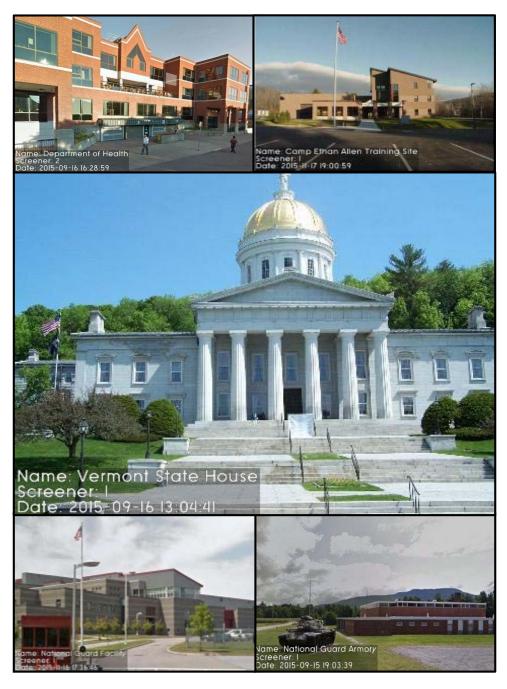
Seismic Screening and Analysis of Selected Critical Facilities in Vermont Utilizing Two FEMA Methodologies (HAZUS & ROVER) February 2016





DISCLAIMER

This report was prepared by the Northeast States Emergency Consortium NESEC) in association with the Vermont State Geologist, the Vermont National Guard and the Vermont Division of Emergency Management and Homeland Security.

Conclusions and recommendations contained herein are based upon results of FEMA Rapid Observation of Vulnerability and Estimation of Risk (ROVER), Version 2.2 and FEMA HAZUS (Hazards US) version 2.2 software developed by the Federal Emergency Management Agency (FEMA). Any opinions, findings, conclusions, or recommendations expressed in or derived from the FEMA ROVER and HAZUS software do not necessarily reflect official views or policy and NESEC assumes no liability for its contents or use thereof.

While the estimates contained in this report are based on FEMA software that rely on current scientific and engineering knowledge, there are large uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled ROVER and HAZUS results contained in this report and the actual site-specific losses following an earthquake. Site-specific results can be improved by undertaking detailed seismic evaluations of critical facilities as recommended by ROVER.

Funding for this report was provided by the Department of Homeland Security Federal Emergency Management Agency (FEMA) under the National Earthquake Hazards Reduction Program (NEHRP).

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EXECUTIVE SUMMARY

According to a 2015 Report¹ published by the United States Geological Survey (USGS), more than 143 million Americans living in the 48 contiguous states are exposed to potentially damaging ground shaking from earthquakes. The State of Vermont is included in the Report which estimates that 602,498 people, or approximately 94% of the State's population, is exposed to potentially damaging earthquake ground shaking.

Improved and cost-effective techniques are available from the Federal Emergency Management Agency (FEMA) for undertaking earthquake loss estimations and seismic screening of critical and essential facilities in Vermont. These screenings and loss estimates can provide local and state emergency managers and critical facility operators with more accurate estimates of the potential impact of a seismic event on their facilities. Moreover, they can provide a planning basis for the development of preparedness, response, recovery and mitigation plans and strategies.

This study screened 26 critical facilities in Vermont using two tools (HAZUS and ROVER) developed by FEMA. The goal was to identify pre-earthquake vulnerability and post-earthquake functionality of selected critical facilities based on multiple credible earthquake scenarios. Additionally, the project aimed to identify cost effective measures to collect building and existing soil data for incorporation into both HAZUS and ROVER. Finally, the project evaluated the benefits of improving default soils and building construction type based on how each influenced the ROVER and HAZUS results.

Findings and recommendations include the following:

- Twenty two of twenty six or almost 85% of the facilities screened using ROVER are recommended for a detailed seismic analysis based on their safety ratings.
- Updating default surficial soils had a significant impact on the HAZUS results, while having less of an impact on ROVER results.
- Updating building construction type is necessary and fundamental to undertaking ROVER screening.
- When evaluating individual functionality of critical facilities using HAZUS, it is imperative to have accurate site specific information including location, NEHRP soil classification and building construction type in order to obtain reliable results.
- Similar ROVER screening and HAZUS analysis is recommended for all Vermont critical facilities with consideration given to expanding the analysis to include hurricane and floods.

The methods and findings of this study provide a model that can be replicated to quickly and costeffectively analyze the earthquake risk to critical facilities anywhere in the country.

¹ Kishor S. Jaiswal, Mark D. Petersen, Ken Rukstales, and William S. Leith (2015) Earthquake Shaking Hazard Estimates and Exposure Changes in the Conterminous United States. Earthquake Spectra: December 2015, Vol. 31, No. S1, pp. S201-S220.

1.0 INTRODUCTION

Improved and cost-effective techniques for undertaking Federal Emergency Management Agency (FEMA) HAZUS and ROVER earthquake loss estimations and analyses in Vermont will provide local and state emergency managers and critical facilities operators with more accurate estimates of the potential impact on their facilities. Moreover, they can provide a planning basis for the development of preparedness, response, recovery and mitigation plans and strategies.

The goal of this project was to conduct HAZUS and ROVER earthquake analyses of selected critical facilities in Vermont to identify their pre-earthquake vulnerability and post-earthquake functionality based on multiple credible earthquake scenarios. Additionally, the project aimed to identify cost effective measures to collect building and existing soil data for incorporation into both HAZUS and ROVER. Finally, the project evaluated the benefits of improving default soils and building type based on how each influenced the ROVER and HAZUS results.

This project was completed by the Northeast States Emergency Consortium (NESEC) with Vermont State Support funding from FEMA and with the assistance of the Vermont State Geologist, Vermont National Guard and Vermont Emergency Management and Homeland Security.

2.0 METHODOLOGY

2.1 ANALYTICAL SOFTWARE

The methodology included the use of following two FEMA developed and supported analytical software programs.

ROVER - Rapid Observation of Vulnerability and Estimation of Risk (ROVER) is a FEMA developed mobile software for pre and post-earthquake building safety screening. ROVER's pre-earthquake module is designed to be used by field inspectors to quickly compile an electronic inventory of buildings, record important seismically vulnerable features of a building, and generate an automatic estimate of the need for detailed seismic evaluation. NESEC used a novel approach of remotely undertaking the initial ROVER screening of the Vermont critical facilities using Google maps, Google Earth, Google Street View, assessors' data and other readily available information. Once complete draft results were reviewed by the Army Nation Guard and the Vermont State Building Department, changes were incorporated and the data sheets were finalized. The ROVER Worksheets for each of the critical facilities analyzed are contained as APPENDIX 1.

HAZUS – HAZUS (Hazards US) is a powerful risk assessment methodology developed and supported by the Federal Emergency Management Agency (FEMA). HAZUS is a nationally applicable standardized methodology that contains models for estimating potential losses from earthquakes, floods, and hurricanes. HAZUS uses Geographic Information Systems (GIS) technology to estimate physical, economic, and social impacts of disasters, as well as estimating potential damage and post-disaster functionality of critical facilities. It graphically illustrates the limits of identified high-risk locations due to earthquake, hurricane and flood events. Users can then visualize the spatial relationships between populations and other more permanently fixed geographic assets or resources for the specific hazard being modeled, which is a crucial function in the pre-disaster planning process. HAZUS Version 2.2 was used in the conduct of this study.

2.2 NEHRP SOIL SITE CLASSIFICATIONS

Two of the most important geologic characteristics that affect levels of ground shaking during an earthquake are the softness of the ground at a site, and the total thickness of sediments above hard bedrock. The softer and thicker the soil, the greater the shaking or amplification of waves produced by an earthquake.

Seismic waves travel faster through hard rock than through softer rock and sediments. As the waves pass from harder to softer rocks, the waves slow down and their amplitude increases. Thus shaking tends to be stronger at sites with softer surface layers, where seismic waves move more slowly. For small seismic events, ground motion above an unconsolidated landfill or soft soils can be more than 10 times stronger than at neighboring sites on bedrock. This effect of the underlying soil on the local ground shaking is called the Site Effect.

Both HAZUS and ROVER incorporate the effects of local surficial geology, the site effect, into their analysis. Both programs classify local site conditions based on NEHRP site classifications A – E as described in Table 1.

NEHRP Site Classification Category	Description
А	Hard Rock
В	Firm to hard rock
С	Dense soil, soft rock
D	Stiff soil
Е	Soft clays

Table 1: NEHRP Site Classifications

HAZUS, by default, assumes a single site classification, NEHRP category D, for the entire state of Vermont (See Figure 1). Using a uniform NEHRP Category D soil type is acceptable for emergency preparedness purposes because it tends to overestimate potential losses and impacts. From an emergency management perspective, it is always better to overestimate than underestimate, but the preferred approach is to develop the best possible estimates of damage based on the best available information. With this concept in mind, HAZUS allows the user to update soil classifications manually or by importing a soil site classification map.



Figure 1. HAZUS Default Soils Vermont

ROVER similarly requires soil site classification and utilizes a USGS methodology that estimates surficial soil type using slope as a proxy.

Both programs also estimate earthquake ground shaking. HAZUS contains historic scenario events, but also allows the user to use an arbitrary event or utilize a probabilistic scenario. ROVER uses USGS National Seismic Maps to estimate the ground-shaking hazard at the building site.

For this project, surficial geology was updated from the default soils included in HAZUS and ROVER with more detailed soils information provided by the Vermont State Geologist.

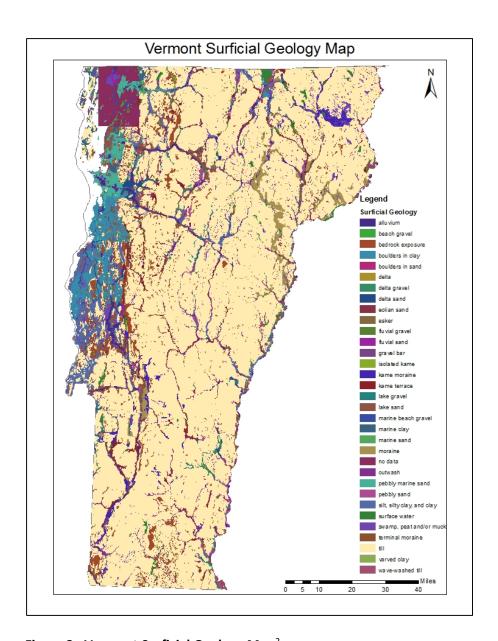


Figure 2. Vermont Surficial Geology Map²

The first step in updating the surficial soils in Vermont was to convert the data contained on the Vermont Surficial Geology Map into NEHRP classifications A-E so that it could be imported into the HAZUS and ROVER Programs. These conversions were made using conversion factors provided by the Vermont State Geologist as illustrated in Table 2.

Once these preliminary conversions were made based on the Vermont Surficial Geology Map, the State Geologist identified areas where more detailed surficial materials analyses had been completed and mapped at the 1:24000 scale or better (See Figure 3).

² Vermont Center for Geographic Information

LITHCODE	FEATURE_TY	LITHNAME	NEHRP Site Class
al	Postglacial fluvial deposit	alluvium	D
bc	Glaciolacustrine deposit	boulders in clay	Е
bg	Glaciolacustrine deposit	beach gravel	D
bgm	Champlain Sea deposit	marine beach gravel	D
bs	Glaciolacustrine deposit	boulders in sand	С
d	Glaciolacustrine deposit	delta	С
dg	Glaciolacustrine deposit	delta gravel	С
ds	Glaciolacustrine deposit	delta sand	С
ek	Glaciofluvial	esker	С
es	Eolian deposit	eolian sand	С
fg	Postglacial fluvial deposit	fluvial gravel	С
fs	Postglacial fluvial deposit	fluvial sand	D
gb	Champlain Sea landform	gravel bar	С
k	Glaciofluvial deposit	isolated kame	С
km	Glaciofluvial deposit	kame moraine	С
kt	Glaciofluvial deposit	kame terrace	С
lg	Glaciolacustrine deposit	lake gravel	С
Is	Glaciolacustrine deposit	lake sand	D
m	Glacial deposit	moraine	С
mc	Champlain Sea deposit	marine clay	Е
ms	Champlain Sea deposit	marine sand	D
na	No Data	no data	No Data
ow	Glaciofluvial deposit	outwash	D
р	Pluvial deposit	swamp, peat and/or muck	E
ps	Glaciolacustrine deposit	pebbly sand	С
psm	Champlain Sea deposit	pebbly marine sand	D
r	Bedrock exposure	bedrock exposure	Α
stc	Glaciolacustrine deposit	silt, silty clay, and clay	E
sw	Surface Water	surface water	N/A
t	Glacial deposit	till	С
tm	Glacial deposit	terminal moraine	С
VC	Glaciolacustrine deposit	varved clay	E
wt	Glaciolacustrine deposit	wave-washed till	В

Table 2. Surficial to NEHRP Soils Conversion Factors

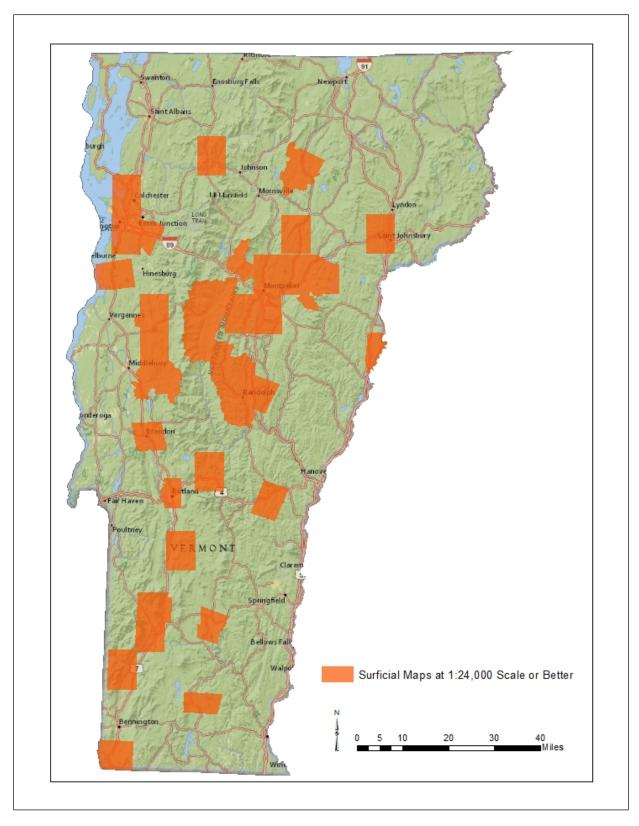


Figure 3. Vermont Areas Where Surficial Geology is Mapped at 1:24,000 Scale or Better

The A - E NEHRP Soil Class conversions for the areas with detailed surficial mapping were consolidated with the Vermont Surficial Geology Map to create a single statewide map (See Figure 4) representing the "best available" surficial materials data for the state of Vermont. The map was then imported into the HAZUS Program to be used in the earthquake analyses, and the site-specific soil classes were updated manually into the ROVER Program.

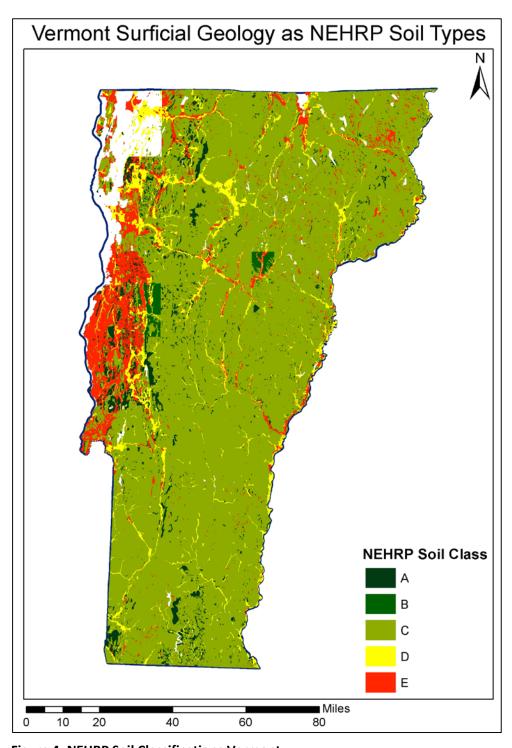


Figure 4. NEHRP Soil Classifications Vermont

2.3 SELECTED CRITICAL FACILITIES

Twenty six (26) critical facilities were selected for analysis in conjunction with the Vermont National Guard, Vermont Division of Emergency Management & Homeland Security and the Vermont State Geologist (See Figure 5). This project had a dual focus to evaluate the functionality of critical facilities and at the same time evaluate the effectiveness of updating soils and building construction type in

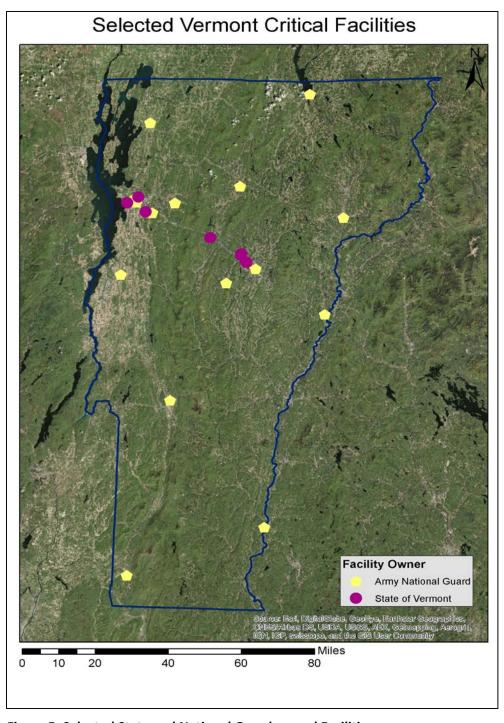


Figure 5. Selected State and National Guard owned Facilities

HAZUS and ROVER. Accordingly, the selection of critical facilities was driven by multiple factors including their critical function following an earthquake or other disaster, geographic location in relation to surficial geology and/or their particular building construction type. A list of the selected facilities is included in Table 6 in Section 4.1.

2.4 SCENARIO EARTHQUAKES

In areas of low to moderate seismicity such as the Northeast US, it is essential to select realistic and credible scenario earthquakes for loss estimation purposes. The selection of events that have occurred historically and are likely to occur again is the preferred option. This is important because the selection of non-credible events can have the unintended result that the loss estimates are ignored because they are perceived as overstated and unrealistic. Multiple earthquake scenarios were reviewed and considered based on an analysis of New England Scenario Earthquakes prepared by Dr. John Ebel, Weston Observatory for a 2012 FEMA Study of the impact of earthquakes in New England ³ (See Figure 6).

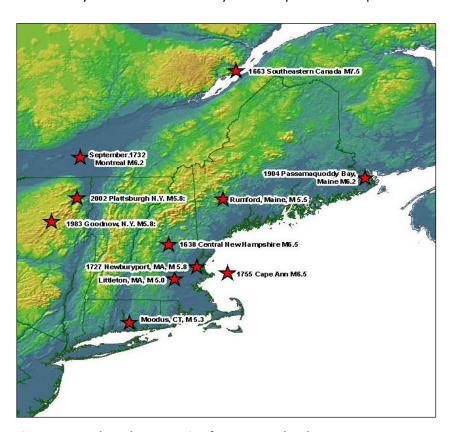


Figure 6. Earthquake Scenarios for New England

In consultation with the Vermont State Geologist, two (2) credible earthquake scenarios for Vermont were identified using Ebel's specific parameters for magnitude, depth and epicentral location: the 1638 Central New Hampshire and the 1732 Montreal events. A third hypothetical 5.0 Magnitude event was added with an epicenter in Middlebury, VT, with parameters provided by the Vermont State Geologist (See Table 3).

³ HAZUS Analysis of Eleven Scenario Earthquakes in New England, FEMA Region1, September 2012

Middlebury was the center of a 4.1 Magnitude event on April 10, 1962⁴ and is considered a potential source zone for a small, but potentially damaging, local event.

		Epic	enter	Focal	Magnitude		
No.	Earthquake Scenario	Latitude Longitud (N) (W)		Depth (km)	(M)	Notes	
1	1638 Central New Hampshire	43.39°	-71.61°	5	6.5	Brown and Ebel (EQ Notes, 1985); Ebel and Bouck (SRL, 1988); Ebel (unpublished)	
2	1732 Montreal, Canada	45.5°	-73.6°	10	6.2	Natural Resources Canada	
3	Middlebury, VT	44.01	-73.17	5	5.0	Vermont State Geologist	

Table 3. Vermont Earthquake Scenario Parameters

3.0 ANALYSIS

3.1 ROVER ANALYSIS

A FEMA ROVER pre-earthquake analysis was conducted for 26 selected critical facilities to estimate their post-earthquake performance and determine the need for a detailed seismic evaluation. ROVER Version 2.2 was utilized for this analysis (See Figure 7).

NESEC used ROVER in conjunction with Google Maps, Google Street View, Google Earth, Bing Maps, Bing Birds Eye View, assessors' data and other readily available means to undertake an initial ROVER screening of the 26 Vermont critical facilities as described in Section 2.3. The ROVER inventory included an electronic inventory of buildings and a record of any important seismically vulnerable features of each building. The program generates an automatic final score estimate, which indicates if a detailed seismic evaluation is necessary. The Final ROVER Scores relate to the probability of building collapse should a low probability but credible earthquake occur. A credible earthquake has ground-shaking levels equivalent to the Maximum Considered Earthquake (MCE) currently used in national design and evaluation standards for the evaluation of existing buildings. Final ROVER Scores typically range from zero to seven, with higher scores corresponding to better than expected seismic performance and a lower potential for collapse. All facilities that score less than 2.0 on the ROVER Scale are recommended for a detailed seismic evaluation.

