



**BLDD**  
ARCHITECTS

# SAFE SCHOOLS

Design & Preparation

BLDD Architects, Inc.  
Sheehan Strategic Solutions, LLC

March 30, 2016



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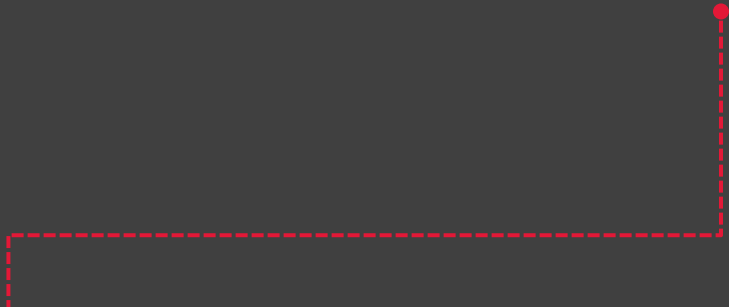
**Chad Sheehan**  
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# AGENDA

- **Historical Overview:**  
why discussion is needed
- **School Design**
- **Emergency Response  
& Preparedness**

# Historical Overview:

why discussion is needed



# The Reason for Safety Codes

minimum standards for

- Safety
- Health
- General welfare

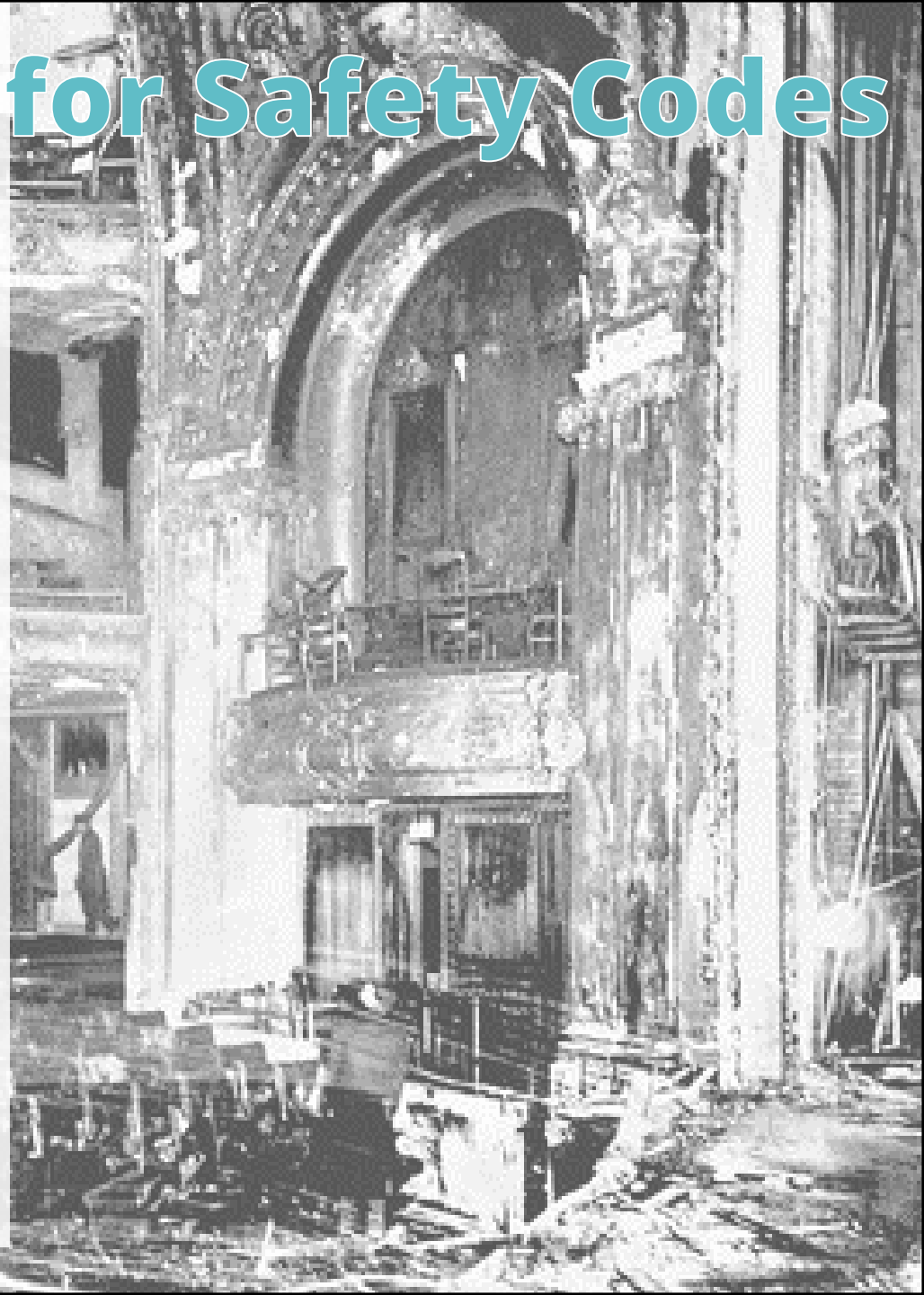
## Chicago - Iroquois Theater Fire 1903

### DEATH AND DAMAGE TOLL

- » The fire killed 602 people.
- » The Iroquois Theater Fire is known as the **deadliest theater fire and single building fire** in the history of the United States.

### CODE CHANGES

- » This fire created federal and state standards for exiting pathways, exit doors, exit signs and markings, maximum seating, and the use of the panic bar.



