

8. BOSTON, MASSACHUSETTS, WORKSHOP - WRITTEN COMMENTS AND
CORRESPONDENCE



ASSOCIATION OF SOIL AND FOUNDATION ENGINEERS

REPLY TO

Mr. William S. Zoino
c/o Goldberg-Zoino &
Associates, Inc.
Newton Upper Falls, MA 02164

July 17, 1981

Mr. Felix Yokel
U.S. Dept. of Commerce
National Bureau of Standards
Bldg. 266, Rm. B162
Washington, D.C. 20234

Re: Boston OSHA Subpart P
Workshop

Dear Felix,

I thought that the workshop in Boston went quite well, and I am happy to see that we have now finished in all the cities. I have three brief comments I wish to pass along to you.

1. Section 1926.652 (b) (5) (iii)

If excavations up to 2 feet (or 3 feet) are allowed below the bottom of sheeting in short-term excavations, I think that the longitudinal length of such excavations should be limited. Obviously, if the length is limited, the soil can conveniently arch around the area to provide room for excavation of a utility line, and so forth. But I do not think that a long stretch of such excavation below the sheeting should be allowed.

2. Long-Term versus Short-Term Excavations

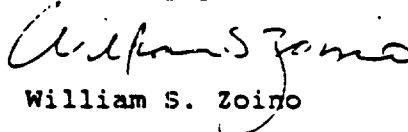
As you know, there was considerable discussion on this point as to what is a reasonable definition of "long-term." My personal choice is anything in excess of one day, and anything less than one day should be considered "short-term." However, as a maximum, I think three days to accommodate a weekend would be a practical limit to a short-term excavation. In this respect, I think you should also add sensitive clays or sensitive soils to the list of those soils where the shear strength may deteriorate with time due to disturbance and vibrations in the area.

Mr. Felix Yokel - July 17, 1981 - Page Two

3. As you know, there was much discussion on the possibility of the registered professional engineer certifying the work. I do not think there is any practical way this can be accomplished. The reason is simply that the behavior of the excavation is dependent not only on the design parameters utilized by the geotechnical engineer, but is also based on the method and quality of workmanship of the contractor. These two contributions to movement and deformation are inseparable, and therefore, it is impossible to put the burden entirely on the design engineer. While I personally prefer that deep excavations be designed by a registered professional engineer; nevertheless, we must recognize that it is the contractor who is responsible for the work area and for everything that goes on within the work area. Consequently, the contractor should be given the latitude to design the excavation himself, using his own experienced, competent people. Whether or not they are registered professional engineers is a moot point.

By copy of this letter to John Ramage, I am asking John to review all the comments and input to this date and, if necessary, to correspond with you further on this subject.

Sincerely yours,



William S. Zoino

WSZ:lab

Enclosure

cc: John Ramage
Jim Kleinfelder

Boston



A 100-year start on tomorrow

July 13, 1981

Comments by Kodak Park Division of Eastman
Kodak Company at Boston, MA, Workshop,
Trenching & Excavation Standards, on Working
Draft prepared by National Bureau of Standards
dated February 20, 1981.

The Kodak Park Division of Eastman Kodak Company does a large portion of the construction and maintenance of its buildings and underground utility lines. This includes excavations for buildings and other major structures as well as trenching for new water, sewer, and electric services. It also includes excavation for emergency repair of these underground services. We are also involved with many trenching and excavation contractors at all of our locations in the U.S. and expect that the execution of this work be done safely and efficiently.

The hazards of inadequately shored or braced excavations are well recognized by experienced persons active in that type of construction. Unfortunately, satisfactory source standards were not available when OSHA promulgated the existing 1926 standards and their subsequent enforcement efforts have not been entirely productive in the reduction of serious accidents or in providing assistance in needed safety precautions.

We believe that the National Bureau of Standards has done a commendable job in drafting these suggested revisions. They have recognized that excavation site conditions are widely variable and the application of judgment for each location by knowledgeable people is needed. The proposed standard is written in performance language and the supplemental non-mandatory guidelines that are included should be very helpful in the solution of specific problems. Eastman Kodak supported a similar approach used by OSHA in the revision of the General Industry Standards for Fire Protection which were adopted last December, and the Electrical Workplace Standards which were adopted in April 1981.

