

Budapest University of Technology and Economics Faculty of Civil Engineering

# Building vulnerability assessment of historic building in Budapest to define the stages of seismic fragility



- Student: Nino Tabatadze MSc student
- Supervisors:Dr. Vigh László Gergely,Associate Professor, Department of Structural Engineering

**Dr. Török Ákos**, Professor, Department of Engineering Geology and Geotechnics

Budapest, October 2019

# Table of contents

Abstract	3
1. Introduction	4
1.1 The aim of the study	4
1.2 Postulates of the methodology to solve the problem	4
1.3 Historic value and importance of the structure	5
2. Site Survey	7
2.1 Steps required to fulfil during the site survey for building vulnerability	7
assessment	7
2.2 Completed work during the site survey	7
3. Compilation of the building vulnerability assessment sheet	11
4. Estimation of mechanical parameters for masonry walls	19
5. Modification of the old drawings with new measurements	20
6. Calculated data of the volumes and the weights of the building and its structural elements	21
7. Design of 3D model and nonlinear static analysis in finite element software Sap2000	23
8. Modeling the Methodology for seismic fragility assessment of the existing building	30
8.1 Methods of seismic fragility assessment	
8.2 Determination of capacity (Force - displacement) curve	31
8.3 Definition of IDA (Incremental Dynamic Analysis) curve	32
8.4 Representation of seismic fragility and seismic hazard curves	
Conclusions	37
Acknowledgements	37
References	38

#### Abstract

The city centre of historic cities are densely populated and the inhabitants mostly live in historic buildings. Most of these buildings are made of brick or stone and their structure were designed following the traditional techniques without taking into account the seismic hazards. Accordingly, seismic risk assessment of such masonry structures is an important issue nowadays. This study focuses on the conception of methodology, which implies all the steps for fragility assessment of historic building. City center of Budapest was selected as a typical study area and investigation has been done for one of the historic building.

The research focuses on the building vulnerability assessment of one selected building. The study included in the first step the identification of the building archetype, construction technology and condition of the structure and structural elements. To obtain all these parameters, on site survey was made for the existing building, which also included the measurements of the building geometry and the structural components.

After gathering the information and the new measurements of the building, modifications were made for the old construction plans, which were obtained from archives. The volumes and the weights of the structural elements of the building were calculated.

The extracted data was used to create a numerical model of the building. Linear and non-linear analysis were made for the entire structure to find the capacity curve. According the capacity and fragility curve the seismic hazard was estimated.

Presented methodology is useful tool for the assessment of seismic hazard of historic buildings, not only in Budapest but at other parts of the world, too.

# 1. Introduction

Buildings are the most important structures when the earthquake occurs. From last 10 years earthquake events, such as the Japan earthquake (2011), the Chile earthquake (2010), the Afghanistan earthquake (2015) and the Nepal earthquake (2015), plenty of buildings were totally collapsed and a lot of them were demaged. Field surveys have shown that the buildings in a poor condition are main cause of human fatalities and property losses. Seismic fragility estimation for existing buildings has become significant issue, especially for last decades, when the frequency of disastrous earthquakes is increased.

Hungary is a country, where the Komárom and the Dunaharaszti earthquakes happened and more than thousand houses were totally collapsed. The buildings in the city centre of historic cities are made by brick masonry. Masonry walls have enough compressive resistance to transmit vertical forces without failure. However, their load bearing capacity against horizontal loads (wind, earthquake) and deformation capacity is low. With the introduction of the new European earthquake standard the design requirements of Eurocode 8 must be fulfilled [1]. Existing building was designed in 1907 year and it is obvious that seismic analyses was not made to estimate seismic fragility and seismic hazard.

Hence, the presented research is relevant and apposite. The case study represents building vulnerability assessment of selected historical (masonry) building in Budapest to estimate seismic fragility.

For shear wall structures, Hwang and Jaw (1990) recommends to show a simplified analythical method. Many researchers use different methodologies to develop fragility curves. These methodologies and the importance of the fragility curve are demonstrated in the research paper [2].

#### 1.1 The aim of the study

- Development of the concepts for building vulnerability assessment according to the site survey.
- Seismic Fragility assessment of historic building due to the building vulnerability estimation.
- The methodology of seismic fragility assessment of historic buildings to be usable for any part of the world. It finally reduces the human fatalities after the natural disasters and will be an economical benefit for the country, too.

#### 1.2 Postulates of the methodology to solve the problem

- Site survey for the existing building; Data collection, required for vulnerability assessment, for experimental and numerical model analysis of historical building;
- Compilation of the building vulnerability assessment sheet according to the site survey.
- Estimation of mechanical properties of the building materials;
- Procure old drawings of the selected building and renew by new measurements;
- Data calculation of the volumes and the weights of the building and its structural elements;
- Design of 3D model and nonlinear static analysis in finite element software Sap2000

• Modeling the methodology of seismic fragility assessment of the existing building;

Determination of capacity (Force - displacement) curve; Definition of IDA (Incremental Dynamic Analysis) curve; Representation of seismic fragility and seismic hazard curves.

#### 1.3 Historic value and importance of the structure

Research work was done for brick masonry historic building, located in the heart of the Budapest, on Bartok Bela street 10/12 (Fig. 1,2,3). The front facade of the existing building overlooks the Bartok Bela street, the back facade – Budafoki street, right side facade from Bartok Bela street is located on Csiki street and from left side facade has a border with adjacent building.

The place was perfectly selected. Almost all the Hungarian traditional Buildings , located in the city center are dated in XX century and represents the face of the city. Therefore to protect the historic buildings against the unpredictable earthquake events, has a vital role for the Country.



Figure 1. Existing building photo from google map



Figure 2. Existing building location from google map



Figure 3. Selected structure top view with adjacent buildings

## 2. Site Survey

#### 2.1 Steps required to fulfil during the site survey for building vulnerability

#### assessment

- Visual investigation of the building vulnerability;
- Photos have to be taken for both throughout the building and its individual elements; For any special details and damaged structural elements;
- Sketches of the building with it's geometrical measurements, which includes: the height of the storeys, openings; Dimensions of the courtyard, cellar, walls, staircase, balconies, roof; Thickness of the slab, beam and any of significant structural elements;
- Identification of building archetype;
- Define the age, importance and usage of the structure;
- Estimation of construction configuration and construction technology;
- Define the condition of the structure and structural elements;

#### 2.2 Completed work during the site survey

Existing structure is residential building, located in the city center. It was built in 1907. Shape of the structure is rectangular and has vertical irregularity. 5-6 storey building (with additional cellar) is surrounded by courtyard and inner round balconies for each floor (Fig. 4. a,b). Northern and eastern part of the building has 5 storeys, with additional cellar and loft construction (Fig. 5), while the South and western part has 6 storeys with cellar and on the top with flat roof.



Figure 4. a,b Exterior photos of the selected building



Figure 5. loft construction

Site visit had begun by visual check of the cellar and the photos were taken throughout the whole building and its individual structural elements. The major part of the cellar is located under the ground level. Its interior part has 3.5m as total height (Fig. 5). Main load-bearing wall thickness of underground level is 0.95m, meanwhile some of them has 0.5m thickness. The material, used for the wall is brick masonry.

The cellar is represented as corridor system structure (Fig. 6.a) with small, separated rooms from left and right hand side. Brick arches are used as a slab (Fig. 6.b). Inside part of the cellar is dry and there is no water seepage.

There was no possibility to verify the type of the foundation by visual investigation.



Figure 6. a,b Cellar

The structure has two brick masonry cores with main staircase with elevator (Fig. 7.a,b) and secondary staircase, made by stone. Last floor staircase is not in a good condition and requires more detailed investigation. There is an elevator in the corner of south eastern part.



Figure 7.a,b Internal Staircase

Ground level is highest level of the building with height of 5.15m, but the floor construction is installed on 1.38 m above from the ground with narrow balconies around the building, surfaced by stone material. The entrances, located on the balcony are connected to the ground by separate, external stone staircases. Some of the upper level balconies have material loss from the bottom part (Fig. 8a,b). Main load bearing brick masonry wall has 0.85m thickness and on the same level 0.5m and 0.4m load bearing and 0.3m secondary walls are represented. Walls around the courtyard have a lot of openings, which is the considerable part for seismic analysis.

The height of the first floor is 4.14m and the above level height - 4.16m. Typical level height is 4m. Only the last storey height is around 3.5m. Wall thicknesses varies from 0.65m to 0.3m.



Figure 8.a,b Material loss, illustrated on the bottom part of the balconies

During the survey, Schmidt hammer was used to check the type of the material of structural elements and in case of concrete segments to define the quality of material.

The crackes discovered in the walls and in the other part of the structural elements are not significantly valuable.

Steel beams with 20cm in height are represented on the edges of the floor and balcony slabs.

The building has seven individual balconies from the front facade from Bartok Bela street, but it could not be available to check.

Due to the Komárom earthquake (1763) it is obvious that the roof part of the buildings are very important and sensitive part during the earthquake event. Houses with displaced roofs and overturned gables are illustrated in the literature [3].

The existing building has two type of the roof construction. From southern side it is an open gable and from western side a shed roof is presented. Major part of the loft construction consists of timber beams, columns and rafters (Fig. 9.a,b,c). Maximum height of the roof is around 6.5-6.7m from the bottom. Some of the walls are continuing until the top of the roof. There are several chimney constructions, too.



Figure 9.a,b,c Loft constructions

Visual investigation of the loft constructions shows that the materials (Fig. 9.a,b,c) are relatively new, in good condition.

Quality and the condition of the whole building might be rated as moderate.

### 3. Compilation of the building vulnerability assessment sheet

After the searching of Hungarian building vulnerability assessment form, It was revealed that the form does not exist in Hungary. Based on the above mentioned problem for new Hungarian building vulnerability assessment sheet formation, Indian [4] and American [5] forms were selected as a sample. All the items were discussed and modified according to the specifics of Hungarian buildings and its individual characteristics.

To become the process obvious, American (Fig. 10) and Indian forms (Fig. 11 and Fig. 12) are illustrated on this research paper.

|  
   
  |  | Ad  
   
   | idress:   | 7in   
   | p:  
  | FEMA P-18<br>Octional Level 2   | 54 Data Col<br>data collector to   
   | lection Form   | ucturel engineering professional with   | tect, or graduate student with her  | MODERA<br>karound in seismic even  
   | TE Seis  |
---
--|--
--
--
---|---|---
--
--	---	--
--	--	
   
  |  | 04  
   
   | her Identifiers:  | 2   
   | -   
  | Bidg Name:  |  
   | y = 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1  | Final Level 1 Score   | Sci =   |  
   | (do not cons   |
|  
   
  |  | Bu  
   
   | uilding Name:<br>se:  |   
   |   
  | Screener:<br>Date/Time:   |  
   |  | Level 1 Irregularity Modifiers<br>ADJUSTED BASELINE SCORE   | : Vertical Integularity, $V_{L1}$<br>: $S' = (S_{L1} - V_{L1} - P_{L1})$  | - Plan Im  
   | gularity, PL+  |
|  
   
  |  | La  
   
   | titude:   | Longitude:  
   |   
  | STRUCTUR  | AL MODIFIE   
   | RS TO ADD TO ADJU  | STED BASELINE SCORE   |   |  
   |  |
|  
   
  | PHOTOGRAPH   | Sa  
   
   | reener(s):  | Si:<br>Date/Time:   
   |   
  | Topic<br>Vertical   | Statement (<br>Sloping   
   | If statement is true, aircle the<br>W1 building: There is at le  | e 'Yes' modifier; otherwise cross or<br>aet a full story grade change from r  | t the modifier.)<br>ne side of the building to the ot   | er.  
   | Yes 8<br>-1.4  |
|  
   
  |  | No  
   
   | . Stories: Above  | Grade: Below Grade:   
   | Year Built: 🛛 🖙   
  | Irregularity, V <sub>12</sub>   | Site<br>Weak   
   | Non-W1 building: There is<br>W1 building cripple walt /  | at least a full story grade change f<br>An unbraced cripple wall is visible in  | om one side of the building to t<br>the crawl space.  | e ofter.   
   | -0.4   |
|  
   
  |  | Ad  
   
   | Iditions: 🗌 Nor   | nt.):<br>ne 🔲 Yes, Yesr(s) Bullt:   
   | Code Year:  
  |   | and/or<br>Soft Story   
   | W1 house over garage: U<br>and there is less than 8' of  | nderneath an occupied story, there<br>f wall on the same line (for multiple   | is a garage opening without a s<br>occupied floors above, use 16 o  | eel moment frame,<br>f wall minimum).  
   | -1.4   |
|  
   
  |  | Oc  
   
   | soupancy: Assen   | nbly Commercial Erner, Bervices<br>Hel Office School  
   | Historic Sheter Government  
  |   | (circle one<br>meximum)  
   | W1A building open front<br>length of the building.   | There are openings at the ground s  | lory (such as for parking) over a   | t least 50% of the   
   | -1.4   |
|  
   
  |  |   
   
   | Utility   | Warehouse Residential, # Units  
   | s   
  |   |  
   | Non-W1 building: Length<br>story is more than 2.0 time   | of lateral system at any story is les<br>as the height of the story above.  | than 50% of that at story abov  | e or height of any   
   | -1.1   |
|  
   
  |  | S0  
   
   | ail Type: 🛛 A<br>Hard   | Avg Dense Stiff Bott Poo  
   | F DNK<br>M // DNK, essume Type D.   
  |   |  
   | Non-W1 building: Length<br>of any story is between 1.3   | of lateral system at any story is bet<br>3 and 2.0 times the height of the st   | ween 50% and 75% of that at st<br>ry above.   | ory above or height  
   | -0.6   |
|  
   
  |  | Ge  
   
   | Rock<br>eologic Hazards: Li   | Rock Soll Soll Soll Sol<br>Iquefaction: Yes/No/DNK Landside: Yes/N  
   | 4<br>IoDNK Buf, Rupt: Yes/NoDNK   
  |   | Setback  
   | Vertical elements of the la<br>diaphragm to cantilever at  | teral system at an upper story are of the offset.   | utboard of those at the story be  | low causing the  
   | -1.2   |
|  
   
  |  | Ad  
   
   | djacency:   | Pounding Failing Hazards from   
   | n Teler Adjacent Building   
  |   |  
   | Vertical elements of the la<br>There is an in-plane offset   | teral system at upper stories are in<br>t of the lateral elements that is grea  | coard of those at lower stories.<br>er than the length of the elemer  | ь.   
   | -0.6   |
|  
   
  |  | Im  
   
   | egularities:  | Vertical (type/seventy) Plan (type)   
   |   
  |   | Short<br>Column/   
   | C1,C2,C3,PC1,PC2,RM1,<br>heightidepth ratios less th   | RM2: At least 20% of columns (or p<br>on 50% of the nominal height/depth  | iers) along a column line in the<br>ratio at that level.  | ateral system have   
   | -0.5   |
|  
   
  |  | Ex  
   
   | terior Falling  | Unbraced Chimneys Heavy   
   | y Cledding or Heavy Veneer  
  |   | Pier   
   | C1,C2,C3,PC1,PC2,RM1,<br>spandrel, or there are infil  | RM2: The column depth (or pier wi<br>walls or adjacent foors that shorte  | ith) is less than one half of the o<br>the column.  | lepth of the   
   | -0.5   |
|  
   
  |  |   
   
   | 22005:  | Other:  
   | nonges  
  |   | Split Level<br>Other   
   | There is a split level at one<br>There is another observab   | e of the floor levels or at the roof.<br>Ne severe vertical irregularity that o   | wously affects the building's se  | ismic performance.   
   | -0.6<br>-1.2 Viu=  |
|  
   
  |  | 0   
   
   | OMMENTS:  |   
   |   
  | Plan  | Irregularity<br>Torsional irre   
   | There is another observab<br>equiarity: Lateral system doe   | ole moderate vertical irregularity that<br>to not appear relatively well distribut  | t may affect the building's seism<br>ed in plan in either or both direc   | ic performance.<br>tions. (Do not  
   | -0.6 (Cep  |
|  
   
  |  |   
   
   |   |   
   |   
  | Irregularity, P.J   | include the k<br>Non-parallel  
   | W1A open front irregularity lis<br>I system: There are one or m  | sted above.)<br>ore major vertical elements of the l  | teral system that are not orthoo  | onal to each other.  
   | -1.0   |
|  
   
  |  |   
   
   |   |   
   |   
  |   | Reentrant co<br>Disphragm of   
   | orner: Both projections from<br>opening: There is an opening   | an interior corner exceed 25% of the<br>in the disphream with a width over  | e overall plan dimension in that<br>50% of the total disphragm wi   | direction.<br>that that level.   
   | -0.5   |
|  
   
  |  |   
   
   |   |   
   |   
  |   | C1, C2 build<br>Other irregul  
   | ing out-of-plane offset. The<br>larity: There is another obser   | exterior beams do not align with the  | columns in plan.<br>v affects the building's seismic o  | erformance.  
   | -0.4 P <sub>22</sub> =   |
|  
   
  |  |   
   
   |   |   
   |   
  | Redundancy  | The building<br>Building in  
   | has at least two bays of late<br>exampled from an adjacent of  | ral elements on each side of the bu   | iding in each direction.<br>vertically within 2 feet  | (Cep total   
   | -0.4   |
|  
   
  | SKETCH   | C   
   
   | Additional sketches   | s or comments on separate page  
   |   
  | - January   | by less than<br>the building   
   | 0.25% of the height of the si<br>and adjacent structure and  | horter of One building is 2 or n<br>The building is 4 the   | ore stories tailer than the other.<br>and of the block  | pounding<br>modifiers et -1.41   
   | -1.2   |
|  
   
  | BASIC SCO  | RE, MODIFIERS, A  
   
   | AND FINAL LE  | VEL 1 SCORE, SLI  
   | Date that   
  | S2 Building<br>C1 Building  | "K" brecing g  
   | geometry is visible.   | , mu whang a at the   |   |  
   | -1.2   |
|  
   
  | BUILDING TYPE Do Not W1 W1A W2<br>Know   | 81 82 86<br>(NPF) (RF) (LA)   
   
   | 84 86<br>(RC (URM<br>SW) NF)  | UT C2 C3 PC1 PC2<br>(MRF) (SW) (URM (TU)<br>INF)  
   | FOI (RD) MH   
  | PC1/RM1 Bidg  | There are ro   
   | of-to-wall ties that are visible<br>mark or retroff worlifer (   | e or known from drawings that do n  | t rely on cross-grain bending. (I   | Do not combine with  
   | -0.4   |
|  
   
  | Boore         5.1         4.5         5.8           e Verticel imegularity, Ver         -1.4         -1.4         -1.4   | 27 28 8.5   
   
   | 25 27   | 21 26 20 21 18  
   | 2.1 2.1 1.7 2.9<br>-1.1 -1.1 -1.0 NA  
  | PC1/RM1 Bidg  | The building   
   | has closely spaced, full heig  | pht interior walls (rather than an inte   | rior space with few walls such a  | s in a warehouse).   
   | +0.4   |
|  
   
  | ste Vertical Irregularity, V <sub>21</sub> -0.9 -0.9 -0.9<br>regularity, P <sub>24</sub> -1.4 -1.3 -1.9  | 0.8 0.7 0.9   
   
   | -0.7 -0.7   | -0.7 -0.7 -0.6 -0.7 -0.6 -0.8 -0.9 -0.8 -0.9 -0.8 -0.9 -0.8   
   | -0.7 -0.7 -0.6 NA<br>-0.8 -0.8 -0.7 NA  
  | MH  | There is a su  
   | ure present.<br>upplemental seismic bracing  | system provided between the carri   | ige and the ground.   |  
   | +1.2 H=  |
|  
   
  | Se   | -0.3 -0.2 -0.2  
   
   | -0.3 -0.3   | -03 -04 -03 -02 -02   
   | -0.2 -0.2 -0.1 -0.5<br>2.3 2.3 NA 4.2   
  | FINAL LEVE  | L 2 SCORE,   
   | sive seamic retrofit is visible<br>$S_{L2} = (S' + V_{L2} + P_{L2} + I)$   | or known trom drawings.<br>M) ≥ S <sub>MN</sub> :   |   |  
   | +1.4 Transfer to L   |
|  
   
  | e A or B 0.7 1.2 1.8 E (1.3 et states)   | 11 14 0.5   
   
   | 1.5 1.5   | 11 15 13 15 13<br>07 40 47 50 50  
   | 14 14 13 15   
  | There is observ<br>If yes, describe   | able damage or<br>the condition in   
   | deterioration or another con<br>the comment box below and  | dition that negatively affects the built indicate on the Level 1 form that d  | ding's seismic performance:<br>dailed evaluation is required inc  | Yes No<br>ependent of the building   
   | g's score.   |
|  
   
  | -1.2         -1.3         -1.4           ve E (>3 stories)         -1.8         -1.5         -1.3  | -0.9 -0.9 NA  
   
   | -0.9 -1.0   | -0.5 -1.0 -0.5 NA -0.7<br>-0.5 -1.0 -0.3 NA -0.7  
   | -0.7 -0.8 -0.5 NA   
  | OBSERVAB  | LE NONSTR  
   | UCTURAL HAZARDS  |   |   |  
   |  |
|  
   
  | LEVEL 1 SCORE, SLT 2 Sam:  | ue 0.6 0.8  
   
   | u.e 0.5   |   
   | v.a u.a u.a 1.5   
  | Exterior  | Statement (<br>There is an u   
   | (uneck Yes or No)<br>unbraced unreinforced maso  | rry parapet or unbraced unreinforc  | ed masonry chimney.   | res No   
   | Comme  |
|  
   
  | INT OF REVIEW  | OTHER HAZARD  
   
   | s   | ACTION REQUIRED   
   |   
  |   | There is hes<br>There is a he  
   | avy cladding or heavy veneer<br>eavy canopy over exit doors  | or pedestrian walkways that appea   | s inadequately supported.   |  
   |  |
|  
   
  | c Pertei Al Sides Acriel   | Are There Hazards That<br>Detailed Structural Eval  
   
   | t Trigger A   | Detailed Structural Evaluation Required   
   |   
  |   | There is an a<br>There is a si   
   | unreinforced mesonry appen<br>ign posted on the building the   | dage over exit doors or pedestrian<br>at indicates hazardous materials an   | present.  |  
   |  |
|  
   
  | gs Reviewed: Yes No  | Pounding potentiel (  
   
   | uniess S <sub>L2</sub> >  | Yes, score less than cut-off  
   | other building  
  |   | There is a ta<br>Other observ  
   | aller adjacent building with an<br>ved exterior nonstructural fail   | unanchored URM wall or unbrace<br>ling hazard:  | URM parapet or chimney.   |  
   |  |
|  
   
  | in Hazards Bourse:   | Falling hazards from  
   
   | teller edjacent   |   
   |   
  | Interior  | There are ho<br>Other observ   
   | ollow clay tile or brick partito<br>ved interior nonstructural falli   | na at any stair or exit corridor.<br>ing hazard:  |   |  
   |  |
|  
   
  | EL 2 SCREENING PERFORMED?  | Geologic hazards or   
   
   | Boll Type F   | Detailed Nonstructural Evaluation Recor<br>Yes, nonstructural hexards identified th   
   | mmended? (check one)<br>het should be evaluated   
  | Estimated Non   | structural Seis  
   | mic Performance (Check e<br>al nonstructural hazards with  | ppropriate box and transfer to Leve<br>significant threat to occupant life su   | I 1 form conclusions)<br>fety. → Detailed Nonstructural   | Evaluation recommen  
   | led .  |
|  
   
  | es, Finel Level 2 8core, Str No  | the structurel system   
   
   | 1   | No, nonstructural hazards exist that me   
   | ay require mitigation, but a  
  |   | Nonstru  
   | uctural hazards identified with  | significant threat to occupant life a   | afety →But no Detailed Nonst  | ructural Evaluation req  
   | uired  |
|  
   
  | Where Information cannot be verified, sore<br>E URF = Unret+restingtions RD = Pa<br>BR = Breach time BN = B<br>upid Visual Screening of Buildings for<br>MA B 164 Data Collection Form   | rener shall note the folio<br>inforced concrete<br>inter util<br>Potential Seism  
   
   | Wing: EST=Estim<br>URU INF=Unvertion<br>TU=Titup<br>nic Hazards   | elemente evaluation a non recessory<br>I No, no no notacutuari hazardo sidosti<br>estad or unreliable data <u>OR</u> DINK = Do ;<br>est mesony intil<br>UN = Ugrt metal   
   | A DNK<br>Nor Row<br>RD = Rigid deprragm<br>RD = Rigid deprragm<br>Level 1 -   
  | Comments:   | Cloworn  
   | g or buildings for r   | otentuar Setstillo nazal  | and Hondouctural Evaluation   | EGVEL  
   | 2 (Opti  |
|  
   
  | Where information cannot be verified, zero<br>a UNP to Dispetienzangement 20, 25 m<br>BR - Braced here BU - B<br>BR - Braced here<br>apid Visual Screening of Buildings for<br>IMA P-154 Data Collection Form  | ener shall note the folio<br>inforced concrete<br>near nel<br>Potential Seism   
   
   | wing: EST=Eatin<br>URUINF=Unrenfor<br>TU=Titup<br>nic Hazards   | Disk po nativeli na produkti n  | s DNK<br>Nor Kow<br>Nor Kow<br>Nor Kow<br>Nor Kow<br>Nor Kow<br>Low<br>Low Seismicity   
   
  | Comments:<br>Rapid Visual<br>FEMA P-154<br>Optional Level 2 dep   | Coworr<br>Screening<br>Data Collect<br>a collector to be   | g or buildings for r<br>ction Form<br>petermed by a civil or structure  
  | ti b occupant ine satety →> No Le<br>• OterntLat = DetstimtC marzati<br>rai engineering professional, erchitec  | us<br>o graduate student with backgr  | LEVE<br>LOV  | Z (Opti<br>V Seisn<br>on or design of   
  |
|  
   
