SECTION 132700 - VAULTS

Note that this section has only been edited for NYSOGS standardization and has not been technically edited. The designer shall make all technical edits specific to the project for this section.

Revise this Section by deleting and inserting text to meet Project-specific requirements.

This Section uses the term "Architect." Change this term to match that used to identify the design professional as defined in the General and Supplementary Conditions

Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
	* + 1. RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

* + - * 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
			1. SUMMARY
				1. Section Includes:

Burglary-resistance-rated, modular vault assemblies.

Fire-resistance-rated, modular vault assemblies.

* + - 1. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" Paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at [**Project site**] <**Insert location**>.
			1. ACTION SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: For each type of product.
				5. Shop Drawings: For modular vault assemblies.

Include plans, elevations, sections, and attachment and assembly details.

Include diagrams for power, signal, and control wiring.

Indicate locations of electrical receptacles and light fixtures.

Indicate locations of fire sprinklers.

Retain "Samples" Paragraph below for single-stage Samples, with a subordinate list if applicable. Retain "Samples for Initial Selection" and "Samples for Verification" paragraphs for two-stage Samples.

* + - * 1. Samples: For each exposed product and for each color and texture specified, in manufacturer's standard sizes.
				2. Samples for Initial Selection: For each unit with factory-applied finishes.

Include Samples of accessories involving color and finish selection.

* + - * 1. Samples for Verification: For each type of exposed finish in manufacturer's standard sizes.

Include Samples of accessories to verify color and finish selection.

Retain "Delegated-Design Submittal" Paragraph below if design services have been delegated to Contractor.

* + - * 1. Delegated-Design Submittal: For modular vault assemblies.
				2. Qualification Data: For Installer.

Retain "Welding certificates" Paragraph below if retaining "Welding Qualifications" Paragraph in "Quality Assurance" Article.

* + - * 1. Welding certificates.

Retain "Product Certificates" Paragraph below to require submittal of product certificates from manufacturers.

* + - * 1. Product Certificates: For each type of vault panel and door.
				2. Product Test Reports: For each vault assembly, for tests performed by a qualified testing agency.

Retain "Field quality-control reports" Paragraph below if Contractor is responsible for field quality-control testing and inspecting.

* + - * 1. Field quality-control reports.
			1. CLOSEOUT SUBMITTALS
				1. Operation and Maintenance Data: For modular vault doors to include in emergency, operation, and maintenance manuals.

In addition to items specified in Section 017823 "Operation and Maintenance Data," include keying and combination information.

* + - 1. QUALITY ASSURANCE
				1. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

Revise "Maintenance Proximity" Subparagraph below to suit Project location.

Maintenance Proximity: Not more than [**2**] <**Insert number**> hours' normal travel time from Installer's place of business to Project site.

Usually retain "Welding Qualifications" Paragraph below for shop and field welding of modular vault assemblies. If retaining, also retain "Welding certificates" Paragraph in "Informational Submittals" Article.

* + - * 1. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
			1. DELIVERY, STORAGE, AND HANDLING
				1. Deliver modular vault doors wrapped and crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
				2. Deliver keys to Owner Director’s Representative by registered mail or overnight package service.
			2. FIELD CONDITIONS
				1. Environmental Limitations: Do not deliver components or install modular vault assemblies until spaces are enclosed and weathertight, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at levels intended for building occupants during the remainder of the construction period.
1. PRODUCTS

See Editing Instruction No. 1 in the Evaluations for cautions about named manufacturers and products. For an explanation of options and Contractor's product selection procedures, see Section 016000 "Product Requirements."

* + - 1. PERFORMANCE REQUIREMENTS

Retain "Delegated Design" Paragraph below if Contractor is required to assume responsibility for design.

* + - * 1. Delegated Design: Engage a qualified Professional Engineer, licensed in the State of New York, as defined in Section 014000 "Quality Requirements," to design modular vault assemblies.

Retain "Seismic Performance" Paragraph below for projects requiring seismic design. Delete paragraph if performance requirements are indicated on Drawings. Model building codes and ASCE/SEI 7 establish criteria for buildings subject to earthquake motions. Coordinate requirements with structural engineer.

* + - * 1. Seismic Performance: Modular vault assemblies shall withstand the effects of earthquake motions determined according to [**ASCE/SEI 7**] <**Insert requirement**>.

