



**BAILY
GARNER**



TREATING THE QUALITY EPIDEMIC

ANDY TOOKEY FRICS APMP
**PAUL PEARCE – HEAD OF
TECHNICAL QUALITY**

UK RUSH TO BUILD HOMES COMPROMISES QUALITY

AS DEMAND RISES,
REPUTATION OF NEW BUILD
HOMES IS CRUMBLING

Grenfell has
put onus on
Quality

• WHY ARE BRITAIN'S NEW HOMES
BUILT SO BADLY?

WHAT'S THE POINT OF BUILDING £1M NEW HOMES IF THEY
ARE NOT FIT TO LIVE IN?

DEFINE QUALITY

“The standard of something as measured against other things of a similar kind; the degree of excellence of something.....” Oxford Dictionary

“The total of features and characteristics of a product or service that bears its ability to satisfy stated or implied needs.....” ISO 8402

IS IT:

Ability to meet the Brief?

Avoiding premature failure?

Following best practice?

Good detailing?

Using robust components with optimum lifecycle costs?

A good finish?

Low Energy Performance?

Delighting the Occupant?

OR....

Is it all of the above?

SO, WHO CAN WE BLAME?

- ❑ CLIENT
- ❑ DESIGNER(S)
- ❑ CLIENT'S AGENT
- ❑ CONTRACTOR
- ❑ SUPPLY CHAIN
- ❑ MANUFACTURERS
- ❑ CLERK OF WORKS
- ❑ BUILDING CONTROL/
COMMISSIONING BODIES
- ❑ INDEPENDENT CERTIFIER
- ❑ PRINCIPAL DESIGNER



OR.....WHAT IS TO BLAME?

Understanding Value

$$\text{VALUE} = \frac{\text{FUNCTION}}{\text{COST}}$$

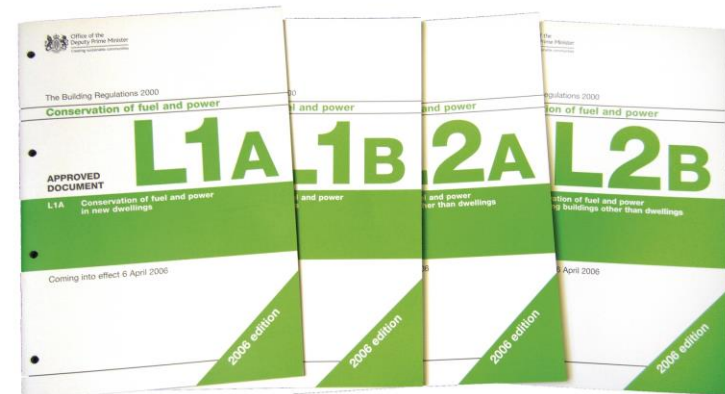
Skills shortage, site supervision and Quality Assurance



Fragmentation



Compliance





16 Units Projecting Bay window stepped cavity trays set to low .

Delayed residents occupation Feb 2017 .

Separating walls constructed to First floor upon Six townhouses. Incorrect wall tie type .

Ancon RT 2 type installed

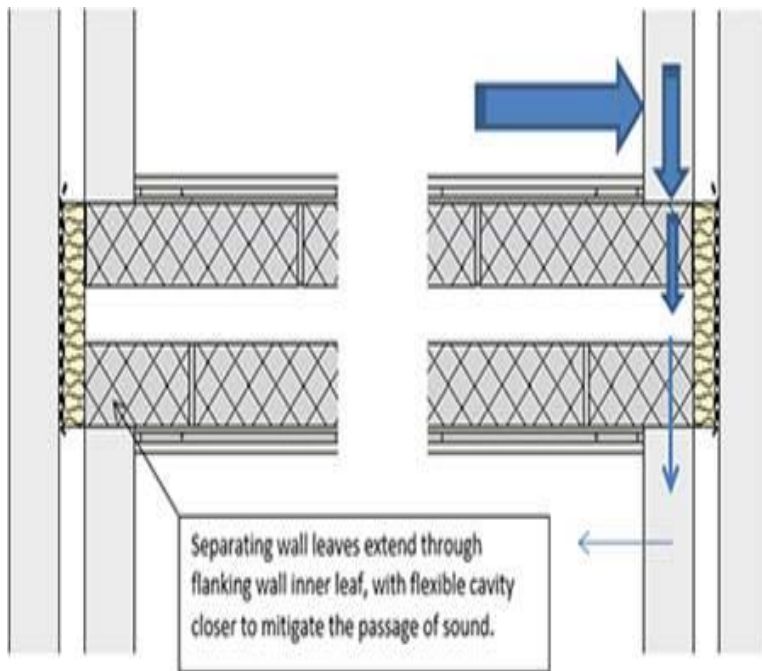
Type A : Approved Document E required .

