

NOTES

TO ACCOMPANY A LECTURE



INTEGRATION AND COLLABORATION
NATIONAL AWARD WINNERS 2008-09



CLADDING DISASTERS – SIMON PITCHERS

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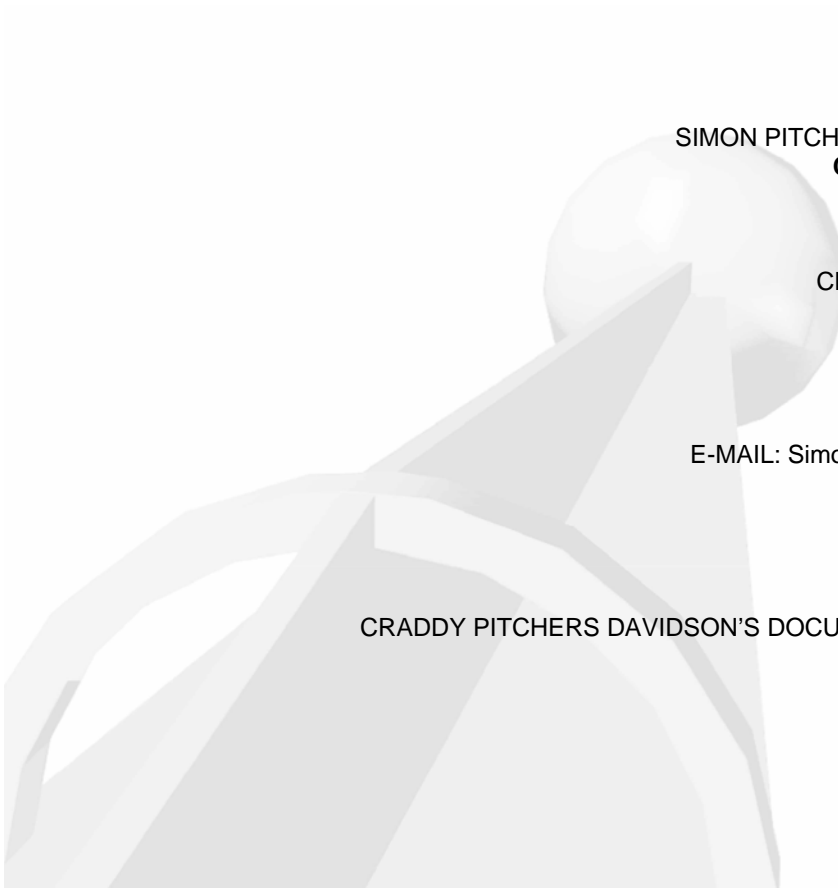
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CLADDING NIGHTMARES

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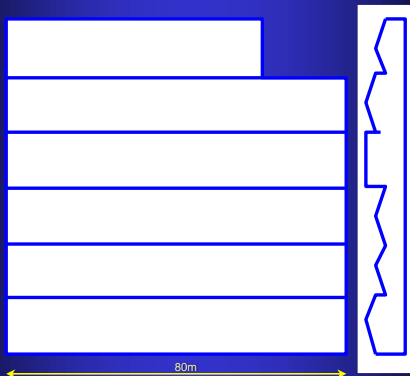
CONTENTS

- Profiled metal – a quick case study
- Brickwork – a more detailed case study

PROFILED METAL CLADDING

CASE STUDY

THE BUILDING



PROFILED STEEL CLADDING

- Installed 1996
- 30 degree pitch
- Sandwich panels with steel underliner, phenolic insulation and Plastisol HP200 coated galvanized profiled surface sheet
- Carefully specified – pre-cut sheets, durable colour (19 yrs durability)
- Galvanized sectional gutters

INSPECTION 2006

10 years after installation



SOLUTION

- Specialist edge sealant system
- Example: Giromax Technologies Ltd – Seamsil (www.giromax.co.uk)
- Needs to be carefully specified and applied.
- Organic finish to modern cladding is allegedly superior to HP200
- Consider self-colour aluminium when specifying (WATCH FIXINGS)



GUTTERS

- Problems of persistent leakage over sensitive record storage area
- Relined with butyl liner (Plygene) – unsuccessful

