



17 Brian Road ◊ Lancaster, MA 01523



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SHAKER LANE ELEMENTARY SCHOOL
35 SHAKER LANE – LITTLETON, MA 01460
Triggering Report for Code Thresholds

Schematic Design

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BACKGROUND

In general, there are 2 regulations which can be “triggered” based on a “dollars spent” consideration.

1. Accessibility compliance under 521 CMR is “triggered” if \$100,000 or 30% of the full and fair cash value is exceeded, and
2. Sprinkler installation can be “triggered” if 33% of the building assessed value met or exceeded.

Once these items are triggered, they frequently can trigger other upgrades such as plumbing fixtures and fire alarm.

The following provides some guidance on the “domino effect” that can occur, starting with 521 CMR compliance.

521 CMR JURISDICTION

In general, if spaces and features are altered, replaced or added they must be made compliant to new construction criteria. The remainder of the building must be upgraded if certain dollar thresholds are reached. The extent of upgrades triggered depends on the amount of money being spent (over a 36-month period) and in relation to the building’s *full and fair cash value*.

THE WORK

The work being performed is always required to comply with 521 CMR regardless of whether other thresholds are reached. There are no exceptions.

WORK PERFORMED OVER TIME

Work that is performed over time is a provision the board added to help prevent 521 CMR avoidance over time using multiple smaller projects.

When the work performed on a building is divided into separate phases or projects or is under separate building permits, the total cost of such work in any 36-month period shall be added together in applying 521 CMR 3.3, Existing Buildings.

In other words, the threshold reviews always need to include costs of work performed in the previous 36 months. If future work is anticipated, it is also warranted to look forward to project costs which could cause the threshold to be reached. For example: projects are designed to keep costs below the 30% threshold and are projected to be just under the threshold. During the project execution, unforeseen additional work is required (scope creep) and those new costs result in the threshold being exceeded. In that case, the project would now need to include bringing the building into full compliance.

\$100,000 THRESHOLD

If more than \$100,000 is spent then at a minimum, the following accessible components are necessary:

1. An entrance,
2. A restroom and, if provided,
3. A drinking fountain
4. A Public telephone

There is certain work which can be exempted from the \$100,000 review.

Exception: Whether performed alone or in combination with each other, the following types of alterations are not subject to 521 CMR 3.3.1, unless the cost of the work exceeds \$500,000 or unless work is being performed on the entrance or toilet. (When performing exempted work, a memo stating the exempted work and its costs must be filed with the permit application or a separate building permit must be obtained.)

- a. *Curb Cuts: The construction of curb cuts shall comply with 521 CMR 21.00: CURB CUTS.*
- b. *Alteration work which is limited solely to electrical, mechanical, or plumbing systems; to abatement of hazardous materials; or retrofit of automatic sprinklers and does not involve the alteration of any elements or spaces required to be accessible under 521 CMR. Where electrical outlets and controls are altered, they must comply with 521 CMR.*
- c. *Roof repair or replacement, window repair or replacement, repointing and masonry repair work.*
- d. *Work relating to septic system repairs, (including Title V, 310 CMR 15.00, improvements) site utilities and landscaping.*

Again, there is a limit to the exempted work (\$500,000), this too includes the “work performed over time consideration”, and these exemptions currently only apply to the \$100,000 review. They are not applicable to the 30% threshold review.

In my experience many people do not consider “landscaping” as work requiring a permit and therefore is not considered. But the language does not support this interpretation. Section 3.3 identifies all work “which require a building permit or which are so defined by a state or local inspector”. State inspectors include compliance officers at 521 CMR. They point to item “d” above which specifically identifies landscaping.

30% VALUE THRESHOLD

The full and fair cash value is determined using the assessment value of the building only, and the EQV ratio issued by the state. There is no exempt work under the 30% review. The board is considering changes on this under the future 521 CMR but it is still along way from being promulgated.

Town of Littleton Assessment	\$8,275,600 (building only)
EQV Ratio	0.94 Commercial
30%	\$2,650,000

If the 30% threshold is reached, then full compliance with the current 521 CMR is required. Items that may need to be corrected include, but are not limited to:

- Site arrival points and routes from site arrival points to the building entrances need to be accessible. This includes accessible parking and drop off areas, as well as any public transportation points within/adjacent to the site.
- All entrances are required to be accessible.
- All interior routes are required to be accessible from the entrances to all public and common use spaces and vertical access is required to all floors. This includes all doors, stairs, corridors, floor surfaces, etc. If there is a stage or raised platform, a platform lift is required and possibly two accessible exits are required from the raised area.
- All public restrooms are required to be accessible.
- All drinking fountains are required to be accessible. Under ADASAD, both "hi" and "lo" height drinking fountains are required.
- All classrooms and laboratories are required to be made compliant including accessible work stations (5%), sinks, counters, etc.
- There are many more areas which need to be reviewed to capture all required upgrades.

