Project No. A-3169

Project Director: Tom McGowan

Sponsor: Office of Planning & Budget/Georgia Office of Energy Resources; Atlanta, GA

Type Agreement: Unnumbered contract dated 1/1/82

Award Period: From 1/1/82 To 9/30/82 (Performance) (Reports)

Sponsor Amount: $44,935 Contracted through: GTRI/GMN

Title: Homebuilders Energy Conservation Project

ADMINISTRATIVE DATA

1) Sponsor Technical Contact:

Ms. Robin Meyer

Office of Energy Resources
Office of Planning & Budget
270 Washington St., S.W.
Atlanta, GA 30334

Defense Priority Rating: N/A

2) Sponsor Admin/Contractual Matters:

Ms. Robin Meyer

Office of Energy Resources
Office of Planning & Budget
270 Washington Street, S.W.
Atlanta, GA 30334

Security Classification: N/A

RESTRICTIONS

See Attached Government 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 None proposed

COMMENTS:

COPIES TO:

Administrative Coordinator
Research Property Management
Accounting
Procurement/EES Supply Services

Research Security Services
Reports Coordinator (OCA)
Legal Services (OCA)
Library

EES Public Relations (2)
Computer Input
Project File
Other
Date 10/19/82

Project Title: Homebuilders Energy Conservation Project

Project No: A-3169

Project Director: Tom McGowan

Sponsor: Office of Planning & Budget/Ga. Office of Energy Resources; Atlanta, GA

Effective Termination Date: 9/30/82

Clearance of Accounting Charges:

Grant/Contract Closeout Actions Remaining:

- [x] Final Invoice and Closing Documents
- [ ] Final Fiscal Report
- [x] Final Report of Inventions
- [x] Govt. Property Inventory & Related Certificate
- [ ] Classified Material Certificate
- [ ] Other

Assigned to: TAL

(School/Laboratory)

COPIES TO:

Administrative Coordinator
Research Property Management
Accounting
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Legal Services (OCA)
Library
EES Public Relations (2)
Computer Input
Project File
Other
Ms. Robin Meyer  
Office of Energy Resources  
Room 615  
270 Washington Street  
Atlanta, Georgia 30332  

RE: Homebuilders Energy Conservation Project  
GT Project A-3169-000(1182)  

Dear Robin:

Enclosed are Progress Reports for January and February 1982. I am pleased with the work completed to date. We are close to having a second draft in hand for final editing and typesetting.

Sincerely yours,

Tom McGowan

TM: rcr

Enclosures (2)
Revision of the Builders Manual was continued this month. It has been shortened by more than 10 pages and has one less chapter. The first draft of the revised text has been completed and will be retyped early next month.

Georgia Tech representative Tom McGowan attended a meeting at the Georgia Homebuilders Energy Subcommittee meeting with Robin Meyer of Georgia OER, Benny Whitmore of Atlanta Gas Light Company, Ron Wagner of Dow Chemical, as well as builders and their representatives. The Georgia Homebuilders Association has set the date and place (Atlanta) as one of the three workshops. The remaining two will be held outside of Atlanta, with one in conjunction with a Statewide homebuilders conference.
PROGRESS REPORT
HOMEBUILDERS ENERGY CONSERVATION PROJECT
JANUARY 1982

This month's work consisted of a meeting with the sponsor to plan the project and renewing contact with homebuilders, the Georgia Homebuilders Association energy committee, and insulation and equipment suppliers. Contact was made with typesetting companies and vendors of artwork and architectural drawings. The month's work was completed with a preliminary revision of the 1981 Builders Manual.
Ms. Robin Meyer  
Office of Energy Resources  
Room 615  
270 Washington Street  
Atlanta, Georgia 30332  

Dear Robin:

Enclosed is the March, 1982 progress report. I am still working on the second draft. I will contact you for review when it has been typed.

Sincerely yours,

Thomas F. McGowan

TFM:rcr

Enclosure
The drawings for the State Energy Code were corrected and sent to W. D. Farmer for redrawing. He has made excellent progress on them, the rough copy should be returned for review the first week of April.

Work on the vestpocket edition was started this month. We have collected recent specifications for insulation materials and are putting it into a standard format. A rough outline has been developed for this new publication.

Editing and rewriting of the first draft of the revised Homebuilders Manual was completed. It is being word processed, and has been delayed 3 weeks due to the loss of a Xerox 850 word processing machine. We are borrowing time on similar equipment to complete the retyping.
Ms. Robin Meyer  
Office of Energy Resources  
270 Washington Street/Room 615  
Atlanta, GA

RE: GT Project A-3169-000 (1182) Homebuilders Energy Conservation Project

Dear Robin:

The March progress report is enclosed. We are well on the way to completion of the Homebuilders Manual.

