MEET THE MECHANICAL ENGINEER

HELENA RIVERS: BUILDING A BETTER WORLD BRICK BY BRICK.

Engineers enjoy a wealth of career opportunities, and not always in the most obvious industries.
I'm a regional director at AECOM, the largest engineering consultancy in the world. Our job is to advise clients on how they can improve their buildings – how they can make them nicer and safer places in which to work, and also ‘greener’, more energy-efficient.

We work for all kinds of organisations. We helped to turn a disused industrial unit into a new fire station. We are also looking at more than 5,500 schools around the country to see where they need upgrading.

Sustainability is now a big part of how things are built. And refurbishing an existing building so it can be used for a new purpose is much greener than demolishing it and building something new in its place. It’s nice to think you are contributing to a more sustainable future.

HOW DID YOU END UP IN YOUR CURRENT ROLE?

I originally wanted to be a pilot. I didn’t have any exposure to engineering while I was at school, but I’ve always been fascinated by seeing how things work, how they can be improved. When I looked into career routes, engineering looked like a great fit, and so it’s proved.

I studied mechanical engineering at the University of Bath. But it wasn’t until I worked on a summer placement at Westland Helicopters, looking at helicopter motor vibrations, that I really began to understand what engineering involves.

When I graduated I got a job in the nuclear industry. I was involved in major projects, like the planned shutdown of a nuclear reactor for maintenance and safe decommissioning of nuclear laboratories. But I wanted to see more immediate impact of what I was doing. That’s a real feature of building services – you literally make a decision on site one day and it’s being built the next.

I spent about four years doing design engineering, but I’m quite a ‘people person’ so I gradually got more involved in client account management. I’m the mediator or translator between the technical team, who are focused on the technical details, and the clients, who are generally not interested in the technical details – they just want their needs met. Communication skills are key in engineering, but especially in this area. Often when things go wrong, it’s not because of technical mistakes but because the client and the technical team haven’t been on the same page.

Over time I became more involved in project management, and following a few promotions, I’m now in a regional director’s role. My career path shows how engineers can rise to senior management positions in companies. That includes women – AECOM’s new Chief Executive is a woman.

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WHAT'S THE BEST THING ABOUT BEING AN ENGINEER?

For me, engineering is all about problem-solving. It’s baffling to me that anyone wouldn’t want to understand how things work and see how they could be improved. But I really like the fact that I’m doing a job where you get tangible results that really mean something – you can see them, you can touch them, they benefit people’s lives. The idea that I have a career where you can genuinely make a difference to the future world is really exciting. I create spaces for people to enjoy, that improve people’s comfort, that are great to learning or working, and I get to know I am contributing to a more sustainable future for the UK. Sustainability is a huge challenge, and if I can do my bit, that’s really rewarding.

Another key point is the tremendous range of roles that are available within engineering. At university open days, I found it really inspiring seeing engineers developing things like knee joints and hip joints that would help people walk again. You say ‘mechanical engineering’ and people think of cars and trains but it’s so much more than that. There’s an engineering element to almost everything that we interact with.

Once you’ve trained as a mechanical engineer, there’s a whole host of career choices open to you. If you don’t find exactly what you want straight away, there are always opportunities to try something different. You build up a core set of engineering skills, which you can use in most roles – there are relatively few really specialist skills.

Also, I have two young children, and work four days a week. My company is very supportive of women, but the engineering sector as a whole is very accommodating of flexible work patterns at any level.

CAN ANYONE BECOME AN ENGINEER?

The term ‘engineering’ comes from the Latin ‘ingenium’, meaning ‘cleverness’ and ‘to engineer’ means ‘to contrive or devise’. I think anyone who likes to understand how things work could be an engineer, but to be a good engineer you’ve got to be passionate about your subject and believe that the work you’re doing can make a real difference.

You need a foundation in maths and physics, but not everyone needs to be a maths genius. You want rounded teams to get the best results. As the world’s moving on, a lot more of our analysis is computer-based modelling, so you need strong visualisation skills – reading drawings and interpreting them into 3D from 2D.

WHAT THREE THINGS SHOULD YOUNG PEOPLE KNOW ABOUT ENGINEERING?

• It can pay really well
• People from all sorts of backgrounds can make excellent engineers
• You need to experience it to truly know what it is. Try to get work experience in an engineering company or talk to STEM Ambassadors, who can really bring the subject to life.

Also, think about an apprenticeship – a degree isn’t the only route to a rewarding career. Apprenticeships are an amazing opportunity to get first-hand experience of being an engineer while you are doing your training. It makes your learning much more relevant, and it makes you a much more rounded engineer from the day you get your qualification.

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Helena Rivers
Regional Director and Head of Asset Management
AECOM

ROLE IN A NUTSHELL
Leading a team that advises clients how to make their buildings greener, safer and nicer to work in.

EDUCATION
2002 Master of Engineering, Mechanical Engineering
University of Bath
1998 A levels - Maths, Physics, Biology

CAREER HISTORY
2016–Present Regional Director, AECOM
2010–2016 Programme & Engineering Manager
URS (absorbed into AECOM)
2006–2010 Building Services Design
Scott Wilson (absorbed into URS)

AWARDS AND ACCOLADES
Trustee, Institution of Mechanical Engineers

INTERESTS OUTSIDE ENGINEERING
Running, swimming

PROUDEST MOMENT
Becoming one of the youngest Fellows of the Institution just six months after returning to work after my second maternity leave.