



CONFORMED COPY

SUB-CONTRACT

Sub-Contract No. 7156-2183
January 28, 1969

This Sub-Contract is made pursuant to a Contract between Armco Steel Corporation (hereinafter called "Owner"), and Kaiser Engineers, Inc. (hereinafter called "Contractor"), Agent for Armco Steel Corporation whereby Contractor agreed with Owner to furnish engineering, construction and other services relating to the Expansion and Modernization Program at Owner's Middletown Works - Middletown, Ohio.

Contractor and OWENS-CORNING FIBERGLAS CORPORATION (hereinafter called "Sub-Contractor") hereby agree that the following work shall be performed by Sub-Contractor for the compensation and upon the terms and conditions hereinafter set forth on Face Sheets A, B & C of the Sub-Contract and including Articles 1 through 37 of the General Terms and Conditions attached and made a part of this Sub-Contract.

WORK TO BE PERFORMED: Furnish all labor, Supervision, Material, Supplies, Transportation, Tools, Services, Equipment and Rigging, and do all things necessary to furnish and install thermal insulation on all steam piping, condensate piping, oil piping, and flash tanks for Nos. 4 and 5 Continuous Strip Pickle Lines, at Owner's Middletown, Ohio Works; all in strict accordance with, or to be inferred from, Exhibit "A"; all such work being hereinafter sometimes called "The Work:

PLANS, DRAWINGS AND SPECIFICATIONS: As per list attached marked Exhibit A and by this reference made a part hereof.

ITEMS TO BE SUPPLIED BY CONTRACTOR: As per list attached marked Exhibit B and by this reference made a part hereof.

LOCATION OF WORK: Armco Steel Corporation - Middletown, Ohio.

WORK TO COMMENCE: As of the date of this Sub-Contract, with field work to commence on date specified in Contractor's Notice to Proceed to be issued to Sub-Contractor.

WORK TO BE COMPLETED: Time is of the essence of this Sub-Contract, and all work shall be completed by Sub-Contractor as soon as due diligence and good practice will permit, but in no event later than May 1, 1969, or such extended completion date as may be applicable in accordance with and pursuant to the provisions of Article 15 of the General Terms and Conditions hereof.

FACE SHEET "A"

KEN 007077

BOND: Not required.

COMPENSATION: Sub-Contractor agrees to perform The Work for the following compensation which includes all present and future, Federal, Local, Excise and Transportation Taxes, and all other taxes pertaining to the transaction, except the Ohio Sales and Use Tax applicable under the following circumstances:

Any Ohio Sales and Use Tax Liability on personal property transferred under the Sub-Contract by the Sub-Contractor to Owner, will be accounted for by Owner under its Direct-Payment Permit No. 161-M. Any Ohio Sales and Use Tax Liability for materials transferred to Owner as improvements to Owner's real property will be determined by Sub-Contractor in co-operation with Owner; such tax is Sub-Contractor's direct responsibility, but Owner will reimburse Sub-Contractor over and above the price stated below for the amount of such tax.

Lump sum amount\$121,400.00

UNIT PRICE FOR ADDITION AND/OR DELETION:

Service	Pipe Size	Thickness	Layers	Unit Price lin. Ft.	Notes
Steam and Condensate	$\frac{1}{2}$	$1\frac{1}{2}$	Single	\$3.15	
Steam and Condensate	$\frac{3}{4}$	$1\frac{1}{2}$	"	3.20	
Steam and Condensate	1	$1\frac{1}{2}$	"	3.25	
Steam and Condensate	$1\frac{1}{4}$	$1\frac{1}{2}$	"	3.35	
Steam and Condensate	$1\frac{1}{2}$	$1\frac{1}{2}$	"	3.40	
Steam and Condensate	2	2	"	4.10	
Steam and Condensate	$2\frac{1}{2}$	2	"	4.25	
Steam and Condensate	3	2	"	4.35	
Steam and Condensate	4	$2\frac{1}{2}$	Double	7.60	
Steam and Condensate	6	$2\frac{1}{2}$	"	10.00	
Steam and Condensate	8	3	"	12.50	
Steam and Condensate	10	3	"	15.00	
Steam and Condensate	12	3	"	17.50	

FACE SHEET "B"

