SEISMIC VULNERABILITY ASSESSMENT OF RESIDENTIAL BUILDINGS AT DHAKA CITY, BANGLADESH USING FEMA 154

By

MD. ZAHANGIR ALAM

MD. AHAMMAD ALI

ARIFUL ISLAM

LITON MIA

A thesis submitted to the Department of Civil Engineering in partial fulfillment for the degree of Bachelor of Science in Civil Engineering

Department of Civil Engineering

Sonargaon University

147/I, Green Road, Dhaka-1215, Bangladesh

Section: (19A)

Summer-2023

SEISMIC VULNERABILITY ASSESSMENT OF RESIDENTIAL BUILDINGS AT DHAKA CITY, BANGLADESH USING FEMA 154

By

MD. ZAHANGIR ALAM (ID: BCE2001019221)

MD. AHAMMAD ALI (ID: BCE2001019158)

ARIFUL ISLAM (ID: BCE2001019222)

LITON MIA (ID: BCE2001019197)

Supervisor
MD. RAKIB HOSSAIN
Lecturer & Assistant Coordinator
Department of Civil Engineering
Sonargaon University

A thesis submitted to the Department of Civil Engineering in partial fulfillment for the degree of Bachelor of Science in Civil Engineering

Department of Civil Engineering

Sonargaon University

147/I, Green Road, Dhaka-1215, Bangladesh

Section:19A

Summer-2023

BOARD OF EXAMINERS

The Thesis Titled "**SEISMIC VULNERABILITY ASSESSMENT OF PRIVATE RESIDENTIAL BUILDINGS AT DHAKA CITY, BANGLADESH USING FEMA 154**"

Submitted by MD. ZAHANGIR ALAM (ID: BCE2001019221), MD. AHAMMAD ALI (ID: BCE2001019158), ARIFUL ISLAM (BCE2001019222) & LITON MIA (ID: BCE2001019197) have been accepted as satisfactory in partial fulfillment of the requirement for the degree of Bachelor of Science in Civil engineering on 16 September 2023.

……

1. Name of the Supervisor — Chairman

Md. Rakib Hossain
Lecturer & *Assistant* Coordinator
Department of Civil Engineering
Sonargaon University

……

2. Internal / External Member — Member

Thamid Mustafa
Assistant Professor
Department of Civil Engineering
Sonargaon University

……

3. Internal / External Member — Member

Saif Ahmed Santo
Lecturer & Coordinator
Department of Civil Engineering
Sonargaon University

DECLARATION

It is hereby declared that this thesis/project or any part of it has not been submitted elsewhere for the award of any degree or diploma.

STUDENT NAME	STUDENT ID.	SIGNATURE
MD. ZAHANGIR ALAM	ID: BCE2001019221	
MD. AHAMMAD ALI	ID: BCE2001019158	
ARIFUL ISLAM	ID: BCE2001019222	
LITON MIA	ID: BCE2001019197	

Dedicated

to

"OUR PARENTS"

ACKNOWLEDGEMENTS

First, we want to express our gratitude to ALLAH, through Whom all good deeds are accomplished and let us through all the difficulties.

We'd want to use this opportunity to express our heartfelt gratitude to our thesis advisor Md. Rakib Hossain, Lecturer & Assistant Coordinator, Department of Civil Engineering, Sonargaon University (SU), for his consistent encouragement and prompt responses throughout the research. His insightful advice and active supervision were invaluable during our research. Working under his assistance provided us the opportunity to learn and experience a wealth of knowledge in the respective field.

We would like to thank my family for supporting me spiritually throughout my life. Our sincere thanks also go to our friends for their constant support and understanding while undertaking the research.

Indebted to our thesis mates for the outstanding team companionship.

ABSTRACT

The seismic performance of private residential buildings is of high importance because of their exceptional occupancy and their significant role after any natural disaster. Bangladesh is highly vulnerable to earthquakes because of its proximity to the boundary of tectonic plates and fault lines. Dhaka is a major leading city and business capital of Bangladesh which is positioned in the south-eastern part of the country and falls in the moderate seismic zone according to Bangladesh building code (BNBC, 2015 draft) with a seismic zone coefficient of 0.28 g based on 2% probability in 50 years. In this city, most of the private residential buildings were built before the implementation of the seismic code. Therefore, it is necessary to investigate the seismic performance of existing buildings in private residential buildings in Dhaka City. In the present study, a structural record of existing private residential building buildings in the Dhaka City Corporation area has been developed. The seismic vulnerability of these buildings has been evaluated by using FEMA 154. The result of the study shows that a total 30 buildings of private residential buildings in Dhaka City Corporation are safe against probable earthquakes and 216 buildings require more specified analysis to evaluate the level of actual risk.

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1

INTRODUCTION

1.1 Background and Motivations

Bangladesh is one of the most seismically vulnerable countries in the world and continuously facing potential earthquake threats and damage (Alam et al, 2009). Earthquake is one of the most devastating natural hazards and in recent years it has become more frequent in Bangladesh. An earthquake of even medium magnitude on the Richter scale can produce a mass graveyard in major cities of the country because of rapid and unplanned urbanization with high population density and defiance of Building codes are also increasing the vulnerability against earthquakes. The earthquake risk of any place largely depends on its topography, population density, geology, building density construction quality, and finally the coping strategy of its people. Thus, to address these issues, vulnerability assessment against earthquakes is a unique approach.

1.2 Research Objectives and Overview

The Rapid Visual Screening has been thoroughly described in FEMA-154. This method is one of the quickest procedures to identify seismically vulnerable buildings without the use of any expensive detailed evaluation of any particular building. In Rapid Visual Screening a scoring system has been developed that enables the users to identify the primary lateral load resisting system of structure and the seismic performance of the structures. The observation of the building will take an average of 15 to 30 minutes. Moreover, the surveyors can categorize the buildings into two types using a cutoff score i.e., buildings safe against probable seismic events or buildings which are seismically hazardous.

The main objectives of this study are to develop a database of seismically vulnerable buildings in some parts of Dhaka city.

The specific objectives are

(i) to classify buildings depending on the structural form

(ii) to develop an inventory of existing buildings in the study area

(iii) to assess the seismic vulnerability of buildings by the Rapid Visual Screening (RVS) method.

1.3 Thesis Summary

The FEMA P-154 Report, Rapid Visual Screening of Buildings for Potential Seismic Hazards: A Handbook, is the first of a two-volume publication on recommended methodology for rapid visual screening of buildings for potential seismic hazards. The technical basis for the methodology, including the scoring system and its development, is contained in the companion volume, FEMA P-155 report, Rapid Visual Screening of Buildings for Potential Seismic Hazards: Supporting Documentation (FEMA, 2015). Both this document and the companion document are third editions of similar documents first published by FEMA in 1988 and updated in 2002. Once the decision to conduct rapid visual screening for a community or group of buildings has been made, the screening effort can be expedited by pre-field planning, including the training of screeners, and careful overall management of the process.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Bangladesh is a highly populated and developing country in the world. It is a naturally disaster-prone country and the most affected region due to global climate change over the last decades (Kreft et al., 2014). Recently, the country affected by numerous disasters such as floods, cyclones, landslides, earthquakes, droughts, etc. As a result, each year the country faces thousands of casualties and lots of economic losses. Moreover, the proximity of the country to the edge of two energetic plates, i.e., one of the Indian plate and another is the Eurasian plate causes more vulnerability to earthquakes. Though there has been no evidence of great earthquakes happening in these faults for several years, repeatedly occurring small to medium earthquakes in this region make us conscious of the occurrence of serious earthquakes in the future Dhaka is a major city, and business principal consists of numerous important lifeline structures. This region falls in the moderate seismic zone according to the Bangladesh National Building Code (BNBC, 2015 draft) with a seismic zone coefficient is 0.28g based on a 2% probability in 50 years. Dhaka has extended evidence of earthquakes. The serviceability of lifeline facilities is of high importance for emergency response after natural disasters, especially earthquakes. This lifeline facility 4th International Conference on Advances in Civil Engineering 2018 (ICACE 2018) 19 –21 December 2018 BUET, Dhaka, Bangladesh www.buet.ac.bd includes school buildings, private residential buildings, hospital, fire service station, electrical power station, road network, bridges, gas lines, etc. The s private residential buildings are the most important structures and serious human concern and their safety needs to be ensured first. Any kind of slight collapse of any component of those buildings will cause the loss of many lives. So, it is necessary to investigate the seismic performance of existing private residential buildings. Though, some of the researchers conducted research on the evaluation of the seismic vulnerability of important buildings in Dhaka city (Sarraz et al., 2015, Mazumder et al., 2018), none of them focused on private residential buildings. The present study has been carried out to evaluate seismic safety assessment of private residential buildings in Dhaka City Corporation. In this study, the main objective is to prepare a seismic vulnerability database of

private residential buildings in Dhaka city. The result of this present study can be used for further seismic risk mitigation plans.

