



Mob : 9492032099  
Email : rkunapareddy@yahoo.com  
Telefax: 23156110  
Off : 23158661 to 664, Ext: 1150

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY**  
***Bureau of Industrial Consultancy services (BICS)***  
( Formerly Bureau of Industrial Consultancy and Research & Development) (BICARD)  
Kukatpally, Hyderabad – 500 085

**Dr.K.RAMA MOHANA RAO**

B.Tech (Civil) M.Tech (Struct), M.S., (Softwares)  
Ph.D.(I.I.T.D.), MIE, MISTE, MICI

Date: 23.12.13

**Professor of Civil Engg. & DIRECTOR**


To  
The Principal  
DAV School,  
Vivekananda Nagar,  
Hyderabad.  
Sir,

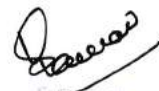
Sub: JNTUH – BICS – Test report regarding the structural stability of DAV School Building,  
Vivekanandnagar, Hyderabad - Reg.

Ref: On request by Phone Dated: 16-12-2013

\* \* \*

As per the reference cited above, JNTUH, BICS team comprising of Dr.K.RamaMohanaRao, Director, BICS, JNTUH, Dr.V.Venkateswara Reddy, Co-ordinator, BICS, JNTUH and technical staff were visited the above said site on dt.19.12.13 and tested the Junior Civil Judge Court Building with rebound hammer and UPV test .The test results are herewith enclosed.

  
**MANAGER**  
**D.A.V. PUBLIC SCHOOL**  
**VIVEKANANDA NAGAR,**  
**KUKATPALLY, HYDERABAD-500 072**

  
**PRINCIPAL**  
**D.A.V. PUBLIC SCHOOL**  
**Vivekananda Nagar Colony,**  
**Kukatpally,**  
**HYDERABAD-500 072**

  
**DIRECTOR**  


## **Stability Report of Junior Civil Judge Court Building and Judge Quarter in Kodad**

### **1. INTRODUCTION:**

On the request from the Deputy Engineer, R&B, Hyderabad concerned to DAV School experts from BICS, JNTUH, Hyderabad Prof.K. Rama Mohana Rao, Prof. V. Venkateswara Reddy and Raju visited the site of the DAV School Building at Vevekanand Nagar, Hyderabad. On enquiry it is found that the age of the structure is about 25 years. Based on the visual inspection, Cracks in the walls, and corrosion of reinforcement is observed in the Slab, Beams and Columns .Hence it was decided to do the non-destructive testing of the structure.

### **2. Salient Features of Court Building:**

- Period of construction : 1988-1990
- Framed Structure
- Type of foundation: Isolated Footing
- Date of Inspection : 19.12.2013

### **3. PHYSICAL OBSERVATIONS**

1. Cracks observed in the wall and column joint.
2. Water stagnation marks on the roof.
3. Debris on the roof and sunshades
4. Blocking of rain water pipes

### **4. Non-Destructive tests:**

The following Non-Destructive Tests were conducted to ascertain the present strength of the structure.

- a. Rebound Hammer Test.
- b. UPV Test

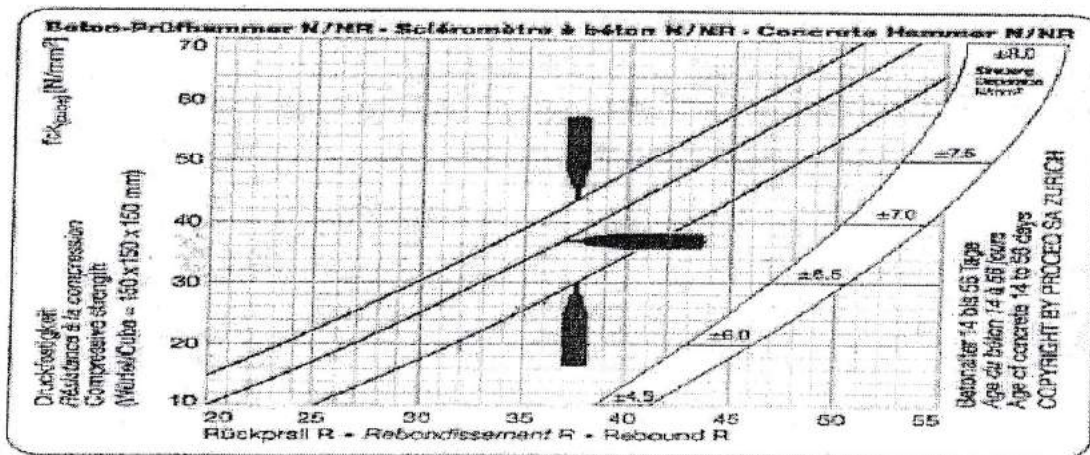
The results and observations of the test results are enclosed as under:

