Welcome

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Chair / Acting Civil and Structural Chair BDP

Managing Risk

February 2012

Low carbon economy

BIM / building information modelling

Reduction in construction costs

In a market of increasingly lower consultant fees…

Low carbon is often interpreted as using less material

Risk

Driving materials to their physical limits means less redundancy in structural systems

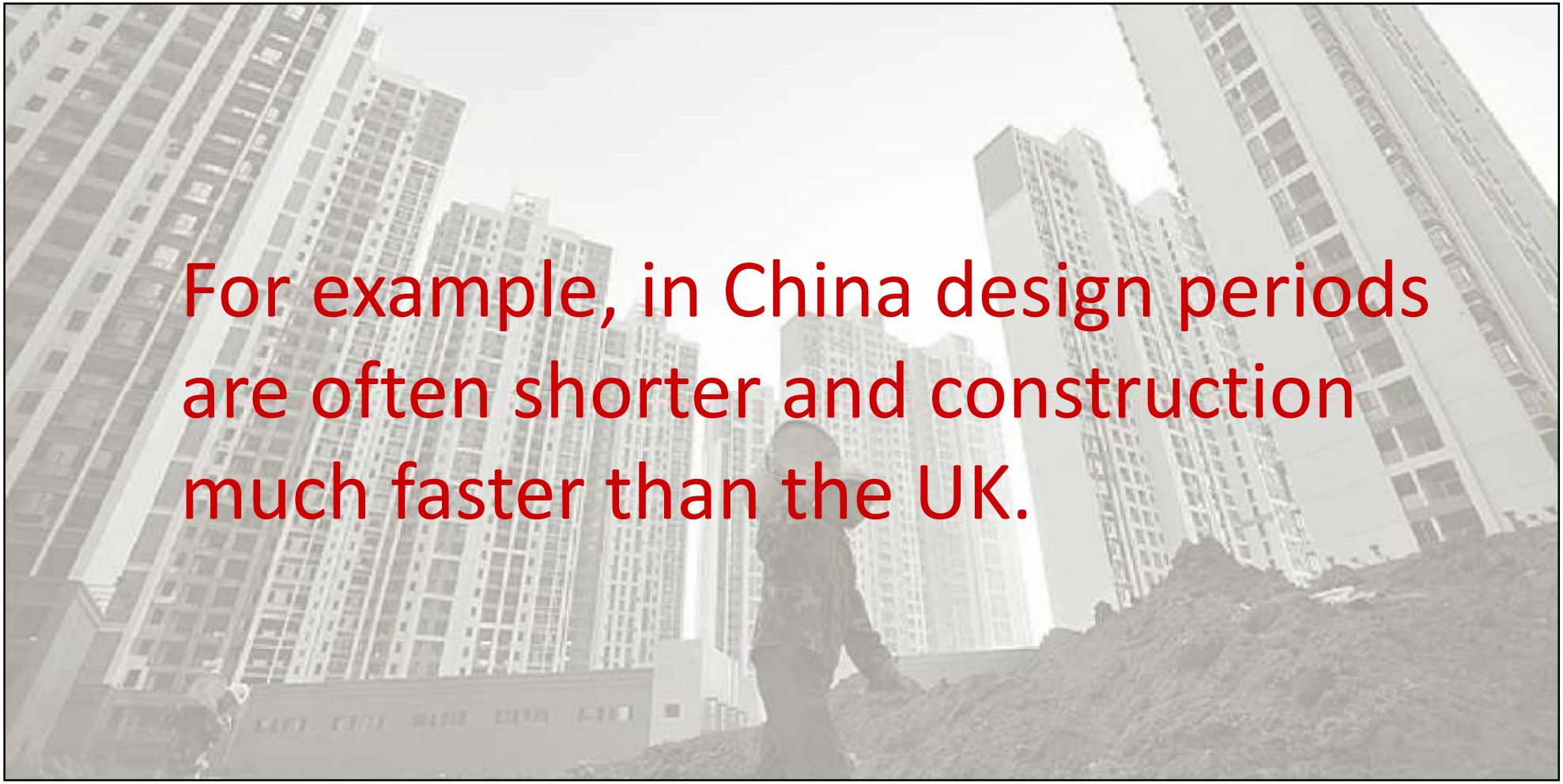
More investment in research, checking and rationalisation of designs-consultant fees need to be in line with this approach.

