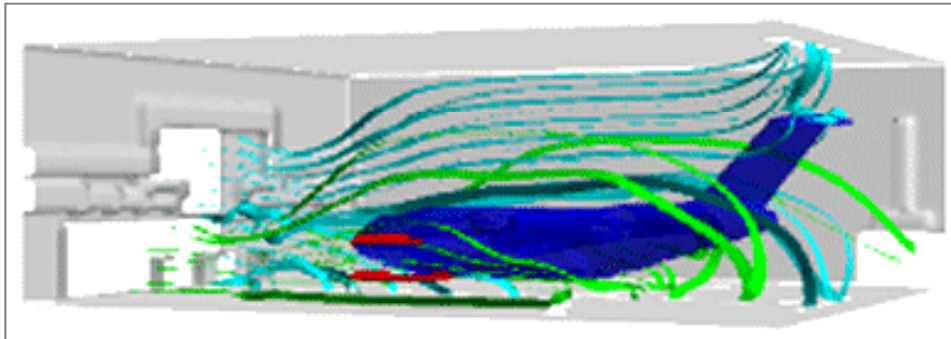

Aircraft Painting



Aircraft Painting

Aircraft Painting

Cross Flow vs. Down Draft



Cross Flow

Cross Flow

- **Advantages**
 - **Airflow Pattern** – Air travels nose to tail, similar to in flight – smooth airflow under aircraft fuselage and wings, minimizes eddies that could negatively affect spray application.
 - **Ease of Maintenance** – All stages of exhaust filtration located in same place and easily accessible.
 - **Greater Flexibility** – Can accommodate different size aircraft (can use isolation dampers to reduce airflow with smaller aircraft – reduces energy usage).
 - **Exhaust Cross Sectional Area** – Typically smaller exhaust cross sectional area, depending on aircraft section.
 - **Floor** – Smooth floor surface for lifts, staging and cleanup. No grating.
 - No under floor tunnels, pits, sumps etc.
 - **Construction Cost** – Significantly lower overall construction cost than downdraft configuration.

Cross Flow

Cross Flow

- **Disadvantages**
 - **Potential Overspray** – Overspray can drop onto aircraft horizontal surfaces. Painting aircraft high to low and front to back minimizes this possibility.
 - **Potential Temperature Stratification** – hot air rises, cold air drops.
 - **Velocity** – May require slightly higher air velocity to maximize overspray entrainment depending on paint material.
 - **Exhaust Plenums in Hangar Doors** – When hangar doors are used as exhaust plenums they must be designed correctly for proper performance.
 - **Supply Plenums in Hangar Doors** – When hangar doors are used as supply plenums they must be designed correctly for proper performance and to avoid dirt infiltration.

Down Draft

Down Draft

- **Advantages**
 - **Airflow pattern** – Air travels from ceiling over the aircraft, top to bottom into floor trenches, moving solids downward.
 - **Airflow pattern** – Ideal for objects of same size, shape or shadow not requiring paint on underside.
 - **Overspray** – Minimizes potential overspray on aircraft horizontal surfaces.
 - **Velocity** – Potential for a lower air velocity because of a reduced need for overspray entrainment.
 - Minimizes temperature stratification by vertical airflow.

Down Draft

Down Draft

- **Disadvantages**
 - **Airflow pattern** – Eddies are created as air flows over fuselage/wings and down into trenches, not a usual airflow over the aircraft. Creates dead air spaces in building corners.
 - **Lack of flexibility** – Trench layout must match shadow of aircraft as closely as possible.
 - **Impacts Painter Safety** – Places painter between spray application and exhaust trenches (the underside of aircraft is roughly 50% of paint surfaces).
 - **Maintenance** – Overspray builds up on grating and in trenches. Liquid spills and solids accumulate in trenches requiring cleanups in a confined space.

Down Draft

Down Draft

- **Disadvantages (continued)**
 - **Maintenance** – First stage filter replacement is below trench grating often requiring removal of grating.
 - **Higher Construction Cost** – Due to requirement for exhaust trenches and aircraft load rated grating.
 - **Air Flow** – Balancing is more difficult, air flow dampers at trenches not recommended.
 - **Uneven Floor Surface** – Lifts and staging wheel issues at trenches and grating.
 - **Exhaust Cross Sectional Area** – Typically requires larger exhaust cross sectional area, depending on aircraft silhouette and shadow.

