PROJECT TITLE	PROJECT NUMBER	START DATE	COMPLETION DATE
CONCRETE LASER SCREED	C97-61B	OCT 98	APR 00

Equipment Evaluated: Model S-240 "Laser Screed, a hydraulic powered, laser controlled concrete screed, manufactured by Somero Enterprizes, Inc., 100 Somero Dr., Houghton MI 49931, 906-482-7252, Website: http://www.somero.com/p_s240.asp . The screed is mounted on a telescopic boom, attached to a hydraulic-powered four-wheel drive prime mover unit that can travel at speeds up to 3.2 MPH, & has 2 wheel, 4 wheel, or crab steering. The Screed consists of a plow that removes excess concrete, a 9" auger that cuts concrete to grade, & a vibrator that consolidates material at a rate of 3,000 VPM & prepares surfaces for floating. Two independently mounted laser receivers are attached to the screed head with an on-board computer panel on the vehicle. The unit is powered by a 4 cylinder, 4 stroke, direct injected, oil-cooled diesel engine, & is 7' 8" W x 28' 5" L. **Project Monitor:** ACC MEEP Activity, an active Red Horse unit performed the evaluation. **Comparison:** Concrete Vibrating Screed, NSN: 3895-L0064314852, plus the Concrete Roller Screed being evaluated under MEEP Project C97-61. Project duration was extended once, due to unplanned TDY commitments, to ensure sufficient testing was accomplished to make an educated decision about the value of this equipment. **Project Results:** The screed performed as advertised. However, the evaluators could not substantiate the manufacturer claim that the S-240 Laser Screed can accurately place up to 135 to 140 CY per hour continuously. To meet maximum capability, the user would require approximately 15 truckloads (9 CY each) of ready mix concrete per hour. They also could not dispute the manufacturers claim. The S-240A Laser Screed was used on three major training construction projects. Company technicians provided 4 days of technical training. This training demonstrated the units' features & capabilities. In addition, the manufacturer offers an advance operators & maintenance technicians training course. The S-240 Laser Screed requires technical expertise. No mechanical problems were noted during the test period. Evaluators found the S-240 Laser Screed to be easy to service & maintain. **Highlighted Advantages:** There are several reasons why this Laser Screed is a better product for a military construction unit over the standard methods of Concrete placing: **Productivity:** The S-240 Laser Screed consolidates a plow, horizontal auger, & vibrator on a 12" wide head on a 20' telescoping boom. It uses a laser to establish & control grade, eliminating the need for interior forms or grade stakes for that purpose. The user reduced concrete placement labor by 40% or more. **NOTE:** because the S- 240 Laser Screed requires a continuous supply of concrete for maximum capability, a problem could occur when suppliers cannot provide ready mix concrete fast enough for a continuous pour. **Ease of Use:** 1 person can set up, operate, clean, maintain, & prepare the machine for transport. The 1 person replaces a 5 to 6 person crew normally used for the traditional method for concrete placement. **Mobility:** the S-240 Laser Screed is light (less than 16,000 lb.) & easily fits on a flatbed truck or in an 8' x 8' closed van. This also allows it to be transported by sea or air. It is easier to ship than comparison equipment & palletized concrete forms. For instance, in order to ship concrete forms by airlift, a pallet train must be built, because the pieces are too long to fit on a single pallet. This presents problems at ports of debarkation where a full complement of material handling equipment is not always available. **Versatility:** The S-240 Laser Screed is self-propelled & can be used to place airfield pavements (including roads) & facility floor Slabs (Permanent or temporary troop housing or administrative facilities). **Quality:** The Laser Screed can place low slump concrete, minimizing the need for excess water for workability, which will reduce shrinkage cracking. Since the S-240 Laser Screed employs a laser guidance system, a high surface flatness & levelness is achieved. **Disadvantages:** None noted. The Laser Screed was used on three major training construction projects. **Site 1:** over 2,800 CY of concrete was placed. The slabs were 8" thick for a total finished area of 105.4K SF. 15 pours were

made ranging from 150 to 250 CY each. After becoming efficient with the screeds capabilities, a crew of 17 technicians & working supervisors were able to place & finish 250 CY of concrete in 4 hours, compared to 20 personnel taking 8 hours with the traditional method. **Saving:** $76,115. **~~Site 2:~~** the laser screed was used to place 7,200 SF of interior concrete flooring. The project entailed pouring over 170 CY of concrete in 6 hours with a 17-person crew (due to a limited number of concrete transit trucks available for concrete delivery the rate of placement was slow). The same project would have taken a 20-person crew 24-hours with traditional method. **Saving:** $6,625. **~~Site 3:~~** it was used to place 8,400 SF of airfield pavement (468 CY of concrete). A 15-person crew placed 468 CY in 9 hours. The same crew would have needed 32 hours to place the same concrete with the traditional method. **Saving:** $5,172. **Final MEEP Action:** This laser screed was recommended for Air Force use by the test unit. HQ AFCESA was furnished the completion report for review, but have not responded. Interested potential users should contact the OPR for purchase instructions. **OPR:** HQ AFCESA/CEOM. **Project Closed.**
