POST-DISASTER INVESTIGATION OF STRUCTURES IN EASTERN INDIA AT VISAKHAPATNAM AFTER VERY SEVERE CYCLONE HUDHUD

by

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ABSTRACT

IBRAHEEM MASOUD ALHAIDER. Post-Disaster Investigation of Structures in Eastern India at Visakhapatnam after Very Severe Cyclone Hudhud. (Under the direction of DR. SHENEN CHEN)

This thesis reports a systematic post-disaster assessment of structures after the Very Severe Cyclone (VSC) Hudhud in eastern India during October 2014, which is the strongest storm event to hit any Indian city. Started as a tropical storm in the Bay of Bengal, Hudhud demonstrated unique climate phenomenon that resulted in massive snow dump in Nepal (1,200 km away from the Bay). The damage assessment of over 100 structures in Visakhapatnam (Vizag) of Andhra Pradesh, India, has been performed based on ground observations and is reported herein. A rating technique ranked damaged conditions based on a 0 to 3 score is used for the study. From 114 structures analyzed, the rating outcomes indicate unique wind damage distributions in Vizag that demonstrated likely sustained strong wind forces that carried its water contents further inland.

This thesis offers a first-order assessment of the effect of the VSC Hudhud and the assessment outcomes for the structures investigated are listed in the Appendix at the end of this thesis.

Keywords: Very Severe Cyclone (VSC), Structural Damage, Hudhud, Vizag

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CHAPTER I: INTRODUCTION

1.1 Introduction

Cyclonic storm Hudhud, which made first landfall in Andaman Islands in the Bay of Bengal in October 2014, was an exceptionally powerful tropical cyclone that devastated portions of the city of Visakhapatnam (Vizag), Andhra Pradesh, India. With an unofficially recorded wind speed of 216 km/h (134 mph, one minute sustained wind), the very severe cyclone (Indian Meteorological Department classification, 2003) Hudhud struck Andhra Pradesh coast at Visakhapatnam on 12th October, 2014. The storm event has been billed as the strongest and most expensive storm event in India history (Rao et al. 2015).

VSC Hudhud also demonstrated an unprecedented sustained force and retained moisture that allowed it to cause significant amount of snow falls in the Himalayan mountain range in Nepal, which resulted in an avalanche that killed 43 hikers and guides in Nepal (Neckel et al. 2015). Figure 1 shows the storm path indicating strength gain throughout October 8th to October 11th, 2014, and reached Vizag at near maximum wind speed of 185 km/h (114 mph). Figure 1 shows the storm path that identified the cyclone as genesis in the Adaman Sea and building up its strength towards Vizag. The storm is characterized by strong wind forces, forceful wave impacts on shorelines and localized inundation of sea waters (Vivek and Kumar 2015).

To collect perishable storm data and perform ground-truth analysis of the storm, a research team has traveled to Vizag on November 16th, 2014, to study the storm-induced damages. This thesis presents the outcomes of a preliminary assessment of the damaged structures investigated. A basic rating approach is devised and performed on more than 150 structures. A few structures were eliminated in the analysis due to a lack of sufficient

close observations of the structure and associated problems. As a result, a damage distribution analysis was performed on 114 structures. The structures consist of both commercial (warehouses, shopping malls, school buildings, auditoriums, stadiums and government offices) and residential structures. The rating technique is based on visual observations made on the structures using photos and data collected.

The important lesson learned includes a ground truth evidence of sustained wind force that is unique for VSC Hudhud. The documentation of the damaged structures from this storm event should increase our understanding of the damaging forces of the storm and it should help enhance the resilient design of coastal structures. Many of the observations and contributions from the forensic investigation groups can help enhance the post-disaster performance of the infrastructure and the built-environment.

1.1 Thesis Objective

The goals of this thesis are to document the study methodology, the analysis results and to report the state of understanding of the cyclonic storm Hudhud event.

1.2 Thesis Outlines

The stricture of this thesis consists of six chapters: Chapter 1 introduces the project; Chapter 2 summarized the genesis and history of the cyclone Hudhud; Chapter 3 described the general observation and structures studied. It also describes the assessment of the damaged states of the 114 structures using a basic rating technique; Chapter 4 discusses the rating results from the 114 structures; Chapter 5 concludes the findings from this study; Chapter 6 suggests future studies that may be derived from the current thesis.

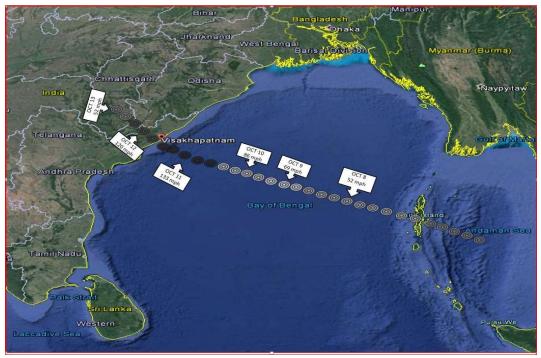


Figure 1: Study areas in Visakhapatnam

CHAPTER II: VERY SEVERE CYCLONE HUDHUD

2.1 Very Sever Cyclone Hudhud – Genesis and History

Like most tropical storms (TS) in southern Asian monsoon system, Hudhud originated as a low pressure center in the Tenasserim coast and northern Andaman Sea on the 6th of October, 2014. The localized depression harnessed the energy from subsurface turbulent heat flux and upper-ocean cooling plays, quickly gained strength and upgraded from TS into a severe cyclonic storm on October 10th, 2014 (Warner et al. 2016). It crossed northern part of Andhra Pradesh coast over the city of Vizag during 11:00 and 13:00 IST (Indian Standard Time) of 12th of October with a maximum, 3-minute sustained wind speed of 180 km/h (112 mph) and estimated lowest central pressure of 950 hPa (Douluri et al. 2016).

The strong wind brought about significant amount of energy in the sea current and generated waves that caused damages to the coast line (Kennedy et al. 2016). Murty et al. (2016) conducted post-storm analysis and modeling of the storm surge scenarios for Hudhud and suggested that the maximum height of storm surge at Vizag is about 1 m (3.2 ft) (October 12, 2014). In a later study (2017), they updated their forecast model and reported that the storm surge at Vizaf is near 1.2 m (4.0 ft), which is slightly lower than the tide gauge observation of nearly 1.4 m (4.6 ft). Volvaiker et al. (2017) also confirmed a maximum surge of 1.2 m (4.0 ft) using a modeling technique that includes wave-current interactions. Lakshmi et al. (2017) used WRF-ARW model and confirmed the storm surge height of 1 m (3.2 ft) in Vizag during Hudhud.

The storm surge and inundation scenario for the VSC Hudhud is critically dictated by the coastal topography and bathymetry, and the storm forcing characteristics including surface wind field and pressure field. Vizag is the largest city in the Andhra Pradesh and is situated at the west end of the Bay of Bengal. The city is naturally endowed by the beautiful coast line on the east and the surrounding of the Eastern Ghats rolling hills. Vizag has been classified as a high-risk zone for cyclonic activities (Mohapatra et al. 2012, Matta et al. 2015). Figure 2 shows the damaged coastal area in Vizag including significant rock erosions (Figure 2a). However, the city and most of its infrastructure had been protected by the steep bathymetric slopes and the wide-span, beach roadway (Beach Road in Vizag, see Figure 2b); thus, water damages in the city were not significant.

In fact, the beach front area of Vizag is followed by a steep hill, where Andhra University (AU) campus presides. The highest point of the campus is around 70 m (229.7 ft) above sea level. The campus experienced several structural failures and trees down. The original green campus is almost exposed losing almost half its tree population. Figure 3 shows several campus structures damaged due to the storm event including multiple-story structure (Figure 3a) and single-story work shop (Figure 3b). Figure 3c and 3d shows the damages to the old auditorium that include portion of the roof damaged and damages to the interior partitions.

Further away from the city, several fisherman colonies encroaching on the beach were nearly whipped out. Structures include straw huts (Figure 2c) and very simply constructed single story masonry buildings (Figure 2d). Both structures are in an encroachment area on the beach in Chepalappada.

Wind damage due to Hudhud tells a different story: Vizag is a coastal city with ridges and valleys. The rolling terrains have provided protections to previous storms. However, Hudhud is an unprecedented storm event with unique wind pattern, which allowed the cyclone to travel much deeper in-land. Figure 4 shows a large steel structure (Building No. 105-001) located in Autonagar, which is located approximately 1 Km (3,280 ft) away from the coastline and experienced severe wind damages. Notably, the front and back sides of the structure experienced significant damage with almost nominal damages to the side of the building. This is consistent with the witnesses of several local personnel suggesting there were two separate wind gusts hours apart that caused the damages to the structure, first the front (a southwestern-ward gust) then the back (a northeast-ward gust). The steel structure is approximately four to five stories tall and sits in an 11-degree angle from the north direction. Also shown in Figure 4 is the general entry direction of the Hudhuad storm path.

A meteorological analysis of the history of the storm event, Kumar et al. (2015) described two very strong gusts recorded at 11:30 hour and at 16:30 hour IST by different weather stations in Vizag. These data seem to validate the local observations. Nonetheless, additional studies are needed to further understand this extraordinary storm event.

The storm event eventually weakened to a depression on 13th of October. However, the storm carried significant amount of moisture and eventually moved north to higher latitude and more inland.



a) Damages to Vizag Coastal Area



b) Beach Road Barricaded the Waves (Distance to Nearest Structures ${\sim}40~m)$



c) Damages to Fisherman's huts



d) Beach Area Erosions and Downed Masonry Buildings

Figure 2:Water Damage Scenarios in Vizag and Surrounding Areas: a) Rock Erosion and Debris Showing Strong Wave Forces; b) The Wide-Span Beach Road Protected the Structures within the City Vizag; c) Huts Damaged in Krishna Nagar; and d) Small Masonry Structures Damaged in Jelari Peta.

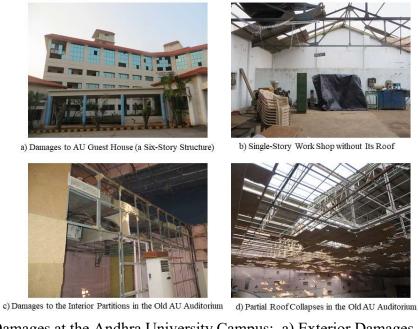


Figure 3:Damages at the Andhra University Campus: a) Exterior Damages of AU Guest House; b) Roof Down of a Single-Story Work Shop; c) AU Old Auditorium with Interior Partition Damages; and d) Roof Damages of AU Old Auditorium.



Figure 4: Wind Damaged Steel Storage Structure at 1 Km (3,280 ft) Distance Away in Autonagar, India

CHAPTER III: ANALYSIS

3.1 Structures Studied and General Observations

The selected structures include single to ten-story tall structures. Commercial largespan structures such as warehouses and in-door auditoriums and stadiums are considered single story structure, even though the structure height can be more than several stories tall. This classification is because the inter-story frames may strengthen the structure system and resulting in different failure modes, which may not be the case for open structures with high ceilings. Table 1 shows a summary of the structure types based on stories and functions (commercial or residential). The construction types in the selected structures varied in some aspects, but also share many features, for example, framing and cladding.

The most common construction methods in the eastern India are either reinforced masonry or reinforced concrete frames with concrete slab-on-grade foundations that featured metal roofing panels attached to predominantly steel roof frames. Residential structures tend to have masonry or concrete frames with metal roofing, but usually featured wood roof trusses instead of steel. Commercial structures are more typical of reinforced concrete frame with steel roof truss. Some older school structures used wood roof truss systems. Roof systems studied include both sloped and flat roofs. Most commercial structures or taller residential structures have flat roofs may have additions in the form of metal framed structures. Many of these additions are damaged during the storm and in most cases, the damages are more severe than the main building structures. As an example, Figure 5 shows a two-story automobile dealership building (Building No.

B06-001, Sai Nagar) with an elaborately constructed roof extension, which is a steel frame supporting a truss roof of its own. The main building only sustained façade damages but the additional roof structure was near completely damaged. Figure 5c shows the roof addition has a concrete footing support attached to the main building and was damaged due to collapse of the steel framing. A leaning tree may have contributed to the failing of the roof structure. Figure 6 shows other example (Building No. B02-005) where roof additions using steel tubing constructions have failed under wind loads. In this case, the building is located next to the Beach Road, Vizag.

Another structure showed the unique, two-gust wind (southwestern-ward gust and northeast-ward gust) impacts is the Gandhi Family Museum (Building No. B02-002), which is situated on the beach front about 100 m from the coastline in Chinna Waltair and has a 68-degree tilt towards the true north. Figure 7 shows the glass covered structure has the most facade damages in the front and back of the structure and the actual sea-facing side of the building has only sustained nominal damages.

Number of Stories	No. of Structures
Single Story	59 (55 commercial and 4 residential)
Two Stories	9 (5 commercial and 4 residential)
Three Stories	11 (9 commercial and 2 residential)
Four Stories	8 (6 commercial and 2 residential)
Five Stories	11 (9 commercial and 2 residential)
Six Stories	7 (5 commercial and 2 residential)
Eight Stories	1(commercial)
Ten Stories	1(commercial)

Table 1: Building Type by Stories



a) Main Building of a Auto Dealership



c) Damage to Extension Structure Support



b) Roof Extension Structure



d) Distorted Truss Frame

Figure 5: Wind Damaged Structure of an Automobile Dealership: a) Main Building with only façade damages; b) Roof Addition with Steel Truss; c) Support Failure of the Roof Addition with Concrete Column and Half-Filled Walls; and d) Distorted Roof Truss and Steel Frame



Figure 6: Roof Addition Failure on Beach Road, Vizag.



Figure 7: Damaged Gandhi Family Museum in Chinna Waltair Showing Significant Glass Damages in the front and End Sides of the Building

3.2 Structural Rating Technique

The basic structural rating technique is derived from ATC-45 "Safety Evaluation of Buildings after Windstorms and Floods" (2004) for the intent of characterizing storm damages (damage level and damage patterns) (Chen et al. 2015). Table 2 shows the condition assessment chart with six condition categories: Condition categories 1 and 2 describe the global condition of the structure and distinguish between total collapses (1a), partial collapse (1b) portion of a structure collapse (1c) and moving off the foundation failure (2a). Condition category 3 focuses on member and wall level failures. Condition category 4 addressed mostly the superstructure conditions. Condition category 5 addressed the sub-structure and foundation conditions. Finally, condition category 6 describes trees leaning against the structure and projectile/debris impacts on a structure. These six categories summarized the damage scenarios described in ATC-45 manual.

Figure 8 shows six different failure modes of structures including: a) translation or sliding of structure against the foundation; b) rotation motion of structure against the foundation; c) racking or lateral collapse of the structure; d) component failures of structure such as roof damage, wall damage; e) inward racking where structure failed under gravity effect; and f) building envelop failure and only the structural components remained. The structures studied do not necessarily satisfy all the failure modes, but the failure modes are integrated into the rating scheme.

The rating technique assigns a quantitative value of severity of 0 to 3 where 0 means no damage and 3 means severe to complete damage. Due to each failure condition may not have the same effect to the structure, an importance factor was also assigned to each condition. The importance factor represents the effect of the condition on the building as

a system. As each condition defined may not necessarily have the same level of effect on a structure, hence, different importance factor (or significance factor) is defined. For example, condition 1a) defines a structure either completely collapsed or partially collapsed and has an importance factor of 3, whereas, condition 1b) represents a portion of the structure collapsed – meaning only components may failed, i.e. Figure 8d or 8f, hence, has an importance factor of 2. As most houses considered are reinforced concrete structures, trees leaning against structure (condition 6a) and projectile impact on structures (condition 6b) typically would not cause instability of a structure, therefore, have importance factor of 1. The importance factors are specified in Table 2.

Once the evaluation is completed, the overall rating of the structure can be calculated as:

$$Overall Rating = \frac{\sum x \cdot I}{\sum I}$$
(1)

where x is the individual rating for each condition and I is the importance factor as defined in Table 2. Any condition rated as 0 (no damage or minimal damage) will not be considered in the overall rating calculation. If any condition not known (i.e. not visible from any pictures), then it must be acknowledged and not considered in the calculation. Hence, the denominator of the equation only considers the conditions that are ranked 1 to

As established in previous section, the predominant building damage causes are associated with the wind forces, hence, focuses will be placed on wind damaged structures. As an example, despite of their physical distances to the beach, Building No. 105-001 of Autonagar has received a rating of 3, whereas the Gandhi Family Museum (Building No. B02-002) has a rating of 1. The auto dealer ship building (Building No. B06-001) has received a rating of 2 because the damages to the structure would not have

resulted in a complete collapse of the structure. On the other hand, Building No. B-02-005 shown in Figure 6 received a rating of 0 because the roof structure constructed using steel tube members is deemed with little to no effect to the actual structure, hence, has very little importance to the actual three-story building system.

Table 2: Basic Structural Rating

Table 2: Basic Structura	ii Ruung
Condition	Scale (0 to 3: 1-minor, 2-
	moderate, 3-severe)
1a) building total collapsed or partially collapsed	
(I=3)	
1b) a portion of the building has collapsed (I=2)	
1c) The building has moved off its foundation	
(I=2)	
2a) building (any story) or foundation is	
significantly out of plumb (I=3)	
2b) gaps exist between walls, ceilings or roof	
(I=2)	
3a) obvious severe damage to primary members	
(I=2)	
3b) severe bowing or racking of walls (I=2)	
4a) serious falling hazards such as loosened	
roofing or wall cladding (I=2)	
4b) roof damage (I=2)	
5a) foundation undermined by scour or erosion	
(I=3)	
5b) Building threatened by slope instability (I=3)	
6a) neighboring structure/trees leaning against	
structure	
(I=1)	
6b) projectiles/debris impact on structure (I=1)	

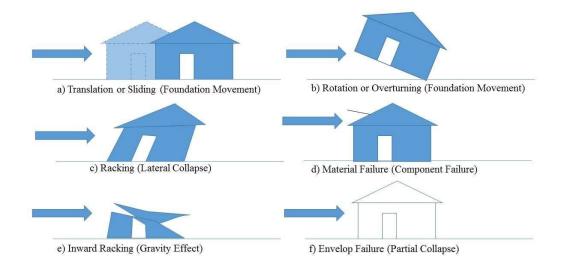


Figure 8: Global Failure Modes of Structures

4.1 Rating Outcomes

Figure 9 shows a summary of the rating of the structures studied. Predominant damaged structures received a rating of 0 meaning only superficial damages occurred to the structures. Forty eight of the inspected structure received a rating of 0 and about 6 structures received a rating of 3 (severely damaged). Structures received a rating of 1 (minor damages) accounts for 31 structures and 29 structures received a rating of 2. The primary mode of failure in buildings found in the studied areas are material/component failures and there is no translation or sliding of structures (Figure 8a) and overturning (Figure 8b) occurred. This indicates that most of the structures have foundations sufficient to survive during the storm.

The most common destruction modes of commercial structures are roof and façade damages, but there is no complete collapse of entire structure (column failures). The individual condition ranking is shown in Figure 10. The most common condition is roof failures (24%) indicating wind effects. Because of roof damages, there are also several cases of falling object hazards (14%). Finally, because of connection design, roof damage also resulted in damages in primary members such as wall beams and columns. The resulting damages to primary members is about 13%.

Figure 11 summarizes the different failure modes in Vizag from Hudhud into wind and water damaged structures. The results indicate a predominant wind induced damages at about 96% of all studied structures, but results may be more as there are few cases of combined effect damages (4%). The study result regarding water damage can be misleading as some parts of the city have experienced flooding and inundation. Also

because of the heavy rain with some parts received over 34 cm of 24 hour accumulated rain fall (Rao et al. 2015), several structures received various degrees of water damages.

4.2 Discussion

Because the investigation was conducted one month after the disaster, several sites have already been cleaned up and with ongoing repair works. This allows the exposure of actual damages to the structure due to wind loading, especially in the design of roof connections. Observations of the construction of several damaged single-story buildings indicate that the roof cover connection technique (for sheet metal roofing and shingle or tile roofing) can vary from nailing, strip connection to weld and bolt connections. If roof trusses were used, the roof truss connection to the support member can vary from bolted connection to simply bending the extended rebars around the truss connection as support. Figure 12 shows different roofing designs and connections. It is evident that most damage mechanisms from the hurricane started with the failure of roof covers in most cases; however, there are also cases where gusty winds may have brought down partially the roof trusses. Hence, there is a need for further investigation of roof cover to roof support connection designs for the wind force due to Hudhud. If the building frame remained intake, a strong roofing design may provide some safety to the occupants within the structure. Determining the wind effect becomes a very important aspect in improving design methods for roof connections against such hurricane.

Roofing damages are also significant to even monumental structures such as the new auditorium (Building No. ACH-001) for AU, which is on the Beach Road near the coast. The auditorium had expensive aluminum metal roof sheets connected to roof trusses.

Figure 13 shows various shots of the auditorium under construction. Since the auditorium is a new construction, the wind force effects are not affected by the age of the structure.

The construction quality of the housing is a critical element in determining the survivability of the structures. The basic rating does not reflect directly the quality of the construction – one has to rely on more detailed analysis of the structures to establish the effect of construction quality. The basic rating technique helps identify the failure modes of the structures, which can then be used to determine the geospatial distributions of the damaged structures.

Other than building damages, the force of Hudhud also caused significant infrastructure and environment damages. The most significant environmental impact is trees down. Significant amount of trees were damaged due to the strong wind from Hudhud involving many different damage modes (Kotamrazu 2014). The city collected several million tons of downed trees in the form of solid wastes. Figure 14 shows different views of failed trees. Telltale signs of environmental damages may sometimes give away indicators of storm surge level and water damage effects. However, such observations require trained eyes and are highly empirical. Hudhud resulted in significant amount of downed trees that became solid wastes for the city, which took several months to remove for landfilling.

Buildings and structures are systems mandated to meet certain design requirements - an engineer involved in building construction has to perform many essential functions before approval. The design considerations focus on the safety of the people and reducing vulnerabilities to risks. The failure to uphold efficiency in constructions leads to loss of lives and properties as a result of the damages that occur as the end results. To ensure a building meets safety standards, safety loading code remains instrumental. Safety loading

code provides a guide to all building professionals covers different loads including; wind loads, imposed loads and dead loads, etc.

The Indian design codes have been changed and modified time to time to improve building standards. The wind loading analysis based on Indian national building code has a direct link to British standards but is amended to reflect the Indian condition. The design wind speeds vary from one geographical area to the other, and the Indian metrological department has been involved in determining wind speeds. Civil engineer then take the design speed of the wind at different heights in considerations. Wind speed increases from the ground to the surface affecting the construction of the tall building.

The wind speeds are typically expressed in design codes as wind pressure maps and Indian design code has set criteria for assessing wind loads. In India, wind speed is divided into different zones depending on its velocity for specific heights from the mean ground. In the absence of metrological data required in construction, the wind pressure is determined using the IS-875. Pressure coefficient of a given area change as the area becomes larger the measured value decreases while the area reduces the measured the value increases. For instance, an offshore wind speed cyclonic storm forms far away from the coast and gradually reduce wind speed on approaching the sea and extend about 60 km (196,850 ft) inland after striking the coast. In addition, wind speed of the coast region is much higher than recorded hence extends up to 200 km (656,168 ft). Guidelines are also outlined in the code for considerations including the probability of the risk occurrence, structure size, and terrain.

The code classified terrain in different categories basing on the characteristics of the ground surface irregularities. Indian road congress defines terrain in four categories which include mainly the rolling, plain, mountainous and steep based terrain. The construction engineers must understand the type of road to construct since the terrain design speed varies. For example, design speed in a plain terrain can have any geometry. However, the same standard of construction in a hilly area needs to be reduced to terrain level.

In conclusion, wind load is a special load on the building since it can create different forces with different effects based on the height and shape of the building. Designer, architectures, and engineers should be very careful to ensure buildings are safe for human activity. The taller the building, the stronger the force since wind is less affected by friction with the earth and surrounding topography. Thus, making wind load negatively impact the tall building structure .Often for small houses within densely populated areas wind loads can even be ignored, while for high-rises wind load calculation is a necessity.

VSC Hudhud also resulted in large number of the regional population to lose power due to downed transmission structures (Soonee et al. 2015). Several transmission truss structures are found collapsed due to strong wind impact. Figure 15 shows a downed transmission structure where several members of the truss tower experienced buckling. More than fifty such transmission towers (either 400 kV or 200 kV lines) collapsed.

