

FRANCISCAN SCHOOL

BADARO | LEBANON

SEISMIC ASSESSMENT REPORT

Ref No: BERM-2023-021 | 2K23.028



Revision	Description	Date	Prepared by	Approved by
00	Initial Issue	28-02-2023	E.S	MK-RM

The information contained in this document is confidential and only for the information of the intended recipient, and may not be used, published or redistributed without the prior written consent of Bureau d'Etudes Rodolphe Mattar.

Table of Contents

1. INTRODUCTION.....	4
2. EXISTING STRUCTURE.....	4
3. LIMITATIONS.....	4
3.1 Construction drawings.....	4
3.2 Site visit limitations.....	4
4. INSPECTED ELEMENTS AND QUALITATIVE ASSESSMENT.....	4
5. OBSERVATIONS.....	5
5.1 Columns and walls.....	5
5.2 Slabs and beams.....	5
6. CLASSIFICATION OF THE LEVEL OF DAMAGE.....	5
7. STRUCTURAL RECOMMENDATIONS.....	5

1. INTRODUCTION

Following the 4.7 magnitude Earthquake occurred in Lebanon on 06/02/2023, this report has been prepared to describe the general structural condition of the inspected existing structure for **FRANCISCAN SCHOOL** - Badaro based on the site inspection visit performed by BERM on 23/02/2023. It includes evaluation for the soundness and integrity of the structural elements and classification for the level of defects, if it exists, in the existing structure based on a visual review.

Final recommendations and requirements are provided to ensure the overall stability of the structure and the safety of the occupants.

2. EXISTING STRUCTURE

The project serves as a School and student housing building. It is currently occupied.

The main structural elements are reinforced concrete, columns and walls supporting a reinforced concrete solid slab and drop beams system. The external canopies are steel structure supported by reinforced concrete foundations.

3. LIMITATIONS

3.1 Construction drawings

The structural evaluation presented in this report is based on BERM's experience and engineering judgment and our review of the As-built/construction drawings.

3.2 Site visit limitations

Some structural columns and walls were concealed behind finished surfaces and could not be inspected

Not all of the underside of the roof could be inspected, evidence of cracking may be disguised by internal finishes. Evaluation of furnishings, internal equipment, electrical, mechanical and plumbing are not considered in this assessment.

4. INSPECTED ELEMENTS AND QUALITATIVE ASSESSMENT

Following BERM's site visit, the condition of the inspected structural and non-structural elements is described in the tables below.

Definition of the terms used to evaluate the overall condition of the structural and non-structural elements include:

- *Excellent:* no visible deterioration and no remedial work is recommended
- *Good:* minor defects are visible and no to minor remedial work is recommended
- *Fair:* medium defects are visible, remedial work is required
- *Poor:* severe defects observed, rehabilitation or replacement of the element

Structural Elements	Location/description of damage	Overall Condition
Slabs	Balconies/entire slab/...	Excellent
Columns	As inspected	Excellent
Beams	As inspected	Excellent
R.C walls	As inspected	Excellent
Lifts R.C walls	As inspected	Excellent
Stairs	As inspected	Excellent
Foundations	As inspected	Excellent

The building Functionality\serviceability level is very good. (Elevators, electromechanical systems...)

Please refer to the appendix depicting the images that were taken at the time of the visit and which clearly show the overall condition of the elements.

5. OBSERVATIONS

Based on visual observations and BERM's experience in similar structures, the following key findings are presented.

5.1 Columns and walls

Columns, walls and lifts walls are reinforced concrete. They are intact and in good conditions. There were no obvious signs of damage or cracks.

5.2 Slabs and beams

The under-side of the floor slabs was found to be in good condition. No observed damage and there is no visible sign of structural de-stress in the form of excessive deformations, movements or cracking at the joints between the slabs and the columns/walls. No sign of corroded steel was noted.

6. CLASSIFICATION OF THE LEVEL OF DAMAGE

The following table defines the adopted classification for the level of damage.

Damage Level	Classification	Description	Structure Usage
1	Minor Defects	Non-structural damage	Structure can be safely occupied
2	Moderate Defects	Slight damage to non-structural components	Structure can be occupied after moderate repair
3	Major Damage	Heavy damage to less than half the walls and columns, and slight damage to the slabs	Structure requires major reparation before re-occupation
4	Complete Damage	Destructive damage to more than half the walls and columns and slight damage to the slabs	Structure requires complete reparation and retrofitting
5	Collapsed	Destructive damage to more than half the walls and columns and to the slabs	Structure lost its functionality and is non-repairable or requires great cost for retrofitting

The assigned level of damage of the inspected structure is 1.

The majority of hair cracks were encountered in the partition walls, are generally identified in the decorative elements such as Gipson boards elements or along the joint between the masonry walls and the concrete vertical elements or the horizontal slabs\beams and some defects were noticed along the expansion joint between two adjacent buildings.

7. STRUCTURAL RECOMMENDATIONS

The overall stability of the building is very well maintained meanwhile the main structural system of the building is structurally sound and still in very good condition. No evidence of defects, damage, deterioration, deformations or de-stress that might impair the structural integrity and solidity of the building is exhibited. The building does not require structural repairs and it can be safely occupied.