



ELEVATOR HACKING



FROM THE PIT TO THE PENTHOUSE



Deviant Ollam & Howard Payne

DEFCON 22 — 2014/08/03



WHO ARE WE?



Who Are We ?

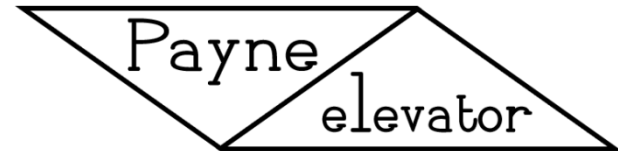
Deviant Ollam

- Physical Penetration Tester
- Red Teamer
- Lockpicker
- *Liquor of Choice:* Lagavulin



Howard Payne

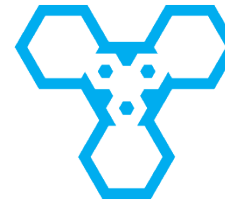
- Elevator Consultant & Inspector
- Non-Union
- Boardwalk Badass
- *Liquor of Choice:* American Adjunct Lager



Who Are We?

Deviant Ollam

- Physical Penetration Tester
- Red Teamer
- Lockpicker
- *Liquor of Choice*: Lagavulin



**THE
CORE
GROUP**

Howard Payne

- Elevator Consultant & Inspector
- Non-Union
- Boardwalk Badass
- *Liquor of Choice*: American Adjunct Lager





WARNING!



If Used Properly Elevators are Incredibly Safe

- NYC alone has almost 60,000 elevators
- 11 billion trips per year, 30 million every day
- Annually there are only about 24 injuries requiring medical attention



If Used Properly Elevators are Incredibly Safe

- NYC alone has almost 60,000 elevators
- 11 billion trips per year, 30 million every day
- Annually there are only about 24 injuries requiring medical attention



Throughout the entire nation of 300+ million citizens, an average of just 26 people die in a given year riding elevators...



If Used Properly Elevators are Incredibly Safe

- NYC alone has almost 60,000 elevators
- 11 billion trips per year, 30 million every day
- Annually there are only about 24 injuries requiring medical attention



Throughout the entire nation of 300+ million citizens, an average of just 26 people die in a given year riding elevators...



... the vast majority are trained professionals working on the devices at the time.

Warning — Dying is Not Good



Warning — Damage is Not Good

ELEVATORS
ARE MONITORED
MISUSE, TAMPERING WITH
OR DAMAGING ELEVATOR
WILL RESULT IN
DISCHARGE

Warning — Damage is Not Good



Warning — Damage is Not Good



Warning – We're Professionals

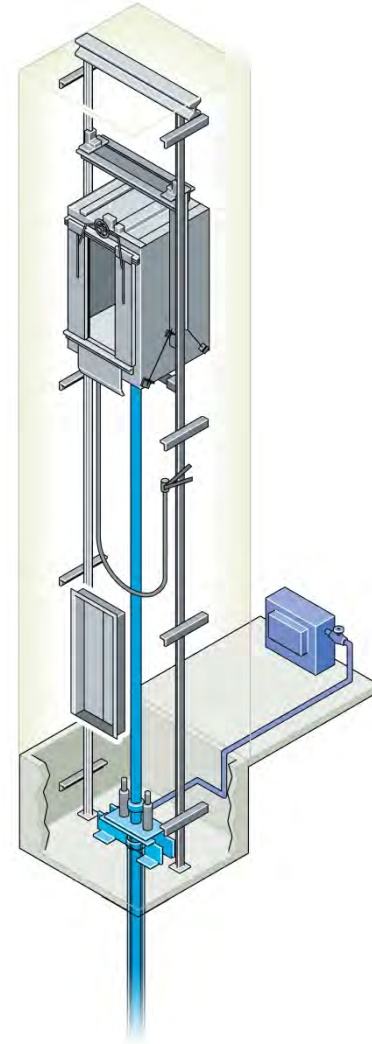
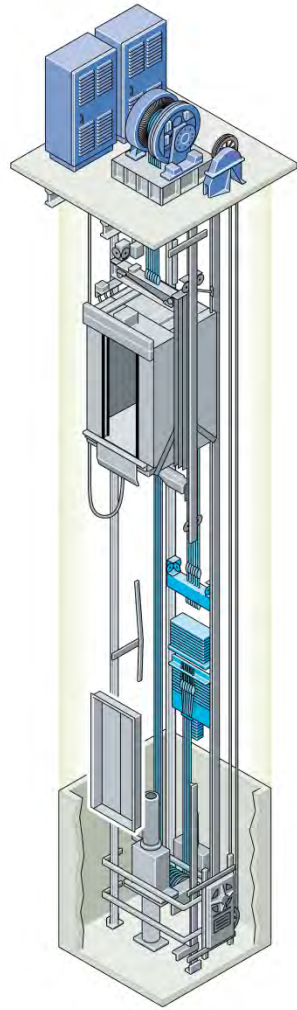




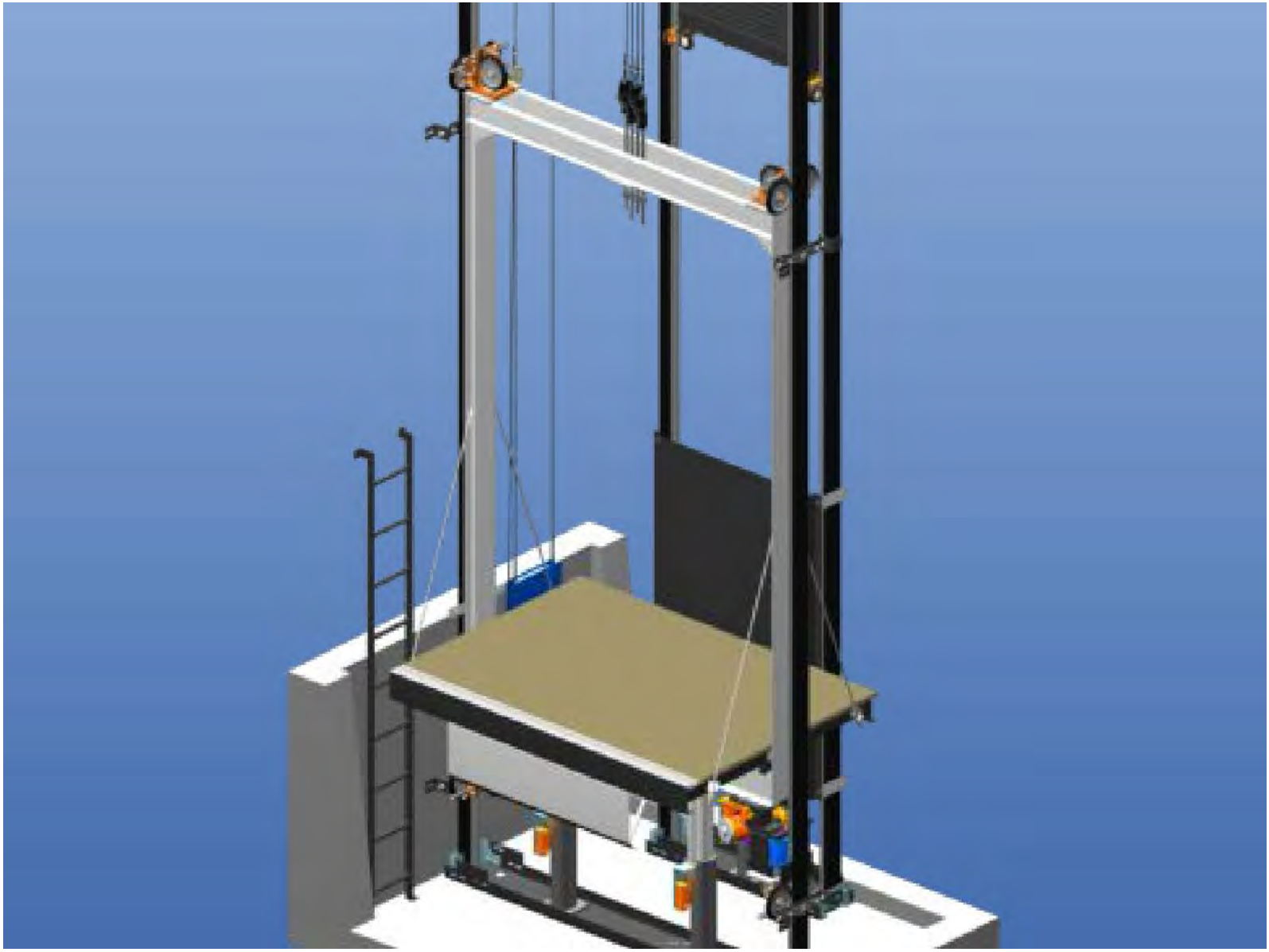
INTRODUCTION TO ELEVATORS



Terms & Technology — Traction vs Hydro



Terms & Technology — The Elevator Cab

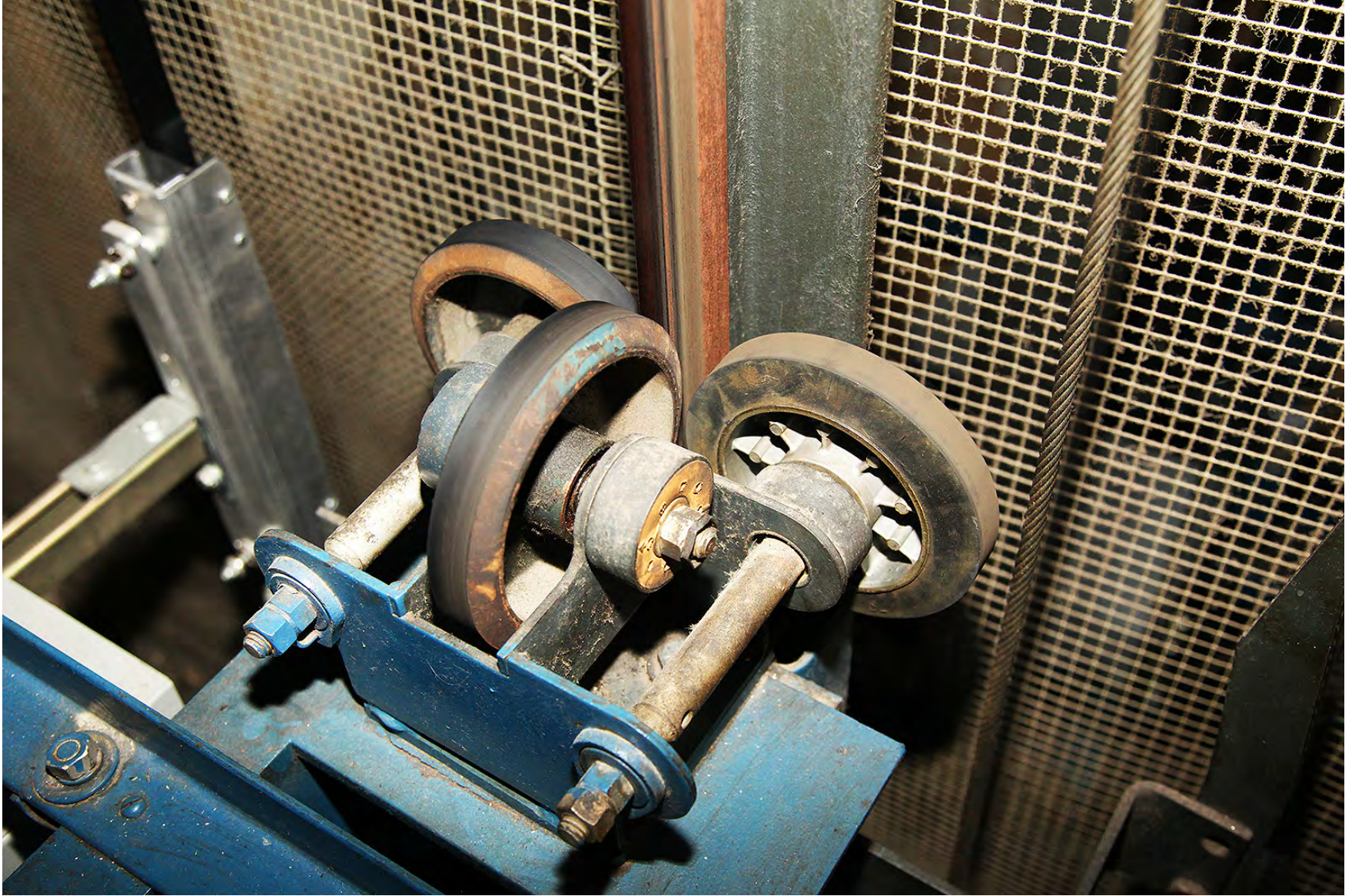


Choice of Beauty

XChangaCab® Interior Upgrades

<p>Easy to Install</p> <p>Minimal Downtime</p>			
	<p>Affordable</p> <p>Beautiful</p>		
		<p>Limited only by your Imagination</p>	 <p>COLUMBIA ELEVATOR CABS ENTRANCES DOOR SYSTEMS</p>

Terms & Technology — Rails & Rollers



Terms & Technology — Rails & Rollers



Terms & Technology — Fixtures



Car Operating Panel



Position Indicator



Car Travel Lantern



Hall Stations



Hall Lantern

Terms & Technology — Motor Room



Terms & Technology — Motor Room (Hydraulic)



