



VEXICA
POWERED

Products for Projects

Vexica Technology Ltd

are experts in the design and delivery of custom energy efficient LED lighting solutions. We have a vast amount of experience in the architectural lighting market, however we are also at the forefront of the LED White Light revolution.

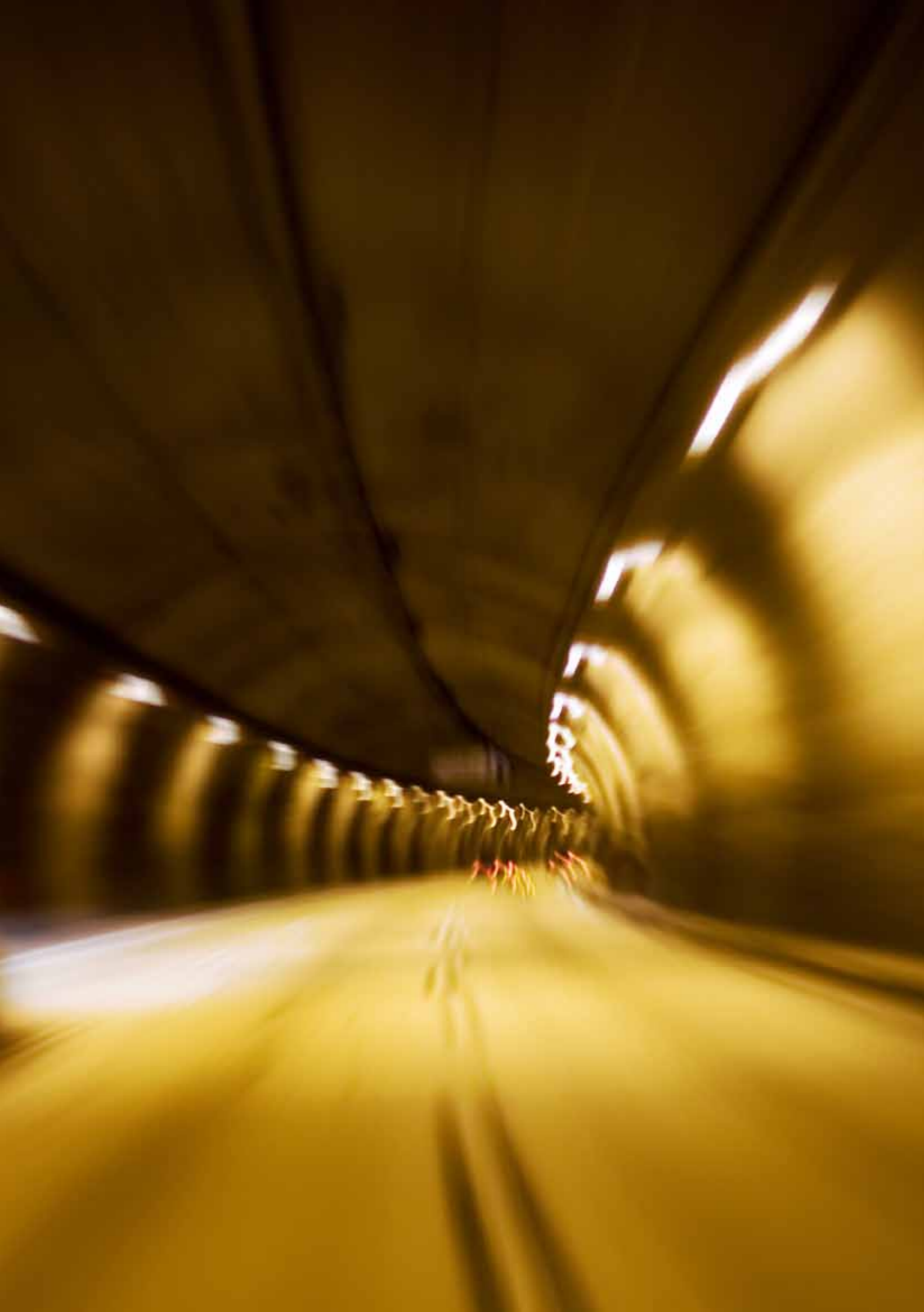
We can offer LED solutions to most conventional lighting types which will allow our customers to not only reduce their carbon footprint, but to also reduce their overheads and offer a technical LED solution. We strongly believe that today's LED component technology, partnered with our expertise, can provide a sustainable and cost effective method of general purpose lighting for years to come.

Whilst White Light is a key growth and development area for us, our real passion is developing custom solutions alongside our clients. You will see from our core competencies that we have all the necessary skills to take a concept and produce a turnkey quality manufactured product that meets a project requirement.

