



## MEMORANDUM

Agenda Item 15(C)2

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To: Honorable Chairman Bruno A. Barreiro, and  
Members, Board of County Commissioners

Date: March 18, 2008

From: Honorable Harvey Ruvin, Clerk  
Circuit and County Courts

Subject: Re-appointment of Dr. Luis  
A. Prieto-Portar to the  
Environmental Quality Control  
Board (EQCB)

Kay Sullivan, Director  
Clerk of the Board Division

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It is recommended that the Board consider the re-appointment of Dr. Luis A. Prieto-Portar to the Environmental Quality Control Board (EQCB) whose term expires March 15, 2008.

Chapter 24-7 of the Code of Miami-Dade County provides that members of the EQCB be appointed by the Board of County Commissioners. The Department of Environmental Resources Management (DERM) has recommended the reappointment of Dr. Prieto-Portar to serve on the EQCB.

Attached for your review and information is a copy of DERM Director, Carlos Espinosa's memorandum and the resume of Dr. Luis A. Prieto-Portar.

KS:sm  
Attachment

# Memorandum

DATE: \_\_\_\_\_  
TIME: \_\_\_\_\_  
BY: \_\_\_\_\_

RECEIVED  
FEB 12 2008  
MIAH-0001

**Date:** February 12, 2008  
**To:** Linda Cave  
COC  
**From:** Carlos Espinosa, P.E., Director  
Environmental Resources Management  
**Subject:** Environmental Quality Control Board (EQCB) Re-appointment

Please find attached Dr. Luis A. Prieto- Portar, Ph.D. resume. Dr. Prieto- Portar's term in the EQCB is due to expire on March 15, 2008.

Inasmuch as the Board is composed of only 5 members, 3 members is the required minimum to establish quorum. Moreover, the EQCB has a large load of cases that are heard on a monthly basis, and many of these cases need a super majority vote to pass and the required number of votes in that case is 4. If the Board lacks a member, many of the petitioners ask for continuances until the Board can hear their cases, which results in overloaded agendas. Based on the above-noted considerations I am asking you to schedule this re-appointment before the BCC as soon as possible.

Thank you for your consideration.

Attachments

*A Brief Academic Curriculum Vitae*

*of*

Luis A. Prieto-Portar

*for*

*Enrique A. Cuellar, Chief of Code Coordination  
Miami-Dade Department of Environmental Resource Management*

*February 2008*

## I. GENERAL.

Name : Luis A. Prieto-Portar  
Address : 4025 Irvington Avenue, Coconut Grove  
Florida 33133-6111, USA  
Telephone: Home (305) 442-2109  
(FIU) Office (305) 348-2825  
(Cellular) (305) 972-2779  
E-mail: [prietol@fiu.edu](mailto:prietol@fiu.edu)  
Website: [www.fiu.edu/~prietol](http://www.fiu.edu/~prietol)

Citizenship: USA.

## II. UNIVERSITY EDUCATION.

June, 1963 Bachelor of Science (B.Sc.)  
Honors Physics-Mathematics, Magna cum Laude  
Université de Montréal, Montréal, Canada.  
  
Recipient of the Stanford Scholarship for  
Academic Excellence (1961-1963).

June, 1964 Masters of Science (M.Sc.) in Physics.  
Dartmouth College, New Hampshire

June, 1970 Masters of Science in Engineering (M.Sc.)  
Structures and Water Resources Programs,  
Department of Civil & Operations Research Engng.,  
Princeton University, Princeton, N.J.

June, 1971 Master of Arts in Engineering (M.A.)  
Structures and Geotechnical Engineering Program  
Princeton University, Princeton, N.J.

June, 1972 Doctor of Philosophy (Ph.D.)  
Princeton University.  
Dissertation title "An Elasto-plastic Stress  
Analysis of Ground Anchorages via Comparative  
Photo-elastic, Finite Element Analysis and Closed-  
Form Mathematical Solutions".

