GEORGIA INSTITUTE OF TECHNOLOGY — OFFICE OF CONTRACT ADMINISTRATION

PROJECT ADMINISTRATION DATA SHEET

[X] ORIGINAL [ ] REVISION NO. ____

Project No. E-20-614 GTRI/~~GIT~~ DATE 8 /29 /84

Project Director: Dr. Daniel Halpin School/~~Lab~~ CE Civil Engr

Sponsor: National Science Foundation

Type Agreement: Grant No. INT-8407672

Award Period: From 8/1/84 To 7/31/85* (Performance) 10/31/85 (Reports)

Sponsor Amount:	This Change	Total to Date
Estimated:	$ 16,100	$ 16,100
Funded:	$ 16,100	$ 16,100

Cost Sharing Amount: $ 1,000 Cost Sharing No: E-20-349

Title: "U.S. - Hungary Workshop on Application of Computers in Construction, Budapest; September 9-14, 1984"

ADMINISTRATIVE DATA OCA Contact Lynn Boyd X4820

1) Sponsor Technical Contact:

Deborah L. Wince
Eastern European Program
International Division
National Science Foundation
Washington, D.C. 20550
(202) 357-9516

2) Sponsor Admin/Contractual Matters:

Joe Carrabino
Grants Official
National Science Foundation
Washington, D.C. 20550
(202) 357-9630

Defense Priority Rating: N/A Military Security Classification: N/A

(or) Company/Industrial Proprietary: N/A

RESTRICTIONS

See Attached NSF Supplemental Information Sheet for Additional Requirements.

Travel: Foreign travel must have prior approval – Contact OCA in each case. Domestic travel requires sponsor approval where total will exceed greater of $500 or 125% of approved proposal budget category.

Equipment: Title vests with GIT; however, none is proposed

COMMENTS:

*includes a 3-month unfunded flexibility period.

Advance number assigned for $750.00. (See attached)

COPIES TO:

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FORM OCA 4:383

GEORGIA INSTITUTE OF TECHNOLOGY — OFFICE OF CONTRACT ADMINISTRATION

SPONSORED PROJECT TERMINATION/CLOSEOUT SHEET

Date 2/3/86

Project No. E-20-614 — School/~~Lab~~ XXX CE

Includes Subproject No.(s) N/A

Project Director(s) D. W. Halpin — GTRI / GIT

Sponsor National Science Foundation

Title U. S. - Hungry Workshop on Application of Computers in Construction

Effective Completion Date: 7/31/85 (Performance) 10/31/85 (Reports)

Grant/Contract Closeout Actions Remaining:

- [ ] None
- [ ] Final Invoice or Final Fiscal Report
- [ ] Closing Documents
- [X] ~~Final Report of Inventions~~ Patent Questionnaire
- [ ] Govt. Property Inventory & Related Certificate
- [ ] Classified Material Certificate
- [ ] Other

Continues Project No. N/A — Continued by Project No. N/A

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Other A.Jones;M. Heyser; R. Embry

Form OCA 60:1028

E-20-614

APPENDIX VII

NATIONAL SCIENCE FOUNDATION
Washington, D.C. 20550

FINAL PROJECT REPORT
NSF FORM 98A

PLEASE READ INSTRUCTIONS ON REVERSE BEFORE COMPLETING

PART I–PROJECT IDENTIFICATION INFORMATION

1. Institution and Address	2. NSF Program	3. NSF Award Number
Georgia Institute of Technology Atlanta, GA 30332 School of Civil Engineering	Eastern European	INT-8407672
	4. Award Period From 8/01/84 To 10/31/85	5. Cumulative Award Amount $16,100

6. Project Title

Seminar on Application of Computers in Construction

PART II–SUMMARY OF COMPLETED PROJECT *(FOR PUBLIC USE)*

On the basis of a long standing cultural and scientific exchange agreement between Hungary and the United States, the US National Science Foundation and the Hungarian Academy of Sciences agreed to organize in Hungary a scientific seminar on the efficient use of computing techniques for construction.

The seminar was held 17 - 22 September 1984 in Rackeve near Budapest. The purpose of the seminar was to reveal the opportunities available for effective use of computer in construction with particular emphasis on the emerging impact of the mini - and microcomputers in the construction field.

The joint seminar was organized by Georgia Institute of Technology (Atlanta) on the US side and the Institute for Building Economy and Organization (EGSZI) on the Hungarian side. The project leader on the US side was Prof. Daniel W. Halpin and on the Hungarian side, Dr. Miklos Kecskes, Deputy Manager of EGSZI.

The proceedings of the seminar have been published in the publication "The Use of Computers in the Construction Industry - Experience in the USA and in Hungary", Budapest, 1985.

