

**ADDENDUM NUMBER 1
BID NUMBER IFB 22-026**

Summer Roofing Projects 2023

ISSUED: December 14, 2022

**PURCHASING DEPARTMENT
UNIFIED SCHOOL DISTRICT 500
2010 N. 59th STREET, ROOM 370
KANSAS CITY, KANSAS 66104
913-551-3200**

Note the following changes to the above-mentioned bid. This information is to be taken into consideration when responding to the original bid document.

I. General Information

- A. Replace specification section 074113 with the attached specification, 074113.06, for the metal roof replacements at J.C. Harmon High School.
- B. Attached are Revised Bid Forms for all projects except NCO Bldg. A - Roofs 2A, 2B, 2C, 3A, and 3B.
 - 1) These revised bid forms must be used to submit your bids.
 - a) The only changes were the Attachment A Forms with material quantities and types.

II. Scope of Work Additions and Changes

- A. Argentine Middle School
 - 1. Roof H
 - a) Eliminate obsolete curb with round vent if curb is wood, if not wood, remove round vent stack, cover with 3/4" plywood and trillaminate base ply and install seamless metal cap.
 - b) Raise all other projections as needed to accommodate new roof system and meet roofing material manufacturers requirements.
 - 2. Roof T1 – Provide a licensed mechanical contractor approved by the district to install a new Watts scupper drain #RD-270 at the west wall and reconnect new scupper drain to PVC below grade drainage pipe.

- B. J.C. Harmon High School
1. Include in the bid to move two gutter drainage drops from the gutter above the south end of the walkway roof to locations over the walkway roof as directed by the district.
 - a) Add two drainage outlets and patch two existing ones.
 2. Roof 14 – East Annex Roof
 - a) The existing 5/8” OSB board over the tectum deck will need to be mechanically fastened to the structural members supporting the tectum deck. Fasteners will need to be self-tapping to comply with UL 580 wind uplift resistance, Uplift Rating UL 90. Fasteners shall meet UL 90 based on manufacturer, length, and spacing.
 - b) Once the OSB is appropriately fastened to the tectum deck, attach the new metal roof system to the OSB board per the roofing material manufacturers requirements.
- C. John Fiske Elementary School
1. At the southwest corner of Roof 5, add a 14’ long by 12” tall stud wall extending from the outside edge of the new south gutter location north.
 - a) Cover both exposed sides of new wall with 5/8” plywood and then a peel and stick membrane.
 - b) Remove and replace with new the rake edge metal along the southeast slope of Roof 6
 - c) Remove and replace the pre-finished metal at the southwest elevation of Roof 5 with new 24-gauge pre-finished metal to match new gutters.
 - d) Cover new stud wall on east elevation with new specified flashings.
 - e) Cover top of new wall with 24-gaguge pre-finished metal cap with terminations and closures as needed to tie into existing metal wall.
 2. Remove existing ladder extending down to Roof 8A.
 - a) Do not reinstall.
 - b) Store and secure on Roof 8A.
- D. M.E. Pearson Elementary School
1. Remove the existing coping on Roof A.
 - a) Wrap the new flashing from Roof B up over the parapet wall.
 - a) Reinstall coping.
 2. Install new low-profile control joint at the east to west connection of Roof B and C.
 - a) After new roofing system has been installed, adhere a 4” closed cell backer rod over the Roof B to C connection.
 - b) Wrap 18” TRA flashing over the backer rod.
 - c) Taper TRA flashing down to roof level at east and west ends and turn up cant strip along penthouse walls.
 - d) Adhere TRA flashing on the north and south outside 6” edge.

- e) Strip-in outside edge of TRA with 3-course reinforcement of asphalt mastic and reinforcing mesh.

E. North Central Office

- 1. Roofs 2A, 2B, 2C, 3A, and 3B will not be warranted projects.
 - a) New PUMA liquid membrane shall be installed directly over concrete deck and edges after concrete had been ground clean of all existing coatings and mastic.
 - 1) Shot blasting concrete will not be required.
 - b) The lower east roof area of Roof 2C shall be removed from this project.

E. Sumner Academy

- 1. On Roof 25, remove and replace wet insulation area down to the concrete deck. See attached Roof Diagnostic Moisture Survey.
 - a) Remove all wet insulation down to concrete deck.
 - b) Adhere new polyisocyanurate insulation to match flush with existing roof surface.
 - 1) Adhere with low-rise foam insulation adhesive.
 - c) Adhere 3-ply of trilaminate base sheet with two-part, bio-based, urethane adhesive.
 - 1) Feather new roofing felts out onto existing roof membrane a minimum of twelve inches.
 - d) Replace any base flashing tying into wet insulation areas with new 2-ply flashing system composed of trilaminate base sheet and TRA flashing membrane adhered in a solvent free, moisture curing roof elastomer.
 - e) Install new sheet metal details as needed to terminate new flashing per roofing material manufacturers requirements.
 - f) Use steel roller to embed new roofing plies on the field of the roof and on the flashing.
- 2. On Roof 5:
 - a) Over the tectum and wood deck areas, mechanically fasten a trilaminate base sheet, and then adhere the base insulation to the base sheet with hot asphalt.
 - b) Over the concrete deck areas, adhere the base insulation directly to the concrete deck with hot asphalt after the deck has been cleaned and primed.
 - c) Contractor shall be responsible for protecting the underside gymnasium floor. After project is completed, all protection shall be removed and gymnasium floor shall be cleaned to a broom finish.

WE HEREBY ADKNOWLEDGE AND UNDERSTAND THE ABOVE NOTED CHANGES TO THE ORIGINAL BID DOCUMENT AND AGREE TO FURNISH THE ITEMS ON WHICH PRICES ARE QUOTED IN ACCORDANCE WITH ALL TERMS AND CONDITIONS PREVIOUSLY LISTED AND ANY ATTACHED SPECIFICATIONS AND AMENDMENTS.

BY: _____ DATE: _____

TITLE: _____ PHONE: _____

FIRM: _____

DOCUMENT 00411 – REVISED BID FORM

USD #500
2023 – Argentine Middle School
Kansas City, Kansas

Bidder: _____
(Bidder enter name here)

BASE BID OR ALTERNATE BID, SINGLE-PRIME (ALL TRADES) CONTRACT

The undersigned Bidder, having carefully examined the Bidding and Contract Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, all as issued by the Owner, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material (other than roofing material listed on Attachment A), labor, equipment and services as described in the above documents, without exception, including all scheduled Allowances if any, necessary to complete the specified work.

USD #500 shall purchase all roofing material supplied by the primary roofing material manufacturer. The Bidder shall provide Attachment A with their bid, verifying quantities required to complete this project as specified. All materials not listed on Attachment A shall be the responsibility of the Bidder. The cost for the items listed on Attachment A shall not be included in Bidders Base Bid price. Failure to provide the mandatory Attachment A with verified quantities will render your bid non-responsive.

Single Prime (All trades) Contract for the above-named Project, in accordance with the requirements of the Bidding Documents, for the sum of:

BASE BID

- 1. Argentine Middle School
Roof Replacement – Roofs: C, G, H, K, L, M
M1, N1, T, T1 and U \$ _____

ALTERNATE BID

- 1. Argentine Middle School
Roof Replacement – Roofs: I and J \$ _____

UNIT PRICES

- 1. Wood Blocking Replacement \$ _____ per board foot
- 2. Drain Bowl Replacement – 4” \$ _____ each
- 3. Drain Clamping Ring Replacement \$ _____ each
- 4. Concrete Deck Repair \$ _____ per cubic foot
- 5. 18-gauge Metal – Flat stock \$ _____ per square foot
- 6. Provide price breakout for warranty purposes
on Roofs T and T1 \$ _____

WORKING DAYS

- Days to complete 100% of work specified _____ Working Days
- Anticipated days for roofers _____ Working Days
- Anticipated days for sheet metal _____ Working Days

BONDING

Bid shall be accompanied by an acceptable bid bond or certified cashier's check drawn on a local bank, payable to Treasurer, Board of Education, for an amount not less than five percent of the total amount of the bid. This bid security shall become the property of the Board of Education as liquidated damages in the event the successful bidder fails to execute and deliver a contract, along with specified surety and statutory bonds, within ten days after the received notice of the acceptance of his bid by the Board of Education.

The undersigned Bidder agrees to furnish a Payment & Performance Bond, in the amount of 100% of total contract value after receipt of contract.

TIME OF COMPLETION

The undersigned Bidder proposes and agrees hereby to commence the Work of these Contract Documents on June 1, 2023 and shall complete 100% of the Roofing and Sheet Metal Work no later than August 4, 2023. Work is defined as continuous daily roofing related activities as provided in this specification. If Work cannot be started or completed within specified timeframe, contractor shall provide immediate repairs to stop or minimize leaks until work is completed and shall pay as a late fee the sum of \$1,500 for each consecutive calendar day that work is not started or completed thereafter.

The district reserves the right to cancel the contract if the contractor has not started the work by June 7, 2023. All cost associated with the cancelling of the contract shall be the responsibility of the contractor, including any cost associated with returning materials purchase by the district.

If contractor fails to complete the work by August 4, 2023, all remaining work must be completed on weekends or holidays, and the district shall deduct \$1,500 per day from the contract until work is 100% complete.

ACKNOWLEDGEMENT OF ADDENDA

The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

Addendum No. 1, dated _____

Addendum No. 2, dated _____

Addendum No. 3, dated _____

CONTRACTOR'S LICENSE

The undersigned further states that he is a duly licensed Contractor, for the type of work proposed, in the State of Kansas, and that all fees, permits, etc., pursuant to the submission of this proposal will be paid in full.

SUBMISSION OF BID

Respectfully submitted this ____ day of _____, 2022.

By: _____

(Name of bidding firm or corporation)

Witness:

By: _____
(Signature)

Attest: _____
(Signature)

(Type or print name)

By: _____
(Type or print name)

Title: _____
(Owner/Partner/President/Vice Pres.)

