



EARTHQUAKE ENGINEERING RESEARCH INSTITUTE

Founded in 1948, EERI's mission is to reduce earthquake risk by (1) advancing the science and practice of earthquake engineering, (2) improving understanding of the impact of earthquakes on the physical, social, economic, political, and cultural environment, and (3) advocating comprehensive and realistic measures for reducing the harmful effects of earthquakes.

NEWS OF THE INSTITUTE

▶ 2017 EERI Board Election Results



John Anderson



Barry H. Welliver

Thank you to all the EERI members who took the time to consider and choose from exceptional candidates for the 2017 EERI Board of Directors.

We congratulate and welcome **John Anderson** (M. EERI, 1980) Seismological Lab, University of Nevada-Reno, Reno, NV, and **Barry Welliver** (M. EERI, 2002) Structural Engineer, BHW Engineers, Draper, UT, who were each elected to serve two consecutive two-year terms. The new directors will assume their posts at the first 2017 Board of Directors meeting in March. We thank candidates **Brent Maxfield** (M. EERI, 2005) and **Woody Savage** (M. EERI, 1975) for their support and dedication to the Institute.

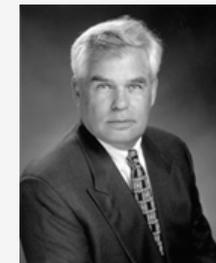
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▶ Chris Rojahn to Receive the 2017 Alfred E. Alquist Medal

Chris Rojahn (M. EERI, 1973), Director Emeritus for the Applied Technology Council, is the 2017 Alfred E. Alquist Special Recognition Medal winner. Mr. Rojahn will receive the honor at the 2017 EERI Annual Meeting in Portland, OR on March 9.

The Alquist Medal is awarded to an individual, company, or organization that has made substantial contributions to the field of seismic safety and earthquake risk reduction, having directly affected the seismic safety of the general population. The Alquist Medal recognizes career contributions or notable and/or singular achievements: a significant contribution to the public good is the primary selection criterion.

Mr. Rojahn led the Applied Technology Council (ATC) for 34 years as its Executive Director until his recent retirement. He has been a member of EERI since 1973, and served on the Board of Directors for the Northern California chapter of the Institute between 2006-2009. During his tenure at ATC, Chris served in a leadership role on a wide range of research and development projects, and has served as Principal Investigator/Project Manager/Senior Advisor on more than 60 major projects, but his contributions go



Chris Rojahn

beyond his technical development efforts. Mr. Rojahn spent his career disseminating information from ATC projects into professional practice, identifying structural engineering research needs both nationally and internationally, and advocating for hazard mitigation policy and investment decisions at the federal, state, and local government levels. Through Chris' dedication to hazard mitigation, many technical advances in structural engineering practice and changes to policy have taken place.

Mr. Rojahn's career exemplifies the attributes of Alquist Award recipients who have advanced seismic risk reduction through the integration of science, practice, education and public policy.

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► Get ready - Annual Meeting registration to open December 1!

Thanks to the local organizing committee in Portland, skillfully led by Carmen Merlo (M. EERI, 2013) and Jeff Ruben, the 2017 EERI Annual Meeting program is now complete. The meeting theme is "The Really Big One: Road to Resilience," inspired by the recent renewed attention on the risks posed by the Pacific Northwest's Cascadia Subduction Zone.

We will continue highlighting special sessions, distinguished lectures and honors to bestow in the Pulse and through emails to our members. The EERI Student Leadership Council is hard at work organizing the 14th Annual Undergraduate Seismic Design Competition. The meeting website with full program details and registration will open on December 1, **get ready!**



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► In Memoriam: Vitelmo V. Bertero

Vitelmo V. Bertero

May 9, 1923 – October 24, 2016

(Adapted from PEER, <http://peer.berkeley.edu/news/2016/10/vitelmo-v-bertero-october-24-2016/>)

Vitelmo V. Bertero was professor emeritus of civil and environmental engineering at the University of California, Berkeley. Professor Bertero was a worldrenowned pioneer, expert, and leader in the field of earthquake engineering.