### III. PROFESSIONAL REGISTRATION.

State of New York      Professional Engineer # 55333 (PE)  
                                 Registered Structural Engineer (SE)  
State of New Jersey    Professional Engineer # 24467 (PE)  
State of Florida        Professional Engineer # 24588 (PE)  
                                 -State Special Structural Inspector #0453  
                                 -Cert. State General Contractor CGC010862  
                                 -Engineering Contractor # 1994-00041

### IV. ENGINEERING AND SCIENTIFIC SOCIETIES.

FELLOW, American Society of Civil Engineers (ASCE)  
Referee, National Council on Computer Practice  
Committee on Electronic Computation, Structural Division  
Reviewer, Journal of Computing in Civil Engineering  
FELLOW, American Concrete Institute (ACI)  
Committee 350: Environmental Engng. Concrete Structures  
Senior Member, National Society of Professional Engineers  
Senior Member, Florida Engineering Society  
Senior Member, Intl. Society for Soil Mechanics & Found. Engng.  
Member, Sociedad Española de Mecánica de Suelos y Cimentaciones.  
Founder, Hispanic Engineering Association  
Member, International Association for Housing Sciences  
Member, American Society for Engineering Education  
Member, National Order of the Engineer Society  
Member, TAU BETA PI (National Engineering Honor Society)  
Member, American Association for the Advancement of Science  
Member, American Physical Society (Institute of Physics)  
Member, Sigma Xi (Scientific Research Society of North America)

#### Service:

- Program Visitor, ABET (Accreditation Board of Engng. & Tech.);
- Exam. Writer, National Council of Engineering Examiners (NCEE)
- Head Judge (1996), National Excellence Awards (ACEC);
- Judge (1992-1995), American Council of Engineering Consultants
- Board Member, Environmental Quality Control Board (EQCB).

V. PROFESSIONAL EXPERIENCE.

2006-present United States Military Academy (West Point)  
Professor of Mathematics and Engineering  
(Joint Appointment with FIU)

Teaches Structural and Geotechnical Engineering courses, Finite Element Analyses and Numerical Methods courses.

1993-Present Florida International University  
Professor of Civil and Environmental Engineering

Teaches Structural and Geotechnical Engineering courses, Design of Tall Buildings, Highway Bridge Design, Port Engineering, Project Management, Dynamics of Structures and Finite Element Analyses courses.

1989-1993 City of Miami, Miami-Dade County  
Director of Public Works

Responsible for the design, construction and operation of a large city's infrastructure: streets, bridges, sanitary and storm sewers, marinas, stadiums, parks, convention centers, public buildings, etc.

1984-1989 Florida International University  
Chairman, Dept. of Civil & Environmental Engng.

First Chairman of ABET accredited program of the State University of Miami with 13 full-time and 10 part-time faculty. Prepared for, and successfully passed the department's two first ABET visits (October 1984 and December 1987). Initiated two Master degree programs (Civil and Environmental) on January 1985. Founded the School of Engineering's first microcomputer engineering laboratory in 1983.

1982-1989 Florida International University  
Elected Tenured Associate and Full Professor.

1977-1982 Kaiser Transit Group (and Kaiser Engineers)  
Chief Engineer and Chief Geotechnical Engineer

Manager of foundation investigation and design for Dade County's 7.1 Billion METRORAIL. Concurrently coordinated the design of aerial guideways along the 16 km South corridor, and maintenance yards at Medley.

1977-1989 Prieto Engineering Services Corporation.  
President (Florida Corporation founded in 1976).

Geotechnical/structural firm, with the following among many completed projects: at Miami, full development of Park Lakes by the Meadows project of 186 finished middle to high income housing, including Bard Road extension, bridges, roads, sanitary and storm sewer systems.

potable water system, and complete design and construction of 186 residences (valued at 93 million dollars); at Pinewood Grove and Pinewood Homes projects designed and built 46 luxury residences valued at 40 million dollars. Other projects include the finite element analysis for FDOT's new Tampa Bay Skyway Bridge; the 150 m high Chicrín tailings dam in Peru; three medium sized hydroelectric dams in El Salvador; planning and design of 1500 housing units for Sonsonate, El Salvador; tunnel consultant for BACHY (Paris) contractors for CARACAS METRO; foundation consultant for Dade's METRORAIL and DOWNTOWN PEOPLE MOVER; tunneling seismic analyst and instrumentation designer for Los Angeles Rapid Transit Authority.

