



Maryland

STATE DEPARTMENT OF EDUCATION

Safety Guidelines on the Use of Electric Retractable Partitions in Maryland Schools

In response to Maryland Code, Education, §7-448

Office of School Facilities

April 2024

MARYLAND STATE DEPARTMENT OF EDUCATION

Carey M. Wright, Ed.D.

Interim State Superintendent of Schools

Krishnanda Tallur

Deputy Superintendent of Operations

Jillian Storms

Executive Director, Office of School Facilities

Marty Lubin

School Facilities Architect, Office of School Facilities

Wes Moore

Governor

MARYLAND STATE BOARD OF EDUCATION

Clarence C. Crawford

President, Maryland State Board of Education

Joshua L. Michael, Ph.D. (Vice President)

Shawn D. Bartley, Esq.

Chuen-Chin Bianca Chang, MSN, PNP, RN-BC

Susan J. Getty, Ed.D.

Dr. Monica Goldson

Nick Greer

Dr. Irma E. Johnson

Dr. Joan Mele-McCarthy, D.A., CCC-SLP

Rachel L. McCusker

Samir Paul, Esq.

Holly C. Wilcox, Ph.D.

Abisola Ayoola (Student Member)

Table of Contents

Purpose of Guide.....	3
Definitions.....	4
Current Requirements	6
MSDE Recommendations.....	7
In Closing.....	12
Resources.....	12
Credits.....	12

Purpose of Guide

The purpose of this guide is to inform Maryland non-public schools, public school agencies, and their design consultants, of requirements and best practices in the safe use of electric retractable partitions of all types.

HISTORY:

Beginning toward the end of the last century, electric retractable room partitions have been utilized in schools to provide flexibility in right-sizing educational spaces or to provide additional security enclosure. With their implementation came the ability to create multiple instructional areas within a larger space or to combine areas to create a space to hold schoolwide events, assemblies, or performances. Their use, however, has resulted in periodic accidents occurring in schools, sometimes with fatal results.¹

There are at least four cases of children having parts of their bodies mangled in a roll-up divider curtain that unexpectedly entangled them while retracting toward the ceiling, and another case where a divider curtain malfunctioned and struck a child below. Worse yet, use of motorized horizontal folding partitions in three states have resulted in the tragic death of four students. New York State experienced two fatal student deaths, one at an elementary school and one at a middle school. Both occurred due to the safety systems being bypassed, allowing the movable walls to operate without staff present. Then in 2018, there was the horrific accident in nearby Virginia where a third grader was crushed between an electric retractable room partition and the side wall as he was helping his teacher operate the equipment.² His death resulted in a \$2 million settlement with the public school system and the enactment of a law named in his honor to protect other students from such tragedies.³

LEGISLATION:

After that incident, Maryland legislators were prompted into action to prevent such occurrences in our state. They passed legislation resulting in the enactment of Annotated Code of Maryland, Education Article §7-448, Electric Retractable Room Partitions, effective July 1, 2021, which placed restrictions on a motorized partition's operation or required use of additional safety features, as well as required annual safety reviews, evaluations, and staff training. The law directed the Maryland State Department of Education (MSDE) to develop, publish on its public website model safety guidelines regarding the operation of electric retractable room partitions, and disseminate to each county board and to each non-public school. This document represents those safety guidelines.

¹ Safe Path Systems, LLC; "What Accidents Happened?" (Includes current requirements in different jurisdictions and accidents that have happened with electric retractable partitions). Link: <https://www.safepathusa.com/laws-regs>

² Andrea Swalec and NBC Washington Staff; "Terrible Accident: Motorized Room Partition That Killed Boy in Virginia School Worked Properly, Company Says." NBC4 Washington, 22 May 2018. Link: <https://www.nbcwashington.com/news/local/terrible-accident-motorized-room-partition-that-killed-boy-in-virginia-school-was-working-correctly-company-says/2055684>