- a. **Rebound hammer test:**

Rebound hammer test is done to find out the compressive strength of concrete by using rebound hammer as per IS: 13311 (Part 2) – 1992. The underlying principle of the rebound hammer test is as follows:

The rebound of an elastic mass depends on the hardness of the surface against which its mass strikes. When the plunger of the rebound hammer is pressed against the surface of the concrete, the spring-controlled mass rebounds and the extent of such a rebound depends on the surface hardness of the concrete. The surface hardness and the rebound value are taken to be related to the compressive strength of the concrete. The rebound value is read from a graduated scale and is designated as the rebound number or rebound index. The compressive strength can be read directly from the graph

The typical graph for rebound hammer for the 3 directions of testing is given below:



The graph of the instrument is on the instrument itself.

Depending on the direction of testing the estimated compressive strength is calculated from the respective graph.

In case of columns and beams the testing is carried out by placing the Rebound hammer horizontally (perpendicular to the face of concrete) and in case of slabs (when tested from bottom) the Rebound Hammer is placed vertically upwards. Respective graph is used to ascertain the compressive strength of concrete.

**Interpretation of results:** Normally a minimum of 10 results are taken on a particular member at a specified location. The rebound hammer readings (called "R Value") are tabulated member wise.

*[Signature]*  
MANAGER  
D.A.V. PUBLIC SCHOOL  
VIVEKANANDA NAGAR,  
KUKATPALLY, HYDERABAD-500 072

*[Signature]*  
PRINCIPAL  
D.A.V. PUBLIC SCHOOL  
Vivekananda Nagar Colony,  
Kukatpally,  
HYDERABAD-500 072

The average of each group is first calculated. In case any particular R value in the group varies more than 5 units, the said values are discarded and then the Average R Value is calculated. With the average R value the strength and quality of concrete is estimated.

The tests were conducted by Schmidt Rebound test Hammer manufactures by M/s Schmidt, Switzerland (year of manufacture: Sept., 2009). All results are interpreted from the graphs provided by the Manufacturer.

**b. Ultra Sonic pulse velocity test:**


Ultra-Sonic pulse velocity tests are conducted on concrete structures to qualitatively access the concrete and to determine presence of any voids, cracks and other imperfections in concrete. In Ultra-sonic testing low frequency ultra sonic waves are transmitted through the concrete by the transmitter and are received at the other end by the receiver. The time taken by the pulse is measured and with the information of the thickness of concrete the instrument provides the velocity of the sound wave in Km/sec or m/sec. Based on the Pulse Velocity the quality of concrete is classified as per


IS Code: 13311 (Part 1) – 1992. The classification as per IS code is as under:

Classification as per IS 13311 part 1		
	Pulse Velocity (km/sec)	Concrete Quality grading
1.	Above 4.50	Excellent
2.	3.5 - 4.5	Good
3.	3.0 - 3.50	Medium
4.	Below 3.0	Doubtful

UPV results provide the information on quality of the core concrete.

