

LC 1095

FILMS

FREE from U.S. DEPARTMENT OF COMMERCE, National Bureau of Standards



On the cover: Filming "The Marketplace": Amid the textures and colors in Baltimore's largest meat and produce market, a state weights and measures inspector tests the accuracy of a commercial scale.

The Marketplace

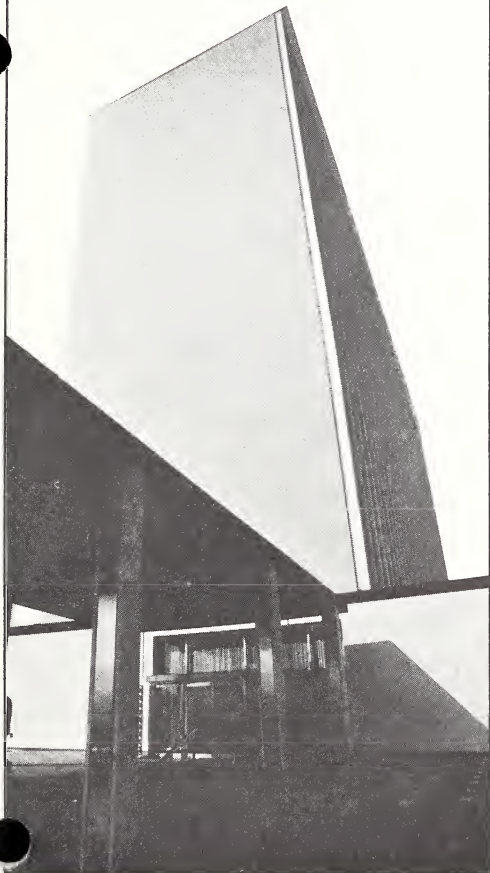
14 1/2 mins — 1978.

In the marketplace, money is exchanged for goods. . .by weight, measure, and count. Throughout our system of buying and selling, whether we are dealing in small quantities like one pound (0.45 kilogram) of meat or five gallons (20 liters) of gasoline, or large quantities like a railroad car full of grain, there must be equity based on accurate weights and measures. This film illustrates how accuracy in the marketplace is protected by local weights and measures officials. The audience spends a day with one such inspector as he tests scales in a produce market, checks the accuracy of gasoline pumps, and verifies the weight of prepackaged foods.

AUDIENCE: General

Free Films from the National Bureau of Standards

16mm/color/sound



The National Bureau of Standards, the Nation's physical science laboratory, develops measurement standards and techniques that affect almost every aspect of science, industry, and commerce. Some of the NBS programs--from radiation safety to dental techniques to noise control--are described in 16mm color sound films.

These films are available on free loan to scientific and professional organizations, educational institutions, and nonprofit community organizations. The intended audience is indicated after each film description and NBS urges general audiences not to request technical films.

All films listed in this catalog have been reviewed by NBS researchers and, although some films are over 20 years old, the information presented is still accurate and useful to the target audience.

Loan request and agreement forms are in the back of this catalog and should be sent to Association Films, Inc. (Distribution centers are listed on pages 14 and 15.) There is no charge for these films, and the borrower pays only return postage and insurance.

Prints may also be purchased. Write to the National Audiovisual Center, General Services Administration, Washington, D.C. 20409 for information.

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general science

Demonstration in Urban Noise Control

3 mins — 1972

Five ways to control one typical urban noise problem are discussed in this film. The problem is truck noise. The controls are improved mufflers, better tire tread design, artificial noise barriers, natural barriers, and improved building construction.

AUDIENCE: Urban developers and technologists, city officials, trucking and transportation organizations, environmental groups.



NBS Noise Presentation

10 mins — 1972

Using a graph to show the sound level in decibels, this film presents various sources of noise pollution such as industrial tools, construction tools, and rock bands. Originally prepared as an audio/slide presentation, the sounds were reproduced at real level using calibrated audio equipment. In order to achieve maximum effectiveness from this film, an amplification and speaker system that is separate from the film projector should be used.

AUDIENCE: General, especially city managers, urban developers, environmental control groups.

noise presentation

Field Burnout Tests of Apartment Dwelling Units

21 mins — 1969

An experimental housing unit was built for evaluating construction methods, sound transmission, and fire safety during three burnout tests. Using a wood crib to represent the combustible contents of a room and imposing the full structural design load, experts evaluated the fire performance of the total construction. (In the standard laboratory fire test, only individual components are tested.) These full-scale burnout tests demonstrate the extent to which new materials and advanced methods of construction are effective in protecting occupants and in preventing the spread of fire and smoke.

