

Two Passivhaus Schemes

Peter Chlapowski, director, PCKO Architects

Richard Minker, Site manager, PMC Construction

Established in 1981 by winning an open RIBA competition for Crystal Palace Housing , first large passive solar residential project Housing Design Award 2x



Housing public and private, urban design, regeneration, community buildings

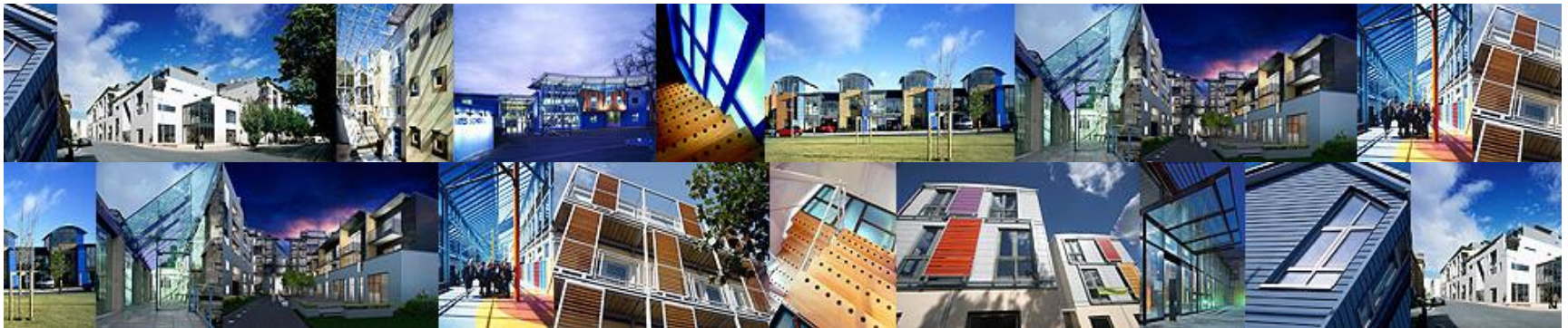
Construction innovations, MMC including advanced volumetric and panel technologies

Building Design Architect of the Year 2005 in Public Housing Category

Shortlisted for Architectural Practice of the Year – Building Awards 2007 and 2012

Energy and environmental issues are key inspiration

Working in the UK, European continent and China



Two Projects

The Pheasantry, Turners Hill, Sussex

Client: Hastoe Housing Association
 Contractor: PMC Construction
 Passivhaus consultant: WARM

- 100% affordable scheme
- 14 houses and 12 flats
- Traditional Rural location
- The project is on a rural exception site to provide affordable accommodation for local people.
- The construction is double timber frame and brick outer leaf.
- Completion summer 2015

Cameron Close, Isle of Wight

Client: Southern Housing Group
 Contractor: Stoneham Construction
 Passivhaus consultant: WARM

- 100% affordable scheme
- 16 houses and 12 Sheltered flats
- Modern suburban location
- The main aim for the project was to provide affordable and highly sustainable development to uplift the housing development standard
- The construction is thin joint block and insulated render.
- Completion summer 2015

