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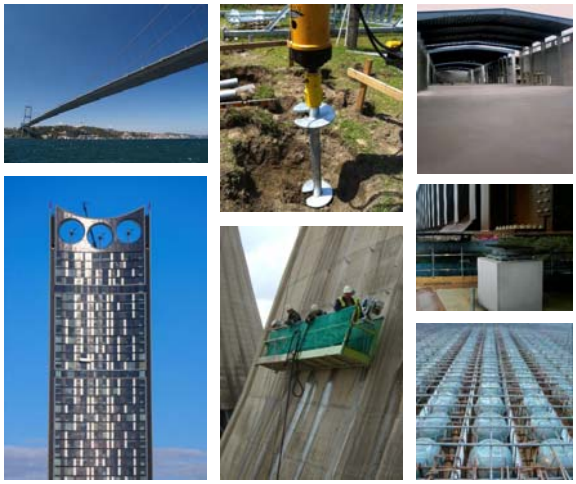
CCL

Introduction to CCL

- Founded in 1935
- Specialised engineered solutions for structures
- Independently owned private company
- 700+ employees
- 30 group companies
- Global presence
- Advanced manufacturing facilities
- 4 expert engineering hubs across the globe
- Centralised corporate structure



CCL Locations

- CCL operates through subsidiaries and partners throughout the world
- Fully integrated supply chain through group companies
- Group companies can access in-house:
  - Engineering
  - R&D
  - Manufacturing
  - Procurement
  - Finance/Legal
  - Marketing
  - IT
  - Human Resources

CCL Services

- Early Engagement Consultancy
  - Structural scheming
  - Value engineering and cost plan advice
- CCL Slab Solutions
  - CCL Post-Tensioned Slabs
  - Voided Slabs
  - Hybrid Slabs
  - Surface Jointless Flooring Systems
- Vertical Solutions:
  - Post-tensioning
  - Traditionally reinforced
- Civil Structures
- Structural Bearings
- Geotechnical and Foundations
- Precast Solutions
- Inspection, Repair and Strengthening

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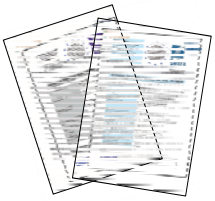
CCL Quality

- CCL Certifications: investment in a wide range of approvals including ETAG (CE Mark), AASHTO, PTI, fib/FIP, UK CARES
- Close follow up on changes in standards and codes
- Constant R&D on enhancements and innovation opportunities
- Integrated systems and equipment
- Membership of associations promoting good practice



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CCL Manufacturing

- Advanced manufacturing facility
- UK-based quality management
- 9001 certified
- Third-party inspection
- UK manufacturing of key products
- Individual parts testing and assembly testing
- Traceable products
- 14001 certified
- 18001 certified
- CARES approved and CE marked

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New Residential Development

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Overview

- 614 flats over 5 blocks
- Former Multiplex Cinema Site
- 20,000 msq GIA spread over 6 levels
- Project team
  - Sir Robert McAlpine
  - Leach Rhodes Walker Architects
  - Roc Consulting
  - Cidon Construction
  - CCL
  - Ancon Building Products

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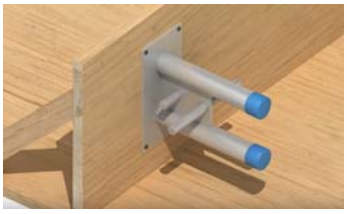
Key Structural Technologies

- Dowelled Movement Joints
- Thermally Isolated Balconies
- Masonry Cladding
- Post Tensioned Floor Slabs



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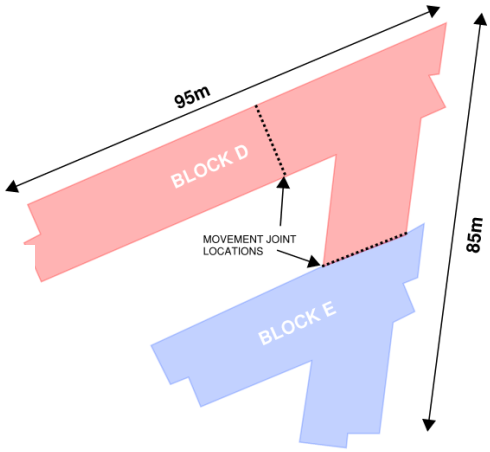
Dowelled Movement Joints

- Movement joints typically placed every 50m in concrete frames
- Block D & E had to be separated by movement joints
- Vertical and horizontal load transferred via steel dowels



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Dowelled Movement Joints

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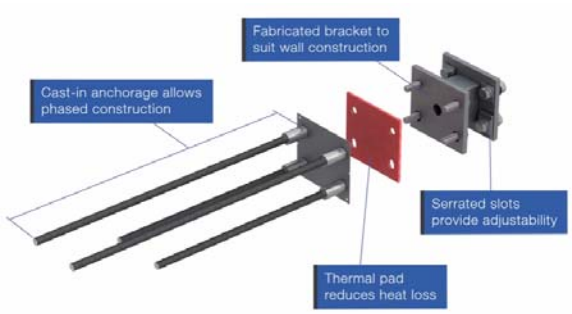
Insulated Balcony Connectors

