



# APPLICATION FOR VARIANCE

State Form 44400 (R7 / 10-13)  
Approved by State Board of Accounts, 2013

## INDIANA DEPARTMENT OF HOMELAND SECURITY CODE SERVICES SECTION

302 West Washington Street, Room W246  
Indianapolis, IN 46204-2739

[http://www.in.gov/dhs/fire/fp\\_bs\\_comm\\_code/](http://www.in.gov/dhs/fire/fp_bs_comm_code/)



**INSTRUCTIONS:** Please refer to the attached four (4) page instructions.  
Attach additional pages as needed to complete this application.

Variance number (Assigned by department)

16-09-08

### 1. APPLICANT INFORMATION (Person who would be in violation if variance is not granted; usually this is the owner)

Name of applicant	Title
Elliott Berger	Division Scientist
Name of organization	Telephone number
3M Company	(317) 982-3334
Address (number and street, city, state, and ZIP code)	
7911 Zionsville Road, Indianapolis, IN 46268-1650	

### 2. PERSON SUBMITTING APPLICATION ON BEHALF OF THE APPLICANT (If not submitted by the applicant)

Name of applicant	Title
Name of organization	Telephone number
	( )
Address (number and street, city, state, and ZIP code)	

### 3. DESIGN PROFESSIONAL OF RECORD (If applicable)

Name of design professional	License number
Dennis L. Lockwood, R. A.	AR00880164
Name of organization	Telephone number
Lockwood Design Associates, LLC	(317) 844-1315
Address (number and street, city, state, and ZIP code)	
715 Homewood Dr., Indianapolis, IN 46280	

### 4. PROJECT IDENTIFICATION

Name of project	State project number	County
Indianapolis Acoustical Laboratories Hemi-Anechoic Chamber	379645	Marion
Address of site (number and street, city, state, and ZIP code)		
7911 Zionsville Road, Indianapolis, IN 46268-1650 (PERMIT APPLICATION No. STR15-03927)		
Type of project		
<input type="checkbox"/> New <input type="checkbox"/> Addition <input checked="" type="checkbox"/> Alteration <input type="checkbox"/> Change of occupancy <input type="checkbox"/> Existing		

### 5. REQUIRED ADDITIONAL INFORMATION

The following required information has been included with this application (check as applicable):

A check made payable to the Indiana Department of Homeland Security for the appropriate amount. (see instructions)

One (1) set of plans or drawings and supporting data that describe the area affected by the requested variance and any proposed alternatives.

Written documentation showing that the local fire official has received a copy of the variance application.

Written documentation showing that the local building official has received a copy of the variance application.

### 6. VIOLATION INFORMATION

Has the Plan Review Section of the Division of Fire and Building Safety issued a Correction Order?

Yes (If yes, attach a copy of the Correction Order.)     No

Has a violation been issued?

Yes (If yes, attach a copy of the Violation and answer the following.)     No

Violation issued by:

Local Building Department   
 State Fire and Building Code Enforcement Section   
 Local Fire Department

**7. DESCRIPTION OF REQUESTED VARIANCE**

Name of code or standard and edition involved	Specific code section
675 IAC 22-2.4	901.4

Nature of non-compliance (Include a description of spaces, equipment, etc. involved as necessary.)

The space in question will be a newly constructed acoustical test facility constructed from 8" filled concrete block with a 9" thick concrete ceiling. The facility, which is structurally isolated at its foundation and its complete perimeter from the surrounding building, will be approximately 74' x 19' x 12', divided into a 62x19 test chamber and a 12x19 control room and. The test room has heavy steel doors at each end and single dual-pane glass viewing window between the control room and test room (2-1/2' x 3'). The walls and ceiling of the test room will be lined with melamine acoustical foam wedges that pass ASTM E84 Class 1. Complete flammability specs are included with this request. The floor is concrete. The control room will have a drop acoustic tile ceiling and painted concrete block walls. The test chamber is for impulse testing using a pneumatically powered shock tube and for localization studies using human subjects. The control room contains measurement instruments. We cannot install a sprinkler system since the piping would introduce vibration into the isolated structures and compromise the acoustical background levels required for testing. We have similar acoustical chambers on the same site that have previously been exempted for the same reasons.