Title: _____
(Corporate Secretary or Assistant Secretary Only)

Address: _____

Phone: _____

License: _____

(Affix Corporate Seal Here)

Federal ID No.: _____

ATTACHMENT A
USD #500 – 2023 ROOFING PROJECT
**Argentine Middle – Roofs C, G, H, K, L, M, M1, N1,
T, T1, and U**

<u>Products</u>	<u>Material Size & Container</u>	<u>Material Quantity</u>	
Alumanation 301	5-gallon bucket	20	buckets
Burmastic	50-gallon barrels - lined	32	barrels
Burmastic Flashing Adhesive MC	5-gallon bucket	55	buckets
Burmastic Composite Ply HT	20 rolls per pallet - 2/sq/roll	120	rolls
Burmastic Glass Ply 33-lbs.	20 rolls per pallet – 2/sq/roll	160	rolls
Burmesh	6” x 300’ rolls	8	rolls
ELS	5-gal buckets	36	buckets
POWERply Endure 300 FR	20-rolls per pallet – 1/sq/roll	20	rolls
Premium IV Asphalt	24 cartons per pallet	240	cartons
TRA Flashing	12” x 50’ roll	2	rolls
	18” x 50’ roll	21	rolls
	24” x 50’ roll	22	rolls
	36” x 50’ roll	7	roll
TremPrime QD	5-gallon bucket	4	buckets
TremSeal Pro – Bronze	30 tubes per case	2	case
Trisotech Tapered Insulation Kit	81.70 squares (Roofs K, L, M)	1	Kit

Contractor Name: _____

Project Size: _____ square feet

ATTACHMENT A
USD #500 – 2023 ROOFING PROJECT
Argentine Middle – Roofs I, J

<u>Products</u>	<u>Material Size & Container</u>	<u>Material Quantity</u>	
Alumanation 301	5-gallon bucket	2	buckets
Burmastic	50-gallon barrels - lined	6	barrels
Burmastic Flashing Adhesive MC	5-gallon bucket	16	buckets
Burmastic Composite Ply HT	20 rolls per pallet - 2/sq/roll	40	rolls
Burmastic Glass Ply 33-lbs.	20 rolls per pallet – 2/sq/roll	40	rolls
Burmesh	6” x 300’ rolls	2	rolls
ELS	5-gal buckets	18	buckets
Premium IV Asphalt	24 cartons per pallet	24	cartons
TRA Flashing	12” x 50’ roll	1	rolls
	18” x 50’ roll	1	rolls
	36” x 50’ roll	3	roll
TremPrime QD	5-gallon bucket	1	buckets
TremSeal Pro – Bronze	30 tubes per case	1	case

Contractor Name: _____

Project Size: _____ square feet

END OF SECTION 00411

DOCUMENT 00411 – REVISED BID FORM

USD #500
2023 – John Fiske Elementary School
Kansas City, Kansas

Bidder: _____
(Bidder enter name here)

BASE BID OR ALTERNATE BID, SINGLE-PRIME (ALL TRADES) CONTRACT

The undersigned Bidder, having carefully examined the Bidding and Contract Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, all as issued by the Owner, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material (other than roofing material listed on Attachment A), labor, equipment and services as described in the above documents, without exception, including all scheduled Allowances if any, necessary to complete the specified work.

USD #500 shall purchase all roofing material supplied by the primary roofing material manufacturer. The Bidder shall provide Attachment A with their bid, verifying quantities required to complete this project as specified. All materials not listed on Attachment A shall be the responsibility of the Bidder. The cost for the items listed on Attachment A shall not be included in Bidders Base Bid price. Failure to provide the mandatory Attachment A with verified quantities will render your bid non-responsive.

Single Prime (All trades) Contract for the above-named Project, in accordance with the requirements of the Bidding Documents, for the sum of:

BASE BID

- 1. John Fiske Elementary School
Roof Replacement – Roof 5 \$ _____

ALTERNATE BID

- 1. John Fiske Elementary School
Do not remove and replace ½” gypsum board
over metal deck \$ _____ Deduct

UNIT PRICES

- 1. Wood Blocking Replacement \$ _____ per board foot
- 2. Drain Bowl Replacement – 4” \$ _____ each
- 3. Drain Clamping Ring Replacement \$ _____ each
- 4. Metal Deck Repair \$ _____ per square foot
- 5. 18-gauge Metal – Flat stock \$ _____ per square foot
- 6. ½” Gypsum Board Replacement \$ _____ per square foot

WORKING DAYS

Days to complete 100% of work specified _____ Working Days
 Anticipated days for roofers _____ Working Days
 Anticipated days for sheet metal _____ Working Days

BONDING

Bid shall be accompanied by an acceptable bid bond or certified cashier's check drawn on a local bank, payable to Treasurer, Board of Education, for an amount not less than five percent of the total amount of the bid. This bid security shall become the property of the Board of Education as liquidated damages in the event the successful bidder fails to execute and deliver a contract, along with specified surety and statutory bonds, within ten days after the received notice of the acceptance of his bid by the Board of Education.

The undersigned Bidder agrees to furnish a Payment & Performance Bond, in the amount of 100% of total contract value after receipt of contract.

TIME OF COMPLETION

The undersigned Bidder proposes and agrees hereby to commence the Work of these Contract Documents on June 1, 2023 and shall complete 100% of the Roofing and Sheet Metal Work no later than August 4, 2023. Work is defined as continuous daily roofing related activities as provided in this specification. If Work cannot be started or completed within specified timeframe, contractor shall provide immediate repairs to stop or minimize leaks until work is completed and shall pay as a late fee the sum of \$1,500 for each consecutive calendar day that work is not started or completed thereafter.

The district reserves the right to cancel the contract if the contractor has not started the work by June 1, 2023. All cost associated with the cancelling of the contract shall be the responsibility of the contractor, including any cost associated with returning materials purchase by the district.

If contractor fails to complete the work by August 4, 2023, all remaining work must be completed on weekends or holidays, and the district shall deduct \$1,500 per day from the contract until work is 100% complete.

ACKNOWLEDGEMENT OF ADDENDA

The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

Addendum No. 1, dated _____

Addendum No. 2, dated _____

Addendum No. 3, dated _____

CONTRACTOR'S LICENSE

The undersigned further states that he is a duly licensed Contractor, for the type of work proposed, in the State of Kansas, and that all fees, permits, etc., pursuant to the submission of this proposal will be paid in full.

SUBMISSION OF BID

Respectfully submitted this ____ day of _____, 2022.

By: _____

(Name of bidding firm or corporation)

Witness:

By: _____
(Signature)

Attest: _____
(Signature)

(Type or print name)

By: _____
(Type or print name)

Title: _____
(Owner/Partner/President/Vice Pres.)

Title: _____
(Corporate Secretary or Assistant Secretary Only)

Address: _____

Phone: _____

License: _____

(Affix Corporate Seal Here)

Federal ID No.: _____

ATTACHMENT A
USD #500 – 2023 ROOFING PROJECT
John Fiske Elementary – Roof 5

<u>Products</u>	<u>Material Size & Container</u>	<u>Material Quantity</u>	
Alumanation 301	5-gallon bucket	1	buckets
Burmastic	50-gallon barrels - lined	18	barrels
Burmastic Flashing Adhesive MC	5-gallon bucket	8	buckets
Burmastic Composite Ply HT	20 rolls per pallet - 2/sq/roll	40	rolls
Burmastic Glass Ply 33-lbs.	20 rolls per pallet – 2/sq/roll	120	rolls
Burmesh	6” x 300’ rolls	4	rolls
ELS	5-gal buckets	36	buckets
Premium IV Asphalt	24 cartons per pallet	96	cartons
TRA Flashing	18” x 50’ roll	4	rolls
TremPrime QD	5-gallon bucket	1	buckets
TremSeal Pro – Bronze	30 tubes per case	1	case

Contractor Name: _____

Project Size: _____ square feet

END OF SECTION 00411

DOCUMENT 00411 – REVISED BID FORM

USD #500
2023 – M.E. Pearson Elementary
Kansas City, Kansas

Bidder: _____
(Bidder enter name here)

BASE BID OR ALTERNATE BID, SINGLE-PRIME (ALL TRADES) CONTRACT

The undersigned Bidder, having carefully examined the Bidding and Contract Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, all as issued by the Owner, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material (other than roofing material listed on Attachment A), labor, equipment and services as described in the above documents, without exception, including all scheduled Allowances if any, necessary to complete the specified work.

USD #500 shall purchase roofing material supplied by the primary roofing material manufacturer. The Bidder shall provide Attachment A with their bid, verifying quantities required to complete this project as specified. All materials not listed on Attachment A shall be the responsibility of the Bidder. The cost for the items listed on Attachment A shall not be included in Bidders Base Bid price. Failure to provide the mandatory Attachment A with verified quantities will render your bid non-responsive.

Single Prime (All trades) Contract for the above-named Project, in accordance with the requirements of the Bidding Documents, for the sum of:

BASE BIDS

- 1. M.E. Pearson Elementary – Roof B – Roof Replacement \$ _____
- 2. M.E. Pearson Elementary – Roof I – Roof Repairs \$ _____

UNIT PRICES

- 1. Wood Blocking Replacement \$ _____ per board foot
- 2. Drain Bowl Replacement – 5” \$ _____ each
- 3. Drain Clamping Ring Replacement \$ _____ each
- 4. Concrete Deck Repair \$ _____ per cubic foot
- 5. 18-gauge Metal – Flat stock \$ _____ per square foot

WORKING DAYS

Days to complete 100% of work specified _____ Working Days
 Anticipated days for roofers _____ Working Days
 Anticipated days for sheet metal _____ Working Days

BONDING

Bid shall be accompanied by an acceptable bid bond or certified cashier's check drawn on a local bank, payable to Treasurer, Board of Education, for an amount not less than five percent of the total amount of the bid. This bid security shall become the property of the Board of Education as liquidated damages in the event the successful bidder fails to execute and deliver a contract, along with specified surety and statutory bonds, within ten days after the received notice of the acceptance of his bid by the Board of Education.

The undersigned Bidder agrees to furnish a Payment & Performance Bond, in the amount of 100% of total contract value after receipt of contract.

TIME OF COMPLETION

The undersigned Bidder proposes and agrees hereby to commence the Work of these Contract Documents on June 1, 2023 and shall complete 100% of the Roofing and Sheet Metal Work no later than August 4, 2023. Work is defined as continuous daily roofing related activities as provided in this specification. If Work cannot be started or completed within specified timeframe, contractor shall provide immediate repairs to stop or minimize leaks until work is completed and shall pay as a late fee the sum of \$1,500 for each consecutive calendar day that work is not started or completed thereafter.