2.2 Content

The primary advantages of the RVS method are speed and the ability to use screeners who are not necessarily structural engineers. The procedure in this Handbook has been designed to minimize ambiguity and limit the need for judgment by the screeners. As noted above, it fills a unique niche in the spectrum of available seismic evaluation tools, as other tools require greater effort, expertise, and cost. Because screening can be done quickly, large portfolios of buildings can be evaluated in a cost-effective manner. The method has also been used by many different people and jurisdictions throughout the United States for over 25 years. As a result, it has had a long track record of actual use and opportunities for scrutiny and improvement, including both the second and third edition updates.

2.3 Summary

While the principal purpose of the RVS procedure is to identify potentially seismically hazardous buildings needing further evaluation, results from RVS surveys can also be used for other purposes. These include: (1) evaluating a community's or agency's seismic retrofitting needs; (2) designing seismic hazard mitigation programs for a community or agency; (3) developing inventories of buildings for use in monitoring buildings for earthquake impacts or for facilitating earthquake damage and loss assessments; (4) planning post-earthquake building safety evaluation efforts; and (5) developing building-specific seismic vulnerability information for purposes such as insurance rating, decision making during building ownership transfers, and possible triggering of remodeling requirements during the permitting process.

CHAPTER 3

METHODOLOGY

3.1 Introduction

At present, a number of evaluation procedures are available to assess the safety level of a structure during an earthquake. Rapid visual screening (RVS) is one kind of procedure used to identify record and class building structures that are potentially seismically hazardous during earthquakes (FEMA 154, 2002). FEMA 154 RVS methodology is encapsulated in a one-page format that joins an explanation of a building structure. This method is planned to be applied without performing any structural computations. Fig. 2 shows the score modifier for the assessment of the vulnerability of building structures according to FEMA 154.

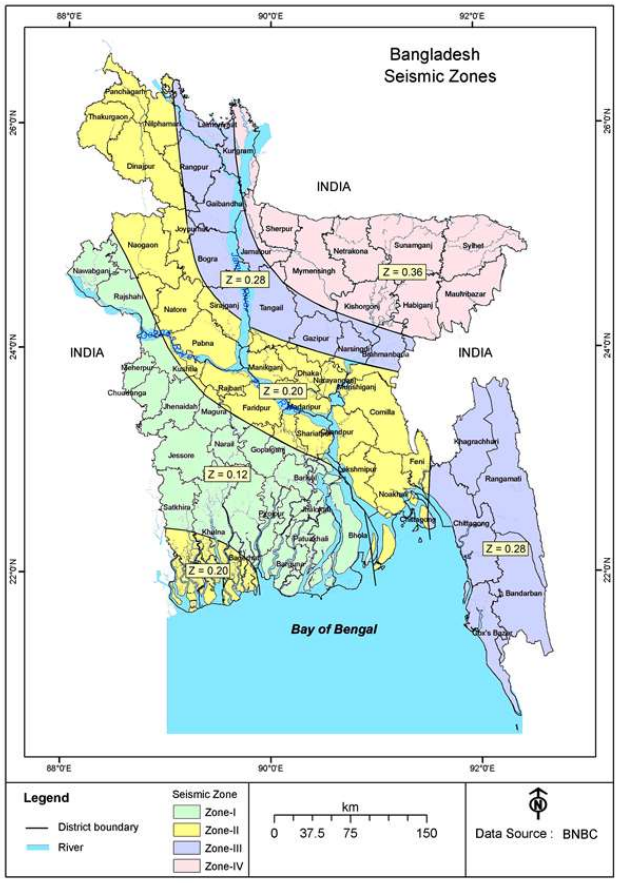


Figure. 3-1: Seismic zoning map of Bangladesh (BNBC, 2020 draft)

1.2 Methodology Overview

Rapid visual screening RVS method is based on a sidewalk survey from the street or inside a building in which a trained screener identifies the load-resisting system and captures some of the attributes that affect the seismic performance of a structure negatively or positively. These attributes include plan asymmetry, vertical irregularity, cracks, wall openings, building height, construction quality, etc. Nonlinear finite element analysis is the most accurate procedure to compute the seismic vulnerability of buildings of an area; however, it is not possible to analyze every building structurally to predict its seismic performance as it is technically complex, requires expertise in nonlinear modeling, computationally expensive, and time-consuming. To deal with a large stock of buildings, the RVS procedure, which does not require any structural calculations, provides a fast and effective alternative to assess seismic vulnerability. RVS has many applications in the fields of Disaster Management, Civil Engineering, and Urban Planning. The application of RVS in Disaster Management is that it gives an assessment of the vulnerability of the total building stock of an area and indicates a massive risk reduction.

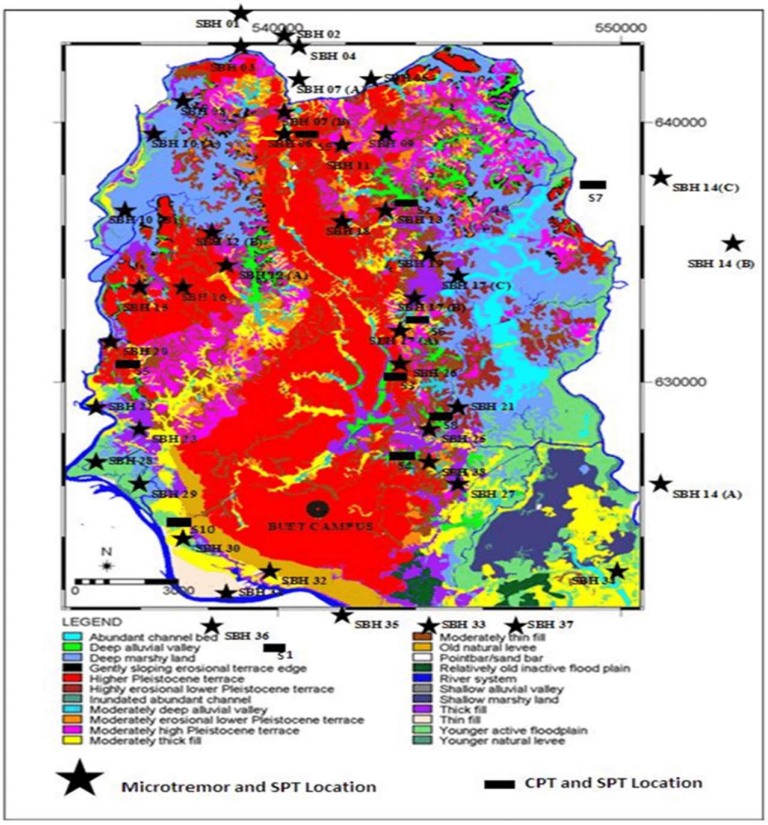


Figure. 3-2: Earthquake Risk Map in Dhaka City

Indicators of the RVS method affecting the seismic behavior of buildings Apart from the expected intensity of seismic hazard, seismic performance of buildings depends upon the lateral load resisting system, material type, plan symmetry, vertical regularity, soil condition, construction quality, cracks, wall openings, etc. Non-structural elements vulnerability can be observed during the RVS; however, it cannot be quantified in the calculation of the final structural score as it depends on a myriad number of factors. However, factors considered in the RVS procedure of FEMA P-154 are explained briefly below.

Table 3-1 Key Players in an RVS Program

Entity	Description	Examples	Qualifications	Responsibilities
RVS Authority	Entity that has decided to conduct an RVS program and will use the results.	State legislature, city council, school districts, and private building owners.	Has authority to conduct an RVS program.	Sets the goals and objectives of the program and describe how the results will be used. Chooses the Program Manager and the Supervising Engineer. Approves the plan developed by the Program Manager.
Program	Entity that will	Building department,	Knowledgeable about	Defines the scope of the program
Manager	Manage the RVS program on behalf of the RVS Authority.	qualified technical branch of government, an outside consultant.	RVS. Capable of managing the project.	and develops the budget. Oversees implementation of the screening program. Allocates screener resources to ensure efficient use of their time and minimize travel time. The program Manager likely

Entity	Description	Examples	Qualifications	Responsibilities
				has administrative staff to develop the record-keeping system, conduct the pre-field data collection, and perform data entry.
Supervising	Individual who will	Structural engineer	Structural engineer	Selects and modifies the Data
Engineer	provide the technical expertise necessary to run the RVS program.	be the Program Manager).	with a background in seismic evaluation and risk assessments. Understand RVS methodology and its technical basis as described in FEMA P- 155.	Collection Form. Determines the key seismic code adoption dates and benchmark years. Determines cut-off score (with RVS Authority and Program Manager). May train the screeners. Available for screeners to consult with during field screening. Review completed forms. Assists in interpreting the results of the program.
Level 1	Individual who will	Civil or structural	Receives appropriate	Performs Level 1 field screening.
Screener	conduct Level 1 screenings of buildings.	engineer, architect, design professional, building official, construction	FEMA P-154 training.	