Impact :



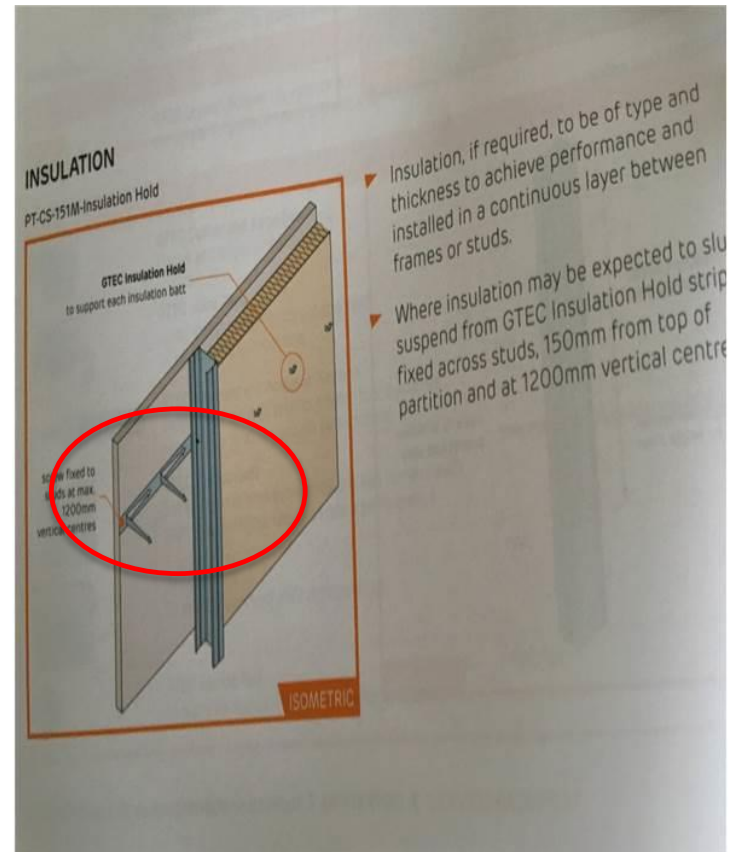
SEPARATING WALL JUNCTION DETAIL

Design Approved but not as the Robust Detail and compliant with Approved Document E