Low carbon agenda needs to be holistically applied to all projects

“International”

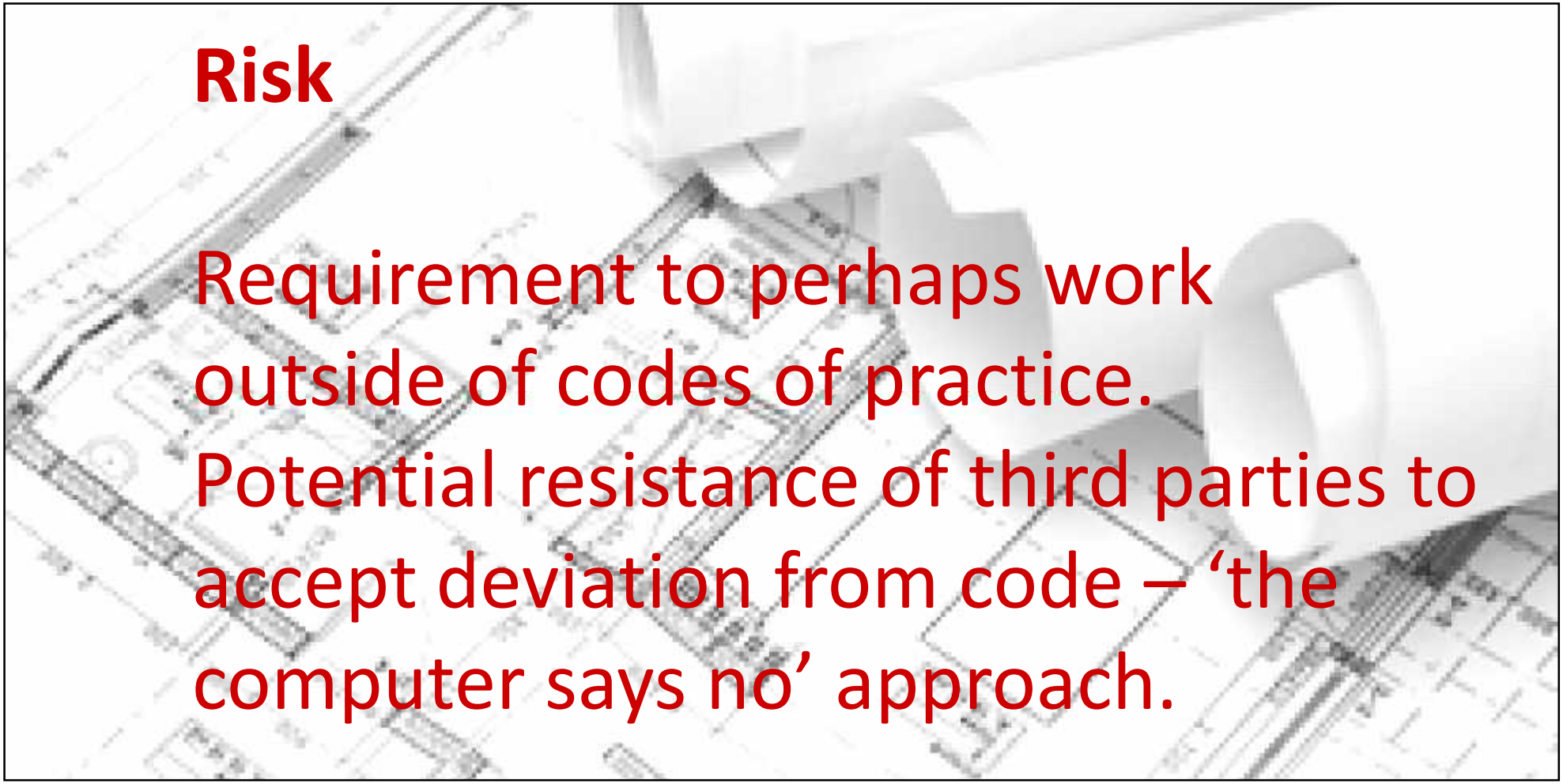
Risk

Construction approach differs significantly across countries. A reasonable approach in the UK could result in unacceptable risk elsewhere.


