

## Awarded Contracts for External Experts to Support the NIST World Trade Center (WTC) Disaster Investigation

<b>Contract No.</b>	<b>Awarded to</b>	<b>Date Awarded</b>
SB1341-03-W-0332	Leslie E. Robertson Associates (LERA)	2/25/2003

### **DEVELOPMENT OF STRUCTURAL DATABASES AND BASELINE MODELS FOR THE WTC TOWERS**

Under contract number SB1341-03-W-0332, firm fixed-price purchase order has been awarded to:

Leslie E. Robertson Associates (LERA), R.L.L.P.; the firm responsible for the structural engineering of the World Trade Center towers. The project team from LERA includes the engineer of record for the design of the World Trade Center towers, the engineer of record for the repairs made after the 1993 bombing, the engineers of record for modifications based on tenant alterations and ongoing technical work, and the engineers of record for the structural integrity inspections of the towers. This team has detailed knowledge of the design, construction, and intended behavior of the towers over their entire 38-years life span.

This project has three tasks: (1) to digitize structural data from original computer printouts; (2) to develop reference structural analysis models that capture the intended behavior of the structures including modifications as a result of major tenant alterations and the 1993 bombing event; and (3) to analyze the baseline structural response under design wind and gravity loads. This project will not analyze the aircraft impact damage to the towers, the structural response of the towers to the fires, or the collapse sequence of the towers.

There are no existing models of the towers with the level of detail to be developed here. The reference structural models will be used to provide a basis for and comparison with more detailed and refined models to be developed independently in other parts of the NIST investigation for the analysis of (1) aircraft impact damage to the towers, (2) the structural response of the towers to the fires, and (3) the collapse sequence of the towers.

NIST has considered at length the appropriateness of involving LERA, the original structural engineering design firm, in its investigation. NIST has concluded that the firm's unique knowledge of the intended behavior of the original design is important to capture in developing its baseline model, but that LERA's work should be limited and appropriate reviews should be put into place.

Consequently, NIST has implemented rigorous procedures to mitigate potential conflicts of interest, consistent with all federal procurement laws and regulations, and is confident in the integrity and objectivity of the deliverables to be accepted from the contractor. The procedures to mitigate potential conflicts of interest include the following steps:

- The contractor shall have no role in the investigation other than providing NIST with the deliverables associated with the above tasks.
- The contractor shall not provide any findings, conclusions, or recommendations from its work on the three tasks. These are the sole and exclusive responsibility of NIST.

- The scope of work in this contract is limited to the three tasks listed above. It does not involve – in any way – the analysis of aircraft impact damage to the towers, the structural response of the towers to the fires, or the collapse sequence of the towers.
- NIST will conduct a comprehensive, independent review of each of the three tasks performed by the contractor. This review includes line-by-line review of the structural databases as well as extensive in-house verification and validation of the reference structural models and the baseline performance analyses. NIST has in its possession copies of all the original computer printouts, and other structural data and drawings for the towers. The contractor Statement of Work states that the deliverables are subject to review and approval by NIST for each of the tasks.
- NIST also will award a contract to another firm or individual through an open, competitive solicitation to conduct an independent third-party review and critique of each of the three tasks.
  - This review includes random checks of the databases; appropriateness of the models for their intended uses considering model representation and assumptions, level of detail, and model geometry and material properties; and appropriateness of the baseline performance analyses and accuracy of the results.
  - The contractor Statement of Work states that NIST will arrange for a third-party to conduct an independent review of the deliverables before final approval.
  - The review will be conducted after LERA completes its work rather than while the work is in process to avoid influencing LERA's product and maintaining the integrity of the independent review.