

Ecole Nationale des Ponts et Chaussées
Retour d'expérience de mobilité internationale

Roland TOURNADE

à



Imperial College London

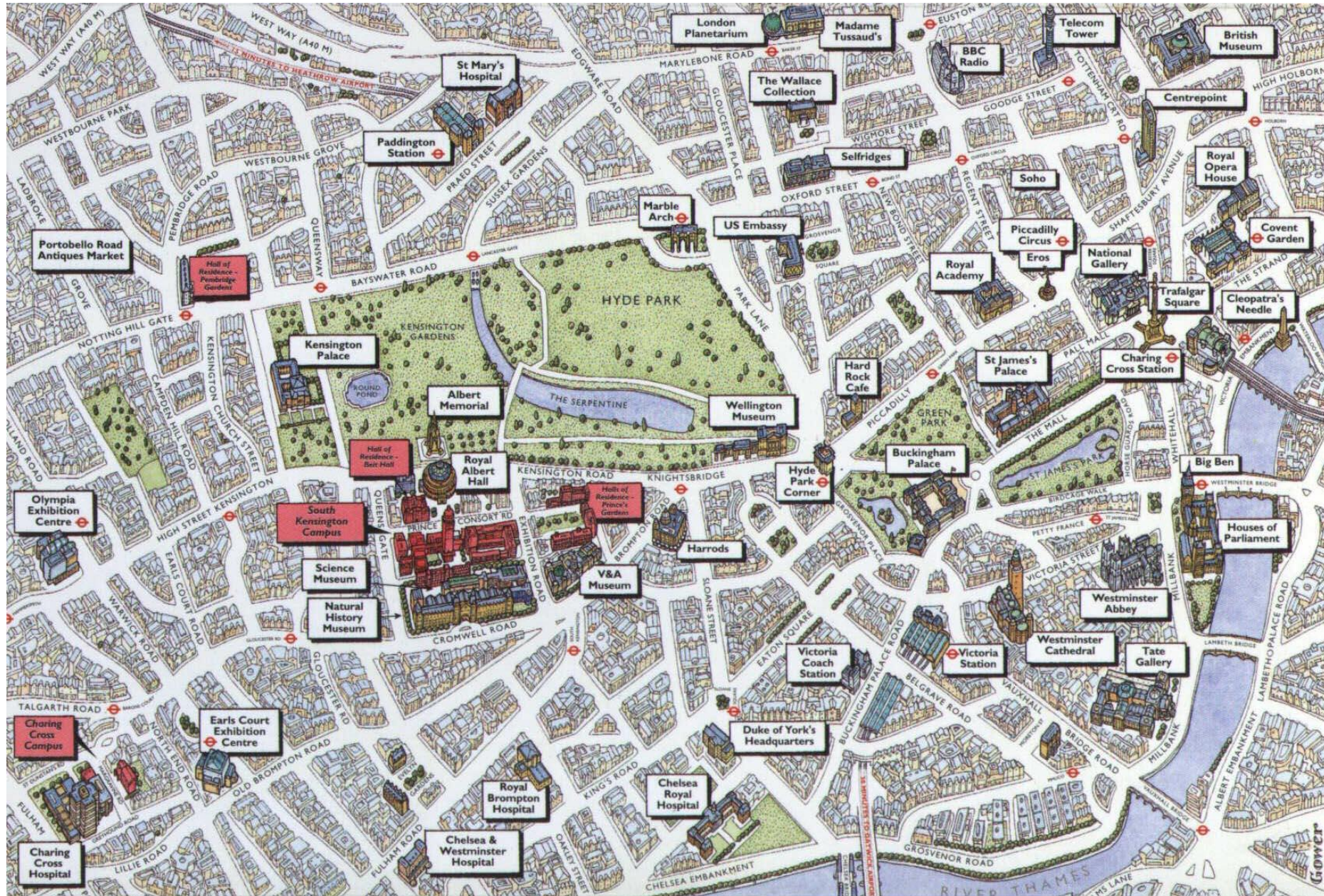
Why is it amazing ?



