subsequently by hollow stem auger, but refusal was encountered at each location and therefore no groundwater sampling was conducted during this investigation.
8. Soil vapor samples collected during the RI were compared to the monitoring and mitigation levels in NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion's decision matrices. Soil vapor samples collected during the RI showed the presence of chlorinated VOCs and petroleum VOCs. 1,1,1-TCA and PCE were identified in two of the three samples at maximum concentrations $110 \mu\text{g}/\text{m}^3$ and $64 \mu\text{g}/\text{m}^3$, respectively, which are above the mitigation/exposure reduction level ranges of NYSDOH soil vapor matrix. Total BTEX were identified in all three soil vapor samples from 3,320 to 6,330 $\mu\text{g}/\text{m}^3$ and total petroleum VOCs were identified in all three soil vapor samples from 7,799 to 10,393 $\mu\text{g}/\text{m}^3$.

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.

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

- Prevent direct exposure to contaminated groundwater.
- Prevent exposure to contaminants volatilizing from groundwater.

Soil

- Prevent direct contact with contaminated soil.
- Prevent migration of contaminants that would result in groundwater 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 exceedance 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 toxicity, mobility, or volume of contaminated material;
- Implementability;
- Cost effectiveness;
- Community Acceptance;
- Land use; and
- Sustainability.

The following is a detailed description of the alternative 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 involves:

- Selection of 6NYCRR Part 375 Table 6.8 (a) Unrestricted Use (Track 1) Soil Cleanup Objectives (SCOs).
- Removal of all soil/fill exceeding Track 1 Unrestricted Use SCOs throughout the Site and confirmation that Track 1 Unrestricted Use SCOs have been achieved with post excavation endpoint sampling. If soil containing analytes at concentrations above Track 1 Unrestricted Use SCOs are still present at the base of the excavation, additional

excavation will be performed to ensure complete removal of soil that does not meet Track 1 Unrestricted Use SCOs.

- No Engineering or Institutional Controls can be utilized in a Track 1 cleanup, an active sub-slab depressurization system (SSDS) and a vapor barrier/waterproofing membrane system beneath the basement slab/foundations and behind foundation sidewalls of the new building would be installed as part of development to prevent exposures from offsite soil vapor.
- Placement of a final cover over the entire Site as part of new development.

Alternative 2 involves

- Establishment of Track 4 Site-Specific SCOs.
- Removal of all soil/fill exceeding Track 4 SCOs and confirmation that Track 4 SCOs have been achieved with post-excavation endpoint sampling. Excavation for construction of the building's basement would take place to depths ranging from 7 to 10 feet below the existing (remaining) basement floor slab which elevation is approximately 8 feet below street level elevation. If soil containing analytes at concentrations above Track 4 SCOs is still present at the base of the excavation after removal of all soil required for construction of the buildings is complete, additional excavation will be performed to meet Track 4 SCOs.
- Installation of a soil vapor barrier/waterproofing membrane beneath the basement concrete slab/foundations and behind foundation walls of the new building to prevent any potential exposures from soil vapors resulting from offsite soil vapor. The soil vapor barrier/waterproofing membrane, together with the basement concrete slab/foundations and foundation walls, will serve as a vapor barrier system.
- Installation of an active sub-slab depressurization system.
- 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 prevent future exposure pathways; and prohibition of a higher level of 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; and

- Continued registration as an E-designated property to memorialize the remedial action and the Engineering and Institutional Controls required by the RAWP.

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 contaminated soil/fill exceeding Track 1 Unrestricted Use SCOs, thus eliminating potential for direct contact with contaminated soil/fill once construction is complete and eliminating the risk of contamination leaching into groundwater. The vapor barrier system and active SSDS would prevent any soil vapors from impacting the new building.

Alternative 2 would achieve comparable protection of human health and the environment by excavating soil/fill at the Site, by ensuring that remaining soil/fill onsite meets Track 4 SCOs, by placement of Institutional and Engineering controls, including a vapor barrier and an active SSDS. The vapor barrier system would prevent direct contact with any remaining onsite soil/fill. The vapor barrier system and active SSDS would prevent any soil vapors from impacting the new building. Implementing Institutional Controls including a Site Management Plan would ensure that the vapor barrier system remains intact and protective and the active SSDS remains in operation. Establishment of Track 4 Site-Specific SCOs would minimize the risk of contamination leaching into groundwater.

For both Alternatives, potential exposure to contaminated soils during construction will 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 contaminated groundwater, if present, will be prevented as its use is prohibited by city laws and regulations. Potential future migration of offsite soil vapors into the building will be prevented by installing a vapor barrier system and the active SSDS.

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 soil to achieve Track 1 Unrestricted Use SCOs. Compliance with SCGs for soil vapor would also be achieved by installing a vapor barrier system and an active SSDS, as part of development.

Alternative 2 would achieve compliance with the remedial goals, chemical-specific SCGs and RAOs for soil through removal of soil to meet Track 4 SCOs. Compliance with SCGs for soil vapor would also be achieved by installing a vapor barrier system and an active SSDS. A Site Management Plan would ensure that these controls remained protective for the long term.

Health and safety measures contained in the CHASP and CAMP that comply with the 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 would ensure that handling and management of contaminated material would be in compliance with applicable SCGs. These measures will protect onsite workers and the surrounding community from exposure to Site-related contaminants.

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 1 and 2 have similar short-term effectiveness during their respective implementations as each requires excavation of fill/soil material. Both alternatives would result in short-term dust and possibly volatile organic carbon compounds generation impacts associated with excavation, handling, load out of materials, and truck traffic.

An additional short-term adverse impact and risks to the community associated with both remedial alternatives is increased truck traffic. Approximately 144, 25-ton 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.

The effects of these potential adverse impacts to the community, workers and the environment will be minimized through implementation of corresponding control plans including a CHASP, a CAMP and a SMMP, during all onsite soil disturbance activities and would minimize the release of contaminants into the environment. Both alternatives provide short term effectiveness in protecting the surrounding community by decreasing the risk of contact with onsite contaminants. Construction workers operating under appropriate management procedures and a CHASP would be protected from onsite contaminants (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 onsite contamination by permanently removing all impacted soil/fill above Track 1 Unrestricted Use SCOs and installing a vapor barrier system and an active SSDS, as part of development, enabling unrestricted usage of the Site.

Alternative 2 would provide long-term effectiveness by removing most onsite contamination and attaining Track 4 SCOs, installing a composite cover system across the Site and an activeSSDS, maintaining use restrictions, establishing a SMP to ensure long-term management of Institutional Controls (ICs), Engineering Controls (ECs), and maintaining continued registration as an E-designated property to memorialize these controls for the long term. The SMP would ensure long-term effectiveness of all ECs and ICs by requiring periodic inspection and certification that these controls and restrictions continue to be in place and are functioning as they were intended, assuring that protections designed into the remedy would provide continued high level of protection in perpetuity.

Both alternatives would result in removal of soil contamination exceeding the SCOs providing the highest level, most effective and permanent remedy over the long-term with respect to a remedy for contaminated soil, which would eliminate any migration to groundwater. Potential sources of soil vapor and groundwater contamination would also be eliminated as part of the remedy.

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 1 would permanently eliminate the toxicity, mobility, and volume of contaminants from onsite soil by removing all soil in excess of Track 1 - Unrestricted Use SCOs.

Alternative 2 would remove a large quantity of the fill/soil at the Site, and any remaining onsite soil beneath the building would meet Track 4 SCOs, Alternative 1 would eliminate a greater total mass of contaminants on Site.

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 Alternatives 1 and 2 are readily available and have been proven effective in remediating the contaminants associated with the Site. They use standard materials and services that are well established technology. The reliability of each remedy is also high. There are no special difficulties associated with any of 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.

The costs associated with both Alternative 1 and Alternative 2 are likely to be comparable. Capital costs associated with Alternative 1 could potentially be higher than Alternative 2 if soil with analytes above Unrestricted Use SCOs is encountered below the excavation depth required for development. These capital costs are associated with a potentially larger volume of soil/fill that will need to be excavated and disposed offsite. However, long-term costs for site management are eliminated for Alternative 1 and may be required for Alternative 2.

The remedial plan creates an approach that combines the remedial action with the redevelopment of the Site, including the 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 closest and most appropriate disposal facilities to reduce transportation and disposal costs during the excavation of fill and other soils 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. This public comment will be considered by OER prior to approval of this plan. The Citizen Participation Plan for the project is provided in Attachment B.

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 compatible with its current zoning and is consistent with recent development patterns. Following remediation, the Site will meet either Track 1 Unrestricted Use or Track 4 SCOs, both of which are appropriate for its planned commercial use. Improvements in the current environmental condition of the Site achieved by both alternatives are also consistent with the City's goals for cleanup of contaminated 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.

The remedial plan would take into consideration the shortest trucking routes during offsite disposal of historic fill and other soils, which would reduce greenhouse gas emissions and conserve energy used to fuel trucks. To the extent practicable, energy efficient building materials, appliances, and equipment will be utilized to complete the development. While Alternative 2 would potentially result in lower energy usage based on reducing the volume of material excavated, transported and disposed offsite, both remedial alternatives are comparable with respect to the opportunity to achieve sustainable remedial action. A complete list of green remedial activities considered as part of the NYC VCP is included 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 Alternative 2, the Track 4 Alternative. 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 activities according to an approved Citizen Participation Plan.
2. Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
3. Establishment of Site Specific (Track 4) Soil Cleanup Objectives (SCOs).
4. Completion of a Waste Characterization Study prior to excavation activities. Waste characterization soil samples will be collected at a frequency dictated by disposal facility. A Waste Characterization Report documenting sample procedures, location, analytical results shall be submitted to NYCOER prior to start of remedial action.
5. Excavation and removal of soil/fill exceeding Track 4 Site Specific SCOs. For development purposes, excavation across the site will be to 7 feet below the existing (remaining) basement floor slab which elevation is approximately 8 feet below street level elevation. Excavation for elevator pits will be to depths of 10 feet below existing grade. The estimated volume of excavated materials is 2,400 cubic yards (approximately 3,600 tons).

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. Perform a Community Air Monitoring Program for particulates and volatile organic carbon compounds.
8. Management of excavated materials including temporarily stockpiling and segregating in accordance with defined material types and to prevent co-mingling of contaminated material and non-contaminated materials.
9. Excavation and registration of tanks (if encountered) and reporting of any petroleum spills associated with UST's and appropriate closure of these petroleum spills in compliance with applicable local, State and Federal laws and regulations.
10. Transportation and offsite disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media onsite.
11. Collection and analysis of four end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
12. Installation and operation of an active sub-slab depressurization system.
13. Construction and maintenance of an engineered composite cover consisting of the building basement's 6' minimum concrete slab/foundations and foundation walls with soil vapor barrier/waterproofing membrane beneath the basement concrete slab/foundations and behind foundation walls to prevent human exposure to residual soil/fill remaining under the Site.
14. Installation of a vapor barrier system below the concrete slab of the building as well as behind foundation walls of the proposed building. Grace Preprufe® 300R 46-mil membrane will be installed beneath the building basement's floor slab, footings and elevator pits and Preprufe® 160R 32-mil membrane will be installed behind the exterior foundation walls to prevent infiltration of vapor into the structure.

15. Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.
16. Performance of all activities required for the remedial action, including permitting requirements and pretreatment requirements, in compliance with applicable laws and regulations.
17. 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.
18. Submission of an approved Site Management Plan (SMP) in the RAR for long-term management of residual contamination, including plans for operation, maintenance, monitoring, inspection and certification of Engineering and Institutional Controls and reporting at a specified frequency. The property will continue to be registered with an E-Designation by the NYC Buildings Department. Establishment of Engineering Controls and Institutional Controls in this RAWP and a requirement that management of these controls must be 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

The following Track 4 SCOs are proposed for this project:

<u>Contaminant</u>	<u>Track 4 SCOs</u>
Lead	800 ppm
Mercury	2.5 ppm
Copper	350 ppm

Soil and materials management onsite and offsite, 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.

Discrete contaminant sources (such as hotspots) identified during the remedial action will be identified by GPS or surveyed. 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 offsite is 3,600 tons.

Disposal facilities will be reported to OER when they are identified and prior to the start of remedial action.

End-Point Sampling

Removal actions for development purposes under this plan will be performed in conjunction with confirmation soil sampling. Five (5) confirmation samples will be collected from the base of the excavation at locations to be determined by OER. For comparison to Track 4 Site Specific SCOs, analytes will include VOCs, SVOC, and metals according to analytical methods described below.

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 fundamental QA objective with respect to accuracy, precision, and sensitivity of analysis for laboratory analytical data is to achieve the QC acceptance of the analytical protocol. The accuracy, precision and completeness requirements will be addressed by the laboratory for all data generated.

Dedicated disposable sampling materials will be used for the collection endpoint samples, eliminating the need to prepare field equipment (rinsate) blanks.

One blind duplicate sample for every 20 endpoint samples collected will be submitted to the approved laboratory for analysis of the same parameters.

Soil samples will be collected in pre-cleaned, laboratory supplied glassware, appropriately labeled, stored in a chilled cooler (4° C) and submitted for analysis under proper chain of custody procedures to the approved laboratory.

Import and Reuse of Soils

As no excavation is planned beyond the limits of the construction of the new building, the import of soils onto the property and reuse of soils already onsite are not anticipated.

In the event that either subgrade/sub-base gravel material is imported to the Site or unanticipated soils are imported to the Site or soils already onsite are reused, it will be performed in conformance with the Soil/Materials Management Plan in Appendix C.

The estimated quantity of gravel material to be imported into the Site is yet to be determined.

4.3 ENGINEERING CONTROLS

The excavation required for the proposed Site development will achieve Track 4 - Site-Specific SCOs. Engineering Controls were employed in the remedial action to address residual contamination remaining at the site. The Site has two primary Engineering Control Systems consisting of three elements. These are:

Composite Cover System

Exposure to residual soil/fill will be prevented by an engineered, composite cover system to be built on the Site. This composite cover system is comprised of:

The entire Site will be covered by an engineered composite cover system. This cover system will consist of the building basement's 5-inch thick concrete slab (over the entire Site footprint) and the building's 12-inch thick foundation walls (over the entire Site perimeter).

Figure 7 shows the typical design for each remedial cover type used on this Site. Figure 6 shows the location of each cover type built at the Site.

The composite cover system is a permanent engineering control for the Site. If required, the system will be inspected and reported at specified intervals as required by this RAWP and the SMP. If required, 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. If required, 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/foundation walls and vapor barrier/waterproofing membrane.

The proposed vapor barrier systems will consist of the following, all manufactured by W. R. Grace & Co.:

Preprufe® 200 32-mil membrane will be installed beneath the building basement's floor slab, footings and elevator pits and behind elevator pit walls and exterior foundation walls to

prevent infiltration of vapor into the structure. This membrane is a composite sheet comprising of a thick HDPE film, an aggressive pressure sensitive adhesive and a weather resistant protective coating. All laps will be fastened together at maximum 39-inch on-center. Preprufe® CJ Tape (a self-adhesive 8-inch-wide strip) will be used at all horizontal and vertical construction joints. Vertical and horizontal overlaps in succeeding sheets will be a minimum of 3 inches. Overlaps of horizontal and vertical membranes at corners, construction joints, lap fastening, ancillary products, and vertical mechanical fastening and sealing around penetrations will be in accordance with the manufacturer installation diagrams and specifications.

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.

Sub-Slab Depressurization System

Migration of soil vapor will be mitigated with the construction of an active sub-slab depressurization system.

The active sub-slab depressurization system (SSDS) will consist of the following:

The building foundations at the Site will create five (5), completely disjointed, gas permeable layer fields; a large, main field, with an approximately 3,600-square-foot area and four (4), small fields, with the largest of which having an approximately 400-square-foot area. More specifically, these fields will be created due to the presence of four (4) 8-foot-wide by 3-foot-deep strap footings located at the four (4) building quadrants. Within the main field, perforated 4-inch inside diameter (ID) schedule 40 PVC ventilation pipes will be laid horizontally in a continuous closed loop below the basement concrete slab (or mud slab if present) along the inside of the exterior continuous perimeter footings, the strap footings, elevator pits and retention tank. The gas permeable layer within each of the fields will consist of at least 8 inches of gravel or crushed stone, 0.25-inch to 0.75-inch with no fines. Within the main field, the perforated ventilation pipes will be placed with their top located 2 inches below the basement concrete slab (or mud slab if present), with one set of holes facing down, 2 inches of gravel or crushed stone above, and a minimum of 2 inches below the perforated pipe. Within the main field, the perforated ventilation pipes will be placed horizontal with only one 4-inch ID PVC TEE closing the loop, with no low points anywhere in the loop or TEE. Interior subgrade

barriers, if present, will be penetrated by laying either a length of non-perforated (solid) pipe or a sleeve prior to pouring concrete. Long sweep 90° pipe fittings will be used in lieu of standard 90° bends. Within each of the four (4) small fields, an open 4-inch ID PVC TEE will be placed consistent with the placement of the TEE within the main field and will be firmly secured in its position. A short vertical stub of solid 4-inch ID schedule 40 PVC will be connected to each TEE and will extend a minimum of 12 inches above the top of the basement concrete slab. Vertical penetrations of stubs through vapor barrier will be sealed in the same manner of any other penetrations. The stub will be secured in a vertical position until the basement concrete slab is poured and allowed to cure for 14 days.

Five (5) separate Pressure Field Extension tests will be conducted (one for each field) through permanent testing/monitoring probes that will be installed within the basement concrete slab through vapor barrier and will be sealed in the same manner of any other penetrations. The Pressure Field Extension test results will determine the optimal pressure and flow for each field and the blower performance requirements and selection.

Manifold suction piping, connected to the five (5) vertical stubs, will be vertical solid 4- or 6-inch ID solid cast iron with minimal horizontal runs with the least number of elbows. Each suction pipe will Suction piping above manifold and vent stack piping will be solid cast iron with the same ID of the manifold piping with minimal horizontal runs. All aboveground horizontal runs will be sloped downwards to the sub-slab a minimum of 1/8 inch per foot. All pipe and other component joints and connections will be sealed permanently except for blower-pipe connections that will be removable couplings. Plumber strapping will be used to support all aboveground piping in accordance with New York City Building and Fire codes. All vertical aboveground piping will run through the same shaft as the furnace and water heater flue, alongside the flues with proper clearance in accordance with New York City Building and Fire codes. SSDS labels will be affixed to all aboveground piping. An inline radon blower/fan will be installed either outside the building or inside the building, outside of occupiable space, and above the conditioned (heated/cooled) spaces of a building. If the blower will be mounted on the exterior of buildings it will be rated for outdoor use or installed in a weather proof protective housing. The top of the vent stack piping exhaust will be: 1) at least 12 inches above the surface of the highest roof, 2) at least 10 feet away from any opening that is less than 2 feet below the

exhaust point, and 3) at least 10 feet from any adjoining or adjacent buildings, or HVAC intakes or supply registers. The blower's electrical wiring will be hard-wired to a junction box with a disconnect switch. System operation and performance will be monitored for either air flow or pressure with a visual or audible indication of system degradation and failure that will be located where it is easily seen or heard.

Figure 8 shows the layout and design of the active SSDS.

4.4 INSTITUTIONAL CONTROLS

Track 1 remedial actions do not require Engineering 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 by 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 determine 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 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 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. Site management will be the last phase of remediation and begins with the approval of the RAR and issuance of the Notice of Completion (NOC) for the remedial action. The SMP describes appropriate methods and procedures to ensure implementation of all ECs and ICs that are required by this RAWP. The SMP 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 SMP 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 OER. This includes a plan for (1) implementation of EC's and ICs; (2) operation and maintenance of EC's; (3) inspection and certification of IC's and EC's.

Site management activities and EC/IC certification will be scheduled by OER on a periodic basis to be established in the RAR and the SMP and will be subject to review and modification by OER. The SMP will be based on a calendar year and certification reports will be due for submission to OER by July 30 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

The AOCs identified for the Site include a reported 1998 sewer water flood in the basement of the former building that washed heavy fuel oil that had leaked from the piping around the former boiler oil filters into the ground and to the south adjacent property and one historical gasoline station and several historical dry cleaners that were located in the area surrounding the Site which had the potential of impacting the groundwater in the area of the Site and create a vapor encroachment condition (VEC).

Based on the results of the RIR, the following compounds of concern were found:

Soil

- Three pesticides were identified, but were well below Track 2 Restricted Commercial Use SCOs, and
- Seven metals were detected, with only copper exceeding its Track 2 Restricted Commercial Use SCO in one shallow fill sample.

Soil Vapor

- The chlorinated VOCs 1,1,1-TCA and PCE in two of the three samples, of which 1,1,1-TCA was above the mitigation/exposure reduction level ranges of NYSDOH soil vapor matrix.; and

- Total BTEX and total petroleum VOCs in all three soil vapor samples in relatively high concentrations.

Nature, Extent, Fate and Transport of Contaminants

A trace concentration of the chlorinated VOC PCE is present well below its Track 1 Unrestricted Use SCO in only one location within the shallow (0'-2') historic fill. Three pesticides (4,4'-DDD, 4,4'-DDE, and 4,4'-DDT) are present above Track 1 Unrestricted Use SCOs but well below Track 2 Restricted Commercial Use SCOs in only one location within the shallow (0'-2') historic fill, where no pesticides are present in deeper samples. 4,4'-DDT is present above its Track 1 Unrestricted Use SCO but well below its Track 2 Restricted Commercial Use SCO in two location within the deeper native soil. Seven metals (chromium, copper, lead, mercury, nickel, selenium and zinc) are present above Track 1 Unrestricted Use SCOs in one location within the shallow (0'-2') historic fill, and of these, only copper is present above its Track 2 Restricted Commercial Use SCO. Chromium and nickel are also present above Track 1 Unrestricted Use SCOs but well below Track 2 Restricted Commercial Use SCOs within the deeper native soil. The chlorinated VOCs 1,1,1-TCA and PCE are present in soil vapor in two of the three locations sampled, of which 1,1,1-TCA is above the mitigation/exposure reduction level ranges of NYSDOH soil vapor matrix. Total BTEX and total petroleum VOCs are present in soil vapor in relatively high concentrations. VOCs identified in soil vapor were not detected in soils.

Potential Routes of Exposure

The five elements of an exposure pathway are: 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. An exposure pathway is considered complete when all five elements of an exposure pathway are documented. A potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway cannot be documented. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an exposure pathway has not existed in the past, does not exist in the present, and will never exist in the future. Three potential primary routes exist by which chemicals can enter the body on a remedial project:

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

Existence of Human Health Exposure

Current Conditions: The Site remains vacant unoccupied and is surrounded by an 8-foot-high construction fence and by the exterior solid walls of the adjacent structures which restrict access to the Site. As such, the potential for exposure to soil/fill is limited.

Construction/ Remediation Activities: Once redevelopment activities begin construction workers will come into direct contact with soil/fill as a result of onsite construction and excavation activities. On-site construction workers could potentially ingest, inhale or have dermal contact with any exposed impacted soil/fill. During this time, offsite receptors could be exposed to dust onsite activities. During construction, onsite and offsite exposures to dust from the Site will be addressed through the Soil/Materials Management Plan, dust controls, and through the implementation of the Community Air-Monitoring Program and a Construction Health and Safety Plan.

Proposed Future Conditions: Under future remediated conditions, all soils in excess of Track 2 SCOs will be removed. The Site will be fully capped, eliminating potential direct exposure to soil remaining in place, and the vapor barrier/waterproofing membrane system and active SSDS will prevent any exposure to potential 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.

Receptor Populations

On-site Receptors: As the Site is vacant unoccupied, onsite receptors are limited to the Site owner and contractors. During redevelopment of the Site, onsite potential receptors will include construction workers, site representatives, and visitors. Once the Site is redeveloped, onsite receptors will include retail workers, patrons and visitors.

Off-site Receptors: Potential offsite receptors within a 0.25-mile radius of the Site include: adult and child residents, commercial and construction workers, pedestrians, trespassers, and cyclists, based on the following:

1. Commercial Businesses (up to 0.25 mile) – existing and future
2. Residential Buildings (up to 0.25 mile) – existing and future
3. Building Construction/Renovation (up to 0.25 mile) – existing and future
4. Pedestrians, Trespassers, Cyclists (up to 0.25 mile) – existing and future
5. Schools (up to 0.25 mile) – existing and future

Overall Human Health Exposure Assessment

Potential complete exposure pathways (i.e., source, route to exposure, receptor population) exist in current conditions and during the construction period. There is no complete exposure pathway under future conditions once Site development is completed. This assessment takes into consideration the reasonably anticipated use of the Site, which includes a retail structure and a subsurface engineered composite cover/vapor barrier/waterproofing membrane system and active SSDS for the building. Potential post-construction use of groundwater is not considered an option because groundwater in this area of New York City is not used as a potable water source. Surface waters in close proximity to the Site will not be impacted by future Site conditions.

During remedial construction, onsite and offsite exposures to dust from soil/fill material will be addressed through dust controls, and through the implementation of the Community Air Monitoring Program, the Soil/Materials Management Plan, and a Construction Health and Safety Plan. Once the remedial action is complete, there will be no remaining exposure pathways to onsite soil/fill, as all soil above Track 4 Site Specific SCOs would have been removed and a vapor barrier/waterproofing membrane system and active SSDS would have been installed as part of development. For the long term, a Site Management Plan will ensure that any residual materials are properly managed if future construction is required and that engineering controls remain in place. Periodic inspections will be performed to ensure those controls remain effective. In addition, if required, the Site will continue to be registered with an E-Designation, requiring involvement of OER before new construction that could alter the engineering controls can take place.

5.0 REMEDIAL ACTION MANAGEMENT

5.1 PROJECT ORGANIZATION AND OVERSIGHT

Principal personnel who will participate in the remedial action include Nahum Kedem, Site Project Manager, Environmental Consulting International, Inc. The Professional Engineer (PE) and Qualified Environmental Professionals (QEP) for this project Reza Sharif. PE and Nahum Kedem, PG.

5.2 SITE SECURITY

Site access will be controlled by a wooden construction fence, which will surround the Site.

5.3 WORK HOURS

The hours for operation of remedial construction will be determined prior to construction. 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 4. The Site Safety Coordinator will be Nahum Kedem. 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 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 samples. Periodic monitoring during sample collection, for instance, will consist of taking a reading upon arrival at a sample location 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. 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) monitoring is not planned based on the findings of the RI. In the event that VOCs are encountered during screening of the excavation activities, 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

Dewatering will not be used as part of the construction.

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 St. Nicholas Avenue to West 125th Street. No left turn is allowed onto West 125th Street westbound from any street approaching West 125th Street from the south between 7:00 AM and 10:00 AM and between 4:00 PM and 7:00 PM.

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.

5.13 DATA USABILITY SUMMARY REPORT

The primary objective of a Data Usability Summary Report (DUSR) is to determine whether or not data meets the site specific criteria for data quality and data use. The DUSR provides an evaluation of analytical data without third party data validation. The DUSR for post-remedial samples collected during implementation of this RAWP will be included in the Remedial Action Report (RAR).

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 Site name Site Site number.

I, _____, am a qualified Environmental Professional. I had primary direct responsibility for implementation remedial program for the Site name Site Site number. (Optional)

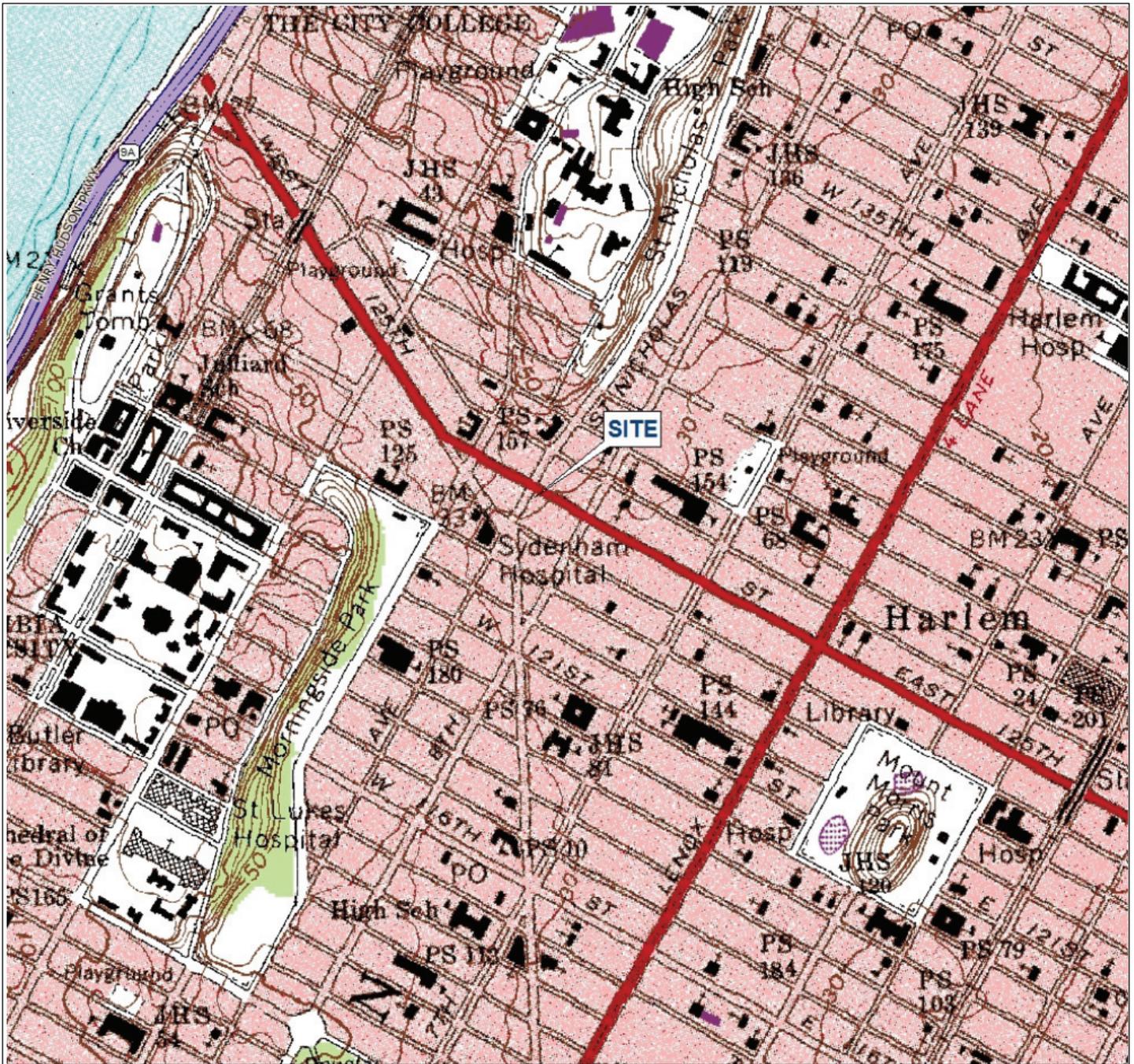
I certify that the OER-approved Remedial Action Work Plan dated month day year and Stipulations in a letter dated month day, year; if any were implemented and that all requirements in those documents have been substantively complied with. I certify that contaminated soil, fill, liquids or other material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

7.0 SCHEDULE

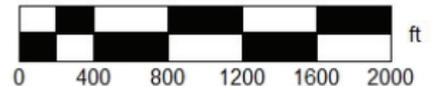
The table below presents a schedule for the proposed remedial action and reporting. If the schedule for remediation and development activities changes, it will be updated and submitted to OER. Currently, a 5 month remediation period is anticipated.

Schedule Milestone	Weeks from Remedial Action Start	Duration (weeks)
OER Approval of RAWP	0	-
Fact Sheet 2 announcing start of remedy	0	-
Mobilization	1	1
Remedial Excavation	4	3
Demobilization	5	1
Construction of Engineering Controls	17	12
Submit Remedial Action Report	21	4

FIGURES



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APPROVED: NK
ISSUED: 05/22/15
ECI PROJ NO: 131010
SCALE: AS NOTED



Environmental Consulting International, Inc.
 Ardsley, NY
 info@enviroci.com
 914-588-4747
 www.enviroci.com

FIGURE 1 - SITE LOCATION MAP
 REMEDIAL ACTION WORK PLAN
 324-332 WEST 125TH STREET
 AND 288 ST. NICHOLAS AVENUE
 BLOCK: 1951 LOT: 43
 NEW YORK, NEW YORK



SITE PLAN



TAX MAP
NOT TO SCALE

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APPROVED	NK			
ISSUED	05/22/15	TITLE SITE PLAN REMEDIAL ACTION WORL PLAN 324-332 WEST 125TH STREET AND 288 ST. NICHOLAS AVE BLOCK: 1951 LOT: 43 NEW YORK, NY 10027		
ECI PROJ NO	131010			
REVISION				
REVISION		SCALE	FIGURE NO	SHEET
		AS NOTED	2A	1
				OF
				1



LEGEND

ZONING

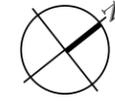
- R[X] RESIDENTIAL
- C[X] COMMERCIAL
- C1-4 COMMERCIAL OVERLAY

PRIMARY LAND USE

- One & Two Family Residence
- Multi-Family Residence (Walkup)
- Multi-Family Residence (Elevator)
- Mixed Residential & Commercial
- Commercial Use
- Industrial / Manufacturing
- Transportation / Utility
- Public Facilities and Institutions
- Open Space & Recreation
- Parking
- Vacant Land

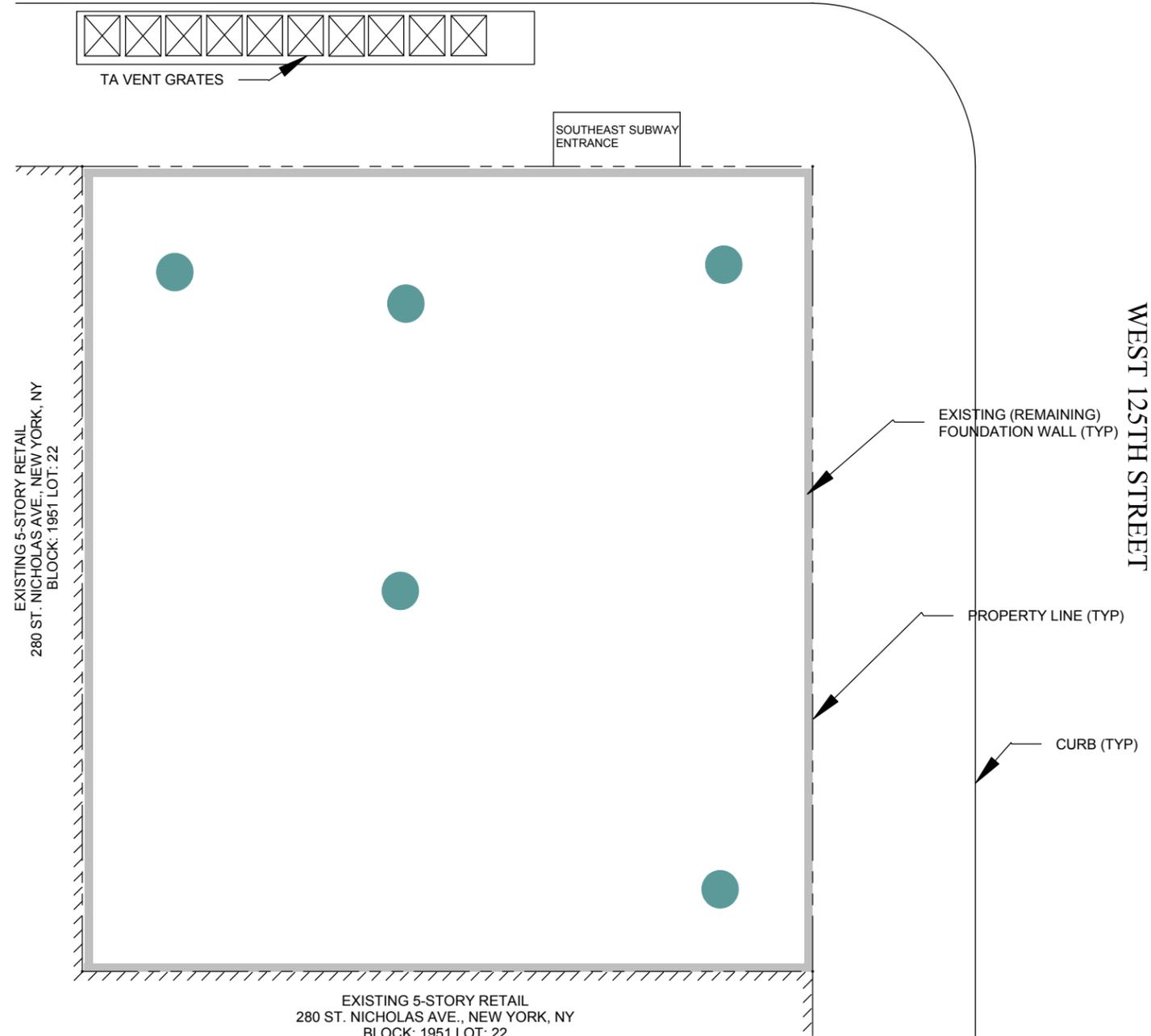
DRAWN BY NK	 Environmental Consulting International, Inc. Ardsley, NY info@enviroci.com 914-588-4747 www.enviroci.com		
APPROVED NK			
ISSUED 05/22/15	TITLE SURROUNDING LAND USAGE REMEDIAL ACTION WORK PLAN 324-332 WEST 125TH STREET AND 288 ST. NICHOLAS AVE BLOCK: 1951 LOT: 43 NEW YORK, NY 10027		
ECI PROJ NO 131010			
REVISION	SCALE	FIGURE NO	SHEET 1
REVISION	AS NOTED	2B	OF 1

ST. NICHOLAS AVENUE



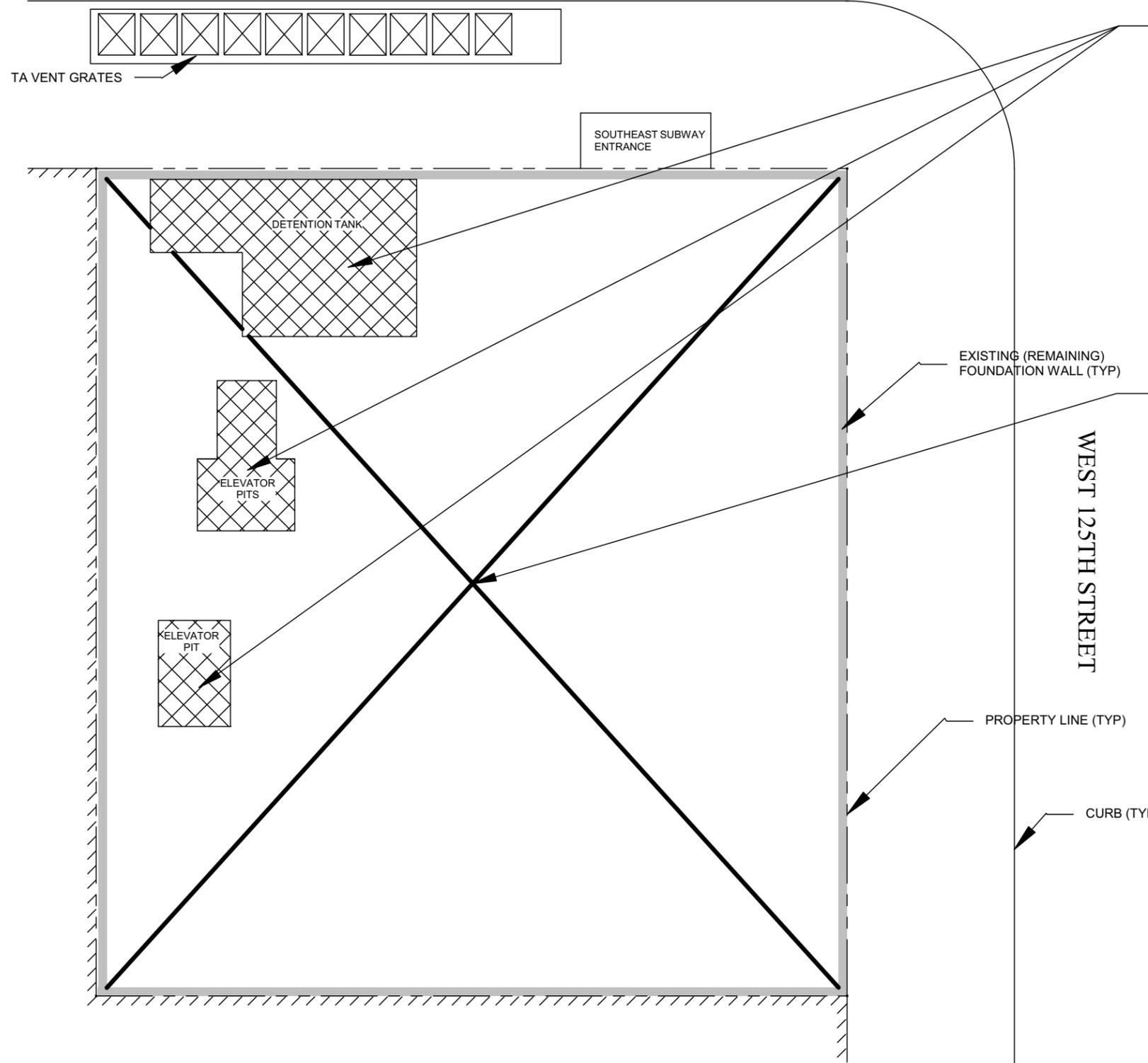
LEGEND

 END-POINT SAMPLE



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APPROVED	NAHUM KEDEM		www.enviroci.com
ISSUED	05/22/15	TITLE	MAP OF END-POINT SAMPLE LOCATIONS REMEDIAL ACTION WORL PLAN 324-332 WEST 125TH STREET AND 288 ST. NICHOLAS AVE BLOCK: 1951 LOT: 43 NEW YORK, NY 10027
ECI PROJ NO	131010	SCALE	AS NOTED
REVISION		FIGURE NO	4
REVISION		SHEET	1
		OF	1

ST. NICHOLAS AVENUE

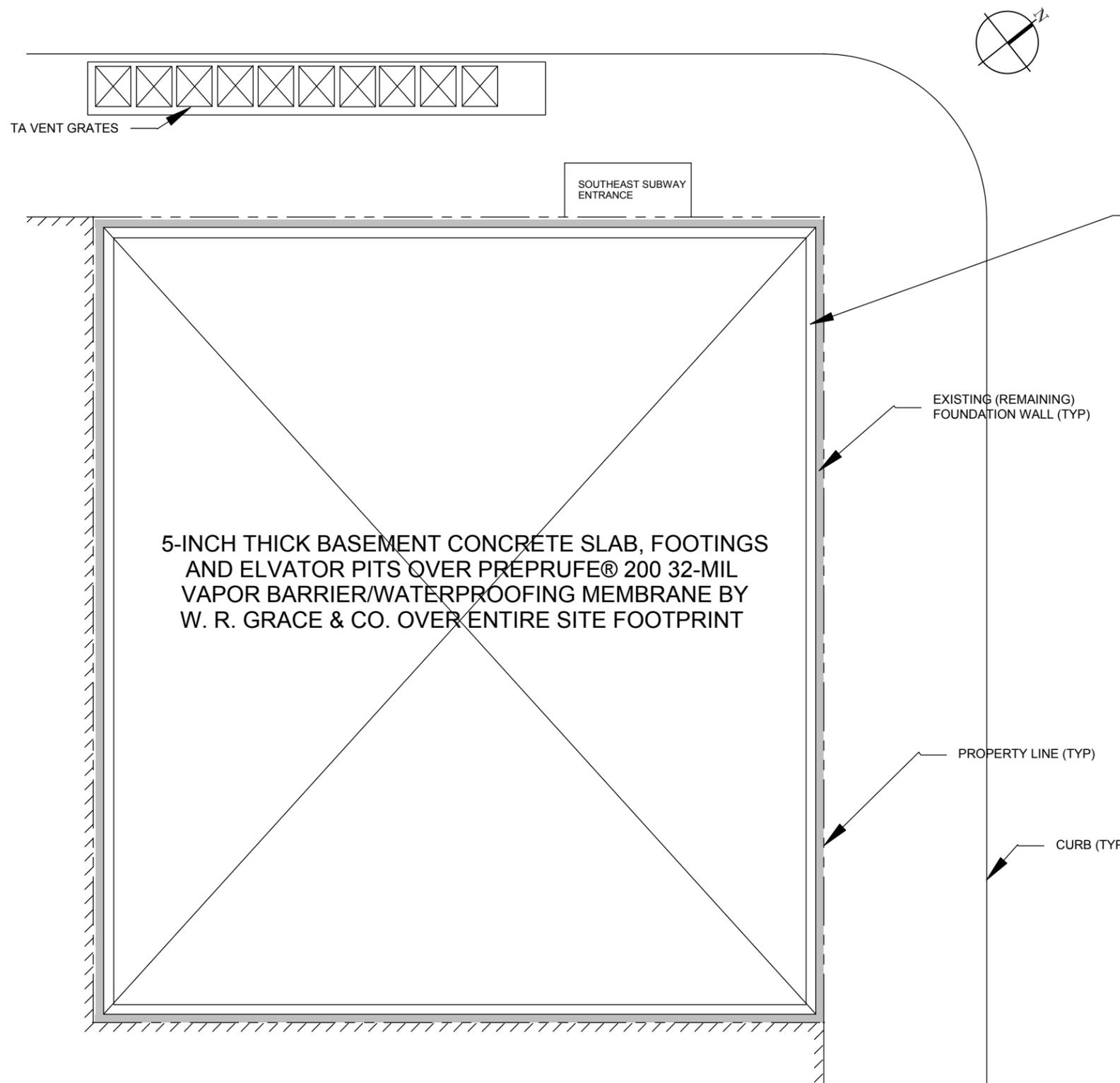


AREAS TO BE EXCAVATED TO ± 10 FEET BELOW EXISTING (REMAINING) BASEMENT FLOOR SLAB (± 18 BELOW STREET/FIRST FLOOR ELEVATION)

AREA TO BE EXCAVATED TO ± 7 FEET BELOW EXISTING (REMAINING) BASEMENT FLOOR SLAB (± 15 BELOW STREET/FIRST FLOOR ELEVATION)



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APPROVED	NAHUM KEDEM			
ISSUED	05/22/15	TITLE SITE EXCAVATION DIAGRAMS REMEDIAL ACTION WORL PLAN 324-332 WEST 125TH STREET AND 288 ST. NICHOLAS AVE BLOCK: 1951 LOT: 43 NEW YORK, NY 10027		
ECI PROJ NO	131010			
REVISION		SCALE	FIGURE NO	SHEET 1
REVISION		AS NOTED	5	OF 1



1'-0" THICK EXTERIOR CONCRETE FOUNDATION WALLS WITH PREPRUFE® 200 32-MIL BY W. R. GRACE & CO. VAPOR BARRIER/WATERPROOFING MEMBRANE BEHIND (TYP)

5-INCH THICK BASEMENT CONCRETE SLAB, FOOTINGS AND ELVATOR PITS OVER PREPRUFE® 200 32-MIL VAPOR BARRIER/WATERPROOFING MEMBRANE BY W. R. GRACE & CO. OVER ENTIRE SITE FOOTPRINT

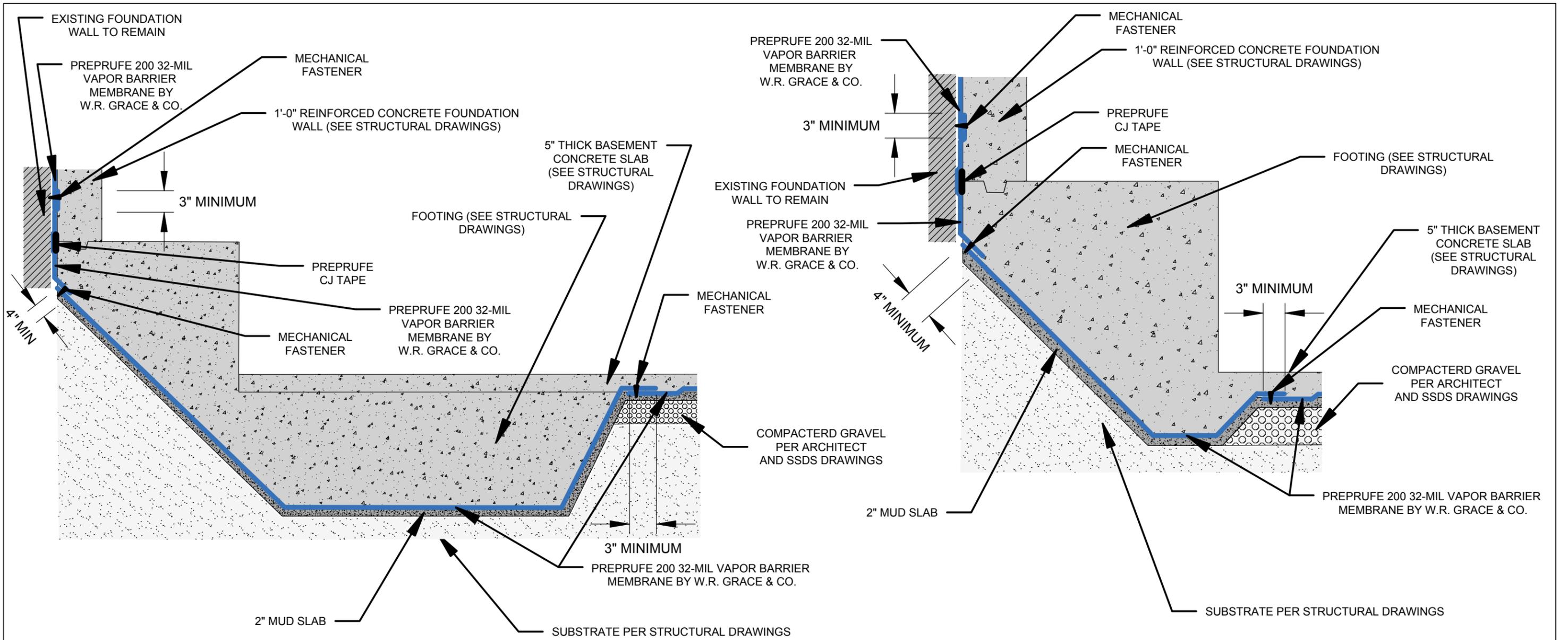
EXISTING (REMAINING) FOUNDATION WALL (TYP)

PROPERTY LINE (TYP)

CURB (TYP)

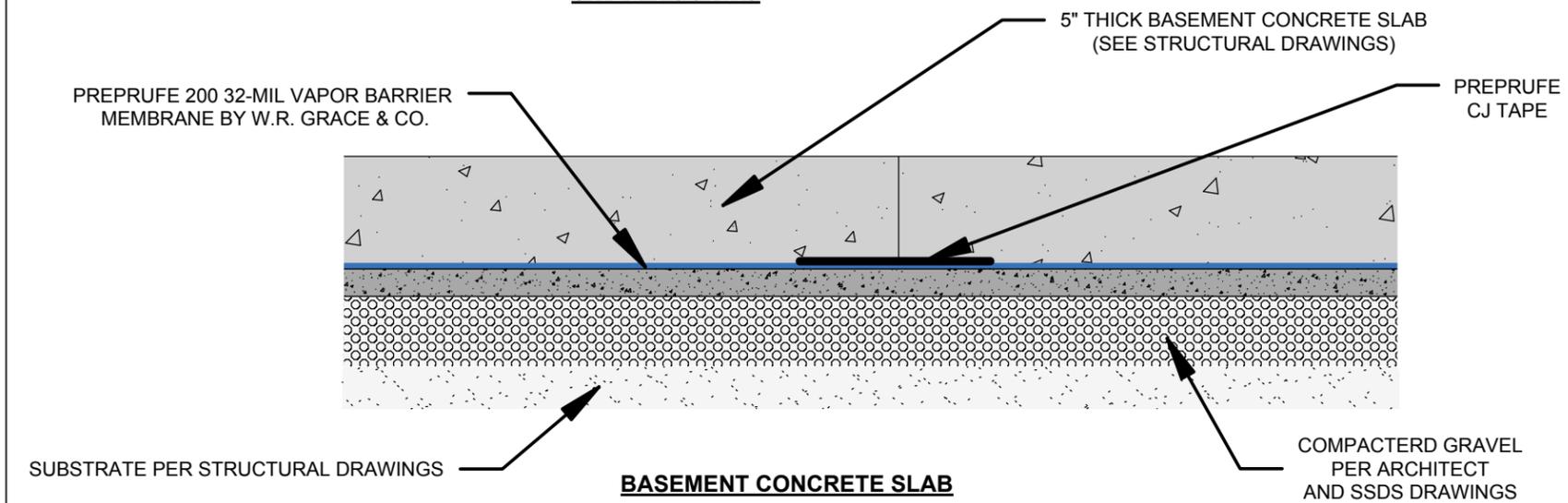


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APPROVED	NAHUM KEDEM		Ardsey, NY	914-588-4747
ISSUED	05/22/15	info@enviroci.com	www.enviroci.com	
ECI PROJ NO	131010	TITLE SITE-WIDE COVER SYSTEM PLAN REMEDIAL ACTION WORL PLAN 324-332 WEST 125TH STREET AND 288 ST. NICHOLAS AVE BLOCK: 1951 LOT: 43 NEW YORK, NY 10027		
REVISION	R1-06/29/15	SCALE	FIGURE NO	SHEET 1
REVISION		AS NOTED	6	OF 1



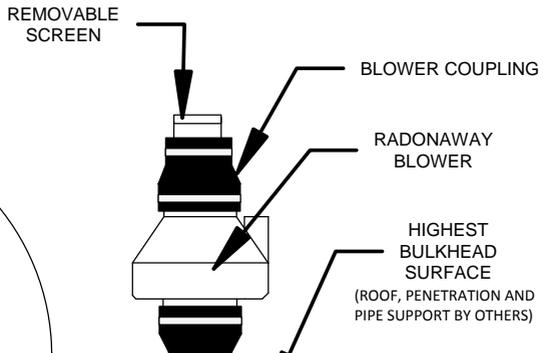
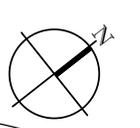
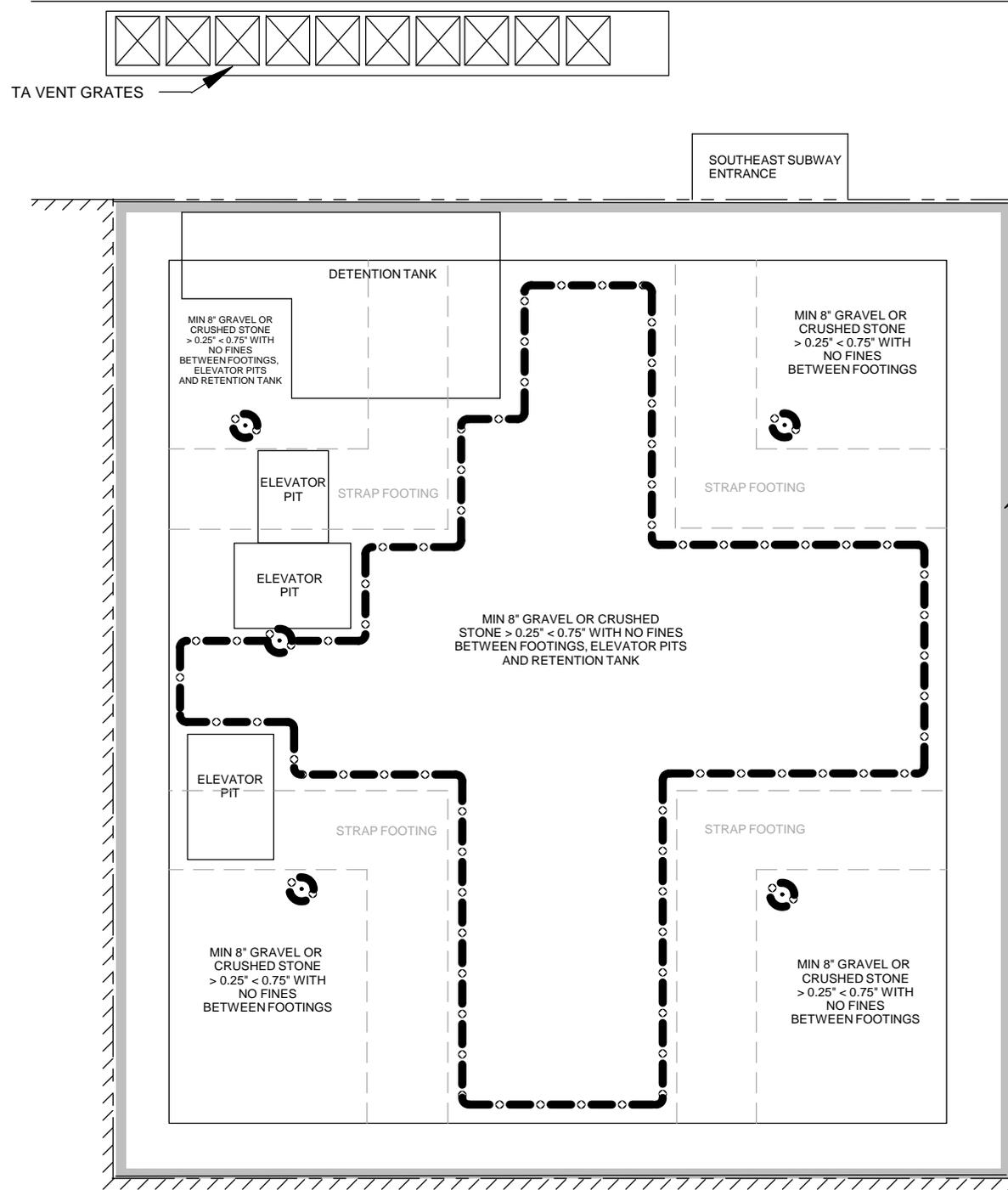
STRAP FOOTING

EXTERIOR CONTINUOUS PERIMETER FOOTINGS



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APPROVED	NK			
ISSUED	05/22/15	TITLE TYPICAL COVER DETAIL FOR ALL COVER TYPES AND VAPOR BARRIER/WATERPROOFING MEMBRANE DIAGRAMS REMEDIAL ACTION WORL PLAN 324-332 WEST 125TH STREET AND 288 ST. NICHOLAS AVE BLOCK: 1951 LOT: 43 NEW YORK, NY 10027		
ECI PROJ NO	131010			
REVISION	R1-06/29/15			
REVISION		SCALE	FIGURE NO	SHEET
		NTS	7	1 OF 1

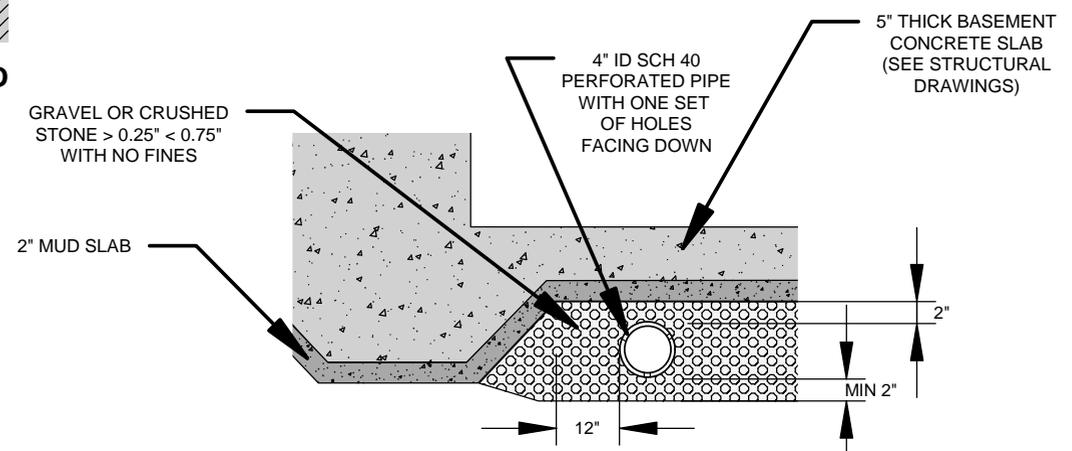
ST. NICHOLAS AVENUE



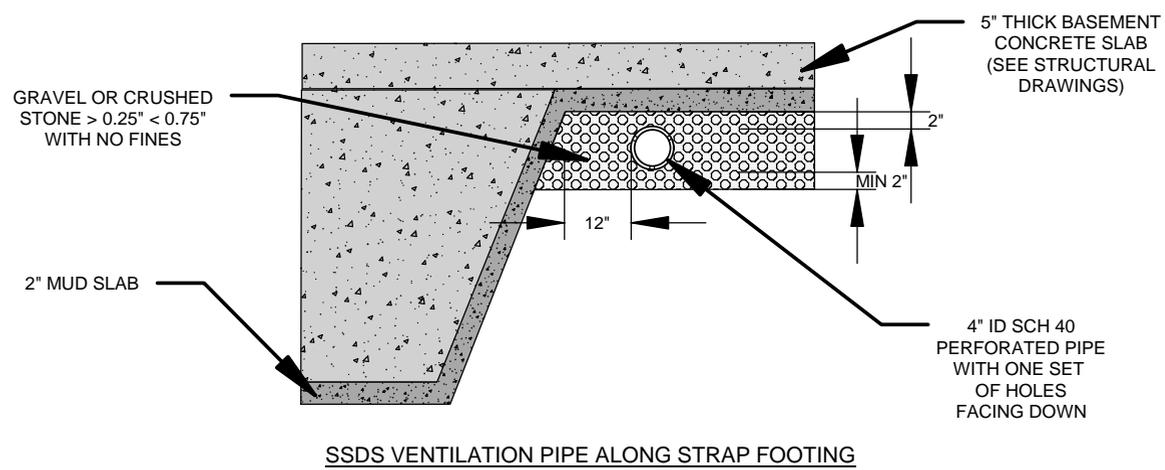
LEGEND

- PERFORATED 4" ID SCH 40 PVC VENTILATION PIPE
- 4" ID SCH 40 PVC UPWARDS TEE
- 4" ID SCH 40 PVC LONG SWEEP 90° PIPE FITTINGS

BLOWER AND EXHUST



WEST 125TH STREET



- VENT STACK NOTES**
- TOP OF EXHAUST PIPE WILL BE:
- 1) AT LEAST 12 INCHES ABOVE THE SURFACE OF THE HIGHEST ROOF
 - 2) AT LEAST 10 FEET AWAY FROM ANY OPENING THAT IS LESS THAN 2 FEET BELOW THE EXHAUST POINT
 - 3) AT LEAST 10 FEET FROM ANY ADJOINING OR ADJACENT BUILDINGS, OR HVAC INTAKES OR SUPPLY REGISTERS



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APPROVED	NAHUM KEDEM		
ISSUED	05/22/15	TITLE	SSDS DESIGN DIAGRAMS REMEDIAL ACTION WORL PLAN 324-332 WEST 125TH STREET AND 288 ST. NICHOLAS AVE BLOCK: 1951 LOT: 43 NEW YORK, NY 10027
ECI PROJ NO	131010	SCALE	AS NOTED
REVISION	R1-06/29/15	FIGURE NO	8
REVISION		SHEET	1
		OF	1

TABLES

TABLE 1
Reuse On-Site Soil Quality Objectives
(Shaded Values)

Source: This table is derived from soil cleanup objective (SCO) tables in 6 NYCRR 375. Table 375-6.8(a) is the source for unrestricted use and Table 375-6.8(b) is the source for restricted use.

Note: For constituents not included in this table, refer to the contaminant for supplemental soil cleanup objectives (SSCOs) in the Commissioner Policy on *Soil Cleanup Guidance*. If an SSCO is not provided for a constituent, contact the DER PM to determine a site-specific level.