³ Susan Hogan and Meredith Royster; "School Starts in Virginia with New Law to Protect Students from Motorized Partitions." NBC4 Washington, NBC4 Washington, 26 August 2019. (Includes an interactive map locating motorize partitions.) Link: <https://www.nbcwashington.com/news/local/school-starts-in-virginia-with-new-law-to-protect-students-from-motorized-partitions/132434>

Definitions

The following terms are used throughout this guide:

1. **MSDE:** An abbreviation for “Maryland State Department of Education.”
2. **Annotated Code of Maryland:** Also referred to as “Maryland Code”, is a compilation of the statutes enacted by the Maryland Legislature.
3. **CMMS:** An abbreviation for “Computerized Maintenance Management System.”
4. **Electric retractable room partition:** Definition in Education Article §7-448: “a room partition, divider, curtain, or any other similar device that is opened and retracted by operation of an electric motor.” In this Guide, this term encompasses all types of motorized room dividers, retracting whether by rolling, folding, or coiling vertically or horizontally.
5. **Electric horizontal retractable partition:** Also referred to as a motorized operable folding wall, is a floor-to-ceiling wall panel system (example in Figure 1 below) consisting of multiple interlinked panels hung from the structure above to move horizontally and fold in sections by use of a motor.



Figure 1: Electric Horizontal Retractable Partition

(Credit: Photo by Office of School Facilities in coordination with Howard County Public Schools)

6. **Electric horizontal coiling door:** A type of floor-to-ceiling partitioning system that moves horizontally (example in Figure 2 below) using a motor. It can be automatic in the case of fire shutters or operated by a key system on control panels.



Figure 2: Electric Horizontal Coiling Door

(Credit: McKeon Door Company)

7. **Electric vertical coiling door:** Encompasses all types of roll-up doors, whether interior exterior or used as a fire shutter (example in Figure 3 below). It is a fixed partitioning system that is activated to shut off an open space by vertically lowering or extending downward in a track to seal the opening, thereby enclosing or partitioning the space. It can move automatically, in the case of fire shutters tied to a heat sensor or operated by a key system with control panels.



Figure 3: Electric Vertical Coiling Door

(Credit: Overhead Door Corporation)

8. **Electric overhead sectional door:** Consists of one or multiple interlinked panels, such as used in a garage door (example in Figure 4 below). It is a kind of fixed partitioning system with single or multiple panels hung from above that opens or closes vertically in a track by an electric motor.



Figure 4: Electric Overhead Sectional Door

(Credit: Overhead Door Corporation)

9. **Electric vertical retractable curtain:** Also referred to as a motorized roll-up divider curtain or partition, that can be retracted vertically to the ceiling or extended downward partitioning the space, such as a gym into two sections (example in Figure 5 below). Often these curtains can be quite heavy and require a motorized lifting mechanism.

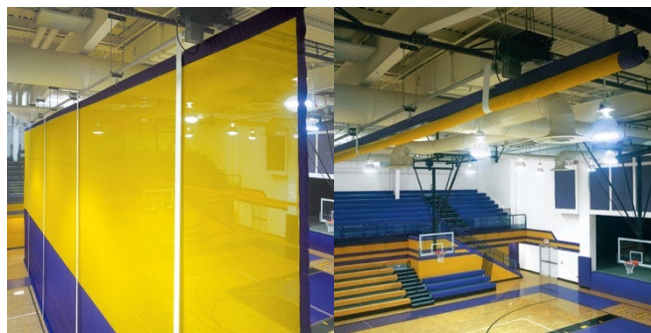


Figure 5: Electric Vertical Retractable Curtain

(Credit: Draper, Inc.)

Current Requirements

Per Annotated Code of Maryland, Education Article §7-448, the following statutory requirements apply to the use of electric retractable room partitions in elementary and secondary public and non-public schools (Prekindergarten to Grade 12):

EQUIPMENT OR OPERATIONAL REQUIREMENTS:

No school employee shall open or close an electric retractable room partition in any school building unless at least one of the three following conditions is met:

1. (Equipment Requirement) The partition includes a safety sensor that automatically stops the movement of the partition when a body passes between the leading edge and a wall, an opposing partition, or the stacking area of the partition;
2. (Operational Requirement) No students are present in the school building; or
3. (Operational Requirement) No student is present in the room or area in which such partition is located, and the room or area where the partition is located is locked or otherwise free of or inaccessible to students.

