

Universidad de Puerto Rico  
Recinto Universitario de Mayagüez  
SENADO ACADEMICO  
Mayagüez, Puerto Rico

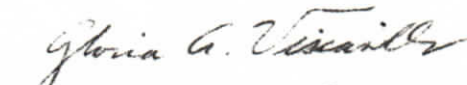
Certificación Núm. 70-5

Yo, Gloria A. Viscasillas, Secretaria del Senado Académico del Recinto Universitario de Mayagüez de la Universidad de Puerto Rico, CERTIFICO:

Que en reunión ordinaria celebrada por este organismo el martes 3 de marzo de 1970 se aprobó por unanimidad el establecimiento de un INSTITUTO DE CONSTRUCCION adscrito a la Escuela de Ingeniería.

Se incluyen y forman parte de este documento copia de la propuesta sometida por la Facultad de la Escuela de Ingeniería y copia del Informe del Comité de Asuntos Académicos.

Y para que así conste, expido y remito a las autoridades universitarias correspondientes la presente certificación hoy día cuatro de marzo de mil novecientos setenta, en Mayagüez, Puerto Rico.

  
Gloria A. Viscasillas  
Secretaria

Anejos

UNIVERSITY OF PUERTO RICO  
SCHOOL OF ENGINEERING  
Mayaguez, P.R.

A PROPOSAL FOR THE CREATION OF A  
HOUSING CONSTRUCTION INSTITUTE

A PROPOSAL FOR THE CREATION OF THE HOUSING  
CONSTRUCTION INSTITUTE

I. INTRODUCTION

No doubt, Puerto Rico has taken long strides along the path of progress. A far reaching transformation is in process, as can be seen by some of the usual indicators of socio-economic advancement.

Indicators of Socio-economic Progress

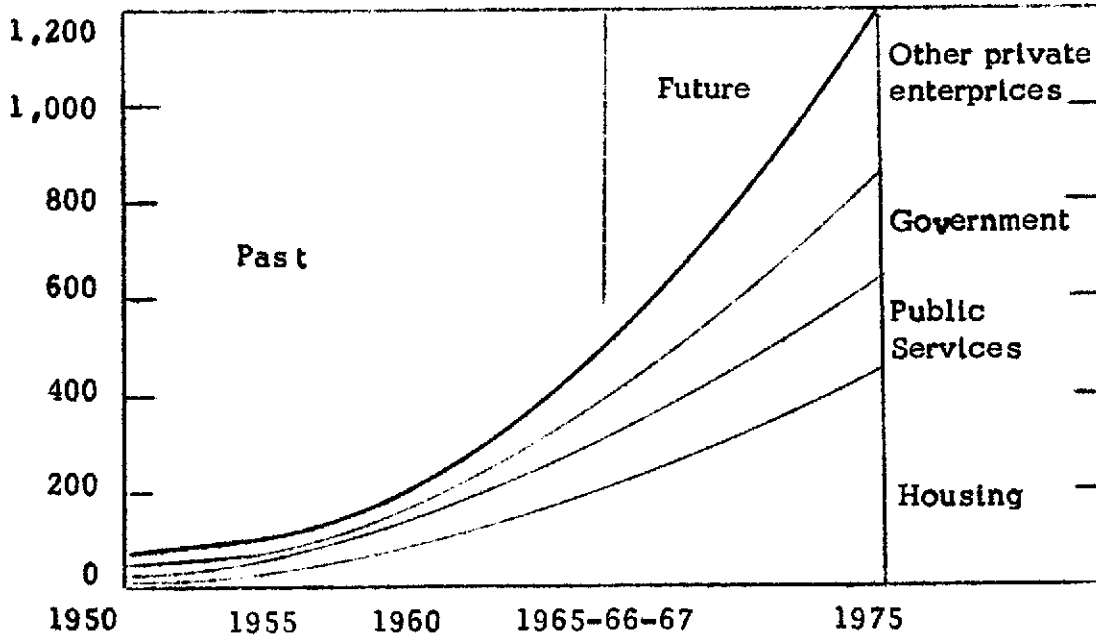
Item	: 1940	: 1965	: Estimated 1968
Per capita income (1965 prices)	\$ 263	\$ 884	\$1,100
Gross National product (1965 prices) (Millions)	659.1	2720.5	3,300
Life Expectancy (years)	46	69.9	70
Literacy	68.5%	85%	87%
Motor vehicle registration	26,847	318,809	473,000
Roads (Kms.)	2,394	5,294	6,200
Birth rate (per 1000 pop.)	39.0	31.1	30
Death rate (per 1000 pop.)	18.0	6.4	6.3

In fact some of the results are outstanding and can be displayed with the pride of the man that has done it with his own hands, through his own efforts, in long hours of watching and sacrifices.

