Town of Clarkstown
New City , New York
Highway Garage Expansion Project
Bid Number 21-2024

Addendum No. 4
September 13, 2024

To:	Prospective Bidders
From:	Arcadis of New York, Inc.
	201 Fuller Road, Suite 201
	Albany, NY 12203
Owner:	Town of Clarkstown – Department of Engineering and Facilities Management
	10 Maple Ave
	New City, NY 10935
Subject:	Town of Clarkstown
	Highway Garage Expansion Project
	Bid No. 21-2024

This Addendum is part of the Bidding Documents and the Contract Documents and modifies the original Bidding Documents dated July 26, 2024, as indicated below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification for award of the associated Contract.

This Addendum consists of three pages and the attachments, if any, listed on the last page.

CHANGES TO PRIOR ADDENDA

1. None. See Addendums #1. #2 and #3 for additional changes.

CHANGES TO INTRODUCTORY INFORMATION

1. None.

CHANGES TO CONTRACTING REQUIREMENTS

1. None.

CHANGES TO SPECIFICATIONS

1. Section 08 36 16, Sectional Doors, Replace existing specification with the attached new specification.

CHANGES TO DRAWINGS

1. Sheet A-03, Code Charts – Sheet 2, Replace existing sheet A-03 with attached Sheet A-03.

2. Sheet S-02, Symbols, Abbreviations, Design Criteria, Replace existing Sheet S-02 with attached Sheet S-02.

3. E-02, Electrical Site Plan, Replace existing Sheet E-02 with attached Sheet E-02.

4. E-04, Electrical – Power Plan, Replace existing Sheet E-04 with attached Sheet E-04.

5. E-05, Single Line Diagram and Panel Load Schedule, Replace existing Sheet E-05 with attached Sheet E-05.

SUBMITTED QUESTIONS

1. Doors specified are standard as 24 Ga steel, 2.3 A. calls for 16-Ga? Is this correct or should this have read 0.016" which is standard for the Foamed in place doors such as Thermacore? 2.1.A.1.a calls for 30 PSF windload. Sheet S2 calls for 16.0 PSF Clarify 2.5.A. Calls for ALL surfaces, galvanized or other to be primed. Do you want the tracks, counterbalance, and hardware painted? No mention is made of insulating values or materials. The two specified products are available with polystyrene insulation. Maximum clearance above the floor is specified, however a Trolley operator is also specified. Trolley operators only work for Standard Lift. This would place the open door approximately 12 inches above the opening. We would suggest Lift-Clearance Track and a Jackshaft Operator.
   Response – See Section 08 36 16, Sectional Doors above for changes.
   - *Provide the thickest gauge metal available from the manufacturers' options.*
   - *Provide the 30 PSF as per the specification.*
   - *The intent is mainly for the door. The tracks are lubricated so they would not be primed. There is no need for the counterbalance or the hardware to be primed either.*
   - *Insulating values:*
     - *Provide minimum 2" deep door panels as per specification 08 36 16, article 2.6, A.*
     - *Provide polystyrene foam type insulation as per specification 08 36 16, article 2.6, E.*
     - *Provide U-value of U-0.097 or better.*
   - *Lift-Clearance Track and Jackshaft Operator are acceptable.*

2. Any clarifications around the Warranty Period? I didn't see a time frame listed.
   Response – Refer to the General Conditions Article 15.08. Special warranties may also be specified for specific products and/or equipment within the technical specifications.

3. Will project specific engineered shoring need to be submitted for the oil interceptor due to its close distance to the existing garage since we are going below the footing depth?
   Response – Yes shoring will be required, refer Section 31 23 05, Excavation and Fill for requirements.

4. Can you confirm if the steel building installer will be installing the gutter as well as is that under the GC Contract.
   Response – The PEMB manufacturer and installer will furnish and install all gutter and downspouts at the new building. GC will need to modify gutter at the existing garage.

5. Will the trench drain install fall under the plumbing contract or both the new and existing slab? Concrete slab to be done by the GC?
   Response – Trench drain will be by the general contractor, piping will be by the plumbing contractor.

6. Will the sprinkler system piping need to be painted as per contract 1? There is currently no piping I the drawing to takeoff.
   Response – Contract 1 P will be responsible for painting the sprinkler piping installed under that contract.

ATTACHMENTS

1. Section 08 36 16, Sections Doors
2. A-03, Code Charts – Sheet A-03
3. S-02, Symbols, Abbreviations, Design Criteria – Sheet S-02
4. E-02, Electrical Site Plan – Sheet E-02
5. E-04, Electrical – Power Plan – Sheet E-04
6. E-05, Single Line Diagram and Panel Load Schedule – Sheet E-05

END OF ADDENDUM NO. 4

SECTION 08 36 16

SECTIONAL DOORS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:
   1. Contractor shall provide all labor, material, tools, equipment, and incidentals as shown, specified, and required to furnish and install sectional doors.
   2. Extent of sectional doors is shown.
   3. Types of products required include the following:
      a. Galvanized steel, very-high-cycle, industrial quality sectional doors with insulated panels and full perimeter weather-stripping.
      b. Tracks, angles, brackets, and supports.
      c. Electric operators and chain operators, control stations, starters, safety edge devices and similar and associated components with all power and control connections (including disconnect switches).
      d. Inserts and anchoring devices.
      e. Miscellaneous materials and accessories for a completely functioning system.

B. Coordination:
   1. Review installation procedures under this and other Sections and coordinate the installation of items that must be installed with, or before, the sectional doors.
   2. Notify other contractors in advance of the installation of the upward acting sectional doors to provide them with sufficient time for the installation of items included in their contracts that must be installed with, or before, the sectional doors.
   3. Coordinate delivery of inserts with masonry and cast-in-place concrete Work.

C. Related Sections:
   1. Section 09 91 00, Painting.

1.2 REFERENCES

A. Standards referenced in this Section are listed below:
   1. American Society for Testing and Materials, (ASTM).
      a. ASTM A 36/A 36M, Specification for Carbon Structural Steel.
      b. ASTM A 366/A 366M, Specification for Commercial Steel, Sheet, Carbon, (0.15 maximum percent) Cold-Rolled.
      c. ASTM A 653/A 653M, Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the

Hot-Dip Process.
2. National Electrical Code, (NEC).
3. National Electrical Manufacturers' Association, (NEMA).

1.3 QUALITY ASSURANCE

A. Manufacturer's Qualifications:
1. Manufacturer shall have a minimum of five years experience producing substantially similar equipment and shall be able to show evidence of at least five installations in satisfactory operation for at least five years.

B. Installer Qualifications:
1. Engage a single installer for all sectional door Work, with documented and successful experience in the type of Work required, and who is an authorized representative of the sectional door manufacturer for both installation and maintenance of units required, and who agrees to employ only tradesmen with specific skill and successful experience in this type of Work.
2. Submit names and telephone numbers of architects, engineers, or owner's representatives for at least three successful projects performed by the proposed installer, similar to the Work required for this Project. Submissions that indicate proposed installer does not have the necessary successful experience will not be approved by Engineer.

C. Component Supply and Compatibility:
1. Obtain all equipment included in this Section regardless of the component manufacturer from a single sectional door manufacturer.
2. The sectional door equipment manufacturer to review and approve or to prepare all Shop Drawings and other submittals for all components furnished under this Section.
3. All components shall be specifically constructed for the specified service conditions and shall be integrated into the overall assembly by the sectional door equipment manufacturer.

1.4 SUBMITTALS

A. Action Submittals: Submit the following:
1. Shop Drawings:
a. Drawings showing all components and their assembly, all with accurately marked dimensions. Include details at frames, elevations of each sectional door design type, details of construction and conditions at openings.
b. Setting drawings; summary of loads on walls, jambs and structural elements; templates; and instructions and directions for installation of inserts and anchorage devices, which shall be furnished by the sectional door manufacturer, but installed, under other Sections of these Specifications.

2. Product Data:
    a. Copies of manufacturer's specifications and data sheets, roughing-in diagrams, and installation instructions for each type and size of sectional door. Include manufacturer's data on operators, operating instructions, and maintenance data. Indicate by transmittal form that installer has received a copy of diagrams and installation instructions.
    b. Calculations showing that detailing and fabrication of components are in compliance with structural performance specified.
    c. Electric operator and all other operating system component specifications indicating compliance with requirements specified. Complete interconnecting wiring diagrams for power, signal and control systems indicating all system operating components and control station wiring as required for a completely operational system in compliance with the Specifications. Provide motor nameplate data and ratings; characteristics, mounting arrangements, size and location of winding termination lugs, conduit entry and grounding lugs; and coatings. Define and differentiate between components that are furnished and installed as part of sectional door Work; both at the Site and in the factory, and those that must be furnished, or installed, as part of the Work of other Sections or the work of other contractors.

B. Informational Submittals: Submit the following:
    1. Qualification Statements:
        a. Installer.

C. Closeout Submittals: Submit the following:
    1. Operations and Maintenance Data: Upon completion of the Work, furnish copies of detailed maintenance manual including the following information:
        a. Product name and number.
        b. Name, address, e-mail address and telephone number of manufacturer and local distributor.
        c. Detailed procedures for routine maintenance and cleaning.
        d. Detailed procedures for light repairs.
        e. Parts catalog listing all operating system parts and components by kind and purchasing designation number.