AUDIENCE: Building code officials, fire inspectors, engineers, architects, high school and college students.

Flashover: Point of No Return

12 mins — 1978

The film describes the nature of flash-over and fire and the threat they impose on patients in hospitals, nursing homes, and other health care facilities. The program is based on detailed studies of actual fires and analyses of full sized fire tests conducted at the National Bureau of Standards and other research laboratories. The film combines views of these fire tests with carefully drawn art work of fire and a dramatization of a true to life fire story in a nursing home.

AUDIENCE: Hospital and nursing home staffs and administrators, other public health officials. Also suitable for all other interested adult audiences.

flashover



5

The Fire Problem

4 1/2 mins — 1972

Fire damage and loss result from a chain of events. This film describes the chain and the efforts of the National Bureau of Standards to break the chain through prevention, control, and suppression programs.

AUDIENCE: Housing officials, fire prevention groups, students.

Law Enforcement Equipment Standards

6 1/2 mins — 1972

Performance and safety standards have been developed for law enforcement equipment. The film explains how the Law Enforcement Standards Laboratory tests equipment used in patrol cars and communications systems and for the personal protection and safety of the police officer.

AUDIENCE: Law enforcement agencies.

Lead Paint Poisoning

7 mins — 1978

Lead paint poisoning is a serious problem, particularly in older, dilapidated housing. This film briefly describes the problem and a non-destructive method of determining the level of lead in paint.

AUDIENCE: Health and housing officials, urban developers, local government groups, parent-teacher associations.

Measures for Air Quality

4 mins — 1972

The accuracy of measuring air pollution has been improved by new techniques and calibration standards developed at the National Bureau of Standards. The film describes the use of a laser scattering technique to detect airborne particles, including cigarette smoke. A sulfur dioxide detector, based on fluorescence measurements, and a permeation tube that supplies known amounts of sulfur dioxide for instrument calibration are also described.

AUDIENCE: City managers, urban developers, environmental control groups.

Restoration of Equestrian Statues at the Memorial Bridge

16 mins — 1972

Four equestrian statues at the Lincoln Memorial Bridge Plaza in Washington, D.C. have been restored using methods suggested by metallurgists at NBS. The scientists evaluated the condition of the statues and recommended several methods for restoration. The film follows the restoration process selected by the National Park Service, from initial cleaning of the statues to brush-plating the final applications of gold.

AUDIENCE: Metallurgists, corrosion engineers, plating specialists, architects, sculptors, art preservation groups.



equestrian statues

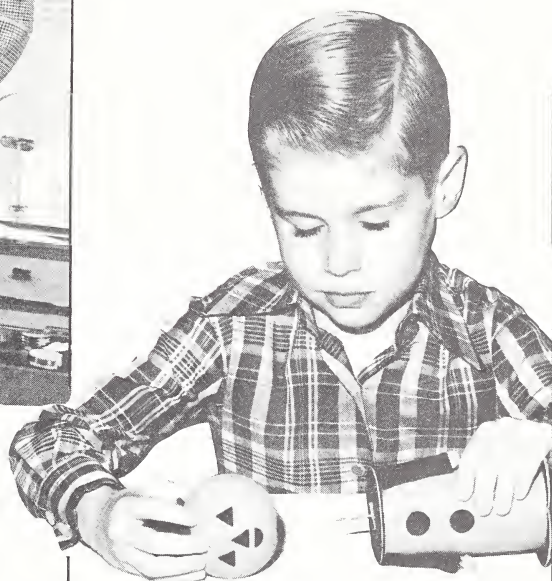


Standards for Excellence

28 1/2 mins — 1976

Take a journey through the world of basic standards and experience the importance of product quality and performance from jet travel to kitchen appliances. Your guide for this trip is actor John Astin who starts the tour at Thomas Jefferson's home, Monticello. You will see Jefferson's own standards for time, weights and measures, and building materials. The film then traces the growing need for standards in an increasingly complex world. The final stop is the National Bureau of Standards where uniform standards are developed and maintained.