The recording of the structure position coordinates enabled the determination of the geospatial distribution of wind effects on structures. The interest is to determine the damage level as a function of distance to the coast. Figure 16 show plots of number of structures damaged versus distance to the coast for wind damage. Also included in the figure are trend lines for each rating using logarithmic curves. The log curves fit better than straight lines and indicate that the wind effects can extend to very far away from the coast – a clear indication of sustained storm wind force.

The trendiness are counterintuitive as they indicate increased number of damaged structures with the increase in distance, which contradicts to most storm events where a weakening of wind force would result in less damages away from the coast line. This observation is consistent for all three ratings shown in Figure 16. This observation also seems to support that the observation that VSC Hudhud carries significant amount of energy and moisture after landfall enabling it to travel to the Himalayans and caused heavy snowstorm (13th to 15th October, 2014) in the mountain range (Neckel et al. 2015).

VSC Hudhud follows after another extreme cyclonic storm event Phailin which occurred a year before. Phailin is classified as an Extremely Severe Cyclone (ESC) and had a threeminute sustained wind speed of 215 km/h. Based on the experiences from Phailin, the local government of India was able to effectively predict the arrival time of Hudhud and evacuated more than half a million people from Vizag (Meduri 2016,); thus, avoided significant loss of human lives.

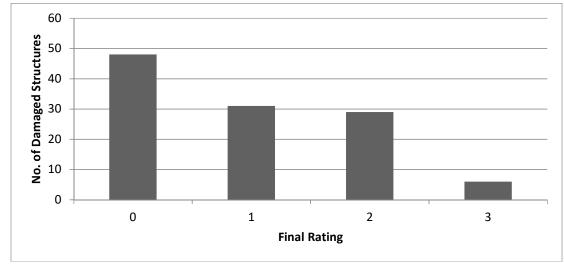


Figure 9: Overall Rating Distribution

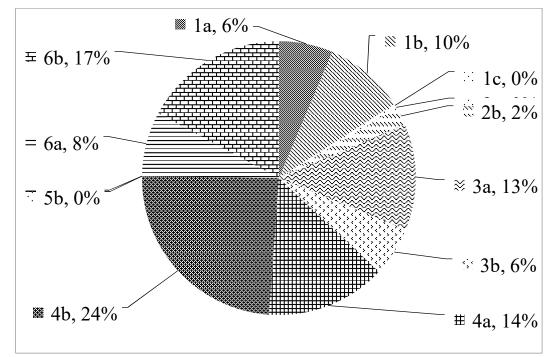


Figure 10: Statistics of Damage Condition Rankings (Key to Numbers in the Pie Chart: Condition Number, Number of Structures and the Percentage to Overall Structures)

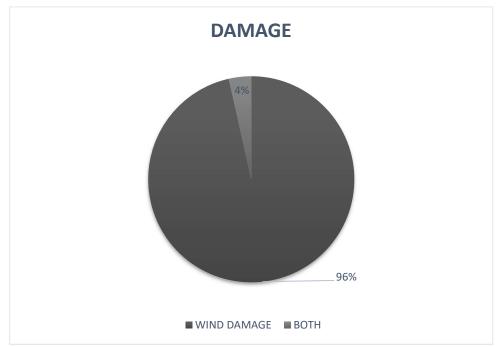


Figure 11: Damage Causes Differentiating Wind and Both Damages



a) Tubular Truss Roofing System for Metal Sheet Roofing



c) Bolt Connection for Roof Truss Support



b) Truss and Frame Support for Tile and Shingle Roofing



d) Hook Connection of Sheet Metal Roofing

Figure 12: Typical Roofing Designs for Single Story Structures in Vizag.



a) Front View



b) Side View



c) Roofing Reconstruction



d) Distance View

Figure 13: Damaged Roof System of the AU New Auditorium – Structure Facing Directly the Ocean.





a) AU Guest House Prior to Hudhud

b) AU Guest House After Hudhud



c) Damages to Coconut Trees



d) Accumulation of Tree Debris

Figure 14: Very Severe Cyclone Hudhud Damages to Trees: a) Trees surrounding AU Guest House prior to Hudhud; b) Trees Damaged at AU Guest House after Hudhud; c) Damages to Coconut Trees in Vizag; and d) City Collection of Tree Debris.



a) Downed Transmission Tower

b) Buckling of Members

Figure 15: VSC Hudhud Resulted in Massive Power Losses and Transmission Structure Failures: a) Downed Transmission Truss Tower; and b) Detail of Buckled Truss Members

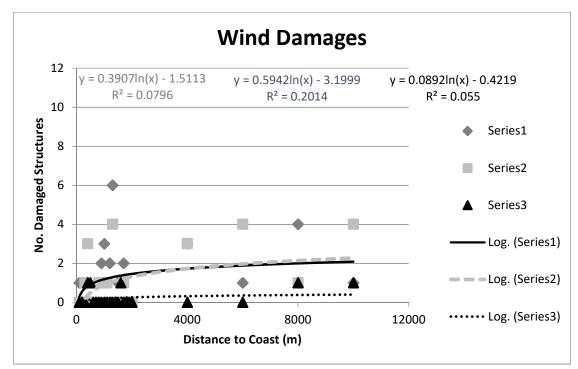


Figure 16: Damage Rating versus Distance to the Coast for Wind Damage Only with Trend Lines (Logarithmic Curves)

CHAPTER VI: CONCLUSION

The Very Severe Cyclone (VSC) Hudhud in eastern India during October 2014 is the strongest storm event to hit any Indian city and also the most costly cyclone in Indian history thus far. The storm made landfall at the coastline of Visakhapatnam (Vizag) of Andhra Pradesh resulting in massive loss of powers and economic. Due to effective evacuation plan, the loss of human lives were limited.

This thesis summarizes the overall ratings of 114 structures investigated during recent Very Severe Cyclone (VSC) Hudhud in the eastern Indian using a basic damage rating technique. The basic rating technique is intended to provide an overall assessment of a structure damaged during hurricanes and is applied to the storm scenario. From the 114 structures, wind damage was the predominant failure causes (96% for wind damage only) with only 4% both wind and water damages to the structures. The most critical damage mode is roof system failures.

Hudhud demonstrated unique climate phenomenon that resulted in massive snow dump in Nepal (1,200 km away from the Bay). The outcomes indicate unique wind damage distributions in Vizag showing higher number of damaged structures for further distance from the coastline, which shows likely indication of sustained wind force that carried its water contents further inland.

CHAPTER VII: RECOMMENDATIONS FOR FUTURE STUDIES

The Very Severe Cyclone (VSC) Hudhud in eastern India during October 2014 is the strongest storm event to hit any Indian city. It is only after years that we finally grasp the complete story of what happened in the Bay of Bengal and beyond (the Himalaya mountains range). This storm signifies the effect of climate change and may be an implication of future storms to come. Hence, it is very important to study this storm and develop a full appreciation of its effects and impacts to coastal cities. Specific recommendations for future studies would include:

- 1. Further analysis of the structure damages to understand the load path effects.
- 2. To determine ways to strengthen the structure against such wind force.
- To study the residency of the Visag city and the recovery process after Hudhud.

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APPENDIX: STRUCTURAL RATING SHEETS

STRUCTURE IDENTITY	:	A01-001				
TYPE OF STRUCTURE	:	COMMERCIAL, E	DUCATIONAL, TWO STO	DRY		
LOCATION	:	17.724662,83.3252	78			
DISTANCE FROM THE OCEAN	:	981 METERS	ELEVATION :	61 METERS		
DATE OF DAMAGE	:	Oct-09-2014				
DATE OF PICTURES COLLECTED	:	Nov-18-2014				
	CONDITION			Significance Factor	Rating	Overall Rating
1a	Building Collapsed O	Or Partially Collapsed		3	0	
1b	A Portion Of The Bu	uilding Has Collapsed		2	0	
1c	The Building Has M	oved Off Its Foundation	on	2	0	-
2a	Building (Any Story)) Or Foundation Is Sig	gnificantly Out Of Plumb	3	0	-
2b	Gaps Exist Between	Walls, Ceilings Or Ro	oof.	2	0	-
3a	Obvious Severe Dam	nage To Primary Mem	lbers	2	0	1
3b	Severe Bowing Or R	acking Of Walls		2	0	1
4a	Serious Falling Haza Cladding	rds Such As Loosene	d Roofing Or Wall	2	0	
4b	Roof damage			2	1	1
5a	Foundation Undermi	ined By Scour Or Eros	sion	3	0	1
5b	Building Threatened	By Slope Instability		3	0	1
6a	Neighboring Structur	re/Trees Leaning Aga	inst Structure	1	0	1
6b	Projectiles/Debris Im	npact On Structure		1	0	1



	Table A2: A01-002 structural rating	sheet		
STRUCTURE IDENTITY	: A01-002			
TYPE OF STRUCTURE	: COMMERCIAL, SINGLE STORY			
LOCATION	: 17.724904,83.324014			
DISTANCE FROM THE OCE	AN 1068 ELEVATION : METERS :	65 METERS		
DATE OF DAMAGE	: Oct-09-2014			
DATE OF PICTURES COLLECTED	: Nov-18-2014			1
	CONDITION	Significanc e Factor	Ratin g	Overal 1 Rating
1a	Building Collapsed Or Partially Collapsed	3	0	
1b	A Portion Of The Building Has Collapsed	2	1	
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0	
3a	Obvious Severe Damage To Primary Members	2	2	
3b	Severe Bowing Or Racking Of Walls	2	0	2
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall Cladding	2	0	
4b	Roof damage	2	2	
5a	Foundation Undermined By Scour Or Erosion	3	0	
5b	Building Threatened By Slope Instability	3	0	
6a	Neighboring Structure/Trees Leaning Against Structure	1	2	
6b	Projectiles/Debris Impact On Structure	1	1	



Tal	ble A3: A	A01-003 stru	ctural rating sh	eet		
STRUCTURE IDENTITY	:	A01-003				
TYPE OF STRUCTURE	:	COMMERCIA	L, TWO STORY			
LOCATION	:	17.725349,83.3	24042			
DISTANCE FROM THE OCEA	.N :	1125 METERS	ELEVATION :	66 METERS		
DATE OF DAMAGE	:	Oct-09-2014				
DATE OF PICTURES COLLECTED	:	Nov-18-2014				1
	CONDITIO	N		Significanc e Factor	Ratin g	Overal 1 Rating
1a	Building (Collapsed Or Par	tially Collapsed	3	0	
1b	A Portion	Of The Building	Has Collapsed	2	0	
1c	The Build	ling Has Moved (Off Its Foundation	2	0	
2a	Significan	(Any Story) Or F htly Out Of Pluml	b	3	0	
2b	Roof.	st Between Walls	-	2	0	
3a	Members	Severe Damage T	·	2	0	
3b		owing Or Racking	-	2	0	1
4a	Roofing C	alling Hazards Su Dr Wall Cladding		2	0	
4b	Roof dam	age		2	1	
5a	Erosion	on Undermined B	-	3	0	
5b	0	Threatened By Sl		3	0	
6a	Against S			1	1	
6b	Projectiles	s/Debris Impact (On Structure	1	1	



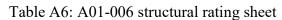
10	ible A4. I	A01-004 Su	uctural rating sh	eet		
STRUCTURE IDENTITY	:	A01-004				
TYPE OF STRUCTURE	:	COMMERCL	AL, STORAGE, TW	O STORY		
LOCATION	:	17.726025,83	.323952			
DISTANCE FROM THE OCEA	AN :	1201 METERS	ELEVATION :	69 METERS		
DATE OF DAMAGE	:	Oct-09-2014				
DATE OF PICTURES COLLECTED	:	Nov-18-2014				
	CONDITIO	DN		Significanc e Factor	Ratin g	Overal 1 Rating
1a	Building	Collapsed Or Pa	artially Collapsed	3	0	
1b	A Portion	Of The Buildin	g Has Collapsed	2	0	
1c	The Build	ling Has Moved	Off Its Foundation	2	0	
2a		(Any Story) Or ntly Out Of Plun		3	0	
2b	Gaps Exis Roof.	st Between Wall	ls, Ceilings Or	2	1	
3a	Obvious S Members	Severe Damage	To Primary	2	1	
3b	Severe Bo	owing Or Rackin	ng Of Walls	2	0	1
4a		alling Hazards S Dr Wall Claddin	Such As Loosened g	2	0	
4b	Roof dam	nage	~	2	1	
5a	Erosion	on Undermined 1		3	0	
5b	-	-	Slope Instability	3	0	
6a	Against S		-	1	0	
6b	Projectile	s/Debris Impact	On Structure	1	0	



STRUCTURE	IDENTITY	:	A01-005					
TYPE OF STF	RUCTURE	:	COMMERCI	AL, EDUCATIONA	L, TWO STORY			
LOCATION		:	17.725300,8	33.325086				
DISTANCE F	ROM THE OCEAN	:	1054 METE	RS	ELEVATION:	64 METERS		
DATE OF DA	MAGE	:	Oct-09-2014	1				
DATE OF PK	CTURES COLLECTED	:	Nov-18-201	4				
			CONDITION			Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or	Partially Colla	apsed			3	0	
1b	A Portion Of The Build	ing Has Colla	psed			2	0	
1c	The Building Has Move	ed Off Its Fou	ndation			2	0	
2a	Building (Any Story) Or	Foundation	Is Significantly Ou	t Of Plumb		3	0	
2b	Gaps Exist Between W	alls, Ceilings	Or Roof.			2	0]
3a	Obvious Severe Damag	ge To Primary	/ Members			2	0	
3b	Severe Bowing Or Rack	°				2	0	1
4a	Serious Falling Hazard	s Such As Loo	sened Roofing Or	Wall Cladding		2	0	
4b	Roof damage					2	1	
5a	Foundation Undermin					3	0	
5b	Building Threatened B					3	0	
6a	Neighboring Structure	2.	0 0	e		1	1	
6b	Projectiles/Debris Imp	act On Struct	ure			1	0	



STRUCTU	JRE IDENTITY	:	A01-006				
TYPE OF	STRUCTURE	:	COMMERCIAL, E	DUCATIONAL BUILDING, TWO STOR	Y		
LOCATIO)N	:	17.721556,83.32	2349			
DISTANC	E FROM THE OCEAN	:	802 METERS	ELEVATION:	54 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-18-2014				
			CONDITIO	N	Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collaps	ed	3	0	
1b	A Portion Of The B	uilo	ding Has Collaps	ed	2	0	
1c	The Building Has N	lov	ed Off Its Found	ation	2	0	
2a	Building (Any Story) C	r Foundation Is	Significantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or	Roof.	2	0	
3a	Obvious Severe Da	ma	ige To Primary N	1embers	2	0	1
3b	Severe Bowing Or				2	0	
4a		ard	ls Such As Loose	ned Roofing Or Wall Cladding	2	0	
4b	Roof damage				2	1	
5a	Foundation Under				3	0	
5b	Building Threatene				3	0	-
6a	Neighboring Struct			•	1	1	
6b	Projectiles/Debris	Im	pact On Structu	e	1	2	





STRUCTU	RE IDENTITY	: A01-007					
TYPE OF S	TRUCTURE	: COMME	RCIAL, TWO ST	ORY			
LOCATION	J	: 17.7279	877,83.319678	3			
DISTANCE	FROM THE OCEAN	: 1601 ME	TERS	ELEVATION:	70 METERS		
DATE OF	DAMAGE	: Oct-09-2	014				
DATE OF	PICTURES COLLECTED	: Nov-18-2	2014				
		CONE	DITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or Partially	Collapsed		3	0	
1b	A Portion Of The B	uilding Has	Collapsed		2	2	
1c	The Building Has M	loved Off Its	Foundation		2	0	
2a	Building (Any Story) Or Founda	ation Is Signif	icantly Out Of Plumb	3	0	
2b	Gaps Exist Between	n Walls, Cei	ings Or Roof		2	0	
3a	Obvious Severe Da	mage To Pr	imary Memb	ers	2	0	4
3b	Severe Bowing Or F	Racking Of \	Valls		2	0	
4a	Serious Falling Haza	ards Such A	s Loosened F	Roofing Or Wall Cladding	2	0	
4b	Roof damage				2	1	
5a	Foundation Under	mined By So	our Or Erosio	on	3	0	
5b	Building Threatene	d By Slope	nstability		3	0	
6a	Neighboring Struct			st Structure	1	1	
6b	Projectiles/Debris I	Impact On S	tructure		1	0	

Table A7: A01-007 structural rating sheet



STRUCTI	JRE IDENTITY	:	A01-008A				
TYPE OF	STRUCTURE	:	COMMERCIAL, PARKING	G SHED, SINGLE STORY			
LOCATIC	DN	:	17.726993,83.319721				
DISTANC	CE FROM THE OCEAN	:	1541 METERS	ELEVATION:	70 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-18-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	3	
1b	A Portion Of The B	uil	ding Has Collapsed		2	3	
1c	The Building Has N	lov	ed Off Its Foundation		2	0	
2a	Building (Any Story	/) (Pr Foundation Is Signifi	cantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or Roof.		2	0	
3a	Obvious Severe Da	ma	age To Primary Membe	ers	2	3	-
3b	Severe Bowing Or I	Rad	king Of Walls		2	0	-
4a	Serious Falling Haz	arc	ls Such As Loosened R	oofing Or Wall Cladding	2	3	5
4b	Roof damage				2	3	
5a	Foundation Under	mi	ned By Scour Or Erosic	n	3	0	
5b	Building Threatene	d I	By Slope Instability		3	0	
6a	Neighboring Struct	tur	e/Trees Leaning Again	st Structure	1	2	
6b	Projectiles/Debris	Im	pact On Structure		1	1	

Table A8: A01-008A structural rating sheet



STRUCTU	RE IDENTITY	:	A01-008B				
TYPE OF S	STRUCTURE	:	COMMERCIAL, PARKII	NG SHED, SINGLE STORY			
LOCATIO	N	:	17.727215,83.319561	L			
DISTANCI	E FROM THE OCEAN	:	1545 METERS	ELEVATION:	70 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-18-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	1	
1b	A Portion Of The B	uilo	ding Has Collapsed		2	1	
1c	The Building Has N	lov	ed Off Its Foundation	n	2	0	
2a	Building (Any Story	/) C	Or Foundation Is Sign	ificantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or Roo	f.	2	0	
3a	Obvious Severe Da	ma	age To Primary Mem	bers	2	1	
3b	Severe Bowing Or	Rac	cking Of Walls		2	0	
4a	Serious Falling Haz	arc	ds Such As Loosened	Roofing Or Wall Cladding	2	1	_
4b	Roof damage				2	1	
5a	Foundation Under	mir	ned By Scour Or Eros	ion	3	0	
5b	Building Threatene	ed E	By Slope Instability		3	0	
6a	Neighboring Struct	ture	e/Trees Leaning Agai	nst Structure	1	2	
							-

Table A9: A01-008B structural rating sheet



Table A10: A01-009	structural rating sheet
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STRUCTUR		:	A01-009		8			
TYPE OF S	TRUCTURE	:	AUDITORIUM	I, SINGLE STO	RY			
LOCATION	1	:	17.728375,83	3.319530				
DISTANCE	FROM THE OCEAN	:	1673 METER	S	ELEVATION:	71 METERS		
DATE OF D	DAMAGE	:	Oct-09-2014					
DATE OF F	PICTURES COLLECTED	:	Nov-18-2014					
			CONDITI	ION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Colla	apsed		3	0	
1b	A Portion Of The B	uilc	ling Has Colla	apsed		2	0	
1c	The Building Has N	lov	ed Off Its Fou	undation		2	0	
2a	Building (Any Story) 0	r Foundation	n Is Significar	ntly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n W	/alls, Ceilings	Or Roof.		2	0	
3a	Obvious Severe Da	ma	ge To Primar	y Members		2	1	4
3b	Severe Bowing Or I	Rac	king Of Walls	5		2	0	
4a	Serious Falling Haz	ard	s Such As Lo	osened Roof	ing Or Wall Cladding	2	0	
4b	Roof damage					2	1	
5a	Foundation Under	mir	ned By Scour	Or Erosion		3	0	
5b	Building Threatene	d B	y Slope Insta	ability		3	0	
6a	Neighboring Struct	ure	e/Trees Leani	ing Against S	tructure	1	1	
6b	Projectiles/Debris	Imp	oact On Struc	ture		1	1	



Table A11: A01-010 structural rating sheet
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STRUCTURE	IDENTITY	:	A01-010					
TYPE OF ST	RUCTURE	:	COMMERCI	AL, TWO S	TORY			
LOCATION		:	17.728429,	83.318699				
DISTANCE F	ROM THE OCEAN	:	1698 METE	RS	ELEVATION:	67 METERS		
DATE OF DA	AMAGE	:	Oct-09-2014	4				
DATE OF PI	CTURES COLLECTED	:	Nov-18-201	4				
			CONDI	ΓΙΟΝ		Significance Factor	Rating	Overall Rating
1a [Building Collapsed	Or	Partially Co	llapsed		3	0	
1b /	A Portion Of The Bu	uilo	ling Has Co	llapsed		2	0	
1c 1	The Building Has M	lov	ed Off Its Fo	oundatior	1	2	0	
2a [Building (Any Story) (r Foundatio	on Is Signi	ficantly Out Of Plumb	3	0	
2b (Gaps Exist Betweer	۱V	/alls, Ceiling	gs Or Roof		2	0	
3a (Obvious Severe Da	ma	ge To Prima	ary Memb	ers	2	0	1
	Severe Bowing Or F					2	0	
		ard	s Such As L	oosened I	Roofing Or Wall Cladding	2	0	
	Roof damage					2	1	
	Foundation Underr				on	3	0	
	Building Threatene					3	0	
6a 1	Neighboring Struct	ure	e/Trees Lea	ning Agair	nst Structure	1	2	
6b	Projectiles/Debris I	m	bact On Stru	ucture		1	1	



STRUCTUR	RE IDENTITY	:	A01-011					
TYPE OF S	TRUCTURE	:	COMMERC	IAL, ,2 STC	RY			
LOCATION	J	:	17.729011,	,83.31905)			
DISTANCE	FROM THE OCEAN	:	1709 MET	ERS	ELEVATION:	68METERS		
DATE OF I	DAMAGE	:	Oct-09-201	4				
DATE OF F	PICTURES COLLECTED	:	Nov-18-202	14				
			CONDI	TION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Co	ollapsed		3	0	
1b	A Portion Of The B		-			2	0	
1c	The Building Has M	ov	ed Off Its F	oundatio	n	2	0	
2a	Building (Any Story) (r Foundati	on Is Sigr	ificantly Out Of Plumb	3	0	
2b	Gaps Exist Between	۱V	√alls, Ceilin	gs Or Roo	f.	2	0	
3a	Obvious Severe Da	ma	ge To Prim	ary Mem	bers	2	0	4
3b	Severe Bowing Or F	Rac	king Of Wa	alls		2	0	
4a	Serious Falling Haza	ard	s Such As I	Loosened	Roofing Or Wall Cladding	2	1	
4b	Roof damage					2	0	
5a	Foundation Under	nir	ned By Scou	ur Or Eros	ion	3	0	
5b	Building Threatene	d E	By Slope Ins	stability		3	0	
6a	Neighboring Struct	ure	e/Trees Lea	aning Aga	nst Structure	1	0	
6b	Projectiles/Debris I	m	bact On Str	ucture		1	1	

Table A12: A01-011 structural rating sheet



STRUCTU	JRE IDENTITY	:	ACH-001				
TYPE OF	STRUCTURE	:	CONVENTION CENTER				
LOCATIO)N	:	17.717930,83.328451				
DISTANC	E FROM THE OCEAN	:	150 METERS	ELEVATION:	16 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-18-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uile	ding Has Collapsed		2	0	
1c	The Building Has N	lov	ed Off Its Foundation	1	2	0	
2a	Building (Any Story) (Or Foundation Is Signif	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or Roof	•	2	0	
3a	Obvious Severe Da	ma	age To Primary Memb	ers	2	0	4
3b	Severe Bowing Or I	_			2	0	
4a	Serious Falling Haz	arc	ls Such As Loosened F	Roofing Or Wall Cladding	2	0	
4b	Roof damage				2	1	
5a	Foundation Under	mi	ned By Scour Or Erosi	on	3	0	
5b	Building Threatene	d	By Slope Instability		3	0	
6a	Neighboring Struct	ur	e/Trees Leaning Agair	nst Structure	1	0	
	• • • • • •		pact On Structure		1	0	