  | Where information cannot be verified, zero<br>we use to consert example and the second<br>BR - Brace from BU - B<br>BR - B - 164 Data Collection Form  | ener shall note the follo<br>influent concrete<br>near wal<br>Potential Seism   
   
   | UKU INF SUPERIOR<br>TU = Tit up<br>nic Hazards<br>iddress:  | Bank Bank Bank Bank Bank Bank Bank Bank   
   | s _ DNK<br>Mor Koau<br>Mor Koau<br>Roman rto = Rodok depregen<br>rto = Rodok depregen<br>Level 1<br>LOW Seismicity  
  | Comments:<br>Comments:<br>FEMA P-154<br>Optional Level 2400<br>Bidg Name:<br>Sorcener:<br>Sorcener:   | Clean Collect  
   | g or Bumomgs for r<br>ction Form<br>performed by s chil or structu   | To eccupant the safety> No Le<br>   | US<br>So and the student with becking<br>So and the student with becking<br>So and the student with becking<br>So and the student by Variation to the student<br>So and the student by Variation to the student by Variationt by Variationto to the student by Variation  | LCVC<br>LOV<br>ound in seismic evaluet<br>(G<br>Pian Irreg.  | V Seisn<br>on or design of<br>o not conside<br>vierty, PL1 -  
  |
|  
   
  | Ware Informatice camed to writed, son<br>a UP = Towned method from Control<br>DP = beschimter<br>apid Visual Screening of Buildings for<br>IMA P-154 Data Collection Form  | rener shall note the follo<br>protocol concrete<br>near ual<br>Potential Seism  
   
   | Why: EST=Estim<br>URUNA=Estim<br>TU=Titup<br>nic Hazards<br>wher kientifiers:<br>uiking Name:   | Inc. on constructive houses insertified<br>and or convolution of ONE = Con-<br>ent neurony nit ↓ U = Loget meas<br>↓ U = Loget meas   
   | A Dox<br>Not Roce<br>Reg Rg Hot = Redis depress<br>Rg E = Redis depress<br>Rg depress<br>Rg depress<br>Rg depress<br>Rg depress<br>P = Redis depress<br>Rg depress<br>P = Redis depress<br>Rg depress<br>P = Redis depress<br>Rg depress<br>P = Redis depr  
  | Comments:<br>Comments:<br>FEMA P-154<br>Optonal Level 2 dat<br>Bildg Name:<br>Screener:<br>Date/Time:<br>STRUCTURAL   | Clevier<br>Screening<br>Data Collect<br>a collector to be  | g OF Building's for F<br>ction Form<br>performed by a cull or structure<br>for ADD TO ADJUST  
  | To coopen in eserty> no Le<br>  | us an denomination of the second sec   | LEVE<br>LOV<br>ound in seismic cellust<br>(0<br>  Plan irreg   | V Seisn<br>on or design of<br>o not conside<br>Nority, PL1 =   |
| Hs. Base:         Also Court:         Dev Court:         Term         Ter  
   
   | Wark Informatics cannot be writing, son<br>a UNF 1 Wonder entiting from 2015 B<br>BF - Bacci front<br>apid Visual Screening of Buildings for<br>IMA P-154 Data Collection Form   | ener shall note the folio<br>process concele<br>ner sol<br>Potential Seism<br>A<br>0<br>B<br>U<br>U<br>U   
   
  | Wing: EST= Estim<br>URUINF=Unverfoo<br>TU=Tituo<br>nic Hazards<br>iddress:<br>Wher Identifiers:<br>luilding Name:<br>se:<br>athude:   | in no obsano a nancestano<br>no no obsano a nancestano<br>ater o mellano das gal pare so<br>un comenza das gal pares so<br>un comenza das so<br>un comenz | t ⊡ Disk<br>Kun Adaw<br>Ing Trai Teber Adampin<br>Trai Teber Adampin<br>Level 1<br>LOW Seismicity  
   
   | Comments:<br>Rapid visual<br>FEMA P-154<br>Optional Level 2 data<br>Bidg Name:<br>Sorreener:<br>Date/Time:<br>StructURAL<br>Topic   | Clow orr<br>Screening<br>Data Collect<br>scollecton to be<br>MODIFIER \$<br>Statement (if st<br>Statement (if st   | g OF BUIRDINgs FOF T<br>ction Form<br>performed by a civil or structure<br>170 ADD TO ADJUSTI<br>determent is struct, circle for 27  | • Cooperint at service → no cooperint   
   | <b>US</b><br><b>US</b><br>(or graduate student with boding<br>Verifical inequilarity, $V_{c,r} = S^{-} = (S_{c,r} - V_{c,r} - P_{c,r}) =$<br>e modifier)<br>e modifier)   | LEVEI<br>LOU<br>ound in teitmic evaluat<br>Plan imega  | 2 (Opti<br>N Seisn<br>on or design o<br>o not conside<br>warty, P <sub>L</sub> , =   |
| Inductorse Area (m)  
   
  | When Information cannot be writing, son<br>US Standborn Heading from Rose<br>BR - Brick from Rose<br>apid Visual Screening of Buildings for<br>IMA P-154 Data Collection Form<br>PHOTOGRAPH  | enerzhall note the folio<br>inforced concele<br>eter sel<br>Potential Seism<br>A<br>0<br>8<br>8<br>9<br>1<br>1<br>1<br>5<br>5<br>5<br>5   
   
   | wing: EGT = Exit<br>URINF = Exit<br>URINF = Exit<br>URINF = Exit<br>TU = Titue<br>nic Hazards<br>ddress:<br>ddress:<br>uiding Name:<br>is:<br>is:<br>atitude:<br>is:<br>is:<br>is:<br>is:<br>is:<br>is:   | log to someware travers someware     log to someware travers someware     log to some to a     log to some to     log to s   | Level 1  
   
   | Comments:<br>Kapro visual<br>FEMA P-154<br>Ostoral Level 2 eas<br>Bilg Name:<br>Screecer:<br>Date/Time:<br>Vetcoal<br>Vetcoal<br>Vetcoal<br>Vetcoal   | Screening<br>Data Collector to be<br>collector to be<br>MODIFIER S<br>Statement (If st<br>State N  | g or sourcement and the second   | OUEITULAT SETSITITO FLAZZA<br>OUEITULAT SETSITITO FLAZZA<br>val engineering sroktstorel, sociate<br>Level 1 foregulority Modiferz:<br>Level 1 foregulority Modiferz:<br>DAUSTED BASELINE SCORE<br>ED BASELINE SCORE<br>ED BASELINE SCORE<br>ED BASELINE SCORE<br>EL STATUSTO grade change from one<br>stata 14 Jang organise consign for  | US<br>US<br>(, or graduate student
with boding<br>Set =<br>$S' = (S_{ij} = V_{ij} = P_{ij})$<br>e = coording )<br>and of the building to the other<br>one side of the building to the other   | LEVEI<br>LOV<br>ound in teitsmic evaluat<br>Plan imega<br>other.   | 2 (Opti<br>V Seisn<br>on or design o<br>o not conside<br>Varity, P <sub>4</sub> , -  |
| Company:   
   
  | Wave Information cannot be writed, son<br>son the source of  | enerzhall note the folio<br>inforced concele<br>eter sel<br>Potential Seism<br>A<br>0<br>8<br>8<br>9<br>1<br>1<br>1<br>1<br>5<br>5<br>5<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1   
   
   | wing: EST= Est<br>URINF=Unrifloo<br>TU=Titue<br>nic Hazards<br>iddress:<br>wher kientifiers:<br>luiking Name:<br>se:<br>atitude:<br>lis:<br>increment(s):<br>lio. Stories:<br>Above   | ling to construct a tracks teacher     ling to construct a tracks     ling 20 ext 50     ling 20   | A CONK   
   
   | Comments:<br>FEIMA P-154<br>Optoral Level 2 de<br>Billig Name:<br>Soccener:<br>Darfilme:<br>StriUCTURAL<br>Topic<br>Vertical<br>Imgularity, V <sub>2</sub>  | Screening<br>Data Collect<br>collection to be<br>MODIFIERS<br>Statement (If al<br>State N<br>N<br>Stel N<br>N<br>Stel N<br>N<br>N<br>Stel N<br>N<br>N<br>Stel N<br>N<br>N<br>Stel N<br>N<br>N<br>Stel N<br>N<br>N<br>Stel N<br>N<br>N<br>Stel N<br>N<br>N<br>N<br>Stel N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N<br>N   | To nonstructural instead lines<br>or boundary short of the<br>close Form<br>performed by a cluil or should<br>into a cluir or should   | Oterititat Sensitive Facada<br>Fotoring probability of the sensitive<br>Fotoring probability of the sensitive<br>Level Trangularity Modifiers<br>Dubister BASELUNE SCORE<br>ED BASELUNE SCORE | US , or greature student with tector $S_{\rm s}$ , or greature student with tector $S_{\rm s}$ , or greature student with tector $S_{\rm s}$ , or greature student $V_{\rm s}$ , or $S_{\rm s}$ ,   | LOVEL<br>LOV<br>ound in setsmic evaluation<br>(Seter  
  | 2 (Opti<br>V Seisn<br>on or design o<br>o not conside<br>starity, P <sub>4</sub> , -   |
| Base of the second of  
   
  | Wave Information cancel be writted, son<br>to the concentration of the son of t   | sear shall note the folio<br>entropic connet<br>entropic second<br>Potential Seism<br>A<br>0<br>8<br>8<br>9<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1   
   
  | wing: EST = Estim<br>UNUTAT = Unvertice<br>UNUTAT = Unvertice<br>UTU = Tit up<br>Nic Hazards<br>didress:<br>Wher Identifiers:<br>Liuliding Name:<br>Ise:<br>Strutude:<br>Is:<br>(screener[s]:<br>Io. Stories: Above<br>otal Floor Area (ap<br>Idditions: Im No  | Ing on constraint instants instants   | Lovk     Kow     Kose  
   | Comments:<br>FEIMA P-154<br>Ostorai Leve 2 ees<br>Bidg Name<br>Screener:<br>Datefilme:<br>StriUCTURAL<br>Topic<br>Verical<br>Imegularity, Vua   
   | Screening<br>Data Collect<br>soliciton to be<br>Statement (If al<br>Stoping W<br>Ste N<br>Weak W<br>andlor W<br>Soft Story as<br>(order one W<br>giorder one W   | To nontructural insert free<br>clone Form<br>performed by a cuil or structure<br>to approximate the cuil or structure<br>to approximate the cuil or structure<br>to approximate the cuil of the cuil<br>to approximate the cuil of the cuil of the<br>the cuil of the cuil of the cuil of the cuil of the<br>cuil to approximate the cuil of the cuil of the cuil of the<br>cuil to approximate the cuil of the cuil of the cuil<br>to approximate the cuil of the cuil of the cuil of the cuil<br>to approximate the cuil of the cuil  | Overnuar Genstinne Heer /   | US<br>(c) grant label to the test of test of the test of t  | LOVEL<br>LOV<br>ound in setsmic evaluation<br>plan inregion<br>sther.<br>imment frame,<br>all minimum),<br>all minimum).   
   | 2 (Opti<br>V Seisn<br>on or design o<br>on at conside<br>viarity, P <sub>4</sub> , -<br>(es 8ut<br>15<br>15<br>15<br>15<br>15<br>15  |
| Best type:         Best ty   
   
   | Where information cannot be writing, son<br>in UPS Functional Source Source Source<br>pid Visual Screening of Buildings for<br>MA.P-154 Data Collection Form<br>PHOTOGRAPH   | Potential Seism<br>Potential Seism<br>Regrational Seism<br>Potential Seism<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U<br>U  
   
  | wing: 627 Edit in the second s  | Ing or observed to transfer termine     Ing or observed to transfer termine     Ing or observed to transfer termine     Ing of the termine  |  
   
   | Comments:<br>FEIMA P-134<br>Cotoni Love 2 con<br>Bidg Name:<br>Screener:<br>DateTime:<br>StriUCTURAL<br>Irregulardy, V.a  | Screening<br>Data Collect<br>a calection to be<br>MODIFIERS<br>Statement (If al<br>State<br>Name (If al<br>Statement (If al<br>State                               | g OF DURININGS FOF F<br>CICID FORM<br>performed by a Culi of stockul<br>performed by a Culi of stockul<br>performed by a Culi of stockul<br>performance of the Culi of the<br>Culi of the Culi of the Culi<br>Pauling There and a Culi<br>mol Breas table and a Culi<br>and Breas table and a Culi<br>mol Breas table and a Culi<br>and Breas table and a Culi<br>performance of the Culi   | Totomore a service and a servi  | US $(x_i,y_i) \in [x_i,y_i] \in [$  | LEVE:<br>LOV<br>ound in seismic ensuits<br>Plan inneg:<br>dher<br>-<br>effer: -<br>-<br>all minimum).<br>-<br>st 50% of the<br>-<br>r height of any  | 2 (Opti<br>V Seisn<br>on or design o<br>o not consile<br>Marthy, P., -<br>15<br>15<br>15<br>13  
  |
| Control in the second sec  
   
  | Where information cannot be writing, son<br>US 1 Support of the second sec   | Potential Seism<br>Potential Seism<br>A<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B   
   
   | wing: EST Each Training Services of the service of   | ling to construct a trace is some<br>deg to construct a trace is some<br>def resolutes de gal dont foi<br>def resolute de gal dont foi<br>de  | ⊥         □ Dick           Not Rear         Level 1           Level 4         Level 1           LOW Seismicity         P           Yese Built:         □ Sat           Code Yes:         Code Yes:           I detac:         □ bate           □         □   
   | Comments:<br>FEIMA P-154<br>Oration Level 2 con<br>Bidg Name:<br>Screener:<br>Date Time:<br>Screener:<br>Date Time:<br>Vortical<br>Inegularity, Va  
   | Screening<br>Data Collect<br>a calection to be<br>MODIFIERS<br>Statement (If al<br>State<br>MODIFIERS<br>Statement (If al<br>Statement (If al<br>Stateme                               | TO CONTRACTOR INSERT THE TRANSPORT   | Totertuar Sensitive Pace A Company Sensitive P  | US<br>So produce subset with bacing<br>(or produce subset) with bacing<br>(vertice) inequilation, $V_{ij} = -\frac{1}{2}$<br>and of the fulding to the other<br>and of the fulding to the other<br>so of the fulding to the other<br>so of the fulding to the other<br>(so the fulling to the other<br>and the fulding to the other<br>and the fulding to the other<br>and the fulling to the other<br>and the full the other other<br>and the full the other other<br>and the full the other other<br>and the full the other<br>and the full the other other<br>and the other other other<br>and the other other other<br>and the full the other other<br>and the other other other<br>and the other other other<br>and the other other<br>and the other other<br>and the other other other<br>and the other<br>and the other other<br>and the other<br>and the other<br>and the oth   | LEVER<br>LOV<br>LOV<br>and in stemic estimation<br>Plan import<br>other.<br>import frame,<br>import frame,   | 2 (Option<br>W Seism<br>on or design co<br>on of consist<br>viarity, P., -<br>es Su<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15  |
| Adjacory Augina varies   Augina varies Augina varies    Augina varies Augina varies <td>Wave Information cancel a writing, son<br/>UNE Stream Handling State<br/>BR-Brood Hand<br/>MA P-154 Data Collection Form<br/>PHOTOGRAPH</td> <td>Potential Seism<br/>Potential Seism<br/>Revenue<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandone<br/>Bandon</td> <td>wing: EST Each Converted<br/>Unit in a current for<br/>the start strength of<br/>the start strength of<br/>the start strength of<br/>didress:<br/>wher klendifers:<br/>list:<br/>attride<br/>is:<br/>strength of<br/>the start strength of<br/>the start strength of<br/>the start strength of<br/>the strength of the strength of the<br/>strength of the strength of the strength of the strength of the<br/>strength of the strength of the strength of the strength of the<br/>strength of the strength of the strength of the strength of the<br/>strength of the strength of the strength of the strength of the<br/>strength of the strength of the strength of the strength of the strength of the<br/>strength of the strength of the</td> <td>[ In g. to constrain a function to the first term of the first sector of the fir</td> <td></td> <td>Comments:<br/>Raging Visibal<br/>FEMA P-164<br/>Stribul Levis 2 dos<br/>Bidg Marcol<br/>Date Time:<br/>Stribul Turkit<br/>Inspilanty, V<sub>2</sub></td> <td>Screening<br/>Data Collect<br/>calector be<br/>Statement (#al<br/>Sbping W<br/>Sat Story =<br/>(oricle one W<br/>Sat Story =<br/>(origination or (origination)))</td> <td>g or building learned the<br/>close building learned by a cuil or shock<br/>reformed by a cuil or shock<br/>in the control building learned by<br/>it building learned by the<br/>trade action party of the<br/>trade action building learned by<br/>trade action building learned by<br/>trade building learned by<br/>trade building learned by<br/>trade building learned by<br/>trade actions of the learned<br/>field a demolt of the learned<br/>trade actions of the learn</td> <td>Unertituar Sensitivo mazaca<br/>en opieron golesno, televito<br/>Final Levito Marca Sensitivo mazaca<br/>Final Levito Marca Sensitivo<br/>Final Levito Marca Sensitivo<br/>En opierona provincio della Sensi<br/>Levito Marca Sensitivo<br/>En opiero della Sensitivo<br/>en en opiero della Sensitivo<br/>en en opiero della Sensitivo<br/>en en opiero della Sensitivo<br/>en en opiero della Sensitivo<br/>en opiero della Sensitivo<br/>da Sensitivo della Sensitivo<br/>en opiero della Sensitivo<br/>da Sensitivo della Sensitivo<br/>da Sens</td> <td>US <math>(q_{1},q_{2},q_{3},</math></td> <td>Lever<br/>Lover<br/>Lover<br/>Manual in settine creating<br/>Manual in settine creating<br/>Manual information<br/>and SSNs of the<br/>- Aregint of any<br/>- Counting the</td> <td>2 (Option<br/>W Seismon<br/>on or design co<br/>on or design co<br/>o</td>  
  | Wave Information cancel a writing, son<br>UNE Stream Handling State<br>BR-Brood Hand<br>MA P-154 Data Collection Form<br>PHOTOGRAPH  | Potential Seism<br>Potential Seism<br>Revenue<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandone<br>Bandon   
   
   | wing: EST Each Converted<br>Unit in a current for<br>the start strength of<br>the start strength of<br>the start strength of<br>didress:<br>wher klendifers:<br>list:<br>attride<br>is:<br>strength of<br>the start strength of<br>the start strength of<br>the start strength of<br>the strength of the strength of the<br>strength of the strength of the strength of the strength of the<br>strength of the strength of the strength of the strength of the<br>strength of the strength of the strength of the strength of the<br>strength of the strength of the strength of the strength of the<br>strength of the strength of the strength of the strength of the strength of the<br>strength of the strength of the   | [ In g. to constrain a function to the first term of the first sector of the fir  |  
   
   | Comments:<br>Raging Visibal<br>FEMA P-164<br>Stribul Levis 2 dos<br>Bidg Marcol<br>Date Time:<br>Stribul Turkit<br>Inspilanty, V <sub>2</sub>   | Screening<br>Data Collect<br>calector be<br>Statement (#al<br>Sbping W<br>Sat Story =<br>(oricle one W<br>Sat Story =<br>(origination or (origination)))   | g or building learned the<br>close building learned by a cuil or shock<br>reformed by a cuil or shock<br>in the control building learned by<br>it building learned by the<br>trade action party of the<br>trade action building learned by<br>trade action building learned by<br>trade building learned by<br>trade building learned by<br>trade building learned by<br>trade actions of the learned<br>field a demolt of the learned<br>trade actions of the learn   | Unertituar Sensitivo mazaca<br>en opieron golesno, televito<br>Final Levito Marca Sensitivo mazaca<br>Final Levito Marca Sensitivo<br>Final Levito Marca Sensitivo<br>En opierona provincio della Sensi<br>Levito Marca Sensitivo<br>En opiero della Sensitivo<br>en en opiero della Sensitivo<br>en en opiero della Sensitivo<br>en en opiero della Sensitivo<br>en en opiero della Sensitivo<br>en opiero della Sensitivo<br>da Sensitivo della Sensitivo<br>en opiero della Sensitivo<br>da Sensitivo della Sensitivo<br>da Sens  | US $(q_{1},q_{2},q_{3},$   
  | Lever<br>Lover<br>Lover<br>Manual in settine creating<br>Manual in settine creating<br>Manual information<br>and SSNs of the<br>- Aregint of any<br>- Counting the   | 2 (Option<br>W Seismon<br>on or design co<br>on or design co<br>o   |
| Image:   
   
   | Wave Information cannot be writing. Les<br>UNE Transportation of the second meri<br>SR - Bracel Imm<br>Part Second Imm<br>MA P-154 Data Collection Form<br>PROTOGRAPH  | ever stat roots in k folio den indexe statistica en en estatistica en estatiste en estatistica en estatistica en estatistica e   
   
  | wing: EST-East<br>UNITAR-UNERFIG<br>TU-TH ab<br>in Hazards<br>wing have been<br>wing have been<br>been been been<br>been been been<br>in the been been<br>been been been been<br>in the been been been<br>in the been been been<br>in the been been been<br>in the been been been been<br>in the been been been been been<br>in the been been been been been<br>in the been been been been been been been be  | Ing to construct a track is seried.     Ing to construct a track is seried.     If a series of the series of  | Lovk     Monor     More and a contract of the second   
   | Comments:<br>FEIMA P-154<br>Ontoni Lona 1
dan<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Socialisti<br>Soci | Screening<br>Data Collect<br>a calecton to be<br>Statement (# al<br>Supra W<br>Sat Statement (# al<br>Supra Statement (# al<br>Statement (# al<br>Statemen   | TO ADD TO ADD TO ADD ST<br>setting to the setting of  | Orientuar Sensitivo reacata     Orientuar Sensitivo reacata     Englisente prime englisente   | US $(x_i,y_i) \in C(x_i,y_i) \in C(x_i,y_i)$<br>$(x_i,y_i) \in C(x_i,y_i) \in C(x_i,y_i) \in C(x_i,y_i) = C$  | LEVEL<br>LOVEL<br>LOVEL<br>Marking States<br>Marking States<br>Mar   | 2 (Optin<br>on or design o<br>o not consil<br>viardy, PL<br>15<br>15<br>15<br>13<br>06<br>13<br>06   |
| Image:   
   
  | Where information cancel as unified, see<br>UNITY of the second second second second second<br>UNITY of the second second second second second second<br>Second Second second second second second second second<br>Second Second second second second second second second<br>Second Second  | Potential Seism<br>Potential Seism<br>Research and the seism<br>Potential Seism<br>Potential Seism<br>Potential Seism<br>Potential Seism<br>Research and the seism   
   
  | why: EST-East<br>UNIDE CHAPTER<br>TU-TH a<br>hic Hazards<br>whic Hazards<br>wher Identifiers:<br>uiking Name:<br>Ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>astude:<br>ist:<br>ist:<br>astude:<br>ist:<br>ist:<br>ist:<br>astude:<br>ist:<br>ist:<br>ist:<br>ist:<br>ist:<br>ist:<br>ist:<br>ist  | Ing or operational resets tenden     Ing or operating tendency tendency     Ing operating tendenc   | Lok     Lovel     Level     Level     Level     VerBult     Corr     Code Year     Tork come yea     Code Year     Code Year     Tork come yea     Fork  
   | Comments:<br>FEINA P-104<br>Cotoral Level 24<br>Societa Level 24<br>Societa Level 24<br>Societa Level 24<br>Societa Level 24<br>Societa Level 24<br>StructURAL<br>Topic<br>Vetical<br>Integratedly, V <sub>2</sub>  | Screening<br>Data Collect<br>solection to be<br>Statement (f al<br>Superson W<br>Ster N<br>Wash W<br>Ster N<br>Wash W<br>Ster N<br>Statement (f al<br>Superson W<br>Ster N<br>Statement (f al<br>Statement (f al<br>Stateme | To constructive insert the<br>total and the second second second second<br>performed by a cull or structu-<br>interment a law, a pick the T<br>second second second second second second<br>the second second second second second second<br>the second second second second second second second<br>the second second second second second second<br>the second second second second second second second second<br>the second second second second second second second second second<br>the second second<br>the second sec   | The second secon  | US (, or preduce student with leading of the student is the student with leading of the student
is the student of th   | LE Ver<br>LE Ver<br>LO<br>ound in science constance<br>(<br>anonent frame,<br>all minimum)<br>ables.<br>in moment frame,<br>all minimum)<br>ables.<br>in moment frame,<br>all minimum)<br>ables.<br>in consent frame,<br>all minimum)<br>ables.<br>in all minimum  | 2 (Opn<br>or or design o<br>o not consist<br>alardy; P <sub>2</sub>  |
| Oper         Texture         Op  
   
  | Phone Information cannot be unified, and the original of the o   | Potential Seism<br>Potential Seism<br>Research<br>Seismann<br>Comparison<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismann<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannn<br>Seismannnn<br>Seismannnn<br>Seismannnn<br>Seismannnn<br>Seismannnn<br>Seismannnn<br>Seismannnn<br>Seismannnn<br>Seismannnn<br>Seismannnn<br>Seismannnn<br>Seismannnn<br>Seismannnnnnnnn<br>Seismannnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnnn  
   
   | white: EST-Estation<br>URUTAL CHARTER<br>TU-TH:<br>and Hazards<br>ddress:<br>bher Identifiers:<br>uiting Name:<br>Ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>becapancy: Asse<br>foreener():<br>No Statis:<br>Asse<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>abtude:<br>ise:<br>ise:<br>ise:<br>ise:<br>ise:<br>ise:<br>ise:<br>is  |   |   
   
