SPECIFIC DEFECTS REPORT,

Relating to Moving/Deflecting Wall, First Floor

A School in Essex

FOR

Mr X, Estates Manager

Prepared by:

INDEPENDENT CHARTERED SURVEYORS

Marketing by:
www.1stAssociated.co.uk
0800 298 5424

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INTRODUCTION AND INSTRUCTION

We have been instructed by Mr X, Estates Manager to prepare an independent report on a Moving/Deflecting Wall in Classroom xxx, First Floor of a School in Essex.

We have carried out a visual inspection (non evasive) of the property on xxxxxx. We re-visited the property on xxxxxx. We have had various discussions with Mr X over the interim period, together with discussions with Essex County Council and their associated bodies, together with various specialist companies in this area of construction.

We are Independent Chartered Building Surveyors and professional members of:-

The Royal Institution of Chartered Surveyors (RICS)
and
The Independent Surveyors and Valuers Association (ISVA)

Report prepared by:

xxxxxxxxxxxx
For and on behalf of xxxxxxxx,
Chartered Building Surveyors

The work has been carried out as per our standard Terms and Conditions of Contract which have been emailed to you as part of the confirmation of our instructions. If you would like further clarification please do not hesitate to contact us.

SYNOPSIS

Mr X has noted/had his attention drawn to movement within the wall in Classroom xxx which is on the first floor of Block xxx. We have been asked to investigate and advise with regard to how best to proceed.

SITUATION AND DESCRIPTION

The school has, like many schools, been extended and developed from its original size and design, as well as having various alterations over the years.

We would normally have made available to us records of the design details of the property but in this case we are still in discussions to obtain these from Essex County Council and associated bodies.

We believe this property to originally have been a CLASP system, or descendent of CLASP (see Appendices), and may have been developed within the SCOLA system.

The CLASP/SCOLA is a concept of economic buildings built quickly using structural frames, so this building is not built in the traditional manner.

CLASP DEFINED

CLASP is an acronym for Consortium of Local Authorities Special Projects/Programmes which was a system developed in the 1950s by local authorities to advise a method of designing and assembling pre-fabricated buildings for use in the public sector; specifically schools.

SCOLA DEFINED

SCOLA is an acronym for Second Consortium of Local Authorities, which is a development of an economic design system, which ran from 1962 to 1990.

General view of the classroom

Corner view of the classroom

End gable to the classroom

Roof area

LOCATION PLAN

Classroom xxx is on the first floor near to the X marked location.

The classrooms are located to the right hand side as you enter the property (all directions given from the front of the property).

This is a three storey structural frame building with a brick gable and glazed panels and cladding to the front and rear, with a flat mineral felt finished roof.

EXECUTIVE SUMMARY

Summaries are not ideal as they try to précis often quite complex subjects into a few paragraphs. Here we give a summary of the problem and our various suggestions on how to solve it and all costs it relates to.

Deflection

The deflection in the wall indicates that a tie or number of ties have failed or never been installed. Further investigation needs to be carried out by opening up the structure.

We have as yet been unable to confirm the design of this building or obtained the appropriate design details. We have had it confirmed via Mr Y, Concept Architect at Scape, that this is not a CLASP system. We are currently investigating/getting clarification if this is a SCOLA system via Mr Z at Pillar Consulting, who are deemed to be the experts in this type of construction.

> **ACTION REQUIRED:** We recommend that we continue our discussions with Essex County Council and associated bodies to see if we can obtain a set of drawings and/or specifications and/or addition surveys, and our investigations with regard to the type of system this is.
>
> We would then recommend opening up the structure during the school holidays to establish whether this is a one-off problem that can be resolved with adding additional tie bars or a re-occurring problem throughout the structure of the School.

Our concern is that we will get a Ronan Point type situation where one failed element can survive on its own, however unusual weather or an unusual incident changes the pressures and loadings on the building and could lead to the collapse of this type of structure. Presently the wall is held in place as far as we can see from corner fixings, walls and floor and ceiling fixings.

