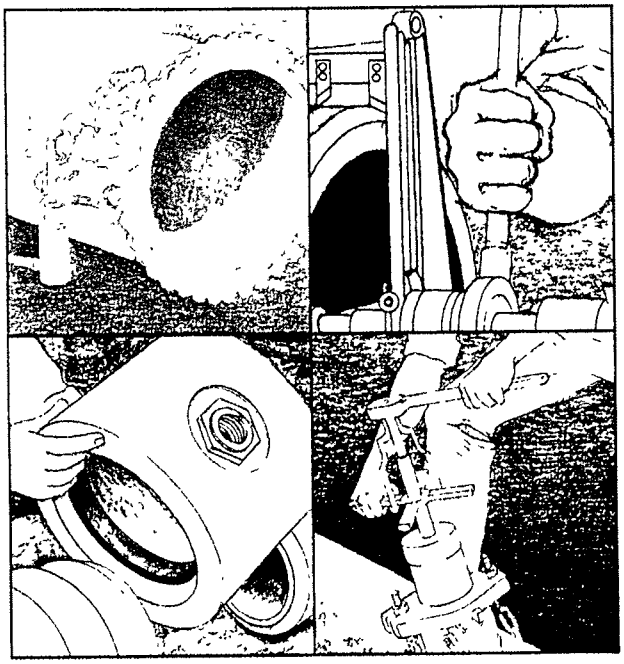
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Recommended Work Practices for A/C Pipe



A/C Pipe Producers Association

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Introduction

Information and guidance given in this pamphlet are to assist compliance with U.S. federal asbestos workplace standards when shipping, receiving, handling and assembling asbestos cement (A/C) pipe. The use of good work practices is recognized as a principal means of reducing the health hazards associated with prolonged exposure to high levels of asbestos fibers.

In 1977, the A/C Pipe Producers Association commissioned Equitable Environmental Health, Inc. to study and collect information, including quantitative, on potential asbestos fiber exposures to A/C pipe workers. EEH simulated field operations for: 1) unloading pressure pipe at the work site; 2) laying pressure pipe in a trench; 3) cutting pressure pipe with snap cutting equipment; and, 4) machining pressure and sewer pipe with manual and power lathes. These operations produced airborne asbestos fiber concentrations below the current U.S. Occupational Safety and Health Administration standard when the work practices outlined herein were used.

In fact, OSHA noted the two EEH studies in its preamble to the 1986 asbestos construction standard, in determining that A/C pipe exposures can be checked at levels under 0.1 asbestos fibers/cubic centimeter, the OSHA "action level." *See*: 51 FR 22663 (1986).

Thus, the work practices and engineering controls that appear on the following pages have been developed through experience, study and field testing. They are designed to achieve safe job site conditions when working with A/C pipe.

ACPPA believes that this pamphlet will be helpful to warehousemen, architects, engineers, superintendents, contractors, foremen and pipe installation crews.

Copies of the EEH studies are available, write: ACPPA, 1745 Jefferson Davis Hwy, Suite 509, Arlington VA 22202

Asbestos and Health

Asbestos is the name of a class of magnesium-silicate minerals that occur in fibrous form. Minerals that are commercially referred to in this group are chrysotile, crocidolite and amosite.

Asbestos can cause a disabling respiratory disease, asbestosis, and various types of cancers, like lung cancer and mesothelioma, if the fibers are inhaled in large quantities over long periods of time. The symptoms of these diseases generally do not appear for 20 or more years after initial exposure.

Epidemiological studies indicate that the risk of lung cancer among exposed workers who smoke cigarettes is greatly increased over the risk of lung cancer among exposed non-smokers. These studies also suggest that cessation of smoking will reduce the risk of lung cancer for a person exposed to asbestos.