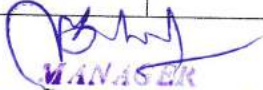
<b>Column</b>				
1. Room No.30 (VIII /C) (350 x 380mm)	3.967 Km/sec		39	
2 Room No.30 (VIII /C) (350 x 380mm)	3.901 Km/sec		34	
3 Room No.30 (VIII /C) (350 x 380mm)				
Corridor	3.567 Km/sec		36	
4. Room No.29 (VIII /C) (350 x 380mm)				
Corridor	3.666 Km/sec		35	
<b>BEAM</b>				
1. Room No.28 (VII/A) (230 x 600 mm)	4.001 Km/sec		36	
2. Room No.28 (VII /A ) (230 x 600 mm)	4.019 Km/sec		38	
<b>iii Column (350 x 380mm)</b>				
1. Room No.31 Computer lab	3.592 Km/sec		36	
2 Room No.31 Computer Lab	3.926 Km/sec		37	
3. Room No.31 Computer lab -Corridor	4.007 Km/sec		31	
4. Room No. 31 Computer Lab -Corridor	3.456 Km/sec		30	
<b>BEAM</b>				
1. Room No.28 (VII/A) (230 x 600 mm)	4.001 Km/sec		36	
2. Room No.28 (VII /A ) (230 x 600 mm)	4.019 Km/sec		38	
<b>II Second Floor-</b>				
<b>SOUTH WING</b>				
<b>i. Column</b>				
1. Room No. 32 Library (350 x 380mm)	3.141 Km/sec		31	
2. Room No. 32 Library (350 x 380mm)	3.345 Km/sec		32	
<b>BEAM</b>				
1. Room No. 32 Library	3.326 Km/sec		35	
2. Room No. 32 Library	3.267 Km/sec		36	
<b>ii Column</b>				
1. Room No.34 IX A (350 x 380mm)	3.425 Km/sec		31	
2 Room No.34 IX A (350 x 380mm)	3.592 Km/sec		34	
3 Room No.34 IX A (350 x 380mm)				
Corridor	3.392 Km/Sec		35	
4 Room No.34 IX A (350 x 380mm)				
Corridor	3.366 Km/sec		36	
<b>BEAM</b>				
1. Room No.34 IX A (230 x 600 mm)	3.72 Km/sec		37	
2. Room No.34 IX A (230 x 600 mm)	3.24 Km/sec		38	
<b>iii Column</b>				
1. Room No.35 IX B (350 x 380mm)	3.590 Km/sec		39	
2. Room No.35 IX B (350 x 380mm)	3.424 Km/sec		38	
3. Room No.35 IX B (350 x 380mm)				
Corridor	3.245 Km/Sec		30	
4. Room No.35 IX B (350 x 380mm)				
Corridor	3.556 Km/sec		31	
<b>BEAM</b>				

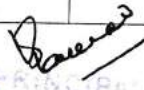
  
**D.A.V. PUBLIC SCHOOL**  
**VIVEKANANDA NAGAR,**  
**KUKATPALLY, HYDERABAD-500 072**

  
**PRINCIPAL**  
**D.A.V. PUBLIC SCHOOL**  
**Vivekananda Nagar Colony,**  
**Kukatpally,**  
**HYDERABAD-500 072**

	4. Room No.22 (VI D) -(350 x 380mm)	3.789 Km/sec		35	
	Corridor				
	<b>BEAM</b>				
	1. Room No.21 (VI C) -230 x 600 mm)	3.576 Km/sec		31	
	2. Room No.18 (VI C) -(230 x 600 mm)	3.678 Km/sec		39	
	<b>West Wing Column</b>				
	1. Room No.24 (VII A) -(350 x 380mm)	4.012 Km/sec		39	
	2. Room No.24 (VII A) -(350 x 380mm)	4.112 Km/sec		40	
II	<b>Column</b>				
	1. Room No.25 (VII B) -(350 x 380mm)	4.112 Km/sec		34	
	2. Room No.25 (VII B) -(350 x 380mm)	4.012 Km/sec		35	
	<b>BEAM</b>				
	1. Room No.25 (VII B) (230 x 600 mm)	3.592 Km/sec		37	
	2. Room No.25 (VII B) -(230 x 600 mm)	3.604 Km/sec		34	
III	<b>Column</b>				
	1. Room No.26 (VII C) (350 x 380mm)	3.752 Km/sec		37	
	2. Room No.26 (VII C) -(350 x 380mm)	3.694 Km/sec		36	
	<b>BEAM</b>				
	1. Room No.26 (VII C) (230 x 600 mm)	3.692 Km/sec		34	
	2. Room No.26 (VII C) (230 x 600 mm)	3.707 Km/sec		35	
	<b>Column</b>				
	1. Room No.28 (VII/A) (350 x 380mm)	3.40 Km/sec		30	
	2. Room No.28 (VII/A) (350 x 380mm)	3.502 Km/sec		34	
	3. Room No.28 (VII/A) (350 x 380mm)				
	Corridor	3.600 Km/sec		39	
	4. Room No.28 (VII/A) (350 x 380mm)				
	Corridor	3.492 Km/sec		35	
	<b>BEAM</b>				
	1. Room No.28 (VII/A) (230 x 600 mm)	3.542 Km/sec		34	
	2. Room No.28 (VII /A ) (230 x 600 mm)	3.562 Km/sec		35	
	<b>North Side Wing</b>				
	<b>i. Column</b>				
	1. Room No.29 (VIII /B) (350 x 380mm)	4.191 Km/sec		34	
	2 Room No.29 (VIII /B) (350 x 380mm)	4.100 Km/sec		35	
	3 Room No.29 (VIII /B) (350 x 380mm)				
	Corridor	4.196 Km/sec		37	
	4. Room No.29 (VIII /B) (350 x 380mm)				
	Corridor	3.592 Km/sec		30	
	<b>BEAM</b>				
	1. Room No.28 (VII/A) (230 x 600 mm)	4.019 Km/sec		30	
	2. Room No.28 (VII /A ) (230 x 600 mm)	4.522 Km/sec		34	