INTERNAL PARTITION WALLS

TWIN WALL ACOUSTIC PARTITIONS 6 FLOORS BOARDED ONE SIDE ABUTTING THE COMMON AREA



MASONRY

Minimum 25mm to 50mm
clear cavity



MASONRY

No cavity

Reduced cavity

Gaps at the back of insulation



No cavity

Large void between insulation board and the Universal column

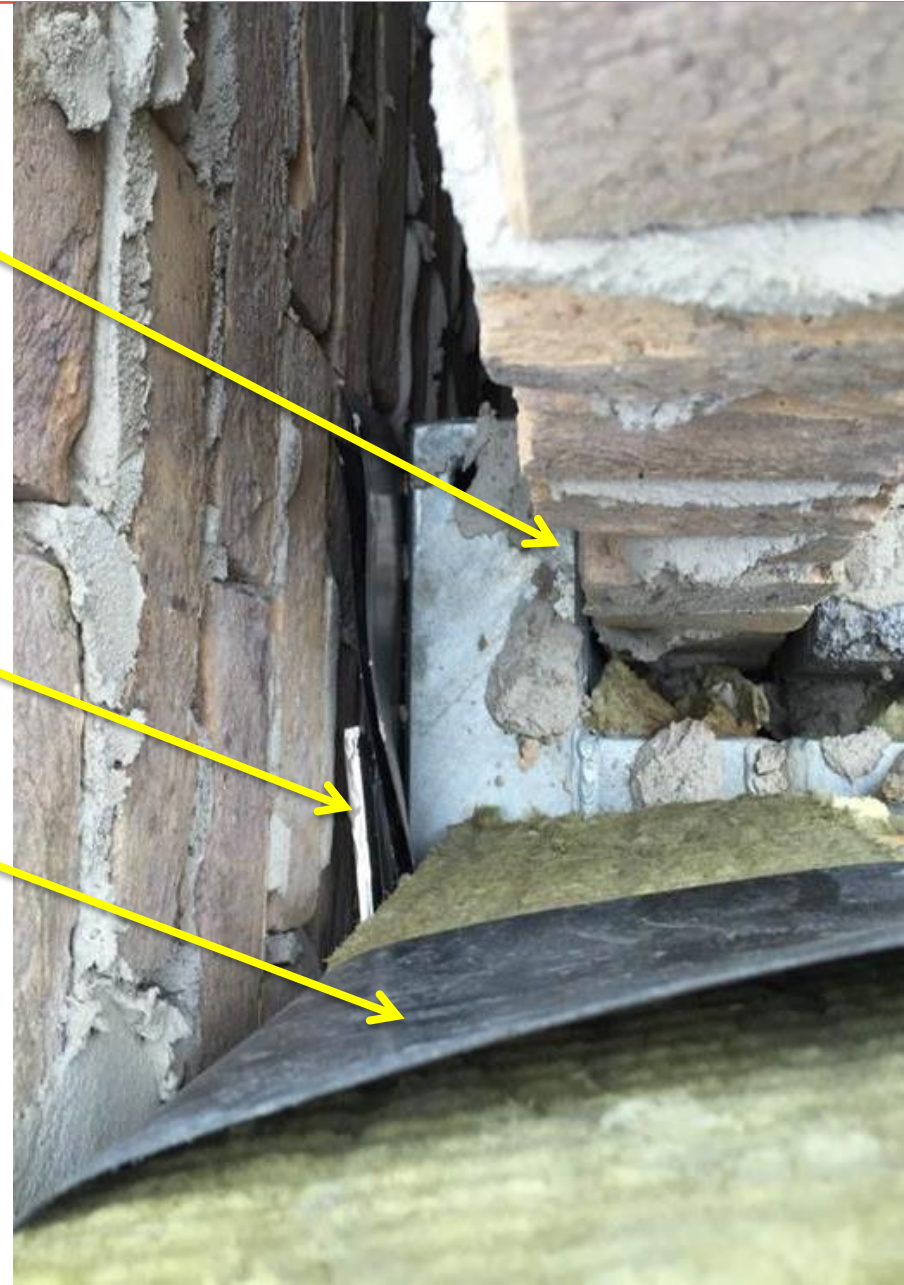


MASONRY AND FIRE SEPARATION

Cavity bridged by wind post to the external leaf

No continuity or fixing back of the Tenmat intumescent horizontal fire barrier

Vertical rock wool fire batt held in position with DPC strip



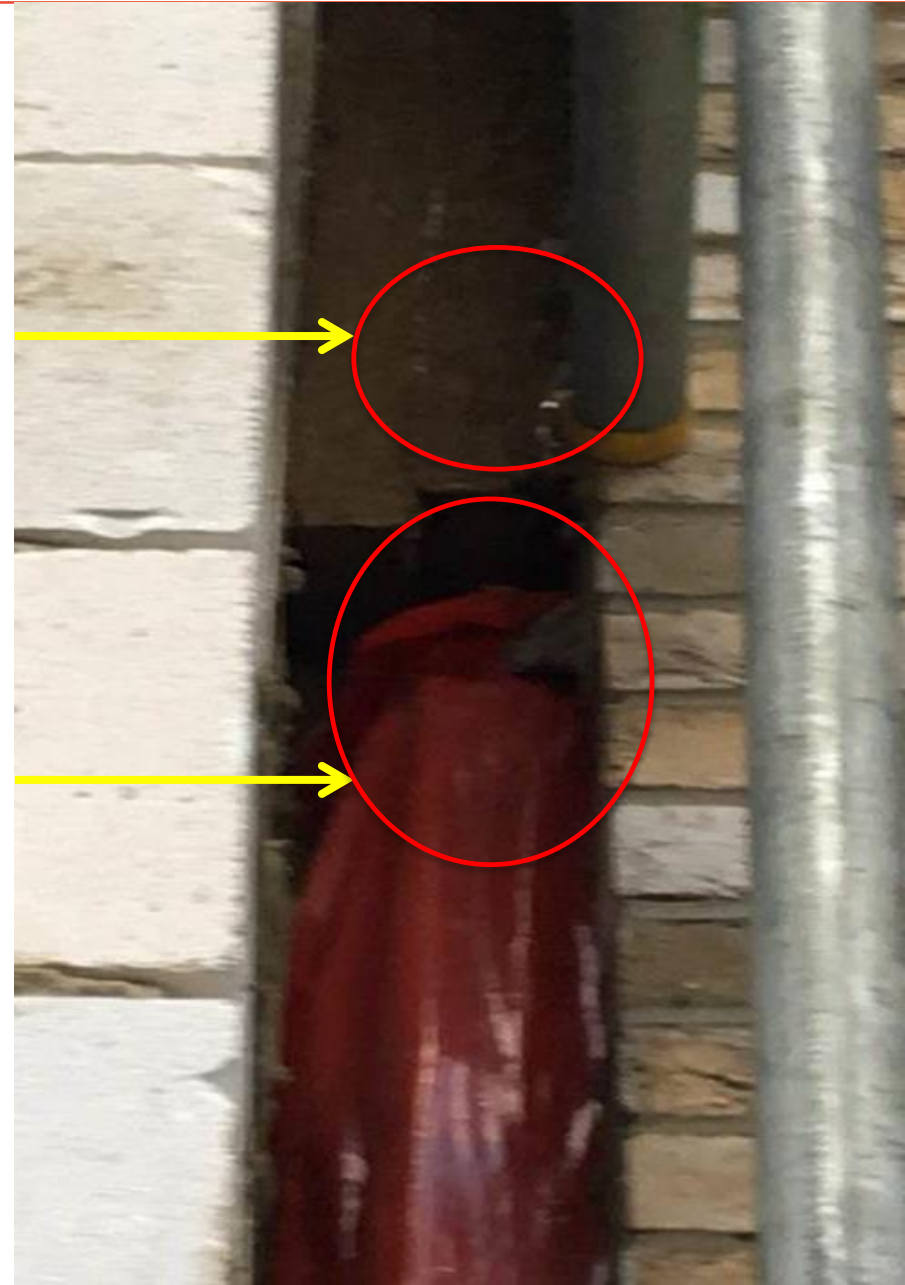
Installation of Cavity fire barriers