The district reserves the right to cancel the contract if the contractor has not started the work by June 7, 2023. All cost associated with the cancelling of the contract shall be the responsibility of the contractor, including any cost associated with returning materials purchase by the district.

If contractor fails to complete the work by August 4, 2023 all remaining work must be completed on weekends or holidays, and the District shall deduct \$1,500 per calendar day from the contract until work is 100% complete.

ACKNOWLEDGEMENT OF ADDENDA

The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

Addendum No. 1, dated _____

Addendum No. 2, dated _____

Addendum No. 3, dated _____

CONTRACTOR'S LICENSE

The undersigned further states that he is a duly licensed Contractor, for the type of work proposed, in the State of Kansas, and that all fees, permits, etc., pursuant to the submission of this proposal will be paid in full.

SUBMISSION OF BID

Respectfully submitted this ____ day of _____, 2022.

By: _____

(Name of bidding firm or corporation)

Witness:

By: _____
(Signature)

Attest: _____
(Signature)

(Type or print name)

By: _____
(Type or print name)

Title: _____
(Owner/Partner/President/Vice Pres.)

Title: _____
(Corporate Secretary or Assistant Secretary Only)

Address: _____

Phone: _____

License: _____

(Affix Corporate Seal Here)

Federal ID No.: _____

ATTACHMENT A
USD #500 – 2021 ROOFING PROJECT
M.E. Pearson Elementary – Roofs B & I

<u>Products</u>	<u>Material Size & Container</u>	<u>Material Quantity</u>	
Alumanation 301	5-gallon bucket	8	buckets
Burmastic Adhesive	50-gallon barrels – lined	26	barrels
Burmastic Flashing Adhesive MC	5-gallon bucket	20	buckets
Burmastic Composite Ply HT	20 rolls per pallet - 2/sq/roll	100	rolls
Burmastic Glass Ply – 33 lb.	20 rolls per pallet – 2/sq/roll	160	rolls
Burmesh	6” x 300’ rolls	5	rolls
ELS Mastic	5-gallon bucket	36	buckets
Polyroof SF	3-gallon bucket	8	buckets
Premium IV Asphalt	24 cartons per pallet	192	cartons
TRA Flashing	18” x 50’ roll 24” x 50’ roll	6 7	rolls rolls
TremPrime QD	5-gallon bucket	8	buckets
TremSeal Pro – Bronze	30 tubes per case	1	cases

Contractor Name: _____

Project Size: _____ square feet

END OF SECTION 00411

DOCUMENT 00411 –REVISED BID FORM

USD #500
2022 – NCO – Building A
Kansas City, Kansas

Bidder: _____
(Bidder enter name here)

BASE BID OR ALTERNATE BID, SINGLE-PRIME (ALL TRADES) CONTRACT

The undersigned Bidder, having carefully examined the Bidding and Contract Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, all as issued by the Owner, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material (other than roofing material listed on Attachment A), labor, equipment and services as described in the above documents, without exception, including all scheduled Allowances if any, necessary to complete the specified work.

USD #500 shall purchase all roofing material supplied by the primary roofing material manufacturer. The Bidder shall provide Attachment A with their bid, verifying quantities required to complete this project as specified. All materials not listed on Attachment A shall be the responsibility of the Bidder. The cost for the items listed on Attachment A shall not be included in Bidders Base Bid price. Failure to provide the mandatory Attachment A with verified quantities will render your bid non-responsive.

Single Prime (All trades) Contract for the above-named Project, in accordance with the requirements of the Bidding Documents, for the sum of:

BASE BID

- 1. NCO - Building A
Roof Replacement - Roofs 2 and 3 \$ _____

ALTERNATE BID

- 1. NCO - Building A
Install Liquid Applied Membrane over
concrete decks
Roofs 2A, 2B, 2C, 3A, and 3B \$ _____

UNIT PRICES

- 1. Wood Blocking Replacement \$ _____ per board foot
- 2. Drain Bowl Replacement – 5” \$ _____ each
- 3. Drain Clamping Ring Replacement \$ _____ each
- 4. Concrete Deck Repair \$ _____ per cubic foot
- 5. 18-gauge Metal – Flat stock \$ _____ per square foot

WORKING DAYS

Days to complete 100% of work specified _____ Working Days
 Anticipated days for roofers _____ Working Days
 Anticipated days for sheet metal _____ Working Days

BONDING

Bid shall be accompanied by an acceptable bid bond or certified cashier's check drawn on a local bank, payable to Treasurer, Board of Education, for an amount not less than five percent of the total amount of the bid. This bid security shall become the property of the Board of Education as liquidated damages in the event the successful bidder fails to execute and deliver a contract, along with specified surety and statutory bonds, within ten days after the received notice of the acceptance of his bid by the Board of Education.

The undersigned Bidder agrees to furnish a Payment & Performance Bond, in the amount of 100% of total contract value after receipt of contract.

TIME OF COMPLETION

The undersigned Bidder proposes and agrees hereby to commence the Work of these Contract Documents as weather allows in the spring of 2023, and shall complete 100% of the Roofing and Sheet Metal Work no later than August 4, 2023. Work is defined as continuous daily roofing related activities as provided in this specification. If Work cannot be started or completed within specified timeframe, contractor shall provide immediate repairs to stop or minimize leaks until work is completed and shall pay as a late fee the sum of \$1,500 for each consecutive calendar day that work is not started or completed thereafter. The district reserves the right to cancel the contract if the contractor has not started the work by June 7, 2023. All cost associated with the cancelling of the contract shall be the responsibility of the contractor, including any cost associated with returning materials purchased by the district. If contractor fails to complete the work by August 4, 2023, all remaining work must be completed on weekends or holidays, and the District shall deduct \$1,500 per day from the contract until work is 100% complete.

ACKNOWLEDGEMENT OF ADDENDA

The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

- Addendum No. 1, dated _____
- Addendum No. 2, dated _____
- Addendum No. 3, dated _____

CONTRACTOR'S LICENSE

The undersigned further states that he is a duly licensed Contractor, for the type of work proposed, in the State of Kansas, and that all fees, permits, etc., pursuant to the submission of this proposal will be paid in full.

SUBMISSION OF BID

Respectfully submitted this ____ day of _____, 2022

By: _____
(Name of bidding firm or corporation)

Witness:

By: _____
(Signature)

Attest: _____
(Signature)

(Type or print name)

By: _____
(Type or print name)

Title: _____
(Owner/Partner/President/Vice Pres.)

Title: _____
(Corporate Secretary or Assistant Secretary Only)

Address: _____

Phone: _____

License: _____

(Affix Corporate Seal Here)

Federal ID No.: _____

ATTACHMENT A
USD #500 – 2022 ROOFING PROJECT
NCO – Building A – Roofs 2 and 3

<u>Products</u>	<u>Material Size & Container</u>	<u>Material Quantity</u>	
Alumanation 301	5-gallon bucket	8	buckets
Burmastic Adhesive	50-gallon barrels - lined	60	pallets
Burmastic Flashing Adhesive MC	5-gallon bucket	35	buckets
Burmastic Composite Ply HT	20 rolls per pallet - 2/sq/roll	260	rolls
Burmastic Glass Ply 33-lbs.	20 rolls per pallet – 2/sq/roll	380	rolls
Burmesh	6” x 300’ rolls	5	rolls
ELS	5-gal buckets	36	buckets
Premium IV Asphalt	24 cartons per pallet	280	cartons
TRA Flashing	18” x 50’ roll	24	rolls
TremPrime QD	5-gallon bucket	12	buckets
TremSeal Pro – Bronze	30 tubes per case	2	cases
Trisotech Insulation	2.0” x 4’ x 8’	31	pallets

Contractor Name: _____

Project Size: _____ square feet

ATTACHMENT A
USD #500 – 2022 ROOFING PROJECT
**NCO – Building A – Roofs 2A, 2B, 2C,
3A, and 3B**

<u>Products</u>	<u>Material Size & Container</u>	<u>Material Quantity</u>	
AlphaGuard FC Catalyst	11-lb case	11	case
AlphaGuard PUMA Cleaner	6-gallon bucket	2	buckets
AlphaGuard PUMA Primer - 107	6-gallon bucket	6	buckets
AlphaGuard PUMA Base	6-gallon bucket	27	buckets
AlphaGuard PUMA Top Coat	6-gallon bucket	8	buckets
AlphaGuard PUMA Quick Flash	2-gallon bucket	10	bucket

Contractor Name: _____

Project Size: _____ square feet

END OF SECTION 00411

DOCUMENT 00411 – REVISED BID FORM

USD #500
2022 – Sumner Academy
Kansas City, Kansas

Bidder: _____
(Bidder enter name here)

BASE BID OR ALTERNATE BID, SINGLE-PRIME (ALL TRADES) CONTRACT

The undersigned Bidder, having carefully examined the Bidding and Contract Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, all as issued by the Owner, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material (other than roofing material listed on Attachment A), labor, equipment and services as described in the above documents, without exception, including all scheduled Allowances if any, necessary to complete the specified work.

USD #500 shall purchase all roofing material supplied by the primary roofing material manufacturer. The Bidder shall provide Attachment A with their bid, verifying quantities required to complete this project as specified. All materials not listed on Attachment A shall be the responsibility of the Bidder. The cost for the items listed on Attachment A shall not be included in Bidders Base Bid price. Failure to provide the mandatory Attachment A with verified quantities will render your bid non-responsive.

Single Prime (All trades) Contract for the above-named Project, in accordance with the requirements of the Bidding Documents, for the sum of:

BASE BID

- 1. Sumner Academy
Roof Restoration - Roofs 12 and 25 \$ _____

ALTERNATE BID

- 1. Sumner Academy
Roof Replacement – Roof 5 \$ _____

UNIT PRICES

- 1. Wood Blocking Replacement \$ _____ per board foot
- 2. Drain Bowl Replacement – 4” \$ _____ each
- 3. Drain Clamping Ring Replacement \$ _____ each
- 4. Concrete Deck Repair \$ _____ per cubic foot
- 5. 18-gauge Metal – Flat stock \$ _____ per square foot

WORKING DAYS

- Days to complete 100% of work specified in Base Bid _____ Working Days
- Anticipated days for roofers _____ Working Days
- Anticipated days for sheet metal _____ Working Days

BONDING

Bid shall be accompanied by an acceptable bid bond or certified cashier's check drawn on a local bank, payable to Treasurer, Board of Education, for an amount not less than five percent of the total amount of the bid. This bid security shall become the property of the Board of Education as liquidated damages in the event the successful bidder fails to execute and deliver a contract, along with specified surety and statutory bonds, within ten days after the received notice of the acceptance of his bid by the Board of Education.