The Austin Company

- Full-service Design, Engineering, and Construction Services firm
- Aviation / Aerospace Facilities focused
- Highly experienced in initial planning, scope development and cost estimating
- Integrated “in-house” A/E team:
 - Architects
 - Structural Engineers
 - Mechanical Engineers
 - HVAC, Plumbing , and Fire Protection
 - Electrical Engineers
- LEED™ Accredited Professionals in all disciplines

Aircraft Painting Experience

- The Boeing Company
 - 747, 767 and 777 – Everett, WA
 - 707, 737 and 757 – Renton, WA
 - C-17 – Long Beach, CA
 - Delta IV – Decatur, AL
- Northrop Grumman
 - F-18 – El Segundo, CA and Dallas, TX
- Lockheed Martin
 - “Skunkworks” F-22 – Palmdale, CA
- Gulfstream
 - Site Master Plan – Savannah, GA
 - Paint Hangar
 - Assembly Facility



Aircraft Painting Experience

Experience

- U.S. Military
 - Charleston AFB
 - Fallon NAS
 - Elmendorf AFB
 - New York ANG
 - Tinker AFB
 - Wyoming ANG
- Beech Aircraft – Wichita, KS
- Third-party Maintenance
 - Dee Howard – San Antonio, TX
 - L-3 Communications – Waco, TX (Formerly Raytheon)
 - Matrix Aeronautica – Tijuana



Aircraft Painting Experience

Experience



Charleston AFB

Accommodating:

C-17 and other Aircraft

New 38,000 SF Paint Bay

70,000 SF overall

Near laminar horizontal air flow across aircraft at 75 FPM

Automatic: air flow adjustment, temperature and static pressure control

NESHAP 3-stage filtration



Aircraft Painting Experience

Experience



Fallon NAS

Accommodating:

F-14 and F-18 Aircraft and other
Small Aircraft

New 9,800 SF Paint Bay

13,000 SF overall

Laminar horizontal air flow across
aircraft at 75 FPM

Automatic: air flow adjustment,
temperature, humidity and static
pressure control

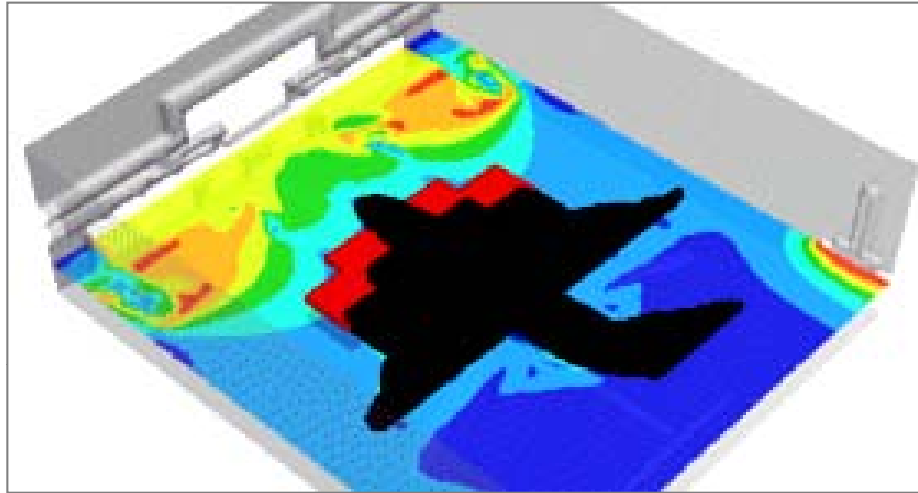
NESHAP 2-stage filtration

AFFF Fire suppression system



Aircraft Painting Experience

Experience



Boeing C-17

Accommodating:

C-17, Commercial Aircraft and
Air Force One

50,000 SF Paint Bay

128,000 SF overall

Modernization / Renovation

New exhaust system

New NESHAP 3-stage filtration

Capability for 4th state HEPA or ULPA

VFD's maintain airflow with clean or
loaded filters



Contact Information

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