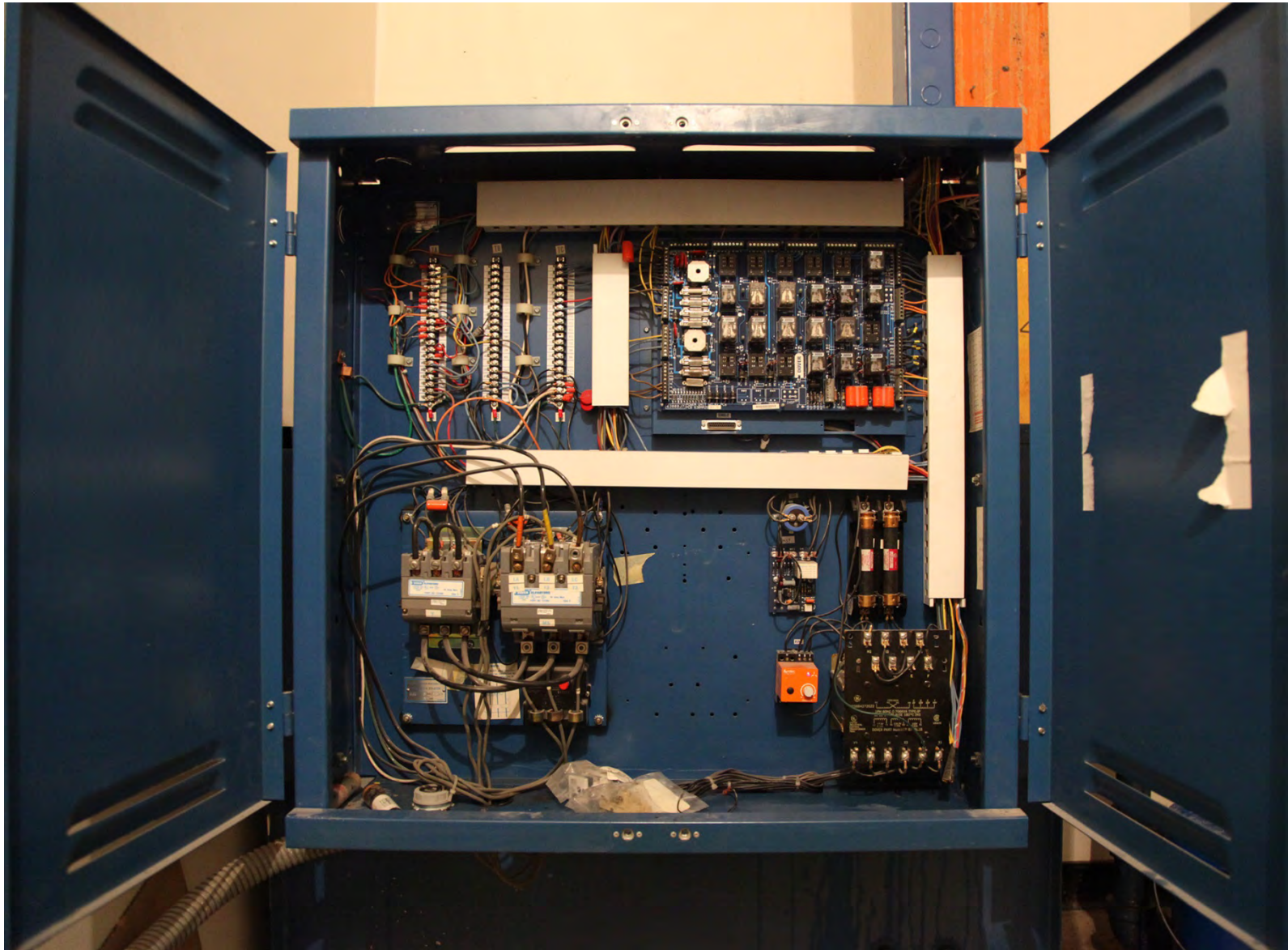
Terms & Technology — No Motor Room



Terms & Technology — Controller



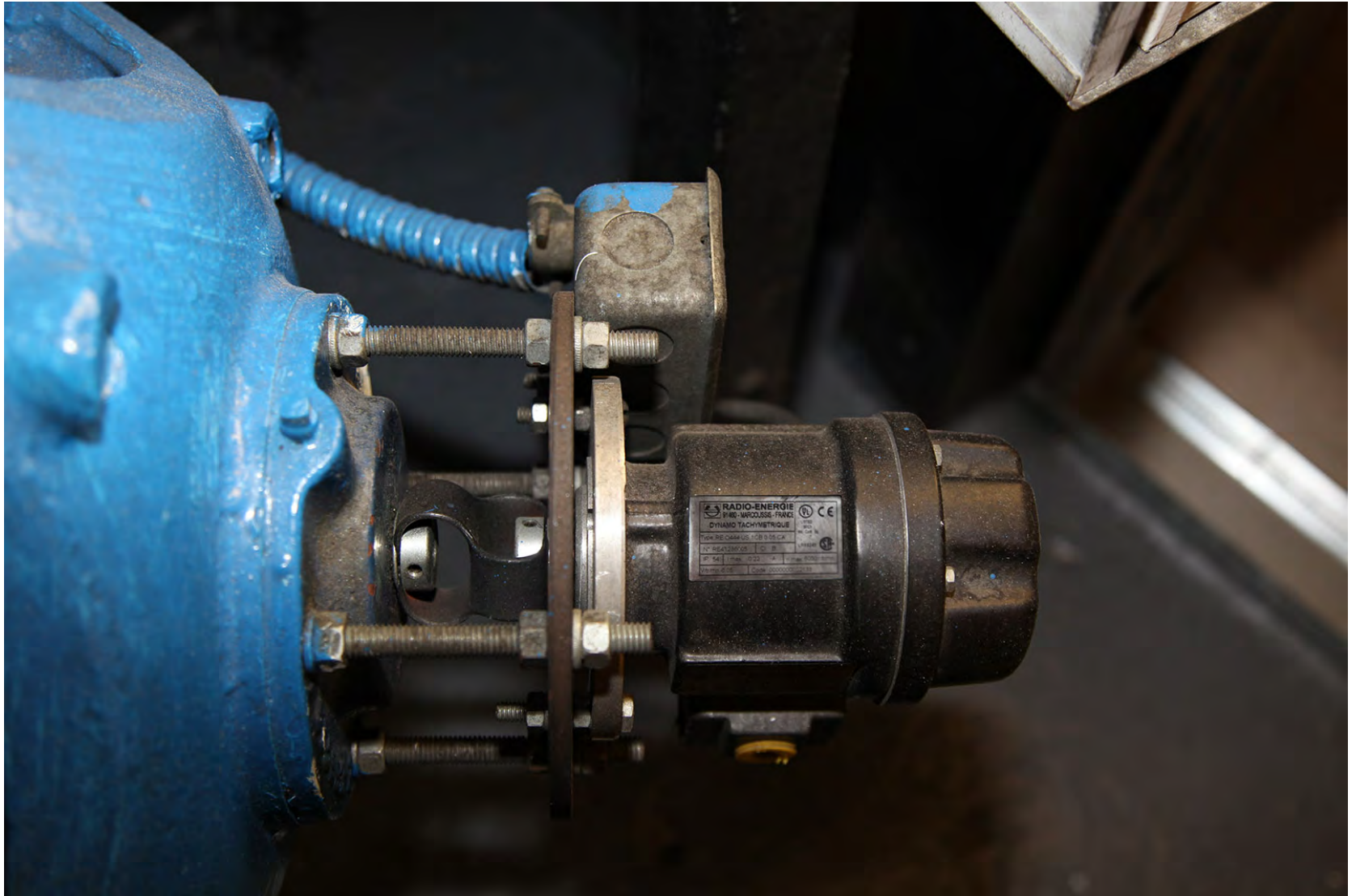
Terms & Technology — Controller



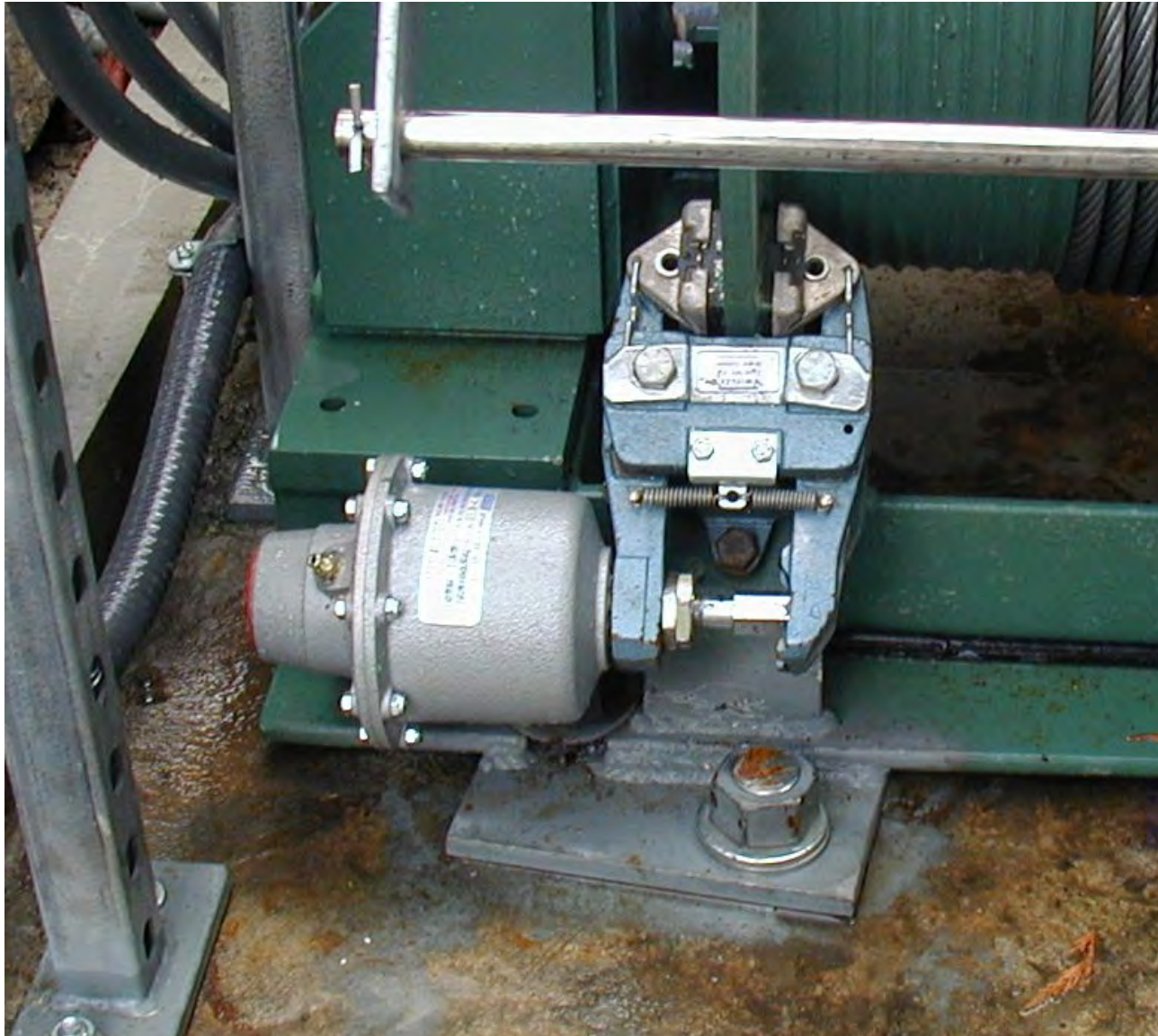
Limit Switches



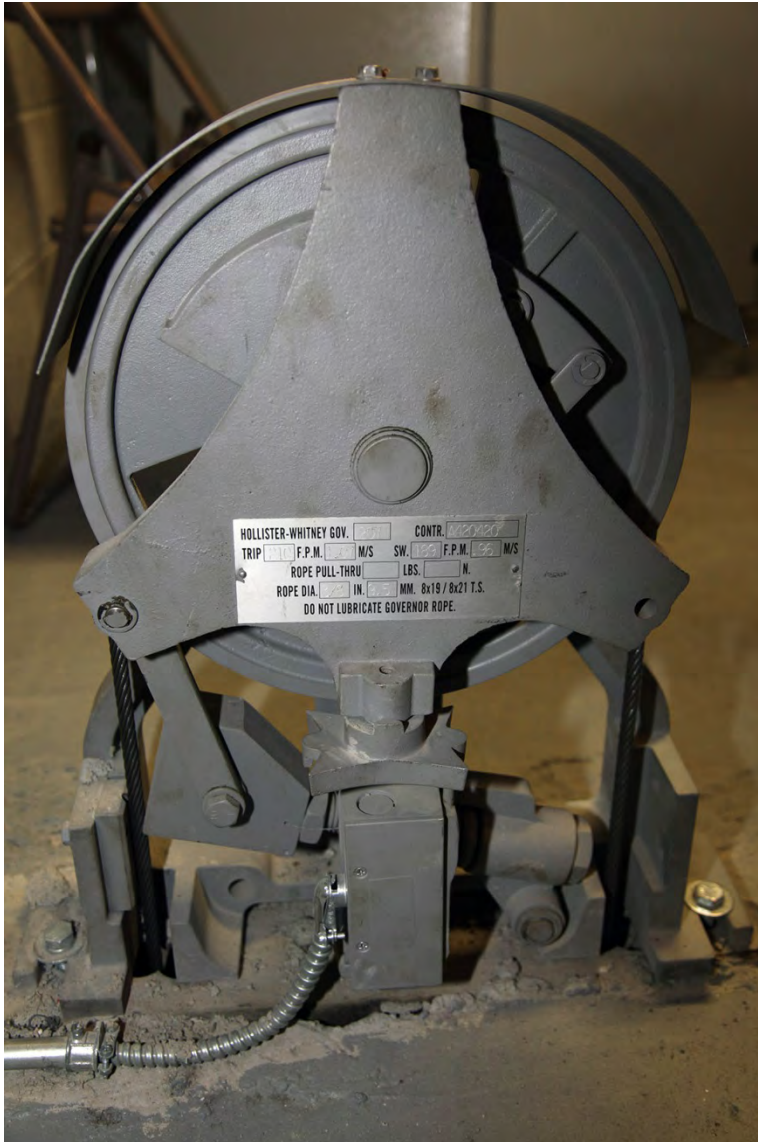
Velocity Detection



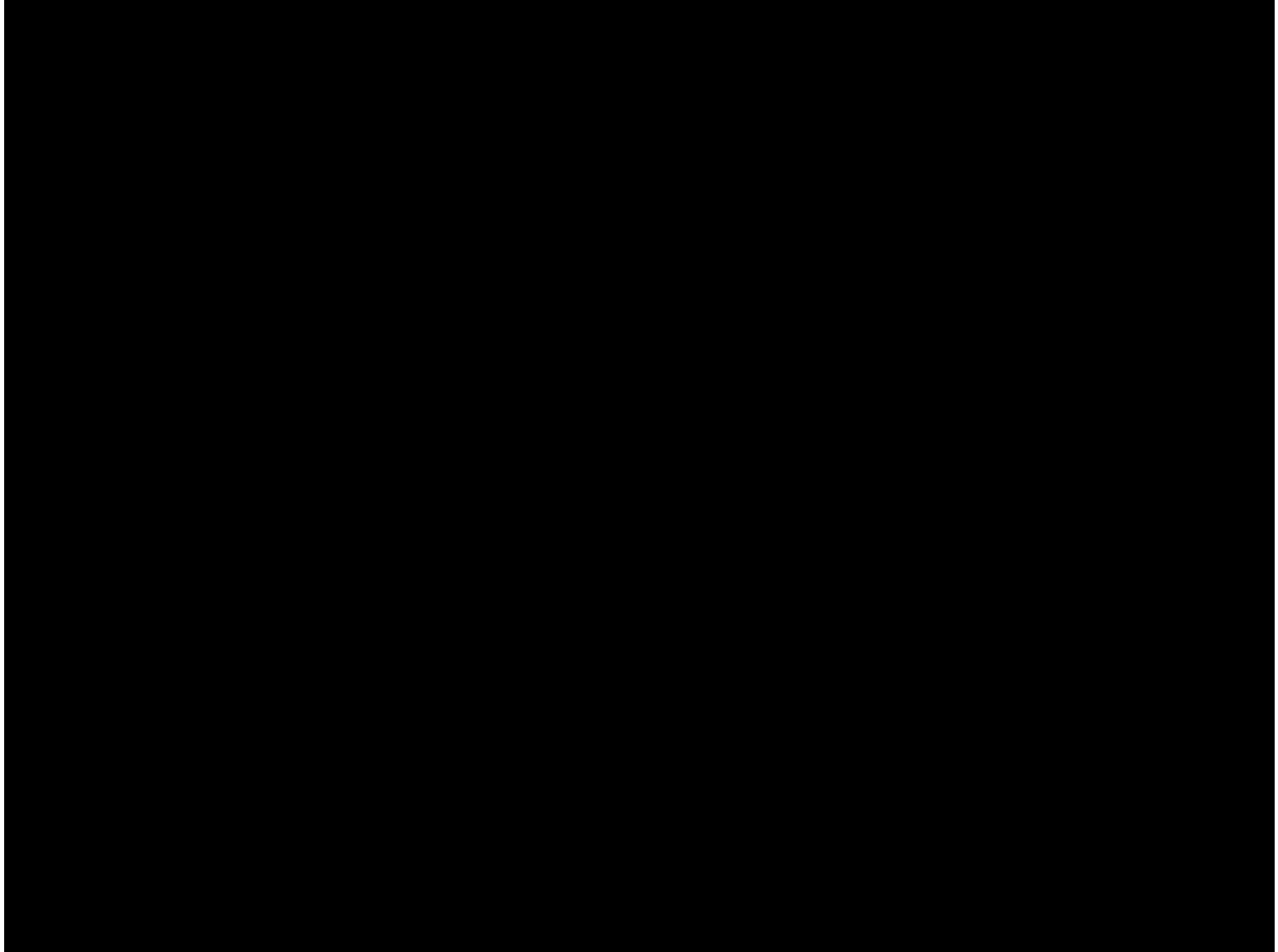
Safety Mechanisms — Overspeed Brake



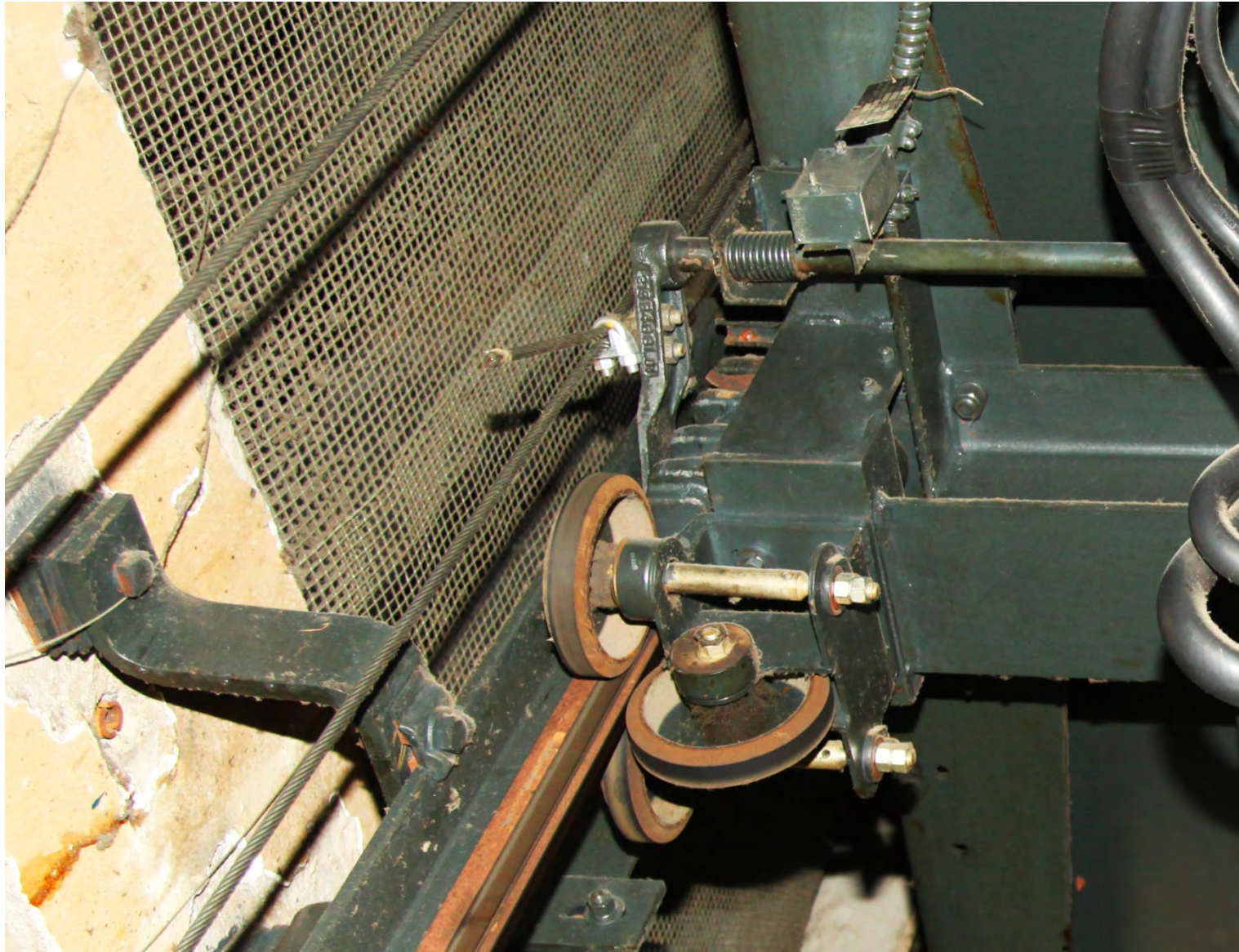
Safety Mechanisms – Governor (to Trigger Safeties)