AUDIENCE: General, junior high school students to scientists and engineers.



A Study of Young Children's Strength-Push, Pull, Twist and Squeeze

15 mins — 1973

In order to develop safer toys, manufacturers must know the strength of children. This film describes test methods and equipment developed by the National Bureau of Standards to determine the strength of children aged two to six. The results of the tests are applicable to the design of household products such as stoves and electrical cords as well as to children's toys.

AUDIENCE: Parent-teacher associations, consumer-safety interest groups, manufacturers' associations. □

technical

Calibration of the Platinum Resistance Thermometer

16 mins — 1964

Platinum resistance thermometers are calibrated at specified defining points on the International Practical Temperature Scale. The procedure used at NBS involving unique and intricate equipment is demonstrated. Knowledge of the nature of temperature, how it is measured, differences and similarities in the theoretically ideal (thermodynamic) scale, and the practical temperature scales increases the breadth of the information contained in this film.

AUDIENCE: Scientists, engineers, technicians in standards and calibration laboratories, other scientific and technical groups, advanced senior high school science students.

Critical Phenomena in Carbon Dioxide

8 mins — 1969

Some striking phenomena are observed when a fluid such as carbon dioxide passes through its gas-liquid critical point. The film demonstrates the formation and disappearance of separate gas and liquid phases, as well as the anomalous light scattering (critical opalescence) due to the large density fluctuations near the critical point. The film is intended as illustration material for lectures on phase transitions.

AUDIENCE: Physical scientists, college physics and chemistry students.

Crystal Structures at High Pressures

40 mins — 1969

Many materials can be characterized through the examination of crystal structures at high pressures. NBS scientists developed apparatus and techniques to solve specific problems arising in high pressure experiments, such as determining structure through X-ray diffraction. Sequences of high pressure transitions in carbon tetrachloride, potassium nitrate, water and benzene, illustrating the concept of pressure-temperature phase equilibrium diagrams, were filmed through a diamond pressure cell.

AUDIENCE: Advanced high school and college chemistry and physics students, chemists, physicists.

Diffraction Control System: A System for Easy Man-Machine Communications

15 mins — 1969

A diffractometer control system was set up at the NBS reactor. Three-dimensional data from a crystal of hydroxyl ammonium perchlorate is collected using a four-circle diffractometer. The digital computer performs the tedious operation required to collect data for crystal structure analysis. This highly technical film emphasizes that all tools are part of man-machine systems and that employing the tools correctly frees the human experimenter to supervise the procedure.

AUDIENCE: Technical, college-level and above.

The Double-Edge Sword

23 mins — 1976

Fail-safe devices are needed on diffraction or spectrographic radiation equipment, and various monitoring systems are available to help prevent severe X-ray burns. However, this training film stresses user responsibility to guard against accidents. Procedures to eliminate human error when using X-ray equipment are demonstrated.

AUDIENCE: College-level science students, radiologists, X-ray technicians, physicists, manufacturers of radiation equipment.

Extreme Wind Study

18 mins — 1975

Low-rise buildings are particularly susceptible to damage by hurricanes, typhoons, and cyclones. In order to develop criteria for these buildings, the National Bureau of Standards' Center for Building Technology collected wind data from full scale buildings in the Philippines. With their frequent severe storms, these islands served as a natural laboratory. The field data were applied to creating experimental procedures in a wind tunnel for improving building construction. The project was sponsored by the Agency for International Development.

AUDIENCE: Architects, building engineers, government and community planning officials, economists, regulatory officials.



extreme wind study

Hierarchical Control: NBS Research in Dynamic Sensors and Computer Control Techniques

20 mins — 1976

Programming industrial robots is easier and faster when done by computer, especially when higher levels of control are added. The film includes a demonstration of a robot performing simple tasks of stacking blocks and inserting a wooden peg in a hole. Sensory feedback from the robot to the computer is used to cope with the small misalignment of parts that might be encountered in a factory environment.

AUDIENCE: Computer science college students, industrial and manufacturing engineers, scientific and technical groups.



Preparation of White Cast-Iron Standards

15 1/2 mins — 1965

White cast-iron spectrochemical standards are cast at the experimental foundry of the Naval Research Laboratory where vivid furnace scenes of men working with molten metal were filmed. Sequences at NBS show homogeneity testing of samples by optical emission and X-ray spectroscopic methods of analysis. (An NRL-NBS film)

AUDIENCE: Industrial, semi-technical, student.