1976-1977            Princeton University  
Research Associate.

Taught Finite Elements, Foundation Engineering, Tunneling and Construction Management. Developed a finite element program with anisotropic nonlinear materials and dynamic loading (FEMLAP).

1973-1976            Ministerio de Bienestar Social, Argentina.  
Under-Secretary of Housing and Urban Development.

Developed and executed Argentina's National Housing Program which resulted in the initiation and construction of 512,000 low income housing units with infra-structure and community facilities. Responsible for the financing programs of the National Mortgage Bank. Concurrently was Director of the National Housing Technology and Urban Planning Divisions, and Special Envoy (Ambassador rank) to Libya to execute a protocol to build 2,000 low income housing units.

1973                 Stump-Bohr A.G., Zurich, Switzerland.  
Project Engineer

Designed deep excavations employing slurry trench walls with earth anchor retention systems; tunnel stabilization techniques at St. Bernard highway tunnel, and at Basel, Bern, Zurich, Geneva storm drainage tunnels and at the double-arch concrete Emosson dam.

1972-1973            Geos S.A., Madrid, Spain.  
Project Manager

Managed the design of over 35 large geotechnical projects throughout Spain which included tunnels for the Madrid metro, a large copper smelter for Rio Tinto Patiño Corporation, large low-income housing projects, RENFE rail lines, schools, factories, hotels and marinas.

1970-1972            Port Authority of New York and New Jersey  
Assistant Chief Civil Engineer.

Performed traffic and pavement studies at Newark Intl. Airport; developed a structural computer program to design runways loaded by the first jumbo jets operated at PANYNJ airports (called PAVDES); initiated their first computer archive with civil data of PANYNJ airport

facilities (GIS); analysis of rock stability for PATH roadways; analysis of the World Trade Center slurry trench wall behavior; structural analysis checks on WTC structures, construction consulting on the WTC, etc.

1969-1972            Princeton University  
Research and Teaching Assistant.

Assisted Faculty in teaching the Advanced Mathematics for Engineers and structural and geotechnical courses. Participated as co-principal in a U.S. Navy research grant to find a solution to runway hydro-erosion of aircraft during heavy precipitation via optimal paving grooving, etc.

1967-1969            Universidad Centroamericana, Nicaragua  
Assistant and Associate Professor  
Director of Physical Planning & Laboratories.

Taught differential equations, differential geometry, and numerical methods applied to engineering.

1964-1967            Military service.

1960-1964            Ministry of Mines, Ottawa, Canada.  
Member and Chief, Geophysical Teams

Participated in five Arctic expeditions (to the Ungava and Koorsetia Peninsulas and Baffin, Devon and Ellesmere Islands) during three consecutive summers to measure and document subjects, such as terrestrial axial wobble, geophysical and geological mapping.

## VI. PUBLICATIONS IN ENGINEERING.

### Reference Textbooks:

07. "An Illustrated Glossary of Geotechnical and Foundation Engineering", Oxford University Press.

06. "An Illustrated Glossary of Traffic and Rapid Transit Engineering", Princeton University Press, 1983 (currently out of print).

### Teaching Textbooks:

05. "300 Solved Problems in Soil Mechanics and Foundation Engineering", under preparation for McGraw-Hill, New York;

04. "Port Engineering: Planning, Design and Construction", under preparation for McGraw-Hill, New York;

03. "Foundation Engineering: A Microcomputer Approach", HRL Publishing Company (Haldrige, Reynolds and Lehrer) Inc., New York, 1988.

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02. (with Carlos Perez), "Coordinate Geometry Training", Volume Two. Advanced Computer Graphics Lecture Series, Florida Department of Transportation, 1987.

01. (with Carlos Perez), "Interactive Graphics Training", Volume One. Advanced Computer Graphics Lecture Series, Florida Department of Transportation, 1986.