Fire Test data requires installation with a Minimum 10% compression upon opposing faces



Make shift of three number lamatherm cavity Barriers butted together to make up the full cavity width

Different types of cavity barrier



Partial fill insulation taken through

Vertical cavity barrier stopped short



CAVITY BARRIER

Gaps and protective polythene wrap torn



FIRE COLLARS AND WRAPS



INTUMESCENT FIRE FOAM

Typically 1 hr foam reduced to 30 min if 'skin' cut back



FIRE FOAM -



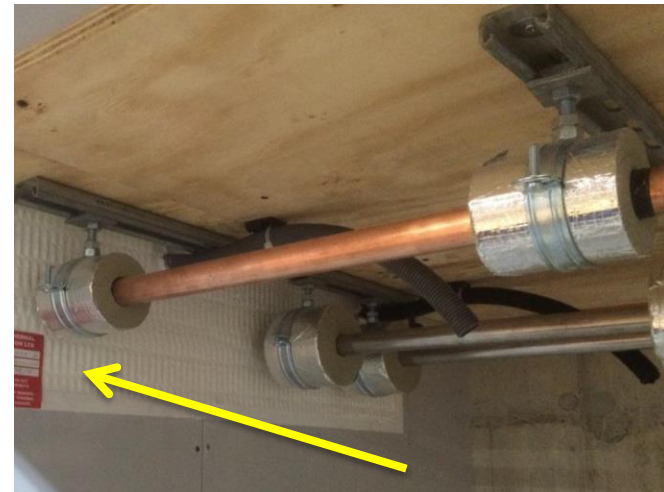
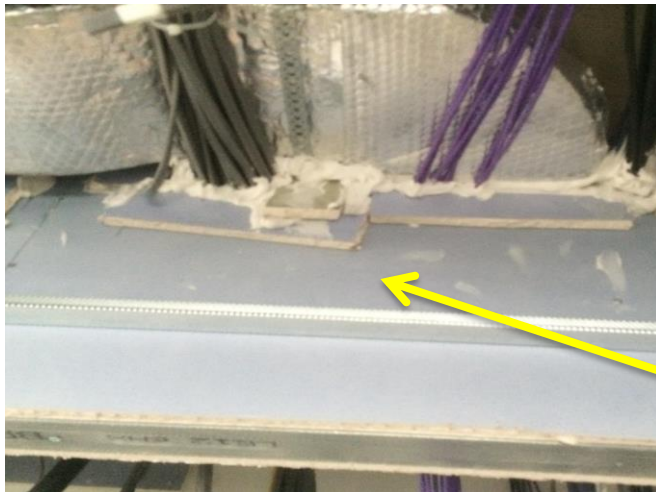
FIRE COMPARTMENT - COMMON PROBLEMS AND QUALITY