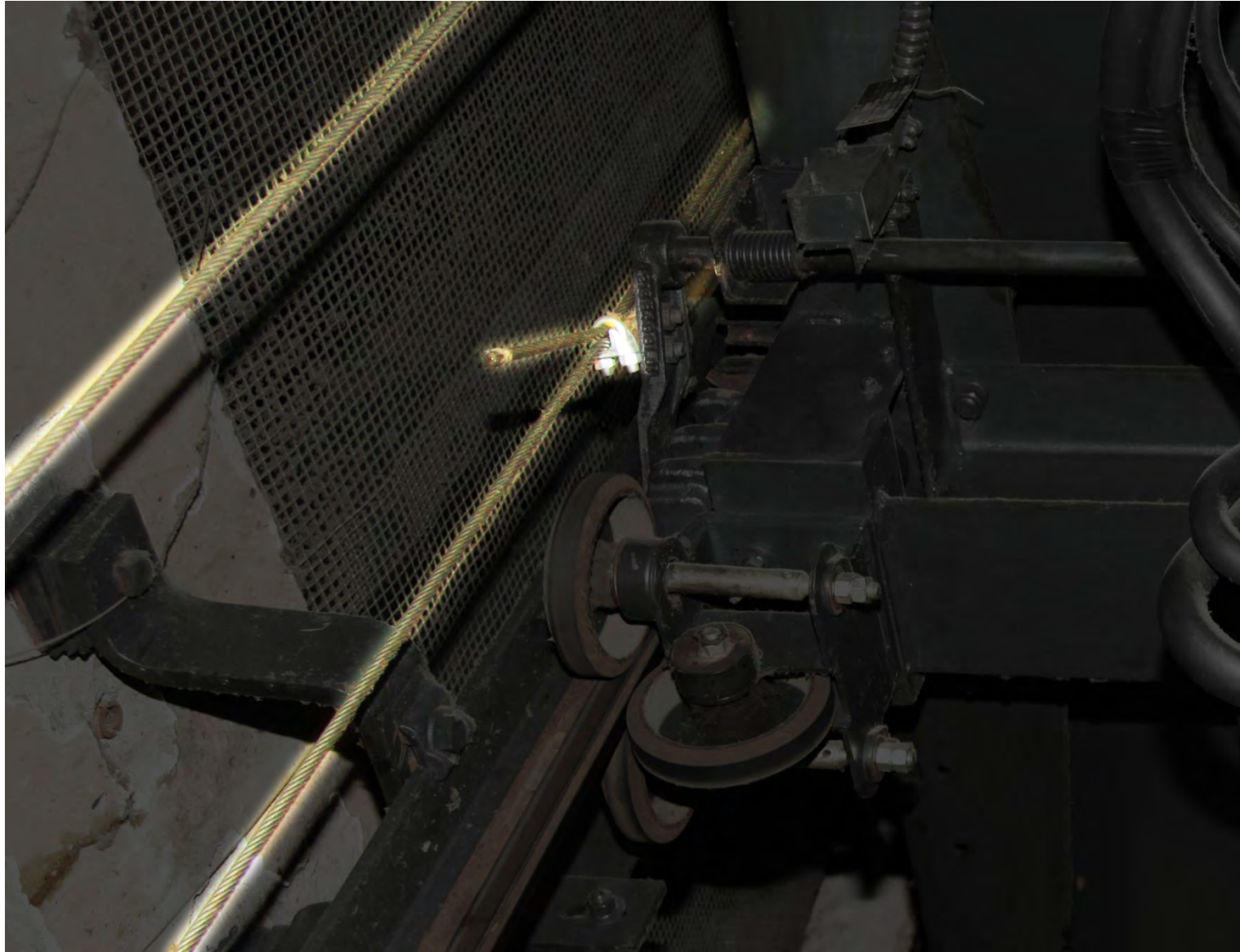
Safety Mechanisms — Rail Gripper Safety



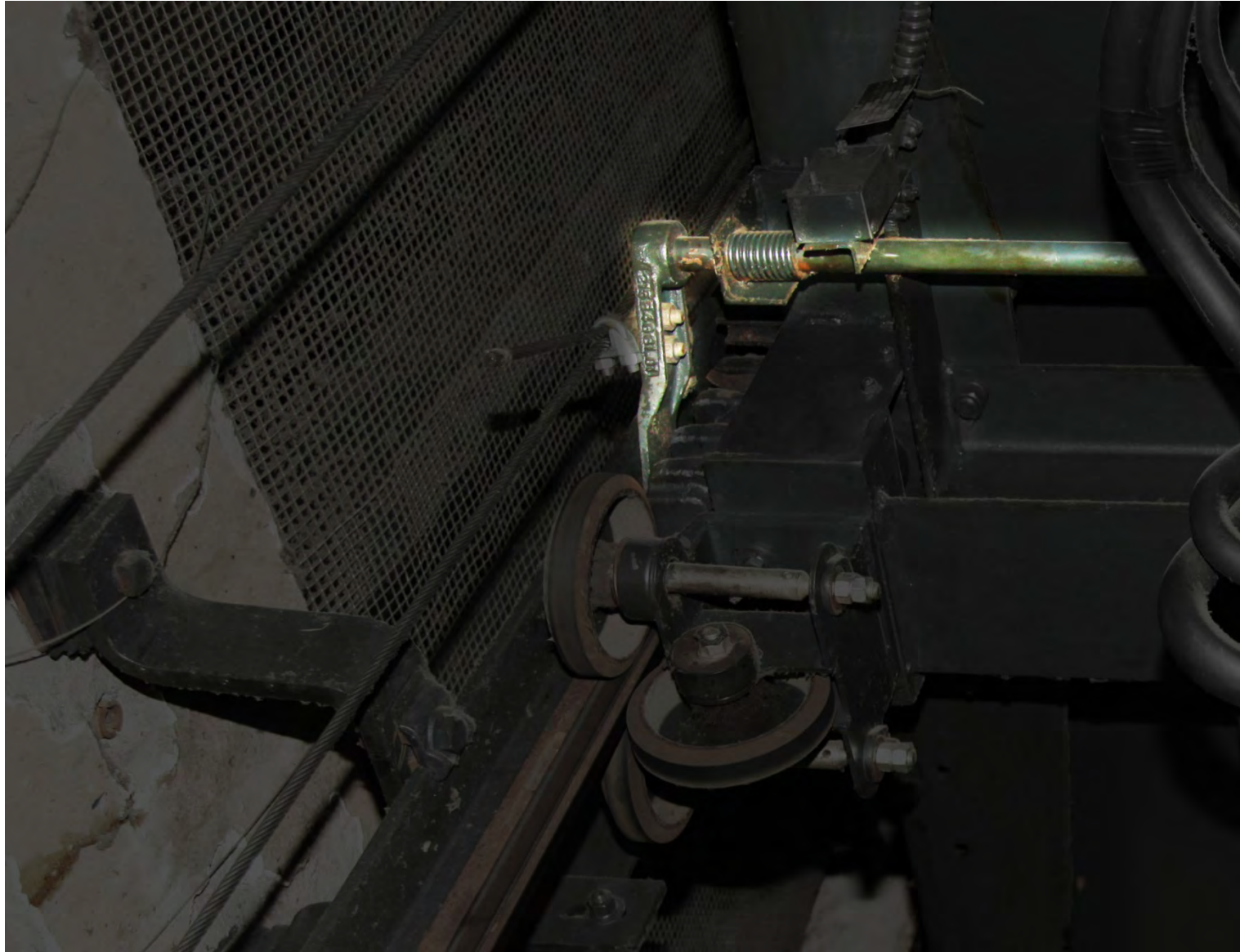
Safety Mechanisms — Modern Rail Gripper Safety



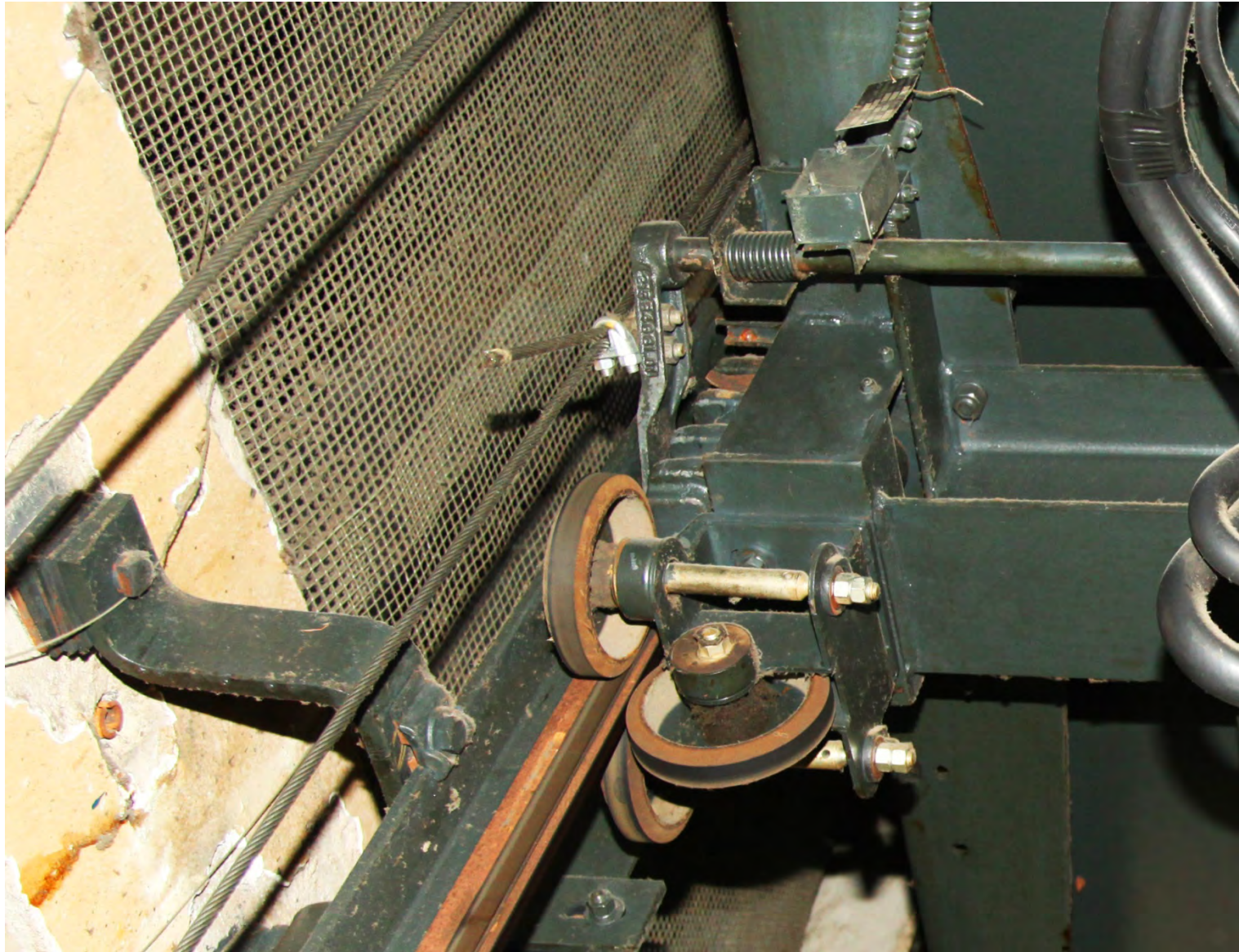
Safety Mechanisms — Modern Rail Gripper Safety



Safety Mechanisms — Modern Rail Gripper Safety



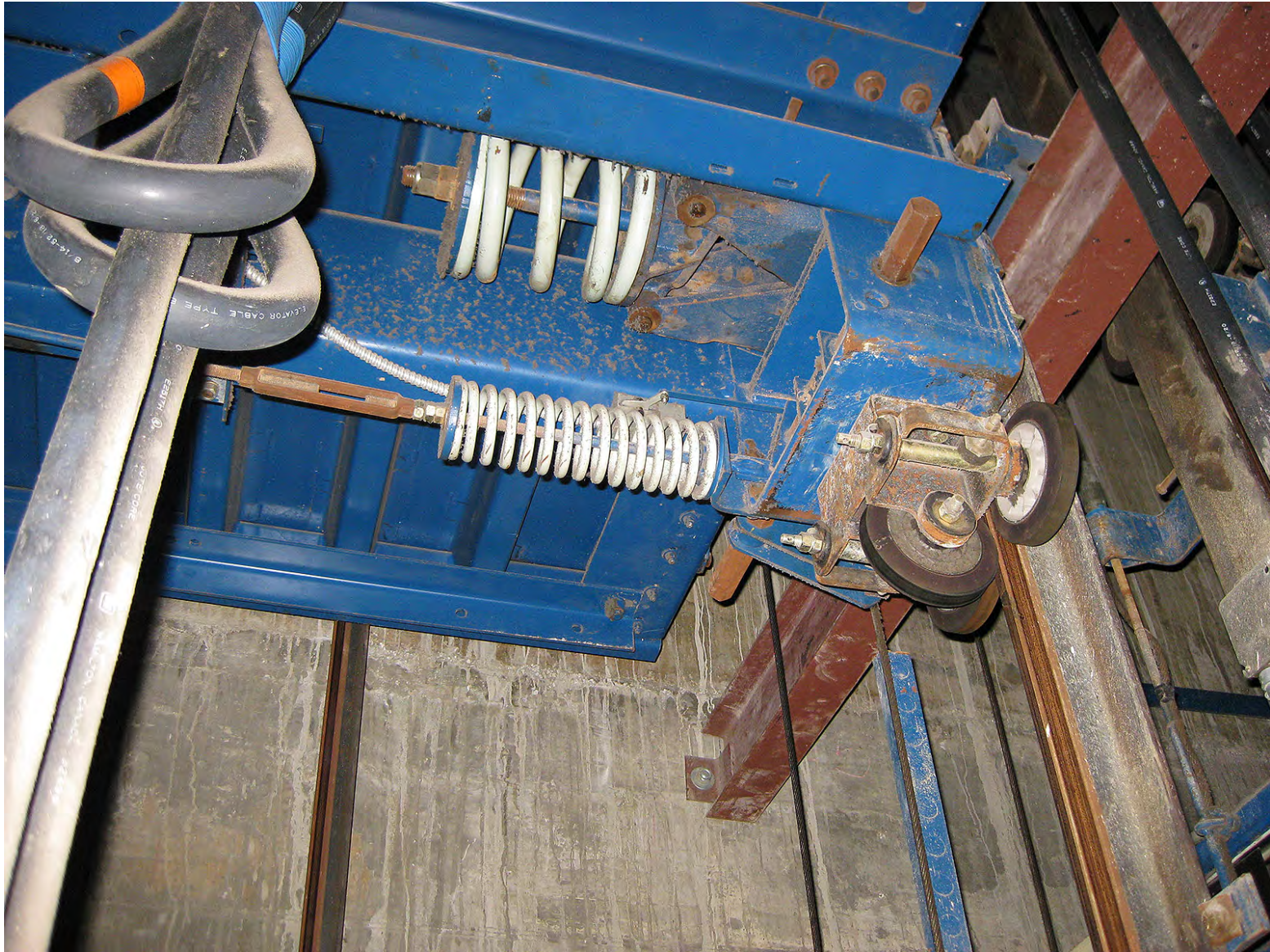
Safety Mechanisms — Modern Rail Gripper Safety



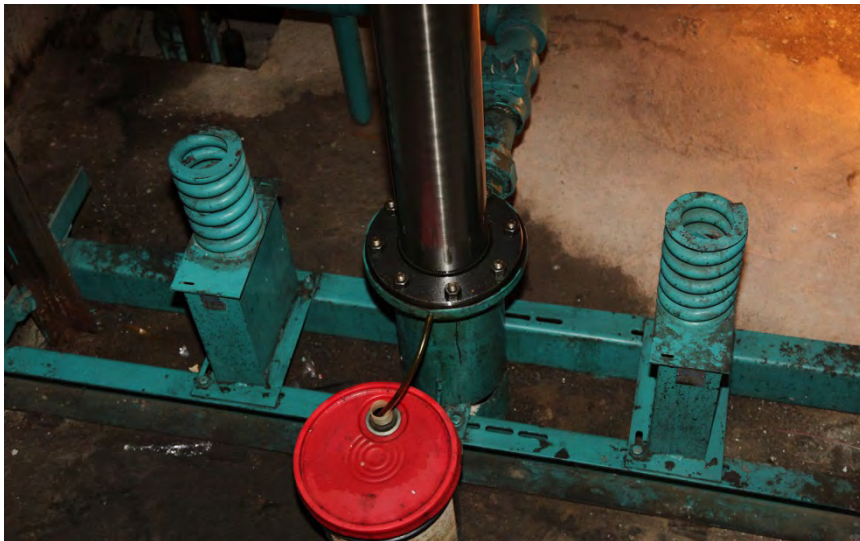
Safety Mechanisms — Modern Rail Gripper Safety



