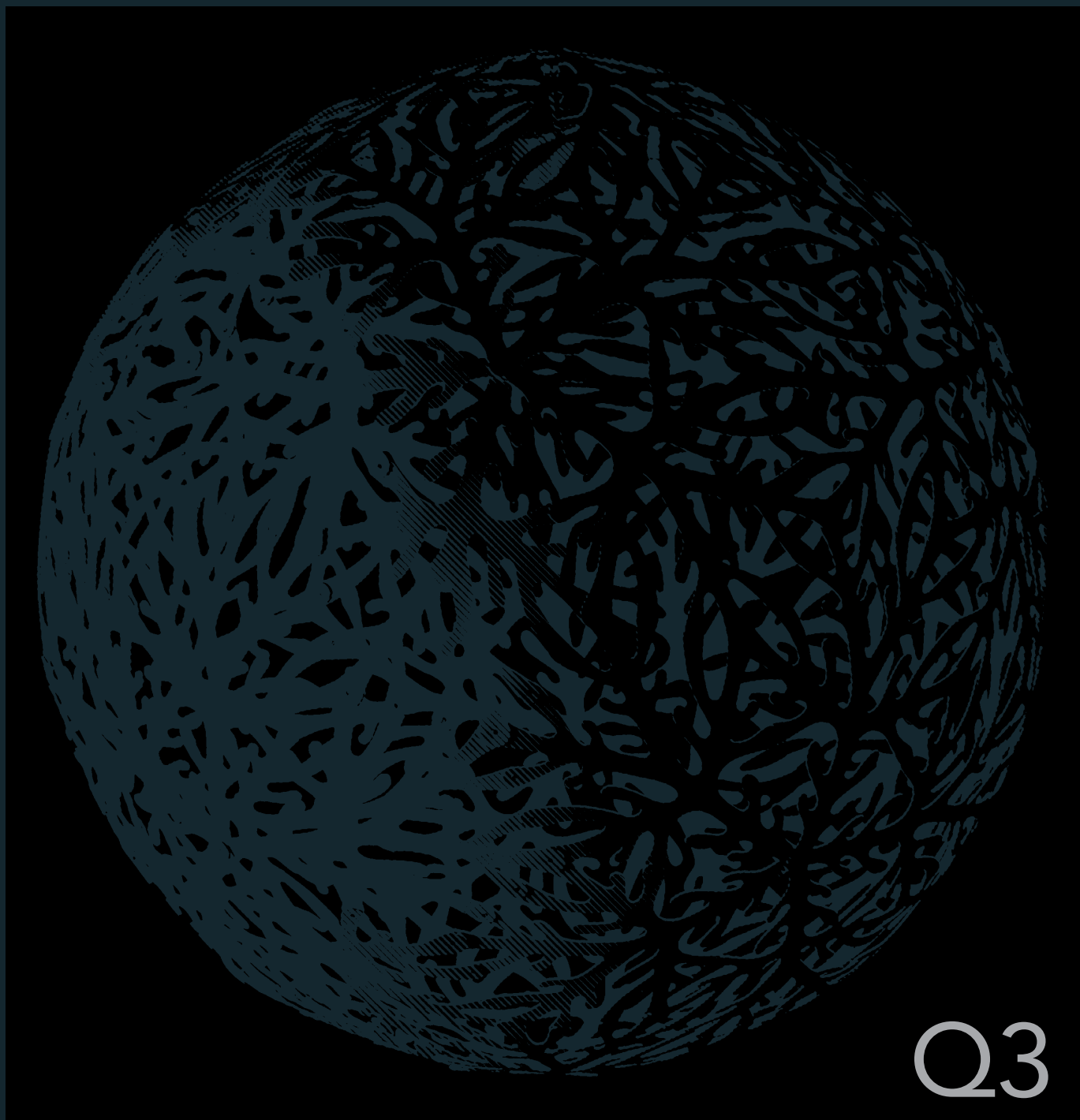


SUPERYACHT DESIGN

INTERIORS ■ DESIGN ■ EXTERIORS ■ ARCHITECTURE ■ SPACE



Q3

BEOTHUK

As I travel around the world from yard to yard it is clear the message of the LED revolution has arrived, albeit in varying forms. Most shipyards seem to be divided into two camps. The first are the companies that are fully onboard and every boat they build from now on will use LEDs as it makes sense in every aspect from design, to build, to maintenance. The other type are those yards that have used LEDs in the past with varying success and are cautious in moving forward.