**8. DEMONSTRATION THAT PUBLIC HEALTH, SAFETY, AND WELFARE WILL BE PROTECTED**

Select one of the following statements:

- Non-compliance with the rule will not be adverse to the public health, safety or welfare; or
- Applicant will undertake alternative actions in lieu of compliance with the rule to ensure that granting of the variance will not be adverse to public health, safety, or welfare. Explain why alternative actions would be adequate (*be specific*).

Facts demonstrating that the above selected statement is true:

In place of installing a sprinkler head in the control room and test chamber a sprinkler system will be located above the facility and around its perimeter. The personnel doors are the only means of egress of flames or heat from within the facility. If a fire were to start within the facility, a person could quickly exit through a door and either shut it to contain the flames or leave the door open for the sprinkler to activate. Additional actions in lieu of compliance with the rule to ensure there will not be adverse impact to public health, safety or welfare includes installing multiple smoke detectors within the facility and integrating them into the building alarm system. The description of the design of the construction was reviewed on-site with the Pike Fire Department Fire Marshall in May of this year. This variance application is submitted in accordance with the recommendation received from the PFD Fire Marshall.

**9. DEMONSTRATION OF UNDUE HARDSHIP OR HISTORICALLY SIGNIFICANT STRUCTURE**

Select at least one of the following statements:

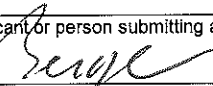
- Imposition of the rule would result in an undue hardship (*unusual difficulty*) because of physical limitations of the construction site or its utility services.
- Imposition of the rule would result in an undue hardship (*unusual difficulty*) because of major operational problems in the use of the building or structure.
- Imposition of the rule would result in an undue hardship (*unusual difficulty*) because of excessive costs of additional or altered construction elements.
- Imposition of the rule would prevent the preservation of an architecturally or a historically significant part of the building or structure.

Facts demonstrating that the above selected statement is true:

The background sound levels in the test chamber are critical to its measurement capabilities. Creating an acoustically isolated space requires massive walls and exceedingly good acoustical and also vibrational isolation. Any mechanical connections between the room and the surrounding building creates a vibrational transmission path that will compromise the acoustic structure. There is no feasible means to connect metal or plastic piping from the building into the room without creating a structural transmission path or compromising the acoustic barriers.

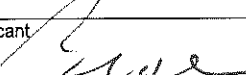
**10. STATEMENT OF ACCURACY**

I hereby certify under penalty of perjury that the information contained in this application is accurate.