Safety Mechanisms – Modern Rail Gripper Safety



Safety Mechanisms — If All Else Fails... There's the Buffer



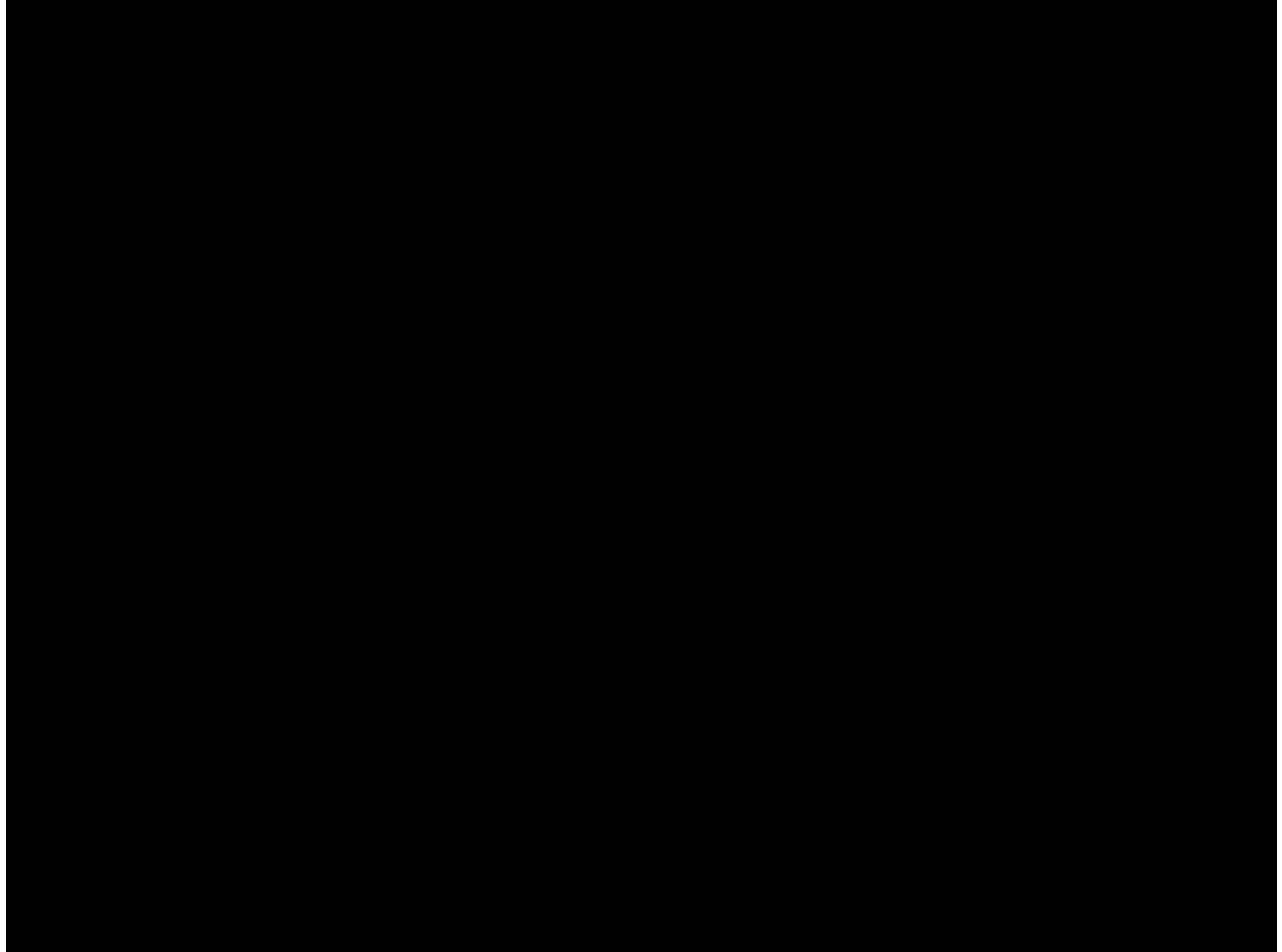
Elevators Want To Keep You Alive



Elevators on Automatic Mode Do Their Job Well Everyday



...Unless You're on the Car Top, Derpface





SPECIAL MODES OF
OPERATION



Independent Service



Independent Service



Independent Service



Attendant Service



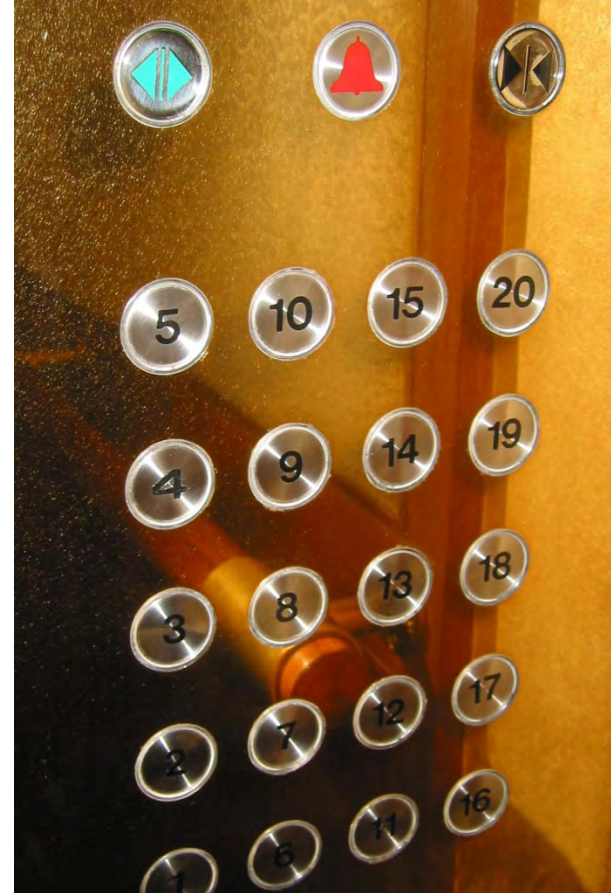
Attendant Service



Attendant Service



Express / Executive / VIP service



Sabbath Mode



Sabbath Mode

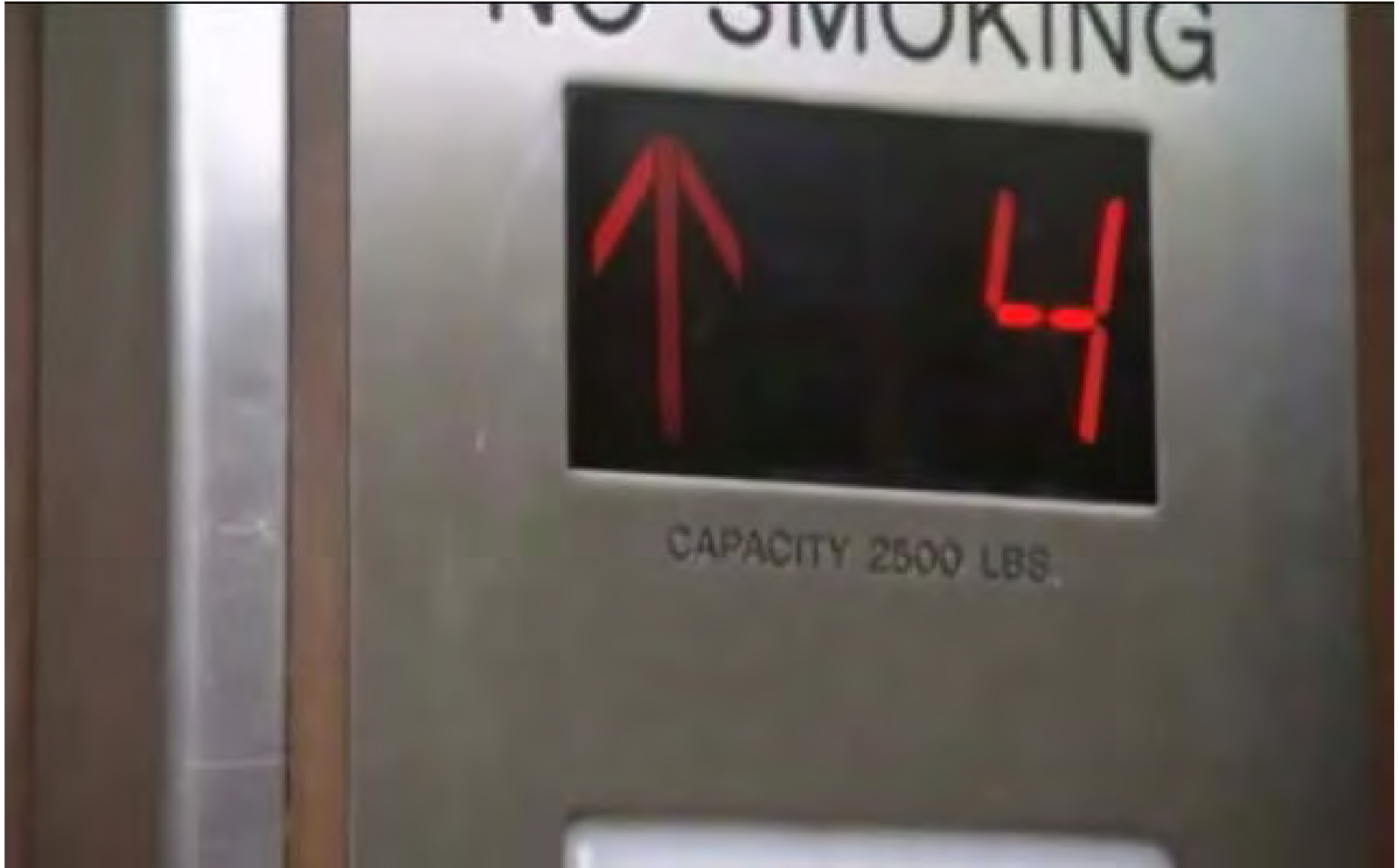


הורד במעלית
כשבת עלול לעבור
על מספר מלאכות

Sabbath Mode



Sabbath Mode



Load Bypass



Load Bypass



Anti Nuisance / No Passenger



Anti Nuisance / No Passenger



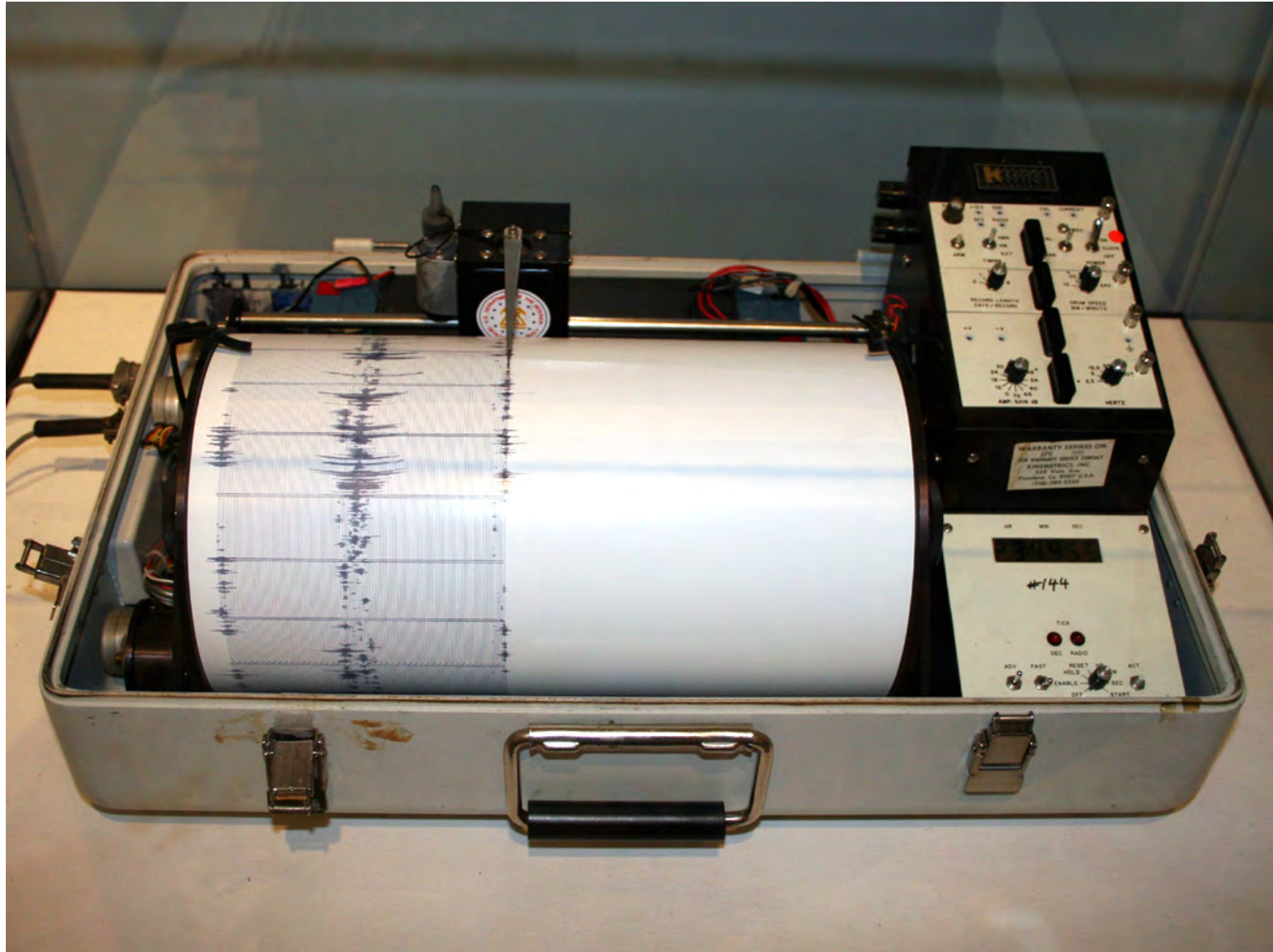
Up Peak / Down Peak



Riot Mode



Seismic Mode



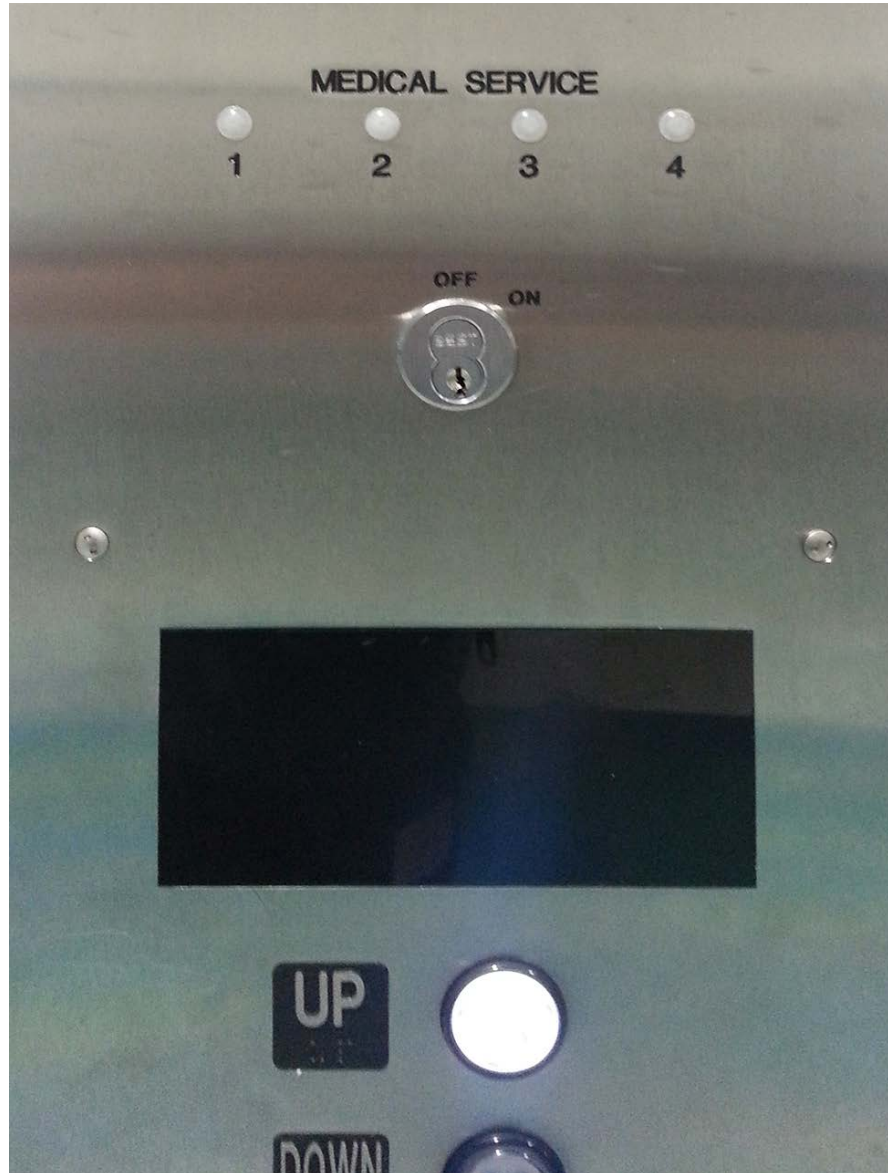
Code Blue



Code Blue



Code Blue



Code Pink



Code Pink



Security Recall



Security Recall



Security Service



Security Service



Fire Service



Hoistway Inspection



Hoistway Inspection



Hoistway Inspection





ELEVATOR SECURITY
(HOW IT'S ATTEMPTED)



Disabled Hall Call Buttons



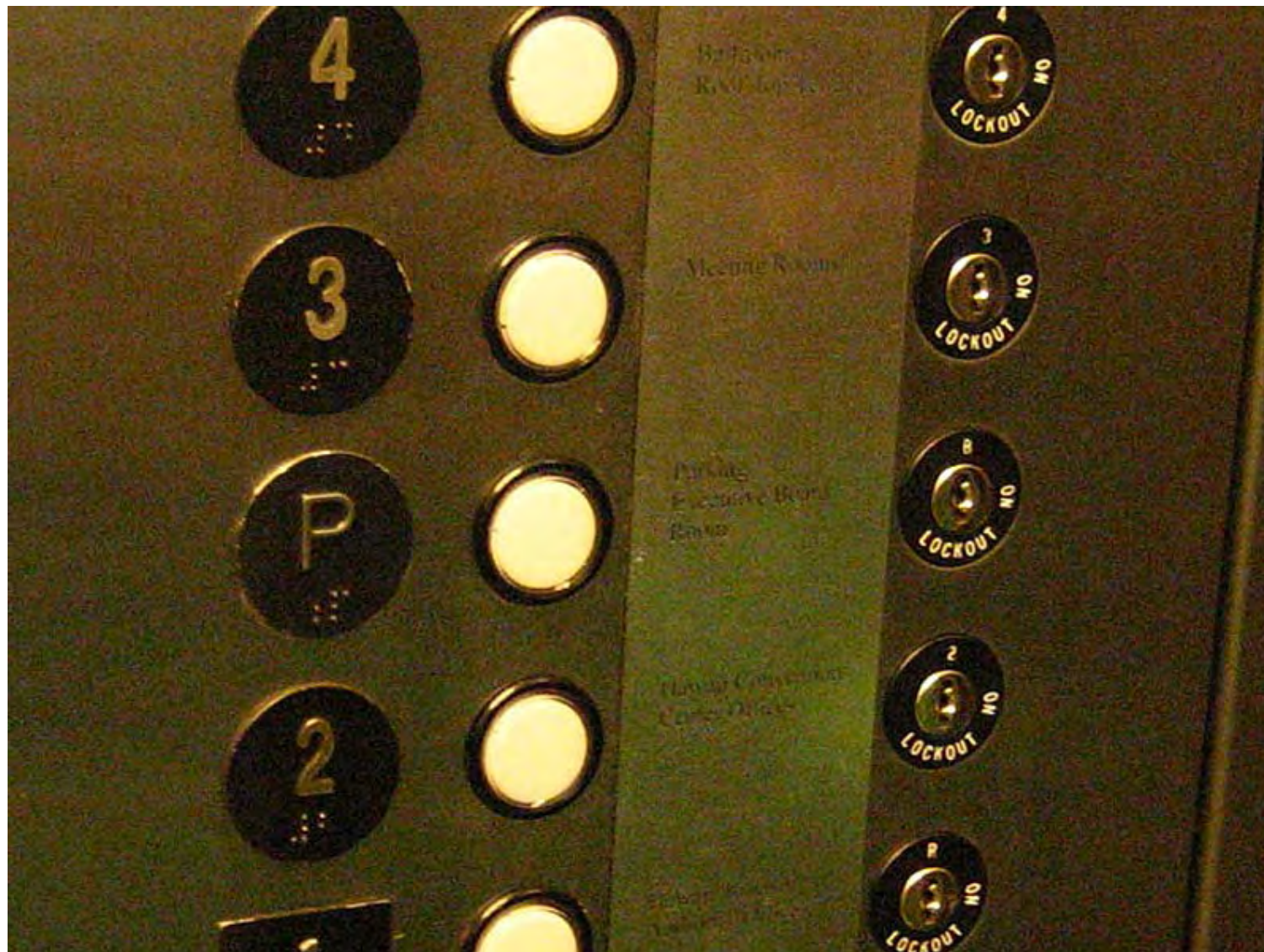
No Hall Call Buttons



Keycard to Register Hall Call



Floor Cutouts



Floor Cutouts



Floor Cutouts



Floor Cutouts

not code compliant!



