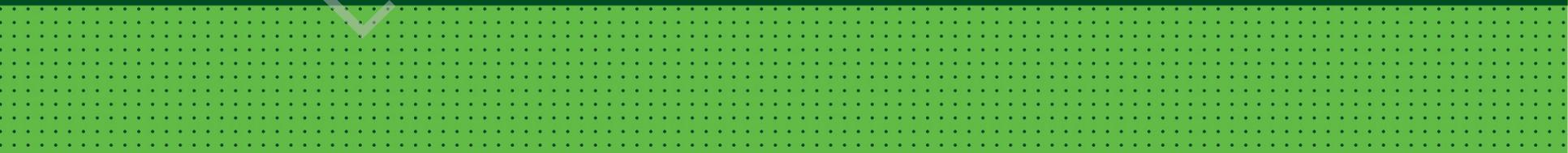




◀ Station Creation

◀ NAME

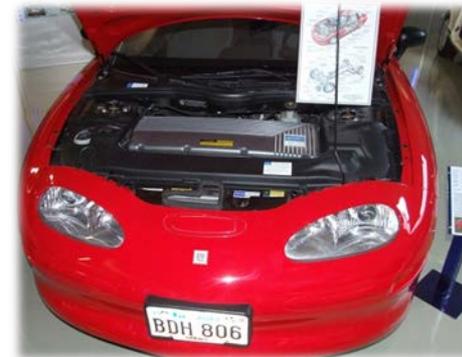
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Who am I?



- ▶ Young Crossrail 'Student Consultant'
 - ◆ American Engineering Student
 - ◆ Helping to develop 'Young Crossrail' activities
- ▶ Education and Job Experience
 - ◆ Current Student (Worcester Polytechnic Institute)
 - ◆ Summer Placements





Who is an engineer?



- ▶ An engineer is...
 - ◆ Engineers work with machines
 - ◆ Play 'Who is an Engineer?'

A



B



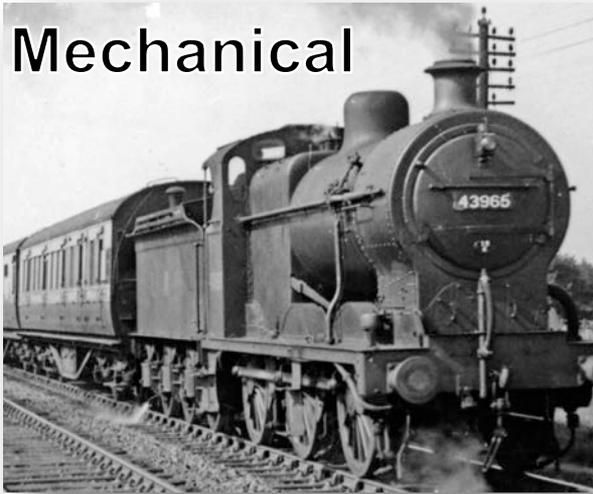
C



D



What do engineers do?