### Refereed Journals and Technical Proceedings:

- 56- Prieto-Portar, L., "The Structural Performance of Large Joint-less Reinforced Concrete Five-sided Box Modules", 2008 Structures Congress, ASCE Structural Engineering Institute, April 24-26 2007, Vancouver;
- 55- Prieto-Portar, L., Sadeghinia, M., "The Predicted Performance of Large Modular Systems of Prefabricated Housing Units for Tall Buildings in Zones of High-Seismic and Hurricane Induced Lateral Forces", paper accepted for publication in the Proceedings of the XXIII International Housing Conference, Pretoria, South Africa, 27-30 September 2005;
- 54- Prieto-Portar, L., "The Effects of Grouting Miami's Oolitic Limestone Formation: heuristics for voids ratios, porosity and unit weights versus depth", submitted to the Journal of Soil Mechanics and Foundations, ASCE, July 2005;
- 53- Prieto-Portar, L., "The Elasto-Plastic Behavior of Bond Strength between High-Strength Steel and High Performance Concrete: A Proposal for New Reinforcing Bar Corrugations to enhance bonding", submitted to the Journal of Structural Engineering, ASCE, June 2005;
- 52- Prieto-Portar, L., "A Mathematical Model Correlating the Permeability, Voids Ratios and Unit Weights of the Weakly-Clastic Limestones and Sandstones of the Florida Carbonate Platforms", Soils and Foundations, SEMSC Vol. 44, October, 2004;
- 51- Prieto-Portar, L., "Connectivity Solutions for Composite Shear Walls in Modular High-rise Buildings", Journal of the Council for Tall Buildings, New York, June, 2004;
- 50- Prieto-Portar, L., "Shear Moduli for Multi-layered Floor Overlays in Modular High-rise Buildings", Journal of the Council for Tall Buildings, New York, December, 2003;
- 49- Prieto-Portar, L., "Dredging the Miami and Fort Thompson Limestones in the Port of Miami: Equipment and Methods", ASCE Florida Meeting, 2003;
- 48- Prieto-Portar, L., "A Flutter Model of Glass Panes in Rubber Gasket Joints during High Winds", ASCE Florida Meeting, 2002;
- 47- Prieto-Portar, L., "Elasticity of Foundations: The Range of Poisson's Ratios in Granular Sediments of Calcareous Origins", Proceedings SEMSC, June 2002;
- 46- Prieto-Portar, L., "An Analysis of the Predicted Drift of Tall Buildings Via a Comparison between the ETABS and ROBOT MILLENIUM software

- packages versus moment-distribution hand-calculations", Journal of the Council for Tall Buildings, New York, January 2002;
- 45- Prieto-Portar, L., "A Preliminary Model of Two-Way Shear (Punching) Failure of Mat Foundations on Weak Clastic Limestones", Soils and Foundations, SEMSC Vol. 41, October, 2001;
  - 44- Prieto-Portar, L., "Case Studies of Grouting in Miami and Fort Thompson Limestones", Soils and Foundations, SEMSC Vol. 41, October 2001;
  - 43- Prieto-Portar, L., "Post-tensioning of Modular Housing in Tall Residential Buildings: the Drawbacks and Advantages", Journal of the Council for Tall Buildings, New York, September 2000;
  - 42- Prieto-Portar, L., "Summary of Soil-Rock Parameters of Miami-Dade County: A County Wide Study", ASCE Florida Meeting, 2000;
  - 41- Prieto-Portar, L., "Deflection of Thin Clastic Strata under Large Loads via the Finite Element Method", Soils and Foundations, SEMSC Vol. 40, April 2000;
  - 40- Prieto-Portar, L., "A Preliminary Analysis of Sternum-to-Ribs Deformations under Traumatic Loading via the Finite Element Method", Xth European Symposium on FEM in Applied Mathematics, Barcelona, 1999;
  - 39- Prieto-Portar, L., "Over-predicted Bearing Capacities on Surficial Limestones of the Florida Carbonate Platform, due to the Distortion of the Angles of Internal Friction", ASCE Florida Meeting, August, 1999;
  - 38- Prieto-Portar, L., "Warp Weakening of Steel Sheet-piling due to Portal Loading at Wale Connections", Soils/Foundations, SEMSC Vol. 39, May, 1999;
  - 37- Prieto-Portar, L., "A Preliminary Analysis of Tree Moisture Absorption: A Proposal for Re-Forestation to Reduce Runoff in Urban Developments", 22nd Annual Conference in Water Management, Tampa, November, 1998;
  - 36- Prieto-Portar, L., "3D Deformation of Mat Foundations: Effect upon Total Drift and Inter-story Drift", Journal of the Council for Tall Buildings, New York, December, 1998;
  - 35- Prieto-Portar, L., "A Model to Predict the Groutability of Limestone: Voids Ratios and Permeabilities versus SPT", ASCE Florida Meeting, October, 1997;
  - 34- Prieto-Portar, L., "FE Stress Analysis of Concrete Modular Boxes Subjected to Early Tensile Stress", ACI Concrete Intl., January 1997;
  - 33- Prieto-Portar, L., "FE Seepage Flow Analysis Through Canal-111 Levees: A Proposal for the Stabilization of Weakened Soils", 20th Annual Conference in Water Management, Orlando, September, 1996;
  - 32- Prieto-Portar, L., "A Runoff Study for the West Palm Beach South-Eastern Basin", ASCE Florida Meeting, August, 1996;
  - 31- Prieto-Portar, L., "The Soil-Structure Interface Problem: Improper Use of