Floor Cutouts



?



Floor Cutouts



Badge Systems



Physically Securing the Elevator Area



Physically Securing the Elevator Area



Think of Elevators like Stairwells... but Sometimes Even Worse





ELEVATOR SECURITY

(HOW IT'S SUBVERTED)



When There Are No Hall Call Buttons



When There Are No Hall Call Buttons



When There Are No Hall Call Buttons

OPEN THE DOOR ON INNOVATION.



The GateKeeper™ 3000's compact design and advanced technology make it the best option for elevator door protection.

INTRODUCING THE LATEST IN THE GATEKEEPER™ SERIES.

The compact design and advanced technology of the GateKeeper™ 3000 make it the best—and most economical—option for advanced door protection. The light curtain is made up of 154 criss-cross beams, which remain active until the door is fully closed, ensuring passengers remain safe while entering and exiting at each elevator landing zone. With the most reliable light curtain technology and a 5-year light curtain warranty, Adams has you covered.

Visit shop.adamselevator.com to get an additional 2% off the GateKeeper™ 3000.



Key Switches



Key Switches



Key Switches



Key Switches



Key Switches



Welcome To the Kingdom of Keys!



Welcome To the Kingdom of Keys!



Keys & Fixtures

Brands of Elevator

- Otis
 - Cemco
- ThyssenKrupp
 - Dover
 - US Elevator
- KONE
 - Montgomery
 - Armor
- Schindler
 - Westinghouse
 - O. Thompson
 - Payne

Brands of Fixtures

- G.A.L.
- EPCO
- Innovation
- Adams
- Monitor / Janus
- CJ Anderson
- P.T.L.
- MAD

Keys & Fixtures



OTIS

Keys & Fixtures



OTIS

Keys & Fixtures



Keys & Fixtures



 **INNOVATION**
INDUSTRIES INC

Keys & Fixtures



Keys & Fixtures



Keys & Fixtures

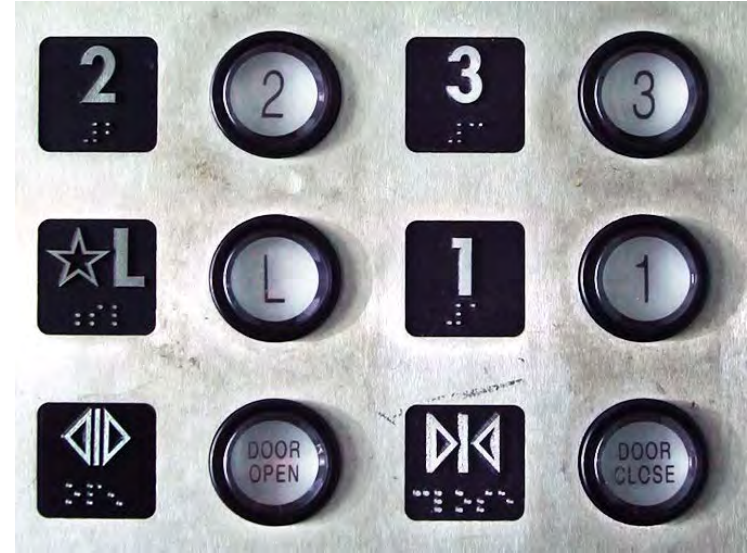


Schindler

Keys & Fixtures



Keys & Fixtures



Keys & Fixtures



Keys & Fixtures



The artist formerly known as



Key Suppliers



Key Suppliers



Key Suppliers



Key Suppliers



Key Suppliers



Key Suppliers



Key Suppliers



VS.



Key Suppliers



Shopping Cart

Search

Welcome visitor you can [login](#) or [create an account](#)

Home | Wish List (0) | My Account | Shopping Cart | Checkout | +1 (855) 469-8364

Keys by Manufacturer | Keys by A17.1 Group | Key Sets | Drop Keys

Welcome to ElevatorKeys.com

Welcome to ElevatorKeys.com, a premier online source for reasonably priced elevator keys and access control solutions!

We provide building owners, their managing agents, emergency personnel, and elevator personnel economical solutions for elevator key and security needs. Besides keys, we also offer key switches, access control systems, integration services, and elevator security consulting services.

Our personal customer service is just one part of our effort to make sure every customer is completely satisfied. We want you to think of ElevatorKeys.com any time you have a need for elevator keys or key switches.

If you have a special need for something you don't see on our site, just contact us for more information! We also offer wholesale prices for orders of 100 keys or more - [contact Us](#) for more information or call +1 (855) 469-8364 during normal business hours.

Featured

					
Innovation EX513 key \$3.99 Add to Cart	Otis UTC key \$3.99 Add to Cart	ThyssenKrupp L263 key \$3.99 Add to Cart	Schindler AS100 key \$3.99 Add to Cart	Universal Fire Service Key Set \$99.95 Add to Cart	Universal Key Shaft Handway Door Key Set \$134.95 Add to Cart

Connect With Us



Information

- FAQ
- About Us
- Delivery Information
- Restricted Key Policy
- Return Policy
- Verification Policy and Procedure
- Privacy Policy
- Security Consulting

Customer Service

- Contact Us
- Returns
- Site Map

Extras

- Brands
- Gift Vouchers

My Account

- My Account
- Order History
- Wish List
- Newsletter

VS.

The screenshot shows an eBay search for 'elevator keys'. The search results page includes a navigation bar with 'Shop by category', a search bar, and a 'Search' button. Below the search bar, there are filters for 'All Listings', 'Auction', and 'Buy It Now'. The search results are sorted by 'Best Match' and show 174 results. The first three items are:

- GAL ELEVATOR DOOR KEY**: 2d 11h left, Sunday, 9AM. Price: \$20.00. 1 bid. Expedited shipping available.
- ELEVATOR KEY STATE FIRE KEY U CHOOSE WHICH STATE FIRE KEY SEE DETAILS**: Buy It Now. Price: \$7.99. Free shipping. 13 Watchers.
- GAL Elevator G1617X KEY - GAL ELEVATOR G 1617 X**: Buy It Now. Price: \$5.49.

Additional filters on the left include 'Condition' (New, Used, Not Specified), 'Price' (range), 'Format' (All Listings, Auction, Buy It Now), 'Item Location' (eBay.com, US Only, North America, Worldwide), 'Delivery Options' (Free shipping, Free In-store pickup, Expedited shipping), and 'Show only' (Returns accepted, Completed listings, Sold listings).

The Industry is WAY Behind the Times on Security



The Industry is WAY Behind the Times on Security



The Industry is WAY Behind the Times on Security

NEWS

TUESDAY, APRIL 15, 2014 06:30 PM EDT

Phoenix Fire Department Loses 850 Keys, Which Access Thousands of Local Businesses and Apartments

BY ASSOCIATED PRESS

The Phoenix Fire Department said Monday it can't account for hundreds of keys for lock boxes that allow firefighters responding to fires or alarms to enter thousands of businesses and apartment complexes when they are closed.

Deputy Chief David Carter said he has searched for the missing keys over the past 15 years but said there's no indication they have been found.

"Our accountability is to the community," Carter said.

Some of the missing keys were for lock boxes used by firefighters to access businesses and apartment complexes. Carter said he has searched for the missing keys over the past 15 years but said there's no indication they have been found.

"We've probably lost 850 keys," Carter said.

The Fire Department keeps the keys for lock boxes that allow firefighters to break into stores, office buildings, apartment complexes and other structures when they are closed.

The lost keys open lock boxes. The lock boxes contain other keys that open doors to businesses and apartment complexes.

Carter said the department will replace the locking mechanisms of the 9,000 lock boxes at a cost of \$500,000 for the work and that the lock-box company, Phoenix-based Knox Co., will pay for any additional costs.

Jamison did not have a total figure, and Knox spokesman Keith Wolski referred all cost questions to Phoenix fire officials.

Carter said the department recently took stock of its keys after learning of a 2013 criminal case in Seattle in which a man was accused of breaking into apartment complexes.

Prosecutors in that case said in court papers that the Seattle Fire Department was rekeying boxes at a cost of over \$500,000, KIRO-TV reported in October.

Carter said the Phoenix Fire Department will have employees install new locking mechanisms in the boxes.

"We're the custodians of these keys. We understand the businesses place a lot of trust in us," he said. "We need to maintain that trust with the business community."

Todd Sanders, president of the Greater Phoenix Chamber of Commerce, said the Fire Department's inability to account for the keys was a concern but that it was encouraging that officials had discovered the problem and were taking action.



Phoenix Fire Department Loses 850 Keys, Which Access Thousands of Local Businesses and Apartments

The Industry is WAY Behind the Times on Security



The Industry is WAY Behind the Times on Security



The Industry is WAY Behind the Times on Security



The Industry is WAY Behind the Times on Security



The Industry is WAY Behind the Times on Security



The Industry is WAY Behind the Times on Security



Create a new user account. For user name use **mcesupport** and password **mcesupport**. Click the Add to list button.

Click Save settings at the bottom of the screen.

Click the Setup tab, then click Password below. Type in **admin** for the Old Password field and **mcesupport** for the New Password and Confirm New Password fields. Click Save Settings at the bottom.

When you log into the router in the future, use the username **admin** and the password **mcesupport**.

VPN router configuration is now complete.

The Industry is WAY Behind the Times on Security



Create a new user account. For user name use **mcesupport** and password **mcesupport**. Click the Add to list button.

LINKSYS
A Division of Cisco Systems, Inc.

VPN

System Summary Setup DHCP System Management Firewall VPN Log Wizard

10/100 4-port VPN Router

PPTP Server

Enable PPTP Server

IP Address Range

Range Start : 172 . 17 . 2 . 242

Range End : 172 . 17 . 2 . 246

Users Setting

User Name : mcesupport

New Password : *****

Confirm New Password : *****

Add to list

Save Settings

Click Save settings at the bottom of the screen.

Click the Setup tab, then click Password below. Type in **admin** for the Old Password field and **mcesupport** for the New Password and Confirm New Password fields. Click Save Settings at the bottom.

When you log into the router in the future, use the username **admin** and the password **mcesupport**.

VPN router configuration is now complete.

The Industry is WAY Behind the Times on Security



Create a new user account. For user name use **mcesupport** and password **mcesupport**. Click the Add to list button.

The screenshot shows the Linksys VPN configuration interface. The 'Users Setting' section is active, displaying a form to create a new user. The 'User Name' field contains 'mcesupport'. The 'New Password' and 'Confirm New Password' fields both contain 'mcesupport'. An 'Add to list' button is visible below the password fields. At the bottom of the form area, there is a 'Save Settings' button.

Click Save settings at the bottom of the screen.

Click the Setup tab, then click Password below. Type in **admin** for the Old Password field and **mcesupport** for the New Password and Confirm New Password fields. Click Save Settings at the bottom.



When you log into the router in the future, use the username **admin** and the password **mcesupport**.

VPN router configuration is now complete.

The Industry is WAY Behind the Times on Security



Create a new user account. For user name use **mcesupport** and password **mcesupport**. Click the Add to list button.

Click Save settings at the bottom of the screen.

Click the Setup tab, then click Password below. Type in **admin** for the Old Password field and **mcesupport** for the New Password and Confirm New Password fields. Click Save Settings at the bottom.



When you log into the router in the future, use the username **admin** and the password **mcesupport**.

VPN router configuration is now complete.



The Industry is WAY Behind the Times on Security



The Industry is WAY Behind the Times on Security



The Industry is WAY Behind the Times on Security

ASME A17.1 (2007): Safety Code for Elevators & Escalators

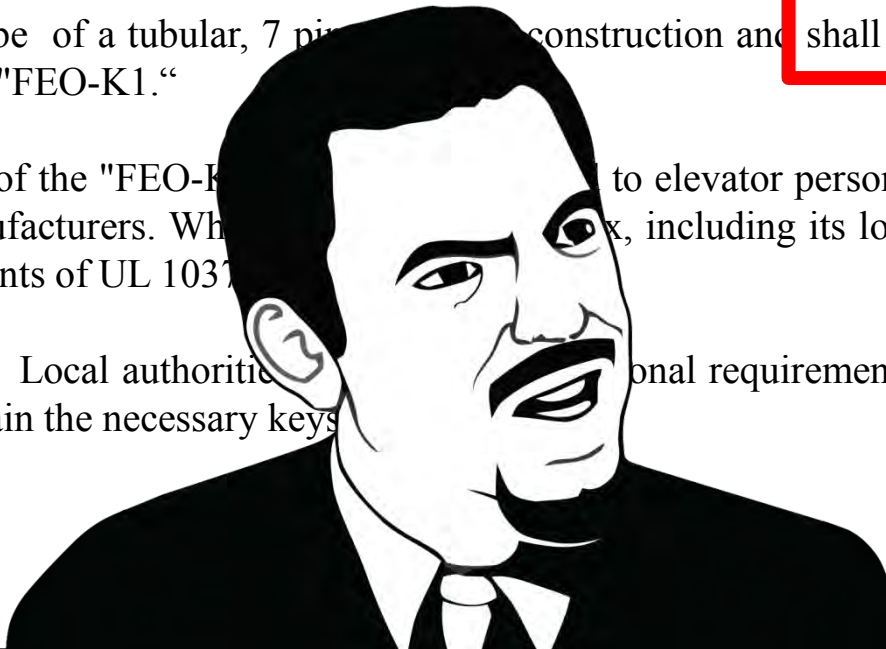
2.27.8 Switch Keys

The key switches required by 2.27.2 through 2.27.5 for all elevators in a building shall be operable by the same key. The keys shall be Group 3 Security (see 8.1). There shall be a key for each switch provided. These keys shall be kept on the premises in a location readily accessible to firefighters and emergency personnel, but not where they are available to the public.

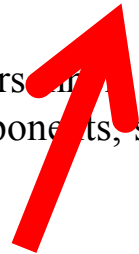
This key shall be of a tubular, 7 pin construction and shall have a biting code of 6143521. The key shall be coded "FEO-K1."

The possession of the "FEO-K1" key shall be restricted to elevator personnel, emergency personnel, and elevator equipment manufacturers. When the key is used to open a lock box, including its lock and other components, shall conform to the requirements of UL 1037.

NOTE (2.27.8): Local authorities shall have the authority to impose additional requirements for a uniform keyed lock box and its location to contain the necessary keys.



6143521



It's All Naked on the Inside



Unsecured Car Panels



What About Keycard Systems?



What About Keycard Systems?



MAGS TRIP EMAD NESS



Major Malfunction — Magstripe Madness (DEFCON 14)

https://www.youtube.com/watch?v=MY_p8C9jJcK

So What Do Pen Testers Do?