Attached are our comments on the identified issues plus some addition items. We will be pleased to elaborate on these comments if additional information would be helpful.

Some Issues that Should be Considered in the Workshop

1. Page 6. Section 1926.651(a): This section appears to fall within the scope of Subpart S. Should it be dropped?

A. Subpart S, Tunnels and Shafts, Caissons, Cofferdams, and Compressed Air is not the appropriate place to call for locations of utilities prior to excavation. The problem of interrupting utilities and the resulting employee hazards are most likely to be found while preparing surface excavations and thus belongs in Subpart P.

2. Page 8. Section 1926.651(p): Should the exit requirements for excavations start at 5 ft rather than 4 ft depth?

Please refer to our general comments on this section.

A. Yes, it is reasonable to expect the type of individuals who work in excavations to have the strength and agility to make his own way out of a 5 ft deep excavation without the aid of something or someone else. Also, the additional one-foot allowance will include many trenches, and a pipe is often present which would serve as a step to aid the exit process. Also, in trenches, the work is being done in a constantly changing location and the need to frequently move the ladder or exit device may be considered a nuisance by the trench workers if they do not believe it is practical to use.

Should exit requirements be waived for excavations which are wide enough to permit people to escape toward the center of the excavation?

A. Yes, the major concern for death or injury is in the relatively narrow excavations such as trenches where escape during rapid cave-in is very much more difficult because escape options are far fewer than in wider excavations. The alternative requirement should be that the excavated area allow unimpeded movement away from the excavation walls to a safe location.

Should it be recognized that large enough pipes or other covered structures can shelter people?

The intent of this question is not clear. A large pipe being installed can serve as a temporary refuge, but it does not seem appropriate to include that as part of a planned protection system in lieu of shields or shoring. However, a permissible practice would be to permit the use of the pipe as a shelter while the trench shield is being relocated which is a normal procedure in many situations. Alternatively, existing large pipes or structures adjacent to the excavated area can serve as a type of shoring to help support the excavation side. Good judgment and sometimes engineering analysis may be required, however, for the use of pipes that appear to give marginal support.

Should "negotiable slope" be better defined?

A. This definition seems adequate for its purpose, though there may be some arguments about a person's ability to climb a slope being used. Perhaps the only validation required should be a physical demonstration of an employee using the slope to egress or ingress before work begins.

3. Page 9. Section 1926.652(a)(2)

a) Could the depth limitation in the "Standard Practice" be extended to 24 ft?

Whether the excavation is 20 ft or 24 ft before requiring the services of a registered engineer is somewhat arbitrary. There should be some limit, however, and since the 20 ft limit has been used in several standards, such as the New York State Code Rule 23, it probably should be kept.

b) Should a "qualified person" be substituted for an "engineer"?

There are probably relatively few registered engineers who would be competent in the design of earth shoring systems or slopes, and there are probably many capable people who are not registered professional engineers who have developed suitable expert qualifications in this area. The definition of "qualified person" probably is more descriptive than the definition for "engineer" in determining a person competent in designing shoring systems and earth slopes.

4. Page 10. Section 1926.652(b)(1): Should the short-term excavation definition extend to 7-days rather than 1-day? If so, do we need more conservative requirements?

We do know that a 7-day definition for short-term excavation can be applied to most soil conditions in our area. The more commonly found soils which may range in grain sizes from clays to gravels would most likely permit a 7-day short-term definition in other parts of the country as well.

There are basically two conditions which normally change the strength of insitu soil with time after an excavation has been made, both having to do with changes in water content:

1. If an excavation is dug below the water table surface, or if an excavation is partially filled with water and this water is rapidly drawn down by pumping, relatively large pore water pressures between the soil particles remain. This may cause a temporary stability problem which will improve with time as excess pore pressures dissipate. So, when excavating primarily fine grain or relatively impermeable soils such as clays and silts, the initial water condition is important. When the walls stabilize after the water is pumped out, short-term excavation criteria can be safely applied, as long as the excavation is not allowed to refill with water. Paragraph 1926.651(d) and note 3(b) of table 1 of the draft Subpart P revision recognize this problem.
2. When excavating in granular or permeable soils such as sands, there will be a temporary apparent cohesion caused by negative pore pressures in the partially saturated, draining soils. This negative pore pressure is caused by capillary tension. As the soil in the excavation walls dries, the negative pore pressures will dissipate making the soil weaker in shear and possible causing sloughing or slides. This is a condition which will deteriorate with time and the length of time will depend on how fast the soil in the excavation walls will dry to a significant depth. Probably in normal conditions, instability will occur considerably later than 7 days after the excavation work, particularly when the excavation wall is covered with sheeting, retarding evaporation of water.