Different location + different technology = different architectural approach

The Pheasantry, Turners Hill, Sussex



Cameron Close, Isle of Wight



Cameron Close Site , Freshwater, Isle of Wight



Cameron Close, Isle of Wight



Cameron Close, Isle of Wight

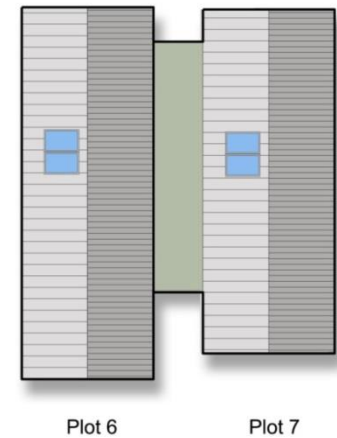




GROUND FLOOR PLAN

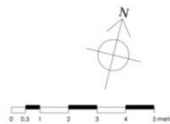


1st FLOOR PLAN

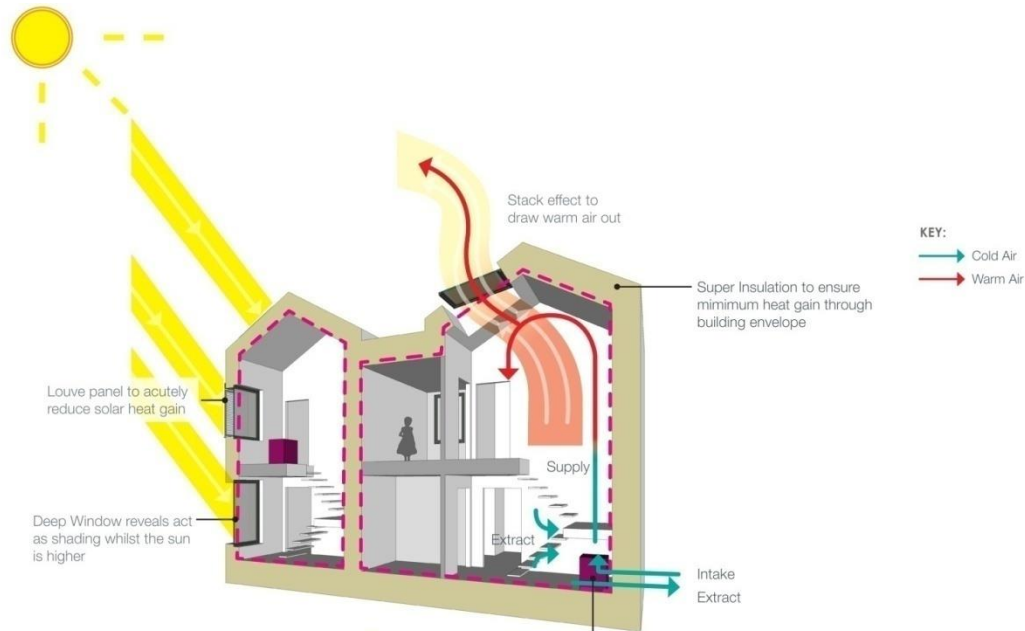


ROOF PLAN

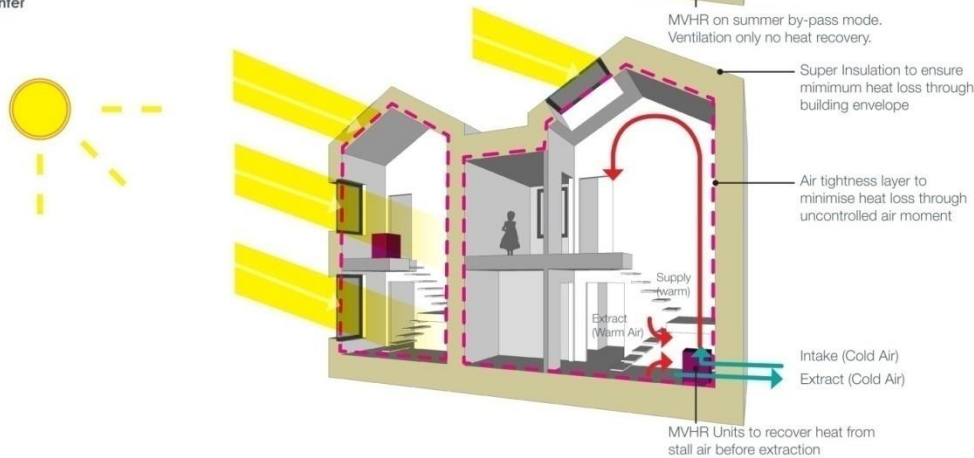
- Plot 6** 2 BED HOUSE 4 PERSON
81.26 sqm (HQL 67-75)
GLA 63
- Plot 7** 3 BED HOUSE 6 PERSON
109.08 sqm (HQL 100-105)
GLA 106-110