Entity	Description	Examples	Qualifications	Responsibilities
		contractor, facility manager, firefighter, architectural or engineering student, or another individual with a general familiarity or background in building design or construction.		

If the RVS program will be used to help establish a hazardous building mitigation program for a community, then the information obtained in the RVS should be as complete as possible. This would benefit the RVS Authority in establishing the scope and need of such a mitigation program and will lend a high degree of confidence that decisions are based on the best.

3.2.1 Building type

The seismic performance of a building primarily depends on its lateral load-resisting type [44]. Buildings constructed from non-engineered and semi-engineered materials without any engineering input are highly vulnerable; however, buildings constructed from engineered materials also become vulnerable if met with severe plan and vertical irregularities. Based on construction types and building materials, seventeen types of buildings are selected in FEMA P-154 [42]. Construction types include both properly designed constructions according to codes and regulations and non-engineered construction without following specifications. Unconfined masonry structures are assigned low basic scores because of their high vulnerability.

3.2.2 Building height

The height of a building can influence its seismic performance. Generally speaking, low-height buildings are considered seismically less vulnerable [45]. Two types of height ranges are considered in this latest RVS procedure of FEMA: 1–3 stories and more than 3 stories; however, the modification score for building height is applicable only if a building is located on soil type E. Building height does not greatly influence seismic performance, and therefore its score modifier is applicable only to soft soil (type E).

3.2.3 Plan irregularity

Buildings having a symmetrical plan are considered to exhibit good seismic performance in earthquakes. Buildings having plan irregularity like L, U, and + shape sustained significant damages in past earthquakes. Irregularity in the plan adversely affects the seismic performance of a building [46]. Due to an adverse effect of plan irregularity on the seismic behavior of a building, its corresponding score modifier for all types of buildings is negative. Plan irregularity has a less adverse effect on seismic performance as compared to vertical irregularity and therefore has a lower score modifier than vertical irregularity for all types of building.

3.2.4 Vertical irregularity

A building is termed as vertically irregular if there is any physical discontinuity in vertical configuration or lateral load-resisting system. In commercial buildings, people use the ground floor for car parking with no masonry infill walls, thus producing a soft story effect. The same is the case in residential buildings, where people use the ground story for commercial purposes like shops. Vertical irregularity in 2- and 3-story buildings can exist due to vertical setbacks, short column effect, and soft story effect on the ground floor. Due to the adverse effects of vertical irregularity on the seismic performance of buildings, its corresponding score modifier for all types of buildings is negative. This modifier due to its significant adverse effect has assigned the highest negative score modifier in the calculation of the final structural score. vertical irregularity on seismic performance of buildings, its corresponding score modifier for all types of buildings is negative. This modifier due to its

significant adverse effect has assigned the highest negative score modifier in the calculation of the final structural score.

3.2.5 Building Construction Quality

Buildings having poor construction quality and workmanship exhibit poor seismic performance. Although judgment cannot be made about a building's construction quality, a trained observer can make an inference about the original quality of construction by looking at the present condition of the building cracks, damage, spalling of concrete, ground settlement, dampness, etc. This factor was included in FEMA 154 [49] but is removed in FEMA P-154 [42]

3.2.6 Soil condition

Underlying soil conditions in a particular area can amplify or dissipate the energy of seismic waves and can greatly influence the amplitude and duration of the shaking, affecting the seismic performance of structures significantly. Depending on soil type, its corresponding score modifier may be negative or positive. Soil types A and B do not amplify seismic wave's energy significantly and have therefore assigned a positive score modifier in the calculation of the final structural score.

Table: 3-2: Soil type

Soil type	Name	Shear wave velocity V_{s30} (Ft/s)
Hard rock	Type A	> 5000
Soft rock	Type B	$2500 < V_{s30} \leq 5000$
Dense soil	Type C	$1200 < V_{s30} \leq 2500$
Stiff soil	Type D	$600 < V_{s30} \leq 1200$
Soft soil	Type E	≤ 600
Poor soil	Type F	Requires specific evaluation

3.2.7 Post-benchmark

The year in which building code adoption in an area is made mandatory by authorities is termed the benchmark year. This modifier is applicable to buildings constructed after the benchmark year. However, in the case study area, the building code adoption is still not made mandatory by concerned authorities, so this modifier is applicable only if the owners have adopted the building code. The code-compliant structure exhibits good performance in earthquakes and therefore has positive score modifiers.

Buildings designed according to building codes are less vulnerable; therefore, the post-benchmark modifier is assigned a high positive score modifier.

3.2.8 Pre-code

In developing countries, there are still buildings that were constructed prior to the initial adoption and enforcement of seismic codes. Buildings constructed prior to seismic codes are expected to exhibit poor performance in earthquakes and therefore are highly vulnerable. If a building is constructed prior to the initial adoption of the building code for that particular FEMA building type, this modifier is applicable. This score modifier for all types of buildings is negative. A negative significant score is assigned to this modifier in the calculation of the final structural score.

3.3 Summary

This section presents some of the most important choices and describes the consequences of various decisions. Decisions generally vary based on the goals and objectives of individual programs and the resources available. If the RVS program is to be a public or community project, the local governing body and local building officials should formally approve the program plan and general procedure. Then, the public or the members of the community should be informed about the purpose of the screening process and how it will be carried out.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 General

Present study total of 30 buildings are analyzed to assess the seismic vulnerability by considering the rapid visual screening method of FEMA 154. There are mainly two types of structures that exist in the private residential buildings in Dhaka city, such as Unreinforced Masonry (URM) structures with rigid diaphragms and Concrete moment resisting frames (C1) structures with masonry infill. Fig. 4(a) represents the percentage of buildings according to Aftabnagar. Most residential buildings are high-rise; about 83% of buildings are 3 stories or less. Among the building stock, the highest building is five stories which is around 7%. Government primary school buildings can be categorized as a variety of three important phases of the development of the BNBC code. The study found that about 19% of buildings were built before the year 1993,51% were built from 1993 to 2006 and 30% were built after the year 2006. To assess the seismic vulnerability of primary school buildings in the CCC area, rapid visual screening of FEMA 154 is used. Information on every building structure is collected by walking around the building.

4.2 Study area

Dhaka City area covers 306.4 square kilometers and around 23,234 persons live per square kilometer. The survey areas of this research work are Aftabnagar and Banasree of Dhaka. A total of 20 and 10 residential buildings are located in Aftabnagar and Banasree respectively.

4.3 Description of observed case study buildings

Due to the poor economic conditions of the residents, houses made of mud bricks, mud, and straw are still in use. Adobe buildings have low earthquake resistance and have suffered severe damage in the past from earthquakes. Adobe buildings are still present in Dhaka, but are less in number as compared to other types of buildings which is a good sign as people nowadays prefer houses made of burnt bricks and engineering materials as compared to other locally available materials like block and stones believing that buildings made of bricks and cement performs well in

earthquakes. Masonry structures are not only common in Bangladesh, but all over the world. Both confined brick masonry and unconfined brick masonry (UCM) buildings are more abundant in numbers than other types of buildings. Building heights generally varied from one to three stories. Most of the masonry buildings have reinforced concrete slabs as floor and roof material; however, slabs are not properly tied to the walls in the case of UCM buildings. One common and important observation among all masonry buildings was the English bond, which is heartening to see as this bond is stronger than other bonds. Brick masonry walls have been found to be 9 inches thick usually. Properties of materials like the initial absorption rate of bricks and compressive strength of mortar are poor and are different from those in other parts of the world. Brick masonry buildings constructed with mud or poor cement mortar are highly vulnerable.

Figure. 4-1: Aftabnagar area, Dhaka city

Table 4-1: Scoring Matrix portion of the Level 1 Data Collection Form for High Seismicity.

BASIC SCORE, MODIFIERS, AND FINAL SCORE, S															
BUILDING TYPE	**W1**	**W2**	**S1 (MRF)**	**S2 (BR)**	**S3 (LM)**	**S4 (RCSW)**	**S5 (URMINF)**	**C1 (MRF)**	**C2 (SW)**	**C3 (URMINF)**	**PC1 (TU)**	**PC2**	**RM1 (FD)**	**RM2 (RD)**	**URM**
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S															

In Tier 1, a total 30 numbers of private residential buildings have been evaluated using the Rapid Visual Screening (RVS) method. Considering Dhaka City as a moderate seismic risk zone, the cutoff value is taken as 2. 0. Buildings having a cut-off value of less than 2.0, need to be evaluated further in the Tier-2 phase. The following Table 4.2 shows the RVS scores of different private residential buildings.