Constituent	Unrestricted Use	Residential Use	Restricted Residential Use	Commercial or Industrial Use	If Ecological Resources are Present
Metals					
Arsenic	13	16	16	16	13
Barium	350	350	400	400	433
Beryllium	7.2	14	47	47	10
Cadmium	2.5	2.5	4.3	7.5	4
Chromium, Hexavalent ¹	1 ³	19	19	19	1 ³
Chromium, Trivalent ¹	30	36	180	1500	41
Copper	50	270	270	270	50
Cyanide	27	27	27	27	NS
Lead	63	400	400	450	63
Manganese	1600	2000	2000	2000	1600
Mercury (total)	0.18	0.73	0.73	0.73	0.18
Nickel	30	130	130	130	30
Selenium	3.9	4	4	4	3.9
Silver	2	8.3	8.3	8.3	2
Zinc	109	2200	2480	2480	109
PCBs/Pesticides					
2,4,5-TP Acid (Silvex)	3.8	3.8	3.8	3.8	NS
4,4'-DDE	0.0033 ³	1.8	8.9	17	0.0033 ³
4,4'-DDT	0.0033 ³	1.7	7.9	47	0.0033 ³
4,4'-DDD	0.0033 ³	2.6	13	14	0.0033 ³
Aldrin	0.005	0.019	0.097	0.19	0.14
Alpha-BHC	0.02	0.02	0.02	0.02	0.04 ⁴
Beta-BHC	0.036	0.072	0.09	0.09	0.6
Chlordane (alpha)	0.094	0.91	2.9	2.9	1.3
Delta-BHC	0.04	0.25	0.25	0.25	0.04 ⁴
Dibenzofuran	7	14	59	210	NS
Dieldrin	0.005	0.039	0.1	0.1	0.006
Endosulfan I	2.4 ²	4.8	24	102	NS
Endosulfan II	2.4 ²	4.8	24	102	NS
Endosulfan sulfate	2.4 ²	4.8	24	200	NS
Endrin	0.014	0.06	0.06	0.06	0.014
Heptachlor	0.042	0.38	0.38	0.38	0.14
Lindane	0.1	0.1	0.1	0.1	6
Polychlorinated biphenyls	0.1	1	1	1	1

Constituent	Unrestricted Use	Residential Use	Restricted Residential Use	Commercial or Industrial Use	If Ecological Resources are Present
Semi-volatile Organic Compounds					
Acenaphthene	20	98	98	98	20
Acenaphthylene	100	100	100	107	NS
Anthracene	100	100	100	500	NS
Benzo(a)anthracene	1	1	1	1	NS
Benzo(a)pyrene	1	1	1	1	2.6
Benzo(b)fluoranthene	1	1	1	1.7	NS
Benzo(g,h,i)perylene	100	100	100	500	NS
Benzo(k)fluoranthene	0.8	1	1.7	1.7	NS
Chrysene	1	1	1	1	NS
Dibenz(a,h)anthracene	0.33 ³	0.33 ³	0.33 ³	0.56	NS
Fluoranthene	100	100	100	500	NS
Fluorene	30	100	100	386	30
Indeno(1,2,3-cd)pyrene	0.5	0.5	0.5	5.6	NS
m-Cresol(s)	0.33 ³	0.33 ³	0.33 ³	0.33 ³	NS
Naphthalene	12	12	12	12	NS
o-Cresol(s)	0.33 ³	0.33 ³	0.33 ³	0.33 ³	NS
p-Cresol(s)	0.33	0.33	0.33	0.33	NS
Pentachlorophenol	0.8 ³	0.8 ³	0.8 ³	0.8 ³	0.8 ³
Phenanthrene	100	100	100	500	NS
Phenol	0.33 ³	0.33 ³	0.33 ³	0.33 ³	30
Pyrene	100	100	100	500	NS
Volatile Organic Compounds					
1,1,1-Trichloroethane	0.68	0.68	0.68	0.68	NS
1,1-Dichloroethane	0.27	0.27	0.27	0.27	NS
1,1-Dichloroethene	0.33	0.33	0.33	0.33	NS
1,2-Dichlorobenzene	1.1	1.1	1.1	1.1	NS
1,2-Dichloroethane	0.02	0.02	0.02	0.02	10
1,2-Dichloroethene(cis)	0.25	0.25	0.25	0.25	NS
1,2-Dichloroethene(trans)	0.19	0.19	0.19	0.19	NS
1,3-Dichlorobenzene	2.4	2.4	2.4	2.4	NS
1,4-Dichlorobenzene	1.8	1.8	1.8	1.8	20
1,4-Dioxane	0.1 ³	0.1 ³	0.1 ³	0.1 ³	0.1
Acetone	0.05	0.05	0.05	0.05	2.2
Benzene	0.06	0.06	0.06	0.06	70
Butylbenzene	12	12	12	12	NS
Carbon tetrachloride	0.76	0.76	0.76	0.76	NS
Chlorobenzene	1.1	1.1	1.1	1.1	40
Chloroform	0.37	0.37	0.37	0.37	12
Ethylbenzene	1	1	1	1	NS
Hexachlorobenzene	0.33 ³	0.33 ³	1.2	3.2	NS
Methyl ethyl ketone	0.12	0.12	0.12	0.12	100
Methyl tert-butyl ether	0.93	0.93	0.93	0.93	NS
Methylene chloride	0.05	0.05	0.05	0.05	12

Volatile Organic Compounds (continued)					
Propylbenzene-n	3.9	3.9	3.9	3.9	NS
Sec-Butylbenzene	11	11	11	11	NS
Tert-Butylbenzene	5.9	5.9	5.9	5.9	NS
Tetrachloroethene	1.3	1.3	1.3	1.3	2
Toluene	0.7	0.7	0.7	0.7	36
Trichloroethene	0.47	0.47	0.47	0.47	2
Trimethylbenzene-1,2,4	3.6	3.6	3.6	3.6	NS
Trimethylbenzene-1,3,5	8.4	8.4	8.4	8.4	NS
Vinyl chloride	0.02	0.02	0.02	0.02	NS
Xylene (mixed)	0.26	1.6	1.6	1.6	0.26

All concentrations are in parts per million (ppm)

NS = Not Specified

Footnotes:

¹ The SCO for Hexavalent or Trivalent Chromium is considered to be met if the analysis for the total species of this contaminant is below the specific SCO for Hexavalent Chromium.

² The SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

³ For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.

⁴ This SCO is derived from data on mixed isomers of BHC.

TABLE 2
Imported Backfill Soil Quality Objectives
(Shaded Values)

Source: This table is derived from soil cleanup objective (SCO) tables in 6 NYCRR 375. Table 375-6.8(a) is the source for unrestricted use and Table 375-6.8(b) is the source for restricted use.

Note: For constituents not included in this table, refer to the contaminant for supplemental soil cleanup objectives (SSCOs) in the Commissioner Policy on [Soil Cleanup Guidance](#). If an SSCO is not provided for a constituent, contact the DER PM to determine a site-specific level.

Constituent	Unrestricted Use	Residential Use	Restricted Residential Use	Commercial or Industrial Use	If Ecological Resources are Present
Metals					
Arsenic	13	16	16	16	13
Barium	350	350	400	400	433
Beryllium	7.2	14	47	47	10
Cadmium	2.5	2.5	4.3	7.5	4
Chromium, Hexavalent ¹	1 ³	19	19	19	1 ³
Chromium, Trivalent ¹	30	36	180	1500	41
Copper	50	270	270	270	50
Cyanide	27	27	27	27	NS
Lead	63	400	400	450	63
Manganese	1600	2000	2000	2000	1600
Mercury (total)	0.18	0.73	0.73	0.73	0.18
Nickel	30	130	130	130	30
Selenium	3.9	4	4	4	3.9
Silver	2	8.3	8.3	8.3	2
Zinc	109	2200	2480	2480	109
PCBs/Pesticides					
2,4,5-TP Acid (Silvex)	3.8	3.8	3.8	3.8	NS
4,4'-DDE	0.0033 ³	1.8	8.9	17	0.0033 ³
4,4'-DDT	0.0033 ³	1.7	7.9	47	0.0033 ³
4,4'-DDD	0.0033 ³	2.6	13	14	0.0033 ³
Aldrin	0.005	0.019	0.097	0.19	0.14
Alpha-BHC	0.02	0.02	0.02	0.02	0.04 ⁴
Beta-BHC	0.036	0.072	0.09	0.09	0.6
Chlordane (alpha)	0.094	0.91	2.9	2.9	1.3
Delta-BHC	0.04	0.25	0.25	0.25	0.04 ⁴
Dibenzofuran	7	14	59	210	NS
Dieldrin	0.005	0.039	0.1	0.1	0.006
Endosulfan I	2.4 ²	4.8	24	102	NS
Endosulfan II	2.4 ²	4.8	24	102	NS
Endosulfan sulfate	2.4 ²	4.8	24	200	NS
Endrin	0.014	0.06	0.06	0.06	0.014
Heptachlor	0.042	0.38	0.38	0.38	0.14
Lindane	0.1	0.1	0.1	0.1	6
Polychlorinated biphenyls	0.1	1	1	1	1

Constituent	Unrestricted Use	Residential Use	Restricted Residential Use	Commercial or Industrial Use	If Ecological Resources are Present
Semi-volatile Organic Compounds					
Acenaphthene	20	98	98	98	20
Acenaphthylene	100	100	100	107	NS
Anthracene	100	100	100	500	NS
Benzo(a)anthracene	1	1	1	1	NS
Benzo(a)pyrene	1	1	1	1	2.6
Benzo(b)fluoranthene	1	1	1	1.7	NS
Benzo(g,h,i)perylene	100	100	100	500	NS
Benzo(k)fluoranthene	0.8	1	1.7	1.7	NS
Chrysene	1	1	1	1	NS
Dibenz(a,h)anthracene	0.33 ³	0.33 ³	0.33 ³	0.56	NS
Fluoranthene	100	100	100	500	NS
Fluorene	30	100	100	386	30
Indeno(1,2,3-cd)pyrene	0.5	0.5	0.5	5.6	NS
m-Cresol(s)	0.33 ³	0.33 ³	0.33 ³	0.33 ³	NS
Naphthalene	12	12	12	12	NS
o-Cresol(s)	0.33 ³	0.33 ³	0.33 ³	0.33 ³	NS
p-Cresol(s)	0.33	0.33	0.33	0.33	NS
Pentachlorophenol	0.8 ³	0.8 ³	0.8 ³	0.8 ³	0.8 ³
Phenanthrene	100	100	100	500	NS
Phenol	0.33 ³	0.33 ³	0.33 ³	0.33 ³	30
Pyrene	100	100	100	500	NS
Volatile Organic Compounds					
1,1,1-Trichloroethane	0.68	0.68	0.68	0.68	NS
1,1-Dichloroethane	0.27	0.27	0.27	0.27	NS
1,1-Dichloroethene	0.33	0.33	0.33	0.33	NS
1,2-Dichlorobenzene	1.1	1.1	1.1	1.1	NS
1,2-Dichloroethane	0.02	0.02	0.02	0.02	10
1,2-Dichloroethene(cis)	0.25	0.25	0.25	0.25	NS
1,2-Dichloroethene(trans)	0.19	0.19	0.19	0.19	NS
1,3-Dichlorobenzene	2.4	2.4	2.4	2.4	NS
1,4-Dichlorobenzene	1.8	1.8	1.8	1.8	20
1,4-Dioxane	0.1 ³	0.1 ³	0.1 ³	0.1 ³	0.1
Acetone	0.05	0.05	0.05	0.05	2.2
Benzene	0.06	0.06	0.06	0.06	70
Butylbenzene	12	12	12	12	NS
Carbon tetrachloride	0.76	0.76	0.76	0.76	NS
Chlorobenzene	1.1	1.1	1.1	1.1	40
Chloroform	0.37	0.37	0.37	0.37	12
Ethylbenzene	1	1	1	1	NS
Hexachlorobenzene	0.33 ³	0.33 ³	1.2	3.2	NS
Methyl ethyl ketone	0.12	0.12	0.12	0.12	100
Methyl tert-butyl ether	0.93	0.93	0.93	0.93	NS
Methylene chloride	0.05	0.05	0.05	0.05	12

Volatile Organic Compounds (continued)					
Propylbenzene-n	3.9	3.9	3.9	3.9	NS
Sec-Butylbenzene	11	11	11	11	NS
Tert-Butylbenzene	5.9	5.9	5.9	5.9	NS
Tetrachloroethene	1.3	1.3	1.3	1.3	2
Toluene	0.7	0.7	0.7	0.7	36
Trichloroethene	0.47	0.47	0.47	0.47	2
Trimethylbenzene-1,2,4	3.6	3.6	3.6	3.6	NS
Trimethylbenzene-1,3,5	8.4	8.4	8.4	8.4	NS
Vinyl chloride	0.02	0.02	0.02	0.02	NS
Xylene (mixed)	0.26	1.6	1.6	1.6	0.26

All concentrations are in parts per million (ppm)

NS = Not Specified

Footnotes:

¹ The SCO for Hexavalent or Trivalent Chromium is considered to be met if the analysis for the total species of this contaminant is below the specific SCO for Hexavalent Chromium.

² The SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.

³ For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.

⁴ This SCO is derived from data on mixed isomers of BHC.

APPENDIX A
CITIZEN PARTICIPATION PLAN

APPENDIX A

CITIZEN PARTICIPATION PLAN

The NYC Office of Environmental Remediation and 324 West 125th Street, 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, 324 West 125th Street, 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, Katherine Glass, who can be contacted about these issues or any others questions, comments or concerns that arise during the remedial process at 212-676-4925

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 online. Internet access to view OER's document repositories is available at public libraries. 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. The library nearest the Site is:

New York Public Library - Harlem Branch
9 West 124th Street, New York, NY, 10027
(212) 348-5620

Monday:	11:00 AM to 6:00 PM
Tuesday:	12:00 PM to 7:00 PM
Wednesday:	11:00 AM to 6:00 PM
Thursday:	12:00 PM to 7:00 PM
Friday:	10:00 AM to 5:00 PM
Saturday:	10:00 AM to 5:00 PM
Sunday:	Closed

Identify Issues of Public Concern. The major issues of concern to the public will be potential impacts of dust during the disturbance of soil at the Site. This work will be performed in accordance with procedures that will be specified under a Remedial Program and considers and takes preventive measures for exposure to future residents of the property and those on adjacent properties during construction. Detailed plans to monitor the potential for exposure including a CHASP and a CAMP are required components of the remedial program. Implementation of these plans will be under the direct oversight of the OER.

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 324 West 125th Street, LLC., reviewed and approved by OER prior to distribution and mailed by 324 West 125th Street, 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.

APPENDIX B

SUSTAINABILITY STATEMENT

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.

An estimate of the quantity (in tons) of clean, non-virgin materials (reported by type of material) reused under this plan will be quantified and reported in the RAR.

Reduce Consumption of Virgin and Non-Renewable Resources. Reduced consumption of virgin and non-renewable resources lowers the overall environmental impact of the project on the region by conserving these resources.

An estimate of the quantity (in tons) of virgin and non-renewable resources, the use of which will be avoided under this plan, will be quantified and reported in the 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.

Recontamination controls in the selected remedy and development that provide protection against recontamination originating from currently unknown offsite sources include vapor barriers and passive sub-slab depressurization systems that will reduce or eliminate the risk of future migration of soil vapor contamination from offsite.

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.

Storm-water (roof drainage) retention as part of the redevelopment will be accomplished by the installation of an 8,322-gallon concrete detention tank below the basement of the building.

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. 324 West 125th Street, 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. 324 West 125th Street, 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

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 from St. Nicholas Avenue to West 125th Street. No left turn is allowed onto West 125th Street westbound from any street approaching West 125th Street from the south between 7:00 AM and 10:00 AM and between 4:00 PM and 7:00 PM. 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 Manhattan, 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 offsite 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 offsite 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 1. '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.

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. 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 2.

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.

Remedial Action Work Plan
288 St. Nicholas
New York, NY

APPENDIX D

HEALTH AND SAFETY PLAN



Environmental Consulting International, Inc.

Health and Safety Plan

For

Remedial Action Activities

at

324-332 West 125th Street and 288 St. Nicholas Avenue

New York, NY 10027

Block 1951, Lot 43

NYC BCP Number: 15CVCP143M

Prepared for:

324 West 125th Street, LLC.

6701 Bay Parkway, 3rd Floor

Brooklyn, NY 11204

May 22, 2015

ECI131010

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1.0 GENERAL

Environmental Consulting International, Inc. (ECI) has prepared this Health and Safety Plan (HASP) for use during the remedial action activities to be conducted at 324-332 West 125th Street and 288 St. Nicholas Avenue, New York, NY 10027 (“the Site”). Activities conducted under ECI’s direction at the Site will be in compliance with applicable Occupational Safety and Health Administration (OSHA) regulations, particularly those in 29 Code of Federal Regulations (CFR), and other applicable federal, state, and local laws, regulations, and statutes. A copy of this HASP will be kept on-site during scheduled field activities.

This HASP addresses the potential hazards associated with planned field activities at the Site. It presents the minimum health and safety requirements for establishing and maintaining a safe working environment during the course of work. In the event of conflicting requirements, the procedures or practices that provide the highest degree of personnel protection will be implemented. If work plan specifications change or if Site conditions encountered during the course of the work are found to differ substantially from those anticipated, the Corporate Director of Health and Safety must be informed immediately upon discovery, and appropriate changes will be made to this HASP.

It is the Project Manager’s responsibility to ensure that health and safety procedures are enforced at the Site. Project personnel, including contractors and subcontractors, shall receive a copy of this HASP for review and sign the form to indicate acceptance before on-site project activities begin.

ECI’s health and safety programs and procedures, including medical monitoring, respiratory protection, injury and illness prevention, hazard communication, and personal protective equipment (PPE), are incorporated herein and ECI employees will adhere to the procedures specified in the manual.

When specified in contract documents, this HASP may cover the activities of ECI, contractors and subcontractors in the course of planned activities as part of the Phase II Investigation. However, this HASP may not address hazards associated with tasks and equipment that are specialties of the contractors and subcontractor (e.g., operation of a drill rig). Contractors and subcontractors are responsible for developing, maintaining, and implementing their own health and safety programs, policies, and procedures.

ECI is responsible for the safety of its employees and direct subcontractors under its control, but assumes no responsibility for the activities of contractors or their subcontractors who may perform work as part of the planned activities or that may be working concurrently at the general project location. ECI will use a reasonable degree of care when marking potentially hazardous areas within its project work Site and restricting access as appropriate. ECI will not be responsible for others outside its control that disregard such marked hazards or restricted access. This HASP has been prepared specifically for this project and is intended to address health and safety issues solely with respect to ECI’s work. All references, therefore, to the Site, the work, activities, site

personnel, workers, persons, or subcontractors in this HASP are with respect to ECI work only.

2.0 SITE DESCRIPTION AND BACKGROUND

The Site consists of an approximately 8,900 square-foot rectangular-shaped parcel of land and is unoccupied and contains perimeter foundation walls and portions of a basement concrete slab that remain from demolition of the building that previously occupied the Site. Construction debris bracings are located along the northern and western remaining foundation walls in order to provide these walls with lateral support as required by New York City Transit. Construction debris down ramp extends from the southern portion of the western Site boundary to the central portion of the Site, providing access from street level to the remaining basement level. All construction debris used for the bracings and access ramp are remains from the demolition of the building that previously occupied the Site. The frontages of the Site measure approximately 100 feet on the south side of West 125th Street and approximately 90 feet on the east side of St. Nicholas Avenue.

Until 2015, the Site was developed circa 1887 with five (5) 5-story mixed use buildings with basements and a vaulted alley on the southern portion of the Site. Historical use of nearly the entire portion of the first floors and their corresponding basements has always been retail. These retail establishments fronted West 125th Street and included grocery stores, fresh produce stores, a meat market, shoe stores, a gift store, a pharmacy, bakeries, clothing stores, a coffee shop, a furniture store and a video game store. Historical use of the second through fifth floors has always been residential. A small portion of the first floors along the south side sides of the buildings was utilized as a single continuous lobby, providing access to the residential floors from St. Nicholas Avenue. The vaulted alley on the southern portion of the Site extended the entire width of the Site at basement level and housed the buildings boiler. Latest building usage has been similar, mixed-use (residential and retail) and included clothing stores, jewelry stores, and a video game store.

The Site is located in a mixed use area consisting of residential, transportation and commercial properties To the north of the Site is West 125th Street, beyond which are commercial/retail properties. To the east of the Site is a retail complex. To the south of the Site is a retail complex, beyond which is West 124th Street and residential properties with Grace Cleaners, a dry cleaner, located on the ground floor at 270 St. Nicholas Avenue. To the west of the Site is St. Nicholas Avenue with a subway entrance and tunnel below. Beyond St. Nicholas Avenue are a commercial/retail property and a residential property with retail store fronts. Under the Zoning Ordinance of the City of New York, the Site is located in a Commercial District designated as "C4-4D".

The Site is legally designated as Block 1951, Lot 43, Borough of Manhattan, City of New York. The owner of record is 324 West 125th Street LLC. The Site is located on the USGS Central Park, NY-NJ Quadrangle topographic map.

Between April 13 and 17, 2015, ECI performed a Remedial Investigation at the Site, consisting of:

1. A Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installation of 5 soil borings across the entire project Site, and collection of 15 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installation of 3 soil vapor probes throughout the Site and collection of 3 samples for chemical analysis.

Summary of Environmental Findings

1. Elevation of the property ranges from 28 feet at street level to 20 feet at the top of the former basement's concrete slab that was left from the demolition of the building at the Site.
2. Depth to groundwater is approximately 15 feet below the top of the former basement's concrete slab which is 23 feet below street level at the Site.
3. Groundwater flow is generally from north-northwest to south-southeast beneath the Site.
4. Depth to bedrock is over 30 feet at the Site.
5. The stratigraphy of the site, from the surface down, consists of over 30 feet of till underlain by an undetermined thickness of Inwood Marble. Historic fill at the Site entirely overlays the native material and is comprised of primarily sand, silt, gravel, brick fragments, rock fragments and very few coal fragments. It is present below the top of the former basement's concrete slab to depths ranging between 4 feet and 6 feet which are between 12 and 14 feet below street level.
6. Soil/fill samples collected during the RI were compared to NYSDEC Part 375-6 Unrestricted Use (Track 1) and Restricted Commercial Use (Track 2) Soil Cleanup Objectives (SCOs). Soil/fill samples collected during the RI showed no PCBs at detectable concentrations. No VOCs or SVOCs were detected above Track 1 Unrestricted Use SCOs. A trace concentration (0.0024 mg/kg) of tetrachloroethylene (PCE) was detected in one shallow fill sample. Trichloroethylene (TCE), carbon tetrachloride and 1,1,1-Trichloroethane (1,1,1-TCA) were not detected in any of samples. The pesticides 4,4'-DDD (0.0036 mg/Kg), 4,4'-DDE (0.11 mg/Kg) and 4,4'-DDT (0.081 mg/Kg) were detected exceeding Track 1 Unrestricted Use SCO but well below Track 2 Restricted Commercial Use SCOs. Seven metals including chromium (38.6 mg/Kg), copper (965 mg/Kg), lead (247 mg/Kg), mercury (1.07 mg/Kg), nickel (164 mg/Kg), selenium (6.32 Mg/Kg) and zinc (666 mg/Kg) were detected above Track 1 Unrestricted Use SCOs in one shallow fill sample, and of

these, only copper exceeded its Track 2 Restricted Commercial Use SCO. Chromium and nickel were also detected in deeper soil samples. Overall, the findings were consistent with observations for other historic fill sites in NYC and did not indicate a significant source area.

7. Several attempts were made to install groundwater monitoring wells via direct push and subsequently by hollow stem auger, but refusal was encountered at each location and therefore no groundwater sampling was conducted during this investigation.
8. Soil vapor samples collected during the RI were compared to the monitoring and mitigation levels in NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion's decision matrices. Soil vapor samples collected during the RI showed the presence of chlorinated VOCs and petroleum VOCs. 1,1,1-TCA and PCE were identified in two of the three samples at maximum concentrations $110 \mu\text{g}/\text{m}^3$ and $64 \mu\text{g}/\text{m}^3$, respectively, which are above the mitigation/exposure reduction level ranges of NYSDOH soil vapor matrix. Total BTEX were identified in all three soil vapor samples from 3,320 to 6,330 $\mu\text{g}/\text{m}^3$ and total petroleum VOCs were identified in all three soil vapor samples from 7,799 to 10,393 $\mu\text{g}/\text{m}^3$.

3.0 PLANNED SITE ACTIVITIES

Scheduled work will consist of the following activities:

- Site mobilization involving Site security setup, equipment mobilization, utility mark outs and marking & staking excavation areas.
- Excavation and removal of soil/fill exceeding Track 1 Unrestricted Use SCOs.
- Screening of excavated soil/fill during intrusive work for indications of contamination by visual means, odor, and monitoring with a PID.
- Perform a Community Air Monitoring Program for particulates.
- Transportation and offsite disposal of all soil/fill material at permitted facilities in accordance with applicable laws and regulations for handling, transport, and disposal, and this plan. Sampling and analysis of excavated media as required by disposal facilities. Appropriate segregation of excavated media onsite.
- Collection and analysis of end-point samples to determine the performance of the remedy with respect to attainment of SCOs.
- Removal of underground storage tanks and closure of petroleum spills in compliance with applicable local, State and Federal laws and regulations.
- Demarcation of residual soil/fill.
- As part of development, Installation and operation of a passive sub-slab depressurization system.
- As part of development, construction and maintenance of an engineered composite cover consisting of the building basement's concrete slab/foundations and foundation walls with soil vapor barrier/waterproofing membrane beneath the basement concrete slab/foundations and behind foundation walls to prevent human exposure to residual soil/fill remaining under the Site.
- Implementation of storm-water pollution prevention measures in compliance with applicable laws and regulations.

Work is anticipated to begin approximately _____ and may last approximately _____.

4.0 KEY PROJECT PERSONNEL AND RESPONSIBILITIES

Project Manager _____

Site Safety Officer _____

Corporate Director of Health and Safety Nahum Kedem, PG

The responsibilities of key project personnel are outlined below.

4.1 Project Manager

The Project Manager has the ultimate responsibility for the health and safety of ECI personnel at the Site. The Project Manager is responsible for:

- ensuring that project personnel review and understand the requirements of this HASP
- keeping the Corporate Director of Health and Safety informed of project developments
- keeping on-site personnel, including subcontractors, informed of the expected hazards and appropriate protective measures at the Site
- providing resources necessary for maintaining a safe and healthy work environment for ECI personnel

4.2 Corporate Director of Health and Safety

The Corporate Director of Health and Safety is responsible for the review, interpretation, and modification of this HASP. Modifications to this HASP that may result in less stringent precautions cannot be undertaken by the Project Manager or Site Safety Officer (SSO) without the approval of the Corporate Director of Health and Safety. In addition, he has the following responsibilities:

- advising the Project Manager and SSO on matters relating to health and safety on this project
- recommending appropriate safeguards and procedures
- modifying this HASP, when necessary
- approving changes in health and safety procedures employed at the Site

4.3 Site Safety Officer

The SSO is responsible for enforcing the requirements of this HASP once site work begins. The SSO has the authority to immediately correct situations where noncompliance with this HASP is noted and to immediately stop work in cases where an

immediate danger to site workers or the environment is perceived. Responsibilities of the SSO also include:

- obtaining and distributing personal protective equipment (PPE) and air monitoring equipment necessary for this project
- limiting access at the Site to authorized personnel
- communicating unusual or unforeseen conditions at the Site to the Project Manager
- supervising and monitoring the safety performance of site personnel to evaluate the effectiveness of health and safety procedures and correct deficiencies
- conducting daily tailgate safety meetings before each day's activities begin
- conducting a site safety inspection prior to the commencement of each day's field activities

4.4 Subcontractor Personnel

Subcontractor personnel are expected to comply with the minimum requirements specified in this HASP. Failure to do so may result in the removal of the subcontractor or any of the subcontractor's workers from the job site. Subcontractors may employ health and safety procedures that afford them a greater measure of personal protection than those specified in this plan so long as they do not pose additional hazards to themselves, the environment, or others working in the area.

5.0 HAZARDS OF KNOWN OR EXPECTED CHEMICALS OF CONCERN

Between April 13 and 17, 2015, ECI performed a Remedial Investigation at the Site, consisting of:

4. A Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
5. Installation of 5 soil borings across the entire project Site, and collection of 15 soil samples for chemical analysis from the soil borings to evaluate soil quality;
6. Installation of 3 soil vapor probes throughout the Site and collection of 3 samples for chemical analysis.

Summary of Environmental Findings

9. Elevation of the property ranges from 28 feet at street level to 20 feet at the top of the former basement's concrete slab that was left from the demolition of the building at the Site.

10. Depth to groundwater is approximately 15 feet below the top of the former basement's concrete slab which is 23 feet below street level at the Site.
11. Groundwater flow is generally from north-northwest to south-southeast beneath the Site.
12. Depth to bedrock is over 30 feet at the Site.
13. The stratigraphy of the site, from the surface down, consists of over 30 feet of till underlain by an undetermined thickness of Inwood Marble. Historic fill at the Site entirely overlays the native material and is comprised of primarily sand, silt, gravel, brick fragments, rock fragments and very few coal fragments. It is present below the top of the former basement's concrete slab to depths ranging between 4 feet and 6 feet which are between 12 and 14 feet below street level.
14. Soil/fill samples collected during the RI were compared to NYSDEC Part 375-6 Unrestricted Use (Track 1) and Restricted Commercial Use (Track 2) Soil Cleanup Objectives (SCOs). Soil/fill samples collected during the RI showed no PCBs at detectable concentrations. No VOCs or SVOCs were detected above Track 1 Unrestricted Use SCOs. A trace concentration (0.0024 mg/kg) of tetrachloroethylene (PCE) was detected in one shallow fill sample. Trichloroethylene (TCE), carbon tetrachloride and 1,1,1-Trichloroethane (1,1,1-TCA) were not detected in any of samples. The pesticides 4,4'-DDD (0.0036 mg/Kg), 4,4'-DDE (0.11 mg/Kg) and 4,4'-DDT (0.081 mg/Kg) were detected exceeding Track 1 Unrestricted Use SCO but well below Track 2 Restricted Commercial Use SCOs. Seven metals including chromium (38.6 mg/Kg), copper (965 mg/Kg), lead (247 mg/Kg), mercury (1.07 mg/Kg), nickel (164 mg/Kg), selenium (6.32 Mg/Kg) and zinc (666 mg/Kg) were detected above Track 1 Unrestricted Use SCOs in one shallow fill sample, and of these, only copper exceeded its Track 2 Restricted Commercial Use SCO. Chromium and nickel were also detected in deeper soil samples. Overall, the findings were consistent with observations for other historic fill sites in NYC and did not indicate a significant source area.
15. Several attempts were made to install groundwater monitoring wells via direct push and subsequently by hollow stem auger, but refusal was encountered at each location and therefore no groundwater sampling was conducted during this investigation.
16. Soil vapor samples collected during the RI were compared to the monitoring and mitigation levels in NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion's decision matrices. Soil vapor samples collected during the RI showed the presence of chlorinated VOCs and petroleum VOCs. 1,1,1-TCA and PCE were identified in two of the three samples at maximum concentrations 110 $\mu\text{g}/\text{m}^3$ and 64 $\mu\text{g}/\text{m}^3$, respectively, which are above the mitigation/exposure reduction level ranges of NYSDOH soil vapor matrix. Total BTEX were identified in all three soil vapor samples from 3,320 to 6,330 $\mu\text{g}/\text{m}^3$ and total petroleum VOCs were identified in all three soil vapor samples from 7,799 to 10,393 $\mu\text{g}/\text{m}^3$.

Suspected or Known Compounds	Source (soil/groundwater/soil vapor, drum, etc.)	Known Concentration Range (ppm, mg/kg, mg/l)	
		Lowest	Highest
PCE	Soil	BDL*	0.0024 mg/kg
<u>Pesticides</u> 4,4'-DDD 4,4'-DDE 4,4'-DDT	Soil	BDL BDL BDL	0.0036 mg/kg 0.11 mg/kg 0.081 mg/kg
<u>Metals</u> Chromium Copper Lead Mercury Nickel Selenium Zinc	Soil	BDL BDL BDL BDL BDL BDL BDL	38.6 mg/kg 965 mg/kg 247 mg/kg 1.07 mg/kg 164 mg/kg 6.32 mg/kg 666 mg/kg
PCE 1,1,1-TCA	Soil vapor	BDL	64 µg/m ³ 110 µg/m ³
Petroleum Hydrocarbons		7,799 µg/m ³	10,393 µg/m ³

Note*: BDL denotes below laboratory detection limit

Exposure pathways of concern for chemical compounds that may be present at the Site are inhalation of airborne contaminants and direct skin contact with contaminated materials. Wearing protective equipment and following decontamination procedures listed in Section 9 can minimize dermal contact. To minimize inhalation hazards, dust control measures will be implemented, where necessary, and action levels will be observed during scheduled activities. Site-specific action levels are presented in Section 10. Chemical descriptions of chemicals of concern, including health effects and exposure limits, are located in Appendix A.

On-site worker exposure to airborne contaminants will be monitored during intrusive site activities. A calibrated photoionization detector (PID) will be used to monitor changes in exposure to volatile organic compounds (VOCs). If warranted, a miniature real-time aerosol monitor (mini-RAM) will be used to monitor exposure to total dusts. Personnel will perform routine monitoring during site operations to evaluate concentrations of VOCs and/or total dusts in employee breathing zones. If VOCs and/or total dusts are detected above predetermined action levels specified in Section 10, the procedures found in Section 7 of this HASP will be followed.

In accordance with the Hazard Communication standard, material safety data sheets (MSDSs) will be maintained on site for chemical products used by ECI personnel at the Site. In addition, containers will be clearly labeled in English to indicate their contents and appropriate hazard warnings.

6.0 PHYSICAL HAZARDS

The following potential health and safety hazards may be encountered during scheduled activities at the Site:

- slips, trips, and falls
- heavy equipment
- heat stress
- cold stress
- noise
- electrical sources
- underground and overhead utilities
- container handling
- biological hazards
- fire/explosion
- traffic

6.1 General Safe Work Practices

- Workers will thoroughly clean their hands, faces, and other potentially contaminated areas before smoking, eating, or leaving the Site.
- Respiratory devices may not be worn with beards or long sideburns, or under other conditions that prevent a proper seal.
- Accidents and/or injuries associated with work at the Site will be immediately reported to the SSO. If necessary, an incident report will be initiated by the SSO.
- Periodic safety briefings will be held to discuss current site conditions, field tasks being performed, planned modifications, and work concerns.
- Site conditions may include uneven, unstable, or slippery work surfaces. Substantial care and personal observation is required on the part of each employee to prevent injuries from slips, trips, and falls.
- Workers will maintain good housekeeping practices during field activities to maintain a safe working environment. The work site will be kept free of debris, waste, and trash.

- The “buddy system” will be used whenever appropriate.
- To prevent head injury, ANSI-approved hard hats will be worn at all times while the worker is in an area where overhead obstructions or falling objects may be encountered.
- To prevent eye injuries, workers must wear ANSI-approved safety glasses during field activities.

6.1 Heavy Equipment

Equipment, including earth-moving equipment, drill rigs, or other heavy machinery, will be operated in compliance with the manufacturer’s instructions, specifications, and limitations, as well as any applicable regulations. The operator is responsible for inspecting the equipment daily to verify that it is functioning properly and safely.

Operation of equipment at the Site for the activities outlined in Section 3 poses potential physical hazards. The following precautions should be observed whenever heavy equipment is in use:

- PPE, including steel-toed boots, safety glasses, and hard hats, must be worn.
- Personnel must be aware of the location and operation of heavy equipment and take precautions to avoid getting in the way of its operation. Workers must never assume that the equipment operator sees them; eye contact and hand signals should be used to inform the operator of intent.
- Traffic safety vests are required for personnel working near mobile heavy equipment or near high traffic areas.
- Personnel should not walk directly in back of, or to the side of, heavy equipment without the operator’s knowledge.
- Nonessential personnel will be kept out of the work area.

6.2 Heat Stress

Adverse climate conditions, primarily heat, are important considerations in planning and conducting site operations. Heat-related illnesses range from heat fatigue to heat stroke, with heat stroke being the most serious condition. The effects of ambient temperature can cause physical discomfort, loss of efficiency, and personal injury, and can increase the probability of accidents. In particular, protective clothing that decreases the body’s ventilation can be an important factor leading to heat-related illnesses.

To reduce the possibility of heat-related illness, workers should drink plenty of fluids and establish a work schedule that will provide sufficient rest periods for cooling down. Personnel shall maintain an adequate supply of non-caffeinated drinking fluids on site for personal hydration. Workers should be aware of signs and symptoms of heat-related

illnesses, as well as first aid for these conditions. These are summarized in the table below.

Condition	Signs	Symptoms	Response
Heat Rash or Prickly Heat	Red rash on skin.	Intense itching and inflammation.	Increase fluid intake and observe affected worker.
Heat Cramps	Heavy sweating, lack of muscle coordination.	Muscle spasms, and pain in hands, feet, or abdomen.	Increase fluid uptake and rest periods. Closely observe affected worker for more serious symptoms.
Heat Exhaustion	Heavy sweating; pale, cool, moist skin; lack of coordination; fainting.	Weakness, headache, dizziness, nausea.	Remove worker to a cool, shady area. Administer fluids and allow worker to rest until fully recovered. Increase rest periods and closely observe worker for additional signs of heat exhaustion. If symptoms of heat exhaustion recur, treat as above and release worker from the day's activities after he/she has fully recovered.
Heat Stroke	Red, hot, dry skin; disorientation; unconsciousness	Lack of or reduced perspiration; nausea; dizziness and confusion; strong, rapid pulse.	Immediately contact emergency medical services by dialing 911. Remove the victim to a cool, shady location and observe for signs of shock. Attempt to comfort and cool the victim by administering small amounts of cool water (if conscious), loosening clothing, and placing cool compresses at locations where major arteries occur close to the body's surface (neck, underarms, and groin areas). Carefully follow instructions given by emergency medical services until help arrives.

6.3 Cold Stress

Workers performing activities during winter and spring months may encounter extremely cold temperatures, as well as conditions of snow and ice, making activities in the field difficult. Adequate cold weather gear, especially head and foot wear, is required under these conditions. Workers should be aware of signs and symptoms of hypothermia and

frostbite, as well as first aid for these conditions. These are summarized in the table below.

Condition	Signs	Symptoms	Response
Hypothermia	Confusion, slurred speech, slow movement.	Sleepiness, confusion, warm feeling.	Remove subject to warm area, such as truck cab; give warm fluids; warm body core as rapidly as possible; remove outer clothing and wrap torso in blankets with hot water bottle or other heat source. Get medical attention immediately.
Frostbite	Reddish area on skin, frozen skin.	Numbness or lack of feeling on exposed skin.	Place affected extremity in warm, not hot, water, or wrap in warm towels. Get medical attention.

6.4 Noise

Noise may result primarily from the operation of drill rigs and mechanical equipment. The use of heavy equipment may generate noise above the OSHA permissible exposure limit for noise of 90 dBA for an 8-hour time-weighted average. Workers will wear appropriate hearing protection when operating or working near heavy equipment. If loud noise is present or normal conversation becomes difficult, hearing protection in the form of ear plugs, or equivalent, will be required.

6.5 Electric Shock

Electrical equipment to be used during field activities will be suitably grounded and insulated. Ground fault circuit interrupters (GFCI), or equivalent, will be used with electrical equipment to reduce the potential for electrical shock.

Lockout/tagout procedures in accordance with 29 CFR 1910.147 will be conducted before activities begin on or near energized or mechanical equipment that may pose a hazard to site personnel. Workers conducting the operation will positively isolate the piece of equipment, lock/tag the energy source, and verify effectiveness of the isolation. Only employees who perform the lockout/tagout procedure may remove their own tags/locks. Employees will be thoroughly trained before initiating this procedure.

6.6 Underground and Overhead Utilities

The locations of underground pipes, electrical conductors, fuel lines, and water and sewer lines must be determined before soil intrusive work is performed. Lines must be de-

energized, blocked out, or blinded where feasible. Equipment with articulated upright booms or masts shall not be permitted to pass within 20 feet of an overhead utility line while the boom is in the upright position.

6.7 Materials and Equipment Handling Procedures

The movement and handling of equipment and materials on the Site pose a risk to workers in the form of muscle strains and minor injuries. These injuries can be avoided by using safe handling practices, proper lifting techniques, and proper personal safety equipment such as steel-toed boots and sturdy work gloves. Where practical, mechanical devices will be utilized to assist in the movement of equipment and materials. Workers will not attempt to move heavy objects by themselves without using appropriate mechanical aids such as drum dollies or hydraulic lift gates.

6.8 Biological Hazards

Biological hazards that may be encountered at the Site include possible exposure to:

- **Fur-bearing animals.** Animals may potentially carry the rabies virus or ticks that may transmit Lyme disease to humans. Avoid contact. Do not attempt to feed or touch.
- **Poisonous reptiles.** Primarily snakes (rattlesnake, water moccasin, copperhead). Avoid contact and areas that may harbor snake populations including high grass, shrubs, and crevices.
- **Poisonous insects.** Common examples include bees and wasps. Avoid contact with insects and their hives.
- **Spiders.** The black widow and brown recluse spiders are the most venomous. Avoid contact with spiders and areas where they may hide.
- **Poisonous plants.** Common examples include poison ivy and poison oak. Avoid contact. Long-sleeved shirts and pants will allow some protection against inadvertent contact.

If biological hazards are identified at the Site, workers in the area will immediately notify the SSO and other site personnel.

6.9 Fire/Explosion

Site workers should have an increased awareness concerning fire and explosion hazards whenever working with or near flammable materials, especially when performing any activity that may generate sparks, flame, or other source of ignition. Intrinsically safe equipment is required when working in or near environments with the potential for an explosive atmosphere. The SSO will verify facility requirements for a “hot work” permit before activities that may serve as a source of ignition are conducted.

Flammable materials will be kept away from sources of ignition. In the event of fire, work will cease, the area will be evacuated, and the local fire response team will be notified immediately. Only trained, experienced fire fighters should attempt to extinguish substantial fires at the Site. Site personnel should not attempt to fight fires, unless properly trained and equipped to do so. A fully charged ABC dry chemical fire extinguisher will be readily available for use during all scheduled activities at the Site.

6.10 Traffic

Vehicular traffic presents opportunities for serious injury to persons or property. Traffic may consist of street traffic or motor vehicles operated by facility employees or visitors to the Site. Workers and other pedestrians are clearly at risk during periods of heavy traffic. Risk from motor vehicle operations may be minimized by good operating practices and alertness, and care on the part of workers and pedestrians.

Site personnel will wear high-visibility safety vests whenever activities are conducted in areas of heavy traffic. Work vehicles will be arranged to be used as a barrier between site workers and nearby traffic.

7.0 PERSONAL PROTECTIVE EQUIPMENT

The purpose of PPE is to protect employees from hazards and potential hazards they are likely to encounter during site activities. The amount and type of PPE used will be based on the nature of the hazard encountered or anticipated. Respiratory protection will be utilized when an airborne hazard has been identified using real-time air monitoring devices, or as a precautionary measure in areas designated by the Corporate Director of Health and Safety or SSO.

Dermal protection, primarily in the form of chemical-resistant gloves and coveralls, will be worn whenever contact with chemically affected materials (e.g., soil, groundwater, sludge) is anticipated, without regard to the level of respiratory protection required.

ECI personnel will be provided with appropriate personal safety equipment and protective clothing. The SSO is to inform each worker about necessary protection and must provide proper training in the use of the safety equipment. The required PPE to be worn is described below.

7.1 Conditions Requiring Level D Protection

In general, site activities will commence in Level D PPE unless otherwise specified, or if the SSO determines on site that a higher level of PPE is required. Air monitoring will be routinely conducted using real-time air monitoring devices to determine if upgrading to Level C PPE is necessary. Level D PPE will be permitted as long as air monitoring data indicate that airborne concentrations of chemicals of concern are maintained below the site-specific action levels defined in Section 10.

It is important to note that dermal protection is required whenever contact with chemically affected soils or groundwater is anticipated. The following equipment is specified as the minimum PPE required to conduct activities at the Site:

- work shirt and long pants
- ANSI-approved steel-toed boots or safety shoes
- ANSI-approved safety glasses
- ANSI-approved hard hat

Other personal protection readily available for use, if necessary, includes the following:

- outer nitrile gloves and inner nitrile surgical gloves when direct contact with chemically affected soils or groundwater is anticipated (nitrile surgical gloves may be used for collecting or classifying samples as long as they are removed and disposed of immediately after each sampling event)
- chemical-resistant clothing (e.g., Tyvek or polycoated Tyvek coveralls) when contact with chemically affected soils or groundwater is anticipated
- safety shoes/boots with protective overboots or knee-high PVC polyblend boots when direct contact with chemically affected soils is anticipated
- hearing protection
- sturdy work gloves

7.2 Conditions Requiring Level C Protection

If air monitoring indicates that the site-specific action levels defined in Section 10 are exceeded, workers in the affected area(s) will upgrade PPE to Level C. In addition to the protective equipment specified for Level D, Level C also includes the following:

- NIOSH/MSHA-approved half-face air-purifying respirator (APR) equipped with filter cartridges as specified in Section 10.0.
- chemical-resistant clothing (e.g., Tyvek, polycoated Tyvek, or Saranex coveralls) when contact with chemically affected soils or groundwater is anticipated
- outer nitrile gloves and inner nitrile surgical gloves when direct contact with chemically affected soils or groundwater is anticipated (nitrile surgical gloves may be used for collecting or classifying samples as long as they are removed and disposed of immediately after each sampling event)
- safety shoes/boots with protective overboots or knee-high PVC polyblend boots when direct contact with chemically affected soils is anticipated

If air monitoring indicates that the site-specific action levels defined in Section 10 are exceeded, workers in the affected area(s) will upgrade to NIOSH/MSHA-approved full-face APRs in lieu of half-face APRs and safety glasses.

If air monitoring indicates that the site-specific action levels defined in Section 10 are exceeded, activities must cease, and personnel must evacuate the Exclusion Zone (see Section 9). The Project Manager and Corporate Director of Health and Safety will be contacted immediately.

8.0 SAFETY PROCEDURES

Procedures must be followed to maintain site control so that persons who may be unaware of site conditions are not exposed to hazards. The work area will be barricaded by tape, warning signs, or other appropriate means. Pertinent equipment or machinery will be secured and stored safely.

Access inside the specified work area will be limited to authorized personnel. Only ECI employees and designated ECI subcontracted personnel, as well as designated employees of the client, will be admitted to the work site. Only those workers possessing evidence of the required current 40-hour OSHA health and safety training (or current 8-hour refresher) and physician's authorization to conduct hazardous waste activities will be permitted in the work area designated as the Exclusion Zone. The SSO will be responsible for requiring that workers wear proper personal protective clothing. Personnel entering the work area will sign the signature page of this HASP, indicating they have read and accepted the health and safety practices outlined in this plan.

Real-time air monitoring devices will be used to analyze for airborne contaminant concentrations every 30 minutes in the workers' breathing zones while workers are in the Exclusion Zone. If elevated concentrations are indicated, the monitoring frequency will be increased, as appropriate. The equipment will be calibrated daily, and the results will be recorded on ECI's Air Monitoring form or project log book. The results of air monitoring will be recorded on a ECI Air Monitoring Form or project log book and will be retained in the project files following completion of field activities. A copy of the Air Monitoring Form is located in Appendix B.

A daily morning briefing to cover safety procedures and contingency plans in the event of an emergency is to be included with a discussion of the day's activities. These daily meetings will be recorded on ECI Daily Tailgate Safety Meeting Forms. A debriefing to cover the activities is to be held upon completion of the work. A copy of the Daily Tailgate Safety Meeting Form is included in Appendix B.

The SSO will conduct a safety inspection of the work site before each day's activities begin to verify compliance with the requirements of the HASP. Results of the first day's inspection will be documented on an ECI Site Safety Checklist. A copy of the checklist is included in Appendix B.

Minimum emergency equipment maintained on site will include a fully charged 20-pound ABC dry chemical fire extinguisher, an adequately stocked first aid kit, and an emergency eyewash station.

Personnel entering the designated Exclusion Zone should exit at the same location. There must be an alternate exit established for emergency situations. In all instances, worker safety will take precedence over decontamination procedures. If decontamination of personnel is necessary, exiting the Site will include the decontamination procedures described below.

9.0 WORK ZONES AND DECONTAMINATION PROCEDURES

In some instances it may be necessary to define established work zones: an Exclusion Zone, a Contamination Reduction Zone, and a Support Zone. Work zones may be established based on the extent of anticipated contamination, projected work activities, and the presence or absence of non-project personnel. The physical dimensions and applicability of work zones will be determined for each area based on the nature of job activity and hazards present. Within these zones, prescribed operations will occur using appropriate PPE. Movement between zones will be controlled at checkpoints.

Considerable judgment is needed to determine a safe working area for each zone, balanced against practical work considerations. Physical and topographical barriers may constrain ideal locations. Field measurements combined with climatic conditions may, in part, determine the control zone distances. Even when work is performed in an area that does not require the use of chemical-resistant clothing, work zone procedures may still be necessary to limit the movement of personnel and retain adequate site control.

Despite protective procedures, personnel may come in contact with potentially hazardous compounds while performing work tasks. If so, decontamination needs to take place using an Alconox or TSP wash, followed by a rinse with clean water. Standard decontamination procedures for levels C and D are as follows:

- equipment drop
- boot cover and outer glove wash and rinse
- boot cover and outer glove removal
- suit wash and rinse
- suit removal
- safety boot wash and rinse
- inner glove wash and rinse
- respirator removal
- inner glove removal
- field wash of hands and face

Workers should employ only applicable steps in accordance with level of PPE worn and extent of contamination present. The SSO shall maintain adequate quantities of clean water to be used for personal decontamination (i.e., field wash of hands and face)

whenever a suitable washing facility is not located in the immediate vicinity of the work area. Disposable items will be disposed of in an appropriate container. Wash and rinse water generated from decontamination activities will be handled and disposed of properly. Nondisposable items may need to be sanitized before reuse. Each Site worker is responsible for the maintenance, decontamination, and sanitizing of their own PPE.

Used equipment may be decontaminated as follows:

- An Alconox or TSP and water solution will be used to wash the equipment.
- The equipment will then be rinsed with clean water.

Each person must follow these procedures to reduce the potential for transferring chemically affected materials off site.

10.0 ACTION LEVELS

The following action levels were developed for exposure monitoring with real-time air monitoring instruments. The air monitoring data will determine required PPE levels at the Site during scheduled intrusive activities. The action levels are based on sustained readings indicated by the instrument(s). Air monitoring will be performed and recorded at up to 30-minute intervals. If elevated concentrations are indicated, the monitoring frequency will be increased, as appropriate. If during this time, sustained measurements are observed, the following actions will be instituted, and the Project Manager and Director of Health and Safety will be notified. For purposes of this HASP, sustained readings are defined as the average airborne concentration maintained for a period of 5 minutes.

Activity	Action Level	Level of Respiratory Protection
Excavation	0 to 5 ppm above background 0 to 0.5 mg/m ³ above background	Level D: No respiratory protection required.
	6 to 50 ppm 0.6 to 5.0 mg/m ³	Level C: Half-face air-purifying respirator fitted with organic vapor/HEPA filter cartridges.
	51 to 100 ppm 5.1 to 10 mg/m ³	Level C: Full-face air-purifying respirator fitted with organic vapor/HEPA filter cartridges.
	> 100 ppm >10 mg/m ³	Cease operations and evacuate work area. Contact Corporate Director of Health and Safety and Project Manager immediately.

11.0 CONTINGENCY PROCEDURES

In the event of an emergency, site personnel will signal distress with three blasts of a horn (a vehicle horn will be sufficient). Communication signals, such as hand signals, must be established where communication equipment is not feasible or in areas of loud noise.

It is the SSO's duty to evaluate the seriousness of the situation and to notify appropriate authorities. Section 12 of this plan contains emergency telephone numbers as well as directions to the hospital. Nearby telephone access must be identified and available to communicate with local authorities. If a nearby telephone is not available, a cellular telephone will be maintained on site during work activities.

Personnel should dial 911 in the event of an emergency.

11.1 Injury/Illness

If an exposure or injury occurs, work will be temporarily halted until an assessment can be made of whether it is safe to continue work. The SSO, in consultation with the Corporate Director of Health and Safety, will make the decision regarding the safety of continuing work. The SSO will conduct an investigation to determine the cause of the incident and steps to be taken to prevent recurrence.

In the event of an injury, the extent and nature of the victim's injuries will be assessed and first aid will be rendered as appropriate. If necessary, the individual may be transported to the nearby medical center. The mode of transportation and the eventual destination will be based on the nature and extent of the injury. A hospital route map is presented in Appendix C. In the event of a life-threatening emergency, the injured person will be given immediate first aid and emergency medical services will be contacted by dialing 911. The individual rendering first aid will follow directions given by emergency medical personnel via telephone. A person certified in first aid/CPR techniques will be present during field activities.

11.2 Fire

In the event of fire, personnel should contact the local fire department immediately by dialing 911. When representatives of the fire department arrive, the SSO, or designated representative, will advise the commanding officer of the location, nature, and identification of hazardous materials on site. Only trained, experienced fire fighters should attempt to extinguish substantial fires at the Site. Site personnel should not attempt to fight fires, unless properly trained and equipped to do so.

11.3 Underground Utilities

In the event that an underground conduit is damaged during excavation, mechanized equipment will immediately be shut off until the nature of the piping can be determined. Depending on the nature of the broken conduit (e.g., natural gas, water, or electricity), the appropriate local utility will be contacted.

11.4 Evacuation

The SSO will designate evacuation routes and refuge areas to be used in the event of an emergency. Site personnel will stay upwind from vapors or smoke and upgradient from spills. If workers are in an Exclusion or Contamination Reduction Zone at the start of an emergency, they should exit through the established decontamination areas whenever possible. If evacuation cannot be done through an established decontamination area, site personnel will go to the nearest safe location and remove contaminated clothing there or, if possible, leave it near the Exclusion Zone. Personnel will assemble at the predetermined refuge following evacuation and decontamination. The SSO, or designated representative, will count and identify Site personnel to verify that all have been evacuated safely.

11.5 Hazardous Material Spill

If a hazardous material spill occurs, site personnel should locate the source of the spill and determine the hazard to the health and safety of site workers and the public. Attempt to stop or reduce the flow if it can be done without risk to personnel. Isolate the spill area and do not allow entry by unauthorized personnel. De-energize sources of ignition within 100 feet of the spill, including vehicle engines. Should a spill be of the nature or extent that it cannot be safely contained, or poses an imminent threat to human health or the environment, an emergency cleanup contractor will be called out as soon as possible. Spill containment measures listed below are examples of responses to spills.

- Upright or rotate containers to stop the flow of liquids. This step may be accomplished as soon as the spill or leak occurs, providing it is safe to do so.
- Sorbent pads, booms, or adjacent soil may be used to dike or berm materials, subject to flow, and to solidify liquids.
- Sorbent pads, soil, or booms, if used, shall be placed in appropriate containers after use, pending disposal.
- Contaminated tools and equipment shall be collected for subsequent cleaning or disposal.

12.0 EMERGENCY CONTACTS

Ambulance:	911
Police:	911
Fire Department:	911
Hospital:	911
National Response Center:	(800) 424-8802
Poison Control Center:	(800) 222-1222
TOXLINE:	(301) 496-1131
CHEMTREC:	(800) 424-9300
ECI Director of Health and Safety:	(914) 588-4747
Nearby Hospital:	(212) 939-1000

Harlem Hospital Center
 506 Lenox Ave
 New York, NY 10037

DIRECTIONS TO HOSPITAL:

○ 324 W 125th St

New York, NY 10027

- ↑ 1. Head southeast on W 125th St/Dr Martin Luther King Jr Blvd toward Frederick Douglass Blvd 0.2 mi
- ↩ 2. Take the 2nd left onto Adam Clayton Powell Jr Blvd 0.4 mi
- ↪ 3. Turn right onto W 134th St 0.2 mi
- ↩ 4. Turn left onto Lenox Ave 0.1 mi
i Destination will be on the right

⊙ Harlem Hospital Center

506 Lenox Ave, New York, NY 10037

A hospital route map is presented in Appendix C.

13.0 ENVIRONMENTAL CONSULTING INTERNATIONAL, INC. APPROVALS

This HASP has been prepared for the following project:

324-332 West 125th Street and 288 St. Nicholas Avenue
New York, NY 10027

Environmental Consulting International, Inc. Project Number: ECI131010

This HASP has been reviewed and approved by the following Environmental Consulting International, Inc. personnel:

	Date
Site Safety Officer	
Project Manager	Date
	May 22, 2015
Nahum Kedem, PG Corporate Director of Health and Safety	Date

APPENDIX A

CHEMICAL DESCRIPTIONS

CHEMICAL DESCRIPTIONS

The following chemical descriptions are presented for chemicals that may be present at the Site. Each chemical description includes physical and odor recognition characteristics, health effects associated with exposure, and exposure limits. Exposure limits include: OSHA permissible exposure limits (PELs) that are time-weighted average (TWA) concentrations measured over an 8-hour work shift of a 40-hour work week (29 CFR 1910.1000), OSHA short-term exposure limit (STEL) that are measured over a 15-minute period or at a ceiling (c), and NIOSH immediately dangerous to life or health concentrations (IDLHs).

Compound	Physical - Odor	Exposure Routes	Symptoms	Target Organs	OSHA PEL	OSHA STEL	IDLH
Petroleum Hydrocarbons	Colorless to various colors (may be dyed red, light green, yellow) liquid	Skin absorption, skin and/or eye contact, inhalation, ingestion.	Slightly irritating to the eyes. Prolonged or repeated contact can defat the skin and lead to irritation and/or dermatitis. May cause respiratory tract irritation. Inhalation causes headaches, dizziness, drowsiness and nausea and may lead to unconsciousness.	Eyes, skin, respiratory system,	50 mg/m ³	N/A	N/A
Tetrachloroethene (PCE)	Colorless liquid with a mild, chloroform-like odor.	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]	Eyes, skin, respiratory system, liver, kidneys, central nervous system	100 ppm	C 200 ppm	150 ppm
1,1,1-Trichloroethane (1,1,1-TCA)	Colorless liquid with a mild, chloroform-like odor.	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage	Eyes, skin, central nervous system, cardiovascular system, liver	350 ppm	N/A	700 ppm
4,4'-DDD, 4,4'-DDE, 4,4'-DDT	Colorless crystals or off-white powder with a slight, aromatic odor. [pesticide]	Inhalation, absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise, headache, lassitude; convulsions; paresis hands; vomiting; [potential occupational carcinogen]	Eyes, skin, central nervous system, kidneys, liver, peripheral nervous system	0.5 mg/m ³	N/A	500 mg/m ³

Compound	Physical - Odor	Exposure Routes	Symptoms	Target Organs	OSHA PEL	OSHA STEL	IDLH
Chromium	Blue-white to steel-gray, lustrous, brittle, hard, odorless solid.	Inhalation, ingestion, skin and/or eye contact, ingestion	Irritation eyes, skin; lung fibrosis (histologic)	Eyes, skin, respiratory system	0.5 mg/m ³	N/A	250 mg/m ³
Copper	Reddish, lustrous, malleable, odorless solid.	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, nose, pharynx; nasal septum perforation; metallic taste; Dermatitis	Eyes, skin, respiratory system, liver, kidneys (increased risk with Wilson's disease)	1 mg/m ³	N/A	100 mg/m ³
Lead	A heavy, ductile, soft, gray solid.	inhalation, ingestion, skin and/or eye contact	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	Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue	.050 mg/m ³	N/A	100 mg/m ³
Selenium	Amorphous or crystalline, red to gray solid	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat; visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin burns; in animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage	Eyes, skin, respiratory system, liver, kidneys, blood, spleen	0.2 mg/m ³	N/A	1 mg/m ³
Mercury	Metal: Silver-white, heavy, odorless liquid.	Inhalation, skin absorption, ingestion, skin and/or eye contact	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	Eyes, skin, respiratory system, central nervous system, kidneys	0.1 mg/m ³	N/A	10 mg/m ³

Compound	Physical - Odor	Exposure Routes	Symptoms	Target Organs	OSHA PEL	OSHA STEL	IDLH
Zinc	White, odorless solid.	Inhalation	Metal fume fever: chills, muscle ache, nausea, fever, dry throat, cough; lassitude (weakness, exhaustion); metallic taste; headache; blurred vision; low back pain; vomiting; malaise (vague feeling of discomfort); chest tightness; dyspnea (breathing difficulty), rales, decreased pulmonary function	Respiratory system	5 mg/m ³	N/A	500 mg/m ³

APPENDIX B

ENVIRONMENTAL CONSULTING INTERNATIONAL, INC. FORMS



Project Name _____ ECI Project No. _____

Project Activities _____

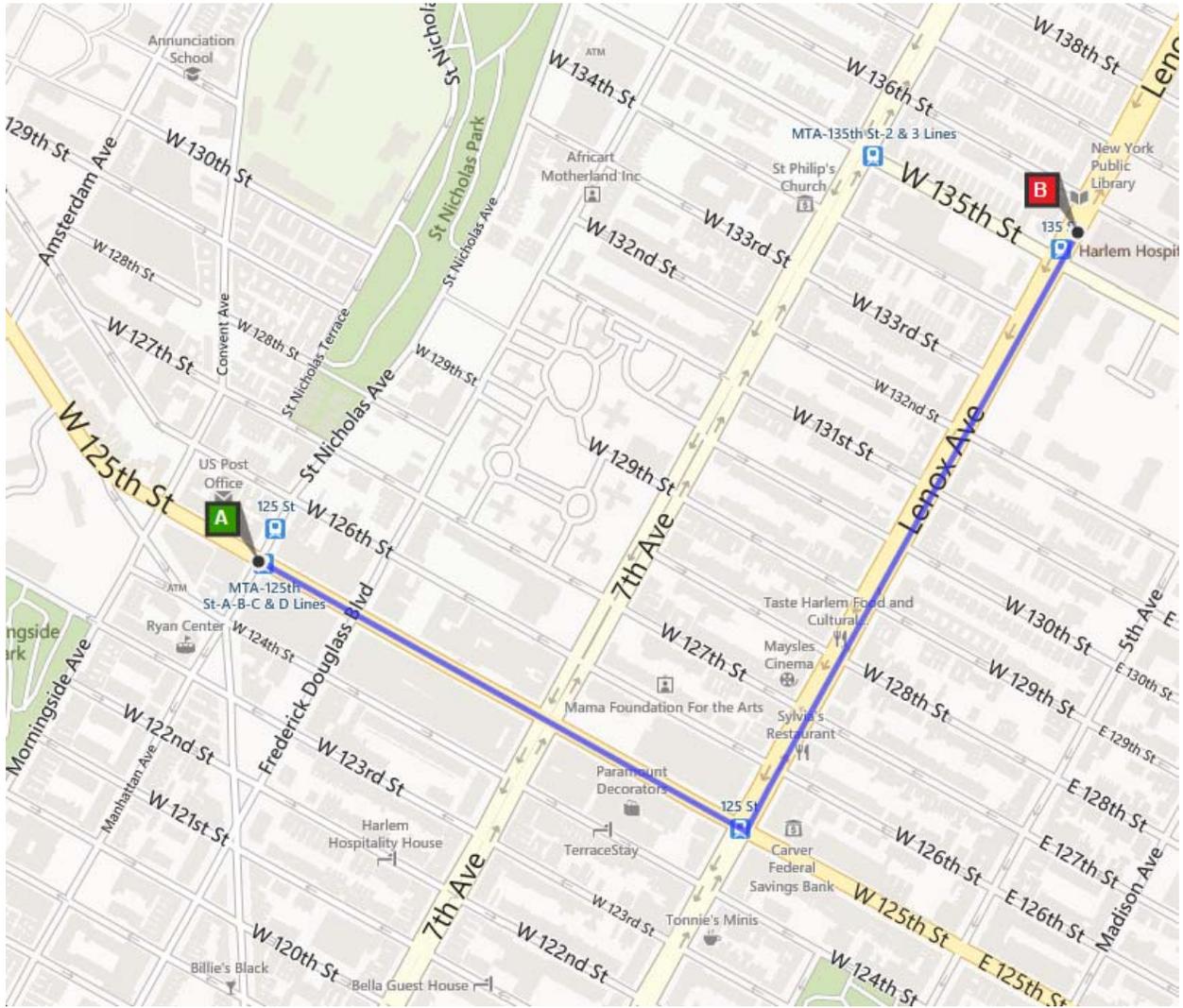
	YES	NO	N/A
<i>Written Health and Safety Plan (HASP) is on site</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Addenda to the HASP are documented on site</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Information in the HASP matches conditions and activities at the site</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>HASP has been read and signed by all site personnel, including visitors</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Daily tailgate safety meetings have been held and documented</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Site personnel have appropriate training and medical clearance</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Air monitoring is performed and documented as described in the HASP</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Air monitoring equipment has been calibrated daily</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Site zones are set up and observed where appropriate</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Access to the work area limited to authorized personnel</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Decontamination procedures are followed and match the requirements of the HASP</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Decontamination stations (including hand/face wash) are set up and used</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Personal protective equipment used matches HASP requirements</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Hearing protection used where appropriate</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Respirators are properly cleaned and stored</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Trenches and excavations are in compliance with federal, state, and local safety requirements before worker entry</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Spoils are placed no closer than 2 feet from the edge of an excavation</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Emergency and first aid equipment is on site as described in the HASP</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Drinking water is readily available</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Accessible phone is readily available for emergency use</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Proper drum and material handling techniques are used</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Drums and waste containers are labeled appropriately</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Extension cords are grounded and protected from water and vehicle traffic</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Ground-fault circuit interrupters (GFCI) are used with electrical equipment</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Tools and equipment are in good working order</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Lighting is adequate</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Compressed gas cylinders are upright and secured</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Notes (All "no" answers must be addressed and corrected immediately. Note additional health and safety observations here): _____

Conducted By: _____ Signature: _____ Date: _____

APPENDIX C

HOSPITAL ROUTE MAP



Site



Hospital

APPENDIX E

PROPOSED DEVELOPMENT PLANS



ELEVATION VIEW OF NORTH FACADE ON WEST 125TH STREET SCALE: N.T.S.



