Er. HARJINDER SINGH BHATIA
B.E, C.E (I), M.I.E, F.I.V
Government Approved Valuer, Loss Assessor & Chartered Engineer

S.C.O. 292, First Floor, Sector 35
Chandigarh-160035

Chartered Engineers

Approved By Govt. of India & Ministry of Finance
Certified Structural Auditor

STABILITY CERTIFICATE (FORM NO. 1-F)

Ref: CVCE: J23SGNS

Date: 07-07-2023

This is to certify that, as per request received from the client; I have Physically visited, inspected the spot, examined & verified the present condition of the building described below.

I am satisfied that method used in its construction, finished building is as per building bye laws & such that it's Stability will be satisfactory when used according to design and descriptions.

The structural Assessment was done in following parts,

* *Visual Survey, which gives the idea of current condition of existing structural element and Distressed area.*
* *Non Destructive Testing's which gives the idea of current condition and strength of the existing structural members and materials.*

1	**School Name**	Guru Nanak Khalsa Sr. Sec. School
2	**School ID**	23018
	Affliation No	263003
3	**School category** (Pre-Primary - A, Primary- B, Secondary – C, Higher secondary – D)	C/Secondary
4	**Address**	Sector 30 B, Chandigarh
5	**GPS Coordinates of School**	
	Latitudes:	30°42'56.66868"
	Longitudes:	76°47'28.36752"
6	**Communication System**	
	a) Telephone	0172-2654693
	b) Fax	0172-5030579
	c) Internet / Email	gurunanak_30b@rediffmail.com
7	**School Area**	
	a) Plot Area:	27937.963 Sqyd
	b) built up Area	33740 Sqft
8	**Number of (indicate as per shift)**	Single Shift
a)	**Pupils**	1800

Chartered Valuers
Er. Harjinder Singh Bhatia
B.E. (CIE/FIV)
Chartered Engineer (India)
Govt. Approved Valuer (u/S 34AB)

b)	**Teachers**	54
c)	**Other Staff**	18
d)	**Physically challenged staff**	NIL
9	**Number of Rooms**	
a)	**Class Rooms**	45
b)	**Other Rooms**	18
10	**Passage and Veranda**	
a)	**Width of Passages (Less than 1.5m)**	2 Mtr
b)	**Veranda Area (In m2)**	
11	**Width of Stair flight (m)**	2.15 Mtr
12	**Number of Exit**	Three
13	**Compound Wall (Yes/No)**	Yes
	Height/Type of wall	7 Ft High /9" Thick Rrick Wall in CS Mortar, plastered from inside
14	**Year of Construction**	
15	**Plan shape : U Shape (Site views/detail attached)**	
16	**Number of storeys :**	Maximum to G+2
a)	**Basement (Yes / No)**	NO
b)	**Storeys**	
	Two Block	G+1
	One Block	G+2
c)	**Mezzanine (Yes / No)**	NO
17	**Typical storey height (m)**	3.7 Mtr
18	**Stilt at Ground floor: (Yes/No)**	NO
19	**Type of load carrying system :** **a)** Stone Masonry Bearing walls **b)** Brick Masonry Bearing walls **c)** RCC Frames **d)** Steel Structure **e)** Other (elaborate)	Conventional load bearing brick wall structure supported on RBC Coloumns & RCC Beams/Lintels with concrete slab flooring/roofing over.
20	**Partition walls :** Reinforced concrete/ Wood/ Masonry/ Mixed/ Other(Specify)	9" Thick Brick Wall in CS Mortar

Chartered Valuers
Er. Harjinder Singh Bhatia
B.E. (MIE/FIV)
Chartered Engineer (India)
Govt. Approved Valuer (IPS 34AB)

21	**Floor slabs :** Reinforced concrete / Wood/Other(Specify)	Reinforced Concrete Slab with tile terracing over
22	**Floor Finish:** Wood/ Ceramic/ Mosaic /IPS/ Other(specify)	CC Flooring inside Class rooms & Kota/Marble tile flooring at admnistrative/office block
23	**Roof :** Reinforced concrete flat roof/ Reinforced concrete sloping roof/Wood/Asbestos/Metal sheets/ Other(Specify)	6" Thick Reinforced concrete flat roof with waterproofing and tile terracing.
24	**Seismic/other disaster safety features in the building(in case of masonry)**	Building seems to possess the entire four main attributes, namely simple and regular configuration, adequate lateral strength, stiffness and ductility as per IS 1893 (2002): Criteria for Earthquake Resistant Design of Structure. Buildings as inspected had simple regular geometrical shape and uniformly that could distribute mass and stiffness in plan as well as in elevation.
	a) Proper framing grid of more than 3 frames of min 3 bays each in both direction b) Max cantilever projection (m) c) Any floating columns? If yes, give details	Building supported on RBC columns and RCC framed beams in both direction.No floating coloumn/projection seen
25	**Quality of Building** **Workmanship** **Maintenance** **Grade on a scale of 5, (5 for excellent and 1 for poor)**	 Good Good 4

26 Methodolgy Adopted

After undertaking Rapid Visual Screening (RVS) assesment along five domains (namely siting, architectural form, structural system, material condition, and construction details), structure was put under Non Destructive test randomly .