- Subgrade Modulli in lieu of a Deep Profile Elasto-Plastic Analyses",  
Soils and Foundations, SEMSC Vol. 35, June, 1995;
- 30- Prieto-Portar, L., "A New Articulated Wall Panel Forming Machine for Modular Housing", ACI, Concrete International, March, 1994;
  - 29- Prieto-Portar, L., "Hydraulically Pumped Pea-grout Concrete for Complex Modular-form Casting Machines: Test Mixes and Constraints", ACI, Concrete International, January, 1993;
  - 28- Prieto-Portar, L., "A Proposal for an Articulated Concrete Forming Machine that Casts a Complete 60 m<sup>2</sup> Modular Housing Unit per Day", ASCE Florida Meeting, September 1992;
  - 27- Prieto-Portar, L., "The Structural Repair of the Orange Bowl: Miami's 1926 Aging Stadium", ASCE Florida Meeting, 1991;
  - 26- Prieto-Portar, L., "A Statistical Analysis of Thirty Years of Planned Social Housing in Cuba", XVIth International Conference, IAHS, 1991;
  - 25- Prieto-Portar, L., "Engineering Strength and Elastic Properties of Oolitic Limestones in Florida", ASCE Florida Meeting, 1990;
  - 24- Prieto-Portar, L., "The City of Miami's Innovative Storm-water Utility Fund: A First in Florida", 15<sup>th</sup> Annual Conference in Water Management, Tampa, 1991;
  - 23- Prieto-Portar, L., "A Mobile Computer Aided Engineering (CAE) Training Systems Design", 10th National Intergraph Conference on Interactive Graphics, Las Vegas, 1989;
  - 22- Prieto-Portar, L., "The Urban and Housing Growth Patterns of Buenos Aires (1650-1970)", XVth International Conference, International Association of Housing Sciences, Bangalore, 1988;
  - 21- Prieto-Portar L., "Computer Graphics Training and Research in Transportation", International IGUG Conference, Huntsville, AL, 1988;
  - 20- Prieto-Portar L., Barrio-Lage G., "Hazardous Waste Fixation of Heavy Metals Via Cementitious Encapsulation", ASCE, JSMFE Division, 1988;
  - 19- Prieto-Portar L., "The Financial and Monetary Policies of Governmental Mass Housing Projects", Journal of IAHS, Vol. 12, 1988;
  - 18- Prieto-Portar L., "Mobile CAD Facilities: An Innovative Teaching Venue", Third Intl. Conf. on Engineering Graphics and Geometry, Vienna, 1988;
  - 17- Prieto-Portar L., "The Funding Mechanisms for 525,000 units of Social Housing in Argentina, 1972-1976" XIV IAHS World Congress, Berlin, 1987;
  - 16- Prieto-Portar, L., "Florida DOT gets the MOST for its money", Intergraph, InterVue Journal, Vol.6, No.3, 1987;
  - 15- Prieto-Portar L., "Control of Hazardous Wastes in Soils through Encapsulation," ASCE Florida Meeting, Fort Myers, 1987;

