

## LLC SYLLABUS – SPRING 2024

# How Great Structures Get Built – And Sometimes Fall Down

Wednesday mornings 10 am – 12 noon

March 20 – May 22

All classes at Temple Beth-el

### Coordinator

Art Norwalk

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### Description

We'll examine the engineering feats that have produced some of the most famous and/or important structures throughout history (e.g. Great Wall of China, Big Dig), and some of the most notable failures (Kansas City hotel walkway collapse). Using the award-winning book *Built* by structural engineer Roma Agrawal as a guide, we'll explore the evolution of construction methods and materials and meet some of the visionaries who created them.

### Reading

*Built: The Hidden Stories Behind our Structures*, by structural engineer Roma Agrawal, is available used, new or electronically, for \$6.00 and up at online sources. It's recommended to read it before researching your class leader topic because it may provide guidance on issues to explore.

### Class Format

Each class will be divided into two 50-55 minute segments, with a ten-minute break between.

Each participant will lead a class segment taking an "engineering for non-engineers" look at one remarkable project or engineering failure chosen from the list in the coordinator's welcome email. Participants are welcome to suggest projects not on the list, as several have already done.

No technical background is required; our goal is to answer in layperson's terms questions like "How did they do that?" or "How could that have happened?"

Your segment leadership can take the form of

- arranging a talk by a guest speaker
- showing one or more videos
- telling the story through slides and your commentary
- posing provocative questions to the group

If you have any handouts, suggestions for additional reading or videos to view, please email them to all class members (or to the coordinator for re-sending) at least one week in advance.

### **Session Leadership Guidelines**

Your leadership (in whichever format you choose) should last no longer than 30-35 minutes, leaving 20-25 minutes for discussion (the most popular part of the class for many LLC members). Your opinions are a welcome, but not required, part of your presentation; they often help stimulate discussion. Please use relevant research material from a variety of sources, not just a Wikipedia article (though that can be an excellent starting point).

If you're doing a presentation, please don't read it to the class. Take time in advance to become very familiar with the material, so you can look up and make eye contact with your fellow participants. Tell the class at the start whether you're comfortable taking questions along the way or prefer to hold them until the end.

Do not put your entire script on slides. It's impossible for participants to read the screen and follow what you're saying at the same time. Use illustrations, if appropriate, or an outline of brief talking points to keep you and the class on track. Use large type for visibility – 24 pt minimum. Images and/or videos will be especially useful to illuminate our topics.

If you are using any a/v materials, please arrive for class 15-20 minutes early for testing.

Help is available for any audio-visual tools you'd like to use. See Technical Support below.

### **Technical support**

If you plan to use a slides created in PowerPoint, PDF, Google slides or Keynote, please send your finished file to coordinator Art Norwalk ([artnorwalk@gmail.com](mailto:artnorwalk@gmail.com)) at least two days before your presentation and bring a copy to class on a thumb drive as backup. You can control your slides or Art will run the slides for you, advancing them when you ask.

The same is true if you want to show a video from YouTube or another web source: send the link to Art in advance for testing.

### **Zoom etiquette**

*(Since we're meeting in person, this will most likely not apply. However snowstorms can happen in March and the temple occasionally cancels classroom availability to accommodate a funeral.)*

If you're not actually talking to the class, Mute yourself. The rest of us don't want to hear your phone conversation or your barking dog; the coordinator may Mute you if this happens. When you start speaking, you'll likely need to be reminded to Unmute; it happens to everyone so don't be embarrassed.

When you want to ask a question or contribute to a discussion, you can raise (but don't wave) your hand in view of the camera or use the Raise Hand graphic found by clicking Reactions at the bottom of your screen. The coordinators will attempt to call on each person in the order that hands went up; however they will discourage any class members who appear to be dominating the conversation.

**Class Schedule -- Note:** Please email [artnorwalk@gmail.com](mailto:artnorwalk@gmail.com) ASAP with the session(s) you'd like to lead. Leaders on the same date – a and b – can decide for themselves who goes first.

<b>Date/Topics</b>	<b>Leader</b>
<b>Week 1a – March 20 – Introductions</b>	Art Norwalk
<b>Week 1b – March 20 – London Underground</b>	Mark Guyer
<b>Week 2a – March 27 -Golden Gate &amp; Tacoma Narrows Bridges</b>	Ron Pearl
<b>Week 2b – March 27 – Panama Canal</b>	Stuart Einhorn
<b>Week 3a – April 3 – Engineering for Earthquake Resilience</b>	Kathleen Liebenow
<b>Week 3b – April 3 – Providence Combined Sewer Overflow 10am</b>	Kathryn Kelly, NBC
<b>Week 4a – April 10 - Quebec bridge collapse</b>	Carolyn Rosenthal
<b>Week 4b – April 10 – Dutch water management</b>	Ancelin Wolfe
<b>Week 5a – April 17 - Surfside Condominium collapse</b>	Tom Curran
<b>Week 5b – April 17 – Channel Tunnel</b>	Nick Miles
<b>Week 6a – April 24 – Venice Tide Barrier</b>	Monica Schaberg
<b>Week 6b – April 24 – Dams and Levees</b>	Frank Schaberg
<b>Week 7a – May 1 – Hagia Sofia</b>	Mike Webster
<b>Week 7b – May 1 – Tay Bridge disaster</b>	Jim Cowan
<b>Week 8a – May 8 – Eads Bridge</b>	Tom Colby
<b>Week 8b – May 8 – Sydney Opera House</b>	Bob Thibeault
<b>Week 9a – May 15 – Bridge engineering</b>	Susan Bacher
<b>Week 9b – May 15 -- Material &amp; Process Advances in Bridge Design</b>	Sam Ventres