aspirATion

The CIAT student magazine

Issue 2 July 2014

Zero sum game
Is ‘zero carbon’ a viable option?

Only a phase?
Phase-change materials in building

Role models
The importance of architectural modelling

Welcome...

By Danielle Jombla, Education and Membership Administrator

Welcome to *aspirATion*, the magazine for CIAT student members. When this issue reaches you there should still be time to enter the Institute's Student Awards for 2014, which close on 25 July. This issue's cover shows images of one of the winning designs in 2013, Maggie's Centre by Simone Ceccato.

The Student Award for Excellence in Architectural Technology (Project) is the premier accolade which recognises outstanding design achievement in Architectural Technology. Submissions are invited for projects (whole, or part of) and can be from a university/college assignment or a live project and demonstrate Architectural Technology design expertise.

The Student Award for Excellence in Architectural Technology (Report) is the only accolade which recognises outstanding research achievement in Architectural Technology.

Entrants must be CIAT members, studying part time or full time on an undergraduate programme in Architectural Technology (or related subject) and must not hold any construction related professional qualification. The winning entries will be published in *AT* magazine and winners will also receive cash prizes, so why not try this great way of receiving recognition?

To find out more visit www.ciat.org.uk/awards

In this issue...

Lights...camera...CIAT!

Careers film and case studies

Calling all students!

Want to feature in a new CIAT careers film? Want to appear in our literature as a case study?

We need some bright, enthusiastic students to help us develop our new careers film and bring our case studies up to date. If this sounds like something you'd be interested in, please email careers@ciat.org.uk with a short piece – no more than 300 words and remember to attach a photo – on why you chose to study Architectural Technology, what inspires and excites you about it, what the discipline means to you and why it's important.

Note: CIAT may use your words name and/or voice only for the film.

Write to careers@ciat.org.uk

‘Less bad is no good’

Is ‘carbon zero’ in the built environment a viable design solution, or an unrealistic expectation? Ross Nunn of the University of Plymouth gives his opinion.

Carbon Zero is something everyone is trying to achieve, whether they are designing and building structures today, or aiming to have all of their buildings at that level in the future. This all sounds very good and must market well for companies claiming to be doing this, but do they truly understand what commitments need to be made to achieve Carbon Zero?

What does Carbon Zero mean?
Depending on a person’s viewpoint, Carbon Zero could mean many things. Obviously, there is a point where all are similar as the carbon calculations must be worked to zero. In my opinion the term requires the use of recycled or renewable materials for the construction of a building. Additionally these materials must create a well-insulated envelope that can retain the energy within the building from heating in winter and keep the building a comfortably cool temperature in the summer. My view is completely eco-centric; this is due to a reluctance to use resources such as mains grid electricity and gas for lighting and heating. If you look further down the line of materials-sourcing you realise everything we do in constructing buildings is nothing in comparison to the destruction and pollution caused by drilling for natural gas and oil, so the less a building can use these resources the better the world is for it.

Is Carbon Zero even possible?
I hate to put such a downer on things but, in a word, no, it is not possible. In an ideal world you would be designing a house on a site with solid ground conditions and the top soil would miraculously strip itself from the site, and the site would be situated next to a hand-worked timber mill, a sustainable structural timber forest and a straw bale field. Even then this building would not be carbon zero. Of course you could play with the numbers and just show the figures for the buildings construction but this completely disregards the lifecycle of the building. It is also affected by how deeply you want to go into the carbon zero calculations. Is the energy used by the builder’s car to get him on site being counted? How about the electricity used by the designer’s computer? The point is, a line must be drawn where you have to say ‘this is not carbon zero, but it is good enough for me.’

> Bending the truth may help a company’s financial gains but it does not help the environment

Is Carbon Zero needed?
This is a very fancy term and catches people’s attention as they assume it to be truly zero. Bending the truth to make people happier about the buildings they use and inhabit may help a company’s financial gains but it does not help the environment; using up natural resources still has an effect. I propose we abandon this term and adopt a new ideal, something that has clear meaning and intention; the ‘cradle-to-cradle’ model. What can cradle-to-cradle do for the industry?

This is an idea that was picked up on in 2001 with the publication of *Cradle-to-Cradle (see cover image above)* by Michael Braungart and William McDonough; the idea is to use materials

to their fullest extent. With this initiative we could design buildings with materials that are suited for purpose, that don’t end up being down-cycled or wasted at the end of the building’s life and that we can get enjoyment from. That is the key. With Carbon Zero there is no enjoyment, no celebration of the material used; it’s just number crunching. As Architectural Technology professionals we owe it to ourselves to get enjoyment out of the design process and for people to admire the beauty in our work. There is a long road ahead in the cradle-to-cradle route, due to the need to redesign how we use and make materials so they become eco-effective, not just eco-efficient.