  | Comments:<br>Comments:<br>FEMA P-154<br>Octores Level 2 em<br>Bilg Name<br>Datrilline:<br>StructureAL<br>Topic<br>Verical<br>Imegulanty, V <sub>4</sub>   | Screening<br>Data Collect<br>collection to be<br>Statement (if al<br>Statement (if al                                      | TO DOMINGING THE AND DOMING THE AND  | Overrotar Jensing Production (1997) - No. J.<br>Overrotar Jensing Policy (1997) - No. J.<br>Final Level Togenering protection, product<br>Final Level Togenering protection, product<br>Distribution (1997) - Distribution (1997) - Distribution<br>Distribution (1997) - Distribution (1997) - Distribution<br>(1997) - Distribution (1997) -  | US<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   | LEV VET  
   | 2 (Option  |
| VALUE         VALUE <th< td=""><td>More Information cannot be volfile. So the<br/>More Transmission of the source of the source</td><td>Potential Seism<br/>Potential Seism<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismannen<br/>Seismann</td><td>why: E2F Each<br/>Daribs Chemes<br/>Tu = The Chemes<br/>hic Hazards<br/>ddress:<br/>ddress:<br/>ber Hendiffer:<br/>luiding Name:<br/>tathdet:<br/>be complete<br/>be for Are (at Floor Are (at Floor Are (at<br/>Horay Are (at Floor Are (at Horay Are (at Horay</td><td>Dig to construct a transfer some to be the construct and the construct a</td><td></td><td>Comments:<br/>Regina VISUal<br/>FEMA P-154<br/>Cotoos Leas 2 68<br/>Sidg Name<br/>Date Time:<br/>Straucturea<br/>Verical<br/>Imgularity, Va</td><td>Collect     Soft Collect     Soft C</td><td>TO DOMINGUES INTER THE THE THE THE THE THE THE THE THE THE</td><td>Totertour Sensitive Mazara<br/>Final Level Sensitive Mazara<br/>Final Level Sensitive Mazara<br/>Final Level Sensitive Mazara<br/>Final Level Totertours Sensitive Mazara<br/>Maximum Sensitive Mazara<br/>Maximum Sensitive Mazara<br/>Sensitive Maximum Sensitive Mazara<br/>Sensitive Maximum Sensitive Mazara<br/>Sensitive Maximum Sensitive Maximum Sensitive<br/>Maximum Sensitive Maximum Sensitive Maximum Sensitive<br/>Maximum Sensitive Maximum Sensitive Maximum Sensitive<br/>Maximum Sensitive Maximum Sensitive Maximum Sensitive Maximum Sensitive<br/>Maximum Sensitive Maximum Sensitive Max</td><td>US<br/><math>s_{-}</math> = vertex tudes t with the top of the second term of te</td><td>LEVER<br/>LOU<br/>LOU<br/>and in setunce extent<br/>Plane Image<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet<br/>internet</td><td>2 (Opt<br/>V Seisr<br/>or or design<br/>or or design<br/>15<br/>15<br/>15<br/>15<br/>15<br/>15<br/>15<br/>15<br/>15<br/>15</td></th<>   
  | More Information cannot be volfile. So the<br>More Transmission of the source  | Potential Seism<br>Potential Seism<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismannen<br>Seismann  
   
   | why: E2F Each<br>Daribs Chemes<br>Tu = The Chemes<br>hic Hazards<br>ddress:<br>ddress:<br>ber Hendiffer:<br>luiding Name:<br>tathdet:<br>be complete<br>be for Are (at Floor Are (at Floor Are (at<br>Horay Are (at Floor Are (at Horay   | Dig to construct a transfer some to be the construct and the construct a  |   
  | Comments:<br>Regina VISUal<br>FEMA P-154<br>Cotoos Leas 2 68<br>Sidg Name<br>Date Time:<br>Straucturea<br>Verical<br>Imgularity, Va  
  | Collect     Soft C  | TO DOMINGUES INTER THE   | Totertour Sensitive Mazara<br>Final Level Sensitive Mazara<br>Final Level Sensitive Mazara<br>Final Level Sensitive Mazara<br>Final Level Totertours Sensitive Mazara<br>Maximum Sensitive Mazara<br>Maximum Sensitive Mazara<br>Sensitive Maximum Sensitive Mazara<br>Sensitive Maximum Sensitive Mazara<br>Sensitive Maximum Sensitive Maximum Sensitive<br>Maximum Sensitive Maximum Sensitive Maximum Sensitive<br>Maximum Sensitive Maximum Sensitive Maximum Sensitive<br>Maximum Sensitive Maximum Sensitive Maximum Sensitive Maximum Sensitive<br>Maximum Sensitive Maximum Sensitive Max  | US<br>$s_{-}$ = vertex tudes t with the top of the second term of te  | LEVER<br>LOU<br>LOU<br>and in setunce extent<br>Plane Image<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet<br>internet  | 2 (Opt<br>V Seisr<br>or or design<br>or or design<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15  
   |
| BASIC SCORE. MODIFIERS, AND FINAL LEVEL 1 SCORE, Sur         Non-partici giam. The use of a method participation of the scale scale of the scale giam. The use of a method participation of the scale scale of the scale giam. The scale scale scale of the scale sca  
   
   | Phore Information cannot be writtle. All of the<br>light - breach there is a second seco   | ever stat not in fold of the f   
   
  | why: EST Est in United Standards in United Standards United Standards in United Standa  | Big to construct a track is seried.   |  
   | Comments:<br>FEMA P-154<br>Oxford Level 2 en<br>Bigg Name:<br>Soard Inc.<br>Soard Inc.<br>Soard Inc.<br>Soard Inc.<br>Soard Inc.  | Column Providence Column Colum   | Constructive Insert the  | Oternitian Sensitive Paral La<br>Oternitian Sensitive Paral<br>Final Level Simon Paral<br>Final Level Simon<br>Final Level Simon<br>Final Level Simon<br>Explorition Sensitive Paral<br>Sensitive Assessment Sensitive<br>Paral Sensitive Assessment Sensitive Assessment<br>Sensitive Assessment Sensitive Assessment Sensitive<br>Paral Sensitive Assessment Sensitive Assessment<br>Sensitive Assessment Sensitive Assessment Sensitive<br>Paral Sensitive Assessment S  
   | US<br>(c) or graduate student with being<br>(c) or graduate student with being<br>(c) or graduate student with being<br>(c) or graduate student with the student<br>(c) or graduate student (c) or graduate<br>(c) or graduate student (c) or graduate student (c) or graduate<br>(c) or graduate student (c) or graduate student (c) or graduate<br>(c) or graduate student (c) or graduate student (c) or graduate<br>(c) or graduate student (c) or gradu   | LEVER<br>LEVEL<br>LEVEL<br>Autor In secaric external<br>Prease may<br>antipation and the secarity<br>of records drawn,<br>all strictsman,<br>all strictsman,<br>all strictsman,<br>all strictsman,<br>all strictsman,<br>all strictsman,<br>creating the<br>strictsman,<br>and strictsman,<br>all strictsman,  | 2 (Opt)<br>2 Seisr<br>3 or otestan<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15   |
| Depring neering         Deprind neering         Deprind ne   
   
  | Phone Information cannot be writtle, as to<br>be a second second second second second<br>and a second second second second second second<br>table be a second second second second second second second<br>table be a second   | Potential Seism<br>Potential Seism<br>a constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constraints<br>Constrai  
   
   | where EST = Earl<br>UNIT DE UNITED UNITED<br>UNIT DE UNITED<br>UNIT DE UNITED<br>UNIT DE UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UNITED<br>UN | log to softward testes termine     log to softward testes     log testes termine     log testes termine     log test   |  
   
   | Comments:<br>Comments:<br>FEMA P-154<br>Octoral Leni 2 em<br>Bidg Name<br>Datrilline:<br>Strauctured<br>Vertical<br>Imgulanty, Vu<br>Imgulanty, Ru  | Convert     C  | TO DOMINGUES INTER THE CONTRACT OF THE CONTRAC   | Totertuar Sensitive Frazeration<br>recentuar Sensitive Frazerations<br>Frazerations and the sensitive frazerations<br>Frazerations and the sensitive frazerations<br>Frazerational Sensitive Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Sensitive Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations<br>Frazerations   | US<br>(c) or preducts student with second<br>(c) or preducts student (c) or preducts<br>(c) or preducts (c) or preducts (c) or preducts<br>(c) or preducts (c) or preducts<br>(c) or preducts (c) or preducts (c) or preducts<br>(c) or preducts<br>(c) or preducts (c) or preducts<br>(c) or preducts<br>(c) or preducts (c) or preducts<br>(c) or   | Le veri<br>Le veri<br>Le veri<br>Racing de la construcción<br>Racing de la construcción<br>de la constru   | 2 (Opc<br>8 Seisr<br>5 or ettain<br>15 15<br>15 15 |
| Description         Description <thdescription< th=""> <thdescription< th=""></thdescription<></thdescription<>  
   
  | Phone information cannot be unified. So the<br>light - bracet here being and the source of the source  | Potential Seism<br>Potential Seism<br>Grant Grant Seism<br>Control Grant Seism<br>Control Grant Seism<br>Control Se   
   
  | wing: E2T E Eat<br>USU DE Chemistre<br>hic Hazards<br>in the Hazards<br>in the Hazards<br>in the Hazards<br>in the Hazards<br>in the Hazards<br>in the Hearards<br>in the  | [10 of constructure transmits interests interests     [20 OVE 7:00  |   
  | Comments:<br>Regrot VIStata<br>FEMA P-154<br>Octors Los 2 cm<br>Sida Nave<br>Datefilme:<br>STRUCTURAL<br>Topic<br>Verical<br>Inegulandy, V <sub>2</sub><br>Plan<br>Inegulandy, Pu   | Screening Data Collect Collec  | TO CONTRACTOR INSERT THE TRANSPORT  
  | Overrotar Jensmin Praza<br>Anticol Control (1997) - 10 (1997)<br>Control (1997) - 10 (1997)<br>Final Level Transport<br>Final Level Transport<br>Distribution Statistics<br>Distribution Statistics<br>Distributi  | US<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S   | LEVY CE<br>LEVICE<br>LOU<br>and in settinc exect<br>Para integration<br>deterning the setting of the<br>incoment trans,<br>deterning the setting<br>deterning the setting<br>incoment trans,<br>incoment tra  | 2 (Option of edgin or   |
| Building is supported for the dependence of the provide states in the constraint the provide states in the constraint of the provide states in   
   
  | Phone Information cannot be writed. So the<br>Bit - Broad here by the<br>id Visual Screening of Buildings for<br>tA P-154 Data Collection Form<br>PHOTOGRAPH   | Potential Seism<br>Potential Seism<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B   
   
   | why: E2F Each Charles United States Charles   | Orgen construction transmission     Orgen construction transmission     Orgen construction transmission     Orgen construction     Orgen constructin     Orgen constructin     Or  |  
   | Comments:<br>Redpror VISUad<br>FEMA P-154<br>Crotos Lens 2 cm<br>Sidg Name<br>Date
Time:<br>StructureA<br>Verical<br>Inegularity, Va<br>Plan<br>Inegularity, Pa   | Cover     C  | TO DOMUGUE INSEED TO<br>COLON EXEMPTION TO THE SECTION OF THE<br>INSEED OF THE SECTION OF THE SECTION OF THE SECTION OF THE<br>INSEED OF THE SECTION OF THE SECTION OF THE SECTION OF THE<br>INSEED OF THE SECTION OF THE SECTION OF THE SECTION OF THE<br>INSEED OF THE SECTION OF THE SECTION OF THE SECTION OF THE<br>INSEED OF THE SECTION OF THE SECTION OF THE SECTION OF THE SECTION OF THE<br>INSEED OF THE SECTION OF THE SECT   | Totertour Sensitive Mazara<br>Final Level Sensitive Mazara<br>Final Level Totertour Mazara<br>Final Level Totertour Mazara<br>Final Level Totertour Mazara<br>Maximum Market Sense<br>ED BASEL SENSE<br>ED B  | US<br>(c) or greature student with the local<br>(c) or great student with the local<br>(c) or great student with the local<br>(c) stude to the local (c) or great<br>(c) or great (c) or great (c) or great<br>(c) or gre  | LEVER<br>LOU<br>and in setunce extent<br>Plan Image<br>other   | 2 (Opto<br>N Seiss<br>on et consi<br>is or et stan<br>on et consi<br>is<br>is<br>is<br>is<br>is<br>is<br>is<br>is<br>is<br>is<br>is<br>is<br>i   
   |
| DEFECH         Isolation souther or comments on storme spar           BASIC SCORE, MODIFIER, AND FINAL LEVEL 1 SCORE, Sur<br>Basic SCORE, MODIFIER, AND FINAL LEVEL 1 SCORE, Sur<br>Basic SCORE, MODIFIER, SAND FINAL SCORE, SUR<br>Basic SCORE, Sur Basic SCORE, Sur Bas  
   
  | Phore information cannot be vortified. As the<br>bit - bits of the<br>bit - bits of the<br>id Visual Screening of Buildings for<br>A P-154 Data Collection Form<br>PHOTOGRAPH  | Potential Seism<br>Potential Seism<br>a B<br>B<br>B<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C  
   
   | why: EST = Each<br>UNIT of UNIT o   | Big to construct a tracks (series)     Pentice(series)     Denter (series)     Denter (series)     Big to construct a tracks (series)     Pentice(series)     Denter (series)   |   
  |
Comments:<br>Reginal visited<br>FERMA P-154<br>Ontoni Level 2 des<br>Data Times<br>Data Times<br>Data Times<br>Data Times<br>Plan<br>Plan<br>Inegularity, Pla<br>Regundanco   | Cover and the second seco  | constructure insert the  | The second secon  | US<br>US<br>US<br>$(a \rightarrow b)$ or predicate student with tacky<br>$(b \rightarrow b)$ or predicate student with tacky<br>$(b \rightarrow b)$ or $(b \rightarrow b)$ of $(b \rightarrow b)$ of $(b \rightarrow b)$<br>$(b \rightarrow b)$ of $(b \rightarrow b)$ of $(b \rightarrow b)$ of $(b \rightarrow b)$<br>or a side of the building to the other<br>or a side of the building to the other<br>other other of the other other other<br>$(b \rightarrow b)$ of the other<br>$(b \rightarrow b)$ of th   | LEGYER<br>LEGYER<br>LEGYER<br>Annonet is search c-start<br>Pran might<br>control is search c-start<br>Pran might<br>control is search c-start<br>control is search c-start   | 2 (Opc<br>V Seiss<br>or detaga<br>or detaga<br>10<br>12<br>13<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15  |
| BASIC SCORE, SCORE, AND FIRER, AND FIRMAL LEVEL 1 SCORE, Sur         BUILDING TYPE       Bit is an intervent of the state is a state in a surface of the state is a state in a surface of the state is a state in a surface of the state is a state in a surface of the state is a state in a surface of the state is a state in a surface of the state is a state of the state is a state in a surface of the state is a state of the state is a state in a surface of the state is a state in a surface of the state is a state of the state is a state of the state is a state in a surface o   
   
  | Phone Information cannot be writtle. A set<br>URL broad bank and the set<br>URL broad bank and the set<br>Id Visual Screening of Buildings for<br>IA P-154 Data Collection Form<br>PHOTOGRAPH  | Potential Seism<br>Potential Seism<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Signature<br>Sign   
   
   | where EST = Each Converses<br>USU TO CONVERSES<br>In 1 This of the converses<br>In 2 This of the converses<br>In 2 This of the converse<br>In 2 Thi   | Big to construct a trace to serve the serve of the s   |  
   
   | Comments:<br>Comments:<br>FEMA P-164<br>Octorol Levi 2 cm<br>Bidg News<br>Datriffme:<br>Stream<br>Vetical<br>Imgulanty, Vu<br>Imgulanty, Vu<br>Imgulanty, Pu<br>Plan<br>Imgulanty, Pu<br>Plan   | Jos er mysel   | TO CONTRACTOR INSERT THE TRANSPORTED TO THE TRANSPO   | Tournour sensitive reactions of the sensitive reaction of the sensitiv  | USS (i) or productive Linkshop (i) or products subject to the society of the soc   |
Lever<br>Lover<br>Lover<br>Lover<br>Lover<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection<br>Annotection  | 2 (Option<br>or detains or detains or detains or<br>on detains or detains or detains or detains or<br>on detains or detains or detains or detains or detains or detains or<br>on detains or detai   |
| Deckuber         Texa  
   
  | Phore Information cannot be artifiction of the information of the info   | Potential Seism<br>Potential Seism<br>Grant Grant Seism<br>Control Grant Se   
   
  | wing: E2T = Eath<br>URI DF UNITED<br>THIS CHARTS<br>in the Hazards<br>doress:<br>doress:<br>doress:<br>the test<br>interest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>isterest<br>is   | [ 10 go to stratevit states is streture     [ 10 go to stratevit strates is streture     [ 20 Good To So  |  
   
   | Comments:<br>Comments:<br>FENAP-154<br>Options Lond 2 on<br>Sidg Name<br>Dater<br>Traje<br>Verical<br>Inegularity, V <sub>2</sub><br>Plan<br>Inegularity, Pu<br>Redundancy<br>Pounding<br>S2 Buldeon  | Jose en el conservención de la conservenc  | TO DOMINGUISE TOP TO<br>COLON FORMULATION TO THE COLONE<br>performed by a cull or structure<br>performed by a cull or structure<br>TO ADD TO ADUUTE<br>TO ADUUT | Orientuar Sensitive mazara     Orientuar Sensitive mazara     Final Level Importante, sensitive     Transference protection, sensitive     Transference     Tran   | USS (in the second sec   | LEVY CE<br>LEVICE<br>LOD<br>and in settinic execution<br>Para Internet<br>differ   | 2 (Upp)<br>on or debug to<br>nerror.plainerror.pla  
  |
| None         Lt         L  
   
   | Neve Information cancel 24 works, con-<br>tions of the second terms of the second terms of the second terms of the second term of t  | Potential Seism<br>Potential Seism<br>Constraints<br>Reference of the series o   
   
  | white: EET = East<br>URID = CHWPEC<br>TU = Th ue<br>hic Hazards<br>ddress:<br>ddress:<br>ddress:<br>ddress:<br>bec<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudie:<br>istudi:<br>istudie:<br>istudie:<br>istudie:<br>ist  | [ In graving and insertie stands stands<br>[ In graving and inserties inserties and insert and insert and   |  
   | Comments:<br>Redprid VISUal<br>FENAP-154<br>OctoosiLend 260<br>Sidg Name<br>Date Time:<br>STRUCTURAL<br>Togenery, Va<br>Unical<br>Imgularity, Va<br>Plan<br>Imgularity, Pa<br>Plan<br>Imgularity, Pa<br>Redundancy<br>Pounding<br>St Building<br>C) Building  
   | Cover of the second secon  | TO DOMUGUE INSEED THE<br>COLON EXEMUTING FOR THE<br>COLON FORM<br>Instrumed by a civil or structure<br>instrumed by a civil or structure<br>TO ADDO TO ADUUTTING THE STRUCTURE<br>TO ADDO TO ADUUTTING THE STRUCTURE<br>INTO ADUUTTING THE STRUCTURE INTO ADUUTTING   | Orientuar Sensitive Mazan     Final Level     Torentuar Sensitive Mazan     Final Level     Torentuar Sensitive Mazan     Final Level     Torentuar Sensitive     Torentu   | US<br>(c) or greature subset with being<br>(c) or greature subset with being<br>(c) or greature subset with being<br>(c) or greature subset with the construction<br>(c) or (c) or (c  | LEVER<br>LOU<br>and in secure, extrat<br>Plan Image<br>definition of the secure<br>of the secure extration<br>of the secure extra secure<br>rest 55% of the<br>rest 55  | 2 (Opn)  |
| rest victor  
   
  | Wave information cannot be unified. So in the interview of the interview   | Potential Seism<br>Potential Seism<br>Ref. MODIFIERS,<br>S 50 55 55 55 55 55 55 55 55 55 55 55 55   
   
   | Internet and a second sec   | Big to some the starter isome to an example of the some transmission of the some transmiss  |   
  | Comments:<br>Reginary VISUAL<br>FEMA P-154<br>Streamer:<br>Determine:<br>STRUCTURAL<br>Variation<br>Inegularity, Va<br>Plan<br>Imegularity, Ra<br>Redundancy<br>Pounding<br>Stabling<br>C15Juliding<br>PC18U184  
  | Cover of the second secon  | g or boundardural heard the<br>construction heard the<br>services by a cuil or structu-<br>services by a cuil or structu-<br>tion of the service of the services<br>to approximate the services of the<br>transmission of the services of the<br>services of the services of the services of the<br>transmission of the services of the<br>transmission of the services of the<br>services of the services of the<br>services of the services of the<br>transmission of the services of the services of the<br>transmission of the services of the services of the<br>transmission of the services of the services of the services of the<br>transmission   | OUTIVIAT Sensitive Tracelle     Touristical Sensitive Tracelle     Final Level 1 Sense     Level 1 Impacts loss, school 1     Sensitive 1 Sense     Level 1 Impacts     Sensitive 1     S   | US $(x_i, y_i) = (x_i, y_i) = $  | LEGYER<br>LEGYER<br>LEGYER<br>Allen Integret<br>Allen  | 2 (Upn)<br>8 Seisn<br>8 S   |
| Open         Na         N  
   
   | Hore information cannot be writted. Les of<br>Jer - Breaching State -  | Potential Seism<br>Potential Seism<br>Potential Seism<br>Re. MCOIPTEES<br>RE. MCOIPTEES<br>RE. MCOIPTEES<br>RE. MCOIPTEES<br>RE. MCOIPTEES   
   
  | where EST = Each Converses<br>USU DIST UNITED CONVERSES<br>In 2 This are<br>in 2 This are<br>in 2 This are<br>in 2 This are<br>converses<br>where identifiers<br>where identifiers<br>where identifiers<br>internet(i):<br>is . Stories : Above<br>and Floor Area (a difficulty<br>is . Stories : Above<br>and Floor Area (a difficulty<br>is . Stories : Above<br>and Floor Area (a difficulty<br>is . Stories : Above<br>and Floor Area (a difficulty<br>   | [ 10 get constructed transfer somethy     [ 20 get constructed transfer somethy     [ 20 get constructed transfer somethy     [ 20 get constructed transfer     [ 20 get c  | Image: Control of the second   
  | Comments:<br>Comments:<br>FEMA P-154<br>Cotorol Levi 2 cm<br>Bidg Name<br>Datriffice:<br>Stream<br>Vetical<br>Imgularity, Vu<br>Paralo<br>Redundancy<br>Pounding<br>S2 Building<br>C1 Building<br>S2 Building<br>C1 Building<br>S2 Build  | Jore en manuel     Jore ma  | TO CONTRACTOR INSERT THE TABLE THE TABLE T   | Controller 3 sensitive market    
Controller 3 sensitive market     Final Level     Final   | Use the student with the score of the student of the student with the score of the student with the score of the student point $V_{i,j}$ , where the student the student $V_{i,j}$ , where the student $V_{i,j}$ , the studen   | LEFFET<br>LEFFET<br>LEFFET<br>LEFFET<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pactors<br>Pa | 2 (Option  |
| Tops A = 6         0.5         1.1         1.2         2.1   
   
  | Wate Monados canado 24 voltidas, sos     UST Support estado firme     None Monados canados     Sectorem Nano   | Potential Seism<br>Potential Seism<br>Potential Seism<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolutions<br>Resolu  
   
   | why: E27 Edu Control C  |   | Image: Control of the contro  
   | Comments:<br>Comments:<br>FENA VISUAL<br>FENA P-154<br>Original Level 2 cm<br>Sidg Name<br>Serence:<br>DaterTime:<br>StructURAL<br>Topic<br>Verical<br>Inegularly, V <sub>2</sub><br>Plan<br>Inegularly, Pu<br>Redundancy<br>Planding<br>S2 Building<br>PCIRUI Bidg<br>URU<br>NH                              
   | Cover and the second seco  | TO DOMINGUIDE THE AND DOMINGUES TOP TO<br>COLON FORM DURING TO TO<br>COLON FORM DURING THE AND DURING THE AND DURING<br>performed by a culic or structure<br>TO ADD TO ADUUTE AND DURING THE AND DURING<br>TO ADD TO ADUUTE AND DURING THE AND DURING<br>TO ADD TO ADUUTE AND DURING THE AND DURING<br>TO ADD TO ADUUTE AND DURING THE AND DURING THE AND DURING<br>TO ADD TO ADUUTE AND DURING THE AN   | CONTRACT SENSITY TALEAS<br>CONTRACT SENSITY TALEAS<br>Final Level Transport of the sensity<br>Final Level Transport of the sensity of the Level Transport<br>DIATED SENSITY SENSITY OF SENSITY OF SENSITY<br>DIATED SENSITY OF SENSITY OF SENSITY OF SENSITY<br>DIATED SENSITY OF SE  | Use the second  | Lever Classes  | Coperation     C  |
| Oper B // 2000/// 1000       Oper B // 2000/// 10000       Oper B // 2000//// 10000       Oper B // 2000//// 10000       Oper B // 2000////  
   
  | Have Information cannot be writted. So for<br>More Reported Statement of the State<br>MA P-154 Data Collection Form     PHOTOGRAPH     PHOTOGRAPH     BASIC SCC   | Potential Seism<br>Potential Seism<br>Potential Seism<br>Ref. MODIFIERS.<br>REF. MODIFIERS.<br>REF. MODIFIERS.<br>REF. 1001FIERS.<br>REF. 1  
   