Retain subparagraph below to define the term "withstand" as it applies to this Project. Definition varies with type of building and occupancy and is critical to valid certification. Option is used for essential facilities where equipment must operate immediately after an earthquake.

The term "withstand" means "the vault assembly will remain in place without separation of any parts when subjected to the seismic forces specified[**and the vault assembly will be fully operational after the seismic event**]."

* + - 1. BURGLARY-RESISTANCE-RATED MODULAR VAULTS
				1. Vault Assembly:

Approved equivalent.

Each option in "Burglary Classification" Subparagraph below corresponds with UL Class of the same letter or number designation. Components with UL Class M, 1, 2, and 3 ratings resist burglary attack for a net working time of 15 minutes, 30 minutes, one hour, and two hours, respectively. Financial institutions typically require a Type 1 or Type 2 rating. Federal Government projects use different requirements. See Evaluations.

Burglary Classification: ASTM F1090, [**Type M**] [**Type 1**] [**Type 2**] [**Type 3**].

* + - * 1. Vault Panels: Interlocking panels with integral penetrations for sprinklers and conduits for power, signal, and communications systems. Tested according to UL 608 and listed and labeled for burglary-resistance rating corresponding to ASTM F1090 Type classification indicated by a qualified testing agency.

Verify, with manufacturers, availability of option retained in "Construction" Subparagraph below. Vault Structures and Worldwide Safe and Vault offer lightweight units with metal cladding, which typically cost more than most precast concrete panels but are substantially lighter. Precast, fiber-reinforced, high-strength, high-density, tempered-concrete panels, typically with metal pans on one side, weigh substantially less than standard precast, reinforced-concrete panels.

Construction: [**Precast, reinforced concrete**] [**Precast, fiber-reinforced, high-strength, high-density, tempered concrete with factory-prime-painted metal pans on the vault side**] [**Lightweight units with factory-prime-painted metal cladding**] <**Insert description**>.

Vault-Ventilating Ports: Tested according to UL 680 and listed and labeled for burglary-resistance rating corresponding to ASTM F1090 Type classification indicated for vault assembly by a qualified testing agency; locations as indicated on Drawings. Fabricate ports integral with wall panel.

* + - * 1. Vault Door Assembly: Tested according to UL 608 and listed and labeled for burglary-resistance rating corresponding to ASTM F1090 Type classification indicated for vault assembly by a qualified testing agency.

Door Construction: Jambs and head shaped to interlock with frame and with full-height, stainless-steel locking bar that engages vertical jambs.

Clear Opening Size: [**36 inches wide by not less than 78 inches high (914 mm wide by not less than 1981 mm high)**] [**52 inches wide by not less than 78 inches high (1321 mm wide by not less than 1981 mm high)**] [**As indicated on Drawings**] <**Insert dimensions**>.

Emergency Vault Ventilator: Complying with UL 680, with same burglary classification as vault door.

Hinges: [**Manufacturer's standard**] <**Insert hinge requirements**>.

Handle: [**Manufacturer's standard**] [**Stainless-steel, spoked wheel**] [**Stainless-steel hand wheel with rubber-grip perimeter**] <**Insert handle**>.

Combination Locks: [**Manufacturer's standard for burglary-resistance rating required for vault assembly**] [**UL 768, Group 1, four-wheel mechanical type capable of no fewer than one million possible combinations**] <**Insert description**>.

Quantity: [**Two**] [**Three**] per door.

Timelock: UL 887 listed, three movement, [**144**] [**199**] hour.

Day Guard Lock: Secures locking bar in open position to prevent lock in of personnel.

Sills: [**Manufacturer's standard**] <**Insert sill**>.

Door Stop: [**Tube-and-bumper**] [**Low-profile**] style.

Trim: Stainless-steel, chromium-plated steel, or other trim standard with vault door manufacturer.

Factory-Installed Features:

Revise list below to suit Project. Features may be optional or unavailable for some vault doors, depending on rating. Verify availability with manufacturers.

Door contact alarm device.

Heat detector.

In-door telephone jack.

Stainless-steel back panel to conceal timelock.

Can be side lifted.

Finish: Manufacturer's standard [**stainless-steel clad**] [**factory-applied, baked-on coating**] <**Insert finish**> finish applied to door, frame, and wall flanges.