ELEVATION VIEW OF WEST FACADE ON ST. NICHOLAS AVENUE SCALE: N.T.S.



ZONING ANALYSIS

ARTICLE III. COMMERCIAL DISTRICT REGULATION

CHAPTER 2. USE REGULATIONS

ZR 32-00 GENERAL PROVISIONS

USE GROUPS PERMITTED IN COMMERCIAL DISTRICTS

USE GROUPS	USE GROUPS
C4-GENERAL COMMERCIAL DISTRICT	1,2,3,4,5,6,8,9,10,12
PROPOSED USE GROUPS IN BUILDING:	6

ZR 32-10 USES PERMITTED AS OF RIGHT

ZR 32-15 USE GROUP 6: C4

CHAPTER 3. BULK REGULATIONS FOR COMMERCIAL OR COMMUNITY FACILITY BUILDINGS IN COMMERCIAL DISTRICTS

ZR 33-03 STREET TREE PLANTING IN COMMERCIAL DISTRICTS: C4

ZR 26-41 STREET TREE PLANTING: C4

STREET FRONTAGE: 104.83/25'-0" = 7.6 = 8 TREES REQUIRED
 NUMBER OF EXISTING TREES = 1
 NUMBER OF TREES TO BE PRESERVED = 1
 NUMBER OF NEW TREES TO BE PLANTED AT AN ALTERNATE LOCATION = 7

ZR 33-10 FLOOR AREA REGULATIONS

ZR 33-12 MAXIMUM FLOOR AREA RATIO: C4

ZR 33-122 COMMERCIAL BUILDINGS IN ALL OTHER COMMERCIAL DISTRICTS

DISTRICT	MAX. F.A.R. COMMERCIAL
C4-4D	4.0
SPECIAL 125TH STREET DISTRICT INCREASE	*3.40
	*4.0

*SEE ARTICLE IX. SPECIAL PURPOSE DISTRICTS CHAPTER 7. SPECIAL 125TH ST DISTRICT THIS DOCUMENT FOR MAX F.A.R. ADJUSTMENTS: AS PER ZR 47-411

TOTAL PERMITTED ZONING FLOOR AREA: C4-4D = [8,893 SF X 4.0] = 35,492 SF
 TOTAL PROVIDED ZONING FLOOR AREA: *22,436 SF

*SEE FLOOR PLANS FOR CALCULATIONS

ZR 33-20 YARD REGULATIONS

ZR 33-23 PERMITTED OBSTRUCTIONS IN REQUIRED YARDS OR REAR YARD EQUIVALENT

ZR 33-25 MINIMUM REQUIRED SIDE YARDS: C4

NO SIDE YARD IS REQUIRED

ZR 33-26 MAXIMUM REQUIRED REAR YARDS: C4

A REQUIRED REAR YARD OF NOT LESS THAN 20'-0" SHALL BE PROVIDED.

ZR 33-30 OTHER SPECIAL PROVISIONS FOR REAR YARDS: C4

ZR 33-301 WITHIN ONE HUNDRED FEET OF CORNERS: C4

IN ALL DISTRICTS, AS INDICATED, NO REAR YARD SHALL BE REQUIRED WITHIN 100 FEET OF THE POINT OF INTERSECTION OF TWO STREET LINES INTERSECTING AT AN ANGLE OF 135 DEGREES OR LESS.

THE ZONING LOT IS 100'-0" EAST OF THE POINT OF INTERSECTION OF THE TWO STREET LINES AT THE REQUIRED REAR YARD.

84'-10" SOUTH OF THE POINT OF INTERSECTION OF THE TWO STREET LINES AT THE REQUIRED REAR YARD, THEREFORE, NO REAR YARD IS REQUIRED.

ZR 33-40 HEIGHT AND SETBACK REGULATIONS: C4

ZR 33-42 PERMITTED OBSTRUCTIONS

AWNINGS AND OTHER SUN CONTROL DEVICES, PROVIDED THAT WHEN LOCATED AT A LEVEL HIGHER THAN THE FIRST STORY, EXCLUDING A BASEMENT, ALL SUCH SUN CONTROL DEVICES:

ALL BUILDING AWNINGS ARE LOCATED BELOW THE FIRST STORY; THEREFORE, OUR BUILDING MEETS THE EXCEPTION.

SEE ELEVATIONS FOR ADDITIONAL INFORMATION.

ZR 33-43 MAXIMUM HEIGHT OF WALLS AND REQUIRED SETBACK: C4-4

ZR 33-432 IN OTHER COMMERCIAL DISTRICTS

NARROW STREET:	20
WIDE STREET:	15
HT. ABOVE STREET LINE:	60
SKY EXPOSURE PLANE:	
WIDE STREET:	2.7 TO 1
NARROW STREET:	5.6 TO 1

WEST 125TH STREET- WIDE STREET
 ST. NICHOLAS AVENUE- WIDE STREET

SEE ELEVATIONS AND ZDI FOR ADDITIONAL INFORMATION

CHAPTER 6. ACCESSORY OFF-STREET PARKING AND LOADING REGULATIONS

OFF-STREET PARKING REGULATIONS

ZR 36-20 REQUIRED ACCESSORY OFF-STREET PARKING SPACES FOR COMMERCIAL OR COMMUNITY FACILITY USES

GENERAL RETAIL OR SERVICE USES, FOOD STORES LESS THAN 2,000 SF OF FLOOR AREA, USES IN PRG-B IN USE GROUP 6,8,9,10 OR 12 WHEN PERMITTED BY SPECIAL PERMIT, OR USES IN PRG-B1 IN USE GROUP 6,7,8,9,10,11,13,14 OR 16

*C4-4D	1 PER 1,000 SF
*C4-4D	0 PARKING SPACES REQUIRED

*SEE ARTICLE IX. SPECIAL PURPOSE DISTRICTS CHAPTER 7. SPECIAL 125TH ST DISTRICT THIS DOCUMENT FOR PARKING ADJUSTMENTS: AS PER ZR 47-52

ZR 36-58 PARKING LOT MANEUVERABILITY AND CURB CUT REGULATIONS

NO CURB CUT REQUIRED

ZR 36-60 GENERAL PURPOSES

ZR 36-62 REQUIRED OFF-STREET LOADING BERTHS FOR DEVELOPMENTS, ENLARGEMENTS OR CHANGE OF USE: C4

ALL RETAIL OR SERVICE USES LISTED IN USE GROUP 6A, 6C, 7B, 8B, 9A, 9B, 10A, 12B, 14A OR 16A

FIRST 25,000 SF OF FLOOR AREA-	NONE
NEXT 15,000 SF OF FLOOR AREA-	1 REQUIRED BERTH
NEXT 60,000 SF OF FLOOR AREA-	1 REQUIRED BERTH
EACH ADD. 150,000 SF OF FLOOR AREA-	1 REQUIRED BERTH

22,436 SF TOTAL BLDG. SF < 25,000 SF NONE REQUIRED

NO LOADING BERTHS ARE REQUIRED FOR THIS BUILDING

ZR 36-70 BICYCLE PARKING

ZR 36-71 REQUIRED BICYCLE PARKING SPACES

ZR 36-711 ENCLOSED BICYCLE PARKING SPACES: C4

COMMERCIAL USE	REQUIRED
GENERAL RETAIL OR SERVICE USE,	1 PER 10,000 SF

22,436 TOTAL BLDG. SF / 10,000 SF = 2.24
 3 BICYCLE SPACES ARE REQUIRED
 3 BICYCLE SPACES ARE PROVIDED
 3(1557) = 45 SF REQUIRED
 *SEE DRAWINGS Z101 FOR LOCATION

ARTICLE IX. SPECIAL PURPOSE DISTRICT

CHAPTER 7. SPECIAL 125TH STREET DISTRICT

ZR 47-10 SPECIAL USE AND LOCATION REGULATIONS

ZR 47-11 SPECIAL ARTS AND ENTERTAINMENT USES

ZR 47-12 ARTS AND ENTERTAINMENT USE REQUIREMENT

THE PROPOSED DEVELOPMENT AS PER THIS ZR 47-12 DOES NOT REQUIRE AN ARTS AND ENTERTAINMENT USE SINCE THE PROPOSED BUILDING IS OUTSIDE THE CORE-SUB-DISTRICT AS PER MAP 1 IN APPENDIX A OF THIS CHAPTER.

ZR 47-22 USES NOT PERMITTED ON THE GROUND FLOOR OF BUILDINGS

THE GROUND FLOOR OF THE PROPOSED DEVELOPMENT WILL MEET THE RESTRICTED USES AS REQUIRED BY THIS SECTION.

ZR 47-221 ACCESS TO NON-GROUND FLOOR USES

DOES NOT APPLY TO THE PROPOSED BUILDING.

ZR 47-23 TRANSPARENCY REQUIREMENTS

THE PROPOSED DEVELOPMENT IS DESIGNED TO MEET 70% OF GROUND FLOOR GLAZING UP TO A HEIGHT OF 12'-0". IT WILL MEET THE DESIGNATED REQUIREMENTS OF 50% TRANSPARENT AND 20% TRANSLUCENT.

125TH STREET FACADE:	1,200 SF(10%) = 840 REQUIRED
	750 SF PROVIDED TRANSPARENT
	41% TRANSPARENT-MIN. 50%
	46 SF PROVIDED TRANSLUCENT
	43% TRANSLUCENT-MAX 20%
	*854 SF PROVIDED

*SEE DRAWINGS Z201 FOR ADDITIONAL INFORMATION

ZR 47-24 SECURITY GATES

ALL TENANTS USING SECURITY GATES WILL PROVIDE SECURITY GATES THAT PROVIDE 75% VISIBILITY WHEN CLOSED.

ZR 47-40 SPECIAL BULK REGULATIONS

THE BELOW LISTED BULK REGULATIONS SUPERCEDE THE BULK REGULATIONS INDICATED IN CHAPTER 3 ZR 33-10

ZR 47-41 FLOOR AREA REGULATIONS

ZR 47-411 MAXIMUM FLOOR AREA RATIO: C4-4D

DISTRICT	MAX. F.A.R. COMMERCIAL
C4-4D	4.0

TOTAL PERMITTED ZONING FLOOR AREA: C4-4D = [8,893 SF X 4.0] = 35,492 SF
 TOTAL PROVIDED ZONING FLOOR AREA: *22,436 SF

*SEE FLOOR PLANS FOR CALCULATIONS

ZR 47-443 STREET WALL LOCATION

THE DEVELOPMENT AS CURRENTLY DESIGNED FOR THE EGRESS STAIR WILL PROVIDE A 2'-6" RECESS AND CURRENTLY MEETS EXCEPTION (C) ALLOWING FOR A 3' RECESS.

*FOR ADDITIONAL INFORMATION SEE DWG. Z101

ZR 47-52 REQUIRED ACCESSORY OFF-STREET COMMERCIAL PARKING

THIS PORTION OF THE ZONING TEXT ALLOWS THE ELIMINATION OF THE PARKING REQUIREMENT AS SET FORTH IN ZR 36-20.

THEREFORE, THE PROPOSED DEVELOPMENT AS IT SITS IN THE C4-4D DOES NOT REQUIRE ANY OFF-STREET PARKING.

ZONING INFORMATION

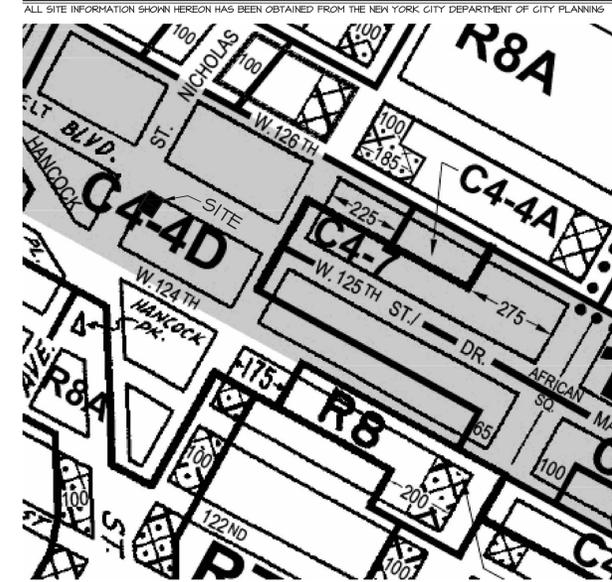
ALL CONSTRUCTION TO COMPLY WITH THE ZONING RESOLUTION OF THE CITY OF NEW YORK DATED 03.11.14

APPLICABLE ZONING RESOLUTION: 07.01.14 ARTICLES I-XIII & APPENDICES

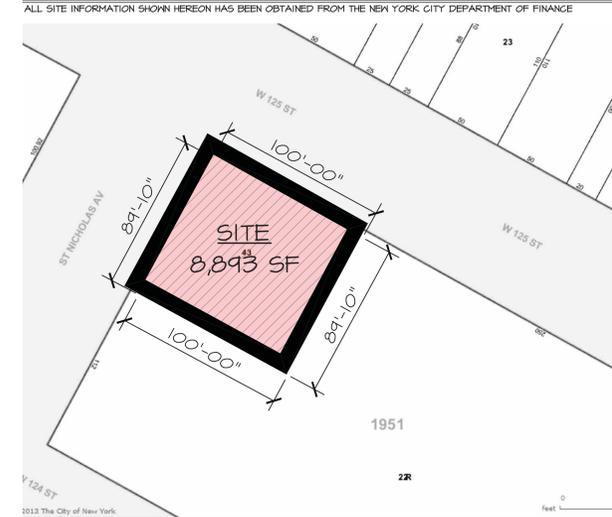
PARCEL INFORMATION:

BLOCK: 1951
 LOT: 43
 ZONING DISTRICT: C4-4D (SPECIAL 125TH STREET DISTRICT) [OUTSIDE CORE SUB-DISTRICT]
 LOT AREA: 8,893 SF
 COMMUNITY BOARD: 110
 ZONING MAP: 6A

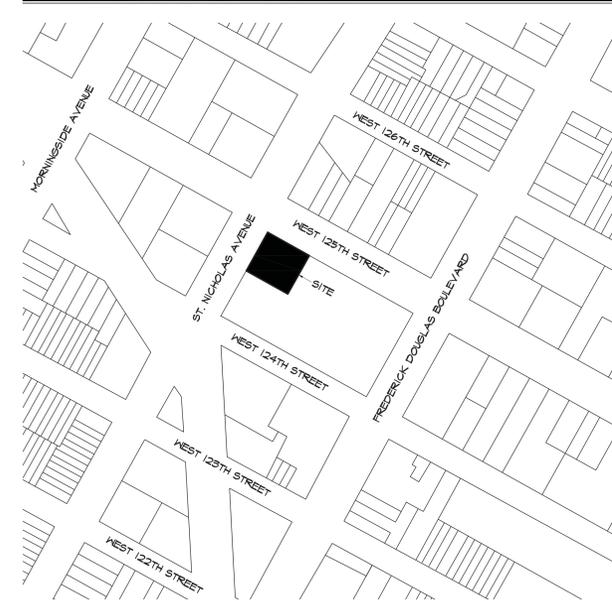
ZONING MAP



TAX MAP



LOCATION PLAN



GAMBITO + LAPORTA ARCHITECTURE, D.P.C.
 1298 RICHMOND ROAD STATION ISLAND, NY 10304
 PHONE: 718.667.6682 FAX: 718.667.1196 | EMAIL: STUDIO@GAMBITO-ARCH.COM
 WWW.GAMBITO-ARCH.COM

PROJECT NO.	18JL14
DATE	08/14/14
SCALE	N.T.S.
DESIGNER	T.J.L.
DATE	08/14/14
SCALE	N.T.S.
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SCALE	N.T.S.
PROJECT NO.	18



GAMBINO + LAPORTA
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 PHONE: 718.667.6682 FAX: 718.667.1196 | EMAIL: STUDIO@G-L-A.COM

W . W . W . G . L . A . R . C . H . C . O . M

F.A.R. CALCULATIONS

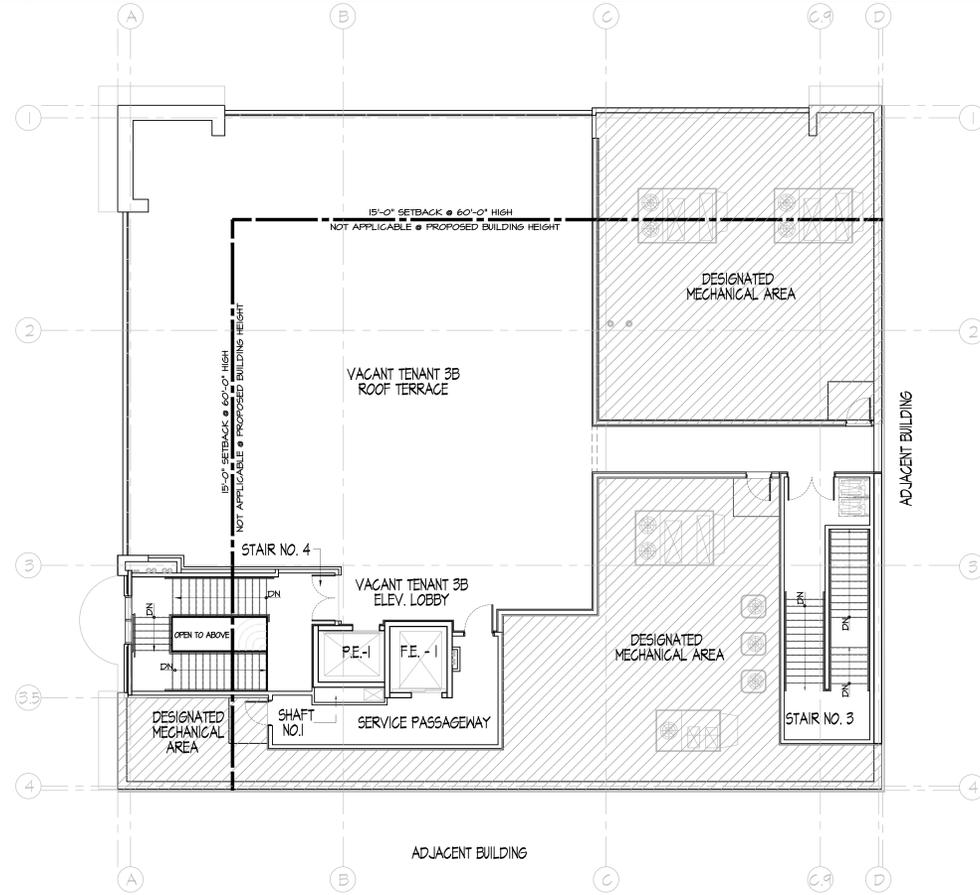
ZONE	LOT AREA	ALLOWABLE
C4-4D	8,983 SF [4.0]	35,932 SF

AREA CALCULATIONS

FLOOR	USE GROUP	GROSS AREA	F.A.R.
CELLAR FLOOR	6	8,983 SF	0 SF
FIRST FLOOR	6	8,900 SF	8,900 SF
SECOND FLOOR	6	8,880 SF	8,554 SF
ROOF TERRACE	6	8,868 SF	5,484 SF
TOTAL		35,631 SF	22,938 SF

- NOTES:**
- CELLAR FLOOR AREA DOES NOT CONTRIBUTE TO F.A.R. AS PER ZR 12-10 FLOOR AREA (I)
 - VACANT TENANT DESIGNATION PER BUILDINGS BULLETIN 2010-013
 - SEE ZDI FOR ADDITIONAL INFORMATION

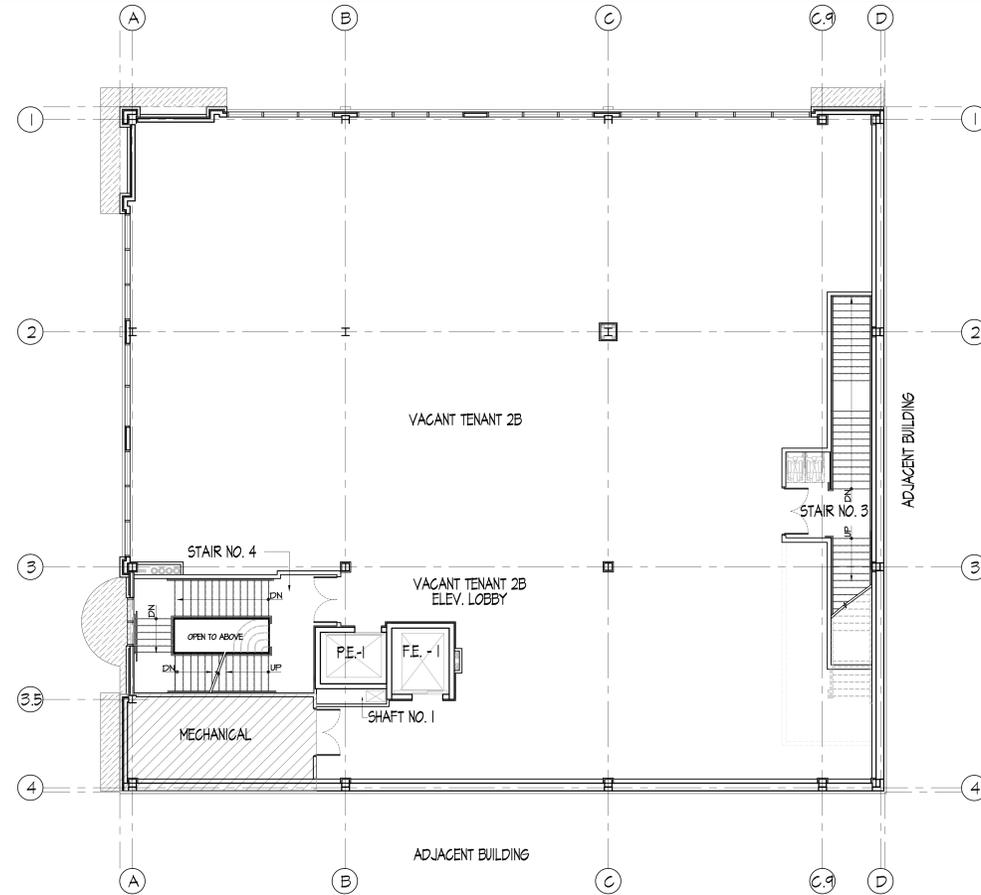
LEGEND



ROOF TERRACE PLAN

GROSS FLOOR AREA: 8,868 SF
 NON CONTRIBUTING TO F.A.R.: 3,384 SF
 COMMERCIAL F.A.R.: 5,484 SF
 USE GROUP: 6

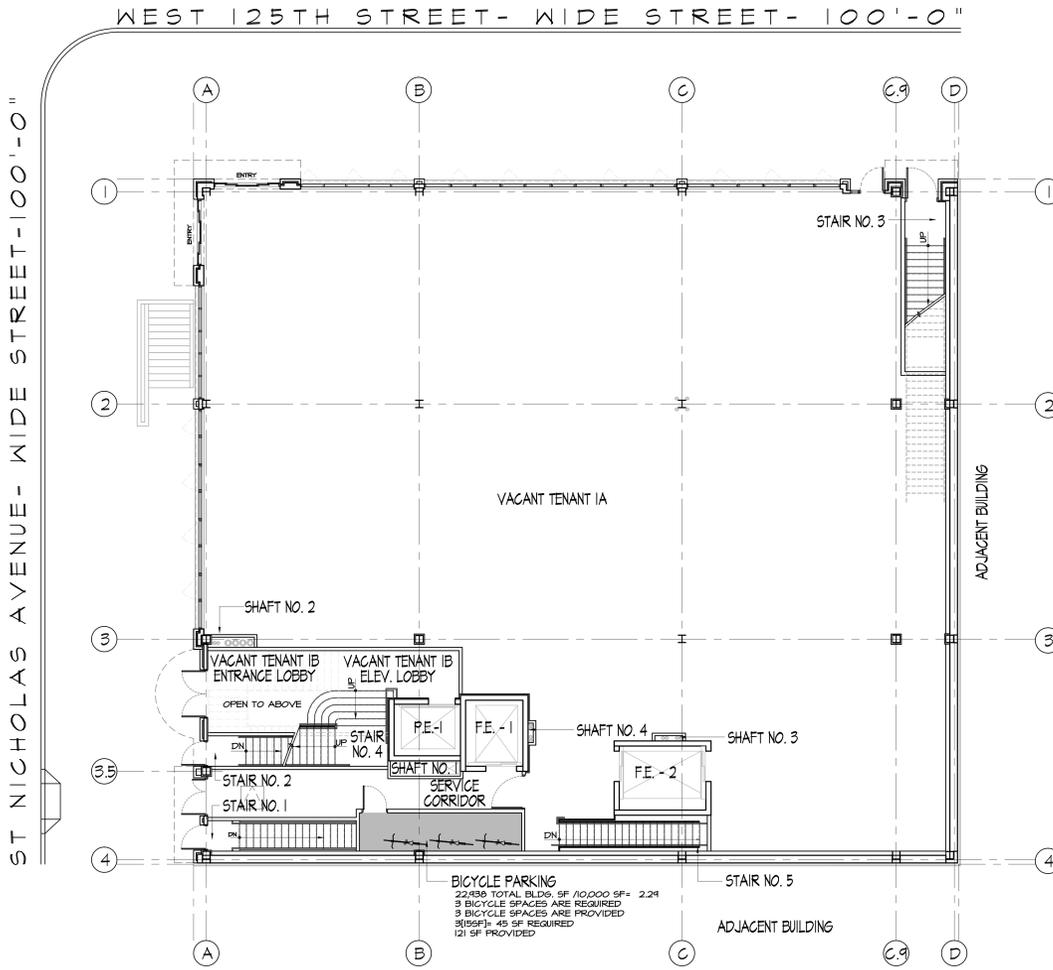
- NOTES:**
- VACANT TENANT DESIGNATION PER BUILDINGS BULLETIN 2010-013
 - SEE DRAWING Z103 FOR DIMENSIONS



SECOND FLOOR PLAN

GROSS FLOOR AREA: 8,880 SF
 NON CONTRIBUTING TO F.A.R.: 326 SF
 COMMERCIAL F.A.R.: 8,554 SF
 USE GROUP: 6

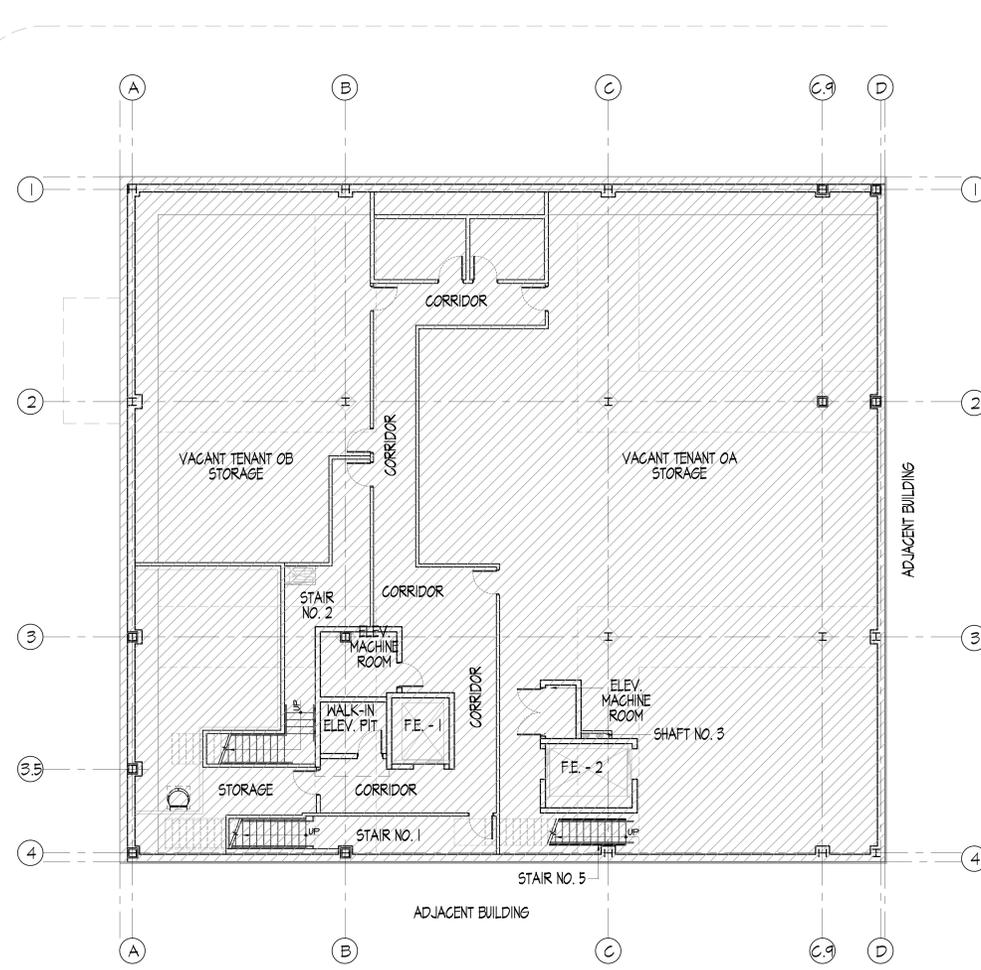
- NOTES:**
- VACANT TENANT DESIGNATION PER BUILDINGS BULLETIN 2010-013
 - SEE DRAWING Z102 FOR DIMENSIONS



FIRST FLOOR PLAN

GROSS FLOOR AREA: 8,900 SF
 NON CONTRIBUTING TO F.A.R.: 0 SF
 COMMERCIAL F.A.R.: 8,900 SF
 USE GROUP: 6

- NOTES:**
- VACANT TENANT DESIGNATION PER BUILDINGS BULLETIN 2010-013
 - SEE DRAWING Z101 FOR DIMENSIONS



CELLAR FLOOR PLAN

GROSS FLOOR AREA: 8,983 SF
 NON CONTRIBUTING TO F.A.R.: 8,983 SF
 COMMERCIAL F.A.R.: 0 SF
 USE GROUP: 6

- NOTES:**
- CELLAR FLOOR AREA DOES NOT CONTRIBUTE TO F.A.R. AS PER ZR 12-10 FLOOR AREA (I)
 - VACANT TENANT DESIGNATION PER BUILDINGS BULLETIN 2010-013
 - SEE DRAWING Z100 FOR DIMENSIONS

WEST 125TH STREET - WIDE STREET - 100'-0"

ST NICHOLAS AVENUE - WIDE STREET - 100'-0"

DATE	REVISION	APPROVAL
	ISSUED FOR ZONING AND PLAN APPROVAL	

PROJECT: 288 ST. NICHOLAS
 BLOCK NO. 145
 324 WEST 125TH ST. AND ST. NICHOLAS AVE.
 NEW YORK, NEW YORK 10027
 BIN NO. 050606

CLIENT: 324 WEST 125TH STREET, LLC.
 610 BAY PARKWAY - THIRD FLOOR
 BROOKLYN, NY 11204

F.A.R. CALCULATIONS & ZONING FLOOR PLANS
 SCALE: AS NOTED
 SEAL AND SIGNATURE



DATE: 18.JUL.14
 PROJECT NO.: GLA14-0244
 DRAWING NO.: 03 OF 46
 SHEET NO.: Z001.00



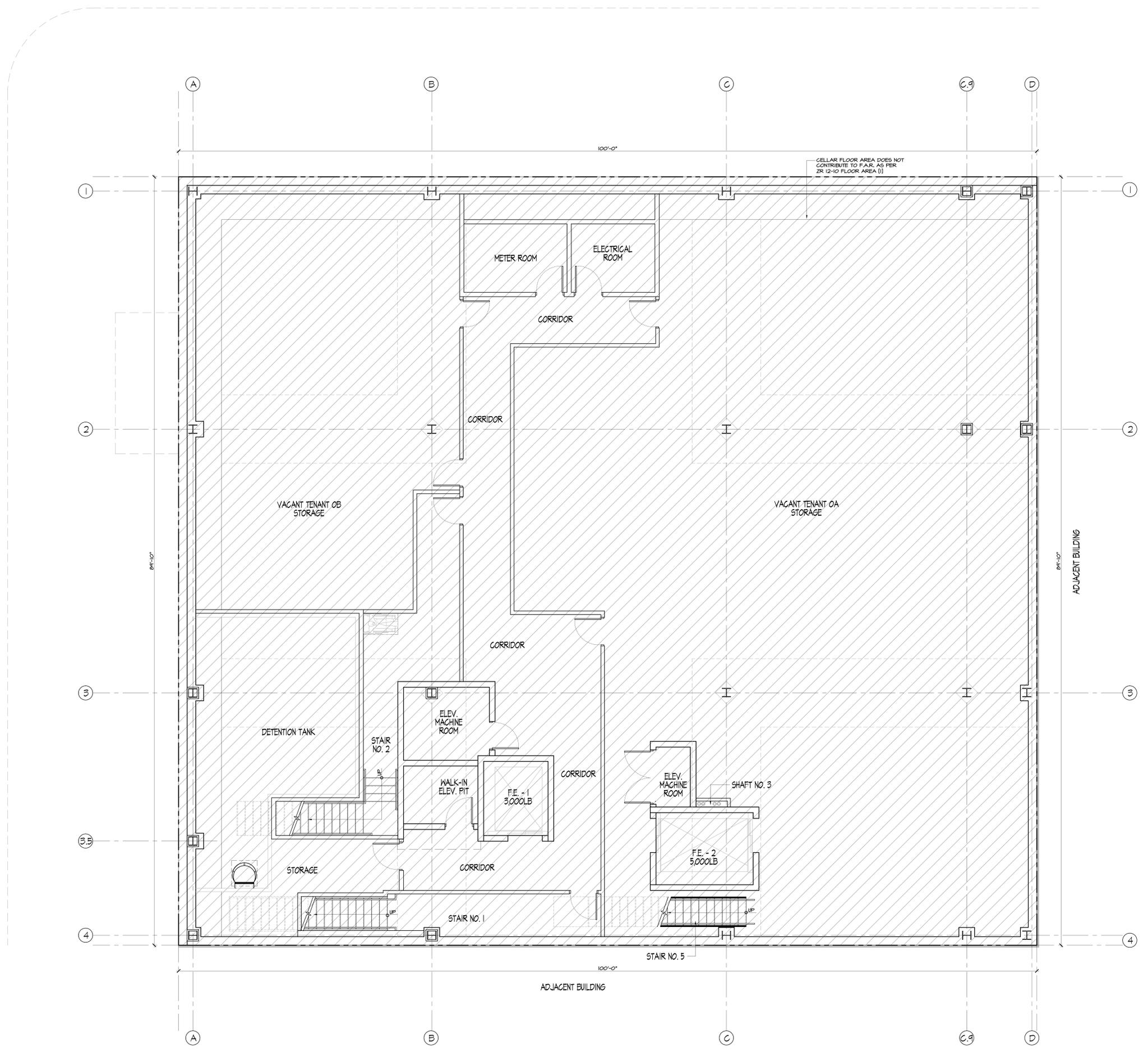
CELLAR FLOOR CALCULATIONS

GROSS FLOOR AREA: 8,483 SF
 NON CONTRIBUTING TO F.A.R.: 8,483 SF
 COMMERCIAL F.A.R.: 0 SF
 USE GROUP: 6

NOTES:
 1. CELLAR FLOOR AREA DOES NOT CONTRIBUTE TO F.A.R. AS PER ZR 12-10 FLOOR AREA (I)
 2. VACANT TENANT DESIGNATION PER BUILDINGS BULLETIN 2010-018

LEGEND

AREA NON-CONTRIBUTING TO FLOOR AREA RATIO
 PERMITTED OBSTRUCTION
 SPECIAL ZONING REQUIREMENT
 TRUE NORTH
 PROJECT NORTH



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

NO.	DATE	REVISION
1	10/15/14	ISSUED FOR ZONING AND PLAN APPROVAL

288 ST. NICHOLAS
 324 WEST 125TH ST. AND ST. NICHOLAS AVE.
 NEW YORK, NEW YORK 10027
 BIN NO. 050606

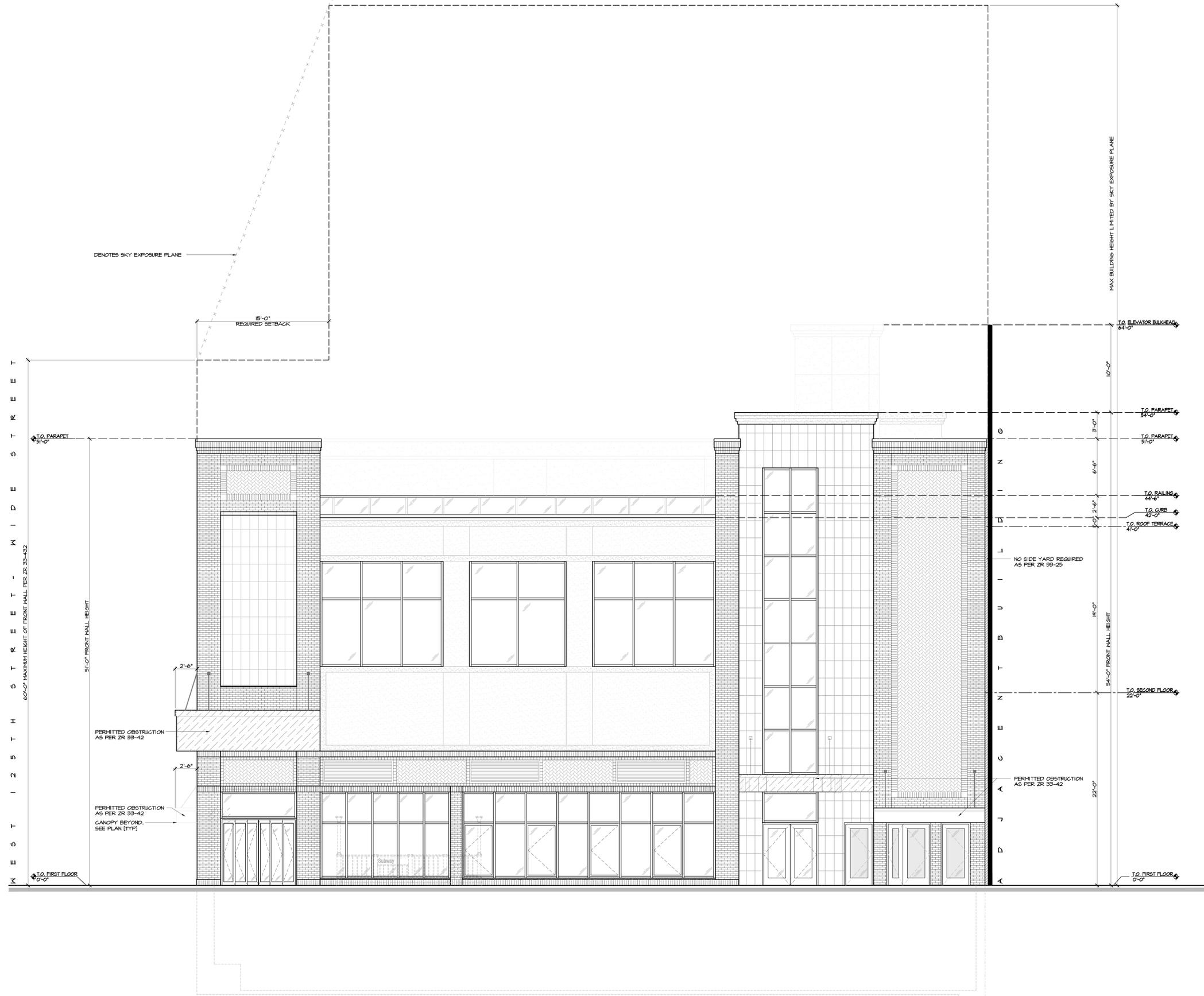
324 WEST 125TH STREET, LLC.
 610 BAY PARKWAY-THIRD FLOOR
 BROOKLYN, NY 11204

ZONING CELLAR PLAN
 SCALE AS NOTED



DATE: 18.JUL.14	PROJECT NO.: GLA14-0294
DESIGNED BY: T.J.L.	SCALE: AS NOTED
DRAWN BY: T.J.L.	SCALE: AS NOTED
CHECKED BY:	SCALE: AS NOTED
DATE: 18.JUL.14	PROJECT NO.: GLA14-0294
SCALE: 1/4" = 1'-0"	SHEET NO.: 04 OF 46





1 WEST ELEVATION-ST. NICHOLAS AVE.
1/4" = 1'-0"



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 1298 RICHMOND ROAD STATEN ISLAND, NY 10304
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 WWW.G.L.A.R.C.H.COM

NO.	DATE	DESCRIPTION
1		ISSUED FOR ZONING AND PLAN APPROVAL

PROJECT: 288 ST. NICHOLAS
 324 WEST 125TH ST. AND ST. NICHOLAS AVE.
 BLOCK NO. 145
 LOT NO. 10
 BIN NO. 050600

CLIENT: 324 WEST 125TH STREET, LLC.
 6101 BAY FARMWAY-THIRD FLOOR
 BROOKLYN, NY 11204

ZONING: WEST ELEVATION
 SCALE: AS NOTED



DATE: 18.JUL.14	PROJECT NO.: GLA14-0294
DESIGNED BY: T.J.L.	DRAWN BY: T.J.L.
CHECKED BY: T.J.L.	SCALE: 1/4" = 1'-0"
SHEET NO.: Z200.00	TOTAL SHEETS: 46



GAMBINO + LAPORTA
ARCHITECTURE, D.P.C.
 1298 RICHMOND ROAD STATION ISLAND, NY 10304
 PHONE: 718.667.6682 FAX: 718.667.1196 | EMAIL: STUDIO@GLA.COM

W W . G L . A R C H . C O M

NO.	DATE	DESCRIPTION
1	18 JUL 14	ISSUED FOR ZONING AND PLAN APPROVAL

288 ST. NICHOLAS
 BLOCK NO. 195
 324 WEST 125TH ST. AND ST. NICHOLAS AVE.
 NEW YORK, NEW YORK 10027
 BIN NO. 050600

324 WEST 125TH STREET, LLC.
 610 BAY FARMWAY-THIRD FLOOR
 BROOKLYN, NY 11204

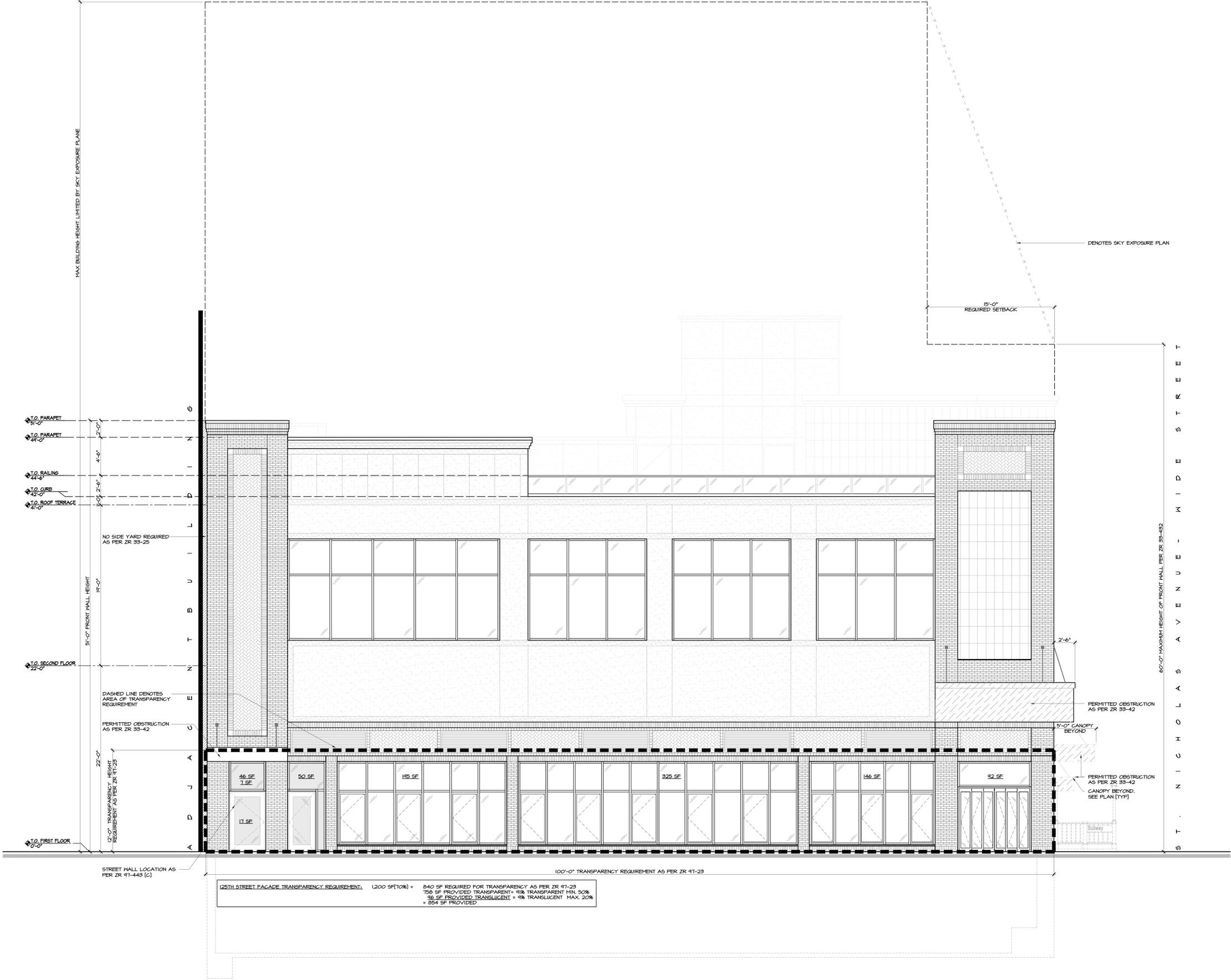
ZONING NORTH ELEVATION AS NOTED

SEAL AND SIGNATURE

DATE: 18 JUL 14 PROJECT NO: GLA14-0294

DRAWN BY: T.J.L. CHECKED BY: T.J.L.

SCALE: Z201.00 SHEET NO: 10 OF 46



1 NORTH ELEVATION-WEST 125TH ST.
 1/4" = 1'-0"

EGRESS LEGEND

- ALLOWABLE DOOR OR CORRIDOR CAPACITY
- NUMBER USING EGRESS ELEMENT BASED ON ALLOWABLE NOT ACTUAL
- MAX OCCUPANCY
- DOES NOT CONTRIBUTE TO TOTAL OCCUPANCY
- # OF OCCUPANTS / ARROW INDICATES EGRESS DIRECTION
- WALL MOUNTED EXIT LIGHT, DIRECTIONAL ARROWS WHERE INDICATED - SHADED AREAS INDICATE ILLUMINATED FACE/FACES
- CEILING MOUNTED EXIT LIGHT, DIRECTIONAL ARROWS WHERE INDICATED - SHADED AREAS INDICATE ILLUMINATED FACE/FACES
- DENOTES MOST REMOTE POINT
- 10LB ABC TYPE FIRE EXTINGUISHER

KEY LEGEND

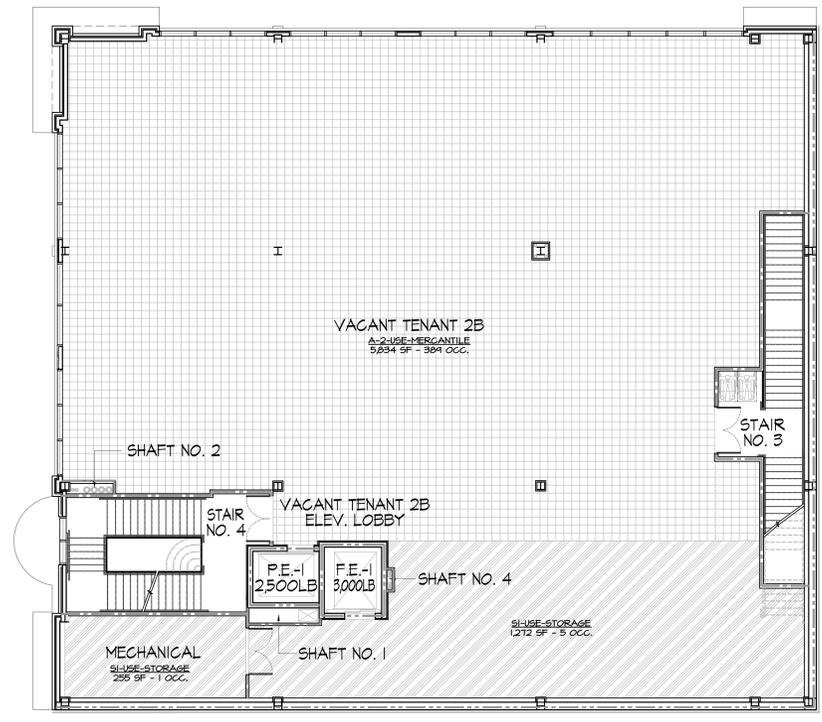
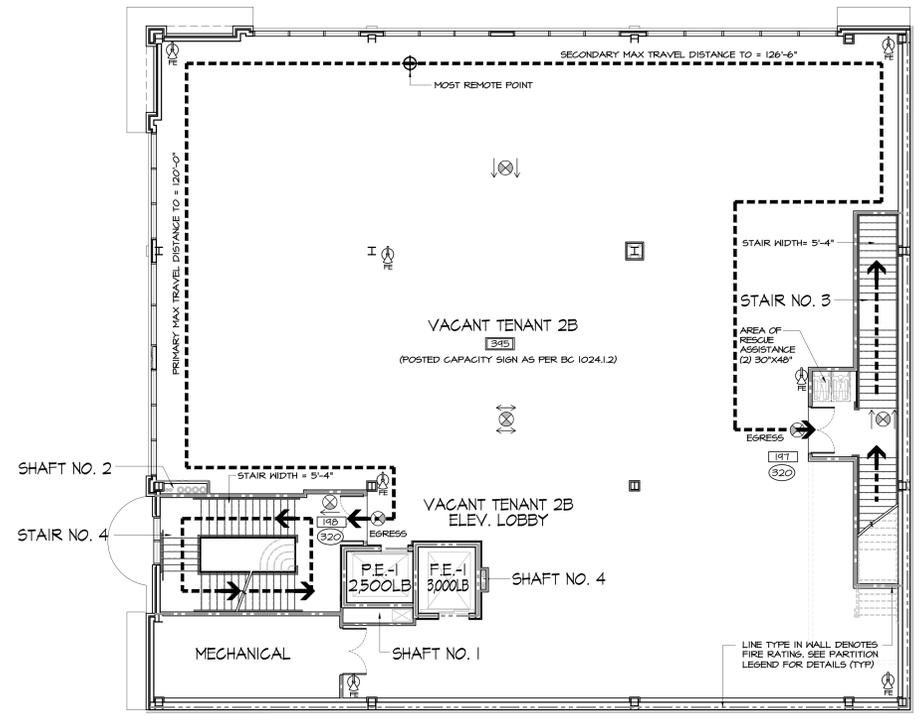
- M-USE-MERCANTILE
- A-2-USE-ASSEMBLY
- S-1-USE-STORAGE
- NON-OCCUPIED AREAS

PARTITION LEGEND

- DENOTES 2-HR RATED PARTITION (REQUIRED)
- DENOTES 1-HR RATED PARTITION (REQUIRED)
- DENOTES 1-HR RATED PARTITION (PROVIDED NOT REQUIRED)

GENERAL NOTES

1. BUILDING IS FULLY SPRINKLERED IN ACCORDANCE W/ NFPA 13 (PER BC 903.3.1).
2. BUILDINGS SHALL BE PROVIDED WITH EMERGENCY LIGHTING AND FIRE ALARM AS REQUIRED BY GOVERNING CODES.
3. PROVIDE FIRE EXTINGUISHERS AT LOCATIONS SHOWN AND IN COMPLIANCE WITH GOVERNING CODES AND AS DIRECTED BY THE LOCAL AUTHORITY.
4. SEE DRAWINGS A100-A103 FOR COLUMN DESIGNATIONS.
5. SEE DOOR SCHEDULE DRAWING A600 FOR FIRE RATINGS OF DOORS.
6. DOORS WHEN SWINGING INTO EGRESS PATH SHALL OPEN 180°



2 SECOND FLOOR EGRESS PLANS

- NOTES:
1. AREA OF RESCUE ASSISTANCE = 345 OCC./200 OCC. = 1.715 REQUIRED 2 PROVIDED
 2. MAX TRAVEL DISTANCE- A2-USE-SPRINKLERED = 150'-0" PRIMARY; 250'-0" SECONDARY (PER BC TABLE 1024.1)
 3. EGRESS STAIR 3 AND 4 WIDTH = 345 OCC./[3] = 114 1/2 MEANS = 60" = 5'-0" REQUIRED; 5'-4" PROVIDED (BASED ON SECOND FLOOR- LARGEST OCCUPANT LOAD)
 4. MAXIMUM OVERALL DIAGONAL = 130'-6 1/8" = 43'-6" REQUIRED; 51'-0" PROVIDED
 5. MEANS OF EGRESS CEILING HEIGHT = WILL NOT BE LESS THAN 7'-6"
 6. AREA OF RESCUE ASSISTANCE: TO BE PROVIDED WITH A TWO-WAY COMMUNICATION SYSTEM
 7. MEANS OF EGRESS ILLUMINATION: TO BE IN COMPLIANCE WITH BC 1006

1 SECOND FLOOR OCCUPANCY CLASSIFICATION PLANS

- 1/8" = 1'-0"
- NOTES:
- | | |
|---|--|
| ALLOWABLE OCCUPANCY,
[PER BC TABLE 1004.1.2] | A-2-USE- 304 OCC. |
| | S-1-USE- 6 OCC. |
| | TOTAL OCCUPANTS = 345 OCC. (POSTED CAPACITY SIGN AS PER BC 1024.1.2) |
- FIRE RESISTANCE RATINGS**
- | | | |
|--|-------------|-----------------|
| VERTICAL EXIT ENCLOSURES:
[LESS THAN 4 STORIES PER BC 1019.1] | 1 HOURS | UL DESIGN- U419 |
| HOIST MAYS ENCLOSURES:
[4 STORIES OR MORE PER BC 1017.4] | 1 & 2 HOURS | UL DESIGN- U106 |
| OTHER SHAFTS:
[4 STORIES OR MORE PER BC 1017.4] | 1 & 2 HOURS | UL DESIGN- U438 |
| ELEVATOR MACHINE ROOMS:
[PER BC 3006.4] | 1 & 2 HOURS | UL DESIGN- U106 |
| LESS THAN 5'-0"
[SOUTH AND WEST LOT LINE WALL] | 2 HOURS | UL DESIGN- U106 |
1. SEPARATION BETWEEN MIXED OCCUPANCIES IS NOT REQUIRED AS PER [BC 508.3.2]
 2. SEE DRAWING 1000 FOR FIRE RESISTANCE RATINGS OF STRUCTURAL ELEMENTS AS PER [BC TABLE 601 & 602]

NO.	DATE	REVISION

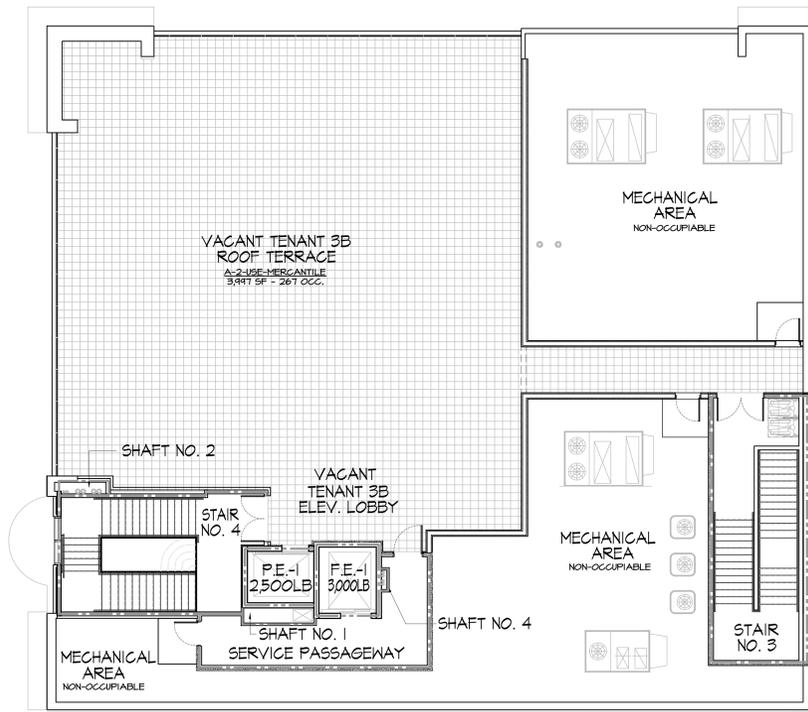
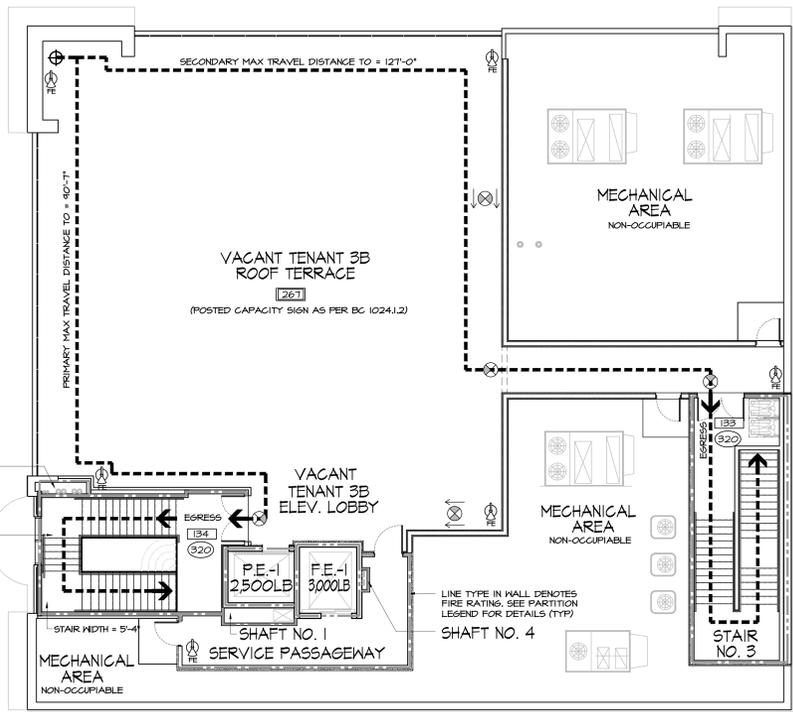
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 610 BAY FERRYWAY-THIRD FLOOR
 BROOKLYN, NY 11204

SECOND FLOOR EGRESS
 OCCUPANCY CLASSIFICATION PLANS
 AS NOTED



DATE: 18.JUL.14
 PROJECT NO.: GLA14-0294
 DRAWN BY: T.J.L.
 CHECKED BY: T.J.L.
 SHEET NO.: A012.00
 13 OF 46



EGRESS LEGEND

- ALLOWABLE DOOR OR CORRIDOR CAPACITY
- NUMBER USING EGRESS ELEMENT BASED ON ALLOWABLE NOT ACTUAL
- MAX OCCUPANCY
- DOES NOT CONTRIBUTE TO TOTAL OCCUPANCY
- # OF OCCUPANTS / ARROW INDICATES EGRESS DIRECTION
- WALL MOUNTED EXIT LIGHT, DIRECTIONAL ARROWS WHERE INDICATED - SHADED AREAS INDICATE ILLUMINATED FACE/FACES
- CEILING MOUNTED EXIT LIGHT, DIRECTIONAL ARROWS WHERE INDICATED - SHADED AREAS INDICATE ILLUMINATED FACE/FACES
- DENOTES MOST REMOTE POINT
- 10LB ABC TYPE FIRE EXTINGUISHER

KEY LEGEND

- M-USE-MERCANTILE
- A2-USE-ASSEMBLY
- S-1-USE-STORAGE
- NON-OCCUPIABLE AREAS

PARTITION LEGEND

- DENOTES 2-HR RATED PARTITION (REQUIRED)
- DENOTES 1-HR RATED PARTITION (REQUIRED)
- DENOTES 1-HR RATED PARTITION (PROVIDED NOT REQUIRED)

GENERAL NOTES

1. BUILDING IS FULLY SPRINKLERED IN ACCORDANCE W/ NFPA 13 [PER BC 903.3.1].
2. BUILDINGS SHALL BE PROVIDED WITH EMERGENCY LIGHTING AND FIRE ALARM AS REQUIRED BY GOVERNING CODES.
3. PROVIDE FIRE EXTINGUISHERS AT LOCATIONS SHOWN AND IN COMPLIANCE WITH GOVERNING CODES AND AS DIRECTED BY THE LOCAL AUTHORITY.
4. SEE DRAWINGS A100-A103 FOR COLUMN DESIGNATIONS.
5. SEE DOOR SCHEDULE DRAWING A600 FOR FIRE RATINGS OF DOORS.
6. DOORS WHEN SWINGING INTO EGRESS PATH SHALL OPEN 180°

2 ROOF TERRACE EGRESS PLANS

- NOTES:
1. AREA OF RESCUE ASSISTANCE = 267 OCC./200 OCC. = 1.34 REQUIRED 2 PROVIDED
 2. MAX TRAVEL DISTANCE- A2-USE-SPRINKLERED = 150'-0" PRIMARY; 250'-0" SECONDARY [PER BC TABLE 1024.1]
 3. EGRESS STAIR 3 AND 4 WIDTH = 345 OCC./[3]114" MEANS=60" = 5'-0" REQUIRED; 5'-4" PROVIDED [BASED ON SECOND FLOOR- LARGEST OCCUPANT LOAD]
 4. MAXIMUM OVERALL DIAGONAL = 88'-0" / 3 = 29'-4" REQUIRED; 63'-5" PROVIDED
 5. MEANS OF EGRESS CEILING HEIGHT = WILL NOT BE LESS THAN 7'-6"
 6. AREA OF RESCUE ASSISTANCE: TO BE PROVIDED WITH A TWO-WAY COMMUNICATION SYSTEM
 7. MEANS OF EGRESS ILLUMINATION: TO BE IN COMPLIANCE WITH BC 1006

1 ROOF TERRACE OCCUPANCY CLASSIFICATION PLANS

- 1/8" = 1'-0"
- NOTES:
- ALLOWABLE OCCUPANCY: [PER BC TABLE 1004.1.2] A-2-USE- 267 OCC.
 TOTAL OCCUPANTS = 267 OCC. (POSTED CAPACITY SIGN AS PER BC 1024.1.2)
- FIRE RESISTANCE RATINGS:
- VERTICAL EXIT ENCLOSURES, (LESS THAN 4 STORIES PER BC 1014.1) 1 HOURS UL DESIGN- U419
- HOIST SHAFT ENCLOSURES, (4 STORIES OR MORE PER BC 1014.1) 1 & 2 HOURS UL DESIGN- U406
- OTHER SHAFTS: (4 STORIES OR MORE PER BC 1014.1) 1 & 2 HOURS UL DESIGN- U438
- ELEVATOR MACHINE ROOMS: [PER BC 3006.4] 1 & 2 HOURS UL DESIGN- U406
- LESS THAN 5'-0" [SOUTH AND WEST LOT LINE WALL] 2 HOURS UL DESIGN- U406
1. SEPARATION BETWEEN MIXED OCCUPANCIES IS NOT REQUIRED AS PER [BC 508.3.2]
 2. SEE DRAWING T000 FOR FIRE RESISTANCE RATINGS OF STRUCTURAL ELEMENTS AS PER [BC TABLE 601 & 602]

NO.	DATE	REVISION

PROJECT: 288 ST. NICHOLAS
 324 WEST 125TH ST. AND ST. NICHOLAS AVE.
 BLOCK NO. 145
 LOT NO. 10
 E.B.N.O. 050000
 NEW YORK, NEW YORK 10027

DATE: 18.JUL.14
 SHEET NO.: 14 OF 46

ROOF TERRACE EGRESS & OCCUPANCY CLASSIFICATION PLANS AS NOTED



DESIGNED BY: T.J.L.
 CHECKED BY: T.J.L.
 PROJECT NO.: GLA14-0294
 SHEET NO.: A013.00
 DATE: 18.JUL.14



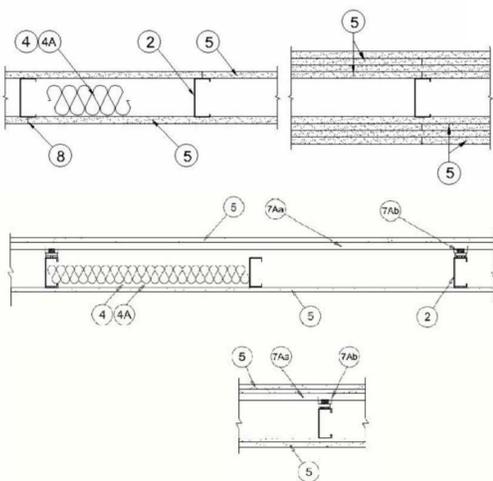
UL DESIGN NO. U419 - 1 & 2 HOUR

METAL STUD NONBEARING WALL- SEE PARTITION TYPES FOR DESIGNATION FOR 1 HOUR AND 2 HOUR LOCATIONS

Design No. U419

June 10, 2013

Nonbearing Wall Ratings - 1, 2, 3 or 4 Hr (See Items 4 & 5)



1. Floor and Ceiling Runners - (Not shown) - For use with Item 2 - Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

1A. Framing Members* - Floor and Ceiling Runner - (Not shown) - In lieu of Item 1 - For use with Item 2B, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.

