

## Description of Work

### *Assess Current Knowledge*

#### **Sub-Task 4.03 — Maintain and Update Literature Database**

**Background:** The series of activities which make up Task 4 are designed to evaluate existing information related to the design and behavior of steel moment frame structures as well as to categorize and synthesize information from both inside and outside the Phase 2 Steel Project. These activities include the following:

1. Review Phase 1 knowledge and identify gaps;
2. Review available literature;
3. Catalog test results;
4. Maintain and update literature database;
5. Prepare technical bulletins;

In the Phase 1 project, an extensive database of published reports, papers, and other technical literature was compiled and made available on the World Wide Web. This database addressed aspects of steel material properties, behavior of connections (both analytical studies and large-scale testing), behavior of steel building systems, design codes and procedures, and performance of steel buildings in past earthquakes. There was not a specific focus on issues related to welding materials, procedures, and behavior of welded joints. Enhancement of this existing database to encompass these topics — with a specific emphasis on flux cored arc welding — is therefore seen as a key activity in the Phase 2 project.

**Objective:** The objective of this task is to perform a survey of published technical literature on flux cored arc welding in structural fabrication. The information obtained will be compiled into a database such that individual titles can be easily retrieved for examination.

**Task Description:** The researchers will survey relevant journals and magazines in the field of structural fabrication and welding to collect publications on flux cored arc welding in structural applications. Publications considered will include those that discuss the welding process and consumables, base metal and weld metal properties, welding defect detection, mechanical testing, structural integrity and properties, and other related topics. The bibliographic data of the literature surveyed will be compiled and organized into a database. The database will be organized in a logical structure for simple management and easy access. The database will be posted on a World Wide Web site on the Internet such that researchers and practitioners in the fields of construction and welding can access it for information. The researchers will work with the authors of an earlier database such that compatibility can be maintained between the two databases. For the sake of continuity and completeness, titles from the existing database will be merged into the new database.

**Task Management and Review:** This sub-task is supervised by Ronald Hamburger, Project

Director for Product Development. The sub-contractor will also be expected to maintain liaison with the Technical Advisory Panel for Joining and Inspection. The sub-contractor shall be responsible for regularly reporting progress and difficulties to the Project Director for Topical Investigations. It is expected that the sub-contractor will be responsive to issues and concerns raised by the Project Director, TAP and other reviewers.

**Task Deliverables:** A complete database on welding and fabrication issues suitable for posting on the World Wide Web, merged with the existing database for steel moment frame construction developed in the Phase 1 Steel Project.

**Target Audience:** The work products of this sub-task will be directly used by other consultants and subcontractors working on the FEMA/SAC Phase 2 project as well as by researchers and practitioners in the fields of welding, fabrication, and steel construction.