1.5 DELIVERY, STORAGE AND HANDLING

A. Packing, Shipping, Handling and Unloading:
    1. Deliver materials to the Site to ensure uninterrupted progress of the Work. Deliver anchor bolts and anchorage devices which are to be embedded in cast-in-place concrete in ample time to prevent delay of that Work.
    2. Deliver all units suitably crated, from the factory to the Site, braced and protected against distortion and damage during transit and unloading. Label all parts to comply with approved Shop Drawing designations.
    3. Upon delivery, inspect metal for damage. Minor damage may be repaired provided the finish items are equal in all respects to new items and acceptable to Engineer; otherwise, remove and replace damaged items.

B. Storage and Protection:
   1. Store materials to permit easy access for inspection and identification. Keep all material off the ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from corrosion and deterioration.
   2. Store doors and frames at the Site under cover.
   3. Place units up off of floors in a manner that will prevent rust and damage.
   4. Avoid the use of non-vented plastic or canvas shelters, which could create a humidity chamber.

C. Acceptance at Site:
   1. All boxes, crates and packages shall be inspected by Contractor upon delivery to the Site. Contractor shall notify Engineer, in writing, if any loss or damage exists to equipment or components. Replace loss and repair damage to new condition in accordance with manufacturer's instructions.

PART 2- PRODUCTS

2.1 EQUIPMENT PERFORMANCE

A. Design Criteria:
   1. Structural: Sectional door components shall be capable of resistance to the following loads:
      a. Wind Loading: Provide resistance to both positive and negative wind loading pressure specified, with a maximum deflection of 1/120 of the opening width, as follows:
         1) Wind Loading Pressure: 30 pounds per square foot of door area.
      b. Dead Loading: Provide resistance to deformation of door components caused by the effects of gravity loads.
      c. Applied loadings shall not cause either short-term or permanent deformation of any system component. Doors shall remain operable and in undamaged condition during, and after, application of specified wind pressure loading.
   2. Helically-wound Torsion Springs: Provide Very-High-Cycle design capable of performing for 100,000 operational cycles. Provide non-resetable electric counters for all overhead coiling doors.
   3. Electric Operators and Controls:
      a. Design operators so that motor may be removed without disturbing the limit-switch adjustment and without affecting the emergency auxiliary operator.
      b. Design operators for 100,000 service-free, operating cycles.
      c. Provide fixtures that are listed and labeled as specified.

B. Definitions:
   1. Operating Cycle: One complete cycle of a sectional door or fire-resistance-rated sectional door begins in the closed position. The door is then moved to the open position and back to the closed position.

2.2 MANUFACTURERS

A. Insulated Ribbed Faced Steel Sectional Doors:
   1. Products and Manufacturers: Provide one of the following:
      a. 220/2000 Series by Wayne Dalton Corporation.
      b. Thermal Sectional Doors TC-200 Series by Raynor Manufacturing Company.
      c. Or equal.

2.3 DETAILS OF CONSTRUCTION

A. Construct door sections from cold-rolled, galvanized, structural quality, carbon steel sheets of commercial quality, complying with ASTM A 366/A 366M, and ASTM A 653/A 653M, G 60 zinc coating, mill-phosphatized., with a minimum yield strength of 33,000 psi; designed in conformance with structural performance criteria specified~~, but not less than 16-gauge, minimum~~. **Provide thickest gauge metal available by the manufacturer.** Provide exterior face as ribbed or fluted sections.

B. Tracks and Supports:
   1. Tracks: Provide manufacturer's ~~**standard**~~ **lift-clearance** galvanized steel track system, sized for door size and weight, and designed for clearances shown. Provide complete track assembly including brackets, bracing, and reinforcing for rigid support of ball-bearing roller guides, for the required door type and size. Slot vertical sections of tract at 2-inches on centers for door drop safety device. Slope tracks at proper angle from vertical or otherwise design to ensure tight closure at jambs when door unit is closed. Weld or bolt to track supports.
   2. Track Reinforcement and Supports: Provide galvanized steel track reinforcement and support members. Secure, reinforce and support tracks as required for size and weight of door to provide strength and rigidity, and to ensure against sag, sway, and detrimental vibration during opening and closing or doors.
   3. Support and attach tracks at opening jambs with continuous angle welded to tracks and attached to wall. Support ~~**horizontal**~~ **lift-clearance** (ceiling tracks) with continuous angle welded to track and supported by laterally-braced attachments to overhead structural members at curve and end of tracks.
   4. Where sectional door Work requires the built-in of plates, inserts and other items, furnish inserts and anchoring devices, which must be set in concrete or built into masonry for the installation of each type of sectional door.

C. Counterbalancing Mechanisms:

1. Torsion Spring: Hang door assembly for operation by a torsion spring counterbalance mechanism, consisting of adjustable tension, tempered steel torsion springs mounted on a case-hardened steel shaft, and connected to door with galvanized aircraft-type lift cable.
2. Provide cast aluminum or grey iron casting cable drums, grooved to receive cable. Mount counterbalance mechanism with manufacturer's standard ball-bearing brackets at each end of shaft with one additional mid-point bracket for shafts up to 16 feet-0 inches long and two additional brackets at 1/3 points to support shafts over 16 feet-0 inches long, unless closer spacing is recommended by door manufacturer.
3. Include a spring-loaded steel or bronze cam mounted to the bottom door roller assembly on each side, designed to stop door automatically if either cable breaks. Provide either a compression spring or leaf spring bumper installed at the end of each **~~horizontal~~ lift-clearance** track to cushion door at end of opening operation.

D. Weather Seals: Provide continuous, rubber or neoprene, adjustable weather-strip gasket at the tops, a compressible astragal on the bottoms of each door and continuous flexible seals at door edges and between panel sections continuously along the meeting edges.

E. Vision Panels: Except as otherwise shown or specified, furnish 5/8-inch clear insulated sheet glass vision panels in arrangement as shown. Set glass in rubber or neoprene channel strips. Provide removable stops of same materials as door section frames.

F. Hardware:
1. Provide heavy-duty, rust-resistant hardware, with stainless steel fasteners, as required for type of door.
2. Hinges: Provide heavy wrought steel hinges at each end stile and at each intermediate stile, as recommended by manufacturer for size of door. Attach hinges to door sections through stiles and rails with bolts and lock nuts or lock washers and nuts. Use rivets or self-tapping fasteners only where access to nuts is not possible. Provide double-end hinges, where required, for doors exceeding 16 feet-0 inches in width, unless otherwise recommended by door manufacturer.
3. Rollers: Provide heavy-duty rollers, with steel ball bearings in case-hardened steel races, mounted with varying projections to suit slope of track. Extend roller shaft through both hinges where double hinges are required. Provide roller tires to suit size of track, 3-inch diameter for 3-inch track; 2-inch diameter for 2-inch track, and as follows:
   a. Case-hardened steel tires, for normal installations.

2.4 ACCESSORIES

A. Electric Door Operators:
1. General: Furnish electric door operator assembly of the size and capacity recommended and provided by the sectional door manufacturer, complete

with electric motor and factory-pre-wired motor controls, including reversing starter, gear reduction unit, solenoid operated brake, clutch, remote control stations and control devices and wiring complying with the requirements of NFPA 70. Magnetic reversing starter shall be of the internal type with thermal overload protection and reset button.

2. Provide a hand-operated disconnect or mechanism for automatically engaging a sprocket chain operator and releasing brake for emergency manual operation. Mount disconnect and operator so that they are accessible from floor level. Include an interlock device to automatically prevent the motor from operating when emergency sprocket is engaged.
3. Design operator so that motor may be removed without disturbing the limit-switch adjustment and without affecting the emergency auxiliary operator.
4. Door Operator Type:
    a. Provide gear reduction ~~**trolley**~~ **jackshaft operator** type, with worm and worm gear reduction, enclosed running-in-oil primary drive, and chain or worm gear secondary drive, quick-clutch disconnect-release for manual operation.
5. Electric Motors:
    a. Provide high-starting torque, reversible, continuous-duty; Class A insulated electric motors, complying with NEMA MG 1, with overload protection.
    b. Size to start, accelerate, and operate door in either direction, from any position, at not less than 8-inches nor more than 12-inches per second without exceeding nameplate ratings or considering service factor.
    c. Coordinate wiring requirements and current characteristics of motors with building electrical system; refer to applicable Sections of Division 26, Electrical and other contracts.
    d. Provide totally enclosed, non-ventilated or fan-cooled motors, waterproof electric motors, fitted with a plugged drain, and controller with NEMA Type 4X enclosure.
    e. Provide adjustable limit switches, rotary-type, driven by a time chain and interlocked with motor controls set to automatically stop door at fully opened and closed positions. Geared limit switches shall contain a spare set of contacts.
6. Remote Control Station:
    a. Unless otherwise shown, provide momentary-contact, three-button control stations with pushbutton controls labeled “OPEN”, “CLOSE” and “STOP”. Install at location as shown or scheduled.
    b. Provide exterior units, full-guarded type, standard duty, surface-mounted, weatherproof type, NEMA Type 4X enclosure, key-operated.
7. Safety Edge Device:
    a. Provide each door with a pneumatic safety air switch, extending full width of the door bottom, and located within a U-shaped neoprene or rubber astragal mounted to the bottom door rail.
    b. Unit shall operate such that contact with the switch before fully closing will immediately change the air chamber pressure sending a

signal from the air switch to the electric motor to stop the downward travel and reverse the direction to the fully opened position.

c. Connect to the control circuit through a retracting safety cord with cable reels provided for each electric operating door.

d. The compressible strip shall also serve as a weatherseal along the bottom of the door.

e. Safety edge shall be acceptable for use in NFPA 70 Class I, Division 1 locations.