In conclusion I feel we should stop promoting the unachievable and start thinking realistically, we need to use methods that actually work toward helping the environment rather than methods that just look good but have no real effect. I will leave you with a simple quote from *Cradle-to-Cradle:* ‘less bad, is no good’.

If you would like to respond to this article with your opinion on carbon zero or if you would like to submit your own article to appear in aspirATion *please contact CIAT at danielle@ciat.org.uk*

Cut out for success

Daniel Jack Paul Wood, current CIAT Student Group Chair and CIAT Representative for Northumbria University, started out as a self-employed joiner and is now on his final year of an Architectural Technology degree. In this article he describes how he made the transition from carpenter to chairman.

I have always been creative and interested in how things sit together. I would play for hours with my Lego, creating objects and building structures. I was always curious about the creation of products whilst growing up. My father was a mechanic so I was introduced to this environment at an early age; absorbing ways to take objects and machines to pieces and fix them.

When I finished secondary school in 2004, I was unsure what I wanted to do as a career. I was told by a member of staff, Philip Edwards to pursue carpentry and joinery as an apprenticeship; he said I had a 'flair for timber construction'. In September 2004; I followed this route and five years later I had achieved my NVQ Level 1, 2, 3 and Advanced Construction Certificate in Carpentry and Joinery.

After being self-employed for one year as a joiner, I was increasingly interested in buildings and their technological aspect. I was not very confident in going back into full time education as I was diagnosed with dyslexia at six years old. However, I did a lot of research and was prepared to broaden my horizons and expand on the knowledge I had already gained from domestic new-build, renovation and loft conversion projects.

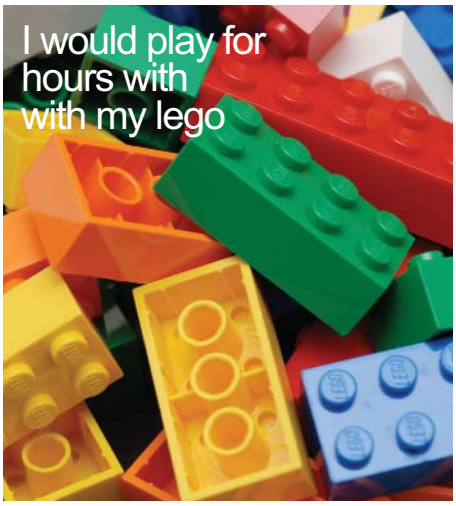
University and second year of the sandwich degree

In September 2009 I embarked on a Foundation degree at Northumbria University studying Architectural Technology. The transition to full time education was smoother than I had anticipated. In June 2011 at the end of my course I was awarded a Distinction and an overall grade of 79%. I was awarded the 'Top Performing Student' in my year. I progressed to the second year of the full-time sandwich degree in Architectural Technology and I felt that I had a good foundation to further my knowledge. The year focused on multiple assignments and a professional-based project which I thoroughly enjoyed.

Since February 2011 I have been one of seven students at Northumbria University to become part of the Autodesk Student Expert Global Network; set up by the Education Leader of BIM Campus, Peter Morton. This gives me the opportunity to communicate daily with Autodesk professionals, partners and student experts from all over the world. The sandwich degree option provided the opportunity to experience working in an architectural practice during the third year.

I was increasingly interested in building and their technological aspect

Due to the economic climate very few students have been able to secure a placement for this year. I was invited by Faulknerbrowns Architects to attend an interview and was shortlisted to one of six candidates. A week later I was informed that I had been one of two students to achieve a placement at the practice for 2012-2013.



Faulknerbrowns Architects placement year

Whilst working in practice for a year I worked on projects with budgets ranging from £1 million to £30 million. I had varying degrees of input from the design to the production of information. The projects included mixed-use, restaurants, schools, colleges, universities and leisure facilities. The project I worked on for the majority of my placement was Daventry University Technical College (UTC), which is based in Northamptonshire and is designed for students between 14 and 19 in higher education. The experience and knowledge I gained during the placement year has given me an invaluable skill-set to progress in my career.

Final year of university and dissertation project

In September 2013 I returned to university for my final year. I was nominated to become Northumbria University's representative for CIAT. This position was superseded by CIAT appointing me as the Chairman of the Student Group in December 2013. This will allow me to have an input on helping to improve the Institute.

BIM is radically changing the construction industry

For my final year dissertation project I focused my attention towards Building Information Modelling (BIM), which is radically changing the construction industry. This was prompted by my awareness of its current development in the UK construction industry, particularly within my current architectural practice. I have managed to involve the following companies in my research paper: BIM Academy, Faulknerbrowns Architects, Foster + Partners and Ryder Architecture. The paper investigates the current and future demands of reaching 'Level 3 BIM' on government projects by 2016, a project which is being supervised by my tutor David Morton.

Working part-time at Northumbria University estates department

I am currently working part-time for the Estates Department at Northumbria University part-time so it is possible to hold down a job (of 20 hours), while studying my final year. This job involves updating the existing portfolio of property, having a design input for the projects situated within the university campus and redesigning and updating existing spaces in the university.