CALIFORNIA EXPANDED METAL PRODUCTS CO - Viper25™ Track

CRACO MFG INC - SmartStud™

MARINO/WARE, DIV OF WARE INDUSTRIES INC - Viper25™ Track

PHILLIPS MFG CO L L C - Viper25™ Track

1B. Framing Members* - Floor and Ceiling Runner - (Not shown) - In lieu of Item 1 - For use with Item 3C, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

CALIFORNIA EXPANDED METAL PRODUCTS CO - Viper20™ Track

MARINO/WARE, DIV OF WARE INDUSTRIES INC - Viper20™ Track

PHILLIPS MFG CO L L C - Viper20™ Track

1C. Framing Members* - Floor and Ceiling Runners - (Not shown) - In lieu of Item 1 - Channel shaped, attached to floor and ceiling with fasteners 24 in. OC max.

ALLSTEEL & GYPSUM PRODUCTS INC - Type SUPREME Framing System

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV - Type SUPREME Framing System

QUAIL RUN BUILDING MATERIALS INC - Type SUPREME Framing System

SCAFCO STEEL STUD MANUFACTURING CO - Type SUPREME Framing System

STEEL CONSTRUCTION SYSTEMS INC - Type SUPREME Framing System

UNITED METAL PRODUCTS INC - Type SUPREME Framing System

1D. Floor and Ceiling Runners - (Not shown) - For use with Item 2A - Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1E. Framing Members* - Floor and Ceiling Runners - (Not shown) - As an alternate to Item 1 - For use with Item 2B, proprietary channel shaped runners, minimum width to accommodate stud size, with min 1-1/8 in. long legs fabricated from min 0.015 in. (min bare metal thickness) galv steel, attached to floor and ceiling with fasteners 24 in. OC max.

CLARKDIETRICH BUILDING SYSTEMS - CD ProTRAK

DMFCWS L L C - ProTRAK

MBA BUILDING SUPPLIES - ProTRAK

RAM SALES L L C - Ram ProTRAK

SOUTHEASTERN STUD & COMPONENTS INC - ProTRAK

STEEL STRUCTURAL SYSTEMS L L C - Tri-S ProTRAK

1F. Framing Members* - Floor and Ceiling Runner - (Not shown) - In lieu of Item 1 - For use with Item 2F, proprietary channel shaped runners, minimum width to accommodate stud size, with 1-1/8 in. long legs fabricated from min 0.015 in. (min bare metal thickness) galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

SUPER STUD BUILDING PRODUCTS - The Edge

1G. Framing Members* - Floor and Ceiling Runner - For use with Item 2G, proprietary channel shaped runners, minimum width to accommodate stud size attached to floor and ceiling with fasteners 24 in. OC max.

STUDCO BUILDING SYSTEMS - CROCTUD Track

1H. Floor and Ceiling Runners - (Not shown) - Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, with studs specified below and fabricated from min 0.02 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.

MARINO/WARE, DIV OF WARE INDUSTRIES INC - Viper20™ Track VT100.

1I. Framing Members* - Floor and Ceiling Runners - (Not shown) - As an alternate to Item 1 - For use with Item 2H, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC max.

TELLING INDUSTRIES L L C - TRUE-TRACK™

1J. Framing Members* - Floor and Ceiling Runner - (Not shown) - In lieu of Item 1 - For use with Item 2J, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.

TELLING INDUSTRIES L L C - Viper25™ Track

1K. Framing Members* - Floor and Ceiling Runner - (Not shown) - In lieu of Item 1 - For use with Item 2J, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

TELLING INDUSTRIES L L C - Viper20™ Track

2. Steel Studs - Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

2A. Steel Studs - (As an alternate to Item 2, For use with Items 5B, 5E, 5H and 5I) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

2B. Framing Members* - Steel Studs - (As an alternate to Item 2, For use with Items 5C or 5I) - Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than the assembly height and installed with a 1/8 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.

CALIFORNIA EXPANDED METAL PRODUCTS CO - Viper25™

UL DESIGN NO. U419 CONT.

CRACO MFG INC - SmartStud™

MARINO/WARE, DIV OF WARE INDUSTRIES INC - Viper25™

PHILLIPS MFG CO L L C - Viper25™

2C. Framing Members* - Steel Studs - (Not shown) - In lieu of Item 2 - proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 0.020 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.

CALIFORNIA EXPANDED METAL PRODUCTS CO - Viper20™

MARINO/WARE, DIV OF WARE INDUSTRIES INC - Viper20™

PHILLIPS MFG CO L L C - Viper20™

2D. Framing Members* - Steel Studs - In lieu of Item 2 - Channel shaped studs, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

ALLSTEEL & GYPSUM PRODUCTS INC - Type SUPREME Framing System

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV - Type SUPREME Framing System

QUAIL RUN BUILDING MATERIALS INC - Type SUPREME Framing System

SCAFCO STEEL STUD MANUFACTURING CO - Type SUPREME Framing System

STEEL CONSTRUCTION SYSTEMS INC - Type SUPREME Framing System

UNITED METAL PRODUCTS INC - Type SUPREME Framing System

2E. Framing Members* - Steel Studs - (Not shown) - As an alternate to Item 2 - For use with Items 5F or 5G or 5I only, channel shaped studs, min depth as indicated under Item 5F, 5G or 5I, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

CLARKDIETRICH BUILDING SYSTEMS - CD ProSTUD

DMFCWS L L C - ProSTUD

MBA BUILDING SUPPLIES - ProSTUD

RAM SALES L L C - Ram ProSTUD

SOUTHEASTERN STUD & COMPONENTS INC - ProSTUD

STEEL STRUCTURAL SYSTEMS L L C - Tri-S ProSTUD

2F. Framing Members* - Steel Studs - (Not shown) - In lieu of Item 2 - proprietary channel shaped steel studs, minimum width indicated under Item 5, 1-1/4 in. deep fabricated from min 0.015 in. (min bare metal thickness) galvanized steel. Studs 3/8 in. to 3/4 in. in less in lengths than assembly heights.

SUPER STUD BUILDING PRODUCTS - The Edge

2G. Framing Members* - Steel Studs - (Not shown) - In lieu of Item 2 - proprietary channel shaped studs, minimum width indicated under Item 5, Studs to be cut 3/8 to 3/4 in less than the assembly height.

STUDCO BUILDING SYSTEMS - CROCTUD

2H. Framing Members* - Steel Studs - (Not shown) - As an alternate to Item 2 - Fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

TELLING INDUSTRIES L L C - TRUE-STUD™

2I. Framing Members* - Steel Studs - (As an alternate to Item 2, For use with Items 5C or 5I) - Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a 1/8 in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.

TELLING INDUSTRIES L L C - Viper25™

2J. Framing Members* - Metal Studs - (Not shown) - In lieu of Item 2 - proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max of 24 in. OC, fabricated from min 0.020 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.

TELLING INDUSTRIES L L C - Viper20™

3. Wood Structural Panel Sheathing - (Optional, For use with Item 5 only) - (Not Shown) - 4 ft wide, 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural 1 sheathing (plywood) complying with DOC P51 or P52, or APA Standard PRP-100, manufactured with exterior glue, applied horizontally or vertically to the steel studs. Vertical joints centered on studs, and staggered one stud space from wallboard joints. Attached to studs with flat-head self-drilling screws with a min. head diam. of 0.292 in. at maximum 6 in. OC in the perimeter and 12 in. OC in the field. When used, fastener lengths for gypsum panels spaced by min. 1/2 in.

4. Batts and Blankets* - (Required as indicated under Item 5) - Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under Item 5. See Batts and Blankets (BKNV or BZZT) Categories for names of Classified companies.

4A. Batts and Blankets* - (Optional) - Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See Batts and Blankets (BKNV or BZZT) Categories for names of Classified companies.

5. Gypsum Board* - Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall

Table with 4 columns: Rating, Hr, Min Stud Depth, in. Items 2, 2C, 2D, 2F and 2G, No. of Layers & Thins of Panel, Min Thins of Insulation (Item 4)

CGC INC - 1/2 in. thick Type C, IP-X2 or IPC-AR; WRC, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX or WRC; 3/4 in. thick Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO - 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type SCX, SGX, SHX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR; 3/4 in. thick Types IP-X3 or ULTRACODE

USG MEXICO S A DE C V - 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX, or 3/4 in. thick Types IP-X3 or ULTRACODE

When Item 7B, Steel Framing Members*, is used, Nonbearing Wall Rating is limited to 1 Hr. Min. stud depth is 3-1/2 in., min. thickness of insulation (Item 4) is 3 in., and two layers of gypsum board panels (1/2 in. or 5/8 in. thick) shall be attached to furring channels as described in Item 6. One layer of gypsum board panels (1/2 in. or 5/8 in. thick) attached to opposite side of stud without furring channels as described in Item 6.

5A. Gypsum Board* - (As an alternate to Item 5) - 5/8 in. thick, 24 to 54 in. wide, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 6.

CGC INC - Type SHX.

UNITED STATES GYPSUM CO - Type FRX-G, SHX.

USG MEXICO S A DE C V - Type SHX.

5B. Gypsum Board* - (Not Shown) - As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 in. or 3/4 in. thick products are specified. For direct attachment only to steel studs Item 2A, (not to be used with Item 3) - Nom 5/8 in. or 3/4 in. may be used as alternate to 5/8 in. or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to 20 MSG steel studs Item 2A with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 11) or Lead Discs or Tabs (see Item 12).

UL DESIGN NO. U419 CONT.

RAY-BAR ENGINEERING CORP - Type RB-LBG

5C. Gypsum Board* - (For Use With Item 2B) Rating Limited to 1 Hour, 5/8 in. thick, 48 in. wide, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. (Vertical Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type 5 coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. Vertical joints are to be centered over studs and staggered one stud cavity on opposite sides of studs. (Horizontal Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type 5 coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. All horizontal joints are to be backed as outlined under section 7 of Volume 1 in the Fire Resisive Directory.

CGC INC - Type SCX.

UNITED STATES GYPSUM CO - Type SCX, SGX.

USG MEXICO S A DE C V - Type SCX.

5D. Gypsum Board* - (As an alternate to Item 5) - 5/8 in. thick, 48 in. wide, applied vertically or horizontally. Secured as described in Item 6. For use with Items 1 and 2 only.

UNITED STATES GYPSUM CO - Type USGX.

5E. Gypsum Board* - (Not Shown) - (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in. thick products are specified, For direct attachment only to steel studs Item 2A, not to be used with Item 3). Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or No. 6) by 1-1/4 in. long bugle head fine driller steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

NEW ENGLAND LEAD BURNING CO INC, DBA NEMCO - Nemo

5F. Gypsum Board* - (As an alternate to Item 5) - For use with Items 1E and 2E and limited to 1 Hour Rating only, Gypsum panels with beveled, square or tapered edges, applied vertically, and fastened to the steel studs with 1 in. long Type 5 screws spaced 8 in. OC along vertical and bottom edges and 12 in. OC in the field. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Steel stud depth shall be a minimum 3-5/8 in.

UNITED STATES GYPSUM CO - 5/8 in. thick Type SCX, SGX.

5G. Gypsum Board* - (As an alternate to Item 5) - For use with Items 1E and 2E only, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally, as specified in the table below and fastened to the steel studs as described in Item 6. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall

Table with 4 columns: Rating, Hr, Min Stud Depth, in. Item 2E, No. of Layers & Thickness of Panel, Min Thins of Insulation (Item 4)

CGC INC - 1/2 in. thick Type C, IP-X2 or IPC-AR; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, or 3/4 in. thick Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO - 1/2 in. thick Type C, IP-X2, IPC-AR or 5/8 in. thick Type SCX, SGX, SHX, IP-X1, AR, C, FRX-G, IP-AR, IP-X2, IPC-AR; 3/4 in. thick Types IP-X3 or ULTRACODE

USG MEXICO S A DE C V - 1/2 in. thick Type C, IP-X2, IPC-AR or 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, or 3/4 in. thick Types IP-X3 or ULTRACODE

5H. Gypsum Board* - (Not Shown) - (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 in. or 3/4 in. thick products are specified. For direct attachment only to steel studs Item 2A, (not to be used with Item 3) - Nom 5/8 in. or 3/4 in. may be used as alternate to 5/8 in. or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Gypsum board secured to 20 MSG steel studs Item 2B with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 11A) or Lead Discs (see Item 12A).

MAYCO INDUSTRIES INC - Type X-Ray Shielded Gypsum

5I. Gypsum Board* - (As an alternate to Item 5) - Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 5. Steel stud minimum depth shall be as indicated in Item 5.

CGC INC - Type ULX

UNITED STATES GYPSUM CO - Type ULX

USG MEXICO S A DE C V - Type ULX

5J. Gypsum Board* - (Not Shown) - (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in. thick products are specified, For direct attachment only to steel studs Item 2A, not to be used with Item 3). Item 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type 3-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-2011, Grade "C".

RADIATION PROTECTION PRODUCTS INC - Type RPP - Lead Lined Drywall

6. Fasteners - (Not shown) - For use with Items 2 and 2F - Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Item 7). Single layer systems: 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8 in. OC, when panels are applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. Two layer systems: First layer - 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer - 1-5/8 in. long for 1/2 in., 5/8 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. from first layer. Three-layer systems: First layer - 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer - 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer - 2-1/4 in. long for 1/2 in., 5/8 in. thick panels or 2-5/8 in. long for 3/8 in. thick panels, spaced 24 in. OC. Fourth layer - 2-5/8 in. long for 1/2 in. thick panels or 3 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below.

7. Furring Channels - (Optional, not shown, for single or double layer systems) - Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws. Not for use with Item 5A and 5E.

8A. Framing Members* - (Optional on one or both sides, not shown, for single or double layer systems) - As an alternate to Item 7, furring channels and Steel Framing Members as described below.

a. Furring Channels - Formed of No. 25 MSG galv steel, 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 8. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A and 5E.

b. Steel Framing Members* - Used to attach furring channels (Item 7Aa) to studs (Item 2). Clips spaced max. 48 in. OC. RSIC-1 (2.75) clips secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. RSIC-V (2.75) clips secured to studs with No. 8 x 9/16 in. minimum self-drilling, S-12 steel screw through the center hole. Furring channels are friction fitted into clips. RSIC-1 and RSIC-V clips for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) and RSIC-V (2.75) clips for use with 2-23/32 in. wide furring channels.

PAC INTERNATIONAL INC - Types RSIC-1, RSIC-V, RSIC-1 (2.75), RSIC-V (2.75).

7B. Framing Members* - (Optional, Not Shown) - As an alternate to Item 7, for single or double layer systems, furring channels and Steel Framing Members on only one side of studs as described below.

a. Furring Channels - Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 8. Batts and Blankets placed in stud cavity as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 5. Not for use with Item 5A and 5E.

b. Steel Framing Members* - Used to attach furring channels (Item 7Ba) to one side of studs (Item 2) only. Clips spaced 48 in. OC, and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.

KINETICS NOISE CONTROL INC - Type Isoform

7C. Framing Members* - Optional - Not Shown - Used as an alternate method to attach resilient channels (Item 7). Clips attached at each intersection of furring channel and the steel studs (Item 2). Resilient channels are friction fitted into clips, and then clips are secured to the steel stud with min. 1 in. long Type S-12 steel screws through the center hole of the clip and the resilient channel flange.

KEENE BUILDING PRODUCTS CO INC - Type RC Assurance.

7D. Framing Members* - (Not Shown) - (Optional on one or both sides, not shown, for single or double layer systems) - As an alternate to Item 7, furring channels and Steel Framing Members as described below.

a. Furring Channels - Formed of No. 25 MSG galv steel, 2-3/8 in. wide by 7/8 in. deep, spaced from min 25 MSG corrosion-protected steel channel and the steel studs (Item 2). Resilient channels are friction fitted into clips, and then clips are secured to the steel stud with min. 1 in. long Type S-12 steel screws through the center hole of the clip and the resilient channel flange.

b. Steel Framing Members* - Used to attach furring channels (Item 7Ba) to one side of studs (Item 2) only. Clips spaced 48 in. OC, and secured to studs with two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.

7E. Framing Members* - (Optional, Not Shown) - Used as an alternate method to attach resilient channels (Item 7). Clips attached at each intersection of furring channel and the steel studs (Item 2). Resilient channels are friction fitted into clips, and then clips are secured to the steel stud with min. 1 in. long Type S-12 steel screws through the center hole of the clip and the resilient channel flange.

UL DESIGN NO. U419 CONT.

b. Steel Framing Members* - Used to attach furring channels (Item 7Ba) to studs (Item 2). Clips spaced max. 48 in. OC. GENECLIPS secured to studs with No. 10 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.

PLITEG INC - Type GENECLIP

7E. Steel Framing Members - (Optional, Not Shown) - Furring channels and resilient sound isolation clip as described below:

<

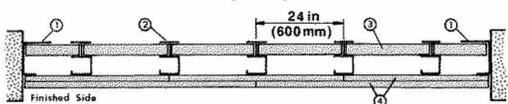
UL DESIGN NO. U438 - 2 HOUR

METAL STUD NONBEARING SHAFT OR CEILING

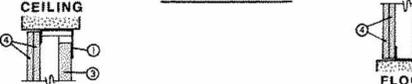
Design No. U438

June 06, 2013

Nonbearing Wall Rating - 2 HR.



HORZ. SECTION



- 1. Floor and Ceiling Runners** - "J"-shaped runner, 2-1/2 in. wide with unequal legs of 1 in. and 2 in., fabricated from 24 MSG galv steel (min 20 MSG when Item 4B is used). Runners positioned with short leg toward finished side of wall. Runners attached to structural supports with steel fasteners located not greater than 2 in. from ends and not greater than 24 in. OC.
- 2. Steel Studs** - "C"-H-shaped studs, 2-1/2 in. wide by 1-1/2 in. deep, fabricated from 25 MSG galv steel (min 20 MSG when Item 4B is used). Cut to lengths 3/8 to 1/2 in. less than floor to ceiling height and spaced 24 in. or 600 mm OC.
- 2A. Steel Studs** - (Not shown) - "E"-shaped studs installed in place of "C"-H-shaped studs (Item 2) to secure the closure liner panels at the ends of walls. Fabricated from 25 MSG galv steel (min 20 MSG when Item 4B is used), 2-1/2 in. wide, with 1 in. long and two legs 3/4 in. long. Shorter legs 1 in. apart to engage gypsum liner panels. Cut to lengths 3/8 in. less than floor to ceiling height. Sill and Intel of opening formed with "J"-shaped runners (Item 1) secured to "E"-shaped studs with angle clips and steel screws.
- 3. Gypsum Board** - 1/2 in. thick gypsum wallboard liner panels, supplied in nom 24 in. or 600 mm (for metric spacing) widths. Panels cut 1 in. less in length than floor to ceiling height. Vertical edges inserted in "H"-shaped section of "C"-H studs. Free edges of end panels attached to long leg of "J"-runners with 1-5/8 in. long Type S steel screws spaced not greater than 12 in. OC.
- CGC INC** - Type SLX.

UNITED STATES GYPSUM CO - Type SLX.

USG MEXICO S A DE CV - Type SLX.

- 4. Gypsum Board** - 1/2 in. thick, 4 ft. or 1200 mm (for metric spacing) wide wallboard applied vertically in two layers. Inner or base layer attached to studs with 1 in. long Type S steel screws spaced 24 in. OC along the edges and in the field of the boards. Outer or face layer attached to studs and "J"-runners with 1-5/8 in. long Type S steel screws spaced 12 in. along the edges and in the field of the boards, staggered from screws in inner layer. Joints between inner and outer layers staggered.

Outer layer joints covered with paper tape and joint compound. Exposed screw heads covered with joint compound.

As an alternate method, inner wallboard layer applied vertically, outer wallboard layer applied horizontally, inner layer attached to studs with 1 in. long Type S steel screws spaced 24 in. OC along vertical edges and in the field. Outer layer attached to the studs and "J"-runners with 1-5/8 in. long Type S steel screws spaced 12 in. OC in the field, along the vertical edges and to the floor and ceiling runners. Outer layer secured to inner layer wallboard with 1-1/2 in. long Type G steel screws located midway between studs and 1 in. from the horizontal joint.

AMERICAN GYPSUM CO - Types AG-C.

CERTAINTEE GYPSUM INC - Type FRPC, Type C.

CERTAINTEE GYPSUM CANADA INC - Type C.

CGC INC - Type C, IP-X2, or WRC.

GEORGIA-PACIFIC GYPSUM L L C - Types S, DAPC.

LAFARGE NORTH AMERICA INC - Types LGFC-C, LGFC-C/A.

NATIONAL GYPSUM CO - Types FSK-C, FSW-C, FSMR-C.

PARCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM - Types PG-C.

TEMPLE-INLAND - Type TG-C.

THAI GYPSUM PRODUCTS PCL - Type C.

UNITED STATES GYPSUM CO - Type C, IP-X2 or WRC.

USG MEXICO S A DE CV - Type C, IP-X2 or WRC.

- 4A. Gypsum Board*** - (As an alternate to Item 4) - 5/8 in. thick gypsum panels with beveled, square or tapered edges, applied vertically or horizontally, inner or base layer attached to studs with 1 in. long Type S or S-12 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Outer or face layer attached to studs with 1-5/8 in. long Type S or S-12 steel screws spaced 12 in. OC when installed vertically and staggered 1/2 in. from base layer screws or 12 in. OC when installed horizontally and staggered 8 in. from base layer screws. Horizontal joints between inner and outer layers staggered a min of 12 in. Horizontal joints need not be backed by steel framing. Vertical joints centered over studs and staggered 24 in. Outer layer joints covered with paper tape and joint compound. Exposed screw heads covered with joint compound. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges. When used in widths other than 48 in., gypsum panels to be installed horizontally.

CGC INC - Type AR, IP-AR, IP-X1, SCX, ULX, or WRX.

UNITED STATES GYPSUM CO - Type AR, FRX-G, IP-AR, IP-X1, SCX, ULX or WRX.

USG MEXICO S A DE CV - Type AR, IP-AR, IP-X1, SCX, ULX, or WRX.

- 4B. Gypsum Board*** - (Not Shown) - May be used in lieu of Items 4 or 4A for the base layer - Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips (Item 6) required behind vertical joints.

RAY-BAR ENGINEERING CORP - Type RB-LBG

4C. Gypsum Board* - (As an alternate to Item 4, 4A, 4B) - 5/8 in. thick. Two layers installed as described in Item 4.

NATIONAL GYPSUM CO - Type FSMR-C.

- 4D. Gypsum Board*** - (Not Shown) - May be used in lieu of Items 4 for the base layer - Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints. Vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in., placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-2011, Grade "C".

MAYCO INDUSTRIES INC - Type X-Ray Shielded Gypsum

- 4E. Gypsum Board*** - (Not Shown) - May be used in lieu of Items 4 for the base layer. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints. Vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in., placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-2011, Grade "C".

RADIATION PROTECTION PRODUCTS INC - Type RPP - Lead Lined Drywall

- 5. Batts and Blankets*** - (Optional) - (Not shown) - Mineral wool or glass fiber batt partially or completely filled stud cavity. Any mineral wool or glass fiber batt material bearing the UL Classification Marking as to Fire Resistance.

5A. Fiber, Sprayed* - As an alternate to Batts and Blankets (Item 5) - (100% Borate Formulation) - Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft³. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft³, in accordance with the application instructions supplied with the product.

U S GREENFIBER L L C - INS735 & INS745 for use with wet or dry application. INS756LD and INS770LD are to be used for dry application only.

5B. Fiber, Sprayed* - As an alternate to Batts and Blankets (Item 5) and Item 5A - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.

NU-WOOL CO INC - Cellulose Insulation

5C. Fiber, Sprayed* - As an alternate to Batts and Blankets (Item 5) - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product.

UL DESIGN NO. U438 CONT.

The minimum dry density shall be 4.30 lb/ft³.

INTERNATIONAL CELLULOSE CORP - Cebarr-RL

- 6. Lead Batten Strips** - For Use with Item 4B - (Not Shown) - Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4A) and optional at remaining stud locations. Strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-2011, Grade "C".

- 6A. Lead Discs or Tabs** - (Not Shown) - Used in lieu of or in addition to the lead batten strips (Item 6) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 5) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-2011, Grade "C".
- 6B. Lead Batten Strips** - (Not Shown, for use with Item 4D) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-2011, Grades "A, B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations.

- 6C. Lead Discs** - (Not Shown, for use with Item 4D) Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.9% meeting the Federal Specification QQ-L-2011, Grades "A, B, C or D".

*Bearing the UL Classification Mark

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UL DESIGN NO. HW-D-0022 - 2 HOUR

TYPICAL HEADWALL CMU JOINT SYSTEM

System No. HW-D-0022

April 15, 2009

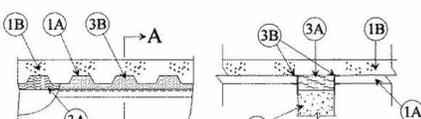
Assembly Rating - 2 Hr

L Rating at Ambient - Less than 1 CFM/Lin Ft.

L Rating at 400 F - Less than 1 CFM/Lin Ft.

Nominal Joint Width - 1 in.

Class II Movement Capabilities - 19% Compression or Extension.



SECTION A-A

- 1. Floor Assembly** - The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the material and in the manner described in the individual Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:
 - A. Steel Floor And Form Units*** - Max 3 in. (76 mm) deep galv steel floor deck.
 - 1A. Spray Applied Fire Resistive Material*** - (Optional, not shown) - Prior to the installation of the Forming Material and Fill, Void or Cavity Materials (Items 3A, 3B), the steel floor units may be sprayed with a min 5/16 in. (8 mm) thickness to max 11/16 in (17 mm) thickness of fire resistive material.
 - W R GRACE & CO - CONN** - Type MK-6/HY
 - B. Concrete** - Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

- 1A. Roof Assembly** - (Not Shown) - As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 or P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. **The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly.** The roof assembly shall include the following construction features:
 - A. Steel Roof Deck** - Max 3 in. (76 mm) deep galv steel fluted roof deck.
 - B. Roof Insulation** - (P 900 Series) - Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.
 - C. Roof Insulation - Mineral and Fiber Board*** - (P 700 Series) - Min 3/4 in. (19 mm) thick boards applied in one or more layers directly over steel or over gypsum board sheathing laid atop steel roof deck.
 - D. Spray Applied Fire Resistive Material*** - (P700 Series, not shown) - Prior to the installation of the Deflective Channel, Forming Material and Fill, Void or Cavity Material (Items 3A, 3B, 3C), the steel floor units may be sprayed with a min 5/16 in. thickness to max 11/16 in. thickness of fire resistive material.
 - W R GRACE & CO - CONN** - Type MK-6/HY

2. Wall Assembly - Min 6-1/8 in. (156 mm) thick steel-reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*.

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See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

- 3. Joint System - Max separation between bottom of floor and top of wall is 1 in. (25 mm). The joint system is designed to accommodate a max 19 percent compression or extension from its installed width.** The joint system consists of a forming material and a fill material, as follows:
 - A. Forming Material*** - Min 6-1/2 in. (165 mm) thickness of min 4 pcf (64 kg/m³) density mineral wool batt insulation cut to the shape of the fluted deck, approx 20 percent larger than the area of the flutes with additional min 1/2 in. (165 mm) thick by 1-3/8 in. (35 mm) high sections at the bottom of the shapes to completely fill the 1 in. (25 mm) gap between the top of the wall and bottom of the steel floor or roof deck. Mineral wool to be compressed and firmly packed into the flutes and the gap between the top of the wall and bottom of the steel floor or roof deck.

FIBREX INSULATIONS INC - Fibex Safing Insulation

IIG MINWOOL L L C - MiniWool-1200 Safing

ROCK WOOL MANUFACTURING CO - Delta Board or Delta-8

ROXUL ASIA SDN BHD - Type Safe

ROXUL INC - Type Safe

ROXUL INC - Type Safe

- 3M COMPANY - FireDam™ Spray 200** - Bearing the UL Classification Mark
- 3M COMPANY - FireDam™ Spray 200** - Bearing the UL Classification Mark
- 3M COMPANY - FireDam™ Spray 200** - Bearing the UL Classification Mark

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UL DESIGN NO. Y708 - 2 HOUR

TYPICAL COLUMN

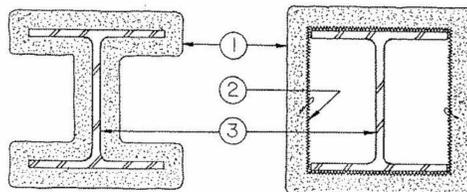
Fire Resistance Ratings - ANSI/UL 263

See General Information for Fire Resistance Ratings - ANSI/UL 263

Design No. Y708

December 22, 2009

Ratings - 1, 1-1/2, 2, 3 & 4 Hr



- 1. Spray-Applied Fire Resistive Materials*** - Applied by mixing with water and spraying in more than one coat to the thicknesses shown below, to steel surfaces which are clean and free of dirt, loose scale, and oil. Min avg and min ind density of 15/14 pcf respectively for the Type 15 and 15-High Yield, 22/18 pcf, respectively for the Type 21, 40/27 respectively for the Type 40, 28/25 respectively for the Type 239, 44, 5/42 respectively for the Type 240-High Yield and 55/50 respectively for the Type 241. For method of density determination, see Design Information Section, Sprayed Material.

The thickness of Spray-Applied Fire Resistive Materials to be applied to all surfaces of the column (Item 1) required for rating periods of 1 hr, 1-1/2 hr, 2 hr, 3 hr, 4 hr may be determined by the equation:

$$h = R$$

$$1.05 (W/D) + 0.61$$

Where:

h = Spray-Applied Fire Resistive Materials thickness in the range 0.25-3.875 in.

R = Fire resistance rating in hours (1 - 4 hr)

D = Heated perimeter of steel column in inches

W = Weight of steel column in lbs per foot

W/D = 0.33 to 6.62

As an alternate to the equation, the minimum thickness of Spray-Applied Fire Resistive Materials required for various fire resistance ratings of contour sprayed or boxed columns may be determined from the table below:

Min Col Size	W/D	Min Thk In.			
		1 Hr	1-1/2 Hr	2 Hr	3 Hr
W6x9	0.33	1-1/8	1-1/2	2	2-1/2
W8x16	0.57	13/16	1-1/4	1-11/16	2-1/2
W8x28	0.67	3/4	1-3/16	1-3/8	2
W10x49	0.83	11/16	7/8	1-1/8	1-11/16
W14x228	2.49	5/16	1/2	9/16	1-1/8
W14x730	6.62	5/16	5/16	5/16	3/8

The thicknesses contained in the table below are applicable when the Spray-Applied Fire Resistive Materials applied to columns' flange tips are reduced to one-half that shown in the table below:

Min Col Size	W/D	Min Thk In.			
		1 Hr	1-1/2 Hr	2 Hr	3 Hr
W6x9	0.33	1-1/8	1-5/8	2-1/16	2-15/16
W8x16	0.57	7/8	1-5/16	1-3/4	1-3/8
W8x28	0.67	13/16	1-3/16	1-1/2	2-3/4
W10x49	0.83	3/4	1-1/16	1-3/8	2-3/4
W14x223	2.49	5/16	1/2	11/16	1-3/16
W14x730	6.62	5/16	5/16	5/16	3/4

CARBOLINE CO - Types 15, 15-High Yield, 22, 40, 239, 240-High Yield, 241, 241 HD.

CARBOLINE KOREA LTD - Types 15, 15-High Yield, 22, 40, 239, 240-High Yield, 241, 241 HD.

CARBOLINE SOUTHEAST ASIA PTE LTD - Types 15, 15-High Yield, 22, 40, 239, 240-High Yield, 241, 241 HD.

CDC CARBOLINE (INDIA) PVT LTD - Types 15, 15-High Yield, 22, 40, 239, 240-High Yield, 241, 241 HD.

STONCOR MIDDLE EAST L L C - Types 15, 15-High Yield, 22, 40, 239, 240-High Yield, 241, 241 HD.

STONCOR SOUTH CONE S A - Types 15, 15-High Yield, 22, 40, 239, 240-High Yield, 241, 241 HD.

2. Metal Lath - (Optional for contour application) - 3.4 lbs/yd galvanized or painted expanded steel lath. Lath shall be lapped 1 in. and tied together with No. 18 SWG galvanized steel; wire spaced vertically 6 in. OC.

3. Steel Column - Wide flange steel column, min sizes as shown in the tables below. *Bearing the UL Classification Mark

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UL DESIGN NO. W-J-1063 - 2 HOUR

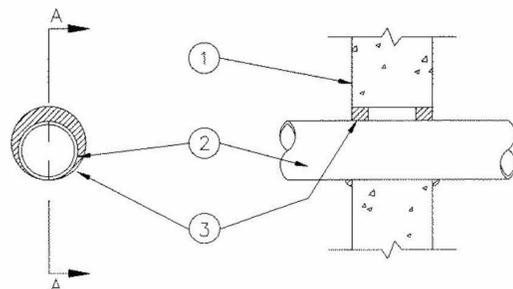
TYPICAL THRU WALL PENETRATION FIRESTOP SYSTEM-CONCRETE AND CMU

System No. W-J-1063

October 14, 2004

F Ratings - 1, 2, 3 and 4 Hr (Item 1)

T Ratings - 0 and 1/4 Hr (See Item 2)



SECTION A-A

- 1. Wall Assembly** - Min 4-7/8, 6-1/8, 7-3/8 and 8-5/8 in. thick normal weight or lightweight (100-150 pcf) concrete for 1, 2, 3 and 4 hr rated assemblies, respectively. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 14-1/8 in.

See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers. **The F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.**

- 2. Through Penetrants** - One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. to max 1-3/8 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
 - A. Steel Pipe** - The following types and sizes of steel pipes may be used:
 - 1A. Nom 4 in. diam (or smaller) Schedule 7 (or heavier) steel pipe.
 - 2A. Nom 8 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - 3A. Nom 10 in. diam (or smaller) Schedule 20 (or heavier) steel pipe.
 When steel pipe is used, T Rating is 1/4 hr for nom 4 in. diam (or smaller) and 0 hr for steel pipes greater than nom 4 in. diam
 - B. Iron Pipe** - Nom 4 in. diam (or smaller) cast or ductile iron pipe. When iron pipe is used T Rating is 1/4 hr.
 - C. Conduit** - Nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT) or steel conduit. When EMT or steel conduit is used T Rating is 1/4 hr.

UL DESIGN NO. W-J-1063 CONT.

D. Copper Tubing - Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing. When copper tube is used T Rating is 0 hr.

E. Copper Pipe - Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe. When copper pipe is used T Rating is 0 hr.

- 3. Fill, Void or Cavity Material* - Sealant** - Min 5/8 in. thickness of sealant for 1 hr rated wall assembly, and min 1 in. thickness of sealant for 2, 3 and 4 hr rated wall assemblies, applied within the annulus, flush with both surfaces of wall. At joint contact location between penetrant and periphery of opening, a min 1/2 in. diam bead of fill material shall be installed at the concrete/penetrant interface on both surfaces of wall. **JOHNS MANVILLE INTERNATIONAL INC - Firetemp™ CI or Firetemp™ CE**

*Bearing the UL Classification Mark

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UL DESIGN NO. W-L-1003 - 2 HOUR

TYPICAL THRU WALL PENETRATION FIRESTOP SYSTEM-GYP. BD.

System No. W-L-1003

February 14, 2008

F Ratings - 1 and 2 Hr (See Item 1)

T Rating - 0 Hr</

System No. HW-D-0025

June 23, 2011

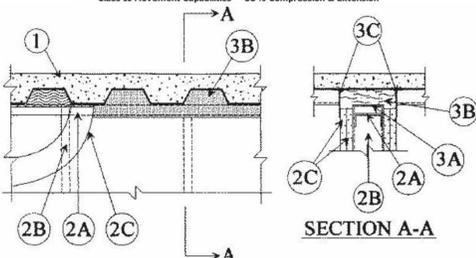
Assembly Ratings - 1 & 2 Hr (See Item 2)

L Rating At Ambient - Less Than 1 CFM/Lin Ft.

L Rating At 400 F - Less Than 1 CFM/Lin Ft.

Nominal Joint Width - 3/4 In.

Class II Movement Capabilities - 33% Compression & Extension



1. Floor Assembly - The fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. Steel Floor and Form Units* - Max 3 in. (76 mm) deep galv steel fluted units.
B. Concrete - Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

1A. Roof Assembly - (Not Shown) - As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory.

- A. Steel Roof Deck - Max 3 in. (76 mm) deep galv steel fluted roof deck.
B. Roof Insulation - Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

- C. Roof Covering* - Hot-mopped or cold-application materials compatible with insulating concrete.

2. Wall Assembly - The 1 hr or 2 hr fire rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

- A. Steel Floor And Ceiling Runners - Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B).

- A1. Light Gauge Framing* - Slotted Ceiling Runner - As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B).

- A2. Light Gauge Framing* - Vertical Deflection Ceiling Runner - As an alternate to the ceiling runner in Items 2A through 2A3, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner.

- A3. Light Gauge Framing* - Notched Ceiling Runner - As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B).

- B. Studs - Steel studs to be min 3-5/8 in. (92 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height.

- C. Gypsum Board* - Gypsum board sheets installed to a min total thickness of 5/8 and 1-1/4 in. (16 and 32 mm) on each side of wall for 1 and 2 hr rated assemblies, respectively.

- D. Forming Material* - Min 4-7/8 in. (124 mm) thickness of min 4 pcf (64 kg/m3) density mineral wool batt insulation cut to the shape of the fluted deck, approximately 25 percent larger than the area of the flutes and compressed into flutes of the steel floor units between the top of the deflection channel and the steel deck, flush with both sides of wall.

- E. ThermaFiber Inc - Type SAF

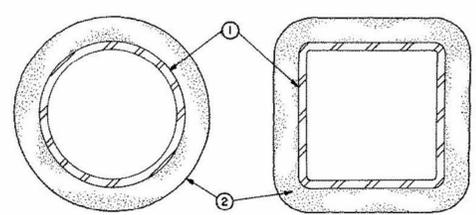
- F. Fill, Void or Cavity Material* - Min 1/16 in. (1.6 mm) dry thickness (min 1/8 in. or 3.2 mm wet thickness) of fibrous material sprayed or brushed on each side of the wall in the flutes of the steel floor units and between the top of the gypsum board and the bottom of the steel floor units to completely cover mineral wool and overlap a min of 1 in. (25 mm) onto gypsum board and steel deck on both sides of wall.

- G. Passive Fire Protection Partners - 3500SL, 5100SP

Design No. X771

March 13, 2007

Ratings - 3/4, 1, 1-1/2, 2, 3 and 4 hr



1. Steel Pipe or Tube Column - Steel circular pipe with diameter (OD) ranging from a minimum of 3 in. to a maximum of 32 in. with a minimum wall thickness of 3/16 in.

2. Spray-Applied Fire Resistant Materials* - Applied by mixing with water and spraying in one or more coats to steel surfaces which must be clean and free of dirt, loose scale and oil.

The A/P ratio of a circular pipe is determined by: A/P pipe = t (d - 1) / d

Where: d = the outer diameter of the pipe (in.) t = the wall thickness of the pipe (in.)

The A/P ratio of a rectangular or square tube is determined by: A/P tube = t (a + b - 2t) / (a + b)

Where: a = the outer width of the tube (in.) b = the outer length of the tube (in.) t = the wall thickness of the tube (in.)

The thickness of Spray-Applied Fire Resistant Materials for ratings of 3/4, 1, 1-1/2, 2, 3 and 4 hr of a steel pipe or tube can be determined by the equation: h = R - 0.20

Where: R = the hourly rating (hrs) h = the thickness of Spray-Applied Fire Resistant Materials, minimum 1/4 in., maximum 3/7-8 in.

ARABIAN VERMICULITE INDUSTRIES - Types MK-5, MK-6/CBF, MK-6/ED, MK-6/HY, MK-6s, Sonophone 1, Sonophone 5, Z-106/G, Z-106/G.

GRACE KOREA INC - Types MK-6/CBF, MK-6/ED, MK-6/HY, MK-6s, Monokote Acoustic 1, Monokote Acoustic 5, Z-106, Z-106/G.

PYROK INC - Type LD.

SOUTHWEST FIREPROOFING PRODUCTS CO - Types 4, 5, SEF, SGP, 5HD, 7GP, 7HD, 8EF, 8GD, 9EF, 9GP, 9HD.

VERMICULITE PRODUCTS INC - Types MK-4, MK-5.

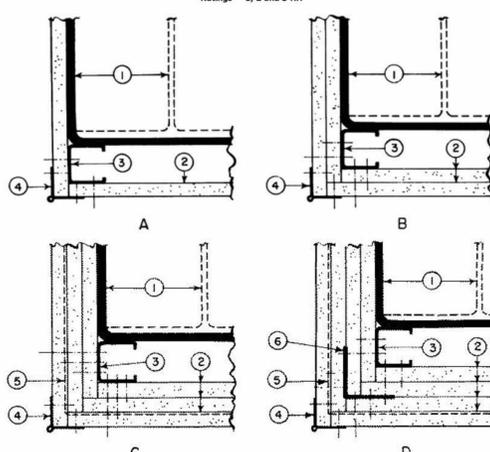
W R GRACE & CO - CONN - Types MK-4, MK-5, MK-6/HY, MK-6s, Monokote Acoustic 1, Monokote Acoustic 5, RG, Z-106, Z-106/G.

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Design No. X528

March 14, 2014

Ratings - 1, 2 and 3 Hr.



1. Steel Column - Min sizes of W-shaped and tubular steel columns which appear in the ASCE Steel Construction Manual as shown under Item 2.

2. Gypsum Board* - Any 1/2 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305. Norm 1/2 in. or 5/8 in. thick gypsum board. Applied in layers as noted in the above illustrations.

3. Corner Details For Various Rating - Table with columns for Rating (Hr) 1, 2, 3 and Corner Details for 1 Hr, 2 Hr, 3 Hr.

Table with columns: W Shaped Column Min Column Size, Rating (Hr) 1, 2, 3, Corner Details For Various Rating (1 Hr, 2 Hr, 3 Hr). Rows include W4x13, W6x15.5, W10x49, Tube Shaped columns TS 4 by 4, by 0.188, TS 8 by 8, by 0.250.

ACADIA DRYWALL SUPPLIES LTD (View Classification) - CKNX.R25370

AMERICAN GYPSUM CO (View Classification) - CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) - CKNX.R19374

CERTAINTED GYPSUM CANADA INC (View Classification) - CKNX.R15187

CERTAINTED GYPSUM INC (View Classification) - CKNX.R3660

CGC INC (View Classification) - CKNX.R19751

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C (View Classification) - CKNX.R18482

GEORGIA-PACIFIC GYPSUM L L C (View Classification) - CKNX.R2717

LOADMASTER SYSTEMS INC (View Classification) - CKNX.R1809

NATIONAL GYPSUM CO (View Classification) - CKNX.R3501

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) - CKNX.R7094

PANEL REY S A (View Classification) - CKNX.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) - CKNX.R19262

THAI GYPSUM PRODUCTS PCL (View Classification) - CKNX.R27517

UNITED STATES GYPSUM CO (View Classification) - CKNX.R1319

USG MEXICO S A DE C V (View Classification) - CKNX.R16089

2A. Gypsum Board* - As an alternate to Item 2, 3/4 in. thick gypsum wallboard. For 2 Hr rating, 1-1/2 in. total thickness, installed in accordance with corner detail B. For 3 Hr rating, 2-1/4 in. total thickness installed in accordance with corner detail C.

CGC INC - Type IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO - Type IP-X3 or ULTRACODE

USG MEXICO S A DE C V - Type IP-X3 or ULTRACODE

2B. Gypsum Board* - (As an alternate to Items 2 and 2A) - Nominal 5/8 in. thick panels. One of the layers of Gypsum Board (Item 2) used to obtain the minimum required thickness in Item 2 may be substituted with one layer and secured as described in Item 2.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM - Type QuickRock ES

2C. Wall and Partition Facings and Accessories* - (As an alternate to Item 2 through 2B) - Composite Gypsum Panel - Nominal 5/8 in. thick panels. One of the layers of Gypsum Board (Item 2) used to obtain the minimum required thickness in Item 2 may be substituted with one layer of composite gypsum panel and secured as described in Item 2.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM - Type QuickRock QR

3. Steel Stud - 1-5/8 in. wide with 1-5/16 and 1-7/16 in. legs having a 1/4 in. folded flange, fabricated from No. 25 MSG galv steel. Length to be 1/2 in. less than the assembly height.

3A. As an alternate to Item 3 Steel Framing Members* - galv. steel clips spaced 4 ft OC and 1-1/4 in. from top and bottom of column. A No. 28 MSG galv steel support angle with 1-1/4 in. length shall be placed over clips and secured with screws attaching the wallboard. The angle cut 1 in. less than assembly height spikes in angle to occur over clips. The clips for use with wide flange columns only.

JOHN WAGNER ASSOCIATES INC, DBA GRABBER - Types CB, CB1Clps.

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Design No. N501

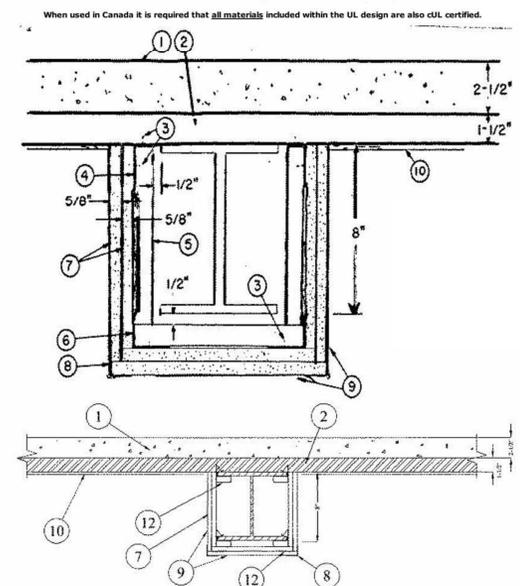
May 05, 2014

Restrained Beam Rating - 2 Hr.

Unrestrained Beam Rating - 2 Hr.

Load Restricted for Canadian Applications - See Guide BU027

When used in Canada it is required that all materials included within the UL design are also cUL certified.



Steel Beam - Min size, a W8x24 with outside dimensions of 7-7/8x6-1/2 in. with a flange thickness of 3/8 in., a web thickness of 1/4 in., and a cross-sectional area of 7.06 sq in.

1. Normal Weight Concrete - 148 pcf.

2. Steel Floor and Form Units* - 1-1/2 in. fluted tube, welded to beam.

3. Drill Screw - No. 8-18 by 1/2-in. long Phillips panhead drill screws, self-drilling and self-tapping, made of case-hardened steel.

4. Runner Angle - 24 MSG galv steel with 1 and 2-in. legs. Fastened to steel deck 12 in. O.C. with Item 3.

5. Channel Bracket - Fabricated from 25 MSG galv steel, 1-11/16 in. deep with 1-in. legs and spaced 24 in. O.C. Fastened to the runner angles with Item 3.

6. Corner Angle - Same material as Item 4, fastened to channel brackets with Item 3.

7. Gypsum Board* - 5/8 in. thick. First layer fastened with 1-1/4 in. long, 0.150 in. diam screws spaced 16 in. O.C. Second layer attached with 1-3/4 in. long, 0.150 in. diam screws spaced 8 in. O.C. Screws are self-drilling and self-tapping Phillips head made of case-hardened steel.

ACADIA DRYWALL SUPPLIES LTD - Type X, 5/8 Type X

AMERICAN GYPSUM CO - Types AGX-1, AG-C.

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO - Type DBX-1.

CERTAINTED GYPSUM CANADA INC - Type C, Type X, Type Abuse-Resistant.

CERTAINTED GYPSUM INC - Types FRPC, SF3, EGRG, GlasRoc, Type C, Type X.

CGC INC - Type C, IP-X1, IP-X2, IPC-AR, SCX, SHX or WRX.

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C - Types LGFC6A, LGFC-C/A.

GEORGIA-PACIFIC GYPSUM L L C - Types 5, C, DAP, DD, DA, DAPC, DGG, DS, GPF51, GPF56, TG-C, Type X, Veneer Plaster Base-Type X, Water Rated-Type X, Sheathing-Type X, Soffit-Type X, GreenGlass-Type X, Type LWX, Veneer Plaster Base-Type LWX, Water Rated-Type LWX, Sheathing-Type LWX, Soffit-Type LWX, Type LWX2, Veneer Plaster Base-Type LWX2, Water Rated-Type LWX2, Sheathing-Type LWX2, Soffit-Type LWX2.

NATIONAL GYPSUM CO - Types FSK, FSK-C, FSK-G, FSL, FSKR-C, FSK, FSW-C, FSW-G, FSW-3, FSW-6, FSW-8.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM - Types C, PG-3, PG-9, PG-11, PG-C, or PGS-WRS.

PANEL REY S A - Type PRC

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD - Type EX-1

THAI GYPSUM PRODUCTS PCL - Type C, Type X.

UNITED STATES GYPSUM CO - Types C, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX.

USG MEXICO S A DE C V - Types C, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX.

8. Corner Bead - Fabricated from 20 MSG galv steel to form an angle with 1-1/4 in. legs. Legs perforated with 1/4 in. diam holes approx 1 in. OC. Attached to wallboard with special crimping tool approx 6 in. OC. As an alternate, the bead may be nailed to the wallboard.

9. Joint Compound - 1/32 in. thick on bottom and sides of wallboard from corner beads and underneath out. Paper tape embedded in joint compound over joints with edges of compound feathered out.

10. Protective Material - Spray-Applied Fire Resistant Materials* - Spray applied to the underside of the steel floor units, filling the flutes of the units and providing a smooth ceiling which is 1/4 in. thick as measured from the bottom plane of the floor units.

See Spray-Applied Fire Resistant Materials (CHFP) category for names of manufacturers.

11. Alternate Joint System - (Not Shown) - For lath only. A 1/16 in. thickness of gypsum plaster applied to entire exposed surface over either paper tape on joints embedded in cementitious compound or 2 1/2 in. wide glass fiber tape stapled 8 in. OC on joints.

12. Alternate Construction - Steel Framing Members* - As an alternate to Items 3, 4, 5 and 6 steel clips attached to both sides of beam flanges 2 ft OC and at ends of beam. First layer of gypsum board fastened to steel clips with 1-1/4 in. long Type 5 drywall screws. 2 in. by 2 in. 25 MSG angle fastened to clips on bottom portion of assembly with 2 in. long Type 5 drywall screws. Second layer of gypsum board fastened to angle and steel clips with 2 in. long Type 5 drywall screws, spaced 2 ft OC. Screws are self-drilling and self-tapping Phillips head made of case-hardened steel.

JOHN WAGNER ASSOCIATES INC, DBA GRABBER - Type CB Clp.

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GAMBINO + LAPORTA ARCHITECTURE, D.P.C. 1298 RICHMOND ROAD STATION ISLAND, NY 10304 PHONE: 718.667.6682 FAX: 718.667.1196 EMAIL: STUDIO@GLA-ARCH.COM WWW.GLARCH.COM

Table with columns: REVISION, DATE, DRAWN, CHECKED, ISSUED FOR ZONING AND PLAN APPROVAL.

Table with columns: PROJECT, DATE, DRAWN, CHECKED, ISSUED FOR ZONING AND PLAN APPROVAL.

288 ST. NICHOLAS BLOCK NO. 195 324 WEST 125TH ST. AND ST. NICHOLAS AVE. NEW YORK, NEW YORK 10027 324 WEST 125TH STREET, LLC. 610 BAY FARMWAY THIRD FLOOR BROOKLYN, NY 11204

UL DESIGN ASSEMBLIES AS NOTED SEAL AND SIGNATURE REGISTERED ARCHITECT STATE OF NEW YORK

DATE: 18 JUL 14 DRAWN BY: GLA/H-0244 CHECKED BY: T.J.L. PROJECT NO: A022.00 SHEET NO: 17 OF 46

UL DESIGN NO. D949 - 1 HOUR

TYPICAL FLOOR ASSEMBLY

Design No. D949

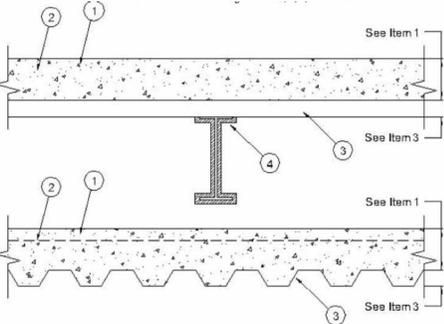
November 13, 2009

Restrained Assembly Ratings - 3/4, 1, 1-1/2, 2, or 3 Hr. (See Item 1, 4 and 6)

Unrestrained Assembly Rating - 0 Hr. (See Items 3, 3A, and 4)

Unrestrained Beam Ratings - 1, 1-1/2, 2, 3, or 4 Hr. (See Item 4)

Load Restricted for Canadian Applications - See Guide X2U7



Supports - W8x28 min size steel beam or min.10K1 steel joists.

1. Normal Weight or Lightweight Concrete - Normal weight concrete carbonate or siliceous aggregate, 3500 psi compressive strength, vibrated. Lightweight concrete, expanded shale, or slate aggregate by rotary-kiln method, or expanded clay aggregate by rotary-kiln or sintered-grate method, 3000 psi compressive strength, vibrated, 4 to 7 percent entrained air.

Table with 4 columns: Restrained Assembly Rating Hr, Concrete (Type), Concrete Unit Weight pcf, Concrete Thins. in.

*For use with 2 or 3 in. steel floor and form units only.

2. Welded Wire Fabric - 6 x 6, 10 x 10 SWG.

3. Steel Floor and Form Units - Composite 1-1/2, 1-5/8, 2 or 3 in. deep galv units or 4-1/2 in. deep noncomposite galvanized units. Fluted units may be uncoated or phosphatized/painted. Min gauges are 22 MSG for fluted and 20/20 MSG for cellular units.

N H ROBERTSON - QL Types, 24 in. wide 3 or 3 Inverted, UKX, UKX-3, 2 in. 99, AXK, 21 or 21 Inverted, 121, NKX, TXK; 24 or 30 in. wide GKX, GKX-3, 2 in. 99, AXK, WXX; 24, 26, or 36 in. wide NKX, 138MX, NKX, AKX, 2 or 3 in. TKX, 12 in. wide noncomposite 16c, 12, 17 in. wide 21, 26 or 28 in. wide UKX, 87.5 cm wide. Side joints of QL, 99, 121, NKX, TXK, TKC, and Metric units of QL-77-900, QLC-77-900 and QLC-77-900 may be fastened together with min 1 in. long No. 12x14 self-drilling, self-tapping steel screws 36 in. OC.

NEW MILLENNIUM BUILDING SYSTEMS L L C - Type 1.5CD, 2.0CD, or 3.0CD. Units may be phosphatized or galvanized.

MORIN CORP - 24, 30 or 36 in. wide Types LXR-B, LXR-B Inverted; 24 or 36 in. wide Type LXR-3W; 36 in. wide Type LXR-2W.

ROOF DECK INC - 36 in. wide Types LOK 1 1/2, LOK 1 1/2 R; 24 in. wide Types LOK-2, LOK-3.

VULCRAFT, DIV OF NUCOR CORP - 24 in. wide, Types 1-1/2, 2 or 3 in. LOK-Floor and LOK-Floor Cell; 24, 30 or 36 in. wide, Type 1-1/2 in. B-LOK and B-LOK Cell.

VALLEY JOIST - 24 or 36 in. wide Types WVC-1/2 or WVC-2.

VERCO DECKING INC - A NUCOR CO - 24, 30 or 36 in. wide Types P1B, B, BR; 24 or 36 in. wide Types PLW2, W2, PLW3, W3; 24 in. wide Types PLW2, W2, PLW3 or W3 units may be blended with 24 or in. wide PLW2, W2, PLW3 or W3 units, respectively. Units may be phosphatized.

VULCRAFT, DIV OF NUCOR CORP - 24, 30 or 36 in. wide, Types 1.5VL, 1.5VL1, 1.5VPL, 1.5VLR; 24 or 36 in. wide, Types 2VL, 2VL1, 2VPL, 2VLR. Side joints of Type 1.5VL may be fastened together with min 1 in. long No. 12x14 self-drilling, self-tapping steel screws 36 in. OC max.

WIREMOLD CO - 24 in. wide, Types 2 or 3 in. WDR.

WHEELING PITTSBURGH STEEL CORP, DIV OF WHEELING CORRUGATING CO - 30 in. wide Types SB-150, -150N, -150NR, -150R; 30 or 36 in. wide Types SB-160F, -B160FR; 24 or 36 in. wide Types SB-P21LF, -P31LF; 24 in. wide Types SB-200, -300. Type SB-B160FR may be attached to Lock Form Type, 24, 30 or 36 in. wide Types B160F, B160FR; 24 in. wide Types C3ALF, N3ALF, P3ALF, P3ALFR; 12, 24 or 36 in. wide Types C20LF, C20L, C3LF, P20LF, P20L, P3LF, 36 in. wide Types 1.5 SB, 1.5 SBH, 24 or 36 in. wide Types 2.0 SB, 3.0 SB, 36 in. wide Type High Strength 1.5 SBH, 36 in. wide Type High Strength 1.5 SBH; 30 in. wide, Types 1-1/2 in. W-Grp, 24 or 36 in. wide, Type 1-1/2 in. W-Grp; 36 in. wide, Type 212V3-Wireway, 212V3-Wireway.

Components for field - assembled cellular metal raceway units:

Raceway bottom - 24 or 36 in. wide Types 212V5, 212V5.

Raceway cover plate - Types CP-12, CP-16.

Raceway divider - Types DC-20, DC-25.

Raceway isolation trough - Types T-20, T-25, T-30.

Spacing of welds attaching units to supports shall be 12 in. OC for 12, 24, and 36 in. wide units, four welds per sheet for 30 in. wide units, 6 in. OC for 18 in. wide and 3 in. OC for 12 in. wide units. Unless noted otherwise, adjacent units button-punched or welded together 36 in. OC along side joints. Adjacent 18 in. wide units welded together 30 in. OC along side joints. For 3 Hr. Rating, units with overlapping type side joints welded together 24 in. OC max.

When a superimposed load of 250 PSF is desired the spacing of welds or button-punches shall not exceed 24 in. OC along side joints.

- (1) all 18, 24, 26, 28 or 36 in. wide cellular.
(2) all fluted.
(3) one or two 3 in. deep, 12 in. wide, 18/18 MSG min cellular units, alternating with 3 in. deep fluted or other cellular.
(4) any blend of fluted and 18, 24, 26, 28, or 36 in. wide cellular.
(5) 1 in. deep, 30 in. wide cellular with 8-1/8 in. wide valley along side joints may be used when 3/8 in. diam reinforcing bars are placed 1-1/2 in. to each side of side joints and 1 in. above bottom of unit.
(6) corrugated, 1-5/16 in. deep, 30 in. wide, 24 MSG min galv units with shear wires factory welded to deck corrugations. Welded to supports 12 in. OC, through welding washers. For shear wire spacing of 8 in. or less the steel deck strength shall not exceed 20 KSI. For shear wire spacing greater than 8 in., OC, but less than or equal to 12 in., OC, steel deck stress shall not exceed 12 KSI.

ASC STEEL DECK, DIV OF ASC PROFILES

2WC - 24, 30, or 36 in. wide, Types B Hi-Form, BF Hi-Form, N Hi-Form, NF Hi-Form, 2W Hi-Form, 2WF Hi-Form, 3W Hi-Form, 3WF Hi-Form, BR Hi-Form, BRM Hi-Form, BRMD Hi-Form, 32 in. wide Type N-32; 24 or 30 in. wide, Types ASC2 or ASC3. All units may be galvanized or Prime Shield.

CANAM STEEL CORP - 36 in. wide Type P-3623, P-3656, and P-3615 composite; 24 in. wide Type P-2432 composite.

CMC JOIST & DECK - MANUFACTURERS

OF UNITED STEEL DECK PRODUCTS - 24 in. wide, Types 1-1/2, 2 or 3 in. LOK-Floor and LOK-Floor Cell; 36 in. wide, Types 2 or 3 in. LOK-Floor and LOK-Floor Cell; 24 in. wide, Types N-LOK and N-LOK Cell; 24, 30 or 36 in. wide, Type 1-1/2 in. B-LOK and B-LOK Cell.

CONSOLIDATED SYSTEMS INC - 24 in. wide Types CFD-2, CFD-3; 24, 30 or 36 in. wide Type CFD-1.5; 24 or 36 in. wide Type Mac-Lok 2, Mac-Lok 3; 24 in. wide, Types B2C, B2FC, N2C, N2FC; 30 in. wide Type B3C, 12 in. wide Mac-Way cellular 45 MW, 2-633 MTW, 3-633 MTW, 2, 633MTW, 3-633MTW+, 24 in. wide Type Versa-Deck.

UL DESIGN NO. D949 CONT.

DECK WEST INC - 36 in. wide Type B-DW, Inverted B-DW, BA-DW, Inverted BA-DW, D-DW or 3-DW. Side joints of Type 2-DW and 3-DW may be fastened together with min 1 in. long No. 12 x 14 self-drilling, self-tapping steel screws 36 in. OC.

EPIC METALS CORP - 24 in. wide Types EC150, ECP150, EC300, ECP300, EC366, ECP366, EC150, EC300 inverted, Epicore A; 2.0 ECA, 30 in. wide Types EC3150, ECR150; 36 in. wide Type EC266.

GENS METALS INC - 24 or 36 in. wide Types LF2, LF3.

MARLYN STEEL DECKS INC - Type 1.5 CF, 2.0 CF or 3.0 CF.

CHIA TEN CONSTRUCTION MATERIAL CO LTD - 24 or 36 in. wide Mac-Lok 3; 24 in. wide CFD-3.

HAMBRO STRUCTURAL SYSTEMS, DIV OF

CANAM STEEL CORP - 36 in. wide, 1-1/2 in. Type P3615SH. The max superimposed loadings for Type P3615SH units shall not exceed 250 PSF. For single spans, the use of the units shall be limited to 5 ft 6 in., 6 ft 0 in. and 6 ft 6 in. max spans for the 22, 20 and 18 gauge units, respectively. For multiple spans, 18 gauge units may be used on a max 7 ft 6 in. spans with a max total superimposed loading of 240 PSF. +12 in. wide, 1-1/2 in. deep Mac-Way units may be blended with 24 in. wide B2C or 30 in. wide B3C units in a blend of one cell to one or more fluted units. 12 in. wide, 2 in. deep Mac-Way units may be blended with 36 in. wide Mac-Lok 3 units in a blend of one cell to one or more fluted units. The side edge of the fluted unit is placed on the top of the side edge of the Mac-Way unit and the two are welded together with welding washers spaced a max. of 32 in. OC for Mac-Lok 2 or 3 units and a max. of 24 in. OC for the B2C or B3C units.