PART III–TECHNICAL INFORMATION *(FOR PROGRAM MANAGEMENT USES)*

1. ITEM *(Check appropriate blocks)*	NONE	ATTACHED	PREVIOUSLY FURNISHED	TO BE FURNISHED SEPARATELY TO PROGRAM	
				Check (✓)	Approx. Date
a. Abstracts of Theses					
b. Publication Citations		X			
c. Data on Scientific Collaborators		X			
d. Information on Inventions	X				
e. Technical Description of Project and Results		X			
f. Other *(specify)*					
Daniel W. Halpin					20 Oct. 1985

2. Principal Investigator/Project Director Name *(Typed)*	3. Principal Investigator/Project Director Signature	4. Date
		22 Oct. 1985

NSF Form 98A (3-83) Supersedes All Previous Editions

Form Approved OMB No. 3145-0058

TECHNICAL DESCRIPTION OF PROJECT AND RESULTS

Project Title: Seminar Computers in Construction

NSF Grant INT - 8407672

The purpose of this seminar was to examine the existing state of the use of computers in the construction industry and identify areas where break-throughs in both the hardware and software aspects of computer development can be best exploited in the management of construction. A large number of techniques based on advanced theoretical concepts have been implemented on computers. The problem which is central to the use of computers in the construction industry is how these advanced computer techniques can best be made accessible to practitioners - the practicing construction professional. Many of these techniques such as simulation, queuing theory, resource allocation and linear and dynamic programming were developed originally in the area of Operations Research. Others such as data based management concepts have evolved as a natural part of the development of computer software. The present state of computer technology makes various types of computing capabilities available to construction management. In addition, a new family of computers with many of the capabilities of the large "main frame" computers of 10 years ago have become available with the widespread availability of the microprocessor. These so-called "micro-computers" make it possible to implement many advanced techniques at the job site on small portable and in expensive systems. Such techniques required, in the past, large main frame computers and time consuming job

turn-around. Microcomputers are accessible to the practitioner at the job site since they have a cost in the range of $2000 to $10,000. Mini-computers in the $15,000 to $500,000 range also make it possible to analyze large and complex problems requiring faster computational speed and large and complex data bases which previously could only be accomodated on large and expensive multi-million dollar main-frame computers. The development of the mini- and microcomputer will have far reaching effects on the organization and management of construction both in the US and in technologically developing countries such as Hungary.

This seminar focused on the impact of new advances in computers on the organization and management of construction in a public construction environment such as that administered by EGSZI in Hungary and by state level agencies involved in construction in the US. Emphasis was placed on the means by which advanced management techniques such as those mentioned above can be better implemented in support of public construction works. The following topics were addressed and discussed in detail:

(1) The use of computers in the construction industry for the:
    (a) Development of Estimates, Billings, and labor and materials requirements;
    (b) Scheduling and Control of Projects:
    (c) Control of Procurement and Materials Management
(2) Structure, content and Management of Construction Data Bases
(3) Role of Computers in Job Site Management
(4) Computer-aided Design

PUBLICATION CITATIONS

(All of the citations below are contained in the Conference Proceedings "The Use of Computers in the Construction Industry - Experiences in the USA and in Hungary," Budapest, 1985.)

DR. ARPAD KOVACS
The present situation and tasks of the Hungarian building industry

LASZLO ARNOLD
Date base system development for construction companies

LAJOS BANK - DR. GABOR NEUWIRTH
Computer science in university education

DR. KATALIN BERGIDA - DR. ANTAL ORBAN
A brief review computer aided capital project management system

LEONARD E. BERNOLD
Integration of project and process scheduling

K.C. CRANDALL
Hardware selection criteria for a company level estimating system

SANDOR CSEPES
Computer aided production control system at HAEV

DR. JANOS DENES
The nation-wide computerized data base of the Hungarian construction industry

LEROY Z. EMKIN - DAVID B. GREEN
GTICES concepts - a modern system approach

DR. MIKLOS GROSZ
Civil engineering and computer-aided in the Institute for Building Economy and Organization (EGSZI)

DANIEL W. HALPIN
Impact of small computers on the practice of construction in the U.S.

FERENC HAVAS
Computer-aided design in Hungary

JUDIT HAVAS
Norms and standards in the construction process

DR. MIKLOS KECSKES
EGSZI in computerization of the construction industry

ROBERT M. LYNESS
Construction data requirements - the client's viewpoint

LOUIS N. MALOOF
Management information and control system MECS computerized support of construction management projects

DR. ARTHUR MONSEY
Computers, schedules, and people-how do they really mix on a job?

EDGAR S. NEELY
Data requirements for automated generation of construction documents

JAMES N. NEIL
Work packaging for project control

DANIEL R. REHAK
Expert systems in construction and construction management

JANOS-PETER ZILAHY
Computer aided management system at "DELEP" Construction and Civil Engineering Company

SCIENTIFIC COLLABORATORS

(This listing includes US participants only)

Dr. Leonhard Bernold, Asst. Professor, University of Maryland, College Park, MD.

Dr. James Craig, Professor, Georgia Institute of Technology, Atlanta, GA.

Dr. Keith Crandall, Professor, University of California, Berkeley, CA.

Mr. Robert M. Lyness, Vice-President, Safeway Stores, Inc., Oakland, CA.

Mr. L. N. Maloof, President, Heery and Heery, Architects and Engineers, Atlanta, GA.

Dr. Arthur Monsey, Horner and Shifrin St. Louis, Mo.

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Dr. Daniel Rehak, Assistant Professor, Carnegie-Mellon University, Pittsburgh, PA.