Table 4-2: Final scores of RVS

Number of buildings	**RVS Score**	**Detailed Evaluation Required**
01	2.8	Yes
02	3.3	Yes
03	4.0	Yes
04	3.4	Yes
04	3.2	Yes
05	4.5	Yes
06	3.7	Yes
07	3.2	Yes
08	4.0	Yes
09	0.7	NO
10	4.0	Yes
11	4.0	Yes
12	4.0	Yes
13	4.0	Yes

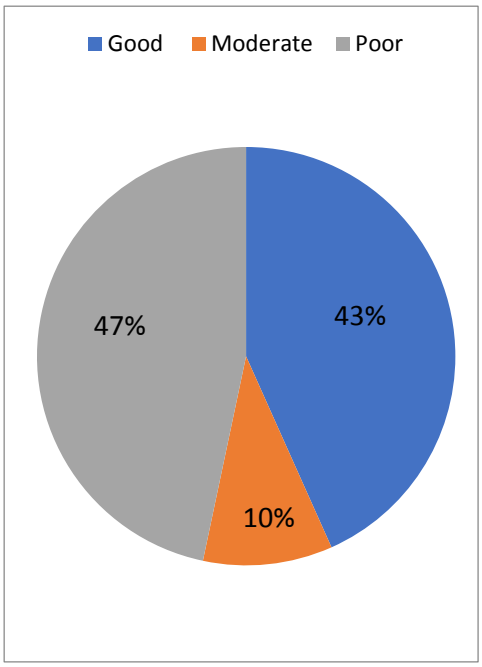
Number of buildings	RVS Score	Detailed Evaluation Required
14	4.5	Yes
15	4.0	Yes
16	4.0	Yes
17	4.5	Yes
18	1.1	NO
19	4.0	Yes
20	4.0	Yes
21	3.2	Yes
22	4.0	Yes
23	3.4	Yes
24	0.3	NO
25	3.2	Yes
26	3.4	Yes
27	3.2	Yes
28	3.4	Yes
29	3.2	Yes
30	3.9	Yes

Tier-2 evaluation has been conducted using FEMA-310 guidelines. FEMA-310 guideline basically focuses on features like soft story, geometry, mass & and torsional irregularity, etc. In the following Table 4.3, the summary of the deficiency of the individual has been shown.

Table 4-3: Summary of the deficiency exist

Name of the building	RVS Score	Detailed Evaluation Required
9	0.7	NO
18	1.1	NO
24	0.3	NO

There are many private residential buildings in the Dhaka City. In the present study total of 30 buildings are analyzed to assess the seismic vulnerability by considering the rapid visual screening method of FEMA 154. There are mainly two types of structures that exist in the buildings in Dhaka City, such as, Reinforced Concrete frame (C3) and Concrete moment resisting frames (C1). Fig. 4-2 represents the percentage of buildings according to area. Most buildings are high rise about 60% of buildings are 9 stories or up. Midrise building is about 33.33%, Among the lowest building is three stories which is around 6.67%. Residential buildings can be categorized as a variety of three important phases of the development of the BNBC code. The study found that about 3.33% of buildings were built before the year of 1993, 73.33% were built from 1993 to 2015 and 23.23% were built after the year of 2015. To assess the seismic vulnerability of private residential buildings in the Afternagar, Banasree area, rapid visual screening of FEMA 154 is used. Information on every building structure is collected by walking around the building.



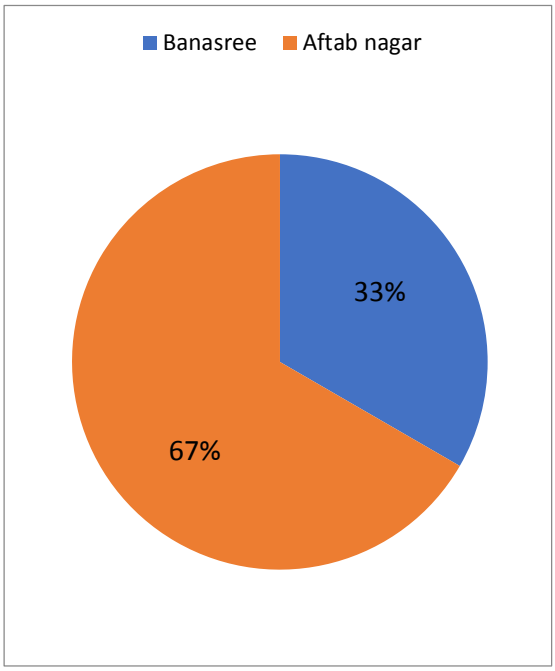


Figure. 4-2: Building quality

Figure. 4-3: Building area

Fig. 4-3 represents the existing physical visible condition of the buildings in percentile form. From the figure, it is found that about 47% of buildings are in poor condition and 10% and 43% of buildings are in moderate and good condition respectively.

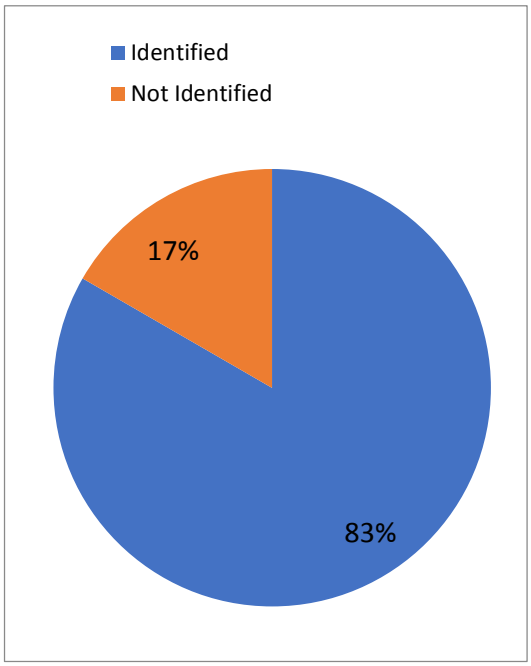


Figure. 4-4: Short column

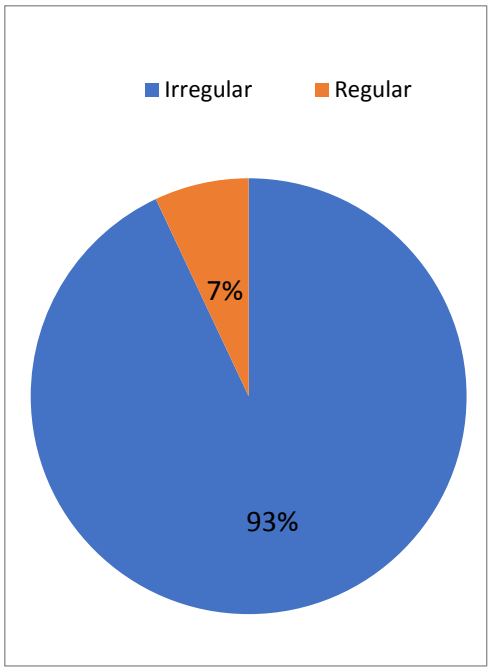


Figure. 4-5: Plan irregularities

Short columns carry shear force which is much higher than the shear carried by the lateral members. The short column can be described as the relation of the clear height of the column to the depth of the column and is less than 2. Fig. 4-4 represents the percentage of buildings having short column effects in the buildings in Dhaka city. It is observed that a total of 83% of buildings have a short column. Complex structural feature is another key parameter responsible for the poor seismic performance of residential buildings. These irregular features are identified among the studied buildings. A total of 25 buildings have no plan irregularity and 5 buildings have some irregularity, especially with the re-entrant corners. Fig. 4-5 shows the percentage of presence of plan irregularity in residential buildings. It is seen that a total of 7% of buildings are irregular in plan. Another type of irregular feature is vertical irregularity. Vertical irregularity is an important vulnerability factor attributed to buildings by adopting setbacks, soft stories, etc. The study found that a total of 2 buildings possess vertical irregularity which is around 26% (Fig. 4-6). The pounding effect of the building is considered due to the lack of enough space among the adjacent building structures which is a significant vulnerable factor during an earthquake. Fig. 4-7 shows that the pounding effect is identified among 15% buildings of residential buildings in Dhaka city.

