LIGO Laser Safety Interlock Plan

The goal of the laser interlock is to provide a system of positive access controls that positively prevents exposure to harmful laser beams. It must also accommodate our required operations without unnecessarily impeding them.

The plan is to:

- Exercise full control over Laser Hazard areas, LVEA and VEAs.
- Permit or deny entry to Laser Hazard areas with the use of access cards.
- Restrict entry to PSL, ISC tables and End Transmission Monitors only to Registered Laser Users.
- Use Activity logs to generate Time and Activity sheets.
- Monitor alarms triggered by predefined events.
- Track and record the activities of all Basic Laser Trained personnel in the Laser Hazard Areas.
- Monitor every activity, every card transaction and maintain logs with complete statistics.

LIGO Laser Safety Interlock Plan

This will be accomplished by using the encoded information of an access card read by a reader

Information is transmitted from the readers through the system wiring to an electronic control unit for evaluation. Access is then granted or denied after the electronic control unit has confirmed the information as valid and checked it against its authorization profile. Authorization profiles actually define the ability of the encoded card number to gain access throughout the Laser Hazard Areas based on one or more of the following criteria:

- Access level
- Door
- Time of day
- Day of week
- Time schedule
- Previous events (i.e., a table enclosure left open)
- Alarm conditions

If the information has passed these checks, then access is granted by means of a signal or contact closure that allows passage through the entry way or access to a laser enclosure. If the information is not valid, the system response may range from denial of entry to dispatching guards.

LIGO Laser Safety Interlock Plan

The system will provide a central point of control using the facility monitoring computer in the Control Room, and will monitor all card reader transactions and alarm inputs. It will incorporate an Anti-Passback feature, which prevents successive use of one card to pass though any door in the same direction. Anti-Passback is the term describing the act of passing a card back to another person for the purpose of unauthorized access. To attain this type of protection, a separate reader is required at each entry and exit point. The doors which personnel pass through are those entering our three VEAs (LVEA, X and Y endstations) as well as the PSL enclosure in the vertex. Operationally, the system will view the laser table enclosures as passage doors. The logic of the system is straightforward. To enter a VEA, an authorized person with hold their passcard ~3" from the cardreader located on the wall adjacent to the entrance door. The LED indication will change from red to green, signaling that the person may enter the VEA without triggering an alarm. Imagine now that the same person intends to work on one of the ISC tables. Before opening the table enclosure's door, he will need to hold his passcard near the cardreader at the table. If the authorization profile is met, the system will respond with a green LED and the table enclosure contacts will be disarmed permitting the doors to be opened without generating an alarm. Here is where the Anti-Passback feature comes into play. Suppose our user completes his task, and attempts to leave the LVEA without rearming the table enclosure.

LIGO Laser Safety Interlock Plan

At the exit door the system will not yield a green LED when the passcard is offered. This is the reminder that he must retrace his steps and rearm the laser table. Likewise, assume the user wants open the PSL table for a moment to change the laser power. If he has not rearmed the first enclosure, he will not receive a green LED when he attempts to open the second. Neither of these sequences will generate an alarm, unless the user ignores the lighted indication and exits the LVEA or opens a second enclosure.

The system will not prevent a second user from independently opening another table enclosure, but it will prevent a single user from opening multiple enclosures simultaneously. If an individual operator needs to open multiple laser table enclosures simultaneously, they will need to coordinate this through the Laser, or Site Safety Officer and the monitoring computer in the Control Room will be used to permit the required activities.

The system may also be used to automatically enable the Laser Safety Warning Signs when an enclosure is opened, or to automatically direct the LVEA dome cameras to the location of an alarm trigger.

How they work

Proximity

Proximity cards, frequently referred to as prox cards use electronic circuits embedded inside strong plastic. Basically defined, proximity cards transfer their data when placed in proximity to the reading device. Active proximity cards contain IC Chips that digitally establish communication links with the reader. When a card is presented to the reader, it absorbs radiated energy which powers the internal circuitry, allowing it to transmit the encoded data to the reader. The disadvantage of this type of cards is the price - they are much more expensive than others, and when the battery goes dead, the card is rendered useless.