Our team comprises of key individuals with a wealth of knowledge from within the LED lighting industry and beyond. The size of our team, accompanied by the combined skills we possess, allow us to be flexible and reactive to our clients needs.

To provide clients with the right product for the right project whilst delivering and maintaining a service that is both technical and professional.





Our Client Profile

Over the last decade our team members have been associated in working in partnership with some of the worlds leading Lighting Designers and Manufacturers. Our experience being involved in a number of major projects and product designs give Vexica a leading edge and flexible approach in the LED lighting industry.

Our typical client profile includes working with:

Mainstream Original Equipment Manufacturers, VOEM's, Special project consultants, designers and strategic business development partners.

Via this route we get involved with:

Lighting Designers
Architects
M & E Consultants

Who in turn deal with project applications for both architectural, commercial, industrial and retail applications and more.

We have experience in designing products for OEM's for projects, lighting designers and consultants. Our experience also stems from dealing with architectural projects and commissioning and programming DMX512 systems. Our expertise also encompasses mechanical, technical, optical, electronic and LED system designs.

Design Process

Customer Concept or Market Design

Our design process starts with receiving either a concept brief from our client or a design requirement which forms part of market demand. To facilitate this requirement we ask that the client provide us with as much information as possible by way of a design brief. Basic information such as product shape, light output, potential beam angle, colour temperature etc form part of this process.

Product Requirement Consideration

Some of the product requirement considerations include the following; Application, LED Colour, Light Output, Optics, IP Rating & Environmental, Aesthetics, Product Coating, Product Material, Target market and required approvals, Drive Current, Drivers & Control Systems, PCB Design, Target Efficiency.

Initial 3D CAD Design

Once the previous steps are ascertained, preliminary 3D CAD design can begin. This is the process that involves our expertise in mechanical and electronic design that will be integrated to deliver an initial product design.

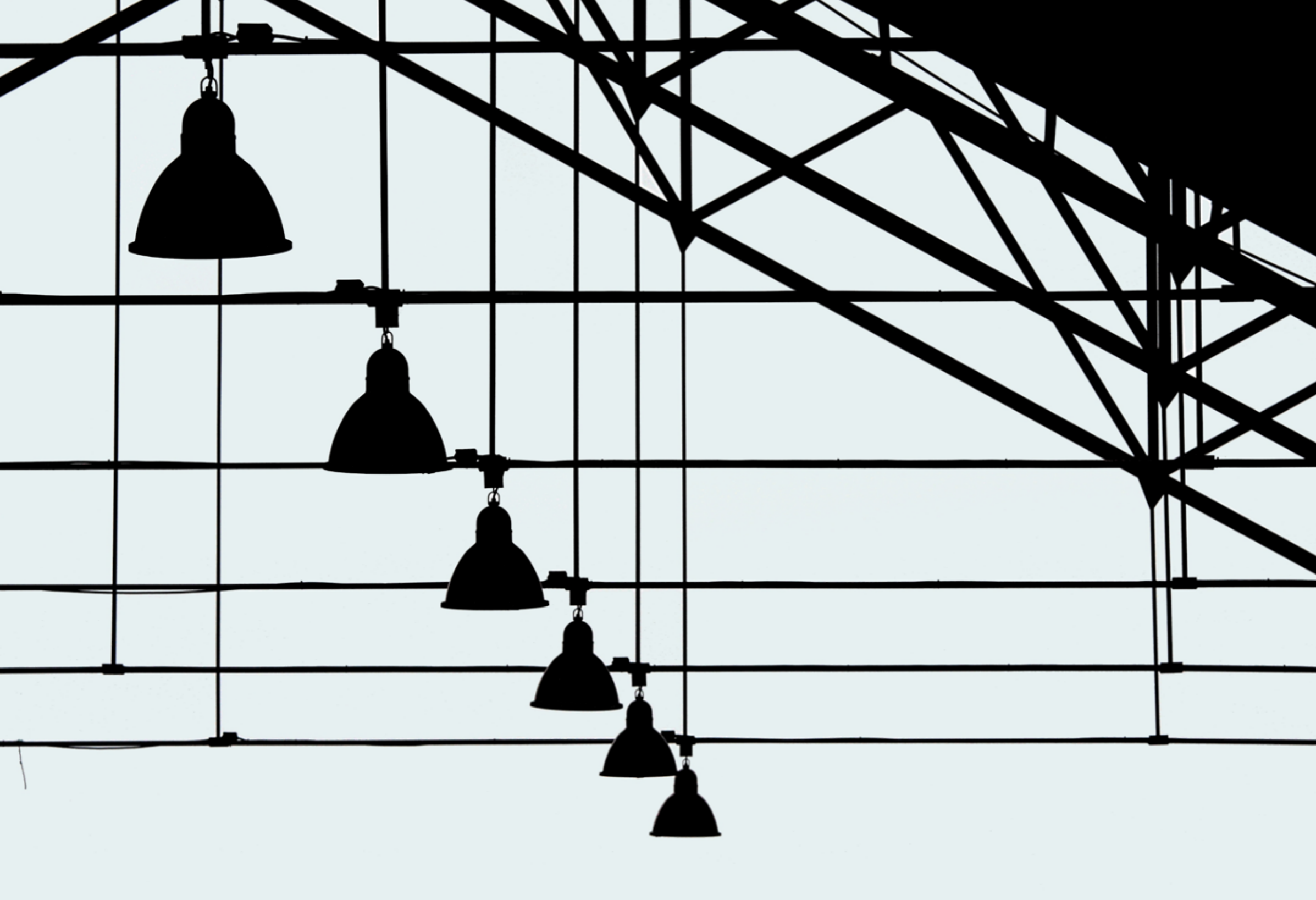
Verifications and Amendments for Approval

