

**STERLING ANDREWS ENGINEERING**  
**SERVICES...**  
**...FOR ENGINEERS**

STERLING ANDREWS ENGINEERING PROVIDES A FULL RANGE OF SERVICES DESIGNED TO COMPLEMENT THOSE SERVICES OFFERED BY TRADITIONAL REFRIGERATION ENGINEERING FIRM. IN ANY BUSINESS, AND ESPECIALLY IN THE FAST-PACED INDUSTRIAL REFRIGERATION MARKET, WORKLOAD MAY FLUCTUATE, SOMETIMES REQUIRING MORE RESOURCES THAN YOU HAVE ON STAFF. WE UNDERSTAND THAT STAFFING UP FOR A SINGLE PROJECT WITH FULL-TIME PERSONNEL IS NOT ALWAYS FEASIBLE, AND THAT SENIOR ENGINEERING STAFF IS A FINITE RESOURCE. WHEN YOU NEED TO MAKE SURE THAT YOUR HIGH STANDARDS OF QUALITY, THOROUGHNESS, COMPLIANCE, AND RESPONSIVENESS ARE MAINTAINED DURING PEAK WORKLOAD PERIODS, CALL ON US.

OUR ENGINEERING APPROACH IS TO DESIGN FROM FIRST PRINCIPLES, WITH A FOCUS ON MEETING A CLIENT'S NEEDS AND REQUIREMENTS WITH SIMPLE, EFFICIENT, CODE-COMPLIANT DESIGNS TO ENSURE YOU HAVE THE BEST SOLUTION POSSIBLE. WE WRITE OUR OWN ENGINEERING SOFTWARE, AND UNDERSTAND WHAT'S GOING ON BEHIND THE INTERFACE SO THAT RESULTS ARE NOT JUST SOMETHING THAT ARE TAKEN ON FAITH, BUT ARE EVALUATED BASED ON KNOWLEDGE AND EXPERIENCE.

WE CAN HELP YOU WITH A DIVERSE OFFERING OF SERVICES:

#### PROJECT DESIGN

- SOMETIMES, ENGINEERS NEED TO SAY "YES" TO A VALUED CLIENT, BUT JUST DON'T HAVE THE RESOURCES TO DEVOTE TAKING ON A PROJECT AT A PARTICULAR TIME. WE CAN BLEND SEAMLESSLY WITH YOUR TEAM, PROVIDING ENGINEERING, CAD DRAWINGS, SPECIFICATIONS, AND CONSTRUCTION SUPPORT THAT YOU CAN TRUST TO MAINTAIN YOUR CREDIBILITY AND RELATIONSHIP WITH THE CUSTOMER. STERLING ANDREWS ENGINEERING IS ABLE TO COMPLETE SMALLER PROJECTS FOR YOU, ENABLING YOUR STAFF TO FOCUS ON LARGER EFFORTS DURING PEAK WORKLOAD PERIODS. IF NEEDED, STERLING ANDREWS CAN ALSO SUPPLEMENT YOUR EXISTING STAFF TO PROVIDE EXPERTISE ON THE REFRIGERATION DESIGN FOR LARGER JOBS AS WELL. OUR FEES ARE ECONOMICAL AND ARE OFTEN MUCH MORE REASONABLE THAN BRINGING ON ADDITIONAL SENIOR ENGINEERING STAFF TO COVER A PROJECT.

#### DESIGN REVIEW AND OVERSIGHT

- EVERY PROJECT CAN BENEFIT FROM A THOROUGH TECHNICAL REVIEW AT KEY DESIGN MILESTONES. NOT EVERY ENGINEERING COMPANY HAS THE RESOURCES TO ASSIGN A SENIOR ENGINEER FOR EVERY PROJECT. STERLING ANDREWS IS ABLE TO PROVIDE DESIGN REVIEW AND OVERSIGHT TO IMPROVE PROJECT QUALITY AND SAVE THE CLIENT FROM COSTLY CHANGE ORDERS DURING PROJECT EXECUTION. WE WORK WITH YOUR STAFF AS A TECHNICAL RESOURCE, SUPPORTING THEM AT ALL TIMES WHEN THEY ARE FACED WITH QUESTIONS, COORDINATION, AND DEADLINES FROM ALL CUSTOMERS, INTERNAL AND EXTERNAL.