Trapping of Free Radicals at Low Temperatures

13 1/2 mins — 1960

Free radicals are atoms or fragments of molecules that are chemically very reactive because they have an unpaired electron in their structure. This film describes some of the procedures used to trap these radicals by storage in a solid matrix at temperatures only a few degrees above absolute zero. The techniques used at the National Bureau of Standards to measure free radical concentrations and the brilliant glows and color flashes emanating from some of the matrix-trapped radicals are shown.

AUDIENCE: Chemists, physicists, college science students.

The Ultrasonic Thermometer

4 mins — 1962

The development of an ultrasonic thermometer by NBS established an acceptable temperature scale in the four to fourteen Kelvins range. The film briefly presents theory and operation of the thermometer and indicates its use as a reference standard.

AUDIENCE: Working scientists, college science students, senior high school science students.

A Metric America: A Decision Whose Time has Come

35 mins — 1971

On September 14, 1971, then Director of the National Bureau of Standards, Dr. Lewis M. Branscomb, and Daniel V. DeSimone, at that time head of the metric study team at NBS, presented plans for metric conversion to the House of Representatives' Committee on Science and Astronautics. The film opens with former Secretary of Commerce Maurice H. Stans making the first public announcement of his recommendations to Congress for a metric program. The film then summarizes the U.S. Metric Study presentation. (Reference publication: "A Metric America: A Decision Whose Time Has Come," NBS Special Publication 345).

AUDIENCE: Weights and measures officials, industry.

Electronic Technology

Instructional video tapes in 3/4" color video cassettes

"Safe Operating Area Limits for Power Transistors" 28 mins — 1977

Suggests improvements in methods for measuring and specifying transistor power limits for forward bias operation.

"Laser Scanning of Active Semiconductor Devices" 55 mins — 1975

Presents new and powerful applications for laser scanning in semiconductor device design and reliability work.

"Defects in PN Junctions and MOS Capacitors Observed using Thermally Stimulated Current and Capacitance Measurements" 35 min — 1974

Two measurement methods are described which detect and characterize defects which can control such device characteristics as lifetime and junction leakage.

AUDIENCE: Electronics engineers, physicists, electronic engineering students. Not recommended for the general public. □

dental

Casting of Dental Gold Alloys: Thermal Expansion Technique

16 1/2 mins — 1951

This film illustrates that the fabrication of properly fitting dental castings depends on the proper selection and use of materials. The following are demonstrated: warping of wax patterns, selection and attachment of the sprue, investing and eliminating the wax pattern, and melting and casting the alloy.

AUDIENCE: This and the following seven dental films are appropriate for dentists and dental students.

Dental Amalgam: Failure Caused by Moisture Content

13 mins — 1948

One of the most common causes of amalgam failure is contamination produced when moisture reacts with the amalgam to produce hydrogen gas. The gas causes excessive expansion, lowers compressive strength of the amalgam, and forms blisters. The film includes a demonstration of a satisfactory technique for the prevention of contamination.

Dental Roentgenographic Film: Characteristics and Use in Radiation Hygiene

20 mins — 1962

Radiation hygiene can be improved through the proper use of roentgenographic film. This movie acquaints the dentist with technical terms used to describe roentgenographic film characteristics. Slow, medium, and fast roentgenographic films are compared and use of fast film with older X-ray equipment is demonstrated. (Produced in cooperation with the American Standards Association.)



An Experiment in Titanium- Base Dental Castings

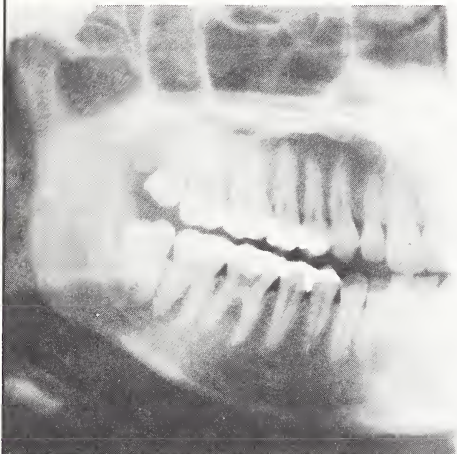
7 mins — 1978

NBS research indicates that titanium-based alloys might be successfully substituted by dental laboratories for the cobalt- or nickel-based alloys currently used in dental appliances. This film documents a laboratory experiment in casting dental appliances from a titanium-based alloy.