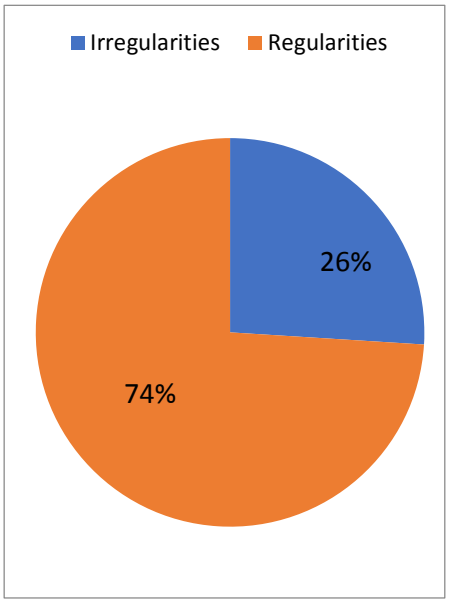


Figure. 4-6: Vertical irregularities

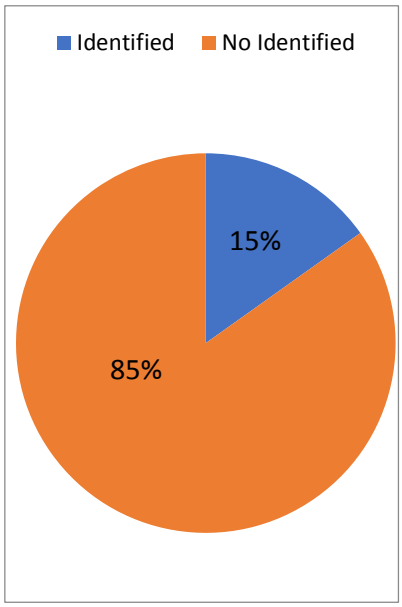


Figure. 4-7: Pounding adjacency

Non-structural masonry components of buildings such as parapets, chimneys, cladding, and other falling hazards are prone to fall in earthquakes. Parapet indicates any low wall along the roof of a building which is a defensive mini-wall made of bricks or other materials and ground shaking. Fig. 4-8, 4-9, and 4-10 show the percentage of the presence of falling hazards in the residential buildings in the studied area. It is seen that a total of 28 buildings contain parapets and 2 buildings constructed with other falling hazards which are around 83%, 28%, and 7% respectively

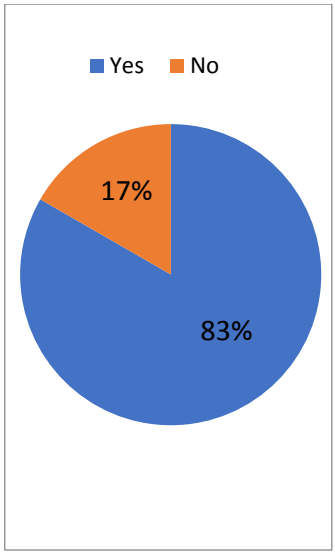


Figure. 4-8:
Falling hazards

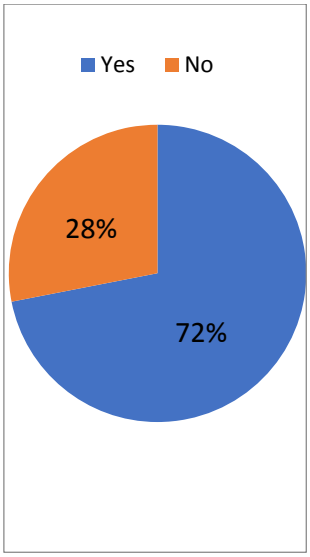


Figure. 4-9
Having parapets wall

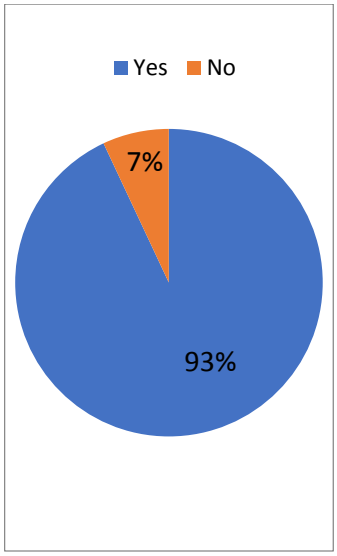


Figure. 4-10
Constructed building

In the present study, the cutoff value of the final structural score is considered as 2.0 which indicates that below this score seismically hazardous and detailed seismic evaluation of the building is required. This study summarized that a total of 30 buildings have scored below cut-off score and the remaining 27 buildings have passed the score. It can be concluded that about 90% of buildings required more detailed investigation to decide the level of actual seismic risk (Fig. 4-11).

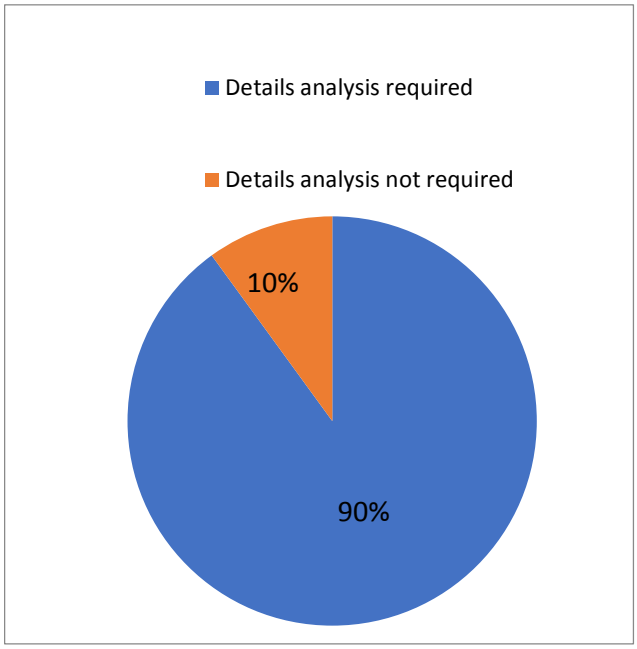


Figure. 4-11: Detailed Evaluation Required

4.4 Summary

In this study, vulnerability assessment of different use-type buildings was carried out using the latest FEMA methodology in an earthquake-prone Aftabnagar, Banasree in Dhaka city. No such studies were done in the past; despite being declared as a high-earthquake-risk area by BNBC of Bangladesh. Future possible damages are depicted as a function of damage grades of the European Macro Seismic Scale. Structural damage assessment and seismogenic losses in economic terms disclose that Dhaka city may suffer enormously in future earthquakes.

CHAPTER 5

CONCLUSIONS AND FUTURE WORKS

5.1 Conclusions

In this study total of 30 buildings are analyzed to assess the seismic vulnerability of the building. The final structural scores (S) of residential buildings are determined by applying rapid visual screening suggested by FEMA 154.

- The parameters contributing to the scoring system are mainly, the height, irregularities of the buildings, type of the soil underneath, Pre-Code, and Post-Benchmark.
- From the results it can be concluded that a total of 3 buildings (around 10%) of residential buildings in Dhaka City are unsafe against probable earthquakes.
- On the other hand, the other 27 buildings (around 90%) are comparatively safer and require further detailed analysis to determine further risk assessment.

These results are expected to be useful for administrative bodies who are going to conduct pre-disaster.

5.2 Limitations and Recommendations for Future Works

- A performance score is calculated for each building which indicates whether the building strength is adequate to withstand earthquake forces.
- Level 1 evaluation process has been done by FEMA-154 which has the combined description of a building, its layout, occupancy, and a rapid evaluation of seismic hazard related to structural elements.
- Accurate results dependent on the experience of screener thoroughness of pre-field activities.

- The study recommends that the concerned authorities must create awareness among people through various campaigns regarding safe construction practices, along with the strict implementation of building regulations in the area.
- As the vulnerability parameters exist at these three buildings, it can be said that 27 nos residential buildings require further detailed analysis to determine the actual seismic risk level.

REFERENCES

[1] Ansary, MA and Sadek, A. 2006. Assessment of the 2003 Dhaka Earthquake, Bangladesh.

[2] A GIS-based application for Dhaka, Bangladesh. Malaysian Journal of Civil Engineering 30(1): 97-112.

[3] A thesis of master's engineering in civil engineering, BUET, Bangladesh.

[4] Allen, E., 1985, *Fundamentals of Building Construction and Methods*, John Wiley and Sons, New York.

[5] ASCE, 2003, *Seismic Evaluation of Existing Buildings*, ASCE/SEI 31-03, American Society of Civil Engineers, Reston, Virginia.

[6] ASCE, 2007, *Seismic Evaluation and Retrofit of Existing Buildings,* ASCE/SEI 41-06, American Society of Civil Engineers, Reston, Virginia.

[7] ASCE, 2010, *Minimum Design Loads for Buildings and Other Structures*,

[8] ASCE/SEI 7-10, American Society of Civil Engineers, Reston, Virginia.