Once an initial 3D design is presented to the client we ask for recommendations or amendments for change which will then lead to design variations finally resulting in production drawing material. Once the client is happy that the design has been fulfilled this passes to the approval process.

Prototype and Approval

Some clients choose to go into full production and rely on 3D images, others choose to enter into a prototype stage to seek further approval or use the general prototype for regulatory approval processes such as EMC testing or photometric analysis.





Important Design Factors for reliable LED products

- Glare Reduction
- Optical Efficiency
- Driver Electronics
- Modularity for Future
- Colour Consistency
- Thermal Design

Vexica take into consideration certain criteria when considering product design and development for key areas that are intrinsic to a successful LED product. LED products when used as point sources can appear very glary. Vexica utilise optical reflective technologies to reduce this to pass regulatory approvals for applications. Optical efficiency is high on our design agenda. A product that starts with a high light efficiency index must be enhanced with high quality optics or reflectors to ensure maximum light output is achieved. Design factors that must also be considered include colour consistency within the application. Today driver electronics can achieve higher levels of energy efficiency when designed utilising the latest electronic components coupled with a level of dimming control. Vexica are experts in thermal analysis and take this very seriously as part of the design process. If this process is not considered this can lead to a very high LED failure rate. Future modularity is also important as we do not wish to just design for today's efficiency in LEDs but also for tomorrow's.

Electronics & PCB Design

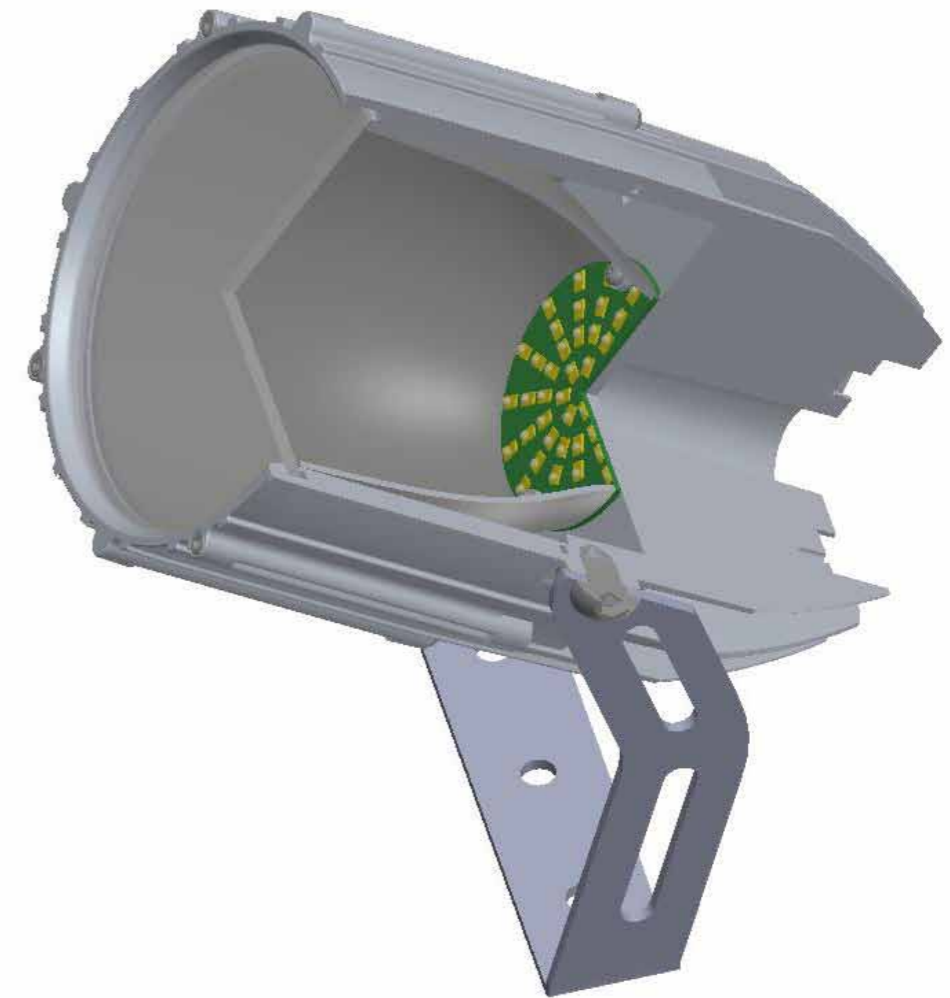
Our electronics design skills include the following areas:

