SECTION 32 31 00

SECURITY GATES

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\*\* NOTE TO SPECIFIER \*\* AutoGate, Inc.; Gate operator products.
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This section is based on the products of AutoGate, Inc., which is located at:
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Berlin Heights, OH 44814
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Web: <http://autogate.com>
 [ [Click Here](https://www.arcat.com/arcatcos/cos48/arc48891.html) ] for additional information.
AutoGate, Inc., is located near the shores of Lake Erie in Berlin Heights, Ohio. We are a family owned business founded in 1986. With a reputation for quality, we are a the leading manufacturer of Vertical Pivot Lift [VPL] gGate operators [VPG]. In addition to manufacturing the first UL 325 compliant vertical pivot lift gate operator, we also offer a full line of reversing/safety entrapment protection and access control devices.
With a product suite focused on quality and over 90 combined years of experience in security sales and technical support, AutoGate is a complete source for secure entry solutions.
Our products are appropriate for industrial & commercial facilities, gated communities, mini storage facilities, marinas, all high threat level installations and any other location where pedestrian and vehicle access needs to be controlled.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Vertical Pivot Gates.
		2. High Security Crash Barriers.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 31 20 00 - Earth Moving - Earthwork: Required for foundations and electrical distribution.
		2. Section 32 12 16 - Asphalt Paving - Asphalt Paving.
		3. Section 32 13 13 - Concrete Paving - Concrete Paving.
		4. Section 32 31 13 - Chain Link Fences and Gates - Fencing and Gates - Line Fencing and Gates.
		5. Section 34 71 13.13 - Vehicle Median Barriers - Concrete Bollards and guardrails.
		6. Section 03 30 00 - Cast-in-Place Concrete - Cast-In-Place Concrete: Required for foundations and operator and yoke pads.
		7. Section 28 18 00 - Security Access Detection Equipment - Security Access Control and Surveillance: Interconnecting devices.
		8. Section 26 05 23 - Control-Voltage Electrical Power Cables - Control Voltage Electrical Power Cables and conduit.
		9. Section 48 00 00 - Electrical Power Generation - Electrical Power, service conduit and distribution.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel
		2. ASTM A 500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
		3. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes
		4. ASTM B 429/B 429M - Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube.
		5. ASTM F 1043 - Standard Specification for Strength and Protective Coatings on Steel Industrial Chain Link Fence Framework
		6. ASTM F 2200 - Standard Specification for Automated Vehicular Gate Construction.
		7. Federal Specification RR-F-191/2E - Chain Link Fences and Gates.
		8. NFPA 70: National Electrical Code.
		9. UL 325 - Standard for Safety for Door, Drapery, Gate, Louver, and Window Operators and Systems. Sixth Edition. [Typically not common to crash systems; however, AutoGate is UL 325 listed for this safety standard if desired. Consult AutoGate.
		10. CAN/CSA-C22.2 No. 247, Operators and Systems of Doors, Gates, Draperies, and Louvers.
	1. DESIGN / PERFORMANCE REQUIREMENTS
		1. Comply with applicable (Federal/State/Local) code. Comply with requirements of Authorities Having Jurisdiction (AHJ) in Project location.
			1. Standards: Comply and adhere to current Operation Control Systems and Gate Panel Construction Standards.
				1. UL 325 - Standard for Safety for Door, Drapery, Gate, Louver, and Window Operators and Systems.
				2. CAN/CSA-C22.2 No. 247 Operators and Systems of Doors, Gates, Draperies, and Louvers
				3. ASTM F 2200 - Standard Specification for Automated Vehicular Gate Construction.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph if Chain Link Fence or other infill panels are specified. Delete if not applicable.

* + - * 1. Federal Specification RR-F-191/2E, Chain Link Fences and Gates.
			1. Electrical Components, Devices, and Accessories: NFPA 70, Article 100.

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs as required. Note that 75 MPH design load is standard.

* + 1. Wind Bracing: Provide wind bracing to meet the following gate dead loads and wind live loads design criteria:
			1. 75 mph design load.
			2. 90 MPH wind loading and 150 MPH hurricane wind loading (IBC Section 1609.6 Simplified Wind Load Method).

\*\* NOTE TO SPECIFIER \*\* Edit the following two paragraphs for High Security Crash Barriers if specified. Delete if not applicable.

* + 1. High Security Crash Gates
			1. United States State Departments - SD-STD-02.01, Revision A, dated March 2003
			2. ASTM F2656-15 Standard Test Method for Vehicle Crash Testing of Perimeter Barriers.
			3. United States Department of Defense:
				1. U.S. Army Corps of Engineers, Naval Facilities Engineering Command, and Air Force Civil Engineer Support Agency - Unified Facilities Criteria (UFC) Security Engineering: Entry Control Facilities / Access Control Points UFC 4-022-01 25 May 2005
				2. Department of Defense Handbook Selection and Application of Vehicle Barriers MIL-HDBK-1013/14 1 February 1999.
				3. U.S. Army Corp of Engineers - PDC Standard; DOD Certified Anti-Ram Vehicle Barriers.
			4. Federal Emergency Management Agency (FEMA) Risk Management Series - Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings December 2003
			5. SDDCTEA Pamphlet 55-15, TRAFFIC AND SAFETY ENGINEERING FOR BETTER ENTRY CONTROL FACILITIES - 2014. US Army Military Surface Deployment and Distribution Command Transportation Engineering Agency

\*\* NOTE TO SPECIFIER \*\* ASTM F2656-15 test method provides a structured procedure to establish a penetration rating for perimeter barriers subjected to a vehicle impact. The DOS STD STD-02.01 Revision A dated March 2003 is no longer actively used. The DOS Standard has been incorporated into ASTM F2656. As of February 1, 2009, DOS evaluate only new anti-ram barriers tested under ASTM F2656-07 (and later F2656 revisions) Standard Test Method for Vehicle Crash Testing of Perimeter Barriers.