In 1947 Bertero received his degree in Civil Engineering from the Facultad de Ciencias Matemáticas, FísicoQuímicas y Naturales, Universidad del Litoral, Rosario, Argentina, his native country. He received his M.S. and his Sc.D. degree in civil engineering from Massachusetts Institute of Technology. In 1958 he joined the Department of Civil Engineering at UC Berkeley, where, from 1988 to 1990, he was the Director of the Earthquake Engineering Research Center at Berkeley, the predecessor to PEER – Pacific Earthquake Engineering Research Center, and a hub for analytical and experimental earthquake engineering research, information resources, and public service programs.



Vitelmo V. Bertero

Bertero inspected structural and nonstructural damage after numerous major earthquakes throughout the world, including the 1964 Alaska, 1967 Caracas (Venezuela), 1971 San Fernando (CA), 1972 Managua (Nicaragua), 1976 Guatemala, 1977 Caucete, San Juan (Argentina), 1979 Imperial Valley (CA), 1980 El Asnam (Algeria), 1983 Oga Peninsula (Japan); 1983 Coalinga (CA), 1985 Chile, 1985 Michoacan (Mexico), 1986 San Salvador, 1987 Whittier Narrows (CA), 1988 Spitak (Armenia), 1989 Loma Prieta (CA), 1990 Luzon (Philippines), 1992

Erzincan (Turkey), 1992 Flores (Indonesia), 1994 Northridge (CA), and 1995 Kobe (Japan) earthquakes. He brought his observations into his research and the classroom.

Professor Bertero published more than 350 papers and reports on various issues in earthquake engineering and received numerous national and international awards for his teaching and original research efforts. For decades he collaborated on joint research with his colleague at UC Berkeley, Egor Popov.

In 1990 he was awarded the Berkeley Citation, UC's highest honor. Among other awards in the US, he received the ASCE Nathan Newmark Award (1991); ACI Arthur Anderson Award (1989); AISC T.R.Higgins Lectureship Award (1990); and EERI Housner Medal (1995). In 1990, Engineering News Record recognized him as the "Construction Man of the Year" for "advancing the science of earthquake engineering," and described him as the "impassioned professor who advances earthquake engineering through research."

Professor Bertero was elected to the Academy of Science of Argentina (1971); Academy of Engineers of Argentina (1989); and the U.S. National Academy of Engineering as Foreign Associate (1990). He was an Honorary Member of the American Concrete Institute (ACI), Fellow of the American Society of Civil Engineers (ASCE), Honorary Member of the Structural Engineers Association of Northern California, and member of EERI.

From 1988 to 1992 he was a member of the Advisory Committee to the United States Congress regarding the National Earthquake Hazards Reduction Program (NEHRP). From 1992 to 2000 he was a Director, representing the United States, of the International Association of Earthquake Engineering (IAEE).

During his nearly 50-year career at Berkeley and with international activities, Professor Bertero taught, advised, and mentored generations of students, postdoctoral fellows, research associates, as well as practicing engineers, many of whom are now well-known experts and leaders in earthquake engineering. Professor Bertero said "nothing is more rewarding than witnessing the success of former students and research associates."

EERI produced an Oral History for Professor Bertero in 2009:

<https://www.eeri.org/site/images/projects/oralhistory/bertero.pdf>

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► In Memoriam: Ray W. Clough

(Submitted by Anil K. Chopra)

Ray W. Clough, Nishkian Professor of Civil Engineering, Emeritus, University of California, Berkeley, died on October 8, 2016.

Born July 23, 1920, he grew up in Seattle, Washington. He received his B.S. degree from the University of Washington, Seattle, in 1942, and the Sc.D. degree at M.I.T. in 1949. He chose Civil Engineering as his undergraduate major because of his love of the outdoors. During those years he had trekked extensively and climbed several of the major volcanic peaks—Rainier, Baker, Glacier, and St. Helens—in the states of Washington and Oregon.