8. Obstruction Detection Devices:

a. Provide each motorized door with external automatic safety sensor able to protect full width of door opening. Activation of sensor immediately stops and reverses downward door travel.

b. Photoelectric Sensor: Manufacturer's standard system designed to detect an obstruction in door opening without contact between door and obstruction.

c. Provide self-monitoring sensor designed to interface with door operator control circuit to detect damage to, or disconnection of, sensor device. When self-monitoring feature is activated, door operates to close only with constant pressure on close button.

2.5 PAINTING

A. Shop clean and prime all ferrous metal and galvanized surfaces, exposed and unexposed, except lubricated surfaces, with door manufacturer's standard rust inhibitive primer, drying to a flat sheen. **Counterbalance and hardware components do not require a prime coat unless provided as a standard by the manufacturer.**

B. Refer to Section 09 91 00 Painting, and coordinate compatibility of shop and Site-primed and finished paint for interior and exterior ferrous and non-ferrous metals.

2.6 FABRICATION

A. Fabricate sections from a single sheet to provide units not more than 24-inches high, and not less than 2-inches deep. Roll horizontal meeting edges to a continuous shiplap, rabbeted, or keyed weather seal, with a reinforcing flange return.

B. Enclose open section with 16-gauge galvanized steel channel end stiles 2-inches deep, welded in place. Provide intermediate stiles, cut to the door section profile, spaced at not more than 4 foot-0 inches on centers and welded in place.

C. Reinforce bottom section with a continuous channel or angle conforming to the bottom section profile.

D. Reinforce sections with continuous horizontal and diagonal reinforcing, as required by door width, and the required structural performance criteria. Provide galvanized steel bars, struts, trusses, or strip steel, formed to the depth, and bolted

or welded in place.

E. Insulate inner face of steel sections with manufacturer's standard ~~**glass fiber or**~~ polystyrene foam type insulation. Enclose insulation with manufacturer's standard steel sheet secured to door panel. **Provide U-value of U-0.097 or better.**

PART 3 - EXECUTION

3.1 INSPECTION

A. Contractor shall examine the substrates and conditions under which the sectional doors are to be installed and notify Engineer, in writing, of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to Engineer.

3.2 INSTALLATION

A. Manufacturer's representative shall check and approve the installation before operation. Manufacturer's representative shall field test and calibrate the equipment to assure that the system operates to the Owner's satisfaction.

B. Install door, track, and operating equipment complete with necessary hardware, jamb and head mold stops, anchors, inserts, and hangar and equipment supports in accordance with approved Shop Drawings, manufacturer's instructions and as specified.

C. Fasten vertical track assembly to framing at not less than 2 foot-0 inches on centers. Hang ~~**horizontal**~~ **lift-clearance** track from structural overhead framing with angle or channel hangars, welded and bolt-fastened in place. Provide sway bracing, diagonal bracking, and reinforcing as required for a rigid installation of the track and door operating equipment.

D. Install, wire, connect and adjust doors, motors, starters, pushbutton stations, limit and safety switches and all other electrical accessories and connections required in full accordance with the manufacturer's written instructions, the approved Shop Drawings, and as shown and specified. Refer to Paragraph 1.1.B. of this Section for the requirements of coordination with others.

E. Lubricate bearings and sliding parts and adjust mechanism so moving parts operate smoothly and are free from warp, twist, or distortion and are fit watertight for entire perimeter.

F. Adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

G. Repair damage and replace door components that do not respond to adjustment or lubrication so that door operates smoothly and quietly. Match manufacturer's original finish.

3.3 FIELD QUALITY CONTROL

A. Upon completion of installation including the Work by other trades, test controls and door operation in presence of Engineer to demonstrate compliance with these Specifications, the manufacturer's design criteria and specified performance criteria.

3.4 MANUFACTURER'S SERVICES

A. A factory trained representative shall be provided for installation supervision, start-up and test services and operation and maintenance personnel training services. The representative shall make a minimum of two visits, minimum three hours on-Site for each visit, to the Site. The first visit shall be for assistance in the installation of equipment. Subsequent visits shall be for checking the completed installation, start-up, and training. Manufacturer's representative shall test operate the system in the presence of the Engineer and verify that the equipment conforms to the requirements. Representative shall revisit the job Site as often as necessary until all trouble is corrected and the installation is entirely satisfactory.

B. All costs, including travel, lodging, meals, and incidentals, for additional visits shall be at no additional cost to the Owner.

+ + END OF SECTION + +

BUILDING CODE CHART: 2020 BUILDING CODE OF NEW YORK STATE		
	GARAGE ADDITION & LEAN-TO	
BUILDING (MAIN) OCCUPANCY (CHAPTER 3)	S-2	
MIXED USE FACILITY	NO	
ROOM SEPARATION RATING	NA	
CONSTRUCTION CLASSIFICATION (CHAPTER 5)	II-B	
BUILDING HEIGHT	ALLOWABLE	ACTUAL
	75-FEET	26-FEET
NUMBER OF STORIES	ALLOWABLE	ACTUAL
	4	1
ALLOWABLE AREA FACTOR PER FLOOR	ALLOWABLE	ACTUAL
	104,000 SF FACTOR	70,087
FIRE SEPARATION DISTANCE RATINGS (TABLE 602):		
	REQUIRED	PROVIDED
DISTANCE LESS THAN 5'	1	0
DISTANCE BETWEEN 5' & 10'	1	0
DISTANCE BETWEEN 10' & 30'	0	0
DISTANCE MORE THAN 30'	0	0
FIRE RESISTANCE RATING REQ'TS FOR BLDG ELEMENTS (TABLE 601):		
	REQUIRED	PROVIDED
PRIMARY STRUCTURAL FRAMING	0	0
BEARING WALLS - EXTERIOR	0	0
BEARING WALLS - INTERIOR	0	0
NON BEARING WALLS - EXTERIOR	SEE FIRE SEPARATION DISTANCE RATINGS	
NON BEARING WALLS - INTERIOR	0	0
FLOOR CONSTRUCTION	0	0
ROOF CONSTRUCTION	0	0
INTERIOR FINISHES (TABLE 803.13) :		
VERTICAL EXITS AND EXIT PASSAGEWAYS	C	A
EXIT ACCESS CORRIDORS & OTHER EXITWAYS	C	A
ROOMS AND ENCLOSED SPACES	C	A
FIRE PROTECTION SYSTEMS (CHAPTER 9):		
	REQUIRED	PROVIDED
AUTOMATIC SPRINKLER SYSTEMS (SECTION 903)	YES	YES
ALT. AUTOMATIC FIRE-EXTINGUISHING SYSTEMS (SECTION 904)	NO	NO
STANDPIPE SYSTEMS (SECTION 905)	NO	NO
PORTABLE FIRE EXTINGUISHERS (SECTION 906)	YES	YES
FIRE ALARM AND DETECTION SYSTEMS(SECTION 907)	NO	YES
EMERGENCY ALARM SYSTEMS (SECTION 908)	NO	NO
EMERGENCY RESPONDER SAFETY FEATURES (SECTION 914)	NO	NO
MEANS OF EGRESS (CHAPTER 10):		
	REQUIRED/ ALLOWABLE	PROVIDED
OCCUPANT LOAD CHART (TABLE 1004.1.2) (REFERENCE CODE COMPLIANCE PLAN)	91 FOR ADDITION, 34 FOR LEAN-TO	
EGRESS WIDTH PER OCCUPANT LOAD - STAIRWAYS (SECTION 1005.3)	MIN 36"	36"
EGRESS WIDTH PER OCCUPANT LOAD - OTHER COMPONENTS (SECTION 1005.3)	MIN 36"	36"
STORIES WITH ONE MEANS OF EGRESS (TABLE 1006.3.2)	NO	
SPACES WITH ONE MEANS OF EGRESS (TABLE 1006.2.1)	NO	
EXIT ACCESS TRAVEL DISTANCE (REFERENCE LIFE SAFETY PLAN)	100'	
ACCESSIBILITY (ANSI/ ADAAG/CHAPTER 11 2020 BUILDING CODE OF NEW YORK STATE):		
	REQUIRED	PROVIDED
CONSTRUCTION SITES	NO	NO
ACCESSIBLE ROUTE	YES	YES
ACCESSIBLE ENTRANCE	YES	YES
EQUIPMENT SPACES	NO	NO
PARKING	YES	YES
SIGNAGE	YES	YES