- LED light engines
- LED drivers
- Constant current drivers
- Low voltage drivers
- On board driver systems
- DMX 512 LED drivers
- Constant voltage LED drivers
- DALI and Triac mains dimming drivers
- Power supplies
- General electronic design
- Prototype service

Vexica Technology Limited have an in house electronics design team. Our experience ranges from designing and developing basic LED circuit board gerber

data for circuit board manufacturing through to complex LED driver design. This ranges from design and developing switch mode power supplies and constant current and constant voltage LED drivers through to DMX 512 enabled LED controllers and drivers.

Commercial LED drivers have a requirement for dimming control which allows clients to leverage better energy efficiencies with our designs.



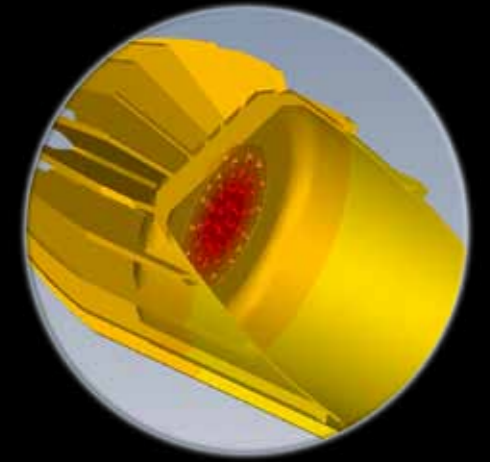
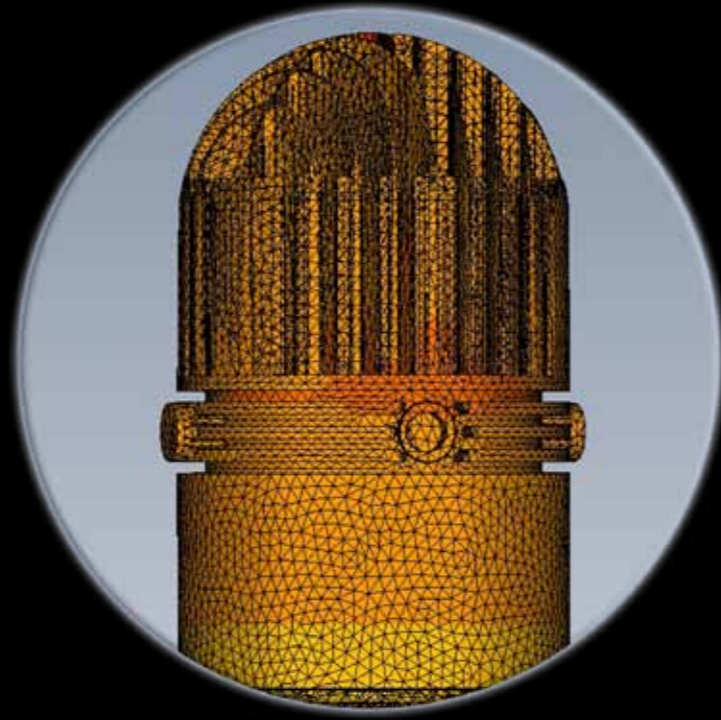
3D Mechanical Design

All product designs are developed through 3D modelling. This allows our clients to get a real feel for what the end product will look like when it comes off the production line. Our designs are modelled in Solidworks. Our thermal analysis software also reads Solidworks files which allows us to analyse the luminaire design thermally as a finished item.



Optical Design

Optical and reflector design is one of our design core competences. Custom reflectors and TIR optics are designed utilising Zeemax design software. This allows us to design for single LED lenses or clustered LED reflectors for custom solutions.

