ACHIEVEMENTS AND AWARDS

Dr Anil Kar, Proprietor, Engineering Services International, is well known in India and abroad for his contributions to the state-of-art in many areas of engineering. He graduated in civil engineering in 1962 and received his master of science and doctorate in civil engineering degrees in 1969 and 1971, respectively, from the Pennsylvania State University. Dr Kar received his Professional Engineer License in the USA in 1973. Dr Kar's biographies are listed in International Who's Who in Engineering, Who's Who in the World, International Who's Who of Intellectuals, 2000 Personalities of the Millennium, 5000 Personalities of the World, Who's Who in the Commonwealth, Who's Who in Asia, Who's Who in the East, International Who's Who in Community Service, Who's Who in Science and Engineering and many other biographical books of reference.

Dr Kar, a registered Professional Engineer in the Commonwealth of Pennsylvania, USA, is a Fellow of the American Society of Civil Engineers and of various other professional societies.


THE
INTERNATIONAL WHO'S WHO
OF INTELLECTUALS

International Biographical Centre, Cambridge, England

This Certificate of Inclusion
has been awarded to

Dr Anil K Kar Ph.D. P.E.

in recognition of distinguished
achievements which are recorded in the
International Who's Who of Intellectuals
Volume IV

Signed and sealed in Cambridge, England

Date December 1980

Authorized Officers of
the International Biographical Centre

Dr Anil Kar, PE is a recipient of the American Society of Civil Engineers State-of-the-Art of Civil Engineering Award, 1981 as well as the CIDC Vishwakarma Award 2013 from Construction Industry Development Council. In recognition of the great significance of his innovation, the PSWC-bar, a reinforcing bar with amazing properties the American Society of Civil Engineers recognized Dr Kar with its Henry L. Michel Award for Industry Advancement of Research on March 26, 2015. In recognition of his vast contributions in the field of concrete structures and concrete constructions, the Indian Concrete Institute honoured Dr Anil K Kar by bestowing upon him the ICI Award for Life Time Achievement on October 10, 2015, whereas for leadership demonstrated throughout his career, his embodiment of professional ethics, service to his colleagues and to his profession, and his contribution of innovation and technical advancements to the civil engineering profession, the American Society of Civil Engineers and the Geoprofessional Business Association jointly awarded Anil K Kar, Ph.D., F.IE (I), F. ASCE the Professional Practice Ethics and Leadership Award on October 13, 2015. In recognition of his Excellence in Corrosion Science & Technology in Quality Management & Control, the Gateway India Section of NACE International awarded Dr. Kar the Corrosion Awareness Award – 2019 on 24 September 2019.

Construction Industry Development Council

CIDC Vishwakarma Award 2013

Upon the Recommendation of the Jury,
This Scroll of Commendation is hereby presented to

Dr. Anil K. Kar, Engineering Services International

For Category

Achievement Award for Academician / Scientist / Technologist / Innovator

March 7, 2013
New Delhi

Shri Chander Verma
Chairman, CIDC

Dr. Uddesh Kohli
Chairman Emeritus, CIDC


THE HENRY L. MICHEL AWARD FOR INDUSTRY ADVANCEMENT OF RESEARCH
Recognizing
Anil K. Kar, Ph.D., F.ASCE
2015
ASCE
AMERICAN SOCIETY OF CIVIL ENGINEERS

INDIAN CONCRETE INSTITUTE

CIVIL - AID

ICI - Civil Aid Award for Life Time Achievement

for the year 2015 Awarded to

Dr. Anil K. Kar

Dr. Kar, maintaining the highest standards of ethics in professional practice and personal dealings, has over fifty years' experience in Engineering, Research, Analysis and Design for nuclear power plant facilities in different countries, Weapon Design, Missile Impact, Warheads and Explosion, Shock and Vibration, Structural Rehabilitation and Enhancement of Life Span of Concrete Structures.

He is the author of over one hundred and eighty technical publications, and a reviewer of technical reports and publications and Guest Editor of international journals. He was an examiner of masters and doctoral thesis of Indian universities, has guided and continues to guide students at different universities.

For over a decade, he provided extensive consultancy services to Atomic Energy Regulatory Board and to Nuclear Power Corporation of the Department of Atomic Energy in India. He has the distinction of being the first Indian Consultant to DRDO of the Ministry of Defence, Govt. of India. He also developed the well-known Kar Formulae on the phenomenon of missile impact, used worldwide in weapon design and protective design for missile impact.

He is the developer of PERMAKAR TECHNOLOGY for Structural Rehabilitation, Waterproofing Systems and Protection of Structures against Corrosive Elements. His work changed an age-old concept on the effect of buoyancy on structural overturning, showing that buoyancy has no role in structural instability due to overturning.

He has worked extensively on seismic qualification of equipment, systems, etc. for many nuclear power projects in India and abroad. The semi-rigid seismic support systems for electrical cable trays and HVAC ducts, a standard design practice for all nuclear power plants worldwide since 1974, is Dr Kar's contribution.