IMPERIAL COLLEGE



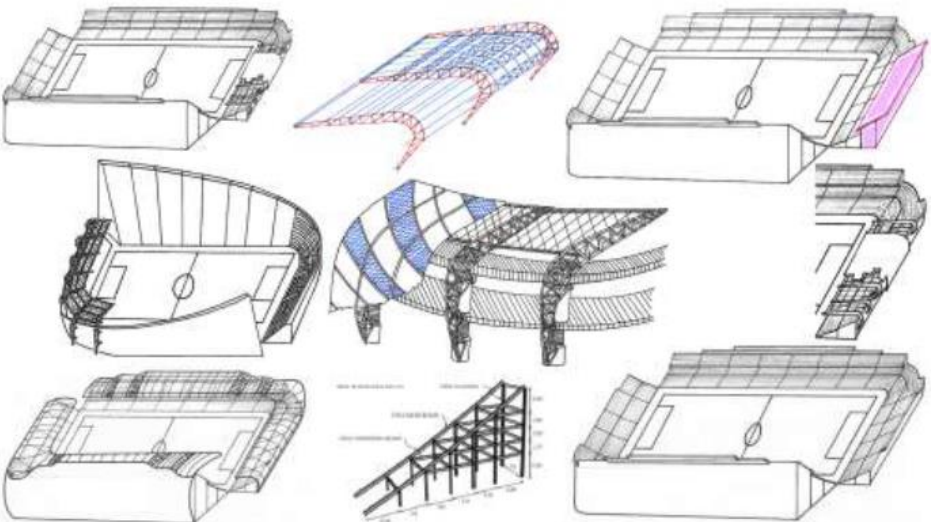
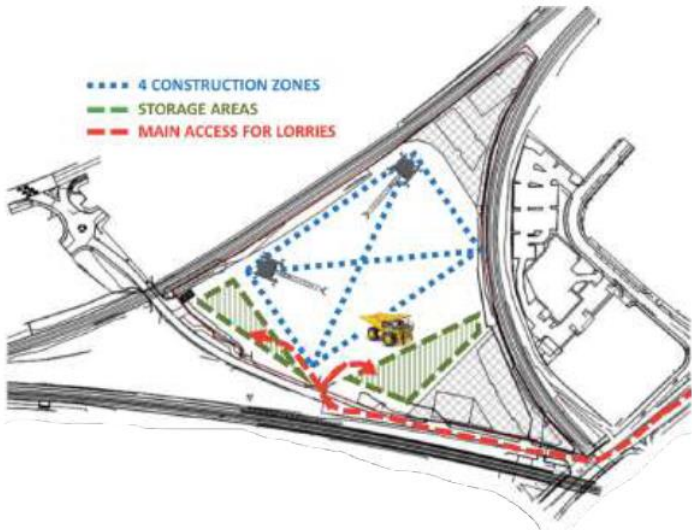
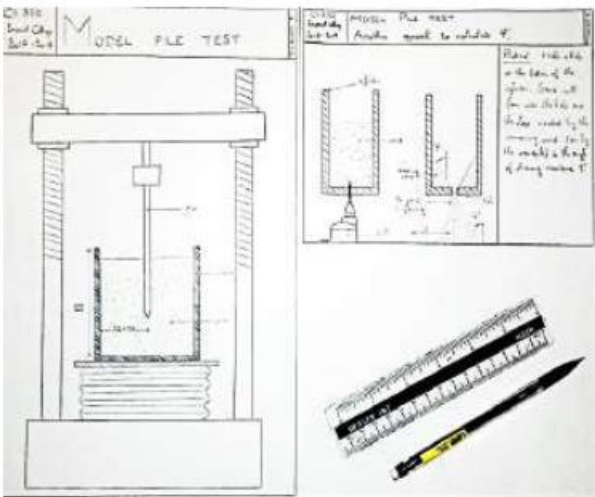
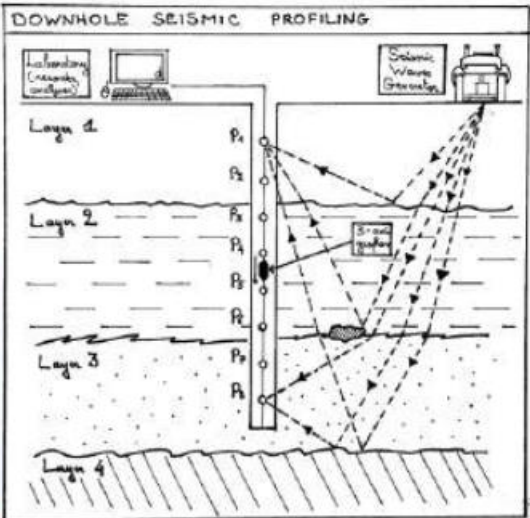
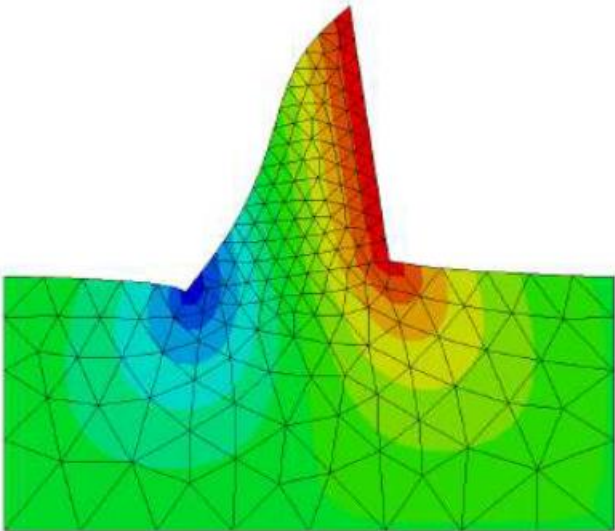
IMPERIAL COLLEGE



