

Washington Post
Courtroom Acoustics

Many citizens who were eager to hear the arguments before the Supreme Court in the steel seizure case were disappointed because they could not get into the courtroom, and others who succeeded in getting inside were perturbed because they could not hear what was said. The court sensibly relaxed its rule against standing in the courtroom so that an additional 200 eager onlookers could be accommodated, but this did not correct the room's poor acoustics. In our opinion the whole subject of accommodating the public in the Supreme Court chamber ought to be reexamined.

Some time ago, the court experimented with a public address system, but no such aid to hearing has been permanently installed. It is said that some Justices object to having their comments to their brethren picked up on a public address system, but this could be avoided either by switches to turn off the microphones on the bench when desired or by installing a microphone only at the lectern from which attorneys address the court. Some means of amplifying the attorneys' voices is especially desirable because they necessarily address the judges and thus speak with their backs to the audience.

Fortunately, a stenographic record of the argument in the steel case was made. This will be available to the litigants and presumably to members of the court if they desire to consult it, as copies of such records, although made at the behest of the litigants, are usually filed in the Supreme Court Library. In important cases of this sort it seems to us that the public interest would be served by an official court record of the argument—a record which could be made available to the press and radio. Or the court might permit a tape recording of its proceedings in important cases. In this instance a request for permission to make a tape recording was denied, but we do not see why it could not be done without detracting from the dignity of the court.

Supreme Court of the United States.

OFFICE OF THE MARSHAL

-----August 26,-----, 1948

Mrs. McHugh:

File

As the Chief Justice requested
this survey to be made, please let him
see the attached, upon his return.

TEW

FOR CONFERENCE DISCUSSION

CHAMBERS OF THE CHIEF JUSTICE

MAY 10 1949

FOR CIRCULATION

NOTED

Mr. Justice Black.....

HB

Mr. Justice Reed.....

Reed

Mr. Justice Frankfurter.....

21

would this be constitutional?

Mr. Justice Douglas.....

WHD

Mr. Justice Murphy.....

✓

Mr. Justice Jackson.....

RHJ

Mr. Justice Rutledge.....

WR

Mr. Justice Burton.....

WATB 5/11/49

Please Return to the Chief Justice.

Office of the Marshal,
Supreme Court of the United States
Washington, D.C.
August 7, 1948.

MEMORANDUM TO: Mr. Chief Justice Vinson

RE: Acoustics in and Flag for the Court Room

In the matter of the acoustics of the Court Room I called at St. Matthews as suggested by you. Monsignor Cartwright was out of the city, however I found his assistant Mr. Palmer who had had charge of their amplifying system since its installation. After discussing our problem and being shown his system I believe that while it may be most satisfactory there it would not be practical for us for the reason I gave you i.e., that remarks among the Members of the Court could not be screened from the audience except by a key or some such device that if over-looked by the Justice might cause his remark to be overheard by the Press, Bar or Audience.

I next called on Mr. Lynn to determine what difficulties he had experienced with his installation in the House of Representatives. He offered to have his sound engineer now working on the reconditioning of the House and Senate Chambers look over our Court Room and make suggestions, which I thought excellent and agreed to.

As regards the display of a flag in the Court Room I likewise discussed that with Mr. Lynn to obtain his reaction to a request or suggestion made by Mr. Gilbert the Architect of our Building, that on artistic grounds a flag should not be displayed. Mr. Lynn feels that I may disregard Mr. Gilberts suggestion so I asked if I might have Mr. Kramer his assistant help me find the most suitable place as well as pick the proper sized flag, which will be done as soon as the draperies are repaired. We will then advise you of our findings and if approved by you will then discuss when to place the flag as well as the proposed quality thereof.

The pedestal for the bust of Chief Justice Hughes was delivered yesterday and will be erected in the approved place some time soon by the Contractor.

Mr. Waggama
Marshal.

C
O
P
Y

U. S. DEPARTMENT OF COMMERCE
National Bureau of Standards
Washington

August 25, 1948

RECEIVED

AUG 27 4 32 PM '48

CHAMBERS OF THE
CHIEF JUSTICE

In your reply
refer to File

6.1/61

Mr. Thomas E. Waggaman,
Marshal of the Supreme Court,
Supreme Court Building,
Washington, D.C.