- 14- Barrio-Lage G., Prieto-Portar L., Escobar J., "In-Situ Fixation of Heavy Metals in Contaminated Soils", Part II, Sequential Extractions. Journal of Environmental Engineering, Environmental Science and Technology, American Chemical Society, 1987;
  - 13- Barrio-Lage G., Prieto-Portar L., Escobar J., "In-Situ Fixation of Heavy Metals in Contaminated Soils", Part I, Journal of Environmental Engineering, Environmental Science and Technology, American Chemical Society, 1987;
  - 12- Prieto-Portar L., "A Compilation of Available Software in Civil Engineering," Seminar on Computers in Civil Engineering, ASCE National Conference, Miami, 1987;
  - 11- Prieto-Portar L., "The Analysis and Design of Cable-Stayed Bridges through the Finite Element Method", II European Symposium on the FEM in Applied Mathematics, Barcelona, 1986;
  - 10- Prieto-Portar L., "Finite Element Analysis Tampa's New Skyway Bridge," ASCE Florida Branch Proceedings, Miami, 1985;
  - 09- Prieto-Portar L., "Summary Evaluation of the Miami-Dade County Metro Mover Foundations," ASCE First International Conference on Automated People Movers, ASCE Urban Transportation Division, March 1985;
  - 08- Prieto-Portar L., "The Performance of the Deep Foundations of METRO-RAPID", (Dade County Rapid Transit), ASCE Florida Annual Conf., 1984;
  - 07- Prieto-Portar L., "Elastic and Strength Properties of Calcareous Rocks of Dade County, Florida", ASTM MONOGRAPH STP 777, Washington DC, 1982;
  - 06- Prieto-Portar L., "The Seismic Stability of Large Tailing Dams," Sixth Panamerican Conference on Soil Mechanics and Foundation Engineering, Lima, Peru, 1980;
  - 05- Prieto-Portar L., "The Finite Element Analysis of Earth Anchors used in Rapid Transit Systems", Third International Conference on Numerical Methods in Geo-mechanics, Aachen, Germany, 1979;
  - 04- Prieto-Porter L., "Soil-Structure Interaction Similitudes", Second Annual Workshop on the Information Linkage between Applied Mathematics and Industry, Naval Postgraduate School, Monterrey, California 1979;
  - 03- Prieto-Portar L., "Earth-Anchors: A Study of their Load Transfer Analysis using the Comparative Photo-elastic, Closed-form Analysis and Finite Element Methods", University Microfilms International, Ann Arbor, 1978;
  - 02- Prieto-Portar L., "Earth Anchors: A State of the Art Report", Technical Report No. SM-7-77, Princeton University, 1977;
  - 01- Prieto-Portar L., "Statistical Analysis of Costs of the Largest Social Housing Program in Latin America: Argentina 1946-1976," Department of Civil and Geological Engineering, Technical Report SM-6-77, Princeton University, 1977.
- Writer of 21 FE software sub-routines, provided free-of-charge to students, in the fields of structures, geo-mechanics, and GIS (called FEMLAP).

**VII. RESEARCH GRANTS AND PATENTS (only at FIU).**

A. "FIU-Miami Dade County Partnership Program" with Miami-Dade County's Water and Sewer Department. This is a new proposal to involve our Department in water resources research and professional development for WASD. The total project funding is \$ 500,000 for up to five years. This proposal has been accepted by both FIU and M-D County administrators, and is currently on the Consent Agenda for the 11 October 2007 Board of Miami-Dade County Commissioners Meeting.

PI: Luis A. Prieto-Portar and Co-PI: Derrin Tansel.

