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Seismic Retrofitting of CD Hospital in Srinagar Kashmir

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ABSTRACT
This concept sets out the mechanisms designed to re-engineer seismic analysis. This concept is designed to explain the need for a new self-based trust code to provide a broad range of constructive behaviours. The concept also aims to feed the structure to meet the needs of the current principles of landscape design. The Kashmir region prevails within the Himalayas and is one of the world's most popular earthquakes prone area. For the past ten years the Kashmir region has seen a major earthquake with Magnitudes hit (M 7.2) in 2005 followed by massive losses and severe economic losses. Complete loss & death occurred as a result of the collapse of non-structural structures, many of which occur as stone structures and thus further the issue. Unfortunately, the potential for earthquakes in developing countries like ours continues to grow because the key principles of building earthquake resistance and code guidelines issued by the BIS are often not adhered to. Definitions are ignorance, uncertainty of additional costs and will full negligence. New buildings can easily be made to withstand earthquakes, however, existing buildings need to be saved, including re-installation. The concept aims to fully study the existing structures of life (Health facilities, schools, etc.) in the Kashmir district and draw scientific and technological knowledge into structural assessment followed by adequate, easily accessible, economic reorganization measures. The aim is to add and build a user-friendly reusable structure, with completed high-quality Kashmir

Keywords
Seismic analysis, Earthquake, Retrofitting, Rehabilitation

1. INTRODUCTION
Previous earthquake statistics have shown us just how vulnerable buildings are in the Kashmir region. It also emerged that when people built houses they were unaware of the threats posed by the earthquake. It is seen in the records of earthquakes, people are unable to examine the basic meaning of the destruction of the earth. The 2005 earthquake shook Kashmiri`s loyalty to some buildings and completely destroyed the quake but much remained intact, with varying degrees of damage or minor damage. People living in moderately damaged homes are more likely to like the damage and continue to live in it. But those in the worst-affected homes often think that the farthest ones are being restored and want to demolish them and rebuild them. Kashmir has been experiencing earthquakes for some time during its evolution and can still do so. Our traditional construction of the Dhajji-Dewari and Taak earthquake-resistant earthquakes has long been a thing of the past and that has changed the timber that was once the core of concrete.

The findings of Chief scientist Roger Bilham of Colorado University have issued a stern warning of an earthquake in the Kashmir Valley. A GPS data scientist has suggested that the Magnitude 9 earthquake is most active in the Zanskar range. A scientist has suggested a significant loss of life if given the existing building codes. The reason he often suggests the loss of the lives of three lakh people in the Valley is his belief in the lack of security infrastructure available, the compliance with the code, the reduction of policies and the disaster risk reduction policies used.In such a system it is important for people living at this time to be part of the world in order to keep their homes safe and immovable. It is surprisingly easy and cheap to provide real antibodies to common earthquake operations in building appropriate resuscitation schemes. Naturally this study predicts tackling a tense and alarming problem of earthquake risk in Valley buildings with special care in Hospitals, Colleges and Intelligent Buildings given the 1.5 priority component of IS 1893.For this purpose, Govt. CD (Drogjan) Hospital Dalgate, Srinagar, is chosen because it did a great deal of damage to the construction of the previous earthquake. In this study the risk of the building was assessed and appropriate measures were taken to restructure the economy.

2. AIMS & OBJECTIVES
2.1 Aim
The main purpose of this concept is to analyse the structure of this structure in order to determine whether it is a desire to be strengthened with job revitalization strategies. Analysis will be available, exploitation, compulsory analysis, comparing targeted migration (expected movement of a building to detect an earthquake action) and therefore a building migration where its major members reach the burden of serious injury and imminent collapse, supported euro code. Target relocation should not be greater than the removal of these two boundary areas (near falls and key areas of injury) to ensure the safety of the building. If the comparison shows that the focus on migration is high, weak links within the institution should be identified and the appropriate re-insertion process should be used to promote earthquake morale.

2.2 Objectives
The reconstructed buildings transmit less air to the person and create a healthier and more comfortable environment.
Residential productivity is growing exponentially as there will be a healthier environment and improved IAQ. Also, it has been shown that absenteeism in the office is reduced by improved IAQ and will contribute to better productivity.
Climate change is a major source of pain worldwide. Generating energy from fossil fuels creates more toxic gases and pollutants in our environment.
The recycling will conserve natural resources, protect

biodiversity and the eco system, lower H2O pollution, and improve our air quality.
Retrofit measures to improve energy efficiency.