   | where EST = Each     Unit of Unit   | Constrained in transfer simple<br>Constrained in transfer   | Image: Second   
   | Comments:<br>Redprid VISUal<br>FEIAA P-154<br>Octoos Lene 1500<br>Sidg Name<br>Date Time:<br>Straucture<br>Verical<br>Insgularky, Vu<br>Page 100<br>Redundancy<br>Pounding<br>CI Building<br>CI Building<br>CI Building<br>PC1RMI  | Cover of the second secon  | TO DOMUGUE INSEED THE<br>TO DOMUGUES FOR THE<br>COLON FORM<br>Serfamed by a civil or structu-<br>serfamed by a civil or structu-<br>tion of the civil of the civil of the<br>TO ADD TO ADUST (The set all<br>TO ADD TO ADUST) These all<br>TO ADD TO ADUST (The set all<br>the civil of the civil of the<br>Civil Dulling There is a lead<br>of the building corpore the TM<br>TW I surfage corpore the TW I surfage<br>TW   | Orientuar Sensitive Mazak     Final Level      The sense of the sense of the sense     The sense of   | Use the second  | Lever<br>Loo ver<br>Loo ver<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Pass Inspection<br>Lever<br>Pass Inspection<br>Lever<br>Lever<br>Pass Inspection<br>Lever<br>Pass Inspection<br>Lever<br>Pass Inspection<br>Lever<br>Pass Inspection<br>Lever<br>Lever<br>Pass Inspection<br>Lever<br>Lever<br>Pass Inspection<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lever<br>Lev   | Coput     Science     Coput  |
| LEVEL \$ \$CORE_\$_1x 2 suc:     TENT OF RV/EW         TENT OF RV/EW TENT OF RV/EW TENT OF RV/EW ONE   0 sin   
   
  | Wave information cannot be writtle. List of<br>UST structment and the structure<br>BT-Breachman Structure<br>PR-Breachman Structure<br>PhotoCography         Non-Structure<br>Structure<br>PhotoCography           PHOTOCGRAPH         PhotoCography         Non-Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>Structure<br>S                                      | ever state vas is is following to following to the  
   
   | series: EST = Estatus     Unit of United Provides     in the Hazards     inthe Hazards     in the Hazards     in the Hazards     int the Haza   |   | Image: Disk           Max           Max </td <td>Comments:<br/>Comments:<br/>FEMAP-154<br/>Cotool Level 2 cm<br/>Secretor:<br/>Defrifine:<br/>STRUCTURAL<br/>Topic<br/>Verical<br/>Imguinely, Vu<br/>Imguinely, Vu<br/>Imguinely, Vu<br/>Plan<br/>Imguinely, Pu<br/>Redundancy<br/>Pounding<br/>ST Suiding<br/>PC1RUI Bidg<br/>UNI<br/>Redott<br/>FINAL LEVEL 7<br/>Tome solesmalk<br/>Pres Solesmalk<br/>Pres Solesmalk<br/>Pres Solesmalk</td> <td>Joreen my      Joreen my      J</td> <td>To constructive insert the<br/>Tot Distribution in the second second second<br/>performed by a cull or structure<br/>the second second second second second second<br/>the second second second second second second second<br/>the second second</td> <td>CONTINUET SERVICE TRACENT     CONTINUET SERVICE TRACENT     Final Content of the Service Trace of the Service</td> <td>US (c) spectrate student with testing to the student testing to the student testing t</td> <td>Le ver<br/>Le ver<br/>Le ver<br/>Le ver<br/>Annonet Sann,<br/>al construction<br/>al constru</td> <td>2 (Option of a design of a des</td> | Comments:<br>Comments:<br>FEMAP-154<br>Cotool Level 2 cm<br>Secretor:<br>Defrifine:<br>STRUCTURAL<br>Topic<br>Verical<br>Imguinely, Vu<br>Imguinely, Vu<br>Imguinely, Vu<br>Plan<br>Imguinely, Pu<br>Redundancy<br>Pounding<br>ST Suiding<br>PC1RUI Bidg<br>UNI<br>Redott<br>FINAL LEVEL 7<br>Tome solesmalk<br>Pres Solesmalk<br>Pres Solesmalk<br>Pres Solesmalk  | Joreen my      J   
  | To constructive insert the<br>Tot Distribution in the second second second<br>performed by a cull or structure<br>the second second second second second second<br>the second second second second second second second<br>the second   | CONTINUET SERVICE TRACENT     CONTINUET SERVICE TRACENT     Final Content of the Service Trace of the Service   | US (c) spectrate student with testing to the student testing to the student testing t   | Le ver<br>Le ver<br>Le ver<br>Le ver<br>Annonet Sann,<br>al construction<br>al constru   | 2 (Option of a design of a des   |
| TENT OF REVIEW OTHER HAZARD S ACTION REGUIRED There is a two group or red is not production unkings, the lapses index_edit supported There is a two group or red is not production unkings, the lapses index_edit supported There is a two group or red is not production unkings, the lapses index_edit supported There is a two group or red is not production unkings, the lapses index_edit supported There is a two group or red is not production unkings, the lapses index_edit supported There is a two group or red is not production unkings, the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit supported There is a two group of the lapses index_edit support of the lapses There is a two group of the lapses index_edit support of the lapses inde   
   
  | Wave information cancel as unified. So the second  | Ret. HOOPTERS.         6           9         6         7           9         6         7           9         7         7           9         7         7           9         7         7           9         7         7           9         7         7           9         7         7           9         7         7           9         7         7           9         7         7           9         7         7           9         7         7           9         7         7           9         7         7           9         7         7           9         7         7           10         10         10           10         10         10           10         10         10           10         10         10           10         10         10           10         10         10           10         10         10           10         10         10           10         10  
   
   | where EST = Each USU DE UNE DURINGE USU DE UNE DURINGE USU DE UNE DURINGE No EST  No EST  Second S  |   | Image: Note: Note: Note: Note: Note: Section: Note: Section: Note: Section: Note: Not   
  | Comments:<br>Comments:<br>FEMA P154<br>Cotoos Level 2 on<br>Bidg Naves<br>Detriffine:<br>Streener:<br>Detriffine:<br>Streener:<br>Detriffine:<br>Plan<br>Imgularly, Vu<br>Plan<br>Redundancy, Vu<br>Redundancy<br>Planding<br>S2
Building<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Planding<br>Pla  | Cover and the second seco  | TO PORTUGUES TOT T<br>CEION FORM ONLY THE SECOND SECO   | Sector of the s   | Use the student is trademised by the student is the s   | LEV VET LEV LE   | 2 (Option  |
| icc       Intel _ Arm       Art There is a sign point of the Malling Mark Contains Sequence         intel _ Mark Contains Sequence       Using Mark Contains Sequence       Intel Sequence       Intel Sequence         interview       Interview       Interview       Interview       Interview       Interview         interview       Interview       Interview       Interview       Interview       Interview       Interview         interview       Interview       Interview       Interview       Interview       Interview       Interview       Interview         interview       Interview       Interview       Interview       Interview       Interview       Interview       Interview       Interview       Interview       Interview       Interview       Interview       Interview       Interview       Interview       Interview       Interview  
   
  | Rever information cannot be writtle. They are an information cannot be writtle. They are an information cannot be are an inform  | every staff you is in following to come of the f  
   
  | where EST E EAT EAT<br>IN THE OWNERS<br>IN THE OWNERS  |   | Image: A constraint of the second s   
  | Comments:<br>Radjord VISUal<br>FENAR P-154<br>Oriona Lene 1 See<br>Sida Name<br>Verical<br>Insgularity, Vu<br>Plan<br>Insgularity, Vu<br>Plan<br>Redundancy<br>Plant<br>Redundancy<br>Planta Lister<br>FINAL LEVET<br>Final Level<br>Three solowands<br>Urital Sea<br>PCIRUI Bdg<br>URI<br>Bdg<br>PCIRUI Bdg<br>URI<br>FINAL LEVET<br>Final Level<br>Casadon  | Survernment     Survernme  
   | TO DOMESTICATE THE ADDRESS TO TO TO<br>COLON FORM DURING TO TO TO<br>COLON FORM DURING THE ADDRESS TO TO<br>DEFINITION TO ADDUCT ADDRESS TO TO<br>TO ADDD TO ADDUCT ADDRESS TO<br>TO ADDD TO ADDRESS TO<br>TO ADDRESS TO ADDRESS TO ADDRESS TO<br>ADDRESS TO ADDRESS TO ADDRESS TO<br>ADDRESS TO ADDRESS TO ADDRESS TO<br>ADDRESS TO ADDRESS TO ADDRESS TO ADDRESS TO ADDRESS TO<br>ADDRESS TO ADDRESS TO ADDRESS TO ADDRESS TO<br>ADDRESS TO ADDRESS TO ADDRESS TO ADDRESS TO ADDRESS TO<br>ADDRESS TO ADDRESS TO ADDRESS TO ADDRESS TO ADDRESS TO<br>ADDRESS TO ADDRESS TO ADDRESS TO ADDRESS TO ADDRESS TO<br>ADDRESS TO ADDRESS TO  | The second secon  | US<br>(or graduate student with bacogo<br>gradient student with bacogo<br>(or graduate student) with a<br>graduate control (or graduate<br>(or graduate student) with a<br>(or graduate student) with a<br>(or graduate student with a<br>(or graduate student) with a<br>(or graduate student) with a<br>(or graduate student with a<br>(or graduate student) with a<br>(or graduate student with a<br>(or graduate student) with a<br>(or graduate student with  | Lever<br>Lever<br>Lover<br>Lover<br>Lover<br>Lover<br>Lover<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>Paran<br>P  | 2 (Option of details of a constraint of the cons   |
| inge Review:       Image Review: </td <td>Rever Mitmation cancel 34 writes. Use in      General Content of the second term of</td> <td>Potential Seism           Potential Seism           Potential Seism           Response           Response     <td>while: EST = East     Unit of Uni</td><td></td><td>□ Dick           Nor Abar           Lovel 1           Lovel 1           Lovel 1           Image 2017           P           Lovel 1           Image 2017           P           Image 2017           P           Image 2017           P           Image 2017           P           Image 2017           Image 2017</td><td>Comments:<br/>Redprid VISUal<br/>FENA P-154<br/>Ortoxi Len 2 60<br/>Sidg Name<br/>Date Time:<br/>Straucture<br/>Verical<br/>Insgularity, Va<br/>Page 10<br/>Redundancy<br/>Pounding<br/>CI Building<br/>CI Building</td><td>Cover of the second secon</td><td>TO DOMUGUE INSERT THE<br/>TO DOMUGUES FOR T<br/>CION FORMUTINGS FOR T<br/>CION FORM<br/>Serfamed by a civil or structu-<br/>serfamed by a civil or structu-<br/>TO ADD TO ADUUTIN<br/>TO ADD TO ADUUTING<br/>TO ADU</td><td>Orientuar Sensitive Mazak     Final Level I See     Torentuar Sensitive Mazak     Final Level I See     Level I Ingelianty Model     Torentuar Sensitive Mazak     Final Level I See     Level I Ingelianty Model     Torentuar Sensitive Mazak     Torentuar Sensitive Mazak</td><td>US<br/>(or greature susterial with leading<br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_</math></td><td>Let ver<br/>Let ver<br/>Let ver<br/>Let ver<br/>let and let and le</td><td>Coprol     Seiss     Seiss</td></td> | Rever Mitmation cancel 34 writes. Use in      General Content of the second term of   | Potential Seism           Potential Seism           Potential Seism           Response           Response <td>while: EST = East     Unit of Uni</td> <td></td> <td>□ Dick           Nor Abar           Lovel 1           Lovel 1           Lovel 1           Image 2017           P           Lovel 1           Image 2017           P           Image 2017           P           Image 2017           P           Image 2017           P           Image 2017           Image 2017</td> <td>Comments:<br/>Redprid VISUal<br/>FENA P-154<br/>Ortoxi Len 2 60<br/>Sidg Name<br/>Date Time:<br/>Straucture<br/>Verical<br/>Insgularity, Va<br/>Page 10<br/>Redundancy<br/>Pounding<br/>CI Building<br/>CI Building</td> <td>Cover of the second secon</td> <td>TO DOMUGUE INSERT THE<br/>TO DOMUGUES FOR T<br/>CION FORMUTINGS FOR T<br/>CION FORM<br/>Serfamed by a civil or structu-<br/>serfamed by a civil or structu-<br/>TO ADD TO ADUUTIN<br/>TO ADD TO ADUUTING<br/>TO ADU</td> <td>Orientuar Sensitive Mazak     Final Level I See     Torentuar Sensitive Mazak     Final Level I See     Level I Ingelianty Model     Torentuar Sensitive Mazak     Final Level I See     Level I Ingelianty Model     Torentuar Sensitive Mazak     Torentuar Sensitive Mazak</td> <td>US<br/>(or greature susterial with leading<br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)</math><br/><math>S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_</math></td> <td>Let ver<br/>Let ver<br/>Let ver<br/>Let ver<br/>let and let and le</td> <td>Coprol     Seiss     Seiss</td> | while: EST = East     Unit of Uni   |   | □ Dick           Nor Abar           Lovel 1           Lovel 1           Lovel 1           Image 2017           P           Lovel 1           Image 2017           P           Image 2017           P           Image 2017           P           Image 2017           P           Image 2017  | Comments:<br>Redprid VISUal<br>FENA P-154<br>Ortoxi Len 2 60<br>Sidg Name<br>Date Time:<br>Straucture<br>Verical<br>Insgularity, Va<br>Page 10<br>Redundancy<br>Pounding<br>CI Building<br>CI Building  | Cover of the second secon  | TO DOMUGUE INSERT THE<br>TO DOMUGUES FOR T<br>CION FORMUTINGS FOR T<br>CION FORM<br>Serfamed by a civil or structu-<br>serfamed by a civil or structu-<br>TO ADD TO ADUUTIN<br>TO ADD TO ADUUTING<br>TO ADU                 | Orientuar Sensitive Mazak     Final Level I See     Torentuar Sensitive Mazak     Final Level I See     Level I Ingelianty Model     Torentuar Sensitive Mazak     Final Level I See     Level I Ingelianty Model     Torentuar Sensitive Mazak   | US<br>(or greature susterial with leading<br>$S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)$<br>$S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)$<br>$S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)$<br>$S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)$<br>$S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)$<br>$S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)$<br>$S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)$<br>$S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_0 \right)$<br>$S_0 = \frac{1}{2} \left( S_0 - S_0 \right) \left( S_0 - S_$ | Let ver<br>Let ver<br>Let ver<br>Let ver<br>let and let and le   | Coprol     Seiss   |
| Construction     C   
   
   | Wave Information cancel 24 writes. List of<br>UPT Strengenetating free<br>BR-Encodime         Clinitian<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Difference<br>Differe<br>Difference<br>Difference<br>Difference<br>Difference<br>Diff | ever state value is in following on the following control           Potential Seism           Potential Seism           R           B  
   
  | series:         Ext = Ext   |   | Image: Note:         Image: Note:  
   
   | Comments:<br>Comments:<br>FEMA P-154<br>Cotool Loni 2 cm<br>Bidg Name<br>Datrilline:<br>Stream<br>Vertical<br>Imgulanty, Vu<br>Imgulanty, Vu<br>Plan<br>Imgulanty, Ru<br>Redundancy<br>Pounding<br>St Subleg<br>Charling<br>St Subleg<br>St Subleg<br>Subleg<br>St Subleg<br>St Subleg<br>Subleg<br>St Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg<br>Subleg  | Jore of a second s  | To constructive insert the<br>constructive insert the<br>performance of the solution of the<br>performed by a cull or structure<br>the solution of the solution of the<br>performed by a cull or structure<br>the solution of the solution of the<br>the solution of the solution of the<br>the solution of the solution of the<br>solution of the solution of the<br>the solution of the solution of the<br>solution of the solution of the<br>the solution of the solution of the<br>solution of the solution of the<br>the solution of the solution of the<br>solution of the solution of the<br>soluti   | To control and a series of the  | Grant and a second   | Le ver<br>Le ver<br>Le ver<br>Le ver<br>le conserver<br>le conserver   | 2 (Option of a data of a second of a data of a   |
| EL 2 SCREENING PERFORMED     Borgio taste de 10 ye 7     United and services and the number of the 10 yes 7     United and the 10 yes 7  
   
  | Wave Information cannot be writted. So for<br>UNE Strenger earling the second be writted. So for<br>SK-Encod thms Since Sin  | ever state voit is in fold of the second s  
   
  | where EST = Each<br>USU DE UNE DURING<br>USU DE UNE DURING<br>USU DE UNE DURING<br>IL = This of<br>his Hazards<br>ddress:<br>ddress:<br>ber identifies:<br>isterior failing<br>istande:<br>isterior failing<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>istande:<br>is   |   | Image: Note: Note: Section of the section o  
   | Comments:<br>Comments:<br>FEMA P154<br>Cotoos Level 2 em<br>Bidg Naves<br>Detrifine:<br>Streener:<br>Detrifine:<br>Streener:<br>Detrifine:<br>Plan<br>Imgularly, Vu<br>Plan<br>Redundancy,
Vu<br>Redundancy<br>Plan<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>Redundancy<br>Plant<br>R  | Cover and the second seco  | TO PORTUGUES TOT T<br>CEION FORM ONLY THE SECOND SECO   | Controller 3 sensitive magnetic<br>Final Control (1997) - 10 of a<br>Controller 3 sensitive magnetic<br>Final Control (1997) - 10 of a<br>Final Control (1997) - 10 of a<br>Final Control (1997) - 10 of a<br>Final Control (1997) - 10 of a<br>Control (1997) -  | Use the student will be added by the student of the student will be added by the student will be added   | LEV et al.  | 2 (Option of easily of the second sec   |
|  
   
  | Wave information cancel 34 write(is, 15 mg)         UP 5 word frame       0,15 mg)         UP 6 word frame       0,15 mg)         UP 6 word frame       0,15 mg)         UP 6 word frame       0,15 mg)         UP 7 word frame       0,15 mg)         UP 8 mg       1,15 mg)         UP 9 mg)       1,15 mg)         UP 1 9 mg)       1,15 mg)      <  | every table you is in this book of the book  
   
  | where EST - Each<br>USU DE UNE DURING<br>USU DE UNE DURING<br>IN - Thus and<br>IN - Thus and<br>Advess:<br>   |   | Image: A mark Abare           Low Seld Statements           Level 1           Level 1           Low Seismicity           P           Image: Abare Abare           Image: Abare   
   
   | Comments:<br>Comments:<br>FENAP 154<br>FENAP 154<br>Original Anal<br>Straucture<br>Date Time:<br>Straucture<br>Verical<br>Insgularity, Vu<br>Plan<br>Insgularity, Pu<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy<br>Plan<br>Redundancy  | Cover and the second seco  | TO CONTRACTOR INSERT ON THE CONTRACTOR INSERTOR INSERT ON THE CONTRACTOR INSERTOR INSERTOR INTO THE CONTRACTOR INTO THE C   | To a control of the series of   | So and the second  | LEV VET  | 2 (Opt)<br>3 (Opt)<br>5 (O   |

Figure 10. Rapid Visual Screening of Buildings for Potential Seismic Hazards Level [5]

BR = Brox

RC = Rehforced SW = Sheer well URUINF=U TU=Titup UH = Verufedur UN = Upit metal Ing FD = Flexible disphrac RD = Rold disphracm