Although invented back in the early 1900s, LEDs were not used as a main light source until around five years ago when a few pioneering lighting companies struck out and got a technological head start. Now it seems, everyone is clamoring to install them and they will eventually be the light source for almost all applications in the future. Millions of traffic signal lights in the USA, for example, have been converted from old technology bulbs to LEDs saving huge amounts of energy and maintenance. Companies such as Sony and Samsung now produce LED televisions with a solid state light source that is robust and power efficient, has an exceptionally long lifecycle and produces outstanding contrast, colours and clarity. But for general lighting the

main stumbling block at the moment is price. To have good, consistent, flicker-free performance only the best LEDs can be used and the high-quality, high-output versions are priced at a premium. However, as with all things electronic, with greater acceptance comes greater volume, which in turn leads to lower prices.

Some forward thinking boat builders saw the advantages of LEDs many years ago and jumped in head first, with some disastrous results due to poorly engineered products. Low-light output, inaccurate colour consistency and inadequate thermal design left some early installations under-developed and, in a few instances, needing to be completely replaced with old-style bulbs. These early movers are now much more cautious and likely to conduct their own testing rather than rely on the manufacturer's sales pitch. Long-term LED testing of 40 or 50,000 hours is impractical, but when a light fails after only a few hundred hours it is a sure sign that it is not a suitable product.

The second 31-metre *Beothuk* for Canadian owner-engineer Philip Keeping was the first newly built yacht to be fitted entirely with LEDs and represented two years of research into heat dissipation, consumption, colours and many other factors. As a result, we have over 500 lights that can be on continuously, burning only a fraction of the power of halogen bulbs.

Lighting presents an interesting

challenge in any environment, but especially in the marine sector. There are very few products on a yacht that are bought in the same quantities and used in the consistent manner that lights are. The only items this author has managed to think of are

of the curve. Lighting represents 20 per cent of the power used on the planet and the same can be true on a yacht. Because of the lower energy demand and heat output of LEDs, not only are environments more comfortable for guests and crew, but there is a

Lighting represents 20 per cent of the power used on the planet...

door handles, taps and switches, all of which—in theory at least—never need replacing. Lights, on the other hand, are one of the biggest influences on the ambience of any room. Without light you see nothing, and can do nothing as a consequence; with bad lighting a room can look dull and damp, even depressing.

Contrary to popular opinion, LED lighting can be exact, it can be dimmed and it can produce the warm colours everyone wants. In short, it can provide everything 'traditional' lighting provides with one major advantage that can be summed up in one word: power. As I travel from the Americas through Europe and the Middle East, it is clear the Europeans have picked up on the power saving knock-on benefits ahead

significant saving in electrical power for hotel services, especially with regard to air conditioning. The build savings continue with less cabling, smaller generators, emergency lighting loads, and so on. All these factors ultimately influence the end performance of the yacht. One yard has calculated by switching to all LED lighting aboard an 80-metre yacht, the savings to the owner in fuel alone will be over euros 50,000 a year.

It will not be long before most, if not all, lights aboard yachts are LED and builders can take advantage of easier and less intensive installations, lower spec equipment and faster build times—while adding to their "green" credentials in one of the most significant ways possible.



CANTALUPI / SUNSEEKER 88

PROMOTECH CLAUDIO GIAMPAOLI

PROMOTECH IS A COMPANY SPECIALISING IN THE DEVELOPMENT OF LED LIGHTING TECHNOLOGIES. OTHER THAN SUPPLYING ITS OWN RANGE OF PRODUCTS, IT IS ABLE TO MANAGE VARIOUS REQUESTS RANGING FROM CUSTOM LIGHTING SOLUTIONS ABOARD YACHTS TO PRODUCT DEVELOPMENT FOR INDUSTRIAL DESIGN. SALES MANAGER CLAUDIO GIAMPAOLI TALKS ABOUT AN IN-HOUSE SOLUTION FOR DIFFUSING LED LIGHTING.