We feel the large majority of the cases will allow the extension of short-term to 7 days. Perhaps an extension to 3 days might be a good compromise which would allow, as a worst case, excavation before a weekend to backfilling after a weekend, as long as water is not allowed to accumulate in the excavation and be pumped down again.

5. Page 11. Table 1: Should the stipulation of maximum slope be limited to 3/4:1? Should the suggested performance requirement (footnote b)(the "stable slope" concept) be used? Will this approach work?

A. The 3/4:1 maximum slope should be reasonable.

Judgments of the description of the soil encountered, degree of saturation and changing conditions as the excavation progresses might overlook something, possibly resulting in a marginal stability problem from time to time. There should be some means to correct such shortcomings if there is evidence of instability, and the provision to flatten the slope by 1/4:1 should be appropriate. This adjustment should be made before anyone enters the excavation.

6. Page 12. Figure 2: Should the allowable bank next to the work area in Cases II, III, and IV be increased to 4 ft? Should "Case IV" be limited to excavation by trenching machines?

A. The purpose, usually, for having a subtrench at the bottom of a sloped excavation is to provide a better lateral restraint for the pipe after the pipe is bedded and in place. This, in most cases, allows the pipe to withstand greater overburden and ground surface loads without failure. For large pipes (6 ft or more in diameter), it may be important to be allowed a deeper subtrench. For employee safety purposes, whether 3 or 4 ft is used is arbitrary, and would probably depend on judgment of the increased risk, if there is any, by going to the 4 ft subtrench. The potential volume of sliding soil, indicated by the spaces between the solid and dotted lines in figure one, does seem to be relatively small even at 4 ft. The upper portion of the trench would have to be widened or flattened to accommodate the 4 ft subtrench in order to meet the table 2 criteria. Finally, at 4 ft, the head and shoulders of most workers would be outside of the subtrench. It seems reasonable to us to extend the subtrench depth to 4 ft.

7. Page 13. Section 1926.652(b)(4)(ii): This section, unlike most others in Subpart P, is not addressed to the man in the field but to those who pre-design shoring systems. Yet the section is necessary to avoid unreasonable vagueness. Should this section be at the end of Subpart P? Should part of it be conveyed as definitions?

A. These loadings are already in the, "Guidelines Supplementing Subpart P, Section 2.2.2, 'Operational Loads'." If these loadings, with the possible exception of the impact load, are meant to also apply to job designed shoring, which Subpart P does not say, then these provisions should remain in the body of this Subpart where they are.

8. Page 16. Section 1926.652(b)(5)(ii): This section makes it difficult to implement some of the slope configurations allowed in figure 2. Should the proposed performance statements be substituted to give more options, or alternatively, should more options be specified or the specified options identified as examples of implementing the performance statement?

A. The performance statement, (Workers in excavations must be protected against rolling or sliding objects.) is really all that is needed here. Suggestions as to how this may be accomplished may be placed in the appendix if beneficial.

No mention of the amount of slope required before provisions are applied should be made. It depends on the specific situation.

9. Page 16. Section 1926.652(b)(5)(iii): Should the allowable excavation below the bottom of shoring or shields be increased to 3 ft?

A. It certainly would be useful, in some cases, to be able to extend short-term excavations to 3 ft below the shoring. It is useful to aid in the bedding of pipe. Also, more importantly to us, it better allows working around underground obstructions with shoring, particularly when reexcavating to repair a broken watermain, sewer, or similar items in a congested area. We feel it is reasonable to allow this extension if adequate attention is paid to possible unstable conditions below the shoring.