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Ryder

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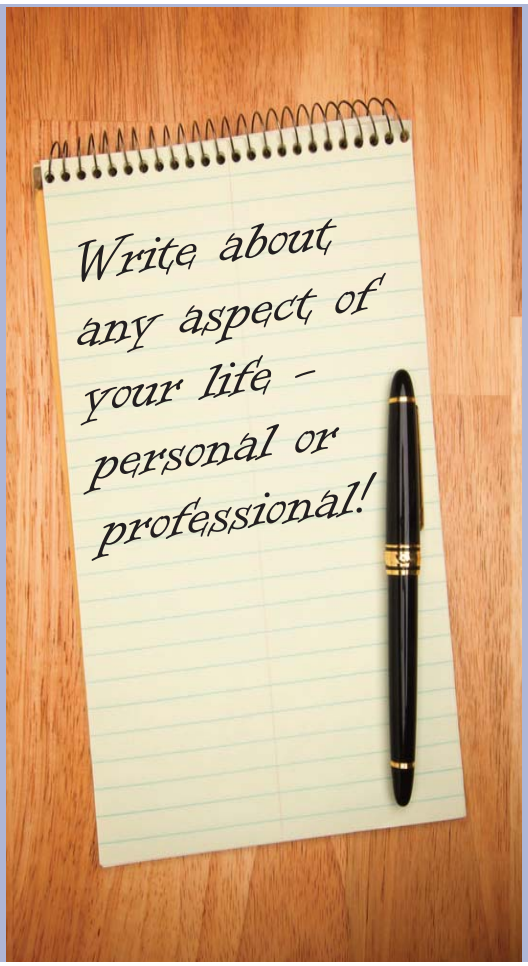


Write now

Have you say and get involved!

If you would like to voice your opinion and get involved with CIAT's new student magazine, future editions of *aspirATion* will feature a student column and correspondence page. Student members are invited to write to CIAT with any issues, problems or dilemmas they face.

The correspondence can relate to Architectural Technology, the programme you're studying, your university or any aspect of your life – including personal or professional.

CIAT representatives, both staff and members have plenty of life experience and are from all walks of life, and will respond to the best of their ability with useful and friendly advice. We look forward to hearing from you.

Please send all correspondence to Danielle Jombla, Education and Membership Administrator (danielle@ciat.org.uk).

Write to danielle@ciat.org.uk

Only a phase?

Jamie Cooper of the University of Plymouth looks at phase-change materials and how they could reduce energy consumption in buildings.

Phase-change materials in a basic form are best known in medical heating packs, such as this one from snappyheat.com

A phase-change material (PCM) is an element with a high heat of synthesis that is capable of storing and emitting significantly large amounts of energy, utilising energy that is stored within chemical bonds. This process involves the heat being absorbed or released when the material changes from solid to liquid and vice versa, at a constant temperature, which consequently delivers the exceptional capability to control temperature during the process of thermal energy storage. PCMs are used extensively throughout various industries at present but are evidently scarce within the built environment: Could the implementation of such a technology become a desirable sustainable solution for the future?

Phase-change materials are recognised to possess the potential to reduce energy consumption in buildings, but despite persistent attempts of development for construction purposes they have still not been integrated into residential and commercial buildings.

PCMs promote the concept between when energy is available and when it is needed within an environment. They therefore have the potential to reduce the energy needed for space heating and cooling, whilst improving the quality of the space in residential and commercial applications where use of a large material mass is inappropriate.

Theoretically, the only other material that promotes this concept in relation to building is 'mass', so PCMs could be perceived as a 'thin' version of 'mass'. In general, they are usually more expensive in terms of the initial set-up costs than the conventional products they replace, but other expensive products have been integrated and found to be successful in aiming towards the 'low energy, zero carbon' building concept, such as photovoltaic panels and high specification glazing systems. The widespread incorporation of PCMs has stalled and information that would aid the process has been limited in recent times.

PCMs have the potential to reduce the energy needed for space heating and cooling

Home heating accounts for around 30% of the average domestic energy bill within the UK with office heating and cooling being around 40% of commercial energy use. It is clear that the reason for wanting to reduce these figures is both financial and environmental.

Financial reasons are obvious; the less money spent as an individual or company on energy requirements, the more money there is available for other requirements. Environmentally, awareness in the general population of the increasing need to reduce usage of finite natural resources is rising. On top of this, occupant's comfort and health resulting from appropriate conditions in the internal environment are a factor.

Although this technology is generally considerably more expensive than available lightweight insulation materials in their recent state of development, it does promote the potential to reduce the energy needed for internal space heating and cooling whilst improving the comfort of the space in residential and commercial environments. This is because PCMs can make better use of the 'free' energy of the solar gain penetrating the spaces through windows. In a condition where the space

needs heat at chosen periods, the solar gain will liquefy the waxes within the material which will then solidify once the temperature drops returning the heat to the space when it is most required. In conditions that require cooling, taking the energy out of the air from solar gain because it is absorbed by the PCMs reduces the cooling load.