Dental X-Ray Equipment: Alteration for Modern Radiation Hygiene

18 mins — 1959

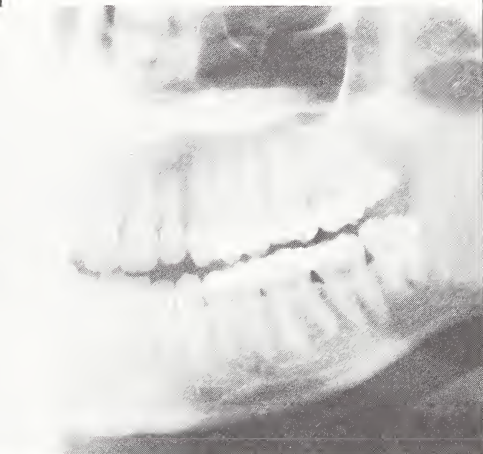
Dentists can check their X-ray equipment for lack of collimation and filtration of the useful beam and other malfunctions so that good diagnostic pictures may be produced with a minimum amount of radiation to the patient. This film demonstrates how high speed film can be used with the X-ray machines that are now used in dental offices. The recommendations are outlined in dental literature and in the NBS radiation handbooks, prepared by the National Committee on Radiation Protection.



A Porcelain Jacket Crown Technique

23 mins — 1955

Fusion shrinkage in porcelain jacket crowns can be greatly reduced by using the simplified method described in this film. The crowns are made using a prefabricated porcelain veneer consisting of stock tooth and two porcelains having widely different fusion temperatures. This technique also reduces the number of fusions from the customary four or five to two. (Produced in cooperation with the University of Montevideo, Uruguay.)



Dental Burs in Action

10 mins — 1955

The selection and operation of rotating dental cutting instruments is stressed in this film. Use of the proper instruments results in rapid cavity preparation with minimal discomfort for the patient.

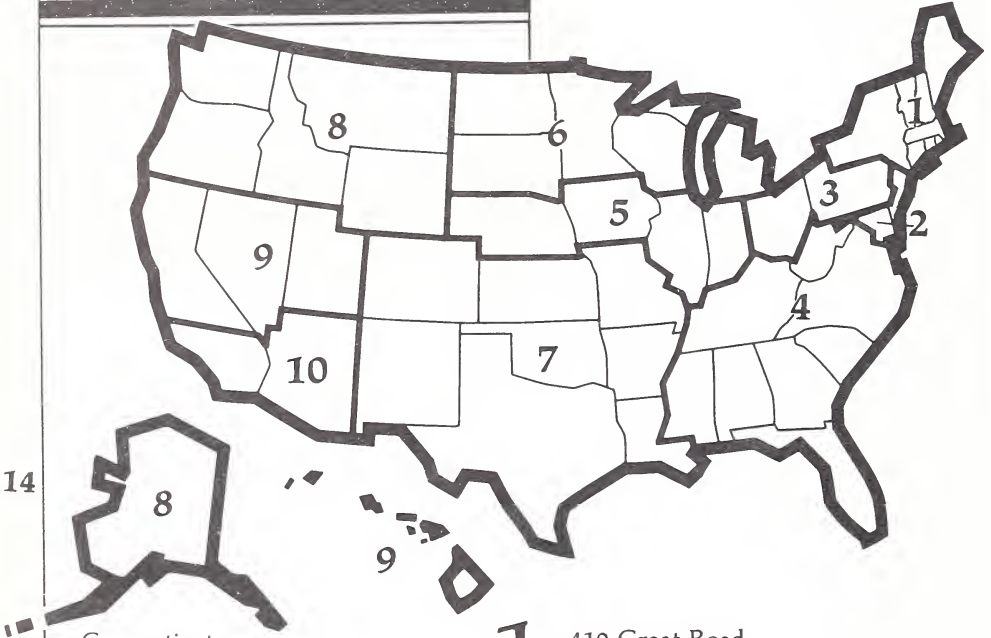
Silicate Cement

18 mins — 1947

Two primary principles must be adhered to in order to achieve satisfactory restorations with silicate cement: (1) incorporating as much powder as possible into a given quantity of liquid as rapidly as possible and (2) protecting the cement from loss or gain of water before and during mixing and throughout the hardening period. In a series of laboratory tests, the film illustrates the effect of proper techniques on the various critical cement properties such as setting time, strength, shrinkage, solubility, and staining. □

Association Films Distribution Centers

Please order films from the Association Films distribution center nearest you.