* + 1. Anti-Ram Vertical Pivot Active Barriers selection shall be based on full scale crash tests conducted in accordance with ASTM F2656 or SD-STD-02.01, Revision A March 2003 by an independent test laboratories or government-approved facilities for the following rating:

\*\* NOTE TO SPECIFIER \*\* Select one of the following two paragraphs as required and delete the one not required.

* + - 1. DOS K12/ASTM F2656 M50 - Kinetic Energy of approximately 1,200,000 ft-lb (165,960 kg-m) of energy (15,000 lb @ 50 mph (6,818 kg @ 80 kph).
			2. DOS K4/ASTM F2656 M30 - Kinetic Energy of approximately 400,000 ft-lb (55,320 kg-m) of energy, (15,000 lb @ 30 mph (6,818 kg @ 48 kph]).
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Details of material and construction.
			2. Preparation instructions and recommendations.
			3. Storage and handling requirements and recommendations.
			4. Installation methods.
		3. Shop Drawings: Furnish detailed drawing of gate panel construction/fabrications that is in compliance with ASTM F 2200.
			1. Show locations and details of vehicle barrier systems including each major element, and details of operation, hardware, and accessories.
			2. Indicate materials, dimensions, sizes, weights, and finishes of components and accessory items.
			3. Include plans, elevations, sections, foundation drawings and other required installation and operational clearances, and details of anchorage, sleeves, and bolts installed by others.
			4. Installation procedures and instructions.
			5. Controls: Show locations and details for control components, switches and motor drive system. Indicate motor size, drive schematic, electrical characteristics, drive arrangement, mounting, disengagement and override procedures, and grounding.
			6. Wiring Diagrams: Power and control wiring, communication features, and access control features. Differentiate between factory-installed and field-installed wiring and between components provided by manufacturer and those provided by other sections of this specification.
		4. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long, representing actual product, color, and finish.
		5. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
		6. Closeout Submittals:
			1. Provide As-Built Drawings showing the as-built conditions of all equipment provided.
			2. Provide manufacturer's maintenance and service instructions that include recommendations for periodic maintenance and cleaning of all gate and vehicle barrier system components including:
				1. Parts List, or Bill of Material on all major parts and components.
				2. Recommended Spare and Consumables Parts List. Spare parts shall be those that can be field replaced. Consumables include items required for maintenance and service, such as, lights, fuses, lubricants, recommended accessories, mechanical components, etc. Provide all items with a part number, recommended quantity, and a brief description.
	2. QUALITY ASSURANCE
		1. Gate Operators Manufacturer Qualifications: Minimum 3 years documented experience, producing systems specified in this section. Furnish UL 325 Listing Certification from a Nationally Recognized Testing Laboratory for Gate Operator specified in this section.
		2. Gate Panel Fabricator Qualifications: Minimum 3 years documented experience in automated gate panel fabrication in accordance with ASTM F 2200.
		3. Installer Qualifications: Installer Qualifications: An experienced installer who has completed fences and gates similar in material, design, and extent to those specified for this Project and whose work has resulted in construction with a record of successful in-service performance.
	3. DELIVERY, STORAGE, AND HANDLING
		1. Store products in manufacturer's unopened packaging until ready for installation.
		2. Store components to avoid damage from moisture, abrasion, and other construction activities. Carefully store materials off the ground to provide proper protection against oxidation caused by ground contact.
	4. COORDINATION AND SEQUENCING
		1. Coordinate gate installation with line fencing, paving and electrical power and control conduits.
		2. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
		3. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
	5. PROJECT CONDITIONS
		1. Field Measurements and Verification: Measure, verify and generate dimensions where Gate and Operator are to be located. Indicate specific location of gate with regard to existing roadways, proposed roadways, curb locations, grade changes and elevations. Indicate specific location of Gate Operator and its respective concrete foundation; include surrounding landscaping, fencing, buildings and other fixed stationary objects near the gate operator and gate panel in both open and closed positions.
	6. WARRANTY
		1. Standard Warranty: Provide manufacturer's standard 3 year limited warranty against defective materials and workmanship after Date of Substantial Completion

\*\* NOTE TO SPECIFIER \*\* Select the following optional extended warranty if required. Delete if not required.

* + 1. Extended Warranty: Provide an extended manufacturer's warranty covering defective materials and workmanship for an additional 2 year period beyond the initial 3 year warranty
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: AutoGate, Inc., which is located at: 7306 Driver Rd. P. O. Box 50; Berlin Heights, OH 44814; Toll Free Tel: 800-944-4283; Tel: 419-588-2796; Fax: 419-588-3514; Email: [request info (sales@autogate.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=AutoGate,+Inc.&coid=48891&rep=&fax=419-588-3514&message=RE:%20Spec%20Question%20(11020saf):%20%20&mf=); Web: <http://autogate.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Edit the following paragraphs as required and applicable to project requirements. Delete the paragraphs that are not applicable.