In other fields results have fallen short of expectations though, again, even where efforts have not been very successful, there are instances of amazing accomplishments. The construction and housing industry illustrates this situation. In Puerto Rico, as else where, the construction industry, in general, and house-building is particular, for many years, did not show visible signs of maximum efforts to use the latest technological developments - an exception could be made of the last few years. This important industry has experienced less cost-reduction as a result of the industrial revolution than have, perhaps, most of the other industrial activities.

The situation commands careful thought when we realize that one of the most important factors in the Puerto Rican economy is the housing and construction industry. This sector of our economy is one of the most vigorous and fast expanding ones. Because of its nature the amount invested in it has <sup>a</sup> healthy multiplier effect on the economy. The investment in consumer's goods or in services generally does not have this potential. This is a basic fact that has long been recognized to the extent that housebuilding and construction in general, are frequently used as one of the indicators to measure the soundness of an economy.

Exhibit 1 shows the rate of construction activity attained in the different categories from 1950 to the present, as well as the estimated growth until 1975 for Puerto Rico.\*



It can be seen that the rate of investment in construction has increased from about 200 million dollars for the year 1960, to a rate of over 600 million dollars in 1967 which is 21.5% over 1966. It is expected that this rate of construction will surpass one billion

\* See Report of Planning Board Page 62  
Investment in construction

dollars per year by 19 5. A further projection indicates that in the next 20 years, the additional investment in construction will be about 25 billion dollars.

If we realize that during the last 20 years, which are considered very productive, the total investment in construction was only 4 billions dollars, the challenge of the future demands in terms of improvement in technology, community organization, administration, financing, manpower, equipment, etc., to accomplish a task over 6 times greater than what we have accomplished in the last 20 years period, seems indeed formidable.

Out of that total investment, housing construction constitutes a substantial share, more so now than in the past. During the 1947-1967 period, the principal sources of investment in construction were industrial, commercial, public works and tourist facilities. \*

It has been stated by the Puerto Rico Planning Board that the population of the island, estimated in 2,736,000 for 1968, will continue to increase at an average rate of 2.3 per cent during 1965-1970, and at an average rate of 2.2 per cent during the period 1970-1975. By 1975 it is estimated that Puerto Rico will have about 670,000 families to provide housing for. On the other hand it

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\* - Planning Board " Plan General de Desarrollo" - Pág. 59 - Parte I

is expected that housing needs will increase because of the decrease in emigration. The normal wear and tear will also add to the overall housing needs.

Considering all the factors involved it has been estimated that the number of dwellings necessary will increase from 555,000 in 1965 to 733,000 in 1975. This represents an increase of 178,000 units as compared to an increase of 55,000 units during the decade 1950-1960.

If we are to meet the housing needs of the next generation we will have to build 400,000 new houses at a cost of about 10 billion dollars and an average rate of 20,000 houses per year. This is the challenge for the present generation.

The days when housing was considered a personal or family problem, of no concern to society in general are gone. What goes on in the slums, where hundreds of thousands of human beings struggle in an unhealthy environment, where shacks are crowded on the scarce land available and the members of the family are crowded in one or two rooms, is of direct concern to all institutions including institutions of higher learning; it is a problem of deep concern to society as a whole. The sooner it is realized by all, the better it will be for the stability of the social order.

It should be stated that if Puerto Rico is to share the leadership in the Caribbean area and make a significant contribution to a better understanding among men and nations and to the improvement of levels of living, specially among the underprivileged, its higher education institutions are called to lead. In Puerto Rico this initiative in the field of housing and construction belongs to the Mayaguez Campus of the University where one can find, as no where else, the basic complex of technical knowledge, experience and some of the facilities to make the Housing and Construction Institute a success.