Retain "Color" Subparagraph below for baked-on coatings. Manufacturers' standard colors are typically neutral grays and tans.

Color: [**As indicated by manufacturer's designations**] [**Match Architect's Director’s Representative’s sample**] [**As selected by Architect Director’s Representative from manufacturer's full range**] <**Insert color**>.

* + - * 1. Day Gate: Full width of door opening and designed to restrict entry through vault door; with piano-type or self-closing gravity hinges.

Construction: [**Manufacturer's standard**] [**Stainless-steel frame with tempered glass**] [**Vertical, stainless-steel bar grille**] [**Vertical, clear-anodized aluminum bar grille**] [**Clear acrylic**] <**Insert construction**>.

Lock: Cylinder-type lock, controlled by key on nonsecure side and by knob on secure side.

Features:

Deal window.

Automatic closure.

* + - * 1. Nonshrink Grout: ASTM C1107, factory-packaged, nonmetallic aggregate grout; noncorrosive; nonstaining; mixed with water to consistency suitable for application and 30-minute working time.
			1. FIRE-RESISTANCE-RATED MODULAR VAULTS
				1. Vault Assembly: Complying with NFPA 232 and listed and labeled as an assembly according to UL 72 by a qualified testing agency

Approved equivalent.

Fire-Resistance Rating: [**Class 125 - 2 Hour**] [**Class 125 - 3 Hour**] [**Class 125 - 4 Hour**] [**Class 150 - 3 Hour**] [**Class 150 - 4 Hour**] [**Class 350 - 4 Hour**].

* + - * 1. Vault Panels: As required for fire-resistance-rated vault assembly.

Construction: Fabricated from ceramic insulation in expanded metal frame; with galvanized-steel sheet vapor barrier on inside vault wall panel face and ceramic insulation gaskets for between-panel connections; with integral penetrations for sprinklers; conduits for power, signal, and communication systems; and ventilating ports.

* + - * 1. Vault Door Assemblies: As required for fire-resistance-rated vault assembly.

Clear Opening Size: [**32 inches wide by 78 inches high (813 mm wide by 1981 mm high)**] [**40 inches wide by 78 inches high (1016 mm wide by 1981 mm high)**] [**As indicated on Drawings**].

Door: Listed and labeled according to UL 155 by a qualified testing agency, fabricated from all-welded, insulated steel sheet construction; with jambs and head shaped to interlock with frame.

Hinges: No fewer than three roller-thrust-bearing hinges of design, size, and weight required for smooth operation of door and to allow full, clear door opening; with hinge cover(s).

Hinge Cover: [**Manufacturer's standard**] [**Stainless steel**].

Door Bolts: Permanently lubricated, not less than 11/16 inches (17 mm) in diameter, and fabricated from nickel-plated steel. On each vertical side of door, provide five door bolts that engage frame when extended. Bolts automatically retract when handle is operated and automatically extend when door closes.

Handle: Manufacturer's standard.

Combination Lock: UL 768, Group 2, three-wheel, mechanical type, capable of not less than one million possible combinations.

Key locking dials are an optional feature. Gaining access to the vault requires the lock combination and the key.

Provide key locking dials.

Relocking Device: UL 140 separate relocking device that automatically deadlocks door bolts when lock is subjected to mechanical attack.

Escape Mechanism: Provide emergency operation of locks from vault side of door.

Door Closer: Automatic, with electromagnetic system and sensor that releases door on detection of heat or smoke; with 180-degree, hold-open position.

Retain "Day Gate" Subparagraph below if needed for single-door assemblies. Day gates are unnecessary for two-door assemblies.

Day Gate: Manufacturer's standard gate; full width of door opening and designed to restrict entry through vault door; with piano-type or self-closing gravity hinges.

Lock: Equip gate with cylinder-type lock, controlled by key on nonsecure side and by lever on secure side.

Retain "Second, Inner Door" Subparagraph for Class 125 and 150 vaults. See Evaluations.

Second, Inner Door: Manufacturer's standard with insulating gasket separating it from the outer door.

Lock: [**Keyed cylinder lock; automatically locks when door is closed**] <**Insert requirements**>.

Escape Mechanism: Provide emergency operation of locks from vault side of door.

Closer: Automatic with electromagnetic hold-open device that holds door in open position until power to the device is cut.