Buildir	-5 • uniciaofiit													
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		~~~~~		Cinema H	all		Town Ha	all	Ľ	Ma	rriage Hall		
Name of the investigator/Team:			_ Date:_		Communi	ty Hall		Restaura	nt	C	Cou	art Complex	x	
1. General Information					Importan	t Governmen	t Buildings	s						
Front picture of building					D.C Offic	e ·		D.C Res	ident		] Tou	rism Office	e	
		Name of the Own	er:		P.W.D Of	fices		HPSEB	Offices		HP	IPH Offices	8	
		Contact Number:			Emergen	cy Buildings								
		Address:			Police Sta	tion 🗌				Fire Station	n 🗌			
		Discha			Service B	uildings								
		Block:			Telecomm	unication		Electric	Sub Stati	ons [	Wa	ter Pump S	stations	
		District:			Commerc	ial								
		Density:			Shop			Super M	arket	[	Veg	etable Mar	rket	
Side picture of building		Urban 🗖	Rural		Cowshed									
		No. of occupants	in the building:		2. Ex	posure to H	azard Ty	pes						
		Day	Night		Geo	logical		H	ydro-met	teorological	I		Oth	ers
		Number of storie	e in the buildings		Earthquak	c 🗌	Riverine F	Flood		Cloud Bur	rst	F	ire	
		Number of store	s in the bunding:_		Landslide		Wind Stor	rm 🗌		Hail Storn	n 🗌	F	orest Fire	
		GPS Co.ordinate	5:				Avalanche	e 🗌		Flash Floo	d 🗌	L	ightning	
		Lattitude:	Longitud	de:			Maximun	n height of	the snow	w deposition	n:			
Type of Use of the Building:		I			3. Sit	e Character	ization							
Residential					Site Morp	hology:			, ,	_				
Private Dwelling Flat		Dormitories	Hotels		Flat	$\Box$	Crest	Ĺ	1	Downward	I Slope	Troug	gh	
Aaganwadi Institutional	School		College		Soil:	Soi	l Type				So	il Nature		
Hospital Community Hea	alth Center	Old age Homes	Orphanage		Hard	Mediu	m 🗌	Soft	E	Expansive [	Non I	Expansive		
													Un	known
TARU/HPSDMA	Building Vulnerability A:	sessment	Ver 3.0	Page 1 of 10	TARU/HPS	DMA	t of the k	Building Vul	nerability A	Assessment		Ver 3.0		Page 2 of 10
TARUHPSDMA Par Par Depth of the water table (in ft):	Building Vulnerability A: rameters for Liquef	action potential o	Ver 3.0	Page 1 of 10	TARU/HPS	area and co	st of the b	Building Vul	Av	Assessment verage built	-up area (ft	Ver 3.0	of constru	Page 2 of 10
TARU/HPSDMA Par Depth of the water table (in ft): Whether the soil is sandy?	Building Vulnerability Ar rameters for Liquef	action potential o	Ver 3.0 f soil No	Page 1 of 10	TARU/HPS	DMA	st of the b	Building Vul	Av	Assessment verage built	-up area (ft	Ver 3.0 2) Cost	of constru	Page 2 of 10
TARUHPSDMA Pau Depth of the water table (in ft): Whether the soil is sandy? 4. Basic Details about Bu	Building Vulnerability Ar rameters for Liquef ilding	action potential o	Ver 3.0 f soil No	Page 1 of 10	Age, o	DMA area and co Age of cor dation: Type of	st of the b struction	building Vul	Av	Assessment verage built Raft	-up area (ft Pile	Ver 3.0 2) Cost	of constru	Page 2 of 10 ction (in `) Mat
TARUHPSDMA Pau Depth of the water table (in ft): Whether the soil is sandy? 4. Basic Details about Bui Building Code Compliance:	Building Vulnerability A rameters for Liquef ilding	action potential o	Ver 3.0 f soil No	Page 1 of 10	TARUAPS	Age of con Age of con dation: Type _ of Foundation	st of the b ostruction	Building Vul building:	nerability A	Assessment verage built Raft	-up area (ft Pile	Ver 3.0 2) Cost of () () () () () () () () () () () () ()	of constru	Page 2 of 10 ction (in `) Mat
TARUHPSDMA Pau Depth of the water table (in ft): Whether the soil is sandy? 4. Basic Details about Bui Building Code Compliance: Engineered Building	Building Vulnerability Ar rameters for Liquef ilding	action potential o	Ver 3.0 f soil No Building	Page I of 10	TARUAPS	dation: Type of Foundation	f Isolate	Building Vul building: ed Con	nerability A	verage built	-up area (ft Pile	Ver 3.0 2) Cost (	of constru pread	Page 2 of 10 ction (in `) Mat
TARUHPSDMA Pau Depth of the water table (in ft): Whether the soil is sandy? 4. Basic Details about Bui Building Code Compliance: Engineered Building Data of Comptancian;	Building Vulnerability Ar rameters for Liquef ilding	action potential o	Ver 3.0 f soil No Suilding	Page I of 10	TARUHPS Age, o Found	area and co Age of con dation: Type Foundation Depth (R)	st of the b istruction	Building Vul	nerability A	verage built	-up area (ft	Ver 3.0 2) Cost (	of constru	Page 2 of 10 ction (in `) Mat
TARU/HPSDMA Pau Depth of the water table (in ft): Whether the soil is sandy? 4. Basic Details about Bu Building Code Compliance: Engineered Building Fype of Construction: RC Frame Brick Mason	Building Vulnerability Ar rameters for Liquef ilding	action potential o	Ver 3.0  f soil  Suilding  acd Earth H	Page 1 of 10	TARUARES Age, o Found	Age of cor Age of cor dation: Type of Foundation (ft) Depth of Foundation (ft)	st of the b istruction	Building Vul	nerability /	verage built	-up area (ft Pile	Ver 3.0 2) Cost ( 5) 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	of constru pread	Page 2 of 10 ction (in `) Mat
TARU/HPSDMA Pau Depth of the water table (in ft): Whether the soil is sandy? 4. Basic Details about Bu Building Code Compliance: Engineered Building Fype of Construction: RC Frame Brick Mason Dimensions of the Building (in	Building Vulnerability Ar rameters for Liquef ilding nry Stone Mas ft):	action potential o Yes Non-engineered I onry  Ramm	Ver 3.0  f soil  Suilding  ded Earth H	Page 1 of 10	TARUABES	area and co Age of cor dation: Type of Foundation (ft) Depth of Foundation (ft) No. of fb on the slo	st of the b istruction	Building Vul building: ed Con orted Is t	nerability A Av nbined	verage built	-up area (ft Pile	Ver 3.0 <sup>2</sup> ) Cost of : Sp minant mat	of constru pread	Page 2 of 10 ction (in `) Mat ction e floor
TARU/HPSDMA Pau Pau Depth of the water table (in ft): Whether the soil is sandy? 4. Basic Details about Bu Building Code Compliance: Engincered Building (ype of Construction: RC Frame  Brick Mason Dimensions of the Building (in Length:	Building Vulnerability Ar rameters for Liquef ilding nry Stone Mass <i>f(t)</i> : Breadth:	action potential o	Ver 3.0  f soil  Suilding  ded Earth Hy  Height:	Page 1 of 10	TARUMPS Age, o Found Floor	dation: Type of con dation: Type of Foundation Depth of Foundation (ft) Details: No. of ft on the slop None	st of the b sstruction	Building Vul building: od Con orted Is t	nerability A Av mbined there a bu	verage built	-up area (ft Pile	Ver 3.0  Ver 3.0  Cost of Spininant mat	of constru	Page 2 of 10 ction (in `) Mat e floor
TARU/HPSDMA Pau Depth of the water table (in ft): Whether the soil is sandy? 4. Basic Details about Bu Building Code Compliance: Engincered Building (ype of Construction: RC Frame Brick Mason Dimensions of the Building (in Length:	Building Vulnerability Ar rameters for Liquef ilding nry Stone Mass <i>f(t)</i> : Breadth:	action potential o	Ver 3.0  f soil  Suilding  ded Earth Hy Height:	Page 1 of 10	TARUMPS Age, o Found Floor	dation: Type of con Type of con Foundation Depth of Foundation (ft) Details: No. of ft on the slop Nome	st of the b istruction	ed Con orted Is t	nerability A Av mbined there a ba	verage built	-up area (ft Pile Predor Mud	Ver 3.0  Ver 3.0  Cost ( Spiniterial Spini	of constru pread	Mat e floor
TARUMPSDMA Pau Depth of the water table (in ft): Whether the soil is sandy? 4. Basic Details about Bu Building Code Compliance: Engincered Building Fype of Construction: RC Frame Brick Mason Dimensions of the Building (in Length: Building Element:	Building Vulnerability Ar rameters for Liquef ilding nry Stone Mass <i>stifl</i> ; Breadth:	action potential o	Ver 3.0  f soil  Suilding  ded Earth Hy  Height:	Page 1 of 10	TARUMPS Age, o Found Floor	area and co Age of con dation: Type of Foundation Poundation (ft) No. of ft on the slop None 1	st of the b istruction	Building Vul building: ed Con orted Is t YE NO	Av here a bo	verage built Raft asement?	-up area (ft Pile Predor Mud Wood	Ver 3.0  2) Cost of Second sec	of constru pread	Mat e floor
TARU/HPSDMA Pau Depth of the water table (in ft): Whether the soil is sandy? 4. Basic Details about Bu Building Code Compliance: Engincered Building 'ype of Construction: RC Frame Brick Masor Dimensions of the Building (in Length: Ruilding Element: Beam	Building Vulnerability Ar rameters for Liquef ilding nry Stone Mass f(f): Breadth:	action potential o Yes Non-engineered I onry  Ramm Material o Material o	Ver 3.0  f soil  Suilding  ded Earth Height:  f the beam	Page 1 of 10	TARUMPS Age, o Found Floor	area and co Age of cor dation: Type of Foundation Depth of Foundation (ft) No. of ft on the slop None 1	st of the b istruction	Building Vul building: orted Is ( ) YE ) YE ) NO ) If (for	herability A Av mbined	Raft asement? amber of n the	-up area (fr Pile Predor Mud Bamboo	Ver 3.0  2) Cost of second sec	of constru pread	Mat e floor
TARU/HPSDMA Pau Pau Depth of the water table (in ft): Whether the soil is sandy? 4. Basic Details about Bu Building Code Compliance: Engineered Building [ype of Construction: RC Frame Brick Masor Dimensions of the Building (in Length: Building Element: Beam Minimum Size (in - in)	Building Vulnerability Ar rameters for Liquef ilding nry Stone Mass (f)): Breadth:	action potential o	Ver 3.0  f soil  soil  uidding  ded Earth    H;  Height:  f the beam  Concrete	Page 1 of 10	TARUMPS Age, o Found Floor	area and co Age of cor dation: Type of Foundation Depth of Foundation (ft) No. of ft on the slop None 1 2 3	st of the b istruction	ed Con orted Is t YTE YE NO OFFE	mbined here a bis s s s s s s s s s s s s s s s s s s	Raft asement? amber of n the	-up area (fr Pile Predor Mud Wood Bamboo Burnt Bric	Ver 3.0  Cost e  minant mat	pread	Mat e floor
TARU/HPSDMA Pau Pau Depth of the water table (in ft): Whether the soil is sandy? 4. Basic Details about Bu Building Code Compliance: Engincered Building [ype of Construction: RC Frame Brick Masor Dimensions of the Building (in Length: Building Element: Beam Minimum Size (in x in)	Building Vulnerability Ar rameters for Liquef ilding nry Stone Mass (f): Breadth:	action potential o Yes Non-engineered I onry Ramm Material o Material o	Ver 3.0  f soil  soil  uidding  ded Earth    H:  f the beam  Concrete	Page 1 of 10	TARUMPS Age, o Found Floor	area and co Age of cor dation: Type of Foundation Depth of Foundation (ft) No. of ft on the slop None 1 2 3	st of the b istruction	ed Corr ls i Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Stress Str	mbined mbined ss yYES, nr. i i where a base ss base i where a base ss i where a base i where a	Assessment	-up area (fr Pile Predor Mud Wood Bamboo Burnt Brice	Ver30 Cost ( S	pread	Mat e floor
TARU/HPSDMA Pau Pau Depth of the water table (in ft): Whether the soil is sandy? 4. Basic Details about Bu Building Code Compliance: Engineered Building (ype of Construction: RC Frame Brick Masor Dimensions of the Building (in Length: Building Element: Beam Minimum Size (in x in)	Building Vulnerability Ar rameters for Liquef ilding nry Stone Mass (f1): Breadth:	action potential o action potential o Yes Non-engineered I onry  Ramm Material o Masonry Material o	Ver 3.0  f soil  soil  uidding  ded Earth    Hy  Height:  f the beam  Concrete  f the beam	Page 1 of 10	TARUMPS Age, o Found Floor	area and co Age of cor dation: Type of Foundation Foundation (ft) No. of ft on the slop None 1 2 3 4	st of the b istruction	ed Corr ed Corr state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state st	nembility A Av	Assessment	-up area (fr Pile Predor Mud Wood Bamboo Burnt Bric Stone	Ver 3.0	pread	Mat e floor
TARUHPSDMA  Pa  Pa  Depth of the water table (in ft): Whether the soil is sandy?  4. Basic Details about Bu Building Code Compliance: Engineered Building  Type of Construction: RC Frame  Brick Masor Dimensions of the Building (in Length: Building Element: Beam  Minimum Size (in x in)  Column	Building Vulnerability A rameters for Liquef ilding nry Stone Mas ff): Breadth: Wood Wood	action potential o action potential o Yes Non-engineered I onry  Ramm Material o Masonry Material o Masonry	Ver 3.0  f soil  f soil  uidding  ed Earth    H;  f the beam  Concrete  f the beam  Concrete	Page 1 of 10	TARUMES Age, o Found Floor	area and co Age of cor dation: Type of Foundation Poundation (h) Depth of Foundation (h) None 1 2 3 4 2	st of the b istruction	ed Corr ed Corr state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state state st	nembility A Av	Raft Raft asement? amber of n the	-up area (fr Pile Predor Mud Wood Bamboo Burnt Bric Stone Cement	Ver30	pread	Page 2 of 10 Cetion (in *) Mat e floor
TARUHPSDMA  Pa.  Pa.  Depth of the water table (in ft):  Whether the soil is sandy?  4. Basic Details about Bu Building Code Compliance: Engineered Building  Fype of Construction: RC Frame Brick Mason Dimensions of the Building (in Length: Building Element: Beam  Minimum Size (in x in)  Column  Minimum size of rectangula section (in x in)	Building Vulnerability A rameters for Liquef ilding IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	action potential o action potential o Yes Non-engineered I onry  Ramm Material o Masonry Material o Masonry	Ver 3.0  f soil  f soil  uilding  uilding  ded Earth    H;  f the beam  Concrete  f the beam  Concrete	Page I of 10 Page I of 10	TARUMES Age, o Found	Age of cor Age of cor dation: Type of Foundation (ft) Depth of Foundation (ft) Deptails: No. of ft on the slop None 1 2 3 4 >4	st of the b istruction	ed Core orted Is YE NO 1 2 3 3 3	hembility / Av	Assessment	-up area (ft Pile Predor Mud Wood Bamboo Burnt Bric Stone Cement Mosaic/Fle	Ver 3.0	pread	Page 2 of 10 ction (in `)
TARU/HPSDMA  Pa  Pa  Depth of the water table (in ft): Whether the soil is sandy?  4. Basic Details about Bu  Building Code Compliance: Engineered Building  Type of Construction: RC Frame  Brick Masor Dimensions of the Building (in Length: Beam Minimum Size (in x in)  Column Minimum Size of rectangula section (in x in)	Building Vulnerability A rameters for Liquef ilding nry Stone Mas ff): Breadth: Wood r Wood r N	action potential o action potential o Yes Non-engineered I onry  Ramm Material o Masonry Material o Masonry	Ver 3.0  f soil  f soil  uidding  ed Earth    H;  f the beam  Concrete  f the beam  Concrete	Page 1 of 10	TARUARES Age, o Found Floor	Age of cor area and co Age of cor attion: Type of Foundation Poundation Depth of Foundation (ft) Details: No. of ft on the slop None 1 2 3 4 >4 Details:	st of the b istruction	ed Cor ed Cor state r r r r r r r r r r r r r	nembility / Av	Assessment	-up area (ft Pile Predor Mud Wood Bamboo Burnt Bric Stone Cement Mosaic/Fie	Ver 3.0	pread	Page 2 of 10 Cetion (in *) Mat Cetion
TARU/HPSDMA         Pa         Depth of the water table (in ft):         Whether the soil is sandy?         4. Basic Details about Bu         Building Code Compliance:         Engineered Building         Building Code Compliance:         Engineered Building       Brick Mason         Dimensions of the Building (in         Length:	Building Vulnerability A rameters for Liquef ilding nry Stone Mas ff): Breadth: Wood r Wood r N Wood	action potential o action potential o action potential o action potential o Yes Non-engineered I onry  Ramm Anterial o Material o Material o Material o Material o	Ver 3.0  f soil  Guidding  ded Earth   H  f the beam  Concrete  f the beam  Concrete	Page 1 of 10	TARUAHES Age, o Found Floor Wall	A area and co Age of cor dation: Type of Foundation Depth of Foundation (ft) Details: No. of ft on the slop Nonc 1 2 3 4 2 3 4 2 2	st of the b istruction	ed Cor orted Is t VE NC NC Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same	nembility / Av	Assessment	-up area (ft Pile Predor Mud Wood Bamboo Burnt Bric Stone Cement Mosaic/Fie	Ver 3.0	pread	Page 2 of 10  ction (in ')  Mat  e floor
Pa         Pa         Depth of the water table (in ft):         Whether the soil is sandy?         4. Basic Details about Bu         Building Code Compliance:         Engineered Building       Fype of Construction:         RC Frame       Brick Mason         Dimensions of the Building (in       Length:         Bailding Element:       Beam         Minimum Size (in x in)       Column         Minimum size of rectangular section (in x in)       Minimum size of circular section (diameter in inches)         Slope of the ground:	Building Vulnerability A rameters for Liquef ilding nry Stone Mas ff): Breadth: Wood r Wood r N Wood	sessment action potential o Tyes Non-engineered I onry Ramm Material o Material o Material o Material o Material o	Ver 3.0  f soil  f soil  Guilding  ed Earth Hi  f the beam Concrete  f the beam Concrete	Page 1 of 10	TARUARES Age, o Found Floor Wall	A area and co Age of cor dation: Type of Foundation Depth of Foundation (ft) None 1 2 3 4 2 4 2 4 2 4	st of the b istruction	ed Cor orted Is t VE VE VE VE VE VE VE VE VE VE	Av nbined here a bi s yes, n rement	Assessment	-up area (ft Pile Predor Mud Wood Bamboo Burnt Bric Stone Cement Mosaic/Fie	Ver3.0  Cost ( Signature)  Kategorian  Kat	pread	Page 2 of 10  Cetion (in *)  Mat  e floor  cup cup cup cup cup cup cup cup cup cu
TARUMPSDMA         Pa         Depth of the water table (in ft):         Whether the soil is sandy?         4. Basic Details about Bu         Building Code Compliance:         Engineered Building         Building Code Compliance:         Engineered Building         Dimensions of the Building (in         Length:	Building Vulnerability A rameters for Liquef ilding IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	sessment action potential o action potential o Tyes Non-engineered I onry Ramm Material o Masonry Material o Masonry	Ver 3.0  f soil  f soil  uidding  add Earth h  f the beam  Concrete  f the beam  Concrete  gle	Page 1 of 10	TARUAHES Age, o Found Floor Wall	Age of cor Age of cor June 2015 Age of cor Foundation Foundation Depth of Foundation (ft) Details: No. of ft on the slop Nonc 1 2 3 4 >4 >4		ed Cor orted Is ti VIE NCC NCC NCC Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solut	nembility / Av	Assessment	-up area (ft Pile Predor Mud Wood Bamboo Burnt Bric Stone Cement Mosaic/Fie	Ver3.0  Ver3.0  Cost (  Signature)  K  k  k  K  K  K  K  K  K  K  K  K  K	of constru-	Page 2 of 10  Cetion (in *)  Mat  Cetion (in *)  Mat  Cetion
TARUMPSDMA         Pa         Depth of the water table (in ft):         Whether the soil is sandy?         4. Basic Details about Bu         Building Code Compliance:         Engineered Building         Building Code Compliance:         Engineered Building         Building Code Compliance:         Engineered Building       Brick Mason         Dimensions of the Building (in         Length:	Building Vulnerability Af rameters for Liquef ilding III Stone Mass (f): Breadth: Wood Wood r N Wood F F F F F	sessment action potential o action potential o Yes Non-engineered I onry Yes Non-engineered I Material o Material o Material o Material o Material o Stress' / Slope An lat to mild (0-15 <sup>0</sup> )	Ver 3.0  f soil  f soil  Guilding  cod Earth   H;  Height:  f the beam  Concrete  f the beam  Concrete  gle	Page 1 of 10	TARUAHES Age, o Found Floor Wall	A area and co Age of cor dation: Type of Foundation Depth of Foundation (ft) Nonc 1 2 3 4 2 3 4 2 4 2 4 2 4		Building Vali building: orted Is t NC NC NC NC Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same	mbined here a bi	Assessment	-up area (ft Pile Predor Mud Wood Bamboo Burnt Bric Stone Cement Mosaic/Fie	Ver 3.0	of constru-	Page 2 of 10  Cetion (in ')  Mat  ce floor  page 2 of 10  cetion (in ')  support
TARUMPSDMA         Pa         Depth of the water table (in ft):         Whether the soil is sandy?         4. Basic Details about Bu         Building Code Compliance:         Engineered Building         Building Code Compliance:         Engineered Building         Dimensions of the Building (in         Length:	Building Vulnerability A rameters for Liquef ilding III Stone Mass (f): Breadth: Wood Wood r N Wood r N N N N N N N N N N N N N	sessment action potential o action potential o Yes Non-engineered I onry Yes Non-engineered I Material o Material o Material o Material o Material o Stress' / Slope An lat to mild (0-15°) fedium (15°-30°)	Ver 3.0  f soil  f soil  Guilding  cod Earth Height:  f the beam  Concrete  f the beam  Concrete  gle  gle  gle  gle  gle	Page 1 of 10	TARUAHES Age, o Found Floor Wall	A area and co Age of cor Age of cor Type of Foundation Depth of Foundation (ft) Depth of Foundation (ft) Depth of Foundation (ft) Nonc 1 2 3 4 4 >4 Details: Vall Material		Building Value building: orted Is t orted Is t NC NC NC Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Solution Sol	mbined here a bission of the second s	Assessment	-up area (ft Pile Predor Mud Wood Bamboo Burnt Bric Stone Cement Mosaic/File	Ver 3.0       P)     Cost (       I:     S[       minant mat       k       pgg	of constru-	Page 2 of 10  Cetion (in ')  Mat  e floor  /pipping  /pi
TARUMPSDMA         Pa         Depth of the water table (in ft):         Whether the soil is sandy?         4. Basic Details about Bu         Building Code Compliance:         Engineered Building         Pype of Construction:         RC Frame       Brick Maso         Dimensions of the Building (in Length:       Brick Maso         Dimensions of the Building (in Length;       Beam         Beam       Minimum Size (in x in)         Column       Column         Minimum size of circular section (iameter in inches)       Stope of the ground:         Building b       YES       NO         NO       [	Building Vulnerability A	sessment action potential o action potential o Yes Non-engineered I Onry Yes Non-engineered I Ramm Material o Material o Masonry Material o Second Se	Ver 3.0  f soil  f soil  Guilding  cod Earth Hi  f the beam  Concrete  f the beam  Concrete  gle  gle  gle  Guide  Guide Guide  Guide  Guide  Guide  Guide	Page 1 of 10	TARUMPS Age, o Found Floor Wall	A area and co Age of cor Age of cor Type of Foundation Depth of Foundation (ft) Depth of Foundation (ft) Depth of Foundation (ft) None 1 2 3 4 2 4 2 4 5 4 5 4	st of the b istruction	Building Vali building: orted Is I orted Is I NC NC NC Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same Same	mbined here a bi	Assessment	-up area (ft Pile Predor Mud Wood Bamboo Burnt Bric Stone Cement Mosaic/Fie gg	Ver 3.0       P)     Cost (       i:     S[       minant mat	of constru-	Page 2 of 10  Cetion (in ')  Mat  e floor  /pipred //interfed //in

Figure 11. Indian building vulnerability assessment form [4]

Thickness of wall Length of wall between Height of wall from	Material of the Staircase:
Wall Types (inch) cross wall (ft) floor to ceiling (ft)	Brick Stone Wood Concrete Steel
Type-1	
Туре-2	5. Present Condition of the Building
Opening in any wall (for Masonry construction)	Is there any structural crack in the building? YES NO
1 <sup>st</sup> Storey (>50%) YES NO	
2 <sup>nd</sup> Storey (>40%) YES NO	If YES,
3 <sup>rd</sup> Storey and shave (33%) VES NO	Building Element Horizontal Vertical Diagonal
Opening near corner of the wree	M1 M2 M1 M2 M1 M2
Wall (<1.5 ft)	Beam
each other (<2.0 ft) YES NO	Column
Roof Details:	Wall
Roof Type Roofing Material Presence of Truss	Size of Crack: M1 = Minor crack (0-5 mm); M2 = Major crack (>5 mm)
Flat Concrete YES If YES, truss	Type of Building Distress:
GI, Metal, Asbestos Sheet	WALL:
Open Gable Stone/Slate NO STEEL	
Box Gable Wood Wood	
Mud Whather trace is	Corner crack in wall Settlement crack Bulging
Shed Roof Burnt Brick anchored to the beam	
Hip Roof	
	Wall overturning Partial wall collapse Vertical cracks in full
Materials Used in Martar	depth of the wall
Mud Cement No Mortar	
Proportion of mix Cement: Sand =:	Wythe separation Diagonal cracks near opening Vertical cracks above
Staircase:	(door & window) door/window
Type of Staircase:	
Separated Connected Enclosed	
TARU/HPSDMA Building Vulnerability Assessment Ver 3.0 Page 5 of 10	TARU/HPSDMA Building Vulnerability Assessment Ver 3.0 Page 6 of 10
ROOF:	6. Vulnerability factors for specific hazard types: Earthquake:
	SHAPE OF THE BUILDING:
Roof sag Roof collapse	
COLUMN:	
	Rectangular Circular L-Shape T-Shape
	above
	U-Shape H-Shape Plus Shape
Shear cracks in column Column sway	VERTICAL IRREGULARITIES:
BEAM:	Presence of setbacks YES NO
	Presence of step back YES NO
	STRUCTURAL IRREGULARITIES:
Shear cracks in beam Horizontal cracks in beam Tensile cracks in beam	Presence of different storey Presence of soft Presence of short Presence of Presence of heavy
	height storey column reentrant corners overhangs
OTHER DEFICIENT PARAMETERS:	YES YES YES YES YES
ition	
e struction Acteding	PRESENCE OF HORIZONTAL BAND (MASONRY CONSTRUCTION)
opage of construction of construction ance	PRESENCE OF HORIZONTAL BAND (MASONRY CONSTRUCTION):
ator seepage trosion ality of construction ality of concreting intenance	PRESENCE OF HORIZONTAL BAND (MASONRY CONSTRUCTION):         Horizontal band at plinth level       YES         NO       Can't be identified         Display="block">VEF
Water seepage Corrosion Corrosion Quality of construction Maintenance	PRESENCE OF HORIZONTAL BAND (MASONRY CONSTRUCTION):         Horizontal band at plinth level       YES       NO       Can't be identified         Horizontal band at lintel level       YES       NO       Can't be identified
All of the second of the se	PRESENCE OF HORIZONTAL BAND (MASONRY CONSTRUCTION):         Horizontal band at plinth level       YES       NO       Can't be identified         Horizontal band at lintel level       YES       NO       Can't be identified         Horizontal band at lintel level       YES       NO       Can't be identified         Horizontal band at sill level       YES       NO       Can't be identified
VES     VES     Poor     Poor     Undertaken       NO     NO     Moderate     Moderate     Not       Undertaken     Undertaken     Undertaken     Undertaken	PRESENCE OF HORIZONTAL BAND (MASONRY CONSTRUCTION):         Horizontal band at plinth level       YES       NO       Can't be identified         Horizontal band at lintel level       YES       NO       Can't be identified         Horizontal band at lintel level       YES       NO       Can't be identified         Horizontal band at sill level       YES       NO       Can't be identified         Horizontal band at roof level       YES       NO       Can't be identified
view	PRESENCE OF HORIZONTAL BAND (MASONRY CONSTRUCTION):         Horizontal band at plinth level       YES       NO       Can't be identified         Horizontal band at lintel level       YES       NO       Can't be identified         Horizontal band at lintel level       YES       NO       Can't be identified         Horizontal band at sill level       YES       NO       Can't be identified         Horizontal band at roof level       YES       NO       Can't be identified         BOLINDINC:       Explored and the identified       Image: Can't be identified       Image: Can't be identified
VES     VES     Poor     Poor     Undertaken       NO     NO     Moderate     Moderate     Not       If YES, severity of corrosion     Good     Good     Good     Undertaken	PRESENCE OF HORIZONTAL BAND (MASONRY CONSTRUCTION):         Horizontal band at plinth level       YES       NO       Can't be identified         Horizontal band at lintel level       YES       NO       Can't be identified         Horizontal band at lintel level       YES       NO       Can't be identified         Horizontal band at sill level       YES       NO       Can't be identified         Horizontal band at orof level       YES       NO       Can't be identified         POUNDING:       Pollificar supportions       NO       NO
VES     VES     Poor     Poor     Undertaken       NO     NO     Moderate     Moderate     Not       If YES, severity of corrosion Minor     Good     Good     Good     Undertaken	PRESENCE OF HORIZONTAL BAND (MASONRY CONSTRUCTION):         Horizontal band at plinth level       YES       NO       Can't be identified         Horizontal band at lintel level       YES       NO       Can't be identified         Horizontal band at sill level       YES       NO       Can't be identified         Horizontal band at sill level       YES       NO       Can't be identified         Horizontal band at orof level       YES       NO       Can't be identified         Horizontal band at orof level       YES       NO       Can't be identified         Building susceptible to pounding       YES       NO       NO
VES     VES     Poor     Poor     Undertaken       NO     NO     Moderate     Moderate     Not       If YES, severity of corrosion Minor     Good     Good     Good     Undertaken	PRESENCE OF HORIZONTAL BAND (MASONRY CONSTRUCTION):         Horizontal band at plinth level       YES       NO       Can't be identified         Horizontal band at lintel level       YES       NO       Can't be identified         Horizontal band at sill level       YES       NO       Can't be identified         Horizontal band at sill level       YES       NO       Can't be identified         Horizontal band at roof level       YES       NO       Can't be identified         Building susceptible to pounding       YES       NO       Can't be identified

Figure 12. Indian building vulnerability assessment form (continuation) [4]

After the deep discussion and comparison, related to the Building vulnerability assessment form for Hungary, new form was created (Fig.13, Fig.14).