⁴ Earthquake Catalog, Weston Observatory, Boston College

The ROVER final scores for the 26 critical facilities were calculated twice for each structure; once using the default USGS ROVER soils and again utilizing the Vermont State Geologists updated and interpolated surficial soils.

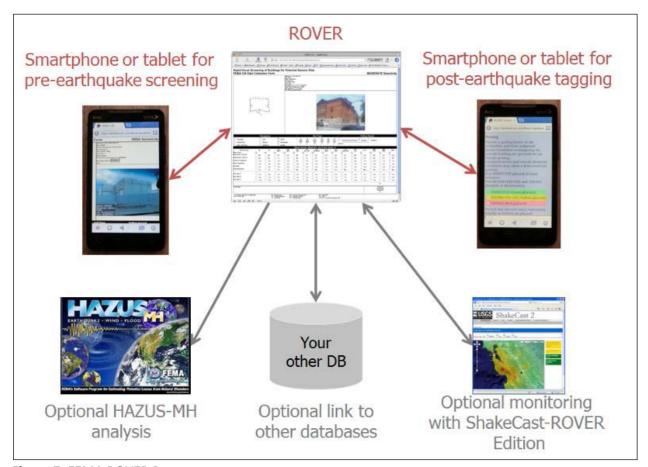


Figure 7. FEMA ROVER Program

3.2 HAZUS ANALYSIS

A FEMA HAZUS (Hazards US) earthquake analysis was conducted for the State of Vermont using the three scenario events. HAZUS analysis was also conducted for the 26 selected critical and facilities to estimate their post scenario earthquake functionality and damage state. An overview of the HAZUS analysis process is illustrated in Figure 8.

The first step was to update the HAZUS Default database of essential facilities to include data collected on the 26 facilities as part of the ROVER Analysis. Once the data was updated, eighteen HAZUS runs were conducted to include six runs for each of the three earthquake scenarios. The six runs used all the possible combinations of default or updated building classifications and soils. This included HAZUS default soils, ROVER soils, State Geologist provided soils, HAZUS default building construction type and updated ROVER building construction type (See Table 4). These multiple analyses were conducted to evaluate the efficacy and cost effectiveness of updating building classification, soils, or both.

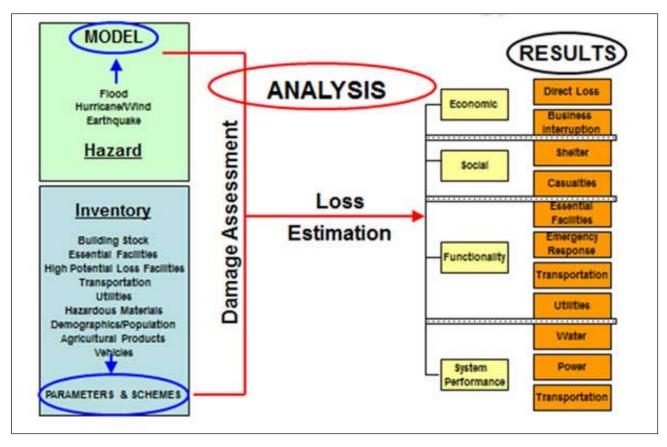


Figure 8. HAZUS Analysis Process

Soil	Default Building Type	Updated Building Type	Scenarios
Default Soils	Yes	Yes	3
ROVER Soils	Yes	Yes	3
State Geologist Soils	Yes	Yes	3

Table 4. Eighteen HAZUS Runs Combinations

4.0 RESULTS

4.1 ROVER

ROVER Analysis was conducted using both default ROVER soils and State Geologist provided soils. The results as illustrated in Table 5 show that updating ROVER default soils data increases the number of facilities ROVER recommends for a detailed seismic evaluation by 3 or approximately 12% of the facilities screened.

Soils	Facilities Requiring Detailed Seismic Evaluation	Facilities NOT Requiring Detailed Seismic Evaluation				
ROVER Soils	19	7				
State Geologist Soils	22	4				

Table 5. Facilities Requiring Detailed seismic evaluation as a Function of Soil

Table 6 compares the raw scores each of the facilities using default ROVER Soils and State Geologist provided soils. The raw scores for the two soil types do not differ significantly. Those facilities ROVER recommends for a detailed seismic evaluation are highlighted in orange and those not requiring further evaluation are highlighted in green.

Table 7 shows the facilities and their ranking from lowest to highest with 2.0 being the ROVER Recommended threshold for facilities requiring a detailed seismic evaluation. ROVER recommends a detailed seismic evaluation for 22 of 26 or 85% of the facilities surveyed. Those facilities ROVER recommends for a detailed seismic evaluation are highlighted in orange and those not requiring further evaluation in green.

Name	Function	Street Address	City	ROVER Default Soils Score	ROVER State Geologist Soils Score	Difference
National Guard	Armory	13 Ferris Street	Swanton	0	0	0
National Guard	Armory	255 Lafountain Street	Winooski	0.1	0	-0.1
National Guard	National Guard HQs	789 Vermont National Guard Road	Colchester	0.4	0	-0.4
Division of Fire Safety	Central Administration	1311 US Route 302	Barre	0.4	0	-0.4
National Guard	Armory	7846 Williston Road	Williston	0.1	0.1	0
National Guard	Armory	45 Farr Ave	Morrisville	0.3	0.1	-0.2
National Guard	Norwich Campus (Training)	161 University Drive	Northfield	0.7	0.1	-0.6
National Guard	Aviation Support Facility	141 Shamrock Road	S. Burlington	1.5	0.1	-1.4
National Guard	Armory	37 Monkton Road	Vergennes	0.3	0.3	0
National Guard	Armory	99 Fairground Road	Bradford	0.3	0.3	0
National Guard	Armory and Maintenance	23 Armory Lane	Westminster	0.3	0.3	0
National Guard	Armory	540 Union Street	Newport	0.3	0.3	0
National Guard	Recruiting	10 Eastern Ave	St Johnsbury	0.9	0.3	-0.6
Emergency Operations Center	Emergency Operations	45 State Drive	Waterbury	1.1	0.3	-0.8
Vermont State House	Seat of Government	115 State Street	Montpelier	0.7	0.7	0
Agency of Transportation	Transportation Department Headquarters	One National Life Drive	Montpelier	0.7	0.7	0
National Guard	Training	113 Ethan Allen Road	Jericho	1.7	0.7	-1
National Guard	Armory	100 Franklin Lane	Bennington	1.5	1.5	0
Agency of Transportation	District 5	189 Troy Avenue	Colchester	1.9	1.8	-0.1
Department of Health	Health Department Headquarters	108 Cherry Street	Burlington	2.3	1.5	-1.2
Department of Motor Vehicles	Motor Vehicles Department Headquarters	120 State Street	Montpelier	2.6	1.8	-0.8
State Police	Barracks	2777 Saint George Road	Williston	2.8	1.8	-1
National Guard	Storage	666 Lower Newton Street	Saint Albans	2.4	2	-0.4
National Guard	Training	90 Ethan Allen Road	Jericho	2.3	2.3	0
Armed Forces Reserve Center	U.S. Army Reserves	2143 Post Road	Rutland	2.6	2.6	0
National Guard	Recruiting	171 North Main Street	Barre	2.6	2.6	0

Table 6. Comparison of ROVER Scores using Default and State Geologist Provided Soil

Name	Function	Street Address	City	ROVER Updated Soils Score	ROVER Updated Soils Rank	
National Guard	Armory	13 Ferris Street	Swanton	0	1	
National Guard	Armory	255 Lafountain Street	Winooski	0	2	
National Guard	National Guard HQs	789 Vermont National Guard Road	Colchester	0	3	
Division of Fire Safety	Central Administration	1311 US Route 302	Barre	0	4	
National Guard	Armory	7846 Williston Road	Williston	0.1	5	
National Guard	Armory	45 Farr Ave	Morrisville	0.1	6	
National Guard	Norwich Campus (Training)	161 University Drive	Northfield	0.1	7	
National Guard	Aviation Support Facility	141 Shamrock Road	South Burlington	0.1	8	
National Guard	Armory	37 Monkton Road	Vergennes	0.3	9	
National Guard	Armory	99 Fairground Road	Bradford	0.3	10	
National Guard	Armory and Maintenance	23 Armory Lane	Westminster	0.3	11	
National Guard	Armory	540 Union Street	Newport	0.3	12	
National Guard	Recruiting	10 Eastern Ave	St Johnsbury	0.3	13	
Emergency Operations Center	Emergency Operations	45 State Drive	Waterbury	0.3	14	
Vermont State House	Seat of Government	115 State Street	Montpelier	0.7	15	
Agency of Transportation	Transportation Department Headquarters	One National Life Drive	Montpelier	0.7	16	
National Guard	Training	113 Ethan Allen Road	Jericho	0.7	17	
National Guard	Armory	100 Franklin Lane	Bennington	1.5	18	
Department of Health	Health Department Headquarters	108 Cherry Street	Burlington	1.5	19	
Agency of Transportation	District 5	189 Troy Avenue	Colchester	1.8	20	
Department of Motor Vehicles	Motor Vehicles Department Headquarters	120 State Street	Montpelier	1.8	21	
State Police	Barracks	2777 Saint George Road	Williston	1.8	22	
National Guard	Storage	666 Lower Newton Street	Saint Albans	2	23	
National Guard	Training	90 Ethan Allen Road	Jericho	2.3	24	
Armed Forces Reserve Center	U.S. Army Reserves	2143 Post Road	Rutland	2.6	25	
National Guard	Recruiting	171 North Main Street	Barre	2.6	26	

Table 7. Vermont Critical Facilities ROVER Ranking Lowest to Highest

4.2 HAZUS

HAZUS was initially run to estimate total direct economic losses for buildings using all three-earthquake scenarios, once using default soils and again using updated State Geologist soils. Comparative results are illustrated in Table 8.

No.	Earthquake Scenario	Magnitude (M)	Direct Economic Losses Buildings Default Soils	Direct Economic Losses Buildings State Geologist Soils	Difference (Percent Change)
1	1638 Central New Hampshire	6.5	\$679,689,000	\$602,073,000	-\$77,616,000 (11.4%)
2	1732 Montreal, Canada	6.2	\$232,464,000	\$288,754,000	\$56,290,000 (24.2%)
3	Middlebury, VT	5.0	\$392,665,000	\$549,703,000	\$157,038,000 (39.9%)

Table 8. Comparison of Direct Economic Losses for Buildings for Three Scenario Earthquakes

As Table 8 illustrates, updating soil in HAZUS from the Default NEHRP classification has a significant impact on estimates of direct economic losses to buildings. The percentage change ranges from approximately 11 to 40 percent. The change can be either positive or negative.

These changes in estimated economic losses to buildings can be explained by noting the geographic location of the three earthquake scenarios in relation to the location of the predominance of NEHRP E soils located in West Central Vermont (See Figure 9). The scenarios that have the highest levels of ground shaking in the area of NEHRP E soils have the greatest increase in direct economic losses to buildings, while those events with the highest levels of ground shaking in areas of NEHRP C soils show a decrease. This decrease is explained because the HAZUS Default NEHRP soils classification is D and the updated classification is C, which is more stable soil where less direct economic impact to buildings would be expected.

Next, HAZUS analysis was conducted for the 26 critical facilities screened using default HAZUS default soils (NEHRP Classification D), ROVER default soils and State Geologist provided soils. Probability of Functionality Day 1 of the earthquake for each of the 26 critical facilities was analyzed across the three scenario events. Figure 10 is a comparison of the average functionality of the facilities for each of the three scenario events. As Figure 10 illustrates, average functionality did not significantly change for any of the events when building construction type or soils were updated.

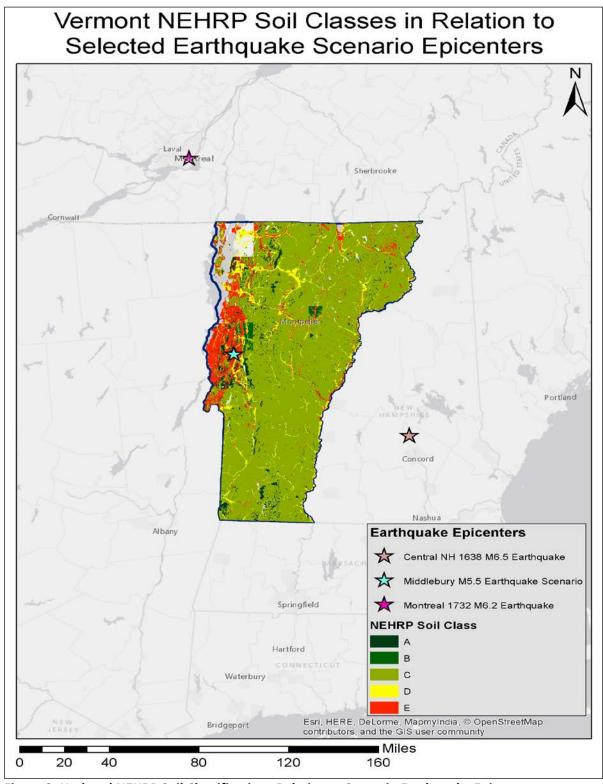


Figure 9. Updated NEHRP Soil Classifications Relative to Scenario Earthquake Epicenters

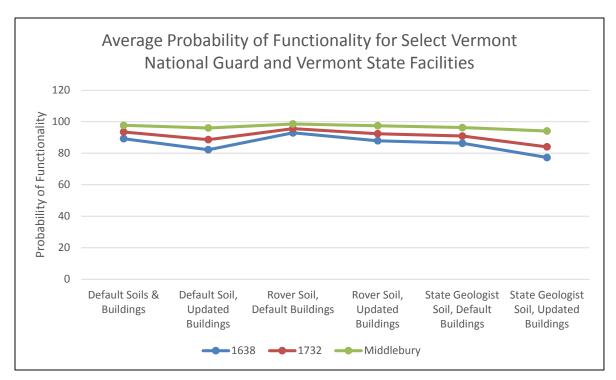


Figure 10. Average Probability of Functionality Day of the Earthquake for Select Vermont National Guard and State Facilities

However, when we look at how updating soil and building construction type affects the probability of functionality of individual facilities, both factors have a significant effect.

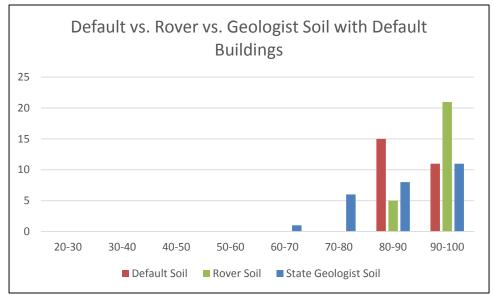


Figure 11. Probability of Functionality for Default Buildings and Varying Soils

As Figure 11 illustrates, updating the soils results in a range of probability of functionality between approximately 60% to 100%.

When we then update the building construction types, Day 1 Functionality decreases for many facilities and the range is between 20% to 100% (See Figure 12). This contrast highlights the importance of updating the building construction type, as critical facilities with the lowest probability of functionality are not identified when soils alone are updated.

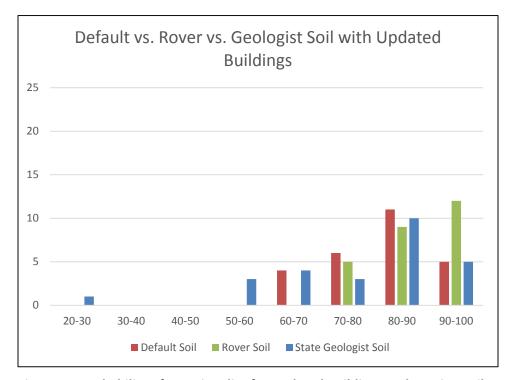


Figure 12. Probability of Functionality for Updated Buildings and Varying Soils

HAZUS assigns different default construction types for various critical and essential facility categories from schools to military facilities. This can impact whether the probability of functionality increases or decreases when building construction type is updated. For example, the HAZUS default building construction type for schools is URM, so Day 1 Functionality for schools that are not URM buildings may increase. This is an extremely important result for emergency managers because of the need to know which critical facilities are likely to fail, as well as which are likely to continue to function in the post-eartquake environment.

HAZUS estimates of probability of functionality of the 26 critical facilities on Day 1 of the earthquake for the three scenario events are shown in Figure 13.



Figure 13. Probability of Functionality Day 1 of the Earthquake for 26 Screened Vermont Critical Facilities with Updated Soil Class and Building Type for Three Scenario Events

The worst-case probability of functionality based on the three scenario earthquakes for each of the 26 critical facilities screened are shown in Figure 14.

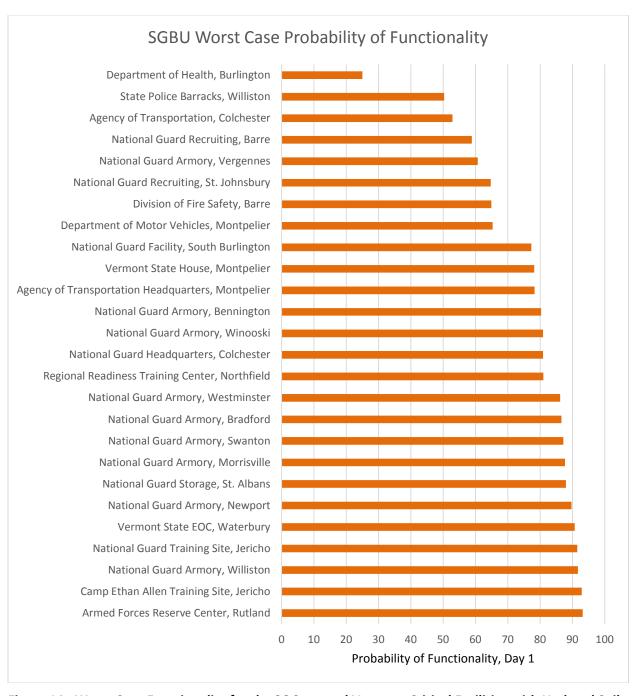


Figure 14. Worst Case Functionality for the 26 Screened Vermont Critical Facilities with Updated Soil Class and Building Type

As Figure 14 illustrates, the worst-case probability of functionality across the three events studied ranges from a low of 25% to a high of 93%. No facilities have a 100% probability of functionality.

5.0 FINDINGS AND RECOMMENDATIONS

5.1 ROVER

A. Updating ROVER Default Soils Did Not Have a Significant Effect on those Facilities ROVER Recommends for a Detailed Seismic Evaluation (TBD)

Updating default soils in ROVER from the USGS NEHRP classifications did not have a significant impact on ROVER final scores and whether a detailed evaluation was required. Updating ROVER default soils data increased the number of facilities ROVER recommends for a detailed seismic evaluation by three, or approximately 12% of the facilities screened. If soils maps are available, ROVER users are strongly encouraged to update USGS Default Soils, but significant changes in those facilities requiring a detailed evaluation are not expected.

5.2 HAZUS

A. Updating HAZUS Default Soils Had a Significant Effect on Building Economic Loss Results

Updating default soils in HAZUS from the Default NEHRP "D" classification had a significant impact on estimates of direct economic losses to buildings. The percentage change in economic losses between analyses with default soils and those with updated soils ranges from approximately 11 to 40 percent. The change can be either positive or negative. When default soils are updated to softer soils, losses often begin to show a steep increase. Softer soils amplify ground shaking, causing more damage, though economic loss values are strongly dependent on population and building stock density. The opposite can be true for stiffer soils; they cause the ground shaking to be weaker, so losses can be significantly less. If soils maps are available, users are strongly encouraged to update Default Soils when using HAZUS to estimate economic losses.

B. Average Functionality of Large Numbers of Critical Facilities is not Significantly Affected by Updating HAZUS Soils or Building Construction Type

Updating default soils or building construction type in HAZUS does not appear to have a significant impact of the average estimated post-earthquake functionality of large numbers of critical facilities across a statewide or regional study region. If soils and building construction type data is readily available for large-scale regional studies, then by all means update it. It is always preferred to have an accurate database, but significant changes in average post-earthquake functionality are not expected.

C. Individual Functionality of Critical Facilities can be Significantly Affected by Updating HAZUS Soils and Building Construction Type

Updating default soils and building construction type in HAZUS does appear to have a significant impact on the estimated post-earthquake functionality of individual critical facilities. There is value in independently updating soils or building construction type, but the greatest benefit is attained when both are updated. Day 1 Functionality values may change significantly for individual facilities where the soils and/or building type are particularly strong or weak. When evaluating individual critical facilities using

HAZUS, it is imperative that you have accurate site specific information including location, NEHRP soil type and building construction type in order to obtain reliable results.