NR - NOT REQUIRED; NA - NOT APPLICABLE; HR = HOUR(S); FT - FEET; BLDG - BUILDING; ALT - ALTERNATE; GSF - GROSS SQUARE FEET; SPKR - SPRINKLER; W - WITH; W/O - WITHOUT; MAX - MAXIMUM; MIN - MINIMUM

ENERGY EFFICIENCY: 2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE		
CLIMATE ZONE (CHAPTER 3)	5.000000	MOIST-(A)
	BUILDING ENVELOPE REQUIREMENTS (TABLE C402.1.3 or ALT C402.1.4)	BUILDING ENVELOPE DESIGN
ROOF ASSEMBLIES:		
INSULATION ENTIRELY ABOVE DECK	R-30CI	R-36
WALLS BELOW GRADE: NA		
WALLS ABOVE GRADE:		
MASS	R-11.4CI	R-14.4CI
FLOORS OVER OUTDOOR AIR OR UNCONDITIONED SPACE: NA		
OPAQUE DOORS (< 50% GLASS):		
SWINGING	U-0.37	U-0.14
ROLL-UP OR SLIDING	U-0.31	U-0.097 1
SLAB ON GRADE FLOORS:		
UNHEATED	R-10, 24" BELOW GRADE	R-10, 24" BELOW GRADE
FENESTRATION	BUILDING ENVELOPE REQUIREMENTS (TABLE C402.4)	BUILDING ENVELOPE DESIGN
BUILDING WINDOW AND GLAZED PERCENTAGE	30%	0%
SKYLIGHTS (3% MAXIMUM): 0%		
AIR LEAKAGE (C402.5)		
WALL ASSEMBLIES (C402.5.1.2.2)	MAX 0.04 CFM/SF at 0.3 INCHES W.G.	REQ'D
BUILDING TEST REQUIRED (C402.4.1.2.3)	MAX 0.40 CFM/SF at 0.3 INCHES W.G.	REQ'D
LOUVER DAMPERS (C402.5.5)	MAX 4.00 CFM/SF at 1.0 INCHES W.G.	REQ'D
MAX AIR INFILTRATION RATES	TABLE C402.5.2	
WINDOW, SLIDING DOOR ASSEMBLIES	MAX 0.20 CFM/SF or 0.30 CFM/SF at 6.24 PSF	NA
SKYLIGHTS - WITH CONDENSATION WEEPAGE OPENINGS	MAX 0.30 CFM/SF	NA
SKYLIGHTS - ALL OTHER	MAX 0.20 CFM/SF or 0.30 CFM/SF at 6.24 PSF	NA
CURTAIN WALLS	MAX 0.20 CFM/SF or 0.30 CFM/SF at 6.24 PSF	NA
STOREFRONT GLAZING	MAX 0.06 CFM/SF	NA
COMMERCIAL GLAZED SWINGING ENTRANCE DOORS	MAX 1.00 CFM/SF	REQ'D
REVOLVING DOORS	MAX 1.00 CFM/SF	NA
GARAGE DOOR	MAX 0.40 CFM/SF	REQ'D
ROLLING DOOR	MAX 1.00 CFM/SF	NA
NR - NOT REQUIRED; NA - NOT APPLICABLE		

STRUCTURAL DESIGN AND CODE INFORMATION

1. CONSTRUCTION SHALL CONFORM TO THE 2020 BUILDING CODE OF NEW YORK STATE AND ASCE 7-16.

2. FLOOR LIVE LOADS:
   - SLAB-ON-GRADE: 250 PSF
   - AASHTO H-20 LOADING:
     - FRONT AXLE 8,000 LBS
     - REAR AXLE 32,000 LBS

3. ROOF LIVE LOADS:
   - MINIMUM ROOF LIVE LOADS: 20 PSF

4. ROOF DEAD LOADS:
   - ROOFING DEAD LOADS: 7 PSF
   - MEP COLLATERAL LOADS: 5 PSF
   - (ALT) CLAMPED PV PANEL LOADS: 4 PSF

5. ROOF SNOW LOADS:
   - GROUND SNOW LOAD: P_G = 30 PSF
   - BALANCED SNOW LOAD: P_S = 21 PSF
   - EXPOSURE FACTOR: C_e = 1.0
   - LOAD IMPORTANCE FACTOR: I_S = 1.0
   - THERMAL FACTOR: C_t = 1.0

6. WIND LOADS:
   - ULTIMATE DESIGN WIND SPEED: V_{ult} = 114 MPH
   - WIND EXPOSURE CATEGORY: C
   - BUILDING RISK CATEGORY: II
   - INTERNAL PRESSURE COEFFICIENTS: +/- 0.18
   - DESIGN WIND PRESSURE USED FOR COMPONENTS AND CLADDING: TBD

7. SEISMIC LOADS:
   - SEISMIC RISK CATEGORY: II
   - SEISMIC IMPORTANCE FACTOR: 1.00
   - SPECTRAL RESPONSE ACCELERATIONS: 0.298, S_1 = 0.062
   - SITE CLASS: D
   - SPECTRAL RESPONSE COEFFICIENTS: S_{DS} = 0.310g, S_{D1} = 0.099g
   - SEISMIC DESIGN CATEGORY: B
   - BASIC SEISMIC FORCE-RESISTING SYSTEM: BY PEMB MANUFACTURER
   - DESIGN BASE SHEAR, V: BY PEMB MANUFACTURER
   - SEISMIC RESPONSE COEFFIENT, C_S BY PEMB MANUFACTURER
   - RESPONSE MODIFICATION COEFFIENT, R: BY PEMB MANUFACTURER
   - ANALYSIS PROCEDURE: BY PEMB MANUFACTURER

8. FLOOD LOADS: N/A, ZONE X

9. FOUNDATION DESIGN
   - ALLOWABLE SOIL BEARING PRESSURE: 4,000 PSF

EXISTING BUILDING CODE NOTES:

1. THE EXISTING BUILDING IS PRIMARILY A TYPE S-2 OCCUPANCY FOR PARKING VEHICLES. THERE IS AN EXISTING TYPE B OCCUPANCY ADMINISTRATIVE AREA WITH OFFICES, RESTROOMS, LOCKER ROOMS, AND ELECTRICAL ROOMS. THE EXISTING BUILDING IS BELIEVED TO BE A CONSTRUCTION TYPE II. THE EXISTING BUILDING DOES NOT HAVE A FIRE SPRINKLER SYSTEM. FIRE EXTINGUISHERS WERE OBSERVED IN AREAS THAT WERE AVAILABLE FOR OBSERVATION.
2. WORK AT THE EXISTING BUILDING CONSISTS OF CONCRETE FLOOR SLAB AND TRENCH DRAIN REPAIRS IN SELECT AREAS. THESE ARE CONSIDERED REPAIRS AS PER CHAPTER 3 OF THE 2020 EXISTING BUILDING CODE OF NEW YORK STATE.
3. THE PROJECT INCLUDES THE ELECTIVE INSTALLATION OF A FIRE SPRINKLER SYSTEM IN THE EXISTING GARAGE SPACES. THE FIRE SPRINKLER SYSTEM SHALL COMPLY WITH THE 2020 FIRE CODE OF NEW YORK STATE, THE 2020 PLUMBING CODE OF NEW YORK STATE AND CHAPTER 9 OF THE 2020 BUILDING CODE OF NEW YORK STATE AS WELL AS APPLICABLE SECTIONS OF THE NFPA. REFER TO PLUMBING DRAWINGS.

ACCESSIBILITY NOTES:

1. CONSTRUCTION SITES ARE EXEMPT AS PER SECTION 1103.2.5 OF THE 2020 BUILDING CODE OF NEW YORK STATE.
2. EQUIPMENT SPACES ARE EXEMPT AS PER SECTION 11023.2.9 OF THE 2020 BUILDING CODE OF NEW YORK STATE.

PLUMBING FIXTURE NOTES:

1. ADDITIONAL OCCUPANT LOAD DOES NOT REQUIRE ADDITIONAL FIXTURES AS PER TABLE 2902.1 OF THE 2020 BUILDING CODE OF NEW YORK STATE.

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
1	9/13/2024	ADDENDUM NO. 4	DM	RB

Professional Engineer's Name

Professional Engineer's No.

State	Date Signed	Project Mgr.
NY		
Designed by	Drawn by	Checked by
RB	DM	ED

REGISTERED ARCHITECT CARLO ANTONIO DAWKINS 023835 STATE OF NEW YORK 6/24/24

ARCADIS

ARCADIS OF NEW YORK, INC.