The undersigned Bidder agrees to furnish a Payment & Performance Bond, in the amount of 100% of total contract value after receipt of contract.

TIME OF COMPLETION

The undersigned Bidder proposes and agrees hereby to commence the Work of these Contract Documents on June 1, 2023 and shall complete 100% of the Roofing and Sheet Metal Work no later than August 4, 2023. Work is defined as continuous daily roofing related activities as provided in this specification. If Work cannot be started or completed within specified timeframe, contractor shall provide immediate repairs to stop or minimize leaks until work is completed and shall pay as a late fee the sum of \$1,500 for each consecutive calendar day that work is not started or completed thereafter.

The district reserves the right to cancel the contract if the contractor has not started the work by June 7, 2023. All cost associated with the cancelling of the contract shall be the responsibility of the contractor, including any cost associated with returning materials purchased by the district.

If contractor fails to complete the work by August 4, 2023 all remaining work must be completed on weekends or holidays, and the district shall deduct \$1,500 per day from the contract until work is 100% complete.

ACKNOWLEDGEMENT OF ADDENDA

The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

Addendum No. 1, dated _____

Addendum No. 2, dated _____

Addendum No. 3, dated _____

CONTRACTOR'S LICENSE

The undersigned further states that he is a duly licensed Contractor, for the type of work proposed, in the State of Kansas, and that all fees, permits, etc., pursuant to the submission of this proposal will be paid in full.

SUBMISSION OF BID

Respectfully submitted this ____ day of _____, 2022.

By: _____

(Name of bidding firm or corporation)

Witness:

By: _____

(Signature)

Attest: _____

(Signature)

(Type or print name)

By: _____

(Type or print name)

Title: _____

(Owner/Partner/President/Vice Pres.)

Title: _____

(Corporate Secretary or Assistant Secretary Only)

Address: _____

Phone: _____

License: _____

(Affix Corporate Seal Here)

Federal ID No.: _____

ATTACHMENT A
USD #500 – 2022 ROOFING PROJECT
Sumner Academy – Roof 5

<u>Products</u>	<u>Material Size & Container</u>	<u>Material Quantity</u>	
Alumanation 301	5-gallon bucket	2	buckets
Burmastic	50-gallon barrels - lined	10	barrels
Burmastic Flashing Adhesive MC	5-gallon bucket	12	buckets
Burmastic Composite Ply HT	20 rolls per pallet - 2/sq/roll	40	rolls
Burmastic Glass Ply 33-lbs.	20 rolls per pallet – 2/sq/roll	60	rolls
Burmesh	6” x 300’ rolls	3	rolls
ELS	5-gal buckets	36	buckets
Premium IV Asphalt	24 cartons per pallet	72	cartons
TRA Flashing	12” x 50’ roll	5	rolls
	24” x 50’ roll	2	rolls
TremPrime QD	5-gallon bucket	6	buckets
TremSeal Pro – Bronze	30 tubes per case	1	cases

Contractor Name: _____

Project Size: _____ square feet

ATTACHMENT A
USD #500 – 2022 ROOFING PROJECT

Sumner Academy Roof Restoration – Roofs 12 and 25

<u>Products</u>	<u>Material Size & Container</u>	<u>Material Quantity</u>	
AlphaGuard Bio Base Coat	4-gallon kit	13	kits
AlphaGuard Bio Top Coat	3.1-gallon kit	10	kits
Burmastic Composite Ply HT	2 sq. roll	20	rolls
Burmastic Flashing Adhesive MC	5-gallon bucket	10	buckets
Burmesh	6" x 300' rolls	4	roll
Ecolastic	53-gal lined barrels	12	barrels
ELS Mastic	5-gallon bucket	36	buckets
GeoGard Seam Sealer	2-gallon buckets	5	buckets
GeoGard Primer	1-gallon bucket	3	bucket
Permafab	4" x 300' roll	2	roll
POWERply Endure Bio Adhesive	4-gallon kits	21	kits
TremPrime QD	5-gallon bucket	2	bucket
TRA Elastomeric Sheeting	24" x 50' roll	3	rolls
TremSeal Pro – Bronze	30 tubes per case	1	cases

Contractor Name: _____

Project Size: _____ square feet

END OF SECTION 00411

BONDING

Bid shall be accompanied by an acceptable bid bond or certified cashier's check drawn on a local bank, payable to Treasurer, Board of Education, for an amount not less than five percent of the total amount of the bid. This bid security shall become the property of the Board of Education as liquidated damages in the event the successful bidder fails to execute and deliver a contract, along with specified surety and statutory bonds, within ten days after the received notice of the acceptance of his bid by the Board of Education.

The undersigned Bidder agrees to furnish a Payment & Performance Bond, in the amount of 100% of total contract value after receipt of contract.

TIME OF COMPLETION

The undersigned Bidder proposes and agrees hereby to commence the Work of these Contract Documents on June 1, 2023 and shall complete 100% of the Roofing and Sheet Metal Work no later than August 4, 2023. Work is defined as continuous daily roofing related activities as provided in this specification. If Work cannot be started or completed within specified timeframe, contractor shall provide immediate repairs to stop or minimize leaks until work is completed and shall pay as a late fee the sum of \$1,500 for each consecutive calendar day that work is not started or completed thereafter.

The district reserves the right to cancel the contract if the contractor has not started the work by June 7, 2023. All cost associated with the cancelling of the contract shall be the responsibility of the contractor, including any cost associated with returning materials purchase by the district.

If contractor fails to complete the work by August 4, 2023, all remaining work must be completed on weekends or holidays, and the district shall deduct \$1,500 per day from the contract until work is 100% complete.

ACKNOWLEDGEMENT OF ADDENDA

The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

Addendum No. 1, dated _____

Addendum No. 2, dated _____

Addendum No. 3, dated _____

CONTRACTOR'S LICENSE

The undersigned further states that he is a duly licensed Contractor, for the type of work proposed, in the State of Kansas, and that all fees, permits, etc., pursuant to the submission of this proposal will be paid in full.

SUBMISSION OF BID

Respectfully submitted this ____ day of _____, 2022.

By: _____

(Name of bidding firm or corporation)

Witness:

By: _____
(Signature)

Attest: _____
(Signature)

(Type or print name)

By: _____
(Type or print name)

Title: _____
(Owner/Partner/President/Vice Pres.)

Title: _____
(Corporate Secretary or Assistant Secretary Only)

Address: _____

Phone: _____

License: _____

(Affix Corporate Seal Here)

Federal ID No.: _____

ATTACHMENT A
USD #500 – 2022 ROOFING PROJECT
Washington High – Roofs 24, 27, 28, & 29

<u>Products</u>	<u>Material Size & Container</u>	<u>Material Quantity</u>	
Alumanation 301	5-gallon bucket	9	buckets
Burmastic	50-gallon barrels - lined	15	barrels
Burmastic Flashing Adhesive MC	5-gallon bucket	35	buckets
Burmastic Composite Ply HT	20 rolls per pallet - 2/sq/roll	80	rolls
Burmastic Glass Ply 33-lbs.	20 rolls per pallet – 2/sq/roll	100	rolls
Burmesh	6” x 300’ rolls	4	rolls
ELS	5-gal buckets	36	buckets
Premium IV Asphalt	24 cartons per pallet	120	cartons
TRA Flashing	18” x 50’ roll	8	rolls
	24” x 50’ roll	10	rolls
TremPrime QD	5-gallon bucket	8	buckets
TremSeal Pro – Bronze	30 tubes per case	1	cases
Trisotech Tapered Insulation	52.97 squares	1	kit

Contractor Name: _____

Project Size: _____ square feet

END OF SECTION 00411

SECTION 074113.06 - METAL ROOF PANELS, STANDING SEAM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Architectural standing-seam metal roof panels.
2. Metal roof accessories.
3. Roof insulation.
4. Miscellaneous metal framing.

B. Related Sections:

1. Division 05 Section "Structural Steel Framing" for steel roof purlins supporting metal roof panels.
2. Division 05 Section "Steel Decking" for steel roof deck supporting metal roof panels.
3. Division 05 Section "Cold-Formed Metal Framing" for engineered cold-formed metal roof framing supporting metal roof panels.
4. Division 06 rough carpentry section for wood nailers, curbs, and blocking.
5. Division 07 air barrier section for transition material from wall air barrier assembly to roof air barrier.
6. Division 07 Section "Metal Wall Panels" for factory-formed metal wall and soffit panels.
7. Division 07 Section "Sheet Metal Flashing and Trim" for field- or shop- formed fasciae, copings, flashings, roof drainage systems, and other sheet metal work not part of metal roof panel assemblies.
8. Division 07 Section "Roof Specialties" for manufactured fasciae, copings, roof drainage systems, and other roof specialties not part of metal roof panel assemblies.
9. Division 07 Section "Joint Sealants" for field-applied sealants not otherwise specified in this Section.

C. Alternates: Refer to Division 01 Section "Alternates" for description of Work in this Section affected by alternates.

D. Allowances: Refer to Division 01 Section "Allowances" for description of Work in this Section affected by allowances.

- E. Unit Prices: Refer to Division 01 Section "Unit Prices" for description of Work in this Section affected by unit prices.