Independent Service



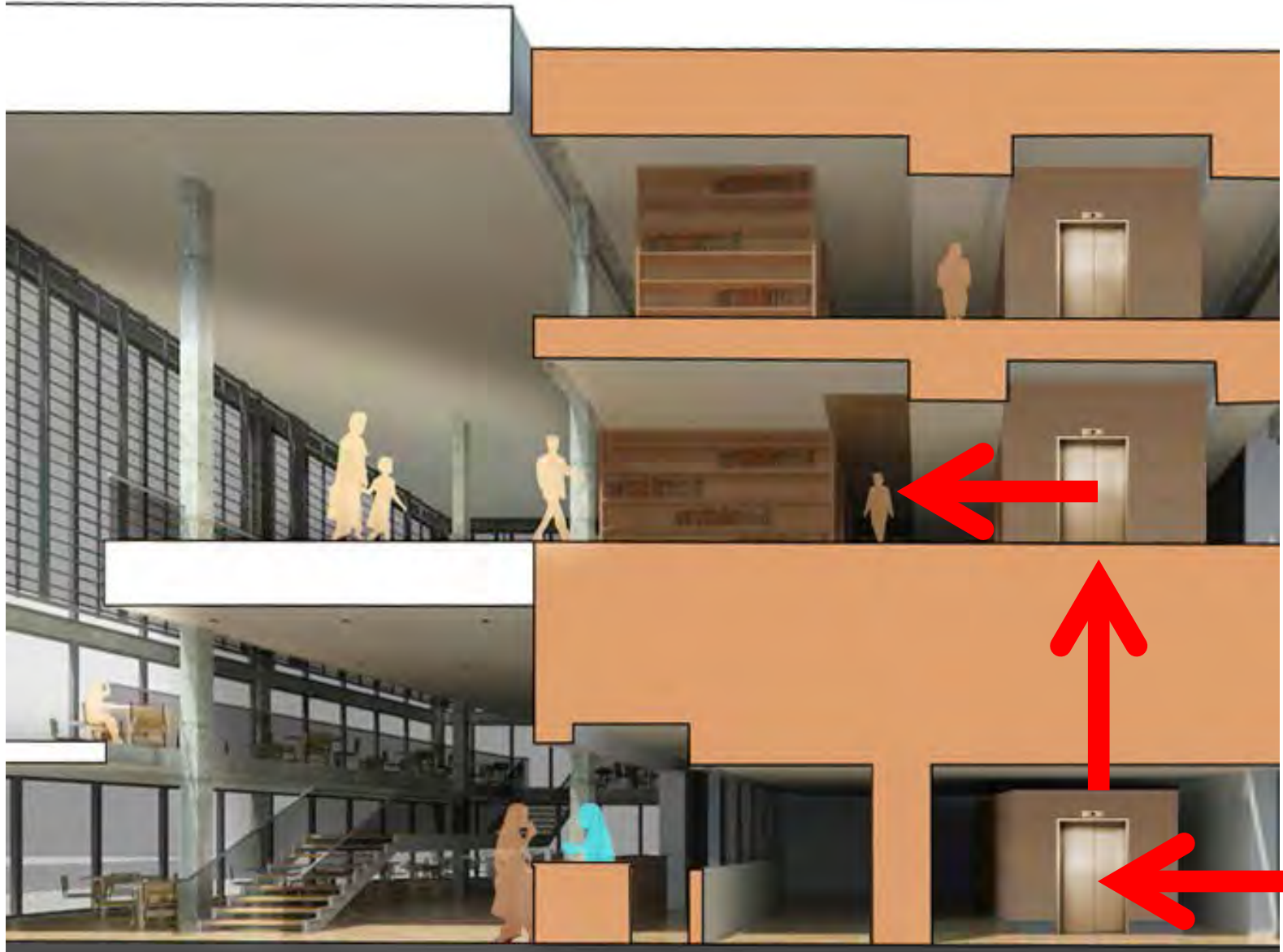
And Sometimes Fire Service



Fire Service



Fire Service



Fire Service

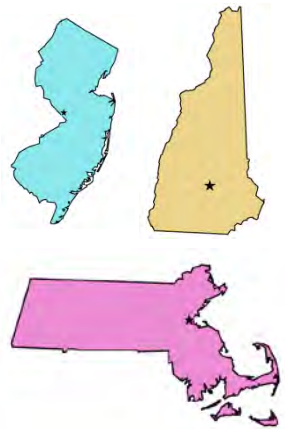


"The Post published pictures of the fire service keys only after checking with locksmiths who said duplicates could not be made without the originals in hand." <http://nypost.com/2012/10/01/lock-away-these-nyc-keys>



The Infamous "2642 Key"
Yale Y1 key (unrestricted blank)

Bitting Code: 2-6-4-2-0



The "3502 Key"

Yale Y2 key (unrestricted blank)

Bitting Code: 0-3-2-3-4-8



The Tennessee Key
Gamewell "Christmas Tree" Key
reused and repurposed



The Indiana Key

7-pin Tubular Key (unrestricted blank)

Bitting Code: X-X-X-X-X-X-X

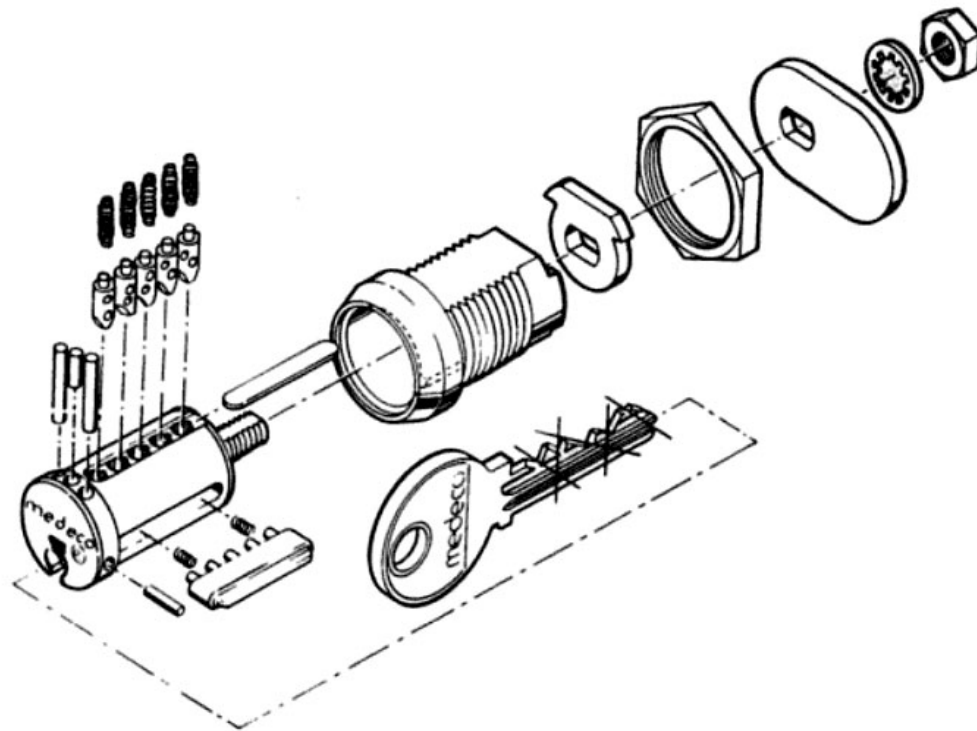


The "XXXX" Key

Medeco Cam (restricted blank)

Bitting: X-X-X-X-X Sidebar: X-X-X-X-X





The "XXXX" Key

Medeco Cam (restricted blank)

Bitting: X-X-X-X-X Sidebar: X-X-X-X-X

Exploiting BACnet



Brad Bowers — How To Own A Building: Exploiting the Physical World With BACnet (ShmooCon 2013)

<http://www.youtube.com/watch?v=d3jtmv6Y9uk>

Hoistway Access



Hoistway Access



Escutcheon Holes



Door Releases



Escutcheon Holes



ElevatorKeys.com

“It’s in that place where I put that thing that time.”



Escutcheon Locks



Escutcheon Locks



Escutcheon Locks



Escutcheon Locks



Escutcheon Locks



Escutcheon Locks



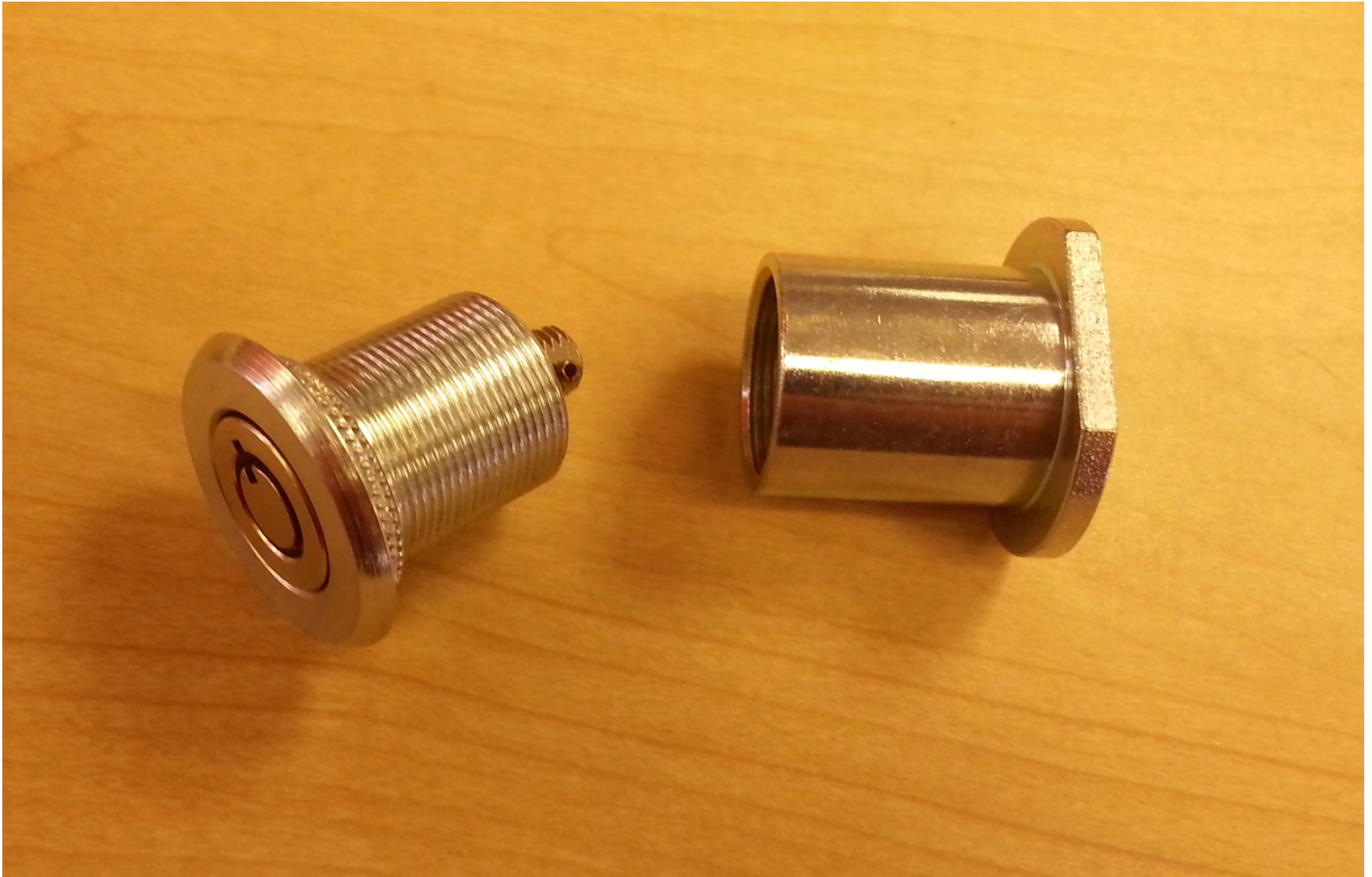
Escutcheon Locks



Escutcheon Locks



Escutcheon Locks



Escutcheon Locks



Escutcheon Locks



Machine Room Access



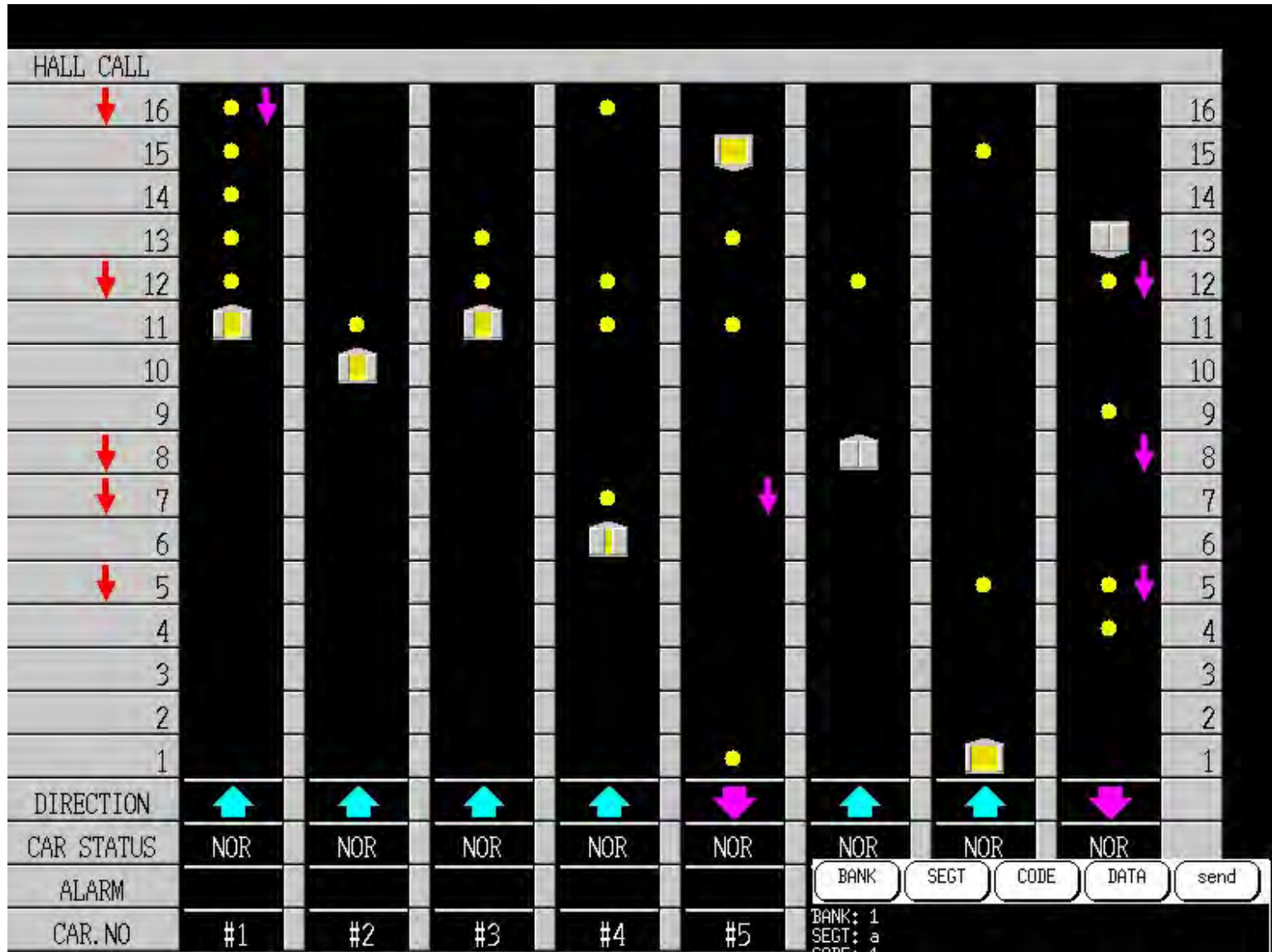
A Fair Analogy

Floor Cutout Locks.....	User Passwords
Independent Service	Local Admin
Fire Service	Domain Admin
Hoistway Access	System
Machine Room Access	Hypervisor

Machine Room – Direct Operation via the Controller



Machine Room – Direct Operation via the Controller



Machine Room — Hacking & Manipulating the Controller



Machine Room — Hacking & Manipulating the Controller



Machine Room — Hacking & Manipulating (5-Year Test)



Machine Room — Hacking & Manipulating is Dangerous!



How POTUS Rolls





ELEVATOR PHREAKING



Emergency Phones in Elevators



Emergency Phones in Elevators



Emergency Phones in Elevators



Emergency Phones in Elevators



Emergency Phones in Elevators



Emergency Phones in Elevators



Emergency Phones in Elevators



Emergency Phones in Elevators



Emergency Phones in Elevators



Emergency Phones in Elevators



Emergency Phones in Elevators



Emergency Phones in Elevators



G.A.L. HANDS FREE EMERGENCY TELEPHONE MODEL GAL-6400

QUICK PROGRAMMING INSTRUCTIONS

To program a single emergency number to be dialed and voice location announcement to be recorded without changes to the security code or tone location ID.

- A.** Connect the phone line to the modular connector supplied on the GAL-6400.
- B.** From another phone, dial the phone number for the line that the GAL-6400 is attached to. The GAL-6400 will answer immediately.
- C.** Dial the factory set security code 1,2,3,4,5,6 on the telephone keypad. Two beeps should be heard.
- D.** Using the telephone keypad, enter the emergency number the GAL-6400 should dial followed by #,0,0. Two beeps should be heard.

Emergency Phones in Elevators



G.A.L. HANDS FREE EMERGENCY TELEPHONE MODEL GAL-6400

QUICK PROGRAMMING INSTRUCTIONS

To program a single emergency number to be dialed and voice location announcement to be recorded without changes to the security code or tone location ID.

- A. Connect the phone line to the modular connector supplied on the GAL-6400.
- B. From another phone, dial the phone number for the line that the GAL-6400 is attached to. The GAL-6400 will answer immediately.
- C. Dial the factory set security code 1,2,3,4,5,6 on the telephone keypad. Two beeps should be heard.
- D. Using the telephone keypad, enter the emergency number the GAL-6400 should dial followed by #,0,0. Two beeps should be heard.

Emergency Phones in Elevators



G.A.L. HANDS FREE EMERGENCY TELEPHONE MODEL GAL-6400

QUICK PROGRAMMING INSTRUCTIONS

To program a single emergency number to be dialed and voice security code or tone location ID.

<http://www.gal.com/downloads/Fixtures/GAL%206400.pdf>

- A. Connect the phone line to the modular connector supplied on the GAL-6400.
- B. From another phone, dial the phone number for the line that the GAL-6400 is attached to. The GAL-6400 will answer immediately.
- C. Dial the factory set security code 1,2,3,4,5,6 on the telephone keypad. Two beeps should be heard.
- D. Using the telephone keypad, enter the emergency number the GAL-6400 should dial followed by #,0,0. Two beeps should be heard.

