
CV-Acoustics

Tor Halmrast

Acoustician

Born: 26th April 1951, Sarpsborg, Norway

Head of Acoustics, Statsbygg

(Norwegian State, Directorate of Public Construction and Property)

Ass. Professor, University of Oslo/Musicology and

Norwegian Academy of Music

Composer (see separate CV)

1970	High School (Sarpsborg)
1974	Bachelor of Music, Univ. of Trondheim, Norway + several master courses
1974-75	Audiology research, , Univ. Hospital Trondheim
1975	M.Sc., NTH(NTNU), Trondheim, acoustics (Audiology)
1976-78	IGP consultants, Acoustics/Electro, Tr.heim +, and Musician (Rikskonsertene)
1978-	Norwegian State, Directorate of Public Construction and Property/Statsbygg
1990-91	Composer in Residence at Northern Norway Conservatory of Music, Tromsø
1991- present	Statsbygg, Head of Acoustics
(since 2008,	also Assoc. Professor, Univ. Oslo, Musicology and, since 2018: Norw. Ac. of Music)
	(approved PhD-qualification)

Major room-acoustic projects

Oslo Opera (NO): Acoustic Programming and client acoustician

Stavanger Concert Hall (NO): Acoustic Programming and client acoustician

Aalborg Concert Hall (DK): Acoustic Programming and client acoustician

Kristiansand Concert Hall(NO): Acoustic Programming

Oslo Phil. Orch.: Measurements and investigations of podium acoustics (Oslo/Frankfurt/Munich/Vienna)

Articles in Academic Journals on Acoustics

selection:

(for full list, see: [List of publications 0](#))

Institute of Acoustics (UK) (2018): *"Attack the Attack"*

Institute of Acoustics (UK) (2016): *"Why do flutter echoes "always" appear at (1-) 2kHz?"*

Journal of Sound and Vibration (UK) (2000)

"Orchestral Timbre: Comb-Filter Coloration from Reflections"

Journal of Acoustical Society of America (1998)

"Measurements of orchestra acoustics. How reflecting surfaces influence "klangfarbe" and the possibility of playing in time".

"Simultaneous measurements of room acoustic parameters using different measuring equipment "

DAFX99: *"Musical Timbre. Combfilter-coloration from reflections"*

ICA (2001) (Rome): *"The Delayed Phantom of the Opera"* (the acoustics of the Munich Opera)

Teaching

- Nordic Institute for Stage and Studio (Norsk Lydskole) Lectures on Acoustics (1997-98)
- Lectures on Electroacoustics and Noise Norw. Engineering Soc. NIF/NITO
- Lectures on Acoustics for:
 - Univ. Oslo/Inst Mathematics 2000.
 - Norw. Univ. of Technology/Inst. of Acoustics 1996+98
 - Inst. of Industrial Design 1997
 - Oslo Inst. of Architecture 1995-99
- Norwegian School of Handcraft and Design:
 - Lecturers for Inst. of Internal Design (1987-2000)
- From 2008: Assoc. Professor at Univ. Oslo, Musicology (and, from 2018: Norw. Academy of Music)

International committees on Standardisation in Acoustics

- ISO/TC 43/SC 2/WG 25N: "Measurement of the random-incidence scattering coefficient of surfaces"
- NS 8175 "Acoustics in Buildings"

Work at Statsbygg

Responsible for acoustics for all Norwegian state owned projects:

- Building Acoustics/Room Acoustics/Sound Insulation/Structural borne sound
- Noise from Traffic
- Noise from Ventilation etc.
- Electro-acoustics

Acoustic Criteria, Programming and control for:

- Norwegian Academy of Music
- Troendelag Theatre (Trondheim)
- Haalogaland Theatre (Tromsø)
- Music Conservatories (Trondheim, Bergen, Tromsø, Alta)
- Radio/TV-centre for the Olympic Games 92 (rebuilt as college for Media/Film education)
- Music Departments and Sound Studios for several Colleges of Music
- Norw. State Hospital
(Anechoic Chamber/Audiological Testing Rooms/Noise from equipment in Operation Theatres)
- OSLO OPERA
Acoustical criteria for the Architectural Competition,
Adviser for the Jury,
Leader of an international Acoustic Reference Group,
Detailed Acoustic Brief ("Building Programme")
Selection of acoustic consultants
Control of acoustic design
In charge of adjustments

Statsbygg General Guidelines on Acoustics.