CLARKSTOWN HIGHWAY GARAGE EXPANSION • CLARKSTOWN, NY

CODE CHARTS - SHEET 2

ARCADIS Project No. 30171703

Date JUNE 2024

201 FULLER ROAD
SUITE 201
ALBANY, NY 12203

A-03

@	AT
AA	THE ALUMINUM ASSOCIATION
AB	ANCHOR BOLT
ABC	AGGREGATE BASE COURSE
ACI	AMERICAN CONCRETE INSTITUTE
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFS	ABOVE FINISHED SLAB
AGGR	AGGREGATE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALUM	ALUMINUM
ALT	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARD INSTITUTE
APPD	APPROVED
APPROX	APPROXIMATE
AR	AS REQUIRED
ARCH	ARCHITECT, ARCHITECTURAL
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASD	ALLOWABLE STRESS DESIGN
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWC	AMERICAN WOOD COUNCIL
AWS	AMERICAN WELDING SOCIETY
B PL	BASE PLATE
BE	BOTTOM ELEVATION
BF	BOTH FACES
BFF	BELOW FINISHED FLOOR
BLDG	BUILDING
BM	BEAM
BOS	BOTTOM OF STEEL
BOT	BOTTOM
BRCG	BRACING
BRG	BEARING
BSMT	BASEMENT
BW	BOTH WAYS
(C)	COMPRESSION
C	CHANNEL
CFMF	COLD FORMED METAL FRAMING
CHEM	CHEMICAL
CHFR	CHAMFER
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT, CONSTRUCTION JOINT
CL	CENTER LINE
CLL	COLUMN LINE
CLG	CEILING
CLR	CLEAR
CLSM	CONTROLLED LOW-STRENGTH MATERIAL
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUE, CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CRSI	CONCRETE REINFORCING STEEL INSTITUTE
CY	CUBIC YARDS
DEMO	DEMOLISH, DEMOLITION
DET	DETAIL
DFT	DRY FILM THICKNESS
DIA OR Ø	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DL	DEAD LOAD
DOT	DEPARTMENT OF TRANSPORTATION
DWG	DRAWING
DWL	DOWEL
E	EAST
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC, ELECTRICAL
EMBED	EMBEDMENT
ENGR	ENGINEER
EOR	ENGINEER OF RECORD
EOS	EDGE OF SLAB
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
EW	EACH WAY
EX	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
f_c'	SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE
FD	FLOOR DRAIN
FIN	FINISH
f_m'	SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE MASONRY
FRC	FIBER REINFORCED CONCRETE
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FAR SIDE
FT	FEET
FTG	FOOTING
f_y	MINIMUM YIELD STRESS
GA	GAGE
GALV	GALVANIZED
GR BM	GRADE BEAM
GRTG	GRATING
HDPE	HIGH DENSITY POLYETHYLENE
HORIZ	HORIZONTAL
HP	HIGH POINT
HS	HIGH STRENGTH
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
IBC	INTERNATIONAL BUILDING CODE
ICC-ES	INTERNATIONAL CODE COUNCIL EVALUATING SERVICE
IF	INSIDE FACE
IN	INCHES
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
JT	JOINT
K OR KIP	THOUSAND POUNDS (1 K = 1000 LBS)
KB	KNEE BRACE
KD	KILN DRIED
K/FT	KIPS PER FOOT
KIP FT	THOUSAND FOOT/POUNDS
KLF	KIPS PER LINEAR FOOT
KSF	KIPS PER SQUARE FOOT
LBS	POUNDS
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLO	LONG LEG OUTSTANDING
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LPT	LOW POINT
LRFD	LOAD AND RESISTANCE FACTOR DESIGN
LW	LIGHTWEIGHT
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MD	METAL DECK
MH	MANHOLE
MIL	ONE THOUSANDTH OF AN INCH
MIN	MINIMUM
MISC	MISCELLANEOUS
ML	MASONRY LINTEL (STEEL)
MTL	METAL
MO	MASONRY OPENING
MPII	MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS
N	NORTH
NF	NEAR FACE
NIC	NOT IN CONTRACT
NO	NUMBER
#	NUMBER SYMBOL FOR REBAR SIZE
No.	NUMBER SYMBOL FOR WOOD GRADE
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADIMINISTRATION
P/C OR PCP	PRECAST PLANK
PCC	PRECAST CONCRETE
PCI	PRECAST / PRESTRESSED CONCRETE INSTITUTE
PH	PENTHOUSE
PL	PLATE
PREFAB	PREFABRICATED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORINE
R	RADIUS OR RISER
RD	ROOF DRAIN
REBAR	REINFORCING STEEL BAR
REF	REFERENCE
REINF	REINFORCED
REQD	REQUIRED
REV	REVISION
RM	ROOM
S	SOUTH
SCG	SELF-CONSOLIDATING GROUT
SCHED	SCHEDULE
SE	STRUCTURAL ENGINEER
SECT	SECTION
SF	SQUARE FEET
SIM	SIMILAR
SJI	STEEL JOIST INSTITUTE
SQ	SQUARE
SS	STANDING SEAM (ROOF)
SSR	STANDING SEAM ROOFING
SST	STAINLESS STEEL
STD	STANDARD
STIFF	STIFFENER
STIR	STIRRUP
STL	STEEL
STRUCT	STRUCTURAL
SYMM	SYMMETRICAL
(T)	TENSION
T	TREAD, TOP
T&B	TOP AND BOTTOM
T&G	TONGUE & GROOVE
TE	TOP ELEVATION
TEMP	TEMPERATURE, TEMPORARY
TFF	TOP OF FINISH FLOOR
TO	TOP OF ____
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF SLAB, TOP OF STEEL
TOW	TOP OF WALL
TPER	THERMOPLASTIC ELASTOMERIC RUBBER
TPI	TRUSS PLATE INSTITUTE
TYP	TYPICAL
UN	UNLESS NOTED
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
VERT	VERTICAL
VIF	VERIFY IN FIELD
VRFY	VERIFY
W	WEST
W/	WITH
WF	WIDE FLANGE
WF BM	WIDE FLANGE BEAM
W/O	WITHOUT
WP	WORKING POINT
WS	WATERSTOP
XBRA	CROSSBRACING

ALUMINUM

BOARD INSULATION

BRICK

COMPACTED GRANULAR BASE

COMPACTED STONE FILL

CONCRETE

CONCRETE MASONRY UNITS

DECK SPAN

FINAL GRADE

GRATING

GROUT

REINFORCING STEEL IN CONCRETE

SAND

S — SLOPE

STEEL

UNDISTURBED EARTH

UNDISTURBED ROCK

STRUCTURAL DESIGN CRITERIA

CLARKSTOWN HIGHWAY GARAGE EXPANSION

FLOOR LIVE LOADS:

SLAB ON GRADE	250 PSF
AASHTO H-20 LOADING	
FRONT AXLE	8,000 LBS
REAR AXLE	32,000 LBS

ROOF LIVE LOADS:

MINIMUM ROOF LIVE LOAD:	20 PSF

ROOF DEAD LOADS:

ROOFING DEAD LOADS:	7 PSF
HUNG M/E/P ALLOWANCE:	5 PSF
CLAMPED PV PANEL LOADS:	4 PSF

ROOF SNOW LOADS:

GROUND SNOW LOAD, P_g:	30 PSF
SNOW EXPOSURE FACTOR, C_e:	1.0
SNOW LOAD IMPORTANCE FACTOR, I_s:	1.0
THERMAL FACTOR, C_t:	1.0
DRIFT SURCHARGE LOADS:	PER ASCE 7, CHAPTER 7

WIND DESIGN DATA:

ULTIMATE DESIGN WIND SPEED, V_{ult} (3s):	114.0 MPH
WIND EXPOSURE:	C
RISK CATEGORY:	II
INTERNAL PRESSURE COEFFICIENTS:	+/- 0.18
DESIGN WIND PRESSURE USED FOR COMPONENTS AND CLADDING:	VARIES PER COMPONENT AND LOCATION ON STRUCTURE

EARTHQUAKE DESIGN DATA:

SITE LATITUDE:	41.1002
SITE LONGITUDE:	-74.0018
SESIMIC IMPORTANCE FACTOR, I_e:	1.0
RISK CATEGORY:	II
MAPPED SPECTRAL RESPONSE ACCELERATIONS:	
S_s=	0.298g
S_1=	0.062g
SITE CLASS:	
DESIGN SPECTRAL RESPONSE ACCELERATIONS:	
S_{DS}=	0.310g
S_{D1}=	0.099g
SEISMIC DESIGN CATEGORY:	B
BASIC SEISMIC FORCE-RESISTING SYSTEM:	(BY PEMB MANUFACTURER)
DESIGN BASE SHEAR, V:	(BY PEMB MANUFACTURER)
SEISMIC RESPONSE COEFFICIENT(S), C_S:	(BY PEMB MANUFACTURER)
RESPONSE MODIFICATION COEFFICIENT(S), R:	(BY PEMB MANUFACTURER)
ANALYSIS PROCEDURE:	(BY PEMB MANUFACTURER)

GEOTECHNICAL INFORMATION:

NET ALLOWABLE SOIL BEARING PRESSURE:	4000 PSF
MODULUS OF SUBGRADE REACTION:	120 PCI
MINIMUM FOOTING DEPTH:	4' - 0"

FLOOD DESIGN DATA:

FLOOD DESIGN CLASS:	N/A
LOWEST FLOOR ELEVATION:	0'-0"
DRY FLOODPROOF ELEVATION:	N/A
BOTTOM OF LOWEST HORIZONTAL STRUCTURAL MEMBER:	-5' - 6"