Subject: Acoustics of
Supreme Court Chamber

Dear Mr. Waggaman:

In accordance with your recent request, members of the Sound Section visited the Supreme Court Chamber in order to investigate its acoustical properties.

At the time of this visit, the Chamber was, of course, devoid of audience and observations made under such conditions should therefore be considered as tentative only. Unless the speaker, be he either a Supreme Court Justice or counsel, speaks clearly at a level somewhat above that of a normal conversational tone, it is probable that good hearing conditions will not result for an appreciable part of the audience. This condition cannot be readily remedied without providing some means of sound reinforcement. Before making any final decision, however, it is felt that some observations of auditory conditions should be made when the Court is in session.

Very truly yours,

RICHARD K. COOK,
Chief, Sound Section.

U. S. DEPARTMENT OF COMMERCE

NATIONAL BUREAU OF STANDARDS

WASHINGTON

ADDRESS REPLY TO
NATIONAL BUREAU OF STANDARDS

October 29, 1948

RECEIVED

OCT 30 9 43 AM '48
IN YOUR REPLY
REFER TO FILE
6.1/61
H-15
CHAMBERS OF THE
CHIEF JUSTICE

Mr. Thomas E. Waggaman,
Marshal of the Supreme Court,
Supreme Court Building,
Washington, D. C.

Subject: Acoustics of
Supreme Court Chamber

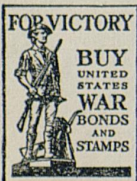
Dear Mr. Waggaman:

In continuance of our investigation of the acoustics of the Supreme Court Chamber, our Dr. Albert London visited the Chamber on October 14 while the Court was in session.

Most of the difficulty in hearing the proceedings as evidenced by complaints from the public and from court stenographers sitting in the section reserved for members of the bar is apparently a result of the low sound level at which the Justices and sometimes the Counsel speak. If the speaker does not speak at a level somewhat above that of a normal conversational tone he is not understood by an appreciable part of the audience. This is a result of the interplay of several factors, the primary one being the rather large size of the Chamber, some 200,000 cubic feet. In addition, there is considerable background noise level due to operation of air conditioning equipment, audience noises such as coughing and walking, and noise resulting from ushering the public to their seats. The latter is mostly accompanied by loud clicking noises caused by unlocking the metallic spring clasps on the guard ropes used to close off various rows in the public seating section.

It is possible to improve auditory conditions so that the proceedings will be heard and understood, by providing a public address system having the following components:

Ten microphones, one for each justice and one for counsel. The microphones for the justices should



be provided with a two-position off-on switch controlled by each individual justice. In the first position the microphone will be active only while the switch is held; in the second position the microphone will be on without holding the switch. A signal light should be provided with each microphone to indicate when it is on.

Two loudspeakers so arranged as to provide sound reinforcement in the bar and public seating sections. Little sound reinforcement will occur at the bench or for counsel in the proposed loudspeaker arrangement. It would be difficult to provide sound amplification at these positions because of what is known technically as "feedback" which would cause the public address system to produce a penetrating whistling or howling noise.

One automatic sound level monitoring arrangement known as a program regulator. This would automatically tend to keep the sound level constant in the Chamber irrespective of differences in level at which each justice or counsel spoke. No regulation, monitoring, or other attention would be required by personnel during operation of the public address system.

Associated accessories required to complete the public address system.

A fairly reliable detailed estimate of the cost of such a system which was obtained in consultation with a reputable local public address installation company is \$4,800.00. If only one microphone were installed, i.e. for counsel, the cost would be about \$2,200.00. It is doubtful, however, that there would be much point to installing a public address system for counsel only, inasmuch as our observations indicate that counsel usually speaks loudly enough, except when reading textual material relating to decisions previously handed down and already in printed form.

