Product Design and Build, Quality and Safety

We aim to build the world's best lighting and building technology, period. Application-specific lighting, designed to save energy, built with ease of installation and use in mind, with our 130+ years of experience backing up every product.

Green, by Design

Our LED luminaires are, of course, far more energy-efficient than the older technologies they replace. But our efforts to help our customers **reduce carbon and save energy** don't stop there. Our **management KPIs** are designed to incentivize new product development that delivers CO2 reduction. We track new product launches and CO2 reduction monthly by both product and team. And our dedicated Value Added / Value Engineering teams relentlessly upgrade product components for maximum energy efficiency and minimum footprint.

Active Regulatory Committee meetings and programs ensure compliance with the **most rigorous Lighting and Controls standards**, such as Title 24 and the Design Lights Consortium.

Even our approach to packaging is yielding carbon savings: we have optimized shipment quantity per pallet and shipment routes to minimize packaging. We use less material per unit and ship more units per truck, which means fewer trucks on the road and less material to clean up and recycle at the job site.

Our products are designed for long life – 5 to 10 years in many cases. Our extensive retrofit offerings allow lighting upgrades that use existing housings and wiring to minimize a waste and recycling footprint. And we offer detailed information on how and where to recycle nearly every component of our fixtures.

Quality and Safety, by Design

We place product quality at the forefront of our pursuit of customer satisfaction.

Acuity uses multi-layered processes to drive product safety. These processes begin with detailed engineering analytics associated with the design and manufacturing of our parts.

Our **designs** begin with detailed 3D CAD models, using various tools like computational fluid dynamics and finite element analysis to assess the mechanical and thermal performance of our products. This first step confirms that the product meets the safety requirements as specified typically by regulation, but occasionally by the customer.

At the completion of the design, we frequently perform further **testing** using DFMEA and PFMEA (Design Failure Mode Effects Analysis and Process Failure Mode Effects Analysis, respectively) processes which are based on well-established industry standards. Using these processes, we examine every component of a product looking for any possible failure modes and the potential resulting downstream effects of

these failures from both a product function and a safety standpoint. An internal, independent, cross-functional team identifies these potential issues and scores the impact and passes the score and any critical failure points back to the product team. The product team then addresses issues and resubmits, as necessary, until the product passes this critical phase. Once the manufacturing process is finalized, the complementary PFMEA tool is used in the same iterative process until manufacturing is able to meet the same safety requirements as at the design phase.

The final independent safety tollgate is our **CT&S (Certification, Testing, and Standards)** process. This process begins with a detailed assessment of all relevant testing standards that apply in each market for the product that is under design. This assessment, which includes the applicable product engineer, testing management and the on-staff regulatory engineer, the team identifies all of the tests that are needed to confirm that the product meets the applicable regulatory requirements and any additional design validation tests that should be run on prototypes to meet the long-term safety criterion of the product which might be above the base regulatory requirements. Typically, over the course of the several months, through various tollgates and design iterations these tests are completed and are used as a central element of the regulatory submittal.

Once our new product prototypes take shape, we solicit installation and use feedback from third party electrical contractors, through which we identify safety or other issues prior to the new product launch. Additionally, we devote considerable effort to testing the new products in combination with other products in our portfolio, to ensure full compatibility and to avoid surprises during the installation.

As an industry leader, our scale also enables us to maintain dedicated teams, supported by **data analytics**, focused on supporting our customers. These teams leverage in-depth data to monitor our product quality performance. This data and the supporting processes, combined with our other Lean tools, facilitate continuous improvement in our product design and manufacturing processes to improve quality and drive customer satisfaction. Our experienced Post-Sales Support teams utilize the powerful data, received daily, to monitor for any quality issues and provide our Product Engineering and Manufacturing teams with continual insights to assist them in improving existing products.

These insights, quality metrics, and statistical analyses are monitored at the business unit level, manufacturing factory level, and down to individual product families and manufacturing cells. Our technical teams continually **monitor** defect rates such as the total number of warranty claims and the number of product units claimed as defective, and the defective rate relative to overall shipment rates (parts per million). All of these are leveraged to ensure focus and priority on improving product quality, process quality, and ultimately customer satisfaction.

Each product is designed and tested to comply with the relevant American National Standards Institute (ANSI) **standards for safety**. The ANSI standard is usually a standard that is promulgated by Underwriters Laboratories, Canada Standards Association, Norma Oficial Mexicana (**NOM**), or similar body. The certification body regularly audits the production in our factories to assure ongoing compliance with the safety standards.

In addition, we follow Consumer Product Safety Commission (CPSC) and Health Canada guidelines and our own internal processes and standard work documentation to address and adhere to any required reporting of product safety issues to regulatory officials. Our processes clearly define procedures for investigation, notification, and product handling.

Acuity uses the guidance from the CPSC for creating processes and standard work regarding public reporting on product/service safety issues. The post sales, engineering and legal teams work together to ensure that we promptly address both quality and safety issues.

The pursuit of superior product quality and customer satisfaction is a **top priority for our leaders** at Acuity Brands. Starting with our Chief Operating Officer, our Senior Vice Presidents – Business Units, our Product General Managers, our Manufacturing Vice-Presidents and our Manufacturing Facility Directors, our leaders are accountable to monitor individual product and process quality to drive improvements in customer satisfaction. Leveraging our data analytics, each leader aligns their responsible teams to annual and monthly customer satisfaction improvement goals. Using Lean tools, our associates within each Product or Manufacturing team work to improve product designs and process to achieve these improvement goals. These teams collaborate daily to measure performance and align actions in support of improvement. The overall measurement and progress towards these goals are monitored monthly and quarterly within each Business Unit, and across Acuity Brands.

Always improving, by Design

At the heart of our product development and manufacturing processes is the Acuity Business System (ABS). There are **4 pillars of ABS: Strategy Deployment; Visual Management System; Lean Tools and Methods; and Six Sigma Tools and Methods**. ABS is a culture of continuous improvement that focuses on the customer.

We use ABS to align the entire organization – from product development and manufacturing, to delivery and customer support/service – around our customers' needs and expectations, quality and safety chief among them.

We use ABS and include methods of Six Sigma, Lean, and Visual Management to reduce unwanted variations in all processes, eliminate waste, building in quality and safety and creating value for our customers through increased Quality, Delivery, Cost Reductions and Innovation.

We use specific and aggregate customer data regarding quality issues to drive continuous improvement and spot trends and potential trouble spots. Our cross-functional teams--encompassing the Focus Factory Manager, Product Quality Engineer, Design Engineer, Post Sales and Product Management--work together to get to the root cause of a problem and then to create a set of realistic and effective countermeasures.

January 2021