Immediately after completion of his doctoral studies, Ray came to Berkeley as an Assistant Professor. Despite receiving numerous offers from other universities, his entire academic career was at Berkeley until he retired from teaching in 1987. Ray's contributions in teaching, research and consulting during 1950–1995 in the fields of finite element analysis, structural dynamics and earthquake engineering have been monumental.



Ray W. Clough

Perhaps his most important research contribution in structural engineering was as a co-developer in the "Finite Element Method" beginning with a classic paper in 1956. With the advent of digital computers the finite element method forever revolutionized the field of structural analysis and design. The method has been extended to many fields of engineering and makes it possible to analyze complex systems of many different kinds, including those encountered in design and safety evaluation of structures, and in aircraft, automobile, nuclear and oil industries. Because of the fundamental nature of the finite element concept, researchers in diverse fields of applied science and engineering recognized its potential in solving problems in their respective fields.

On his arrival at Berkeley, Ray was assigned to develop a graduate course on Dynamics of Structures. He, Joseph Penzien, and Vitelmo Bertero developed the teaching program in structural dynamics and earthquake engineering at Berkeley that many considered to be the best in the world. It led to the book Dynamics of Structures (co-authored with Joseph Penzien) published in 1975 and again in 1993. It was a landmark book in terms of its broad scope, comprehensive coverage, and philosophy. Several generations of students and engineers, in the United States and abroad learned the subject from this very book. It has been translated into Bahasa Indonesian, Chinese, Greek, French, Japanese, and Russian. The book was a major influence on subsequent textbooks on the subject, including my own.

Although Ray was a leader in the development of analytical methods for predicting the effects of earthquakes on structures, he had been cognizant of the limitations of these methods. Recognizing that analytical capabilities have advanced beyond the experimental results on which they should be based, during the 1970s and 1980s he directed his research activities toward the experimental side of this dual development. His experiments on concrete, steel, and masonry buildings and liquid-storage tanks using the Berkeley shaking table received world-wide attention and the findings of these experiments have influenced design practice.

A series of his papers that appeared in the 1960's contained new and reliable methods for computer earthquake analysis of tall buildings. These contributions influenced substantially the direction of research and the structural earthquake engineering practice. This research provided the basis for many of the popular commercial computer programs, such as ETABS and SAP 2000.

Similarly, a series of papers that appeared in the 1960s and 1970s presented new and accurate methods utilizing the finite element concept for earthquake analysis of concrete dams. He served as a consultant for many of these projects for the U.S. Bureau of Reclamation, U.S. Army Corps of Engineers, the World Bank, and many private companies.

Ray Clough received numerous honors. He was elected to both the National Academy of Engineering (in 1968, only four years after its inception) and the National Academy of Sciences, a rare distinction. He was elected to the Royal Norwegian Scientists Society, received Honorary Doctoral degrees from Chalmers University of Technology, Gothenburg, Sweden, and the Norwegian Institute of Technology, Trondheim, Norway. From the American Society of Civil Engineers, he received the Huber Research Prize, the Howard Award, the Newmark Medal, the Moisseiff Award, and the Norman Medal. The Earthquake Engineering Research Institute honored him with their highest award: the Housner Medal. The University of California, Berkeley, honored him by appointing him to the first endowed chair in engineering as Nishkian Professor of Structural Engineering (1983), and awarded him the Berkeley citation at his retirement in 1987. He received the National Medal of Science, the nation's highest award in science and engineering, at the White House in 1994.

Let me take the liberty of closing on a personal note. Ray was my Ph.D. thesis supervisor and a mentor, who helped me in too many ways to enumerate here. He had a profound influence on my professional growth, for which I remain grateful. My professional and personal relationship with Ray goes back to April 1961, when I, a 20-year old kid in India, received a letter from him offering me a teaching assistantship at \$225/month. This letter changed my life. But for Ray's letter, I would, probably, have spent my career in India, teaching, perhaps happy, but in no way having had the exhilarating and personally satisfying career I had at Berkeley. I made this exact statement at the occasion of Ray's retirement. I was truly shocked when Ray casually mentioned that he had offered me that teaching assistantship contrary to University policy, which at that time excluded new foreign students from such positions. Ray, thanks for taking a chance on me.