Mechanical

Railway



Robotics

Biomedical



Food

Chemical

Crossrail: A railway route east to west



Route Map

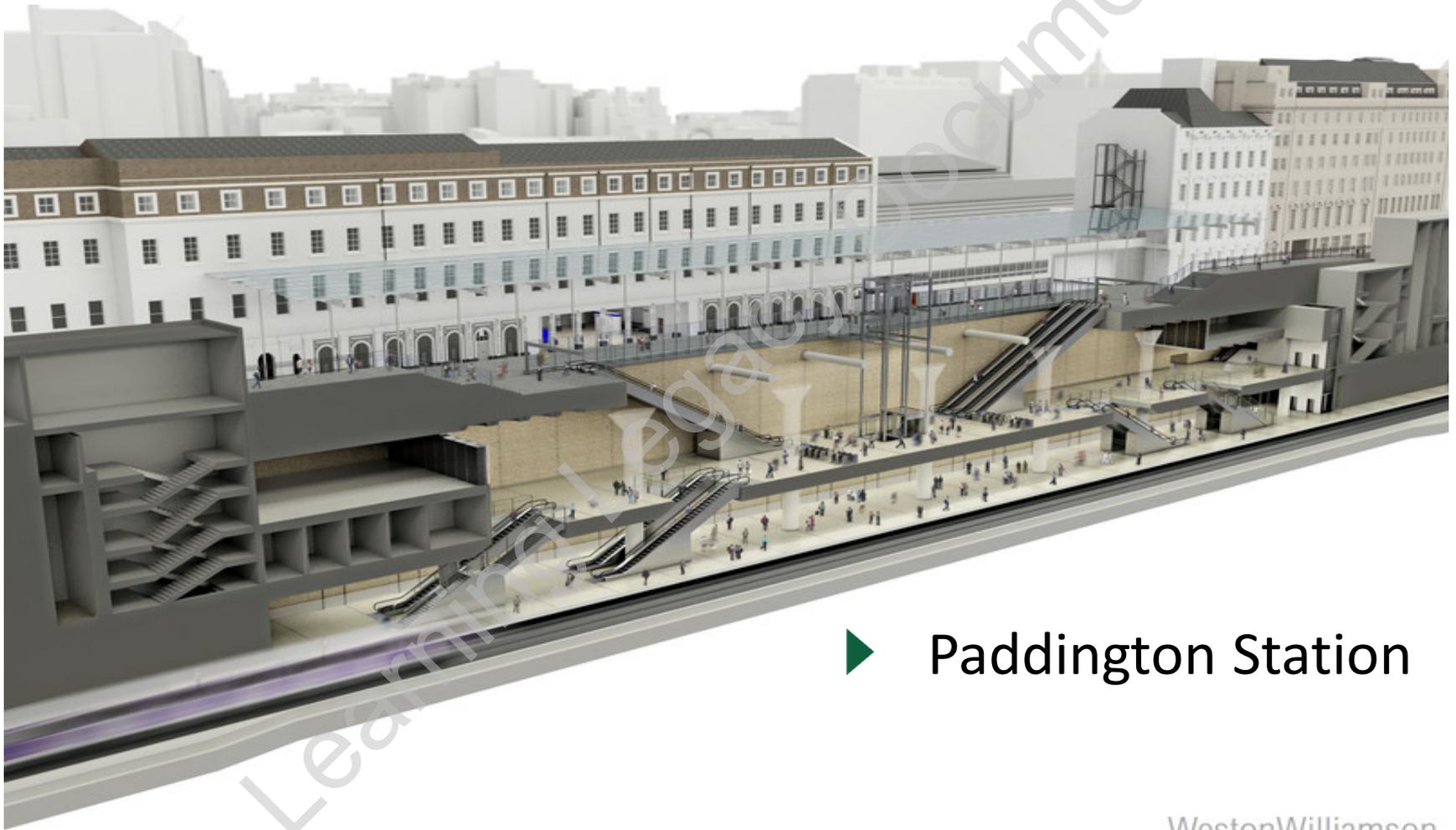
Showing rail and air connections

- Surface line
- Tunnel
- Portal (tunnel entrance and exit)
- National Rail connection
- Airport connection
- Airports not on the Crossrail route - to travel to these airports passengers will need to travel on other connecting rail services. Stop-free travel is possible but assistance will be required to get on and off some trains. Travel from Luton Airport Parkway Station to Luton Airport is via an accessible bus.