# SCHOOL SHOOTINGS

since 1980

» 190+ Incidents

» 340+ DEAD



# U.S. school shootings since 1992



# TAKE AWAYS

- » Chance of Armed Intruder is higher today than previous years.  
**2000-2006 - 6.4/year VS. 2007-2013 - 16.4 - FBI**  
*SCHOOLS still some of SAFEST PLACES for kids.*
- » Specific Strategies to **S.A.V.E.** Yourself & Others by being PROACTIVE!
- » Mindset is KEY to SURVIVAL!



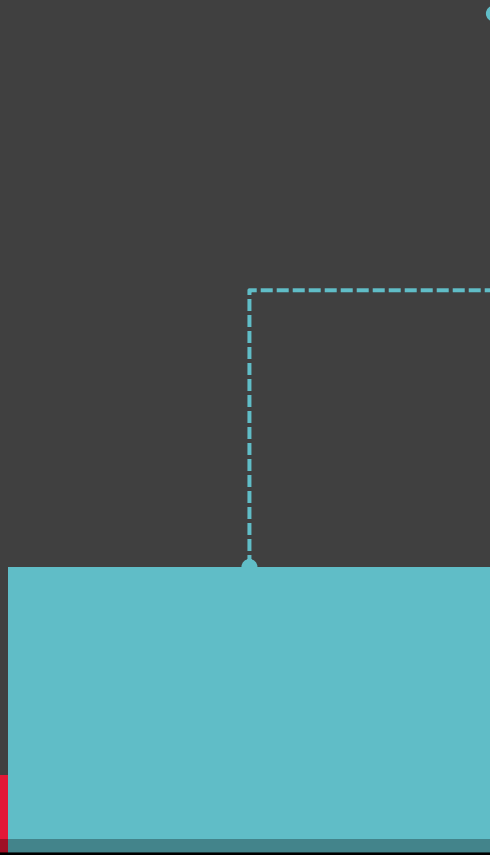
**"S.A.V.E. Yourself" ©**


**empowerment**

not

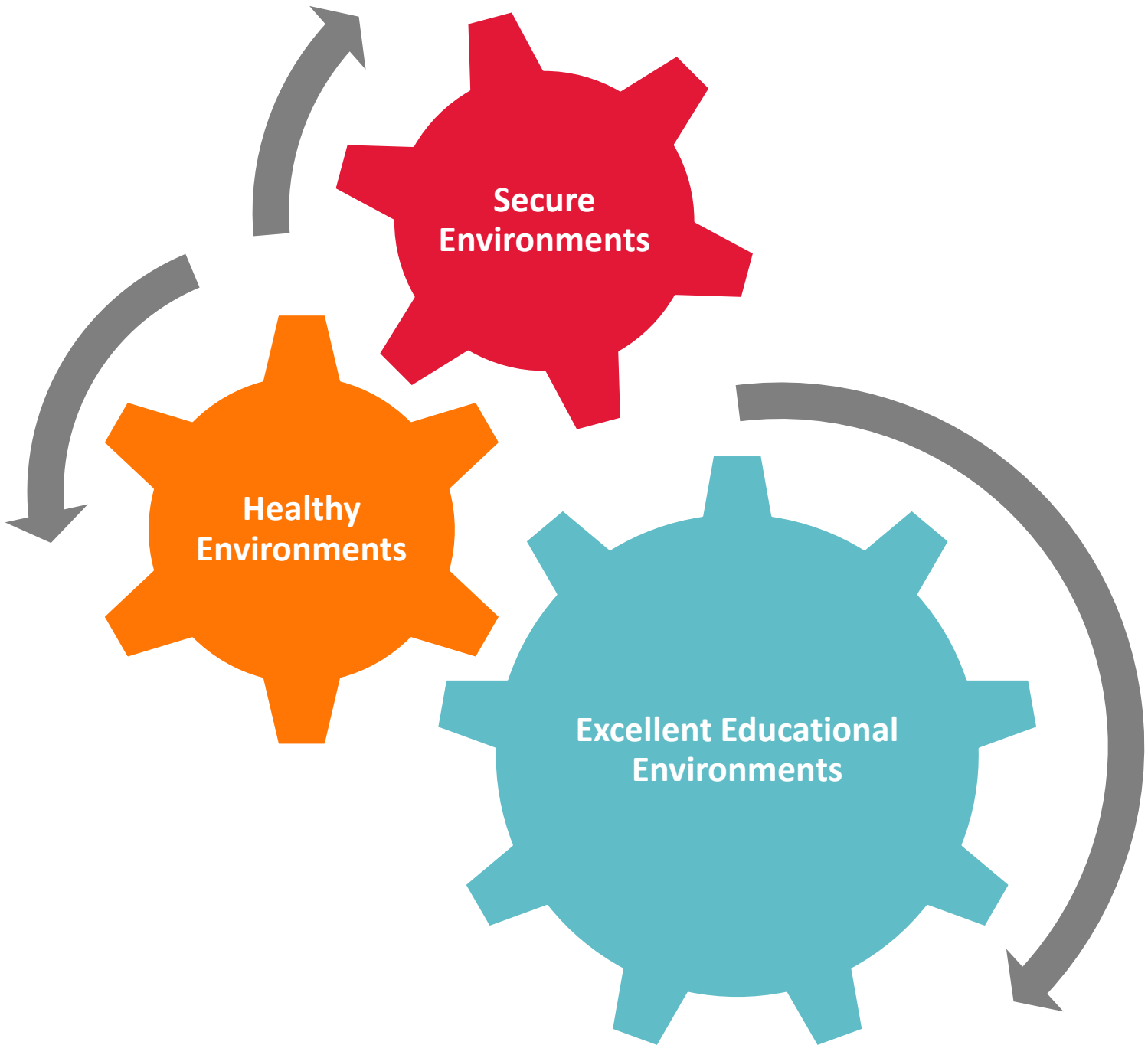
**FEAR**

# School Design





Do we need to build  
**PRISONS**  
in reverse?