5.3 VERMONT CRITICAL FACILITIES

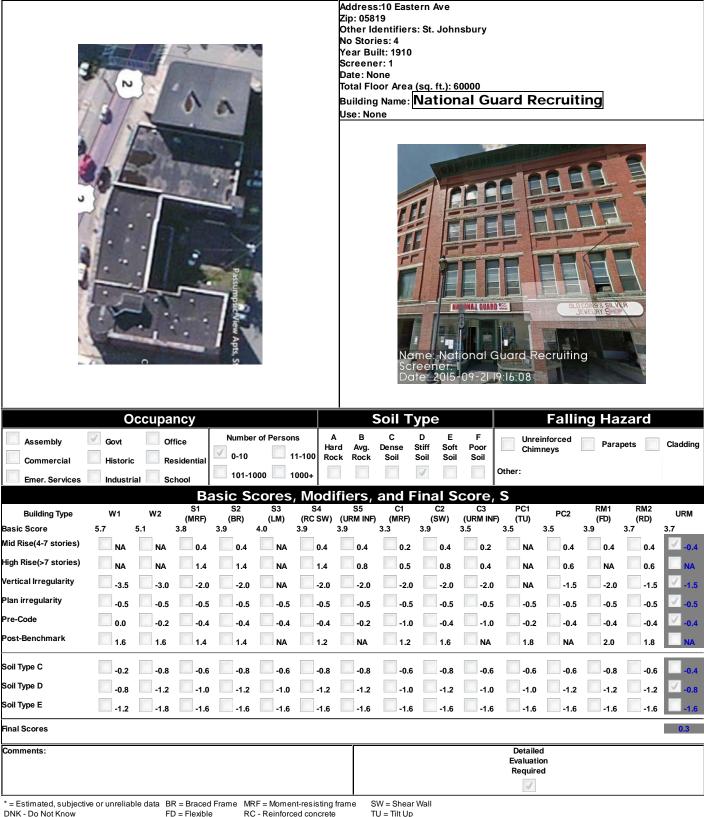
A. A Detailed Seismic Evaluation is recommended for the Vermont Critical Facilities Identified by ROVER

ROVER is a screening tool that records important seismic features of a building and generates an automatic estimate of the need for a detailed seismic evaluation. Using ROVER's pre-earthquake module we identified 22 critical facilities with automated scores less than 2.0, which is the threshold for which ROVER recommends a critical facility receive a detailed seismic evaluation. It is important to point out that many of the buildings that scored below 2.0 did so because of vertical irregularity, plan irregularity or both. While these certainly contribute to seismic risk, other specific engineering factors need to be considered in order to better estimate the potential risk of a particular facility. Therefore, a detailed seismic evaluation is recommended for the 22 Vermont facilities scoring below 2 on the ROVER evaluation scale.

B. Similar ROVER and HAZUS Multi-Hazard Analysis is Recommended for all Vermont Critical Facilities This ROVER and HAZUS Analysis only evaluated a small sampling of all the critical facilities located in the state of Vermont. Using Google Maps and other remote access technology significantly reduced the cost of undertaking the ROVER Analysis because collection of data in the field was eliminated. In addition, while this analysis focused exclusively on earthquakes, HAZUS has the capability to analyze hurricane and flood events as well. Therefore, the State of Vermont should consider expanding the analysis to include other critical facilities and potential hazards.

APPENDIX

Rapid Visual Screening of Buildings for Potential Seismic Risk **FEMA-154 Data Collection Form MODERATE Seismicity**



Diaphragm LM = Light Metal

RC - Reinforced concrete RD = Rigid diaphragm

URM INF = Unreinforced masaonry infill

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Rapid Visual Screening of Buildings for Potential Seismic Risk FEMA-154 Data Collection Form MODERATE Seismicity

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		500	T	V			No Stor Year Bu Screend Date: No Total Flo	dentifiers ies: 2 iilt: 1950 er: 1 one oor Area g Name:	:: Swanto (sq. ft.): 2 Natior	21376	ıard A	rmory	<u> </u>		
	Name: National Guard Armory Screener: I Date: 2015-09-15 18:11:32														
	Oc	сира	ncy					Soil T	уре			Falli	ing Haza	ard	
				Numbe	r of Persor	ns A	В	С	D E	F					
Assembly	Govt	Of	fice			Ha	rd Ava.		Stiff Soft			einforced	✓ Parapets	s	Cladding
Assembly Commercial	Govt Historic		fice sidential	0-10		I1-100 Ha		Dense :	Stiff Soft Soil Soil	Poor	Chim	einforced nneys	Parapets	s V	Cladding
		Re	sidential hool	0-10 0-10	000 🔲 1	11-100 Roo	ck Rock	Dense Soil	Soil Soil	Poor Soil	Chim Other:		Parapets	s V	Cladding
Commercial Emer. Services	Historic Industrial	Re I Sc	esidential hool Ba	0-10 101-1 asic S	cores	11-100 Roo 1000+ Roo 7 Modi 84	fiers,	Dense Soil and F	Soil Soil inal S C2	Poor Soil COIC,	Other:	nneys	RM1	RM2	_
Commercial	Historic Industrial	Re	esidential ehool	0-10 101-1	cores	11-100 Roo 1000+ Roo 7 Modi 84	fiers,	Dense Soil and F	soil soil inal S	Poor Soil	Other:			RM2 (RD)	Cladding URM 3.1
Commercial Emer. Services Building Type	Historic Industrial	Re Sc	esidential hool S1 (MRF)	0-10 101-1 asic S S2 (BR)	cores	, Modi (RC SW)	fiers, S5 (URM INF)	Dense Soil and F C1 (MRF)	Soil Soil inal S c2 (SW)	Poor Soil COTC, C3 (URM INF	Other: PC1 F) (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Commercial Emer. Services Building Type Basic Score	Historic Industrial W1	Re Sc W2	sidential shool S1 (MRF)	0-10 101-1 ASIC S S2 (BR)	COTES S3 (LM) 3.7	, Mod (RC SW)	fiers, s5 (URM INF)	and F C1 (MRF)	Soil Soil Final S C2 (SW) 3.4	Poor Soil COPC, C3 (URM INF 2.9	Other: S PC1 (TU) 3.1	PC2	RM1 (FD)	RM2 (RD) 3	URM
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories)	Historic Industrial W1 5.0 4	W2	sidential shool S1 (MRF)	0-10 101-1 ASIC S S2 (BR)	COTES S3 (LM) 3.7 NA	, Modi S4 (RC SW) 3.4	fiers, s5 (URM INF) 3.3	and F C1 (MRF) 2.9	Soil Soil Final S C2 (SW) 3.4 0.4	Poor Soil C3 (URM INF 2.9	Other: PC1 (TU) 3.1 NA	PC2 3.0 0.4	RM1 (FD) 3.4 3.3	RM2 (RD) 3	URM 3.1
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories)	Historic Industrial W1 5.0 4 NA NA	W2	sidential shool S1 (MRF) 3.4	0-10 101-1 2SIC S S2 (BR) 3.5 0.4	S3 (LM) 3.7 NA	, Modi S4 (RC SW) 3.4	FIERS, S5 (URM INF) 3.3 0.4	and F C1 (MRF) 2.9 0.2	Soil Soil Carrier (SW) 3.4 0.4 0.8	COPE, C3 (URM INF 2.9 0.2	Chim Other: S PC1 (TU) 3.1 NA NA	PC2 3.0 0.4 0.6	RM1 (FD) 3.4 3.3	RM2 (RD) 3 0.4	URM 3.1 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity	W1 5.0 4 NA NA NA -3.5	W2 .6 NA NA -3.0	sidential shool S1 (MRF) 3.4 0.4 1.4 -2.0	0-10 101-1 2SIC S 82 (BR) 3.5 0.4 1.4 -2.0	OOO 1 COTES S3 (LM) 3.7 NA NA NA	, Modi S4 (RC SW) 3.4 0.4 1.4	fiers, s5 (URM INF) 3.3 0.4 0.8	Dense Soil C1 (MRF) 2.9 0.2 -2.0	Soil Soil C2 (SW) 3.4 0.4 0.8 -2.0	COPC, C3 (URM INF 2.9	Chim Other: S PC1 (TU) 3.1 NA NA NA	PC2 3.0 0.4 0.6 -1.5	RM1 (FD) 3.4 3.3 0.4 NA V -2.0	RM2 (RD) 3 0.4 0.6	URM 3.1 -0.4 NA -1.5
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity	Historic Industrial W1 5.0 4 NA NA NA -3.5	W2 .6 NA NA -3.0 -0.5	S1 (MRF) 3.4 0.4 1.4 -2.0 -0.5	0-10 0-10 101-1 10	COTES S3 (LM) 3.7 NA NA NA NA -0.5	, Modi (RC SW) 3.4 0.4 1.4 -2.0	fiers, \$5 (URM INF) 3.3 0.4 0.8 -2.0	Dense Soil C1 (MRF) 2.9 0.2 0.5 -2.0	Soil Soil Soil Soil Soil Soil Soil Soil	COPE, C3 (URM INF 2.9 0.4 -2.0	Chim Other: S PC1 (TU) 3.1 NA NA NA -0.5	PC2 3.0 0.4 0.6 -1.5	RM1 (FD) 3.4 3.3 0.4 NA V -2.0	RM2 (RD) 3 0.4 0.6 -1.5	URM 3.1 -0.4 NA -1.5
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark	Historic Industrial W1 5.0 4 NA NA NA -3.5 -0.5 0.0 1.6	W2 .6 NA NA -3.0 -0.5 -1.6	S1 (MRF) 3.4 0.4 1.4 -2.0 -0.5 -0.4 1.4	0-10 101-1 asic S S2 (BR) 3.5 0.4 1.4 -2.0 -0.5 -0.4 1.4	000 1000 3.7 NA NA NA NA NA NA NA NA NA	Nodi (RC SW) 3.4 0.4 1.4 -2.0 -0.5 -0.4 1.2	fiers, s5 (URM INF) 3.3 0.4 0.8 -2.0 -0.5 NA	Dense Soil 210 F C1 (MRF) 2.9 0.2 -2.0 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	COTE, C3 (URM INF 2.9 0.2 0.4 -2.0 NA	Chim Other: S PC1 (TU) 3.1 NA NA NA -0.5 -0.2 1.8	PC2 3.0 0.4 0.6 -1.5 -0.5	RM1 (FD) 3.4 3.3 0.4 NA NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 3 0.4 0.6 -1.5 -0.5 -0.4	URM 3.1 -0.4 NA -1.5 -0.5 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C	W1 5.0 4 NA NA -3.5 -0.5 0.0 1.6	W2 .6 NA NA -3.0 -0.5 -0.2 1.6	St (MRF) 3.4 0.4 1.4 -2.0 -0.5 1.4 1.4 -0.6	0-10 101-1 asic S S2 (BR) 3.5 0.4 1.4 -2.0 -0.5	000 1 COICES S3 (LM) 3.7 NA NA NA NA -0.5 -0.4 NA	, Modi (RC SW) 3.4 0.4 1.4 -2.0 -0.5 -0.4 1.2	Fiers, S5 (SRM INF) 3.3 0.4 0.8 -2.0 -0.5 -0.2 NA	Dense Soil C1 (MRF) 2.9 0.2 0.5 -2.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	COPE, Soil	Chim Other: S PC1 (TU) 3.1 NA NA NA -0.5 -0.2 1.8	PC2 3.0 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.4 3.3 0.4 NA NA -2.0 NA -2.0 NA -0.5 NA -0.5 NA -0.5 NA -0.5 NA -0.4 NA -0.5 NA -0.4 NA -0.5 NA -0.	RM2 (RD) 3 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.1 -0.4 NA -1.5 -0.5 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D	W1 5.0 4 NA NA -3.5 -0.5 0.0 1.6	W2 .6 NA NA -3.0 -0.5 -0.2 1.6 -0.8	Basic (MRF) 3.4	0-10 101-1 25ic S S2 (BR) 3.5 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.2	000 1000 3.7 NA	1-100 Root Root	fiers, 55 (URM INF) 3.3 0.4 0.8 -2.0 -0.5 -0.2 NA	Dense Soil 2.9 0.2 0.5 -2.0 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 2.9 0.2 0.4 -2.0 NA -4.0.6 -1.0	Chim Other: S PC1 (TU) 3.1 NA NA NA -0.5 -0.2 1.8	PC2 3.0 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.4 3.3 0.4 NA NA -2.0 2.0 2.0 -0.4 2.0	RM2 (RD) 3 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.1 -0.4 NA -1.5 -0.5 -0.4 NA -0.4 -0.8
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(-7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E	W1 5.0 4 NA NA -3.5 -0.5 0.0 1.6	W2 .6 NA NA -3.0 -0.5 -0.2 1.6	St (MRF) 3.4 0.4 1.4 -2.0 -0.5 1.4 1.4 -0.6	0-10 101-1 asic S S2 (BR) 3.5 0.4 1.4 -2.0 -0.5 -0.4 1.4	000 1 COICES S3 (LM) 3.7 NA NA NA NA -0.5 -0.4 NA	, Modi (RC SW) 3.4 0.4 1.4 -2.0 -0.5 -0.4 1.2	Fiers, S5 (SRM INF) 3.3 0.4 0.8 -2.0 -0.5 -0.2 NA	Dense Soil C1 (MRF) 2.9 0.2 0.5 -2.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	COPE, Soil	Chim Other: S PC1 (TU) 3.1 NA NA NA -0.5 -0.2 1.8	PC2 3.0 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.4 3.3 0.4 NA NA -2.0 -0.5 -0.4 -0.5	RM2 (RD) 3 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.1 -0.4 NA -1.5 -0.5 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E Final Scores	W1 5.0 4 NA NA -3.5 -0.5 0.0 1.6	W2 .6 NA NA -3.0 -0.5 -0.2 1.6 -0.8	Basic (MRF) 3.4	0-10 101-1 25ic S S2 (BR) 3.5 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.2	000 1000 3.7 NA	1-100 Root Root	fiers, 55 (URM INF) 3.3 0.4 0.8 -2.0 -0.5 -0.2 NA	Dense Soil 2.9 0.2 0.5 -2.0 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 2.9 0.2 0.4 -2.0 NA -4.0.6 -1.0	Chim Other: S PC1 (TU) 3.1 NA NA NA -0.5 -0.2 1.8 -1.6	PC2 3.0 0.4 0.6 -1.5 -0.5 -0.4 NA -1.6	RM1 (FD) 3.4 3.3 0.4 NA NA -2.0 2.0 2.0 -0.4 2.0	RM2 (RD) 3 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.1 -0.4 NA -1.5 -0.5 -0.4 NA -0.4 -0.8
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(-7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E	W1 5.0 4 NA NA -3.5 -0.5 0.0 1.6	W2 .6 NA NA -3.0 -0.5 -0.2 1.6 -0.8	Basic (MRF) 3.4	0-10 101-1 25ic S S2 (BR) 3.5 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.2	000 1000 3.7 NA	1-100 Root Root	fiers, 55 (URM INF) 3.3 0.4 0.8 -2.0 -0.5 -0.2 NA	Dense Soil 2.9 0.2 0.5 -2.0 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 2.9 0.2 0.4 -2.0 NA -4.0.6 -1.0	Chim Other: S PC1 (TU) 3.1 NA NA NA -0.5 -0.2 1.8 -1.6 Detaile Evaluati	PC2 3.0 0.4 0.6 -1.5 -0.5 -0.4 NA -1.6	RM1 (FD) 3.4 3.3 0.4 NA NA -2.0 -0.5 -0.4 -0.5	RM2 (RD) 3 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.1 -0.4 NA -1.5 -0.5 -0.4 NA -0.4 -0.8
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E Final Scores	W1 5.0 4 NA NA -3.5 -0.5 0.0 1.6	W2 .6 NA NA -3.0 -0.5 -0.2 1.6 -0.8	Basic (MRF) 3.4	0-10 101-1 25ic S S2 (BR) 3.5 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.2	000 1000 3.7 NA	1-100 Root Root	fiers, 55 (URM INF) 3.3 0.4 0.8 -2.0 -0.5 -0.2 NA	Dense Soil 2.9 0.2 0.5 -2.0 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 2.9 0.2 0.4 -2.0 NA -4.0.6 -1.0	Chim Other: S PC1 (TU) 3.1 NA NA NA -0.5 -0.2 1.8 -1.0 -1.6	PC2 3.0 0.4 0.6 -1.5 -0.5 -0.4 NA -1.6	RM1 (FD) 3.4 3.3 0.4 NA NA -2.0 -0.5 -0.4 -0.5	RM2 (RD) 3 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.1 -0.4 NA -1.5 -0.5 -0.4 NA -0.8

* = Estimated, subjective or unreliable data DNK - Do Not Know

FD = Flexible
Diaphragm
LM = Light Metal

MRF = Moment-resisting frame RC - Reinforced concrete RD = Rigid diaphragm

TU = Tilt Up

URM INF = Unreinforced masaonry infill

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Rapid Visual Screening of Buildings for Potential Seismic Risk FEMA-154 Data Collection Form MODERATE Seismicity

Address:23 Armory Lane Zip: 05158 Other Identifiers: Westminster, VT No Stories: 2 Year Built: 1975 Screener: 2 Date: None Total Floor Area (sq. ft.): 21376 Building Name: National Guard Armory & Maintenance Name: National Guard Armory & Maintena Soil Type Occupancy **Falling Hazard** В С **Number of Persons** Govt Unreinforced Assembly Hard Dense Stiff Soft Poor Avg. 0-10 11-100 Rock Emer. Services School S4 S5 (RC SW) (URM INF) C1 (MRF) **Building Type** (SW) (FD) Basic Score Mid Rise(4-7 stories) 0.2 High Rise(>7 stories) Vertical Irregularity Plan irregularity -0.5 -0.5 -0.5 -0.5 Pre-Code Post-Benchmark Soil Type C Soil Type D -1.0 -1.2 -1.0 -1.2 -1.0 -1.2 -1.2 -1.2 -1.0 -1.0 Soil Type E Final Scores Detailed Comments: Evaluation Required MRF = Moment-resisting frame * = Estimated, subjective or unreliable data BR = Braced Frame SW = Shear Wall FD = Flexible DNK - Do Not Know RC - Reinforced concrete URM INF = Unreinforced masaonry infill Diaphragm RD = Rigid diaphragm LM = Light Metal

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Rapid Visual Screening of Buildings for Potential Seismic Risk **FEMA-154 Data Collection Form MODERATE Seismicity**

Address:37 Monkton Road Zip: 05491 Other Identifiers: Vergennes, VT No Stories: 2 Year Built: 1950 Screener: 1 Date: None Total Floor Area (sq. ft.): 21376 Building Name: National Guard Armory Soil Type Occupancy **Falling Hazard** В С **Number of Persons** Govt Office Unreinforced Assembly Hard Dense Stiff Soft Poor Avg. 11-100 Rock Rock Emer. Services School S4 S5 (RC SW) (URM INF) C1 (MRF) **Building Type** (LM) (SW) (FD) Basic Score Mid Rise(4-7 stories) 0.2 High Rise(>7 stories) Vertical Irregularity Plan irregularity -0.5 -0.5 -0.5 -0.5 Pre-Code Post-Benchmark Soil Type C Soil Type D -1.0 -1.2 -1.0 -1.2 -1.2 -1.2 -1.0 -1.0 Soil Type E Final Scores Comments: Detailed Evaluation Required MRF = Moment-resisting frame * = Estimated, subjective or unreliable data BR = Braced Frame SW = Shear Wall

DNK - Do Not Know

FD = Flexible Diaphragm LM = Light Metal

RC - Reinforced concrete RD = Rigid diaphragm

TU = Tilt Up

URM INF = Unreinforced masaonry infill

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Rapid Visual Screening of Buildings for Potential Seismic Risk **FEMA-154 Data Collection Form MODERATE Seismicity**

Address:45 Farr Ave Zip: 05661

Other Identifiers: Morrisville, VT No Stories: 2 Year Built: 1950 Screener: 1 Date: None Total Floor Area (sq. ft.): 21376 Building Name: National Guard Armory National Guard Armory Soil Type Occupancy **Falling Hazard** В С **Number of Persons** Govt Unreinforced Assembly Hard Dense Stiff Soft Poor Avg. 0-10 11-100 Rock Emer. Services School S4 S5 (RC SW) (URM INF) C1 (MRF) **Building Type** (SW) (FD) Basic Score Mid Rise(4-7 stories) 0.2 High Rise(>7 stories) Vertical Irregularity Plan irregularity -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 Pre-Code Post-Benchmark Soil Type C Soil Type D -1.0 -1.2 -1.0 -1.2 -1.0 -1.2 -1.2 -1.2 -1.0 -1.0 Soil Type E Final Scores Comments: Detailed Evaluation Required MRF = Moment-resisting frame * = Estimated, subjective or unreliable data BR = Braced Frame SW = Shear Wall

DNK - Do Not Know

FD = Flexible Diaphragm LM = Light Metal

RC - Reinforced concrete RD = Rigid diaphragm

URM INF = Unreinforced masaonry infill

1 of 1 2/12/2016 8:45 AM

Rapid Visual Screening of Buildings for Potential Seismic Risk **MODERATE Seismicity FEMA-154 Data Collection Form**

								Zip: 0546 Other Id No Storic Year Bui Screene Date: No Total Flo	entifiers es: 2 ilt: 1986 r: 1 one oor Area Name:	n Allen R s: Jericho (sq. ft.): 3 Natior	, VT 8000	ıard Tı	rainin	g Site		
									Name: National Guard Training Site Screener: I Date: 2015-09-21 13:46:35							
	0	ccupa	ancy					S	oil T	уре			Falli	ng Haz	ard	
Assembly Commercial	Govt Historic		office esidential	0-10		11-100	A Hard Rock			D E Stiff Soft Soil Soil			einforced nneys	Parape	ets	Cladding
Emer. Services	Industr	ial S	chool	101-1		1000+	diff	iorc	and E	inal S	ooro					
Building Type	W1	W2	S 1	S2	S3	S4		S5	C1	C2	C3	PC1	PC2	RM1	RM2	URM
Basic Score	5.2	4.8	(MRF) 3.6	(BR) 3.6	(LM) 3.8	(RC S 3.6		(URM INF) 3.6	(MRF) 3.0	(SW) 3.6	(URM INF 3.2) (TU) 3.2	3.2	(FD) 3.6 3	(RD) .4	3.4
Mid Rise(4-7 stories)	NA	NA NA	0.4	0.4	NA NA	0	.4	0.4	0.2	0.4	0.2	NA	0.4	0.4	0.4	-0.4
High Rise(>7 stories)	NA NA	NA NA	1.4	1.4	NA NA	1	.4	0.8	0.5	0.8	0.4	NA NA	0.6	NA NA	0.6	NA NA
Vertical Irregularity	-3.5	-3.0	-2.0	-2.0	NA NA	-:	2.0	-2.0	-2.0	-2.0	-2.0	NA NA	-1.5	-2.0	-1.5	-1.5
Plan irregularity	-0.5	-0.5		-0.5	-0.5	-(-0.5	-0.5		-0.5	-0.5		872	-0.5	-0.5
Pre-Code	0.0	-0.2		-0.4	-0.4).4	-0.2	-1.0		-1.0	-0.2	-0.4	-0.4	-0.4	-0.4
Post-Benchmark	1.6	1.6	1.4	1.4	NA NA		.2	NA NA	1.2	1.6	NA NA	1.8	NA NA	2.0	1.8	NA NA
							_									
Soil Type C	-0.2	-0.8	-0.6	-0.8	-0.6	-(8.0	-0.8	-0.6	-0.8	-0.6	-0.6	-0.6	-0.8	-0.6	-0.4
Soil Type D	-0.8	-1.2	-1.0	-1.2	-1.0		.2	-1.2	-1.0	-1.2	-1.0	-1.0	-1.2	-1.2	-1.2	-0.8
Soil Type E	-1.2	-1.8	-1.6	-1.6	-1.6	-1	.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Final Scores														2.3		
Comments: * = Estimated, subjectiv	ve or unreliat	ble data B	3R = Braced	Frame MF	RF = Mome	nt-resist	ing fr	ame SI	W = Shear	Wall		Detaile Evaluati Require	ion			