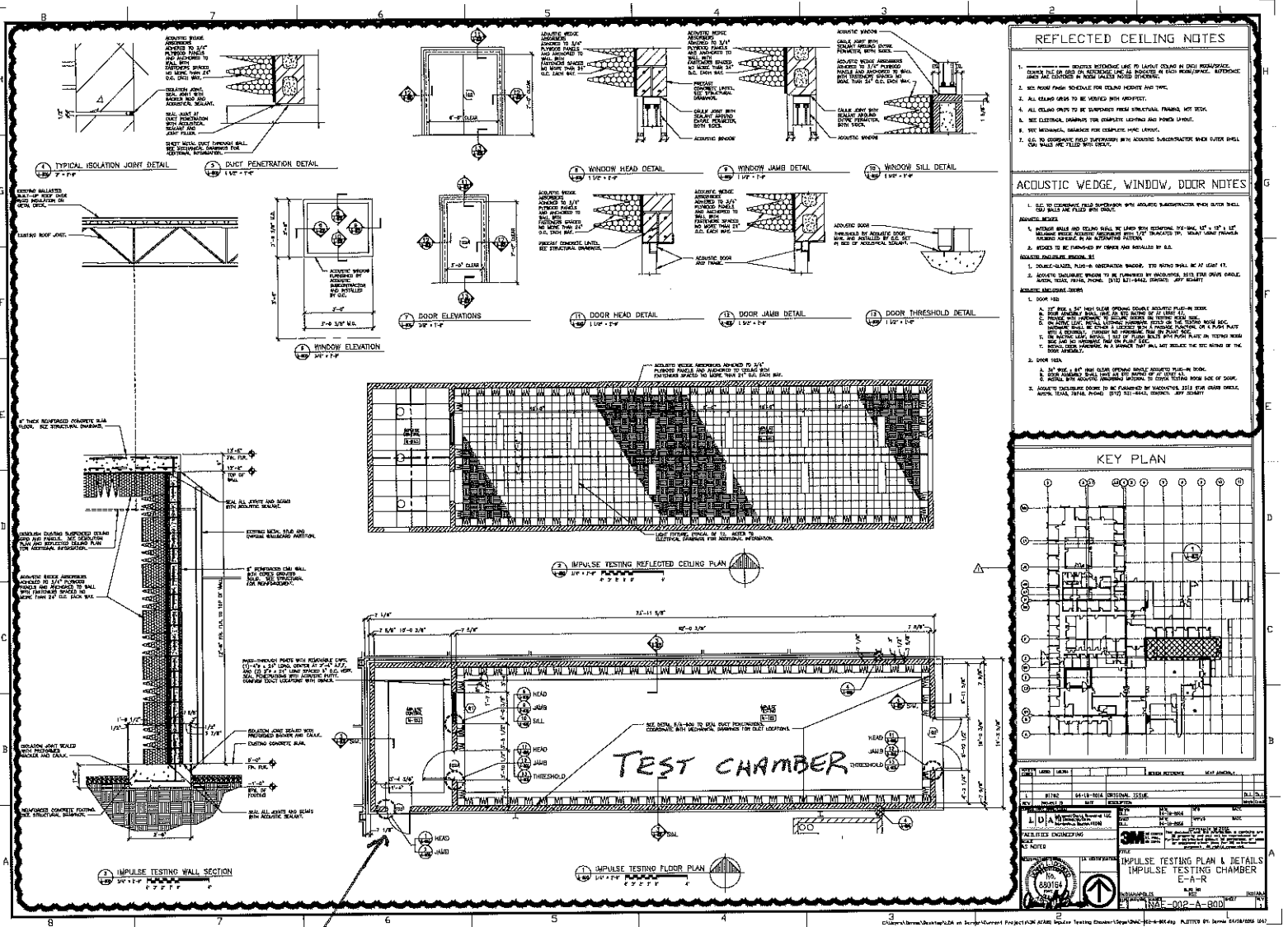
Signature of applicant or person submitting application	Please print name	Date of signature (month, day, year)
	Elliott H. Berger	08/05/16
Signature of design professional (if applicable)	Please print name	Date of signature (month, day, year)

**11. STATEMENT OF AWARENESS (If the application is submitted on the applicant's behalf, the applicant must sign the following statement.)**

I hereby certify under penalty of perjury that I am aware of this request for variance and that this application is being submitted on my behalf.

