

Healthy Buildings; The Role of Products, 2016



Chris Pottage; MSc, CMVP:

- Sustainable and Healthy Buildings Officer– Skanska UK
- Technical Committee Coordinator/ Metrics co-chair – WGBC 2014
- Technical Committee Member WGBC BPP report 2015-2016

My Background



A Stagnant Market: Using lessons from abroad to drive low-carbon & green refurbishment of UK commercial buildings.

MSc. Climate Change and Sustainable Development Christopher Pottage

Awarded by: De Montfort University 13/12/2013

Collaborating Establishment: Skanska

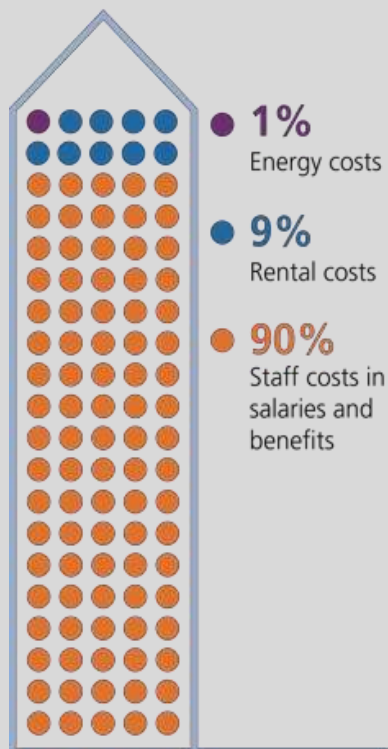


Background to healthy buildings research



Can we reliably quantify the human benefits of green buildings?

Typical operating costs



10% Variation

A 10% variation applied equally to each cost has a far from equal impact

+/- 0.1%

Energy costs

+/- 0.9%

Rental costs

+/- 9.0%

Staff costs



Indoor air quality and ventilation – 8% to 11% productivity improvements are common

Thermal comfort and personal control can yield single digit improvements

Daylighting and lighting (and views of nature) bring productivity gains

Views and biophilia – a growing understanding of biophilic design and impacts

Acoustics – noise is a major source of workplace dissatisfaction and distraction

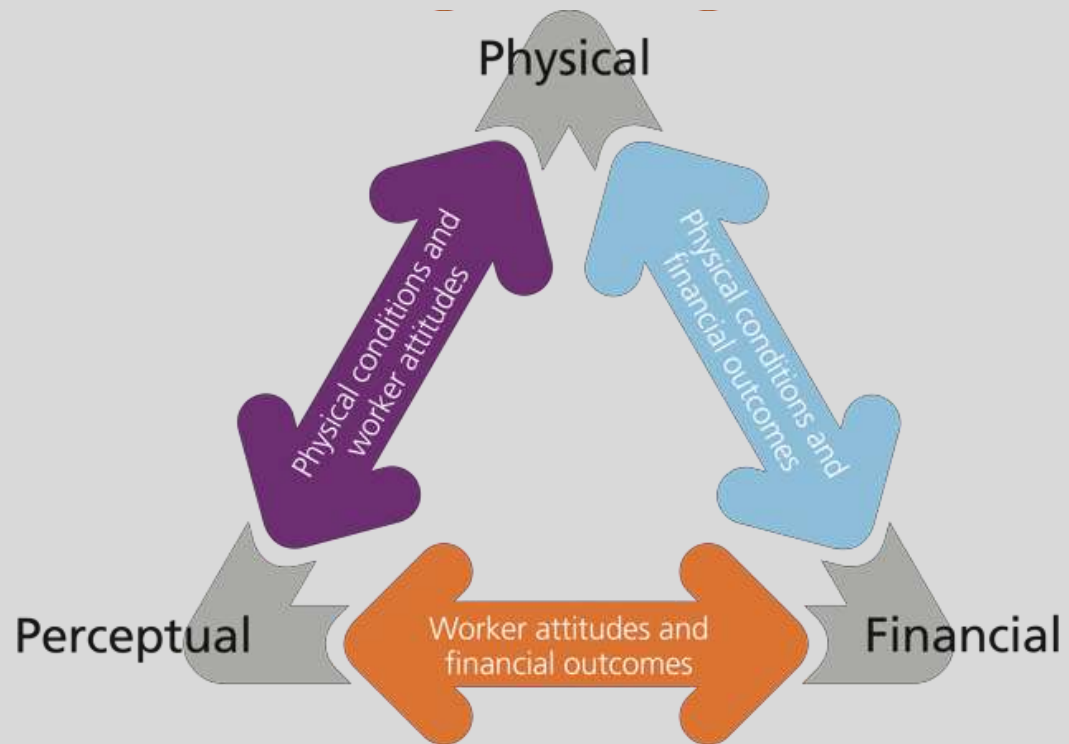
Layout – diverse spaces enable concentration, collaboration, confidentiality, and creativity