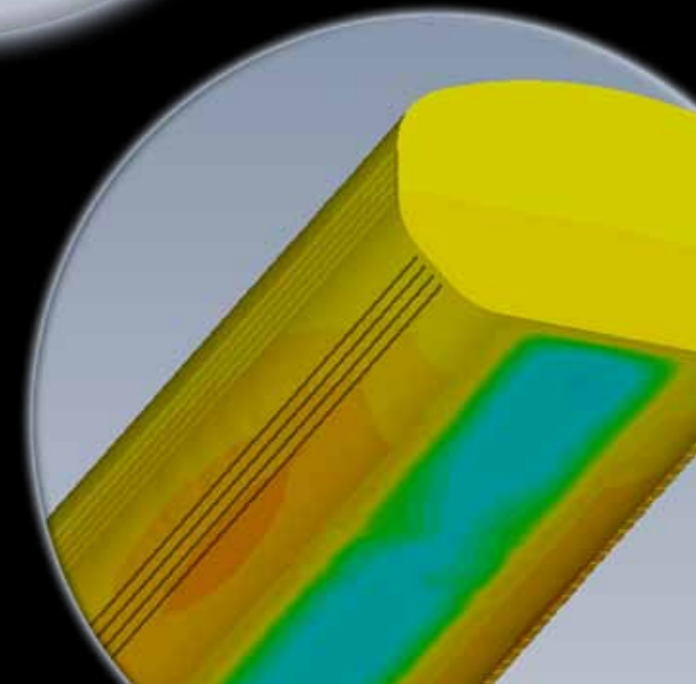
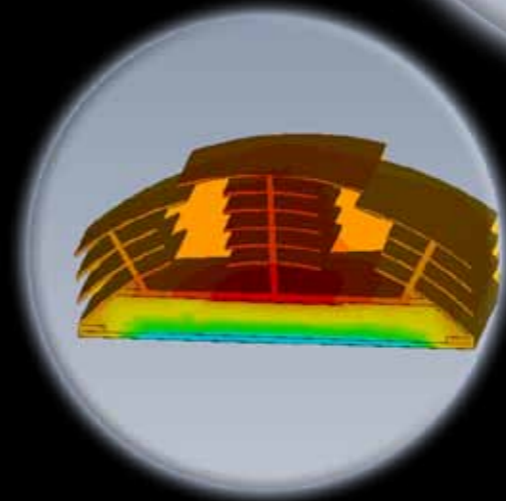
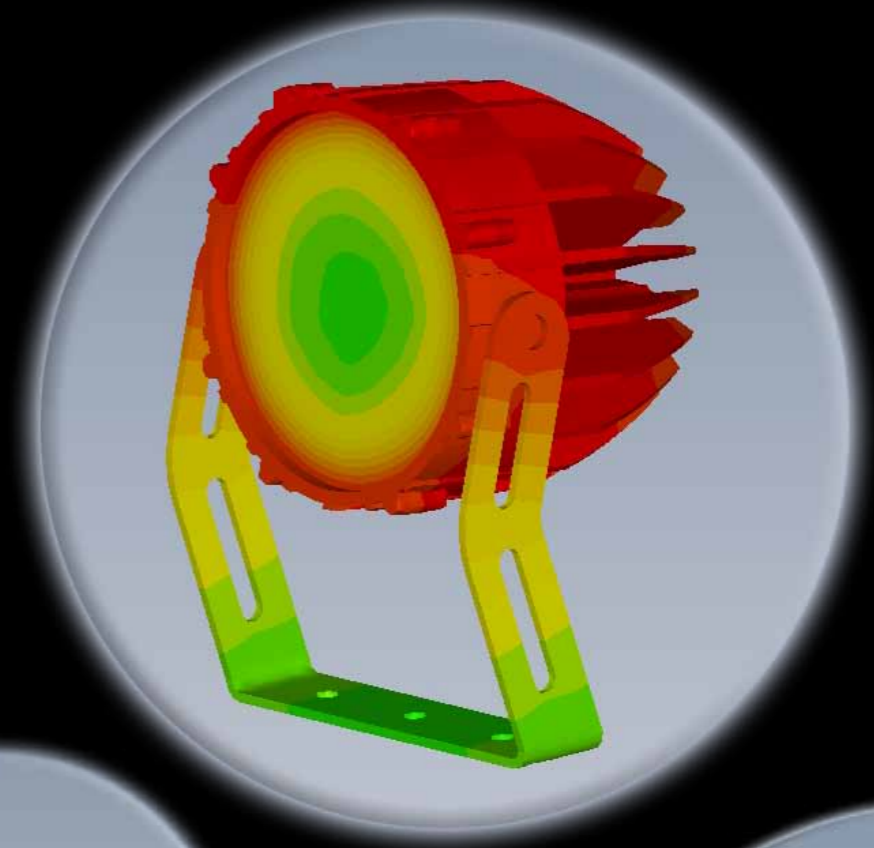


Thermal Analysis & Design

Vexica are users of thermal design software. This integrates comprehensive fluid-flow and heat-transfer simulation into the early phases of design, where we can best improve quality and save costs.

