

## Long String Instrument Installation

- **Resonant space – not outdoors – no carpet**
- **16 meters (53 ft). – about 60 meters (200 ft.).** (26 meters is the cello C string)
- **Rigging**
  - Directly screwed into walls or floors
  - Tie-down belts
  - Free-standing counter-weight frames (820 kilos (1800 lbs) sandbags each side)
  - Specific to venue rigging will be drawn up using floorplan and photos
- **Resonator boxes travel in standard weight and size checked bags** Rigging and framing constructed onsite and included in production costs
- Pull-out load +/- 400 kilo (900 lbs.) per resonator. No injuries ever occurred, wires are very thin and fall to the floor if they break.
- **One or two technicians** construct framework and set-up for one or two days
- Ellen needs about four days or 30 hours prep before the concert
- **Smooth coverage lighting** installed along string pathways
- **Sound reinforcement** Four speakers (Meyer Sound, d&b, L-Acoustics, or equivalent) placed in corners. Fullman travels with two cardioid mics, one for each resonator, venue provides two short stands.

## Timeline

- **Before Artist's Arrival** Hardware materials purchased and framing constructed as far as possible. Use heavy duty lumber and heavy duty hardware.
- **Day 1** Move-in or fabrication of support structure and attachment into walls or floors. Resonators and tuning blocks attached to framing and strings tensioned, about eight hours. Lighting instruments installed and roughly focused.
- **Day 2** String tensioning and tuning, lighting focused
- **Day 3** String tensioning and tuning, sound check
- **Day 4** Performance scheduled
- **Strike – one hour** (with help) – all touring components packed into luggage

Ellen Fullman

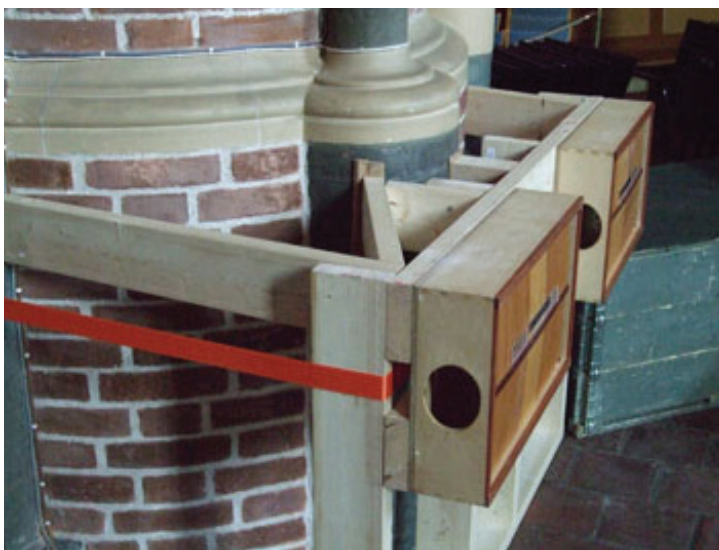
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### free-standing installation

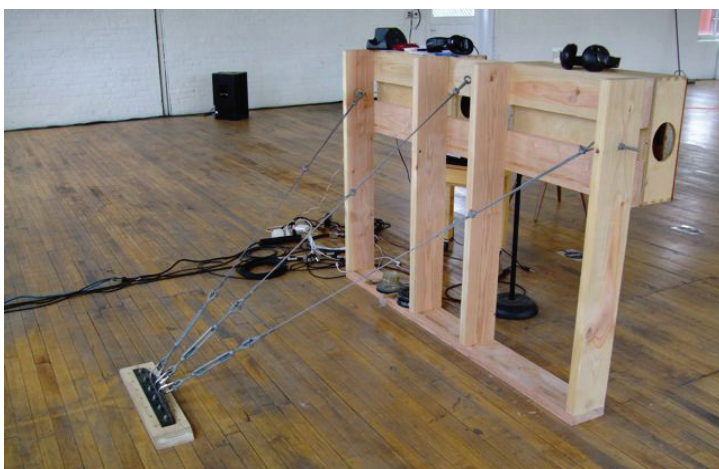
Where it is not possible to put screws into the floors or walls, counter-balanced weighted stands are constructed. Trays are filled with 820 kilos sandbags on each side.



**Wall-mounted** Cheapest and easiest method using 2x6s (5x15s) and screws



**Tie-down belts** used to anchor to columns



Framing **bolted to the floor** and triangulated cable



### Lighting design

Create highlights along the string pathway. The fine wires are nearly invisible without lighting.



The **box bow resonator** is double-sided with strings extending in both directions. The framing is bolted into the floor or suspended with diagonal cables. An equal number of strings tensioned in both directions stabilizes the position. (used only in specific ensemble pieces)