



The challenges of eco-retrofitting interiors


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Environmentally Sustainable Design.

What can I do?

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What can I do?

- The dilemma is that IDs will fit out and refit many interiors.
- will relegate most of the existing interiors to landfill.
- How and where can IDs engage with the Sustainability Agenda
- What materials choices can be made to reduce carbon impacts.
- Impacts in materials, methods and over the life of the fit-out.

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This presentation

- www.scribd.com/brianspecman
- <http://www.scribd.com/doc/79060958>
- Interiors
- <http://www.scribd.com/doc/2523099>
- <http://www.scribd.com/doc/78130374/The-Challenges-of-Eco-Interior-Refit-A03-130112-BRM>
-

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See also

- Domestic Commercial Government estate and Historic – <http://www.scribd.com/collections/2401889/SusCon-Retrofitting>
- Office Refit
 - <http://www.scribd.com/collections/2472550/Ska-Potential-Supporting-Information>
 - <http://www.scribd.com/collections/2472552/Ska-Potential-Educational-Information>
 - <http://www.scribd.com/collections/2523099/Interior-Design>
 - <http://www.scribd.com/collections/2455441/FFE-Furniture-Fittings-Equipment>
 - <http://www.scribd.com/collections/2453690/Facilities-Management>
- GreenDeal
 - <http://www.scribd.com/collections/3311795/SMARTLife-Hive-Low-Carbon-Centre>



The challenges

- ID profession is awakening
 - Fit out and refit projects need to address their environmental impact
- The Green Register
 - One day conference/SBS Day 3 workshop
 - to address some of the more pressing issues interior designers have to face.
- But what are these issues?

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3 important issues

- **Damage Categories**
 - Resource Depletion
 - Ecosystem Damage
 - Human health
- The issues overlap
- The choice we make influence all three

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Resource Depletion

- interior finishes are removed and replaced frequently,
 - Retail interiors are designed, built, stripped and rebuilt every 5 to 7 years
 - Office interiors can be stripped after every tenant and letting agent
 - CAT A to CAT B to CAT A to CAT B

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The building-fabric-only

- needs to be competent
 - Or every refit would require building regulations applications,
 - Associated design and application fees
- Increasing energy performance requirements
 - Welcome, but who wants to have to pay
 - Would make refit progressively more expensive.

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Design to reduce waste

- Knowing the size of stuff
- Designing to avoid cutting anything
- No more setting out from centre and cutting at edges
- No off-cuts
 - (33% of waste stream)
- No waste
 - (100m tonnes/annum)

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Design to enable reuse

- Avoiding adhesives
- Using easy reverse fasteners
- Using whole modules that are easily reused
- Careful removal
- Set aside to reuse on same job
- Facilitate reclaimers

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Designing to use reclaimed

- Re-educate your customers
- Visit salvage yards
- Choose to use salvaged
- Design to use salvaged

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The RICS 'Ska rating'

- Environmental assessment method
- addresses refit better than any of the BREEAM tools
- it focuses on building fabric and the materials that both IDs and Architects specify.
- follows the conventional approach
 - competent building, complimentary interiors
- More importantly it addresses reuse of existing interior materials
 - reuse of reclaimed
 - rather than sending perfectly sound materials to landfill.

Issues that need to be addressed by the building:

- G value & Solar gains
- Thermal mass
- U value, k value, R value
- Decrement delay
- Wind and airtightness
- Vapour permeability
- Thermal breaks
- Weather tightness
- Internal surface temperatures
- I doubt many IDs want to get involved

Inadequate property?

- No tenant/purchaser wants to buy into:
 - Property that needs completion as part of fit out
 - part of tenant agreement
- Tenants would quite rightly expect a competent building

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Who pays?

- If building running/heating/ventilating/cooling are part of their landlord agreement
 - there is no incentive to reduce running costs
 - unless they see a financial return for a consumption reduction.



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Carpets Insulate

- Carpets may be insulating
 - effect ground floor only
- they also hide thermal mass
 - that can have an effect on the overall energy demands
- Thin sheet flooring
 - will not hide thermal mass
- Ceramic and stone have thermal mass

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Ceilings Insulate

- The same two points apply to suspended ceiling,
- not at ground floor, but at roof.

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Regulating internal comfort conditions

- The interior finishes can have variable properties that help or hinder
 - Affecting heat/vent/coolth requirements
 - Potentially affecting energy demands
- The same finishes with the wrong choice of materials
 - can affect indoor air quality
 - needing ventilation which drives up energy costs

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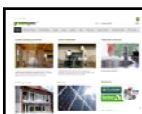
Issues of concern include:

- Material ingredients
- Binders/adhesives/backings
- VOCs
- off-gassing
- Indoor air quality
- Moisture mass & Hygroscopicity
- Thermal mass
- Acoustic mass

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Historic buildings

GreenSpec
www.greenspec.co.uk

CAPEM
www.capem.eu

- Solid wall construction (pre 1919)
- Increasing internal insulation by wall coverings, can lead to:
 - Condensation
 - Mould
 - Asthma
 - Toxic mould
 - Death
 - Interstitial condensation
 - Rot in embedded timber
 - Frost damage of masonry
 - Structural failure

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Issues to be address in material choices include:

- Hygro-thermal moisture movement
- Wind driven rain
 - Absorption at outer face
- Capillary action through open pores
- Moisture transport through open pores
- Continuity or gap avoidance
- Vapour permeability
 - in both directions
- Internal evaporation
 - when conditions permit

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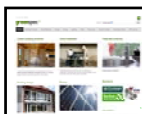
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Re-education of the designers

- in all disciplines on environmental issues is paramount,
- coordinated design is essential
- Respect for each other
 - and each other's contribution would help a lot.
- Respect comes from personal knowledge, know-how, some science, years of experience and competence

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Knowledge

GreenSpec
www.greenspec.co.uk

CAPEM
www.capem.eu

- IDs often rely on manufacturers reps to tell them what they need to choose and specify
- Architects can also be inadequate in these matters,
- Many manufacturers are promoting materials and methods that will lead to failure

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Change the syllabus?

- trying to modify RIBA syllabus is difficult enough,
- who will persuade the lecturers that they need updating,
 - to enable change
- who would teach the lecturers?
- I know plenty of people who could, including myself,
- I have numerous seminar papers that I have presented to Architects, ID, Furniture and Exhibition Designers & their students

Change the syllabus?

- I wonder if ID syllabus would be any easier?
- It turns out there is no official syllabus
- Every university or course makes its own up

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The Green Register's one day conference

- will help ID's to arm themselves with the knowledge they want and need
- to inform themselves and their clients
- about the choices they can make with fit-out, refit and refurbishment projects.
- <http://www.greenregister.org.uk/events.php?p=1&id=219#event219>
- <http://www.greenregister.org.uk/blog>

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- GreenSpec Founder
- <http://www.greenspec.co.uk>
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- <http://www.Scribd.com/brianspecman>
- <http://www.scribd.com/doc/78130374/The-Challenges-of-Eco-Interior-Refit-A03-130112-BRM>

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