KEN 007078

Steam and Condensate	12	$\frac{3}{2}$	Double	18.50	
Steam and Condensate	14	3	"	20.00	
Oil	$\frac{1}{2}$ & $\frac{3}{4}$	1	Single	2.60	
Oil	1 & $1\frac{1}{4}$	1	"	2.70	
Oil	$1\frac{1}{2}$	1	"	2.80	
Oil	2	1	"	2.90	
Oil	3	1	"	3.10	
Oil	4	1	"	3.65	
Flash Tanks	-	$1\frac{1}{2}$	"	385.00 ea.	16 Req'd
Desuper Htr. & Blow Down Tanks	-	$2\frac{1}{2}$	Double	10.95/ Sq.Ft.	Approx. 490 Sq. Ft.
Oil Heaters	-	1	Single	7.55/ Sq.Ft.	Approx. 105 Sq. Ft.
Oil Mix Tank	-	$1\frac{1}{2}$	"	7.75/ Sq.Ft.	Approx. 195 Sq. Ft.

ADDRESSES:

Owens-Corning Fiberglas
Corporation
2987 Exon Drive
Cincinnati, Ohio 45241

Kaiser Engineers, Inc., Agent
For Armco Steel Corporation
P. O. Box F
Middletown, Ohio

LIQUIDATED DAMAGES: None. Article 31 of the General Terms and Conditions hereof is inapplicable and is hereby deleted.

ADDITIONAL EXHIBITS: The Special Provisions attached as Exhibit "C", and the Standard Conditions attached as Exhibit "D", are by this reference made a part hereof.

IN WITNESS WHEREOF, the parties have made and executed this Sub-Contract as of the day and year first hereinabove written.

Owens-Corning Fiberglas
(Sub-Contractor)
By *Paul C. Quinn*
Title C & I Insul. Manager

Kaiser Engineers, Inc., Agent
For Armco Steel Corporation
(Contractor)
By *W. J. Hankson*
Title _____

FACE SHEET "C"

KEN 007079

EXHIBIT "A"

PLANS, DRAWINGS AND SPECIFICATIONS

1. SPECIFICATION: Standard Specification No. ACS-400-35 -
Piping and equipment insulation.
2. DRAWINGS:

SERVICE PIPING

648147 R4	9-6-68	648470 R3	9-20-68
648169 R3	9-20-68	648471 R4	9-20-68
648170 R5	9-20-68	648472 R1	4-3-68
648171 R4	9-20-68	648473 R4	8-7-68
648172 R0	4-3-68	655255 R1	8-23-68

DESUPER HEATER

648167 R3	8-20-68
648168 R2	9-9-68
648482 R2	7-3-68

NO. 4 LINE SECTIONS:

648140 R5	8-15-68	648141 R4	8-28-68
648145 R3	6-28-68	648149 R3	9-6-68
648474 R3	7-3-67	648475 R4	8-9-68
648476 R3	8-12-68	648477 R1	4-30-68
648479 R2	8-26-68	648480 R1	7-3-68
648481 R2	9-6-68		

NO. 4 LINE PLANS

648130 R4	8-28-68	648131 R5	8-28-68
648132 R4	6-27-68	648133 R4	8-9-68
648134 R4	8-20-68	648135 R2	5-22-68
648136 R4	9-6-68		

NO. 5 LINE PLANS

655232 R4	8-28-68	655233 R4	8-28-68
655234 R3	8-9-68	655235 R2	5-27-68
655236 R2	7-3-68	655237 R4	8-27-68

NO. 5 LINE SECTIONS

655239 R2	8-9-68	655240 R3	8-9-68
655241 R3	8-9-68	655271 R2	8-9-68
655272 R0	4-3-68	655273 R2	8-12-68
655274 R1	6-20-68	655511 R1	7-3-68
655542 R2	8-12-68	655543 R2	9-9-68
655546 R0	4-2-68	655547 R3	8-26-68

FLASH TANKS

648435 R3	8-6-68	648151 R3	8-6-68
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OIL PIPING

648148 RO	7-17-68	648180 RO	7-17-68
648483 RO	9-9-68	648484 RO	7-17-68
648485 RL	8-9-68		

KEN 007081

EXHIBIT "B"

ITEMS TO BE SUPPLIED BY CONTRACTOR

1. Potable water at area or areas designated by Contractor.
2. Sanitary facilities at points designated by Contractor.
3. Water required for the work at points designated by Contractor.
4. Electrical power, 440 Volt, 3 phase and 110 volt, single phase at points designated by Contractor.