DNK - Do Not Know

FD = Flexible Diaphragm LM = Light Metal

RC - Reinforced concrete RD = Rigid diaphragm

TU = Tilt Up
URM INF = Unreinforced masaonry infill

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Rapid Visual Screening of Buildings for Potential Seismic Risk **FEMA-154 Data Collection Form MODERATE Seismicity**

							Zip: 050 Other Id No Stor Year Bu Screend Date: No Total Flo	33 dentifiers ies: 2 iilt: 1950 er: 1 one oor Area g Name:	ground Ro s: Bradfor (sq. ft.): 2 Natior	d, VT :1376	ıard A	rmory]		-
	Name: National Guard Armory Screener: 1 Date: 2015- 09-14 19:10:02														
Assembly	Govt	o	incy ffice	Numbe	r of Persor		А В	Soil Ty	D E	F		inforced	ng Haz		Cladding
Commercial Emer. Services	Historie Industr		esidential chool	0-10			lard Avg. Rock Rock		Stiff Soft Soil Soil	Poor Soil	Other:	nneys	Тагар		Clauding
Liner. Ger vioca	maasti	iai — o		asic S	cores	, Mod	lifiers,	and F	inal S	core,	S				
Building Type	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW	S5 () (URM INF	C1) (MRF)	C2 (SW)	C3 (URM INF	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	5.7	5.1	3.8 ′	3.9 ′	4.0	3.9	3.9	3.3	3.9	3.5	໌ 3.5 ີ	3.5		3.7`´	3.7
Mid Rise(4-7 stories)	NA NA	NA	0.4	0.4	NA NA	0.4	0.4	0.2	0.4	0.2	NA NA	0.4	0.4	0.4	-0.4
High Rise(>7 stories)	NA NA	NA	1.4	1.4	NA NA	1.4	0.8	0.5	0.8	0.4	NA NA	0.6	NA NA	0.6	NA
Vertical Irregularity	-3.5	-3.0	-2.0	-2.0	NA	-2.0	-2.0	-2.0	-2.0	-2.0	NA	-1.5	 ✓ -2.0	-1.5	-1.5
Plan irregularity	-0.5	-0.5	-0.5	-0.5	-0.5	-0.	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Pre-Code	0.0	-0.2	-0.4	-0.4	-0.4	-0.4	-0.2	-1.0	-0.4	-1.0	-0.2	-0.4	 ✓ -0.4	-0.4	-0.4
Post-Benchmark	1.6	1.6	1.4	1.4	NA NA	1.2	NA NA	1.2	1.6	NA NA	1.8	NA NA	2.0	1.8	NA
Soil Type C	-0.2	-0.8	-0.6	-0.8	-0.6	-0.8	3 -0.8	-0.6	-0.8	-0.6	-0.6	-0.6	 √ 0.8	-0.6	-0.4
Soil Type D	-0.8	-1.2	-1.0	-1.2	-1.0	-1.		-1.0	-1.2	-1.0	-1.0	-1.2		-1.2	-0.8
Soil Type E	-1.2	-1.8	-1.6	-1.6	-1.6	-1.0		-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Final Scores													0.3		
Comments: * = Estimated, subjecti	ve or unrelia	ble data B	R = Braced	Frame MF	RF = Mome	nt-resistin	g frame S	SW = Shear	Wall		Detaile Evaluati Require	on			

FD = Flexible Diaphragm LM = Light Metal

RD = Rigid diaphragm

TU = Tilt Up
URM INF = Unreinforced masaonry infill

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Rapid Visual Screening of Buildings for Potential Seismic Risk FEMA-154 Data Collection Form MODERATE Seismicity

							Zip: 052 Other lo No Stor Year Bu Screen Date: N Total Fl	dentifiers ies: 3 uilt: 1960 er: 1 one oor Area g Name:	s: Benning	gton, VT 24726		ompa	ny C2	172d	
			No.					Name: Screen Date: 2	Nationaler: I	al Guar	rd Comp	pany C	2 172d		
Occupancy							Soil Type Falling Hazard								
	•	ooupu													
Assembly Commercial	Govt Histori	C Re	ffice esidential	0-10		1-100 H	A B ard Avg. ock Rock		D E Stiff Soft Soil Soil			einforced nneys	Para	pets	Cladding
	Govt	C Re	ffice esidential chool	0-10 101-1	000 1	1-100 Ro	ard Avg. ock Rock	Dense Soil	Stiff Soft Soil Soil	Poor Soil	Chin Other:		Para	pets	Cladding
Commercial	Govt Histori	C Re	ffice esidential chool Ba	0-10 101-10 1 Sic S 0	000 1 cores	1-100 Ha	ifiers,	Dense Soil and F	Stiff Soft Soil Soil	Poor Soil COTC,	Other:		RM1	RM2	Cladding
Commercial Emer. Services Building Type Basic Score	Govt Histori Industr	of Refrial Sc	ffice esidential chool	0-10 101-10	000 1 cores	1-100 Ha	ard Avg. ock Rock	Dense Soil and F	Stiff Soft Soil Soil	Poor Soil	Other:	nneys			
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories)	Govt Histori Industri W1 6.4 NA	C Recrial Scott	ffice esidential chool Ba S1 (MRF)	0-10 101-10 101-10 Sic So S2 (BR)	000 1 cores S3 (LM)	1-100 Hz R0 000+ S4 (RC SW) 4.3	ifiers, S5 (URM INF	and F C1 (MRF) 3.8	Stiff Soft Soil Soil Soil Soil Soil Soil Soil Soil	Poor Soil COTE,	Other: PC1 (TU) 3.9 NA	PC2 4.0 0.4	RM1 (FD) 4.3	RM2 (RD) 4.1	URM
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories)	Govt Histori Industr W1 6.4 NA NA	Of C Refrial So	esidential chool S1 (MRF) 4.2 0.4	0-10 101-10 Sic Sic Sic (BR) 4.3 0.4	000 1 COPES S3 (LM) 4.3	11-100 Harris Ro 11-100 S4 (RC SW) 4.3 0.4 1.4	iffiers, S5 (URM INF 4.4 0.4	and F C1 (MRF) 3.8 0.2	Stiff Soft Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 3.9	Chin Other: S PC1 (TU) 3.9 NA NA	PC2	RM1 (FD) 4.3 0.4	RM2 (RD) 4.1	URM 4.1 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity	W1 6.4 NA NA -3.5	C Recrial Scott	Basic MRF) 4.2 0.4 1.4 -2.0	0-10 101-10 Sic S S2 (BR) 4.3 0.4 1.4	000 1 COTES S3 (LM) 4.3 NA NA	1-100 H _c Ro 000+ S4 (RC SW) 4.3 0.4 1.4 -2.0	Avg. Rock Rock S5 (URM INF 4.4 0.4 0.8 -2.0	Dense Soil and F C1 (MRF) 3.8 0.2 -2.0	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COFE, C3 (URM INF 3.9 0.2 0.4 -2.0	Chin Other: S PC1 (TU) 3.9 NA NA NA	PC2 4.0 0.4 0.6 -1.5	RM1 (FD) 4.3 0.4 NA	RM2 (RD) 4.1 0.4 0.6	URM 4.1 -0.4 NA -1.5
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity	W1 6.4 NA NA -3.5	C Recrial So W2 5.5 NA NA -3.0	ffice esidential chool Baseline Statement of the stateme	0-10 101-10 Sic Sic Sic (BR) 4.3 0.4	000 1 COPES S3 (LM) 4.3	H1-100 R6	iffers, S5 (URM INF 4.4 0.8 -2.0	and F C1 (MRF) 3.8 0.2	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 3.9	Chin Other: S PC1 (TU) 3.9 NA NA NA -0.5	PC2 4.0 0.4 0.6 -1.5	RM1 (FD) 4.3 0.4 NA -2.0	RM2 (RD) 4.1 0.4 0.6 -1.5	URM 4.1 -0.4 NA -1.5 -0.5
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code	W1 6.4 NA NA -3.5 -0.5	W2 5.5 NA NA -3.0 -0.5	S1 (MRF) 4.2 0.4 1.4 -2.0 -0.5 -0.4	0-10 101-11 1SiC St S2 (BR) 4.3 0.4 1.4 -2.0 -0.5	000 1 COTES S3 (LM) 4.3 NA NA NA -0.5	H-1-100 H- RR RR RR RC SW) 4.3 0.4 1.4 -2.0 -0.5 -0.4	ifiers,	Dense Soil C1) (MRF) 3.8 0.2 0.5 -2.0 -1.0	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPE, C3 (URM INF 3.9 0.2 0.4 -2.0 -1.0	Chin Other: S PC1 (TU) 3.9 NA NA NA -0.5	PC2 4.0 0.4 0.6 -1.5 -0.5	RM1 (FD) 4.3 0.4 NA -2.0 -0.5	RM2 (RD) 4.1 0.4 0.6 -1.5 -0.5	URM 4.1 -0.4 NA -1.5 -0.5
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark	W1 6.4 NA NA -3.5 -0.5 0.0 1.6	V2 5.5 NA NA -3.0 -0.5 -0.2 1.6	### State	0-10 101-11 Sic S 52 (BR) 4.3 0.4 1.4 -2.0 -0.5 -0.4 1.4	1000 11000 14.3 NA	H-1-100 H-1-100 R-1-1000+ N-1-1000+ N-1-1000 R-1-1000 R-1	iffiers, S5 (URM INF 4.4 0.4 0.8 -2.0 -0.5	Dense Soil	Stiff Soft Soil Soil Soil Soil Soil Soil Soil Soil	COTE, C3 (URM INF 3.9 0.2 0.4 -2.0 NA	Chin Other: S PC1 (TU) 3.9 NA NA NA -0.5 -0.2 1.8	PC2 4.0 0.4 0.6 -1.5 -0.5	RM1 (FD) 4.3 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 4.1 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 4.1 -0.4 NA -1.5 -0.5 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C	W1 6.4 NA NA -3.5 -0.5 0.0 1.6	00 C Recrial Sc W2 5.5 NA NA -3.0 -0.5 -0.2 1.6	### ST Chool Chool	0-10 101-10 Sic S 22 (BR) 4.3 0.4 1.4 -2.0 -0.5 -0.4 1.4	1000 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	H-1-100 H-1-100 RR RR RR SW) 4.3 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8	iffers, S5 (URM INF 4.4 0.4 0.5 -0.5 -0.2 NA	Dense Soil C1) (MRF) 3.8 0.2 0.5 -2.0 -0.5 -1.0 1.2	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPE, Soil Soil Soil Soil Soil Soil Soil Soil	Chin Other: S PC1 (TU) 3.9 NA NA NA -0.5 -0.2 1.8	PC2 4.0 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 4.3 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 4.1 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 4.1 -0.4 NA -1.5 -0.5 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D	W1 6.4 NA NA -3.5 -0.5 0.0 1.6	W2 5.5 NA NA -3.0 -0.5 -0.2 1.6	### Head of the control of the contr	0-10 101-10 Sic S 2 (BR) 4.3 0.4 1.4 -2.0 -0.5 -0.4 1.4 -0.8	1000 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	H-1-100 H-1-100 RR RR RC SW) 4.3 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8 -1.2	ifiers, S5 (URM INF 4.4 0.8 -2.0 -0.5 -0.2 NA -1.2	Dense Soil and F C1 (MRF) 3.8 0.2 0.5 -2.0 -1.0 1.2	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 3.9 0.2 0.4 -2.0 NA -1.0	Chin Other: S PC1 (TU) 3.9 NA NA NA -0.5 -0.2 1.8	PC2 4.0 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 4.3 0.4 NA -2.0 -0.5 -0.4 2.0 -1.2	RM2 (RD) 4.1 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 4.1 -0.4 NA -1.5 -0.5 -0.4 NA -0.8
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E	W1 6.4 NA NA -3.5 -0.5 0.0 1.6	00 C Recrial Sc W2 5.5 NA NA -3.0 -0.5 -0.2 1.6	### ST Chool Chool	0-10 101-10 Sic S 22 (BR) 4.3 0.4 1.4 -2.0 -0.5 -0.4 1.4	1000 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	H-1-100 H-1-100 RR RR RR SW) 4.3 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8	iffers, S5 (URM INF 4.4 0.4 0.5 -0.5 -0.2 NA	Dense Soil C1) (MRF) 3.8 0.2 0.5 -2.0 -0.5 -1.0 1.2	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPE, Soil Soil Soil Soil Soil Soil Soil Soil	Chin Other: S PC1 (TU) 3.9 NA NA NA -0.5 -0.2 1.8	PC2 4.0 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 4.3 0.4 NA -2.0 -0.5 -0.4 2.0 -1.2	RM2 (RD) 4.1 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 4.1 -0.4 NA -1.5 -0.5 -0.4 NA -1.6
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E Final Scores	W1 6.4 NA NA -3.5 -0.5 0.0 1.6	W2 5.5 NA NA -3.0 -0.5 -0.2 1.6	### Head of the control of the contr	0-10 101-10 Sic S 2 (BR) 4.3 0.4 1.4 -2.0 -0.5 -0.4 1.4 -0.8	1000 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	H-1-100 H-1-100 RR RR RC SW) 4.3 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8 -1.2	ifiers, S5 (URM INF 4.4 0.8 -2.0 -0.5 -0.2 NA -1.2	Dense Soil and F C1 (MRF) 3.8 0.2 0.5 -2.0 -1.0 1.2	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 3.9 0.2 0.4 -2.0 NA -1.0	Chin Other: S	PC2 4.0 0.4 0.6 -1.5 -0.5 -0.4 NA -1.6	RM1 (FD) 4.3 0.4 NA -2.0 -0.5 -0.4 2.0 -1.2	RM2 (RD) 4.1 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 4.1 -0.4 NA -1.5 -0.5 -0.4 NA -0.8
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E	W1 6.4 NA NA -3.5 -0.5 0.0 1.6	W2 5.5 NA NA -3.0 -0.5 -0.2 1.6	### Head of the control of the contr	0-10 101-10 Sic S 2 (BR) 4.3 0.4 1.4 -2.0 -0.5 -0.4 1.4 -0.8	1000 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	H-1-100 H-1-100 RR RR RC SW) 4.3 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8 -1.2	ifiers, S5 (URM INF 4.4 0.8 -2.0 -0.5 -0.2 NA -1.2	Dense Soil and F C1 (MRF) 3.8 0.2 0.5 -2.0 -1.0 1.2	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 3.9 0.2 0.4 -2.0 NA -1.0	Chin Other: S PC1 (TU) 3.9 NA NA NA -0.5 -0.2 1.8	PC2 4.0 0.4 0.6 -1.5 -0.5 -0.4 NA -1.6	RM1 (FD) 4.3 0.4 NA -2.0 -0.5 -0.4 2.0 -1.2	RM2 (RD) 4.1 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 4.1 -0.4 NA -1.5 -0.5 -0.4 NA -1.6

LM = Light Metal

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Address:113 Ethan Allen Road Zip: 05465

Other Identifiers: Jericho, VT

No Stories: 3 Year Built: 2010 Screener: 1 Date: None

Total Floor Area (sq. ft.): 49964

Building Name: Camp Ethan Allen Training Site



	0	ccupa	ancy					Soil 1	ype				Fall	ing Ha	zard	
Assembly	Govt		ffice	Numbe 0-10	r of Person	F	A B	C Dense	D Stiff	E Soft	F Poor		inforced nneys	Para	pets	Cladding
Commercial	Historio	: E	esidential	0-10		1-100 R	ock Roci	Soil	Soil	Soil	Soil					
Emer. Services	Industr	ial 🔲 S	chool	101-1		000+			4			Other:				
			В	asic S	cores	, Moc	lifiers	, and	Fina	I S	core,					
Building Type	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)		S5) (URM IN		(S	2 W)	C3 (URM INI		PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	5.7	5.1	3.8	3.9	4.0	3.9	3.9	3.3	3.9		3.5	3.5	3.5	3.9	3.7	3.7
Mid Rise(4-7 stories)	NA NA	NA	✓ 0.4	0.4	NA NA	0.4	0.4	0.2		0.4	0.2	NA NA	0.4	0.4	0.4	-0.4
High Rise(>7 stories)	NA NA	NA	1.4	1.4	NA NA	1.4	0.8	0.5		8.0	0.4	NA NA	0.6	NA NA	0.6	NA NA
Vertical Irregularity	-3.5	-3.0	-2.0	-2.0	NA	-2.0	-2.0	-2.		-2.0	-2.0	NA NA	-1.5	-2.0	-1.5	-1.5
Plan irregularity	-0.5	-0.5	✓ -0.5	-0.5	-0.5	-0.5	-0.5	-0.	5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Pre-Code	0.0	-0.2	-0.4	-0.4	-0.4	-0.4	-0.2	-1.		-0.4	-1.0	-0.2	-0.4	-0.4	-0.4	-0.4
Post-Benchmark	1.6	1.6	1.4	1.4	NA NA	1.2	NA NA	1.2		1.6	NA	1.8	NA	2.0	1.8	NA
Soil Type C	-0.2	-0.8	-0.6	-0.8	-0.6	3.0-	3.0-	-0.	6	-0.8	-0.6	-0.6	-0.6	-0.8	-0.6	-0.4
Soil Type D	-0.8	-1.2	 -1.0	-1.2	-1.0	-1.2		-1.		-1.2	-1.0	-1.0	-1.2	-1.2	-1.2	-0.8
Soil Type E	-1.2	-1.8	-1.6	-1.6	-1.6	-1.6	-1.6	-1.	6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Final Scores			0.7													
Comments:												Detaile Evaluati Require	ion			

^{* =} Estimated, subjective or unreliable data BR = Braced Frame MRF = Moment-resisting frame DNK - Do Not Know

FD = Flexible Diaphragm LM = Light Metal RC - Reinforced concrete RD = Rigid diaphragm

SW = Shear Wall TU = Tilt Up

URM INF = Unreinforced masaonry infill

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	Zip: 056 Other I No Stor Year Bu Screen Date: N Total FI Buildin Use: No	dentifiers ries: 3 uilt: 2002 er: 1 one oor Area g Name:	(sq. ft.): 8	agooo nal Re	eadine	ss Tra	aining	Cente	er						
								o :: =							
Assembly Commercial Emer. Services	Govt Historic	c R	ffice esidential	Numbe 0-10 101-1			A B dard Avg.		D E Stiff Soft Soil Soil			inforced ineys	ng Haz		Cladding
				sic S	cores	, Moc	lifiers,	and F	inal S	core,	S				
Building Type	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4	S5) (URM INF	C1	C2 (SW)	C3 (URM INF	PC1	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	5.7	5.1	3.8	3.9	4.0	3.9	3.9	3.3	3.9	3.5	3.5	3.5			3.7
Mid Rise(4-7 stories)	NA NA	NA	0.4	0.4	NA NA	0.4	0.4	0.2	0.4	0.2	NA NA	0.4	0.4	0.4	-0.4
ligh Rise(>7 stories)	NA NA	NA	1.4	1.4	NA NA	1.4	0.8	0.5	0.8	0.4	NA.	0.6	NA	0.6	NA
ertical Irregularity	-3.5	-3.0	-2.0	-2.0	NA	-2.0	-2.0	-2.0	-2.0	-2.0	NA	-1.5	✓ -2.0	-1.5	-1.5
Plan irregularity	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	✓ -0.5	-0.5	-0.5
Pre-Code	0.0	-0.2	-0.4	-0.4	-0.4	-0.4	-0.2	-1.0	-0.4	-1.0	-0.2	-0.4	-0.4	-0.4	-0.4
Post-Benchmark	1.6	1.6	1.4	1.4	NA NA	1.2	NA NA	1.2	1.6	NA NA	1.8	NA	2.0	1.8	NA NA
Soil Type C															
Soil Type D	-0.2	-0.8	-0.6	-0.8	-0.6	3.0-		-0.6	-0.8	-0.6		-0.6		-0.6	-0.4
Soil Type E	-0.8	-1.2	-1.0	-1.2	-1.0	-1.2		-1.0	-1.2	-1.0		-1.2	-1.2	-1.2	-0.8
	-1.2	-1.8	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Final Scores													0.1		
* = Estimated, subjecti	ve or unrelia	ble data B	R = Braced	Frame MF	RF = Mome	nt-resistin	g frame	SW = Shear	Wall		Detaile Evaluati Require	on			