Look and feel – shapes, colours, spatial forms, and proportions are all important

Active design is a guaranteed route to better health

Location and amenities – availability of services are increasingly important to occupiers

Metrics framework



Financial (or organisational) metrics



Staff turnover/
retention

Revenue

Physical
complaints

Medical
complaints

Medical costs

Absenteeism

Neelands House, Bentley- Skanska Office



1,800 m² Open plan office facility,
pre-fab construction, PV, biomass,
waste oil burner etc:

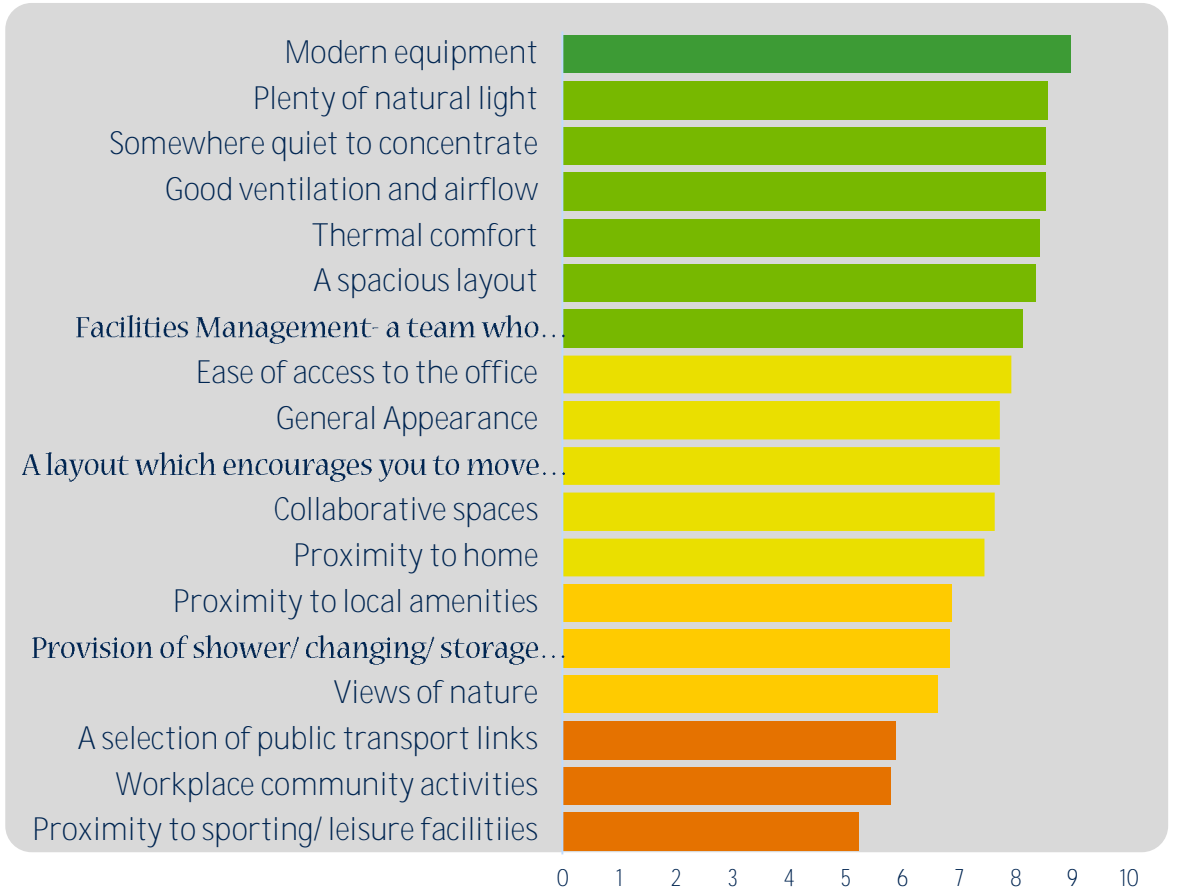
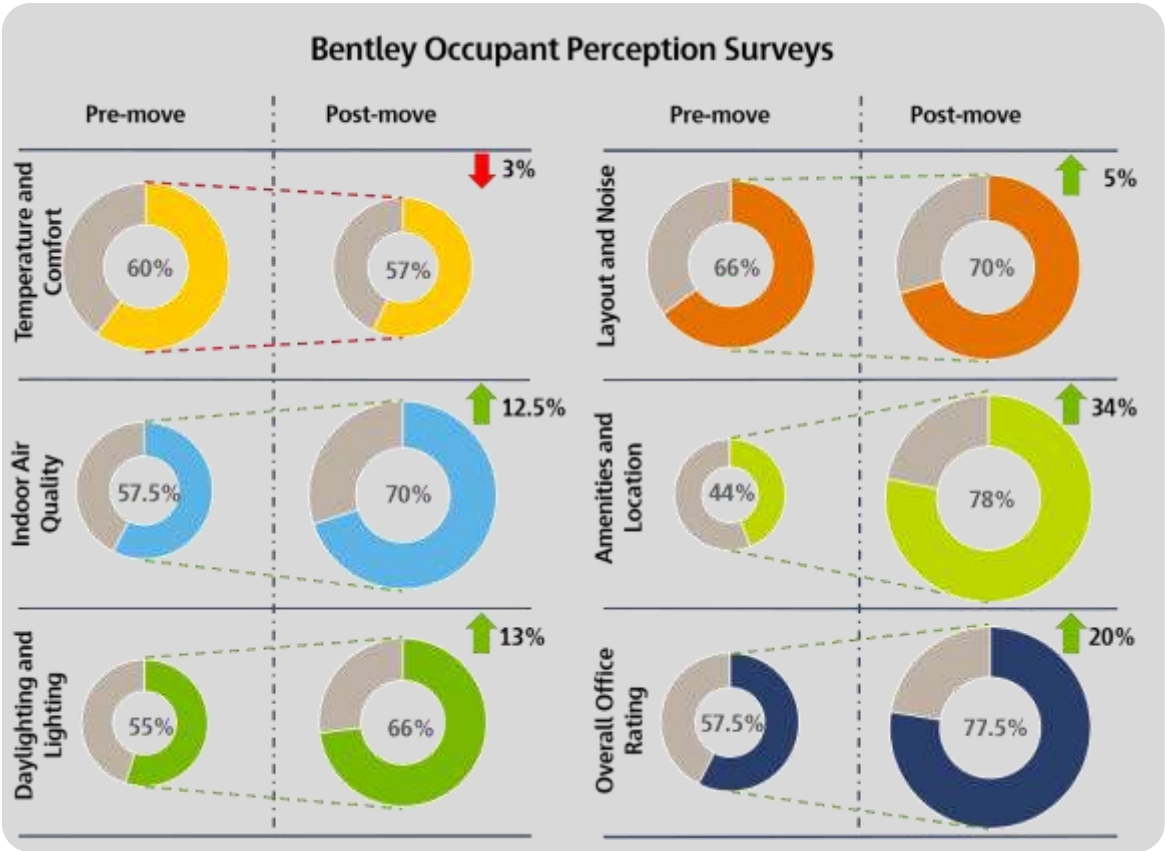
- BREEAM Outstanding
- Skanska Deep Green
- Green and healthy?