COMPONENTS AND CLADDING WIND PRESSURES

A

DESIGN WIND PRESSURES (ULTIMATE)
FOR COMPONENTS & CLADDING (PSF)

ROOF	SURFACE PRESSURE (psf)							
AREA	2 sf	10 sf	20 sf	50 sf	75 sf	100 sf	200 sf	250 sf
NEGATIVE ZONE 1 & 2e	-54.3	-54.3	-54.3	-33.0	-23.6	-16.9	-16.9	-16.9
NEGATIVE ZONE 2n, 2r & 3e	-79.1	-79.1	-68.4	-54.3	-48.0	-43.5	-32.8	-29.4
NEGATIVE ZONE 3r	-94.1	-94.1	-80.6	-62.8	-54.9	-49.3	-49.3	-49.3
POSITIVE ALL ZONES	21.9	17.8	16.0	16.0	16.0	16.0	16.0	16.0
OVERHANG ZONE 1 & 2e	-62.2	-62.2	-62.2	-48.0	-41.8	-37.3	-37.3	-37.3
OVERHANG ZONE 2n & 2r	-87.1	-87.1	-79.1	-68.4	-63.7	-60.4	-52.4	-49.8
OVERHANG ZONE 3e	-102	-102	-88.1	-69.7	-61.5	-55.7	-41.8	-37.3
OVERHANG ZONE 3r	-117	-117	-99.0	-75.2	-64.7	-57.2	-57.2	-57.2

NOTES: 1. OVERHANG PRESSURES IN THE TABLE ABOVE ASSUME AN INTERNAL PRESSURE COEFFICIENT (GCPI) OF 0.0
2. OVERHANG SOFFIT PRESSURE EQUALS ADJACENT WALL PRESSURE (WHICH INCLUDES INTERNAL PRESSURE OF 4.5 psf)

COMPONENTS AND CLADDING WIND PRESSURES

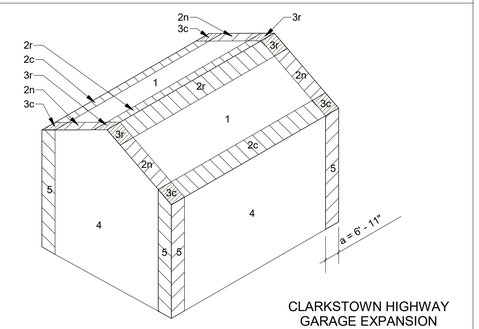
DESIGN WIND PRESSURES (ULTIMATE)
FOR COMPONENTS & CLADDING (PSF)

WALLS	GCp +/- GCpi				SURFACE PRESSURE AT h			
AREA	10 sf	100 sf	200 sf	500 sf	10 sf	100 sf	200 sf	500 sf
NEGATIVE ZONE 4	-1.17	-1.01	-0.96	-0.90	-29.1	-25.2	-24.0	-22.4
NEGATIVE ZONE 5	-1.44	-1.12	-1.03	-0.90	-35.8	-27.9	-25.5	-22.4
NEGATIVE ZONE 4 & 5	1.08	0.92	0.87	0.81	26.9	22.9	21.7	20.2

NOTES: GCP REDUCED BY 10% DUE TO ROOF ANGLE < = 10 DEG.

1. DESIGN AND WIND PRESSURES INDICATED SHALL BE USED IN THE DESIGN OF ALL COMPONENTS & CLADDING ELEMENTS COMPRISING THE BUILDING ENVELOPE.
2. POSITIVE PRESSURES ACT INWARD, TOWARD THE WIND SURFACE. NEGATIVE PRESSURES ACT OUTWARD, AWAY FROM THE WIND SURFACE.
3. PRESSURES GIVEN ARE UNFACTORED AND INCLUDE NO GRAVITY LOADS.
4. LINEAR INTERPOLATION IS PERMITTED FOR INTERMEDIATE EFFECTIVE WIND AREAS.

WIND PRESSURE DIAGRAM



CLARKSTOWN HIGHWAY GARAGE EXPANSION

THE PRE-ENGINEERED METAL BUILDING (PEMB) SYSTEM WILL BE PROVIDED BY OTHERS. ASSUMED REACTIONS, COLUMN BASE PLATES, BAY SPACING, ETC. MAY CHANGE BASED ON FINAL PEMB SYSTEM DESIGN. CHANGES IN THE SCOPE RESULTING FROM THE PEMB SYSTEM FINAL DESIGN WILL BE ADDRESSED AS A CONTRACT CHANGE WITH ADDITIONAL COSTS (IF APPLICABLE) ANTICIPATED TO BE PAID FOR USING THE CONTINGENCY ALLOWANCE.

NOT FOR CONSTRUCTION

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: _____ USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By
A	09/13/24	ADDENDUM NO. 4	CGC
0	06/24/24	ISSUED FOR BID	CGC

Professional Engineer's Name: C. CALKINS
Professional Engineer's No.: 102542
State: NY | Date Signed | Project Mgr.
Designed by: RS/MD | Drawn by: JP | Checked by: DM/RI

ARCADIS

ARCADIS OF NEW YORK, INC.

CLARKSTOWN HIGHWAY GARAGE EXPANSION • CLARKSTOWN, NY

SYMBOLS, ABBREVIATIONS, DESIGN CRITERIA

ARCADIS Project No.: 30171703
Date: JUNE 2024

ARCADIS OF NEW YORK, INC.
855 ROUTE 146
SUITE 210
CLIFTON PARK, NY 12065

S-02

PARKING LIGHTS CONTROL NOTE:

1. PARKING LIGHTS SHALL BE CONTROLLED WITH PHOTOCELL INTEGRAL WITHIN EACH FIXTURE. (SEE E-03 FOR THE LIGHTING FIXTURE SCHEDULE)

A E-02 ELECTRICAL SITE PLAN

SCALE: 1" = 20'

0 20' 40'
1" = 20'

NOTE: THE PRE-ENGINEERED METAL BUILDING (PEMB) SYSTEM WILL BE PROVIDED BY OTHERS. ASSUMED REACTIONS, COLUMN BASE PLATES, BAY SPACING, ETC. MAY CHANGE BASED ON FINAL PEMB SYSTEM DESIGN. CHANGES IN THE SCOPE RESULTING FROM THE PEMB SYSTEM FINAL DESIGN WILL BE ADDRESSED AS A CONTRACT CHANGE WITH ADDITIONAL COSTS (IF APPLICABLE) ANTICIPATED TO BE PAID FOR USING THE CONTINGENCY ALLOWANCE.

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
1	9/13/24	ADDENDUM 4	JM	WS

Professional Engineer's Name: **SCOTT WALOWSKY**
Professional Engineer's No.: 107276

State	Date Signed	Project Mgr.
NY	09-13-2024	MFK
Designed by: JM	Drawn by: EB/MR	Checked by: WS

ARCADIS OF NEW YORK, INC.