DNK - Do Not Know

FD = Flexible Diaphragm LM = Light Metal

RC - Reinforced concrete RD = Rigid diaphragm

TU = Tilt Up
URMINF = Unreinforced masaonry infill

1 of 1 2/12/2016 8:31 AM

				Jerry's Sports			Zip: 056 Other Id No Stor Year Bu Screend Date: No Total Flo	41 dentifiers ies: 2 iilt: 1930 er: 1 one oor Area g Name:	th Main S s: Barre, \ (sq. ft.): 8	/T 8636	ard R	ecruit	ing		
				BEAUTY NAIL AND SPA				Sci	me: Narreener:	2-		ecruitin	a		
	C	Оссира	ncy					Soil T	уре			Falli	ng Ha	zard	
Assembly Commercial	Govt Histori		fice esidential	0-10		11-100 Ha	A B ard Avg. ock Rock		D E Stiff Soft Soil Soil	Soil		einforced nneys	Para	pets	Cladding
Emer. Services	Indust	rial So	hool	101-1		1000+	: <i>G</i> :	W.	in al C						
Duilding Tops	W1	W2	S1	SIC S	cores	, IVIOCI S4	ifiers,	and F	inal S	core,	PC1	PC2	RM1	RM2	URM
Building Type Basic Score	5.2	4.8	(MRF) 3.6	(BR) 3.6	(LM) 3.8	(RC SW) 3.6	(URM INF) 3.6) (MRF) 3.0	(SW) 3.6	(URM INF) 3.2) (TU) 3.2	3.2	(FD) 3.6	(RD) 3.4	3.4
Mid Rise(4-7 stories)	NA	NA NA	0.4	0.4	NA	0.4	0.4	0.2	0.4	0.2	NA	0.4	0.4	0.4	-0.4
High Rise(>7 stories)	NA NA	NA NA	1.4	1.4	NA NA	1.4	0.8	0.5	0.8	0.4	NA NA	0.6	NA NA	0.6	□ NA
Vertical Irregularity	-3.5	-3.0	-2.0	-2.0	NA	-2.0	-2.0	-2.0	-2.0	-2.0	NA	-1.5	-2.0	-1.5	-1.5
Plan irregularity	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Pre-Code	0.0	-0.2	-0.4	-0.4	-0.4	-0.4	-0.2	-1.0	-0.4	-1.0	-0.2	-0.4	-0.4	-0.4	 -0.4
Post-Benchmark	1.6	1.6	1.4	1.4	NA NA	1.2	NA NA	1.2	1.6	NA NA	1.8	NA	2.0	1.8	□ NA
Soil Type C	-0.2	-0.8	-0.6	-0.8	-0.6	-0.8	-0.8	-0.6	-0.8	-0.6	-0.6	-0.6	-0.8	-0.6	✓ -0.4
Soil Type D	-0.8		-1.0	-1.2	-1.0	-1.2	-1.2	-1.0	-1.2	-1.0	-1.0	-1.2	-1.2	-1.2	-0.8
Soil Type E	-1.2		-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Final Scores															2.6
Comments:											Detaile	d			
											Evaluati Require				
* = Estimated, subjectiv DNK - Do Not Know	e or unrelia	FI D	R = Braced D = Flexible iaphragm M = Light M	e RC RE		ced concret	e T	SW = Shear TU = Tilt Up JRM INF = U	Wall Jnreinforced	d masaonry	/ infill				

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Address:255 Lafountain Street Zip: 05404 Other Identifiers: Winooski, VT

No Stories: 2 Year Built: 1950 Screener: 1

Date: None Total Floor Area<u>(sq. ft.): 21376</u>

Building Name: National Guard Armory



	0	ccupa	incy					Soil T	ype			Fall	ing Ha	zard	
Assembly Commercial Emer. Services	Govt Historic	R	ffice esidential chool	Numbe 0-10 101-1		Ha	A B ard Avg. ock Rock		Stiff S	F F Poor Dil Soil		einforced mneys	Para	pets 🕡	Cladding
			В	asic S	cores	, Mod	ifiers,	and F	inal	Score	, S				
Building Type	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S 5	C1	C2 (SW)	C3	PC1	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	5.2	4.8	3.6	3.6	3.8	3.6	3.6	3.0	3.6	3.2	3.2	3.2	3.6	3.4	3.4
Mid Rise(4-7 stories)	NA NA	NA NA	0.4	0.4	NA	0.4	0.4	0.2	0.4	0.2	NA	0.4	0.4	0.4	-0.4
High Rise(>7 stories)	NA NA	NA	1.4	1.4	NA NA	1.4	0.8	0.5	0.8	0.4	NA NA	0.6	□ NA	0.6	NA NA
Vertical Irregularity	-3.5	-3.0	-2.0	-2.0	NA	-2.0	-2.0	-2.0	-2.	0 -2.0	NA	-1.5	5	-1.5	-1.5
Plan irregularity	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.	5 -0.	-0.5	-0.	5 -0.5	-0.5	-0.5
Pre-Code	0.0	-0.2	-0.4	-0.4	-0.4	-0.4	-0.2	-1.0	-0.	41.0	-0.2	-0.4	4 .0.4	-0.4	-0.4
Post-Benchmark	1.6	1.6	1.4	1.4	NA NA	1.2	NA NA	1.2	1.0	NA NA	1.8	NA NA	2.0	1.8	NA NA
Soil Type C	-0.2	-0.8	-0.6	-0.8	-0.6	-0.8	-0.8	-0.6	-0.	8 -0.0	-0.6	-0.6	6 -0.8	-0.6	-0.4
Soil Type D	-0.8	-1.2	-1.0	-1.2	-1.0	-1.2	-1.2	-1.0	-1.	21.0	-1.0	-1.2	2	-1.2	-0.8
Soil Type E	-1.2	-1.8	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.	6 -1.0	-1.6	-1.6	-1.6	-1.6	-1.6
Final Scores													0.0	1	
Comments:											Detaile Evaluat Requir	ion			

DNK - Do Not Know

Diaphragm LM = Light Metal

* = Estimated, subjective or unreliable data BR = Braced Frame MRF = Moment-resisting frame DNK - Do Not Know FD = Flexible RC - Reinforced concrete RD = Rigid diaphragm

SW = Shear Wall TU = Tilt Up URM INF = Unreinforced masaonry infill

2/12/2016 8:47 AM

		des -					Zip: 0585	i5 entifiers es: 2	on Street :: Newpor						
	16	2452/0-	200	Name of the last	1750		Date: No Total Flo	ne or Area Name:	(sq. ft.): 2 Natior		ıard Aı	rmory]		
			1 / 1		See See		Nam Scree Cate	e National ener: 2015-09-18	Guard Armo	17					
	C	Оссира	ncy				S	oil Ty	уре			Falli	ng Ha	zard	
Assembly Commercial	Govt		ffice	Numbe	of Person			С	D E	F		inforced			
	Histori	c Re	esidential	0-10 101-10		1-100 Ha 000+			Stiff Soft Soil Soil	Soil	Chim		Parap	oets 🗸	Cladding
Emer. Services	Histori Industr	c Re	esidential chool	101-10	000 🔲 1	1-100 Ro	ck Rock	Soil	Soil Soil	Soil	Chim Other:		Parap	oets 🗸	Cladding
		c Re	esidential chool Ba	101-10 15iC Sc S2	ooo 1 cores	1-100 Ro 000+ Ro Modi	fiers,	soil s	Soil Soil inal S	Soil CORE,	Other:		RM1	RM2	Cladding
Emer. Services Building Type Basic Score	Industr	c Re	esidential chool Ba	101-10 ISIC S	oo 1	1-100 Ro 000+ Ro Modi	fiers,	soil s	soil soil inal S	soil Core,	Other:	neys	RM1 (FD)		
Emer. Services Building Type Basic Score	Industr	c Re	esidential chool S1 (MRF)	101-10 Sic So S2 (BR)	cores S3 (LM)	1-100 Ro 000+ S4 (RC SW)	fiers,	Soil S and F C1 (MRF)	Soil Soil Inal S C2 (SW)	COTE, C3 (URM INF	Other: PC1 (TU)	neys PC2	RM1 (FD)	RM2 (RD)	URM
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories)	W1	c Refrial Sc	esidential chool S1 (MRF) 3.8	101-10 Sic So (BR) 3.9	000 1 CORES S3 (LM)	1-100 Ro 000+ S4 (RC SW) 3.9	fiers, \$5 (URM INF) 3.9	Soil S and F C1 (MRF) 3.3	Soil Soil C2 (SW) 3.9	COPE, C3 (URM INF	Chim Other: PC1 (TU) 3.5	PC2	RM1 (FD) 3.9	RM2 (RD) 3.7	URM
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity	W1 5.7 NA	c Registration Reg	esidential chool S1 (MRF) 3.8	101-10 Sic So (BR) 3.9	000 1 CORES S3 (LM)	1-100 Ro 000+ S4 (RC SW) 3.9 0.4	FIERS, S5 (URM INF) 3.9	Soil Soil Soil Soil Soil Soil Soil Soil	Soil Soil C2 (SW) 3.9 0.4	COPE, C3 (URM INF	Chim Other: PC1 (TU) 3.5	PC2 3.5 0.4	RM1 (FD) 3.9	RM2 (RD) 3.7	URM 3.7
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity	W1 5.7 NA NA	C Refrial So	Basidential chool Basidential chool S1 (MRF) 3.8 0.4 1.4	101-10 Sic Sc (BR) 3.9 0.4	S3 (LM) 4.0 NA	1-100 Ro 000+ S4 (RC SW) 3.9 0.4	fiers, S5 (URM INF) 3.9 0.4 0.8	Soil S and F C1 (MRF) 3.3 0.2 0.5	Soil Soil Carrier Soil	COPE, C3 (URM INF 3.5 0.2	Chim Other: S PC1) (TU) 3.5 NA NA	PC2 3.5 0.4	RM1 (FD) 3.9 0.4 NA	RM2 (RD) 3.7 0.4	URM 3.7 -0.4 NA
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code	W1 5.7 NA NA -3.5	c Refrial Scott	S1 (MRF) 3.8 0.4 1.4 -2.0	101-10 S2 (BR) 3.9 0.4 1.4	S3 (LM) 4.0 NA NA	1-100 Roo 000+ S4 (RC SW) 3.9 0.4 1.4 -2.0	FIERS, S5 (URM INF) 3.9 0.4 0.8 -2.0	Soil S and F C1 (MRF) 3.3 0.2 0.5 -2.0	Soil Soil Soil C2 (SW) 3.9 0.4 0.8 -2.0	Soil C3 (URM INF 3.5 0.2 0.4 -2.0	Chim Other: PC1) (TU) 3.5 NA NA NA	PC2 3.5 0.4 0.6	RM1 (FD) 3.9 0.4 NA -2.0 -0.5	RM2 (RD) 3.7 0.4 0.6	URM 3.7 -0.4 NA -1.5
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code	W1 5.7 NA NA -3.5	W2 5.1 NA NA -3.0	Basic St (MRF) 3.8 0.4 1.4 -2.0 -0.5	101-10 S2 (BR) 3.9 0.4 1.4	S3 (LM) 4.0 NA NA	1-100 Ro 000+ S4 (RC SW) 3.9 0.4 1.4 -2.0 -0.5	FICES, S5 (URM INF) 3.9 0.4 0.8 -2.0 -0.5	Soil S and F C1 (MRF) 3.3 0.2 0.5 -2.0	Soil Soil Soil Soil Soil Soil Soil Soil	Soil C3 (URM INF 3.5 0.2 0.4 -2.0 -0.5	Chim Other: PC1 (TU) 3.5 NA NA NA -0.5	PC2 3.5 0.4 0.6 -1.5	RM1 (FD) 3.9 0.4 NA -2.0 -0.5	RM2 (RD) 3.7 0.4 0.6 -1.5 -0.5	URM 3.7 -0.4 NA -1.5 -0.5
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark	W1 5.7 NA NA -3.5 -0.5 0.0	W2 5.1 NA NA -3.0 -0.5	Basidential chool Basidential chool S1 (MRF) 3.8 0.4 1.4 -2.0 -0.5	101-11 Sic Sc (BR) 3.9 0.4 1.4 -2.0 -0.5	000 1 COICES S3 (LM) 4.0 NA NA NA NA -0.5	1-100 Ro 000+ S4 (RC SW) 3.9 0.4 1.4 -2.0 -0.5 -0.4	S5 (URM INF) 3.9 0.4 0.8 -2.0 -0.5 -0.2	Soil S and F C1 (MRF) 3.3 0.2 0.5 -2.0 -1.0	Soil Soil Soil Soil Soil Soil Soil Soil	COTE, C3 (URM INF 3.5 0.2 0.4 -2.0 -1.0	Chim Other: PC1 (TU) 3.5 NA NA NA -0.5 -0.2	PC2 3.5 0.4 0.6 -1.5 -0.5	RM1 (FD) 3.9 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 3.7 0.4 0.6 -1.5 -0.5 -0.4	URM 3.7 -0.4 NA -1.5 -0.5
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C	W1 5.7 NA NA -3.5 -0.5 0.0 1.6	V2 5.1 NA NA -3.0 -0.5 -0.2	S1 (MRF) 3.8 0.4 1.4 -2.0 -0.5 -0.4 1.4	101-11 Sic Sc (BR) 3.9 0.4 1.4 -2.0 -0.5	000 1 COTES S3 (LM) 4.0 NA NA NA NA NA NA	1-100 Ro 000+ S4 (RC SW) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.2	S5 (URM INF) 3.9 0.4 0.8 -2.0 -0.5 NA	Soil S C1 (MRF) 3.3 0.2 0.5 -2.0 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	COTE, C3 (URM INF 3.5 0.2 0.4 -2.0 -0.5 -1.0 NA	Chim Other: PC1 (TU) 3.5 NA NA NA -0.5 -0.2 1.8	PC2 3.5 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.9 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 3.7 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.7 -0.4 NA -1.5 -0.5 -0.4 NA
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D	W1 5.7 NA NA -3.5 -0.5 0.0 1.6	W2 5.1 NA NA -0.5 -0.2 1.6	Basic St (MRF) 3.8 0.4 1.4 -2.0 -0.5 -0.4 1.4 -0.6	101-11 Sic Sc (BR) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.4	000 1 COTES S3 (LM) 4.0 NA NA NA -0.5 -0.4 NA	1-100 Ro 000+ Ro S4 (RC SW) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8	S5 (SM INF) 3.9 0.4 0.8 -2.0 -0.5 NA	Soil S and F C1 (MRF) 3.3 0.2 0.5 -2.0 -0.5 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	Soil COPE, C3 (URM INF 3.5 0.2 0.4 -2.0 -0.5 -1.0 NA	Chim Other: S PC1 (TU) 3.5 NA NA NA -0.5 -0.2 1.8	PC2 3.5 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.9 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 3.7 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.7 -0.4 NA -1.5 -0.5 -0.4 NA
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E	W1 5.7 NA NA -3.5 -0.5 0.0 1.6	W2 5.1 NA NA -3.0 -0.5 -0.2 1.6	Basic (MRF) 3.8 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.0	101-11 Sic Sc (BR) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.4 -0.8 -1.2	000 1 COICES S3 (LM) 4.0 NA NA NA NA NA -0.5 -0.4 NA NA	1-100 Ro 000+ S4 (RC SW) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8 -1.2	S5 (URM INF) 3.9 0.4 0.8 -2.0 -0.5 -0.2 NA	Soil S C1 (MRF) 3.3 0.2 -2.0 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	Soil C3 (URM INF 3.5 0.2 0.4 -2.0 NA NA -0.6	Chim Other: PC1 (TU) 3.5 NA NA NA -0.5 -0.2 1.8	PC2 3.5 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.9 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 3.7 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.7 -0.4 NA -1.5 -0.5 -0.4 NA -0.8
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E Final Scores	W1 5.7 NA NA -3.5 -0.5 0.0 1.6	W2 5.1 NA NA -3.0 -0.5 -0.2 1.6	Basic (MRF) 3.8 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.0	101-11 Sic Sc (BR) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.4 -0.8 -1.2	000 1 COICES S3 (LM) 4.0 NA NA NA NA NA -0.5 -0.4 NA NA	1-100 Ro 000+ S4 (RC SW) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8 -1.2	S5 (URM INF) 3.9 0.4 0.8 -2.0 -0.5 -0.2 NA	Soil S C1 (MRF) 3.3 0.2 -2.0 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	Soil C3 (URM INF 3.5 0.2 0.4 -2.0 NA NA -0.6	Chim Other: S PC1 (TU) 3.5 NA NA NA -0.5 -0.2 1.8 -1.6 Detailed	PC2 3.5 0.4 0.6 -1.5 -0.5 -0.4 NA -1.6	RM1 (FD) 3.9 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 3.7 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.7 -0.4 NA -1.5 -0.5 -0.4 NA -0.8
Emer. Services	W1 5.7 NA NA -3.5 -0.5 0.0 1.6	W2 5.1 NA NA -3.0 -0.5 -0.2 1.6	Basic (MRF) 3.8 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.0	101-11 Sic Sc (BR) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.4 -0.8 -1.2	000 1 COICES S3 (LM) 4.0 NA NA NA NA NA -0.5 -0.4 NA NA	1-100 Ro 000+ S4 (RC SW) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8 -1.2	S5 (URM INF) 3.9 0.4 0.8 -2.0 -0.5 -0.2 NA	Soil S C1 (MRF) 3.3 0.2 -2.0 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	Soil C3 (URM INF 3.5 0.2 0.4 -2.0 NA NA -0.6	Chim Other: S PC1 (TU) 3.5 NA NA NA -0.5 -0.2 1.8 -1.0 -1.6 Detailed Evaluatic Require	PC2 3.5 0.4 0.6 -1.5 -0.5 -0.4 NA -1.6	RM1 (FD) 3.9 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 3.7 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.7 -0.4 NA -1.5 -0.5 -0.4 NA -0.8
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E Final Scores	W1 5.7 NA NA -3.5 -0.5 0.0 1.6 -0.2 -0.8 -1.2	W2 5.1 NA NA -3.0 -0.5 -0.2 1.6 -1.2 -1.8	Bass (MRF) 3.8 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.6 -1.6	101-11 Sic Sc (BR) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.6	000 1 COTES S3 (LM) 4.0 NA NA NA NA -0.5 -0.4 NA -1.6	1-100 Roi Roi	S5 (SM INF) 3.9 0.4 0.8 -2.0 -0.5 -0.2 NA -1.2 -1.6	Soil S C1 (MRF) 3.3 0.2 -2.0 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	Soil C3 (URM INF 3.5 0.2 0.4 -2.0 NA NA -0.6	Chim Other: S PC1 (TU) 3.5 NA NA NA -0.5 -0.2 1.8 -1.6 Detailee Evaluatic	PC2 3.5 0.4 0.6 -1.5 -0.5 -0.4 NA -1.6	RM1 (FD) 3.9 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 3.7 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.7 -0.4 NA -1.5 -0.5 -0.4 NA -0.8

Diaphragm LM = Light Metal

RD = Rigid diaphragm

URM INF = Unreinforced masaonry infill

2/12/2016 8:48 AM

															<u> </u>
			20				Zip: 054' Other Id No Stori Year Bu Screene Date: No Total Flo	78 entifiers es: 1 ilt: 1948 er: 1 one oor Area Name:	ver Newto :: St. Alba (sq. ft.): 7 Natio r	ns, VT 000	ard St	torage	.		
		COLINE			23.6		Sci Da	me: Nati eener: I te: 2015-	onal Gui	ard Armo	TOTAL STATE OF THE	Falli	ng Haz		
Assembly	Govt	ccupa	ffice	Numbe	r of Persor	ns	A B	c c	ype D E	F	Unre	inforced]	
Commercial	Historic		esidential	0-10	1		ard Avg.		Stiff Soft Soil Soil	Soil	Chim	ineys	Parap	ets	Cladding
Emer. Services	Industr	ial So	chool	101-1	000 1	000+			1		Other:				
							ifiers,								
Building Type	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S5 (URM INF)		C2 (SW)	C3 (URM INF	PC1) (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	5.2	4.8	3.6	3.6	3.8	3.6	3.6	3.0	3.6	3.2	3.2	3.2	3.6	3.4	3.4
Mid Rise(4-7 stories)	NA NA	NA	0.4	0.4	NA NA	0.4	0.4	0.2	0.4	0.2	NA NA	0.4	0.4	0.4	-0.4
High Rise(>7 stories)	NA	NA	1.4	1.4	NA	1.4	0.8	0.5	0.8	0.4	NA	0.6	NA	0.6	NA
Vertical Irregularity	-3.5	-3.0	-2.0	-2.0	NA NA	-2.0	-2.0	-2.0	-2.0	-2.0	NA NA	-1.5	-2.0	-1.5	-1.5
Plan irregularity														-0.5	-0.5
	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Pre-Code	0.0	-0.5	-0.5 -0.4	-0.5	-0.5	-0.5 -0.4	-0.5	-0.5 -1.0	-0.5 -0.4	-0.5 -1.0	-0.5	-0.5	-0.5 -0.4	-0.5	-0.4
Pre-Code Post-Benchmark				-0.5 -0.4	-0.5 -0.4 NA			-0.5 -1.0	-0.5 -0.4 1.6				82		
	0.0	-0.2	-0.4	1.4	-0.4 NA	-0.4	-0.2 NA	-1.0	-0.4 1.6	-1.0 NA	1.8	-0.4 NA	2.0	-0.4	-0.4 NA
Post-Benchmark	0.0	-0.2 1.6	-0.4 1.4 -0.6	-0.4 1.4 -0.8	-0.4 NA -0.6	-0.4 1.2 -0.8	-0.2 NA -0.8	-1.0 1.2 -0.6	-0.4 1.6	-1.0 NA -0.6	-0.2 1.8	-0.4 NA -0.6	-0.4 2.0	-0.4 1.8	-0.4 NA -0.4
Post-Benchmark Soil Type C	0.0	-0.2	-0.4	1.4	-0.4 NA	-0.4	-0.2 NA -0.8	-1.0	-0.4 1.6	-1.0 NA	1.8	-0.4 NA	2.0	-0.4	-0.4 NA
Post-Benchmark Soil Type C	0.0 1.6 -0.2 -0.8	-0.2 1.6 -0.8	-0.4 1.4 -0.6	-0.4 1.4 -0.8	-0.4 NA -0.6	-0.4 1.2 -0.8	-0.2 NA -0.8	-1.0 1.2 -0.6 -1.0	-0.4 1.6 -0.8	-1.0 NA -0.6	-0.2 1.8 -0.6	-0.4 NA -0.6	-0.4 2.0 -0.8 -1.2	-0.4 1.8 -0.6	-0.4 NA -0.4
Post-Benchmark Soil Type C Soil Type D Soil Type E	0.0 1.6 -0.2 -0.8	-0.2 1.6 -0.8	-0.4 1.4 -0.6	-0.4 1.4 -0.8	-0.4 NA -0.6	-0.4 1.2 -0.8	-0.2 NA -0.8	-1.0 1.2 -0.6 -1.0	-0.4 1.6 -0.8	-1.0 NA -0.6	-0.2 1.8 -0.6 -1.0	-0.4 NA -0.6 -1.2	-0.4 2.0 -0.8 -1.2 -1.6	-0.4 1.8 -0.6	-0.4 NA -0.4
Post-Benchmark Soil Type C Soil Type D Soil Type E Final Scores	0.0 1.6 -0.2 -0.8	-0.2 1.6 -0.8	-0.4 1.4 -0.6	-0.4 1.4 -0.8	-0.4 NA -0.6	-0.4 1.2 -0.8	-0.2 NA -0.8	-1.0 1.2 -0.6 -1.0	-0.4 1.6 -0.8	-1.0 NA -0.6	-0.2 1.8 -0.6 -1.0	-0.4 NA -0.6 -1.2	-0.4 2.0 -0.8 -1.2 -1.6	-0.4 1.8 -0.6	-0.4 NA -0.4