We utilise this software when creating either electronic driver design or luminaire designs. We are able to install a 3D design of a luminaire in a working environment and simulate thermal modelling without even creating a prototype. This allows us to evaluate a design in the early stages before taking the components to tooling.

As a custom luminaire solution we can offer 3D designs that have been thermally analysed before clients commit to prototyping and production.

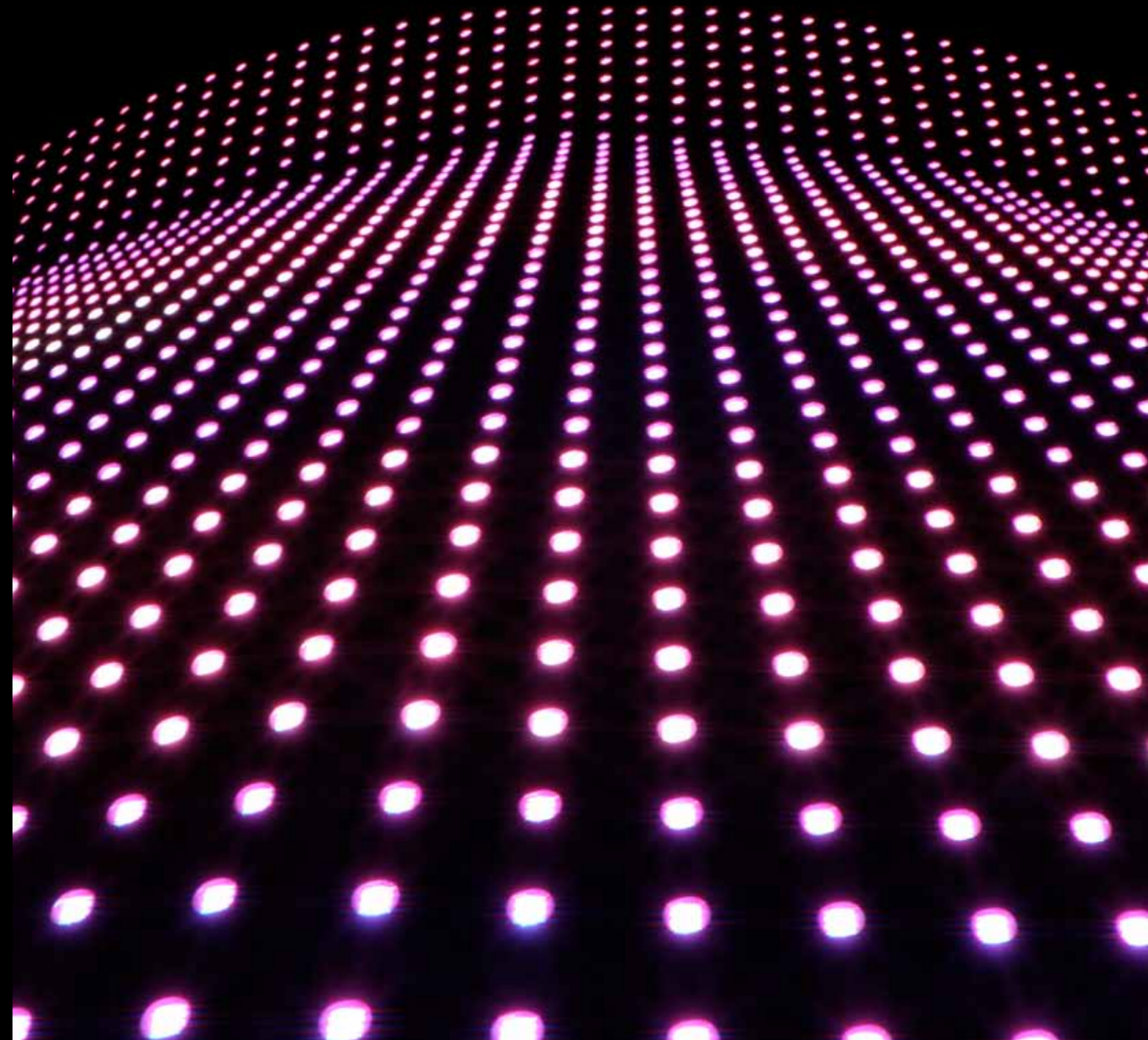


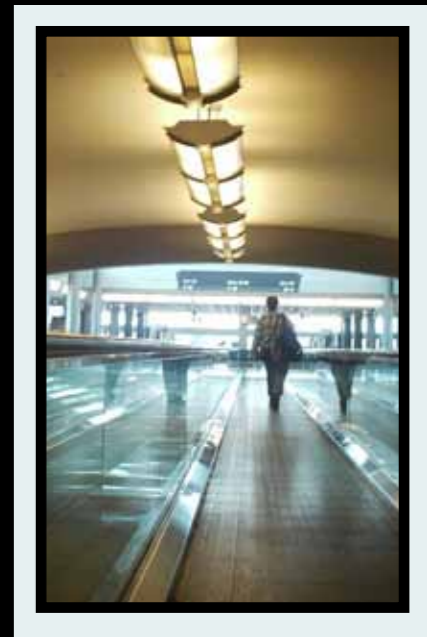
Pre-Production & Testing

We offer a pre-production service for our LED luminaire design service. This allows clients to review the design prior to us entering into full production with the final tooling.

This can either be done as part of the prototyping stage or the pilot production small batch run. Vexica work with a number of test houses and our services include:

- EMC
- Safety Testing
- Optical Testing
- Photometric Analysis & Testing
- CE, BS, and UL Approvals
- Environmental Testing