Immediate Action

We are in agreement with Mr X that the wall within the classroom has a higher level of deflection than it should, indicating that there is a defect in the system and as such anyone using the room should be made aware of this and precautionary measures taken externally. This should be brought to the attention of the management/Head of the School and an associated bodies that deal with work at the School.

Research

Currently we feel we are being hampered with the progress of this report by not having appropriate drawings, design details and specifications available. We have had several long discussions with various different departments of Essex County Council (references within the rear of this report). We have recently received drawings from the contact we have helping us: Major Projects and Infrastructure Environment Highways and Substantiality, Essex County Council, who we believe has been in contact with yourselves to approve our authority to see the drawings. At the time of writing we have not received drawings of the specific area.

Visual and non-evasive investigation

As you are aware we have inspected the School externally and internally and also thermal imaged the property to see if we can establish any fixings which we have not found – although the conditions were not ideal on the day that we thermal imaged the walls and we do intend, subject to your approval, to return during colder conditions to thermal image the areas.

Condensation and classroom environment

We are aware that a large amount of humidity is often created in classroom environments which can lead to rusting of any non treated metal fixing points. Our concern is that the fixing could have deteriorated to the point of failure which is contributing to the deflection in the wall.

We await your written instructions as how to proceed.

INSPECTION AND SURVEY FINDINGS

Our inspection has been specifically related to the issues detailed below:

Visual Inspection

Our inspection has taken the format of a visual inspection:

1.0 External of the property of the

1. Roofs
2. Front walls
3. Rear walls
4. Right hand side walls

We did not view the left hand side as it was built into another section of the School.

We have had the benefit of a x 16 lens on a digital camera

2.0 Internal of the property

We have viewed:

First Floor

2.1 Classroom xxx
2.2 Adjacent classroom
2.3 Access corridors

Access was restricted due to the School being in operation up till lunchtime within the School and outside after the lunchtime period.

3.0 Surrounding areas

3.1 We walked around the entire building complex

4.0 We have met with the Estate Manager, who is new to the position and therefore does not have any historic data.

5.0 We have carried out phone research with Essex County Council to try and establish where data is.

6.0 We have thermal imaged the property.

The thermal imaging has not been carried out in pre-warmed conditions and that on the day the thermal imaging was carried out unfortunately it has been a bright sunny day which meant that our results externally had limited, therefore we took internal readings.

A brief summary of what was found.

1.0 Based upon a visual external inspection we noted:

General view of School

1.1 Roofs

This is a mineral felt covered with a shallow pitch to a central gully known as a butterfly roof, with roof lights. There is no safety bolts as far as we could see and we would recommend these are added for future maintenance/inspection of the roof, for example for things like this problem.

Shallow butterfly roof

1.2 Walls

Gable brick wall construction with timber, or other proprietary panel located beneath the windows and painted purple.

Cross wall construction

1.3 Windows and doors

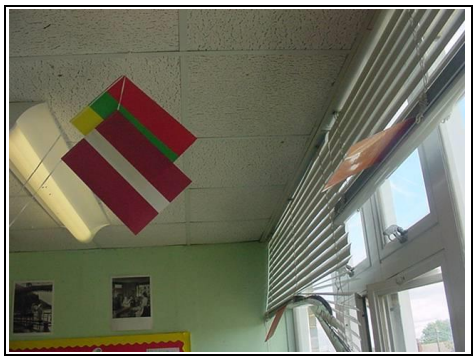
Single glazed windows into a metal frame, typically known by its generic name of Crittle windows.

Metal single glazed window

2.0 From our visual internal inspection we noted

2.1 Ceilings

Mineral suspended tiles, with a concrete block system, visible when the suspended tile system was removed for inspection.