BRICKWORK CLADDING

CASE STUDY

THE BUILDING

THE INITIAL PROBLEM

- Cracking at high level in a brick panel
- Concern of the unknown
- Concern of falling masonry onto footpath below



INVESTIGATION

- Scaffolding (needed for redecoration under terms of the lease)
- Opening up cracked area



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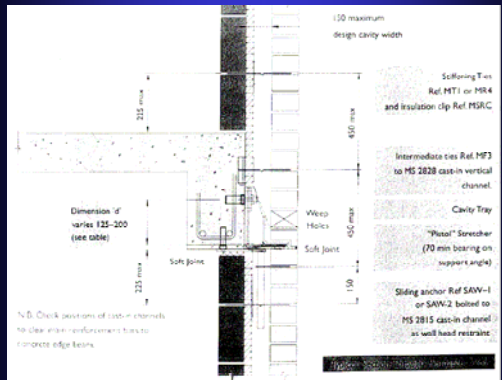


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RESULTS OF INITIAL INVESTIGATION

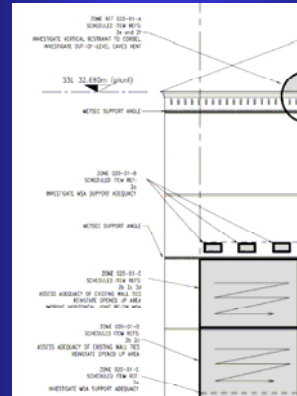
- Initiating crack caused by frame restraint
- Corbel restraint suspect
- Lack of ties from brick to inner leaf and around openings
- MSA fixings suspect. Twisted? Not taking load
- Lack of ties within 375 over MSA
- Cracking from unbroken columns of bwk

WHAT NEXT?

- Further investigation required to establish extent of problems
- Scaffolding costs very high
- Prepare 2-stage spec. Stage 1 = further investigation; Stage 2 = remedial work (guess extent, include schedule rates)
- Choose only TRUSTED tendering contractors
- Discuss what would happen in extremis

FURTHER INVESTIGATION

- Erect scaffolding and open up to establish an understanding of the extent and location of each problem.
- Detailed spec prepared defining exact extent of remedial works.
- Lots of site involvement from design team

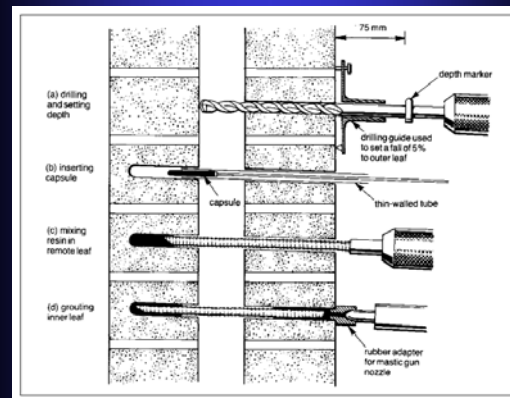


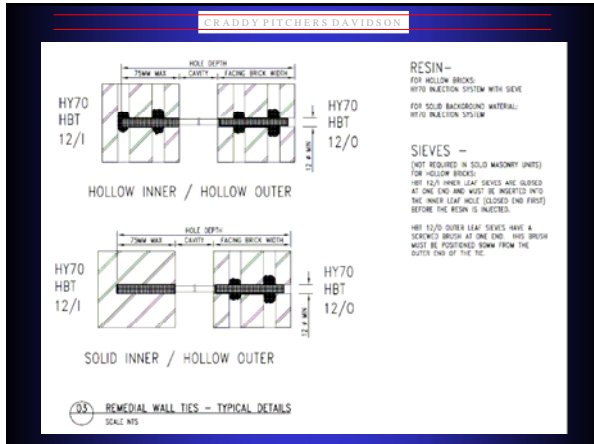
KEY TO REMEDIAL WORKS:

	SCHEDULED ITEM REF 5b: RETROFIX WALL TIES
	SCHEDULED ITEM REF 5d: REBUILD MASONRY CLADDING
	SCHEDULED ITEM REF 5e: REBUILD MASONRY COLUMN
	SCHEDULED ITEM REFS 5a 5c: EXISTING METSEC SUPPORT ANGLE STRENGTHEN MSA FIXINGS IMPROVE HORIZONTAL JOINTS
	SCHEDULED ITEM REF 5e: PROPOSED COLUMN SUPPORT ANGLE
	SCHEDULED ITEM REF 5h: PROPOSED PANEL SUPPORT ANGLE