The Unrestrained Assembly Rating is equal to the Unrestrained Beam Rating for a max of 3 Hr. and is limited to the following units and limitations:

- (a) 1-1/2 in. deep, 24 in. wide, 22 MSG or thicker fluted with clear spans not more than 7 ft 8 in.
(b) 1-1/2 in. deep, 24 in. wide, 20 MSG or thicker fluted with clear spans not more than 8 ft 8 in.
(c) 1-1/2 in. deep, 24 in. wide, 16 MSG or thicker fluted and 18/18 MSG or thicker cellular with clear spans not more than 9 ft 11 in.
(d) 3 in. deep, 36 in. wide, 18 MSG or thicker fluted and 24 in. wide, 20/18 MSG or thicker cellular with clear spans not more than 13 ft 2 in.

3A. Steel Floor and Form Units* - As an alternate to Item 3, 2 in. deep, 20 MSG composite units.

VULCRAFT, DIV OF NUCOR CORP - 36 in. wide, Types 2VL

4. Spray-Applied Fire Resistive Materials* - Applied by mixing with water and spraying in more than one coat to the beam to the final thicknesses shown below. Deck crests areas shall be filled with Spray-Applied Fire Resistive Materials above the beam. Room under and over of, base coats and top coats, min avg and min ind density of 17/16 pcf respectively. Min avg and min ind density of 19/18 pcf respectively for Types 7GP and 7HD. For fire resistive determination, see Design Information Section.

When Joists are utilized:

Table with 5 columns: Restrained Assembly, Unrestrained Assembly, Unrestrained Beam, SFRM Thickness, SFRM Joist spacing 4 ft. OC spacing or less.

Table with 5 columns: Restrained Assembly, Unrestrained Assembly, Unrestrained Beam, Concrete, SFRM Thickness.

** The 2-1/2 and 3-1/2 hour ratings are for use when mineral fiber boards, polystyrene insulation exceeding 5 pcf, or polycyanurate insulation are used in D900 areas designs as stated in the front of the Fire Resistance Directory - III. FLOOR-CEILING AND ROOF-CEILING, Item 21, Roof Insulation.

The thickness of Spray-Applied Fire Resistive Materials shown in the table below are applicable when the thickness applied to the beams lower flange edges is reduced by one-half and the beams are supporting solid concrete slabs or floor assemblies containing only fluted floor or form units.

Table with 5 columns: Restrained Assembly, Unrestrained Assembly, Unrestrained Beam, Concrete, SFRM Thickness.

+ Thickness applied to beams' lower flange edges shall be a min of 1/4 in.

SOUTHWEST FIREPROOFING PRODUCTS CO - Types 4, 5, 5F, 5G, SGP, 7HD, 7HD, BEF, 8GP, BMD, 9EF, 9GP, 9HD.

5. Shear-Connector Studs - Optional - Studs 3/4 in. diam by 3 in. long, for 1-1/2 in. deep form units to 5-1/4 in. long for 3 in. deep form units, headed type or equivalent per AISC specifications. Welded to the top flange of the beam through the steel form units.

6. Electrical Inserts - (Not shown) Classified as "Outlet Boxes and Fittings Classified for Fire Resistance."

N H ROBERTSON - Preset Inserts

For use with 2-1/2 in. lightweight concrete topping over QL-WXK steel floor units. Installed over factory-punched holes in floor units per accompanying installation instructions.

Spacing shall not be more than one insert in each 14 sq ft of floor area with spacing along floor units not less than 48 in. OC. The holes cut in insert cover for passage of wires shall be no more than 1/8 in. larger than wire. Restrained Assembly Rating is 3/4 hr with Tapmate II-PS-1 and 1 hr with Tapmate II-PS-2 inserts.

N H ROBERTSON - Tapmate II-PS-1, II-PS-2; Series XE8.

(2) Walker Systems Inc. - After set inserts.

Single-service after set inserts installed per accompanying installation instructions in 2-1/2 in. diam hole core-drilled through min 3-1/4 in. thick concrete topping to top of all of any min 3 in. deep cellular steel floor unit specified under Item 3. Spacing shall be no more than one insert in each 10 sq ft of floor area in each span with a min center to center spacing of 16 in. If the high potential and low potential raceways of the cellular steel floor unit are separated by a valley filled with concrete, the center to center spacing of the high potential and low potential single-service after set inserts may be reduced to a min of 7-1/2 in. Restrained Assembly Rating is 2 hr or less with internally protected type 436 after set insert with Type M4-, M6- or M8- Series single-service activation fitting.

WIREMOLD CO - Internally protected Type 436 after set insert with Type M4-, M6- or M8- Series single-service activation fitting.

7. Mineral and Fiber Boards* - (Optional, not shown). Applied over concrete floor with no restriction on board thickness. When mineral and fiber boards are used, the unrestrained beam rating shall be increased by a minimum of 1/2 hr.

See Mineral and Fiber Board (CER2) category for names of manufacturers.

8. Roof Covering Materials* - (Optional, not shown) Consisting of materials compatible with insulations described herein which provide Class A, B or C coverings. See Built-Up Roof Covering Materials in Building Materials Directory.

9. Insulating Concrete - (not shown) Optional. Various types of insulating concrete prepared and applied in the thickness indicated:
A. Vermiculite Concrete - (not shown) Optional.
1. Blend 6 to 8 cu. ft. of Vermiculite Aggregate* to 94 lb. Portland Cement and air entraining agent. Min thickness of 2 in. as measured to the top surface of the structural concrete or foamed plastic (Item 10) when it is used.

UL DESIGN NO. D949 CONT.

SIPLAST INC
VERMICULITE PRODUCTS INC

Vermiculite concrete may be covered with Roof Covering Materials (Item 8).

B. Cellular Concrete - Roof Topping Mixture* - concentrate mixed with water and Portland cement per manufacturers specifications. Cast dry density and 28-day min. compressive strength of 190 psi as determined with ASTM C495-66.

CELCORE INC - Type Celcore with cast dry density of 31 (+ or - 3.0) pcf or Type Celcore MF with cast dry density of 29 (+ or - 3.0) pcf.

CELLULAR CONCRETE L L C - Cast dry density of 37 (+ or - 3.0) pcf.

ELASTZELL CORP OF AMERICA - Type II. Mix #1 of cast dry density 39 (+ or - 3.0) pcf, Mix #2 of cast dry density 41 (+ or - 3.0) pcf, Mix #3 of cast dry density 47 (+ or - 3.0) pcf.

C. Cellular Concrete-Roof Topping Mixture* - Concentrate mixed with water and Portland cement per manufacturers specifications. 28-day min. compressive strength of 190 psi as determined with ASTM C495-66.

LITE-CRETE INC - Cast dry density of 29 (+ or - 3.0) pcf.

SIPLAST INC - Mix No. 1 or 2. Cast dry density of 32+3 (Mix No. 1) or 36+3 (Mix No. 2) pcf.

D. Perlite Concrete - 6 cu ft. of Perlite Aggregate* to 94 lb of Portland Cement and 1-1/2 ft air entraining agent. Min. thickness 2 in. as measured to the top surface of structural concrete or foamed plastic (Item 10A) when it is used.

See Perlite Aggregate (CFX) in Fire Resistance Directory for names of manufacturers.

E. Cellular Concrete - Roof Topping Mixture* - Foam Concrete mixed with water, Portland Cement and UL Classified Vermiculite Aggregate per manufacturer's application instructions. Cast dry density of 33 (+ or - 3.0) pcf and 28-day compressive strength of min 250 psi as determined in accordance with ASTM C495-66.

CELULAR CONCRETE L L C - Mix No. 3.

SIPLAST INC - Mix No. 3.

F. Floor Topping Mixture* - (Optional, not shown) - Approx 4.5 gal of water to 41 lbs of NYS Premix floor topping mixture. Slurry coat 1/8 in. thickness beneath foamed plastic (Item 10) when used, 1 in. min topping thickness.

SIPLAST INC
VERMICULITE PRODUCTS INC

10A. Foamed Plastic* - For use only with cellular concrete. Nominal 24 by 48 by 8 in. thick polystyrene foamed plastic insulation having slots and/or holes sandwiched between vermiculite concrete slurry which is applied to the normal or lightweight concrete surface and vermiculite concrete topping (Item 9A). Max. thickness to be 8 in.

See Foamed Plastic (BRYX) category in Building Materials Directory or Foamed Plastic (CCOV) category in Fire Resistance Directory for list of manufacturers.

11. Foamed Plastic* - (Optional, not shown). Polycyanurate roof insulation, applied over concrete floor with no restriction on insulation thickness. When polycyanurate insulation is used, the unrestrained beam rating shall be increased by a minimum of 1/2 hr.

See Foamed Plastic (CCOV) category for list of manufacturers.

*Bearing the UL Classification Mark

UL DESIGN NO. U404 - 1 HOUR

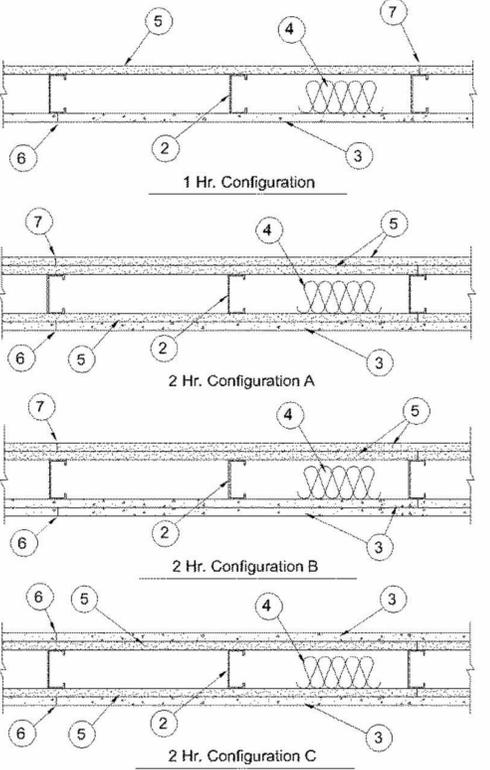
TYPICAL EXTERIOR HALL NON BEARING

Design No. U404

January 27, 2014

Nonbearing Wall Rating - 1 and 2 Hr (See Items 3 and 5)

When used in Canada it is required that all materials included within the UL design are also CUL certified.



- 1. Steel Floor and Ceiling Runners - (Not Shown) - Channel shaped, 3-1/2 in. wide by 1-1/4 in. deep, fabricated from min 20 MSG (0.0329 in. min bare metal thickness) galvanized steel. Attached to floor and ceiling with steel fasteners spaced 24 in. OC max.
2. Steel Studs - Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min width, min 1-1/2 in. Ranges and 1/4 in. return, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 2/4 in. less than assembly height.
3. Cementitious Backer Units* - 1/2 in. or 5/8 in. thick, applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with corrosion resistant, chamfered, ribbed washer head screws with a minimum head diameter of 400 inch. For nonbearing systems, fastened to studs and bottom runners with the uppermost screws placed 1/2 in. to 2 in. below the bottom edge of the leg of the top runner. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. 2-Hr System - For the base layer in Configuration B, the screws shall be min 1-1/4 in. long and spaced a max of 8 in. OC. All vertical joints staggered one stud cavity from gypsum board vertical joints on the opposite side of studs. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. 2-Hr System - For the base layer in Configuration B, the screws shall be min 1-1/4 in. long and spaced a max of 12 in. OC. For the face layers, screws shall be 1-5/8 in. long and spaced a max of 8 in. OC. All face layer joints offset min 12 in. from underlying base layer joints. Joints in either layer need not be staggered from joints on the opposite side of the wall.

UL DESIGN NO. U404 CONT.

UNITED STATES GYPSUM CO - Type DCB

4. Batts and Blankets* - Min 3 in. thick mineral wool insulation batts, friction-fitted between studs.

IIG MINIWOL L L C - Type S4FB

THERMAFIBER INC - Type S4FB.

5. Gypsum Board* - 5/8 in. thick, with square or tapered edges, applied vertically or horizontally with vertical joints centered over studs. Horizontal joints need not be backed by framing. Fastened with Type S-12 screws. 1-Hr System - For vertical application, fastened to studs and runners with 1 in. long screws spaced max 8 in. OC at vertical edges and spaced max 12 in. OC in the field. For horizontal application, fastened to studs and runners with 1 in. long screws spaced max 8 in. OC. Vertical joints staggered one stud cavity from cement board vertical joints on opposite side of studs. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. 2-Hr System - Base layer with an overlying gypsum board face layer, fastened with 1 in. long screws spaced max 16 in. OC to studs and runners. Base layer with overlying cement board face layer, fastened with 1 in. long screws spaced max 12 in. OC to studs and runners. Face layers fastened with 1-5/8 in. long screws spaced max 16 in. OC to studs and runners with screws offset 8 in. from face layer screws. Face layer joints offset min 12 in. from base layer joints. Joints in either layer need not be staggered from joints on the opposite side of the wall. When used in widths other than 48 in., gypsum panels to be installed horizontally.

IGC INC - Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SH, SOX, ULX, WRC or WRX.

UNITED STATES GYPSUM CO - Type AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SH, ULX, WRC, WRX, USGX (Joint tape and compound, Items 6 and 7, optional for use with Type USGX).

USG MEXICO S A DE C V - Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SH, ULX, WRC, WRX.

5A. Gypsum Board* - (As an alternate to Item 5) may be used as the base layer on one or both sides of wall. For Direct attachment only. Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

RAY-BAR ENGINEERING CORP - Type RB-LBG

5B. Gypsum Board* - (As an alternate to Item 5) may be used as the base layer on one or both sides of wall. For direct attachment only. Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 in. long bugle head fire filler steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

NEW ENGLAND LEAD BURNING CO, INC, DSA NELCO - Netco

5C. Gypsum Board* - (As an alternate to Item 5) For Direct Application to Studs Only- For use as the base layer or as the face layer. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-5/8 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field when applied as the base layer. When applied as the face layer screw length to be increased to 2-1/2 in. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 10 lb ring with a max thickness of 0.140 in. placed on the face of studs and attached to the stud with two 1 in. long Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, max 5/16 in. diam by max 0.140 in. thick, compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.5% meeting the Federal specification QQ-L-2011, Grades "B, C or D". Fasteners for face layer gypsum panels (Item 5) when installed over lead backed board to be min 2-1/2 in.

MAYCO INDUSTRIES INC - Type X-Ray Shielded Gypsum

5D. Gypsum Board* - (As an alternate to Item 5) may be used as the base layer on one or both sides of wall. For direct attachment only. For Direct Application to Studs Only- Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips, min 2 in. wide, max 8 lb ring with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.5% meeting the Federal specification QQ-L-2011, Grade "C". Fasteners for face layer gypsum panels (Item 5) when installed over lead backed board to be min 2-1/2 in. Type S-12 bugle head steel.

RADIATION PROTECTION PRODUCTS INC - Type RPP - Lead Lined Drywall

6. Joints - Covered with glass fiber mesh tape and latex modified Portland cement mortar or basecoat, or Type I organic adhesive.

7. Joints - When tapered edge gypsum board is used, face layer joints covered with joint compound and paper tape. As an alternate, gypsum veneer plaster may be applied to the entire surface of classified veneer baseboard with joints reinforced. When square edge gypsum board is used, treatment of joints is optional.

8. Vapor Retarder, Water Barrier or Weather Resistive Barrier - (Optional - Not shown) - As required.

9. Lead Batten Strips - (Not Shown, For use With Item 5A) - Lead batten strips, min 1-1/2 in. wide, max 10 lb ring with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-2011, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5A) and optional at remaining stud locations. Required behind vertical joints.

10. Lead Batten Strips - (Not Shown, For use With Item 5C) Lead batten strips, 2 in. wide, max 10 lb ring with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-2011, Grades "B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5B) and optional at remaining stud locations.

10A. Lead Discs - (Not Shown, For use With Item 5C) Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-2011, Grades "B, C or D".



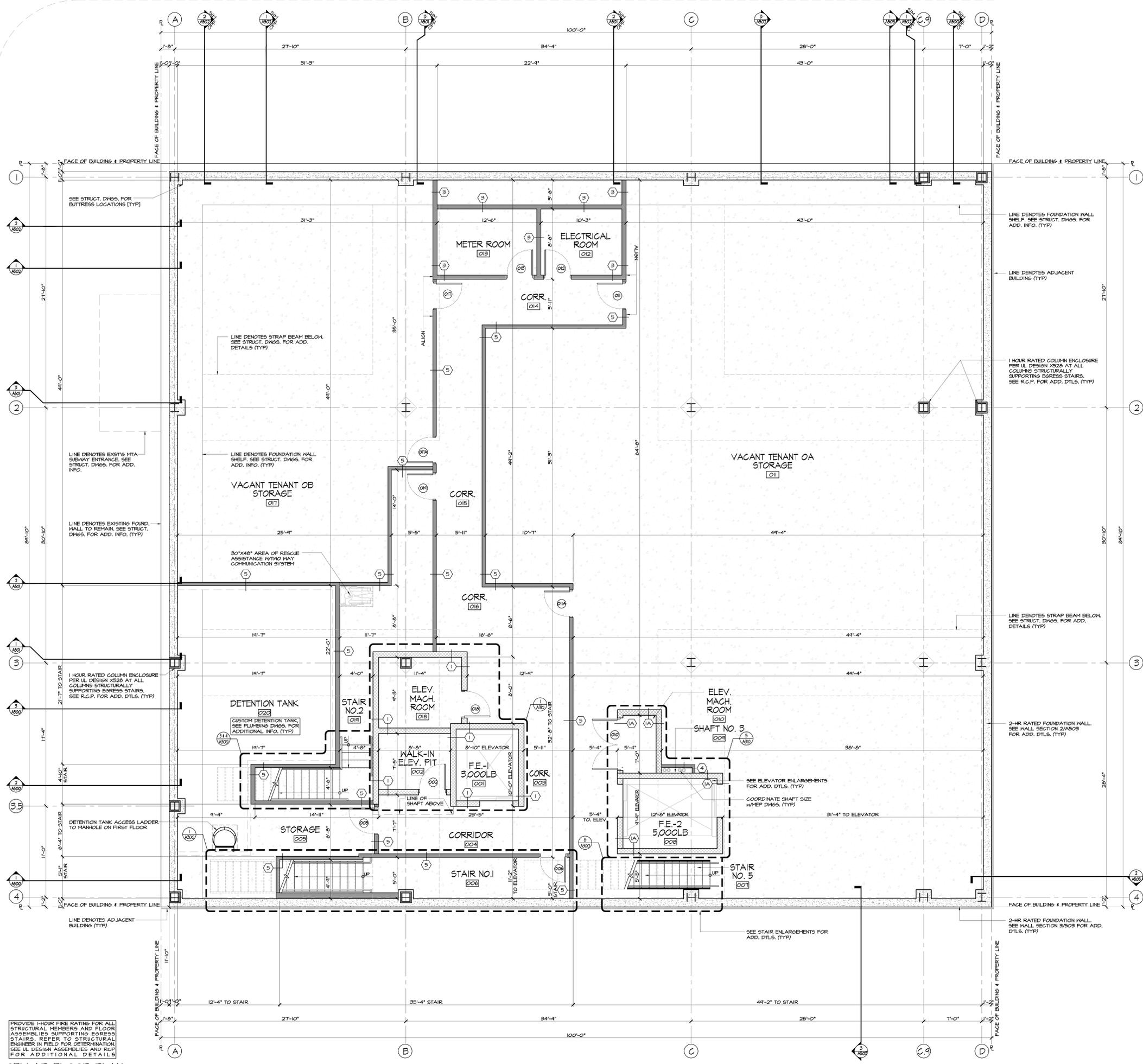
GAMBINO + LAPORTA
ARCHITECTURE, D.P.C.
 1298 RICHMOND ROAD STATEN ISLAND, NY 10314
 PHONE: 718.667.6682 FAX: 718.667.1196 | EMAIL: STUDIO@G-L-A.COM

W W W . G L A . C O M

PARTITION LEGEND

PARTITION	RATING
① 8" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING w/FIRE SAFING INSUL. PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE NOTE: SEE STRUCT. DWGS FOR REINFORCEMENT DETAILS	2 HR UL DESIGN #R106
② SAME AS PARTITION TYPE 1	1 HR UL DESIGN #R106
③ 6" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING w/FIRE SAFING INSUL. PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE	1 HR UL DESIGN #R106
④ 3-5/8" 20 GA METAL STUDS @ 16" O.C. w/ (2) LAYERS 5/8" GYP. BD. @ BOTH FACES w/3" MINERAL WOOL BATT PART. HT. TO UNDERSIDE OF FLOOR STRUCTURE ABOVE	2 HR UL DESIGN #R414
⑤ 2-1/2" X 1-1/2" 20 GA C-H STUDS @ 16" O.C. w/ 1" GYP. BD. LINER PANELS AND (2) LAYERS OF 1/2" GYP. BD. PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE	2 HR UL DESIGN #R430
⑥ 1 HOUR RATED COLUMN ENCLOSURE PER UL DESIGN #529 AT ALL COLUMNS STRUCTURALLY SUPPORTING EGRESS STAIRS. SEE R.C.P. FOR ADD. DTLS. (TYP)	1 HR UL DESIGN #R414
⑦ 3-5/8" 20 GA METAL STUDS @ 16" O.C. w/5/8" GYP. BD. @ BOTH FACES w/3" BATT INSULATION PART. HT. TO UNDERSIDE OF FLOOR STRUCTURE ABOVE	1 HR UL DESIGN #R414
⑧ 1-5/8" 20 GA METAL STUDS @ 16" O.C. w/5/8" GYP. BD. HELD TIGHT TO 8" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING w/FIRE SAFING INSUL. PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE NOTE: SEE STRUCT. DWGS FOR REINFORCEMENT DETAILS	2 HR UL DESIGN #R106

- GENERAL PARTITION NOTES:**
- SEE UL DESIGN ASSEMBLIES FOR DETAILED PARTITION INFORMATION
 - SIZE & GAUGE OF STUDS LISTED SHALL BE AS DETERMINED BY MANUFACTURER'S HEIGHT LIMITATIONS FOR NON-BEARING INTERIOR WALLS AND 3 PSF WIND LOAD.
 - PROVIDE WATER RESISTANT GYPSUM BOARD AT ALL WET AREAS.
 - SEE STRUCTURAL DRAWINGS FOR REINFORCING DETAILS.



PROVIDE 1-HOUR FIRE RATING FOR ALL STRUCTURAL MEMBERS AND FLOOR ASSEMBLIES SUPPORTING EGRESS STAIRS. REFER TO STRUCTURAL ENGINEER IN FIELD FOR DETERMINATION. SEE UL DESIGN ASSEMBLIES AND RCP FOR ADDITIONAL DETAILS.

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

NO.	DATE	DESCRIPTION

288 ST. NICHOLAS
 BLOCK NO. 145
 324 WEST 125TH ST. AND ST. NICHOLAS AVE.
 NEW YORK, NEW YORK 10027
 EN 10/05/2020

324 WEST 125TH STREET, LLC.
 670 BAY FERRYWAY-THIRD FLOOR
 BROOKLYN, NY 11224



DATE: 10/14/24
 DRAWING NO.: GLA14-0294
 T.J. [Signature]
 PROJECT NO.: A100.00
 SHEET NO.: 19 OF 46



GAMBINO + LAPORTA
ARCHITECTURE, D.P.C.
 1298 RICHMOND ROAD STATEN ISLAND, NY 10304
 PHONE: 718.667.6682 FAX: 718.667.1196 EMAIL: STUDIO@G-L-ARCH.COM

W W W . G L A P O R T A . C O M

NO.	DATE	REVISION

288 ST. NICHOLAS
 BLOCK NO. 145
 324 WEST 125TH ST. AND ST. NICHOLAS AVE.
 NEW YORK, NEW YORK 10027
 BIN NO. 050000

324 WEST 125TH STREET, LLC.
 670 BAY PARKWAY-THIRD FLOOR
 BROOKLYN, NY 11204

REGISTERED ARCHITECT
 STATE OF NEW YORK

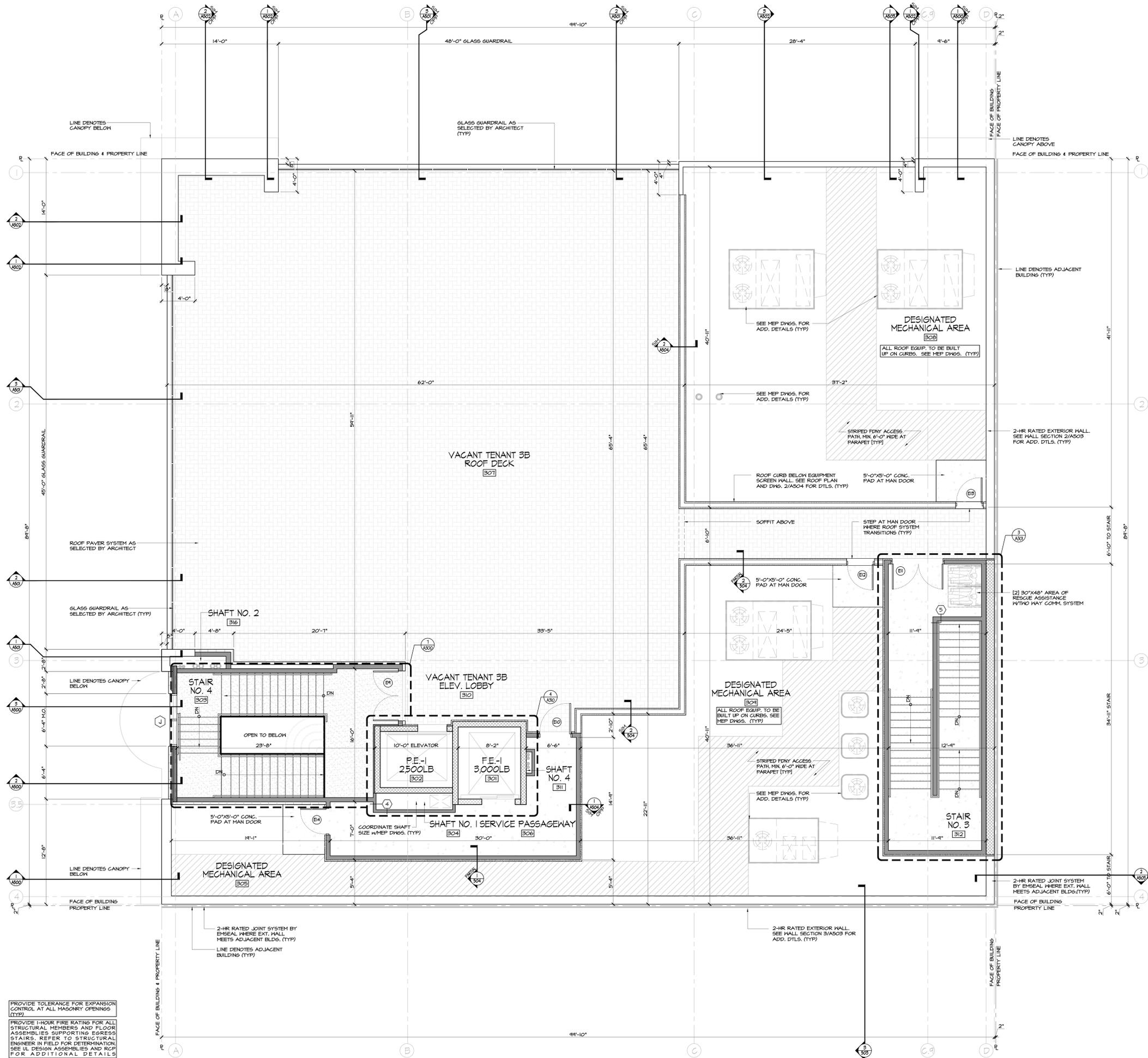
DATE: 10.11.14
 PROJECT: GLA14-0294
 T.J.L.
 T.J.L.
 A103.00

22 OF 46

PARTITION LEGEND

PARTITION	RATING
① 6" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING W/FIRE SAFING INSUL. PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE. NOTE: SEE STRUCT. DWGS FOR REINFORCEMENT DETAILS.	2 HR UL DESIGN #R106
①A SAME AS PARTITION TYPE 1	1 HR UL DESIGN #R106
② 6" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING W/FIRE SAFING INSUL. PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE.	1 HR UL DESIGN #R106
③ 3-5/8" 20 GA METAL STUDS @ 16" O.C. W/ (2) LAYERS 5/8" GYP. BD. @ BOTH FACES W/3" MINERAL WOOL BATT PART. HT. TO UNDERSIDE OF FLOOR STRUCTURE ABOVE.	2 HR UL DESIGN #R414
④ 2-1/2" X 1-1/2" 20 GA C-H STUDS @ 16" O.C. W/ 1" GYP. BD. LINER PANELS AND (2) LAYERS OF 1/2" GYP. BD. PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE.	2 HR UL DESIGN #R430
⑤ 3-5/8" 20 GA METAL STUDS @ 16" O.C. W/3" GYP. BD. @ BOTH FACES W/3" BATT INSULATION PART. HT. TO UNDERSIDE OF FLOOR STRUCTURE ABOVE.	1 HR UL DESIGN #R414
⑥ 1-5/8" 20 GA METAL STUDS @ 16" O.C. W/3" GYP. BD. HELD TIGHT TO 6" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING W/FIRE SAFING INSUL. PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE. NOTE: SEE STRUCT. DWGS FOR REINFORCEMENT DETAILS.	2 HR UL DESIGN #R106

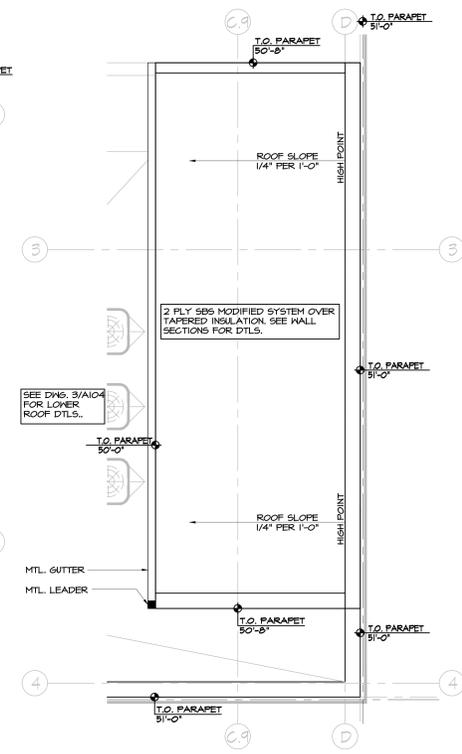
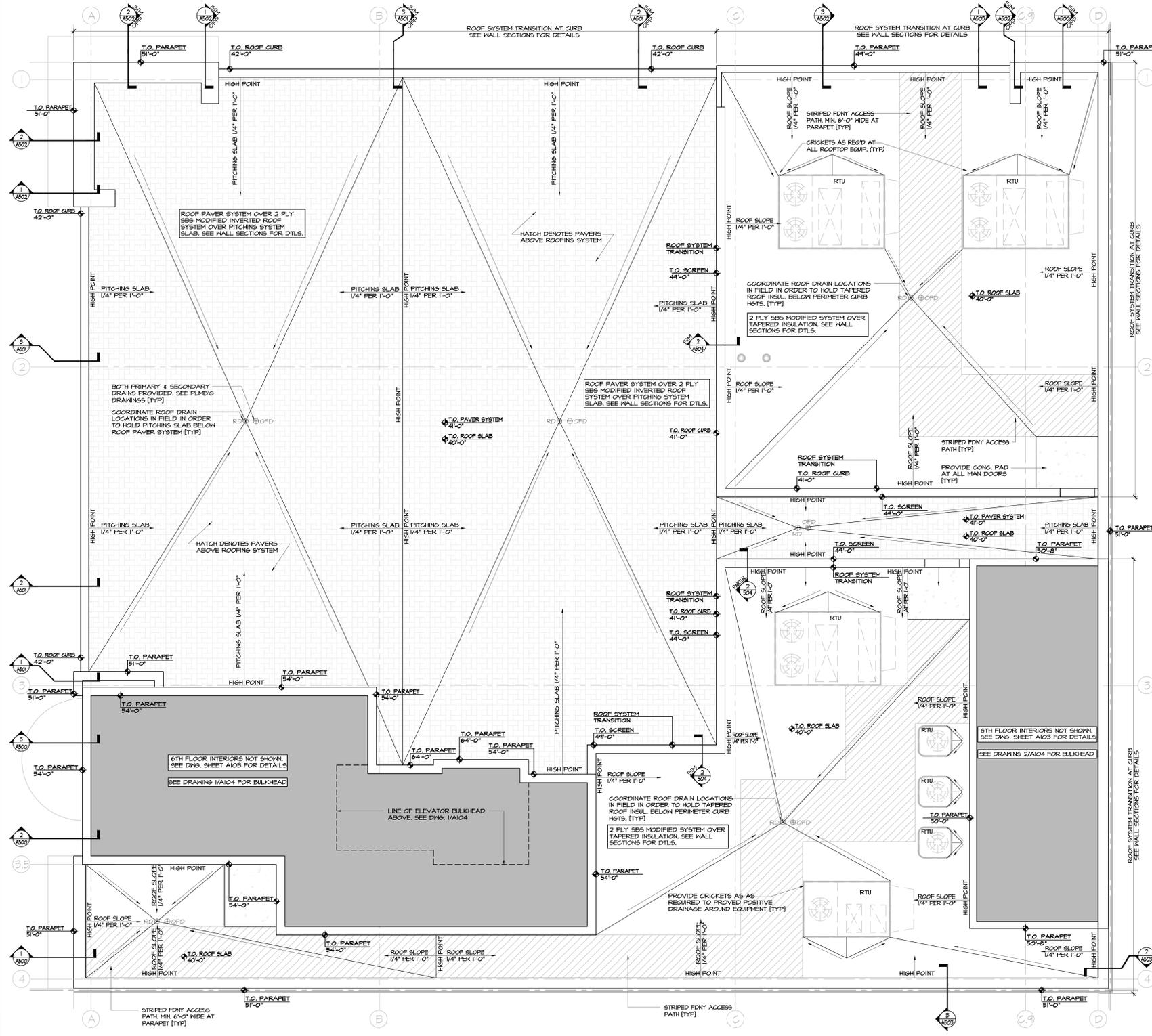
- GENERAL PARTITION NOTES:**
- SEE UL DESIGN ASSEMBLIES FOR DETAILED PARTITION INFORMATION
 - SIZE & GAUGE OF STUDS LISTED SHALL BE AS DETERMINED BY MANUFACTURER'S HEIGHT LIMITATIONS FOR NON-BEARING INTERIOR WALLS AND 3 PSF WIND LOAD.
 - PROVIDE WATER RESISTANT GYPSUM BOARD AT ALL WET AREAS.
 - SEE STRUCTURAL DRAWINGS FOR REINFORCING DETAILS.



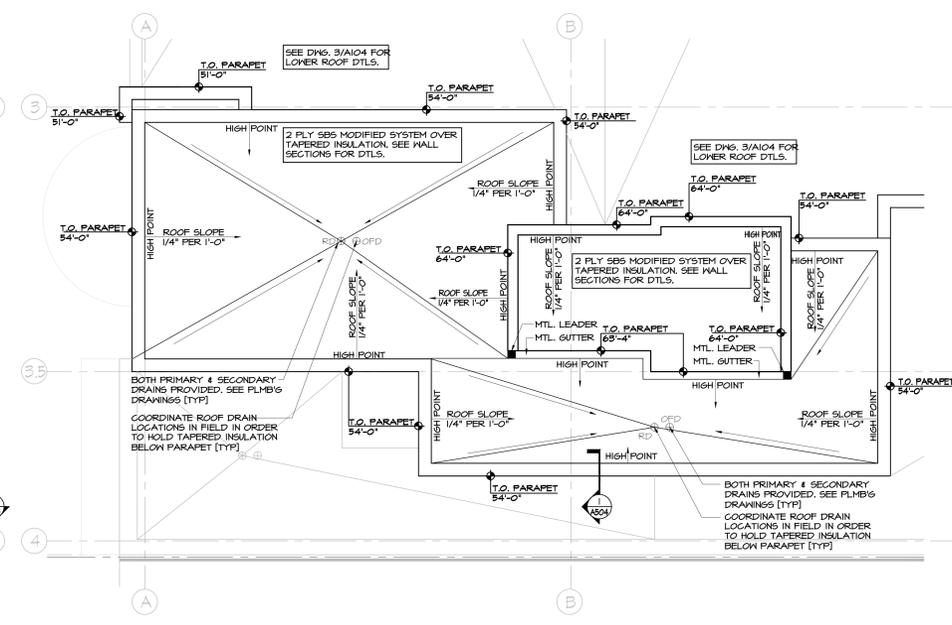
1 ROOF TERRACE PLAN
 1/4" = 1'-0"

PROVIDE TOLERANCE FOR EXPANSION CONTROL AT ALL MASONRY OPENINGS (TYP)

PROVIDE 1-HOUR FIRE RATING FOR ALL STRUCTURAL MEMBERS AND FLOOR ASSEMBLIES SUPPORTING EGRESS STAIRS. REFER TO STRUCTURAL ENGINEER IN FIELD FOR DETERMINATION. SEE UL DESIGN ASSEMBLIES AND RCP FOR ADDITIONAL DETAILS.



② STAIR NO. 3 BULKHEAD
 1/4" = 1'-0"



① STAIR NO. 4 & ELEVATOR BULKHEAD
 1/4" = 1'-0"

③ ROOF PLAN
 1/4" = 1'-0"

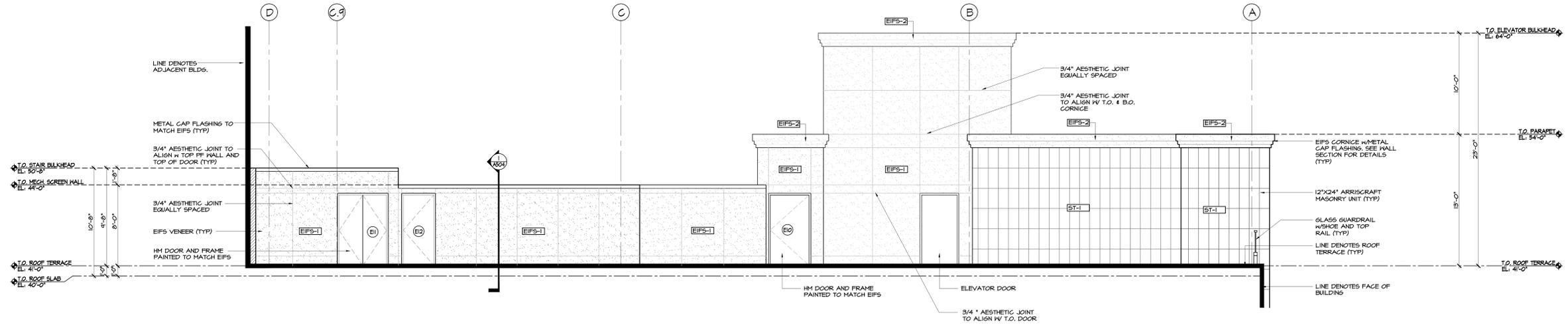
NO.	DATE	DESCRIPTION
1	10/14/14	ISSUED FOR PERMITS AND PLAN APPROVAL
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PROJECT: 288 ST. NICHOLAS
 BLOCK NO. 145
 324 WEST 125TH ST. AND ST. NICHOLAS AVE.
 NEW YORK, NEW YORK 10027
 E.N. 10-03000
 324 WEST 125TH STREET, LLC.
 670 BAY FERRYWAY-THIRD FLOOR
 BROOKLYN, NY 11204

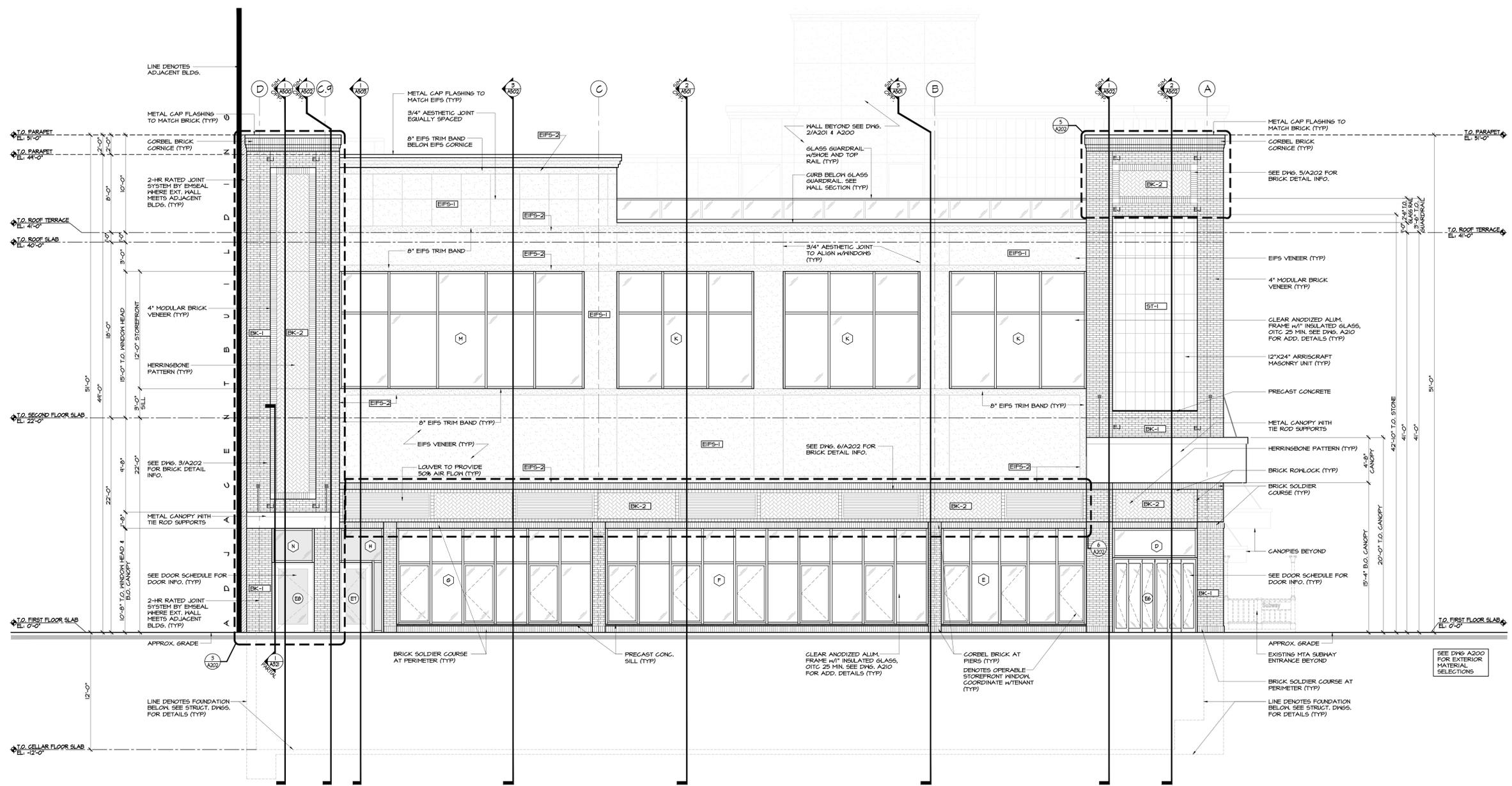
ROOF PLAN & BULKHEADS
 AS NOTED
 SEAL AND SIGNATURE



DATE: 10/14/14
 PROJECT: GLA14-0244
 T.J.L.
 T.J.L.
 A104.00
 25 OF 46



2 PARTIAL NORTH ELEVATION- ROOF TERRACE
 1/4" = 1'-0"



1 NORTH ELEVATION- WEST 125TH STREET
 1/4" = 1'-0"

REVISION	DATE	BY	DESCRIPTION

288 ST. NICHOLAS
 324 WEST 125TH ST. AND ST. NICHOLAS AVE.
 NEW YORK, NEW YORK 10027
 BLOCK NO. 145
 LOT NO. 10
 B.N. NO. 050606

324 WEST 125TH STREET, LLC.
 610 BAY FERRYWAY-THIRD FLOOR
 BROOKLYN, NY 11204

NORTH ELEVATIONS
 AS NOTED
 SEAL AND SIGNATURE



STEVEN GAWLING, A.A.
 REGISTERED ARCHITECT
 STATE OF NEW YORK
 No. 10177

DATE: 18.JUL.14 PROJECT NO.: GLA14-0294
 DRAWN BY: T.J.L. CHECKED BY: T.J.L.
 SHEET NO.: A201.00 OF 46



PROJECT	288 ST. NICHOLAS
BLOCK NO.	145
LOT NO.	10
BN NO.	050600
DATE	07/14/14
SCALE	AS NOTED
ISSUED FOR	ZONING AND PLAN APPROVAL
DESIGNER	GAMBINO + LAPORTA

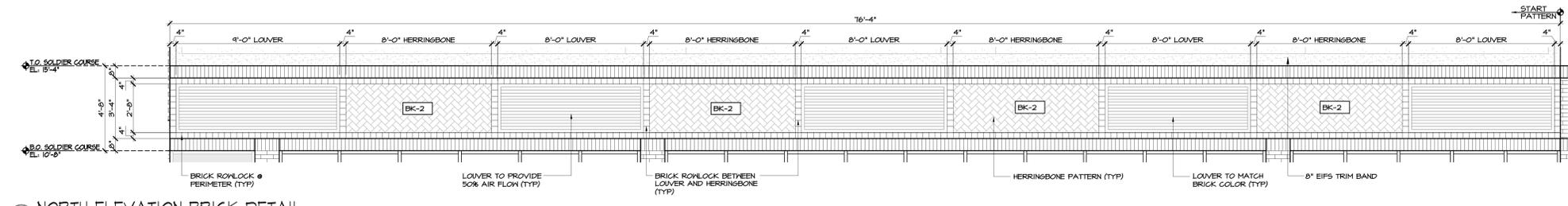
PROJECT	324 WEST 125TH STREET, LLC.
ADDRESS	610 BAY PARKWAY-THIRD FLOOR
CITY	BROOKLYN, NY 11204

288 ST. NICHOLAS
 324 WEST 125TH ST. AND ST. NICHOLAS AVE.
 NEW YORK, NEW YORK 10027

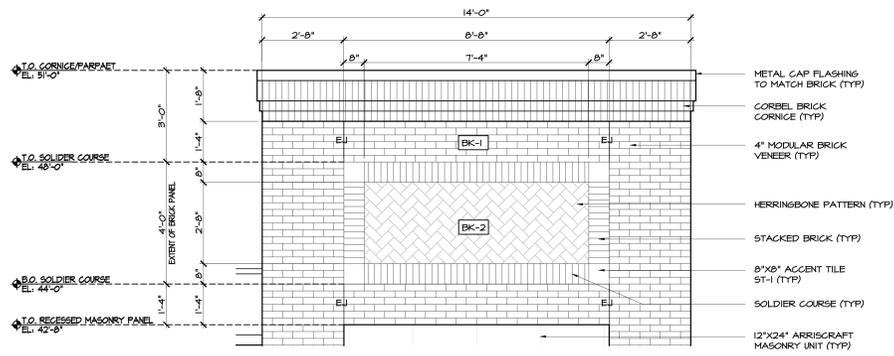
324 WEST 125TH STREET, LLC.
 610 BAY PARKWAY-THIRD FLOOR
 BROOKLYN, NY 11204



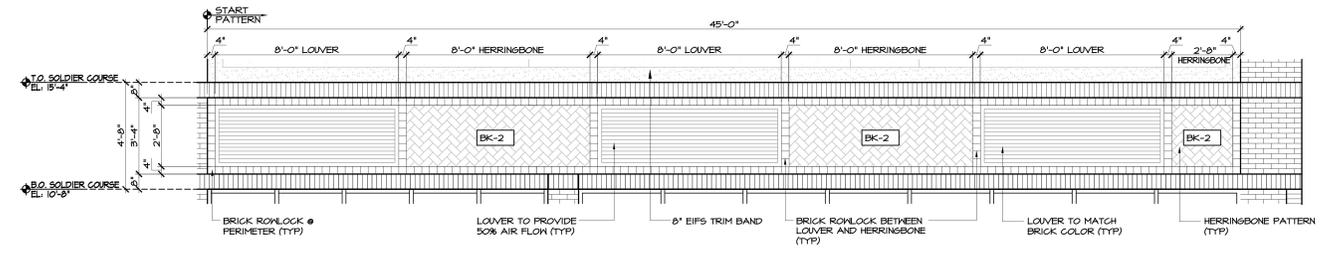
DATE	07/14/14	PROJECT NO.	GLA14-0244
DESIGNED BY	T.J.L.	DATE	07/14/14
CHECKED BY	T.J.L.	SCALE	AS NOTED
PROJECT	A202.00	SHEET NO.	26 OF 46



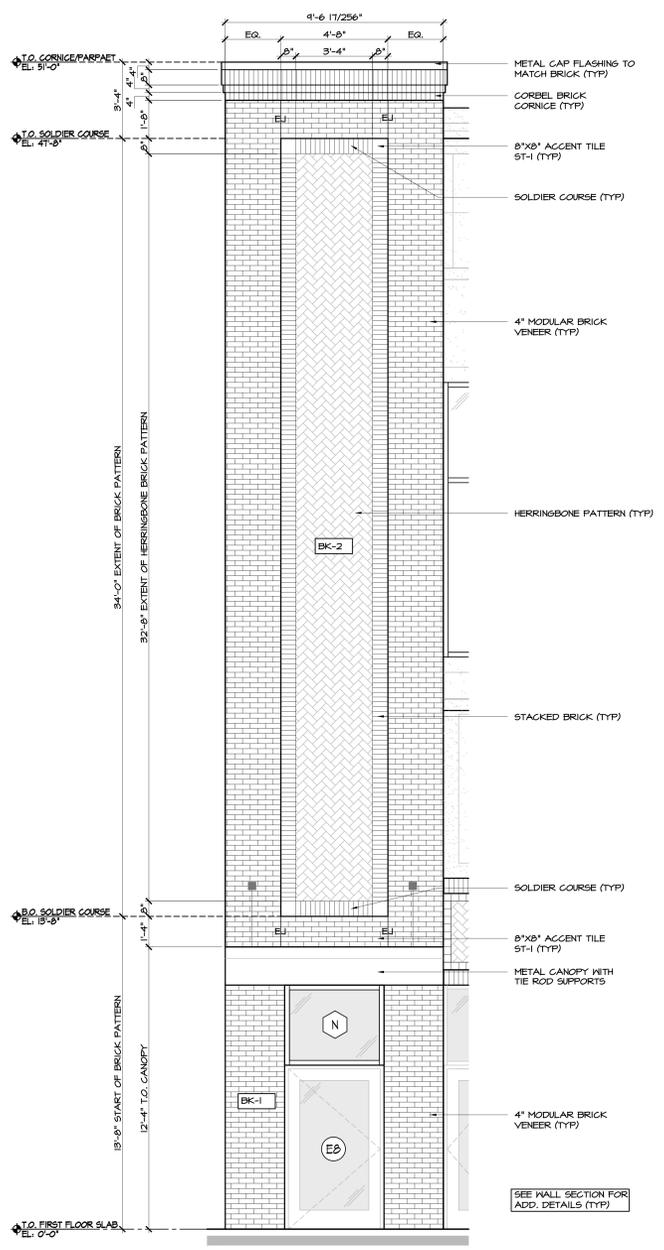
6 NORTH ELEVATION BRICK DETAIL
 3/8" = 1'-0"



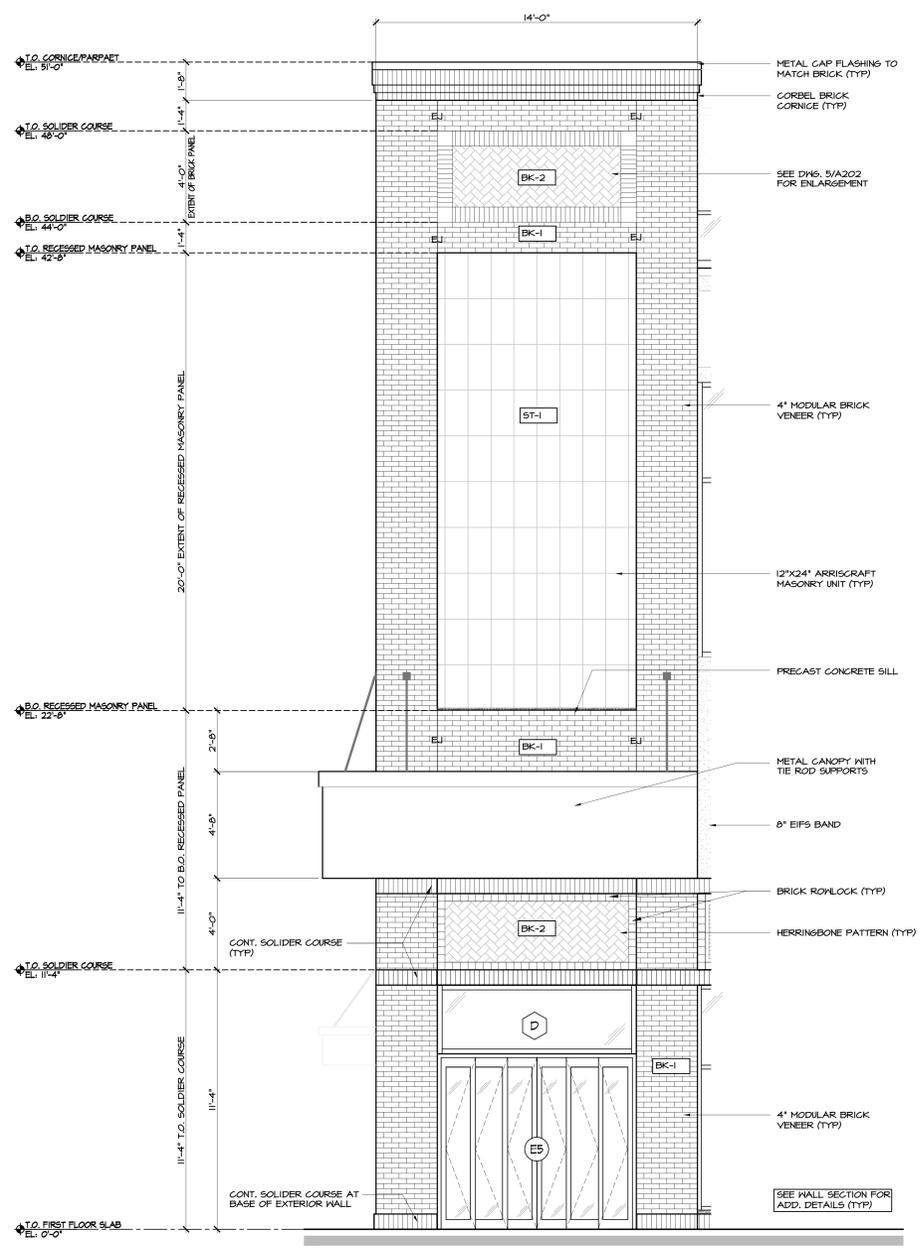
5 WEST ELEVATION BRICK DETAIL
 1/2" = 1'-0"



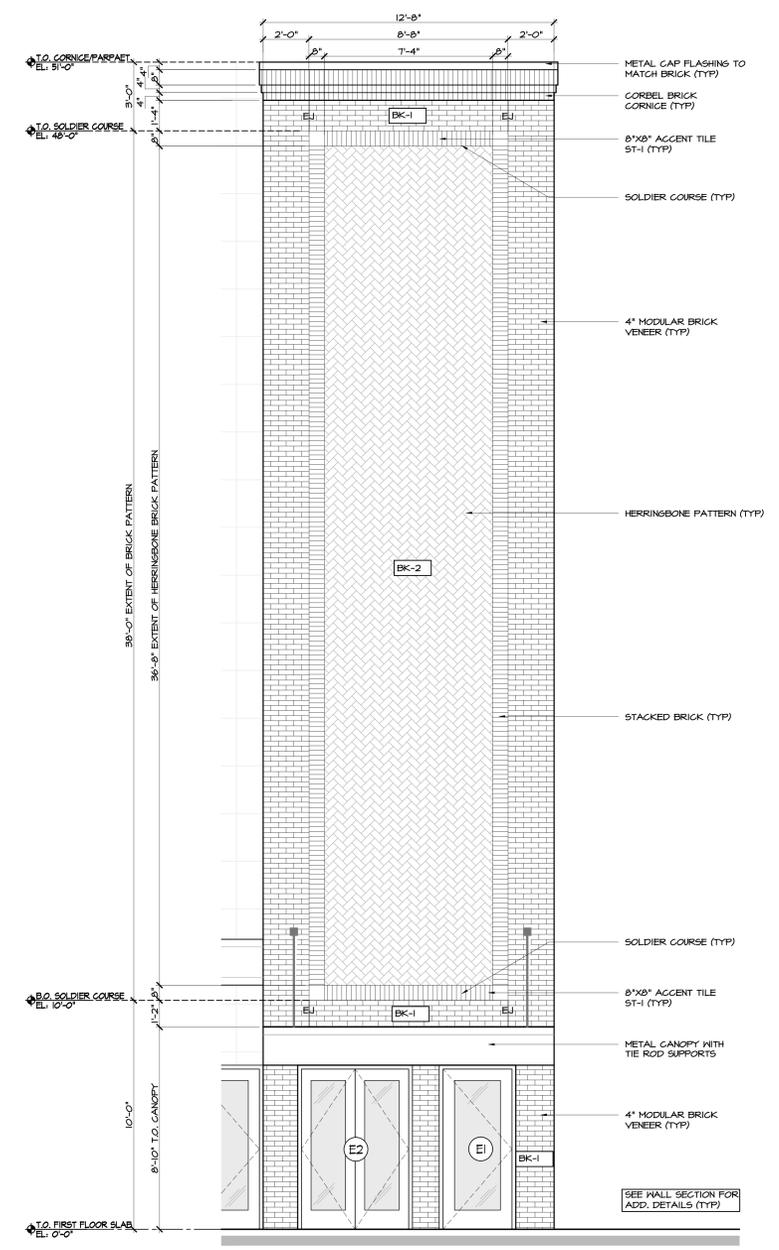
4 WEST ELEVATION BRICK DETAIL
 3/8" = 1'-0"



3 NORTH ELEVATION BRICK DETAIL
 3/8" = 1'-0"



2 WEST ELEVATION BRICK DETAIL
 3/8" = 1'-0"

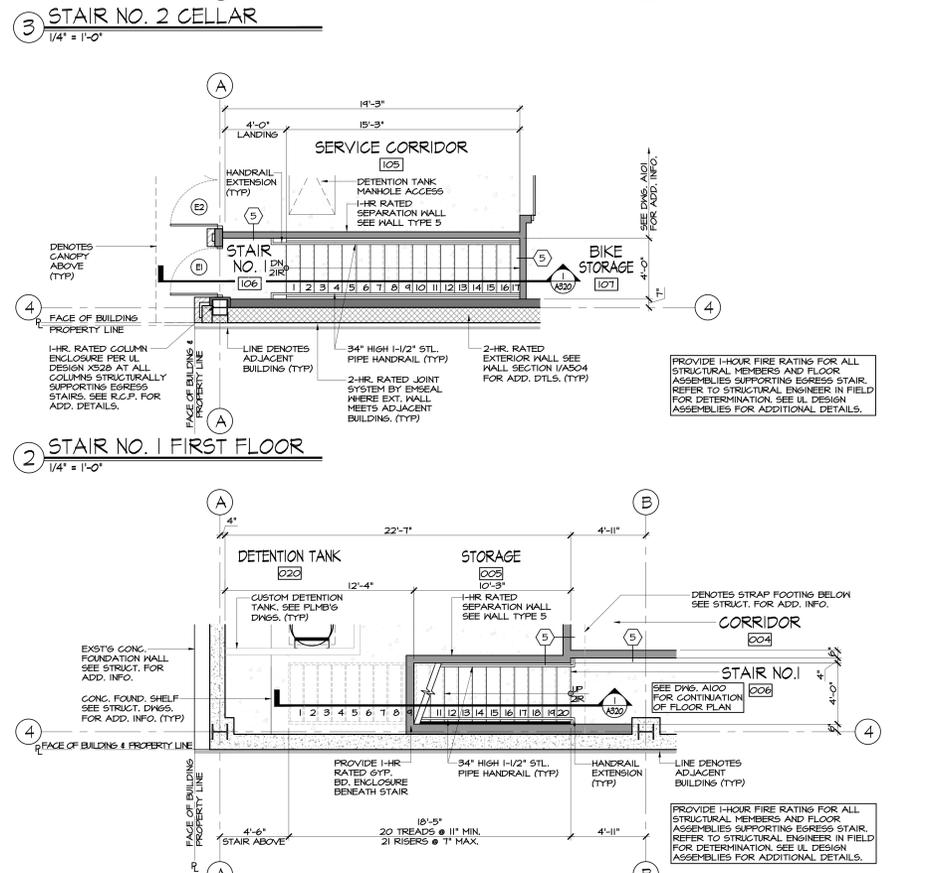
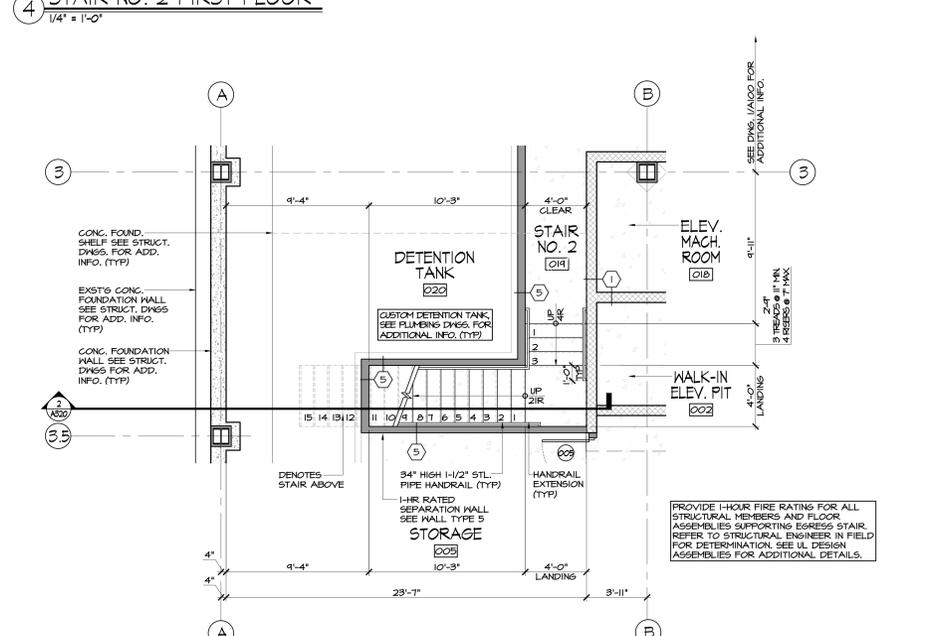
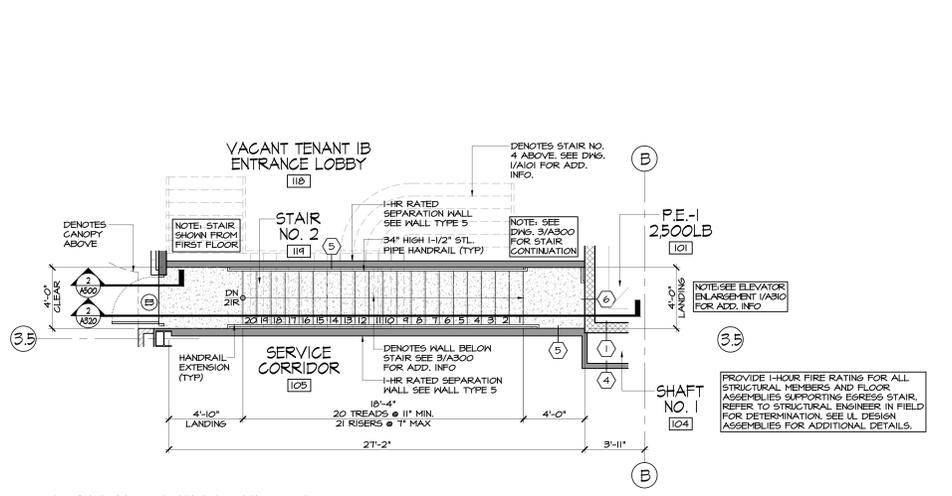
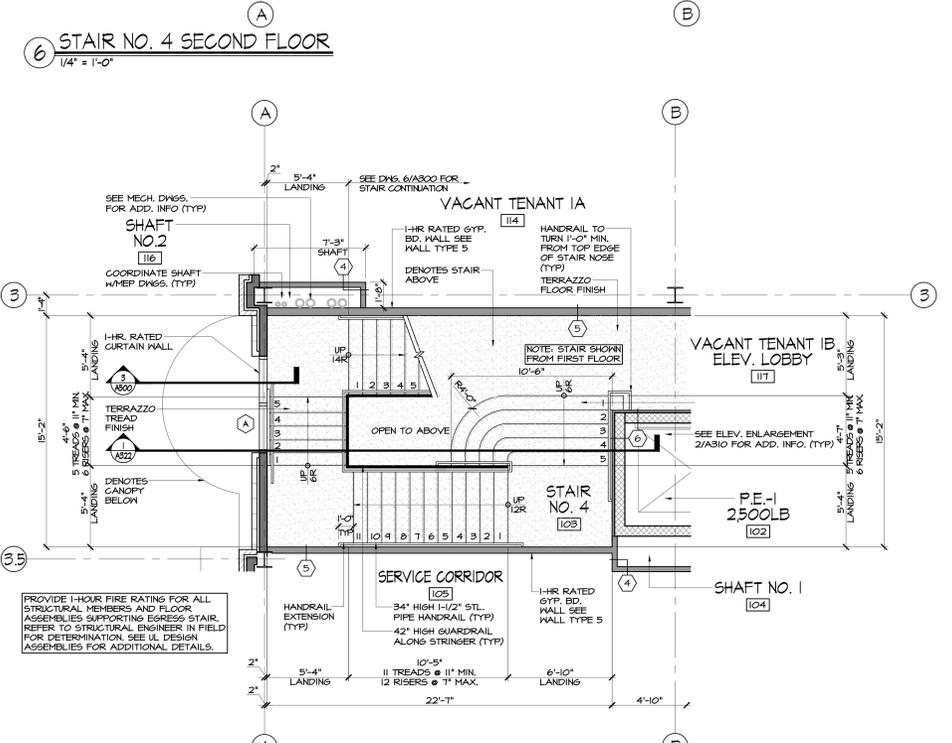
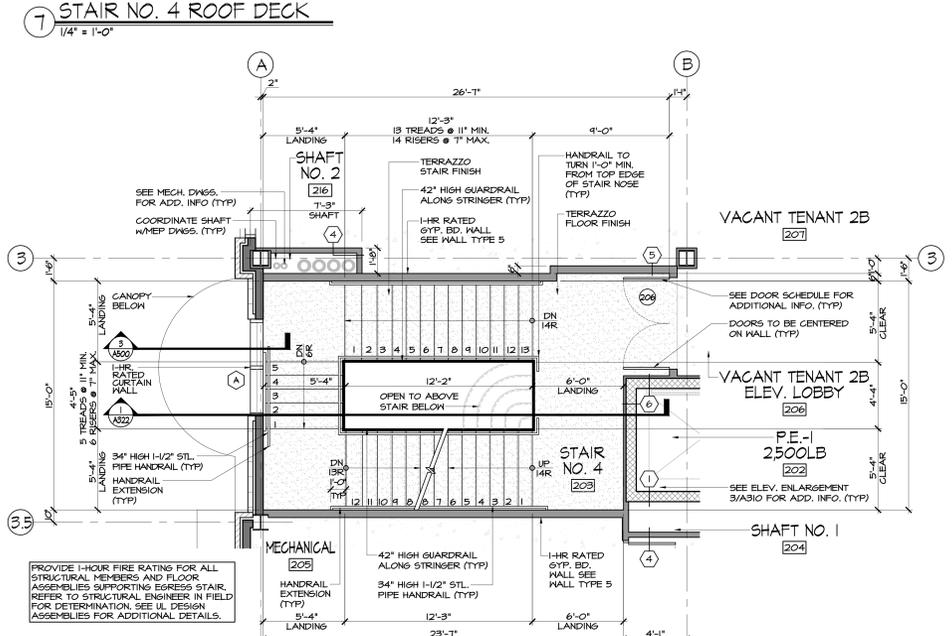
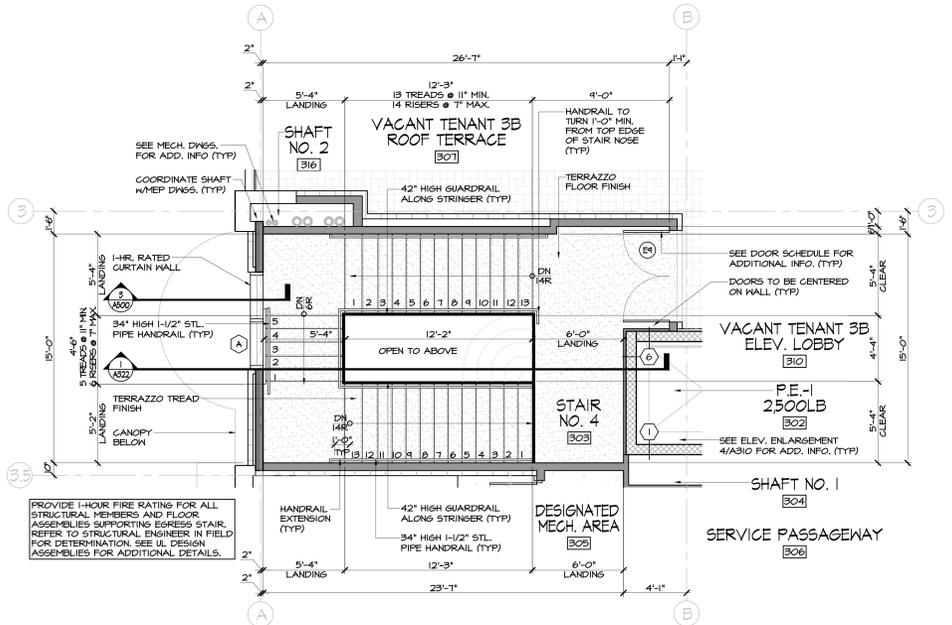
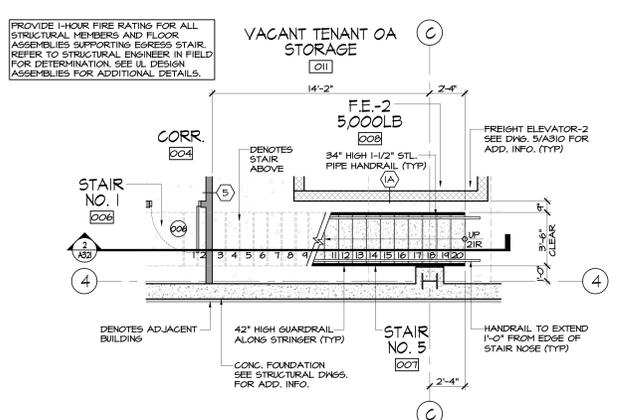
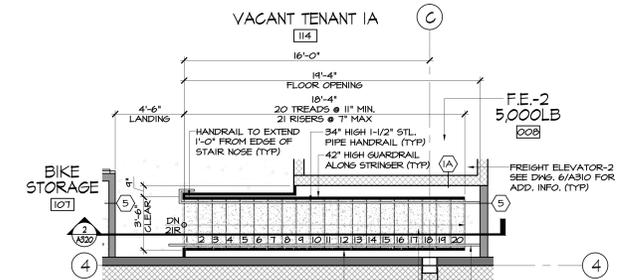


1 WEST ELEVATION BRICK DETAIL
 3/8" = 1'-0"

PARTITION TYPES

PARTITION	RATING
1. 2 HR 6" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING w/FIRE SAFING INSL.	UL DESIGN #R406
PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE NOTE: SEE STRUCT. DWGS FOR REINFORCEMENT DETAILS	
1A. SAME AS PARTITION TYPE 1	1 HR UL DESIGN #R406
2. 1 HR 6" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING w/FIRE SAFING INSL.	UL DESIGN #R406
PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE	
3. 2 HR 3-5/8" 20 GA METAL STUDS @ 16" O.C. w/ 12 LAYERS 5/8" GYP. BD. @ BOTH FACES w/3 MINERAL WOOL BATT	UL DESIGN #R414
PART. HT. TO UNDERSIDE OF FLOOR STRUCTURE ABOVE	
4. 2 HR 2-1/2" X 1-1/2" 20 GA C-H STUDS @ 16" O.C. w/ 1" GYP. BD. LINER PANELS AND 12 LAYERS OF 1/2" GYP. BD.	UL DESIGN #R438
PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE	
5. 1 HR 3-5/8" 20 GA METAL STUDS @ 16" O.C. w/5/8" GYP. BD. @ BOTH FACES w/3" BATT INSULATION	UL DESIGN #R414
PART. HT. TO UNDERSIDE OF FLOOR STRUCTURE ABOVE	
6. 2 HR 1-5/8" 20 GA METAL STUDS @ 16" O.C. w/5/8" GYP. BD. HELD TIGHT TO 6" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING w/FIRE SAFING INSL.	UL DESIGN #R406
PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE NOTE: SEE STRUCT. DWGS FOR REINFORCEMENT DETAILS	

- GENERAL PARTITION NOTES:**
- SEE UL DESIGN ASSEMBLIES FOR DETAILED PARTITION INFORMATION
 - SIZE & GAUGE OF STUDS LISTED SHALL BE AS DETERMINED BY MANUFACTURER'S HEIGHT LIMITATIONS FOR NON-BEARING INTERIOR WALLS AND 5 PSF MIN. LOAD.
 - PROVIDE WATER RESISTANT GYPSUM BOARD AT ALL JET AREAS.
 - SEE STRUCTURAL DRAWINGS FOR REINFORCING DETAILS.



