

Display materials, drawings and presentation boards: the faculty of Architecture at TU Darmstadt produces superior applications with Epson digital printing technology.

The Faculty of Architecture at the Technische Universität Darmstadt (Darmstadt Technical University) can look back over a 171-year history, and with around 1,200 students, counts as one of the leading faculties of architecture in Germany. Student-initiated projects have contributed to its dynamic profile: projects such as what is known as the “Computer Pool”, which the faculty has provided with a bespoke IT infrastructure. The originators were two disillusioned students: when Michael Bender and Christian Schwamborn embarked on their studies in the early nineties, computers in the South Hessen college were in short supply. The workstation equipment appropriate for architecture consisted of a drawing table with a pulley rail and a roll container, and the co-existence of digital and analogue operations was a fantasy of the future. Out of this lack, the two young computer enthusiasts launched a pilot project for free student computer workstations. The college sponsored their enterprise, and the first computer pool room, equipped with sixteen Windows^{®1} and Apple^{®2} computers and an Epson Stylus 1520, met with such great approval that the project was given further financial support. The number of computers and workstations grew rapidly. Almost immediately a hundred computers in three workrooms were available to the students. Parallel to this development, what was by then a ten-strong team of student staff installed professional network and data security technology, and in 1998 ensured that the first large format printer found its way into the college. The Epson Stylus Pro 9000, with its 1118mm print width, made it possible for the first time for students to create their own architectural drawings and presentation boards in six-colour, photo-realistic print quality. The Pro 9000: serial number 000001, was not only the pride and joy of the whole faculty, but also marked the beginning of an exceptionally intensive and successful working relationship between the college and Epson.



COMPLEX IT ENVIRONMENT

The student project group’s performance and achievement exceeded all expectations. Based on this, a few years later the faculty management gave them the entire fast-growing IT commission for the whole faculty, from high-end computers for 3D simulations to the facilities manager’s maintenance computer. Meanwhile, Michael Bender, Andreas Noback and Christian Schwamborn completed their studies and, as newly qualified graduate engineers, were appointed as IT specialists. Today, the faculty’s infrastructure can easily hold its own with any medium-sized technological establishment. At this point the group consists of four full- and part-time posts and around eight student assistants who, in three groups, take care of Windows, Apple and network systems. An additional eight students are in charge of the service sector, where large format prints, small format prints and copies are reproduced. In addition, equipment such as laptops, projectors, cameras and model-making apparatus is available on loan, as well as drawing and modelling materials for sale.

The scope of work is highly demanding as, for educational reasons – unlike private enterprise, where IT environments are streamlined and clearly structured – the college is concerned to make as many different software programs as possible available to students.

Altogether, about 310 computer systems are managed by the faculty: for students and over one hundred research staff, teachers, workshops and administration. These include, for example, 77 student workstations in pools, and over 20 partially virtualised servers. Today, with their Windows, Apple, and Opensource system based computers, the members of the faculty of Architecture can access a variety of network services, such as licence servers for CAD applications. In addition, network access is made available for students with their own laptops. Bearing in mind the obvious fluctuations, the various access authorisations and data protection systems, it is clear that the sophistication of the Darmstadt architects’ IT infrastructure is hard to beat.

NEW ADDITION: EPSON SURECOLOR™ SC-T7000

Whether student projects, degree or diploma dissertations, or professors' research projects, the creative processes almost always end up in an analogue version. To cater for this, there is a copy shop, as well as a print room for large formats, available for college members. This is where the Epson large format printers play a central role. The operators can use six state-of-the-art Epson machines at a time. Along with two Epson Stylus Pro 11880's, a Stylus Pro 9890, and two Stylus Pro 9700's, a brand new prototype of the SureColor SC-T7000 Series instantly catches your eye. The new flagship machine is seductive with its functional design, its small footprint and its low noise level. This machine has enabled the working relationship between Epson and the faculty to reach a new level, as the university specialists consult with Epson on further development, marketing and test phases, including when they are working on driver software. For the first time an on-board HP-GL-Interpreter has been integrated into the SC-T7000. Knowledge gained in the daily use of GIS and CAD requirements is applied directly to improving the printer. The installation and integration were straightforward, as Michael Bender states:

“The SC-T7000 was set up in a matter of minutes and delivered wonderful print results immediately. The students and lecturers are enthusiastic because the printer is easy to use, in that all the operating elements are found at the front and the Epson UltraChrome inks' wide range of colours makes true black tones possible. The high productivity, good quality – even with uncoated inkjet media – and sharp, thick lines with a minimum width of only 0.02 mm are ideal for our drawings. As members of the service team, we appreciate the uncomplicated maintenance and simple media management. It was also important to us that no harmful volatile organic compounds are released when printing with water-based inkjet systems, so that we didn't have to install extractor fans.”



EPSON PRINTERS IN CONTINUOUS OPERATION

At times of peak demand, around the deadline for degree dissertations, the Epson large format printers are working literally round the clock. The students stand engrossed in front of the machines, and look on, fascinated, at how quickly and easily their digital blueprints are transformed into impressive display boards. Often, the source data originate from dozens of different software programs. The operators use graphics programs such as InDesign^{®3}, Illustrator^{®3}, Photoshop^{®3}, QuarkXpress^{®4} or CorelDraw^{®5}, as well as various CAD programs, including Autocad^{®6}, Archicad^{®7}, Allplan^{®8}, Microstation^{®9}, Revit^{®10}, Vectorworks^{®8}, and various 3D modellers, combined with scanned watercolours and pen drawings. The final print format usually arrives in PDF format, but can also be delivered directly from the CAD programs, given that today they also offer layout functions. This means that technical drawings, typographies and half-tone images, such as visualisations, can be built up into presentations within one program. These are processed either by the Epson printer driver or the RIP printer software programs PosterJet^{®11}, GMG Colorproof^{®12} and din.a.x Mirage^{®12}, and sent on to the large format printer. The number and speed of the printers mean that long spools are a thing of the past. A DIN-A1 page of normal paper with line drawings takes only 28 seconds to print on the SC-T7000, while still meeting the architects' requirements. The amount of data is often enormous, and whether it is reproducing a line drawing or a photorealistic representation, the output quality must meet the highest professional standards in terms of precision, surface homogeneity and colour accuracy. This is not a problem, particularly with the new SureColor SC-T7000. Thanks to the excellent 2880×1440dpi print resolution and variable sized Epson Droplet Technology, with minimum droplet size of only 3.5pl, both the finest details and large colour surfaces are shown to best advantage.



NEW SCOPE OF APPLICATION

Besides organising seamless print production, the Darmstadt team of Michael Bender, Andreas Noback and Christian Schwamborn has won further accolades with numerous other special projects in experimental print technology. In 2010, with their Epson Large Format Printers and the double layer technology they had developed themselves, they produced a 2.5m wide light box for the "Byzanz: Pracht und Alltag" (Splendour and Everyday Life) exhibition at the Art and Exhibition Hall of the Federal Republic of Germany in Bonn, where the archaeologists from Darmstadt University were taking part. By printing two transparency foils, mounted in tandem, the project team was able to simulate the historical light conditions of Hagia Sophia in Istanbul. The following year, the team used an Epson Stylus Pro 11880 to produce three dozen large format textile prints for an exhibition of the work of the late Ernst Neufert, former professor of architecture at TU Darmstadt, at the Wasserbauhalle in Darmstadt.

In short: Epson large format printers have proved a big success with the Darmstadt Architects, not only in terms of everyday use, but also in experimental applications.