Anil K. Chopra (November 4, 2016)

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▶ [Seeking members to help inform public officials about URM Schools](#)

Recent earthquakes in Italy and Oklahoma have again shown a spotlight on the vulnerability of URM buildings. These earthquakes provide a window of opportunity for EERI members to become advocates for earthquake risk reduction.

To this aim, the Public Policy and Advocacy Committee has prepared a letter for public officials, informing them that there are still URM schools in the US in active use, and pointing to the damage to URM schools in Italy as a reminder that these buildings should not be used for schools. This messaging aligns with EERI's newly adopted a policy statement, based on the work of SESI, that "[Schools shall be URM Free by 2033.](#)"

EERI is asking members to help in this advocacy by identifying a public official in your community or state that should receive a letter about the risk posed by URM schools. This could include national, state, and/or local elected leaders; state or local school officials; or others. The key purpose of the letter is to inform public officials associated with schools that this problem exists, plant a seed that they should take action, and let them know that EERI is here as a resource for them.

If you are interested in disseminating this letter to your local leaders, please contact Chair Laura Samant to request a copy of the letter customized for your purpose.

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▶ [EERI Policy Statements for Advocacy](#)

EERI has developed a set of Policy Statements that can be used by EERI members to promote and encourage action by policy makers to reduce earthquake risk. Each statement has a succinct 1 page document summarizing EERI's position, and a companion 3 page white paper with more details and background information.

[Schools shall be URM Free by 2033](#)

[Mitigation of Nonstructural Hazards in Schools](#)

[Creating Earthquake Resilient Communities](#)

[National Earthquake Hazards Reduction Program](#)

[Improve Reliability of Lifeline Infrastructure Systems](#)

The policy statements were developed by members of EERI's Public Policy and Advocacy Committee during a comprehensive year long effort. The statements do not cover every important topic for EERI, but the topics were selected based jointly on committee member interest and willingness to write them, as well as their low level of controversy. The Committee plans to develop additional statements in the future, and welcomes member suggestions and participation in the process. Contact Chair Laura Samant with your ideas.

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▶ [Renew your EERI Membership for 2017](#)

In late October, EERI members (except student and honorary members) were sent via email a membership renewal notice for 2017. The email message provides a link to their personal renewal page showing contact information with options for selecting chapter membership and making a voluntary contribution to the EERI Endowment Fund.

If you did not receive this message, or are having trouble [logging in to your membership record](#), please e-mail Membership Coordinator Juliane Lane at juliane@eeri.org.



We hope you will continue to support EERI and renew your membership for 2017.

Together, we can reduce earthquake risk for our communities.

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LEARNING FROM EARTHQUAKES

► EERI Sends Reconnaissance Team to Oklahoma

EERI sent a multidisciplinary reconnaissance team to study impacts of the M5.0 earthquake near Cushing, Oklahoma on November 7. The team will be in the field from Monday November 14 - Wednesday November 16, 2016. Team members include:

- Jim Taylor, EERI Team Leader, Technical Manager at ABS Consulting (M. EERI, 2009)
- Mehmet Celebi, Sr. Research Civil Engineer at USGS (M. EERI, 1980)
- Alex Greer, Assistant Professor in the Department of Political Science at Oklahoma State (M. EERI, 2016)
- Ezra Jampole, Associate at Exponent (M. EERI, 2012)
- Armin Masroor, Senior Analyst at Arup (M. EERI, 2009)
- Steven Melton, Graduate Research Assistant at Oklahoma State
- Derek Norton, Graduate Research Assistant at Oklahoma State
- Nicole Paul Structural Analyst / Risk Consultant at Arup (M. EERI, 2016)
- Evan Wilson, Engineer II at ABS Consulting
- Yu Xiao, Associate Professor in the Department of Landscape Architecture and Urban Planning at Texas A&M University (M. EERI, 2011)

The team's technical objectives for this reconnaissance effort include:

1. Document ephemeral damage to the built environment as well as relevant examples of pre-event mitigation success.
2. Observe business resilience by implementing a business survey that was initially developed for and deployed following the South Napa earthquake.
3. Identify any school damage and explore earthquake response strategies, risk understanding, and mitigation plans for schools.
4. Document how induced seismicity in the region has led to changes in mitigation, response, and recovery approaches.