MAINTENANCE AND TRAINING REQUIREMENTS:

In school buildings with an electric retractable room partition:

1. There should be annual safety reviews, evaluations, or exercises for school employees that include information and demonstrations, as appropriate, regarding the safe operation of the electric retractable room partitions.

MSDE Recommendations

In addition to the requirements of the Maryland Code, Education §7-448, the MSDE Office of School Facilities recommends the following best practices in the selection and use of electric retractable room partitions:

EQUIPMENT RECOMMENDATIONS - HORIZONTAL ELECTRIC RETRACTABLE ROOM PARTITION:

Consider including the following safety features currently available for the horizontal electrical retractable room partitions:

1. **Pressure Sensitive Edge Sensor:** Provide a contact-pressure-sensitive safety edge along the leading edge of the partition that automatically stops the movement of the partition when a body passes between the leading edge and a wall, an opposing partition, or the stacking area of the partition. (Example in Figure 6 below)

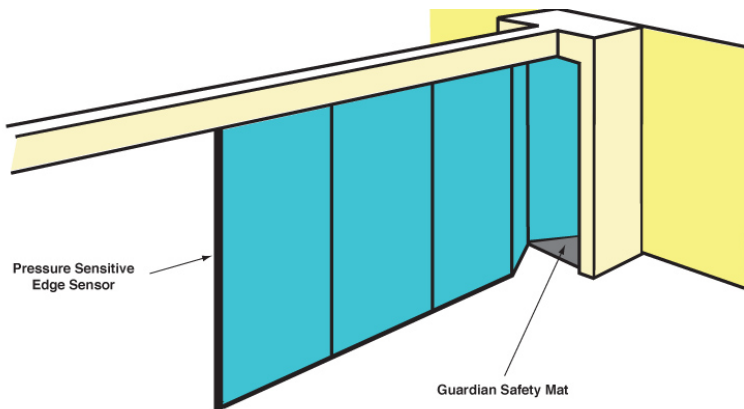


Figure 6: Electric Operable Partition diagram

(Credit: Miller Edge, Inc.)⁴

2. **Sensor Mat:** Provide an electrically operated, contact-weight-sensitive safety mat in the partition storage pocket to detect any obstruction in this area. (See Figure 7 below)



Figure 7: Sensor Mat for Electric Horizontal Retractable Partition

(Credit: Photo by Office of School Facilities in coordination with Howard County Public Schools)

⁴ MillerEdge Inc.; "Comply with Safety Standards for Motorized Operable Partition Walls." Link: <http://www.milleredge.com/operable-wall.html>

3. **Infrared Sensor System:** Install an Infrared Sensor System designed to detect an obstruction in the partition's path and to sound an audible alarm prior to the partition coming in contact with the obstruction.
4. **Emergency Release Mechanism:** Provide a quick disconnect-release electric-motor drive system that permits manual operation in the event of operational failure.
5. **Electric Interlock:** Equip each electric operable panel partition with electric interlocks at locations indicated by the manufacturer to prevent operation of the panel partition while an object is inside the storage pocket doors.
6. **Limit Switches:** Provide adjustable limit switches, interlocked with the motor controls, and set to automatically stop operable panel partition at both fully extended and stacked positions.
7. **Locked Control Stations:** Provide two key-operated, tamper-proof control stations that are remotely located at opposite ends and opposite sides of, and with view of, the partition. They should be wired in series and designed and constructed to require constant pressure and simultaneous activation of both control stations to operate the partition to extend and retract. Design the system so that the electric device controlling the partition's operation can be reversed at any point in its travel cycle.