CG: WITH THE RAPID EVOLUTION OF LED TECHNOLOGIES, LIGHTING CONCEPTS HAVE ALSO CHANGED RADICALLY. IN PARALLEL WITH THIS DEVELOPMENT, NEW MATERIALS FOR DIFFUSING WHITE (RGB) LED LIGHTING ARE APPEARING ON THE MARKET. PROMOTECH HAS BEEN INVESTING IN THIS DIRECTION TO DEVELOP PRODUCTS SUCH AS THE SLIM LED PANEL OR SLP, A THIN PLASTIC SHEET THAT DIFFUSES LIGHT UNIFORMLY OVER ITS ENTIRE SURFACE TO DELIVER MORE CUSTOMISED LIGHTING SOLUTIONS.

BACKLIGHTING THROUGH AN OPAQUE OR TRANSLUCENT MATERIAL OVERCOMES THE LIMITATIONS OF THE CONCENTRATED LIGHT SOURCE FROM TRADITIONAL SPOTS, ALLOWING MORE NATURAL ILLUMINATION AND AVOIDING AREAS OF SHADOW TO PROVIDE VISUAL COMFORT ON A PAR WITH DAYLIGHT. SLPs ARE SIMPLE TO MOUNT ON CEILINGS, DOORS, STAIRS, TABLES, SHELVES AND EVEN ENTIRE WALLS OR BULKHEADS. THERE ARE NO VISIBLE FRAMES, LENSES OR REFLECTORS, SO THE "TECHNICAL" COMPONENTS REMAIN INVISIBLE TO THE NAKED EYE. IN FACT, FORM AND DIMENSION CAN BE LEFT UP TO THE INTERIOR DESIGNER, RATHER THAN THE OTHER WAY ROUND. ONE OF OUR LATEST PROJECTS, FOR EXAMPLE, WAS PERINI NAVI'S 56-METRE PANTHALASSA WITH INTERIOR DESIGN BY LORD NORMAN FOSTER THAT FEATURES NINE SUCH PANELS IN THE MAIN SALON CEILING, WHICH ALSO ALLOW DAYLIGHT TO FILTER THROUGH FROM THE FLY DECK.

LED LIGHTING IS NOW AVAILABLE IN FLEXIBLE TUBES AND STRIPS THAT CAN BE USED WITH SLPs AND ADAPTED TO ALMOST ANY SHAPE OR CONTOUR INSIDE OR OUTSIDE THE YACHT. WE FIRMLY BELIEVE IN THE NEW ILLUMINATION CONCEPTS THAT LEDS CAN ACHIEVE AND IN THE ADVANCED LIGHTING SOLUTIONS THAT ARE INCREASINGLY REMOVED FROM THE LIMITED OPTIONS ACHIEVABLE WITH TRADITIONAL SPOTS AND WALL SCONCES.