The point is that the 30% threshold is rather low considering the cost of work in today's environment. For example, it is not uncommon for a combination of maintenance costs over 3 years and the cost of say "a new roof" to be sufficient to reach the 30% threshold.

MASSACHUSETTS GENERAL LAW CHAPTER 148 SECTION 26G

Massachusetts General Law Chapter 148 Section 26G (MGL Ch148 s26G) is the enhanced sprinkler law applicable to all buildings with 7,500 gsf or more in area (excludes state owned properties and residential only properties). The law requires sprinklers in certain a) new buildings and b) existing buildings undergoing “major alterations” or addition.

The building which is the subject of this project is an existing building, and no addition is being made. Therefore, the only path of application of MGL ch148 s26G is one where the project satisfies criteria as “major alterations” under the law.

MAJOR ALTERATIONS

Attached are the guidelines issued by the Automatic Sprinkler Appeals Board (the appeal authority for matters of MGL Ch148 s26G) which are used by the Board in its determinations. It is frequently used by fire officials in their determinations (see Attachment A).

Item 8 of the guidelines addresses the application under “major alterations” and provides a two-part test to determine if a project is to be considered “major alterations”. In order for MGL Ch148 26G to be applicable under “major alterations” both Part A and Part B must be satisfied.

- A. Part A considers the “nature of work” involved. In general, the consideration revolves around physical opportunity... does the proposed work provide the opportunity to install sprinkler by exposing ceilings, relocating walls, opening floors and similar efforts? Is there a way to install sprinklers without creating more work (such as exposed piping systems)?
- B. Part B considers the scope of the work and the cost/benefit of the work separately. One or the other of these subtests must be satisfied. If neither of the Part B subtests is satisfied, then MGL ch148 s26G is not applicable as a “major alterations” and sprinklers are not required throughout the building.
 1. The “scope of work” review considers the project area relative to the total building area. If the project area entails 33% or more of the total gross building area, then the scope is considered major and Part B is satisfied.
 2. The “cost/benefit” review considers the project’s cost relative to the assessed value of the building. If the project cost (excluding the cost of the sprinklers) is equal to or greater than 33% of the assessed building value, then the “cost/benefit” is considered major, and Part B is satisfied.

It is also important to note that work performed over time can be considered (Item 11 of the guidelines). Work up to 5 years before or after can be considered.

35 SHAKER LANE REVIEW

Part A subtest is often easily satisfied when it is possible to install exposed piping sprinkler such as at this building. The Part B subtests are therefore more critical in the determination of whether sprinklers will get triggered or not. Furthermore, it is subtest B.2 (Cost/Benefit) that is triggered regularly.

- From the Town of Littleton's Assessor's Database, the lump sum building value for all structures on the site is \$8,275,600 (See Attachment B).
- 33% is therefore \$2,730,948. If this value is met or exceeded in any 5-year period, the subtest is satisfied.

The 5-year consideration is important particularly if the 30% threshold of 521 CMR compliance is reached. Between the additional 2-year look back and the 521 CMR work triggered in that scenario, is usually sufficient to increase the overall costs to exceed 33% and trigger sprinklers to be provided.

OTHER REGULATIONS (BUILDING, FIRE, ELECTRICAL AND PLUMBING CODES)

In general, other regulations do not get "triggered" on a "dollar spent" threshold but rather the "work itself". For example:

PLUMBING CODE

Under the plumbing code, there are no dollar threshold triggers. But work required under the other triggers can cause additional plumbing work.

For example:

- If a bathroom is altered to comply with 521 CMR to be made accessible, and
- The only way to make an existing toilet room compliant is to reduce the number of fixtures in the bathroom, and
- The plumbing code does not allow a deficiency to be created or increased in terms of the number of fixtures, then
- Additional work would be "triggered" to maintain the previous number of fixtures.

ELECTRICAL CODE

Similar to the plumbing code, the electrical code does not have any no dollar threshold triggers. But work required under the other triggers can cause additional electrical work and if an unsafe electrical condition is found as a result of the work, corrective measures can be required. Electrical hazards are considered imminent dangers which necessitate abatement.

SUMMARY

There are always potential abatement issues that can be triggered as a result of "work" exposing those issues. More specifically though, when work occurs in an existing building that is not already sprinklered or compliant with 521 CMR, if the cost of the work exceed the 30% threshold of 521 CMR, then a significant "domino effect" of required work including sprinklers under MGL Chapter 148 s 26G.

521 CMR CONSIDERATION

The current assessed value, and EQV ratio, results in a 521 CMR 30% threshold of \$2,650,000.

Deduct the cost of work in the last 36 months and the balance is the available dollars available for a project and not trigger full compliance with 521 CMR to apply.

MGL CHAPTER 148 SECTION 26G CONSIDERATION

The current assessed value results in an MGL Ch.148 s. 26g 33% threshold of \$2,730,948.

