

PASSIVE HOUSE

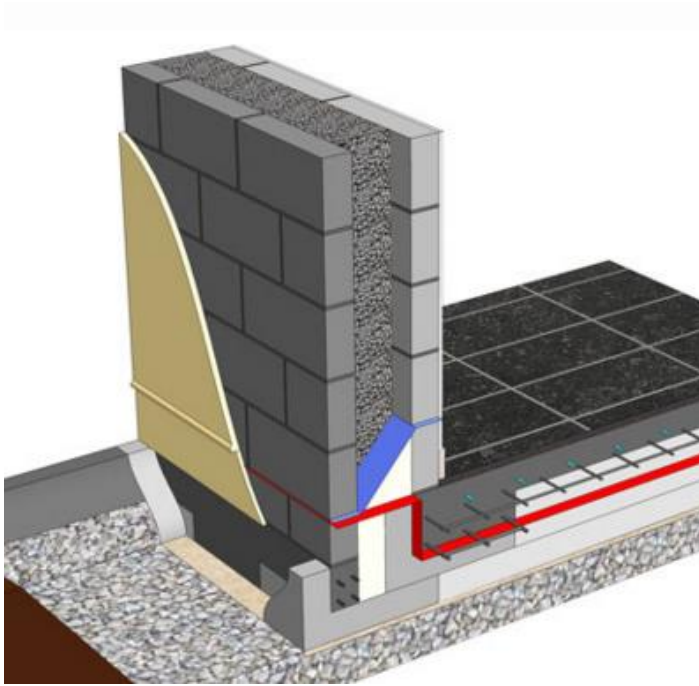
BUILDING ON SOLID FOUNDATIONS

Ed O'Donoghue

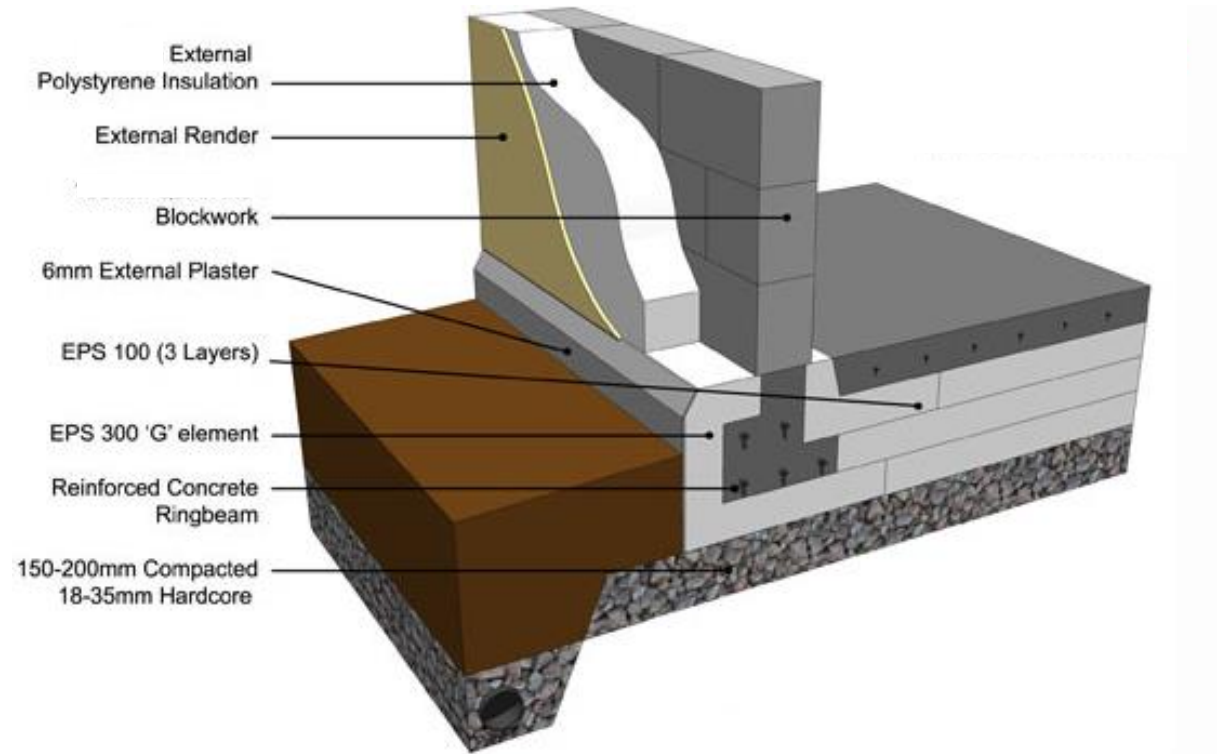
OVERVIEW

- Share experience of bespoke residential projects in Ireland
- Based on 10 units built between 2011 and 2015
- Highlight issues
- Analyse cost data
- Convergence of building performance standards
- Suggestions for the future