Fibre suspended ceiling tile with an exposed suspended ceiling system (on wires)

Within ceiling void

2.2 Walls

Brick and block (assumed)

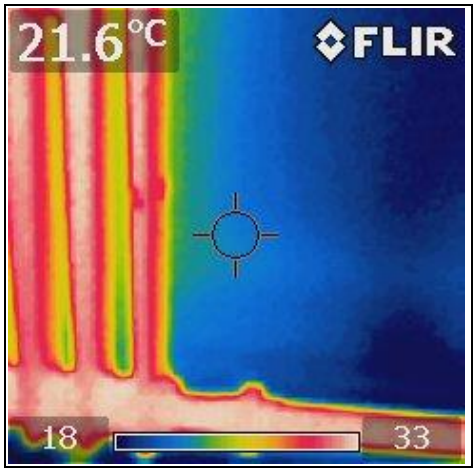
2.3 Floors

Concrete block system (assumed)

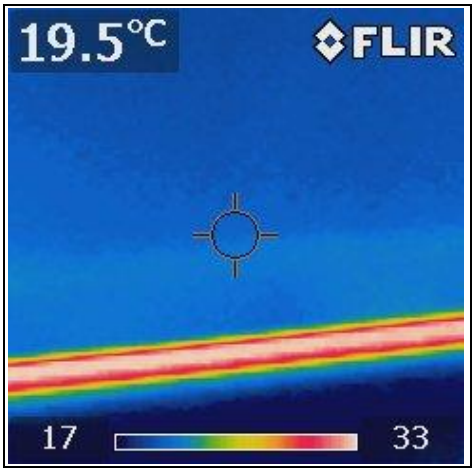
3.0 Thermal Images

3.1 We returned to thermal image the property. The building was not pre-warmed but it was a relatively cold day and unfortunately we were unable to find any metal brackets that would have an ambient temperature above that of the wall.

Lower wall and radiator



Thermal image at lower wall level showing in part the radiator



Thermal image at lower wall level

Note; this is a visual inspection only, we have not moved any furniture, fixtures and fittings.

SUMMARY UPON REFLECTION

The Summary Upon Reflection is a second summary so to speak, which is carried out when we are doing the second or third draft a few days after the initial survey when we have had time to reflect upon our thoughts on the property. We would add the following in this instance:

We have been unable to find the documentation with regard to this property which we would expect to have available and we feel that a written application should be made by yourselves to Essex County Council or their associated bodies to have the appropriate information forwarded to yourselves for us for comment on.

Unfortunately, without having the information as to what type of building system and the details of how it has been constructed we believe it is too risky to open up, however you are also in the Catch 22 situation in that the deflection cannot be left.

We feel you should give this matter the upmost urgent attention and advise the managing bodies of the School with regard to the problems that we have found with regard to a lack of information on the property, which is stopping us (or any consultant) progressing on finding a solution. We strongly feel that records on the property should be held within the building if you are responsible for maintaining it and keeping the occupants safe within it.

We have received email from Mr Z of Pillar Consulting (see appendices).

We look forward to receiving drawings and specifications on the property's construction and we will be able to advise you further. If you would like any further advice on any of the issues discussed or indeed any that have not been discussed, please do not hesitate to contact us on 0800 298 5424.

APPENDICES

CONSTRUCTION SUMMARY

LOCATION PLANS

THE HISTORY OF PRE-FABRICATION OF CLASP BUILDING SYSTEM

CONSORTIUM OF LOCAL AUTHORITES SPECIAL PROGRAMME

CONTACTS LIST

EMAIL FROM IAN COOK, PILLAR CONSULTING

TIME LINE

ESTIMATE OF BUILDING COSTS

LIMITATIONS

This is the eighth version which we have amended as our investigations have developed

CONSTRUCTION SUMMARY

External

Main Roof:	Butterfly roof with relatively modern mineral felt finish (assumed) Central valley gutter
Roof structure:	Metal truss
Gutters and Downpipes:	Internal
Soil and Vent Pipe:	Internal
Walls:	Cavity Bond brickwork to the cross walls (gable ends) (assumed) Glazed curtain walling
Structural Frame:	Lightweight steel (assumed)
External Detailing:	Single glazed windows
Foundations:	Not inspected; likely to be strip concrete foundations

Internal

Ceilings:	Concrete. Suspended tiles within an exposed grid (assumed)
Walls:	To be confirmed
Floors:	Pre-cast concrete blocks

We have used the term ‘assumed’ as we have not opened up the structure.

