



# “Green or Violet Materials, which do you use?”

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## Speaker:

- Brian Murphy [brianspecman@icloud.com](mailto:brianspecman@icloud.com)
- is a Technician and Architect by training, a Specification Writer by choice and an Environmentalist by action
- Founded [GreenSpec.co.uk](http://GreenSpec.co.uk) Website 2003
- Started [GreenBuildingEncyclopaedia.uk](http://GreenBuildingEncyclopaedia.uk) online 2015
  - 1950 pages created and 30,000 to go.

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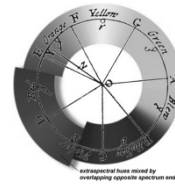
- *This CPD is a perfect sustainability crash course for the young newly trained Architects!*
- *First you will learn some definitions and then we run through many violet materials in common use today.*
- *There will be an introduction to some unfamiliar materials with their fundamentally important properties, with samples to hold and smell!*
- *There will be an explanation of how choosing the right materials with the right properties will help to close many aspects of the Performance Gap.*
- *And at the end.... How Business as Usual will fail to deliver.*

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# Green & Violet Materials Definitions

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Sustainable  
Eco  
Green

Violet  
Violent  
Violate

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## ‘Violet’ Materials

- ‘Violet’ meaning:
- ‘any material, construction product, construction method or building
- unfriendly to humans or the environment or
- whose performance diminishes in use or over time’

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## ‘Violet’ Industry

- Clients/employers, developers, designers, Quantity Surveyors, contractors, manufacturers, applicators/installers, advisory organisations, manufacturer associations
- anyone that does not care about the environment
- or anyone that does not act on its behalf
- Virtually the whole industry
- It has been changing, slowly driven by legislation

17/09/17 But far too slowly, until now..... 9

## Definitions

- Green
- Greenies
- Light or Dark Green or Greenies
- Greenie Points: Brownie Points + Green (all positive)
- Violet
- Light or Dark Violet
- Whitewash: cover-ups telling porkies
- Greenwash: telling green porkies

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## I am a shrinking Violet

a little green  
round the edges but  
less violet everyday

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### Violet Materials

- **Non-renewable, finite**
  - Fossil derivatives, fuel, hydrocarbons, high embodied carbon
  - Petrochemical, chemicals, synthetics:
    - Paints
    - Plastics (from hydrocarbons)
- **Unsustainable**
  - Carbon based: e.g. Fuel
  - Releases Carbon in manufacture or use: e.g. Cement
- **High embodied energy: e.g. energy intensive manufacture**
  - Metals: Aluminium (was made with renewable energy, today more gas and coal)
  - Plastics
  - Cement (UK uses more waste as fuel but tyres are fossil fuel)
- **Hazardous materials and hazardous waste:**
  - Wet, sticky, gooey or flows:
    - resins, paints, sealants, chemicals,
  - Fine particulate: e.g. cement, asbestos, ceramic fibre
  - Corrosive, acidic, alkali,
- **Ozone depleting & Global Warming**
  - Foamed plastics PFCs HFAs
  - Aluminium production PFCs

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### Green: Environmentally Sustainable Materials

- **Renewable: timber,**
- **Rapidly renewable: Plant based materials**
- **Abundant: Site subsoil, rocks, sand, gravel,**
- **Recycled & Recyclable:**
  - post consumer content,
- **Reclaimed & Reused: on site materials, timber not chipboard**
- Carbon already out there:
  - reclaimed bricks, slates, stone
- Carbon sequestration: low, neutral or Carbon negative:
  - Plant and timber based
- Low embodied energy: Plant based, minerals
- Local: low transport miles, fuel, emissions and congestion

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### Social Sustainable Materials

- **Socially responsible: Fairtrade equivalents**
- **Pay the right price v plunder the world**
- **Local: materials, crafts, companies, tradesmen**
- v
- **Cheap labour abroad where nobody sees or cares**

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### Healthy Materials

- **Low VOC?: but not loads of other chemicals to achieve it**
- **No hazardous materials in application and use**
- **No hazardous waste**
- **Low allergy**
- **Low to Zero toxicity**
- **Indoor air quality (ignored by BRE GG)**

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### Green v Violet Materials

- Long term economic to maintain
- Long term economic to run
- Reclaimable, reusable and resalable
- v
- Short term cheap to build
- Expensive to run
- Sometimes risky in use

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## Green Materials Perform

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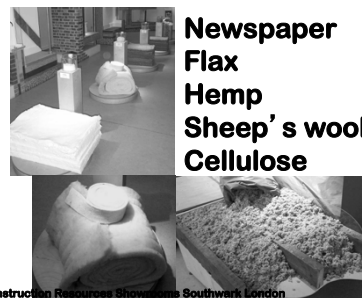
## Green Thermal Insulation

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### Thermal Insulation



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### Thermal Insulation Cellulose fibre Recycled Newspaper and Magazines



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## Green Wall Finishes

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## Clay boards & finishes



### Clay Boards Reed & Clay Clay finishes

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## Clay Finishes



- Clay Boards: Reed & Clay,
- Insitu clay on reed
- Clay finish
- Dry and harden but do not set
- No time limits
- Easy repairs
- Less skill required

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## Clay Finishes



- Can sustain high humidity where gypsum/paper will harbour mould
  - Hygroscopic
  - Moisture Mass
  - Condensation avoidance
  - Mould avoidance
- Thermal mass
  - High density
  - Large surface area
- Electromagnetic radiation absorption
- Absorbs smells