EPS RAFT EXPERIENCE 2011-2013

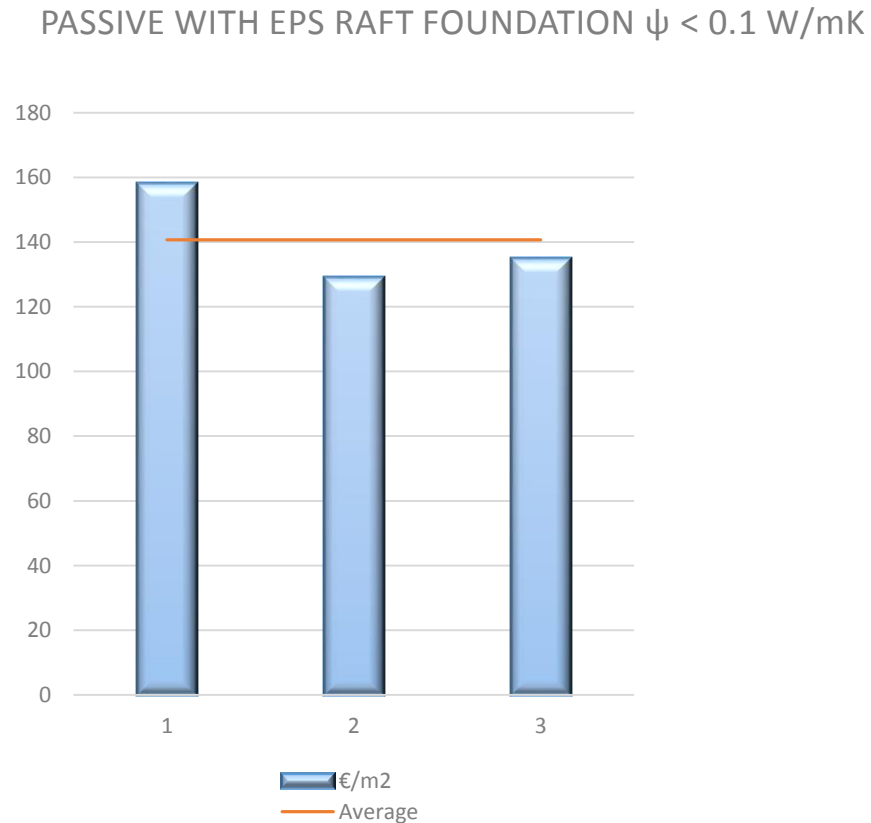


SAWTOOTH EPS FOUNDATION



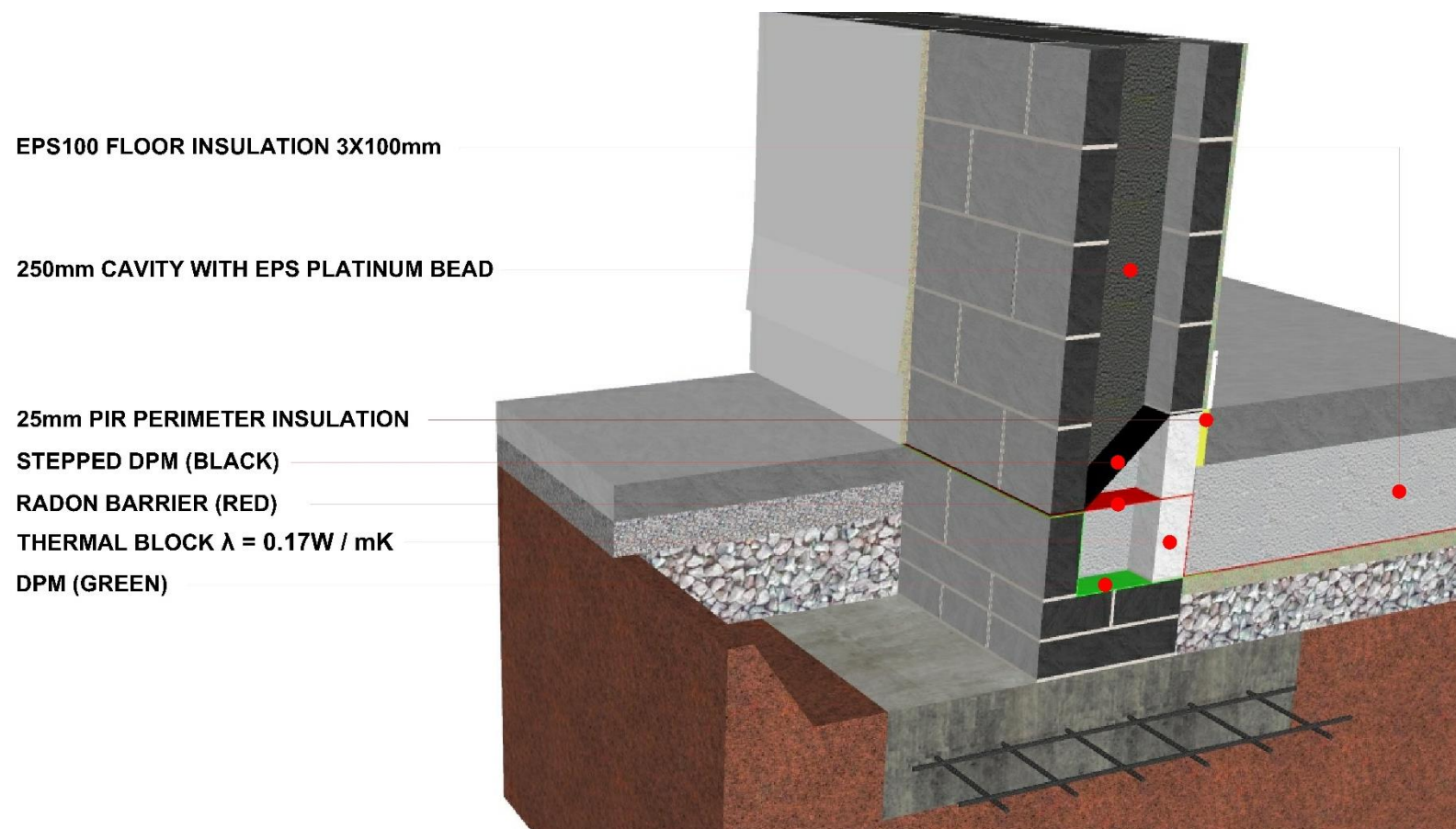
G/L ELEMENT FOUNDATION

