Record Nr. UNINA9910823186203321 Autore Long Marshall **Titolo** Architectural acoustics / / by Marshall Long Pubbl/distr/stampa Oxford:,: Academic Press,, 2014 **ISBN** 0-12-398265-0 Edizione [Second edition.] Descrizione fisica 1 online resource (xxviii, 950 pages): illustrations, plans Gale eBooks Collana 729.29 Disciplina Soggetti Architectural acoustics Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Front Cover; ARCHITECTURAL ACOUSTICS; Copyright; Dedication; CONTENTS; PREFACE; FIRST EDITION ACKNOWLEDGMENTS; SECOND EDITION ACKNOWLEDGMENTS: 1 - HISTORICAL INTRODUCTION: 1.1 GREEK AND ROMAN PERIOD (650 BC-AD 400); 1.2 EARLY CHRISTIAN PERIOD (AD 400-800); 1.3 ROMANESQUE PERIOD (800-1100); 1.4 GOTHIC PERIOD (1100-1400); 1.5 RENAISSANCE PERIOD (1400-1600); 1.6 BAROQUE PERIOD (1600-1750); 1.7 ORIGINS OF SOUND THEORY; 1.8 CLASSICAL PERIOD (1750-1825); 1.9 ROMANTIC PERIOD (1825-1900): 1.10 BEGINNINGS OF MODERN ACOUSTICS: 1.11 TWENTIETH CENTURY: 2 - FUNDAMENTALS OF ACOUSTICS 2.1 FREQUENCY AND WAVELENGTH2.2 SIMPLE HARMONIC MOTION; 2.3 SUPERPOSITION OF WAVES; 2.4 SOUND WAVES; 2.5 ACOUSTICAL PROPERTIES: 2.6 LEVELS: 2.7 SOURCE CHARACTERIZATION: 3 - HUMAN PERCEPTION AND REACTION TO SOUND; 3.1 HUMAN HEARING MECHANISMS; 3.2 PITCH; 3.3 LOUDNESS; 3.4 INTELLIGIBILITY; 3.5 ANNOYANCE: 3.6 HEALTH AND SAFETY: 3.7 OTHER EFFECTS: 4 -ACOUSTIC MEASUREMENTS AND NOISE METRICS; 4.1 MICROPHONES;

4.2 SOUND LEVEL METERS; 4.3 FIELD MEASUREMENTS; 4.4 BROADBAND NOISE METRICS; 4.5 BAND-LIMITED NOISE METRICS; 4.6 SPECIALIZED

5.1 NOISE CHARACTERIZATION5.2 BARRIERS; 5.3 ENVIRONMENTAL EFFECTS; 5.4 TRAFFIC NOISE MODELING; 5.5 RAILROAD NOISE; 5.6 AIRCRAFT NOISE; 6 - WAVE ACOUSTICS; 6.1 RESONANCE; 6.2 WAVE EQUATION; 6.3 SIMPLE SOURCES; 6.4 COHERENT PLANAR SOURCES; 6.5 LOUDSPEAKERS; 7 - SOUND AND SOLID SURFACES; 7.1 PERFECTLY

MEASUREMENT TECHNIQUES: 5 - ENVIRONMENTAL NOISE

REFLECTING INFINITE SURFACES; 7.2 REFLECTIONS FROM FINITE OBJECTS; 7.3 ABSORPTION; 7.4 ABSORPTION MECHANISMS; 7.5 ABSORPTION BY NONPOROUS ABSORBERS; 7.6 ABSORPTION BY RESONANT ABSORBERS; 8 - SOUND IN ENCLOSED SPACES; 8.1 STANDING WAVES IN PIPES AND TUBES; 8.2 SOUND PROPAGATION IN DUCTS

8.3 SOUND IN ROOMS8.4 DIFFUSE-FIELD MODEL OF ROOMS; 8.5 REVERBERANT FIELD EFFECTS; 9 - SOUND TRANSMISSION LOSS; 9.1 TRANSMISSION LOSS; 9.2 SINGLE PANEL TRANSMISSION LOSS THEORY; 9.3 DOUBLE-PANEL TRANSMISSION LOSS THEORY; 9.4 TRIPLE-PANEL TRANSMISSION LOSS THEORY; 9.5 STRUCTURAL CONNECTIONS; 10 - SOUND TRANSMISSION IN BUILDINGS; 10.1 DIFFUSE FIELD SOUND TRANSMISSION; 10.2 STC RATINGS OF VARIOUS WALL TYPES; 10.3 DIRECT-FIELD SOUND TRANSMISSION; 10.4 EXTERIOR TO INTERIOR NOISE TRANSMISSION; 11 - VIBRATION AND VIBRATION ISOLATION; 11.1 SIMPLE HARMONIC MOTION; 11.2 SINGLE DEGREE OF FREEDOM SYSTEMS

11.3 VIBRATION ISOLATORS11.4 SUPPORT OF VIBRATING EQUIPMENT; 11.5 TWO DEGREE OF FREEDOM SYSTEMS; 11.6 FLOOR VIBRATIONS; 12 - NOISE TRANSMISSION IN FLOOR SYSTEMS; 12.1 TYPES OF NOISE TRANSMISSION; 12.2 AIRBORNE NOISE TRANSMISSION; 12.3 FOOTFALL NOISE; 12.4 STRUCTURAL DEFLECTION; 12.5 FLOOR SQUEAK; 13 - NOISE IN MECHANICAL SYSTEMS; 13.1 MECHANICAL SYSTEMS; 13.2 NOISE GENERATED BY HVAC EQUIPMENT; 13.3 NOISE GENERATION IN FANS; 13.4 NOISE GENERATION IN DUCTS; 13.5 NOISE FROM OTHER MECHANICAL EQUIPMENT; 14 - SOUND ATTENUATION IN DUCTS; 14.1 SOUND PROPAGATION THROUGH DUCTS

Sommario/riassunto

Architectural Acoustics, Second Edition presents a thorough technical overview of the discipline, from basic concepts to specific design advice. Beginning with a brief history, it reviews the fundamentals of acoustics, human perception and reaction to sound, acoustic noise measurements, noise metrics, and environmental noise characterization. In-depth treatment is given to the theoretical principles and practical applications of wave acoustics, sound transmission, vibration and vibration isolation, and noise transmission in floors and mechanical systems. Chapters on specific design p