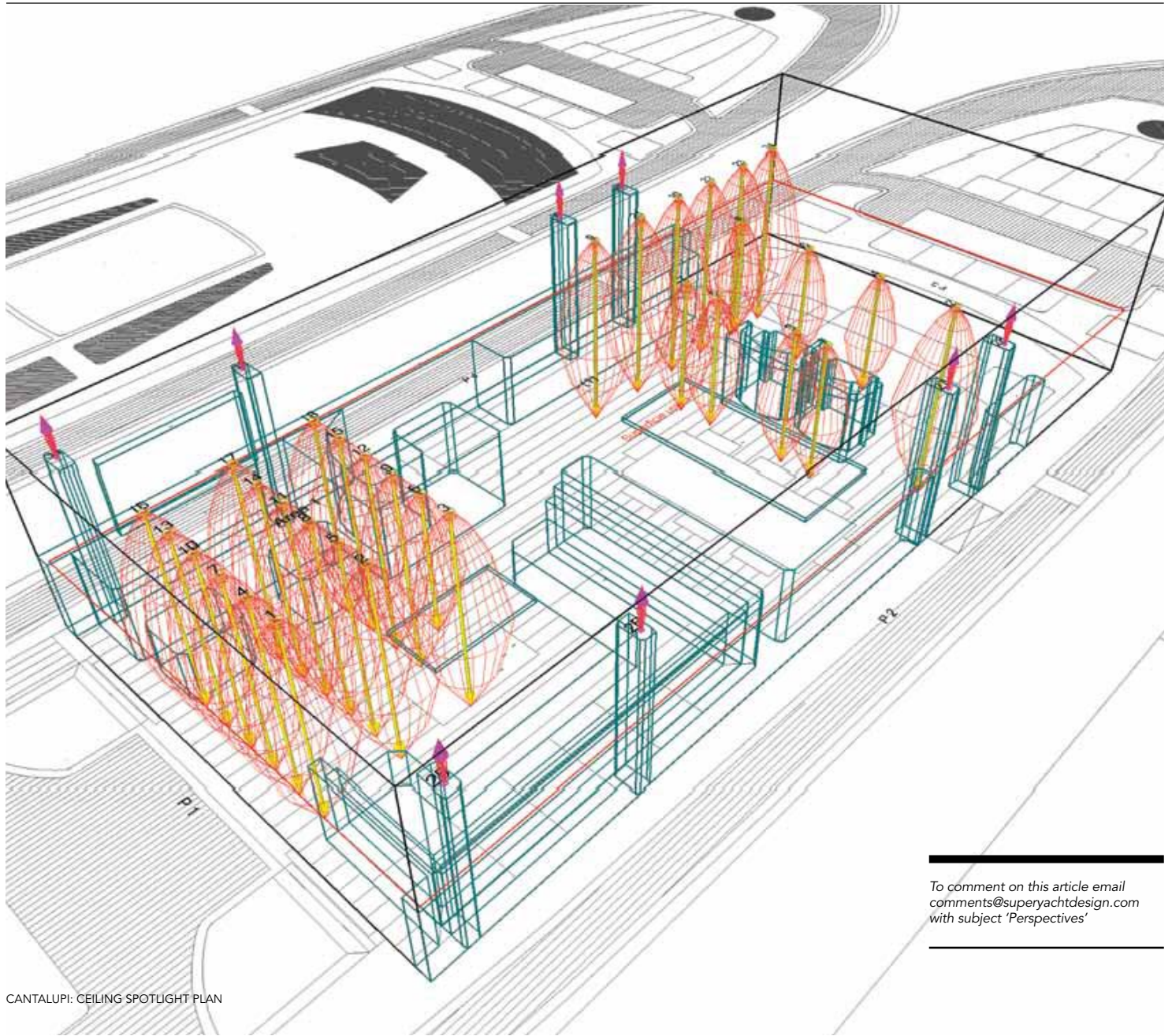
CANTALUPI LIGHTING GIOVANNI MARAFELLI

CANTALUPI IN VIAREGGIO IS A LEADING MANUFACTURER OF LED LIGHTING FOR THE YACHTING INDUSTRY, PROVIDING TECHNICAL ASSISTANCE TO ARCHITECTS, BOAT BUILDERS AND DESIGNERS TO CREATE BESPOKE LIGHTING ENVIRONMENTS. ACCORDING TO COMMERCIAL DIRECTOR GIOVANNI MARAFELLI, THE SUPERYACHT SECTOR IS NOW EMBRACING LEDS.

GM: WITH OVER TEN YEARS' EXPERIENCE IN LED LIGHT DEVELOPMENTS, CANTALUPI CAN TECHNICALLY DEMONSTRATE THAT LEDS ARE CAPABLE OF REPLACING THE EXISTING HALOGEN LIGHTS ON BOARD WITH A NUMBER OF UNIQUE BENEFITS, WHILE MAINTAINING THE EXISTING LIGHTING FEATURES AND DIMENSIONS. LEDS OFFER EVEN MORE OPPORTUNITIES TO STUDY NEW PRODUCTS AND ALLOW US TO DESIGN WITH LIGHT IN ORDER TO EMPHASISE THE ARCHITECTURE AND THE MATERIALS ON BOARD. NEW SHAPES, DIMENSIONS AND EFFECTS, UNREALISABLE IN THE PAST, ARE NOW POSSIBLE.