* 1. VERTICAL PIVOT GATE SYSTEM
		1. AutoGate Model VPG2490 Vertical Pivot Gate.
			1. Gate Styles:

\*\* NOTE TO SPECIFIER \*\* Select the Chain Link, Ornamental or Decorative style required and delete those not required.

* + - * 1. Cornhusker 100 - Post and rail.
				2. Barracuda 200 - Barrier.
				3. Chain Link 300 - Mesh and diagonal bracing.
				4. Catawba 400 - Vertical picket concave/convex sloped rail.
				5. Buckeye 500 - Vertical pickets center welded to gate frame.
				6. Congress 600 - Vertical picket with convex top rail.
				7. Saratoga 700 - Vertical spear pickets through ornamental top rail.
				8. Prestigious 800 - Vertical spear picket through double convex top rail.
				9. Ohioan 900 - Vertical spear picket and double top rail.
			1. Gate Size:

\*\* NOTE TO SPECIFIER \*\* Gates are available single gate and double gate configurations. Note that steel gates are available up to 20 feet in length and 8 feet in height, aluminum gates are available up to 25 feet in length and 8 feet in height, Consult with manufacturer for additional information.

* + - * 1. Width as indicated on the Drawings.
				2. Height as indicated on the Drawings.
			1. Materials:

\*\* NOTE TO SPECIFIER \*\* Select steel or aluminum framing and delete the one not required. Consult manufacturer for special sizes, spacing and custom materials.

* + - * 1. Aluminum Assembly Framing:

Plate, Shapes and Bar: ASTM B 221, alloy 6061-T6 or 6063-T6.

Extrusions: Alloy and temper 6063-T6 except formed elbows shall be 6063-T4.

Round Aluminum Pipe: Standard weight extruded structural aluminum pipe, alloy 6063-T6, mill finish, complying with ASTM B 429.

Provide lock washer or other locking device at all bolted connections.

* + - * 1. Steel Assembly Framing:

High strength steel pipe triple coated in accordance with ASTM F 1043 Group IC; SS40 as manufactured by Allied Tube & Conduit.

External coatings per ASTM F 1043 Type B; internal coatings per ASTM F 1043 Type D.

Post welding treatments: All welded joints to be coated ZRC or equivalent zinc rich coating.

Steel Tubes: ASTM A 500 Cold-Formed Welded Pipe and Structural Tubing Hot-Dipped, Zinc-Coated.

Steel Shapes plates and bars: ASTM A 36.

* + - * 1. Threaded Fasteners:

All exterior screws, bolts, nut and washers shall be 300 Series non-magnetic Stainless steel.

Provide lock washers or other locking devices such as deformed thread lock or nylon locking nuts at all bolted connections.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph for Chain Link Infill panels. Delete if not applicable.

* + - * 1. Chain Link Infill Panels: Coordinate with Section 32 31 13 - Chain Link Fences and Gates [32 31 00] - Fencing and Gates - Line Fencing and Gates.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph if required. Delete if not applicable.

* + - * 1. Barbed wire assemblies: Extend gate post and vertical frame members 12 inches above top of chain-link fabric.
			1. Fabrication:
				1. Assemble gate frames by welding at corners. Infill gate frames with panels to match adjacent fence panels.
				2. All gate framing members shall be unspliced single pipe or tube length.
				3. Bracing:

Provide diagonal welded pipe gate trusses to prevent sag.

Provide cable wind bracing for gates between 16 feet or more in length and up to 20 feet in length. Provide 3/16 aircraft coated cable anchored to the operator and at 2/3 the length of the gate.

Provide masted wind bracing for gates over 20 feet in length or more than 7 feet in height, and/or code requirement beyond 75 mph winds.

Provide continuous tube elements that attach to the operator and extend a minimum of 2/3 the length of the gate. Secure wind bracing i to the bottom of the gate with strut plates.

* + - * 1. Fully assemble gate leaves in the manufacturer' s shop with no joints splices or bolted sections. Open tube ends or sections are not acceptable.
				2. Welding: Make exposed joints butt tight, flush, and hairline. Continuously seal joined members by continuous welds.
			1. Provide components required for receiving yoke anchorage of gate ends. Fabricate anchors and related components of material and finish matching gate frame.
			2. Frame and Infill Finish:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs and delete those that are not applicable.

* + - * 1. Shop Applied Two Part Polyurethane Enamel Paint on Gates. Color as selected by the Architect.
				2. Shop Applied Epoxy coating, PVC Coating to match fence line color.
				3. Unpainted mill finish to match fence line color.
		1. Gate Operators:
			1. Provide gate operator system, including gate operator, field supplied manufacturer recommended batteries and the following:

\*\* NOTE TO SPECIFIER \*\* Select B1 and delete B2 or select both B1 and B2 from the following paragraphs. Contact the Manufacturer for additional information.

* + - * 1. External entrapment monitored B1 type Non-Contact sensing devices
				2. External entrapment monitored B2 type Contact Sensing devices.
			1. Gate Speed: Fully open to fully closed and fully closed to open not less than 8-10 seconds (Standard Speed), 12-15 seconds (Reduced Speed).
			2. Frequency of Use: Continuous duty.

\*\* NOTE TO SPECIFIER \*\* Marine Starting batteries will operate gates for a minimum of 24 hours. Normal operation occurs when power resumes.