We also believe this section should be reworded to clarify that the short-term excavation requirement applies to the work below the bottom of the sheeting or shoring system. An excavation for a building or large structure would come under the long-term definition. It is often necessary to make short-term excavations within this excavation for drain lines, footings, etc. The present wording could be interpreted as prohibiting this practice. We suggest that this section be revised to read:

"A short-term excavation up to 3 ft below the bottom of sheeting, trench shields, or trench boxes is permitted provided that:."

10. Page 18. Definition of accepted engineering requirements. Should a "registered architect" be omitted since architects do not deal with excavations?
- A. This is not an area in which architects are normally involved, however, there is probably no good reason why they should be excluded, as long as they have adequate background and experience, just as any registered engineer working with excavations should.
11. Page 18. Definition of "Competent Person." Should the definition be rewritten to require that the competent person be working at the excavation site?
- A. We would consider this to be good practice.
12. Should "Mass Movement of Soil or Rock" be defined?
- A. The term should be self-explanatory. It should include any ground movement involving volumes greater than those associated with spalling of rock, or sloughing of soil and surface erosion of soil. Perhaps the latter terms should be defined. The only place these terms appear in Subpart P is in the definition of "Fractured Rock."
13. Page 52. Old 1926.651(c): Should this statement be deleted? Even though this matter is addressed elsewhere, this statement conveys the intent of Section 1926.652 in simple language.
- A. This statement should be deleted. It is clearly redundant with the new Section 1926.652(a).

In addition to "Some Issues that Should be Considered in the Workshops," we have some additional comments or questions.

1. Page 7. Section 1926.651(e): We feel that this requirement should apply to completed portions of excavations. This would clarify that the intent is not apply the shoring requirement in the areas where the excavation equipment is working. Substitute "completed sides" for "side" in line 4.
2. Page 7. Section 1926.651(g): Excavating equipment may be considered mobile. Is it necessary to place stop logs or barricades in front of this equipment during excavation, particularly tracked equipment or those using outriggers?
3. Page 8. Section 1926.651(p): This section currently appears to apply only to trenches. We believe exit conditions should be considered for all types of excavations. Large excavations should have a minimum of two means of exit. A second condition could be a smaller excavation of up to approximately 1500 sq ft where one exit would be permitted. A third condition would be similar to what is currently proposed.
4. Page 11. Table 1: Recognizing that many times the excavation faces are saturated only part of the way up, could we consider the soil to be type C to the top of the saturation zone and types A or B above that with the appropriate We's applied?
5. Page 11. Table 1: The Matrix Classification System shown in NBS BSS 127, June 1980, is simple to use and offers more flexibility. Would it be possible to replace in Subpart P the simplified Classification System with the Matrix Classification System, or at least offer the latter in an appendix or another section as an alternate.
6. Page 18. Section 1926.653(j): Excavation

The draft standard does not define trench or give any criteria to distinguish between a trench or excavation as is done in the current standards. We believe this is desirable. However, it may be helpful to add a sentence to the excavation definition stating that trenches are excavations or alternatively adding a Trench definition which could state,

Trench: "One type of excavation commonly used for the installation of piping, etc."

This would provide emphasis to employers who primarily do trench type excavation work that the entire standard is applicable to their operations.

7. Page 19. Section 1926.653(1): Fractured Rock

Can rock have fractures in it and yet be considered by definition unfractured? It is rare to find especially sedimentary rock that is not fractured, yet we would consider that much of it would not readily spall or crumble when excavated with vertical slopes. We believe unstable rock would be a more suitable term for this definition.