<b>CAM</b>				
	1. Room No.18 (V D) -(350 x 380mm)			36
	2. Room No.18 (V D) -(350 x 380mm)			30
<b>II</b>	<b>Column</b>			
	1. Room No.23 Chemistry Lab	3.678 km/sec		31
	2. Room No.23 Chemistry Lab	3.902 Km/sec		34
	3. Room No.23 Chemistry Lab	3.909 Km/sec		35
	(Corridor Side )			
	4. Room No.23 Chemistry Lab	3.514 km/sec		33
	(Corridor Side )			
<b>II</b>	<b>Column</b>			
	1. Room No.19 (VI A) -(350 x 380mm)	3.459 Km/sec		36
	2. Room No.19 (VI A) -(350 x 380mm)	3.501 Km/sec		37
	3. Room No.19 (VI A) -(350 x 380mm)	3..427 Km/sec		32
	Corridor			
	4. Room No.19 (VI A) -(350 x 380mm)	3.904 Km/sec		39
	Corridor			
<b>V</b>	<b>Column</b>			
	1. Room No.20 (VI B) -(350 x 380mm)	3.672 Km/sec		30
	2. Room No.20 (VI B) -(350 x 380mm)	3.527 Km/sec		34
	3. Room No.20 (VI B) -(350 x 380mm)	3.459 Km/sec		36
	Corridor			
	4. Room No.20 (VI B) -(350 x 380mm)	3.6154 Km/sec		30
	Corridor			
	<b>BEAM</b>			
	1. Room No.18 (V D) -230 x 600 mm)	3.972 Km/sec		30
	2. Room No.18 (V D) -(230 x 600 mm)	3.992 Km/sec		34
<b>V</b>	<b>Column</b>			
	1. Room No.21 (VI C) -(350 x 380mm)	3.998 Km/sec		32
	2. Room No.21 (VI C) -(350 x 380mm)	3.667 Km/sec		31
	3. Room No.21 (VI C) -(350 x 380mm)	3.604 Km/sec		42
	Corridor			
	4. Room No.21 (VI C) -(350 x 380mm)	3.742 Km/sec		40
	Corridor			
	<b>BEAM</b>			
	1. Room No.21 (VI C) -230 x 600 mm)	3.576 Km/sec		31
	2. Room No.18 (VI C) -(230 x 600 mm)	3.678 Km/sec		39
<b>/I</b>	<b>Column</b>			
	1. Room No.22 (VI D) -(350 x 380mm)	3.659 Km/sec		31
	2. Room No.22 (VI D) -(350 x 380mm)	3.660 Km/sec		34
	3. Room No.22 (VI D) -(350 x 380mm)	3.761 Km/sec		34
	Corridor			