His pioneering work in waterproofing of structures and his concept of total structural protection through waterproofing, as a means to a long life for concrete structures, have been finding ever increasing recognition. It is codified in IS 456. Indian Railways, Indian Road Congress and National Highway Authority of India have followed suit.

Dr. Kar's creation of PSWC bar, a rebar with a plain surface and a gentle wavetype configuration, has the potential to replace the present generation rebars with surface deformations. The use of PSWC bars can save lives, and reduce environmental degradations life cycle cost of concrete structures. The innovation has led to Dr. Kar receiving the 2015 Henry L. Michel Award for Industry Advancement of Research from ASCE. In 2013, he was awarded the CIDC Vishwakarma Award by CIDC.

ICI honours Dr. Anil K. Kar by bestowing upon him "ICI Award for Life Time Achievement", on this 10th day of October 2015 at the 32nd AGM at Kolkata.

Secretary General, ICI

President, ICI


ICI
INDIAN CONCRETE INSTITUTE
ICI AWARD
FOR
LIFE TIME ACHIEVEMENT
PRESENTED TO
Dr.ANIL KRISHNA BAR
ON 10th OCTOBER 2015 AT KOLKATA

ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS

GBA GEOPROFESSIONAL BUSINESS ASSOCIATION

This is to recognize that

Anil K. Kar, Ph.D., F.IE(I), F.ASCE

is awarded

THE PROFESSIONAL PRACTICE
ETHICS AND LEADERSHIP
AWARD

For leadership demonstrated throughout his career, his embodiment of professional ethics, service to his colleagues and to his profession, and his contribution of innovation and technical advancements to the civil engineering profession.

2015

BY AUTHORIZATION OF

Robert D Stevens

ROBERT D. STEVENS, PH.D., P.E., F.ASCE
President, ASCE

GORDON M. MATHESON, PH.D., P.E., P.G., D.GE.
President, Geoprofessional Business Association

NACE INTERNATIONAL GATEWAY INDIA SECTION

CORROSION AWARENESS AWARD - 2019

for

Excellence in Corrosion Science &
Technology in Quality Management & Control

presented to

Dr. Anil Krishna Kar

on 24 September 2019

for his contribution to the field of
Corrosion Science and Technology

N Manohar Rao
Trustee, NIGIS

U. Kamachi Mudali
Chairman, NIGIS


NACE
GATEWAY INDIA SECTION
Excellence in Corrosion
Science & Technology in
Quality Management & Control
Dr. Anil Krishna Kar

Dr Anil K. Kar, PE is the holder of several Indian and international patents.

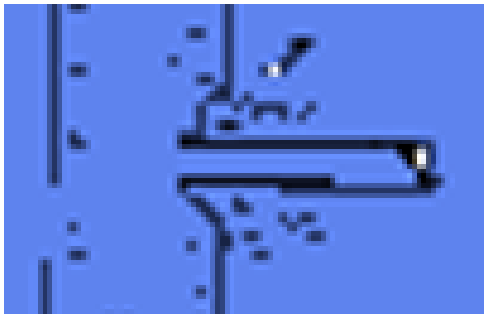
Dr Kar has over fiftyseven years' experience in engineering management, research, analysis and design for structural systems, engineering for nuclear power plant facilities in different countries, industrial and other projects, weapon design, missile impact, warheads and explosion, shock and vibration, structural rehabilitation. Dr Kar has to his credit many innovative and award winning designs. Dr Kar was member and chairman/president of numerous local, national and international committees. Dr Kar is the author of about two hundred technical publications, and a reviewer of technical reports and publications and guest editor of international journals. Dr Kar is also an examiner of masters and doctoral theses of Indian universities. He is also a co-guide of research work at different universities.

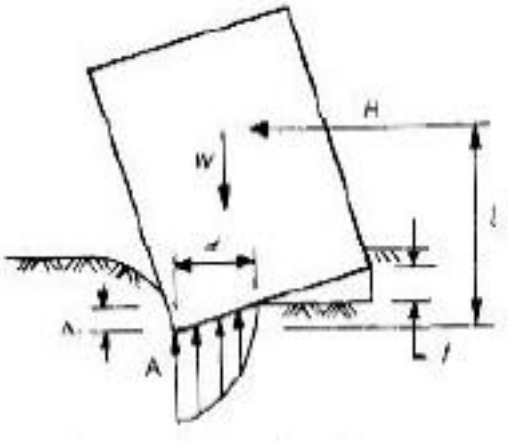
As a UN Specialist, Dr Kar was a Consultant to Saha Institute of Nuclear Physics and to Jadavpur University in 1981-1982. For over a decade he provided extensive consultancy services to Atomic Energy Regulatory Board and Nuclear Power Corporation of the Department of Atomic Energy in India. He also has the distinction of being the first Indian Consultant to Defence Research and Development Organisation of the Ministry of Defence, Govt. of India, for whom he has executed several consultancy assignments over the years.

Dr Kar is the developer of PERMAKAR TECHNOLOGY for structural rehabilitation, waterproofing systems and protection of structures against water and corrosive elements.