Crossrail Engineers: Station Design



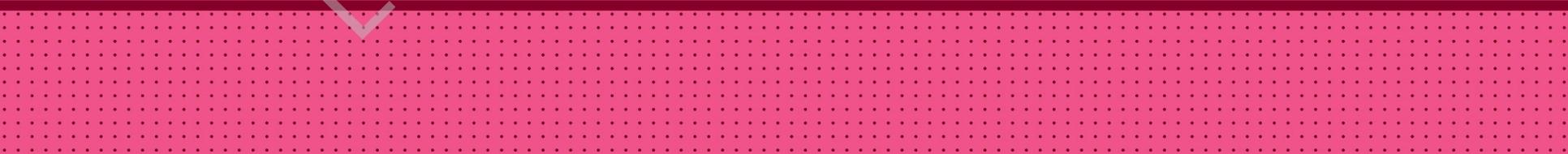
► Paddington Station

WestonWilliamson



◀ **What goes into designing railway stations?**

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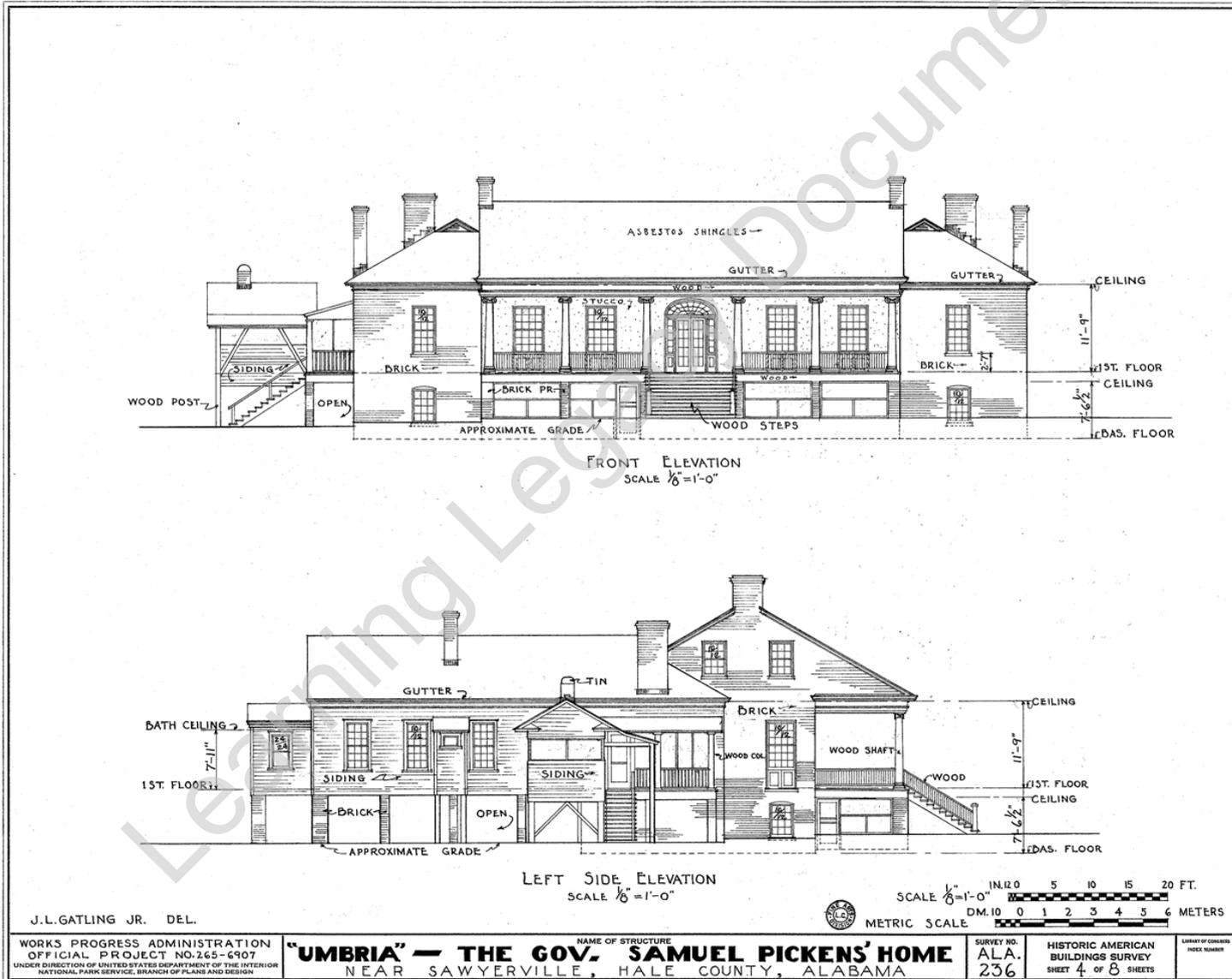


- ▶ What needs to be thought about?
 - ◆ Does the station blend in with its surroundings?
 - ◆ Does the station meet building regulations?
 - ◆ Can it be built with minimal impact to local traffic patterns or buildings?

