Lightning Protection and Structural Bonding for the B2 Test Stand
Brandon Kinard
University of Texas of the Permian Basin

Introduction
This project seeks to determine the requirements for the structural grounding of the B2 test stand which is currently undergoing renovation and new construction and to identify bolted structural joints that need bonding across the joint. This project is being done to
• Ensure safety of all personnel on the stand
• Ensure safety of all assets on the stand
• Comply with relevant codes and standards
• Minimize the potential for side flashes by equalizing the potential of major structural members
• Ensure NASA's design is accurately followed.

Objectives
The objectives of this project are to
• Develop justifications for any additional bonding
• Identify structural joints that need bonding
• Develop a list of identified structural joints that will be sent to the contractor
• Identify on the drawings the joints that need additional bonding and send these to the contractor
• Assure that additional bonding follows the specifications.

Outcomes
• This project will result in a transmittal and/or an engineering modification with the list of structural joints that need to be bonded.
• The construction process will be monitored if time permits.
• Bolted members will be bonded across the joint.
• Welded members will need no additional bonding.
• The structure and assets will be protected from side flashes originating from a lightning strike.

Summary
The project identified bolted joints that need to be bonded across the joint. This additional bonding is per the notes of the drawing. This note exceeds the standards such as NFPA 780, KSC-STD-E-0012F, or SSTD-8070-0081-ELEC-C-1.
The additional bonding serves as extra protection in case the heavy vibration from the stand causes a high resistance in the joint. The high resistance could result in a dangerous side flash that can cause injury, death, or damage to assets or structures.

References:
Thom Rich, Katie Carr, Matthew Laddar.
Photos are courtesy of NASA.