The lack of interest by companies and the public regards the application of PCMs comes down to two major issues; uncertainty and cost. The principles behind PCMs are proven scientifically, well established and the need to promote dramatic reductions in energy use is gradually being accepted by the general public.

The designers and clients could be seen as lacking ambition in bringing in such a technology. Visual satisfaction may be vital when choosing materials to use within buildings. Perhaps exposing the PCMs within the structure to allow the occupants to experience the visual characteristics would show understanding of their function of the environmental circumstances that would not otherwise be noticeable. In fact, allowing the architectural designers to develop the material technology to form an interesting and visually pleasing concept may be worthwhile, despite the cost. For instance, employing these designers to create an internal office environment and incorporating PCMs into glazed partitions, allowing occupants to visualise the technology and its change in state, could be a possibility.

> Could the implementation of such a technology become a desirable and sustainable solution for the future?

There is no doubt that this technology alone is expensive in comparison to existing materials that attempt to provide the same effects; standard gypsum type boarding for walls makes up a small fraction of the total construction costs. On paper, a similar sized area of a PCM element compared to standard gypsum type boarding is around eight times the expense; this dramatically raises the overall cost of the build and construction.

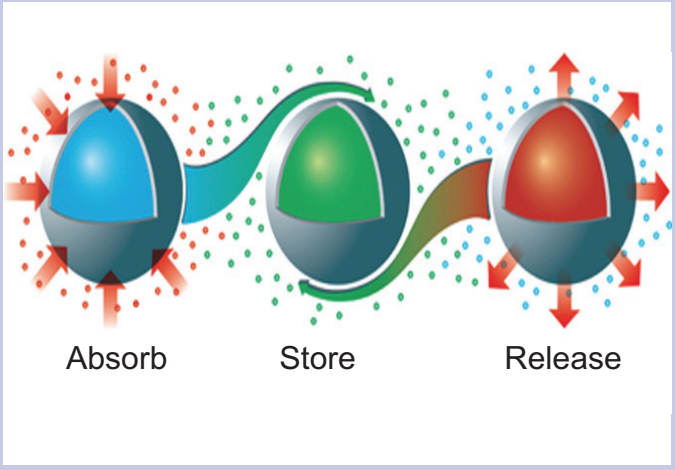
No wonder clients seem reluctant to use such materials in residential projects. To enable the integration of this material, a conscious effort at reducing the cost of installing it would be necessary alongside the improvement in noticeable benefits that must prove a better return on investment for the client. In retrospect, PCMs may pose to be more suitable for use in refurbishing existing buildings for improved environmental aspects.

What are phase-change materials?

A simple example of a phase change material (PCM) is a chemical heating pack used for pain relief. A chemical reaction inside the pack causes it to become warm when in use. Heat energy from external sources can be 'stored' within the chemicals for later release when required.

Salt hydrates
The principle can be applied using different materials (most commonly salt hydrates, fatty acids, esters and paraffins) on a much larger scale, usually in a cellular format. This technology has been used in various applications since the nineteenth century, generally in thermal storage and transportation. Thermal energy can be stored using PCMs, which could provide an energy saving way of cooling and heating buildings.

Cathedrals and caravans
Building designers have understood thermal mass for centuries. The reason a cathedral is cooler than, say, a caravan on a hot day is because solar energy is absorbed by the greater mass of the chemical composition of its walls (then released by radiation when the sun has gone down) whereas the walls of a caravan are too thin to absorb the energy. PCMs can provide 'thin' thermal mass using chemical reaction.



Joining the 'real world'

Former professional rugby player Dominic Skinner ACIAT graduated from Birmingham City University in 2013. Since then he has become an Associate member and project leader. In this article he offers advice on making the most of your final year, how to find work and how to progress your CIAT membership.

Gaining a degree is by all means a great achievement in itself. The all nighters before deadline day and early morning lectures certainly take their toll. However, securing that all important Honours degree certificate with the highest award possible is the start of a, hopefully, long and successful career as an Architectural Technology professional. Having graduated in May 2013 with a Bsc (Hons) Architectural Technology degree from Birmingham City University I can sympathise with you all.

But when I handed in my final piece of coursework and headed to the pub to celebrate, I asked myself 'where do I go from here and how do I go about it?' Hopefully this article can give you an insight into the challenges I had in my final year, how I managed to secure interviews, gained that all important first job and took on the POP Record head on!

Light at the end of the tunnel – finishing university

Those last few months of university really do seem like a lifetime. The fun of fresher's week is a distant memory and the only nightlife you seem to get is at the university library after dark. It's easy for me to say that it's all worth it in the end; you're probably sick of hearing that by now. There are a few tips you can employ to push yourself to get the highest grade possible.