CLARKSTOWN HIGHWAY GARAGE EXPANSION • CLARKSTOWN, NY

ELECTRICAL SITE PLAN

ARCADIS Project No.: 30171703
Date: JUNE 2024

201 FULLER ROAD
SUITE 201
ALBANY, NY 12203

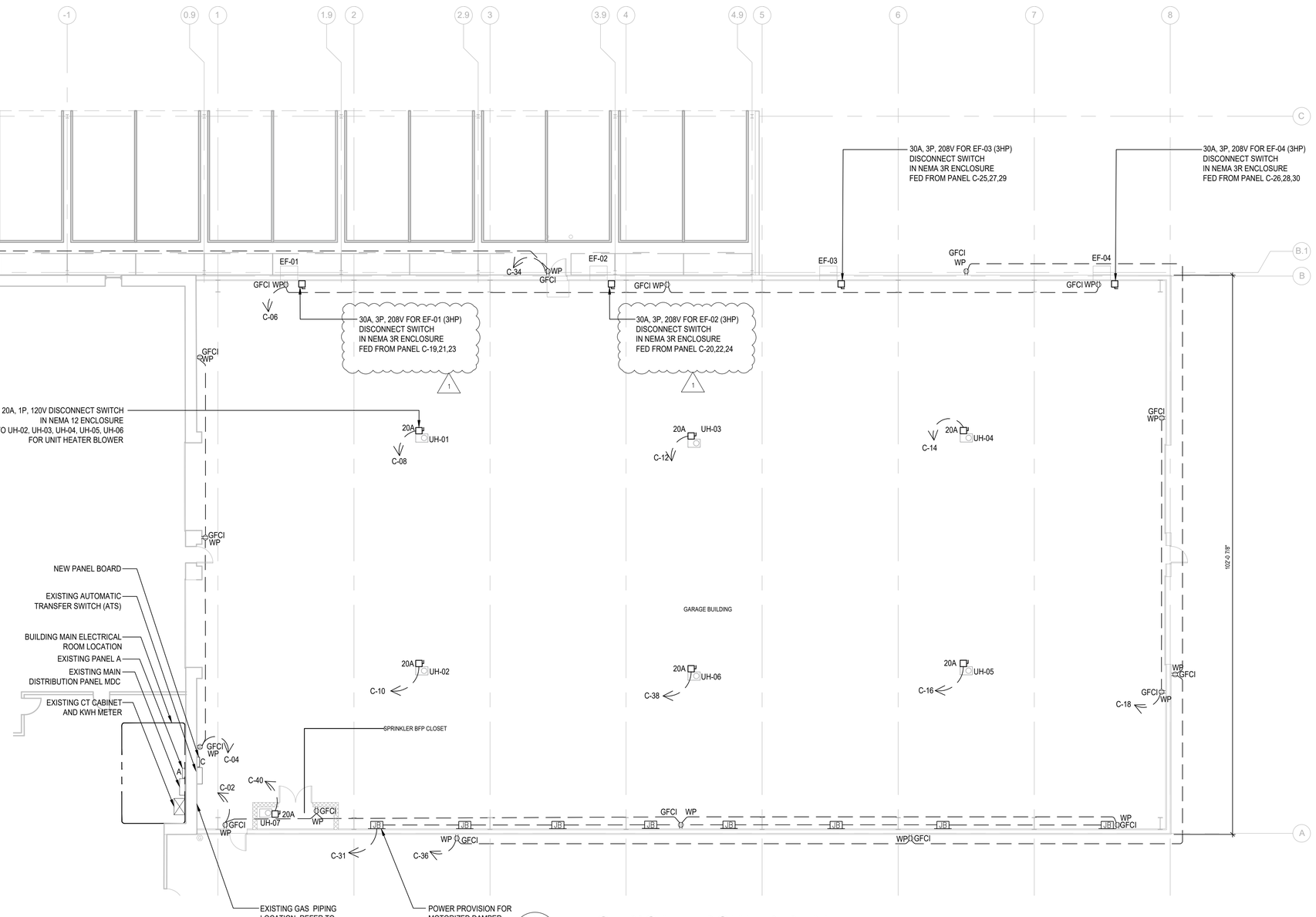
E-02

POWER LAYOUT NOTES:

1. NEW FEEDER FOR NEW PANEL C SHALL BE FED FROM EXISTING MAIN DISTRIBUTION PANEL (MDC) WITH BRANCH CIRCUIT BREAKER OF 100A, 120/208V, 3-PHASE, 60 HZ SPARE CIRCUIT BREAKER.
2. EXISTING ELECTRICAL PANELS AND EQUIPMENT ARE SHOWN DIAGRAMATICALLY.

TRUE NORTH
PLAN NORTH

B E-04 EXISTING CT, KWH METER AND MDC PANEL
SCALE: NTS



A E-04 ELECTRICAL - POWER PLAN
SCALE: 3/32" = 1'-0"
0 8' 16' 24'

NOTE: THE PRE-ENGINEERED METAL BUILDING (PEMB) SYSTEM WILL BE PROVIDED BY OTHERS. ASSUMED REACTIONS, COLUMN BASE PLATES, BAY SPACING, ETC. MAY CHANGE BASED ON FINAL PEMB SYSTEM DESIGN. CHANGES IN THE SCOPE RESULTING FROM THE PEMB SYSTEM FINAL DESIGN WILL BE ADDRESSED AS A CONTRACT CHANGE WITH ADDITIONAL COSTS (IF APPLICABLE) ANTICIPATED TO BE PAID FOR USING THE CONTINGENCY ALLOWANCE.

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
1	9/13/24	ADDENDUM 4	JM	WS

Professional Engineer's Name: SCOTT WALOWSKY
Professional Engineer's No.: 107276

State	Date Signed	Project Mgr.
NY	09-13-2024	MFK
Designed by: JM	Drawn by: EB/MR	Checked by: WS

ARCADIS OF NEW YORK, INC.

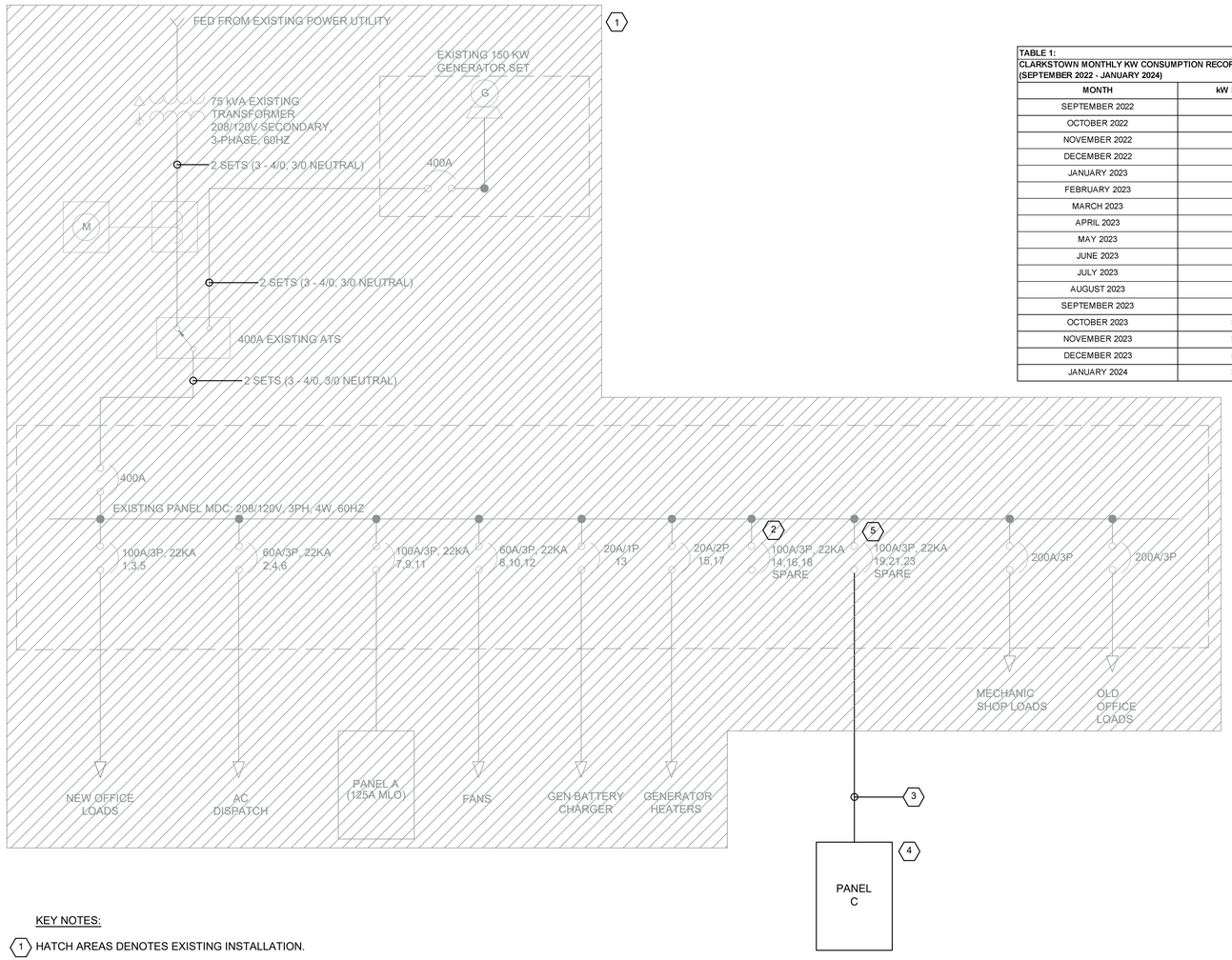
CLARKSTOWN HIGHWAY GARAGE EXPANSION • CLARKSTOWN, NY

ELECTRICAL - POWER PLAN

ARCADIS Project No.: 30171703
Date: JUNE 2024

201 FULLER ROAD
SUITE 201
ALBANY, NY 12203

E-04



KEY NOTES:

1. HATCH AREAS DENOTES EXISTING INSTALLATION.
2. 100A, 3P EXISTING SPARE CIRCUIT BREAKER.
3. NEW FEEDER 4 - #1 + 1 - #8 GND IN 1-1/2" C.
4. NEW PANELBOARD "C". REFER TO LOAD SCHEDULE.
5. 100A, 3P EXISTING SPARE CIRCUIT BREAKER TO BE UTILIZED.

