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The Most Effective Strategy for Improving Safety Is To Prevent Accident

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ABSTRACT
India is supposed to record the secured economic growth among the 132 countries survey done by FocusEconomics above the next five years. The structures of a nation represent hugely of its economics. The new developments in structures are in peak of India, modern complicated creative structural design projects getting involved in construction industries to develop the nation. The number of projects, and the system of making structures, as fast as required are making compilations. This is a pressure in engineers to identify the critical geometrical errors of designs to avoid mistakes during construction. The solution for increasing the strength of structure, as well as containing the actual beauty of design is, priority.
The engineers are forced to take a position on the play between the language of structure and the language of skin. It is a literarily scientific critical investigation for engineers to identify the role of innovative construction materials and technology in the developing modern architecture and make new developments in structure design and provide economic justification to the improvement suggested by government.

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I. INTRODUCTION

A. General

Globally speedy and unplanned development has led to a huge increase in the quantity of motor vehicles. In general, the evaluation and modernization of public transport structure have not retained step with the urbanization. As an outcome, use of individual vehicles and halfway public transport, mostly three wheelers are increasing. Globally the alarming growth in morbidity and impermanence due to road traffic misfortune is matter of considerable concern. Along with the growing road traffic strength, the problem of road traffic welfare is becoming more major need further observation from all the organizations. Road traffic accident victim rates are higher in growing countries like India as compared to developed countries. India report for about 5 lakh highway accidents yearly, one of the highest in the earth, in which about 1.5 lakh human died and another 3-lakh become desable. The main factors are human misconception, driver exhaustion, faulty traffic sense, mechanical fault of automobile, speeding and overtaking breaking of traffic law, poor road state, traffic overcrowding, road structure encroachment etc.

B. Objective

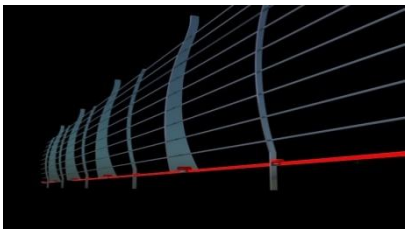
The general objective of a new research is the development, demonstration and validation of a new generation of road barriers and restraint systems, combining different materials, to allow a multi-stage deformation actions in order to improve the reaction of barriers in case of accident with both light vehicles and heavy ones. The analysis can also develop and test creative uses and purpose for road structure devices: in specific, the implant wireless detector and other ITS products, with the aim to an advanced facilitate infrastructure for independent vehicle instruction, pre-crash details (or other on-board welfare systems), I2V and V2I transmission, as well as the details about state of the barrier itself and its preservation needs.

II. MATERIAL USED

The following material are used for prevent road accident.
In purpose to finding techniques in recycling and reusing old high-quality materials and make good structures by applying them, we made a research and found few high-quality materials which is low maintenance, easily available, durable but cheap waste in industries.

The new high tension barrier structure is designed with reusing and recovery of valuable waste cable from all sorts of power transmission of overhead powerline.
Length of cable: 3 meters
Height of post 1: 2 meters
Width of post 1: 0.25m

Height of post 2: 1.5 meter
Width of post 2: 0.5m

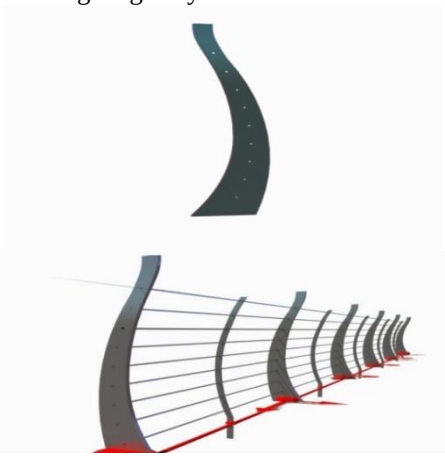


A. Cable

High voltage electrical power supply cable is extreme expensive to waste. The Power station management have to replace the whole cable in any minor working problem. The cables are strong enough to reuse in construction industries. The power station unintentionally produces highest cable waste. Reusing system is simple and low cost as compared to recycling process. The overhead powerline cables have the high-quality strength to avoid breakage in natural disaster but after getting waste due to not having able to supply power, we can reuse cables in different structures as a material to reduce cost.

B.Metal Beam Post

The basic metal beam post with different design including 30° curve from upper side of post in purpose of safety which can give low chances to break the post attachment in any heavy crash contacts. It will also help small cars to stop falling from hill and bridge highways.



As data of our research test in different barriers, the safety performance of basic metal beam post is highly strong and safe to merge with the waste high tension cables of power stations. Metal beam post will make the barrier stronger.