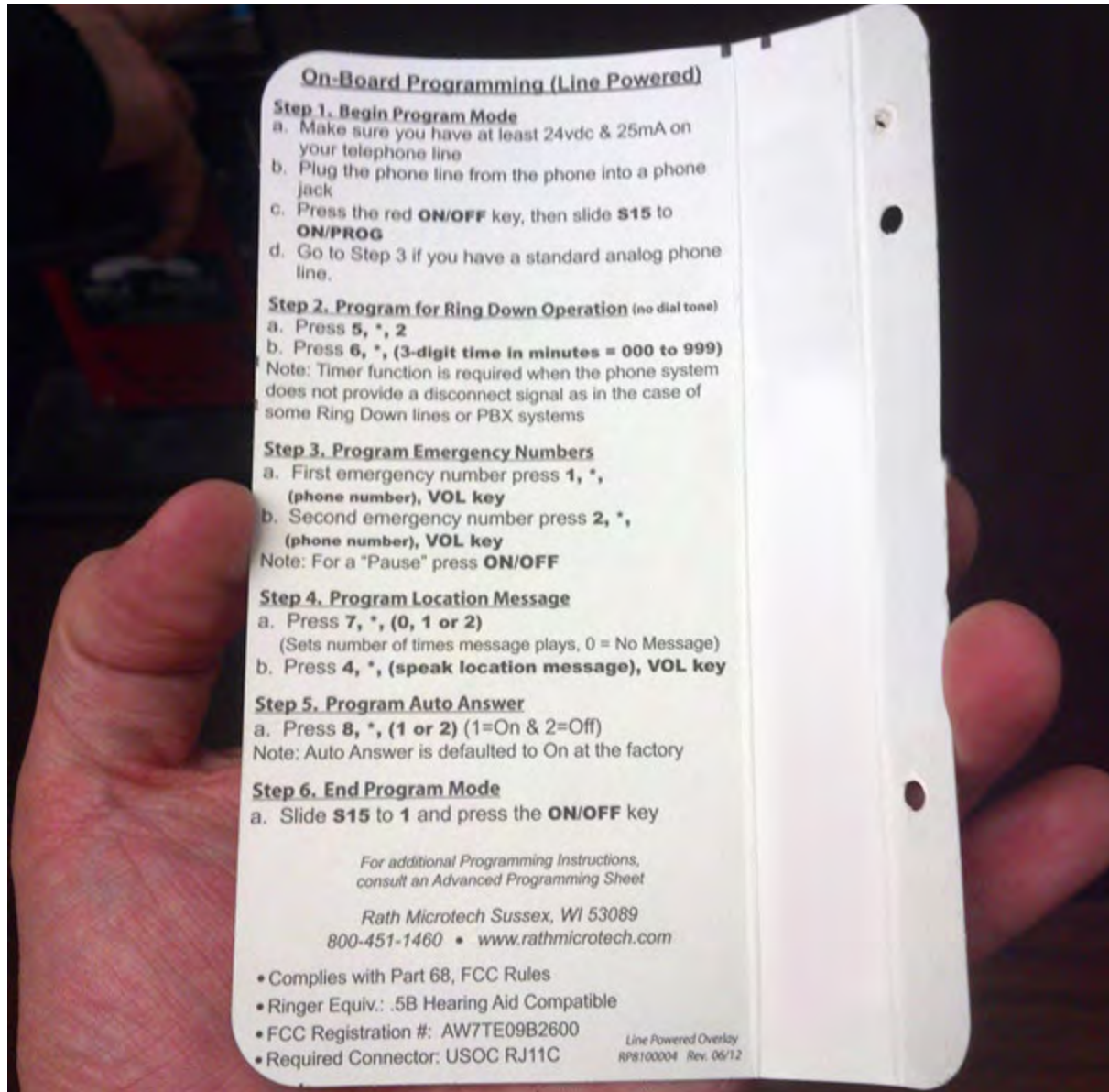
Emergency Phones in Elevators



Emergency Phones in Elevators



Emergency Phones in Elevators



Emergency Phones in Elevators



Emergency Phones in Elevators





COMMON VIOLATIONS,
ISSUES, & GUIDANCE



Entrapments



Code Violations



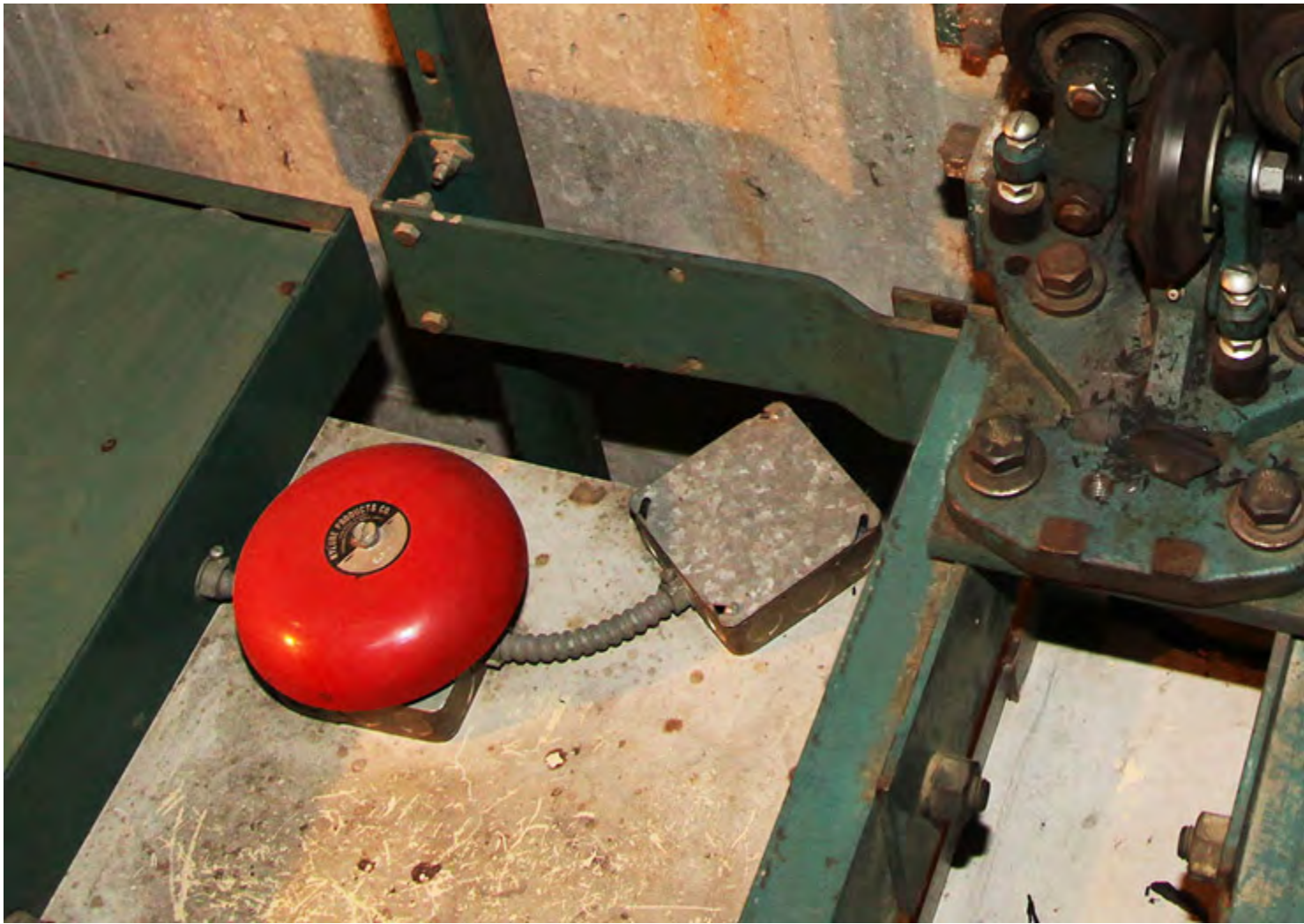
Code Violations



Phone Violations



Alarm Bell



"Assault" Switch



"Assault" Switch



Unsecured Motor Rooms and Hoistways



Unsecured Motor Rooms and Hoistways



Unsecured Motor Rooms and Hoistways



Unsecured Motor Rooms and Hoistways



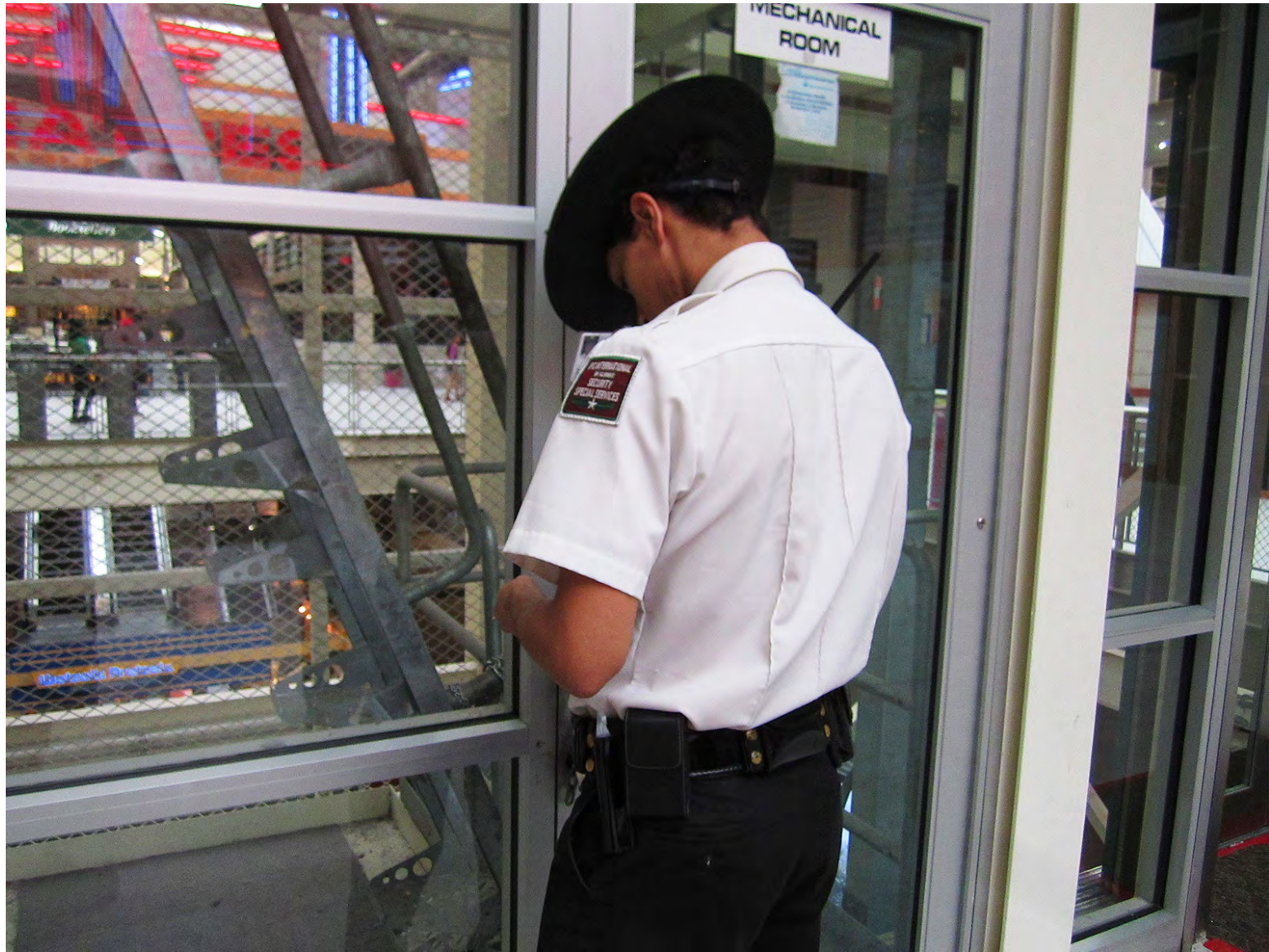
Improperly Secured Motor Rooms and Hoistways



Improperly Secured Motor Rooms and Hoistways



Improperly Secured Motor Rooms and Hoistways



Improperly Secured Motor Rooms and Hoistways



Know Who Your Contractor Is!



Know Who Your Contractor Is!

1. Facilities / Operations

2. Elevator Contractor

- Constructor
- Maintenance Contractor / Mechanic
 - parts, oil, grease *-or-* regular maintenance
 - basic troubleshooting
- Adjuster / Troubleshooter

3. Consultants

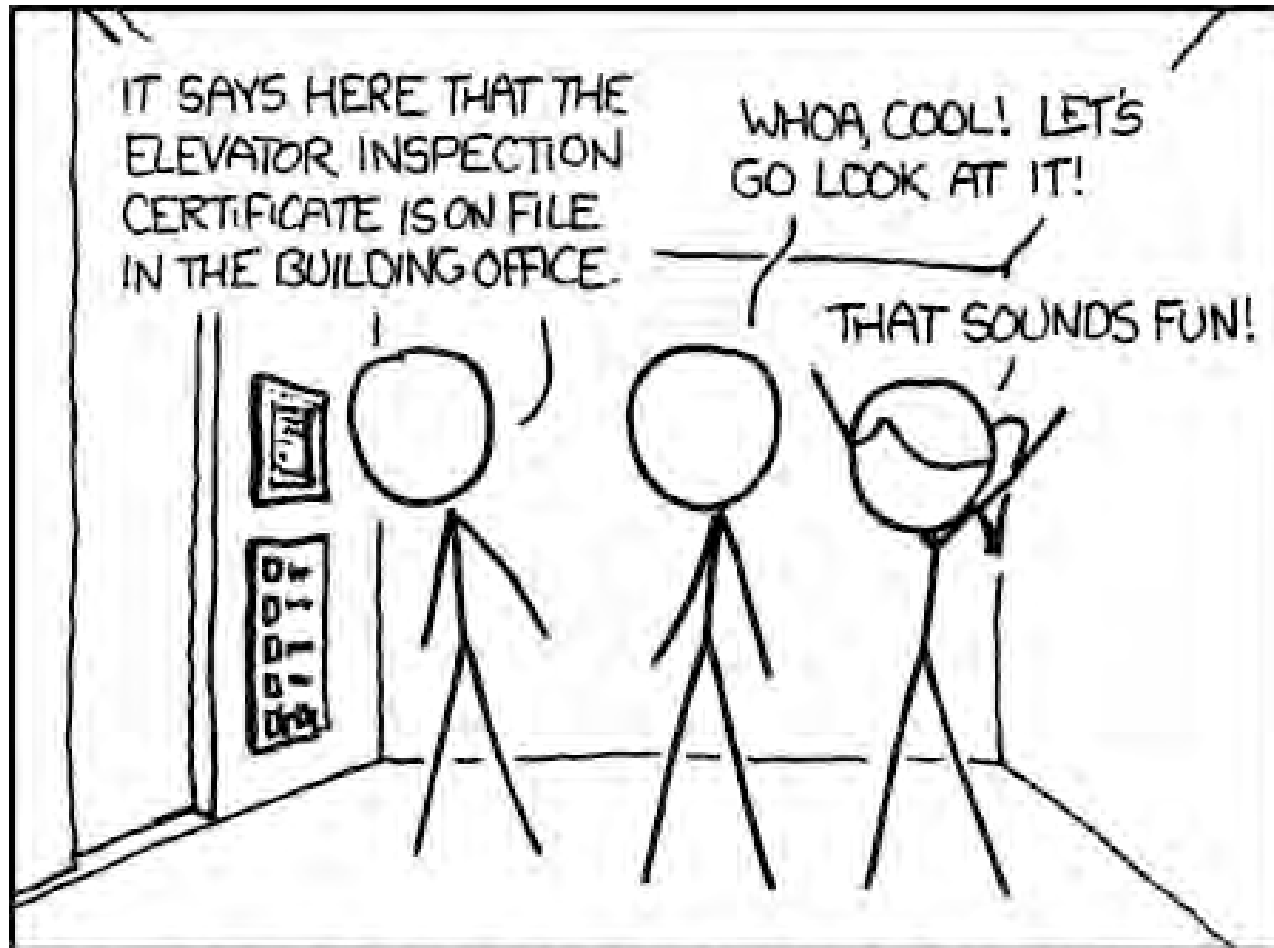
- Performance
- Monitoring
- Safety / Post-accidents

4. Inspection

- AHJ (Authority Having Jurisdiction... Municipal / State Inspectors)
- Third Party (QEI — Qualified Elevator Inspector)
- Second Party (Contractor inspects and certifies self)



Oversight of Your Maintenance Control Program



INDUSTRY TIP: BUILDING OWNERS KNOW THIS NEVER HAPPENS. THOSE SIGNS MARK ELEVATORS WHICH HAVE NEVER BEEN INSPECTED.

Oversight of Your Maintenance Control Program

Hydraulic Test Records

INSTRUCTIONS: (1) Use one record for each controller.
 (2) When any section of the Maintenance Tasks & Records is complete or full, replace with a new Maintenance Tasks & Records.
 (3) Turn in all complete or full Maintenance Tasks & Records to Branch Office for filing.

Hydraulic Internal Audit Record

Date	Auditor	Title

Hydraulic Oil Machine Room Log

Elevator # 3

If the reason for the missing oil cannot be determined by visual inspection, the unit must be taken out of service (lock-out/tag-out) until cause is determined, corrected, and tested per ASME A17.1 by relief valve setting and system pressure test and cylinder leak down test.