Diaphragm LM = Light Metal

RD = Rigid diaphragm

URM INF = Unreinforced masaonry infill

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Building Type	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4	S5) (URM INF)	C1	C2 (SW)	C3 (URM INF	PC1	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	5.2	4.8	3.6	3.6	3.8	3.6	3.6	3.0	3.6	3.2	3.2	3.2	3.6 3.		3.4
Mid Rise(4-7 stories)	NA	NA NA	0.4	0.4	NA NA	0.4	0.4	0.2	0.4	0.2	NA	0.4	0.4	0.4	-0.4
High Rise(>7 stories)	NA NA	NA NA	1.4	1.4	NA NA	1.4	0.8	0.5	0.8	0.4	NA NA	0.6	NA	0.6	NA NA
Vertical Irregularity	-3.5	-3.0	-2.0	-2.0	NA NA	-2.0		-2.0		-2.0	NA NA	-1.5	✓ _{-2.0}	-1.5	-1.5
Plan irregularity													E22		
Pre-Code	-0.5	-0.5		-0.5	-0.5	-0.5		-0.5		-0.5	-0.5	-0.5		-0.5	-0.5
	0.0	-0.2	-0.4	-0.4	-0.4	-0.4		-1.0		-1.0	-0.2	-0.4	-0.4	-0.4	-0.4
Post-Benchmark	1.6	1.6	1.4	1.4	NA	1.2	NA	1.2	1.6	NA	1.8	NA	2.0	1.8	NA
Soil Type C	-0.2	-0.8	-0.6	-0.8	-0.6	-0.8	-0.8	-0.6	-0.8	-0.6	-0.6	-0.6	-0.8	-0.6	-0.4
Soil Type D	-0.8	-1.2	-1.0	-1.2	-1.0	-1.2		-1.0		-1.0	-1.0	-1.2	-1.2	-1.2	-0.8
Soil Type E	-1.2	-1.8	-1.6	-1.2		-1.6		-1.6		-1.6		-1.2	-1.2 ✓ -1.6	-1.2	-1.6
Final Scores	-1.2	-1.8	-1.6	-1.6	-1.6	-1.0	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	0.0	-1.0	-1.0
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FD = Flexible
Diaphragm
LM = Light Metal

RC - Reinforced concrete RD = Rigid diaphragm

TU = Tilt Up URM INF = Unreinforced masaonry infill

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Commercial Emer. Services	Govt Historic	C Re	fice esidential chool Ba	0-10 101-1 asic S 82	000 1 cores	11-100 Ha	A B ard Avg. ock Rock iffers,	C Dense Soil and F	D E Stiff Soft Soil Soil	Poor Soil COPC,	Other:	einforced nneys	Para	pets RM2	
Commercial	Govt Historic	Of	fice esidential chool	0-10 101-1	000 1 1 cores	11-100 Ha	A B ard Avg. ock Rock	C Dense Soil and F	D E Stiff Soft Soil Soil	Poor Soil	Other:	inforced	Para	pets	Cladding URM 3.4
Commercial Emer. Services Building Type	Govt Historic Industr W1 5.2	C Recial So	esidential chool Ba S1 (MRF)	0-10 101-1 Sic S S2 (BR)	000 1 cores S3 (LM)	H:1-100 R:0 1000+ S4 (RC SW)	A B ard Avg. bck Rock iffiers, \$5 (URM INF)	C Dense Soil and F C1 (MRF) 3.0	D E Stiff Soft Soil Soil C2 (SW) 3.6	Poor Soil COPE, C3 (URM INF 3.2	Other: PC1 (TU) 3.2	PC2	RM1 (FD)	RM2 (RD)	URM 3.4
Emer. Services Building Type Basic Score	Govt Historic Industr W1 5.2 NA	Office Recial Scott	esidential chool Ba S1 (MRF)	0-10 101-1 1SIC S S2 (BR)	COPES S3 (LM) 3.8	, Mod (RC SW)	A B ard Avg. Rock Rock S5 (URM INF) 3.6	C Dense Soil and F	D E Stiff Soft Soil Soil V Final S	Poor Soil COTE,	Other: S PC1 (TU) 3.2 NA	PC2	Para RM1 (FD)	Pets RM2 (RD)	URM 3.4
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories)	Govt Historic Industr W1 5.2 NA NA	Office Recipies Scott Recipies Scott Recipies Scott Recipies Scott Recipies Scott Recipies Re	esidential chool Ba S1 (MRF)	0-10 101-1 1SIC S S2 (BR) 3.6 0.4	000 1 COPES S3 (LM) 3.8 NA	, Mod (RC SW) 3.6	A B Ard Avg. Cck Rock S5 (URM INF) 3.6 0.4	C Dense Soil and F C1 (MRF) 3.0 0.2 0.5	D E Stiff Soft Soil Soil Soil Soil Soil Soil Soil Soil	COPE, C3 (URM INF 3.2 0.2	Chin Other: S PC1 (TU) 3.2 NA NA	PC2 3.2 0.4 0.6	RM1 (FD) 3.6 0.4 NA	RM2 (RD)	URM 3.4 -0.4 NA
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity	Govt Historia Industr W1 5.2 NA NA NA -3.5	C Recial Scott	Basic MRF) 3.6 1.4 1.4 1.4	0-10 101-1 1SIC S S2 (BR) 3.6 1.4 -2.0	COTES S3 (LM) 3.8 NA NA	Hindu	A B Avg. Avg. Rock Rock S5 (URM INF) 3.6 0.4 0.8 -2.0	C Dense Soil and F C1 (MRF) 3.0 0.2 -2.0	D E Stiff Soft Soil Soil Soil Soil Soil Soil Soil Soil	COFE, C3 (URM INF 3.2 0.2 0.4 -2.0	Chin Other: S PC1 (TU) 3.2 NA NA NA	PC2 3.2 0.4 0.6 -1.5	RM1 (FD) 3.6 0.4 NA -2.0	RM2 (RD) 3.4 0.4 0.6	URM 3.4 -0.4 NA -1.5
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity	Govt Historia Industr W1 5.2 NA NA -3.5	W2 4.8 NA NA -3.0	stidential school Baseline Stidential school Stidential school 1.4 -2.0 -0.5	0-10 V 101-1 ASIC S S2 (BR) 3.6 0.4 1.4 -2.0 -0.5	000 1 COFES S3 (LM) 3.8 NA NA NA -0.5	H1-100 H2 RR RR RR RR SW) 3.6 0.4 1.4 -2.0 -0.5	A B Avg. Avg. Rock Rock S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5	C Dense Soil C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5	D E Stiff Soft Soft Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 3.2 0.4 -2.0	Chin Other: S PC1 (TU) 3.2 NA NA NA -0.5	PC2 3.2 0.6 -1.5 -0.5	RM1 (FD) 3.6 0.4 NA -2.0 -0.5	RM2 (RD) 3.4 0.6 -1.5 -0.5	URM 3.4 -0.4 NA -1.5 -0.5
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code	Govt Historia Industr W1 5.2 NA NA NA -3.5	C Recial Scott	Basic MRF) 3.6 1.4 1.4 1.4	0-10 101-1 1SIC S S2 (BR) 3.6 1.4 -2.0	000 1 COTES S3 (LM) 3.8 NA NA NA -0.5	H1-100 H RR RR RR RC SW) 3.6 0.4 1.4 -2.0 -0.5	A B Avg. Avg. Rock Rock S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5	C Dense Soil (MRF) 3.0 0.2 0.5 -2.0 -1.0	D E Stiff Soft Soil Soil Soil Soil Soil Soil Soil Soil	COPE, C3 (URM INF 3.2 0.2 0.4 -2.0 -1.0	Chin Other: S PC1 (TU) 3.2 NA NA NA -0.5	PC2 3.2 0.4 0.6 -1.5 -0.5 -0.4	RM1 (FD) 3.6 0.4 NA -2.0 -0.5	RM2 (RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4	URM 3.4 -0.4 NA -1.5 -0.5 -0.4
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity	Govt Historia Industr W1 5.2 NA NA -3.5	W2 4.8 NA NA -3.0	stidential school Baseline Stidential school Stidential school 1.4 -2.0 -0.5	0-10 V 101-1 ASIC S S2 (BR) 3.6 0.4 1.4 -2.0 -0.5	000 1 COFES S3 (LM) 3.8 NA NA NA -0.5	H1-100 H2 RR RR RR RR SW) 3.6 0.4 1.4 -2.0 -0.5	A B Avg. Avg. Rock Rock S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5	C Dense Soil C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5	D E Stiff Soft Soft Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 3.2 0.4 -2.0	Chin Other: S PC1 (TU) 3.2 NA NA NA -0.5	PC2 3.2 0.6 -1.5 -0.5	RM1 (FD) 3.6 0.4 NA -2.0 -0.5	RM2 (RD) 3.4 0.6 -1.5 -0.5	URM 3.4 -0.4 NA -1.5 -0.5
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code	W1 5.2 NA NA -3.5 -0.5	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	esidential chool Baseline chool Baseline chool Baseline chool 1.4 -2.0 -0.5	0-10 101-1 1SiC S S2 (BR) 3.6 0.4 1.4 -2.0 -0.5	000 1 COTES S3 (LM) 3.8 NA NA NA -0.5	H1-100 H2 R1	A B Avg. Avg. Rock Rock S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 NA	C Dense Soil (MRF) 3.0 0.2 0.5 -2.0 -1.0	D E Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPE, C3 (URM INF 3.2 0.2 0.4 -2.0 -1.0	Chin Other: S PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	PC2 3.2 0.4 0.6 -1.5 -0.5 -0.4	RM1 (FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4	URM 3.4 -0.4 NA -1.5 -0.5 -0.4 NA
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	S1 (MRF) 3.6	0-10 101-1 1SiC S S2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	000 1 COPES S3 (LM) 3.8 NA NA NA NA -0.5 -0.4 NA	H-11-100 H-1 RR RR RR RR SW) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8	A B Avg. Avg. Rock Rock St (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	C Dense Soil	D E Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPE, Soil Soil Soil Soil Soil Soil Soil Soil	Chin Other: S PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	PC2 3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.4 -0.4 NA -1.5 -0.5 -0.4 NA
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	Basic ential ential entire ent	0-10 101-1 2SiC S \$2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.2	000 1 COTES S3 (LM) 3.8 NA NA NA NA -0.5 -0.4 NA -1.0	H-11-100 H-12-11-100 RR RR RR SW) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8 -1.2	ifiers, S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	C Dense Soil	D E Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 3.2 0.2 0.4 -2.0 NA -1.0	Chin Other: S	PC2 3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0 -1.2	RM2 (RD) 3.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.4 -0.4 NA -1.5 -0.5 -0.4 NA -0.8
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	S1 (MRF) 3.6	0-10 101-1 1SiC S S2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.6	000 1 COPES S3 (LM) 3.8 NA NA NA NA -0.5 -0.4 NA	H-11-100 H-1 RR RR RR RR SW) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8	A B Avg. Avg. Rock Rock St (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	C Dense Soil	D E Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPE, Soil Soil Soil Soil Soil Soil Soil Soil	Chin Other: S PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	PC2 3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0 -1.2	RM2 (RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.4 -0.4 NA -1.5 -0.5 -0.4 NA
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E Final Scores	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	## chool Base Comparison Co	0-10 101-1 1SiC S S2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.6	000 1 COTES S3 (LM) 3.8 NA NA NA NA -0.5 -0.4 NA -1.0	H1-100 H2 RR RR RR RR SW) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2 -1.2	ifiers, S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	C Dense Soil	D E Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 3.2 0.2 0.4 -2.0 NA -1.0	Chin Other: S	PC2 3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0 -1.2	RM2 (RD) 3.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.4 -0.4 NA -1.5 -0.5 -0.4 NA -0.8
Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	## chool Base Comparison Co	0-10 101-1 1SiC S S2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.6	000 1 COTES S3 (LM) 3.8 NA NA NA NA -0.5 -0.4 NA -1.0	H1-100 H2 RR RR RR RR SW) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2 -1.2	ifiers, S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	C Dense Soil	D E Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 3.2 0.2 0.4 -2.0 NA -1.0	Chin Other: S	PC2 3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0 -1.2	RM2 (RD) 3.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.4 -0.4 NA -1.5 -0.5 -0.4 NA -0.8

Diaphragm LM = Light Metal

RD = Rigid diaphragm

URM INF = Unreinforced masaonry infill

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							S C	ame: Arme :reener 1 ate 2015-0	d Forces F	Restve Ce	nter				
								210. 2010	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
		Occupa	incy					Soil T	уре			Falli	ng Haz	zard	
Assembly	Govt	o	ffice	Numbe	r of Perso		A B ird Avg.	C Dense	D E Stiff Soft	F Poor		einforced nneys	Parap	ets	Cladding
Commercial	Histori	ic R	esidential	0-10			ck Rock		Soil Soil	Soil	Other:				
Emer. Services	Indust	rial S	chool	101-1		1000+		V							
		1440	B a	ISIC S	cores	, Mod s4	ifiers,	and I	Final S	core,	PC1	200	RM1	RM2	
Building Type Basic Score	W1 5.7	W2 5.1	(MRF) 3.8	(BR) 3.9	(LM) 4.0		(URM INI 3.9		(SW) 3.9	(URM INF		PC2 3.5	(FD)	(RD)	URM 3.7
Mid Rise(4-7 stories)	NA	NA	0.4	0.4	NA	0.4	0.4	0.2	0.4	0.2	NA	0.4	0.4	0.4	-0.4
High Rise(>7 stories)	NA NA	NA NA	1.4	1.4	NA NA	1.4	0.8	0.5	0.8	0.4	NA NA	0.6	NA NA	0.6	NA NA
Vertical Irregularity	-3.5	-3.0	-2.0	-2.0	NA NA	-2.0	-2.0	-2.0	-2.0	-2.0	NA	-1.5	-2.0	-1.5	-1.5
Plan irregularity	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Pre-Code	0.0	-0.2	-0.4	-0.4	-0.4	-0.4	-0.2	-1.0	-0.4	-1.0	-0.2	-0.4	-0.4	-0.4	-0.4
Post-Benchmark	1.6	1.6	1.4	1.4	NA NA	1.2	NA	1.2	1.6	NA NA	1.8	NA NA	2.0	1.8	NA NA
Soil Type C	-0.2	-0.8	-0.6	-0.8	-0.6	-0.8	-0.8	-0.6	-0.8	-0.6	-0.6	-0.6	₹ -0.8	-0.6	-0.4
Soil Type D	-0.8			-1.2	-1.0	-1.2	-1.2			-1.0	-1.0		-1.2	-1.2	-0.8
Soil Type E	-1.2		-1.6	-1.6	-1.6	-1.6	-1.6			-1.6			-1.6	-1.6	-1.6
Final Scores													2.6		
Comments:							<u> </u>				Detaile	ed.			
											Evaluat Require	ion			
											quil				
* = Estimated, subjecti	ve or unrelia							SW = Shear							
DNK - Do Not Know		0	D = Flexible	RE	C - Reinford D = Rigid di	ed concrete aphragm		TU = Tilt Up URM INF =	o Unreinforced	d masaonr	y infill				
		L	M = Light Me	etal											

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	C	ссира	incy					Soil T				Falli	ng Haz	ard	
Assembly Commercial	Govt Historic	c R	ffice esidential chool	0-10		H	A B lard Avg. ock Rock		D E Stiff Soft Soil Soil			einforced nneys	Parap	ets 🗸	Cladding
Emer. Services				esic S	cores	, Mod	lifiers,	and E	inal S	core,					
Emer. Services								allu r							
Emer. Services Building Type	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW	S5) (URM INF)	C1	C2 (SW)	C3 (URM INF	PC1 F) (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Building Type Basic Score		W2 4.8	S 1	S2	S3			C1				PC2	(FD)		URM 3.4
Building Type Basic Score Mid Rise(4-7 stories)	W1		S1 (MRF)	S2 (BR)	S3 (LM)	(RC SW) (URM INF	C1 (MRF)	(SW)	(URM INF	F) (TU)		(FD)	(RD)	
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories)	W1 5.2	4.8	S1 (MRF) 3.6	S2 (BR) 3.6	\$3 (LM) 3.8	(RC SW 3.6) (URM INF) 3.6	C1 (MRF) 3.0	(SW) 3.6	(URM INF	7) (TU) 3.2	3.2	(FD)	(RD) 3.4	3.4
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories)	W1 5.2 NA	4.8 NA	S1 (MRF) 3.6	S2 (BR) 3.6	\$3 (LM) 3.8 NA	(RC SW 3.6 0.4	3.6 0.4 0.8	C1 (MRF) 3.0	(SW) 3.6 0.4	(URM INF 3.2 0.2	7) (TU) 3.2 NA	3.2	(FD) 3.6 3 0.4 NA	(RD) 3.4 0.4	3.4
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity	W1 5.2 NA NA	4.8 NA NA	S1 (MRF) 3.6 0.4 1.4	\$2 (BR) 3.6 0.4 1.4	S3 (LM) 3.8 NA NA	(RC SW 3.6 0.4 1.4	0.4 0.8 0.8 0.20	C1 (MRF) 3.0 0.2	(SW) 3.6 0.4 0.8	(URM INF 3.2 0.2 0.4	7) (TU) 3.2 NA NA NA	3.2 0.4 0.6 -1.5	(FD) 3.6 0.4 NA	(RD) 3.4 0.4 0.6	3.4 -0.4 NA
Building Type Basic Score Mid Rise(4-7 stories)	W1 5.2 NA NA -3.5	4.8 NA NA -3.0	S1 (MRF) 3.6 0.4 1.4 -2.0	\$2 (BR) 3.6 0.4 1.4 -2.0	S3 (LM) 3.8 NA NA NA	3.6 0.4 1.4	0.4 0.8 0.20 0.5	C1 (MRF) 3.0 0.2 0.5	(SW) 3.6 0.4 0.8	(URM INF 3.2 0.2 0.4 -2.0	7) (TU) 3.2 NA NA NA NA -0.5	3.2 0.4 0.6 -1.5	(FD) 3.6 0.4 NA -2.0	(RD) 3.4 0.4 0.6	3.4 -0.4 NA -1.5
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity	W1 5.2 NA NA -3.5	4.8 NA NA -3.0	S1 (MRF) 3.6 0.4 1.4 -2.0	\$2 (BR) 3.6 0.4 1.4 -2.0	S3 (LM) 3.8 NA NA NA NA	(RC SW 3.6 0.4 1.4 -2.0 -0.5	0.4 0.8 0.20 0.5	C1 (MRF) 3.0 0.2 0.5 -2.0	(SW) 3.6 0.4 0.8 -2.0 -0.5	(URM INF 3.2 0.2 0.4 -2.0	7) (TU) 3.2 NA NA NA NA -0.5	3.2 0.4 0.6 -1.5	(FD) 3.6 0.4 NA -2.0	(RD) 3.4 0.4 0.6 -1.5	3.4 -0.4 NA -1.5 -0.5
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	4.8 NA NA -3.0 -0.5 -0.2	S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5	\$2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4	S3 (LM) 3.8 NA NA NA -0.5 -0.4 NA	(RC SW 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2	0.4 0.8 0.2-2.0 0.5 -0.5	C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5	(SW) 3.6 0.4 0.8 -2.0 -0.5 -0.4 1.6	0.2 0.4 -2.0 -0.5 -1.0 NA	3.2 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	(FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0	(RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4	3.4 -0.4 NA -1.5 -0.5 -0.4 NA
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	4.8 NA NA -3.0 -0.5 -0.2 1.6	\$1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	\$2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	S3 (LM) 3.8 NA NA NA -0.5 -0.4 NA -0.6	(RC SW 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8	0.4 0.8 02.0 0.1 0.2 NA	C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5 -1.0 1.2	(SW) 3.6 0.4 0.8 -2.0 -0.5 -0.4 1.6	0.2 0.4 -2.0 -0.5 -1.0 NA	7 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	(FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0	(RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.4 -0.4 NA -1.5 -0.5 -0.4 NA -0.4
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	4.8 NA NA -3.0 -0.5 -0.2 1.6	S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	\$2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	S3 (LM) 3.8 NA NA NA -0.5 -0.4 NA -1.0	(RC SW 3.6	0.4 0.8 0.5 -2.0 -0.5 NA 0.8 -0.2	C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5 -1.0	(SW) 3.6	0.2 0.4 -2.0 -0.5 -1.0 NA	7 (TU) 3.2 NA NA NA NA -0.5 -0.2 1.8	3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	(FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0 -1.2	(RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.4 -0.4 NA -1.5 -0.5 -0.4 NA -0.8
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	4.8 NA NA -3.0 -0.5 -0.2 1.6	S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	\$2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	S3 (LM) 3.8 NA NA NA -0.5 -0.4 NA -0.6	(RC SW 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8	0.4 0.8 0.5 -2.0 -0.5 NA 0.8 -0.2	C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5 -1.0 1.2	(SW) 3.6 0.4 0.8 -2.0 -0.5 -0.4 1.6	0.2 0.4 -2.0 -0.5 -1.0 NA	7 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	(FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0 -1.2	(RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.4 -0.4 NA -1.5 -0.5 -0.4 NA -0.4
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	4.8 NA NA -3.0 -0.5 -0.2 1.6	S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	\$2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	S3 (LM) 3.8 NA NA NA -0.5 -0.4 NA -1.0	(RC SW 3.6	0.4 0.8 0.5 -2.0 -0.5 NA 0.8 -0.2	C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5 -1.0	(SW) 3.6	0.2 0.4 -2.0 -0.5 -1.0 NA	7 (TU) 3.2 NA NA NA NA -0.5 -0.2 1.8	3.2 0.4 0.6 -1.5 -0.5 -0.4 NA -1.2 -1.6	(FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0 -1.2 -1.6	(RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.4 -0.4 NA -1.5 -0.5 -0.4 NA -0.8