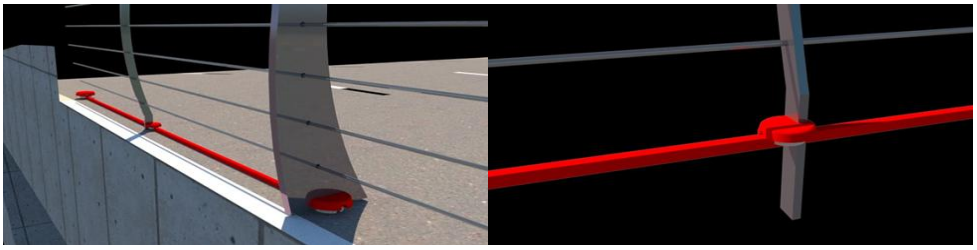
Build. Mater. 2017, 151, 591–606.
14. Development and Guidelines for Cable Median Barrierin Texas; Texas Department of Transportation: Austin, TX, USA,20

PROCEDURE
MATERIALS
-WASTE CABLE FROM POWER STATION
-METAL POST
-WELDING MACHINE

-BOLTS
-COSTAMIZED IRON PLATE AND ROD
- ZWICKROELL BENDING TESTING STAND

III. INSTRUCTIONS

1.Do cable observation and visual test, this is important before applied to post and it is very effective and cheap.
2. Monitor the vibration response of cable and compare it to theoretical dynamic results, defect in the cable wire can be assessed.
3. For lab specimens testing, equipped the cable with a displacement transducer in the middle of the span. fix the inductive transducer to a spreader beam and move it during the test. In this way, measured the deflection of the cable wire in the middle of the span relative to the loading pins. calculated the displacements as uf − ui.
4. Put the circle iron plate horizontally join the rods below the plate with the help of welding machine. Make threaded hole for post joinery.
5. Fix the rods under the roads while construction make sure the threaded holes to be visible.
6. For metal beam post add 30° curve from upper side while manufacturing.
7.Join the cable to post through welding in distance of 18cm.
8. make holes in lower side of the metal post in purpose to join with underground supporting rods.
9. Join post with underground rods before fixing, to make sure all threaded holes of post and underground rod are facing each other equally.
10. Now join the supporting underground rods to metal beam post with the help of bolts.



11. Practical experiment after making barrier

Barrier type	Impact speed (Km\ hr)	Impact angle (degree)	Instrumented vehicle
Wire rope barrier	80	45°	yes
Wbeam barrier	110	20°	yes
Concrete barrier	110	45°	yes
Pipe fence barrier	80	45°	yes
New cable barrier	80	45°	yes
New cable barrier	110	20°	yes

IV. RESULT

The energy dissipated is calculated on the basis of the vehicle's measured exit speed after impact with the barrier. this energy is integrating total energy immoderate by the car and the barrier, the respective separate amounts of energy dissipated by the crushing of the car and the deformation of the barrier were not estimated.

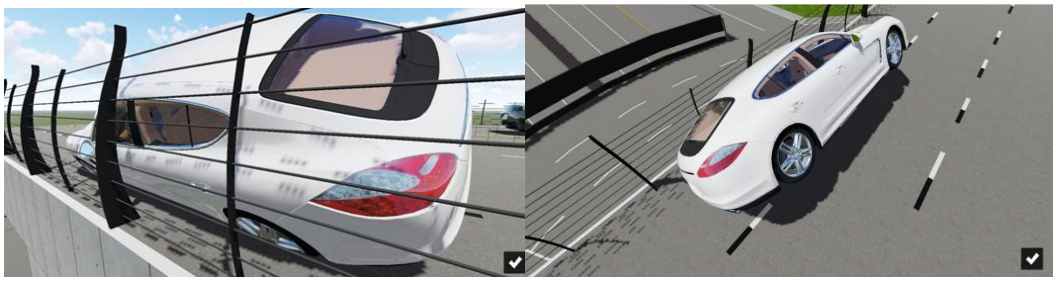
	Concrete barrier Crash result	Wbeam Crash results	Wire barrier Crash result	New barrier Crash result	
Impact speed km\hr	81	82	72	78	
Impact angle degree	45	45	45	45	
Total kinetic impact	315	323	249	292	
Kinetic energy towards barrier	158	162	124	146	
Vehicle rollover	yes	no	no	no	
Occupant Injury risk and roll over outcomes	Extremely high non survivable due to crash	Low	Low	Medium survivable	

1. Overall the high-tension cable barrier system seems to provide the best protection for small and heavy vehicles in barrier crashes. Test outcome shown a low occupant injury risk for both experiment, and good energy immoderation over a small departure.
2.Concrete barriers while providing good containment of errant vehicles are overly severe in terms of risk of injury to the occupants of heavy vehicles that crash into them at angles greater than 20 degrees.
3. The performance of Wbeam barriers installed in roadways where the posts are fixed into the paved surface may present a rollover hazard to heavy vehicles impacting them at high speeds of around 100 km/hr at angle of 200.

V. CONCLUSION

New high-tension barriers are developed for the anchorage of cable barrier systems. New Cable release posts are used to individually anchor each cable to attached in detailed. This approach allows the system to accommodate high initial tension, which helps reduce barrier deflections during an impact. The cable release movement has been tested. maintenance costs are reduced when recycled cables is provided.

The longer engagement of the cables with the posts provided by welding the further reduces barrier deflections in highway impacts. The new high-tension cable may expand the potential application for cable barrier. If an existing barrier is upgraded with the new terminal, similar improvement in performance may be expected.



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