1. General mormation					Dimension of the	building (m)				
					Length:		Width:		Height:	
Address:		GPS Coo	rdinates:							
Number:	District:	Fast-west	t position:							
Usage of the Building:					Number of stories	E				
					Shape of the build	ling		Irregularitie	25:	
					Rectangular	-		Vertical (typ	e/severity):	
mage of the building					Circular					
					L-Shape			Plan (type):		
					T-Sahpe					
					U-Shape					
					H-Shape			Floor plans		
					Puis snape					
					3. Construction	Technology				
					Prefabricated					
					Traditional					
					Reinforcement					
					Refurbishment / R	estoration				
					New technologies					
	I									
					1					
		1						2		
4. Information about buijdir	ng and buildin	1 g elements			Wall Details			2		
4. Information about buildir Foundation Type of Foundation	ng and buildin	1 g elements	Raft 🗔 Pil	le 🗆 Spread (	Wall Details	Thickness	of wall (m)	2 Height of	Length	Wall Material
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m)	ng and buildin	1 g elements Combined	Raft Pil	le 🗌 Spread [	Wall Details	Thickness	of wall (m)	2 Height of wall from	Length of wall between	Wall Material
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation	ng and buildin Isolated 🗌	1 g elements Combined	Raft D Pil	le 🔄 Spread [	Wall Details	Thickness Main wall (m)	of wall (m) Secondary wall (m)	2 Height of wall from floor to ceiling (m)	Length of wall between cross wall (m)	Mall Material
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation	ng and buildin Isolated	1 g elements Combined	Raft Dil	le Spread [	Wall Details	Thickness Main wall (m)	of wall (m) Secondary wall (m)	2 Height of wall from floor to ceiling (m)	Length of wall between cross wall (m)	Aeinforcement Burnt Brick Muburnt Brick Stone
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimension,	ig and buildin Isolated Material)	1 g elements Combined	Raft D Pil	le Spread [	Wall Details Floor Cellar	Thickness Main wall (m)	of wall (m) Secondary wall (m)	2 Height of wall from floor to ceiling (m)	Length of wall between cross wall (m)	Reinforcement Burnt Brick Stone
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimension, Duilding element (Location and quantity if Dim	Isolated Material]	g elements	Raft _ Pil	le Spread [	Wall Details Floor Cellar Ground floor	Thickness Main wall (m)	of wall (m) Secondary wall (m)	2 Height of wall from floor to ceiling (m)	Length of wall between cross wall (m)	Reinforcement Burnt Brick I Unburnt Brick Stone
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimension, Building element (Location and quantity if Dim necessary) Beam	Isolated Material]	1 g elements Combined Stone Masonr	Raft Pil	le Spread Steel Wood	Wall Details Floor Cellar Ground floor 1" floor General floor	Main wall (m)	of wall (m) Secondary wall (m)	2 Height of wall from floor to ceiling (m)	Length of wall between cross wall (m)	Reinforcement Burnt Brick Stone Stone
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimension, Building element (Location and quantity if Dim necessary) Dim	Isolated Material)	g elements Combined Stone Masonr	Raft Pil Material Y RC	Spread [	Wall Details Floor Cellar Ground floor General floor General floor Top floor	Main wall (m)	of wall (m) Secondary wall (m)	2 Height of wall from flor to ceiling (m)	Length of wall between cross wall (m)	Reinforcement Bernitorcement Burnt Brick Stone
4. Information about buildin Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimension, Building element (Location and quantity if necessary) Beam	Isolated Material)	g elements Combined Stone Masonr	Raft     Pil       Material     Y       Y     RC       I     I	le Spread	Wall Details Floor Cellar Ground floor General floor General floor Top floor	Main wall (m)	of wall (m) Secondary wall (m)	2 Height of wall from filor to ceiling (m)	Length of wall between cross wall (m)	Wall Material Beinforcement Beinforcement Brick Stone
4. Information about buildin Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimension, Building element (Location and quantity if necessary) Beam	Isolated Material)	g elements Combined Stone Masonr	Raft Pil Material	le Spread [	Wall Details Floor Cellar Ground floor General floor General floor Top floor	Main wall (m)	of wall (m) Secondary wall (m)	2 Height of wall from ceiling (m)	Length of wall between cross wall (m)	Wall Material       Reinforcement       Burnt Brick       Colspan="2">Colspan="2">Colspan="2">Colspan="2"       Stone       Stone
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimension, Building element (Location and quantity if necessary) Beam	Isolated Material) massion (m) isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated	g elements Combined Stone Masonr	Raft         Pil           Μaterial            γ         RC           μ         μ           μ         μ           μ         μ           μ         μ           μ         μ           μ         μ           μ         μ           μ         μ           μ         μ           μ         μ           μ         μ           μ         μ	le Spread [	Wall Details Floor Cellar Ground floor General floor General floor Dilatation betwee	Thickness Main wall (m)	of wall (m) Secondary wall (m)	2 Height of wall from film (m)	Length of wall between cross wall (m)	Wall Material Beinforcement Beinforcement Stone
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimension, Building element (Location and quantity if necessary) Beam	Isolated Material) massion (m) isolated isolated massion (m) isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated isolated	g elements Combined Stone Masonr	Raft         Pil               Material            γ         RC	Steel Wood	Wall Details Floor Cellar Ground floor 1" floor General floor Top floor Dilatation betwee Type, number an	Thickness Main wall (m)	of wall (m) Secondary wall (m)	2 Height of wall from filor to ceiling (m)	Length of wall between cross wall (m)	Wall Matterial Beinforcement Beinforcement Stone
4. Information about buildir Foundation Type of Foundation Depth of Foundation Material of Foundation Building element (Location and quanity if necessary) Beam	Isolated Material) massion (m)       _	g elements Combined Stone Masonr	Raft     Pil       Material     Pil       Y     RC       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q       Q     Q <t< td=""><td>Steel Wood</td><td>Wall Details Floor Cellar Ground floor Top floor General floor Top floor Dilatation betwee Type, number an</td><td>Thickness Main wall (m) en the buildings d size of the ope a Single</td><td>of wall (m) Secondary wall (m)</td><td>2 Height of wall from filor to ceiling (m)</td><td>Length of wall between cross wall (m) wall single</td><td>Wall Material Wall Material Beildorement Bei</td></t<>	Steel Wood	Wall Details Floor Cellar Ground floor Top floor General floor Top floor Dilatation betwee Type, number an	Thickness Main wall (m) en the buildings d size of the ope a Single	of wall (m) Secondary wall (m)	2 Height of wall from filor to ceiling (m)	Length of wall between cross wall (m) wall single	Wall Material Wall Material Beildorement Bei
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimension, Building element (Location and quantity if necessary) Beam	Isolated Material) massion (m) ension (m)       _	g elements Combined Stone Masonr	Raft     Pil       Material     -       Y     RC       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -	Steel Wood	Wall Details       Floor       Cellar       Ground floor       1" floor       General floor       Dilatation betwee       Type, number and langer an	Thickness Main wall (m) en the buildings d size of the ope d size of the ope single door	of wall (m) Secondary wall (m) inings (door/w	2 Height of wall from floor to ceiling (m)	Length of wall between cross wall (m) wall single window	Wall Material Wall Material Building
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimension, Building element (Location and quanity if necessary) Beam	Isolated   Isolated   Material) ension (m)   1 2 4 4 4 4 4 4 4 4 4 4 4 4 4	g elements Combined Stone Masonr	Raft     Pil       Material     -       Y     RC       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -	Steel Wood	Wall Details       Floor       Cellar       Ground floor       1° floor       General floor       Top floor       Dilatation betwee       Type, number and size of the opening       Number and size of the opening	Thickness Main wall (m) an the buildings d size of the ope d size	of wall (m) Secondary wall (m) inings (door/w Double door 3   M   1   31	2 Height of wall from floor to ceiling (m)	Length of wall between cross wall (m) wall single window	Wall Material Wall Material University of the second secon
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimension, Building element (Location and quantity if necessary) Beam	Isolated   Isolated   Material) ension (m) I I I I I I I I I I I I I	stone Masonr	Raft     Pil       Material     -       Y     RC       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -       Q     -	Steel Wood	Wall Details       Floor       Cellar       Ground floor       1" floor       General floor       Top floor       Dilatation betwee       Type, number and size of the opening       N       Ground level       1" floor	Thickness Main wall (m) an the buildings d size of the oper door N 3 M L XI	of wall (m) Secondary wall (m) mings (door/w Double door	2 Height of wall from floor to ceiling (m) Triple door S M L XL	Length of wall between cross wall (m) single window Single window	Wall Material       training       training <thttp: th="" training<=""> <thttp: th="" training<=""></thttp:></thttp:>
4. Information about buildir Foundation Type of Foundation Depth of Foundation Material of Foundation Building element (Location and quanity if necessary) Beam Column Column Balcony	Isolated   Isolated   Material) mension (m) P P P P P P P P P P P P P	1  g elements  Combined  Stone Masonr  Stone I I I I I I I I I I I I I I I I I I I	Raft         Pil           Material         -           Y         RC         -           Q         -         -           Q         -         -           Q         -         -         -           Q         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -	Steel Wood	Wall Details       Cellar       Ground floor       1" floor       General floor       Top floor       Dilatation betwee       Type, number and size of the opening       Number and size of the opening       Ground level       1" level       2" level       2" level	Thickness Main wall (m) an the buildings d size of the oper d size of	of wall (m) Secondary wall (m) mings (door/w Double door	2 Height of wall from floor to ceiling (m) Triple door	Length of wall between cross wall (m) single window Single window	Wall Material       topological       topological       Double       window       3     M       1     X       3     M       1     X       3     M       1     X       3     M       1     X       3     M       1     X       3     M       1     X
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimension, Building element (Location and quantity if necessary) Beam	Isolated   Isolated   Material) mension (m) P P P P P P P P P P P P P	1 Combined Combined Stone Masonr Stone Sto	Raft         Pil           Material         -           Y         RC         -           Q         -         -           Q         -         -           Q         -         -         -           Q         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -	Steel Wood	Wall Details       Cellar       Ground floor       1" floor       General floor       Top floor   Dilatation betwee Type, number and size of the opening N Ground level I"	Thickness Main wall (m) a b buildings d size of the oper d size of the	of wall (m) Secondary wall (m) mings (door/w Double door S M L 31 L L L L L L L L L L L L L L L L L L L	2 Height of wall from floor to ceiling (m) Triple door	Length of wall between cross wall (m) Single window	Wall Material           training of the second seco
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building element (Dimension, Building element (Dimension) Building element (Dimension) necessary) Beam	Isolated   Isolated   Material) mension (m) P P P P P P P P P P P P P	1  g elements  Combined  Stone Masonr  Stone I I I I I I I I I I I I I I I I I I I	Raft         Pil           Material         -           Y         RC         -           Q         -         -           Q         -         -           Q         -         -         -           Q         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -           Q         -         -         -         -	Steel Wood	Wall Details       Cellar       Ground floor       1" floor       General floor       Top floor       Dilatation betwee       Type, number and size of the opening       N       Ground level       1" level       2 <sup>nd</sup> level       3 <sup>nd</sup> level       3 <sup>nd</sup> level       3 <sup>nd</sup> level       3 <sup>nd</sup> level	Thickness Main wall (m) a b buildings d size of the oper d size of the	of wall (m) Secondary wall (m)	2 Height of wall from floor to ceiling (m) Triple door	Length of wall between cross wall (m) single window Single window	Wall Material           total material      <
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building element (Dimension, Building element (Dimension) Building element (Dimension) necessary) Beam Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Col	Isolated   Isolated   Material) mension (m) P P P P P P P P P P P P P	1   g elements  Combined	Raft         Pil           Material         -           Y         RC         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -	Steel Wood	Wall Details       Cellar       Ground floor       1" floor       General floor       Top floor   Dilatation betwee Type, number and size of the opening        Dilatation level       1" level       2 <sup>rd</sup>	Thickness           Main wall (m)           a           a           b           a           b           b           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c	of wall (m) Secondary wall (m)	2 Height of wall from floor to ceiling (m) Triple door	Length of wall between cross wall (m) Single window Single window	Wall Material           total material      <
4. Information about buildir Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimension, Building element (Location and quantity if necessary) Beam [ ] Column [ ] Balcony [] Balcony [] Ba	Isolated   Isolated   Material) mension (m) P P P P P P P P P P P P P	1	Raft         Pil           Material         -           Y         RC         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -	Steel Wood	Wall Details           Floor           Cellar           Ground floor           1" floor           General floor           Top floor           Dilatation betwee           Type, number and size of the opening is           Ground level           2 <sup>rd</sup> level           2 <sup>rd</sup> level           3 <sup>rd</sup> level	Thickness           Main wall (m)           a           a           b           a           b           b           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c           c	of wall (m) Secondary wall (m)	2 Height of wall from floor to ceiling (m) Triple door	Length of wall           between cross wall (m)	Wall Material           table         table
4. Information about buildir Foundation Type of Foundation Depth of Foundation Material of Foundation Building elements (Dimension, Building element (Location and quantity if necessary) Beam Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column Column	Isolated   Isolated   Material) mension (m) P P P P P P P P P P P P P	1	Raft         Pil           Material         -           Y         RC         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -           Q         -         -	Steel Wood	Wall Details         Cellar         Ground floor         1" floor         General floor         Top floor         Dilatation betwee         Type, number and size of the opening N         opening N         Ground level         2 <sup>rd</sup> level         3 <sup>rd</sup> level	Thickness Main wall (m) a b buildings d size of the oper d size of the	of wall (m) Secondary wall (m)	2 Height of wall from floor to ceiling (m) Triple door	Length of wall setween cross wall (m) Single window Single window	Wall Material           table of ta

Figure 13. Building vulnerability assessment form for Hungary

#### Type and material of staircase

Type / Material	Stone	RC	Steel	Wood
External				
Connected				
Enclosed				

#### Roof Details

Roof Type	Materia	al	Presence of tru:	55
Flat	Concrete		Steel	
Open Gable	Metal		Wood	
Box Gable	Stone/Slate		If truss is anchoured To the beam	
Shed roof	Wood		If truss is anchoured To the wall	
Hip roof	Burnt brick			
Other	Tile			

5

New	Mo	deratel	V	1		PC	or	1		
			' L	_		- 30	- L			
etailed description										
etailed description		•	lorizont	al		Vertica			Diagona	d l
Location of Crack	Crack size		147	142			142			842
	(mm)	MI	mz	-m5	MI	mz	mo	mi	1112	mo
Beam		1 1		2	1		1 1		6	
	-	-		1						
	S	<u> </u>		<u>1</u>	· · · · ·		2. S		<u>s</u>	
				i Ti	i ti					
	2									
Column							-		-	-
		-							-	_
				.)			1		1	
					í í					
		0.0		19 - P			0.00		ç	-
W-11		-								_
waii									_	_
	-			J						
		1								
	-	2 8					2 X			
	8	-								
									;;	_
Near openings										
	-	1		19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -	1		1 1		8	-
		-		-	-					-
Balcony		A					<u> </u>		S	
balcony										
				n i	1		1		1	
	2	1		1	î î				( ) ( )	
Parapet		1					-			-
Chimney		-		Ļ,			-		-	
chinney							1		·	

6

Type / Condition	No evidence	Location	Minor	Major
Water seepage				
Corrosion				
Loss of material				
Quality of concreting				
Bulging or sag of building element				
Overturning of building element				
Collapse of building element				
Other				

Settlement, Displacement

Name	No evidence	Location	Туре	Size (mm)
Settlement				
Displacement				



Figure 14. Building vulnerability assessment form for Hungary

Since the required parameters was defined from site survey of the existing structure, the building vulnerability assessment form was filled (Fig. 15, Fig.16).