EQUIPMENT RECOMMENDATIONS - ELECTRIC VERTICAL RETRACTABLE CURTAIN:

Consider including the following safety features for electrical vertical retractable curtain partitions:

1. **Curtain Lock/Inertia Lock/Stop Lock Safety Bearing:** Provide a locking system that will lock immediately to prevent the curtain from falling whenever the speed exceeds approximately 1.5 feet per second.
2. **Pulsating Alarm:** Provide a pulsating alarm of 80 decibels that is activated when the winch is activated to warn bystanders to move away from the area of the movable curtain.
3. **Control Stations:** Provide divider curtain controls at one end of the curtain where the operator can see both sides of the curtain. If this is not possible from the key location, then it is recommended two people are present to operate a curtain with one at the key switch and another on the other side who can notify the key operator in case the curtain needs to be stopped.

EQUIPMENT RECOMMENDATIONS - ELECTRIC VERTICAL COILING DOOR:

Consider including the following safety features for electric vertical coiling door partitions:

1. **Inertia Lock/Stop Lock Safety Bearing:** Provide a locking system that will lock immediately to prevent the coiling door from falling whenever the speed exceeds approximately 1.5' (46 cm) per second.
2. **Pulsating Alarm:** Provide a pulsating alarm of 80 decibels that is activated when the door is activated to warn bystanders to move away from the coiling door.
3. **Control Stations:** Provide coiling door controls at one end of the opening when not controlled automatically by the fire alarm system where the operator can see both sides of the opening.

EQUIPMENT RECOMMENDATIONS - ELECTRIC HORIZONTAL COILING DOOR:

Consider including the following safety features for electric horizontal coiling door partitions:

1. **Sensor Mat:** Provide an electrically operated, contact-weight-sensitive safety mat in the coiling door storage pocket to detect any obstruction in this area.
2. **Infrared Sensor System:** Install an Infrared Sensor System designed to detect an obstruction in the coiling door's path and to sound an audible alarm prior to the coiling door coming in contact with the obstruction.
3. **Emergency Release Mechanism:** Provide a quick disconnect-release electric-motor drive system that permits manual operation in the event of operating failure.
4. **Limit Switches:** Provide adjustable limit switches, interlocked with the motor controls, and set to automatically stop the coiling door at both the fully extended and fully retracted positions.
5. **Locked Control Stations:** Provide two key-operated control stations (example in Figure 8 below) that are tamper-proof and remotely located at opposite ends and opposite sides of, and in view of, the partition. They should be wired in series and designed and constructed to require constant pressure and simultaneous activation of both control stations to operate the partition to extend and retract. Design the system so that the electric device controlling the partition's operation can be reversed at any point in the extend or stack travel cycle.



Figure 8: Two Key-Operated Control Station

(Long Island Business News)⁵

EQUIPMENT RECOMMENDATIONS - ELECTRIC OVERHEAD SECTIONAL DOOR:

Consider including the following safety features for electric overhead sectional door partitions:

1. **Inertia Lock/Stop Lock Safety Bearing:** Provide a locking system that will lock immediately to prevent the sectional door from falling whenever the speed exceeds approximately 1.5' (46 cm) per second.
2. **Pulsating Alarm:** Provide a pulsating alarm of 80 decibels that is activated when the door controls are activated to warn bystanders to move away from the door.
3. **Control Stations:** Provide Electric overhead sectional door controls at one end of the opening where the operator can see both sides of the opening.

⁵ Winzelberg, David. "Blacklisted Gym Door Repair Uncovers Systemic Fraud." Long Island Business News, 20 June 2014. Link: <https://libn.com/2014/02/06/death-fraud-in-ii-schools>

MAINTENANCE, TRAINING, AND SIGNAGE RECOMMENDATIONS FOR ALL ELECTRIC RETRACTABLE PARTITION TYPES:

Consider including the following types and frequency of training in schools where any electric room partition has been installed:

1. **At the time of installation:** When new electric room partitions are installed in a school, the contractor should conduct safety training for staff regarding the safe operation of the partitions and provide operation manuals of the product.
2. **Annual Training:** School personnel are required to have mandatory training yearly. Attendance to be documented with CMMS tracking, detailing all actions. After completion, personnel will be required to pass a short quiz to confirm their understanding of operational requirements. Training to include:
 - a. Information about the safety requirements to be practiced in the areas surrounding the partitions and while operating the partitions;
 - b. A demonstration of the safety features and the proper operation of the electric room partitions;
 - c. Discussion of past accidents and the potential of serious injury or death;
 - d. Cautioning of possible administrative and civil penalties for non-compliance with legal requirements, including the penalties for disabling safety equipment required pursuant to Md. Code, Educ. Section 7-448.
3. **Biennial Safety Review:** All equipment used in the safe operation of electric retractable partitions to be tested biennially by a third party and approved for operation. Review and approval to be documented in CMMS tracking.

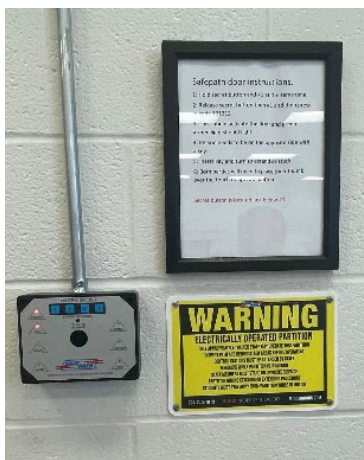


Figure 9: Control Station and Operating Instructions for Electric Vertical Retractable Curtain

(Credit: Photo by Office of School Facilities in coordination with Howard County Public Schools)

4. **Conspicuously Posted Operating Instructions:** Clearly visible operational instructions and requirements (example in Figure 9 above) should be posted on both sides of the partition adjacent to the operating mechanism and include the following warnings:
 - a. Only appropriately trained staff may operate this partition.

- b. Control stations must be attended by staff members while the partition is in motion.
- c. If no sensor mat is installed, the operator of controls must verify all pockets are clear of any obstructions that may obstruct the proper operation of the partition. (Examples in Figure 10 below)



Figure 10: Electric Horizontal Retractable Partition pockets misused for storage

(Credit: Photo by Office of School Facilities in coordination with Charles County Public Schools)

- d. Staff members must stand on opposite sides of the partition during stacking or extending procedure.
- e. Students must not be in the room while the partition is in motion.
- f. At no time wedge the control switch with keys or other weights to counter a constant pressure spring.
- g. When the door is fully extended or retracted, the switch operator must remove the key from the switch cylinder. At no time shall keys be left in the switch when the unit is unattended or not in operation.
- h. Closure doors, if any, must be in proper position before the operator leaves the room.

In Closing

It is important to remember that although electric retractable partitions allow flexibility in space use in a school, unexpected accidents have happened resulting in harm to students and staff. Exercising caution, purchasing equipment with additional safety features, and providing adequate training will lower the chance of an unfortunate incident happening at your school.

Resources

Md Code, Education, § 7-448, Link:

<https://govt.westlaw.com/mdc/Document/NAECE65F0CF1F11EBA61B83D71EE93136>

Onondaga-Cortland-Madison Board of Cooperative Educational Services, New York State. "Electric Folding Partitions Training Course." March 2001. Link:

<https://www.p12.nysed.gov/facplan/articles/FoldingPartitionAdvisoryArticle.html>

Charles County Public Schools, Office of Safety and Risk Management; "Operations, Inspections and Safety Training Bleachers, Folding and Telescopic Seating and Walls, Mechanical Curtains, Grandstands." 2018. Available upon request.

Credits

This guide was possible due to the efforts of Martin Lubin, R.A. under the direction of Jillian Storms, AIA and with the assistance of Semaj Tucker, AIA and Neil Joshi, R.A. in the MSDE Office of School Facilities. We are in appreciation of the Interagency Commission on School Construction, the Maryland Center for School Safety, the Howard County Public School System, and Charles County Public Schools for their input.