Strengths: Highly reliable readers, fully encapsulated
Secure factory encoding
Field proven technology
Widely recognized

Weaknesses: Not field programmable
Limited data storage capabilities
Susceptible to damage
Available through single source

Magnetics

Not regarded as a high security card technology, it is most popular because it is among the most inexpensive and ubiquitous card technologies and is capable of storing large amounts of information. Cost is particularly important to large installations such as colleges and universities. Information on magnetic stripe cards is encoded on tracks. Our readers work with 3 tracks, with one being utilized for access control. The magnetic medium is placed on the exterior of the card which makes physical contact with the head inside the reader thus wearing the card, and if the card comes in proximity of a magnetic field, the encoded data will be corrupted.

Bar Code

Bar code technology is very common in non-security applications but it seldom is the technology of choice for security and access control. The card is usually swiped so that the cell inside the reader can read the bar code through a lens. Visible bar code technology has obvious security drawbacks: duplication of cards with a photocopier or even faxing cards etc Although it is possible to mask the bar code with a filter making it difficult to duplicate, most buyers **prefer other, more secure technologies. The cards have an average life of 18 to 30 months. The readers require some cleaning of the lens on an average of once a year or more if installed in dusty environments such as car parks.**

Wiegand Effect

Cards are also known as embedded wire cards. They use a pulse generating phenomenon in a special alloy wire which is processed in such a way as to create two distinct magnetic regions in the same homogeneous piece of wire. When embedded into a card in distinct patterns, these wires are read as codes by the reader. Codes for these cards are unique, permanent, and unalterable. The readers are less subject to tampering - foreign objects inserted into readers can be dislodged more easily than when inserted in other types of readers. These readers are usually unaffected by environment conditions; they do not have any moving parts and are consequently less costly to maintain.

What are their strengths and weaknesses

Proximity

Strengths: Non-contact reading of cards
Secure factory encoding
Longer card life
Some brands are field programmable

Weaknesses: Susceptible to Interference
Mounting considerations

Magnetic

Strengths: Field programmable
Widely recognized technology
Inexpensive cards
Cards available from many sources

Weaknesses: Susceptible to duplication
Card information can be erased by magnetic fields
Very short card life
Very low security

Bar Code

Strengths: Recognized technology
Non-visible bar codes are available
Inexpensive cards

Weaknesses: Duplication of cards
Maintenance of readers is difficult
Short card life
Low security option

Wiegand Effect

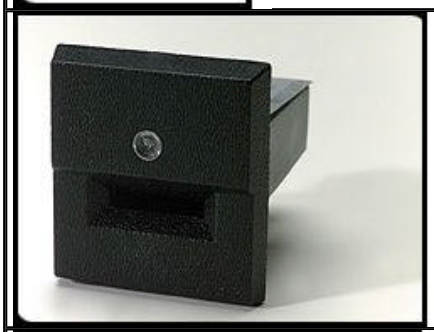
Strengths: **Highly reliable readers, fully encapsulated**
Secure factory encoding
Field proven technology
Widely recognized

Weaknesses: **Not field programmable**
Limited data storage capabilities
Susceptible to damage
Available through single source

HID

Turnstile Reader

The Turnstile Wiegand Reader mounts either horizontally or vertically, making it ideal for high traffic applications.



SensorKey Reader

The SensorKey Wiegand access control alternative provides the convenience of a key-sized "card" with an unobtrusive, low-profile reader.

Insertion Reader

The Insertion Wiegand Reader provides in-wall mounting for a low profile installation. Unobtrusive, the Insertion Wiegand reader is ideal for office settings. A simple push in / pull out insertion of the card completes the read.

Epic Reader

The Epic Wiegand Reader provides an ergonomically designed forward slanted card slot for a more natural hand position when swiping a card. Contemporary styling makes the Epic Wiegand reader a popular choice for both modern and traditional buildings.

Classic Swipe Reader

HID Classic Swipe Reader is used in applications throughout the world.

PinPad Reader

The PINpad Wiegand Reader is a Wiegand reader and touchpad keypad combined in the same rugged housing. It is fully sealed against the environment and has a wide operating temperature range, making it ideal for outdoor use even under the most extreme conditions.

Sensor Card

The SensorCard Wiegand Access Card incorporates HID's proprietary Wiegand technology which is virtually impossible to counterfeit, can't be altered or copied, and is immune to external magnetic fields or RF interference.

Sensor Card II

The SensorCard II Multiple Technology Card incorporates HID's proprietary Wiegand technology, magnetic stripe technology and photo identification capability on a single card.