Listen to your tutors: I can't stress this enough! You might be sick of the sound of their voices by now, but they are there to help you. University isn't a competition and all could get a first class degree or all could fail. Tutors are there to support you, guide you and inspire you. Use them as much as you can. Don't wait for submission day to run an idea by them, engage them in your work from the start.

Set yourself deadlines within deadlines: deadlines aren't just for football transfer windows; your next few months will be dominated by them. The key to beating them? Organisation! Get a calendar and work back from the deadline, pick key dates when you want things completed by. For example 'I want my final draft completed a week before the deadline, my second draft completed a week before that...'

The only nightlife you seem to get is at the university library after dark

It's a great feeling to get a regular paycheque in the bank

Everyone needs a friend: university is all about personal growth and education. You will learn more from each other so discuss your ideas with your friends. This interaction will help you develop your own work but more importantly create relationships. You never know who might be head of a top architectural practice in the future.

Student member to Associate member: Become an Associate member, ACIAT, of CIAT as soon as you get confirmation of your results. Student members of CIAT can upgrade to Associate membership at a reduced rate in the same year as course completion and the ACIAT designation will help when applying for jobs. The Institute is also very proactive and supportive of new members. It's a relationship that will benefit you both throughout your professional career and beyond.

Getting your foot in the door – secure that interview

So the difficult bit is behind you? Think again! University is a safe and secure environment and the real world is a lot tougher. Getting that all important job starts with the interview, which can be a difficult process in itself to secure. Let's look at a few ways to get you in front of the right people.

Sell yourself: Your CV will be one of the most important tools to getting you an interview. People will judge you on this and either contact you or bin your application before they have even met you. Make sure your CV is neat and free of spelling and grammatical errors. Start with a small statement about yourself and your strengths, have your job history in chronological order and include key facts about each role.

Don't worry if you're lacking experience; you would have demonstrated keys skills such as time-keeping and organisation in other ways, tell people about them. If you have worked in practice before then include some images of work on your CV, help it to stand out from the hundreds they might see.

Demonstrate your skills: Your portfolio will be almost as important as your CV. It doesn't have to be rammed full of amazing designs, just a snapshot of where you are now. Organise it like a book with a contents page and a theme throughout. Include university work, photographs, hand drawings; basically anything that demonstrates a key skill or area of interest. Look online as there are a lot of excellent examples.

Face to face: So you've made it through the door, well done. Whether you've used a recruitment agency (there are some excellent ones out there and they are FREE to use) or been lucky with your own application, what you say and the way you act are key. Dress the part, you can never be too smart but I would draw the line at a dinner jacket... A nice suit and a shirt and tie or a smart blouse and skirt are a must. Do research about the company and always ask questions (but never about money!). Close the interview by asking questions such as 'now you've seen me and learnt about my experience, would anything prevent you offering me the job now?' This may sound very cheeky but if they do have any doubts then now is the time for you to challenge them and leave them with a positive image of you.

Student members can upgrade to Associate at a reduced rate; the designation will help when applying for jobs

The workplace and working towards MCIAT

You've finally secured that all important job and it's a great feeling to get a regular pay cheque in the bank. But don't pat yourself on the back too much. You will find that the real learning starts here. What can you expect when starting work?

Learn, learn and keep learning: The main reason I chose a career in Architectural Technology is that we are the leaders of change and innovation. With the way construction works, the role of an Architectural Technology professional will change and grow. MCIATs are now running CIAT Registered practices all over the world and are taking on projects that were once reserved for big name architects. You will soon realise how little you actually know. But in six months you will be amazed at how much you have learnt. Read articles, go on courses and networking events. The more knowledge you develop the more valued member of staff you will become.

You will soon realise how little you actually know. But in six months you will be amazed at how much you have learnt

Measure yourself: When I began my MCIAT POP Record I had seven years' experience working in architecture, two degrees and had worked with some massive clients such as Red Bull and Aston Martin. But when I flicked through the criteria I realised just how little I knew! It was a sobering experience but it was a great way to measure where I was at the time. I used the POP Record in my work appraisal meeting with my boss and was able to develop a career development plan based on the criteria I still needed experience in. This process has been invaluable in developing my skills in the work place and I've gradually been taking on more and more responsibility. Now I'm acting as head designer on projects and managing staff. But I still have a long way to go before I'm ready to sit my Professional Practice Interview.

Glass ceilings can be broken: Chartered Membership of CIAT (MCIAT) is a major milestone in the career of any Architectural Technology professional. It acts as a symbol of your knowledge and experience that other professionals can respect, but it's not the end of the road or the top of the tree. In fact I very much see it as the beginning. Where can you possibly go once you achieve MCIAT I hear you ask? In short, anywhere! While CIAT have a register for Accredited Conservationists and Chartered Environmentalists (CEnv), you can take your career to any place or level. Are you interested in Building Information Modelling (BIM) or keen on sustainable design? The beauty of Architectural Technology is that you can move in so many directions.