In addition to the technical objectives listed above, the team was designed to provide training and mentorship opportunities for several EERI young members - while partnering with local colleagues to understand the unique regional perspective.

Observations, photos, and reports will be posted at the virtual clearinghouse that combine observations from the earthquake and the M5.8 earthquake near Pawnee, Oklahoma on September 3, 2016: <http://www.eqclearinghouse.org/2016-09-03-oklahoma/>

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ANNOUNCEMENTS

▶ EERI Executive Director Search

The job description for the EERI Executive Director position is now posted on our website (<https://www.eeri.org/careers-at-eeri/>) as well as a number of websites, such as LinkedIn and Craig's list, and with various sister organizations such as PEER, SEAONC, SEAOC, ASCE and others. Jay Berger will stay at EERI until May 1, 2017 to provide assist with a seamless and successful transition.

A search committee has been established. David Friedman, President Elect, will serve as chair and other members include Keith Knudsen, Jim Malley, Daniele Mieler and Mary Comerio. We hope that you will identify highly qualified candidates and encourage them to apply for the position. Often, the best candidates come from inside the community. Feel free to contact anyone on the Search Committee with suggestions.

The application deadline is 12 noon PST, December 15, 2016. Candidates can send a letter of interest and resume with supporting qualifications to searchcommittee@eeri.org, ATTN: David Friedman, Chair, Search Committee. All applications will be kept in strictest confidence.

Our professional staff, strong Board leadership and of course, our incredible volunteer members who serve the organization put EERI in a strong position to move forward under a new Executive Director.

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▶ FEMA Seeking Region IX Earthquake Program Manager

FEMA Region IX Earthquake Program Manager vacancy now open for applications. Work will be in the Oakland, CA, office.

Application period closes on November 25 or when 200 applications are received.

<https://www.usajobs.gov/GetJob/ViewDetails/456209800>

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▶ 8th National Congress on Earthquake Engineering

Universidad del Norte and the Colombian Association of Earthquake Engineering (AIS) are glad to invite you to the 8th Colombian Conference on Earthquake Engineering, which will take place from May 31st to June 2nd of 2017 in Barranquilla, Colombia.

The main purpose of this event is to offer an academic atmosphere for its audience to get an insight about the local and worldwide trends in the research and practice on seismic engineering. The importance of this conference is confirmed by the number of attendees which averaged more than four hundred people in the past two events. In addition, we have received a variety of students and professionals among our audience, such as seismologists, geotechnical engineers, structural engineers, risk assessment managers, as well as staff of governmental entities.

For more information on the conference, including conference topics and key dates, visit <http://www.uninorte.edu.co/8CNIS>

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WELCOME NEW MEMBERS

► Welcome New EERI Members

EERI welcomes the members who have recently joined the Institute. If you wish to connect with your fellow members, you can locate their contact information in the [EERI online membership directory](#), which requires logging in to the Member Resources Area of the EERI website.

STUDENT MEMBERS

Qusay Aqooly, Portland State University
Parisa Asadollahi, University of Kansas
Raul Avellaneda, Virginia Tech, *Civil*
Dragos Basaraba, Technical University of Bucharest, *Civil*
Eric Bianchi, Virginia Tech
Ruxandra Bordei, Technical University of Bucharest, *Civil*
Monrit Chatha, University of British Columbia, *Civil*
Ee Ling Cheah, University of Kansas
Alexandru Daogariu, Technical University of Bucharest, *Civil*
Jean Dominguez Lora, Pontificia Universidad Catolica Madre y Maestra, *Civil*
Mary Douglas, Virginia Tech, *Civil*
Andreea Draghici, Technical University of Bucharest, *Civil*
Nicholas Fan, Cornell University, *Mechanical*
Eric Figueroa, University of Puerto Rico, *Civil*
Joseph Fremante, SUNY Buffalo
Alex Gonzalez, University of Connecticut, *Civil*
Anant Hariharan, Cornell University, *Seismologist*
Michelle Helsel, Virginia Tech
Christopher Irwin, Lehigh University
Kamal Kandel, Bauhaus University, Risk Analysis
Colton Keene, Virginia Tech, *Civil*
Alex Keller, Lehigh University, *Civil*
Xiangxiong Kong, University of Kansas
Ash Laing, University of British Columbia