For example, in China design periods are often shorter and construction much faster than the UK.

Redundancy and a conservative approach save lives and a “lean design” approach needs to be balanced against a sensibility on how the construction industry works locally.

Low carbon can be interpreted as providing an innovative approach to use of materials

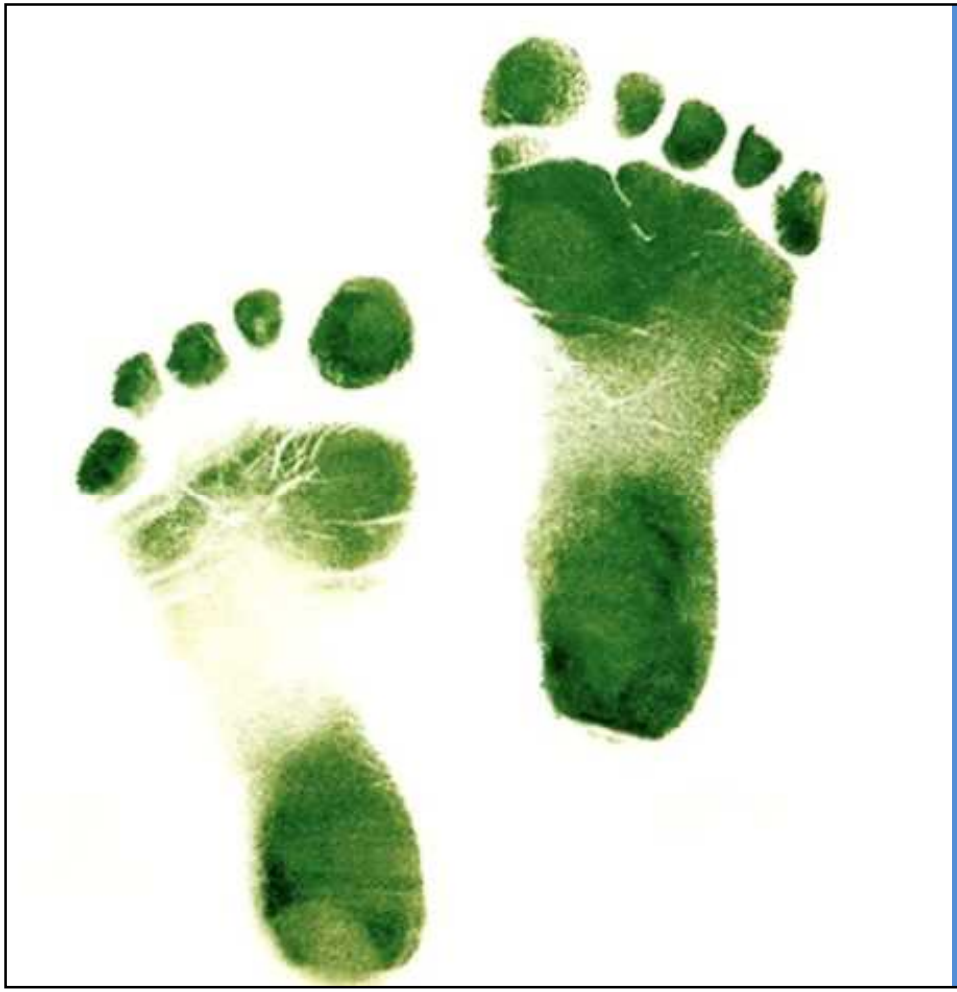


Risk

Requirement to perhaps work outside of codes of practice.

Potential resistance of third parties to accept deviation from code – ‘the computer says no’ approach.

Engineers are more than capable of working this way but consultancy fees need to respect additional input required.



Carbon is often measured on projects using ‘carbon calculators’

Risk

Every consultancy has one! Not a coherent approach so clients often confused and at worst miss informed.

Standardised approach endorsed by ICE / IStructE / DCLG and recognised by wider industry-this will empower engineers to make a difference.