KEN 007082

EXHIBIT "C"

SPECIAL PROVISIONS

1. It is mutually understood and agreed that Contractor and other Sub-Contractors, will be working in the areas involved in this work and that these areas will be congested. In this connection, storage space adjacent to the work site will be limited and such storage must be closely co-ordinated with Contractor.
2. It is mutually understood and agreed that Sub-Contractor will provide all required off-loading, handling, hoisting, material and equipment protection, to include weather protection for material in outside storage, rigging, scaffolding, picks, ladders, and all other equipment necessary for the proper installation of the work.
3. It is mutually understood and agreed that Section 14, "Use of Armco Materials" of Exhibit "D" is hereby modified by the addition of the following sentence at the end of the paragraph -

"All other steel products used must be manufactured in the United States".

4. It is mutually understood and agreed that measurement for payment will be per Lineal Foot for pipe insulation, weather-proofing, and anti-sweat protection and per square foot for insulation on equipment and vessels and for metal jacketing, complete and in place, in accordance with the specifications and drawings. Linear measurements will be made along the center line of straight runs and over the insulation outside of all bends, all will include all insulated valves, flanges, tees, ells, and other fittings. Metal jacketing will be measured per square foot, in place, without allowance for laps. The area of pipe jacketing will be the product of the measured circumference of the finished jacketing and the Linear measurement thereof, taken as above. Measurements of area will be made over the outside of the insulation on vessels and equipment and will exclude all uninsulated areas in excess of one square foot. In addition to the Linear measurements above, the following table of equivalence for insulated fittings and valves will be allowed:

Each pair of flanges - 3'

Each mitered Ell-exclusive of flanges - 2'

Preformed Ells shall be used, where practicable.

Each Tee-exclusive of flanges - 2'

Each cross-exclusive of flanges - 2'

Each valve-exclusive of flanges - 2'

KEN 007083

Each valve bonnet - 3'

Bends exceeding radius of long radius Ell - 1.5
Times the Linear measurement

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Lee Gillett - Ashland

DEVIATIONS FROM OR ADDITIONS TO SUB-CONTRACT AND SPECIFICATIONS

Sub-Contract No. 7156-2183 dated 1-28-69 . Change Order No. 5

Subject: Pipe Insulation Date of Change 1-26-70

Location: Armco Steel Corporation Middletown, Ohio

Sub-Contractor Owens-Corning Fiberglas Corporation
2987 Exon Drive
Cincinnati, Ohio 45241

DESCRIPTION OF CHANGE: Pursuant to the provisions of Article 8 of the General Terms and Conditions, Sub-Contractor shall perform The Work in accordance with the following changes:

- 1) Furnish all labor, material, and equipment necessary to insulate twelve (12) electric heat traced water valves located at the cold mill waste area. EWO 1. Acct. 7182-735-405.51\$ 814.15
- 2) Furnish all labor, material, and equipment and apply a one (1) inch thick anti-sweat pipe covering to well water system located at the Annealing line as directed by Contractor. EWO 2.
Acct. No. 7164-705-410.51 969.00

Total increase \$1,783.15

CHANGE IN COMPENSATION: Total lump sum amount increased from:
\$ 157,078.09 to \$ 158,861.24

CHANGE IN COMPLETION DATE None

Except as herein expressly modified, said Sub-Contract as heretofore amended and all the Terms and Conditions thereof shall remain unaltered and in full force and effect and shall apply to all The Work performed hereunder.

ACCEPTED:

Owens-Corning Fiberglas Corporation
(Sub-Contractor)
By /s/ Paul C. Gahn
Title Contr. Supv.

AUTHORIZED:

Kaiser Engineers, Inc., Agent
For Armco Steel Corporation
(Contractor)
By /s/ Vern L. Frankson
Title Manager-Procurement

Lee Gillette - Oakleaf

CONFIRMED COPY

DEVIATIONS FROM OR ADDITIONS TO SUB-CONTRACT AND SPECIFICATIONS

Sub-Contract No. 7156-2183 dated 1-28-69 .. Change Order No. 3

Subject: Pipe Insulation Date of Change: 9-26-69

Location: Armco Steel Corporation - Middletown, Ohio

Sub-Contractor Owens-Corning Fiberglas Corporation
2927 Exon Drive
Cincinnati, Ohio 45241

DESCRIPTION OF CHANGE: Pursuant to the provisions of Article 8 of the General Terms and Conditions, Sub-Contractor shall perform The Work in accordance with the following changes:

Install thermal insulation and weather proofing on steam, condensate, electric traced MWO and water lines in Pollution abatement facility.