Photo ID Card

The Photo ID Wiegand Access Card combines HID's proprietary Wiegand technology and photo identification on a single card. The Photo ID card accepts either Polariod film prints or video image prints.

Pocket Tag

The Pocket Tag is small enough to carry in a pocket or on a key ring. It can be used with the Classic, Epic, Turnstile and PINPad readers.

Proximity Readers and Cards by Motorola-Indala

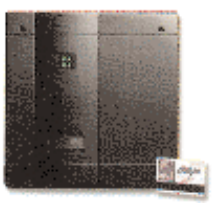
Proximity is the most User Friendly card access technology on the market today. Motorola-Indala has been a pioneer in this field since its inception.

Motorola provides a full array of card readers (with varying read ranges) and a complete selection of cards and tags. Cards are available in standard format or in the Direct Print format for high volume Photo-ID badging applications. Key chain mountable tags are also available. Proximity Readers and Cards are preferred because they are extremely User Friendly (many times you don't even need to take them out of the wallet or purse), vandal-resistant, secure and reliable. They can be individually coded and canceled, and can be used with most access control panels. Note: Read range shown below with photos is achievable with ASC-121T hard plastic lifetime cards. Range with other cards and tags will be lower.

ASR-603+
4 5

ASR-605+
4 5

ASR-610+
8 10



ASR-610+
8 10

ASR-500
3 4

ASR-503
3 4

ASR-505
3 4

ASH-501 Indoor
3 4

ASR-110 Indoor
5.5 7

ASC-121T, Lifetime Cards
Up to 28

ISO-30+
Up to 12

Dual Prox
Up to 12

ASH-116T
Up to 7

Contact-less Operation

Long Life and secure. No wear & tear. Can hide reader behind wall to make it vandal resistant.

Easy to Use

Extremely user friendly. Don t even have to take the card out of the wallet or purse.

Card + Code Models Available

Models available to handle higher security applications requiring card+code access control.

Low Power Consumption

Easy operation with most panels. Up to 500 ft. cable runs possible.

Audible Read Indicator

Audible alert offers feedback every time the card is used.

LED Indicators

Multicolor LED indicators offer status and diagnostic data.

Unique ID Codes

Up to 137 billion unique codes available. 26, 30, 32 bit or other data formats available.

Indoor or Outdoor

Designed for indoor or outdoor operation, in extreme weather conditions.

Thin Cards

Direct print PVC Cards are almost as thin as the credit cards for ease in handling.

Combined Photo-ID Cards

Can print directly on cards designed for dye-sublimation printers.

Key Tags

Special tags can fit on a key chain but perform like a card.

UL / CSA Approved

Tested for safe use in most applications. Worldwide.

Amtel
Parking Access & Security

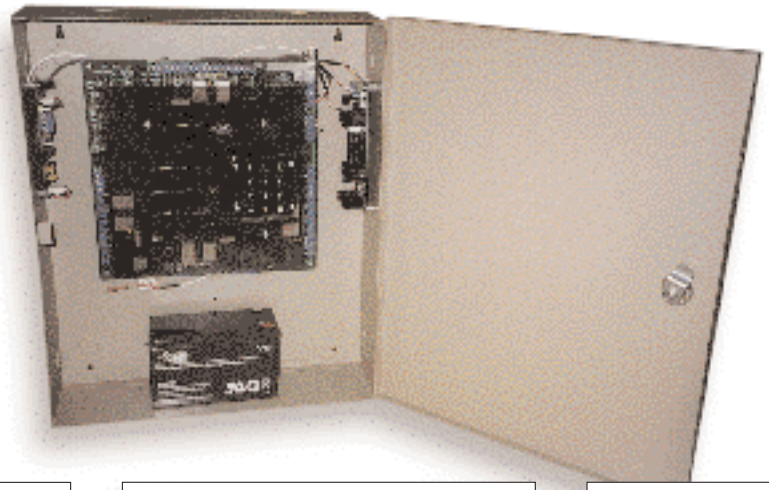
One Amtel Plaza
1691 NW 107 Avenue
Miami, FL 33172-2738
(305) 591-8200
1-800-22AMTEL
Fax: (305) 470-AMTEL
e-mail sales@amtel-security.com