EPS RAFT EXPERIENCE 2011-2013



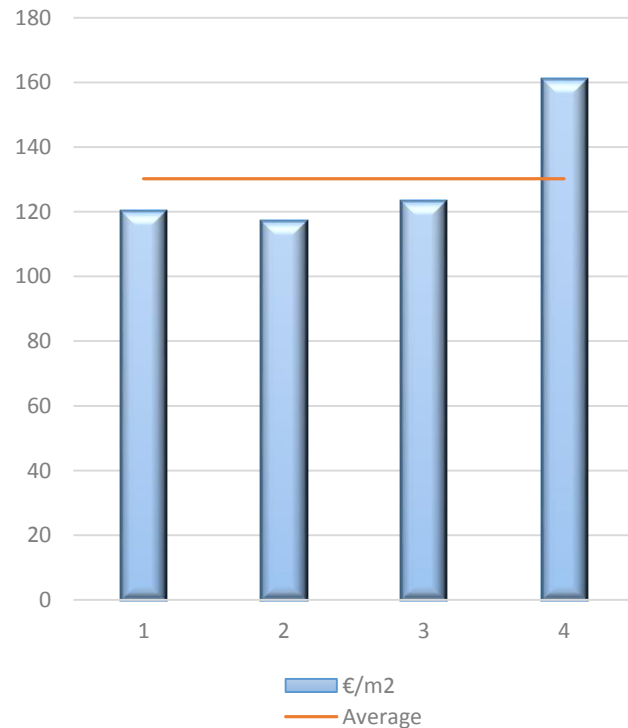
- Structural Engineering Competence
- Steel bar schedules
- Structural defects insurance
- €140/m2 average cost