M is hailed by the
ustry as being the
to drive economic
and efficient
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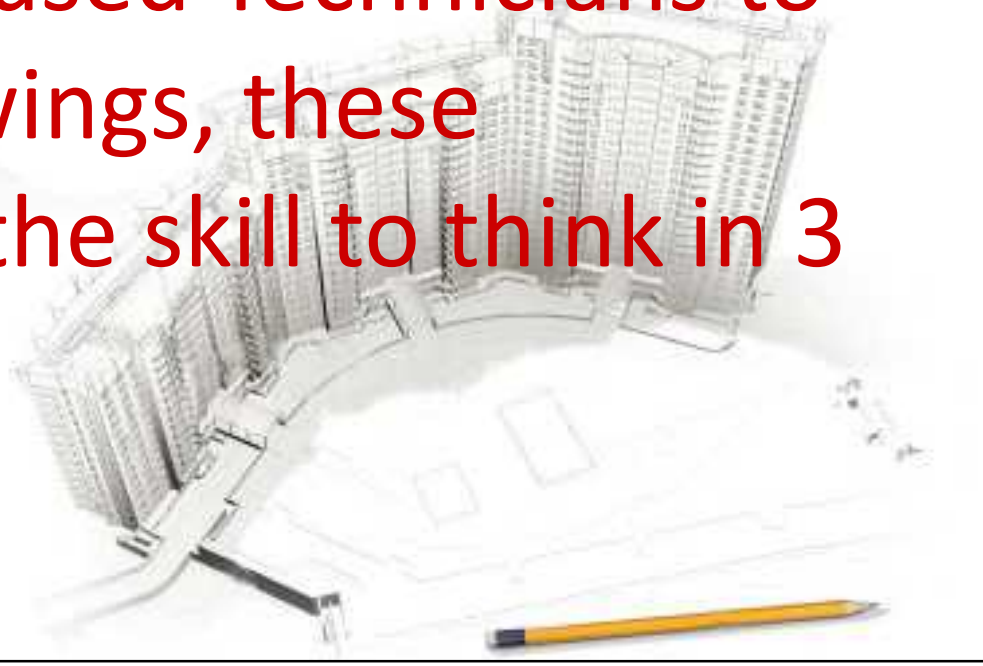
Risk

Surely no risk?

Traditionally we used Technicians to produce 2D drawings, these technicians had the skill to think in 3 dimensions



New generation of BIM Technicians often cannot think in 3 dimensions- they do not need to as they have always worked in a 3 dimensional virtual world.

Technicians increasingly IT orientated in education base, less HNC or equivalent construction qualifications yet increase in responsibility for coordination role as BIM Technician-skill gap!


BIM is not a silver bullet! BIM
Technicians are driving the rally car
but Engineers need to be navigating.


Clear process and understanding of the limitations of BIM will actually unlock the true potential.
The industry needs clear guidance.