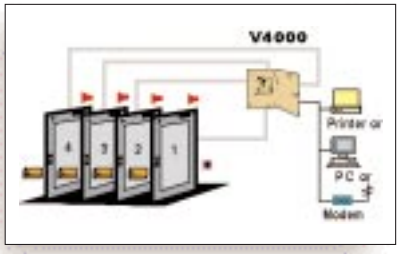
For detailed specifications on this product, visit:
www.amtel-security.com

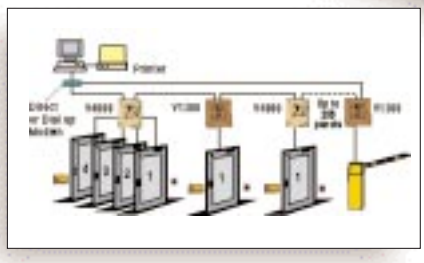
Voidex 4000
Access Control & Monitoring Panel

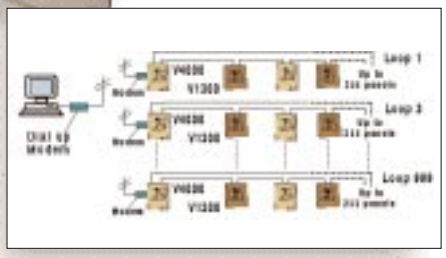
Full Control of up to four (4) doors. Stand-Alone or PC operation.

The Voidex 4000 Access Control Panel offers up to 4 Wiegand ports, up to 2 serial ports, 16 inputs and 16 outputs to provide all the control that may be required at any four doors or gates. It can be used on a Stand-Alone basis or can be on-line component of a larger PC-controlled facility management system. All decisions are made at the panel, making it a truly distributed system. The built-in programming keypad gives it full control in stand-alone mode and is available as a back-up in an On-Line system in case communication between the computer and panel is lost. The Voidex 4000 uses a powerful micro-computer along with all the peripherals like crystal clock, powerfail protected memory, time zones, time clocks (Y2K compliant), access levels, individual or group void ability, LED feedback, 16 inputs, 16 outputs, transaction buffer and surge protection. It can accept devices with practically any technology (Bar Code, Magnetic Stripe, Proximity, Code, Clicker, Biometric & Wiegand) provided they have a Wiegand or serial interface.









Complete 4 Door Control
Panel supports 4 doors completely with readers, free egress, relays, door monitor contact, etc.

Multiple Outputs
Panel provides up to 16 individually programmable outputs (8 Relays & 8 Transistors).

Multiple Inputs
16 User-Defined inputs with flexible programming of Input / Output relationship.

Built-in Keypad Programmer
Allows full programming and diagnostics at panel level. Also usable for backup in on-line systems.

Stand-Alone, Dial-Up or On Line
Control from 4 doors to 1020 doors in practically any configuration that fits your needs.

4000 Card Memory
Sufficient memory to store all data for up to 4,000 users. Higher memory available on a custom basis.

1500 Transaction Memory
Buffer can store the last 1500 transactions for later retrieval by PC.

Time Zones
255 multiple slot time zones with 7 day + Holiday programming ability.

Unlimited Access Levels
Practically unlimited Access Levels can be used to control doors or zones.

Mix & Match V1300/V4000
Use either of the panels as needed in the system to minimize equipment and installation costs.

Flexible I/O Programming
Very flexible and versatile programming based on input, time, event, Card # or door number.

Anti-Passback 3 Ways
Hard APB (No Entry) Soft APB (Entry w/ notification) or Timed APB (up to 70 min.) to meet specific application.

Amtel
Parking Access & Security

One Amtel Plaza
1691 NW 107 Avenue
Miami, FL 33172-2738
(305) 591-8200
1-800-22AMTEL
Fax: (305) 470-AMTEL
www.amtel-security.com
e-mail sales@amtel-security.com

For detailed specifications on this product, visit:
www.amtel-security.com

SYSTEK
SYSTEM TECHNOLOGIES FOR BUSINESS

Proposal: 7400-10

May 23, 2001

METROPOLITAN ELECTRONICS

Access System

Custom Designed

for

JOHN KERN

L I G O

SYSTEK/METROPOLITAN is one of New Orleans leading custom electronics design and installation companies. For over 40 years, our reputation for quality, innovation and professionalism has been carefully built with thousands of successful installations.

This proposal represents a design carefully prepared with your requirements, our experience and industry standards all balanced to form a workable plan.