Painted Finish: Manufacturer's standard factory-applied, baked-on coating applied to door, frame, and wall flanges.

Manufacturers' standard colors are typically neutral grays and tans. Verify availability of custom colors.

Color: [**As indicated by manufacturer's designations**] [**Match Architect's Director’s Representative’s sample**] [**As selected by Architect Director’s Representative from manufacturer's full range**] <**Insert color**>.

1. EXECUTION
	* + 1. EXAMINATION
				1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, vault door clearances, and other conditions affecting performance of the Work.
				2. Examine concrete-slab recesses where vault floor panels are to be installed. Recesses shall be level, plumb, and square.
				3. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
				4. Proceed with installation only after unsatisfactory conditions have been corrected.
			2. PREPARATION
				1. Coordinate size and location of modular vault assemblies with adjacent construction, and furnish anchoring devices with templates, diagrams, and instructions for their installation.
				2. Provide temporary shoring or bracing of floors while transporting modular vault components to final location as required to prevent surface damage to floors or deflections in excess of design loads.
				3. Remove debris from concrete-slab recesses.
			3. INSTALLATION, GENERAL
				1. Install modular vault assemblies according to manufacturer's written instructions, including clearances between exterior of vault panels and other construction.
				2. Set panels and doors accurately in position, level, plumb, aligned, and braced securely until permanent anchors are set. After panel erection is complete, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
			4. BURGLARY-RESISTANCE-RATED VAULT ASSEMBLIES
				1. Install panels, doors and frames, accessories, supplemental structural supports, and installation materials required to provide a complete modular vault assembly with the burglary-resistance rating indicated.
				2. Panel Connections:

Wall Panel to Wall Panel: [**Bolted**] [**Welded**].

Wall Panel to Ceiling Panel: Welded.

Retain "Wall Panel to Floor Panel" Subparagraph below for six-sided modular construction.

Wall Panel to Floor Panel: [**Bolted**] [**Welded**].

Retain "Wall Panel to Concrete Slab" Subparagraph below for five-sided modular construction.

Wall Panel to Concrete Slab: [**Bolted**] [**Welded**].

Retain "Slab Recess" Paragraph below if floor vault panels are recessed into supporting slab.

* + - * 1. Slab Recess: After vault is installed, grout perimeter of vault recess flush with top of slab with nonshrink grout.
				2. Penetrations: Seal with firestopping as specified in Section 078413 "Penetration Firestopping."
			1. FIRE-RESISTANCE-RATED VAULT ASSEMBLIES
				1. Install panels, doors and frames, accessories, supplemental structural supports, and installation materials required to provide a complete modular vault that complies with the listed and labeled fire-resistance-rated assembly indicated.
			2. FIELD QUALITY CONTROL

Retain "Manufacturer's Field Service" Paragraph below to require a factory-authorized service representative Company Field Advisor to perform tests, inspections, and adjustments.

* + - * 1. Manufacturer's Field Service: Engage a factory-authorized serviceCompany Field Advisor representative to test and inspect components, assemblies, and equipment installations, including connections.

See Section 014000 "Quality Requirements" for retesting and reinspecting requirements and Section 017300 "Execution" for requirements for correcting the Work.

* + - * 1. Components, assemblies, and equipment installations, including connections, will be considered defective if they do not pass tests and inspections.
				2. Remove and replace modular components, assemblies, and equipment installations that do not pass inspections or where inspections indicate that units do not comply with specified requirements.
				3. Prepare test and inspection reports.
			1. ADJUSTING AND CLEANING
				1. Adjust vault door hardware and operating mechanism to function smoothly, and lubricate as recommended by manufacturer.
				2. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage, including dented and bent units.

Retain "Touchup Painting" Paragraph below for metal-clad laminated, burglary-resistance-rated panels or vault doors with baked-on coatings.

* + - * 1. Touchup Painting: Immediately after erection, clean abraded areas of shop paint; paint exposed areas with same material as used for shop painting.

Comply with [**SSPC-PA 1 for touching up shop-painted surfaces.**][**Section 099123 "Interior Painting."**]

* + - 1. DEMONSTRATION
				1. [**Engage a factory-authorized service representativeCompany Field Advisor to train**] [**Train**] Owner's maintenancefacility personnel to adjust, operate, and maintain modular vault doors.

END OF SECTION 132700