Successful Implementation of Vibration Control During Museum Construction Projects

Mervin Richard
National Gallery of Art, Washington DC
Introduction

- Introductions
  - **Merv Richard**
    - Chief of Conservation at the National Gallery of Art, Washington
  - **Frank Zuccari**
    - Grainger Executive Director of Conservation at the Art Institute of Chicago
  - **Arne Johnson**
    - Principal Wiss, Janney, Elstner Associates in Northbrook, Illinois
    - Licensed structural engineer
    - Vibration control expert for numerous historic building and museums
  - **W. Robert Hannen**
    - Associate Principal of experience at Wiss, Janney, Elstner Associates in Northbrook, Illinois
    - Licensed structural engineer
Path Forward

Johan Barthold Jongkind
The Towpath
Dutch, 1819 – 1891
2006.128.22
Path Forward

- Need for vibration control during Museum Construction
  - National Gallery of Art
  - Art Institute of Chicago
- Technical presentation
  - Effects of vibrations
  - Recommended vibration limits
  - Vibration control and monitoring
- Demonstration
- Wrap-up
- Q&A
National Gallery of Art

East Building opened 1978

East Building renovation 2013-present
National Gallery of Art
Oh My! What a mess!
National Gallery of Art

Limits (Very conservative)

- 70 decibels adjusted (dBA) for sound
- Peak particle velocity of 0.02 in/sec for vibration
National Gallery of Art

Observations
• Outside consultants critical to project
• Rarely exceeded specifications
• Most complaints about sound levels
• Real-time reporting and response critical
• No problems with art
Earthquake
August 23, 2011

Peak particle velocity at National Gallery
- >1.25 in/sec
- Limit = of 0.02 in/sec
Thank You for Listening

Rogier van der Weyden
Portrait of a Lady
Netherlandish, c. 1460
Oil on panel
1937.1.44