PA 2991 "Building Acoustics" (*in Norwegian*)

PA 5551: "Room Acoustics and Electro-Acoustics", (*in Norwegian*), see:

Research Projects, collaboration

"Simultaneous measurements of room acoustic parameters using different measuring equipment"
(w/ Denmark Techn. Univ, and Norsonic)

"Angle-dependent sound absorption of perforated panels" with Denmark Techn. Univ + Akustika

Several projects with Norw. Inst. of Building Research + Sintef:

"Floating Floors", "Flanking Transmission in Light-Weighted Aluminium Structures".

Acoustical Measurements/Computer Studies

for concert halls and operas:

- University of Oslo, Aula
- Nationaltheatret, Oslo
- The Norw. Opera (earlier location, "Folketeatret")
- Bayerische Oper, Munich
- Semper Oper, Dresden

"Hands on" – projects (Statsbygg Projects)

- Univ Bergen, Music Conservatory (Grieg-Academy)
- Acoustics for the Norwegian Pavilion at the World's Fair, EXPO92 in Sevilla
(room acoustics, loudspeaker lay-out + composer)
- Sound Insulation/Room Acoustics for the Colleges of Music at: Hamar, Alta, Nesna, Volda, Bergen (+AV)
- Numerous Auditoria, meeting rooms
- Numerous additional measurements/consultations on: Sound Insulation, Traffic Noise, Noise from Shooting Ranges etc.

External projects run through Statsbygg

- Oslo Concert Hall
(broad acoustical investigation for Oslo Phil. / Mariss Jansons 1995-96)
(measurements in Oslo Concert Hall, Frankfurt(Heochst), Munich (Gasteig), Wien (Musikverein))
- The Norwegian Theatre
(acoustical measurements, consultancy regarding stage sets)
- Nationaltheatret (Norwegian National Theatre) (orchestra pit, and analysis of listening in different positions)
- Norwegian Ministry of Culture: Acoustic criteria for cultural buildings

Private Projects (on leave from Statsbygg)

- Tromsø Concert Hall (rebuilding),
- Nes Kulturhus, (total acoustic design)
- Gjerdrum Kulturhus, (initial design goals)
- Logen, Oslo (acoustic measurements)
- Sandvika Kulturhus (initial acoustic analysis)
- Music Conservatory in Kristiansand (acoustical design)
- Agder Theatre/Agder Symph. Orch, rehearsal rooms
- Agder Theatre/outdoor stage (see paper for IOA, Manchester 99)
- Norwegian Museum of Agriculture (Cinema/Multimedia)
- Cosmopolite Oslo (Jazz/Contemporary Music/World music)
- Ny Musikk (ISCM) Bergen/Oslo
- Musikkens Hus Oslo (ISCM)
- Several Sound Control Rooms, (Wrap etc.)

Honours etc.

- Vice-president of Norw. Society of Composers (Komponistforeningen)
- Honourable member of Norwegian Acoustical Society
- Prix Italy (European Broadcasting Union) for RadiOpera "*Alfa og Romeo*".
- Price for *Best Composition/Sound Design* at the World's Fair, Seville, 1992
- Member of the board of NoTAM (Norwegian Network for Technology, Acoustics and Music)
- Co-founder of Nicem (Norw. Section of Int. Conf. of Electroacoustic Music)
- Several music organisations (ISMC, Int. Soc. Contemporary Music, World Music Days, Oslo)

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See also "Int. Who is Who in Music"

See separate CV for Music on www.tor.halmrast.no