We believe that the public address system outlined in the above will provide a satisfactory solution to the difficulties experienced in the Supreme Court Chamber. As has been indicated by yourself and other Court personnel, there may be some difficulty associated with the use of the

system in that conversations between Justices, not intended as a part of the official proceedings of the Court, may be broadcast inadvertently. This phase of the problem could only be solved by proper manipulation of the microphone off-on switches by the Justices themselves. If this constitutes a serious objection to use of the system during those sessions devoted to argument of counsel and questioning by the Justices, the sound reinforcement system could still be used when the session is devoted to delivering of opinions by the Court.

In the event that you desire to install the proposed system, probably the most efficient procedure would be for your organization to obtain the services of a competent public address installation firm who would work out the detailed design. We stand ready, however, to provide any consulting services which you may require.

Very truly yours,

For the Director,
by

Richard K. Cook

Richard K. Cook,
Chief, Sound Section.

Enclosures

cc: Architect of the Capitol

Circulated - 5/10/49 -

Office of the Marshal,
Supreme Court of the United States,
Washington, D. C.

May 6, 1949

MEMORANDUM TO: The Chief Justice

RE: Acoustics in the Court Room

Last fall Dr. London of the Bureau of Standards made a study of the acoustics of our Court Room to determine whether the complaints of the Bar and public, that they could not hear the Court or Counsel, were justified. He found:

"Most of the difficulty in hearing the proceedings as evidenced by complaints from the public and from court stenographers sitting in the section reserved for members of the bar is apparently a result of the low sound level at which the Justices and sometimes the Counsel speak. If the speaker does not speak at a level somewhat above that of a normal conversational tone he is not understood by an appreciable part of the audience. This is a result of the interplay of several factors, the primary one being the rather large size of the Chamber, some 200,000 cubic feet. In addition, there is considerable background noise level due to operation of air conditioning equipment, audience noises such as coughing and walking, and noise resulting from ushering the public to their seats."

He suggests as a desirable solution to our problem, the improvement of the auditory conditions in the Court Room, that a public address system be installed with a microphone on Counsel's desk and on each desk of a Member of the Court. Loud-speakers would be arranged so as to provide sound reinforcement in the Bar and public seating section with an automatic sound level monitoring arrangement which would tend to keep the sound level constant in the chamber irrespective of differences in level at which each Justice or Counsel speaks.

My past objections to the installation of microphones on the Bench have been on the grounds that "asides" by the Justices might be picked up and amplified to their embarrassment. Dr. London assures me my fears no longer constitute a problem, that the microphones to be installed on the desks of the Members of the Court would have a pistol-like grip that must be squeezed to make the instrument operate, simultaneously a small red pilot light would light up as a further notice to the user that the circuit was in use, as soon as the hand pressure was released the instrument would once more be dead. When delivering opinions

The Chief Justice

May 6, 1949

a manual catch would hold the instrument in use which after the close of an opinion would be manually closed by the Justice. Should you agree the gripping of a small handle, or the sliding of a catch were reasonable safeguards, there would only remain the matter of securing an appropriation to defray the expenses of installation and upkeep. Dr. London further estimated the contemplated installation could be made for \$4,800.

After considerable thought I believe the installation should be more extensive than that discussed with Dr. London, that in addition to those mentioned above, microphones or plug-in boxes therefor should be installed on the desks of the Clerk and Marshal as they may be desirable at some future date.

Loud-speakers should be installed in the press room, counsel room and in at least one of our large conference rooms to accommodate the office assistants the lawyers bring with them or send to Court to listen for opinions, when frequently there is no space available for them in the Court Room; one in the Clerk's Office where the Assistant Clerk advises counsel by phone of what is there transpiring and one in the Marshal's Office likewise for the information of the bar and public continually asking what opinion is being read.

Each Justice's Office and probably the Justice's Conference Room should be provided with an outlet so that if indisposed or disqualified, a Member of the Court might listen if he wished.

For the occasionally quite deaf attorney a plug-in should be provided at the lectern to enable him to follow the Justices' questions; additional plug-ins would be provided at each front counsel table to enable counsel in the case to follow the argument. Six additional plug-ins for each the bar and public sections are recommended to provide a prospective user who should request the use of a headphones from an attendant with them.