* + - 1. Battery Powered Back Up DC Drive System: Operator to run on 24 Volt DC current integral power supply with stand-by battery system with built-in battery maintainer and "over-charge" protection.
				1. Field supplied: Provide two 12V batteries, complying with gate operator manufacturer's requirements (Group 24, 12 Volt, Sealed Marine Starting).
				2. Power supply to operator: 120VAC (20 Amp).
			2. Gate Operator Enclosure: Fabricate operator enclosure of steel tubing and sheet metal. Continuous seal weld all frames seams with welds ground smooth. Screwed frames are not acceptable.
				1. Frame: 2 inch Square, 11 Gauge (.120 inch) steel tubing.
				2. Skins: 18 Gauge Galvannealed sheet steel.
				3. Mounting Pads: 3 inches wide by 3/8 inch thick Type 304 Stainless Steel.
				4. Finish/Color:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs and delete those not required. Standard Operator skins are Black optional colors and custom colors are available.

Powder coated Black.

Spray coated Grey

Spray coated White

Spray coated Brown

Spray coated Green

Spray coated custom color\_\_\_\_\_\_\_\_ RAL#.

* + - 1. Mechanical Gate Operator Drive:
				1. 24 VDC high torque gear motor and DBL reduction belt driven design.
				2. Integral right angle Anti-Back drive and locking preventing falling and/or unauthorized motor operation.
				3. Hydraulic components of any kind are not acceptable.
			2. Control Circuitry: Solid state coated AutoGate Genesis Control Board in electrical enclosure. Sealed gate position sensor ensure weather and moisture-proof integrity. Boards have been tested to minus 40 degrees F.
				1. Internal Operator Factory Wiring: 16 and 18 gauge single conductor. copper w/electrolytic copper compression terminals tin-plated for maximum corrosion prevention.
				2. Accessories. Consult accessory manufacturer for installation and specific wiring instructions.
			3. Gate Operator System: Gate panel shall be fabricated in accordance with ASTM F 2200
				1. Listed to UL 325, Class as follows

\*\* NOTE TO SPECIFIER \*\* Select the appropriate Class from the following paragraphs and delete those not required.
Class I RESIDENTIAL VEHICULAR GATE OPERATOR - A vehicular gate operator (or system) intended for use in garages or parking areas associated with a residence of one to four single families.
Class II - COMMERCIAL / GENERAL ACCESS VEHICULAR GATE OPERATOR - A vehicular gate operator (or system) intended for use in a commercial location or building such as a multi-family housing unit (five or more single family units), hotel, garages, retail store or other buildings accessible by or servicing the general public.
Class III - INDUSTRIAL / LIMITED ACCESS VEHICULAR GATE OPERATOR - A vehicular gate operator (or system) intended for use in an industrial location or building such as a factory or loading dock area or other locations not accessible by or intended to service the general public.
Class IV - RESTRICTED ACCESS VEHICULAR GATE OPERATOR - A vehicular gate operator (or system) intended for use in a guarded industrial location or building such as an airport security area or other restricted access locations not servicing the general public, in which unauthorized access is prevented via supervision by security personnel.

Class I - Residential vehicular gate operator.

Class II - Commercial / general access vehicular gate operator servicing the general public.

Class III - Industrial / limited access vehicular gate operator not intended to service the general public.

Class IV - Restricted access vehicular gate operator not servicing the general public, in which unauthorized access is prevented via supervision by security personnel.

* + - * 1. Entrapment Sensing Device, Type A with monitored gate position and speed sensing system as part of the gate operator system constructed such that it may not be removed or bypassed.
				2. Operator shall have provision for connection of Control System and for connection of monitored external entrapment protection devices specified.
			1. External Entrapment Sensing Device: Provide the monitored external entrapment protection devices as appropriate for the site conditions to protect against all potential entrapment zones. Identify all entrapment areas/zones and have physical restrictions of pedestrian access such as fence sections or barrier screening preventing reach through or standing in the entrapment zone; or supply additional external entrapment protection devices to protect pedestrians in all entrapment areas.

\*\* NOTE TO SPECIFIER \*\* The same type of device shall not be utilized for both entrapment protection means. Use of a single device to cover both the opening and closing directions is in accordance with the requirement; however a single device is not required to cover both directions. A combination of one Type B1 for one direction and one Type B2 for the other direction is the equivalent of one device for the purpose of complying with the requirements of either the primary or external entrapment protection means. Contact the Manufacturer for additional information.

* + - * 1. Photo Beams Type B1 - Monitored Non-contact sensor (photoelectric sensor or the equivalent); Acceptable Products:

EMX Industries Model#: IRB-MON Transmitter / receiver type.

EMX Industries Model#: IRB-RET Retro-reflective type

OMRON E3K-R10K4

* + - * 1. Safety Edges (Contact Edges) Type B2 - Monitored Contact sensor (edge device or the equivalent) Acceptable Products:

ASO GmbH Model 15-10

ASO GmbH Model 45

Miller Edge Model CPT 233

\*\* NOTE TO SPECIFIER \*\* Select one or more of the following optional operator paragraphs and delete if not required.

* + - * 1. Operator:

Provide approved surge and spike protection.

Provide Audible/Audible-Visual Warning Device(s) activated:

When gate is in motion

With waning lights or strobe on at all times.