Please evaluate this proposal to determine if it meets your needs and budget. SYSTEK's design flexibility allows us to easily modify this proposal to truly meet your expectations. This plan can be fully implemented at this time or in stages as your needs grow.

Investing in quality electronics and having them properly installed will provide you with many years of trouble free service and enjoyment. Please let me know how I can help make your ideas become reality.

Frank Soehnlein
Security Specialist

701 Cedar Ave., Metairie, LA 70001 Ph: 504-888-6773 Fax: 504-888-2740

METROPOLITAN ELECTRONICS

SYSTEM DESIGN

This proposal covers the installation of the access control system as follows.

A. Main entrance to equipment area. (reader and magnetic lock.)

B. Entrance door to laser room (door strike and reader)

C. Laser table (connection to customer owned switches and installation of a new reader) This reader will shunt the contact that is used to drop the damper to block the laser if there is a valid card swipe when the door is open,the system will re-arm when there is swipe on the second reader.

D. 4 Laser tables in the equipment area (install two contacts on two doors and one card reader per table)
these will operate the same as C.

E. The software to operate the system is windows 95 or 98 compatible. The computer does not have to be on line to operate the systems. The computer is used to download information that has been stored and to update schedules or card changes.

THIS SYSTEM DIFFERS FROM THE OTHER PROPOSAL IN THAT IT WILL TAKE A SWIPE FROM A SECOND READER TO RE-ARM THE SYSTEM ON EACH TABLE. THERE WILL ALSO BE A SECOND READER INSTALLED AT THE ENTRANCE DOOR TO EXIT THE ROOM. THIS WILL BE SETUP WITH A FEATURE CALLED ANTI-PASSBACK THAT WILL ONLY ALLOW THE CARD TO BE USED IN A CERTAIN SEQUENCE AS FOLLOWS.

1. When entering the large room the individual will swipe his card to gain entry into the area. If the person does not go into the laser boxes he or she will be able to exit the area with their access card.

2. When entering the large room the individual will swipe his card to gain entry into the area. If they swipe their card to disarm a laser box they will have to swipe their card through the arming reader when finished or the system will not allow them to leave the main room through the exit reader.

This system should insure against anybody leaving a laser box disarmed when they leave.

This system can be integrated with your current video system to automatically direct the camera to the area of alarm in the event a laser cabinet is opened and there has been no card swipe. This can also be recorded.

METROPOLITAN ELECTRONICS

ACCESS SYSTEM - Zone 1

The customer is to provide ac power for the main controls

GENERAL FACTS ABOUT THE ACCESS SYSTEM

1 It can be programmed by an an IBM compatible computer using windows or NT.

2 Does not have to be online with the computer to operate. The controllers will automatically download the information to the computer during off peak hours.

3 It will automatically lock and unlock doors at predetermined times by date to include special holiday schedules. This is done on a per door basis.

4 Individuals can have access to doors on a 24 hour basis or by time and date. (8:00 to 5:00 Monday through Friday and 8:00 to 12:00 Saturday) This feature allows you to tailor the system to shift work by only allowing employees in on their shifts.

5 The card can be used as an I.D. with the addition of a picture.

6 The systems is expandable to photo I.D. badging if required at a later date.

7 Total capacity of system is dependent upon the number of controllers.

8. The controllers can be direct wired on an open port or use modems if required.

9. When a person approaches the reader there will be a red light if armed or a green light if disarmed. when the pass card is presented to the reader and if it is valid for that particular door or device the status of the led will change from red to green to unlock or turn off the system . When the person is done working on the tables they will swipe the reader to rearm the system. All of these functions will be logged in the controllers and can be downloaded to your PC either automatically on a daily basis or on command. If for some reason a person attempts to open a door or table and they are not authorized the system will not grant them access but will log the event.