THE MARKET HAS REACTED VERY WELL TO THE LATEST LIGHTING DEVELOPMENTS AND CUSTOMERS ARE INCREASINGLY CONSCIOUS OF THIS LIGHTING REVOLUTION. MORE THAN 80 LARGE YACHTS OVER 100 FEET HAVE HAD LEDS INSTALLED SOMEWHERE ON BOARD, WHILE SINCE 2009 OVER 90 PER CENT OF ENQUIRIES RECEIVED AND MORE THAN 50 PER CENT OF OUR SALES REVOLVE AROUND LEDS.

FINALLY, AN IMPORTANT ASPECT OF OUR ACTIVITY AS MANUFACTURERS IS LIGHTING CONSULTANCY, WHICH ADDS VALUE TO THE PRODUCTS. BY OFFERING COMPLETE PROJECT MANAGEMENT IN THE FORM OF LIGHTING PLANS AND SIMULATIONS, LIGHTING DISTRIBUTION ANALYSIS AND LIGHTING RENDERINGS, WE CAN FULLY ANTICIPATE AND CONFIRM THE FINAL RESULTS. AT OUR SHOWROOM IN VIAREGGIO VISITORS CAN DISCOVER THE WHOLE LED RANGE AND THE LATEST DEVELOPMENTS, GUIDED BY OUR LIGHTING CONSULTANTS WHO CAN SUGGEST PRODUCTS THAT PROVIDE THE PROPER ILLUMINATION TO MEET SPECIFIC REQUESTS.



CANTALUPI: CEILING SPOTLIGHT PLAN

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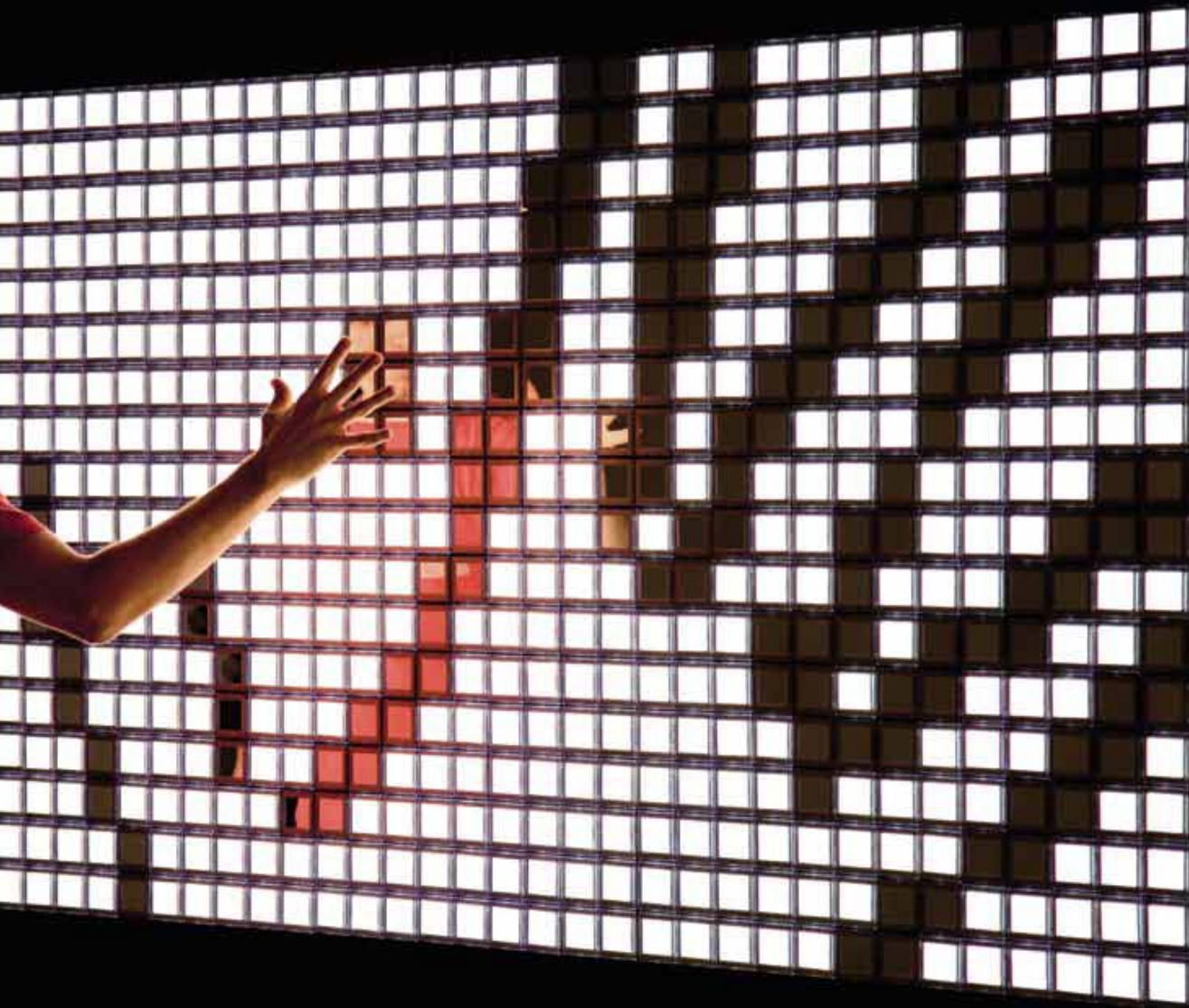
I3D INC. BEATRICE WITZGALL