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## Clay finishes

- Mineral based dyes
- Non-fade
- Bond to background
- No flaking
- Long life
- Durable
- Properties of clay plaster
- Vapour permeable



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## Paints & Stains



### Natural ingredient Paints Stains Oils Waxes Polishes Sealers

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## Natural Paints

- No synthetics
  - VOCs if any are natural
- No poisons
- No chemical concoctions
  - No unexplored impacts or reactions
- No pollutants
  - Healthy career possible
- No Hazardous waste
  - Many compostable

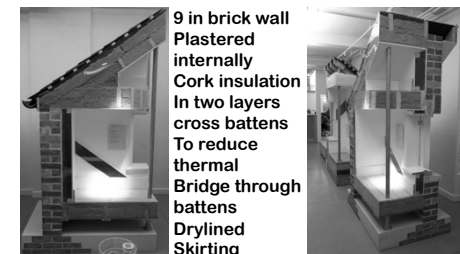
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## Victorian Building Green Energy Upgrade

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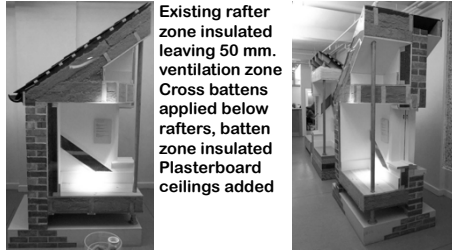
## Solid Wall Construction



9 in brick wall  
Plastered internally  
Cork insulation  
In two layers  
cross battens  
To reduce thermal  
Bridge through  
battens  
Drylined  
Skirting

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**Pitched roof Construction**

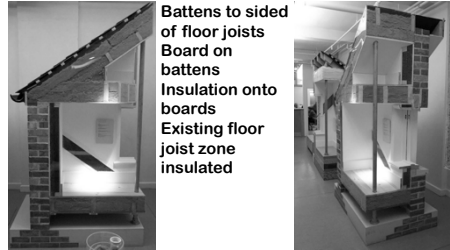


Existing rafter zone insulated leaving 50 mm. ventilation zone  
Cross battens applied below rafters, batten zone insulated  
Plasterboard ceilings added

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**Suspended Ground Floor**

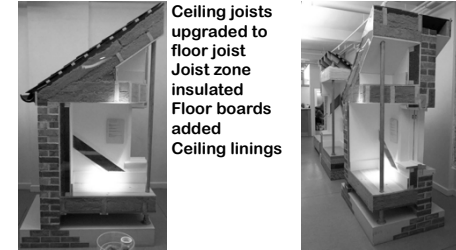


Battens to sided of floor joists  
Board on battens  
Insulation onto boards  
Existing floor joist zone insulated

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**Suspended Upper Floor**



Ceiling joists upgraded to floor joist  
Joist zone insulated  
Floor boards added  
Ceiling linings

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**Cavity Wall Construction**

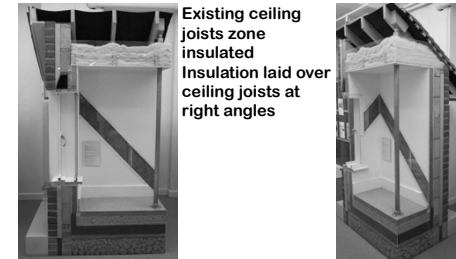


Existing masonry cavity wall, Brick outer leaf, block inner leaf, Steel lintel thermal bridge plastered internally;  
Insulate cavity  
Internal insulation  
Wrap lintel  
Plasterboard dry lining

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**Pitched Roof Attic**

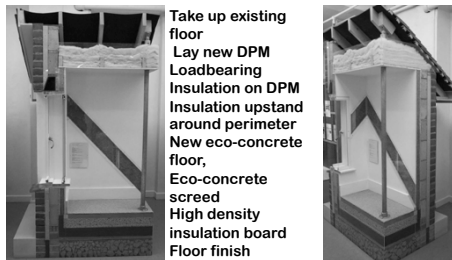


Existing ceiling joists zone insulated  
Insulation laid over ceiling joists at right angles

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**Ground floor**

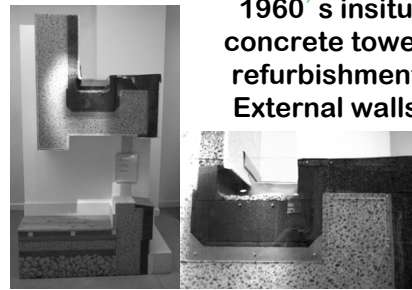


Take up existing floor  
Lay new DPM  
Loadbearing  
Insulation on DPM  
Insulation upstand around perimeter  
New eco-concrete floor,  
Eco-concrete screed  
High density insulation board  
Floor finish

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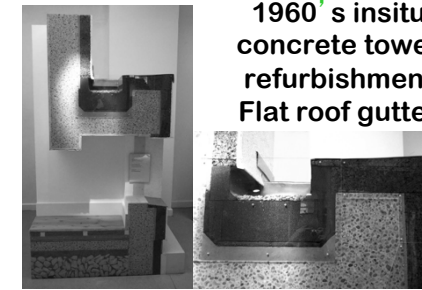
**1960's insitu concrete tower refurbishment External walls**



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**1960's insitu concrete tower refurbishment Flat roof gutter**



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- These files are updated from time to time
- We are not experts so from time to time these file may get out of date or may be wrong.
- If you feel that we have got it wrong please let us know so we can put it right.

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  - Specification Writer by Choice
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