'HYBRID' STRIP FOUNDATION 2014 -



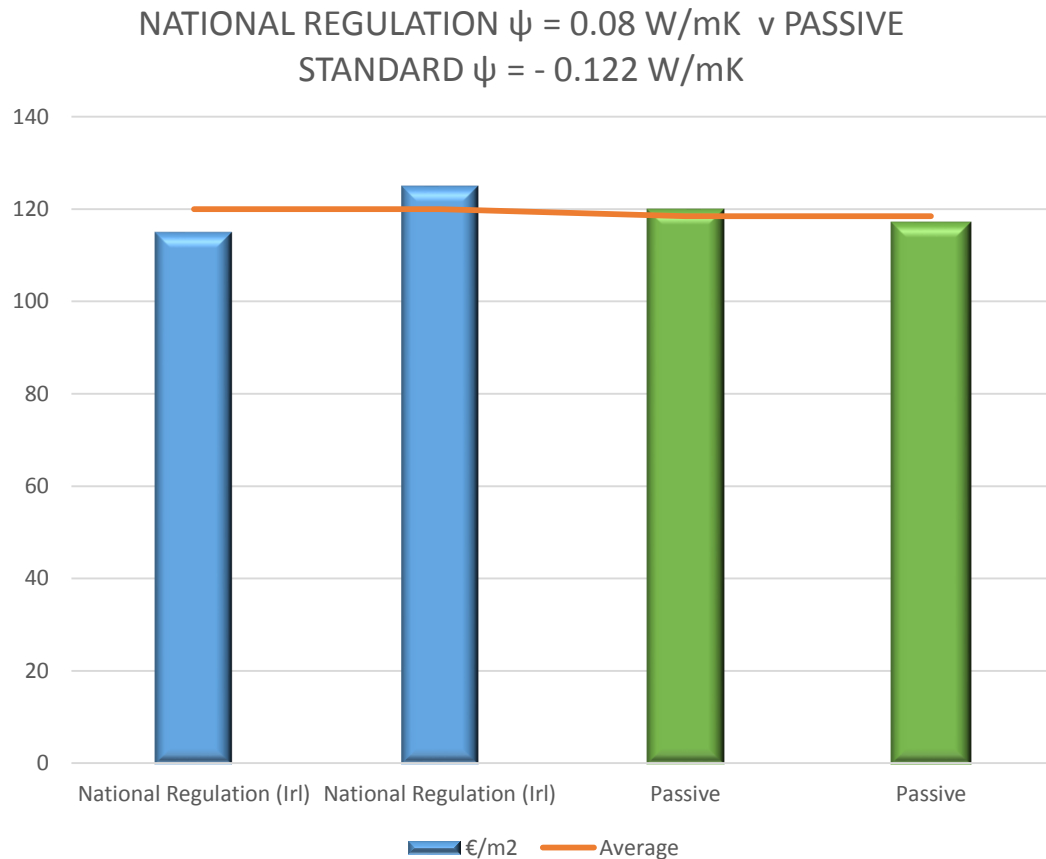
'HYBRID' STRIP FOUNDATION 2014 -

TRADITIONAL STRIP FOUNDATION $\psi = -0.122 \text{ W/mK}$



- Evolution of traditional method
- No specialist knowledge
- Thermal block **MUST** be kept dry
- €130/m2 average cost
- Transferable to timber frame

What Gap ? EPBD v Passive



- Ψ of 0.03-0.05 W/mK almost standard
- Heat pump technology almost standard
- Passive possible with negligible cost
- Innovative solutions keeping costs down
- Trend is performance & cost convergence

Lessons Learned & Looking to the Future

- Think Differently – Educate, Collaborate, Communicate
- If UFH then 150mm screed depth ok
- Standardised look-up table calculations for wide cavities
- Window & Door threshold details – be brave
- Plan service exits, especially first floor
- Certification & compliance

THANK YOU

www.edmondodonoghue.com