I will be on vacation 5/14 through 5/30. Please contact Carol Aton @ 894-3412 in my absence regarding project details. I have generated press release and brochure data for her; she will coordinate with you to produce camera-ready copy.

We need to meet early in June to make decisions on the content and format of the vest pocket edition. I'll call you on my return to get things lined up.

Sincerely,

Thomas F. McGowan

TFM/jb

Enclosure
The editing of the 2nd draft was completed by Benny Whitmore and Ron Wagner. Their comments have been incorporated into the 3rd draft which is being retyped.

We have received the finished art work from W.D. Farmer for the manual. A co-op student is handling the preliminary layout for the manual. Only two more diagrams are due from W.D. Farmer, one on construction terminology, the other a cutaway of a house indicating key areas for implementing energy efficiency. They are in draft form and should be completed by mid-May.

A cover is being drawn by a free-lance artist. It will have a simplified/symbolic representation of a house with major elements covered in the manual accentuated.
Ms. Robin Meyer
Office of Energy Resources
270 Washington Street/Room 615
Atlanta, GA

RE: GT Project A-3169-000 Homebuilders Energy Conservation Project

Dear Robin:

The progress report for May is enclosed. The fourth and final draft has been assembled along with all the necessary artwork. It will be retyped and sent to the typesetter's early next month.

Sincerely,

Thomas F. McGowan

TFM/jb

Enclosure
Progress Report

HOMEBUILDERS ENERGY CONSERVATION PROJECT
May 1982

The manual has been edited and is now in the fourth and final draft form. It will be retyped and sent to the typesetter's early next month. All the artwork is in hand and has been corrected and shrunk to the proper size for layout.

The brochure and press release are written and typed and will be typeset in June. A new cover is being developed for use with the brochure as well as the manual.

Some progress has been made on the vestpocket edition. Insulation specifications have been reduced to a standard format, and information on materials and proper installation techniques is being summarized into a tabular format.
July 2, 1982

Ms. Robin Meyer
Office of Energy Resources
Room 615
270 Washington Street
Atlanta, GA 30332

RE: GT Project A-3169-000
Homebuilders Energy Conservation Project

Dear Robin:

The June, 1982 progress report is enclosed. The manual is typeset and is in paste up, the vest pocket edition is typed-in rough draft form, and the slides of our field visit have been processed.

I will want your review of the vest pocket edition as soon as we have integrated the graphics and finished a second typing.

Sincerely yours,

Thomas F. McGowan

TFG/lbh
The manual has been typset and is now in paste-up. We have assurances that it will be ready to print by July 15, 1982.

We have received copies of the workshop brochure from OER and will circulate them as needed.

The vest pocket edition is in typed rough draft form. Graphics should be integrated with the text and a second typing completed by July 9, 1982. Review by OER will be needed at that time.

The slides from the field visits have been processed. The majority came out fine, with the exception of one roll of high speed film being under-exposed.

These new slides will spruce up the old presentation, along with new title and data slides already in hand.
Ms. Robin Meyer  
Office of Energy Resources  
270 Washington Street/Room 615  
Atlanta, GA 30334  

RE: Georgia Tech Project A-3169-000  
Homebuilders Energy Conservation Project  

Dear Robin:

The July progress report is enclosed. The month was spent in completing all the work necessary for the August 9 workshop.

The progress report covers the calendar month of July, hence, it does not address the workshop which we held last night (August 4). This will be covered in detail in the next month's report. In brief, the workshop was a success, and I am already receiving phone calls requesting more information as well as suppliers willing to send more data on their product lines.

I will be in touch regarding the Hartwell workshop, homeowners workshop, and contractual details in the near future.

Sincerely,

Thomas F. McGowan  

TFM/jb  

Enclosures
Progress Report

HOMEBUILDERS ENERGY CONSERVATION PROJECT

July 1982

This month was spent organizing and completing details for the August 4th Workshop. The slide presentation is complete, composed of some 125 slides. One hundred copies of the vestpocket edition and manual were printed. This should be sufficient for the August 4th workshop, sponsored by Homebuilders Association of Metropolitan Atlanta, and the Housing Rehabilitation Workshop in Hartwell. Seventy-five copies of the meeting agenda have been printed; a copy is attached to this progress report. Also enclosed is a copy of the manual and vestpocket edition, and a copy of my letter sent to about 20 contributors to the project to improve attendance. The originals of the manual will be sent to OER for DOAS printing for the two workshops yet to be scheduled.