DNJ INDUSTRIAL STEEL FABRICATORS
45 EDISON AVE
OAKLAND NJ 07436



4-0434735191 07/10/81 ICS IPMTZZ CSP RVDB
20:3372233 MGM TDMT OAKLAND NJ 126 07-10 0222P EST

▶ FELIX YOKEL
NATIONAL BUREAU OF STANDARDS
RT 270
QUINCE ORCHARD BLVD
GAITHERSBURG MD 20760

AFTER RECEIVING THE WORKING DRAFT OF THE SUGGESTED REVISION IN
SUB-PART P OF THE SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION I
WANTED TO EXPRESS OUR SUPPORT FOR THE PROPOSED CHANGES QUITE ASIDE
FROM ANY MINOR SUGGESTIONS WE COULD OFFER WITH REGARD TO DEFINITIONS
THAT SHOULD BE CONSIDERED WE'RE IN COMPLETE AGREEMENT WITH YOUR
ENGINEERING ASSUMPTIONS AS THEY PERTAIN TO TRENCH SHORING BOXES WE
UTILIZE ENGINEERING PRINCIPALS AS PROPOSED BY TERZAGHI AND PECK IT IS
OUR FEELING THAT IT IS THE MOST CONSERVATIVE YET MOST APPLICABLE
THEORY PERTAINING TO TRENCH SHORING WE'RE PLEASED THAT WE SHOULD SOON
HAVE INDUSTRY STANDARDS AND GUIDELINES TO WHICH ALL MANUFACTURERS
WILL COMPLY

SHORING BY DNJ
D QUITADAMO

1426 EST

MGMCOMP MGM



EFFICIENCY
PRODUCTION, INC.

P. O. Box 24126 • Lansing, Michigan 48909

517-349-4620
Toll Free: 1-800-248-9912
Within Michigan: 1-800-292-6601

July 17, 1981

Mr. John Maragliano, Gen. Mgr.
D & J INDUSTRIAL STEEL FABRICATORS, INC.
45 Edison Avenue
Oakland, New Jersey 07436

Dear John:

Both Wendell Wood of GME and myself were very disappointed that you did not attend the meeting of the workshop on the proposed revisions to Subpart P of the OSHA regulations.

It was the hope of both GME and ourselves, as I stated to you on the phone on July 9, 1981, that even if we did have some areas of disagreement we would be able to get together and iron these out so that we could present a consensus opinion as an industry, so that it would not appear that there was a division within our industry, and thereby provide a more effective presentation as an industry to the NIOSH Study.

Dr. Yokel informed us at the meeting that you had telephoned him on Monday, July 13, and that you disagreed with our position totally. It's hard for us to believe that you would have total disagreement, and that there would be that much of a difference when, obviously, we have a common purpose to provide the construction industry with adequate, well designed, quality products.

I got the impression from our phone conversation that you concurred with many of the statements that we made. It is my recommendation, and sincere hope, that you will see fit to share and communicate with us, so that the final results of our work will be a unified presentation. I am certain that any differences we have can be ironed out to the satisfaction of all concerned.

It is my understanding that Dr. Yokel, in the next 60 days, will generate a summary of all the work shops and recommend a formation of an industry study committee with representation on that committee by all parties concerned. It is our hope that you will participate with us in the development of an acceptable standard so that the trench box industry can play the part that is necessary in that study committee.

July 17, 1981
Mr. John Maragliano
Page Two (2)

John, enclosed is a copy of our most recent presentation statement presented at the Boston meeting. Both Wendell Wood and myself would appreciate it if you would take the time to review and comment on each item in detail so that we can see where we differ, then we can evaluate our position as it relates to yours and start the process of generating a consensus position.

Looking forward to hearing from you soon.

Sincerely,

EFFICIENCY PRODUCTION, INC.

John B. Cook
Vice Pres. & Gen. Mgr.

Enc.

cc: Dr. Felix Yokel
Mr. Wendell Wood

JBC/slc

Boston July 14, 1981

STATEMENT OF POSITION AND RECOMMENDATIONS
ON
REVISION TO SUBPART P
OF THE
SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION
PRESENTED BY
THE MAJOR MANUFACTURERS OF TRENCH BOXES
AND TRENCH SHIELDS OF THE UNITED STATES

John B. Cook
Efficiency Production, Inc.

Wendell Wood
Griswold Machine & Engineering

GENERAL STATEMENT OF POSITION

A review in detail has been made of the proposed revisions in Subpart P 1926.650 - .651 - .652 - .653.

This review was made by, and on behalf of, the major trench box manufacturers of the United States, and represents their consensus opinion of the changes in the proposed standards.

It is our position that the intent to clarify and simplify, as it relates to the revised changes of Subpart P, has failed, and in fact, has made it more confusing and more difficult to apply in the field. The proposed design criteria as they relate to trench boxes do not conform to accepted engineering practices. We have specific recommendations for changes in the proposed revisions.