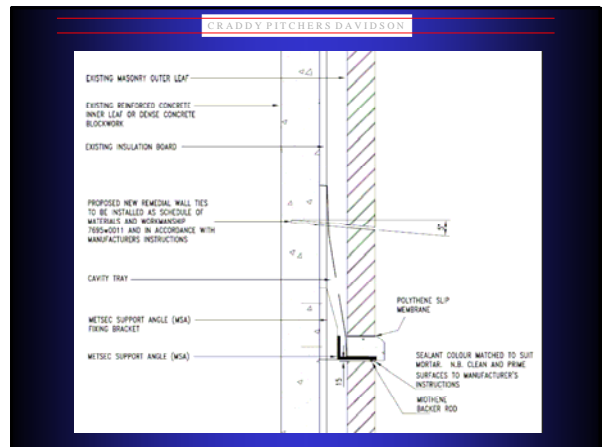
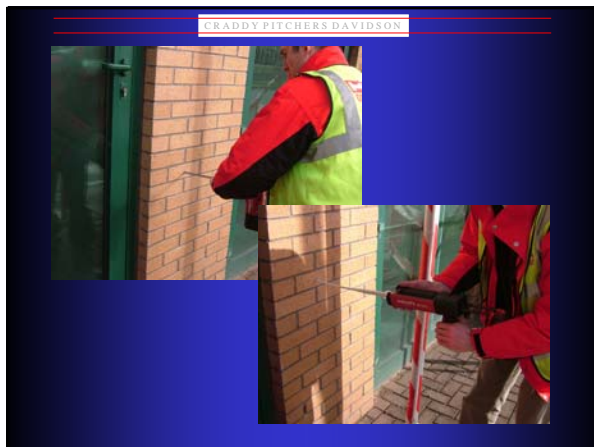
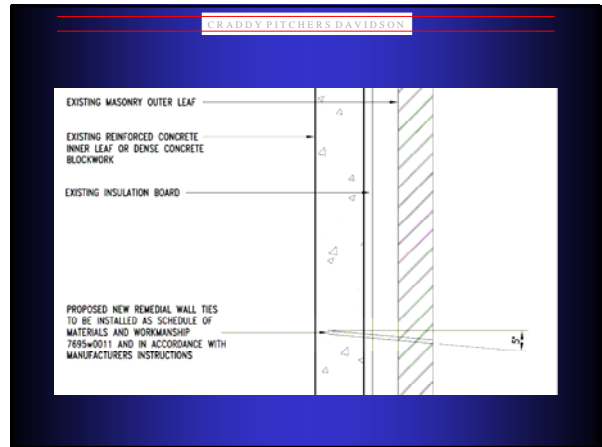
FINDINGS OF FURTHER INVESTIGATION

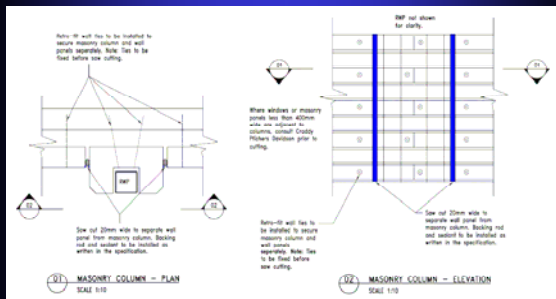
- Insufficient ties 375 above MSA
- Low tie density where concrete inner leaf and around openings
- Adequate tie density where block inner leaf
- No twist to MSA; sufficient brackets
- MSA fixings into RC ok; 25% shortfall in core areas
- Widespread cumulative cracking at tops and sides of masonry columns





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- ## REVIEW REMEDIAL WORKS SPEC
- Retrofix ties to core areas, 375 above MSA over ribbon windows and next to openings and mvt joints
 - Cut and fill below MSA
 - Isolate cols from wall panels
 - Rebuild or tie corbels where distorted





CONCLUSIONS

- Small problems can reveal widespread deficiencies
- You have to follow the path until you have a satisfactory conclusion. (This could be that the client takes the risk).
- Two-stage collaborative working, where the client is prepared to pay for extensive site monitoring can result in cost-effective risk-sharing