10. Temporary access can be granted to passes if required for even a single use basis or a predetermined date and time.

METROPOLITAN ELECTRONICS

4 ea	AMTEL - 311-4K - 4 DOOR CONTROLLER 4 Door panel including 256 time zones, 100 access levels, 16 inputs, 16 outputs, time clock controlled time zones, buffer memory, built in programming keypad, use as stand alone or up to 64 units interconnected. Supports Proximity,Weigand, Barcode, Magnetic Stripe, Laser Scanner, Vehicle I.D. , RF/IR Transmitters, Ba Fe and Biometric devices.	1,696.00	6,784.00
5 ea	AMTEL - 331-CLIF - HARDWIRE MODEM extends inhouse wiring connection too controller up to 4000'	191.00	955.00
14 ea	AMTEL - 211S - SWIPE WEIGAND READER	352.88	4,940.25
100 ea	AMTEL - 213-SUC - WIEGAND CARD proximity card reader wiegand shape		359.00
1 ea	AMTEL - 342-AMWATCH - WINDOWS 95 & 98 PKG.	1,034.69	1,034.69
1 ea	SECURITY DOOR CONTROLS - 491 - EMERGENCY DOOR RELEASE	187.38	187.38
10 ea	SYSTEK - DOOR CONTACT - DOOR SWITCH	82.50	825.00
2	SYSTEK - DOOR STRIKE - DOOR STRIKE	681.25	1,362.50
1 ea	SYSTEK - POWER SUPPLY - 12 VOLT POWER SUPPLY	125.00	125.00
2500 ft	WIRE & CABLE - 5504FE - 6 COND 22 SHIELDED	0.98	2,446.46
1000 ft	WIRE & CABLE - 8010WHT - 4 CONDUCTER STATION WIRE 22 gauge	0.89	893.33
5 ea	BATTERY - PS12V7 - 12 VOLT 7 AMP HOUR	48.50	242.50
		Unit	Total
	ACCESS SYSTEM INSTALLED TOTAL:		$20,155.11

METROPOLITAN ELECTRONICS

REMOTE END OF WINGS - Zone 2

This area will cover the installation of readers on the lasers at the end of the tunnels. They would be set up basically the same as the other tables but there would only be one door to each end. They would operate the same as the other tables.

We will be wiring the doors with alarm switches for this area and installing a lock on the entrance door. This wiring will be in conduit as we discussed

This will allow you to schedule the locking and unlocking of the entry door (unlock 8:00 A.M. and lock at 4:00 pm) with the other doors supervised 24 hours a day. You can also have the door secured 24 hours a day because you need to use a card to enter the area .

8 ea	AMTEL - 211S - SWIPE WEIGAND READER	352.88	2,823.00
2 ea	AMTEL - 311-1K - 4 DOOR CONTROLLER 4 Door panel including 256 time zones, 100 access levels, 16 inputs, 16 outputs, time clock controlled time zones, buffer memory, built in programming keypad, use as stand alone or up to 64 units interconnected. Supports Proximity,Weigand, Barcode, Magnetic Stripe, Laser Scanner, Vehicle I.D. , RF/IR Transmitters, Ba Fe and Biometric devices.	1,346.06	2,692.12
2 ea	AMTEL - 331-CLIF - HARDWIRE MODEM extends inhouse wiring connection too controller up to 4000'	116.00	232.00
4 ea	FIBER OPTIONS - 2243D1-R/155 - FIBER RECEIVER/SINGLE M	2,745.00	10,980.00
4 ea	FIBER OPTIONS - 2243D1-T155 - FIBER TRANSMITTER/SINGLE M	2,745.00	10,980.00
2	SYSTEK - DOOR STRIKE - DOOR STRIKE	581.25	1,162.50
500 ea	SYSTEK - CONDUIT 3/4" - 3/4" THIN WALL CONDUIT	4.59	2,293.33
4 ea	SYSTEK - OVERHEAD CONTACT - OVERHEAD DOOR CONTACT	130.45	521.80
6 ea	SYSTEK - DOOR CONTACT - DOOR SWITCH	107.50	645.00

	Unit	Total
REMOTE END OF WINGS INSTALLED TOTAL.		$32,329.75

METROPOLITAN ELECTRONICS

LVEA BUILDING - Zone 3

This area covers the installation of security contacts on all outside doors leading into the area. These doors will give an alarm that will notify the control area. We will put the wiring in pipe wherever required and use the cable trays wherever we can. This control panel is also capable of using a polling loop configuration if required . The polling loop units would add only $ 400.00 to the cost of the system. All contacts will be identified individually either way.