Table A13: ACH-001 structural rating sheet



STRUCTU	JRE IDENTITY	:	B01-001				
TYPE OF	STRUCTURE	:	RESIDENTIAL, TWO ST	TORY ,RCC			
LOCATIO)N	:	17.713511,83.317832	2			
DISTANC	E FROM THE OCEAN	:	312 METERS	ELEVATION:	27 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-17-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uil	ding Has Collapsed		2	3	
1c	The Building Has N	10	ed Off Its Foundatio	n	2	0	
2a	Building (Any Story	/) C	Pr Foundation Is Sign	ificantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or Roo	f.	2	1	
3a	Obvious Severe Da	ma	age To Primary Mem	bers	2	3	-
3b	Severe Bowing Or	Rad	king Of Walls		2	3	-
4a	Serious Falling Haz	arc	ls Such As Loosened	Roofing Or Wall Cladding	2	3	5
4b	Roof damage				2	2	
5a	Foundation Under	mi	ned By Scour Or Eros	ion	3	0	
5b	Building Threatene	ed I	By Slope Instability		3	0	
6a	Neighboring Struct	tur	e/Trees Leaning Agai	nst Structure	1	3	
6b	Projectiles/Debris	Im	nact On Structure		1	2	

Table B1: B01-001 structural rating sheet



STRUCTU	RE IDENTITY	:	B01-003				
TYPE OF S	TRUCTURE	:	RESIDENTIAL, TWO ST	FORY ,RCC			
LOCATION	V	:	17.713282,83.31760	9			
DISTANCE	FROM THE OCEAN	:	308 METERS	ELEVATION:	26 METERS		
DATE OF I	DAMAGE	:	Oct-09-2014				
DATE OF I	PICTURES COLLECTED	:	Nov-17-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uilo	ding Has Collapsed		2	0	
1c	The Building Has N	lov	ed Off Its Foundatio	n	2	0	
2a	Building (Any Story	/) C	Pr Foundation Is Sign	ificantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or Roo	f.	2	0	
3a	Obvious Severe Da	ma	ge To Primary Mem	bers	2	0	-
3b	Severe Bowing Or				2	0	
4a	Serious Falling Haz	arc	ls Such As Loosened	Roofing Or Wall Cladding	2	0	~
4b	Roof damage				2	1	
5a	Foundation Under	mir	ned By Scour Or Eros	ion	3	0	
5b	Building Threatene	ed E	By Slope Instability		3	0	
6a	Neighboring Struct	ture	e/Trees Leaning Agai	inst Structure	1	2	
6b	Projectiles/Debris	Im	oact On Structure		1	2	

Table B2: B01-002 structural rating sheet



STRUCTU	RE IDENTITY	:	B01-004					
TYPE OF S	TRUCTURE	:	RESIDENTI	AL, TWO S	ORY ,RCC			
LOCATION	V	:	17.713282	2,83.31760)			
DISTANCE	FROM THE OCEAN	:	292 MET	ERS	ELEVATION:	26 METERS		
DATE OF I	DAMAGE	:	Oct-09-20	14				
DATE OF I	PICTURES COLLECTED	:	Nov-17-20)14				
			COND	ITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially C	ollapsed		3	0	
1b	A Portion Of The B	uilo	ding Has C	ollapsed		2	0	
1c	The Building Has N	lov	ed Off Its	Foundatio	า	2	0	
2a	Building (Any Story) (r Foundat	ion Is Sign	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilir	ngs Or Roc	f.	2	0	
3a	Obvious Severe Da	ma	ige To Prin	nary Mem	pers	2	0	
3b	Severe Bowing Or I	Rac	king Of W	alls		2	0	
4a	Serious Falling Haz	ard	ls Such As	Loosened	Roofing Or Wall Cladding	2	0	4
4b	Roof damage					2	1	
5a	Foundation Under	mir	ned By Sco	our Or Eros	ion	3	0	
5b	Building Threatene	d E	By Slope In	stability		3	0	
6a	Neighboring Struct	ure	e/Trees Le	aning Aga	nst Structure	1	3	
6b	Projectiles/Debris	Im	anot On Ct	ructure		1	2	

Table B3: B01-003 structural rating sheet



STRUCTU	JRE IDENTITY	:	B01-004				
TYPE OF	STRUCTURE	:	RESIDENTIAL, TWO ST	ORY ,RCC			
LOCATIO	DN	:	17.713282,83.317609				
DISTANC	E FROM THE OCEAN	:	292 METERS	ELEVATION:	26 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-17-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B				2	0	
1c	The Building Has N	lov	ed Off Its Foundation	ſ	2	0	
2a	Building (Any Story	<i>ı</i>) 0	r Foundation Is Signi	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	/alls, Ceilings Or Roof	•	2	0	
3a	Obvious Severe Da	ma	ge To Primary Memb	ers	2	0	-
3b	Severe Bowing Or	Rac	king Of Walls		2	0	
4a	Serious Falling Haz	ard	s Such As Loosened I	Roofing Or Wall Cladding	2	0	2
4b	Roof damage				2	1	
5a	Foundation Under	mir	ned By Scour Or Erosi	on	3	0	
5b	Building Threatene	ed E	By Slope Instability		3	0	
6a	Neighboring Struct	ture	e/Trees Leaning Agair	nst Structure	1	3	
6b	Projectiles/Debris	Imp	oact On Structure		1	2	

Table B4: B01-004 structural rating sheet



STRUCTUR	E IDENTITY	:	B02-002				
TYPE OF ST	RUCTURE	:	COMMERCIAL, TWO ST	ORY, RAJEEV GANDHI MEMORI	AL BUILDING		
LOCATION		:	17.717204,83.328322				
DISTANCE	FROM THE OCEAN	:	88 METERS	ELEVATION:	10 METERS		
DATE OF D	AMAGE	:	Oct-09-2014				
DATE OF P	ICTURES COLLECTED	:	Nov-17-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uil	ding Has Collapsed		2	0	
1c	The Building Has N	lov	ed Off Its Foundation	1	2	0	
2a	Building (Any Story	/) (r Foundation Is Signi	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or Root	f.	2	0	
3a	Obvious Severe Da	ma	age To Primary Memb	pers	2	1	4
3b	Severe Bowing Or I	Rad	king Of Walls		2	0	
4a	Serious Falling Haz	arc	ls Such As Loosened	Roofing Or Wall Cladding	2	0	_
4b	Roof damage				2	1	
5a	Foundation Under	mi	ned By Scour Or Erosi	on	3	0	
5b	Building Threatene	d I	By Slope Instability		3	0	
6a	Neighboring Struct	ur	e/Trees Leaning Agai	nst Structure	1	0	
6b	Projectiles/Debris	Im	pact On Structure		1	2	

Table B5: B02-002 structural rating sheet



STRUCTU	RE IDENTITY	:	B20-003				
TYPE OF S	STRUCTURE	:	RESIDENTIAL, FIVE ST	ORY,			
LOCATIO	N	:	17.718695,83.33114	2			
DISTANC	E FROM THE OCEAN	:	13 METERS	ELEVATION:	102METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-17-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b			ding Has Collapsed		2	0	
1c	The Building Has M	lov	/ed Off Its Foundatio	n	2	0	
2a	Building (Any Story	/) (Or Foundation Is Sign	ificantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or Roc	of.	2	0	
3a	Obvious Severe Da	ma	age To Primary Mem	bers	2	1	4
3b	Severe Bowing Or I	Rad	cking Of Walls		2	0	
4a	Serious Falling Haz	arc	ds Such As Loosened	Roofing Or Wall Cladding	2	0	
4b	Roof damage				2	0	
5a	Foundation Under	mi	ned By Scour Or Eros	sion	3	0	
5b	Building Threatene	d E	By Slope Instability		3	0	
6a	Neighboring Struct	ur	e/Trees Leaning Aga	inst Structure	1	0	

Table B6: B02-003 structural rating sheet



Table B7: B02-004 structural	l rating sheet
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STRUCTU	JRE IDENTITY	:	B02-004				
TYPE OF	STRUCTURE	:	RESIDENTIAL, S	STORY,			
LOCATIO	DN	:					
DISTANC	E FROM THE OCEAN	:	14 METERS	ELEVATION:	125 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-17-2014				
			CONDITIC	N	Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collap	ed	3	0	
1b	A Portion Of The B	uilo	ling Has Collap	ed	2	0	
1c	The Building Has M	lov	ed Off Its Four	ation	2	0	
2a	Building (Any Story) (r Foundation I	Significantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	n V	Valls, Ceilings C	Roof.	2	1	
3a	Obvious Severe Da	ma	ge To Primary	1embers	2	0	1
3b	Severe Bowing Or F	Rac	king Of Walls		2	0	
4a		ard	s Such As Loos	ned Roofing Or Wall Cladding	2	0	
4b	Roof damage				2	0	-
5a	Foundation Under				3	0	
5b	Building Threatene				3	0	
6a	Neighboring Struct				1	0	-
6b	Projectiles/Debris I	m	pact On Struct	е	1	1	



Table B8: B02-005 structural rating sheet

STRUCTU	RE IDENTITY	:	B02-005						
TYPE OF S	TRUCTURE	:	RESIDENT	IAL,THREE	STORY,				
LOCATION	J	:							
DISTANCE	FROM THE OCEAN	:	91 METER	S	EL	EVATION:	10ETERS		
DATE OF	DAMAGE	:	Oct-09-20	14					
DATE OF	PICTURES COLLECTED	:	Nov-17-20	014					
			COND	ITION			Significance Factor	Rating	Overal Rating
1a	Building Collapsed	Or	Partially C	Collapsed			3	0	
1b	A Portion Of The B	uilo	ling Has C	ollapsed			2	0	1
1c	The Building Has N	lov	ed Off Its	Foundati	n		2	0	1
2a	Building (Any Story	<i>ı</i>) 0	r Foundat	ion Is Sig	ificantly Out	Of Plumb	3	0	
2b	Gaps Exist Betwee	n W	/alls, Ceili	ngs Or Ro	of.		2	0	1
3a	Obvious Severe Da	ma	ge To Prir	nary Men	bers		2	0	
3b	Severe Bowing Or	Rac	king Of W	'alls			2	0	1
4a	Serious Falling Haz	ard	s Such As	Loosenee	Roofing Or V	Vall Cladding	2	0	┛
4b	Roof damage						2	1	
5a	Foundation Under	mir	ned By Sco	our Or Erc	sion		3	0	
5b	Building Threatene	ed E	By Slope Ir	stability			3	0	
6a	Neighboring Struct	ture	e/Trees Le	aning Ag	inst Structure	2	1	0	
6b	Projectiles/Debris	Imp	oact On St	ructure			1	1	
					Le Al		4		



STRUCTURE	IDENTITY	:	B02-006					
TYPE OF STR	UCTURE	:	RESIDENT	IAL,SINGLE	STORY,			
LOCATION		:						
DISTANCE F	ROM THE OCEAN	:	65 METE	RS	ELEVATION:	07 METERS		
DATE OF DA	MAGE	:	Oct-09-20)14				
DATE OF PIC	TURES COLLECTED	:	Nov-17-20	014				
			COND	ITION		Significance Factor	Rating	Overall Rating
1a B	uilding Collapsed	Or	Partially C	Collapsed		3	0	
1b A	Portion Of The B	uilo	ling Has C	ollapsed		2	0	
1c T	he Building Has N	1ov	ed Off Its	Foundatio	'n	2	0	
2a B	uilding (Any Story	/) (r Foundat	tion Is Sigr	ificantly Out Of Plumb	3	0	
2b G	iaps Exist Betweei	n V	/alls, Ceili	ngs Or Roo	of.	2	0	
3a O	bvious Severe Da	ma	ge To Prir	mary Mem	bers	2	0	-
3b S	evere Bowing Or I	Rac	king Of W	/alls		2	0	
4a S	Serious Falling Hazards Such As Loosened Roofing Or Wall Cladding						0	
4b R	oof damage					2	1	
5a F	Foundation Undermined By Scour Or Erosion 3 0							
5b B	Building Threatened By Slope Instability 3 0							
6a N	leighboring Struct	ure	e/Trees Le	aning Aga	inst Structure	1	0	
6b P	rojectiles/Debris	Imp	oact On St	ructure		1	0	

Table B9: B02-006 structural rating sheet



Table B10: B02-007 structural rating sheet

STRUCTURE	IDENTITY	:	B02-007				
TYPE OF STR	RUCTURE	:	RESIDENTIAL,FOUR	STORY			
LOCATION		:					
DISTANCE FF	ROM THE OCEAN	:	96 METERS	ELEVATION:	15 METERS		
DATE OF DA	MAGE	:	Oct-09-2014				
DATE OF PIC	TURES COLLECTED	:	Nov-17-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a B	uilding Collapsed (Эr	Partially Collapsed		3	0	
1b A	Portion Of The Bu	ilc	ding Has Collapsed		2	0	
1c T	he Building Has M	ov	ed Off Its Foundati	on	2	0	
2a B	uilding (Any Story)	0	r Foundation Is Sig	nificantly Out Of Plumb	3	0	
2b G	aps Exist Betweer	۱V	Valls, Ceilings Or Ro	oof.	2	0	
3a O	bvious Severe Dar	na	age To Primary Mer	nbers	2	0	1
3b Se	Severe Bowing Or Racking Of Walls 2 0						
4a Se	erious Falling Haza	2	1	_			
	oof damage				2	0	
5a Fo	Foundation Undermined By Scour Or Erosion 3 0						
5b B	Building Threatened By Slope Instability 3 0						
6a N	leighboring Struct	ure	e/Trees Leaning Ag	ainst Structure	1	0	
6b Pi	Projectiles/Debris Impact On Structure 1 1						



STRUCTURE IDENTITY			B02-008				
TYPE OF STRUCTURE			RESIDENTIAL, FOUR ST	ORY,			
LOCATIO	N	:	17.423850,83.185682	2			
DISTANC	E FROM THE OCEAN	:	118 METERS	ELEVATION:	17 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-17-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The Bu		<u> </u>		2	0	
1c	The Building Has M	ov	ed Off Its Foundation	า	2	0	
2a	Building (Any Story) 0	r Foundation Is Signi	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	۱V	/alls, Ceilings Or Roo	f.	2	0	
3a	Obvious Severe Da	ma	ge To Primary Memb	pers	2	0	1
3b	Severe Bowing Or F				2	0	
4a	Serious Falling Haza	ard	s Such As Loosened	Roofing Or Wall Cladding	2	0	
4b	Roof damage				2	1	
5a	Foundation Undermined By Scour Or Erosion 3 0						
5b	Building Threatened By Slope Instability 3 0						
6a	Neighboring Structure/Trees Leaning Against Structure 1 0						
6b	Projectiles/Debris I	mr	act On Structure		1	0	

Table B11: B02-008 structural rating sheet



Table B12: B03-001 structural rating sheet

			U		
STRUCTURE IDENTITY	:	B03-001			
TYPE OF STRUCTURE	:	RESIDENTIAL, FIVESTORY			
LOCATION	:				
DISTANCE FROM THE OCEAN	:	METERS	ELEVATION:	feet	
DATE OF DAMAGE	:	Oct-09-2014			
DATE OF PICTURES COLLECTED	:	Nov-17-2014			

	CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed	3	0	
1b	A Portion Of The Building Has Collapsed	2	0]
1c	The Building Has Moved Off Its Foundation	2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb	3	0]
2b	Gaps Exist Between Walls, Ceilings Or Roof.	2	0]
3a	Obvious Severe Damage To Primary Members	2	0	
3b	Severe Bowing Or Racking Of Walls	2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall Cladding	2	0	U
4b	Roof damage	2	0]
5a	Foundation Undermined By Scour Or Erosion	3	0]
5b	Building Threatened By Slope Instability	3	0	1
6a	Neighboring Structure/Trees Leaning Against Structure	1	0]
6b	Projectiles/Debris Impact On Structure	1	1	1



STRUCTI	JRE IDENTITY	:	B03-002				
TYPE OF STRUCTURE			COMMERCIAL, SINGLE	STORY,HEALTH CENTER			
LOCATIC	DN	:					
DISTANC	E FROM THE OCEAN	:	METERS	ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-18-2014				
			CONDITION		Significance Factor	Rating	Overal Rating
1a	Building Collapsed	Or		3	0		
1b	A Portion Of The B	uilo		2	1		
1c	The Building Has N	lov	ed Off Its Foundatio	n	2	0	
2a	Building (Any Story) 0	r Foundation Is Sign	ificantly Out Of Plumb	3	0	
2b	Gaps Exist Between	n V	/alls, Ceilings Or Roo	f.	2	0	
3a	Obvious Severe Da	ma	ge To Primary Mem	bers	2	1	
3b	Severe Bowing Or I	Rac	king Of Walls		2	0)
4a	Serious Falling Haz	ard	s Such As Loosened	Roofing Or Wall Cladding	2	0	2
4b	Roof damage		2	3			
5a	Foundation Undermined By Scour Or Erosion 3 0						
5b	Building Threatened By Slope Instability 3 0						
6a			e/Trees Leaning Agai	nst Structure	1	1	
6b	Projectiles/Debris	Imp	oact On Structure		1	1	

Table B13: B03-002 structural rating sheet



STRUCTUR			B04-001	01 50100	aurai rating she			
Sinderon		•	004 001					
TYPE OF S	TRUCTURE	:	PARKING SHED, SIN	IGLE STORY				
LOCATION		:						
DISTANCE	FROM THE OCEAN	:			ELEVATION:			
DATE OF D	DAMAGE	:	Oct-09-2014					
DATE OF F	PICTURES COLLECTED	:	Nov-17-2014			Ci ifi		0 "
			CONDITION	ľ		Significance Factor	Rating	Overall Rating
1a	Building Collapsed					3	3	
1b	A Portion Of The Bu	uilo	ding Has Collapsed	ł		2	3	
1c	The Building Has M	ov		2	0	-		
2a	Building (Any Story)) C	Out Of Plumb	3	0			
2b	Gaps Exist Betweer	۱V		2	0			
3a	Obvious Severe Dar	ma	ige To Primary Me	embers		2	3	
3b	Severe Bowing Or F		2	0	2			
4a	Serious Falling Haza	ard	ls Such As Loosen	Or Wall Cladding	2	3	5	
4b	Roof damage					2	3	1
5a	Foundation Underr	nir	ned By Scour Or E	rosion		3	0]
5b	Building Threatene	d E	By Slope Instability	/		3	0]
6a	Neighboring Struct	ure	e/Trees Leaning A	gainst Stru	cture	1	0]
6b	Projectiles/Debris I	m	oact On Structure			1	0	
	III III			1111			1	
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	-	-						
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Table B14: B04-001 structural rating sheet

STRUCTURE ID	ENTITY	:	B04-002						
TYPE OF STRU	CTURE	:	Commeric	al, SINGLE	E STORY,ST	E ROOF TRUSS, open	meeting stage		
LOCATION		:							
DISTANCE FRO	M THE OCEAN		METERS			ELEVATION:			
DISTANCE INC		÷	WIETENS			LLEVATION.			
DATE OF DAM	AGE	:	Oct-09-20	14					
DATE OF PICTU	JRES COLLECTED	:	Nov-18-20	14					
			COND	TION			Significance Factor	Rating	Overall Rating
1a Bui	lding Collapsed (Dr	Partially C	ollapsed			3	3	
1b A P	ortion Of The Bu	ilc	ling Has C	ollapsed			2	3	
1c The	e Building Has M	ov	ed Off Its	Foundati	ion		2	0	
2a Bui	lding (Any Story)	0	r Foundat	ion Is Sig	nificantly	Out Of Plumb	3	0	
2b Gap	os Exist Between	W	/alls, Ceilir	ngs Or Ro	oof.		2	0	
3a Obv	vious Severe Dar	ma	ge To Prin	nary Mer	mbers		2	3	-
3b Sev	ere Bowing Or R	ac	king Of W	alls			2	0	1
4a Ser	ious Falling Haza	ard	s Such As	Loosene	d Roofing	Or Wall Cladding	2	3	5
4b Roc	of damage						2	3	
5a Fou	Indation Undern	nir	ned By Sco	ur Or Ero	osion		3	0	
5b Bui	lding Threatene	d B	By Slope In	stability			3	0	
6a Nei	ghboring Struct	ure	e/Trees Le	aning Ag	ainst Stru	cture	1	1	
6b Pro	jectiles/Debris I	mp	oact On St	ructure			1	1	

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Table B15: B04-002 structural rating sheet

STRUCTU	RE IDENTITY	:	B05-001				
TYPE OF S	TRUCTURE	:	COMMERCIAL, SINGL	E STORY,STEEL ROOF			
LOCATION	V	:					
DISTANCE	FROM THE OCEAN	:	METERS	ELEVATION:			
DATE OF I	DAMAGE	•	Oct-09-2014				
DATE OF I	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The Bu	uilo	ding Has Collapsed		2	0	
1c	The Building Has M	ov	ed Off Its Foundatio	n	2	0	
2a	Building (Any Story) C	r Foundation Is Sign	ificantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	۱V	Valls, Ceilings Or Roc	of.	2	0	
3a	Obvious Severe Da	ma	age To Primary Mem	bers	2	1	-
3b	Severe Bowing Or F	lac	king Of Walls		2	2	
4a	Serious Falling Haza	ard	is Such As Loosened	Roofing Or Wall Cladding	2	2	~
4b	Roof damage				2	2	
5a	Foundation Underr	nir	ned By Scour Or Eros	sion	3	0	-
5b	Building Threatene				3	0	
6a			e/Trees Leaning Aga	inst Structure	1	0	
6b	Projectiles/Debris I	m	pact On Structure		1	0	

Table B16: B05-001 structural rating sheet



STRUCTU	RE IDENTITY	:	B05-002				
TYPE OF S	STRUCTURE	;	COMMERCIAL, SING	LE STORY,STEEL ROOF			
LOCATIO	N	;					
DISTANC	E FROM THE OCEAN	:	METERS	ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uile	ding Has Collapsed		2	0	
1c	The Building Has N	lov	ed Off Its Foundati	on	2	0	
2a	Building (Any Story	/) C	r Foundation Is Sig	nificantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or Ro	oof.	2	0	
3a	Obvious Severe Da	ma	age To Primary Mer	nbers	2	1	
3b	Severe Bowing Or	_			2	0	
4a	Serious Falling Haz	arc	ls Such As Loosene	d Roofing Or Wall Cladding	2	0	2
4b	Roof damage				2	2	-
5a			ned By Scour Or Ero	osion	3	0	-
5b	Building Threatene				3	0	
6a	Neighboring Struct	ur	e/Trees Leaning Ag	ainst Structure	1	0	
6b	Projectiles/Debris	Im	pact On Structure		1	0	

Table B17: B05-002 structural rating sheet



	Tabl	le	B18: E	305-00	3 struct	ural rating she	eet		
STRUCTU	RE IDENTITY	:	B05-003						
TYPE OF S	STRUCTURE	:	COMMER	CIAL, SING	LE STORY,S	TEEL ROOF			
LOCATIO	N	:							
DISTANCE	E FROM THE OCEAN	:	METERS			ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-20	14					
DATE OF	PICTURES COLLECTED	:	Nov-19-20	014					
			COND	ITION			Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Dr	Partially C	Collapsed			3	1	
1b	A Portion Of The Bu	ilo	ling Has C	ollapsed			2	3	
1c	The Building Has M	ov	ed Off Its	Foundati	on		2	0	
2a	Building (Any Story)	C	r Foundat	ion Is Sig	nificantly (Out Of Plumb	3	0	
2b	Gaps Exist Betweer	V	Valls, Ceili	ngs Or Ro	of.		2	2	
3a	Obvious Severe Dar	na	ge To Prir	nary Mer	nbers		2	2	
3b	Severe Bowing Or R	ac	king Of W	alls			2	3)
4a	Serious Falling Haza	ird	s Such As	Loosene	d Roofing	Or Wall Cladding	2	3	2
4b	Roof damage						2	3	
5a	Foundation Underr	nir	ned By Sco	our Or Erc	sion		3	0	



3

1

1

0

2

2

5b

6a

6b

Building Threatened By Slope Instability

Neighboring Structure/Trees Leaning Against Structure Projectiles/Debris Impact On Structure