The vestpocket edition was printed and subsequently sent to the typesetter. This will be finished in typeset form for printing by DOAS.

The August 4th workshop is shaping up well. Jan Lee at the HBMA has estimated a turnout of 50 people. I have asked them to limit it to 60 to facilitate questions and answers.

Next month's work will be composed of the August 4th workshop, possibly the Hartwell workshop (late August, or early September), typesetting the vestpocket edition, and reprinting (by DOAS) of the vestpocket edition and the manual.
Homebuilders Energy Workshop
August 4 Meeting
of The Homebuilders Association
of Metropolitan Atlanta

Agenda

7:00 p.m.  Opening Remarks - Jerry Kopp, HBMA
Presentation - Tom McGowan, Georgia Tech

7:15 p.m.  1. Insulation
- Questions and Insulation Demonstration -
2. Infiltration Control

8:15-8:40 p.m. Questions & Coffee Break

- Questions -

- Questions -

5. Packaging Energy Efficiency, Marketing
- Questions -

10:00 p.m. END

Sponsored by: Homebuilders Association of Georgia
Homebuilders Association of Metropolitan Atlanta
Georgia Office of Energy Resources
Georgia Institute of Technology
July 27, 1982

Dear:

I want to take this opportunity to thank you for your contribution to this year's Homebuilders Energy Project. The manual entitled, "A Builder's Guide to Energy Efficient Homes" is being printed and an abbreviated edition, "Homebuilders Energy Pocket Guide" is now in print.

We will be giving our first workshop on this new material on August 4 in Atlanta. A descriptive brochure is enclosed. The workshop will be three hours long and will cover materials and equipment which save energy. More importantly, it concentrates on cost control in this area, giving advice on how to get the most for the dollar.

Again, thank you for your cooperation and guidance on this project. I hope to see you on August 4.

Sincerely yours,

Thomas F. McGowan, P.E.
Senior Research Engineer

TFM/jb

Enclosure

cc: Robin Meyer
Ms. Robin Meyer  
Office of Energy Resources  
270 Washington Street/Room 615  
Atlanta, GA 30334  

RE: Georgia Tech Project A-3169-000  
Homebuilders Energy Conservation Project  

Dear Robin:  

The August progress report is attached. The major work for this time period was the presentation of the first workshop, typesetting of the vestpocket guide, and review of HUD specifications for the September 16 workshop.  

Please call me if you have any questions.  

Sincerely yours,  

Thomas F. McGowan  

TFM/jb  

Attachment
The August 4 workshop was a success. Jerry Kopp and the Metropolitan Chapter of the Homebuilders Association did an excellent job of organizing the event. Approximately 60 people attended, a large percentage of them builders. The manuals and vestpocket guide were distributed, along with handouts from other sources.

The reaction of the audience was very positive, with more than one hour spent in answering questions during the 3-1/2 hour session. Jerry Kopp has volunteered to host another workshop for us later in the year, targeted at the real estate professionals. Also as a result of the workshop, Dow Chemical representatives have offered to host an evening workshop and will handle the publicity and meeting arrangements.

The typesetting of the vestpocket edition is proceeding on schedule. Georgia Tech will print 1,000 copies for the Office of Energy Resources. These will be ready for the 9/16 workshop.

Charles Spindler will be hosting the Hartwell workshop. We have re-typesetted the brochure for his use in publicizing the housing rehabilitation workshop. He will handle the mailouts and reservations.

September is the final month of the contract. It will be spent giving the Hartwell workshop on 9/16, printing the vestpocket guide, writing a final report, and preparing for the final workshop to be sponsored by Dow Chemical.
Ms. Robin Meyer  
Georgia Office of Energy Resources  
270 Washington Street, S.W./Room 615  
Atlanta, GA 30334

Dear Robin:

Enclosed is the Final Report on the Homebuilders Energy Conservation Project. It covers the month of September as well as summarizing the major items accomplished under this contract.

I have checked with Billy Atcheson in the EES Accounting Office regarding the final invoice. He says that there should be no problem in issuing it by October 20. A budget amendment request will be sent at that time to match line item budgets and expenses.

With these items out of the way, I want to personally thank you for your interest and dedication to this project. It is rare that a sponsor contributes as much as you have to defining the project scope and reviewing its major publications, all with the aim of turning out a quality product. Your help was much appreciated and had a positive impact on this effort.