## II. THE NEED FOR THE HOUSING AND CONSTRUCTION INSTITUTE

With such a tremendous task ahead it is easy to visualize the great effort that has to be made by both, the private and public sectors of our economy. Professionals and technicians will have to be trained by our schools, by the thousands; new sources of capital will have to be tapped; the purposeful effort of the community will have to be recruited; zoning and planning regulations and procedures must respond to this huge demand for space, transportation, water resources, electric power; administrative talent will have to be recruited and trained; the validity of construction code requirements, and government control agencies requirements, need reevaluation.

It is usually the case that, in a rapidly developing country, the demand for housing as well as for services and facilities is always greater than the supply. Unfortunately Puerto Rico is no exception to this rule. This tends to induce the developer, be it government or private, to concentrate on production rather than on improving the quality and overall design of the product. Even the all-important cost of production tends to be overlooked when it is easy to sell. The higher income groups are, served first and the interest in the problems and needs other groups is near. One

after another, large residential projects are sold to the public without ever being started, the buyer not knowing the details and specifications of what he is buying. There is no time, and profit-wise, there is no need, to stop and make a reevaluation, no time to try new ideas, methods or materials, which in the long run might have increased both production and quality.

Lacking the time resources and organization for this basic task, we tend to do the next best thing; we import new ideas and methods which often are not suitable for our particular conditions, climate, culture and our socio-economic structure.

It is in the light of present and anticipated needs that the Housing and Construction Institute is fully justified. In order to guarantee its success it must be detached, as far as operations is concerned, from the public and private sectors that deal with the pressing problems of providing mass housing.

Such an Institute would have an assignment of vital importance for Puerto Rico and for other developing countries in the following areas:

- 1) Gathering basic data on what has been done and is been done, in Puerto Rico and in other countires, in all phases of the housing and construction fields. The information compiled will be analized and evaluated to

to all government and  
- 9 /private institutions  
/ interested  
be made available/in housing and cons-  
truction in general.

- 2) Sponsor basic and applied research on new materials, techniques, methods, machinery and equipment, design, etc., to reduce constructions costs, speed up construction and improve housing. It is interesting to point out that a new idea resulting in a saving in construction cost of only 1%, would imply a 10 million dollar per year saving to the economy of Puerto Rico.
- 3) Sponsor seminars on housing and construction for the benefit of professionals and technical personnel in the public and private institutions.
- 4) Encourage the exchange of information on international practices in the use of human, technological financial resources organization and administration.
- 5) Coordinate the work of all the professions that contribute to create better housing and construction. Good housing implies the coordinated

effort of architects, engineers, planners, administrators, sociologists, economists, landscape specialists and many others.

- 6) Help both public and private institutions on specific problems that might develop in their projects and make available to them the results of research.
- 7) Promote taking a new and fresh look at construction materials in use probing deep, with a creative technical attitude, into new possibilities. New possibilities might not be revolutionary but might be very useful and practical.
- 8) Evaluate the financing systems in use in Puerto Rico and in other countries and make the information available to the Government, cooperatives and other institutions. New approaches to low-cost housing financing will receive special attention.

- 9) Study and identify the techniques of community organization - how to mobilize community resources - human and economic - to solve common problems through a democratic process. Offer technical advise, in Puerto Rico and to other countries, on the methods and techniques in community organization.
- 10) Research specifically intended to serve the low-cost housing field; Mutual Aid and Self-Help Housing and cooperative housing will receive special attention.
- 11) Sponsor research in the fields of land use, density, services, facilities, modular systems for building componets, etc.
- 12) Sponsor research on the validity of Construction Code requirements, validity of government control agencies requirements, etc.
- 13) Coordinate applied research efforts of government and private institutions.
- 14) Disseminate results of foreign building research.

III. ORGANIZATION AND POSSIBLE SOURCES OF FUNDS

1. The Housing and Construction Institute will be established under the School of Engineering.

2. The University of Puerto Rico should provide the basic operating budget from its own funds.

Other Government Institutions that can be expected to make economic contributions to the Institute are:

- a. Department of Public Works
- b. Puerto Rico Housing Bank
- c. Urban Renewal and Housing Corporation
- d. Urban Renewal and Housing Administration
- e. Social Programs Administration
- f. Puerto Rico Land Administration

3. Other possible sources of funds are:

- a. U.S. Government institutions that have to do do with housing. (National and International)
- b. Private builders and contractors
- c. International Institutions
- d. The College of Engineers, Architects and Surveyors
- e. Non-profit organizations
- f. Other Universities (Joint research activities)