Location Plans

CLASP Building Systems and Similar Generic Buildings

Consortium Of Local Authorities Special Programme

From our research and general knowledge this CLASP system was developed in 1957 as a way of developing pre-fabricated school buildings and best using local authority resources. It was initially developed by Charles Herbert Aslin, County Architect for Hertfordshire and the system was then used in other counties. The information on the Internet advises Nottinghamshire and Derbyshire as being the most popular areas, as buildings were completely replaced where there was subsidence problems.

What is CLASP?

It is a pre-fabricated light gauge steel frame building, built economically to a maximum of four stories. The steel frame is then clad in a variety of different materials; originally developed for schools but later used for offices and housing. Some of the schools have since been Listed.

Further developments of the CLASP system were:

SCOLA – Second Consortium of Local Authorities, and
MACE – Metropolitan Architecture Consortium for Education

CLASP and SCOLA and MACE would also be referred to as a system building.

The main reasons for using system building

The main reasons for using system building were generally considered to be for most type of pre-fabricated type constructions:

1. It is a quick way of building
2. It is economical

3. Control of standards can be carried out within the factory, i.e. it is not subject to the elements of rain, wind, etc.

4. It can be put together by an unskilled workforce.

Equally it can be said that some of the above advantages are the disadvantages, particularly that it can be put together by a, relatively speaking, unskilled workforce.

Flexibility

Another feature with system building systems was its flexibility of design and the ability to change it during the lifetime of the building. Unfortunately these buildings are now so old that many of the people that knew about this system are no longer with us to advise us.

There are many different types of system buildings, such as CLASP and SCOLA, i.e. Mark III, Mark IIIB and Mark V. It generally saw improvements in design from lessons learnt and improvement in the ability of fire resistance. For example, the use of concrete cladding panels increased the life expectancy of these buildings.

Interestingly, from what we understand, from the 1970s buildings tended to be commissioned individually and on a one off nature and it is only in more recent times that we have moved back towards the modular type of construction.

Roofs

Roofs have changed over the years; originally being copper or aluminium, which over the years have been changed.

Acoustics

We have also noted acoustic issues with some versions of the system buildings are via noise vibration and structure borne sound.

Internal Walls

The internal walls are often not supporting the roof above.

School and Essex County Council
Property Information

We are not aware of the system of briefing that is carried out with people working in buildings that are ultimately owned by Essex County Council (or equivalent trusts, etc). We believe there should be some form of information pack, with as built drawings, specifications, alterations that have been carried out over the years, and other building management systems in place. It may well be in place but despite our best efforts we have been unable to come across someone able to help us on this matter and we very much feel we have been driving the matter rather than being the recipient of information that is available.

The contacts list overleaf demonstrates the many and varied paths we have had to travel to gain the information that we have. We would add that we have not come across this situation previously and have grave concerns that the lack of information could lead to ill informed decisions being taken on properties and possibly a worst case scenario, catastrophic results. We must admit our surprise that this situation can be allowed to have taken place where many people/children are present within a building.

Copy of Email from Mr Z

RE: School - what type of building?
From: Mr Z
To:

We have checked the Scola project database and no project can be located at that address or that name

But as we were a client sponsored system and Essex were never members that does not surprise me

The only way it could have been a Scola building was if it had been a commercial associate project

Looking at the photos the complex of buildings have been built at various times using different forms of construction

One or more of the blocks look like SEAC construction (which was very similar to Scola) and uses the Crittal W20 cladding

As far as I know there is no central office for SEAC information but you may get some help from Essex property department

The structural frame and cladding for SEAC and Scola were very similar

Time Line – A brief history of the structure

This has been based upon discussions with Mr X

DATE	DESCRIPTION
Information requested - not received at the time the report was completed	Built date
Information requested - not received at the time the report was completed	Re-roof date
Xxxxxxxx	Mr X date of appointment
Information requested - not received at the time the report was completed	Any refurbishments that have taken place: Original School New entrance hall extension Other extensions

LIMITATIONS

Specific Defects Report

1. Conditions of Engagement

Please note: references to the masculine include, where appropriate, the feminine.