The potential for a product containing asbestos to release respirable fibers depends on its degree of friability Friable means that the material can be crumbled with hand pressure and is therefore likely to emit fibers. A/C pipe, generally considered a non-friable product, can emit some airborne fibers if the material is cut or sawed

However, when installing or maintaining A/C pipe, the release of airborne asbestos fibers can be kept well below the U.S. Occupational Safety and Health Administration asbestos construction standard's 0.1 fiber/cubic centimeter "action level" or even completely eliminated, through the use of work practices and engineering controls demonstrated in this pamphlet.

Summary of OSHA Asbestos Standard

The Occupational Safety and Health Act was signed into law on Dec. 29, 1970. Under the Act, the U.S. Occupational Safety and Health Administration was created within the Department of Labor. The law included among OSHA's duties: to reduce workplace hazards, and to develop mandatory job safety and health standards and enforce them effectively.

On Dec. 7, 1971, the Secretary of Labor issued a temporary standard for workplace exposure to asbestos dust. Six months later, a permanent standard for asbestos exposure was promulgated. Since, the OSHA asbestos standard has undergone several overhauls, especially with regards to the "permissible exposure limit."

In OSHA's current standard, effective July 21, 1986, it is the employer's responsibility to ensure that employee exposures to airborne asbestos fiber concentrations do not exceed the permissible exposure limit, i.e., an eight-hour time-weighted average of 0.2 fibers greater than five microns in length per cubic centimeter of air.

Additionally, the 1986 OSHA construction standard on asbestos, 29 CFR 1926, prescribes initial monitoring and other stringent compliance measures. High-speed abrasive disc saws are prohibited if not equipped with local exhaust ventilation and a HEPA filter dust collection system. (Notwithstanding, ACPPA had recommended against the use of such unequipped saws in its work practices handbook published in 1977.) Employees exposed to airborne asbestos fibers at and above an action level of 0.1 fibers/cc must be specially trained and allowed to observe all air monitoring. If exposed for 30 or more days a year, they must be provided with medical surveillance.

However, airborne asbestos fiber exposures that are less than the action level fall outside of the standard's scope for the most part.

A/C pipe contractors can avoid the initial air monitoring requirements required at the beginning of

each asbestos job. The standard provides that objective data may be used to demonstrate that employee exposures will be below the action level under those work conditions which have the greatest potential for fiber release.

The A/C pipe work practices recommended here are based on data for "peak dust concentrations" representing short time periods of maximum exposure. Snap cutting and machining operations involving A/C pipe are infrequent and of short duration. In using these recommended work practices, it is improbable that field personnel would be exposed to asbestos levels exceeding the 0.1 fibers/cc OSHA action level in a typical working day

Products and Operations

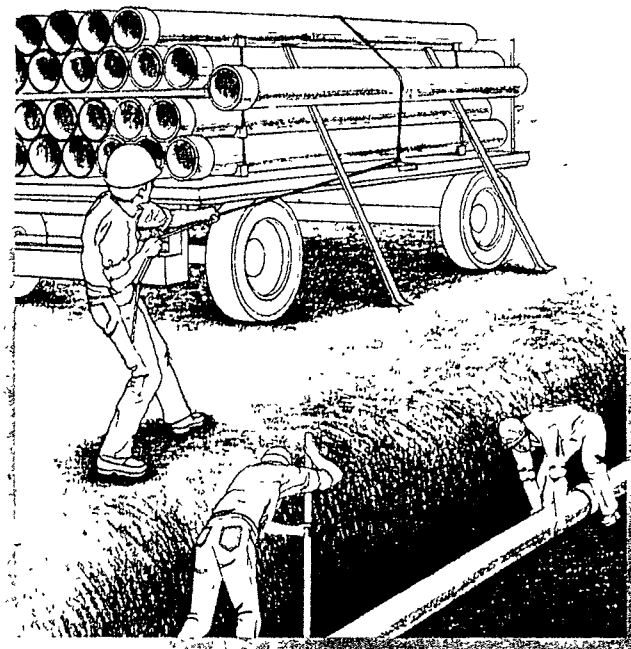
A C Pipe Products covered by these work practices and engineering controls include:

"Class" Pressure Pipe;
"Transmission" Pressure Pipe;
Gravity Sewer Pipe;
Building Sewer Pipe;
Pressure Sewer Pipe; and,
Storm Drain Pipe.