1.2 DEFINITIONS

- A. Metal Roof Panel Assembly: Metal roof panels, attachment system components, miscellaneous metal framing, thermal insulation, and accessories necessary for a complete weathertight roofing system.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 1. Meet with Owner, Owner's insurer if applicable, testing and inspecting agency representative, metal roof panel Installer, metal roof panel manufacturer's representative, substrate Installer, and installers whose work interfaces with or affects metal roof panels including installers of roof accessories and roof-mounted equipment.
 2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 3. Review methods and procedures related to metal roof panel installation, including manufacturer's written instructions.
 4. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
 5. Review structural loading limitations of substrate during and after roofing.
 6. Review flashings, special roof details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect metal roof panels.
 7. Review governing regulations and requirements for insurance, certificates, and testing and inspecting if applicable.
 8. Review temporary protection requirements for metal roof panel assembly during and after installation.
 9. Review roof observation and repair procedures after metal roof panel installation.
 10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of roof panel and accessory.
- B. LEED Submittals:

1. Product Test Reports for Credit SS 7.2: For roof panels, indicating that panels comply with solar reflectance index requirement.
2. Product Data for Credit MR 4: Indicating percentages by weight of postconsumer and preconsumer recycled content for products having recycled content.
 - a. Include statement indicating costs for each product having recycled content.
- C. Shop Drawings: Show fabrication and installation layouts of metal roof panels; details of edge conditions, side-seam and end lap joints, panel profiles, corners, anchorages, trim, flashings, closures, and accessories; and special details specific to project, signed and sealed by the qualified professional engineer responsible for their preparation. Distinguish between factory- and field-assembled work.
- D. Accessory Details: Include details of the following items:
 1. Flashing and trim.
 2. Pipe penetration flashings.
 3. Roof curbs.
 4. Gutters.
 5. Downspouts.
- E. Delegated-Design Submittal: For metal roof panel assembly indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the metal roof panel manufacturer's qualified professional engineer responsible for their preparation. Include the following:
 1. Structural analysis data indicating compliance with Performance Requirements Article.
- F. Shop Drawings for Snow Guards: By snow guard manufacturer. Show fabrication and installation layouts and attachment to other construction.
- G. Samples for Initial Selection: For each type of metal roof panel indicated with factory-applied color finishes.
 1. Include similar Samples of trim and accessories involving color selection.
- H. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
 1. Metal Roof Panels: 12 inches (300 mm) long by actual panel width. Include fasteners, clips, closures, and other metal roof panel accessories.
 2. Trim and Closures: 12 inches (300 mm) long. Include fasteners and other exposed accessories.
 3. Accessories: 12-inch- (300-mm-) long Samples for each type of accessory.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer and Installer.
 - 1. Submit Installer qualifications in the form of an original letter on manufacturer's letterhead signed by authorized manufacturer representative.
- B. Material Certificates: For thermal insulation, from manufacturer.
- C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product. Indicate compliance with requirements in Performance Requirements Article:
 - 1. Air Infiltration.
 - 2. Water Penetration.
 - 3. Hydrostatic-Head Resistance.
 - 4. Wind-Uplift Resistance.
 - 5. FM Approvals Listing.
 - 6. Solar Reflectance.
 - 7. Minimum Emissivity Rating.
- D. Field Quality Control Reports.
- E. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For metal roof panels to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A manufacturer of plant-fabricated metal roof panel systems listed in this Section and meeting performance requirements, with a minimum of five years' experience providing metal roof panel systems for projects of similar type and scope, offering engineering, warranty, technical inspection, and maintenance inspection services specified.
- B. Installer Qualifications: An employer of workers trained and certified by manufacturer, including a full-time on-site supervisor with a minimum of five years' experience installing similar work, able to communicate verbally with Contractor, Architect, and employees, and qualified by the manufacturer to furnish warranty of type specified.
 - 1. Manufacturer's On-Site Roll Former Operators: Experienced full-time employees of metal roof panel manufacturer.

- C. Professional Engineer Qualification: A qualified professional engineer licensed in the project state and experienced in metal roof panel system design similar to that required for Project.
 - D. UL-Certified, Portable Roll-Forming Equipment: UL-certified, portable roll-forming equipment capable of producing metal panels warranted by manufacturer to be the same as factory-formed products. Maintain UL certification of portable roll-forming equipment for duration of work.
 - E. Manufacturer's Technical Representative Qualifications: An authorized full-time employee representative of manufacturer, certified as a Registered Roof Observer by the Roof Consultants Institute, and experienced in the installation and maintenance of the specified roof panel system and qualified to determine Installer's compliance with the requirements of this Project.
 - F. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing and inspection indicated.
 - 1. Inspection personnel shall be certified as a Registered Roof Observer by the Roof Consultants Institute and shall be experienced in the installation and maintenance of the specified roofing system and qualified to determine Installer's compliance with the requirements of this Project.
 - G. Source Limitations: Obtain metal roof panels and accessories [and related engineered structural support members] from a single source supplied or approved by metal roof panel manufacturer.
 - H. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockup of typical roof eave, including fascia and gable trim[, as shown on Drawings]; approximately four panels wide by full eave width, including insulation, underlayment, attachments, and accessories.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- 1.8 DELIVERY, STORAGE, AND HANDLING
- A. Deliver components, sheets, metal roof panels, and other manufactured items so as not to be damaged or deformed. Package metal roof panels for protection during transportation and handling.
 - B. Unload, store, and erect metal roof panels in a manner to prevent bending, warping, twisting, and surface damage.
 - C. Stack metal roof panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal roof panels to ensure dryness. Do not store metal roof panels in contact with other materials that might cause staining, denting, or other surface damage.

- D. Protect strippable protective covering on metal roof panels from exposure to sunlight and high humidity, except to extent necessary for period of metal roof panel installation.
- E. Protect foam-plastic insulation as follows:
 - 1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
 - 2. Protect against ignition at all times. Do not deliver foam-plastic insulation materials to Project site before installation time.
 - 3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

1.9 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit metal roof panel work to be performed according to manufacturer's written instructions and warranty requirements.
- B. Field Measurements: Verify actual dimensions of construction contiguous with metal roof panels by field measurements before fabrication.

1.10 COORDINATION

- A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.
- B. Coordinate metal roof panels with rain drainage work, flashing, trim, and construction of substrate, parapets, walls, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.
- C. Air Barrier Coordination: Coordinate installation of roofing insulation with installation of wall air barrier system wall-to-roof transition material specified in Division 07 Section air barrier section to provide a continuous air barrier across roofing and adjacent assemblies.

1.11 WARRANTY

- A. Warranty, General: Warranties specified shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. Roof System Warranty, General: Warranties specified in this Section include the following components and systems specified in other sections supplied by the metal roof panel manufacturer:
 - 1. Metal wall and soffit panels and trim.
 - 2. Wall expansion joint assemblies.
- C. Special System Weathertightness Warranty for Metal Roof Panels: Written warranty in which Manufacturer agrees to repair or replace metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.
 - 1. Warranty Period: 20 years from date of Substantial Completion.

2. Limit of Warranty Coverage: Not to exceed original installed cost of metal roof panel assembly including labor and materials.
 3. Qualified Installer Requirement: Installer must meet requirements in Quality Assurance Article.
 4. Installation Inspection Requirement: By manufacturer's technical representative in accordance with requirements of Part 3 Field Quality Control Article.
 5. Manufacturer Inspection Requirement: By qualified manufacturer's technical representative, to report maintenance responsibilities to Owner necessary for preservation of Owner's warranty rights. The cost of manufacturer's inspections is included in the Contract Sum. Inspections to occur in Years 2, 5, 10, and 15 following Substantial Completion.
- D. Special Warranty on Panel Finishes: Written warranty in which Manufacturer agrees to repair finish or replace metal roof panels that show evidence of deterioration of factory-applied finishes under normal atmospheric conditions within specified warranty period.
1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design Manufacturers/Products: Subject to compliance with requirements, provide products by one of the following manufacturers comparable to the Basis of Design product specified:
1. Tremco, Inc., Beachwood, OH, (800) 562-2728, www.tremcoroofing.com.

2.2 PERFORMANCE REQUIREMENTS

- A. General Performance: Metal roof panels shall comply with performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction.
- B. Delegated Design: Design metal roof panel assembly, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- C. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- D. Energy Performance: Provide roof panels with solar reflectance index not less than 29 when calculated according to ASTM E 1980 based on testing identical products by a qualified testing agency.
- E. Energy Performance: Provide roof panels that are listed on the U.S. Department of Energy's ENERGY STAR Roof Products Qualified Product List for steep-slope roof products.
- F. Energy Performance: Provide roof panels with initial solar reflectance not less than 0.70 and emissivity not less than 0.75 when tested according to ANSI/CRRC-1.

- G. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with ASCE-7 for wind-uplift-resistance class indicated.
 - 1. Uplift Rating: ASCE-7.
- H. Hail Resistance: Provide metal roof panel assemblies listed with UL as Class 4 hail resistant panels.
- I. Air Infiltration: Air leakage through assembly of not more than the following when tested according to ASTM E 1680, based upon 16 inch (406 mm) wide panel:
 - 1. Maximum 0.0001 cfm/sq. ft. (0.001 L/s x sq. m) of roof area at test-pressure difference of-1.57lbf/sq. ft. (-75.2 Pa).
 - 2. Maximum 0.0028 cfm/sq. ft.(.014 L/sx sq. m) of roof area at test-pressure difference of-20.00lbf/sq. ft. (-958 Pa).
- J. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 1646 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 20.00 lbf/sq. ft. (958Pa).
- K. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E 2140.
- L. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.3 ARCHITECTURAL STANDING-SEAM METAL ROOF PANELS

- A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.
 - 1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E 1514.
- B. Vertical-Rib, Seamed-Joint, Standing-Seam Metal Roof Panels: Factory-formed symmetrical panels with vertical ribs at panel edges and flat pan between ribs; designed for sequential installation in either direction by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels, and mechanically seaming panels together utilizing a seam cap, and configured to enable future replacement of individual panels without disturbing adjacent panels.
 - 1. Basis-of-Design Product: Tremco, Inc., TremLock T-138.

2. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Class AZ50 coating designation, Grade 50; structural quality.
 - a. Thickness: 0.0236-inch/24 ga. (0.71-mm) minimum thickness.
 - b. Surface: Smooth, flat finish.
 - c. Exposed Coil-Coated Finish: 2-Coat Fluoropolymer.
 - d. Exposed Finish: Exposed metallic coating.
 - e. Color: As selected by Owner from manufacturer's standard colors.
3. Clips: Low-movement floating clips to accommodate thermal movement; fixed clips that accommodate thermal movement; continuous clips as required to meet performance requirements; and with bearing plate where required.
 - a. Material: 0.064-inch- (1.63-mm-) nominal thickness, zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet.
4. Joint Type: Field mechanically seamed.
5. Seam Cap: Match panel material and finish; provide with two rows of integral factory hot-applied sealant.
6. Panel Pan Configuration: Flat pan.
7. Panel Seam Height: Not less than 1-3/8 inch (34.9 mm).
8. Panel Coverage: 16 inches.