# THE SCHOOL

## security system



deter



detect



delay

- » Fencing
- » Signs
- » Reputation
- » Video Cameras
- » ID Checks
- » Weapons screenings
- » Officer(s) on campus
- » Random locker searches
- » Vehicle checks
- » Drug dogs



deter

- » Sensors
- » Drug dogs
- » Cameras
- » Duress Alarms
- » Weapon screenings
- » Student 'hotlines' or crime-stopper programs
- » Staff



detect



- » Access Control
- » Windows
- » Bolted down equipment
- » Locked Doors
- » Fences



delay

# DOOR HARDWARE

LEVER MUST ALWAYS BE FREE ON  
INSIDE OF ROOM!!



delay

## » Classroom locks:

standard classroom lock – door is locked or unlocked with key on OUTSIDE of door

security lock – door locked or unlocked with key on EITHER SIDE of door

## » Entrance / office lock:

door is locked by push button on inside of door  
unlocked by key on outside of door

# WINDOW GLASS

- » Tempered glass  
“safety glass”  
heat treated, 4-5 times stronger  
shatters on impact
- » Laminated glass  
“safety glass”  
held together by interlayer of vinyl  
stays intact on impact
- » Polycarbonate  
plastic glazing not suitable for schools
- » Bullet proof glass  
different “protection levels”  
VERY expensive  
used only in strategic locations



delay

# security systems



LEVEL

1

**DELAY**  
access control



LEVEL

2

**DETECTION**  
options



LEVEL

3

**DETERRENCE**  
and detection options



LEVEL

4

**DETERRENCE**  
and detection options



LEVEL

1

**DELAY**  
access control

# **LIMITING** **ENTRY / EXIT POINTS**

1. WHO lets you in
2. What you HAVE
3. What you KNOW
4. Who you ARE

# WHO lets you in

## » GUARD

- » Strengths: Security guard can do more than simply check an ID card. A visual check of the person can determine if there is something 'amiss' with the student (intoxicated, etc.)
- » Weakness: Guard can become bored or careless.
- » Costs: Additional staff member.



# what you **HAVE**

## » **CARD READER**

- » Strengths: No manpower is needed
- » Weakness: No way to determine only ONE person has entered. Lost or stolen ID cards.
- » Costs: Large costs associated with ID cards, readers, etc.





# what you **KNOW**



## » PIN

- » Strength: PIN can be changed at any given point.
- » Weakness: Huge administrative effort to maintain system. Students who forget their pin number or give it out.
- » Costs: Individual keypads are actually very cost effective.

# who you **ARE**

## » BIOMETRICS

- » Strengths: This form of ID cannot be lent to other people.
- » Weakness: Biometric devices are not always user friendly.  
No way to determine only ONE person has entered.
- » Costs: Large costs for readers and systems.





LEVEL

2

# DETECTION

options

## DURESS ALARM

- » Panic-button alarm – a pushbutton mounted in a fixed location.
  - > Cons:
    - Teacher can't get to the location of the pushbutton
    - Nuisance alarms
- » An identification/location alarm – a cell phone that identifies, locates, and tracks the person who activated the duress alarm.
  - > Cons:
    - Must have clear line of sight to the nearest sensing unit.
    - Many repeaters may be necessary to adequately cover a facility.
    - Expensive.



LEVEL

3

# DETERRENCE

and detection options

## VIDEO CAMERAS

- » Why Video Cameras?
  - > Deterrence factor
  - > Recording capabilities
  - > Evidence
  - > Limits the need for manpower
  
- » Why NOT Video Cameras?
  - > Expense
  - > System will require technical knowledge
  - > Additional costs for cameras not anticipated in original layout (additional costs)
  - > Cameras can be stolen or vandalized
  - > Ongoing maintenance
  - > Some areas do NOT warrant camera use
  - > Some communities may challenge their legality
  - > An incomplete systems can move the 'bad behaviors' to areas outside of camera views.

# GOALS OF VIDEO

- » Reasonable:  
capturing scenes,  
identifying WHO did it
- » Unreasonable:  
trying to STOP these  
behaviors as they are  
happening



# VIDEO ON BUSES

- » Use 'black box' for camera installation with a sign that reads 'camera may be in use to ensure your safety' or something similar.
- » Do NOT use dummy cameras! Potential victims are under the illusion that he or she is being monitored and, therefore, help will be forthcoming in the event of an attack. This can create extensive liability concerns!

# LIMITATIONS OF VIDEO



- » Viewing scenes in shadow
- » Glare from car headlights or adjacent facilities
- » Limited funding doesn't allow District to make needed adjustments to the system
- » Blowing snow, ice build-up
- » Neglected landscaping that block views
- » Cameras on the north side of a building are susceptible to low light levels in winter months



# MONITERING

## » Not to Monitor

- > Having a live person watching a monitor with the intent to respond to a situation is an unrealistic approach to security.
- > After only 20 min. of watching and evaluating monitor screens, the attention of most individuals has degenerated to well below acceptable levels.

## » To Monitor

- > Intent to actively allow or disallow individuals into a building.
- > When a known incident is to occur in a certain area.
- > Even if monitoring is used, the use of cameras without a recording device is NOT recommended.



