# 435 CONSTRUCTION AND TRAINING SQUADRON

**MISSION**

**LINEAGE**
7002 Civil Engineering Flight designated and activated, 1 May 1971
Redesignated 7002 Civil Engineering Squadron, 1 Oct 1985
Redesignated 702 Civil Engineering Squadron, 15 Jun 1993
Redesignated 702 Civil Engineer Squadron, 1 May 1994
Redesignated 617 Civil Engineer Squadron, 1 Jul 1994
Redesignated United States Air Forces in Europe Construction and Training Squadron, 1 Dec 1997
Redesignated 435 Construction and Training Squadron, 29 Jan 2004
Inactivated, 18 Apr 2005
Activated, 16 Jul 2009

**STATIONS**
Ramstein Maintenance Facility (later, Ramstein AB), West Germany, 1 May 1971-18 Apr 2005
Ramstein AB, Germany, 16 Jul 2009

**ASSIGNMENTS**
United States Air Forces in Europe (USAFE), 1 May 1971
86 Combat Support Group, 1 Jun 1973
377 Combat Support Wing, 14 Jun 1985
USAFE, 1 Nov 1986
Seventeenth Air Force, 30 Nov 1989
617 Regional Support Group, 1 Jul 1994
Third Air Force, 19 Jul 1996
USAFE, 1 Dec 1997

435 Civil Engineer Group, 29 Jan 2004
38 Combat Support Wing, 15 Dec 2004-18 Apr 2005
435 Contingency Response Group, 16 Jul 2009

**ATTACHMENTS**
USAFE, 1 Jun 1973-13 Jun 1985
USAFE, 14 Jun 1985-31 Oct 1986

**COMMANDERS**

**HONORS**
**Service Streamers**

**Campaign Streamers**

**Armed Forces Expeditionary Streamers**

**Decorations**
Air Force Outstanding Unit Awards
1 Jul 1976-30 Jun 1978
1 Jul 1979-31 May 1981
1 Jul 1981-30 Jun 1982
14 Jun 1985-31 Oct 1986
1 Jul 1990-31 May 1992
1 Jun 1992-31 May 1994
19 Jul 1994-19 Jul 1996

Air Force Organizational Excellence Awards
24 Mar-10 Jun 1999
1 Jul 1996-30 Jun 1998
1 Jul 1998-30 Jun 2000
1 Jul 2002-28 Jan 2004

**EMBLEM**



Approved, 17 Nov 1981

**MOTTO**

**OPERATIONS**

10/20/2011 Complications in landing and takeoff can happen to anyone at anytime. For Capt. Tim Riley, a pilot with the 480th Fighter Squadron, it happened while stationed in Osan Air Base, orea. "I had brake failure," said Riley. "I didn't have enough gas to circle the runway." Luckily for Riley, Osan AB was equipped with a barrier arresting kit system. Without it, his aircraft would have been unable to stop. The BAK-12 system is installed on every U.S. Air Forces in Europe base that has jets and on divert bases like Ramstein. When a pilot experiences complications for landing or takeoff, they will release a hook from their aircraft that will catch onto a cable running across the flight line. This, in turn, will activate the BAK-12 and will slowly bring the aircraft to a halt.

The 435th Construction and Training Squadron Depot is responsible for the upkeep of 47 sets of the BAK-12 system in USAFE. "The BAK-12 system has to be fully broken down, repaired and put back together every 10 years," said Staff Sgt. David Lary, 435th CTS Depot. "We rebuild all the systems in USAFE." Rebuilding the BAK-12 isn't their only job, they also train coalition partners on the use and upkeep of these systems. Over the past month they have trained a German Army mechanic and a civilian mechanic on the process of rebuilding the BAK-12. "Two years ago, German purchased BAK-12 systems for the German Army," said Daniel Müller, German Army mechanic.

"We were sent to Ramstein to learn the process and find what tools will be needed to accomplish the repair." Müller and his counterpart, Alban Lachner, will take what they have learned and train other mecahnics. Because their systems are only two years old they will have eight years until they have to put their knowledge to use. "Having the Air Force's checklists and technical orders will be a great help in teaching others," said Müller. Learning to repair these systems will save the German Army a large sum of money. The 435th CTS Depot saves the Air Force $161,000 in overhaul costs by repairing USAFE BAK-12 systems. "If we had not gotten the opportunity to learn these skills, the system would have to be shipped back to the manufacturer in Florida," said Müller.

"This would have cost more money than we were willing to spend." The BAK-12 trainer system will be fully complete this week. The process from start to finish took six weeks. Senior Airman Jared Carlisle, 435th CTS Depot, said their coalition partners weren't the only ones learning something. They have been mechanics for a long time," said Carlisle. "In some instances they showed us how to do something better." Müller and Lachner head back to Munich this week. They will begin to translate all checklists and technical orders and report to leadership what they have learned.

2/9/2012 - RAF MILDENHALL, England -- It took just one month, 15 men and 17 rolls of steel to build a K-Span facility on the south side of base here, which will be used as a storage area for equipment. The men - 14 Airmen and one German national, all from the 435th Military Construction Flight, 435th Construction and Training Squadron - are from a geographically-separated unit near Ramstein Air Base, Germany, and have been here since Jan. 9 building the structure. They were assisted for part of that time by four Airmen from the 100th Civil Engineer Squadron Structures flight, and two from the 48th Civil Engineer Squadron, RAF Lakenheath - none of whom had previously worked on K-Spans.