It is also our position - that if the Guidelines are going to be referenced within Subpart P and therefore become effectively a part of the law - they should be discussed publicly as a part of the workshop and in public hearings.

1926.650 GENERAL PROTECTION REQUIREMENTS - NO COMMENT

1926.651 SPECIFIC EXCAVATION REQUIREMENTS

PAGE

8 - item (s) Should read ... Portable trench boxes or sliding trench shields may be used for the protection of personnel. Where such trench boxes or trench shields are used they shall be designed, constructed and maintained in a manner which will provide equivalent protection to that provided by the shoring required for the excavation as defined by accepted engineering practice.

1926.652 SPECIFIC SHORING, SLOPING AND SHIELDING REQUIREMENTS

PAGE

9 - item 2a Should read ... Qualified Engineer

10 - item (b) (1) Should be no arbitrary distinction between long-term and short-term excavation.

10 - item (4) (i) We recommend that this section be clarified and simplified for effective field application.

13 - item (ii) a Should read ... lateral pressure at the bottom of excavation equal to the equivalent weight effect (W_e) in Table 1 times the depth of cut with lateral pressure diagram appropriate to the construction as determined by an engineer.

 We object to the footnotes attached to Table 1 as being too technical and overly complicated for interpretation by field personnel, and recommend they be simplified.

13 - item (ii) c The last paragraph of this section should read ... shoring systems shall be designed in accordance with accepted engineering practices.

PAGE

(This statement excludes the 33% increase in allowable working stresses or an equivalent strength reduction.)

13 - item (iii)
Paragraph 2

Should read ... Shoring systems and trench shields shall be selected in the field on the basis of accepted engineering practice.

13 - item (iii) (a) Trench shields, trench boxes, and pre-fabricated strutwale assemblies and other pre-fabricated assemblies shall be rated for the maximum depths in all types of soils in which they can be selected and used accordingly from charts prepared by the manufacturer.

16 - item (4)(iii)(c) Should read ... rated by an engineer

16 - item (5)(iii) Should read ... Excavation up to 3 feet below the bottom of sheeting, trench boxes, or trench shields is permitted provided that: ... (and we agree with items a & b.)

1926.653 DEFINITIONS APPLICABLE TO THIS SUBPART

PAGE

18 a

Should read ... Accepted engineering practices, those requirements or practices which are compatible with standards required by a registered professional engineer.

Question - why are you making reference to the guidelines when they are not meant to be a part of the law?

19 m

Should be eliminated.

19 o

Should read ... Negotiable slope is a slope on which a person can egress from or ingress to an excavation with relative ease and speed to assure reasonable safety.

PAGE

19 t

Should be eliminated.

19 z

Should read ... See Figure 4 (Correction)

GUIDELINES SUPPLEMENTING SUBPART P

If the Guidelines are going to be referenced within Subpart P, do they not become effectively a part of the law? If so, they should be discussed publicly as a part of the workshop and in public hearings.

ANSWERS TO DR. YOKEL'S QUESTIONS

- #1 No comment.
- #2 No comment.
- #3 No comment on 24 foot limitation.
On question of should qualified person be substituted for engineer ... "No, as it relates to this specific question."
- #4 No distinction should be made between short- or long-term excavation.
- #5 No comment.
- #6 No comment.
- #7 Yes, and should be conveyed as part of the definitions.
- #8 No comment.
- #9 Yes.
- #10 Yes.
- #11 No comment.
- #12 No.
- #13 No - Statement should not be deleted.

Boston

Comments of Richard V. Brescia, President
Brescia Construction, Inc.
Caribou, Maine

For the Boston Region Workshop on the Proposed Revisions to Subpart P of the
Safety and Health Regulations for Construction

July 14, 1981

Ramada Inn - Airport, Boston

1) Section 1926.652(a)(2) Short term excavation definition

I would suggest that if neither the 24-hour or seven day definition is found acceptable that a compromise definition of four days be used.

2) Section 1926.652(a)(2) "Qualified Person" definition

I endorse the substitution of "qualified person" for "engineer" in this section. I would suggest, however, that OSHA in cooperation with the industry, develop a one or two day training course for superintendents and foremen engaged in trenching and shoring to insure their qualification. Superintendents would be required to pass a simple examination on the material, and could be certified as "qualified". Foremen would be required to attend the training course, but would not be required to take the examination. Primary responsibility for on-site operations and safety would rest with the "qualified" superintendent.