GAMBINO + LAPORTA ARCHITECTURE, D.P.C.
1298 RICHMOND ROAD STATION ISLAND, NY 10304
PHONE: 718.667.6682 FAX: 718.667.1196 EMAIL: STUDIO@G+A-ARCH.COM

288 ST. NICHOLAS
324 WEST 125TH ST. AND ST. NICHOLAS AVE.
NEW YORK, NEW YORK 10027

324 WEST 125TH STREET, LLC.
610 BAY FARMWAY-THIRD FLOOR
BROOKLYN, NY 11204

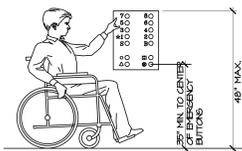
REGISTERED ARCHITECT
STATE OF NEW YORK

18 JUL 14 6LA14-0244
ML
T.J.L.
A300.00
28 OF 46

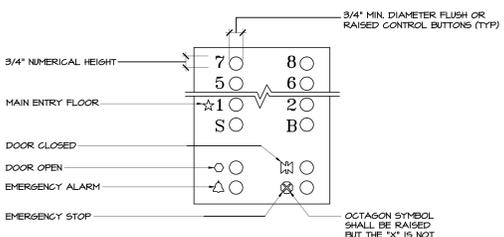
PARTITION TYPES

PARTITION	RATING
<p>8" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING W/FIRE SAFING INSUL.</p> <p>PART. HT. TO UNDERSIDE OF FLOOR/ ROOF STRUCTURE ABOVE</p> <p>NOTE: SEE STRUCT. DNGS FOR REINFORCEMENT DETAILS</p>	2 HR UL DESIGN #1406
<p>SAME AS PARTITION TYPE 1</p>	1 HR UL DESIGN #1406
<p>6" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING W/FIRE SAFING INSUL.</p> <p>PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE</p>	1 HR UL DESIGN #1406
<p>3-5/8" 20 GA METAL STUDS @ 16" O.C. w/ (2) LAYERS 5/8" GYP. BD. @ BOTH FACES w/3" MINERAL WOOL BATT</p> <p>PART. HT. TO UNDERSIDE OF FLOOR STRUCTURE ABOVE</p>	2 HR UL DESIGN #1414
<p>2-1/2" X 1-1/2" 20 GA C-H STUDS @ 16" O.C. w/ 1" GYP. BD. LINER PANELS AND (2) LAYERS OF 1/2" GYP. BD.</p> <p>PART. HT. TO UNDERSIDE OF FLOOR/ ROOF STRUCTURE ABOVE</p>	2 HR UL DESIGN #1430
<p>3-5/8" 20 GA METAL STUDS @ 16" O.C. w/5/8" GYP. BD. @ BOTH FACES w/3" BATT INSULATION</p> <p>PART. HT. TO UNDERSIDE OF FLOOR STRUCTURE ABOVE</p>	1 HR UL DESIGN #1414
<p>1-5/8" 20 GA METAL STUDS @ 16" O.C. w/5/8" GYP. BD. HELD TIGHT TO 8" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING W/FIRE SAFING INSUL.</p> <p>PART. HT. TO UNDERSIDE OF FLOOR/ ROOF STRUCTURE ABOVE</p> <p>NOTE: SEE STRUCT. DNGS FOR REINFORCEMENT DETAILS</p>	2 HR UL DESIGN #1406

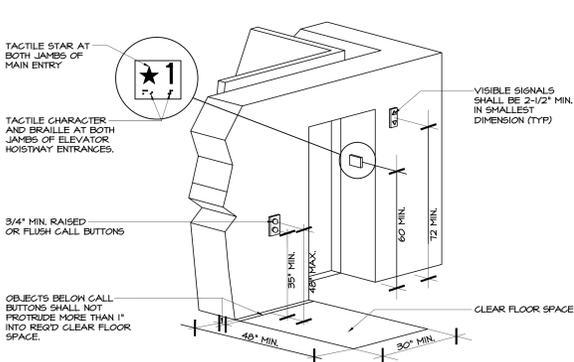
- GENERAL PARTITION NOTES:**
- SEE UL DESIGN ASSEMBLIES FOR DETAILED PARTITION INFORMATION
 - SIZE & GAUGE OF STUDS LISTED SHALL BE AS DETERMINED BY MANUFACTURER'S HEIGHT LIMITATIONS FOR NON-BEARING INTERIOR WALLS AND 5 PSF WIND LOAD.
 - PROVIDE WATER RESISTANT GYPSUM BOARD AT ALL MET AREAS.
 - SEE STRUCTURAL DRAWINGS FOR REINFORCING DETAILS.



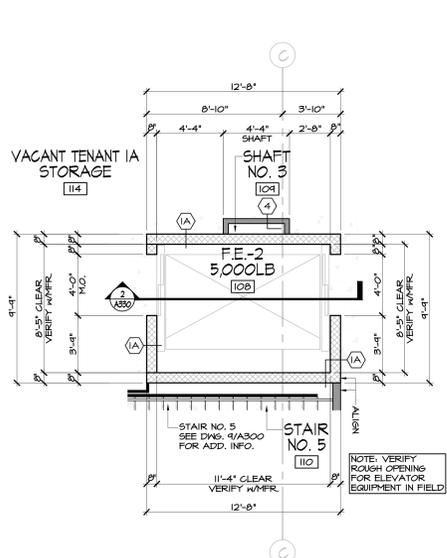
9 CAR CONTROL HEIGHT
1/4" = 1'-0"



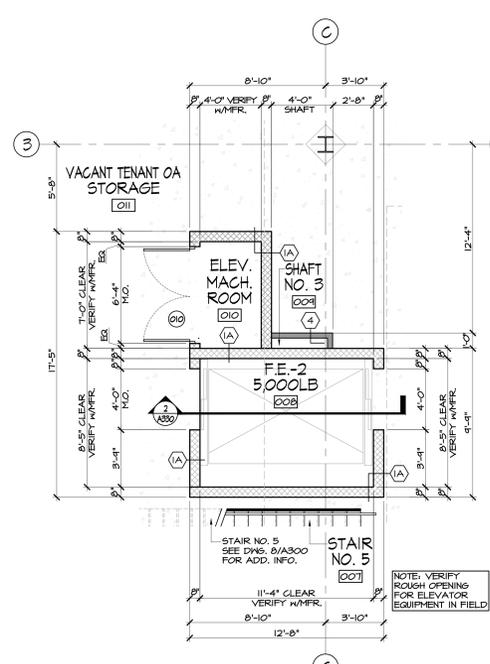
8 PANEL DETAIL
1/4" = 1'-0"



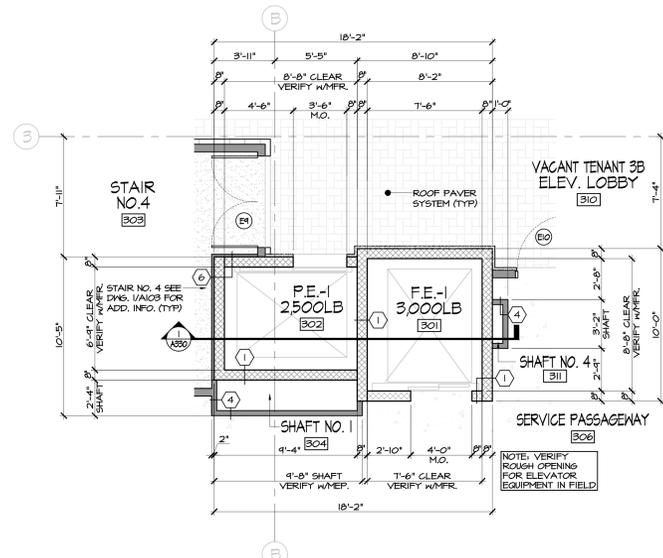
7 HOISTWAY & ELEVATOR CLEARANCE
1/4" = 1'-0"



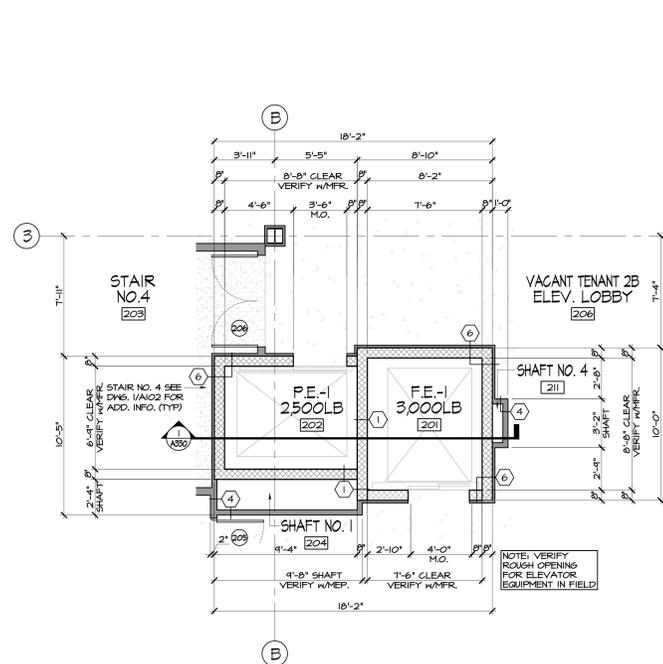
6 FREIGHT ELEV.-2 FIRST FLOOR
1/4" = 1'-0"



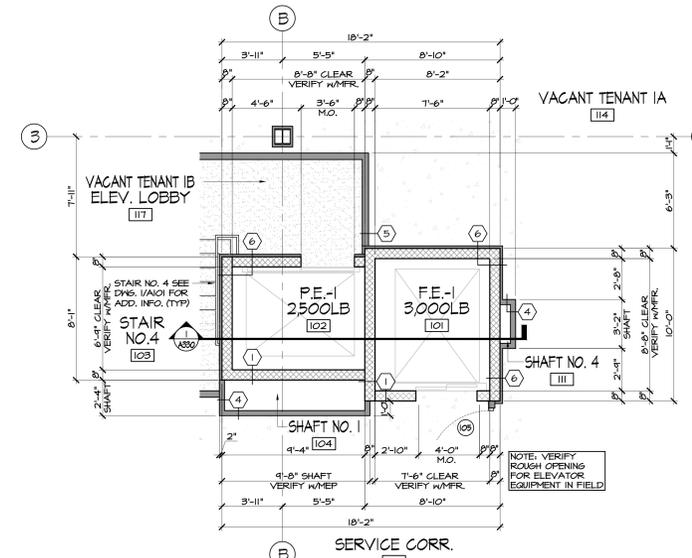
5 FREIGHT ELEV.-2 & ELEV. MACH. RM. CELLAR FLOOR
1/4" = 1'-0"



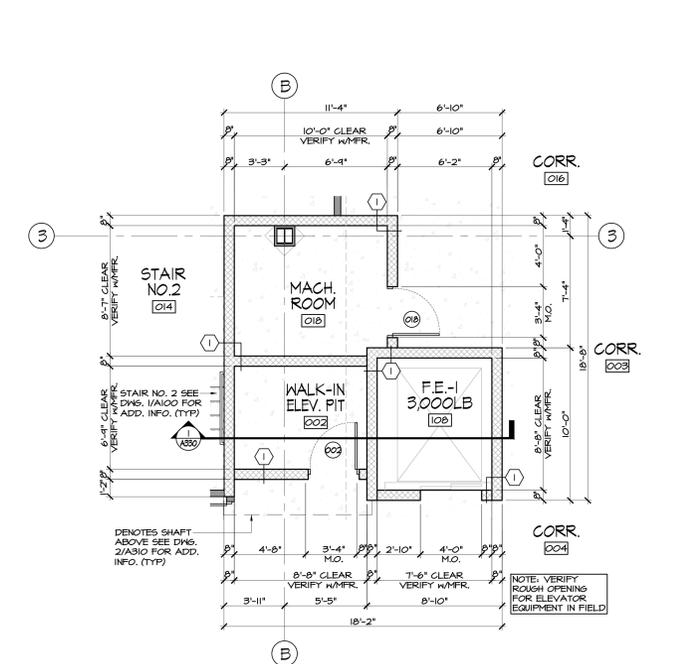
4 PASS. ELEV.-1 & FREIGHT ELEV.-1 THIRD FLOOR
1/4" = 1'-0"



3 PASS. ELEV.-1 & FREIGHT ELEV.-1 SECOND FLOOR
1/4" = 1'-0"



2 PASS. ELEV.-1 & FREIGHT ELEV.-1 FIRST FLOOR
1/4" = 1'-0"



1 FREIGHT ELEV.-1, ELEV. PIT & ELEV. MACH. RM. CELLAR FLOOR
1/4" = 1'-0"



GAMBINO + LAPORTA
ARCHITECTURE, D.P.C.
1298 RICHMOND ROAD STATION ISLAND, NY 10304
PHONE: 718.667.6682 FAX: 718.667.1196 EMAIL: STUDIO@GLA-ARCH.COM

REVISION	DATE	BY	DESCRIPTION

ISSUED FOR ZONING AND PLAN APPROVAL

288 ST. NICHOLAS
BLOCK NO. 145
324 WEST 125TH ST. AND ST. NICHOLAS AVE.
NEW YORK, NEW YORK 10027

324 WEST 125TH STREET, LLC.
610 BAY FERRYWAY-THIRD FLOOR
BROOKLYN, NY 11204

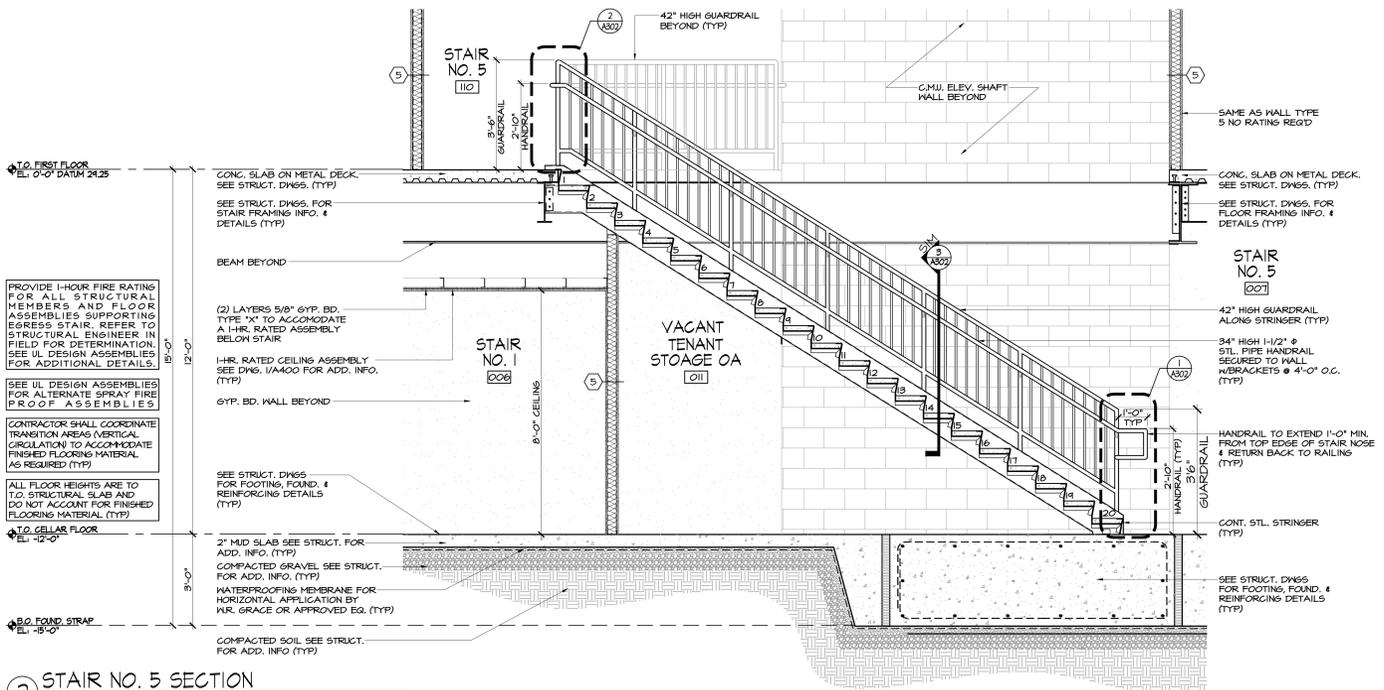


DATE: 10/14/14
PROJECT: 6LA14-0244
SCALE: AS SHOWN
SHEET: A310.00
31 OF 46

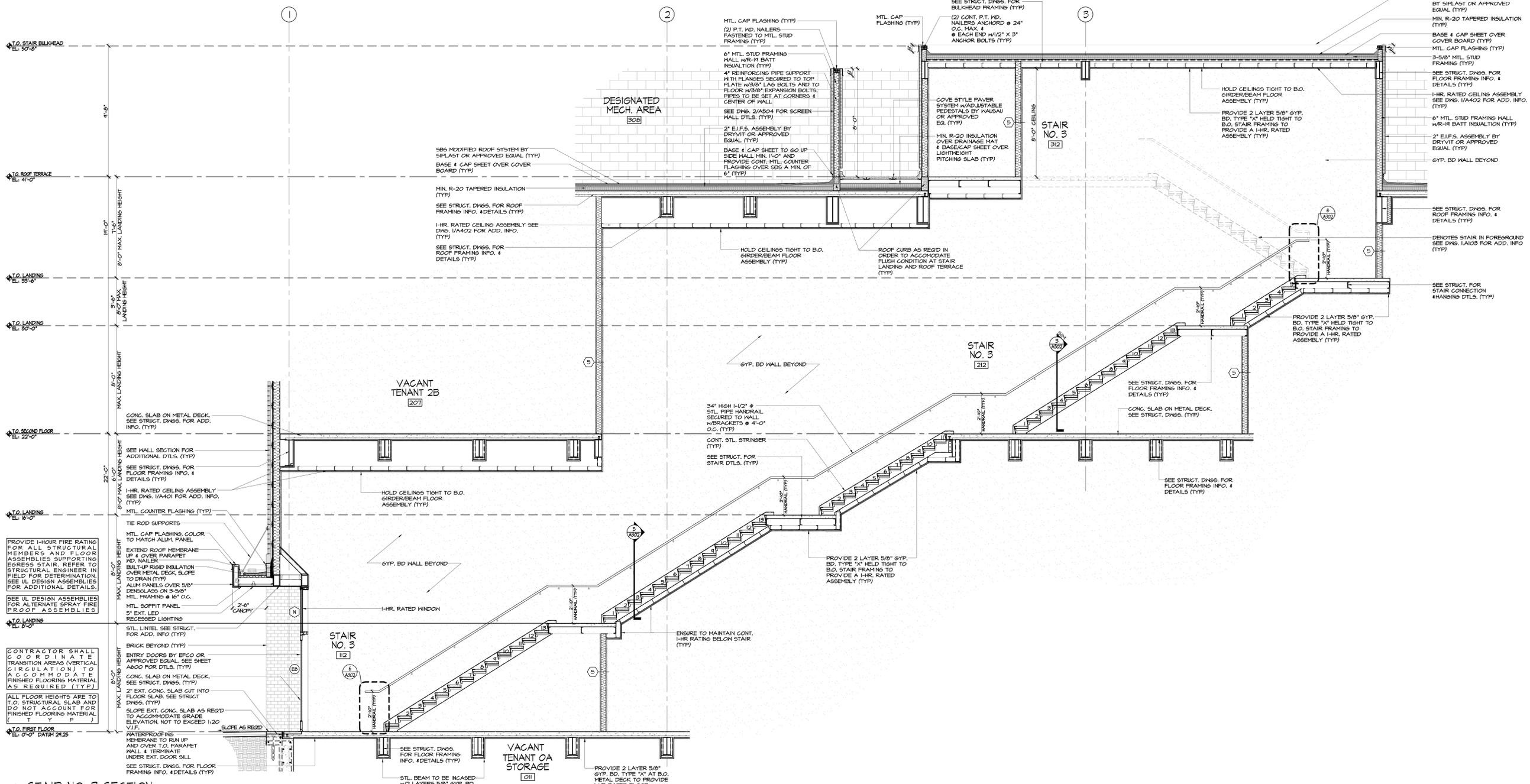
PARTITION TYPES

PARTITION	RATING	DETAIL	UL DESIGN #
1	2 HR UL DESIGN #1406	2-1/2" X 1-1/2" 20 GA C-H STUDS @ 16" O.C. w/ 1" GYP. BD. LINER PANELS AND (2) LAYERS OF 1/2" GYP. BD.	UL DESIGN #1436
1A	1 HR UL DESIGN #1406	3-5/8" 20 GA METAL STUDS @ 16" O.C. w/ 1/2" GYP. BD. LINER PANELS AND (2) LAYERS OF 1/2" GYP. BD.	UL DESIGN #1419
2	1 HR UL DESIGN #1406	6" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING w/FIRE SAFING INSL.	UL DESIGN #1406
3	2 HR UL DESIGN #1419	3-5/8" 20 GA METAL STUDS @ 16" O.C. w/ 1/2" GYP. BD. LINER PANELS AND (2) LAYERS OF 1/2" GYP. BD. BOTH FACES w/3" MINERAL WOOL BATT INSULATION	UL DESIGN #1406

- GENERAL PARTITION NOTES:**
- SEE UL DESIGN ASSEMBLIES FOR DETAILED PARTITION INFORMATION
 - SIZE & GAUGE OF STUDS LISTED SHALL BE AS DETERMINED BY MANUFACTURER'S HEIGHT LIMITATIONS FOR NON-BEARING INTERIOR WALLS AND 5 PSF WIND LOAD.
 - PROVIDE WATER RESISTANT GYPSUM BOARD AT ALL NET AREAS.
 - SEE STRUCTURAL DRAWINGS FOR REINFORCING DETAILS.



2 STAIR NO. 5 SECTION
1/2" = 1'-0"



1 STAIR NO. 3 SECTION
1/2" = 1'-0"



GAMBINO + LAPORTA
ARCHITECTURE, DPC
1288 RICHMOND ROAD STATION ISLAND, NY 10304
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<p>PROJECT: 288 ST. NICHOLAS 324 WEST 125TH ST. AND ST. NICHOLAS AVE. NEW YORK, NEW YORK 10027</p>	<p>CLIENT: 324 WEST 125TH STREET, LLC. 670 BAY FERRYWAY-THIRD FLOOR BROOKLYN, NY 11204</p>
<p>DATE: 10/14/14 SCALE: AS NOTED SHEET: 55 OF 46</p>	

REGISTERED ARCHITECT
STATE OF NEW YORK
NO. 11204



GAMBINO + LAPORTA
ARCHITECTURE, PC
 1298 RICHMOND ROAD STATION ISLAND, NY 10304
 PHONE: 718.667.6682 FAX: 718.667.1196 EMAIL: STUDIO@GLA-ARCH.COM
 WWW.GLARCH.COM

REVISION	DATE	BY	DESCRIPTION

288 ST. NICHOLAS
 BLOCK NO. 145
 324 WEST 125TH ST. AND ST. NICHOLAS AVE.
 NEW YORK, NEW YORK 10027
 BIN NO. 050600

324 WEST 125TH STREET, LLC.
 610 BAY FERRYWAY-THIRD FLOOR
 BROOKLYN, NY 11204

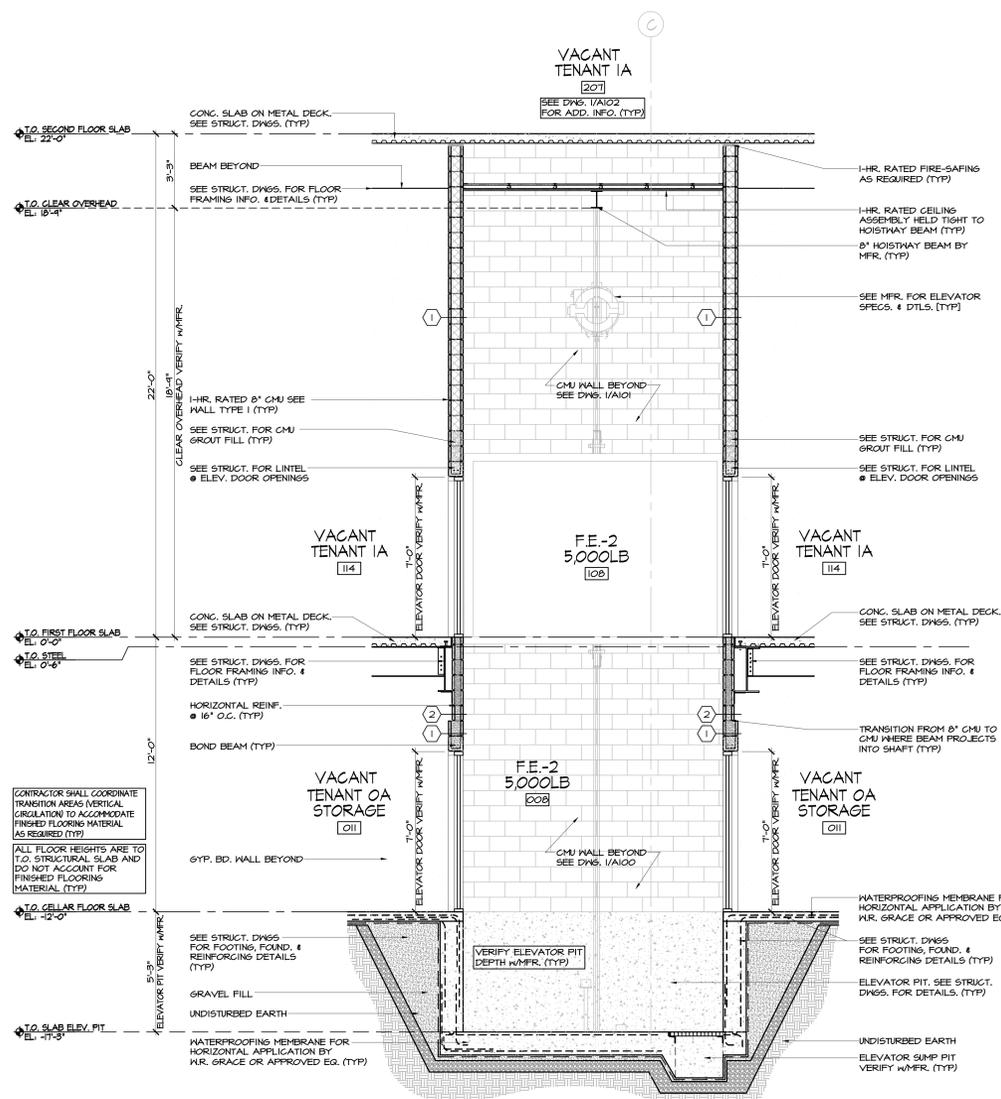


DATE: 10.14.14
 DRAWING NO.: GLA14-0244
 PROJECT NO.: 100000000
 SCALE: AS NOTED
 SHEET NO.: 95 OF 46

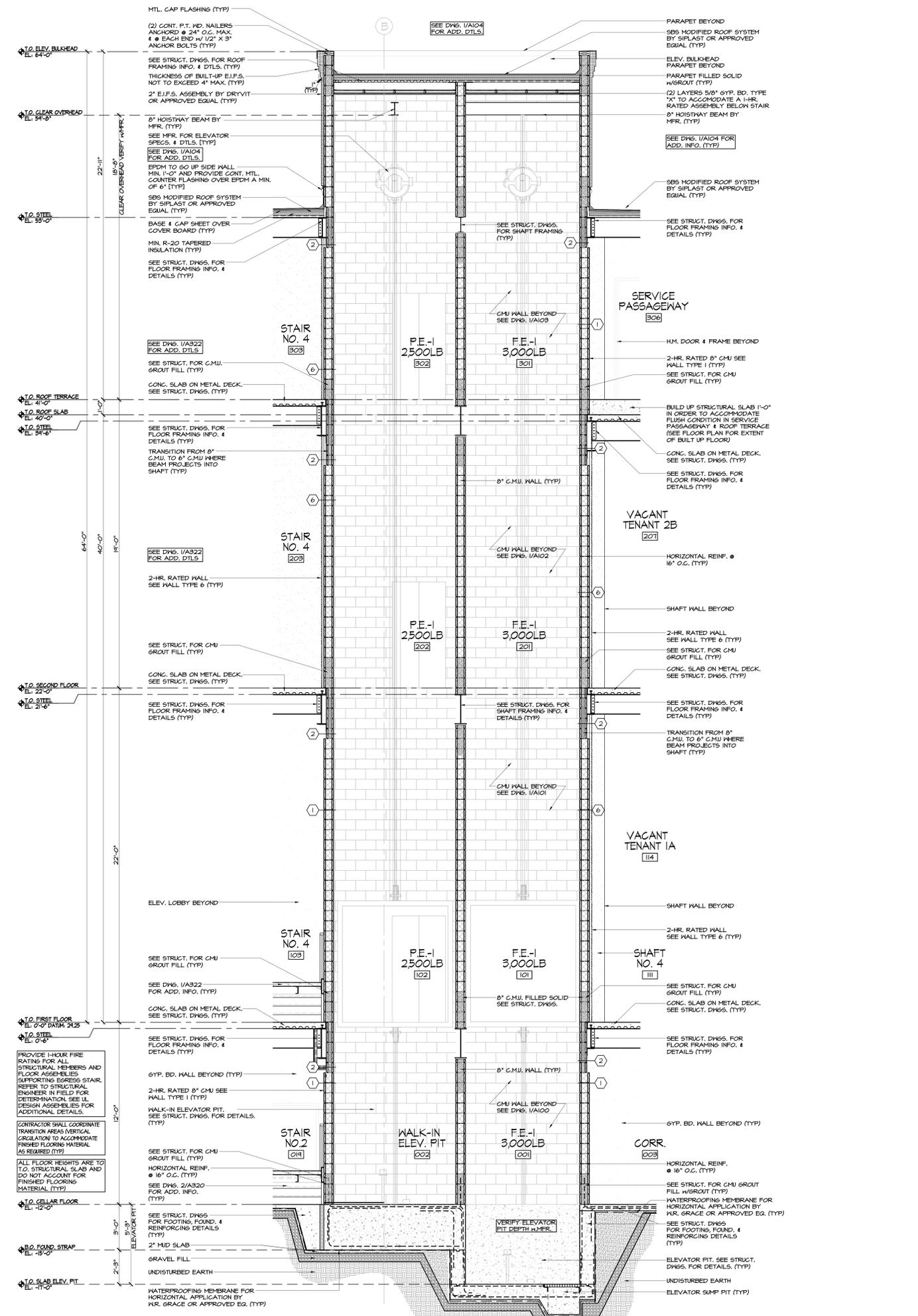
PARTITION TYPES

PARTITION	RATING
1. 8" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING W/FIRE SAFING INSL. PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE NOTE: SEE STRUCT. DWGS FOR REINFORCEMENT DETAILS	2 HR UL DESIGN #M406
2. SAME AS PARTITION TYPE 1	1 HR UL DESIGN #M406
3. 5/8" x 20 GA METAL STUDS @ 16" O.C. W/ 2 LAYERS 5/8" GYP. BD. @ BOTH FACES W/ MINERAL WOOL BATT PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE	2 HR UL DESIGN #M414
4. 1/2" x 1/2" x 20 GA C-I STUDS @ 16" O.C. W/ 1" GYP. BD. LINER PANELS AND 2" LAYERS OF 1/2" GYP. BD. PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE	2 HR UL DESIGN #M436
5. 3/8" x 20 GA METAL STUDS @ 16" O.C. W/ 5/8" GYP. BD. @ BOTH FACES W/ 3" BATT INSULATION PART. HT. TO UNDERSIDE OF FLOOR STRUCTURE ABOVE	1 HR UL DESIGN #M414
6. 1-5/8" x 20 GA METAL STUDS @ 16" O.C. W/ 5/8" GYP. BD. HELD TIGHT TO 8" CONG. BLOCK CLASSIFICATION D-2 FILL VOIDS AT DECKING W/FIRE SAFING INSL. PART. HT. TO UNDERSIDE OF FLOOR/ROOF STRUCTURE ABOVE NOTE: SEE STRUCT. DWGS FOR REINFORCEMENT DETAILS	2 HR UL DESIGN #M406

- GENERAL PARTITION NOTES:**
- SEE UL DESIGN ASSEMBLIES FOR DETAILED PARTITION INFORMATION
 - SIZE & GAUGE OF STUDS LISTED SHALL BE AS DETERMINED BY MANUFACTURER'S HEIGHT LIMITATIONS FOR NON-BEARING INTERIOR WALLS AND 5 PSF WIND LOAD.
 - PROVIDE WATER RESISTANT GYPSUM BOARD AT ALL JET AREAS.
 - SEE STRUCTURAL DRAWINGS FOR REINFORCING DETAILS.



2 FREIGHT ELEVATOR- 2
 3/8" = 1'-0"



1 FREIGHT ELEV.-1 & PASS. ELEV.-1 SECTION
 3/8" = 1'-0"

LIGHT FIXTURE SCHEDULE							
NO.	DESCRIPTION	LAMP DATA		LIGHTING FIXTURE		MOUNTING	REMARKS
		TYPE	VOLT	MFR	CATALOG NO.		
[A]	4' LED LINEAR FIXTURE CABLE MOUNT	LED	UNV	SOLARELECTRICWAY	SKNCR4FT2LED4I	MFR	SUSPENDED 12'-0" A.F.F., 8'0" A.F.F. IN CELLAR, U.O.N., PRISMATIC LENS
[B]	36" ROUND LUMINAIRE CABLE MOUNT	LED	UNV	FRULITE	P9490-LED3550-VNA-Y6N-DI-5G-UNV-CA48'	MFR	PENDANT *CONVEX WHITE ACRYLIC 1' MAX DROP
[C]	DIE-CAST ALUMINUM LED WALL PACK	LED	UNV	BARRON	T-LED1-20	MFR	WALL MOUNTED EXTERIOR
[D]	ARCHITECTURAL GRADE LED WALL PACK	LED	UNV	PHILIPS SONGO	ES1-08-U-J-P-054-6K-H2	MFR	WALL MOUNTED 8'-0" A.F.F., MOTION SENSOR, WATERPROOF
[E]	5' SHALLOW ROUND RECESSED LED DOWNLIGHT	LED	UNV	SOLARELECTRICWAY	SKNCR1H104-5INCH	MFR	RECESSED INTERIOR
[F]	5' SHALLOW ROUND RECESSED LED DOWNLIGHT	LED	UNV	SOLARELECTRICWAY	SKNCR1H104-5INCH	MFR	RECESSED WATERPROOF, EXTERIOR
[G]	ECONOMY 8 FT FLUORESCENT TANDEM	FLUORESCENT	UNV	SOLARELECTRICWAY	SKNCRK68FT4LTD	MFR	SUSPENDED 12'-0" A.F.F., WIRE GUARD, TEMPORARY FIXTURE
EXIT	UNIVERSAL LED EDESLIT NYC OR APPROVED EXIT SIGN	LED	UNV	SOLARELECTRICWAY	SKNLS6EXIT	MFR	*SEE PLANS FOR MOUNTING; PROVIDE COMPLETE KIT

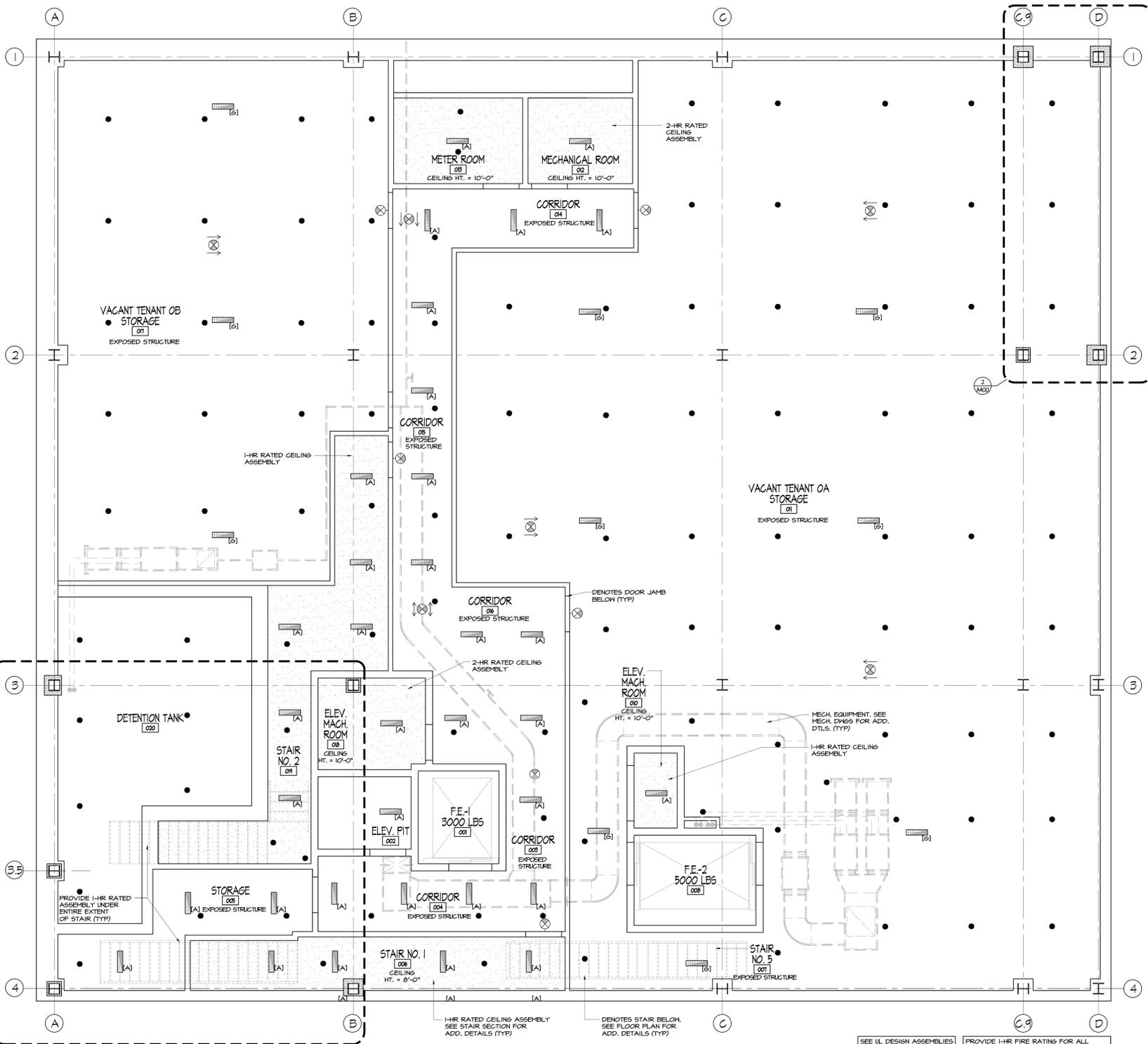
GENERAL NOTES

- ALL PENDANT LIGHTS TO BE SUSPENDED BY MONO POINT MOUNTING CABLES
- SEE ELECTRICAL DRAWINGS FOR EMERGENCY BACKUP LIGHTS
- SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

CEILING LEGEND

- 6YP. BD. CEILING
- EXIT LIGHT, DIRECTIONAL ARROWS WHERE INDICATED - SHADED AREAS INDICATE ILLUMINATED FACES
- SPRINKLER HEAD
- 4' LED LIGHT FIXTURE WITH PRISMATIC LENS
- 36" LED PENDANT STYLE LIGHT FIXTURE
- EXTERIOR LED WALL MOUNTED MAN DOOR LIGHT
- EXTERIOR WALL PACK
- 5" LED NET LOCATION RECESSED DOWNLIGHT
- 5" LED RECESSED DOWNLIGHT
- 8' FLUORESCENT HIGH-BAY LIGHT FIXTURE
- TEMPORARY TENANT FIXTURE

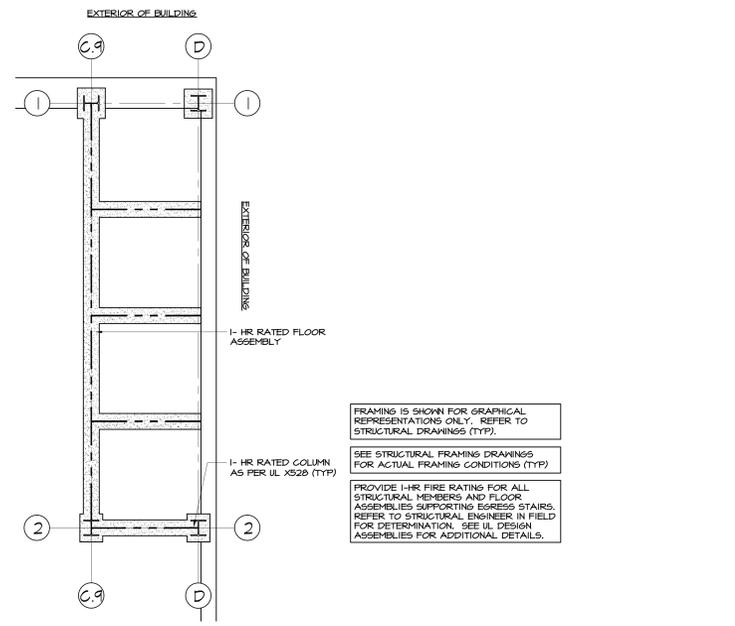
- GENERAL R.C.P. NOTES:**
- SEE UL DESIGN ASSEMBLIES FOR DETAILED CEILING INFORMATION
 - PARTIALLY SHADED FIXTURES INDICATE EMERGENCY LIGHT (SEE ELECTRICAL DWGS)
 - SEE LIGHT FIXTURE SCHEDULE FOR LIGHT SPECIFICATIONS AND ADDITIONAL INFORMATION
 - SEE LIGHT FIXTURE SCHEDULE
 - SEE MEP DRAWINGS FOR ADDITIONAL INFORMATION
 - TEMPORARY TENANT FIXTURES ARE TO PROVIDE A MIN. OF 2 FOOT-CANDELS AT FLOOR LEVEL. FUTURE TENANTS TO PROVIDE PERMANENT LIGHTING FIXTURES ON A SEPARATE APPLICATION
 - LIGHTING TO BE COORDINATED IN FIELD WITH MEP EQUIPMENT
 - EQUALLY SPACE ALL LIGHT FIXTURES AS SHOWN
 - SEE FIRE PROTECTION DRAWINGS FOR AUTOMATIC SPRINKLER DESIGN



3 CELLAR FLOOR R.C.P.
1/4" = 1'-0"

SEE UL DESIGN ASSEMBLIES FOR ALTERNATIVE DISPLAY FIREPROOFING ASSEMBLIES

PROVIDE 1-HR FIRE RATING FOR ALL STRUCTURAL MEMBERS AND FLOOR ASSEMBLIES SUPPORTING EGRESS STAIRS. REFER TO STRUCTURAL ENGINEER IN FIELD FOR DETERMINATION. SEE UL DESIGN ASSEMBLIES FOR ADDITIONAL DETAILS.

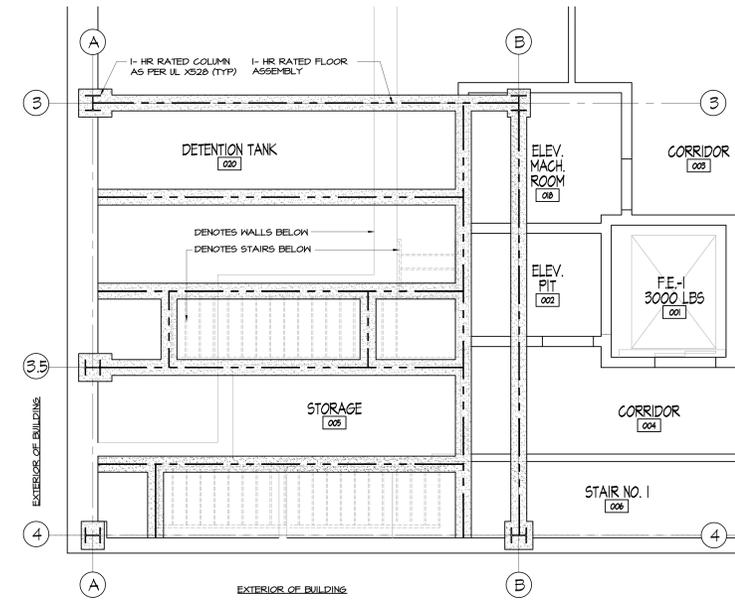


2 FIRE RATED STRUCTURE @ STAIRS
1/4" = 1'-0"

FRAMING IS SHOWN FOR GRAPHICAL REPRESENTATIONS ONLY. REFER TO STRUCTURAL DRAWINGS (TYP).

SEE STRUCTURAL FRAMING DRAWINGS FOR ACTUAL FRAMING CONDITIONS (TYP).

PROVIDE 1-HR FIRE RATING FOR ALL STRUCTURAL MEMBERS AND FLOOR ASSEMBLIES SUPPORTING EGRESS STAIRS. REFER TO STRUCTURAL ENGINEER IN FIELD FOR DETERMINATION. SEE UL DESIGN ASSEMBLIES FOR ADDITIONAL DETAILS.



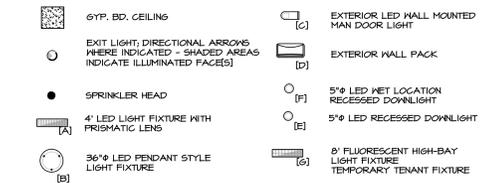
1 FIRE RATED STRUCTURE @ STAIRS
1/4" = 1'-0"

LIGHT FIXTURE SCHEDULE							
NO.	DESCRIPTION	LAMP DATA TYPE	VOLT	MFR	LIGHTING FIXTURE CATALOG NO.	LINE	REMARKS
(A)	4' LED LINEAR FIXTURE CABLE MOUNT	LED	UNV	SOLARELECTRICWAY	SNKOR4FT2LED4I	MFR	SUSPENDED 12'-0" A.F.F., 0'0" A.F.F. IN CELLAR, U.G.N., PRISMATIC LENS
(B)	36" ROUND LUMINAIRE CABLE MOUNT	LED	UNV	PRULITE	P3430-LED3560-VNA-Y6W-DI-5G-UNV-CA48"	MFR	PENDANT *CONVEX WHITE ACRYLIC 1" MAX DROP
(C)	DIE-CAST ALUMINUM LED WALL PACK	LED	UNV	BARRON	T-LED1-20	MFR	WALL MOUNTED EXTERIOR
(D)	ARCHITECTURAL GRADE LED WALL PACK	LED	UNV	PHILIPS STONCO	ES1-08-U-P-054-6K-H2	MFR	WALL MOUNTED 0'-0" A.F.F., MOTION SENSOR, WATERPROOF
(E)	5" SHALLOW ROUND RECESSED LED DOWNLIGHT	LED	UNV	SOLARELECTRICWAY	SNKORH104-5INCH	MFR	RECESSED INTERIOR
(F)	5" SHALLOW ROUND RECESSED LED DOWNLIGHT	LED	UNV	SOLARELECTRICWAY	SNKORH104-5INCH	MFR	RECESSED WATERPROOF, EXTERIOR
(G)	ECONOMY 8 FT FLUORESCENT TANDEM	FLUORESCENT	UNV	SOLARELECTRICWAY	SNKORAS0FT4LTD	MFR	SUSPENDED 12'-0" A.F.F., WIRE GUARD, TEMPORARY FIXTURE
(H)	EXIT UNIVERSAL LED EGRESS LIGHT OR APPROVED EXIT SIGN	LED	UNV	SOLARELECTRICWAY	SNKLSSEEXIT	MFR	*SEE PLANS FOR MOUNTING; PROVIDE COMPLETE KIT

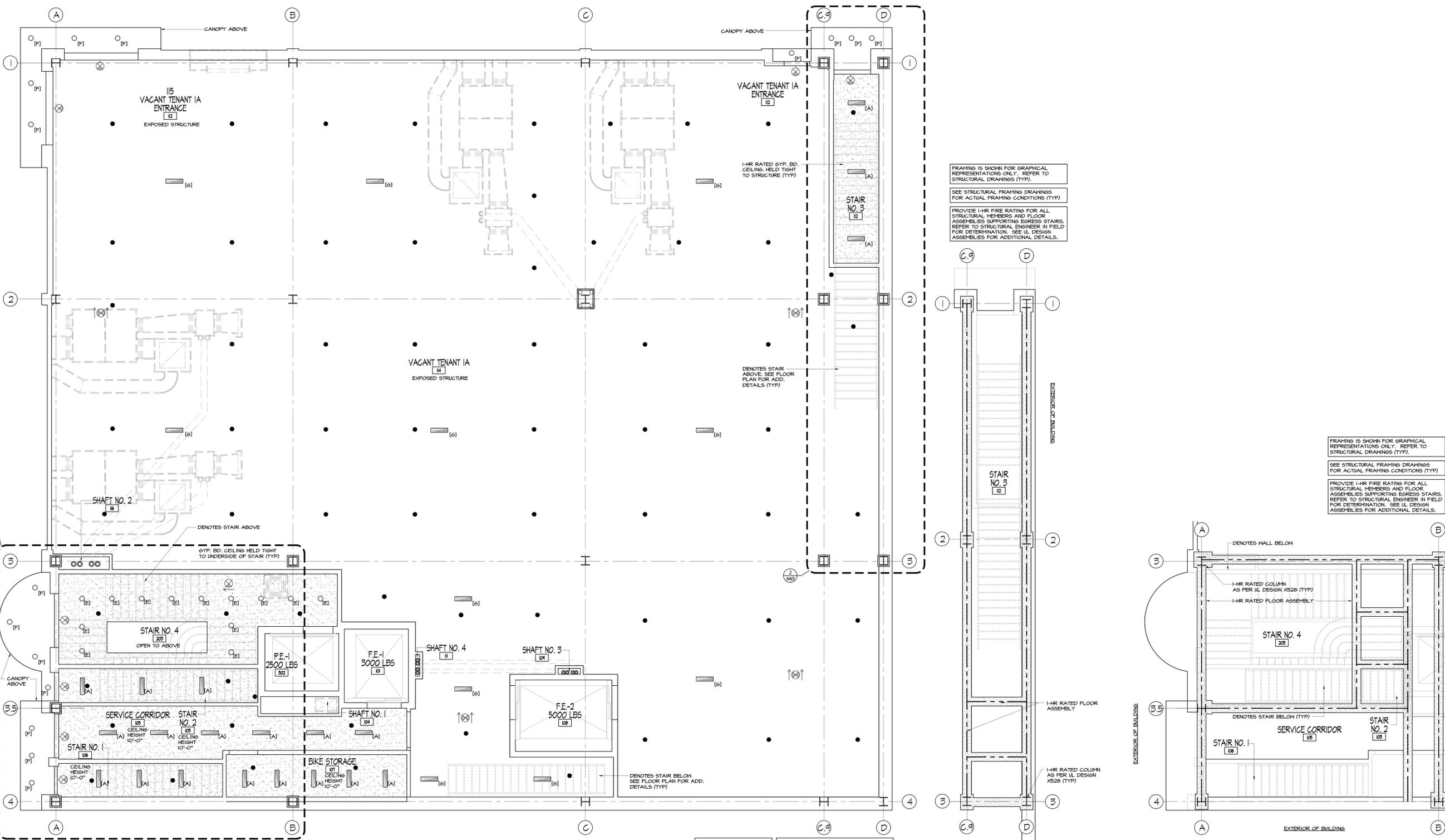
GENERAL NOTES

- ALL PENDANT LIGHTS TO BE SUSPENDED BY MONO POINT MOUNTING CABLES
- SEE ELECTRICAL DRAWINGS FOR EMERGENCY BACKUP LIGHTS
- SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

CEILING LEGEND



- GENERAL RCP NOTES:
- SEE UL DESIGN ASSEMBLIES FOR DETAILED CEILING INFORMATION
 - PARTIALLY SHADED FIXTURES INDICATE EMERGENCY LIGHT (SEE ELECTRICAL DYES)
 - SEE LIGHT FIXTURE SCHEDULE FOR LIGHT SPECIFICATIONS AND ADDITIONAL INFORMATION
 - SEE LIGHT FIXTURE SCHEDULE
 - SEE MEP DRAWINGS FOR ADDITIONAL INFORMATION
 - TEMPORARY TENANT FIXTURES ARE TO PROVIDE A MIN. OF 2 FOOT-CANDELES AT FLOOR LEVEL. FUTURE TENANTS TO PROVIDE PERMANENT LIGHTING FIXTURES ON A SEPARATE APPLICATION
 - LIGHTING TO BE COORDINATED IN FIELD WITH MEP EQUIPMENT
 - EQUALLY SPACE ALL LIGHT FIXTURES AS SHOWN
 - SEE FIRE PROTECTION DRAWINGS FOR AUTOMATIC SPRINKLER DESIGN



3 FIRST FLOOR R.C.P. 1/4" = 1'-0"

2 FIRE RATED STRUCTURE @ STAIRS 1/4" = 1'-0"

1 FIRE RATED STRUCTURE @ STAIRS 1/4" = 1'-0"

GAMBINO + LAPORTA
ARCHITECTURE, D.P.C.
1298 RICHMOND ROAD STATION ISLAND, NY 10304
PHONE: 718.667.6682 FAX: 718.667.1196 EMAIL: STUDIO@GLA.COM

DATE: 18 JUL 14	REVISION: 01	PROJECT: 288 ST. NICHOLAS	DRAWING NO: 1801000000
DESIGNED BY: T.J. GAMBINO	CHECKED BY: T.J. GAMBINO	LOCATION: 324 WEST 125TH ST. AND ST. NICHOLAS AVE. NEW YORK, NEW YORK 10027	BLOCK NO. 1451
DRAWN BY: T.J. GAMBINO		LOT NO. 000000	
SCALE: AS NOTED		ENR NO. 000000	
PROJECT NO: 1801000000		SHEET NO: 31 OF 46	

LIGHT FIXTURE SCHEDULE									
NO.	DESCRIPTION	LAMP DATA		MFR	LIGHTING FIXTURE	CATALOG NO.	LENS	MOUNTING	REMARKS
		TYPE	VOLT						
(A)	4' LED LINEAR FIXTURE CABLE MOUNT	LED	UNV	SOLARELECTRICWAY	SHNOR4FT12LED41		MFR	SUSPENDED	12'-0" A.F.F., 0' A.F.F. IN CELLAR, U.O.N., PRISMATIC LENS
(B)	36" ROUND LUMINAIRE CABLE MOUNT	LED	UNV	FRULITE	P3630-LED3950-VHA-Y6H-D1-SC-UNV-CA48*		MFR	PENDANT	*CONVEX WHITE ACRYLIC 1" MAX DROP
(C)	DIE-CAST ALUMINUM LED WALL PACK	LED	UNV	BARRON	T-LED1-20		MFR	WALL MOUNTED	EXTERIOR
(D)	ARCHITECTURAL GRADE LED WALL PACK	LED	UNV	PHILIPS STONCO	ES1-08-U-P-054-6K-H2		MFR	WALL MOUNTED	WALL MOUNTED 8'-0" A.F.F., MOTION SENSOR, WATERPROOF
(E)	5" SHALLOW ROUND RECESSED LED DOWNLIGHT	LED	UNV	SOLARELECTRICWAY	SHNORHH04-SINGH		MFR	RECESSED	INTERIOR
(F)	5" SHALLOW ROUND RECESSED LED DOWNLIGHT	LED	UNV	SOLARELECTRICWAY	SHNORHH04-SINGH		MFR	RECESSED	WATERPROOF, EXTERIOR
(G)	ECONOMY 8 FT FLUORESCENT TANDEM	FLUORESCENT	UNV	SOLARELECTRICWAY	SHNOR480FT4LT0		MFR	SUSPENDED	SUSPENDED 12'-0" A.F.F., HIRE GUARD, TEMPORARY FIXTURE
	EXIT UNIVERSAL LED EDEGLET NYC OR APPROVED EXIT SIGN	LED	UNV	SOLARELECTRICWAY	SHNLS5EXIT		MFR	*	*SEE PLANS FOR MOUNTING; PROVIDE COMPLETE KIT