DWGS. 679097 R5, 670900 R3, 679100 R5, 679101 R5, 679102 R5,
679105 R1, 679109 R2, 679160 R1, 665764 R4 \$22,100.00

Acct. 7182-735-405.51

Reference: Sub-Contractor's letter dated 8-12-69.

CHANGE IN COMPENSATION: Total lump sum amount increased from:
\$ 130,078.09 To \$ 152,178.09

CHANGE IN COMPLETION DATE: None

Except as herein expressly modified, said Sub-Contract as heretofore amended and all the Terms and Conditions thereof shall remain unaltered and in full force and effect and shall apply to all The Work performed hereunder.

ACCEPTED:

Owens-Corning Fiberglas Corp.
(Sub-Contractor)

By /s/ Paul C. Gahn

Title Ind. & Comm. Dept. Supv.

AUTHORIZED:

Kaiser Engineers, Inc., Agent
For Armco Steel Corporation
(Contractor)

By /s/ Vern L. Frankson

Title Manager - Procurement

EOP:jp

KEN 007086

Lee Elliott Oakland
DEVIATIONS FROM OR ADDITIONS TO SUB-CONTRACT AND SPECIFICATIONS

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Sub-Contract No. 7156-2183 dated 1-28-69 .. Change Order No. 4.

Subject: Pipe insulation Date of Change: 10-1-69

Location: Armco Steel Corporation - Middletown, Ohio

Sub-Contractor Owens-Corning Fiberglas Corporation
2987 Exon Drive
Cincinnati, Ohio 45241

DESCRIPTION OF CHANGE: Pursuant to the provisions of Article 8 of the General Terms and Conditions, Sub-Contractor shall perform The Work in accordance with the following changes:

Furnish and install insulation on steam and condensate lines at the Annealing Line Facilities. Drawing Nos. 676442, 676443, 676444, 676445, 676457, 676458, 676459, 676460, 676464, and 676465.
Acct. No. 7164-704-420.51 \$4,900.00

Reference: Sub-Contractor's letter dated 9-10-69.

CHANGE IN COMPENSATION: Total lump sum amount increased from:
\$ 152,178.09 To \$ 157,078.09

CHANGE IN COMPLETION DATE: None

Except as herein expressly modified, said Sub-Contract as heretofore amended and all the Terms and Conditions thereof shall remain unaltered and in full force and effect and shall apply to all The Work performed hereunder.

ACCEPTED:

Owens-Corning Fiberglas Corp.
(Sub-Contractor)

By /s/ Paul C. Gahn
Title Commercial & Ind. Dept. Supv.

AUTHORIZED:

Kaiser Engineers, Inc., Agent
For Armco Steel Corporation
(Contractor)

By /s/ Vern L. Frankson
Title Manager - Procurement

EOP:jp

KEN 007087

1. Insulate the following steam and condensate lines at the desuperheater station:

31 Lin. Ft. - 12" x 3½" double layer pipe covering -	
\$18.50 Lin. Ft.	\$ 573.50
7 Lin. Ft. - 8" x 3" double layer pipe covering	
\$12.50 Lin. Ft.	87.50
21 Lin. Ft. - 1½" x 1½" single layer pipe covering	
\$3.40 Lin. Ft.	71.40
60 Lin. Ft. 1" x 1½" single layer pipe covering	
\$3.25 Lin. Ft.	195.00
Acct. 7159-706-465.51	

2. Insulate the following electrical traced water lines at the pollution abatement building:

28 Lin. Ft. - 10" x 1" fiberglass pipe covering	
\$7.40 Lin. Ft.	207.20
15 Lin. Ft. - 8" x 1" fiberglass pipe covering	
\$6.05 Lin. Ft.	90.75
15 Lin. Ft. - 6" x 1" fiberglass pipe covering	
\$4.70 Lin. Ft.	70.50
161 Lin. Ft. 4" x 1" fiberglass pipe covering	
\$3.65 Lin. Ft.	587.65
186 Lin. Ft. - 2" x 1" fiberglass pipe covering	
\$2.90 Lin. Ft.	539.40
116 Lin. Ft. - 1½" x 1" fiberglass pipe covering	
\$2.80 Lin. Ft.	324.80
27 Lin. Ft. - 1" x 1" fiberglass pipe covering	
\$2.70 Lin. Ft.	72.90
Acct. 7186-711-410.51	

3. Insulate the following steam lines from main header to individual heating units at pollution abatement building:

39 Lin. Ft. - 3" x 2" single layer pipe covering	
\$4.35 Lin. Ft.	169.65

Lee Gillett - Calif

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DEVIATIONS FROM OR ADDITIONS TO SUB-CONTRACT AND SPECIFICATIONS

Sub-Contract No. 7156-2183 dated 1-28-69 .. Change Order No. 2.