A KNOWLEDGEABLE LIGHT DESIGNER WILL CHOOSE FROM AN ARRAY OF DIFFERENT TECHNOLOGIES AND PRODUCTS TO ESTABLISH A COMPREHENSIVE IDENTITY FOR A YACHT. I3D INC. IN NEW YORK IS INVOLVED IN VARIOUS SUPERYACHT PROJECTS WITH PROMINENT DESIGNERS SUCH AS BANNENBERG-ROWELL, REYMOND LANGTON, RWD AND SHIPYARDS SUCH AS LURSSEN, ABEKING & RASMUSSEN AND GUNBOAT. BEATRICE WITZGALL OF I3D INC. EXPLAINS THE OFT OVERLOOKED ROLE OF THE LIGHT DESIGNER.

BW: LIGHTING DESIGN DEFINES THE IDENTITY AND PERCEPTION OF A SPACE, CREATING SUBTLE MOODS AND ATMOSPHERE. MODERN INNOVATIONS SUCH AS LEDS CAN BE USED TO OVERCOME MANY TECHNICAL CHALLENGES TO YACHT LIGHTING. THEY ARE LIGHTWEIGHT, USE LITTLE ENERGY AND HAVE A SMALL PROFILE. HOWEVER, NOT EVERY LED IS EQUAL AND QUALITY DIFFERENCES CAN BE HUGE. A 1W LED DOES NOT EQUAL A 1W LED FROM ANOTHER MANUFACTURER. THEY VARY IN LIGHT OUTPUT, COLOR, TEMPERATURE, CONSISTENCY, OPTICS AND ENGINEERING OF THE HEAT SINK THAT DETERMINES HEAT DISSIPATION AND LIFESPAN. THE VARYING OPTICS AND BEAM ANGLES IN EACH LED DICTATE

ITS BEST APPLICATION. RAPID INNOVATION CYCLES OF LEDS ARE CHALLENGING—WHAT MAY BE PLANNED TODAY MAY BE OUTDATED NEXT YEAR.

NEVERTHELESS, FROM A DESIGN PERSPECTIVE LEDS BRING GREAT POSSIBILITIES. WHILE DOWNLIGHTS HAVE THEIR PLACE AND FUNCTION, THEY OFTEN FALL SHORT IN DESIGN APPLICATIONS AND AESTHETICS. LINEAR LED STRIP LIGHTS FOR INDIRECT AND AMBIENT ILLUMINATION PROVIDE AMAZING INTEGRATION IN SMALL LIGHTING POCKETS, COVES OR FURNITURE. A GREAT APPLICATION FOR A LINEAR LED IS THE GRAZING OF A TEXTURED WALL. LEDS ALSO HAVE TREMENDOUS CAPABILITY TO CHANGE COLOR TO CONVEY DIFFERENT MOODS IN CAREFULLY DESIGNED SPACES. A WARM, WHITE ILLUMINATED SPACE CAN BE BRIGHT AND FUNCTIONAL, WHILE AMBER CAN BRING OUT THE COSY SUNSET GLOW; A DARKER MIDNIGHT BLUE PROVIDES A MYSTERIOUS MOOD FOR A STARRY EVENING. WE STRIVE TO FIND THE RIGHT BALANCE OF DIFFERENT LIGHTING LAYERS AND LAMP SOURCES TO ENHANCE THE DESIGN, PURPOSE AND FEEL OF A SPACE. LIGHTING DESIGN AND AN UNDERSTANDING OF LIGHTING TECHNOLOGY GO HAND IN HAND AND BRING SOPHISTICATION, PLEASURE AND VALUE TO ANY YACHT.