Provide External Emergency Stop Button:

Twist resettable or Key Resettable

Mounted near the operator/etc.

* + 1. Control Systems:

\*\* NOTE TO SPECIFIER \*\* Include one of the following two Gate Operation Control System paragraphs and delete the one not required. The first operation control system paragraph is a basic constant contact control system. More sophisticated controls are specified in the second Operation control system paragraph specified in another Section of the specifcation. Any dry contact type operator system is compatible with AutoGate VPG2490 controls.

* + - 1. Gate Operation Control System: Remote-control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.

\*\* NOTE TO SPECIFIER \*\* Select location and two position or three position control from the following paragraphs and delete those not required. Note that UL 325 required all access control to be a minimum of 6 feet from the operator or any portion of the gate when in any open, closed or moving state.

* + - * 1. Control Station located remotely from gate and operator a minimum of 6 feet per UL 325:

Momentary-contact Two Position (Open/close).

Momentary-contact Three position (Open, stop, close).

Provide key switch to lock out open and close buttons.

* + - * 1. Control Station located in direct line of site to the gate and operator:

Constant Pressure Two Position (Open/close).

Constant Pressure Three position (Open, stop, close).

Provide key switch to lock out open and close buttons.

* + - 1. Gate Operation control systems are specified under Section 28 18 00 - Security Access Detection Equipment. System includes the following operations.

\*\* NOTE TO SPECIFIER \*\* Select the devices specified in Section 13700 and delete those not anticipated. Verify that manufacturers name, model and pertinent details are available in Section 13700 or the Drawings.

* + - * 1. Card Reader: Functions only when authorized card is presented.
				2. Digital Keypad Entry Unit: Multiple programmable code.
				3. Radio Control: Digital system of code-compatible universal receiver for each gate.
				4. Telephone Entry System.
				5. 365 day timer.
				6. Vehicle Loop Detector.
				7. Vehicle Presence Detector.
				8. Probe or Microwave vehicle sensor
			1. Provide emergency stop button in an outdoor weather tight enclosure.
		1. Accessories:
			1. Provide UL 325 compliant warning signs on each side of gate. Installer to ensure signs are visible on both sides of the gate in both the open and closed position.

\*\* NOTE TO SPECIFIER \*\* Select the optional accessories required and delete those not anticipated. Note that MUTCD, FHWA, etc. compliant may be required per DOT or other State/Federal/Security standards.

* + - 1. Provide ADA compliant audible and visible warning device to signal both directions when the gate is opening and closing.
			2. Provide retro-reflective tape on gate frame (MUTCD, FHWA, etc. compliant)
			3. Provide Gate Panel mounted, LED warning lights, visible in single/both directions of travel, mounted on top of gate/mounted mid-section horizontally.

\*\* NOTE TO SPECIFIER \*\* Heat packages are Geographic need or request dependent, contact AutoGate for additional information. Optional Heat packages are recommended for sustained temperatures for 3 days of 30 to 20 degrees F, and are required at 20 degrees F and below.

* + - 1. Heat Packages:
				1. Gearmotor Heater and Debris Shield Kit: Provide thermostatically controlled electric heat cable to maintain critical components operational. Contact AutoGate for geographical locations requiring gearmotor heater. Debris Shield restricts blowing snow and small debris from entering operator cabinet.
				2. Auxiliary thermostatically controlled box heater in cabinet
				3. Heat Mat: Provide thermostatically controlled heat mat for the "throat" area of the operator to melt any buildup of snow.

\*\* NOTE TO SPECIFIER \*\* Recommended for locations that have sustained temperatures for 3 days or more at or below 0 degrees F.

* + - * 1. Extreme Cold/Artic Operator Heat system: Provide an insulated Operator Cabinet and include a thermostatically controlled electric space heater with integral circulating fan.
	1. HIGH SECURITY CRASH GATES
		1. AutoGate Anti-Ram Vehicle Barriers:
			1. Styles:

\*\* NOTE TO SPECIFIER \*\* Select the Model required and delete those not required.

* + - * 1. The Shield Model M50 VP-CB. ASTM F2656 M50/P1
				2. The Shield Model M30 VP-CB. ASTM F2656 M30/P1
				3. The Shield Model Shallow Foundation, M30 VP-SF-CB. ASTM F2656 M30/P1
			1. Barrier Size:

\*\* NOTE TO SPECIFIER \*\* Standard size gates are available as follows: K12/M50 full size gates are available to a clear opening of 15 feet; K12/M50 Barrier Arms are available to a clear opening of 17 feet; K4/M30 gates clear opening of 17 feet, K4/M30 Barrier arms 19 feet. Standard Gate Heights are 6 feet and 8 feet. Custom materials from other vendors require consultation with AutoGate for approval or determination to maximum sizes of systems.

* + - * 1. Width as indicated on the Drawings.
				2. Height as indicated on the Drawings.
			1. Materials:

\*\* NOTE TO SPECIFIER \*\* Consult manufacturer for special sizes, spacing and custom materials.

* + - * 1. High Strength Synthetic Ropes: Multiple bundles of braided rope continuous lengths in tension within integral rope aluminum housing.

Ropes do not require tensioning on site.

Solid high strength steel round pins integral to aluminum rope housing.

* + - * 1. Aluminum Assembly Framing:

Plate, Shapes and Bar: ASTM B 221, alloy 6061-T6 or 6063-T6.