j	Building Vulner	ability Asse	ssment For	m N6		2. Descripti	on of the	building					
General Information	1					Construction	date: 1907	7 year					
						Dimension of	the buildi	ing (m)					
ddress: Bartok Bela ut.			GPS Coordin	ates:									
umber: 10-12	District: XI		North-south p	osition:	10	Length: Arou	nd 40 m		Width: Around 3	4 m	Above the grou	und level - 3.5 Id level - 30.3	m
			East-west pos	ition:	1								
sage of the Building:													
Residental Building						Number of st	ories: S+1						
						Shape of the i	building			Irregularities:			
age of the building						Rectangular				Vertical (type/:	severity): <u>Half par</u>	t of the buil	Iding
A. 7. 15-4-1997 C. U.A. 978 700						Circular			-	has 4 stories a	ind half part – 5 sto	ries	-
						L-Snape			-	Plan (type):			-
						UlShape			-	C			
				. /		H-Shape				Floor plans			
	ich	1	-	3	8	Puls Shape		1					
- These	PTA			160	A	None of the a	bove	Г		Grou	und floor plan		
THE REAL			An other other	All I	m i	3. Construct	ion Tech	nology			N.		
		-	-	1 P		Prefabricated			1 pel	E		1	
H TERE	-	1	TAN B		I To	Traditional			I    1	Barnet	A man	1	
E TLL			-	110		Reinforcemen	t						
	E ER		SALU B	and the	DILL'S	Refurbishmen	t / Restora	ition		8 .5	2		
				0.0		New technolog	gies	0		- Caral	Tex N	<u>\$</u>	
									1.			P Ni	
									1				
									E	NO. DOL. DOL D		0000 P	
						1							
			0			Wall Details							
. Information about by	uilding and build	ing element	ts			Wall Details		Thickness	of wall (m)		v	vall Materia	al
. Information about bu Foundation Type of Foundation	uilding and build	ing element	ts	Pile	Spread 🗌	Wall Details		Thickness	of wall (m)	Height of	Length of wall	Vall Materia	hene
. Information about by Foundation Type of Foundation Depth of Foundation (m)	uilding and build	ing element	ts	Pile	Spread	Wall Details		Thickness Main wall	of wall (m) Secondary	Height of wall from floor to	Length of wall between	vall Materia	Polythene
Information about by Foundation Type of Foundation Depth of Foundation (m) Material of Foundation	ilding and build	ing element	ts	Pile	Spread	Wall Details		Thickness Main wall (m)	of wall (m) Secondary wall (m)	Height of wall from floor to ceiling (m)	Length of wall between wall (m) ogy	Materia Materia Materia	tic / Polythene
. Information about by Foundation Type of Foundation Depth of Foundation (m) Material of Foundation	uilding and build	ing element	I Raft	Pile	Spread	Wall Details		Thickness Main wall (m)	of wall (m) Secondary wall (m)	Height of wall from floor to ceiling (m)	Length of wall between wall (m) wall (m)	Burnt Brick Unburnt Brick Stone	Plastic / Polythene
Information about by Foundation Pype of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimet	Isolated	ing element	Raft	Pile	Spread	Wall Details		Thickness Main wall (m) 0.95	of wall (m) Secondary wall (m) 0,12	Height of wall from floor to ceiling (m) 3.5 and 2.6	Length of wall between cross wall (m)	Burnt Brick Unburnt Brick Stone	Plastic / Polythene
Information about by Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimen Building element (Location and quantity if	Isolated	ing element	ts	Pile	Spread	Wall Details Floor Cellar Ground floo	r	Thickness Main wall (m) 0.95 0.85; 0.5; 0.4: 0.3	of wall (m) Secondary wall (m) 0.12	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14	Length of wall between cross wall (m)	Burnt Brick Unburnt Brick Stone	Plastic / Polythene
Information about by Foundation Pype of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimen Building elements (Location and quantity if necessary)	ilding and build Isolated nsion, Material) Dimension (m)	Ing element	IS Raft	Pile erial C Steel	Spread	Wall Details Floor Cellar Ground floo	ır.	Thickness Main wall (m) 0.95 0.85; 0.5; 0.4; 0.3 0.65; 0.5;	of wall (m) Secondary wall (m) 0.12	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16	Length of wall between cross wall (m)	Burnt Brick Unburnt Brick Stone	Plastic / Polythene
Information about be Foundation Type of Foundation Depth of Foundation (m) Waterial of Foundation Building elements Building elements (Location and quantity if necessary) Beam [ 200X76 mm	ilding and build Isolated Isolated Dimension (m)	ing element	IS Raft	Pile Pile	Spread	Wall Details Floor Cellar Ground floo 1 <sup>st</sup> floor		Thickness Main wall (m) 0.85; 0.5; 0.4; 0.3 0.65; 0.5; 0.3 0.65; 0.5;	of wall (m) Secondary wall (m) 0.12	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4	Length of wall between cross wall (m)	Burnt Brick Brunt Brick Stone	Plastic / Polythene
Information about be Foundation Type of Foundation Depth of Foundation (m) Material of Foundation Building elements (Location and quantity if necessary) Beam [ 200X76 mm Ground floor	iilding and build isolated nsion, Material) Dimension (m)	Stone M	IS Raft	Pile Pile	Spread	Wall Details Floor Cellar Ground floo 1 <sup>st</sup> floor General floo		Thickness Main wall (m) 0.95 0.85; 0.5; 0.4; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3	of wall (m) Secondary wall (m) 0.12	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4	Length of wall between cross wall (m)	Burnt Brick Unburnt Brick Stone	Plastic / Polythene
Information about be Foundation Ype of Foundation Depth of Foundation (m) Material of Foundation Building elements (Location and quantity if necessary) Beam [ 200X76 mm Ground floor First floor	iilding and build Isolated nsion, Material) Dimension (m) 107 107	Stone M	IS Raft	Pile Pile	Spread	Wall Details Floor Cellar Ground floo 1 <sup>11</sup> floor General floo Top floor		Thickness Main wall (m) 0.95 0.4; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.5; 0.3	of wall (m) Secondary wall (m) 0.12	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6	Length of wall between cross wall (m)	Burnt Brick Unburnt Brick Stone	Plastic / Polythene
Information about by Foundation Type of Foundation Depth of Foundation (m) Waterial of Foundation Building element (Location and quantity if necessary) Beam [ 200X76 mm Ground floor First floor Second floor	Isolated solution isolated solution isolon, Material) Dimension (m) 107 107 107	Stone M	IS Raft III	Pile Pile	Spread	Wall Details Floor Cellar Ground floo 1 <sup>th</sup> floor General floo Top floor Dilatation be	or or other states and the states of the sta	Thickness Main wall (m) 0.95 0.4; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.65; 0.3 e buildings:	of wall (m) Secondary wall (m) 0.12 Csiky ut. 1-3 -	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6 - 0.17m; Bart	Length of wall between cross wall (m) wall (m) between cross wall (m) between cross wall (m) between cross wall (m) between cross wall between cross wall between cross wall between cross wall between cross wall between cross wall between cross wall between cross wall between cross wall cross wall cross wall cross wall cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cros cro	Vall Materia Avia Avia Avia Avia Avia Avia Avia Av	Plastic / Polythene
Information about be foundation ype of Foundation Depth of Foundation (m) waterial of Foundation Building elements (Dimen Building elements (Dimension) (Location and quantity if necessary) Beam [ 200X76 mm Ground floor	Isolated Iso	Stone M	ts Raft III	Pile	Spread	Wall Details Floor Cellar Ground floo 1 <sup>st</sup> floor General floo Top floor Dilatation be Type, numbe	r pr	Thickness Main wall (m) 0.95 0.85; 0.5; 0.4; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.5; 0.3 e buildings: e of the oper	of wall (m) Secondary wall (m) 0.12 Csiky ut. 1-3	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6 - 0.17m; Bart indow) in any	Length of wall between cross wall (m) wall (m) between wall (m) between cross wall (m) between cross wall (m) between cross wall between cross wall between cross wall between cross wall between cross wall between cross wall between cross wall between cross wall cross wall cross wall cross wall cross wall cross wall cross wall cross wall cross wall cross wall cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cros cro	Vall Materia Yoja yungun O.011m. Bertok Bele	Plastic / Polythene
Information about by Foundation Ype of Foundation Depth of Foundation (m) vlaterial of Foundation Building elements (Dimer Building elements (Dime	Isolated solution Isolated solution insion, Material) Dimension (m) 107 107 107 107 43	Stone M	KS Raft III	Pile Pile	Spread	Wall Details Floor Cellar Ground floo 1" floor General floo Top floor Dilatation be Type, numbe	r pr	Thickness Main wall (m) 0.95 0.85; 0.5; 0.4; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.5; 0.3 e buildings: e of the ope Single	of wall (m) Secondary wall (m) 0.12 Csiky ut. 1-3 nings (door/w Double	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6 - 0.17m; Bart indow) in any Triple	Length of wall between cross wall (m) wall (m) wall (m) between wall (m) wall wall wall wall wall wall wall wal	vall Materia	Diastic / Polythene
Information about by Foundation Pype of Foundation Depth of Foundation Material of Foundation Building elements (Dimer Building elements (Dimer Bu	Isolated solution Isolated solution nsion, Material) Dimension (m) 107 107 107 107 43	Stone M	ts Raft	Pile Pile Pile Pile Pile Pile Pile Pile	Spread	Wall Details Floor Cellar Ground floo 1 <sup>th</sup> floor General floo Top floor Dilatation be Type, number and Ever! / Type,	r pr tween the and size	Thickness Main wall (m) 0.95 0.85; 0.5; 0.4; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.5; 0.3 e buildings: e of the oper Single door	of wall (m) Secondary wall (m) 0.12 Csiky ut. 1-3 - Csiky ut. 1-3 - Csiky ut. 1-3 - Csiky ut. 1-3 - Csiky ut. 1-3 -	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6 - 0.17m; Bart indow) in any Triple door	Length of wall between cross wall (m) wall (m) wall between cross wall (m) wall wall between cross wall wall between cross wall wall between cross wall between cross wall between cross wall between cross wall between cross wall between cross wall between cross wall between cross wall between cross wall cross wall between cross wall between cross wall cross wall cross wall cross wall cross wall cross wall cross wall cross wall cross wall cross wall cross cross wall cross cross wall cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cros cro	vall Materia	al blastic / bolythene blastic / bolythene
Information about by Foundation Pype of Foundation Depth of Foundation Material of Foundation Building elements (Dimee Building elements (Dimee Building elements) (Location and quantity if necessary) Beam I 200X76 mm Ground floor First floor First floor Fourth floor Fourth floor	Isolated solution isolated solution nsion, Material) Dimension (m) 107 107 107 107 43	Stone M	ts Raft	erial C Steel V V V V V V V V V V V V V V V V V V	Spread	Wall Details Floor Cellar Ground floo 1" floor General floo Top floor Dilatation be Type, number and size of the opening	r and size	Thickness Main wall (m) 0.95 0.85; 0.5; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.5; 0.3 e buildings: e of the ope Single door	of wall (m) Secondary wall (m) 0.12 Csiky ut. 1-3 Csiky ut. 1-3 Gouble Goor S M LT X	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6 - 0.17m; Bart indow) in any Triple door	v Length of wall between wall (m) vall	vall Materia	al Institution of the second s
Information about by Foundation Ype of Foundation Naterial of Foundation Building elements (Dimee Building elements (Dimee Building elements) (Location and quantity if necessary) Beam I 200X76 mm Ground floor First floor First floor Fourth floor Fourth floor Fourth floor Ground floor - 4 in the yard (inside)	Isolated iso	Stone M	ts  Raft  Raft  Kasonry R  Kasonr	erial C Steel V V V V V V V V V V V V V V V V V V	Spread           Wood           U	Wall Details Floor Cellar Ground floo 1" floor General floo Top floor Dilatation be Type, number and size of the opening Ground level	r r and size	Thickness Main wall (m) 0.95 0.85; 0.5; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.5; 0.3 e buildings: s of the oper Single door 5 M L XL	of wall (m) Secondary wall (m) 0.12 Csiky ut. 1-3 Csiky ut. 1-3 Couplings (door/w Double door	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6 - 0.17m; Bart indow) in any Triple door	v Length of wall between wall (m) vall wall (m) vall vall vall vall vall vall vall val	- 0.011m. Bartok Bela Double	al event food / Jitseld
Information about by Foundation Ype of Foundation Depth of Foundation Material of Foundation Building elements (Dimee Building elements (Dimee Building elements) (Location and quantity if necessary) Beam (200X76 mm Ground floor First floor First floor First floor Fourth floor Fourth floor Balcony Ground floor – 4 in the yard (inside) First floor – 1 in the	Isolated Iso	Stone M	ts Raft Raft Kasonry R Kas	erial C Steel V V V V V V V V V V V V V V V V V V	Spread	Wall Details Floor Cellar Ground floo 1" floor General floo Top floor Dilatation be Type, number and size of the opening Ground level 1" level 2-3 level	r br tween the r and size N H 9 9 9 2 7	Thickness Main wall (m) 0.95 0.4; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.5; 0.3 e buildings: e buildings: s of the oper Single door	of wall (m) Secondary wall (m) 0.12 Csiky ut. 1-3 - nings (door/w Double door 5 M L XI 1 1 1	Height of Wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6 - 0.17m; Bart indow) in any <u>Triple</u> door 5 M 1 Kt	Length of wall between wall (m)     1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- 0.011m. Bertok Bele Double M 1 XL	al a
Information about be Foundation Nype of Foundation (m) Vaterial of Foundation (m) Vaterial of Foundation Building elements (Dimee Building elements (Dimee First floor - 4 in the yard (Inside) First floor - 1 circular in the yard (Inside)	Isolated Iso	Stone M	ts Raft Raft Raft Raft Raft Raft Raft Raft	erial C Steel V V V V V V V V V V V V V V V V V V	Spread   Spread   Wood	Wall Details Floor Cellar Ground floo 1" floor General floo Top floor Dilatation be Type, numbe Level / Type, number and size of the opening Ground level 1 <sup>et</sup> level 2-3 level 4 <sup>th</sup> level	r tween thir r and size N N N 9 9 2 7 3 8	Thickness Main wall (m) 0.95 0.85; 0.5; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.65; 0.3 e buildings: e of the ope Single door	of wall (m) Secondary wall (m) 0.12 Csiky ut. 1-3 - nings (door/w Double door 3 M L xi 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A 1 A	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 - 0.17m; Bart indow) in any Triple door 5 M ( X 2 2 3 3	Length of wall between cross wall (m) wall (m) wall between cross wall (m) wall wall cross wall (m) wall cross wall (m) wall between cross wall (m) wall between cross wall (m) wall between cross wall (m) wall between cross wall (m) wall cross wall (m) wall cross wall (m) wall cross wall (m) wall cross wall (m) wall cross wall (m) cross wall (m) cross wall (m) cross wall (m) cross wall (m) cross wall (m) cross cross wall (m) cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cross cros cro	- 0.011m. Bartok Bele Double M L XL 1	al event 10-
Information about be Foundation Type of Foundation (m) Waterial of Foundation (m) Building elements (Dimen Building elements (Dimen Fourth floor Fourth floo	silding and build Isolated nsion, Material) Dimension (m) 107 107 107 107 107 107	Stone M	ts Raft Raft Raft Raft Raft Raft Raft Raft	Pile	Spread	Wall Details Floor Cellar Ground floo 1" floor General floo 1" floor Dilatation be Type, numbe Level / Type, number and size of the opening Ground level 1" level 2-3 level 4" level	r tween this r and size 9 9 9 9 9 9 9 9 9 9 9 7 5 8	Thickness Main wall (m) 0.95 0.85; 0.5; 0.4; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 e buildings: e of the ope Single door	of wall (m)  Secondary wall (m)  0.12  Csiky ut. 1-3  nings (door/w  Double door  S M L XI  A 1  A 1  A 1  A 1  A 1  A 1  A 1  A	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 - 0.17m; Bart indow) in any Triple door 5 M L XL 7 - 2 3 - 3	Length of wall between cross wall (m) 2 2 2 2 2 3 3 4 4 4 4 4 5 3 4 4 4 4 4 4 4 4 4 4 4	Vall Materia	al a
Information about by Foundation Ype of Foundation Depth of Foundation (m) Waterial of Foundation Building element (Location and quentity if necessary) Beam [ 200X76 mm Ground floor First floor First floor Third floor Third floor Third floor Fourth floor Fourth floor Fourth floor Fourth floor Fourth floor Fourth floor Fourth floor Second floor – 4 in the yard (inside) Second floor – 1 circular in the yard (inside) Second floor – 1 circular in the yard (inside)	iilding and build isolated nsion, Material) Dimension (m) 107 107 107 107 107 107	Stone M	ts Raft (	Pile	Spread	Wall Details Floor Cellar Ground floo 1" floor General floo Top floor Dilatation be Type, numbe Level / Type, number and size of the opening Ground Iseel 1" level 2-3 level 4" level	27 50 50 50 50 50 50 50 50 50 50	Thickness Main wall (m) 0.95 0.85; 0.5; 0.4; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 e buildings: of the oper Single door	of wall (m)  Secondary wall (m)  0.12  Csiky ut. 1-3 - nings (door/w  Double  door  5 M L XI  1 1  1 1  1 1  1 1  1 1  1 1  1 1	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6 - 0.17m; Bart indow) in any Triple door 5 1 2 2 2 2 2 2 2 3 3 1 2 1 2 1 2 1 2 1 2	Length of wall between cross wall (m)         ye	Vall Materia	al
Information about by Foundation Type of Foundation Depth of Foundation (m) Waterial of Foundation Building elements (Location and quantity if neccsary) Beam [ 200X76 mm Ground floor First floor First floor Third floor Third floor Third floor Third floor Third floor - 1 circular in the yeard (inside) Second floor - 1 circular in the yeard (inside) Second floor - 1 circular in the yeard (inside) Second floor - 1 circular in the yeard (inside)	Isolated Iso	Stone M	ts Raft () Material () tasonry R tasonry R 1 1 1 1 1 1 1 1 1 1 1 1 1	Pile Pile Pile Pile Pile Pile Pile Pile	Spread	Wall Details Floor Cellar Ground floo 1" floor General floo Top floor Dilatation be Type, numbe Level / Type, number and size of the opening Ground Ievel 1" Ievel 2-3 Ievel 4 <sup>th</sup> Ievel 2-3 Ievel 4 <sup>th</sup> Ievel 2-3 Ievel 4 <sup>th</sup> Ievel	r br tween the r and size 9 2 7 3 8 r r and size	Thickness Main wall (m) 0.95 0.85; 0.5; 0.4; 0.3 0.65; 0.5; 0.3 0.5; 0.3 e buildings: e of the opee single e of the opee single e of the opee single	of wall (m) Secondary wall (m) 0.12 Csiky ut. 1-3 - nings (door/w Double 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6 - 0.17m; Bart indow) in any Triple door 2 2 2 2 2 3 3 4 1 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1	Length of wall between cross wall (m) wall (m) wall (m) wall between single window 3 M L XL 3 3 L XL 3 4 L XL 3 3 L XL 3 4 L XL 3 4 L XL 3 4 L XL 3 5 L XL 3	vall Materia	al a
Information about by Foundation Ype of Foundation Depth of Foundation (m) Vaterial of Foundation Building elements (Dimer Building elements (Dimer First floor First floor Fourth floor - 1 circular in the yard (inside) First floor - 1 circular in the yard (inside) From Barck Bels str.	Isolated solution isolated sol	Stone M	ts  Raft  Matu  Kasonry R  Lasonry R  Lasonr	Pile Pile Pile Pile Pile Pile Pile Pile	Spread	Wall Details Floor Cellar Ground floo 1 <sup>st</sup> floor General floo Top floor Dilatation be Type, number and size of the opening Ground level 1 <sup>st</sup> level 2-3 level 4 <sup>st</sup> level Type, number and	r 	Thickness Main wall (m) 0.95 0.85; 0.5; 0.3 0.65; 0.5; 0.3 0.5; 0.3 0.5; 0.3 e buildings: of the ope single door s M 1 X1 e of the ope single door	of wall (m) Secondary wall (m) 0.12 Csiky ut. 1-3 Csiky ut	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6 - 0.17m; Bart door 5   M L   XL 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Length of wall between wall (m) wall (m) wall (m) wall between wall wall single window wall single window	Vall Materia	al automotion and a set 100 Trip wind
Information about by Foundation Pype of Foundation Depth of Foundation (m) Material of Foundation Building elements (Dimer Building elements (Dimer Fourth floor First floor Fourth floor Fourth floor Fourth floor - 1 circular in the yard (inside) Friest floor - 1 circular in the yard (inside) and 2 Fourth floor - 1 circular in the yard (inside) and 2 Fourth floor - 1 circular in the yard (inside) and 2 Fourth floor - 1 circular in the yard (inside) and 2 Fourth floor - 1 circular in the yard (inside) and 3	Isolated solution isolated sol	Stone M	ts  Raft  Addition  Matu  Addition  Matu  Addition  Addi	erial C Steel V V V V V V V V V V V V V V V V V V	Spread	Wall Details Floor Cellar Ground floo 1" floor General floo 1" floor General floo Top floor Dilatation be Type, numbe Level / Type, number and size of the Cevel / Type, number and size of the Level / Type, number and size of the Type, number and size of the cevel Type, number and size of the copening	r and size	Thickness Main wall (m) 0.95 0.85; 0.5; 0.4; 0.3 0.65; 0.5; 0.3 0.5; 0.3 0.5; 0.3 e buildings: e of the open Single door s in t x xt of the open Single door s in t x xt t t xt t t xt t t xt t t xt	of wall (m) Secondary wall (m) 0.12 Csiky ut. 1-3 Siky ut. 1-3 Souther the second sec	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6 - 0.17m; Bart door 5 M L XL 7 2 2 3 3 - 0.17m; Bart door 7 1 2 2 3 3 - 0.17m; Bart door 7 1 2 2 3 3 - 0.17m; Bart door 5 .14 - 0.17m; Bart door 7 .12 - 0.17m; Bart door 7 .12 - 0.17m; Bart door 7 .12 - 0.17m; Bart door 7 .12 - 0.17m; Bart door 7 .12 - 0.17m; Bart door 7 .14 - 0.17m; Bart door 7 .14 - 0.17m; Bart door 7 .14 - 0.17m; Bart door 7 .14 - 0.17m; Bart door .14 - 0.17m; Bart door .15 - 14 - 0.17m; Bart door .14 - 0.17m; Bart door .15 - 14 - 0.17m; Bart door .14 - 0.17m; Bart door .15 - 14 - 0.17m; Bart door .14 - 0.17m; Bart door .15 - 0.17m; Bart door .15m; Bart .15m; Bart door .15m; Bart .15m; Bart door .15m; Bart .15m; Bart .15m	Length of wall between cross wall (m) wall (m) wall between cross wall (m) wall wall between wall wall between wall wall single window wall single window wall single window single window single window single window single window single window single window single single window single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single single sing	Vall Materia	al automotion and a set 100 Trip wince
Information about by Foundation Ype of Foundation Depth of Foundation (m) viaterial of Foundation Building elements (Dimer Building elements (Dimer Fourth floor Fourth floor Fourth floor Fourth floor - 1 circular in the yard (Inside) From Bartok Bela str. Third floor - 1 circular in the yard (Inside) and 2 from Bartok Bela str. Fourth floor - 1 circular in the yard (Inside) and 3 from Bartok Bela str. Fourth floor - 1 circular in the yard (Inside) and 3 from Bartok Bela str.	Isolated solution isolated solution isolated solution isolated solution isolated solution. Material isolated solution (m) isolated s	Stone M	ts  Raft  Raft  Kasonry R  S  S  S  S  S  S  S  S  S  S  S  S	erial C Steel V V V V V V V V V V V V V V V V V V	Spread	Wall Details Floor Cellar Ground floo 1" floor General floo Top floor Dilatation be Type, numbe Level / Type, number and size of the opening Ground level 1" level 2-3 level 4" level Type, number and size of the opening Ground level Type, number and size of the opening Ground level	т т and size	Thickness Main wall (m) 0.95 0.85; 0.5; 0.4; 0.3 0.65; 0.5; 0.3 0.5; 0.3 e buildings: e of the oper Single door 5 M L XL	of wall (m)  Secondary wall (m)  0.12  Csiky ut. 1-3 -  Sings (door/w  Double door  M L X  Double door  S M L X  Double door  S M L X  Double door	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6 - 0.17m; Bart indow) in any Triple door 5   M L XL 7 2   3 2   3 2   3 2   3 3   1 2   3 3   1 2   3 5   M L XL 1   1 2   1 3   1 4   1 4   1 5   1	Length of wall         1           between cross         1           wall (m)         1           window         1           3         1           3         1           3         1           wall: Side facade, ( Single window           single         1           1         1           3         1           3         1	Vall Materia	al event 10 Trip wince s M 4
Information about by Foundation Pype of Foundation Depth of Foundation (m) Waterial of Foundation Building elements (Dimer Building elements (Dimer Building elements (Dimer Building elements) (Location and quantity if necessary) Beam 1 200X76 mm Ground floor First floor Third floor Third floor Third floor Third floor Third floor Third floor Second floor - 1 circular in the yard (inside) First floor - 1 circular in the yard (inside) First floor - 1 circular in the yard (inside) and 2 from Bartok Bels str. Fourth floor - 1 circular in the yard (inside) and 3 from Bartok Bels str. Fourth floor - 1 circular in the yard (inside) and 3 from Bartok Bels str. Fourth floor - 1 circular in the yard (inside) and 3 from Bartok Bels str.	Isolated solution isolated solution isolated solution isolated solution. Material isolated solution (m) isolat	Stone M	ts  Raft  Raft  Addition	erial C Steel V V V V V V V V V V V V V V V V V V	Spread	Wall Details Floor Cellar Ground floo 1 <sup>17</sup> floor General floo 1 <sup>17</sup> floor General floo Type, number General floo Yop floor Dilatation be Type, number and size of the opening Ground level 1 <sup>4</sup> level 2-3 level 4 <sup>10</sup> level Evel 7ype, number and size of the opening Ground level 1 <sup>4</sup> level 2-3 level 4 <sup>10</sup> level 1 <sup>4</sup> level 1 <sup>41</sup> level 2-4 level 1 <sup>41</sup> level 1 <sup>41</sup> level 2-4 level 1 <sup>41</sup> level 1 <sup></sup>	r tween thir r and size r and size r and size r and size r and size r and size	Thickness Main wall (m) 0.95 0.85; 0.5; 0.4; 0.3 0.65; 0.5; 0.3 0.65; 0.3 e buildings: e of the oper Single door 5 M L XL E of the oper Single C of the oper	of wall (m)  Secondary wall (m)  0.12  Csiky ut. 1-3  Csiky ut. 1-3  S M L XI  Double door  M Double S M L XI  S M L XI  Csiky ut. 1 XI  S M L XI	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 3.6 - 0.17m; Bart door 5 M L XL 7 2 3 2 3 3 3 3 3 3 3 3 3 5 3 4 1 7 7 1 2 3 3 3 3 5 1 4 1 7 7 1 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Length of wall between wall (m)         100 100 100 100 100 100 100 100 100 100	Vall Materia	al al automotion of the sector
Information about by Foundation Type of Foundation (m) Waterial of Foundation (m) Waterial of Foundation Building elements (Dimer Building elements (Dimer Ground floor First floor 1 dircular in the yard (Inside) Second floor - 1 dircular in the yard (Inside) and 3 from Bartok Beh str. Fourth floor 1 dircular in the yard (Inside) and 3 from Bartok Beh str. First Bhor - 1 dircular in the yard (Inside) and 3 from Bartok Beh str. Firth floor - 1 dircular in the yard (Inside) and 3 from Bartok Beh str. Firth floor - 1 dircular in the yard (Inside) for half of the building	silding and build Isolated	Stone M	ts  Raft  Raft  Kasonry R  Kasonr	erial C Steel V V V V V V V V V V V V V V V V V V	Spread           Wood	Wall Details Floor Cellar Ground floo 1" floor General floo 1" floor General floo 1" floor Dilatation be Type, numbe Level / Type, umber and size of the opening Ground level 1" level 2-3 level 4" level Type, number and size of the opening Ground level 1" level 2-4 level 2-4 level 2-4 level 3" level	r tween thir r and size N N N 2 7 3 8 4 7 7 3 8 4 7 7 1 6 7 1 6	Thickness Main wall (m) 0.95 0.85; 0.5; 0.3 0.65; 0.5; 0.3 0.65; 0.5; 0.3 0.5; 0.3 e buildings: e of the oper Single door 5 M L XL e of the oper Single door 5 M L XL e of the oper Single door 5 M L XL E 0 5 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	of wall (m)  Secondary wall (m)  0.12  Csiky ut. 1-3   Csiky ut. 1-3   S M L XI   S	Height of wall from floor to ceiling (m) 3.5 and 2.6 5.14 4.16 4 - 0.17m; Bart mow) in any Triple door 5 M L XL 2 3 - 3 - 3 	Length of wall between cross wall (m)         V           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u           u         u         u	Vall Materia	al sect 10

Figure 15. Filled building vulnerability assessment form

umber and	Door	Vindow	d	loor		do	or		doe	or	w	indo	~	win	dow	win	dow
pening	N	5	51 A	1.1.2	1 51	MI	L X	1 0	MI	I XI	51.4	11	XL	SI M	1. 22	SIM	L XI
and level	9	17	- "	1	-	7	1		-	-	1			13	-	2	1
level	14	13	-		1	13	-					Π	-	11	-	2	1
level	12	16	+	+	1	11	+		+	+	+	+	+	13	+	2	1
level	13	15	1		1	12								12		2	1
ievel	4	9	2	Ц	Ц	2	Die	stance	e (m)	-	Ц.	Ц	_	1		4	*
ening near mer of the ill	Ever som corn with and the	y stor e ope er. So dista other	nings me o nce - s dire	ve near f them 0.3 m ctly in													
enings are o close to					On one dou bet	the 5 wall ble d	floo has 2 doors h the	r,									
ch other	-				trip wit dist	le wi hout ance	any	5									
Type, numbe vel / Type, umber and	r an	d siz	e of t	he op ngle loor	ening	dou	or/w ble or	indo	w) in Trip doo	any le r	wall: ( Si wii	Openi ngle ndov	ings in	Dou wind	ble low	ding Trij wind	le low
ize of the opening ound level	N 13	N N 4	5 N	1.7	1 5	M 5	LX	L 5	M L 2 2	XL	5 M	L	XL S	M 1	L XL	S M	L XL
level level level	23 19 20 20	4 5 6 6	3			13 12 13 13			1 6					4 3 4 4		2	
level	8		2	H.		2	Dist	tance	2 2 (m)								
iner of the ill					+			Or	the ound f	laor.			+				_
								on	e wall	l has							
o close to ch other								tri be wi dis	ple do tweer ndow thout stance	or the s any							
Number of openiz	penin ng: S	ngs: I — sn	N Nall, f	и – м	edium	, L-	large	tri be wi dis e, XL -	ple da tweer ndow thout stance - Extr	n the s any ta lar	ge						
S. Cond	penii ng: S	ngs: I – sm	N nall, P	M – M	edium	, L -	large	trij be wii dis e, XL -	pie da tweer ndow thout thout thout	or s the s anγ t	ge						
S. Cond Present New	penii ng: S ditio	ngs: I - sn n as: ditior	N hall, f	M – M	edium	, L –	erate	trij be wii dis e, XL -	pie do tweer indow: thout stance - Extr	or 1 the 2 any 2 Ta lar	ge	P	Dor				
S. Cond Present New	ditio	ngs: I – sm n as: ditior	nall, P	vi – M	edium	, L-	erate	trij be wii dis e, XL -	pie do tweer indow: thout thout thout	any	ge	Pi	Dor				
S. Cond Present Number of openir 5. Cond Present New Detailed	ditio	ngs: I sn n as: ditior	N nail, r sessr	M – M nent	edium	, L – Mod	erate	krack	ver the tweet of tweet of tweet of tweet of the tweet of tweet o	appez	ge	Pt	Dor				
S. Cond Present Number of openir 5. Cond Present New Detailed	ditio	ngs:   sn ditior cripti	sessr	vi – M nent	edium	, L -	erate	krack	was : was :	appea	ge ared. v	Per lice	Dor		Diago		
S. Cond Present Number of openin 5. Cond Present New Detailed Loca	ditio	n as: dition	sessr on: N ck	nent	edium	, L – Mod	erate cant c	krack M2 M2 M2	was : www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.searcharter www.sear	appez	ge v M1	Pr fertice M2	Door M3		Diago	nəl : M3	
S. Cond Present Number of op Size of openin Size of openin New Detailed Locs Beam	ditio	ngs: I – sn ditior cripti	sessr on: N	ment	edium	, L -	erate cant d	krack Morizo	was a nital	appea	ge ared. V M1	Pr fertice M2	Door M3		Diego M2	nəl : M3	
S. Cond Present Number of op Size of openin Present New Detailed Loos Beam	ditio	n as: ditior cripti	sessr on: N	nent	edium i the sig	, L –	lerate	krack Market	was a nital	appez	ge ared. V M1	Pr /ertice M2	Dor M3	M3	Diago	nal M3	
S. Cond Present Number of op Size of openin Present New Detailed Loca	ditio	ngs: i - sm n as: ditior cripti	sessr on: N	nent	edium i the sig	, L –	erate	krack M2	was : was : wa	appea	ge wred. V M1	fertice M2	Door M3		Diago	nal : M3	
S. Cond Present Number of oy Size of openir New Detailed Loca Beam	ditio	ngs: 1 – sn ditior cripti	sessr on: N	nent	edium the sig	, L –	erate	krack Horizo	was:	appez	sred. V M1	/ertice M2	Door M3		Diago	nel M3	
S. Conc Present Number of o Size of openir Size of openir Detailed Locs Beam	ditio	ngs:   - sn ditior cripti	sessr on: N ck	ment	edium i the sig rack siz: (mm)	Mod	erate	krack	Was a notal	appea	ared. V M1	/ertice M2	bor M3		Diego M2	nel : M3	
S. Conc Present Number of of Size of openin Size of openin Present New Detailed Loca Beam Column	lition	ngs: 1 - sn ditior cripti	sessr on: N ck		edium i the sig	, L-	erate	krack	was : watal	appea	ge wred. M1	/ertice M2		M1	Diago M2	nel : M3	
S. Conc Present Number of op Size of openin Size of openin Detailed Loca Beam	ditio	ngs: 1 – sn ditior cripti	sessr on: N ck		edium i the sig	, L -	erate	krack krack	was : intel was : intel	appez A3	ge ared. V M1	/ertice M2	Door M3	M3	Diago	nai : M3	
5. Conc Present Number of openin Size of openin Detailed Loce Beam	ditio	ngs:   - sn ditior cripti	sessr on: N	nent	edium the signal	, L –	erate	krack Miles krack	was:	appez	ered.	fertice M2	il M3	M3	Diago	nal M3	
S. Conc Present Number of o Size of openiu Detailed Loca Beam	ditio	ngs: 1 – sm n as: ditior	n sessr on: N ck	one of c	edium i the sig (mm)	, L -	erate	krack Horizo	was a mining a second s	appea	ered. V M1	/ertice M2	Door M3	M3	Diago	nal M3	
S. Conc Present Number of o Size of openii Size of openii Detailed Loce Beam	ditio	ngs: 1 – sm n as: ditior	sessr	one of c	edium i the sig (mm)	L-	erate	krack Horizo	Was a nital	appea	red. V M1	/ertice M2	Door M M3	M12	Diago	nel M3	
S. Conc Present Size of openii Size of openii Detailed Loca Beam Column Wall	ditio	ngs: I – sm dition cripti	sessr on: N ck	nent	i the signal	, L =	erate	krack Horizo	Was : was :	appea	ge ared. V M1	/ertice M2	Door M3	M3	Diego	nel : M3	
S. Conc Present Size of openii Size of openii Detailed Loce Beam Column Column Wall Near op	lition	n as: cripti	sessr on: N ck	nent	edium t the sig rack siz (mm) lowable	, L	erate	krack Horizo	Was:	appez	ge V M1	Pt fertice M2	Dor	M3	Diago	nəl : M3	
S. Conc Present Size of openii Size of openii Detailed Loce Beam Column Column Wall Near op	ditio	n ass ditior cripti	sessr on: N ck	nent one of c	t the signature of the	Mod gnific	erate	krack Horizo	Was: - Extr	appez	sred. V M1	/ Pl		M3	Diago	nel : M3	

Figure 16. Filled building vulnerability assessment form

Balcony

Parapet Chimney

Size of Crack: M1 = Minor crack (0-33%), M2=Moderately crack (33-66%), M3=Major Crack (66-100 7

### 4. Estimation of mechanical parameters for masonry walls

Mechanical parameters for masonry walls, like Young's modulus (Modulus of elasticity), Poisson ratio, shear modulus and compressive strength have one of the important role. It is essential to know the characteristic of brick masonry walls in order to evaluate the responses of masonry walls for any kind of loading. Individual bricks do possess better compressive capacity as compared to masonry walls. Masonry walls are bound together with either mud mortar, lime mortar or by cement sand mortars of various mixes as per strength requirements. The essential strength properties in engineering are basically the compressive strength and the modulus of elasticity. The American Society for Testing and Materials (ASTM) standard is the most popular for testing bricks and brick masonry for these properties so far [6].

For the presented research paper, separate material characteristic values are illustrated from Hungarian codes and literature (Table 1), but the mechanical parameters for masonry walls was found from studies developed in Department of Structural Engineering, University of Naples Federico II, Naples, Italy [7] (Table 2).