A E-05 ELECTRICAL ONE LINE DIAGRAM

SCALE: NTS

TABLE 1:
CLARKSTOWN MONTHLY KW CONSUMPTION RECORD FROM UTILITY (SEPTEMBER 2022 - JANUARY 2024)

MONTH	kW DEMAND
SEPTEMBER 2022	37.6
OCTOBER 2022	41.6
NOVEMBER 2022	38.4
DECEMBER 2022	34.4
JANUARY 2023	38
FEBRUARY 2023	44
MARCH 2023	34
APRIL 2023	36.8
MAY 2023	28.4
JUNE 2023	32
JULY 2023	37.2
AUGUST 2023	38.4
SEPTEMBER 2023	36
OCTOBER 2023	30.65
NOVEMBER 2023	34.08
DECEMBER 2023	38.08
JANUARY 2024	33.48

TABLE 2: MAIN DISTRIBUTION PANEL (MDC) LOAD ANALYSIS

ITEM	DESCRIPTION	VOLTAGE	PHASE	ASSUMED PF	kW	kVA	REMARKS
1	PEAK LOAD CONSIDERED = 44kW @ 0.9 PF (FEBRUARY 2023)	208	3	0.90	44	48.89	REFER TO "TABLE 1"
2	PANEL C (NEW GARAGE LOADS)	208	3	0.90	23	26.06	REFER TO "PANEL C" LOAD SCHEDULE
					TOTAL LOAD (KVA):	**74.95**	
					TOTAL FULL LOAD CURRENT (AMPS):	**208.04**	

DESIGN NOTES:
1. THE EXISTING SERVICE TRANSFORMER OF CLARKSTOWN PROJECT IS 75KVA.
2. THE EXISTING MAIN CB OF PANEL MDC IS 400A, 208V, 3-PHASE.
3. THE EXISTING GENERATOR SET OF CLARKSTOWN PROJECT IS 150KW.
4. THE CLARKSTOWN EXPANSION IS ASSUMED TO BE 26.06 KVA AS PER "PANEL C" LOAD SCHEDULE.
5. THE POWER FACTOR USED FOR THE SYSTEM IS ASSUMED AT 0.9. FINAL LOAD MAY CHANGED OR NOT DEPENDING ON THE FINAL ASSESMENT ALONG WITH THE ACTUAL POWER FACTOR FROM SERVICE UTILITY COMPANY.
6. ADDING THE EXISTING CLARKSTOWN LOAD PLUS THE EXPANSION LOAD IS 74.95 KVA.

OVERALL ASSESMENT:
IT APPEARS THE 75 KVA TRANSFORMER, 150KW GENERATOR AND THE MAIN 400A MDC PANEL CAN STILL ACCOMODATE THE EXPANSION LOAD.

Branch Panel: C
Location: NEW GARAGE
Supply from: EXISTING MAIN DISTRIBUTION PANEL (MDC)
Mounting: SURFACE
Enclosure: NEMA12

Volts: 120/208
Phases: 3
Wires: 4

A.I.C.: 22K
Mains Type: MCB
Mains Rating: 100 A

Ckt.	Circuit Description	Wire & Conduit	Circuit Breaker Trip	Circuit Breaker Pole	Load Per Phase in VA L1		L2		L3		Circuit Breaker Pole	Circuit Breaker Trip	Wire & Conduit	Circuit Description	Ckt.
1	INTERIOR GARAGE LIGHTINGS (NORTH)	2-#12 + 1-#12 GND IN 3/4"C	20 A	1	1501	720					1	20 A	2-#12 + 1-#12 GND IN 3/4"C	INTERIOR CONVENIENCE OUTLET WEST AND SOUTH AREA	2
3	STREET LIGHTINGS	2-#12 + 1-#12 GND IN 3/4"C	20 A	1			633	540			1	20 A	2-#12 + 1-#12 GND IN 3/4"C	INTERIOR CONVENIENCE RECEPTACLE, NORTH	4
5	INTERIOR GARAGE LIGHTINGS (CENTRAL)	2-#12 + 1-#12 GND IN 3/4"C	20 A	1					1287	540	1	20 A	2-#12 + 1-#12 GND IN 3/4"C	INTERIOR CONVENIENCE RECEPTACLE, EAST & SOUTH	6
7	SPARE		20 A	1		864					1	20 A	2-#12 + 1-#12 GND IN 3/4"C	UH-01 MOTOR @ 1/3 HP	8
9	INTERIOR GARAGE LIGHTINGS (SOUTH)	2-#12 + 1-#12 GND IN 3/4"C	20 A	1			1716	864			1	20 A	2-#12 + 1-#12 GND IN 3/4"C	UH-02 MOTOR @ 1/3 HP	10
11	LEAN TO LIGHTINGS	2-#12 + 1-#12 GND IN 3/4"C	20 A	1					1040	864	1	20 A	2-#12 + 1-#12 GND IN 3/4"C	UH-03 MOTOR @ 1/3 HP	12
13	PARKING LIGHTINGS	2-#12 + 1-#12 GND IN 3/4"C	20 A	1	760	864					1	20 A	2-#12 + 1-#12 GND IN 3/4"C	UH-04 MOTOR @ 1/3 HP	14
15	SPARE		20 A	1				864			1	20 A	2-#12 + 1-#12 GND IN 3/4"C	UH-05 MOTOR @ 1/3 HP	16
17	EXTERIOR LIGHTINGS WEST AND SOUTH	2-#12 + 1-#12 GND IN 3/4"C	20 A	1					551	360	1	20 A	2-#12 + 1-#12 GND IN 3/4"C	INTERIOR CONVENIENCE OUTLET SOUTH AREA	18
19					1273	1273									20
21	EXHAUST FAN (EF-01 @3HP)	3-#12 + 1-#12 GND IN 3/4"C	30 A	3			1273	1273			3	30 A	3-#12 + 1-#12 GND IN 3/4"C	EXHAUST FAN (EF-02 @3HP)	22
23									1273	1273					24
25					1273	1273									26
27	EXHAUST FAN (EF-03 @3HP)	3-#12 + 1-#12 GND IN 3/4"C	30 A	3			1273	1273			3	30 A	3-#12 + 1-#12 GND IN 3/4"C	EXHAUST FAN (EF-04 @3HP)	28
29									1273	1273					30
31	MOTORZED DAMPER	2-#12 + 1-#12 GND IN 3/4"C	20 A	1	56						1	20 A		SPARE	32
33	SPARE		20 A	1			1500	360			1	20 A	2-#12 + 1-#12 GND IN 3/4"C	PAVILION CONVENIENCE OUTLET NORTH AND SOUTH AREA	34
35	SPARE		20 A	1					1500	720	1	20 A	2-#12 + 1-#12 GND IN 3/4"C	EXTERIOR CONVENIENCE OUTLET WEST AND SOUTH AREA	36
37	SPACE					864					1	20 A	2-#12 + 1-#12 GND IN 3/4"C	UH-06 MOTOR @ 1/3 HP	38
39	SPACE							100			1	20 A	2-#12 + 1-#12 GND IN 3/4"C	UH-07 MOTOR @ 1/15 HP	40
41	SPACE													SPACE	42
					Total Load:	**10721**		**11669**		**11954**					
					Total Amps:	**89.34**		**97.24**		**99.62**					

Load Classification - Summer	Connected Load (VA)	Demand Factor	Estimated Demand (VA)	Panel Totals	
LIGHTING	7488.00	100%	7488.00	**Total Summer Conn. Load (VA):**	34,344
GENERAL RECEPTACLE	3240.00	100%	3240.00	**Total Summer Est. Demand (VA):**	26,060
EXHAUST FANS	15332.00	100%	15332.00	**Total Summer Conn. (A):**	95.33
HOTBOX ELECTRIC HEATER	3000.00	0%	0.00	**Total SummerEst. Demand (A):**	72.34
UNIT HEATER BLOWER	5284.00	0%	0.00		

Load Classification - Winter	Connected Load (VA)	Demand Factor	Estimated Demand (VA)	Panel Totals	
LIGHTING	7488.00	100%	7488.00	**Total Winter Conn. Load (VA):**	34,344
GENERAL RECEPTACLE	3240.00	100%	3240.00	**Total Winter Est. Demand (VA):**	19,012
EXHAUST FANS	15332.00	0%	0.00	**Total Winter Conn. (A):**	95.33
HOTBOX ELECTRIC HEATER	3000.00	100%	3000.00	**Total Winter Est. Demand (A):**	52.77
UNIT HEATER BLOWER	5284.00	100%	5284.00		

NOTE: THE FACILITY WILL HAVE ITS HIGHER DEMAND LOAD DURING SUMMER MONTHS

B E-05 PANEL LOAD SCHEDULES

SCALE: NTS

NOTE: THE PRE-ENGINEERED METAL BUILDING (PEMB) SYSTEM WILL BE PROVIDED BY OTHERS. ASSUMED REACTIONS, COLUMN BASE PLATES, BAY SPACING, ETC. MAY CHANGE BASED ON FINAL PEMB SYSTEM DESIGN. CHANGES IN THE SCOPE RESULTING FROM THE PEMB SYSTEM FINAL DESIGN WILL BE ADDRESSED AS A CONTRACT CHANGE WITH ADDITIONAL COSTS (IF APPLICABLE) ANTICIPATED TO BE PAID FOR USING THE CONTINGENCY ALLOWANCE.

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
1	9/13/24	ADDENDUM 4	JM	WS

Professional Engineer's Name: **SCOTT WALOWSKY**
Professional Engineer's No.: 107276
State: NY | Date Signed: 09-13-2024 | Project Mgr.: MFK
Designed by: JM | Drawn by: EB/MR | Checked by: WS

ARCADIS OF NEW YORK, INC.

CLARKSTOWN HIGHWAY GARAGE EXPANSION • CLARKSTOWN, NY

SINGLE LINE DIAGRAM AND PANEL LOAD SCHEDULE

ARCADIS Project No. 30171703
Date JUNE 2024
201 FULLER ROAD SUITE 201 ALBANY, NY 12203

E-05