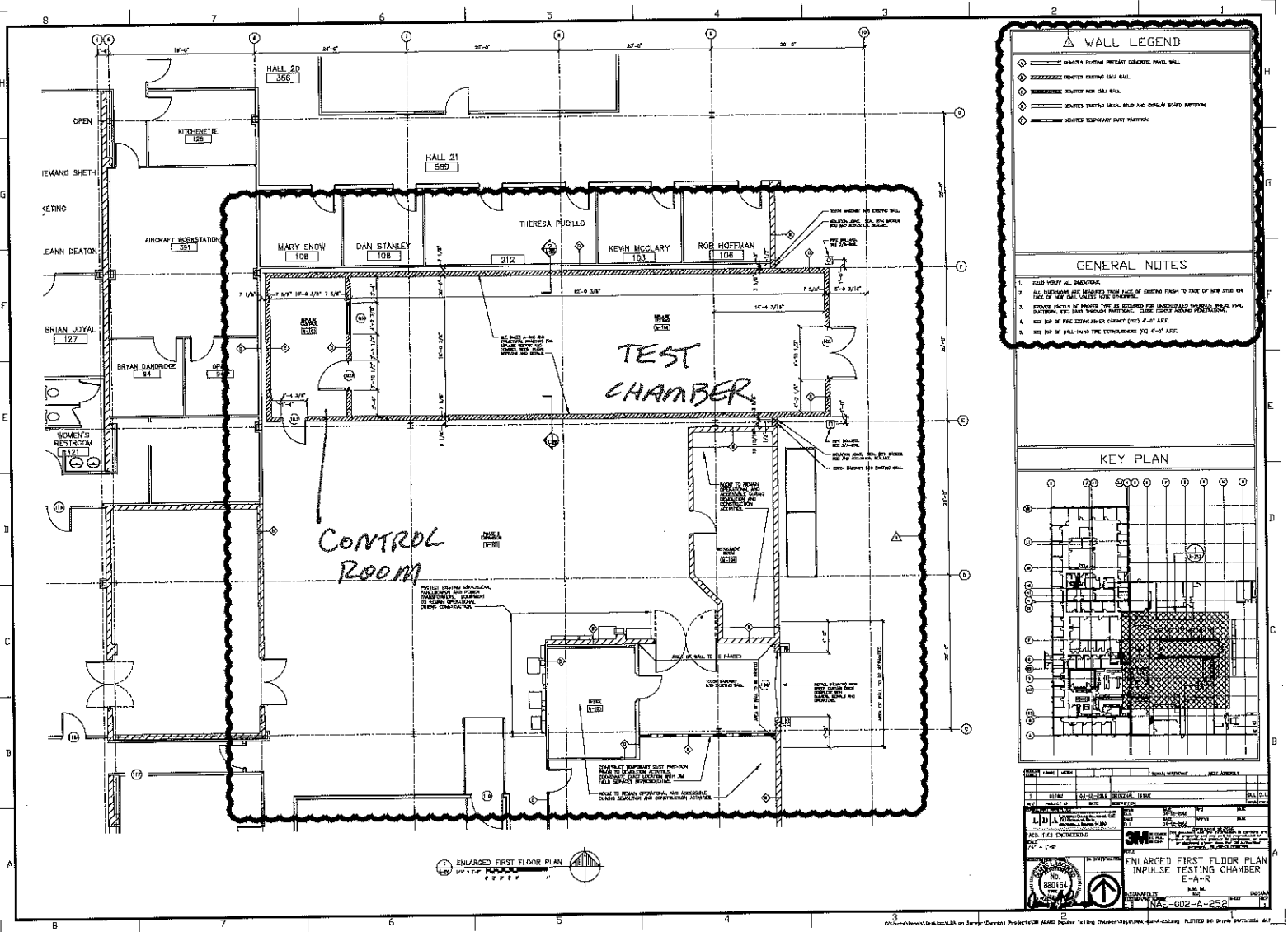
Signature of applicant	Please print name	Date of signature (month, day, year)
	Elliott H. Berger	08/05/16

# DRAWING 1



CONTROL ROOM

# DRAWING 2



# TecSpec

## Product: Fireflex Melamine Foam

### Product Specification

Fireflex lightweight, open-celled acoustic melamine material meets the following regulations. Where not indicated, the following tests were performed on 1" thick material.

FM VSS 302:	Passes (automotive)
UTAC (Union Technique de l'Automobile Du Motorcycle et du Cycle)	Passes (Category 1 buses)
UL code 94, electronics	HBF: Passes HF1: Passes VO: Passes
ASTM E84 Class 1	Flame Spread: 10 Smoke Density: 50
The ASTM E 84 test procedure is comparable to UL 732, ANSI/NFPA No. 255, and UBC No. 8-1	
FAR 25.853, aviation:	Passes
ASTM C 518 Thermal Conductivity	0.25 Btu in/h ft <sup>2</sup> °F at 68 °F
ASTM C 177 Thermal Conductivity	0.25 Btu in/j ft <sup>2</sup> °F at 68 °F
ASTM E 162-83 Surface Flammability of Materials Using a Radiant Heat Energy Source	Flame spread factor: 6.7 Heat Evolution factor: 3.5 Flame spread index: 22.9
ASTM D 3574-86 Density Test: Indentation Force, Deflection Test	0.7 lb/ft <sup>3</sup> at 25% = 82 lbf; at 75% = 356 lbf
Compression Set Test (73 °F/50% r.H.)	at 50% = 6.2% at 75% = 8.5% at 90% = 14.4%