Neelands House: Green and/ or Healthy?

- PV, Biomass, Waste oil
- Low U-values, prefabricated panels, delivered by boat
- External shading, daylighting, light well, open plan, low VOC
- Green travel options, user engagement, POE/ occupant surveys

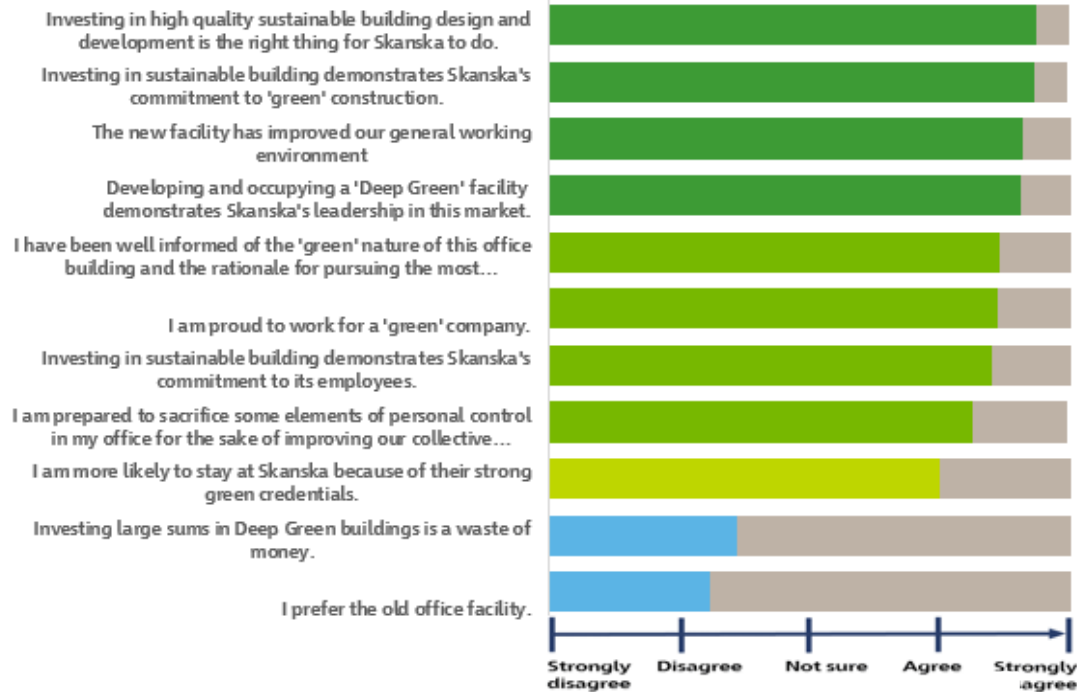