  
**W. ANAS**  
**D.A.V. PUBLIC SCHOOL**  
**VIVEKANANDA NAGAR,**  
**KUKATPALLY, HYDERABAD-500 072**

  
**PRINCIPAL**  
**D.A.V. PUBLIC SCHOOL**  
**Vivekananda Nagar Colony,**  
**Kukatpally,**  
**HYDERABAD-500 072**

1.	Column				
	1. Room No. 8				
	Stock Room (outer side)	3.576 Km/sec		34	
	2. Room No. 8				
	Stock Room (outer side)	3.672 Km/sec		32	
2	Column (350 x 380 mm )	4.47 Km/sec		38	
	V (A) (5)				
3	Column (350 x 380 mm )	4.563 Km/ sec	Excellent	40	42
	Starts Room (Room No. 7)				
4	Column				
	V class A (5) class	3.95 Km/sec	Good	39	41
5	Column (350 x 380 mm)	4.274 km/sec	Excellent	39	41
	West Side near IV D Room				
6	Column (350 x 380 mm)	4.62 Km/ sec	Excellent	39	41
	West wing near IV A Room				
7	Recently construction -4 year				
	North wing- Stage platform				
	column -(230 x 480 )mm	3.55 km /sec	Good	25	17
8	Column- (230 x 480) mm	3.81 km/sec	Good	35	33
9	Core Room -End Column	4.21 km/ sec	Excellent	30	25
	Back side ( South side corner )				
10	Back side -End Column	4.38 km/ sec	Excellent	37	37
	Location-Medical Room				
11	Beam (230 x 600mm)				
	V Class Room			43	39
12	West Wing -Guest House				
	Back side Room No-15				
	Near stair case column	3.031Km/ sec	Good	37	37
13	COLUMN				
	1. Room No.11 (IV C) -(350 x 380mm)	3.574 km/sec		38	

Room No.35 IX B (230 x 600 mm)	3.910 Km/sec		31	
Room No.35 IX B (230 x 600 mm)	3.890 Km/Sec		42	
<b>iv Column</b>				
1. Room No.37 (350 x 380mm)	3.590 Km/sec		39	
2. Room No.37 (350 x 380mm)	3.424 Km/sec	Values not given	38	
3. Room No.37 (350 x 380mm)	3.424 Km/sec			
4. Room No.35 IX B (350 x 380mm)	3.424 Km/sec			
<b>WEST WING</b>				
<b>i. Column</b>				
1. Room No. 39 IX D (350 x 380mm)	3.451 Km/sec		34	
2. Room No. 39 IX D (350 x 380mm)	3.462 Km/sec		35	
3. Room No. 39 IX D (350 x 380mm)	3.724 Km/sec		36	
<b>ii Column</b>				
1. Room No.44 XI (350 x 380mm)	3.392 Km/sec		30	
2 Room No.44 X I (350 x 380mm)	3.426 Km/sec		31	
3 Room No.44 XI (350 x 380mm)				
Corridor	3.512 Km/Sec		32	
4 Room No.44 XI A (350 x 380mm)				
Corridor	3.917 Km/sec		39	
<b>iii Column</b>				
1. Room No.44 XI (350 x 380mm)	3.329 Km/sec		31	
2. Room No.44 XI (350 x 380mm)	3.429 Km/sec		32	
3. Room No.44 XI (350 x 380mm)				
Corridor	3.529 Km/Sec		34	
4. Room No.44 XI (350 x 380mm)				
Corridor	3.602 Km/sec		39	
<b>iv Column</b>				
1. Room No.45 XII (350 x 380mm)	3.702 Km/sec		34	
2. Room No.45 XII (350 x 380mm)	3.412 Km/sec		35	
3. Room No.45 XII (350 x 380mm)	3.516 Km/sec		30	
4. Room No.45 XII (350 x 380mm)	3.810 Km/sec		39	
<b>BEAM</b>				
1. Room No.45 XII	3.414 Km/sec		32	
2. Room No.45 XII	3.414 Km/sec		34	
<b>Second Floor (West Wing)</b>				
Location- Near Stair case				
Column -(350 x 380 )mm	4.160 km/ sec	Good	38	39
Location - Room No-43 X D				
North End column				
Column- (350 x 380 )mm	3.54km/sec	Good	24	16
<b>2nd Floor Roof Slab</b>				

  
**D.A.V. PUBLIC SCHOOL**  
**VIVEKANANDA NAGAR,**  
**KUKATPALLY, HYDERABAD-500 072**

  
**PRINCIPAL**  
**D.A.V. PUBLIC SCHOOL**  
**Vivekananda Nagar Colony,**  
**Kukatpally,**  
**HYDERABAD-500 072**

1	North side Corner	2.99 km/ sec	Doubtful	27	25
2	South side corner	3.72 km / sec	Good	32	33

Based on the above physical observations and test reports the building is suitable for use. As per your request you can add a light weight roof truss on the top floor by using light weight aerated bricks for partition and end walls.

In case of any clarifications please do contact us. Thanking you and assuring you of our best services.

Yours faithfully,

  
DIRECTOR, BICS