Subject: Pipe insulation Date of Change: 9-9-69

Location: Armco Steel Corporation - Middletown, Ohio

Sub-Contractor Owens-Corning Fiberglas Corporation
2987 Exon Drive
Cincinnati, Ohio 45241

DESCRIPTION OF CHANGE: Pursuant to the provisions of Article 8 of the General Terms and Conditions, Sub-Contractor shall perform The Work in accordance with the following changes:

[Please see attachment for description of change]

Total amount of change \$7,596.68

CHANGE IN COMPENSATION: Total lump sum amount increased from:
\$ 122,481.41 To \$ 130,078.09

CHANGE IN COMPLETION DATE: None

Except as herein expressly modified, said Sub-Contract as heretofore amended and all the Terms and Conditions thereof shall remain unaltered and in full force and effect and shall apply to all The Work performed hereunder.

ACCEPTED:

Owens-Corning Fiberglas Corporation
(Sub-Contractor)

By /s/ Paul C. Gahn

Title Supv. Commercial & Indus.

AUTHORIZED:

Kaiser Engineers, Inc., Agent
For Armco Steel Corporation
(Contractor)

By /s/ Vern L. Frankson

Title Manager - Procurement

EOP:jp

KEN 007089

Item 3, continued ...

59 Lin. Ft. - 2" x 2" single layer pipe covering.
\$4.10 Lin. Ft. \$ 241.90

231 Lin. Ft. - 1" x 1½" single layer pipe covering
\$3.25 Lin. Ft. 750.75

234 Lin. Ft. - 3/4" x 1½" single layer pipe covering
\$3.20 Lin. Ft. 748.80

Acct. No. 7186-706-420.51

4. Repairs to insulation on steam condensate and oil lines on No. 4 & 5
Pickle Lines, due to revisions in design and rework.....\$ 3,244.98
Acct. 7159-706-894.51

5. Substitute 654 Lin. Ft. of 4" x 2½" thick single layer pipe
covering for specified double layer pipe covering.(\$380.00)
Acct. 7159-706-465.51

Total increase this change \$7,596.68

KEN 007090

DEVIATIONS FROM OR ADDITIONS TO SUB-CONTRACT AND SPECIFICATIONS

Sub-Contract No. 7156-2183 dated 1-28-69 . Change Order No. 1

Subject: Pipe Insulation Date of Change 5-13-69

Location: Armco Steel Corporation Middletown, Ohio

Sub-Contractor Owens-Corning Fiberglas Corporation
2987 Exon Drive
Cincinnati, Ohio 45241

DESCRIPTION OF CHANGE: Pursuant to the provisions of Article 8 of the General Terms and Conditions, Sub-Contractor shall perform The Work in accordance with the following changes:

AUTHORIZED PREMIUM TIME FOR WORK PERFORMED ON 4-5-69,
4-9-69, 4-10-69 and 4-12-69. \$1,081.41

Acct. 7156-706-465.51

CHANGE IN COMPENSATION: Total lump sum amount increased from:
\$ 121,400.00 to \$ 122,481.41

CHANGE IN COMPLETION DATE None

Except as herein expressly modified, said Sub-Contract as heretofore amended and all the Terms and Conditions thereof shall remain unaltered and in full force and effect and shall apply to all The Work performed hereunder.

ACCEPTED:

Owens-Corning Fiberglas Corp.
(Sub-Contractor)
By Paul C. Giehn
Title Mgr. I & C Dept.

AUTHORIZED:

Kaiser Engineers, Inc., Agent
For Armco Steel Corporation
(Contractor)
By Thomas J. [Signature]
Title Mgr. Procurement

EOP: jp

KEN 007091

S/C No. 7156-2183 Middletown
OWENS-CORNING FIBERGLAS CORPORATION
Thermal Insulation for Steam Piping

1.43

KEN 007076