Chaohui Li, University of Kansas, *Civil*
Josiah McElmurry, University of Kansas
Kathleen Mitchell, Portland State University, *Civil*
Rey Montalvo, University of Puerto Rico, *Civil*
Sam O'Melveny, University of Notre Dame
Luay Nazzal, University of Kansas
Shane Olson, University of Connecticut, *Civil*
Gerald Rosado Rosario, University of Puerto Rico, *Civil*
Carolyn Ruoff, Cornell University
Stephen Schreffler, University of NE - Lincoln (Omaha), *Architect*
Keeran Sivanesan, McMaster University
Thomas Siuda, McMaster University, *Civil*
Ke Lillah Slingluff, Portland State University
Tamae Spruell, Portland State University, *Civil*
Alexandru Trandafir, Technical University of Bucharest, *Civil*
Andreea Ungureanu, Technical University of Bucharest, *Civil*
David Walker, Cornell University, *Civil*
Nolan Wiebe, University of British Columbia, *Civil*
Andrew Young, University of Washington

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DONATIONS

► EERI Endowment Donors

EERI would like to thank donors to the Endowment Fund and acknowledge their recent contributions. EERI's Endowment supports innovative projects that assure the Institute's continuing leadership in the earthquake engineering profession.

The list below reflects recent donations to the Institute.

\$200	\$100	Other Amounts
Terry Lundeen	Jonathan Bray	Sahar Derakhshan
	Craig Cole	Annie Kammerer
	C. Terry Dooley	Robert Olshansky
	John Hayes Jr.	Satwant Rihal
	Peter May	
	Marcia McLaren	
	Adrian Rodriguez-Marek	

Thank you for your support!

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CALENDAR

Follow these steps to add EERI Calendar to your own Google calendar.

1. Open [Google Calendar](#)
2. On the left, above "My Calendars," click Add + and then **From URL**.
3. Enter the EERI calendar's address in the field provided. EERI Calendar ics link
https://calendar.google.com/calendar/ical/eeri.org_s9151tit0ab26dnf2epn25d7rg%40group.calendar.google.com/public/basic.ics
4. Click **Add Calendar**. The calendar will appear on the left side under "Other calendars."

Tuesday, October 29, 2019 - October 30

APGCE

The Asia Petroleum Geoscience Conference & Exhibition (APGCE)

29 – 30 October 2019

KUALA LUMPUR CONVENTION CENTRE, MALAYSIA

[REGISTER](#)

Monday, December 09, 2019 - December 13

AGU 2019 Fall Meeting

9-13 December 2019 San Francisco, California

Tuesday, March 03, 2020 - March 06

EERI 2020 Annual Meeting/Natl EQ Conference

National Earthquake Conference & 72nd EERI Annual Meeting

March 3 - 6, 2020

Sheraton San Diego Hotel & Marina

San Diego, California

[website](#)

Wednesday, March 04, 2020 - March 06

2020 RBDCC

5th Residential Building Design & Construction Conference (RBDCC)

Hosted by The Pennsylvania Housing Research Center

March 4-6, 2020

Penn Stater Conference Center

State College, PA.

[website](#)

Monday, April 27, 2020 - April 30

SSA 2020 Annual Meeting

SSA 2020 Annual Meeting

27-30 April 2020 — Albuquerque, New Mexico

The 2020 Annual Meeting will be held in Albuquerque, New Mexico.

[Check back later for more information.](#)

Monday, September 14, 2020 - September 18

17th WCEE

The 17th WCEE will be hosted in Sendai, Japan, from September 14th to 18th 2020. Check <http://www.iaee.or.jp/> for more information.



Earthquake Engineering Research Institute

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