SINCEIOF	RE IDENTITY	:	B05-004					
TYPE OF S	TRUCTURE	:	COMMERCIAL	, SINGLE STOR	Y,METEL ROOF TRUSS			
LOCATION	J	:						
DISTANCE	FROM THE OCEAN	:	METERS		ELEVATION:			
DATE OF [DAMAGE	:	Oct-09-2014					
DATE OF F	PICTURES COLLECTED		Nov-19-2014					
			CONDITI	ON		Significance Factor	Rating	Overall Rating
1a	Building Collapsed (Or	Partially Colla	psed		3	0	
1b	A Portion Of The Bu	uilo	ding Has Colla	psed		2	0	
1c	The Building Has M	ov	ed Off Its Fou	ndation		2	0	
2a	Building (Any Story)) C	r Foundation	Is Significant	ly Out Of Plumb	3	0	
2b	Gaps Exist Between	۱V	Valls, Ceilings	Or Roof.		2	1	
3a	Obvious Severe Dar	ma	ige To Primary	/ Members		2	1	
3b	Severe Bowing Or R	lac	king Of Walls			2	1	
4a	Serious Falling Haza	arc	ls Such As Loc	sened Roofir	ng Or Wall Cladding	2	2	
4b	Roof damage					2	2	
5a	Foundation Undern	nir	ned By Scour (Or Erosion		3	0	
5b	Building Threatened	d E	By Slope Instal	bility		3	0	
6a	Neighboring Struct	ure	e/Trees Leanir	ng Against St	ructure	1	1	
6b	Projectiles/Debris I	m	oact On Struct	ture		1	2	

Table B19: B05-004 structural rating sheet

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STRUCTI	JRE IDENTITY	1	B06-001					
TYPE OF	STRUCTURE	:	COMMERCIAL	., SINGLE STO	RY,RENAULT CAR SHOWR	00M		
LOCATIC	DN	;						
DISTANO	CE FROM THE OCEAN	:	METERS		ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-2014					
DATE OF	PICTURES COLLECTED	:	Nov-19-2014					
			CONDITI	ON		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Colla	psed		3	2	
1b	A Portion Of The B	uilo	ding Has Colla	psed		2	2	
1c	The Building Has N	1ov	ed Off Its Fou	ndation		2	2	
2a	Building (Any Story	/) C	r Foundation	Is Significar	ntly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	/alls, Ceilings	Or Roof.		2	1	
3a	Obvious Severe Da	ma	ge To Primary	y Members		2	3	
3b	Severe Bowing Or	Rac	king Of Walls			2	1	
4a	Serious Falling Haz	arc	s Such As Loc	sened Roof	fing Or Wall Cladding	2	2	~
4b	Roof damage					2	3	
5a	Foundation Under	mir	ned By Scour (Or Erosion		3	0	
5b	Building Threatene	ed E	By Slope Insta	bility		3	0	
6a	Neighboring Struct	ture	e/Trees Leanii	ng Against S	Structure	1	0	
6b	Projectiles/Debris	Im	oact On Struc	ture		1	1	

Table B20: B06-001 structural rating sheet



STRUCTI	JRE IDENTITY	:	B06-002				
TYPE OF	STRUCTURE	:	COMMERCIAL,	OUR STORY, CAR SHOWROOM			
LOCATIC	DN	:					
DISTANC	CE FROM THE OCEAN	:	METERS	ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	. :	Nov-19-2014				
			CONDITIC	N	Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collap	sed	3	0	
1b	A Portion Of The B	Build	ding Has Collap	ed	2	0	
1c	The Building Has N	Λov	ed Off Its Foun	dation	2	0]
2a	Building (Any Story	y) O	r Foundation I	Significantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n W	/alls, Ceilings C	r Roof.	2	0	
3a	Obvious Severe Da	ama	ge To Primary	Vembers	2	0	
3b	Severe Bowing Or	Rac	king Of Walls		2	0	
4a	Serious Falling Haz	ard	s Such As Loos	ened Roofing Or Wall Cladding	2	2	
4b	Roof damage				2	1	
5a	Foundation Under	mir	ned By Scour O	Erosion	3	0	
5b	Building Threatene	ed E	By Slope Instab	lity	3	0	
6a	Neighboring Struct	ture	e/Trees Leaning	Against Structure	1	0	
6b	Projectiles/Debris	l	and On Structu	r0	1	1	

Table B21: B06-002 structural rating sheet



STRUCTU	JRE IDENTITY	:	B06-003					
TYPE OF	STRUCTURE	:	COMMERC	IAL, SINGLE	STORY, shop			
LOCATIO	N	:						
DISTANC	E FROM THE OCEAN	:	METERS		ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-201	.4				
DATE OF	PICTURES COLLECTED	:	Nov-19-201	14				
			CONDI	TION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Эr	Partially Co	ollapsed		3	0	
1b	A Portion Of The Bu	uilo	ding Has Co	llapsed		2	0	
1c	The Building Has M	ov	ed Off Its F	oundation	Î	2	0	
2a	Building (Any Story)	0 (r Foundati	on Is Signi	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	n W	alls, Ceilin	gs Or Roo	·	2	0	
3a	Obvious Severe Dar	ma	ge To Prim	ary Memb	ers	2	1	
3b	Severe Bowing Or F	lac	king Of Wa	Ills		2	0	
4a	Serious Falling Haza	ard	s Such As L	oosened	Roofing Or Wall Cladding	2	0	2
4b	Roof damage					2	2	
5a	Foundation Underr	nir	ned By Scou	ur Or Eros	on	3	0	
5b	Building Threatene	d E	By Slope Ins	tability		3	0	
6a	Neighboring Struct	ure	e/Trees Lea	ining Agai	nst Structure	1	1	
6b	Projectiles/Debris I	mp	oact On Str	ucture		1	2	
						14		

Table B22: B06-003 structural rating sheet



STRUCTU	IRE IDENTITY	:	B06-004				
TYPE OF S	STRUCTURE	:	COMMERCIAL, SINGLE	STORY, SHOWROOM			
LOCATIO	N	:					
DISTANCI	E FROM THE OCEAN	:	METERS	ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	3	
1b	A Portion Of The Bu	_	<u> </u>		2	3	1
1c	The Building Has M	ov	ed Off Its Foundation	ו	2	0	
2a	Building (Any Story) 0	r Foundation Is Signi	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	۱V	/alls, Ceilings Or Root	f.	2	0	1
3a	Obvious Severe Da	ma	ge To Primary Memb	bers	2	3	-
3b	Severe Bowing Or F	Rac	king Of Walls		2	0	-
4a	Serious Falling Haza	ard	s Such As Loosened	Roofing Or Wall Cladding	2	0	
4b	Roof damage				2	3	
5a			ned By Scour Or Erosi	ion	3	0	
5b	Building Threatene				3	0	
6a			e/Trees Leaning Agai	nst Structure	1	3	
			oact On Structure		1	3	

Table B23: B06-004 structural rating sheet



STRUCTU	RE IDENTITY	;	B07-001					
		1						
TYPE OF S	STRUCTURE	:	COMMER	CIAL, FIVE S	TORY, SHOWROOM			
LOCATIO	N	:						
DISTANC	E FROM THE OCEAN	:	METERS		ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-20)14				
DATE OF	PICTURES COLLECTED	:	Nov-19-2	014				
			COND	ITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially (Collapsed		3	0	
1b	A Portion Of The B	uilo	ding Has C	Collapsed		2	0]
1c	The Building Has N	/ov	ed Off Its	Foundatio	n	2	0	
2a	Building (Any Story	/) C	r Founda	tion Is Sign	ificantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceili	ngs Or Roo	f.	2	0	
3a	Obvious Severe Da	ma	ige To Prii	mary Mem	bers	2	0	4
3b	Severe Bowing Or	Rac	king Of W	/alls		2	0	
4a		arc	ls Such As	Loosened	Roofing Or Wall Cladding	2	0	_
4b	Roof damage					2	1	
5a	Foundation Under	mir	ned By Sco	our Or Eros	ion	3	0	
5b	Building Threatene					3	0	
6a	Neighboring Struct	ture	e/Trees Le	eaning Agai	nst Structure	1	0	
6b	Projectiles/Debris	Im	pact On St	tructure		1	1	

Table B24: B07-001 structural rating sheet



Table B25: B07-002 structural rating sheet

STRUCTU	RE IDENTITY	:	B07-002					
TYPE OF S	TRUCTURE	:	Commercial	Single Stor	y Facility			
LOCATION	N	:						
DISTANCE	FROM THE OCEAN	:	6794 METE	RS	ELEVATION:	37 METERS		
DATE OF I	DAMAGE	:	Oct-09-2014	4				
DATE OF I	PICTURES COLLECTED	:	Nov-19-201	.4				
			CONDIT	ΓΙΟΝ		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Co	llapsed		3	0	
1b	A Portion Of The B	uilo	ding Has Col	llapsed		2	0	
1c	The Building Has N	lov	ed Off Its Fo	oundation		2	0	
2a	Building (Any Story) C	r Foundatio	on Is Signif	icantly Out Of Plumb	3	0	
2b	Gaps Exist Between	n V	Valls, Ceiling	gs Or Roof.		2	0	
3a	Obvious Severe Da	ma	ige To Prima	ary Memb	ers	2	0	4
3b	Severe Bowing Or F	Rac	king Of Wa	lls		2	1	
4a	Serious Falling Haz	arc	ls Such As L	oosened F	loofing Or Wall Cladding	2	2	
4b	Roof damage					2	1	
5a	Foundation Under	mir	ned By Scou	r Or Erosio	on	3	0	
5b	Building Threatene	d E	By Slope Inst	tability		3	0	
6a	Neighboring Struct			0 0	st Structure	1	0	
6b	Projectiles/Debris	m	pact On Stru	ucture		1	2	



Table B26: B07-003 structural rating sheet
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STRUCTU	JRE IDENTITY	_	B07-003	structural fatting site			
TYPE OF	STRUCTURE	:	Commercial, factory				
LOCATIO	N	:					
		ŕ					
DISTANC	E FROM THE OCEAN	:	6483 METERS	ELEVATION:	35 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The Bu	uilc	ling Has Collapsed		2	0	
1c	The Building Has M	ov	ed Off Its Foundation		2	0	
2a	Building (Any Story)) 0	r Foundation Is Signific	antly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	۱W	/alls, Ceilings Or Roof.		2	0	
3a	Obvious Severe Dar	ma	2	1			
3b	Severe Bowing Or R	Rac		2	0		
4a	Serious Falling Haza	ard	s Such As Loosened Ro	ofing Or Wall Cladding	2	2	4
4b	Roof damage				2	2	
5a	Foundation Underr	nir	ned By Scour Or Erosion	n	3	0	
5b	Building Threatene	d E	By Slope Instability		3	0	
6a	Neighboring Struct	ure	e/Trees Leaning Agains	t Structure	1	2	
6b	Projectiles/Debris I	mp	oact On Structure		1	2	
					Y		

STRUCTUF	RE IDENTITY	:	B08-001				
TYPE OF S	TRUCTURE	:	COMMERCIAL, AIR-F	PORT			
LOCATION	J	:					
DISTANCE	FROM THE OCEAN	:	METERS	ELEVATION:			
DATE OF [DAMAGE	:	Oct-09-2014				
DATE OF F	PICTURES COLLECTED	:	Nov-19-2014				
			Significance Factor	Rating	Overall Rating		
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uilo		2	0		
1c	The Building Has M	ov	ed Off Its Foundatio	on	2	0	
2a	Building (Any Story) C	r Foundation Is Sigr	nificantly Out Of Plumb	3	0	
2b	Gaps Exist Between	۱V	Valls, Ceilings Or Roo	of.	2	0	
3a	Obvious Severe Da	ma	ige To Primary Mem	bers	2	0	
3b	Severe Bowing Or F	Rac		2	2		
4a	Serious Falling Haza	arc	ls Such As Loosened	Roofing Or Wall Cladding	2	0	2
4b	Roof damage				2	1	
5a	Foundation Under	nir	ned By Scour Or Ero	sion	3	0	
5b	Building Threatene				3	0	
6a	Neighboring Struct	ur	e/Trees Leaning Aga	inst Structure	1	0	
6b	Projectiles/Debris	m	oact On Structure		1	2	

Table B27: B08-001 structural rating sheet



Table B28: B09-001 structural rating sheet

				U			
STRUCTU	RE IDENTITY	:	B09-001				
TYPE OF S	TRUCTURE	:	COMMERCIAL, AU	JDITORIUM			
LOCATION	J	:					
DISTANCE	FROM THE OCEAN	:	METERS	ELEVATION:			
DATE OF I	DAMAGE	:	Oct-09-2014				
DATE OF I	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION	l	Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Partially Collapse	3	0			
1b	A Portion Of The B	uile	ding Has Collapsed	b	2	0	
1c	The Building Has N				2	0	
2a	Building (Any Story	/) C	Or Foundation Is S	ignificantly Out Of Plumb	3	0	_
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or F	Roof.	2	0	
3a	Obvious Severe Da			embers	2	1	1
3b	Severe Bowing Or		-	2	2		
4a	-	arc	ls Such As Loosen	ed Roofing Or Wall Cladding	2	1	
4b	Roof damage				2	1	-
5a	Foundation Under				3	0	-
5b	Building Threatene			•	3	0	-
6a	Neighboring Struct				1	0	-
6b	Projectiles/Debris	Im	pact On Structure		1	2	



Table B29: B09-002 structural rating sheet

	RE IDENTITY						
			B09-002				
TYPE OF S	TRUCTURE	:	COMMERCIAL, TWO ST	ORY ,HOTEL			
LOCATIO	N	:					
DISTANCE	FROM THE OCEAN	:	METERS	ELEVATION:			
DATEOF	DAMAGE		Oct-09-2014				
		•	000 00 2021				
DATE OF	PICTURES COLLECTED		Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uilc	ing Has Collapsed		2	0	
1c	The Building Has N	lov	ed Off Its Foundation		2	0	1
2a	Building (Any Story) 0	r Foundation Is Signif	icantly Out Of Plumb	3	0	1
2b	Gaps Exist Betwee	n W	alls, Ceilings Or Roof		2	0]
3a	Obvious Severe Da	2	0	1			
3b	Severe Bowing Or I	Rac	2	0	1		
4a	Serious Falling Haz	ard	Roofing Or Wall Cladding	2	0		
4b	Roof damage				2	1	1
5a	Foundation Under	mir	ed By Scour Or Erosi	on	3	0	1
5b	Building Threatene				3	0	1
6a			/Trees Leaning Again	st Structure	1	0	1
6b	Projectiles/Debris	Imp	act On Structure		1	1	1
	YAN HUR THE						
200 - C							
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Star 1	-1. C				19/11/2		9:38

STRUCTL	JRE IDENTITY	:	B09-003					
TYPE OF	STRUCTURE	:	RESIDENTIAL, SI	STORY				
LOCATIO	DN	:						
DISTANC	CE FROM THE OCEAN	:	METERS	ELEVATIO	DN:			
DATE OF	DAMAGE	:	Oct-09-2014					
DATE OF	PICTURES COLLECTED	:	Nov-19-2014					
			CONDITIO	N		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or		3	0			
1b	A Portion Of The B	uilc	ling Has Collaps	ed		2	0	
1c	The Building Has N	lov	ed Off Its Found	ation		2	0	
2a	Building (Any Story) O	r Foundation Is	Significantly Out Of Plu	ımb	3	0	
2b	Gaps Exist Betwee	n W	/alls, Ceilings Or	Roof.		2	0	
3a	Obvious Severe Da	ma	ge To Primary N	1embers		2	0	4
3b	Severe Bowing Or		2	0				
4a	Serious Falling Haz	s Such As Loose	adding	2	0			
4b	Roof damage			2	1			
5a	Foundation Under	ed By Scour Or		3	0			
5b	Building Threatene	d B	y Slope Instabil		3	0		
6a	Neighboring Struct	ure	e/Trees Leaning	Against Structure		1	0	
6b	Projectiles/Debris	Imp	act On Structu	e		1	1	

Table B30: B09-003 structural rating sheet



Tuble D51: D07 001 buldetara rating sheet	Table B31:	B09-004	structural	rating sheet
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(()NI)III()N	STRUCTU	JRE IDENTITY	:	B09-004					
DISTANCE FROM THE OCEAN : METERS ELEVATION: DATE OF DAMAGE : Oct-09-2014 DATE OF PICTURES COLLECTED : Nov-19-2014 CONDITION Significance Factor Rating Over Factor Rating 1 a Building Collapsed Or Partially Collapsed 3 0 1b A Portion Of The Building Has Collapsed 2 0 1c The Building Has Moved Off Its Foundation 2 0 1c The Building Has Moved Off Its Foundation 2 0 2a Building (Any Story) Or Foundation Is Significantly Out Of Plumb 3 0 2b Gaps Exist Between Walls, Ceilings Or Roof. 2 0 3a Obvious Severe Damage To Primary Members 2 0 3b Severe Bowing Or Racking Of Walls 2 0 4a Serious Falling Hazards Such As Loosened Roofing Or Wall Cladding 2 0 4b Roof damage 2 1 5a Foundation Undermined By Scour Or Erosion 3 0 5b Building Threatened By Slope Instability 3 0 6a Neighboring Structure/Trees Leaning Against Structure 1 0	TYPE OF	STRUCTURE	:	COMMER	CIAL,SINGLE	STORY			
DISTANCE FROM THE OCEAN : METERS ELEVATION: DATE OF DAMAGE : Oct-09-2014 DATE OF PICTURES COLLECTED : Nov-19-2014 CONDITION Significance Factor Rating Over Factor Rating 1 a Building Collapsed Or Partially Collapsed 3 0 1b A Portion Of The Building Has Collapsed 2 0 1c The Building Has Moved Off Its Foundation 2 0 1c The Building Has Moved Off Its Foundation 2 0 2a Building (Any Story) Or Foundation Is Significantly Out Of Plumb 3 0 2b Gaps Exist Between Walls, Ceilings Or Roof. 2 0 3a Obvious Severe Damage To Primary Members 2 0 3b Severe Bowing Or Racking Of Walls 2 0 4a Serious Falling Hazards Such As Loosened Roofing Or Wall Cladding 2 0 4b Roof damage 2 1 5a Foundation Undermined By Scour Or Erosion 3 0 5b Building Threatened By Slope Instability 3 0 6a Neighboring Structure/Trees Leaning Against Structure 1 0									
DATE OF DAMAGE: Oct-09-2014DATE OF PICTURES COLLECTED: Nov-19-2014CONDITIONSignificance FactorRating RatingOver Rating1aBuilding Collapsed Or Partially Collapsed301bA Portion Of The Building Has Collapsed201cThe Building Has Moved Off Its Foundation202aBuilding (Any Story) Or Foundation Is Significantly Out Of Plumb302bGaps Exist Between Walls, Ceilings Or Roof.203aObvious Severe Damage To Primary Members203bSevere Bowing Or Racking Of Walls204aSerious Falling Hazards Such As Loosened Roofing Or Wall Cladding204bRoof damage215aFoundation Undermined By Scour Or Erosion305bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10	LOCATIO	N	:						
DATE OF PICTURES COLLECTED : Nov-19-2014CONDITIONSignificance FactorRating RatingOver Rating1aBuilding Collapsed Or Partially Collapsed301bA Portion Of The Building Has Collapsed201cThe Building Has Moved Off Its Foundation202aBuilding (Any Story) Or Foundation Is Significantly Out Of Plumb302bGaps Exist Between Walls, Ceilings Or Roof.203aObvious Severe Damage To Primary Members203bSevere Bowing Or Racking Of Walls204aSerious Falling Hazards Such As Loosened Roofing Or Wall Cladding215aFoundation Undermined By Scour Or Erosion305bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10	DISTANC	E FROM THE OCEAN	:	METERS		ELEVATION:			
DATE OF PICTURES COLLECTED : Nov-19-2014CONDITIONSignificance FactorRating RatingOver Rating1aBuilding Collapsed Or Partially Collapsed301bA Portion Of The Building Has Collapsed201cThe Building Has Moved Off Its Foundation202aBuilding (Any Story) Or Foundation Is Significantly Out Of Plumb302bGaps Exist Between Walls, Ceilings Or Roof.203aObvious Severe Damage To Primary Members203bSevere Bowing Or Racking Of Walls204aSerious Falling Hazards Such As Loosened Roofing Or Wall Cladding215aFoundation Undermined By Scour Or Erosion305bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10		DAMAGE		0.+.00.20	14				
CONDITIONSignificance FactorRatingOver Rating1aBuilding Collapsed Or Partially Collapsed301bA Portion Of The Building Has Collapsed201cThe Building Has Moved Off Its Foundation202aBuilding (Any Story) Or Foundation Is Significantly Out Of Plumb302bGaps Exist Between Walls, Ceilings Or Roof.203aObvious Severe Damage To Primary Members203bSevere Bowing Or Racking Of Walls204aSerious Falling Hazards Such As Loosened Roofing Or Wall Cladding215aFoundation Undermined By Scour Or Erosion305bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10	DATE OF	DAWAGE	•	Oct-09-20	14				
CONDITIONSignificance FactorRatingOver Rating1aBuilding Collapsed Or Partially Collapsed301bA Portion Of The Building Has Collapsed201cThe Building Has Moved Off Its Foundation202aBuilding (Any Story) Or Foundation Is Significantly Out Of Plumb302bGaps Exist Between Walls, Ceilings Or Roof.203aObvious Severe Damage To Primary Members203bSevere Bowing Or Racking Of Walls204aSerious Falling Hazards Such As Loosened Roofing Or Wall Cladding204bRoof damage215aFoundation Undermined By Scour Or Erosion305bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10	DATE OF	PICTURES COLLECTED	:	Nov-19-20	014				
1bA Portion Of The Building Has Collapsed201cThe Building Has Moved Off Its Foundation202aBuilding (Any Story) Or Foundation Is Significantly Out Of Plumb302bGaps Exist Between Walls, Ceilings Or Roof.203aObvious Severe Damage To Primary Members203bSevere Bowing Or Racking Of Walls204aSerious Falling Hazards Such As Loosened Roofing Or Wall Cladding204bRoof damage215aFoundation Undermined By Scour Or Erosion305bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10							-	Rating	Overall Rating
1cThe Building Has Moved Off Its Foundation202aBuilding (Any Story) Or Foundation Is Significantly Out Of Plumb302bGaps Exist Between Walls, Ceilings Or Roof.203aObvious Severe Damage To Primary Members203bSevere Bowing Or Racking Of Walls204aSerious Falling Hazards Such As Loosened Roofing Or Wall Cladding204bRoof damage215aFoundation Undermined By Scour Or Erosion305bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10	1a	Building Collapsed	Or	Partially C	Collapsed		3	0	
2aBuilding (Any Story) Or Foundation Is Significantly Out Of Plumb302bGaps Exist Between Walls, Ceilings Or Roof.203aObvious Severe Damage To Primary Members203bSevere Bowing Or Racking Of Walls204aSerious Falling Hazards Such As Loosened Roofing Or Wall Cladding204bRoof damage215aFoundation Undermined By Scour Or Erosion305bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10	1b	A Portion Of The B	uilc	ling Has C	ollapsed		2	0	
2bGaps Exist Between Walls, Ceilings Or Roof.203aObvious Severe Damage To Primary Members203bSevere Bowing Or Racking Of Walls204aSerious Falling Hazards Such As Loosened Roofing Or Wall Cladding204bRoof damage215aFoundation Undermined By Scour Or Erosion305bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10	1c	The Building Has N	love	ed Off Its	Foundation		2	0	
3aObvious Severe Damage To Primary Members203bSevere Bowing Or Racking Of Walls204aSerious Falling Hazards Such As Loosened Roofing Or Wall Cladding204bRoof damage215aFoundation Undermined By Scour Or Erosion305bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10	2a	Building (Any Story	/) O	r Foundat	tion Is Signif	icantly Out Of Plumb	3	0	
3bSevere Bowing Or Racking Of Walls204aSerious Falling Hazards Such As Loosened Roofing Or Wall Cladding204bRoof damage215aFoundation Undermined By Scour Or Erosion305bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10	2b	Gaps Exist Betwee	n W	/alls, Ceili	ngs Or Roof		2	0	_
4aSerious Falling Hazards Such As Loosened Roofing Or Wall Cladding204bRoof damage215aFoundation Undermined By Scour Or Erosion305bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10	3a	Obvious Severe Da	ma	ge To Prir	mary Memb	ers	2	0	4
4bRoof damage215aFoundation Undermined By Scour Or Erosion305bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10	3b	Severe Bowing Or	Rac	king Of W	/alls		2	0	
5a Foundation Undermined By Scour Or Erosion 3 0 5b Building Threatened By Slope Instability 3 0 6a Neighboring Structure/Trees Leaning Against Structure 1 0	4a	Serious Falling Haz	ard	s Such As	Loosened I	oofing Or Wall Cladding	2	0	
5bBuilding Threatened By Slope Instability306aNeighboring Structure/Trees Leaning Against Structure10	4b	Roof damage					2	1	
6a Neighboring Structure/Trees Leaning Against Structure 1 0	5a	Foundation Under	min	ed By Sco	our Or Erosi	on	3	0	
	5b	Building Threatene	ed B	y Slope Ir	nstability		3	0	_
6b Projectiles/Debris Impact On Structure 1 1	6a	Neighboring Struct	ture	e/Trees Le	aning Agair	st Structure	1	0	
	6b	Projectiles/Debris	Imp	oact On St	ructure		1	1	
	22 Allan				Salar S	T	T		