GENERAL NOTES

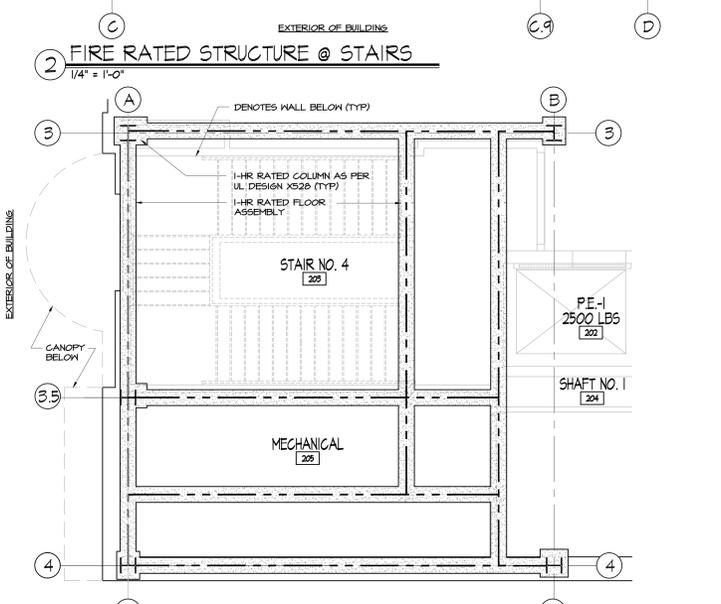
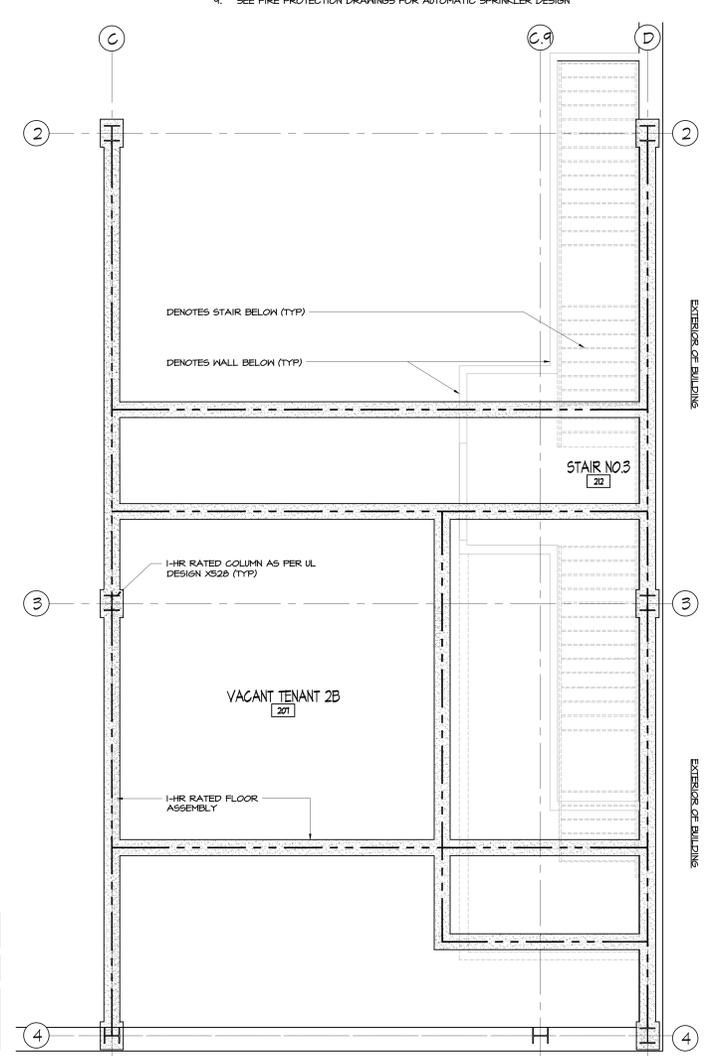
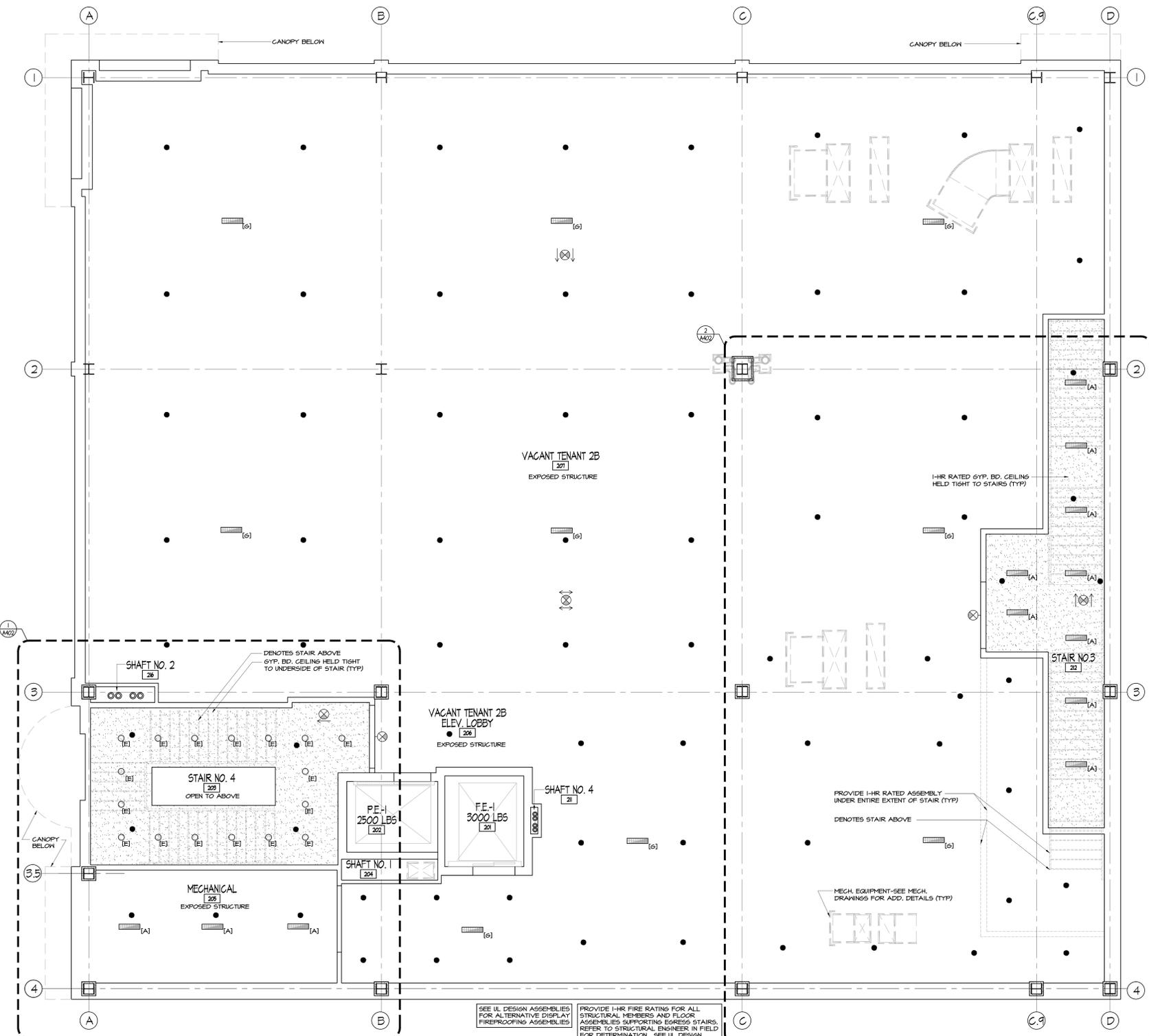
1. ALL PENDANT LIGHTS TO BE SUSPENDED BY MONO POINT MOUNTING CABLES
2. SEE ELECTRICAL DRAWINGS FOR EMERGENCY BACKUP LIGHTS
3. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

CEILING LEGEND

- GYP. BD. CEILING
- EXIT LIGHT, DIRECTIONAL ARROWS WHERE INDICATED - SHADED AREAS INDICATE ILLUMINATED FACE(S)
- SPRINKLER HEAD
- 4' LED LIGHT FIXTURE WITH PRISMATIC LENS
-
- EXTERIOR LED WALL MOUNTED MAN DOOR LIGHT
- EXTERIOR WALL PACK
-
-
- 8' FLUORESCENT HIGH-BAY LIGHT FIXTURE TEMPORARY TENANT FIXTURE

GENERAL BCP NOTES:

1. SEE UL DESIGN ASSEMBLIES FOR DETAILED CEILING INFORMATION
2. PARTIALLY SHADED FIXTURES INDICATE EMERGENCY LIGHT (SEE ELECTRICAL DWG5)
3. SEE LIGHT FIXTURE SCHEDULE FOR LIGHT SPECIFICATIONS AND ADDITIONAL INFORMATION
4. SEE LIGHT FIXTURE SCHEDULE
5. SEE MEP DRAWINGS FOR ADDITIONAL INFORMATION
6. TEMPORARY TENANT FIXTURES ARE TO PROVIDE A MIN. OF 2 FOOT-CANDLES AT FLOOR LEVEL. FUTURE TENANTS TO PROVIDE PERMANENT LIGHTING FIXTURES ON A SEPARATE APPLICATION
7. LIGHTING TO BE COORDINATED IN FIELD WITH MEP EQUIPMENT
8. EQUALLY SPACE ALL LIGHT FIXTURES AS SHOWN
9. SEE FIRE PROTECTION DRAWINGS FOR AUTOMATIC SPRINKLER DESIGN



FRAMING IS SHOWN FOR GRAPHICAL REPRESENTATIONS ONLY. REFER TO STRUCTURAL DRAWINGS (TYP).

SEE STRUCTURAL FRAMING DRAWINGS FOR ACTUAL FRAMING CONDITIONS (TYP).

PROVIDE 1-HR FIRE RATINGS FOR ALL STRUCTURAL MEMBERS AND FLOOR ASSEMBLIES SUPPORTING EGRESS STAIRS. REFER TO STRUCTURAL ENGINEER IN FIELD FOR DETERMINATION. SEE UL DESIGN ASSEMBLIES FOR ADDITIONAL DETAILS.

FRAMING IS SHOWN FOR GRAPHICAL REPRESENTATIONS ONLY. REFER TO STRUCTURAL DRAWINGS (TYP).

SEE STRUCTURAL FRAMING DRAWINGS FOR ACTUAL FRAMING CONDITIONS (TYP).

PROVIDE 1-HR FIRE RATINGS FOR ALL STRUCTURAL MEMBERS AND FLOOR ASSEMBLIES SUPPORTING EGRESS STAIRS. REFER TO STRUCTURAL ENGINEER IN FIELD FOR DETERMINATION. SEE UL DESIGN ASSEMBLIES FOR ADDITIONAL DETAILS.

3 SECOND FLOOR R.C.P.
1/4" = 1'-0"

1 FIRE RATED STRUCTURE @ STAIRS
1/4" = 1'-0"

GAMBITO + LAPORTA
ARCHITECTURE, D.P.C.
1298 RICHMOND ROAD STATION ISLAND, NY 10304
PHONE: 718.667.6682 FAX: 718.667.1196 | EMAIL: STUDIO@GLA.COM

PROJECT: 288 ST. NICHOLAS BLOCK NO. 145 324 WEST 125TH ST. AND ST. NICHOLAS AVE. NEW YORK, NEW YORK 10027 B.N. NO. 050606	PREPARED FOR ZONING AND PLAN APPROVAL ISSUED FOR ZONING AND PLAN APPROVAL DATE: 18 JUL 14 DRAWN BY: T.J.L. CHECKED BY: T.J.L. SCALE: AS NOTED	SECOND FLOOR R.C.P. SHEET NO. A402.00 OF 46
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REGISTERED ARCHITECT
STATE OF NEW YORK
NO. 12171
STEVEN GAWING, P.E.

DATE: 18 JUL 14
PROJECT NO: GLA14-0294
DPL: T.J.L.
SHEET NO: A402.00
OF 46

LIGHT FIXTURE SCHEDULE							
NO.	DESCRIPTION	LAMP DATA TYPE	VOLT	LIGHTING FIXTURE		MOUNTING	REMARKS
				MFR	CATALOG NO.		
(A)	4' LED LINEAR FIXTURE CABLE MOUNT	LED	UNV	SOLARELECTRICWAY	SKNOR4F2LED4I	MFR SUSPENDED	12'-0" A.F.F., 8'-0" A.F.F. IN CELLAR, U.O.N., PRISMATIC LENS
(B)	36" ROUND LUMINAIRE CABLE MOUNT	LED	UNV	FRULITE	P9430-LED3650-VVA-YGM-DI-SC-UNV-CA4B*	MFR PENDANT	*CONVEX WHITE ACRYLIC 1" MAX DROP
(C)	DIE-CAST ALUMINUM LED WALL PACK	LED	UNV	BARRON	T-LED1-20	MFR WALL MOUNTED	EXTERIOR
(D)	ARCHITECTURAL GRADE LED WALL PACK	LED	UNV	PHILIPS STONCO	E51-08-U-P-054-6K-H2	MFR WALL MOUNTED	WALL MOUNTED 8'-0" A.F.F., MOTION SENSOR, WATERPROOF
(E)	5" SHALLOW ROUND RECESSED LED DOWNLIGHT	LED	UNV	SOLARELECTRICWAY	SKNORH104-SINGH	MFR RECESSED	INTERIOR
(F)	5" SHALLOW ROUND RECESSED LED DOWNLIGHT	LED	UNV	SOLARELECTRICWAY	SKNORH104-SINGH	MFR RECESSED	WATERPROOF, EXTERIOR
(G)	ECONOMY 8 FT FLUORESCENT TANDEM	FLUORESCENT	UNV	SOLARELECTRICWAY	SKNORH68FT4LT8	MFR SUSPENDED	SUSPENDED 12'-0" A.F.F., WIRE GUARD, TEMPORARY FIXTURE
(H)	EXIT UNIVERSAL LED EDGE LIT NYC OR APPROVED EXIT SIGN	LED	UNV	SOLARELECTRICWAY	SKNLSSEEEXIT	MFR *	*SEE PLANS FOR MOUNTING, PROVIDE COMPLETE KIT

GENERAL NOTES

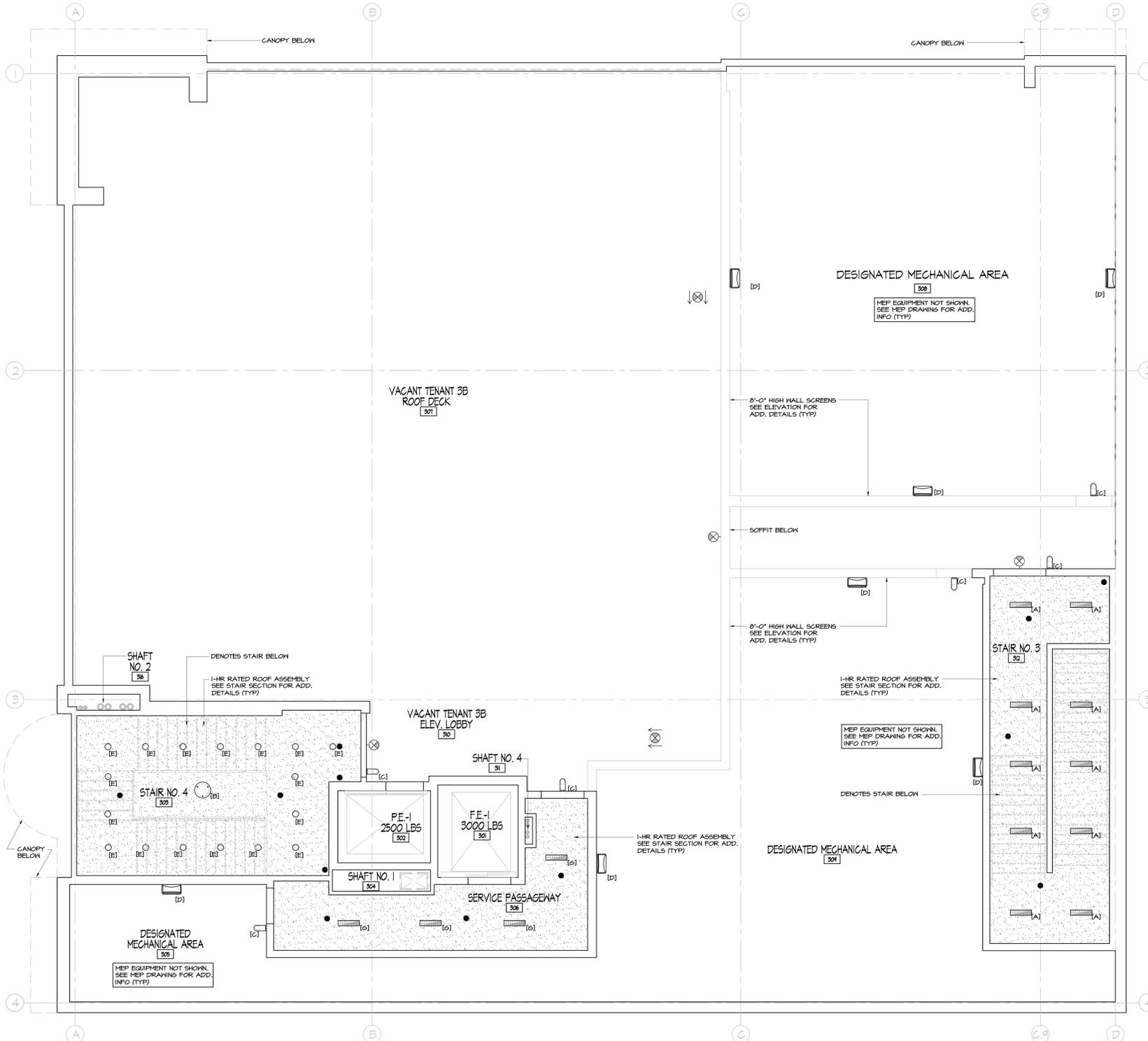
- NOTES:
1. ALL PENDANT LIGHTS TO BE SUSPENDED BY MONO POINT MOUNTING CABLES
 2. SEE ELECTRICAL DRAWINGS FOR EMERGENCY BACKUP LIGHTS
 3. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

CEILING LEGEND

- 6YP. BD. CEILING
- EXIT LIGHT, DIRECTIONAL ARROWS WHERE INDICATED - SHADED AREAS INDICATE ILLUMINATED FACES
- SPRINKLER HEAD
- 4' LED LIGHT FIXTURE WITH PRISMATIC LENS
- 36" LED PENDANT STYLE LIGHT FIXTURE
- EXTERIOR LED WALL MOUNTED MAIN DOOR LIGHT
- EXTERIOR WALL PACK
- 5" LED HET LOCATION RECESSED DOWNLIGHT
- 5" LED RECESSED DOWNLIGHT
- 8' FLUORESCENT HIGH-BAY LIGHT FIXTURE TEMPORARY TENANT FIXTURE

GENERAL R.C.P. NOTES:

1. SEE U.L. DESIGN ASSEMBLIES FOR DETAILED CEILING INFORMATION
2. PARTIALLY SHADED FIXTURES INDICATE EMERGENCY LIGHT (SEE ELECTRICAL DWG5)
3. SEE LIGHT FIXTURE SCHEDULE FOR LIGHT SPECIFICATIONS AND ADDITIONAL INFORMATION
4. SEE LIGHT FIXTURE SCHEDULE
5. SEE MEP DRAWINGS FOR ADDITIONAL INFORMATION
6. TEMPORARY TENANT FIXTURES ARE TO PROVIDE A MIN. OF 2 FOOT-CANDLES AT FLOOR LEVEL. FUTURE TENANTS TO PROVIDE PERMANENT LIGHTING FIXTURES ON A SEPARATE APPLICATION
7. LIGHTING TO BE COORDINATED IN FIELD WITH MEP EQUIPMENT
8. EQUALLY SPACE ALL LIGHT FIXTURES AS SHOWN
9. SEE FIRE PROTECTION DRAWINGS FOR AUTOMATIC SPRINKLER DESIGN



SEE U.L. DESIGN ASSEMBLIES FOR ALTERNATIVE DISPLAY FIREPROOFING ASSEMBLIES

PROVIDE I-HR FIRE RATING FOR ALL STRUCTURAL MEMBERS AND FLOOR ASSEMBLIES SUPPORTING EGRESS STAIRS. REFER TO STRUCTURAL ENGINEER IN FIELD FOR DETERMINATION. SEE U.L. DESIGN ASSEMBLIES FOR ADDITIONAL DETAILS.

1 ROOF TERRACE R.C.P.
1/4" = 1'-0"



GAMBINO + LAPORTA
ARCHITECTURE, D.P.C.
1298 RICHMOND ROAD STATION ISLAND, NY 10304
PHONE: 718.667.6682 FAX: 718.667.1196 EMAIL: STUDIO@GLA.COM

NO.	DATE	DESCRIPTION

PROJECT: 288 ST. NICHOLAS
BLOCK NO. 145
324 WEST 125TH ST. AND ST. NICHOLAS AVE.
NEW YORK, NEW YORK 10027
BN NO. 050606

ARCHITECT: 324 WEST 125TH STREET, LLC.
610 BAY PARKWAY-THIRD FLOOR
BROOKLYN, NY 11204



PROJECT NO: 6LA14-0294

DATE: 18.JUL.14

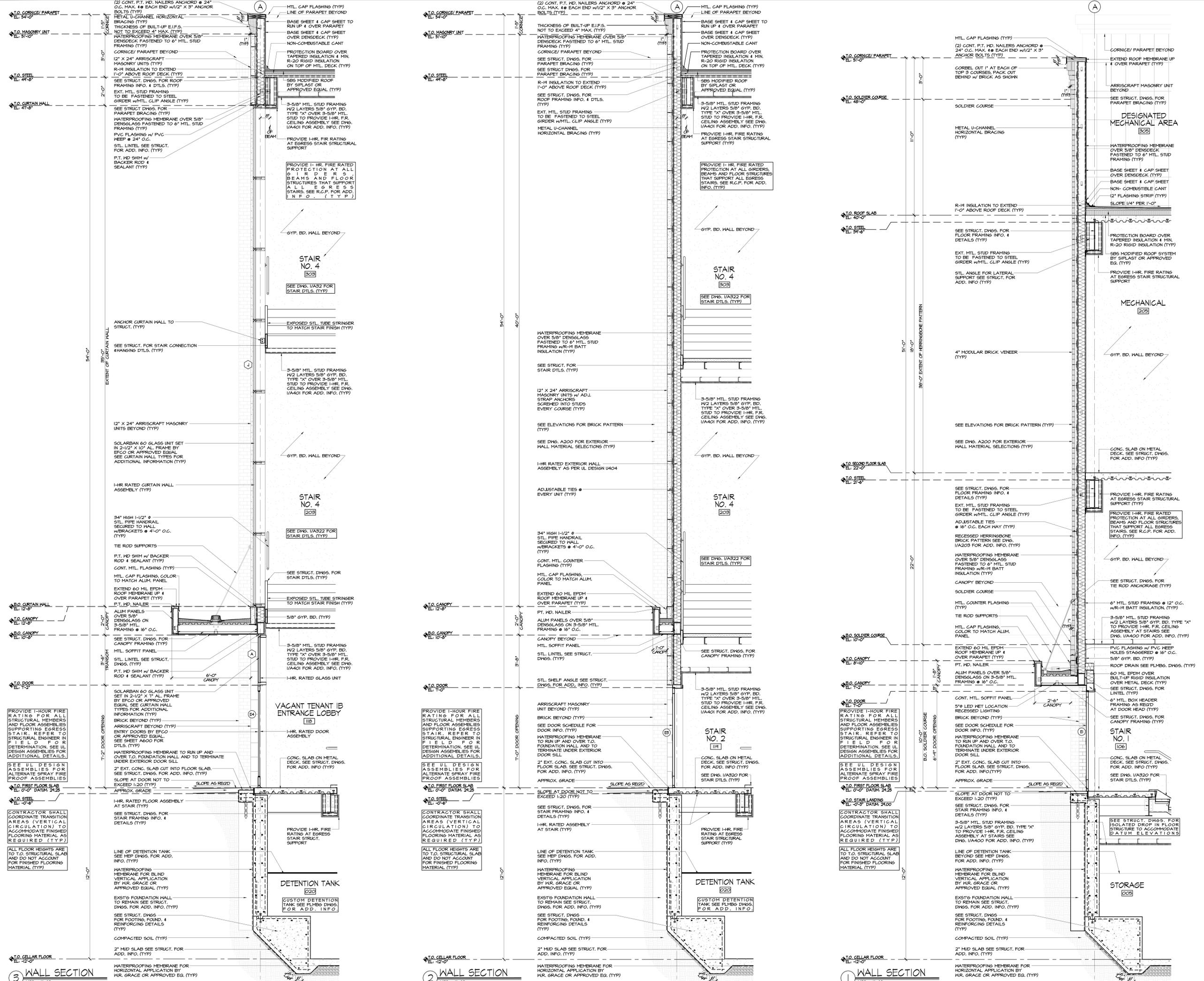
DESIGNER: T.J.L.

SCALE: A403.00

SHEET NO: 34 OF 46



GAMBINO + LAPORTA
ARCHITECTURE, DPC
 1298 RICHMOND ROAD STATION ISLAND, NY 10304
 PHONE: 718.667.6682 FAX: 718.667.1196 | EMAIL: STUDIO@GAL-ARCH.COM
 WWW.G.L.A.R.C.H.COM



NO.	DATE	DESCRIPTION
1	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL
2	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL
3	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL
4	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL
5	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL
6	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL
7	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL
8	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL
9	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL
10	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL
11	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL
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13	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL
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44	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL
45	08/14/14	ISSUED FOR ZONING AND PLAN APPROVAL

288 ST. NICHOLAS
 324 WEST 125TH ST. AND ST. NICHOLAS AVE.
 NEW YORK, NEW YORK 10027
 BLOCK NO. 1451
 LOT NO. 10
 E.I.N. NO. 090000

324 WEST 125TH STREET, LLC.
 670 BAY PARKWAY, 3RD FLOOR
 BROOKLYN, NY 11204

WALL SECTIONS AS NOTED

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

DATE: 08/14/14

PROJECT: 14A-0244

NO. 1

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

PRICE: **A500.00**

SHEET: 40 OF 46



GAMBINO + LAPORTA
ARCHITECTURE, DPC
 1298 RICHMOND ROAD STATEN ISLAND, NY 10314
 PHONE: 718.667.6682 FAX: 718.667.1196 EMAIL: STUDIO@GLA-ARCH.COM

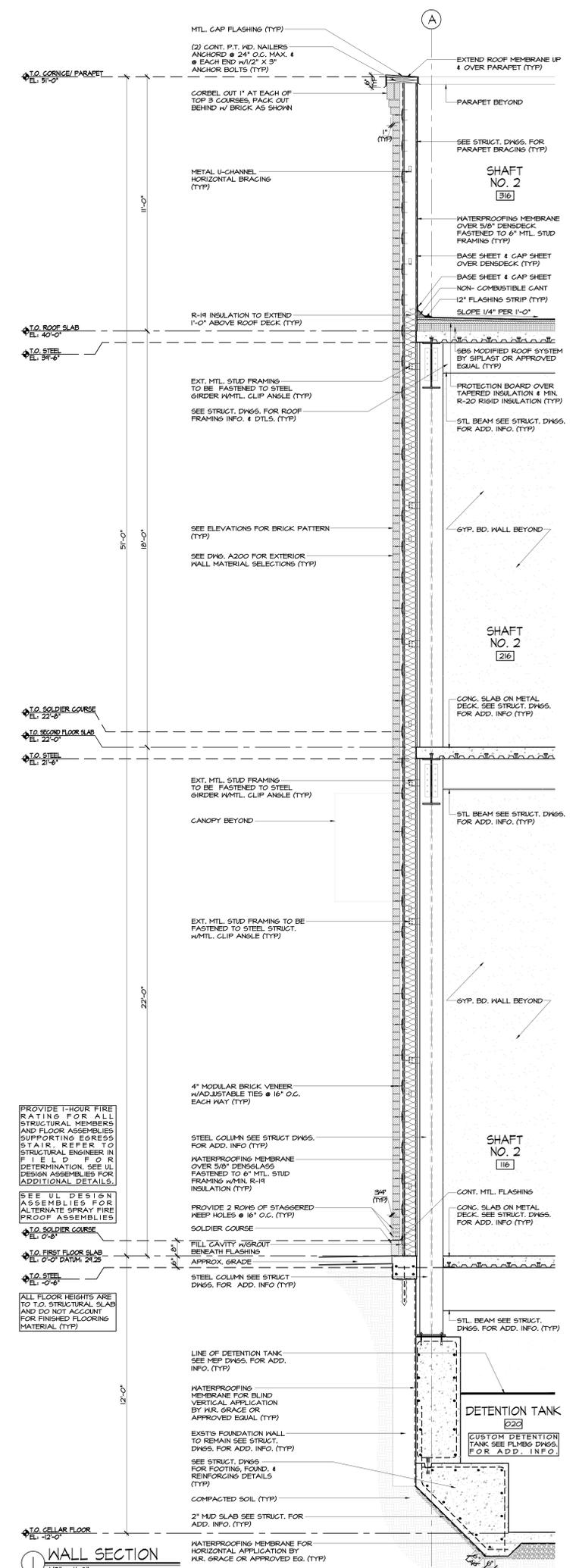
288 ST. NICHOLAS
 324 WEST 125TH STREET, LLC.
 610 BAY FASQUAY-THIRD FLOOR
 BROOKLYN, NY 11204

NO.	DATE	REVISION
1		ISSUED FOR ZONING AND PLAN APPROVAL
2		ISSUED FOR ZONING AND PLAN APPROVAL

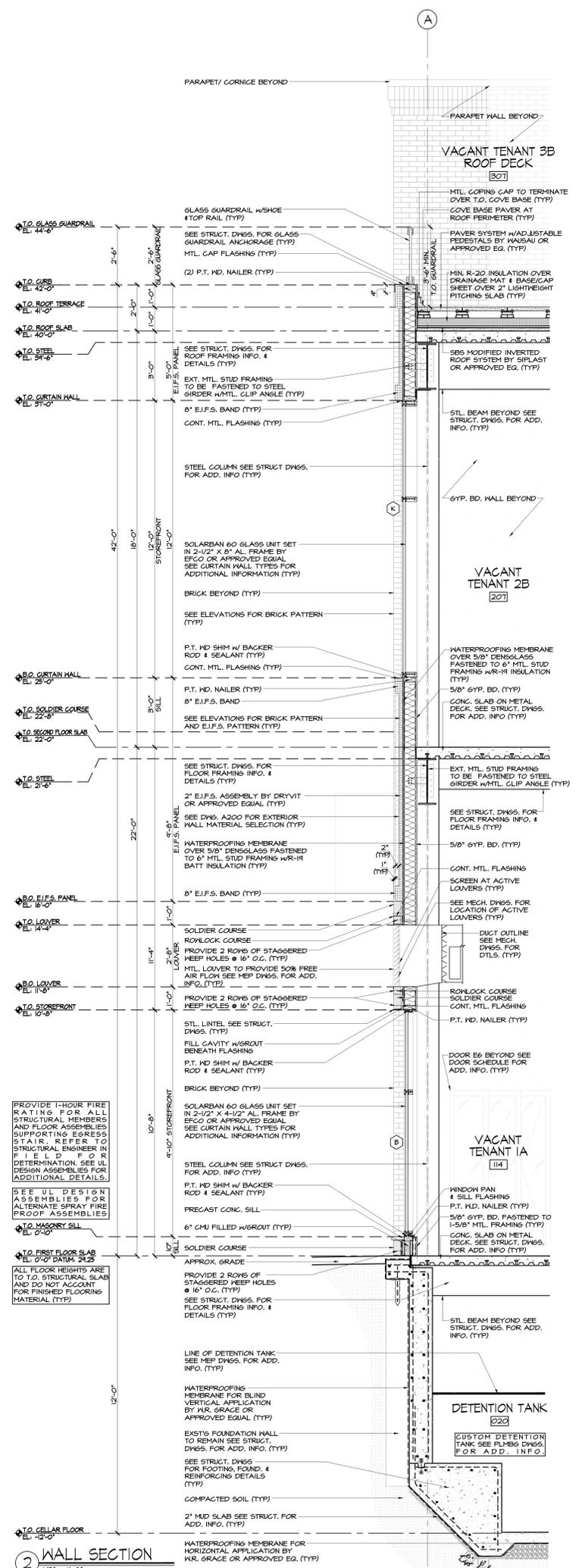
PROJECT: 288 ST. NICHOLAS
 BLOCK NO. 145
 LOT NO. 10
 E.B.N.O. 050000



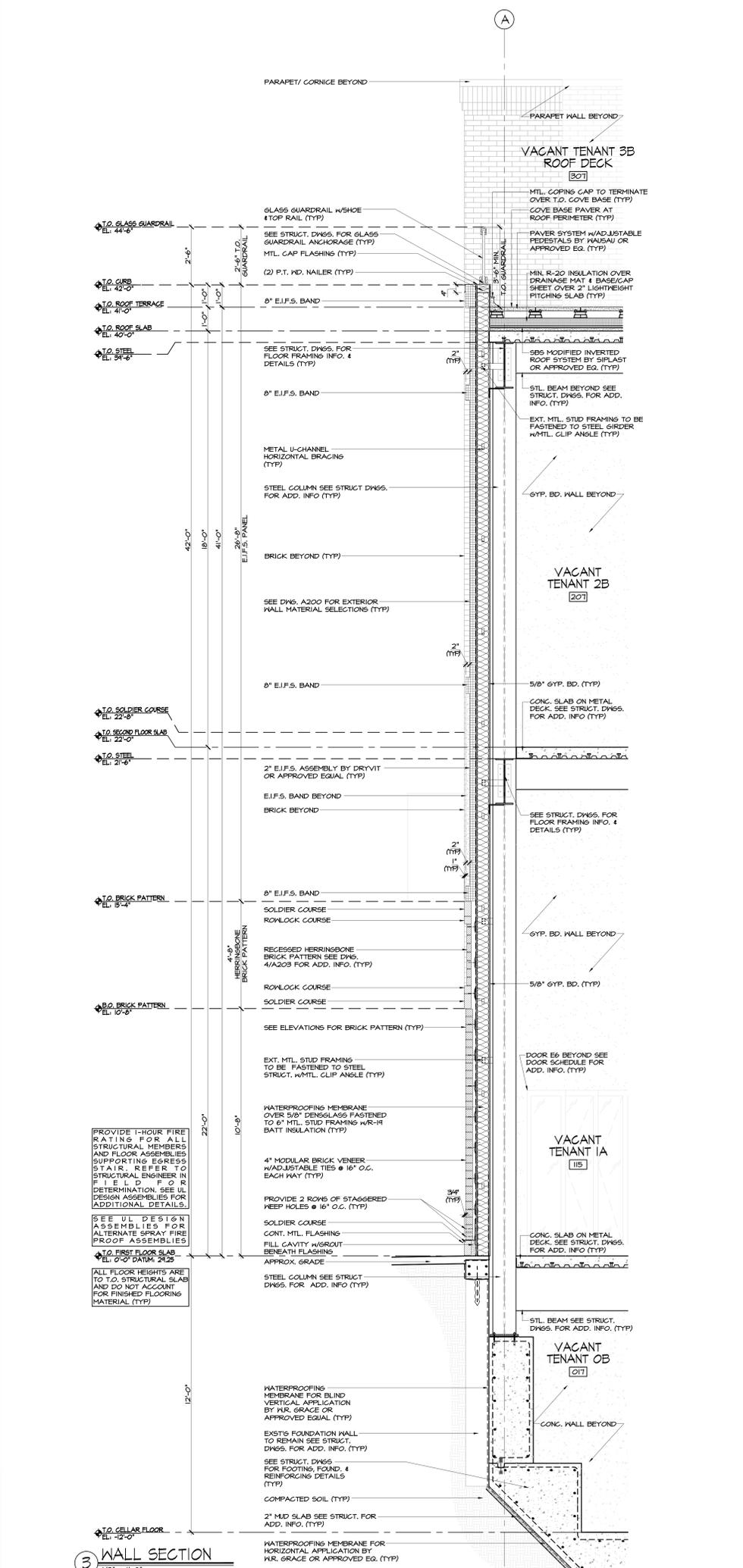
DATE: 18.JUL.14
 DRAWING NO.: GLA14-0294
 SCALE: AS NOTED
 SHEET: A501.00
 41 OF 46



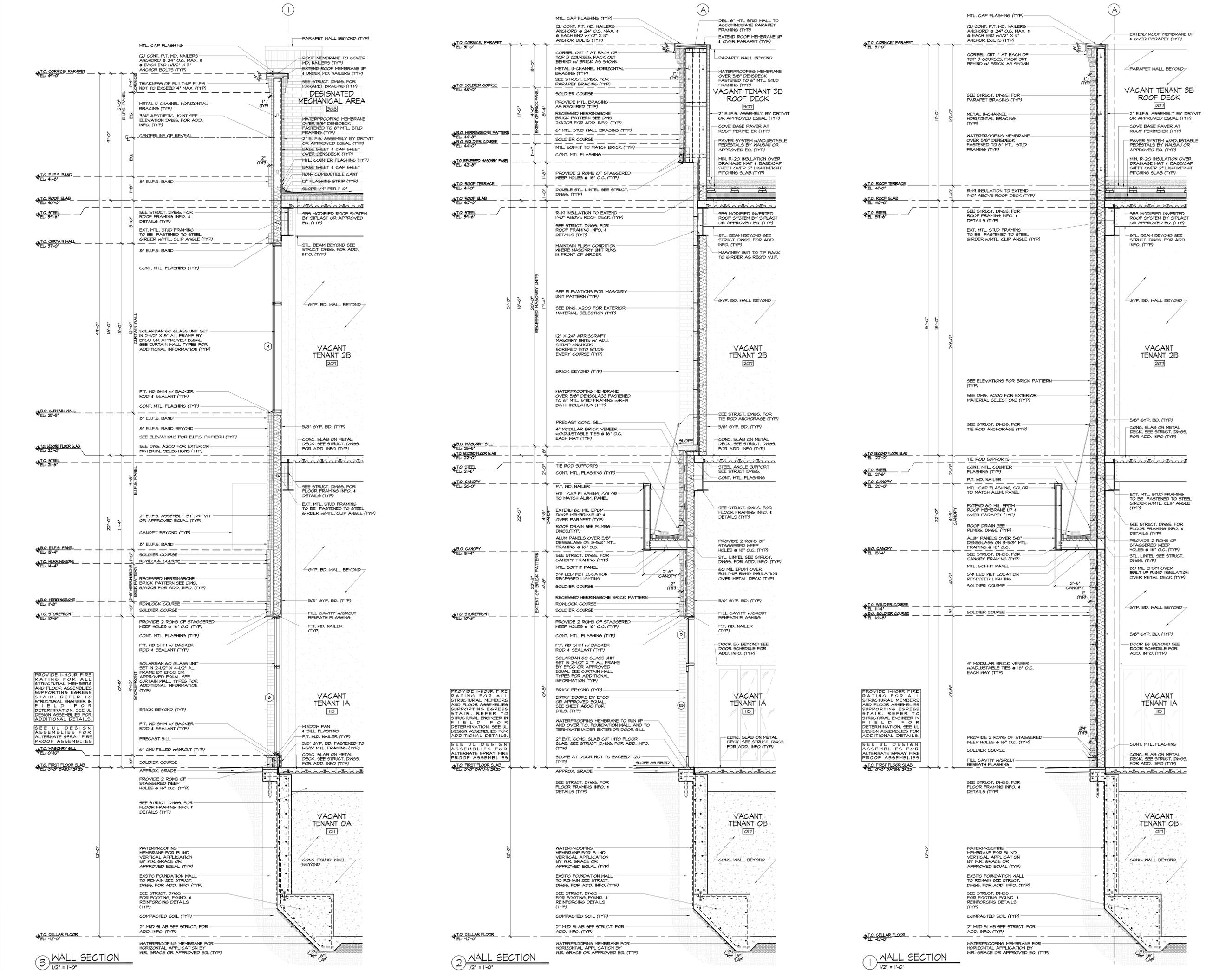
1 WALL SECTION
 1/2" = 1'-0"



2 WALL SECTION
 1/2" = 1'-0"



3 WALL SECTION
 1/2" = 1'-0"





GAMBINO + LAPORTA
ARCHITECTURE, DPC
 1298 RICHMOND ROAD STATEN ISLAND, NY 10314
 PHONE: 718.667.6682 FAX: 718.667.1196 EMAIL: STUDIO@GLA-ARCH.COM

288 ST. NICHOLAS 324 WEST 125TH ST. AND ST. NICHOLAS AVE. NEW YORK, NEW YORK 10027 EBN: 10.00000	324 WEST 125TH STREET, LLC. 610 BAY FERRYWAY - THIRD FLOOR BROOKLYN, NY 11204	PROJECT NO.: 18JUL14 BLOCK NO.: 145 LOT NO.: 10 EBN: 10.00000
---	---	--

DATE: 18JUL14
 DRAWING NO.: GLA14-0244
 SHEET NO.: 42 OF 46

DOOR & FRAME SCHEDULE

DR	ROOM	RM	DOOR				FRAME				FIRE RATING LABEL	TYPE	MATERIAL	FINISH	GLASS	HAMB	HEAD	SILL	HWDR	REMARKS	
			W	H	T	TYPE	TYPE	FIN	GL	TYPE											FIN
E1	STAIR NO. 1	106	3'-0"	7'-0"	1-3/4"	D-2	AL	ANOD	J-5	H-5	S-1	SET #5	---	---	---	---	---	---	---	---	NO HARDWARE FULL SIDE
E2	STAIR NO. 2	105	3'-0"	7'-0"	1-3/4"	D-1	AL	ANOD	J-5	H-5	S-1	SET #5	---	---	---	---	---	---	---	---	"3'-0" AND 1'-8"
E3	VACANT TENANT 1B ENT. LOBBY	114	3'-0"	7'-0"	1-3/4"	D-2	AL	ANOD	J-6	H-6	S-1	SET #5	---	---	---	---	---	---	---	---	NO HARDWARE FULL SIDE
E4	VACANT TENANT 1A ENTRANCE	115	3'-0"	7'-0"	1-3/4"	D-3	AL	ANOD	J-6	H-6	S-2	SET #1	---	---	---	---	---	---	---	---	TRANSOM ABOVE DOOR, SEE DWG 2/A210 FOR ADD. DTLS.
E5	VACANT TENANT 1A ENTRANCE	115	8'-8"	7'-8"	1-3/4"	D-3	MFR	ASD-1	J-5	H-4	MFR	SET #5	---	---	---	---	---	---	---	---	TRANSOM ABOVE DOOR, SEE DWG 9/A210 FOR ADD. DTLS.
E6	VACANT TENANT 1A ENTRANCE	115	3'-0"	7'-0"	1-3/4"	D-2	AL	ANOD	J-6	H-6	S-2	SET #1	---	---	---	---	---	---	---	---	TRANSOM ABOVE 1 SEITE, SEE DWG 8/210 FOR ADD. DTLS. NO HARDWARE FULL SIDE
E7	VACANT TENANT 1A ENTRANCE	115	3'-0"	7'-0"	1-3/4"	D-2	AL	ANOD	J-6	H-6	S-2	SET #1	---	---	---	---	---	---	---	---	TRANSOM ABOVE, SEE DWG 5/A210 FOR ADD. DTLS.
E8	STAIR NO. 3	112	4'-0"	7'-0"	1-3/4"	D-2	AL	ANOD	J-5	H-4	S-1	SET #5	---	---	---	---	---	---	---	---	---
E9	VACANT TENANT 3B LOBBY	310	2'-0"	7'-0"	1-3/4"	D-3	AL	ANOD	J-6	H-6	S-2	SET #1	---	---	---	---	---	---	---	---	---
E10	SERVICE PASSAGEWAY	311	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-7	H-7	S-1	SET #6	---	---	---	---	---	---	---	---	---
E11	STAIR NO. 3	311	2'-0"	7'-0"	1-3/4"	D-3	AL	ANOD	J-6	H-6	S-2	SET #1	---	---	---	---	---	---	---	---	---
E12	DESIGNATED MECH. AREA	308	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-7	H-7	S-1	SET #2	---	---	---	---	---	---	---	---	---
E13	DESIGNATED MECH. AREA	304	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-7	H-7	S-1	SET #2	---	---	---	---	---	---	---	---	---
E14	DESIGNATED MECH. AREA	305	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-7	H-7	S-1	SET #2	---	---	---	---	---	---	---	---	---
C002	ELEVATOR PIT	002	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-7	H-7	S-1	SET #2	---	---	---	---	---	---	---	---	TACTILE DOOR HANDLE (CORRIDOR SIDE)
C005	STAIR NO. 1	005	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-3	H-3	S-1	SET #2	---	---	---	---	---	---	---	---	TACTILE DOOR HANDLE (CORRIDOR SIDE)
C006	STAIR NO. 1	006	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-3	H-3	S-1	SET #1	---	---	---	---	---	---	---	---	---
C010	ELEV. MACHINE ROOM	010	2'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-1	H-1	S-1	SET #2	---	---	---	---	---	---	---	---	TACTILE DOOR HANDLE (CORRIDOR SIDE)
C011	VACANT TENANT O1 STORAGE	011	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-3	H-3	S-1	SET #2	---	---	---	---	---	---	---	---	TACTILE DOOR HANDLE (CORRIDOR SIDE)
C012	VACANT TENANT O1 STORAGE	012	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-3	H-3	S-1	SET #2	---	---	---	---	---	---	---	---	TACTILE DOOR HANDLE (CORRIDOR SIDE)
C013	ELECTRICAL ROOM	013	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-2	H-2	S-1	SET #2	---	---	---	---	---	---	---	---	TACTILE DOOR HANDLE (CORRIDOR SIDE)
C014	METER ROOM	014	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-2	H-2	S-1	SET #2	---	---	---	---	---	---	---	---	TACTILE DOOR HANDLE (CORRIDOR SIDE)
C017	VACANT TENANT O2 STORAGE	017	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-3	H-3	S-1	SET #2	---	---	---	---	---	---	---	---	TACTILE DOOR HANDLE (CORRIDOR SIDE)
C018	VACANT TENANT O2 STORAGE	018	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-3	H-3	S-1	SET #2	---	---	---	---	---	---	---	---	TACTILE DOOR HANDLE (CORRIDOR SIDE)
C019	ELEV. MACH. ROOM	019	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-3	H-3	S-1	SET #1	---	---	---	---	---	---	---	---	---
C020	STAIR NO. 2	019	3'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-3	H-3	S-1	SET #1	---	---	---	---	---	---	---	---	---
F005	SERVICE PASSAGEWAY	105	4'-0"	7'-0"	1-3/4"	D-4	HM	PTD	J-3	H-3	S-2	SET #2	---	---	---	---	---	---	---	---	---
F007	BIKE STORAGE	107	3'-0"	7'-0"	1-3/4"	D-6	HM	PTD	J-3	H-3	S-2	SET #1	---	---	---	---	---	---	---	---	---
F205	MECHANICAL	205	2'-0"	7'-0"	1-3/4"	D-5	HM	PTD	J-3	H-3	S-2	SET #2	---	---	---	---	---	---	---	---	---
F206	VACANT TENANT ELEV. 2B LOBBY	206	2'-0"	7'-0"	1-3/4"	D-5	HM	PTD	J-3	H-3	S-2	SET #1	---	---	---	---	---	---	---	---	---
F212	STAIR NO. 3	212	2'-0"	7'-0"	1-3/4"	D-5	HM	PTD	J-3	H-3	S-2	SET #1	---	---	---	---	---	---	---	---	---

NOTE: DOOR NUMBERS NOT USED
 CELLAR FLOOR: 001, 003, 004, 007, 008, 009, 014, 015, 016, 020
 FIRST FLOOR: 101, 102, 103, 104, 106, 108, 109, 104, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119
 SECOND FLOOR: 201, 202, 203, 204, 207, 208, 209, 210, 211, 213, 214, 215, 216
 ROOF TERRACE: 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316

DOOR SCHEDULE ABBREVIATIONS

AL	ALUMINUM	AND	ANODIZED
AFD	AUTOMATIC DOOR	AND	ABOVE FINISH FLOOR
APVD	APPROVED	RETD	REQUIRED
CLST	CLOSET	CLST	CLOSET
EQUIP	EQUIPMENT	EXTD	EXTERIOR
ELEV	ELEVATOR	FRM	FRAME
FIN	FINISH	GL	GLAZING
HM	HOLLOW METAL	HD	HEAD
HWRE	HARDWARE	HD	HEAD
JC	JANITOR CLOSET	JMB	JAMB
KPL	KICK-PLATE	MIN	MINUTES (FIRE RATINGS)
MATL	MATERIAL	MFR	MANUFACTURER
MECH	MECHANICAL	MH	MAGNETIC HOLD OPEN
NO	NUMBER	OHD	OVER HEAD DOOR
OC	ON CENTER	OPF	OPPOSITE
PTD	PAINTED	PRF	PRE-FINISHED
PASS	PASSAGEWAY	STL	STEEL
SGH	SOLID GORE WOOD	SPR	SPRINKLER
STD	STANDARD	S	SILL
SH	SIMILAR	TEMP	TEMPERED GLAZING
T	THICKNESS	VP	VISION PANEL
HD	WOOD	N	NIGHT

HARDWARE NOTES

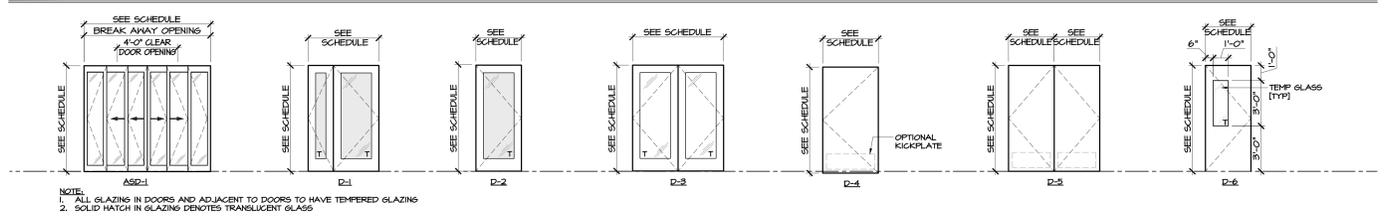
DOOR NOTES:
 1. ALL EXTERIOR ENTRANCE DOOR GLAZING SHALL HAVE A U-FACTOR OF NOT LESS THAN 3 AND A SHGC OF NOT LESS THAN 4.
 2. ALL DOOR HARDWARE AND CLOSERS SHALL MEET THE REQUIREMENTS OF ICC/ANSI A111-2009 SECTIONS 404.2.1 AND 404.2.2 AS APPLICABLE.
 3. PROPOSED DOORS SHALL MEET THE REQUIREMENTS OF ICC/ANSI A111-2009 SECTIONS 404.2.1 AND 404.2.2 AS APPLICABLE.
 4. COORDINATE WITH MECHANICAL DRAWINGS FOR ANY DOOR INTERCUT REQUIREMENTS.
 5. ALL DOORS TO SHALL HAVE CLOSERS (U/O).
 6. EGRESS DOORS SHALL BE SIDE-HINGED.
 7. DOOR SWING SHALL BE IN COMPLIANCE WITH ARCHITECTURAL DRAWINGS.
 8. ALL DOORS ALONG THE EGRESS PATH SHALL OPEN 180 DEGREES WHERE APPLICABLE.
 9. OPENING FORCE WITHOUT CLOSERS SHALL NOT EXCEED 5-POUND FORCE.
 10. ALL OTHER SIDE-SWINGING DOORS THE DOOR LATCH SHALL RELEASE WHEN SUBJECT TO 15-POUND FORCE.
 11. THE DOOR SHALL BE SET IN MOTION WHEN SUBJECT TO A 30-POUND FORCE.
 12. THE DOOR SHALL SWING TO A FULL-OPEN POSITION WHEN SUBJECT TO A 15-POUND FORCE.
 13. FORCE SHALL BE APPLIED TO THE LATCH SIDE.
 14. POWER OPERATED AND HORIZONTAL SLIDING DOORS SHALL MEET THE REQUIREMENTS OF BC 1008J.3.2 AND 1008J.3.3.
 15. EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.
 MARQUEE NOTES:
 1. DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES ON DOORS REQUIRED TO BE ACCESSIBLE SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING OR TWISTING OF THE HAND TO OPERATE.
 2. DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES SHALL BE 34 INCHES MINIMUM AND 48 INCHES MAXIMUM AFF. LOCKS USED ONLY FOR SECURITY PURPOSES AND NOT USED FOR NORMAL OPERATION ARE PERMITTED AT ANY HEIGHT.
 3. MANUALLY OPERATED FLUSH BOLTS OR SURFACE BOLTS ARE NOT PERMITTED.
 4. ALL HARDWARE PROVIDED ALONG PATH OF EGRESS AS DEFINED ON THE EGRESS PLANS SHALL BE EQUIPPED WITH EXIT HARDWARE.
 5. ALL LOCK SETS SHALL BE REVIEWED BY OWNER.
 6. FINISH HARDWARE SCHEDULE TO BE SUBMITTED FOR REVIEW AND APPROVAL.
 7. FIRE EXIT HARDWARE MUST BE LABELED. THE CONTENTS OF THE LABEL INCLUDE "LISTED" AND "FIRE EXIT HARDWARE" AND INDICATE A CONTROL OR SERIAL NUMBER.
 8. PROVIDE TACTILE WARNING (KNURLING) ON ALL DOOR HANDLES THAT ARE NOT ALONG THE PATH OF EGRESS OR LEADING TO THE PATH OF EGRESS.

HARDWARE SETS

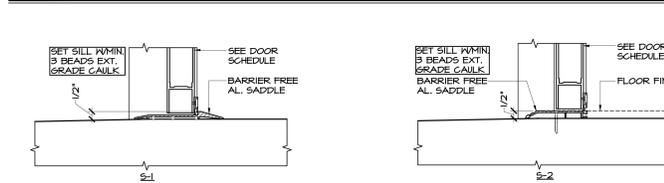
SET #1	SET #2	SET #3	SET #4	SET #5	SET #6	SET #7	SET #8
1 EACH FIRE EXIT HARDWARE	1 SET LEVER TRIM W/ CYLINDER ESCUTCHION (FULL SIDE)	2 SET FIRE EXIT HARDWARE LEVER TRIM W/ BLANK ESCUTCHION (FULL SIDE)	1 EACH THRESHOLD	1 EACH CLOSER	1 EACH DOOR SNEEP (AT EXTERIOR DOORS)	2 SET CRASH BAR PANO HARDWARE W/ DOGGING FEATURE	1 EACH THRESHOLD
1 EACH CLOSER	1 EACH CLOSER	1 EACH CLOSER	1 EACH WEATHER STRIPPING	1 EACH WEATHER STRIPPING	1 EACH WEATHER STRIPPING (AT EXT. DOORS)	2 EACH THRESHOLD	1 EACH CLOSER
1 EACH THRESHOLD	1 EACH KICKPLATE (OPTIONAL)	2 EACH KICKPLATE (OPTIONAL)	1 EACH HINGE (5 KNICKLE BALL BEARING)	1 EACH CONCEALED CLOSER	1 EACH FIRE EXIT HARDWARE	2 EACH KICKPLATE (OPTIONAL)	2 EACH WEATHER STRIPPING
2 EACH KICKPLATE (OPTIONAL)	2 EACH HINGE (5 KNICKLE BALL BEARING)	4 EACH HINGE (5 KNICKLE BALL BEARING)	1 EACH DOOR SNEEP	1 EACH ALARM	1 EACH LEVER TRIM W/ CYLINDER ESCUTCHION	2 EACH HINGE (5 KNICKLE BALL BEARING)	2 EACH PIVOT (TOP & BOTTOM CONCEALED)

NOTE:
 1. LOCKS AND LATCHES TO MEET THE REQUIREMENTS OF BC 1008J.3.3
 2. WHERE PANIC AND FIRE EXIT HARDWARE IS INSTALLED, THE ACTUATING PORTION OF THE RELEASING DEVICE SHALL EXTEND AT ONE-HALF (1/2) OF THE DOOR LEAF WIDTH.
 3. LOCKS TO BE INSTALLED ON INACTIVE DOORS.
 4. DEAD BOLTS TO BE INSTALLED ON INACTIVE DOORS.
 5. WALL AND FLOOR STOPS TO BE PROVIDED WHERE REQD.
 6. ALARM SYSTEM TO BE DETEX OR APPROVED EQUAL.

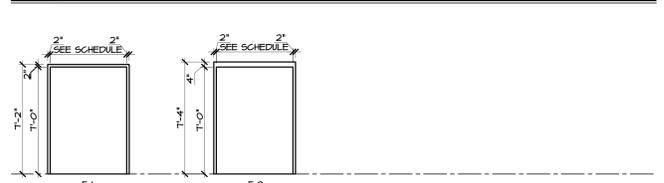
DOOR TYPES



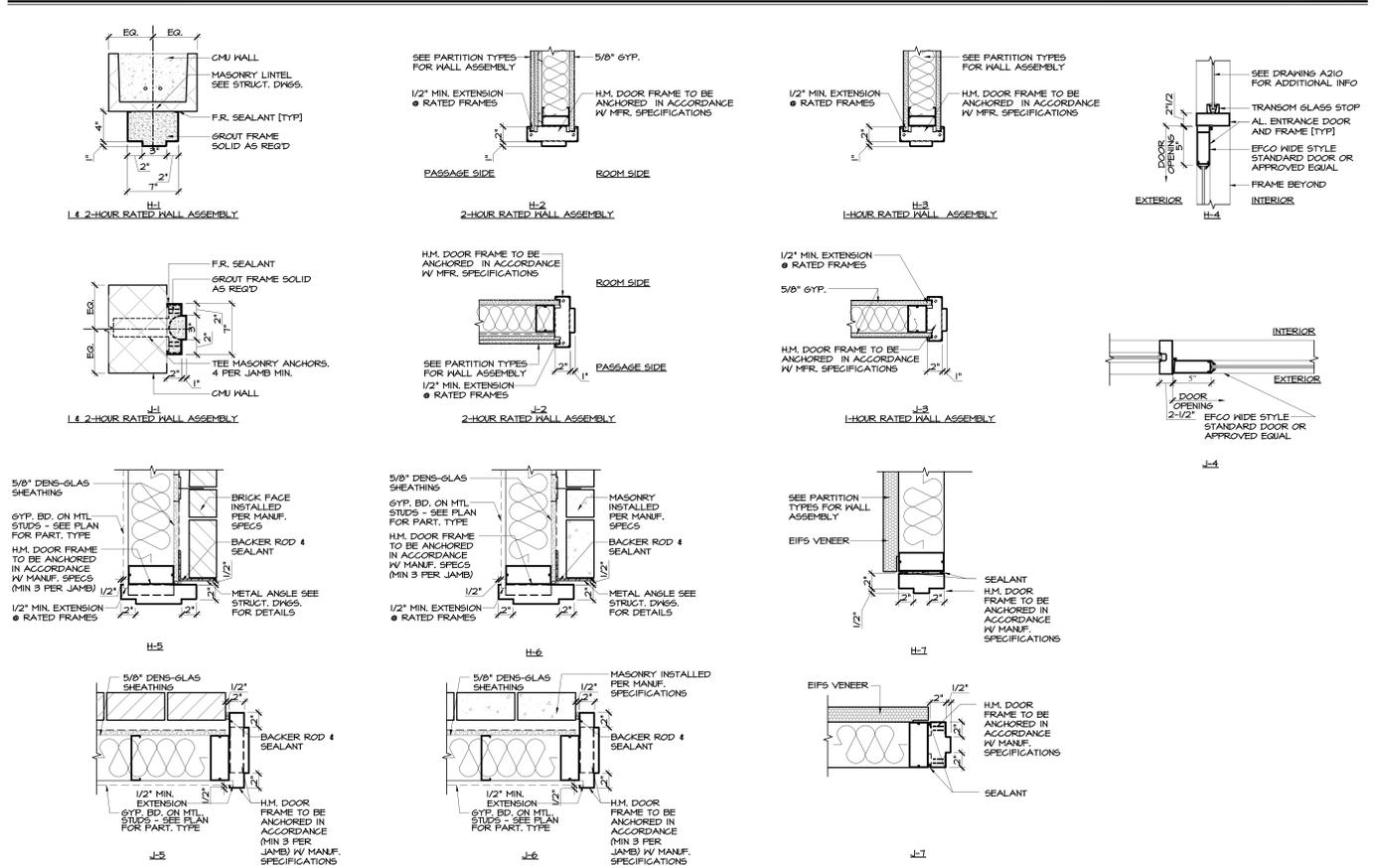
SILL TYPES



FRAME TYPES



HEAD AND JAMB DETAILS



NOTE: SEE PARTITION TYPES AND WALL SECTIONS FOR ADDITIONAL WALL DETAILS

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324 WEST 125TH STREET, LLC.
 610 BAY PARKWAY-THIRD FLOOR
 BROOKLYN, NY 11204

DOOR SCHEDULE AND DETAILS AS NOTED

REGISTERED ARCHITECT
 STATE OF NEW YORK
 0217

DATE: 18.JUL.14
 DRAWING NO: GLA14-0294

DWG NO: 00000000

TITLE: A600.00

SHEET NO: 45 OF 46

TABLE II - PROGRESS INSPECTIONS FOR ENERGY CODE COMPLIANCE - COMMERCIAL BUILDINGS

Table with 5 columns: Inspection/Test, Periodic (minimum), Reference Standard (See ECC Chapter 6) or Other Criteria, ECC or Other Citation, and a detailed description of the inspection requirements for various building systems like envelope, fenestration, ductwork, and mechanical systems.

(f) Energy Analysis of Constructed Conditions. In accordance with Section 28-104.3 of the Administrative Code and section ECC 103.4, if constructed work differs from the last approved full energy analysis, an as-built energy analysis shall be submitted to the Department...

visual inspection and tested for functionality and proper operation. Such controls shall include, but are not limited to: Thermostatic, Set point overlap restriction, Off-hour, Shutoff damper, Snow-melt system, Demand control systems, Outdoor heating systems, Zones, Economizers, Air systems, Variable air volume fan, Hydronic systems, Heat rejection equipment fan speed, Complex mechanical systems serving multiple zones, Ventilation, Energy recovery systems, Hot gas bypass limitation, Temperature, Service water heating, Hot water system, Pool heater and time switches, Exhaust hoods, Radiant heating systems.

Controls with seasonally dependent functionality: Controls whose complete operation cannot be demonstrated due to prevailing weather conditions typical of the season during which progress inspections will be performed... The owner shall provide full access to the progress inspector within two weeks of the progress inspector's request for such access to perform the progress inspection.

For such supplemental inspections, the Department shall be notified by the approved progress inspection agency of any unresolved deficiencies in the installed work within 180 days of such supplemental inspection.

Joint, longitudinal and transverse seams and connections in ductwork shall be visually inspected for proper sealing.

Air leakage testing for high-pressure duct systems: For duct systems designed to operate at static pressures in excess of 3 inches w.g. (746 Pa), representative sections, as determined by the progress inspector, totaling at least 25% of the duct area, per ECC 503.2.7.1.3, shall be tested to verify that actual air leakage is below allowable amounts.

Electrical Power and Lighting Systems
IIC1 Electrical metering: The presence and operation of individual meters or other means of monitoring individual apartments shall be verified by visual inspection for all apartments.

IIC2 Interior lighting power: Installed lighting shall be verified for compliance with the lighting power allowance by visual inspection of fixtures, lamps, ballasts and transformers.

IIC3 Exterior lighting: Installed lighting shall be verified for compliance with source efficiency and/or the lighting power allowance by visual inspection of fixtures, lamps, ballasts and relevant transformers.

IIC4 Lighting controls: Each type of required lighting controls, including: occupant sensors, manual interior lighting controls, light-reduction controls, automatic lighting shut-off, daylight zone controls, sleeping unit controls, exterior lighting controls.

IIC5 Exit signs: Installed exit signs shall be visually inspected to verify that the label indicates that they do not exceed maximum permitted wattage.

IIC6 Tandem wiring: Tandem wiring shall be tested for functionality.

