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Affordable Sustainability:

Demystifying Green Homes: Building & Retrofitting

© 2023 Brian Murphy at Grand Designs Live
Discussion with Tim Phillips QS
Hosted by Max McMurdo Uncycler

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Costs planning your self-build project

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Affordable Sustainability: Demystifying Green Home Building and Retrofitting

- Join HiiGuru experts for an engaging panel discussion that challenges common misconceptions surrounding building environmentally-friendly homes and showcases the opportunities for cost-effective green construction and retrofitting.
- Our expert panelists,
- Brian, a HiiGuru Sustainable Design & Construction expert, and
- Tim, a HiiGuru Senior Quantity Surveyor,
- will explore innovative strategies to achieve sustainability without breaking the bank, highlighting the value of integrating green practices from the planning stage to the final construction.

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Tim
S.O Book Review Message

Nearly 30 years' experience as a Senior Quantity Surveyor and Estimator, with extensive experience across corporate, public and private sectors.

Areas of expertise

- The Construction and Construction cost advice
- Early cost advice
- Budget cost plans
- Bill of Materials or Schedule of Work
- Residential New Builds, Renovations, Extensions, Loft Conversions, Garage Conversions
- Projects of all sizes and nature

Qualifications


- BSc (Hons) Quantity Surveying from the University of South Wales — Construction Journalist for Homebuilding & Renovating Magazine — Expert Speaker at Homebuilding & Renovating Show, UK Construction Week and Grand Designs Live

30-Minute Video Chat with a Quantity Surveyor
Get live, 1:1 advice from a vetted Professional Quantity Surveyor over video chat £35 | \$45 Check Availability

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Brian
Novel Message

Award-winning Professional Eco-Home Advisor with over 45 years' experience in Architecture & Construction and over 23 years' experience in Sustainable & Environmental design.

Areas of expertise

- Green construction choices
- Environmental specifications
- Sustainable materials
- Energy, carbon & cost efficiency calculations

Qualifications

- BSc (Degree Honors) & PhD Diploma (Distinction) in Architecture from London Metropolitan University — ONC & HNC Construction from Peterborough Regional College

30-Minute Video Chat: Environmental Design & Construction Advisor
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- 1 Debunking the Myth: Is Green Home Building More Expensive?
- 2 Real Value Engineering vs. Cost Cutting
- 3 Embracing New Regulations and Grants for Sustainable Retrofits

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Definitions: Green and Violet

- I will refer to 'Green' which is widely adopted and fairly well understood as being 'environmental'.
- I also refer to 'Violet' which I coined in 1999 at 'Green is the Colour' conference by BD newspaper, to mean the opposite to 'Green'; it occurs at the opposite side of a colour spectrum circle,
- Violent and Violate give the right flavour.
- It applies to deleterious materials, badly performing buildings, incompetent material choices, bad cost planning that is bankrupting the industry.
- It applies to all actors, actions and choices in construction, the industry and the professionals and trades.
- It applies to anybody who does not care or act on behalf of the environment, biodiversity and future comfortable human occupation of our only planet.

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The Construction Industry is effectively financially and morally bankrupt.

- In the context of Fiduciary Rules, a legal obligation to make profits for shareholders.
- Profits before people before planet.
- Economic before social before environment.
- All companies are looking for opportunities to save money and make a profit.
- In the context of the following pressures, building quality is at risk.
- The temptation is to save money by reducing quality, competency by materials substitutions or omissions.

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Quantity Surveyor (QS) trade:

- Only apparent priority is low initial cost, always has been, always will be.
- They do not appear to accommodate client's green or investment ambitions.
- Aim for +/- 10% accuracy match between cost plan and tender.
- In reality this is wishful thinking, a recent project came in 50% adrift.
- Scant attention is paid to Whole Life Costs (WLC)
- WLC calculation equations are incredibly complex, tools did not exist to be able to engage.
- WLC datasets existed, created by consultants and only offered as consultancy.

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Elemental Cost planning:

- Includes conventional construction E.g. Masonry Cavity Wall.
- Insufficient granularity of details to be an accurate price for any full specification.
- Leads to incompetent pricing in a Green-ambitious context.