2.4 METAL ROOF ACCESSORIES

- A. Metal Roof Accessories, General: Provide components approved by roof panel manufacturer and as required for a complete metal roof panel assembly including trim, copings, fasciae, corner units, ridge closures, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal roof panels unless otherwise indicated.
 1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal roof panels.
- B. Panel Sealants: Provide one of the following identical to that used in test panels meeting performance requirements:
 1. Sealant Tape: Pressure-sensitive, 99 percent solids, gray polyisobutylene or butyl rubber compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1 inch (25 mm) wide and 1/8 inch (3 mm) thick, with nylon spacer beads to prevent over compression of the sealant tape.
 2. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C 1311, with nylon spacer beads to prevent over compression of the sealant tape.

- C. Flashing and Trim: Formed from same material as roof panels, prepainted with coil coating, minimum 0.0326 inch (0.71 mm) thick. Provide flashing and trim as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal roof panels.
- D. Pipe Penetration Flashings: Flexible boot type, with stainless steel compression ring, and stainless-steel pipe strap. Use silicone-type boot at hot pipes.
- E. Gutters: Formed from same material roof panels. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- (2400-mm-) long sections, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Furnish gutter supports spaced a maximum of 36 inches (900 mm) o.c., fabricated from same metal as gutters. Provide wire ball strainers of compatible metal at outlets. Finish gutters to match metal roof panels.
- F. Downspouts: Formed from same material as roof panels. Fabricate in 10-foot- (3-m-) long sections, complete with formed elbows and offsets, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Finish downspouts to match gutters.
- G. Pipe Penetration Flashing: Premolded EPDM pipe collar with flexible aluminum ring bonded to base and stainless-steel pipe clamp to secure collar to pipe.
- H. Roof Curbs: Fabricated from aluminum sheet, minimum 0.080 inch (1.2 mm) thick; with bottom of skirt profiled to match roof panel profiles, and welded top box, integral internal fastener flange, and water diverter. Fabricate curb subframing of minimum 0.0598-inch- (1.5-mm-) thick, angle-, C-, or Z-shaped galvanized steel sheet. Fabricate curb and subframing to withstand indicated loads, of size and height indicated. Finish roof curbs to match metal roof panels.
 - 1. Insulate roof curb with 1-inch- (25-mm-) thick, rigid insulation.

2.5 FIELD-INSTALLED THERMAL INSULATION

- A. Faced, Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 2 glass-fiber mat, Grade 3, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, based on tests performed on unfaced core. FM Approvals 4450/4470 approved. CFC-, HCFC-, and HFC- free.
 - 1. Insulation Seam Tape: Manufacturer's recommended tape compatible with insulation facing and with adjacent air barrier transition material.

2.6 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Sheet: 30 to 40 mils (0.76 to 1.0 mm) thick minimum, consisting of slip-resisting, polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
 - 1. Thermal Stability: Stable after testing at 240 deg F (116 deg C); ASTM D 1970.

2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F (29 deg C); ASTM D 1970.
- B. Z-Shaped Furring: With slotted or non-slotted web, face flange of 1-1/4 inches (32 mm), wall attachment flange of 7/8 inch (22 mm), and depth required to fit insulation thickness indicated.
 1. Nominal Thickness: As required to meet performance requirements.
- C. Fasteners for Miscellaneous Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten miscellaneous metal framing members to substrates.

2.7 MISCELLANEOUS MATERIALS

- A. Panel Fasteners: Self-tapping screws, bolts, nuts, self-locking rivets and bolts, end-welded studs, and other suitable fasteners designed to withstand design loads. Provide exposed fasteners with heads matching color of metal roof panels by means of plastic caps or factory-applied coating. Provide EPDM, PVC, or neoprene sealing washers.

2.8 FABRICATION

- A. Fabricate and finish metal roof panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes and as necessary to fulfill indicated performance requirements. Comply with indicated profiles and with dimensional and structural requirements.
- B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.
- C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- D. Fabricate metal roof panel side laps with factory-installed captive gaskets or separator strips that provide a tight seal and prevent metal-to-metal contact, in a manner that will seal weathertight and minimize noise from movements within panel assembly.
- E. Sheet Metal Accessories: Fabricate flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of item indicated.
 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 2. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.

3. Fabricate cleats and attachment devices of size and metal thickness recommended by SMACNA's "Architectural Sheet Metal Manual" or by metal roof panel manufacturer for application, but not less than thickness of metal being secured.

2.9 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Steel Panels and Accessories:
 1. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal roof panel supports, and other conditions affecting performance of the Work.
 1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
 2. Examine solid roof substrate to verify that substrate joints are supported by framing or blocking, and that installation is within flatness tolerances required by metal roof panel manufacturer.
 3. Examine roughing-in for components and systems penetrating metal roof panels to verify actual locations of penetrations relative to seam locations of metal roof panels before metal roof panel installation.
 4. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
 5. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of substances harmful to insulation, including removing projections capable of interfering with insulation attachment.
- B. Substrate Board: Install substrate boards over roof substrate on entire roof surface. Attach with substrate-board fasteners.
 - 1. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.
 - 2. Comply with requirements for fire-rated construction.
- C. Miscellaneous Framing: Install sub purlins, eave angles, furring, and other miscellaneous roof panel support members and anchorage according to metal roof panel manufacturer's written instructions.

3.3 THERMAL INSULATION INSTALLATION

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow. Coordinate installing roofing system components, so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Extend insulation in thickness indicated to cover entire roof. Provide sizes to fit applications indicated and selected from manufacturer's standard thicknesses, widths, and lengths. Seal all joints and penetrations air- and vapor-tight.
- C. Rigid Board Insulation: Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
 - 1. Where overall insulation thickness is 2 inches (50 mm) or greater, install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction.
 - 2. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
 - 3. Seam Tape: Tape seams of board insulation to form unbroken air barrier across plane of insulation. Repair damaged facing with seam tape.

3.4 UNDERLAYMENT INSTALLATION

- A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated below, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches (150 mm) staggered 24 inches (600 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps with roller. Cover underlayment within 14 days.
 - 1. Apply over entire roof surface

- B. Install flashings to cover underlayment to comply with requirements specified in Division 07 Section "Sheet Metal Flashing and Trim."

3.5 METAL ROOF PANEL INSTALLATION, GENERAL

- A. Provide metal roof panels of full length from eave to ridge.
- B. Thermal Movement. Rigidly fasten metal roof panels to structure at one and only one location for each panel. Allow remainder of panel to move freely for thermal expansion and contraction. Predrill panels for fasteners.
 - 1. Point of Fixity: Fasten each panel along a single line of fixing located at ridge.
 - 2. Avoid attaching accessories through roof panels in a manner that will inhibit thermal movement.
- C. Install metal roof panels as follows:
 - 1. Commence metal roof panel installation and install minimum of 300 sq. ft. (27.8 sq. m.) in presence of factory-authorized representative.
 - 2. Field cutting of metal panels by torch or abrasive saw is not permitted.
 - 3. Locate and space fastenings in uniform vertical and horizontal alignment.
 - 4. Provide metal closures at rake edges, rake walls, and each side of ridge and hip caps.
 - 5. Flash and seal metal roof panels with weather closures at eaves, rakes, and perimeter of all openings.
 - 6. Install ridge and hip caps as metal roof panel work proceeds.
 - 7. End Splices: Locate panel end splices over, but not attached to, structural supports. Stagger panel end splices to avoid a four-panel splice condition.
- D. Fasteners:
 - 1. Steel Roof Panels: Use long life fasteners for surfaces exposed to the exterior and galvanized-steel fasteners for surfaces exposed to the interior.
- E. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.
- F. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.
 - 1. Use underlayment where roof panels will contact wood, ferrous metal, or cementitious construction.

- G. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal roof panel assemblies. Provide types of gaskets, fillers, and sealants indicated or, if not indicated, types recommended by metal roof panel manufacturer.
 - 1. Seal metal roof panel end laps with double beads of tape or sealant, full width of panel. Seal side joints where recommended by metal roof panel manufacturer.
 - 2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

3.6 METAL ROOF PANEL INSTALLATION

- A. Standing-Seam Metal Roof Panels: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended by manufacturer.
 - 1. Install clips to supports with self-tapping fasteners.
 - 2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
 - 3. Erection Tolerances: Shim and align metal roof panel units within installed tolerance of 1/4 inch in 20 feet (1:960) on slope and location lines as indicated and within 1/8-inch (3 mm) offset of splices and alignment of matching profiles.
 - 4. Seamed Joint: Crimp standing seams with manufacturer-approved, motorized seamer tool so clip, metal roof panel, and factory-applied sealant are completely engaged. ()
 - 5. Watertight Installation:
 - a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommended in writing by manufacturer as needed to make panels watertight.
 - b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.

3.7 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal roof panel assembly including trim, copings, ridge closures, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items.
- B. Flashing and Trim: Comply with performance requirements and manufacturer's written installation instructions. Provide concealed fasteners where possible and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Form trim and transition joints using compressed joints with captive butyl sealant capable of resisting static water pressure. Cleated joints and exposed joint sealants do not meet this requirement.
 2. Install exposed flashing and trim that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
 3. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (600 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- C. Gutters: Join sections with riveted and soldered or lapped, riveted, and sealed joints. Attach gutters to eave with gutter hangers spaced not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.
- D. Downspouts: Join sections with telescoping joints. Provide fasteners designed to hold downspouts securely 1-inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1500 mm) o.c. in between.
1. Provide elbows at base of downspouts to direct water away from building.
 2. Connect downspouts to underground drainage system indicated.
- E. Roof Curbs: Install curbs at locations indicated on Drawings. Install flashing around bases where they meet metal roof panels.
- F. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.
- G. Bar-Type Snow Guards: Attach bar supports to vertical ribs of standing-seam metal roof panels with clamps or set screws in array recommended by snow guard manufacturer. Do not use fasteners that will penetrate metal roof panels.
- 3.8 FIELD QUALITY CONTROL
- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform substrate examination, interim observations, and final roof inspections, and to prepare reports.
 - B. Manufacturer's Technical Representative: Engage a qualified manufacturer's technical representative acceptable to Owner for a minimum of five full-time days on site to perform substrate examination, interim observations, and final roof inspections, and to prepare reports.
 - C. Remove and replace applications of metal roof panels where inspections indicate that they do not comply with specified requirements.