Extrusions: Alloy and temper 6063-T6 except formed elbows shall be 6063-T4:

Round Aluminum Pipe: Standard weight extruded structural aluminum pipe, alloy 6063-T6, mill finish, complying with ASTM B 429.

Provide lock washer or other locking device at all bolted connections.

* + - * 1. Threaded Fasteners:

All exterior screws, bolts, nut and washers shall be 300 Series non-magnetic Stainless steel.

Provide lock washers or other locking devices such as deformed thread lock or nylon locking nuts at all bolted connections.

\*\* NOTE TO SPECIFIER \*\* Include the following paragraph for Chain Link Infill panels. Delete if not applicable.

* + - * 1. Chain Link Infill Panels: Coordinate with Section 32 31 13 - Chain Link Fences and Gates [32 31 00] - Fencing and Gates - Line Fencing and Gates.

\*\* NOTE TO SPECIFIER \*\* Select from the following paragraphs if required. Delete if not applicable.

* + - * 1. Barbed wire assemblies: Extend gate post and vertical frame members 12 inches above top of chain-link fabric.
				2. Square picket panels.
				3. Custom materials as approved by AutoGate.
			1. Fabrication:
				1. Assemble gate frames by welding at corners. Infill gate frames with panels to match adjacent fence panels.
				2. All gate framing members shall be unspliced single pipe or tube length.
				3. Bracing:

Provide diagonal welded pipe gate trusses to prevent sag.

Provide cable wind bracing for gates between 16 feet or more in length and up to 20 feet in length. Provide 3/16 aircraft coated cable anchored to the operator and at 2/3 the length of the gate.

Provide masted wind bracing for gates over 20 feet in length or more than 7 feet in height, and/or code requirement beyond 75 mph winds.

Provide continuous tube elements that attach to the operator and extend a minimum of 2/3 the length of the gate. Secure wind bracing i to the bottom of the gate with strut plates.

* + - * 1. Fully assemble gate leaves in the manufacturer' s shop with no joints splices or bolted sections. Open tube ends or sections are not acceptable.
				2. Welding: Make exposed joints butt tight, flush, and hairline. Continuously seal joined members by continuous welds.
			1. Provide components required for receiving yoke anchorage of gate ends. Fabricate anchors and related components of material and finish matching gate frame.
			2. Frame and Infill Finish:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs and delete those that are not applicable.

* + - * 1. Shop Applied Two Part Polyurethane Enamel Paint on Gates. Color as selected by the Architect.
				2. Shop Applied Epoxy coating, PVC Coating to match fence line color.
				3. Unpainted mill finish to match fence line color.
		1. Barrier Operators:
			1. Provide gate operator system, including gate operator, field supplied manufacturer recommended batteries and the following:

\*\* NOTE TO SPECIFIER \*\* Select B1 and delete B2 or select both B1 and B2 from the following paragraphs. Contact the Manufacturer for additional information.

* + - * 1. External entrapment monitored B1 type Non-Contact sensing devices
				2. External entrapment monitored B2 type Contact Sensing devices.
			1. Gate Speed: Fully open to fully closed and fully closed to open not less than 12-14 seconds.
			2. Frequency of Use: Continuous duty.

\*\* NOTE TO SPECIFIER \*\* Marine Starting batteries will operate gates for a minimum of 24 hours. Normal operation occurs when power resumes.

* + - 1. Battery Powered Back Up DC Drive System: Operator to run on 24 Volt DC current integral power supply with stand-by battery system with built-in battery maintainer and "over-charge" protection.
				1. Field supplied: Provide two 12V batteries, complying with gate operator manufacturer's requirements (Group 24, 12 Volt, Sealed Marine Starting).
				2. Power supply to operator: 120VAC (20 Amp).
			2. Barrier Operator Enclosure: Fabricate operator enclosure of steel tubing and sheet metal. Continuous seal weld all frames seams with welds ground smooth. Screwed frames are not acceptable.
				1. Frame: 2 inch Square, 11 Gauge (.120 inch) steel tubing.
				2. Skins: 18 Gauge Galvannealed sheet steel.
				3. Mounting Pads: 3 inches wide by 3/8 inch thick Type 304 Stainless Steel.
				4. Finish/Color:

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs and delete those not required. Standard Operator skins are Black optional colors and custom colors are available.

Powder coated Black.

Spray coated Grey

Spray coated White

Spray coated Brown

Spray coated Green

Spray coated custom color\_\_\_\_\_\_\_\_ RAL#.

* + - 1. Mechanical Gate Operator Drive:
				1. 24 VDC high torque gear motor and DBL reduction belt driven design.
				2. Integral right angle Anti-Back drive and locking preventing falling and/or unauthorized motor operation.
				3. Hydraulic components of any kind are not acceptable.
			2. Control Circuitry: Solid state coated AutoGate Genesis Control Board in electrical enclosure. Sealed gate position sensor ensure weather and moisture-proof integrity. Boards have been tested to minus 40 degrees F.
				1. Internal Operator Factory Wiring: 16 and 18 gauge single conductor. copper w/electrolytic copper compression terminals tin-plated for maximum corrosion prevention.
				2. Accessories. Consult accessory manufacturer for installation and specific wiring instructions.
			3. Barrier Operator System: Gate panel shall be fabricated in accordance with ASTM F 2200
				1. Listed to UL 325, Class as follows

\*\* NOTE TO SPECIFIER \*\* Select the appropriate Class from the following paragraphs and delete the one not required.
Class III - INDUSTRIAL / LIMITED ACCESS VEHICULAR GATE OPERATOR - A vehicular gate operator (or system) intended for use in an industrial location or building such as a factory or loading dock area or other locations not accessible by or intended to service the general public.
Class IV - RESTRICTED ACCESS VEHICULAR GATE OPERATOR - A vehicular gate operator (or system) intended for use in a guarded industrial location or building such as an airport security area or other restricted access locations not servicing the general public, in which unauthorized access is prevented via supervision by security personnel.