Skanska Bentley POE: Occupant Perceptions

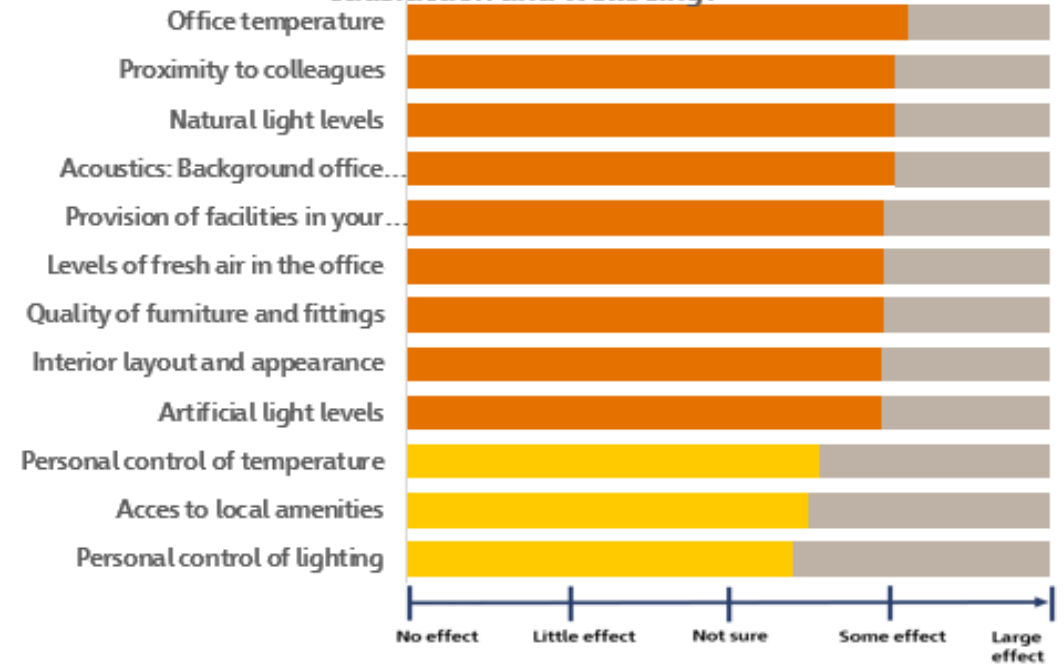


Skanska Bentley POE: Occupant Perceptions

Engagement and Attitudes-Mean Responses

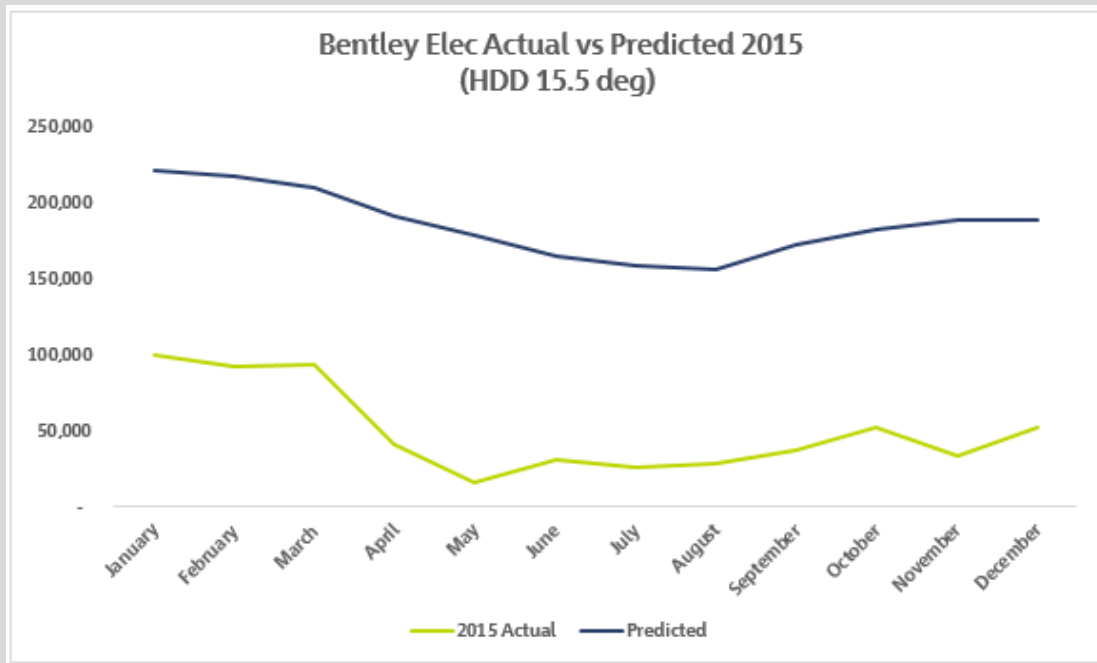


How much do the following features affect your personal satisfaction and wellbeing?