- D. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.9 CLEANING

- A. Remove temporary protective coverings and strippable films, if any, as metal roof panels are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of metal roof panel installation, clean finished surfaces as recommended by metal roof panel manufacturer. Maintain in a clean condition during construction.
- B. Replace metal roof panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074113.06

ROOF DIAGNOSTIC SURVEY FOR KANSAS CITY KANSAS PUBLIC SCHOOLS

SUMMER ACADEMY OF ARTS AND SCIENCE

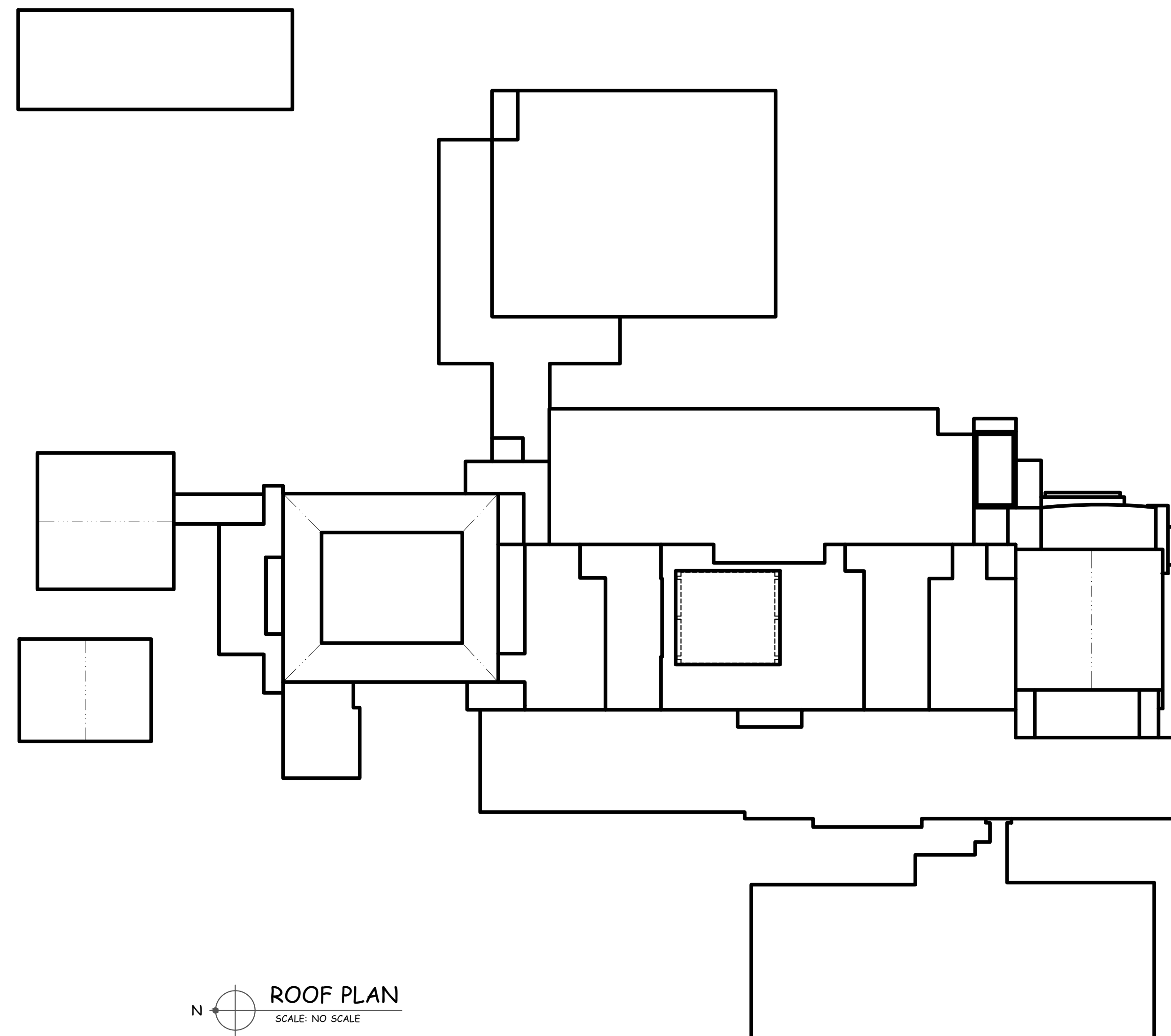
1610 NORTH 8TH STREET - KANSAS CITY, KANSAS

DRAWINGS

TITLE PAGE

SA A-S1
SA A-S2

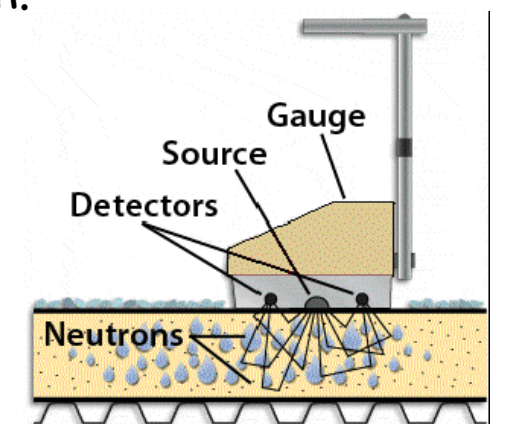
COMPOSITE ROOF PLAN
MOISTURE SURVEY -
ROOFS 12 & 25,
PHOTO, CONSTRUCTION DATA
& ROOF AREA DATA



How A Moisture Meter Works:

During the daytime, a 10'x10' or 5'x5' grid pattern is marked on the roof surface. Readings are taken and recorded at each grid intersection.

Fast neutrons are emitted from the source in the Roof Moisture Meter into the roof system. The presence of hydrogen in the roof system slows the neutrons. These slowed neutrons as well as the fast neutrons are detected by the Roof Moisture Meter. A reading is displayed in the digital readout and gets recorded.



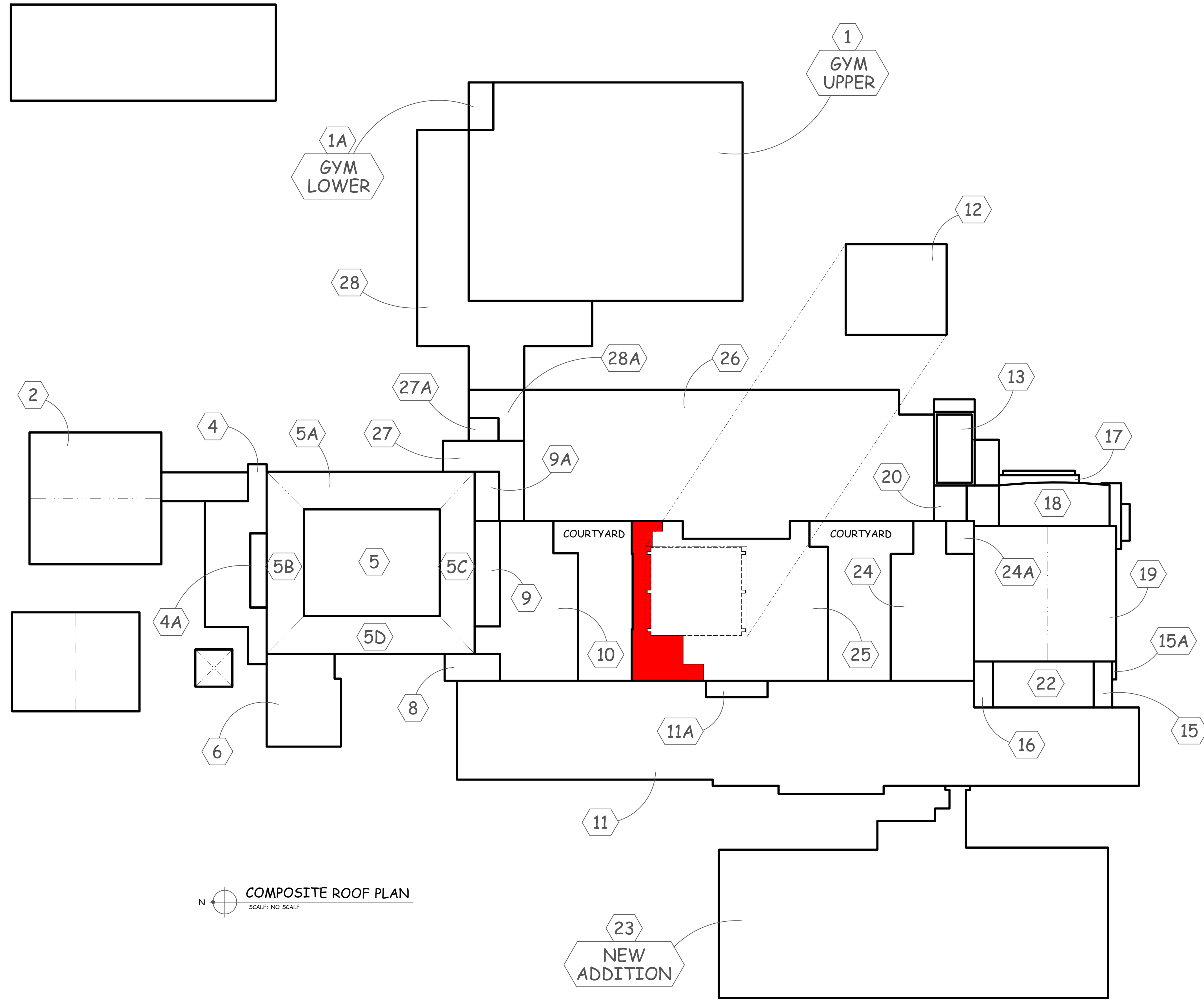
Core cuts are taken to determine a baseline for dry roof materials. Then wet roof areas are marked on the roof surface with visible paint markings.



