

Department of Defense Confirms Certified Energy Savings from ASSA ABLOY Openings

ASSA ABLOY

The global leader in door opening solutions

High performance openings from ASSA ABLOY are delivering certified energy savings to Department of Defense (DoD) facilities, giving the government agency a trusted sustainable building component to comply with energy efficiency requirements for Federal facilities.

The DoD and third-party agency GreenCircle Certified LLC examined several standard exterior openings at Joint Base San Antonio (JBSA), Ft Bragg, NC and MCB Quantico and compared the performance of these doorways against energy efficient Trio-E openings from ASSA ABLOY. In all cases, the Trio-E openings greatly outperformed the existing doorways, **producing annual certified energy savings that average \$100.00 per year per single opening!**



Trio-E Door Cutaway

These tests were commissioned by the DoD in response to Executive Order 13693 that requires government agencies to increase the environmental performance and reduce the energy use and costs incurred by Federal buildings. The goal of the directive is to save taxpayer dollars through avoided energy costs and increased efficiency, while also making Federal facilities more resilient.

Before sustainable products such as the Trio-E opening are utilized by the Military Departments and DoD, their performance must be proven to meet DoD requirements. To be considered for installation into a DoD facility, the building component in question—in this case, the Trio-E Openings—are subjected to pilot demonstrations in DoD

operational environments. The demonstration allows DoD end-users to determine, through firsthand experience, if the products meet their requirements for use.

The Trio-E openings used for the demonstration were installed by ASSA ABLOY installers in coordination with facilities personnel. Performance data of the new door systems were analyzed and compared by Green Circle against non-energy efficient equivalents. Key energy efficiency performance data were measured in heat transmission (determined by U-Factor) and air drafts and seepage (determined by air infiltration rate).

What do the U-Factor and Air Infiltration value numbers mean?

Real world energy performance of an exterior opening must consider both the thermal performance and air infiltration of the opening assembly.

U-Factor is the overall coefficient of heat transmittance measured in BTU's per hour per square-foot of area per degree

Fahrenheit temperature difference between the air on the two sides of the door (BTU's/hr-ft²-°F) The lower the U-Factor, the better the insulation. Trio-E Openings have the lowest U-Factor for a steel stiffened door in the market today.

The U-Factor was achieved in an operable condition (ASTM1363) and tested per NFRC 102-2014 using a Thermal Break Frame and Pemko Thermal Barrier Threshold.

Air infiltration is a measurement of the air leakage around the perimeter of a door opening. Air infiltration is measured in Cubic Feet per Minute (CFM). Trio-E openings reduce air infiltration to






Ft Bragg Barracks Stairwell Door

a rate of 0.1 CFM per square foot (per NFRC 400-2014).

The Trio-E openings produced significant energy savings throughout the facility. The following chart details Trio-E Door results.

The DoD has provided additional information regarding the Sustainable Door Openings Demonstration online at their Sustainable Products Center site: <http://www.denix.osd.mil/spc/demonstrations/ongoing/sustainable-door/>.

Trio-E Openings have been installed at additional DoD facilities and are now undergoing similar testing. To learn more about Trio-E openings and ASSA ABLOY sustainability efforts, please visit: <http://www.assaabloydss.com/sustainability>.

Location	Quantico Interior Wood Double Door (Vestibule)	Quantico Exterior Single Door	Quantico Exterior Single Door (Handicap Operator)
AADG Energy Efficient Door (New Door Opening)	Graham Standard Wood GPD Door with (4" x 32" glass) Sweep/ Gaskets, Standard 16 gauge Hollow Metal Frame – Masonry	Trio-E/777E - Curries/CECO 3'0" x 7' 0" Trio-E 18 gauge Polyurethane Core Steel Stiffened Doors with (4" x 32" glass), and 16 gauge Mercury Thermal Break Frame	Norton 5800 Series ADAEZ (Wireless) Low Energy Door Operator
AADG Equivalent Door (Existing Door Opening)	Actual: Mohawk - 3070 Flush Wood Door with (4" x 32" glass) without sweep or gasket Modeled AADG Equivalent: Graham Standard Wood GPD Door include (4" x 32" glass) without sweep or gaskets, Standard 16 gauge Hollow Metal Frame – Masonry	Modeled AADG Equivalent: 3070 Regent / Fleming-Baron D18 series honeycomb core, Standard Hollow Door include (4" x 32" glass) Standard 16 gauge Hollow Metal Frame – Masonry	No handicap operator existed prior to new door being installed.
Energy Savings (MBTU/year)	4546.14	4726.85	1247.82
Energy Savings (kWh/year)	1332.34	1385.30	36.57
Energy Savings	62%	67.00%	100%*
Annual Savings at MCB Quantico AVG Rate of Electricity (\$.068/kWh)	\$89.27	\$92.82	\$2.49
Estimated Annual Savings at 2015 EIA AVG Retail Rate for VA (\$0.093/kWh)	\$124.04	\$128.97	\$3.40
Photos: (Before / After)			

* Energy savings were calculated based on the energy consumed during one activation over a 30-second interval.

Door Operator	ADAEZ 5800	ADAEZ 5800 Hardwired	Reference Swing Door Operator*
Energy per Cycle (Watt-min)	0	0.162	0.482
Power in Standby (W)	0	0.662	4.320
200,000 Cycles (kWh/year)	0	0.54	1.61
Standby Power (kWh/year)	0	5.36	34.96
Annual Total Energy Consumption (kWh)	0	5.90	36.57
Annual Energy Costs (\$0.093/kWh)	\$0	\$0.55	\$3.40

* Reference swing door operator was a Norton 6900 Series. Some industry swing door operators may consume more energy.

ASSA ABLOY Door Security Solutions
110 Sargent Drive
New Haven, CT 06511
www.assaabloydss.com
1.800.DSS.EZ4U (377.3948)

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