FD = Flexible Diaphragm LM = Light Metal

RC - Reinforced concrete RD = Rigid diaphragm

TU = Tilt Up
URM INF = Unreinforced masaonry infill

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Assembly Commercial Emer. Services	Govt Histori	c Re	fice esidential chool	0-10 101-1	000 🔲 1	1-100 Ro	A B ard Avg. ock Rock	C Dense Soil	D E Stiff Soft Soil Soil	Soil	Chin	Fallit einforced nneys	ng Ha		Cladding
									Final S						
Building Type	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)		S5 (URM INF		C2 (SW)	C3 (URM INF		PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score Mid Rise(4-7 stories)	5.2	4.8	3.6	3.6	3.8	3.6	3.6	3.0	3.6	3.2	3.2	3.2	3.6	3.4	3.4
	NA	NA	0.4	0.4	NA	0.4	0.4	0.2	0.4	0.2	NA	0.4	0.4	0.4	-0.4
High Rise(>7 stories)	NA	NA	1.4	1.4	NA	1.4	0.8	0.5	0.8	0.4	NA	0.6	NA	0.6	NA
Vertical Irregularity	-3.5	-3.0	-2.0	-2.0	NA NA	-2.0	-2.0	-2.0	-2.0	-2.0	NA NA	-1.5	-2.0	-1.5	-1.5
Plan irregularity	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Pre-Code	0.0	-0.2	-0.4	-0.4	-0.4	-0.4	-0.2	-1.0	-0.4	-1.0	-0.2	-0.4	-0.4	-0.4	-0.4
Post-Benchmark	1.6	1.6	1.4	1.4	NA	1.2	NA NA	1.2	1.6	NA	1.8	NA	2.0	1.8	NA NA
Soil Type C	-0.2	-0.8	-0.6	-0.8	-0.6	-0.8	-0.8	-0.6	-0.8	-0.6	-0.6	-0.6	-0.8	-0.6	-0.4
Soil Type D	-0.2	-1.2	✓ -1.0	-1.2	-1.0	-1.2	-1.2	-1.0		-1.0	-1.0	-1.2	-1.2	-1.2	-0.8
Soil Type E	-1.2		1.0	-1.6	-1.6	-1.6	-1.6	-1.6		-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Final Scores	-1.2	-1.0	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.6	-1.0	-1.0	-1.0	-1.0	-1.0
			0.0												
Comments:											Detaile Evaluati Require	on			
* = Estimated, subjecti DNK - Do Not Know	ve or unrelia	FI D	R = Braced D = Flexible iaphragm M = Light Me	RC RE	RF = Momer C - Reinforc D = Rigid dia	ed concret	е -	SW = Shea TU = Tilt Up JRM INF =		d masaonry	/ infill				l

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	O	ссира	ncy				5	Soil T	уре			Falli	ng Ha	zard	
Assembly	Govt	Of	fice	Numbe	r of Person		A B rd Avg.	C Dense	D E Stiff Soft	F Poor		inforced	Para	pets	Cladding
Commercial	Historic	c Re	esidential	0-10			ck Rock	Soil	Soil Soil	Soil	Other:	.,.			
Emer. Services	Industr	ial So	hool	101-10		1000+	C' and		in al C						
Building Type	W1	W2	\$1	asic So	sa sa	S4	ifiers,	C1	C2	C3	PC1	PC2	RM1	RM2	URM
Basic Score	5.2	4.8	(MRF) 3.6	(BR) 3.6	(LM) 3.8	(RC SW) 3.6	(URM INF) 3.6	(MRF) 3.0	(SW) 3.6	(URM INF 3.2	F) (TU) 3.2	3.2	(FD) 3.6	(RD) 3.4	3.4
Mid Rise(4-7 stories)	NA	NA NA	0.4	✓ 0.4	NA	0.4	0.4	0.2	0.4	0.2	NA	0.4	0.4	0.4	-0.4
High Rise(>7 stories)	NA NA	NA	1.4	1.4	NA	1.4	0.8	0.5	0.8	0.4	NA NA	0.6	NA NA	0.6	NA NA
Vertical Irregularity	-3.5	-3.0	-2.0	-2.0	NA	-2.0	-2.0	-2.0	-2.0	-2.0	NA NA	-1.5	-2.0	-1.5	-1.5
Plan irregularity	-0.5	-0.5	-0.5	 √ -0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Pre-Code	0.0	-0.2	-0.4	✓ -0.4	-0.4	-0.4	-0.2	-1.0	-0.4	-1.0	-0.2	-0.4	-0.4	-0.4	-0.4
Post-Benchmark	1.6	1.6	1.4	1.4	NA NA	1.2	NA NA	1.2	1.6	NA NA	1.8	NA NA	2.0	1.8	NA NA
Soil Type C	-0.2	-0.8	-0.6	-0.8	-0.6	-0.8	-0.8	-0.6	-0.8	-0.6	-0.6	-0.6	-0.8	-0.6	-0.4
Soil Type D	-0.8	-1.2	-1.0	-1.2	-1.0	-1.2	-1.2	-1.0	-1.2	-1.0	-1.0	-1.2	-1.2	-1.2	-0.8
Soil Type E	-1.2	-1.8	-1.6	✓ -1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6		-1.6	-1.6	-1.6	-1.6
Final Scores				1.5											
Comments:											Detaile Evaluati Require	on			

FD = Flexible Diaphragm LM = Light Metal

RC - Reinforced concrete RD = Rigid diaphragm

TU = Tilt Up
URM INF = Unreinforced masaonry infill

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Assembly Commercial	Govt Histori	c Re	ffice esidential chool	0-10		Ha	rd Avg.	Dense S	Stiff Sofi Soil Soil	t Poor I Soil		einforced nneys	V Para	pets 🗸	Cladding
Emer. Services	Indust	riai S		:- 6	ooroc	. Mod	· C*								
Emer. Services	Indust	riai 🔛 Sc						and F							
Building Type	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S5 (URM INF)	C1 (MRF)	C2 (SW)	C3 (URM INF	PC1) (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
	W1 5.2	W2 4.8	\$1 (MRF) 3.6	S2	\$3 (LM) 3.8	\$4 (RC SW) 3.6	S5 (URM INF) 3.6	C1 (MRF) 3.0	C2 (SW) 3.6	C3 (URM INF 3.2	PC1 (TU) 3.2	3.2	(FD) 3.6	(RD) 3.4	3.4
Building Type Basic Score	W1 5.2 NA	W2 4.8 NA	S1 (MRF)	S2 (BR)	\$3 (LM) 3.8 NA	\$4 (RC SW) 3.6	\$5 (URM INF) 3.6 0.4	C1 (MRF) 3.0	C2 (SW) 3.6	C3 (URM INF 3.2 0.2	PC1 (TU) 3.2 NA	3.2	(FD) 3.6 0.4	(RD) 3.4 0.4	3.4
Building Type Basic Score Mid Rise(4-7 stories)	W1 5.2 NA NA	W2 4.8 NA NA	S1 (MRF) 3.6 0.4	\$2 (BR) 3.6 0.4	\$3 (LM) 3.8 NA	S4 (RC SW) 3.6 0.4	S5 (URM INF) 3.6 0.4 0.8	C1 (MRF) 3.0 0.2	C2 (SW) 3.6 0.4	C3 (URM INF 3.2 0.2	PC1 (TU) 3.2 NA	3.2	3.6 0.4 NA	(RD) 3.4 0.4 0.6	3.4 -0.4 NA
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories)	W1 5.2 NA	W2 4.8 NA	\$1 (MRF) 3.6	S2 (BR)	\$3 (LM) 3.8 NA	S4 (RC SW) 3.6 0.4 1.4	\$5 (URM INF) 3.6 0.4	C1 (MRF) 3.0	C2 (SW) 3.6	C3 (URM INF 3.2 0.2	PC1 (TU) 3.2 NA	3.2	(FD) 3.6 0.4	(RD) 3.4 0.4	3.4
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity	W1 5.2 NA NA -3.5	W2 4.8 NA NA -3.0 -0.5	S1 (MRF) 3.6 0.4 1.4 -2.0	S2 (BR) 3.6 0.4 1.4 -2.0	S3 (LM) 3.8 NA NA NA -0.5	S4 (RC SW) 3.6 0.4 1.4 -2.0	S5 (URM INF) 3.6 0.4 0.8 -2.0	C1 (MRF) 3.0 0.2 0.5 -2.0	C2 (SW) 3.6 0.4 0.8 -2.0	C3 (URM INF 3.2 0.2 0.4 -2.0	PC1 (TU) 3.2 NA NA NA NA -0.5	3.2 0.4 0.6 -1.5	(FD) 3.6 0.4 NA -2.0	(RD) 3.4 0.4 0.6 -1.5	3.4 -0.4 NA -1.5 -0.5
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity	W1 5.2 NA NA -3.5	W2 4.8 NA NA	S1 (MRF) 3.6 0.4	\$2 (BR) 3.6 0.4	\$3 (LM) 3.8 NA	S4 (RC SW) 3.6 0.4 1.4	S5 (URM INF) 3.6 0.4 0.8	C1 (MRF) 3.0 0.2	C2 (SW) 3.6 0.4	C3 (URM INF 3.2 0.2	PC1 (TU) 3.2 NA	3.2	3.6 0.4 NA	(RD) 3.4 0.4 0.6	3.4 -0.4 NA
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2	\$1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4	S2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	\$3 (LM) 3.8 NA NA NA -0.5	\$4 (RC \$W) 3.6 0.4 1.4 -2.0 -0.5 -0.4	S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5 -1.0	C2 (SW) 3.6 0.4 0.8 -2.0 -0.5 -0.4 1.6	C3 (URM INF 3.2 0.2 0.4 -2.0 -0.5	PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	3.2 0.4 0.6 -1.5 -0.5	(FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0	(RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.4 -0.4 NA -1.5 -0.5 -0.4 NA
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	\$1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	\$2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	S3 (LM) 3.8 NA NA NA NA NA -0.5 -0.4 NA	\$4 (RC \$W) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2	\$5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5 -1.0 1.2	C2 (SW) 3.6 0.4 0.8 -2.0 -0.5 -0.4 1.6	C3 (URM INF 3.2 0.2 0.4 -2.0 -0.5 -1.0 NA	PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	(FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0	(RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.4 -0.4 NA -1.5 -0.4 NA -0.5 -0.4 NA
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.0	\$2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.2	S3 (LM) 3.8 NA NA NA -0.5 -0.4 NA -1.0	\$4 (RC \$W) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2	S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5 -1.0	C2 (SW) 3.6 0.4 0.8 -2.0 -0.5 -0.4 1.6	C3 (URM INF 3.2 0.2 0.4 -2.0 -0.5 -1.0 NA	PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8 -0.6 -1.0	3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	(FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0 -0.8 -1.2	(RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.4 -0.4 NA -1.5 -0.4 -0.5 -0.4 NA -0.8
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	\$1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	\$2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.2	S3 (LM) 3.8 NA NA NA NA NA -0.5 -0.4 NA	\$4 (RC \$W) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2	\$5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5 -1.0 1.2	C2 (SW) 3.6 0.4 0.8 -2.0 -0.5 -0.4 1.6	C3 (URM INF 3.2 0.2 0.4 -2.0 -0.5 -1.0 NA	PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	(FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0	(RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.4 -0.4 NA -1.5 -0.5 -0.4 NA -0.4 -0.8 -1.6
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.0	\$2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.2	S3 (LM) 3.8 NA NA NA -0.5 -0.4 NA -1.0	\$4 (RC \$W) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2	S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5 -1.0	C2 (SW) 3.6 0.4 0.8 -2.0 -0.5 -0.4 1.6	C3 (URM INF 3.2 0.2 0.4 -2.0 -0.5 -1.0 NA	PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8 -1.0 -1.6	3.2 0.4 0.6 -1.5 -0.5 -0.4 NA -0.6 -1.2 -1.6	(FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0 -0.8 -1.2	(RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.4 -0.4 NA -1.5 -0.4 -0.5 -0.4 NA -0.8
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.0	\$2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.2	S3 (LM) 3.8 NA NA NA -0.5 -0.4 NA -1.0	\$4 (RC \$W) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2	S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5 -1.0	C2 (SW) 3.6 0.4 0.8 -2.0 -0.5 -0.4 1.6	C3 (URM INF 3.2 0.2 0.4 -2.0 -0.5 -1.0 NA	PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8 -1.6 Detaile	3.2 0.4 0.6 -1.5 -0.5 -0.4 NA -0.6 -1.2 -1.6	(FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0 -0.8 -1.2	(RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.4 -0.4 NA -1.5 -0.5 -0.4 NA -0.4 -0.8 -1.6
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E Final Scores	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.0	\$2 (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.2	S3 (LM) 3.8 NA NA NA -0.5 -0.4 NA -1.0	\$4 (RC \$W) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2	S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	C1 (MRF) 3.0 0.2 0.5 -2.0 -0.5 -1.0	C2 (SW) 3.6 0.4 0.8 -2.0 -0.5 -0.4 1.6	C3 (URM INF 3.2 0.2 0.4 -2.0 -0.5 -1.0 NA	PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8 -1.6	3.2 0.4 0.6 -1.5 -0.5 -0.4 NA -0.6 -1.2 -1.6	(FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0 -0.8 -1.2	(RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.4 -0.4 NA -1.5 -0.5 -0.4 NA -0.4 -0.8 -1.6

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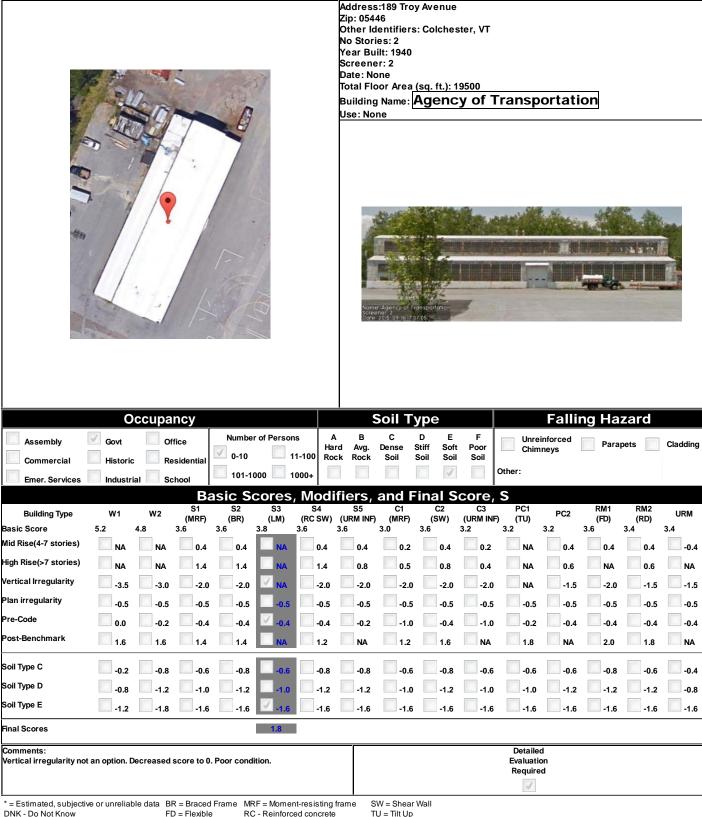
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Commercial	Historic		esidential	0-10		1-100 Ro			Stiff Soft Soil Soil			neys	Para	oets	Cladding
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							ifiers,								
Building Type	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)		S5 (URM INF)		C2 (SW)	C3 (URM INF		PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score Mid Rise(4-7 stories)	5.2	4.8	3.6	3.6	3.8	3.6		3.0	3.6	3.2	3.2	3.2	3.6	3.4	3.4
High Rise(>7 stories)	NA NA	NA NA	0.4	0.4	NA NA	0.4	0.4	0.2	0.4	0.2	NA NA	0.4	0.4	0.4	-0.4
Vertical Irregularity	NA NA	NA 0.0	1.4	1.4	NA NA	1.4	0.8	0.5	0.8	0.4	NA NA	0.6	NA O O	0.6	NA NA
Plan irregularity	-3.5	-3.0	-2.0	-2.0	NA OF	-2.0	-2.0	-2.0	-2.0	-2.0	NA OF	-1.5	-2.0	-1.5	-1.5
Pre-Code	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Post-Benchmark	0.0	-0.2	-0.4	-0.4	-0.4	-0.4	-0.2	-1.0	-0.4	-1.0	-0.2	-0.4	-0.4	-0.4	-0.4
	1.6	1.6	1.4	1.4	NA	1.2	NA NA	1.2	1.6	NA	1.8	NA	2.0	1.8	NA NA
Soil Type C	-0.2	-0.8	-0.6	-0.8	-0.6	-0.8	-0.8	-0.6	-0.8	-0.6	-0.6	-0.6	-0.8	-0.6	-0.4
Soil Type D	-0.8	-1.2	-1.0	-1.2	-1.0	-1.2	-1.2	-1.0	-1.2	-1.0	-1.0	-1.2	-1.2	-1.2	-0.8
Soil Type E	-1.2	-1.8	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
Final Scores															1.8
Comments:											Detaile Evaluati Require	on			

Diaphragm LM = Light Metal

RD = Rigid diaphragm

URM INF = Unreinforced masaonry infill

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FD = Flexible Diaphragm LM = Light Metal

RC - Reinforced concrete RD = Rigid diaphragm

TU = Tilt Up

URM INF = Unreinforced masaonry infill

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Address:1311 US Route 302 Zip: 05641 Other Identifiers: Barre, VT No Stories: 2 Year Built: 1970 Screener: 1 Date: None Total Floor Area (sq. ft.): 80000 Building Name: Division of Fire Safety Soil Type Occupancy **Falling Hazard** В С **Number of Persons** Govt Office Unreinforced Assembly Cladding Stiff Hard Dense Soft Poor Avg. 11-100 Rock Rock Emer. Services School C1 (MRF) S4 S5 (RC SW) (URM INF) **Building Type** (SW) (MRF) Basic Score Mid Rise(4-7 stories) 0.2 High Rise(>7 stories) Vertical Irregularity Plan irregularity -0.5 -0.5 -0.5 -0.5 Pre-Code Post-Benchmark Soil Type C Soil Type D -1.0 -1.2 -1.2 -1.2 -1.0 -1.0 -1.2 -1.0 Soil Type E Final Scores Comments: Detailed Evaluation Required * = Estimated, subjective or unreliable data BR = Braced Frame MRF = Moment-resisting frame SW = Shear Wall

DNK - Do Not Know

FD = Flexible Diaphragm LM = Light Metal MRF = Moment-resisting frame RC - Reinforced concrete RD = Rigid diaphragm