#### COMPLETE RELIEF SYSTEM ANALYSIS

- RELIEF SYSTEMS ARE ONE OF THE LEAST UNDERSTOOD, BUT MOST IMPORTANT, PARTS OF A REFRIGERATION SYSTEM. PROPER SIZING OF THE SYSTEM IS PARAMOUNT. THIS INCLUDES NOT ONLY CORRECTLY-SIZED

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(NOT UNDER- OR OVER-SIZED) VALVES, BUT INLET AND OUTLET PIPING, AS WELL AS PROPER SELECTION OF THE CONTROLLING CASE AND RELIEF SCENARIOS. WE ANALYZE ALL ASPECTS OF THE SYSTEM, AND HAVE DEVELOPED DETAILED ANALYSIS TOOLS FOR THIS PURPOSE. WE ALSO HAVE THE ABILITY TO USE TOOLS REQUIRED BY SOME OWNERS, SUCH AS THE IRC AMMONIA RELIEF TOOL. OUR RELIEF ANALYSIS CAPABILITIES EXTEND FAR BEYOND AMMONIA, SO WE ARE READY TO MEET YOUR NEEDS, WHATEVER YOU ARE FACED WITH.

**PSM DOCUMENTATION**

- KEEPING THESE SERVICES IN YOUR SCOPE AS MUCH AS POSSIBLE ALLOWS YOU TO MAINTAIN A STANDARD OF QUALITY FOR YOUR CUSTOMERS. WE CAN HELP YOU WITH:
  - PIPING AND INSTRUMENTATION DIAGRAMS (P&IDs)
  - ENERGY BALANCE
  - RELIEF CALCULATIONS (INCLUDING ANALYSIS OF ALL INLET AND OUTLET PIPING ACCORDING TO ASHRAE 15 REQUIREMENTS)
  - REFRIGERANT INVENTORY
  - VALVE SCHEDULES FOR TAGGING [USED IN DEVELOPMENT/DOCUMENTATION OF STANDARD OPERATING PROCEDURES (SOPs)]
- THESE SERVICES ARE OFFERED NOT JUST FOR NEW PROJECTS BUT FOR EXISTING, OPERATING PLANTS, WHERE WE CAN BE YOUR REPRESENTATIVE, GATHERING INFORMATION FOR YOU AND FREEING YOU TO DEVOTE RESOURCES TO YOUR PRIORITY PROJECTS.

**ENGINEERING STUDIES**

- WE CAN HELP YOU BRING VALUE TO YOUR END USER CLIENTS BY PROVIDING STUDIES AND REPORTS TO HELP THEM IDENTIFY POTENTIAL AREAS OF COST SAVINGS, PROCESS IMPROVEMENTS, AND OTHER OPERATIONAL EFFICIENCY GAINS. WE ARE EXPERIENCED IN CONDUCTING ENGINEERING STUDIES IN:
  - CONDENSATION ABATEMENT
  - SYSTEM ENERGY USE
  - RELIEF SYSTEMS (ESPECIALLY EVALUATING REQUIREMENTS FOR VALVE REPLACEMENT, ADDITIONS, AND SCENARIOS FOR AMMONIA, FREON, AND OTHER, NON-REFRIGERATION APPLICATIONS)
  - HYDRONIC SYSTEM PERFORMANCE
  - FEASIBILITY STUDIES
  - SYSTEM UPGRADES
  - ADDITIONAL LOADS (PIPING, EQUIPMENT, VALVES, AND SYSTEMS)

FOR THESE SERVICES AND MORE, CONTACT US AT:

PHONE (904) 563-2526

EMAIL CONTACT@STERLINGANDREWSENG.COM