- Steel balconies cantilever from slab edge
- Balcony connector cast into concrete
- Insulation stops cold bridging across joint



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Masonry Support Angle

- Building mainly clad in masonry
- Masonry supported every 2 floors at slab edge
- Stainless steel support angles fixed to slab edge channels

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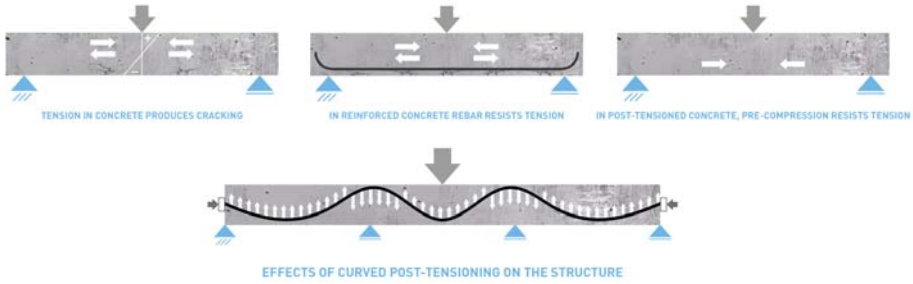
Post-Tensioning

A Reminder

Lift a row of books by pressing them



Illustrative Example

Post-Tensioned Slab

CCL Slab Solutions

Benefits of PT

- Longer spans
- Flat soffit
- Flexibility of layout and services
- Deflection and crack control
- Thinner slabs
- Reduction of storey height
- Lighter structure
- Fast construction
- Cost saving

CCL Slab Solutions

Stakeholder Benefits of Post-Tensioning

Clients

- More clearance and more flexibility
- Fewer columns, more open space, hence better value of built-up area

Architects

- Easier internal planning
- More elegant structure

Structural Engineers

- More solutions
- Better structural performance

Contractors

- Quicker and easier construction
- Reduced costs

The Environment

- Less traditional reinforcement
- Thinner slabs (less cement)
- Lighter foundation loading
- Smaller floor to floor height – heating/venting
- Fewer material deliveries to site
- Fewer construction operatives

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Post Tensioned Floors

- Concrete flat slab supported on concrete columns and walls
- Spans 7-8m
- Residential Loading
- Double Height Masonry
- Typical slab thickness 200-225 (some 250mm)

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CCL Involvement

- Post-tensioned alternative scheme solution to minimise slab thickness
- Design, supply and installation of over 50,000 msq suspended floor slabs
- Coordination with shear dowels, masonry support angles, M&E openings and balcony brackets
- 25-50mm saved on structural slab
- 2000 m3 of concrete saved by converting to PT (4800 Tonnes)
- 500 tonnes of embodied Carbon Dioxide savings in concrete alone

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Environmental Impact

What does 5 tonnes of embodied C02 actually look like?

6 months of energy use in an average household

12,000 miles of emissions from an average car

Carbon stored by 5 acres of forest in a year

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Site Photos

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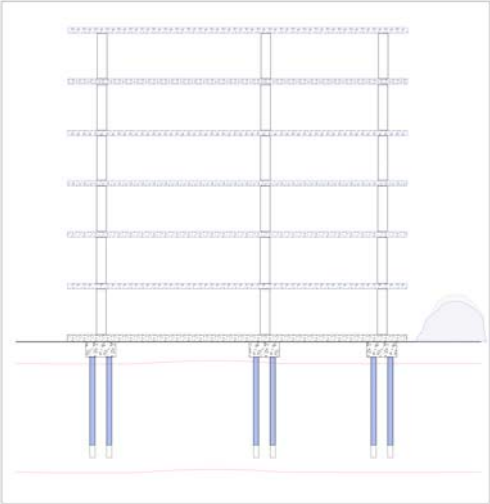
Site Photos

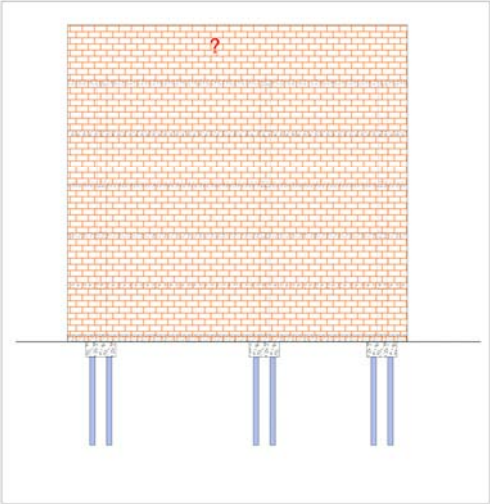
Benefits of Early Engagement with CCL

- Early engagement with CCL will give you time to incorporate true value engineering:
  - Reduced structural floor zones
    - Increased M&E zone
    - Increased floor to ceiling
    - Decreased building height
  - Additional useable floor area
    - Fewer columns
    - Fewer foundations
    - Easier planning of units
  - Reduced weight of structure
    - Reduced foundations
    - Reduced dig and spoil
    - Material savings on elements



Benefits of Early Engagement with CCL

- Early engagement with CCL will give you time to incorporate true value engineering:
  - Decreased building height
    - Reduced cladding required
    - Reduced M&E
  - Additional Levels
  - Greater value for money



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Post Tensioned Floors

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