1 ea	DSC - PC4020 - BURGLARY CONTROL includes english language keypad	530.75	530.75
1 ea	BATTERY - PS12V7 - 12 VOLT 7 AMP HOUR	48.50	48.50
1 ea	REVERE INDUSTRIES - RT1640 - 16 VOLT 40VA TRANSF.		13.13
1 ea	DSC - LCD4521 - ENGLISH LANGUAGE KEYPAD English language keypad	207.00	207.00
3 ea	DSC - PC4204 - 4 RELAY/POWER SUPPLY 1.2A	155.00	465.00
1 ea	REVERE INDUSTRIES - RSTB - STROBE-BLUE	34.81	34.81
7 ea	SYSTEK - DOOR CONTACT - DOOR SWITCH	107.50	752.50
2 ea	SYSTEK - OVERHEAD CONTACT - OVERHEAD DOOR CONTACT	130.45	260.90
1500 ft	WIRE & CABLE - 4 PAIR LEVEL 5 -	1.81	2,710.00
200 ea	SYSTEK - CONDUIT 3/4" - 3/4" THIN WALL CONDUIT	4.59	917.33
		Unit	Total
	LVEA BUILDING INSTALLED TOTAL:		$5,939.92

JOHN KERN - L I G O

Access System

Proposal: 7400-10 5/23/01 Page: 1

METROPOLITAN ELECTRONICS

PRODUCT SUMMARY

22 ea	**AMTEL - 211S - SWIPE WEIGAND READER**
100 ea	**AMTEL - 213-8UC - WIEGAND READER** proximity card reader wiegand shape
2 ea	**AMTEL - 311-1K - 4 DOOR CONTROLLER** 4 Door panel including 256 time zones, 100 access levels, 16 inputs, 16 outputs, time clock controlled time zones, buffer memory, built in programming keypad, use as stand alone or up to 64 units interconnected. Supports Proximity,Weigand, Barcode, Magnetic Stripe, Laser Scanner, Vehicle I.D. , RF/IR Transmitters, Ba Fe and Biometric devices.
4 ea	**AMTEL - 311-4K - 4 DOOR CONTROLLER** 4 Door panel including 256 time zones, 100 access levels, 16 inputs, 16 outputs, time clock controlled time zones, buffer memory, built in programming keypad, use as stand alone or up to 64 units interconnected. Supports Proximity,Weigand, Barcode, Magnetic Stripe, Laser Scanner, Vehicle I.D. , RF/IR Transmitters, Ba Fe and Biometric devices.
7 ea	**AMTEL - 331-CLIF - HARDWIRE MODEM** extends inhouse wiring connection too controller up to 4000'
1 ea	**AMTEL - 342-AMWATCH - WINDOWS 95 & 98 PKG.**
6 ea	**BATTERY - PS12V7 - 12 VOLT 7 AMP HOUR**
1 ea	**DSC - LCD4521 - ENGLISH LANGUAGE KEYPAD** English language keypad
1 ea	**DSC - PC4020 - BURGLARY CONTROL** includes english language keypad
3 ea	**DSC - PC4204 - 4 RELAY/POWER SUPPLY 1.2A**
4 ea	**FIBER OPTIONS - 2243D1-R/155 - FIBER RECEIVER/SINGLE M**
4 ea	**FIBER OPTIONS - 2243D1-T155 - FIBER TRANSMITTER/SINGLE M**
1 ea	**REVERE INDUSTRIES - RSTB - STROBE-BLUE**
1 ea	**REVERE INDUSTRIES - RT1640 - 16 VOLT 40VA TRANSF.**
1 ea	**SECURITY DOOR CONTROLS - 491 - EMERGENCY DOOR RELEASE**
700 ea	**SYSTEK - CONDUIT 3/4" - 3/4" THIN WALL CONDUIT**
23 ea	**SYSTEK - DOOR CONTACT - DOOR SWITCH**
4	**SYSTEK - DOOR STRIKE - DOOR STRIKE**
6 ea	**SYSTEK - OVERHEAD CONTACT - OVERHEAD DOOR CONTACT**
1 ea	**SYSTEK - POWER SUPPLY - 12 VOLT POWER SUPPLY**
1500 ft	**WIRE & CABLE - 4 PAIR LEVEL 5 -**
2500 ft	**WIRE & CABLE - 5504FE - 6 COND 22 SHIELDED**
1000 ft	**WIRE & CABLE - 8010WHT - 4 CONDUCTER STATION WIRE** 22 gauge