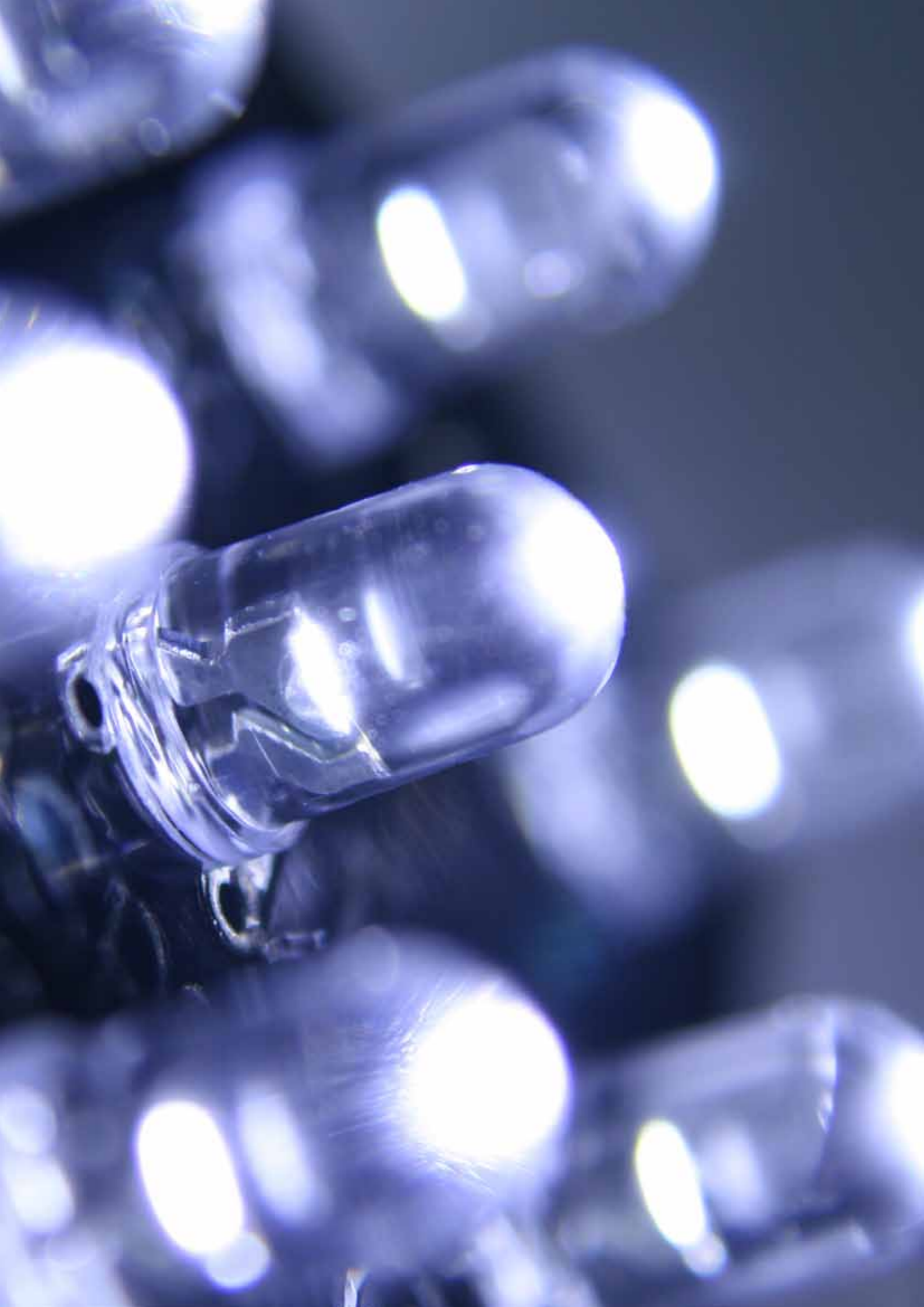




Project Management & Technical Support

At Vexica we believe that the result of a good finished product starts with the project management of a product design. Vexica offer a turn key solution in product design which generally starts with a clients requirement and preliminary concept. Our 9 step process as outlined can include prototyping & samples through to finished manufacturing and delivery. A dedicated member of Vexica project management staff will ensure each of our clients are delivered the correct product for a project. Our expertise encompasses a variety of final applications from architectural colour change lighting schemes through to commercial or retail LED lit applications.

1. Client Concept
2. Preliminary Design
3. Prototyping & Samples
4. Client Design & Verification
5. Testing
6. Regulatory Approvals
7. Procurement
8. Manufacturing
9. Delivery



Why Use LEDs?

- Offer energy efficiency
- Long and predictable service intervals = reduced maintenance cost
- Reliability and long lifetime = increased safety and peace of mind
- Dimming including the ability to adjust to specific ambient light levels
- Small package size = flexible, flat and compact lamp design
- Mixing LED colours and white LEDs = flexibility in colour temperatures and CRI
- Quick turn on/off
- No problem with hot ignition = turn on/off without time delay
- 'Unbreakable' LED package = no safety screen for luminaire necessary
- LED contains no polluting materials = easy lamp recycling
- Higher light output even at low temperatures

The Future