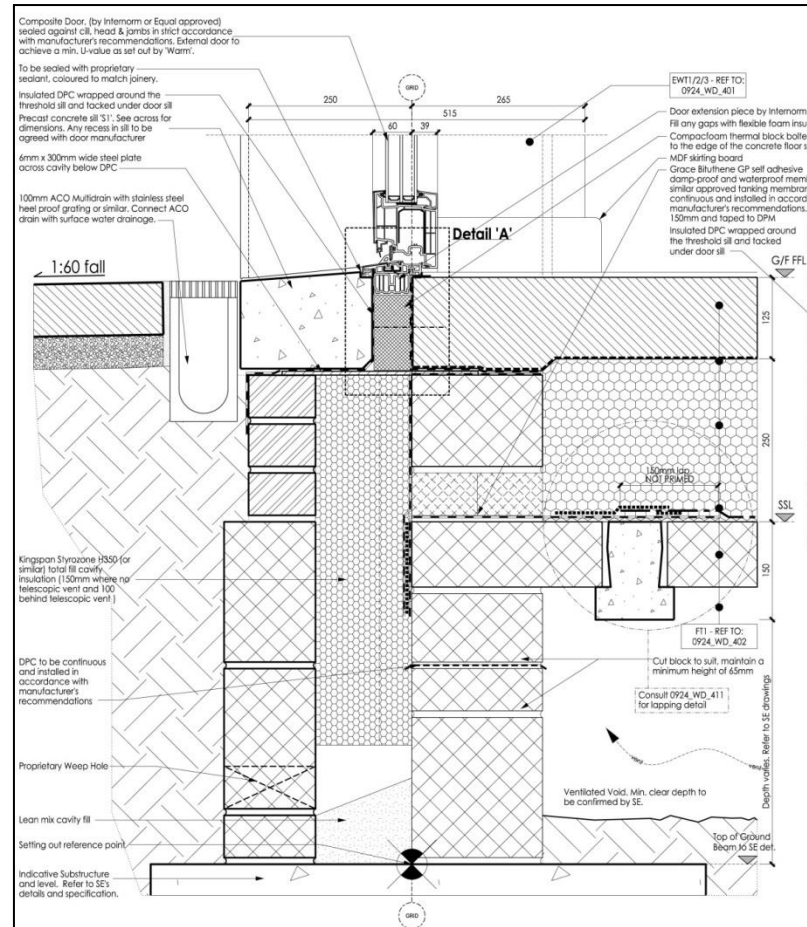
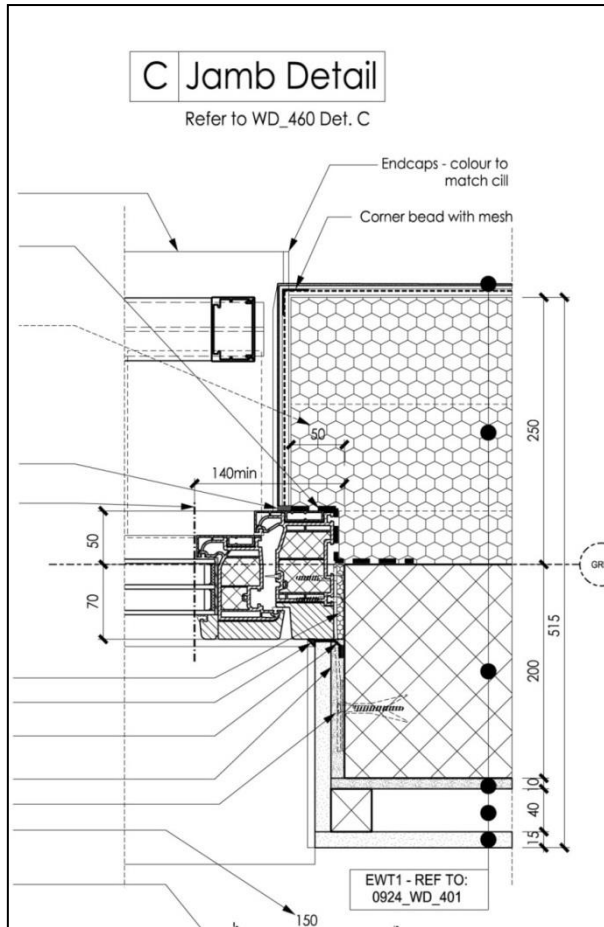
Passive House Summer