LEVEL

4

# DETERRENCE

and detection options

## METAL DETECTORS

### DO THEY REALLY WORK?

» YES!!

» However, metal detectors work very poorly if the user is not aware of their limitations and is not prepared for the amount of trained and motivated manpower required to operate these devices successfully.

# PORTAL UNITS

## CONS:

- » Cannot distinguish between a gun and a large belt buckle.
- » Detects ANY conductive material – anything that will conduct an electrical current.
- » Is only as good as the operator overseeing its use.
- » Large space requirements for system.
- » Throughput = 15 and 25 people per minute
- » Expense of units and infrastructure

# HAND HELD

## PROS:

- » Used to supplement portal metal detectors
- » Allow random spot checks – perhaps an entire classroom and its teacher
- » Minimal space requirements
- » Inexpensive

## CONS:

- » Only as good as the operator using it
- » Should not be used to scan every student entering school (throughput = 2 students/minute)
- » Spot checks can be viewed as ‘profiling.’
- » Do NOT use in private rooms

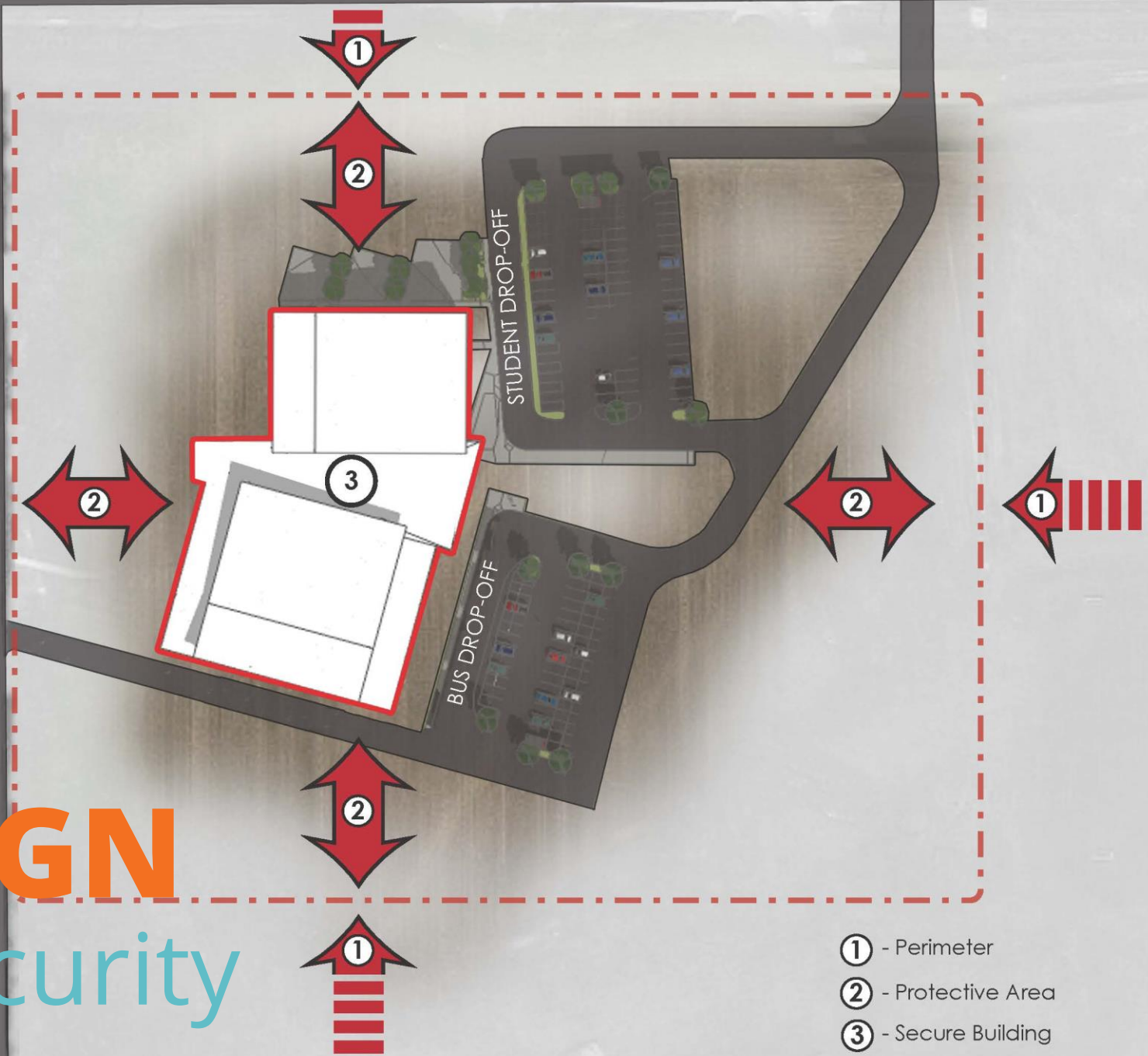


The background features a complex network diagram with nodes and connecting lines. The nodes are represented by small circles, some of which are highlighted with a blue glow. The lines are thin and light blue, creating a web-like structure. The overall aesthetic is clean and modern, with a light blue and orange color palette.

