

**Julio C. Banks, MSME, P.E.**  
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Subject: Aero-Thermal-Structural Engineer and Analyst with Hands-on Design Experience.

Professional Affiliation:

1. ASME (American Society of Mechanical Engineers)
2. ASCE (American Society of Civil Engineers)
3. NAFEMS (<http://www.NAFEMS.org>)

In a short professional experience summary, I have contributed to the solution of turbomachinery components & systems problems since 1987. I have solved mechanical engineering problems in fighter and commercial turbojet engines, as well as ground-based turboshaft engines (W251-B12, W501, FT8). Some of the most challenging projects I have performed range from the F100 Anti-icing system and Nozzles, to Telemetry Thermal and Structural studies for the FT8 (ground-based), and the F119 engines. Cryogenic work I performed for RD180 rocket engine compact heat exchangers is recognized as very complete and concise (I created a 36 pages MathCAD workbook mathematical model of the compact heat exchangers including phase change via enthalpy table look-up method).

At **Westinghouse Power Generation Unit** (Orlando, Florida), W501: I was the main Thermal & Structures Sr. Advanced Analyst and designer for Turbine Disc Broach (Firtree) Refurbishment Study. Prior to my contributions at Westinghouse, all refurbishment was done by Westinghouse's competitors (mainly GE, and ABB) without warranty. When I completed my study (utilizing ANSYS, and Pro/Engineer), Westinghouse became a provider of refurbishment services including warranty of their work!

1. Saved Siemens/Westinghouse Power Corporation \$1 Million Per Year By Flange Redesign
2. Saved Pratt & Whitney \$300k for 20 discs costing \$15k per disc (minimum). Please see <http://www.IronCAD.com> then press Pratt & Whitney icon.
3. Save Elliott Energy Systems, Inc. \$18,000 per year by maintaining a less expensive FEA (Finite Element Analysis) software.
4. Published a JANNAF (Joint Army Navy NASA, Air Force) technical paper.
5. Nominated to present a FEA Paper at NAFEMS' congress in the US (2003)
6. Published a Structural Paper in June of 2009 for PTC World Event 2009.

Please feel free to contact me with any questions you may have.

Sincerely,

Julio C. Banks, MSME, P.E. & CGC