Passive House Winter





















The site Turners Hill, Sussex

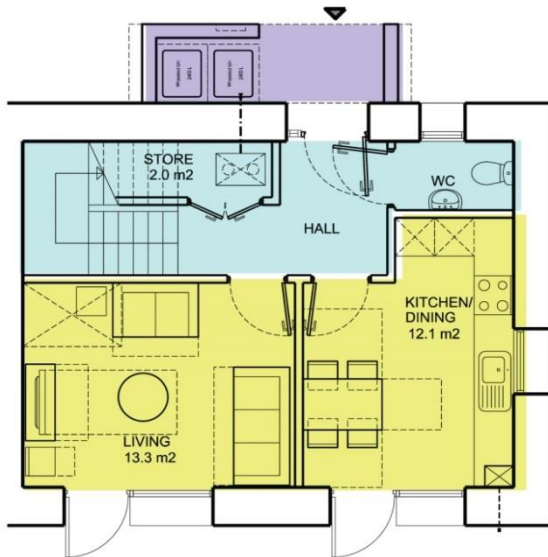


The Pheantry, Turners Hill, Sussex



The Pheasantry, Turners Hill, Sussex

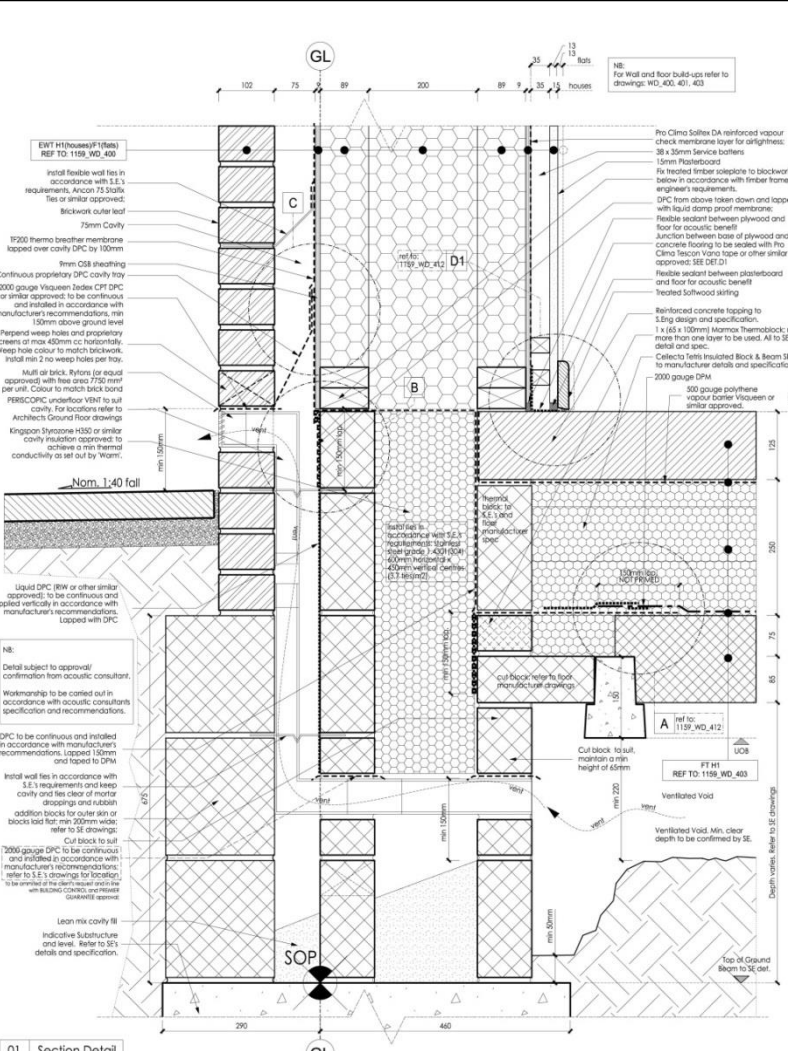
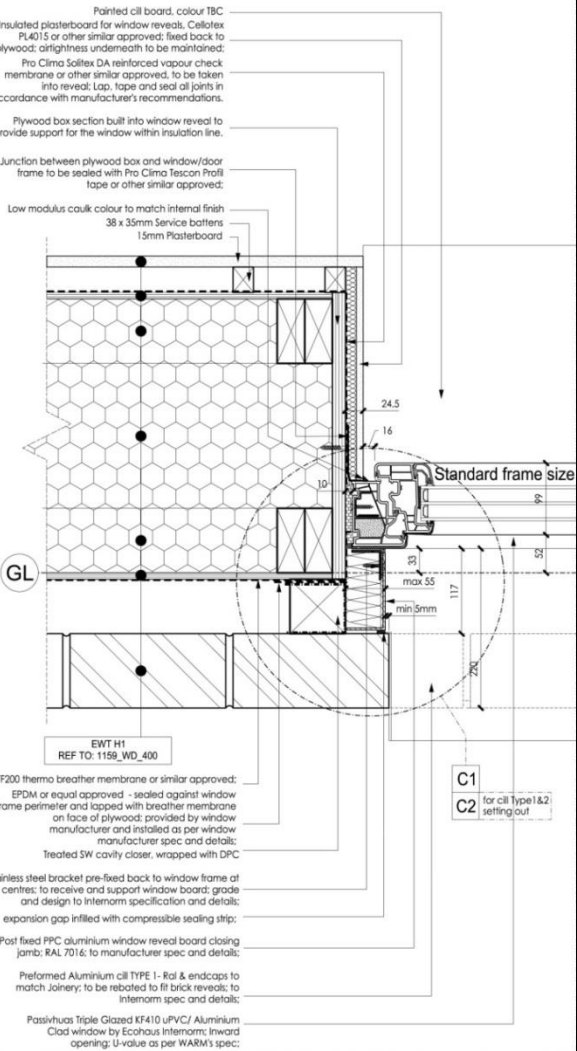