Operations these work practices and engineering controls apply to include:

Shipping, Receiving and Handling;
Tying-In;
Tapping; and,
Housekeeping and Waste Disposal.

Shipping, Receiving, Handling and Assembly

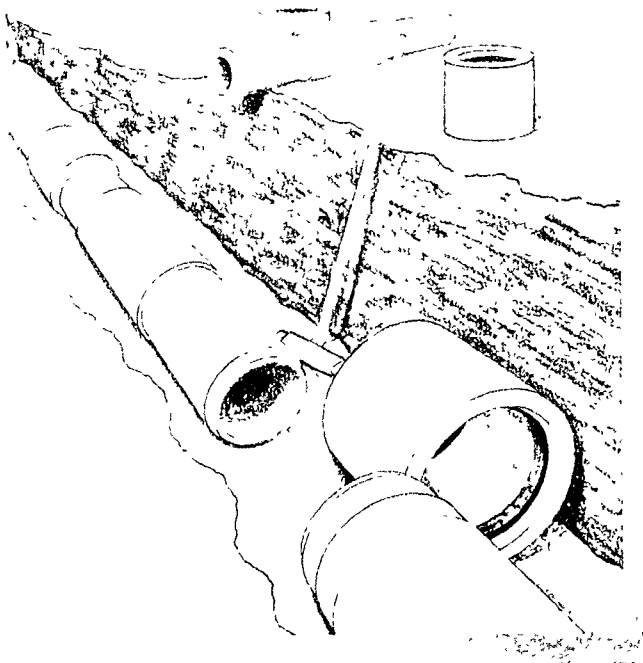


A/C pipe manufactured in the United States is shipped clean from the factory. And, it is loaded and transported according to methods acceptable to the carrier. In the field, the loading, unloading, stringing out, and assembling of A/C pipe are virtually dust-free operations.

All hand and mechanical unloading operations should be carried out in accordance with manufacturer's instructions.

A/C Pipe Products: All
Size Range: All

Tying-In A/C Pipe: Closure System



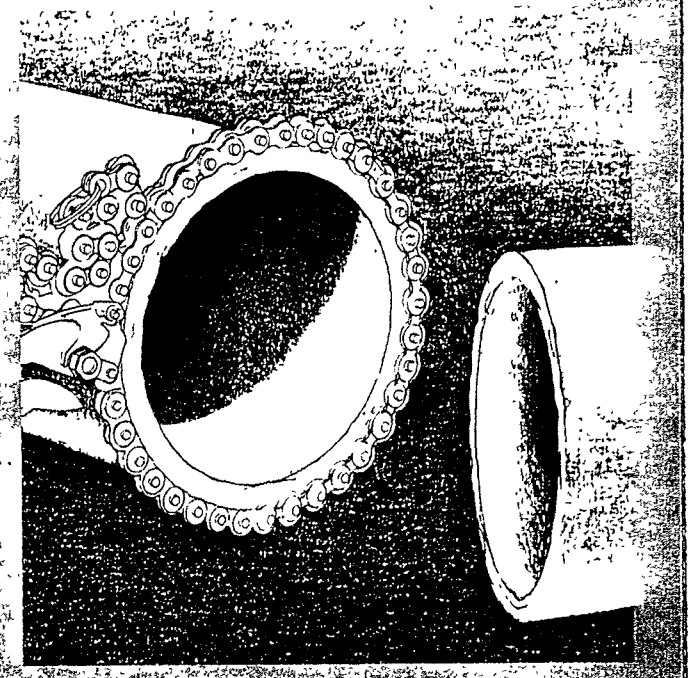
Through the use of closure lengths and closure couplings, closure distances from one inch to 13 feet can be spanned without any field cutting of A/C pipe. The practice of using these closure lengths and couplings also eliminates possible airborne asbestos fiber exposures resulting from the field cutting of A/C pipe during installation of a main line distribution system.