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Violet Cost planning

- Violet Cost Planning is fundamentally inaccurate, flawed and drives the bankruptcy.
- Cost plans should only ever be a guide to a basic minimum price for a basic legal minimum building without any of its complexities.
- Cost plans become upper limits.
- Green brief gets 'value engineered' (push for cost cutting) back to violet cost plan.
- Green value engineered out of projects even before going to tender.
- Target: violet cost plan not green ambitions.

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'Value Engineering'

- And then Value Engineering begins (push jargon for cost cutting as practiced by UK QS)
- Even before going to Tender, and then again after.
- Because the current scheme does not match the incompetent cost plan.
- Cost plans are calculated, set-in stone and clients assume they can expect that price.
- Cost planning is based upon outline specifications without any real project details.
- Ignores all the interfaces, co-ordination, detail that will follow leading to contract specification.
- Cost plans are not adjusted between outline and contract specification.
- In this context all tenders are likely to go over cost plan budget.

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Green ambitions

- Many projects are expected to adhere to green-ambitions set by client, planning decisions, societal pressure and marketing department claims, environmental assessment schemes or funder expectation.
- From cost planning onwards green-ambition project will get eroded back towards those inadequate violet cost plans.
- Commitments to BREEM and other assessment methods become financially impossible.

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Violet Cost Data

- Cost planning is based on violet building price books.
- Cost planning is based on violet not green methods of construction and materials.
- Cost planning is based on violet supplier's and violet installer's price books.
- Violet price books based on elemental prices, not detailed, no granularity, so not accurate.
- Based on back to basic construction
- Incompetent for green building ambitions

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Bills of Quantities by tenderers

- Saving client upfront costs by QS not producing a bill of quantities (BofQ).
- Speeding to 'Out to tender' date not having to create BofQ.
- Increasing tenderer's burden x 6, each creating their own inconsistent BofQ.
- Increasing tender evaluation burden comparing 6 BofQ, comparing apples with pears

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Tenderer expectations & habits

- Violet tenderers when asked to use unfamiliar green materials and methods, will add safety margins in their prices, exceeding any cost plan budget.
- Tenderers are expected to cut their prices to the bone and habitually comply.
- Resulting in the express intention of making claims for extras to claw back more money later.
- Violet tenderers become violet constructors or violet contractors:

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Aim at violet cost plan.

- Aim to make claims for extras.
- Know violet price for violet materials.
- Already have a violet supply-chain.
- Subservient to Main Contractor (tenderer) pressures.

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Violet Contractors:

- Contracts become bread and butter with no profits, no working cashflow and higher risk.
- Contractors are encouraged to exploit any weakness in the contract documents and plan to habitually make excessive and unfounded claims for extras, adding to contract administration burdens, often for months after practical completion.

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Sub-contractors

- Violet Main Contractors practice 'Dutch bargaining' between their supply-chain sub-contractors to reduce their sub-contracts to bread and butter with reduced salaries and no profits.
- Sub-contractors take the brunt for main contractor cash flow issues:
- Sub-contractors are not being given adequate time to care, to be able to do a competent job.
- Supply chain sub-contractors are expected to pay a dividend in return for regular work.
- Dividends are expected to be paid even before they have been paid for the jobs.
- Sub-contractors are not paid for 90 days or more despite Government initiatives to stop this.
- Suicide rates are soaring amongst sub-contractors.
- Main Contractors pay lip service to mental health campaigns.
- The industry is forced into modern day slavery to get jobs done for the price.
- Despite initiatives to clean up its act, slavery goes on when prices are so tight

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Loss of Quality

- Profits can only be achieved by using inferior products or omitting products.
- Post-Grenfell inspections found whole blocks of apartments without any passive fire barriers between all apartments.
- Surreptitious specification substitution happens, building performance is eroded.
- Cheap, incompetent, violet, deleterious materials are used in place of green specifications.

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In the context of: Fiduciary Rules

- (An obligation to shareholders to make a profit and pay them premiums)
- Profits > People > Planet
- Who are your share/stakeholders?
- You and your family?
- Are you trying to make a profit? No?
- Or build your forever home? Yes?
- Is building cheap on the agenda? No?
- Is investing in your future on the agenda? Yes?