Light resistance  
2 Days UV  
(300-380 nm)

No Yellowing or  
pulverulence

FOAM MANUFACTURER BASF/PRODUCT: BASOTECT

**From:** Bruner, Sam  
**To:** Elliott Berger  
**Subject:** [EXTERNAL] RE: variance request  
**Date:** Tuesday, August 09, 2016 9:07:10 AM  
**Importance:** High

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I approve the variance with the use of smoke detectors in place of the sprinkler system in the test rooms.

Respectfully,

*Sam Bruner*

Sam Bruner  
Inspector/Investigator  
Prevention Services  
Pike Township Fire Department  
5665 Lafayette Road Suite A  
Indianapolis, Indiana 46254  
317-347-5860 ext. 2114  
Cell : 317-501-8642  
[sbbruner@pikefire.com](mailto:sbbruner@pikefire.com)

**From:** Elliott Berger [<mailto:elliott.berger@mmm.com>]  
**Sent:** Tuesday, August 09, 2016 8:57 AM  
**To:** Bruner, Sam  
**Cc:** Wayne Patterson  
**Subject:** variance request

Sam,  
Thank you for the reminder call. Here is the documentation that I plan to submit next week to the Code Services Section, once I get a check for the appropriate amount.

Please advise if you see any problems. I have copied Wayne, as the local building official, per your suggestion.

Elliott

**3M** Science.  
Applied to Life.™

**Elliott H. Berger** | Division Scientist  
3M Personal Safety Division  
E•A•RCAL Lab, 7911 Zionsville Rd. | Indianapolis, IN 46268-1650  
Office: 317 982 3334 | Mobile: 317 752 0614 | Fax: 866 428 3942  
[elliott.berger@mmm.com](mailto:elliott.berger@mmm.com) | [3m.com/hearingprotection](http://3m.com/hearingprotection)

**From:** [Patterson, Wayne](#)  
**To:** [Elliott Berger](#); [Sam Bruner](#)  
**Subject:** [EXTERNAL] RE: variance request  
**Date:** Tuesday, August 09, 2016 9:11:39 AM

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Gentlemen,

I have received and reviewed this variance submittal and have no objections to its approval.

Respectfully,

**Wayne Patterson**  
**Building Inspector**  
**Bureau of Construction Services**  
**Division of Inspections**  
**Department of Code Enforcement - City of Indianapolis**  
**1200 Madison Avenue | Suite 100 | Indianapolis, IN 46225**  
**E: [Wayne.Patterson@indy.gov](mailto:Wayne.Patterson@indy.gov); P: (317) 670-9006; F: (317) 327-2621**

**From:** Elliott Berger [<mailto:elliott.berger@mmm.com>]  
**Sent:** Tuesday, August 09, 2016 8:57 AM  
**To:** Sam Bruner  
**Cc:** Patterson, Wayne  
**Subject:** variance request

Sam,

Thank you for the reminder call. Here is the documentation that I plan to submit next week to the Code Services Section, once I get a check for the appropriate amount.

Please advise if you see any problems. I have copied Wayne, as the local building official, per your suggestion.

Elliott

**3M Science.**  
**Applied to Life.™**

**Elliott H. Berger** | Division Scientist  
3M Personal Safety Division  
E•A•RCAL Lab, 7911 Zionsville Rd. | Indianapolis, IN 46268-1650  
Office: 317 982 3334 | Mobile: 317 752 0614 | Fax: 866 428 3942  
[elliott.berger@mmm.com](mailto:elliott.berger@mmm.com) | [3m.com/hearingprotection](http://3m.com/hearingprotection)