3. CONCEPT OF RETROFIT

In simple terms reassemble to add new technologies or features to older buildings. Earthquake is therefore a way to strengthen old or existing structures to withstand earthquakes. Reconstruction is therefore defined as the technology of fabric development and the construction process to extend its lifespan

4. LITRERATURE REVIEW

D Lakshmanan [1] developed data available mainly for non-linear activities, as well as the various frameworks available to measure the safety of seismic structures. It was emphasized that the existing process is very close, so improving the components of the high-level accuracy system would not have the best effect. The need to analyse the repair strategies that will be used to improve the seismic performance of reinforced concrete structures has been identified

Sudhir k. Jane et al. [2] proposed the concept of pushover analysis became a popular tool in the field of modern architecture, seismic analysis of existing buildings and to develop a suitable strategy for the reconstruction of earthquakes. shows how this Analysis method is often used to select strategies and techniques for using earthquakes.

Pradhan and Kondraivendhan [3] are considered to be the result of the closure of ferrocement in concrete conduct. The effect of the various levels of concrete combined with ferrocement was studied by keeping all the other parameters constant during the course of the investigation. The M25, M30, M35, M40, M45, M50 and M55 have a compressive strength of 25N / mm2 30 N / mm2, 35 N / mm2, 40 N / mm2, 45 N / mm2, 50 N / mm2 and 55 N / mm2, respectively. distributed 42 cylindrical specimens (21 each controlled and confined sample) with a diameter of 150 mm and a height of 900 mm, which are three models for each grade of concrete.

Sarvesh Kumar Jane [4] proposed the focuses on the functioning of the structure during the re-introduction of progress. Basically we see a general redesign process that requires preventing the use of the building during remodeling. within the paper available methods of recycling without affecting their daily functioning

Shailesh Ajarwal et al. [5] performed informal testing of the RC structure using a pre- and post-reconstruction method. The difference in the power parameters and the pushover curve is specified for the ductility extension. With regard to the consistency of the structure, it was noted that it remained the same until the point in the line, while in the non-linear section each point increased both in size and as a result the transformation after re-enlargement. The capacity of the structure has been compared to a shear base and a complete reinforcement of power after re-engineering.

5. METHODOLOGY

5.1 Government Chest Disease Hospital Dalgate, Srinagar

The hospital is mainly comprised of blocks like OPD ward, Emergency section, Surgery block, Isolation block etc. The blocks seem to be more than 50 years old and have become obsolete during the course of time. The administrative block is some what fine compared to other blocks of the hospital as shown in figure 1

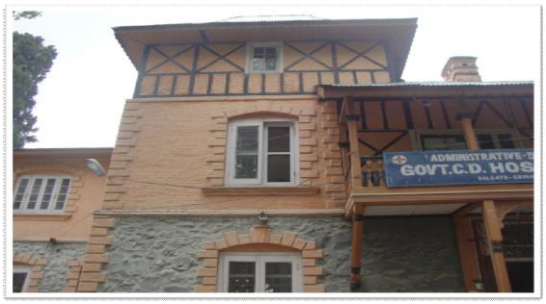

Figure 1: View of Govt. CD Hospital, Srinagar Kashmir

The preliminary inspection of the hospital was carried out visually and some information was gathered from the planning section of the hospital. The information gathered was used to depict earth quake vulnerability of the building.

5.2 Problems & Technical Solutions to These Problems

In the below table 1 dimensions of the wall are given. A large vertical crack about 5m is clearly visible. The wall comes under the category of grade 3 hence maximum sagging has taken place in the mid way section of the wall. The h/t and l/t ratios are also given in the table 1

Table 1: Showing h/t & l/t ratios

Thickness (t.)	Height (h.)	Length (l.)	h/t.	l/t.
320 mm	3.2 m	7.5 m	8	25.5

5.3 Problem 1: Large Vertical Crack at Mid-Way Section On the Wall

- **Illustration & Cause**

Cracks come under the 3rd grade of cracks i.e. its diameter is 5-10 mm. Cracks are located in the middle of the wall and are connected from the roof to the plinth. The walls are thought to have behaved like a permanent beam since it was erected on the corners and other walls, which is why a high slope has occurred in the middle part of the wall.

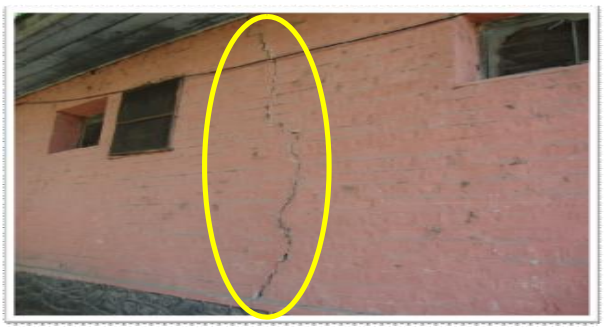

Figure 2: G3 Crack in wall

5.4 Remedial Retrofitting Measures

- A V notch is to be made through the crack and then cleaned with wire brush.
- The fine and the loose particles inside the crack need to be removed by jet of water.
- A masonry surface 200mm wide is to be prepared on the both faces of the wall. The plaster is removed and

ferrocement splices are added in the crack. The joints are raked upto a depth of 12mm and cleansed with water.