JOHN KERN - L I G O

Access System

Proposal: 7400-10 5/23/01 Page: 1

METROPOLITAN ELECTRONICS

AREA SUMMARY

ACCESS SYSTEM - Zone 1	$20,155.11
REMOTE END OF WINGS - Zone 2	$32,329.75
LVEA BUILDING - Zone 3	$5,939.92

	System Price
Products:	58,424.79
Installation:	0.00
Parts & Materials:	0.00
Sub Total:	$58,424.79
Tax:	0.00
Grand Total:	$58,424.79

701 Cedar Ave., Metairie, LA 70001 Ph: 504-888-6773 Fax: 504-888-2740

Proposal: 7400-10

SYSTEK
SYSTEM TECHNOLOGIES FOR BUSINESS

May 23, 2001

METROPOLITAN ELECTRONICS

JOHN KERN - L I G O

Access System

All Phases

Address 1: P.O. BOX 940
Livingston, LA 70754

Work: 521-5124 P
Job Site:

Fax: 686-7189

Frank Soehnlein
Security Specialist

Design Integrity

SYSTEK/METROPOLITAN is a member of the Louisiana Burglar & Fire Alarm Association,, Louisiana Automatic Fire Alarm Association (Nicet level 3) and the American Society For Industrial Security. We are Licensed for Fire and Burglar Alarm by the State of Louisiana.

Guarantee

System includes a 90 day parts & labor warranty.
Warranty covers manufacturing defects, not misuse or normal wear.
Installation workmanship is guaranteed for 90 days
Optional on-site technical support service is available.

Payment Terms

50% Deposit due upon acceptance	$29,212.40
50% Payment due upon completion	$29,212.40 Estimated

Electronics & Installation

Prices quoted are guaranteed until 6/23/01
Products & Installation prices are estimated.
Total price will consist of installed products & actual installation.

	System Price
Products & Install:	**58,424.79**
Parts & Materials:	
Sub Total:	**58,424.79**
Tax:	
Grand Total:	**58,424.79**

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Agreement

SYSTEK/METROPOLITAN will provide the equipment and the design and installation services described in this proposal. Changes to this proposal will require a written or verbal change order and prices will be revised in accordance with these changes. SYSTEK requires a 10 day notice prior to the start of each phase of the installation. Payments must be made in accordance with the terms of this proposal in order to meet the installation dates specified in this proposal. A charge of 1.5 % per month will be added to any unpaid balances.

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Optional on-site technical support service is available.

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	System Price
Products & Install:	**58,424.79**
Parts & Materials:	
Sub Total:	**58,424.79**
Tax:	
Grand Total:	**58,424.79**

Date:

Please sign & return this contract

701 Cedar Ave., Metairie, LA 70001 Ph: 504-888-6773 Fax: 504-888-2740

RELATED LLO COSTS

COMPUTER SYSTEM: Rack mount CPU, UPS (Hardware only) – *1 each*

- **Estimate of cost: ~ $3,500** ***each*** (J. Kern)

SHUTTERS: Manufactured to our specifications – 3each total – typical in design for general-purpose use

- **4k IFO ISC TABLES** – ***1 each*** - Interlocked to a shutter between HAM1 and 4K PSL enclosures.
- **4k TRANSMISSION MONITORS** – ***2 each*** – Interlocked to a shutter between BSC and enclosures.
- **Estimate of cost: ~ $7,500** (D. Cook – based machining/assembly/electrical solenoid actuation)

SITE MAN POWER:

- **Jonathan Kern, Rus Wooley** –Interfacing between LLO site requirements and outside contractors, escorting contractors into laser hazard zones, reviewing equipment for possible noise sources, installing power sources if needed.
- **Estimate of cost: ~ $5,000** ***total*** (D. Cook – based on 50 man hrs.)

OUTSIDE ELECTRICAL CONTRACTOR WORK:

- **Power installation requirements, hard pipe in LVEA, etc.**
- **Estimate of cost: ~ $15,000** (Rus Wooley– based on 150 man hrs.)

IN-HOUSE PROGRAMING EFFORT:

- **Porting monitor and alarm signals to CDS.**
- **Estimate of cost: ~ 4 man-months LLO staff effort** (Rus Wooley.)

QUOTE FOR ACCESS SYSTEM DESIGN AND INSTALLATION:

- **Cost: $58,424.79** (Metropolitan Electronics Quote, dated May 23, 2001)

ESTIMATED TOTAL COST OF SYSTEM:

Cost: ~ $89,424.79