# THE SCHOOL

## security layout

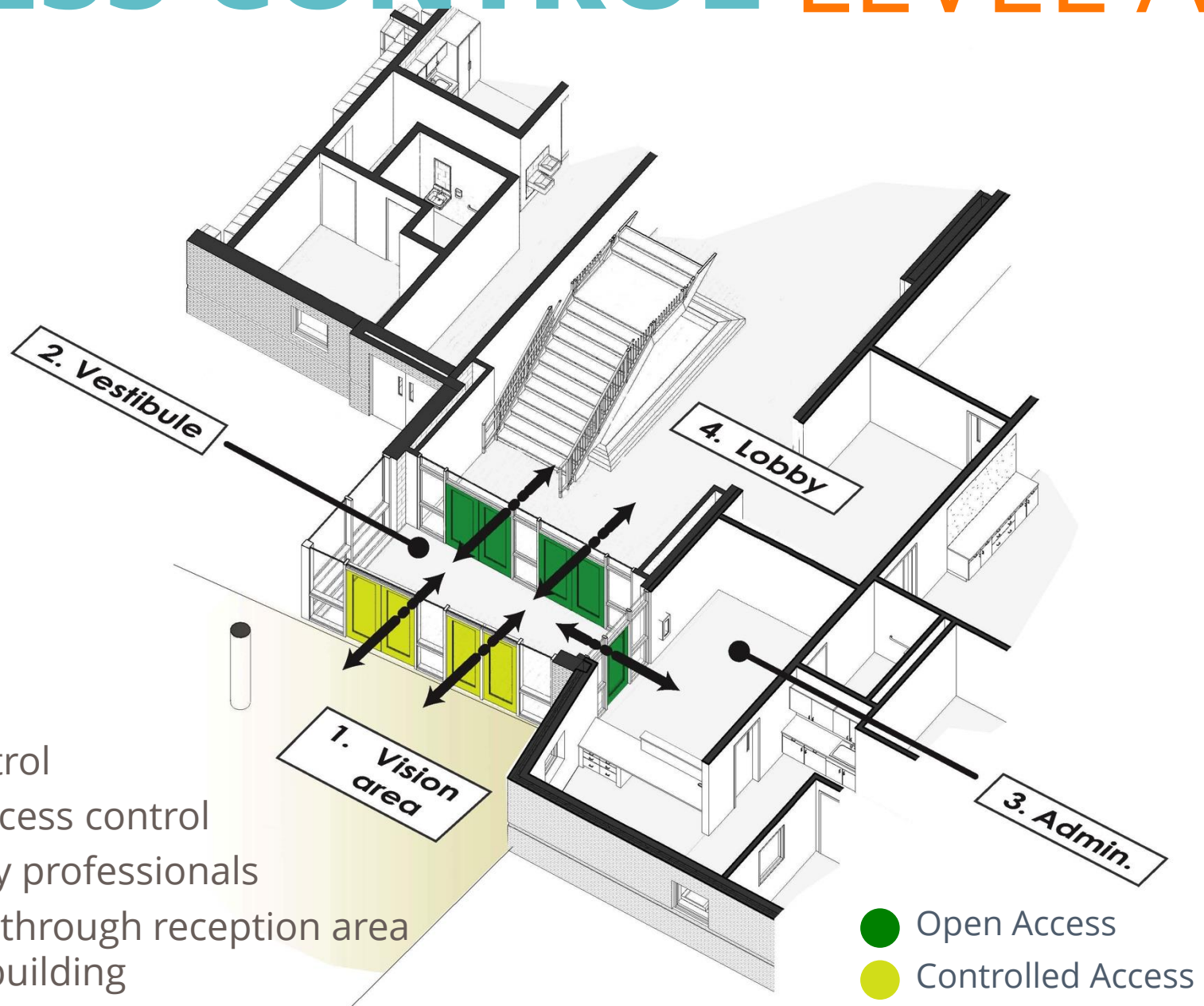
# SITE DESIGN for security



- ① - Perimeter
- ② - Protective Area
- ③ - Secure Building



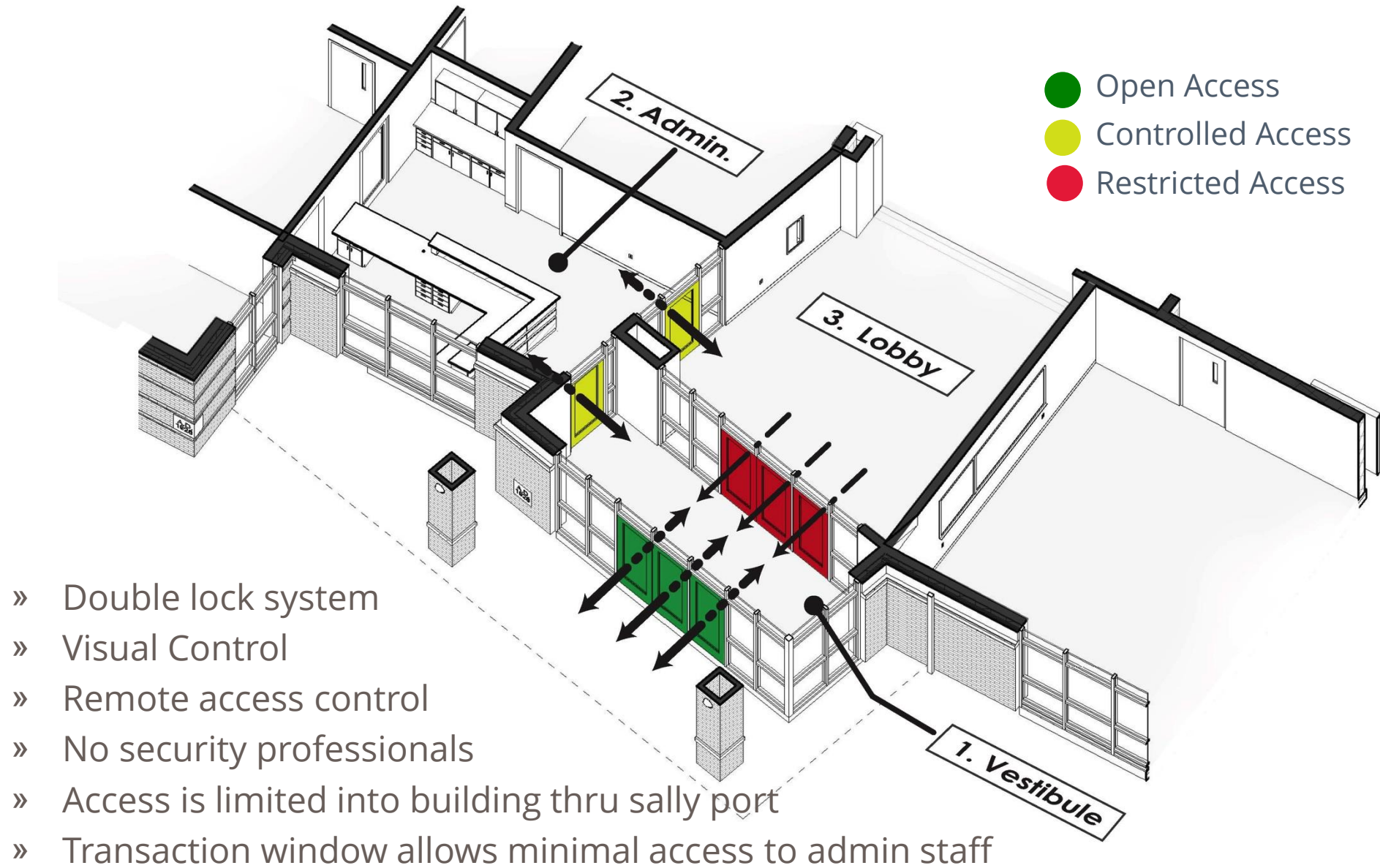