Please call me if there are any questions on the final report, and to coordinate future workshops and discuss the possibility of follow-on projects.

Sincerely yours,

Thomas F. McGowan, Chief  
Energy Technology Branch

TFM/jb  
Enclosure
Final Report

HOMEBUILDERS ENERGY CONSERVATION PROJECT

Thomas F. McGowan

Submitted to
Georgia Office of Energy Resources

by
Georgia Institute of Technology
Engineering Experiment Station
Technology Applications Laboratory

October 1982
Final Report

HOMEBUILDERS ENERGY CONSERVATION PROJECT

Project A-3169-000

This final report summarizes the work accomplished under a $44,935 nine-month contract to educate homebuilders in energy efficient construction techniques. The major work consisted of producing a 50-page manual and a 47-page pocket guide. Both publications were typeset and illustrated. A three-hour slide presentation was prepared composed of 130 slides plus an exhibition of insulation materials and energy saving equipment.

Three workshops were scheduled, with two completed and the final one to be given in early October. The attendance at the first workshop in Atlanta (hosted by the Metropolitan Chapter of the Homebuilders Association of Georgia) was 60 people. This large turnout was a pleasant surprise considering the present state of the building industry. The second workshop was more specialized, dealing with energy efficient renovation for sub-standard homes. This was hosted by the Community Development Office in Hartwell, Georgia, and was attended by 14 people, specialists in HUD-based redevelopment projects. This workshop included a walkthrough of two HUD project homes. The final workshop is being hosted by Dow Chemical Company. They are inviting builders and developers from the Southeast to this last evening presentation; 50 people are expected to attend.

Three extra presentations were given as an outgrowth of this contract. The first was to the Western Electric Atlanta Works
"Technical Professional Activities Committee" on using solar energy in homes. The second was to the Solar Building Institute (produced by the Georgia Solar Coalition) covering wood heating systems and energy efficient construction. The final talk is to the Association to Revive Grant Park on weatherization and insulation.

All items in the Scope of Work (as amended by letter August 27, 1982) have been performed. The deliverables under this contract are addressed in a general way in the preceding paragraphs. A summary list of deliverables is found below:

1) Publicity brochure for workshop - camera ready copy
4) First printing of both items, 100 copies each
5) A second and third printing of the Pocket Guide, totalling 2,100 copies
6) A slide presentation and exhibit of energy efficient materials and equipment
7) A 14-page handout on HUD (Housing and Urban Development) energy standards for housing renovation

The impact of this project on reducing residential energy consumption in Georgia has been estimated. Based on the attendance at the workshops and distribution of the manual (3,000 copies printed by
the State DOAS printing office) and the Pocket Guide, it is expected that first year energy savings will be $3.27 \times 10^{10}$ Btu's. This number is the product of the following assumptions:

- 3,000 copies of the Manual will be distributed
- 10% (300) will be used by builders
- The average builder constructs nine homes per year
- The builder will cut energy consumption by at least 10% over energy use in previously constructed homes
- That average heating and cooling energy use for a 1,600 sq ft home in Georgia is $1.21 \times 10^8$ Btu/year

The following suggestions are offered for future programs of this nature:

1. The Manual and Pocket Guide should be distributed, on request, for one year. Based on past experience, 5,000 copies should be adequate.


3. More work needs to be done to educate the financial and real estate community concerning the increased demand for energy efficient homes.

4. A large sector of new house buyers/builders are building their own homes, acting as their own contractors, or having houses built to their specifications. This is an excellent area for energy
education as these people are determined to build the best house that they can. Education is required to allow them to make the right decisions in order to minimize cost and maximize energy efficiency.

5. The builders, in general, are using adequate amounts of ceiling and wall insulation. The energy areas which have not been improved upon are:

a) Little use of pilotless ignition on gas furnaces
b) Little knowledge of new and more efficient gas furnaces
c) Some downsizing of furnaces has occurred, but most are still oversized
d) Only limited use of foam sheathings
e) Infrequent use of floor insulation
f) Power roof ventilators still being installed
g) Not enough attention paid to reducing air leakage

Future efforts should single out these areas for a concentrated effort in defining the problem and inducing the builders to upgrade their construction techniques.

In order to insure that your files are complete, copies of materials produced under this contract are attached to this final report. The attachments are:

1) Publicity Brochures
2) The Manual
3) Pocket Guide
4) HUD Energy Code Handout

This final report concludes all work under Project A-3169-000.