Class III - Industrial / limited access vehicular gate operator not intended to service the general public.

Class IV - Restricted access vehicular gate operator not servicing the general public, in which unauthorized access is prevented via supervision by security personnel.

* + - * 1. Entrapment Sensing Device, Type A with monitored gate position and speed sensing system as part of the gate operator system constructed such that it may not be removed or bypassed.
				2. Operator shall have provision for connection of Control System and for connection of monitored external entrapment protection devices specified.
			1. External Entrapment Sensing Device: Provide the monitored external entrapment protection devices as appropriate for the site conditions to protect against all potential entrapment zones. Identify all entrapment areas/zones and have physical restrictions of pedestrian access such as fence sections or barrier screening preventing reach through or standing in the entrapment zone; or supply additional external entrapment protection devices to protect pedestrians in all entrapment areas.

\*\* NOTE TO SPECIFIER \*\* The same type of device shall not be utilized for both entrapment protection means. Use of a single device to cover both the opening and closing directions is in accordance with the requirement; however a single device is not required to cover both directions. A combination of one Type B1 for one direction and one Type B2 for the other direction is the equivalent of one device for the purpose of complying with the requirements of either the primary or external entrapment protection means. Contact the Manufacturer for additional information.

* + - * 1. Photo Beams Type B1 - Monitored Non-contact sensor (photoelectric sensor or the equivalent); Acceptable Products:

EMX Industries Model#: IRB-MON Transmitter / receiver type.

EMX Industries Model#: IRB-RET Retro-reflective type

OMRON E3K-R10K4

* + - * 1. Safety Edges (Contact Edges) Type B2 - Monitored Contact sensor (edge device or the equivalent) Acceptable Products:

ASO GmbH Model 15-10

ASO GmbH Model 45

Miller Edge Model CPT 233

\*\* NOTE TO SPECIFIER \*\* Select one or more of the following optional operator paragraphs and delete if not required.

* + - * 1. Operator:

Provide approved surge and spike protection.

Provide Audible/Audible-Visual Warning Device(s) activated:

When gate is in motion

With waning lights or strobe on at all times.

Provide External Emergency Stop Button:

Twist resettable or Key Resettable

Mounted near the operator/etc.

* + 1. Control Systems:

\*\* NOTE TO SPECIFIER \*\* Include one of the following two Gate Operation Control System paragraphs and delete the one not required. The first operation control system paragraph is a basic constant contact control system. More sophisticated controls are specified in the second Operation control system paragraph specified in another Section of the specifcation. Any dry contact type operator system is compatible with AutoGate controls.

* + - 1. Gate Operation Control System: Remote-control stations, safety devices, and weatherproof enclosures; coordinate electrical requirements with building electrical system.

\*\* NOTE TO SPECIFIER \*\* Select location and two position or three position control from the following paragraphs and delete those not required. Note that UL 325 required all access control to be a minimum of 6 feet from the operator or any portion of the gate when in any open, closed or moving state.

* + - * 1. Control Station located remotely from gate and operator a minimum of 6 feet per UL 325:

Momentary-contact Two Position (Open/close).

Momentary-contact Three position (Open, stop, close).

Provide key switch to lock out open and close buttons.

* + - * 1. Control Station located in direct line of site to the gate and operator:

Constant Pressure Two Position (Open/close).

Constant Pressure Three position (Open, stop, close).

Provide key switch to lock out open and close buttons.

* + - 1. Gate Operation control systems are specified under Section 28 18 00 - Security Access Detection Equipment. System includes the following operations.

\*\* NOTE TO SPECIFIER \*\* Select the devices specified in Section 13700 and delete those not anticipated. Verify that manufacturers name, model and pertinent details are available in Section 13700 or the Drawings.

* + - * 1. Card Reader: Functions only when authorized card is presented.
				2. Digital Keypad Entry Unit: Multiple programmable code.
				3. Radio Control: Digital system of code-compatible universal receiver for each gate.
				4. Telephone Entry System.
				5. 365 day timer.
				6. Vehicle Loop Detector.
				7. Vehicle Presence Detector.
				8. Probe or Microwave vehicle sensor
			1. Provide emergency stop button in an outdoor weather tight enclosure.
		1. Accessories:
			1. Provide UL 325 compliant warning signs on each side of gate. Installer to ensure signs are visible on both sides of the gate in both the open and closed position.

\*\* NOTE TO SPECIFIER \*\* Select the optional accessories required and delete those not anticipated. Note that MUTCD, FHWA, etc. compliant may be required per DOT or other State/Federal/Security standards.

* + - 1. Provide ADA compliant audible and visible warning device to signal both directions when the gate is opening and closing.
			2. Provide retro-reflective tape on gate frame (MUTCD, FHWA, etc. compliant)
			3. Provide Gate Panel mounted, LED warning lights, visible in single/both directions of travel, mounted on top of gate/mounted mid-section horizontally.