# ACCESS CONTROL LEVEL A



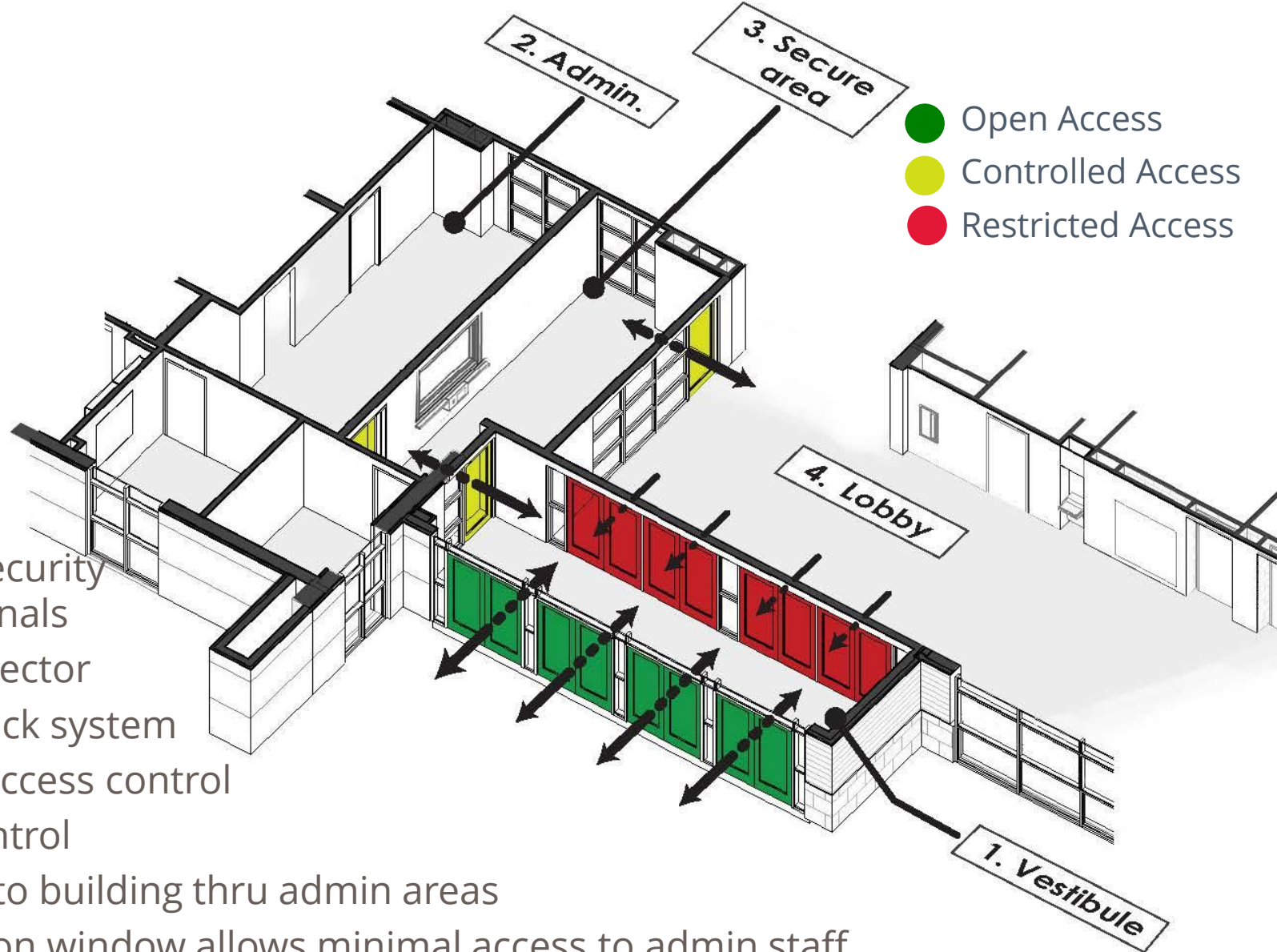
- » Visual control
- » Remote access control
- » No security professionals
- » Must walk through reception area to access building