[9] ASCE, 2014, *Seismic Evaluation and Retrofit of Existing Buildings,* ASCE/SEI 41-13, American Society of Civil Engineers, Reston, Virginia, in press.

[10] ATC, 1987, *Evaluating the Seismic Resistance of Existing Buildings*, ATC-14, Applied Technology Council, Redwood City, California.

[11] ATC, 1992, *Procedures for Building Seismic Rehabilitation (Interim Report)*,

[12] ATC-26-4, Applied Technology Council, Redwood City, California.

[13] ATC, 2005, *Field Manual: Postearthquake Safety Evaluation of Buildings, Second Edition*, ATC-20-1, Applied Technology Council, Redwood City, California.

[14] ATC, 2010, *Here Today—Here Tomorrow: The Road to Earthquake Resilience in San Francisco: Post-Earthquake Repair and Retrofit,* ATC 52-4, prepared by the Applied Technology Council for the San Francisco Department of Building Inspection, Redwood City, California.

[15] BNBC, 1993. Bangladesh National Building Code.

[16] BNBC, 2015 (draft). Bangladesh National Building Code.

[17] CDMP, 2009. Seismic Hazard & Vulnerability Assessment of Dhaka, Chittagong & Sylhet City Corporation. Comprehensive Disaster Management Program. Bangladesh

[18] Dhaka city, Bangladesh. American Journal of Civil Engineering, 3(1), 1-8.

[19] DSA, 2011, "Design and construction requirements for relocatable buildings," California Division of State Architect Interpretation of Regulations 16-1, revised October 11.

[20] FEMA 154, 2002. A Handbook on Rapid Visual Screening of Buildings for Potential Seismic Hazards.

[21] Federal Emergency Management Agency, Washington DC, USA

GSHAP, 1992. World Seismic Map. Global Seismic Hazard Assessment Program.German Watch, 3-59.

[22] Mazumder, RK; Utsob, MTU and Bhuiyan, MAR. 2018. Seismic vulnerability assessment of medical facilities:

[23] Proceedings of 8th U.S. National Conference on Earthquake Engineering, San Francisco, USA.

[24] Kreft, S.; Eckstein, D.; Junghans, L.; Kerestan C. and Hagen U. 2014. Global Climate Risk Index 2015.Seismo.ethz.ch/GSHAP

[25] Jain, SK. 1998. Indian earthquakes: An overview. The Indian Concrete Journal, 72(11).

[26] Sabri, MSA. 2001. Earthquake intensity-attenuation relationship for Bangladesh and its surrounding region.

Appendix

Building no:- 01

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

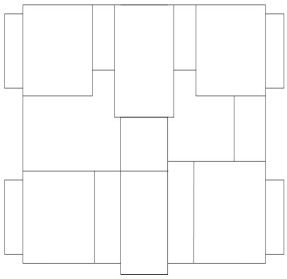
Address: Green Place, Bhuiya Bari, Merul Badda, Dhaka -1212

No. Stories: (G+9) Year Built: 2021

Screener :

Building Name: Green Place

Total Floor Area (sq. ft): 2880



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								2.8							

COMMENTS :

Detailed Evaluation Required

YES/NO

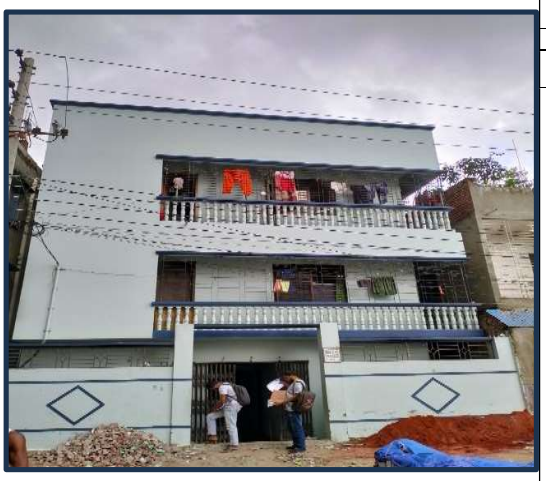
*=Estimated, subjective or unreliable data	BR= Braced Frame	MRF= Moment-resisting frame	SW= Shear wall
DNK = Do Not Know	FD= Flexible diaphragm	RC= Reinforced concrete	TU= Tilt up
	LM= Light metal	RD= Rigid diaphragm	URM INF= Un-reinforced masonry infill

Building no:- 02

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH



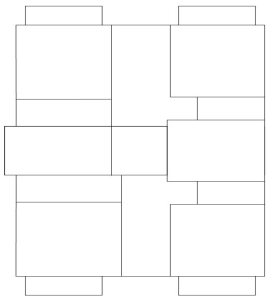
Address: Jannat Mention, Bhuiya Bari, Meru Badda, Dhaka-1212

No. Stories: 03 Year Built: 2010

Screener :

Building Name: Jannat Mention

Total Floor Area (sq. ft): 2550



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	**Stiff**	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	**Soil**	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								3.3							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data	BR= Braced Frame	MRF= Moment-resisting frame	SW= Shear wall
DNK = Do Not Know	FD= Flexible diaphragm	RC= Reinforced concrete	TU= Tilt up
	LM= Light metal	RD= Rigid diaphragm	URM INF= Un-reinforced masonry infill

Building no:-03

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

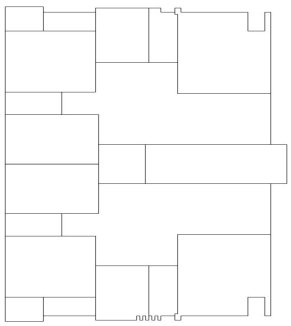
Address: Anando Vhabon, Bhuiya Bari More, Merul Badda, Dhaka-1212

No. Stories: (G+8) Year Built: 2010

Screener :

Building Name: Anando Vhabon

Total Floor Area (sq. ft): 2800



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	**Stiff**	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	**Soil**	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								4.0							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-04

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

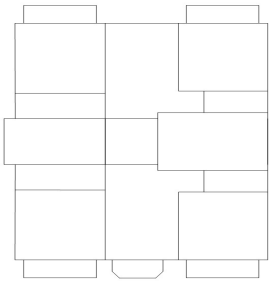
Address: Delowan Bhaban, Bhuiya Bari, Merul Badda, Dhaka -1212

No. Stories: (G+7) Year Built: 2015

Screener :

Building Name: Delowan Bhaban

Total Floor Area (sq. ft): 2900



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								3.4							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-05

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

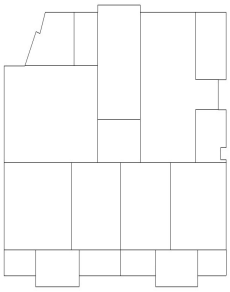
Address: Hoque Villa, Masjid Road, Aftabnogor, Merul Badda, Dhaka -1212

No. Stories: (G+5) Year Built: 2012

Screener :

Building Name: Hoque Villa

Total Floor Area (sq. ft): 3600



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								3.2							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-06

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

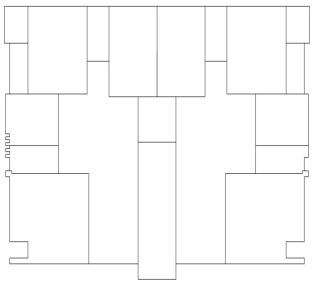
Address: Sargeant Tower, Bhuiya Bari, , Merul Badda, Dhaka -1212

No. Stories: (G+9) Year Built: 2014

Screener :

Building Name: Sargeant Tower

Total Floor Area (sq. ft): 7000



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								4.5							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-07

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

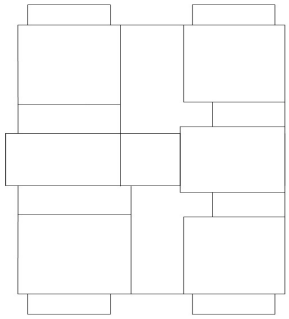
Address: Shapla-3, Bhuiya Bari More, Merul Badda, Dhaka -1212

No. Stories: (G+6) Year Built: 2015

Screener :

Building Name: Shapla-3

Total Floor Area (sq. ft): 2400



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								3.7							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:- 08

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

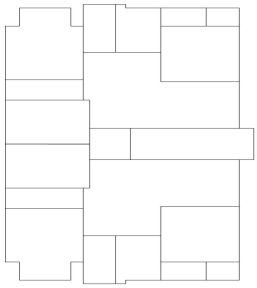
Address: Rafiq Mantion, Bhuya Bari, Merul Badda, Dhaka -1212

No. Stories: (G+5) Year Built: 2017

Screener :