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HERACEY (TM)

- Healthy Environmental Resourceful Appropriate Competent Effective Yardstick
- Greening for any future on an ailing or carbon-rationed planet
- Bioregional: UK average citizen lives 3 planet lifestyle,

18/10/2023 Grand designers: 0.5 Ben to 50 planets

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Are you Green or Violet?

- Council tenants can house whole families in 50m2
- Do you need 10 families worth of materials and carbon to live?
- Do 9 families have to go without a house?
- Can you be more cost or carbon effective?

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Green v Violet

- Green does not always mean expensive
- Choose a Green Contractor to do a green building
- A violet contractor will price for green materials then add on a safety margin for unfamiliarity
- Setting the brief and targets,
- Value Engineering v cost cutting v Substitution.

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“Real Value Engineering v Cost Cutting”

- Brian to lead with issues,
- Tim to respond with QS perspective

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Slogans & Definitions:

- Location Location Location
- Insulation Insulation Insulation
- Fabric First, Eco Bling Second
- Build Tight Insulate Right
- PAS 2035 Slogan: No Insulation without Ventilation

ZCH Slogan: Performance Gap

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GBE Slogan:

- Build Light, Insulate Right, Solar Tight.
- Green v Violet which do you use?
- Green V Violet: Price Books, accuracy v detail, Methods, Materials, Tenderers, Contractor,
- High-performance v future-facing

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Cost issues:

- Investing in your future v cheap as possible
- Building Life expectancy: Normal = 60 years
- 2023 > 2083 (beyond 2030 and 2050)
- 1.5 to 3 degrees of warming can your building cope?
- Climate change is happening now
- Global Warming > Global Burning

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Initial costs v long term costs

- Targets v compromise
- Return on investment: in your forever home if you are not selling it ROI has no place.
- Insulation v posh taps, ironmongery, kitchens and bathrooms
- Local labour, Local materials, avoid transport overhead
- Finding Green Suppliers, Products, Materials, Installers, Contractors

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Optimisation in Design to reduce Costs

- Regulation are not meeting any global targets
- Legal minimum compliance will cost you dearly
- Form Factor: Compact verses v linear v wings, Setting targets beyond regulations
- Corners cost: labour, materials offcuts, inaccurate workmanship, thermal bridges, air leakiness
- Cost of waste: acknowledging the size of stuff, £1600 average cost of materials in a skip
- Cost of energy demand: insufficient insulation

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Performance optimisation

- Multi-functional materials, less labours, less layers,
- Choosing windows: cherries v lemons, specification and performance
- Self-build v Specialist installers: Competency of installers and installation, optimisation
- Skill and no time v no skills and lots of time to care

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Value Engineering:

- Setting the brief and targets, Value Engineering v cost cutting v Substitution.
- Initial costs v long term costs
- Look at bigger picture: not just individual component cheapness
- Demolition rubble: Permeable pavement sub-base, rainwater harvesting, irrigation water, biological water cleaning, solar pavement, ground source heat pump,
- Windows with encased blinds, U value, Acoustics, Privacy v views, Solar shading, no need for curtains, no cleaning blinds,
- Demolish at short notice and at high cost to you v deconstruct with time to spare: potential value to you.

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Grants if there are any for Self-build

- BUPS or BUSP?
- Self-build (retrofit) & VAT,
- Boilers and VAT
- ECA Enhanced Capital Allowance
 - ETL Energy Technology List
 - WTL Water Technology List
 - (not for domestic)
- MCS compliance for Renewable Energy
- Manufacturers approved installers
- ASHP Grants, vouchers
- Manufacturers discounts: beware
- £8.85m UK Gov invest in energy efficiency training
- £5m Heat training Grant
- <https://www.pbctoday.co.uk/news/energy-news/government-announces-new-5m-heat-training-grant-for-heating-engineers/121991/>
- £6.6bn invested in improving energy efficiency across the UK
- Further £6bn 2025 to 2028

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- Brian Murphy ONC HNC Construction, BSc Dip Architecture (Hons+Dist)
 - Technician and Archited by Training
 - Specification Writer by Choice
 - Environmentalist by Actions
 - Writer and Educator as a calling
 - Number Cruncher by Necessity
- Greening up my act since 1999
- Founded National Green Specification 2001
- Launched www.greenspec.co.uk 2003
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