# ACCESS CONTROL LEVEL B



# ACCESS CONTROL LEVEL C

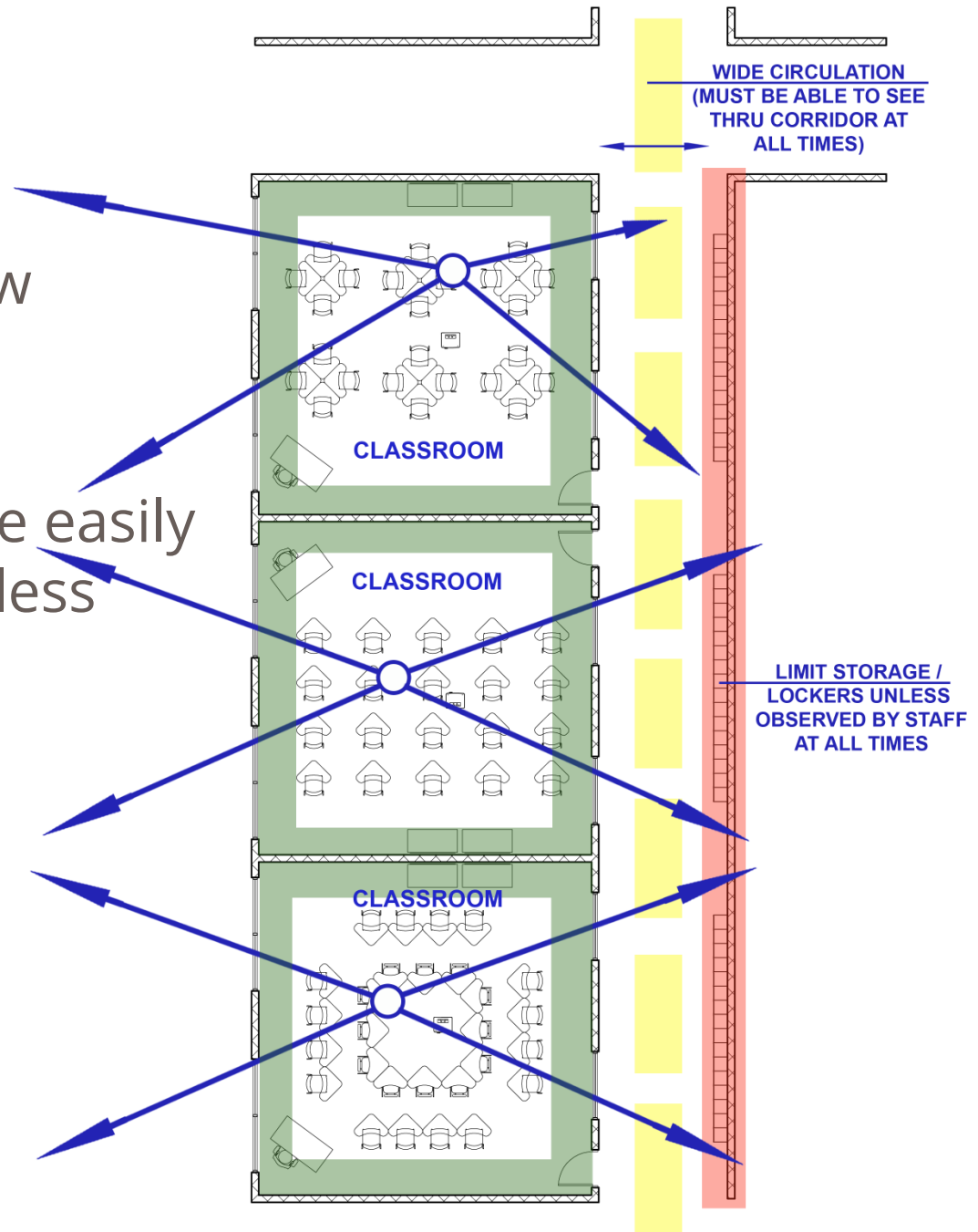


- Open Access
- Controlled Access
- Restricted Access

- » On site security professionals
- » Metal detector
- » Double lock system
- » Remote access control
- » Visual control
- » Access into building thru admin areas
- » Transaction window allows minimal access to admin staff