While this additional equipment would probably more than double the original estimate it would justify itself. Further if the wires are not run at the time of the original installation or additional branches contemplated, it well might be that the machine to be installed would not at a later date accommodate them.

Should the Court be interested in the above suggestions, and I am so directed, I will, in conjunction with Mr. Lynn and his assistant, Mr. Kramer, then ascertain the best types of installation for our purpose as well as an estimate of the costs thereof and submit them at a later date for your approval.

Dr. W. J. ...

Office of the Marshal,
Supreme Court of the United States
Washington, D. C.

May 6, 1949

MEMORANDUM TO: The Chief Justice

RE: Acoustics in the Court Room

Last fall Dr. London of the Bureau of Standards made a study of the acoustics of our Court Room to determine whether the complaints of the Bar and public, that they could not hear the Court or Counsel, were justified. He found:

"Most of the difficulty in hearing the proceedings as evidenced by complaints from the public and from court stenographers sitting in the section reserved for members of the bar is apparently a result of the low sound level at which the Justices and sometimes the Counsel speak. If the speaker does not speak at a level somewhat above that of a normal conversational tone he is not understood by an appreciable part of the audience. This is a result of the interplay of several factors, the primary one being the rather large size of the Chamber, some 200,000 cubic feet. In addition, there is considerable background noise level due to operation of air conditioning equipment, audience noises such as coughing and walking, and noise resulting from ushering the public to their seats."

He suggests as a desirable solution to our problem, the improvement of the auditory conditions in the Court Room, that a public address system be installed with a microphone on Counsel's desk and on each desk of a Member of the Court. Loud-speakers would be arranged so as to provide sound reinforcement in the Bar and public seating section with an automatic sound level monitoring arrangement which would tend to keep the sound level constant in the chamber irrespective of differences in level at which each Justice or Counsel speaks.

My past objections to the installation of microphones on the Bench have been on the grounds that "asides" by the Justices might be picked up and amplified to their embarrassment. Dr. London assures me my fears no longer constitute a problem, that the microphones to be installed on the desks of the Members of the Court would have a pistol-like grip that must be squeezed to make the instrument operate, simultaneously a small red pilot light would light up as a further notice to the user that the circuit was in use, as soon as the hand pressure was released the instrument would once more be dead. When delivering opinions

The Chief Justice

May 6, 1949

a manual catch would hold the instrument in use which after the close of an opinion would be manually closed by the Justice. Should you agree the gripping of a small handle, or the sliding of a catch were reasonable safeguards, there would only remain the matter of securing an appropriation to defray the expenses of installation and upkeep. Dr. London further estimated the contemplated installation could be made for \$4,800.

After considerable thought I believe the installation should be more extensive than that discussed with Dr. London, that in addition to those mentioned above, microphones or plug-in boxes therefor should be installed on the desks of the Clerk and Marshal as they may be desirable at some future date.

Loud-speakers should be installed in the press room, counsel room and in at least one of our large conference rooms to accommodate the office assistants the lawyers bring with them or send to Court to listen for opinions, when frequently there is no space available for them in the Court Room; one in the Clerk's Office where the Assistant Clerk advises counsel by phone of what is there transpiring and one in the Marshal's Office likewise for the information of the bar and public continually asking what opinion is being read.

Each Justice's Office and probably the Justice's Conference Room should be provided with an outlet so that if indisposed or disqualified, a Member of the Court might listen if he wished.

For the occasionally quite deaf attorney a plug-in should be provided at the lectern to enable him to follow the Justices' questions; additional plug-ins would be provided at each front counsel table to enable counsel in the case to follow the argument. Six additional plug-ins for each the bar and public sections are recommended to provide a prospective user who should request the use of a headphone from an attendant with them.

While this additional equipment would probably more than double the original estimate it would justify itself. Further if the wires are not run at the time of the original installation or additional branches contemplated, it well might be that the machine to be installed would not at a later date accommodate them.

Should the Court be interested in the above suggestions, and I am so directed, I will, in conjunction with Mr. Lynn and his assistant, Mr. Kramer, then ascertain the best types of installation for our purpose as well as an estimate of the costs thereof and submit them at a later date for your approval.