I certainly don't have all the answers and everything here is simply based on my experiences over the last few years but I've sat where you are now and no doubt had the same issues, fears and aspirations. As I've said the learning really begins when you get into the workplace and that is also where the fun really starts to build too. So don't be too daunted on your first day and enjoy the ride.

Chartered Membership acts as a symbol of your knowledge and experience that other professionals can respect

Architectural Technology brings together the art of design and the technology of science and problem solving in one discipline. Ironically that is how architecture was taught years ago; maybe things are turning full circle? It's a very exciting time to be part of the fastest moving and most innovative discipline in the construction industry. Stay focused, lead the industry and your career can take you anywhere. Good luck!

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The POP Record: a sobering experience but a great way to measure where I was at the time

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Role models

The importance of creating a model can be easily underestimated in an Architectural Technology degree programme. This article explores some of the benefits of developing a tactile presentation to communicate a concept or idea. By John Glenn, University of Central Lancashire.

As many of us know model making has been a skill practised by architects for many years, proving to be a valuable tool in portraying mass, form and conceptual design to clients and authorities. However, the use of an architectural model does not need to stop there. As the prominence of the Architectural Technology professional continues to expand, so does the opportunity to deliver high quality models. Not only offering the attributes mentioned above but also to give people a clear understanding of construction details, junctions and sections of design proposals.

Despite the recent advances in Computer Aided Design (CAD) software, the creation of a physical 3D model still remains the quickest way to understand and test an idea. As an undergraduate, this is the time to start exploring the methods that make up the principles of model making. As we are the future of this industry it is imperative to understand the importance of how things work on-site and the 'buildability' of the design. What better way to do it than to have a hands-on approach and actually produce a model?

The right model

There are many types of models; listed below are a few that we have used at UCLan throughout the degree programme.

Site models: This can be a great way to assess the topographic setting of a site and can be as simple as overlaying cardboard to represent contours.

Models help realise what space can be achieved on site

Design development: The process of testing form can help the fluidity of a concept. This can be revisited throughout the design process before finalising the details.

Massing models: Ideal for designs in built up areas, this will help realise what effect the surrounding mass will have and what space can be achieved on site.

Framing models: This can require a little more accuracy to display the design from a structural point of view. It demonstrates the integrity of the design and is usually in skeletal form and scaled from detailed drawings.

Interior space: Not only can this exhibit the functional layout of the building but may also give a good indication of how the general space will feel.

Presentation model: The benefit of a fully detailed presentation model speaks for itself. A good tip for adding clear perception of scale would be to include trees, cars or people to the model.

Construction models: Last but certainly not least is the construction model, an invaluable tool for the Architectural Technology professional. Models can range from a fixing detail right the way up to a full scale 1:1 prototype. A construction model can clarify proposals for textures and materials that cannot be communicated with a 2D drawing. It can be a part of the design development process to test ideas or it may be a detail taken from the final design. Either way this is an excellent way to instantly communicate the technical aspects of architecture.

Where to start

As always the best place to start is the drawing board. Plenty of sketches will be advantageous even when creating a simple model. Model making can turn into a time consuming project so prior planning and preparation is key to an efficient model. If a more detailed model is required then detailed drawings will be needed to scale the model correctly. A model may just be an aid to communicate one aspect of a larger concept so a clear plan of what is required is needed from the offset. Ann Vanner, the course leader at UCLan encourages the students to think about the overall project and consider how models will help develop the process, whether it's a small massing model, a 1:1 scale detail to explain a junction or a wall build up or even a laser printed model.

The importance of model making is reflected throughout first, second and third year studies starting from simple models in our first Architectural Communication module. In the second year, large scale construction models confirm the student's progression, and in the third year a Tectonics module requires a model to be made to communicate another student's design concept, demonstrating the understanding of detailing process.

Materials

There are many materials that lend themselves to good model-making material, most of which are readily available from stationery or model shops and of course you can find almost anything online.

A construction model can clarify proposals for textures and materials that cannot be communicated with a 2D model

However, do not be afraid to think outside the box when it comes to sourcing the materials you need. There are numerous opportunities to obtain free, high quality samples that can be used in your design such as hard wood flooring samples from most DIY chains, artificial grass from carpet showrooms or fabric samples from textile shops. A simple introduction and polite request may secure you some great materials and a valuable contact for the future. Likewise there are construction materials that can be used such as offcuts of sheet materials and nuts and bolts that are purchased relatively cheaply and have the added advantage of coming in various sizes if scaling down is required.

Tools and equipment will generally be needed for accurate model making. If you have access to a laser cutter, my advice is to use it as this can save considerable time and improve accuracy. If not then don't be put off, a lot of really effective models can be produced with as little as a scalpel, cutting mat and a steel rule.

