Stack Stories

Red River Environmental Products

Armistead, LA

This stack was unique in that it is an insulated stack. We pre-insulated the stack in our shop and shipped completed sections with the insulation installed to the site for a fast track installation. The job was unique also, as our customer BE&K was purchased by KBR and we became one of the first contractors to deliver and install this unusual product under the very stringent KBR safety regulations. This stack will serve as a new process owned by ADA-ES to produce activated carbon.

185 ft. Carbon Steel Insulated Stack

Customer – KBR-BE&K

Kapstone Paper Mill

Charleston, SC

The Mead Westvaco paper mill in Charleston, SC was purchased by Kapstone. As part of the purchase conditions, the No. 9 Recovery Boiler stack needed to be replaced. The stack discharged at an elevation of 245 ft. above grade. A 10 ft. diameter insulated stack with three precipitator inlets set on top of the boiler house facility at an elevation of 105 ft. above grade. The upper 80 ft. of the stack had previously been removed for safety reasons, as the stack had a major buckle located just below the test platform. The project scope included demo and removal of the old stack and replacement with a new stack with insulation.

The project was specified and scope defined by the BE&K Birmingham office. When ATI was invited to bid the project, the mill was still owned and operated by Mead Westvaco. When the project award was made, the mill had the new owner – Kapstone.

The challenges of the project focused on the large capacity cranes required to reach over existing precipitators and ductwork to the stack location. Since time was of the essence, planning, staging, coordination and factory pre-assembly became of supreme importance.

ATI brought an experienced team of shop fabrication and insulation, specialized trucking, knowledgeable riggers and crane operators to this risky and exciting project. The plan worked well and paid in dividends with a job completed on time and resulting in a happy client.

Evergreen Community Power

Reading, Pennsylvania

Air Techniques received an order to design, fabricate, deliver and install a 223 foot single wall steel stack for a new power plant being built at this location. There is an existing recycle mill in the heart of Reading that will be the host for power and steam that this new facility will produce.

The new bio-fuel boiler was being supplied by VonRoll in Atlanta, Georgia. Air Techniques supply included the steel stack and the CEMS monitoring system and CEMS shelter. The new boiler stack is 223 ft. tall with a 9 ft. base diameter and 7 ft. exhaust diameter.

It is constructed of carbon steel and includes a tuned mass damper for vibration control and an aviation strobe light system.

Ford Motor Co.

Flat Rock, Michigan

Air Techniques was awarded a contract to design, fabricate, deliver and project manage the installation of a 200 ft. by 12 ft. diameter 304 stainless steel stack for installation at the Ford Motor Co. plant in Flat Rock, Michigan. This was an exciting project for Air Techniques because of the challenges to design a stack with multiple inlets to receive four large ducts from ID fans and to deliver the project on an aggressive schedule, complying with the demands of the project shutdown of this very special facility.

The Flat Rock plant is where Mustangs are produced. The stack was to be a part of a system that would bring the paint line exhaust from numerous individual small vent stacks to a large main duct system and then to be exhausted in the Air Techniques stainless stack. The large stack sections had to be closely coordinated with the field crew so that unloading and setting sections could be orchestrated without blocking critical passage areas within the plant throughout the project.

We were treated with the opportunity of seeing Mustangs of all types and colors as they came off the line to the staging area for shipment. The stack was fabricated in Georgia, so it was exhilarating to see the escorted, over-height and over-width shipments as they rounded the corner into the plant entrance. Air Techniques provided site supervision for the installation done by a Detroit-based contractor. The project team made a difficult job look easy.

Smurfit Stone

West Point, VA

Air Techniques was awarded a contract to design, fabricate and install a 213 ft. by 10 ft.- 6 in. diameter 316 stainless steel stack at the Smurfit Stone paper mill in West Point, Virginia. The stack was to be installed behind a new scrubber system. The stack utilized a tuned mass damper for stability control. During the pre-bid meetings, it was obvious to our field engineers that this would be a difficult job to install as the location was well within the old plant, with limited space for the installation and numerous overhead obstructions. With proper planning with the field erection crews and specialized crane providers, our plan led to the success of designing and supplying this project. During the installation phase it was obvious that the planning paid off as the installation went smoothly until Mother Nature decided to intervene. The first three sections of the stack erection went as planned. The Air Techniques field crew enjoyed beautiful April weather in central Virginia for the first week of the installation. Then an unusual storm system brewing in Texas made its way across the country and brought high winds that channeled down the river basin where the plant was located and greeted our crew every morning for three days with winds that exceeded 25 knots. The site was equipped with 170 ton hydraulic crane and a 200 ton hydraulic crane for erecting the upper three stack sections. For a few days these cranes sat idle with our crew anxious to complete the project. Finally on the fourth day the winds died down and our crew was able to get back to the task at hand. The project was completed safely and on time with a proud project team beaming with satisfaction over their work.

