



IWRC PAINTER TRAINING

STAR4D PROJECTS

Development of Evaluation of Methods to Deliver Surface Preparation and Painter Training at DoD Depots, 2021

Development of Surface Preparation and Blast Course Tactical Vehicle Blast Course for USMC CRF and Depots, 2019

Development of STAR4Defense CARC Technician Certification Army and USMC Tactical Vehicle CARC Course, 2009

Development of STAR4Defense Aerospace Technician Certification Army and Air Force Course, 2009

Development of Air Force Spray Painters Training Course Conducted a demonstration/validation at Ogden Air Logistics Center (OO-ALC) at Hill AFB, 2007 AFMC Course # CWPAIR00001000SU

Spray Technique Analysis and Research for Defense (STAR4D)

The University of Northern Iowa's Spray Technique Analysis and Research for Defense (STAR4D) program began in 2003 to provide military painter training and applied research services. STAR4D has two certification programs that are currently in use in all branches of the U.S. military with an emphasis in Aerospace Technician Certification and CARC Technician Certification. The STAR4D certification program consists of a 2-3 day course which requires the successful completion of a hands-on in-booth film thickness assessment, a 50 question written evaluation, and a STAR4D VirtualPaint 3D skill evaluation.

The VirtualPaint 3D system is the only virtual reality paint system recognized by the STAR4D certification program. The VirtualPaint 3D system was developed and patented by the University of Northern Iowa and remains intellectual property owned by the University of Northern Iowa Research Foundation and licensed to third party distributors such as VirtualPaint Products, LLC. The VirtualPaint 3D system used in STAR4D certification skill evaluation includes mil specification primers and topcoats. The VirtualPaint 3D system contains DoD tactical vehicle parts (ex. HMMWV Hood, Door, etc) that are used for STAR4D lessons plans that students must

successfully complete during the skill evaluation portion of the course.

The use of VirtualPaint 3D technology provides an efficient transition from the classroom to the spray booth. The use of VirtualPaint 3D in a classroom environment has proven to reduce rework in some cases by up to 44% and reduce defect rates by as much as 50%. Since the training system uses virtual coatings, a significant reduction in coating usage, hazardous waste generation and VOC emissions can be expected during the training process.

The primary purpose of the STAR4D program is to train painters on strategies and techniques that will enable them to improve finish quality, use less material, and increase throughput by reducing costly rework. The STAR4D program also stresses the importance of occupational health and safety awareness in the painting process. Since inception, STAR4D has trained over 3,500 painters. A properly trained workforce is the key to any successful facility.

For more information, contact:

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Efforts over the past several years have been placed on developing site-specific training curriculum, implementing certification standards, and setting up satellite sites so STAR4D training can be disseminated even further throughout the military. With the efforts to establish satellite sites, the following bases are currently certifying painters using STAR4D Defense certification:

- ✓ Marine Corps Logistics Base, Albany, GA
- ✓ Marine Corps Logistics Base, Barstow, CA
- ✓ Tobyhanna Army Depot, Tobyhanna, PA
- ✓ Fort Rucker, AL
- ✓ Anniston Army Depot, AL

Statistical analysis to document the impact of STAR4D training on paint consumption at Corpus Christi Army Depot (CCAD) was performed at Southwest Research Institute (SwRI).

The report indicated a significant drop in paint and primer consumption (58% decrease for paint and 77% decrease for primer) when coating the UH60 rotorcraft blade.

A decrease in the variance of paint and primer used was also recorded among STAR4D trained painters.

The report concluded with 99.9% certainty that the variance of paint and primer consumption has decreased among STAR4D trained painters.

In addition, there was a noted 43% decrease in coating defect issues.

STAR4D IMPACT

STAR4D TRAINING VALUE

Painters Trained	1	100
Est. Annual Gallons Sprayed (per painter)	150	150
Avg. Coating Cost	\$150	\$150
TE% Improvement	15%	15%
Coating Usage Reduction	22.5gal	2,250 gal

STAR4D | VOC REDUCTION

Painters Trained	1	100
Est. Annual Gallons Sprayed	150	15,000
Avg VOCs per gallon	2.0 lbs.	2.0 lbs.
Total VOCs released	300 lbs.	30,000 lbs.
Avg. 15% reduction in coating sprayed	45 lbs.	4,500 lbs.

An average transfer efficiency increase of **15%** equates to an annual savings of **\$3,375** per painter and **\$337,000** annually for 100 painters.