9. SOURCE DOCUMENTS FROM WHICH PRESENT TECHNICAL PROVISIONS IN
SUBPART P WERE DERIVED

When NBS studied the present provisions in Subpart P of the Safety and Health Regulations for Construction, an attempt was made to determine the origin of the technical provisions in the document. The attached documents contain some of the information which was used as a basis for preparing some of the provisions, particularly those for timber shoring (Table 2). Note that the documents were written in the early 1940's.

SAFETY BOARD - Pursuant to the provisions of Section 4 of the District of Columbia Industrial Safety Act (Public Law 271 - 77th Congress - Chapter 438 - 1st Session), the District of Columbia Minimum Wage and Industrial Safety Board hereby calls a public hearing for the purpose of investigating reasonable standards of safety in employment, places of employment, in the use of devices and safeguards, and in the use of practices, means, methods, operations, and processes of employment, and any person interested in the matter being investigated may appear and testify. Said meeting will be held in Municipal Center Building, 300 Indiana Avenue, N. W., on Thursday, September 2, 1943, at 10 a.m.
 MRS ALBERT W. ATWOOD, Chairman
 FRED S. WALKER, P. Y. K. HOWAT

GOVERNMENT OF THE DISTRICT OF COLUMBIA
 MINIMUM WAGE AND INDUSTRIAL SAFETY BOARD
 AND
 EIGHT-HOUR DAY LAW DIVISION
 EAST ADMINISTRATION BUILDING
 300 INDIANA AVENUE, N. W.
 WASHINGTON, D. C.
 TELEPHONE NATIONAL 6000

MRS ALBERT W. ATWOOD, CHAIRMAN
 FRED S. WALKER
 P. Y. K. HOWAT

ELIZABETH CHAMPE
 EXECUTIVE SECRETARY
 EDWARD J. BUNKER
 DIRECTOR OF INDUSTRIAL SAFETY

August 25, 1943

To be inserted in legal notices of newspapers on August 26 or August 27, 1943.

MINIMUM WAGE AND INDUSTRIAL SAFETY BOARD - Pursuant to the provisions of Section 4 of the District of Columbia Industrial Safety Act (Public Law 271 - 77th Congress - Chapter 438 - 1st Session), the District of Columbia Minimum Wage and Industrial Safety Board hereby calls a public hearing "for the purpose of investigating reasonable standards of safety in employment, places of employment, in the use of devices and safeguards, and in the use of practices, means, methods, operations, and processes of employment, and any person interested in the matter being investigated may appear and testify." Said meeting will be held in Municipal Center Building, 300 Indiana Avenue, N. W., on Thursday, September 2, 1943, at 10 a.m.

Mrs. Albert W. Atwood, Chairman
 Fred S. Walker
 P. Y. K. Howat

Respectfully returned to the
 courtant, with the statement that the within
 mentioned advertisement has been published in
 accordance with the previous endorsement: charge
 made to General Advertising, 192



Minimum Wage Bd

②

Proposed Code as used
at Public Hearing

GOVERNMENT OF THE DISTRICT OF COLUMBIA
MINIMUM WAGE AND INDUSTRIAL SAFETY BOARD

CODE II
CONSTRUCTION SAFETY CODE
(Proposed)

PART 25 EXCAVATING, DEMOLITION, BLASTING

SECTION 251 EXCAVATION

2510. DEFINITIONS. A. Excavation shall mean an uncovered cutting in the earth.

B. Excavating shall mean the operation of making or digging an excavation.

C. Shoring shall mean props, braces, planks, sheeting, etc., placed and held against the side of an excavation to prevent slips, slides, cave-ins, or the falling of earth.

2511. GENERAL. A. The sides of excavations 5 feet or more in depth shall be supported by substantial and adequate sheeting, sheet piling, bracing, shoring, etc., or the sides of the excavation sloped to the angle of repose of the material being excavated, where there is apparent danger of slides, slips, or cave-ins, and where under-cutting of banks or walls of the excavation is pertinent to the excavation system. Such protection shall be consistent with the magnitude of the work and the character of the material in which the excavation is made.