Farringdon Station



Elevation Drawings



Designing around the passenger

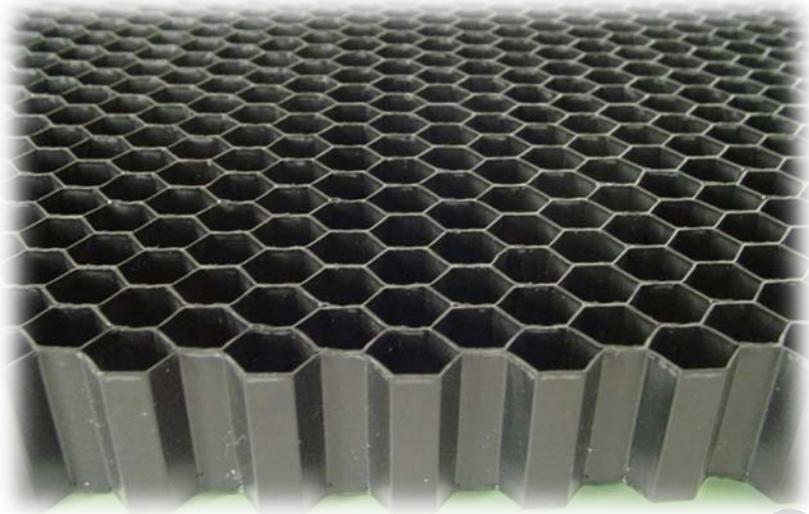
- ▶ Open floor plan
 - ◆ Make it feel large and not cramped
- ▶ Natural Light
 - ◆ Let as much sun in as possible



Whitechapel Station



Making Buildings Strong: Geometry





◀ Engineering Challenge: Build a Station

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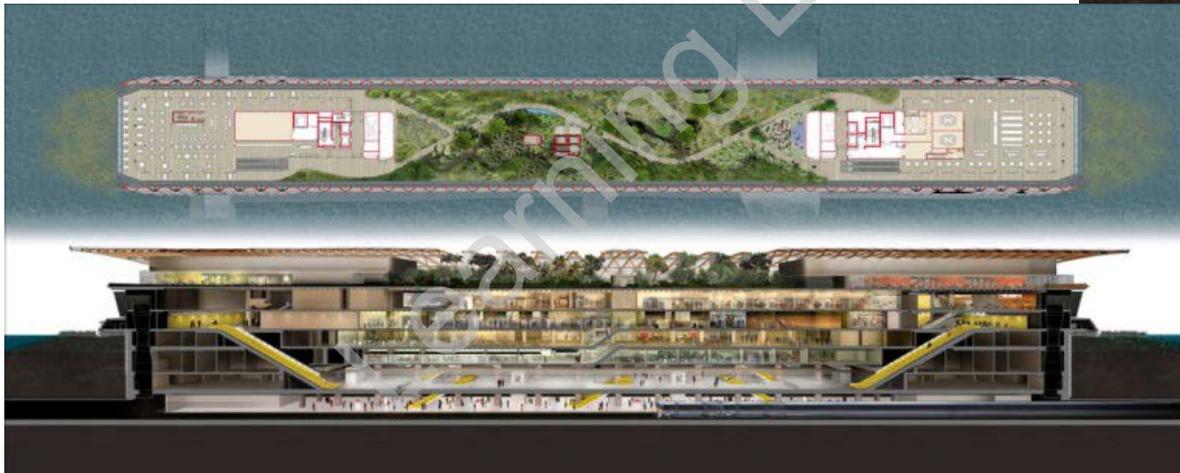




Example: Canary Wharf



- ▶ Considerations:
 1. Size and Shape
 2. Strength
 3. Navigation



Materials

- ▶ Toothpicks (about 150)
- ▶ Jelly Babies (2 bags)
- ▶ 5 sheets of A4 paper
 - ◆ 2 for drawings/plans
 - ◆ 3 for station size



Task



- ▶ Design, model, and pitch your station
- ▶ 50 minute time limit
- ▶ 4 teams
- ▶ Roles:
 - ◆ 1 Project manager
 - ◆ Architects
 - ◆ Engineers
 - ◆ Site Managers





◀ PRESENTATION & DISCUSSION

- ◀ Explain your design
- ◀ How much weight can your design support?

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Team Presentations



- ▶ Tell us your plan and present your model for testing



Discussion

- ▶ What were some challenges your team faced?
- ▶ Most importantly, did you have fun?



Thank You





Learning Opportunities



- ▶ Apprenticeships
 - ◆ Provides education and work experience
- ▶ Work Experience
 - ◆ Provides work experience for Year 10/11 Students
- ▶ Tunnelling and Underground Construction Academy
 - ◆ Programme Details

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