STRUCTU	RE IDENTITY	:	B10-001				
TYPE OF S	STRUCTURE	:	COMMERCIAL,Fou	STORY, METEOROLOGICAL DEPAR	TMENT		
LOCATIO	N	:					
DISTANCE	E FROM THE OCEAN	:	METERS	ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed	3	0		
1b	A Portion Of The B	uilo	ding Has Collapsed	1	2	0	
1c	The Building Has N	lov	ed Off Its Foundat	tion	2	0	
2a	Building (Any Story	/) C	Or Foundation Is Si	gnificantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or R	oof.	2	0	
3a	Obvious Severe Da	ma	age To Primary Me	mbers	2	0	
3b	Severe Bowing Or I	Rac	cking Of Walls		2	0	
4a	Serious Falling Haz	arc	ls Such As Loosen	ed Roofing Or Wall Cladding	2	0	U
4b	Roof damage				2	0	
5a	Foundation Under	mir	ned By Scour Or Er	rosion	3	0	
5b	Building Threatene	ed E	By Slope Instability	/	3	0	
6a	Neighboring Struct	tur	e/Trees Leaning A	gainst Structure	1	0	

Table B32: B10-001 structural rating sheet



STRUCTU	RE IDENTITY	1	B10-002						
TYPE OF S	STRUCTURE	:	COMMER	CIAL,TWO	STORY				
LOCATIO	N	:							
DISTANCI	E FROM THE OCEAN	:	METERS			ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-20	14					
DATE OF	PICTURES COLLECTED	:	Nov-19-20)14					
			COND	ITION			Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Partially C		3	0				
1b	A Portion Of The B	uilo	ding Has C	ollapsed			2	0]
1c	The Building Has N	1ov	ed Off Its	Foundati	on		2	0	
2a	Building (Any Story	/) C	r Foundat	ion Is Sig	nificantly	Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilir	ngs Or Ro	of.		2	0	
3a	Obvious Severe Da	ma	age To Prin	nary Mei	nbers		2	1	4
3b	Severe Bowing Or Racking Of Walls						2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall Cladding						2	0	
4b	Roof damage						2	0	
5a	Foundation Undermined By Scour Or Erosion						3	0	
5b	Building Threatene	ed E	By Slope In		3	0			
6a	Neighboring Struct	ture	e/Trees Le	aning Ag	ainst Struc	cture	1	0	
6b	Projectiles/Debris	Im	pact On St	ructure			1	2	

Table B33: B10-002 structural rating sheet



STRUCTU	JRE IDENTITY	:	B11-001				
TYPE OF	STRUCTURE	:	COMMERCIAL,SINGL	E STORY,FISHER MAN COLONY			
LOCATIO	N	:					
DISTANC	E FROM THE OCEAN	:	METERS	ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed	3	0		
1b	A Portion Of The B	uilo	ding Has Collapsed		2	2	
1c	The Building Has N	lov	ed Off Its Foundatio	on	2	0	
2a	Building (Any Story) C	r Foundation Is Sig	nificantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or Ro	of.	2	0	
3a	Obvious Severe Da	ma	ige To Primary Men	nbers	2	1	
3b	Severe Bowing Or I	Rac		2	0		
4a	Serious Falling Haz	arc	ls Such As Loosened	2	2	2	
4b	Roof damage				2	3	
5a	Foundation Under	mir	ned By Scour Or Ero	sion	3	0	
5b	Building Threatene	d	By Slope Instability		3	0	
6a	Neighboring Struct	ur	e/Trees Leaning Aga	ainst Structure	1	0	
6b	Projectiles/Debris	Im	oact On Structure		1	2	

Table B34: B11-001 structural rating sheet



STRUCTU	RE IDENTITY	;	B11-002					
TYPE OF S	TRUCTURE	:	RESIDENTIA	AL, SINGLE	STORY, FISHER MAN COLONY			
LOCATION	J	:						
DISTANCE	FROM THE OCEAN	:	METERS		ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-201	4				
DATE OF	PICTURES COLLECTED	:	Nov-19-201	14				
			CONDI	TION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Co	ollapsed		3	0	
1b	A Portion Of The B	uilo	ding Has Co	llapsed		2	1	
1c	The Building Has N	lov	ed Off Its F	oundatior	ı	2	0	
2a	Building (Any Story	/) C	r Foundatio	on Is Signi	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceiling	gs Or Root	F.	2	0	
3a	Obvious Severe Da	ma	ige To Prim	ary Memb	oers	2	2	
3b	Severe Bowing Or	2	2					
4a	Serious Falling Haz	ls Such As L	2	1	2			
4b	Roof damage		2	3				
5a	Foundation Under	ned By Scou	on	3	1			
5b	Building Threatene	By Slope Ins		3	0			
6a	Neighboring Struct	tur	e/Trees Lea	ining Agai	nst Structure	1	0	
6b	Projectiles/Debris	Im	pact On Str	ucture		1	2	

Table B35: B11-002 structural rating sheet



STRUCTU	RE IDENTITY	:	B11-003						
TYPE OF S	STRUCTURE	:	RESIDENTI	AL,SINGL	E STORY,FISI	HER MAN COLONY			
LOCATIO	N	:							
DISTANCE	FROM THE OCEAN	:	METERS			ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-201	.4					
DATE OF	PICTURES COLLECTED	:	Nov-19-20	14					
			CONDI	TION			Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Dr	Partially Co	llapsed			3	2	
1b	A Portion Of The Bu	uilo	ding Has Co	llapsed			2	3	
1c	The Building Has M	ov	ed Off Its F	oundati	ion		2	0	
2a	Building (Any Story)) 0	r Foundati	on Is Sig	nificantly (Dut Of Plumb	3	0	
2b	Gaps Exist Betweer	۱W	/alls, Ceilin	gs Or Ro	oof.		2	2	
3a	Obvious Severe Dar	ma	ige To Prim	ary Mer	mbers		2	3	-
3b	Severe Bowing Or R	ac	king Of Wa	ills			2	3	~
4a	Serious Falling Haza	ard	s Such As I	oosene	d Roofing (Or Wall Cladding	2	3	5
4b	Roof damage						2	3	
5a	Foundation Undern	nir	ned By Sco	ur Or Ero	osion		3	2	
5b	Building Threatene	dE	By Slope Ins	stability			3	0	
6a	Neighboring Struct				ainst Struc	ture	1	2	
6b	Projectiles/Debris I	m	oact On Str	ucture			1	2	
4			22	in the second second		3		1	
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Table B36: B11-003 structural rating sheet

STRUCTU	RE IDENTITY	:	B11-004				
TYPE OF S	TRUCTURE	:	COMMERICAL,SIN	GLE STORY, FISHER MAN COLONY			
LOCATION	J	:					
DISTANCE	FROM THE OCEAN	:	METERS	ELEVATION:			
DATE OF I	DAMAGE	:	Oct-09-2014				
DATE OF I	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION	l	Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapse	d	3	3	
1b	A Portion Of The Bu	uilo	ling Has Collapse	ł	2	3	
1c	The Building Has M	ov	ed Off Its Founda	tion	2	0	
2a	Building (Any Story)) 0	r Foundation Is S	gnificantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	۱W	/alls, Ceilings Or F	loof.	2	3	
3a	Obvious Severe Dar	ma	ge To Primary M	embers	2	3	
3b	Severe Bowing Or R	lac	king Of Walls		2	3	4
4a	Serious Falling Haza	ard	s Such As Looser	ed Roofing Or Wall Cladding	2	2	
4b	Roof damage				2	3	
5a	Foundation Underr	nir	ned By Scour Or E	rosion	3	1	
5b	Building Threatene	dE	By Slope Instabilit	/	3	0	
6a	Neighboring Struct	ure	e/Trees Leaning A	gainst Structure	1	1	
6b	Projectiles/Debris I	mp	oact On Structure		1	3	

Table B37: B11-004 structural rating sheet



STRUCT	JRE IDENTITY	:	B12-001A				
TYPE OF	STRUCTURE	:	COMMERICAL, SINGLE	STORY,EDUCATIONAL BUILDIN	G		
LOCATIC	DN	:	17.725728,83.321945				
DISTAN	CE FROM THE OCEAN	:	1232 METERS	ELEVATION:	73 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uilo	ding Has Collapsed		2	0	
1c	The Building Has M	ov	ed Off Its Foundation	1	2	0	
2a	Building (Any Story) C	r Foundation Is Signif	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Between	۱V	Valls, Ceilings Or Roof		2	0	
3a	Obvious Severe Da	ma	ige To Primary Memb	ers	2	1	-
3b	Severe Bowing Or F				2	0	
4a	Serious Falling Haza	arc	ls Such As Loosened F	Roofing Or Wall Cladding	2	1	
4b	Roof damage				2	2	
5a	Foundation Under	nir	ned By Scour Or Erosi	3	0		
5b	Building Threatene	d E	By Slope Instability		3	0	
6a	Neighboring Struct	ur	e/Trees Leaning Agair	nst Structure	1	1	
6b	Projectiles/Debris I	m	pact On Structure		1	2	

Table B38: B12-001A structural rating sheet



STRUCTU	RE IDENTITY	:	B12-001B				
TYPE OF S	TRUCTURE	:	COMMERICAL, SINGLE	STORY,EDUCATIONAL BUILDIN	G		
LOCATION	J	:	17.725617,83.321835				
DISTANCE	FROM THE OCEAN	:	1232 METERS	ELEVATION:	73 METERS		
DATE OF I	DAMAGE	:	Oct-09-2014				
DATE OF I	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uilo	ding Has Collapsed		2	0	
1c	The Building Has M	lov	ed Off Its Foundation	1	2	0	
2a	Building (Any Story) C	r Foundation Is Signi	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	۱V	Valls, Ceilings Or Roof		2	0	
3a			age To Primary Memb	pers	2	1	2
3b	Severe Bowing Or F				2	0	
4a		ard	Is Such As Loosened I	Roofing Or Wall Cladding	2	2	2
4b	Roof damage				2	2	
5a	Foundation Underr	nir	ned By Scour Or Erosi	on	3	0	
5b	Building Threatene				3	0	
6a			e/Trees Leaning Agair	nst Structure	1	0	
6b	Projectiles/Debris I	m	pact On Structure		1	1	

Table B39: B12-001B structural rating sheet



STRUCTL	JRE IDENTITY	:	B12-001C					
TYPE OF	STRUCTURE	:	COMMER	ICAL,SINGL	E STORY,EDUCATIONAL BUILDING	5		
LOCATIC	DN	:	17.725582	2,83.32177	3			
DISTANC	CE FROM THE OCEAN	:	1232 MET	ERS	ELEVATION:	73 METERS		
DATE OF	DAMAGE	:	Oct-09-20	14				
DATE OF	PICTURES COLLECTED	:	Nov-19-20	014				
			COND	ITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Building Collapsed Or Partially Collapsed						
1b	A Portion Of The B	uil	ding Has C	ollapsed		2	0	
1c	The Building Has M	lov	ed Off Its	Foundatio	on	2	0	
2a	Building (Any Story) (Dr Foundat	ion Is Sigr	nificantly Out Of Plumb	3	0	
2b	Gaps Exist Between	n V	Valls, Ceili	ngs Or Roo	of.	2	0	
3a	Obvious Severe Da	ma	age To Prir	nary Mem	bers	2	1	-
3b	Severe Bowing Or F	Rad	cking Of W	alls		2	0	
4a	Serious Falling Haz	arc	ds Such As	Loosenec	Roofing Or Wall Cladding	2	2	~
4b	Roof damage					2	2	
5a	Foundation Under	mi	ned By Sco	our Or Eros	sion	3	0	
5b	-	Building Threatened By Slope Instability						
6a	Neighboring Struct	Neighboring Structure/Trees Leaning Against Structure						
6b	Projectiles/Debris	Im	nact On St	ructure		1	0	

Table B40: B12-001C structural rating sheet



STRUCTUR	RE IDENTITY	:	B12-001D				
TYPE OF S	TRUCTURE	:	COMMERICAL, SINGLE S	STORY,EDUCATIONAL BUILDIN	NG		
LOCATION	J	:	17.725540,83.321693				
DISTANCE	FROM THE OCEAN	:	1232 METERS	ELEVATION:	73 METERS		
DATE OF E	DAMAGE	:	Oct-09-2014				
DATE OF F	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The Bu	uilo	ling Has Collapsed		2	0	
1c	The Building Has M	ov	ed Off Its Foundation		2	0	
2a	Building (Any Story) C	r Foundation Is Signif	icantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	۱V	/alls, Ceilings Or Roof.	•	2	0	
3a	Obvious Severe Da	ma	ge To Primary Memb	ers	2	1	
3b	Severe Bowing Or F	Rac	king Of Walls		2	0	
4a	Serious Falling Haza	ard	s Such As Loosened F	Roofing Or Wall Cladding	2	2	2
4b	Roof damage				2	2	
5a	Foundation Underr	mir	ned By Scour Or Erosio	on	3	0	
5b	Building Threatene	d E	By Slope Instability		3	0	
6a	Neighboring Struct	ure	e/Trees Leaning Again	st Structure	1	0	
6b	Projectiles/Debris I	m	a at On Stauature		1	0	

Table B41: B12-001D structural rating sheet



STRUCTURE	IDENTITY	:	B12-001E				
TYPE OF STF	RUCTURE	:	COMMERICAL, SINGLE	STORY, EDUCATIONAL BUILDIN	G		
LOCATION		:	17.725698,83.321835	5			
DISTANCE F	ROM THE OCEAN	:	1232 METERS	ELEVATION:	73 METERS		
DATE OF DA	MAGE	:	Oct-09-2014				
DATE OF PIC	CTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a B	Building Collapsed (Эr	Partially Collapsed		3	0	
1b A	A Portion Of The Bu	uilo	ding Has Collapsed		2	0	
1c T	he Building Has M	ov	ed Off Its Foundation	n	2	0	
2a B	Building (Any Story)) C	r Foundation Is Signi	ificantly Out Of Plumb	3	0	
2b 🤆	Gaps Exist Between	۱V	Valls, Ceilings Or Roo	f.	2	0	
3a C	Obvious Severe Dar	na	ge To Primary Mem	pers	2	1	-
	evere Bowing Or R				2	0	
		arc	ls Such As Loosened	Roofing Or Wall Cladding	2	2	~
	Roof damage				2	2	
	description in the second s		ned By Scour Or Eros	3	0		
	Building Threateneo	_	· · ·		3	0	
			e/Trees Leaning Agai	nst Structure	1	0	
6b P	Projectiles/Debris I	m	oact On Structure		1	1	

Table B42: B12-001E structural rating sheet



	RE IDENTITY	:	B12-001F				
TYPE OF S	TRUCTURE	:	COMMERICAL, SING	GLE STORY,EDUCATIONAL BUILDIN	G		
LOCATIO	N	:	17.725800,83.321	733			
DISTANC	FROM THE OCEAN	:	1232 METERS	ELEVATION:	73 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overal Rating
1a	Building Collapsed	Or	Partially Collapsed	ł	3	0	
1b	A Portion Of The B	uilo	ding Has Collapsed	1	2	0	1
1c	The Building Has M	1ov	ed Off Its Foundat	ion	2	0	1
2a	Building (Any Story	/) C	r Foundation Is Si	gnificantly Out Of Plumb	3	0	1
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or R	oof.	2	0]
3a	Obvious Severe Da	ma	age To Primary Me	mbers	2	0	
3b	Severe Bowing Or	Rac	king Of Walls		2	0	1
4a	Serious Falling Haz	arc	Is Such As Loosen	ed Roofing Or Wall Cladding	2	1	┛
4b	Roof damage				2	1	
5a	Foundation Under	mir	ned By Scour Or Er	osion	3	0	
5b	Building Threatene	ed E	3y Slope Instability	,	3	0	
	Neighboring Struct	tur	e/Trees Leaning A	gainst Structure	1	0	
6a			pact On Structure		1	2	

Table B43: B12-001F structural rating sheet



STRUCTUR		-	B12-001G	Structural fatting si			
TYPE OF S	TRUCTURE	:	COMMERICAL, SINGLE S	TORY, EDUCATIONAL BUILDING			
LOCATION	4	:	17.725728,83.321577				
DISTANCE	FROM THE OCEAN	:	1232 METERS	ELEVATION:	73 METERS		
DATE OF D	DAMAGE	:	Oct-09-2014				
DATE OF P	PICTURES COLLECTED		Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The Bu				2	0	
1c	The Building Has M	ov	ed Off Its Foundation		2	0	
2a	Building (Any Story) C	r Foundation Is Signif	icantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	N N	/alls, Ceilings Or Roof.		2	0	
3a	Obvious Severe Dar	ma	ge To Primary Memb	ers	2	0	
3b	Severe Bowing Or R	lac	king Of Walls		2	0	
4a	Serious Falling Haza	ard	s Such As Loosened R	oofing Or Wall Cladding	2	0	
4b	Roof damage				2	1	
5a	Foundation Underr	nir	ned By Scour Or Erosic	on	3	0	
5b	Building Threatene	dE	By Slope Instability		3	0	
6a			e/Trees Leaning Again	st Structure	1	0	
6b	Projectiles/Debris I	m	oact On Structure		1	1	
						1	
-ER							
			1 10		F		
			Shen_IMG_	1711.JP0 (1000 - 1000)	1	-	

Table B44: B12-001G structural rating sheet

STRUCTU	JRE IDENTITY	:	B12-001H				
TYPE OF	STRUCTURE	:	COMMERICAL, SINGLE	STORY,EDUCATIONAL BUILDIN	G		
LOCATIO)N	:	17.726065,83.321774	4			
DISTANC	E FROM THE OCEAN	:	1232 METERS	ELEVATION:	73 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uilo	ding Has Collapsed		2	0	
1c	The Building Has N	1ov	ed Off Its Foundatio	n	2	0	
2a	Building (Any Story) 0	r Foundation Is Sign	ificantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or Roo	f.	2	0	
3a	Obvious Severe Da	ma	ge To Primary Mem	bers	2	0	-
3b	Severe Bowing Or I	Rac	king Of Walls		2	0	
4a	Serious Falling Haz	ard	ls Such As Loosened	Roofing Or Wall Cladding	2	1	2
4b	Roof damage				2	2	
5a			ned By Scour Or Eros	ion	3	0	
5b	Building Threatene	ed E	By Slope Instability		3	0	
6a	Neighboring Struct	ure	e/Trees Leaning Agai	inst Structure	1	0	
6b	Projectiles/Debris	Imp	oact On Structure		1	2	

Table B45: B12-001H structural rating sheet



STRUCTU	IRE IDENTITY	:	B12-001J				
TYPE OF S	STRUCTURE	:	COMMERICAL,SING	LE STORY,EDUCATIONAL BUILDI	NG		
LOCATIO	N	2	17.726140,83.3216	31			
DISTANC	E FROM THE OCEAN	:	1232 METERS	ELEVATION:	73 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED		Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uilo	ding Has Collapsed		2	0	
1c	The Building Has N	1ov	ed Off Its Foundati	on	2	0	
2a	Building (Any Story	/) O	r Foundation Is Sig	nificantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or Ro	oof.	2	0	
3a	Obvious Severe Da	ma	age To Primary Mer	nbers	2	0	
3b	Severe Bowing Or	Rac	king Of Walls		2	0)
4a	Serious Falling Haz	ard	ls Such As Loosene	d Roofing Or Wall Cladding	2	1	4
4b	Roof damage				2	2	
5a	Foundation Under	mir	ned By Scour Or Ero	osion	3	0	
5b	Building Threatene	ed E	By Slope Instability		3	0	
6a	Neighboring Struct	ture	e/Trees Leaning Ag	ainst Structure	1	0	
6b	Projectiles/Debris	Im	pact On Structure		1	2	

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Table B46: B12-001J structural rating sheet

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STRUCTURE IDENTITY	_	B12-001J			arai rating si			
TYPE OF STRUCTURE		COMMER			UCATIONAL BUILDIN	IG		
	•	CONTRIEN	CAL, SINC		CEATIONAL DOILDIN			
LOCATION	:	17.726140	0,83.3216	631				
DISTANCE FROM THE OCEAN	:	1232 MET	ERS		ELEVATION:	73 METERS		
DATE OF DAMAGE	:	Oct-09-20	14					
DATE OF PICTURES COLLECTED		Nov-19-20)14					
	•	COND				Significance Factor	Rating	Overall Rating
1a Building Collapsed	Or	Partially C	ollapsed	d		3	0	0
1b A Portion Of The B	_					2	0	
1c The Building Has M						2	0	
2a Building (Any Story					ut Of Plumb	3	0	
2b Gaps Exist Between						2	0	
3a Obvious Severe Da						2	0	
3b Severe Bowing Or F	_	-				2	0	7
4a Serious Falling Haza				ed Roofing C	r Wall Cladding	2	1	2
4b Roof damage				0	0	2	2	
5a Foundation Under	miı	ned By Sco	our Or Er	rosion		3	0	
5b Building Threatene		-				3	0	
6a Neighboring Struct					ure	1	0	
6b Projectiles/Debris I						1	2	
11		11	1	1010		19/11/20	014 1	6:17

Table B47: B13-001 structural rating sheet

STRUCTU	RE IDENTITY	:	B13-002				
TYPE OF S	TRUCTURE	:	COMMERICAL, THREE S	TORY,RCC			
LOCATION	4	:					
DISTANCE	FROM THE OCEAN	:	437 METERS	ELEVATION:	35 METERS		
DATE OF I	DAMAGE	:	Oct-09-2014				
DATE OF I	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Dr	Partially Collapsed		3	0	
1b	A Portion Of The Bu	uilo	ding Has Collapsed		2	0	
1c	The Building Has M	ov	ed Off Its Foundation		2	0	
2a	Building (Any Story)) C	Pr Foundation Is Signif	icantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	١V	Valls, Ceilings Or Roof.		2	0	
3a	Obvious Severe Dar	na	age To Primary Memb	ers	2	0	4
3b	Severe Bowing Or R	lac	king Of Walls		2	0	
4a	Serious Falling Haza	arc	ls Such As Loosened R	Roofing Or Wall Cladding	2	0	
4b	Roof damage				2	1	
5a	Foundation Underr	nir	ned By Scour Or Erosic	on	3	0	
5b	Building Threatene	d E	By Slope Instability		3	0	
6a	Neighboring Struct	ur	e/Trees Leaning Again	ist Structure	1	1	
6b	Projectiles/Debris I	m	pact On Structure		1	2	

Table B48: B13-002 structural rating sheet



Table B49: B13-003 structural rating sheet

STRUCTI	URE IDENTITY	:	B13-003				
TYPE OF STRUCTURE			COMMERICAL,FC	OUR STORY, RCC			
LOCATION							
DISTANC	CE FROM THE OCEAN	:	460 METERS	ELEVATION:	37 METERS		
DATE OF DAMAGE		:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
CONDITION					Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	3	0			
1b	A Portion Of The B	uilo	2	0			
1c	The Building Has N	1ov	2	0			
2a	Building (Any Story	/) C	3	0			
2b	Gaps Exist Betwee	n V	2	0			
3a	Obvious Severe Da	ma	2	0	~		
3b	Severe Bowing Or	Rac	2	0			
4a	Serious Falling Haz	arc	2	0			
4b	Roof damage		2	0			
5a	Foundation Under	mi	3	0			
5b	Building Threatene		3	0			
6a	Neighboring Struct	tur	1	2			
6b	Projectiles/Debris	Im	1	1			



STRUCTU	RE IDENTITY	:	B13-004					
TYPE OF STRUCTURE			COMMERICAL, FOUR	STORY,RCC				
LOCATION	N	:						
DISTANCE FROM THE OCEAN		:	: 450 METERS ELEVATION:		39 METERS			
DATE OF	DAMAGE	:	Oct-09-2014					
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				1	
		Significance Factor	Rating	Overall Rating				
1a	Building Collapsed	Or	3	0				
1b	A Portion Of The B	2	0					
1c	The Building Has N	1ov	2	0	1			
2a	Building (Any Story	/) C	3	0				
2b	Gaps Exist Betwee	n V	2	0				
3a	Obvious Severe Da	ma	2	1				
3b	Severe Bowing Or	Rac	2	0				
4a	Serious Falling Haz	arc	2	0				
4b	Roof damage		2	0				
5a	Foundation Under	mir	3	0				
5b	Building Threatene	ed E	3	0				
6a	Neighboring Struct	tur	1	1				
6b	Projectiles/Debris	1	1					