Building Name: Rafiq Mantion

Total Floor Area (sq. ft): 1800



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								3.2							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data	BR= Braced Frame	MRF= Moment-resisting frame	SW= Shear wall
DNK = Do Not Know	FD= Flexible diaphragm	RC= Reinforced concrete	TU= Tilt up
	LM= Light metal	RD= Rigid diaphragm	URM INF= Un-reinforced masonry infill

Building no:- 09

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

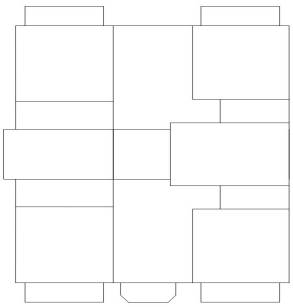
Address: Basar House, Bhuya Bari, Merul Badda, Dhaka -1212

No. Stories: 3 Year Built: 1990

Screener :

Building Name: Basar House

Total Floor Area (sq. ft): 2880



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								0.7							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-10

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

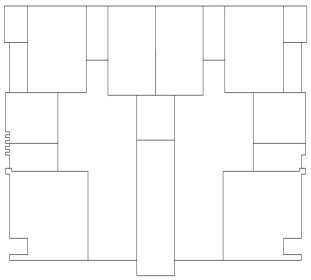
Address: Professons Complex, Bhuiya Bari, Merul Badda, Dhaka -1212

No. Stories: (G+8) Year Built: 2012

Screener :

Building Name: Professons Complex

Total Floor Area (sq. ft): 4800



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	**Hard**	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	**Rock**	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								4.0							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data	BR= Braced Frame	MRF= Moment-resisting frame	SW= Shear wall
DNK = Do Not Know	FD= Flexible diaphragm	RC= Reinforced concrete	TU= Tilt up
	LM= Light metal	RD= Rigid diaphragm	URM INF= Un-reinforced masonry infill

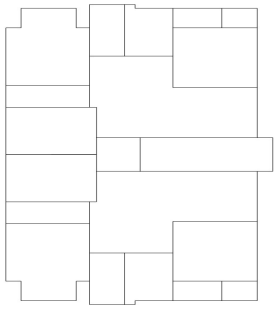
Building no:-11

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

Address: Dolon Chapa, Aftab Nagor, Dhaka -1212
No. Stories: (G+9) Year Built: 2003
Screener :
Building Name: Dolon Chapa
Total Floor Area (sq. ft): 5500



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	**Hard**	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	**Rock**	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								4.0							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-12

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

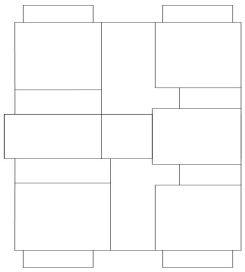
Address: Jannat Villa, Aftabnogor, Dhaka -1212

No. Stories: (G+8) Year Built: 2018

Screener :

Building Name: Jannat Villa

Total Floor Area (sq. ft): 2500



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	**Hard**	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	**Rock**	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								4.0							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-13

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

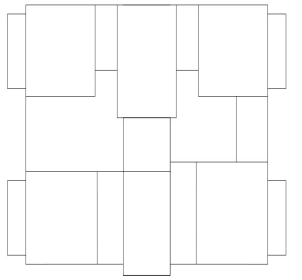
Address: Doyel onchid Garden, Aftabnogor, Dhaka -1212

No. Stories: (G+8) Year Built: 2014

Screener :

Building Name: Doyel onchid Garden

Total Floor Area (sq. ft): 2300



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	**Hard**	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	**Rock**	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	C1 (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								4.0							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-14

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

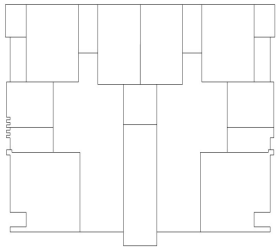
Address: Redion Bhwiya Kanon, Aftabnogor, Dhaka -1212

No. Stories: (G+9) Year Built: 2012

Screener :

Building Name: Redion Bhwiya Kanon

Total Floor Area (sq. ft): 3800



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	**Hard**	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	**Rock**	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	C1 (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								4.5							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data	BR= Braced Frame	MRF= Moment-resisting frame	SW= Shear wall
DNK = Do Not Know	FD= Flexible diaphragm	RC= Reinforced concrete	TU= Tilt up
	LM= Light metal	RD= Rigid diaphragm	URM INF= Un-reinforced masonry infill

Building no:-15

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

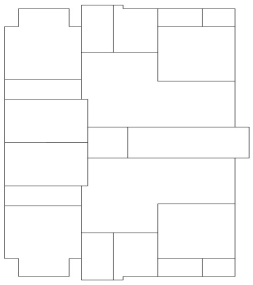
Address: Safiya Bhaban, Aftabnogor, Dhaka -1212

No. Stories: (G+8) Year Built: 2012

Screener :

Building Name: Safiya Bhaban

Total Floor Area (sq. ft): 3800



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	**Hard**	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	**Rock**	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								4.0							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-16

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

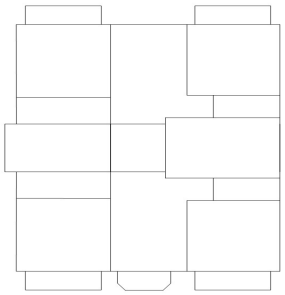
Address: Pinkey Villa, Aftabnogor, Dhaka -1212

No. Stories: (G+7) Year Built: 2010

Screener :

Building: Pinkey Villa, Bhaban

Total Floor Area (sq. ft): 2900



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	**Hard**	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	**Rock**	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	C1 (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								4.0							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data	BR= Braced Frame	MRF= Moment-resisting frame	SW= Shear wall
DNK = Do Not Know	FD= Flexible diaphragm	RC= Reinforced concrete	TU= Tilt up
	LM= Light metal	RD= Rigid diaphragm	URM INF= Un-reinforced masonry infill

Building no:-17

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

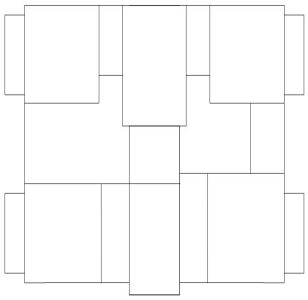
Address: Tamanna Mantion, Aftabnogor, Dhaka -1212

No. Stories: (G+7) Year Built: 2010

Screener :

Building: Tamanna Mantion

Total Floor Area (sq. ft): 2900



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	**Hard**	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	**Rock**	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	C1 (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								4.5							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-18

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

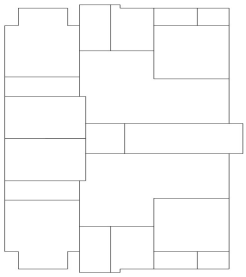
Address: Alamin Mantion, Bhuiya Bari, Merul Badda, Dhaka-1212

No. Stories: 06 Year Built: 2005

Screener :

Building Name: Alamin Mantion

Total Floor Area (sq. ft): 2400



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	C1 (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								1.1							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-19

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

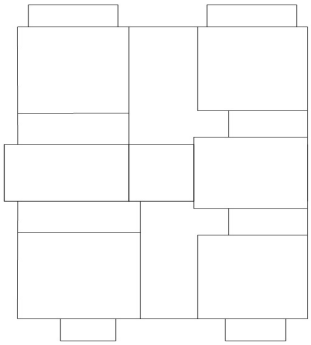
Address: Joshim Tower, Aftabnogor, Dhaka -1212

No. Stories: (G+6) Year Built: 2018

Screener :

Building: Joshim Tower

Total Floor Area (sq. ft): 2200



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	**Hard**	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	**Rock**	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								4.0							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data	BR= Braced Frame	MRF= Moment-resisting frame	SW= Shear wall
DNK = Do Not Know	FD= Flexible diaphragm	RC= Reinforced concrete	TU= Tilt up
	LM= Light metal	RD= Rigid diaphragm	URM INF= Un-reinforced masonry infill

Building no:-20

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

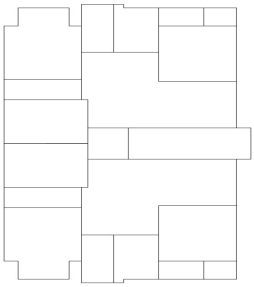
Address: Aftab Mantion, Aftabnogor, Dhaka -1212

No. Stories: (G+8) Year Built: 2018

Screener:

Building: Aftab Mantion

Total Floor Area (sq. ft): 4000



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	**Hard**	Avg.	Dense	Stiff	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	**Rock**	Rock	Soil	Soil	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								4.0							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-21

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

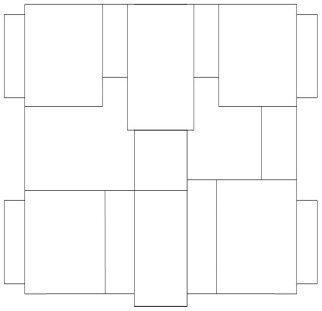
Address: Block-M, Road-12, Plot-5, Banasree, Dhaka.