Date	Additional Oil Amount	Cause	Technician

Complete the following information after performing Category One (1) Tests

	Date	Conducted By	Verified By	Inspection Authority	Inspection Company	ASME - QEI Certified
8.11.3.2.1 – Relief Valve Setting and System Pressure Test						Yes / No
8.11.3.2.2 – Hydraulic Cylinders and Pressure Piping						Yes / No
8.11.3.2.3 – Additional Tests						
8.11.3.2.3 (a) – Normal Terminal Stopping Devices						Yes / No
8.11.3.2.3 (b) – Governors, Overspeed Switch, and Seals						Yes / No
8.11.3.2.3 (c) – Safeties						Yes / No
8.11.3.2.3 (d) – Oil Buffers						Yes / No
8.11.3.2.3 (e) – Firefighter's Emergency Operation						Yes / No
8.11.3.2.3 (f) – Standby Power Operation						Yes / No
8.11.3.2.3 (g) – Power Operations of Door System						Yes / No
8.11.3.2.3 (h) – Emergency Terminal Speed Reducing Devices						Yes / No
8.11.3.2.3 (i) – Low Oil Protection Operation						Yes / No
8.11.3.2.4 – Flexible Hose and Fitting Assemblies						Yes / No
8.11.3.2.5 – Pressure Switch						Yes / No

Complete the following information after performing Category Three (3) Tests

Test	Date	Conducted By	Verified By	Inspection Authority	Inspection Company	ASME - QEI Certified
8.11.3.3.1 – Unexposed Portions of Pistons (roped hydro)						Yes / No
8.11.3.3.2 – Pressure Vessels						Yes / No

Complete the following information after performing Category Five (5) Tests

Test	Date	Conducted By	Verified By	Inspection Authority	Inspection Company	ASME - QEI Certified
8.11.3.4.1 – Governors, Safeties, and Oil Buffers (roped hydro)						Yes / No
8.11.3.4.2 – Coated Ropes (roped hydro)						Yes / No
8.11.3.4.3 – Wire rope fastenings (roped hydro)						Yes / No
8.11.3.4.4 – Plunger Gripper						Yes / No
8.11.3.4.5 – Overspeed Valves						Yes / No

Other/Additional Testing

Test	Date	Conducted By	Verified By	Inspection Authority	Inspection Company	ASME - QEI Certified
						Yes / No
						Yes / No

Hydraulic Repair Log

INSTRUCTIONS: (1) All Billable and Non-Billable repairs shall be recorded.
 (2) Replacement parts used during repairs shall be recorded.

DATE	Description of Work	Parts Used	Technician

Hydraulic Service Request Log

INSTRUCTIONS: (1) This Service Request Report (Callback) Log shall be used to record all Callbacks or Complaints reported to Elevator Personnel by any means, including corrective actions taken.
 (2) The Technician is responsible to report all trouble calls to Personnel Dispatch that he or she receives by means other than Authorized Dispatch.

Date	Time	Description	Resolution	Technician

Oversight of Your Maintenance Control Program

Monthly Fire Service Log

Year 2005		Year 2006		Year 2007		2008
Month	Initials	Month	Initials	Month	Initials	
January	DZC	January	DZC	January	DC	DC
February	DZC	February	DZC	February	DC	DC
March	DZC	March	DZC	March	DC	DC
April	DZC	April	DZC	April	DC	DC
May	DZC	May	DZC	May	DC	DC
June	DZC	June	DZC	June	DC	DC
July	DZC	July	DC	July	DC	DC
August	DZC	August	DC	August	DC	DC
September	DZC	September	DC	September	DC	DC
October	DZC	October	DC	October	DC	DC
November	DZC	November	DC	November	DC	DC
December	DZC	December	DC	December	DC	DC

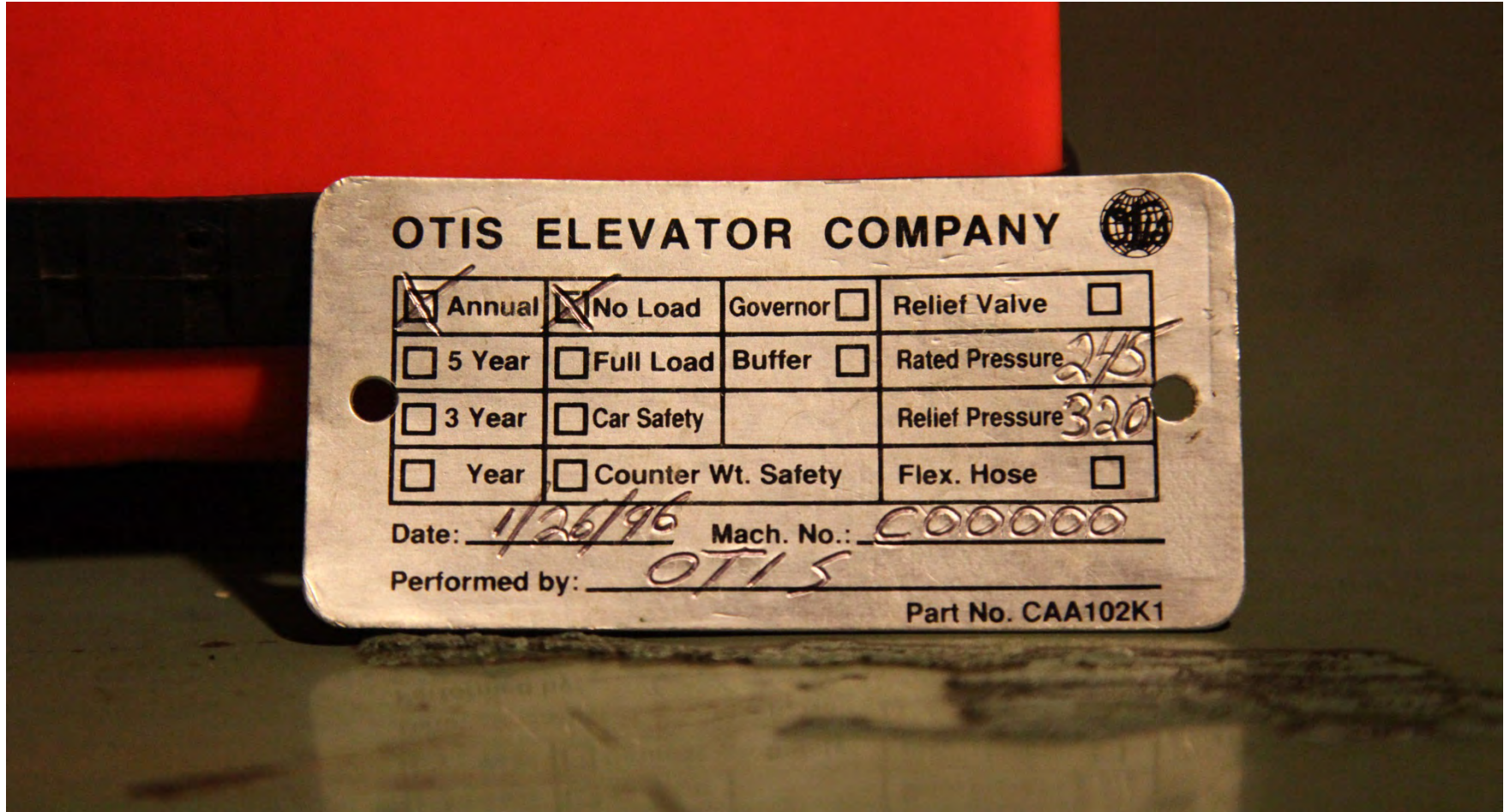
** Service Technicians – Please circle month in which annual testing is due.

ThyssenKrupp Elevator
 103 East JJ Drive
 Greensboro, NC 27406
 (336) 272-4563

Conflicts of Interest



Be Wary of Bullshit Service



Be Wary of Bullshit Service



Tests Are Important!



Follow All of Your Building Procedures

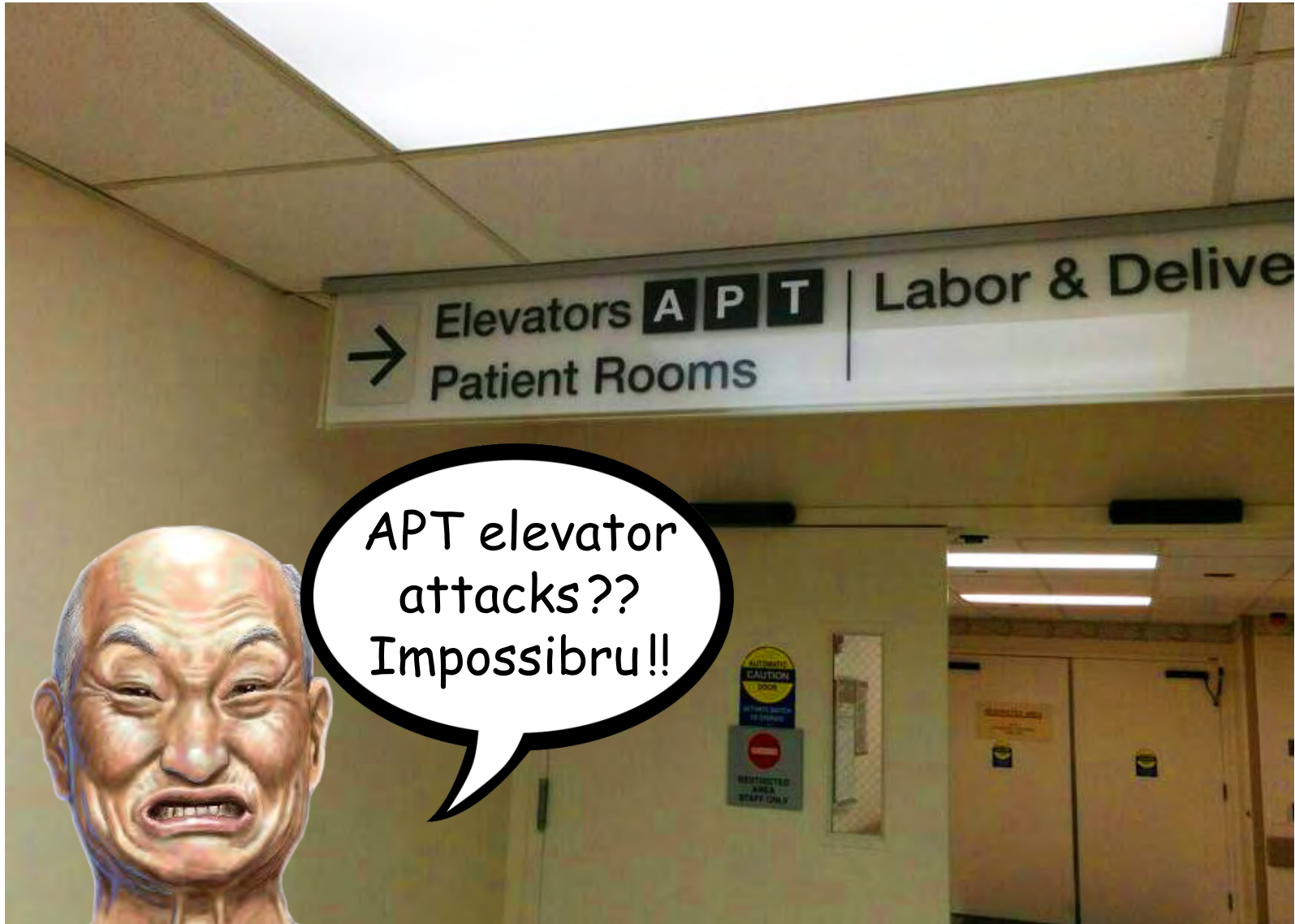




SO WHAT NOW?



So What Now ?



There are Elevator Techs



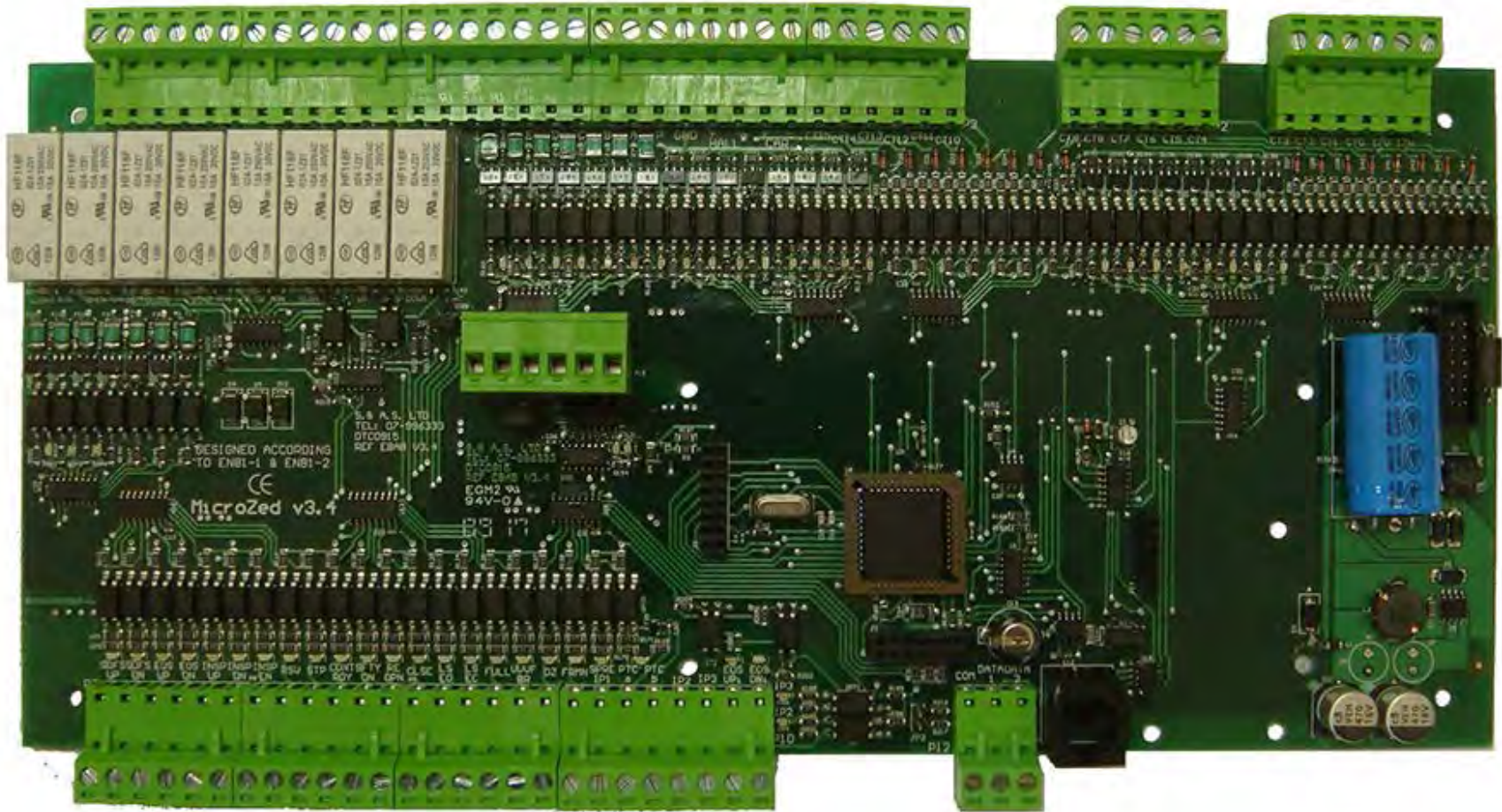
And There are Elevator Techs who are Security Consultants



Howard Payne
Elevator Investigator



"I Don't Want My Elevator on the Internet but I Want Monitoring"





FINAL TIPS



PREVENTING & CORRECTING PROBLEMS

If Someone (Including You) Is Stuck in an Elevator



Follow These Simple Steps...

1. Don't Panic



Follow These Simple Steps...

1. Don't Panic (and don't press emergency call just yet)



Follow These Simple Steps...

1. Don't Panic

- Main lights off? You don't have many options (emerg. call)
- Main lights on? Try the following...

Follow These Simple Steps...

1. Don't Panic
2. Press Door Open (exit safely if doors open)

Follow These Simple Steps...

1. Don't Panic
2. Press Door Open
3. Press Door Close, Then Press Door Open Again

Follow These Simple Steps...

1. Don't Panic
2. Press Door Open
3. Press Door Close, Then Press Door Open Again
4. Try Placing Calls to Other Floors, Including Lobby

Follow These Simple Steps...

1. Don't Panic
2. Press Door Open
3. Press Door Close, Then Press Door Open Again
4. Try Placing Calls to Other Floors, Including Lobby
5. Make Sure You're Badged In, Try Floor Calls Again

Follow These Simple Steps...

1. Don't Panic
2. Press Door Open
3. Press Door Close, Then Press Door Open Again
4. Try Placing Calls to Other Floors, Including Lobby
5. Make Sure You're Badged In, Try Floor Calls Again
6. If Authorized, Try Using Keyswitches (IND Mode)

Follow These Simple Steps...

1. Don't Panic
2. Press Door Open
3. Press Door Close, Then Press Door Open Again
4. Try Placing Calls to Other Floors, Including Lobby
5. Make Sure You're Badged In, Try Floor Calls Again
6. If Authorized, Try Using Keyswitches (IND Mode)
7. Verify the Cab Doors Are Closed

(Unless you heard something loudly fail)

Follow These Simple Steps...

1. Don't Panic
2. Press Door Open
3. Press Door Close, Then Press Door Open Again
4. Try Placing Calls to Other Floors, Including Lobby
5. Make Sure You're Badged In, Try Floor Calls Again
6. If Authorized, Try Using Keyswitches (IND Mode)
7. Verify the Cab Doors Are Closed
8. If Nothing Worked, Call For Help

(Emergency Phone or Mobile Phone or Radio)

Things To NEVER Try When Stuck...

1. Leaving Through the Top Hatch

- *It's dangerous*
- *It will foul up other procedures*



Things To NEVER Try When Stuck...

1. Leaving Through the Top Hatch
2. Exiting a Mis-Leveled Car
 - *If you have to jump, that's too far!*



Things To NEVER Try When Stuck...

1. Leaving Through the Top Hatch
2. Exiting a Mis-Leveled Car
3. The Safest Place to Be is in the Elevator Itself



Thank You Very Much!



delta@enterthecore.net

[@deviantollam](#)

howard@paynelevator.com

[@sqthowardpayne](#)