Dr Kar's concept of enhancement of life span of concrete bridges and other structures through surface protection in the nature of waterproofing treatment is today widely practiced.

Dr Anil K. Kar, PE is the developer of the well-known Kar Formulae on the phenomenon of missile impact, used worldwide in weapon design and protective design for missile impact.





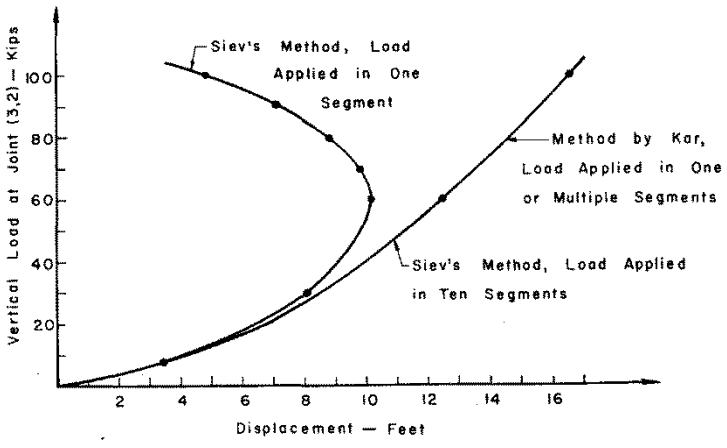
Dr Kar's work changed a centuries-old concept on the effect of buoyancy on structural overturning, showing that buoyancy has no role in structural instability due to overturning, leading thereby to savings of billions of dollars in construction cost.

Dr Kar has worked extensively on seismic qualification of equipment, systems, etc. for many nuclear power projects in India and abroad. His contributions in the area led to many improvements in the field of seismic qualification of nuclear power plant equipment and systems. The semi-rigid seismic support systems for electrical cable trays and HVAC ducts, a standard design practice for all nuclear power plants worldwide since 1974, is another of Dr Kar's contributions.

Dr Kar developed and received a patent on the highly ductile cement composite KARCRETE, having exceptional strength in flexural tension and enormous capacity in energy absorption.

Dr Kar's work led to the concept of deep slab in the design of very thick foundation slabs and attendant savings in the cost of construction of such slabs. Similarly, his work led to the recognition of sufficiency of consideration of cracked section and thus reduced load in the design for thermal effects in concrete structures.

Dr Kar, the co-developer of the Kar-Okazaki method for the analysis of nonlinear systems, showed that analysis for highly nonlinear systems too will converge if the mathematical formulations will be correct. He also gave an algorithm for fast convergence in analysis for nonlinear systems.



In recognizing that concrete structures, built during the last fifty years or so, showed signs of decay and distress early in life, Dr Kar came out with the concept of enhancement of life span of concrete structures through surface protection in the nature of waterproofing treatment.

The present practice of protecting concrete bridges with surface protection systems is a result of Dr Kar's untiring efforts.

Engineers in the USA too have followed suit. They have started giving surface protection to concrete structures in recent years.

Dr Kar's pioneering work in waterproofing of structures and his concept of total structural protection through waterproofing as a means to a long life for concrete structures have been finding ever-increasing recognition. The Central Public Works Department of the Government of India have decided to protect their concrete structures through surface protection by waterproofing. The Public Works (Roads) Directorate of the Government of West Bengal have adopted specifications under Dr Kar's PERMAKAR Technology for the repair and waterproofing of bridge structures. Dr Kar's viewpoints on the importance of surface protection systems by waterproofing for the enhancement of life span or durability of concrete structures have found expressions in the Indian code IS 456:2000 and in IRC:SP:80-2008. The Indian Railways too have agreed, and they adopted as a part of the Indian Railways Unified Standard Specifications & S.O.R., published in the year 2010, a comprehensive set of specifications on the surface protection of their bridges and other concrete structures by waterproofing treatment in the line of PERMAKAR Technology.

In November 2019, the Indian Railway Board issued the 'Indian Railways Unified Standard Schedule of Rates' (IRUSSOR-2019) and 'Indian Railways Unified Standard Specifications (IRUSS-2019)' for the surface protection of concrete bridges in the line of specifications developed by Dr Kar.

Following the concept of enhancement of life span of concrete structures through surface protection in the nature of waterproofing treatment, Dr Kar came out with the award-winning pioneering concept of PSWC bar, the use of which, at no cost addition, leads to several-fold enhancement of life span, ductility and energy absorbing capacity and significant increase in load-carrying capacities of reinforced concrete elements.

Dr Kar's creation, PSWC-bar, a rebar of carbon steel, with a plain surface and a wave-type configuration, with its capacity to enhance the life span of concrete structures several fold, and to impart great ductility and energy absorbing capacities, without having to incur any additional cost, has the potential to replace the present generation of high strength steel rebars with surface deformations. The use of PSWC-bars can save lives, reduce environmental degradations, lower life cycle cost of structures, and reduce the total global CO_2 emission by about 5.0% by cutting down on the need for cement production. With the reduction in cement and rebar production, there will be corresponding lessened global warming of the environment, all at no added effort or cost.