TU = Tilt Up

URM INF = Unreinforced masaonry infill

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							Zip: 0549 Other Id No Stori	95 entifiers	int Georg						
							Screene Date: No Total Flo	ilt: 1980 er: 2 one oor Area Name:	(<u>sq. ft.): 5</u> State	0000	e Barra	acks			
				7			Scr Da	eener 2 le 2015-0	Police B	WATER STREET	II.	- A			
	0	ccupa	ncy					Soil T	уре			Falli	ng Ha	zard	
Assembly	1.3			Nicona Ica	r of Person	s /	В	С	D E	- 1		inforced			
Commercial	Govt Historic		ffice esidential	0-10	1	1-100 Ha	rd Avg.	Dense \$	Stiff Soft Soil Soil	Soil	Chim	inforced ineys	Para	pets	Cladding
		R	esidential chool	0-10 101-10	000 1	1-100 Ha 000+	rd Avg. ck Rock	Dense S	Stiff Soft Soil Soil	Poor Soil	Chim		Para	pets	Cladding
Commercial Emer. Services	Historic	e Ro	esidential chool	0-10 101-10	000 1 cores	1-100 Ha Ro 000+ Modi	rd Avg. ck Rock	Dense Soil	Stiff Soft Soil Soil	Poor Soil Core,	Other:	ineys			
Commercial Emer. Services Building Type	Historic Industr	ial S	esidential chool S1 (MRF)	0-10 101-10 Sic So S2 (BR)	000 1 cores S3 (LM)	1-100 Ro 000+ Modi \$4 (RC SW)	rd Avg. ck Rock ifiers, s5 (URM INF)	Soil Sand F	Stiff Soft Soil Soil Column C2 (SW)	Poor Soil COPE, C3 (URM INF	Other: PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Commercial Emer. Services Building Type Basic Score	Historic Industr W1 5.2	e Rial Si	esidential chool S1 (MRF) 3.6	0-10 101-10 Sic Sc (BR) 3.6	000 1 cores	1-100 Ro 000+ S4 (RC SW)	rd Avg. ck Rock iffers, s5 (URM INF) 3.6	and F C1 (MRF)	Stiff Soft Soil Soil Final S C2 (SW) 3.6	COPE, C3 (URM INF	Chim Other: PC1) (TU) 3.2	PC2	RM1 (FD) 3.6	RM2 (RD) 3.4	URM
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories)	Historic Industr W1 5.2 NA	ial S	esidential chool S1 (MRF)	0-10 101-10 Sic So S2 (BR)	000 1 cores S3 (LM)	1-100 Ro 000+ Modi \$4 (RC SW)	rd Avg. ck Rock Filers, S5 (URM INF) 3.6	Soil Sand F	Stiff Soft Soil Soil Soil Soil Soil Soil Soil Soil	Poor Soil COPE, C3 (URM INF	Chim Other: PC1) (TU) 3.2 NA	PC2 3.2	RM1 (FD)	RM2 (RD)	URM 3.4
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories)	Historic Industr W1 5.2	e Reial Se	esidential chool S1 (MRF) 3.6	0-10 101-10 Sic Sc (BR) 3.6 0.4	000 1 cores S3 (LM)	1-100 Ro 000+ S4 (RC SW) 3.6 0.4	rd Avg. ck Rock S5 (URM INF) 3.6 0.4	and F C1 (MRF)	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPE, C3 (URM INF	Chim Other: S PC1) (TU) 3.2 NA NA	PC2	RM1 (FD) 3.6	RM2 (RD) 3.4	URM 3.4 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity	Historic Industr W1 5.2 NA NA -3.5	W2 4.8 NA NA -3.0	S1 (MRF) 3.6 0.4 1.4 -2.0	0-10 101-10 Sic So (BR) 3.6 0.4 1.4 -2.0	000 1 cores S3 (LM)	1-100 Ro 000+ S4 (RC SW) 3.6 0.4 1.4 -2.0	rd Avg. ck Rock iffiers, s5 (URM INF) 3.6 0.4 0.8 -2.0	Dense Soil : C1 (MRF) 3.0 0.2 0.5 -2.0	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	Poor Soil COPC, C3 (URM INF 3.2 0.2 0.4 -2.0	Chim Other: S PC1 (TU) 3.2 NA NA NA	PC2 3.2 0.4 0.6	RM1 (FD) 3.6 0.4 NA	RM2 (RD) 3.4 0.4 0.6	URM 3.4 -0.4 NA -1.5
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity	Historic Industr W1 5.2 NA NA	W2 4.8 NA NA	S1 (MRF) 3.6	0-10 101-10 Sic Sc (BR) 3.6 0.4	000 1 cores S3 (LM)	1-100 Ro 000+ S4 (RC SW) 3.6 0.4	rd Avg. ck Rock S5 (URM INF) 3.6 0.4	Dense Soil and F C1 (MRF) 3.0 0.2 0.5	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	COPE, C3 (URM INF 3.2 0.2 0.4	Chim Other: S PC1) (TU) 3.2 NA NA	PC2 3.2	RM1 (FD) 3.6	RM2 (RD) 3.4	URM 3.4 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code	Historic Industr W1 5.2 NA NA -3.5	W2 4.8 NA NA -3.0	S1 (MRF) 3.6 0.4 1.4 -2.0	0-10 101-10 Sic So (BR) 3.6 0.4 1.4 -2.0	10000 1 1 COTES S3 (LM) 3.8 NA NA	1-100 Ro 000+ S4 (RC SW) 3.6 0.4 1.4 -2.0	rd Avg. ck Rock iffiers, s5 (URM INF) 3.6 0.4 0.8 -2.0	Dense Soil : C1 (MRF) 3.0 0.2 0.5 -2.0	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	Poor Soil COPC, C3 (URM INF 3.2 0.2 0.4 -2.0	Chim Other: S PC1 (TU) 3.2 NA NA NA	PC2 3.2 0.4 0.6	RM1 (FD) 3.6 0.4 NA	RM2 (RD) 3.4 0.4 0.6	URM 3.4 -0.4 NA -1.5
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code	W1 5.2 NA NA -3.5 -0.5	W2 4.8 NA NA -0.5	Basidential chool Basidential chool S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5	0-10 101-10 Sic Sc (BR) 3.6 0.4 1.4 -2.0	1000 1 1 COICES S3 (LM) 3.8 NA NA NA NA	1-100 Ro 000+ MOCI S4 (RC SW) 3.6 0.4 1.4 -2.0 -0.5	rd Avg. ck Rock S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5	Dense Soil : 2	Setiff Soft Soil Soil Soil Soil Soil Soil Soil Soil	Poor Soil COIPC, C3 (URM INF 3.2 0.2 0.4 -2.0 -0.5	Chim Other: PC1 (TU) 3.2 NA NA NA -0.5	PC2 3.2 0.4 0.6 -1.5	RM1 (FD) 3.6 0.4 NA -2.0	RM2 (RD) 3.4 0.4 0.6 -1.5 -0.5	URM 3.4 -0.4 NA -1.5 -0.5
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -1.6	S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	0-10 101-10 101-10 Sic Sc (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	1000 1 1 SOLUTION 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1-100 Ha Ro 000+ Modi 34 (RC SW) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2	rd Avg. ck Rock Sfiers, S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	Dense Soil : and F C1 (MRF) 3.0 0.2 0.5 -2.0 1.2	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	Poor Soil C3 (URM INF 3.2 0.2 0.4 -2.0 NA	Chim Other: S PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	PC2 3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.4 -0.4 NA -1.5 -0.5 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	Basidential chool Basidential chool S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	0-10 101-	1000 1 1	1-100 Ro 000+ MOCI S4 (RC SW) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2	rd Avg. ck Rock Sf (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	Dense Soil : 2	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	Poor Soil COPE, C3 (URM INF 3.2 0.4 -2.0 -0.5 -1.0 NA	Chim Other: S PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	PC2 3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.4 -0.4 NA -1.5 -0.5 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -1.6	S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	0-10 101-10 101-10 Sic Sc (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4	1000 1 1 SOLUTION 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1-100 Ha Ro 000+ Modi 34 (RC SW) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2	rd Avg. ck Rock Sfiers, S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA	Dense Soil : and F C1 (MRF) 3.0 0.2 0.5 -2.0 1.2	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	Poor Soil C3 (URM INF 3.2 0.2 0.4 -2.0 NA	Chim Other: S PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	PC2 3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.6 0.4 NA -2.0 -0.5 -0.4 2.0	RM2 (RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.4 -0.4 NA -1.5 -0.5 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	Basidential chool Basidential chool S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.0	0-10 101-10 101-10 Sic Sc (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -0.8	1000 1 1	1-100 Ro 000+ Ha Ro 000+ S4 (RC SW) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8 -1.2 -1.6	rd Avg. ck Rock S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA -0.8	Dense Soil : 2	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	Poor Soil COFE, C3 (URM INF 3.2 0.2 0.4 -2.0 -0.5 -1.0 NA	Chim Other: S PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	PC2 3.2 0.4 0.6 -1.5 -0.5 -0.4 NA	RM1 (FD) 3.6 0.4 NA -2.0 -0.5 -0.4 -0.4 -1.2	RM2 (RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.4 -0.4 NA -1.5 -0.5 -0.4 NA -0.4 -0.8
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E Final Scores	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	Basidential chool Basidential chool S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.0	0-10 101-10 101-10 Sic Sc (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -0.8	1000 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1-100 Ro 000+ Ha Ro 000+ S4 (RC SW) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8 -1.2 -1.6	rd Avg. ck Rock S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA -0.8	Dense Soil : 2	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	Poor Soil COFE, C3 (URM INF 3.2 0.2 0.4 -2.0 -0.5 -1.0 NA	Chim Other: S PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8	PC2 3.2 0.4 0.6 -1.5 -0.5 -0.4 NA -1.2 -1.6	RM1 (FD) 3.6 0.4 NA -2.0 -0.5 -0.4 -0.4 -1.2	RM2 (RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.4 -0.4 NA -1.5 -0.5 -0.4 NA -0.4 -0.8
Commercial Emer. Services	W1 5.2 NA NA -3.5 -0.5 0.0 1.6	W2 4.8 NA NA -3.0 -0.5 -0.2 1.6	Basidential chool Basidential chool S1 (MRF) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.0	0-10 101-10 101-10 Sic Sc (BR) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.4 -0.8	1000 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1-100 Ro 000+ Ha Ro 000+ S4 (RC SW) 3.6 0.4 1.4 -2.0 -0.5 -0.4 1.2 -0.8 -1.2 -1.6	rd Avg. ck Rock S5 (URM INF) 3.6 0.4 0.8 -2.0 -0.5 -0.2 NA -0.8	Dense Soil : 2	Stiff Soil Soil Soil Soil Soil Soil Soil Soil	Poor Soil COFE, C3 (URM INF 3.2 0.2 0.4 -2.0 -0.5 -1.0 NA	Chim Other: S PC1 (TU) 3.2 NA NA NA -0.5 -0.2 1.8 -1.6	PC2 3.2 0.4 0.6 -1.5 -0.5 -0.4 NA -1.6	RM1 (FD) 3.6 0.4 NA -2.0 -0.5 -0.4 -0.4 -1.2	RM2 (RD) 3.4 0.4 0.6 -1.5 -0.5 -0.4 1.8	URM 3.4 -0.4 NA -1.5 -0.5 -0.4 NA -0.8

Diaphragm LM = Light Metal

RD = Rigid diaphragm

URM INF = Unreinforced masaonry infill

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Commercial	Histori	c Re	chool Ba	101-1 asic S	ooo 🗹 .	, Modi	fiers,	soil s	soil soil	soil Core,	Other:	illey3			
Commercial Emer. Services Building Type	Histori Industr	c Re	S1 (MRF)	101-1 asic S S2 (BR)	cores	, Modi s4 (RC sw)	fiers, S5 (URM INF)	Soil S and F C1 (MRF)	inal S	COTE,	Other: PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Commercial Emer. Services Building Type Basic Score	Histori Industr W1 5.7	c Refrial Sc	S1 (MRF)	101-1 asic S	cores s3 (LM) 4.0	, Modi s4 (RC SW) 3.9	fiers, s5 (URM INF) 3.9	and F C1 (MRF) 3.3	inal S C2 (SW)	COTE, C3 (URM INF	Other: PC1) (TU) 3.5	PC2	(FD) 3.9	(RD) 3.7	3.7
Emer. Services Building Type Basic Score Mid Rise(4-7 stories)	Histori Industr W1 5.7	C Recrial Scott	S1 (MRF)	101-1 asic S S2 (BR)	COPES S3 (LM) 4.0 NA	7, Modi S4 (RC SW) 3.9	fiers, s5 (URM INF) 3.9	Soil Sand F C1 (MRF) 3.3	inal S C2 (SW) 3.9	COTE, C3 (URM INF 3.5	Other: S PC1 (TU) 3.5 NA	PC2 3.5	(FD) 3.9 0.4	(RD) 3.7 0.4	3.7
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories)	W1 5.7 NA NA	C Refrial Sc	S1 (MRF) 3.8 0.4	101-1 2SIC S S2 (BR) 3.9 0.4	COPES S3 (LM) 4.0 NA	, Modi s4 (RC SW) 3.9	fiers, S5 (URM INF) 3.9 0.4	Soil Soil Soil Soil Soil Soil Soil Soil	Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 3.5 0.2	Other: S PC1 (TU) 3.5 NA NA	PC2 3.5 0.4 0.6	(FD) 3.9 0.4 NA	(RD) 3.7 0.4 0.6	3.7 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity	W1 5.7 NA NA -3.5	C Refrial Scott	S1 (MRF) 3.8 0.4 1.4 -2.0	101-1 ASIC S S2 (BR) 3.9 0.4 1.4 -2.0	COTES S3 (LM) 4.0 NA NA NA	, Modi S4 (RCSW) 3.9 0.4 1.4	fiers, 55 (URM INF) 3.9 0.4 0.8 -2.0	Soil Soil Soil Soil Soil Soil Soil Soil	Soil Soil Soil Soil Soil Soil Soil Soil	COTC, C3 (URM INF 3.5 0.2 0.4	Other: PC1 (TU) 3.5 NA NA NA	PC2 3.5 0.4 0.6	(FD) 3.9 0.4 NA -2.0	(RD) 3.7 0.4 0.6 -1.5	3.7 -0.4 NA -1.5
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity	Histori Industr W1 5.7 NA NA -3.5	C Refrial Scale Sc	S1 (MRF) 3.8 0.4 1.4 -2.0 -0.5	101-1 asic S S2 (BR) 3.9 0.4 1.4 -2.0	COPES S3 (LM) 4.0 NA NA NA NA -0.5	, Modi S4 (RC SW) 3.9 0.4 1.4 -2.0	fiers, \$5 (URM INF) 3.9 0.4 0.8 -2.0	Soil S 21 C1 (MRF) 3.3 0.2 0.5 -2.0 -2.5	Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 3.5 0.2 0.4 -2.0	Other: S PC1 (TU) 3.5 NA NA NA -0.5	PC2 3.5 0.4 0.6 -1.5	(FD) 3.9 0.4 NA -2.0 -0.5	(RD) 3.7 0.4 0.6 -1.5	3.7 -0.4 NA -1.5 -0.5
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code	W1 5.7 NA NA -3.5 -0.5	C Refrial Scott	S1 (MRF) 3.8 0.4 1.4 -2.0 -0.5 -0.4	101-1 asic S S2 (BR) 3.9 0.4 1.4 -2.0 -0.5	000 S S3 (LM) 4.0 NA NA NA NA -0.5	, Modi S4 (RC SW) 3.9 0.4 1.4 -2.0 -0.5	fiers, 55 (URM INF) 3.9 0.4 0.8 -2.0 -0.5	Soil S C1 (MRF) 3.3 0.2 0.5 -2.0 -1.0	Soil Soil Soil Soil Soil Soil Soil Soil	C3 (URM INF 3.5 0.2 0.4 -2.0 -0.5 -1.0	Other: S PC1) (TU) 3.5 NA NA NA -0.5	PC2 3.5 0.4 0.6 -1.5 -0.5	(FD) 3.9 0.4 NA -2.0 -0.5	(RD) 3.7 0.4 0.6 -1.5 -0.5	3.7 -0.4 NA -1.5 -0.5
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity	Histori Industr W1 5.7 NA NA -3.5	C Refrial Scale Sc	S1 (MRF) 3.8 0.4 1.4 -2.0 -0.5	101-1 asic S S2 (BR) 3.9 0.4 1.4 -2.0	COPES S3 (LM) 4.0 NA NA NA NA -0.5	, Modi S4 (RC SW) 3.9 0.4 1.4 -2.0	fiers, \$5 (URM INF) 3.9 0.4 0.8 -2.0	Soil S 21 C1 (MRF) 3.3 0.2 0.5 -2.0 -2.5	Soil Soil Soil Soil Soil Soil Soil Soil	COPC, C3 (URM INF 3.5 0.2 0.4 -2.0	Other: S PC1 (TU) 3.5 NA NA NA -0.5	PC2 3.5 0.4 0.6 -1.5	(FD) 3.9 0.4 NA -2.0 -0.5	(RD) 3.7 0.4 0.6 -1.5	3.7 -0.4 NA -1.5 -0.5
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code	W1 5.7 NA NA -3.5 -0.5	C Refrial Scott W2 5.1 NA NA -3.0 -0.5 -0.2	S1 (MRF) 3.8 0.4 1.4 -2.0 -0.5 -0.4	101-1 asic S S2 (BR) 3.9 0.4 1.4 -2.0 -0.5	000 S S3 (LM) 4.0 NA NA NA NA -0.5	, Modi S4 (RC SW) 3.9 0.4 1.4 -2.0 -0.5	fiers, 55 (URM INF) 3.9 0.4 0.8 -2.0 -0.5	Soil S C1 (MRF) 3.3 0.2 0.5 -2.0 -1.0	Soil Soil Soil Soil Soil Soil Soil Soil	C3 (URM INF 3.5 0.2 0.4 -2.0 -0.5 -1.0	Other: S PC1) (TU) 3.5 NA NA NA -0.5	PC2 3.5 0.4 0.6 -1.5 -0.5	(FD) 3.9 0.4 NA -2.0 -0.5 -0.4 2.0	(RD) 3.7 0.4 0.6 -1.5 -0.5	3.7 -0.4 NA -1.5 -0.5
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark	W1 5.7 NA NA -3.5 -0.5 0.0 1.6	C Refrial Scott W2 5.1 NA NA -3.0 -0.5 -0.2 1.6	S1 (MRF) 3.8 0.4 1.4 -2.0 -0.5 -0.4 1.4	101-1 asic S S2 (BR) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.4	000 S S S (LM) 4.0 NA NA NA -0.5 -0.4 NA	, Modi S4 (RC SW) 3.9 0.4 1.4 -2.0 -0.5	fiers, \$5 (URM INF) 3.9 0.4 0.8 -2.0 -0.5 NA	Soil S (MRF) 3.3 0.2 0.5 -2.0 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	COTE, C3 (URM INF 3.5 0.2 0.4 -2.0 -0.5	Other: S PC1) (TU) 3.5 NA NA NA -0.5 -0.2 1.8	PC2 3.5 0.4 0.6 -1.5 -0.5	(FD) 3.9 0.4 NA -2.0 -0.5 -0.4 2.0	(RD) 3.7 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.7 -0.4 NA -1.5 -0.5 -0.4 NA
Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C	W1 5.7 NA NA -3.5 -0.5 0.0 1.6	C Refrial Scott W2 5.1 NA NA -3.0 -0.5 -0.2 1.6	St (MRF) 3.8 0.4 1.4 -2.0 -0.5 -0.4 1.4	101-1 asic S S2 (BR) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.4 -0.8	COICS: S3 (LM) 4.0 NA NA NA -0.5 -0.4 NA	, Modi S4 (RC SW) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.2	fiers, S5 (USM INF) 3.9 0.4 0.8 -0.5 -0.2 NA	Soil S and F Cr (MRF) 3.3 0.2 0.5 -2.0 -0.5 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	COTE, C3 (URM INF 3.5 0.2 0.4 -2.0 -0.5 -1.0 NA	Other: S PC1) (TU) 3.5 NA NA NA -0.5 -0.2 1.8	PC2 3.5 0.4 0.6 -1.5 -0.5 -0.4 NA	(FD) 3.9 0.4 NA -2.0 -0.5 -0.4 2.0 -0.8 -1.2	(RD) 3.7 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.7 -0.4 NA -1.5 -0.5 -0.4 NA
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D	W1 5.7 NA NA -3.5 -0.5 0.0 1.6	C Refrial Scott W2 5.1 NA NA -3.0 -0.5 -0.2 1.6	S1 (MRF) 3.8 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.0	101-1 asic S S2 (BR) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.4 -0.8	COICS: S3 (LM) 4.0 NA NA NA -0.5 -0.4 NA -1.0	, Modi S4 (RC SW) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.2	fiers, S5 (USM INF) 3.9 0.4 0.8 -2.0 -0.5 -0.2 NA	Soil S (MRF) 3.3 0.2 0.5 -2.0 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	C3 (URM INF 3.5 0.2 0.4 -2.0 NA -0.6 -1.0	Other: S PC1 (TU) 3.5 NA NA NA -0.5 -0.2 1.8	PC2 3.5 0.4 0.6 -1.5 -0.5 -0.4 NA	(FD) 3.9 0.4 NA -2.0 -0.5 -0.4 2.0 -0.8 -1.2	(RD) 3.7 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.7 -0.4 NA -1.5 -0.5 -0.4 NA -0.4 -0.8
Commercial Emer. Services Building Type Basic Score Mid Rise(4-7 stories) High Rise(>7 stories) Vertical Irregularity Plan irregularity Pre-Code Post-Benchmark Soil Type C Soil Type D Soil Type E	W1 5.7 NA NA -3.5 -0.5 0.0 1.6	C Refrial Scott W2 5.1 NA NA -3.0 -0.5 -0.2 1.6	S1 (MRF) 3.8 0.4 1.4 -2.0 -0.5 -0.4 1.4 -1.0	101-1 asic S S2 (BR) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.4 -0.8	COICS: S3 (LM) 4.0 NA NA NA -0.5 -0.4 NA -1.0	, Modi \$4 (RC SW) 3.9 0.4 1.4 -2.0 -0.5 -0.4 1.2	fiers, S5 (USM INF) 3.9 0.4 0.8 -2.0 -0.5 -0.2 NA	Soil S (MRF) 3.3 0.2 0.5 -2.0 -1.0 1.2	Soil Soil Soil Soil Soil Soil Soil Soil	C3 (URM INF 3.5 0.2 0.4 -2.0 NA -0.6 -1.0	Other: S PC1 (TU) 3.5 NA NA NA -0.5 -0.2 1.8	PC2 3.5 0.4 0.6 -1.5 -0.5 -0.4 NA -1.6	(FD) 3.9 0.4 NA -2.0 -0.5 -0.4 2.0 -0.8 -1.2	(RD) 3.7 0.4 0.6 -1.5 -0.5 -0.4 1.8	3.7 -0.4 NA -1.5 -0.5 -0.4 NA -0.4 -0.8

Diaphragm LM = Light Metal

RD = Rigid diaphragm

URM INF = Unreinforced masaonry infill

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