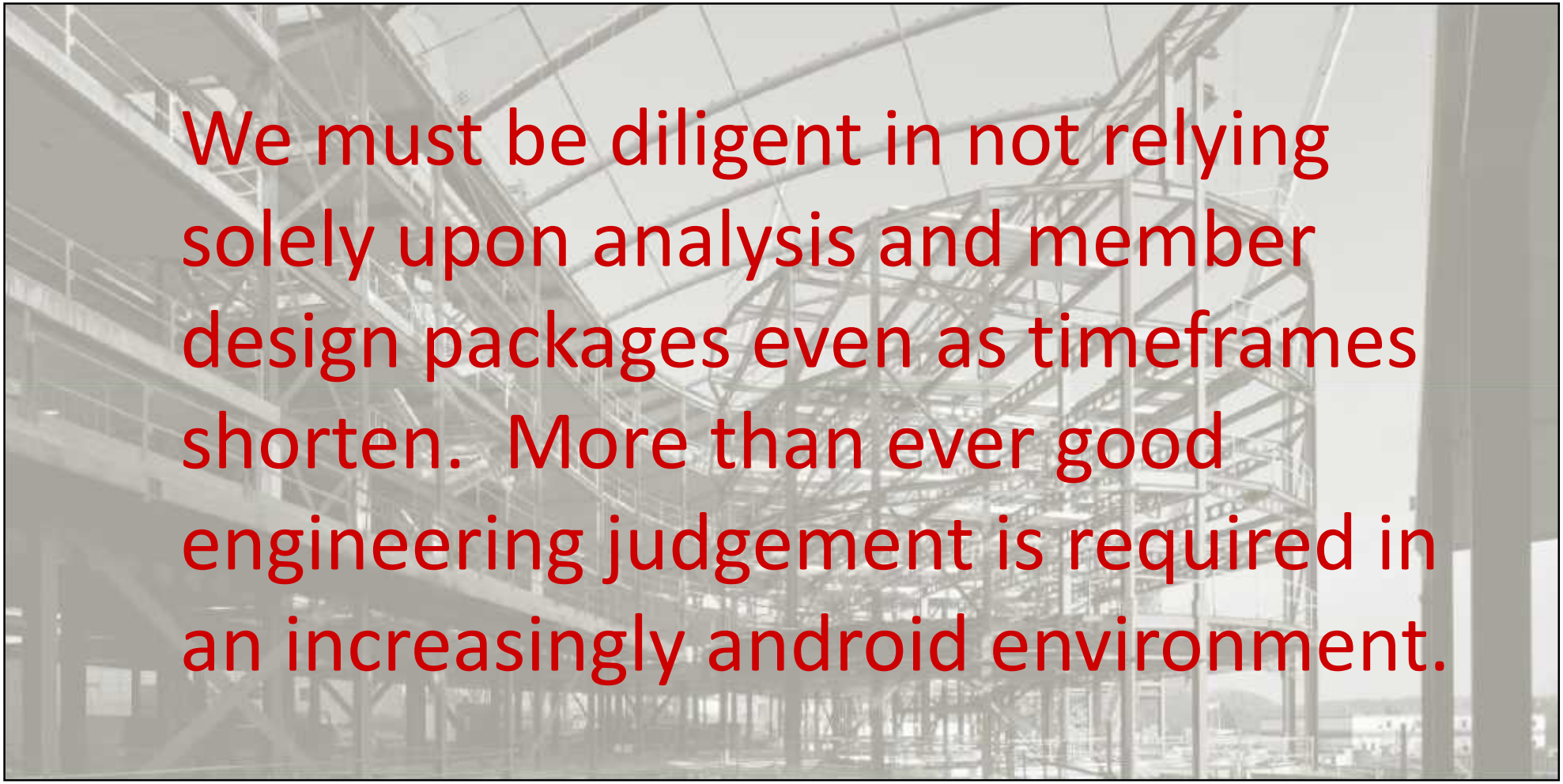
Reduction in construction costs

Risk

We have already touched on lean design, greater rationalisation and less redundancy in structures. Reduction in construction costs also has potential to…


Shorten design and construction periods. In theory fine but an approach of lean and highly rationalised structural designs could present risks.

We increasingly use analysis software that ‘tricks’ us into thinking it has all the answers. A recent lecture on ‘Understanding structural analysis’ highlighted this.


We must be diligent in not relying solely upon analysis and member design packages even as timeframes shorten. More than ever good engineering judgement is required in an increasingly android environment.

Do we remember the contractor's site engineer on site?


It is increasingly unlikely that you will find a contractor’s site engineer checking work on a site.

Increasingly scope reduction for main consultant engineer and increasingly more specialist design items.


Specialist design elements do not always get the same level of review and checks as they are produced late in the process.
Gaps in scope.

Clear guidance / framework for how subcontractor information is reviewed and checked by all interested parties.


Reducing construction costs and tighter programmes will mean more disputes.

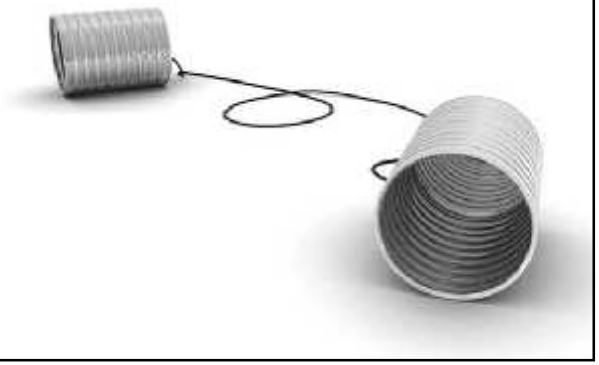
‘Buying’ work and agreeing to unrealistic programmes will damage the industry-there needs to be clear guidance on how long design stages typically take to complete.

Communication

Risk

In an age where email is so extensively used we are forgetting how to communicate.