Presentation

As with any presentation, delivery is crucial. The most accurate models will be overlooked unless the appearance is of a high quality. Does the model need colour? Does it need texture? Even the baseboard the model sits on can contribute to the overall theme. The structure of the model should be sound and transportation requirements considered. Seams and fixing should remain clean and consistent. Some materials such as paper or foam board are notoriously hard to clean once scuffed so attention to overall presentation should be maintained throughout.

Finally the main thing is to enjoy the process. This for me is one of the most exciting and creative aspects of the degree programme, and an excellent way to showcase design skills and construction knowledge.

Interior space models exhibit a functional layout and give a good indication of general space

Meet the mentors

Representatives from Northumbria University and Newcastle-upon-Tyne-based practice FaulknerBrowns show how members can get involved with the Institute's new mentoring scheme. By Paula Bleanch MCIAT, former Senior Lecturer in Architectural Technology, Northumbria University.

Northumbria University run a CIAT Accredited Architectural Technology Honours degree and architectural practice FaulknerBrowns is part of the Group Membership Scheme. Staff from Northumbria University and FaulknerBrowns have collaborated on student projects for a number of years. This article outlines the mentoring relationship that has developed between practitioners, students and academics; and what the advantages are for all involved.

What did we do?

At Northumbria University we asked FaulknerBrowns to collaborate with us on our second year project for the Architectural Technology students. We have been very lucky to work with the practice's Technical Managers, Mark Hudson MCIAT and Jean Paul Colback MCIAT, over a number of years. Their interest and commitment to the relationship has benefited students immensely and we are very grateful for their involvement. Year 2 is a transition year for the students; they must improve their performance in terms of technology and become familiar with more complex solutions. They are also expected to undertake a placement in Year 3, so by the end of the project they must be prepared for the world of work and to be useful in a design office.

The project brief is written by the academic staff and the chosen building type is of a suitable size and scale for the student's technical knowledge at the time. Typically the project would be to design a community building with sports facilities. It would be stipulated to the students that they should use a framed solution in order for them to make the transition from loadbearing masonry construction, which they learned about in their first year, to more complex technology.

Students are asked to develop their own solutions and have to provide a series of key technical details for the building. As they cannot just consult a book to find the 'right answer', the students need expert help to allow them to complete their details. They also need to be able to work semi-independently, so the project is shaped by the pattern of interaction between student and expert over the academic year. To make this as real as possible, there are mentoring interactions with students, with intervening periods where the students work on their own to develop their technical solutions though research and hand drawing.

What is the timetable for involvement?

Prior to the start of the academic year:
Academic staff select a suitable project, set the student brief and meet with practitioners to discuss their involvement. It is important to make sure everyone has the same expectations and, on a practical level, to agree the dates when practitioners will be available to come into the university.
Time commitment: One to two hours.

At the start of the academic year (week 2 or 3):
Practitioners give a guest lecture to students on the practice, the work they undertake, and some technical problems they have encountered in their work. Questions and answers follow.
This informs the students about working in practice and what sort of tasks they may be expected to undertake in their placement year.
Time commitment: Two hours plus preparation of presentation.

Intermediate assessment: Practitioners are timetabled mentoring slots with groups of four students, but look at each student's work individually. This allows the students to get expert feedback on their own work so far and to see how their peers are approaching the project. Students benefit from the shared feedback.
Time commitment: One morning or afternoon.

Assessment
Practitioners attend assessment, which is in the form of a verbal presentation by students along with their drawn designs for the project. After a short Q&A with students, academic staff and practitioners give verbal feedback. This is then reinforced with written comments prepared at a later date by the academic staff, using notes provided by the practitioners.
Time commitment: One morning or afternoon.

After assessment
Academic staff and practitioners meet to talk about what went well and what could be improved for next year. This is a very important part of the process in order to provide continuous improvement and should not be overlooked.
Time commitment: One to two hours.

The practice view

Mark Hudson MCIAT, Technical Manager, FaulknerBrowns

As a practice, FaulknerBrowns has a long history of collaboration with both Northumbria and Newcastle Universities. We were initially asked to provide feedback to Northumbria on the performance of Architectural Technology students undertaking their year out placement with us, and one of the key concerns was that there was an increasing divergence between the student's expectations and what we feel are the core elements of an Architectural Technology professional's role in practice.

To help redress this, we developed a lecture which focused on four case studies highlighting technical challenges we had overcome and challenging the students to consider their role both in their year out, and after qualifying.
We take between two and five Architectural Technology placements each year, and adopt a mentoring approach with these students, so it was logical to do this with the second year, providing them with some sound practical knowledge in addition to their academic studies. This also gives us the opportunity to assess the students in a more natural environment than a formal interview, so it helps inform our judgement as to who we would like to offer placements to the following year. We have had an extremely high rate of success with this.