Contact the A/C pipe manufacturer to obtain necessary pipe lengths and other materials.

A/C Pipe Products: All
Size Range: All

WARNING: HIGH-SPEED ABRASIVE DISC SAWS ARE PROHIBITED BY OSHA IF NOT EQUIPPED WITH LOCAL EXHAUST VENTILATION AND A HEPA FILTER DUST COLLECTION SYSTEM.

Tying-In A/C Pipe: Snap Cutting



A snap cutter or "squeeze and pop" equipment is a set of cutting wheels evenly mounted in a chain that can be wrapped around a pipe barrel. Hydraulic pressure being applied by an electric or manually-operated pump, squeezes the cutting wheels simultaneously into the pipe wall until cleaved through.

A/C Pipe Products: All
Size Range: All

WARNING: HIGH-SPEED ABRASIVE DISC SAWS ARE PROHIBITED BY OSHA IF NOT EQUIPPED WITH LOCAL EXHAUST VENTILATION AND A HEPA FILTER DUST COLLECTION SYSTEM.

Tying-In A/C Pipe: Machining—Field Lathe—Manual



Manual field lathes are designed to end-trim and re-machine rough pipe barrels into factory-machined end profiles. The lathe consists of an adjustable, self-aligning arbor inserted into the pipe bore (which acts as a mandrel upon which the turning handle operates), a screw-fed turning frame, carbide machining blades and manual (hand or ratchet) turning handles.

A/C Pipe Products: All
Size Range: All

Tying-In A/C Pipe: Machining—Field Lathe—Power



Power field lathes, like manual lathes, are designed to end-trim and re-machine rough pipe barrels into factory-machined end profiles. The lathe consists of an adjustable, self-aligning arbor inserted into the pipe bore (which acts as a mandrel upon which the turning handle operates), a screw-fed turning frame, carbide machining blades and an electric or pneumatic power drive.

A/C Pipe Products: All
Size Range: All

Tapping A/C Pipe: Pressure

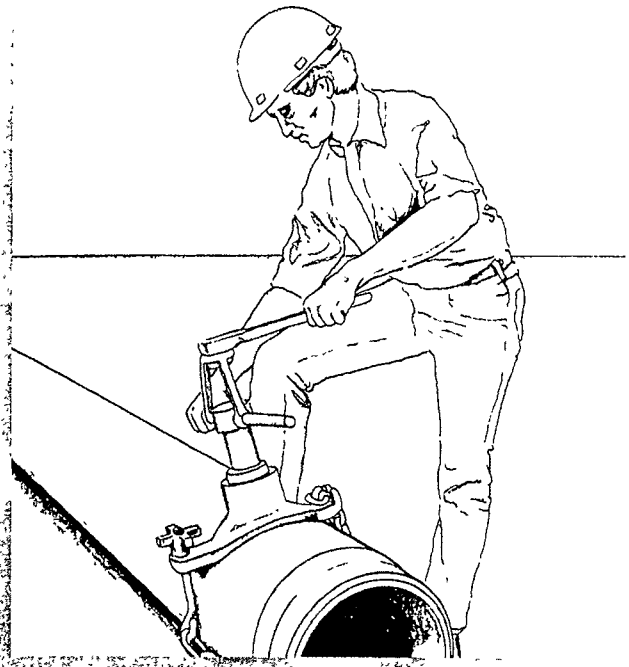


Pressure or "wet" tapping can be utilized for service connections while the pipe is under pressure. In the trench, the manual or power-driven equipment is affixed to the pipe with a chain yoke. A combination boring and inserting bar drills and taps the pipe wall and inserts, then, a corporation stop or pipe plug. The tool's pressure chamber protects against water leakage and catches the A/C chips, making this a virtual dust-free operation.