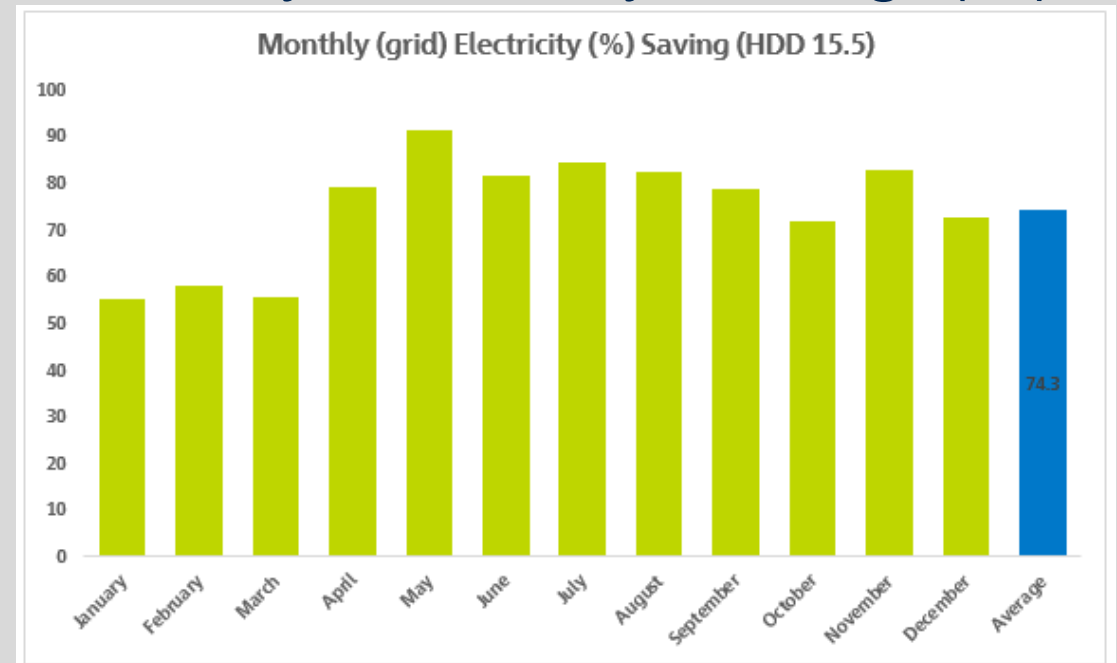


Bentley POE: Electricity Savings

Actual vs Predicted

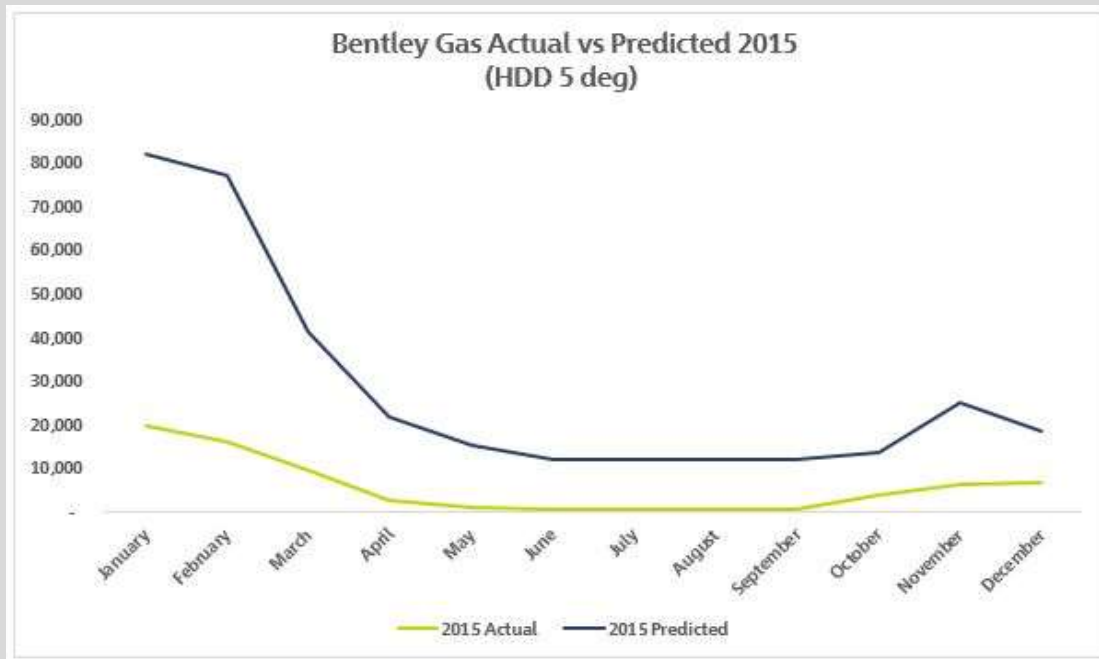


Monthly Electricity Savings(%)

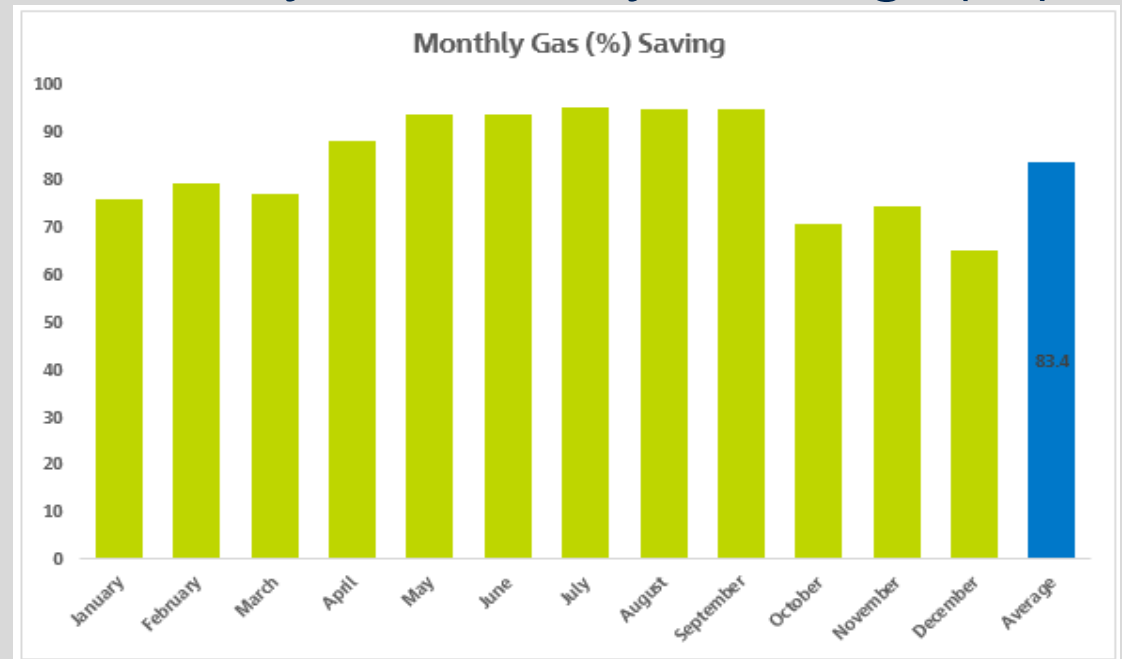


Bentley POE: Gas Savings

Actual vs Predicted



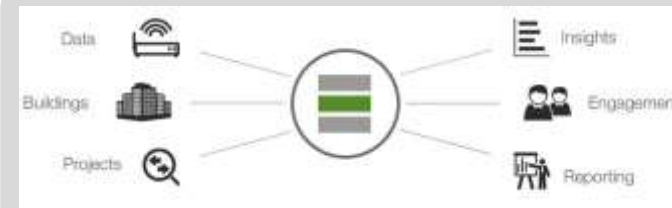
Monthly Electricity Savings(%)



Physical/ Financial Metrics

Points for consideration:

- Reliability/ connectivity/ security
- Scale/ cost/ setting
- 'Spot-IEQ-rating'
- Live IEQ/ energy monitoring
- HR reporting protocols

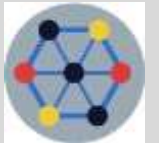


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Thank you!



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