Table B50: B13-004 structural rating sheet



STRUCTU	RE IDENTITY	:	B13-005					
TYPE OF S	TRUCTURE	:	RESIDENTIAL, FIV	STORY,RCC				
LOCATION			17.722503,83.33	0529				
DISTANCE FROM THE OCEAN : 524 METERS				ELEVAT	ION:	36 METERS		
DATE OF I	DAMAGE	:	Oct-09-2014					
DATE OF I	PICTURES COLLECTED	:	Nov-19-2014					
			CONDITIO	Ν		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collaps	ed		3	0	
1b	A Portion Of The B	uil	ding Has Collaps	ed		2	0	
1c	The Building Has N	lov	ed Off Its Found	ation		2	0	
2a	Building (Any Story	/) (Or Foundation Is	Significantly Out Of Pl	umb	3	0	
2b	Gaps Exist Between	n V	Valls, Ceilings Or	Roof.		2	0	
3a	Obvious Severe Da	ma	age To Primary N	lembers		2	0	4
3b	Severe Bowing Or I	Rad	king Of Walls			2	0	
4a		arc	ls Such As Loose	ned Roofing Or Wall C	Cladding	2	1	_
4b	Roof damage			2	0			
5a	Foundation Under	mi	ned By Scour Or		3	0		
5b	Building Threatene	d I	By Slope Instabil	ty		3	0	
6a	Neighboring Struct		-	-		1	0	
6b	Projectiles/Debris	lm	pact On Structu	e		1	1	

Table B51: B13-005 structural rating sheet



STRUCTI	URE IDENTITY	:	B13-008					
TYPE OF	STRUCTURE	:	RESIDENTIAL,	THREE STORY,RC	с			
LOCATIC	DN	:	17.721136,83	3.330328				
DISTANC	CE FROM THE OCEAN	:	365 METERS		ELEVATION:	34 METERS		
DATE OF	DAMAGE	:	Oct-09-2014					
DATE OF	F PICTURES COLLECTED	:	Nov-19-2014					
			CONDITI	ON		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Colla	apsed		3	0	
1b	A Portion Of The B	uilo	ding Has Colla	psed		2	0]
1c	The Building Has N	1ov	ed Off Its Fou	Indation		2	0	
2a	Building (Any Story	/) C	r Foundation	Is Significantly	Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings	Or Roof.		2	0	
3a	Obvious Severe Da	ma	ge To Primar	y Members		2	0	^
3b	Severe Bowing Or	Rac	king Of Walls	t.		2	0	
4a	Serious Falling Haz	arc	s Such As Loo	osened Roofing	Or Wall Cladding	2	0	
4b	Roof damage			2	0			
5a	Foundation Under	mir	ned By Scour		3	0		
5b	Building Threatene	ed E	By Slope Insta	bility		3	0	
6a	Neighboring Struct	ture	e/Trees Leani	ng Against Stru	cture	1	0	
6b	Projectiles/Debris	Im	oact On Struc	ture		1	1	

Table B52: B13-008 structural rating sheet



STRUCTU	RE IDENTITY	-	B14-001				
	TRUCTURE		COMMERCIAL,SIX STORY,RCC				
TIPE OF 3	INDETORE	t	CONNINERCIAL, SIX STORT, RCC				
LOCATION	V	:					
DISTANCE	FROM THE OCEAN	;	2235 METERS	ELEVATION:	43 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
			Name watard material an				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014		c; ;;;		
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed				3	0	-
1b	A Portion Of The Bu				2	0	
1c			ed Off Its Foundation		2	0	-
2a		_	r Foundation Is Significantly	Out Of Plumb	3	0	
2b			/alls, Ceilings Or Roof.		2	0	1
3a	Obvious Severe Dar	na	ge To Primary Members		2	0	
3b	Severe Bowing Or F				2	0	
4a		arc	s Such As Loosened Roofing	Or Wall Cladding	2	0	
4b	Roof damage				2	1	
5a	Foundation Underr	nir	ed By Scour Or Erosion		3	0	
5b	Building Threatene				3	0	
6a	Neighboring Struct	ure	e/Trees Leaning Against Stru	cture	1	1	
6b	Projectiles/Debris I	m	oact On Structure		1	1	
						711/2	2014 (

Table B53: B14-001 structural rating sheet

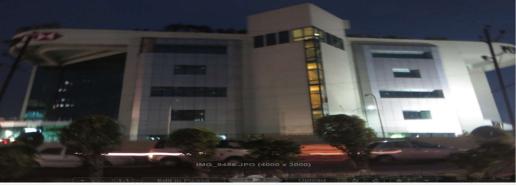
STRUCTU	RE IDENTITY	:	B14-002				
TYPE OF S	STRUCTURE	:	COMMERCIAL, FIVE ST	ORY,RCC			
LOCATIO	N	:					
DISTANCI	E FROM THE OCEAN	:	1077 METERS	ELEVATION:	47 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uilo	ling Has Collapsed		2	0	
1c	The Building Has N	1ov	ed Off Its Foundatior	ı	2	0	
2a	Building (Any Story) 0	r Foundation Is Signi	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	/alls, Ceilings Or Root	f	2	0	
3a	Obvious Severe Da	ma	ge To Primary Memb	oers	2	0	4
3b	Severe Bowing Or	Rac	king Of Walls		2	0	
4a	Serious Falling Haz	ard	s Such As Loosened	Roofing Or Wall Cladding	2	0	
4b	Roof damage		2	1			
5a			ned By Scour Or Erosi	on	3	0	
5b	Building Threatene	ed E	By Slope Instability		3	0	
6a	Neighboring Struct	ture	e/Trees Leaning Again	nst Structure	1	0	
6b	Projectiles/Debris	Imp	oact On Structure		1	1	

Table B54: B14-002 structural rating sheet



Table B55:	B14-003	structural	rating sheet
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STRUCTI	URE IDENTITY	:	B14-003					
TYPE OF	STRUCTURE	:	COMMER	CIAL, FIVE S	TORY,RCC			
LOCATIC	DN	:						
DISTANC	CE FROM THE OCEAN	:	1120 MET	TERS	ELEVATION:	58 METERS		
DATE OF	DAMAGE	:	Oct-09-20)14				
DATE OF	PICTURES COLLECTED	:	Nov-19-2	014				
			COND	ITION		Significance Factor	Rating	Overal Rating
1a	Building Collapsed	Or	Partially (Collapsed		3	0	
1b	A Portion Of The B	uilc	ling Has C	Collapsed		2	0	
1c	The Building Has N	lov	ed Off Its	Foundatio	n	2	0	
2a	Building (Any Story	<i>(</i>) O	r Founda	tion Is Sigr	ificantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n W	/alls, Ceili	ngs Or Roo	of.	2	0	
3a	Obvious Severe Da	ma	ge To Pri	mary Mem	bers	2	0	
3b	Severe Bowing Or	Rac	king Of W	/alls		2	0	
4a	Serious Falling Haz	ard	s Such As	Loosened	Roofing Or Wall Cladding	2	0	
4b	Roof damage					2	0	
5a	Foundation Under	mir	sion	3	0			
5b	Building Threatene	ed B	sy Slope Ir		3	0	1	
6a	Neighboring Struct	ture	e/Trees Le	eaning Aga	inst Structure	1	0	
6b	Projectiles/Debris	Imp	bact On St	tructure		1	0	



STRUCTU	RE IDENTITY	:	B14-004						
TYPE OF S	TRUCTURE	:	COMMER	CIAL,FIVE	STORY,RCC				
LOCATION	N	:							
DISTANCE	FROM THE OCEAN		1120 MET	TERS		ELEVATION:	47 METERS		
		Ċ							
DATE OF I	DAMAGE	:	Oct-09-20	014					
	PICTURES COLLECTED		Nov-19-20	014					
DATE OF	PICTORES COLLECTED	:	COND				Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially C	Collapsed			3	0	
1b	A Portion Of The B	uile	ding Has C		2	0	1		
1c	The Building Has N	lov	ed Off Its	Foundati	on		2	0]
2a	Building (Any Story	/) C	r Foundat	tion Is Sig	nificantly (Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	/alls, Ceili	ngs Or Ro	oof.		2	0	
3a	Obvious Severe Da				nbers		2	0	
3b	Severe Bowing Or	Rad	king Of W	/alls			2	0	
4a	Serious Falling Haz	arc	ls Such As	Loosene	d Roofing	Or Wall Cladding	2	0	
4b	Roof damage						2	0	
5a	Foundation Under				osion		3	0	
5b	Building Threatene						3	0	_
6a	Neighboring Struct	_			ainst Struc	ture	1	1	_
6b	Projectiles/Debris	lm	pact On St	ructure			1	1	
		1							

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Table B56: B14-004 structural rating sheet

STRUCTURE	IDENTITY	:	B14-005				
TYPE OF STR	RUCTURE	;	COMMERCIAL, FIVE	STORY,RCC,CAR SHOW ROOM			
LOCATION		:	17.7344891,83.314	969			
DISTANCE FROM THE OCEAN			2588 METERS	ELEVATION:	38 METERS		
DATE OF DA	MAGE	:	Oct-09-2014				
DATE OF PIC	TURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a B	uilding Collapsed	Or	Partially Collapsed		3	0	
1b A	Portion Of The Bu	uilo	ding Has Collapsed		2	0	
1c T	he Building Has M	ov	ed Off Its Foundati	ion	2	0	
2a B	uilding (Any Story)) (Or Foundation Is Sig	nificantly Out Of Plumb	3	0	
2b G	aps Exist Betweer	۱V	Valls, Ceilings Or Ro	pof.	2	0	
3a O	bvious Severe Dar	ma	age To Primary Mer	mbers	2	0	1
	evere Bowing Or R				2	0	
4a S	erious Falling Haza	ard	ls Such As Loosene	d Roofing Or Wall Cladding	2	0	
4b R	oof damage				2	1	
		_	ned By Scour Or Ero		3	0	
5b B	uilding Threatene	d E	By Slope Instability		3	0	
6a N	leighboring Struct	ure	e/Trees Leaning Ag	ainst Structure	1	0	
6b P	rojectiles/Debris I	m	pact On Structure		1	1	

Table B57: B14-005 structural rating sheet



STRUCTI	JRE IDENTITY	:	B15-001				
TYPE OF	STRUCTURE	:	COMMRCIAL, SINGLE ST	ORY			
LOCATIC	DN	:					
DISTANC	CE FROM THE OCEAN	:	9797 METERS	ELEVATION:	107 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uilo	ling Has Collapsed		2	0	
1c	The Building Has M	lov	ed Off Its Foundation		2	0	
2a	Building (Any Story) C	r Foundation Is Signifi	cantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	۱V	/alls, Ceilings Or Roof.		2	0	
3a	Obvious Severe Da	ma	ge To Primary Membe	ers	2	2	-
3b	Severe Bowing Or F	Rac	king Of Walls		2	0	
4a	Serious Falling Haza	ard	s Such As Loosened R	oofing Or Wall Cladding	2	2	2
4b	Roof damage				2	3	
5a	Foundation Underr	mir	ned By Scour Or Erosic	n	3	0	
5b	Building Threatene	d E	By Slope Instability		3	0	
6a	Neighboring Struct	ure	e/Trees Leaning Again	st Structure	1	1	
6b	Projectiles/Debris I	m	oact On Structure		1	1	

Table B58: B15-001 structural rating sheet



	JRE IDENTITY	:	B16-001					
TYPE OF	STRUCTURE	:	COMMRC	IAL,THREE ST	ORY			
LOCATIO)N	:						
DISTANC	E FROM THE OCEAN	:			ELEVATION:			
DATE OF	DAMAGE	:	Oct-09-20)14				
DATE OF	PICTURES COLLECTED	:	Nov-19-2	014				
CONDITION						Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially C	Collapsed		3	0	
1b	A Portion Of The B	Build	ding Has C	ollapsed		2	0	
	The Duilding Lles N	101	1	2	0			
1c	The Building Has N	100						
1c 2a					ficantly Out Of Plumb	3	0	
1200	Building (Any Story Gaps Exist Betwee	y) C n V)r Founda [.] Valls, Ceili	tion Is Signif ngs Or Roof		3	0	
2a	Building (Any Story	y) C n V)r Founda [.] Valls, Ceili	tion Is Signif ngs Or Roof			-	
2a 2b	Building (Any Story Gaps Exist Betwee	y) C n V ama	Pr Founda Valls, Ceili Ige To Prin	tion Is Signif ngs Or Roof mary Memb		2	0	1
2a 2b 3a	Building (Any Story Gaps Exist Betwee Obvious Severe Da Severe Bowing Or	y) C n V ama Rac	Pr Founda Valls, Ceili Ige To Prin King Of W	tion Is Signif ngs Or Roof nary Memb 'alls		2 2	0	1
2a 2b 3a 3b	Building (Any Stor Gaps Exist Betwee Obvious Severe Da Severe Bowing Or Serious Falling Haz Roof damage	y) C ama Rac ard	Pr Founda Valls, Ceili Ige To Prin King Of W Is Such As	tion Is Signif ngs Or Roof nary Memb 'alls Loosened F	ers Roofing Or Wall Cladding	2 2 2	0 0 0	1
2a 2b 3a 3b 4a	Building (Any Stor Gaps Exist Betwee Obvious Severe Da Severe Bowing Or Serious Falling Haz	y) C ama Rac ard	Pr Founda Valls, Ceili Ige To Prin King Of W Is Such As	tion Is Signif ngs Or Roof nary Memb 'alls Loosened F	ers Roofing Or Wall Cladding	2 2 2 2 2	0 0 0 1	1
2a 2b 3a 3b 4a 4b	Building (Any Stor Gaps Exist Betwee Obvious Severe Da Severe Bowing Or Serious Falling Haz Roof damage Foundation Under Building Threatene	y) C ama Rac card card	Pr Founda Valls, Ceili Ige To Prin Iking Of W Is Such As ned By Scc By Slope Ir	tion Is Signif ngs Or Roof nary Memb 'alls Loosened F pur Or Erosi nstability	ers Roofing Or Wall Cladding on	2 2 2 2 2 2 2	0 0 0 1 2	1
2a 2b 3a 3b 4a 4b 5a	Building (Any Stor Gaps Exist Betwee Obvious Severe Da Severe Bowing Or Serious Falling Haz Roof damage Foundation Under	y) C ama Rac card card card ture	rr Founda Valls, Ceili Ige To Prin king Of W Is Such As ned By Sco By Slope Ir e/Trees Le	tion Is Signif ngs Or Roof mary Memb 'alls Loosened F our Or Erosi Istability eaning Agair	ers Roofing Or Wall Cladding on	2 2 2 2 2 2 2 3	0 0 0 1 2 0	1

Table B59: B16-001 structural rating sheet



STRUCTU	JRE IDENTITY		: B16-002						1
	STRUCTURE		: RESIDENT		E STORY				
TIPE OF	STRUCTURE		. RESIDENT	IAL, SINGL	ESTORT				
LOCATIO	N		:						
DISTANC	E FROM THE OCEA	۹N	:			ELEVATION:			
DATE OF	DAMAGE		: Oct-09-20	014					
DATE OF	DAMAGE		. 000 05 20	514					
DATE OF	PICTURES COLLEC	TED	: Nov-19-2	014					
			COND				Significance Factor	Rating	Overall Rating
1a	Building Collap	3	0						
1b	A Portion Of Th			•			2	0	
1c	The Building Ha						2	0	
2a	Building (Any S					Out Of Plumb	3	0	-
2b	Gaps Exist Bety	ween	Walls, Ceili	ings Or R	oof.		2	0	1
3a	Obvious Severe	e Dam	age To Pri	mary Me	mbers		2	0	
3b	Severe Bowing	or Ra	cking Of V	Valls			2	0	
4a	Serious Falling	Hazar	ds Such As	s Loosene	ed Roofing	g Or Wall Cladding	2	0	
4b	Roof damage						2	1	
5a	Foundation Un	nderm	ined By Sc	our Or Er	osion		3	0	
5b	Building Threat	tened	By Slope I	nstability			3	0	
6a	Neighboring St	tructu	re/Trees Le	eaning Ag	gainst Stru	icture	1	0	
6b	Projectiles/Del	bris In	pact On S	tructure			1	0	
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								and the second	a.,
6						-18/	11/2014	09:2	0-0

Table B60: B16-002 structural rating sheet

STRUCTU	IRE IDENTITY	:	B16-004						
TYPE OF	STRUCTURE	:	RESIDENT	IAL,FOUR	STORY				
LOCATIO	N	:							
DISTANC	E FROM THE OCEAN	:			ELEVATION:				
DATE OF	DAMAGE	:	Oct-09-20	014					
DATE OF	PICTURES COLLECTED	:	Nov-19-2	014					
	_		COND	ITION			nificance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially (Collapsed			3	0	
1b	A Portion Of The B	Build	ding Has C	Collapsed			2	0	
1c	The Building Has N	/lov	ed Off Its	Foundati	on		2	0	
2a	Building (Any Story	y) C	r Founda	tion Is Sig	nificantly Out Of Plumb		3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceili	ngs Or Ro	of.		2	0	
3a	Obvious Severe Da	ama	ige To Pri	mary Mer	nbers		2	0	
3b	Severe Bowing Or	Rac	king Of W	/alls			2	0	-
4a	Serious Falling Haz	arc	ls Such As	Loosene	d Roofing Or Wall Cladd	ing	2	1	
4b	Roof damage						2	0	
5a	Foundation Under				sion		3	0	
5b	Building Threatene	ed E	By Slope Ir	nstability			3	0	
6a	Neighboring Struc	tur	e/Trees Le	eaning Ag	ainst Structure		1	0	
6b	Projectiles/Debris	Im	bact On St	tructure			1	1	



STRUCTI	JRE IDENTITY	: B16-00	5				
TYPE OF	STRUCTURE	· RESIDE	NTIAL,FIVE STOR	Y			
LOCATIC	DN	:					
DISTANC	E FROM THE OCEAN	:		ELEVATION:			
DATE OF	DAMAGE	: Oct-09-	2014				
DATE OF	PICTURES COLLECTED	: Nov-19	-2014				
			DITION		Significance Factor	Rating	Overal Rating
1a	Building Collapsed	Or Partiall	y Collapsed		3	0	
1b	A Portion Of The B	uilding Ha	Collapsed		2	0]
1c	The Building Has N	Noved Off I	ts Foundation		2	0]
2a	Building (Any Story	/) Or Found	ation Is Signifi	cantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n Walls, Ce	ilings Or Roof.		2	0	
3a	Obvious Severe Da	mage To F	rimary Membe	ers	2	0	0
3b	Severe Bowing Or	Racking Of	Walls		2	0	
4a	Serious Falling Haz	ards Such	As Loosened R	oofing Or Wall Cladding	2	0	U
4b	Roof damage				2	0	
5a	Foundation Under	mined By S	cour Or Erosio	n	3	0	
5b	Building Threatene	ed By Slope	Instability		3	0	
6a	Neighboring Struct			st Structure	1	0	
6b	Projectiles/Debris	Impact On	Structure		1	1	
the start of the			X	the first	X		

Table B62: B16-005 structural rating sheet

STRUCTU	IRE IDENTITY	:	B17-001						
TYPE OF	STRUCTURE	:	RESIDENTIAL, THREE ST	ORY					
LOCATIO	N	:	17.25620,83.298497						
DISTANC	E FROM THE OCEAN	:	2600 METERS	ELEVATION:	23 METERS				
DATE OF	DAMAGE	:	Oct-09-2014						
DATE OF	PICTURES COLLECTED	:	Nov-19-2014						
			CONDITION		Significance Factor	Rating	Overall Rating		
1a	Building Collapsed	Or	Partially Collapsed		3	0			
1b	A Portion Of The B	uilo	ding Has Collapsed		2	0			
1c	The Building Has M	lov	ed Off Its Foundation		2	0			
2a	Building (Any Story) C	r Foundation Is Signif	icantly Out Of Plumb	3	0			
2b	Gaps Exist Between	n V	Valls, Ceilings Or Roof.		2	0			
3a	Obvious Severe Da	ma	ge To Primary Memb	ers	2	0	-		
3b	Severe Bowing Or F	Rac	king Of Walls		2	2			
4a	Serious Falling Haza	arc	ls Such As Loosened R	oofing Or Wall Cladding	2	0	2		
4b	Roof damage				2	0			
5a	Foundation Under	mir	ned By Scour Or Erosic	on	3	0			
5b	Building Threatened By Slope Instability 3 0								
6a	Neighboring Struct	ur	e/Trees Leaning Again	st Structure	1	0			
	Projectiles/Debris I			1	1				

Table B63: B17-001 structural rating sheet



STRUCTUR	E IDENTITY	:	B18-001					
TYPE OF ST	RUCTURE	:	COMMERI	CAL,FOUR S	TORY			
LOCATION		:	17.725500	,83.299608	3			
DISTANCE	FROM THE OCEAN	:	2491 MET	ERS	ELEVATION:	23 METERS		
DATE OF D	AMAGE	:	Oct-09-202	14				
DATE OF PI	ICTURES COLLECTED	:	Nov-19-20	14				
			CONDI	TION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially C	ollapsed		3	0	
1b	A Portion Of The Bu	uilo	ding Has Co	ollapsed		2	0	
1c	The Building Has M	lov	ed Off Its I	Foundatio	1	2	0	
2a	Building (Any Story) C	r Foundati	ion Is Signi	ficantly Out Of Plumb	3	0	
	Gaps Exist Betweer	_		<u> </u>		2	0	
3a	Obvious Severe Da	ma	ige To Prin	nary Meml	pers	2	0	-
3b :	Severe Bowing Or F	Rac	king Of Wa	alls		2	2	
4a 1	Serious Falling Haza	arc	ls Such As	Loosened	Roofing Or Wall Cladding	2	0	2
4b	Roof damage					2	0	
5a	Foundation Underr	nir	ned By Sco	ur Or Eros	ion	3	0	
	Building Threatene					3	0	
	Neighboring Struct		-		nst Structure	1	0	
6b	Projectiles/Debris I	m	oact On Sti	ructure		1	1	

Table B64: B18-001 structural rating sheet



STRUCTUR	RE IDENTITY	:	B18-002				
TYPE OF S	TRUCTURE	:	COMMERICAL, FOUR	STORY			
LOCATION	J	:	17.725488,83.3018	72			
DISTANCE	FROM THE OCEAN	:	2387 METERS	ELEVATION:	28 METERS		
DATE OF I	DAMAGE	:	Oct-09-2014				
DATE OF F	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overal Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uil	ding Has Collapsed		2	0	1
1c	The Building Has M	٥v	ed Off Its Foundati	on	2	0	
2a	Building (Any Story) (r Foundation Is Sig	nificantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	۱V	Valls, Ceilings Or Ro	of.	2	0	
3a	Obvious Severe Da	ma	age To Primary Men	nbers	2	0	
3b	Severe Bowing Or F	Rad	king Of Walls		2	1	
4a	Serious Falling Haza	arc	ls Such As Loosene	d Roofing Or Wall Cladding	2	0	▲
4b	Roof damage				2	0	
5a	Foundation Underr	ni	ned By Scour Or Erc	osion	3	0	
5b	Building Threatene	d I	By Slope Instability		3	0	
6a	Neighboring Struct	ur	e/Trees Leaning Aga	ainst Structure	1	0	
6b	Projectiles/Debris I	m	pact On Structure		1	1	

Table B65: B18-002 structural rating sheet



STRUCTURE	IDENTITY	:	B18-003					
TYPE OF STR	UCTURE	:	COMMER	CAL, FIVE ST	ORY,RCC			
LOCATION		:	17.724915	5,83.32013	5			
DISTANCE F	ROM THE OCEAN	:	1268 ME	TERS	ELEVATION:	66 METERS		
DATE OF DA	:	Oct-09-20	14					
DATE OF PIC	TURES COLLECTED	:	Nov-19-20	014				
			COND	ITION		Significance Factor	Rating	Overall Rating
1a B	uilding Collapsed (Or	Partially C	ollapsed		3	0	
1b A	Portion Of The Bu	uilo	ding Has C	ollapsed		2	0	
1c T	he Building Has M	ov	ed Off Its	Foundatio	n	2	0	
2a B	uilding (Any Story)) C	r Foundat	ion Is Sign	ificantly Out Of Plumb	3	0	
2b G	iaps Exist Between	۱V	Valls, Ceilir	ngs Or Roo	f.	2	0	
3a O	bvious Severe Dar	ma	ge To Prin	nary Mem	bers	2	0	
3b Se	evere Bowing Or R	lac	king Of W	alls		2	0] ()
4a Se	erious Falling Haza	arc	ls Such As	Loosened	Roofing Or Wall Cladding	2	0	
4b R	4b Roof damage						0	
5a Fo	oundation Undern	nir	ned By Sco	ion	3	0		
5b B	Building Threatened By Slope Instability 3 0							
6a N	leighboring Struct	ur	e/Trees Le	aning Agai	inst Structure	1	0	
6b P	rojectiles/Debris I	m	pact On St	ructure		1	0	