To minimize the a) fouling of valves, regulators, meters, etc. with chips, and b) unnecessary addition of asbestos fibers to drinking water, provide for downstream flushing or utilize tapping equipment with positive-purge, "blow-off" features.

A/C Pipe Products: All
Size Range: All

Tapping A/C Pipe: Non-Pressure



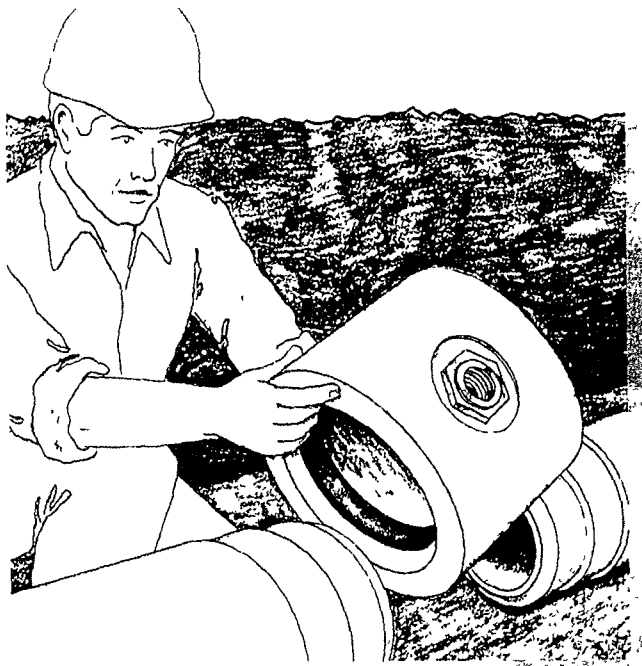
Non-pressure or "dry" tapping can be utilized for service line connections. In or above the trench, the tapping equipment is affixed to the pipe or coupling with a chain yoke. Then, a drill and tap, separately or in combination, cut an opening in the pipe wall. Corporation stops or other connectors are then joined to the pipe.

All A/C dust and cuttings should be removed from the pipe interior prior to placing the pipe in service. Clean up is important to minimize the a) fouling of valves, regulators, meters, etc. with chips, and b) unnecessary addition of asbestos to drinking water. Flush with water, wet mop, or vacuum with HEPA-filtered equipment.

DO NOT DRY SWEEP OR USE COMPRESSED AIR TO REMOVE ASBESTOS.

A/C Pipe Products: Non-pressure Pipe
Size Range: All

Tapping A/C Pipe: Tapped Coupling



Field tapping of A/C pipe can be eliminated altogether through the use of a factory-installed, threaded brass insert coupling. Besides its factory precision, this "tapped coupling" also eliminates the possibility of A/C cuttings entering the pipeline, which can foul valves, regulators, meters, etc.

In place of a regular coupling, simply install a tapped coupling, mark the location, insert a corporation stop and continue laying A/C pipe.

A/C Pipe Products: Pressure
Size Range: All

Housekeeping and Waste Disposal

Clean-up is equally important to a safe A/C pipe construction project. Airborne asbestos fibers can be created from A/C pipe dust, cuttings and debris AVOID CREATING DUST.

In the field at the temporary job site, A/C pipe dust, cuttings and debris should be covered immediately with dirt and buried alongside in the trench.

Otherwise, A/C pipe dust, cuttings and debris should be wetted with water or a mixture of water and surfactant, and then promptly collected from the ground, etc. in leak-tight six-mil thick plastic bags, plastic-lined metal cardboard containers, or plastic-lined metal containers. DO NOT DRY SWEEP.

The collected waste materials should be discarded at a waste disposal site in accordance with local, state and federal laws and regulations



A/C Pipe Producers Association
1745 Jefferson Davis Hwy, Suite 509, Arlington, VA 22202

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