Chartered Valuers
Er. Harjinder Singh Bhatia
B.E. (Civil)
Chartered Engineer (India)

Hammer test was performed to check surface hardness and estimated strength of RCC slab & RCC Columns. Average rebound number on walls and columns were between permissible limits, that reflects good layer & strength.

27	**Any Existing visible damages (Yes/No)** **If yes: Description**	No Visible Damage
28	**Last repair & reconstruction works** **a)** Repaired (Year) **b)** Strengthened (Year)	Concurrent Maintenace only
29	**Fire Protection**	Yes, System Installed
a)	**High voltage electric transformers not protected within campus or 25m periphery of school**	NO
b)	**Loose electric wares within campus and not fenced**	NO
c)	**Any highly flammable/ hazardous goods lying in the school or surrounding buildings**	NO
d)	**Petrol Pump (25m periphery of school)**	NO
e)	**Fire fighting system (Yes / No)**	YES,Plant Installed as per UT admnistration guidelines
30	**Surroundings of School**	
	High Rise/Low Rise Buildings	Low rise Residential area
	Traffic	Normal for residential
31	**Technical documentation available**	YES
32	**Site – Soil conditions :** *Rock/Firm/Medium/Soft*	Firm
33	**Slope :** Flat /Slight slope /Moderate slope/Steep slope	Flat
34	**Seismic exposure :** **a)** Seismic Zone **b)** Unknown	Zone IV

Chartered Valuers
Er. Harjinder Singh Bhatia
B.E.(C), C.E.(I), M.I.E., F.I.V.
Chartered Engineer (Civil)
Govt. Approved Valuer (Class-I)

S.C.O. 192 ,First Floor, Sector 35
Chandigarh-160022

Chartered Engineer

HARJINDER SINGH BHATIA
B.E, C.E (I), M.I.E, F.I.V
Government Approved Valuer, Loss Assessor & Chartered Engineer

Approved By Govt. of India & Ministry of Finan
Certified Structural Audit

35	**History of Disaster** (Mention month, year, frequency and damages due to the disaster) **a)** Earthquake **b)** Cyclone **c)** Floods **d)** Fire	Except some mild cracks on the wall of the sector 42 indoor stadium after the earthquake in Chandigarh on 8/10/2005, there is nothing more instance available in entire city.
36	**Awareness in School** **a)** Among Teachers **b)** Among Students **c)** Any Formal course/training for disasters	Yes as Continuous awareness/sensitization programmes for the stakeholders and the general public are regularly organised by admnistration.
37	**Photographs**	ANNEXURE attached
38	**Remarks & recommendations (Yes /No)**	***Yes, fit to be used for the purpose building is constructed.***

The soundness of the building has been verified with reference to keeping in view the provisions & bye-laws of the building construction as per the Bureau of Indian Standards and relevant Indian standards Code of practice. Construction is completed in accordance to sanctioned Plans as produced. The workmanship & the Materials (Type & Grade) have been used strictly in accordance with general and detailed specification.

Following are the Highlighted Summary Points of the Structural Assessment:-

De bonded external plaster was observed.

Carbonation of Concrete was observed at some points

Core Compression results are satisfactory assuming that the design grade of Concrete during Construction was M20.

Most of the strutural members of exsisting structure are good in condition.

Properly and timely maintenance of structural member will enhance the building performance

The evaluation study comprised of the following:

Preparation of Architectural / Structural drawings furnished if any.

Carrying out detailed site inspection survey

Carrying out field evaluation test

Rebound Hammer Test to assess the surface hardness

External repair/ painting work is in progress at the time of external inspection

Chartered Valuers
Er. Harjinder Singh Bhatia
B.E. (M.E/F.I.V)
Chartered Engineer (India)
Govt. Appro... U/S 34AB)

Chandigarh-160036

Chartered Engineers

HARJINDER SINGH BHATIA
B.E, C.E (I), M.I.E, F.I.V
Government Approved Valuer, Loss Assessor & Chartered Engineer

Approved By Govt. of India & Ministry of Finance
Certified Structural Auditor

RECOMMENDATIONS

Water stagnation should be avoided in future causing algae & fungal growth in rains.

Bulging of plaster at balcony portion should be properly treated. Entire damaged plaster should be removed properly and exposed corroded steel reinforcements treated with anticorrosion treatment.

Separation cracks between masonry wall & RCC columns/ beams should be filled by epoxy injection using low viscosity grout.