- g. Banking and Financing Institutions**
- h. Any Government or private institutions interested in housing, or the construction industry in general, should be considered a potential source of resources for the Institute.**

**The Institute must have a Director who will be responsible to the Dean of the School of Engineering.**

**The Institute will have an Advisory Committee appointed by the Chancellor. (The composition of the Committee to be agreed).**

**The Staff of the Institute will consist of professors and graduate students and full time investigators.**

**Existing physical facilities such as laboratories and equipment will be made available to the Institute.**

**December, 1968**

Universidad de Puerto Rico  
Recinto Universitario de Mayagüez  
SENADO ACADEMICO  
Mayaguez, Puerto Rico

INFORME

A : Miembros del Senado Académico  
De : Comité de Asuntos Académicos  
Asunto: Propuesta para la creación de un Instituto de Viviendas (Housing Construction Institute) en la Facultad de Ingeniería

Algunos meses atrás el Senado Académico sometió al Comité de Asuntos Académicos de ese Senado las propuestas de la Facultad de Ingeniería para la creación de un Instituto de Transportación y un Instituto de Construcción de Viviendas (Housing Construction Institute)

El Comité de Asuntos Académicos del Senado sometió a la consideración del Senado Académico de la Institución, el día 21 de octubre de 1969 el Instituto de Transportación y el mismo fue aprobado por unanimidad por el Senado.

En varias reuniones del Comité de Asuntos Académicos se ha considerado la propuesta para la creación de un Instituto de Construcción de Viviendas (Housing Construction Institute).

La creación de este Instituto se discutió ampliamente en el seno del Comité con la participación efectiva de sus miembros aportando ideas y sugerencias respecto a las bondades de la creación de ese Instituto. Se discutió la propuesta con el decano de la Facultad de Ingeniería, Prof. Elmer Olivieri Cintrón.

Algunos miembros del Comité de Asuntos Académicos discutieron la deseabilidad de la creación del Instituto con los originadores de la propuesta.



Después de amplia discusión y debate en el seno del Comité de Asuntos Académicos del Senado de esta Institución hemos llegado a las siguientes conclusiones:

- 1) El problema de la construcción de viviendas en Puerto Rico es uno que en la actualidad puede considerarse de vital importancia especialmente por el crecido número de familias puertorriqueñas que carecen de albergue adecuado.
- 2) El volumen de inversión en este aspecto de la economía del país es de tal naturaleza que una idea que pueda reducir el costo en tan siquiera 1% representaría una economía de aproximadamente 10 millones de dólares.
- 3) La necesidad que hay en Puerto Rico de más albergues para humanos es tan grave que la rapidez con que se están construyendo y vendiéndose no permite el estudio de procedimientos más económicos, ni facilitan la búsqueda de materiales menos costosos.
- 4) La Universidad de Puerto Rico en Mayaguez tendría una magnífica oportunidad de participar en la preparación de personal capacitado para los menesteres de la construcción de viviendas en nuestra isla una vez se organizara el Instituto de Construcción de Viviendas (Housing Construction Institute) en la Escuela de Ingeniería.
- 5) Así mismo nuestra Institución podría actuar de instrumento divulgador de ideas en otros países de áreas circunvecinas.
- 6) Hemos podido constatar que existe tanto en agencias federales como estatales, fondos disponibles para el sostenimiento de dicho Instituto y de los proyectos que se originen en ese Instituto.
- 7) La necesidad de la creación de un Centro de Investigación sobre el problema de la vivienda fue uno de los tópicos señalados por el Hon. Luis A. Ferré, Gobernador de Puerto Rico en su mensaje a los cuerpos legislativos sobre el estado del país.

- 8) En más de una ocasión el actual Secretario de Obras Públicas de Puerto Rico el Hon. Antonio Santiago Vázquez ha indicado que el sitio para localizar ese Centro de Investigación no es otro que el Recinto Universitario de Mayagüez.
- 9) Después de justipreciar los argumentos arriba expresados el Comité de Asuntos Académicos del Senado endosa favorablemente la propuesta de la Facultad de Ingeniería para crear en esa Facultad un Instituto de Viviendas (Housing Construction Institute).

Respetuosamente sometido,

COMITE DE ASUNTOS ACADEMICOS

  
Virgilio Biaggi  
Presidente

20 de febrero de 1970

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