The student view

Matt Davies ACIAT, Graduate Architectural Technology professional, FaulknerBrowns

The second year introduced us to framed structures, piling, pre-fabricated elements, cladding, curtain walling and rainscreen technology. Mark and Jean Paul were able to demonstrate effective use of such technologies with a presentation of past FaulknerBrowns buildings, inspiring me to look beyond traditional approaches and expand my understanding of more advanced applications.

Through the workshops I was challenged to think critically in the selection of envelope technologies; being encouraged to consider factors such as cost, buildability, manufacture, transportation, environment and the end user. This brought home the bigger picture for me and demonstrated how the Architectural Technology professional is key in facilitating integration of the design and construction processes.

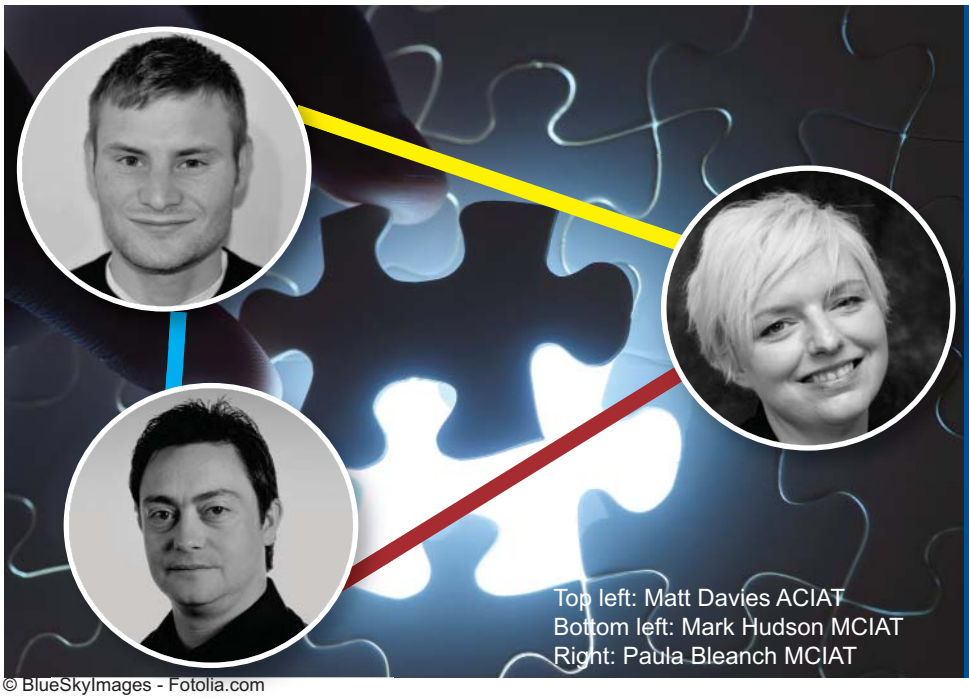
I was lucky enough to secure a placement year at FaulknerBrowns during which I was involved in several large leisure projects; experience that proved invaluable in my final year studies. Since graduating I have returned to FaulknerBrowns and am now studying part-time for an MSc in Design Management and BIM at Northumbria and plan to qualify as a Chartered Architectural Technologist once I have gained suitable experience.

The academic view

Paula Bleanch MCIAT, former Senior Lecturer in Architectural Technology, Northumbria University

I graduated from the degree programme at Northumbria myself, and then went on to work as a Design Manager for several large contractors and a large local architectural practice. When I began teaching I was determined to mirror the 'real world' as much as possible, and I hoped students would benefit from my experience. Another member of staff had already involved Mark and Jean Paul in the second year project, and I was really excited to develop their participation along with Susan Dawson ACIAT , who is the Programme Leader at Northumbria.

The benefits for me were to keep in close contact with what was happening in local practice and an opportunity to keep my own technical knowledge up to date.
As lecturers, we know that students learn extremely effectively from practitioners. It is interesting for the students to be in a one on one mentoring situation, just like in the design office, and we found that the second year project really helped students prepare for placement. Some of our best students have been placed or are currently working with FaulknerBrowns and I hope the relationship will continue long into the future. Experienced practitioners need to get involved in educating the next generation. Professional bodies, practitioners and academics all want the same outcome (capable graduates), so let's work closely together to achieve this.



Top left: Matt Davies ACIAT
Bottom left: Mark Hudson MCIAT
Right: Paula Bleanch MCIAT

More information

If you are interested in mentoring, please contact Tara Page, Education Director (tara@ciat.org.uk) or James Banks, Membership Director (james@ciat.org.uk)

More information on FaulknerBrowns can be obtained at www.faulknerbrowns.co.uk/

For information on the CIAT Accredited BSc (Hons) Architectural Technology degree at Northumbria University, contact Kevin Elliot. Email kevin.elliott@northumbria.ac.uk

Paula Bleanch MCIAT was a Senior Lecturer in Architectural Technology and Construction Management at Northumbria University and is now based in Horsens, Denmark. paulableanch@gmail.com.

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