ACCOMMODATION



COURSES AT IMPERIAL COLLEGE AND EXAMS



COURSES AT IMPERIAL COLLEGE AND EXAMS



GROUP DESIGN PROJECT

COMMUNITY STADIUM LONDON



ROOF FUNCTIONAL FRAMING



Roof truss scheme with the following features:
 - Adjusted using cross and string lengths
 - Connections: already determined from the roof use-efficient schemes.

- Carrieway Truss
- Main Arch
- Finer bracing
- Longitudinal bracing
- Tie

VERTICAL LOAD PATH



LATERAL LOAD PATH



OPTIMISATION SCHEME

PHASE I: Optimising roof truss configuration using MATLAB

- Vary depth
- Vary longitudinal bracing configuration
- Check cantilever response
- Check cantilever and main arch response

IF NOT, try another configuration

IF OK

- Store configuration
- Select optimal design configuration
- Check torsional resistance and global buckling

PHASE II: Optimising member dimension for selected configuration using SAP2000

TRANSLATIONAL SLIDING MODE



GLOBAL TWISTING MODE



SUPERSTRUCTURE FUNCTIONAL FRAMING



Precast Concrete Tiers
 Column
 Precast Concrete Slab
 Horizontal Beam
 Raker Beam - Triangular struts eliminate need for diagonal bracings.

COMMUNITY FACILITIES



GYM
 COMMUNITY CENTRE
 RESTAURANT AND BARS
 INDOOR ENTERTAINMENT

SUSTAINABILITY



POLYCARBONATE PANELS
 RECYCLED MATERIALS
 PHOTOVOLTAIC CELLS

GRANDSTAND DYNAMICS

- Key indicator of safety and comfort of spectators
- Assesses dynamic performance of grandstand by estimating maximum acceleration of crowd.

MODE SHAPE



Projected point of maximum deformation

INTRODUCTION

Our innovative design for the new London Community Stadium combines striking aesthetics with an optimized structural design. This will set an exemplary standard for stadiums, and also potentially transform the stadium to become the heart of the future community development. This exciting new platform will definitely aid the club to realise its Premier League ambitions, while simultaneously providing a hub for the local community.

CONSTRUCTION SEQUENCE



1. Foundations
2. Temporary works
3. Substructure walls
4. Assemble tier, back shed walls
5. Sit out with masonry
6. Connect and complete

C - VALUE

- Vertical distance between eyelines of spectators of consecutive rows
- Determines quality of spectator view



OBJECTIVE

Developing an innovative stadium design which satisfies premier league football standards and acts as a center for community development.

Imperial College London | ARUP

STUDENT LIFE



CSP
WEDNESDAY
ACC
BAR NIGHT

THE UNION BAR  FiveSixEight.

WEDNESDAY
13 JUNE
19:00 - 02:00

£10 early bird ticket online only
£11 with drinks included online and at the door
£3 without drinks included - linked number available at the door



CIVSOC's
SPRING DINNER

Jamie's Italian, 66 Victoria St,
Westminster, London SW1E 6SQ

7PM Onwards Wednesday
21st March



CIVSOC's **BAR NIGHT** £7 = 3 drinks

Union Bar, Beit

8th February 7PM



CIVSOC's
PANCAKE DAY

SKEM Concourse Area

Tuesday 13th February
12-2PM



CIVSOC's
NIGHT OF ENGINEERING PHILOSOPHY
with **ALUMNI**

Mezzanine Lab

15th February
6:30 - 8:30 PM



CIVSOC ? ? ? ? ?

SKEM 224 & 240

6th March
6 - 8PM

PUB QUIZ ? ? ? ? ?

Free beer and pizza!!

STUDENT LIFE



CULTURAL LIFE



THANK YOU FOR YOUR ATTENTION