Thos Waggaman

LEO F. MULQUEEN
ACOUSTICAL ENGINEER
CONSULTANT

ACOUSTICS

5222 MASS. AVE., N. W. WASHINGTON 16, D. C.

RECEIVED

MAY 16 3 32 PM '52

CHAMBERS OF THE
CHIEF JUSTICE

May 15, 1952

The Honorable
Fred M. Vinson,
Chief Justice,
United States Supreme Court,
Washington, D. C.

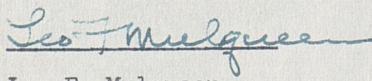
Dear Sir:

The enclosed editorial taken from The Washington Post comments on the poor acoustics in the Supreme Court.

As an acoustical engineer, I wonder why this condition exists and why the Court does not do something to correct this condition. Of course, the first step would be to employ a competent acoustical engineer whose opinions and recommendations would be unbiased in the selection of materials, and who could also work with the Architect of the building in maintaining the architectural design.

I would welcome the opportunity of doing this work. For your information, I enclose a reference list of some recent projects on which I acted as Consultant to the Architect or Owner.

Very truly yours,



Leo F. Mulqueen

File

Enclosures:

As stated.

Leo F. Mulqueen, Acoustical Engineer
5222 Mass. Ave. n.w. Washington, D.C.

Chairman - Technical Committee on Acoustical Materials; Federal Specifications SS-A-118a for prefabricated acoustical units, and SS-A-111 for Acoustic Plaster and Sprayed-on Acoustic Material.

Member - A.S.T.M. Technical Committee C-20 for Acoustic Materials.

Acoustical Consultant on the following recent projects:

<u>BUILDING</u>	<u>CITY</u>	<u>ARCHITECT</u>
U. S. District Courts	Washington, D. C.	Louis Justement
Howard University Moot Court	Washington, D. C.	Louis Justement
St. Thomas Apostle Church	Washington, D. C.	Murphy & Locraft
Shrine of Little Flower	Baltimore, Md.	Murphy & Locraft
Catholic Boys High School	Washington, D. C.	Murphy & Locraft
Catholic University Auditorium	Washington, D. C.	Murphy & Locraft
Trinity Methodist Church	Alexandria, Va.	Jos. H. Saunders
Our Lady of Lourdes Church	Bethesda, Md.	Patterson & Worland
St. Michaels Church	Silver Spring, Md.	Frank Duane
American Red Cross Bldg.	Washington, D. C.	Eggers & Higgins
University of Va. Speech Center	Charlottesville, Va.	Eggers & Higgins
Farmingdale H. S. Auditorium	Long Island, N. Y.	Eggers & Higgins
Port Washington H. S. Auditorium	Long Island, N. Y.	Eggers & Higgins
Presbyterian Memorial Chapel	New York City, N. Y.	Eggers & Higgins
State Univ. of N. Y. Medical Center	New York City, N. Y.	Eggers & Higgins
Dade County Civic Auditorium	Miami, Florida	Steward & Skinner
University of Penna. Lecture Rooms	Philadelphia, Pa.	James R. Edmunds
Johns-Hopkins Lecture Rooms	Baltimore, Md.	James R. Edmunds
Peoples Courts Building	Baltimore, Md.	James R. Edmunds
St. Johns Music Auditorium	Annapolis, Md.	James R. Edmunds
Catonsville High School	Catonsville, Md.	James R. Edmunds
New Cosmos Club	Washington, D. C.	Horace Peaslee
N. Y. Avenue Presbyterian Church	Washington, D. C.	Delos Smith
National Geographic Society	Washington, D. C.	Owner
Whitehaven Apartments	Washington, D. C.	Waverly Taylor
Abbott Hall Auditorium	Ft. Belvoir, Va.	Victor deMers
Museum of Fine Arts	Richmond, Va.	Merrill C. Lee
Randolph-Macon College	Ashland, Va.	Merrill C. Lee
Trinity Methodist Church	Richmond, Va.	Baskerville & Son
First Presbyterian Church	Asheville, N. C.	Anthony Lord
Vet. Adm. Theaters, Auditoriums, Chapels, etc.	U. S. A.	Veterans Adminis- tration