B. "FIU-Miami Dade County Partnership Program" with Miami-Dade County's Department of Environmental Resource Management. This is a new proposal to involve our Department in three areas of environmental research: sanitary landfill closure using geo-textiles, contaminant migration in the Miami River and Biscayne Bay estuaries, and other currently unspecified areas. The total project funding is currently set at \$ 400,000 for up to five years. Approval for a 75%-25% split in approval between County and FIU (respectively) is the final step for this project.

PI: Derrin Tansel and Co-PI: Luis A. Prieto-Portar.

C. Principal Investigator, "Computed Aided Engineering (CAE) Graphics Software Development and Engineering Training", funded by Florida Department of Transportation:

Phase V (1990)	355,000.
Phase IV (1989)	200,000.
Phase III (1988)	300,000.
Phase II (1987)	274,000.
Phase I (1986)	<u>642,000.</u>
Total	\$ 1,771,000.

D. Principal Investigator, "Encapsulation of Heavy Metals in Contaminated Soils", research funded by FIU/FAU Joint Environmental Research Center, 1985, \$ 5,000.

E. Principal Investigator, "In-Situ Treatment of Contaminants in Soils" research funded by Futura Corporation, (1984), \$ 11,000.

F. US Patent (1998), held jointly with TECTONICS USA: "THE CONEXUS SYSTEM: Joining Composite-Shear-walls in Reinforced Concrete Modular Housing Units via Formed-corrugated Joints and Gunwales".

G. US Patents (1996), held jointly with IFC-International Corp.: "THE LINK-FORM SYSTEM: Centrally Articulated Wall Forms for Clear De-Forming of Concrete Formwork Machines, as Applied to High-Rise Modular Residential Buildings, Power Transformer Vaults and other Large Enclosures".

H. US Patents (1995), held jointly with IFC-International Corp: "Internal Bracing and Lock Systems for Large-Scale Concrete Forming Machines used for Modular Housing to Control Deformations of External Form-walls Subjected to Hydraulic Wet Concrete Pressures and Warping from Hauling Loads".

- I. US Patents (1992), held jointly with IFC-International Corp: "Hydraulic Injection of Pea-grout Concrete via Jet-Ports Located at Slab Levels of Large-Scale Concrete Forming Machines to Eliminate Bridging & Honeycombing".
- J. US Patents (1986): "THE SYNCHRO-JACK SYSTEM: Electro-mechanically Synchronized Hydraulic Lifting System to Raise Large Buildings and Structures for Under-Pinning Operations, Mining and Other Applications".
- K. U.S. Patent (1985), held jointly with G. Lange: "Encapsulation of Heavy Metal Contaminants in Soils with Cementitious Matrices".

#### VIII. RECENTLY ORGANIZED SEMINARS AND CONFERENCES.

- Guest Speaker, Massachusetts Institute of Technology (Lincoln Laboratories, Concord, Mass.) 2004, 2005, 2006;
- Academy Guest Speaker, Plebe Cadet Class Annual Speaker, United States Military Academy (West Point) 2001-present;
- Guest Speaker, Princeton University (1982 through 2001);
- Guest Speaker, University of Miami (1980-1984);
  
- Co-organized the 4th World Conference of Engineering Computer Graphics and Descriptive Geometry, sponsored by the American Society of Engineering Education, and held at FIU, Miami in June 1990.

#### IX. SPECIAL CONSULTANT.

- United Nations, ECOSOC Member Consultant (UN Delegate through the ICA International Association of Housing Sciences).
- World Bank (African Bureau, via V.I.T.A.).
- Miami-Dade County: Port Operations and Transport-Rapid Transit Department.
- Miami-Dade County, Board Member, Environmental Quality Control Board.
- Sierra Club, Special Consultant, Everglades National Coalition.
- Dam Safety Board Member, South Florida Water Management District.

#### X. LANGUAGES.

Fluent in English, Spanish, French and Portuguese.  
Converses, reads and writes in German and Italian.  
Currently studies Japanese, Arabic and Catalán.

#### XI. MISCELLANEOUS.

- Conducts research on coaxial rotor systems for experimental prototype rotorcraft with rigid rotor systems (holds Commercial Pilot License - FAA #1739603, Multi-engine; Instruments; fixed-wing and rotorcraft ratings).