No. Stories: 7 Year Built: 2015

Screener :

Building Name: Faizunnasa Vabon

Total Floor Area (sq. ft) : 2000



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	**Stiff**	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	**Soil**	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								3.2							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-22

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

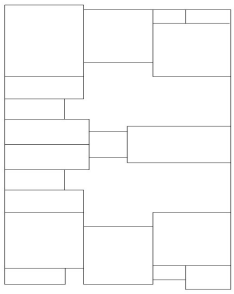
Address: Block-G, Road-1, Plot-58, Banasree, Dhaka.

No. Stories: 8 Year Built: 2015

Screener :

Building Name: Momin House

Total Floor Area (sq. ft) : 1800



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	**Stiff**	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	**Soil**	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								4.0							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-23

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

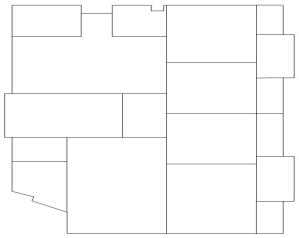
Address: Block-F, Road-2, Plot-34, Banasree, Dhaka.

No. Stories: 09 Year Built : 2022

Screener :

Building Name: Mollah House

Total Floor Area (sq. ft) : 1800



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	**Stiff**	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	**Soil**	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								3.4							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-24

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

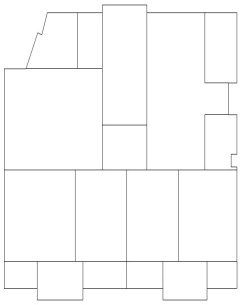
Address: Block-H, Road-1, Plot-1, Banasree, Dhaka.

No. Stories: 4 Year Built: 2008

Screener :

Building Name: Dhaka Ideal Nursing College

Total Floor Area (sq. ft) : 2300



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	**Stiff**	Soft	Poor	Unrein-forced	Parapets	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	**Soil**	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	C1 (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								0.3							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-25

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

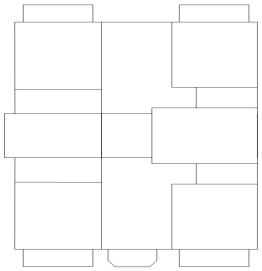
Address: Block-M, Road-13, Plot-23, Banasree, Dhaka.

No. Stories: 6 Year Built : 2010

Screener :

Building Name: Hamim House

Total Floor Area (sq. ft) : 2000



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	**Stiff**	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	**Soil**	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	C1 (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								3.2							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-26

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

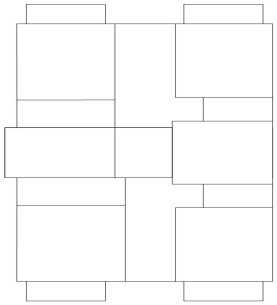
Address: Block-H, Road-01, Plot-11, Banasree, Dhaka.

No. Stories: 8 Year Built : 2019

Screener :

Building Name: Arma Asma Garden

Total Floor Area (sq. ft) : 1900



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	**Stiff**	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	**Soil**	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								3.4							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-27

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

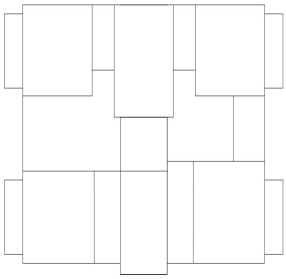
Address: Block-G, Road-1, Plot-54, Banasree, Dhaka.

No. Stories: 7 Year Built : 2019

Screener :

Building Name: Sofiq House

Total Floor Area (sq. ft) : 2000



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	**Stiff**	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	**Soil**	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	C1 (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								3.2							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-28

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

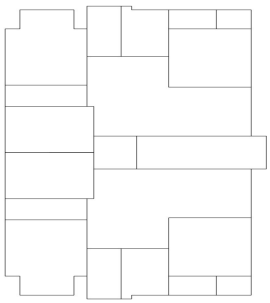
Address: Block-M, Road-8, Plot-25, Banasree, Dhaka.

No. Stories: 8 Year Built : 2020

Screener :

Building Name: Liton Devnath Vila

Total Floor Area (sq. ft) : 2100



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	**Stiff**	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	**Soil**	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								3.4							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data	BR= Braced Frame	MRF= Moment-resisting frame	SW= Shear wall
DNK = Do Not Know	FD= Flexible diaphragm	RC= Reinforced concrete	TU= Tilt up
	LM= Light metal	RD= Rigid diaphragm	URM INF= Un-reinforced masonry infill

Building no:-29

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

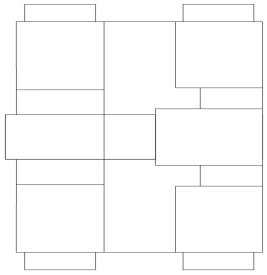
Address: Block-M, Road-8, Plot-35, Banasree, Dhaka.

No. Stories: 7 Year Built : 2012

Screener :

Building Name: G.M Mayer Achol

Total Floor Area (sq. ft) : 1900



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	**Stiff**	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	**Soil**	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	CI (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								3.2							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill

Building no:-30

Rapid Visual Screening of Buildings for Potential Seismic Hazards **HIGH Seismicity.**

FEMA-154 Data Collection Form:

PHOTOGRAPH

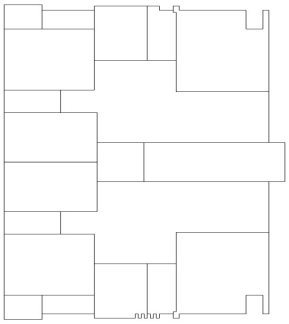
Address: Block-M, Road-6, Plot-11, Banasree, Dhaka.

No. Stories: 8 Year Built : 2019

Screener :

Building Name: Sakhawat Villa

Total Floor Area (sq. ft) : 1900



PLAN

OCCUPANCY			Number of Persons		SOIL TYPE						FALLING HAZARDS			
Assembly	Govt.	Office			A	B	C	D	E	F				
Commercial	Historic	**Residential**	0-10	**11-100**	Hard	Avg.	Dense	**Stiff**	Soft	Poor	Unrein-forced	**Parapets**	Cladding	Other
Emergency Service	Industrial	School	101-1000	1000+	Rock	Rock	Soil	**Soil**	Soil	Soil	Chimneys			

BUILDING TYPE	W1	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RCSW)	S5 (URMINF)	C1 (MRF)	C2 (SW)	C3 (URMINF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM
Basic Score	4.4	3.8	2.8	3.0	3.2	2.8	2.0	2.5	2.8	1.6	2.6	2.4	2.8	2.8	1.8
Mid Rise (4 to 7 Stories)	N/A	N/A	+0.2	+0.4	N/A	+0.4	+0.4	+0.4	+0.4	+0.2	N/A	+0.2	+0.4	+0.4	-0.4
High Rise (> 7 Stories)	N/A	N/A	+0.6	+0.8	N/A	+0.8	+0.8	+0.6	+0.8	+0.3	N/A	+0.4	N/A	+0.6	N/A
Vertical Irregularity	-2.5	-2.0	-1.0	-1.5	N/A	-1.0	-1.0	-1.5	-1.0	-1.0	N/A	-1.0	-1.0	-1.0	-1.0
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	-1.0	-1.0	-0.8	-0.6	-0.8	-0.2	-1.2	-1.0	-0.2	-0.8	-0.8	-1.0	-0.8	-0.2
Post Benchmark	+2.4	+2.4	+1.4	+1.4	N/A	+1.6	N/A	+1.4	+2.4	N/A	+2.4	N/A	+2.8	+2.6	N/A
Soil Type C	0.0	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Soil Type D	0.0	-0.8	0.6	-0.6	-0.6	-0.6	-0.4	-0.6	-0.6	-0.4	-0.6	-0.6	-0.6	-0.6	-0.6
Soil Type E	0.0	-0.8	-1.2	-1.2	-1.0	-1.2	-0.8	-1.2	-0.8	-0.8	-0.4	-1.2	-0.4	-0.6	-0.8
FINAL SCORE, S								3.9							

COMMENTS :

Detailed Evaluation Required

YES/NO

*=Estimated, subjective or unreliable data DNK = Do Not Know	BR= Braced Frame FD= Flexible diaphragm LM= Light metal	MRF= Moment-resisting frame RC= Reinforced concrete RD= Rigid diaphragm	SW= Shear wall TU= Tilt up URM INF= Un-reinforced masonry infill