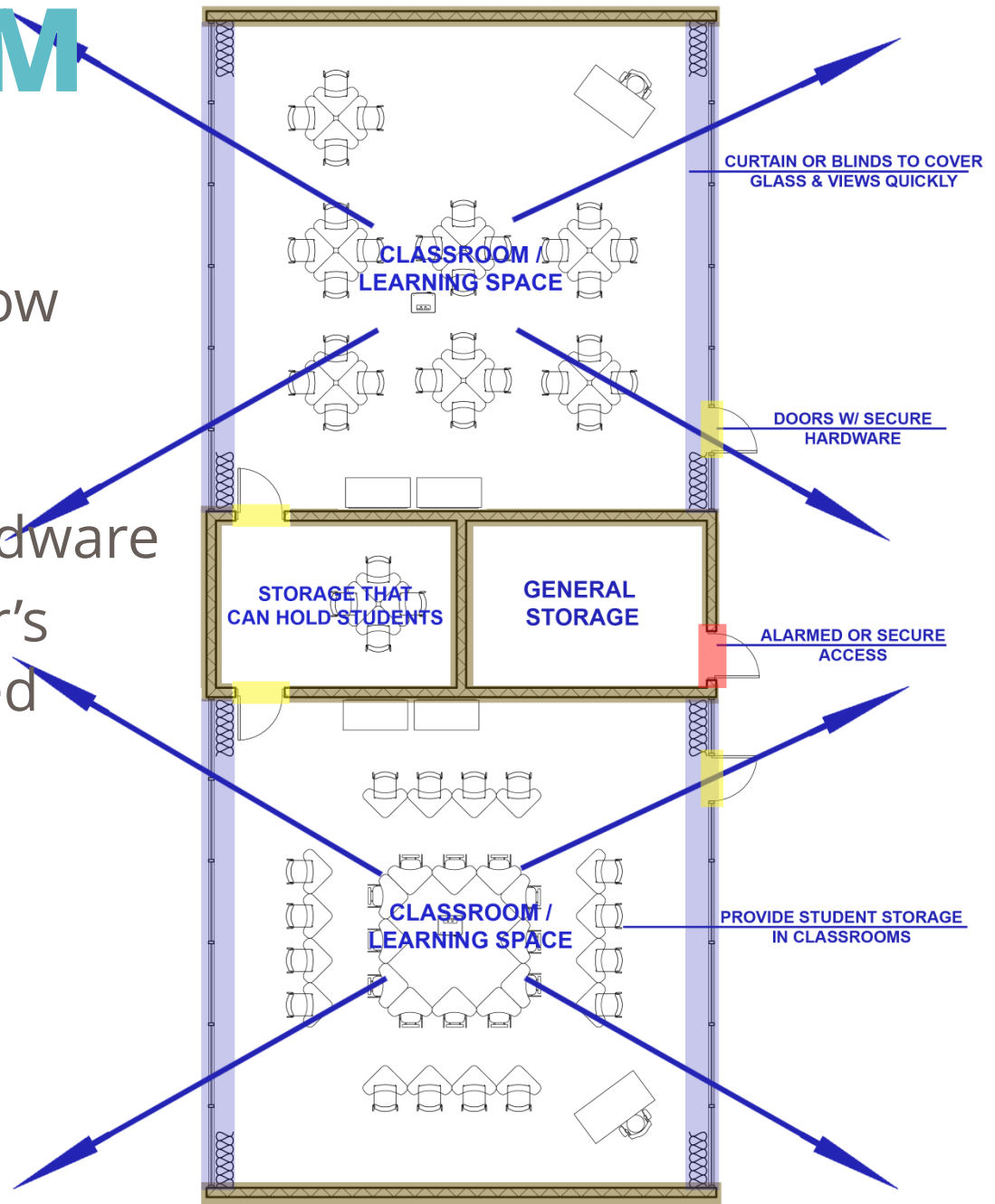
# CORRIDOR DESIGN

- » Visual access w/window covering
- » Wide circulation path
- » Lockers on one side are easily observable and cause less congestion



# CLASSROOM DESIGN

- » Visual access w/window covering
- » Appropriate glazing
- » Appropriate door hardware
- » Storage rooms/Janitor's closets locked/alarmed
- » Provide safe room



# Emergency Response & Preparedness



# "S.A.V.E. Yourself" ©

S

shelter in place/Barricade

A

awareness

V

violence stops violence

E

evacuate

ANY/ALL of these steps may  
be used at ANY time to S.A.V.E.  
Yourself



# GUIDE FOR DEVELOPING HIGH-QUALITY SCHOOL EMERGENCY OPERATIONS PLANS

U.S. Department of Education  
U.S. Department of Health and Human Services  
U.S. Department of Homeland Security  
U.S. Department of Justice  
Federal Bureau of Investigation  
Federal Emergency Management Agency

2013





# Shelter In Place/Hide

- » If running is not a safe option, hide in a safe place
- » Students and staff should be trained to hide where walls might be thicker and where there are fewer windows

# Shelter In Place/Hide

- » Lock the doors
- » Barricade the doors with heavy furniture
- » Close and lock windows and close blinds or cover windows
- » Turn off light
- » Silence electronic devices
- » Remain silent
- » Hide along the wall closest to the exit but out of view from hallway (allowing for ambush of the shooter and possible escape if shooter enters room)
- » Use strategies to silently communicate with first responders if possible (make window signs on exterior windows)
- » Remain in place until given an all clear by identifiable law enforcement officials



# Awareness

- » Pre-violence indicators
- » Problematic behaviors



# Violence Stops Violence/Fight

If neither running nor hiding is a safe option, as a last resort when confronted by a shooter, adults in immediate danger should consider:

trying to **disrupt or incapacitate the shooter by using aggressive force** and items in their environment such as fire extinguishers and chairs.

# Violence Stops Violence/Fight

When talking to staff about confronting a shooter may be daunting and upsetting for some, they should know that they **may be able to successfully take action to save lives.**

Confronting an *active shooter* should never be a requirement in any school employee's job description: how each staff member chooses to respond if directly confronted by an *active shooter* is up to him or her.



# Evacuate/Run

- » Leave personal belongings behind
- » Visualize possible escape routes, including physically accessible routes
- » Avoid escalators and elevators
- » Take other with you, but don't stay behind because others will not go
- » Call 911 when safe to do so
- » Let a responsible adult know where you are

# SUMMARY

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why discussion is needed
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& Preparedness**





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*thank you*

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