

ACOUSTICS2008/908 Opera House Acoustics- Case Studies of Renovations

Mark Holden

JaffeHolden, 114a Washington St, Norwalk, CT 06854, USA

In the United States, there has been a rapid increase in the number and type of performance halls built and renovated in the last 10 years. New Opera Houses are few, however three significant Opera Houses have been renovated by our firm, including the Seattle Opera House, The Houston Grand Opera House, and the Kennedy Center Opera House in Washington DC, home of the National Opera. This paper will discuss, compare and contrast approaches to pit design, wall shaping and ceiling shaping, materials for surfaces and orientation and distribution of acoustic volume. Design calculations and completed measurement data, where applicable, will be presented.