\*\* NOTE TO SPECIFIER \*\* Heat packages are Geographic need or request dependent, contact AutoGate for additional information. Optional Heat packages are recommended for sustained temperatures for 3 days of 30 to 20 degrees F, and are required at 20 degrees F and below.

* + - 1. Heat Packages:
				1. Gearmotor Heater and Debris Shield Kit: Provide thermostatically controlled electric heat cable to maintain critical components operational. Contact AutoGate for geographical locations requiring gearmotor heater. Debris Shield restricts blowing snow and small debris from entering operator cabinet.
				2. Auxiliary thermostatically controlled box heater in cabinet
				3. Heat Mat: Provide thermostatically controlled heat mat for the "throat" area of the operator to melt any buildup of snow.

\*\* NOTE TO SPECIFIER \*\* Recommended for locations that have sustained temperatures for 3 days or more at or below 0 degrees F.

* + - * 1. Extreme Cold/Artic Operator Heat system: Provide an insulated Operator Cabinet and include a thermostatically controlled electric space heater with integral circulating fan.
1. EXECUTION
	1. EXAMINATION
		1. Verify that trenching, backfilling, concrete foundations, pads, anchor bolts and adjacent construction are ready to receive vehicle gate systems and are within tolerances acceptable to manufacturer.
		2. Verify that required electric and control conduit, wiring, grounding and service utilities are in correct location and are of correct capacities for specified products.
		3. If preparation and condition is the responsibility of another installer, notify Architect or authority having jurisdiction of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. INSTALLATION
		1. General: Install vehicular gate systems in accordance with manufacturer's instructions and the authorities having jurisdiction.
		2. Operator Installation:
			1. Operator Expansion Bolt Mounting: Anchor through base plates to concrete substrate.
			2. Install all loose shipped operator lower panels and guarding per manufacturer instructions.
		3. Gate/Barrier Installation:
			1. Install so it is plumb and level when fully closed within the following tolerances:
				1. Maximum misalignment from true position: 1/4 inch (6.0 mm).
				2. Maximum misalignment between adjacent separated members: 1/8 inch (3.0 mm).
		4. Adjusting: Adjust and lubricate operating components for smooth, accurate operation free of binding and racking.
	4. FIELD TESTING
		1. Vehicle barrier system shall be initially started and commissioned by a certified manufacturer-authorized field service technician. Perform tests in accordance with the manufacturer's instructions.
			1. Facility Electrical Power: Verify all wiring terminations before turning on electrical power. Verify voltage from facility electrical power feed.
			2. Unit Start-up: Prepare for initial start-up by a factory-trained, manufacturer-authorized field service technician.
				1. Motor shall be jog started (but not run) to verify the correct direction of electric motor rotation.
				2. Perform Pre-Operation checks in accordance with the manufacturer's Operation and Maintenance manual.
		2. Initial Operation: Cycle vehicle barrier to raise and lower the gate and ensure proper, smooth operation.
			1. Correct and repair operational anomalies, failures, malfunctions and/or other equipment trouble for proper operation.
			2. Make adjustments required for the proper operation of the overall vehicle gate system specific to site conditions.
			3. Verify all functions, control, monitoring, indications of all integrated equipment is properly operating as a system.
			4. Notify the Architect or authority having jurisdiction and manufacturer of any equipment failures and/or malfunctions during field testing.
			5. Submit a Test Report with progress photographs and test data verified by the manufacturer to the Architect after completion of field testing.
		3. Upon completion of installation place the gate/barrier in an open position and maintain vertically clear of traffic and surrounding fence line installation.
	5. START-UP AND DEMONSTRATION
		1. Manufacturer's Service Representative: Provide at least 2 hours of manufacturer's representatives time on-site for start-up and initial operation. Make a final check of each gate operation with Owner's personnel present and immediately before date of Substantial Completion or commissioning.
		2. Instruct Owner's personnel in proper use, operation, and regular maintenance of the gate system. Review emergency provisions, including procedures to be followed if gate does not close or open. Review and demonstrate manually opening and closing the gate system in the event of total loss of power.
		3. Instruct Owner's personnel in proper use, operation, and maintenance of all accessories and entrapment protection devices and provisions such as but not limited to: lights, access controls, photo eyes, contact sensors, barrier screening or fencing, etc.
		4. Train Owner's personnel in normal procedures to be followed in checking for sources of damage to wind bracing, operational failures or malfunctions.
			1. Full wind load rating is subject to the wind bracing remaining in excellent condition and not compromised.
			2. Periodic inspection is a must in order to maintain full wind load rating. Any dents, bends, nicks and loose bolts will affect the performance of the bracing must be corrected or repaired.
			3. Additional, non-factory supplied signage must be approved by manufacturer.
		5. Determine that control systems and operating devices are functioning properly.
		6. Adjust control systems as required and as directed.
	6. CLEANING AND PROTECTION
		1. Remove dust or other foreign matter from component surfaces; clean finishes in accordance with manufacturer's instructions
		2. Protect installed products until completion of project.
			1. Ensure that finishes and structure of installed systems are not damaged by subsequent construction activities.
			2. If minor damage to finishes occurs, repair damage in accordance with manufacturer's recommendations; provide replacement components if repaired finishes are unacceptable to Architect or authority having jurisdiciton.

END OF SECTION