Parameters / Material	brick	wood	steel	reinforced concrete (40-50ys old)	stone
Weight per unit volume	1600-1750	600- 700	7000-8000	2300-2400	2650
Modulus of elasticity (MPa)	800-2300	4000	200000	15000- 30000	35000- 40000
Poisson ratio	0.263	does not have	0,25-0,30	0,15	0,28
Coefficient for thermal expansion	9*10 <sup>-6</sup>	4*10 <sup>-6</sup>	11.9 *10 <sup>-6</sup>	1.3*10 <sup>-5</sup>	8*10 <sup>-6</sup>

Table 1. Mechanical parameters of material from Hungarian codes and literature

Masonry type	$f_m[N]$	/IPa]	τ₀ [Ν	/IPa]	E[N]	IPa]	G[N	(Pa]
	min	max	min	max	min	max	min	max
Old brick masonry with lime mortar	2.40	4.00	0.060	0.092	1200	1800	400	600

Table 2. Mechanical parameters of old masonry wall

### 5. Modification of the old drawings with new measurements

It is a necessary step to calculate the data of the volumes and the weights of the building and to detect the structural elements of the building.

The old drawings (Fig. 17.a,b) of existing building were procured from Hungarian online archive [8] and were modified by new measurements gathered from the site survey. Several new drawings are illustrated in the research paper (Fig. 18,19,20.a,b).



Figure 17. a) Samples of the typical plan and b) vertical plan (old drawings)



Figure 18. Sample of the walls and openings plan of typical floor (new drawing)

# 6. Calculated data of the volumes and the weights of the building and its structural elements

After getting the new drawings, the volumes and the weights of each structural elements and finally for the whole building were calculated.

Bartok Bela ut. 10-12						
Structural element	Thickness (m)	Width(m)	Length (m)	Area (m²)	Volume (m <sup>3</sup> )	Weight (ton)
Raft Foundation	0.7			1123.47	786.429	1966.073
Cellar						
Load bearing wall		0.95			826.700	1488.060
Load bearing wall		0.5			17.640	31.752
Non-load bearing wall		0.12			22.610	40.698
Sum (Walls)					866.950	1560.510
Slab	0.2			1089.22	217.844	217.844
Internal Staircase - STRC-2					1.641	4.2666
Sum (Cellar)					1086.435	1782.621
Ground floor						
Load bearing wall		0.85			876.294	1577.329
Load bearing wall		0.5			87.230	157.014
Non-load bearing wall		0.4			31.440	56.592
Non-load bearing wall		0.3			44.510	80.118
Sum (Walls)					1039.474	1871.053
Slab	0.2			1101.57	220.314	220.314
Balcony Slab	0.2			59.188	11.838	11.838
Sum (Slabs)					232.152	232.152
Internal Staircase - STRC-1					4.348	11.305
Internal Staircase - STRC-2					1.946	5.060
External Staircase - STRC-3					2.348	6.105
External Staircase - STRC-4					0.905	2.353
External Staircase - STRC-5					0.786	2.044
External Staircase - STRC-6					0.646	1.680
Sum (Staircases)					10.979	28.545
Steel Beam (200X76)	0.2	0.076	107			1.969
Sum (Ground floor)					1294.442	2145.557

Table 3. Volumes and weights of structural components of Cellar and ground floor.

· · · · · · · · · · · · · · · · · · ·	1		1	1		
First floor						
Load bearing wall		0.65			561.494	1010.689
Load bearing wall		0.5			64.590	116.262
Non-load bearing wall		0.3			29.924	53.863
Sum (Walls)					656.008	1180.814
Slab	0.2			1089.383	217.877	217.877
Balcony Slab	0.2			59.188	11.838	11.838
Sum (Slabs)					229.714	229.714
Internal Staircase - STRC-1					4.705	12.233
Internal Staircase - STRC-2					1.897	4.932
Sum (Staircases)					6.602	17.165
Steel Beam (200X76)	0.2	0.076	107			1.969
Sum (First floor)					892.324	1429.663
Second floor						
Load bearing wall		0.65			528.725	951.705
Load bearing wall		0.5			62.14	111.852
Non-load bearing wall		0.3			26.034	46.8612
Sum (Walls)					616.899	1110.418
Slab	0.2			1089.383	217.877	217.877
Balcony Slab	0.2			59.188	11.838	11.838
Sum (Slabs)					229.714	229.714
Internal Staircase - STRC-1					4.685	12.181
Internal Staircase - STRC-2					1.875	4.875
Sum (Staircases)					6.560	17.056
Steel Beam (200X76)	0.2	0.076	107			1.969
Sum (Second floor)					853.173	1359.157

Table 4. Volumes and weights of structural components of 1<sup>st</sup> and 2<sup>nd</sup> floor.

				1	1	1
Third floor						
Load bearing wall		0.5			458.275	824.895
Non-load bearing wall		0.3			23.518	42.3324
Sum (Walls)					481.793	867.227
Slab	0.2			1089.383	217.877	217.877
Balcony Slab	0.2			59.188	11.838	11.838
Sum (Slabs)					229.714	229.714
Internal Staircase - STRC-1					4.685	12.181
Internal Staircase - STRC-2					1.875	4.875
Sum (Staircases)					6.560	17.056
Steel Beam (200X76)	0.2	0.076	107			1.969
Sum (Third floor)					718.067	1115.966
Fourth floor						
Load bearing wall		0.5			458.275	824.895
Non-load bearing wall		0.3			23.518	42.3324
Sum (Walls)					481.793	867.227
Slab	0.2			554.67	110.934	110.934
Balcony Slab	0.2			20.395	4.079	4.079
Loft constr.				519.488		135.067
Chimney constr.						18.4
Sum (Roof)					115.013	268.480
Internal Staircase - STRC-1					4.685	12.181
Internal Staircase - STRC-2					1.875	4.875
Sum (Staircases)					6.560	17.056
Steel Beam (200X76)	0.2	0.076	43			0.791
Sum (Fourth floor)					603.366	1153.554
Fifth floor						
Load bearing wall		0.5			230.514	414.9252
Slab	0.2			308.65	61.730	61.730
Loft constr.				253.65		65.949
Sum (Roof)					61.730	127.679
Sum (Fifth floor)					292.244	542.604
Total Sum					6524.840	11490.928
	1			1		

Table 5. Volumes and weights of structural components of 3<sup>rd</sup>-4<sup>th</sup>-5<sup>th</sup> floor.

Building vulnerability assessment form, new drawings of the existing building, represented data of volumes and weights values of building and building elements, can be used either for experimental or analytical (force-displacement) methods of seismic fragility assessment.

# 7. Design of 3D model and nonlinear static analysis in finite element software Sap2000

3D model of the existing building was designed in Sap2000. First step was to define material properties (Fig. 19, Fig.20)

ateria	l Name	Material Type	Symmetry Type
Brick		Other	Isotropic
Modulu	s of Elasticity	Weight and Mass	Units
E	1500.	Weight per Unit Volume 192	200. N, mm, C 👻
		Mass per Unit Volume 1.9	579
		Advanced Material Property Data	
Poissor	۱ جــــــــــــــــــــــــــــــــــــ	Nonlinear Material Data	Material Damping Properties
U	0.263	Time Dependent Properties	Thermal Properties
A	9.000E-06		
A Shear I	9.000E-06		
A Shear I G	9.000E-06 Modulus		

Figure 19. Material property data

Material Name			Material Type		
Brick			Other		
ysteresis Type Drucker-Prager Para		ameters	Units		
Kinem	natic 👻	Friction Angle	0.	N. mm. C 👻	
		Dilatational Assols	0		
		Dilatational Angle	0.		
tress	-Strain Curve Def	inition Options			
0.0-	remetrie		00	overt To liser Defined	
рра	rameuric			intert to oact behilde	
0 05	el Dellined				
ser Si Numb	tress-Strain Curv er of Points in Str	e Data ess-Strain Curve		7	
ser Si Numb	tress-Strain Curv er of Points in Str Strain	e Data ess-Strain Curve Stress	Point ID	7	
ser S Numb	tress-Strain Curv er of Points in Str Strain -0.0123	e Data ess-Strain Curve Stress -1.3004	Point ID		
ser S Numb	tress-Strain Curv er of Points in Str Strain -0.0123 -4.600E-03	e Data ess-Strain Curve Stress -1.3004 -6.4999	Point ID		
ser S Numb 1 2 3	tress-Strain Curv er of Points in Str Strain -0.0123 -4.600E-03 -2.300E-03	e Data ess-Strain Curve Stress -1.3004 -6.4999 -4.8749	Point ID	7	
ser S Numb 1 2 3 4	tress-Strain Curv er of Points in Str Strain -0.0123 -4.600E-03 -2.300E-03 0.	e Data ess-Strain Curve Stress -1.3004 -6.4999 -4.8749 0.	Point ID	7	
ser S Numb 1 2 3 4 5	tress-Strain Curve er of Points in Str Strain -0.0123 -4.600E-03 -2.300E-03 0. 2.300E-03	e Data ess-Strain Curve Stress -1.3004 -6.4999 -4.8749 0. 4.8749	Point ID	7	
ser S Numb 1 2 3 4 5 6	tress-Strain Curve er of Points in Str Strain -0.0123 -4.600E-03 -2.300E-03 0. 2.300E-03 4.600E-03	e Data ess-Strain Curve Stress -1.3004 -6.4999 -4.8749 0. 4.8749 6.4998	Point ID		
ser S Numb 1 2 3 4 5 6 7	tress-Strain Curve er of Points in Str -0.0123 -4.600E-03 -2.300E-03 0. 2.300E-03 4.600E-03 0.0123	e Data ess-Strain Curve Stress -1.3004 -6.4999 -4.8749 0. 4.8749 6.4998 1.3004	Point ID		
ser S Numb 1 2 3 4 5 6 7	tress-Strain Curve er of Points in Str Strain -0.0123 -4.600E-03 -2.300E-03 0. 2.300E-03 4.600E-03 0.0123	e Data ess-Strain Curve Stress -1.3004 -6.4999 -4.8749 0. 4.8749 6.4998 1.3004	Point ID	7 I I I I I I I I I I I I I I I I I I I	
ser S Numb 1 2 3 4 5 6 7	tress-Strain Curve er of Points in Str Strain -0.0123 -4.600E-03 -2.300E-03 0. 2.300E-03 4.600E-03 0.0123	e Data ess-Strain Curve Stress -1.3004 -6.4999 -4.8749 0. 4.8749 6.4998 1.3004	Point ID	7 Order Rows	
ser S Numb 1 2 3 4 5 6 7	tress-Strain Curve er of Points in Strain -0.0123 -4.600E-03 -2.300E-03 0. 2.300E-03 4.600E-03 0.0123	e Data ess-Strain Curve Stress -1.3004 -6.4999 -4.8749 0. 4.8749 6.4998 1.3004	Point ID	7 Order Rows Show Plot	
ser S Numb 1 2 3 4 5 6 7	tress-Strain Curve er of Points in Strain -0.0123 -4.600E-03 -2.300E-03 0. 2.300E-03 4.600E-03 0.0123	e Data ess-Strain Curve Stress -1.3004 -6.4999 -4.8749 0. 4.8749 6.4998 1.3004	Point ID	7 Order Rows Show Plot	

Figure 20. Nonlinear material data

Shell elements were selected for wall sections (Fig. 21, Fig. 22).

X Area Sections	
Sections          Inner_Balcony_Slab         None         Outer_Balcony_Slab         Slab         W20         W30         W50         W65         W85         W95         W030         W050         W050         W055         W095	Select Section Type To Add Shell Click to: Add New Section Add Copy of Section Modify/Show Section Delete Section OK
	Cancel

Figure 21. List of the wall sections

Section Name W65		Display Color
Section Notes	Modify/Show	
уре	Thickness	
Shell - Thin	Membrane	0.65
Shell - Thick	Bending	0.65
Plate - Thin	Material	
Plate Thick	Material Name	+ Brick -
Membrane	Material Angle	0.
Shell - Layered/Nonlinear	Time Dependent Propertie	15
Modify/Show Layer Definition	Set Time Dep	pendent Properties
Concrete Shell Section Design Parameters	Stiffness Modifiers	Temp Dependent Properties
Modify/Show Shell Design Parameters	Set Modifiers	Thermal Properties

Figure 22. Shell section data for the wall with thickness 65 cm

Steel beams were used on balcony edges, and for loft construction timber frame elements were defined (Fig. 23).

Frame Properties			X
Properties Find this property: FSEC1 Filling rafter_16X8 FSEC1 HE200A Timber Beam_20X12 Timber Beam_20X20 Timber Beam_30X30 Timber Beam_30X30 Timber Beam_30X30 Timber Column_20X20 Timber Rafter_16X8 UPN200		Click to: Import New Property Add New Property Add Copy of Property Modify/Show Property Delete Property	
	ОК	Cancel	

Figure 23. Frame properties

Slab was calculated as a rigid diaphragm.

Shell elements for slab and walls were divided into 0.2 - 0.3m size finite elements. Starting points of the wall finite elements were restrained as it is illustrated on Fig. 24.

💢 Assign Joint Restraints	
Restraints in Joint Local Directions	
Translation 1	Rotation about 1
Translation 2	Rotation about 2
Translation 3	Rotation about 3
Fast Restraints	
	<u></u> ●
OK Clos	e Apply

Figure 24. Joint restraints

When the design of the building geometry was completed (Fig. 25), Dead, live and horizontal loads were assigned [9].



Figure 25. 3D model of the building

Nonlinear static load case was defined for nonlinear static analysis, which combines dead and live loads. Then the horizontal load case was modified for nonlinear static analysis.

Load Case Name Hor-X	Set Def Name	Notes Modify/Show	Load Case Type     Static <ul> <li>Design</li> </ul>
Initial Conditions Caro Initial Conditions - Si Continue from State at En- Important Note: Loads f Modal Load Case All Modal Loads Applied Load Sapplied Load Type Load Pattern Hor-x Load Pattern Hor-x	art from Unstressed State d of Nonlinear Case rom this previous case are ind Modes from Case Load Name S 1. 1.	NL  Cluded in the current case  MODAL  Cale  Add  Modify  Delete	Analysis Type Linear Nonlinear Nonlinear Staged Construction Geometric Nonlinearity Parameters None P-Delta P-Delta P-Delta Mass Source MSSSRC1
Other Parameters Load Application Results Saved Nonlinear Parameters	Displ Control Multiple States Default	Modify/Show Modify/Show Modify/Show	OK Cancel

Figure 26. Horizontal load case modified for nonlinear static analysis

To calculate the numerical model of the whole building by nonlinear static pushover analysis requires too much time for masonry building with a large volume. Alternative decision was made to calculate single floor separately and increase the vertical and horizontal loads for each floor (Fig. 27, 28, 29.a,b, Table 6).

Eloor number	Dead load	Live load KN/m <sup>2</sup>	Assumed Horizontal load
			KN/m <sup>2</sup>
Cellar	104	12	11.6
Ground floor	85	10	9.5
First floor	64	8	7.2
Second floor	49	6	5.5
Third floor	35	4	3.9
Fourth floor	23	2	2.5
Fifth floor	10	-	1

Table 6. Load distribution for each floor of the building



Figure 27. Deformed shape of the single floor walls



Figure 28. Deformed shape of the single floor walls and slab



Figure 29.a,b 3D model for last floor and loft construction

Maximum displacements and base shear forces were represented per floor after the nonlinear static calculation (Table 7).

	Max	Base shear
Floor name	displacement	force
	m	KN
Cellar	0.002659	11500.589
Ground floor	0.003842	9439.162
First floor	0.005094	7160.744
Second floor	0.003966	5533.302
Third floor	0.004569	4014.356
Fourth floor	0.003301	2712.403
Fifth floor	0.002051	402.59

Table 7. Maximum displacements and base shear forces for each floor of the building

It is recommended to find maximum displacements and base shear force for whole building by simplified method to estimate the capacity curve.

# 8. Modeling the Methodology for seismic fragility assessment of the existing building

- Methods of seismic fragility assessment;
- Determination of capacity (Force displacement) curve;
- Definition of IDA (Incremental Dynamic Analysis) curve;
- Representation of seismic fragility and seismic hazard curves.

#### 8.1 Methods of seismic fragility assessment

Fragility is the probability of exceeding a certain damage state, conditional on the ground motion intensity [10].

There are two main components in the probabilistic seismic risk assessment: 1. information about ground motion hazard on the site and 2. Fragility knowledge with respect to the intensity of the ground motion.

Several methods are established for seismic fragility evaluation in different literature.

The general equation to develop fragility is [2]:

$$Fragility = P[LS|IM = y]$$
(1)

where,

LS is the limit state or damage state (DS), IM is the intensity measure (ground motion), and Y is the realized condition of ground motion IM.

**Relative Frequency (RF) Method** - where the capacity is assumed to be deterministic, attaining probability is approximated by the relative frequency.

**Lognormal Distribution (LD) Method** – Is the most popular method, when capacity is assumed to be deterministic and realizations as some probability distribution function (Fig. 30)

$$P_{ij} = 1 - F_{ij}(C_i) \tag{2}$$

Where F<sub>ij</sub> is the cumulative probability distribution function [8].



Figure 30. Fragility curve based on the lognormal distribution [11]

**Maximum Likelihood (BD) Method** - Capacity is assumed to be deterministic and each realization is represented as the result of a multi-outcome Bernoulli-type experiment, which resolves a dichotomy for a number of events. A lognormal distribution function is assumed to illustrate the fragility curves.

**First-order Second-moment (FS) Method** - demand and capacity are random variables and it is assumed that they are are independent and lognormal.

**Fuzzy Random (FR) Method** - damage quantification is naturally fuzzy, its probability is the expectation of the membership function  $\mu$ E relevant to this event [10].

For seismic fragility calculation of unreinforced masonry buildings, given formula is required to be used by Frankie et al. (2012) [2]:

$$P(\text{Exceedance}_{i}|\text{IM}) = \Phi\left[\frac{1}{(\beta_{\text{tot}})_{i}}\ln\left(\frac{\text{IM}}{\text{LS}_{i}}\right)\right]$$
 (3) where,

 $\Phi[\cdot] =$  standardize normal cumulative distribution

 $(\beta_{tot})_i = \log SD$  represent total uncertainty  $LS_i =$  threshold value for *i*th limit state

#### 8.2 Determination of capacity (Force - displacement) curve

To predict the force-displacement (F- $\delta$ ) relationship for masonry walls, it is accepted to provide either by the analysis of experimental results of masonry wall or numerical analysis of structure.

In case of numerical analysis, Nonlinear static pushover analysis is required to use. The capacity curve expressed by pushover analyses has to be converted into a bilinear curve. Limit- displacement values can be identified (Fig. 31).

For the existing building to use simplified method is more rational, because of the large volume and weight of the building, it is obvious that numerical model calculation takes a lot of time.



Figure 31. Capacity curve (a) and capacity spectrum (b) obtained from the deterministic APA [12]

To use the illustrated model (Fig. 32) depends on both the description of the damage states on the F- $\delta$  curve, the placement of the ultimate point ( $\delta_{ult}$ ,  $F_{ult}$ ) and the importance of the residual strength of the wall [?].



Figure 32. Idealizations of the F- $\delta$  backbone curve for masonry walls.

#### 8.3 Definition of IDA (Incremental Dynamic Analysis) curve

IDA (Incremental Dynamic Analysis) STUDY is a dynamic analysis study of a given structural model parameterized by the scale factor of the given ground motion time history.

An IDA CURVE is a plot of a state variable (DM) recorded in an IDA study versus one or more IMs that characterize the applied scaled accelerogram.

An IDA CURVE SET is a collection of IDA curves of the same structural model under different accelerograms that are all parameterized on the same IMs and DM [13].

The IDA given the structural model and a statistical population of records is no longer deterministic; it is a random line, or a random function DM = f(IM) (for a single, monotonic IM). Then, just as we are able to summarize a suite of records by having, for example, mean, median, and 16%, 84% response spectra, so we can define mean, median and 16%, 84% IDA curves (e.g., Figure 33. a,b) to (marginally)



summarize an IDA curve set. Alternatively a parametric model of the median DM given the IM can be fit to all the lines simultaneously [13].

Figure 33. SPO2IDA-predicted IDA fractiles for the equivalent SDoF system (a) Sa(T1)(g) vs Roof displacement, (b) Sa(T1)(g) vs Maximum Interstorey Drift Ratio [14]

The IDA always rises much higher than the SPO in IM terms [13].

#### 8.4 Representation of seismic fragility and seismic hazard curves



The IDA curve estimation give us a direct way to create seismic fragility curve (Fig. 34, 35, 36).

Figure 35. Family of fragility curves at 95%, 50% and 5% confidence levels [11]

34



Figure 36. Fragility curve, conditional probability of failure [15]

Steps for hazard curve are given in Fig. 37.



Figure 37. Seismic hazard analysis steps [11]

Hazard curve is given as a probability density as a function of special acceleration (Fig. 38). It reflects the time-dependence and frequency of occurrence of the action, that depends on the location. It is an action-specific feature [15].



Figure 38. Hazard curve, PDF and CDF for two sites (Kosovo (green) and Italy (red; PGA = 0.2 g) [15]

Finally, we can estimate fragility and hazard curves relationship (Fig. 39)



Figure 39. Fragility and hazard curves [15]

### Conclusions

The present study focused on the seismic fragility evaluation based on the building vulnerability assessment.

Research paper represents the site survey for Hungarian historic building, gathering the all necessary information of the building for seismic analysis. Indian and American building vulnerability assessment forms are illustrated, which was used to create a new form for Hungary.

Estimation of mechanical parameters of existed material was done according to the relevant literature, collected as from national documents also from foreign laboratory test papers.

All the above mentioned data was used to create the 3D model in finite element software and calculate by Nonlinear static analysis.

Detailed methodological tools are presented, to estimate the capacity (force -displacement) curve and determine the IDA curve, which gives the possibility for seismic fragility and seismic hazard assessment.

The demonstrated methodology will be effective as for pre-earthquake, also for post earthquake seismic hazard assessment of the buildings, which will be a significant benefit for the country.

#### Acknowledgements

I would like to express my gratitude to my supervisors: Dr. Vigh Lászlo Gergely and Dr. Török Ákos for their support and useful suggestions around this research work. To be always ready to help me and encourage. The experience gained by this study work, improved and enriched my knowledge throughout the Seismic Engineering field.

A special consideration to my friends from Georgia and from Syria, Mr. Otar Qvrivishvili and Mr. Shadi Fattoum.

This paper is also related to OKF project.

#### References

[1] Fódi A, (2011) Experimental and numerical investigation of reinforced and plain masonry walls, Theses of the PhD Dissertation, Budapest University of Technology and Economics, Budapest, p 3 (19)

[2] Nadzli F M, (2018) Seismic fragility assessment for buildings due to earthquake excitation. SpringerBrief in Computational Mechanics, Springer, Berlin, pp 3-12 (121)

[3] Morais E C, (2018) Estimation of the Intensities of Historical Seismic Events in Moderately Seismic Regions, Based on the Damage Analysis of Hungarian Historical Buildings, PhD Dissertation, Budapest University of Technology and Economics, Budapest, p 19 (107)

[?] Morais E C, Vigh L G, Krähling J, (2017) Seismic damage analysis of a Hungarian historical peasant house archetype, ENOC 2017, Budapest, Hungary, p 5 (7)

[4] Sreerama A K, Rajaram C, Mishra S, Ramancharla P K, Karnath A; Rapid visual screening of different housing typologies in Himachal,

Pradesh, India, Report No: IIIT/TR/2017/-1, Centre for Earthquake Engineering International Institute of Information Technology, Hyderabad - 500 032, pp 7-9 (26)

[5] Applied technology council, (2015) THIRD EDITION Rapid Visual Screening of Buildings for Potential Seismic Hazards: A Handbook, Redwood City, California 94065, pp 252-255 (388)

[6] Phaiju S, Pradhan P M, (2018) Experimental Work for Mechanical Properties of Brick and Masonry Panel, JScE Vol. 5, p 2 (8)

 [7] Parisi F. & Augenti N, Experimental data analysis for mechanical modelling of existing brick masonry structures, Department of Structural Engineering, University of Naples Federico II, Naples, Italy, 15WCEE LISBOA 2012, p 8 (11)

[8] Stein Manó bérháza [HU BFL - XV.17.d.329 - 5504, 1-9. f.]

[9] P. Bisch, E. Carvalho, H. Degee, P. Fajfar, M. Fardis, P. Franchin, M. Kreslin, A. Pecker, P. Pinto, A. Plumier, H. Somja, G. Tsionis, Editors: B. Acun, A. Athanasopoulou, A. PintoE. Carvalho, M. Fardis, (2011) Lisbon, Eurocode 8: Seismic Design of BuildingsWorked examples, European Commission Joint Research Centre, JRC 68411, EUR 25204 EN, p 265 (522)

[10] di Roio M, (2008) ON THE COMPUTATION OF SEISMIC FRAGILITY CURVES, DISAT Dept., University of L'Aquila, Italy, The 14th World Conference on Earthquake Engineering October 12-17, 2008, Beijing, China, pp 1-3 (8)

[11] Jack R. Benjamin and associates, INC. and RPK Structural mechanics consulting, (1994) Methodology for Developing Seismic Fragilities, TR-103959 Research project, California, pp 2-5, 2-9, 2-25, 2-32

[12] Vargas Y F Pujades L G Barbat A H · Hurtado J E, (2013) Capacity, fragility and damage in reinforced concrete buildings: a probabilistic approach, Bull Earthquake Eng (2013) 11:2007–2032DOI 10.1007/s10518-013-9468-x, p 9 (29)

[13] Vamvatsikos D. and Cornell C. A, (2002) Incremental Dynamic Analysis, Department of Civil and Environmental Engineering, Stanford University, CA 94305-4020, U.S.A., DOI: 10.1002/eqe.141, pp 4-5,12,19 (24)

[14] Mulchandani H. K. S.M.ASCE1 and Muthukumar G, Ph.D, (2018) Resilience Based Earthquake Design of Buildings: Current Practice, Problems, and Opportunities in Indian Scenario, DOI: 10.1061/9780784482032, Dept. of Civil Engineering, Birla Institute of Technology and Science, Pilani,

#### P 8 (10)

[15] Vigh L G, Lecture note – Methods of Engineering Analysis, Department of Structural engineering, Budapest University of Technology and Economics, Budapest, Hungary, pp 12-19