The K-Span, a half-moon-shaped building, built completely of steel, is designed to withstand the strong winds and bad weather that often occurs in England. It is made of arched panels seamed together to form an economical and watertight steel structure. The 435th MCF is a relatively new unit, explained Tech. Sgt. Thomas Riggsbee, NCO in charge of structures, and is just into its third year. They are the only Air Force K-Span capability in U.S. Air Forces in Europe. It's a unique flight and falls under the 435th CTS part of the 435th Contingency Response Group, 435th Air Ground Operations Wing. Typically, 435th MCF taskings are assigned from the director of logistics, installations and mission support, on USAFE staff.

The flight has constructed projects within the theater and has performed work in Belgium, Bosnia, Croatia, Germany, Hungary, Israel, Montenegro, Romania and the United Kingdom. "We make buildings for humanitarian reasons, exercise-related constructions and military construction projects," Riggsbee said. "Our unit is made up of several parts: the mil-con flight, training section [which operates Exercise Silver Flag for USAFE] and depot flight, which installs mobile aircraft arresting system units. Our depot flight is the only entity in USAFE that installs, certifies and refurbishes aircraft arresting systems across Europe." The 435th MCF handles everything from start to finish, said Tech Sgt. Jeremiah Celis, 435th CTS NCO in charge of engineering.

"We cut out the need for the manufacturer, because we do everything from in-house design, ordering and shipping materials, to the actual construction," he said. The hub of the entire process is a panel-former machine, into which sheets of raw steel are fed. While being fed through the machine, the steel forms panels before shaping and crimping them. The panels are 90-feet long and are shaped into a curve. Five panels are stacked on top of each other, and connected by a seaming machine, The stack of panels is known as a 'pick.'

Celis explained that as theirs is a training squadron, when they have large construction projects requiring more manpower than they have, they get help from civil engineer squadrons within USAFE. "If we have more than one project, then we split our team and call on members from the relevant [squadrons] to help us," he said. "It means we can train their people, and they

help us at the same time - it's one of the advantages of our team. "Each time a USAFE base gets a rotation of people from [their civil engineer squadron] that we train, the end result is another construction project completed.

During this project, we had four 100th CES troops and two 48th CES troops helping us; the benefit for us is that we had more people to help with the various stages of construction," Celis said. "It means we can have a full operation without having to stop - it would slow the process down if we didn't have enough people. "This way, it [enhances] our assembly line and gets the job done much faster." Riggsbee agreed. "The heart of the process is the machine, but it definitely takes a team of people to make all the construction happen," he said. When the first pick is in place, one person sits on it to help guide the next one into place, before the two are seamed together. Finally, it's all welded into place. Training the RAF Mildenhall and RAF Lakenheath troops reaped benefits all round.

"It gave me confidence and knowledge, so next time I'm tasked with helping build a K-Span structure, I'll be able to play a larger role in the construction process," said Airman 1st Class Ryan Roy, 100th CES Structures, who was one of the Airmen trained by the 435th CTS. His coworker, Airman 1st Class Joseph Hamilton, also one of the four 100th CES troops who assisted in the construction, agreed. "The K-Span is one big project with larger groups of people from all career fields giving their input from their [Air Force specialty code] perspective," he said. "It's helped me realize the hard work and attention to detail that it takes to construct something that on a normal day you would drive by and not even think about," said Hamilton. "This was a great experience - we've learned so much in such a short time. I think we will benefit in the future from this, because if we're ever tasked to build another [K-Span] then we have the knowledge and hands-on experience to do it faster and more efficiently, which will save Air Force assets."

The shape and strength of the materials used on a K-Span build means the need for interior supports such as beams or columns, is eliminated. It's joined together using a seaming machine, rather than nuts and bolts. At the initial stage of the project, angle iron is set to the width of the K-Span structure where the bottom of the arch is going to be positioned; this is the track in which the arch sits, and is then welded to a bracket-shaped piece of steel which runs the entire length of the building, on both sides, Tech. Sgt. Jeremiah Celis, 435th Construction and Training Squadron NCO in charge of engineering explained. "The raw steel comes in rolls, which are put on a panel-former machine. The flat piece of steel is fed through the machine, through various parts which in turn form the panels," he said. "When the panels come out of the machine, they get measured and marked before being fed back into the second half of the machine, which curves and crimps each panel."

At that stage, once the panel is in its final form, it takes a minimum of seven people to carry the 90-foot, 400-pound panel. The seven-man crew carries the panel to the pick assembly area, where between two and four other panels are then stacked on top of it and clamped together before the edges are crimped and seamed, using a 75-pound seaming machine, operated by just one person at a time. The stack of panels is known as a pick. The panel former is at least 20 years old, and cost $700,000. Each roll of steel that gets put through the machine weighs an average of between 5,000 and 5,500 pounds, and forms about 12 panels per roll. At the start of the process, each roll is 24 inches wide; by the end, the finished panel is just 12 inches wide, after being shaped and formed by the machine.

Once the measurements are checked, the radius is correct and the pick is formed and seamed together, it is then attached to a crane using lifting brackets, timber and ropes as tag lines, so it can easily be controlled when in the air. It's then swung by crane from the assembly station to the angle iron [fixed on the floor] and attached, before being anchored to rolls of steel to square the building.

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USAF Unit Histories
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Sources

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