B. Shoring shall be placed as soon after excavating as the excavating operations will permit.

C. Foundations adjacent to an excavation which is lower than the foundation shall be supported by shoring or underpinning as long as the excavation remains open.

D. Excavated or other material shall not be stored within 2 feet of the edge of an excavation.

E. A guardrail shall be installed, or other effective barricade provided, at or near the edge of an excavation as soon as possible, except where such barricade will interfere with operations.

F. Red lights, torches, or other illuminated warning signs shall be placed and maintained from sunset to sunrise on excavation barricades and along the edges of unbarricaded excavations which are adjacent to paths, walkways, sidewalks, driveways, or thoroughfares.

G. Precautions, in addition to those given below, may be required, by the Director, in excavations subjected to vibrations from moving equipment or other conditions.

H. Insofar as practicable, measures shall be taken to prevent the entrance or accumulation of surface water in excavations, behind the shoring, or on the tops of banks of excavations, where it is likely to soften or weaken the soil or subsurface material and cause slips, slides, or cave-ins.

I. The side of an excavation shall not be undercut in excess of 6 inches unless the overhang is supported by adequate shoring or underpinning.



J. Sketches showing approved methods of shoring are shown on pages_____.

K. Excavations more than 4 feet in depth shall be provided with ladders or equivalent means of egress, extending from the bottom of the excavation to at least 3 feet above the top. The interval between ladders in trenches shall not exceed 50 feet.

2512. TRENCH EXCAVATION. A. The following requirements apply to any trench 5 feet or more in depth and 6 feet or more in length which serves as a workplace, except where the trench is in solid rock, hard shale, or hard slag.

1. Trench shoring, not less than the "Minimum Requirements" given in the table on the following page, shall be provided.
2. The combination tunnel-trench method may be used in hard, compact soil, provided that a single trench section does not exceed 8 feet in length, and that the length of earth left in place over the tunnel between the trench sections is not less than half the depth of the trench. In other than hard, compact earth, the trench sections shall be provided with shoring not less than specified in the "Minimum Requirements."
3. Cross braces and jacks shall be so placed, fastened, and maintained that they will not slip or buckle.
4. Workmen shall not be required or permitted to work in a tunnel section unless the earth above is supported by adequate underpinning.

Trench Shoring

Minimum Requirements

Reproduced from
best available copy.

Depth of Trench	Kind or Condition of Earth	Size and Spacing of Members									
		Uprights		Stringers		Cross Braces*				Max. Spacing	
		Min. Dim.	Max. Spac.	Min. Dim.	Max. Spac.	Width of Trench				Vert.	Horiz.
						Up to 3 ft.	3 to 6 ft.	6 to 9 ft.	9 to 12 ft.		
Feet		Inches	Feet	Inches	Feet	Inches	Inches	Inches	Inches	Feet	Feet
5 to 10	Hard, compact	3 or 4 2 x 6	8	-	-	2 x 6	4 x 4	4 x 6	5 x 6	4	8
	Likely to crack	"	3	2 x 6	4	"	"	"	"	"	"
	Soft, sandy, or filled	"	Close sheeting	4 x 6	"	4 x 4	4 x 6	6 x 6	6 x 8	"	"
	Hydrostatic pressure	"	"	6 x 6	"	"	"	"	"	"	"
10 to 15	Hard	"	4	-	-	"	"	"	"	"	"
	Likely to crack	"	2	2 x 6	4	"	"	"	"	"	"
	Soft, sandy, or filled	"	Close sheeting	4 x 6	"	4 x 6	6 x 6	6 x 8	8 x 8	"	"
	Hydrostatic pressure	"	"	8 x 10	"	"	"	"	"	"	"
15 to 20	All kinds or conditions	"	Close sheeting	4 x 12	"	-	6 x 6	8 x 8	8 x 10	"	"
Over 20	All kinds or conditions	"	"	6 x 8	"	-	8 x 8	8 x 10	10 x 10	"	"

*Trench jacks may be used in lieu of, or in combination with, cross braces.
Shoring is not required in solid rock, hard shale, or hard clay.
Where desirable, steel sheet piling and lagging of equal strength may be substituted for wood.