Table B66: B18-003 structural rating sheet



STRUCTUR		:	B18-004A						
TYPE OF S	TRUCTURE	:	COMMERCIAL, FIVE STOP	RY,RCC,SATYAM					
LOCATION	1	:	17.733248,83.313568						
DISTANCE	FROM THE OCEAN	:	2579 METERS	ELEVATION:	43 METERS				
DATE OF D	DAMAGE	:	Oct-09-2014						
DATE OF P	PICTURES COLLECTED	:	Nov-19-2014						
			CONDITION		Significance Factor	Rating	Overall Rating		
1a	Building Collapsed	Or	Partially Collapsed		3	0			
1b	A Portion Of The Bu	uilo	ling Has Collapsed		2	0			
1c	The Building Has M	ov	ed Off Its Foundation		2	0			
2a	Building (Any Story) C	r Foundation Is Signific	cantly Out Of Plumb	3	0			
2b	Gaps Exist Betweer	۱V	/alls, Ceilings Or Roof.		2	0			
3a	Obvious Severe Da	ma	ge To Primary Membe	rs	2	0	0		
3b	Severe Bowing Or R		<u> </u>		2	0			
4a		ard	s Such As Loosened Ro	oofing Or Wall Cladding	2	0			
4b	Roof damage				2	0			
5a		_	ned By Scour Or Erosio	n	3	0			
5b	Building Threatened By Slope Instability 3 0								
6a			e/Trees Leaning Agains	t Structure	1	0	1		
6b	Projectiles/Debris I	m	aact On Structure		1	0	1		

Table B67: B18-004A structural rating sheet



STRUCT	URE IDENTITY	:	B18-004B				
TYPE OF	STRUCTURE	:	COMMERCIAL,	IX STORY, RCC, SATYAM			
LOCATIO	DN	:	17.733248,83.3	13568			
DISTANO	CE FROM THE OCEAN	:	2579 METERS	ELEVATION:	43 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITIC	N	Significance Factor	Rating	Overal Rating
1a	Building Collapsed	Or	Partially Collap	sed	3	0	
1b	A Portion Of The B	uilo	ling Has Collap	sed	2	0]
1c	The Building Has M	lov	ed Off Its Foun	dation	2	0	
2a	Building (Any Story) C	r Foundation I	Significantly Out Of Plumb	3	0	
2b	Gaps Exist Between	۱V	Valls, Ceilings C	r Roof.	2	0	
3a	Obvious Severe Da	ma	ge To Primary	Members	2	0	0
3b	Severe Bowing Or F	Rac	king Of Walls		2	0	
4a	-	ard	s Such As Loos	ened Roofing Or Wall Cladding	2	0	U
4b	Roof damage				2	0	
5a	Foundation Under	3	0				
5b	Building Threatene	d E	sy Slope Instab	lity	3	0	
6a	Neighboring Struct	ure	e/Trees Leanin	g Against Structure	1	0	
			bact On Structu	170	1	0	1

Table B68: B18-004B structural rating sheet



STRUCTURE	IDENTITY	:	B18-005					
TYPE OF STR	UCTURE	:	COMMERC	CIAL, FIVE S	ORY,RCC			
LOCATION		:	17.714738	,83.30354	3			
DISTANCE FROM THE OCEAN			1256 MET	ERS	ELEVATION:	29 METERS		
DATE OF DA	:	Oct-09-20	14					
DATE OF PIC	TURES COLLECTED	:	Nov-19-20	14				
			CONDI	TION		Significance Factor	Rating	Overall Rating
1a Bu	uilding Collapsed	Or	Partially C	ollapsed		3	0	
1b A	Portion Of The Bu	uilo	ding Has Co	ollapsed		2	0	
1c T	he Building Has M	ov	ed Off Its I	oundatio	n	2	0	
2a Bi	uilding (Any Story)) C	r Foundat	ion Is Sigr	ificantly Out Of Plumb	3	0	
2b G	aps Exist Betweer	۱V	Valls, Ceilir	igs Or Roc	f.	2	0	
3a O	bvious Severe Dar	ma	ige To Prin	nary Mem	bers	2	0	2
3b Se	evere Bowing Or F	Rac	king Of W	alls		2	1	
4a Se	erious Falling Haza	arc	ls Such As	Loosened	Roofing Or Wall Cladding	2	3	2
4b Ro	4b Roof damage						0	
5a Fo	oundation Underr	niı	ned By Sco	ion	3	0		
	Building Threatened By Slope Instability 3 0							
6a N	eighboring Struct	ur	e/Trees Lea	aning Aga	nst Structure	1	0	-
6b Pi	rojectiles/Debris I	m	pact On Sti	ructure		1	1	

Table B69: B18-005 structural rating sheet



Table B70: B18-006 struct	tural rating sheet
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STRUCTU	RE IDENTITY	: B18-006					
TYPE OF S	TRUCTURE	: COMMERCIAL,FI	VE STORY,RCC				
LOCATION	J	: 17.725456,83.31	66603				
DISTANCE	FROM THE OCEAN	: 1500 METERS		ELEVATION:	71 METERS		
DISTANCE	TROWT THE OCLAN	: 1500 WILTERS		ELEVATION.	71 WILTERS		
DATE OF I	DAMAGE	: Oct-09-2014					
	PICTURES COLLECTED	: Nov-19-2014					
DATE OF		CONDITIO	N		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or Partially Collaps	ed		3	0	0
1b	A Portion Of The Bu				2	0	
1c	The Building Has M				2	0	1
2a	Building (Any Story) Or Foundation Is	Significantly	Out Of Plumb	3	0	
2b	Gaps Exist Betweer	n Walls, Ceilings Or	Roof.		2	0	
3a	Obvious Severe Da	mage To Primary N	1 embers		2	0	
3b	Severe Bowing Or F				2	1	
4a	Serious Falling Haza	ards Such As Loose	ned Roofing	Or Wall Cladding	2	3	
4b	Roof damage				2		
5a	Foundation Underr	mined By Scour Or	Erosion		3	0	
5b	Building Threatene				3	0	
6a	Neighboring Struct	ure/Trees Leaning	Against Stru	cture	1	0	
6b	Projectiles/Debris I	Impact On Structur	e	1	1	1	

Table B71: B18-007 structural rating sheet

					0			
STRUCTURE	IDENTITY	:	B18-007					
TYPE OF STR	UCTURE	:	COMMER	CIAL,TEN	STORY,RCC, vuda			
LOCATION		:	17.72164	9,83.3180	08			
DISTANCE FF	ROM THE OCEAN	:	1304 MET	ERS	ELEVATION:	56 METERS		
DATE OF DA	MAGE	:	Oct-09-20)14				
DATE OF PIC	TURES COLLECTED		Nov-19-20	014				
			COND	ITION		Significance Factor	Rating	Overal Rating
1a Bi	uilding Collapsed (Or	Partially C	Collapsed		3	0	
1b A	Portion Of The Bu	uilo	ding Has C	Collapsed		2	0	
1c T	he Building Has M	ov	ed Off Its	Foundat	ion	2	0	
2a Bi	uilding (Any Story) C	r Foundat	tion Is Sig	nificantly Out Of Plumb	3	0	
2b G	aps Exist Betweer	۱V	Valls, Ceili	ngs Or Ro	oof.	2	0	
3a O	bvious Severe Dar	na	ige To Prir	mary Mer	nbers	2	0	0
	evere Bowing Or R					2	0	
4a Se	erious Falling Haza	arc	ls Such As	Loosene	d Roofing Or Wall Cladding	2	2	
4b Re	oof damage					2	0	
5a Fo	oundation Underr	nir	ned By Sco	our Or Er	osion	3	0	
5b Bi	Building Threatened By Slope Instability 3 0							
6a N	eighboring Struct	ure	e/Trees Le	eaning Ag	ainst Structure	1	0	
6b Pi	rojectiles/Debris I	m	oact On St	tructure		1	1	



STRUCTU	RE IDENTITY	:	B18-008					
TYPE OF S	TRUCTURE	:	COMMERC	CIAL, THREE	STORY,RCC			
LOCATION	N	:	17.721161	,83.31473	4			
DISTANCE	FROM THE OCEAN	:	1182 MET	ERS	ELEVATION:	29 METERS		
DATE OF I	DAMAGE	:	Oct-09-20	14				
DATE OF I	PICTURES COLLECTED	:	Nov-19-20	14				
			COND	TION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Partially C		3	0			
1b	A Portion Of The B	uilo	ding Has Co	ollapsed		2	0	
1c	The Building Has N	1ov	ed Off Its I	Foundatio	n	2	0	
2a	Building (Any Story	/) C	r Foundat	ion Is Sign	ificantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilir	ngs Or Roc	f.	2	0	
3a	Obvious Severe Da	ma	age To Prin	nary Mem	bers	2	0	4
3b	Severe Bowing Or	Rac	king Of W	alls		2	0	
4a	Serious Falling Haz	arc	ls Such As	Loosened	Roofing Or Wall Cladding	2	2	-
4b	Roof damage				2	0		
5a	Foundation Under				ion	3	0	
5b	Building Threatene					3	0	
6a	Neighboring Struct				inst Structure	1	0	ļ
6b	Projectiles/Debris	Im	pact On St	ructure		1	2	

Table B72: B18-008 structural rating sheet



STRUCTUR	RE IDENTITY	:	B18-009					
TYPE OF S	TRUCTURE	:	COMMER	CIAL,THRE	STORY,RCC			
LOCATION	4	:	17.71492	51,83.311	32			
DISTANCE	FROM THE OCEAN	:	1162 MET	ERS	ELEVATION:	49 METERS		
DATE OF I	DAMAGE	:	Oct-09-20	14				
DATE OF F	PICTURES COLLECTED	:	Nov-19-20	014				
			COND	ITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Partially C		3	0			
1b	A Portion Of The Bu	uilo	ding Has C	ollapsed		2	0	
1c	The Building Has M	lov	ed Off Its	Foundat	n	2	0	
2a	Building (Any Story) C	r Foundat	ion Is Sig	ificantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	۱V	/alls, Ceili	ngs Or Ro	of.	2	0	
3a	Obvious Severe Da	ma	ge To Prir	nary Me	bers	2	0	0
3b	Severe Bowing Or F	Rac	king Of W	'alls		2	0	
4a	Serious Falling Haza	arc	s Such As	Loosene	Roofing Or Wall Cladding	2	0	
4b	Roof damage			2	0			
5a	Foundation Underr	nir	ned By Sco	our Or Er	ion	3	0	
5b	Building Threatene					3	0	
6a	Neighboring Struct	ure	e/Trees Le	aning Ag	inst Structure	1	0	
6b	Projectiles/Debris I	m	oact On St	ructure		1	0	

Table B73: B18-009 structural rating sheet



STRUCTU	RE IDENTITY	:	GS-001				
TYPE OF S	TRUCTURE	:	COMMERICAL, SINGL	E STORY			
LOCATIO	N	:					
DISTANCE	FROM THE OCEAN	:	METERS	ELEVATION:	METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The Bu	Jilo	ling Has Collapsed		2	0	
1c	The Building Has M	ov	ed Off Its Foundatio	on	2	0	
2a	Building (Any Story) C	r Foundation Is Sigr	nificantly Out Of Plumb	3	0	
2b	Gaps Exist Between	۱V	Valls, Ceilings Or Roo	of.	2	0	
3a	Obvious Severe Da	ma	ge To Primary Mem	bers	2	0	4
3b	Severe Bowing Or F	lac	king Of Walls		2	0	
4a		arc	ls Such As Loosened	Roofing Or Wall Cladding	2	0	
4b	Roof damage				2	1	
5a			ned By Scour Or Ero	sion	3	0	-
5b	Building Threatene		<u>i</u> i <u>i</u>		3	0	-
6a	0 0		e/Trees Leaning Aga	inst Structure	1	0	
6b	Projectiles/Debris I	m	oact On Structure		1	1	

Table GS1: GS-001 structural rating sheet



STRUCTU	JRE IDENTITY	:	GS-002					
TYPE OF	STRUCTURE	:	COMMERICAL, SINGLE	STORY				
LOCATIO)N	:						
DISTANC	E FROM THE OCEAN	:	METERS		ELEVATION:	METERS		
DATE OF	DAMAGE	:	Oct-09-2014					
	PICTURES COLLECTED		Nov-19-2014					
DAILOI			CONDITION			Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed			3	0	B
1b	A Portion Of The B	-				2	0	
1c	The Building Has M	ov	ed Off Its Foundation		2	0	1	
2a	Building (Any Story) C	Or Foundation Is Signi	ficantly	Out Of Plumb	3	0	1
2b	Gaps Exist Betweer	۱V	Valls, Ceilings Or Roof		2	0		
3a	Obvious Severe Da	ma	age To Primary Memb		2	0	4	
3b	Severe Bowing Or F					2	0	
4a	Serious Falling Haza	arc	ls Such As Loosened I	Roofing	Or Wall Cladding	2	0	
4b	Roof damage					2	1	-
5a			ned By Scour Or Erosi	on		3	0	-
5b	Building Threatene	_	, , , ,	~		3	0	-
6a		_	e/Trees Leaning Agair	nst Stru	cture	1	0	-
6b	Projectiles/Debris I	m	pact On Structure			1	1	
			Annes of Pro-	irole				
	The second							

Table GS2: GS-002 structural rating sheet

STRUCTU	IRE IDENTITY	:	GS-003				
TYPE OF	STRUCTURE	:	COMMERICAL,SIN	GLE STORY			
LOCATIO	N	:					
DISTANC	E FROM THE OCEAN	:	METERS	ELEVATION:	METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED) :	Nov-19-2014		o: :::		
			CONDITION	١	Significance Factor	Rating	Overall Rating
1a	Building Collapsed	l Or	Partially Collapse	d	3	0	
1b	A Portion Of The E	Build	ding Has Collapse	d	2	0	
1c	The Building Has N	Лоv	ed Off Its Founda	ation	2	0	
2a	Building (Any Stor	y) O	r Foundation Is S	ignificantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	en V	Valls, Ceilings Or	Roof.	2	0	
3a	Obvious Severe Da	ama	ige To Primary M	embers	2	0	0
3b	Severe Bowing Or	Rac	king Of Walls		2	0	
4a	Serious Falling Ha	zard	ls Such As Looser	ned Roofing Or Wall Cladding	2	0	
4b	Roof damage				2	0	
5a	Foundation Under	rmir	ned By Scour Or E	rosion	3	0	
5b	Building Threaten	ed E	By Slope Instabilit	У	3	0	
6a	Neighboring Struc	ture	e/Trees Leaning A	Against Structure	1	0	
6b	Projectiles/Debris	Im	pact On Structure		1	0	

Table GS3: GS-003 structural rating sheet



STRUCTU	RE IDENTITY	:	GS-004						
TYPE OF S	TRUCTURE	:	COMMERI	CAL,SINGI	E STORY				
LOCATION	V	:							
DISTANCE	FROM THE OCEAN	:	METERS			ELEVATION:	METERS		
DATE OF	DAMAGE	:	Oct-09-20	14					
JATEOF	PICTURES COLLECTED		Nov-19-20				Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially C	ollapsed			3	0	
1b	A Portion Of The Bu	ding Has C		2	0				
1c	The Building Has M	ov	ed Off Its	Foundati		2	0		
2a	Building (Any Story	r Foundat	Out Of Plumb	3	0				
2b	Gaps Exist Betweer	۱W	/alls, Ceilir	ngs Or Ro	of.		2	0	
3a	Obvious Severe Dar	ma	ige To Prin	nary Men	nbers		2	0	
3b	Severe Bowing Or R	Rac	king Of W	alls			2	0	
4a	Serious Falling Haza	ard	s Such As	Loosene	d Roofing	Or Wall Cladding	2	0	U
4b	Roof damage						2	0	
5a	Foundation Underr	nir	ned By Sco	ur Or Erc	sion		3	0	
5b	Building Threatene	d E	By Slope In	stability			3	0	
6a	Neighboring Struct	ure	e/Trees Le	aning Ag	ainst Stru	cture	1	0	
6b	Projectiles/Debris I	m	oact On St	ructure			1	0	
								121	

Table GS4: GS-004 structural rating sheet

STRUCTUR	RE IDENTITY		:	GS-005						
TYPE OF S	TRUCTURE		:	COMMER	CAL,SING	ELE STORY				
LOCATION	J		:							
	FROM THE			6368 MET	EDC		ELEVATION:	40 METERS		
DISTANCE		OCLAN	•	0508 WILT	LNJ		ELEVATION.	40 METERS		
DATE OF I	DAMAGE		:	Oct-09-20	14					
DATE OF F	PICTURES CO	DLLECTED	:	Nov-19-20)14					
				COND	ITION			Significance Factor	Rating	Overall Rating
1a	Building C	ollapsed (Or	Partially C	ollapsec	ł		3	0	
1b	A Portion	Of The Bu	uild	ling Has C	ollapsed			2	0	
1c	The Buildi	ng Has M	ov	ed Off Its	Foundat	ion		2	0	
2a	Building (A	Any Story) 0	r Foundat	ion Is Si	Out Of Plumb	3	0		
2b	Gaps Exist	Betweer	۱W	/alls, Ceilir	ngs Or R	oof.		2	0	
3a	Obvious S			<u> </u>		mbers		2	0	0
3b	Severe Bo	wing Or R	lac	king Of W	alls			2	0	
4a		-	ard	s Such As	Loosene	ed Roofing	Or Wall Cladding	2	0	
4b	Roof dam	age						2	0	
5a	Foundatio	on Undern	nin	ed By Sco	ur Or Er	osion		3	0	
5b	Building T		_					3	0	
6a	Neighbori		_			gainst Stru	cture	1	0	
6b	Projectiles	s/Debris I	mp	oact On St	ructure			1	0	
								18/11/	2014	

Table GS5: GS-005 structural rating sheet

STRUCTU	JRE IDENTITY	:	GS-006(101-001)				
TYPE OF	STRUCTURE	:	COMMERICAL, SIN	IGLE STORY			
LOCATIO	DN	:					
DISTANC	CE FROM THE OCEAN	:	4100 METERS	ELEVATION:	40 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITIO	N	Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collaps	ed	3	3	
1b	A Portion Of The B	uilo	ling Has Collaps	ed	2	3	
1c	The Building Has N	lov	ed Off Its Found	ation	2	0	
2a	Building (Any Story	/) C	r Foundation Is	Significantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or	Roof.	2	0	
3a	Obvious Severe Da	ma	ige To Primary N	lembers	2	2	-
3b	Severe Bowing Or	Rac	king Of Walls		2	0	4
4a	Serious Falling Haz	arc	is Such As Loose	ned Roofing Or Wall Cladding	2	2	9
4b	Roof damage				2	3	
5a	Foundation Under	mir	ned By Scour Or	Erosion	3	0	
5b	Building Threatene				3	0	
6a	Neighboring Struct	ture	e/Trees Leaning	Against Structure	1	0	
6b	Projectiles/Debris	Im	pact On Structur	e	1	1	

Table GS6: GS-006 structural rating sheet



SIRUCIU	RE IDENTITY	:	GS-007(103-001)				
TYPE OF S	STRUCTURE	:	COMMERICAL, SINGLE ST	FORY			
LOCATIO	N	:					
DISTANCE	FROM THE OCEAN	:	2054 METERS	ELEVATION:	53 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overal Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uil	ding Has Collapsed		2	0]
1c	The Building Has M	1ov	ed Off Its Foundation		2	0	
2a	Building (Any Story	/) C	r Foundation Is Signific	cantly Out Of Plumb	3	0	
2b			Valls, Ceilings Or Roof.		2	0	
3a	Obvious Severe Da	ma	age To Primary Membe	rs	2	0	-
3b	Severe Bowing Or	Rad	king Of Walls		2	0	
4a	Serious Falling Haz	arc	ls Such As Loosened Ro	oofing Or Wall Cladding	2	0	
4b	Roof damage				2	1	
5a			ned By Scour Or Erosio	n	3	0	_
5b	Building Threatene				3	0	
6a			e/Trees Leaning Agains	t Structure	1	0	-
6b	Projectiles/Debris	Im	pact On Structure		1	0	

Table GS7: GS-007 structural rating sheet



STRUCTUR	RE IDENTITY	:	GS-008(10	3-003)				
TYPE OF S	TRUCTURE	:	COMMERI	ICAL,SINGLE S	STORY			
LOCATION	J	:						
DISTANCE	FROM THE OCEAN	:	2058 MET	ERS	ELEVATION:	08 METERS		
DATE OF [DAMAGE	:	Oct-09-20	14				
DATE OF F	PICTURES COLLECTED	:	Nov-19-20	014				
			COND	ITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially C	ollapsed		3	0	
1b	A Portion Of The B	uilo	ding Has C	ollapsed		2	0	
1c	The Building Has N	lov	ed Off Its	Foundation		2	0	
2a	Building (Any Story	/) C	r Foundat	ion Is Signifi	icantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilir	ngs Or Roof.		2	0	
3a	Obvious Severe Da	ma	ige To Prin	nary Membe	ers	2	2	-
3b	Severe Bowing Or	Rac	king Of W	alls		2	0	4
4a	Serious Falling Haz	arc	s Such As	Loosened R	oofing Or Wall Cladding	2	0	-
4b	Roof damage					2	3	
5a	Foundation Under	mir	ned By Sco	our Or Erosic	on	3	0	
5b	Building Threatene					3	0	
6a	Neighboring Struct	ure	e/Trees Le	aning Again	st Structure	1	0	
6b	Projectiles/Debris	Imj	oact On St	ructure		1	0	

Table GS8: GS-008 structural rating sheet



	JRE IDENTITY	:	GS-009(10	7-001)				
TYPE OF	STRUCTURE	:	COMMER	ICAL,SINGLE	STORY, GAS MILLINIUM STATIC	DN		
LOCATIO)N	:						
DISTANC	E FROM THE OCEAN	:	810 METE	ERS	ELEVATION:	51 METERS		
DATE OF	DAMAGE	:	Oct-09-20	014				
DATE OF	PICTURES COLLECTED	:	Nov-19-20	014				
			COND			Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Partially (3	0				
1b	A Portion Of The B	ding Has C		2	0			
1c	The Building Has N	/lov	ed Off Its	Foundation	ı	2	0	
2a	Building (Any Story	y) C)r Foundat	tion Is Signi	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceili	ngs Or Roo	F.	2	0	
3a	Obvious Severe Da	ma	age To Prir	mary Meml	bers	2	1	
3b	Severe Bowing Or	Rac	king Of W	/alls		2	0	
4a	Serious Falling Haz	arc	Is Such As	Loosened	Roofing Or Wall Cladding	2	1	
4b	Roof damage					2	2	
5a	Foundation Under	mir	ned By Sco	our Or Eros	on	3	0	
5b	Building Threatene	ed E	3y Slope Ir	nstability		3	0	
6a	Neighboring Struct		•	0 0	nst Structure	1	0	
	Projectiles/Debris	Im	pact On St	tructure		1	0	

Table GS9: GS-009 structural rating sheet



STRUCTU	RE IDENTITY	:	GS-010				
TYPE OF S	STRUCTURE	:	COMMERCIAL,SINGL	E STOERY			
LOCATIO	N	:	17.741074,83.32786	4			
DISTANC	E FROM THE OCEAN	:	1718 METERS	ELEVATION:	20 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	A Portion Of The Building Has Collapsed					
1c	The Building Has M	lov	ed Off Its Foundatio	n	2	0	
2a	Building (Any Story) C	r Foundation Is Sigr	nificantly Out Of Plumb	3	0	
2b	Gaps Exist Between	۱V	Valls, Ceilings Or Roo	of.	2	0	
3a	Obvious Severe Da	ma	ge To Primary Mem	ibers	2	0	4
3b	Severe Bowing Or F		-		2	0	
4a	-	arc	ls Such As Loosenec	Roofing Or Wall Cladding	2	0	
4b	Roof damage			2	1		
5a	Foundation Under	mir	ned By Scour Or Ero	sion	3	0	
5b	Building Threatene				3	0	-
6a			e/Trees Leaning Aga	inst Structure	1	0	
6b	Projectiles/Debris I	m	oact On Structure		1	0	