Universities and companies need to invest in mentoring young people, encouraging them to reach for the telephone before email. Working in teams is all about effective communication.



spiring the
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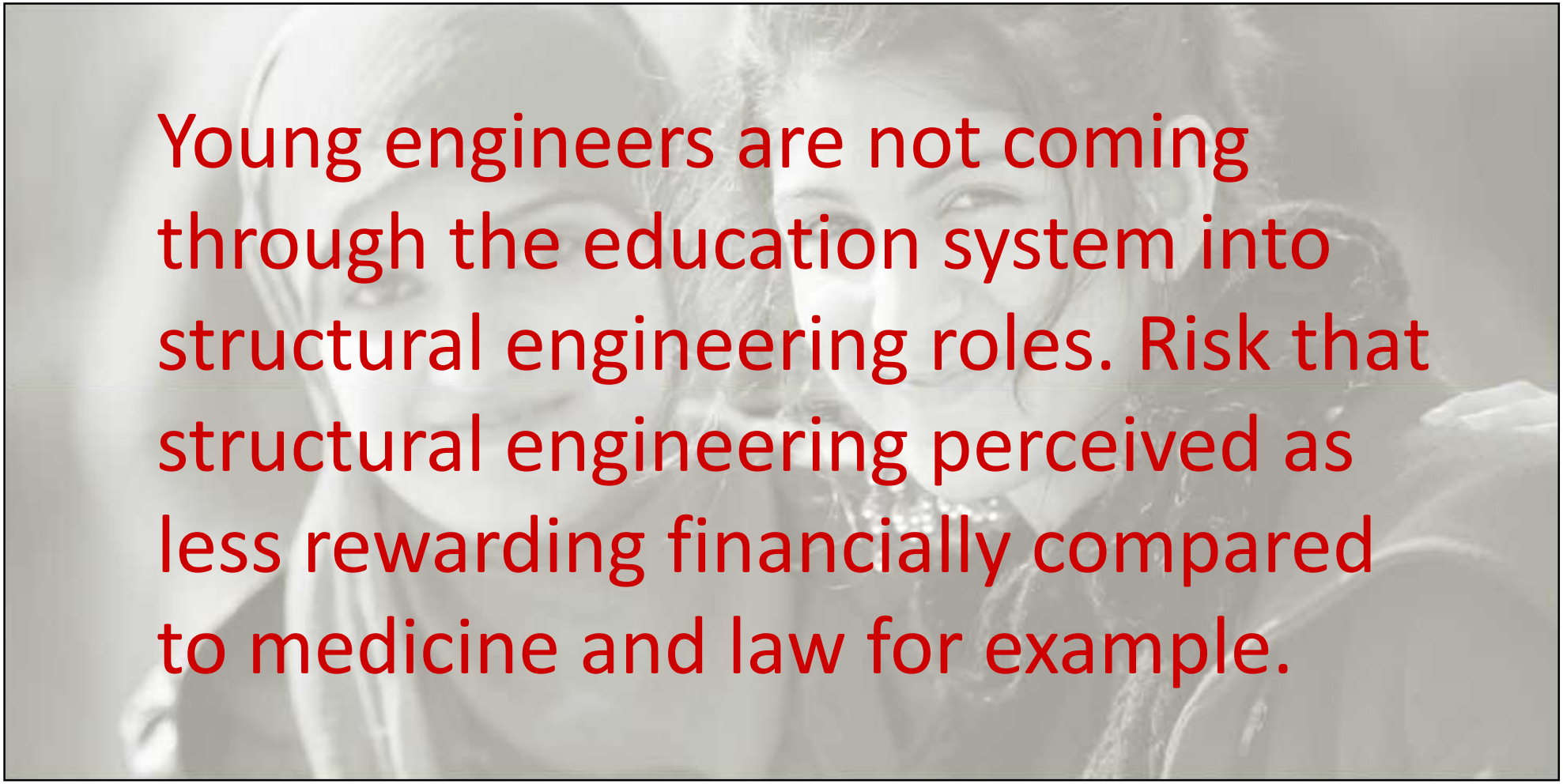
Young engineers are not coming through the education system into structural engineering roles. Risk that structural engineering perceived as less rewarding financially compared to medicine and law for example.

We must enthuse and inspire future generations and raise our profile in society.

thank you