Deduct the cost of work in the last 60 months and the balance is the available dollars for a project and not trigger sprinklers. **See Appendix A for cost of work since 2020**

COMBINED CONSIDERATION CONCLUSION

The smaller delta balance from either the 521 CMR 30% / 36-month review and the MGL Ch. 148 s. 26g / 60-month review then becomes very critical. If that value is exceeded by the next project, both full compliance with 521 CMR and the installation of sprinklers must occur.

POSSIBLE SCENARIOS

The Project team has assembled a sample list of possible scenarios listed below. In most cases if one or two of these scenarios occur, project costs would exceed both the 521 CMR and the MGL CH 148 thresholds, adding to the project cost, full building compliance with 521 CMR (accessibility) and installation of a fire suppression system.

1. Boilers fail beyond repair and require replacement
 - a. Cost of new gas-fired boiler
 - b. If this occurs in winter, school has to rent portable boilers until new boilers are installed.
2. Air conditioning units or generator fails
 - a. ACs fail regularly and they are replaced as needed
 - b. New equipment takes more electricity, eventually will require electrical upgrade
 - c. If generator fails, there are two paths: a.) Replace generator b.) No replacement of generator and at a MINIMUM, All emergency lighting changed to battery pack units and battery backup installed to power circulating pumps for heat.
3. Fire control panel fails or ages out of replacement parts
 - a. Panel and many devices will need to be replaced
 - b. Extensive changes to existing system may prompt fire dept to require installation of fire suppression system
4. Health Department escalates from citations to enforcement and requires finishes and equipment upgrades/installation
 - a. Health Dept has previously cited items in the kitchen and has required some equipment upgrades
 - b. Finishes may include proper walls, ceilings and floors; equipment may include addition of separate pot wash and food prep sinks, and connecting dishwasher to grease trap,

additional dry storage. Some of these may require additional square footages which would require modifications to the building partitions.

5. Modular classrooms are installed (including covered walk that does not connect to existing building)
 - a. Modulars are located within 30 feet of the school to minimize site grading and pavement: Upgrade electrical service, septic and water connections, integration of security, fire alarm, fencing, reconstruction of displaced play areas.
 - b. Modulars are located beyond 30 feet of the school and not connected to school: There may be a path to consider as a separate building however new electric service, water service and connection to existing septic would still be required. Fire alarm, security, fencing, reconstruction of displaced play areas will likely also be required.
6. Existing lift breaks and new code compliant elevator installed.
7. Roof fails beyond minor patching areas, requiring full roof replacement.

End of Report

Appendix A-permit and repair work cost since 2020								
June 23 2025								
35 shaker lane permit costs since 2020								
Permit Number	Date	Permit	Project Cost		Description			
M-25-13	30-May-25		9,000		mini split			
EX-25-144	30-May-25		1,000		mini split			
PX-23-142	14-Sep-23		229.5		gas stove hookup			
PX-22-60	19-Apr-22		5,000		replace interior grease trap			
M-24-10	29-Mar-24		10,000		mini split			
EX-24-111	29-Mar-24		10,000		mini split			
M-23-35	28-Jun-23		2,000		mini split			
EX-23-223	28-Jun-23		800		mini split			
M-22-43	19-Dec-22		3,000		mini split			
EX-22-471	19-Dec-22		900		mini split			
M-22-29	29-Aug-22		5,500		mini split			
EX-22-297	29-Aug-22		1,000		mini split			
EX-22-98	25-Mar-22		4,000		wiring for mini split and new 60 amp panel			
M-22-18	24-Mar-22		2,000		mini split			
M-21-42	30-Aug-21		1,000		mini split			
EX-21-280	30-Aug-21		1,000		Install outlet line for A/C in room 203			
RP-21-268	17-Aug-21		4,994.34		2 - 20x20Ft Pole Tents with no sidewalls (covid)			
CP-21-6	17-Mar-21		2,817.32		tents			
E-21-22	18-Jan-21		800		Install two 20 Amp circuits in MC for 2 GFCI receptacles by stoves			
G-21-9	14-Jan-21				2 gas connections for oven			
E-20-472	17-Dec-20		800		Install receptacle for water bottle filler tied into local outlet			
BC-20-29	2-Sep-20		3,073.44		2 - 20x20Ft Pole Tents with no sidewalls (covid)			
Subtotal permit costs on record at Town of Littleton		68,915	68,915					
Repair costs since 2020								
We repaired the front sidewalk -			\$7,000					
Entry way carpets -			\$3,800					
Rear walkway path repair hotop -			\$10,000					
Replaced 4 exterior doors -			\$24,825					
Other repairs: Kitchen								
Replaced the stove			20,000					
replaced some warmer cabinets			3,600					
replaced the dishwasher			\$11,000					
installing split system A/C Units of			\$146,308.53					
Subtotal repair costs on record at Town of Littleton		\$226,534	\$226,534					
Total permit and repair work cost since 2020			\$295,448.13					