CII Carbons, LLC

Moundsville,WVA

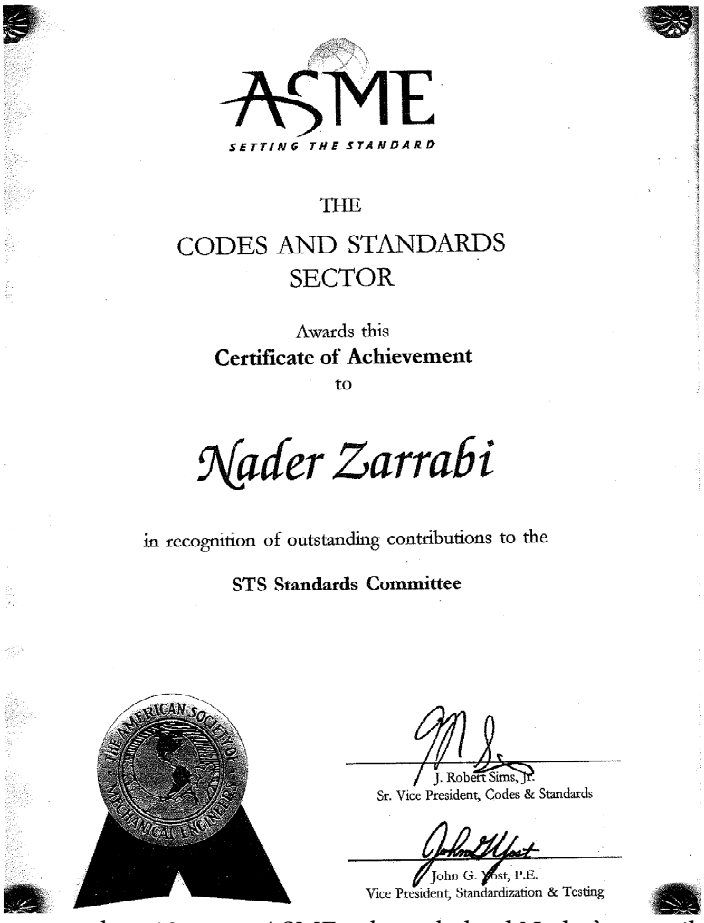
Air Techniques' sister company, Associated Engineering Resources, first got involved on this project evaluating two existing stacks that were more than 25 years old. The existing stacks were single wall steel shells with refractory brick liners. The brick liners were completely independent of the outer shell. The plant had been purchased a few years prior by CII Carbons and the plant operators noticed that both stacks were beginning to lean over the last year for some unknown reason. As the deflection grew, so did concerns. Our engineers were employed to evaluate the degree of the permanent deflection and its bearing on the condition of each stack system. An elaborate system was put in place to measure the deflection over the next several weeks and months. Over a three month period the leaning stacks appeared to stabilize and then, for some unknown reason, accelerate their deflections. When it appeared the position was becoming dangerous, the decision was made by the team to take down the upper 87 feet, lowering the stack to a safe level. Since this decision was taken on an emergency basis, it meant the plant not only had to shut down and lose valuable production time for demolition, but production was also reduced to about 50% normal capacity after the stacks were lowered. The local environmental officials worked with plant personnel to allow the plant to run at a reduced level until replacement stacks could be fabricated.

Air Techniques was given a contract to produce two (2) 13 ft. 8 in. diameter by 162 ft. steel stacks that would be refractory lined and installed in place of the old stacks. The project was deemed a fast tract project with required delivery of both stacks at the plant site by mid-December of 2007. The contract that released this work to Air Techniques was given in early October, allowing approximately 10 weeks to complete this mammoth project. To be able to meet the schedule the decision was made to split the work between our shop in Georgia and a shop in Ohio. Stack components and stack sections are produced to allow installation of refractory anchors in the shop, followed by painting that would minimize the field work at the plant site in West Virginia. Once a section is completed, it shipped to the site where a refractory contractor will install 9 inches of cast-able refractory. After curing the sections in the vertical, they were readied to be put in place where the old brick lined stacks were once installed. The old base was in good condition but needed new refractory brick. The field crew retained the bottom 30 ft. and prepared it for the new stack sections.

Section by section the new stacks were built back with the refractory installed, saving weeks of down time, if this project had had to be done in place the old fashioned way. A 300 ton conventional "crawler crane" was used to set the stack sections some weighing over 170,000 lbs. The project was "fast track" as no one could predict that the old stacks would need to be "demoed" so fast. No one picked the coldest months of January and February to do the install, but it simply had to be done then and in minimum time to get the plant back on line. The crew fought chilling temperatures, arriving to 7 degree F. mornings many days. The crew worked 24/7 and successfully put CII back in business in short order.

Engineering

Air Techniques is proud of its history designing steel stack systems, component equipment and facilities related to the stack systems. From the first stack over 25 years ago to the current stack projects, our design engineering and project engineering are the focal point of the stack business. The engineers of ATI and of our sister company, AERI, work together to provide safe, efficient and cost effective steel stack systems for industry. From small diameter boiler economizer supported stacks to large 14 ft. diameter 250+ foot tall major stack projects, ATI engineers are known for their quality, conservative designs. In addition to stacks and stack accessories, our engineers frequently design foundation systems for these stacks and when required, pile systems that work with the stack foundations or pile caps. When support towers are combined with stack structures, our design team of the Zarrabi brothers, Ken and Nader, make it happen. The elder Ken and the younger brother, Nader, graduated from Georgia Tech in structural engineering. Ken completed his masters later at MIT. Both are active in various engineering associations. Nader is chair on a number of committees on the ASME Steel Stack Code.



ASME
SETTING THE STANDARD

THE
CODES AND STANDARDS
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Awards this
Certificate of Achievement
to

Nader Zarrabi

in recognition of outstanding contributions to the

STS Standards Committee

J. Robert Sims, Jr.
Sr. Vice President, Codes & Standards

John G. Yost, P.E.
Vice President, Standardization & Testing

Nader has been an active ASME participant for more than 10 years. ASME acknowledged Nader's contributions and outstanding achievements recently with the attached Certificate of Achievement Award. When you purchase an Air Techniques stack, you can trust you have had one of the best design teams available perform your design.