- The crack is then filled with 1:3 cement mortar with sufficient mortar to move as far as possible.
- Insert 150mm wide gauge galvanized mesh with 100mm ling wire nails at spacing not greater than 300mm in a lurched manner.
- The gap between mesh and unplastered wall should be 10mm.
- The mesh is to be plastered with 12mm coats of 1:3 cement plaster.
- Curing for a period of 15 days.

5.5 Problem 2: Grade 1 Crack Comprising the Building

- **Illustration & Cause**

The type of cracks fall under Grade 1. These cracks are usually less than 1mm wide which is why they are large and measured in length as shown in Fig. 3.

The reason for this crack is that the walls are fixed. with walls adjacent to the corners. When an earthquake occurs it is associated with walls which ihs why the part that is not in the corner will move too much and cause a vertical crack near the wall section. If the wall is too high an earthquake can create vertical cracks and a horizontal surface

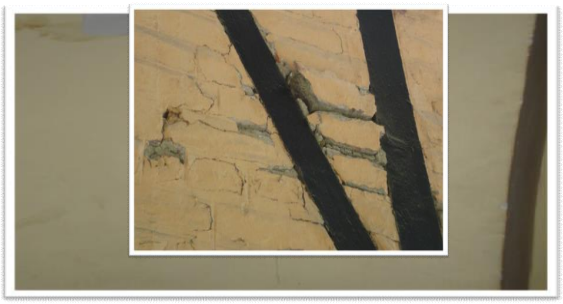

Figure 3: Distress fine crack

5.6 Remedial Retrofitting Measure

- A V notch is to be made along the length of the crack.
- The crack is to be cleaned with a wire brush
- The gap formed is to be filled with 1:3 cement mortar.
- The restored part is finished with the surrounding wall surface
- Cure for 7 days.

5.7 Problem 3: Most Possible Pounding Effects between Two Joint of the Building

- **Illustration & Cause**

A small corner corner is built next to the old part of the building. A member is provided to separate the two buildings but a space to avoid beatings has not been provided. The roof level of the newly constructed section was on the walls of the old part, under such conditions a strong blow could cause extensive damage during an earthquake.

5.8 Remedial Retrofitting Measure

The most likely remediation step is to remove the vertical brick wall between the two internal structures in order to overcome

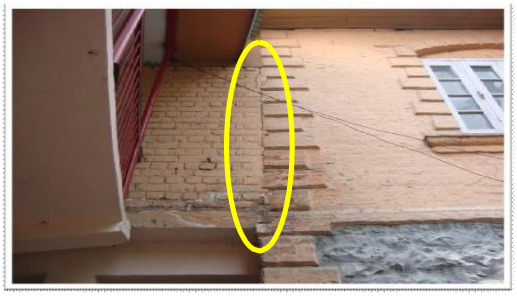

Figure 4: Possibility of Pounding

the impact force. In order to take precautionary measures, more than one brick should not be removed and the integrity of the structure maintained.

5.9 Problem 4:- Defilement to Infill in Dhaj Ji Brick Walls

- **Illustration & Cause**

There were numerous places where infill dhajji walls were damaged. The infill bricks had come out
at many places as shown fig 5. Damage to these infill dhajji walls is because of possible energy dissipation during an event of an earth quake.

Figure 5: Damage to infill walls

5.10 Remedial Measure

The damaged infill should be replaced new infill bricks**.**

6. SUMMARY

The main purpose of this concept is to transform an existing structure and thus make it more sensitive to earthquakes and to make it more resistant to soil failure, earthquakes etc.The recycling strategies described above also apply to other natural disasters such as hurricanes, lightning, thunderstorms, storms, hurricanes and more. Current land reclamation mainly affects the sand that develops the structure to reduce the risks of earthquakes. It should also be borne in mind that there is no so-called ground-resistant structure only repairs are made to reduce the size of the building. The point is that a building, while remaining safe to move out, may need a major overhaul (but not a replacement) before it can generally be used or considered safe to occupy. The main purpose is to protect human health, to ensure that the building does not collapse, and that the building can be safely exit. Under severe earthquake conditions the building can be completely demolished economically, which needs to be demolished and renovated.

7. CONCLUSION

This study shifts significantly to the various forms of stone failure and cracking and Dhajji Dewar of Govt CD Hospital. However the most advanced techniques are available these days

such as polymer reinforced paint, earthquake wallpaper, aramidic reinforced polymer, carbon-reinforced polymer etc. Kashmir has a way of melting penny into advanced construction which is why people cannot use such techniques for recycling. On the other hand, methods that are easy to define in mind require locally available equipment. A typical worker or builder in Kashmir can do comparable work using these methods. In addition the concept aims to provide cost-effective recycling strategies and provide effective design for these inexpensive recycling methods.It is also hoped that the content presented in this concept will bear fruit in increasing the understanding of the development of seismic engineering problems related to land use and land use rehabilitation.

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