14
8
9
10

Connecticut
Maine
Massachusetts
New Hampshire
New York
Rhode Island
Vermont

1
410 Great Road
Littleton, Massachusetts 01460
617/486-3518

Delaware
District of Columbia
Maryland
New Jersey

2
600 Grand Avenue
Ridgefield, New Jersey 07657
201/943-8200
PE6-9693 (NYC residents)

Ohio
Pennsylvania

3
324 Delaware Avenue
Oakmont Pennsylvania 15139
412/828-5900
412/362-5011 (Pittsburgh residents)

Alabama
Florida
Georgia
Kentucky
Mississippi
North Carolina
South Carolina
Tennessee
Virginia
West Virginia

4 5797 New Peachtree Road
Atlanta, Georgia 30340
404/458-6251

Illinois
Indiana
Iowa
Nebraska

5 512 Burlington Avenue
LaGrange, Illinois 60525
312/352-3377
Blshop 2-1898 (Chicago residents)

Michigan
Minnesota
North Dakota
South Dakota
Wisconsin

6 6420 West Lake Street
Minneapolis, Minnesota 55426
612/920-2095

Arkansas
Colorado
Kansas
Louisiana
Missouri
New Mexico
Oklahoma
Texas

7 8615 Directors Row
Dallas, Texas 75247
214/638-6791

Alaska
Idaho
Montana
Oregon
Washington
Wyoming

8 915 NW 19th Avenue
Portland, Oregon 97209
503/226-7695

California (north of San Luis
Hawaii Obispo)
Nevada
Utah

9 6644 Sierra Lane
Dublin, California 94566
415/829-2300

Arizona
California (San Luis Obispo and
south)

10 7838 San Fernando Road
Sun Valley, California 91352
213/767-7400
875-3242 (Los Angeles residents)

Ordering and Handling

How to order films:

NBS films are now available for free loan through Association Films distribution centers. Complete order blank and film loan agreement (found on pages 17-20) and send to the Association Films Distribution Center located nearest to you. See page 14-15 for addresses.

How to handle films:

16 Use experienced projectionist. Films should be handled and shown by an operator who is familiar with the projector. Show the film on a **sound projector only**; running an NBS film on a silent projector will damage the film beyond repair.

Rewind film before returning it.

Please rewind the film after you have shown it for the last time. This will help us during our check-out of the film before it is sent to another borrower.

Do not try to repair a damaged film.

If a film is damaged, **please do not try to repair it**. Simply make a note of the damage, enclose the note in the film case, and return everything to us.

Return film promptly. Be sure to return the film to the same Association Film distribution center from which you borrowed it. All the prints of NBS films are booked for loan on a tight schedule. By returning the film promptly, you help us keep our commitments to other scheduled borrowers.

Insure film for return trip to Association Films. Please insure the film when you return it to protect yourself and the National Bureau of Standards from needless expense if the film is lost.

U.S. DEPARTMENT OF COMMERCE
National Bureau of Standards

Film Loan Request

Title(s) of film(s) requested:

Date of showing:

Alternative dates:

Estimated number of viewers:

Address to which film should be sent (*please type or print*):

Organization:

Attention:

Street Address:

City:

State:

Zip Code:

**Important: Please sign Film
Loan Agreement on reverse
side.**

U.S. DEPARTMENT OF COMMERCE
National Bureau of Standards

Film Loan Agreement

Please read and sign this
Agreement when you send your
film loan request.

WE AGREE TO:

Abide by the policy of the National
Bureau of Standards that neither
this film nor the name of the
Bureau will be used to indicate or
imply approval or recommendation
of any product, material, or private
agency. Return the film promptly
after showing and pay return
parcel post costs, including insur-
ance.

Date _____

Signature _____

Title _____

Return this request to:
See pp 14-15 for Association
Films, Inc. list and the distribution
center that serves your
geographical area.

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LC 1095
September 1978

Letter Circular 1095: films
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