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AMERICAN SOCIETY OF CIVIL ENGINEERS

**GLOBAL ENGINEERING
CONFERENCE 2014**

Panama City, Panama | October 7-11



Celebrating the 100th Anniversary of the Panama Canal

WELCOME TO THE GLOBAL ENGINEERING CONFERENCE 2014

TRANSFORMING VISION TO REALITY



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Key Challenge:

Long term bridge
maintenance

- **Panama Canal Authority's vision was a concrete deck bridge** instead of steel or composite.
- **Goal was to** reduce long term maintenance **despite** the highly corrosive environment.
- Project required a cable-stayed bridge with a span greater than 500 meters and no current cable-stayed bridges in the world had a span longer than 400 meters.



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3rd Bridge over the Panama Canal

- Two bridges already span the canal, but expansion of the canal called for the construction of a third bridge by 2016.
- The new bridge will link the key seaport of Colon to communities to the west of the canal.
- Louis Berger was selected to design the bridge in JV with China Communications Construction Company/Highway Planning and Design Institute.



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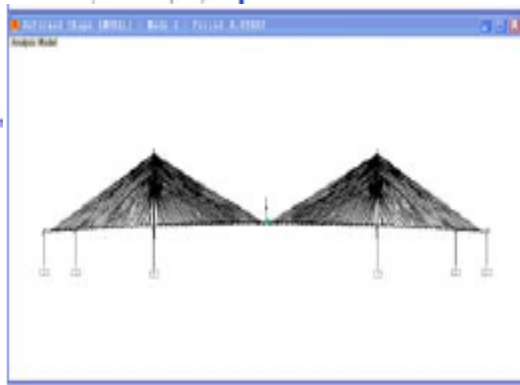
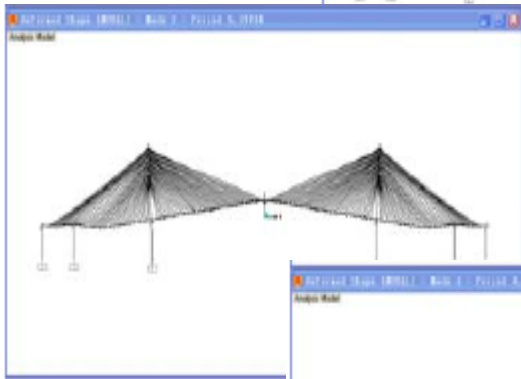
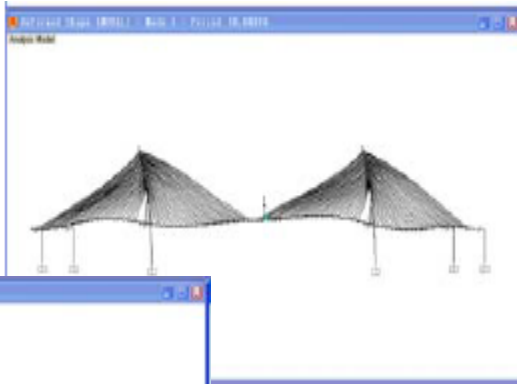
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Examples of iterations of vibration modeling



- **Panama Canal Authority remained committed to its vision** of a concrete superstructure.
- The team **analyzed several different types of superstructures**.
- Even full-pre-stressed long-span concrete bridges must have both **routine and periodic maintenance** to achieve design life of 100+ years.
- The concrete superstructure required a much **larger number of cables** due to a much heavier girder compared with composite or steel superstructures. This is also required for much **larger towers and foundations** to resist the impact of an earthquake with such a heavy superstructure.



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Solution: Record breaking bridge

Key Statistics:

- 530 meter main span (world record)
- 4 travel lanes
- 75 meter clearance
- 1050 meter length

Key Technical Features:

- Light and flexible concrete superstructure
- Providing all the necessary reinforcement to provide tensile capacity

Key Benefits:

- Reduced maintenance costs
- Increased tourism
- Will stimulate economy
- Critical link between the Port of Colon and the rest of the Island



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THANK YOU FOR ATTENDING THE
GLOBAL ENGINEERING CONFERENCE
2014

WE LOOK FORWARD TO SEEING YOU NEXT
YEAR IN **NEW YORK CITY!**