Ground Floor



First Floor

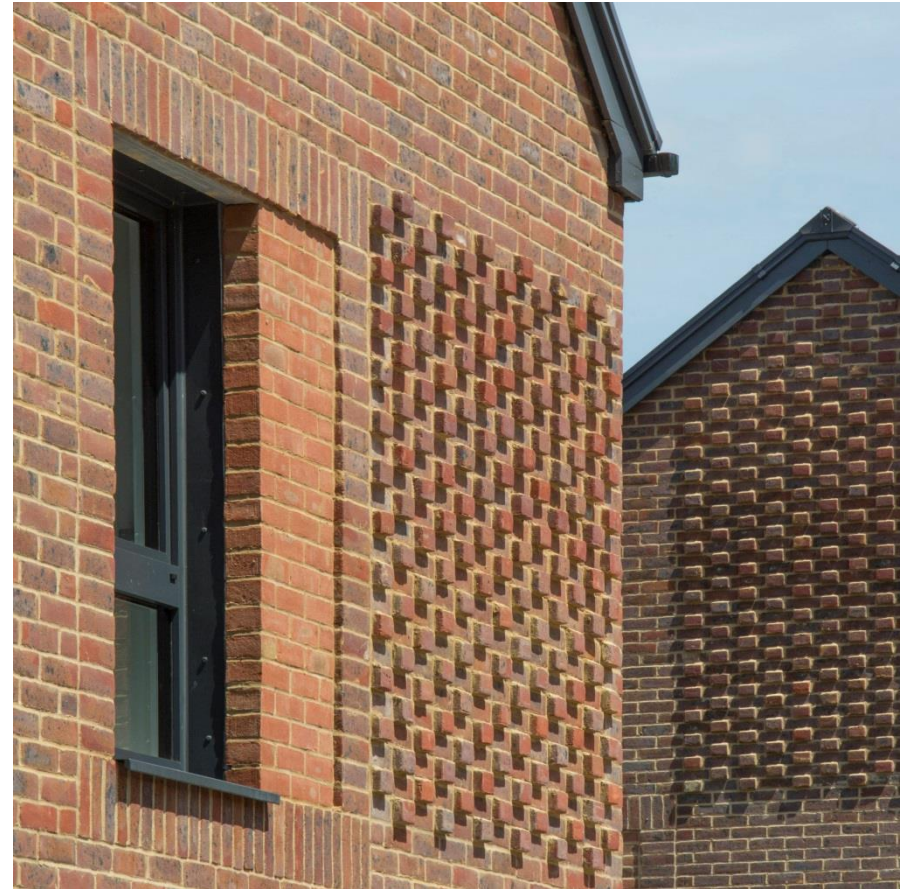












Delivery/work on site

Turners Hill

Client was already experienced in building to passivhaus standard

Experienced Clerk of Works carried out more frequent site visits and scrutiny of built work than on normal project

Cameron Close

Site manager attended Passivhaus training course, contractor also bought their own air testing equipment so they could check daily as work progressed

Architect: although both projects were D&B contract PCKO were asked to attend design team meetings during construction on site and assist in resolving practical problems

Key issues and challenges on delivery and construction stage

- Forward planning essential especially for mechanical and electrical services.
- Requires hugely increased time for supervision.
- Everybody has to buy in to the process and objectives – all trades need to embrace and understand the concept as attention to detail is important from outset.
- It's very labour intensive particularly with the air barriers fitting and supervising
- Services penetrations through the air barrier particularly challenging for tradesmen
- Tight site tolerances of window openings in brickwork against timber frame an issue
- Some certified passivhaus products not up to claimed standard
- Mould and moisture control during construction

Conclusion

- Passivhaus delivery is more challenging for traditional housebuilding industry than standard houses but not something extraordinary.
- One would wish that all houses are constructed to the similar standard of execution and accuracy.
- Shortage of skills in the industry contributes partially to additional costs
- Independent supervision/inspection recommended



**National Housing Awards 2015 Best sustainable scheme Award
Shortlisted for Sussex Design Awards 2015**