Based on the above study, it is concluded that that the existing Structural units of Guru Nanak Khalsa Sr. Sec. School, as it stands is structurally adequate to resist the present Gravity Loads combinations & fit to be utilized for the purpose it built

All most all the Non Destructive Test Results are in the Range of acceptable Limit as per the specific Indian Codes of Standards.

On carrying out recommended strengthening measures effectively under the guidance of experienced technical personnel / agency, the building will be rendered normal and safe for intended purpose

I am of the opinion that the building which have been constructed are in accordance with the plans approved by admnistation, that they are structurally sound and safe in all respect and fit to be use for which it has been erected *& constructed & Proper Repair & Restoration treatment is required at few distressed places*

This Certificate is issued on the clear understanding that overall responsibility for the structural stability of the building and its proper structural performance will cease, the moment any additions or alterations, Change in Loads, structural changes to the structural frame are carried out without any structural engineer's advice or by accident or due to tampering by the users/ occupants for any reasons whatsoever.

DECLARATION:

I/We, hereby, declare that:

The information furnished above is true and correct to the best of our knowledge & belief;
I have no direct or indirect interest in the property
I have personally inspected the property.
This report does not cover the Legal aspects.

Er. Harjinder Singh Bhatia
B.E. (MIE/FIV)
Chartered Engineer

Date: 07-07-2023

REFRENCES:

CPWD Hand book on Repair and Rehabilitation of Structures.

Indian Standard Evaluation & Strengthening of Existing Buildings IS 15988:2013

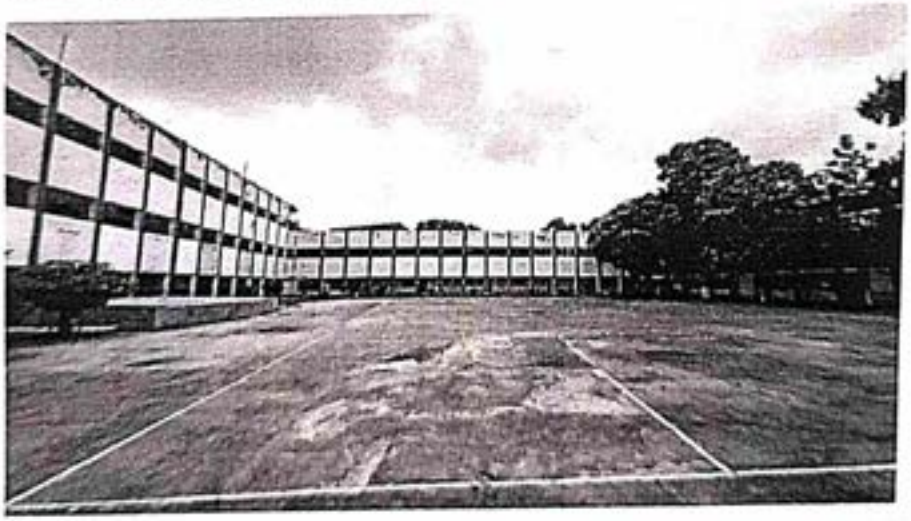
IS 1893 (2002): Criteria for Earthquake Resistant Design of Structure

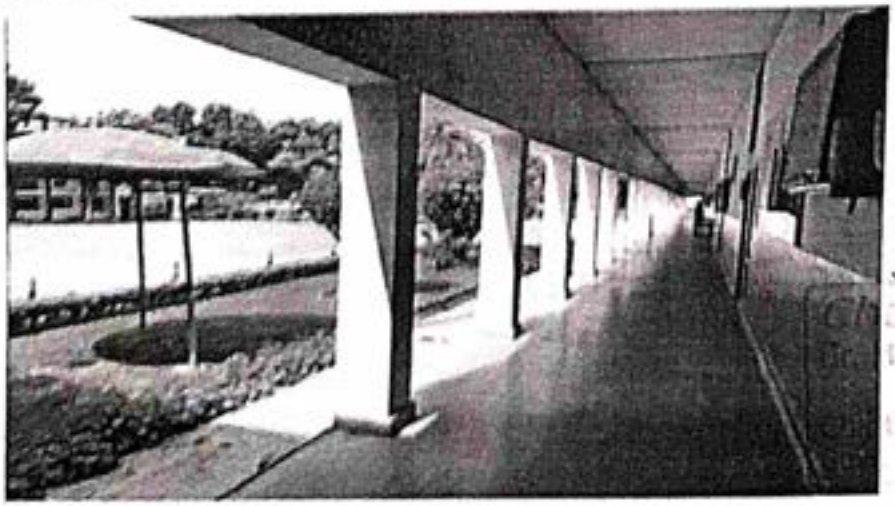
Chartered Engineers

HARJINDER SINGH BHATIA
B.E., C.E (I), M.I.E, F.I.V
Government Approved Valuer, Loss Assessor & Chartered Engineer

Approved By Govt. of India & Ministry of Finance
Certified Structural Auditor

ANNEXURE A





Chartered Valuers
Harjinder Singh Bhatia