Table GS10: GS-010 structural rating sheet



STRUCTURE IDENTITY			GS-011					
TYPE OF STRUCTURE		:	COMMERICA	AL,SINGLE ST	OREY			
LOCATION		;	17.724247,8	33.312384				
DISTANCE	FROM THE OCEAN	:	1697 METER	RS	ELEVATION:	67METERS		
DATE OF DAMAGE		:	: Oct-09-2014					
DATE OF F	PICTURES COLLECTED	:	Nov-19-2014	4				
CONDITION					Significance Factor	Rating	Overall Rating	
1a	Building Collapsed Or Partially Collapsed					3	0	2
1b	A Portion Of The Building Has Collapsed				2	0		
1c	The Building Has Moved Off Its Foundation					2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb				3	0		
2b	Gaps Exist Between Walls, Ceilings Or Roof.				2	0		
3a	Obvious Severe Damage To Primary Members				2	0		
3b	Severe Bowing Or Racking Of Walls					2	0	
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall Cladding				2	0		
4b	Roof damage				2	2		
5a	Foundation Undermined By Scour Or Erosion				3	0		
5b	Building Threatened By Slope Instability				3	0		
6a	Neighboring Structure/Trees Leaning Against Structure 1 0					0		
6b	Projectiles/Debris Impact On Structure					1	1	

Table GS11: GS-011 structural rating sheet



STRUCTURE IDENTITY		1	101-002			
TYPE OF STRUCTURE			COMMERICAL, THREE STORY, SR STEEL			
LOCATIO	IN	:				
DISTANCE FROM THE OCEAN		:	ELEVATION:			
DATE OF DAMAGE		:	Oct-09-2014			
DATE OF	PICTURES COLLECTED	:	Nov-19-2014			
			CONDITION	Significance Factor	Rating	Overall Rating
1a	Building Collapsed	3	1	2		
1b	A Portion Of The B	2	1			
1c	The Building Has M	2	0			
2a	Building (Any Story	3	0			
2b	Gaps Exist Betweer	2	0			
3a	Obvious Severe Da	2	1			
3b	Severe Bowing Or F	2	0			
4a	Serious Falling Haza	2	2			
4b	Roof damage	oof damage				
5a	Foundation Underr	3	0			
5b	Building Threatened By Slope Instability				0	
6a	Neighboring Structure/Trees Leaning Against Structure 1					
6b	Projectiles/Debris I	1	2			

Table I1: I01-002 structural rating sheet



STRUCTURE IDENTITY			101-003						
TYPE OF STRUCTURE			COMMERI	CAL,SINGLE ST	ORY				
LOCATION			17.718388	8,83.281210					
DISTANC	CE FROM THE OCEAN	:	314 METE	RS	ELEVATION:	07 METERS			
DATE OF DAMAGE		:	Oct-09-20	14					
DATE OF	F PICTURES COLLECTED	:	Nov-19-20	014					
CONDITION					Significance Factor	Rating	Overall Rating		
1a	Building Collapsed Or Partially Collapsed					3	0	2	
1b	A Portion Of The Building Has Collapsed					2	0		
1c	The Building Has Moved Off Its Foundation				2	0			
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb					3	0		
2b	Gaps Exist Between Walls, Ceilings Or Roof.					2	0		
3a	Obvious Severe Damage To Primary Members					2	0		
3b	Severe Bowing Or Racking Of Walls					2	0		
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall Cladding					2	2		
4b	Roof damage					2	1		
5a	Foundation Undermined By Scour Or Erosion					3	0		
	Building Threatened By Slope Instability					3	0		
5b	Building Threatene	ea t	, stope in		Neighboring Structure/Trees Leaning Against Structure				
5b 6a			, ,		Structure	1	0		

Table I2: I01-003 structural rating sheet



STRUCTU	IRE IDENTITY	:	101-004					
TYPE OF	STRUCTURE	:	COMMERICAL, SINGLE S	STORY				
LOCATIO	N	:	17.718889,83.279882					
DISTANC	E FROM THE OCEAN	:	3161 METERS	ELEVATION:	04 METERS			
DATE OF	DAMAGE	:	Oct-09-2014					
DATE OF	PICTURES COLLECTED	:	Nov-19-2014					
			CONDITION		Significance Factor	Rating	Overal Rating	
1a	Building Collapsed	Or	Partially Collapsed		3	0		
1b	A Portion Of The Bu	uile	ding Has Collapsed		2	0		
1c	The Building Has M	٥v	ed Off Its Foundation		2	0		
2a	Building (Any Story) (Pr Foundation Is Signif	icantly Out Of Plumb	3	0		
2b	Gaps Exist Betweer	۱V	Valls, Ceilings Or Roof.	P.	2	0		
3a	Obvious Severe Da	ma	age To Primary Memb	ers	2	1		
3b	Severe Bowing Or F	Rad	king Of Walls		2	2		
4a	Serious Falling Haza	arc	ls Such As Loosened R	oofing Or Wall Cladding	2	2	2	
4b	Roof damage		2	2				
5a	Foundation Underr	ni	ned By Scour Or Erosic	on	3	0		
5b	Building Threatened By Slope Instability 3 0							
6a			e/Trees Leaning Again	st Structure	1	0		
6b	Projectiles/Debris I	m	pact On Structure		1	1		

Table I3: I01-004 structural rating sheet



	RE IDENTITY	:	104-001				
TYPE OF S	STRUCTURE	:	COMMERICAL, SINGLE S	STORY,CAR PARKING			
LOCATION	N	:					
DISTANCE	FROM THE OCEAN	:	5563 METERS	ELEVATION:	28 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overal Rating
1a	Building Collapsed	Or		3	1		
1b	A Portion Of The B	Build	ding Has Collapsed		2	3	
1c	The Building Has N	/lov	ed Off Its Foundation		2	0	
2a	Building (Any Story	y) C	r Foundation Is Signif	icantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or Roof.		2	0	
3a	Obvious Severe Da	ma	ge To Primary Memb	ers	2	3	
3b	Severe Bowing Or	Rac	king Of Walls		2	2)
4a	Serious Falling Haz	arc	ls Such As Loosened R	Roofing Or Wall Cladding	2	2	2
4b	Roof damage				2	3	
5a	Foundation Under	mir	ned By Scour Or Erosic	on	3	1	
5b	Building Threatene	ed E	By Slope Instability		3	0	
	Neighboring Struct	ture	st Structure	1	0		
6a	Projectiles/Debris						

Table I4: I04-001 structural rating sheet



STRUCTU	RE IDENTITY	:	105-001							
TYPE OF S	STRUCTURE	:	COMMERI	CAL,SINGLI	STORY,STORAGE BUILDING					
LOCATION	N	:								
DISTANCE	FROM THE OCEAN	:	METERS		ELEVATION:	METERS				
DATE OF I	DAMAGE	:	Oct-09-20	14						
DATE OF I	PICTURES COLLECTED	:	Nov-19-20)14						
			COND	ITION		Significance Factor	Rating	Overall Rating		
1a	Building Collapsed	Or	Partially C	3	3					
1b	A Portion Of The B	uilo	ding Has C	ollapsed		2	3			
1c	The Building Has N	lov	ed Off Its	Foundatic	n	2	0			
2a	Building (Any Story) C	r Foundat	ion Is Sigr	ificantly Out Of Plumb	3	1			
2b	Gaps Exist Betwee	n V	Valls, Ceilir	ngs Or Roo	of.	2	0			
3a	Obvious Severe Da	ma	ige To Prin	nary Mem	bers	2	3	-		
3b	Severe Bowing Or I	Rac	king Of W	alls		2	0	-		
4a	Serious Falling Haz	arc	ls Such As	Loosened	Roofing Or Wall Cladding	2	3	5		
4b	Roof damage					2	3			
5a		Foundation Undermined By Scour Or Erosion								
5b	Building Threatene				3	0				
6a	Neighboring Struct	Neighboring Structure/Trees Leaning Against Structure 1 0								
6b	Projectiles/Debris	Im	pact On St	ructure		1	2			

Table I5: I05-001 structural rating sheet



STRUCTU	RE IDENTITY	į	105-002					
TYPE OF S	TRUCTURE	:	COMMERI	CAL,SINGLE S	STORY,STORAGE BUILDING			
LOCATIO	N	:						
DISTANCE	FROM THE OCEAN	:	8472 MET	ERS	ELEVATION:	23 METERS		
DATE OF	DAMAGE	:	Oct-09-203	14				
DATE OF	PICTURES COLLECTED		Nov-19-20	14				
			CONDI	TION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially C		3	0		
1b	A Portion Of The B	uilo	ding Has Co	ollapsed		2	0	
1c	The Building Has M	lov	ed Off Its I	Foundation		2	0	
2a	Building (Any Story) C	r Foundat	ion Is Signif	icantly Out Of Plumb	3	0	
2b	Gaps Exist Between	n V	Valls, Ceilin	ngs Or Roof.	L. C.	2	0	
3a	Obvious Severe Da	ma	age To Prim	hary Memb	ers	2	1	
3b	Severe Bowing Or F	Rac	king Of W	alls		2	0	
4a	Serious Falling Haz	arc	ls Such As	Loosened R	oofing Or Wall Cladding	2	1	
4b	Roof damage				2	2		
5a	Foundation Under	mir	ned By Sco	on	3	0		
5b	Building Threatene	d E	By Slope In	stability		3	0	
6a	Neighboring Struct	ure	e/Trees Lea	aning Again	st Structure	1	0	
6b	Projectiles/Debris	Im	nact On Sti	ructure		1	0	

Table I6: I05-002 structural rating sheet



STRUCTU	RE IDENTITY	ł	105-003					
TYPE OF S	TRUCTURE	:	COMMERIC	CAL,SINGLE	STORY,STORAGE BUILDING			
LOCATION	J	:						
DISTANCE	FROM THE OCEAN	:	METERS		ELEVATION:	METERS		
DATE OF I	DAMAGE	:	Oct-09-201	4				
DATE OF I	PICTURES COLLECTED	:	Nov-19-20	14				
			CONDI	TION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Co	ollapsed		3	0	
1b	A Portion Of The B	uilo	ding Has Co	ollapsed		2	0	
1c	The Building Has M	lov	ed Off Its F	oundation	1	2	0]
2a	Building (Any Story) C	r Foundati	on Is Signif	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Between	n V	Valls, Ceilin	gs Or Roof		2	0	
3a	Obvious Severe Da	ma	ige To Prim	ary Memb	ers	2	0	4
3b	Severe Bowing Or F	Rac	king Of Wa	alls		2	0	
4a	Serious Falling Haza	arc	ls Such As I	Loosened I	Roofing Or Wall Cladding	2	0	
4b	Roof damage					2	1	
5a	Foundation Under	miı	ned By Sco	ur Or Erosi	on	3	0	
5b	Building Threatene	d	By Slope Ins	stability		3	0	
6a	Neighboring Struct	ur	e/Trees Lea	aning Agair	nst Structure	1	0	
6b	Projectiles/Debris I	m	pact On Str	ucture		1	0	

Table I7: I05-003 structural rating sheet



STRUCTUR	RE IDENTITY	:	106-001				
TYPE OF S	TRUCTURE	:	COMMERICAL, SINGLE	STORY,STORAGE BUILDING			
LOCATION	 	•					
DISTANCE	FROM THE OCEAN	1	3938 METERS	ELEVATION:	8 METERS		
DATE OF E	DAMAGE	:	Oct-09-2014				
DATE OF F	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The Bu	uilo	ding Has Collapsed		2	0	
1c	The Building Has M	ov	ed Off Its Foundatio	n	2	0	
2a	Building (Any Story) C	r Foundation Is Sign	ificantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	۱V	Valls, Ceilings Or Roo	f.	2	0	
3a	Obvious Severe Da	ma	ge To Primary Mem	bers	2	1	-
3b	Severe Bowing Or F	Rac	king Of Walls		2	0	
4a	Serious Falling Haza	ard	ls Such As Loosened	Roofing Or Wall Cladding	2	2	_
4b	Roof damage				2	2	
5a	Foundation Underr	nir	ned By Scour Or Eros	ion	3	0	
5b	Building Threatene	d E	By Slope Instability		3	0	
6a	Neighboring Struct	ure	e/Trees Leaning Agai	inst Structure	1	0	
6b	Projectiles/Debris I	m	oact On Structure		1	1	

Table I8: I06-001 structural rating sheet



STRUCTU	JRE IDENTITY	:	R01-001					
TYPE OF	STRUCTURE	:	COMMERICAL,ROPE C	AR				
LOCATIO	N	:						
DISTANCE FROM THE OCEAN			550 METERS	ELEVATION:	157 METERS			
DATE OF	DAMAGE	:	Oct-09-2014					
DATE OF	PICTURES COLLECTED	:	Nov-19-2014					
			CONDITION		Significance Factor	Rating	Overall Rating	
1a	Building Collapsed	Or	Partially Collapsed		3	0		
1b	A Portion Of The B	uil	ding Has Collapsed		2	0]	
1c	The Building Has M	l٥٧	ed Off Its Foundatior	ı	2	0		
2a	Building (Any Story) ()r Foundation Is Signi	ficantly Out Of Plumb	3	0		
2b	Gaps Exist Betweer	n V	Valls, Ceilings Or Root	f.	2	0		
3a	Obvious Severe Da	ma	age To Primary Memb	pers	2	0	4	
3b	Severe Bowing Or F	_			2	0		
4a		arc	ls Such As Loosened	Roofing Or Wall Cladding	2	0	_	
4b	Roof damage		2	1				
5a			ned By Scour Or Erosi	ion	3	0		
5b	Building Threatened By Slope Instability 3 0							
6a			e/Trees Leaning Agaiı	nst Structure	1	0		
6b	Projectiles/Debris I	m	pact On Structure		1	0		

Table R1: R01-001 structural rating sheet



STRUCTU	JRE IDENTITY	:	R01-001A				
TYPE OF	STRUCTURE	:	RAILWAY STATION TRA	ACKS			
LOCATIO)N	:	17.721430,83.82928				
DISTANC	E FROM THE OCEAN	:	2908METERS	ELEVATION:	11 METERS		
DATE OF	DAMAGE	:	Oct-09-2014				
DATE OF	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uilo	ding Has Collapsed		2	0]
1c	The Building Has N	lov	ed Off Its Foundation	i i	2	0	
2a	Building (Any Story) C	r Foundation Is Signi	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Betweer	n V	Valls, Ceilings Or Roof		2	0	
3a			ige To Primary Memb	pers	2	1	
3b	Severe Bowing Or I	Rac	king Of Walls		2	0	
4a	Serious Falling Haz	arc	ls Such As Loosened I	Roofing Or Wall Cladding	2	2	2
4b	Roof damage		2	2			
5a	Foundation Under	mir	ned By Scour Or Erosi	on	3	0	
5b	Building Threatene	d E	By Slope Instability		3	0	
6a	Neighboring Struct	ur	e/Trees Leaning Agair	nst Structure	1	0	
6b	Projectiles/Debris	Im	pact On Structure		1	1	

Table R2: R01-001A structural rating sheet



STRUCTUR	REIDENTITY	:	R02-001B							
TYPE OF S	TRUCTURE	:	RAILWAY	STATION	OUT SIDE					
OCATION	1	:	1.721657	,83.29006	98					
DISTANCE	FROM THE OCEAN	:	2768 MET	ERS		ELEVATION:		11 METERS		
DATE OF I	DAMAGE	:	Oct-09-20)14						
			10.20	214						
DATEOFF	PICTURES COLLECTED		Nov-19-20					Significance		Overal
			COND	ITION				Factor	Rating	Rating
1a	Building Collapsed	Or F	Partially C	Collapsed				3	0	
1b	A Portion Of The B	uild	ing Has C	ollapsed				2	0]
1c	The Building Has N	love	d Off Its	Foundat	ion			2	0	
2a	Building (Any Story	r) (r	Foundat	tion Is Sig	gnificantly	Out Of Plumb		3	0	
2b	Gaps Exist Betwee	n W	alls, Ceili	ngs Or Ro	oof.			2	0	1
3a	Obvious Severe Da				mbers			2	1	
3b	Severe Bowing Or I							2	0	
4a	Serious Falling Haz	ards	Such As	Loosene	d Roofing	Or Wall Claddin	g	2	0	
4b	Roof damage		a 100 - 101	1999 - De - A	2			2	2	-
5a	Foundation Under				osion			3	0	-
5b	Building Threatene					-		3	0	-
6a 6b	Neighboring Struct Projectiles/Debris			0.0	ainst Stru	cture		1	0	-
									-	
t			1	7			PQU	640 ₂ 0	VISAKH	
		- 670					-			
14		-	-	ATA	T SA		10	- Ser France	The Party of the P	

Table R3: R02-001B structural rating sheet

STRUCTU	RE IDENTITY	:	S01-001				
TYPE OF S	TRUCTURE	:	COMMERICAL, INDOOR	STADIUM			
LOCATION	N	:					
DISTANCE	FROM THE OCEAN	:	720 METERS	ELEVATION:	36 METERS		
DATE OF I	DAMAGE	:	Oct-09-2014				
DATE OF I	PICTURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially Collapsed		3	0	
1b	A Portion Of The B	uil	ding Has Collapsed		2	0	
1c	The Building Has N	lov	ed Off Its Foundation		2	0	
2a	Building (Any Story	/) C	Pr Foundation Is Signif	icantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilings Or Roof.		2	0	
3a	Obvious Severe Da	ma	age To Primary Membe	ers	2	1	
3b	Severe Bowing Or	Rad	king Of Walls		2	0	
4a	Serious Falling Haz	arc	ls Such As Loosened R	oofing Or Wall Cladding	2	0	2
4b	Roof damage				2	2	
5a	Foundation Under	mi	ned By Scour Or Erosic	on	3	0	
5b	Building Threatene	ed E	By Slope Instability		3	0	
6a	Neighboring Struct	tur	e/Trees Leaning Again	st Structure	1	0	
		Im					

Table S1: S01-001 structural rating sheet



STRUCTUR	RE IDENTITY	:	S01-002					
TYPE OF S	TRUCTURE	:	CRICKET S	TADIUM				
LOCATION	l	:						
DISTANCE	FROM THE OCEAN	;	3774 MET	TERS	ELEVATION:	56 METERS		
DATE OF I	DAMAGE	:	Oct-09-20	14				
DATE OF F	PICTURES COLLECTED	:	Nov-19-20	014				
			COND	ITION		Significance Factor	Rating	Overall Rating
1a	Building Collapsed	Or	Partially C	ollapsed		3	0	
1b	A Portion Of The B	uilo	ding Has Co	ollapsed		2	0	
1c	The Building Has N	lov	ed Off Its I	Foundation	I	2	0	
2a	Building (Any Story) C	r Foundat	ion Is Signif	ficantly Out Of Plumb	3	0	
2b	Gaps Exist Betwee	n V	Valls, Ceilir	ngs Or Roof		2	0	
3a	Obvious Severe Da	ma	ige To Prin	nary Memb	ers	2	1	2
3b	Severe Bowing Or I	Rac	king Of W	alls		2	0	
4a	Serious Falling Haz	arc	ls Such As	Loosened F	Roofing Or Wall Cladding	2	0	4
4b	Roof damage				2	2		
5a	Foundation Under	mir	ned By Sco	our Or Erosi	on	3	0	
5b	Building Threatene	d E	By Slope In	stability		3	0	
6a	Neighboring Struct	ure	e/Trees Le	aning Agair	nst Structure	1	0	
6b	Projectiles/Debris	Im	oact On St	ructure		1	0	



STRUCTURE IDENTITY		:	T01-001					
TYPE OF STRUCTURE			TRANSMISSION TOWER					
LOCATIC	DN							
DISTANCE FROM THE OCEAN		:	10632 M	ETERS	ELEVATION:	11 METERS		
DATE OF	DAMAGE	:	Oct-09-20)14				
DATE OF	PICTURES COLLECTED	:	Nov-19-20	014				
CONDITION						Significance Factor	Rating	Overall Rating
1a	Building Collapsed	3	2	-				
1b	A Portion Of The B	2	3					
1c	The Building Has N	2	0					
2a	Building (Any Story	3	0					
2b	Gaps Exist Betwee	2	0					
3a	Obvious Severe Da	2	0					
3b	Severe Bowing Or	2	0					
4a	Serious Falling Haz	2	0	4				
4b	Roof damage	2	0					
5a	Foundation Undermined By Scour Or Erosion					3	0	
5b	Building Threatened By Slope Instability					3	0	
6a	Neighboring Struct	1	2					
6b	Projectiles/Debris	1	1					
		E.		312	1000	State -	12	10

Table T1: T01-001 structural rating sheet



STRUCTURE IDENTITY		:	T01-002				
TYPE OF STRUCTURE			TRANSMISSION TOWER				
LOCATION	J	:					
DISTANCE	FROM THE OCEAN	:	10113 METERS	ELEVATION:	11 METERS		
DATE OF I	DAMAGE	:	Oct-09-2014				
DATE OF I	PICTURES COLLECTED	:	Nov-19-2014				
		Significance Factor	Rating	Overall Rating			
1a	Building Collapsed	Or	3	2			
1b	A Portion Of The B	uilo	2	3			
1c	The Building Has M	lov	2	0			
2a	Building (Any Story) C	3	0			
2b	Gaps Exist Between	n V	2	0			
3a	Obvious Severe Da	ma	2	0			
3b	Severe Bowing Or F	Rac	2	0			
4a	Serious Falling Haza	2	0	2			
4b	Roof damage	2	0				
5a	Foundation Under	3	0				
5b	Building Threatene	d E	3	0			
6a	Neighboring Struct	1	2				
6b	Projectiles/Debris I	m	1	1			

Table T2: T01-002 structural rating sheet



STRUCTURE	IDENTITY	:	T02-001				
TYPE OF STRUCTURE		:	Cell TRANSMISSION TO	WER			
LOCATION		:					
DISTANCE FROM THE OCEAN		:	924 METERS ELEVATION:		173 METERS		
DATE OF DA	MAGE	:	Oct-09-2014				
DATE OF PIC	TURES COLLECTED	:	Nov-19-2014				
			CONDITION		Significance Factor	Rating	Overall Rating
1a Bu	uilding Collapsed (Эr	3	2			
1b A	Portion Of The Bu	uilo	2	2			
1c Tł	he Building Has M	2	0				
2a Bi	uilding (Any Story)	3	0				
2b G	Gaps Exist Between Walls, Ceilings Or Roof.					0	
3a O	Obvious Severe Damage To Primary Members					0	-
3b Se	evere Bowing Or R	lac	2	0			
4a Se	erious Falling Haza	ard	2	0	2		
4b Ro	Roof damage					0	
5a Fo	Foundation Undermined By Scour Or Erosion					0	
5b Bi	uilding Threateneo	3	0				
6a N	Neighboring Structure/Trees Leaning Against Structure					0	
6b Pi	rojectiles/Debris I	mp	1	1			
00 11							

Table T3: T02-001 structural rating sheet



STRUCTU	RE IDENTITY	:	T02-002						
TYPE OF STRUCTURE			Cell TRANS	SMISSION	TOWER				
LOCATION	J	:							
DISTANCE	DISTANCE FROM THE OCEAN		928 METERS ELEVA		ATION:	173 METERS			
DATE OF DAMAGE			: Oct-09-2014						
DATE OF I	PICTURES COLLECTED	:	Nov-19-20)14					
			COND	ITION			Significance Factor	Rating	Overall Rating
1a	Building Collapsed Or Partially Collapsed						3	1	-
1b	A Portion Of The Building Has Collapsed						2	2	
1c	The Building Has Moved Off Its Foundation						2	0	
2a	Building (Any Story) Or Foundation Is Significantly Out Of Plumb						3	0	
2b	Gaps Exist Between Walls, Ceilings Or Roof.						2	0	
3a	Obvious Severe Damage To Primary Members					2	1	4	
3b	Severe Bowing Or Racking Of Walls					2	0		
4a	Serious Falling Hazards Such As Loosened Roofing Or Wall Cladding					2	0	_	
4b	Roof damage	8					2	0	
5a		undation Undermined By Scour Or Erosion					3	0	
5b	Building Threatened By Slope Instability					3	0		
6a	Neighboring Structure/Trees Leaning Against Structure					1	0		
6b	Projectiles/Debris Impact On Structure						1	1	

Table T4: T02-002 structural rating sheet