IIC7 Electric motors (including but not limited to fan motors): Where required by the construction documents for energy code compliance, motor listing or labels shall be visually inspected to verify that they comply with the respective energy requirements in the construction documents.

IIC8 Other Maintenance information: Maintenance manuals for mechanical, service hot water and electrical equipment and systems shall be reviewed for applicability to installed equipment and systems before such manuals are provided to the owner. Labels required for such equipment or systems shall be inspected for accuracy and completeness.

504.7; ASHRAE 90.1 - 6.3, 6.4, 6.5, 6.7.2.4, 7.4.4, 7.4.5



COMcheck Software Version 3.9.4 Envelope Compliance Certificate

2010 New York Energy Conservation Construction Code

Section 1: Project Information

Project Type: New Construction
Project Title: 288 St. Nicholas
Construction Site: 324 West 125th Street, New York, NY 10027
Owner/Agent: 324 West 125th Street, LLC, 6701 Bay Parkway, Brooklyn, NY 11204, 718.265.1200
Designer/Contractor: Thomas LaPorta, Gambino + LaPorta Architecture, P.C., 1298 Richmond Road, Staten Island, NY 10304, 718.667.6662, TL@GL-Arch.com

Section 2: General Information

Building Location (for weather data): New York, New York
Climate Zone: 4a
Building Space Conditioning Type(s): Nonresidential
Vertical Glazing / Wall Area Pct.: 19%
Activity Type(s): Mecantile (Retail), Restaurant (Dining: Bar/Lounge/Leisure)
Floor Area: 17883, 8880

Section 3: Requirements Checklist

Envelope PASSES: Design 4% better than code.

Table with 7 columns: Component Name/Description, Gross Area or Perimeter, Cavity R-Value, Cont. R-Value, Proposed U-Factor, Budget U-Factor(s). Lists various building components like walls, windows, doors, and ductwork with their respective energy performance metrics.

Project Title: 288 St. Nicholas
Data filename: \\GLA_SERVER\GLA-Data\GLA-DWG\IG11-0174-288 St. Nicholas\21-Energy\288 St. Nicholas.cck
Report date: 07/08/14
Page 1 of 3

- Doors used primarily to facilitate vehicular movement or materials handling and adjacent personnel doors.
Doors opening directly from a sleeping/dwelling unit.

Section 4: Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed envelope system has been designed to meet the 2010 New York Energy Conservation Construction Code requirements in COMcheck Version 3.9.4 and to comply with the mandatory requirements in the Requirements Checklist.

When a Registered Design Professional has stamped and signed this page, they are attesting that to the best of his/her knowledge, belief, and professional judgment, such plans or specifications are in compliance with this Code.

Name - Title Signature Date

Signature of Thomas LaPorta, Designer/Contractor, dated 07/08/14.

Project Title: 288 St. Nicholas
Data filename: \\GLA_SERVER\GLA-Data\GLA-DWG\IG11-0174-288 St. Nicholas\21-Energy\288 St. Nicholas.cck
Report date: 07/08/14
Page 3 of 3

ENERGY CODE PROGRESS INSPECTIONS

Table with 2 columns: Inspection Item (e.g., PROGRESS INSPECTIONS, PROTECTION OF FOUNDATION INSULATION, INSULATION PLACEMENT AND R VALUES) and Reference (e.g., TABLE REFERENCE IN IRCNY 5000-01(H)(I)(J)(K)(L)(M)(N)(O)(P)(Q)(R)(S)(T)(U)(V)(W)(X)(Y)(Z)).

- (a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
(b) 'Other' components require supporting documentation for proposed U-factors.
(c) Fenestrations product performance must be certified in accordance with NFRC and requires supporting documentation.

Air Leakage, Component Certification, and Vapor Retarder Requirements:

- 1. All joints and penetrations are caulked, gasketed or covered with a moisture vapor-permeable wrapping material installed in accordance with the manufacturer's installation instructions.
2. Windows, doors, and skylights certified as meeting leakage requirements.
3. Component R-values & U-factors labeled as certified.
4. No roof insulation is installed on a suspended ceiling with removable ceiling panels.
5. 'Other' components have supporting documentation for proposed U-factors.
6. Insulation installed according to manufacturer's instructions, in substantial contact with the surface being insulated, and in a manner that achieves the rated R-value without compressing the insulation.
7. Stair, elevator shaft, vents, and other outdoor air intake and exhaust openings in the building envelope are equipped with motorized dampers.
8. Cargo doors and loading dock doors are weather sealed.
9. Recessed lighting fixtures installed in the building envelope are Type IC rated as meeting ASTM E283, are sealed with gasket or caulk.
10. Building entrance doors have a vestibule equipped with self-closing devices.
Exceptions:
Building entrances with revolving doors.
Doors not intended to be used as a building entrance.
Doors that open directly from a space less than 3000 sq. ft. in area.

Project Title: 288 St. Nicholas
Data filename: \\GLA_SERVER\GLA-Data\GLA-DWG\IG11-0174-288 St. Nicholas\21-Energy\288 St. Nicholas.cck
Report date: 07/08/14
Page 2 of 3



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Table with 4 columns: DATE, TIME, BY, CHECKED FOR. Contains inspection dates and signatures.

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324 WEST 125TH STREET, LLC.
6701 BAY PARKWAY, 11TH FLOOR
BROOKLYN, NY 11204

BUILDING ENVELOPE ENERGY COMPLIANCE TR-B CHECKLIST AND PROGRESS INSPECTIONS
DATE: 07/08/14
AS NOTED



STEVEN GWANG, P.E.
18 JUL 14 GLA14-0294
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46 OF 46



GAMBINO + LAVORITA ARCHITECTURE, D.P.C.
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NO.	DATE	DESCRIPTION

288 ST. NICHOLAS
 28 WEST 125TH ST. AND ST. NICHOLAS AVE.
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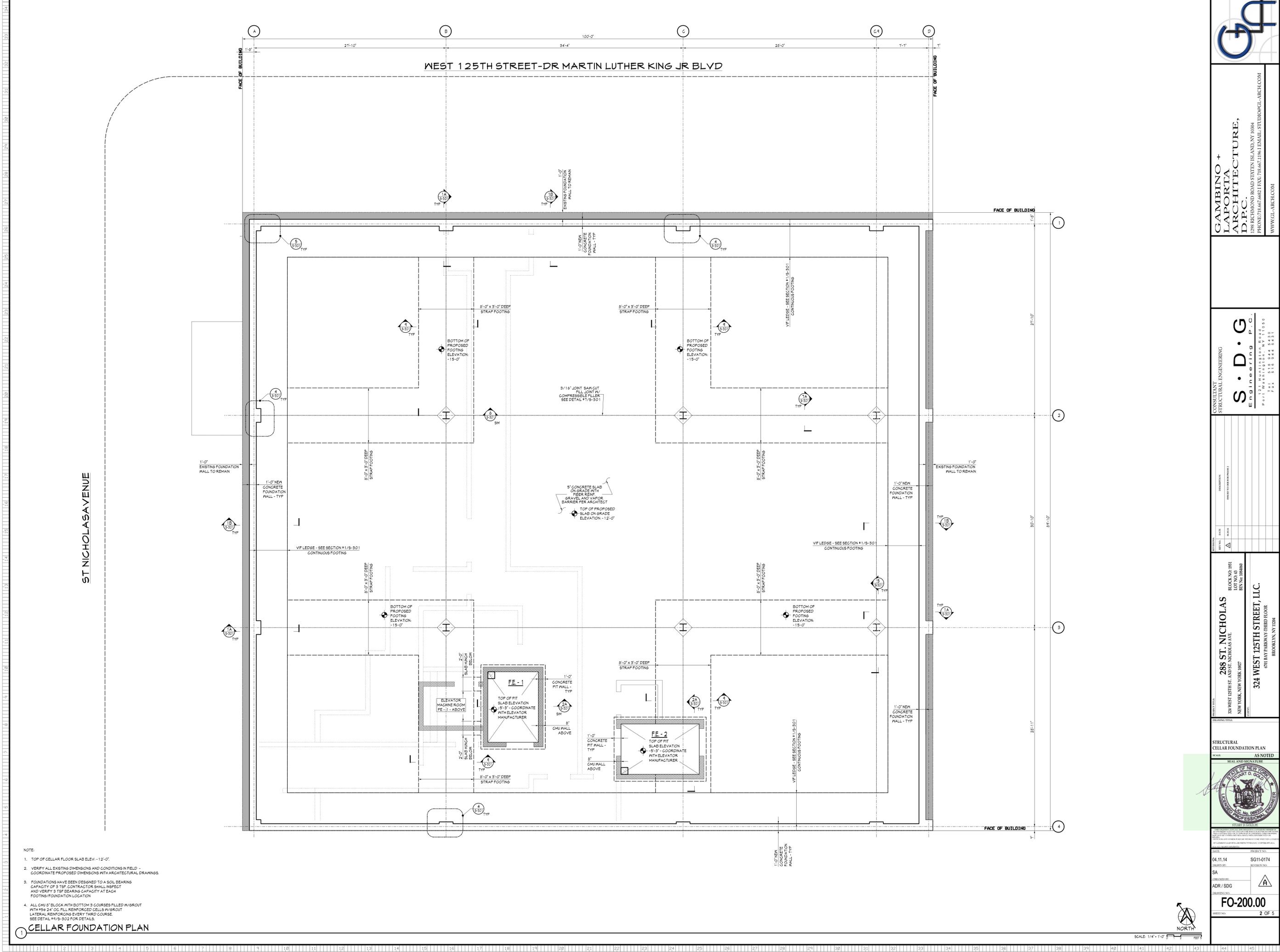
324 WEST 125TH STREET, I.L.C.
 69th BAY PARKWAY THIRD FLOOR
 BROOKLYN, NY 11230

STRUCTURAL
 CELLAR FOUNDATION PLAN



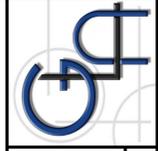
DATE:	04.11.14	PROJECT NO.:	SG11-0174
DESIGNED BY:	SA	REVISION NO.:	
CHECKED BY:	ADR / SDG		

FO-200.00
 SHEET NO. 2 OF 5



- NOTE
- TOP OF CELLAR FLOOR SLAB ELEV. - 12'-0".
 - VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS IN FIELD - COORDINATE PROPOSED DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
 - FOUNDATIONS HAVE BEEN DESIGNED TO A SOIL BEARING CAPACITY OF 3 TSP. CONTRACTOR SHALL INSPECT AND VERIFY 3 TSP BEARING CAPACITY AT EACH FOOTING/FOUNDATION LOCATION.
 - ALL CMU 8" BLOCK WITH BOTTOM 3 COURSES FILLED IN/GROUT WITH #6 24" OC. FULL REINFORCED CELLS IN/GROUT LATERAL REINFORCING EVERY THIRD COURSE. SEE DETAIL #1/5-302 FOR DETAILS.

CELLAR FOUNDATION PLAN



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REVISION	DATE	BY	DESCRIPTION

288 ST. NICHOLAS
 131 WEST 125TH ST. AND ST. NICHOLAS AVE.
 NEW YORK, NEW YORK 10027

324 WEST 125TH STREET, LLC.
 609 BAY PARKWAY THIRD FLOOR
 BROOKLYN, NY 11214

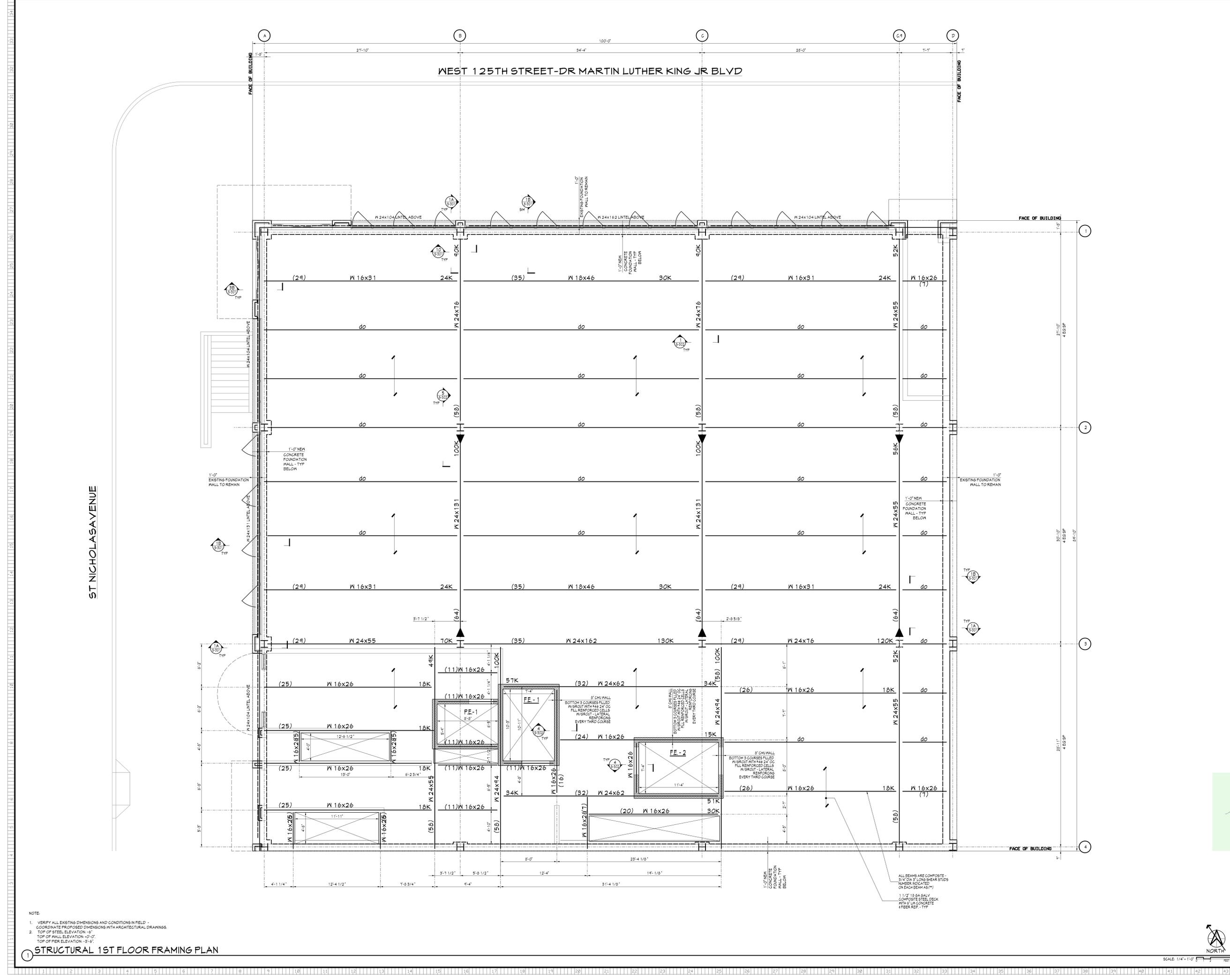
BLOCK NO. 181
 LOT NO. 18
 SAN VIC. 10000

STRUCTURAL LIST
 FLOOR FRAMING PLAN

SCALE: AS NOTED

SEAL AND SIGNATURE

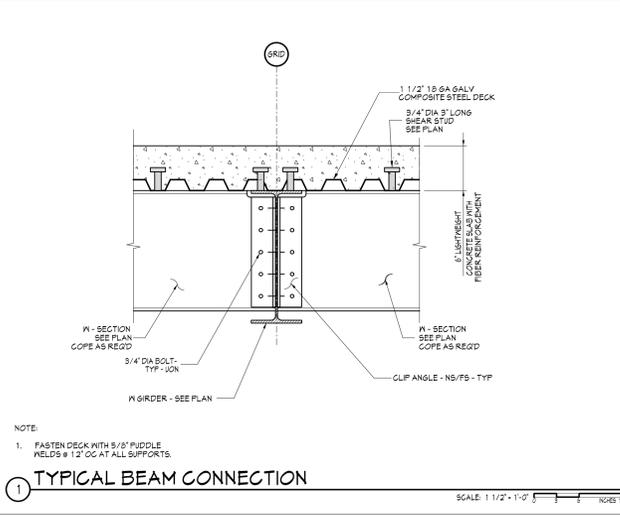
DATE: 04.11.14
 DRAWN BY: SA
 CHECKED BY: ADR / SDG
 PROJECT NO.: SG11-0174
 SHEET NO.: S-201.00
 TOTAL SHEETS: 3 OF 5



- NOTE:
1. VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS IN FIELD - COORDINATE PROPOSED DIMENSIONS WITH ARCHITECTURAL DRAWINGS
 2. TOP OF STEEL ELEVATION - 6'
 3. TOP OF WALL ELEVATION - 10'-0"
 4. TOP OF FIBER ELEVATION - 3'-6"

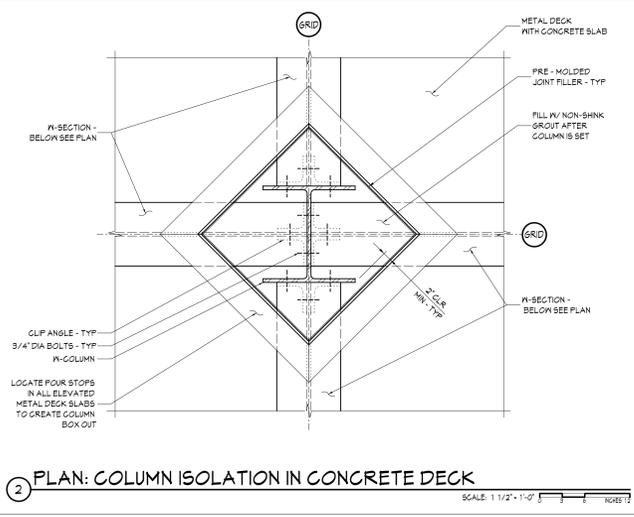
1 STRUCTURAL 1ST FLOOR FRAMING PLAN





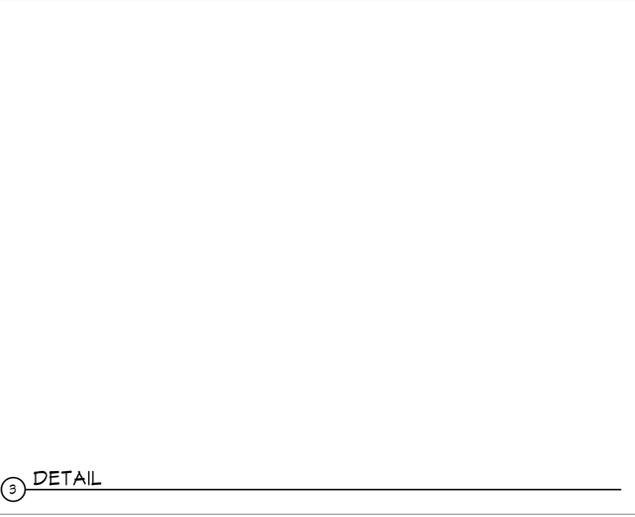
1 TYPICAL BEAM CONNECTION

SCALE: 1 1/2" = 1'-0" NOTES: 1. FASTEN DECK WITH 5/8\"/>

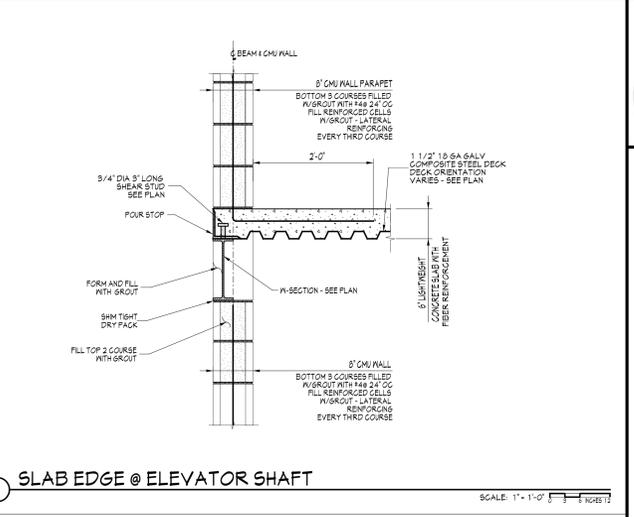


2 PLAN: COLUMN ISOLATION IN CONCRETE DECK

SCALE: 1 1/2" = 1'-0" NOTES: 1. LOCATE FOUR STOPS IN ALL ELEVATED METAL DECK SLABS TO CREATE COLUMN BOX OUT

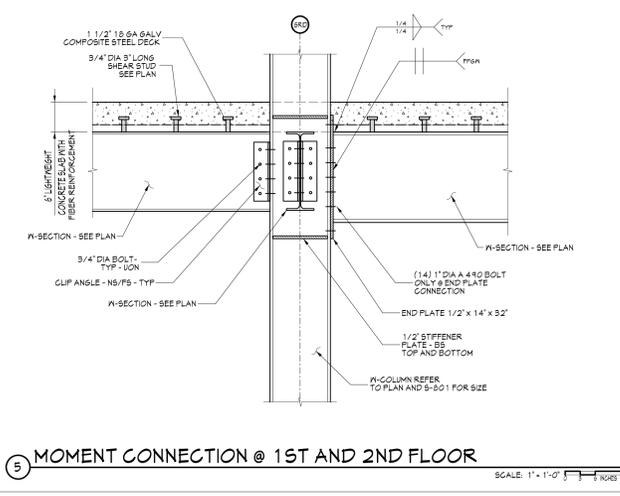


3 DETAIL



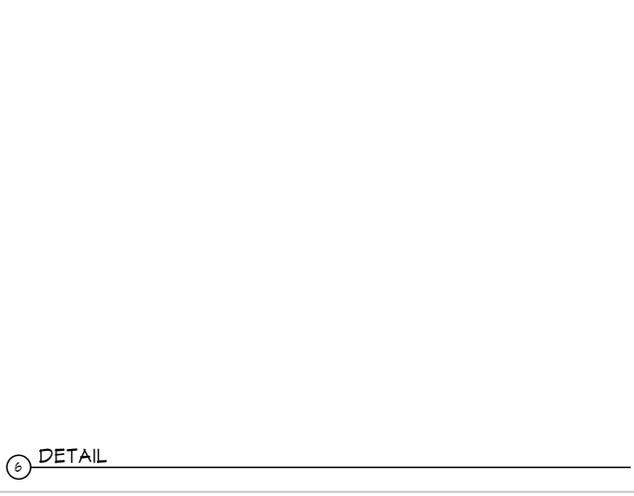
4 SLAB EDGE @ ELEVATOR SHAFT

SCALE: 1" = 1'-0" NOTES: 1. BOTTOM 3 COURSES FILLED W/ GROUT WITH #4 @ 24\"/>

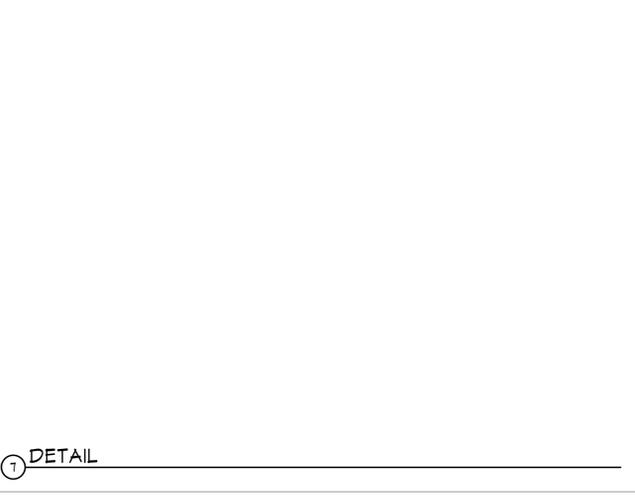


5 MOMENT CONNECTION @ 1ST AND 2ND FLOOR

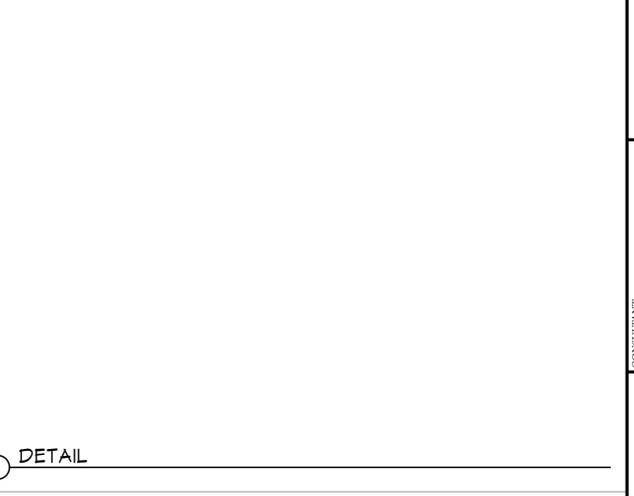
SCALE: 1" = 1'-0" NOTES: 1. END PLATE 1/2\"/>



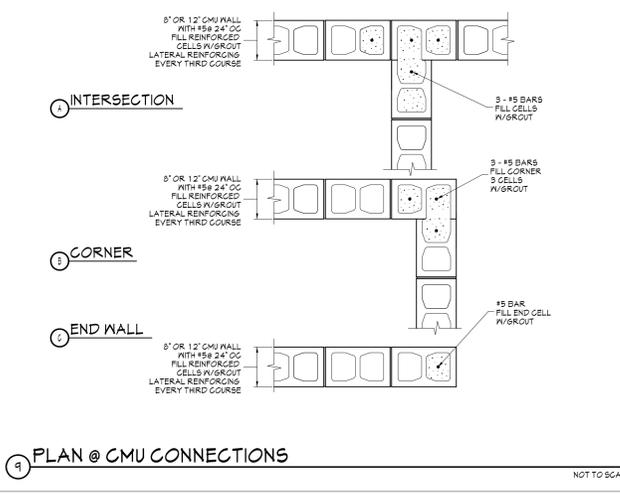
6 DETAIL



7 DETAIL

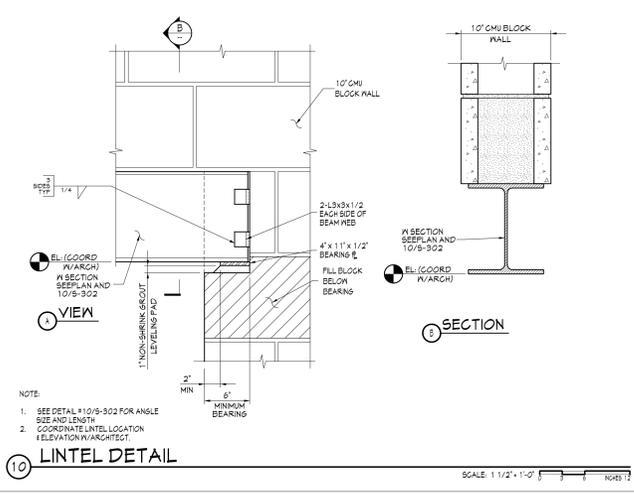


8 DETAIL



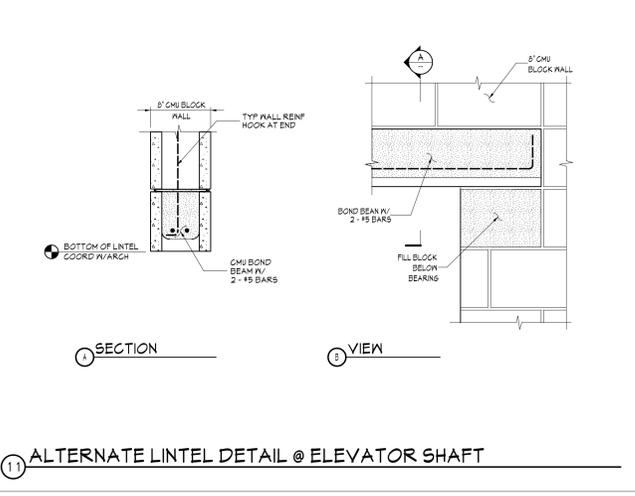
9 PLAN @ CMU CONNECTIONS

NOT TO SCALE

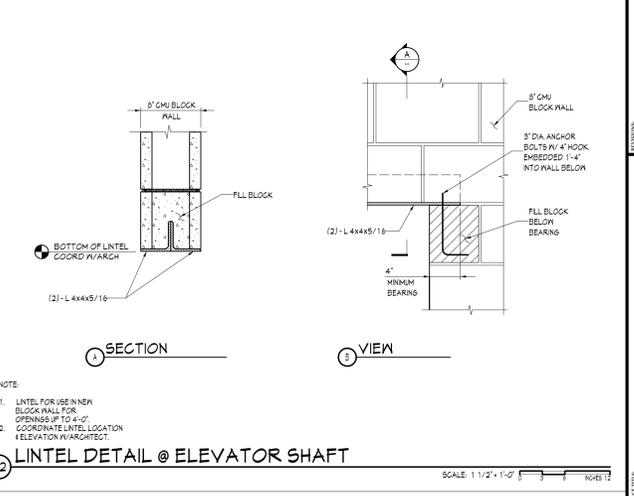


10 LINTEL DETAIL

SCALE: 1 1/2" = 1'-0" NOTES: 1. SEE DETAIL #10-S-302 FOR ANGLE SIZE AND LENGTH 2. COORDINATE LINTEL LOCATION & ELEVATION W/ ARCHITECT

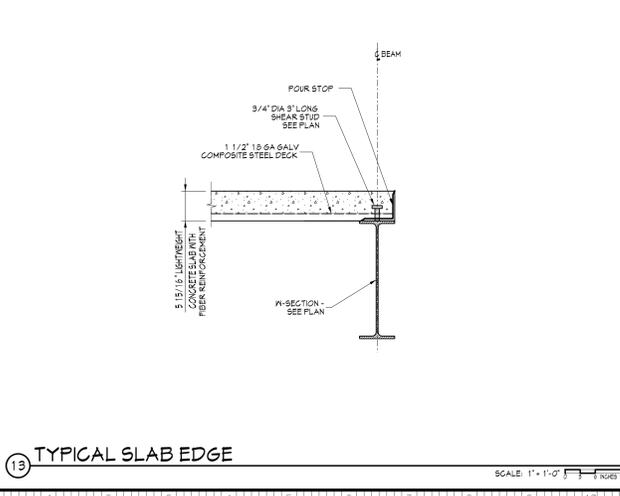


11 ALTERNATE LINTEL DETAIL @ ELEVATOR SHAFT



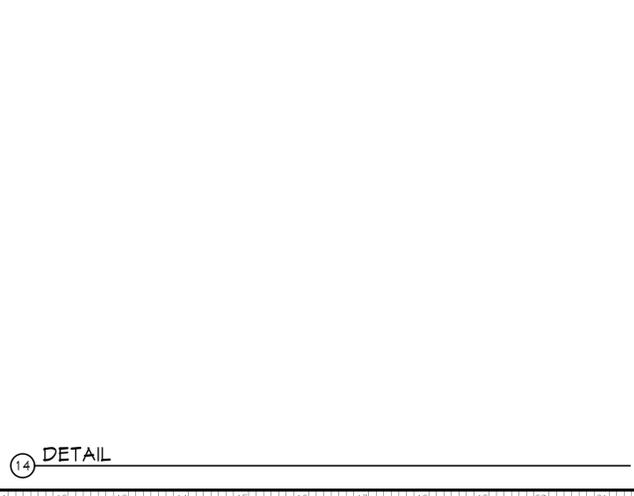
12 LINTEL DETAIL @ ELEVATOR SHAFT

SCALE: 1 1/2" = 1'-0" NOTES: 1. LINTEL FOR USE IN NEW BLOCK WALL FOR OPENINGS UP TO 4'-0\"/>

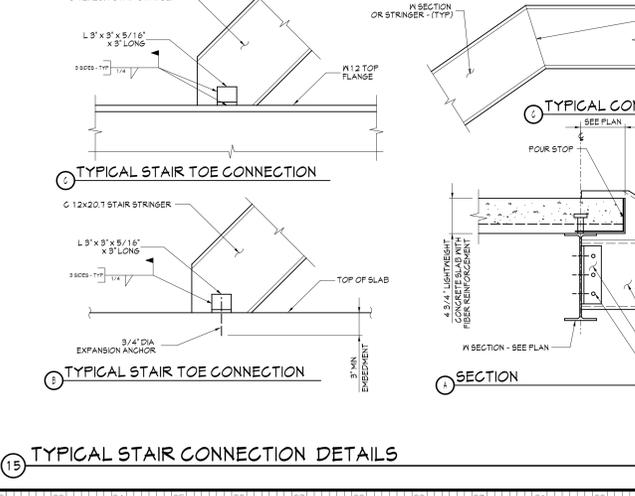


13 TYPICAL SLAB EDGE

SCALE: 1" = 1'-0" NOTES: 1. 5/8\"/>

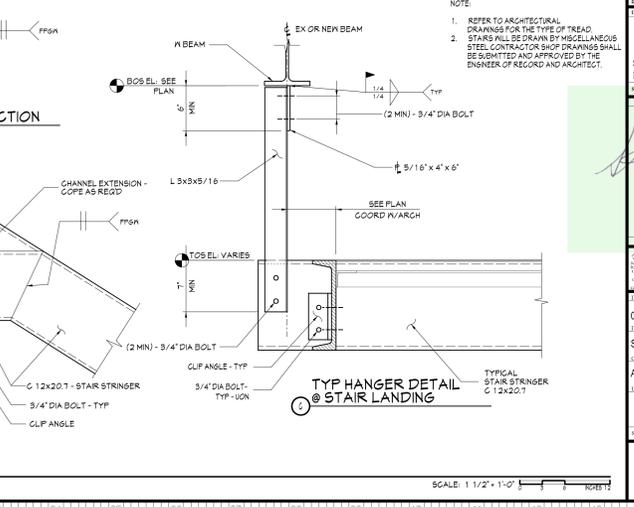


14 DETAIL



15 TYPICAL STAIR CONNECTION DETAILS

NOTE: 1. REFER TO ARCHITECTURAL DRAWINGS FOR THE TYPE OF TREAD 2. STAIRS SHALL BE DRAWN BY MISCELLANEOUS STEEL CONTRACTOR SHOP DRAWINGS SHALL BE SUBMITTED AND APPROVED BY THE ENGINEER OF RECORD AND ARCHITECT



16 TYP HANGER DETAIL @ STAIR LANDING

SCALE: 1 1/2" = 1'-0" NOTES: 1. REFER TO ARCHITECTURAL DRAWINGS FOR THE TYPE OF TREAD 2. STAIRS SHALL BE DRAWN BY MISCELLANEOUS STEEL CONTRACTOR SHOP DRAWINGS SHALL BE SUBMITTED AND APPROVED BY THE ENGINEER OF RECORD AND ARCHITECT

NO.	REVISION	DATE	BY	CHKD

288 ST. NICHOLAS
324 WEST 125TH STREET, LLC.
609 BAY PARKWAY THIRD FLOOR
BROOKLYN, NY 11238



DATE: 04.11.14	PROJECT NO.: SG11-0174
SCALE: AS NOTED	REVISION NO.:
SA: ADR / SDG	DATE: 04.11.14
PROJECT NO.: S-302.00	DATE: 04.11.14
SCALE: AS NOTED	DATE: 04.11.14

LOCATION:

288 ST. NICHOLAS AVE
 NEW YORK, NY
 BLOCK: 1951
 LOT: 43
 ZONE: C4-4D
 MAP: 6A
 SCK#
 BLDG DEPT.# 121918933

OWNER:

PAULINE HARARI
 324 WEST 125th STREET, LLC.
 6701 BAY PARKWAY, 3rd FL.
 BROOKLYN, NY 11204
 Tell.: (718) 256-1200

DETENTION TANK CALCULATIONS

OUTFLOW WILL BE CONTROLLED BY AN ORIFICE
 AND WILL VARY WITH DEPTH OF STORAGE

TANK Q = 0.25 CFS
 $T = 0.27 (C_w \times A_t / Q)^{0.5} - 15$
 $T = 0.27 (0.95 \times 8983 / 0.25)^{0.5} - 15$
 $T = 45.8$
 $V = [0.19 C_w \times A_t / (T + 15) - 40 \times Q] \times T$
 $V = [0.19 \times 0.95 \times 8983 / (45.8 + 15) - 40 \times 0.25] \times 45.8$
 $V = 763.4 \text{ CU FT}$

USABLE TANK VOLUME = A x H (CU FT)
 $445 \text{ SQ.FT.} \times 2.5' = 1112.5 \text{ CU FT} = 8322 \text{ GAL.}$
 (> 763.4 CU FT, OK)

ORIFICE OPENING CALCULATION:

$Q_{all} = 0.25 = C_d \times A_o \sqrt{2gh}$ g - gravity force = 32.2
 h - effective height = 2.5'
 $Q_{all} = 0.25 = C_d \frac{\pi D^2}{4} \sqrt{2gh}$ A_o - area of orifice in s.f.
 C_d - coefficient = 0.6
 D - diameter of orifice
 $D = \sqrt{\frac{4 \times Q_{all}}{C_d \pi \sqrt{2gh}}} = \sqrt{\frac{4 \times 0.25}{0.6 \times 3.14 \sqrt{2 \times 32.2 \times 2.5}}} = 0.205 \text{ FT} = 2.45'$

INSTALL 2"Ø ORIFICE

DISCHARGE RATE WITH 2"Ø ORIFICE:

$Q_{all} = C_d \frac{\pi D^2}{4} \sqrt{2gh} = \frac{0.6 \times 3.14 \times 0.167 \times 0.167}{4} \sqrt{2 \times 32.2 \times 2.5} = 0.167 \text{ CFS}$
 (< 0.25 CFS, OK)

HYDRAULIC CALCULATION

A. SANITARY FLOW:

AREA 8,983 SQ.FT. = 0.206 ACRES

(BASED ON POPULATION DENSITY PER DEP)
 150 GAL. PER CAPITA PER DAY,
 ZONING DISTRICT C4-4D - 170 PERSONS PER ACRE

$Q_{AV. SAN.} = \frac{150 \times 230 \times 0.206}{7.48 \times 86,400} = 0.011 \text{ CFS}$

PEAK FACTOR = 2.0 (COMMERCIAL)

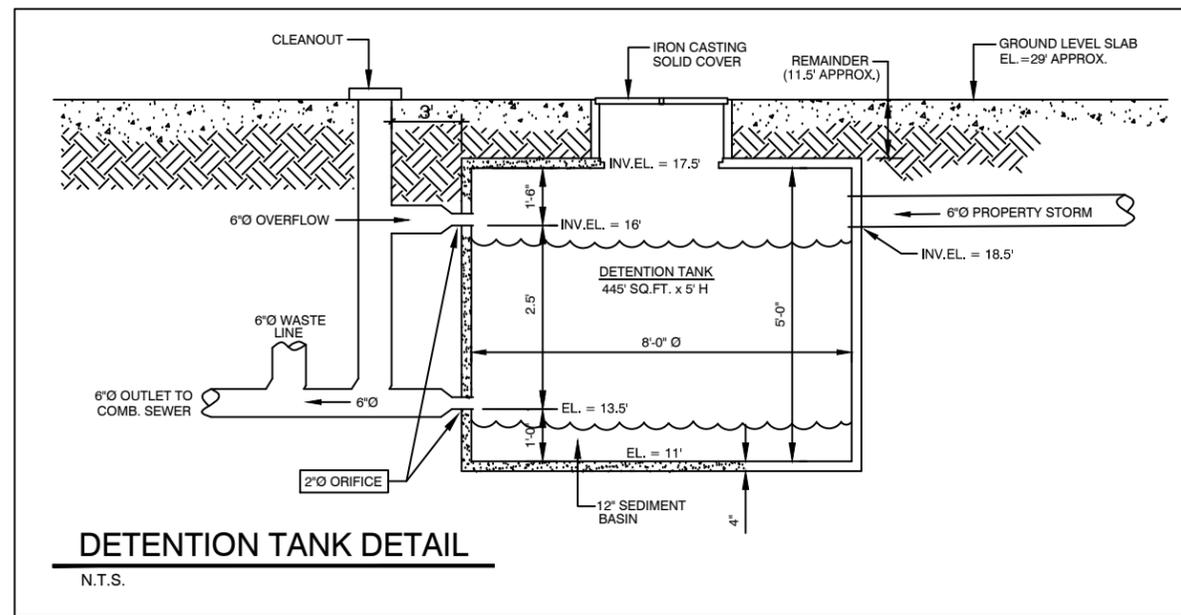
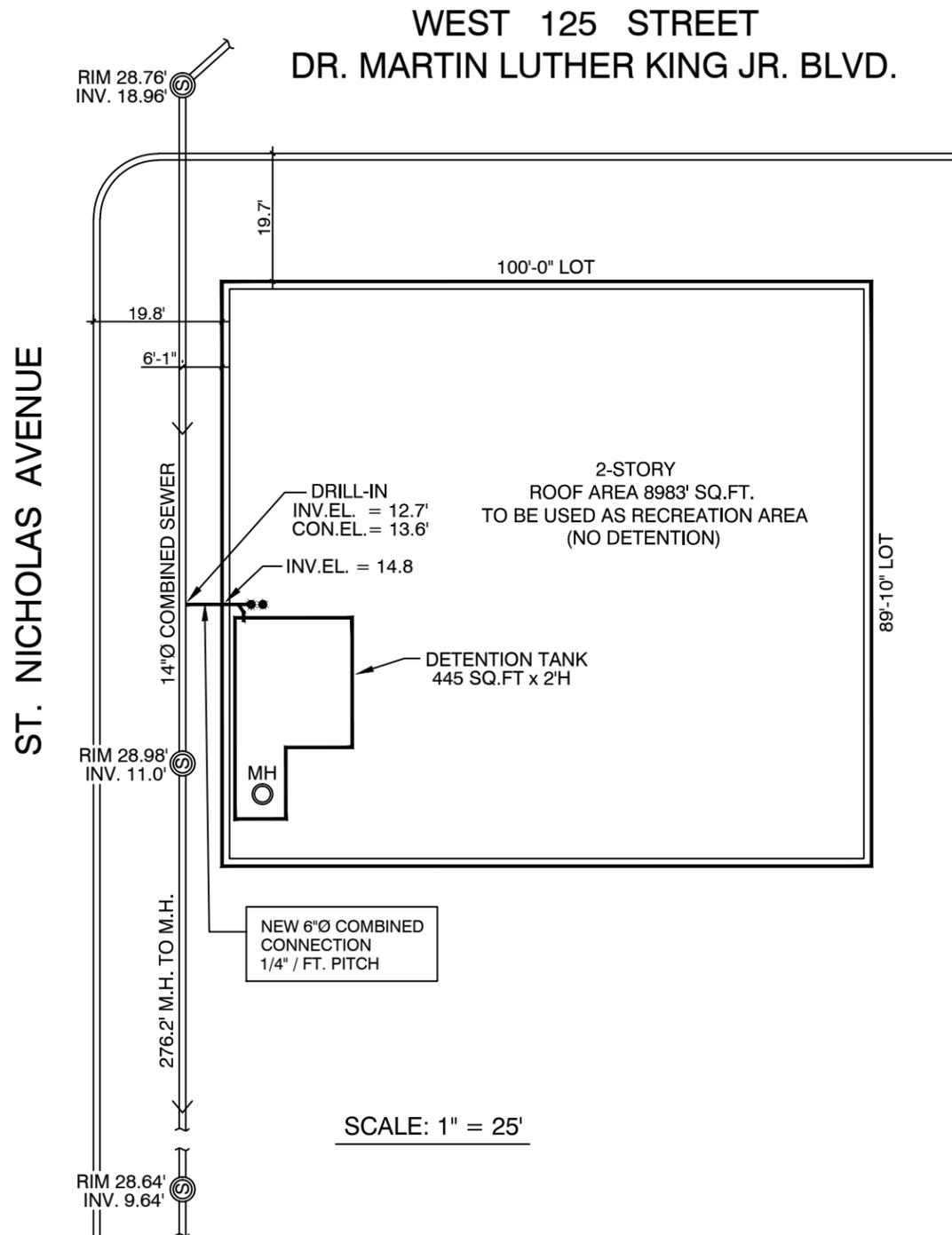
$Q_{MAX. SAN.} = 0.011 \times 2 = 0.022 \text{ CFS}$

B. STORM FLOW

AREA	SQ. FT.	ACRE	RUN OFF COEF.
ROOF	8,983	0.206	0.95

ALLOWABLE STORM FLOW INTO SEWER IN NY AREA:
 $Q_{all} = 0.25 \text{ CFS}$

STORM FLOW FROM ROOF :
 $0.95 \times 8.983 \times 0.206 = 1.164 \text{ CFS}$



PROJECT TITLE
**288 ST. NICHOLAS AVE
 NEW YORK, NY 10027**

OLEG RUDITSER, P.E.
 CONSTRUCTION CONSULTANTS
 1839 OCEAN PARKWAY
 BROOKLYN, NEW YORK, 11223
 tel: 718 339-9116 fax: 718 998-6362
 E - MAIL SASHA@MEPDESIGNS.NET
 DATE: 10.17.13 DRAWN BY: A.Z.

APPENDIX F

DESIGN DIAGRAMS AND SPECIFICATIONS FOR VAPOR BARRIER/WATERPROOFING MEMBRANE

Grace Below Grade Waterproofing

PREPRUFE® 200

Fast, simple, pre-applied waterproofing membrane and vapor barrier that bonds to poured concrete for use below slabs or behind basement walls on confined sites

Description

Preprufe® 200 Membrane is a composite sheet comprising a thick HDPE film, an aggressive pressure sensitive adhesive and a weather resistant protective coating.

Using patented Advanced Bond Technology, Preprufe 200 Membrane provides a continuous seal that resists water ingress and migration between the membrane and the structure.

The Preprufe 200 System includes—

- **Preprufe 200 Membrane**—robust membrane for horizontal use below concrete slabs or vertically against soil retention systems.
- **Preprufe CJ Tape LT**—self-adhesive 8 in. (200 mm) wide strip applied to the surface of the membrane along the line of all concrete joints (application temperature range 25°F to 86°F (-4°C to +30°C)).
- **Preprufe CJ Tape HC**—as above for use in hot climates (minimum 50°F (10°C)).
- **Bituthene® Liquid Membrane**—for sealing around penetrations, etc.

Preprufe 200 Membrane is applied either horizontally to smooth prepared concrete, well-rolled and compacted sand, or compacted crushed stone blinding; or vertically to permanent formwork or adjoining structures. Concrete is then cast directly against the adhesive side of the membranes. The specially developed Preprufe adhesive layers work together to form a continuous and integral seal to the poured concrete.

Advantages

- **Prevents water migration**—Preprufe's Advanced Bond Technology™ forms a unique integral seal to concrete poured against it
- **Fast and easy installation**—loose laid, mechanically fastened laps
- **Avoids delays**—unaffected by wet or cold conditions, can even be laid during rain
- **Excellent vapor barrier**—typical MVER 0.11 lb/1000 ft²/24 hr ASTM F1869-98

- **Inherently waterproof, non-reactive system**—
 - Cannot activate prematurely or be washed away
 - Not reliant on confining pressures or hydration
 - Unaffected by freeze/thaw, wet/dry cycling
- **Chemical resistant**—effective in all types of soils and waters, protects structure from salt or sulphate attack
- **Self protecting**—ready for immediate placement of reinforcing steel and concrete without costly protective layers

Applications

Typical applications include garages, plant rooms, utility grade basements, tunnels; vapor barrier for ground bearing floor slabs with moisture sensitive finishes, e.g. schools, hospitals, wood flooring, etc.

For more critical waterproofing applications consider Preprufe 300R. See separate data sheet.

Limitations

Preprufe 200 Membrane is intended for low, medium or intermittent water pressures.

Preprufe 200 Membrane can be returned up the inside face of slab formwork but is not recommended for conventional twin-sided formwork on walls, etc. Use Bituthene self-adhesive membrane or Procor® fluid applied membrane to walls after removal of formwork for a fully-bonded system to all structural surfaces.

Use

Preprufe 200 Membrane is supplied in rolls 4 ft (1.2 m) wide, interwound with a disposable plastic release liner which must be removed before placing reinforcement and concrete.

Substrate Preparation

All surfaces—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.

Horizontal—The substrate must be free of loose aggregate and sharp protrusions. An angular profiled blinding is recommended rather than a sloping or rounded substrate. The surface does not need to be dry but standing water must be removed.

Vertical—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.

Membrane Installation

Preprufe 200 Membrane can be applied at temperatures of 25°F (-4°C) or above. Membrane installation is unaffected by wet weather.

Horizontal substrates—Place the membrane HDPE film side to the substrate with printed coated side up facing towards the concrete pour. End laps should be staggered to avoid a build up of layers.

Accurately position succeeding sheets to overlap the previous sheet 3 in. (75 mm) along the marked lap line. Completely remove the plastic liner to expose the protective coating. Any initial tack will quickly disappear.

Lap fastening—To prevent the membrane from moving and gaps opening, the laps should be fastened together at maximum 39 in. (1.0 m) on-center. Fix through the center of the lap area using 0.5 in. (12 mm) long washer-head self-tapping screws, or similar, allowing the head of the screw to bed into the adhesive compound to self seal. It is not necessary to fix the membrane to the substrate, only to itself. Ensure the membrane lays flat and no openings occur. Additional fastening may be required at corners, details etc.

Galvanized fasteners are suitable for most applications. Stainless steel or other non-corrosive fasteners are recommended for aggressive soil conditions containing chloride or sulphate.

Alternatively, 3 in. (75 mm) strips of Preprufe Tape may be used 39 in. (1.0 m) on center to prevent gaps or movement. Or, Preprufe Tape may be used to seal the entire length of the overlap. Apply tape centrally over lap and roll firmly. Remove plastic liner.

Vertical substrates—Mechanically fasten the membrane vertically using fasteners appropriate to the substrate with the printed coated side facing towards the concrete pour. The membrane may be installed in any convenient length. Secure the top of the membrane using a batten such as a termination bar or similar 2 in. (50 mm) below the top edge. Fastening should be made through the overlap area at 20 in. (0.5 m) maximum on-center so that the membrane lays flat without fishmouths. Immediately remove the plastic release liner.

Roll ends and cut edges—Overlap all roll ends and cut edges by a minimum 3 in. (75 mm) and fasten as above.

Penetrations

Use the following steps to seal around penetrations such as service pipes, piles, lightning conductors, etc.

Grout around the penetration if the penetration is not stable. Fit the membrane tight to the penetration. If the membrane is not within 0.5 in. (12 mm) of the penetration, apply Preprufe Tape to cover the gap.

Wrap the penetration with Preprufe Tape by positioning the tape 0.5 in. (12 mm) above the membrane.

Apply Bituthene Liquid Membrane around the penetrations using a fillet to provide a watertight seal between the Preprufe membrane and Preprufe Tape.

Membrane Repair

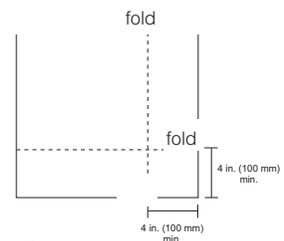
Inspect the membrane before installation of reinforcement steel, formwork and final placement of concrete. The membrane can be easily cleaned by power washing with water if necessary.

Repair damage by placing a patch of Preprufe 200 Membrane over the damaged area ensuring a minimum 3 in. (75 mm) overlap. Secure the patch using screw fasteners as above.

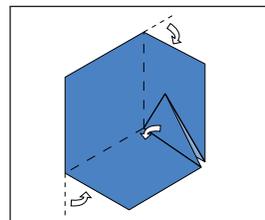
Any areas of damaged adhesive should be covered with Preprufe Tape. Remove printed plastic liner from tape.

Corners

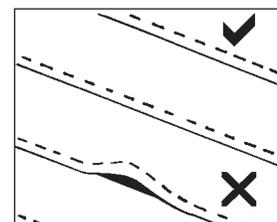
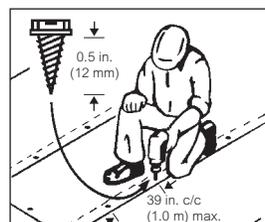
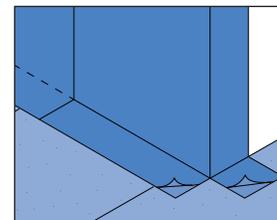
Internal and external corners should be formed as shown in the diagrams returning the membrane a minimum of 4 in. (100 mm). Crease and fold the membrane to ensure a close fit to the substrate profile and avoid gaps. Fasten using screw fasteners.



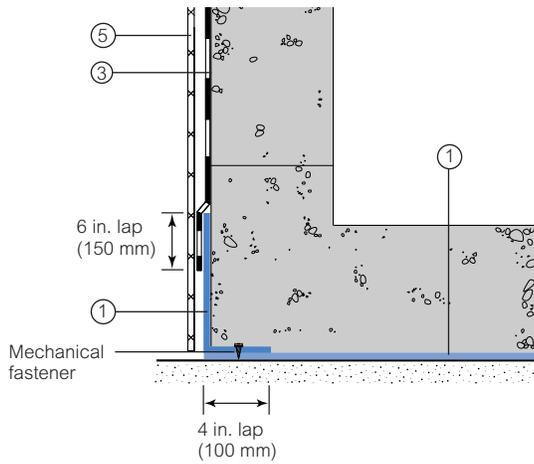
Internal



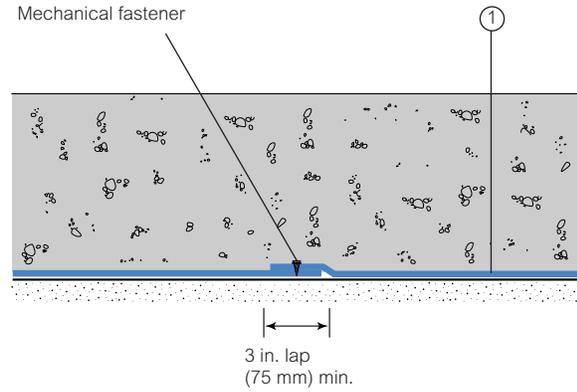
External



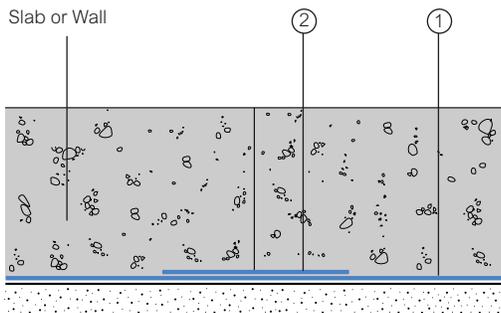
Wall base detail



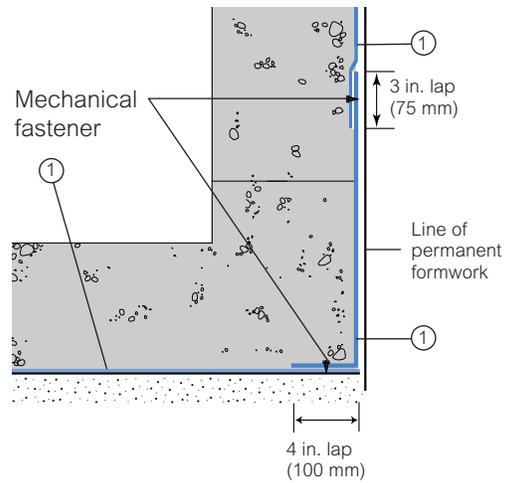
Side/end lap detail



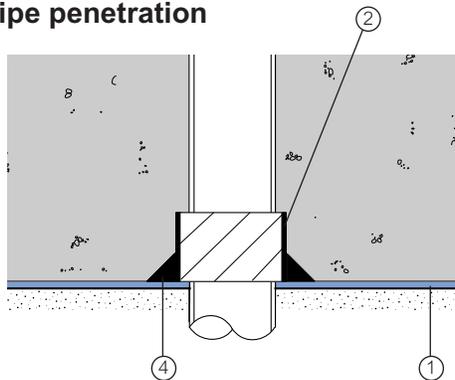
Concrete joint



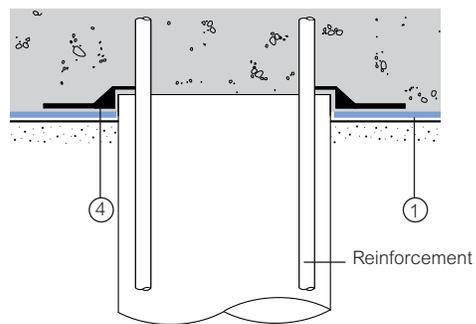
Wall base detail against permanent shutter



Pipe penetration



Pile detail



1 Preprufe 200 Membrane

2 Preprufe CJ Tape

3 Procor® (use Preprufe Tape to tie-in) or Bituthene® 4000

4 Bituthene Liquid Membrane

5 Hydroduct®

Details shown are typical illustrations and not working details. For assistance with detailing and problem solving please contact Grace Technical Department at 866-333-3SBM (3726).

Supply

Dimensions (Nominal)	Preprufe 200 Membrane	Preprufe CJ Tape (LT or HC*)	Preprufe Tape (LT or HC*)
Thickness	0.032 in. (0.8 mm)		
Roll size	4 ft x 115 ft (1.2 m x 35 m)	8 in. x 49 ft (200 mm x 15 m)	4 in. x 49 ft (100 mm x 15 m)
Roll area	460 ft ² (42 m ²)		
Roll weight	92 lbs (42 kg)	8.6 lbs (4 kg)	4.3 lbs (2 kg)
Minimum side/end laps	3 in. (75 mm)	3 in. (75 mm)	3 in. (75 mm)
* LT denotes Low Temperature (between 25°F and 86°F), HC denotes Hot Climate (>50°F)			
Ancillary Products			
Bituthene Liquid Membrane (LM) 1.5 gal (5.7 liter)			
Screw Fasteners (by others)			
Self Tapping Washer Head Screws 0.5 in. (12 mm) long, galvanized or stainless steel as appropriate			

Physical Properties

Property	Typical Value	Test Method
Color	White	
Film thickness (nominal)	0.020 in. (0.5 mm)	ASTM D3767—method A
Low temperature flexibility	Unaffected at -10°F (-23°C)	ASTM D1970
Elongation	300% min.	ASTM D412 modified ¹
Crack cycling at -10°F (-23°C)	Pass	ASTM C836
Tensile strength, film	4000 psi (27.6 MPa) min.	ASTM D412
Peel adhesion to concrete	5.0 lbs/in. (880 N/m) min.	ASTM D903 modified ²
Resistance to hydrostatic head	30 ft (10 m)	ASTM D5385 modified ³
Puncture resistance	135 lbs (600 N) min.	ASTM E154
Permeance	0,01 perms (0.6 ng/m ² Pa)	ASTM E96—method B
Water absorption	0.5% maximum	ASTM D570
Moisture vapor emission rate	0.11 lb/1000 ft ² /24 hr	ASTM F1869-98 modified

Footnotes:

1. Elongation of membrane is run at 2 in. (50 mm) per minute.
2. Concrete is cast against the protective coating surface of the membrane and allowed to properly cure (7 days min.). Peel adhesion of membrane to concrete is measured at a rate of 2 in. (50 mm) per minute at room temperature.
3. Hydrostatic tests are performed by casting concrete against the membrane with a lap across a 0.040 in. (1 mm) formed crack.

Pouring of Concrete

Ensure the plastic release liner is removed from all areas of Preprufe 200 Membrane and Tape.

It is recommended that concrete be poured within 56 days (42 days in hot climates) of application of the membrane. Concrete must be placed and compacted carefully to avoid damage to the membrane. Never use a sharp object to consolidate the concrete.

Removal of Formwork

Preprufe 200 Membrane can be applied to removable formwork, such as slab perimeters, elevator and lift pits, etc. Once the concrete is poured the formwork must remain in place until the concrete has gained sufficient compressive strength to

develop the surface bond. Preprufe 200 Membrane is not recommended for conventional twin-sided wall forming systems.

A minimum concrete compressive strength of 1500 psi (10 N/mm²) is recommended prior to stripping formwork supporting Preprufe 200 Membrane. Premature stripping may result in displacement of the membrane and/or spalling of the concrete.

As a guide, to reach the minimum compressive strength stated above, a structural concrete mix with an ultimate strength of 6000 psi (40 N/mm²) will typically require a cure time of approximately 6 days at an average ambient temperature of 25°F (-4°C), or 2 days at 70°F (21°C).

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)

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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, Grace Canada, Inc., 294 Clements Road, West, Ajax, Ontario, Canada L1S 3C6.

This product may be covered by patents or patents pending.
PF-155E Printed in U.S.A. 7/07

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FA/LI/1M

GRACE

Preprufe® Tape

DESCRIPTION

Preprufe® Tape is a specially formulated two sided, reinforced pressure sensitive tape. The bottom side of the tape has a highly aggressive pressure sensitive adhesive which is designed to adhere to penetrations, protrusions and Bituthene® membranes. The top side has another layer of adhesive and a protective coating. The protective coating protects the tape from the weather and UV light for up to 30 days after application. A thin flexible film is sandwiched between the two layers of pressure sensitive adhesive. The tape develops a continuous mechanical bond with the concrete that is cast against it.

Preprufe Tape is supplied in rolls and is interwound with a silicone coated release liner.

USE

Preprufe Tape is used in detail areas including end laps, penetrations and various tie-ins. It is also used to patch damaged areas in the Preprufe membranes. The tape is a critical component of the Preprufe system since it is designed to develop a continuous mechanical bond to concrete that is cast against it.

APPLICATION

Apply Preprufe Tape when ambient temperatures are -4°C (25°F) or above.

Wipe Preprufe membranes clean to remove any dirt, dust or moisture. Clean the surface of penetrations or protrusions with a wire brush to remove dirt, dust, rust and loose particles.

Unroll the tape and adhere the exposed pressure sensitive adhesive surface to the membrane or penetration. The protective coating surface of the tape should face toward the concrete to be cast.

Use heavy hand pressure or a hand roller to maximize adhesion. Remove the release liner during application. Cast concrete or apply shotcrete within 30 days of application of the tape.

For Technical Assistance call us at 800-444-6459 (Option 3).



Visit our web site at: www.graceconstruction.com

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W.R. Grace & Co.-Conn.

62 Whittemore Avenue

Cambridge, MA 02140

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GRACE
Construction Products

PREPRUFE® TAPE and PREPRUFE® CJ TAPE

Description

Preprufe® Tape and Preprufe® CJ Tape are specially formulated two sided, reinforced pressure sensitive tapes. The bottom side of the tape has a highly aggressive pressure sensitive adhesive which is designed to adhere to penetrations, protrusions and Grace waterproofing membranes and accessories. The top side of the tape has a pressure sensitive adhesive, a weather resistant protective coating and a release liner. Concrete is cast directly against the top adhesive side of the tape. The specially developed Preprufe adhesive layers work together to form a continuous and integral seal to the structure.

Preprufe Tape and Preprufe CJ Tape are provided in Low Temperature and Hot Climate Grades as follows:

- **Preprufe Tape LT Grade and Preprufe CJ Tape LT Grade**—for temperatures between 25°F (-4°C) and 86°F (+30°C).
- **Preprufe Tape HC Grade and Preprufe CJ Tape HC Grade**—for use in Hot Climates (minimum 50°F (10°C)).

Use

Preprufe Tape is a 4 in. (100 mm) wide tape used in detail areas including end laps, penetrations and various tie-ins. It is also used to patch damaged areas in the Preprufe membranes.

Preprufe CJ Tape is an 8 in. (200 mm) wide tape used at construction joints in the concrete that is cast against it or in critical areas where a wider tape is required.

Application

Wipe substrates to receive Preprufe Tape and Preprufe CJ Tape clean to remove any dirt, dust or moisture. Clean the surface of penetrations or protrusions with a wire brush to remove dirt, dust, rust and loose particles.

Unroll the tape and adhere the exposed pressure sensitive adhesive surface to the membrane or penetration. The protective coating surface of the tape should face toward the concrete to be cast onto the tape.

Use heavy hand pressure or a hand roller to maximize adhesion. Remove the release liner during application.

Ensure the plastic release liner is removed from all areas of Preprufe Tape and Preprufe CJ Tape. It is recommended that concrete be poured within 56 days (42 days in hot climates) of application of the tape. Following proper ACI guidelines, concrete must be placed carefully and consolidated properly to avoid damage to the membrane. Never use a sharp object to consolidate the concrete. Provide temporary protection from concrete over splash for areas of the tape that are adjacent to a concrete pour.

Dimensions (Nominal)	Preprufe Tape (HC or LT)	Preprufe CJ Tape (HC or LT)
Roll Size	4 in. x 49 ft. (100 mm x 15 m)	8 in. x 49 ft. (200 mm x 15 m)
Roll Weight	4.3 lbs (2 kg)	8.6 lbs (4 kg)

www.graceconstruction.com

For technical assistance call toll free at 866-333-3SBM (3726)

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