No one can fully predict what LED lighting will bring us 50 years from now. However, for at least the last 10 years LED products have accelerated from becoming mere indicator lighting products into general and commercial lighting. What we can predict is that LEDs will be used in more applications every year, and that LEDs if they continue to achieve the exponential growth curves for efficiency shown hitherto, will certainly overtake most, if not all, conventional light sources. We are seeing white LEDs being used today for not only outdoor lighting applications but in mainstream interior applications too. Things can only get better for LEDs from here, and at Vexica we are confident we can provide a LED solution for your special project.

- Less LEDs, more LED output for less wattage
- Improved colour rendering
- Higher general efficiency
- Integration with solar & wind power
- Full dimming control adds to energy efficiency
- Reduction in payback periods
- More application uses



tunnel



transport & platform

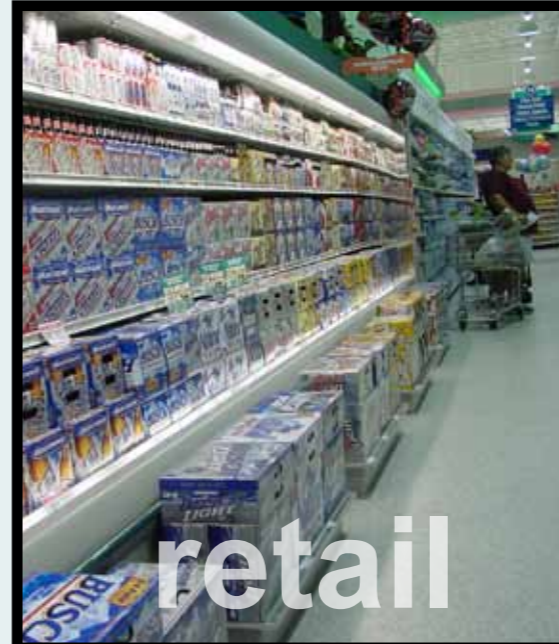
architectural



carparking

Applications

Vexica Technology design, develop and deliver LED products for a variety of lighting applications. Our technical expertise in creating specialist LED solutions allow us to develop for various lighting applications that can take advantage of LEDs. Our extensive knowledge allows us to create solutions for both interior and exterior lighting projects.



retail

billboards & signage



- architectural
- landscapes
- security
- tunnels & walkways
- car parks
- street lighting
- cold storage
- bus shelters
- stairwells
- under canopy
- billboards & signage
- retail
- under cabinet & display
- detail & sculptures
- office

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