PHILLIPS LUMIBLADE MIRRORWALL

ONE STEP BEYOND

WHILE LEDs ARE THE BEST SOLUTION FOR APPLICATIONS WHERE YOU WANT DIRECTED LIGHT, OLEDs (ORGANIC LIGHT-EMITTING DIODES) PROMISE THE ULTIMATE IN DIFFUSE AMBIENT LIGHTING—ENTIRE WALLS THAT GENTLY AND EVENLY GLOW WITH LIGHT, OR EVEN OLED-COATED WINDOWS THAT ILLUMINATE ROOMS WITH SIMULATED DAYLIGHT WHEN IT GETS DARK.

AN OLED IS A LED WHOSE EMISSIVE ELECTROLUMINESCENT LAYER IS COMPOSED OF A FILM OF ORGANIC COMPOUNDS. THIS LAYER OF ORGANIC SEMICONDUCTOR MATERIAL IS FORMED BETWEEN TWO ELECTRODES, WHERE AT LEAST ONE OF THE ELECTRODES IS TRANSPARENT. SUCH DEVICES CAN BE USED IN TELEVISION SCREENS, COMPUTER MONITORS, PORTABLE SYSTEM SCREENS SUCH AS MOBILE PHONES AND PDAS, WATCHES—YOU NAME IT.

ALL THE MAJOR ELECTRONICS MANUFACTURERS ARE INVESTING HEAVILY IN OLED RESEARCH AND SOME PRODUCTS ARE ALREADY COMMERCIALY AVAILABLE. PHILLIPS, FOR EXAMPLE, LAUNCHED THE LUMIBLADE MODULE AT LIGHT+BUILDING 2010 IN FRANKFURT AND THE

SALONE DEL MOBILE IN MILAN. THE LUMIBLADE MODULES PROVIDE A SOFT, DIFFUSE LIGHT OFFERING A SOOTHING AMBIENCE AND ARE AVAILABLE IN A WARM WHITE LIGHT TO CREATE AN ATMOSPHERE THAT IS VERY CLOSE TO NATURAL LIGHT. IN ADDITION, THEY ARE FLAT AND RUN ON VERY LOW VOLTAGE SO THEY ARE EASY AND SAFE TO INTEGRATE INTO LUMINARIES, FURNITURE AND INTERIOR DESIGNS.

POLYMER LIGHT-EMITTING DIODES (PLED) INVOLVE AN ELECTROLUMINESCENT CONDUCTIVE POLYMER THAT EMITS LIGHT WHEN CONNECTED TO AN EXTERNAL VOLTAGE SOURCE. THEY ARE USED AS A THIN FILM FOR FULL-SPECTRUM COLOUR DISPLAYS AND REQUIRE A RELATIVELY SMALL AMOUNT OF POWER FOR THE LIGHT PRODUCED. NO VACUUM IS REQUIRED AND THE EMISSIVE MATERIALS CAN BE APPLIED ONTO A FLEXIBLE PLASTIC SUBSTRATE BY A TECHNIQUE DERIVED FROM COMMERCIAL INKJET PRINTING.

WITHIN THE NEXT DECADE IT SHOULD BE POSSIBLE TO PRODUCE PLED DISPLAYS, ALSO CALLED FLEXIBLE OLED (OR FOLED) PANELS, USING A ROLL-TO-ROLL PRINTING PROCESS NOT UNLIKE THAT USED TO PRODUCE WALLPAPER. JUST IMAGINE IT... WALLPAPERING A HOME OR YACHT INTERIOR WITH LIGHT.