Roofing & Building Maintenance

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COMPOSITE ROOF PLAN
SCALE: NO SCALE

STANDARD KEY OF SYMBOLS	
# ROOF SECTION	P-# PHOTO
▲ DRY CORE	T-# THERMOGRAM
▲ WET CORE	N.A.F. (NO ANOMALIES FOUND)
■ N.I.C.	■ WET INSULATION
□ MOISTURE GRID	⊠ R.I.M. (RANDOM INTERMITTENT MOISTURE)
⊠ TRACE CORE	⊕ MOISTURE READING



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KANSAS CITY, KANSAS

DIAGNOSTIC TECHNICIAN: B. DONALDSON	PROJECT NO.: 9743560
DRAWN BY: WB	SHEET NO.: SA A-S1
DATE: 12/06/2022	

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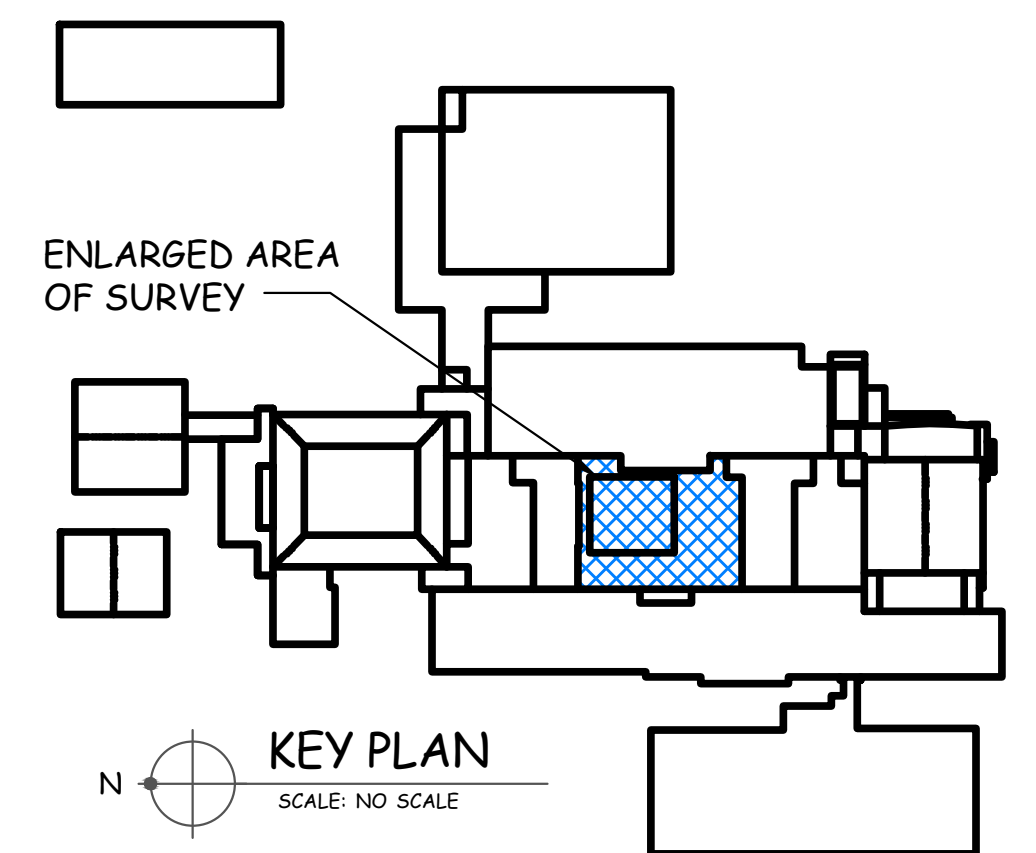
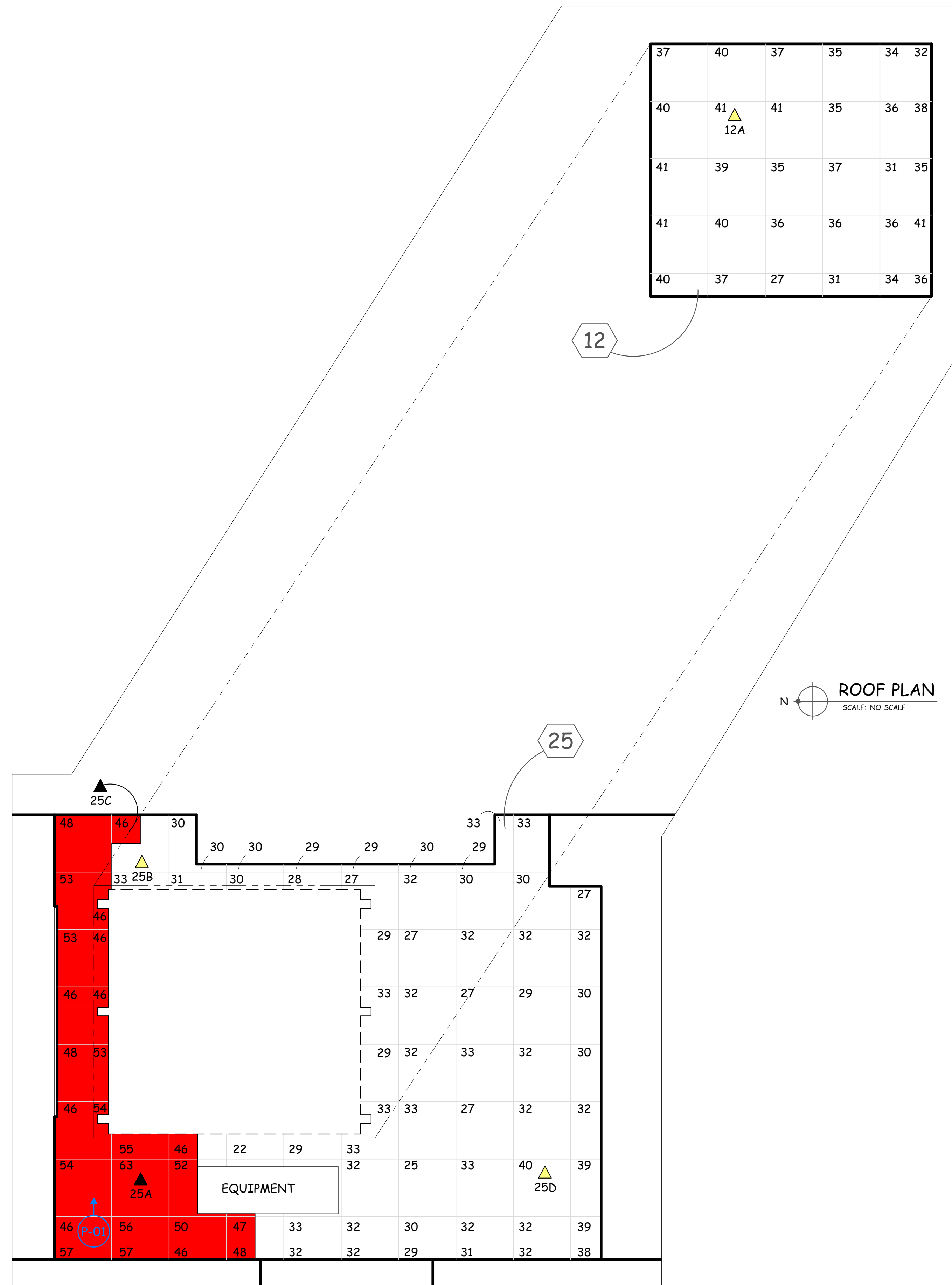


Photograph P-01

CONSTRUCTION DATA				
ROOF SECTION	CORE CUT NUMBER	MOISTURE READING	MOISTURE PERCENTAGE	ROOF CONSTRUCTION
12	12A	41	0%	MODIFIED ROOF SYSTEM W/ GRANULES
			0%	BUILT-UP-ROOF
			0%	1/2" WOODFIBER INSULATION
			0%	3/4" BUILT-UP-ROOF
			0%	1/2" WOODFIBER INSULATION
			0%	CONCRETE DECK
25	25A	63	0%	MODIFIED ROOF SYSTEM W/ GRANULES
			0%	BUILT-UP-ROOF
			0%	1/2" WOODFIBER INSULATION
			0%	3/4" BUILT-UP-ROOF
			90%	1/2" WOODFIBER INSULATION
			0%	CONCRETE DECK
25	25B	33	0%	MODIFIED ROOF SYSTEM W/ GRANULES
			0%	BUILT-UP-ROOF
			0%	1/2" WOODFIBER INSULATION
			0%	3/4" BUILT-UP-ROOF
			90%	1/2" WOODFIBER INSULATION
			0%	CONCRETE DECK
25	25C	46	0%	MODIFIED ROOF SYSTEM W/ GRANULES
			0%	BUILT-UP-ROOF
			0%	1/2" WOODFIBER INSULATION
			0%	3/4" BUILT-UP-ROOF
			90%	1/2" WOODFIBER INSULATION
			0%	CONCRETE DECK
25	25D	40	0%	MODIFIED ROOF SYSTEM W/ GRANULES
			0%	BUILT-UP-ROOF
			0%	1/2" WOODFIBER INSULATION
			0%	3/4" BUILT-UP-ROOF
			0%	1/2" WOODFIBER INSULATION
			0%	CONCRETE DECK

THE MOISTURE PERCENTAGES ARE INTENDED TO BE USED AS A QUALITATIVE MEASUREMENT RATHER THAN AN EXACT READING.

ROOF AREA DATA			
ROOF SECTION	SIZE (S.F.)	WET (S.F.)	% WET
12	2,156	0	0.00%
25	4,917	1,156	23.51%
TOTALS	7,073	1,156	16.34%



STANDARD KEY OF SYMBOLS			
# ROOF SECTION	P-# PHOTO	WET INSULATION	N.I.C.
▲ DRY CORE	T-# THERMOGRAM	R.I.M. (RANDOM INTERMITTENT MOISTURE)	MOISTURE GRID
▲ WET CORE	N.A.F. (NO ANOMALIES FOUND)	TRACE CORE	MOISTURE READING



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