Subject to express agreement to the contrary (which in this particular case has been none) and any agreed amendments/additions (of which in this particular case there have been none), the terms on which the Surveyor will undertake the Specific Defects Report are set out below.

Based upon a visual inspection as defined below the Surveyor will advise the Client by means of a written report as to his opinion of the visible condition and state of repair of the specific problem or problems only. In this instance we have only looked at one classroom. There was limited access due to the children being present.

2. The Inspection

a) Accessibility and Voids

The Surveyor will base this report on a visual inspection and accordingly its scope is limited. It does not include an inspection of those areas, which are covered, unexposed or inaccessible. Our visual inspection will relate to the specific defects shown to us only.

b) Floors

We have not opened up the floor structure but we have looked at the ceiling structure that shows the bottom of the floor. We have only carried out a visual inspection and any conclusions will be based upon our best assumptions. We can open up the floor if so required at an extra fee.

c) Services

No services inspected.

d) Areas not inspected

The Surveyor will have only inspected those areas identified within the report. His report will be based upon possible or probable defects based upon what he has seen together with his knowledge of that type of structure. If you feel that any further areas need inspection then please advise us immediately.

e) Specific Defects Report

As this is a report upon a Specific Defect we do not offer any comment or guidance upon reactive maintenance and/or planned or routine maintenance items.

f) Whilst we have used reasonable skill and care in preparing this report, it should be appreciated that the Chartered Surveyors cannot offer any guarantee that the property will be free from future defects or that existing defects will not suffer from further deterioration;

3. Deleterious and Hazardous materials

a) Unless otherwise expressly stated in the Report, the Surveyor will assume that no deleterious or hazardous materials or techniques have been used in the construction of the property. However the Surveyor will advise in the report if in his view there is a likelihood that high alumina cement (HAC) concrete has been used in the construction and that in such cases specific enquiries should be made or tests carried out by a specialist.

4. Contamination

The Surveyor will not comment upon the existence of contamination as this can only be established by appropriate specialists. Where, from his local knowledge or the inspection he considers that contamination might be a problem he should advise as to the importance of obtaining a report from an appropriate specialist.

5. Consents, Approvals and Searches

a) The Surveyor will assume that the property is not subject to any unusual or especially onerous restrictions or covenants which apply to the structure or affect the reasonable enjoyment of the property.

b) The Surveyor will assume that all bye-laws, Building Regulations and other consents required have been obtained. In the case of new buildings and alterations and extensions, which require statutory consents or approval the Surveyor will not verify whether, such consents have been obtained. Any enquiries should be made by the Client or his legal advisers.

Drawings and specifications will not be inspected by the Surveyor. It is the Clients responsibility to forward any drawings and specifications that he has or knows the whereabouts of to us to include information in our report. If these are not forthcoming we will make our best assumptions based upon the information available.

c) The Surveyor will assume that the property is unaffected by any matters which would be revealed by a Local Search and replies to the usual enquiries or by a Statutory Notice and that neither the property nor its condition its use or intended use is or will be unlawful.

6. Fees and Expenses

The Client will pay the Surveyor the agreed fee for the Report and any expressly agreed disbursements in addition.

7. Restrictions on Disclosures

a) This report is for the sole use of the Client in connection with the property and is limited to the current brief. No responsibility is accepted by the Chartered Surveyors if used outside these terms.

b) Should any disputes arise they will be dealt with and settled under English law;

c) This report does not fall under the Third Parties Rights Act.

8. Safe Working Practices

The Surveyor will follow the guidance given in Surveying Safely issued by the Royal Institution of Chartered Surveyors (RICS).