Planned Service Routes – Good Practice



What happens when you don't plan

Site "mock up" - a recommended approach



COSTS

- 2016 - NHBC Warranty cost reports Superstructure as the second highest claim at £8.2 million pounds. Bovis publicised £7 million pounds set aside for defects
- Post Grenfell rain screen investigations , remedial works , Passive fire investigations upon projects South East Only ????
Conservative Estimate say £4 Million Pounds (Exc Grenfell)

WHEN IT GOES WRONG – AFTER OCCUPATION

- Wapping High Street = £800,000 - Balcony Drainage & waterproofing , acoustics
- Bermondsey Wall = £2.1 million over three years – Acoustics Party walls
- EC1 Grade 1 refurbishment – £650,000 Mansard flat roof upgrade , Incorrect fire stopping and separation , Weathering detailing to façade , Incomplete Testing and Commissioning of M&E ,
- Cambridge , £600,000 – Fire separation , cavity barriers, Spandrel Panels , Eaves Boxes fire compartment .
- English Partnerships scheme – MMC - Light gauge steel connections and manufacture issues - £ 200,000
Methane gas membrane failure , Design issues for rainwater discharge , Green roof failure 130,000
- Battersea – Boiler flu connections within ceiling voids . One unit not connected .
. Check whole development . Change in regulations for access and inspection .
£160,000

ANNUAL INDUSTRY OUTGOING COSTS

What are the estimated cost to the Industry 2017 ?

What are the private undisclosed costs kept within our businesses ?

What is the greatest individual contributory Factor

Design, Specification, Procurement ,

Workmanship = The Skill Gap – Acknowledged by the Government referred to within the Briefing Paper **New – Build housing defects issues and solutions**
23rd August 2017

Present skill shortage evaluated as **severe**

Forecast by 2027 **critical**



SKILLED TRADES

- Construction Colleges – Sponsored or Funded by ?
- www.larsentoubro.com Larsen and Toubro realised their skill gaps and have their own college for there Factories Construction division in Hazari Island Surat Gujarat India .
- Should we take the initiative to train our own key workforce ?
- Mix of Key trades directly employed. Elimination of Agencies for labour supply?
- Specialised new layer of Trade supervisors as part of house builders direct workforce ?

STEPS FOR CHANGE

- Should we instigate a new quality culture by adopting quality systems to ISO standards.
- Site based specific quality management inspectors autonomous from production team.
- Better mix of traditional housing and greater shift towards off site = **Benefits**
- Off Site fabrication on site assembly as part of R&D with Government incentives to stimulate a start up with UK Factory production.
- Accepted Skill gap key factor to present and future delivery targets for new homes . Defects and Costs are not declining.
- Correct training to create a culture of quality
- Trade specific training / retraining with emphasis on key defect costs feedback from warranty providers , Housing providers and a move toward mandatory CPD for all trades similar to Gas Safe with a 4 year renewal requirement. Part of CITB step change or take it on yourselves driven by Government legislation.

REMEDIES

- Value Management
- Alternative Procurement
- Integrating the Project Team
- Building Regulations overhaul
- Licencing and Regulation of Contractors
- The role of BIM and digital technology
- Pre-manufacture/Precision Manufactured Homes
- Ensuring reasonable returns with profit ring fenced for training and R&D
- Handling/Analysing Defects/Closing the loop
- Better Asset Management





THANK YOU

